The MINOR PLANET CIRCULARS/MINOR PLANETS AND COMETS are published, on behalf of Commission 20 of the International Astronomical Union, usually in batches on the date of each full moon, by:

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TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
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EDITORIAL NOTICE.

The fifth edition of the 'Catalogue of Cometary Orbits', a joint publication of the Minor Planet Center and the Central Bureau for Astronomical Telegrams, is now available. The 102-page book, which is in the same general form as the 1982 edition, contains 1187 sets of orbital elements calculated up to the end of 1985 December. Subscribers to the MPCs may purchase the new edition for $6.00 (half the cost to nonsubscribers), and arrangements can be made to debit an MPC subscription account accordingly. The basic part of the catalogue (including a direct reference to the comet names) can also be purchased in the form of seven ASCII files on a diskette; the diskette also contains (compiled) computer programs to extract specific orbits from the catalogue and to generate ephemerides, either from such orbits or from similar user-prepared data. The diskette is being issued in IBM-PC DOS 2.0 double-sided, double-density format (and it should be noted that the computer programs require an 8087 mathematical coprocessor) for $100.00 or in VAX/VMS format (either 8-inch or 5.25-inch, double density for $150.00. A magnetic-tape version (without programs) costs $250.00.

The next MPCs will be published on or about March 26. No MPCs will be issued in February.

* * * * *

ERRATA.

| MPC | Line | | |
|---|---|---|---|
| 10293 | 23 | For | 950918 read 850918 |
| 10295 | -18 | Add | The identification is by T. Furuta (JAM 1946). |
| 10297 | - 1 | Add | The 1985 observations were identified by E. Bowell. |
| 10302 | -13 | Add | The identifications were found independently by K. Hurukawa. |
| 10305 | -28 | Add | The identifications are by L. D. Schmadel (MPC 7779). |
| 10309 | 20 | Add | The 1985 observations were identified by E. Bowell. |

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

| Object | Date | UT | R. A. (1950) | Decl. | Reference | Mag. | N Obs. |
|---|---|---|---|---|---|---|---|
| 1974 UE * | 1974 10 | 24.94713 | 01 51 50.09 | -04 40 47.0 | MPC 4120 | 16.5 | 095 |
| 1985 JY1 | 1985 05 | 14.34444 | 14 57 45.32 | -24 58 27.4 | MPC10064 | | 675 |
| 1985 RY * | 1985 09 | 16.28541 | 22 52 16.80 | +28 20 44.0 | MPC10092 | 15 | 1 675 |
| 1985 RY | 1985 09 | 16.31336 | 22 52 15.26 | +28 20 39.5 | MPC10092 | | 1 675 |

Note 1: date originally given as one day earlier.

IDENTIFICATION CHANGES.

Continuation to MPC 10195.

| Object | Date | UT | R. A. (1950) | Decl. | Old desig. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 1934 RH1 * | 1934 09 | 14.89169 | 22 48 38.05 | -07 30 48.0 | 1934 RC | | 012 |
| 1975 VL10* | 1975 11 | 06.81727 | 01 16 28.57 | +03 29 54.0 | 1975 TW2 | 17.5 | 095 |

* * * * *

ROMAN NUMERAL DESIGNATIONS OF COMETS IN 1984.

The following tabulation continues that on MPC 9389-9390. Comet 1984 XII is a sungrazing comet that was not given a provisional designation. The designation 1981 XXI has been given belatedly to another such object.

| Comet | T | Name | Year/letter | Ref. |
|---|---|---|---|---|
| 1984 I | Jan. 6.0 | P/Russell 4 | 1984d | MPC 9304 |
| 1984 II | Jan. 6.6 | P/Taylor | 1983u | IAUC 3889 |
| 1984 III | Jan. 8.7 | P/Hartley-IRAS | 1983v | MPC 9304 |
| 1984 IV | Feb. 20.2 | P/Crommelin | 1983n | MPC 9213 |
| 1984 V | Feb. 21.4 | P/Smirnova-Chernykh | | NK 445 |
| 1984 VI | Mar. 27.7 | P/Encke | | MPC 7455 |
| 1984 VII | May 24.9 | P/Takamizawa | 1984j | MPC 9211 |
| 1984 VIII | May 29.1 | P/Clark | 1983w | MPC 7658 |
| 1984 IX | May 31.8 | P/Wolf | 1983m | IAUC 3850 |
| 1984 X | June 7.6 | P/Kowal-Mrkos | 1984n | MPC 9211 |
| 1984 XI | July 9.9 | P/Faye | 1984h | IAUC 3956 |
| 1984 XII | July 28.5 | (SOLWIND 5) | | IAUC 4129 |
| 1984 XIII | Aug. 12.1 | Austin | 1984i | MPC 9425 |
| 1984 XIV | Aug. 20.2 | P/Wild 2 | 1983s | IAUC 3867 |
| 1984 XV | Sept. 3.7 | Shoemaker | 1984r | MPC 10156 |
| 1984 XVI | Sept. 16.6 | P/Shoemaker 1 | 1984q | MPC 9425 |
| 1984 XVII | Sept. 22.8 | P/Wolf-Harrington | 1984g | IAUC 3952 |
| 1984 XVIII | Sept. 26.7 | P/Shoemaker 2 | 1984u | MPC 9351 |
| 1984 XIX | Oct. 8.2 | P/Neujmin 1 | 1984c | IAUC 3920 |
| 1984 XX | Oct. 13.9 | Meier | 1984o | MPC 9212 |
| 1984 XXI | Dec. 1.4 | P/Arend-Rigaux | 1984k | IAUC 3972 |
| 1984 XXII | Dec. 6.5 | P/Schaumasse | 1984m | IAUC 3987 |
| 1984 XXIII | Dec. 14.3 | Levy-Rudenko | 1984t | MPC 9685 |

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. 0.38-m f/11 astrograph. Observers J. M. Codina, J. Nunez, M. Hernandez, M. Moreno, A. M. Heras and N. Torras.
012 Uccle. Double astrograph. Observers H. Debehogne and T. Pauwels.
017 Hoher List. 0.30-m f/5 astrograph. Observers A. Haenel, D. Geffert and M. Geffert.
020 Nice. Observer D. Benest. Measured by B. Milet.
022 Pino Torinese. Observers W. Ferreri (0.20-m astrograph) and G. Massone (0.38-m photographic refractor).
024 Heidelberg. Observers H. Mandel and M. Gorze. Measured by Mandel and

J. Schiffer, reduced by S. Roser.
033 Tautenburg. 1.34/2.00/4.00-m Schmidt. Observers F. Borngen, F. Ludwig and G. Tanzer. Reductions by Borngen.
045 Vienna. Observer Jackson. Measured by G. Polnitzky.
046 Klet. Observer A. Mrkos.
047 Poznan. 0.30-m f/5 astrograph. Observer H. H. Hurnik.
051 Cape. Observers J. Churms and G. Roberts.
056 Skalnate Pleso Observatory. 0.3-m f/5 astrograph. Observers G. Cervak, J. Svoren and P. Rychtarcik.
057 Belgrade. Observers V. Protitch-Benishek and D. Olevic.
061 Uzhgorod. Observers A. B. Gvardionov, I. I. Goroshchak, N. D. Polishchuk, S. I. Ignatovich and T. Y. Galas.
069 Baldone. Observers I. E. Eglitis, V. Ozolinya, A. K. Alksnis, I. I. Urgitis and E. K. Grasberg.
071 Bulgarian National Observatory. Observers V. Ivanova, V. Shkodrov, A. Georgieva and H. Cirova.
073 Bucharest. 0.38-m astrograph. Observers G. Bocsa and A. Alexiu.
083 Golosseevo-Kiev. Observers E. Izhakevich, Y. I. Safronov, E. M. Sereda, Y. N. Ivashchenko, I. Ledovskaya, V. V. Golovnya and S. Kaltygina.
084 Pulkovo. Observers N. M. Bronnikova, A. A. Kiselev and S. A. Lepeshnikova.
085 Kiev. Observers K. I. Churyumov and V. V. Telnyuk.
086 Odessa. Observer I. S. Shestaka.
089 Nikolaev. Observers N. Kalinenkov, G. K. Gorel and V. I. Voronenko.
091 St. Etienne. 0.41-m reflector. Observer R. Chanal.
093 Skibotn. Observers J.-E. Solheim, K. Henriksen, O. Havnes and K. Aksnes.
095 Crimea-Nauchnij. Observers N. S. Chernykh, L. V. Zhuravleva, L. I. Chernykh, T. M. Smirnova, V. D. D'yakonova and L. G. Karachkina.
099 Lahti. 0.3-m reflector. Observer J. Salmi. Measured by A. Niemi. Long. and Parallax 25.53, -206, -372 (see MPC 7759).
101 Kharkov. Observer P. P. Pavlenko.
102 Zvenigorod. Observers N. Bakhtigaraev, B. Burg and V. P. Osipenko.
114 Engelhardt Observatory, Zelenchukskaya Station. Observers V. N. Kitkin and I. E. Zelishchev.
119 Abastuman. Observers G. A. Majsuradze and R. Y. Inasaridze.
123 Byurakan. Observer L. G. Akhverdyan.
129 Ordubad. Observers V. V. Bobylev, Y. A. Shokin, S. B. Novikov, A. A. Kiselev and S. V. Tolbin.
136 Engelhardt Observatory, Kasan. Observers I. E. Zelishchev and S. S. Tokhtasyev.
168 Kourovskaya. Observers S. N. Timofeev, T. I. Levitskaya, O. G. Yuminov, A. E. Vasilevskij, E. V. Zvonareva, A. P. Ryazanov, G. M. Sobolenko, O. G. Yuminova, N. D. Kalinina, G. T. Kajzer and K. A. Barkhatova.
186 Kitab. Observers E. Mirmakhmudov, M. Kamalov, N. Kadyrova, G. Saidov, E. Rakhmatov, E. Pattakhov and E. Khamidov.
188 Shokin Majdanak. Observers S. B. Novikov and Yu. A. Shokin.
190 Gissar. Observer S. I. Gerasimenko.
192 Tashkent. Observers A. Rakhimov, S. Azizov and T. Khamidov.
210 Alma-Ata. Observers D. A. Rozhkovskij, K. I. Churyumov, H. Meleev, N. S. Gorodetskaya and D. I. Gorodetskij.
293 Burlington remote site. Observer T. Handley.
302 University of the Andes Astronomical Station, Merida. 0.35-m f/1.8 Schmidt telescope. Observer I. Ferrin. Measured by R. Telleria. Long. and Parallax 288.88, -422, -064 (see MPC 7759).
303 Merida. 1-m telescope. Observers J. Stock, F. Moreno and C. Abad.
323 Perth. Observers M. P. Candy, G. Kinnear, P. Jekabsons and J.

Johnston.
330 Purple Mountain Observatory. Observers J.-x. Yang, J.-h. Lu, S.-l. Wei, Q. Wang, W. Wang and D.-c. Wang. Communicated by J.-x. Zhang.
334 Tsingtao. Observers S.-s. Sun, W.-q. Song, Y.-j. Shao, Y.-q. Huei, Z.-l. Wang, X.-y. Ma, Y.-q. Huei and B.-l. Zhang.
337 Zo-Se. Observer J.-l. Zhao.
391 Sendai Observatory, Ayashi Station. 0.20-m reflector. Observer M. Koishikawa. Measured by Koishikawa, T. Tsumagari and S. Kasahara.
415 Kambah, near Canberra. Observer D. Herald.
482 St. Andrews. Observer J. R. Stapleton.
491 Yebes. Observers M. de Pascual, J. Garcia and C. Cabanas.
493 Calar Alto. Observer K. Birkle. Measured and reduced by S. Roser, G. Klare and U. Bastian.
494 Stakenbridge. Observer B. Manning.
500 The geocentric code is given to observations from the SOLWIND satellite P78-1.
502 Colchester. 0.25-m f/7 reflector. Observer M. J. Hendrie.
503 Cambridge. Observers A. N. Argue and J. D. Shanklin. Measured by Shanklin.
552 Osservatorio S. Vittore. Observers C. Vacchi and G. Sassi. Measured by V. Goretti, reduced by E. Colombini.
553 Chorzow. Observer I. Wlodarczyk.
555 Cracow-Fort Skala. Observers M. Winiarski and M. Kurpinska-Winiarska.
556 Reintal. 0.30-m f/6 reflector. Observer F. Seiler. Communicated by F. Frevert.
565 Bassano Bresciano. 0.15-m astrometric reflector. Observers U. Quadri and V. Marinello.
571 Cavriana. Observers L. Lai, I. Ronchetti, M. Ruzza and G. Vesentini.
575 La Chaux de Fonds. Observer A. R. Behrend.
576 Burwash. 0.57-m reflector stopped down to 0.46-m f/6. Observer A. Young. Reduction by staff of Royal Greenwich Observatory. Communicated by G. M. Hurst and P. Birtwhistle.
577 Metzerlen Observatory. 0.40-m Schmidt telescope. Observer C. F. Trefzger. Measured by P. Wild. Long. and Parallax 7.50, -289, -313 (see MPC 7759).
657 Victoria. Observers J. B. Tatum and D. D. Balam.
662 Lick Observatory. Observer B. F. Jones.
675 Palomar. 0.46-m Schmidt. Observers C. S. and E. M. Shoemaker.
688 Lowell Observatory, Anderson Mesa station. Observer B. A. Skiff, measured by S. J. Bus and E. L. G. Bowell.
691 University of Arizona, Kitt Peak. 0.91-m reflector, CCD in scanning mode. Observer J. V. Scotti.
707 Chamberlin field station. Observer J. Briggs. Measured by Briggs and E. Everhart.
711 McDonald Observatory. Observer M. L. Frueh. Measured by P. Sada and S. Gonzaga.
788 Mount Cuba Observatory. Observers R. F. Stock, Jackson and Bock.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
805 Cerro el Roble. Observer C. Torres.
808 El Leoncito. Observers M. R. Cesco, C. E. Lopez, J. G. Sanguin and J. Vicentela.
820 Tarija. Observer H. I. Potter. Long. and Parallax 295.37, -397, +156 (see MPC 7759).
893 Sendai Observatory. 0.41-m reflector. Observer T. Yusa. Measured by T. Tsumagari and M. Koishikawa. Communicated by S. Nakano.
978 Condor Brow. Observers D. G. Buczynski and J. D. Greenwood. 0.47-m reflector. Measured by Buczynski.
984 Eastfield. 0.14-m f/5 astrograph. Observer H. B. Ridley. Measured by

D. G. Buczynski and M. J. Hendrie.
996 Oxford. 0.30-m f/5 reflector. Observer G. Waddington.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| | | Periodic Comet Tuttle | | | | | |
| /1980 XIII | 1981 | 01 05.83542 | 12 17 54.76 | -72 06 56.0 | | | 323 |
| /1980 XIII | 1981 | 01 13.83021 | 12 59 28.61 | -77 35 32.4 | | | 323 |
| /1980 XIII | 1981 | 01 14.74062 | 13 05 13.74 | -78 06 03.0 | | | 323 |
| /1980 XIII | 1981 | 01 21.83854 | 13 59 30.07 | -81 22 06.9 | | | 323 |
| /1980 XIII | 1981 | 01 22.83863 | 14 08 39.46 | -81 44 04.5 | | | 323 |
| /1980 XIII | 1981 | 01 27.83923 | 15 00 28.56 | -83 14 11.1 | | | 323 |
| /1980 XIII | 1981 | 02 09.85382 | 17 40 50.66 | -84 53 50.7 | | | 323 |
| /1980 XIII | 1981 | 02 12.83611 | 18 14 12.55 | -84 57 37.7 | | | 323 |
| /1980 XIII | 1981 | 02 28.80208 | 20 15 20.52 | -84 56 35.6 | | | 323 |
| | | Comet 1981 XXI | | | | | |
| /1981 XXI | 1981 | 11 03.999 | 14 29.52 | -17 42.2 | | | 500 |
| /1981 XXI | 1981 | 11 04.038 | 14 30.05 | -17 31.2 | | | 500 |
| /1981 XXI | 1981 | 11 04.105 | 14 31.23 | -17 15.4 | | | 500 |
| /1981 XXI | 1981 | 11 04.171 | 14 32.32 | -17 00.6 | | | 500 |
| /1981 XXI | 1981 | 11 04.238 | 14 33.52 | -16 42.6 | | | 500 |
| /1981 XXI | 1981 | 11 04.304 | 14 34.31 | -16 25.9 | | | 500 |
| /1981 XXI | 1981 | 11 04.371 | 14 35.40 | -16 08.3 | | | 500 |
| | | Periodic Comet Halley | | | | | |
| /1982i | 1985 | 08 27.39719 | 06 06 38.71 | +19 16 59.3 | | | 302 |
| /1982i | 1985 | 09 12.02951 | 06 11 59.25 | +19 32 10.4 | | | 099 |
| /1982i | 1985 | 09 14.17778 | 06 12 24.08 | +19 34 37.8 | | | 491 |
| /1982i | 1985 | 09 15.35538 | 06 12 35.62 | +19 36 04.3 | | | 302 |
| /1982i | 1985 | 09 16.09281 | 06 12 41.81 | +19 36 57.1 | | | 086 |
| /1982i | 1985 | 09 17.04375 | 06 12 48.55 | +19 38 07.1 | | | 099 |
| /1982i | 1985 | 09 19.00516 | 06 12 58.61 | +19 40 42.8 | | | 086 |
| /1982i | 1985 | 09 19.01766 | 06 12 58.58 | +19 40 42.9 | | | 086 |
| /1982i | 1985 | 09 19.02947 | 06 12 58.66 | +19 40 45.4 | | | 086 |
| /1982i | 1985 | 09 19.04075 | 06 12 58.70 | +19 40 47.3 | | | 086 |
| /1982i | 1985 | 09 19.06373 | 06 12 58.69 | +19 40 48.1 | | | 086 |
| /1982i | 1985 | 09 19.98133 | 06 13 01.28 | +19 42 02.0 | | | 086 |
| /1982i | 1985 | 09 20.00361 | 06 13 01.33 | +19 42 05.5 | | | 086 |
| /1982i | 1985 | 09 20.08521 | 06 13 01.47 | +19 42 12.4 | | | 086 |
| /1982i | 1985 | 09 20.99178 | 06 13 02.49 | +19 43 28.5 | | | 086 |
| /1982i | 1985 | 09 21.08368 | 06 13 02.45 | +19 43 36.7 | | | 086 |
| /1982i | 1985 | 10 04.09097 | 06 10 12.04 | +20 07 05.4 | | | 086 |
| /1982i | 1985 | 10 09.03576 | 06 07 07.52 | +20 19 22.7 | | | 093 |
| /1982i | 1985 | 10 15.14992 | 06 01 05.25 | +20 37 52.1 | | | 491 |
| /1982i | 1985 | 10 16.02778 | 05 59 58.09 | +20 40 51.5 | 11.0T | | 033 |
| /1982i | 1985 | 10 16.13264 | 05 59 49.71 | +20 41 13.5 | | | 033 |
| /1982i | 1985 | 10 16.94479 | 05 58 43.39 | +20 44 01.2 | | | 099 |
| /1982i | 1985 | 10 17.16458 | 05 58 24.28 | +20 44 51.7 | | | 045 |
| /1982i | 1985 | 10 19.05556 | 05 55 32.00 | +20 51 50.6 | | | 089 |
| /1982i | 1985 | 10 19.08523 | 05 55 29.03 | +20 51 56.6 | | | 089 |
| /1982i | 1985 | 10 19.98750 | 05 53 58.48 | +20 55 25.5 | | | 033 |
| /1982i | 1985 | 10 20.15521 | 05 53 40.80 | +20 56 05.4 | | | 033 |
| /1982i | 1985 | 10 20.18264 | 05 53 37.78 | +20 56 12.3 | | | 033 |
| /1982i | 1985 | 10 20.99236 | 05 52 10.61 | +20 59 24.4 | | | 033 |
| /1982i | 1985 | 10 21.10376 | 05 51 58.07 | +20 59 50.8 | | | 086 |
| /1982i | 1985 | 10 21.15660 | 05 51 52.01 | +21 00 04.6 | | | 045 |
| /1982i | 1985 | 10 21.16667 | 05 51 50.84 | +21 00 06.8 | | | 033 |
| /1982i | 1985 | 10 21.19410 | 05 51 47.72 | +21 00 13.0 | | | 577 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| /1982i | 1985 | 10 | 21.95799 | 05 | 50 | 19.89 | +21 | 03 | 18.7 | 033 |
| /1982i | 1985 | 10 | 22.07639 | 05 | 50 | 05.62 | +21 | 03 | 48.5 | 033 |
| /1982i | 1985 | 10 | 22.15694 | 05 | 49 | 55.82 | +21 | 04 | 10.6 | 10.5T 033 |
| /1982i | 1985 | 10 | 23.13889 | 05 | 47 | 53.77 | +21 | 08 | 15.4 | 045 |
| /1982i | 1985 | 10 | 24.02744 | 05 | 45 | 56.71 | +21 | 12 | 04.4 | 047 |
| /1982i | 1985 | 10 | 24.12604 | 05 | 45 | 43.30 | +21 | 12 | 30.2 | 045 |
| /1982i | 1985 | 10 | 25.13333 | 05 | 43 | 20.73 | +21 | 16 | 55.7 | 045 |
| /1982i | 1985 | 10 | 26.10486 | 05 | 40 | 54.24 | +21 | 21 | 15.3 | 045 |
| /1982i | 1985 | 10 | 26.11424 | 05 | 40 | 53.06 | +21 | 21 | 14.6 | 045 |
| /1982i | 1985 | 10 | 27.10660 | 05 | 38 | 13.18 | +21 | 25 | 48.0 | 045 |
| /1982i | 1985 | 10 | 27.11701 | 05 | 38 | 11.43 | +21 | 25 | 50.3 | 045 |
| /1982i | 1985 | 11 | 03.92241 | 05 | 10 | 04.77 | +22 | 00 | 11.4 | 085 |
| /1982i | 1985 | 11 | 03.95647 | 05 | 09 | 55.49 | +22 | 00 | 23.4 | 085 |
| /1982i | 1985 | 11 | 04.06389 | 05 | 09 | 25.53 | +22 | 00 | 45.1 | 045 |
| /1982i | 1985 | 11 | 04.74965 | 05 | 06 | 11.41 | +22 | 03 | 26.9 | 323 |
| /1982i | 1985 | 11 | 04.77431 | 05 | 06 | 04.14 | +22 | 03 | 32.6 | 323 |
| /1982i | 1985 | 11 | 04.83671 | 05 | 05 | 46.43 | +22 | 03 | 31.9 | 085 |
| /1982i | 1985 | 11 | 04.83924 | 05 | 05 | 45.38 | +22 | 03 | 30.3 | 093 |
| /1982i | 1985 | 11 | 04.89251 | 05 | 05 | 29.89 | +22 | 03 | 45.1 | 085 |
| /1982i | 1985 | 11 | 04.93088 | 05 | 05 | 19.10 | +22 | 03 | 53.0 | 085 |
| /1982i | 1985 | 11 | 05.67674 | 05 | 01 | 35.24 | +22 | 06 | 33.5 | 323 |
| /1982i | 1985 | 11 | 05.70000 | 05 | 01 | 28.16 | +22 | 06 | 37.7 | 323 |
| /1982i | 1985 | 11 | 05.72188 | 05 | 01 | 21.28 | +22 | 06 | 42.6 | 323 |
| /1982i | 1985 | 11 | 05.73542 | 05 | 01 | 17.00 | +22 | 06 | 44.7 | 323 |
| /1982i | 1985 | 11 | 05.80903 | 05 | 00 | 54.15 | +22 | 06 | 59.0 | 323 |
| /1982i | 1985 | 11 | 06.74904 | 04 | 55 | 54.63 | +22 | 09 | 29.8 | 337 |
| /1982i | 1985 | 11 | 07.06528 | 04 | 54 | 09.76 | +22 | 10 | 14.6 | 045 |
| /1982i | 1985 | 11 | 07.07014 | 04 | 54 | 08.10 | +22 | 10 | 16.5 | 045 |
| /1982i | 1985 | 11 | 07.07917 | 04 | 54 | 05.27 | +22 | 10 | 17.2 | 045 |
| /1982i | 1985 | 11 | 08.03958 | 04 | 48 | 33.86 | +22 | 12 | 16.9 | 045 |
| /1982i | 1985 | 11 | 08.04444 | 04 | 48 | 32.10 | +22 | 12 | 17.8 | 045 |
| /1982i | 1985 | 11 | 08.07693 | 04 | 48 | 20.31 | +22 | 12 | 21.7 | 071 |
| /1982i | 1985 | 11 | 08.21157 | 04 | 47 | 32.68 | +22 | 12 | 45.0 | 820 |
| /1982i | 1985 | 11 | 08.21597 | 04 | 47 | 30.88 | +22 | 12 | 46.9 | 820 |
| /1982i | 1985 | 11 | 08.87510 | 04 | 43 | 29.98 | +22 | 13 | 26.5 | 071 |
| /1982i | 1985 | 11 | 08.93507 | 04 | 43 | 07.08 | +22 | 13 | 31.6 | 071 |
| /1982i | 1985 | 11 | 09.02640 | 04 | 42 | 32.65 | +22 | 13 | 34.7 | 047 |
| /1982i | 1985 | 11 | 09.09288 | 04 | 42 | 07.04 | +22 | 13 | 38.2 | 071 |
| /1982i | 1985 | 11 | 09.22593 | 04 | 41 | 16.82 | +22 | 13 | 55.6 | 820 |
| /1982i | 1985 | 11 | 09.23092 | 04 | 41 | 14.87 | +22 | 13 | 55.5 | 820 |
| /1982i | 1985 | 11 | 09.73228 | 04 | 38 | 00.53 | +22 | 14 | 01.5 | 337 |
| /1982i | 1985 | 11 | 09.87796 | 04 | 37 | 03.67 | +22 | 14 | 00.2 | 071 |
| /1982i | 1985 | 11 | 10.20602 | 04 | 34 | 51.64 | +22 | 14 | 07.3 | 820 |
| /1982i | 1985 | 11 | 10.20940 | 04 | 34 | 50.17 | +22 | 14 | 09.7 | 820 |
| /1982i | 1985 | 11 | 10.86603 | 04 | 30 | 19.90 | +22 | 13 | 30.5 | 071 |
| /1982i | 1985 | 11 | 10.94372 | 04 | 29 | 46.89 | +22 | 13 | 23.3 | 996 |
| /1982i | 1985 | 11 | 10.94751 | 04 | 29 | 45.13 | +22 | 13 | 23.9 | 996 |
| /1982i | 1985 | 11 | 11.71533 | 04 | 24 | 13.04 | +22 | 12 | 09.0 | 337 |
| /1982i | 1985 | 11 | 11.83721 | 04 | 23 | 19.66 | +22 | 11 | 49.2 | 071 |
| /1982i | 1985 | 11 | 11.93607 | 04 | 22 | 35.16 | +22 | 11 | 34.2 | 083 |
| /1982i | 1985 | 11 | 12.05492 | 04 | 21 | 41.75 | +22 | 11 | 14.2 | 996 |
| /1982i | 1985 | 11 | 12.62326 | 04 | 17 | 22.33 | +22 | 09 | 40.6 | 323 |
| /1982i | 1985 | 11 | 12.63819 | 04 | 17 | 15.49 | +22 | 09 | 36.6 | 323 |
| /1982i | 1985 | 11 | 13.01669 | 04 | 14 | 17.33 | +22 | 07 | 56.7 | 047 |
| /1982i | 1985 | 11 | 13.81319 | 04 | 07 | 50.86 | +22 | 04 | 11.1 | 323 |
| /1982i | 1985 | 11 | 13.82153 | 04 | 07 | 46.63 | +22 | 04 | 07.3 | 323 |
| /1982i | 1985 | 11 | 13.83056 | 04 | 07 | 42.11 | +22 | 04 | 04.2 | 323 |
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| /1982i | 1986 | 01 | 10.73964 | 21 | 54 | 26.72 | -04 | 36 | 31.2 | | | 046 |
| /1982i | 1986 | 01 | 11.41240 | 21 | 53 | 11.00 | -04 | 44 | 04.0 | 5 | T | 334 |
| /1982i | 1986 | 01 | 11.41379 | 21 | 53 | 10.85 | -04 | 44 | 05.2 | 5 | T | 334 |
| /1982i | 1986 | 01 | 11.41518 | 21 | 53 | 10.70 | -04 | 44 | 05.4 | 5 | T | 334 |
| /1982i | 1986 | 01 | 11.42637 | 21 | 53 | 09.37 | -04 | 44 | 12.6 | | | 337 |
| /1982i | 1986 | 01 | 11.42879 | 21 | 53 | 09.10 | -04 | 44 | 14.3 | | | 337 |
| /1982i | 1986 | 01 | 11.43122 | 21 | 53 | 08.82 | -04 | 44 | 15.6 | | | 337 |
| /1982i | 1986 | 01 | 11.43498 | 21 | 53 | 08.44 | -04 | 44 | 18.1 | 5 | T | 330 |
| /1982i | 1986 | 01 | 11.46519 | 21 | 53 | 05.11 | -04 | 44 | 37.9 | 5 | T | 330 |
| /1982i | 1986 | 01 | 11.56320 | 21 | 52 | 54.03 | -04 | 45 | 46.1 | | | 186 |
| /1982i | 1986 | 01 | 11.56528 | 21 | 52 | 53.78 | -04 | 45 | 46.7 | | | 186 |
| /1982i | 1986 | 01 | 11.56735 | 21 | 52 | 53.60 | -04 | 45 | 48.3 | | | 186 |
| /1982i | 1986 | 01 | 11.68873 | 21 | 52 | 40.06 | -04 | 47 | 08.0 | | | 071 |

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/1982i     1986 01 11.73409  21 52 35.06  -04 47 38.2                    503
/1982i     1986 01 11.74175  21 52 34.20  -04 47 44.1                    576
/1982i     1986 01 11.77321  21 52 30.70  -04 48 02.4                    502
/1982i     1986 01 11.77755  21 52 30.08  -04 48 07.8                    502
/1982i     1986 01 12.43023  21 51 17.77  -04 55 20.7          5  T      330
/1982i     1986 01 12.58565  21 51 00.84  -04 57 02.4                    168
/1982i     1986 01 12.58767  21 51 00.74  -04 57 04.9                    168
/1982i     1986 01 12.58898  21 51 00.45  -04 57 06.6                    168
/1982i     1986 01 12.62586  21 50 56.36  -04 57 30.9                    114
/1982i     1986 01 12.63405  21 50 55.47  -04 57 36.3                    114
/1982i     1986 01 12.63653  21 50 55.16  -04 57 37.8                    114
/1982i     1986 01 12.66637  21 50 51.85  -04 57 58.8                    114
/1982i     1986 01 12.73151  21 50 44.71  -04 58 40.9                    494
/1982i     1986 01 12.73413  21 50 44.40  -04 58 42.0                    494
/1982i     1986 01 12.98858  21 50 16.28  -05 01 28.7                    303
/1982i     1986 01 13.41030  21 49 30.48  -05 06 05.4          5  T      334
/1982i     1986 01 13.41168  21 49 30.35  -05 06 06.8          5  T      334
/1982i     1986 01 13.41307  21 49 30.21  -05 06 07.4          5  T      334
/1982i     1986 01 13.42953  21 49 28.32  -05 06 18.3          5  T      330
/1982i     1986 01 13.43003  21 49 28.30  -05 06 17.8                    337
/1982i     1986 01 13.43210  21 49 28.09  -05 06 19.2                    337
/1982i     1986 01 13.45916  21 49 24.97  -05 06 37.3          5  T      330
/1982i     1986 01 13.69309  21 48 59.82  -05 09 13.8                    057
/1982i     1986 01 13.69574  21 48 59.77  -05 09 09.9                    071
/1982i     1986 01 14.63891  21 47 17.80  -05 19 22.7                    114
/1982i     1986 01 14.64302  21 47 17.10  -05 19 27.0                    114
/1982i     1986 01 14.68594  21 47 12.50  -05 19 54.2                    114
/1982i     1986 01 19.70203  21 38 22.40  -06 13 36.3                    071
/1982i     1986 01 20.05087  21 37 45.60  -06 17 25.2                    707

                Comet 1984 XII
/1984 XII  1984 07 28.302    08 22.39     +18 14.8                       500
/1984 XII  1984 07 28.309    08 22.49     +18 16.0                       500
/1984 XII  1984 07 28.316    08 22.69     +18 18.0                       500
/1984 XII  1984 07 28.324    08 22.69     +18 19.0                       500
/1984 XII  1984 07 28.331    08 23.16     +18 23.9                       500
/1984 XII  1984 07 28.368    08 24.37     +18 32.4                       500
/1984 XII  1984 07 28.375    08 24.58     +18 34.3                       500
/1984 XII  1984 07 28.383    08 24.79     +18 36.4                       500
/1984 XII  1984 07 28.390    08 25.00     +18 38.5                       500
/1984 XII  1984 07 28.397    08 25.32     +18 40.7                       500
/1984 XII  1984 07 28.435    08 26.62     +18 51.9                       500
/1984 XII  1984 07 28.443    08 26.65     +18 52.2                       500

           Periodic Comet Giacobini-Zinner
/1984e     1985 05 27.95482  20 42 01.31  +31 03 42.9                    095
/1984e     1985 05 28.00655  20 42 07.25  +31 05 16.9                    095
/1984e     1985 08 09.88403  02 28 09.57  +57 57 03.5                    556
/1984e     1985 08 09.89097  02 28 13.29  +57 56 53.3                    556
/1984e     1985 08 09.89792  02 28 16.90  +57 56 43.4                    556
/1984e     1985 08 13.88884  03 03 01.67  +55 54 42.9                    095
/1984e     1985 08 13.89511  03 03 04.90  +55 54 28.6                    095
/1984e     1985 08 14.91098  03 11 37.49  +55 15 49.7                    095
/1984e     1985 08 14.92522  03 11 44.54  +55 15 17.0                    095
/1984e     1985 08 15.88984  03 19 42.77  +54 35 39.9                    095
/1984e     1985 08 15.89502  03 19 45.19  +54 35 26.8                    095
/1984e     1985 08 16.90872  03 27 57.58  +53 50 51.9                    095
/1984e     1985 08 16.92261  03 28 04.22  +53 50 15.8                    095
/1984e     1985 08 17.91064  03 35 53.92  +53 03 55.8                    095
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| /1984e | 1985 | 08 | 17.92070 | 03 | 35 | 58.78 | +53 | 03 | 25.6 | 095 |
| /1984e | 1985 | 08 | 18.91013 | 03 | 43 | 38.26 | +52 | 14 | 13.8 | 095 |
| /1984e | 1985 | 08 | 18.91464 | 03 | 43 | 40.24 | +52 | 14 | 00.0 | 095 |
| /1984e | 1985 | 08 | 19.90526 | 03 | 51 | 09.26 | +51 | 21 | 59.8 | 095 |
| /1984e | 1985 | 08 | 19.91376 | 03 | 51 | 13.18 | +51 | 21 | 32.6 | 095 |
| /1984e | 1985 | 08 | 22.06944 | 04 | 06 | 49.95 | +49 | 19 | 20.0 | 556 |
| /1984e | 1985 | 08 | 22.07639 | 04 | 06 | 52.94 | +49 | 18 | 54.5 | 556 |
| /1984e | 1985 | 08 | 22.08333 | 04 | 06 | 55.78 | +49 | 18 | 30.5 | 556 |
| /1984e | 1985 | 08 | 23.95414 | 04 | 19 | 44.90 | +47 | 22 | 41.8 | 095 |
| /1984e | 1985 | 08 | 23.96352 | 04 | 19 | 48.56 | +47 | 22 | 06.9 | 095 |
| /1984e | 1985 | 08 | 24.38021 | 04 | 22 | 33.70 | +46 | 55 | 15.9 | 293 |
| /1984e | 1985 | 08 | 24.38299 | 04 | 22 | 34.66 | +46 | 55 | 04.9 | 293 |
| /1984e | 1985 | 08 | 25.95169 | 04 | 32 | 40.07 | +45 | 10 | 04.8 | 095 |
| /1984e | 1985 | 08 | 25.96801 | 04 | 32 | 46.06 | +45 | 08 | 59.2 | 095 |
| /1984e | 1985 | 08 | 26.98657 | 04 | 39 | 03.29 | +43 | 58 | 02.0 | 095 |
| /1984e | 1985 | 08 | 26.98935 | 04 | 39 | 04.22 | +43 | 57 | 49.5 | 095 |
| /1984e | 1985 | 11 | 04.81042 | 07 | 24 | 57.37 | -28 | 24 | 50.9 | 323 |
| /1984e | 1985 | 11 | 04.83611 | 07 | 24 | 57.41 | -28 | 25 | 37.0 | 323 |
| /1984e | 1985 | 11 | 05.78056 | 07 | 24 | 59.05 | -28 | 53 | 26.5 | 323 |
| /1984e | 1985 | 11 | 13.77708 | 07 | 23 | 11.52 | -32 | 21 | 54.5 | 323 |
| /1984e | 1985 | 11 | 15.82812 | 07 | 22 | 10.20 | -33 | 07 | 27.9 | 323 |
| | | | Periodic Comet Gehrels 3 | | | | | | | |
| /1984l | 1985 | 12 | 19.43360 | 10 | 51 | 24.99 | +05 | 57 | 33.3 | 7 691 |
| /1984l | 1985 | 12 | 19.45022 | 10 | 51 | 25.22 | +05 | 57 | 31.5 | 691 |
| /1984l | 1985 | 12 | 19.47105 | 10 | 51 | 25.56 | +05 | 57 | 28.4 | 691 |
| | | | Comet Hartley (1984v) | | | | | | | |
| /1984v | 1985 | 11 | 13.71042 | 07 | 24 | 53.24 | -69 | 44 | 53.9 | 323 |
| /1984v | 1985 | 11 | 15.76111 | 07 | 24 | 09.92 | -70 | 26 | 06.9 | 323 |
| | | | Periodic Comet Ashbrook-Jackson | | | | | | | |
| /1985a | 1985 | 11 | 15.51111 | 20 | 35 | 43.85 | -25 | 31 | 56.0 | 323 |
| | | | Periodic Comet Giclas | | | | | | | |
| /1985g | 1985 | 11 | 19.59583 | 03 | 11 | 19.64 | +04 | 15 | 29.2 | 323 |
| /1985g | 1985 | 12 | 09.25044 | 03 | 03 | 49.79 | +06 | 09 | 55.3 | 657 |
| /1985g | 1985 | 12 | 05.85139 | 03 | 04 | 27.96 | +05 | 45 | 02.7 | 046 |
| /1985g | 1985 | 12 | 05.86563 | 03 | 04 | 27.84 | +05 | 45 | 07.7 | 046 |
| | | | Periodic Comet Maury | | | | | | | |
| /1985k | 1986 | 01 | 07.11297 | 23 | 30 | 21.24 | -04 | 28 | 54.7 | 691 |
| /1985k | 1986 | 01 | 07.14476 | 23 | 30 | 24.00 | -04 | 28 | 42.4 | 691 |
| | | | Comet Hartley-Good (1985l) | | | | | | | |
| /1985l | 1985 | 11 | 09.42229 | 18 | 36 | 40.60 | +08 | 41 | 18.3 | 8 415 |
| /1985l | 1985 | 11 | 17.05278 | 18 | 15 | 05.23 | +11 | 57 | 29.6 | 707 |
| /1985l | 1985 | 12 | 01.70163 | 17 | 37 | 19.93 | +15 | 20 | 36.5 | 046 |
| /1985l | 1985 | 12 | 01.70227 | 17 | 37 | 19.84 | +15 | 20 | 37.4 | 046 |
| /1985l | 1985 | 12 | 05.70799 | 17 | 27 | 13.14 | +15 | 33 | 47.4 | 046 |
| /1985l | 1985 | 12 | 05.70973 | 17 | 27 | 13.13 | +15 | 33 | 49.1 | 046 |
| /1985l | 1986 | 01 | 04.50695 | 16 | 21 | 23.59 | +08 | 42 | 37.3 | 707 |
| /1985l | 1986 | 01 | 11.25833 | 16 | 08 | 16.62 | +05 | 49 | 16.4 | 503 |
| | | | Comet Thiele (1985m) | | | | | | | |
| /1985m | 1985 | 11 | 07.95104 | 00 | 35 | 17.05 | +39 | 32 | 03.2 | 091 |
| /1985m | 1985 | 11 | 07.95694 | 00 | 35 | 10.82 | +39 | 31 | 45.7 | 091 |
| /1985m | 1985 | 11 | 09.85729 | 00 | 02 | 25.78 | +37 | 40 | 49.1 | 091 |
| /1985m | 1985 | 11 | 23.19792 | 21 | 56 | 04.89 | +22 | 50 | 45.9 | 657 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1985m | 1985 | 11 | 27.72050 | 21 | 37 | 53.92 | +19 | 28 | 21.6 | | 046 |
| /1985m | 1985 | 11 | 27.72258 | 21 | 37 | 53.36 | +19 | 28 | 26.0 | | 046 |
| /1985m | 1985 | 12 | 01.71278 | 21 | 26 | 28.32 | +17 | 09 | 14.3 | | 046 |
| /1985m | 1985 | 12 | 01.71407 | 21 | 26 | 27.69 | +17 | 09 | 08.8 | | 046 |
| /1985m | 1985 | 12 | 04.70417 | 21 | 19 | 51.76 | +15 | 43 | 50.6 | | 046 |
| /1985m | 1985 | 12 | 04.70868 | 21 | 19 | 51.08 | +15 | 43 | 44.7 | | 046 |
| /1985m | 1985 | 12 | 05.76250 | 21 | 17 | 50.31 | +15 | 16 | 56.5 | | 046 |
| /1985m | 1985 | 12 | 05.76562 | 21 | 17 | 49.92 | +15 | 16 | 51.2 | | 046 |
| /1985m | 1985 | 12 | 09.18792 | 21 | 12 | 12.63 | +13 | 59 | 45.7 | | 657 |
| /1985m | 1985 | 12 | 09.77014 | 21 | 11 | 22.28 | +13 | 47 | 57.7 | | 046 |
| /1985m | 1985 | 12 | 09.77326 | 21 | 11 | 22.02 | +13 | 47 | 53.5 | | 046 |

Periodic Comet Boethin

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1985n | 1985 | 11 | 17.07778 | 20 | 11 | 33.16 | -24 | 00 | 46.7 | | 707 |
| /1985n | 1985 | 12 | 11.10007 | 21 | 19 | 05.06 | -17 | 57 | 40.1 | | 657 |
| /1985n | 1985 | 12 | 12.07750 | 21 | 22 | 07.26 | -17 | 38 | 54.1 | | 657 |
| /1985n | 1986 | 01 | 11.77707 | 23 | 07 | 18.49 | -05 | 03 | 25.4 | | 503 |
| /1985n | 1986 | 01 | 11.81875 | 23 | 07 | 27.74 | -05 | 02 | 11.4 | | 576 |

Periodic Comet Kojima

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1985o | 1985 | 12 | 18.44110 | 08 | 25 | 43.44 | +18 | 17 | 25.9 | 18.7T | 691 |
| /1985o | 1985 | 12 | 18.45560 | 08 | 25 | 43.32 | +18 | 17 | 26.6 | | 691 |
| /1985o | 1985 | 12 | 18.46118 | 08 | 25 | 43.22 | +18 | 17 | 26.7 | | 691 |

Periodic Comet Ciffreo

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1985p | 1985 | 11 | 15.61736 | 04 | 29 | 10.82 | +25 | 30 | 21.5 | | 323 |
| /1985p | 1985 | 11 | 19.69358 | 04 | 26 | 31.29 | +26 | 36 | 48.4 | | 323 |
| /1985p | 1985 | 12 | 02.83368 | 04 | 16 | 24.00 | +29 | 51 | 40.5 | | 046 |
| /1985p | 1985 | 12 | 02.83738 | 04 | 16 | 23.77 | +29 | 51 | 43.4 | | 046 |
| /1985p | 1985 | 12 | 04.75625 | 04 | 14 | 54.72 | +30 | 16 | 50.3 | | 046 |
| /1985p | 1985 | 12 | 04.76667 | 04 | 14 | 54.39 | +30 | 16 | 56.9 | | 046 |
| /1985p | 1985 | 12 | 05.77708 | 04 | 14 | 08.40 | +30 | 29 | 45.4 | | 046 |
| /1985p | 1985 | 12 | 05.78160 | 04 | 14 | 08.21 | +30 | 29 | 48.1 | | 046 |
| /1985p | 1985 | 12 | 07.23668 | 04 | 13 | 03.36 | +30 | 47 | 49.9 | | 691 |
| /1985p | 1985 | 12 | 07.28889 | 04 | 13 | 00.95 | +30 | 48 | 28.3 | | 707 |
| /1985p | 1985 | 12 | 09.26361 | 04 | 11 | 36.99 | +31 | 11 | 45.5 | 9 | 657 |
| /1985p | 1985 | 12 | 09.80926 | 04 | 11 | 15.02 | +31 | 18 | 00.4 | | 046 |
| /1985p | 1985 | 12 | 12.15285 | 04 | 09 | 43.89 | +31 | 43 | 54.6 | 9 | 657 |
| /1985p | 1985 | 12 | 13.26386 | 04 | 09 | 02.88 | +31 | 55 | 41.7 | | 801 |
| /1985p | 1985 | 12 | 14.32538 | 04 | 08 | 26.43 | +32 | 06 | 35.2 | A | 691 |
| /1985p | 1985 | 12 | 15.29931 | 04 | 07 | 54.94 | +32 | 16 | 15.2 | | 293 |
| /1985p | 1985 | 12 | 15.32083 | 04 | 07 | 54.08 | +32 | 16 | 26.6 | | 293 |
| /1985p | 1985 | 12 | 16.32639 | 04 | 07 | 23.76 | +32 | 26 | 16.3 | B | 662 |
| /1985p | 1985 | 12 | 17.34167 | 04 | 06 | 54.83 | +32 | 35 | 51.7 | B | 662 |
| /1985p | 1985 | 12 | 18.35851 | 04 | 06 | 28.16 | +32 | 45 | 07.9 | | 691 |
| /1985p | 1985 | 12 | 18.37160 | 04 | 06 | 27.79 | +32 | 45 | 15.5 | | 691 |
| /1985p | 1985 | 12 | 18.38397 | 04 | 06 | 27.46 | +32 | 45 | 21.4 | | 691 |

Periodic Comet Shoemaker 3 (1986a)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986a | 1986 | 01 | 10.46719 | 09 | 34 | 37.19 | +20 | 39 | 45.1 | 12 T | 675 |
| /1986a | 1986 | 01 | 10.49688 | 09 | 34 | 37.80 | +20 | 39 | 56.9 | | 675 |
| /1986a | 1986 | 01 | 12.37442 | 09 | 35 | 08.59 | +20 | 52 | 50.7 | 13 T | 688 |
| /1986a | 1986 | 01 | 12.43234 | 09 | 35 | 09.24 | +20 | 53 | 15.1 | | 688 |
| /1986a | 1986 | 01 | 17.35521 | 09 | 35 | 56.45 | +21 | 28 | 40.5 | | 801 |
| /1986a | 1986 | 01 | 17.36806 | 09 | 35 | 57.29 | +21 | 28 | 44.9 | | 688 |
| /1986a | 1986 | 01 | 17.43229 | 09 | 35 | 57.20 | +21 | 29 | 10.8 | | 688 |
| /1986a | 1986 | 01 | 17.62708 | 09 | 35 | 58.45 | +21 | 30 | 38.3 | 13 T | 391 |
| /1986a | 1986 | 01 | 17.64167 | 09 | 35 | 58.52 | +21 | 30 | 44.4 | | 391 |

| | | | | | |
|---|---|---|---|---|---|
| /1986a | 1986 01 17.64289 | 09 35 58.8 | +21 30 47 | | 893 |
| /1986a | 1986 01 17.65486 | 09 35 58.59 | +21 30 50.4 | | 391 |
| /1986a | 1986 01 17.77724 | 09 35 58.5 | +21 31 43 | | 893 |
| /1986a | 1986 01 17.81944 | 09 35 58.57 | +21 32 02.2 | | 391 |
| /1986a | 1986 01 18.69479 | 09 36 02.32 | +21 38 31.3 | | 893 |
| /1986a | 1986 01 18.73056 | 09 36 02.17 | +21 38 47.6 | | 893 |
| /1986a | 1986 01 18.78854 | 09 36 02.35 | +21 39 10.9 | | 893 |
| /1986a | 1986 01 20.40556 | 09 36 05.36 | +21 51 09.9 | | 657 |
| /1986a | 1986 01 20.45486 | 09 36 05.08 | +21 51 33.3 | | 707 |

Note 1: clouds and low altitude. 2: faint, diffuse image. 3: poor atmospheric conditions. 4: image very weak. 5: clouds. 6: poor reference stars. 7: sharp condensation with narrow tail 56" long in p.a. 292 . 8: correction to MPC 10225. 9: separated tail structure to northeast. A: curved jet extending 9" in p.a. 80 ; possible tail 1′.2 long in p.a. 234 . B: diffuse coma or tail structure essentially completely separated, some 5" to the north and east.

* * * * *

OBSERVATIONS MADE WITH THE 0.9-m SCHMIDT AT CAUSSOLS.
Plates taken by A. Barthelemy. Contact: J.-L. Heudier, CERGA, Avenue Copernic, F-06130 Grasse, France.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 1985 XA * | 1985 12 13.94722 | 04 45 29.88 | +19 04 30.9 | | 15 | 1 | 010 |
| 1985 XA | 1985 12 13.97847 | 04 45 26.14 | +19 05 05.9 | | | | 010 |
| 1985 XA | 1985 12 17.93958 | 04 38 32.55 | +20 20 52.6 | | | | 010 |
| 1985 XA | 1985 12 17.97429 | 04 38 28.82 | +20 21 29.7 | | | | 010 |
| 1985 XA | 1985 12 19.97692 | 04 35 06.25 | +20 59 17.4 | | | | 010 |
| 1985 XA | 1985 12 19.99081 | 04 35 05.27 | +20 59 31.7 | | | | 010 |

Note 1: discoverer R. Chemin.

OBSERVATIONS MADE AT WIESBADEN BY W. PALZER.
Contact: W. Palzer, Alsenstrasse 31, D-6503 Mainz-Kastel, Federal Republic of Germany.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 19 | 1983 03 11.80348 | 03 07 29.16 | +16 37 28.7 | | 023 |
| 270 | 1985 11 12.87855 | 04 14 20.27 | +22 25 16.6 | | 023 |

OBSERVATIONS MADE AT ZIMMERWALD BY P. WILD AND T. SCHILDKNECHT.
Films taken with the 0.4-m Schmidt. Contact: P. Wild, Astronomisches Institut der Universitat, Sidlerstrasse 5, CH-3012 Berne, Switzerland.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 1985 SC1 * | 1985 09 16.98125 | 00 23 21.18 | +01 44 47.8 | | 17.5 | 1 | 026 |
| 1985 SC1 | 1985 09 18.92708 | 00 21 51.51 | +01 37 37.4 | | | | 026 |
| 1985 SC1 | 1985 09 20.00573 | 00 21 01.26 | +01 33 37.6 | | | | 026 |
| 1985 SC1 | 1985 09 21.95833 | 00 19 28.59 | +01 26 10.9 | | | | 026 |
| 1985 SC1 | 1985 09 22.97708 | 00 18 40.28 | +01 22 18.3 | | | | 026 |
| 1985 SD1 * | 1985 09 22.01042 | 01 11 03.27 | +04 19 41.7 | | 16 | 2 | 026 |
| 1985 SD1 | 1985 09 25.04861 | 01 09 11.42 | +03 56 12.4 | | | | 026 |
| 1985 SD1 | 1985 10 12.93264 | 00 56 51.38 | +01 34 04.8 | | | | 026 |
| 1985 SD1 | 1985 10 13.91319 | 00 56 10.13 | +01 26 34.1 | | | | 026 |
| 1985 SD1 | 1985 10 16.94306 | 00 54 04.45 | +01 03 51.8 | | | | 026 |
| 1985 SD1 | 1985 11 06.85729 | 00 42 33.04 | -00 59 56.0 | | | | 026 |
| 1985 SD1 | 1985 11 07.78299 | 00 42 12.72 | -01 03 44.8 | | | | 026 |
| 1985 SD1 | 1985 11 07.89167 | 00 42 10.15 | -01 04 11.9 | | | | 026 |
| 1985 SE1 * | 1985 09 22.01042 | 01 15 23.89 | +04 02 12.2 | | 16.5 | 1 | 026 |
| 1985 SE1 | 1985 09 25.04861 | 01 13 43.68 | +03 34 59.0 | | | | 026 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1985 SE1 | 1985 10 12.93264 | 01 01 10.67 | +00 52 32.2 | | | 026 |
| 1985 SE1 | 1985 10 13.91319 | 01 00 27.93 | +00 44 28.2 | | | 026 |
| 1985 SE1 | 1985 10 16.87153 | 00 58 22.44 | +00 21 15.2 | | | 026 |
| 1985 SE1 | 1985 11 06.85729 | 00 48 49.54 | -01 17 15.3 | | | 026 |
| 1985 SE1 | 1985 11 07.78299 | 00 48 41.80 | -01 18 36.9 | | | 026 |
| 1985 SE1 | 1985 11 07.89167 | 00 48 40.74 | -01 18 43.1 | | | 026 |

Note 1: discoverer Wild. 2: discoverer Schildknecht.

OBSERVATIONS MADE AT KLET BY A. MRKOS AND Z. VAVROVA.

Plates with the 0.6-m Maksutov reflector. Contact: A. Mrkos, Department of Astronomy and Astrophysics, Charles University, Svedska 8, C-15000 Prague 5, Czechoslovakia.

| Object | | Date | UT | R. A. (1950) | Decl. | | | Obs. |
|---|---|---|---|---|---|---|---|---|
| 449 | | 1985 12 09.82708 | 03 31 24.26 | +17 06 33.3 | | | | 046 |
| 449 | | 1985 12 09.84126 | 03 31 23.50 | +17 06 32.9 | | | | 046 |
| 671 | | 1985 12 09.79653 | 04 07 36.04 | +32 22 22.8 | | | | 046 |
| 671 | | 1985 12 09.80926 | 04 07 35.36 | +32 22 20.5 | | | | 046 |
| 728 | | 1985 12 09.82708 | 03 38 59.17 | +17 17 35.8 | | | | 046 |
| 728 | | 1985 12 09.84126 | 03 38 58.31 | +17 17 34.7 | | | | 046 |
| 1027 | | 1985 12 09.82708 | 03 27 19.29 | +19 48 07.9 | | | | 046 |
| 1027 | | 1985 12 09.84126 | 03 27 18.62 | +19 48 05.6 | | | | 046 |
| 1544 | | 1985 12 09.82708 | 03 27 18.35 | +19 22 51.0 | | | | 046 |
| 1544 | | 1985 12 09.84126 | 03 27 17.70 | +19 22 50.0 | | | | 046 |
| 2224 | | 1985 12 09.82708 | 03 28 37.44 | +19 40 29.9 | | | | 046 |
| 2224 | | 1985 12 09.84126 | 03 28 36.70 | +19 40 26.9 | | | | 046 |
| 2545 | | 1985 12 09.79653 | 04 07 18.84 | +32 20 55.1 | | | | 046 |
| 2545 | | 1985 12 09.80926 | 04 07 18.00 | +32 20 51.0 | | | | 046 |
| 2636 | | 1985 12 06.86875 | 04 40 17.22 | +15 16 49.2 | | | | 046 |
| 2636 | | 1985 12 06.88403 | 04 40 16.47 | +15 16 50.3 | | | | 046 |
| 1985 XE | * | 1985 12 06.86875 | 04 27 32.53 | +18 30 35.6 | | | | 046 |
| 1985 XE | | 1985 12 06.88403 | 04 27 31.98 | +18 30 31.2 | | | | 046 |
| 1985 XF | * | 1985 12 06.86875 | 04 36 28.10 | +14 31 25.6 | | | | 046 |
| 1985 XF | | 1985 12 06.88403 | 04 36 27.30 | +14 31 26.9 | | | | 046 |
| 1985 XG | * | 1985 12 06.86875 | 04 36 43.65 | +15 36 30.2 | | | | 046 |
| 1985 XG | | 1985 12 06.88403 | 04 36 43.14 | +15 36 33.1 | | | | 046 |
| 1985 XH | * | 1985 12 09.82708 | 03 26 33.82 | +19 15 45.7 | | | | 046 |
| 1985 XH | | 1985 12 09.84126 | 03 26 33.24 | +19 15 36.4 | | | | 046 |
| 1985 XJ | * | 1985 12 09.82708 | 03 30 18.28 | +19 59 43.0 | | | | 046 |
| 1985 XJ | | 1985 12 09.84126 | 03 30 17.56 | +19 59 38.5 | | | | 046 |
| 1985 XK | * | 1985 12 09.82708 | 03 32 53.36 | +16 50 15.7 | | | | 046 |
| 1985 XK | | 1985 12 09.84126 | 03 32 52.60 | +16 50 18.8 | | | | 046 |
| 1985 XL | * | 1985 12 09.82708 | 03 37 19.86 | +19 01 25.3 | | | | 046 |
| 1985 XL | | 1985 12 09.84126 | 03 37 18.97 | +19 01 25.8 | | | | 046 |

OBSERVATIONS MADE AT THE CRIMEAN ASTROPHYSICAL OBSERVATORY.

Contact: N. S. Chernykh, Crimean Astrophysical Observatory, P/O Nauchnyj, Crimea 334413, U.S.S.R.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 3302 | 1969 08 13.95932 | 21 46 03.54 | -12 08 54.4 | | | 095 |
| 3302 | 1969 08 17.88138 | 21 42 41.78 | -12 34 24.0 | | | 095 |
| 3302 | 1980 06 16.83918 | 15 38 04.54 | -13 43 53.8 | | | 095 |
| 3302 | 1981 10 07.01465 | 02 45 43.66 | +11 09 25.6 | | | 095 |
| 1984 YR1 | 1984 12 23.78830 | 05 11 33.08 | +25 38 53.5 | | 17.0 | 095 |
| 1984 YR1 | 1984 12 27.77720 | 05 08 00.24 | +25 44 18.0 | | 17.0 | 095 |
| 1984 YY2 | 1984 12 27.82996 | 05 05 03.74 | +13 01 16.3 | | 15.0 | 095 |
| 1984 YY2 | 1984 12 30.01160 | 05 03 37.49 | +13 26 26.0 | | 15.0 | 095 |
| 1984 YZ2 | 1984 12 27.82996 | 05 06 32.60 | +17 09 39.9 | | 16.0 | 095 |
| 1984 YZ2 | 1984 12 30.01160 | 05 05 14.37 | +17 17 22.3 | | 16.5 | 095 |

OBSERVATIONS MADE AT THE BURLINGTON REMOTE SITE BY T. HANDLEY.
Contact: T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | N | Obs. |
|---|---|---|---|---|---|---|
| 822 | 1985 08 | 24.27257 | 22 01 49.42 | -10 56 25.4 | 1 | 293 |
| 822 | 1985 08 | 24.28576 | 22 01 48.57 | -10 56 31.3 | 1 | 293 |
| 3354 | 1985 08 | 24.27257 | 22 00 00.37 | -10 17 25.2 | | 293 |
| 3354 | 1985 08 | 24.28576 | 21 59 59.49 | -10 17 25.0 | | 293 |

Note 1: near edge of film.

OBSERVATIONS MADE AT THE PERTH OBSERVATORY, BICKLEY.
Contact: M. P. Candy, Perth Observatory, Bickley, WA 6076, Australia.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 14 | 1985 09 | 18.53958 | 21 41 36.59 | -26 12 27.6 | 323 |
| 77 | 1982 05 | 19.50764 | 11 21 57.20 | +03 39 34.9 | 323 |
| 77 | 1982 05 | 20.51111 | 11 22 13.53 | +03 37 17.2 | 323 |
| 179 | 1982 05 | 31.55833 | 11 22 30.65 | -04 25 57.0 | 323 |
| 179 | 1982 06 | 03.43611 | 11 23 43.21 | -04 24 32.6 | 323 |
| 384 | 1982 10 | 13.49236 | 19 11 06.20 | -28 11 47.2 | 323 |
| 384 | 1982 10 | 14.49375 | 19 12 01.35 | -28 08 46.9 | 323 |
| 384 | 1982 10 | 19.48681 | 19 16 51.43 | -27 53 21.1 | 323 |
| 543 | 1983 07 | 28.47569 | 16 36 08.17 | -27 25 37.5 | 323 |
| 788 | 1983 12 | 12.72569 | 04 36 55.04 | +02 47 26.2 | 323 |
| 788 | 1983 12 | 13.71111 | 04 36 10.07 | +02 46 15.2 | 323 |
| 788 | 1983 12 | 14.58403 | 04 35 30.60 | +02 45 18.5 | 323 |
| 1359 | 1984 03 | 01.82153 | 17 38 12.88 | -24 05 14.5 | 323 |
| 1359 | 1984 03 | 06.83542 | 17 42 57.19 | -24 17 36.1 | 323 |
| 1359 | 1984 03 | 26.84375 | 17 58 15.86 | -25 06 31.3 | 323 |
| 1705 | 1983 12 | 09.68021 | 03 25 50.77 | +06 57 55.1 | 323 |
| 1705 | 1983 12 | 12.66736 | 03 24 04.23 | +06 54 29.2 | 323 |
| 1801 | 1981 01 | 13.78055 | 11 49 23.44 | +16 05 17.8 | 323 |
| 1801 | 1981 01 | 14.79722 | 11 49 33.38 | +16 09 39.0 | 323 |
| 2341 | 1982 07 | 27.78056 | 21 29 48.70 | -22 12 24.1 | 323 |
| 2341 | 1982 07 | 27.80486 | 21 29 47.51 | -22 12 31.8 | 323 |
| 2341 | 1982 07 | 29.72118 | 21 28 01.83 | -22 24 34.5 | 323 |
| 2341 | 1982 07 | 29.74583 | 21 28 00.27 | -22 24 43.7 | 323 |
| 2410 | 1981 02 | 03.63611 | 10 57 44.54 | +08 29 10.3 | 323 |
| 2410 | 1981 02 | 04.65486 | 10 57 09.19 | +08 34 52.4 | 323 |
| 2410 | 1981 02 | 12.67153 | 10 51 30.98 | +09 25 10.7 | 323 |
| 2410 | 1981 02 | 27.68750 | 10 37 43.75 | +11 13 43.0 | 323 |
| 2410 | 1981 02 | 27.71181 | 10 37 42.45 | +11 13 56.1 | 323 |
| 2410 | 1981 03 | 09.61632 | 10 28 12.62 | +12 21 46.3 | 323 |
| 2410 | 1981 03 | 27.60903 | 10 15 30.12 | +13 45 14.8 | 323 |
| 2574 | 1982 10 | 20.60625 | 23 51 21.83 | -01 48 16.6 | 323 |
| 2574 | 1982 10 | 21.63194 | 23 50 49.64 | -01 50 42.8 | 323 |
| 2640 | 1982 04 | 22.64583 | 12 53 17.59 | -10 01 27.3 | 323 |
| 2640 | 1982 05 | 12.62882 | 12 40 15.84 | -09 33 38.7 | 323 |
| 2640 | 1982 07 | 14.50972 | 13 12 26.45 | -13 26 45.8 | 323 |
| 2727 | 1981 02 | 09.59826 | 10 22 17.05 | +05 06 14.4 | 323 |
| 2727 | 1981 02 | 10.63680 | 10 21 27.45 | +05 11 31.6 | 323 |
| 2727 | 1981 02 | 12.60486 | 10 19 51.34 | +05 21 56.0 | 323 |
| 2727 | 1981 02 | 23.60000 | 10 10 26.99 | +06 26 37.3 | 323 |
| 2727 | 1981 05 | 05.47361 | 10 01 11.34 | +09 51 59.9 | 323 |
| 2848 | 1981 09 | 24.62188 | 22 12 06.29 | -11 02 52.4 | 323 |
| 2848 | 1981 09 | 26.57847 | 22 11 09.09 | -11 07 33.4 | 323 |
| 2848 | 1981 09 | 26.60278 | 22 11 08.79 | -11 07 32.7 | 323 |
| 2848 | 1981 09 | 28.57569 | 22 10 15.62 | -11 11 47.0 | 323 |
| 2848 | 1981 10 | 02.58125 | 22 08 43.37 | -11 18 56.1 | 323 |
| 3093 | 1984 06 | 19.72222 | 17 49 51.72 | -27 31 45.9 | 323 |
| 3093 | 1984 06 | 27.64444 | 17 41 32.89 | -26 39 05.7 | 323 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3093 | | 1984 | 06 | 28.60139 | 17 | 40 | 34.52 | -26 | 32 | 25.1 | 323 |
| 3185 | | 1982 | 10 | 20.69618 | 02 | 17 | 21.08 | +08 | 19 | 03.6 | 323 |
| 1981 | SE9 * | 1981 | 09 | 24.68681 | 00 | 08 | 08.74 | -06 | 15 | 00.0 | 323 |
| 1981 | SE9 | 1981 | 09 | 24.71111 | 00 | 08 | 07.30 | -06 | 15 | 06.0 | 323 |
| 1981 | SE9 | 1981 | 09 | 26.67292 | 00 | 06 | 34.66 | -06 | 26 | 16.0 | 323 |
| 1981 | SE9 | 1981 | 09 | 28.62847 | 00 | 05 | 03.73 | -06 | 36 | 46.4 | 323 |
| 1981 | SE9 | 1981 | 10 | 02.63125 | 00 | 02 | 04.60 | -06 | 55 | 46.9 | 323 |
| 1981 | SF9 * | 1981 | 09 | 26.57847 | 22 | 13 | 42.67 | -10 | 36 | 13.2 | 323 |
| 1981 | SF9 | 1981 | 09 | 26.60278 | 22 | 13 | 42.11 | -10 | 36 | 14.1 | 323 |
| 1981 | SF9 | 1981 | 09 | 28.57569 | 22 | 12 | 48.15 | -10 | 41 | 54.6 | 323 |
| 1981 | SF9 | 1981 | 09 | 28.60000 | 22 | 12 | 47.42 | -10 | 41 | 59.3 | 323 |
| 1981 | SF9 | 1981 | 10 | 02.58125 | 22 | 11 | 13.13 | -10 | 51 | 54.4 | 323 |
| 1981 | TN4 * | 1981 | 10 | 02.66319 | 01 | 13 | 59.41 | +01 | 42 | 32.5 | 323 |
| 1981 | TN4 | 1981 | 10 | 02.68750 | 01 | 13 | 57.98 | +01 | 42 | 28.9 | 323 |
| 1981 | TO4 * | 1981 | 10 | 02.72431 | 02 | 55 | 45.56 | +09 | 55 | 42.7 | 323 |
| 1981 | TO4 | 1981 | 10 | 02.74861 | 02 | 55 | 44.93 | +09 | 55 | 33.4 | 323 |
| 1981 | WE9 * | 1981 | 11 | 16.60417 | 02 | 41 | 57.07 | +11 | 12 | 58.5 | 323 |
| 1981 | WE9 | 1981 | 11 | 17.61319 | 02 | 41 | 04.24 | +11 | 08 | 13.9 | 323 |
| 1981 | WE9 | 1981 | 11 | 23.59167 | 02 | 36 | 19.58 | +10 | 43 | 36.3 | 323 |
| 1981 | WE9 | 1981 | 12 | 01.68194 | 02 | 31 | 30.39 | +10 | 21 | 27.3 | 323 |
| 1981 | WF9 * | 1981 | 11 | 16.60417 | 02 | 42 | 20.99 | +11 | 22 | 36.7 | 323 |
| 1981 | WF9 | 1981 | 11 | 17.61319 | 02 | 41 | 29.53 | +11 | 15 | 34.9 | 323 |
| 1981 | WF9 | 1981 | 11 | 23.59167 | 02 | 36 | 48.23 | +10 | 37 | 12.1 | 323 |
| 1981 | WG9 * | 1981 | 11 | 16.60417 | 02 | 43 | 34.94 | +10 | 23 | 00.6 | 323 |
| 1981 | WG9 | 1981 | 11 | 17.61319 | 02 | 42 | 42.13 | +10 | 19 | 16.9 | 323 |
| 1981 | WG9 | 1981 | 11 | 23.59167 | 02 | 37 | 52.88 | +10 | 00 | 14.0 | 323 |
| 1981 | WG9 | 1981 | 12 | 01.68194 | 02 | 32 | 43.43 | +09 | 44 | 16.1 | 323 |
| 1981 | WH9 * | 1981 | 11 | 16.60417 | 02 | 45 | 36.28 | +11 | 10 | 53.6 | 323 |
| 1981 | WH9 | 1981 | 11 | 17.61319 | 02 | 44 | 48.76 | +11 | 03 | 15.0 | 323 |
| 1981 | WH9 | 1981 | 11 | 23.59167 | 02 | 40 | 27.12 | +10 | 20 | 41.8 | 323 |
| 1981 | WJ9 * | 1981 | 11 | 16.60417 | 02 | 45 | 59.73 | +10 | 16 | 37.1 | 323 |
| 1981 | WJ9 | 1981 | 11 | 17.61319 | 02 | 45 | 10.18 | +10 | 10 | 40.9 | 323 |
| 1981 | WJ9 | 1981 | 11 | 23.59167 | 02 | 40 | 34.03 | +09 | 38 | 12.4 | 323 |
| 1981 | WJ9 | 1981 | 12 | 01.68194 | 02 | 35 | 27.94 | +09 | 03 | 54.8 | 323 |
| 1981 | WK9 * | 1981 | 11 | 16.68333 | 03 | 48 | 00.08 | +08 | 17 | 58.3 | 323 |
| 1981 | WK9 | 1981 | 11 | 19.76667 | 03 | 44 | 34.76 | +08 | 32 | 14.4 | 323 |
| 1981 | WK9 | 1981 | 11 | 19.79097 | 03 | 44 | 33.27 | +08 | 32 | 19.8 | 323 |
| 1981 | WK9 | 1981 | 12 | 15.57708 | 03 | 18 | 57.14 | +11 | 24 | 28.6 | 323 |
| 1981 | WK9 | 1981 | 12 | 15.60139 | 03 | 18 | 56.18 | +11 | 24 | 40.2 | 323 |
| 1982 | FH4 * | 1982 | 03 | 16.62153 | 10 | 02 | 24.48 | +06 | 54 | 52.4 | 323 |
| 1982 | FH4 | 1982 | 03 | 16.64653 | 10 | 02 | 23.48 | +06 | 55 | 01.0 | 323 |
| 1982 | FH4 | 1982 | 03 | 17.64236 | 10 | 01 | 46.62 | +07 | 00 | 03.4 | 323 |
| 1982 | FH4 | 1982 | 03 | 17.66667 | 10 | 01 | 45.77 | +07 | 00 | 11.6 | 323 |
| 1982 | OU * | 1982 | 07 | 29.72118 | 21 | 32 | 03.58 | -21 | 44 | 52.3 | 323 |
| 1982 | OU | 1982 | 07 | 29.74583 | 21 | 32 | 02.98 | -21 | 45 | 18.4 | 323 |
| 1982 | TW | 1982 | 10 | 15.69931 | 01 | 22 | 10.57 | +02 | 46 | 18.5 | 323 |
| 1982 | TW | 1982 | 10 | 20.65174 | 01 | 17 | 39.96 | +02 | 29 | 06.9 | 323 |
| 1982 | UG11* | 1982 | 10 | 20.60625 | 23 | 53 | 21.68 | -00 | 39 | 33.1 | 323 |
| 1982 | UG11 | 1982 | 10 | 21.63194 | 23 | 52 | 55.72 | -00 | 46 | 03.5 | 323 |
| 1983 | GT * | 1983 | 04 | 14.66979 | 13 | 24 | 25.91 | -08 | 22 | 44.4 | 323 |
| 1983 | GT | 1983 | 04 | 21.68819 | 13 | 16 | 59.68 | -08 | 02 | 37.9 | 323 |
| 1983 | LV * | 1983 | 06 | 10.63333 | 17 | 14 | 49.64 | -26 | 32 | 14.2 | 323 |
| 1983 | LV | 1983 | 06 | 14.69792 | 17 | 09 | 52.63 | -26 | 41 | 29.1 | 323 |
| 1983 | XH1 * | 1983 | 12 | 07.67361 | 03 | 30 | 20.46 | +06 | 24 | 23.8 | 323 |
| 1983 | XH1 | 1983 | 12 | 09.68021 | 03 | 29 | 03.10 | +06 | 21 | 28.4 | 323 |
| 1983 | XH1 | 1983 | 12 | 12.66736 | 03 | 27 | 17.67 | +06 | 18 | 43.6 | 323 |
| 1984 | DH1 * | 1984 | 02 | 20.54236 | 06 | 08 | 05.02 | +11 | 23 | 05.3 | 323 |
| 1984 | DH1 | 1984 | 03 | 06.60694 | 06 | 10 | 42.33 | +11 | 03 | 07.7 | 323 |
| 1984 | DH1 | 1984 | 03 | 29.51111 | 06 | 24 | 23.49 | +10 | 42 | 15.6 | 323 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1984 DH1 | | 1984 | 04 | 05.51111 | 06 | 30 | 29.22 | +10 | 35 | 01.1 | 323 |
| 1984 GU | * | 1984 | 04 | 06.70659 | 13 | 45 | 01.82 | -06 | 24 | 54.5 | 323 |
| 1984 GU | | 1984 | 04 | 09.70972 | 13 | 42 | 26.05 | -06 | 14 | 04.4 | 323 |
| 1984 ML | * | 1984 | 06 | 18.56319 | 13 | 07 | 59.68 | -02 | 47 | 27.0 | 323 |
| 1984 ML | | 1984 | 06 | 19.54965 | 13 | 08 | 41.33 | -02 | 54 | 54.7 | 323 |
| 1984 ML | | 1984 | 06 | 27.47569 | 13 | 15 | 03.56 | -03 | 58 | 26.1 | 323 |
| 1984 MM | * | 1984 | 06 | 19.54965 | 13 | 06 | 29.71 | -02 | 26 | 48.0 | 323 |
| 1984 MM | | 1984 | 06 | 25.46701 | 13 | 08 | 20.54 | -03 | 01 | 45.8 | 323 |
| 1984 MM | | 1984 | 06 | 28.45278 | 13 | 09 | 31.22 | -03 | 20 | 29.0 | 323 |
| 1984 MN | * | 1984 | 06 | 27.56493 | 17 | 27 | 47.37 | -25 | 28 | 24.2 | 323 |
| 1984 MN | | 1984 | 06 | 28.52778 | 17 | 26 | 49.08 | -25 | 35 | 29.6 | 323 |
| 1984 MO | * | 1984 | 06 | 27.64444 | 17 | 37 | 30.70 | -25 | 47 | 21.4 | 323 |
| 1984 MO | | 1984 | 06 | 28.60139 | 17 | 36 | 40.38 | -25 | 40 | 51.1 | 323 |
| 1985 RN2 | * | 1985 | 09 | 13.65035 | 21 | 46 | 52.04 | -26 | 52 | 39.4 | 323 |
| 1985 RN2 | | 1985 | 09 | 13.69722 | 21 | 46 | 50.52 | -26 | 52 | 31.2 | 323 |

OBSERVATIONS MADE AT THE XINGLONG STATION OF THE PEKING OBSERVATORY BY S.-L. WEI AND Y.-L. GE.

Plates taken with the 0.60-m f/3 Schmidt. From P.M.O. Astron. Circ. No. 19. Contact: J.-x. Zhang, Purple Mountain Observatory, Academia Sinica, Nanking, People’s Republic of China.

| Object | | Date | UT | R. A. (1950) | Decl. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 2905 | | 1982 | 02 16.62775 | 09 05 33.79 | +28 01 02.7 | 1 | 327 |
| 2905 | | 1982 | 02 19.65970 | 09 02 42.02 | +28 02 36.2 | 1 | 327 |
| 2905 | | 1982 | 02 24.71042 | 08 58 14.32 | +28 02 04.1 | 1 | 327 |
| 2905 | | 1982 | 02 28.72917 | 08 55 02.25 | +27 58 37.5 | 1 | 327 |
| 1937 GG | | 1982 | 02 23.66698 | 10 54 31.74 | +22 39 10.9 | 1 | 327 |
| 1937 GG | | 1982 | 02 24.78751 | 10 53 34.41 | +22 49 11.4 | 1 | 327 |
| 1937 GG | | 1982 | 02 26.71389 | 10 51 54.29 | +23 05 50.2 | 1 | 327 |
| 1937 GG | | 1982 | 02 28.78889 | 10 50 03.88 | +23 22 50.7 | 1 | 327 |
| 1982 DQ6 | * | 1982 | 02 16.62775 | 09 14 00.96 | +26 11 02.7 | 1 | 327 |
| 1982 DQ6 | | 1982 | 02 19.65970 | 09 10 50.63 | +26 13 07.6 | 1 | 327 |
| 1982 DQ6 | | 1982 | 02 24.71042 | 09 05 59.82 | +26 12 13.2 | 1 | 327 |
| 1982 DQ6 | | 1982 | 02 28.72917 | 09 02 38.99 | +26 07 38.3 | 1 | 327 |
| 1982 DR6 | * | 1982 | 02 16.62775 | 09 21 13.73 | +26 54 06.8 | 1 | 327 |
| 1982 DR6 | | 1982 | 02 19.65970 | 09 18 00.54 | +27 02 55.3 | 1 | 327 |
| 1982 DR6 | | 1982 | 02 24.71042 | 09 12 54.63 | +27 13 19.1 | 1 | 327 |
| 1982 DR6 | | 1982 | 02 28.72917 | 09 09 11.90 | +27 17 41.6 | 1 | 327 |
| 1982 DS6 | * | 1982 | 02 19.63887 | 09 37 24.00 | +07 17 52.2 | 1 | 327 |
| 1982 DS6 | | 1982 | 02 20.62359 | 09 36 28.44 | +07 25 59.9 | 1 | 327 |
| 1982 DS6 | | 1982 | 02 24.74097 | 09 32 44.77 | +07 59 51.9 | 1 | 327 |
| 1982 DS6 | | 1982 | 02 26.73194 | 09 31 03.11 | +08 16 03.9 | 1 | 327 |
| 1982 DT6 | * | 1982 | 02 23.66698 | 10 46 44.79 | +21 29 13.5 | 1 | 327 |
| 1982 DT6 | | 1982 | 02 24.78751 | 10 45 51.20 | +21 41 02.3 | 1 | 327 |
| 1982 DT6 | | 1982 | 02 26.71389 | 10 44 18.39 | +22 00 55.8 | 1 | 327 |
| 1982 DT6 | | 1982 | 02 28.78889 | 10 42 37.57 | +22 21 36.9 | 1 | 327 |
| 1982 DU6 | * | 1982 | 02 23.66698 | 11 00 28.53 | +20 49 03.6 | 1 | 327 |
| 1982 DU6 | | 1982 | 02 24.78751 | 10 59 33.73 | +20 55 01.1 | 1 | 327 |
| 1982 DU6 | | 1982 | 02 26.71389 | 10 57 58.35 | +21 04 49.9 | 1 | 327 |
| 1982 DU6 | | 1982 | 02 28.78889 | 10 56 14.27 | +21 14 50.2 | 1 | 327 |

Note 1: observatory code 327, Long. and Parallax 117.57, -325, -275 (see MPC 7759).

OBSERVATIONS MADE AT THE PURPLE MOUNTAIN OBSERVATORY BY J.-X. YANG.

Plates taken with the 0.40-m f/7.5 astrograph. From P.M.O. Astron. Circ. No. 19 and Publ. P.M.O. 4, 62. Contact: J.-x. Zhang, Purple Mountain Observatory, Academia Sinica, Nanking, People’s Republic of China.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 3278 | 1982 12 | 06.57414 | 03 09 21.95 | +12 10 55.0 | 330 |
| 1982 XT4 * | 1982 12 | 06.57414 | 02 59 31.10 | +12 46 17.2 | 330 |

OBSERVATIONS MADE AT NAGATORO BY N. KAWASATO.

Films taken with a 0.13-m f/6.4 refractor. Contact: N. Kawasato, Stellar House, Nagatoro, Saitama-ken, Japan.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 1981 PA | 1986 01 | 08.52118 | 07 59 55.10 | +51 48 29.4 | 15 | 1 | 398 |
| 1981 PA | 1986 01 | 08.59549 | 07 59 44.71 | +51 46 55.0 | | 1 | 398 |

Note 1: observatory code 398, Long. and Parallax 139.11, -345, -250 (see MPC 7759).

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE.

Plates taken by C. Vacchi and G. Sassi; blinked by Vacchi; measured by Vacchi, V. Goretti and E. Colombini. Reduced by Colombini from least-squares plate-constants solutions with five or more AGK3 or SAO reference stars. Contact: E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 588 | 1985 09 | 10.88889 | 00 18 59.49 | +12 38 02.1 | 16.2 | 552 |
| 588 | 1985 09 | 10.90694 | 00 18 58.86 | +12 38 00.8 | | 552 |
| 822 | 1985 08 | 16.92014 | 22 09 05.97 | -10 15 33.0 | 15.5 | 552 |
| 822 | 1985 08 | 16.93681 | 22 09 05.00 | -10 15 40.6 | | 552 |
| 1922 | 1985 09 | 12.87222 | 00 02 18.12 | +38 26 28.6 | 17.2 | 552 |
| 1922 | 1985 09 | 12.89028 | 00 02 17.00 | +38 26 19.3 | | 552 |
| 1922 | 1985 09 | 12.90556 | 00 02 16.22 | +38 26 11.8 | | 552 |
| 1922 | 1985 09 | 12.91944 | 00 02 15.43 | +38 26 04.8 | | 552 |
| 2235 | 1985 09 | 10.88889 | 00 17 36.70 | +12 49 49.9 | 16.1 | 552 |
| 2235 | 1985 09 | 10.90694 | 00 17 35.88 | +12 49 43.9 | | 552 |
| 3324 | 1985 09 | 11.87500 | 22 42 30.11 | +00 27 20.9 | 16.5 | 552 |
| 3324 | 1985 09 | 11.89236 | 22 42 29.10 | +00 27 16.6 | | 552 |
| 3324 | 1985 09 | 18.91736 | 22 36 24.03 | +00 09 09.7 | 16.6 | 552 |
| 3324 | 1985 09 | 18.94167 | 22 36 22.72 | +00 09 05.2 | | 552 |
| 3345 | 1985 09 | 11.82986 | 22 31 12.66 | +07 48 09.2 | 16.8 | 552 |
| 3345 | 1985 09 | 11.84722 | 22 31 11.66 | +07 48 07.5 | | 552 |
| 3345 | 1985 09 | 18.87778 | 22 24 36.54 | +07 24 56.6 | 16.9 | 552 |
| 3345 | 1985 09 | 18.90278 | 22 24 35.21 | +07 24 52.8 | | 552 |
| 3354 | 1985 08 | 16.92014 | 22 07 39.34 | -10 07 22.2 | 16.0 | 552 |
| 3354 | 1985 08 | 16.93681 | 22 07 38.33 | -10 07 24.8 | | 552 |
| 3354 | 1985 08 | 22.88333 | 22 01 27.03 | -10 15 29.5 | 16.0 | 552 |
| 3354 | 1985 08 | 22.90278 | 22 01 25.74 | -10 15 31.3 | | 552 |
| A922 WB | 1985 09 | 11.91181 | 23 21 50.30 | -00 07 33.7 | 16.4 | 552 |
| A922 WB | 1985 09 | 11.92847 | 23 21 49.32 | -00 07 34.9 | | 552 |
| A922 WB | 1985 09 | 18.95764 | 23 14 21.17 | -00 22 26.5 | 16.4 | 552 |
| A922 WB | 1985 09 | 18.97708 | 23 14 19.84 | -00 22 27.6 | | 552 |

OBSERVATION MADE AT REINTAL BY F. SEILER.

Film with 0.30-m f/6 reflector, AGK3 or SAO reference stars. Contact: F. Frevert, Dilichstr. 1, D-633 Wetzlar, Federal Republic of Germany.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 115 | 1985 10 | 04.77986 | 22 33 56.76 | +08 14 43.4 | 556 |

OBSERVATIONS MADE AT PISZKESTETO BY M. ANTAL.

Plates taken with the 0.90-m Schmidt, reduction using the SAO Catalog. Contact: M. Antal, Rastislavova 2, C-92101 Piestany, Czechoslovakia.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 1984 WX1 * | 1984 11 | 28.01042 | 06 17 21.55 | +12 07 02.7 | | 5 | 561 |
| 1984 WX1 | 1984 11 | 28.05069 | 06 17 20.09 | +12 07 03.0 | 18.8 | | 561 |
| 1984 WX1 | 1984 11 | 30.03125 | 06 16 03.69 | +12 08 47.7 | | | 561 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1984 | WX1 | | 1984 | 11 | 30.05903 | 06 | 16 | 02.73 | +12 | 08 | 51.1 | | 561 |
| 1984 | WX1 | | 1984 | 12 | 03.04167 | 06 | 13 | 59.28 | +12 | 12 | 16.3 | 19.0 | 561 |
| 1984 | WX1 | | 1984 | 12 | 03.06389 | 06 | 13 | 58.25 | +12 | 12 | 16.6 | | 561 |
| 1984 | WX1 | | 1984 | 12 | 03.10764 | 06 | 13 | 56.42 | +12 | 12 | 20.7 | | 561 |
| 1984 | WX1 | | 1984 | 12 | 03.14792 | 06 | 13 | 54.29 | +12 | 12 | 23.9 | | 561 |
| 1984 | WX1 | | 1984 | 12 | 04.09375 | 06 | 13 | 13.17 | +12 | 13 | 42.3 | 1 | 561 |
| 1984 | WX1 | | 1984 | 12 | 04.12292 | 06 | 13 | 11.86 | +12 | 13 | 44.3 | 1 | 561 |
| 1984 | WX1 | | 1984 | 12 | 04.15486 | 06 | 13 | 10.15 | +12 | 13 | 46.1 | 18.8 | 561 |
| 1984 | WY1 | * | 1984 | 11 | 28.01042 | 06 | 18 | 21.09 | +09 | 46 | 18.4 | 17.3 3 | 561 |
| 1984 | WY1 | | 1984 | 11 | 28.05069 | 06 | 18 | 19.22 | +09 | 46 | 15.0 | 3 | 561 |
| 1984 | WY1 | | 1984 | 11 | 30.03125 | 06 | 16 | 55.18 | +09 | 43 | 19.9 | 17.0 | 561 |
| 1984 | WY1 | | 1984 | 11 | 30.05903 | 06 | 16 | 53.92 | +09 | 43 | 17.8 | | 561 |
| 1984 | WY1 | | 1984 | 12 | 01.03194 | 06 | 16 | 11.10 | +09 | 42 | 02.5 | 6 | 561 |
| 1984 | WY1 | | 1984 | 12 | 01.06910 | 06 | 16 | 09.17 | +09 | 41 | 59.1 | 6 | 561 |
| 1984 | WY1 | | 1984 | 12 | 03.04167 | 06 | 14 | 38.31 | +09 | 39 | 42.7 | 17.5 | 561 |
| 1984 | WY1 | | 1984 | 12 | 03.06389 | 06 | 14 | 37.16 | +09 | 39 | 42.8 | | 561 |
| 1984 | WY1 | | 1984 | 12 | 03.10764 | 06 | 14 | 35.26 | +09 | 39 | 39.3 | 2 | 561 |
| 1984 | WY1 | | 1984 | 12 | 03.14792 | 06 | 14 | 33.27 | +09 | 39 | 37.1 | 2 | 561 |
| 1984 | WY1 | | 1984 | 12 | 04.09375 | 06 | 13 | 48.12 | +09 | 38 | 41.8 | | 561 |
| 1984 | WY1 | | 1984 | 12 | 04.12292 | 06 | 13 | 46.64 | +09 | 38 | 40.2 | 18.0 | 561 |
| 1984 | WY1 | | 1984 | 12 | 04.15486 | 06 | 13 | 44.97 | +09 | 38 | 37.9 | | 561 |
| 1984 | WZ1 | * | 1984 | 11 | 28.01042 | 06 | 20 | 02.24 | +11 | 53 | 20.4 | 18.8 5 | 561 |
| 1984 | WZ1 | | 1984 | 11 | 28.05069 | 06 | 20 | 00.65 | +11 | 53 | 23.4 | 5 | 561 |
| 1984 | WZ1 | | 1984 | 11 | 30.03125 | 06 | 18 | 41.81 | +11 | 55 | 04.2 | 18.7 7 | 561 |
| 1984 | WZ1 | | 1984 | 11 | 30.05903 | 06 | 18 | 40.93 | +11 | 54 | 57.9 | 7 | 561 |
| 1984 | WZ1 | | 1984 | 12 | 03.04167 | 06 | 16 | 34.70 | +11 | 57 | 58.7 | 19.0 | 561 |
| 1984 | WZ1 | | 1984 | 12 | 03.06389 | 06 | 16 | 33.80 | +11 | 58 | 01.0 | | 561 |
| 1984 | WZ1 | | 1984 | 12 | 03.10764 | 06 | 16 | 32.05 | +11 | 58 | 02.9 | | 561 |
| 1984 | WZ1 | | 1984 | 12 | 03.14792 | 06 | 16 | 29.97 | +11 | 58 | 04.9 | | 561 |
| 1984 | WZ1 | | 1984 | 12 | 04.09375 | 06 | 15 | 48.42 | +11 | 59 | 13.1 | 1 | 561 |
| 1984 | WZ1 | | 1984 | 12 | 04.12292 | 06 | 15 | 46.64 | +11 | 59 | 15.3 | 1 | 561 |
| 1984 | WZ1 | | 1984 | 12 | 04.15486 | 06 | 15 | 45.45 | +11 | 59 | 17.8 | 19.0 | 561 |
| 1984 | WA2 | * | 1984 | 11 | 30.03125 | 06 | 11 | 16.63 | +10 | 09 | 24.0 | 18.0 | 561 |
| 1984 | WA2 | | 1984 | 11 | 30.05903 | 06 | 11 | 15.56 | +10 | 09 | 20.6 | | 561 |
| 1984 | WA2 | | 1984 | 12 | 03.04167 | 06 | 09 | 15.90 | +10 | 02 | 49.7 | 17.7 | 561 |
| 1984 | WA2 | | 1984 | 12 | 03.06389 | 06 | 09 | 14.85 | +10 | 02 | 47.5 | | 561 |
| 1984 | WA2 | | 1984 | 12 | 04.09375 | 06 | 08 | 30.84 | +10 | 00 | 48.7 | | 561 |
| 1984 | WA2 | | 1984 | 12 | 04.12292 | 06 | 08 | 29.60 | +10 | 00 | 44.8 | 17.9 | 561 |
| 1984 | WA2 | | 1984 | 12 | 04.15486 | 06 | 08 | 28.19 | +10 | 00 | 40.9 | | 561 |
| 1984 | WB2 | * | 1984 | 11 | 30.03125 | 06 | 12 | 10.76 | +09 | 27 | 18.2 | 16.8 | 561 |
| 1984 | WB2 | | 1984 | 11 | 30.05903 | 06 | 12 | 09.61 | +09 | 27 | 17.9 | | 561 |
| 1984 | WB2 | | 1984 | 12 | 03.04167 | 06 | 10 | 05.99 | +09 | 25 | 12.4 | 17.0 | 561 |
| 1984 | WB2 | | 1984 | 12 | 03.06389 | 06 | 10 | 05.03 | +09 | 25 | 12.0 | | 561 |
| 1984 | WB2 | | 1984 | 12 | 04.09375 | 06 | 09 | 20.31 | +09 | 24 | 40.6 | | 561 |
| 1984 | WB2 | | 1984 | 12 | 04.12292 | 06 | 09 | 19.04 | +09 | 24 | 39.2 | 8 | 561 |
| 1984 | WB2 | | 1984 | 12 | 04.15486 | 06 | 09 | 17.60 | +09 | 24 | 38.7 | | 561 |

Note 1: measurement difficult. 2: at edge of plate. 3 = 1 + 2. 4: weak image. 5 = 1 + 4. 6: poor plate quality; bad atmospheric conditions. 7 = 3 + 4. 8: involvement with faint star.

OBSERVATIONS MADE AT SEEWALCHEN BY M. BRESSLAR.

Films with 0.25-m f/6 reflector, AGK3 or SAO reference stars. Contact: F. Frevert, Dilichstr. 1, D-633 Wetzlar, Federal Republic of Germany.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 781 | 1985 05 | 11.84375 | 13 18 44.33 | +17 12 33.8 | 563 |
| 781 | 1985 05 | 11.85417 | 13 18 43.98 | +17 12 34.5 | 563 |
| 781 | 1985 05 | 11.86667 | 13 18 43.65 | +17 12 33.7 | 563 |
| 781 | 1985 05 | 11.88333 | 13 18 43.18 | +17 12 34.1 | 563 |
| 781 | 1985 05 | 11.89722 | 13 18 42.78 | +17 12 33.6 | 563 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 888 | | 1985 01 29.84444 | 07 55 26.21 | +20 03 31.1 | | 563 |
| 888 | | 1985 01 29.85139 | 07 55 25.88 | +20 03 34.5 | | 563 |
| 888 | | 1985 01 29.85833 | 07 55 25.80 | +20 03 39.0 | | 563 |
| 888 | | 1985 01 29.86528 | 07 55 25.15 | +20 03 42.9 | | 563 |
| 888 | | 1985 01 29.87222 | 07 55 24.77 | +20 03 46.3 | | 563 |
| 2860 | | 1985 09 10.91181 | 23 18 39.08 | +10 57 40.6 | | 563 |
| 2860 | | 1985 09 10.92569 | 23 18 37.74 | +10 57 49.9 | | 563 |
| 2860 | | 1985 09 10.93958 | 23 18 36.59 | +10 57 57.2 | | 563 |
| 2860 | | 1985 09 10.95347 | 23 18 35.24 | +10 58 06.3 | | 563 |
| 2860 | | 1985 09 13.83889 | 23 14 06.63 | +11 27 01.1 | | 563 |
| 2860 | | 1985 09 13.85069 | 23 14 05.58 | +11 27 09.5 | | 563 |
| 2860 | | 1985 09 13.86111 | 23 14 04.60 | +11 27 15.1 | | 563 |
| 2860 | | 1985 09 13.87153 | 23 14 03.56 | +11 27 21.2 | | 563 |
| 2860 | | 1985 09 13.92014 | 23 13 59.03 | +11 27 49.9 | | 563 |
| 1948 | RD | 1985 09 11.04722 | 00 10 47.86 | +00 27 11.2 | | 563 |
| 1948 | RD | 1985 09 11.07500 | 00 10 46.32 | +00 27 12.1 | | 563 |
| 1948 | RD | 1985 09 11.08889 | 00 10 45.59 | +00 27 12.2 | | 563 |
| 1948 | RD | 1985 09 11.10833 | 00 10 44.44 | +00 27 12.1 | | 563 |
| 1948 | RD | 1985 10 20.84375 | 23 36 55.58 | +00 37 38.3 | | 563 |
| 1948 | RD | 1985 10 20.85417 | 23 36 55.24 | +00 37 39.1 | | 563 |
| 1948 | RD | 1985 10 20.88750 | 23 36 54.46 | +00 37 42.1 | | 563 |
| 1948 | RD | 1985 10 20.89583 | 23 36 54.20 | +00 37 44.2 | | 563 |
| 1948 | RD | 1985 10 20.90625 | 23 36 53.94 | +00 37 44.7 | | 563 |
| 1948 | RD | 1985 10 20.91667 | 23 36 53.66 | +00 37 45.9 | | 563 |
| 1948 | RD | 1985 10 20.92708 | 23 36 53.46 | +00 37 46.6 | | 563 |
| 1948 | RD | 1985 10 20.93750 | 23 36 53.15 | +00 37 47.6 | | 563 |
| 1948 | RD | 1985 10 20.95833 | 23 36 52.63 | +00 37 49.6 | | 563 |
| 1948 | RD | 1985 10 20.96875 | 23 36 52.32 | +00 37 50.4 | | 563 |
| 1984 | HA1 | 1985 05 24.87361 | 15 13 47.69 | +06 30 50.4 | | 563 |
| 1984 | HA1 | 1985 05 24.88750 | 15 13 47.32 | +06 30 52.9 | | 563 |
| 1984 | HA1 | 1985 05 24.90139 | 15 13 46.95 | +06 30 53.8 | | 563 |
| 1984 | HA1 | 1985 05 24.91528 | 15 13 46.47 | +06 30 55.8 | | 563 |
| 1984 | HA1 | 1985 05 24.92917 | 15 13 46.20 | +06 30 58.2 | | 563 |

OBSERVATIONS MADE AT ELDAGSEN BY W. BONK.
Contact: W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 361 | 1985 12 | 12.80903 | 07 02 57.85 | +40 19 07.3 | 573 |
| 361 | 1985 12 | 12.81458 | 07 02 57.62 | +40 19 09.2 | 573 |
| 361 | 1985 12 | 12.82014 | 07 02 57.39 | +40 19 11.1 | 573 |
| 361 | 1985 12 | 12.82639 | 07 02 57.13 | +40 19 13.2 | 573 |
| 361 | 1985 12 | 12.83264 | 07 02 56.87 | +40 19 15.4 | 573 |

OBSERVATIONS MADE AT NOVI LIGURE BY L. BALBI.
Prime-focus plates taken with a 0.25-m f/6 reflector. Reduced by least-squares plate-constant solutions using three SAO reference stars.
Contact: L. Balbi, Corso R. Marenco 63, Novi Ligure (AL), Italy.

| Object | Date | UT | R. A. (1950) | Decl. | N | Obs. |
|---|---|---|---|---|---|---|
| 1627 | 1985 06 | 23.04201 | 21 30 23.15 | +10 30 40.7 | 1 | 579 |
| 1627 | 1985 06 | 25.05381 | 21 40 33.75 | +10 28 20.0 | 1 | 579 |
| 1627 | 1985 06 | 27.05625 | 21 50 49.00 | +10 22 03.5 | 1 | 579 |
| 1627 | 1985 06 | 29.03958 | 22 01 04.29 | +10 11 55.3 | 1 | 579 |
| 1627 | 1985 07 | 13.0496 | 23 12 40.30 | +07 08 40.0 | 1 | 579 |
| 1627 | 1985 07 | 14.05312 | 23 17 30.64 | +06 48 44.0 | 1 | 579 |
| 1627 | 1985 07 | 18.03472 | 23 36 04.48 | +05 22 03.9 | 1 | 579 |
| 1627 | 1985 08 | 12.07534 | 00 59 07.38 | -05 57 49.8 | 1 | 579 |

Note 1: Observatory code 579, Long. and Parallax 8.85, -303, -299 (see MPC 7759).

OBSERVATIONS MADE AT PALOMAR BY C. S. SHOEMAKER AND E. M. SHOEMAKER.
Four-minute exposures with the 0.46-m Schmidt telescope. Film pairs scanned by C. Shoemaker with a stereomicroscope, measured by her with a Mann comparator at the U.S. Geological Survey. Reference stars from the SAO Catalog. Contact: C. S. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 2988 | | 1985 03 | 18.24027 | 08 56 35.64 | +32 39 02.4 | 17.5 | 675 |
| 2988 | | 1985 03 | 20.21458 | 08 56 07.21 | +32 38 54.1 | | 675 |
| 2988 | | 1985 03 | 23.23402 | 08 55 38.19 | +32 37 11.7 | | 675 |
| 1985 CL | | 1985 02 | 22.28472 | 09 33 45.45 | +36 06 13.8 | | 675 |
| 1985 CL | | 1985 03 | 18.24027 | 09 07 15.10 | +30 14 22.8 | | 675 |
| 1985 CL | | 1985 03 | 20.21458 | 09 06 23.03 | +29 41 42.9 | | 675 |
| 1985 CL | | 1985 03 | 23.23402 | 09 05 25.57 | +28 51 36.1 | | 675 |
| 1985 CL | | 1985 03 | 25.33958 | 09 05 00.75 | +28 16 33.2 | | 675 |
| 1985 DC2 | * | 1985 02 | 22.28472 | 09 22 16.57 | +33 52 27.5 | 17 | 675 |
| 1985 DC2 | | 1985 02 | 26.35277 | 09 17 51.05 | +33 35 38.2 | | 675 |
| 1985 RY | | 1985 09 | 21.35850 | 22 48 00.05 | +28 05 23.2 | | 675 |
| 1985 RY | | 1985 10 | 12.16076 | 22 35 37.69 | +26 00 34.4 | | 675 |
| 1985 RY | | 1985 10 | 13.18229 | 22 35 18.00 | +25 52 49.0 | | 675 |
| 1985 RY | | 1985 10 | 15.39774 | 22 34 41.51 | +25 35 44.0 | | 675 |
| 1985 RY | | 1985 11 | 07.24132 | 22 36 44.98 | +22 43 03.8 | | 675 |
| 1985 RY | | 1985 11 | 16.18837 | 22 41 24.41 | +21 47 14.6 | | 675 |
| 1986 AA | | 1986 01 | 09.44253 | 08 54 05.20 | +14 40 14.3 | 14.5 | 675 |
| 1986 AA | | 1986 01 | 10.41979 | 08 52 35.46 | +14 31 07.8 | | 675 |
| 1986 AA | | 1986 01 | 16.45191 | 08 43 07.16 | +13 37 18.2 | 14.5 | 675 |
| 1986 AC | * | 1986 01 | 09.36441 | 08 28 17.62 | +18 36 19.6 | 17.8 | 675 |
| 1986 AC | | 1986 01 | 09.39219 | 08 28 16.21 | +18 36 25.3 | | 675 |
| 1986 AD | * | 1986 01 | 10.40990 | 08 27 59.04 | +23 48 36.0 | 17.5 | 675 |
| 1986 AD | | 1986 01 | 10.43927 | 08 27 56.45 | +23 48 11.7 | | 675 |
| 1986 AE | * | 1986 01 | 10.43438 | 08 28 57.81 | +10 16 32.7 | 17 | 675 |
| 1986 AE | | 1986 01 | 11.39201 | 08 27 31.89 | +10 05 25.4 | | 675 |
| 1986 AF | * | 1986 01 | 10.31806 | 06 42 14.71 | +16 08 32.7 | 16.5 | 675 |
| 1986 AG | * | 1986 01 | 10.31806 | 06 53 15.41 | +16 35 19.9 | 16.5 | 675 |

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR BY C. T. KOWAL.
Plates scanned and measured by S. J. Bus. Contact: S. J. Bus, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1978 SW6 | 1978 10 | 03.30799 | 00 49 26.87 | +07 07 34.4 | 675 |
| 1978 SW6 | 1978 10 | 04.30070 | 00 48 24.18 | +07 05 30.0 | 675 |
| 1979 SR2 | 1979 09 | 18.39549 | 00 35 56.37 | +07 50 36.7 | 675 |
| 1979 SR2 | 1979 09 | 19.44965 | 00 35 14.35 | +07 48 19.6 | 675 |
| 1979 SU2 | 1979 09 | 18.39549 | 00 41 26.34 | +13 10 53.2 | 675 |
| 1979 SU2 | 1979 09 | 19.44965 | 00 40 41.69 | +13 05 31.5 | 675 |
| 1979 SW2 | 1979 09 | 18.39549 | 00 49 42.27 | +07 11 15.3 | 675 |
| 1979 SW2 | 1979 09 | 19.44965 | 00 48 48.71 | +07 12 25.5 | 675 |
| 1979 SX2 | 1979 09 | 18.39549 | 00 49 26.57 | +12 38 31.9 | 675 |
| 1979 SX2 | 1979 09 | 19.44965 | 00 48 43.86 | +12 33 11.7 | 675 |
| 1981 EH3 | 1979 11 | 26.35868 | 04 13 10.10 | +25 15 50.0 | 675 |
| 1981 EH3 | 1979 11 | 27.42188 | 04 12 01.37 | +25 09 03.4 | 675 |
| 1981 EA7 | 1979 11 | 26.35868 | 04 29 10.52 | +26 47 30.8 | 675 |
| 1981 EA7 | 1979 11 | 27.42188 | 04 27 55.73 | +26 40 35.6 | 675 |
| 1981 ET7 | 1979 09 | 20.35590 | 00 24 07.14 | +10 10 20.9 | 675 |
| 1981 ET7 | 1979 09 | 21.35660 | 00 23 12.31 | +10 06 18.5 | 675 |
| 1981 EE9 | 1979 11 | 26.35868 | 04 24 03.96 | +27 42 17.2 | 675 |
| 1981 EE9 | 1979 11 | 27.42188 | 04 23 07.76 | +27 37 35.7 | 675 |
| 1981 EH9 | 1979 09 | 20.32986 | 00 24 38.96 | +08 33 44.8 | 675 |
| 1981 EH9 | 1979 09 | 21.35660 | 00 23 42.99 | +08 28 11.4 | 675 |
| 1981 ET9 | 1979 09 | 20.35590 | 00 23 19.18 | +09 30 17.3 | 675 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1981 ET9 | 1979 09 21.38264 | 00 22 22.26 | +09 25 54.2 | | | 675 |
| 1981 ES10 | 1979 09 20.35590 | 00 24 47.37 | +09 36 53.3 | | | 675 |
| 1981 ES10 | 1979 09 21.35660 | 00 23 54.55 | +09 32 11.3 | | | 675 |
| 1981 EV10 | 1979 09 18.39549 | 00 43 58.09 | +11 49 10.9 | | | 675 |
| 1981 EV10 | 1979 09 19.44965 | 00 43 08.59 | +11 43 34.1 | | | 675 |
| 1981 EE11 | 1979 11 26.35868 | 04 15 09.67 | +25 55 31.3 | | | 675 |
| 1981 EE11 | 1979 11 27.42188 | 04 13 52.96 | +25 52 07.0 | | | 675 |
| 1981 EL12 | 1979 09 18.39549 | 00 44 38.40 | +11 15 36.1 | | | 675 |
| 1981 EL12 | 1979 09 19.44965 | 00 43 43.30 | +11 11 54.3 | | | 675 |
| 1981 EC14 | 1979 11 26.35868 | 04 15 17.66 | +27 31 26.9 | | | 675 |
| 1981 EC14 | 1979 11 27.39583 | 04 14 08.62 | +27 28 21.8 | | | 675 |
| 1981 EY14 | 1979 09 18.39549 | 00 36 07.43 | +10 35 08.7 | | | 675 |
| 1981 EY14 | 1979 09 19.44965 | 00 35 12.06 | +10 30 32.0 | | | 675 |
| 1981 EU15 | 1979 09 20.35590 | 00 21 38.74 | +08 52 11.2 | | | 675 |
| 1981 EU15 | 1979 09 21.35660 | 00 20 45.48 | +08 45 38.6 | | | 675 |
| 1981 ET16 | 1978 10 03.30799 | 00 37 08.85 | +05 34 51.3 | | | 675 |
| 1981 ET16 | 1978 10 04.30070 | 00 36 22.60 | +05 22 58.1 | | | 675 |
| 1981 EJ19 | 1978 10 03.30799 | 00 40 18.54 | +03 35 10.3 | | | 675 |
| 1981 EJ19 | 1978 10 04.30070 | 00 39 36.26 | +03 30 35.3 | | | 675 |
| 1981 EY20 | 1978 10 03.30799 | 00 36 41.92 | +05 27 55.4 | | | 675 |
| 1981 EY20 | 1978 10 04.30070 | 00 35 54.57 | +05 23 11.9 | | | 675 |
| 1981 EE22 | 1978 10 03.30799 | 00 53 31.12 | +05 42 57.6 | | | 675 |
| 1981 EE22 | 1978 10 04.30070 | 00 52 45.44 | +05 39 22.0 | | | 675 |
| 1981 EH23 | 1979 09 18.39549 | 00 55 03.52 | +07 52 34.9 | | | 675 |
| 1981 EH23 | 1979 09 19.44965 | 00 54 17.21 | +07 48 10.9 | | | 675 |
| 1981 EB24 | 1979 11 26.35868 | 04 03 45.82 | +26 23 01.7 | | | 675 |
| 1981 EB24 | 1979 11 27.42188 | 04 02 41.42 | +26 21 20.8 | | | 675 |
| 1981 ET27 | 1978 10 03.30799 | 00 51 27.80 | +04 01 25.2 | | | 675 |
| 1981 ET27 | 1978 10 04.30070 | 00 50 42.33 | +03 55 59.3 | | | 675 |
| 1981 EE29 | 1979 09 18.39549 | 00 39 48.07 | +11 55 07.0 | | | 675 |
| 1981 EE29 | 1979 09 19.42361 | 00 38 54.35 | +11 51 56.7 | | | 675 |
| 1981 EZ37 | 1978 10 03.30799 | 00 49 52.53 | +04 57 01.8 | | | 675 |
| 1981 EZ37 | 1978 10 04.30070 | 00 49 11.01 | +04 50 17.9 | | | 675 |
| 1981 EE38 | 1979 11 26.35868 | 04 25 16.84 | +24 59 45.3 | | | 675 |
| 1981 EE38 | 1979 11 27.42188 | 04 24 14.80 | +24 57 11.1 | | | 675 |
| 1981 EA41 | 1978 10 03.30799 | 00 58 16.20 | +04 26 30.8 | | | 675 |
| 1981 EA41 | 1978 10 04.30070 | 00 57 34.52 | +04 20 29.9 | | | 675 |
| 1981 ET43 | 1978 10 03.30799 | 00 55 21.70 | +03 59 29.3 | | | 675 |
| 1981 ET43 | 1978 10 04.30070 | 00 54 42.11 | +03 49 09.6 | | | 675 |
| 1983 DJ | 1978 10 03.30799 | 00 47 29.20 | +02 26 17.9 | | | 675 |
| 1983 DJ | 1978 10 04.30070 | 00 46 24.91 | +02 23 00.7 | | | 675 |
| 4063 P-L | 1979 09 20.35590 | 00 22 44.51 | +07 07 20.9 | | | 675 |
| 4063 P-L | 1979 09 21.35660 | 00 21 49.63 | +07 04 12.0 | | | 675 |

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.

Plates taken in the course of the International Near-Earth Asteroid Survey (INAS) by E. Helin. Measured by M. Rudnyk. Contact: E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 1984 AB | 1985 12 14.45347 | 07 10 19.20 | +20 31 09.7 | | 17.5 | 675 |
| 1984 AB | 1985 12 14.51250 | 07 10 15.75 | +20 32 06.7 | | | 675 |

OBSERVATIONS MADE WITH THE 1.5-m REFLECTOR AND CCD AT PALOMAR BY J. GIBSON.

Coordination with J. G. Williams and with the Minor Planet Center. AGK3 and SAO reference stars, reduction using Palomar Sky Survey prints. Contact: J. Gibson, MS 138-307, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1981 VA | 1985 10 03.50299 | 06 41 43.51 | +28 33 42.8 | | 675 |
| 1981 VA | 1985 10 03.50681 | 06 41 43.49 | +28 33 40.2 | | 675 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1982 HR | 1985 09 23.26611 | 22 40 46.00 | -05 49 17.7 | | | 675 |
| 1982 HR | 1985 09 23.27597 | 22 40 44.64 | -05 49 28.5 | | | 675 |
| 1982 HR | 1985 09 24.24056 | 22 38 40.72 | -06 06 51.4 | | | 675 |
| 1982 HR | 1985 09 24.25417 | 22 38 38.91 | -06 07 06.1 | | | 675 |
| 1982 HR | 1985 11 05.29111 | 22 01 55.70 | -13 09 54.8 | | | 675 |
| 1982 HR | 1985 11 05.29903 | 22 01 55.96 | -13 09 55.8 | | | 675 |
| 1982 HR | 1985 11 06.22222 | 22 02 24.81 | -13 11 12.3 | | | 675 |
| 1982 HR | 1985 11 06.23347 | 22 02 25.14 | -13 11 12.7 | | | 675 |

OBSERVATIONS MADE WITH THE 0.33-m PHOTOGRAPHIC TELESCOPE AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION.

Observations made B. A. Skiff, measured by S. J. Bus using a PDS scanning microdensitometer. See also MPC 9533. Contact: E. Bowell, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 261 | 1985 06 | 22.35625 | 21 20 26.23 | -17 47 59.7 | | | 688 |
| 261 | 1985 06 | 22.38681 | 21 20 25.82 | -17 48 04.9 | | | 688 |
| 261 | 1985 06 | 22.41736 | 21 20 25.43 | -17 48 10.6 | | | 688 |
| 431 | 1985 11 | 07.17014 | 00 59 48.86 | +03 24 58.6 | | | 688 |
| 431 | 1985 11 | 07.25764 | 00 59 46.24 | +03 24 46.2 | | | 688 |
| 456 | 1985 11 | 07.19931 | 01 25 31.24 | +15 47 52.1 | | | 688 |
| 456 | 1985 11 | 07.28646 | 01 25 27.74 | +15 47 08.9 | | | 688 |
| 460 | 1985 11 | 07.13403 | 00 09 27.05 | +01 53 41.7 | | | 688 |
| 460 | 1985 11 | 07.22847 | 00 09 25.95 | +01 53 21.9 | | | 688 |
| 487 | 1985 06 | 22.35625 | 21 23 47.61 | -17 09 46.9 | | | 688 |
| 487 | 1985 06 | 22.38681 | 21 23 47.47 | -17 09 54.8 | | | 688 |
| 487 | 1985 06 | 22.41736 | 21 23 47.33 | -17 10 03.1 | | | 688 |
| 659 | 1985 11 | 07.19931 | 01 31 28.46 | +13 22 53.6 | | | 688 |
| 659 | 1985 11 | 07.28646 | 01 31 25.93 | +13 22 40.1 | | | 688 |
| 859 | 1985 11 | 07.17014 | 01 05 50.83 | +03 10 45.4 | | | 688 |
| 859 | 1985 11 | 07.25764 | 01 05 47.25 | +03 10 51.6 | | | 688 |
| 904 | 1985 11 | 07.13403 | 00 04 20.82 | +01 37 35.8 | | | 688 |
| 904 | 1985 11 | 07.22847 | 00 04 19.57 | +01 37 01.7 | | | 688 |
| 943 | 1985 06 | 22.35625 | 21 27 23.18 | -18 33 12.9 | | | 688 |
| 943 | 1985 06 | 22.38681 | 21 27 22.76 | -18 33 19.2 | | | 688 |
| 943 | 1985 06 | 22.41736 | 21 27 22.41 | -18 33 26.9 | | | 688 |
| 946 | 1985 11 | 07.17014 | 01 02 10.63 | +05 04 51.9 | | | 688 |
| 946 | 1985 11 | 07.25764 | 01 02 07.43 | +05 04 35.4 | | | 688 |
| 960 | 1985 11 | 07.13403 | 00 05 32.80 | +04 50 19.0 | | | 688 |
| 960 | 1985 11 | 07.22847 | 00 05 32.74 | +04 50 00.8 | | | 688 |
| 992 | 1985 11 | 07.17014 | 01 03 40.18 | +08 37 31.6 | | | 688 |
| 992 | 1985 11 | 07.25764 | 01 03 37.23 | +08 36 58.6 | | | 688 |
| 1039 | 1985 11 | 07.13403 | 00 13 23.61 | +04 17 57.5 | | | 688 |
| 1039 | 1985 11 | 07.22847 | 00 13 21.63 | +04 17 33.4 | | | 688 |
| 1143 | 1985 11 | 07.17014 | 00 57 00.74 | +07 27 38.9 | | | 688 |
| 1143 | 1985 11 | 07.25764 | 00 56 58.78 | +07 27 23.2 | | | 688 |
| 1259 | 1985 11 | 07.17014 | 01 09 22.29 | +04 41 54.1 | | | 688 |
| 1259 | 1985 11 | 07.25764 | 01 09 19.17 | +04 41 38.5 | | | 688 |
| 1339 | 1985 06 | 22.35625 | 21 10 09.03 | -13 51 48.9 | | | 688 |
| 1339 | 1985 06 | 22.38681 | 21 10 08.48 | -13 51 46.4 | | | 688 |
| 1339 | 1985 06 | 22.41736 | 21 10 07.85 | -13 51 43.8 | | | 688 |
| 1366 | 1985 11 | 07.13403 | 00 05 07.74 | -01 42 20.7 | | | 688 |
| 1366 | 1985 11 | 07.22847 | 00 05 06.00 | -01 42 07.6 | | | 688 |
| 1377 | 1985 11 | 07.17014 | 00 56 01.98 | +08 49 01.1 | | | 688 |
| 1377 | 1985 11 | 07.25764 | 00 55 58.43 | +08 48 22.1 | | | 688 |
| 1451 | 1985 11 | 07.25764 | 01 16 16.85 | +03 05 12.3 | | | 688 |
| 1672 | 1985 11 | 07.19931 | 01 27 20.55 | +08 14 07.0 | | | 688 |
| 1672 | 1985 11 | 07.28646 | 01 27 17.13 | +08 13 46.9 | | | 688 |
| 1777 | 1985 06 | 22.35625 | 21 08 43.84 | -19 13 34.9 | | | 688 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1777 | | 1985 | 06 | 22.38681 | 21 | 08 | 43.35 | -19 | 13 | 36.9 | | 688 |
| 1777 | | 1985 | 06 | 22.41736 | 21 | 08 | 42.82 | -19 | 13 | 39.9 | | 688 |
| 1840 | | 1985 | 06 | 22.35625 | 21 | 20 | 27.29 | -18 | 59 | 04.2 | | 688 |
| 1840 | | 1985 | 06 | 22.38681 | 21 | 20 | 27.03 | -18 | 59 | 07.9 | | 688 |
| 1840 | | 1985 | 06 | 22.41736 | 21 | 20 | 26.57 | -18 | 59 | 12.9 | | 688 |
| 1847 | | 1985 | 06 | 22.35625 | 21 | 25 | 27.41 | -19 | 20 | 03.0 | | 688 |
| 1847 | | 1985 | 06 | 22.38681 | 21 | 25 | 27.30 | -19 | 20 | 13.7 | | 688 |
| 1847 | | 1985 | 06 | 22.41736 | 21 | 25 | 27.18 | -19 | 20 | 24.4 | | 688 |
| 1938 | | 1985 | 11 | 07.17014 | 01 | 15 | 41.53 | +04 | 33 | 21.2 | | 688 |
| 1938 | | 1985 | 11 | 07.25764 | 01 | 15 | 37.40 | +04 | 32 | 55.9 | | 688 |
| 2007 | | 1985 | 11 | 07.13403 | 00 | 11 | 55.44 | +01 | 20 | 43.5 | | 688 |
| 2007 | | 1985 | 11 | 07.22847 | 00 | 11 | 53.00 | +01 | 20 | 34.8 | | 688 |
| 2043 | | 1985 | 11 | 07.13403 | 00 | 04 | 23.66 | +04 | 23 | 47.8 | | 688 |
| 2043 | | 1985 | 11 | 07.22847 | 00 | 04 | 22.28 | +04 | 23 | 36.3 | | 688 |
| 2056 | | 1985 | 11 | 07.17014 | 01 | 09 | 43.02 | +09 | 20 | 12.0 | | 688 |
| 2056 | | 1985 | 11 | 07.25764 | 01 | 09 | 40.20 | +09 | 19 | 36.2 | | 688 |
| 2226 | | 1985 | 11 | 07.13403 | 00 | 12 | 54.90 | -00 | 20 | 19.0 | 16.8 | 688 |
| 2226 | | 1985 | 11 | 07.22847 | 00 | 12 | 53.21 | -00 | 20 | 21.0 | | 688 |
| 2279 | | 1985 | 11 | 07.17014 | 01 | 11 | 07.93 | +03 | 10 | 03.3 | | 688 |
| 2279 | | 1985 | 11 | 07.25764 | 01 | 11 | 04.06 | +03 | 09 | 41.5 | | 688 |
| 2305 | | 1985 | 11 | 07.19931 | 01 | 37 | 26.70 | +11 | 54 | 27.0 | | 688 |
| 2305 | | 1985 | 11 | 07.28646 | 01 | 37 | 22.22 | +11 | 54 | 16.6 | | 688 |
| 2310 | | 1985 | 11 | 07.13403 | 00 | 16 | 34.67 | -01 | 57 | 57.3 | | 688 |
| 2470 | | 1985 | 06 | 22.35625 | 21 | 28 | 45.37 | -18 | 00 | 59.6 | | 688 |
| 2470 | | 1985 | 06 | 22.41736 | 21 | 28 | 44.86 | -18 | 01 | 09.7 | 1 | 688 |
| 2619 | | 1985 | 11 | 07.13403 | 00 | 10 | 26.81 | +01 | 23 | 19.5 | | 688 |
| 2619 | | 1985 | 11 | 07.22847 | 00 | 10 | 25.39 | +01 | 23 | 06.5 | | 688 |
| 2632 | | 1985 | 11 | 07.17014 | 01 | 03 | 09.77 | +09 | 14 | 23.1 | | 688 |
| 2632 | | 1985 | 11 | 07.25764 | 01 | 03 | 06.23 | +09 | 14 | 18.7 | | 688 |
| 2702 | | 1985 | 11 | 07.28646 | 01 | 43 | 33.25 | +11 | 59 | 50.8 | | 688 |
| 2802 | | 1985 | 06 | 22.35625 | 21 | 26 | 53.37 | -14 | 15 | 36.6 | | 688 |
| 2802 | | 1985 | 06 | 22.41736 | 21 | 26 | 52.69 | -14 | 15 | 47.4 | | 688 |
| 2850 | | 1985 | 06 | 22.35625 | 21 | 19 | 44.09 | -18 | 34 | 49.6 | | 688 |
| 2850 | | 1985 | 06 | 22.41736 | 21 | 19 | 43.59 | -18 | 35 | 06.7 | | 688 |
| 2874 | | 1985 | 06 | 22.35625 | 21 | 21 | 08.12 | -20 | 33 | 25.2 | 3 | 688 |
| 2874 | | 1985 | 06 | 22.41736 | 21 | 21 | 08.34 | -20 | 33 | 38.7 | 3 | 688 |
| 2878 | | 1985 | 06 | 22.35625 | 21 | 07 | 19.00 | -21 | 37 | 42.2 | | 688 |
| 2878 | | 1985 | 06 | 22.41736 | 21 | 07 | 17.86 | -21 | 37 | 41.6 | | 688 |
| 3029 | | 1985 | 06 | 22.35625 | 21 | 02 | 09.82 | -18 | 53 | 48.1 | 16.8 | 688 |
| 3029 | | 1985 | 06 | 22.38681 | 21 | 02 | 09.35 | -18 | 53 | 48.0 | | 688 |
| 3029 | | 1985 | 06 | 22.41736 | 21 | 02 | 08.64 | -18 | 53 | 48.9 | | 688 |
| 3202 | | 1985 | 11 | 07.13403 | 00 | 11 | 59.79 | +04 | 18 | 42.8 | | 688 |
| 3202 | | 1985 | 11 | 07.22847 | 00 | 11 | 58.13 | +04 | 18 | 20.2 | | 688 |
| 1964 | TG2 | 1985 | 11 | 07.19931 | 01 | 32 | 19.76 | +13 | 58 | 03.3 | 16.8 | 688 |
| 1964 | TG2 | 1985 | 11 | 07.28646 | 01 | 32 | 15.40 | +13 | 57 | 40.8 | | 688 |
| 1976 | SV10 | 1985 | 11 | 07.19931 | 01 | 34 | 22.12 | +13 | 11 | 44.8 | 17.2 | 688 |
| 1976 | SV10 | 1985 | 11 | 07.28646 | 01 | 34 | 17.92 | +13 | 11 | 20.4 | | 688 |
| 1978 | RX | 1981 | 04 | 05.27569 | 13 | 01 | 01.62 | -04 | 08 | 05.3 | 17.5 | 688 |
| 1978 | RX | 1981 | 04 | 05.31875 | 13 | 00 | 59.39 | -04 | 07 | 54.2 | | 688 |
| 1982 | UG7 | 1985 | 11 | 07.17014 | 01 | 12 | 56.33 | +07 | 14 | 10.2 | 16.8 | 688 |
| 1982 | UG7 | 1985 | 11 | 07.25764 | 01 | 12 | 53.42 | +07 | 13 | 41.7 | | 688 |
| 1985 | TC | 1985 | 11 | 07.17014 | 01 | 15 | 34.19 | +08 | 14 | 43.8 | 16.8 | 688 |
| 1985 | TC | 1985 | 11 | 07.25764 | 01 | 15 | 31.48 | +08 | 14 | 13.9 | | 688 |
| 1985 | TO | 1985 | 11 | 07.17014 | 00 | 53 | 23.94 | +08 | 51 | 00.1 | 17.0 | 688 |
| 1985 | TO | 1985 | 11 | 07.25764 | 00 | 53 | 20.52 | +08 | 50 | 47.1 | | 688 |
| 1985 | TP | 1985 | 11 | 07.17014 | 00 | 57 | 19.38 | +04 | 46 | 17.8 | 17.5 | 688 |
| 1985 | TP | 1985 | 11 | 07.25764 | 00 | 57 | 16.60 | +04 | 45 | 58.0 | | 688 |
| 1985 | TQ | 1985 | 11 | 07.17014 | 01 | 02 | 24.33 | +06 | 32 | 58.2 | 17.5 | 688 |
| 1985 | TQ | 1985 | 11 | 07.25764 | 01 | 02 | 22.36 | +06 | 32 | 47.2 | | 688 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | TR | | 1985 | 11 | 07.17014 | 00 | 54 | 26.80 | +07 | 31 | 22.1 | 17.5 | 688 |
| 1985 | TR | | 1985 | 11 | 07.25764 | 00 | 54 | 23.20 | +07 | 31 | 12.3 | | 688 |
| 1985 | TS | | 1985 | 11 | 07.17014 | 00 | 57 | 37.92 | +09 | 21 | 39.5 | 17.8 | 1 688 |
| 1985 | TS | | 1985 | 11 | 07.25764 | 00 | 57 | 35.00 | +09 | 21 | 29.2 | | 1 688 |
| 1985 | TT | | 1985 | 11 | 07.17014 | 01 | 04 | 54.91 | +04 | 03 | 27.6 | 17.2 | 688 |
| 1985 | TT | | 1985 | 11 | 07.25764 | 01 | 04 | 52.53 | +04 | 03 | 05.7 | | 688 |
| 1985 | TU | | 1985 | 11 | 07.17014 | 01 | 02 | 28.96 | +08 | 10 | 07.8 | 17.5 | 688 |
| 1985 | TU | | 1985 | 11 | 07.25764 | 01 | 02 | 26.34 | +08 | 09 | 45.8 | | 688 |
| 1985 | TV | | 1985 | 11 | 07.17014 | 00 | 59 | 21.10 | +07 | 04 | 43.0 | 17.0 | 688 |
| 1985 | TV | | 1985 | 11 | 07.25764 | 00 | 59 | 17.00 | +07 | 04 | 52.5 | | 688 |
| 1985 | TW | | 1985 | 11 | 07.17014 | 01 | 03 | 16.24 | +07 | 47 | 31.7 | 17.5 | 688 |
| 1985 | TW | | 1985 | 11 | 07.25764 | 01 | 03 | 13.49 | +07 | 47 | 18.8 | | 688 |
| 1985 | TX | | 1985 | 11 | 07.17014 | 01 | 03 | 20.39 | +07 | 40 | 09.7 | 17.0 | 688 |
| 1985 | TX | | 1985 | 11 | 07.25764 | 01 | 03 | 17.21 | +07 | 39 | 42.6 | | 688 |
| 1985 | TZ | | 1985 | 11 | 07.17014 | 01 | 10 | 59.93 | +03 | 52 | 08.9 | 17.0 | 688 |
| 1985 | TZ | | 1985 | 11 | 07.25764 | 01 | 10 | 57.52 | +03 | 52 | 01.0 | | 688 |
| 1985 | TA1 | | 1985 | 11 | 07.17014 | 01 | 08 | 35.21 | +06 | 06 | 08.5 | 17.5 | 688 |
| 1985 | TA1 | | 1985 | 11 | 07.25764 | 01 | 08 | 32.85 | +06 | 05 | 46.8 | | 688 |
| 1985 | TC1 | | 1985 | 11 | 07.17014 | 01 | 12 | 52.78 | +08 | 01 | 45.5 | 17.0 | 688 |
| 1985 | TC1 | | 1985 | 11 | 07.25764 | 01 | 12 | 50.41 | +08 | 01 | 39.7 | | 688 |
| 1985 | TD1 | | 1985 | 11 | 07.17014 | 01 | 04 | 20.35 | +09 | 25 | 51.0 | 17.8 | 1 688 |
| 1985 | TD1 | | 1985 | 11 | 07.25764 | 01 | 04 | 16.41 | +09 | 25 | 19.9 | | 688 |
| 1985 | TE1 | | 1985 | 11 | 07.17014 | 01 | 07 | 14.57 | +06 | 38 | 03.8 | 16.8 | 688 |
| 1985 | TE1 | | 1985 | 11 | 07.25764 | 01 | 07 | 11.40 | +06 | 37 | 43.7 | | 688 |
| 1985 | TF1 | | 1985 | 11 | 07.17014 | 01 | 11 | 44.25 | +09 | 32 | 10.9 | 17.0 | 688 |
| 1985 | TF1 | | 1985 | 11 | 07.25764 | 01 | 11 | 41.14 | +09 | 31 | 43.8 | | 688 |
| 1985 | TG1 | | 1985 | 11 | 07.17014 | 01 | 14 | 36.10 | +04 | 44 | 50.8 | 17.8 | 3 688 |
| 1985 | TG1 | | 1985 | 11 | 07.25764 | 01 | 14 | 33.97 | +04 | 44 | 10.0 | | 688 |
| 1985 | TK1 | | 1985 | 11 | 07.13403 | 00 | 06 | 34.09 | -00 | 58 | 29.5 | 17.5 | 688 |
| 1985 | TK1 | | 1985 | 11 | 07.22847 | 00 | 06 | 32.87 | -00 | 58 | 29.6 | | 688 |
| 1985 | TM1 | | 1985 | 11 | 07.13403 | 00 | 01 | 43.53 | -00 | 04 | 09.4 | 16.8 | 688 |
| 1985 | TM1 | | 1985 | 11 | 07.22847 | 00 | 01 | 41.58 | -00 | 03 | 33.1 | | 688 |
| 1985 | TQ1 | | 1985 | 11 | 07.13403 | 00 | 18 | 40.93 | +01 | 00 | 22.0 | 17.5 | 688 |
| 1985 | TQ1 | | 1985 | 11 | 07.22847 | 00 | 18 | 38.72 | +01 | 00 | 27.1 | | 688 |
| 1985 | UE | | 1985 | 11 | 07.17014 | 00 | 53 | 15.74 | +09 | 41 | 37.3 | 16.8 | 688 |
| 1985 | UE | | 1985 | 11 | 07.25764 | 00 | 53 | 13.85 | +09 | 40 | 59.5 | | 688 |
| 1985 | UF | | 1985 | 11 | 07.17014 | 00 | 56 | 49.40 | +06 | 59 | 03.7 | 17.5 | 688 |
| 1985 | UF | | 1985 | 11 | 07.25764 | 00 | 56 | 45.96 | +06 | 59 | 11.0 | | 688 |
| 1985 | UN | | 1985 | 11 | 07.19931 | 01 | 28 | 35.33 | +12 | 19 | 17.9 | 16.5 | 688 |
| 1985 | UN | | 1985 | 11 | 07.28646 | 01 | 28 | 31.07 | +12 | 18 | 59.1 | | 688 |
| 1985 | VC1 | * | 1985 | 11 | 07.17014 | 01 | 12 | 31.91 | +04 | 43 | 41.9 | 16.2 | 4 688 |
| 1985 | VC1 | | 1985 | 11 | 07.25764 | 01 | 12 | 27.51 | +04 | 44 | 05.3 | | 688 |
| 1985 | VD1 | * | 1985 | 11 | 07.17014 | 01 | 12 | 53.42 | +10 | 21 | 27.6 | 17.2 | 4 688 |
| 1985 | VD1 | | 1985 | 11 | 07.25764 | 01 | 12 | 50.16 | +10 | 21 | 18.3 | | 688 |
| 1985 | VE1 | * | 1985 | 11 | 07.17014 | 01 | 13 | 03.24 | +03 | 54 | 35.3 | 17.2 | 5 688 |
| 1985 | VE1 | | 1985 | 11 | 07.25764 | 01 | 13 | 00.05 | +03 | 54 | 16.6 | | 688 |
| 1985 | VF1 | * | 1985 | 11 | 07.17014 | 01 | 14 | 52.90 | +10 | 10 | 08.8 | 17.5 | 4 688 |
| 1985 | VF1 | | 1985 | 11 | 07.25764 | 01 | 14 | 49.50 | +10 | 09 | 43.8 | | 688 |
| 1985 | VG1 | * | 1985 | 11 | 07.19931 | 01 | 23 | 22.14 | +12 | 58 | 05.6 | 16.8 | 4 688 |
| 1985 | VH1 | * | 1985 | 11 | 07.19931 | 01 | 23 | 50.87 | +14 | 36 | 53.2 | 17.0 | 4 688 |
| 1985 | VH1 | | 1985 | 11 | 07.28646 | 01 | 23 | 47.36 | +14 | 36 | 35.1 | | 688 |
| 1985 | VJ1 | * | 1985 | 11 | 07.19931 | 01 | 25 | 20.05 | +16 | 08 | 22.6 | 17.0 | 4 688 |
| 1985 | VJ1 | | 1985 | 11 | 07.28646 | 01 | 25 | 15.80 | +16 | 07 | 52.6 | | 688 |
| 1985 | VK1 | * | 1985 | 11 | 07.19931 | 01 | 30 | 42.50 | +12 | 05 | 33.3 | 16.8 | 4 688 |
| 1985 | VK1 | | 1985 | 11 | 07.28646 | 01 | 30 | 38.27 | +12 | 05 | 25.1 | | 688 |
| 1985 | VL1 | * | 1985 | 11 | 07.19931 | 01 | 32 | 31.39 | +08 | 46 | 46.4 | 17.0 | 4 688 |
| 1985 | VL1 | | 1985 | 11 | 07.28646 | 01 | 32 | 27.93 | +08 | 46 | 26.8 | | 688 |
| 1985 | VM1 | * | 1985 | 11 | 07.19931 | 01 | 33 | 11.64 | +12 | 54 | 54.6 | 17.0 | 4 688 |
| 1985 | VM1 | | 1985 | 11 | 07.28646 | 01 | 33 | 07.42 | +12 | 54 | 43.9 | | 688 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 VN1 | * | 1985 | 11 | 07.19931 | 01 | 35 | 03.38 | +11 | 40 | 30.6 | 17.2 4 688 |
| 1985 VN1 | | 1985 | 11 | 07.28646 | 01 | 34 | 59.43 | +11 | 40 | 15.7 | 688 |
| 1985 VO1 | * | 1985 | 11 | 07.19931 | 01 | 38 | 17.38 | +12 | 56 | 01.6 | 16.8 4 688 |
| 1985 VO1 | | 1985 | 11 | 07.28646 | 01 | 38 | 14.45 | +12 | 55 | 57.2 | 688 |
| 1985 VP1 | * | 1985 | 11 | 07.19931 | 01 | 40 | 33.81 | +12 | 14 | 34.2 | 17.0 4 688 |
| 1985 VP1 | | 1985 | 11 | 07.28646 | 01 | 40 | 29.67 | +12 | 14 | 21.4 | 688 |
| 1985 VQ1 | * | 1985 | 11 | 07.19931 | 01 | 41 | 46.46 | +09 | 08 | 53.3 | 16.5 4 688 |
| 1985 VQ1 | | 1985 | 11 | 07.28646 | 01 | 41 | 41.56 | +09 | 08 | 46.0 | 688 |
| 1985 VR1 | * | 1985 | 11 | 07.19931 | 01 | 43 | 12.86 | +13 | 52 | 25.1 | 17.0 4 688 |
| 1985 VR1 | | 1985 | 11 | 07.28646 | 01 | 43 | 09.17 | +13 | 51 | 34.8 | 688 |
| 1985 VS1 | * | 1985 | 11 | 07.19931 | 01 | 43 | 12.91 | +13 | 52 | 09.3 | 17.0 4 688 |
| 1985 VS1 | | 1985 | 11 | 07.28646 | 01 | 43 | 08.81 | +13 | 51 | 23.4 | 688 |
| 1985 VT1 | * | 1985 | 11 | 07.19931 | 01 | 43 | 49.71 | +11 | 11 | 34.1 | 17.2 4 688 |
| 1985 VT1 | | 1985 | 11 | 07.28646 | 01 | 43 | 45.69 | +11 | 10 | 48.5 | 688 |
| 1985 VU1 | * | 1985 | 11 | 07.19931 | 01 | 44 | 48.84 | +12 | 38 | 38.4 | 16.2 4 688 |
| 1985 VU1 | | 1985 | 11 | 07.28646 | 01 | 44 | 44.25 | +12 | 37 | 55.9 | 688 |
| 1985 VV1 | * | 1985 | 11 | 07.19931 | 01 | 47 | 12.83 | +14 | 29 | 30.0 | 17.0 4 688 |
| 1985 VV1 | | 1985 | 11 | 07.28646 | 01 | 47 | 09.13 | +14 | 28 | 31.5 | 688 |
| 1985 YA | * | 1985 | 12 | 18.28714 | 06 | 50 | 51.82 | +22 | 22 | 34.5 | 16.8 4 688 |
| 1985 YA | | 1985 | 12 | 18.37431 | 06 | 50 | 47.33 | +22 | 22 | 56.0 | 688 |
| 1985 YB | * | 1985 | 12 | 18.31620 | 07 | 24 | 38.28 | +30 | 06 | 14.3 | 16.5 4 688 |
| 1985 YB | | 1985 | 12 | 18.40347 | 07 | 24 | 30.00 | +30 | 05 | 07.9 | 688 |
| 1986 AA | * | 1986 | 01 | 11.36125 | 08 | 51 | 09.05 | +14 | 22 | 27.5 | 14.8 4 688 |
| 1986 AA | | 1986 | 01 | 11.41368 | 08 | 51 | 04.12 | +14 | 21 | 59.2 | 688 |
| 4122 P-L | | 1985 | 11 | 07.17014 | 01 | 02 | 43.53 | +07 | 01 | 49.0 | 17.5 688 |
| 4122 P-L | | 1985 | 11 | 07.25764 | 01 | 02 | 40.42 | +07 | 01 | 27.5 | 688 |

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2. 4: discoverer E. Bowell. 5 = 1 + 4.

OBSERVATIONS MADE WITH THE 1.8-m AND 0.79-m REFLECTORS AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION BY S. J. BUS AND B. A. SKIFF.

CCD images measured by S. J. Bus, D. Dellinger and O. Kuhn. SAO primary reference stars, faint star transfer. Contact: E. Bowell, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1985 TB | 1986 01 | 09.08520 | 21 46 33.82 | +62 53 49.8 | 688 |
| 1985 TB | 1986 01 | 09.08902 | 21 46 33.69 | +62 53 56.9 | 688 |
| 1985 WA | 1985 12 | 18.27442 | 03 10 25.76 | +40 34 03.0 | 688 |
| 1985 WA | 1985 12 | 18.28819 | 03 10 27.96 | +40 34 13.9 | 688 |
| 1985 WA | 1985 12 | 18.29757 | 03 10 29.50 | +40 34 20.9 | 688 |

OBSERVATIONS MADE WITH THE SPACEWATCH CAMERA 0.91-m TELESCOPE ON KITT PEAK.

Observations made by J. V. Scotti and S. Tapia with a CCD in scanning mode. Reduced by Scotti using reference stars from the 1984 SAO Catalog. For further details see MPC 9198. The SWC is now able to do "non-sidereal rate" scanning by driving the telescope in R.A. and slowing down the rate of charge transfer in the CCD. In addition to the normal sidereal rate scanning, integrations can be up to three times longer, permitting observations of fainter objects. Contact: T. Gehrels, Space Sciences Building, University of Arizona, Tucson, AZ 85721, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 1985 WA | 1985 12 | 14.26962 | 02 59 01.28 | +39 30 45.1 | | 691 |
| 1985 WA | 1985 12 | 14.27588 | 02 59 02.29 | +39 30 51.7 | 17.4V | 691 |
| 1985 WA | 1985 12 | 14.29082 | 02 59 04.72 | +39 31 07.4 | | 691 |

OBSERVATIONS MADE AT OAK RIDGE OBSERVATORY BY R. E. McCROSKY, C.-Y. SHAO AND G. SCHWARTZ.

Plates with the 1.5-m reflector, reduced using the Astrographic Catalogue. Coordination and verification by, and assistance with identifica-

tions from, C. M. Bardwell. Contact: R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 2060 | | 1985 12 | 16.30641 | 04 39 39.90 | +17 01 25.9 | | 801 |
| 1929 BD | | 1985 12 | 20.21139 | 07 15 38.68 | +25 01 45.5 | | 801 |
| 1974 SU1 | | 1985 11 | 16.30433 | 03 49 01.38 | +17 56 52.3 | | 801 |
| 1974 SU1 | | 1985 12 | 15.19693 | 03 22 35.30 | +16 25 16.3 | | 801 |
| 1977 DD3 | | 1985 12 | 16.12112 | 01 27 15.42 | +25 02 54.0 | | 801 |
| 1978 RS | | 1985 12 | 16.23548 | 03 36 05.24 | +22 35 47.9 | | 801 |
| 1978 RA6 | | 1985 11 | 16.34058 | 04 34 04.98 | +28 55 41.7 | | 801 |
| 1978 RA6 | | 1985 12 | 16.25727 | 04 00 11.16 | +29 07 04.0 | | 801 |
| 1980 TF4 | | 1985 11 | 16.28896 | 03 28 12.52 | +20 15 34.7 | | 801 |
| 1980 TF4 | | 1985 12 | 16.19261 | 03 03 52.56 | +19 19 44.3 | | 801 |
| 1984 AB | | 1985 12 | 15.36170 | 07 09 20.37 | +20 47 51.3 | | 801 |
| 1985 TB | | 1985 12 | 16.09627 | 22 10 25.63 | +50 41 59.8 | | 801 |
| 1985 WA | | 1985 12 | 13.24271 | 02 56 02.76 | +39 11 00.3 | | 801 |
| 1985 XC | * | 1985 12 | 15.32150 | 06 00 48.24 | +16 45 29.7 | 18 | 801 |
| 1985 XD | * | 1985 12 | 15.34097 | 05 46 48.53 | +27 01 51.6 | 17.5 | 801 |
| 1985 YC | * | 1985 12 | 16.27900 | 04 53 21.02 | +11 00 25.8 | 17.5 | 801 |
| 1985 YD | * | 1985 12 | 16.33107 | 05 12 46.23 | +22 55 39.5 | 17.5 | 801 |

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY.

Plates taken with the 1.0-m Schmidt by H.-E. Schuster and O. Pizarro, measured by R. M. West. Contact: R. M. West, European Southern Observatory, Karl Schwarzschild Str. 2, D-8046 Garching, Federal Republic of Germany.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|---|
| 2124 | | 1985 08 | 17.27816 | 23 40 19.96 | -18 33 20.4 | | | 809 |
| 3339 | | 1985 11 | 01.05679 | 23 24 31.12 | -27 47 26.9 | 17.5 | | 809 |
| 3339 | | 1985 11 | 03.02536 | 23 24 11.27 | -27 36 25.1 | | | 809 |
| 3339 | | 1985 11 | 04.04168 | 23 24 02.98 | -27 30 33.6 | | | 809 |
| 3339 | | 1985 11 | 05.03029 | 23 23 56.05 | -27 24 41.6 | | | 809 |
| 1985 QG3 | * | 1985 08 | 17.27816 | 23 48 21.06 | -20 40 03.1 | 18.0 | 1 | 809 |
| 1985 VW | * | 1985 11 | 01.05679 | 23 13 20.15 | -29 05 06.4 | 18.5 | 1 | 809 |
| 1985 VW | | 1985 11 | 03.02536 | 23 13 45.45 | -28 49 25.1 | | 2 | 809 |
| 1985 VW | | 1985 11 | 04.04168 | 23 14 00.87 | -28 41 04.9 | | | 809 |
| 1985 VW | | 1985 11 | 05.03029 | 23 14 17.53 | -28 32 42.3 | | | 809 |
| 1985 VW | | 1985 11 | 07.05011 | 23 14 56.38 | -28 14 59.5 | | 2 | 809 |
| 1985 VX | * | 1985 11 | 01.05679 | 23 14 40.83 | -27 27 36.8 | 18.5 | 1 | 809 |
| 1985 VX | | 1985 11 | 03.02536 | 23 15 10.48 | -27 15 24.1 | | 4 | 809 |
| 1985 VY | * | 1985 11 | 01.05679 | 23 18 40.43 | -29 10 36.3 | 19.0 | 3 | 809 |
| 1985 VY | | 1985 11 | 03.02536 | 23 18 18.59 | -29 03 47.5 | | 2 | 809 |
| 1985 VY | | 1985 11 | 04.04168 | 23 18 08.51 | -29 00 07.7 | | | 809 |
| 1985 VY | | 1985 11 | 05.03029 | 23 17 59.44 | -28 56 28.1 | | 2 | 809 |
| 1985 VY | | 1985 11 | 07.05011 | 23 17 43.41 | -28 48 41.4 | | 2 | 809 |
| 1985 VZ | * | 1985 11 | 01.05679 | 23 22 02.58 | -29 57 33.9 | 17.0 | 1 | 809 |
| 1985 VZ | | 1985 11 | 03.02536 | 23 21 54.35 | -29 40 18.1 | | | 809 |
| 1985 VZ | | 1985 11 | 04.04168 | 23 21 52.50 | -29 31 15.3 | | | 809 |
| 1985 VZ | | 1985 11 | 05.03029 | 23 21 52.11 | -29 22 12.6 | | | 809 |
| 1985 VZ | | 1985 11 | 07.05011 | 23 21 55.99 | -29 03 17.9 | | | 809 |
| 1985 VA1 | * | 1985 11 | 01.05679 | 23 28 23.96 | -29 32 01.1 | 18.0 | 1 | 809 |
| 1985 VA1 | | 1985 11 | 03.02536 | 23 28 07.45 | -29 18 49.3 | | | 809 |
| 1985 VA1 | | 1985 11 | 04.04168 | 23 28 01.03 | -29 11 48.1 | | | 809 |
| 1985 VA1 | | 1985 11 | 05.03029 | 23 27 56.06 | -29 04 48.8 | | | 809 |
| 1985 VA1 | | 1985 11 | 07.05011 | 23 27 49.95 | -28 50 03.2 | | 5 | 809 |
| 1985 VB1 | | 1985 08 | 17.27816 | 23 48 38.26 | -20 38 50.0 | 18.5 | | 809 |
| 1985 VB1 | * | 1985 11 | 01.05679 | 23 20 51.21 | -31 41 56.3 | 18.5 | 1 | 809 |
| 1985 VB1 | | 1985 11 | 03.02536 | 23 21 20.88 | -31 34 11.0 | | | 809 |
| 1985 VB1 | | 1985 11 | 04.04168 | 23 21 38.27 | -31 29 50.6 | | | 809 |

1985 VB1 1985 11 05.03029 23 21 56.68 -31 25 22.9 809
1985 VB1 1985 11 07.05011 23 22 38.60 -31 15 36.8 809
Note 1: discoverer West. 2: weak trail. 3 = 1 + 2. 4: near edge of plate.
5: trail overlaps star.

OBSERVATIONS MADE AT TOYOTA BY K. SUZUKI AND T. URATA.
Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 410 | | 1986 | 01 05.55938 | 06 59 18.95 | +24 39 30.8 | 14 | 881 |
| 410 | | 1986 | 01 05.58299 | 06 59 17.50 | +24 39 37.0 | | 881 |
| 1967 | | 1985 | 12 13.51580 | 01 20 34.17 | +07 22 13.0 | 17 | 881 |
| 1967 | | 1985 | 12 13.53438 | 01 20 34.88 | +07 22 18.1 | | 881 |
| 2984 | | 1986 | 01 05.55938 | 06 55 38.43 | +24 56 50.0 | 16.5 | 881 |
| 2984 | | 1986 | 01 05.58299 | 06 55 36.72 | +24 56 55.4 | | 881 |
| 1929 | BD | 1986 | 01 05.55938 | 07 00 04.38 | +24 36 13.1 | 15 | 881 |
| 1929 | BD | 1986 | 01 05.58299 | 07 00 02.92 | +24 36 12.7 | | 881 |
| 1986 | AB * | 1986 | 01 11.57604 | 07 50 20.28 | +27 33 08.9 | 16.5 | 881 |
| 1986 | AB | 1986 | 01 11.59965 | 07 50 18.58 | +27 33 05.7 | | 881 |

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, E = E. Bowell, f = T. Furuta, M = B. G. Marsden, Z = Purple Mountain Observatory. As noted on MPC 10193-10194, B(1,0), the absolute photographic magnitude at 4 phase, will henceforth be replaced by H, the absolute visual magnitude at zero phase, the relation between them being H B(1,0) - 1.0. The combination of the standard linear phase coefficient of 0.023 mag/deg and tabular corrections at phase angles 4 will henceforth be replaced by G, a "slope parameter" that compensates more adequately for the effects of phase. For the present time a fixed value of G = 0.25 is being adopted for all minor planets, unnumbered and numbered, although it is anticipated that more precise values of H and G will become available for the numbered minor planets shortly. The columns headed Arc and O give the time span in days covered by the observations and the number of observations utilized in the orbit computation (0 means 10 or more).

| Planet | H | Epoch | M | Peri. | Node | Incl. | e | a | Arc | O | N | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1978 RH1 | 14.0 | 780929 | 87.94 | 73.91 | 182.57 | 3.66 | 0.1382 | 2.2090 | 33 | 3 | 1 | f |
| 1978 RJ1 | 15.1 | 780909 | 26.40 | 114.91 | 188.33 | 4.28 | 0.3251 | 2.6851 | 23 | 3 | 1 | f |
| 1978 SL6 | 13.7 | 780929 | 39.62 | 240.02 | 90.96 | 0.80 | 0.1479 | 2.2209 | 29 | 3 | 1 | f |
| 1978 TW2 | 14.3 | 780929 | 288.31 | 308.76 | 153.48 | 2.44 | 0.0977 | 2.2523 | 30 | 3 | 1 | f |
| 1978 TT8 | 13.1 | 780929 | 38.33 | 273.70 | 55.88 | 5.20 | 0.2717 | 2.6004 | 47 | 4 | 1 | f |
| 1979 SR2 | 13.5 | 790924 | 353.67 | 56.39 | 320.86 | 3.03 | 0.2714 | 3.0924 | 11 | 5 | | M |
| 1979 SU2 | 13.5 | 790924 | 349.54 | 142.09 | 238.45 | 5.33 | 0.1291 | 2.3774 | 11 | 5 | | M |
| 1981 SE9 | | 810913 | 17.78 | 210.91 | 114.49 | 3.23 | 0.2457 | 2.3278 | 8 | 5 | | M |
| 1981 SF9 | | 810913 | 315.11 | 217.92 | 183.30 | 0.66 | 0.1808 | 3.2237 | 6 | 5 | 2 | M |
| 1981 WE9 | | 811112 | 36.70 | 175.74 | 179.03 | 2.84 | 0.1767 | 2.2153 | 15 | 4 | | M |
| 1981 WF9 | | 811112 | 58.57 | 119.60 | 207.38 | 7.06 | 0.1854 | 2.4148 | 7 | 3 | | M |
| 1981 WG9 | | 811112 | 19.82 | 227.44 | 152.36 | 2.88 | 0.1343 | 2.3790 | 15 | 4 | | M |
| 1981 WH9 | | 811112 | 22.70 | 166.99 | 209.84 | 8.90 | 0.1264 | 2.6253 | 7 | 3 | 2 | M |
| 1981 WJ9 | | 811112 | 334.10 | 250.77 | 192.20 | 5.31 | 0.1784 | 2.6111 | 15 | 4 | | M |
| 1981 WK9 | | 811112 | 333.03 | 13.34 | 79.77 | 14.75 | 0.1986 | 2.5966 | 29 | 5 | | M |
| 1982 DR6 | 13.2 | 820819 | 333.45 | 192.79 | 38.66 | 6.62 | 0.1631 | 2.4650 | 12 | 4 | | Z |
| 1982 DT6 | 13.8 | 820819 | 23.20 | 53.92 | 121.16 | 13.56 | 0.0988 | 2.6923 | 5 | 4 | | Z |
| 1982 DU6 | 13.3 | 820819 | 28.00 | 98.91 | 64.61 | 8.27 | 0.1467 | 3.0234 | 5 | 4 | | Z |
| 1982 QM | 13.6 | 820819 | 340.30 | 214.40 | 151.41 | 6.53 | 0.2125 | 2.7536 | 26 | 7 | 1 | f |
| 1982 UG6 | 13.5 | 821107 | 346.16 | 13.62 | 53.07 | 1.61 | 0.2351 | 2.6044 | 47 | 7 | 1 | M |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 | VA10 | 12.4 | 821127 | 111.45 | 224.70 | 65.08 | 22.39 | 0.1526 | 2.9696 | 33 | 4 | 1 f |
| 1982 | VV10 | 14.2 | 821127 | 85.87 | 228.42 | 103.94 | 3.15 | 0.0186 | 2.2876 | 32 | 4 | 1 f |
| 1983 | XH1 | | 831122 | 339.22 | 280.21 | 171.59 | 7.61 | 0.2514 | 2.9318 | 5 | 3 | M |
| 1984 | DH1 | | 840301 | 326.50 | 251.91 | 264.55 | 21.47 | 0.1364 | 3.2068 | 45 | 4 | M |
| 1984 | ML | | 840609 | 42.67 | 78.94 | 93.34 | 3.91 | 0.0739 | 2.1676 | 9 | 3 | 2 M |
| 1984 | MM | | 840609 | 346.38 | 173.21 | 54.76 | 10.62 | 0.0522 | 3.1313 | 9 | 3 | M |
| 1984 | WX1 | 13.5 | 841116 | 295.75 | 68.28 | 119.68 | 13.87 | 0.3554 | 3.1979 | 6 | 0 | M |
| 1984 | WY1 | 12.5 | 841116 | 177.06 | 107.59 | 156.79 | 9.65 | 0.0687 | 2.5927 | 6 | 0 | M |
| 1984 | WZ1 | 13.5 | 841116 | 65.79 | 226.77 | 128.35 | 11.94 | 0.1948 | 3.1905 | 6 | 0 | M |
| 1984 | WA2 | 14.0 | 841116 | 350.09 | 283.34 | 169.11 | 8.20 | 0.1593 | 2.8591 | 4 | 7 | M |
| 1984 | WB2 | 11.5 | 841116 | 262.05 | 58.08 | 145.30 | 11.51 | 0.2143 | 3.0187 | 4 | 7 | M |
| 1984 | YR1 | 12.5 | 841206 | 323.76 | 58.73 | 70.37 | 7.51 | 0.1646 | 3.1518 | 10 | 3 | 2 M |
| 1984 | YY2 | 12.5 | 841226 | 26.71 | 264.63 | 112.78 | 10.64 | 0.4521 | 2.7022 | 6 | 3 | M |
| 1984 | YZ2 | 14.0 | 841226 | 23.68 | 263.61 | 134.25 | 3.68 | 0.3424 | 2.5263 | 6 | 3 | 2 M |
| 1985 | CL | 14.5 | 850316 | 74.70 | 69.36 | 355.38 | 18.90 | 0.1011 | 1.9343 | 64 | 9 | B |
| 1985 | SC1 | 14.5 | 850912 | 20.28 | 305.06 | 12.41 | 1.83 | 0.3317 | 3.0096 | 6 | 5 | 2 M |
| 1985 | TO | 13.8 | 851022 | 52.52 | 313.79 | 3.29 | 3.78 | 0.1368 | 2.2417 | 23 | 6 | E |
| 1985 | TP | 12.2 | 851022 | 87.73 | 95.31 | 180.38 | 2.13 | 0.1582 | 2.8795 | 23 | 6 | E |
| 1985 | TQ | 10.0 | 851022 | 313.73 | 54.39 | 23.84 | 2.85 | 0.1222 | 5.2620 | 23 | 6 | 2 M |
| 1985 | TR | 14.0 | 851022 | 318.68 | 63.19 | 13.75 | 3.62 | 0.1454 | 2.4314 | 23 | 6 | E |
| 1985 | TS | 14.2 | 851022 | 28.72 | 341.35 | 5.70 | 4.08 | 0.1281 | 2.3328 | 23 | 6 | E |
| 1985 | TT | 11.0 | 851022 | 44.06 | 123.85 | 188.41 | 7.03 | 0.2553 | 3.9215 | 23 | 6 | 2 M |
| 1985 | TU | 14.4 | 851022 | 357.05 | 150.16 | 238.52 | 1.60 | 0.2142 | 2.6423 | 23 | 6 | E |
| 1985 | TV | 11.6 | 851022 | 22.06 | 334.15 | 23.94 | 22.40 | 0.0442 | 3.1803 | 23 | 5 | E |
| 1985 | TW | 14.1 | 851022 | 35.32 | 319.44 | 8.39 | 1.54 | 0.2435 | 2.5656 | 23 | 6 | E |
| 1985 | TA1 | 15.2 | 851022 | 5.69 | 178.81 | 196.66 | 2.00 | 0.2293 | 2.3427 | 23 | 6 | E |
| 1985 | TC1 | 9.0 | 851022 | 132.17 | 222.87 | 23.29 | 15.53 | 0.0570 | 5.2476 | 23 | 6 | 2 M |
| 1985 | TM1 | 13.4 | 851022 | 335.68 | 30.77 | 21.14 | 11.56 | 0.2145 | 2.4743 | 26 | 5 | E |
| 1985 | TQ1 | 12.2 | 851022 | 37.97 | 307.67 | 20.98 | 9.58 | 0.0918 | 3.1619 | 26 | 5 | E |
| 1985 | UF | 14.0 | 851022 | 39.05 | 304.92 | 25.24 | 8.93 | 0.1638 | 2.4277 | 23 | 6 | E |
| 1985 | UN | 12.0 | 851022 | 306.81 | 89.78 | 2.80 | 3.67 | 0.1107 | 2.8205 | 17 | 7 | M |
| 1985 | VW | 14.0 | 851022 | 344.61 | 281.36 | 103.40 | 16.48 | 0.2702 | 3.1699 | 6 | 5 | 2 M |
| 1985 | VY | 11.0 | 851022 | 209.13 | 68.26 | 71.81 | 20.31 | 0.0331 | 5.0410 | 6 | 5 | M |
| 1985 | VZ | 11.5 | 851022 | 354.05 | 283.42 | 78.95 | 18.40 | 0.0878 | 3.0076 | 6 | 5 | 2 M |
| 1985 | VA1 | 12.0 | 851022 | 70.28 | 185.86 | 87.46 | 18.93 | 0.1049 | 3.1462 | 6 | 5 | M |
| 1985 | VB1 | 14.0 | 850912 | 17.36 | 183.05 | 135.54 | 26.02 | 0.2537 | 3.1349 | 82 | 6 | M |
| 1985 | XA | 13.0 | 851201 | 314.09 | 41.68 | 80.56 | 24.38 | 0.0542 | 1.8931 | 6 | 6 | M |
| 1986 | AA | 12.0 | 860110 | 39.17 | 99.23 | 296.71 | 20.82 | 0.4251 | 2.5085 | 7 | 5 | M |

Note 1: double designations 1978 RH1 = 1978 TM1 (f, JAM 1968); 1978 RJ1 = 1978 SO1 (f, JAM 1968); 1978 SL6 = 1978 UN (f, JAM 1968); 1978 TW2 = 1978 VN12 (f, JAM 1968); 1978 TT8 = 1978 WA15 (f, JAM 1969); 1982 QM = 1982 SL2 (f, JAM 1969); 1982 UG6 = 1982 XR4 (Z); 1982 VA10 = 1982 XX2 (f, JAM 1969); 1982 VV10 = 1982 XF4 (f, JAM 1970). 2: e assumed.

* * * * *

ORBITAL ELEMENTS BY W. LANDGRAF, ASTRONOMISCHE ARBEITSGEMEINSCHAFT, MAINZ.

Periodic Comet Halley (1982i)
Epoch 1986 Feb. 19.0 ET = JDE 2446480.5
T 1986 Feb. 9.45874 ET

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| q | 0.58710174 | | | |
| n | 0.01297004 | Peri. 111.84639 | +0.55439679 | -0.79089490 |
| a | 17.9408001 | Node 58.14342 | -0.83064961 | -0.50652009 |
| e | 0.96727561 | Incl. 162.23935 | -0.05162769 | -0.34339869 |

P 75.99
From 3810 observations and normal places 1835-1986 Jan. 17, mean error 1".0. Nongravitational parameters A1 = +0.069, A2 = +0.01556.

ORBITAL ELEMENTS BY B. G. MARSDEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by B. G. Marsden unless otherwise stated. The 1978-1979 observations of the 1981 UCAS objects were found by S. J. Bus.

Periodic Comet Maury (1985k)
Epoch 1985 June 24.0 ET = JDE 2446240.5
T 1985 June 8.16929 ET

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| q | 2.0110091 | | | |
| n | 0.11152715 | Peri. | 113.96297 | +0.45439179 | +0.89075788 |
| a | 4.2744705 | Node | 183.10571 | -0.86513008 | +0.43890446 |
| e | 0.5295302 | Incl. | 9.41169 | -0.21231589 | +0.11795454 |
| P | 8.84 | | | | |

From 38 observations 1985 Aug. 16-1986 Jan. 7, mean residual 1".2.

Periodic Comet Ciffreo (1985p)
T 1985 Oct. 30.09419 ET

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| q | 1.7022330 | | | |
| n | 0.13655654 | Peri. | 357.89359 | +0.62861862 | -0.75628240 |
| a | 3.7347458 | Node | 53.10171 | +0.71677809 | +0.47293470 |
| e | 0.5442172 | Incl. | 13.10460 | +0.30177441 | +0.45207268 |
| P | 7.22 | | | | |

From 52 observations 1985 Nov. 8-Dec. 18.

Comet Hartley-Good (1985l)
Epoch 1985 Dec. 1.0 ET = JDE 2446400.5
T 1985 Dec. 9.11512 ET

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| q | 0.6946007 | | | |
| z | +0.0000830 | Peri. | 87.02971 | +0.05879641 | -0.99748552 |
| | +/-0.0000081 | Node | 357.69681 | -0.23299652 | +0.02482935 |
| e | 0.9999424 | Incl. | 79.92590 | +0.97069851 | +0.06637872 |

From 88 observations 1985 Sept. 13-1986 Jan. 11, mean residual 1".1.

Comet Thiele (1985m)
Epoch 1985 Dec. 1.0 ET = JDE 2446400.5
T 1985 Dec. 19.21590 ET

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| q | 1.3171088 | | | |
| z | +0.0127904 | Peri. | 52.99505 | +0.84539354 | -0.12847406 |
| | +/-0.0004071 | Node | 52.30731 | -0.10964948 | -0.99171284 |
| e | 0.9831536 | Incl. | 139.06494 | +0.52276836 | -0.00024801 |

From 62 observations 1985 Oct. 9-Dec. 9, mean residual 1".1.

Periodic Comet Shoemaker 3 (1986a)
T 1985 Dec. 20.92276 ET

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| q | 1.7919095 | | | |
| n | 0.06455394 | Peri. | 16.31944 | -0.38392455 | -0.91682181 |
| a | 6.1544259 | Node | 96.36353 | +0.83430686 | -0.39535478 |
| e | 0.7088421 | Incl. | 6.33871 | +0.39564378 | -0.05596752 |
| P | 15.27 | | | | |

From 14 observations 1986 Jan. 10-20.

(3358)* 1978 RX = 1955 RR = 1972 TZ10 = 1984 US1
Discovered 1978 Sept. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identifications 1978 RX = 1955 RR and 1978 RX = 1984 US1 are by C. M. Bardwell and by E. Bowell, respectively (MPC 9296).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 83.94498 | (1950.0) | | P | Q |
| n | 0.17222128 | Peri. | 275.25570 | +0.47245750 | -0.88112268 |
| a | 3.1994710 | Node | 146.52649 | +0.82238348 | +0.43250114 |
| e | 0.1907668 | Incl. | 2.09552 | +0.31696894 | +0.19122131 |
| P | 5.72 | H | 12.0 | G | 0.25 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 550913 | 760 | 1.2+ | 0.2+ | 780907 | 095 | 0.2+ | 0.9- | 841029 | 688 | 0.1+ | 1.3- |
| 550913 | 760 | 0.0 | 2.4+ | 780912 | 095 | 1.1- | 0.2+ | 841029 | 688 | 0.2- | 0.4- |
| 550918 | 760 | 1.7- | 2.0+ | 780928 | 095 | 1.3+ | 0.4- | 841031 | 688 | 0.8+ | 0.1+ |
| 550918 | 760 | 1.7- | 1.6+ | 781004 | 095 | 0.1+ | 0.0 | 841031 | 688 | 0.4- | 0.7- |
| 721004 | 095 | 0.6+ | 2.4- | 781009 | 095 | 0.5- | 0.1- | 841127 | 688 | 0.3+ | 1.1- |
| 780901 | 095 | 1.3+ | 0.1+ | 810405 | 688 | 2.2+ | 0.2- | 841127 | 688 | 0.3+ | 0.4+ |
| 780905 | 095 | 0.1+ | 1.7- | 810405 | 688 | 2.8- | 1.4- | | | | |

(3359)* 1978 RA6 = 1983 CL1

Discovered 1978 Sept. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identification is by E. Bowell (MPC 7839).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 58.58687 | (1950.0) | | P | Q |
| n | 0.29071188 | Peri. | 42.97467 | +0.38475904 | -0.92208553 |
| a | 2.2568058 | Node | 24.48448 | +0.81736475 | +0.31950761 |
| e | 0.1213950 | Incl. | 5.74100 | +0.42880689 | +0.21834184 |
| P | 3.39 | H | 14.5 | G | 0.25 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 780913 | 095 | 1.7- | 0.7+ | 800415 | 805 | 0.7- | 2.4+ | 830219 | 688 | 0.8- | 0.0 |
| 780927 | 095 | 0.8+ | 0.9+ | 800416 | 805 | 0.0 | 0.9+ | 851116 | 801 | 0.6+ | 0.3- |
| 781003 | 095 | 0.1- | 0.8+ | 830211 | 688 | 1.5- | 1.2+ | 851216 | 801 | 0.5- | 0.5- |
| 781007 | 095 | 1.2- | 1.7+ | 830211 | 688 | 0.1+ | 0.7+ | | | | |
| 800414 | 805 | 2.3+ | 0.2+ | 830219 | 688 | 2.8+ | 0.9- | | | | |

(3360)* 1981 VA

Discovered 1981 Nov. 4 by E. F. Helin and R. S. Dunbar at Palomar.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 87.49935 | (1950.0) | | P | Q |
| n | 0.25568687 | Peri. | 59.43857 | +0.52233232 | +0.78094211 |
| a | 2.4584635 | Node | 245.99157 | -0.85255523 | +0.46984190 |
| e | 0.7444502 | Incl. | 22.01967 | -0.01784723 | +0.41155561 |
| P | 3.85 | H | 18.0 | G | 0.25 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 811104 | 675 | 0.4+ | 2.0- | 811127 | 474 | 0.4+ | 2.0+ | 850523 | 691 | 0.6+ | 9.6- |
| 811104 | 675 | 0.1- | 0.5+ | 811127 | 474 | 0.4+ | 0.7+ | 850524 | 474 | 3.5- | 0.1+ |
| 811105 | 675 | 0.1- | 0.8- | 811203 | 675 | 1.9+ | 2.6- | 850524 | 474 | 3.2- | 2.1- |
| 811105 | 675 | 0.3- | 0.1- | 811204 | 675 | 0.4- | 1.0+ | 851003 | 675 | 0.4- | 0.6- |
| 811105 | 675 | 1.2- | 2.1- | 811206 | 675 | 0.7- | 0.3- | 851003 | 675 | 0.2- | 0.6- |
| 811105 | 675 | 0.3- | 1.3+ | 811206 | 675 | 0.5- | 0.1+ | 851106 | 675 | 0.5- | 0.0 |
| 811107 | 801 | 0.1+ | 0.3- | 811218 | 675 | 0.1- | 0.4+ | 851106 | 675 | 0.4- | 1.0+ |
| 811107 | 675 | 0.9- | 0.7- | 811223 | 675 | 0.4+ | 0.1- | 851106 | 675 | 0.5- | 0.5+ |
| 811107 | 675 | 0.5- | 0.8- | 850423 | 474 | 0.3- | 1.9+ | 851115 | 691 | 1.2+ | 0.6- |
| 811107 | 675 | 0.6+ | 4.1+ | 850423 | 474 | 0.5+ | 1.6+ | 851115 | 691 | 0.6+ | 1.3- |
| 811108 | 801 | 0.8+ | 0.9- | 850522 | 691 | 0.4+ | 1.0+ | 851115 | 691 | 1.2+ | 0.8- |
| 811109 | 801 | 1.2- | 0.9- | 850522 | 691 | 0.7+ | 0.4+ | 851116 | 691 | 0.1+ | 0.6- |
| 811117 | 675 | 0.8+ | 0.7- | 850522 | 691 | 0.9+ | 0.2+ | 851116 | 691 | 0.1+ | 0.3- |
| 811118 | 675 | 0.5+ | 0.2- | 850522 | 691 | 0.9+ | 0.0 | 851116 | 691 | 0.5+ | 0.5- |
| 811118 | 675 | 0.2- | 0.2+ | 850523 | 691 | 0.4+ | 1.1+ | | | | |
| 811123 | 801 | 0.5- | 0.1- | 850523 | 691 | 0.6+ | 0.6+ | | | | |

(3361)* 1982 HR

Discovered 1982 Apr. 24 by C. Torres at Cerro El Roble.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 91.96119 | | (1950.0) | | P | | Q | | | | |
| n | 0.74098007 | Peri. | 301.60077 | | -0.65307178 | | -0.75725904 | | | | |
| a | 1.2094791 | Node | 189.18415 | | +0.70969298 | | -0.60854223 | | | | |
| e | 0.3227615 | Incl. | 2.68724 | | +0.26425957 | | -0.23713941 | | | | |
| P | 1.33 | H | 19.0 | G | 0.25 | | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 820424 | 805 | 1.3+ | 1.1- | 820518 | 805 | 0.7+ | 0.9+ | 850814 | 691 | 0.9- | 1.5- |
| 820425 | 805 | 1.6+ | 0.0 | 820518 | 805 | 0.3- | 0.0 | 850814 | 691 | 0.7- | 2.2- |
| 820425 | 805 | 0.1+ | 0.0 | 820518 | 801 | 0.1- | 1.3- | 850815 | 691 | 1.1+ | 0.8+ |
| 820426 | 805 | 0.6- | 0.5- | 820520 | 805 | 2.5- | 0.1+ | 850815 | 691 | 0.4+ | 0.2+ |
| 820426 | 805 | 1.1- | 0.4- | 820520 | 805 | (4.1- | 1.4-) | 850815 | 691 | 0.6+ | 0.6- |
| 820429 | 805 | 0.6- | 0.3+ | 820521 | 805 | (3.6- | 2.8+) | 850915 | 801 | 0.2- | 1.6+ |
| 820429 | 801 | 2.0+ | 0.9+ | 820521 | 805 | 0.3+ | 0.1+ | 850923 | 675 | 0.2- | 0.6+ |
| 820430 | 801 | (0.9- | 4.5+) | 820524 | 805 | 0.5- | 0.3+ | 850923 | 675 | 0.4- | 0.5+ |
| 820501 | 675 | (4.7- | 0.1-) | 820524 | 805 | (11.5+ | 1.3+) | 850924 | 675 | 0.2- | 0.4+ |
| 820502 | 675 | (2.6+ | 1.4+) | 820527 | 474 | 0.9- | 0.4+ | 850924 | 675 | 0.2+ | 0.4+ |
| 820513 | 675 | 0.1- | 0.2+ | 820527 | 474 | 2.1- | 0.0 | 851105 | 675 | 0.1+ | 0.5+ |
| 820514 | 675 | 0.1+ | 0.6+ | 820531 | 675 | 0.7+ | 0.3- | 851105 | 675 | 0.8+ | 0.1+ |
| 820516 | 675 | 0.5+ | 0.8- | 820612 | 675 | 0.8+ | 0.5+ | 851106 | 675 | 0.1- | 0.1- |
| 820518 | 805 | 0.1+ | 0.2- | 820613 | 675 | 1.0+ | 0.6+ | 851106 | 675 | 0.1+ | 0.2+ |
| 820518 | 805 | 1.4+ | 0.2+ | 850814 | 691 | 0.2+ | 2.4- | | | | |

(3362)* 1984 QA

Discovered 1984 Aug. 30 by R. S. Dunbar and M. A. Barucci at Palomar.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 21.32253 | | (1950.0) | | P | | Q | | | | |
| n | 1.00099959 | Peri. | 54.82552 | | -0.88628493 | | +0.45604199 | | | | |
| a | 0.9897225 | Node | 152.04671 | | -0.46081829 | | -0.85088256 | | | | |
| e | 0.4685549 | Incl. | 9.92280 | | -0.04631974 | | -0.26081521 | | | | |
| P | 0.98 | H | 18.0 | G | 0.25 | | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 840830 | 675 | (5.4- | 3.2-) | 840904 | 568 | 0.2- | 1.2+ | 840923 | 474 | 0.1+ | 0.7- |
| 840830 | 675 | (4.6- | 0.7-) | 840904 | 568 | 0.4- | 1.6+ | 840924 | 675 | 0.9- | 1.0- |
| 840831 | 675 | 0.4- | 1.9- | 840906 | 675 | 0.8+ | 0.3+ | 850814 | 691 | 0.3- | 1.9- |
| 840831 | 675 | 1.0- | 0.5- | 840906 | 568 | 0.8- | 0.4- | 850814 | 691 | 0.9- | 2.1- |
| 840831 | 675 | 0.9+ | 0.9- | 840907 | 568 | 0.0 | 0.3+ | 850814 | 691 | 0.6- | 1.4- |
| 840901 | 675 | 1.4- | 1.6+ | 840917 | 474 | 0.1+ | 0.6+ | 850815 | 691 | 1.0+ | 1.1+ |
| 840901 | 675 | 1.2- | 0.3+ | 840917 | 474 | 1.2+ | 1.3+ | 850815 | 691 | 0.3+ | 0.5+ |
| 840902 | 010 | 1.1- | 0.9- | 840920 | 675 | 0.0 | 1.1- | 850815 | 691 | 0.5+ | 1.1+ |
| 840902 | 010 | 0.2+ | 2.5+ | 840920 | 474 | 1.9+ | 0.0 | 850817 | 801 | 2.9+ | 0.1+ |
| 840902 | 675 | 0.6- | 0.1- | 840920 | 474 | 1.8+ | 0.4- | 850912 | 801 | 0.3+ | 0.5- |
| 840903 | 675 | 0.0 | 0.1- | 840921 | 474 | 0.6- | 1.1- | 850921 | 691 | 0.6- | 0.2- |
| 840903 | 688 | 0.8+ | 1.3+ | 840921 | 474 | 0.5- | 0.7- | 850921 | 691 | 0.6- | 0.3+ |
| 840904 | 675 | (0.6- | 4.0-) | 840922 | 688 | 0.0 | 0.6- | 850921 | 691 | 0.2- | 0.4+ |
| 840904 | 568 | 0.9+ | 0.3+ | 840922 | 688 | 0.5- | 0.6- | | | | |
| 840904 | 568 | 0.3+ | 0.5- | 840923 | 474 | 0.0 | 0.1+ | | | | |

1973 SO = 1954 CB = 1957 JX = 1978 EE5 = 1985 TZ

The key identification 1973 SO = 1985 TZ is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 340.13302 | | (1950.0) | | P | | Q | | | | |
| n | 0.08507029 | Peri. | 26.17251 | | +0.36081202 | | -0.92771841 | | | | |
| a | 5.1201768 | Node | 42.86053 | | +0.82905854 | | +0.27206219 | | | | |
| e | 0.0910660 | Incl. | 8.08547 | | +0.42717281 | | +0.25557917 | | | | |
| P | 11.59 | H | 10.0 | G | 0.25 | | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 540209 | 760 | 0.9+ | 0.9+ | | 730924 | 675 | 0.1- | 0.2+ | | 780306 | 095 | 1.0- | 1.8- |
| 540209 | 760 | 0.2- | 1.0+ | | 730925 | 675 | 0.1+ | 0.1+ | | 851015 | 688 | 0.2- | 0.3+ |
| 570505 | 076 | (8.6+ | 6.3+)X | | 730929 | 675 | 0.4- | 0.3- | | 851015 | 688 | 0.9- | 0.7- |
| 730919 | 675 | 0.2+ | 0.7+ | | 731004 | 675 | 0.3- | 0.0 | | 851107 | 688 | 1.3+ | 0.2- |
| 730920 | 675 | 0.3- | 0.5+ | | 731005 | 675 | 0.0 | 0.1+ | | 851107 | 688 | 1.1+ | 1.4- |

1973 UF5 = 1978 GJ2 = 1985 VO1

The identification 1973 UF5 = 1985 VO1 is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 282.57694 | (1950.0) | | P | Q |
| n | 0.08306993 | Peri. | 114.40627 | -0.73520591 | -0.65560345 |
| a | 5.2020479 | Node | 25.73555 | +0.38256004 | -0.61104720 |
| e | 0.1182618 | Incl. | 23.36571 | +0.55957134 | -0.44362758 |
| P | 11.86 | H | 9.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 731027 | 033 | 0.0 | 0.2- | | 731101 | 033 | 0.2+ | 0.2+ | | 851107 | 688 | 0.2+ | 0.2- |
| 731027 | 033 | 0.7- | 0.2- | | 731102 | 033 | 0.1- | 0.1+ | | 851107 | 688 | 0.1+ | 0.1- |
| 731028 | 033 | 0.7+ | 0.1- | | 731103 | 033 | 0.3- | 0.3+ | | | | | |
| 731031 | 033 | 0.2- | 0.1+ | | 780411 | 095 | 0.1+ | 0.1+ | | | | | |

1974 SB5 = 1985 TK1

The identification is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 66.16288 | (1950.0) | | P | Q |
| n | 0.18046397 | Peri. | 288.82446 | +0.93706082 | +0.34824256 |
| a | 3.1012962 | Node | 50.80388 | -0.30674007 | +0.85575044 |
| e | 0.1721568 | Incl. | 1.87669 | -0.16681589 | +0.38264644 |
| P | 5.46 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 740919 | 095 | 2.8- | 0.9- | | 740923 | 095 | 1.0+ | 5.6- | | 851015 | 688 | 1.8- | 0.2+ |
| 740921 | 808 | 0.8- | 3.4+ | | 741019 | 808 | 1.9- | 0.6+ | | 851107 | 688 | 0.8- | 0.8- |
| 740921 | 808 | 0.2+ | 3.8+ | | 851012 | 688 | 0.1- | 0.3- | | 851107 | 688 | 1.3- | 0.7- |
| 740921 | 095 | 0.5+ | 4.0- | | 851015 | 688 | 0.2- | 0.8- | | | | | |

1981 EH3

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 315.61445 | (1950.0) | | P | Q |
| n | 0.26031231 | Peri. | 97.27914 | +0.99254963 | -0.01093536 |
| a | 2.4292588 | Node | 263.40143 | -0.03653233 | +0.92343056 |
| e | 0.1219721 | Incl. | 7.01669 | +0.11623521 | +0.38360972 |
| P | 3.79 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 791126 | 675 | 0.9- | 0.8- | | 810302 | 413 | 2.6+ | 0.3- | | 810310 | 413 | 0.1+ | 0.1+ |
| 791127 | 675 | 1.0+ | 0.5+ | | 810307 | 413 | 1.8- | 1.7+ | | 810312 | 413 | 0.1- | 0.1+ |
| 810202 | 413 | 0.4- | 0.2+ | | 810307 | 413 | 0.8+ | 0.1+ | | 810409 | 413 | 1.7- | 0.4- |
| 810214 | 413 | 1.1+ | 1.3- | | 810310 | 413 | 1.2- | 1.6+ | | 810429 | 413 | 0.6+ | 2.2- |

1981 EA7 = 1972 TO6

The identification is by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 19.00540 | (1950.0) | | P | Q |
| n | 0.29000292 | Peri. | 89.12510 | +0.99490340 | -0.01962751 |
| a | 2.2604869 | Node | 271.99525 | -0.02158980 | +0.91665793 |
| e | 0.2166862 | Incl. | 5.67951 | +0.09849419 | +0.39919042 |
| P | 3.40 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 721006 095 | 0.1- | 0.3+ | 810308 413 | 0.2- | 0.5- | 810409 413 | 0.4+ | 1.3+ |
| 791126 675 | 0.7- | 0.1+ | 810308 413 | 1.0+ | 0.2+ | 810501 413 | 1.1- | 1.2- |
| 791127 675 | 0.6+ | 0.2- | 810312 413 | 0.9+ | 1.0- | 810503 413 | 2.2- | 0.6+ |
| 810209 413 | 0.9- | 0.5+ | 810312 413 | 1.3+ | 0.2+ | | | |
| 810306 413 | 1.4+ | 1.3- | 810409 413 | 0.9- | 1.5+ | | | |

1981 ET7
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M 252.95520 | | (1950.0) | P | Q | |
| n 0.27665198 | Peri. | 149.25375 | +0.11783314 | -0.99079089 | |
| a 2.3326400 | Node | 293.90731 | +0.89556201 | +0.13504739 | |
| e 0.0925087 | Incl. | 4.18394 | +0.42905014 | -0.00977813 | |
| P 3.56 | H | 15.5 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 790920 675 | 0.4- | 0.1+ | 810307 413 | 0.8- | 0.8+ | 810405 413 | 1.5- | 0.1+ |
| 790921 675 | 0.4+ | 0.0 | 810307 413 | 0.9+ | 0.1- | 810412 413 | 2.2- | 1.6+ |
| 810209 413 | 0.5+ | 0.6- | 810311 413 | 0.3- | 0.3- | 810412 413 | 3.1+ | 1.5- |
| 810213 413 | 1.6+ | 0.9- | 810315 413 | 2.3- | 1.1+ | 810430 413 | 0.0 | 0.8- |
| 810301 413 | 0.8- | 1.1+ | 810315 413 | 0.6+ | 0.1+ | 810502 413 | 1.6+ | 0.1- |
| 810301 413 | 0.8+ | 1.1- | 810405 413 | 0.7- | 0.2+ | | | |

1981 EE9
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M 67.63672 | | (1950.0) | P | Q | |
| n 0.17832889 | Peri. | 140.13261 | +0.46522419 | -0.87958725 | |
| a 3.1260010 | Node | 281.93215 | +0.78397739 | +0.46159408 | |
| e 0.2698811 | Incl. | 5.83469 | +0.41103030 | +0.11513979 | |
| P 5.53 | H | 14.0 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 791126 675 | 0.1+ | 0.0 | 810307 413 | 0.3- | 0.2- | 810406 413 | 1.3- | 0.5+ |
| 791127 675 | 0.1- | 0.1- | 810307 413 | 0.3+ | 0.0 | 810406 413 | 0.6+ | 0.6- |
| 810202 413 | 0.1+ | 0.4- | 810311 413 | 3.7- | 1.4+ | 810412 413 | 0.1+ | 0.7+ |
| 810214 413 | 0.1+ | 0.5- | 810311 413 | 1.2+ | 0.9- | 810412 413 | 0.1+ | 0.8+ |
| 810301 413 | 0.8- | 1.7+ | 810315 413 | 0.9- | 0.4+ | 810429 413 | 0.2+ | 1.9- |
| 810301 413 | 2.5+ | 0.4- | 810315 413 | 2.0+ | 0.8- | | | |

1981 EH9
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M 187.40139 | | (1950.0) | P | Q | |
| n 0.27512571 | Peri. | 245.86488 | -0.86002395 | -0.50670794 | |
| a 2.3412590 | Node | 263.64097 | +0.48732300 | -0.78078408 | |
| e 0.1870365 | Incl. | 3.46395 | +0.15124512 | -0.36554516 | |
| P 3.58 | H | 16.0 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 790920 675 | 2.0+ | 0.2- | 810311 413 | 1.0+ | 1.3- | 810407 413 | 0.9- | 0.4+ |
| 790921 675 | 1.7- | 0.4- | 810315 413 | 1.1- | 0.1+ | 810407 413 | 1.5+ | 1.2- |
| 810209 413 | 0.9+ | 0.4- | 810315 413 | 0.3+ | 0.2- | 810410 413 | 0.3- | 1.1+ |
| 810214 413 | 0.5- | 0.8+ | 810405 413 | 1.0- | 1.1+ | 810410 413 | 0.6+ | 0.3- |
| 810301 413 | 1.0- | 0.2+ | 810405 413 | 0.8+ | 0.9- | 810412 413 | 0.6- | 1.5+ |
| 810307 413 | 0.2+ | 0.6- | 810406 413 | 1.0- | 0.7+ | 810412 413 | 0.8+ | 0.0 |
| 810307 413 | 0.3+ | 0.1- | 810406 413 | 0.2+ | 0.2- | 810503 413 | 0.8- | 1.4- |

1981 ET9
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 210.99720 | (1950.0) | P | Q | |
| n | 0.27316874 | Peri. | 181.76123 | -0.49598566 | -0.86593648 |
| a | 2.3524275 | Node | 297.97831 | +0.79752829 | -0.42493730 |
| e | 0.1222627 | Incl. | 4.18434 | +0.34343389 | -0.26378457 |
| P | 3.61 | H | 16.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790920 | 675 | 0.2- | 1.0- | 810307 | 413 | 0.0 | 0.1+ | 810406 | 413 | 2.3- | 1.4+ |
| 790921 | 675 | 0.7+ | 0.1- | 810307 | 413 | 0.1+ | 1.0+ | 810406 | 413 | 0.1+ | 0.2- |
| 810209 | 413 | 0.4+ | 1.6- | 810311 | 413 | 0.9- | 0.4- | 810412 | 413 | 1.2- | 0.5+ |
| 810213 | 413 | 1.3+ | 0.3- | 810311 | 413 | 2.2- | 0.3- | 810412 | 413 | 1.8+ | 0.9- |
| 810301 | 413 | 0.4+ | 1.4+ | 810315 | 413 | 0.2+ | 0.3- | 810429 | 413 | 0.5+ | 1.5- |
| 810301 | 413 | 0.8+ | 0.3- | 810315 | 413 | 0.9+ | 0.0 | | | | |

1981 ES10
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 239.77344 | (1950.0) | P | Q | |
| n | 0.26996415 | Peri. | 168.88009 | +0.12637001 | -0.98998755 |
| a | 2.3710071 | Node | 273.83793 | +0.90517680 | +0.14101591 |
| e | 0.1216911 | Incl. | 3.61388 | +0.40581471 | -0.00625803 |
| P | 3.65 | H | 16.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790920 | 675 | 0.1+ | 0.8+ | 810307 | 413 | 0.4+ | 0.5- | 810412 | 413 | 0.5- | 1.0+ |
| 790921 | 675 | 0.8- | 0.8+ | 810311 | 413 | 4.3- | 2.6+ | 810412 | 413 | 2.5- | 1.6+ |
| 810212 | 413 | 0.8+ | 0.2- | 810311 | 413 | 3.4+ | 1.3- | 810429 | 413 | 0.1- | 0.8- |
| 810214 | 413 | 1.5- | 0.5+ | 810315 | 413 | 1.0- | 0.3+ | 810502 | 413 | 2.1+ | 1.1+ |
| 810301 | 413 | 1.1+ | 0.8- | 810315 | 413 | 1.8+ | 0.3- | 810503 | 413 | 1.5+ | 1.6- |

1981 EV10
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 278.54950 | (1950.0) | P | Q | |
| n | 0.28605695 | Peri. | 203.98758 | +0.16293042 | -0.98421967 |
| a | 2.2812274 | Node | 236.70280 | +0.91801270 | +0.17686412 |
| e | 0.0729067 | Incl. | 4.73744 | +0.36153334 | -0.00554359 |
| P | 3.45 | H | 16.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790918 | 675 | 0.2+ | 0.3+ | 810301 | 413 | 1.5+ | 0.1+ | 810315 | 413 | 3.2+ | 1.2- |
| 790919 | 675 | 0.2- | 0.3- | 810307 | 413 | 0.1- | 0.4- | 810412 | 413 | 0.0 | 0.4- |
| 810214 | 413 | 1.1- | 1.0- | 810307 | 413 | 1.4+ | 0.0 | 810412 | 413 | 0.4- | 1.7+ |
| 810301 | 413 | 3.5- | 1.4+ | 810315 | 413 | 0.5- | 0.7+ | 810503 | 413 | 0.8- | 1.2- |

1981 EE11
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 127.82181 | (1950.0) | P | Q | |
| n | 0.29551049 | Peri. | 315.52013 | +0.08943492 | +0.99545175 |
| a | 2.2323124 | Node | 319.57746 | -0.89907009 | +0.06650835 |
| e | 0.1585584 | Incl. | 2.90137 | -0.42857247 | +0.06820894 |
| P | 3.34 | H | 16.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 791126 | 675 | 0.8+ | 0.4- | 810311 | 413 | 0.6- | 0.7+ | 810407 | 413 | 0.4- | 0.2- |
| 791127 | 675 | 0.7- | 0.3+ | 810311 | 413 | 0.2+ | 0.5+ | 810407 | 413 | 1.0+ | 1.2- |
| 810212 | 413 | 0.3- | 0.3+ | 810315 | 413 | 1.7- | 0.7+ | 810412 | 413 | 0.1+ | 0.2+ |
| 810213 | 413 | 0.8+ | 0.3+ | 810315 | 413 | 3.6+ | 0.8- | 810412 | 413 | 0.7+ | 0.4+ |
| 810301 | 413 | 3.3- | 0.6+ | 810405 | 413 | 0.2- | 0.7- | 810430 | 413 | 0.3- | 0.3+ |
| 810301 | 413 | 0.9+ | 0.3+ | 810405 | 413 | 1.5+ | 0.0 | 810502 | 413 | 0.1- | 0.2+ |
| 810302 | 413 | 2.6+ | 2.3- | 810406 | 413 | 2.0- | 0.1- | | | | |
| 810307 | 413 | 2.0- | 1.1+ | 810406 | 413 | 0.5- | 0.3- | | | | |

1981 EL12
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 256.93300 | | (1950.0) | | P | | Q | | | | |
| n | 0.29483285 | Peri. | 185.19072 | | -0.53573740 | | -0.84245178 | | | | |
| a | 2.2357316 | Node | 297.21448 | | +0.77696263 | | -0.46535302 | | | | |
| e | 0.0609692 | Incl. | 3.68138 | | +0.33062744 | | -0.27151715 | | | | |
| P | 3.34 | H | 17.0 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790918 | 675 | 0.9+ | 1.9- | 810301 | 413 | 0.7+ | 0.7- | 810312 | 413 | 2.0- | 1.3+ |
| 790919 | 675 | 0.1- | 1.9- | 810306 | 413 | 1.2- | 2.4+ | 810312 | 413 | 0.3+ | 0.3+ |
| 810212 | 413 | 0.9- | 0.9- | 810306 | 413 | 1.0+ | 0.3- | 810409 | 413 | 1.2- | 0.7+ |
| 810212 | 413 | 0.8+ | 0.0 | 810308 | 413 | 2.5- | 0.6+ | 810409 | 413 | 2.8+ | 0.8- |
| 810214 | 413 | 0.2- | 0.3+ | 810308 | 413 | 0.8- | 0.4- | 810503 | 413 | 1.1- | 2.7- |

1981 EC14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 76.93411 | | (1950.0) | | P | | Q | | | | |
| n | 0.25693646 | Peri. | 286.52459 | | -0.42458580 | | +0.90417345 | | | | |
| a | 2.4504909 | Node | 318.25070 | | -0.80147266 | | -0.39943330 | | | | |
| e | 0.0775367 | Incl. | 4.03676 | | -0.42115136 | | -0.15140479 | | | | |
| P | 3.84 | H | 16.0 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 791126 | 675 | 0.0 | 1.1- | 810306 | 413 | 1.4+ | 0.7- | 810408 | 413 | 1.4+ | 0.6- |
| 791127 | 675 | 0.1+ | 0.6- | 810308 | 413 | 1.2- | 1.6+ | 810409 | 413 | 1.8- | 0.3+ |
| 810212 | 413 | 0.8+ | 0.4- | 810312 | 413 | 2.9- | 1.8+ | 810409 | 413 | 1.0+ | 0.5- |
| 810212 | 413 | 1.0+ | 0.3- | 810312 | 413 | 1.9+ | 0.1+ | 810501 | 413 | 0.8+ | 0.9- |
| 810301 | 413 | 1.7- | 1.1+ | 810408 | 413 | 1.6- | 0.4+ | 810503 | 413 | 1.0+ | 1.5- |

1981 EY14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 225.33578 | | (1950.0) | | P | | Q | | | | |
| n | 0.28467099 | Peri. | 215.55875 | | -0.68269745 | | -0.72792033 | | | | |
| a | 2.2886257 | Node | 277.58951 | | +0.68436181 | | -0.60642389 | | | | |
| e | 0.1147627 | Incl. | 3.68385 | | +0.25607245 | | -0.31997196 | | | | |
| P | 3.46 | H | 15.5 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790918 | 675 | 0.1- | 0.5+ | 810301 | 413 | 0.7+ | 0.1- | 810406 | 413 | 1.8+ | 0.4- |
| 790919 | 675 | 0.3- | 0.5+ | 810306 | 413 | 0.6- | 0.2- | 810408 | 413 | 1.1- | 0.7+ |
| 810209 | 413 | 0.9- | 0.1+ | 810306 | 413 | 0.9+ | 0.7- | 810408 | 413 | 1.1+ | 0.9- |
| 810212 | 413 | 0.9- | 1.8+ | 810308 | 413 | 1.1- | 0.1- | 810409 | 413 | 0.5- | 0.6+ |
| 810212 | 413 | 0.0 | 0.2- | 810308 | 413 | 0.4+ | 0.3+ | 810409 | 413 | 0.5+ | 0.1- |
| 810212 | 413 | 1.4+ | 0.7- | 810312 | 413 | 0.4- | 0.2+ | 810501 | 413 | 0.3+ | 0.0 |
| 810301 | 413 | 0.6- | 0.1+ | 810406 | 413 | 0.3- | 0.4+ | 810503 | 413 | 0.5- | 0.3+ |

1981 EU15
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 241.30664 | | (1950.0) | | P | | Q | | | | |
| n | 0.28408207 | Peri. | 243.02279 | | -0.41515254 | | -0.90753307 | | | | |
| a | 2.2917876 | Node | 231.65074 | | +0.86072066 | | -0.36921516 | | | | |
| e | 0.1115134 | Incl. | 4.64422 | | +0.29463251 | | -0.20015965 | | | | |
| P | 3.47 | H | 16.0 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790920 | 675 | 0.2+ | 0.7+ | 810306 | 413 | 0.5+ | 0.7+ | 810409 | 413 | 0.8- | 1.0+ |
| 790921 | 675 | 0.7- | 0.8+ | 810306 | 413 | 0.3+ | 0.1+ | 810409 | 413 | 1.2+ | 0.2- |
| 810209 | 413 | 0.9- | 0.6- | 810308 | 413 | 0.4- | 0.8+ | 810501 | 413 | 0.1+ | 1.2- |
| 810212 | 413 | 1.4- | 0.3- | 810312 | 413 | 1.8+ | 0.9- | 810503 | 413 | 0.1- | 0.3- |
| 810301 | 413 | 1.4- | 1.1+ | 810408 | 413 | 0.4- | 1.1+ | | | | |
| 810301 | 413 | 1.2+ | 0.2- | 810408 | 413 | 0.5+ | 0.0 | | | | |

1981 ET16
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 13.23660 | (1950.0) | | P | Q |
| n | 0.23953840 | Peri. | 95.67259 | +0.32464227 | +0.94427856 |
| a | 2.5677544 | Node | 193.65296 | -0.93300926 | +0.31029380 |
| e | 0.1980883 | Incl. | 13.29266 | -0.15524531 | +0.10979875 |
| P | 4.11 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.0 | 0.5- | 810308 | 413 | 0.6+ | 0.5- | 810409 413 1.3- 1.3+ |
| 781004 | 675 | 0.1+ | 0.2+ | 810312 | 413 | 0.9+ | 0.7- | 810409 413 0.2+ 0.5- |
| 810209 | 413 | 0.8+ | 0.2- | 810406 | 413 | 1.6- | 1.4+ | 810501 413 0.4+ 0.7- |
| 810212 | 413 | 1.1- | 0.1+ | 810406 | 413 | 0.1+ | 0.0 | 810503 413 0.3- 0.8- |
| 810306 | 413 | 0.5+ | 0.8- | 810408 | 413 | 0.1+ | 0.5+ | |
| 810308 | 413 | 0.8- | 1.1+ | 810408 | 413 | 1.5+ | 0.6- | |

1981 EJ19
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 342.32934 | (1950.0) | | P | Q |
| n | 0.17213468 | Peri. | 17.82037 | -0.94066063 | -0.33927379 |
| a | 3.2005504 | Node | 142.34458 | +0.30989214 | -0.86738404 |
| e | 0.1225878 | Incl. | 0.66898 | +0.13829115 | -0.36405799 |
| P | 5.73 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.7- | 0.6- | 810303 | 413 | 1.5- | 0.8+ | 810329 413 0.8- 0.3+ |
| 781004 | 675 | 0.8+ | 0.5+ | 810303 | 413 | 0.7+ | 0.6- | 810408 413 1.7- 0.3+ |
| 810202 | 413 | 0.2+ | 0.4- | 810307 | 413 | 0.2+ | 0.5+ | 810411 413 0.1- 0.5- |
| 810213 | 413 | 0.7- | 0.3+ | 810307 | 413 | 1.6+ | 0.6- | 810411 413 1.7+ 1.0- |
| 810302 | 413 | 2.2- | 1.1+ | 810311 | 413 | 0.1+ | 0.1+ | 810502 413 0.1+ 0.2+ |
| 810302 | 413 | 1.7+ | 1.2- | 810316 | 413 | 0.6+ | 0.3+ | |

1981 EY20
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 212.14616 | (1950.0) | | P | Q |
| n | 0.19558119 | Peri. | 21.56431 | +0.95510323 | +0.29600719 |
| a | 2.9393560 | Node | 321.21073 | -0.27465828 | +0.86874139 |
| e | 0.1053151 | Incl. | 1.14814 | -0.11108850 | +0.39707446 |
| P | 5.04 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.2- | 0.8- | 810307 | 413 | 0.1+ | 0.3- | 810411 413 1.4- 0.3+ |
| 781004 | 675 | 0.8+ | 0.5- | 810316 | 413 | 1.5- | 0.6+ | 810411 413 0.2+ 0.1- |
| 810209 | 413 | 0.6+ | 0.8- | 810316 | 413 | 1.9+ | 0.6- | 810426 413 0.9+ 2.4- |
| 810213 | 413 | 0.7- | 0.2+ | 810329 | 413 | 1.7- | 1.1+ | 810430 413 2.1- 0.0 |
| 810302 | 413 | 2.0- | 0.9+ | 810329 | 413 | 0.1- | 0.8+ | 810502 413 1.2- 0.9- |
| 810303 | 413 | 2.5+ | 0.3- | 810408 | 413 | 2.4+ | 0.4- | |
| 810303 | 413 | 0.1- | 0.9+ | 810408 | 413 | 1.4+ | 0.6- | |

1981 EE22
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 343.05240 | (1950.0) | | P | Q |
| n | 0.18175711 | Peri. | 170.72818 | -0.99765087 | +0.06562478 |
| a | 3.0865689 | Node | 13.08298 | -0.06708885 | -0.87799023 |
| e | 0.1060215 | Incl. | 4.98007 | -0.01385036 | -0.47415876 |
| P | 5.42 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.2- | 0.1+ | 810303 | 413 | 2.0+ | 0.6- | 810408 | 413 | 1.6- | 1.3+ |
| 781004 | 675 | 0.1- | 0.3+ | 810307 | 413 | 0.5+ | 0.3+ | 810408 | 413 | 1.4- | 0.7+ |
| 810202 | 413 | 0.8- | 0.2- | 810311 | 413 | 1.8- | 0.1+ | 810411 | 413 | 1.4+ | 0.2- |
| 810209 | 413 | 0.3- | 0.7+ | 810316 | 413 | 0.1+ | 1.0- | 810411 | 413 | 2.9+ | 0.2+ |
| 810213 | 413 | 0.2+ | 0.0 | 810316 | 413 | 2.3+ | 1.2- | 810426 | 413 | 0.1+ | 2.0- |
| 810302 | 413 | 1.8- | 0.7+ | 810329 | 413 | 1.0- | 0.3+ | 810502 | 413 | 2.2- | 1.7+ |
| 810302 | 413 | 2.9+ | 0.3- | 810329 | 413 | 0.7- | 0.5+ | 810502 | 413 | 2.0+ | 0.0 |
| 810303 | 413 | 2.3- | 0.1+ | 810407 | 413 | 0.1- | 0.7- | | | | |

1981 EH23

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 224.92246 | | (1950.0) | P | Q |
| n | 0.26097225 | Peri. | 163.97467 | +0.21326085 | -0.97681904 |
| a | 2.4251617 | Node | 273.70902 | +0.89427658 | +0.20281860 |
| e | 0.1212661 | Incl. | 1.06556 | +0.39343260 | +0.06847761 |
| P | 3.78 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790918 | 675 | 0.0 | 0.1+ | 810307 | 413 | 0.3- | 1.0+ | 810408 | 413 | 2.8+ | 1.2- |
| 790919 | 675 | 0.0 | 0.0 | 810307 | 413 | 1.6+ | 0.3- | 810411 | 413 | 0.8- | 0.8+ |
| 810209 | 413 | 0.2- | 0.5- | 810311 | 413 | 2.8- | 1.8+ | 810411 | 413 | 0.5+ | 1.1- |
| 810213 | 413 | 0.4- | 0.3+ | 810316 | 413 | 0.1+ | 0.4- | 810430 | 413 | 0.4- | 0.0 |
| 810303 | 413 | 1.6- | 0.9+ | 810329 | 413 | 1.2- | 1.2+ | 810502 | 413 | 0.1+ | 0.1- |
| 810303 | 413 | 3.6+ | 2.7- | 810408 | 413 | 1.0- | 0.4+ | | | | |

1981 EB24

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 116.07340 | | (1950.0) | P | Q |
| n | 0.20910690 | Peri. | 80.17438 | -0.03995042 | -0.99907085 |
| a | 2.8111974 | Node | 12.15035 | +0.88395586 | -0.04288199 |
| e | 0.0722949 | Incl. | 4.40551 | +0.46586049 | -0.00430925 |
| P | 4.71 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 791126 | 675 | 0.3+ | 0.2- | 810307 | 413 | 1.4- | 1.0+ | 810407 | 413 | 0.8- | 1.6- |
| 791127 | 675 | 0.3- | 0.2+ | 810307 | 413 | 0.7+ | 0.3+ | 810408 | 413 | 1.2- | 0.2+ |
| 810202 | 413 | 0.5+ | 0.7- | 810311 | 413 | 0.5- | 0.7+ | 810408 | 413 | 0.3+ | 0.3+ |
| 810213 | 413 | 0.7- | 1.1- | 810316 | 413 | 0.1+ | 0.2- | 810411 | 413 | 2.8- | 0.2+ |
| 810302 | 413 | 0.6- | 0.8+ | 810316 | 413 | 1.8+ | 0.4- | 810411 | 413 | 3.0+ | 0.5- |
| 810302 | 413 | 0.1- | 0.8+ | 810329 | 413 | 0.2+ | 0.6+ | 810502 | 413 | 0.1- | 0.7- |
| 810303 | 413 | 0.4+ | 0.2- | 810329 | 413 | 1.4+ | 0.0 | 810503 | 413 | 0.6- | 0.3+ |

1981 ET27

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 316.39760 | | (1950.0) | P | Q |
| n | 0.19494641 | Peri. | 74.20037 | -0.47434619 | +0.88029865 |
| a | 2.9457332 | Node | 167.47274 | -0.82170224 | -0.43932178 |
| e | 0.0283611 | Incl. | 2.21025 | -0.31591314 | -0.17908283 |
| P | 5.06 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.0 | 0.2+ | 810302 | 413 | 1.7+ | 1.4- | 810315 | 413 | 0.3+ | 1.0- |
| 781004 | 675 | 0.2- | 0.1+ | 810302 | 413 | 0.1+ | 0.5- | 810315 | 413 | 0.6- | 0.2+ |
| 810209 | 413 | 1.8- | 0.6+ | 810306 | 413 | 1.9- | 1.0+ | 810405 | 413 | 2.9+ | 1.1- |
| 810212 | 413 | 1.6- | 1.0+ | 810306 | 413 | 2.0+ | 0.1- | 810410 | 413 | 0.5+ | 0.4- |
| 810213 | 413 | 1.9- | 1.2+ | 810311 | 413 | 0.9- | 0.9+ | 810501 | 413 | 0.1- | 1.1+ |

1981 EE29
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 237.74119 | (1950.0) | | P | Q |
| n | 0.28022099 | Peri. | 168.10145 | -0.32849145 | -0.94205798 |
| a | 2.3127914 | Node | 301.04202 | +0.85988756 | -0.26851351 |
| e | 0.0855940 | Incl. | 4.55022 | +0.39075150 | -0.20106529 |
| P | 3.52 | H | 17.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 790918 | 675 | 1.0+ | 0.2+ | 810307 | 413 | 0.4+ | 0.1+ | 810406 413 0.0 0.1- |
| 790919 | 675 | 0.8- | 0.6- | 810311 | 413 | 0.6- | 0.3+ | 810406 413 0.2+ 0.5- |
| 810214 | 413 | 1.1+ | 0.8- | 810311 | 413 | 1.9+ | 0.4- | |
| 810301 | 413 | 0.8- | 0.8+ | 810315 | 413 | 2.1- | 0.2+ | |

1981 EZ37
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 105.05593 | (1950.0) | | P | Q |
| n | 0.17828918 | Peri. | 221.48117 | +0.62300850 | -0.78189853 |
| a | 3.1264652 | Node | 190.05172 | +0.74703737 | +0.60318454 |
| e | 0.0447669 | Incl. | 7.32430 | +0.23193871 | +0.15749000 |
| P | 5.53 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.7- | 0.1+ | 810307 | 413 | 0.7- | 0.2- | 810405 413 3.1- 3.4+ |
| 781004 | 675 | 0.6+ | 0.1- | 810307 | 413 | 3.2+ | 2.8- | 810426 413 0.7+ 2.0- |
| 810212 | 413 | 2.7+ | 1.5- | 810311 | 413 | 1.8- | 0.0 | 810501 413 2.8+ 0.1+ |
| 810213 | 413 | 0.2+ | 1.8+ | 810311 | 413 | 0.2- | 0.8- | 810502 413 3.0- 0.5- |
| 810301 | 413 | 0.8- | 0.0 | 810315 | 413 | 3.7- | 2.8+ | |
| 810301 | 413 | 2.4+ | 1.2- | 810315 | 413 | 1.8+ | 0.5- | |

1981 EE38
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 141.16367 | (1950.0) | | P | Q |
| n | 0.20860237 | Peri. | 110.04660 | +0.43513884 | -0.89996723 |
| a | 2.8157284 | Node | 314.12956 | +0.81149725 | +0.40486682 |
| e | 0.1247212 | Incl. | 2.13225 | +0.39003383 | +0.16168437 |
| P | 4.72 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 791126 | 675 | 0.3+ | 0.0 | 810301 | 413 | 1.1- | 1.3+ | 810311 413 2.6+ 0.5- |
| 791127 | 675 | 0.3- | 0.1- | 810302 | 413 | 2.2- | 0.2+ | 810502 413 0.4+ 0.4+ |
| 810212 | 413 | 0.7- | 0.1- | 810302 | 413 | 5.2+ | 2.3- | 810503 413 1.0- 0.2- |
| 810213 | 413 | 0.3+ | 0.2+ | 810307 | 413 | 1.8- | 0.2+ | |
| 810301 | 413 | 3.2- | 0.8+ | 810311 | 413 | 1.3+ | 0.1+ | |

1981 EA41
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 5.25111 | (1950.0) | | P | Q |
| n | 0.17754660 | Peri. | 329.22980 | -0.88364482 | -0.46812565 |
| a | 3.1351765 | Node | 182.87434 | +0.44872527 | -0.84355983 |
| e | 0.0551913 | Incl. | 6.29305 | +0.13348208 | -0.26318278 |
| P | 5.55 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 1.0+ | 0.1- | 810302 | 413 | 0.9- | 0.3+ | 810311 413 1.1- 0.6- |
| 781004 | 675 | 1.0- | 0.1- | 810302 | 413 | 1.0+ | 1.4- | 810315 413 1.7+ 0.6+ |
| 810212 | 413 | 0.1+ | 0.4- | 810306 | 413 | 0.6- | 0.8+ | 810426 413 0.1- 0.5- |
| 810213 | 413 | 0.6- | 0.8+ | 810311 | 413 | 0.5- | 0.6+ | 810501 413 0.5+ 0.1+ |

1981 ET43
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 349.12960 | (1950.0) | P | Q |
| n | 0.17900712 | Peri. 342.43122 | -0.98595037 | -0.14444406 |
| a | 3.1181000 | Node 190.40316 | +0.13905675 | -0.98802313 |
| e | 0.1102935 | Incl. 27.68328 | -0.09254771 | +0.05427891 |
| P | 5.51 | H 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 781003 | 675 | 0.5- | 2.1- | 810308 | 413 | 1.1+ | 0.4+ | 810408 | 413 | 0.1- | 2.5- |
| 781004 | 675 | 0.4+ | 0.8+ | 810312 | 413 | 1.6+ | 1.7- | 810409 | 413 | 2.3- | 1.5+ |
| 810209 | 413 | 1.2- | 1.2+ | 810406 | 413 | 2.9- | 3.7+ | 810409 | 413 | 1.3- | 0.8- |
| 810209 | 413 | 0.1+ | 1.8+ | 810406 | 413 | 1.3+ | 2.9- | 810501 | 413 | 1.2- | 0.6- |
| 810306 | 413 | 1.6+ | 2.2- | 810408 | 413 | 1.2- | 0.7+ | 810503 | 413 | 4.9+ | 0.7+ |

1982 DQ6 = 1984 UO1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 128.77145 | (1950.0) | P | Q |
| n | 0.28069796 | Peri. 69.36514 | +0.04999935 | -0.99818157 |
| a | 2.3101707 | Node 17.86838 | +0.87057370 | +0.02703575 |
| e | 0.0871673 | Incl. 6.29987 | +0.48949106 | +0.05387599 |
| P | 3.51 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 820216 | 327 | 0.5- | 0.4+ | 841028 | 046 | 0.9- | 1.6+ | 841030 | 046 | 0.0 | 1.6+ |
| 820219 | 327 | 0.9+ | 0.0 | 841028 | 046 | 0.6- | 0.7- | 841031 | 046 | 2.0+ | 0.3+ |
| 820224 | 327 | 0.8- | 0.2+ | 841029 | 046 | 0.1+ | 1.1- | | | | |
| 820228 | 327 | (12.0- | 1.3-) | 841029 | 046 | 0.3- | 0.6- | | | | |

1982 DS6 = 1967 RX = 1977 RO4 = 1977 TW5 = 1984 WV
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 167.02249 | (1950.0) | P | Q |
| n | 0.29398080 | Peri. 241.81740 | +0.36725631 | -0.93005365 |
| a | 2.2400494 | Node 186.66494 | +0.88333520 | +0.35249306 |
| e | 0.1438781 | Incl. 5.48381 | +0.29127605 | +0.10367671 |
| P | 3.35 | H 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 670911 | 095 | 0.6- | 1.8+ | 820220 | 327 | 0.7- | 1.3+ | 841120 | 688 | 0.3- | 2.1- |
| 770909 | 095 | 0.9- | 0.5+ | 820224 | 327 | 0.1+ | 1.0+ | 841127 | 688 | 0.3- | 0.6+ |
| 771008 | 095 | 0.4+ | 1.8+ | 820226 | 327 | 1.3+ | 0.9+ | 841127 | 688 | 1.7+ | 0.9+ |
| 820219 | 327 | 0.2+ | 0.4+ | 841120 | 688 | 1.1- | 1.8- | | | | |

1982 XV1 = 1982 VK11 = 1935 YJ = 1951 YS1 = 1971 TD = 1977 XC
The double designation 1982 XV1 = 1982 VK11 was found at the Purple Mountain Observatory.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 332.13702 | (1950.0) | P | Q |
| n | 0.18791920 | Peri. 245.11035 | +0.69742975 | +0.69201814 |
| a | 3.0187199 | Node 70.47519 | -0.56523743 | +0.69096573 |
| e | 0.0887251 | Incl. 11.39969 | -0.44056599 | +0.20899103 |
| P | 5.24 | H 11.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 351221 | 754 | 2.8+ | 5.5- | 821110 | 330 | 0.1+ | 0.3+ | 821213 | 381 | 0.6+ | 0.6+ |
| 351221 | 754 | 1.9+ | 5.6- | 821117 | 330 | 1.9- | 0.5+ | 821214 | 381 | 0.8+ | 0.1+ |
| 511227 | 711 | 2.4- | 8.5+ Y | 821206 | 330 | 0.2+ | 0.1- | 821214 | 381 | 0.4- | 0.8- |
| 711010 | 808 | 1.0- | 1.4+ | 821212 | 330 | 0.8- | 2.5+ | | | | |
| 771208 | 330 | 1.2+ | 0.6- | 821213 | 381 | 0.5- | 0.3+ | | | | |

1982 VT = 1985 JE1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 20.86425 | (1950.0) | P | Q |
| n | 0.23656600 | Peri. 278.00117 | +0.76230445 | +0.62139790 |
| a | 2.5892184 | Node 43.82514 | -0.44125387 | +0.70355680 |
| e | 0.1584166 | Incl. 15.15133 | -0.47348384 | +0.34477887 |
| P | 4.17 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 821020 095 | 0.3+ | 2.1- | 821115 688 | 0.8+ | 1.2+ | 850511 675 | 1.0- | 0.6- |
| 821025 095 | 0.6+ | 2.8+ | 821115 688 | 0.7+ | 2.3- | 850514 675 | 0.0 | 2.7+ |
| 821109 095 | 0.6+ | 1.8+ | 850511 675 | 1.2- | 4.4- | | | |

1985 TB
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 40.05081 | (1950.0) | P | Q |
| n | 0.23859089 | Peri. 66.97072 | +0.03298558 | -0.98327813 |
| a | 2.5745430 | Node 23.39059 | +0.66888829 | -0.11143017 |
| e | 0.5673837 | Incl. 26.81631 | +0.74263074 | +0.14403974 |
| P | 4.13 | H 15.5 | G 0.25 | |

From 20 observations 1985 Oct. 14-1986 Jan. 9, mean residual 1".2.

* * * * *

ORBITAL ELEMENTS BY C. M. BARDWELL, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by C. M. Bardwell unless otherwise stated.

(3363)* 1960 EE = 1953 TM3 = 1972 XB2 = 1974 HA1 = 1976 SB3 = 1981 SX8 = 1981 UR14 = 1981 WJ = 1983 CL3 = 1985 RK2

Discovered 1960 Mar. 6 at the Goethe Link Observatory, Indiana University. The identifications 1976 SB3 = 1981 WJ = 1985 RK2 are by A. Lowe.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 274.50675 | (1950.0) | P | Q |
| n | 0.21314426 | Peri. 313.31332 | -0.72149402 | -0.69241455 |
| a | 2.7755792 | Node 182.86974 | +0.65089046 | -0.67678077 |
| e | 0.1001499 | Incl. 3.33147 | +0.23619479 | -0.25005976 |
| P | 4.62 | H 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 531009 210(30.9- | 40.8+)X | | 740422 805 | 0.9- | 1.3- | 811120 688 | 3.6- | 0.0 |
| 600306 760 | 2.2+ | 1.6+ | 740424 805 | 0.2- | 2.5- | 811202 688 | 2.0- | 2.5- |
| 600306 760 (0.1- | 4.9-) | | 760924 095 | 0.1- | 2.5+ | 811202 688 | 0.5- | 2.2- |
| 600325 839 | 0.5- | 1.6+ | 760929 095 | 2.5+ | 1.8+ | 830210 809 | 0.3+ | 0.9+ |
| 600325 839 | 1.2+ | 1.3+ | 810924 033 | 0.8+ | 0.5+ | 830210 809 | 0.5+ | 0.8+ |
| 600327 760 (8.8+ | 5.5-) | | 810924 033 | 0.6+ | 0.4+ | 830210 809 | 0.9+ | 0.5+ |
| 600327 760 | 2.0- | 0.7+ | 811023 095 | 3.7+ | 0.4- | 850913 675 | 0.9- | 2.4+ |
| 721201 095 (4.8+ | 7.6+) | | 811120 688 | 0.0 | 0.5+ | 850914 675 | 2.3- | 0.0 |

(3364)* 1984 GF = 1938 CE = 1952 QU = 1978 OF

Dicovered 1984 Apr. 5 by A. Mrkos at Klet.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 196.04139 | (1950.0) | P | Q |
| n | 0.30235923 | Peri. 107.52114 | -0.28750617 | +0.95622011 |
| a | 2.1984701 | Node 145.61904 | -0.91131690 | -0.25556786 |
| e | 0.1045853 | Incl. 5.55059 | -0.29468917 | -0.14257692 |
| P | 3.26 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 380206 | 062 | 0.6+ | 2.8+ | | 840405 | 046 | 0.2- | 2.2- | | 840427 | 046 | 0.6- | 2.2- |
| 380206 | 062 | 1.0- | 0.8- | | 840405 | 046 | 3.8- | 0.7+ | | 840427 | 046 | 2.4- | 1.9- |
| 380207 | 062 | 0.4+ | 0.3- | | 840419 | 046 | 0.2- | 2.0- | | 851020 | 046 | 2.0+ | 2.9- |
| 520819 | 760 | (54.2- | 26.4+)X | | 840419 | 046 | 0.0 | 2.2- | | 851020 | 046 | 1.5+ | 4.8- |
| 780730 | 414 | 0.3+ | 0.7- | | 840424 | 046 | 1.1+ | 2.7- | | 851021 | 046 | 0.9+ | 2.8- |
| 780730 | 414 | 0.0 | 0.2- | | 840424 | 046 | 0.9- | 2.1- | | 851021 | 046 | 0.0 | 4.0- |
| 780824 | 808 | 0.8+ | 0.1+ | | 840425 | 046 | 0.6+ | 2.2- | | 851024 | 046 | 1.1+ | 2.8- |
| 780824 | 808 | 0.2+ | 0.4+ | | 840425 | 046 | 1.0- | 3.2- | | 851024 | 046 | 0.7+ | 4.2- |

(3365)* 1985 CG2 = 1969 VC1 = 1973 TM = 1977 OC = 1978 XA = 1982 UG11

Discovered 1985 Feb. 13 by H. Debehogne at the European Southern Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | (1950.0) | P | Q |
|---|---|---|---|---|---|
| M | 348.90957 | | | | |
| n | 0.22075319 | Peri. | 107.83724 | +0.45455937 | +0.89044750 |
| a | 2.7114279 | Node | 189.29065 | -0.85990115 | +0.43229353 |
| e | 0.1737666 | Incl. | 7.79154 | -0.23226234 | +0.14221656 |
| P | 4.46 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 691111 | 095 | 2.9+ | 5.2+ | | 850215 | 809 | 0.4+ | 0.0 | | 850220 | 809 | 0.3- | 0.9- |
| 691113 | 095 | 2.5- | 0.6- | | 850215 | 809 | 0.6+ | 0.1- | | 850222 | 809 | 0.6- | 0.1+ |
| 691115 | 095 | 1.6- | 1.7+ | | 850217 | 809 | 0.3+ | 0.7- | | 850222 | 809 | 0.4- | 0.1+ |
| 731001 | 095 | 1.9+ | 3.8- | | 850217 | 809 | 0.1+ | 0.7- | | 850222 | 809 | 0.6- | 0.0 |
| 770719 | 095 | 0.7- | 1.6+ | | 850217 | 809 | 0.7+ | 0.8- | | 850226 | 809 | 1.0- | 0.5- |
| 781204 | 046 | 1.0- | 0.9- | | 850218 | 809 | 0.1+ | 0.5+ | | 850226 | 809 | 0.8- | 0.0 |
| 781204 | 046 | 0.5+ | 0.9- | | 850218 | 809 | 0.3+ | 0.6+ | | 850226 | 809 | 0.9- | 0.4+ |
| 821020 | 323 | 0.5+ | 1.0- | | 850218 | 809 | 0.5+ | 0.4+ | | 850227 | 809 | 0.7- | 0.8+ |
| 821021 | 323 | 0.4+ | 2.0- | | 850219 | 809 | 2.2+ | 1.1- | | 850227 | 809 | 0.5- | 0.7+ |
| 850213 | 809 | 1.1- | 0.3- | | 850219 | 809 | 2.5+ | 1.0- | | 850227 | 809 | 0.4- | 0.6+ |
| 850213 | 809 | 0.9- | 0.6- | | 850219 | 809 | 2.8+ | 1.2- | | 850228 | 809 | 0.3- | 0.6+ |
| 850213 | 809 | 1.0- | 0.5- | | 850220 | 809 | 0.6- | 0.8- | | 850228 | 809 | 0.5- | 0.5+ |
| 850215 | 809 | 0.2+ | 0.2+ | | 850220 | 809 | 0.4- | 0.9- | | | | | |

(3366)* 1985 SD1 = 1952 HH = 1969 QH = 1975 XE = 1978 EN3 = 1978 GX1 = 1978 JQ2 = 1979 ND = 1980 UC1 = 1983 EO = 1983 FE

Discovered 1985 Sept. 22 by T. Schildknecht at Zimmerwald. The triple designation 1978 EN3 = 1978 GX1 = 1978 JQ2 is by N. Chernykh. The double designation 1983 EO = 1983 FE was independently found by S. Nakano.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | (1950.0) | P | Q |
|---|---|---|---|---|---|
| M | 92.33709 | | | | |
| n | 0.18942855 | Peri. | 143.20239 | +0.80056516 | +0.59924571 |
| a | 3.0026572 | Node | 179.98144 | -0.58270275 | +0.77848631 |
| e | 0.0852368 | Incl. | 9.95591 | -0.13983181 | +0.18671809 |
| P | 5.20 | H | 11.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 520418 | 024 | 1.4- | 0.1+ | | 790715 | 805 | 1.3- | 0.9+ | | 830316 | 688 | 2.3+ | 1.3- |
| 520424 | 711 | 2.7+ | 4.6+ | Y | 790715 | 805 | 0.9- | 1.6+ | | 850922 | 026 | 1.0- | 1.1- |
| 690821 | 095 | 3.3+ | 2.1- | | 801016 | 323 | 0.2- | 0.6+ | | 850925 | 026 | 0.4+ | 0.3+ |
| 751201 | 805 | 0.8- | 0.6+ | | 801016 | 323 | 0.9- | 0.7+ | | 851012 | 026 | 1.1+ | 0.9+ |
| 751204 | 805 | 0.9- | 0.1- | | 830313 | 046 | 1.6+ | 0.2- | | 851013 | 026 | 0.6+ | 0.4+ |
| 751205 | 805 | 0.6- | 1.2+ | | 830313 | 046 | 0.4- | 0.5- | | 851016 | 026 | 1.7- | 1.4- |
| 780306 | 095 | 2.2- | 0.2- | | 830313 | 046 | 0.8+ | 0.2- | | 851106 | 026 | 0.7- | 0.2+ |
| 780407 | 095 | 1.4- | 0.0 | | 830313 | 046 | 1.2- | 0.4+ | | 851107 | 026 | 1.9+ | 1.0+ |
| 780509 | 095 | 2.9- | 0.5- | | 830316 | 688 | 3.3+ | 1.2- | | 851107 | 026 | 0.5+ | 0.3+ |

1977 CC = 1939 PL = 1950 LG = 1985 RY
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 62.15390 | (1950.0) | | P | Q |
| n | 0.17233053 | Peri. | 48.90687 | +0.84310308 | +0.40631438 |
| a | 3.1981250 | Node | 284.35584 | -0.53352248 | +0.71401692 |
| e | 0.2180711 | Incl. | 21.32220 | +0.06731238 | +0.57016529 |
| P | 5.72 | H | 10.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 390807 | 094(29.1- | 44.0-)X | 770214 | 808 | 0.1- | 0.4+ | 851012 | 675 | 0.0 | 0.5- |
| 390809 | 094 | 2.0+ | 3.0- | 770217 | 808 | 0.6+ | 0.5- | 851012 | 054 | 0.7+ | 0.5- |
| 390819 | 094 | 1.3- | 1.9+ | 770217 | 808 | 0.2- | 0.4- | 851013 | 675 | 0.7- | 0.7- |
| 500607 | 078(13.2+ | 7.5+)Y | 850916 | 675 | 0.7- | 1.3+ | 851015 | 675 | 1.0+ | 1.4- |
| 770211 | 808 | 1.3- | 1.0- | 850916 | 675 | 0.9- | 0.6+ | 851107 | 675 | 0.1+ | 0.9+ |
| 770214 | 808 | 0.2+ | 0.1+ | 850921 | 675 | 0.7- | 0.9+ | 851116 | 675 | 1.9+ | 1.1- |

1978 RS = 1985 WC
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 103.95790 | (1950.0) | | P | Q |
| n | 0.29117423 | Peri. | 46.43137 | +0.99970603 | -0.00156547 |
| a | 2.2544206 | Node | 313.64235 | -0.00871470 | +0.90802353 |
| e | 0.1904109 | Incl. | 1.91600 | +0.02262544 | +0.41891623 |
| P | 3.38 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 780901 | 095 | 0.8+ | 0.3- | 780928 | 095 | 2.1+ | 0.8+ | 781024 | 095 | 0.7+ | 0.2- |
| 780905 | 095 | 0.5+ | 0.5+ | 781004 | 095 | 0.3- | 0.1+ | 851117 | 054 | 0.0 | 0.7- |
| 780907 | 095 | 1.6- | 1.1- | 781008 | 095 | 0.6- | 0.3- | 851216 | 801 | 0.1+ | 0.3+ |
| 780912 | 095 | 0.8- | 0.1- | 781009 | 095 | 0.9- | 0.4+ | | | | |

1979 QB
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 320.32772 | (1950.0) | | P | Q |
| n | 0.27695087 | Peri. | 11.76200 | +0.99393189 | +0.10849496 |
| a | 2.3309568 | Node | 341.97948 | -0.10506940 | +0.88769075 |
| e | 0.4405951 | Incl. | 3.35741 | -0.03255480 | +0.44747512 |
| P | 3.56 | H | 18.0 | G 0.25 | |

From 12 observations 1979 Aug. 16-Oct. 22, mean residual 1".4.

1984 YC
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 109.93860 | (1950.0) | | P | Q |
| n | 0.21791668 | Peri. | 200.17236 | -0.56277124 | -0.65739787 |
| a | 2.7349060 | Node | 287.55072 | +0.81202473 | -0.32627915 |
| e | 0.2540197 | Incl. | 31.70736 | +0.15461036 | -0.67924219 |
| P | 4.52 | H | 12.0 | G 0.25 | |

From 17 observations 1984 Dec. 22-1985 Apr. 1, mean residual 0".9.

1985 SE1 = 1934 RC = 1975 VD5 = 1978 NO1
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 90.98032 | (1950.0) | | P | Q |
| n | 0.29049203 | Peri. | 180.75204 | +0.97488890 | +0.22191454 |
| a | 2.2579444 | Node | 166.38326 | -0.20389110 | +0.92303851 |
| e | 0.2283805 | Incl. | 4.52883 | -0.08955473 | +0.31425124 |
| P | 3.39 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 340902 | 012 | 0.2- | 0.1- | 780708 | 095 | 2.7- | 1.5+ | 851016 | 026 | 0.5- | 1.7- |
| 340905 | 012 | 1.2+ | 0.1- | 850922 | 026 | 1.9+ | 1.9+ | 851106 | 026 | 0.3- | 0.0 |
| 340912 | 012 (5.0+ | 70.6+) | 850925 | 026 | 0.6+ | 0.8- | 851107 | 026 | 1.0+ | 1.2- |
| 751102 | 095 | 0.8- | 1.7+ | 851012 | 026 | 0.8- | 0.7- | 851107 | 026 | 1.8+ | 1.0+ |
| 780704 | 095 | 0.4+ | 0.2+ | 851013 | 026 | 0.7- | 0.9- | | | | |

1985 TX = 1957 BH = 1974 UM = 1974 VY = 1974 WL = 1976 GO5
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 47.04939 | | (1950.0) | | | P | | | Q | | |
| n | 0.26488794 | Peri. | 182.25303 | | | +0.71562101 | | | -0.69801468 | | |
| a | 2.4012025 | Node | 222.05445 | | | +0.64141876 | | | +0.67128913 | | |
| e | 0.0986230 | Incl. | 2.20147 | | | +0.27652946 | | | +0.24929182 | | |
| P | 3.72 | H | 12.5 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 570130 | 024 | 1.1+ | 2.1+ | 760402 | 095 | 0.4- | 0.5- | 851020 | 688 | 0.5- | 0.4+ |
| 741023 | 330 | 1.4+ | 2.7+ | 851015 | 688 | 0.5- | 1.0+ | 851107 | 688 | 1.3+ | 0.1+ |
| 741112 | 095 | 0.6- | 2.3- | 851015 | 688 | 1.2- | 0.6+ | 851107 | 688 | 1.4+ | 0.3- |
| 741118 | 095 | 0.8- | 4.1- | 851020 | 688 | 0.6- | 0.3+ | | | | |

1985 TE1 = 1981 SW4 = 1981 UT18
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 52.12340 | | (1950.0) | | | P | | | Q | | |
| n | 0.25490275 | Peri. | 208.22448 | | | +0.81170597 | | | -0.58406390 | | |
| a | 2.4635075 | Node | 187.51307 | | | +0.53821786 | | | +0.74909517 | | |
| e | 0.1110123 | Incl. | 0.73157 | | | +0.22683685 | | | +0.31261125 | | |
| P | 3.87 | H | 13.5 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 810925 | 095 | 0.3+ | 0.3+ | 851020 | 688 | 0.3+ | 1.0+ | 851107 | 688 | 0.9- | 0.3- |
| 811026 | 095 | 0.3+ | 1.7- | 851020 | 688 | 0.0 | 0.4+ | 851107 | 688 | 0.9+ | 0.0 |
| 851015 | 688 | 0.2+ | 1.4+ | 851104 | 046 | 0.4+ | 0.1- | | | | |
| 851015 | 688 | 1.9- | 0.8+ | 851104 | 046 | 0.8+ | 2.0- | | | | |

1985 TF1 = 1937 RQ = 1972 TH7 = 1976 QY = 1981 WW8
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 81.35341 | | (1950.0) | | | P | | | Q | | |
| n | 0.22686176 | Peri. | 118.24460 | | | +0.98675670 | | | +0.15751736 | | |
| a | 2.6625395 | Node | 232.71847 | | | -0.16058114 | | | +0.91490113 | | |
| e | 0.1243024 | Incl. | 2.78955 | | | -0.02291084 | | | +0.37167755 | | |
| P | 4.34 | H | 12.0 | | G | 0.25 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 370913 | 754 | 0.2- | 0.9- | 760826 | 095 | 0.3+ | 0.2+ | 851020 | 688 | 0.3- | 2.1- |
| 370913 | 754 | 0.5- | 1.0- | 760827 | 675 | 0.2+ | 1.8+ | 851020 | 688 | 1.2+ | 1.6- |
| 370914 | 754 | 0.7- | 0.3+ | 811125 | 095 | 0.8- | 1.0+ | 851107 | 688 | 1.1- | 0.8- |
| 721006 | 095 | 0.3- | 5.5+ | 851015 | 688 | 1.1- | 2.3- | 851107 | 688 | 0.1- | 0.4- |
| 721013 | 095 | 4.6+ | 2.9+ | 851015 | 688 | 1.0- | 1.9- | | | | |

The following orbital elements correct those on MPC 10037, which were erroneously interchanged. The residuals are as given there.

1964 TR1 = 1957 JE = 1979 HP2 = 1981 TJ2 = 1981 UL15 = 1985 JS1
The double designation 1981 TJ2 = 1981 UL15 is by N. S. Chernykh.
Epoch 1985 Dec. 1.0 ET = JDE 2446400.5 (J-P)

| | | | | | | |
|---|---|---|---|---|---|---|
| M | 330.05886 | | (1950.0) | | P | Q |
| n | 0.17818700 | Peri. | 214.30115 | | +0.75307935 | +0.65620286 |
| a | 3.1276602 | Node | 104.61429 | | -0.59203368 | +0.70745866 |
| e | 0.1795679 | Incl. | 2.82180 | | -0.28699757 | +0.26248818 |
| P | 5.53 | B(1,0) | 13.0 | | | |

1964 TG2 = 1981 UN12
Epoch 1985 Dec. 1.0 ET = JDE 2446400.5 (J-P)

| | | | | | | |
|---|---|---|---|---|---|---|
| M | 355.69159 | | (1950.0) | | P | Q |
| n | 0.23533606 | Peri. | 77.42338 | | +0.66608736 | -0.74556636 |
| a | 2.5982320 | Node | 330.77559 | | +0.66613443 | +0.60754664 |
| e | 0.1584496 | Incl. | 2.51346 | | +0.33554813 | +0.27389391 |
| P | 4.19 | B(1,0) | 14.5 | | | |

ORBITAL ELEMENTS BY D. W. E. GREEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

(3367)* 1983 CA3 = 1953 XM = 1971 SH2 = 1981 UQ9 = 1981 UW15

Discovered 1983 Feb. 15 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory. The identifications are by C. M. Bardwell (MPC 9965 and unpublished).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 281.44774 | (1950.0) | | P | Q |
| n | 0.21221425 | Peri. | 238.71433 | -0.72364511 | -0.68420898 |
| a | 2.7836824 | Node | 257.94067 | +0.66049330 | -0.64849090 |
| e | 0.0673773 | Incl. | 5.31169 | +0.20021578 | -0.33364296 |
| P | 4.64 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 531202 024 | 0.6+ | 0.7- | 830215 688 | 0.3- | 0.3- | 830405 046 | 0.4+ | 1.0- |
| 710926 095 | 0.2+ | 3.2- | 830215 688 | 1.4- | 0.5- | 830405 046 | 0.9+ | 0.6- |
| 811024 095 | 0.8+ | 2.3+ | 830312 046 | 1.5+ | 1.8+ | 850815 688 | 0.7+ | 0.6+ |
| 811028 095 | 0.6+ | 0.9+ | 830312 046 | 0.3- | 1.0- | 850815 688 | 1.6+ | 1.2+ |
| 811030 381 | 0.1- | 0.2- | 830313 046 | 0.2+ | 1.0- | 850912 801 | 0.4- | 0.9- |
| 811030 381 | 1.6- | 1.5- | 830313 046 | 2.3- | 0.4- | 851018 801 | 0.7- | 0.9- |

* * * * *

ORBITAL ELEMENTS BY L. D. SCHMADEL, ASTRONOMISCHES RECHEN-INSTITUT.

The identifications are by L. D. Schmadel unless otherwise stated.

(3368)* 1985 QT = 1954 RG = 1954 RN = 1970 GH1 = 1973 SP5 = 1976 GJ4

Discovered 1985 Aug. 22 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The double designation 1954 RG = 1954 RN is by O. Kippes (MPC 1331). The identifications were found independently by K. Hurukawa (JAM 1966).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 40.43400 | (1950.0) | | P | Q |
| n | 0.15851525 | Peri. | 359.60567 | +0.99814564 | -0.05673658 |
| a | 3.3813388 | Node | 3.86000 | +0.05670392 | +0.73493604 |
| e | 0.0974280 | Incl. | 19.12054 | +0.02213455 | +0.67575882 |
| P | 6.22 | H | 11.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 540905 760 | 2.4+ | 0.6+ | 850822 688 | 0.4- | 0.3+ | 850923 054 | 0.5+ | 0.3+ |
| 540906 760 | 3.1- | 1.3- | 850822 688 | 0.2- | 0.7+ | 851010 054 | 1.1- | 0.6+ |
| 540906 760 | 0.2+ | 1.4+ | 850914 688 | 0.5+ | 0.1+ | 851012 688 | 0.1+ | 1.3- |
| 700411 805 | 0.6+ | 1.1+ | 850914 688 | 0.1- | 0.1- | 851012 688 | 0.6+ | 1.9- |
| 700411 805 | 0.4+ | 0.4+ | 850915 054 | 0.8- | 2.3+ | 851012 054 | 0.1+ | 0.7- |
| 700411 805 | 1.0+ | 0.7+ | 850917 054 | 0.6- | 2.4+ | 851018 054 | 0.7- | 0.3- |
| 730928 095 | 0.0 | 0.6+ | 850918 688 | 0.1+ | 0.4+ | | | |
| 760402 095 | 2.4+ | 2.6+ | 850918 688 | 1.3- | 0.5+ | | | |

(3369)* 1985 UZ = 1971 CA = 1975 XF2 = 1979 OG16 = 1980 XD1

Discovered 1985 Oct. 18 at Brorfelde. The identifications were found independently by K. Hurukawa.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 23.77320 | (1950.0) | | P | Q |
| n | 0.18535381 | Peri. | 140.76984 | +0.65995939 | -0.73847691 |
| a | 3.0465037 | Node | 267.46830 | +0.64976512 | +0.65338641 |
| e | 0.1303849 | Incl. | 7.95281 | +0.37717224 | +0.16654746 |
| P | 5.32 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 710201 | 029 | 0.5+ | 0.5+ | | 790819 | 095 | 0.0 | 1.4+ | | 851018 | 054 | 0.8- | 0.7+ |
| 710202 | 029 | 1.3- | 1.4+ | | 801209 | 330 | 0.3- | 1.2- | | 851107 | 054 | 0.1- | 0.2- |
| 751201 | 095 | 1.8+ | 0.3- | | 801213 | 330 | 1.4- | 0.8- | | 851113 | 054 | 0.0 | 0.7+ |
| 790731 | 095 | 0.2- | 1.0- | | 851018 | 054 | 0.8+ | 0.3+ | | | | | |

* * * * *

ORBITAL ELEMENTS BY K. HURUKAWA, TOKYO ASTRONOMICAL OBSERVATORY.

The identifications are by K. Hurukawa unless otherwise stated.

(3370)* 1934 CU = 1972 TT = 1977 DL1 = 1982 UD1

Discovered 1934 Feb. 4 by K. Reinmuth at Heidelberg. The identification 1934 CU = 1982 UD1 is by H. Oishi (MPC 9068).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 350.93968 | | (1950.0) | P | Q |
| n | 0.29889855 | Peri. | 300.53946 | +0.08770858 | -0.99350923 |
| a | 2.2154069 | Node | 144.20565 | +0.95108674 | +0.06189755 |
| e | 0.1088067 | Incl. | 7.11400 | +0.29621144 | +0.09543639 |
| P | 3.30 | H | 14.2 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 340204 | 024 | (13.1- | 16.3+) | | 770219 | 381 | 0.5+ | 0.4+ | | 821022 | 046 | 0.9- | 0.8- |
| 340209 | 024 | 1.5- | 1.4+ | | 770219 | 381 | 0.9+ | 0.3- | | 821022 | 046 | 1.0+ | 0.1- |
| 340214 | 024 | 0.9+ | 4.1+ | | 821020 | 046 | 1.5- | 1.5- | | 850814 | 688 | 2.1- | 0.8+ |
| 340305 | 024 | (14.0- | 2.5-) | | 821020 | 046 | 2.5- | 2.6- | | 850814 | 688 | 0.2- | 1.0+ |
| 340314 | 024 | 6.7- | 1.3- | | 821021 | 688 | 0.2- | 0.9- | | 850820 | 688 | 0.8+ | 5.4+ |
| 721007 | 095 | 3.8+ | 5.1+ | | 821021 | 688 | 2.8+ | 1.3- | | 850914 | 688 | 1.2- | 1.9- |
| 770218 | 381 | 1.9+ | 0.1- | | 821021 | 046 | 0.6+ | 0.8+ | | 850914 | 688 | 1.6- | 0.7+ |
| 770218 | 381 | 1.9- | 1.0+ | | 821021 | 046 | 0.3- | 1.0+ | | | | | |

(3371)* 1955 RZ = 1955 TP = 1975 BK1

Discovered 1955 Sept. 14 at the Goethe Link Observatory. The double designation 1955 RZ = 1955 TP is by S. Kanda (MPC 1453). The identification 1955 RZ = 1975 BK1 was found independently by E. Bowell (MPC 7768).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 1.56461 | | (1950.0) | P | Q |
| n | 0.21756989 | Peri. | 350.56779 | +0.24529176 | +0.95712165 |
| a | 2.7378114 | Node | 293.50500 | -0.87809161 | +0.15198331 |
| e | 0.0126104 | Incl. | 9.67475 | -0.41083704 | +0.24661551 |
| P | 4.53 | H | 12.2 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 550914 | 760 | 3.1- | 0.6- | | 551012 | 760 | 1.4+ | 0.1+ | | 831229 | 552 | 0.5- | 0.5+ |
| 550914 | 760 | 1.9- | 1.3+ | | 750116 | 330 | 1.3+ | 0.2+ | | 840105 | 688 | 0.3- | 1.4- |
| 550921 | 760 | 1.2+ | 0.5- | | 750117 | 330 | 1.3- | 0.1+ | | 840105 | 688 | 0.8+ | 0.5- |
| 550921 | 760 | 2.3+ | 0.2- | | 750118 | 330 | (9.7+ | 2.7+) | | 840109 | 801 | 0.0- | 0.8+ |
| 551012 | 760 | 1.7+ | 1.6+ | | 831229 | 552 | 0.7- | 0.0+ | | 840208 | 801 | 0.9+ | 0.4+ |

(3372)* 1976 SP4 = A921 GA = 1972 VK1 = 1972 YA1 = 1981 YW = 1982 AP

Discovered 1976 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identifications are by T. Furuta (JAM 1842, 1844).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 49.69542 | | (1950.0) | P | Q |
| n | 0.22284590 | Peri. | 19.07418 | +0.78810413 | -0.61526128 |
| a | 2.6944261 | Node | 18.93333 | +0.55701169 | +0.69998941 |
| e | 0.1391110 | Incl. | 3.28381 | +0.26197302 | +0.36258568 |
| P | 4.42 | H | 12.1 | G 0.25 | |

Residuals in seconds of arc (or two decimals in units of degrees)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 210401 | 024 | (0.01- | 0.04+)X | 761026 | 095 | 0.1+ | 1.5+ | |
| 721109 | 095 | (7.8+ | 4.9+) | 811228 | 046 | 0.9- | 1.2- | |
| 721109 | 095 | 0.6- | 5.1+ | 811228 | 046 | 0.5- | 0.9- | |
| 721230 | 095 | 0.0- | 0.0+ | 820115 | 330 | 1.5+ | 1.3- | |
| 760924 | 095 | 3.1- | 1.1- | 851020 | 046 | 1.8- | 0.4- | |
| 760929 | 095 | 0.0+ | 1.4- | 851020 | 046 | 1.5- | 0.0- | |
| 851022 | 046 | 2.1+ | 0.2- | | | | | |
| 851022 | 046 | 0.2+ | 0.7- | | | | | |
| 851025 | 046 | 1.1+ | 1.5- | | | | | |
| 851025 | 046 | 0.5+ | 1.4- | | | | | |
| 851116 | 801 | 0.3+ | 1.9+ | | | | | |

(3373)* 1978 QQ2 = 1931 TF1 = 1975 VF1 = 1975 WH1

Discovered 1978 Aug. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identifications are by T. Furuta; the identification 1978 QQ2 = 1931 TF1 was independently suggested by E. Bowell (MPC 9682).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 47.12824 | | (1950.0) | P | Q |
| n | 0.29283579 | Peri. | 250.71223 | +0.38187539 | -0.92420866 |
| a | 2.2458803 | Node | 176.83282 | +0.86751291 | +0.35729304 |
| e | 0.1301253 | Incl. | 3.20357 | +0.31873585 | +0.13483333 |
| P | 3.37 | H | 13.7 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 311006 | 690 | 2.3+ | 0.8- | 751102 | 095 | (9.7- | 7.4-) | |
| 311006 | 024 | 2.2- | 4.2- | 751126 | 330 | 0.4- | 1.1+ | |
| 311007 | 690 | 1.9+ | 0.2- | 780831 | 095 | 1.1+ | 2.4+ | |
| 311009 | 690 | 0.7- | 0.4- | 780905 | 095 | 0.3- | 0.9+ | |
| 311012 | 024 | 1.1+ | 4.8+ | 780927 | 095 | 1.9- | 0.1+ | |
| 311016 | 024 | 0.8+ | 0.2+ | 850815 | 691 | 0.5- | 0.3+ | |
| 850815 | 691 | 0.4- | 0.4+ | | | | | |
| 850815 | 691 | 0.6- | 0.3+ | | | | | |
| 850913 | 801 | (3.5- | 10.3+) | | | | | |
| 851016 | 801 | 0.5+ | 1.3+ | | | | | |

(3374)* 1980 KO = 1982 VV2

Discovered 1980 May 22 by H. Debehogne at the European Southern Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 87.46596 | | (1950.0) | P | Q |
| n | 0.19455999 | Peri. | 145.24852 | -0.76024197 | +0.64763220 |
| a | 2.9496265 | Node | 75.19813 | -0.60733632 | -0.68065356 |
| e | 0.0124243 | Incl. | 3.02592 | -0.23059648 | -0.34246643 |
| P | 5.07 | H | 12.9 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 800522 | 809 | 1.4+ | 0.9+ | 800525 | 809 | 0.6- | 0.9+ | |
| 800522 | 809 | 0.7+ | 1.2+ | 800602 | 809 | 2.6- | 0.6- | |
| 800522 | 809 | 0.2- | 1.0+ | 800602 | 809 | 2.0- | 0.3- | |
| 800523 | 809 | 0.2+ | 0.0- | 800602 | 809 | 1.4- | 0.1+ | |
| 800523 | 809 | 0.9+ | 0.6- | 800604 | 809 | 0.8+ | 1.4- | |
| 800523 | 809 | 1.7+ | 1.1- | 800604 | 809 | 0.3+ | 1.8- | |
| 800524 | 809 | 1.7+ | 0.4+ | 800604 | 809 | 0.3+ | 1.4- | |
| 800524 | 809 | 1.2+ | 0.6+ | 800605 | 809 | 0.5- | 1.2- | |
| 800524 | 809 | 0.7- | 0.0- | 800605 | 809 | 0.5- | 0.6- | |
| 800524 | 809 | 1.2- | 0.1- | 800605 | 809 | 1.1- | 0.4- | |
| 800524 | 809 | 1.2- | 0.4+ | 800606 | 809 | 0.7+ | 0.8- | |
| 800525 | 809 | 0.0- | 1.0+ | 800606 | 809 | 0.4+ | 0.8- | |
| 800525 | 809 | 0.5+ | 1.0+ | 800606 | 809 | 0.1+ | 0.8- | |
| 821114 | 381 | 0.9+ | 1.4- | | | | | |
| 821114 | 381 | 0.4- | 2.6- | | | | | |
| 821213 | 381 | 0.1- | 0.1+ | | | | | |
| 821213 | 381 | 0.4+ | 0.5- | | | | | |
| 821214 | 381 | 0.1- | 0.1- | | | | | |
| 821214 | 381 | 0.6+ | 0.2+ | | | | | |
| 840201 | 801 | 2.4+ | 0.3- | | | | | |
| 840208 | 801 | 0.3+ | 0.3+ | | | | | |
| 840221 | 675 | 2.1- | 0.1- | | | | | |
| 840301 | 801 | 0.4+ | 0.9- | | | | | |
| 840421 | 675 | 1.7- | 0.2+ | | | | | |

(3375)* 1981 JY1 = 1955 EE

Discovered 1981 May 5 by C. Shoemaker at Palomar. The identification is by T. Furuta (JAM 1875).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 272.11980 | | (1950.0) | P | Q |
| n | 0.30800145 | Peri. | 353.35003 | -0.95142097 | -0.30787096 |
| a | 2.1715385 | Node | 168.71692 | +0.28333404 | -0.88015704 |
| e | 0.0260096 | Incl. | 1.08026 | +0.12049878 | -0.36130189 |
| P | 3.20 | H | 13.8 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 550314 | 760 | 0.7+ | 0.9- | 810411 | 675 | 1.3- | 0.7+ | 810510 | 675 | 0.4+ | 0.2+ |
| 550314 | 760 | 2.3+ | 0.3- | 810411 | 675 | 0.4+ | 0.2+ | 850915 | 801 | 0.2+ | 1.3- |
| 550323 | 760 | 3.3- | 2.3+ | 810505 | 675 | 0.2- | 0.5+ | 850917 | 054 | 1.0+ | 0.7- |
| 550323 | 760 | 0.5- | 2.9- | 810506 | 675 | 0.7+ | 1.7- | 851017 | 801 | 0.5- | 0.3+ |

(3376)* 1982 UJ8 = 1982 TN = 1952 HP3 = 1975 XF1 = 1978 PJ4 = 1978 SZ1

Discovered 1982 Oct. 21 by L. V. Zhuravleva at the Crimean Astrophysical Observatory. The key identification 1982 UJ8 = 1978 SZ1 was found by T. Furuta and by W. Landgraf (MPC 9032), and Furuta also found the identification with 1978 PJ4. The identifications 1982 UJ8 = 1952 HP3 = 1975 XF1 were found independently by S. Nakano.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 175.91385 | (1950.0) | | P | Q |
| n | 0.27391127 | Peri. | 327.93438 | -0.78948033 | +0.60497739 |
| a | 2.3481696 | Node | 249.64345 | -0.53719440 | -0.76267947 |
| e | 0.0676297 | Incl. | 6.34130 | -0.29688883 | -0.22874087 |
| P | 3.60 | H | 12.4 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 520427 | 711 | 4.2- | 3.4- | 821013 | 688 | 0.7+ | 2.0- | 850809 | 552 | 0.3+ | 0.7- |
| 751201 | 095 | 1.6+ | 5.1+ | 821021 | 095 | 2.0- | 4.7- | 850809 | 552 | 0.6+ | 0.5- |
| 780809 | 095 | 0.5+ | 0.2- | 821109 | 095 | 0.3+ | 1.3- | 850809 | 552 | 0.6+ | 0.1+ |
| 780926 | 095 | 0.9- | 2.2+ | 821111 | 095 | 0.8- | 0.4- | 850813 | 801 | 0.1- | 0.3- |
| 781002 | 095 | 1.8- | 3.5+ | 821114 | 095 | 1.1+ | 1.4+ | 850816 | 552 | 0.9+ | 1.1+ |
| 821013 | 688 | 0.2+ | 2.2- | 850719 | 801 | 2.3- | 0.8- | 850816 | 552 | 1.2+ | 0.2+ |

(3377)* 4122 P-L = 1975 TB6 = 1978 GM3 = 1980 TY8 = 1982 BX2

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 17.77993 | (1950.0) | | P | Q |
| n | 0.19822945 | Peri. | 200.38003 | +0.55447959 | -0.83209192 |
| a | 2.9131126 | Node | 215.94867 | +0.76658063 | +0.51688985 |
| e | 0.0584363 | Incl. | 1.29277 | +0.32389278 | +0.20111668 |
| P | 4.97 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 600924 | 675 | 0.6- | 0.3+ | 601026 | 675 | 0.3+ | 0.1- | 820127 | 046 | 1.0- | 0.5- |
| 600925 | 675 | 0.0+ | 0.2- | 751011 | 049 | 0.1- | 0.5+ | 820128 | 046 | 0.8- | 0.4+ |
| 600926 | 675 | 0.6- | 0.4+ | 751011 | 049 | 0.2+ | 0.7+ | 851015 | 688 | 0.5+ | 0.6- |
| 600928 | 675 | 0.4+ | 0.1- | 751011 | 049 | 0.6+ | 1.0+ | 851015 | 688 | 0.2+ | 0.7- |
| 601017 | 675 | 0.5+ | 0.4+ | 780411 | 095 | 0.5+ | 0.9+ | 851020 | 688 | 0.3- | 0.3+ |
| 601022 | 675 | 0.7- | 0.7- | 801013 | 095 | 0.0+ | 0.4+ | 851020 | 688 | 0.2+ | 0.3+ |
| 601022 | 675 | 0.2- | 0.6- | 820121 | 046 | 0.3+ | 0.6+ | 851107 | 688 | 0.2- | 0.4- |
| 601024 | 675 | 0.7- | 0.1+ | 820121 | 046 | 0.9+ | 0.4+ | 851107 | 688 | 0.8- | 1.0- |
| 601025 | 675 | 1.1+ | 0.3+ | 820125 | 046 | 0.1+ | 1.7- | | | | |
| 601026 | 675 | 0.4- | 0.6+ | 820125 | 046 | 0.5+ | 1.2+ | | | | |

1985 HV1 = 1985 JX = 1968 HD = 1976 SO1 = 1979 FX1 = 1982 SZ4

The double designation 1985 HV1 = 1985 JX is by F. N. Bowman (MPC 10151).

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 143.77057 | (1950.0) | | P | Q |
| n | 0.17768268 | Peri. | 67.40579 | -0.69231517 | -0.72141047 |
| a | 3.1335756 | Node | 66.41853 | +0.65530105 | -0.63802480 |
| e | 0.1564955 | Incl. | 1.02091 | +0.30212621 | -0.26924207 |
| P | 5.55 | H | 11.9 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 680417 | 026 | 0.2+ | 0.4- | 790323 | 095 | 1.6- | 0.5- | 850425 | 675 | 1.4+ | 0.8+ |
| 680420 | 026 | 0.6+ | 0.2+ | 790329 | 095 | 0.1- | 0.1- | 850513 | 675 | 0.0 | 0.0+ |
| 760924 | 095 | 0.9- | 0.3- | 820926 | 095 | 1.5+ | 0.5- | 850515 | 675 | 0.7- | 1.1+ |
| 760928 | 095 | 0.0 | 0.9- | 850424 | 675 | 0.2- | 2.6- | | | | |

* * * * *

ORBITAL ELEMENTS BY S. NAKANO, TOKYO.

The identifications are by S. Nakano unless otherwise stated.

(3378)* A922 WB = 1969 AK = 1978 TF1

Discovered 1922 Nov. 25 by G. Van Biesbroeck at Williams Bay. The key identification A922 WB = 1978 TF1 was found independently by E. Bowell (MPC 9161). The identification A922 WB = 1969 AK is by K. Hurukawa (JAM 1693).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 11.35975 | | (1950.0) | P | Q |
| n | 0.27964571 | Peri. | 91.58385 | +0.38403219 | -0.92148938 |
| a | 2.3159576 | Node | 335.57769 | +0.78132667 | +0.35786356 |
| e | 0.0912601 | Incl. | 8.07924 | +0.49198362 | +0.15096689 |
| P | 3.52 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 221125 | 754 | 1.0+ | 0.2+ | 221223 | 754 | 1.6+ | 1.3+ | 850911 | 567 | 0.2+ | 2.0+ |
| 221129 | 754 | 3.6- | 1.6+ | 690115 | 095 | 0.5- | 2.4- | 850911 | 567 | 2.9- | 0.3+ |
| 221202 | 754 | 1.4- | 0.1+ | 781002 | 095 | 0.6- | 0.7+ | 850911 | 552 | 0.5+ | 0.8- |
| 221210 | 754 | 0.2+ | 0.3+ | 781008 | 095 | 1.5- | 1.4- | 850913 | 801 | 1.8+ | 0.4+ |
| 221214 | 024 | 1.7- | 1.0+ | 850815 | 688 | 0.8- | 0.1- | 850918 | 552 | 0.8- | 2.2- |
| 221216 | 754 | 5.0+ | 0.8+ | 850815 | 688 | 3.6+ | 1.1- | 850918 | 552 | 1.8- | 0.8- |
| 221221 | 024 | 0.9- | 3.3- | 850911 | 552 | 1.2- | 1.6- | 851012 | 801 | 4.9+ | 3.4+ |

(3379)* 1931 TJ1 = A906 WC = 1964 YG = 1981 NQ

Discovered 1931 Oct. 6 by K. Reinmuth at Heidelberg.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 345.41159 | | (1950.0) | P | Q |
| n | 0.27279033 | Peri. | 303.82171 | -0.00416582 | -0.99961158 |
| a | 2.3545978 | Node | 146.38431 | +0.93309712 | -0.01379499 |
| e | 0.1299274 | Incl. | 2.85303 | +0.35960034 | +0.02421540 |
| P | 3.61 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 061120 | 803(65.4- | 69.8+)Y | | 311012 | 024 | 9.2+ | 7.4+ | 810702 | 805 | 0.3+ | 0.4+ |
| 311006 | 690 | 2.2+ | 2.3- | 311016 | 024 | 7.6- | 0.4+ | 850912 | 688 | 0.6+ | 0.7- |
| 311006 | 024 | 0.5- | 0.3- | 641231 | 330 | 0.1+ | 0.3- | 850912 | 688 | 3.7- | 0.2- |
| 311007 | 690 | 1.2- | 2.5- | 650108 | 330 | 0.1- | 0.0 | 850913 | 801 | 1.2+ | 0.3- |
| 311009 | 690 | 2.4- | 2.1- | 810702 | 805 | 0.3- | 0.1- | 851012 | 801 | 2.5+ | 0.3+ |

(3380)* 1940 EF = 1971 US2 = 1972 YY = 1978 EP6 = 1981 XG2 = 1982 DS4

Discovered 1940 Mar. 15 by G. Kulin at Budapest.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 302.64690 | | (1950.0) | P | Q |
| n | 0.20577359 | Peri. | 19.57208 | -0.37738913 | -0.92433110 |
| a | 2.8414692 | Node | 92.63309 | +0.84188379 | -0.36785276 |
| e | 0.0240944 | Incl. | 3.24094 | +0.38575785 | -0.10147101 |
| P | 4.79 | H | 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 400315 | 053 | (1.9+ | 27.5-)X | 730103 | 095 | 0.4- | 2.8- | 850822 | 688 | 0.5+ | 2.3- |
| 400402 | 053 | 2.1- | 2.3- | 730203 | 095 | 2.0+ | 0.0 | 850914 | 688 | 0.9+ | 1.0+ |
| 400404 | 062 | 0.1- | 1.0+ | 780306 | 095 | 0.4- | 0.4- | 850914 | 688 | 2.0- | 1.6- |
| 400404 | 062 | 5.3+ | 2.0- | 811202 | 330 | 2.2- | 2.2+ | 850918 | 688 | 0.4+ | 1.2+ |
| 400412 | 062 | 2.5+ | 6.0+ | 811220 | 330 | 1.1- | 2.2+ | 850918 | 688 | 0.6- | 1.4- |
| 400412 | 053 | 5.1- | 0.0 | 811223 | 330 | 1.7+ | 5.5- | 851012 | 688 | 0.5+ | 2.2+ |
| 711021 | 095 | 0.3+ | 1.6+ | 820221 | 010 | 0.5- | 1.1+ | 851012 | 688 | 0.4- | 2.3+ |
| 721230 | 095 | 0.1- | 1.5+ | 850822 | 688 | 0.8+ | 0.9- | | | | |

(3381)* 1941 UG = 1949 XG = 1974 HG = 1977 BE

Discovered 1941 Oct. 15 by L. Oterma at Turku.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 207.70194 | | (1950.0) | P | Q |
| n | 0.25642586 | Peri. | 133.41550 | +0.85319730 | -0.51667602 |
| a | 2.4537379 | Node | 257.81428 | +0.45492465 | +0.80411938 |
| e | 0.2042146 | Incl. | 4.18989 | +0.25514294 | +0.29400326 |
| P | 3.84 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 410926 | 062 | 0.9- | 0.6- | 491214 | 760 | 0.0 | 0.2- | 850414 | 691 | 1.7+ | 0.7- |
| 410927 | 062 | 0.4- | 1.5+ | 740422 | 805 | 0.6- | 0.7- | 850414 | 691 | 1.8+ | 0.4- |
| 411015 | 062 | 0.7+ | 0.9- | 740424 | 805 | 0.6- | 0.2- | 850423 | 691 | 0.5+ | 0.3- |
| 411016 | 062 | 0.0 | 0.6- | 740425 | 805 | 1.6- | 0.5- | 850423 | 691 | 0.3+ | 0.6- |
| 411016 | 062 | 1.8+ | 0.7- | 770120 | 095 | 1.8- | 1.4+ | | | | |
| 491214 | 760 | 0.1- | 0.7- | 850217 | 801 | 0.1- | 0.2+ | | | | |

(3382)* 1948 RD = 1948 RE1 = 1938 SK = 1980 BF6

Discovered 1948 Sept. 7 by H. L. Giclas at the Lowell Observatory. The double designation 1948 RD = 1948 RE1 is by O. Kippes (MPC 702).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 89.81321 | | (1950.0) | P | Q |
| n | 0.29359151 | Peri. | 346.33983 | +0.96018534 | +0.27932430 |
| a | 2.2420247 | Node | 357.42602 | -0.24546942 | +0.83554421 |
| e | 0.1832305 | Incl. | 6.00237 | -0.13337496 | +0.47312136 |
| P | 3.36 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc (or two decimals in units of degrees)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 380918 | 029(57.3- | 9.0+)X | 850911 | 563 | 1.4+ | 1.0+ | 851011 | 552 | 1.5- | 0.4- |
| 380921 | 062 | 0.1- | 0.5- | 850911 | 046 | 1.3- | 1.2- | 851012 | 688 | 0.9- | 0.7+ |
| 380922 | 062 | 0.0 | 0.3- | 850911 | 046 | 2.8- | 1.4- | 851012 | 688 | 0.6+ | 0.3+ |
| 380923 | 029(39.6+ | 36.8-)X | 850911 | 054 | 0.4+ | 0.7+ | 851012 | 054 | 0.3- | 1.2- |
| 380928 | 029(0.04- | 0.03-)X | 850912 | 046 | 0.4+ | 1.4- | 851016 | 552 | 0.5- | 1.3- |
| 480905 | 094 | 0.8- | 3.3+ | 850912 | 046 | 0.8- | 2.2- | 851016 | 552 | 0.1+ | 1.5- |
| 480907 | 690 | 1.8+ | 2.2- | 850914 | 688 | 0.2+ | 0.4+ | 851018 | 054 | 0.6- | 0.6+ |
| 480908 | 690 | 2.5+ | 2.6- | 850914 | 688 | 0.0 | 0.0 | 851020 | 563 | 1.0+ | 1.2+ |
| 480909 | 690 | 0.8+ | 1.8- | 850915 | 054 | 0.1- | 1.8+ | 851020 | 563 | 0.0 | 0.9+ |
| 480911 | 094 | 1.9- | 0.4+ | 850917 | 054 | 0.5- | 1.6+ | 851020 | 563 | 1.2+ | 0.4+ |
| 480925 | 094 (7.0- | 7.3+) | 850918 | 688 | 0.4+ | 0.3+ | 851020 | 563 | 0.5+ | 1.6+ |
| 800123 | 095 | 0.4- | 1.4- | 850918 | 657 | 0.1- | 1.9- | 851020 | 563 | 0.6+ | 1.0+ |
| 850822 | 688 | 0.4+ | 0.9+ | 850918 | 688 | 1.0- | 0.6+ | 851020 | 563 | 0.5+ | 1.1+ |
| 850822 | 688 | 0.2+ | 0.6+ | 850918 | 657 | 0.9- | 0.5- | 851020 | 563 | 1.5+ | 0.7+ |
| 850910 | 046 | 0.8- | 0.8- | 850923 | 054 | 0.4+ | 0.2+ | 851020 | 563 | 0.8+ | 0.6+ |
| 850910 | 046 | 1.6- | 0.5- | 851007 | 376 | (4.4- | 3.9-) | 851020 | 563 | 0.9+ | 0.4+ |
| 850911 | 563 | 0.0 | 1.3+ | 851007 | 376 | 1.6+ | 2.3- | 851020 | 563 | 0.2+ | 0.1+ |
| 850911 | 563 | 0.9+ | 1.6+ | 851010 | 054 | 1.7- | 1.0- | | | | |
| 850911 | 563 | 2.0+ | 1.5+ | 851011 | 552 | 2.2- | 0.4- | | | | |

(3383)* 1951 AB = 1951 CB = 1951 CU = 1984 DL

Discovered 1951 Jan. 9 by K. Reinmuth at Heidelberg. The triple designation 1951 AB = 1951 CB = 1951 CU is by B. Potter (MPC 640, 674).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 79.34706 | | (1950.0) | P | Q |
| n | 0.23977268 | Peri. | 141.14424 | +0.18635053 | +0.96828843 |
| a | 2.5660764 | Node | 138.81468 | -0.95263331 | +0.21951104 |
| e | 0.0453628 | Incl. | 14.63770 | -0.24033987 | -0.11929968 |
| P | 4.11 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 510109 | 024 | 0.8+ | 2.5+ | 840227 | 809 | 0.5- | 0.4- | 840308 | 809 | 0.4+ | 1.3+ |
| 510207 | 012 | 1.9- | 0.1- | 840227 | 809 | 0.2- | 0.4- | 840309 | 809 | 0.2+ | 0.6+ |
| 510210 | 760 | 0.2+ | 3.5- | 840303 | 809 | 0.4- | 0.2- | 840309 | 809 | 0.4+ | 0.8+ |
| 510210 | 760 | 1.0+ | 0.5- | 840303 | 809 | 0.2- | 0.0 | 840309 | 809 | 0.5+ | 0.8+ |
| 840226 | 688 | 0.2- | 1.5- | 840303 | 809 | 0.4- | 0.2+ | 850719 | 801 | 1.6+ | 0.9+ |
| 840226 | 688 | 0.3+ | 1.2- | 840308 | 809 | 0.5+ | 0.8+ | 850813 | 801 | 2.0- | 1.7- |
| 840227 | 809 | 0.7- | 0.4- | 840308 | 809 | 0.4+ | 1.1+ | | | | |

(3384)* 1974 SB1 = 1974 TV = 1974 UQ = 1941 US = 1978 YW = 1983 CU1

Discovered 1974 Sept. 19 by L. I. Chernykh at the Crimean Astrophysical Observatory. The double designations 1974 SB1 = 1974 TV and 1974 TV = 1974 UQ are by B. G. Marsden and O. Kippes, respectively (MPC 9064, 6840).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 38.87279 | | (1950.0) | P | Q |
| n | 0.26761257 | Peri. | 262.09495 | +0.75071683 | -0.65987372 |
| a | 2.3848718 | Node | 139.18734 | +0.62347977 | +0.69194935 |
| e | 0.2098153 | Incl. | 2.76061 | +0.21839693 | +0.29286990 |
| P | 3.68 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 411027 | 062 | 0.5+ | 0.6+ | 741010 | 808 | 1.8- | 0.8+ | 830204 | 046 | 0.2- | 1.7- |
| 411027 | 062 | 0.8- | 0.8+ | 741019 | 808 | 0.0 | 0.2+ | 830204 | 046 | 0.7- | 1.4- |
| 740919 | 095 | 0.8- | 2.8- | 741019 | 808 | 0.1+ | 0.6+ | 850915 | 801 | 0.8+ | 1.1+ |
| 740921 | 095 | 3.8+ | 2.9- | 781222 | 095 | 0.1+ | 0.1+ | 851017 | 801 | 0.7- | 0.2- |
| 741010 | 808 | 0.7- | 0.2+ | 781231 | 095 | 0.1- | 0.6+ | | | | |

(3385)* 1979 SK11 = 1979 TF2 = 1979 UY1 = 1931 BQ = 1961 DA = 1968 HP1 = 1969 TB5 = 1971 DG1 = 1978 GE3 = 1978 JR1

Discovered 1979 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory. The triple designation 1979 SK11 = 1979 TF2 = 1979 UY1 is by H. Oishi (JAM 1790). The double designation 1979 SK11 = 1979 TF2 was independently suggested by N. S. Chernykh (MPC 9417).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 123.44047 | | (1950.0) | P | Q |
| n | 0.29788187 | Peri. | 67.34576 | -0.09567572 | +0.99479022 |
| a | 2.2204449 | Node | 197.27518 | -0.95121483 | -0.10178871 |
| e | 0.0416540 | Incl. | 6.80622 | -0.29331979 | +0.00561045 |
| P | 3.31 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 310118 | 690 | 0.9- | 0.4- | 780408 | 095 | 1.4+ | 2.4+ | 791023 | 010 | 0.4+ | 0.5+ |
| 310120 | 690 | 0.2- | 0.0 | 780506 | 095 | 1.6- | 0.7+ | 850621 | 801 | 0.1+ | 0.3- |
| 610216 | 024 | 1.8- | 1.2+ | 790921 | 049 | 0.7+ | 1.6+ | 850718 | 801 | 0.5+ | 2.6- |
| 680430 | 095 | 0.3- | 0.3- | 790921 | 049 | 5.4- | 0.4- | 850719 | 293 | 0.2+ | 1.5+ |
| 691014 | 095 | 4.1+ | 4.7+ | 790924 | 095 | 0.9- | 1.6- | 850719 | 293 | 0.3+ | 1.2+ |
| 710218 | 095 | 0.1- | 2.3- | 791014 | 095 | 0.2- | 2.5- | 850722 | 552 | 0.9+ | 0.0 |
| 710223 | 095 | 3.8+ | 0.9+ | 791019 | 010 | 0.5+ | 0.6+ | 850722 | 552 | 2.2- | 0.9- |

(3386)* 1980 FA = 1956 EG = 1982 RV1

Discovered 1980 Mar. 16 by L. Brozek at Klet. The key identification 1980 FA = 1982 RV1 is by T. Furuta (JAM 1622).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 258.66681 | | (1950.0) | P | Q |
| n | 0.20635230 | Peri. | 215.75511 | +0.91416895 | -0.40525929 |
| a | 2.8361542 | Node | 168.14483 | +0.38008662 | +0.85043079 |
| e | 0.0888515 | Incl. | 2.16155 | +0.14081651 | +0.33545848 |
| P | 4.78 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 560309 | 024 | 0.3+ | 0.7+ | 800317 | 809 | 0.1+ | 0.3- | 820915 | 046 | (6.0+ | 2.1-) |
| 800221 | 095 | 0.5+ | 1.7- | 800317 | 809 | 0.5+ | 0.9- | 820915 | 046 | (7.0+ | 2.2-) |
| 800316 | 809 | 0.0 | 0.3+ | 800317 | 809 | 0.3- | 0.5- | 820916 | 046 | 0.8- | 0.2- |
| 800316 | 809 | 0.2+ | 0.7- | 800317 | 809 | 0.2+ | 0.9- | 820916 | 046 | 0.3- | 1.4- |
| 800316 | 809 | 0.4- | 0.4- | 800317 | 046 | 0.4- | 1.8- | 820917 | 046 | 1.5+ | 1.1- |
| 800316 | 809 | 0.7- | 0.8- | 800317 | 046 | 3.6- | 1.5- | 820917 | 046 | 0.9+ | 2.6- |
| 800316 | 046 | 0.0 | 0.7- | 800323 | 809 | 0.3- | 0.4- | 850319 | 801 | 0.5+ | 0.4+ |
| 800316 | 095 | 0.8- | 2.0- | 820915 | 046 | 2.5+ | 4.5- | 850417 | 801 | 0.1- | 0.4+ |
| 800316 | 046 | (5.0- | 1.0+) | 820915 | 046 | (7.4+ | 2.5-) | | | | |

(3387)* 1981 WE = 1981 UF1 = 1972 NA = 1976 KN

Discovered 1981 Nov. 20 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The double designation and identification 1981 WE = 1981 UF1 = 1972 NA were found in collaboration with K. Hurukawa (JAM 1259). The double designation 1981 WE = 1981 UF1 was found independently by L. D. Schmadel (MPC 7449).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 84.99783 | | (1950.0) | P | Q |
| n | 0.23522098 | Peri. | 113.89152 | +0.85635760 | +0.49917023 |
| a | 2.5990742 | Node | 216.56049 | -0.51637596 | +0.82644061 |
| e | 0.1896887 | Incl. | 12.82414 | -0.00274218 | +0.26043235 |
| P | 4.19 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 720714 | 095 | 1.0- | 1.5- | 811120 | 688 | 1.7- | 1.7- | 850917 | 054 | 1.8- | 1.1+ |
| 720720 | 095 | 2.0+ | 0.8- | 811120 | 688 | 1.5- | 1.4- | 850918 | 054 | 0.4- | 0.7+ |
| 760525 | 095 | 0.4- | 0.5- | 811127 | 330 | (7.2+ | 12.0+) | 850922 | 054 | 1.3+ | 0.3+ |
| 811003 | 095 | 1.3- | 1.6+ | 811202 | 688 | 1.7+ | 1.3- | 851010 | 552 | 0.6+ | 0.4+ |
| 811025 | 330 | 0.1+ | 1.2- | 811202 | 688 | 2.3+ | 1.1- | 851010 | 552 | 0.3+ | 0.7+ |
| 811029 | 330 | (0.6+ | 3.6-) | 840402 | 801 | 0.3+ | 0.3- | 851014 | 552 | 0.3+ | 1.2- |
| 811031 | 704 | 2.7+ | 1.4- | 840503 | 801 | 0.5- | 0.4- | 851014 | 552 | 0.8+ | 0.7+ |
| 811031 | 704 | 1.6- | 1.2+ | 850911 | 054 | 0.9+ | 1.1- | 851015 | 688 | 1.1- | 0.6+ |
| 811117 | 330 | 0.4- | 0.4+ | 850915 | 054 | 0.0 | 1.0+ | 851015 | 688 | 1.1- | 0.2- |

(3388)* 1981 YR1 = 1982 AB = 1977 VZ

Discovered 1981 Dec. 21 at the Purple Mountain Observatory. The double designation and identification were found in collaboration with K. Hurukawa (JAM 1293). The double designation 1981 YR1 = 1982 AB was also found by F. N. Bowman (MPC 7360) and O. Kippes (MPC 7615); the identification 1981 YR1 = 1977 VZ was also found by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 71.27336 | | (1950.0) | P | Q |
| n | 0.27137838 | Peri. | 16.95905 | -0.40446076 | -0.81345712 |
| a | 2.3627579 | Node | 98.60354 | +0.78232544 | -0.54444568 |
| e | 0.2015538 | Incl. | 25.00687 | +0.47368597 | +0.20461281 |
| P | 3.63 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 771111 | 805 | 1.1+ | 1.4- | 820115 | 046 | 0.6+ | 1.3- | 830520 | 675 | 1.7- | 1.2- |
| 771115 | 805 | 0.4+ | 1.4- | 820116 | 046 | 0.8- | 1.9+ | 830521 | 675 | 1.8- | 1.8- |
| 811221 | 330 | 3.0+ | 3.9- | 820116 | 046 | 1.6- | 1.2+ | 830611 | 801 | 2.3+ | 1.1+ |
| 811224 | 330 | 1.1+ | 0.6+ | 820118 | 330 | 1.6+ | 0.4- | 840922 | 474 | 0.5+ | 0.5- |
| 811229 | 330 | 0.8- | 1.8+ | 820118 | 046 | 0.5- | 0.2- | 840922 | 474 | 0.4+ | 0.1- |
| 820114 | 046 | 1.4- | 1.5+ | 820118 | 046 | 1.3- | 0.1+ | 841024 | 474 | 0.4+ | 1.0- |
| 820114 | 046 | 2.4- | 3.4+ | 820121 | 046 | 0.1- | 0.1+ | 841127 | 474 | 0.7- | 3.2+ |
| 820115 | 330 | 1.6+ | 3.2- | 820121 | 046 | 0.2- | 0.6- | 841127 | 474 | 1.2- | 2.1+ |
| 820115 | 046 | 0.1- | 0.9- | 820127 | 330 | 1.3+ | 1.0- | | | | |

(3389)* 1984 DU = 1964 VB1 = 1975 EH1 = 1975 EG4 = 1977 QN4

Discovered 1984 Feb. 25 by H. Debehogne at the European Southern Observatory. The identifications are by W. Landgraf. The identifications 1984 DU = 1964 VB1, 1984 DU = 1975 EH1 = 1975 EG4 = 1977 QN4 and 1984 DU = 1975 EH1 = 1975 EG4 were found by K. Hurukawa, L. D. Schmadel and S. Nakano, respectively (MPC 9067).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 249.90823 | | (1950.0) | P | Q |
| n | 0.21363608 | Peri. | 267.80580 | +0.53035566 | -0.84552422 |
| a | 2.7713177 | Node | 149.90668 | +0.81850064 | +0.49171022 |
| e | 0.1397240 | Incl. | 7.07279 | +0.22086099 | +0.20811020 |
| P | 4.61 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 641109 | 760 | 0.3+ | 1.0+ | 840228 | 809 | 0.0 | 0.0 | 840305 | 809 | 0.2- | 0.1+ |
| 641109 | 760 | 1.2- | 1.9- | 840228 | 809 | 0.6+ | 0.0 | 840305 | 809 | 0.3- | 0.0 |
| 641129 | 760 | 0.9+ | 0.3- | 840229 | 809 | 0.2+ | 0.1- | 840305 | 809 | 0.4- | 0.4- |
| 641129 | 760 | 1.9+ | 0.6+ | 840229 | 809 | 0.2+ | 0.1- | 840306 | 809 | 0.1- | 0.4- |
| 750306 | 095 | 0.5- | 2.0+ | 840229 | 809 | 0.3+ | 0.2- | 840306 | 809 | 0.2- | 0.4- |
| 750315 | 095 | 2.4- | 2.6+ | 840301 | 809 | 0.4- | 0.0 | 840306 | 809 | 0.2+ | 0.4- |
| 770818 | 095 | 1.6- | 2.0- | 840301 | 809 | 0.4- | 0.2- | 840308 | 809 | 0.2- | 0.1+ |
| 840225 | 809 | 0.5+ | 0.6- | 840301 | 809 | 0.2- | 0.2- | 840308 | 809 | 0.3- | 0.3- |
| 840225 | 809 | 0.8+ | 0.2- | 840302 | 809 | 0.2- | 0.0 | 840308 | 809 | 0.4- | 0.1- |
| 840225 | 809 | 0.9+ | 0.4- | 840302 | 809 | 0.1- | 0.1+ | 840309 | 809 | 0.1- | 0.6+ |
| 840227 | 809 | 0.0 | 0.3- | 840302 | 809 | 0.2+ | 0.3- | 840309 | 809 | 0.1+ | 0.2+ |
| 840227 | 809 | 0.2- | 0.1- | 840304 | 809 | 0.0 | 0.1- | 840309 | 809 | 0.0 | 0.1- |
| 840227 | 809 | 0.2- | 0.4- | 840304 | 809 | 0.2- | 0.1- | 850422 | 801 | 0.1+ | 1.3- |
| 840228 | 809 | 0.1- | 0.2- | 840304 | 809 | 0.4- | 0.0 | 850525 | 801 | 3.1+ | 2.0- |

(3390)* 1984 ES1 = 1977 ED = 1978 QQ = 1982 UF11

Discovered 1984 Mar. 2 by H. Debehogne at the European Southern Observatory. The identifications 1984 ES1 = 1977 ED = 1978 QQ were found by K. Hurukawa and W. Landgraf (MPC 9068).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 188.83005 | | (1950.0) | P | Q |
| n | 0.29163933 | Peri. | 258.81439 | -0.47862623 | +0.87783997 |
| a | 2.2520187 | Node | 342.55634 | -0.78069852 | -0.43472227 |
| e | 0.1162444 | Incl. | 3.38843 | -0.40177947 | -0.20103119 |
| P | 3.38 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770309 | 095 | 0.6+ | 0.4+ | 840305 | 809 | 0.1+ | 0.2- | 840311 | 809 | 1.1- | 0.0 |
| 770313 | 095 | 1.1+ | 0.1+ | 840305 | 809 | 0.4+ | 0.4- | 840311 | 809 | 1.2- | 0.3- |
| 780831 | 095 | 0.3- | 0.3- | 840308 | 809 | 0.0 | 0.3- | 840313 | 809 | 0.2+ | 0.1- |
| 780905 | 095 | 0.7- | 0.9+ | 840308 | 809 | 0.0 | 0.3- | 840313 | 809 | 0.2- | 0.3- |
| 821025 | 095 | 2.2- | 0.8+ | 840308 | 809 | 0.4+ | 0.4- | 840313 | 809 | 0.5- | 0.1+ |
| 840302 | 809 | 0.3- | 0.0 | 840309 | 809 | 0.2+ | 0.2- | 840314 | 809 | 0.4- | 0.1- |
| 840302 | 809 | 0.6- | 0.0 | 840309 | 809 | 0.5+ | 0.2- | 840314 | 809 | 0.3- | 0.2- |
| 840302 | 809 | 0.7- | 0.4- | 840309 | 809 | 0.9+ | 0.6- | 840314 | 809 | 0.4- | 0.4+ |
| 840304 | 809 | 0.1- | 0.2- | 840310 | 809 | 0.2+ | 0.2- | 850913 | 801 | 1.2+ | 0.7- |
| 840304 | 809 | 0.1+ | 0.6- | 840310 | 809 | 0.0 | 0.2- | 850918 | 046 | 1.3+ | 1.0- |
| 840304 | 809 | 0.1+ | 0.2- | 840310 | 809 | 0.3- | 0.2- | 850918 | 046 | 3.4+ | 2.6- |
| 840305 | 809 | 0.2+ | 0.5- | 840311 | 809 | 0.7- | 0.2- | 851012 | 801 | 0.5- | 1.9- |

1936 UB = 1975 WZ1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 5.69456 | | (1950.0) | P | Q |
| n | 0.17773519 | Peri. | 281.31724 | +0.88759445 | +0.36414692 |
| a | 3.1329584 | Node | 57.91012 | -0.16820822 | +0.82634418 |
| e | 0.2495592 | Incl. | 19.44840 | -0.42881475 | +0.42959553 |
| P | 5.55 | H | 12.0 | G 0.25 | |

Residuals in seconds of arc (or two decimals in units of degrees)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 361016 | 020 | (0.06- | 0.06+) | 361025 | 020 | 0.1+ | 6.0- | 361117 | 020 | 9.1+ | 0.4- |
| 361017 | 020 | 6.4+ | 10.4+ | 361025 | 020 | 1.5+ | 5.7- | 751124 | 033 | 0.3+ | 0.2- |
| 361021 | 020 | 2.1- | 4.1- | 361108 | 020 | 7.5- | 0.6+ | 751125 | 033 | 0.4- | 0.3- |
| 361021 | 020 | 0.6+ | 2.5+ | 361108 | 020 | 0.7+ | 0.7- | 751125 | 033 | 0.4+ | 0.0 |
| 361024 | 020 | 3.1- | 6.1- | 361110 | 020 | (75.8- | 22.2-)X | | | | |
| 361024 | 020 | 3.7- | 5.3+ | 361117 | 020 | 1.8- | 5.0+ | | | | |

1940 YE = 1957 YA = 1978 NR7
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 328.04248 | | (1950.0) | P | Q |
| n | 0.17390798 | Peri. | 157.96438 | -0.51223087 | -0.84105198 |
| a | 3.1787563 | Node | 322.21927 | +0.73947563 | -0.32890044 |
| e | 0.1666753 | Incl. | 16.49307 | +0.43680125 | -0.42948349 |
| P | 5.67 | H | 10.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 401228 | 062 | 0.4- | 0.6+ | 410101 | 062 | 0.5+ | 1.0+ | 780710 | 675 | 4.2- | 1.3+ | Y |
| 401228 | 062 | 0.4- | 0.3- | 410118 | 062 | 0.6- | 1.6- | 780711 | 675 | 0.6+ | 0.0 | Y |
| 410101 | 062 | 1.3- | 0.0 | 571220 | 024 | 0.0 | 0.4+ | 780713 | 675 | 3.9+ | 1.9- | Y |

1941 SW = 1964 UG = 1981 TL2 = 1981 UA20 = 1981 WC6
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 323.81653 | | (1950.0) | P | Q |
| n | 0.17490566 | Peri. | 151.37350 | +0.99002450 | +0.13057347 |
| a | 3.1666569 | Node | 201.32024 | -0.14006363 | +0.95284183 |
| e | 0.2943268 | Incl. | 8.37158 | +0.01528640 | +0.27393979 |
| P | 5.64 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 410920 | 062 | 0.9- | 3.3+ | 410925 | 062 | 0.5+ | 2.4+ | 641031 | 760 | (61.4+ | 24.7+)X |
| 410920 | 012 | (26.7+ | 20.8+)X | 410927 | 012 | (25.0- | 11.8-)X | 811004 | 095 | 0.7- | 2.5- |
| 410921 | 062 | 3.0- | 1.8- | 411015 | 062 | 1.8- | 2.7- | 811027 | 095 | 1.0+ | 3.9+ |
| 410923 | 024 | 4.3+ | 1.6- | 411016 | 062 | 0.6+ | 0.2+ | 811124 | 095 | 0.5- | 1.3- |

1955 BG = A921 EF = 1984 YZ3

The identification 1955 BG = A921 EF was also found by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 122.64950 | (1950.0) | P | Q |
| n | 0.22940509 | Peri. 11.02073 | -0.09117041 | -0.96432943 |
| a | 2.6428238 | Node 84.55696 | +0.89357912 | -0.18936815 |
| e | 0.2782360 | Incl. 14.45589 | +0.43955012 | +0.18495529 |
| P | 4.30 | H 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 210313 | 029(72.1- | 24.0+)X | 550214 | 330(12.5+ | 3.1-) | 550315 | 330 | 0.6- 0.5- |
| 550120 | 330 | 2.1- 2.3+ | 550217 | 330 | 1.8+ 0.4- | 550316 | 330 | 0.2+ 1.1+ |
| 550122 | 330 | 0.3- 1.9- | 550221 | 330 | 1.7+ 0.6+ | 550323 | 330 | 2.0- 0.5+ |
| 550125 | 330 | 2.5- 2.5+ | 550221 | 330 | 0.5+ 0.6- | 841227 | 095 | 0.0 1.2+ |
| 550126 | 330 | 0.5- 1.5- | 550222 | 330 | 0.3+ 0.8- | 841229 | 095 | 0.2- 0.3- |
| 550128 | 330 | 0.7- 0.3- | 550223 | 330 | 0.9- 0.3- | 841230 | 095 | 0.0 0.5+ |
| 550130 | 330 | 3.2+ 2.0- | 550310 | 330 | 1.0+ 0.2- | 841231 | 095 | 0.1+ 1.0- |
| 550203 | 330 | 0.7+ 0.2+ | 550314 | 330 | 0.4+ 1.5+ | | | |

* * * * *

ORBITAL ELEMENTS BY T. URATA, SHIMIZU, JAPAN.

The following elements are copied from NOC 1529.

1985 TC = 1937 PC = 1951 WL1 = 1978 PE2

The identifications were found by K. Hurukawa and by H. Oishi.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 79.35613 | (1950.0) | P | Q |
| n | 0.28870935 | Peri. 155.87369 | +0.98122628 | -0.19071374 |
| a | 2.2672295 | Node 215.15885 | +0.16784406 | +0.91772445 |
| e | 0.1898113 | Incl. 2.85603 | +0.09499134 | +0.34843952 |
| P | 3.41 | H 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 370803 | 024 | 0.4+ 1.1- | 851015 | 881 | 0.7+ 0.8- | 851022 | 881 | 0.5- 0.1+ |
| 511129 | 711 | 0.1- 0.4+ Y | 851019 | 372 | 0.6+ 1.1- | 851112 | 372 | 0.9- 0.9- |
| 780808 | 095 | 0.6- 1.6+ | 851019 | 372 | 0.9+ 0.4- | 851112 | 372 | 0.3+ 0.7+ |
| 851008 | 881 | 3.0- 1.4+ | 851019 | 881 | 0.2+ 0.1+ | 851112 | 881 | 0.8- 0.1+ |
| 851008 | 881 | 3.0- 0.5+ | 851019 | 881 | 0.7+ 0.2- | 851112 | 881 | 0.2- 0.9+ |
| 851012 | 881 | 1.1- 1.2- | 851019 | 881 | 0.8+ 0.1+ | 851114 | 889 | 1.5- 0.1+ |
| 851012 | 881 | 3.2+ 1.0- | 851022 | 372 | 1.0+ 0.1- | 851114 | 889 | 1.0+ 0.4- |
| 851015 | 881 | 0.4+ 0.3- | 851022 | 372 | 1.5+ 2.1+ | 851115 | 881 | 0.4- 0.2- |

* * * * *

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are from JAM 1960 and 1970-1972. The identifications are by T. Furuta unless otherwise stated.

1934 CC = 1975 XW2 = 1983 RF3

The identifications are by H. Oishi. The identifications 1934 CC = 1983 RF3 and 1983 RF3 = 1975 XW2 were independently suggested by F. N. Bowman and W. Landgraf, respectively.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 181.22480 | (1950.0) | P | Q |
| n | 0.23307003 | Peri. 141.92674 | +0.44205352 | -0.87134954 |
| a | 2.6150457 | Node 280.91422 | +0.76052731 | +0.48995137 |
| e | 0.1581973 | Incl. 12.52416 | +0.47559110 | +0.02641288 |
| P | 4.23 | H 12.7 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 340205 024 | 3.6+ | 4.0+ | 830904 095 | 3.7+ | 1.3+ | 830930 095 | 4.5- | 0.2+ |
| 340210 024 | 2.3- | 0.9- | 830905 095 | 2.8+ | 0.2- | 831007 095 | 2.6- | 1.4+ |
| 340214 024 | 0.7- | 1.8- | 830905 095 | 4.4+ | 0.3- | 831007 095 | 3.0- | 0.8+ |
| 751202 095 | 0.1- | 1.8- | 830912 095 | 1.7+ | 0.2- | 831008 095 | 2.2- | 2.1- |
| 830902 095 | (18.9- | 7.1+) | 830913 095 | 0.9- | 1.0- | | | |
| 830904 095 | 0.1+ | 2.2+ | 830915 095 | 0.4- | 1.0- | | | |

1982 WK = 1982 XD = 1974 QB1 = 1974 SM3

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 2.54386 | | (1950.0) | P | Q |
| n | 0.26466444 | Peri. | 171.89111 | +0.68574713 | -0.72338476 |
| a | 2.4025541 | Node | 234.77043 | +0.66210113 | +0.66587293 |
| e | 0.1027316 | Incl. | 5.64913 | +0.30227962 | +0.18255881 |
| P | 3.72 | H | 13.1 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 740821 095 | 0.1- | 1.7+ | 821121 046 | 2.5+ | 1.6+ | 821205 046 | 0.4- | 0.4- |
| 740922 095 | 0.2+ | 1.9- | 821204 046 | 0.7- | 1.5- | 821205 046 | 0.5+ | 0.1- |
| 821121 046 | 0.7- | 0.8+ | 821204 046 | 1.1- | 0.1- | | | |

1985 JF = 1976 UO10

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 129.00481 | | (1950.0) | P | Q |
| n | 0.17417617 | Peri. | 319.79886 | -0.93770190 | -0.32917543 |
| a | 3.1754925 | Node | 201.77083 | +0.34174177 | -0.93154884 |
| e | 0.0910959 | Incl. | 17.44159 | -0.06267144 | -0.15446780 |
| P | 5.66 | H | 12.3 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 761022 381 | 0.2- | 0.2+ | 850515 688 | 0.9+ | 0.1+ | 850518 688 | 0.4- | 0.7+ |
| 761022 381 | 0.4- | 0.2- | 850515 688 | 0.6+ | 0.6- | 850521 688 | 0.4+ | 0.2+ |
| 761024 381 | 0.7+ | 0.0 | 850518 688 | 1.7- | 0.5+ | 850521 688 | 0.3+ | 0.9- |

1985 QR = 1979 OP8 = 1980 TP13

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 4.56251 | | (1950.0) | P | Q |
| n | 0.18749366 | Peri. | 260.21922 | +0.56071003 | -0.82474065 |
| a | 3.0232857 | Node | 155.23121 | +0.81170941 | +0.52996251 |
| e | 0.0997581 | Incl. | 10.10860 | +0.16349954 | +0.19733879 |
| P | 5.26 | H | 12.8 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 790724 413 | 0.0 | 0.4- | 850822 688 | 0.2- | 0.4- | 850914 688 | 4.8+ | 2.3+ |
| 790726 675 | 0.0 | 0.5+ | 850822 688 | 1.1- | 1.7- | 850918 688 | 1.9- | 1.0+ |
| 801012 095 | 0.0 | 0.1- | 850914 688 | 0.6+ | 0.5+ | 850918 688 | 2.3- | 1.8- |

1985 QX = 1975 TW2 = 1980 TM6

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 65.78934 | | (1950.0) | P | Q |
| n | 0.19031514 | Peri. | 138.15409 | +0.85744351 | +0.51350989 |
| a | 2.9933306 | Node | 191.09095 | -0.50589527 | +0.82944463 |
| e | 0.1091623 | Incl. | 9.91990 | -0.09413075 | +0.21983902 |
| P | 5.18 | H | 12.4 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 751003 095 | 0.2- | 0.9+ | 850910 046 | 1.9+ | 1.5+ | 850912 046 | 3.3- | 0.9+ |
| 751013 095 | 0.1- | 0.2+ | 850910 046 | 1.8+ | 0.6+ | 850913 046 | 1.7- | 1.1- |
| 801008 095 | 0.6+ | 2.1- | 850911 046 | 0.0 | 0.6- | 850913 046 | 0.4- | 0.3+ |
| 850822 046 | 2.3+ | 0.8- | 850911 046 | 0.2- | 0.5- | | | |
| 850822 046 | 0.7- | 0.4- | 850912 046 | 0.1+ | 1.2+ | | | |

EPHEMERIDES.

Following the remarks on MPC 10193-10194 and 10375, we repeat that the magnitudes given henceforth in ephemerides of minor planets are VISUAL (V), rather than photographic.

Periodic Comet Shoemaker (1986a) Elements MPC 10377

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 09 34.48 | +20 36.6 | 0.889 | 1.805 | 149.2 | 16.2 | 12.8 |
| 1986 | 01 20 | 09 36.08 | +21 48.2 | | | | | |
| 1986 | 01 30 | 09 35.11 | +23 01.4 | 0.869 | 1.843 | 167.6 | 6.6 | 12.9 |
| 1986 | 02 09 | 09 32.69 | +24 04.8 | | | | | |
| 1986 | 02 19 | 09 30.25 | +24 48.6 | 0.934 | 1.904 | 164.3 | 8.1 | 13.1 |
| 1986 | 03 01 | 09 29.09 | +25 07.6 | | | | | |
| 1986 | 03 11 | 09 30.02 | +25 01.6 | 1.083 | 1.986 | 146.0 | 16.3 | 13.7 |
| 1986 | 03 21 | 09 33.41 | +24 32.9 | | | | | |
| 1986 | 03 31 | 09 39.19 | +23 45.4 | 1.303 | 2.083 | 129.2 | 21.8 | 14.3 |
| 1986 | 04 10 | 09 47.04 | +22 43.2 | | | | | |
| 1986 | 04 20 | 09 56.61 | +21 29.2 | 1.577 | 2.193 | 114.4 | 24.6 | 14.9 |
| 1986 | 04 30 | 10 07.49 | +20 06.4 | | | | | |
| 1986 | 05 10 | 10 19.35 | +18 36.6 | 1.893 | 2.313 | 101.3 | 25.3 | 15.5 |

1983 RB a,e,i = 2.22, 0.51, 19 Elements MPC 8394

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 10 41.53 | -03 14.1 | 1.994 | 2.683 | -1.03 | +1.3 | 20.4 |
| 1986 | 01 20 | 10 38.64 | -02 49.9 | | | | | |
| 1986 | 01 30 | 10 33.02 | -01 59.3 | 1.708 | 2.591 | -1.22 | +1.7 | 19.9 |
| 1986 | 02 09 | 10 24.80 | -00 40.0 | | | | | |
| 1986 | 02 19 | 10 14.48 | +01 07.0 | 1.515 | 2.493 | -1.36 | +1.6 | 19.2 |
| 1986 | 03 01 | 10 03.06 | +03 15.8 | | | | | |
| 1986 | 03 11 | 09 51.78 | +05 36.4 | 1.440 | 2.389 | -1.33 | +0.5 | 19.2 |
| 1986 | 03 21 | 09 41.98 | +07 56.7 | | | | | |
| 1986 | 03 31 | 09 34.75 | +10 05.7 | 1.476 | 2.278 | -1.14 | -1.2 | 19.5 |
| 1986 | 04 10 | 09 30.72 | +11 56.5 | | | | | |
| 1986 | 04 20 | 09 30.16 | +13 25.5 | 1.581 | 2.161 | -0.92 | -2.6 | 19.7 |
| 1986 | 04 30 | 09 32.99 | +14 32.0 | | | | | |
| 1986 | 05 10 | 09 38.95 | +15 17.0 | 1.710 | 2.038 | -0.77 | -3.3 | 19.9 |
| 1986 | 05 20 | 09 47.75 | +15 41.7 | | | | | |
| 1986 | 05 30 | 09 59.03 | +15 47.7 | 1.831 | 1.909 | -0.72 | -3.4 | 19.9 |

Periodic Comet Ciffreo (1985p) Elements MPC 10377

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 05 32.34 | +36 49.7 | 1.776 | 2.103 | 94.6 | 28.1 | 14.5 |
| 1986 | 03 21 | 05 52.36 | +36 35.5 | | | | | |
| 1986 | 03 31 | 06 12.89 | +36 12.4 | 2.089 | 2.209 | 83.4 | 26.7 | 15.0 |
| 1986 | 04 10 | 06 33.65 | +35 40.2 | | | | | |
| 1986 | 04 20 | 06 54.43 | +34 59.4 | 2.411 | 2.319 | 72.6 | 24.4 | 15.6 |
| 1986 | 04 30 | 07 15.03 | +34 10.4 | | | | | |
| 1986 | 05 10 | 07 35.32 | +33 13.8 | 2.732 | 2.432 | 62.2 | 21.6 | 16.0 |
| 1986 | 05 20 | 07 55.21 | +32 10.3 | | | | | |
| 1986 | 05 30 | 08 14.61 | +31 00.8 | 3.043 | 2.547 | 51.9 | 18.3 | 16.5 |
| 1986 | 06 09 | 08 33.49 | +29 46.1 | | | | | |
| 1986 | 06 19 | 08 51.82 | +28 27.0 | 3.334 | 2.662 | 41.7 | 14.7 | 16.9 |

Comet Thiele (1985m) Elements MPC 10377

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 20 40.06 | +09 09.4 | 2.369 | 1.768 | 42.4 | 22.3 | 11.9 |
| 1986 | 03 21 | 20 34.90 | +09 52.0 | | | | | |
| 1986 | 03 31 | 20 27.33 | +10 41.0 | 2.224 | 1.959 | 61.7 | 26.7 | 12.2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1986 04 10 | 20 16.56 | +11 34.3 | | | | | |
| 1986 04 20 | 20 01.68 | +12 27.8 | 2.013 | 2.160 | 84.4 | 27.6 | 12.4 |
| 1986 04 30 | 19 41.82 | +13 14.4 | | | | | |
| 1986 05 10 | 19 16.39 | +13 43.9 | 1.816 | 2.367 | 110.5 | 23.6 | 12.5 |
| 1986 05 20 | 18 45.65 | +13 43.0 | | | | | |
| 1986 05 30 | 18 11.29 | +13 00.0 | 1.744 | 2.575 | 136.5 | 15.7 | 12.8 |
| 1986 06 09 | 17 36.27 | +11 32.3 | | | | | |
| 1986 06 19 | 17 03.90 | +09 29.5 | 1.887 | 2.785 | 145.5 | 11.9 | 13.3 |
| 1986 06 29 | 16 36.52 | +07 08.5 | | | | | |
| 1986 07 09 | 16 14.93 | +04 44.8 | 2.242 | 2.993 | 129.4 | 15.2 | 14.0 |
| 1986 07 19 | 15 58.88 | +02 27.9 | | | | | |
| 1986 07 29 | 15 47.59 | +00 21.9 | 2.733 | 3.199 | 108.2 | 17.5 | 14.7 |
| 1986 08 08 | 15 40.17 | -01 32.4 | | | | | |
| 1986 08 18 | 15 35.84 | -03 15.7 | 3.281 | 3.404 | 88.2 | 17.3 | 15.4 |
| 1986 08 28 | 15 33.94 | -04 49.1 | | | | | |
| 1986 09 07 | 15 33.93 | -06 14.1 | 3.831 | 3.606 | 69.6 | 15.2 | 16.0 |
| 1986 09 17 | 15 35.41 | -07 31.5 | | | | | |
| 1986 09 27 | 15 38.05 | -08 42.4 | 4.340 | 3.806 | 52.0 | 12.0 | 16.5 |
| 1986 10 07 | 15 41.58 | -09 47.3 | | | | | |
| 1986 10 17 | 15 45.77 | -10 46.9 | 4.780 | 4.003 | 34.9 | 8.2 | 16.9 |

(3361) 1982 HR a,e,i = 1.21, 0.32, 3 Elements MPC 10379

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 03 31 | | 22 23.25 | -08 15.4 | 0.075 | 0.938 | 34.9 | 142.4 | 20.5 |
| 1986 04 05 | | 21 20.79 | -09 41.4 | | | | | |
| 1986 04 10 | | 20 14.97 | -10 19.3 | 0.069 | 0.987 | 75.9 | 100.2 | 16.6 |
| 1986 04 15 | | 19 13.97 | -10 07.8 | | | | | |
| 1986 04 20 | | 18 22.37 | -09 27.2 | 0.082 | 1.039 | 112.7 | 63.1 | 15.7 |
| 1986 04 25 | | 17 40.59 | -08 38.8 | | | | | |
| 1986 04 30 | | 17 07.10 | -07 54.7 | 0.108 | 1.092 | 140.0 | 36.4 | 15.7 |
| 1986 05 05 | | 16 40.12 | -07 20.4 | | | | | |
| 1986 05 10 | | 16 18.40 | -06 58.0 | 0.144 | 1.145 | 159.2 | 18.3 | 15.9 |
| 1986 05 15 | | 16 01.06 | -06 47.6 | | | | | |
| 1986 05 20 | | 15 47.46 | -06 48.0 | 0.190 | 1.197 | 167.0 | 11.0 | 16.4 |
| 1986 05 25 | | 15 37.02 | -06 57.6 | | | | | |
| 1986 05 30 | | 15 29.25 | -07 14.7 | 0.245 | 1.247 | 160.5 | 15.8 | 17.2 |
| 1986 06 04 | | 15 23.75 | -07 38.0 | | | | | |
| 1986 06 09 | | 15 20.23 | -08 06.6 | 0.310 | 1.295 | 150.8 | 22.5 | 18.0 |
| 1986 06 14 | | 15 18.44 | -08 39.3 | | | | | |
| 1986 06 19 | | 15 18.15 | -09 15.3 | 0.384 | 1.339 | 141.8 | 28.0 | 18.7 |
| 1986 06 24 | | 15 19.14 | -09 53.5 | | | | | |
| 1986 06 29 | | 15 21.23 | -10 33.4 | 0.466 | 1.381 | 133.7 | 32.1 | 19.2 |
| 1986 07 04 | | 15 24.27 | -11 14.3 | | | | | |
| 1986 07 09 | | 15 28.18 | -11 55.9 | 0.555 | 1.419 | 126.4 | 35.2 | 19.8 |
| 1986 07 14 | | 15 32.86 | -12 37.8 | | | | | |
| 1986 07 19 | | 15 38.21 | -13 19.6 | 0.651 | 1.453 | 119.7 | 37.4 | 20.2 |
| 1986 07 24 | | 15 44.16 | -14 00.9 | | | | | |
| 1986 07 29 | | 15 50.64 | -14 41.4 | 0.751 | 1.484 | 113.5 | 38.9 | 20.6 |

1979 QB a,e,i = 2.33, 0.44, 3 Elements MPC 10390

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 05 30 | | 17 57.51 | -30 06.2 | 0.984 | 1.959 | -3.47 | +0.1 | 20.0 |
| 1986 06 09 | | 17 47.94 | -30 26.2 | | | | | |
| 1986 06 19 | | 17 35.29 | -30 33.4 | 0.836 | 1.848 | -4.23 | +3.2 | 19.3 |
| 1986 06 29 | | 17 21.38 | -30 23.4 | | | | | |
| 1986 07 09 | | 17 08.51 | -29 56.5 | 0.774 | 1.738 | -4.40 | +6.8 | 19.4 |
| 1986 07 19 | | 16 59.03 | -29 18.2 | | | | | |
| 1986 07 29 | | 16 54.47 | -28 36.5 | 0.780 | 1.632 | -3.88 | +7.2 | 19.6 |
| 1986 08 08 | | 16 55.49 | -27 57.6 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 17 02.15 | -27 24.4 | 0.822 | 1.532 | -3.21 | +4.9 | 19.8 |
| 1986 08 28 | 17 14.05 | -26 55.7 | | | | | |
| 1986 09 07 | 17 30.70 | -26 27.8 | 0.876 | 1.444 | -2.72 | +1.3 | 20.0 |

1981 EE9 a,e,i = 3.13, 0.27, 6 Elements MPC 10381

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 01 10 | 09 11.60 | +12 17.9 | 1.686 | 2.597 | 152.1 | 10.2 | 17.8 |
| 1986 01 20 | 09 03.71 | +12 25.0 | | | | | |
| 1986 01 30 | 08 54.75 | +12 39.7 | 1.665 | 2.647 | 174.4 | 2.1 | 17.4 |
| 1986 02 09 | 08 45.81 | +12 58.5 | | | | | |
| 1986 02 19 | 08 37.99 | +13 17.5 | 1.755 | 2.699 | 158.3 | 7.8 | 17.9 |
| 1986 03 01 | 08 32.13 | +13 33.6 | | | | | |
| 1986 03 11 | 08 28.70 | +13 44.9 | 1.947 | 2.752 | 136.2 | 14.5 | 18.4 |
| 1986 03 21 | 08 27.88 | +13 50.0 | | | | | |
| 1986 03 31 | 08 29.56 | +13 48.1 | 2.211 | 2.805 | 116.7 | 18.5 | 18.8 |
| 1986 04 10 | 08 33.50 | +13 39.0 | | | | | |
| 1986 04 20 | 08 39.41 | +13 22.6 | 2.516 | 2.860 | 99.6 | 20.3 | 19.2 |
| 1986 04 30 | 08 46.96 | +12 58.9 | | | | | |
| 1986 05 10 | 08 55.86 | +12 28.1 | 2.836 | 2.914 | 84.3 | 20.2 | 19.5 |
| 1986 05 20 | 09 05.85 | +11 50.3 | | | | | |
| 1986 05 30 | 09 16.69 | +11 05.9 | 3.151 | 2.969 | 70.4 | 18.8 | 19.7 |

1981 EY20 a,e,i = 2.94, 0.11, 1 Elements MPC 10384

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 01 10 | 11 59.61 | -00 30.4 | 2.795 | 3.249 | 108.8 | 16.6 | 19.1 |
| 1986 01 20 | 12 00.82 | -00 42.3 | | | | | |
| 1986 01 30 | 12 00.01 | -00 41.3 | 2.536 | 3.248 | 129.0 | 13.6 | 18.8 |
| 1986 02 09 | 11 57.14 | -00 27.0 | | | | | |
| 1986 02 19 | 11 52.34 | +00 00.0 | 2.344 | 3.246 | 151.3 | 8.4 | 18.4 |
| 1986 03 01 | 11 45.96 | +00 37.6 | | | | | |
| 1986 03 11 | 11 38.53 | +01 22.4 | 2.252 | 3.243 | 175.0 | 1.5 | 18.0 |
| 1986 03 21 | 11 30.77 | +02 10.0 | | | | | |
| 1986 03 31 | 11 23.44 | +02 55.3 | 2.278 | 3.238 | 160.9 | 5.8 | 18.2 |
| 1986 04 10 | 11 17.22 | +03 34.1 | | | | | |
| 1986 04 20 | 11 12.64 | +04 03.0 | 2.412 | 3.233 | 138.4 | 11.9 | 18.6 |
| 1986 04 30 | 11 09.97 | +04 20.2 | | | | | |
| 1986 05 10 | 11 09.32 | +04 25.1 | 2.626 | 3.226 | 118.1 | 16.0 | 18.9 |
| 1986 05 20 | 11 10.65 | +04 17.8 | | | | | |
| 1986 05 30 | 11 13.80 | +03 59.0 | 2.883 | 3.218 | 100.0 | 18.1 | 19.2 |

1950 SJ a,e,i = 2.25, 0.22, 8 Elements MPC 8142

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 01 10 | 12 34.53 | -11 25.9 | 2.444 | 2.735 | 96.5 | 20.9 | 19.0 |
| 1986 01 20 | 12 39.01 | -12 10.0 | | | | | |
| 1986 01 30 | 12 41.35 | -12 40.6 | 2.168 | 2.729 | 114.6 | 19.2 | 18.7 |
| 1986 02 09 | 12 41.28 | -12 55.2 | | | | | |
| 1986 02 19 | 12 38.66 | -12 51.1 | 1.929 | 2.719 | 135.0 | 14.9 | 18.3 |
| 1986 03 01 | 12 33.53 | -12 26.5 | | | | | |
| 1986 03 11 | 12 26.21 | -11 40.8 | 1.762 | 2.706 | 157.5 | 8.1 | 17.9 |
| 1986 03 21 | 12 17.36 | -10 36.0 | | | | | |
| 1986 03 31 | 12 07.95 | -09 17.2 | 1.698 | 2.690 | 171.3 | 3.2 | 17.6 |
| 1986 04 10 | 11 59.01 | -07 51.8 | | | | | |
| 1986 04 20 | 11 51.52 | -06 28.4 | 1.748 | 2.671 | 150.8 | 10.6 | 17.9 |
| 1986 04 30 | 11 46.17 | -05 14.3 | | | | | |
| 1986 05 10 | 11 43.31 | -04 14.8 | 1.892 | 2.648 | 129.1 | 17.2 | 18.3 |
| 1986 05 20 | 11 43.05 | -03 32.5 | | | | | |
| 1986 05 30 | 11 45.23 | -03 08.1 | 2.096 | 2.621 | 110.0 | 21.3 | 18.6 |
| 1986 06 09 | 11 49.65 | -03 00.8 | | | | | |
| 1986 06 19 | 11 56.05 | -03 09.2 | 2.325 | 2.592 | 93.4 | 23.0 | 18.9 |

1984 UT a,e,i = 2.78, 0.23, 16 Elements MPC 9590

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 33.52 | -20 07.4 | 2.501 | 2.736 | -0.96 | +1.6 | 18.1 |
| 1986 | 01 20 | 12 38.30 | -21 08.9 | | | | | |
| 1986 | 01 30 | 12 40.86 | -21 56.2 | 2.285 | 2.784 | -1.07 | +1.5 | 17.9 |
| 1986 | 02 09 | 12 41.01 | -22 26.3 | | | | | |
| 1986 | 02 19 | 12 38.69 | -22 36.0 | 2.098 | 2.831 | -1.21 | +1.8 | 17.6 |
| 1986 | 03 01 | 12 34.07 | -22 22.5 | | | | | |
| 1986 | 03 11 | 12 27.55 | -21 44.3 | 1.976 | 2.877 | -1.35 | +2.5 | 17.3 |
| 1986 | 03 21 | 12 19.82 | -20 41.9 | | | | | |
| 1986 | 03 31 | 12 11.80 | -19 19.7 | 1.950 | 2.922 | -1.41 | +3.3 | 17.2 |
| 1986 | 04 10 | 12 04.36 | -17 44.2 | | | | | |
| 1986 | 04 20 | 11 58.32 | -16 04.1 | 2.035 | 2.965 | -0.88 | +3.6 | 17.4 |
| 1986 | 04 30 | 11 54.20 | -14 27.6 | | | | | |
| 1986 | 05 10 | 11 52.22 | -13 01.1 | 2.221 | 3.007 | -0.82 | +3.4 | 17.8 |
| 1986 | 05 20 | 11 52.43 | -11 48.9 | | | | | |
| 1986 | 05 30 | 11 54.71 | -10 53.1 | 2.478 | 3.047 | -0.74 | +2.9 | 18.2 |
| 1986 | 06 09 | 11 58.83 | -10 13.7 | | | | | |
| 1986 | 06 19 | 12 04.57 | -09 50.0 | 2.776 | 3.086 | -0.84 | +2.4 | 18.5 |

1975 ES a,e,i = 2.35, 0.14, 3 Elements MPC 9473

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 27.53 | -06 22.1 | 1.619 | 2.036 | 100.1 | 28.4 | 17.2 |
| 1986 | 01 20 | 12 37.51 | -07 37.1 | | | | | |
| 1986 | 01 30 | 12 45.27 | -08 37.5 | 1.393 | 2.023 | 115.5 | 26.1 | 16.8 |
| 1986 | 02 09 | 12 50.37 | -09 20.4 | | | | | |
| 1986 | 02 19 | 12 52.42 | -09 42.8 | 1.200 | 2.013 | 133.6 | 20.8 | 16.3 |
| 1986 | 03 01 | 12 51.22 | -09 42.2 | | | | | |
| 1986 | 03 11 | 12 46.86 | -09 17.6 | 1.063 | 2.008 | 154.9 | 12.1 | 15.8 |
| 1986 | 03 21 | 12 39.93 | -08 30.7 | | | | | |
| 1986 | 03 31 | 12 31.61 | -07 27.7 | 1.009 | 2.006 | 176.2 | 1.9 | 15.2 |
| 1986 | 04 10 | 12 23.32 | -06 17.7 | | | | | |
| 1986 | 04 20 | 12 16.55 | -05 12.1 | 1.048 | 2.009 | 156.5 | 11.5 | 15.7 |
| 1986 | 04 30 | 12 12.37 | -04 20.2 | | | | | |
| 1986 | 05 10 | 12 11.27 | -03 47.5 | 1.168 | 2.017 | 135.5 | 20.5 | 16.3 |
| 1986 | 05 20 | 12 13.35 | -03 36.3 | | | | | |
| 1986 | 05 30 | 12 18.38 | -03 46.0 | 1.345 | 2.028 | 117.9 | 26.2 | 16.7 |
| 1986 | 06 09 | 12 25.99 | -04 14.3 | | | | | |
| 1986 | 06 19 | 12 35.80 | -04 58.8 | 1.555 | 2.043 | 103.2 | 29.0 | 17.1 |

(3295) 1950 DH a,e,i = 2.70, 0.25, 9 Elements MPC 9954

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 53.90 | -04 14.8 | 3.006 | 3.242 | 94.9 | 17.6 | 18.8 |
| 1986 | 01 20 | 12 57.81 | -04 18.1 | | | | | |
| 1986 | 01 30 | 12 59.87 | -04 08.0 | 2.742 | 3.267 | 113.9 | 16.0 | 18.5 |
| 1986 | 02 09 | 12 59.93 | -03 43.8 | | | | | |
| 1986 | 02 19 | 12 57.90 | -03 05.5 | 2.517 | 3.290 | 135.0 | 12.3 | 18.2 |
| 1986 | 03 01 | 12 53.88 | -02 14.3 | | | | | |
| 1986 | 03 11 | 12 48.12 | -01 12.5 | 2.370 | 3.311 | 157.8 | 6.5 | 17.9 |
| 1986 | 03 21 | 12 41.07 | -00 04.2 | | | | | |
| 1986 | 03 31 | 12 33.39 | +01 05.3 | 2.332 | 3.329 | 175.1 | 1.5 | 17.6 |
| 1986 | 04 10 | 12 25.79 | +02 10.6 | | | | | |
| 1986 | 04 20 | 12 18.97 | +03 06.6 | 2.414 | 3.344 | 153.6 | 7.7 | 18.0 |
| 1986 | 04 30 | 12 13.50 | +03 50.0 | | | | | |
| 1986 | 05 10 | 12 09.72 | +04 18.8 | 2.598 | 3.357 | 131.8 | 13.0 | 18.4 |
| 1986 | 05 20 | 12 07.83 | +04 32.8 | | | | | |
| 1986 | 05 30 | 12 07.83 | +04 32.7 | 2.852 | 3.367 | 112.1 | 16.2 | 18.7 |
| 1986 | 06 09 | 12 09.61 | +04 19.7 | | | | | |
| 1986 | 06 19 | 12 13.04 | +03 55.5 | 3.139 | 3.374 | 94.5 | 17.5 | 18.9 |

1978 UF2 a,e,i = 3.17, 0.19, 22 Elements MPC 9352

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 02.49 | +15 00.7 | 2.790 | 3.115 | 100.0 | 18.1 | 17.5 |
| 1986 | 01 20 | 13 06.25 | +15 12.8 | | | | | |
| 1986 | 01 30 | 13 07.87 | +15 36.4 | 2.570 | 3.152 | 117.8 | 16.0 | 17.3 |
| 1986 | 02 09 | 13 07.17 | +16 09.7 | | | | | |
| 1986 | 02 19 | 13 04.09 | +16 49.4 | 2.396 | 3.189 | 136.8 | 12.3 | 17.1 |
| 1986 | 03 01 | 12 58.75 | +17 30.5 | | | | | |
| 1986 | 03 11 | 12 51.48 | +18 07.6 | 2.303 | 3.225 | 154.0 | 7.8 | 16.8 |
| 1986 | 03 21 | 12 42.86 | +18 34.6 | | | | | |
| 1986 | 03 31 | 12 33.68 | +18 46.5 | 2.316 | 3.261 | 157.5 | 6.7 | 16.8 |
| 1986 | 04 10 | 12 24.77 | +18 40.5 | | | | | |
| 1986 | 04 20 | 12 16.90 | +18 15.9 | 2.438 | 3.296 | 142.9 | 10.6 | 17.1 |
| 1986 | 04 30 | 12 10.64 | +17 34.0 | | | | | |
| 1986 | 05 10 | 12 06.30 | +16 37.4 | 2.652 | 3.330 | 124.5 | 14.5 | 17.4 |
| 1986 | 05 20 | 12 04.01 | +15 28.9 | | | | | |
| 1986 | 05 30 | 12 03.69 | +14 11.3 | 2.927 | 3.363 | 106.8 | 16.8 | 17.8 |
| 1986 | 06 09 | 12 05.21 | +12 47.0 | | | | | |
| 1986 | 06 19 | 12 08.37 | +11 17.7 | 3.232 | 3.395 | 90.4 | 17.4 | 18.0 |

(3177) 1934 AK a,e,i = 2.63, 0.15, 16 Elements MPC 9358

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 03.63 | +07 32.2 | 2.286 | 2.598 | 97.1 | 22.1 | 16.8 |
| 1986 | 01 20 | 13 09.17 | +07 12.9 | | | | | |
| 1986 | 01 30 | 13 12.38 | +07 06.6 | 2.062 | 2.630 | 114.6 | 19.9 | 16.5 |
| 1986 | 02 09 | 13 12.97 | +07 12.6 | | | | | |
| 1986 | 02 19 | 13 10.76 | +07 29.2 | 1.874 | 2.661 | 134.5 | 15.4 | 16.2 |
| 1986 | 03 01 | 13 05.78 | +07 53.1 | | | | | |
| 1986 | 03 11 | 12 58.29 | +08 19.8 | 1.756 | 2.692 | 155.7 | 8.7 | 15.9 |
| 1986 | 03 21 | 12 48.92 | +08 43.5 | | | | | |
| 1986 | 03 31 | 12 38.64 | +08 58.2 | 1.740 | 2.723 | 167.2 | 4.6 | 15.7 |
| 1986 | 04 10 | 12 28.51 | +08 59.7 | | | | | |
| 1986 | 04 20 | 12 19.56 | +08 45.4 | 1.834 | 2.752 | 150.3 | 10.4 | 16.1 |
| 1986 | 04 30 | 12 12.56 | +08 15.1 | | | | | |
| 1986 | 05 10 | 12 07.90 | +07 30.3 | 2.024 | 2.781 | 129.8 | 16.2 | 16.5 |
| 1986 | 05 20 | 12 05.73 | +06 33.1 | | | | | |
| 1986 | 05 30 | 12 05.93 | +05 25.7 | 2.276 | 2.808 | 111.3 | 19.7 | 16.9 |
| 1986 | 06 09 | 12 08.29 | +04 10.1 | | | | | |
| 1986 | 06 19 | 12 12.56 | +02 48.0 | 2.562 | 2.834 | 94.8 | 20.9 | 17.2 |

1949 SF a,e,i = 2.43, 0.25, 9 Elements MPC 8284

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 03.73 | -07 03.0 | 2.687 | 2.887 | 91.6 | 19.9 | 19.3 |
| 1986 | 01 20 | 13 09.10 | -07 57.6 | | | | | |
| 1986 | 01 30 | 13 12.61 | -08 43.3 | 2.374 | 2.855 | 109.2 | 19.0 | 19.0 |
| 1986 | 02 09 | 13 13.96 | -09 18.9 | | | | | |
| 1986 | 02 19 | 13 12.89 | -09 42.9 | 2.091 | 2.820 | 129.0 | 15.8 | 18.6 |
| 1986 | 03 01 | 13 09.25 | -09 54.3 | | | | | |
| 1986 | 03 11 | 13 03.09 | -09 52.2 | 1.870 | 2.782 | 151.2 | 9.9 | 18.1 |
| 1986 | 03 21 | 12 54.75 | -09 36.9 | | | | | |
| 1986 | 03 31 | 12 44.92 | -09 10.5 | 1.746 | 2.741 | 174.0 | 2.2 | 17.6 |
| 1986 | 04 10 | 12 34.56 | -08 36.7 | | | | | |
| 1986 | 04 20 | 12 24.77 | -08 00.7 | 1.735 | 2.698 | 159.2 | 7.6 | 17.8 |
| 1986 | 04 30 | 12 16.51 | -07 28.4 | | | | | |
| 1986 | 05 10 | 12 10.48 | -07 04.5 | 1.828 | 2.652 | 136.4 | 15.2 | 18.2 |
| 1986 | 05 20 | 12 07.07 | -06 52.6 | | | | | |
| 1986 | 05 30 | 12 06.35 | -06 54.2 | 1.992 | 2.604 | 116.3 | 20.4 | 18.5 |
| 1986 | 06 09 | 12 08.18 | -07 09.8 | | | | | |
| 1986 | 06 19 | 12 12.39 | -07 38.9 | 2.191 | 2.554 | 98.9 | 23.1 | 18.7 |

1971 SN2 a,e,i = 3.18, 0.16, 2 Elements MPC 9472

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 01.56 | -03 52.5 | 3.484 | 3.674 | 93.3 | 15.5 | 18.3 |
| 1986 | 01 20 | 13 05.28 | -04 08.8 | | | | | |
| 1986 | 01 30 | 13 07.41 | -04 14.9 | 3.178 | 3.664 | 112.1 | 14.4 | 18.0 |
| 1986 | 02 09 | 13 07.80 | -04 10.2 | | | | | |
| 1986 | 02 19 | 13 06.36 | -03 54.6 | 2.910 | 3.654 | 132.7 | 11.5 | 17.8 |
| 1986 | 03 01 | 13 03.13 | -03 28.7 | | | | | |
| 1986 | 03 11 | 12 58.27 | -02 53.8 | 2.717 | 3.641 | 154.9 | 6.6 | 17.4 |
| 1986 | 03 21 | 12 52.12 | -02 12.4 | | | | | |
| 1986 | 03 31 | 12 45.19 | -01 28.2 | 2.630 | 3.628 | 176.6 | 0.9 | 17.0 |
| 1986 | 04 10 | 12 38.07 | -00 44.8 | | | | | |
| 1986 | 04 20 | 12 31.39 | -00 06.3 | 2.663 | 3.613 | 157.9 | 6.0 | 17.3 |
| 1986 | 04 30 | 12 25.72 | +00 24.0 | | | | | |
| 1986 | 05 10 | 12 21.45 | +00 43.9 | 2.802 | 3.597 | 136.0 | 11.2 | 17.6 |
| 1986 | 05 20 | 12 18.85 | +00 52.1 | | | | | |
| 1986 | 05 30 | 12 18.00 | +00 48.7 | 3.018 | 3.580 | 116.0 | 14.7 | 17.9 |
| 1986 | 06 09 | 12 18.88 | +00 34.0 | | | | | |
| 1986 | 06 19 | 12 21.42 | +00 09.0 | 3.276 | 3.561 | 97.9 | 16.4 | 18.1 |

(3187) 1977 TO3 a,e,i = 2.28, 0.06, 3 Elements MPC 9421

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 56.11 | -08 07.7 | 2.063 | 2.330 | 92.9 | 24.9 | 17.4 |
| 1986 | 01 20 | 13 04.08 | -09 13.0 | | | | | |
| 1986 | 01 30 | 13 09.89 | -10 06.1 | 1.824 | 2.342 | 109.3 | 23.4 | 17.1 |
| 1986 | 02 09 | 13 13.19 | -10 45.2 | | | | | |
| 1986 | 02 19 | 13 13.66 | -11 08.0 | 1.609 | 2.353 | 128.3 | 19.3 | 16.7 |
| 1986 | 03 01 | 13 11.13 | -11 13.0 | | | | | |
| 1986 | 03 11 | 13 05.68 | -10 59.2 | 1.450 | 2.364 | 150.1 | 12.1 | 16.3 |
| 1986 | 03 21 | 12 57.76 | -10 27.2 | | | | | |
| 1986 | 03 31 | 12 48.28 | -09 40.4 | 1.379 | 2.374 | 173.2 | 2.9 | 15.8 |
| 1986 | 04 10 | 12 38.44 | -08 44.9 | | | | | |
| 1986 | 04 20 | 12 29.52 | -07 48.6 | 1.413 | 2.383 | 160.3 | 8.2 | 16.1 |
| 1986 | 04 30 | 12 22.56 | -06 59.3 | | | | | |
| 1986 | 05 10 | 12 18.19 | -06 22.6 | 1.543 | 2.391 | 138.0 | 16.4 | 16.6 |
| 1986 | 05 20 | 12 16.68 | -06 01.8 | | | | | |
| 1986 | 05 30 | 12 17.95 | -05 57.9 | 1.741 | 2.398 | 118.6 | 21.8 | 17.0 |
| 1986 | 06 09 | 12 21.75 | -06 10.1 | | | | | |
| 1986 | 06 19 | 12 27.81 | -06 37.0 | 1.977 | 2.404 | 102.0 | 24.4 | 17.4 |

1941 WA a,e,i = 3.05, 0.29, 3 Elements MPC 9464

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 08.08 | -03 29.8 | 3.438 | 3.607 | 91.9 | 15.8 | 18.2 |
| 1986 | 01 20 | 13 11.58 | -03 41.4 | | | | | |
| 1986 | 01 30 | 13 13.41 | -03 42.3 | 3.175 | 3.644 | 110.9 | 14.6 | 18.0 |
| 1986 | 02 09 | 13 13.43 | -03 32.2 | | | | | |
| 1986 | 02 19 | 13 11.58 | -03 11.1 | 2.947 | 3.679 | 131.7 | 11.6 | 17.8 |
| 1986 | 03 01 | 13 07.93 | -02 40.1 | | | | | |
| 1986 | 03 11 | 13 02.68 | -02 01.0 | 2.793 | 3.712 | 154.1 | 6.7 | 17.5 |
| 1986 | 03 21 | 12 56.20 | -01 16.4 | | | | | |
| 1986 | 03 31 | 12 49.00 | -00 30.3 | 2.747 | 3.743 | 175.2 | 1.3 | 17.2 |
| 1986 | 04 10 | 12 41.69 | +00 13.8 | | | | | |
| 1986 | 04 20 | 12 34.87 | +00 51.8 | 2.821 | 3.772 | 158.1 | 5.7 | 17.5 |
| 1986 | 04 30 | 12 29.07 | +01 21.0 | | | | | |
| 1986 | 05 10 | 12 24.63 | +01 39.7 | 3.003 | 3.798 | 136.3 | 10.6 | 17.9 |
| 1986 | 05 20 | 12 21.80 | +01 46.9 | | | | | |
| 1986 | 05 30 | 12 20.64 | +01 43.0 | 3.265 | 3.822 | 116.2 | 13.8 | 18.2 |
| 1986 | 06 09 | 12 21.11 | +01 28.6 | | | | | |
| 1986 | 06 19 | 12 23.12 | +01 04.6 | 3.570 | 3.844 | 97.9 | 15.2 | 18.4 |

1979 MC a,e,i = 2.43, 0.27, 12 Elements MPC 8277

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 58.39 | -00 00.2 | 2.515 | 2.787 | 95.5 | 20.6 | 19.1 |
| 1986 | 01 20 | 13 05.18 | +00 07.3 | | | | | |
| 1986 | 01 30 | 13 10.20 | +00 31.6 | 2.202 | 2.742 | 113.1 | 19.3 | 18.8 |
| 1986 | 02 09 | 13 13.15 | +01 14.2 | | | | | |
| 1986 | 02 19 | 13 13.74 | +02 15.7 | 1.925 | 2.695 | 132.7 | 15.6 | 18.3 |
| 1986 | 03 01 | 13 11.82 | +03 34.9 | | | | | |
| 1986 | 03 11 | 13 07.40 | +05 08.9 | 1.718 | 2.645 | 153.7 | 9.6 | 17.8 |
| 1986 | 03 21 | 13 00.75 | +06 51.3 | | | | | |
| 1986 | 03 31 | 12 52.53 | +08 33.4 | 1.609 | 2.592 | 166.9 | 5.0 | 17.5 |
| 1986 | 04 10 | 12 43.65 | +10 05.4 | | | | | |
| 1986 | 04 20 | 12 35.17 | +11 18.6 | 1.611 | 2.537 | 151.1 | 11.0 | 17.7 |
| 1986 | 04 30 | 12 28.12 | +12 07.4 | | | | | |
| 1986 | 05 10 | 12 23.19 | +12 30.1 | 1.705 | 2.481 | 130.3 | 18.1 | 18.0 |
| 1986 | 05 20 | 12 20.82 | +12 27.3 | | | | | |
| 1986 | 05 30 | 12 21.12 | +12 02.1 | 1.858 | 2.422 | 111.6 | 22.9 | 18.2 |
| 1986 | 06 09 | 12 23.97 | +11 17.7 | | | | | |
| 1986 | 06 19 | 12 29.19 | +10 17.1 | 2.037 | 2.362 | 95.5 | 25.4 | 18.4 |

1942 EB a,e,i = 2.38, 0.16, 8 Elements MPC 7239

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 58.87 | +01 27.3 | 1.702 | 2.051 | 95.9 | 28.5 | 16.8 |
| 1986 | 01 20 | 13 08.91 | +00 30.3 | | | | | |
| 1986 | 01 30 | 13 16.53 | -00 13.0 | 1.500 | 2.073 | 111.4 | 26.3 | 16.5 |
| 1986 | 02 09 | 13 21.30 | -00 41.6 | | | | | |
| 1986 | 02 19 | 13 22.83 | -00 55.4 | 1.325 | 2.099 | 129.7 | 21.3 | 16.1 |
| 1986 | 03 01 | 13 20.91 | -00 55.2 | | | | | |
| 1986 | 03 11 | 13 15.58 | -00 43.2 | 1.202 | 2.127 | 151.2 | 13.0 | 15.7 |
| 1986 | 03 21 | 13 07.35 | -00 23.8 | | | | | |
| 1986 | 03 31 | 12 57.30 | -00 03.1 | 1.162 | 2.158 | 173.3 | 3.1 | 15.3 |
| 1986 | 04 10 | 12 46.80 | +00 12.6 | | | | | |
| 1986 | 04 20 | 12 37.35 | +00 17.4 | 1.222 | 2.190 | 159.0 | 9.5 | 15.7 |
| 1986 | 04 30 | 12 30.11 | +00 07.7 | | | | | |
| 1986 | 05 10 | 12 25.71 | -00 17.4 | 1.373 | 2.224 | 137.4 | 17.9 | 16.2 |
| 1986 | 05 20 | 12 24.36 | -00 57.4 | | | | | |
| 1986 | 05 30 | 12 25.91 | -01 50.6 | 1.587 | 2.259 | 118.9 | 23.1 | 16.7 |
| 1986 | 06 09 | 12 30.05 | -02 54.9 | | | | | |
| 1986 | 06 19 | 12 36.44 | -04 08.4 | 1.840 | 2.294 | 103.1 | 25.6 | 17.2 |

1975 EA6 a,e,i = 2.34, 0.16, 2 Elements MPC 9956

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 45.40 | -02 52.8 | 1.788 | 2.148 | 97.4 | 27.0 | 17.4 |
| 1986 | 01 20 | 12 55.85 | -03 46.3 | | | | | |
| 1986 | 01 30 | 13 04.39 | -04 25.8 | 1.530 | 2.116 | 112.7 | 25.4 | 17.0 |
| 1986 | 02 09 | 13 10.61 | -04 49.4 | | | | | |
| 1986 | 02 19 | 13 14.07 | -04 55.1 | 1.303 | 2.086 | 130.5 | 21.1 | 16.5 |
| 1986 | 03 01 | 13 14.46 | -04 42.0 | | | | | |
| 1986 | 03 11 | 13 11.62 | -04 10.3 | 1.131 | 2.058 | 151.4 | 13.4 | 15.9 |
| 1986 | 03 21 | 13 05.80 | -03 22.8 | | | | | |
| 1986 | 03 31 | 12 57.81 | -02 25.8 | 1.037 | 2.034 | 174.1 | 2.9 | 15.3 |
| 1986 | 04 10 | 12 48.86 | -01 28.0 | | | | | |
| 1986 | 04 20 | 12 40.48 | -00 39.2 | 1.038 | 2.012 | 160.1 | 9.8 | 15.6 |
| 1986 | 04 30 | 12 34.04 | -00 07.5 | | | | | |
| 1986 | 05 10 | 12 30.43 | +00 02.6 | 1.125 | 1.995 | 138.3 | 19.7 | 16.0 |
| 1986 | 05 20 | 12 30.07 | -00 10.0 | | | | | |
| 1986 | 05 30 | 12 32.93 | -00 44.0 | 1.270 | 1.982 | 120.0 | 26.3 | 16.5 |
| 1986 | 06 09 | 12 38.74 | -01 36.6 | | | | | |
| 1986 | 06 19 | 12 47.17 | -02 44.9 | 1.450 | 1.973 | 105.0 | 29.8 | 16.8 |

(3197) 1981 AD a,e,i = 2.67, 0.18, 16 Elements MPC 9426

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 10.41 | +09 47.9 | 2.437 | 2.727 | 96.3 | 21.0 | 18.5 |
| 1986 | 01 20 | 13 17.37 | +10 25.9 | | | | | |
| 1986 | 01 30 | 13 22.25 | +11 20.9 | 2.220 | 2.763 | 113.4 | 19.1 | 18.3 |
| 1986 | 02 09 | 13 24.78 | +12 31.9 | | | | | |
| 1986 | 02 19 | 13 24.77 | +13 56.2 | 2.042 | 2.799 | 131.7 | 15.3 | 18.0 |
| 1986 | 03 01 | 13 22.18 | +15 28.7 | | | | | |
| 1986 | 03 11 | 13 17.16 | +17 02.6 | 1.936 | 2.834 | 148.9 | 10.4 | 17.8 |
| 1986 | 03 21 | 13 10.17 | +18 29.0 | | | | | |
| 1986 | 03 31 | 13 01.94 | +19 39.4 | 1.927 | 2.867 | 155.7 | 8.3 | 17.7 |
| 1986 | 04 10 | 12 53.36 | +20 27.3 | | | | | |
| 1986 | 04 20 | 12 45.40 | +20 49.0 | 2.022 | 2.899 | 144.5 | 11.6 | 18.0 |
| 1986 | 04 30 | 12 38.83 | +20 44.5 | | | | | |
| 1986 | 05 10 | 12 34.16 | +20 16.3 | 2.204 | 2.929 | 127.3 | 15.9 | 18.3 |
| 1986 | 05 20 | 12 31.66 | +19 28.0 | | | | | |
| 1986 | 05 30 | 12 31.35 | +18 24.0 | 2.447 | 2.958 | 110.4 | 18.7 | 18.6 |
| 1986 | 06 09 | 12 33.09 | +17 08.0 | | | | | |
| 1986 | 06 19 | 12 36.69 | +15 43.0 | 2.722 | 2.984 | 94.8 | 19.8 | 18.9 |

(3220) 1951 WF a,e,i = 2.23, 0.17, 7 Elements MPC 9470

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 19.44 | -04 24.5 | 2.194 | 2.388 | 88.9 | 24.3 | 18.1 |
| 1986 | 01 20 | 13 27.36 | -05 15.9 | | | | | |
| 1986 | 01 30 | 13 33.16 | -05 55.2 | 1.963 | 2.421 | 105.5 | 23.1 | 17.8 |
| 1986 | 02 09 | 13 36.50 | -06 21.3 | | | | | |
| 1986 | 02 19 | 13 37.04 | -06 33.5 | 1.751 | 2.451 | 124.6 | 19.4 | 17.5 |
| 1986 | 03 01 | 13 34.60 | -06 31.5 | | | | | |
| 1986 | 03 11 | 13 29.19 | -06 15.6 | 1.589 | 2.480 | 146.6 | 12.8 | 17.1 |
| 1986 | 03 21 | 13 21.15 | -05 47.9 | | | | | |
| 1986 | 03 31 | 13 11.24 | -05 12.2 | 1.514 | 2.505 | 170.8 | 3.6 | 16.7 |
| 1986 | 04 10 | 13 00.52 | -04 33.8 | | | | | |
| 1986 | 04 20 | 12 50.25 | -03 58.8 | 1.548 | 2.529 | 163.9 | 6.3 | 16.9 |
| 1986 | 04 30 | 12 41.53 | -03 32.9 | | | | | |
| 1986 | 05 10 | 12 35.10 | -03 19.6 | 1.685 | 2.549 | 140.8 | 14.5 | 17.4 |
| 1986 | 05 20 | 12 31.35 | -03 20.9 | | | | | |
| 1986 | 05 30 | 12 30.30 | -03 36.8 | 1.898 | 2.567 | 120.6 | 19.9 | 17.8 |
| 1986 | 06 09 | 12 31.80 | -04 06.1 | | | | | |
| 1986 | 06 19 | 12 35.59 | -04 47.6 | 2.154 | 2.582 | 103.1 | 22.5 | 18.2 |

1983 QJ a,e,i = 2.75, 0.06, 6 Elements MPC 10038

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 15.90 | -00 49.2 | 2.656 | 2.850 | 91.1 | 20.2 | 17.8 |
| 1986 | 01 20 | 13 22.56 | -01 10.9 | | | | | |
| 1986 | 01 30 | 13 27.38 | -01 20.2 | 2.392 | 2.860 | 108.4 | 19.1 | 17.5 |
| 1986 | 02 09 | 13 30.11 | -01 16.7 | | | | | |
| 1986 | 02 19 | 13 30.53 | -01 00.1 | 2.155 | 2.870 | 127.8 | 15.8 | 17.2 |
| 1986 | 03 01 | 13 28.53 | -00 31.7 | | | | | |
| 1986 | 03 11 | 13 24.20 | +00 06.5 | 1.980 | 2.879 | 149.2 | 10.2 | 16.9 |
| 1986 | 03 21 | 13 17.82 | +00 51.0 | | | | | |
| 1986 | 03 31 | 13 10.01 | +01 36.8 | 1.898 | 2.887 | 169.7 | 3.5 | 16.5 |
| 1986 | 04 10 | 13 01.55 | +02 18.3 | | | | | |
| 1986 | 04 20 | 12 53.36 | +02 50.4 | 1.928 | 2.894 | 160.4 | 6.7 | 16.7 |
| 1986 | 04 30 | 12 46.26 | +03 09.2 | | | | | |
| 1986 | 05 10 | 12 40.88 | +03 13.0 | 2.061 | 2.900 | 139.1 | 13.2 | 17.1 |
| 1986 | 05 20 | 12 37.60 | +03 01.2 | | | | | |
| 1986 | 05 30 | 12 36.53 | +02 35.0 | 2.271 | 2.906 | 119.4 | 17.7 | 17.4 |
| 1986 | 06 09 | 12 37.60 | +01 55.9 | | | | | |
| 1986 | 06 19 | 12 40.69 | +01 05.8 | 2.526 | 2.911 | 101.9 | 20.0 | 17.7 |

(3201) 6560 P-L a,e,i = 2.26, 0.09, 3 Elements MPC 9428

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 12 59.40 | -03 06.7 | 1.740 | 2.059 | 94.1 | 28.5 | 17.9 |
| 1986 | 01 20 | 13 10.84 | -03 56.4 | | | | | |
| 1986 | 01 30 | 13 20.23 | -04 30.6 | 1.518 | 2.062 | 109.0 | 26.9 | 17.5 |
| 1986 | 02 09 | 13 27.16 | -04 47.6 | | | | | |
| 1986 | 02 19 | 13 31.19 | -04 45.9 | 1.320 | 2.067 | 126.6 | 22.6 | 17.1 |
| 1986 | 03 01 | 13 31.99 | -04 25.1 | | | | | |
| 1986 | 03 11 | 13 29.42 | -03 46.3 | 1.169 | 2.075 | 147.2 | 15.0 | 16.7 |
| 1986 | 03 21 | 13 23.69 | -02 52.8 | | | | | |
| 1986 | 03 31 | 13 15.59 | -01 51.6 | 1.094 | 2.084 | 169.7 | 4.9 | 16.2 |
| 1986 | 04 10 | 13 06.30 | -00 51.2 | | | | | |
| 1986 | 04 20 | 12 57.30 | -00 01.4 | 1.115 | 2.096 | 163.1 | 8.0 | 16.3 |
| 1986 | 04 30 | 12 49.95 | +00 30.6 | | | | | |
| 1986 | 05 10 | 12 45.16 | +00 41.1 | 1.226 | 2.110 | 141.3 | 17.4 | 16.9 |
| 1986 | 05 20 | 12 43.38 | +00 29.5 | | | | | |
| 1986 | 05 30 | 12 44.62 | -00 02.3 | 1.403 | 2.125 | 122.4 | 23.8 | 17.4 |
| 1986 | 06 09 | 12 48.65 | -00 51.3 | | | | | |
| 1986 | 06 19 | 12 55.15 | -01 54.5 | 1.620 | 2.142 | 106.5 | 27.1 | 17.8 |

1980 OA a,e,i = 2.27, 0.08, 2 Elements MPC 9594

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 14.58 | -05 28.0 | 2.250 | 2.450 | 89.7 | 23.7 | 17.7 |
| 1986 | 01 20 | 13 23.18 | -06 14.4 | | | | | |
| 1986 | 01 30 | 13 29.91 | -06 48.6 | 1.985 | 2.447 | 106.0 | 22.8 | 17.4 |
| 1986 | 02 09 | 13 34.41 | -07 09.3 | | | | | |
| 1986 | 02 19 | 13 36.34 | -07 15.1 | 1.742 | 2.442 | 124.5 | 19.5 | 17.0 |
| 1986 | 03 01 | 13 35.45 | -07 05.5 | | | | | |
| 1986 | 03 11 | 13 31.65 | -06 40.4 | 1.549 | 2.436 | 145.9 | 13.2 | 16.6 |
| 1986 | 03 21 | 13 25.12 | -06 01.5 | | | | | |
| 1986 | 03 31 | 13 16.50 | -05 12.7 | 1.439 | 2.428 | 169.5 | 4.3 | 16.1 |
| 1986 | 04 10 | 13 06.72 | -04 19.6 | | | | | |
| 1986 | 04 20 | 12 57.02 | -03 29.6 | 1.434 | 2.419 | 165.2 | 6.1 | 16.1 |
| 1986 | 04 30 | 12 48.59 | -02 49.6 | | | | | |
| 1986 | 05 10 | 12 42.29 | -02 24.2 | 1.531 | 2.409 | 142.1 | 14.9 | 16.6 |
| 1986 | 05 20 | 12 38.66 | -02 16.2 | | | | | |
| 1986 | 05 30 | 12 37.85 | -02 25.9 | 1.702 | 2.397 | 121.8 | 21.1 | 17.0 |
| 1986 | 06 09 | 12 39.73 | -02 51.9 | | | | | |
| 1986 | 06 19 | 12 44.09 | -03 32.6 | 1.916 | 2.384 | 104.6 | 24.4 | 17.3 |

1983 XD a,e,i = 3.10, 0.14, 5 Elements MPC 8465

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 10 | 13 22.21 | -14 01.0 | 3.491 | 3.539 | 84.7 | 16.1 | 18.2 |
| 1986 | 01 20 | 13 27.44 | -14 42.3 | | | | | |
| 1986 | 01 30 | 13 31.15 | -15 15.1 | 3.186 | 3.534 | 102.5 | 15.8 | 18.0 |
| 1986 | 02 09 | 13 33.15 | -15 38.3 | | | | | |
| 1986 | 02 19 | 13 33.28 | -15 50.6 | 2.902 | 3.527 | 122.0 | 13.8 | 17.7 |
| 1986 | 03 01 | 13 31.48 | -15 50.8 | | | | | |
| 1986 | 03 11 | 13 27.80 | -15 38.3 | 2.673 | 3.518 | 143.1 | 9.8 | 17.4 |
| 1986 | 03 21 | 13 22.46 | -15 12.9 | | | | | |
| 1986 | 03 31 | 13 15.89 | -14 35.8 | 2.534 | 3.509 | 165.2 | 4.2 | 17.1 |
| 1986 | 04 10 | 13 08.66 | -13 49.3 | | | | | |
| 1986 | 04 20 | 13 01.43 | -12 57.2 | 2.508 | 3.498 | 168.4 | 3.3 | 17.0 |
| 1986 | 04 30 | 12 54.87 | -12 04.1 | | | | | |
| 1986 | 05 10 | 12 49.53 | -11 14.5 | 2.596 | 3.486 | 146.8 | 9.1 | 17.3 |
| 1986 | 05 20 | 12 45.80 | -10 32.2 | | | | | |
| 1986 | 05 30 | 12 43.88 | -09 59.8 | 2.778 | 3.472 | 126.0 | 13.7 | 17.6 |
| 1986 | 06 09 | 12 43.82 | -09 38.8 | | | | | |
| 1986 | 06 19 | 12 45.57 | -09 29.7 | 3.018 | 3.457 | 107.2 | 16.3 | 17.9 |

(3388) 1981 YR1 a,e,i = 2.36, 0.20, 25 Elements MPC 10399

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 34.42 | +26 49.3 | 1.391 | 2.002 | 113.8 | 26.8 | 17.3 |
| 1986 | 02 09 | 13 42.89 | +29 11.4 | | | | | |
| 1986 | 02 19 | 13 47.57 | +31 43.5 | 1.299 | 2.039 | 125.5 | 23.2 | 17.1 |
| 1986 | 03 01 | 13 48.10 | +34 14.1 | | | | | |
| 1986 | 03 11 | 13 44.38 | +36 29.2 | 1.262 | 2.079 | 134.0 | 20.1 | 17.0 |
| 1986 | 03 21 | 13 36.88 | +38 13.0 | | | | | |
| 1986 | 03 31 | 13 26.74 | +39 12.3 | 1.291 | 2.121 | 135.4 | 19.3 | 17.0 |
| 1986 | 04 10 | 13 15.59 | +39 20.0 | | | | | |
| 1986 | 04 20 | 13 05.19 | +38 35.4 | 1.385 | 2.165 | 129.2 | 21.1 | 17.3 |
| 1986 | 04 30 | 12 56.93 | +37 05.3 | | | | | |
| 1986 | 05 10 | 12 51.58 | +34 59.4 | 1.538 | 2.211 | 118.9 | 23.6 | 17.6 |
| 1986 | 05 20 | 12 49.35 | +32 27.8 | | | | | |
| 1986 | 05 30 | 12 50.07 | +29 39.8 | 1.736 | 2.256 | 107.3 | 25.4 | 18.0 |
| 1986 | 06 09 | 12 53.37 | +26 42.3 | | | | | |
| 1986 | 06 19 | 12 58.87 | +23 40.6 | 1.966 | 2.302 | 95.8 | 26.0 | 18.3 |
| 1986 | 06 29 | 13 06.19 | +20 38.3 | | | | | |
| 1986 | 07 09 | 13 15.01 | +17 37.9 | 2.215 | 2.348 | 84.6 | 25.5 | 18.6 |

(3206) 1980 VN1 a,e,i = 2.55, 0.24, 9 Elements MPC 9463

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 45.15 | -00 45.5 | 2.301 | 2.720 | 104.4 | 20.5 | 18.9 |
| 1986 | 02 09 | 13 48.33 | -00 38.6 | | | | | |
| 1986 | 02 19 | 13 49.05 | -00 18.4 | 2.093 | 2.764 | 123.5 | 17.3 | 18.6 |
| 1986 | 03 01 | 13 47.18 | +00 13.7 | | | | | |
| 1986 | 03 11 | 13 42.75 | +00 55.4 | 1.937 | 2.807 | 144.7 | 11.8 | 18.3 |
| 1986 | 03 21 | 13 36.04 | +01 42.6 | | | | | |
| 1986 | 03 31 | 13 27.66 | +02 30.1 | 1.870 | 2.848 | 165.4 | 5.1 | 18.0 |
| 1986 | 04 10 | 13 18.41 | +03 12.2 | | | | | |
| 1986 | 04 20 | 13 09.26 | +03 43.5 | 1.913 | 2.886 | 162.2 | 6.1 | 18.1 |
| 1986 | 04 30 | 13 01.11 | +04 00.5 | | | | | |
| 1986 | 05 10 | 12 54.62 | +04 01.6 | 2.064 | 2.922 | 141.5 | 12.4 | 18.6 |
| 1986 | 05 20 | 12 50.23 | +03 46.8 | | | | | |
| 1986 | 05 30 | 12 48.07 | +03 17.6 | 2.296 | 2.956 | 121.6 | 17.0 | 18.9 |
| 1986 | 06 09 | 12 48.10 | +02 36.1 | | | | | |
| 1986 | 06 19 | 12 50.16 | +01 44.1 | 2.577 | 2.987 | 103.8 | 19.3 | 19.3 |
| 1986 | 06 29 | 12 54.03 | +00 43.7 | | | | | |
| 1986 | 07 09 | 12 59.50 | -00 23.3 | 2.878 | 3.016 | 87.8 | 19.7 | 19.6 |

2535 P-L a,e,i = 3.14, 0.16, 2 Elements MPC 9069

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 38.63 | -08 10.1 | 3.249 | 3.608 | 103.5 | 15.4 | 19.0 |
| 1986 | 02 09 | 13 40.77 | -08 14.4 | | | | | |
| 1986 | 02 19 | 13 41.11 | -08 08.1 | 2.961 | 3.598 | 123.1 | 13.3 | 18.7 |
| 1986 | 03 01 | 13 39.58 | -07 51.1 | | | | | |
| 1986 | 03 11 | 13 36.22 | -07 23.9 | 2.730 | 3.586 | 144.6 | 9.2 | 18.4 |
| 1986 | 03 21 | 13 31.21 | -06 47.7 | | | | | |
| 1986 | 03 31 | 13 24.94 | -06 05.2 | 2.591 | 3.573 | 167.3 | 3.5 | 18.0 |
| 1986 | 04 10 | 13 17.91 | -05 19.4 | | | | | |
| 1986 | 04 20 | 13 10.76 | -04 34.4 | 2.568 | 3.558 | 168.6 | 3.2 | 18.0 |
| 1986 | 04 30 | 13 04.13 | -03 54.2 | | | | | |
| 1986 | 05 10 | 12 58.56 | -03 22.0 | 2.659 | 3.542 | 146.1 | 9.1 | 18.3 |
| 1986 | 05 20 | 12 54.47 | -03 00.3 | | | | | |
| 1986 | 05 30 | 12 52.08 | -02 50.2 | 2.842 | 3.525 | 125.2 | 13.6 | 18.6 |
| 1986 | 06 09 | 12 51.48 | -02 51.9 | | | | | |
| 1986 | 06 19 | 12 52.65 | -03 04.9 | 3.082 | 3.507 | 106.4 | 16.1 | 18.8 |
| 1986 | 06 29 | 12 55.48 | -03 28.3 | | | | | |
| 1986 | 07 09 | 12 59.82 | -04 00.9 | 3.348 | 3.487 | 89.3 | 16.9 | 19.0 |

(3269) 1981 EX16 a,e,i = 2.78, 0.16, 17 Elements MPC 9759

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 48.86 | -18 33.1 | 2.904 | 3.184 | 97.4 | 17.9 | 18.1 |
| 1986 | 02 09 | 13 51.22 | -19 41.3 | | | | | |
| 1986 | 02 19 | 13 51.42 | -20 41.8 | 2.637 | 3.196 | 116.0 | 16.1 | 17.9 |
| 1986 | 03 01 | 13 49.33 | -21 33.1 | | | | | |
| 1986 | 03 11 | 13 44.87 | -22 13.0 | 2.414 | 3.206 | 136.2 | 12.4 | 17.6 |
| 1986 | 03 21 | 13 38.22 | -22 39.4 | | | | | |
| 1986 | 03 31 | 13 29.79 | -22 50.7 | 2.272 | 3.214 | 156.7 | 7.1 | 17.3 |
| 1986 | 04 10 | 13 20.24 | -22 46.6 | | | | | |
| 1986 | 04 20 | 13 10.46 | -22 28.8 | 2.238 | 3.220 | 165.5 | 4.5 | 17.1 |
| 1986 | 04 30 | 13 01.34 | -22 00.9 | | | | | |
| 1986 | 05 10 | 12 53.63 | -21 27.8 | 2.317 | 3.225 | 149.0 | 9.3 | 17.4 |
| 1986 | 05 20 | 12 47.89 | -20 54.9 | | | | | |
| 1986 | 05 30 | 12 44.37 | -20 26.7 | 2.492 | 3.227 | 129.0 | 14.1 | 17.7 |
| 1986 | 06 09 | 12 43.14 | -20 06.4 | | | | | |
| 1986 | 06 19 | 12 44.11 | -19 56.0 | 2.729 | 3.228 | 110.5 | 17.2 | 18.0 |
| 1986 | 06 29 | 12 47.08 | -19 56.3 | | | | | |
| 1986 | 07 09 | 12 51.85 | -20 07.2 | 2.998 | 3.227 | 93.7 | 18.3 | 18.3 |

1983 WF1 a,e,i = 3.18, 0.31, 21 Elements MPC 9687

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 45.57 | +14 24.7 | 3.739 | 4.160 | 108.7 | 13.0 | 18.6 |
| 1986 | 02 09 | 13 46.65 | +15 16.7 | | | | | |
| 1986 | 02 19 | 13 46.02 | +16 16.4 | 3.499 | 4.166 | 126.7 | 11.0 | 18.4 |
| 1986 | 03 01 | 13 43.67 | +17 20.7 | | | | | |
| 1986 | 03 11 | 13 39.66 | +18 25.8 | 3.329 | 4.169 | 143.4 | 8.2 | 18.2 |
| 1986 | 03 21 | 13 34.22 | +19 27.0 | | | | | |
| 1986 | 03 31 | 13 27.70 | +20 19.3 | 3.258 | 4.171 | 152.6 | 6.3 | 18.1 |
| 1986 | 04 10 | 13 20.58 | +20 58.7 | | | | | |
| 1986 | 04 20 | 13 13.41 | +21 22.1 | 3.296 | 4.170 | 146.4 | 7.7 | 18.2 |
| 1986 | 04 30 | 13 06.72 | +21 28.0 | | | | | |
| 1986 | 05 10 | 13 00.98 | +21 16.7 | 3.435 | 4.167 | 131.0 | 10.5 | 18.4 |
| 1986 | 05 20 | 12 56.53 | +20 49.3 | | | | | |
| 1986 | 05 30 | 12 53.56 | +20 08.1 | 3.649 | 4.162 | 113.8 | 12.9 | 18.6 |
| 1986 | 06 09 | 12 52.15 | +19 15.5 | | | | | |
| 1986 | 06 19 | 12 52.29 | +18 13.8 | 3.906 | 4.155 | 97.0 | 14.0 | 18.8 |
| 1986 | 06 29 | 12 53.89 | +17 05.3 | | | | | |
| 1986 | 07 09 | 12 56.82 | +15 51.6 | 4.178 | 4.145 | 81.2 | 14.0 | 18.9 |

2017 P-L a,e,i = 2.23, 0.22, 2 Elements MPC 7461

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 39.02 | -13 05.2 | 2.102 | 2.494 | 101.6 | 22.8 | 19.6 |
| 1986 | 02 09 | 13 44.70 | -13 46.6 | | | | | |
| 1986 | 02 19 | 13 48.08 | -14 15.2 | 1.815 | 2.455 | 119.3 | 20.5 | 19.1 |
| 1986 | 03 01 | 13 48.83 | -14 29.2 | | | | | |
| 1986 | 03 11 | 13 46.68 | -14 26.6 | 1.569 | 2.413 | 139.6 | 15.5 | 18.6 |
| 1986 | 03 21 | 13 41.59 | -14 05.7 | | | | | |
| 1986 | 03 31 | 13 33.88 | -13 26.5 | 1.397 | 2.369 | 162.5 | 7.3 | 18.1 |
| 1986 | 04 10 | 13 24.28 | -12 31.3 | | | | | |
| 1986 | 04 20 | 13 13.96 | -11 25.5 | 1.324 | 2.323 | 171.6 | 3.6 | 17.7 |
| 1986 | 04 30 | 13 04.28 | -10 17.4 | | | | | |
| 1986 | 05 10 | 12 56.40 | -09 15.5 | 1.355 | 2.275 | 147.9 | 13.7 | 18.1 |
| 1986 | 05 20 | 12 51.21 | -08 27.2 | | | | | |
| 1986 | 05 30 | 12 49.09 | -07 56.7 | 1.467 | 2.225 | 126.5 | 21.5 | 18.5 |
| 1986 | 06 09 | 12 50.07 | -07 45.6 | | | | | |
| 1986 | 06 19 | 12 54.01 | -07 53.7 | 1.626 | 2.174 | 108.5 | 26.3 | 18.8 |
| 1986 | 06 29 | 13 00.60 | -08 19.0 | | | | | |
| 1986 | 07 09 | 13 09.55 | -08 59.3 | 1.804 | 2.123 | 93.4 | 28.6 | 19.0 |

1978 OJ a,e,i = 2.69, 0.15, 14 Elements MPC 9424

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 01 30 | 13 46.13 | +05 46.0 | 2.455 | 2.889 | 106.2 | 19.1 | 17.6 |
| 1986 02 09 | 13 50.70 | +06 27.2 | | | | | |
| 1986 02 19 | 13 53.13 | +07 22.9 | 2.190 | 2.863 | 124.1 | 16.6 | 17.3 |
| 1986 03 01 | 13 53.21 | +08 31.2 | | | | | |
| 1986 03 11 | 13 50.85 | +09 48.7 | 1.982 | 2.836 | 142.6 | 12.3 | 16.9 |
| 1986 03 21 | 13 46.14 | +11 09.4 | | | | | |
| 1986 03 31 | 13 39.46 | +12 26.0 | 1.861 | 2.808 | 157.2 | 7.9 | 16.6 |
| 1986 04 10 | 13 31.44 | +13 30.7 | | | | | |
| 1986 04 20 | 13 22.97 | +14 16.1 | 1.842 | 2.779 | 153.8 | 9.2 | 16.6 |
| 1986 04 30 | 13 14.99 | +14 37.8 | | | | | |
| 1986 05 10 | 13 08.33 | +14 34.3 | 1.922 | 2.749 | 137.1 | 14.5 | 16.8 |
| 1986 05 20 | 13 03.61 | +14 06.7 | | | | | |
| 1986 05 30 | 13 01.14 | +13 18.2 | 2.076 | 2.719 | 119.2 | 19.0 | 17.1 |
| 1986 06 09 | 13 01.00 | +12 12.4 | | | | | |
| 1986 06 19 | 13 03.13 | +10 52.8 | 2.274 | 2.688 | 102.7 | 21.6 | 17.4 |
| 1986 06 29 | 13 07.34 | +09 22.7 | | | | | |
| 1986 07 09 | 13 13.42 | +07 44.7 | 2.491 | 2.656 | 88.0 | 22.5 | 17.6 |

1981 EL19 a,e,i = 2.78, 0.15, 7 Elements MPC 9961

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 01 30 | 13 47.18 | -09 57.9 | 2.685 | 3.029 | 100.9 | 18.6 | 17.9 |
| 1986 02 09 | 13 51.58 | -10 02.9 | | | | | |
| 1986 02 19 | 13 53.99 | -09 54.7 | 2.392 | 3.005 | 119.5 | 16.6 | 17.6 |
| 1986 03 01 | 13 54.24 | -09 32.6 | | | | | |
| 1986 03 11 | 13 52.23 | -08 56.6 | 2.147 | 2.980 | 140.3 | 12.3 | 17.2 |
| 1986 03 21 | 13 48.04 | -08 07.3 | | | | | |
| 1986 03 31 | 13 42.01 | -07 07.5 | 1.984 | 2.954 | 163.0 | 5.7 | 16.7 |
| 1986 04 10 | 13 34.68 | -06 01.2 | | | | | |
| 1986 04 20 | 13 26.83 | -04 53.9 | 1.929 | 2.927 | 171.8 | 2.8 | 16.5 |
| 1986 04 30 | 13 19.33 | -03 51.8 | | | | | |
| 1986 05 10 | 13 12.93 | -03 00.2 | 1.985 | 2.899 | 149.1 | 10.3 | 16.9 |
| 1986 05 20 | 13 08.27 | -02 23.0 | | | | | |
| 1986 05 30 | 13 05.68 | -02 02.0 | 2.132 | 2.870 | 128.0 | 16.2 | 17.2 |
| 1986 06 09 | 13 05.29 | -01 57.3 | | | | | |
| 1986 06 19 | 13 07.09 | -02 08.1 | 2.337 | 2.840 | 109.3 | 19.7 | 17.5 |
| 1986 06 29 | 13 10.93 | -02 32.5 | | | | | |
| 1986 07 09 | 13 16.61 | -03 08.8 | 2.569 | 2.809 | 92.9 | 21.2 | 17.7 |

1929 PB a,e,i = 2.35, 0.24, 4 Elements MPC 9205

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 01 30 | 13 51.97 | -09 04.8 | 2.470 | 2.814 | 100.1 | 20.2 | 19.6 |
| 1986 02 09 | 13 56.69 | -09 13.7 | | | | | |
| 1986 02 19 | 13 59.28 | -09 09.1 | 2.177 | 2.788 | 118.6 | 18.1 | 19.2 |
| 1986 03 01 | 13 59.51 | -08 50.2 | | | | | |
| 1986 03 11 | 13 57.19 | -08 16.8 | 1.929 | 2.759 | 139.3 | 13.6 | 18.8 |
| 1986 03 21 | 13 52.35 | -07 29.4 | | | | | |
| 1986 03 31 | 13 45.31 | -06 30.8 | 1.758 | 2.727 | 162.2 | 6.4 | 18.3 |
| 1986 04 10 | 13 36.65 | -05 25.0 | | | | | |
| 1986 04 20 | 13 27.28 | -04 18.4 | 1.694 | 2.691 | 171.4 | 3.2 | 18.1 |
| 1986 04 30 | 13 18.24 | -03 17.9 | | | | | |
| 1986 05 10 | 13 10.46 | -02 29.2 | 1.740 | 2.653 | 148.3 | 11.5 | 18.4 |
| 1986 05 20 | 13 04.70 | -01 56.8 | | | | | |
| 1986 05 30 | 13 01.36 | -01 42.2 | 1.875 | 2.612 | 126.9 | 18.1 | 18.8 |
| 1986 06 09 | 13 00.56 | -01 45.4 | | | | | |
| 1986 06 19 | 13 02.26 | -02 05.2 | 2.064 | 2.569 | 108.2 | 22.1 | 19.1 |
| 1986 06 29 | 13 06.27 | -02 39.4 | | | | | |
| 1986 07 09 | 13 12.34 | -03 26.1 | 2.274 | 2.523 | 92.0 | 23.7 | 19.3 |

(3238) 1975 VB9 a,e,i = 2.67, 0.19, 12 Elements MPC 9590

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 04.97 | -13 32.5 | 2.736 | 2.996 | 95.5 | 19.1 | 18.9 |
| 1986 | 02 09 | 14 08.69 | -14 21.0 | | | | | |
| 1986 | 02 19 | 14 10.27 | -15 00.9 | 2.480 | 3.021 | 114.1 | 17.4 | 18.7 |
| 1986 | 03 01 | 14 09.52 | -15 31.5 | | | | | |
| 1986 | 03 11 | 14 06.33 | -15 51.6 | 2.262 | 3.044 | 134.7 | 13.4 | 18.4 |
| 1986 | 03 21 | 14 00.78 | -16 00.6 | | | | | |
| 1986 | 03 31 | 13 53.23 | -15 58.3 | 2.120 | 3.065 | 157.2 | 7.3 | 18.0 |
| 1986 | 04 10 | 13 44.24 | -15 45.4 | | | | | |
| 1986 | 04 20 | 13 34.66 | -15 24.2 | 2.082 | 3.084 | 174.6 | 1.8 | 17.7 |
| 1986 | 04 30 | 13 25.41 | -14 58.4 | | | | | |
| 1986 | 05 10 | 13 17.29 | -14 32.3 | 2.161 | 3.101 | 154.1 | 8.2 | 18.1 |
| 1986 | 05 20 | 13 10.96 | -14 10.1 | | | | | |
| 1986 | 05 30 | 13 06.76 | -13 55.2 | 2.339 | 3.116 | 132.6 | 13.9 | 18.5 |
| 1986 | 06 09 | 13 04.81 | -13 49.6 | | | | | |
| 1986 | 06 19 | 13 05.07 | -13 54.4 | 2.585 | 3.128 | 113.2 | 17.4 | 18.8 |
| 1986 | 06 29 | 13 07.37 | -14 09.6 | | | | | |
| 1986 | 07 09 | 13 11.52 | -14 34.4 | 2.866 | 3.139 | 96.0 | 18.8 | 19.1 |

A923 NB a,e,i = 2.76, 0.32, 14 Elements MPC 8466

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 02.29 | -24 53.0 | 3.434 | 3.608 | 92.2 | 15.8 | 17.7 |
| 1986 | 02 09 | 14 05.54 | -25 32.5 | | | | | |
| 1986 | 02 19 | 14 06.95 | -26 03.2 | 3.125 | 3.593 | 110.5 | 14.9 | 17.5 |
| 1986 | 03 01 | 14 06.35 | -26 23.5 | | | | | |
| 1986 | 03 11 | 14 03.68 | -26 31.3 | 2.851 | 3.575 | 130.3 | 12.2 | 17.2 |
| 1986 | 03 21 | 13 59.00 | -26 24.6 | | | | | |
| 1986 | 03 31 | 13 52.57 | -26 01.9 | 2.647 | 3.554 | 151.0 | 7.8 | 16.9 |
| 1986 | 04 10 | 13 44.87 | -25 22.8 | | | | | |
| 1986 | 04 20 | 13 36.55 | -24 28.8 | 2.546 | 3.530 | 166.4 | 3.8 | 16.6 |
| 1986 | 04 30 | 13 28.37 | -23 23.4 | | | | | |
| 1986 | 05 10 | 13 21.03 | -22 11.4 | 2.561 | 3.504 | 155.2 | 6.9 | 16.7 |
| 1986 | 05 20 | 13 15.12 | -20 58.5 | | | | | |
| 1986 | 05 30 | 13 11.02 | -19 50.2 | 2.683 | 3.475 | 135.0 | 11.9 | 17.0 |
| 1986 | 06 09 | 13 08.90 | -18 50.3 | | | | | |
| 1986 | 06 19 | 13 08.81 | -18 01.8 | 2.882 | 3.443 | 115.4 | 15.5 | 17.2 |
| 1986 | 06 29 | 13 10.64 | -17 25.7 | | | | | |
| 1986 | 07 09 | 13 14.24 | -17 02.2 | 3.122 | 3.408 | 97.5 | 17.2 | 17.4 |

(3289) 1934 RP a,e,i = 2.33, 0.21, 2 Elements MPC 9952

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 03.89 | -11 24.2 | 2.446 | 2.738 | 96.5 | 20.9 | 19.4 |
| 1986 | 02 09 | 14 08.75 | -11 49.5 | | | | | |
| 1986 | 02 19 | 14 11.36 | -12 03.0 | 2.193 | 2.757 | 114.8 | 19.0 | 19.2 |
| 1986 | 03 01 | 14 11.49 | -12 04.0 | | | | | |
| 1986 | 03 11 | 14 09.00 | -11 51.8 | 1.977 | 2.774 | 135.5 | 14.5 | 18.8 |
| 1986 | 03 21 | 14 03.92 | -11 26.6 | | | | | |
| 1986 | 03 31 | 13 56.59 | -10 49.9 | 1.833 | 2.787 | 158.5 | 7.5 | 18.4 |
| 1986 | 04 10 | 13 47.63 | -10 04.3 | | | | | |
| 1986 | 04 20 | 13 37.95 | -09 14.5 | 1.794 | 2.797 | 176.8 | 1.1 | 18.1 |
| 1986 | 04 30 | 13 28.57 | -08 26.0 | | | | | |
| 1986 | 05 10 | 13 20.41 | -07 44.3 | 1.867 | 2.804 | 152.9 | 9.4 | 18.5 |
| 1986 | 05 20 | 13 14.18 | -07 13.7 | | | | | |
| 1986 | 05 30 | 13 10.26 | -06 56.5 | 2.037 | 2.808 | 131.0 | 15.8 | 18.9 |
| 1986 | 06 09 | 13 08.75 | -06 53.7 | | | | | |
| 1986 | 06 19 | 13 09.61 | -07 04.8 | 2.269 | 2.809 | 111.8 | 19.6 | 19.3 |
| 1986 | 06 29 | 13 12.63 | -07 28.5 | | | | | |
| 1986 | 07 09 | 13 17.58 | -08 03.2 | 2.531 | 2.807 | 94.9 | 21.2 | 19.6 |

1982 DQ6 a,e,i = 2.31, 0.09, 6 Elements MPC 10387

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 13 59.55 | -10 39.6 | 1.978 | 2.326 | 97.8 | 24.8 | 17.8 |
| 1986 | 02 09 | 14 06.33 | -11 33.6 | | | | | |
| 1986 | 02 19 | 14 10.62 | -12 16.5 | 1.751 | 2.345 | 114.9 | 22.5 | 17.5 |
| 1986 | 03 01 | 14 12.08 | -12 47.4 | | | | | |
| 1986 | 03 11 | 14 10.46 | -13 05.6 | 1.557 | 2.364 | 134.7 | 17.4 | 17.1 |
| 1986 | 03 21 | 14 05.70 | -13 10.2 | | | | | |
| 1986 | 03 31 | 13 58.14 | -13 01.8 | 1.429 | 2.382 | 157.4 | 9.3 | 16.7 |
| 1986 | 04 10 | 13 48.49 | -12 41.8 | | | | | |
| 1986 | 04 20 | 13 37.91 | -12 14.1 | 1.396 | 2.400 | 177.2 | 1.2 | 16.3 |
| 1986 | 04 30 | 13 27.74 | -11 44.2 | | | | | |
| 1986 | 05 10 | 13 19.12 | -11 17.9 | 1.469 | 2.416 | 153.8 | 10.6 | 16.8 |
| 1986 | 05 20 | 13 12.94 | -11 00.6 | | | | | |
| 1986 | 05 30 | 13 09.58 | -10 55.4 | 1.631 | 2.432 | 132.3 | 18.0 | 17.3 |
| 1986 | 06 09 | 13 09.09 | -11 03.5 | | | | | |
| 1986 | 06 19 | 13 11.32 | -11 25.1 | 1.853 | 2.446 | 113.8 | 22.3 | 17.7 |
| 1986 | 06 29 | 13 15.98 | -11 58.8 | | | | | |
| 1986 | 07 09 | 13 22.75 | -12 43.0 | 2.105 | 2.459 | 97.8 | 24.2 | 18.1 |

1975 VA9 a,e,i = 2.65, 0.16, 13 Elements MPC 9477

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 05.07 | -27 05.3 | 2.769 | 2.952 | 90.8 | 19.5 | 17.9 |
| 1986 | 02 09 | 14 10.32 | -28 14.8 | | | | | |
| 1986 | 02 19 | 14 13.44 | -29 15.6 | 2.516 | 2.972 | 107.8 | 18.5 | 17.7 |
| 1986 | 03 01 | 14 14.16 | -30 05.6 | | | | | |
| 1986 | 03 11 | 14 12.33 | -30 42.1 | 2.291 | 2.990 | 126.5 | 15.5 | 17.4 |
| 1986 | 03 21 | 14 07.94 | -31 01.9 | | | | | |
| 1986 | 03 31 | 14 01.26 | -31 02.0 | 2.126 | 3.006 | 146.0 | 10.7 | 17.1 |
| 1986 | 04 10 | 13 52.87 | -30 40.5 | | | | | |
| 1986 | 04 20 | 13 43.62 | -29 57.6 | 2.052 | 3.020 | 161.2 | 6.2 | 16.9 |
| 1986 | 04 30 | 13 34.51 | -28 56.9 | | | | | |
| 1986 | 05 10 | 13 26.48 | -27 44.0 | 2.086 | 3.033 | 155.2 | 8.0 | 17.0 |
| 1986 | 05 20 | 13 20.28 | -26 26.5 | | | | | |
| 1986 | 05 30 | 13 16.33 | -25 11.5 | 2.223 | 3.043 | 137.0 | 13.1 | 17.3 |
| 1986 | 06 09 | 13 14.78 | -24 04.6 | | | | | |
| 1986 | 06 19 | 13 15.60 | -23 09.4 | 2.435 | 3.052 | 118.4 | 17.0 | 17.6 |
| 1986 | 06 29 | 13 18.59 | -22 27.8 | | | | | |
| 1986 | 07 09 | 13 23.53 | -21 59.9 | 2.693 | 3.059 | 101.3 | 19.0 | 17.9 |

1981 ET38 a,e,i = 2.78, 0.16, 10 Elements MPC 8908

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 06.20 | -12 32.0 | 2.967 | 3.216 | 95.6 | 17.7 | 18.7 |
| 1986 | 02 09 | 14 10.76 | -12 36.3 | | | | | |
| 1986 | 02 19 | 14 13.45 | -12 28.5 | 2.679 | 3.213 | 114.2 | 16.3 | 18.4 |
| 1986 | 03 01 | 14 14.10 | -12 08.2 | | | | | |
| 1986 | 03 11 | 14 12.60 | -11 34.9 | 2.431 | 3.209 | 134.7 | 12.7 | 18.1 |
| 1986 | 03 21 | 14 09.01 | -10 49.1 | | | | | |
| 1986 | 03 31 | 14 03.57 | -09 52.6 | 2.258 | 3.202 | 157.2 | 7.0 | 17.7 |
| 1986 | 04 10 | 13 56.72 | -08 48.2 | | | | | |
| 1986 | 04 20 | 13 49.11 | -07 40.5 | 2.191 | 3.194 | 176.5 | 1.1 | 17.4 |
| 1986 | 04 30 | 13 41.51 | -06 34.7 | | | | | |
| 1986 | 05 10 | 13 34.64 | -05 36.0 | 2.240 | 3.184 | 155.1 | 7.7 | 17.7 |
| 1986 | 05 20 | 13 29.11 | -04 48.4 | | | | | |
| 1986 | 05 30 | 13 25.35 | -04 14.7 | 2.390 | 3.172 | 133.3 | 13.4 | 18.1 |
| 1986 | 06 09 | 13 23.54 | -03 55.6 | | | | | |
| 1986 | 06 19 | 13 23.75 | -03 51.0 | 2.609 | 3.159 | 113.8 | 17.1 | 18.4 |
| 1986 | 06 29 | 13 25.87 | -03 59.6 | | | | | |
| 1986 | 07 09 | 13 29.78 | -04 20.0 | 2.865 | 3.144 | 96.3 | 18.7 | 18.6 |

1984 UL2 a,e,i = 2.41, 0.22, 12 Elements MPC 9357

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 09.66 | -27 03.8 | 2.325 | 2.522 | 89.8 | 23.0 | 17.3 |
| 1986 | 02 09 | 14 16.47 | -28 27.9 | | | | | |
| 1986 | 02 19 | 14 20.87 | -29 42.3 | 2.111 | 2.568 | 106.2 | 21.7 | 17.1 |
| 1986 | 03 01 | 14 22.52 | -30 45.1 | | | | | |
| 1986 | 03 11 | 14 21.17 | -31 33.1 | 1.919 | 2.612 | 124.4 | 18.3 | 16.8 |
| 1986 | 03 21 | 14 16.74 | -32 02.4 | | | | | |
| 1986 | 03 31 | 14 09.52 | -32 09.0 | 1.780 | 2.654 | 144.0 | 12.8 | 16.5 |
| 1986 | 04 10 | 14 00.16 | -31 50.1 | | | | | |
| 1986 | 04 20 | 13 49.71 | -31 05.5 | 1.727 | 2.694 | 160.1 | 7.3 | 16.3 |
| 1986 | 04 30 | 13 39.44 | -29 59.1 | | | | | |
| 1986 | 05 10 | 13 30.48 | -28 38.2 | 1.779 | 2.731 | 155.7 | 8.8 | 16.5 |
| 1986 | 05 20 | 13 23.72 | -27 12.1 | | | | | |
| 1986 | 05 30 | 13 19.59 | -25 49.4 | 1.929 | 2.765 | 137.8 | 14.3 | 16.8 |
| 1986 | 06 09 | 13 18.19 | -24 36.6 | | | | | |
| 1986 | 06 19 | 13 19.41 | -23 37.7 | 2.155 | 2.797 | 119.4 | 18.5 | 17.2 |
| 1986 | 06 29 | 13 22.97 | -22 54.0 | | | | | |
| 1986 | 07 09 | 13 28.59 | -22 25.4 | 2.426 | 2.826 | 102.5 | 20.6 | 17.6 |

1978 VR9 a,e,i = 3.08, 0.16, 2 Elements MPC 8400

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 11.03 | -11 07.2 | 3.194 | 3.423 | 95.0 | 16.7 | 18.5 |
| 1986 | 02 09 | 14 14.87 | -11 22.9 | | | | | |
| 1986 | 02 19 | 14 16.89 | -11 28.9 | 2.924 | 3.442 | 113.7 | 15.2 | 18.3 |
| 1986 | 03 01 | 14 16.96 | -11 25.1 | | | | | |
| 1986 | 03 11 | 14 15.02 | -11 11.5 | 2.693 | 3.461 | 134.3 | 11.9 | 18.0 |
| 1986 | 03 21 | 14 11.14 | -10 48.5 | | | | | |
| 1986 | 03 31 | 14 05.59 | -10 17.5 | 2.538 | 3.478 | 156.6 | 6.6 | 17.7 |
| 1986 | 04 10 | 13 58.79 | -09 40.9 | | | | | |
| 1986 | 04 20 | 13 51.33 | -09 01.6 | 2.489 | 3.493 | 177.7 | 0.7 | 17.3 |
| 1986 | 04 30 | 13 43.90 | -08 23.4 | | | | | |
| 1986 | 05 10 | 13 37.13 | -07 49.8 | 2.558 | 3.508 | 156.7 | 6.5 | 17.7 |
| 1986 | 05 20 | 13 31.58 | -07 23.9 | | | | | |
| 1986 | 05 30 | 13 27.61 | -07 07.8 | 2.730 | 3.521 | 135.1 | 11.7 | 18.0 |
| 1986 | 06 09 | 13 25.41 | -07 02.3 | | | | | |
| 1986 | 06 19 | 13 25.03 | -07 07.7 | 2.976 | 3.532 | 115.4 | 15.1 | 18.3 |
| 1986 | 06 29 | 13 26.42 | -07 23.2 | | | | | |
| 1986 | 07 09 | 13 29.43 | -07 48.0 | 3.262 | 3.543 | 97.6 | 16.5 | 18.6 |

(3280) 1933 SJ a,e,i = 2.58, 0.17, 2 Elements MPC 9824

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 06.78 | -15 00.5 | 2.509 | 2.768 | 94.6 | 20.8 | 17.6 |
| 1986 | 02 09 | 14 13.24 | -15 44.6 | | | | | |
| 1986 | 02 19 | 14 17.75 | -16 19.2 | 2.208 | 2.735 | 111.9 | 19.6 | 17.3 |
| 1986 | 03 01 | 14 20.02 | -16 43.0 | | | | | |
| 1986 | 03 11 | 14 19.79 | -16 54.8 | 1.941 | 2.702 | 131.3 | 16.0 | 16.9 |
| 1986 | 03 21 | 14 16.92 | -16 53.3 | | | | | |
| 1986 | 03 31 | 14 11.53 | -16 37.8 | 1.738 | 2.667 | 153.0 | 9.8 | 16.4 |
| 1986 | 04 10 | 14 03.99 | -16 08.7 | | | | | |
| 1986 | 04 20 | 13 55.08 | -15 27.9 | 1.628 | 2.631 | 175.4 | 1.8 | 15.9 |
| 1986 | 04 30 | 13 45.81 | -14 40.0 | | | | | |
| 1986 | 05 10 | 13 37.27 | -13 50.8 | 1.627 | 2.594 | 158.7 | 8.1 | 16.1 |
| 1986 | 05 20 | 13 30.40 | -13 06.5 | | | | | |
| 1986 | 05 30 | 13 25.87 | -12 32.4 | 1.724 | 2.557 | 136.6 | 15.8 | 16.5 |
| 1986 | 06 09 | 13 23.98 | -12 11.7 | | | | | |
| 1986 | 06 19 | 13 24.78 | -12 05.9 | 1.888 | 2.519 | 117.1 | 21.0 | 16.8 |
| 1986 | 06 29 | 13 28.13 | -12 14.9 | | | | | |
| 1986 | 07 09 | 13 33.83 | -12 37.4 | 2.089 | 2.482 | 100.3 | 23.8 | 17.1 |

(3211) 1931 CE a,e,i = 2.73, 0.25, 10 Elements MPC 9466

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 19.55 | -22 08.9 | 3.048 | 3.193 | 89.4 | 18.0 | 18.8 |
| 1986 | 02 09 | 14 23.93 | -23 08.5 | | | | | |
| 1986 | 02 19 | 14 26.31 | -24 00.9 | 2.791 | 3.225 | 107.3 | 17.0 | 18.6 |
| 1986 | 03 01 | 14 26.49 | -24 44.7 | | | | | |
| 1986 | 03 11 | 14 24.33 | -25 18.3 | 2.561 | 3.255 | 126.9 | 14.1 | 18.3 |
| 1986 | 03 21 | 14 19.83 | -25 39.6 | | | | | |
| 1986 | 03 31 | 14 13.23 | -25 46.8 | 2.394 | 3.283 | 147.7 | 9.4 | 18.0 |
| 1986 | 04 10 | 14 04.99 | -25 38.7 | | | | | |
| 1986 | 04 20 | 13 55.82 | -25 15.8 | 2.325 | 3.308 | 165.8 | 4.3 | 17.8 |
| 1986 | 04 30 | 13 46.57 | -24 40.5 | | | | | |
| 1986 | 05 10 | 13 38.08 | -23 56.8 | 2.369 | 3.330 | 158.8 | 6.3 | 17.9 |
| 1986 | 05 20 | 13 31.05 | -23 09.9 | | | | | |
| 1986 | 05 30 | 13 25.94 | -22 25.1 | 2.520 | 3.350 | 138.9 | 11.5 | 18.3 |
| 1986 | 06 09 | 13 22.96 | -21 46.4 | | | | | |
| 1986 | 06 19 | 13 22.16 | -21 16.7 | 2.751 | 3.368 | 119.4 | 15.2 | 18.6 |
| 1986 | 06 29 | 13 23.41 | -20 57.4 | | | | | |
| 1986 | 07 09 | 13 26.54 | -20 48.9 | 3.029 | 3.383 | 101.6 | 17.1 | 18.8 |

1983 RX2 a,e,i = 2.46, 0.14, 6 Elements MPC 8534

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 15.36 | -07 27.4 | 2.486 | 2.755 | 95.1 | 20.9 | 19.1 |
| 1986 | 02 09 | 14 21.57 | -07 46.6 | | | | | |
| 1986 | 02 19 | 14 25.75 | -07 54.6 | 2.205 | 2.742 | 112.7 | 19.4 | 18.8 |
| 1986 | 03 01 | 14 27.63 | -07 51.4 | | | | | |
| 1986 | 03 11 | 14 26.98 | -07 37.0 | 1.957 | 2.727 | 132.4 | 15.6 | 18.4 |
| 1986 | 03 21 | 14 23.70 | -07 12.2 | | | | | |
| 1986 | 03 31 | 14 17.92 | -06 39.2 | 1.776 | 2.710 | 154.2 | 9.2 | 18.0 |
| 1986 | 04 10 | 14 10.06 | -06 00.8 | | | | | |
| 1986 | 04 20 | 14 00.86 | -05 21.8 | 1.692 | 2.692 | 173.4 | 2.5 | 17.5 |
| 1986 | 04 30 | 13 51.34 | -04 47.3 | | | | | |
| 1986 | 05 10 | 13 42.49 | -04 22.1 | 1.717 | 2.672 | 156.1 | 8.8 | 17.8 |
| 1986 | 05 20 | 13 35.23 | -04 09.9 | | | | | |
| 1986 | 05 30 | 13 30.16 | -04 12.6 | 1.840 | 2.650 | 134.4 | 15.9 | 18.2 |
| 1986 | 06 09 | 13 27.57 | -04 30.3 | | | | | |
| 1986 | 06 19 | 13 27.53 | -05 02.2 | 2.029 | 2.627 | 115.1 | 20.5 | 18.5 |
| 1986 | 06 29 | 13 29.89 | -05 46.6 | | | | | |
| 1986 | 07 09 | 13 34.46 | -06 41.5 | 2.253 | 2.602 | 98.3 | 22.7 | 18.8 |

1981 EJ10 a,e,i = 2.72, 0.18, 4 Elements MPC 7615

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 17.04 | -17 09.7 | 3.023 | 3.205 | 91.6 | 17.9 | 19.1 |
| 1986 | 02 09 | 14 22.02 | -17 38.5 | | | | | |
| 1986 | 02 19 | 14 25.13 | -17 57.7 | 2.735 | 3.206 | 109.7 | 16.9 | 18.9 |
| 1986 | 03 01 | 14 26.18 | -18 06.5 | | | | | |
| 1986 | 03 11 | 14 25.03 | -18 03.7 | 2.479 | 3.206 | 129.7 | 13.8 | 18.6 |
| 1986 | 03 21 | 14 21.65 | -17 48.6 | | | | | |
| 1986 | 03 31 | 14 16.25 | -17 21.0 | 2.289 | 3.203 | 151.7 | 8.5 | 18.2 |
| 1986 | 04 10 | 14 09.21 | -16 41.8 | | | | | |
| 1986 | 04 20 | 14 01.17 | -15 53.1 | 2.198 | 3.199 | 174.3 | 1.8 | 17.8 |
| 1986 | 04 30 | 13 52.91 | -14 59.0 | | | | | |
| 1986 | 05 10 | 13 45.22 | -14 04.0 | 2.222 | 3.192 | 160.7 | 6.0 | 18.1 |
| 1986 | 05 20 | 13 38.80 | -13 13.3 | | | | | |
| 1986 | 05 30 | 13 34.14 | -12 30.9 | 2.353 | 3.184 | 138.5 | 12.2 | 18.4 |
| 1986 | 06 09 | 13 31.48 | -11 59.5 | | | | | |
| 1986 | 06 19 | 13 30.94 | -11 40.5 | 2.562 | 3.173 | 118.4 | 16.4 | 18.7 |
| 1986 | 06 29 | 13 32.43 | -11 34.1 | | | | | |
| 1986 | 07 09 | 13 35.80 | -11 39.5 | 2.814 | 3.161 | 100.4 | 18.4 | 19.0 |

(3255) 1980 RA a,e,i = 2.37, 0.36, 21 Elements MPC 9688

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 41.04 | -33 46.7 | 3.059 | 3.069 | 81.3 | 18.5 | 19.7 |
| 1986 | 02 09 | 14 46.80 | -35 26.3 | | | | | |
| 1986 | 02 19 | 14 50.46 | -37 02.6 | 2.813 | 3.104 | 97.7 | 18.4 | 19.5 |
| 1986 | 03 01 | 14 51.69 | -38 34.3 | | | | | |
| 1986 | 03 11 | 14 50.14 | -39 58.6 | 2.582 | 3.134 | 115.1 | 16.7 | 19.3 |
| 1986 | 03 21 | 14 45.58 | -41 11.6 | | | | | |
| 1986 | 03 31 | 14 38.05 | -42 08.7 | 2.396 | 3.161 | 132.8 | 13.4 | 19.1 |
| 1986 | 04 10 | 14 27.86 | -42 44.6 | | | | | |
| 1986 | 04 20 | 14 15.78 | -42 54.9 | 2.288 | 3.183 | 147.7 | 9.7 | 18.9 |
| 1986 | 04 30 | 14 02.97 | -42 38.0 | | | | | |
| 1986 | 05 10 | 13 50.68 | -41 56.0 | 2.282 | 3.201 | 150.8 | 8.9 | 18.8 |
| 1986 | 05 20 | 13 40.07 | -40 54.5 | | | | | |
| 1986 | 05 30 | 13 31.92 | -39 41.8 | 2.378 | 3.215 | 139.3 | 11.9 | 19.0 |
| 1986 | 06 09 | 13 26.60 | -38 25.9 | | | | | |
| 1986 | 06 19 | 13 24.18 | -37 13.9 | 2.560 | 3.225 | 122.8 | 15.4 | 19.3 |
| 1986 | 06 29 | 13 24.48 | -36 10.6 | | | | | |
| 1986 | 07 09 | 13 27.22 | -35 18.9 | 2.796 | 3.231 | 106.2 | 17.6 | 19.6 |

1981 EA11 a,e,i = 2.68, 0.20, 11 Elements MPC 7615

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 31.70 | -22 49.3 | 3.069 | 3.165 | 86.5 | 18.1 | 19.5 |
| 1986 | 02 09 | 14 37.53 | -23 56.1 | | | | | |
| 1986 | 02 19 | 14 41.57 | -24 57.8 | 2.763 | 3.147 | 103.7 | 17.8 | 19.2 |
| 1986 | 03 01 | 14 43.54 | -25 53.5 | | | | | |
| 1986 | 03 11 | 14 43.20 | -26 41.6 | 2.480 | 3.127 | 122.5 | 15.5 | 18.9 |
| 1986 | 03 21 | 14 40.37 | -27 20.2 | | | | | |
| 1986 | 03 31 | 14 35.08 | -27 46.7 | 2.251 | 3.105 | 142.6 | 11.3 | 18.5 |
| 1986 | 04 10 | 14 27.58 | -27 58.8 | | | | | |
| 1986 | 04 20 | 14 18.43 | -27 54.7 | 2.110 | 3.080 | 161.8 | 5.8 | 18.2 |
| 1986 | 04 30 | 14 08.49 | -27 34.7 | | | | | |
| 1986 | 05 10 | 13 58.71 | -27 01.2 | 2.077 | 3.054 | 162.0 | 5.9 | 18.1 |
| 1986 | 05 20 | 13 50.08 | -26 19.0 | | | | | |
| 1986 | 05 30 | 13 43.32 | -25 33.9 | 2.153 | 3.025 | 143.1 | 11.6 | 18.4 |
| 1986 | 06 09 | 13 38.88 | -24 51.6 | | | | | |
| 1986 | 06 19 | 13 36.96 | -24 16.5 | 2.313 | 2.995 | 123.4 | 16.5 | 18.7 |
| 1986 | 06 29 | 13 37.53 | -23 51.4 | | | | | |
| 1986 | 07 09 | 13 40.42 | -23 37.7 | 2.524 | 2.962 | 105.5 | 19.3 | 18.9 |

1981 ES29 a,e,i = 2.86, 0.21, 8 Elements MPC 9677

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 02.26 | -16 06.9 | 1.932 | 2.248 | -1.56 | +3.4 | 16.2 |
| 1986 | 02 09 | 14 13.08 | -16 42.5 | | | | | |
| 1986 | 02 19 | 14 21.83 | -17 02.1 | 1.702 | 2.251 | -1.77 | +3.5 | 15.9 |
| 1986 | 03 01 | 14 28.15 | -17 04.2 | | | | | |
| 1986 | 03 11 | 14 31.72 | -16 47.4 | 1.501 | 2.259 | -2.04 | +4.1 | 15.5 |
| 1986 | 03 21 | 14 32.32 | -16 10.9 | | | | | |
| 1986 | 03 31 | 14 30.02 | -15 15.2 | 1.354 | 2.271 | -2.31 | +5.1 | 15.1 |
| 1986 | 04 10 | 14 25.20 | -14 02.7 | | | | | |
| 1986 | 04 20 | 14 18.64 | -12 38.7 | 1.289 | 2.288 | -2.44 | +6.2 | 14.6 |
| 1986 | 04 30 | 14 11.47 | -11 11.5 | | | | | |
| 1986 | 05 10 | 14 04.82 | -09 49.8 | 1.323 | 2.310 | -2.32 | +6.4 | 14.9 |
| 1986 | 05 20 | 13 59.73 | -08 41.7 | | | | | |
| 1986 | 05 30 | 13 56.85 | -07 52.5 | 1.452 | 2.335 | -2.03 | +5.7 | 15.4 |
| 1986 | 06 09 | 13 56.48 | -07 23.9 | | | | | |
| 1986 | 06 19 | 13 58.66 | -07 15.5 | 1.651 | 2.364 | -1.72 | +4.7 | 15.9 |
| 1986 | 06 29 | 14 03.20 | -07 25.0 | | | | | |
| 1986 | 07 09 | 14 09.87 | -07 49.4 | 1.895 | 2.397 | -1.47 | +3.7 | 16.3 |

(3321) 1975 TZ2 a,e,i = 2.55, 0.20, 7 Elements MPC 10156

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 32.36 | -09 58.0 | 2.860 | 3.031 | 90.4 | 19.0 | 19.0 |
| 1986 | 02 09 | 14 38.73 | -10 00.9 | | | | | |
| 1986 | 02 19 | 14 43.32 | -09 52.2 | 2.563 | 3.018 | 108.0 | 18.2 | 18.8 |
| 1986 | 03 01 | 14 45.90 | -09 31.8 | | | | | |
| 1986 | 03 11 | 14 46.25 | -08 59.4 | 2.293 | 3.002 | 127.4 | 15.2 | 18.4 |
| 1986 | 03 21 | 14 44.24 | -08 15.7 | | | | | |
| 1986 | 03 31 | 14 39.96 | -07 22.3 | 2.085 | 2.984 | 148.7 | 10.0 | 18.0 |
| 1986 | 04 10 | 14 33.65 | -06 22.1 | | | | | |
| 1986 | 04 20 | 14 25.84 | -05 19.4 | 1.971 | 2.963 | 169.0 | 3.7 | 17.6 |
| 1986 | 04 30 | 14 17.31 | -04 19.6 | | | | | |
| 1986 | 05 10 | 14 08.89 | -03 27.8 | 1.969 | 2.940 | 160.6 | 6.6 | 17.7 |
| 1986 | 05 20 | 14 01.44 | -02 48.7 | | | | | |
| 1986 | 05 30 | 13 55.62 | -02 25.0 | 2.072 | 2.915 | 139.1 | 13.2 | 18.1 |
| 1986 | 06 09 | 13 51.83 | -02 17.6 | | | | | |
| 1986 | 06 19 | 13 50.27 | -02 26.0 | 2.252 | 2.887 | 119.2 | 17.9 | 18.4 |
| 1986 | 06 29 | 13 50.94 | -02 48.7 | | | | | |
| 1986 | 07 09 | 13 53.72 | -03 23.6 | 2.475 | 2.857 | 101.5 | 20.4 | 18.6 |

1978 TR2 a,e,i = 2.85, 0.09, 1 Elements MPC 8391

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 31.21 | -15 59.7 | 2.962 | 3.100 | 88.7 | 18.5 | 18.7 |
| 1986 | 02 09 | 14 37.58 | -16 33.0 | | | | | |
| 1986 | 02 19 | 14 42.20 | -16 57.7 | 2.669 | 3.094 | 106.2 | 17.9 | 18.4 |
| 1986 | 03 01 | 14 44.82 | -17 13.2 | | | | | |
| 1986 | 03 11 | 14 45.25 | -17 18.7 | 2.403 | 3.087 | 125.4 | 15.2 | 18.1 |
| 1986 | 03 21 | 14 43.37 | -17 13.6 | | | | | |
| 1986 | 03 31 | 14 39.26 | -16 57.8 | 2.194 | 3.078 | 146.8 | 10.2 | 17.7 |
| 1986 | 04 10 | 14 33.17 | -16 31.5 | | | | | |
| 1986 | 04 20 | 14 25.63 | -15 56.3 | 2.075 | 3.069 | 169.8 | 3.3 | 17.3 |
| 1986 | 04 30 | 14 17.40 | -15 15.3 | | | | | |
| 1986 | 05 10 | 14 09.30 | -14 32.3 | 2.068 | 3.059 | 166.5 | 4.4 | 17.3 |
| 1986 | 05 20 | 14 02.15 | -13 51.9 | | | | | |
| 1986 | 05 30 | 13 56.59 | -13 18.3 | 2.169 | 3.047 | 144.0 | 11.3 | 17.7 |
| 1986 | 06 09 | 13 53.01 | -12 54.5 | | | | | |
| 1986 | 06 19 | 13 51.62 | -12 42.1 | 2.354 | 3.035 | 123.5 | 16.2 | 18.0 |
| 1986 | 06 29 | 13 52.41 | -12 41.7 | | | | | |
| 1986 | 07 09 | 13 55.26 | -12 52.6 | 2.590 | 3.022 | 105.3 | 18.9 | 18.3 |

1984 WK a,e,i = 1.95, 0.08, 18 Elements MPC 9418

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 10.21 | -33 50.1 | 1.866 | 2.070 | 87.4 | 28.4 | 18.2 |
| 1986 | 02 09 | 14 23.12 | -36 01.1 | | | | | |
| 1986 | 02 19 | 14 34.17 | -38 04.7 | 1.636 | 2.057 | 100.3 | 28.2 | 17.9 |
| 1986 | 03 01 | 14 42.83 | -39 59.0 | | | | | |
| 1986 | 03 11 | 14 48.43 | -41 41.4 | 1.419 | 2.042 | 114.5 | 26.3 | 17.6 |
| 1986 | 03 21 | 14 50.27 | -43 06.8 | | | | | |
| 1986 | 03 31 | 14 47.87 | -44 08.2 | 1.232 | 2.025 | 130.1 | 22.2 | 17.1 |
| 1986 | 04 10 | 14 41.07 | -44 36.2 | | | | | |
| 1986 | 04 20 | 14 30.55 | -44 20.4 | 1.097 | 2.008 | 145.6 | 16.4 | 16.7 |
| 1986 | 04 30 | 14 17.95 | -43 14.0 | | | | | |
| 1986 | 05 10 | 14 05.46 | -41 17.8 | 1.036 | 1.989 | 152.9 | 13.4 | 16.5 |
| 1986 | 05 20 | 13 55.34 | -38 43.2 | | | | | |
| 1986 | 05 30 | 13 49.04 | -35 48.9 | 1.060 | 1.970 | 143.5 | 17.8 | 16.6 |
| 1986 | 06 09 | 13 47.08 | -32 54.2 | | | | | |
| 1986 | 06 19 | 13 49.37 | -30 14.5 | 1.159 | 1.949 | 127.2 | 24.5 | 17.0 |
| 1986 | 06 29 | 13 55.41 | -27 58.1 | | | | | |
| 1986 | 07 09 | 14 04.61 | -26 07.7 | 1.309 | 1.929 | 111.5 | 29.4 | 17.3 |

1983 PA a,e,i = 2.41, 0.39, 20 Elements MPC 10160

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 01 30 | 14 43.82 | -36 24.2 | 3.277 | 3.255 | 80.1 | 17.3 | 18.9 |
| 1986 | 02 09 | 14 50.75 | -37 42.0 | | | | | |
| 1986 | 02 19 | 14 55.87 | -38 56.5 | 2.967 | 3.224 | 96.0 | 17.8 | 18.7 |
| 1986 | 03 01 | 14 58.84 | -40 06.2 | | | | | |
| 1986 | 03 11 | 14 59.30 | -41 08.9 | 2.667 | 3.189 | 113.0 | 16.7 | 18.4 |
| 1986 | 03 21 | 14 56.95 | -42 01.4 | | | | | |
| 1986 | 03 31 | 14 51.67 | -42 39.3 | 2.406 | 3.149 | 130.6 | 13.9 | 18.1 |
| 1986 | 04 10 | 14 43.58 | -42 57.6 | | | | | |
| 1986 | 04 20 | 14 33.20 | -42 51.2 | 2.216 | 3.106 | 146.8 | 10.2 | 17.8 |
| 1986 | 04 30 | 14 21.47 | -42 17.3 | | | | | |
| 1986 | 05 10 | 14 09.60 | -41 15.9 | 2.122 | 3.058 | 153.3 | 8.5 | 17.6 |
| 1986 | 05 20 | 13 58.82 | -39 51.5 | | | | | |
| 1986 | 05 30 | 13 50.16 | -38 12.0 | 2.133 | 3.006 | 143.1 | 11.7 | 17.7 |
| 1986 | 06 09 | 13 44.20 | -36 26.4 | | | | | |
| 1986 | 06 19 | 13 41.21 | -34 43.4 | 2.235 | 2.949 | 126.0 | 16.2 | 17.9 |
| 1986 | 06 29 | 13 41.12 | -33 09.5 | | | | | |
| 1986 | 07 09 | 13 43.71 | -31 48.7 | 2.400 | 2.889 | 108.6 | 19.5 | 18.1 |

(3192) 1982 BY1 a,e,i = 2.38, 0.17, 3 Elements MPC 9422

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 42.89 | -13 08.4 | 1.553 | 2.072 | 107.2 | 27.1 | 17.1 |
| 1986 | 03 01 | 14 49.58 | -13 39.5 | | | | | |
| 1986 | 03 11 | 14 53.16 | -13 57.6 | 1.373 | 2.103 | 124.6 | 22.9 | 16.8 |
| 1986 | 03 21 | 14 53.31 | -14 02.5 | | | | | |
| 1986 | 03 31 | 14 49.97 | -13 54.8 | 1.238 | 2.136 | 145.2 | 15.5 | 16.4 |
| 1986 | 04 10 | 14 43.45 | -13 35.6 | | | | | |
| 1986 | 04 20 | 14 34.56 | -13 07.7 | 1.177 | 2.171 | 168.5 | 5.3 | 15.9 |
| 1986 | 04 30 | 14 24.58 | -12 36.1 | | | | | |
| 1986 | 05 10 | 14 14.94 | -12 06.3 | 1.212 | 2.208 | 167.0 | 5.9 | 16.0 |
| 1986 | 05 20 | 14 06.96 | -11 44.3 | | | | | |
| 1986 | 05 30 | 14 01.53 | -11 34.5 | 1.342 | 2.246 | 144.5 | 15.2 | 16.6 |
| 1986 | 06 09 | 13 59.03 | -11 38.5 | | | | | |
| 1986 | 06 19 | 13 59.51 | -11 56.7 | 1.544 | 2.284 | 125.0 | 21.4 | 17.2 |
| 1986 | 06 29 | 14 02.75 | -12 27.7 | | | | | |
| 1986 | 07 09 | 14 08.44 | -13 09.3 | 1.792 | 2.323 | 108.4 | 24.5 | 17.6 |
| 1986 | 07 19 | 14 16.26 | -13 59.7 | | | | | |
| 1986 | 07 29 | 14 25.89 | -14 56.3 | 2.064 | 2.361 | 93.9 | 25.4 | 18.0 |

1983 QA a,e,i = 2.36, 0.26, 9 Elements MPC 8385

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 53.14 | -26 07.0 | 2.422 | 2.783 | 100.9 | 20.4 | 18.6 |
| 1986 | 03 01 | 14 57.31 | -27 07.0 | | | | | |
| 1986 | 03 11 | 14 59.04 | -27 59.9 | 2.128 | 2.747 | 118.7 | 18.5 | 18.3 |
| 1986 | 03 21 | 14 58.02 | -28 43.4 | | | | | |
| 1986 | 03 31 | 14 54.06 | -29 14.7 | 1.879 | 2.708 | 138.3 | 14.2 | 17.8 |
| 1986 | 04 10 | 14 47.21 | -29 30.4 | | | | | |
| 1986 | 04 20 | 14 37.92 | -29 27.0 | 1.706 | 2.666 | 158.4 | 8.0 | 17.4 |
| 1986 | 04 30 | 14 27.07 | -29 03.1 | | | | | |
| 1986 | 05 10 | 14 15.82 | -28 20.0 | 1.634 | 2.621 | 164.3 | 6.0 | 17.2 |
| 1986 | 05 20 | 14 05.49 | -27 22.9 | | | | | |
| 1986 | 05 30 | 13 57.18 | -26 19.5 | 1.668 | 2.573 | 146.2 | 12.7 | 17.4 |
| 1986 | 06 09 | 13 51.61 | -25 17.6 | | | | | |
| 1986 | 06 19 | 13 49.10 | -24 24.1 | 1.786 | 2.523 | 126.1 | 19.0 | 17.7 |
| 1986 | 06 29 | 13 49.64 | -23 43.1 | | | | | |
| 1986 | 07 09 | 13 53.05 | -23 16.3 | 1.956 | 2.470 | 108.2 | 23.0 | 18.0 |
| 1986 | 07 19 | 13 59.08 | -23 04.1 | | | | | |
| 1986 | 07 29 | 14 07.43 | -23 05.1 | 2.148 | 2.415 | 92.5 | 24.8 | 18.2 |

1937 GG a,e,i = 2.42, 0.23, 8 Elements MPC 7019

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 32.21 | -02 39.9 | 1.268 | 1.883 | 112.5 | 29.0 | 16.5 |
| 1986 | 03 01 | 14 41.60 | -02 40.9 | | | | | |
| 1986 | 03 11 | 14 47.92 | -02 28.7 | 1.092 | 1.876 | 128.1 | 24.6 | 16.1 |
| 1986 | 03 21 | 14 50.70 | -02 06.1 | | | | | |
| 1986 | 03 31 | 14 49.77 | -01 37.8 | 0.962 | 1.877 | 146.2 | 17.2 | 15.6 |
| 1986 | 04 10 | 14 45.27 | -01 10.3 | | | | | |
| 1986 | 04 20 | 14 37.92 | -00 51.6 | 0.899 | 1.885 | 163.9 | 8.5 | 15.2 |
| 1986 | 04 30 | 14 29.08 | -00 49.5 | | | | | |
| 1986 | 05 10 | 14 20.32 | -01 08.9 | 0.919 | 1.901 | 160.5 | 10.2 | 15.3 |
| 1986 | 05 20 | 14 13.19 | -01 51.8 | | | | | |
| 1986 | 05 30 | 14 08.77 | -02 56.0 | 1.019 | 1.923 | 142.2 | 18.8 | 15.8 |
| 1986 | 06 09 | 14 07.54 | -04 17.4 | | | | | |
| 1986 | 06 19 | 14 09.56 | -05 51.8 | 1.183 | 1.952 | 125.0 | 25.2 | 16.3 |
| 1986 | 06 29 | 14 14.60 | -07 34.7 | | | | | |
| 1986 | 07 09 | 14 22.30 | -09 22.5 | 1.389 | 1.986 | 110.3 | 28.7 | 16.8 |
| 1986 | 07 19 | 14 32.31 | -11 12.3 | | | | | |
| 1986 | 07 29 | 14 44.29 | -13 01.5 | 1.624 | 2.025 | 97.6 | 29.8 | 17.2 |

1979 FV1 a,e,i = 3.44, 0.03, 7 Elements MPC 10033

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 51.99 | -22 08.2 | 3.020 | 3.373 | 102.4 | 16.6 | 17.3 |
| 1986 | 03 01 | 14 54.76 | -22 47.4 | | | | | |
| 1986 | 03 11 | 14 55.49 | -23 19.2 | 2.754 | 3.377 | 121.2 | 14.6 | 17.1 |
| 1986 | 03 21 | 14 54.07 | -23 42.4 | | | | | |
| 1986 | 03 31 | 14 50.55 | -23 55.9 | 2.541 | 3.381 | 141.6 | 10.6 | 16.8 |
| 1986 | 04 10 | 14 45.14 | -23 58.8 | | | | | |
| 1986 | 04 20 | 14 38.26 | -23 50.6 | 2.413 | 3.385 | 162.6 | 5.1 | 16.4 |
| 1986 | 04 30 | 14 30.57 | -23 32.4 | | | | | |
| 1986 | 05 10 | 14 22.79 | -23 06.0 | 2.394 | 3.390 | 168.7 | 3.4 | 16.3 |
| 1986 | 05 20 | 14 15.69 | -22 35.1 | | | | | |
| 1986 | 05 30 | 14 09.88 | -22 03.4 | 2.485 | 3.394 | 148.9 | 8.9 | 16.7 |
| 1986 | 06 09 | 14 05.81 | -21 34.8 | | | | | |
| 1986 | 06 19 | 14 03.71 | -21 12.3 | 2.670 | 3.399 | 128.7 | 13.5 | 17.0 |
| 1986 | 06 29 | 14 03.65 | -20 57.8 | | | | | |
| 1986 | 07 09 | 14 05.55 | -20 52.2 | 2.916 | 3.404 | 110.2 | 16.3 | 17.3 |
| 1986 | 07 19 | 14 09.29 | -20 55.7 | | | | | |
| 1986 | 07 29 | 14 14.70 | -21 07.5 | 3.194 | 3.409 | 93.4 | 17.3 | 17.5 |

1982 DN a,e,i = 2.36, 0.17, 2 Elements MPC 6879

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 32.86 | -15 03.7 | 1.421 | 1.977 | -2.26 | +8.0 | 16.8 |
| 1986 | 03 01 | 14 42.01 | -15 35.5 | | | | | |
| 1986 | 03 11 | 14 48.33 | -15 51.4 | 1.221 | 1.969 | -2.70 | +9.1 | 16.4 |
| 1986 | 03 21 | 14 51.38 | -15 50.5 | | | | | |
| 1986 | 03 31 | 14 50.93 | -15 32.7 | 1.065 | 1.966 | -3.21 | +10.9 | 15.9 |
| 1986 | 04 10 | 14 47.05 | -14 58.6 | | | | | |
| 1986 | 04 20 | 14 40.35 | -14 11.2 | 0.976 | 1.968 | -3.58 | +12.9 | 15.4 |
| 1986 | 04 30 | 14 32.03 | -13 16.6 | | | | | |
| 1986 | 05 10 | 14 23.57 | -12 22.4 | 0.974 | 1.975 | -3.54 | +13.7 | 15.3 |
| 1986 | 05 20 | 14 16.52 | -11 37.6 | | | | | |
| 1986 | 05 30 | 14 12.01 | -11 08.6 | 1.060 | 1.987 | -3.11 | +12.5 | 15.9 |
| 1986 | 06 09 | 14 10.58 | -10 58.5 | | | | | |
| 1986 | 06 19 | 14 12.39 | -11 07.6 | 1.214 | 2.004 | -2.61 | +10.4 | 16.4 |
| 1986 | 06 29 | 14 17.24 | -11 33.8 | | | | | |
| 1986 | 07 09 | 14 24.78 | -12 14.2 | 1.413 | 2.025 | -2.20 | +8.3 | 16.9 |
| 1986 | 07 19 | 14 34.69 | -13 05.5 | | | | | |
| 1986 | 07 29 | 14 46.61 | -14 04.2 | 1.638 | 2.049 | -1.89 | +6.5 | 17.3 |

1977 QA5 a,e,i = 2.19, 0.12, 3 Elements MPC 9355

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 56.35 | -15 11.3 | 2.018 | 2.445 | 103.4 | 23.2 | 17.9 |
| 1986 | 03 01 | 15 01.32 | -15 36.9 | | | | | |
| 1986 | 03 11 | 15 03.62 | -15 52.2 | 1.778 | 2.449 | 121.6 | 20.2 | 17.6 |
| 1986 | 03 21 | 15 02.96 | -15 56.6 | | | | | |
| 1986 | 03 31 | 14 59.22 | -15 49.7 | 1.582 | 2.451 | 142.5 | 14.4 | 17.2 |
| 1986 | 04 10 | 14 52.52 | -15 31.8 | | | | | |
| 1986 | 04 20 | 14 43.42 | -15 04.0 | 1.464 | 2.451 | 166.0 | 5.7 | 16.7 |
| 1986 | 04 30 | 14 32.91 | -14 29.4 | | | | | |
| 1986 | 05 10 | 14 22.19 | -13 52.5 | 1.448 | 2.448 | 169.3 | 4.4 | 16.6 |
| 1986 | 05 20 | 14 12.56 | -13 19.0 | | | | | |
| 1986 | 05 30 | 14 05.02 | -12 54.2 | 1.537 | 2.443 | 145.8 | 13.5 | 17.1 |
| 1986 | 06 09 | 14 00.17 | -12 41.6 | | | | | |
| 1986 | 06 19 | 13 58.24 | -12 42.8 | 1.706 | 2.435 | 125.0 | 20.0 | 17.5 |
| 1986 | 06 29 | 13 59.18 | -12 57.9 | | | | | |
| 1986 | 07 09 | 14 02.75 | -13 25.6 | 1.922 | 2.426 | 107.2 | 23.6 | 17.8 |
| 1986 | 07 19 | 14 08.71 | -14 04.3 | | | | | |
| 1986 | 07 29 | 14 16.74 | -14 51.8 | 2.158 | 2.414 | 91.8 | 24.9 | 18.1 |

(3193) 1982 DJ a,e,i = 2.30, 0.11, 6 Elements MPC 9423

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 58.11 | -18 25.8 | 1.968 | 2.381 | 102.1 | 24.0 | 17.8 |
| 1986 | 03 01 | 15 03.46 | -19 14.5 | | | | | |
| 1986 | 03 11 | 15 06.06 | -19 54.1 | 1.747 | 2.402 | 120.0 | 21.0 | 17.5 |
| 1986 | 03 21 | 15 05.57 | -20 23.6 | | | | | |
| 1986 | 03 31 | 15 01.90 | -20 41.7 | 1.567 | 2.422 | 140.4 | 15.2 | 17.1 |
| 1986 | 04 10 | 14 55.17 | -20 47.0 | | | | | |
| 1986 | 04 20 | 14 45.96 | -20 38.8 | 1.462 | 2.441 | 163.2 | 6.8 | 16.7 |
| 1986 | 04 30 | 14 35.30 | -20 18.3 | | | | | |
| 1986 | 05 10 | 14 24.48 | -19 48.6 | 1.458 | 2.459 | 170.2 | 4.0 | 16.6 |
| 1986 | 05 20 | 14 14.81 | -19 15.4 | | | | | |
| 1986 | 05 30 | 14 07.31 | -18 44.7 | 1.557 | 2.475 | 147.8 | 12.6 | 17.1 |
| 1986 | 06 09 | 14 02.55 | -18 21.7 | | | | | |
| 1986 | 06 19 | 14 00.75 | -18 09.6 | 1.739 | 2.489 | 127.3 | 19.0 | 17.5 |
| 1986 | 06 29 | 14 01.82 | -18 09.7 | | | | | |
| 1986 | 07 09 | 14 05.50 | -18 21.8 | 1.972 | 2.502 | 109.4 | 22.5 | 17.9 |
| 1986 | 07 19 | 14 11.52 | -18 44.8 | | | | | |
| 1986 | 07 29 | 14 19.56 | -19 17.0 | 2.231 | 2.513 | 93.9 | 23.8 | 18.2 |

(3381) 1941 UG a,e,i = 2.45, 0.20, 4 Elements MPC 10397

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 59.64 | -20 44.8 | 2.600 | 2.954 | 101.1 | 19.2 | 18.8 |
| 1986 | 03 01 | 15 03.19 | -21 05.6 | | | | | |
| 1986 | 03 11 | 15 04.43 | -21 16.5 | 2.331 | 2.955 | 119.9 | 16.9 | 18.5 |
| 1986 | 03 21 | 15 03.17 | -21 16.5 | | | | | |
| 1986 | 03 31 | 14 59.39 | -21 04.5 | 2.109 | 2.952 | 140.9 | 12.3 | 18.1 |
| 1986 | 04 10 | 14 53.25 | -20 39.8 | | | | | |
| 1986 | 04 20 | 14 45.22 | -20 02.6 | 1.969 | 2.947 | 163.7 | 5.5 | 17.7 |
| 1986 | 04 30 | 14 36.06 | -19 15.1 | | | | | |
| 1986 | 05 10 | 14 26.68 | -18 20.8 | 1.937 | 2.939 | 171.0 | 3.1 | 17.6 |
| 1986 | 05 20 | 14 18.05 | -17 25.0 | | | | | |
| 1986 | 05 30 | 14 10.99 | -16 33.1 | 2.017 | 2.928 | 148.2 | 10.5 | 17.9 |
| 1986 | 06 09 | 14 06.00 | -15 49.7 | | | | | |
| 1986 | 06 19 | 14 03.37 | -15 17.9 | 2.188 | 2.915 | 127.0 | 16.2 | 18.3 |
| 1986 | 06 29 | 14 03.13 | -14 59.0 | | | | | |
| 1986 | 07 09 | 14 05.16 | -14 52.9 | 2.415 | 2.898 | 108.2 | 19.5 | 18.6 |
| 1986 | 07 19 | 14 09.30 | -14 58.8 | | | | | |
| 1986 | 07 29 | 14 15.32 | -15 15.3 | 2.666 | 2.880 | 91.6 | 20.6 | 18.8 |

1980 XW a,e,i = 2.35, 0.13, 6 Elements MPC 9755

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 48.58 | -20 12.5 | 1.950 | 2.386 | 103.7 | 23.7 | 17.2 |
| 1986 | 03 01 | 14 55.43 | -20 39.2 | | | | | |
| 1986 | 03 11 | 14 59.82 | -20 52.9 | 1.686 | 2.357 | 121.0 | 21.2 | 16.8 |
| 1986 | 03 21 | 15 01.38 | -20 51.8 | | | | | |
| 1986 | 03 31 | 14 59.90 | -20 34.4 | 1.466 | 2.328 | 140.9 | 15.7 | 16.3 |
| 1986 | 04 10 | 14 55.38 | -19 59.3 | | | | | |
| 1986 | 04 20 | 14 48.23 | -19 06.7 | 1.317 | 2.298 | 163.5 | 7.1 | 15.8 |
| 1986 | 04 30 | 14 39.33 | -17 59.4 | | | | | |
| 1986 | 05 10 | 14 29.88 | -16 43.1 | 1.265 | 2.269 | 171.7 | 3.7 | 15.5 |
| 1986 | 05 20 | 14 21.26 | -15 26.4 | | | | | |
| 1986 | 05 30 | 14 14.62 | -14 17.7 | 1.313 | 2.240 | 148.4 | 13.7 | 15.9 |
| 1986 | 06 09 | 14 10.70 | -13 23.8 | | | | | |
| 1986 | 06 19 | 14 09.85 | -12 48.4 | 1.439 | 2.212 | 127.7 | 21.3 | 16.3 |
| 1986 | 06 29 | 14 12.04 | -12 32.2 | | | | | |
| 1986 | 07 09 | 14 17.09 | -12 33.8 | 1.614 | 2.185 | 110.2 | 25.9 | 16.7 |
| 1986 | 07 19 | 14 24.71 | -12 51.0 | | | | | |
| 1986 | 07 29 | 14 34.59 | -13 20.7 | 1.812 | 2.159 | 95.4 | 27.9 | 17.0 |

6032 P-L a,e,i = 2.45, 0.16, 2 Elements MPC 8395

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 58.58 | -19 38.7 | 2.323 | 2.703 | 101.7 | 21.0 | 18.9 |
| 1986 | 03 01 | 15 03.63 | -20 11.4 | | | | | |
| 1986 | 03 11 | 15 06.34 | -20 35.1 | 2.043 | 2.678 | 119.7 | 18.8 | 18.5 |
| 1986 | 03 21 | 15 06.42 | -20 48.4 | | | | | |
| 1986 | 03 31 | 15 03.73 | -20 50.3 | 1.807 | 2.651 | 140.0 | 14.0 | 18.1 |
| 1986 | 04 10 | 14 58.30 | -20 39.6 | | | | | |
| 1986 | 04 20 | 14 50.53 | -20 15.8 | 1.647 | 2.623 | 162.5 | 6.6 | 17.6 |
| 1986 | 04 30 | 14 41.17 | -19 40.3 | | | | | |
| 1986 | 05 10 | 14 31.28 | -18 56.0 | 1.589 | 2.593 | 172.0 | 3.1 | 17.3 |
| 1986 | 05 20 | 14 22.01 | -18 08.4 | | | | | |
| 1986 | 05 30 | 14 14.42 | -17 23.5 | 1.638 | 2.562 | 149.2 | 11.7 | 17.7 |
| 1986 | 06 09 | 14 09.19 | -16 46.7 | | | | | |
| 1986 | 06 19 | 14 06.70 | -16 21.8 | 1.772 | 2.529 | 128.1 | 18.4 | 18.1 |
| 1986 | 06 29 | 14 07.02 | -16 10.6 | | | | | |
| 1986 | 07 09 | 14 10.01 | -16 13.1 | 1.961 | 2.496 | 109.8 | 22.5 | 18.4 |
| 1986 | 07 19 | 14 15.46 | -16 28.3 | | | | | |
| 1986 | 07 29 | 14 23.11 | -16 54.5 | 2.174 | 2.462 | 93.9 | 24.3 | 18.6 |

1981 EL21 a,e,i = 2.72, 0.09, 2 Elements MPC 10308

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 58.48 | -17 04.3 | 2.505 | 2.884 | 102.4 | 19.6 | 17.7 |
| 1986 | 03 01 | 15 02.97 | -17 18.2 | | | | | |
| 1986 | 03 11 | 15 05.26 | -17 22.0 | 2.230 | 2.869 | 120.9 | 17.3 | 17.3 |
| 1986 | 03 21 | 15 05.11 | -17 15.1 | | | | | |
| 1986 | 03 31 | 15 02.49 | -16 57.4 | 2.004 | 2.854 | 141.5 | 12.6 | 16.9 |
| 1986 | 04 10 | 14 57.49 | -16 29.0 | | | | | |
| 1986 | 04 20 | 14 50.54 | -15 51.1 | 1.858 | 2.838 | 164.2 | 5.5 | 16.5 |
| 1986 | 04 30 | 14 42.32 | -15 06.5 | | | | | |
| 1986 | 05 10 | 14 33.71 | -14 19.1 | 1.818 | 2.821 | 172.0 | 2.8 | 16.3 |
| 1986 | 05 20 | 14 25.69 | -13 33.9 | | | | | |
| 1986 | 05 30 | 14 19.08 | -12 55.5 | 1.886 | 2.803 | 149.0 | 10.7 | 16.7 |
| 1986 | 06 09 | 14 14.47 | -12 27.7 | | | | | |
| 1986 | 06 19 | 14 12.19 | -12 12.5 | 2.042 | 2.785 | 128.0 | 16.7 | 17.1 |
| 1986 | 06 29 | 14 12.31 | -12 10.6 | | | | | |
| 1986 | 07 09 | 14 14.74 | -12 21.2 | 2.254 | 2.767 | 109.6 | 20.3 | 17.4 |
| 1986 | 07 19 | 14 19.34 | -12 43.2 | | | | | |
| 1986 | 07 29 | 14 25.88 | -13 14.8 | 2.494 | 2.748 | 93.4 | 21.6 | 17.6 |

(3242) 1979 SG9 a,e,i = 2.68, 0.16, 12 Elements MPC 9592

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 02.11 | -12 56.1 | 2.560 | 2.940 | 102.7 | 19.1 | 18.2 |
| 1986 | 03 01 | 15 05.99 | -12 29.8 | | | | | |
| 1986 | 03 11 | 15 07.63 | -11 51.1 | 2.320 | 2.964 | 121.7 | 16.6 | 18.0 |
| 1986 | 03 21 | 15 06.89 | -11 00.2 | | | | | |
| 1986 | 03 31 | 15 03.81 | -09 58.7 | 2.131 | 2.986 | 142.5 | 11.7 | 17.6 |
| 1986 | 04 10 | 14 58.59 | -08 49.1 | | | | | |
| 1986 | 04 20 | 14 51.69 | -07 35.2 | 2.028 | 3.007 | 164.0 | 5.3 | 17.3 |
| 1986 | 04 30 | 14 43.82 | -06 22.4 | | | | | |
| 1986 | 05 10 | 14 35.76 | -05 16.0 | 2.036 | 3.025 | 166.0 | 4.6 | 17.3 |
| 1986 | 05 20 | 14 28.34 | -04 20.9 | | | | | |
| 1986 | 05 30 | 14 22.24 | -03 40.7 | 2.153 | 3.042 | 145.4 | 10.9 | 17.7 |
| 1986 | 06 09 | 14 17.92 | -03 16.5 | | | | | |
| 1986 | 06 19 | 14 15.64 | -03 08.5 | 2.357 | 3.058 | 125.2 | 15.8 | 18.0 |
| 1986 | 06 29 | 14 15.43 | -03 15.2 | | | | | |
| 1986 | 07 09 | 14 17.22 | -03 34.7 | 2.615 | 3.071 | 107.0 | 18.5 | 18.4 |
| 1986 | 07 19 | 14 20.87 | -04 04.7 | | | | | |
| 1986 | 07 29 | 14 26.19 | -04 43.1 | 2.898 | 3.082 | 90.7 | 19.2 | 18.6 |

1983 VV1 a,e,i = 3.10, 0.04, 3 Elements MPC 8540

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 01.57 | -19 45.6 | 2.815 | 3.155 | 101.0 | 17.9 | 17.6 |
| 1986 | 03 01 | 15 05.26 | -20 13.3 | | | | | |
| 1986 | 03 11 | 15 06.84 | -20 33.0 | 2.552 | 3.163 | 119.6 | 15.9 | 17.3 |
| 1986 | 03 21 | 15 06.16 | -20 43.9 | | | | | |
| 1986 | 03 31 | 15 03.21 | -20 45.3 | 2.338 | 3.170 | 140.1 | 11.7 | 17.0 |
| 1986 | 04 10 | 14 58.17 | -20 36.9 | | | | | |
| 1986 | 04 20 | 14 51.42 | -20 18.7 | 2.205 | 3.177 | 162.3 | 5.5 | 16.6 |
| 1986 | 04 30 | 14 43.61 | -19 52.2 | | | | | |
| 1986 | 05 10 | 14 35.52 | -19 19.9 | 2.179 | 3.184 | 172.9 | 2.3 | 16.4 |
| 1986 | 05 20 | 14 27.96 | -18 45.4 | | | | | |
| 1986 | 05 30 | 14 21.66 | -18 12.7 | 2.265 | 3.190 | 151.1 | 8.8 | 16.8 |
| 1986 | 06 09 | 14 17.09 | -17 45.4 | | | | | |
| 1986 | 06 19 | 14 14.56 | -17 26.1 | 2.444 | 3.196 | 130.2 | 14.1 | 17.2 |
| 1986 | 06 29 | 14 14.16 | -17 16.3 | | | | | |
| 1986 | 07 09 | 14 15.81 | -17 16.4 | 2.687 | 3.201 | 111.4 | 17.2 | 17.5 |
| 1986 | 07 19 | 14 19.41 | -17 26.1 | | | | | |
| 1986 | 07 29 | 14 24.76 | -17 44.3 | 2.962 | 3.207 | 94.6 | 18.4 | 17.7 |

6073 P-L a,e,i = 2.74, 0.05, 4 Elements MPC 7943

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 58.82 | -20 15.2 | 2.304 | 2.681 | 101.4 | 21.2 | 18.9 |
| 1986 | 03 01 | 15 04.30 | -20 57.8 | | | | | |
| 1986 | 03 11 | 15 07.46 | -21 32.0 | 2.044 | 2.672 | 119.1 | 18.9 | 18.5 |
| 1986 | 03 21 | 15 08.00 | -21 56.7 | | | | | |
| 1986 | 03 31 | 15 05.81 | -22 10.8 | 1.827 | 2.663 | 139.1 | 14.2 | 18.1 |
| 1986 | 04 10 | 15 00.96 | -22 12.9 | | | | | |
| 1986 | 04 20 | 14 53.82 | -22 02.2 | 1.685 | 2.655 | 160.9 | 7.1 | 17.7 |
| 1986 | 04 30 | 14 45.18 | -21 39.6 | | | | | |
| 1986 | 05 10 | 14 36.03 | -21 07.3 | 1.643 | 2.647 | 172.3 | 2.9 | 17.5 |
| 1986 | 05 20 | 14 27.48 | -20 30.0 | | | | | |
| 1986 | 05 30 | 14 20.52 | -19 53.2 | 1.706 | 2.640 | 151.1 | 10.7 | 17.9 |
| 1986 | 06 09 | 14 15.80 | -19 21.8 | | | | | |
| 1986 | 06 19 | 14 13.69 | -18 59.7 | 1.858 | 2.633 | 130.4 | 17.1 | 18.2 |
| 1986 | 06 29 | 14 14.23 | -18 49.1 | | | | | |
| 1986 | 07 09 | 14 17.31 | -18 50.1 | 2.068 | 2.627 | 112.2 | 21.0 | 18.6 |
| 1986 | 07 19 | 14 22.71 | -19 02.4 | | | | | |
| 1986 | 07 29 | 14 30.18 | -19 24.4 | 2.308 | 2.621 | 96.3 | 22.6 | 18.9 |

(3292) 2631 P-L a,e,i = 3.16, 0.18, 2 Elements MPC 9953

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 06.23 | -17 22.8 | 3.323 | 3.637 | 100.6 | 15.5 | 18.7 |
| 1986 | 03 01 | 15 08.63 | -17 34.8 | | | | | |
| 1986 | 03 11 | 15 09.14 | -17 39.4 | 3.053 | 3.651 | 119.9 | 13.6 | 18.4 |
| 1986 | 03 21 | 15 07.69 | -17 36.3 | | | | | |
| 1986 | 03 31 | 15 04.32 | -17 25.5 | 2.834 | 3.664 | 140.9 | 9.9 | 18.1 |
| 1986 | 04 10 | 14 59.20 | -17 07.3 | | | | | |
| 1986 | 04 20 | 14 52.71 | -16 42.6 | 2.701 | 3.675 | 163.4 | 4.5 | 17.8 |
| 1986 | 04 30 | 14 45.36 | -16 13.2 | | | | | |
| 1986 | 05 10 | 14 37.78 | -15 41.5 | 2.680 | 3.685 | 173.4 | 1.8 | 17.7 |
| 1986 | 05 20 | 14 30.62 | -15 10.3 | | | | | |
| 1986 | 05 30 | 14 24.45 | -14 42.8 | 2.775 | 3.693 | 150.8 | 7.7 | 18.0 |
| 1986 | 06 09 | 14 19.70 | -14 21.3 | | | | | |
| 1986 | 06 19 | 14 16.63 | -14 07.7 | 2.968 | 3.700 | 129.7 | 12.2 | 18.3 |
| 1986 | 06 29 | 14 15.35 | -14 02.7 | | | | | |
| 1986 | 07 09 | 14 15.84 | -14 06.5 | 3.226 | 3.705 | 110.4 | 14.9 | 18.6 |
| 1986 | 07 19 | 14 18.05 | -14 18.8 | | | | | |
| 1986 | 07 29 | 14 21.82 | -14 38.6 | 3.517 | 3.709 | 92.9 | 15.9 | 18.8 |

(3241) 1978 WH14 a,e,i = 3.04, 0.16, 2 Elements MPC 9591

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 05.89 | -15 33.6 | 2.987 | 3.322 | 101.1 | 17.0 | 18.3 |
| 1986 | 03 01 | 15 08.88 | -15 39.9 | | | | | |
| 1986 | 03 11 | 15 09.84 | -15 37.8 | 2.733 | 3.346 | 120.3 | 14.9 | 18.0 |
| 1986 | 03 21 | 15 08.67 | -15 27.3 | | | | | |
| 1986 | 03 31 | 15 05.41 | -15 08.7 | 2.531 | 3.368 | 141.2 | 10.7 | 17.7 |
| 1986 | 04 10 | 15 00.24 | -14 42.7 | | | | | |
| 1986 | 04 20 | 14 53.58 | -14 10.9 | 2.413 | 3.389 | 163.8 | 4.7 | 17.4 |
| 1986 | 04 30 | 14 46.00 | -13 35.8 | | | | | |
| 1986 | 05 10 | 14 38.19 | -13 00.2 | 2.406 | 3.409 | 172.3 | 2.3 | 17.3 |
| 1986 | 05 20 | 14 30.88 | -12 27.7 | | | | | |
| 1986 | 05 30 | 14 24.68 | -12 01.2 | 2.513 | 3.428 | 149.9 | 8.5 | 17.7 |
| 1986 | 06 09 | 14 20.02 | -11 43.0 | | | | | |
| 1986 | 06 19 | 14 17.19 | -11 34.4 | 2.714 | 3.445 | 129.0 | 13.3 | 18.0 |
| 1986 | 06 29 | 14 16.27 | -11 35.9 | | | | | |
| 1986 | 07 09 | 14 17.21 | -11 46.9 | 2.979 | 3.461 | 110.0 | 16.0 | 18.3 |
| 1986 | 07 19 | 14 19.92 | -12 06.7 | | | | | |
| 1986 | 07 29 | 14 24.23 | -12 34.0 | 3.274 | 3.475 | 92.8 | 17.0 | 18.6 |

(3243) 1980 DC a,e,i = 3.04, 0.10, 9 Elements MPC 9592

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 04.97 | -24 40.5 | 2.578 | 2.898 | 98.8 | 19.7 | 16.7 |
| 1986 | 03 01 | 15 10.24 | -25 43.3 | | | | | |
| 1986 | 03 11 | 15 13.32 | -26 40.3 | 2.300 | 2.881 | 116.2 | 18.0 | 16.4 |
| 1986 | 03 21 | 15 13.94 | -27 30.3 | | | | | |
| 1986 | 03 31 | 15 11.94 | -28 11.4 | 2.065 | 2.864 | 135.4 | 14.2 | 16.1 |
| 1986 | 04 10 | 15 07.34 | -28 41.2 | | | | | |
| 1986 | 04 20 | 15 00.45 | -28 57.2 | 1.903 | 2.848 | 155.5 | 8.4 | 15.7 |
| 1986 | 04 30 | 14 51.91 | -28 58.0 | | | | | |
| 1986 | 05 10 | 14 42.65 | -28 43.6 | 1.838 | 2.833 | 167.6 | 4.4 | 15.4 |
| 1986 | 05 20 | 14 33.74 | -28 16.8 | | | | | |
| 1986 | 05 30 | 14 26.20 | -27 42.4 | 1.879 | 2.818 | 152.6 | 9.5 | 15.7 |
| 1986 | 06 09 | 14 20.73 | -27 06.0 | | | | | |
| 1986 | 06 19 | 14 17.80 | -26 32.9 | 2.013 | 2.805 | 132.9 | 15.4 | 16.0 |
| 1986 | 06 29 | 14 17.52 | -26 07.0 | | | | | |
| 1986 | 07 09 | 14 19.81 | -25 50.4 | 2.211 | 2.793 | 114.7 | 19.3 | 16.3 |
| 1986 | 07 19 | 14 24.51 | -25 44.0 | | | | | |
| 1986 | 07 29 | 14 31.37 | -25 47.5 | 2.444 | 2.782 | 98.5 | 21.2 | 16.6 |

1980 OE a,e,i = 2.17, 0.19, 1 Elements MPC 5651

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 02.69 | -18 51.7 | 1.840 | 2.248 | 101.0 | 25.6 | 18.1 |
| 1986 | 03 01 | 15 11.42 | -19 33.8 | | | | | |
| 1986 | 03 11 | 15 17.87 | -20 06.1 | 1.567 | 2.206 | 117.2 | 23.6 | 17.7 |
| 1986 | 03 21 | 15 21.56 | -20 27.7 | | | | | |
| 1986 | 03 31 | 15 22.09 | -20 37.5 | 1.330 | 2.163 | 136.0 | 18.7 | 17.1 |
| 1986 | 04 10 | 15 19.19 | -20 33.8 | | | | | |
| 1986 | 04 20 | 15 12.91 | -20 15.6 | 1.155 | 2.119 | 157.7 | 10.3 | 16.5 |
| 1986 | 04 30 | 15 03.87 | -19 42.8 | | | | | |
| 1986 | 05 10 | 14 53.20 | -18 57.7 | 1.066 | 2.075 | 176.9 | 1.5 | 15.9 |
| 1986 | 05 20 | 14 42.49 | -18 06.3 | | | | | |
| 1986 | 05 30 | 14 33.37 | -17 16.5 | 1.072 | 2.031 | 153.6 | 12.8 | 16.4 |
| 1986 | 06 09 | 14 27.06 | -16 36.2 | | | | | |
| 1986 | 06 19 | 14 24.28 | -16 11.0 | 1.158 | 1.988 | 132.1 | 22.3 | 16.8 |
| 1986 | 06 29 | 14 25.19 | -16 03.3 | | | | | |
| 1986 | 07 09 | 14 29.64 | -16 13.0 | 1.294 | 1.947 | 114.3 | 28.4 | 17.1 |
| 1986 | 07 19 | 14 37.33 | -16 38.1 | | | | | |
| 1986 | 07 29 | 14 47.88 | -17 15.6 | 1.454 | 1.908 | 99.7 | 31.6 | 17.4 |

1979 MV6 a,e,i = 2.42, 0.06, 4 Elements MPC 8675

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 08.32 | -19 00.5 | 2.115 | 2.480 | 99.6 | 23.1 | 18.6 |
| 1986 | 03 01 | 15 15.53 | -19 22.7 | | | | | |
| 1986 | 03 11 | 15 20.41 | -19 34.0 | 1.856 | 2.468 | 116.8 | 21.0 | 18.2 |
| 1986 | 03 21 | 15 22.60 | -19 33.3 | | | | | |
| 1986 | 03 31 | 15 21.89 | -19 20.1 | 1.634 | 2.456 | 136.4 | 16.3 | 17.8 |
| 1986 | 04 10 | 15 18.22 | -18 53.8 | | | | | |
| 1986 | 04 20 | 15 11.85 | -18 14.7 | 1.480 | 2.443 | 158.6 | 8.6 | 17.3 |
| 1986 | 04 30 | 15 03.48 | -17 24.9 | | | | | |
| 1986 | 05 10 | 14 54.11 | -16 28.3 | 1.421 | 2.430 | 177.4 | 1.1 | 16.8 |
| 1986 | 05 20 | 14 44.99 | -15 31.0 | | | | | |
| 1986 | 05 30 | 14 37.26 | -14 39.5 | 1.466 | 2.417 | 153.7 | 10.7 | 17.3 |
| 1986 | 06 09 | 14 31.76 | -13 59.0 | | | | | |
| 1986 | 06 19 | 14 28.99 | -13 33.2 | 1.599 | 2.404 | 132.3 | 18.2 | 17.8 |
| 1986 | 06 29 | 14 29.06 | -13 23.2 | | | | | |
| 1986 | 07 09 | 14 31.88 | -13 28.1 | 1.791 | 2.391 | 113.9 | 22.9 | 18.1 |
| 1986 | 07 19 | 14 37.23 | -13 46.5 | | | | | |
| 1986 | 07 29 | 14 44.83 | -14 15.8 | 2.013 | 2.378 | 98.1 | 25.0 | 18.4 |

A924 EG a,e,i = 2.36, 0.16, 1 Elements MPC 9305

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 14 59.06 | -15 45.5 | 1.534 | 1.999 | 102.7 | 28.9 | 17.1 |
| 1986 | 03 01 | 15 09.40 | -16 21.2 | | | | | |
| 1986 | 03 11 | 15 17.04 | -16 43.9 | 1.337 | 2.008 | 118.3 | 25.8 | 16.7 |
| 1986 | 03 21 | 15 21.51 | -16 53.3 | | | | | |
| 1986 | 03 31 | 15 22.48 | -16 49.6 | 1.175 | 2.022 | 136.9 | 19.7 | 16.2 |
| 1986 | 04 10 | 15 19.85 | -16 33.1 | | | | | |
| 1986 | 04 20 | 15 13.92 | -16 05.2 | 1.072 | 2.041 | 158.6 | 10.3 | 15.8 |
| 1986 | 04 30 | 15 05.61 | -15 29.2 | | | | | |
| 1986 | 05 10 | 14 56.21 | -14 49.9 | 1.053 | 2.062 | 176.8 | 1.6 | 15.4 |
| 1986 | 05 20 | 14 47.31 | -14 14.0 | | | | | |
| 1986 | 05 30 | 14 40.27 | -13 47.5 | 1.128 | 2.087 | 154.1 | 12.2 | 16.0 |
| 1986 | 06 09 | 14 35.96 | -13 34.6 | | | | | |
| 1986 | 06 19 | 14 34.79 | -13 37.2 | 1.281 | 2.115 | 133.7 | 20.3 | 16.6 |
| 1986 | 06 29 | 14 36.74 | -13 54.6 | | | | | |
| 1986 | 07 09 | 14 41.56 | -14 25.0 | 1.490 | 2.145 | 116.4 | 25.1 | 17.0 |
| 1986 | 07 19 | 14 48.94 | -15 05.9 | | | | | |
| 1986 | 07 29 | 14 58.51 | -15 54.4 | 1.731 | 2.177 | 101.7 | 27.2 | 17.5 |

(3290) 1973 SZ1 a,e,i = 3.98, 0.12, 3 Elements MPC 9952

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 15.56 | -16 04.6 | 3.232 | 3.521 | 98.8 | 16.1 | 17.7 |
| 1986 | 03 01 | 15 19.53 | -16 18.5 | | | | | |
| 1986 | 03 11 | 15 21.68 | -16 25.5 | 2.961 | 3.529 | 117.3 | 14.5 | 17.5 |
| 1986 | 03 21 | 15 21.89 | -16 25.7 | | | | | |
| 1986 | 03 31 | 15 20.16 | -16 19.2 | 2.737 | 3.539 | 137.5 | 11.0 | 17.2 |
| 1986 | 04 10 | 15 16.59 | -16 06.6 | | | | | |
| 1986 | 04 20 | 15 11.47 | -15 48.7 | 2.592 | 3.549 | 159.3 | 5.8 | 16.9 |
| 1986 | 04 30 | 15 05.25 | -15 27.2 | | | | | |
| 1986 | 05 10 | 14 58.52 | -15 04.1 | 2.552 | 3.561 | 177.3 | 0.8 | 16.6 |
| 1986 | 05 20 | 14 51.91 | -14 42.0 | | | | | |
| 1986 | 05 30 | 14 46.06 | -14 23.4 | 2.625 | 3.573 | 155.6 | 6.7 | 17.0 |
| 1986 | 06 09 | 14 41.43 | -14 10.3 | | | | | |
| 1986 | 06 19 | 14 38.37 | -14 04.6 | 2.799 | 3.587 | 134.7 | 11.6 | 17.3 |
| 1986 | 06 29 | 14 37.07 | -14 06.9 | | | | | |
| 1986 | 07 09 | 14 37.54 | -14 17.3 | 3.045 | 3.601 | 115.5 | 14.8 | 17.6 |
| 1986 | 07 19 | 14 39.77 | -14 35.4 | | | | | |
| 1986 | 07 29 | 14 43.61 | -15 00.3 | 3.332 | 3.616 | 98.0 | 16.1 | 17.9 |

4081 P-L a,e,i = 2.24, 0.15, 7 Elements MPC 5980

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 15.15 | -16 45.2 | 2.169 | 2.516 | 98.7 | 22.9 | 19.5 |
| 1986 | 03 01 | 15 22.17 | -16 45.5 | | | | | |
| 1986 | 03 11 | 15 26.89 | -16 33.3 | 1.898 | 2.499 | 116.1 | 20.9 | 19.2 |
| 1986 | 03 21 | 15 28.96 | -16 07.8 | | | | | |
| 1986 | 03 31 | 15 28.16 | -15 28.9 | 1.665 | 2.481 | 135.8 | 16.3 | 18.8 |
| 1986 | 04 10 | 15 24.41 | -14 36.9 | | | | | |
| 1986 | 04 20 | 15 17.92 | -13 33.5 | 1.499 | 2.460 | 158.0 | 8.8 | 18.3 |
| 1986 | 04 30 | 15 09.33 | -12 22.4 | | | | | |
| 1986 | 05 10 | 14 59.58 | -11 09.3 | 1.430 | 2.436 | 173.7 | 2.6 | 17.9 |
| 1986 | 05 20 | 14 49.90 | -10 01.2 | | | | | |
| 1986 | 05 30 | 14 41.46 | -09 04.8 | 1.467 | 2.411 | 152.3 | 11.3 | 18.3 |
| 1986 | 06 09 | 14 35.14 | -08 24.9 | | | | | |
| 1986 | 06 19 | 14 31.50 | -08 03.7 | 1.592 | 2.384 | 130.9 | 18.8 | 18.6 |
| 1986 | 06 29 | 14 30.72 | -08 01.1 | | | | | |
| 1986 | 07 09 | 14 32.72 | -08 15.4 | 1.773 | 2.355 | 112.3 | 23.5 | 19.0 |
| 1986 | 07 19 | 14 37.33 | -08 44.0 | | | | | |
| 1986 | 07 29 | 14 44.28 | -09 24.1 | 1.981 | 2.325 | 96.4 | 25.7 | 19.3 |

(3244) 4008 P-L a,e,i = 2.24, 0.16, 4 Elements MPC 9592

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 22.89 | -22 15.4 | 2.324 | 2.611 | 95.5 | 22.1 | 19.4 |
| 1986 | 03 01 | 15 29.36 | -22 56.9 | | | | | |
| 1986 | 03 11 | 15 33.50 | -23 31.1 | 2.057 | 2.608 | 112.8 | 20.5 | 19.0 |
| 1986 | 03 21 | 15 34.95 | -23 57.1 | | | | | |
| 1986 | 03 31 | 15 33.47 | -24 13.7 | 1.823 | 2.603 | 132.4 | 16.5 | 18.7 |
| 1986 | 04 10 | 15 28.96 | -24 19.2 | | | | | |
| 1986 | 04 20 | 15 21.61 | -24 11.6 | 1.652 | 2.594 | 154.3 | 9.7 | 18.2 |
| 1986 | 04 30 | 15 12.05 | -23 50.4 | | | | | |
| 1986 | 05 10 | 15 01.25 | -23 16.2 | 1.577 | 2.583 | 174.0 | 2.3 | 17.8 |
| 1986 | 05 20 | 14 50.47 | -22 32.7 | | | | | |
| 1986 | 05 30 | 14 40.92 | -21 45.4 | 1.609 | 2.569 | 156.1 | 9.2 | 18.1 |
| 1986 | 06 09 | 14 33.56 | -21 00.7 | | | | | |
| 1986 | 06 19 | 14 28.94 | -20 23.9 | 1.737 | 2.552 | 134.3 | 16.6 | 18.5 |
| 1986 | 06 29 | 14 27.26 | -19 58.5 | | | | | |
| 1986 | 07 09 | 14 28.44 | -19 45.7 | 1.929 | 2.533 | 115.0 | 21.3 | 18.9 |
| 1986 | 07 19 | 14 32.28 | -19 45.7 | | | | | |
| 1986 | 07 29 | 14 38.49 | -19 57.0 | 2.154 | 2.511 | 98.3 | 23.6 | 19.1 |

(3229) A916 PC a,e,i = 2.31, 0.15, 9 Elements MPC 9585

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 15.99 | -29 15.6 | 2.117 | 2.414 | 95.1 | 24.1 | 17.0 |
| 1986 | 03 01 | 15 25.01 | -30 32.9 | | | | | |
| 1986 | 03 11 | 15 31.84 | -31 44.8 | 1.842 | 2.382 | 110.7 | 23.0 | 16.7 |
| 1986 | 03 21 | 15 36.00 | -32 49.6 | | | | | |
| 1986 | 03 31 | 15 37.06 | -33 45.3 | 1.596 | 2.349 | 128.1 | 19.5 | 16.2 |
| 1986 | 04 10 | 15 34.67 | -34 28.2 | | | | | |
| 1986 | 04 20 | 15 28.78 | -34 53.2 | 1.406 | 2.314 | 147.1 | 13.6 | 15.8 |
| 1986 | 04 30 | 15 19.86 | -34 55.3 | | | | | |
| 1986 | 05 10 | 15 08.92 | -34 30.7 | 1.295 | 2.279 | 162.8 | 7.5 | 15.3 |
| 1986 | 05 20 | 14 57.49 | -33 40.0 | | | | | |
| 1986 | 05 30 | 14 47.26 | -32 28.9 | 1.280 | 2.244 | 155.9 | 10.6 | 15.4 |
| 1986 | 06 09 | 14 39.58 | -31 07.2 | | | | | |
| 1986 | 06 19 | 14 35.30 | -29 45.6 | 1.355 | 2.210 | 137.1 | 18.3 | 15.7 |
| 1986 | 06 29 | 14 34.69 | -28 32.5 | | | | | |
| 1986 | 07 09 | 14 37.61 | -27 32.9 | 1.493 | 2.175 | 119.0 | 24.1 | 16.1 |
| 1986 | 07 19 | 14 43.79 | -26 48.8 | | | | | |
| 1986 | 07 29 | 14 52.82 | -26 19.5 | 1.667 | 2.142 | 103.3 | 27.5 | 16.3 |

(3277) 1984 AF1 a,e,i = 3.14, 0.27, 9 Elements MPC 9764

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 33.08 | -12 31.0 | 3.707 | 3.927 | 95.5 | 14.5 | 18.0 |
| 1986 | 03 01 | 15 36.08 | -12 32.5 | | | | | |
| 1986 | 03 11 | 15 37.42 | -12 28.1 | 3.393 | 3.909 | 114.4 | 13.4 | 17.8 |
| 1986 | 03 21 | 15 36.98 | -12 18.1 | | | | | |
| 1986 | 03 31 | 15 34.71 | -12 03.2 | 3.121 | 3.890 | 134.8 | 10.5 | 17.5 |
| 1986 | 04 10 | 15 30.68 | -11 44.2 | | | | | |
| 1986 | 04 20 | 15 25.07 | -11 22.4 | 2.927 | 3.868 | 156.3 | 6.0 | 17.2 |
| 1986 | 04 30 | 15 18.27 | -10 59.4 | | | | | |
| 1986 | 05 10 | 15 10.76 | -10 37.4 | 2.840 | 3.844 | 173.1 | 1.8 | 16.9 |
| 1986 | 05 20 | 15 03.13 | -10 18.4 | | | | | |
| 1986 | 05 30 | 14 55.98 | -10 04.8 | 2.871 | 3.819 | 155.9 | 6.2 | 17.1 |
| 1986 | 06 09 | 14 49.82 | -09 58.0 | | | | | |
| 1986 | 06 19 | 14 45.06 | -09 59.2 | 3.007 | 3.792 | 134.7 | 11.0 | 17.4 |
| 1986 | 06 29 | 14 41.95 | -10 08.9 | | | | | |
| 1986 | 07 09 | 14 40.59 | -10 26.8 | 3.219 | 3.762 | 114.9 | 14.2 | 17.6 |
| 1986 | 07 19 | 14 40.99 | -10 52.4 | | | | | |
| 1986 | 07 29 | 14 43.08 | -11 24.8 | 3.472 | 3.731 | 96.8 | 15.7 | 17.8 |

(3233) 1977 RA6 a,e,i = 2.23, 0.10, 4 Elements MPC 9586

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 28.81 | -21 50.6 | 2.157 | 2.438 | 94.3 | 23.8 | 17.6 |
| 1986 | 03 01 | 15 36.68 | -22 36.8 | | | | | |
| 1986 | 03 11 | 15 42.20 | -23 15.7 | 1.908 | 2.446 | 111.0 | 22.3 | 17.3 |
| 1986 | 03 21 | 15 44.96 | -23 46.9 | | | | | |
| 1986 | 03 31 | 15 44.67 | -24 09.4 | 1.687 | 2.452 | 130.0 | 18.2 | 16.9 |
| 1986 | 04 10 | 15 41.14 | -24 21.6 | | | | | |
| 1986 | 04 20 | 15 34.50 | -24 21.7 | 1.525 | 2.455 | 151.6 | 11.2 | 16.5 |
| 1986 | 04 30 | 15 25.30 | -24 08.6 | | | | | |
| 1986 | 05 10 | 15 14.51 | -23 42.2 | 1.452 | 2.457 | 173.2 | 2.8 | 16.0 |
| 1986 | 05 20 | 15 03.46 | -23 05.5 | | | | | |
| 1986 | 05 30 | 14 53.49 | -22 23.8 | 1.483 | 2.457 | 159.0 | 8.5 | 16.3 |
| 1986 | 06 09 | 14 45.68 | -21 43.3 | | | | | |
| 1986 | 06 19 | 14 40.69 | -21 09.7 | 1.610 | 2.454 | 137.1 | 16.4 | 16.8 |
| 1986 | 06 29 | 14 38.76 | -20 46.7 | | | | | |
| 1986 | 07 09 | 14 39.82 | -20 35.9 | 1.804 | 2.450 | 117.8 | 21.5 | 17.1 |
| 1986 | 07 19 | 14 43.66 | -20 37.3 | | | | | |
| 1986 | 07 29 | 14 49.97 | -20 49.6 | 2.035 | 2.444 | 101.2 | 24.1 | 17.5 |

1981 NU a,e,i = 3.19, 0.14, 2 Elements MPC 9957

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 20.74 | -15 33.4 | 2.435 | 2.748 | 97.7 | 20.9 | 16.2 |
| 1986 | 03 01 | 15 27.78 | -15 49.8 | | | | | |
| 1986 | 03 11 | 15 32.73 | -15 57.3 | 2.177 | 2.747 | 114.8 | 19.2 | 15.9 |
| 1986 | 03 21 | 15 35.34 | -15 56.1 | | | | | |
| 1986 | 03 31 | 15 35.45 | -15 46.7 | 1.958 | 2.747 | 134.0 | 15.2 | 15.6 |
| 1986 | 04 10 | 15 33.03 | -15 29.6 | | | | | |
| 1986 | 04 20 | 15 28.30 | -15 06.0 | 1.805 | 2.750 | 155.4 | 8.8 | 15.2 |
| 1986 | 04 30 | 15 21.76 | -14 38.1 | | | | | |
| 1986 | 05 10 | 15 14.15 | -14 08.6 | 1.747 | 2.756 | 176.0 | 1.5 | 14.8 |
| 1986 | 05 20 | 15 06.40 | -13 41.2 | | | | | |
| 1986 | 05 30 | 14 59.44 | -13 19.4 | 1.796 | 2.763 | 158.2 | 7.8 | 15.2 |
| 1986 | 06 09 | 14 54.02 | -13 06.1 | | | | | |
| 1986 | 06 19 | 14 50.66 | -13 03.4 | 1.940 | 2.772 | 137.1 | 14.4 | 15.6 |
| 1986 | 06 29 | 14 49.60 | -13 11.8 | | | | | |
| 1986 | 07 09 | 14 50.87 | -13 30.7 | 2.154 | 2.784 | 118.3 | 18.8 | 15.9 |
| 1986 | 07 19 | 14 54.37 | -13 59.0 | | | | | |
| 1986 | 07 29 | 14 59.90 | -14 35.1 | 2.409 | 2.797 | 101.6 | 20.8 | 16.2 |

1982 DS6 a,e,i = 2.24, 0.14, 5 Elements MPC 10387

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 31.09 | -16 24.0 | 2.186 | 2.477 | 95.1 | 23.4 | 18.6 |
| 1986 | 03 01 | 15 38.57 | -16 24.9 | | | | | |
| 1986 | 03 11 | 15 43.69 | -16 14.5 | 1.945 | 2.496 | 112.2 | 21.6 | 18.4 |
| 1986 | 03 21 | 15 46.11 | -15 52.7 | | | | | |
| 1986 | 03 31 | 15 45.64 | -15 19.9 | 1.735 | 2.513 | 131.7 | 17.3 | 18.0 |
| 1986 | 04 10 | 15 42.17 | -14 36.7 | | | | | |
| 1986 | 04 20 | 15 35.91 | -13 44.9 | 1.588 | 2.527 | 153.6 | 10.2 | 17.6 |
| 1986 | 04 30 | 15 27.45 | -12 47.5 | | | | | |
| 1986 | 05 10 | 15 17.68 | -11 49.1 | 1.534 | 2.540 | 173.6 | 2.5 | 17.2 |
| 1986 | 05 20 | 15 07.74 | -10 55.3 | | | | | |
| 1986 | 05 30 | 14 58.78 | -10 11.4 | 1.587 | 2.549 | 156.6 | 9.1 | 17.6 |
| 1986 | 06 09 | 14 51.69 | -09 41.1 | | | | | |
| 1986 | 06 19 | 14 47.05 | -09 26.7 | 1.735 | 2.556 | 134.9 | 16.3 | 18.0 |
| 1986 | 06 29 | 14 45.07 | -09 27.8 | | | | | |
| 1986 | 07 09 | 14 45.73 | -09 43.2 | 1.948 | 2.560 | 115.8 | 20.9 | 18.4 |
| 1986 | 07 19 | 14 48.87 | -10 10.7 | | | | | |
| 1986 | 07 29 | 14 54.23 | -10 48.0 | 2.196 | 2.562 | 99.2 | 23.0 | 18.7 |

1982 RU a,e,i = 3.15, 0.20, 15 Elements MPC 8677

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 33.47 | -08 42.6 | 3.398 | 3.641 | 96.3 | 15.7 | 18.7 |
| 1986 | 03 01 | 15 37.62 | -08 11.1 | | | | | |
| 1986 | 03 11 | 15 40.09 | -07 30.6 | 3.092 | 3.619 | 114.5 | 14.5 | 18.5 |
| 1986 | 03 21 | 15 40.71 | -06 41.7 | | | | | |
| 1986 | 03 31 | 15 39.45 | -05 45.9 | 2.829 | 3.595 | 134.0 | 11.5 | 18.2 |
| 1986 | 04 10 | 15 36.32 | -04 45.1 | | | | | |
| 1986 | 04 20 | 15 31.51 | -03 42.4 | 2.643 | 3.570 | 153.4 | 7.2 | 17.8 |
| 1986 | 04 30 | 15 25.38 | -02 41.5 | | | | | |
| 1986 | 05 10 | 15 18.43 | -01 46.3 | 2.562 | 3.543 | 164.0 | 4.5 | 17.6 |
| 1986 | 05 20 | 15 11.27 | -01 00.7 | | | | | |
| 1986 | 05 30 | 15 04.54 | -00 27.6 | 2.592 | 3.516 | 151.3 | 8.0 | 17.8 |
| 1986 | 06 09 | 14 58.77 | -00 08.6 | | | | | |
| 1986 | 06 19 | 14 54.43 | -00 04.3 | 2.722 | 3.486 | 132.2 | 12.5 | 18.0 |
| 1986 | 06 29 | 14 51.76 | -00 13.6 | | | | | |
| 1986 | 07 09 | 14 50.90 | -00 35.2 | 2.921 | 3.456 | 113.6 | 15.6 | 18.3 |
| 1986 | 07 19 | 14 51.86 | -01 07.1 | | | | | |
| 1986 | 07 29 | 14 54.57 | -01 47.4 | 3.158 | 3.424 | 96.4 | 17.1 | 18.5 |

1971 SN1 a,e,i = 3.10, 0.21, 16 Elements MPC 8785

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 42.22 | -26 53.3 | 3.413 | 3.555 | 90.1 | 16.1 | 18.2 |
| 1986 | 03 01 | 15 46.84 | -27 49.5 | | | | | |
| 1986 | 03 11 | 15 49.66 | -28 43.3 | 3.095 | 3.529 | 107.9 | 15.5 | 17.9 |
| 1986 | 03 21 | 15 50.40 | -29 34.0 | | | | | |
| 1986 | 03 31 | 15 48.92 | -30 20.5 | 2.808 | 3.503 | 127.1 | 13.1 | 17.6 |
| 1986 | 04 10 | 15 45.11 | -31 01.0 | | | | | |
| 1986 | 04 20 | 15 39.08 | -31 33.2 | 2.587 | 3.475 | 147.3 | 9.0 | 17.3 |
| 1986 | 04 30 | 15 31.17 | -31 54.8 | | | | | |
| 1986 | 05 10 | 15 21.95 | -32 04.3 | 2.461 | 3.445 | 164.7 | 4.4 | 17.0 |
| 1986 | 05 20 | 15 12.23 | -32 01.3 | | | | | |
| 1986 | 05 30 | 15 02.88 | -31 47.4 | 2.447 | 3.414 | 159.3 | 6.0 | 17.0 |
| 1986 | 06 09 | 14 54.73 | -31 25.9 | | | | | |
| 1986 | 06 19 | 14 48.40 | -31 00.8 | 2.541 | 3.382 | 139.9 | 11.2 | 17.3 |
| 1986 | 06 29 | 14 44.27 | -30 36.4 | | | | | |
| 1986 | 07 09 | 14 42.50 | -30 16.0 | 2.716 | 3.349 | 120.5 | 15.2 | 17.5 |
| 1986 | 07 19 | 14 43.09 | -30 02.1 | | | | | |
| 1986 | 07 29 | 14 45.90 | -29 55.7 | 2.939 | 3.314 | 102.7 | 17.4 | 17.7 |

(3251) 6536 P-L a,e,i = 3.11, 0.16, 1 Elements MPC 9681

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 37.90 | -18 40.4 | 3.388 | 3.577 | 92.9 | 16.0 | 18.6 |
| 1986 | 03 01 | 15 42.33 | -18 52.8 | | | | | |
| 1986 | 03 11 | 15 45.01 | -18 59.1 | 3.084 | 3.567 | 111.3 | 15.0 | 18.3 |
| 1986 | 03 21 | 15 45.75 | -18 58.9 | | | | | |
| 1986 | 03 31 | 15 44.47 | -18 52.4 | 2.815 | 3.555 | 131.3 | 12.2 | 18.0 |
| 1986 | 04 10 | 15 41.17 | -18 39.3 | | | | | |
| 1986 | 04 20 | 15 36.04 | -18 20.1 | 2.617 | 3.542 | 153.0 | 7.4 | 17.7 |
| 1986 | 04 30 | 15 29.43 | -17 55.6 | | | | | |
| 1986 | 05 10 | 15 21.88 | -17 27.2 | 2.519 | 3.527 | 175.8 | 1.2 | 17.3 |
| 1986 | 05 20 | 15 14.04 | -16 57.2 | | | | | |
| 1986 | 05 30 | 15 06.63 | -16 28.3 | 2.537 | 3.511 | 161.0 | 5.4 | 17.5 |
| 1986 | 06 09 | 15 00.26 | -16 03.3 | | | | | |
| 1986 | 06 19 | 14 55.40 | -15 44.5 | 2.662 | 3.493 | 139.1 | 11.0 | 17.8 |
| 1986 | 06 29 | 14 52.36 | -15 33.5 | | | | | |
| 1986 | 07 09 | 14 51.25 | -15 31.1 | 2.866 | 3.475 | 119.0 | 14.8 | 18.1 |
| 1986 | 07 19 | 14 52.08 | -15 37.3 | | | | | |
| 1986 | 07 29 | 14 54.75 | -15 51.5 | 3.117 | 3.455 | 100.8 | 16.8 | 18.3 |

1978 RD6 a,e,i = 2.74, 0.16, 14 Elements MPC 8466

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 29.68 | -14 51.8 | 2.565 | 2.840 | 95.8 | 20.3 | 18.2 |
| 1986 | 03 01 | 15 36.79 | -14 29.8 | | | | | |
| 1986 | 03 11 | 15 41.97 | -13 55.1 | 2.267 | 2.808 | 113.0 | 19.0 | 17.9 |
| 1986 | 03 21 | 15 44.93 | -13 07.6 | | | | | |
| 1986 | 03 31 | 15 45.49 | -12 07.7 | 2.005 | 2.776 | 132.1 | 15.5 | 17.5 |
| 1986 | 04 10 | 15 43.56 | -10 56.5 | | | | | |
| 1986 | 04 20 | 15 39.23 | -09 36.5 | 1.811 | 2.743 | 152.7 | 9.7 | 17.0 |
| 1986 | 04 30 | 15 32.90 | -08 11.9 | | | | | |
| 1986 | 05 10 | 15 25.20 | -06 48.3 | 1.713 | 2.710 | 168.3 | 4.3 | 16.7 |
| 1986 | 05 20 | 15 17.03 | -05 32.2 | | | | | |
| 1986 | 05 30 | 15 09.34 | -04 29.6 | 1.722 | 2.676 | 155.1 | 9.2 | 16.9 |
| 1986 | 06 09 | 15 02.97 | -03 44.5 | | | | | |
| 1986 | 06 19 | 14 58.58 | -03 19.1 | 1.827 | 2.642 | 134.7 | 15.9 | 17.2 |
| 1986 | 06 29 | 14 56.50 | -03 12.8 | | | | | |
| 1986 | 07 09 | 14 56.87 | -03 23.9 | 1.997 | 2.609 | 116.1 | 20.5 | 17.5 |
| 1986 | 07 19 | 14 59.63 | -03 49.8 | | | | | |
| 1986 | 07 29 | 15 04.64 | -04 27.3 | 2.203 | 2.576 | 99.7 | 22.9 | 17.7 |

1983 EA a,e,i = 1.89, 0.13, 24 Elements MPC 9469

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 51.39 | -32 13.1 | 1.777 | 1.988 | 87.0 | 29.8 | 18.9 |
| 1986 | 03 01 | 16 03.50 | -35 06.8 | | | | | |
| 1986 | 03 11 | 16 13.41 | -38 05.9 | 1.579 | 2.016 | 100.8 | 28.9 | 18.6 |
| 1986 | 03 21 | 16 20.40 | -41 10.9 | | | | | |
| 1986 | 03 31 | 16 23.62 | -44 20.5 | 1.401 | 2.043 | 115.6 | 26.2 | 18.3 |
| 1986 | 04 10 | 16 22.05 | -47 30.3 | | | | | |
| 1986 | 04 20 | 16 14.64 | -50 30.7 | 1.267 | 2.066 | 130.6 | 21.7 | 18.0 |
| 1986 | 04 30 | 16 00.90 | -53 07.3 | | | | | |
| 1986 | 05 10 | 15 41.40 | -55 02.5 | 1.199 | 2.087 | 141.6 | 17.5 | 17.8 |
| 1986 | 05 20 | 15 18.60 | -56 01.7 | | | | | |
| 1986 | 05 30 | 14 56.39 | -56 02.4 | 1.212 | 2.105 | 141.9 | 17.3 | 17.8 |
| 1986 | 06 09 | 14 38.37 | -55 15.0 | | | | | |
| 1986 | 06 19 | 14 26.66 | -53 58.1 | 1.302 | 2.120 | 131.9 | 20.9 | 18.1 |
| 1986 | 06 29 | 14 21.59 | -52 30.3 | | | | | |
| 1986 | 07 09 | 14 22.48 | -51 04.6 | 1.449 | 2.132 | 118.6 | 24.7 | 18.5 |
| 1986 | 07 19 | 14 28.42 | -49 48.5 | | | | | |
| 1986 | 07 29 | 14 38.43 | -48 44.9 | 1.631 | 2.140 | 105.6 | 27.2 | 18.8 |

1983 PB a,e,i = 2.21, 0.23, 6 Elements MPC 8677

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 30.31 | -13 47.2 | 1.933 | 2.259 | -1.52 | +6.9 | 19.2 |
| 1986 | 03 01 | 15 40.76 | -14 18.9 | | | | | |
| 1986 | 03 11 | 15 49.33 | -14 43.2 | 1.644 | 2.206 | -1.84 | +7.8 | 18.8 |
| 1986 | 03 21 | 15 55.58 | -15 00.3 | | | | | |
| 1986 | 03 31 | 15 59.06 | -15 11.2 | 1.383 | 2.152 | -2.27 | +9.1 | 18.3 |
| 1986 | 04 10 | 15 59.33 | -15 16.8 | | | | | |
| 1986 | 04 20 | 15 56.11 | -15 18.0 | 1.173 | 2.097 | -2.77 | +11.0 | 17.7 |
| 1986 | 04 30 | 15 49.45 | -15 16.3 | | | | | |
| 1986 | 05 10 | 15 39.87 | -15 13.4 | 1.038 | 2.042 | -3.19 | +13.1 | 17.0 |
| 1986 | 05 20 | 15 28.57 | -15 11.8 | | | | | |
| 1986 | 05 30 | 15 17.18 | -15 15.0 | 0.997 | 1.988 | -3.28 | +14.5 | 17.0 |
| 1986 | 06 09 | 15 07.36 | -15 26.4 | | | | | |
| 1986 | 06 19 | 15 00.52 | -15 49.4 | 1.042 | 1.935 | -3.01 | +14.3 | 17.4 |
| 1986 | 06 29 | 14 57.41 | -16 25.2 | | | | | |
| 1986 | 07 09 | 14 58.26 | -17 13.7 | 1.147 | 1.886 | -2.67 | +13.1 | 17.8 |
| 1986 | 07 19 | 15 02.97 | -18 13.5 | | | | | |
| 1986 | 07 29 | 15 11.24 | -19 22.0 | 1.285 | 1.839 | -2.40 | +11.5 | 18.1 |

1985 DW a,e,i = 2.80, 0.09, 5 Elements MPC 10166

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 49.90 | -14 54.0 | 2.868 | 3.050 | 91.0 | 18.9 | 17.6 |
| 1986 | 03 01 | 15 56.26 | -15 00.3 | | | | | |
| 1986 | 03 11 | 16 00.73 | -14 59.5 | 2.592 | 3.054 | 108.4 | 18.0 | 17.3 |
| 1986 | 03 21 | 16 03.07 | -14 51.9 | | | | | |
| 1986 | 03 31 | 16 03.11 | -14 38.2 | 2.343 | 3.057 | 127.6 | 15.0 | 17.0 |
| 1986 | 04 10 | 16 00.79 | -14 19.1 | | | | | |
| 1986 | 04 20 | 15 56.19 | -13 55.7 | 2.156 | 3.059 | 148.7 | 9.8 | 16.7 |
| 1986 | 04 30 | 15 49.65 | -13 29.6 | | | | | |
| 1986 | 05 10 | 15 41.71 | -13 02.9 | 2.060 | 3.060 | 170.0 | 3.3 | 16.3 |
| 1986 | 05 20 | 15 33.15 | -12 38.4 | | | | | |
| 1986 | 05 30 | 15 24.82 | -12 18.8 | 2.075 | 3.059 | 163.1 | 5.5 | 16.4 |
| 1986 | 06 09 | 15 17.49 | -12 06.4 | | | | | |
| 1986 | 06 19 | 15 11.81 | -12 03.2 | 2.196 | 3.058 | 141.6 | 11.9 | 16.8 |
| 1986 | 06 29 | 15 08.16 | -12 09.9 | | | | | |
| 1986 | 07 09 | 15 06.70 | -12 26.1 | 2.397 | 3.055 | 121.6 | 16.5 | 17.1 |
| 1986 | 07 19 | 15 07.44 | -12 51.3 | | | | | |
| 1986 | 07 29 | 15 10.27 | -13 24.1 | 2.646 | 3.051 | 103.7 | 18.9 | 17.4 |

1981 ED28 a,e,i = 2.72, 0.09, 3 Elements MPC 10026

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 41.47 | -16 49.7 | 2.439 | 2.672 | 92.5 | 21.7 | 19.5 |
| 1986 | 03 01 | 15 49.99 | -17 04.0 | | | | | |
| 1986 | 03 11 | 15 56.59 | -17 09.7 | 2.159 | 2.654 | 109.0 | 20.7 | 19.2 |
| 1986 | 03 21 | 16 00.93 | -17 07.2 | | | | | |
| 1986 | 03 31 | 16 02.77 | -16 56.7 | 1.908 | 2.637 | 127.4 | 17.5 | 18.8 |
| 1986 | 04 10 | 16 01.91 | -16 38.5 | | | | | |
| 1986 | 04 20 | 15 58.36 | -16 13.6 | 1.713 | 2.620 | 148.0 | 11.7 | 18.4 |
| 1986 | 04 30 | 15 52.39 | -15 43.3 | | | | | |
| 1986 | 05 10 | 15 44.58 | -15 09.8 | 1.603 | 2.603 | 170.1 | 3.8 | 17.9 |
| 1986 | 05 20 | 15 35.84 | -14 36.3 | | | | | |
| 1986 | 05 30 | 15 27.25 | -14 06.9 | 1.597 | 2.588 | 164.6 | 6.0 | 18.0 |
| 1986 | 06 09 | 15 19.81 | -13 45.0 | | | | | |
| 1986 | 06 19 | 15 14.34 | -13 33.6 | 1.690 | 2.573 | 142.7 | 13.8 | 18.4 |
| 1986 | 06 29 | 15 11.31 | -13 34.1 | | | | | |
| 1986 | 07 09 | 15 10.92 | -13 46.6 | 1.859 | 2.559 | 123.0 | 19.5 | 18.7 |
| 1986 | 07 19 | 15 13.14 | -14 10.0 | | | | | |
| 1986 | 07 29 | 15 17.81 | -14 42.6 | 2.074 | 2.546 | 105.8 | 22.6 | 19.1 |

1934 CC a,e,i = 2.62, 0.16, 13 Elements MPC 10402

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 02 19 | 15 54.85 | -31 33.4 | 2.890 | 2.995 | 86.4 | 19.2 | 18.2 |
| 1986 | 03 01 | 16 02.38 | -32 14.2 | | | | | |
| 1986 | 03 11 | 16 07.87 | -32 49.8 | 2.621 | 3.006 | 103.1 | 18.8 | 18.0 |
| 1986 | 03 21 | 16 11.01 | -33 19.3 | | | | | |
| 1986 | 03 31 | 16 11.54 | -33 41.3 | 2.370 | 3.015 | 121.5 | 16.4 | 17.7 |
| 1986 | 04 10 | 16 09.32 | -33 53.8 | | | | | |
| 1986 | 04 20 | 16 04.37 | -33 54.1 | 2.169 | 3.021 | 141.5 | 11.9 | 17.4 |
| 1986 | 04 30 | 15 57.03 | -33 39.8 | | | | | |
| 1986 | 05 10 | 15 47.92 | -33 09.0 | 2.051 | 3.026 | 161.4 | 6.1 | 17.1 |
| 1986 | 05 20 | 15 37.98 | -32 22.0 | | | | | |
| 1986 | 05 30 | 15 28.28 | -31 21.8 | 2.040 | 3.028 | 164.2 | 5.2 | 17.0 |
| 1986 | 06 09 | 15 19.78 | -30 13.3 | | | | | |
| 1986 | 06 19 | 15 13.24 | -29 02.8 | 2.138 | 3.029 | 145.3 | 11.0 | 17.4 |
| 1986 | 06 29 | 15 09.10 | -27 56.1 | | | | | |
| 1986 | 07 09 | 15 07.49 | -26 57.2 | 2.323 | 3.027 | 125.4 | 15.9 | 17.7 |
| 1986 | 07 19 | 15 08.36 | -26 08.8 | | | | | |
| 1986 | 07 29 | 15 11.54 | -25 31.7 | 2.564 | 3.024 | 107.2 | 18.7 | 18.0 |

1955 BG a,e,i = 2.64, 0.28, 14 Elements MPC 10402

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 15.86 | -10 07.8 | 2.520 | 2.945 | 105.4 | 19.0 | 17.2 |
| 1986 | 03 21 | 16 17.67 | -10 01.7 | | | | | |
| 1986 | 03 31 | 16 17.05 | -09 51.8 | 2.310 | 2.992 | 124.6 | 16.0 | 17.0 |
| 1986 | 04 10 | 16 13.92 | -09 39.6 | | | | | |
| 1986 | 04 20 | 16 08.40 | -09 26.9 | 2.154 | 3.036 | 145.5 | 10.8 | 16.7 |
| 1986 | 04 30 | 16 00.85 | -09 15.7 | | | | | |
| 1986 | 05 10 | 15 51.84 | -09 08.2 | 2.089 | 3.078 | 165.8 | 4.6 | 16.4 |
| 1986 | 05 20 | 15 42.19 | -09 06.5 | | | | | |
| 1986 | 05 30 | 15 32.77 | -09 12.2 | 2.136 | 3.118 | 162.5 | 5.6 | 16.5 |
| 1986 | 06 09 | 15 24.38 | -09 26.3 | | | | | |
| 1986 | 06 19 | 15 17.65 | -09 49.1 | 2.291 | 3.155 | 142.0 | 11.4 | 16.9 |
| 1986 | 06 29 | 15 12.96 | -10 20.1 | | | | | |
| 1986 | 07 09 | 15 10.46 | -10 58.6 | 2.531 | 3.189 | 122.0 | 15.7 | 17.3 |
| 1986 | 07 19 | 15 10.13 | -11 43.4 | | | | | |
| 1986 | 07 29 | 15 11.85 | -12 33.1 | 2.822 | 3.220 | 103.8 | 17.8 | 17.6 |
| 1986 | 08 08 | 15 15.45 | -13 26.7 | | | | | |
| 1986 | 08 18 | 15 20.73 | -14 22.8 | 3.135 | 3.248 | 87.3 | 18.1 | 17.9 |

1984 WE1 a,e,i = 3.66, 0.50, 20 Elements MPC 9959

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 27.27 | -20 14.2 | 2.990 | 3.330 | -0.69 | +4.5 | 18.8 |
| 1986 | 03 21 | 16 28.38 | -20 47.0 | | | | | |
| 1986 | 03 31 | 16 27.22 | -21 17.2 | 2.803 | 3.426 | -0.75 | +4.7 | 18.6 |
| 1986 | 04 10 | 16 23.78 | -21 44.2 | | | | | |
| 1986 | 04 20 | 16 18.17 | -22 07.6 | 2.669 | 3.520 | -0.84 | +4.9 | 18.4 |
| 1986 | 04 30 | 16 10.74 | -22 26.5 | | | | | |
| 1986 | 05 10 | 16 01.99 | -22 40.4 | 2.625 | 3.612 | -0.91 | +5.2 | 18.2 |
| 1986 | 05 20 | 15 52.64 | -22 49.4 | | | | | |
| 1986 | 05 30 | 15 43.43 | -22 54.3 | 2.698 | 3.702 | -0.94 | +5.3 | 18.2 |
| 1986 | 06 09 | 15 35.05 | -22 56.5 | | | | | |
| 1986 | 06 19 | 15 28.08 | -22 58.1 | 2.887 | 3.789 | -0.91 | +5.1 | 18.7 |
| 1986 | 06 29 | 15 22.87 | -23 01.1 | | | | | |
| 1986 | 07 09 | 15 19.58 | -23 06.8 | 3.172 | 3.874 | -0.84 | +4.8 | 19.1 |
| 1986 | 07 19 | 15 18.24 | -23 16.4 | | | | | |
| 1986 | 07 29 | 15 18.75 | -23 30.2 | 3.519 | 3.957 | -0.75 | +4.3 | 19.4 |
| 1986 | 08 08 | 15 20.97 | -23 48.4 | | | | | |
| 1986 | 08 18 | 15 24.73 | -24 10.5 | 3.897 | 4.038 | -0.67 | +3.7 | 19.7 |

1983 WQ a,e,i = 2.69, 0.13, 10 Elements MPC 8529

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 16.90 | -19 07.5 | 2.423 | 2.831 | -1.14 | +4.9 | 17.1 |
| 1986 | 03 21 | 16 21.17 | -19 36.3 | | | | | |
| 1986 | 03 31 | 16 23.08 | -20 02.3 | 2.144 | 2.806 | -1.32 | +5.4 | 16.7 |
| 1986 | 04 10 | 16 22.39 | -20 25.6 | | | | | |
| 1986 | 04 20 | 16 18.97 | -20 46.0 | 1.914 | 2.780 | -1.53 | +6.2 | 16.3 |
| 1986 | 04 30 | 16 12.93 | -21 03.1 | | | | | |
| 1986 | 05 10 | 16 04.66 | -21 16.3 | 1.764 | 2.753 | -1.72 | +7.2 | 15.8 |
| 1986 | 05 20 | 15 54.93 | -21 25.2 | | | | | |
| 1986 | 05 30 | 15 44.75 | -21 30.7 | 1.720 | 2.725 | -1.79 | +8.0 | 15.6 |
| 1986 | 06 09 | 15 35.23 | -21 34.2 | | | | | |
| 1986 | 06 19 | 15 27.36 | -21 38.5 | 1.782 | 2.697 | -1.72 | +8.2 | 16.0 |
| 1986 | 06 29 | 15 21.84 | -21 46.2 | | | | | |
| 1986 | 07 09 | 15 19.04 | -21 59.2 | 1.930 | 2.669 | -1.57 | +7.7 | 16.4 |
| 1986 | 07 19 | 15 19.05 | -22 18.7 | | | | | |
| 1986 | 07 29 | 15 21.77 | -22 45.0 | 2.132 | 2.641 | -1.41 | +6.9 | 16.7 |
| 1986 | 08 08 | 15 27.02 | -23 17.2 | | | | | |
| 1986 | 08 18 | 15 34.55 | -23 54.5 | 2.359 | 2.612 | -1.29 | +6.0 | 16.9 |

(3323) 1979 SY9 a,e,i = 2.56, 0.19, 1 Elements MPC 10161

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 21.04 | -21 52.5 | 2.661 | 3.035 | 102.5 | 18.6 | 19.4 |
| 1986 | 03 21 | 16 24.52 | -22 03.1 | | | | | |
| 1986 | 03 31 | 16 25.68 | -22 08.6 | 2.389 | 3.030 | 121.2 | 16.4 | 19.1 |
| 1986 | 04 10 | 16 24.35 | -22 08.5 | | | | | |
| 1986 | 04 20 | 16 20.49 | -22 02.5 | 2.167 | 3.023 | 142.1 | 11.8 | 18.7 |
| 1986 | 04 30 | 16 14.28 | -21 50.3 | | | | | |
| 1986 | 05 10 | 16 06.16 | -21 31.7 | 2.027 | 3.013 | 164.9 | 5.0 | 18.3 |
| 1986 | 05 20 | 15 56.85 | -21 07.7 | | | | | |
| 1986 | 05 30 | 15 47.27 | -20 40.3 | 1.995 | 3.001 | 171.4 | 2.9 | 18.2 |
| 1986 | 06 09 | 15 38.35 | -20 12.2 | | | | | |
| 1986 | 06 19 | 15 30.93 | -19 47.1 | 2.074 | 2.987 | 148.3 | 10.3 | 18.5 |
| 1986 | 06 29 | 15 25.57 | -19 27.6 | | | | | |
| 1986 | 07 09 | 15 22.58 | -19 15.9 | 2.243 | 2.971 | 127.2 | 15.8 | 18.9 |
| 1986 | 07 19 | 15 22.04 | -19 13.0 | | | | | |
| 1986 | 07 29 | 15 23.87 | -19 18.5 | 2.469 | 2.952 | 108.4 | 19.0 | 19.2 |
| 1986 | 08 08 | 15 27.89 | -19 31.9 | | | | | |
| 1986 | 08 18 | 15 33.92 | -19 51.9 | 2.721 | 2.931 | 91.7 | 20.2 | 19.4 |

(3236) 1982 BH1 a,e,i = 2.20, 0.15, 1 Elements MPC 9587

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 24.08 | -21 26.1 | 2.075 | 2.478 | 101.8 | 23.1 | 18.5 |
| 1986 | 03 21 | 16 29.64 | -21 34.2 | | | | | |
| 1986 | 03 31 | 16 32.47 | -21 35.7 | 1.840 | 2.491 | 119.8 | 20.4 | 18.2 |
| 1986 | 04 10 | 16 32.29 | -21 30.3 | | | | | |
| 1986 | 04 20 | 16 28.93 | -21 17.8 | 1.646 | 2.503 | 140.3 | 14.9 | 17.8 |
| 1986 | 04 30 | 16 22.57 | -20 58.0 | | | | | |
| 1986 | 05 10 | 16 13.68 | -20 31.0 | 1.527 | 2.511 | 163.3 | 6.6 | 17.4 |
| 1986 | 05 20 | 16 03.17 | -19 58.1 | | | | | |
| 1986 | 05 30 | 15 52.29 | -19 22.4 | 1.509 | 2.517 | 172.2 | 3.1 | 17.2 |
| 1986 | 06 09 | 15 42.25 | -18 47.7 | | | | | |
| 1986 | 06 19 | 15 34.16 | -18 18.5 | 1.596 | 2.520 | 148.7 | 12.1 | 17.7 |
| 1986 | 06 29 | 15 28.68 | -17 58.2 | | | | | |
| 1986 | 07 09 | 15 26.09 | -17 48.6 | 1.768 | 2.521 | 127.7 | 18.6 | 18.1 |
| 1986 | 07 19 | 15 26.41 | -17 50.1 | | | | | |
| 1986 | 07 29 | 15 29.44 | -18 01.7 | 1.992 | 2.518 | 109.4 | 22.4 | 18.4 |
| 1986 | 08 08 | 15 34.93 | -18 21.7 | | | | | |
| 1986 | 08 18 | 15 42.60 | -18 48.4 | 2.241 | 2.514 | 93.4 | 23.7 | 18.7 |

1979 TA a,e,i = 2.44, 0.22, 2 Elements MPC 8402

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 19.62 | -24 10.4 | 2.279 | 2.675 | 102.4 | 21.3 | 18.8 |
| 1986 | 03 21 | 16 25.35 | -24 31.9 | | | | | |
| 1986 | 03 31 | 16 28.67 | -24 48.0 | 1.988 | 2.634 | 120.1 | 19.2 | 18.4 |
| 1986 | 04 10 | 16 29.26 | -24 57.9 | | | | | |
| 1986 | 04 20 | 16 26.88 | -25 00.9 | 1.741 | 2.592 | 140.0 | 14.4 | 18.0 |
| 1986 | 04 30 | 16 21.55 | -24 55.5 | | | | | |
| 1986 | 05 10 | 16 13.58 | -24 40.4 | 1.568 | 2.548 | 162.3 | 6.9 | 17.5 |
| 1986 | 05 20 | 16 03.71 | -24 15.3 | | | | | |
| 1986 | 05 30 | 15 53.08 | -23 41.6 | 1.494 | 2.502 | 172.6 | 3.0 | 17.1 |
| 1986 | 06 09 | 15 42.94 | -23 02.7 | | | | | |
| 1986 | 06 19 | 15 34.52 | -22 23.8 | 1.524 | 2.455 | 149.6 | 12.1 | 17.5 |
| 1986 | 06 29 | 15 28.66 | -21 49.9 | | | | | |
| 1986 | 07 09 | 15 25.82 | -21 24.8 | 1.640 | 2.407 | 128.4 | 19.3 | 17.8 |
| 1986 | 07 19 | 15 26.13 | -21 10.7 | | | | | |
| 1986 | 07 29 | 15 29.46 | -21 07.6 | 1.807 | 2.358 | 110.1 | 23.8 | 18.1 |
| 1986 | 08 08 | 15 35.58 | -21 14.5 | | | | | |
| 1986 | 08 18 | 15 44.24 | -21 29.7 | 1.999 | 2.309 | 94.4 | 25.9 | 18.4 |

1983 PW a,e,i = 2.19, 0.21, 4 Elements MPC 8778

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 14.90 | -21 29.3 | 1.688 | 2.155 | -1.79 | +2.5 | 17.8 |
| 1986 | 03 21 | 16 24.81 | -21 36.8 | | | | | |
| 1986 | 03 31 | 16 32.35 | -21 34.3 | 1.422 | 2.105 | -2.16 | +2.4 | 17.3 |
| 1986 | 04 10 | 16 37.02 | -21 21.4 | | | | | |
| 1986 | 04 20 | 16 38.39 | -20 58.0 | 1.195 | 2.056 | -2.65 | +2.8 | 16.7 |
| 1986 | 04 30 | 16 36.21 | -20 24.1 | | | | | |
| 1986 | 05 10 | 16 30.54 | -19 40.0 | 1.029 | 2.006 | -3.16 | +3.9 | 16.0 |
| 1986 | 05 20 | 16 22.00 | -18 47.4 | | | | | |
| 1986 | 05 30 | 16 11.83 | -17 50.4 | 0.946 | 1.958 | -3.42 | +5.2 | 15.5 |
| 1986 | 06 09 | 16 01.66 | -16 54.9 | | | | | |
| 1986 | 06 19 | 15 53.20 | -16 08.4 | 0.953 | 1.912 | -3.23 | +5.5 | 15.9 |
| 1986 | 06 29 | 15 47.77 | -15 36.6 | | | | | |
| 1986 | 07 09 | 15 46.04 | -15 22.2 | 1.033 | 1.870 | -2.78 | +4.6 | 16.3 |
| 1986 | 07 19 | 15 48.23 | -15 25.5 | | | | | |
| 1986 | 07 29 | 15 54.16 | -15 43.8 | 1.159 | 1.831 | -2.35 | +3.3 | 16.7 |
| 1986 | 08 08 | 16 03.49 | -16 13.6 | | | | | |
| 1986 | 08 18 | 16 15.87 | -16 51.1 | 1.308 | 1.797 | -2.04 | +2.1 | 17.0 |

1976 SZ9 a,e,i = 3.19, 0.21, 4 Elements MPC 9957

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 38.81 | -25 03.1 | 3.499 | 3.767 | 98.0 | 15.1 | 19.1 |
| 1986 | 03 21 | 16 41.95 | -25 20.5 | | | | | |
| 1986 | 03 31 | 16 43.22 | -25 35.0 | 3.193 | 3.750 | 116.7 | 13.8 | 18.9 |
| 1986 | 04 10 | 16 42.49 | -25 46.2 | | | | | |
| 1986 | 04 20 | 16 39.69 | -25 53.4 | 2.933 | 3.731 | 137.0 | 10.6 | 18.6 |
| 1986 | 04 30 | 16 34.96 | -25 56.0 | | | | | |
| 1986 | 05 10 | 16 28.55 | -25 53.1 | 2.752 | 3.711 | 158.7 | 5.7 | 18.2 |
| 1986 | 05 20 | 16 20.92 | -25 44.5 | | | | | |
| 1986 | 05 30 | 16 12.71 | -25 30.3 | 2.678 | 3.689 | 175.3 | 1.3 | 17.9 |
| 1986 | 06 09 | 16 04.59 | -25 12.0 | | | | | |
| 1986 | 06 19 | 15 57.27 | -24 51.5 | 2.719 | 3.666 | 155.0 | 6.7 | 18.2 |
| 1986 | 06 29 | 15 51.32 | -24 31.2 | | | | | |
| 1986 | 07 09 | 15 47.11 | -24 13.4 | 2.863 | 3.641 | 133.8 | 11.6 | 18.5 |
| 1986 | 07 19 | 15 44.87 | -24 00.0 | | | | | |
| 1986 | 07 29 | 15 44.66 | -23 52.0 | 3.079 | 3.615 | 114.2 | 14.8 | 18.8 |
| 1986 | 08 08 | 15 46.42 | -23 49.8 | | | | | |
| 1986 | 08 18 | 15 50.05 | -23 53.2 | 3.333 | 3.587 | 96.2 | 16.3 | 19.0 |

1978 NE a,e,i = 2.59, 0.18, 15 Elements MPC 9423

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 24.75 | -02 58.7 | 1.923 | 2.368 | 104.0 | 24.0 | 16.8 |
| 1986 | 03 21 | 16 32.46 | -02 20.6 | | | | | |
| 1986 | 03 31 | 16 37.82 | -01 35.7 | 1.674 | 2.332 | 119.3 | 21.9 | 16.4 |
| 1986 | 04 10 | 16 40.50 | -00 47.2 | | | | | |
| 1986 | 04 20 | 16 40.22 | +00 00.4 | 1.467 | 2.297 | 135.9 | 17.7 | 16.0 |
| 1986 | 04 30 | 16 36.96 | +00 41.1 | | | | | |
| 1986 | 05 10 | 16 30.92 | +01 08.5 | 1.323 | 2.264 | 151.8 | 12.2 | 15.5 |
| 1986 | 05 20 | 16 22.73 | +01 15.6 | | | | | |
| 1986 | 05 30 | 16 13.41 | +00 57.3 | 1.264 | 2.233 | 157.3 | 10.1 | 15.3 |
| 1986 | 06 09 | 16 04.17 | +00 11.8 | | | | | |
| 1986 | 06 19 | 15 56.27 | -00 59.7 | 1.295 | 2.206 | 145.1 | 15.3 | 15.5 |
| 1986 | 06 29 | 15 50.68 | -02 32.6 | | | | | |
| 1986 | 07 09 | 15 47.94 | -04 21.1 | 1.403 | 2.182 | 128.1 | 21.5 | 15.8 |
| 1986 | 07 19 | 15 48.30 | -06 19.7 | | | | | |
| 1986 | 07 29 | 15 51.71 | -08 23.1 | 1.565 | 2.161 | 112.0 | 25.8 | 16.2 |
| 1986 | 08 08 | 15 57.97 | -10 27.5 | | | | | |
| 1986 | 08 18 | 16 06.85 | -12 29.6 | 1.759 | 2.145 | 97.8 | 27.9 | 16.5 |

1977 UP a,e,i = 2.18, 0.15, 3 Elements MPC 5520

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 32.23 | -24 55.4 | 1.999 | 2.374 | 99.4 | 24.4 | 19.4 |
| 1986 | 03 21 | 16 40.40 | -25 31.1 | | | | | |
| 1986 | 03 31 | 16 46.11 | -26 03.0 | 1.730 | 2.347 | 116.0 | 22.5 | 19.0 |
| 1986 | 04 10 | 16 48.92 | -26 31.1 | | | | | |
| 1986 | 04 20 | 16 48.44 | -26 54.8 | 1.497 | 2.318 | 134.9 | 17.9 | 18.5 |
| 1986 | 04 30 | 16 44.47 | -27 12.5 | | | | | |
| 1986 | 05 10 | 16 37.10 | -27 21.6 | 1.326 | 2.287 | 156.4 | 10.2 | 18.0 |
| 1986 | 05 20 | 16 26.95 | -27 19.5 | | | | | |
| 1986 | 05 30 | 16 15.21 | -27 05.1 | 1.244 | 2.255 | 174.2 | 2.6 | 17.5 |
| 1986 | 06 09 | 16 03.42 | -26 39.6 | | | | | |
| 1986 | 06 19 | 15 53.19 | -26 07.7 | 1.262 | 2.221 | 154.2 | 11.5 | 17.9 |
| 1986 | 06 29 | 15 45.76 | -25 35.4 | | | | | |
| 1986 | 07 09 | 15 41.78 | -25 08.3 | 1.365 | 2.186 | 132.7 | 20.0 | 18.3 |
| 1986 | 07 19 | 15 41.49 | -24 49.9 | | | | | |
| 1986 | 07 29 | 15 44.73 | -24 41.6 | 1.524 | 2.151 | 114.3 | 25.5 | 18.6 |
| 1986 | 08 08 | 15 51.19 | -24 42.7 | | | | | |
| 1986 | 08 18 | 16 00.54 | -24 51.6 | 1.709 | 2.115 | 98.8 | 28.2 | 18.9 |

1983 QD a,e,i = 2.66, 0.17, 12 Elements MPC 9469

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 44.21 | -34 57.7 | 2.810 | 3.066 | 95.3 | 18.8 | 17.0 |
| 1986 | 03 21 | 16 49.57 | -35 40.5 | | | | | |
| 1986 | 03 31 | 16 52.51 | -36 20.2 | 2.550 | 3.077 | 112.7 | 17.4 | 16.8 |
| 1986 | 04 10 | 16 52.78 | -36 55.6 | | | | | |
| 1986 | 04 20 | 16 50.19 | -37 24.5 | 2.326 | 3.086 | 131.6 | 14.1 | 16.5 |
| 1986 | 04 30 | 16 44.80 | -37 43.9 | | | | | |
| 1986 | 05 10 | 16 36.90 | -37 50.3 | 2.169 | 3.092 | 151.2 | 9.1 | 16.2 |
| 1986 | 05 20 | 16 27.17 | -37 40.8 | | | | | |
| 1986 | 05 30 | 16 16.58 | -37 14.2 | 2.109 | 3.097 | 164.3 | 5.1 | 15.9 |
| 1986 | 06 09 | 16 06.21 | -36 32.0 | | | | | |
| 1986 | 06 19 | 15 57.14 | -35 38.2 | 2.158 | 3.100 | 153.4 | 8.5 | 16.1 |
| 1986 | 06 29 | 15 50.15 | -34 38.3 | | | | | |
| 1986 | 07 09 | 15 45.68 | -33 38.1 | 2.305 | 3.100 | 134.1 | 13.6 | 16.5 |
| 1986 | 07 19 | 15 43.89 | -32 42.1 | | | | | |
| 1986 | 07 29 | 15 44.70 | -31 53.2 | 2.524 | 3.099 | 115.5 | 17.2 | 16.8 |
| 1986 | 08 08 | 15 47.93 | -31 12.7 | | | | | |
| 1986 | 08 18 | 15 53.33 | -30 40.9 | 2.783 | 3.095 | 98.3 | 18.9 | 17.0 |

1982 BG1 a,e,i = 2.24, 0.11, 5 Elements MPC 7016

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 37.20 | -28 03.7 | 1.975 | 2.329 | 97.9 | 25.0 | 18.3 |
| 1986 | 03 21 | 16 45.31 | -28 34.6 | | | | | |
| 1986 | 03 31 | 16 50.63 | -28 59.7 | 1.754 | 2.351 | 114.5 | 22.7 | 18.0 |
| 1986 | 04 10 | 16 52.78 | -29 18.8 | | | | | |
| 1986 | 04 20 | 16 51.46 | -29 30.4 | 1.564 | 2.372 | 133.7 | 17.8 | 17.7 |
| 1986 | 04 30 | 16 46.65 | -29 32.5 | | | | | |
| 1986 | 05 10 | 16 38.66 | -29 22.3 | 1.436 | 2.391 | 155.3 | 10.2 | 17.3 |
| 1986 | 05 20 | 16 28.32 | -28 58.0 | | | | | |
| 1986 | 05 30 | 16 16.92 | -28 19.8 | 1.399 | 2.409 | 173.1 | 2.9 | 16.9 |
| 1986 | 06 09 | 16 05.92 | -27 31.1 | | | | | |
| 1986 | 06 19 | 15 56.68 | -26 37.7 | 1.466 | 2.425 | 154.9 | 10.2 | 17.3 |
| 1986 | 06 29 | 15 50.13 | -25 46.1 | | | | | |
| 1986 | 07 09 | 15 46.69 | -25 01.5 | 1.622 | 2.439 | 133.8 | 17.5 | 17.8 |
| 1986 | 07 19 | 15 46.44 | -24 27.0 | | | | | |
| 1986 | 07 29 | 15 49.16 | -24 03.3 | 1.841 | 2.452 | 115.2 | 22.0 | 18.2 |
| 1986 | 08 08 | 15 54.56 | -23 49.8 | | | | | |
| 1986 | 08 18 | 16 02.31 | -23 44.9 | 2.092 | 2.462 | 99.0 | 24.0 | 18.5 |

(3227) 1928 DF a,e,i = 2.44, 0.14, 4 Elements MPC 9582

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 40.11 | -17 44.9 | 2.115 | 2.468 | 98.6 | 23.5 | 17.1 |
| 1986 | 03 21 | 16 46.93 | -17 37.7 | | | | | |
| 1986 | 03 31 | 16 51.18 | -17 24.3 | 1.895 | 2.498 | 115.8 | 21.1 | 16.8 |
| 1986 | 04 10 | 16 52.59 | -17 05.5 | | | | | |
| 1986 | 04 20 | 16 50.99 | -16 42.3 | 1.711 | 2.527 | 135.4 | 16.2 | 16.4 |
| 1986 | 04 30 | 16 46.47 | -16 16.2 | | | | | |
| 1986 | 05 10 | 16 39.35 | -15 48.5 | 1.595 | 2.556 | 157.2 | 8.8 | 16.1 |
| 1986 | 05 20 | 16 30.36 | -15 21.4 | | | | | |
| 1986 | 05 30 | 16 20.53 | -14 57.2 | 1.573 | 2.583 | 173.3 | 2.6 | 15.8 |
| 1986 | 06 09 | 16 10.96 | -14 38.7 | | | | | |
| 1986 | 06 19 | 16 02.74 | -14 28.2 | 1.658 | 2.609 | 153.9 | 9.9 | 16.2 |
| 1986 | 06 29 | 15 56.63 | -14 27.3 | | | | | |
| 1986 | 07 09 | 15 53.05 | -14 36.2 | 1.833 | 2.633 | 133.0 | 16.4 | 16.7 |
| 1986 | 07 19 | 15 52.16 | -14 54.5 | | | | | |
| 1986 | 07 29 | 15 53.85 | -15 20.6 | 2.071 | 2.656 | 114.4 | 20.4 | 17.1 |
| 1986 | 08 08 | 15 57.92 | -15 53.0 | | | | | |
| 1986 | 08 18 | 16 04.15 | -16 29.8 | 2.343 | 2.678 | 98.0 | 22.0 | 17.4 |

1981 EF28 a,e,i = 2.65, 0.16, 10 Elements MPC 10290

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 36.52 | -29 54.9 | 2.312 | 2.636 | -1.42 | +3.6 | 17.9 |
| 1986 | 03 21 | 16 44.28 | -31 00.2 | | | | | |
| 1986 | 03 31 | 16 49.79 | -32 05.2 | 2.029 | 2.603 | -1.65 | +3.5 | 17.5 |
| 1986 | 04 10 | 16 52.63 | -33 09.7 | | | | | |
| 1986 | 04 20 | 16 52.42 | -34 12.2 | 1.784 | 2.569 | -1.97 | +3.9 | 17.1 |
| 1986 | 04 30 | 16 48.95 | -35 10.2 | | | | | |
| 1986 | 05 10 | 16 42.27 | -35 59.2 | 1.603 | 2.536 | -2.37 | +5.0 | 16.6 |
| 1986 | 05 20 | 16 32.86 | -36 34.3 | | | | | |
| 1986 | 05 30 | 16 21.77 | -36 51.2 | 1.511 | 2.504 | -2.70 | +6.9 | 16.3 |
| 1986 | 06 09 | 16 10.36 | -36 48.3 | | | | | |
| 1986 | 06 19 | 16 00.17 | -36 28.2 | 1.520 | 2.471 | -2.77 | +8.3 | 16.5 |
| 1986 | 06 29 | 15 52.44 | -35 56.4 | | | | | |
| 1986 | 07 09 | 15 47.93 | -35 19.7 | 1.617 | 2.440 | -2.54 | +8.4 | 16.8 |
| 1986 | 07 19 | 15 46.96 | -34 44.1 | | | | | |
| 1986 | 07 29 | 15 49.44 | -34 13.3 | 1.776 | 2.410 | -2.18 | +7.4 | 17.1 |
| 1986 | 08 08 | 15 55.13 | -33 49.2 | | | | | |
| 1986 | 08 18 | 16 03.71 | -33 31.9 | 1.972 | 2.381 | -1.85 | +5.8 | 17.4 |

1980 RO2 a,e,i = 2.22, 0.17, 2 Elements MPC 10158

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 40.51 | -23 12.2 | 2.202 | 2.536 | 97.8 | 22.8 | 18.7 |
| 1986 | 03 21 | 16 47.83 | -23 23.1 | | | | | |
| 1986 | 03 31 | 16 52.78 | -23 28.4 | 1.925 | 2.514 | 114.9 | 21.1 | 18.3 |
| 1986 | 04 10 | 16 54.99 | -23 28.2 | | | | | |
| 1986 | 04 20 | 16 54.15 | -23 22.2 | 1.682 | 2.489 | 134.2 | 16.8 | 17.9 |
| 1986 | 04 30 | 16 50.15 | -23 09.8 | | | | | |
| 1986 | 05 10 | 16 43.12 | -22 50.3 | 1.504 | 2.462 | 156.2 | 9.5 | 17.4 |
| 1986 | 05 20 | 16 33.65 | -22 23.4 | | | | | |
| 1986 | 05 30 | 16 22.74 | -21 49.9 | 1.419 | 2.433 | 179.6 | 0.2 | 16.7 |
| 1986 | 06 09 | 16 11.67 | -21 12.6 | | | | | |
| 1986 | 06 19 | 16 01.82 | -20 35.9 | 1.439 | 2.401 | 155.6 | 10.1 | 17.3 |
| 1986 | 06 29 | 15 54.26 | -20 04.2 | | | | | |
| 1986 | 07 09 | 15 49.63 | -19 41.3 | 1.549 | 2.367 | 133.5 | 18.2 | 17.6 |
| 1986 | 07 19 | 15 48.22 | -19 29.1 | | | | | |
| 1986 | 07 29 | 15 49.96 | -19 27.7 | 1.720 | 2.331 | 114.5 | 23.4 | 18.0 |
| 1986 | 08 08 | 15 54.63 | -19 36.1 | | | | | |
| 1986 | 08 18 | 16 01.98 | -19 52.4 | 1.920 | 2.293 | 98.1 | 25.9 | 18.3 |

1976 YP2 a,e,i = 1.93, 0.12, 24 Elements MPC 9423

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 48.85 | -01 40.2 | 1.731 | 2.114 | 98.1 | 27.7 | 17.9 |
| 1986 | 03 21 | 16 57.08 | -01 36.5 | | | | | |
| 1986 | 03 31 | 17 02.71 | -01 31.5 | 1.490 | 2.094 | 113.1 | 26.0 | 17.5 |
| 1986 | 04 10 | 17 05.25 | -01 29.2 | | | | | |
| 1986 | 04 20 | 17 04.24 | -01 34.9 | 1.274 | 2.072 | 130.5 | 21.6 | 17.0 |
| 1986 | 04 30 | 16 59.36 | -01 54.8 | | | | | |
| 1986 | 05 10 | 16 50.55 | -02 35.2 | 1.109 | 2.047 | 150.1 | 14.3 | 16.5 |
| 1986 | 05 20 | 16 38.29 | -03 41.7 | | | | | |
| 1986 | 05 30 | 16 23.78 | -05 16.2 | 1.028 | 2.021 | 163.7 | 8.1 | 16.1 |
| 1986 | 06 09 | 16 08.71 | -07 15.9 | | | | | |
| 1986 | 06 19 | 15 55.02 | -09 34.2 | 1.047 | 1.992 | 150.0 | 14.8 | 16.3 |
| 1986 | 06 29 | 15 44.28 | -12 02.6 | | | | | |
| 1986 | 07 09 | 15 37.39 | -14 33.9 | 1.154 | 1.963 | 129.4 | 23.6 | 16.8 |
| 1986 | 07 19 | 15 34.69 | -17 03.6 | | | | | |
| 1986 | 07 29 | 15 36.04 | -19 28.9 | 1.316 | 1.932 | 111.3 | 29.3 | 17.2 |
| 1986 | 08 08 | 15 41.15 | -21 48.4 | | | | | |
| 1986 | 08 18 | 15 49.65 | -24 01.4 | 1.504 | 1.901 | 96.2 | 32.0 | 17.5 |

1982 UX a,e,i = 3.15, 0.14, 3 Elements MPC 10297

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 36.73 | -19 45.2 | 2.459 | 2.795 | 99.2 | 20.5 | 16.5 |
| 1986 | 03 21 | 16 43.51 | -19 57.7 | | | | | |
| 1986 | 03 31 | 16 48.15 | -20 06.0 | 2.188 | 2.779 | 116.3 | 18.8 | 16.2 |
| 1986 | 04 10 | 16 50.40 | -20 10.7 | | | | | |
| 1986 | 04 20 | 16 50.07 | -20 12.3 | 1.957 | 2.765 | 135.5 | 14.8 | 15.8 |
| 1986 | 04 30 | 16 47.18 | -20 11.0 | | | | | |
| 1986 | 05 10 | 16 41.91 | -20 07.2 | 1.796 | 2.753 | 156.8 | 8.3 | 15.4 |
| 1986 | 05 20 | 16 34.78 | -20 01.3 | | | | | |
| 1986 | 05 30 | 16 26.59 | -19 54.1 | 1.729 | 2.742 | 178.2 | 0.7 | 14.9 |
| 1986 | 06 09 | 16 18.30 | -19 47.0 | | | | | |
| 1986 | 06 19 | 16 10.90 | -19 41.9 | 1.768 | 2.734 | 157.5 | 8.2 | 15.3 |
| 1986 | 06 29 | 16 05.22 | -19 40.9 | | | | | |
| 1986 | 07 09 | 16 01.79 | -19 45.4 | 1.901 | 2.728 | 136.3 | 14.9 | 15.7 |
| 1986 | 07 19 | 16 00.89 | -19 56.3 | | | | | |
| 1986 | 07 29 | 16 02.54 | -20 13.5 | 2.102 | 2.724 | 117.5 | 19.3 | 16.0 |
| 1986 | 08 08 | 16 06.63 | -20 36.1 | | | | | |
| 1986 | 08 18 | 16 12.99 | -21 03.0 | 2.343 | 2.722 | 100.9 | 21.4 | 16.3 |

(3252) 1981 EM4 a,e,i = 2.66, 0.11, 13 Elements MPC 9685

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 50.43 | -36 36.2 | 2.486 | 2.738 | 93.8 | 21.2 | 15.6 |
| 1986 | 03 21 | 16 58.08 | -37 35.2 | | | | | |
| 1986 | 03 31 | 17 03.19 | -38 32.0 | 2.251 | 2.760 | 110.2 | 19.9 | 15.3 |
| 1986 | 04 10 | 17 05.40 | -39 25.6 | | | | | |
| 1986 | 04 20 | 17 04.40 | -40 13.7 | 2.048 | 2.781 | 128.0 | 16.5 | 15.1 |
| 1986 | 04 30 | 17 00.12 | -40 52.7 | | | | | |
| 1986 | 05 10 | 16 52.75 | -41 18.2 | 1.903 | 2.802 | 146.6 | 11.4 | 14.8 |
| 1986 | 05 20 | 16 42.92 | -41 25.4 | | | | | |
| 1986 | 05 30 | 16 31.74 | -41 11.4 | 1.847 | 2.822 | 160.4 | 6.9 | 14.5 |
| 1986 | 06 09 | 16 20.50 | -40 36.2 | | | | | |
| 1986 | 06 19 | 16 10.55 | -39 43.7 | 1.892 | 2.841 | 154.0 | 9.0 | 14.7 |
| 1986 | 06 29 | 16 02.88 | -38 40.3 | | | | | |
| 1986 | 07 09 | 15 58.06 | -37 33.0 | 2.034 | 2.858 | 136.4 | 14.2 | 15.0 |
| 1986 | 07 19 | 15 56.29 | -36 27.7 | | | | | |
| 1986 | 07 29 | 15 57.44 | -35 28.5 | 2.249 | 2.875 | 118.4 | 18.1 | 15.4 |
| 1986 | 08 08 | 16 01.27 | -34 37.5 | | | | | |
| 1986 | 08 18 | 16 07.46 | -33 55.0 | 2.508 | 2.890 | 101.8 | 20.1 | 15.7 |

1981 EO7 a,e,i = 2.60, 0.11, 13 Elements MPC 8392

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 47.99 | -14 11.5 | 2.574 | 2.872 | 97.2 | 20.1 | 19.2 |
| 1986 | 03 21 | 16 53.82 | -13 27.9 | | | | | |
| 1986 | 03 31 | 16 57.50 | -12 36.0 | 2.308 | 2.870 | 114.6 | 18.5 | 18.9 |
| 1986 | 04 10 | 16 58.82 | -11 36.8 | | | | | |
| 1986 | 04 20 | 16 57.65 | -10 32.1 | 2.081 | 2.867 | 133.6 | 14.7 | 18.6 |
| 1986 | 04 30 | 16 54.02 | -09 24.4 | | | | | |
| 1986 | 05 10 | 16 48.16 | -08 16.7 | 1.924 | 2.862 | 153.2 | 9.2 | 18.2 |
| 1986 | 05 20 | 16 40.58 | -07 13.4 | | | | | |
| 1986 | 05 30 | 16 32.01 | -06 18.8 | 1.865 | 2.855 | 164.6 | 5.4 | 18.0 |
| 1986 | 06 09 | 16 23.32 | -05 36.7 | | | | | |
| 1986 | 06 19 | 16 15.42 | -05 09.9 | 1.913 | 2.848 | 151.4 | 9.8 | 18.2 |
| 1986 | 06 29 | 16 09.05 | -04 59.3 | | | | | |
| 1986 | 07 09 | 16 04.72 | -05 04.2 | 2.054 | 2.838 | 132.1 | 15.4 | 18.6 |
| 1986 | 07 19 | 16 02.69 | -05 22.8 | | | | | |
| 1986 | 07 29 | 16 03.01 | -05 52.5 | 2.259 | 2.827 | 113.9 | 19.2 | 18.9 |
| 1986 | 08 08 | 16 05.60 | -06 30.7 | | | | | |
| 1986 | 08 18 | 16 10.31 | -07 14.7 | 2.498 | 2.815 | 97.5 | 20.9 | 19.1 |

1976 YO1 a,e,i = 2.41, 0.21, 3 Elements MPC 9753

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 53.36 | -25 09.0 | 2.632 | 2.888 | 94.7 | 20.1 | 19.3 |
| 1986 | 03 21 | 16 59.46 | -25 23.5 | | | | | |
| 1986 | 03 31 | 17 03.34 | -25 34.3 | 2.347 | 2.878 | 112.2 | 18.7 | 19.0 |
| 1986 | 04 10 | 17 04.72 | -25 41.5 | | | | | |
| 1986 | 04 20 | 17 03.37 | -25 44.6 | 2.095 | 2.865 | 131.8 | 15.2 | 18.6 |
| 1986 | 04 30 | 16 59.25 | -25 42.6 | | | | | |
| 1986 | 05 10 | 16 52.49 | -25 34.3 | 1.909 | 2.849 | 153.6 | 9.1 | 18.2 |
| 1986 | 05 20 | 16 43.59 | -25 18.8 | | | | | |
| 1986 | 05 30 | 16 33.38 | -24 55.8 | 1.818 | 2.830 | 176.1 | 1.4 | 17.7 |
| 1986 | 06 09 | 16 22.88 | -24 26.6 | | | | | |
| 1986 | 06 19 | 16 13.22 | -23 54.1 | 1.838 | 2.809 | 158.6 | 7.6 | 18.0 |
| 1986 | 06 29 | 16 05.32 | -23 22.2 | | | | | |
| 1986 | 07 09 | 15 59.81 | -22 54.3 | 1.958 | 2.785 | 136.5 | 14.6 | 18.4 |
| 1986 | 07 19 | 15 57.01 | -22 33.2 | | | | | |
| 1986 | 07 29 | 15 56.95 | -22 20.0 | 2.149 | 2.758 | 116.6 | 19.2 | 18.7 |
| 1986 | 08 08 | 15 59.51 | -22 15.0 | | | | | |
| 1986 | 08 18 | 16 04.49 | -22 17.3 | 2.378 | 2.729 | 99.2 | 21.5 | 19.0 |

1982 VR4 a,e,i = 3.10, 0.19, 2 Elements MPC 8385

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 48.71 | -20 01.6 | 3.052 | 3.312 | 96.3 | 17.3 | 18.7 |
| 1986 | 03 21 | 16 53.77 | -20 02.1 | | | | | |
| 1986 | 03 31 | 16 56.93 | -19 58.6 | 2.741 | 3.280 | 114.3 | 16.1 | 18.4 |
| 1986 | 04 10 | 16 58.01 | -19 51.6 | | | | | |
| 1986 | 04 20 | 16 56.86 | -19 41.4 | 2.469 | 3.247 | 133.9 | 12.9 | 18.1 |
| 1986 | 04 30 | 16 53.50 | -19 28.3 | | | | | |
| 1986 | 05 10 | 16 48.10 | -19 12.5 | 2.268 | 3.213 | 155.3 | 7.5 | 17.7 |
| 1986 | 05 20 | 16 41.04 | -18 54.8 | | | | | |
| 1986 | 05 30 | 16 32.96 | -18 36.2 | 2.166 | 3.178 | 176.3 | 1.2 | 17.2 |
| 1986 | 06 09 | 16 24.62 | -18 18.2 | | | | | |
| 1986 | 06 19 | 16 16.84 | -18 02.6 | 2.176 | 3.143 | 158.4 | 6.8 | 17.5 |
| 1986 | 06 29 | 16 10.36 | -17 51.5 | | | | | |
| 1986 | 07 09 | 16 05.70 | -17 46.2 | 2.287 | 3.107 | 136.8 | 12.9 | 17.8 |
| 1986 | 07 19 | 16 03.21 | -17 47.8 | | | | | |
| 1986 | 07 29 | 16 03.00 | -17 56.3 | 2.472 | 3.071 | 117.1 | 17.1 | 18.1 |
| 1986 | 08 08 | 16 05.03 | -18 11.1 | | | | | |
| 1986 | 08 18 | 16 09.22 | -18 31.5 | 2.698 | 3.034 | 99.6 | 19.2 | 18.3 |

1976 SD3 a,e,i = 3.23, 0.03, 4 Elements MPC 9956

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 52.19 | -24 08.9 | 3.046 | 3.286 | 95.1 | 17.5 | 17.7 |
| 1986 | 03 21 | 16 57.42 | -24 28.0 | | | | | |
| 1986 | 03 31 | 17 00.67 | -24 44.6 | 2.770 | 3.290 | 112.9 | 16.2 | 17.5 |
| 1986 | 04 10 | 17 01.73 | -24 58.6 | | | | | |
| 1986 | 04 20 | 17 00.50 | -25 09.7 | 2.531 | 3.294 | 132.5 | 13.0 | 17.2 |
| 1986 | 04 30 | 16 57.01 | -25 17.6 | | | | | |
| 1986 | 05 10 | 16 51.45 | -25 21.2 | 2.361 | 3.298 | 153.9 | 7.7 | 16.8 |
| 1986 | 05 20 | 16 44.27 | -25 20.0 | | | | | |
| 1986 | 05 30 | 16 36.11 | -25 13.8 | 2.290 | 3.301 | 175.5 | 1.4 | 16.5 |
| 1986 | 06 09 | 16 27.76 | -25 03.1 | | | | | |
| 1986 | 06 19 | 16 20.04 | -24 49.7 | 2.331 | 3.305 | 160.2 | 6.0 | 16.7 |
| 1986 | 06 29 | 16 13.65 | -24 35.7 | | | | | |
| 1986 | 07 09 | 16 09.07 | -24 23.3 | 2.474 | 3.308 | 138.8 | 11.7 | 17.1 |
| 1986 | 07 19 | 16 06.62 | -24 14.4 | | | | | |
| 1986 | 07 29 | 16 06.36 | -24 10.2 | 2.695 | 3.310 | 119.1 | 15.5 | 17.4 |
| 1986 | 08 08 | 16 08.26 | -24 11.0 | | | | | |
| 1986 | 08 18 | 16 12.19 | -24 16.5 | 2.962 | 3.313 | 101.3 | 17.4 | 17.7 |

1983 XS a,e,i = 3.10, 0.15, 5 Elements MPC 8540

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 46.04 | -27 49.4 | 2.432 | 2.721 | 96.0 | 21.3 | 16.5 |
| 1986 | 03 21 | 16 53.64 | -28 14.1 | | | | | |
| 1986 | 03 31 | 16 58.89 | -28 34.2 | 2.195 | 2.742 | 112.8 | 19.6 | 16.3 |
| 1986 | 04 10 | 17 01.51 | -28 49.8 | | | | | |
| 1986 | 04 20 | 17 01.33 | -28 59.9 | 1.992 | 2.764 | 131.7 | 15.7 | 16.0 |
| 1986 | 04 30 | 16 58.35 | -29 03.5 | | | | | |
| 1986 | 05 10 | 16 52.80 | -28 59.0 | 1.853 | 2.788 | 152.6 | 9.6 | 15.6 |
| 1986 | 05 20 | 16 45.24 | -28 45.1 | | | | | |
| 1986 | 05 30 | 16 36.54 | -28 21.7 | 1.805 | 2.814 | 172.7 | 2.6 | 15.3 |
| 1986 | 06 09 | 16 27.74 | -27 50.2 | | | | | |
| 1986 | 06 19 | 16 19.87 | -27 13.7 | 1.864 | 2.840 | 160.0 | 7.0 | 15.6 |
| 1986 | 06 29 | 16 13.76 | -26 36.3 | | | | | |
| 1986 | 07 09 | 16 09.93 | -26 01.6 | 2.021 | 2.868 | 139.1 | 13.4 | 16.0 |
| 1986 | 07 19 | 16 08.61 | -25 32.4 | | | | | |
| 1986 | 07 29 | 16 09.80 | -25 10.1 | 2.252 | 2.896 | 120.0 | 17.7 | 16.4 |
| 1986 | 08 08 | 16 13.34 | -24 55.0 | | | | | |
| 1986 | 08 18 | 16 19.01 | -24 46.4 | 2.528 | 2.925 | 102.9 | 19.7 | 16.7 |

1978 VO8 a,e,i = 3.05, 0.15, 3 Elements MPC 10157

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 55.73 | -20 22.0 | 2.715 | 2.966 | 94.7 | 19.5 | 18.9 |
| 1986 | 03 21 | 17 01.73 | -20 27.2 | | | | | |
| 1986 | 03 31 | 17 05.59 | -20 28.9 | 2.471 | 2.995 | 112.2 | 18.0 | 18.7 |
| 1986 | 04 10 | 17 07.10 | -20 27.6 | | | | | |
| 1986 | 04 20 | 17 06.14 | -20 23.7 | 2.262 | 3.025 | 131.7 | 14.4 | 18.4 |
| 1986 | 04 30 | 17 02.76 | -20 17.5 | | | | | |
| 1986 | 05 10 | 16 57.17 | -20 09.3 | 2.118 | 3.054 | 153.2 | 8.6 | 18.1 |
| 1986 | 05 20 | 16 49.84 | -19 59.3 | | | | | |
| 1986 | 05 30 | 16 41.50 | -19 48.2 | 2.071 | 3.083 | 175.5 | 1.5 | 17.7 |
| 1986 | 06 09 | 16 32.97 | -19 37.1 | | | | | |
| 1986 | 06 19 | 16 25.12 | -19 27.7 | 2.134 | 3.111 | 160.6 | 6.2 | 18.0 |
| 1986 | 06 29 | 16 18.68 | -19 21.5 | | | | | |
| 1986 | 07 09 | 16 14.12 | -19 19.9 | 2.300 | 3.139 | 139.1 | 12.2 | 18.4 |
| 1986 | 07 19 | 16 11.75 | -19 23.7 | | | | | |
| 1986 | 07 29 | 16 11.60 | -19 33.0 | 2.541 | 3.167 | 119.5 | 16.2 | 18.8 |
| 1986 | 08 08 | 16 13.61 | -19 47.4 | | | | | |
| 1986 | 08 18 | 16 17.64 | -20 06.1 | 2.829 | 3.193 | 101.8 | 18.1 | 19.1 |

1983 VE a,e,i = 2.63, 0.28, 4 Elements MPC 8464

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 03.27 | -21 58.8 | 3.152 | 3.350 | 92.8 | 17.2 | 18.9 |
| 1986 | 03 21 | 17 08.02 | -21 56.6 | | | | | |
| 1986 | 03 31 | 17 10.82 | -21 51.0 | 2.852 | 3.341 | 110.9 | 16.2 | 18.7 |
| 1986 | 04 10 | 17 11.48 | -21 42.0 | | | | | |
| 1986 | 04 20 | 17 09.85 | -21 29.8 | 2.584 | 3.328 | 130.8 | 13.2 | 18.3 |
| 1986 | 04 30 | 17 05.94 | -21 14.2 | | | | | |
| 1986 | 05 10 | 16 59.90 | -20 55.2 | 2.384 | 3.313 | 152.5 | 8.1 | 18.0 |
| 1986 | 05 20 | 16 52.12 | -20 33.1 | | | | | |
| 1986 | 05 30 | 16 43.22 | -20 08.5 | 2.284 | 3.295 | 175.3 | 1.4 | 17.6 |
| 1986 | 06 09 | 16 33.96 | -19 42.8 | | | | | |
| 1986 | 06 19 | 16 25.17 | -19 18.0 | 2.298 | 3.274 | 160.6 | 5.9 | 17.8 |
| 1986 | 06 29 | 16 17.60 | -18 56.2 | | | | | |
| 1986 | 07 09 | 16 11.81 | -18 39.5 | 2.419 | 3.250 | 138.4 | 12.0 | 18.1 |
| 1986 | 07 19 | 16 08.14 | -18 29.2 | | | | | |
| 1986 | 07 29 | 16 06.72 | -18 25.7 | 2.618 | 3.223 | 118.1 | 16.1 | 18.4 |
| 1986 | 08 08 | 16 07.52 | -18 29.1 | | | | | |
| 1986 | 08 18 | 16 10.44 | -18 38.4 | 2.861 | 3.194 | 99.9 | 18.2 | 18.6 |

1981 QZ2 a,e,i = 3.21, 0.15, 2 Elements MPC 8384

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 48.97 | -20 12.6 | 2.609 | 2.891 | 96.3 | 20.0 | 17.7 |
| 1986 | 03 21 | 16 56.16 | -20 18.2 | | | | | |
| 1986 | 03 31 | 17 01.35 | -20 19.6 | 2.324 | 2.869 | 113.2 | 18.7 | 17.4 |
| 1986 | 04 10 | 17 04.30 | -20 17.3 | | | | | |
| 1986 | 04 20 | 17 04.79 | -20 12.0 | 2.076 | 2.848 | 132.0 | 15.2 | 17.0 |
| 1986 | 04 30 | 17 02.79 | -20 04.1 | | | | | |
| 1986 | 05 10 | 16 58.39 | -19 54.0 | 1.892 | 2.828 | 152.9 | 9.4 | 16.6 |
| 1986 | 05 20 | 16 51.99 | -19 42.2 | | | | | |
| 1986 | 05 30 | 16 44.27 | -19 29.5 | 1.799 | 2.810 | 174.8 | 1.9 | 16.1 |
| 1986 | 06 09 | 16 36.07 | -19 17.2 | | | | | |
| 1986 | 06 19 | 16 28.38 | -19 07.1 | 1.813 | 2.794 | 161.3 | 6.7 | 16.4 |
| 1986 | 06 29 | 16 22.08 | -19 01.0 | | | | | |
| 1986 | 07 09 | 16 17.77 | -19 00.4 | 1.924 | 2.780 | 139.8 | 13.6 | 16.7 |
| 1986 | 07 19 | 16 15.86 | -19 06.2 | | | | | |
| 1986 | 07 29 | 16 16.47 | -19 18.5 | 2.110 | 2.768 | 120.5 | 18.4 | 17.1 |
| 1986 | 08 08 | 16 19.53 | -19 36.5 | | | | | |
| 1986 | 08 18 | 16 24.91 | -19 59.1 | 2.340 | 2.757 | 103.5 | 20.9 | 17.4 |

(3262) 1983 WB a,e,i = 3.01, 0.07, 9 Elements MPC 9756

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 00.98 | -19 56.5 | 2.836 | 3.061 | 93.5 | 18.9 | 16.5 |
| 1986 | 03 21 | 17 06.87 | -20 15.5 | | | | | |
| 1986 | 03 31 | 17 10.72 | -20 32.9 | 2.571 | 3.074 | 111.0 | 17.7 | 16.3 |
| 1986 | 04 10 | 17 12.33 | -20 49.3 | | | | | |
| 1986 | 04 20 | 17 11.53 | -21 05.1 | 2.338 | 3.086 | 130.4 | 14.4 | 16.0 |
| 1986 | 04 30 | 17 08.30 | -21 20.4 | | | | | |
| 1986 | 05 10 | 17 02.80 | -21 34.8 | 2.171 | 3.098 | 151.8 | 8.9 | 15.7 |
| 1986 | 05 20 | 16 55.42 | -21 47.8 | | | | | |
| 1986 | 05 30 | 16 46.83 | -21 59.0 | 2.098 | 3.109 | 174.7 | 1.7 | 15.3 |
| 1986 | 06 09 | 16 37.83 | -22 08.3 | | | | | |
| 1986 | 06 19 | 16 29.33 | -22 16.4 | 2.137 | 3.120 | 162.2 | 5.7 | 15.5 |
| 1986 | 06 29 | 16 22.13 | -22 24.4 | | | | | |
| 1986 | 07 09 | 16 16.79 | -22 33.8 | 2.280 | 3.130 | 140.3 | 12.0 | 15.9 |
| 1986 | 07 19 | 16 13.69 | -22 45.8 | | | | | |
| 1986 | 07 29 | 16 12.93 | -23 01.1 | 2.501 | 3.140 | 120.4 | 16.2 | 16.2 |
| 1986 | 08 08 | 16 14.47 | -23 20.0 | | | | | |
| 1986 | 08 18 | 16 18.18 | -23 42.1 | 2.770 | 3.149 | 102.5 | 18.3 | 16.5 |

(3210) 1983 WH1 a,e,i = 3.11, 0.06, 14 Elements MPC 9464

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 00.36 | -08 30.9 | 2.873 | 3.115 | 94.7 | 18.5 | 17.1 |
| 1986 | 03 21 | 17 05.89 | -08 05.3 | | | | | |
| 1986 | 03 31 | 17 09.47 | -07 35.8 | 2.618 | 3.127 | 111.6 | 17.3 | 16.9 |
| 1986 | 04 10 | 17 10.94 | -07 03.9 | | | | | |
| 1986 | 04 20 | 17 10.18 | -06 32.0 | 2.397 | 3.138 | 130.0 | 14.2 | 16.6 |
| 1986 | 04 30 | 17 07.23 | -06 02.5 | | | | | |
| 1986 | 05 10 | 17 02.26 | -05 38.1 | 2.241 | 3.150 | 148.9 | 9.5 | 16.3 |
| 1986 | 05 20 | 16 55.66 | -05 21.7 | | | | | |
| 1986 | 05 30 | 16 48.03 | -05 15.7 | 2.178 | 3.161 | 162.7 | 5.5 | 16.1 |
| 1986 | 06 09 | 16 40.07 | -05 21.6 | | | | | |
| 1986 | 06 19 | 16 32.56 | -05 39.9 | 2.222 | 3.171 | 154.8 | 7.8 | 16.2 |
| 1986 | 06 29 | 16 26.17 | -06 10.0 | | | | | |
| 1986 | 07 09 | 16 21.39 | -06 50.4 | 2.365 | 3.182 | 136.6 | 12.7 | 16.5 |
| 1986 | 07 19 | 16 18.58 | -07 39.3 | | | | | |
| 1986 | 07 29 | 16 17.83 | -08 34.2 | 2.584 | 3.192 | 118.2 | 16.3 | 16.9 |
| 1986 | 08 08 | 16 19.14 | -09 33.2 | | | | | |
| 1986 | 08 18 | 16 22.43 | -10 34.5 | 2.849 | 3.202 | 101.1 | 18.1 | 17.1 |

(3164) 6562 P-L a,e,i = 3.14, 0.17, 2 Elements MPC 9296

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 05.61 | -22 40.3 | 3.147 | 3.335 | 92.1 | 17.3 | 18.4 |
| 1986 | 03 21 | 17 10.77 | -22 50.4 | | | | | |
| 1986 | 03 31 | 17 13.97 | -22 58.1 | 2.888 | 3.364 | 110.1 | 16.2 | 18.2 |
| 1986 | 04 10 | 17 15.02 | -23 03.6 | | | | | |
| 1986 | 04 20 | 17 13.84 | -23 07.1 | 2.661 | 3.392 | 129.7 | 13.2 | 18.0 |
| 1986 | 04 30 | 17 10.46 | -23 08.4 | | | | | |
| 1986 | 05 10 | 17 05.05 | -23 06.9 | 2.500 | 3.419 | 151.2 | 8.2 | 17.7 |
| 1986 | 05 20 | 16 58.02 | -23 02.6 | | | | | |
| 1986 | 05 30 | 16 49.95 | -22 55.2 | 2.435 | 3.445 | 173.9 | 1.8 | 17.3 |
| 1986 | 06 09 | 16 41.57 | -22 45.4 | | | | | |
| 1986 | 06 19 | 16 33.64 | -22 34.4 | 2.485 | 3.470 | 163.2 | 4.9 | 17.5 |
| 1986 | 06 29 | 16 26.85 | -22 23.8 | | | | | |
| 1986 | 07 09 | 16 21.67 | -22 15.4 | 2.641 | 3.493 | 141.3 | 10.5 | 17.9 |
| 1986 | 07 19 | 16 18.43 | -22 10.4 | | | | | |
| 1986 | 07 29 | 16 17.25 | -22 09.7 | 2.880 | 3.515 | 121.2 | 14.3 | 18.2 |
| 1986 | 08 08 | 16 18.10 | -22 13.4 | | | | | |
| 1986 | 08 18 | 16 20.89 | -22 21.5 | 3.170 | 3.536 | 102.9 | 16.2 | 18.5 |

(3228) 1935 CL a,e,i = 2.46, 0.14, 2 Elements MPC 9582

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 03.03 | -24 34.5 | 2.316 | 2.560 | 92.6 | 22.8 | 17.8 |
| 1986 | 03 21 | 17 11.21 | -24 47.9 | | | | | |
| 1986 | 03 31 | 17 17.02 | -24 57.5 | 2.081 | 2.587 | 109.2 | 21.4 | 17.6 |
| 1986 | 04 10 | 17 20.14 | -25 03.6 | | | | | |
| 1986 | 04 20 | 17 20.31 | -25 06.3 | 1.871 | 2.613 | 128.1 | 17.6 | 17.3 |
| 1986 | 04 30 | 17 17.45 | -25 05.2 | | | | | |
| 1986 | 05 10 | 17 11.67 | -24 59.4 | 1.718 | 2.638 | 149.4 | 11.2 | 16.9 |
| 1986 | 05 20 | 17 03.42 | -24 47.8 | | | | | |
| 1986 | 05 30 | 16 53.57 | -24 30.0 | 1.652 | 2.661 | 172.6 | 2.8 | 16.5 |
| 1986 | 06 09 | 16 43.19 | -24 06.9 | | | | | |
| 1986 | 06 19 | 16 33.48 | -23 40.8 | 1.693 | 2.682 | 163.2 | 6.3 | 16.7 |
| 1986 | 06 29 | 16 25.47 | -23 15.0 | | | | | |
| 1986 | 07 09 | 16 19.82 | -22 52.7 | 1.835 | 2.702 | 141.0 | 13.7 | 17.2 |
| 1986 | 07 19 | 16 16.91 | -22 36.2 | | | | | |
| 1986 | 07 29 | 16 16.76 | -22 26.7 | 2.053 | 2.721 | 121.2 | 18.6 | 17.6 |
| 1986 | 08 08 | 16 19.22 | -22 24.1 | | | | | |
| 1986 | 08 18 | 16 24.09 | -22 27.6 | 2.315 | 2.737 | 103.7 | 21.1 | 17.9 |

1974 QU1 a,e,i = 2.64, 0.24, 2 Elements MPC 8533

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 09.36 | -21 51.1 | 3.015 | 3.197 | 91.4 | 18.1 | 18.7 |
| 1986 | 03 21 | 17 15.21 | -21 51.9 | | | | | |
| 1986 | 03 31 | 17 19.14 | -21 49.6 | 2.709 | 3.177 | 109.0 | 17.3 | 18.5 |
| 1986 | 04 10 | 17 20.92 | -21 44.6 | | | | | |
| 1986 | 04 20 | 17 20.36 | -21 36.9 | 2.432 | 3.155 | 128.3 | 14.5 | 18.1 |
| 1986 | 04 30 | 17 17.39 | -21 26.8 | | | | | |
| 1986 | 05 10 | 17 12.08 | -21 14.1 | 2.218 | 3.131 | 149.7 | 9.4 | 17.8 |
| 1986 | 05 20 | 17 04.73 | -20 58.7 | | | | | |
| 1986 | 05 30 | 16 55.94 | -20 41.0 | 2.096 | 3.104 | 172.5 | 2.4 | 17.3 |
| 1986 | 06 09 | 16 46.48 | -20 21.7 | | | | | |
| 1986 | 06 19 | 16 37.25 | -20 02.5 | 2.087 | 3.075 | 163.6 | 5.4 | 17.4 |
| 1986 | 06 29 | 16 29.14 | -19 45.5 | | | | | |
| 1986 | 07 09 | 16 22.79 | -19 32.5 | 2.184 | 3.043 | 141.1 | 12.1 | 17.8 |
| 1986 | 07 19 | 16 18.68 | -19 25.2 | | | | | |
| 1986 | 07 29 | 16 16.98 | -19 24.3 | 2.361 | 3.009 | 120.7 | 16.9 | 18.0 |
| 1986 | 08 08 | 16 17.70 | -19 29.7 | | | | | |
| 1986 | 08 18 | 16 20.75 | -19 40.9 | 2.586 | 2.973 | 102.4 | 19.4 | 18.3 |

(3235) 1981 EL1 a,e,i = 2.69, 0.24, 13 Elements MPC 9587

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 07.16 | -36 36.0 | 2.194 | 2.416 | 90.5 | 24.3 | 18.1 |
| 1986 | 03 21 | 17 17.64 | -37 51.9 | | | | | |
| 1986 | 03 31 | 17 25.50 | -39 06.9 | 2.002 | 2.468 | 105.8 | 22.9 | 17.9 |
| 1986 | 04 10 | 17 30.30 | -40 20.9 | | | | | |
| 1986 | 04 20 | 17 31.59 | -41 32.4 | 1.831 | 2.521 | 122.7 | 19.6 | 17.7 |
| 1986 | 04 30 | 17 29.14 | -42 38.0 | | | | | |
| 1986 | 05 10 | 17 22.91 | -43 32.5 | 1.710 | 2.573 | 140.8 | 14.4 | 17.4 |
| 1986 | 05 20 | 17 13.37 | -44 09.5 | | | | | |
| 1986 | 05 30 | 17 01.59 | -44 23.3 | 1.667 | 2.625 | 155.9 | 9.1 | 17.2 |
| 1986 | 06 09 | 16 49.03 | -44 11.3 | | | | | |
| 1986 | 06 19 | 16 37.35 | -43 35.3 | 1.720 | 2.677 | 155.3 | 9.1 | 17.4 |
| 1986 | 06 29 | 16 27.91 | -42 41.4 | | | | | |
| 1986 | 07 09 | 16 21.51 | -41 37.3 | 1.868 | 2.728 | 140.1 | 13.8 | 17.7 |
| 1986 | 07 19 | 16 18.49 | -40 30.7 | | | | | |
| 1986 | 07 29 | 16 18.75 | -39 26.9 | 2.093 | 2.777 | 122.8 | 17.9 | 18.1 |
| 1986 | 08 08 | 16 21.97 | -38 29.2 | | | | | |
| 1986 | 08 18 | 16 27.81 | -37 38.9 | 2.369 | 2.825 | 106.3 | 20.1 | 18.5 |

(3276) 1982 RZ1 a,e,i = 3.11, 0.18, 3 Elements MPC 9763

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 12.04 | -22 36.6 | 3.501 | 3.650 | 90.7 | 15.8 | 18.3 |
| 1986 | 03 21 | 17 16.87 | -22 44.8 | | | | | |
| 1986 | 03 31 | 17 19.93 | -22 51.1 | 3.198 | 3.644 | 108.7 | 15.1 | 18.1 |
| 1986 | 04 10 | 17 21.06 | -22 55.7 | | | | | |
| 1986 | 04 20 | 17 20.14 | -22 58.8 | 2.926 | 3.635 | 128.3 | 12.5 | 17.8 |
| 1986 | 04 30 | 17 17.16 | -23 00.2 | | | | | |
| 1986 | 05 10 | 17 12.23 | -22 59.6 | 2.719 | 3.626 | 149.5 | 8.1 | 17.5 |
| 1986 | 05 20 | 17 05.66 | -22 56.7 | | | | | |
| 1986 | 05 30 | 16 57.93 | -22 51.1 | 2.608 | 3.614 | 172.1 | 2.2 | 17.1 |
| 1986 | 06 09 | 16 49.67 | -22 43.3 | | | | | |
| 1986 | 06 19 | 16 41.61 | -22 34.0 | 2.611 | 3.602 | 165.0 | 4.2 | 17.2 |
| 1986 | 06 29 | 16 34.42 | -22 24.7 | | | | | |
| 1986 | 07 09 | 16 28.65 | -22 16.8 | 2.723 | 3.587 | 142.9 | 9.8 | 17.5 |
| 1986 | 07 19 | 16 24.69 | -22 11.7 | | | | | |
| 1986 | 07 29 | 16 22.72 | -22 10.5 | 2.922 | 3.572 | 122.5 | 13.9 | 17.8 |
| 1986 | 08 08 | 16 22.79 | -22 13.5 | | | | | |
| 1986 | 08 18 | 16 24.85 | -22 20.7 | 3.174 | 3.555 | 103.8 | 16.1 | 18.0 |

1981 EH20 a,e,i = 2.71, 0.14, 2 Elements MPC 9961

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 49.21 | -20 24.2 | 2.012 | 2.338 | 96.2 | 25.0 | 19.9 |
| 1986 | 03 21 | 16 59.77 | -20 26.7 | | | | | |
| 1986 | 03 31 | 17 08.13 | -20 22.6 | 1.768 | 2.329 | 111.6 | 23.5 | 19.5 |
| 1986 | 04 10 | 17 13.93 | -20 13.0 | | | | | |
| 1986 | 04 20 | 17 16.82 | -19 58.9 | 1.553 | 2.322 | 129.2 | 19.6 | 19.2 |
| 1986 | 04 30 | 17 16.64 | -19 41.3 | | | | | |
| 1986 | 05 10 | 17 13.36 | -19 21.2 | 1.392 | 2.319 | 149.4 | 12.8 | 18.7 |
| 1986 | 05 20 | 17 07.35 | -18 59.8 | | | | | |
| 1986 | 05 30 | 16 59.37 | -18 38.4 | 1.312 | 2.319 | 171.2 | 3.8 | 18.2 |
| 1986 | 06 09 | 16 50.51 | -18 18.7 | | | | | |
| 1986 | 06 19 | 16 42.08 | -18 03.3 | 1.328 | 2.322 | 164.0 | 6.9 | 18.4 |
| 1986 | 06 29 | 16 35.24 | -17 54.4 | | | | | |
| 1986 | 07 09 | 16 30.82 | -17 53.5 | 1.437 | 2.328 | 142.6 | 15.4 | 18.9 |
| 1986 | 07 19 | 16 29.28 | -18 01.2 | | | | | |
| 1986 | 07 29 | 16 30.72 | -18 16.6 | 1.616 | 2.337 | 123.7 | 21.2 | 19.3 |
| 1986 | 08 08 | 16 34.99 | -18 38.4 | | | | | |
| 1986 | 08 18 | 16 41.88 | -19 04.6 | 1.840 | 2.349 | 107.3 | 24.3 | 19.7 |

1976 SF a,e,i = 3.18, 0.15, 1 Elements MPC 9956

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 12.40 | -21 27.6 | 3.431 | 3.583 | 90.7 | 16.1 | 18.3 |
| 1986 | 03 21 | 17 17.58 | -21 29.4 | | | | | |
| 1986 | 03 31 | 17 21.02 | -21 28.8 | 3.125 | 3.571 | 108.5 | 15.4 | 18.1 |
| 1986 | 04 10 | 17 22.53 | -21 26.0 | | | | | |
| 1986 | 04 20 | 17 22.00 | -21 21.5 | 2.850 | 3.557 | 128.0 | 12.9 | 17.8 |
| 1986 | 04 30 | 17 19.40 | -21 15.3 | | | | | |
| 1986 | 05 10 | 17 14.82 | -21 07.5 | 2.638 | 3.543 | 149.0 | 8.4 | 17.5 |
| 1986 | 05 20 | 17 08.57 | -20 58.0 | | | | | |
| 1986 | 05 30 | 17 01.11 | -20 47.1 | 2.521 | 3.527 | 171.3 | 2.5 | 17.1 |
| 1986 | 06 09 | 16 53.07 | -20 35.4 | | | | | |
| 1986 | 06 19 | 16 45.17 | -20 23.8 | 2.517 | 3.510 | 165.4 | 4.2 | 17.2 |
| 1986 | 06 29 | 16 38.11 | -20 13.6 | | | | | |
| 1986 | 07 09 | 16 32.43 | -20 06.2 | 2.622 | 3.492 | 143.4 | 10.0 | 17.5 |
| 1986 | 07 19 | 16 28.55 | -20 02.8 | | | | | |
| 1986 | 07 29 | 16 26.67 | -20 03.9 | 2.813 | 3.473 | 123.0 | 14.2 | 17.8 |
| 1986 | 08 08 | 16 26.85 | -20 09.8 | | | | | |
| 1986 | 08 18 | 16 29.04 | -20 20.0 | 3.058 | 3.453 | 104.5 | 16.5 | 18.0 |

1976 GR6 a,e,i = 2.20, 0.09, 6 Elements MPC 9078

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 52.84 | -15 24.3 | 1.669 | 2.028 | 95.9 | 29.2 | 17.3 |
| 1986 | 03 21 | 17 04.89 | -15 20.0 | | | | | |
| 1986 | 03 31 | 17 14.50 | -15 09.1 | 1.463 | 2.038 | 110.4 | 27.4 | 17.0 |
| 1986 | 04 10 | 17 21.22 | -14 53.5 | | | | | |
| 1986 | 04 20 | 17 24.65 | -14 35.9 | 1.280 | 2.050 | 127.3 | 22.9 | 16.6 |
| 1986 | 04 30 | 17 24.52 | -14 19.0 | | | | | |
| 1986 | 05 10 | 17 20.75 | -14 05.4 | 1.143 | 2.065 | 147.1 | 15.4 | 16.1 |
| 1986 | 05 20 | 17 13.69 | -13 57.8 | | | | | |
| 1986 | 05 30 | 17 04.23 | -13 58.2 | 1.079 | 2.081 | 167.8 | 5.9 | 15.7 |
| 1986 | 06 09 | 16 53.66 | -14 08.1 | | | | | |
| 1986 | 06 19 | 16 43.58 | -14 28.1 | 1.106 | 2.098 | 162.6 | 8.3 | 15.8 |
| 1986 | 06 29 | 16 35.42 | -14 57.9 | | | | | |
| 1986 | 07 09 | 16 30.12 | -15 36.5 | 1.221 | 2.116 | 141.8 | 17.3 | 16.4 |
| 1986 | 07 19 | 16 28.17 | -16 22.2 | | | | | |
| 1986 | 07 29 | 16 29.59 | -17 13.0 | 1.403 | 2.135 | 123.2 | 23.5 | 16.9 |
| 1986 | 08 08 | 16 34.15 | -18 06.6 | | | | | |
| 1986 | 08 18 | 16 41.56 | -19 00.8 | 1.627 | 2.155 | 107.2 | 26.7 | 17.3 |

(3169) 1981 LA a,e,i = 1.89, 0.07, 25 Elements MPC 9352

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 14.16 | +01 37.2 | 1.572 | 1.889 | 92.0 | 31.7 | 16.1 |
| 1986 | 03 21 | 17 25.53 | +01 50.5 | | | | | |
| 1986 | 03 31 | 17 34.28 | +02 05.1 | 1.385 | 1.906 | 105.0 | 30.4 | 15.8 |
| 1986 | 04 10 | 17 39.97 | +02 16.8 | | | | | |
| 1986 | 04 20 | 17 42.10 | +02 19.6 | 1.208 | 1.922 | 120.3 | 26.8 | 15.4 |
| 1986 | 04 30 | 17 40.30 | +02 06.3 | | | | | |
| 1986 | 05 10 | 17 34.34 | +01 29.3 | 1.062 | 1.938 | 138.5 | 20.2 | 15.0 |
| 1986 | 05 20 | 17 24.39 | +00 20.8 | | | | | |
| 1986 | 05 30 | 17 11.31 | -01 23.3 | 0.980 | 1.952 | 156.7 | 11.8 | 14.5 |
| 1986 | 06 09 | 16 56.54 | -03 41.4 | | | | | |
| 1986 | 06 19 | 16 42.06 | -06 25.3 | 0.990 | 1.966 | 157.0 | 11.7 | 14.6 |
| 1986 | 06 29 | 16 29.69 | -09 22.6 | | | | | |
| 1986 | 07 09 | 16 20.72 | -12 21.4 | 1.098 | 1.978 | 138.6 | 19.8 | 15.1 |
| 1986 | 07 19 | 16 15.79 | -15 13.5 | | | | | |
| 1986 | 07 29 | 16 14.95 | -17 54.6 | 1.278 | 1.989 | 119.9 | 26.3 | 15.6 |
| 1986 | 08 08 | 16 17.91 | -20 22.9 | | | | | |
| 1986 | 08 18 | 16 24.31 | -22 38.3 | 1.499 | 1.999 | 103.8 | 29.5 | 16.0 |

1983 RO2 a,e,i = 2.24, 0.15, 4 Elements MPC 8382

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 16 52.81 | -17 38.5 | 1.879 | 2.210 | 95.6 | 26.6 | 18.1 |
| 1986 | 03 21 | 17 04.30 | -17 34.6 | | | | | |
| 1986 | 03 31 | 17 13.77 | -17 23.6 | 1.615 | 2.176 | 110.5 | 25.5 | 17.8 |
| 1986 | 04 10 | 17 20.79 | -17 06.7 | | | | | |
| 1986 | 04 20 | 17 24.94 | -16 45.6 | 1.378 | 2.141 | 127.3 | 21.9 | 17.3 |
| 1986 | 04 30 | 17 25.88 | -16 22.2 | | | | | |
| 1986 | 05 10 | 17 23.40 | -15 58.4 | 1.189 | 2.107 | 146.7 | 15.2 | 16.7 |
| 1986 | 05 20 | 17 17.59 | -15 36.5 | | | | | |
| 1986 | 05 30 | 17 09.07 | -15 19.1 | 1.073 | 2.074 | 167.6 | 6.0 | 16.2 |
| 1986 | 06 09 | 16 58.92 | -15 08.4 | | | | | |
| 1986 | 06 19 | 16 48.68 | -15 06.8 | 1.047 | 2.043 | 164.0 | 7.9 | 16.1 |
| 1986 | 06 29 | 16 39.91 | -15 16.1 | | | | | |
| 1986 | 07 09 | 16 33.83 | -15 36.7 | 1.108 | 2.014 | 142.7 | 17.8 | 16.6 |
| 1986 | 07 19 | 16 31.20 | -16 08.1 | | | | | |
| 1986 | 07 29 | 16 32.26 | -16 48.5 | 1.235 | 1.987 | 123.7 | 25.2 | 17.0 |
| 1986 | 08 08 | 16 36.88 | -17 35.3 | | | | | |
| 1986 | 08 18 | 16 44.82 | -18 25.6 | 1.400 | 1.963 | 107.9 | 29.4 | 17.3 |

5557 P-L a,e,i = 3.12, 0.14, 1 Elements MPC 9301

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 11 | 17 06.85 | -24 04.2 | 2.508 | 2.725 | 91.7 | 21.4 | 18.8 |
| 1986 | 03 21 | 17 15.56 | -24 19.4 | | | | | |
| 1986 | 03 31 | 17 22.17 | -24 31.4 | 2.261 | 2.741 | 108.1 | 20.3 | 18.5 |
| 1986 | 04 10 | 17 26.39 | -24 40.6 | | | | | |
| 1986 | 04 20 | 17 27.99 | -24 47.6 | 2.041 | 2.758 | 126.4 | 17.1 | 18.2 |
| 1986 | 04 30 | 17 26.87 | -24 52.3 | | | | | |
| 1986 | 05 10 | 17 23.08 | -24 54.2 | 1.876 | 2.777 | 146.9 | 11.5 | 17.9 |
| 1986 | 05 20 | 17 16.94 | -24 52.3 | | | | | |
| 1986 | 05 30 | 17 09.12 | -24 46.2 | 1.796 | 2.798 | 169.2 | 3.9 | 17.5 |
| 1986 | 06 09 | 17 00.47 | -24 35.7 | | | | | |
| 1986 | 06 19 | 16 52.04 | -24 22.1 | 1.820 | 2.820 | 167.5 | 4.5 | 17.6 |
| 1986 | 06 29 | 16 44.77 | -24 07.2 | | | | | |
| 1986 | 07 09 | 16 39.41 | -23 53.3 | 1.946 | 2.843 | 145.6 | 11.7 | 18.0 |
| 1986 | 07 19 | 16 36.39 | -23 42.7 | | | | | |
| 1986 | 07 29 | 16 35.88 | -23 36.4 | 2.154 | 2.868 | 125.7 | 16.7 | 18.4 |
| 1986 | 08 08 | 16 37.84 | -23 34.9 | | | | | |
| 1986 | 08 18 | 16 42.13 | -23 37.8 | 2.416 | 2.893 | 107.9 | 19.4 | 18.8 |

(3178) 1984 WA a,e,i = 2.71, 0.38, 7 Elements MPC 9359

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 41.21 | -22 44.5 | 2.536 | 2.939 | 103.8 | 19.3 | 17.7 |
| 1986 | 04 10 | 17 43.30 | -22 28.4 | | | | | |
| 1986 | 04 20 | 17 42.79 | -22 10.1 | 2.340 | 3.009 | 123.1 | 16.2 | 17.5 |
| 1986 | 04 30 | 17 39.68 | -21 49.7 | | | | | |
| 1986 | 05 10 | 17 34.09 | -21 27.1 | 2.197 | 3.076 | 144.5 | 11.0 | 17.2 |
| 1986 | 05 20 | 17 26.43 | -21 02.5 | | | | | |
| 1986 | 05 30 | 17 17.32 | -20 36.2 | 2.142 | 3.139 | 167.5 | 4.0 | 17.0 |
| 1986 | 06 09 | 17 07.57 | -20 09.0 | | | | | |
| 1986 | 06 19 | 16 58.11 | -19 42.7 | 2.199 | 3.200 | 168.1 | 3.7 | 17.0 |
| 1986 | 06 29 | 16 49.74 | -19 19.1 | | | | | |
| 1986 | 07 09 | 16 43.08 | -19 00.0 | 2.367 | 3.257 | 145.7 | 10.1 | 17.5 |
| 1986 | 07 19 | 16 38.51 | -18 46.5 | | | | | |
| 1986 | 07 29 | 16 36.17 | -18 39.1 | 2.623 | 3.311 | 125.0 | 14.5 | 17.9 |
| 1986 | 08 08 | 16 36.02 | -18 37.6 | | | | | |
| 1986 | 08 18 | 16 37.94 | -18 41.2 | 2.935 | 3.362 | 106.3 | 16.8 | 18.3 |
| 1986 | 08 28 | 16 41.73 | -18 49.0 | | | | | |
| 1986 | 09 07 | 16 47.18 | -18 59.7 | 3.272 | 3.410 | 89.2 | 17.2 | 18.5 |

1982 FQ2 a,e,i = 2.31, 0.15, 6 Elements MPC 7780

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 33.36 | -15 06.6 | 1.670 | 2.167 | 105.8 | 26.3 | 18.8 |
| 1986 | 04 10 | 17 39.82 | -14 34.6 | | | | | |
| 1986 | 04 20 | 17 43.17 | -14 00.1 | 1.488 | 2.200 | 122.8 | 22.6 | 18.5 |
| 1986 | 04 30 | 17 43.20 | -13 25.7 | | | | | |
| 1986 | 05 10 | 17 39.85 | -12 54.0 | 1.348 | 2.234 | 142.3 | 16.1 | 18.2 |
| 1986 | 05 20 | 17 33.40 | -12 28.1 | | | | | |
| 1986 | 05 30 | 17 24.56 | -12 10.4 | 1.280 | 2.268 | 162.7 | 7.6 | 17.8 |
| 1986 | 06 09 | 17 14.39 | -12 03.1 | | | | | |
| 1986 | 06 19 | 17 04.26 | -12 07.6 | 1.306 | 2.302 | 164.9 | 6.6 | 17.8 |
| 1986 | 06 29 | 16 55.44 | -12 23.8 | | | | | |
| 1986 | 07 09 | 16 48.90 | -12 50.7 | 1.427 | 2.336 | 145.3 | 14.4 | 18.3 |
| 1986 | 07 19 | 16 45.21 | -13 26.6 | | | | | |
| 1986 | 07 29 | 16 44.52 | -14 09.1 | 1.625 | 2.369 | 126.0 | 20.3 | 18.8 |
| 1986 | 08 08 | 16 46.73 | -14 55.7 | | | | | |
| 1986 | 08 18 | 16 51.63 | -15 44.4 | 1.871 | 2.400 | 109.0 | 23.5 | 19.2 |
| 1986 | 08 28 | 16 58.87 | -16 32.8 | | | | | |
| 1986 | 09 07 | 17 08.17 | -17 19.3 | 2.143 | 2.431 | 94.0 | 24.4 | 19.6 |

1985 CH2 a,e,i = 2.57, 0.07, 10 Elements MPC 10310

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 39.92 | -11 49.7 | 2.233 | 2.661 | 104.2 | 21.3 | 18.8 |
| 1986 | 04 10 | 17 44.43 | -11 11.7 | | | | | |
| 1986 | 04 20 | 17 46.43 | -10 32.0 | 2.006 | 2.674 | 121.6 | 18.7 | 18.5 |
| 1986 | 04 30 | 17 45.80 | -09 52.9 | | | | | |
| 1986 | 05 10 | 17 42.51 | -09 17.1 | 1.827 | 2.686 | 140.8 | 13.8 | 18.1 |
| 1986 | 05 20 | 17 36.77 | -08 47.5 | | | | | |
| 1986 | 05 30 | 17 29.07 | -08 27.0 | 1.725 | 2.698 | 159.6 | 7.5 | 17.8 |
| 1986 | 06 09 | 17 20.17 | -08 17.9 | | | | | |
| 1986 | 06 19 | 17 11.04 | -08 21.7 | 1.722 | 2.709 | 162.7 | 6.4 | 17.8 |
| 1986 | 06 29 | 17 02.67 | -08 38.5 | | | | | |
| 1986 | 07 09 | 16 55.88 | -09 07.2 | 1.820 | 2.719 | 145.3 | 12.3 | 18.1 |
| 1986 | 07 19 | 16 51.27 | -09 45.9 | | | | | |
| 1986 | 07 29 | 16 49.13 | -10 32.2 | 2.002 | 2.727 | 126.2 | 17.5 | 18.5 |
| 1986 | 08 08 | 16 49.53 | -11 23.6 | | | | | |
| 1986 | 08 18 | 16 52.37 | -12 17.7 | 2.238 | 2.735 | 108.6 | 20.5 | 18.8 |
| 1986 | 08 28 | 16 57.45 | -13 12.5 | | | | | |
| 1986 | 09 07 | 17 04.56 | -14 06.1 | 2.502 | 2.742 | 92.8 | 21.5 | 19.1 |

1976 SZ5 a,e,i = 3.13, 0.16, 2 Elements MPC 9069

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 41.16 | -21 18.4 | 2.603 | 3.004 | 103.9 | 18.8 | 18.0 |
| 1986 | 04 10 | 17 45.95 | -21 13.9 | | | | | |
| 1986 | 04 20 | 17 48.55 | -21 08.2 | 2.317 | 2.972 | 121.8 | 16.7 | 17.7 |
| 1986 | 04 30 | 17 48.79 | -21 02.0 | | | | | |
| 1986 | 05 10 | 17 46.58 | -20 55.5 | 2.081 | 2.940 | 141.6 | 12.3 | 17.3 |
| 1986 | 05 20 | 17 42.02 | -20 49.1 | | | | | |
| 1986 | 05 30 | 17 35.47 | -20 42.6 | 1.924 | 2.909 | 163.3 | 5.7 | 16.8 |
| 1986 | 06 09 | 17 27.52 | -20 36.2 | | | | | |
| 1986 | 06 19 | 17 19.03 | -20 30.2 | 1.868 | 2.879 | 173.0 | 2.5 | 16.6 |
| 1986 | 06 29 | 17 10.94 | -20 25.3 | | | | | |
| 1986 | 07 09 | 17 04.11 | -20 22.7 | 1.919 | 2.850 | 150.8 | 10.0 | 17.0 |
| 1986 | 07 19 | 16 59.25 | -20 23.5 | | | | | |
| 1986 | 07 29 | 16 56.77 | -20 28.3 | 2.059 | 2.821 | 130.1 | 16.0 | 17.3 |
| 1986 | 08 08 | 16 56.83 | -20 37.4 | | | | | |
| 1986 | 08 18 | 16 59.44 | -20 50.2 | 2.259 | 2.794 | 111.6 | 19.7 | 17.6 |
| 1986 | 08 28 | 17 04.43 | -21 05.8 | | | | | |
| 1986 | 09 07 | 17 11.61 | -21 23.0 | 2.490 | 2.769 | 95.2 | 21.3 | 17.8 |

(3299) Hall a,e,i = 2.28, 0.08, 5 Elements MPC 9955

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 49.01 | -24 26.3 | 1.905 | 2.328 | 102.0 | 24.8 | 17.7 |
| 1986 | 04 10 | 17 56.15 | -24 11.5 | | | | | |
| 1986 | 04 20 | 18 00.40 | -23 53.2 | 1.686 | 2.344 | 119.0 | 22.0 | 17.4 |
| 1986 | 04 30 | 18 01.47 | -23 32.2 | | | | | |
| 1986 | 05 10 | 17 59.18 | -23 08.6 | 1.505 | 2.360 | 138.7 | 16.4 | 17.0 |
| 1986 | 05 20 | 17 53.63 | -22 42.3 | | | | | |
| 1986 | 05 30 | 17 45.29 | -22 13.0 | 1.393 | 2.375 | 161.2 | 7.9 | 16.6 |
| 1986 | 06 09 | 17 35.06 | -21 41.0 | | | | | |
| 1986 | 06 19 | 17 24.22 | -21 07.6 | 1.376 | 2.389 | 174.3 | 2.4 | 16.3 |
| 1986 | 06 29 | 17 14.14 | -20 35.4 | | | | | |
| 1986 | 07 09 | 17 05.99 | -20 07.2 | 1.461 | 2.402 | 151.2 | 11.8 | 16.9 |
| 1986 | 07 19 | 17 00.56 | -19 45.6 | | | | | |
| 1986 | 07 29 | 16 58.19 | -19 31.7 | 1.630 | 2.414 | 130.3 | 18.7 | 17.3 |
| 1986 | 08 08 | 16 58.88 | -19 25.4 | | | | | |
| 1986 | 08 18 | 17 02.47 | -19 25.7 | 1.855 | 2.425 | 112.1 | 22.7 | 17.7 |
| 1986 | 08 28 | 17 08.63 | -19 30.6 | | | | | |
| 1986 | 09 07 | 17 17.04 | -19 38.3 | 2.108 | 2.434 | 96.3 | 24.3 | 18.0 |

6547 P-L a,e,i = 2.43, 0.21, 3 Elements MPC 7602

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 44.91 | -24 59.9 | 2.114 | 2.532 | 102.9 | 22.6 | 19.1 |
| 1986 | 04 10 | 17 51.94 | -25 16.8 | | | | | |
| 1986 | 04 20 | 17 56.51 | -25 34.0 | 1.830 | 2.488 | 119.9 | 20.5 | 18.7 |
| 1986 | 04 30 | 17 58.31 | -25 52.2 | | | | | |
| 1986 | 05 10 | 17 57.00 | -26 11.4 | 1.588 | 2.443 | 139.2 | 15.7 | 18.2 |
| 1986 | 05 20 | 17 52.47 | -26 30.5 | | | | | |
| 1986 | 05 30 | 17 44.96 | -26 47.6 | 1.416 | 2.397 | 160.9 | 8.0 | 17.6 |
| 1986 | 06 09 | 17 35.08 | -26 59.8 | | | | | |
| 1986 | 06 19 | 17 23.98 | -27 05.0 | 1.338 | 2.350 | 173.7 | 2.7 | 17.2 |
| 1986 | 06 29 | 17 13.12 | -27 02.9 | | | | | |
| 1986 | 07 09 | 17 03.89 | -26 55.3 | 1.359 | 2.303 | 151.2 | 12.3 | 17.6 |
| 1986 | 07 19 | 16 57.44 | -26 45.4 | | | | | |
| 1986 | 07 29 | 16 54.38 | -26 36.5 | 1.464 | 2.256 | 130.1 | 20.1 | 18.0 |
| 1986 | 08 08 | 16 54.89 | -26 30.6 | | | | | |
| 1986 | 08 18 | 16 58.88 | -26 28.4 | 1.622 | 2.210 | 112.0 | 25.1 | 18.3 |
| 1986 | 08 28 | 17 06.07 | -26 29.5 | | | | | |
| 1986 | 09 07 | 17 16.11 | -26 32.2 | 1.804 | 2.165 | 96.6 | 27.5 | 18.5 |

1981 DM1 a,e,i = 2.68, 0.14, 11 Elements MPC 10289

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 51.25 | -15 47.4 | 2.170 | 2.564 | -0.99 | -1.6 | 17.2 |
| 1986 | 04 10 | 17 56.96 | -14 52.7 | | | | | |
| 1986 | 04 20 | 18 00.09 | -13 53.9 | 1.957 | 2.593 | -1.11 | -1.6 | 16.9 |
| 1986 | 04 30 | 18 00.49 | -12 53.0 | | | | | |
| 1986 | 05 10 | 17 58.12 | -11 52.2 | 1.787 | 2.623 | -1.26 | -1.5 | 16.6 |
| 1986 | 05 20 | 17 53.15 | -10 54.6 | | | | | |
| 1986 | 05 30 | 17 46.05 | -10 03.2 | 1.689 | 2.653 | -1.38 | -1.3 | 16.3 |
| 1986 | 06 09 | 17 37.54 | -09 21.2 | | | | | |
| 1986 | 06 19 | 17 28.56 | -08 51.4 | 1.689 | 2.682 | -1.41 | -1.1 | 16.2 |
| 1986 | 06 29 | 17 20.15 | -08 35.3 | | | | | |
| 1986 | 07 09 | 17 13.15 | -08 33.0 | 1.791 | 2.712 | -1.33 | -1.0 | 16.5 |
| 1986 | 07 19 | 17 08.21 | -08 43.4 | | | | | |
| 1986 | 07 29 | 17 05.66 | -09 04.2 | 1.979 | 2.741 | -1.18 | -0.9 | 16.9 |
| 1986 | 08 08 | 17 05.58 | -09 33.0 | | | | | |
| 1986 | 08 18 | 17 07.91 | -10 07.1 | 2.226 | 2.769 | -1.02 | -0.9 | 17.3 |
| 1986 | 08 28 | 17 12.44 | -10 43.8 | | | | | |
| 1986 | 09 07 | 17 18.96 | -11 21.2 | 2.505 | 2.796 | -0.89 | -0.9 | 17.6 |

1978 PS4 a,e,i = 2.57, 0.19, 12 Elements MPC 9473

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 47.74 | -37 17.4 | 2.179 | 2.574 | 101.6 | 22.3 | 18.2 |
| 1986 | 04 10 | 17 55.94 | -38 03.4 | | | | | |
| 1986 | 04 20 | 18 01.51 | -38 49.6 | 1.905 | 2.533 | 117.7 | 20.6 | 17.8 |
| 1986 | 04 30 | 18 04.02 | -39 35.2 | | | | | |
| 1986 | 05 10 | 18 03.08 | -40 17.8 | 1.671 | 2.491 | 135.3 | 16.6 | 17.4 |
| 1986 | 05 20 | 17 58.50 | -40 53.1 | | | | | |
| 1986 | 05 30 | 17 50.50 | -41 15.1 | 1.502 | 2.450 | 153.2 | 10.7 | 16.9 |
| 1986 | 06 09 | 17 39.80 | -41 17.6 | | | | | |
| 1986 | 06 19 | 17 27.77 | -40 55.9 | 1.422 | 2.409 | 162.0 | 7.5 | 16.6 |
| 1986 | 06 29 | 17 16.12 | -40 10.0 | | | | | |
| 1986 | 07 09 | 17 06.41 | -39 04.5 | 1.438 | 2.368 | 149.0 | 12.8 | 16.8 |
| 1986 | 07 19 | 16 59.88 | -37 47.0 | | | | | |
| 1986 | 07 29 | 16 57.04 | -36 25.8 | 1.538 | 2.329 | 130.5 | 19.4 | 17.1 |
| 1986 | 08 08 | 16 57.98 | -35 06.9 | | | | | |
| 1986 | 08 18 | 17 02.46 | -33 53.8 | 1.695 | 2.290 | 113.1 | 24.0 | 17.4 |
| 1986 | 08 28 | 17 10.08 | -32 47.6 | | | | | |
| 1986 | 09 07 | 17 20.42 | -31 47.5 | 1.884 | 2.254 | 97.8 | 26.3 | 17.7 |

1984 YC a,e,i = 2.73, 0.25, 32 Elements MPC 10390

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 17.69 | -45 08.4 | 2.659 | 2.932 | -0.09 | -6.9 | 17.3 |
| 1986 | 04 10 | 18 22.43 | -45 21.5 | | | | | |
| 1986 | 04 20 | 18 23.95 | -45 33.0 | 2.443 | 2.978 | -0.09 | -7.8 | 17.1 |
| 1986 | 04 30 | 18 22.03 | -45 40.6 | | | | | |
| 1986 | 05 10 | 18 16.56 | -45 40.5 | 2.260 | 3.023 | -0.17 | -8.1 | 16.9 |
| 1986 | 05 20 | 18 07.77 | -45 27.8 | | | | | |
| 1986 | 05 30 | 17 56.33 | -44 57.3 | 2.145 | 3.065 | -0.32 | -7.6 | 16.6 |
| 1986 | 06 09 | 17 43.26 | -44 05.4 | | | | | |
| 1986 | 06 19 | 17 29.94 | -42 51.6 | 2.130 | 3.106 | -0.50 | -6.5 | 16.5 |
| 1986 | 06 29 | 17 17.71 | -41 19.4 | | | | | |
| 1986 | 07 09 | 17 07.60 | -39 35.4 | 2.228 | 3.144 | -0.59 | -5.2 | 16.8 |
| 1986 | 07 19 | 17 00.25 | -37 47.0 | | | | | |
| 1986 | 07 29 | 16 55.86 | -36 01.1 | 2.428 | 3.180 | -0.57 | -4.4 | 17.1 |
| 1986 | 08 08 | 16 54.33 | -34 22.3 | | | | | |
| 1986 | 08 18 | 16 55.42 | -32 53.1 | 2.699 | 3.214 | -0.50 | -4.0 | 17.5 |
| 1986 | 08 28 | 16 58.81 | -31 34.2 | | | | | |
| 1986 | 09 07 | 17 04.18 | -30 25.2 | 3.010 | 3.245 | -0.43 | -3.8 | 17.8 |

(3267) 1981 AA a,e,i = 2.33, 0.30, 24 Elements MPC 9758

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 04.68 | -05 58.6 | 2.690 | 2.995 | 97.9 | 19.3 | 18.4 |
| 1986 | 04 10 | 18 08.16 | -05 36.5 | | | | | |
| 1986 | 04 20 | 18 09.44 | -05 16.0 | 2.410 | 2.980 | 115.2 | 17.8 | 18.1 |
| 1986 | 04 30 | 18 08.36 | -04 59.7 | | | | | |
| 1986 | 05 10 | 18 04.78 | -04 50.5 | 2.167 | 2.960 | 134.1 | 14.2 | 17.7 |
| 1986 | 05 20 | 17 58.74 | -04 51.2 | | | | | |
| 1986 | 05 30 | 17 50.53 | -05 04.7 | 1.996 | 2.937 | 153.3 | 8.9 | 17.4 |
| 1986 | 06 09 | 17 40.65 | -05 32.6 | | | | | |
| 1986 | 06 19 | 17 29.93 | -06 15.5 | 1.925 | 2.910 | 162.4 | 6.1 | 17.2 |
| 1986 | 06 29 | 17 19.31 | -07 12.3 | | | | | |
| 1986 | 07 09 | 17 09.73 | -08 20.5 | 1.966 | 2.879 | 148.0 | 10.8 | 17.4 |
| 1986 | 07 19 | 17 01.99 | -09 37.2 | | | | | |
| 1986 | 07 29 | 16 56.59 | -10 58.9 | 2.104 | 2.845 | 128.1 | 16.3 | 17.7 |
| 1986 | 08 08 | 16 53.78 | -12 23.0 | | | | | |
| 1986 | 08 18 | 16 53.61 | -13 47.3 | 2.306 | 2.806 | 109.2 | 19.9 | 17.9 |
| 1986 | 08 28 | 16 55.95 | -15 10.0 | | | | | |
| 1986 | 09 07 | 17 00.63 | -16 29.9 | 2.537 | 2.764 | 92.1 | 21.4 | 18.1 |

(3298) 1979 OB15 a,e,i = 2.35, 0.19, 3 Elements MPC 9955

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 40.90 | -25 36.2 | 1.851 | 2.303 | 103.8 | 24.9 | 17.7 |
| 1986 | 04 10 | 17 49.78 | -25 41.2 | | | | | |
| 1986 | 04 20 | 17 56.14 | -25 43.5 | 1.583 | 2.259 | 120.0 | 22.7 | 17.2 |
| 1986 | 04 30 | 17 59.59 | -25 43.9 | | | | | |
| 1986 | 05 10 | 17 59.75 | -25 42.4 | 1.355 | 2.215 | 138.6 | 17.6 | 16.7 |
| 1986 | 05 20 | 17 56.44 | -25 38.4 | | | | | |
| 1986 | 05 30 | 17 49.85 | -25 30.4 | 1.191 | 2.172 | 160.0 | 9.2 | 16.1 |
| 1986 | 06 09 | 17 40.60 | -25 16.8 | | | | | |
| 1986 | 06 19 | 17 29.94 | -24 56.6 | 1.115 | 2.129 | 175.9 | 2.0 | 15.6 |
| 1986 | 06 29 | 17 19.47 | -24 31.1 | | | | | |
| 1986 | 07 09 | 17 10.74 | -24 03.3 | 1.132 | 2.089 | 152.7 | 12.9 | 16.0 |
| 1986 | 07 19 | 17 05.00 | -23 37.3 | | | | | |
| 1986 | 07 29 | 17 02.89 | -23 16.3 | 1.229 | 2.051 | 131.8 | 21.7 | 16.4 |
| 1986 | 08 08 | 17 04.56 | -23 01.7 | | | | | |
| 1986 | 08 18 | 17 09.87 | -22 53.3 | 1.376 | 2.015 | 114.2 | 27.3 | 16.8 |
| 1986 | 08 28 | 17 18.47 | -22 49.3 | | | | | |
| 1986 | 09 07 | 17 29.96 | -22 47.4 | 1.550 | 1.984 | 99.5 | 30.1 | 17.1 |

(3291) 1982 VX3 a,e,i = 3.15, 0.09, 2 Elements MPC 9953

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 51.25 | -21 11.0 | 2.682 | 3.043 | 101.5 | 18.8 | 17.8 |
| 1986 | 04 10 | 17 56.29 | -21 05.4 | | | | | |
| 1986 | 04 20 | 17 59.17 | -20 59.0 | 2.405 | 3.026 | 119.3 | 16.8 | 17.5 |
| 1986 | 04 30 | 17 59.75 | -20 52.7 | | | | | |
| 1986 | 05 10 | 17 57.92 | -20 46.9 | 2.174 | 3.009 | 139.0 | 12.7 | 17.1 |
| 1986 | 05 20 | 17 53.77 | -20 41.8 | | | | | |
| 1986 | 05 30 | 17 47.62 | -20 37.3 | 2.019 | 2.993 | 160.5 | 6.5 | 16.7 |
| 1986 | 06 09 | 17 40.00 | -20 33.5 | | | | | |
| 1986 | 06 19 | 17 31.69 | -20 30.2 | 1.964 | 2.978 | 175.5 | 1.5 | 16.4 |
| 1986 | 06 29 | 17 23.59 | -20 28.0 | | | | | |
| 1986 | 07 09 | 17 16.56 | -20 27.4 | 2.017 | 2.963 | 153.7 | 8.7 | 16.8 |
| 1986 | 07 19 | 17 11.28 | -20 29.5 | | | | | |
| 1986 | 07 29 | 17 08.21 | -20 34.7 | 2.164 | 2.949 | 132.7 | 14.6 | 17.1 |
| 1986 | 08 08 | 17 07.54 | -20 43.3 | | | | | |
| 1986 | 08 18 | 17 09.31 | -20 54.9 | 2.376 | 2.936 | 113.9 | 18.4 | 17.5 |
| 1986 | 08 28 | 17 13.38 | -21 08.8 | | | | | |
| 1986 | 09 07 | 17 19.58 | -21 23.9 | 2.624 | 2.924 | 97.0 | 20.0 | 17.7 |

1964 TC1 a,e,i = 3.18, 0.25, 1 Elements MPC 10036

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 49.80 | -24 14.6 | 2.531 | 2.905 | 101.8 | 19.7 | 17.7 |
| 1986 | 04 10 | 17 55.99 | -24 20.3 | | | | | |
| 1986 | 04 20 | 18 00.03 | -24 25.5 | 2.230 | 2.857 | 119.1 | 17.9 | 17.3 |
| 1986 | 04 30 | 18 01.69 | -24 30.8 | | | | | |
| 1986 | 05 10 | 18 00.78 | -24 36.3 | 1.973 | 2.809 | 138.4 | 13.8 | 16.9 |
| 1986 | 05 20 | 17 57.29 | -24 41.5 | | | | | |
| 1986 | 05 30 | 17 51.43 | -24 45.6 | 1.789 | 2.763 | 159.7 | 7.3 | 16.4 |
| 1986 | 06 09 | 17 43.72 | -24 47.3 | | | | | |
| 1986 | 06 19 | 17 34.99 | -24 45.8 | 1.702 | 2.717 | 177.0 | 1.1 | 16.0 |
| 1986 | 06 29 | 17 26.29 | -24 41.2 | | | | | |
| 1986 | 07 09 | 17 18.64 | -24 34.3 | 1.720 | 2.674 | 154.6 | 9.4 | 16.4 |
| 1986 | 07 19 | 17 12.96 | -24 27.0 | | | | | |
| 1986 | 07 29 | 17 09.82 | -24 21.0 | 1.828 | 2.632 | 133.5 | 16.3 | 16.7 |
| 1986 | 08 08 | 17 09.49 | -24 17.6 | | | | | |
| 1986 | 08 18 | 17 12.01 | -24 17.2 | 2.000 | 2.593 | 114.8 | 20.8 | 17.0 |
| 1986 | 08 28 | 17 17.24 | -24 19.3 | | | | | |
| 1986 | 09 07 | 17 24.95 | -24 22.9 | 2.206 | 2.556 | 98.4 | 23.0 | 17.2 |

(3344) 1982 JA a,e,i = 2.42, 0.12, 9 Elements MPC 10301

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 17 45.65 | -19 49.9 | 1.747 | 2.196 | 102.8 | 26.3 | 17.0 |
| 1986 | 04 10 | 17 54.96 | -20 17.4 | | | | | |
| 1986 | 04 20 | 18 01.74 | -20 48.4 | 1.511 | 2.179 | 118.7 | 23.9 | 16.6 |
| 1986 | 04 30 | 18 05.60 | -21 25.0 | | | | | |
| 1986 | 05 10 | 18 06.16 | -22 09.0 | 1.312 | 2.164 | 137.1 | 18.5 | 16.1 |
| 1986 | 05 20 | 18 03.23 | -23 00.7 | | | | | |
| 1986 | 05 30 | 17 56.97 | -23 58.5 | 1.176 | 2.152 | 158.5 | 9.9 | 15.6 |
| 1986 | 06 09 | 17 47.97 | -24 58.8 | | | | | |
| 1986 | 06 19 | 17 37.44 | -25 56.9 | 1.127 | 2.142 | 176.7 | 1.6 | 15.1 |
| 1986 | 06 29 | 17 26.95 | -26 48.9 | | | | | |
| 1986 | 07 09 | 17 18.07 | -27 32.8 | 1.173 | 2.135 | 154.3 | 11.9 | 15.6 |
| 1986 | 07 19 | 17 12.09 | -28 09.3 | | | | | |
| 1986 | 07 29 | 17 09.67 | -28 40.1 | 1.301 | 2.131 | 133.6 | 20.2 | 16.1 |
| 1986 | 08 08 | 17 11.00 | -29 07.0 | | | | | |
| 1986 | 08 18 | 17 15.94 | -29 30.7 | 1.484 | 2.131 | 115.9 | 25.3 | 16.5 |
| 1986 | 08 28 | 17 24.13 | -29 51.2 | | | | | |
| 1986 | 09 07 | 17 35.16 | -30 07.9 | 1.698 | 2.133 | 100.9 | 27.6 | 16.9 |

(3212) 1938 DH2 a,e,i = 2.26, 0.15, 8 Elements MPC 9467

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 00.82 | -16 42.6 | 1.877 | 2.263 | 99.2 | 25.8 | 18.2 |
| 1986 | 04 10 | 18 08.21 | -16 36.3 | | | | | |
| 1986 | 04 20 | 18 12.81 | -16 31.1 | 1.674 | 2.298 | 115.8 | 23.2 | 17.9 |
| 1986 | 04 30 | 18 14.34 | -16 29.3 | | | | | |
| 1986 | 05 10 | 18 12.59 | -16 32.8 | 1.504 | 2.331 | 135.1 | 17.8 | 17.5 |
| 1986 | 05 20 | 18 07.57 | -16 42.7 | | | | | |
| 1986 | 05 30 | 17 59.65 | -16 59.4 | 1.397 | 2.363 | 157.0 | 9.6 | 17.1 |
| 1986 | 06 09 | 17 49.57 | -17 22.2 | | | | | |
| 1986 | 06 19 | 17 38.52 | -17 49.9 | 1.381 | 2.394 | 174.1 | 2.5 | 16.8 |
| 1986 | 06 29 | 17 27.85 | -18 20.8 | | | | | |
| 1986 | 07 09 | 17 18.78 | -18 53.9 | 1.469 | 2.424 | 153.9 | 10.6 | 17.3 |
| 1986 | 07 19 | 17 12.24 | -19 28.7 | | | | | |
| 1986 | 07 29 | 17 08.69 | -20 04.7 | 1.645 | 2.451 | 132.8 | 17.7 | 17.8 |
| 1986 | 08 08 | 17 08.23 | -20 41.3 | | | | | |
| 1986 | 08 18 | 17 10.73 | -21 18.0 | 1.882 | 2.477 | 114.3 | 21.9 | 18.3 |
| 1986 | 08 28 | 17 15.92 | -21 53.6 | | | | | |
| 1986 | 09 07 | 17 23.47 | -22 27.3 | 2.152 | 2.500 | 98.0 | 23.5 | 18.6 |

(3198) 1981 YH1 a,e,i = 2.18, 0.24, 18 Elements MPC 9427

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 13.57 | -17 56.4 | 2.053 | 2.379 | 96.2 | 24.7 | 18.0 |
| 1986 | 04 10 | 18 19.78 | -18 27.3 | | | | | |
| 1986 | 04 20 | 18 23.28 | -19 04.0 | 1.841 | 2.424 | 113.5 | 22.3 | 17.7 |
| 1986 | 04 30 | 18 23.75 | -19 48.4 | | | | | |
| 1986 | 05 10 | 18 20.94 | -20 41.4 | 1.660 | 2.467 | 133.6 | 17.2 | 17.4 |
| 1986 | 05 20 | 18 14.80 | -21 42.4 | | | | | |
| 1986 | 05 30 | 18 05.61 | -22 48.9 | 1.544 | 2.506 | 156.5 | 9.3 | 17.0 |
| 1986 | 06 09 | 17 54.06 | -23 56.7 | | | | | |
| 1986 | 06 19 | 17 41.32 | -25 01.0 | 1.526 | 2.542 | 178.0 | 0.8 | 16.6 |
| 1986 | 06 29 | 17 28.79 | -25 58.2 | | | | | |
| 1986 | 07 09 | 17 17.79 | -26 46.6 | 1.620 | 2.574 | 154.3 | 9.9 | 17.2 |
| 1986 | 07 19 | 17 09.36 | -27 27.1 | | | | | |
| 1986 | 07 29 | 17 04.05 | -28 01.6 | 1.809 | 2.603 | 132.3 | 16.8 | 17.6 |
| 1986 | 08 08 | 17 01.99 | -28 32.2 | | | | | |
| 1986 | 08 18 | 17 03.09 | -29 00.4 | 2.061 | 2.629 | 113.1 | 20.7 | 18.1 |
| 1986 | 08 28 | 17 07.03 | -29 26.9 | | | | | |
| 1986 | 09 07 | 17 13.50 | -29 51.8 | 2.344 | 2.650 | 96.2 | 22.2 | 18.4 |

1984 HA1 a,e,i = 5.10, 0.07, 25 Elements MPC 9690

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 04.02 | +02 10.9 | 4.618 | 4.851 | 97.5 | 11.8 | 15.9 |
| 1986 | 04 10 | 18 06.17 | +03 05.8 | | | | | |
| 1986 | 04 20 | 18 06.98 | +04 00.7 | 4.348 | 4.843 | 113.9 | 10.9 | 15.7 |
| 1986 | 04 30 | 18 06.46 | +04 53.6 | | | | | |
| 1986 | 05 10 | 18 04.62 | +05 42.3 | 4.125 | 4.835 | 129.9 | 9.2 | 15.5 |
| 1986 | 05 20 | 18 01.58 | +06 24.3 | | | | | |
| 1986 | 05 30 | 17 57.54 | +06 57.3 | 3.976 | 4.827 | 143.4 | 7.2 | 15.4 |
| 1986 | 06 09 | 17 52.76 | +07 19.5 | | | | | |
| 1986 | 06 19 | 17 47.59 | +07 29.3 | 3.920 | 4.820 | 149.1 | 6.2 | 15.3 |
| 1986 | 06 29 | 17 42.41 | +07 26.1 | | | | | |
| 1986 | 07 09 | 17 37.59 | +07 10.3 | 3.964 | 4.813 | 142.8 | 7.3 | 15.4 |
| 1986 | 07 19 | 17 33.47 | +06 43.0 | | | | | |
| 1986 | 07 29 | 17 30.33 | +06 05.8 | 4.100 | 4.806 | 129.2 | 9.4 | 15.5 |
| 1986 | 08 08 | 17 28.37 | +05 21.0 | | | | | |
| 1986 | 08 18 | 17 27.70 | +04 30.7 | 4.307 | 4.800 | 113.4 | 11.2 | 15.7 |
| 1986 | 08 28 | 17 28.37 | +03 37.3 | | | | | |
| 1986 | 09 07 | 17 30.36 | +02 42.6 | 4.559 | 4.793 | 97.4 | 12.0 | 15.8 |

1983 NT a,e,i = 2.24, 0.10, 6 Elements MPC 8271

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 04.40 | -30 05.9 | 1.833 | 2.213 | -1.32 | -1.6 | 16.8 |
| 1986 | 04 10 | 18 14.03 | -30 26.6 | | | | | |
| 1986 | 04 20 | 18 20.74 | -30 47.1 | 1.625 | 2.236 | -1.47 | -2.7 | 16.5 |
| 1986 | 04 30 | 18 24.14 | -31 08.1 | | | | | |
| 1986 | 05 10 | 18 23.88 | -31 29.0 | 1.447 | 2.258 | -1.71 | -3.3 | 16.1 |
| 1986 | 05 20 | 18 19.81 | -31 47.5 | | | | | |
| 1986 | 05 30 | 18 12.19 | -32 00.0 | 1.327 | 2.281 | -2.02 | -2.9 | 15.7 |
| 1986 | 06 09 | 18 01.75 | -32 01.9 | | | | | |
| 1986 | 06 19 | 17 49.83 | -31 50.0 | 1.292 | 2.302 | -2.24 | -1.2 | 15.4 |
| 1986 | 06 29 | 17 38.07 | -31 24.2 | | | | | |
| 1986 | 07 09 | 17 28.00 | -30 47.6 | 1.357 | 2.323 | -2.19 | +0.4 | 15.8 |
| 1986 | 07 19 | 17 20.79 | -30 05.6 | | | | | |
| 1986 | 07 29 | 17 16.99 | -29 23.3 | 1.511 | 2.343 | -1.92 | +0.9 | 16.3 |
| 1986 | 08 08 | 17 16.67 | -28 44.3 | | | | | |
| 1986 | 08 18 | 17 19.64 | -28 10.3 | 1.727 | 2.361 | -1.59 | +0.6 | 16.7 |
| 1986 | 08 28 | 17 25.51 | -27 41.1 | | | | | |
| 1986 | 09 07 | 17 33.90 | -27 15.8 | 1.978 | 2.379 | -1.31 | -0.1 | 17.1 |

1937 UE a,e,i = 3.15, 0.18, 0 Elements MPC 8900

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 15.61 | -23 51.5 | 3.437 | 3.677 | 95.9 | 15.7 | 18.3 |
| 1986 | 04 10 | 18 19.50 | -23 50.8 | | | | | |
| 1986 | 04 20 | 18 21.54 | -23 50.8 | 3.136 | 3.665 | 114.2 | 14.5 | 18.0 |
| 1986 | 04 30 | 18 21.59 | -23 51.7 | | | | | |
| 1986 | 05 10 | 18 19.59 | -23 53.5 | 2.876 | 3.651 | 134.1 | 11.5 | 17.7 |
| 1986 | 05 20 | 18 15.57 | -23 55.8 | | | | | |
| 1986 | 05 30 | 18 09.76 | -23 58.0 | 2.688 | 3.635 | 155.6 | 6.6 | 17.4 |
| 1986 | 06 09 | 18 02.51 | -23 59.1 | | | | | |
| 1986 | 06 19 | 17 54.42 | -23 58.5 | 2.603 | 3.619 | 178.1 | 0.5 | 17.0 |
| 1986 | 06 29 | 17 46.16 | -23 56.0 | | | | | |
| 1986 | 07 09 | 17 38.44 | -23 51.7 | 2.632 | 3.600 | 159.1 | 5.8 | 17.3 |
| 1986 | 07 19 | 17 31.90 | -23 46.5 | | | | | |
| 1986 | 07 29 | 17 27.03 | -23 41.5 | 2.767 | 3.581 | 137.4 | 11.1 | 17.6 |
| 1986 | 08 08 | 17 24.12 | -23 37.5 | | | | | |
| 1986 | 08 18 | 17 23.29 | -23 35.1 | 2.979 | 3.560 | 117.3 | 14.6 | 17.8 |
| 1986 | 08 28 | 17 24.54 | -23 34.5 | | | | | |
| 1986 | 09 07 | 17 27.76 | -23 35.5 | 3.236 | 3.537 | 99.0 | 16.3 | 18.1 |

1981 FB a,e,i = 2.62, 0.15, 13 Elements MPC 9595

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 13.07 | -10 42.3 | 2.483 | 2.772 | 96.0 | 21.0 | 18.1 |
| 1986 | 04 10 | 18 18.70 | -09 41.1 | | | | | |
| 1986 | 04 20 | 18 22.07 | -08 37.3 | 2.254 | 2.799 | 112.7 | 19.3 | 17.9 |
| 1986 | 04 30 | 18 23.03 | -07 33.3 | | | | | |
| 1986 | 05 10 | 18 21.49 | -06 31.5 | 2.060 | 2.824 | 130.7 | 15.7 | 17.6 |
| 1986 | 05 20 | 18 17.50 | -05 35.5 | | | | | |
| 1986 | 05 30 | 18 11.35 | -04 48.4 | 1.931 | 2.848 | 149.1 | 10.5 | 17.3 |
| 1986 | 06 09 | 18 03.53 | -04 13.7 | | | | | |
| 1986 | 06 19 | 17 54.79 | -03 54.0 | 1.893 | 2.871 | 160.4 | 6.8 | 17.1 |
| 1986 | 06 29 | 17 46.02 | -03 50.5 | | | | | |
| 1986 | 07 09 | 17 38.07 | -04 02.7 | 1.959 | 2.892 | 151.2 | 9.7 | 17.3 |
| 1986 | 07 19 | 17 31.68 | -04 29.0 | | | | | |
| 1986 | 07 29 | 17 27.34 | -05 06.3 | 2.118 | 2.911 | 133.5 | 14.7 | 17.7 |
| 1986 | 08 08 | 17 25.29 | -05 51.6 | | | | | |
| 1986 | 08 18 | 17 25.59 | -06 41.6 | 2.345 | 2.929 | 115.6 | 18.2 | 18.0 |
| 1986 | 08 28 | 17 28.13 | -07 33.5 | | | | | |
| 1986 | 09 07 | 17 32.74 | -08 25.0 | 2.612 | 2.945 | 99.1 | 19.7 | 18.3 |

(3285) Ruth Wolfe a,e,i = 2.53, 0.21, 21 Elements MPC 9827

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 21.90 | -19 16.6 | 2.765 | 3.009 | 94.3 | 19.3 | 18.0 |
| 1986 | 04 10 | 18 27.12 | -18 19.9 | | | | | |
| 1986 | 04 20 | 18 30.21 | -17 18.5 | 2.468 | 2.990 | 111.8 | 18.2 | 17.7 |
| 1986 | 04 30 | 18 30.97 | -16 13.3 | | | | | |
| 1986 | 05 10 | 18 29.27 | -15 05.1 | 2.208 | 2.969 | 130.9 | 14.9 | 17.3 |
| 1986 | 05 20 | 18 25.06 | -13 55.2 | | | | | |
| 1986 | 05 30 | 18 18.54 | -12 45.5 | 2.015 | 2.944 | 151.3 | 9.5 | 16.9 |
| 1986 | 06 09 | 18 10.11 | -11 38.4 | | | | | |
| 1986 | 06 19 | 18 00.46 | -10 36.8 | 1.919 | 2.918 | 166.8 | 4.6 | 16.6 |
| 1986 | 06 29 | 17 50.51 | -09 43.7 | | | | | |
| 1986 | 07 09 | 17 41.17 | -09 01.6 | 1.936 | 2.889 | 154.9 | 8.6 | 16.8 |
| 1986 | 07 19 | 17 33.30 | -08 31.7 | | | | | |
| 1986 | 07 29 | 17 27.51 | -08 14.0 | 2.052 | 2.857 | 134.6 | 14.7 | 17.1 |
| 1986 | 08 08 | 17 24.14 | -08 07.4 | | | | | |
| 1986 | 08 18 | 17 23.31 | -08 10.0 | 2.238 | 2.824 | 115.4 | 18.9 | 17.4 |
| 1986 | 08 28 | 17 24.96 | -08 19.2 | | | | | |
| 1986 | 09 07 | 17 28.93 | -08 32.8 | 2.460 | 2.788 | 98.2 | 21.0 | 17.6 |

1985 FA2 a,e,i = 3.02, 0.10, 11 Elements MPC 9750

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 12.24 | -15 50.8 | 2.608 | 2.896 | -0.97 | +2.5 | 16.7 |
| 1986 | 04 10 | 18 18.72 | -15 46.5 | | | | | |
| 1986 | 04 20 | 18 23.19 | -15 43.9 | 2.328 | 2.877 | -1.09 | +2.6 | 16.4 |
| 1986 | 04 30 | 18 25.43 | -15 44.6 | | | | | |
| 1986 | 05 10 | 18 25.27 | -15 50.3 | 2.083 | 2.859 | -1.24 | +2.8 | 16.0 |
| 1986 | 05 20 | 18 22.64 | -16 02.3 | | | | | |
| 1986 | 05 30 | 18 17.68 | -16 21.5 | 1.902 | 2.841 | -1.39 | +3.1 | 15.6 |
| 1986 | 06 09 | 18 10.75 | -16 47.7 | | | | | |
| 1986 | 06 19 | 18 02.49 | -17 20.1 | 1.813 | 2.824 | -1.49 | +3.6 | 15.2 |
| 1986 | 06 29 | 17 53.80 | -17 57.4 | | | | | |
| 1986 | 07 09 | 17 45.61 | -18 37.8 | 1.831 | 2.808 | -1.49 | +4.0 | 15.4 |
| 1986 | 07 19 | 17 38.83 | -19 19.9 | | | | | |
| 1986 | 07 29 | 17 34.13 | -20 02.6 | 1.948 | 2.793 | -1.41 | +4.2 | 15.8 |
| 1986 | 08 08 | 17 31.90 | -20 45.1 | | | | | |
| 1986 | 08 18 | 17 32.30 | -21 26.6 | 2.140 | 2.779 | -1.28 | +3.9 | 16.1 |
| 1986 | 08 28 | 17 35.29 | -22 06.4 | | | | | |
| 1986 | 09 07 | 17 40.69 | -22 43.7 | 2.375 | 2.766 | -1.16 | +3.5 | 16.4 |

(3331) 1979 QS a,e,i = 2.42, 0.09, 4 Elements MPC 10291

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 19.96 | -19 23.2 | 2.296 | 2.579 | 94.8 | 22.7 | 18.3 |
| 1986 | 04 10 | 18 27.47 | -19 03.6 | | | | | |
| 1986 | 04 20 | 18 32.65 | -18 43.7 | 2.051 | 2.591 | 111.3 | 21.2 | 18.0 |
| 1986 | 04 30 | 18 35.25 | -18 25.1 | | | | | |
| 1986 | 05 10 | 18 35.06 | -18 09.0 | 1.835 | 2.602 | 130.0 | 17.3 | 17.7 |
| 1986 | 05 20 | 18 31.99 | -17 56.6 | | | | | |
| 1986 | 05 30 | 18 26.20 | -17 48.5 | 1.678 | 2.611 | 151.1 | 10.8 | 17.3 |
| 1986 | 06 09 | 18 18.10 | -17 44.9 | | | | | |
| 1986 | 06 19 | 18 08.49 | -17 45.6 | 1.609 | 2.619 | 172.4 | 2.9 | 16.9 |
| 1986 | 06 29 | 17 58.44 | -17 50.1 | | | | | |
| 1986 | 07 09 | 17 49.05 | -17 58.2 | 1.645 | 2.626 | 160.6 | 7.4 | 17.1 |
| 1986 | 07 19 | 17 41.35 | -18 09.8 | | | | | |
| 1986 | 07 29 | 17 36.03 | -18 24.5 | 1.780 | 2.631 | 139.0 | 14.7 | 17.6 |
| 1986 | 08 08 | 17 33.44 | -18 42.2 | | | | | |
| 1986 | 08 18 | 17 33.69 | -19 02.0 | 1.986 | 2.635 | 119.4 | 19.6 | 18.0 |
| 1986 | 08 28 | 17 36.62 | -19 22.9 | | | | | |
| 1986 | 09 07 | 17 42.01 | -19 43.8 | 2.234 | 2.637 | 102.2 | 21.9 | 18.3 |

(3386) 1980 FA a,e,i = 2.84, 0.09, 2 Elements MPC 10399

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 30.73 | -20 55.6 | 2.757 | 2.970 | 92.3 | 19.6 | 17.9 |
| 1986 | 04 10 | 18 37.80 | -20 42.3 | | | | | |
| 1986 | 04 20 | 18 42.91 | -20 29.5 | 2.471 | 2.955 | 109.1 | 18.7 | 17.7 |
| 1986 | 04 30 | 18 45.85 | -20 18.2 | | | | | |
| 1986 | 05 10 | 18 46.42 | -20 09.5 | 2.213 | 2.940 | 127.6 | 15.8 | 17.3 |
| 1986 | 05 20 | 18 44.51 | -20 04.0 | | | | | |
| 1986 | 05 30 | 18 40.19 | -20 02.0 | 2.012 | 2.923 | 148.2 | 10.5 | 16.9 |
| 1986 | 06 09 | 18 33.70 | -20 03.2 | | | | | |
| 1986 | 06 19 | 18 25.60 | -20 06.9 | 1.900 | 2.907 | 170.4 | 3.4 | 16.5 |
| 1986 | 06 29 | 18 16.69 | -20 12.2 | | | | | |
| 1986 | 07 09 | 18 07.89 | -20 18.6 | 1.894 | 2.889 | 165.5 | 5.1 | 16.6 |
| 1986 | 07 19 | 18 00.15 | -20 25.7 | | | | | |
| 1986 | 07 29 | 17 54.22 | -20 33.8 | 1.992 | 2.872 | 143.5 | 12.2 | 16.9 |
| 1986 | 08 08 | 17 50.61 | -20 42.9 | | | | | |
| 1986 | 08 18 | 17 49.55 | -20 53.1 | 2.170 | 2.854 | 123.3 | 17.3 | 17.3 |
| 1986 | 08 28 | 17 51.07 | -21 03.9 | | | | | |
| 1986 | 09 07 | 17 55.02 | -21 14.7 | 2.399 | 2.836 | 105.2 | 20.1 | 17.5 |

(3274) 1981 QO2 a,e,i = 3.16, 0.10, 1 Elements MPC 9762

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 03 31 | 18 26.08 | -24 19.6 | 2.591 | 2.834 | 93.5 | 20.6 | 17.2 |
| 1986 | 04 10 | 18 34.16 | -24 19.4 | | | | | |
| 1986 | 04 20 | 18 40.17 | -24 20.1 | 2.329 | 2.834 | 110.0 | 19.5 | 17.0 |
| 1986 | 04 30 | 18 43.88 | -24 22.7 | | | | | |
| 1986 | 05 10 | 18 45.08 | -24 27.9 | 2.096 | 2.835 | 128.3 | 16.2 | 16.6 |
| 1986 | 05 20 | 18 43.68 | -24 35.8 | | | | | |
| 1986 | 05 30 | 18 39.75 | -24 45.6 | 1.922 | 2.838 | 148.7 | 10.7 | 16.3 |
| 1986 | 06 09 | 18 33.59 | -24 56.1 | | | | | |
| 1986 | 06 19 | 18 25.81 | -25 05.4 | 1.834 | 2.842 | 170.9 | 3.2 | 15.9 |
| 1986 | 06 29 | 18 17.27 | -25 12.0 | | | | | |
| 1986 | 07 09 | 18 08.95 | -25 15.0 | 1.851 | 2.848 | 165.9 | 5.0 | 16.0 |
| 1986 | 07 19 | 18 01.82 | -25 14.8 | | | | | |
| 1986 | 07 29 | 17 56.61 | -25 12.2 | 1.969 | 2.855 | 144.1 | 12.0 | 16.4 |
| 1986 | 08 08 | 17 53.77 | -25 08.4 | | | | | |
| 1986 | 08 18 | 17 53.52 | -25 04.3 | 2.168 | 2.863 | 124.3 | 17.0 | 16.8 |
| 1986 | 08 28 | 17 55.80 | -25 00.3 | | | | | |
| 1986 | 09 07 | 18 00.45 | -24 56.1 | 2.419 | 2.873 | 106.5 | 19.7 | 17.1 |

1981 EF17 a,e,i = 2.62, 0.18, 12 Elements MPC 8061

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 03 31 | 18 10.25 | -11 14.7 | 1.936 | 2.281 | 96.8 | 25.8 | 17.8 |
| 1986 04 10 | 18 20.92 | -10 00.4 | | | | | |
| 1986 04 20 | 18 29.49 | -08 39.2 | 1.688 | 2.251 | 110.9 | 24.7 | 17.4 |
| 1986 04 30 | 18 35.66 | -07 13.5 | | | | | |
| 1986 05 10 | 18 39.13 | -05 46.7 | 1.471 | 2.224 | 126.3 | 21.5 | 17.0 |
| 1986 05 20 | 18 39.70 | -04 23.4 | | | | | |
| 1986 05 30 | 18 37.36 | -03 09.1 | 1.306 | 2.200 | 142.7 | 16.2 | 16.6 |
| 1986 06 09 | 18 32.34 | -02 10.0 | | | | | |
| 1986 06 19 | 18 25.25 | -01 32.4 | 1.211 | 2.180 | 156.2 | 10.8 | 16.2 |
| 1986 06 29 | 18 17.11 | -01 20.4 | | | | | |
| 1986 07 09 | 18 09.10 | -01 35.7 | 1.202 | 2.164 | 154.5 | 11.7 | 16.2 |
| 1986 07 19 | 18 02.47 | -02 16.1 | | | | | |
| 1986 07 29 | 17 58.16 | -03 16.5 | 1.275 | 2.152 | 139.8 | 17.7 | 16.5 |
| 1986 08 08 | 17 56.73 | -04 30.6 | | | | | |
| 1986 08 18 | 17 58.44 | -05 51.9 | 1.414 | 2.145 | 123.5 | 23.2 | 16.9 |
| 1986 08 28 | 18 03.19 | -07 14.6 | | | | | |
| 1986 09 07 | 18 10.77 | -08 34.3 | 1.597 | 2.142 | 108.5 | 26.5 | 17.2 |

1975 VG9 a,e,i = 2.61, 0.13, 12 Elements MPC 9584

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 03 31 | 18 38.11 | -34 05.7 | 2.451 | 2.670 | 91.4 | 22.0 | 17.0 |
| 1986 04 10 | 18 46.95 | -34 15.8 | | | | | |
| 1986 04 20 | 18 53.30 | -34 27.2 | 2.216 | 2.695 | 107.6 | 20.8 | 16.8 |
| 1986 04 30 | 18 56.89 | -34 40.2 | | | | | |
| 1986 05 10 | 18 57.42 | -34 54.1 | 2.005 | 2.720 | 125.6 | 17.6 | 16.5 |
| 1986 05 20 | 18 54.74 | -35 07.2 | | | | | |
| 1986 05 30 | 18 48.94 | -35 16.4 | 1.847 | 2.744 | 145.6 | 12.0 | 16.2 |
| 1986 06 09 | 18 40.38 | -35 17.5 | | | | | |
| 1986 06 19 | 18 29.88 | -35 06.9 | 1.773 | 2.767 | 165.0 | 5.5 | 15.8 |
| 1986 06 29 | 18 18.59 | -34 42.2 | | | | | |
| 1986 07 09 | 18 07.78 | -34 04.0 | 1.803 | 2.789 | 162.2 | 6.4 | 15.9 |
| 1986 07 19 | 17 58.62 | -33 15.3 | | | | | |
| 1986 07 29 | 17 51.92 | -32 20.9 | 1.936 | 2.809 | 142.3 | 12.8 | 16.3 |
| 1986 08 08 | 17 48.09 | -31 25.0 | | | | | |
| 1986 08 18 | 17 47.20 | -30 31.0 | 2.150 | 2.828 | 122.7 | 17.5 | 16.7 |
| 1986 08 28 | 17 49.10 | -29 40.7 | | | | | |
| 1986 09 07 | 17 53.50 | -28 54.5 | 2.415 | 2.846 | 104.9 | 20.0 | 17.1 |

1984 AR a,e,i = 3.13, 0.14, 1 Elements MPC 8535

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 03 31 | 18 39.57 | -24 06.9 | 3.332 | 3.486 | 90.5 | 16.7 | 18.6 |
| 1986 04 10 | 18 44.90 | -24 05.2 | | | | | |
| 1986 04 20 | 18 48.39 | -24 05.2 | 3.055 | 3.500 | 108.1 | 15.8 | 18.4 |
| 1986 04 30 | 18 49.87 | -24 07.5 | | | | | |
| 1986 05 10 | 18 49.24 | -24 12.3 | 2.808 | 3.513 | 127.3 | 13.2 | 18.1 |
| 1986 05 20 | 18 46.46 | -24 19.4 | | | | | |
| 1986 05 30 | 18 41.67 | -24 27.9 | 2.622 | 3.525 | 148.3 | 8.7 | 17.8 |
| 1986 06 09 | 18 35.15 | -24 36.7 | | | | | |
| 1986 06 19 | 18 27.38 | -24 44.6 | 2.529 | 3.536 | 170.6 | 2.7 | 17.5 |
| 1986 06 29 | 18 19.04 | -24 50.2 | | | | | |
| 1986 07 09 | 18 10.84 | -24 53.1 | 2.549 | 3.545 | 166.4 | 3.9 | 17.6 |
| 1986 07 19 | 18 03.52 | -24 53.3 | | | | | |
| 1986 07 29 | 17 57.66 | -24 51.6 | 2.678 | 3.553 | 144.4 | 9.6 | 17.9 |
| 1986 08 08 | 17 53.65 | -24 48.7 | | | | | |
| 1986 08 18 | 17 51.72 | -24 45.6 | 2.895 | 3.560 | 123.8 | 13.7 | 18.3 |
| 1986 08 28 | 17 51.89 | -24 42.6 | | | | | |
| 1986 09 07 | 17 54.09 | -24 39.9 | 3.168 | 3.565 | 105.1 | 15.8 | 18.5 |