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Smithsonian Astrophysical Observatory
Cambridge, MA 02138, U.S.A.

TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
Telephone 617-495-7244/7440/7444 ** Conrad M. Bardwell, Associate Director

ERRATA.

| MPC | Line | |
|---|---|---|
| 10022 | -26 | Add The identifications are by L. D. Schmadel unless otherwise stated. |
| 10311 | 18 | For Malaren read Malaren |
| 10756 | - 6 | Add (J-P) |
| 10762 | 14 & 26 | Delete reference to 1957 WB1 and 571126 observation (which should not have included the symbol X). |
| 10782 | - 8 | Add G. Lowe as an observer. |
| 10836 | 1 | Add Residuals in seconds of arc (or two decimals in units of degrees) |
| 10836 | -27 & -16 | Add Residuals in seconds of arc |
| 10847 | -14 | For 1773 read 1733 |

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 10782.

| Object | | Date | UT | R. A. (1950) | Decl. | Old desig. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|---|
| 1945 UD | * | 1945 10 | 30.94735 | 02 37 24.64 | +15 19 54.9 | 1945 TF | | 012 |
| 1945 UD | | 1945 11 | 07.88395 | 02 31 10.80 | +14 29 32.5 | 1945 TF | | 012 |
| 1948 UM | * | 1948 10 | 26.94994 | 01 12 52.15 | +05 45 21.1 | 1948 TD1 | | 012 |
| 1952 BL2 | * | 1952 01 | 22.12500 | 06 02 01.9 | +12 33 37 | 1951 YR2 | 16.9 | 711 |
| 1956 YS | * | 1956 12 | 25.60139 | 05 38 37.97 | +14 29 53.4 | 1956 XN | | 388 |
| 1969 UW2 | * | 1969 10 | 16.97572 | 01 39 20.50 | +10 43 19.6 | 1969 TH1 | 17.0 | 095 |
| 1977 SR3 | * | 1977 09 | 19.90518 | 00 25 30.56 | +02 20 42.0 | 1977 RZ7 | 16.5 | 095 |
| 1977 SR3 | | 1977 10 | 08.80037 | 00 08 45.26 | +01 27 54.3 | 1977 RZ7 | 17.0 | 095 |
| 1977 TL8 | * | 1977 10 | 10.88979 | 01 17 35.92 | +08 07 03.9 | 1977 SX2 | 16.5 | 095 |

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. Observers J. M. Codina and J. Nunez. Measured and reduced by N. Torras and J. Nunez.
012 Royal Observatory, Uccle. Double astrograph. Observers H. Debehogne and T. Pauwels. Measured by G. Peeters and T. Pauwels.
046 Klet. Observers Z. Vavrova and A. Mrkos.
051 Cape. Astrographic camera. Observer J. Churms.
089 Nikolaev. Observers N. D. Kalinenkov, G. K. Gorel, V. I. Voronenko and L. A. Gudkova.
186 Kitab. Observers E. Mirmakhmudov, T. Khamedov, N. Kadyrova and E.

Rakhmatov.
293 Burlington remote site. Observer T. Handley.
323 Perth Observatory, Bickley. Observers P. V. Birch, M. P. Candy, P. Jakobsons, A. McGrath and L. Stevens.
334 Tsingtao. Observer S. S. Sun.
372 Geisei. 0.60-m reflector. Observer T. Seki.
391 Sendai Observatory, Ayashi Station. 0.2-m reflector. Observer M. Koishikawa. Measured by T. Tsumagari.
392 JCPM Sapporo Station. 0.25-m reflector. Observer H. Kaneda.
397 Sapporo Science Center. 0.60-m reflector. Observer K. Watanabe.
399 Kushiro. 0.16-m reflector. Observer Ueda. Measured by H. Kaneda. Long. and Parallax 144.61, -312, 290 (see MPC 7759).
415 Kambah, near Canberra. Observer D. Herald.
494 Stakenbridge. Observer B. Manning.
500 Geocentric code used for observations from the SOLWIND satellite.
503 Cambridge. Observer J. D. Shanklin.
553 Chorzow. Observers I. Wlodarczyk and Szczepanski.
583 Odessa-Mayaki. Observer I. S. Shestaka.
657 Victoria. Observers J. B. Tatum and D. D. Balam.
675 Palomar. 1986d observed by E. Helin with 1.2-m Schmidt, measured by K. Sangster; 1986g by J. Gibson, G. E. Danielson and J. Holtzman with 1.5-m reflector + CCD; 1986f and 1986h observed by J. Gibson alone.
691 University of Arizona, Kitt Peak. 0.91-m reflector, CCD in scanning mode. Observers T. Gehrels and J. V. Scotti. Reduced by J. V. Scotti and C. Lykins.
707 Chamberlin Observatory field station. Observers J. Briggs and E. Everhart.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
805 Cerro el Roble. Observer C. Torres. Measured by M. Wischnjewsky.
807 Cerro Tololo. Curtis Schmidt. Observers K. J. Meech and D. C. Jewitt.
984 Eastfield (West Chinnock). Observer H. B. Ridley. Measured by D. G. Buczynski.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
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| | | Periodic Comet Schwassmann-Wachmann 1 | | | | | |
| /1974 II | 1986 | 05 05.28461 | 18 50 25.79 | -29 34 44.2 | | | 807 |
| /1974 II | 1986 | 05 07.32697 | 18 50 12.09 | -29 35 50.4 | | | 807 |
| | | Comet 1981 XXI (SOLWIND 4) | | | | | |
| /1981 XXI | 1981 | 11 03.999 | 14 25.71 | -16 58.6 | | | 500 |
| /1981 XXI | 1981 | 11 04.038 | 14 26.54 | -16 51.0 | | | 500 |
| /1981 XXI | 1981 | 11 04.105 | 14 28.10 | -16 42.1 | | | 500 |
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| /1982i | 1986 | 04 16.80298 | 12 47 32.20 | -38 47 16.6 | | | 186 |
| /1982i | 1986 | 04 16.80575 | 12 47 29.51 | -38 47 00.6 | | | 186 |
| /1982i | 1986 | 04 22.89722 | 11 36 39.01 | -27 56 33.8 | | 5 | 012 |
| /1982i | 1986 | 04 24.85556 | 11 22 52.47 | -25 05 57.9 | | 3 | 012 |

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| /1982i | 1986 | 04 | 27.67937 | 11 | 07 | 38.02 | -21 | 36 | 47.6 | | 186 |
| /1982i | 1986 | 04 | 27.68214 | 11 | 07 | 37.24 | -21 | 36 | 35.8 | | 186 |
| /1982i | 1986 | 04 | 27.78998 | 11 | 07 | 07.54 | -21 | 29 | 26.6 | | 089 |
| /1982i | 1986 | 04 | 27.80521 | 11 | 07 | 03.25 | -21 | 28 | 26.2 | | 089 |
| /1982i | 1986 | 04 | 27.82046 | 11 | 06 | 59.10 | -21 | 27 | 25.8 | | 089 |
| /1982i | 1986 | 04 | 27.83553 | 11 | 06 | 55.02 | -21 | 26 | 25.3 | | 089 |
| /1982i | 1986 | 04 | 28.68355 | 11 | 03 | 14.14 | -20 | 31 | 56.4 | | 186 |
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| /1982i | 1986 | 04 | 28.78381 | 11 | 02 | 49.42 | -20 | 25 | 44.7 | | 089 |
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| /1982i | 1986 | 04 | 29.66906 | 10 | 59 | 20.71 | -19 | 32 | 40.8 | | 186 |
| /1982i | 1986 | 04 | 29.67149 | 10 | 59 | 20.18 | -19 | 32 | 31.1 | | 186 |
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| /1982i | 1986 | 04 | 29.83900 | 10 | 58 | 42.39 | -19 | 22 | 53.8 | | 089 |
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| /1982i | 1986 | 04 | 30.81060 | 10 | 55 | 17.79 | -18 | 29 | 02.1 | | 089 |
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| /1982i | 1986 | 05 | 01.68090 | 10 | 52 | 30.12 | -17 | 43 | 36.0 | | 323 |
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| /1982i | 1986 | 05 | 05.22448 | 10 | 43 | 18.45 | -15 | 05 | 27.9 | | 805 |
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| /1982i | 1986 | 05 | 05.22865 | 10 | 43 | 17.80 | -15 | 05 | 15.8 | | 805 |
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| /1982i | 1986 | 05 | 05.76661 | 10 | 42 | 09.91 | -14 | 44 | 39.8 | | 089 |
| /1982i | 1986 | 05 | 05.79172 | 10 | 42 | 06.77 | -14 | 43 | 44.8 | | 089 |
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| /1982i | 1986 | 05 | 05.84539 | 10 | 41 | 59.79 | -14 | 41 | 40.2 | | 583 |
| /1982i | 1986 | 05 | 05.85463 | 10 | 41 | 59.03 | -14 | 41 | 19.5 | | 553 |
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| /1982i | 1986 | 05 | 15.59236 | 10 | 28 | 59.98 | -10 | 08 | 19.5 | | 323 |
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| /1982i | 1986 | 05 | 15.68889 | 10 | 28 | 55.25 | -10 | 06 | 21.0 | | 323 |
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| /1982i | 1986 | 05 | 15.91424 | 10 | 28 | 44.88 | -10 | 01 | 57.1 | 2 | 012 |
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| /1982i | 1986 | 05 | 25.86042 | 10 | 24 | 20.13 | -07 | 31 | 32.0 | | 046 |
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| /1982i | 1986 | 05 | 26.89763 | 10 | 24 | 09.68 | -07 | 20 | 13.1 | 5 | 012 |
| /1982i | 1986 | 05 | 27.46701 | 10 | 24 | 05.35 | -07 | 14 | 20.7 | | 391 |
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| /1982i | 1986 | 05 | 28.50347 | 10 | 23 | 58.94 | -07 | 03 | 59.5 | | 323 |
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| /1982i | 1986 | 05 | 28.52917 | 10 | 23 | 58.73 | -07 | 03 | 43.8 | | 323 |
| /1982i | 1986 | 05 | 29.56111 | 10 | 23 | 54.56 | -06 | 54 | 08.2 | | 323 |
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| /1982i | 1986 | 05 | 29.57639 | 10 | 23 | 54.50 | -06 | 53 | 59.7 | | 323 |
| /1982i | 1986 | 05 | 29.58611 | 10 | 23 | 54.42 | -06 | 53 | 54.5 | | 323 |
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| /1982i | 1986 | 05 | 31.46840 | 10 | 23 | 52.61 | -06 | 37 | 54.8 | | 391 |
| /1982i | 1986 | 06 | 01.37767 | 10 | 23 | 53.86 | -06 | 30 | 40.1 | | 415 |
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| /1982i | 1986 | 06 | 01.82830 | 10 | 23 | 55.21 | -06 | 27 | 22.6 | | 006 |
| /1982i | 1986 | 06 | 03.07240 | 10 | 24 | 00.21 | -06 | 18 | 26.7 | | 801 |
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| /1982i | 1986 | 06 | 03.38737 | 10 | 24 | 01.77 | -06 | 16 | 11.2 | | 415 |
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|---|---|---|---|---|---|---|---|---|---|---|---|
| /1982i | 1986 | 06 | 04.43333 | 10 | 24 | 08.67 | -06 | 09 | 20.8 | | 323 |
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| /1982i | 1986 | 06 | 05.44097 | 10 | 24 | 16.51 | -06 | 03 | 08.2 | | 323 |
| /1982i | 1986 | 06 | 05.44861 | 10 | 24 | 16.58 | -06 | 03 | 04.7 | | 323 |
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| /1982i | 1986 | 06 | 06.44097 | 10 | 24 | 25.81 | -05 | 57 | 21.1 | | 323 |
| /1982i | 1986 | 06 | 06.44861 | 10 | 24 | 25.95 | -05 | 57 | 18.2 | | 323 |
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| /1982i | 1986 | 06 | 07.51911 | 10 | 24 | 37.20 | -05 | 51 | 36.7 | 7 T | 334 |
| /1982i | 1986 | 06 | 07.52744 | 10 | 24 | 37.32 | -05 | 51 | 34.8 | 7 T | 334 |
| /1982i | 1986 | 06 | 07.53538 | 10 | 24 | 37.38 | -05 | 51 | 33.1 | 7 T | 334 |
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| /1982i | 1986 | 06 | 08.55519 | 10 | 24 | 49.67 | -05 | 46 | 22.2 | 7 T | 334 |
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| /1982i | 1986 | 06 | 12.43264 | 10 | 25 | 47.09 | -05 | 29 | 46.2 | | 323 |
| /1982i | 1986 | 06 | 12.44028 | 10 | 25 | 47.25 | -05 | 29 | 44.1 | | 323 |
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| /1982i | 1986 | 06 | 13.44931 | 10 | 26 | 04.64 | -05 | 26 | 10.5 | | 323 |
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| /1982i | 1986 | 06 | 14.70145 | 10 | 26 | 27.67 | -05 | 22 | 03.3 | | 051 |
| /1982i | 1986 | 06 | 14.71290 | 10 | 26 | 27.90 | -05 | 22 | 01.9 | | 051 |
| /1982i | 1986 | 06 | 16.87771 | 10 | 27 | 10.81 | -05 | 16 | 00.4 | | 006 |
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| /1982i | 1986 | 06 | 20.47083 | 10 | 28 | 30.38 | -05 | 08 | 08.0 | | 323 |
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| /1982i | 1986 | 06 | 25.71013 | 10 | 30 | 41.54 | -05 | 01 | 22.3 | | 051 |
| /1982i | 1986 | 06 | 25.72430 | 10 | 30 | 41.92 | -05 | 01 | 22.1 | | 051 |
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| /1982i | 1986 | 06 | 29.36947 | 10 | 32 | 22.13 | -04 | 59 | 28.8 | | 415 |
| /1982i | 1986 | 06 | 29.55301 | 10 | 32 | 27.36 | -04 | 59 | 28.6 | | 323 |

Comet Cernis (1983 XII)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1983 XII | 1986 | 05 | 05.24884 | 18 | 50 | 04.98 | -67 | 32 | 47.6 | | 807 |
| /1983 XII | 1986 | 05 | 06.27113 | 18 | 49 | 02.15 | -67 | 36 | 49.4 | | 807 |

Comet 1983 XX (SOLWIND 6)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1983 XX | 1983 | 09 | 24.863 | 11 | 54.42 | | -00 | 49.9 | | | 500 |
| /1983 XX | 1983 | 09 | 24.870 | 11 | 54.76 | | -00 | 49.1 | | | 500 |
| /1983 XX | 1983 | 09 | 24.878 | 11 | 54.97 | | -00 | 46.8 | | | 500 |
| /1983 XX | 1983 | 09 | 24.885 | 11 | 55.32 | | -00 | 47.1 | | | 500 |

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| /1983 XX | 1983 | 09 | 24.892 | 11 | 55.46 | -00 | 47.0 | 500 |
| /1983 XX | 1983 | 09 | 25.062 | 12 | 00.92 | -00 | 31.7 | 500 |
| | | | Comet 1984 XII (SOLWIND 5) | | | | | |
| /1984 XII | 1984 | 07 | 28.302 | 08 | 21.83 | +18 | 30.4 | 500 |
| /1984 XII | 1984 | 07 | 28.309 | 08 | 21.95 | +18 | 31.5 | 500 |
| /1984 XII | 1984 | 07 | 28.316 | 08 | 22.18 | +18 | 33.0 | 500 |
| /1984 XII | 1984 | 07 | 28.324 | 08 | 22.18 | +18 | 34.1 | 500 |
| /1984 XII | 1984 | 07 | 28.331 | 08 | 22.72 | +18 | 37.9 | 500 |
| /1984 XII | 1984 | 07 | 28.368 | 08 | 24.03 | +18 | 44.0 | 500 |
| /1984 XII | 1984 | 07 | 28.375 | 08 | 24.26 | +18 | 45.5 | 500 |
| /1984 XII | 1984 | 07 | 28.383 | 08 | 24.50 | +18 | 47.2 | 500 |
| /1984 XII | 1984 | 07 | 28.390 | 08 | 24.73 | +18 | 48.9 | 500 |
| /1984 XII | 1984 | 07 | 28.397 | 08 | 25.08 | +18 | 50.3 | 500 |
| /1984 XII | 1984 | 07 | 28.435 | 08 | 26.52 | +18 | 58.8 | 500 |
| /1984 XII | 1984 | 07 | 28.443 | 08 | 26.55 | +18 | 59.1 | 500 |
| | | | Comet Levy-Rudenko (1984 XXIII) | | | | | |
| /1984 XXIII | 1985 | 05 | 24.15281 | 08 | 52 30.05 | +08 | 10 58.9 | 6 691 |
| /1984 XXIII | 1985 | 05 | 24.16139 | 08 | 52 30.44 | +08 | 10 53.4 | 6 691 |
| /1984 XXIII | 1985 | 05 | 24.16443 | 08 | 52 30.62 | +08 | 10 51.8 | 6 691 |
| | | | Comet Hartley (1984v) | | | | | |
| /1984v | 1986 | 05 | 29.49375 | 07 | 13 43.30 | -76 | 44 23.3 | 323 |
| | | | Comet Thiele (1985m) | | | | | |
| /1985m | 1986 | 06 | 04.23808 | 17 | 52 50.01 | +12 | 19 13.4 | 7 801 |
| /1985m | 1986 | 06 | 07.32654 | 17 | 42 03.39 | +11 | 49 48.2 | 691 |
| /1985m | 1986 | 06 | 07.33642 | 17 | 42 01.30 | +11 | 49 41.9 | 691 |
| /1985m | 1986 | 06 | 07.34682 | 17 | 41 59.06 | +11 | 49 35.7 | 691 |
| /1985m | 1986 | 06 | 10.24770 | 17 | 32 03.49 | +11 | 18 31.0 | 7 801 |
| /1985m | 1986 | 07 | 05.27175 | 16 | 22 20.01 | +05 | 37 57.7 | 691 |
| /1985m | 1986 | 07 | 05.27962 | 16 | 22 19.05 | +05 | 37 52.2 | 691 |
| /1985m | 1986 | 07 | 05.28898 | 16 | 22 17.83 | +05 | 37 43.0 | 691 |
| | | | Periodic Comet Boethin | | | | | |
| /1985n | 1986 | 01 | 03.81111 | 22 | 38 18.01 | -08 | 48 44.6 | 984 |
| /1985n | 1986 | 01 | 11.81319 | 23 | 07 26.16 | -05 | 02 28.4 | 984 |
| /1985n | 1986 | 01 | 15.78055 | 23 | 22 17.87 | -03 | 03 57.9 | 984 |
| /1985n | 1986 | 01 | 19.79028 | 23 | 37 34.89 | -01 | 01 24.1 | 984 |
| | | | Comet Shoemaker (1986b) | | | | | |
| /1986b | 1986 | 06 | 06.16321 | 09 | 33 19.59 | +26 | 38 32.7 | 691 |
| /1986b | 1986 | 06 | 06.18691 | 09 | 33 18.96 | +26 | 38 23.9 | 691 |
| /1986b | 1986 | 06 | 06.19142 | 09 | 33 19.09 | +26 | 38 24.5 | 691 |
| /1986b | 1986 | 06 | 07.18760 | 09 | 32 59.23 | +26 | 33 38.5 | 707 |
| | | | Periodic Comet Hartley 2 | | | | | |
| /1986c | 1986 | 06 | 07.15793 | 11 | 02 57.73 | -01 | 06 55.4 | 691 |
| /1986c | 1986 | 06 | 07.16865 | 11 | 02 58.00 | -01 | 06 56.3 | 691 |
| /1986c | 1986 | 06 | 07.22340 | 11 | 02 59.45 | -01 | 06 57.3 | 691 |
| | | | Periodic Comet Singer Brewster | | | | | |
| /1986d | 1986 | 05 | 05.59965 | 14 | 49 08.95 | -06 | 11 23.3 | 399 |
| /1986d | 1986 | 05 | 05.62677 | 14 | 49 08.16 | -06 | 11 04.3 | 399 |
| /1986d | 1986 | 05 | 08.69028 | 14 | 47 44.02 | -05 | 41 26.2 | 323 |
| /1986d | 1986 | 05 | 16.68542 | 14 | 44 18.77 | -04 | 32 49.5 | 323 |
| /1986d | 1986 | 05 | 28.56458 | 14 | 40 51.77 | -03 | 20 30.3 | 323 |
| /1986d | 1986 | 05 | 29.64028 | 14 | 40 41.24 | -03 | 15 59.2 | 323 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986d | 1986 | 05 | 30.55625 | 14 | 40 | 33.85 | -03 | 12 | 22.7 | | | | 323 |
| /1986d | 1986 | 06 | 03.10982 | 14 | 40 | 16.14 | -03 | 00 | 58.4 | | | 7 | 801 |
| /1986d | 1986 | 06 | 04.30972 | 14 | 40 | 14.13 | -02 | 57 | 54.6 | | | | 675 |
| /1986d | 1986 | 06 | 05.17063 | 14 | 40 | 14.46 | -02 | 55 | 59.3 | | | | 801 |
| /1986d | 1986 | 06 | 06.28924 | 14 | 40 | 16.51 | -02 | 53 | 48.5 | | | 7 | 707 |
| /1986d | 1986 | 06 | 06.31801 | 14 | 40 | 16.54 | -02 | 53 | 45.3 | | | | 691 |
| /1986d | 1986 | 06 | 06.32352 | 14 | 40 | 16.56 | -02 | 53 | 44.8 | | | | 691 |
| /1986d | 1986 | 06 | 06.32674 | 14 | 40 | 16.50 | -02/53 | | 43.9 | | | | 675 |
| /1986d | 1986 | 06 | 07.27841 | 14 | 40 | 19.98 | -02 | 52 | 14.7 | | | | 691 |
| /1986d | 1986 | 06 | 07.31480 | 14 | 40 | 20.05 | -02 | 52 | 11.3 | | | | 691 |
| /1986d | 1986 | 06 | 07.35096 | 14 | 40 | 20.12 | -02 | 52 | 07.9 | | | | 691 |
| /1986d | 1986 | 06 | 12.33924 | 14 | 41 | 03.21 | -02 | 48 | 28.3 | | | | 707 |
| /1986d | 1986 | 07 | 06.23332 | 14 | 54 | 00.33 | -03 | 57 | 07.3 | | | | 691 |
| /1986d | 1986 | 07 | 06.24080 | 14 | 54 | 00.69 | -03 | 57 | 09.4 | | | | 691 |
| /1986d | 1986 | 07 | 06.25243 | 14 | 54 | 01.27 | -03 | 57 | 13.6 | | | | 691 |

Periodic Comet Machholz

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986e | 1986 | 05 | 17.76493 | 00 | 00 | 53.75 | +41 | 45 | 54.0 | | | | 372 |
| /1986e | 1986 | 05 | 30.42090 | 21 | 32 | 25.59 | +45 | 21 | 24.3 | | | | 657 |
| /1986e | 1986 | 06 | 06.32986 | 19 | 47 | 02.41 | +40 | 10 | 47.5 | | | | 707 |
| /1986e | 1986 | 06 | 07.32708 | 19 | 32 | 52.47 | +38 | 53 | 26.5 | | | | 707 |
| /1986e | 1986 | 06 | 07.77813 | 19 | 26 | 37.21 | +38 | 16 | 19.0 | 15 | T | | 372 |
| /1986e | 1986 | 06 | 09.25651 | 19 | 07 | 07.43 | +36 | 06 | 34.7 | | | | 801 |
| /1986e | 1986 | 06 | 09.59601 | 19 | 02 | 50.37 | +35 | 35 | 19.0 | | | | 399 |
| /1986e | 1986 | 06 | 10.27270 | 18 | 54 | 32.29 | +34 | 31 | 38.8 | | | | 801 |
| /1986e | 1986 | 06 | 11.01938 | 18 | 45 | 44.97 | +33 | 19 | 41.4 | 13.5 | T | | 046 |
| /1986e | 1986 | 06 | 11.02563 | 18 | 45 | 40.49 | +33 | 19 | 04.6 | | | | 046 |
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| /1986e | 1986 | 06 | 12.61395 | 18 | 28 | 15.10 | +30 | 42 | 00.4 | 12 | T | | 392 |
| /1986e | 1986 | 06 | 12.62008 | 18 | 28 | 11.59 | +30 | 41 | 24.6 | | | | 392 |
| /1986e | 1986 | 06 | 13.29069 | 18 | 21 | 22.47 | +29 | 34 | 23.6 | | | | 657 |
| /1986e | 1986 | 06 | 13.33889 | 18 | 20 | 52.94 | +29 | 29 | 39.8 | | | | 707 |
| /1986e | 1986 | 06 | 14.62222 | 18 | 08 | 40.31 | +27 | 21 | 20.3 | 12 | T | | 392 |
| /1986e | 1986 | 06 | 14.62865 | 18 | 08 | 36.99 | +27 | 20 | 43.4 | | | | 392 |
| /1986e | 1986 | 06 | 15.03958 | 18 | 04 | 56.63 | +26 | 39 | 48.9 | 15 | N | | 494 |
| /1986e | 1986 | 06 | 25.29139 | 17 | 00 | 55.68 | +11 | 57 | 16.6 | | | 8 | 657 |
| /1986e | 1986 | 06 | 26.28479 | 16 | 56 | 53.66 | +10 | 49 | 14.5 | | | 9 | 657 |
| /1986e | 1986 | 06 | 26.29451 | 16 | 56 | 51.50 | +10 | 48 | 36.6 | | | 9 | 657 |
| /1986e | 1986 | 06 | 30.70000 | 16 | 42 | 02.90 | +06 | 22 | 17.8 | | | | 323 |
| /1986e | 1986 | 07 | 04.15521 | 16 | 33 | 17.93 | +03 | 27 | 46.3 | | | 6 | 293 |
| /1986e | 1986 | 07 | 04.16076 | 16 | 33 | 17.16 | +03 | 27 | 25.2 | | | 6 | 293 |
| /1986e | 1986 | 07 | 05.30633 | 16 | 30 | 49.91 | +02 | 35 | 34.3 | | | | 691 |
| /1986e | 1986 | 07 | 05.32098 | 16 | 30 | 48.07 | +02 | 34 | 56.1 | | | | 691 |
| /1986e | 1986 | 07 | 05.33113 | 16 | 30 | 46.81 | +02 | 34 | 29.0 | | | | 691 |
| /1986e | 1986 | 07 | 05.33538 | 16 | 30 | 46.25 | +02 | 34 | 18.7 | | | | 691 |
| /1986e | 1986 | 07 | 12.29444 | 16 | 19 | 37.64 | -01 | 51 | 15.8 | | | | 707 |

Periodic Comet Holmes

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986f | 1986 | 06 | 09.45845 | 02 | 04.22 | | +25 | 21.2 | | 18 | T | A | 675 |
| /1986f | 1986 | 06 | 10.45079 | 02 | 06.14 | | +25 | 35.2 | | | | | 675 |
| /1986f | 1986 | 06 | 11.45729 | 02 | 08.07 | | +25 | 50.3 | | | | | 675 |

Periodic Comet Forbes

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986g | 1986 | 04 | 08.26431 | 11 | 11 | 10.55 | +08 | 33 | 43.9 | 20.5 | N | B | 675 |
| /1986g | 1986 | 04 | 08.27181 | 11 | 11 | 10.09 | +08 | 33 | 46.2 | | | | 675 |
| /1986g | 1986 | 05 | 09.21506 | 10 | 57 | 09.63 | +08 | 57 | 56.3 | | | | 675 |
| /1986g | 1986 | 05 | 09.22251 | 10 | 57 | 09.58 | +08 | 57 | 55.5 | | | | 675 |
| /1986g | 1986 | 06 | 12.23681 | 11 | 09 | 04.48 | +06 | 38 | 09.8 | 19 | T | 7 | 707 |

Periodic Comet Schwassmann-Wachmann 2

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986h | 1986 | 06 | 26.45597 | 01 | 43 | 45.18 | +07 | 20 | 51.4 | 20 T | 675 |
| /1986h | 1986 | 06 | 26.47181 | 01 | 43 | 46.07 | +07 | 20 | 54.8 | | 675 |
| /1986h | 1986 | 06 | 27.45764 | 01 | 44 | 41.90 | +07 | 25 | 17.5 | | 675 |
| /1986h | 1986 | 06 | 27.46931 | 01 | 44 | 42.54 | +07 | 25 | 20.5 | | 675 |

Note 1: dark plate, difficult to measure. 2: guided on comet. 3 = 1 + 2. 4: mean of positions on simultaneous plates. 5 = 1 + 4. 6: very faint image. 7: weak image. 8: 1.8 tail in p.a.= 310.5; 40" antitail in p.a. 143 . 9: 3.7 tail in p.a. 307 ; 2′ antitail in p.a. 127 . A: 1′-1′5 tail in p.a. 260 . B: stellar.

* * * * *

OBSERVATIONS MADE AT CAUSSOLS.

Plates taken with the 0.9-m Schmidt by T. Baribaud, M. A. Barucci, T. Laverge, J. Ciffreo and C. Pollas in association with the International Near-Earth Asteroid Survey (INAS), measured by R. Chemin. Contact: J.-L. Heudier, CERGA, Avenue Copernic, F-06130 Grasse, France.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|---|
| 386 | | 1985 08 | 16.02152 | 23 16 08.42 | -00 05 17.9 | | | 010 |
| 386 | | 1985 08 | 24.09785 | 23 12 23.35 | -01 39 05.6 | | | 010 |
| 710 | | 1985 08 | 16.02152 | 23 30 37.35 | -04 13 33.8 | | | 010 |
| 814 | | 1986 05 | 10.99790 | 15 17 30.57 | +02 02 31.4 | | | 010 |
| 814 | | 1986 05 | 11.02920 | 15 17 29.48 | +02 02 33.1 | | | 010 |
| 814 | | 1986 05 | 12.02360 | 15 16 43.34 | +02 03 09.1 | | | 010 |
| 814 | | 1986 05 | 12.05490 | 15 16 42.16 | +02 03 10.4 | | | 010 |
| 1078 | | 1986 06 | 01.96181 | 15 53 09.23 | -13 43 28.8 | | | 010 |
| 1078 | | 1986 06 | 01.99028 | 15 53 07.62 | -13 43 29.6 | | | 010 |
| 2010 | | 1985 08 | 24.07852 | 23 24 59.80 | -05 36 24.0 | | | 010 |
| 2138 | | 1986 06 | 01.96181 | 15 47 08.94 | -13 09 18.5 | | | 010 |
| 2138 | | 1986 06 | 01.99028 | 15 47 07.61 | -13 09 18.5 | | | 010 |
| 2605 | | 1985 08 | 16.02152 | 23 24 48.74 | -01 05 15.2 | | | 010 |
| 2605 | | 1985 08 | 24.09785 | 23 20 42.24 | -01 55 32.2 | | | 010 |
| 3033 | | 1985 08 | 14.97708 | 23 37 23.83 | -01 31 24.9 | | | 010 |
| 3363 | | 1985 08 | 16.02152 | 23 15 41.76 | -02 44 37.7 | | | 010 |
| 3363 | | 1985 08 | 24.07852 | 23 10 28.53 | -03 22 44.9 | | | 010 |
| 3363 | | 1985 08 | 24.09785 | 23 10 27.56 | -03 22 55.4 | | | 010 |
| 3375 | | 1985 08 | 14.97708 | 23 34 42.95 | -02 24 44.8 | | | 010 |
| 3375 | | 1985 08 | 16.02152 | 23 34 07.03 | -02 29 10.4 | | | 010 |
| 3375 | | 1985 08 | 24.07852 | 23 28 35.12 | -03 09 15.7 | | | 010 |
| 3384 | | 1985 08 | 24.07852 | 23 28 29.78 | -05 30 43.6 | | | 010 |
| 3384 | | 1985 08 | 24.09785 | 23 28 29.26 | -05 30 51.5 | | | 010 |
| 3433 | | 1985 08 | 16.02152 | 23 19 51.00 | -04 13 35.5 | | | 010 |
| 3433 | | 1985 08 | 24.07852 | 23 14 02.49 | -04 26 22.1 | | | 010 |
| 1984 | DS | 1985 08 | 14.97708 | 23 33 14.36 | -02 39 13.9 | | | 010 |
| 1984 | DS | 1985 08 | 16.02152 | 23 32 47.69 | -02 45 56.6 | | | 010 |
| 1985 | PO1 * | 1985 08 | 14.97708 | 23 17 30.78 | -02 27 47.9 | | 1 | 010 |
| 1985 | PO1 | 1985 08 | 16.02152 | 23 16 54.87 | -02 32 46.0 | | | 010 |
| 1985 | PO1 | 1985 08 | 24.07852 | 23 11 40.49 | -03 16 33.8 | | | 010 |
| 1985 | PP1 * | 1985 08 | 14.97708 | 23 20 32.64 | -01 51 58.9 | | 1 | 010 |
| 1985 | PP1 | 1985 08 | 16.02152 | 23 20 00.40 | -01 58 58.7 | | | 010 |
| 1985 | PQ1 * | 1985 08 | 14.97708 | 23 21 13.80 | +00 49 06.6 | | 1 | 010 |
| 1985 | PQ1 | 1985 08 | 16.02152 | 23 20 50.49 | +00 43 19.8 | | | 010 |
| 1985 | PR1 * | 1985 08 | 14.97708 | 23 21 20.47 | -03 21 01.6 | | 1 | 010 |
| 1985 | PR1 | 1985 08 | 16.02152 | 23 20 58.48 | -03 27 42.2 | | | 010 |
| 1985 | PS1 * | 1985 08 | 14.97708 | 23 23 19.61 | -03 38 04.0 | | 1 | 010 |
| 1985 | PS1 | 1985 08 | 16.02152 | 23 22 50.32 | -03 41 36.3 | | | 010 |
| 1985 | PT1 * | 1985 08 | 14.97708 | 23 24 05.58 | -02 11 04.8 | | 1 | 010 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | PT1 | | 1985 | 08 | 16.02152 | 23 | 23 | 24.97 | -02 | 13 | 03.5 | | 010 |
| 1985 | PU1 | * | 1985 | 08 | 14.97708 | 23 | 24 | 59.49 | -00 | 25 | 50.9 | 1 | 010 |
| 1985 | PU1 | | 1985 | 08 | 16.02152 | 23 | 24 | 29.34 | -00 | 31 | 16.2 | | 010 |
| 1985 | PV1 | * | 1985 | 08 | 14.97708 | 23 | 26 | 54.43 | -01 | 50 | 03.1 | 1 | 010 |
| 1985 | PV1 | | 1985 | 08 | 16.02152 | 23 | 26 | 23.67 | -01 | 54 | 29.1 | | 010 |
| 1985 | PW1 | * | 1985 | 08 | 14.97708 | 23 | 27 | 56.46 | -00 | 13 | 04.6 | 1 | 010 |
| 1985 | PW1 | | 1985 | 08 | 16.02152 | 23 | 27 | 27.20 | -00 | 17 | 05.5 | | 010 |
| 1985 | PX1 | * | 1985 | 08 | 14.97708 | 23 | 29 | 48.74 | -01 | 02 | 02.6 | 1 | 010 |
| 1985 | PX1 | | 1985 | 08 | 16.02152 | 23 | 29 | 11.20 | -01 | 02 | 34.5 | | 010 |
| 1985 | PX1 | | 1985 | 08 | 24.09785 | 23 | 23 | 48.89 | -01 | 09 | 58.4 | | 010 |
| 1985 | PY1 | * | 1985 | 08 | 14.97708 | 23 | 34 | 55.58 | -03 | 26 | 20.4 | 1 | 010 |
| 1985 | PY1 | | 1985 | 08 | 16.02152 | 23 | 34 | 28.42 | -03 | 29 | 07.8 | | 010 |
| 1985 | QK4 | * | 1985 | 08 | 16.02152 | 23 | 15 | 33.34 | -03 | 24 | 23.8 | 2 | 010 |
| 1985 | QK4 | | 1985 | 08 | 16.04236 | 23 | 15 | 32.81 | -03 | 24 | 31.6 | | 010 |
| 1985 | RM3 | | 1985 | 08 | 14.97708 | 23 | 27 | 41.27 | -03 | 27 | 25.4 | | 010 |
| 1985 | RM3 | | 1985 | 08 | 16.02152 | 23 | 27 | 16.88 | -03 | 33 | 13.4 | | 010 |
| 1985 | RB4 | | 1985 | 08 | 24.07852 | 23 | 25 | 16.10 | -03 | 45 | 26.8 | | 010 |
| 1985 | RB4 | | 1985 | 08 | 24.09785 | 23 | 25 | 15.36 | -03 | 45 | 35.4 | | 010 |
| 1986 | JA | | 1986 | 05 | 10.99790 | 15 | 25 | 32.48 | +04 | 11 | 53.5 | | 010 |
| 1986 | JA | | 1986 | 05 | 11.02920 | 15 | 25 | 31.21 | +04 | 12 | 04.3 | | 010 |
| 1986 | JA | | 1986 | 05 | 12.02360 | 15 | 24 | 42.74 | +04 | 18 | 53.2 | | 010 |
| 1986 | JA | | 1986 | 05 | 12.05490 | 15 | 24 | 41.39 | +04 | 19 | 05.6 | | 010 |
| 1986 | JR | * | 1986 | 05 | 12.92500 | 14 | 18 | 30.48 | +08 | 28 | 23.1 | 19.0 2 | 010 |
| 1986 | JR | | 1986 | 05 | 12.95972 | 14 | 18 | 32.26 | +08 | 30 | 04.5 | | 010 |
| 1986 | JP1 | * | 1986 | 05 | 10.99790 | 15 | 12 | 31.69 | +00 | 38 | 17.4 | 2 | 010 |
| 1986 | JP1 | | 1986 | 05 | 11.02920 | 15 | 12 | 30.40 | +00 | 38 | 15.6 | | 010 |
| 1986 | JP1 | | 1986 | 05 | 12.02360 | 15 | 11 | 32.84 | +00 | 36 | 32.3 | | 010 |
| 1986 | JP1 | | 1986 | 05 | 12.05490 | 15 | 11 | 31.40 | +00 | 36 | 25.7 | | 010 |
| 1986 | JQ1 | * | 1986 | 05 | 10.99790 | 15 | 26 | 01.82 | +02 | 18 | 04.7 | 3 | 010 |
| 1986 | JQ1 | | 1986 | 05 | 11.02920 | 15 | 26 | 00.55 | +02 | 18 | 07.1 | | 010 |
| 1986 | JQ1 | | 1986 | 05 | 12.02360 | 15 | 25 | 03.53 | +02 | 18 | 54.8 | | 010 |
| 1986 | JQ1 | | 1986 | 05 | 12.05490 | 15 | 25 | 02.14 | +02 | 18 | 56.1 | | 010 |
| 1986 | LP | * | 1986 | 06 | 01.96181 | 15 | 36 | 59.64 | -13 | 11 | 27.4 | | 010 |
| 1986 | LP | | 1986 | 06 | 01.99028 | 15 | 36 | 58.71 | -13 | 11 | 18.9 | | 010 |
| 1986 | LQ | * | 1986 | 06 | 01.96181 | 15 | 41 | 55.09 | -13 | 54 | 01.7 | | 010 |
| 1986 | LQ | | 1986 | 06 | 01.99028 | 15 | 41 | 54.01 | -13 | 53 | 52.4 | | 010 |

Note 1: discoverers M. A. Barucci and E. Helin. 2: discoverer R. Chemin. 3: discoverer J.-L. Heudier.

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

Contact: A. Mrkos, Department of Astronomy and Astrophysics, Charles University, Svedska 8, C-15000 Prague, Czechoslovakia.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 53 | 1986 06 | 05.99229 | 17 06 21.72 | -15 47 17.1 | | 046 |
| 53 | 1986 06 | 06.00641 | 17 06 20.86 | -15 47 17.2 | | 046 |
| 53 | 1986 06 | 09.94617 | 17 02 41.51 | -15 44 12.5 | | 046 |
| 53 | 1986 06 | 09.96035 | 17 02 40.72 | -15 44 12.2 | | 046 |
| 53 | 1986 06 | 10.94762 | 17 01 45.91 | -15 43 33.3 | | 046 |
| 53 | 1986 06 | 10.96185 | 17 01 45.08 | -15 43 31.7 | | 046 |
| 999 | 1986 06 | 09.97875 | 17 33 57.08 | -11 02 21.2 | | 046 |
| 999 | 1986 06 | 09.99299 | 17 33 56.30 | -11 02 18.1 | | 046 |
| 999 | 1986 06 | 10.98674 | 17 33 01.41 | -10 57 24.7 | | 046 |
| 999 | 1986 06 | 11.00086 | 17 33 00.65 | -10 57 22.1 | | 046 |
| 1114 | 1986 06 | 09.97875 | 17 36 46.54 | -09 04 30.9 | | 046 |
| 1114 | 1986 06 | 09.99299 | 17 36 45.82 | -09 04 28.4 | | 046 |
| 1114 | 1986 06 | 10.98674 | 17 35 59.55 | -09 02 24.1 | | 046 |
| 1114 | 1986 06 | 11.00086 | 17 35 58.90 | -09 02 23.1 | | 046 |
| 1410 | 1986 06 | 10.98674 | 17 35 01.25 | -08 19 41.6 | | 046 |
| 1410 | 1986 06 | 11.00086 | 17 35 00.28 | -08 19 42.1 | | 046 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2309 | | | 1986 | 06 | 10.98674 | 17 | 36 | 43.50 | -08 | 04 | 03.1 | 046 |
| 2309 | | | 1986 | 06 | 11.00086 | 17 | 36 | 42.92 | -08 | 04 | 01.1 | 046 |
| 3451 | | | 1986 | 05 | 25.89097 | 17 | 59 | 20.48 | +06 | 44 | 58.1 | 046 |
| 3451 | | | 1986 | 05 | 25.89687 | 17 | 59 | 20.34 | +06 | 44 | 59.3 | 046 |
| 3451 | | | 1986 | 05 | 26.90208 | 17 | 58 | 55.18 | +06 | 48 | 11.7 | 046 |
| 3451 | | | 1986 | 05 | 26.90799 | 17 | 58 | 55.09 | +06 | 48 | 12.3 | 046 |
| 3451 | | | 1986 | 06 | 05.95005 | 17 | 54 | 18.85 | +07 | 13 | 59.3 | 15.5 046 |
| 3451 | | | 1986 | 06 | 05.95722 | 17 | 54 | 18.66 | +07 | 13 | 59.8 | 046 |
| 3451 | | | 1986 | 06 | 08.96837 | 17 | 52 | 48.85 | +07 | 19 | 26.0 | 046 |
| 3451 | | | 1986 | 06 | 08.98781 | 17 | 52 | 48.24 | +07 | 19 | 27.9 | 046 |
| 3451 | | | 1986 | 06 | 09.92296 | 17 | 52 | 19.98 | +07 | 20 | 56.2 | 046 |
| 3451 | | | 1986 | 06 | 09.92875 | 17 | 52 | 19.79 | +07 | 20 | 55.8 | 046 |
| 3451 | | | 1986 | 06 | 10.92580 | 17 | 51 | 49.33 | +07 | 22 | 22.6 | 046 |
| 3451 | | | 1986 | 06 | 10.93159 | 17 | 51 | 49.12 | +07 | 22 | 23.4 | 046 |
| 1976 | GR6 | | 1986 | 06 | 09.94617 | 16 | 52 | 28.70 | -14 | 09 | 17.4 | 16.4 046 |
| 1976 | GR6 | | 1986 | 06 | 09.96035 | 16 | 52 | 27.81 | -14 | 09 | 18.2 | 046 |
| 1976 | GR6 | | 1986 | 06 | 10.94762 | 16 | 51 | 25.65 | -14 | 10 | 53.1 | 046 |
| 1976 | GR6 | | 1986 | 06 | 10.96185 | 16 | 51 | 24.80 | -14 | 10 | 55.1 | 046 |
| 1981 | DM1 | | 1986 | 06 | 09.97875 | 17 | 36 | 57.90 | -09 | 17 | 41.1 | 046 |
| 1981 | DM1 | | 1986 | 06 | 09.99299 | 17 | 36 | 57.06 | -09 | 17 | 38.3 | 046 |
| 1986 | DA | | 1986 | 05 | 26.88333 | 13 | 54 | 00.30 | -09 | 09 | 32.0 | 046 |
| 1986 | DA | | 1986 | 05 | 26.88924 | 13 | 54 | 01.22 | -09 | 09 | 43.0 | 046 |
| 1986 | JR1 | * | 1986 | 05 | 05.00623 | 15 | 42 | 38.97 | -13 | 11 | 42.9 | 16.9 046 |
| 1986 | JR1 | | 1986 | 05 | 05.02035 | 15 | 42 | 38.30 | -13 | 11 | 39.5 | 046 |
| 1986 | JS1 | * | 1986 | 05 | 05.00623 | 15 | 43 | 48.05 | -13 | 22 | 58.6 | 17.0 046 |
| 1986 | JS1 | | 1986 | 05 | 05.02035 | 15 | 43 | 47.35 | -13 | 22 | 47.9 | 046 |
| 1986 | LT | * | 1986 | 06 | 05.99229 | 16 | 55 | 16.42 | -14 | 36 | 59.1 | 046 |
| 1986 | LT | | 1986 | 06 | 06.00641 | 16 | 55 | 15.56 | -14 | 37 | 04.1 | 046 |
| 1986 | LU | * | 1986 | 06 | 05.99229 | 17 | 06 | 45.46 | -13 | 49 | 49.1 | 17.2 046 |
| 1986 | LU | | 1986 | 06 | 06.00641 | 17 | 06 | 44.83 | -13 | 49 | 48.7 | 046 |
| 1986 | LV | * | 1986 | 06 | 09.94617 | 16 | 55 | 35.42 | -15 | 15 | 12.6 | 16.5 046 |
| 1986 | LV | | 1986 | 06 | 09.96035 | 16 | 55 | 34.74 | -15 | 15 | 10.9 | 046 |
| 1986 | LV | | 1986 | 06 | 10.94762 | 16 | 54 | 45.94 | -15 | 12 | 08.2 | 046 |
| 1986 | LV | | 1986 | 06 | 10.96185 | 16 | 54 | 44.85 | -15 | 12 | 06.0 | 046 |
| 1986 | LW | * | 1986 | 06 | 09.97875 | 17 | 36 | 53.01 | -09 | 12 | 49.9 | 046 |
| 1986 | LW | | 1986 | 06 | 09.99299 | 17 | 36 | 52.09 | -09 | 12 | 44.9 | 046 |
| 1986 | LW | | 1986 | 06 | 10.98674 | 17 | 36 | 03.59 | -09 | 05 | 21.1 | 046 |
| 1986 | LW | | 1986 | 06 | 11.00086 | 17 | 36 | 02.89 | -09 | 05 | 11.1 | 046 |
| 1986 | LX | * | 1986 | 06 | 09.97875 | 17 | 37 | 02.59 | -09 | 29 | 39.0 | 046 |
| 1986 | LX | | 1986 | 06 | 09.99299 | 17 | 37 | 01.79 | -09 | 29 | 36.4 | 046 |

OBSERVATIONS MADE AT BRORFELDE BY K. AUGUSTESEN AND P. JENSEN.

Observations made in part in association with the International Near-Earth Asteroid Survey (INAS). Contact: H. J. Fogh Olsen, Copenhagen University Observatory, Brorfelde, DK-4340 Tollose, Denmark.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 56 | 1986 04 | 02.97718 | 12 53 49.00 | -05 37 50.5 | | 054 |
| 56 | 1986 04 | 04.98412 | 12 52 08.51 | -05 20 24.5 | | 054 |
| 161 | 1986 04 | 02.97718 | 12 50 17.97 | -03 50 15.4 | | 054 |
| 161 | 1986 04 | 04.98412 | 12 48 10.44 | -03 44 55.9 | | 054 |
| 637 | 1986 04 | 02.97718 | 12 56 17.79 | -06 10 48.9 | | 054 |
| 824 | 1986 04 | 08.91607 | 11 21 25.80 | +11 44 10.0 | | 054 |
| 1671 | 1986 04 | 02.97718 | 12 54 13.03 | -03 58 11.6 | | 054 |
| 1671 | 1986 04 | 04.98412 | 12 52 28.55 | -03 44 49.1 | | 054 |
| 3028 | 1986 04 | 02.97718 | 12 57 16.19 | -04 50 58.2 | | 054 |
| 3028 | 1986 04 | 04.98412 | 12 55 51.22 | -04 35 33.6 | | 054 |
| 3432 | 1986 04 | 08.91607 | 11 27 38.50 | +08 26 14.0 | 16.8 | 054 |
| 1982 FN | 1986 04 | 08.91607 | 11 16 55.80 | +08 42 08.0 | | 054 |
| 1985 SP | 1985 10 | 10.84350 | 23 41 20.03 | +02 31 59.1 | 16.8 | 054 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | SP | | 1985 | 10 | 12.89732 | 23 | 40 | 16.86 | +02 | 15 | 15.1 | | 054 |
| 1985 | SP | | 1985 | 10 | 18.91745 | 23 | 37 | 35.94 | +01 | 28 | 42.7 | 17.0 | 054 |
| 1986 | EB | | 1986 | 04 | 08.83531 | 09 | 27 | 52.29 | +05 | 09 | 36.5 | | 054 |
| 1986 | EM1 | | 1986 | 04 | 02.97718 | 12 | 48 | 58.96 | -03 | 32 | 51.5 | 16.8 | 054 |
| 1986 | EM1 | | 1986 | 04 | 04.98412 | 12 | 46 | 48.94 | -03 | 23 | 40.0 | | 054 |
| 1986 | EM1 | | 1986 | 04 | 10.92891 | 12 | 40 | 28.55 | -02 | 57 | 09.0 | 17.0 | 054 |
| 1986 | GP1 | * | 1986 | 04 | 02.97197 | 13 | 01 | 53.73 | -03 | 49 | 47.6 | 17.5 | 054 |
| 1986 | GP1 | | 1986 | 04 | 02.98586 | 13 | 01 | 52.95 | -03 | 49 | 46.6 | | 054 |
| 1986 | GP1 | | 1986 | 04 | 04.98412 | 12 | 59 | 59.98 | -03 | 44 | 01.4 | | 054 |
| 1986 | GQ1 | * | 1986 | 04 | 02.97718 | 12 | 49 | 16.46 | -03 | 31 | 30.6 | 16.8 | 054 |
| 1986 | GQ1 | | 1986 | 04 | 04.98412 | 12 | 47 | 10.45 | -03 | 24 | 53.3 | | 054 |
| 1986 | GQ1 | | 1986 | 04 | 10.92891 | 12 | 41 | 03.80 | -03 | 06 | 04.1 | 17.5 | 054 |
| 1986 | GR1 | * | 1986 | 04 | 08.91607 | 11 | 19 | 25.26 | +10 | 14 | 01.6 | 17.5 | 054 |
| 1986 | GS1 | * | 1986 | 04 | 08.91607 | 11 | 20 | 54.97 | +11 | 39 | 57.1 | 16.8 | 054 |
| 1986 | GT1 | * | 1986 | 04 | 08.91607 | 11 | 29 | 04.24 | +08 | 40 | 21.4 | 17.2 | 054 |
| 1986 | GU1 | * | 1986 | 04 | 10.92891 | 12 | 42 | 13.67 | -02 | 38 | 33.4 | 17.0 | 054 |
| 1986 | JM | | 1986 | 05 | 03.90935 | 13 | 18 | 30.42 | +16 | 12 | 54.0 | 16.5 | 054 |
| 1986 | JM | | 1986 | 05 | 06.96051 | 13 | 16 | 39.41 | +16 | 06 | 58.9 | | 054 |

OBSERVATIONS MADE AT THE BULGARIAN NATIONAL OBSERVATORY BY V. G. SHKODROV AND V. G. IVANOVA.

Observations made in association with the International Near-Earth Asteroid Survey (INAS). Contact: V. Shkodrov, Department of Astronomy, Bulgarian Academy of Sciences, 72 Lenin Boulevard, Sofia 1184, Bulgaria.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 56 | 1986 04 | 08.83540 | 12 48 54.88 | -04 46 41.2 | 071 |
| 56 | 1986 04 | 08.88977 | 12 48 51.96 | -04 46 12.6 | 071 |
| 56 | 1986 04 | 09.85532 | 12 48 03.50 | -04 37 45.1 | 071 |
| 56 | 1986 04 | 09.89092 | 12 48 01.71 | -04 37 26.5 | 071 |
| 66 | 1986 04 | 08.81715 | 13 04 30.40 | -07 46 20.3 | 071 |
| 66 | 1986 04 | 08.83540 | 13 04 29.42 | -07 46 15.4 | 071 |
| 66 | 1986 04 | 08.85427 | 13 04 28.43 | -07 46 10.6 | 071 |
| 66 | 1986 04 | 08.88977 | 13 04 26.42 | -07 46 00.6 | 071 |
| 66 | 1986 04 | 08.90891 | 13 04 25.47 | -07 45 55.9 | 071 |
| 66 | 1986 04 | 09.85532 | 13 03 35.67 | -07 41 39.0 | 071 |
| 66 | 1986 04 | 09.89092 | 13 03 33.82 | -07 41 29.9 | 071 |
| 255 | 1986 04 | 08.83540 | 12 56 26.21 | -06 59 22.9 | 071 |
| 255 | 1986 04 | 08.88977 | 12 56 23.04 | -06 59 18.0 | 071 |
| 255 | 1986 04 | 09.85532 | 12 55 27.63 | -06 57 47.5 | 071 |
| 255 | 1986 04 | 09.87443 | 12 55 26.64 | -06 57 45.7 | 071 |
| 255 | 1986 04 | 09.89092 | 12 55 25.65 | -06 57 44.4 | 071 |
| 255 | 1986 04 | 09.92581 | 12 55 23.68 | -06 57 40.5 | 071 |
| 504 | 1986 04 | 13.02042 | 11 55 57.91 | +19 11 56.6 | 071 |
| 504 | 1986 04 | 13.05840 | 11 55 56.46 | +19 12 00.4 | 071 |
| 637 | 1986 04 | 08.83540 | 12 51 52.99 | -05 43 48.6 | 071 |
| 637 | 1986 04 | 08.88977 | 12 51 50.44 | -05 43 34.5 | 071 |
| 637 | 1986 04 | 09.85532 | 12 51 07.16 | -05 39 08.2 | 071 |
| 637 | 1986 04 | 09.87443 | 12 51 06.36 | -05 39 03.0 | 071 |
| 637 | 1986 04 | 09.89092 | 12 51 05.60 | -05 38 58.8 | 071 |
| 637 | 1986 04 | 09.92581 | 12 51 04.03 | -05 38 49.5 | 071 |
| 2377 | 1986 04 | 08.81715 | 13 00 49.09 | -07 58 41.7 | 071 |
| 2377 | 1986 04 | 08.83540 | 13 00 48.23 | -07 58 38.5 | 071 |
| 2377 | 1986 04 | 08.85427 | 13 00 47.44 | -07 58 31.4 | 071 |
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| 2377 | 1986 04 | 08.90891 | 13 00 44.76 | -07 58 15.9 | 071 |
| 2377 | 1986 04 | 09.85532 | 12 59 59.82 | -07 53 29.1 | 071 |
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| 2377 | 1986 04 | 09.89092 | 12 59 57.83 | -07 53 17.4 | 071 |
| 2377 | 1986 04 | 09.92581 | 12 59 56.31 | -07 53 06.6 | 071 |

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| 2659 | | 1986 | 04 | 08.83540 | 13 | 01 | 40.75 | -05 11 27.3 | 071 |
| 2659 | | 1986 | 04 | 08.88977 | 13 | 01 | 38.43 | -05 11 13.3 | 071 |
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| 2659 | | 1986 | 04 | 09.87443 | 13 | 00 | 54.10 | -05 06 19.6 | 071 |
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| 2715 | | 1986 | 04 | 08.88977 | 12 | 48 | 39.54 | -06 14 08.4 | 071 |
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| 2715 | | 1986 | 04 | 09.87443 | 12 | 47 | 53.46 | -06 07 22.4 | 071 |
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| 2785 | | 1986 | 04 | 08.81715 | 13 | 02 | 51.95 | -08 19 28.6 | 071 |
| 2785 | | 1986 | 04 | 08.83540 | 13 | 02 | 51.24 | -08 19 23.7 | 071 |
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| 2785 | | 1986 | 04 | 08.90891 | 13 | 02 | 47.54 | -08 19 03.4 | 071 |
| 2785 | | 1986 | 04 | 09.85532 | 13 | 02 | 01.44 | -08 14 38.6 | 071 |
| 2785 | | 1986 | 04 | 09.87443 | 13 | 02 | 00.57 | -08 14 34.6 | 071 |
| 2785 | | 1986 | 04 | 09.89092 | 13 | 01 | 59.92 | -08 14 29.4 | 071 |
| 2785 | | 1986 | 04 | 09.92581 | 13 | 01 | 58.15 | -08 14 19.2 | 071 |
| 1986 | EM2 | 1986 | 03 | 14.88886 | 11 | 38 | 47.39 | -01 14 47.7 | 071 |
| 1986 | GW1 * | 1986 | 04 | 08.83540 | 12 | 50 | 03.66 | -07 46 55.5 | 071 |
| 1986 | GW1 | 1986 | 04 | 08.88977 | 12 | 50 | 00.29 | -07 46 31.1 | 071 |
| 1986 | GW1 | 1986 | 04 | 09.85532 | 12 | 49 | 04.61 | -07 39 47.5 | 071 |
| 1986 | GW1 | 1986 | 04 | 09.87443 | 12 | 49 | 03.40 | -07 39 37.2 | 071 |
| 1986 | GW1 | 1986 | 04 | 09.89092 | 12 | 49 | 02.90 | -07 39 34.5 | 071 |
| 1986 | GW1 | 1986 | 04 | 09.92581 | 12 | 49 | 00.66 | -07 39 18.8 | 071 |
| 1986 | GX1 * | 1986 | 04 | 08.83540 | 13 | 01 | 51.63 | -07 55 44.0 | 071 |
| 1986 | GX1 | 1986 | 04 | 08.85427 | 13 | 01 | 50.53 | -07 55 33.8 | 071 |
| 1986 | GX1 | 1986 | 04 | 08.88977 | 13 | 01 | 48.46 | -07 55 15.9 | 071 |
| 1986 | GX1 | 1986 | 04 | 08.90891 | 13 | 01 | 47.44 | -07 55 06.2 | 071 |
| 1986 | GX1 | 1986 | 04 | 09.85532 | 13 | 00 | 55.83 | -07 47 07.4 | 071 |
| 1986 | GX1 | 1986 | 04 | 09.89092 | 13 | 00 | 54.07 | -07 46 52.3 | 071 |
| 1986 | GY1 * | 1986 | 04 | 08.83540 | 13 | 05 | 07.07 | -07 33 22.0 | 071 |
| 1986 | GY1 | 1986 | 04 | 08.85427 | 13 | 05 | 06.28 | -07 33 15.8 | 071 |
| 1986 | GY1 | 1986 | 04 | 08.88977 | 13 | 05 | 04.48 | -07 33 05.1 | 071 |
| 1986 | GY1 | 1986 | 04 | 08.90891 | 13 | 05 | 03.44 | -07 32 57.6 | 071 |
| 1986 | GY1 | 1986 | 04 | 09.85532 | 13 | 04 | 19.14 | -07 28 01.4 | 071 |
| 1986 | GY1 | 1986 | 04 | 09.89092 | 13 | 04 | 17.51 | -07 27 50.4 | 071 |
| 1986 | GZ1 * | 1986 | 04 | 09.87443 | 12 | 53 | 47.68 | -08 31 44.2 | 071 |
| 1986 | GZ1 | 1986 | 04 | 09.92581 | 12 | 53 | 44.84 | -08 31 35.1 | 071 |
| 1986 | GA2 * | 1986 | 04 | 09.87443 | 12 | 58 | 31.39 | -07 59 55.4 | 071 |
| 1986 | GA2 | 1986 | 04 | 09.92581 | 12 | 58 | 29.46 | -07 59 24.6 | 071 |
| 1986 | GB2 * | 1986 | 04 | 13.02042 | 11 | 43 | 00.98 | +22 01 01.7 | 071 |
| 1986 | GB2 | 1986 | 04 | 13.05840 | 11 | 42 | 59.86 | +22 01 14.1 | 071 |
| 1986 | HM | 1986 | 04 | 08.83540 | 12 | 58 | 38.94 | -04 52 32.9 | 071 |
| 1986 | HM | 1986 | 04 | 08.88977 | 12 | 58 | 35.19 | -04 52 24.9 | 071 |
| 1986 | HM | 1986 | 04 | 09.85532 | 12 | 57 | 31.07 | -04 49 47.5 | 071 |
| 1986 | HM | 1986 | 04 | 09.87443 | 12 | 57 | 29.83 | -04 49 44.8 | 071 |
| 1986 | HM | 1986 | 04 | 09.89092 | 12 | 57 | 28.85 | -04 49 41.9 | 071 |
| 1986 | HM | 1986 | 04 | 09.92581 | 12 | 57 | 26.19 | -04 49 38.4 | 071 |

OBSERVATIONS MADE AT YEBES BY M. DE PASCUAL, J. GARCIA, C. CABANAS AND F. SANCHEZ.

Plates taken with the 0.4-m f/5 double astrograph at the Centro Astronomico of the National Astronomical Observatory of the National Geographical Institute. Measurements using an ASCORECORD II Coordinometer, reductions using about eight SAO Catalog reference stars. Contact: M. de Pascual M., Observatorio Astronomico de Madrid, Alfonso XII 3, Madrid, Spain.

| Object | Date | UT | R. A. (1950) | Decl. | N | Obs. |
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| 2 | 1984 06 | 28.10544 | 23 09 56.01 | +09 41 11.6 | | 491 |
| 2 | 1984 06 | 28.10960 | 23 09 56.09 | +09 41 11.9 | | 491 |
| 2 | 1984 06 | 28.11375 | 23 09 56.14 | +09 41 12.2 | | 491 |
| 2 | 1984 06 | 30.14535 | 23 10 23.52 | +09 41 07.7 | | 491 |
| 2 | 1984 06 | 30.14951 | 23 10 23.58 | +09 41 07.0 | | 491 |
| 2 | 1984 06 | 30.15366 | 23 10 23.62 | +09 41 07.0 | | 491 |
| 4 | 1984 03 | 01.98771 | 04 58 16.90 | +21 59 35.5 | | 491 |
| 4 | 1984 03 | 01.99395 | 04 58 17.16 | +21 59 36.4 | | 491 |
| 4 | 1984 03 | 02.00018 | 04 58 17.47 | +21 59 37.3 | | 491 |
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| 4 | 1984 03 | 03.87526 | 04 59 51.18 | +22 05 58.2 | | 491 |
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| 4 | 1984 03 | 05.89473 | 05 01 37.10 | +22 12 46.5 | | 491 |
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| 18 | 1984 06 | 27.08220 | 16 23 46.96 | -05 51 29.9 | | 491 |
| 18 | 1984 06 | 27.08981 | 16 23 46.55 | -05 51 31.2 | | 491 |
| 18 | 1984 06 | 30.00129 | 16 21 35.15 | -05 59 32.9 | 2 | 491 |
| 18 | 1984 06 | 30.00684 | 16 21 35.02 | -05 59 32.9 | | 491 |
| 18 | 1984 06 | 30.01239 | 16 21 34.78 | -05 59 34.4 | | 491 |
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|---|---|---|---|---|---|---|---|---|
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| 43 | 1984 | 03 | 03.95041 | 08 | 11 | 35.39 | +15 45 11.8 | 491 |
| 43 | 1984 | 03 | 05.93992 | 08 | 10 | 37.72 | +15 49 15.2 | 491 |
| 43 | 1984 | 03 | 05.94546 | 08 | 10 | 37.57 | +15 49 16.4 | 491 |
| 43 | 1984 | 03 | 05.95100 | 08 | 10 | 37.43 | +15 49 17.4 | 491 |
| 43 | 1984 | 04 | 04.87322 | 08 | 11 | 14.25 | +16 10 24.2 | 491 |
| 43 | 1984 | 04 | 04.88015 | 08 | 11 | 14.44 | +16 10 23.8 | 491 |
| 43 | 1984 | 04 | 04.88777 | 08 | 11 | 14.59 | +16 10 23.4 | 491 |
| 43 | 1984 | 04 | 05.84696 | 08 | 11 | 42.06 | +16 09 46.8 | 491 |
| 43 | 1984 | 04 | 05.85388 | 08 | 11 | 42.20 | +16 09 46.4 | 491 |
| 43 | 1984 | 04 | 05.86081 | 08 | 11 | 42.43 | +16 09 46.0 | 491 |
| 72 | 1984 | 04 | 05.01416 | 13 | 56 | 02.99 | -12 28 06.8 | 491 |
| 72 | 1984 | 04 | 05.98652 | 13 | 55 | 15.04 | -12 20 58.9 | 491 |
| 81 | 1984 | 06 | 30.08994 | 20 | 47 | 18.61 | -28 28 09.1 | 491 |
| 87 | 1984 | 06 | 26.11125 | 20 | 45 | 32.56 | -28 47 43.5 | 491 |
| 87 | 1984 | 06 | 30.08994 | 20 | 43 | 43.63 | -29 09 59.9 | 491 |
| 88 | 1984 | 03 | 02.00970 | 08 | 14 | 39.55 | +15 29 06.0 | 491 |
| 88 | 1984 | 03 | 02.01593 | 08 | 14 | 39.37 | +15 29 07.0 | 491 |
| 88 | 1984 | 03 | 02.02216 | 08 | 14 | 39.20 | +15 29 07.1 | 491 |
| 88 | 1984 | 03 | 03.93465 | 08 | 13 | 44.68 | +15 32 12.8 | 491 |
| 88 | 1984 | 03 | 03.94296 | 08 | 13 | 44.45 | +15 32 13.9 | 491 |
| 88 | 1984 | 03 | 03.95041 | 08 | 13 | 44.19 | +15 32 14.1 | 491 |
| 88 | 1984 | 03 | 05.93992 | 08 | 12 | 52.50 | +15 35 14.7 | 491 |
| 88 | 1984 | 03 | 05.94546 | 08 | 12 | 52.44 | +15 35 16.7 | 491 |
| 88 | 1984 | 03 | 05.95100 | 08 | 12 | 52.26 | +15 35 17.6 | 491 |
| 88 | 1984 | 04 | 04.87322 | 08 | 10 | 55.43 | +15 52 22.5 | 491 |
| 88 | 1984 | 04 | 04.88015 | 08 | 10 | 55.53 | +15 52 22.1 | 491 |
| 88 | 1984 | 04 | 04.88777 | 08 | 10 | 55.63 | +15 52 21.5 | 491 |
| 88 | 1984 | 04 | 05.84696 | 08 | 11 | 11.60 | +15 51 59.4 | 491 |
| 88 | 1984 | 04 | 05.85388 | 08 | 11 | 11.68 | +15 51 59.6 | 491 |
| 88 | 1984 | 04 | 05.86081 | 08 | 11 | 11.83 | +15 51 59.0 | 491 |
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| 148 | 1984 | 04 | 05.09449 | 13 | 25 | 44.81 | +20 46 22.2 | 491 |
| 148 | 1984 | 04 | 05.10220 | 13 | 25 | 44.46 | +20 46 25.5 | 491 |
| 148 | 1984 | 04 | 05.10991 | 13 | 25 | 44.14 | +20 46 29.8 | 491 |
| 148 | 1984 | 04 | 05.94151 | 13 | 25 | 06.30 | +20 53 17.1 | 491 |
| 148 | 1984 | 04 | 05.95051 | 13 | 25 | 05.87 | +20 53 21.7 | 491 |
| 148 | 1984 | 04 | 05.95951 | 13 | 25 | 05.44 | +20 53 26.0 | 491 |
| 148 | 1984 | 06 | 25.92080 | 13 | 00 | 09.04 | +19 32 59.9 | 491 |
| 148 | 1984 | 06 | 25.92911 | 13 | 00 | 09.29 | +19 32 56.6 | 491 |
| 148 | 1984 | 06 | 25.93898 | 13 | 00 | 09.48 | +19 32 53.1 | 491 |
| 148 | 1984 | 06 | 26.95962 | 13 | 00 | 33.66 | +19 25 21.0 | 491 |
| 148 | 1984 | 06 | 26.96724 | 13 | 00 | 33.72 | +19 25 18.3 | 491 |
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| 317 | 1984 | 06 | 27.95724 | 17 | 16 | 48.15 | -20 11 20.2 | 491 |
| 377 | 1984 | 04 | 05.01416 | 13 | 56 | 42.14 | -12 41 49.4 | 491 |
| 377 | 1984 | 04 | 05.98652 | 13 | 55 | 58.10 | -12 35 49.1 | 491 |
| 389 | 1984 | 06 | 28.08051 | 22 | 32 | 04.90 | -02 18 34.7 | 491 |
| 389 | 1984 | 06 | 28.08778 | 22 | 32 | 04.95 | -02 18 32.5 | 491 |
| 389 | 1984 | 06 | 28.09505 | 22 | 32 | 04.95 | -02 18 30.5 | 491 |
| 389 | 1984 | 06 | 30.04354 | 22 | 32 | 10.86 | -02 09 27.1 | 491 |
| 389 | 1984 | 06 | 30.05289 | 22 | 32 | 10.83 | -02 09 24.2 | 491 |
| 389 | 1984 | 06 | 30.06224 | 22 | 32 | 10.84 | -02 09 22.0 | 491 |
| 433 | 1984 | 06 | 27.89733 | 16 | 39 | 27.75 | -37 50 08.3 | 491 |
| 433 | 1984 | 06 | 27.90633 | 16 | 39 | 27.10 | -37 49 58.2 | 491 |
| 433 | 1984 | 06 | 29.91127 | 16 | 37 | 00.12 | -37 16 10.2 | 491 |
| 433 | 1984 | 06 | 29.92477 | 16 | 36 | 59.13 | -37 15 56.1 | 491 |
| 463 | 1984 | 03 | 02.06199 | 13 | 00 | 55.44 | +05 36 57.7 | 491 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 512 | | 1984 06 25.95993 | 17 50 19.39 | -18 34 10.2 | | | | | | 491 |
| 512 | | 1984 06 25.96928 | 17 50 18.69 | -18 34 13.7 | | | | | | 491 |
| 512 | | 1984 06 26.99425 | 17 49 05.57 | -18 40 15.9 | | | | | | 491 |
| 512 | | 1984 06 27.00354 | 17 49 04.81 | -18 40 19.2 | | | | | | 491 |
| 512 | | 1984 06 29.98398 | 17 45 33.57 | -18 58 18.2 | | | | | 2 | 491 |
| 512 | | 1984 06 29.99298 | 17 45 32.79 | -18 58 22.2 | | | | | | 491 |
| 532 | | 1984 06 27.12340 | 00 15 39.66 | -13 53 13.1 | | | | | 2 | 491 |
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| 532 | | 1984 06 27.13587 | 00 15 40.06 | -13 53 16.7 | | | | | | 491 |
| 532 | | 1984 06 28.12033 | 00 16 15.45 | -13 55 44.2 | | | | | | 491 |
| 532 | | 1984 06 28.12691 | 00 16 15.66 | -13 55 45.5 | | | | | | 491 |
| 532 | | 1984 06 28.13350 | 00 16 15.91 | -13 55 45.5 | | | | | | 491 |
| 704 | | 1984 04 06.12192 | 19 00 49.88 | -27 51 35.5 | | | | | 1 | 491 |
| 704 | | 1984 04 06.13023 | 19 00 50.05 | -27 51 32.9 | | | | | 1 | 491 |
| 704 | | 1984 06 28.02719 | 18 46 37.22 | -23 37 30.9 | | | | | | 491 |
| 704 | | 1984 06 28.03204 | 18 46 36.90 | -23 37 29.0 | | | | | | 491 |
| 704 | | 1984 06 28.03688 | 18 46 36.61 | -23 37 27.6 | | | | | | 491 |
| 704 | | 1984 06 30.02242 | 18 44 42.81 | -23 29 32.9 | | | | | | 491 |
| 704 | | 1984 06 30.02865 | 18 44 42.49 | -23 29 31.2 | | | | | | 491 |
| 704 | | 1984 06 30.03488 | 18 44 42.09 | -23 29 29.7 | | | | | | 491 |
| 822 | | 1984 04 05.06852 | 14 57 55.34 | -16 48 56.5 | | | | | | 491 |
| 822 | | 1984 04 06.02808 | 14 57 16.55 | -16 45 45.8 | | | | | | 491 |
| 866 | | 1984 03 02.06199 | 13 04 00.16 | +05 56 31.7 | | | | | | 491 |
| 1036 | | 1984 04 04.91512 | 12 39 37.60 | -18 29 21.4 | | | | | | 491 |
| 1036 | | 1984 04 05.88437 | 12 38 48.09 | -18 20 49.4 | | | | | | 491 |
| 1110 | | 1984 06 29.98398 | 17 46 18.37 | -16 23 54.1 | | | | | | 491 |
| 1110 | | 1984 06 29.99298 | 17 46 17.79 | -16 23 51.0 | | | | | | 491 |
| 1226 | | 1984 04 05.01416 | 13 57 10.78 | -14 25 23.4 | | | | | | 491 |
| 1226 | | 1984 04 05.98652 | 13 56 14.70 | -14 25 42.5 | | | | | | 491 |
| 1424 | | 1984 04 06.02808 | 15 00 56.09 | -16 02 35.6 | | | | | 2 | 491 |
| 1685 | | 1984 03 01.95327 | 05 29 40.43 | +06 54 06.9 | | | | | | 491 |
| 1685 | | 1984 03 05.91949 | 05 48 50.73 | +07 03 27.6 | | | | | | 491 |
| 1788 | | 1984 04 05.06852 | 14 51 41.57 | -15 38 45.7 | | | | | | 491 |
| 1788 | | 1984 04 06.02808 | 14 51 12.50 | -15 36 19.0 | | | | | 2 | 491 |
| 2223 | | 1984 04 05.06852 | 14 53 48.27 | -16 43 11.1 | | | | | | 491 |
| 2223 | | 1984 04 06.02808 | 14 53 27.26 | -16 39 56.9 | | | | | 2 | 491 |
| 3089 | | 1984 06 26.04269 | 17 21 33.58 | -22 25 00.1 | | | | | | 491 |

Note 1: bad guiding; defective image. 2: diffuse image; difficult to measure.

OBSERVATIONS MADE WITH THE CANADA-FRANCE-HAWAII TELESCOPE BY C. CHRISTIAN AND K. KUNTZ.

Contact: C. Christian, Canada-France-Hawaii Telescope Corporation, P.O. Box 1597, Kamelua, HI 96743, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 1985 RY4 * | 1985 09 | 07.46065 | 01 31 06.99 | +30 35 33.0 | 20.3 | 1 | 568 |
| 1985 RY4 | 1985 09 | 07.46534 | 01 31 06.83 | +30 35 34.8 | | | 568 |
| 1985 RY4 | 1985 09 | 07.46924 | 01 31 06.71 | +30 35 36.1 | | | 568 |
| 1985 RY4 | 1985 09 | 07.47153 | 01 31 06.62 | +30 35 37.1 | | | 568 |
| 1985 RY4 | 1985 09 | 07.47562 | 01 31 06.52 | +30 35 38.3 | | | 568 |
| 1985 RY4 | 1985 09 | 07.47963 | 01 31 06.39 | +30 35 39.8 | | | 568 |
| 1985 RY4 | 1985 09 | 07.48348 | 01 31 06.28 | +30 35 41.2 | | | 568 |
| 1985 RY4 | 1985 09 | 07.49205 | 01 31 06.03 | +30 35 44.2 | | | 568 |
| 1985 RY4 | 1985 09 | 07.49598 | 01 31 05.84 | +30 35 46.0 | | | 568 |

Note 1: B-V = +1.09, V-I = +1.10.

OBSERVATIONS MADE AT VICTORIA BY J. B. TATUM AND D. D. BALAM.

For details see MPC 10595. Contact: J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 1700, Victoria, BC, V8W 2Y2, Canada.

| Object | | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|---|
| 947 | | 1986 05 | 08.32153 | 14 05 02.77 | -10 44 36.3 | 657 |
| 947 | | 1986 05 | 08.37448 | 14 05 00.06 | -10 44 28.2 | 657 |

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

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 989 | | 1977 05 | 18.41181 | 16 13 06.79 | -21 23 06.5 | | 675 |
| 989 | | 1977 05 | 19.39202 | 16 12 14.15 | -21 17 44.9 | | 675 |
| 1151 | | 1977 05 | 18.41181 | 16 14 18.12 | -18 01 24.2 | | 675 |
| 1151 | | 1977 05 | 19.39202 | 16 13 20.02 | -17 55 36.3 | | 675 |
| 1152 | | 1977 09 | 08.30313 | 22 35 53.39 | -07 25 58.4 | | 675 |
| 2095 | | 1977 09 | 08.30313 | 22 52 38.53 | -05 57 04.9 | | 675 |
| 2095 | | 1977 09 | 09.22917 | 22 51 49.86 | -06 00 42.8 | | 675 |
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| 1977 | HL | 1977 04 | 25.33854 | 13 38 18.33 | -12 13 35.4 | | 675 |
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| 1977 | HW * | 1977 04 | 24.33611 | 13 53 24.35 | -13 09 17.7 | 19.0 | 675 |

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| 1977 | HY | * | 1977 | 04 | 24.39271 | 14 | 02 | 22.33 | -15 | 39 | 39.4 | 17.5 | 675 |
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| 1977 | KO1 | * | 1977 | 05 | 18.41181 | 16 | 09 | 04.15 | -18 | 54 | 21.2 | 18.0 | 675 |
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| 6552 | P-L | | 1977 09 09.22917 | 22 | 39 | 59.69 | -07 | 32 | 59.4 | | 675 |

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.

Plates taken by E. Helin and in the course of Palomar Sky Survey II. Measured by S. Gerhart, M. Rudnyk, K. Sangster and P. Saunders. Contact: E. Helin, Jet Propulsion Laboratory, MS 183-501, Pasadena, CA 91109, U.S.A.

| Object | | Date | UT | R. A. (1950) | | | Decl. | | | Mag. | | N Obs. |
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| 1986 | KA | 1986 05 | 30.31389 | 15 | 27 | 58.31 | +25 | 01 | 26.9 | | | 675 |
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| 1986 | LA | 1986 07 | 02.25208 | 14 | 48 | 14.81 | +15 | 48 | 26.1 | | | 675 |
| 1986 | LA | 1986 07 | 10.19027 | 14 | 56 | 51.22 | +19 | 12 | 25.7 | 19 | V | 675 |
| 1986 | LA | 1986 07 | 10.20069 | 14 | 56 | 51.77 | +19 | 12 | 37.3 | | | 675 |
| 1986 | LD * | 1986 06 | 03.33541 | 15 | 20 | 51.89 | -06 | 46 | 46.7 | 17.5 | 2 | 675 |
| 1986 | LD | 1986 06 | 03.37152 | 15 | 20 | 49.86 | -06 | 46 | 57.3 | | | 675 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 LE | * | 1986 06 03.33541 | 15 | 21 | 10.85 | -06 | 18 | 44.0 | 17.5 | 2 | 675 |
| 1986 LE | | 1986 06 03.37152 | 15 | 21 | 08.88 | -06 | 18 | 53.8 | | | 675 |
| 1986 LF | * | 1986 06 03.33541 | 15 | 27 | 16.89 | -05 | 53 | 24.8 | 17.5 | 2 | 675 |
| 1986 LF | | 1986 06 03.37152 | 15 | 27 | 13.62 | -05 | 54 | 02.6 | | | 675 |
| 1986 LG | * | 1986 06 03.40138 | 17 | 14 | 16.80 | -17 | 02 | 45.5 | 18 | 2 | 675 |
| 1986 LG | | 1986 06 03.43611 | 17 | 14 | 14.77 | -17 | 02 | 30.8 | | | 675 |
| 1986 LG | | 1986 06 04.38125 | 17 | 13 | 21.72 | -16 | 56 | 27.2 | | | 675 |
| 1986 LG | | 1986 06 04.40208 | 17 | 13 | 20.45 | -16 | 56 | 18.7 | | | 675 |
| 1986 LG | | 1986 06 06.38958 | 17 | 11 | 29.16 | -16 | 43 | 42.9 | | | 675 |
| 1986 LG | | 1986 06 06.41041 | 17 | 11 | 27.77 | -16 | 43 | 33.4 | | | 675 |
| 1986 LG | | 1986 06 07.33125 | 17 | 10 | 36.01 | -16 | 37 | 44.7 | | | 675 |
| 1986 LG | | 1986 06 07.35208 | 17 | 10 | 34.77 | -16 | 37 | 36.3 | | | 675 |
| 1986 LH | * | 1986 06 03.40138 | 17 | 18 | 10.26 | -16 | 58 | 07.7 | 17.8 | 2 | 675 |
| 1986 LH | | 1986 06 03.43611 | 17 | 18 | 07.61 | -16 | 57 | 27.5 | | | 675 |
| 1986 LH | | 1986 06 04.38125 | 17 | 17 | 05.63 | -16 | 40 | 08.3 | | | 675 |
| 1986 LH | | 1986 06 04.40208 | 17 | 17 | 04.48 | -16 | 39 | 44.5 | | | 675 |
| 1986 LH | | 1986 06 06.38958 | 17 | 14 | 51.91 | -16 | 03 | 13.0 | | | 675 |
| 1986 LH | | 1986 06 06.41041 | 17 | 14 | 50.27 | -16 | 02 | 49.2 | | | 675 |
| 1986 LH | | 1986 06 07.33125 | 17 | 13 | 48.42 | -15 | 45 | 51.1 | | | 675 |
| 1986 LH | | 1986 06 07.35208 | 17 | 13 | 47.05 | -15 | 45 | 29.1 | | | 675 |
| 1986 LJ | * | 1986 06 04.42638 | 17 | 52 | 00.23 | -09 | 35 | 14.8 | 17.8 | 1 | 675 |
| 1986 LJ | | 1986 06 04.46111 | 17 | 51 | 58.46 | -09 | 35 | 10.2 | | | 675 |
| 1986 LJ | | 1986 06 06.42569 | 17 | 50 | 14.33 | -09 | 33 | 41.1 | | | 675 |
| 1986 LJ | | 1986 06 06.44652 | 17 | 50 | 13.32 | -09 | 33 | 40.1 | | | 675 |
| 1986 LK | * | 1986 06 04.42638 | 17 | 54 | 26.79 | -10 | 42 | 54.4 | 17.8 | 2 | 675 |
| 1986 LK | | 1986 06 04.46111 | 17 | 54 | 24.83 | -10 | 42 | 01.8 | | | 675 |
| 1986 LK | | 1986 06 06.42569 | 17 | 52 | 36.91 | -09 | 54 | 32.2 | | | 675 |
| 1986 LK | | 1986 06 06.44652 | 17 | 52 | 35.74 | -09 | 54 | 01.6 | | | 675 |
| 1986 LL | * | 1986 06 04.42638 | 17 | 56 | 20.47 | -09 | 34 | 53.0 | 17.5 | 1 | 675 |
| 1986 LL | | 1986 06 04.46111 | 17 | 56 | 18.63 | -09 | 34 | 55.7 | | | 675 |
| 1986 LL | | 1986 06 06.42569 | 17 | 54 | 36.18 | -09 | 39 | 52.5 | | | 675 |
| 1986 LL | | 1986 06 06.44652 | 17 | 54 | 35.32 | -09 | 39 | 54.5 | | | 675 |
| 1986 LM | * | 1986 06 04.42638 | 17 | 59 | 02.76 | -10 | 06 | 30.8 | 17.5 | 1 | 675 |
| 1986 LM | | 1986 06 04.46111 | 17 | 59 | 01.63 | -10 | 06 | 15.1 | | | 675 |
| 1986 LM | | 1986 06 06.42569 | 17 | 57 | 40.03 | -09 | 53 | 47.8 | | | 675 |
| 1986 LM | | 1986 06 06.44652 | 17 | 57 | 39.24 | -09 | 53 | 40.6 | | | 675 |
| 1986 LY | * | 1986 06 03.33541 | 15 | 11 | 49.96 | -08 | 14 | 19.1 | 17 V | 2 | 675 |
| 1986 LY | | 1986 06 03.37152 | 15 | 11 | 48.07 | -08 | 14 | 29.9 | | | 675 |
| 1986 LZ | * | 1986 06 03.33541 | 15 | 18 | 07.53 | -08 | 11 | 46.6 | 17 V | 2 | 675 |
| 1986 LZ | | 1986 06 03.37152 | 15 | 18 | 06.22 | -08 | 11 | 59.2 | | | 675 |

Note 1: discoverer M. Rudnyk. 2: discoverer E. Helin.

OBSERVATIONS MADE WITH THE 0.46-m SCHMIDT AT PALOMAR.

Films taken by E. Helin, S. Singer-Brewster, D. Schneeberger and E. Burr in the course of the International Near-Earth Asteroid Survey (INAS). Measured by S. Singer-Brewster and K. Sangster. Contact: E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 1982 BQ | | 1986 06 08.29097 | 15 33 19.95 | -08 31 09.3 | 17 | | 675 |
| 1982 BQ | | 1986 06 08.31840 | 15 33 18.74 | -08 31 14.2 | | | 675 |
| 1986 GV1 | * | 1986 04 08.33923 | 13 28 56.18 | +05 12 56.4 | 16.5 | | 675 |
| 1986 GV1 | | 1986 04 08.36579 | 13 28 54.71 | +05 12 59.4 | | | 675 |
| 1986 GV1 | | 1986 04 10.28438 | 13 26 57.16 | +05 17 53.5 | | | 675 |
| 1986 JG | | 1986 06 08.28507 | 14 56 22.84 | -19 02 46.0 | 16.5 | | 675 |
| 1986 JG | | 1986 06 09.28594 | 14 55 49.85 | -18 59 34.3 | | | 675 |
| 1986 JG | | 1986 06 09.31319 | 14 55 48.82 | -18 59 29.6 | | | 675 |
| 1986 JS | | 1986 06 06.28680 | 14 25 14.11 | -02 23 23.3 | 16.5V | | 675 |
| 1986 JS | | 1986 06 08.28020 | 14 24 38.31 | -02 31 25.5 | | | 675 |
| 1986 JO1 | * | 1986 05 03.34201 | 15 20 56.15 | -21 27 21.2 | 17.5V | | 675 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1986 JO1 | | 1986 05 03.36771 | 15 20 55.47 | -21 27 14.3 | | | 675 |
| 1986 LA | | 1986 06 08.25174 | 14 45 36.00 | +01 36 31.6 | | 17.8V | 675 |
| 1986 LA | | 1986 06 08.28021 | 14 45 34.57 | +01 37 43.5 | | | 675 |
| 1986 LD | | 1986 06 08.29097 | 15 17 08.93 | -07 14 33.2 | | 17 | 675 |
| 1986 LD | | 1986 06 08.31840 | 15 17 07.67 | -07 14 41.5 | | | 675 |
| 1986 LE | | 1986 06 08.29097 | 15 17 31.13 | -06 44 22.3 | | 17 | 675 |
| 1986 LE | | 1986 06 08.31840 | 15 17 29.88 | -06 44 27.8 | | | 675 |
| 1986 LF | | 1986 06 08.29097 | 15 20 44.68 | -07 20 35.0 | | 17 | 675 |
| 1986 LF | | 1986 06 08.31840 | 15 20 42.39 | -07 21 04.2 | | | 675 |
| 1986 LN | * | 1986 06 06.42488 | 17 26 17.27 | -20 37 36.1 | | 16 | 675 |
| 1986 LN | | 1986 06 06.46250 | 17 26 14.34 | -20 38 27.4 | | | 675 |
| 1986 LN | | 1986 06 08.38542 | 17 23 42.72 | -21 23 34.5 | | | 675 |
| 1986 LO | * | 1986 06 06.45174 | 17 37 37.88 | -08 04 04.6 | | 17.2 | 675 |
| 1986 LO | | 1986 06 08.35208 | 17 36 08.31 | -08 01 06.9 | | | 675 |
| 1986 LO | | 1986 06 09.36215 | 17 35 19.87 | -07 59 45.1 | | | 675 |
| 1986 LS | * | 1986 06 06.45729 | 17 26 54.35 | -17 48 24.7 | | 15.5 | 675 |
| 1986 LS | | 1986 06 08.37882 | 17 25 19.49 | -17 21 36.5 | | | 675 |
| 1986 LY | | 1986 06 08.29097 | 15 07 50.18 | -08 43 31.6 | | 17.2 | 675 |
| 1986 LY | | 1986 06 08.31840 | 15 07 49.01 | -08 43 42.1 | | | 675 |
| 1986 LZ | | 1986 06 08.29097 | 15 13 40.92 | -08 45 00.6 | | 17 | 675 |
| 1986 LZ | | 1986 06 08.31840 | 15 13 39.80 | -08 45 12.6 | | | 675 |
| 1986 LA1 | * | 1986 06 06.41806 | 17 24 58.47 | -15 41 20.7 | | 16 | 675 |
| 1986 LA1 | | 1986 06 06.45729 | 17 24 55.54 | -15 41 16.1 | | | 675 |
| 1986 LA1 | | 1986 06 08.35799 | 17 23 11.36 | -15 37 33.9 | | | 675 |
| 1986 LB1 | * | 1986 06 07.28923 | 16 29 37.21 | -12 38 53.9 | | | 675 |
| 1986 LB1 | | 1986 06 07.34687 | 16 29 33.82 | -12 39 04.1 | | | 675 |
| 1986 LB1 | | 1986 06 08.36285 | 16 28 37.68 | -12 42 16.8 | | | 675 |
| 1986 LC1 | * | 1986 06 07.28923 | 16 32 36.06 | -18 38 11.9 | | 16.5 | 675 |
| 1986 LC1 | | 1986 06 07.34687 | 16 32 32.76 | -18 38 15.7 | | | 675 |
| 1986 LC1 | | 1986 06 08.34167 | 16 31 30.39 | -18 39 30.9 | | | 675 |
| 1986 LD1 | * | 1986 06 07.28923 | 16 33 54.88 | -13 04 08.7 | | 17 | 675 |
| 1986 LD1 | | 1986 06 07.34687 | 16 33 51.11 | -13 04 12.0 | | | 675 |
| 1986 LD1 | | 1986 06 08.36285 | 16 32 50.13 | -13 05 27.5 | | | 675 |
| 1986 LE1 | * | 1986 06 07.28923 | 16 42 31.87 | -17 38 06.8 | | 16.5 | 675 |
| 1986 LE1 | | 1986 06 07.34687 | 16 42 27.87 | -17 38 13.6 | | | 675 |
| 1986 LE1 | | 1986 06 08.34167 | 16 41 21.72 | -17 40 24.7 | | | 675 |

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

Contact: E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 1981 GB | 1986 03 | 05.15292 | 09 15 57.92 | +11 46 01.7 | 17.2 | 688 |
| 1981 GB | 1986 03 | 05.21912 | 09 15 55.25 | +11 46 22.0 | | 688 |

OBSERVATION MADE WITH THE 1.8-m REFLECTOR AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION BY S. J. BUS.

CCD image reduced by S. J. Bus. Contact: E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1986 LA | 1986 06 | 15.18552 | 14 42 47.63 | +06 18 58.8 | 688 |

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY.

Plates with the 0.33-m photographic telescope. Observers C. W. Tombaugh and K. A. Newman. Measured by S. J. Bus (with assistance from E. Bowell), using a PDS scanning microdensitometer. SAO reference stars, global solutions. Contact: E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1930 XF | 1930 11 | 26.21528 | 02 57 06.03 | +31 33 50.6 | 690 |
| 1930 XF | 1930 12 | 13.19326 | 02 49 07.95 | +30 22 25.7 | 690 |
| 1930 XF | 1930 12 | 14.20069 | 02 48 46.16 | +30 18 06.0 | 690 |
| 1930 XF | 1930 12 | 16.19444 | 02 48 05.42 | +30 09 36.9 | 690 |

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

Observations made by T. Gehrels and J. V. Scotti with a CCD in scanning mode. Reduced by J. V. Scotti and C. Lykins using reference stars from the SAO 1984 catalog. See also MPC 9198 and 10373. Contact: T. Gehrels, Space Sciences Building, University of Arizona, Tucson, AZ 85721, U.S.A.

| Object | Date | UT | R.A. (1950.0) | Decl. | Mag. | N Obs |
|---|---|---|---|---|---|---|
| 1566 | 1986 06 | 05.39510 | 21 11 17.65 | -21 46 58.9 | 17.5V | 691 |
| 1566 | 1986 06 | 05.40115 | 21 11 15.97 | -21 47 15.8 | | 691 |
| 1566 | 1986 06 | 05.41272 | 21 11 12.75 | -21 47 47.7 | | 691 |
| 3103 | 1986 06 | 08.34531 | 20 55 44.85 | +10 35 38.5 | | 691 |
| 3103 | 1986 06 | 08.35106 | 20 55 45.48 | +10 35 40.9 | | 691 |
| 3103 | 1986 06 | 08.35856 | 20 55 46.28 | +10 35 43.8 | | 691 |
| 3103 | 1986 06 | 08.37022 | 20 55 47.61 | +10 35 49.3 | | 691 |
| 1985 TB | 1986 06 | 07.19521 | 11 09 52.10 | +10 47 06.6 | 1 | 691 |
| 1985 TB | 1986 06 | 07.21609 | 11 09 53.65 | +10 46 41.5 | 1 | 691 |
| 1986 DA | 1986 06 | 06.27721 | 14 17 34.16 | -13 38 25.5 | | 691 |
| 1986 DA | 1986 06 | 06.29529 | 14 17 36.39 | -13 38 49.2 | | 691 |
| 1986 DA | 1986 06 | 07.28149 | 14 19 43.57 | -14 00 33.0 | | 691 |
| 1986 DA | 1986 06 | 07.29277 | 14 19 44.96 | -14 00 47.6 | | 691 |
| 1986 DA | 1986 06 | 07.30222 | 14 19 46.10 | -14 00 59.7 | | 691 |
| 1986 GW | 1986 05 | 17.16672 | 13 01 50.76 | -05 08 21.5 | | 691 |
| 1986 GW | 1986 05 | 17.19350 | 13 01 50.18 | -05 08 18.6 | | 691 |
| 1986 GW | 1986 05 | 17.21481 | 13 01 49.77 | -05 08 15.5 | | 691 |
| 1986 GW | 1986 06 | 07.17439 | 12 58 51.43 | -04 45 44.2 | 19.3V | 691 |
| 1986 GW | 1986 06 | 07.23731 | 12 58 51.55 | -04 45 43.6 | | 691 |
| 1986 GW | 1986 06 | 07.26837 | 12 58 51.58 | -04 45 44.5 | | 691 |
| 1986 GW | 1986 06 | 08.20971 | 12 58 54.42 | -04 45 55.5 | | 691 |
| 1986 GW | 1986 06 | 08.24828 | 12 58 54.56 | -04 45 55.5 | | 691 |
| 1986 GW | 1986 06 | 08.28698 | 12 58 54.66 | -04 45 56.7 | | 691 |
| 1986 GZ | 1986 06 | 08.21903 | 12 51 26.21 | +02 58 54.7 | | 691 |
| 1986 GZ | 1986 06 | 08.27067 | 12 51 26.81 | +02 59 07.1 | | 691 |
| 1986 GZ | 1986 06 | 08.28412 | 12 51 26.87 | +02 59 10.0 | | 691 |
| 1986 JE | 1986 06 | 11.18499 | 14 06 58.92 | -23 59 25.6 | | 691 |
| 1986 JE | 1986 06 | 11.18959 | 14 06 58.62 | -23 59 26.0 | | 691 |
| 1986 JE | 1986 06 | 11.19472 | 14 06 58.42 | -23 59 28.1 | | 691 |
| 1986 JE | 1986 06 | 11.22138 | 14 06 57.12 | -23 59 45.5 | 20.4V | 691 |
| 1986 JE | 1986 06 | 11.22517 | 14 06 56.88 | -23 59 47.4 | | 691 |
| 1986 JE | 1986 06 | 11.22975 | 14 06 56.71 | -23 59 50.5 | | 691 |
| 1986 LA | 1986 07 | 05.21926 | 14 51 01.13 | +17 08 46.5 | 17.8V | 691 |
| 1986 LA | 1986 07 | 05.24416 | 14 51 02.39 | +17 09 25.0 | | 691 |
| 1986 LA | 1986 07 | 05.26139 | 14 51 03.28 | +17 09 51.4 | | 691 |
| 1986 LA | 1986 07 | 10.26600 | 14 56 55.87 | +19 14 08.8 | | 691 |
| 1986 LA | 1986 07 | 10.27480 | 14 56 56.52 | +19 14 22.2 | | 691 |

Note 1: only two reference stars.

OBSERVATIONS MADE AT GOETHE LINK OBSERVATORY (CODE 760) AND AT HARTBEESPOORT (CODE 076).

Plates measured and reduced at Indiana University under the direction of D. Owings. Contact: F. K. Edmondson, Swain Hall West 319A, Indiana University, Bloomington, IN 47401, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | N Obs. |
|---|---|---|---|---|---|
| 1949 UN | 1949 10 | 28.20638 | 02 00 30.48 | +03 33 37.0 | 760 |
| 1950 AA | 1950 01 | 15.23539 | 09 41 28.61 | +14 22 13.9 | 760 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1950 | AA | 1950 | 01 | 16.32497 | 09 | 40 | 38.95 | +14 | 28 | 52.7 | 760 |
| 1950 | AA | 1950 | 01 | 16.39648 | 09 | 40 | 35.65 | +14 | 29 | 17.5 | 760 |
| 1950 | HA1 | 1950 | 04 | 20.30796 | 14 | 19 | 17.90 | -04 | 31 | 37.2 | 760 |
| 1950 | HA1 | 1950 | 04 | 20.33296 | 14 | 19 | 16.39 | -04 | 31 | 26.8 | 760 |
| 1957 | HR | 1957 | 04 | 24.89774 | 14 | 19 | 21.46 | -17 | 08 | 47.0 | 076 |
| 1958 | AB | 1958 | 01 | 11.13126 | 06 | 29 | 11.64 | +31 | 49 | 42.8 | 760 |
| 1958 | AB | 1958 | 01 | 11.17500 | 06 | 29 | 08.65 | +31 | 49 | 48.4 | 760 |
| 1958 | AG | 1958 | 01 | 12.19964 | 06 | 14 | 17.73 | +21 | 20 | 37.5 | 760 |
| 1958 | AH | 1958 | 01 | 12.19964 | 06 | 09 | 57.84 | +20 | 14 | 55.9 | 760 |
| 1958 | AJ | 1958 | 01 | 12.14461 | 06 | 04 | 21.07 | +19 | 50 | 58.8 | 760 |
| 1958 | DM | 1958 | 02 | 23.19453 | 08 | 49 | 49.74 | +26 | 27 | 18.7 | 760 |
| 1958 | DM | 1958 | 02 | 23.23819 | 08 | 49 | 47.61 | +26 | 27 | 20.2 | 760 |
| 1958 | DQ | 1958 | 02 | 23.28956 | 10 | 57 | 46.97 | +23 | 17 | 45.6 | 760 |
| 1958 | DQ | 1958 | 02 | 23.33260 | 10 | 57 | 44.60 | +23 | 18 | 13.2 | 760 |
| 1958 | DR | 1958 | 02 | 23.28956 | 10 | 45 | 36.01 | +21 | 39 | 06.9 | 760 |
| 1958 | DR | 1958 | 02 | 23.33260 | 10 | 45 | 33.84 | +21 | 39 | 28.2 | 760 |
| 1958 | DS | 1958 | 02 | 24.28407 | 10 | 23 | 33.21 | +17 | 49 | 25.3 | 760 |
| 1958 | UG | 1958 | 10 | 16.34927 | 02 | 31 | 31.24 | +24 | 31 | 05.6 | 760 |
| 1958 | UG | 1958 | 10 | 16.39304 | 02 | 31 | 28.74 | +24 | 31 | 12.4 | 760 |
| 1958 | UH | 1958 | 10 | 16.34927 | 02 | 22 | 19.99 | +23 | 42 | 30.1 | 760 |
| 1958 | UH | 1958 | 10 | 16.39304 | 02 | 22 | 17.52 | +23 | 42 | 20.2 | 760 |
| 1958 | UO | 1958 | 10 | 21.31316 | 02 | 51 | 13.74 | +25 | 49 | 06.5 | 760 |
| 1958 | UO | 1958 | 10 | 21.35692 | 02 | 51 | 11.76 | +25 | 49 | 02.1 | 760 |
| 1958 | VC | 1958 | 11 | 11.13335 | 02 | 09 | 50.78 | +23 | 12 | 44.0 | 760 |
| 1958 | VC | 1958 | 11 | 11.17710 | 02 | 09 | 48.26 | +23 | 12 | 33.4 | 760 |
| 1958 | VE | 1958 | 11 | 11.13335 | 02 | 06 | 41.31 | +22 | 58 | 28.6 | 1 760 |
| 1958 | VE | 1958 | 11 | 11.17710 | 02 | 06 | 38.43 | +22 | 58 | 13.9 | 760 |
| 1958 | VF | 1958 | 11 | 11.13335 | 01 | 54 | 38.91 | +26 | 43 | 30.2 | 760 |
| 1958 | VF | 1958 | 11 | 11.17710 | 01 | 54 | 36.77 | +26 | 43 | 14.4 | 760 |
| 1958 | VG | 1958 | 11 | 11.13335 | 01 | 54 | 57.22 | +26 | 20 | 52.8 | 760 |
| 1958 | VG | 1958 | 11 | 11.17710 | 01 | 54 | 54.65 | +26 | 20 | 35.1 | 760 |
| 1958 | VK | 1958 | 11 | 11.26946 | 03 | 22 | 19.23 | +20 | 17 | 17.9 | 760 |
| 1958 | VK | 1958 | 11 | 11.31806 | 03 | 22 | 15.57 | +20 | 17 | 28.5 | 760 |
| 1958 | VL | 1958 | 11 | 11.26946 | 03 | 19 | 13.33 | +15 | 40 | 26.9 | 760 |
| 1958 | VM | 1958 | 11 | 11.26946 | 03 | 17 | 30.72 | +14 | 44 | 41.0 | 760 |
| 1958 | VN | 1958 | 11 | 11.26946 | 03 | 16 | 42.83 | +13 | 54 | 05.4 | 760 |
| 1958 | VV | 1958 | 11 | 11.26946 | 03 | 11 | 42.67 | +14 | 48 | 37.9 | 760 |
| 1958 | VW | 1958 | 11 | 11.26946 | 03 | 09 | 23.19 | +19 | 28 | 45.1 | 760 |
| 1958 | VW | 1958 | 11 | 11.31806 | 03 | 09 | 20.50 | +19 | 28 | 31.7 | 760 |
| 1958 | VZ | 1958 | 11 | 11.26946 | 03 | 08 | 50.81 | +16 | 39 | 02.7 | 760 |
| 1958 | VD1 | 1958 | 11 | 13.13057 | 02 | 27 | 35.91 | +18 | 02 | 36.3 | 1 760 |
| 1958 | VD1 | 1958 | 11 | 13.17292 | 02 | 27 | 33.18 | +18 | 02 | 36.1 | 760 |
| 1958 | VE1 | 1958 | 11 | 13.13057 | 02 | 23 | 16.36 | +22 | 20 | 50.4 | 760 |
| 1958 | VE1 | 1958 | 11 | 13.17292 | 02 | 23 | 14.35 | +22 | 20 | 32.5 | 760 |
| 1959 | RE | 1959 | 09 | 07.10711 | 21 | 12 | 33.60 | +00 | 52 | 13.5 | 760 |
| 1959 | RE | 1959 | 09 | 07.14947 | 21 | 12 | 32.02 | +00 | 52 | 22.3 | 760 |
| 1962 | XB1 | 1962 | 12 | 03.29857 | 04 | 16 | 44.11 | +14 | 30 | 11.5 | 760 |
| 1962 | XB1 | 1962 | 12 | 03.34370 | 04 | 16 | 41.38 | +14 | 30 | 11.4 | 760 |

Note 1: approximate position on MPC 1883 erroneous.

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. 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. | N | Obs. |
|---|---|---|---|---|---|---|---|
| 579 | 1986 07 | 04.08752 | 11 59 57.93 | +10 47 35.9 | | | 801 |
| 1309 | 1986 06 | 10.17397 | 14 51 07.27 | -09 49 00.8 | 17 | | 801 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3468 | | 1986 | 06 | 09.08714 | 11 | 33 | 35.17 | +15 | 04 | 08.0 | 801 |
| A924 | EG | 1986 | 06 | 04.11531 | 14 | 38 | 07.83 | -13 | 41 | 15.2 | 801 |
| A924 | EG | 1986 | 06 | 05.14145 | 14 | 37 | 42.17 | -13 | 39 | 59.6 | 801 |
| 1976 | GR6 | 1985 | 02 | 21.05282 | 04 | 29 | 44.03 | +18 | 34 | 23.3 | 801 |
| 1976 | GR6 | 1986 | 06 | 03.22778 | 16 | 59 | 37.41 | -14 | 00 | 56.2 | 801 |
| 1976 | YP2 | 1986 | 05 | 12.29873 | 16 | 48 | 02.16 | -02 | 48 | 29.4 | 801 |
| 1976 | YP2 | 1986 | 06 | 03.18176 | 16 | 17 | 27.71 | -06 | 04 | 02.6 | 801 |
| 1978 | NE | 1986 | 05 | 11.31681 | 16 | 30 | 04.98 | +01 | 09 | 30.3 | 801 |
| 1978 | NE | 1986 | 06 | 03.15903 | 16 | 09 | 36.94 | +00 | 40 | 45.2 | 801 |
| 1978 | UF2 | 1986 | 04 | 14.28789 | 12 | 21 | 12.15 | +18 | 32 | 08.1 | 801 |
| 1978 | UF2 | 1986 | 06 | 10.09200 | 12 | 05 | 27.55 | +12 | 37 | 28.5 | 801 |
| 1979 | KH | 1986 | 05 | 11.29927 | 15 | 52 | 42.82 | -10 | 43 | 24.1 | 801 |
| 1979 | KH | 1986 | 06 | 04.15700 | 15 | 31 | 41.05 | -08 | 33 | 12.7 | 801 |
| 1980 | OE | 1986 | 06 | 04.09365 | 14 | 29 | 44.56 | -16 | 54 | 25.5 | 801 |
| 1980 | OE | 1986 | 06 | 09.15770 | 14 | 26 | 58.72 | -16 | 35 | 42.0 | 801 |
| 1981 | EJ10 | 1985 | 02 | 21.26508 | 09 | 08 | 24.80 | +09 | 31 | 28.4 | 801 |
| 1982 | BQ | 1986 | 06 | 04.17693 | 15 | 36 | 39.43 | -08 | 26 | 45.7 | 801 |
| 1982 | DS6 | 1986 | 06 | 10.17397 | 14 | 50 | 58.12 | -09 | 38 | 34.2 | 801 |
| 1986 | AK | 1986 | 06 | 04.07419 | 11 | 02 | 34.84 | +24 | 49 | 04.4 | 801 |
| 1986 | AK | 1986 | 07 | 04.08752 | 12 | 00 | 55.75 | +10 | 51 | 22.6 | 801 |
| 1986 | DA | 1986 | 06 | 03.08565 | 14 | 10 | 35.66 | -12 | 23 | 58.5 | 801 |
| 1986 | DA | 1986 | 06 | 09.11099 | 14 | 23 | 37.43 | -14 | 39 | 18.5 | 801 |
| 1986 | LA | 1986 | 07 | 04.11196 | 14 | 49 | 55.37 | +16 | 39 | 20.2 | 1 801 |
| 1986 | LA | 1986 | 07 | 08.11551 | 14 | 54 | 13.72 | +18 | 22 | 19.7 | 801 |
| 1986 | LR * | 1986 | 06 | 10.17397 | 14 | 51 | 08.15 | -09 | 36 | 13.5 | 19 801 |

Note 1: only four reference stars.

OBSERVATIONS MADE AT CERRO TOLOLO INTERAMERICAN OBSERVATORY BY K. J. MEECH AND D. C. JEWITT.

Plates taken with the Curtis Schmidt telescope, measured on the dual-axis Grant measuring engine at the National Optical Astronomy Observatories, reduced using the SAO Catalog. Contact: K. J. Meech, 54-410, Dept. of Earth and Planetary Sciences, M.I.T., Cambridge, MA 02139, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 224 | 1986 05 | 02.26740 | 19 24 55.68 | -29 35 49.32 | 807 |
| 899 | 1986 05 | 01.24410 | 13 16 19.03 | -20 50 11.98 | 807 |

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY BY H. DEBEHOGNE.

Plates taken with the 0.4-m GPO astrograph, measured by H. Debehogne, reduced by H. Debehogne and G. Peeters. Contact: H. Debehogne, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 24 | 1986 02 | 08.19826 | 09 13 29.32 | +17 17 53.8 | | 809 |
| 24 | 1986 02 | 08.20313 | 09 13 29.10 | +17 17 55.0 | | 809 |
| 24 | 1986 02 | 08.20799 | 09 13 28.83 | +17 17 56.4 | | 809 |
| 24 | 1986 02 | 09.08646 | 09 12 44.82 | +17 21 08.5 | | 809 |
| 24 | 1986 02 | 09.09132 | 09 12 44.58 | +17 21 09.9 | | 809 |
| 24 | 1986 02 | 09.09618 | 09 12 44.33 | +17 21 11.0 | | 809 |
| 24 | 1986 02 | 10.15382 | 09 11 51.08 | +17 25 00.0 | | 809 |
| 24 | 1986 02 | 10.15868 | 09 11 50.85 | +17 25 01.2 | | 809 |
| 24 | 1986 02 | 10.16354 | 09 11 50.58 | +17 25 02.2 | | 809 |
| 24 | 1986 02 | 11.13438 | 09 11 02.18 | +17 28 29.3 | | 809 |
| 24 | 1986 02 | 11.13924 | 09 11 01.95 | +17 28 30.4 | | 809 |
| 24 | 1986 02 | 11.14410 | 09 11 01.68 | +17 28 30.8 | | 809 |
| 24 | 1986 02 | 12.19583 | 09 10 09.28 | +17 32 13.9 | | 809 |
| 24 | 1986 02 | 12.20104 | 09 10 09.06 | +17 32 14.9 | | 809 |
| 24 | 1986 02 | 12.20590 | 09 10 08.80 | +17 32 16.0 | | 809 |
| 24 | 1986 02 | 13.20104 | 09 09 19.84 | +17 35 42.5 | | 809 |

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|---|---|---|---|---|---|---|---|---|---|
| 24 | 1986 | 02 | 13.20590 | 09 | 09 | 19.60 | +17 | 35 | 43.6 | 809 |
| 24 | 1986 | 02 | 13.21076 | 09 | 09 | 19.37 | +17 | 35 | 45.0 | 809 |
| 24 | 1986 | 02 | 14.18368 | 09 | 08 | 31.84 | +17 | 39 | 02.4 | 809 |
| 24 | 1986 | 02 | 14.18854 | 09 | 08 | 31.61 | +17 | 39 | 03.7 | 809 |
| 24 | 1986 | 02 | 14.19340 | 09 | 08 | 31.36 | +17 | 39 | 04.5 | 809 |
| 24 | 1986 | 02 | 15.19271 | 09 | 07 | 43.03 | +17 | 42 | 25.3 | 809 |
| 24 | 1986 | 02 | 15.19757 | 09 | 07 | 42.80 | +17 | 42 | 25.8 | 809 |
| 24 | 1986 | 02 | 15.20243 | 09 | 07 | 42.55 | +17 | 42 | 26.9 | 809 |
| 24 | 1986 | 02 | 16.24965 | 09 | 06 | 52.41 | +17 | 45 | 54.4 | 809 |
| 24 | 1986 | 02 | 16.25451 | 09 | 06 | 52.17 | +17 | 45 | 55.2 | 809 |
| 24 | 1986 | 02 | 16.25937 | 09 | 06 | 51.94 | +17 | 45 | 56.1 | 809 |
| 24 | 1986 | 02 | 17.22188 | 09 | 06 | 06.60 | +17 | 49 | 00.5 | 809 |
| 24 | 1986 | 02 | 17.22674 | 09 | 06 | 06.35 | +17 | 49 | 01.5 | 809 |
| 24 | 1986 | 02 | 17.23160 | 09 | 06 | 06.12 | +17 | 49 | 02.6 | 809 |
| 48 | 1986 | 02 | 04.03264 | 08 | 37 | 25.45 | +10 | 29 | 47.3 | 809 |
| 48 | 1986 | 02 | 04.03681 | 08 | 37 | 25.27 | +10 | 29 | 48.5 | 809 |
| 48 | 1986 | 02 | 04.04097 | 08 | 37 | 25.08 | +10 | 29 | 49.8 | 809 |
| 48 | 1986 | 02 | 05.03264 | 08 | 36 | 38.36 | +10 | 34 | 27.7 | 809 |
| 48 | 1986 | 02 | 05.03681 | 08 | 36 | 38.18 | +10 | 34 | 28.8 | 809 |
| 48 | 1986 | 02 | 05.04097 | 08 | 36 | 37.96 | +10 | 34 | 30.3 | 809 |
| 48 | 1986 | 02 | 06.05590 | 08 | 35 | 50.45 | +10 | 39 | 16.9 | 809 |
| 48 | 1986 | 02 | 06.06076 | 08 | 35 | 50.22 | +10 | 39 | 18.4 | 809 |
| 48 | 1986 | 02 | 06.06528 | 08 | 35 | 49.99 | +10 | 39 | 19.8 | 809 |
| 48 | 1986 | 02 | 07.06319 | 08 | 35 | 03.69 | +10 | 44 | 03.5 | 809 |
| 48 | 1986 | 02 | 07.06875 | 08 | 35 | 03.42 | +10 | 44 | 05.2 | 809 |
| 48 | 1986 | 02 | 07.07431 | 08 | 35 | 03.17 | +10 | 44 | 06.7 | 809 |
| 48 | 1986 | 02 | 08.14826 | 08 | 34 | 13.79 | +10 | 49 | 13.8 | 809 |
| 48 | 1986 | 02 | 08.15451 | 08 | 34 | 13.50 | +10 | 49 | 15.7 | 809 |
| 48 | 1986 | 02 | 08.16076 | 08 | 34 | 13.22 | +10 | 49 | 17.4 | 809 |
| 48 | 1986 | 02 | 09.10799 | 08 | 33 | 30.38 | +10 | 53 | 49.9 | 809 |
| 48 | 1986 | 02 | 09.11285 | 08 | 33 | 30.13 | +10 | 53 | 51.3 | 809 |
| 48 | 1986 | 02 | 09.11771 | 08 | 33 | 29.92 | +10 | 53 | 52.7 | 809 |
| 48 | 1986 | 02 | 10.13438 | 08 | 32 | 44.35 | +10 | 58 | 45.7 | 809 |
| 48 | 1986 | 02 | 10.13924 | 08 | 32 | 44.13 | +10 | 58 | 47.3 | 809 |
| 48 | 1986 | 02 | 10.14410 | 08 | 32 | 43.91 | +10 | 58 | 48.5 | 809 |
| 48 | 1986 | 02 | 11.11181 | 08 | 32 | 01.22 | +11 | 03 | 28.4 | 809 |
| 48 | 1986 | 02 | 11.11701 | 08 | 32 | 00.99 | +11 | 03 | 30.5 | 809 |
| 48 | 1986 | 02 | 11.12188 | 08 | 32 | 00.78 | +11 | 03 | 31.6 | 809 |
| 48 | 1986 | 02 | 12.17882 | 08 | 31 | 14.83 | +11 | 08 | 37.9 | 809 |
| 48 | 1986 | 02 | 12.18368 | 08 | 31 | 14.61 | +11 | 08 | 39.2 | 809 |
| 48 | 1986 | 02 | 12.18854 | 08 | 31 | 14.40 | +11 | 08 | 40.5 | 809 |
| 48 | 1986 | 02 | 13.18299 | 08 | 30 | 31.99 | +11 | 13 | 29.3 | 809 |
| 48 | 1986 | 02 | 13.18785 | 08 | 30 | 31.76 | +11 | 13 | 30.5 | 809 |
| 48 | 1986 | 02 | 13.19271 | 08 | 30 | 31.58 | +11 | 13 | 32.3 | 809 |
| 48 | 1986 | 02 | 14.16493 | 08 | 29 | 50.94 | +11 | 18 | 14.2 | 809 |
| 48 | 1986 | 02 | 14.16979 | 08 | 29 | 50.72 | +11 | 18 | 15.2 | 809 |
| 48 | 1986 | 02 | 14.17465 | 08 | 29 | 50.49 | +11 | 18 | 16.7 | 809 |
| 48 | 1986 | 02 | 15.16233 | 08 | 29 | 09.95 | +11 | 23 | 02.5 | 809 |
| 48 | 1986 | 02 | 15.16753 | 08 | 29 | 09.72 | +11 | 23 | 04.0 | 809 |
| 48 | 1986 | 02 | 15.17326 | 08 | 29 | 09.47 | +11 | 23 | 05.6 | 809 |
| 48 | 1986 | 02 | 16.22674 | 08 | 28 | 27.22 | +11 | 28 | 09.9 | 809 |
| 48 | 1986 | 02 | 16.23194 | 08 | 28 | 26.98 | +11 | 28 | 11.3 | 809 |
| 48 | 1986 | 02 | 16.23715 | 08 | 28 | 26.78 | +11 | 28 | 13.0 | 809 |
| 48 | 1986 | 02 | 17.19653 | 08 | 27 | 49.25 | +11 | 32 | 49.1 | 809 |
| 48 | 1986 | 02 | 17.20139 | 08 | 27 | 49.03 | +11 | 32 | 50.2 | 809 |
| 48 | 1986 | 02 | 17.20590 | 08 | 27 | 48.84 | +11 | 32 | 51.7 | 809 |
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| 54 | 1986 | 02 | 06.11562 | 09 | 56 | 18.86 | +08 | 56 | 35.9 | 809 |
| 54 | 1986 | 02 | 06.12049 | 09 | 56 | 18.60 | +08 | 56 | 36.3 | 809 |

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|---|---|---|---|---|---|---|---|---|---|
| 54 | 1986 | 02 | 09.17049 | 09 | 53 | 30.09 | +09 | 01 | 45.6 | 809 |
| 54 | 1986 | 02 | 09.17535 | 09 | 53 | 29.81 | +09 | 01 | 46.3 | 809 |
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| 54 | 1986 | 02 | 10.24062 | 09 | 52 | 30.07 | +09 | 03 | 38.7 | 809 |
| 54 | 1986 | 02 | 10.24549 | 09 | 52 | 29.79 | +09 | 03 | 39.1 | 809 |
| 54 | 1986 | 02 | 10.25035 | 09 | 52 | 29.52 | +09 | 03 | 39.6 | 809 |
| 54 | 1986 | 02 | 11.23438 | 09 | 51 | 34.08 | +09 | 05 | 27.7 | 809 |
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| 54 | 1986 | 02 | 11.24410 | 09 | 51 | 33.52 | +09 | 05 | 28.3 | 809 |
| 54 | 1986 | 02 | 12.26563 | 09 | 50 | 35.55 | +09 | 07 | 24.8 | 809 |
| 54 | 1986 | 02 | 12.27049 | 09 | 50 | 35.27 | +09 | 07 | 25.4 | 809 |
| 54 | 1986 | 02 | 12.27535 | 09 | 50 | 34.97 | +09 | 07 | 25.6 | 809 |
| 54 | 1986 | 02 | 13.26667 | 09 | 49 | 38.64 | +09 | 09 | 18.6 | 809 |
| 54 | 1986 | 02 | 13.27118 | 09 | 49 | 38.37 | +09 | 09 | 19.1 | 809 |
| 54 | 1986 | 02 | 13.27569 | 09 | 49 | 38.14 | +09 | 09 | 19.3 | 809 |
| 54 | 1986 | 02 | 14.25208 | 09 | 48 | 42.49 | +09 | 11 | 12.3 | 809 |
| 54 | 1986 | 02 | 14.25625 | 09 | 48 | 42.27 | +09 | 11 | 12.7 | 809 |
| 54 | 1986 | 02 | 15.26805 | 09 | 47 | 44.47 | +09 | 13 | 11.9 | 809 |
| 54 | 1986 | 02 | 15.27222 | 09 | 47 | 44.22 | +09 | 13 | 12.4 | 809 |
| 54 | 1986 | 02 | 16.32153 | 09 | 46 | 44.24 | +09 | 15 | 17.2 | 809 |
| 54 | 1986 | 02 | 16.32569 | 09 | 46 | 43.99 | +09 | 15 | 18.0 | 809 |
| 54 | 1986 | 02 | 17.30347 | 09 | 45 | 48.20 | +09 | 17 | 15.0 | 809 |
| 54 | 1986 | 02 | 17.30764 | 09 | 45 | 47.95 | +09 | 17 | 15.2 | 809 |
| 144 | 1986 | 02 | 04.19340 | 10 | 56 | 54.07 | +13 | 55 | 37.8 | 809 |
| 144 | 1986 | 02 | 04.19826 | 10 | 56 | 53.86 | +13 | 55 | 39.6 | 809 |
| 144 | 1986 | 02 | 04.20313 | 10 | 56 | 53.64 | +13 | 55 | 41.4 | 809 |
| 144 | 1986 | 02 | 05.19549 | 10 | 56 | 12.67 | +14 | 01 | 19.6 | 809 |
| 144 | 1986 | 02 | 05.20035 | 10 | 56 | 12.47 | +14 | 01 | 21.1 | 809 |
| 144 | 1986 | 02 | 05.20521 | 10 | 56 | 12.26 | +14 | 01 | 22.9 | 809 |
| 195 | 1986 | 02 | 07.32361 | 11 | 08 | 13.98 | +11 | 36 | 52.9 | 809 |
| 195 | 1986 | 02 | 07.32917 | 11 | 08 | 13.77 | +11 | 36 | 54.0 | 809 |
| 195 | 1986 | 02 | 07.33472 | 11 | 08 | 13.56 | +11 | 36 | 55.5 | 809 |
| 195 | 1986 | 02 | 08.37465 | 11 | 07 | 32.56 | +11 | 40 | 07.0 | 809 |
| 195 | 1986 | 02 | 08.37917 | 11 | 07 | 32.42 | +11 | 40 | 07.8 | 809 |
| 195 | 1986 | 02 | 08.38368 | 11 | 07 | 32.26 | +11 | 40 | 08.7 | 809 |
| 195 | 1986 | 02 | 12.35729 | 11 | 04 | 44.70 | +11 | 52 | 42.7 | 809 |
| 195 | 1986 | 02 | 12.36215 | 11 | 04 | 44.47 | +11 | 52 | 43.8 | 809 |
| 195 | 1986 | 02 | 12.36701 | 11 | 04 | 44.25 | +11 | 52 | 44.8 | 809 |
| 195 | 1986 | 02 | 13.34965 | 11 | 04 | 00.23 | +11 | 55 | 57.7 | 809 |
| 195 | 1986 | 02 | 13.35486 | 11 | 03 | 59.96 | +11 | 55 | 58.5 | 809 |
| 195 | 1986 | 02 | 13.36007 | 11 | 03 | 59.71 | +11 | 55 | 59.7 | 809 |
| 195 | 1986 | 02 | 14.31261 | 11 | 03 | 16.23 | +11 | 59 | 08.1 | 809 |
| 195 | 1986 | 02 | 14.31678 | 11 | 03 | 16.04 | +11 | 59 | 09.1 | 809 |
| 195 | 1986 | 02 | 14.32083 | 11 | 03 | 15.84 | +11 | 59 | 09.6 | 809 |
| 195 | 1986 | 02 | 15.33333 | 11 | 02 | 28.50 | +12 | 02 | 32.2 | 809 |
| 195 | 1986 | 02 | 15.33750 | 11 | 02 | 28.32 | +12 | 02 | 33.1 | 809 |
| 195 | 1986 | 02 | 15.34167 | 11 | 02 | 28.11 | +12 | 02 | 34.0 | 809 |
| 195 | 1986 | 02 | 16.36968 | 11 | 01 | 39.14 | +12 | 06 | 00.2 | 809 |
| 195 | 1986 | 02 | 16.37593 | 11 | 01 | 38.86 | +12 | 06 | 01.3 | 809 |
| 195 | 1986 | 02 | 17.36840 | 11 | 00 | 50.77 | +12 | 09 | 21.6 | 809 |
| 195 | 1986 | 02 | 17.37326 | 11 | 00 | 50.55 | +12 | 09 | 22.3 | 809 |
| 195 | 1986 | 02 | 17.37847 | 11 | 00 | 50.30 | +12 | 09 | 23.7 | 809 |
| 195 | 1986 | 02 | 19.34410 | 10 | 59 | 12.96 | +12 | 16 | 00.8 | 809 |
| 195 | 1986 | 02 | 19.34965 | 10 | 59 | 12.72 | +12 | 16 | 01.8 | 809 |
| 195 | 1986 | 02 | 19.35521 | 10 | 59 | 12.44 | +12 | 16 | 02.9 | 809 |
| 195 | 1986 | 02 | 20.34896 | 10 | 58 | 22.23 | +12 | 19 | 22.9 | 809 |
| 195 | 1986 | 02 | 20.35382 | 10 | 58 | 21.98 | +12 | 19 | 23.7 | 809 |
| 195 | 1986 | 02 | 20.35868 | 10 | 58 | 21.73 | +12 | 19 | 24.6 | 809 |
| 236 | 1986 | 02 | 05.03264 | 08 | 32 | 42.99 | +09 | 16 | 31.9 | 809 |

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|---|---|---|---|---|---|---|---|---|---|
| 236 | 1986 | 02 | 05.03681 | 08 | 32 | 42.77 | +09 | 16 | 33.2 | 809 |
| 236 | 1986 | 02 | 05.04097 | 08 | 32 | 42.58 | +09 | 16 | 34.4 | 809 |
| 236 | 1986 | 02 | 06.05590 | 08 | 31 | 51.76 | +09 | 21 | 36.3 | 809 |
| 236 | 1986 | 02 | 06.06076 | 08 | 31 | 51.51 | +09 | 21 | 38.0 | 809 |
| 236 | 1986 | 02 | 06.06528 | 08 | 31 | 51.28 | +09 | 21 | 38.9 | 809 |
| 236 | 1986 | 02 | 07.06319 | 08 | 31 | 01.88 | +09 | 26 | 38.6 | 809 |
| 236 | 1986 | 02 | 07.06875 | 08 | 31 | 01.57 | +09 | 26 | 40.0 | 809 |
| 236 | 1986 | 02 | 07.07431 | 08 | 31 | 01.28 | +09 | 26 | 41.5 | 809 |
| 236 | 1986 | 02 | 08.14826 | 08 | 30 | 08.61 | +09 | 32 | 06.0 | 809 |
| 236 | 1986 | 02 | 08.15451 | 08 | 30 | 08.29 | +09 | 32 | 07.6 | 809 |
| 236 | 1986 | 02 | 08.16076 | 08 | 30 | 07.97 | +09 | 32 | 09.5 | 809 |
| 236 | 1986 | 02 | 09.10799 | 08 | 29 | 22.15 | +09 | 36 | 55.8 | 809 |
| 236 | 1986 | 02 | 09.11285 | 08 | 29 | 21.94 | +09 | 36 | 57.1 | 809 |
| 236 | 1986 | 02 | 09.11771 | 08 | 29 | 21.72 | +09 | 36 | 58.7 | 809 |
| 236 | 1986 | 02 | 10.13438 | 08 | 28 | 33.14 | +09 | 42 | 08.6 | 809 |
| 236 | 1986 | 02 | 10.13924 | 08 | 28 | 32.93 | +09 | 42 | 10.2 | 809 |
| 236 | 1986 | 02 | 10.14410 | 08 | 28 | 32.71 | +09 | 42 | 11.4 | 809 |
| 236 | 1986 | 02 | 11.11181 | 08 | 27 | 47.21 | +09 | 47 | 06.9 | 809 |
| 236 | 1986 | 02 | 11.11701 | 08 | 27 | 46.96 | +09 | 47 | 08.3 | 809 |
| 236 | 1986 | 02 | 11.12188 | 08 | 27 | 46.73 | +09 | 47 | 09.8 | 809 |
| 236 | 1986 | 02 | 12.17882 | 08 | 26 | 57.80 | +09 | 52 | 33.0 | 809 |
| 236 | 1986 | 02 | 12.18368 | 08 | 26 | 57.54 | +09 | 52 | 34.6 | 809 |
| 236 | 1986 | 02 | 12.18854 | 08 | 26 | 57.31 | +09 | 52 | 36.0 | 809 |
| 236 | 1986 | 02 | 13.18299 | 08 | 26 | 12.12 | +09 | 57 | 40.0 | 809 |
| 236 | 1986 | 02 | 13.18785 | 08 | 26 | 11.90 | +09 | 57 | 41.7 | 809 |
| 236 | 1986 | 02 | 13.19271 | 08 | 26 | 11.70 | +09 | 57 | 43.0 | 809 |
| 236 | 1986 | 02 | 14.16493 | 08 | 25 | 28.36 | +10 | 02 | 41.7 | 809 |
| 236 | 1986 | 02 | 14.16979 | 08 | 25 | 28.12 | +10 | 02 | 43.1 | 809 |
| 236 | 1986 | 02 | 14.17465 | 08 | 25 | 27.90 | +10 | 02 | 44.6 | 809 |
| 236 | 1986 | 02 | 15.16233 | 08 | 24 | 44.67 | +10 | 07 | 46.3 | 809 |
| 236 | 1986 | 02 | 15.16753 | 08 | 24 | 44.47 | +10 | 07 | 48.0 | 809 |
| 236 | 1986 | 02 | 15.17326 | 08 | 24 | 44.20 | +10 | 07 | 49.6 | 809 |
| 236 | 1986 | 02 | 16.22674 | 08 | 23 | 59.02 | +10 | 13 | 11.4 | 809 |
| 236 | 1986 | 02 | 16.23194 | 08 | 23 | 58.78 | +10 | 13 | 13.1 | 809 |
| 236 | 1986 | 02 | 16.23715 | 08 | 23 | 58.54 | +10 | 13 | 14.7 | 809 |
| 236 | 1986 | 02 | 17.19653 | 08 | 23 | 18.40 | +10 | 18 | 07.6 | 809 |
| 236 | 1986 | 02 | 17.20139 | 08 | 23 | 18.20 | +10 | 18 | 09.2 | 809 |
| 236 | 1986 | 02 | 17.20590 | 08 | 23 | 18.02 | +10 | 18 | 10.8 | 809 |
| 240 | 1986 | 02 | 09.08646 | 09 | 07 | 17.02 | +17 | 52 | 07.1 | 809 |
| 240 | 1986 | 02 | 09.09132 | 09 | 07 | 16.74 | +17 | 52 | 08.4 | 809 |
| 240 | 1986 | 02 | 09.09618 | 09 | 07 | 16.48 | +17 | 52 | 09.7 | 809 |
| 240 | 1986 | 02 | 10.15382 | 09 | 06 | 16.71 | +17 | 57 | 18.5 | 809 |
| 240 | 1986 | 02 | 10.15868 | 09 | 06 | 16.44 | +17 | 57 | 19.8 | 809 |
| 240 | 1986 | 02 | 10.16354 | 09 | 06 | 16.18 | +17 | 57 | 21.0 | 809 |
| 240 | 1986 | 02 | 11.13438 | 09 | 05 | 21.98 | +18 | 02 | 00.8 | 809 |
| 240 | 1986 | 02 | 11.13924 | 09 | 05 | 21.71 | +18 | 02 | 02.3 | 809 |
| 240 | 1986 | 02 | 11.14410 | 09 | 05 | 21.42 | +18 | 02 | 03.8 | 809 |
| 240 | 1986 | 02 | 12.19583 | 09 | 04 | 23.27 | +18 | 06 | 59.2 | 809 |
| 240 | 1986 | 02 | 12.20104 | 09 | 04 | 22.97 | +18 | 07 | 00.5 | 809 |
| 240 | 1986 | 02 | 12.20590 | 09 | 04 | 22.69 | +18 | 07 | 02.0 | 809 |
| 240 | 1986 | 02 | 13.20104 | 09 | 03 | 28.58 | +18 | 11 | 36.8 | 809 |
| 240 | 1986 | 02 | 13.20590 | 09 | 03 | 28.28 | +18 | 11 | 38.1 | 809 |
| 240 | 1986 | 02 | 13.21076 | 09 | 03 | 28.03 | +18 | 11 | 39.2 | 809 |
| 240 | 1986 | 02 | 14.18368 | 09 | 02 | 35.84 | +18 | 16 | 02.7 | 809 |
| 240 | 1986 | 02 | 14.18854 | 09 | 02 | 35.57 | +18 | 16 | 04.0 | 809 |
| 240 | 1986 | 02 | 14.19340 | 09 | 02 | 35.27 | +18 | 16 | 05.1 | 809 |
| 240 | 1986 | 02 | 15.19271 | 09 | 01 | 42.46 | +18 | 20 | 29.9 | 809 |
| 240 | 1986 | 02 | 15.19757 | 09 | 01 | 42.18 | +18 | 20 | 31.0 | 809 |
| 240 | 1986 | 02 | 15.20243 | 09 | 01 | 41.91 | +18 | 20 | 32.3 | 809 |

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|---|---|---|---|---|---|---|---|---|---|
| 240 | 1986 | 02 | 16.24965 | 09 | 00 | 47.37 | +18 | 25 | 02.5 | 809 |
| 240 | 1986 | 02 | 16.25451 | 09 | 00 | 47.16 | +18 | 25 | 03.7 | 809 |
| 240 | 1986 | 02 | 16.25937 | 09 | 00 | 46.87 | +18 | 25 | 04.8 | 809 |
| 240 | 1986 | 02 | 17.22188 | 08 | 59 | 57.83 | +18 | 29 | 08.0 | 809 |
| 240 | 1986 | 02 | 17.22674 | 08 | 59 | 57.58 | +18 | 29 | 09.4 | 809 |
| 240 | 1986 | 02 | 17.23160 | 08 | 59 | 57.34 | +18 | 29 | 10.4 | 809 |
| 318 | 1986 | 02 | 13.08229 | 09 | 31 | 50.77 | +09 | 17 | 54.6 | 809 |
| 318 | 1986 | 02 | 13.08715 | 09 | 31 | 50.58 | +09 | 17 | 56.8 | 809 |
| 318 | 1986 | 02 | 13.09201 | 09 | 31 | 50.35 | +09 | 17 | 58.8 | 809 |
| 318 | 1986 | 02 | 15.04653 | 09 | 30 | 24.16 | +09 | 31 | 34.4 | 809 |
| 318 | 1986 | 02 | 15.05104 | 09 | 30 | 23.93 | +09 | 31 | 36.1 | 809 |
| 318 | 1986 | 02 | 15.05590 | 09 | 30 | 23.70 | +09 | 31 | 38.0 | 809 |
| 318 | 1986 | 02 | 16.04410 | 09 | 29 | 40.72 | +09 | 38 | 33.4 | 809 |
| 318 | 1986 | 02 | 16.04896 | 09 | 29 | 40.49 | +09 | 38 | 35.3 | 809 |
| 318 | 1986 | 02 | 16.05382 | 09 | 29 | 40.31 | +09 | 38 | 37.3 | 809 |
| 477 | 1986 | 02 | 13.33125 | 10 | 53 | 31.98 | +12 | 06 | 17.2 | 809 |
| 477 | 1986 | 02 | 13.33542 | 10 | 53 | 31.79 | +12 | 06 | 18.6 | 809 |
| 477 | 1986 | 02 | 13.33958 | 10 | 53 | 31.55 | +12 | 06 | 19.9 | 809 |
| 477 | 1986 | 02 | 14.30017 | 10 | 52 | 40.68 | +12 | 10 | 49.4 | 809 |
| 477 | 1986 | 02 | 14.30469 | 10 | 52 | 40.42 | +12 | 10 | 50.3 | 809 |
| 477 | 1986 | 02 | 15.31736 | 10 | 51 | 45.90 | +12 | 15 | 35.3 | 809 |
| 477 | 1986 | 02 | 15.32153 | 10 | 51 | 45.66 | +12 | 15 | 36.4 | 809 |
| 477 | 1986 | 02 | 15.32535 | 10 | 51 | 45.43 | +12 | 15 | 37.5 | 809 |
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| 1299 | 1986 | 02 | 06.24549 | 10 | 47 | 24.81 | +04 | 47 | 33.4 | 809 |
| 1299 | 1986 | 02 | 06.25035 | 10 | 47 | 24.63 | +04 | 47 | 34.9 | 809 |
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| 1337 | 1986 | 02 | 12.22049 | 09 | 15 | 30.25 | +06 | 23 | 01.0 | 809 |
| 1337 | 1986 | 02 | 12.22535 | 09 | 15 | 30.03 | +06 | 23 | 03.8 | 809 |
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| 1352 | 1986 | 02 | 06.11562 | 09 | 58 | 18.11 | +08 | 21 | 04.4 | 809 |
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| 1352 | 1986 | 02 | 17.30764 | 09 | 48 | 57.01 | +09 | 20 | 30.5 | 809 |
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| 1503 | 1986 | 02 | 14.11528 | 09 | 27 | 30.06 | +12 | 51 | 15.8 | 809 |
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| 1589 | 1986 | 02 | 04.19340 | 11 | 02 | 16.31 | +13 | 57 | 59.0 | 809 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | CX1 | | 1986 | 02 | 13.36771 | 11 | 00 | 18.23 | +11 | 15 | 12.1 | 809 |
| 1986 | CX1 | | 1986 | 02 | 13.37257 | 11 | 00 | 18.02 | +11 | 15 | 13.6 | 809 |
| 1986 | CX1 | | 1986 | 02 | 13.37778 | 11 | 00 | 17.81 | +11 | 15 | 15.4 | 809 |
| 1986 | CX1 | | 1986 | 02 | 14.12517 | 10 | 59 | 45.89 | +11 | 19 | 12.5 | 809 |
| 1986 | CX1 | | 1986 | 02 | 14.12969 | 10 | 59 | 45.70 | +11 | 19 | 13.8 | 809 |
| 1986 | CX1 | | 1986 | 02 | 14.13424 | 10 | 59 | 45.51 | +11 | 19 | 15.0 | 809 |
| 1986 | CY1 | * | 1986 | 02 | 12.07465 | 09 | 19 | 18.01 | +09 | 46 | 50.7 | 17.5 809 |
| 1986 | CY1 | | 1986 | 02 | 12.08021 | 09 | 19 | 17.66 | +09 | 46 | 52.6 | 809 |
| 1986 | CY1 | | 1986 | 02 | 12.08507 | 09 | 19 | 17.36 | +09 | 46 | 54.1 | 809 |
| 1986 | CY1 | | 1986 | 02 | 13.10104 | 09 | 18 | 14.42 | +09 | 53 | 03.9 | 809 |
| 1986 | CY1 | | 1986 | 02 | 13.10590 | 09 | 18 | 14.12 | +09 | 53 | 05.8 | 809 |
| 1986 | CY1 | | 1986 | 02 | 13.11076 | 09 | 18 | 13.82 | +09 | 53 | 07.5 | 809 |
| 1986 | CY1 | | 1986 | 02 | 14.07292 | 09 | 17 | 14.94 | +09 | 58 | 56.6 | 809 |
| 1986 | CY1 | | 1986 | 02 | 14.07708 | 09 | 17 | 14.69 | +09 | 58 | 58.2 | 809 |
| 1986 | CY1 | | 1986 | 02 | 14.08125 | 09 | 17 | 14.41 | +09 | 58 | 59.7 | 809 |
| 1986 | CY1 | | 1986 | 02 | 15.06910 | 09 | 16 | 14.56 | +10 | 04 | 58.1 | 809 |
| 1986 | CY1 | | 1986 | 02 | 15.07396 | 09 | 16 | 14.27 | +10 | 04 | 59.9 | 809 |
| 1986 | CY1 | | 1986 | 02 | 15.07882 | 09 | 16 | 13.97 | +10 | 05 | 01.7 | 809 |
| 1986 | CY1 | | 1986 | 02 | 16.13715 | 09 | 15 | 10.66 | +10 | 11 | 25.9 | 809 |
| 1986 | CY1 | | 1986 | 02 | 16.14201 | 09 | 15 | 10.36 | +10 | 11 | 27.7 | 809 |
| 1986 | CY1 | | 1986 | 02 | 16.14687 | 09 | 15 | 10.06 | +10 | 11 | 29.4 | 809 |
| 1986 | CY1 | | 1986 | 02 | 17.10729 | 09 | 14 | 13.62 | +10 | 17 | 16.8 | 809 |
| 1986 | CY1 | | 1986 | 02 | 17.11215 | 09 | 14 | 13.32 | +10 | 17 | 18.5 | 809 |
| 1986 | CY1 | | 1986 | 02 | 17.11701 | 09 | 14 | 13.02 | +10 | 17 | 20.3 | 809 |
| 1986 | CZ1 | * | 1986 | 02 | 12.09549 | 09 | 17 | 51.41 | +10 | 56 | 00.4 | 17.8 809 |
| 1986 | CZ1 | | 1986 | 02 | 12.10035 | 09 | 17 | 51.07 | +10 | 56 | 01.2 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 12.10521 | 09 | 17 | 50.74 | +10 | 56 | 02.1 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 13.10104 | 09 | 16 | 42.30 | +10 | 59 | 01.7 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 13.10590 | 09 | 16 | 41.97 | +10 | 59 | 02.5 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 13.11076 | 09 | 16 | 41.63 | +10 | 59 | 03.4 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 14.07292 | 09 | 15 | 35.88 | +11 | 01 | 57.7 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 14.07708 | 09 | 15 | 35.60 | +11 | 01 | 58.5 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 14.08125 | 09 | 15 | 35.33 | +11 | 01 | 59.4 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 15.06910 | 09 | 14 | 28.25 | +11 | 05 | 00.6 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 15.07396 | 09 | 14 | 27.92 | +11 | 05 | 01.6 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 15.07882 | 09 | 14 | 27.59 | +11 | 05 | 02.5 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 16.13715 | 09 | 13 | 16.07 | +11 | 08 | 15.9 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 16.14201 | 09 | 13 | 15.74 | +11 | 08 | 17.0 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 16.14687 | 09 | 13 | 15.41 | +11 | 08 | 18.1 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 17.10729 | 09 | 12 | 11.25 | +11 | 11 | 14.3 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 17.11215 | 09 | 12 | 10.92 | +11 | 11 | 15.2 | 809 |
| 1986 | CZ1 | | 1986 | 02 | 17.11701 | 09 | 12 | 10.59 | +11 | 11 | 16.1 | 809 |
| 1986 | CA2 | * | 1986 | 02 | 12.11354 | 09 | 27 | 53.39 | +11 | 42 | 59.9 | 17.5 809 |
| 1986 | CA2 | | 1986 | 02 | 12.11840 | 09 | 27 | 53.10 | +11 | 43 | 01.3 | 809 |
| 1986 | CA2 | | 1986 | 02 | 12.12326 | 09 | 27 | 52.79 | +11 | 43 | 02.6 | 809 |
| 1986 | CA2 | | 1986 | 02 | 13.11979 | 09 | 26 | 53.72 | +11 | 47 | 09.0 | 809 |
| 1986 | CA2 | | 1986 | 02 | 13.12500 | 09 | 26 | 53.41 | +11 | 47 | 10.3 | 809 |
| 1986 | CA2 | | 1986 | 02 | 13.13021 | 09 | 26 | 53.11 | +11 | 47 | 11.8 | 809 |
| 1986 | CA2 | | 1986 | 02 | 14.10694 | 09 | 25 | 55.49 | +11 | 51 | 12.3 | 809 |
| 1986 | CA2 | | 1986 | 02 | 14.11111 | 09 | 25 | 55.24 | +11 | 51 | 13.4 | 809 |
| 1986 | CA2 | | 1986 | 02 | 14.11528 | 09 | 25 | 55.00 | +11 | 51 | 14.7 | 809 |
| 1986 | CA2 | | 1986 | 02 | 15.10382 | 09 | 24 | 56.97 | +11 | 55 | 18.3 | 809 |
| 1986 | CA2 | | 1986 | 02 | 15.10868 | 09 | 24 | 56.69 | +11 | 55 | 19.5 | 809 |
| 1986 | CA2 | | 1986 | 02 | 15.11354 | 09 | 24 | 56.41 | +11 | 55 | 20.7 | 809 |
| 1986 | CA2 | | 1986 | 02 | 16.16736 | 09 | 23 | 54.89 | +11 | 59 | 40.4 | 809 |
| 1986 | CA2 | | 1986 | 02 | 16.17153 | 09 | 23 | 54.65 | +11 | 59 | 41.4 | 809 |
| 1986 | CA2 | | 1986 | 02 | 16.17569 | 09 | 23 | 54.40 | +11 | 59 | 42.4 | 809 |
| 1986 | CA2 | | 1986 | 02 | 17.13802 | 09 | 22 | 58.84 | +12 | 03 | 38.0 | 809 |
| 1986 | CA2 | | 1986 | 02 | 17.14288 | 09 | 22 | 58.56 | +12 | 03 | 39.2 | 809 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | CA2 | | 1986 | 02 | 17.14757 | 09 | 22 | 58.27 | +12 | 03 | 40.4 | | 809 |
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| 1986 | CB2 | | 1986 | 02 | 12.11840 | 09 | 28 | 51.11 | +11 | 27 | 30.6 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 12.12326 | 09 | 28 | 50.79 | +11 | 27 | 31.4 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 13.11979 | 09 | 27 | 44.72 | +11 | 30 | 16.8 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 13.12500 | 09 | 27 | 44.37 | +11 | 30 | 17.6 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 13.13021 | 09 | 27 | 44.02 | +11 | 30 | 18.4 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 14.10694 | 09 | 26 | 39.51 | +11 | 33 | 01.3 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 14.11111 | 09 | 26 | 39.23 | +11 | 33 | 01.9 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 14.11528 | 09 | 26 | 38.95 | +11 | 33 | 02.4 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 15.10382 | 09 | 25 | 33.73 | +11 | 35 | 48.1 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 15.10868 | 09 | 25 | 33.41 | +11 | 35 | 48.9 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 15.11354 | 09 | 25 | 33.07 | +11 | 35 | 50.0 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 16.16736 | 09 | 24 | 23.81 | +11 | 38 | 46.6 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 16.17153 | 09 | 24 | 23.54 | +11 | 38 | 47.3 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 16.17569 | 09 | 24 | 23.26 | +11 | 38 | 48.0 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 17.13802 | 09 | 23 | 20.70 | +11 | 41 | 29.3 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 17.14288 | 09 | 23 | 20.39 | +11 | 41 | 30.1 | | 809 |
| 1986 | CB2 | | 1986 | 02 | 17.14757 | 09 | 23 | 20.08 | +11 | 41 | 30.9 | | 809 |
| 1986 | CC2 | * | 1986 | 02 | 12.31979 | 10 | 40 | 26.48 | +03 | 45 | 04.8 | 18.1 | 809 |
| 1986 | CC2 | | 1986 | 02 | 12.32465 | 10 | 40 | 26.15 | +03 | 45 | 05.5 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 12.32951 | 10 | 40 | 25.90 | +03 | 45 | 06.2 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 13.30729 | 10 | 39 | 27.96 | +03 | 47 | 38.7 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 13.31215 | 10 | 39 | 27.65 | +03 | 47 | 39.4 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 13.31701 | 10 | 39 | 27.36 | +03 | 47 | 40.2 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 14.28403 | 10 | 38 | 29.42 | +03 | 50 | 15.3 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 14.28819 | 10 | 38 | 29.18 | +03 | 50 | 16.0 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 14.29236 | 10 | 38 | 28.93 | +03 | 50 | 16.8 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 15.30069 | 10 | 37 | 27.92 | +03 | 53 | 05.1 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 15.30486 | 10 | 37 | 27.67 | +03 | 53 | 05.8 | | 809 |
| 1986 | CC2 | | 1986 | 02 | 15.30903 | 10 | 37 | 27.41 | +03 | 53 | 06.5 | | 809 |
| 1986 | CD2 | * | 1986 | 02 | 12.35729 | 11 | 04 | 12.68 | +11 | 57 | 53.3 | 17.8 | 809 |
| 1986 | CD2 | | 1986 | 02 | 12.36215 | 11 | 04 | 12.41 | +11 | 57 | 54.0 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 12.36701 | 11 | 04 | 12.15 | +11 | 57 | 54.8 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 13.34965 | 11 | 03 | 18.81 | +12 | 00 | 47.8 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 13.35486 | 11 | 03 | 18.52 | +12 | 00 | 48.7 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 13.36007 | 11 | 03 | 18.24 | +12 | 00 | 49.6 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 14.31261 | 11 | 02 | 25.39 | +12 | 03 | 39.9 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 14.31678 | 11 | 02 | 25.15 | +12 | 03 | 40.6 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 14.32083 | 11 | 02 | 24.93 | +12 | 03 | 41.2 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 15.33333 | 11 | 01 | 27.18 | +12 | 06 | 43.7 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 15.33750 | 11 | 01 | 26.94 | +12 | 06 | 44.6 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 15.34167 | 11 | 01 | 26.71 | +12 | 06 | 45.4 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 16.36968 | 11 | 00 | 26.72 | +12 | 09 | 51.2 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 16.37593 | 11 | 00 | 26.36 | +12 | 09 | 52.3 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 17.36840 | 10 | 59 | 27.34 | +12 | 12 | 52.1 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 17.37326 | 10 | 59 | 27.06 | +12 | 12 | 52.9 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 17.37847 | 10 | 59 | 26.76 | +12 | 12 | 53.9 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 19.34410 | 10 | 57 | 26.78 | +12 | 18 | 51.4 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 19.34965 | 10 | 57 | 26.45 | +12 | 18 | 52.6 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 19.35521 | 10 | 57 | 26.11 | +12 | 18 | 53.6 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 20.34896 | 10 | 56 | 23.89 | +12 | 21 | 52.2 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 20.35382 | 10 | 56 | 23.59 | +12 | 21 | 53.1 | | 809 |
| 1986 | CD2 | | 1986 | 02 | 20.35868 | 10 | 56 | 23.29 | +12 | 21 | 53.9 | | 809 |
| 1986 | CE2 | * | 1986 | 02 | 12.35729 | 11 | 07 | 43.58 | +10 | 51 | 06.9 | 17.6 | 809 |
| 1986 | CE2 | | 1986 | 02 | 12.36215 | 11 | 07 | 43.32 | +10 | 51 | 07.8 | | 809 |
| 1986 | CE2 | | 1986 | 02 | 12.36701 | 11 | 07 | 43.07 | +10 | 51 | 08.6 | | 809 |
| 1986 | CE2 | | 1986 | 02 | 13.34965 | 11 | 06 | 51.85 | +10 | 53 | 52.5 | | 809 |
| 1986 | CE2 | | 1986 | 02 | 13.35486 | 11 | 06 | 51.59 | +10 | 53 | 53.4 | | 809 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1986 CE2 | | 1986 02 13.36007 | 11 06 51.31 | +10 53 54.3 | | | | | | 809 |
| 1986 CE2 | | 1986 02 14.31261 | 11 06 00.34 | +10 56 34.9 | | | | | | 809 |
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| 1986 CE2 | | 1986 02 14.32083 | 11 05 59.89 | +10 56 36.3 | | | | | | 809 |
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| 1986 CE2 | | 1986 02 15.33750 | 11 05 03.87 | +10 59 32.0 | | | | | | 809 |
| 1986 CE2 | | 1986 02 15.34167 | 11 05 03.64 | +10 59 32.8 | | | | | | 809 |
| 1986 CE2 | | 1986 02 16.36968 | 11 04 05.26 | +11 02 33.3 | | | | | | 809 |
| 1986 CE2 | | 1986 02 16.37593 | 11 04 04.92 | +11 02 34.4 | | | | | | 809 |
| 1986 CE2 | | 1986 02 17.36840 | 11 03 07.49 | +11 05 30.8 | | | | | | 809 |
| 1986 CE2 | | 1986 02 17.37326 | 11 03 07.21 | +11 05 31.6 | | | | | | 809 |
| 1986 CE2 | | 1986 02 17.37847 | 11 03 06.91 | +11 05 32.5 | | | | | | 809 |
| 1986 CE2 | | 1986 02 19.34410 | 11 01 09.27 | +11 11 26.3 | | | | | | 809 |
| 1986 CE2 | | 1986 02 19.34965 | 11 01 08.94 | +11 11 27.5 | | | | | | 809 |
| 1986 CE2 | | 1986 02 19.35521 | 11 01 08.61 | +11 11 28.6 | | | | | | 809 |
| 1986 CE2 | | 1986 02 20.34896 | 11 00 07.63 | +11 14 28.5 | | | | | | 809 |
| 1986 CE2 | | 1986 02 20.35382 | 11 00 07.33 | +11 14 29.2 | | | | | | 809 |
| 1986 CE2 | | 1986 02 20.35868 | 11 00 07.03 | +11 14 30.2 | | | | | | 809 |
| 1986 CF2 | * | 1986 02 13.05382 | 09 36 37.45 | +10 05 58.5 | | | | | 17.8 | 809 |
| 1986 CF2 | | 1986 02 13.05868 | 09 36 37.14 | +10 05 58.5 | | | | | | 809 |
| 1986 CF2 | | 1986 02 13.06354 | 09 36 36.84 | +10 05 58.5 | | | | | | 809 |
| 1986 CF2 | | 1986 02 14.04792 | 09 35 35.79 | +10 06 09.1 | | | | | | 809 |
| 1986 CF2 | | 1986 02 14.05208 | 09 35 35.53 | +10 06 09.2 | | | | | | 809 |
| 1986 CF2 | | 1986 02 14.05625 | 09 35 35.27 | +10 06 09.3 | | | | | | 809 |
| 1986 CF2 | | 1986 02 15.04653 | 09 34 34.02 | +10 06 21.2 | | | | | | 809 |
| 1986 CF2 | | 1986 02 15.05104 | 09 34 33.72 | +10 06 21.4 | | | | | | 809 |
| 1986 CF2 | | 1986 02 15.05590 | 09 34 33.40 | +10 06 21.6 | | | | | | 809 |
| 1986 CF2 | | 1986 02 16.04410 | 09 33 32.64 | +10 06 32.2 | | | | | | 809 |
| 1986 CF2 | | 1986 02 16.04896 | 09 33 32.34 | +10 06 32.2 | | | | | | 809 |
| 1986 CF2 | | 1986 02 16.05382 | 09 33 32.05 | +10 06 32.2 | | | | | | 809 |

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY.
Plates taken with the 0.4-m GPO astrograph. Contact: W. Ferreri, Osservatorio Astronomico di Torino, I-10025 Pino Torinese, Italy.

| Object | | Date | UT | R. A. (1950) | Decl. | | | | Mag. | Obs. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1986 EP2 | * | 1986 03 04.15729 | 10 49 20.84 | +07 01 31.8 | | | | | 17.5 | 809 |
| 1986 EP2 | | 1986 03 04.17743 | 10 49 19.65 | +07 01 35.7 | | | | | | 809 |
| 1986 EP2 | | 1986 03 05.07674 | 10 48 31.33 | +07 04 52.2 | | | | | | 809 |
| 1986 EP2 | | 1986 03 05.09826 | 10 48 30.04 | +07 04 57.2 | | | | | | 809 |
| 1986 EP2 | | 1986 03 10.08993 | 10 44 04.86 | +07 22 40.0 | | | | | | 809 |
| 1986 EP2 | | 1986 03 10.11146 | 10 44 03.83 | +07 22 44.7 | | | | | | 809 |
| 1986 EP2 | | 1986 03 14.08715 | 10 40 43.50 | +07 35 55.4 | | | | | | 809 |
| 1986 EP2 | | 1986 03 14.11076 | 10 40 42.23 | +07 36 01.0 | | | | | | 809 |
| 1986 EQ2 | * | 1986 03 04.15729 | 10 49 52.33 | +06 30 37.6 | | | | | 17.5 | 809 |
| 1986 EQ2 | | 1986 03 04.17743 | 10 49 51.44 | +06 30 43.5 | | | | | | 809 |
| 1986 EQ2 | | 1986 03 05.07674 | 10 49 08.67 | +06 35 32.2 | | | | | | 809 |
| 1986 EQ2 | | 1986 03 05.09826 | 10 49 07.86 | +06 35 38.0 | | | | | | 809 |
| 1986 EQ2 | | 1986 03 10.08993 | 10 45 13.39 | +07 01 59.4 | | | | | | 809 |
| 1986 EQ2 | | 1986 03 10.11146 | 10 45 12.29 | +07 02 06.4 | | | | | | 809 |
| 1986 EQ2 | | 1986 03 14.08715 | 10 42 12.28 | +07 22 24.1 | | | | | | 809 |
| 1986 EQ2 | | 1986 03 14.11076 | 10 42 11.10 | +07 22 33.2 | | | | | | 809 |

OBSERVATIONS MADE AT SHIZUOKA BY M. KIZAWA.
Films measured by T. Urata. From Nihondaira Obs. Circ. No. 1561. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

| Object | Date | UT | R. A. (1950) | Decl. | | | | Mag. | Obs. |
|---|---|---|---|---|---|---|---|---|---|
| 1986 JA1 | 1986 06 11.66752 | 17 40 24.79 | +06 33 21.5 | | | | | 15 | 883 |
| 1986 JA1 | 1986 06 12.59520 | 17 39 34.86 | +06 53 38.9 | | | | | 15 | 883 |
| 1986 JA1 | 1986 06 12.67922 | 17 39 29.96 | +06 55 27.3 | | | | | | 883 |

1986 JA1 1986 06 15.65252 17 36 47.74 +07 57 21.6 15 883
1986 JA1 1986 06 15.67963 17 36 46.19 +07 57 53.2 883

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are G = D. W. E. Green, k = T. Kobayashi, M = B. G. Marsden, x = S. Singer-Brewster. For further details see MPC 10375.

| Planet | H | Epoch | M | Peri. | Node | Incl. | e | a | Arc | O | N | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 CO | 11.5 | 770206 | 179.32 | 0.68 | 317.76 | 8.31 | 0.0562 | 3.8671 | 3 | 3 | 3 | M |
| 1977 CR | 11.5 | 770206 | 359.56 | 353.62 | 146.24 | 21.32 | 0.0624 | 5.2106 | 3 | 3 | 3 | M |
| 1977 CS | 12.5 | 770206 | 359.56 | 183.12 | 317.28 | 16.15 | 0.0602 | 5.1991 | 3 | 3 | 3 | M |
| 1977 CV | 13.0 | 770206 | 359.56 | 354.93 | 146.67 | 9.09 | 0.0407 | 5.1985 | 3 | 3 | 3 | M |
| 1982 UA7 | 12.5 | 821107 | 24.56 | 307.70 | 67.39 | 13.98 | 0.1892 | 2.5873 | 55 | 9 | 4 | k |
| 1985 PO1 | | 850803 | 35.33 | 98.93 | 179.60 | 3.17 | 0.2402 | 2.8368 | 9 | 3 | 1 | M |
| 1985 PX1 | | 850803 | 220.17 | 152.29 | 336.82 | 12.34 | 0.1096 | 3.0750 | 9 | 3 | | M |
| 1985 RM3 | 15.5 | 850823 | 317.12 | 240.96 | 156.91 | 3.79 | 0.1690 | 2.2162 | 32 | 0 | | G |
| 1985 RB4 | 16.0 | 850823 | 19.72 | 148.44 | 159.11 | 1.44 | 0.2219 | 2.2221 | 28 | 0 | | G |
| 1986 AT2 | 11.5 | 860130 | 43.76 | 291.48 | 147.40 | 19.21 | 0.1456 | 3.1737 | 35 | 0 | | M |
| 1986 CL1 | 12.5 | 860130 | 279.82 | 334.74 | 275.12 | 16.93 | 0.1651 | 2.5973 | 16 | 0 | | M |
| 1986 CN1 | 14.0 | 860130 | 314.36 | 252.60 | 318.99 | 10.40 | 0.1878 | 2.4172 | 17 | 0 | | M |
| 1986 CO1 | 12.5 | 860130 | 172.87 | 32.94 | 284.11 | 12.20 | 0.0173 | 3.1236 | 13 | 0 | | M |
| 1986 CQ1 | 14.0 | 860130 | 67.01 | 191.66 | 221.98 | 4.57 | 0.0811 | 2.3551 | 12 | 0 | | M |
| 1986 CS1 | 15.0 | 860130 | 32.71 | 284.69 | 169.09 | 3.14 | 0.1377 | 2.4401 | 11 | 0 | | M |
| 1986 CV1 | 13.5 | 860130 | 116.08 | 77.15 | 293.88 | 13.15 | 0.1143 | 2.5949 | 8 | 0 | | M |
| 1986 CW1 | 14.0 | 860130 | 64.74 | 140.55 | 258.31 | 4.44 | 0.2075 | 2.4347 | 8 | 0 | | M |
| 1986 CX1 | 14.0 | 860130 | 26.51 | 33.89 | 71.61 | 2.67 | 0.2566 | 2.9125 | 3 | 0 | | M |
| 1986 CY1 | 14.0 | 860130 | 68.54 | 192.59 | 209.82 | 3.36 | 0.2254 | 2.2992 | 5 | 0 | | M |
| 1986 CZ1 | 14.5 | 860130 | 260.36 | 319.80 | 289.21 | 4.96 | 0.1166 | 2.1814 | 5 | 0 | | M |
| 1986 CB2 | 15.0 | 860130 | 301.34 | 271.32 | 297.32 | 4.23 | 0.1186 | 2.2593 | 5 | 0 | | M |
| 1986 CC2 | 13.5 | 860130 | 105.43 | 63.69 | 315.98 | 8.99 | 0.2720 | 2.4095 | 3 | 0 | | M |
| 1986 CD2 | 14.5 | 860130 | 28.81 | 111.45 | 2.54 | 6.11 | 0.0948 | 2.2557 | 8 | 0 | | M |
| 1986 CE2 | 14.5 | 860130 | 325.71 | 188.29 | 359.53 | 6.12 | 0.0589 | 2.2038 | 8 | 0 | | M |
| 1986 CF2 | 13.5 | 860130 | 89.57 | 89.17 | 313.13 | 14.00 | 0.0758 | 2.7149 | 3 | 0 | 1 | M |
| 1986 EP2 | 14.5 | 860219 | 14.63 | 160.05 | 337.04 | 2.95 | 0.1652 | 2.6571 | 10 | 8 | | M |
| 1986 EQ2 | 12.5 | 860219 | 107.57 | 220.20 | 181.98 | 1.69 | 0.0919 | 2.9198 | 10 | 8 | | M |
| 1986 GW | 13.5 | 860420 | 315.36 | 78.72 | 183.55 | 2.61 | 0.1627 | 3.9630 | 65 | 0 | | M |
| 1986 GZ | 15.5 | 860420 | 263.54 | 126.65 | 199.00 | 22.62 | 0.2487 | 2.3448 | 60 | 0 | | M |
| 1986 GQ1 | 13.0 | 860331 | 115.38 | 43.43 | 20.13 | 7.40 | 0.1346 | 2.3354 | 8 | 3 | | M |
| 1986 HM | 14.0 | 860420 | 307.81 | 245.49 | 23.49 | 5.59 | 0.1592 | 2.2036 | 24 | 9 | | M |
| 1986 JA | 15.5 | 860420 | 334.84 | 95.76 | 160.51 | 12.23 | 0.1613 | 2.3898 | 12 | 7 | | G |
| 1986 JC | 14.5 | 860510 | 330.43 | 178.96 | 100.82 | 8.44 | 0.2501 | 2.3670 | 37 | 7 | 4 | M |
| 1986 JD | 14.0 | 860510 | 337.62 | 160.96 | 102.16 | 9.02 | 0.1732 | 2.3647 | 37 | 7 | 4 | M |
| 1986 JE | 18.0 | 860510 | 342.23 | 200.28 | 46.11 | 20.63 | 0.0284 | 1.8305 | 33 | 0 | | M |
| 1986 JM | 11.0 | 860420 | 71.14 | 10.01 | 104.24 | 15.92 | 0.1215 | 3.0030 | 5 | 4 | | M |
| 1986 JS | 13.5 | 860510 | 325.59 | 142.73 | 127.96 | 6.40 | 0.1587 | 2.2269 | 37 | 5 | | M |
| 1986 JA1 | 12.5 | 860530 | 352.20 | 41.56 | 229.86 | 24.55 | 0.2331 | 2.3421 | 49 | 0 | | M |
| 1986 LG | 12.5 | 860530 | 112.23 | 233.80 | 247.01 | 22.84 | 0.2607 | 2.7972 | 4 | 8 | | M |
| 1986 LH | 15.5 | 860530 | 313.20 | 70.24 | 247.70 | 19.98 | 0.1713 | 2.1542 | 4 | 8 | | M |
| 1986 LO | 13.0 | 860530 | 336.01 | 122.62 | 167.87 | 9.26 | 0.1438 | 2.9034 | 3 | 3 | | M |

Note 1: e assumed. 2: these orbits are probably more meaningful than those on MPC 10816. 3 = 1 + 2. 4: double designations 1982 UA7 = 1982 XR2 (k); 1986 JC = 1986 LD (x), 1986 JD = 1986 LE (x).

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are from JAM 2012. The identifications are by H. Oishi.

1964 VA3 = 1975 VF3 = 1981 UE6 = 1981 UE18
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 53.11805 | (1950.0) | | P | Q |
| n | 0.17269572 | Peri. | 113.91281 | +0.10587602 | +0.99436373 |
| a | 3.1936148 | Node | 162.16216 | -0.91876822 | +0.09996683 |
| e | 0.1605558 | Incl. | 1.04214 | -0.38033567 | +0.03531860 |
| P | 5.71 | H | 11.3 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 641111 | 330 | 2.5+ | 0.1- | 751107 | 095 | 0.2+ | 1.6+ | 811030 | 381 | 1.0- | 0.4+ |
| 641127 | 330 | 1.6+ | 2.4+ | 751109 | 381 | 0.5+ | 1.2- | 811030 | 381 | 1.4- | 0.1- |
| 641203 | 330 | 3.8- | 3.8- | 751109 | 381(18.4- | | 2.0-) | | | | |
| 751102 | 095 | 0.2- | 1.5- | 811024 | 095 | 1.8+ | 2.1+ | | | | |

1976 SE1 = 1976 QD1 = 1982 JJ3
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 312.97567 | (1950.0) | | P | Q |
| n | 0.29374402 | Peri. | 182.34839 | +0.98742126 | -0.15797930 |
| a | 2.2412530 | Node | 186.75155 | +0.14593913 | +0.92637341 |
| e | 0.0963876 | Incl. | 3.15222 | +0.06083603 | +0.34186964 |
| P | 3.36 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 760826 | 095 | 0.2- | 0.1+ | 760929 | 095 | 0.3+ | 0.2- | 820518 | 675 | 0.8+ | 1.1+ |
| 760924 | 095 | 1.0- | 1.4+ | 820515 | 675 | 0.0 | 0.1- | 850324 | 688 | 2.5+ | 1.9- |
| 760925 | 095( 2.9- | 21.3-) | | 820516 | 675 | 1.0- | 0.6- | 850326 | 801 | 2.2- | 1.9+ |
| 760928 | 095 | 1.4+ | 0.9- | 820516 | 675 | 1.0- | 0.2+ | 850422 | 801 | 0.3- | 0.0 |
| 760928 | 095 | 0.5- | 0.5- | 820517 | 675 | 1.2+ | 0.7- | | | | |

* * * * *

ORBITAL ELEMENTS BY T. KOBAYASHI, TOKYO.

The identifications are by T. Kobayashi unless otherwise stated.

(3469)* 1982 UL7 = A918 PD = 1929 TZ = 1940 WK = 1945 UD = 1952 BL2
= 1955 SO = 1959 JC = 1961 VH = 1970 NC = 1971 TL
= 1980 JB1 = 1985 GT1

Discovered 1982 Oct. 21 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 9.60879 | (1950.0) | | P | Q |
| n | 0.18768324 | Peri. | 69.27446 | +0.30972200 | +0.94542310 |
| a | 3.0212434 | Node | 219.22820 | -0.92101013 | +0.27185154 |
| e | 0.0782557 | Incl. | 9.21093 | -0.23624697 | +0.17964385 |
| P | 5.25 | H | 11.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180811 | 024 | 0.9- | 1.1- | 550917 | 760 | 2.1+ | 0.2+ | 800510 | 017 | 0.5- | 1.6+ |
| 291010 | 690(34.1+ | 56.3-)X | | 551010 | 760 | 0.8- | 0.5- | 800511 | 017 | 0.3- | 2.7+ |
| 401129 | 062 | 0.3- | 3.2+ | 551010 | 760 | 3.1- | 3.3+ | 800511 | 017 | 0.4- | 2.9+ |
| 401129 | 062 | 0.9+ | 1.6+ | 590513 | 024 | 0.4+ | 3.0+ | 821021 | 095 | 0.5- | 2.5+ |
| 401204 | 062 | 0.2- | 0.3- | 611104 | 760(77.7- | | 21.7+)X | 821023 | 095 | 1.8- | 0.8- |
| 451030 | 012 | 2.2+ | 2.4+ | 700704 | 095 | 1.2+ | 0.8- | 821112 | 095 | 0.0 | 0.5- |
| 451107 | 012 | 2.2- | 3.3+ | 711010 | 095 | 0.1+ | 0.8+ | 850415 | 675 | 1.7+ | 2.7- |
| 520122 | 711(13.0- | 43.7+)Y | | 711021 | 095 | 0.9+ | 3.1- | | | | |
| 550917 | 760 | 1.8+ | 1.1- | 800509 | 017 | 0.6- | 2.3+ | | | | |

1966 PK = 1982 SB4
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 265.72559 | (1950) | P | Q | |
| n | 0.19121639 | Peri. | 299.47733 | +0.98653433 | -0.15957744 |
| a | 2.9839117 | Node | 69.72462 | +0.16015074 | +0.89803383 |
| e | 0.2164418 | Incl. | 2.19013 | +0.03319277 | +0.40996376 |
| P | 5.15 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 660807 074 | 1.6- | 1.7+ | 660809 074 | 1.4+ | 0.2+ | 660816 074 | 3.6- | 2.2- |
| 660807 074 | 2.3- | 1.0+ | 660810 074 | 1.6+ | 0.2+ | 820917 095 | 0.2- | 0.2- |
| 660808 074 | 1.1+ | 0.4+ | 660812 074 | 3.3+ | 0.3- | 820920 095 | 0.7+ | 0.6+ |
| 660808 074 | 1.8- | 0.8- | 660812 074 | 1.8+ | 0.4- | 820926 095 | 0.4- | 0.4- |

1971 UK = 1982 US10
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 44.87342 | (1950) | P | Q | |
| n | 0.27003669 | Peri. | 116.20651 | +0.92667491 | +0.37062121 |
| a | 2.3705777 | Node | 222.11919 | -0.36947312 | +0.86765182 |
| e | 0.1686348 | Incl. | 5.35213 | -0.06901614 | +0.33139137 |
| P | 3.65 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 711016 029 | 0.3- | 1.4+ | 711110 029 | 1.2+ | 0.1+ | 821109 095 | 0.5+ | 2.0+ |
| 711026 029 | 0.2- | 1.0- | 711110 029 | 0.6- | 0.0 | 821114 095 | 0.4- | 1.7- |
| 711026 029 | 0.1+ | 0.8- | 711119 029 | 0.3- | 1.0+ | | | |
| 711030 029 | 0.1+ | 0.2- | 821025 095 | 0.0 | 0.7- | | | |

1980 DO5 = 1980 FC = 1980 FG10 = 1973 YR = 1977 SR3 = 1982 TJ2
The double designations 1980 DO5 = 1980 FC and 1980 DO5 = 1980 FG10 are by B. G. Marsden (MPC 9203) and by N. S. Chernykh (MPC 9203), respectively.
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 15.31215 | (1950) | P | Q | |
| n | 0.21497194 | Peri. | 298.82179 | +0.55030450 | +0.83491252 |
| a | 2.7598249 | Node | 4.59849 | -0.72002778 | +0.48014852 |
| e | 0.1122530 | Incl. | 6.64410 | -0.42275875 | +0.26903250 |
| P | 4.58 | H | 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 731220 095 | 0.1- | 0.5+ | 800316 095 | 0.2- | 1.5- | 800317 046 | 0.9+ | 0.6- |
| 770919 095 | 0.5+ | 1.5- | 800316 046 | 2.6- | 0.3+ | 821014 095 | 1.5- | 1.0+ |
| 771008 095 | 1.7+ | 2.3- | 800316 046 | 1.7- | 0.7- | 821020 095 | 1.4+ | 0.9- |
| 800221 095 | 2.5+ | 0.3+ | 800317 046 | 0.8- | 1.5- | 821025 095 | 0.1- | 0.1+ |

1982 JE1 = 1976 WN = 1983 WA1
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 319.33870 | (1950) | P | Q | |
| n | 0.29035796 | Peri. | 290.94187 | +0.99445757 | -0.05837361 |
| a | 2.2586394 | Node | 72.48702 | +0.09003168 | +0.90233876 |
| e | 0.1830957 | Incl. | 5.26115 | -0.05429958 | +0.42705653 |
| P | 3.39 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 761118 381 | 0.3- | 0.2- | 820518 675 | 0.9- | 1.4+ | 831204 046 | 1.1- | 0.1+ |
| 761118 381 | 0.4+ | 0.1+ | 831129 688 | 2.0+ | 0.5+ | 831205 046 | (7.6- | 1.0-) |
| 820515 675 | 0.9+ | 1.3- | 831129 688 | 1.8+ | 0.4- | 831205 046 | (7.5- | 1.0+) |
| 820516 675 | 0.5- | 0.9- | 831201 688 | 0.9- | 0.4+ | 831208 046 | 2.1- | 1.3- |
| 820516 675 | 1.0+ | 0.3+ | 831201 688 | 0.2+ | 1.4- | 831208 046 | 1.8+ | 0.3+ |
| 820517 675 | 0.5- | 0.1+ | 831204 046 | 1.5- | 1.6+ | | | |

1982 TG1 = 1969 UL2
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 292.51175 | (1950) | P | Q | |
| n 0.22670302 | Peri. 191.22066 | +0.68614734 | -0.71604374 | |
| a 2.6637769 | Node 215.67233 | +0.68328830 | +0.69492881 | |
| e 0.1684402 | Incl. 12.71851 | +0.24963760 | +0.06599478 | |
| P 4.35 | H 13.0 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 691018 095 | 0.1+ | 0.4+ | 821014 095 | 1.0+ | 0.3- | 821024 095 | 0.0 | 0.6- |
| 691105 095 | 0.1- | 0.2- | 821020 095 | 1.0- | 0.7+ | | | |

1982 UR7 = 1943 GN = 1950 TR2 = 1958 DR = 1969 FJ = 1972 XK2
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 355.50995 | (1950.0) | P | Q | |
| n 0.18756231 | Peri. 202.16403 | +0.54522380 | +0.81708672 | |
| a 3.0225419 | Node 101.34301 | -0.73754735 | +0.57379265 | |
| e 0.0629062 | Incl. 11.01600 | -0.39844060 | +0.05595785 | |
| P 5.25 | H 11.0 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 430406 062 | 1.1- | 0.3+ | 501011 760 | 2.4+ | 1.1+ | 821021 095 | 1.7- | 3.0+ |
| 430406 062 | 2.1- | 0.4- | 580223 760 | (2.5+ | 11.7-)X | 821022 095 | 0.8- | 0.2- |
| 430408 062 | 2.4- | 4.1+ | 690324 095 | 5.5+ | 3.4- | 821025 095 | 2.1- | 0.2+ |
| 501011 760 | 3.0+ | 1.0- | 721202 095 | 2.6+ | 1.8- | 821111 095 | 3.6- | 1.2- |

* * * * *

ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

(3470)* 1975 ES = 1954 LD = 1968 DY = 1968 FA1 = 1972 LH1 = 1973 UX4 = 1979 KN1

Discovered 1975 Mar. 6 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identification 1975 ES = 1968 DY was also suggested by E. Bowell (MPC 9473). The double designation 1968 DY = 1968 FA1 was found by T. Furuta (MPC 9473).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 23.15843 | (1950.0) | P | Q | |
| n 0.27429113 | Peri. 311.23327 | -0.98921805 | +0.14162276 | |
| a 2.3460011 | Node 236.94016 | -0.11749091 | -0.91946013 | |
| e 0.1448093 | Incl. 2.55021 | -0.08742726 | -0.36679158 | |
| P 3.59 | H 13.5 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 540607 760 | 1.2+ | 1.8- | 731026 095 | (5.2+ | 8.3+) | 860409 688 | 1.1+ | 0.0 |
| 540607 760 | 1.0+ | 0.7- | 750306 095 | 1.3- | 1.5- | 860409 688 | 0.8+ | 0.5- |
| 680228 095 | 1.0+ | 0.9+ | 750308 095 | 0.4- | 1.3- | 860414 801 | 0.4+ | 1.4- |
| 680303 095 | 1.0- | 2.5+ | 750312 095 | 0.0 | 0.3- | 860512 801 | 0.8+ | 0.5- |
| 680330 095 | 0.5+ | 1.7+ | 790517 323 | (7.4- | 0.4+) | | | |
| 720615 095 | 0.6- | 2.0+ | 790518 323 | 3.5- | 0.2- | | | |

(3471)* 1977 QK2 = 1974 DN = 1980 DN2 = 1980 EU

Discovered 1977 Aug. 21 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 40.64176 | (1950.0) | P | Q | |
| n 0.17292526 | Peri. 172.63437 | -0.84398187 | -0.52432704 | |
| a 3.1907817 | Node 334.72067 | +0.47760012 | -0.63872029 | |
| e 0.0600910 | Incl. 15.34838 | +0.24411621 | -0.56313191 | |
| P 5.70 | H 11.5 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 740216 | 095 | 0.4+ | 1.5+ | 800220 | 095 | 2.1- | 0.9- | 860306 | 688 | 0.6+ | 0.0 |
| 770821 | 095 | 1.2- | 0.8+ | 800315 | 095 | 1.4+ | 1.0- | 860405 | 801 | 1.9+ | 0.5+ |
| 770823 | 095 | 0.9- | 1.2+ | 860213 | 801 | 1.2- | 2.3+ | | | | |
| 770909 | 095 | 0.9+ | 0.3- | 860306 | 688 | 0.1+ | 0.4- | | | | |

(3472)* 1981 EJ10 = 1974 SS2

Discovered 1981 Mar. 1 by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey. The identification was found in collaboration with K. Hurukawa (JAM 1326) and also independently by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 205.07598 | (1950.0) | | P | Q |
| n | 0.21914157 | Peri. | 140.89482 | +0.91398111 | -0.39974311 |
| a | 2.7247053 | Node | 242.79966 | +0.34985349 | +0.86326089 |
| e | 0.1769492 | Incl. | 4.48811 | +0.20552630 | +0.30819813 |
| P | 4.50 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 740920 | 095 | 2.7+ | 1.6- | 810307 | 413 | 0.1- | 0.2+ | 810412 | 413 | 0.6- | 1.4- |
| 740922 | 095 | 1.4- | 2.0- | 810307 | 413 | 1.1+ | 0.2+ | 810502 | 413 | 0.0 | 1.6- |
| 770424 | 675 | 1.2- | 0.4+ | 810311 | 413 | 0.4- | 0.5+ | 810503 | 413 | 2.3+ | 2.6- |
| 770425 | 675 | 0.8+ | 1.9+ | 810311 | 413 | 0.5+ | 0.7- | 830903 | 801 | 0.5- | 0.7+ |
| 810202 | 413 | 2.4- | 0.5+ | 810315 | 413 | 0.3- | 0.3+ | 831009 | 801 | 0.8- | 1.0+ |
| 810212 | 413 | 0.6+ | 0.0 | 810315 | 413 | 1.5+ | 1.1+ | 831105 | 801 | 0.7- | 0.8+ |
| 810214 | 413 | 0.3- | 0.6- | 810405 | 413 | 1.0- | 0.8- | 831209 | 801 | 1.6+ | 0.3+ |
| 810301 | 413 | 1.0- | 1.7+ | 810406 | 413 | 0.2- | 0.2+ | 850221 | 801 | 0.8- | 1.1+ |
| 810301 | 413 | 1.4+ | 0.1+ | 810412 | 413 | 0.8- | 2.0- | | | | |

1976 EC = 1977 KR1 = 1986 CV

The identification 1976 EC = 1977 KR1 is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 25.32773 | (1950.0) | | P | Q |
| n | 0.19821429 | Peri. | 326.90487 | -0.83572420 | -0.54914939 |
| a | 2.9132669 | Node | 179.78635 | +0.51037998 | -0.77680148 |
| e | 0.0718648 | Incl. | 1.79763 | +0.20267544 | -0.30824408 |
| P | 4.97 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 760307 | 801 | 0.2+ | 2.4+ | 760330 | 801 | 0.1- | 0.6+ | 770519 | 675 | 0.3+ | 0.4- |
| 760308 | 801 | 1.3+ | 1.3+ | 760501 | 801 | 0.3+ | 1.9+ | 860215 | 046 | 1.9- | 2.6- |
| 760309 | 801 | 0.4+ | 1.4+ | 770518 | 675 | 0.4- | 0.1+ | 860215 | 046 | 0.3- | 4.0- |

1977 JD = 1978 TU2 = 1980 BE1 = 1980 DZ1

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

| | | | | | |
|---|---|---|---|---|---|
| M | 168.49580 | (1950.0) | | P | Q |
| n | 0.28193099 | Peri. | 231.25027 | +0.06602850 | +0.99459433 |
| a | 2.3034301 | Node | 42.74826 | -0.87489324 | +0.09632605 |
| e | 0.1031130 | Incl. | 6.78041 | -0.47979376 | -0.03877382 |
| P | 3.50 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.1+ | 0.4+ | 781003 | 095 | 0.4+ | 0.1- | 800220 | 095 | 0.1+ | 1.0- |
| 770425 | 675 | 0.5- | 0.1+ | 781007 | 095 | 0.2- | 0.2- | | | | |
| 770515 | 095 | 0.3+ | 0.7- | 800123 | 095 | 0.1- | 0.9+ | | | | |

1978 VL7 = 1981 UG15 = 1986 CR1

The identifications are by B. G. Marsden.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 319.22961 | | (1950.0) | P | Q |
| n | 0.30797716 | Peri. | 5.10587 | -0.49415259 | +0.86881285 |
| a | 2.1716570 | Node | 235.28374 | -0.79893770 | -0.46800213 |
| e | 0.0737897 | Incl. | 2.17978 | -0.34279989 | -0.16167326 |
| P | 3.20 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 781105 | 675 | 1.3- | 0.6+ | 860207 | 809 | 1.2- | 0.5- | 860214 | 809 | 0.0 | 0.0 |
| 781106 | 675 | 0.1- | 0.6- | 860207 | 809 | 0.9- | 0.6- | 860214 | 809 | 0.1+ | 0.1- |
| 781107 | 675 | 0.1- | 1.1+ | 860207 | 809 | 0.3- | 0.6- | 860214 | 809 | 0.1- | 0.4+ |
| 781108 | 675 | 0.8- | 0.2+ | 860210 | 809 | 0.3- | 0.2- | 860214 | 809 | 0.1+ | 0.4+ |
| 781129 | 675 | 0.3- | 0.3- | 860210 | 809 | 0.2+ | 0.4- | 860214 | 809 | 0.2+ | 0.4+ |
| 781130 | 675 | 2.3+ | 0.8+ | 860210 | 809 | 0.4+ | 0.5- | 860215 | 809 | 0.3- | 0.4+ |
| 811023 | 095 | 0.5+ | 1.6- | 860212 | 809 | 0.2- | 0.3- | 860215 | 809 | 0.0 | 0.5+ |
| 860205 | 809 | 0.6+ | 0.1- | 860212 | 809 | 0.0 | 0.5- | 860215 | 809 | 0.0 | 0.6+ |
| 860205 | 809 | 0.8+ | 0.1- | 860212 | 809 | 0.1+ | 0.6- | 860217 | 809 | 0.7- | 0.3+ |
| 860205 | 809 | 0.8+ | 0.0 | 860213 | 809 | 0.5- | 0.2+ | 860217 | 809 | 0.5- | 0.4+ |
| 860206 | 809 | 0.3+ | 0.1- | 860213 | 809 | 0.0 | 0.1+ | 860217 | 809 | 0.3- | 0.3+ |
| 860206 | 809 | 0.7+ | 0.1- | 860213 | 809 | 0.1+ | 0.2+ | | | | |
| 860206 | 809 | 1.1+ | 0.1- | 860214 | 809 | 0.2- | 0.1- | | | | |

1979 SA10 = 1985 RM

The identification was found independently by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 336.76741 | | (1950.0) | P | Q |
| n | 0.15739961 | Peri. | 253.84606 | +0.11756157 | -0.99292152 |
| a | 3.3973045 | Node | 189.45096 | +0.94591091 | +0.11714958 |
| e | 0.1848451 | Incl. | 5.91285 | +0.30237697 | +0.01956613 |
| P | 6.26 | H | 11.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 790922 | 095 | 1.7+ | 1.7+ | 850815 | 688 | 0.0 | 1.1+ | 850918 | 688 | 1.4+ | 1.9+ |
| 790928 | 095 | 0.9- | 0.8- | 850815 | 688 | 1.2- | 1.7- | 850918 | 688 | 0.4+ | 0.6- |
| 791016 | 095 | 0.4- | 0.6- | 850914 | 688 | 0.1+ | 0.3+ 4 | | | | |
| 791111 | 095 | 0.4- | 0.1- | 850914 | 688 | 0.8- | 1.1- | | | | |

1979 SG10 = 1979 US3 = 1979 VL = 1977 KS1

The identification 1979 SG10 = 1977 KS1 is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 0.14775 | | (1950.0) | P | Q |
| n | 0.15609688 | Peri. | 130.35018 | +0.73315873 | -0.67978168 |
| a | 3.4161801 | Node | 272.48590 | +0.61788407 | +0.67775731 |
| e | 0.0466387 | Incl. | 1.11085 | +0.28407314 | +0.28025328 |
| P | 6.31 | H | 11.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770518 | 675 | 0.8+ | 0.6+ | 790928 | 095 | 0.7+ | 1.0- | 791111 | 095 | 0.7+ | 0.3+ |
| 770519 | 675 | 0.7- | 0.6- | 791016 | 095 | 1.2- | 1.4+ | 791116 | 095 | 0.2- | 0.7- |

1979 TZ1 = 1979 UV1 = 1979 WT7 = 1972 HO1 = 1977 HK

The identification 1979 TZ1 = 1977 HK is by E. Bowell. The triple designation 1979 TZ1 = 1979 UV1 = 1979 WT7 is by H. Oishi (JAM 1790). The double designation 1979 TZ1 = 1979 UV1 was also suggested by W. Landgraf.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 354.02958 | | (1950.0) | P | Q |
| n | 0.19968381 | Peri. | 181.08773 | -0.94782562 | -0.31870455 |
| a | 2.8989564 | Node | 340.32283 | +0.29263362 | -0.86068489 |
| e | 0.0221137 | Incl. | 1.25042 | +0.12646008 | -0.39705028 |
| P | 4.94 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 720419 805 | 0.7- | 0.1- | 770425 675 | 0.6+ | 0.2- | 791023 010 | 0.5+ | 1.4+ |
| 720419 805 | 0.4+ | 0.5- | 791014 095 | 0.8- | 1.6- | 791122 095 | 0.4- | 0.1+ |
| 770424 675 | 0.3- | 0.8+ | 791019 010 | 0.7+ | 0.1+ | | | |

1979 UY3 = 1979 SK10 = 1966 BN = 1969 TH1 = 1978 NX4 = 1982 HF2
= 1986 AU1

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

| | | | | | |
|---|---|---|---|---|---|
| M 346.30581 | | (1950.0) | | P | Q |
| n 0.19649536 | Peri. | 142.32276 | | -0.93907394 | -0.34356097 |
| a 2.9302323 | Node | 17.59173 | | +0.30647407 | -0.85051088 |
| e 0.0577010 | Incl. | 1.95207 | | +0.15560777 | -0.39824252 |
| P 5.02 | H | 12.0 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 660120 330 | 1.3- | 1.7+ | 780711 675 | 2.6- | 0.7+ | 791116 095 | 0.7+ | 0.2- |
| 691008 095 | 0.3- | 1.8+ | 780713 675 | (13.3- | 2.2-) | 820427 046 | 0.7- | 0.3+ |
| 691104 095 | 1.1- | 1.8+ | 790928 095 | 1.0- | 1.1- | 820427 046 | 2.6+ | 1.3- |
| 691113 095 | 4.4+ | 2.0- | 791016 095 | 1.3- | 1.9+ | 860112 688 | 0.6- | 0.3+ |
| 780710 675 | (9.5+ | 3.0-) | 791111 095 | 1.3+ | 1.4- | | | |

1980 RU2 = 1954 UH = 1967 RE1

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

| | | | | | |
|---|---|---|---|---|---|
| M 144.31691 | | (1950.0) | | P | Q |
| n 0.22819250 | Peri. | 336.42332 | | +0.83909186 | +0.54262716 |
| a 2.6521780 | Node | 350.43131 | | -0.45495626 | +0.66122359 |
| e 0.1731507 | Incl. | 13.38422 | | -0.29822753 | +0.51801460 |
| P 4.32 | H | 12.0 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 541021 760 | (67.1- | 4.5+)X | 671003 095 | 0.4- | 1.0- | 801008 095 | 0.8+ | 1.0- |
| 670912 095 | 0.1- | 1.6+ | 800908 095 | 0.7+ | 1.0- | 801012 095 | 1.2- | 1.4+ |

1981 UC10 = 1955 QH1 = 1977 RQ8

The identification 1981 UC10 = 1977 RQ8 is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M 113.93587 | | (1950.0) | | P | Q |
| n 0.26921455 | Peri. | 25.16505 | | +0.91395636 | -0.40581184 |
| a 2.3754062 | Node | 358.77626 | | +0.36631060 | +0.82576131 |
| e 0.1677590 | Incl. | 1.95093 | | +0.17464342 | +0.39170781 |
| P 3.66 | H | 13.5 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 550825 760 | 0.4- | 0.8- | 770909 675 | 0.3- | 0.9+ | 811127 330 | 1.0+ | 0.2+ |
| 550825 760 | 1.1+ | 0.8- | 811024 095 | 1.3+ | 0.2+ | 811201 330 | 0.2- | 0.3- |
| 770908 675 | 0.4- | 0.8+ | 811029 330 | 2.1- | 0.3- | | | |

1981 WG9 = 1981 UM15 = 1977 RH8

The identification 1981 WG9 = 1977 RH8 is by E. Bowell. The double designation 1981 WG9 = 1981 UM15 is by K. Hurukawa (MPC 10513).

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

| | | | | | |
|---|---|---|---|---|---|
| M 115.14820 | | (1950.0) | | P | Q |
| n 0.26823956 | Peri. | 220.92161 | | +0.97125749 | -0.23690647 |
| a 2.3811588 | Node | 152.75640 | | +0.22941938 | +0.90581169 |
| e 0.1359594 | Incl. | 2.89409 | | +0.06344787 | +0.35125562 |
| P 3.67 | H | 13.5 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770908 675 | 0.4+ | 0.0 | 811027 095 | 1.0+ | 3.5+ | 811123 323 | 0.7+ | 0.7- |
| 770909 675 | 0.5- | 0.1+ | 811116 323 | 0.2- | 0.7- | 811201 323 | 0.3- | 1.0+ |
| 811023 095 | 0.6- | 3.1- | 811117 323 | 0.6- | 0.0 | | | |

1982 TW = 1978 SH4 = 1980 BX4
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 13.36707 | (1950.0) | P | Q |
| n | 0.25858733 | Peri. 265.88563 | +0.95474156 | +0.29181708 |
| a | 2.4400502 | Node 77.14030 | -0.24405627 | +0.87918111 |
| e | 0.1837604 | Incl. 3.38383 | -0.17001495 | +0.37667410 |
| P | 3.81 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 780928 | 095 | 0.5- | 1.3+ | 821013 | 688 | 0.6+ | 0.4- | 821020 | 323 | 0.5+ | 1.1+ |
| 800122 | 095 | 0.1+ | 0.9+ | 821013 | 688 | 0.2- | 1.2- | 821021 | 688 | 0.4- | 0.1+ |
| 820915 | 688 | 1.1- | 0.2- | 821015 | 323 | 0.8+ | 1.6+ | 821021 | 688 | 1.6+ | 0.3- |
| 820915 | 688 | 1.2- | 0.6- | 821017 | 688 | 0.4- | 1.0- | | | | |

1982 VD5 = 1977 HW
The identification is by S. J. Bus.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 358.66115 | (1950.0) | P | Q |
| n | 0.28622153 | Peri. 209.44709 | +0.23067698 | -0.97217000 |
| a | 2.2803528 | Node 227.24899 | +0.90323792 | +0.22957795 |
| e | 0.1508813 | Incl. 3.19372 | +0.36186929 | +0.04668461 |
| P | 3.44 | H 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.2+ | 0.5- | 821114 | 381 | 0.5- | 0.7- | 821214 | 381 | 0.6+ | 0.1+ |
| 770425 | 675 | 0.2- | 0.5+ | 821114 | 381 | 0.3- | 0.4- | 821214 | 381 | 0.8- | 0.2+ |
| 821112 | 095 | 0.8+ | 1.0+ | 821213 | 381 | 0.2+ | 0.2- | | | | |

1984 DH1 = 1969 OA = 1969 PR
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 110.64930 | (1950.0) | P | Q |
| n | 0.17115652 | Peri. 251.56432 | -0.84862912 | -0.38357192 |
| a | 3.2127329 | Node 264.51896 | +0.50430385 | -0.79453756 |
| e | 0.1370709 | Incl. 21.46636 | -0.15970672 | -0.47072565 |
| P | 5.76 | H 10.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 690716 | 095 | 0.0 | 0.4+ | 840220 | 323 | 0.6+ | 0.3+ | 840329 | 323 | 0.1+ | 1.2+ |
| 690813 | 095 | 0.4- | 0.3+ | 840306 | 323 | 1.9- | 0.4- | 840405 | 323 | 1.8+ | 0.2- |

1985 PG1 = A923 VC = 1980 TC9
The identifications were found independently by L. D. Schmadel.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 37.67118 | (1950.0) | P | Q |
| n | 0.18980072 | Peri. 183.43886 | +0.96848449 | -0.24688820 |
| a | 2.9987368 | Node 191.02321 | +0.23242259 | +0.94332855 |
| e | 0.1029625 | Incl. 9.91529 | +0.08954066 | +0.22175990 |
| P | 5.19 | H 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231107 | 754 | 3.9- | 3.7+ | Y | 850815 | 688 | 0.0 | 0.2+ | 850918 | 688 | 1.1+ | 0.5+ |
| 231109 | 754 | 3.8+ | 2.9- | Y | 850914 | 688 | 1.3+ | 0.3- | 851012 | 688 | 3.2- | 1.7- |
| 801013 | 095 | 0.3+ | 1.1- | | 850914 | 688 | 0.1+ | 0.4- | 851012 | 688 | 0.6+ | 0.9+ |
| 850815 | 688 | 1.3+ | 0.3+ | | 850918 | 688 | 1.4- | 1.0+ | | | | |

1985 RL = 1975 RK2 = 1980 RL3 = 1981 WW6
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 80.99674 | (1950.0) | P | Q |
| n | 0.20289898 | Peri. 181.62701 | +0.81850227 | +0.57379345 |
| a | 2.8682500 | Node 143.31007 | -0.52652927 | +0.76910666 |
| e | 0.0648121 | Incl. 2.73886 | -0.22982812 | +0.28148895 |
| P | 4.86 | H 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 750904 | 808 | 1.4+ | 1.6- | 850914 | 688 | 1.5+ | 0.8+ | 850918 | 688 | 0.2- | 2.2+ |
| 750904 | 808 | 0.9+ | 2.3- | 850914 | 688 | 0.2+ | 0.3- | 850919 | 809 | 0.7- | 0.3+ |
| 750909 | 808 | 0.1+ | 1.0- | 850917 | 809 | 0.9- | 0.4+ | 850919 | 809 | 0.7- | 0.1+ |
| 750909 | 808 | 1.2- | 1.2- | 850917 | 809 | 0.7- | 0.4+ | 850919 | 809 | 0.8- | 0.1+ |
| 800904 | 095 | 1.3+ | 0.9- | 850917 | 809 | 0.7- | 0.4+ | 850922 | 809 | 0.2- | 0.2+ |
| 811124 | 095 | 0.3+ | 3.3- | 850918 | 688 | 0.3+ | 1.7+ | 850922 | 809 | 0.1- | 0.3+ |

1985 RR = 1953 VL2 = 1977 HO = 1978 TR8

The identifications 1985 RR = 1953 VL2 = 1978 TR8 were independently suggested by L. D. Schmadel. The identification 1985 RR = 1977 HO is by S. J. Bus.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 79.04041 | | (1950.0) | P | Q |
| n | 0.27545379 | Peri. | 264.29755 | +0.98834972 | +0.14996248 |
| a | 2.3393996 | Node | 87.07575 | -0.12728843 | +0.90808848 |
| e | 0.2440845 | Incl. | 1.49189 | -0.08344148 | +0.39100712 |
| P | 3.58 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 531109 | 024 | 0.2+ | 0.9- | 850822 | 688 | 0.5+ | 0.3- | 850918 | 688 | 0.4+ | 0.3+ |
| 770424 | 675 | 0.9+ | 0.8+ | 850822 | 688 | 0.0 | 0.8- | 850918 | 688 | 0.3- | 0.2+ |
| 770425 | 675 | 0.2- | 1.1+ | 850914 | 688 | 1.1+ | 0.5+ | 851012 | 688 | 1.6- | 0.3+ |
| 781009 | 095 | 0.4- | 1.9+ | 850914 | 688 | 0.3- | 0.3- | 851012 | 688 | 0.1- | 0.2+ |

1986 CP1 = 1977 AE2 = 1978 NL1

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

| | | | | | |
|---|---|---|---|---|---|
| M | 19.67118 | | (1950.0) | P | Q |
| n | 0.22686126 | Peri. | 129.56789 | -0.96446217 | -0.26095710 |
| a | 2.6625434 | Node | 35.36131 | +0.21512528 | -0.86652945 |
| e | 0.1236829 | Incl. | 4.10239 | +0.15340739 | -0.42547397 |
| P | 4.34 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770113 | 095 | 0.7- | 0.8+ | 860207 | 809 | 0.4- | 0.6+ | 860212 | 809 | 1.2+ | 0.0 |
| 770120 | 095 | 0.7+ | 1.1- | 860207 | 809 | 0.2- | 0.6+ | 860212 | 809 | 1.1+ | 0.0 |
| 780709 | 809 | 0.5- | 0.0 | 860208 | 809 | 0.8- | 0.6+ | 860213 | 809 | 0.6+ | 0.5- |
| 780710 | 809 | 0.5- | 0.2- | 860208 | 809 | 0.5- | 0.7+ | 860213 | 809 | 0.7+ | 0.5- |
| 780711 | 809 | 0.9+ | 0.0 | 860208 | 809 | 0.1- | 0.6+ | 860213 | 809 | 0.8+ | 0.4- |
| 860204 | 809 | 0.9- | 0.5+ | 860209 | 809 | 0.2- | 0.5+ | 860214 | 809 | 0.2+ | 1.9- |
| 860204 | 809 | 0.5- | 0.5+ | 860209 | 809 | 0.3- | 0.4+ | 860214 | 809 | 0.5+ | 2.0- |
| 860204 | 809 | 0.4- | 0.5+ | 860209 | 809 | 0.0 | 0.3+ | 860215 | 809 | 0.1+ | 1.9- |
| 860205 | 809 | 1.8- | 1.1- | 860210 | 809 | 0.1- | 0.7+ | 860215 | 809 | 0.5+ | 1.9- |
| 860205 | 809 | 1.6- | 1.1- | 860210 | 809 | 0.3+ | 0.6+ | 860215 | 809 | 0.6+ | 1.8- |
| 860205 | 809 | 1.4- | 0.9- | 860210 | 809 | 0.4+ | 0.7+ | 860217 | 809 | 0.5+ | 1.3+ |
| 860206 | 809 | 0.9- | 0.2+ | 860211 | 809 | 0.7+ | 0.5+ | 860217 | 809 | 0.6+ | 1.3+ |
| 860206 | 809 | 0.8- | 0.2+ | 860211 | 809 | 0.8+ | 0.4+ | 860217 | 809 | 0.9+ | 1.2+ |
| 860206 | 809 | 0.6- | 0.3+ | 860211 | 809 | 1.0+ | 0.4+ | | | | |
| 860207 | 809 | 0.7- | 0.7+ | 860212 | 809 | 0.5+ | 0.0 | | | | |

1986 JG = 1974 WO = 1976 GH4 = 1977 TR7 = 1982 AM

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

| | | | | | |
|---|---|---|---|---|---|
| M | 336.32879 | | (1950.0) | P | Q |
| n | 0.30506355 | Peri. | 320.71987 | +0.12284237 | +0.99233072 |
| a | 2.1854625 | Node | 316.33129 | -0.90539283 | +0.10637831 |
| e | 0.1315271 | Incl. | 1.14233 | -0.40641552 | +0.06295552 |
| P | 3.23 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 741118 | 095 | 2.2+ | 0.9+ | 820116 | 046 | 3.0- | 1.9+ | 860502 | 675 | 1.4+ | 0.2- |
| 760402 | 095 | 2.7- | 4.6- | 820116 | 046 | 0.3- | 0.1+ | 860503 | 675 | 0.2- | 1.5+ |
| 771010 | 095 | 1.6- | 0.7- | 820118 | 046 | 0.2+ | 0.7+ | 860608 | 675 | 1.3+ | 1.2+ |
| 820115 | 046 | 3.4+ | 0.1+ | 820118 | 046 | 0.2- | 1.1+ | 860609 | 675 | 0.3+ | 0.6+ |
| 820115 | 046 | 0.2+ | 1.2+ | 860502 | 675 | 0.0 | 1.6+ | 860609 | 675 | 0.9- | 0.0 |

1986 JN1 = 1986 LF = 1983 EA1

The double designation 1986 JN1 = 1986 LF is by B. G. Marsden.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 57.17695 | | (1950.0) | P | Q |
| n | 0.36327385 | Peri. | 107.78039 | -0.91973212 | +0.04195880 |
| a | 1.9452703 | Node | 76.06013 | -0.23157836 | -0.86081854 |
| e | 0.0600568 | Incl. | 23.71210 | +0.31696103 | -0.50717936 |
| P | 2.71 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 830313 | 675 | 0.0 | 0.5- | 860505 | 675 | 1.8- | 0.6- | 860608 | 675 | 2.4- | 1.5+ |
| 830313 | 675 | 0.7- | 0.1- | 860508 | 675 | 0.4- | 1.3+ | 860608 | 675 | 4.9- | 1.5+ |
| 830315 | 675 | 0.1+ | 0.1- | 860603 | 675 | 5.7+ | 1.7- | | | | |
| 830315 | 675 | 0.7+ | 0.9+ | 860603 | 675 | 3.5+ | 2.0- | | | | |

* * * * *

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

The identifications are by B. G. Marsden unless otherwise stated.

Periodic Comet Hartley 2 (1986c)

T 1985 June 5.13065 ET

| | | | | | |
|---|---|---|---|---|---|
| q | 0.9509855 | | (1950.0) | P | Q |
| n | 0.15718636 | Peri. | 174.86506 | +0.75399858 | -0.64656308 |
| a | 3.4003697 | Node | 226.12368 | +0.59676987 | +0.74801018 |
| e | 0.7203288 | Incl. | 9.25578 | +0.27450294 | +0.14978967 |
| P | 6.27 | | | | |

From 16 observations 1986 Mar. 15-June 7.

Periodic Comet Machholz (1986e)

T 1986 Apr. 23.51645 ET

| | | | | | |
|---|---|---|---|---|---|
| q | 0.1267740 | | (1950.0) | P | Q |
| n | 0.18789018 | Peri. | 14.52597 | -0.18944542 | -0.46648974 |
| a | 3.0190246 | Node | 93.80639 | +0.79209558 | -0.59260972 |
| e | 0.9580083 | Incl. | 59.98691 | +0.58025428 | +0.65665900 |
| P | 5.25 | | | | |

From 43 observations 1986 May 13-July 12.

Periodic Comet Singer Brewster (1986d)

T 1986 June 8.84191 ET

| | | | | | |
|---|---|---|---|---|---|
| q | 1.9554915 | | (1950.0) | P | Q |
| n | 0.15657397 | Peri. | 45.29522 | -0.53145910 | +0.84633196 |
| a | 3.4092303 | Node | 192.74030 | -0.81570974 | -0.52267972 |
| e | 0.4264126 | Incl. | 9.31225 | -0.22840501 | -0.10260668 |
| P | 6.29 | | | | |

From 33 observations 1986 May 3-July 6.

(3473)* A924 EG = 1935 GO = 1982 DW2

Discovered 1924 Mar. 7 by K. Reinmuth at Heidelberg. The identifications are by S. Nakano (MPC 9305).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 41.56240 | | (1950.0) | | P | | Q | | | | |
| n | 0.27139308 | Peri. | 56.49861 | | -0.99509433 | | +0.09806508 | | | | |
| a | 2.3626726 | Node | 129.12565 | | -0.09542919 | | -0.91667176 | | | | |
| e | 0.1570240 | Incl. | 0.96448 | | -0.02608718 | | -0.38742240 | | | | |
| P | 3.63 | H | 13.5 | G | 0.25 | | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 240308 | 024 | 3.2+ | 4.1+ | 820220 | 704 | 0.3- | 0.3+ | 860510 | 801 | 0.2+ | 0.4+ |
| 240309 | 024 | (6.6+ | 0.8-) | 820221 | 704 | 1.0- | 3.5- | 860513 | 688 | 2.1- | 0.5- |
| 240313 | 024 | 2.7+ | 2.2- | 820222 | 704 | 0.1- | 0.3- | 860513 | 688 | 0.2- | 0.1+ |
| 240327 | 024 | 4.2- | 3.0+ | 860412 | 801 | 0.2+ | 1.5- | 860604 | 801 | 0.2- | 0.0 |
| 240407 | 024 | (14.8- | 5.0+) | 860504 | 688 | 0.4+ | 0.4- | 860605 | 801 | 1.3+ | 0.5+ |
| 350406 | 078 | (25.5+ | 17.6-)X | 860504 | 688 | 0.1- | 1.2- | | | | |

(3474)* 1962 HE = 1962 JC = 1971 TG2 = 1979 QR6 = 1979 SK6 = 1986 CT1

Discovered 1962 Apr. 27 at the Goethe Link Observatory. The double designation 1962 HE = 1962 JC is by O. Kippes (MPC 2324).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 282.05913 | | (1950.0) | | P | | Q | | | | |
| n | 0.24106574 | Peri. | 104.94188 | | +0.07762796 | | +0.99680013 | | | | |
| a | 2.5568920 | Node | 169.45508 | | -0.95004053 | | +0.07975750 | | | | |
| e | 0.2056573 | Incl. | 5.97915 | | -0.30231919 | | +0.00531460 | | | | |
| P | 4.09 | H | 13.0 | G | 0.25 | | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 620427 | 760 | 3.4- | 0.8- | 860206 | 809 | 0.1+ | 0.9+ | 860213 | 809 | 0.0 | 0.5+ |
| 620427 | 760 | 2.2- | 0.2+ | 860209 | 809 | 0.7- | 0.6+ | 860213 | 809 | 0.2+ | 0.4+ |
| 620504 | 760 | 2.3+ | 2.4- | 860209 | 809 | 0.4- | 0.5+ | 860213 | 809 | 0.3+ | 0.4+ |
| 620504 | 760 | 3.1+ | 1.5- | 860209 | 809 | 0.3- | 0.5+ | 860214 | 809 | 0.7- | 0.3+ |
| 620507 | 760 | 1.1- | 0.3+ | 860210 | 809 | 0.9- | 0.8- | 860214 | 809 | 0.6- | 0.0 |
| 620507 | 760 | 0.5- | 0.1- | 860210 | 809 | 0.6- | 0.6- | 860215 | 809 | 1.1+ | 2.1- |
| 711013 | 095 | 1.2+ | 0.2- | 860210 | 809 | 0.7- | 0.3- | 860215 | 809 | 1.0+ | 2.0- |
| 711014 | 095 | 0.5+ | 1.9- | 860211 | 809 | 0.1- | 1.0+ | 860216 | 809 | 0.1- | 1.5- |
| 711015 | 095 | 1.2- | 1.6- | 860211 | 809 | 0.0 | 1.1+ | 860216 | 809 | 0.0 | 1.5- |
| 790827 | 095 | 0.1- | 0.2- | 860211 | 809 | 0.3+ | 1.1+ | 860217 | 809 | 0.0 | 0.8- |
| 790923 | 095 | 0.7+ | 2.7- | 860212 | 809 | 0.1+ | 0.6+ | 860217 | 809 | 0.1+ | 0.8- |
| 860206 | 809 | 0.0 | 0.5+ | 860212 | 809 | 0.3+ | 0.6+ | | | | |
| 860206 | 809 | 0.0 | 0.7+ | 860212 | 809 | 0.4+ | 0.6+ | | | | |

(3475)* 1972 TD = 1956 XN = 1961 UB = 1981 KU1 = 1986 CM1

Discovered 1972 Oct. 4 by L. Kohoutek at Bergedorf. The identifications are by S. Nakano.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 50.76226 | | (1950.0) | | P | | Q | | | | |
| n | 0.17418702 | Peri. | 236.02192 | | -0.43880958 | | -0.86918603 | | | | |
| a | 3.1753543 | Node | 241.60589 | | +0.88596904 | | -0.37614697 | | | | |
| e | 0.1269724 | Incl. | 15.01813 | | +0.15001672 | | -0.32098148 | | | | |
| P | 5.66 | H | 12.0 | G | 0.25 | | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 561209 | 388 | 0.3- | 2.3+ | | 860204 | 809 | 0.9- | 0.5+ | | 860210 | 809 | 0.1- | 0.4- |
| 611016 | 760 | 0.4+ | 0.1- | | 860204 | 809 | 0.4- | 0.1+ | | 860211 | 809 | 0.3+ | 0.5- |
| 611016 | 760 | 1.5+ | 0.3- | | 860205 | 809 | 0.3+ | 0.5+ | | 860211 | 809 | 0.6+ | 0.5- |
| 721004 | 029 | 0.1+ | 0.3- | | 860205 | 809 | 0.3+ | 0.5+ | | 860211 | 809 | 0.9+ | 0.6- |
| 721004 | 029 | 0.7- | 0.9- | | 860205 | 809 | 0.4+ | 0.5+ | | 860212 | 809 | 0.8+ | 0.0 |
| 721006 | 029 | 0.7+ | 0.3- | | 860206 | 809 | 1.2+ | 1.1- | | 860212 | 809 | 0.6+ | 0.0 |
| 721008 | 029 | 0.8+ | 0.2- | | 860206 | 809 | 1.3+ | 1.1- | | 860212 | 809 | 0.9+ | 0.0 |
| 721012 | 029 | 0.5- | 1.1- | | 860206 | 809 | 1.5+ | 1.2- | | 860213 | 809 | 0.4- | 0.4- |
| 721012 | 029 | 0.8- | 0.8- | | 860207 | 809 | 0.0 | 0.3- | | 860213 | 809 | 0.2+ | 0.6- |
| 810529 | 808 | 0.4- | 1.3- | | 860207 | 809 | 0.4+ | 0.3- | | 860214 | 809 | 0.4- | 0.8- |
| 810529 | 808 | 0.3- | 0.3+ | | 860207 | 809 | 0.6+ | 0.3- | | 860214 | 809 | 0.9- | 0.9- |
| 860201 | 809 | 0.9- | 0.3- | | 860208 | 809 | 1.1+ | 1.5+ | | 860215 | 809 | 0.8- | 0.1- |
| 860201 | 809 | 0.8- | 0.3- | | 860208 | 809 | 1.1+ | 1.5+ | | 860215 | 809 | 0.3- | 0.1- |
| 860201 | 809 | 0.7- | 0.3- | | 860209 | 809 | 0.4+ | 1.2- | | 860216 | 809 | 0.5- | 0.1- |
| 860202 | 809 | 1.0- | 0.9+ | | 860209 | 809 | 0.6+ | 1.3- | | 860216 | 809 | 0.3- | 0.2- |
| 860202 | 809 | 0.9- | 0.7+ | | 860209 | 809 | 0.5+ | 1.3- | | 860217 | 809 | 0.3+ | 0.2- |
| 860202 | 809 | 0.8- | 0.5+ | | 860210 | 809 | 0.3- | 0.4- | | 860217 | 809 | 0.3+ | 0.2- |
| 860204 | 809 | 0.7- | 0.5+ | | 860210 | 809 | 0.4- | 0.4- | | | | | |

(3476)* 1978 UF2 = 1984 WH

Discovered 1978 Oct. 28 at the Purple Mountain Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 102.14732 | (1950.0) | P | Q | |
| n | 0.17478721 | Peri. | 27.87117 | +0.34320784 | -0.90455193 |
| a | 3.1680810 | Node | 43.42619 | +0.77868452 | +0.12341316 |
| e | 0.1900103 | Incl. | 21.59236 | +0.52522262 | +0.40811151 |
| P | 5.64 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 781028 | 330 | 0.5+ | 0.1+ | | 841217 | 054 | 1.1- | 0.5+ | | 850322 | 801 | 1.5+ | 3.3- |
| 781103 | 330 | 0.8- | 0.3- | | 841218 | 054 | 1.8- | 0.8+ | | 860414 | 801 | 0.9+ | 0.1+ |
| 781107 | 330 | 2.2+ | 1.9- | | 841220 | 095 | 3.8+ | 0.9- | | 860610 | 801 | 1.2- | 0.5- |
| 841125 | 054 | 2.6- | 3.7+ | | 841223 | 095 | 0.8+ | 0.1- | | | | | |
| 841130 | 054 | 2.7- | 2.4+ | | 841227 | 095 | 2.5+ | 2.4- | | | | | |

(3477)* 1979 KH = 1979 KC1 = 1969 TP6 = 1982 FY1 = 1983 RV1

Discovered 1979 May 19 by R. M. West at the European Southern Observatory. The identifications are by S. Nakano (MPC 10631).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 330.84553 | (1950.0) | P | Q | |
| n | 0.27440374 | Peri. | 97.01336 | +0.23235948 | +0.97254101 |
| a | 2.3453592 | Node | 186.46774 | -0.93208579 | +0.21878889 |
| e | 0.1121617 | Incl. | 6.70647 | -0.27789414 | +0.07934356 |
| P | 3.59 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 691015 | 095 | 1.1+ | 1.7- | | 820323 | 675 | 1.8- | 0.6+ | | 830906 | 688 | 0.7+ | 0.8+ |
| 790519 | 809 | 0.1+ | 0.5- | | 820324 | 675 | (53.8- | 77.2+) | | 830912 | 688 | 0.1+ | 0.6+ |
| 790520 | 809 | 0.2- | 0.1- | | 830902 | 688 | 0.8- | 0.2- | | 830912 | 688 | 1.1- | 1.8- |
| 790523 | 801 | 0.5- | 0.4- | | 830902 | 688 | 0.0 | 1.2- | | 860511 | 801 | 0.5+ | 0.1+ |
| 820323 | 675 | 0.6+ | 1.4- | | 830906 | 688 | 0.5+ | 1.8+ | | 860604 | 801 | 0.7+ | 0.6- |

(3478)* 1979 XG = 1979 YY8 = 1980 BR5 = 1925 TC = 1930 DT = 1935 SL1 = 1950 AA = 1962 XB1 = 1975 RO1 = 1978 NL3 = 1982 VS1 = 1982 XS4

Discovered 1979 Dec. 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identifications are by S. Nakano (MPC 10631).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 37.23332 | | (1950.0) | P | Q |
| n 0.29475365 | Peri. | 269.41497 | +0.81262333 | -0.58026741 |
| a 2.2361276 | Node | 126.05308 | +0.55778078 | +0.74745641 |
| e 0.1625214 | Incl. | 3.84099 | +0.16889029 | +0.32341715 |
| P 3.34 | H 13.0 | G 0.25 | | |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 250925 094 | 0.4+ | 1.3- | 750905 095 | 0.8- | 2.8- | 821206 330 | 0.6- | 3.1+ |
| 251010 024 | 2.0+ | 0.5- | 750906 095 | 1.5- | 1.7- | 850819 071 | 1.1+ | 0.4+ |
| 300228 024(0.01- | 0.04-)X | | 780711 095 | 1.1- | 1.1- | 850819 071 | 2.1+ | 0.1+ |
| 350929 078(25.5+ | 33.2-)X | | 791214 688 | 2.3+ | 0.1- | 850819 071 | 0.7- | 0.4+ |
| 500115 760 | 0.4+ | 1.2- | 791216 688 | 1.0+ | 1.4- | 850820 071 | 0.9+ | 0.9- |
| 500116 760 | 1.7- | 0.2+ | 791216 688 | 2.7+ | 2.0- | 850821 071 | 0.6+ | 0.7- |
| 500116 760 | 0.7+ | 1.3- | 791224 095 | 3.1- | 2.1- | 850821 071 | 0.0 | 0.3- |
| 621203 760 | 2.9- | 1.7- | 800123 095 | 1.8- | 2.3- | | | |
| 621203 760 | 0.2+ | 0.9- | 821115 704 | 0.7- | 4.5+ | | | |

(3479)* 1980 TQ = 1980 TS10 = 1948 TD1 = 1957 JJ = 1957 JM = 1958 QB = 1969 RW = 1979 OL14 = 1983 EK1 = 1985 SP

Discovered 1980 Oct. 3 by Z. Vavrova at Klet. The identifications are by S. Nakano. The double designation 1980 TQ = 1980 TS10 was found by F. N. Bowman (MPC 7935).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 110.67540 | | (1950.0) | P | Q |
| n 0.18571732 | Peri. | 91.11043 | +0.29286127 | +0.95421739 |
| a 3.0425270 | Node | 196.31869 | -0.94056752 | +0.27606079 |
| e 0.1081156 | Incl. | 12.50509 | -0.17194478 | +0.11515039 |
| P 5.31 | H 11.5 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 481009 012 | 1.3+ | 4.7+ | 801003 046 | 2.2- | 1.1- | 850919 046 | 0.2- | 2.1- |
| 570502 760 | 1.2+ | 0.1- | 801003 046 | 0.5+ | 0.3- | 850919 046 | 0.9+ | 1.6- |
| 570502 760 | 0.3- | 1.6+ | 801005 046 | 1.9- | 1.3- | 851010 054 | 0.2- | 0.5+ |
| 570504 760 | 2.2+ | 0.6- | 801005 046 | 0.4- | 0.4+ | 851012 054 | 0.2+ | 1.9+ |
| 570504 760 | 4.2- | 3.9+ | 801008 095 | 0.9- | 1.4+ | 851014 010 | 1.8+ | 0.6- |
| 580819 760(79.7+ | 72.8+)X | | 830314 095 | 1.7+ | 1.1- | 851015 010 | 1.5- | 2.1+ |
| 690910 095 | 1.0+ | 2.4- | 850918 046 | 0.8+ | 0.9- | 851018 054 | 0.5+ | 2.0+ |
| 790720 095 | 0.3+ | 0.5+ | 850918 046 | 1.6+ | 1.0- | | | |

(3480)* 1981 GB

Discovered 1981 Apr. 1 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 344.75746 | | (1950.0) | P | Q |
| n 0.18653632 | Peri. | 20.50867 | -0.87739833 | +0.47967163 |
| a 3.0336149 | Node | 188.17408 | -0.44880489 | -0.82750874 |
| e 0.2877491 | Incl. | 3.76770 | -0.16954746 | -0.29179514 |
| P 5.28 | H 13.0 | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770908 675 | 0.7+ | 0.1- | 860213 809 | 0.5- | 0.7- | 860216 809 | 0.9- | 0.0 |
| 770909 675 | 0.2+ | 2.0- | 860213 809 | 0.6- | 0.8- | 860216 809 | 0.6- | 0.1+ |
| 810212 413 | 0.8- | 0.6+ | 860213 809 | 0.6- | 0.8- | 860216 809 | 0.5- | 0.0 |
| 810401 688 | 0.6+ | 0.1+ | 860214 809 | 0.0 | 0.1- | 860216 809 | 0.9+ | 0.2- |
| 810401 688 | 0.5+ | 0.2- | 860214 809 | 0.0 | 0.1- | 860217 809 | 0.1+ | 0.1- |
| 810405 688 | 0.4+ | 0.4- | 860214 809 | 0.0 | 0.0 | 860217 809 | 0.1+ | 0.2- |
| 810405 688 | 0.1+ | 0.5- | 860215 809 | 0.0 | 1.0- | 860217 809 | 0.5+ | 0.2- |
| 810409 688 | 1.1+ | 2.4+ | 860215 809 | 0.1+ | 0.9- | 860305 688 | 2.4+ | 0.5- |
| 810409 688 | 0.4- | 0.6+ | 860215 809 | 0.2+ | 0.8- | 860305 688 | 2.3+ | 0.5- |
| 810502 688 | 0.1+ | 1.5- | 860216 809 | 1.2- | 0.1+ | | | |
| 810502 688 | 0.2- | 2.0- | 860216 809 | 1.1- | 0.1- | | | |

(3481)* 1982 DS6 = 1967 RX = 1977 RO4 = 1977 TW5 = 1984 WV

Discovered 1982 Feb. 19 at the Xinglong Station of the Peking Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 167.03079 | | (1950.0) | | P | | Q |
| n | 0.29396964 | Peri. | 241.80559 | | +0.36747072 | | -0.92996898 |
| a | 2.2401017 | Node | 186.66353 | | +0.88325436 | | +0.35269610 |
| e | 0.1438599 | Incl. | 5.48383 | | +0.29125077 | | +0.10374566 |
| P | 3.35 | H | 14.0 | G | 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 670911 | 095 | 1.9+ | 0.6+ | 820224 | 327 | 0.7- | 0.4+ | 841127 | 688 | 2.3+ | 1.3+ |
| 770909 | 095 | 1.8- | 0.9- | 820226 | 327 | 0.6+ | 0.4+ | 860513 | 688 | 1.8+ | 0.8+ |
| 771008 | 095 | 1.7- | 0.6+ | 841120 | 688 | 0.6- | 1.4- | 860610 | 801 | 0.0 | 1.5- |
| 820219 | 327 | 0.6- | 0.3- | 841120 | 688 | 0.2+ | 1.6- | | | | |
| 820220 | 327 | 1.5- | 0.6+ | 841127 | 688 | 0.2+ | 1.0+ | | | | |

1986 LA

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 328.94491 | | (1950.0) | | P | | Q |
| n | 0.51400045 | Peri. | 86.53417 | | +0.70521153 | | +0.69469510 |
| a | 1.5434541 | Node | 229.39864 | | -0.70172386 | | +0.65534654 |
| e | 0.3162250 | Incl. | 10.75524 | | -0.10129319 | | +0.29651244 |
| P | 1.92 | H | 18.5 | G | 0.25 | | |

From 18 observations 1986 June 4-July 10.

* * * * *

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

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

(3482)* 1975 VY4 = 1975 VX8 = 1942 RE = 1979 QH7 = 1980 XB3 = 1986 CU1

Discovered 1975 Nov. 2 by T. M. Smirnova at the Crimean Astrophysical Observatory. The double designation 1975 VY4 = 1975 VX8 is by O. Kippes (MPC 5973).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 130.98303 | | (1950.0) | | P | | Q |
| n | 0.21226893 | Peri. | 246.96954 | | +0.96113038 | | -0.26856164 |
| a | 2.7832043 | Node | 128.54802 | | +0.27366782 | | +0.89599247 |
| e | 0.1691782 | Incl. | 4.69794 | | +0.03652834 | | +0.35365539 |
| P | 4.64 | H | 12.5 | G | 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 420911 | 024 | 0.0 | 0.0 | 860210 | 809 | 0.4- | 0.3+ | 860214 | 809 | 0.1- | 0.2- |
| 420918 | 024 | 1.2- | 0.5+ | 860210 | 809 | 0.3- | 0.2+ | 860214 | 809 | 0.1+ | 0.4- |
| 751102 | 095 | (3.0- | 10.3+) | 860210 | 809 | 0.0 | 0.2+ | 860215 | 809 | 0.5- | 0.3+ |
| 751107 | 095 | 1.7+ | 0.2+ | 860211 | 809 | 0.1- | 0.1- | 860215 | 809 | 0.5- | 0.1+ |
| 751202 | 095 | 2.5- | 0.5- | 860211 | 809 | 0.2- | 0.1- | 860215 | 809 | 0.4- | 0.0 |
| 790820 | 095 | 0.1+ | 0.6+ | 860211 | 809 | 0.0 | 0.0 | 860216 | 809 | 0.0 | 1.0+ |
| 801210 | 095 | 1.9+ | 1.2- | 860212 | 809 | 0.1- | 0.3- | 860216 | 809 | 0.1+ | 1.0+ |
| 860208 | 809 | 0.1- | 0.1- | 860212 | 809 | 0.1+ | 0.2- | 860216 | 809 | 0.4+ | 0.9+ |
| 860208 | 809 | 0.2+ | 0.2- | 860212 | 809 | 0.4+ | 0.1- | 860217 | 809 | 0.1+ | 0.2+ |
| 860208 | 809 | 0.0 | 0.3- | 860213 | 809 | 0.2- | 0.5+ | 860217 | 809 | 0.2+ | 0.2+ |
| 860209 | 809 | 0.3+ | 0.1- | 860213 | 809 | 0.1- | 0.6+ | 860217 | 809 | 0.3+ | 0.2+ |
| 860209 | 809 | 0.2+ | 0.1- | 860213 | 809 | 0.2+ | 0.6+ | | | | |
| 860209 | 809 | 0.4+ | 0.1- | 860214 | 809 | 0.1- | 0.4- | | | | |

(3483)* 1976 YP2 = 1980 FB9 = 1984 YA

Discovered 1976 Dec. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 262.61422 | (1950.0) | | P | Q |
| n | 0.36683694 | Peri. | 277.27670 | +0.91607182 | -0.03719858 |
| a | 1.9326535 | Node | 85.46133 | +0.20793893 | +0.89543401 |
| e | 0.1247676 | Incl. | 23.61202 | -0.34289038 | +0.44363745 |
| P | 2.69 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 761216 | 095 | 1.3- | 1.3+ | 850115 | 675 | 0.8- | 0.9+ | 850322 | 691 | 1.2- | 0.6- |
| 761218 | 095 | 0.2- | 0.8+ | 850115 | 675 | 0.9+ | 0.9- | 850322 | 691 | 0.8- | 0.7- |
| 761220 | 095 | 1.3- | 1.8+ | 850116 | 675 | 0.7+ | 0.9+ | 850322 | 691 | 1.2- | 0.8- |
| 770113 | 095 | 1.1+ | 1.6- | 850116 | 675 | 1.6+ | 1.0- | 860512 | 801 | 0.3+ | 0.8- |
| 800316 | 095 | 1.6+ | 0.1- | 850224 | 691 | (3.2- | 2.3+) | 860603 | 801 | 0.9- | 0.4+ |
| 841217 | 675 | 0.5- | 0.7- | 850224 | 691 | (3.3- | 2.4+) | | | | |
| 841217 | 675 | 2.5+ | 1.8- | 850224 | 691 | (3.6- | 2.2+) | | | | |

(3484)* 1978 NE = 1982 MJ

Discovered 1978 July 10 by E. Helin and E. Shoemaker at Palomar.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 330.90429 | (1950.0) | | P | Q |
| n | 0.23623258 | Peri. | 175.19553 | +0.36259801 | +0.90116923 |
| a | 2.5916490 | Node | 115.90001 | -0.86355980 | +0.42072449 |
| e | 0.1809682 | Incl. | 15.31010 | -0.35040999 | -0.10433088 |
| P | 4.17 | H | 12.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 780710 | 675 | 0.9+ | 0.9+ | 780806 | 323 | 0.1- | 0.2+ | 820626 | 675 | 0.4- | 0.0 |
| 780711 | 675 | 0.0 | 0.2+ | 780806 | 323 | 0.4+ | 0.3+ | 820626 | 675 | 0.3- | 0.6- |
| 780712 | 675 | 0.6+ | 0.9+ | 780809 | 323 | 0.9- | 0.4- | 850218 | 801 | 0.0 | 0.7+ |
| 780713 | 675 | 0.5+ | 1.0+ | 780809 | 323 | 0.4- | 0.3- | 850323 | 801 | 0.3- | 1.3+ |
| 780728 | 323 | 2.7- | 3.9- | 780811 | 323 | 2.0+ | 0.8- | 860511 | 801 | 0.5+ | 0.6- |
| 780728 | 323 | 1.3- | 1.6+ | 780811 | 323 | 0.5+ | 1.8+ | 860603 | 801 | 0.6+ | 0.2+ |
| 780731 | 323 | 0.8+ | 0.5+ | 820624 | 675 | 1.0- | 0.3+ | | | | |
| 780731 | 323 | 0.6+ | 0.8+ | 820624 | 675 | 0.2- | 0.1- | | | | |

(3485)* 1983 NU = 1982 DB5

Discovered 1983 July 11 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identification is by T. Furuta (JAM 1580).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 286.43097 | (1950.0) | | P | Q |
| n | 0.25849933 | Peri. | 339.31932 | +0.41719957 | +0.90854498 |
| a | 2.4405990 | Node | 315.33082 | -0.82929102 | +0.37061091 |
| e | 0.1642783 | Incl. | 1.80537 | -0.37178074 | +0.19285635 |
| P | 3.81 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 820222 | 010 | 1.3- | 0.3- | 830813 | 688 | 0.4+ | 0.8- | 841227 | 095 | 0.2+ | 0.9- |
| 820227 | 010 | 1.0+ | 0.4- | 830813 | 688 | 0.7+ | 0.9- | 860306 | 688 | 0.8- | 1.2- |
| 830711 | 688 | 0.0 | 0.8- | 841125 | 801 | 1.0- | 0.5- | 860306 | 688 | 0.8- | 1.7- |
| 830711 | 688 | 3.0- | 0.7- | 841218 | 801 | 0.8+ | 1.9- | 860414 | 801 | 0.5+ | 0.4+ |
| 830713 | 688 | 2.1+ | 0.2- | 841223 | 881 | 0.1- | 0.5- | | | | |
| 830713 | 688 | 1.2+ | 0.6- | 841223 | 881 | 0.0 | 0.8+ | | | | |

(3486)* 1984 CR = 1952 SY = 1975 VL8 = 1978 NZ4 = 1979 YS8

Discovered 1984 Feb. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identification 1984 CR = 1978 NZ4 is by B. G. Marsden.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M 286.99515 | | (1950.0) | | P | Q |
| n 0.25987850 | Peri. | 18.21372 | | +0.42281888 | -0.90529688 |
| a 2.4319566 | Node | 46.79613 | | +0.82428480 | +0.36551239 |
| e 0.1824811 | Incl. | 3.20591 | | +0.37653521 | +0.21642148 |
| P 3.79 | H 13.5 | | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 520929 760 | 0.7- | 0.5+ | | 791224 095 | 2.8- | 1.1+ | | 840303 809 | 0.6- | 0.8+ |
| 520929 760 | 1.2+ | 1.1+ | | 840205 688 | 0.8+ | 0.6+ | | 840308 809 | 0.8- | 0.2+ |
| 751107 095 | 1.8- | 0.8+ | | 840205 688 | 4.0+ | 2.7- | | 840308 809 | 1.2- | 0.4+ |
| 770424 675 | 1.6- | 1.1+ | | 840227 809 | 0.6+ | 0.3- | | 840308 809 | 1.3- | 0.6+ |
| 770425 675 | 2.2- | 1.2+ | | 840227 809 | 0.8+ | 0.4- | | 840309 809 | 1.6+ | 0.1+ |
| 780710 675 | 1.3- | 0.2- Y | | 840227 809 | 1.2+ | 0.6- | | 840309 809 | 1.5+ | 0.1+ |
| 780711 675 | (9.4+ | 3.2-)Y | | 840303 809 | 0.7- | 0.6+ | | 840309 809 | 2.1+ | 0.2+ |
| 780713 675 | 1.7+ | 3.5+ Y | | 840303 809 | 0.9- | 0.8+ | | | | |

1965 AK1 = 1982 BU2

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

| | | | | | |
|---|---|---|---|---|---|
| M 247.82032 | | (1950.0) | | P | Q |
| n 0.17398438 | Peri. | 38.98572 | | -0.92224866 | -0.28109716 |
| a 3.1778258 | Node | 122.68505 | | +0.22547993 | -0.94876952 |
| e 0.1080819 | Incl. | 18.38150 | | +0.31403218 | -0.14429411 |
| P 5.66 | H 11.5 | | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 650111 330 | 1.3- | 1.6+ | | 780706 675 | 0.3+ | 0.4+ | | 820121 046 | 0.2+ | 0.4+ |
| 650202 330 | 2.1+ | 4.0- | | 820120 046 | 0.2- | 0.5+ | | 820125 046 | 0.7- | 0.3+ |
| 650304 330 | 0.9- | 0.3- | | 820120 046 | 0.8- | 0.5+ | | 820125 046 | 0.6+ | 0.0 |
| 780705 675 | 0.1- | 0.7+ | | 820121 046 | 0.5- | 0.2+ | | 820327 801 | 1.3+ | 1.0+ |

1978 ON = 1977 HT

The identification is by S. J. Bus.

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

| | | | | | |
|---|---|---|---|---|---|
| M 210.77245 | | (1950.0) | | P | Q |
| n 0.21632017 | Peri. | 342.73963 | | +0.99000141 | -0.13882050 |
| a 2.7483512 | Node | 25.28050 | | +0.13534185 | +0.88483997 |
| e 0.1035282 | Incl. | 3.35897 | | +0.03974661 | +0.44473262 |
| P 4.56 | H 11.5 | | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770424 675 | 0.2- | 0.1- | | 780728 323 | 0.9+ | 1.2- | | 780803 323 | 1.5- | 1.1+ |
| 770425 675 | 0.2+ | 0.1+ | | 780728 323 | 0.5+ | 1.0+ | | 780811 323 | 0.1+ | 1.5- |
| 780710 675 | 1.9- | 1.7- | | 780731 323 | 1.4+ | 0.3+ | | 780811 323 | 0.0 | 0.2- |
| 780711 675 | 5.4+ | 2.5- | | 780731 323 | 0.8+ | 0.3+ | | | | |
| 780713 675 | 4.3- | 3.5+ | | 780803 323 | 1.3- | 0.7+ | | | | |

1978 RW = 1977 KO1

The identification is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M 148.12630 | | (1950.0) | | P | Q |
| n 0.17142259 | Peri. | 193.30861 | | +0.84044003 | +0.54160209 |
| a 3.2094076 | Node | 133.88354 | | -0.49483445 | +0.78062888 |
| e 0.2077245 | Incl. | 1.43927 | | -0.22090590 | +0.31190662 |
| P 5.75 | H 12.0 | | G 0.25 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770518 675 | 0.4- | 0.2+ | | 780907 095 | 0.4- | 0.0 | | 781008 095 | 0.5- | 0.3- |
| 770519 675 | 0.4+ | 0.2- | | 780912 095 | 0.5- | 0.4- | | 781009 095 | 0.6- | 0.2+ |
| 780901 095 | 0.1- | 0.0 | | 780928 095 | 1.1+ | 1.0+ | | | | |
| 780905 095 | 0.5+ | 0.3- | | 781004 095 | 0.4+ | 0.2- | | | | |

1978 SB8 = 1977 HP
The identification is by E. Bowell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 96.46573 | (1950.0) | P | Q |
| n | 0.28840126 | Peri. 353.77922 | +0.98999355 | -0.13921990 |
| a | 2.2688484 | Node 14.28547 | +0.13315358 | +0.86758099 |
| e | 0.1779596 | Incl. 5.35635 | +0.04672139 | +0.47741077 |
| P | 3.42 | H 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.0 | 0.4+ | 780926 | 095 | 0.2- | 0.6+ | 781008 | 095 | 2.0- | 0.4- |
| 770425 | 675 | 0.3+ | 0.1+ | 781002 | 095 | 1.0+ | 1.7- | 781101 | 095 | 0.7+ | 0.5+ |

1980 FV1 = 1977 RP8
The identification is by E. Bowell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 189.57499 | (1950.0) | P | Q |
| n | 0.18715041 | Peri. 49.93618 | +0.74461756 | -0.66707715 |
| a | 3.0269812 | Node 351.80908 | +0.55106950 | +0.63423759 |
| e | 0.1137523 | Incl. 9.49842 | +0.37665248 | +0.39083341 |
| P | 5.27 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770908 | 675 | 0.6- | 0.6+ | 800316 | 809 | 0.0 | 0.1+ | 800317 | 809 | 0.5- | 0.2+ |
| 770909 | 675 | 0.4- | 0.2+ | 800316 | 809 | 0.1- | 0.3+ | 800317 | 809 | 0.0 | 0.7- |
| 800221 | 095 | 0.8- | 0.6+ | 800316 | 809 | 0.2- | 0.2- | 800317 | 809 | 0.2- | 0.3- |
| 800316 | 809 | 0.4- | 0.3+ | 800317 | 809 | 0.1+ | 0.4- | 800323 | 809 | 0.2+ | 0.1- |

1980 FG12 = 1977 SX2 = 1984 KE
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 156.47389 | (1950.0) | P | Q |
| n | 0.26131492 | Peri. 107.10169 | +0.53200924 | +0.83934711 |
| a | 2.4230411 | Node 196.52776 | -0.84569343 | +0.53326279 |
| e | 0.2614251 | Incl. 23.10525 | +0.04205707 | +0.10548566 |
| P | 3.77 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770921 | 095 | 0.1- | 0.3- | 800321 | 323 | 1.1+ | 0.6- | 840528 | 675 | 0.5- | 0.6+ |
| 800320 | 323 | 1.7- | 1.3+ | 800324 | 323 | 1.4+ | 0.1- | 840529 | 675 | 0.3- | 1.4- |
| 800320 | 323 | 0.3- | 0.8+ | 800414 | 323 | 1.0- | 0.5- | | | | |
| 800321 | 323 | 0.0 | 0.9- | 840526 | 675 | 1.3- | 0.6+ | | | | |

1980 RC1 = 1986 CA2
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 159.75457 | (1950.0) | P | Q |
| n | 0.25568347 | Peri. 77.17108 | +0.99813479 | +0.03027204 |
| a | 2.4584902 | Node 281.07596 | -0.04927284 | +0.91217795 |
| e | 0.2020646 | Incl. 3.09667 | +0.03604341 | +0.40867467 |
| P | 3.85 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 800902 | 046 | 0.2+ | 1.2- | 860212 | 809 | 1.0- | 0.1+ | 860215 | 809 | 0.1+ | 0.4- |
| 800902 | 046 | 0.6+ | 0.3- | 860213 | 809 | 0.6- | 0.0 | 860215 | 809 | 0.2+ | 0.4- |
| 800903 | 046 | 0.8- | 0.7- | 860213 | 809 | 0.5- | 0.0 | 860216 | 809 | 0.4+ | 0.3+ |
| 800903 | 046 | 0.8- | 0.2+ | 860213 | 809 | 0.3- | 0.2+ | 860216 | 809 | 0.5+ | 0.3+ |
| 800916 | 046 | 0.3- | 0.1+ | 860214 | 809 | 0.2- | 0.6- | 860216 | 809 | 0.5+ | 0.3+ |
| 800916 | 046 | 0.3+ | 0.6+ | 860214 | 809 | 0.1- | 0.5- | 860217 | 809 | 0.9+ | 0.6+ |
| 860212 | 809 | 0.9- | 0.2- | 860214 | 809 | 0.0 | 0.3- | 860217 | 809 | 1.0+ | 0.6+ |
| 860212 | 809 | 0.8- | 0.0 | 860215 | 809 | 0.1- | 0.4- | 860217 | 809 | 0.9+ | 0.7+ |

1986 AK
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 24.26487 | (1950.0) | P | Q |
| n | 0.27374406 | Peri. 95.96455 | -0.82256472 | -0.47596211 |
| a | 2.3491257 | Node 56.02296 | +0.24510926 | -0.79054498 |
| e | 0.3446922 | Incl. 22.04146 | +0.51313618 | -0.38535529 |
| P | 3.60 | H 12.5 | G 0.25 | |

From 8 observations 1986 Jan. 12-July 4, mean residual 1".1.

1986 CK1 = 1986 AU2 = 1976 JG9 = 1979 DR = 1981 UJ12

The double designation 1986 CK1 = 1986 AU2 is by B. G. Marsden.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 94.50456 | (1950.0) | P | Q |
| n | 0.27539330 | Peri. 151.57329 | +0.47826280 | -0.87314355 |
| a | 2.3397375 | Node 269.71633 | +0.78680251 | +0.47368555 |
| e | 0.1733712 | Incl. 5.40882 | +0.39013651 | +0.11507535 |
| P | 3.58 | H 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 760502 809 | 0.6+ | 1.1+ | 860212 809 | 0.5- | 0.8- | 860215 809 | 1.0+ | 1.1- |
| 790228 330 | 0.4- | 0.4- | 860212 809 | 0.4- | 0.8- | 860216 809 | 0.8+ | 0.1+ |
| 811022 095 | 0.4+ | 0.4+ | 860213 809 | 0.3- | 0.7+ | 860216 809 | 0.6+ | 0.3- |
| 811024 095 | 0.6- | 0.7+ | 860213 809 | 0.2- | 0.7+ | 860217 809 | 0.2- | 0.7+ |
| 860112 688 | 2.2+ | 2.2- | 860213 809 | 0.0 | 0.7+ | 860217 809 | 0.1- | 0.5+ |
| 860112 688 | 1.2+ | 1.6- | 860213 552 | 0.5- | 1.8+ | 860220 809 | 0.4- | 0.3+ |
| 860211 809 | 0.9- | 0.6+ | 860213 552 | 0.2- | 0.8+ | 860220 809 | 0.2- | 0.3+ |
| 860211 809 | 0.8- | 0.7+ | 860214 809 | 0.5- | 0.6- | 860220 809 | 0.1- | 0.4+ |
| 860211 809 | 0.5- | 0.6+ | 860214 809 | 0.0 | 0.6- | | | |
| 860212 809 | 0.7- | 0.8- | 860215 809 | 1.2+ | 1.0- | | | |

* * * * *

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

The 1977 observations of the 1981 UCAS objects were found by S. J. Bus.

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

| | | | | |
|---|---|---|---|---|
| M | 142.13199 | (1950.0) | P | Q |
| n | 0.23118439 | Peri. 268.23921 | -0.44469194 | -0.88779849 |
| a | 2.6292462 | Node 209.10670 | +0.88769215 | -0.41919782 |
| e | 0.0496268 | Incl. 14.11016 | +0.11938055 | -0.18996585 |
| P | 4.26 | H 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 675 | 0.1+ | 0.2- | 810306 413 | 2.1- | 0.3+ | 810408 413 | 1.5+ | 0.8- |
| 770425 675 | 0.2- | 0.1+ | 810306 413 | (0.6+ | 3.0-) | 810501 413 | 0.1+ | 0.9+ |
| 810209 413 | 0.4- | 0.4+ | 810308 413 | 0.4+ | 0.5- | 810503 413 | 0.4- | 0.1- |
| 810209 413 | 0.9+ | 0.1- | 810312 413 | 0.3- | 0.4+ | 810503 413 | 0.1- | 0.9- |
| 810228 413 | 0.4- | 0.4+ | 810312 413 | 1.1+ | 1.0- | | | |
| 810228 413 | 0.7+ | 0.6- | 810408 413 | 0.9- | 1.4+ | | | |

1981 EZ7
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 276.51519 | (1950.0) | P | Q |
| n | 0.22355872 | Peri. 115.17716 | +0.90277183 | +0.42542889 |
| a | 2.6887010 | Node 219.72976 | -0.42162085 | +0.84614797 |
| e | 0.1518544 | Incl. 5.68816 | -0.08508165 | +0.32100447 |
| P | 4.41 | H 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.9+ | 0.0 | 810307 | 413 | 0.3+ | 0.6- | 810412 413 (2.9- 1.9+) |
| 770425 | 675 | 0.7- | 0.5+ | 810311 | 413 | 0.2- | 0.8+ | 810430 413 0.6+ 1.3- |
| 810209 | 413 | 1.2+ | 0.6+ | 810315 | 413 | 0.7- | 0.1- | 810502 413 0.2- 0.4- |
| 810301 | 413 | 1.2- | 1.0+ | 810406 | 413 | 0.9- | 0.8+ | |
| 810301 | 413 | 1.4+ | 1.2- | 810406 | 413 | 0.3- | 0.1+ | |

1981 EM12
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 259.52774 | (1950.0) | | P | Q |
| n | 0.17249036 | Peri. | 284.18622 | -0.09470355 | +0.99110699 |
| a | 3.1961490 | Node | 339.66439 | -0.77765770 | -0.13227635 |
| e | 0.0911553 | Incl. | 15.60403 | -0.62151407 | +0.01448779 |
| P | 5.71 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770908 | 675 | 0.7- | 0.6+ | 810308 | 413 | 1.9- | 0.1+ | 810409 413 (2.6+ 0.1-) |
| 770909 | 675 | 0.7+ | 0.5- | 810308 | 413 | 1.0+ | 0.0 | 810502 413 0.4+ 0.3- |
| 810214 | 413 | 0.9+ | 0.7- | 810312 | 413 | 0.7- | 1.2+ | 810503 413 0.3- 0.1- |
| 810301 | 413 | 0.2+ | 0.1+ | 810312 | 413 | 0.6+ | 0.4- | |
| 810306 | 413 | (6.1+ | 0.9+) | 810409 | 413 | (2.3- | 1.1+) | |

1981 EZ18
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 269.98441 | (1950.0) | | P | Q |
| n | 0.22354448 | Peri. | 52.45509 | +0.91325163 | +0.40646578 |
| a | 2.6888151 | Node | 283.54701 | -0.38212104 | +0.83121953 |
| e | 0.0449923 | Incl. | 1.62178 | -0.14126209 | +0.37928836 |
| P | 4.41 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.3+ | 0.4+ | 810303 | 413 | 0.8+ | 0.7- | 810329 413 0.9+ 0.6- |
| 770425 | 675 | 0.1- | 0.0 | 810307 | 413 | 0.3- | 1.3+ | 810329 413 (3.1- 1.1-) |
| 810209 | 413 | 0.7+ | 0.2- | 810307 | 413 | 1.4+ | 0.0 | 810408 413 0.7- 0.3+ |
| 810213 | 413 | 0.5- | 0.2- | 810311 | 413 | 0.3+ | 0.5+ | 810408 413 0.7- 0.3+ |
| 810302 | 413 | 0.1- | 0.9+ | 810311 | 413 | 1.0+ | 0.2- | 810411 413 0.6- 0.2- |
| 810302 | 413 | 0.0 | 0.7- | 810316 | 413 | 1.2- | 1.1+ | 810430 413 0.8- 0.7- |
| 810303 | 413 | (2.5- | 1.3+) | 810316 | 413 | (4.3+ | 0.9-) | 810502 413 0.8- 1.9- |

1981 ES20
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 272.40465 | (1950.0) | | P | Q |
| n | 0.22454087 | Peri. | 355.22756 | +0.91737869 | +0.39784483 |
| a | 2.6808550 | Node | 341.31572 | -0.36393923 | +0.82662216 |
| e | 0.0534441 | Incl. | 2.08498 | -0.16113529 | +0.39801419 |
| P | 4.39 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.9+ | 0.1- | 810303 | 413 | (2.7+ | 2.5-) | 810329 413 0.3- 0.3+ |
| 770425 | 675 | 0.9- | 0.2+ | 810303 | 413 | 0.2+ | 1.1+ | 810430 413 0.6+ 0.4- |
| 810209 | 413 | 0.1+ | 0.2- | 810311 | 413 | 1.0- | 0.4+ | 810502 413 0.1- 0.1- |
| 810213 | 413 | 0.4+ | 1.7- | 810311 | 413 | 0.3+ | 0.5- | |
| 810302 | 413 | 0.3- | 1.0+ | 810316 | 413 | (2.7+ | 2.0-) | |

1981 EC21
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 147.93027 | (1950.0) | | P | Q |
| n | 0.22850716 | Peri. | 74.80941 | +0.06511697 | -0.99773133 |
| a | 2.6497427 | Node | 11.49768 | +0.87942237 | +0.04928669 |
| e | 0.1705940 | Incl. | 4.91761 | +0.47156769 | +0.04585859 |
| P | 4.31 | H | 14.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 675 | 0.3+ | 1.6+ | 810307 413 | 0.8+ | 0.1- | 810407 413 | 1.7+ | 0.3- |
| 770425 675 | 0.2- | 1.3- | 810311 413 | 1.6- | 1.2+ | 810408 413 | (2.8- | 0.3+) |
| 810202 413 | 0.6+ | 1.1- | 810311 413 | 0.7+ | 0.3+ | 810411 413 | 0.0 | 0.3- |
| 810213 413 | 1.4- | 0.1+ | 810316 413 | 0.1- | 0.7+ | 810502 413 | 0.4- | 0.9- |
| 810302 413 | 0.2+ | 0.0 | 810316 413 | 0.5- | 0.2- | 810503 413 | 0.8- | 0.5- |
| 810303 413 | 1.1+ | 0.4+ | 810329 413 | (2.7+ | 0.2-) | | | |
| 810307 413 | (2.1- | 1.6+) | 810407 413 | 0.5- | 0.0 | | | |

1981 EW21
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 51.74299 | (1950.0) | | P | Q |
| n | 0.23167974 | Peri. | 359.40425 | -0.78246441 | +0.62258114 |
| a | 2.6254971 | Node | 219.10887 | -0.57120547 | -0.72525628 |
| e | 0.1237395 | Incl. | 1.08311 | -0.24793905 | -0.29393204 |
| P | 4.25 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 675 | 0.2+ | 0.1- | 810307 413 | 0.2- | 0.1+ | 810407 413 | 0.1+ | 0.3+ |
| 770425 675 | 0.1- | 0.4+ | 810307 413 | 0.9+ | 0.6- | 810408 413 | 0.8- | 0.8+ |
| 810209 413 | 0.7- | 0.7- | 810311 413 | 0.4- | 0.5+ | 810408 413 | 1.8+ | 0.3- |
| 810213 413 | 0.0 | 0.0 | 810311 413 | 1.0+ | 0.2- | 810411 413 | 0.0 | 0.6- |
| 810302 413 | 1.8- | 1.2+ | 810316 413 | 0.5- | 0.4- | 810411 413 | 0.7+ | 0.2- |
| 810302 413 | 1.1+ | 1.0- | 810316 413 | 0.7- | 0.3+ | 810426 413 | 0.4+ | 1.6- |
| 810303 413 | 1.1- | 1.0+ | 810329 413 | 0.5+ | 0.9+ | 810502 413 | 1.3- | 0.9- |
| 810303 413 | 1.2+ | 0.1- | 810407 413 | 0.4- | 0.7+ | | | |

1981 EX23
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 303.88622 | (1950.0) | | P | Q |
| n | 0.21292077 | Peri. | 36.01790 | +0.34004774 | +0.93961620 |
| a | 2.7775266 | Node | 253.88966 | -0.87189022 | +0.29963117 |
| e | 0.0889530 | Incl. | 2.30185 | -0.35238470 | +0.16535587 |
| P | 4.63 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770518 675 | 0.9- | 1.2+ | 810307 413 | (2.4+ | 0.7-) | 810316 413 | 0.9+ | 0.3- |
| 770519 675 | 0.9+ | 0.1+ | 810311 413 | 0.2+ | 0.2+ | 810329 413 | 0.2- | 0.5+ |
| 810209 413 | (2.9+ | 1.2+) | 810311 413 | 1.1+ | 0.3- | 810430 413 | 0.6+ | 0.0 |
| 810213 413 | 1.0- | 0.4+ | 810315 413 | 1.2- | 0.6- | 810502 413 | 0.0 | 0.5- |
| 810307 413 | 0.6- | 0.5+ | 810316 413 | (1.8- | 0.6+) | | | |

1981 EZ23
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 40.81070 | (1950.0) | | P | Q |
| n | 0.23153661 | Peri. | 14.79952 | -0.70839423 | +0.70535517 |
| a | 2.6265790 | Node | 210.10954 | -0.65260473 | -0.66833635 |
| e | 0.0622396 | Incl. | 2.91694 | -0.26885809 | -0.23622152 |
| P | 4.26 | H | 16.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 675 | 1.3+ | 1.2- | 810307 413 | 1.2+ | 1.5- | 810430 413 | 0.1+ | 1.0- |
| 770425 675 | 1.2- | 1.6+ | 810311 413 | 1.9- | 1.6+ | 810502 413 | 0.5+ | 0.2- |
| 810209 413 | 0.2+ | 0.7+ | 810316 413 | (4.4- | 1.6+) | | | |
| 810307 413 | 0.9- | 0.4+ | 810329 413 | 0.8+ | 0.4- | | | |

1981 EY26
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 278.30155 | (1950.0) | P | Q |
| n | 0.17384246 | Peri. 267.09726 | -0.38304513 | +0.92321836 |
| a | 3.1795550 | Node 340.29336 | -0.80712790 | -0.35068720 |
| e | 0.1025643 | Incl. 5.22861 | -0.44924490 | -0.15711893 |
| P | 5.67 | H 11.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770908 | 675 | 0.0 0.1+ | 810306 | 413 | 0.9- 0.2+ | 810408 | 413 | 0.6- 0.8- |
| 770909 | 675 | 0.1+ 0.1+ | 810306 | 413 | 1.3+ 0.0 | 810408 | 413 | 0.6+ 1.0- |
| 810212 | 413 | 0.6- 0.0 | 810311 | 413 | 0.4- 0.1+ | 810409 | 413 | 0.4- 0.7+ |
| 810212 | 413 | 0.1- 0.6- | 810311 | 413 | 0.6+ 0.4+ | 810409 | 413 | 0.4+ 0.3+ |
| 810213 | 413 | 0.4+ 0.6- | 810315 | 413 | 0.2+ 0.6- | 810501 | 413 | 0.3- 0.7- |
| 810302 | 413 | 1.1- 1.0+ | 810406 | 413 | 1.2- 1.3+ | 810503 | 413 | 0.6+ 0.2- |
| 810302 | 413 | 0.4+ 0.4+ | 810406 | 413 | 1.0+ 0.3+ | | | |

1981 EF27
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 41.54787 | (1950.0) | P | Q |
| n | 0.23287261 | Peri. 49.89684 | -0.56481265 | +0.82519007 |
| a | 2.6165235 | Node 185.72667 | -0.77665178 | -0.53439079 |
| e | 0.1109747 | Incl. 3.98228 | -0.27892417 | -0.18299679 |
| P | 4.23 | H 16.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.2- 0.1+ | 810306 | 413 | 0.1+ 0.4- | 810405 | 413 | 1.4+ 1.3- |
| 770425 | 675 | 0.3+ 0.1+ | 810306 | 413 | 0.3- 1.8+ | 810406 | 413 | (2.2- 1.9+) |
| 810212 | 413 | 0.0 1.1+ | 810311 | 413 | 0.2- 0.4- | 810406 | 413 | 1.2+ 0.7- |
| 810212 | 413 | 0.7- 0.8+ | 810311 | 413 | 0.7- 0.3+ | 810501 | 413 | 0.2+ 0.4- |
| 810213 | 413 | 0.6+ 1.6- | 810315 | 413 | 0.3- 0.7- | | | |
| 810302 | 413 | (6.2- 4.2+) | 810405 | 413 | 1.2- 1.4+ | | | |

1981 EV29
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 28.50059 | (1950.0) | P | Q |
| n | 0.23064719 | Peri. 35.55467 | -0.42502962 | +0.89863887 |
| a | 2.6333270 | Node 209.73513 | -0.87285266 | -0.43867137 |
| e | 0.1457750 | Incl. 12.64990 | -0.23974580 | +0.00395141 |
| P | 4.27 | H 16.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.9- 0.6+ | 810302 | 413 | 1.4+ 2.1- | 810312 | 413 | (0.7+ 2.5-) |
| 770425 | 675 | 1.0+ 0.5- | 810307 | 413 | 0.1- 0.7+ | 810312 | 413 | 0.4- 0.4- |
| 810202 | 413 | 0.2+ 0.4+ | 810307 | 413 | 0.1+ 0.6- | 810412 | 413 | 1.7- 1.7+ |
| 810202 | 413 | 0.6+ 0.4+ | 810310 | 413 | 0.0 0.7+ | 810412 | 413 | 0.1- 1.2- |
| 810302 | 413 | 1.0- 0.8+ | 810310 | 413 | (2.6+ 2.1-) | 810429 | 413 | 1.2+ 0.5- |

1981 EW33
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 246.93381 | (1950.0) | P | Q |
| n | 0.22237403 | Peri. 105.31428 | +0.99781519 | +0.04863397 |
| a | 2.6982418 | Node 251.91404 | -0.06211161 | +0.92122376 |
| e | 0.1153416 | Incl. 2.69624 | +0.02251659 | +0.38598123 |
| P | 4.43 | H 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 1.0+ 0.5- | 810301 | 413 | 0.4+ 1.5- | 810315 | 413 | (2.8- 0.0) |
| 770425 | 675 | 0.9- 0.8+ | 810311 | 413 | 0.7- 1.0+ | 810503 | 413 | 0.3- 0.5- |
| 810209 | 413 | 1.3+ 0.4+ | 810311 | 413 | 0.1+ 0.9- | | | |
| 810213 | 413 | 1.0- 1.4+ | 810315 | 413 | (1.5+ 2.3-) | | | |

1981 EA40
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 223.64522 | (1950.0) | | P | Q |
| n | 0.17393628 | Peri. | 171.90318 | +0.56907319 | +0.82150665 |
| a | 3.1784116 | Node | 132.77386 | -0.75710411 | +0.54045960 |
| e | 0.1841563 | Incl. | 2.79646 | -0.32085678 | +0.18174223 |
| P | 5.67 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770908 | 675 | 0.1+ 0.1- | 810307 | 413 | 1.7- 0.7+ | 810329 | 413 | 0.9- 0.5+ |
| 770909 | 675 | 0.1- 0.1+ | 810307 | 413 | 1.3+ 1.3- | 810329 | 413 | (13.0- 4.3+) |
| 810213 | 413 | 1.9+ 0.6+ | 810311 | 413 | 0.6+ 0.7- | 810426 | 413 | 0.8+ 0.4- |
| 810302 | 413 | 0.7- 0.7+ | 810311 | 413 | 1.7+ 1.4- | 810502 | 413 | 0.1+ 0.7+ |
| 810302 | 413 | 1.2- 0.9+ | 810316 | 413 | 1.7- 0.1- | | | |

1981 EP42
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 214.74794 | (1950.0) | | P | Q |
| n | 0.22775182 | Peri. | 205.48825 | +0.80878812 | -0.58800486 |
| a | 2.6555980 | Node | 190.54690 | +0.54896391 | +0.76130027 |
| e | 0.1033226 | Incl. | 3.31556 | +0.21095121 | +0.27326213 |
| P | 4.33 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 1.2+ 0.8+ | 810302 | 413 | 1.0- 0.1- | 810315 | 413 | 0.7+ 0.0 |
| 770425 | 675 | 0.8- 0.4+ | 810302 | 413 | 1.7+ 0.3- | 810315 | 413 | (2.4+ 0.8-) |
| 810212 | 413 | 1.4- 0.7+ | 810306 | 413 | (8.2+ 2.0-) | 810501 | 413 | 0.1- 0.6- |
| 810213 | 413 | 0.5- 0.9+ | 810311 | 413 | 0.9- 1.1+ | 810503 | 413 | 0.4+ 2.2- |

1981 ES42
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 142.00300 | (1950.0) | | P | Q |
| n | 0.22704504 | Peri. | 78.57398 | -0.08832311 | -0.99604565 |
| a | 2.6611064 | Node | 16.50230 | +0.90017113 | -0.08393899 |
| e | 0.1680083 | Incl. | 1.93600 | +0.42648677 | -0.02910851 |
| P | 4.34 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.5+ 0.7- | 810306 | 413 | 0.9- 0.6+ | 810405 | 413 | (4.9+ 0.9-) |
| 770425 | 675 | 0.5- 0.5+ | 810306 | 413 | 0.9+ 0.5- | 810406 | 413 | 1.5- 0.6+ |
| 810209 | 413 | 0.0 0.4- | 810311 | 413 | 1.1+ 1.1- | 810406 | 413 | 1.4+ 0.5- |
| 810212 | 413 | 0.3+ 0.2- | 810311 | 413 | 0.7- 0.6+ | 810501 | 413 | 1.3+ 1.6+ |
| 810213 | 413 | 0.6- 0.7+ | 810315 | 413 | (2.4- 0.6-) | 810501 | 413 | (4.2- 1.9-) |
| 810302 | 413 | 0.1+ 0.7- | 810405 | 413 | 0.2- 0.9+ | 810503 | 413 | 1.1- 1.5- |

* * * * *

ORBITAL ELEMENTS BY A. LOWE, CALGARY.

1983 CS = 1984 HX1
The identification is by A. Lowe.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 219.20980 | (1950.0) | | P | Q |
| n | 0.17147446 | Peri. | 50.78837 | -0.58136010 | -0.81263214 |
| a | 3.2087603 | Node | 74.80456 | +0.73289553 | -0.54468943 |
| e | 0.1022218 | Incl. | 2.41198 | +0.35339013 | -0.20722552 |
| P | 5.75 | H | 12.3 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 830215 | 688 | 0.6- 0.4+ | 830219 | 688 | 0.0 0.4- | 840424 | 809 | 0.2- 0.6- |
| 830215 | 688 | 0.5+ 0.5- | 840423 | 809 | 0.6- 0.4- | 840424 | 809 | 0.1+ 0.3+ |
| 830219 | 688 | 0.0 0.6+ | 840423 | 809 | 0.7+ 0.7+ | | | |

ORBITAL ELEMENTS BY T. VINOGRADOVA, INSTITUTE FOR THEORETICAL ASTRONOMY.

1980 TG = 1980 RE2 = 1969 UC1 = 1972 JY = 1976 OA1 = 1983 HB
The double designation 1980 TG = 1980 RE2 is by F. Bowman (MPC 5788). The identifications are by T. Vinogradova.
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | (1950.0) | P | Q |
|---|---|---|---|---|
| M | 247.11593 | | | |
| n | 0.26530958 | Peri. 150.01821 | +0.32063899 | +0.94675424 |
| a | 2.3986530 | Node 138.66397 | -0.87752435 | +0.30847900 |
| e | 0.2128584 | Incl. 2.52558 | -0.35656928 | +0.09217982 |
| P | 3.71 | H 14.2 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 691016 | 095 | 1.3+ | 1.8- | 800915 | 511 | 0.7+ | 0.8+ | 801003 | 046 | 1.3- | 3.0- |
| 720512 | 095 | 0.9- | 0.2+ | 800915 | 511 | 0.7+ | 0.3+ | 801005 | 046 | 3.1+ | 0.0 |
| 760729 | 095 | 0.6+ | 0.8+ | 801002 | 046 | 2.4- | 1.1+ | 801005 | 046 | 0.4+ | 0.4- |
| 800907 | 095 | 1.5- | 0.3+ | 801003 | 046 | 0.3- | 1.4- | 830418 | 688 | 1.7- | 0.9- |
| 800915 | 511 | 0.8+ | 1.1+ | 801003 | 046 | 0.0 | 2.6- | 830418 | 688 | 0.4+ | 4.3- |

* * * * *

EPHEMERIDES.

1986 LA a,e,i = 1.54, 0.32, 11 Elements MPC 10949

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 07 | 09 | 14 55.33 | +18 44.1 | 0.271 | 1.120 | 105.5 | 61.0 | 17.9 |
| 1986 07 | 14 | 15 02.31 | +20 39.0 | | | | | |
| 1986 07 | 19 | 15 10.73 | +22 23.1 | 0.270 | 1.093 | 99.3 | 66.6 | 18.0 |
| 1986 07 | 24 | 15 20.53 | +23 58.0 | | | | | |
| 1986 07 | 29 | 15 31.69 | +25 24.6 | 0.268 | 1.073 | 95.1 | 70.6 | 18.0 |
| 1986 08 | 03 | 15 44.24 | +26 43.0 | | | | | |
| 1986 08 | 08 | 15 58.28 | +27 53.3 | 0.262 | 1.060 | 92.9 | 72.8 | 18.0 |
| 1986 08 | 13 | 16 13.90 | +28 55.4 | | | | | |
| 1986 08 | 18 | 16 31.20 | +29 48.6 | 0.253 | 1.055 | 92.8 | 73.3 | 18.0 |
| 1986 08 | 28 | 17 11.23 | +31 00.1 | | | | | |
| 1986 09 | 07 | 17 59.27 | +31 03.2 | 0.235 | 1.071 | 99.3 | 68.2 | 17.7 |
| 1986 09 | 17 | 18 54.91 | +29 30.2 | | | | | |
| 1986 09 | 27 | 19 54.71 | +26 04.7 | 0.235 | 1.117 | 113.6 | 55.3 | 17.4 |
| 1986 10 | 07 | 20 53.24 | +21 09.1 | | | | | |
| 1986 10 | 17 | 21 45.86 | +15 50.8 | 0.283 | 1.186 | 126.3 | 42.6 | 17.6 |
| 1986 10 | 27 | 22 30.62 | +11 13.8 | | | | | |
| 1986 11 | 06 | 23 08.19 | +07 48.7 | 0.394 | 1.270 | 127.4 | 38.3 | 18.4 |
| 1986 11 | 16 | 23 40.20 | +05 38.1 | | | | | |
| 1986 11 | 26 | 00 08.13 | +04 29.1 | 0.560 | 1.360 | 120.7 | 38.6 | 19.3 |
| 1986 12 | 06 | 00 33.28 | +04 07.5 | | | | | |
| 1986 12 | 16 | 00 56.59 | +04 20.8 | 0.767 | 1.453 | 111.5 | 39.1 | 20.1 |

Periodic Comet Singer Brewster (1986d) Elements MPC 10945

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|---|
| 1986 07 | 09 | 14 56.46 | -04 12.3 | 1.297 | 1.970 | 116.3 | 27.6 | 16.5 |
| 1986 07 | 19 | 15 06.78 | -05 15.9 | | | | | |
| 1986 07 | 29 | 15 19.13 | -06 28.9 | 1.494 | 1.996 | 103.7 | 29.6 | 16.9 |
| 1986 08 | 08 | 15 33.22 | -07 47.2 | | | | | |
| 1986 08 | 18 | 15 48.81 | -09 06.9 | 1.717 | 2.034 | 92.7 | 29.8 | 17.3 |
| 1986 08 | 28 | 16 05.65 | -10 24.7 | | | | | |
| 1986 09 | 07 | 16 23.53 | -11 38.1 | 1.957 | 2.082 | 82.6 | 28.7 | 17.6 |
| 1986 09 | 17 | 16 42.29 | -12 44.6 | | | | | |
| 1986 09 | 27 | 17 01.74 | -13 42.5 | 2.209 | 2.140 | 72.8 | 26.6 | 18.0 |
| 1986 10 | 07 | 17 21.75 | -14 30.5 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 17 42.15 | -15 07.5 | 2.468 | 2.205 | 63.1 | 23.8 | 18.4 |
| 1986 10 27 | 18 02.81 | -15 32.9 | | | | | |
| 1986 11 06 | 18 23.60 | -15 46.3 | 2.725 | 2.277 | 53.3 | 20.4 | 18.8 |
| 1986 11 16 | 18 44.40 | -15 47.7 | | | | | |
| 1986 11 26 | 19 05.09 | -15 37.4 | 2.972 | 2.354 | 43.3 | 16.7 | 19.1 |
| 1986 12 06 | 19 25.57 | -15 15.8 | | | | | |
| 1986 12 16 | 19 45.75 | -14 43.7 | 3.200 | 2.435 | 33.0 | 12.7 | 19.4 |

1986 EB a,e,i = 0.97, 0.28, 23 Elements MPC 10625

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 09 | 10 21.91 | -23 53.1 | 0.707 | 0.972 | 65.8 | 72.6 | 17.5 |
| 1986 07 19 | 10 36.17 | -26 26.3 | | | | | |
| 1986 07 29 | 10 50.29 | -28 37.9 | 0.632 | 0.871 | 58.5 | 83.3 | 17.4 |
| 1986 08 08 | 11 03.54 | -30 02.3 | | | | | |
| 1986 08 18 | 11 14.59 | -29 48.8 | 0.492 | 0.776 | 48.2 | 103.6 | 17.5 |
| 1986 08 28 | 11 21.55 | -26 16.3 | | | | | |

1986 DA a,e,i = 2.81, 0.59, 4 Elements MPC 10628

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 29 | 15 59.52 | -24 18.5 | 1.002 | 1.725 | 117.6 | 31.4 | 18.4 |
| 1986 08 08 | 16 18.09 | -25 12.1 | | | | | |
| 1986 08 18 | 16 36.74 | -25 53.8 | 1.307 | 1.873 | 107.0 | 31.1 | 19.1 |
| 1986 08 28 | 16 55.43 | -26 24.9 | | | | | |
| 1986 09 07 | 17 14.18 | -26 46.4 | 1.646 | 2.020 | 96.2 | 29.7 | 19.8 |
| 1986 09 17 | 17 32.96 | -26 58.8 | | | | | |
| 1986 09 27 | 17 51.72 | -27 02.6 | 2.007 | 2.165 | 85.1 | 27.5 | 20.3 |
| 1986 10 07 | 18 10.42 | -26 58.0 | | | | | |
| 1986 10 17 | 18 29.03 | -26 45.4 | 2.379 | 2.307 | 73.7 | 24.5 | 20.7 |

1986 JK a,e,i = 2.76, 0.67, 2 Elements MPC 10833

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 29 | 03 26.32 | +14 16.1 | 0.481 | 0.983 | 72.3 | 79.9 | 19.9 |
| 1986 08 08 | 03 39.22 | +15 19.0 | | | | | |
| 1986 08 18 | 03 49.00 | +16 05.7 | 0.575 | 1.126 | 85.7 | 63.7 | 20.1 |
| 1986 08 28 | 03 54.73 | +16 36.4 | | | | | |
| 1986 09 07 | 03 55.52 | +16 51.0 | 0.625 | 1.302 | 103.3 | 48.9 | 20.2 |
| 1986 09 17 | 03 50.70 | +16 49.0 | | | | | |
| 1986 09 27 | 03 40.23 | +16 29.7 | 0.657 | 1.489 | 126.4 | 32.8 | 20.2 |
| 1986 10 07 | 03 24.80 | +15 52.6 | | | | | |
| 1986 10 17 | 03 06.31 | +15 01.1 | 0.723 | 1.678 | 154.4 | 14.9 | 20.1 |
| 1986 10 27 | 02 47.40 | +14 02.7 | | | | | |
| 1986 11 06 | 02 30.56 | +13 07.3 | 0.872 | 1.862 | 176.4 | 1.9 | 20.3 |
| 1986 11 16 | 02 17.52 | +12 24.4 | | | | | |
| 1986 11 26 | 02 08.84 | +11 58.7 | 1.119 | 2.040 | 151.2 | 13.5 | 21.5 |

Periodic Comet Schwassmann-Wachmann 2 (1986h) Elements NK 482

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m2 |
|---|---|---|---|---|---|---|---|
| 1986 07 29 | 02 10.51 | +09 11.3 | 3.114 | 3.300 | 91.5 | 17.9 | 19.9 |
| 1986 08 08 | 02 16.53 | +09 29.0 | | | | | |
| 1986 08 18 | 02 21.12 | +09 37.6 | 2.763 | 3.223 | 108.0 | 17.4 | 19.6 |
| 1986 08 28 | 02 24.06 | +09 36.6 | | | | | |
| 1986 09 07 | 02 25.10 | +09 25.3 | 2.440 | 3.145 | 126.4 | 15.0 | 19.2 |
| 1986 09 17 | 02 24.08 | +09 03.6 | | | | | |
| 1986 09 27 | 02 20.92 | +08 32.0 | 2.176 | 3.065 | 146.9 | 10.3 | 18.7 |
| 1986 10 07 | 02 15.73 | +07 51.9 | | | | | |
| 1986 10 17 | 02 08.88 | +07 06.1 | 2.001 | 2.985 | 168.9 | 3.7 | 18.2 |
| 1986 10 27 | 02 01.00 | +06 18.7 | | | | | |
| 1986 11 06 | 01 52.89 | +05 34.7 | 1.938 | 2.905 | 164.4 | 5.3 | 18.1 |
| 1986 11 16 | 01 45.46 | +04 59.3 | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1986 11 26 | 01 39.52 | +04 36.4 | 1.984 | 2.824 | 141.5 | 12.6 | 18.4 |
| 1986 12 06 | 01 35.64 | +04 28.8 | | | | | |
| 1986 12 16 | 01 34.18 | +04 37.2 | 2.114 | 2.744 | 120.2 | 18.1 | 18.6 |
| 1986 12 26 | 01 35.20 | +05 01.1 | | | | | |
| 1987 01 05 | 01 38.66 | +05 39.2 | 2.292 | 2.665 | 101.3 | 21.2 | 18.8 |
| 1987 01 15 | 01 44.41 | +06 29.6 | | | | | |
| 1987 01 25 | 01 52.23 | +07 30.1 | 2.484 | 2.587 | 84.8 | 22.3 | 19.0 |
| 1987 02 04 | 02 01.94 | +08 38.8 | | | | | |
| 1987 02 14 | 02 13.34 | +09 53.6 | 2.667 | 2.512 | 70.3 | 21.7 | 19.1 |
| 1987 02 24 | 02 26.26 | +11 12.6 | | | | | |
| 1987 03 06 | 02 40.58 | +12 33.9 | 2.827 | 2.439 | 57.3 | 20.0 | 19.1 |
| 1987 03 16 | 02 56.17 | +13 55.7 | | | | | |
| 1987 03 26 | 03 12.95 | +15 16.3 | 2.956 | 2.370 | 45.7 | 17.5 | 19.0 |
| 1987 04 05 | 03 30.83 | +16 34.1 | | | | | |
| 1987 04 15 | 03 49.75 | +17 47.2 | 3.051 | 2.305 | 35.2 | 14.5 | 19.0 |

Periodic Comet Machholz (1986e) Elements MPC 10945

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 16 13.40 | -13 33.7 | 1.864 | 2.264 | 99.6 | 26.2 | 17.9 |
| 1986 08 28 | 16 18.76 | -15 17.5 | | | | | |
| 1986 09 07 | 16 25.63 | -16 44.4 | 2.398 | 2.499 | 83.8 | 23.6 | 18.9 |
| 1986 09 17 | 16 33.63 | -17 58.4 | | | | | |
| 1986 09 27 | 16 42.49 | -19 02.0 | 2.916 | 2.716 | 68.6 | 20.1 | 19.7 |
| 1986 10 07 | 16 52.03 | -19 57.1 | | | | | |
| 1986 10 17 | 17 02.08 | -20 44.8 | 3.396 | 2.919 | 53.7 | 16.0 | 20.3 |

1985 JA a,e,i = 1.64, 0.32, 37 Elements MPC 10530

| Date ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 03 46.87 | +37 15.8 | 1.776 | 1.914 | -2.12 | +10.4 | 20.3 |
| 1986 08 28 | 04 04.25 | +37 04.3 | | | | | |
| 1986 09 07 | 04 20.27 | +36 30.2 | 1.480 | 1.847 | -2.73 | +14.1 | 19.9 |
| 1986 09 17 | 04 34.42 | +35 28.2 | | | | | |
| 1986 09 27 | 04 46.14 | +33 51.2 | 1.182 | 1.773 | -3.51 | +18.8 | 19.3 |
| 1986 10 07 | 04 54.67 | +31 28.5 | | | | | |
| 1986 10 17 | 04 59.14 | +28 04.3 | 0.902 | 1.693 | -4.39 | +24.8 | 18.5 |
| 1986 10 27 | 04 58.68 | +23 17.4 | | | | | |
| 1986 11 06 | 04 52.46 | +16 44.2 | 0.676 | 1.607 | -5.13 | +31.9 | 17.5 |
| 1986 11 16 | 04 40.35 | +08 15.1 | | | | | |
| 1986 11 26 | 04 23.39 | -01 37.5 | 0.559 | 1.518 | -5.07 | +41.8 | 16.9 |
| 1986 12 06 | 04 04.03 | -11 27.0 | | | | | |
| 1986 12 16 | 03 45.74 | -19 40.6 | 0.579 | 1.427 | -3.55 | +54.5 | 17.3 |
| 1986 12 26 | 03 31.42 | -25 40.7 | | | | | |
| 1987 01 05 | 03 22.65 | -29 40.1 | 0.675 | 1.339 | -1.59 | +60.7 | 17.8 |
| 1987 01 15 | 03 19.80 | -32 11.6 | | | | | |
| 1987 01 25 | 03 22.37 | -33 44.9 | 0.771 | 1.257 | -0.11 | +61.2 | 18.1 |
| 1987 02 04 | 03 29.75 | -34 40.4 | | | | | |
| 1987 02 14 | 03 41.43 | -35 12.1 | 0.827 | 1.189 | 0.98 | +60.6 | 18.3 |
| 1987 02 24 | 03 57.03 | -35 27.3 | | | | | |
| 1987 03 06 | 04 16.57 | -35 29.0 | 0.825 | 1.140 | 1.80 | +60.3 | 18.3 |
| 1987 03 16 | 04 40.31 | -35 17.3 | | | | | |
| 1987 03 26 | 05 08.78 | -34 47.5 | 0.770 | 1.118 | 2.22 | +59.6 | 18.1 |
| 1987 04 05 | 05 42.88 | -33 50.4 | | | | | |
| 1987 04 15 | 06 23.45 | -32 12.0 | 0.683 | 1.126 | 1.49 | +54.6 | 17.9 |
| 1987 04 25 | 07 10.85 | -29 32.1 | | | | | |
| 1987 05 05 | 08 04.26 | -25 33.9 | 0.612 | 1.163 | -1.51 | +35.7 | 17.7 |
| 1987 05 15 | 09 00.85 | -20 20.4 | | | | | |
| 1987 05 25 | 09 56.57 | -14 26.6 | 0.624 | 1.223 | -4.66 | +4.2 | 17.7 |
| 1987 06 04 | 10 48.01 | -08 48.9 | | | | | |
| 1987 06 14 | 11 33.48 | -04 10.1 | 0.748 | 1.299 | -4.54 | -14.1 | 18.1 |

Periodic Comet Gunn Elements MPC 7773

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m2 |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 06 53.77 | +26 51.0 | 5.405 | 4.707 | 42.4 | 8.3 | 20.4 |
| 1986 08 28 | 07 02.53 | +26 51.2 | | | | | |
| 1986 09 07 | 07 10.65 | +26 52.1 | 5.153 | 4.697 | 57.9 | 10.5 | 20.3 |
| 1986 09 17 | 07 17.97 | +26 54.1 | | | | | |
| 1986 09 27 | 07 24.38 | +26 58.2 | 4.854 | 4.685 | 74.4 | 11.9 | 20.1 |
| 1986 10 07 | 07 29.71 | +27 04.9 | | | | | |
| 1986 10 17 | 07 33.81 | +27 15.2 | 4.529 | 4.671 | 92.0 | 12.3 | 20.0 |
| 1986 10 27 | 07 36.52 | +27 29.5 | | | | | |
| 1986 11 06 | 07 37.67 | +27 48.2 | 4.207 | 4.656 | 111.1 | 11.5 | 19.8 |
| 1986 11 16 | 07 37.16 | +28 11.1 | | | | | |
| 1986 11 26 | 07 34.92 | +28 37.8 | 3.924 | 4.639 | 131.7 | 9.1 | 19.6 |
| 1986 12 06 | 07 30.96 | +29 07.1 | | | | | |
| 1986 12 16 | 07 25.45 | +29 37.1 | 3.719 | 4.621 | 153.6 | 5.4 | 19.5 |
| 1986 12 26 | 07 18.68 | +30 05.8 | | | | | |
| 1987 01 05 | 07 11.12 | +30 30.9 | 3.625 | 4.600 | 171.8 | 1.8 | 19.4 |
| 1987 01 15 | 07 03.33 | +30 50.6 | | | | | |
| 1987 01 25 | 06 55.91 | +31 04.0 | 3.658 | 4.578 | 156.7 | 4.9 | 19.4 |
| 1987 02 04 | 06 49.43 | +31 11.0 | | | | | |
| 1987 02 14 | 06 44.34 | +31 12.3 | 3.806 | 4.555 | 134.7 | 8.9 | 19.5 |
| 1987 02 24 | 06 40.92 | +31 08.9 | | | | | |
| 1987 03 06 | 06 39.31 | +31 02.0 | 4.036 | 4.530 | 113.9 | 11.6 | 19.6 |
| 1987 03 16 | 06 39.54 | +30 52.6 | | | | | |
| 1987 03 26 | 06 41.50 | +30 41.4 | 4.311 | 4.503 | 94.7 | 12.8 | 19.7 |
| 1987 04 05 | 06 45.08 | +30 28.8 | | | | | |
| 1987 04 15 | 06 50.10 | +30 15.0 | 4.592 | 4.475 | 77.0 | 12.6 | 19.8 |
| 1987 04 25 | 06 56.38 | +29 59.8 | | | | | |
| 1987 05 05 | 07 03.77 | +29 43.2 | 4.851 | 4.445 | 60.7 | 11.4 | 19.9 |
| 1987 05 15 | 07 12.08 | +29 25.0 | | | | | |
| 1987 05 25 | 07 21.17 | +29 05.1 | 5.064 | 4.413 | 45.4 | 9.4 | 20.0 |
| 1987 06 04 | 07 30.90 | +28 43.1 | | | | | |
| 1987 06 14 | 07 41.15 | +28 19.0 | 5.219 | 4.380 | 31.0 | 6.9 | 20.0 |

1984 DH1 a,e,i = 3.21, 0.14, 21 Elements MPC 10943

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 09 | 18 42.99 | -13 24.5 | 2.435 | 3.438 | 169.0 | 3.2 | 15.4 |
| 1986 07 19 | 18 34.94 | -12 57.0 | | | | | |
| 1986 07 29 | 18 28.04 | -12 35.5 | 2.542 | 3.459 | 150.1 | 8.4 | 15.7 |
| 1986 08 08 | 18 22.76 | -12 19.9 | | | | | |
| 1986 08 18 | 18 19.39 | -12 09.6 | 2.745 | 3.479 | 129.6 | 12.9 | 16.1 |
| 1986 08 28 | 18 18.06 | -12 03.3 | | | | | |
| 1986 09 07 | 18 18.74 | -12 00.0 | 3.013 | 3.498 | 110.7 | 15.6 | 16.4 |
| 1986 09 17 | 18 21.34 | -11 58.2 | | | | | |
| 1986 09 27 | 18 25.66 | -11 56.4 | 3.313 | 3.516 | 93.2 | 16.5 | 16.6 |

1981 EW21 a,e,i = 2.63, 0.12, 1 Elements MPC 10955

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 09 | 19 20.64 | -20 25.7 | 1.461 | 2.476 | 176.7 | 1.4 | 16.5 |
| 1986 07 19 | 19 11.21 | -20 42.2 | | | | | |
| 1986 07 29 | 19 02.83 | -20 56.8 | 1.525 | 2.501 | 159.5 | 8.2 | 16.9 |
| 1986 08 08 | 18 56.44 | -21 08.8 | | | | | |
| 1986 08 18 | 18 52.71 | -21 17.5 | 1.683 | 2.527 | 138.0 | 15.6 | 17.4 |
| 1986 08 28 | 18 51.85 | -21 23.1 | | | | | |
| 1986 09 07 | 18 53.83 | -21 25.4 | 1.909 | 2.553 | 118.9 | 20.2 | 17.8 |
| 1986 09 17 | 18 58.46 | -21 23.9 | | | | | |
| 1986 09 27 | 19 05.40 | -21 18.1 | 2.176 | 2.580 | 102.1 | 22.3 | 18.2 |
| 1986 10 07 | 19 14.35 | -21 07.4 | | | | | |
| 1986 10 17 | 19 24.99 | -20 51.0 | 2.461 | 2.606 | 87.0 | 22.4 | 18.5 |

(3469) 1982 UL7 a,e,i = 3.02, 0.08, 9 Elements MPC 10937

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 07 09 | 20 50.41 | -03 24.3 | 1.871 | 2.792 | 149.0 | 10.8 | 15.2 |
| 1986 | 07 19 | 20 43.88 | -03 27.1 | | | | | |
| 1986 | 07 29 | 20 36.37 | -03 45.5 | 1.805 | 2.797 | 164.7 | 5.5 | 14.9 |
| 1986 | 08 08 | 20 28.67 | -04 17.5 | | | | | |
| 1986 | 08 18 | 20 21.69 | -04 59.4 | 1.841 | 2.803 | 157.5 | 7.9 | 15.1 |
| 1986 | 08 28 | 20 16.18 | -05 46.7 | | | | | |
| 1986 | 09 07 | 20 12.70 | -06 35.0 | 1.974 | 2.810 | 138.6 | 13.7 | 15.4 |
| 1986 | 09 17 | 20 11.55 | -07 20.5 | | | | | |
| 1986 | 09 27 | 20 12.79 | -08 00.0 | 2.182 | 2.818 | 119.8 | 18.0 | 15.8 |
| 1986 | 10 07 | 20 16.35 | -08 31.7 | | | | | |
| 1986 | 10 17 | 20 22.03 | -08 54.1 | 2.436 | 2.827 | 102.6 | 20.1 | 16.1 |

1982 UR7 a,e,i = 3.02, 0.06, 11 Elements MPC 10939

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 07 09 | 21 01.28 | -23 13.2 | 1.882 | 2.832 | 154.3 | 9.0 | 15.2 |
| 1986 | 07 19 | 20 54.88 | -24 24.1 | | | | | |
| 1986 | 07 29 | 20 47.17 | -25 33.7 | 1.823 | 2.833 | 172.3 | 2.8 | 14.8 |
| 1986 | 08 08 | 20 39.00 | -26 36.2 | | | | | |
| 1986 | 08 18 | 20 31.39 | -27 26.7 | 1.872 | 2.834 | 157.6 | 7.8 | 15.1 |
| 1986 | 08 28 | 20 25.23 | -28 02.7 | | | | | |
| 1986 | 09 07 | 20 21.18 | -28 23.7 | 2.017 | 2.836 | 136.7 | 14.1 | 15.5 |
| 1986 | 09 17 | 20 19.65 | -28 30.6 | | | | | |
| 1986 | 09 27 | 20 20.71 | -28 25.2 | 2.235 | 2.839 | 117.4 | 18.3 | 15.8 |
| 1986 | 10 07 | 20 24.27 | -28 09.0 | | | | | |
| 1986 | 10 17 | 20 30.12 | -27 43.2 | 2.493 | 2.843 | 100.1 | 20.2 | 16.1 |

1982 TG1 a,e,i = 2.66, 0.17, 13 Elements MPC 10939

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 07 09 | 22 46.11 | +09 38.8 | 1.884 | 2.526 | 118.0 | 20.8 | 17.3 |
| 1986 | 07 19 | 22 46.66 | +10 26.4 | | | | | |
| 1986 | 07 29 | 22 44.86 | +10 54.2 | 1.665 | 2.491 | 135.3 | 16.7 | 16.9 |
| 1986 | 08 08 | 22 40.76 | +10 58.0 | | | | | |
| 1986 | 08 18 | 22 34.70 | +10 34.6 | 1.510 | 2.456 | 153.2 | 10.7 | 16.4 |
| 1986 | 08 28 | 22 27.33 | +09 43.6 | | | | | |
| 1986 | 09 07 | 22 19.59 | +08 27.9 | 1.444 | 2.423 | 162.1 | 7.4 | 16.2 |
| 1986 | 09 17 | 22 12.56 | +06 54.5 | | | | | |
| 1986 | 09 27 | 22 07.22 | +05 12.9 | 1.476 | 2.390 | 148.8 | 12.6 | 16.4 |
| 1986 | 10 07 | 22 04.29 | +03 32.8 | | | | | |
| 1986 | 10 17 | 22 04.15 | +02 02.7 | 1.595 | 2.360 | 129.7 | 18.9 | 16.7 |
| 1986 | 10 27 | 22 06.87 | +00 48.2 | | | | | |
| 1986 | 11 06 | 22 12.29 | -00 07.7 | 1.774 | 2.332 | 111.8 | 23.2 | 17.1 |

1982 JE1 a,e,i = 2.26, 0.18, 5 Elements MPC 10938

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 07 09 | 22 52.08 | -15 39.2 | 1.160 | 1.951 | 127.2 | 24.5 | 17.3 |
| 1986 | 07 19 | 22 56.04 | -16 11.4 | | | | | |
| 1986 | 07 29 | 22 56.72 | -17 02.5 | 0.998 | 1.920 | 145.1 | 17.6 | 16.7 |
| 1986 | 08 08 | 22 53.95 | -18 08.8 | | | | | |
| 1986 | 08 18 | 22 48.03 | -19 21.8 | 0.900 | 1.894 | 164.1 | 8.4 | 16.2 |
| 1986 | 08 28 | 22 39.90 | -20 29.9 | | | | | |
| 1986 | 09 07 | 22 31.00 | -21 20.6 | 0.885 | 1.873 | 163.6 | 8.7 | 16.1 |
| 1986 | 09 17 | 22 23.13 | -21 44.5 | | | | | |
| 1986 | 09 27 | 22 17.78 | -21 38.4 | 0.951 | 1.858 | 144.1 | 18.5 | 16.6 |
| 1986 | 10 07 | 22 15.83 | -21 03.6 | | | | | |
| 1986 | 10 17 | 22 17.59 | -20 03.7 | 1.080 | 1.848 | 125.7 | 26.0 | 17.0 |
| 1986 | 10 27 | 22 22.85 | -18 43.6 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 22 31.16 | -17 06.9 | 1.251 | 1.845 | 110.2 | 30.3 | 17.5 |
| 1986 11 16 | 22 42.04 | -15 16.5 | | | | | |
| 1986 11 26 | 22 54.96 | -13 15.2 | 1.447 | 1.848 | 97.0 | 32.0 | 17.8 |

1980 DO5 a,e,i = 2.76, 0.11, 7 Elements MPC 10938

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 09 | 23 31.27 | -08 51.6 | 1.852 | 2.473 | 116.0 | 21.7 | 16.2 |
| 1986 07 19 | 23 33.38 | -08 35.4 | | | | | |
| 1986 07 29 | 23 32.87 | -08 32.4 | 1.664 | 2.483 | 134.5 | 17.0 | 15.9 |
| 1986 08 08 | 23 29.66 | -08 42.0 | | | | | |
| 1986 08 18 | 23 23.96 | -09 01.9 | 1.538 | 2.496 | 155.7 | 9.6 | 15.5 |
| 1986 08 28 | 23 16.27 | -09 27.8 | | | | | |
| 1986 09 07 | 23 07.42 | -09 54.7 | 1.504 | 2.510 | 176.0 | 1.6 | 15.1 |
| 1986 09 17 | 22 58.52 | -10 16.6 | | | | | |
| 1986 09 27 | 22 50.66 | -10 28.9 | 1.574 | 2.526 | 156.8 | 9.0 | 15.5 |
| 1986 10 07 | 22 44.69 | -10 28.9 | | | | | |
| 1986 10 17 | 22 41.20 | -10 15.1 | 1.738 | 2.543 | 135.1 | 16.1 | 16.0 |
| 1986 10 27 | 22 40.36 | -09 48.0 | | | | | |
| 1986 11 06 | 22 42.12 | -09 08.6 | 1.970 | 2.562 | 115.8 | 20.4 | 16.4 |
| 1986 11 16 | 22 46.26 | -08 17.8 | | | | | |
| 1986 11 26 | 22 52.46 | -07 17.1 | 2.241 | 2.582 | 98.7 | 22.2 | 16.8 |

1983 CS a,e,i = 3.21, 0.10, 2 Elements MPC 10957

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 09 | 23 53.91 | -03 41.5 | 2.999 | 3.464 | 108.8 | 16.1 | 18.1 |
| 1986 07 19 | 23 55.50 | -03 39.8 | | | | | |
| 1986 07 29 | 23 55.34 | -03 49.4 | 2.737 | 3.452 | 127.6 | 13.5 | 17.9 |
| 1986 08 08 | 23 53.35 | -04 10.3 | | | | | |
| 1986 08 18 | 23 49.59 | -04 41.6 | 2.536 | 3.439 | 148.4 | 8.9 | 17.5 |
| 1986 08 28 | 23 44.29 | -05 21.0 | | | | | |
| 1986 09 07 | 23 37.82 | -06 05.6 | 2.428 | 3.426 | 170.5 | 2.8 | 17.2 |
| 1986 09 17 | 23 30.74 | -06 51.1 | | | | | |
| 1986 09 27 | 23 23.72 | -07 33.2 | 2.433 | 3.412 | 165.2 | 4.3 | 17.2 |
| 1986 10 07 | 23 17.40 | -08 08.0 | | | | | |
| 1986 10 17 | 23 12.36 | -08 32.3 | 2.549 | 3.397 | 142.8 | 10.2 | 17.6 |
| 1986 10 27 | 23 08.99 | -08 44.6 | | | | | |
| 1986 11 06 | 23 07.51 | -08 44.3 | 2.753 | 3.381 | 121.7 | 14.4 | 17.9 |
| 1986 11 16 | 23 07.98 | -08 31.5 | | | | | |
| 1986 11 26 | 23 10.33 | -08 07.3 | 3.011 | 3.365 | 102.5 | 16.6 | 18.1 |

1964 VA3 a,e,i = 3.19, 0.16, 1 Elements MPC 10937

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 07 09 | 00 35.08 | +03 37.1 | 2.684 | 2.976 | 96.5 | 19.8 | 16.7 |
| 1986 07 19 | 00 39.91 | +04 04.8 | | | | | |
| 1986 07 29 | 00 42.92 | +04 20.5 | 2.453 | 3.006 | 113.5 | 18.0 | 16.5 |
| 1986 08 08 | 00 43.93 | +04 23.3 | | | | | |
| 1986 08 18 | 00 42.85 | +04 12.5 | 2.258 | 3.037 | 132.8 | 14.2 | 16.2 |
| 1986 08 28 | 00 39.71 | +03 48.7 | | | | | |
| 1986 09 07 | 00 34.72 | +03 12.9 | 2.129 | 3.068 | 154.3 | 8.2 | 15.9 |
| 1986 09 17 | 00 28.32 | +02 28.2 | | | | | |
| 1986 09 27 | 00 21.13 | +01 38.6 | 2.098 | 3.100 | 177.5 | 0.8 | 15.5 |
| 1986 10 07 | 00 13.89 | +00 49.1 | | | | | |
| 1986 10 17 | 00 07.37 | +00 04.9 | 2.180 | 3.131 | 158.9 | 6.6 | 15.9 |
| 1986 10 27 | 00 02.20 | -00 30.0 | | | | | |
| 1986 11 06 | 23 58.80 | -00 52.8 | 2.368 | 3.162 | 136.6 | 12.4 | 16.3 |
| 1986 11 16 | 23 57.40 | -01 02.1 | | | | | |
| 1986 11 26 | 23 58.02 | -00 58.0 | 2.632 | 3.193 | 116.2 | 16.1 | 16.7 |
| 1986 12 06 | 00 00.55 | -00 41.1 | | | | | |
| 1986 12 16 | 00 04.85 | -00 12.8 | 2.939 | 3.224 | 97.8 | 17.6 | 17.0 |

1982 UA7 a,e,i = 2.59, 0.19, 14 Elements MPC 10936

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 07 29 | 01 56.11 | -05 59.2 | 1.692 | 2.118 | -1.36 | -13.6 | 16.4 |
| 1986 | 08 08 | 02 06.64 | -05 43.3 | | | | | |
| 1986 | 08 18 | 02 14.95 | -05 39.7 | 1.487 | 2.106 | -1.57 | -16.0 | 16.0 |
| 1986 | 08 28 | 02 20.64 | -05 47.4 | | | | | |
| 1986 | 09 07 | 02 23.26 | -06 04.4 | 1.310 | 2.100 | -1.86 | -18.5 | 15.6 |
| 1986 | 09 17 | 02 22.49 | -06 26.8 | | | | | |
| 1986 | 09 27 | 02 18.28 | -06 48.5 | 1.183 | 2.098 | -2.17 | -20.5 | 15.2 |
| 1986 | 10 07 | 02 10.94 | -07 02.4 | | | | | |
| 1986 | 10 17 | 02 01.36 | -06 59.8 | 1.132 | 2.101 | -2.33 | -20.7 | 14.9 |
| 1986 | 10 27 | 01 50.90 | -06 34.8 | | | | | |
| 1986 | 11 06 | 01 41.08 | -05 44.5 | 1.174 | 2.110 | -2.20 | -19.1 | 15.1 |
| 1986 | 11 16 | 01 33.28 | -04 30.0 | | | | | |
| 1986 | 11 26 | 01 28.34 | -02 55.6 | 1.305 | 2.123 | -1.88 | -16.8 | 15.6 |
| 1986 | 12 06 | 01 26.62 | -01 06.3 | | | | | |
| 1986 | 12 16 | 01 28.10 | +00 53.1 | 1.504 | 2.141 | -1.54 | -14.6 | 16.0 |
| 1986 | 12 26 | 01 32.48 | +02 58.8 | | | | | |
| 1987 | 01 05 | 01 39.43 | +05 07.7 | 1.744 | 2.163 | -1.27 | -12.8 | 16.4 |

1982 TW a,e,i = 2.44, 0.18, 3 Elements MPC 10943

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 03 50.85 | +16 54.1 | 1.611 | 2.101 | 104.3 | 27.7 | 17.2 |
| 1986 | 09 17 | 03 58.06 | +17 15.4 | | | | | |
| 1986 | 09 27 | 04 02.22 | +17 28.2 | 1.436 | 2.134 | 121.0 | 23.7 | 16.9 |
| 1986 | 10 07 | 04 02.93 | +17 32.9 | | | | | |
| 1986 | 10 17 | 04 00.03 | +17 30.2 | 1.300 | 2.169 | 141.2 | 16.7 | 16.5 |
| 1986 | 10 27 | 03 53.73 | +17 20.6 | | | | | |
| 1986 | 11 06 | 03 44.69 | +17 05.4 | 1.234 | 2.206 | 164.7 | 6.8 | 16.1 |
| 1986 | 11 16 | 03 34.15 | +16 47.2 | | | | | |
| 1986 | 11 26 | 03 23.66 | +16 29.7 | 1.267 | 2.245 | 169.7 | 4.5 | 16.1 |
| 1986 | 12 06 | 03 14.67 | +16 17.3 | | | | | |
| 1986 | 12 16 | 03 08.28 | +16 13.8 | 1.403 | 2.285 | 145.9 | 14.0 | 16.7 |
| 1986 | 12 26 | 03 05.03 | +16 21.2 | | | | | |
| 1987 | 01 05 | 03 05.02 | +16 39.8 | 1.619 | 2.326 | 124.9 | 20.3 | 17.3 |
| 1987 | 01 15 | 03 08.06 | +17 08.7 | | | | | |
| 1987 | 01 25 | 03 13.81 | +17 45.8 | 1.886 | 2.367 | 106.9 | 23.5 | 17.7 |
| 1987 | 02 04 | 03 21.90 | +18 29.1 | | | | | |
| 1987 | 02 14 | 03 31.99 | +19 16.1 | 2.177 | 2.408 | 91.1 | 24.2 | 18.1 |

6787 P-L a,e,i = 2.17, 0.09, 1 Elements MPC 9303

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 28.20 | +20 46.7 | 2.047 | 2.359 | 95.0 | 25.2 | 19.2 |
| 1986 | 09 17 | 04 36.53 | +21 01.0 | | | | | |
| 1986 | 09 27 | 04 42.47 | +21 09.0 | 1.805 | 2.359 | 111.1 | 23.4 | 18.9 |
| 1986 | 10 07 | 04 45.57 | +21 11.2 | | | | | |
| 1986 | 10 17 | 04 45.48 | +21 07.6 | 1.589 | 2.358 | 130.1 | 18.9 | 18.5 |
| 1986 | 10 27 | 04 41.97 | +20 58.2 | | | | | |
| 1986 | 11 06 | 04 35.10 | +20 42.6 | 1.430 | 2.355 | 152.5 | 11.2 | 18.0 |
| 1986 | 11 16 | 04 25.43 | +20 21.0 | | | | | |
| 1986 | 11 26 | 04 14.05 | +19 54.4 | 1.363 | 2.350 | 177.4 | 1.1 | 17.5 |
| 1986 | 12 06 | 04 02.40 | +19 25.8 | | | | | |
| 1986 | 12 16 | 03 52.05 | +18 59.7 | 1.406 | 2.343 | 156.7 | 9.6 | 17.9 |
| 1986 | 12 26 | 03 44.19 | +18 40.2 | | | | | |
| 1987 | 01 05 | 03 39.53 | +18 30.8 | 1.547 | 2.334 | 133.3 | 17.8 | 18.4 |
| 1987 | 01 15 | 03 38.32 | +18 32.7 | | | | | |
| 1987 | 01 25 | 03 40.41 | +18 45.5 | 1.752 | 2.324 | 113.2 | 22.9 | 18.8 |
| 1987 | 02 04 | 03 45.53 | +19 07.6 | | | | | |
| 1987 | 02 14 | 03 53.31 | +19 36.7 | 1.988 | 2.312 | 96.1 | 25.1 | 19.1 |

(3202) A908 AA a,e,i = 3.94, 0.10, 11 Elements MPC 9461

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 30.66 | +16 14.7 | 3.499 | 3.726 | 95.1 | 15.6 | 16.8 |
| 1986 | 09 17 | 04 35.00 | +15 53.7 | | | | | |
| 1986 | 09 27 | 04 37.68 | +15 27.0 | 3.204 | 3.710 | 112.9 | 14.4 | 16.6 |
| 1986 | 10 07 | 04 38.54 | +14 55.0 | | | | | |
| 1986 | 10 17 | 04 37.52 | +14 18.5 | 2.948 | 3.695 | 132.5 | 11.5 | 16.3 |
| 1986 | 10 27 | 04 34.65 | +13 38.7 | | | | | |
| 1986 | 11 06 | 04 30.10 | +12 56.9 | 2.766 | 3.680 | 153.5 | 6.9 | 16.0 |
| 1986 | 11 16 | 04 24.24 | +12 15.5 | | | | | |
| 1986 | 11 26 | 04 17.58 | +11 36.7 | 2.689 | 3.666 | 170.3 | 2.6 | 15.7 |
| 1986 | 12 06 | 04 10.76 | +11 03.1 | | | | | |
| 1986 | 12 16 | 04 04.44 | +10 36.9 | 2.732 | 3.652 | 155.9 | 6.3 | 15.9 |
| 1986 | 12 26 | 03 59.19 | +10 19.7 | | | | | |
| 1987 | 01 05 | 03 55.46 | +10 12.3 | 2.882 | 3.639 | 134.4 | 11.1 | 16.2 |
| 1987 | 01 15 | 03 53.52 | +10 14.4 | | | | | |
| 1987 | 01 25 | 03 53.47 | +10 25.3 | 3.111 | 3.627 | 114.1 | 14.3 | 16.5 |
| 1987 | 02 04 | 03 55.30 | +10 43.5 | | | | | |
| 1987 | 02 14 | 03 58.92 | +11 07.5 | 3.383 | 3.615 | 95.6 | 15.8 | 16.7 |

1984 FC a,e,i = 2.48, 0.07, 6 Elements MPC 8891

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 26.44 | +23 50.6 | 2.058 | 2.367 | -1.10 | -4.3 | 17.5 |
| 1986 | 09 17 | 04 35.77 | +24 38.1 | | | | | |
| 1986 | 09 27 | 04 42.86 | +25 22.5 | 1.811 | 2.357 | -1.30 | -4.3 | 17.1 |
| 1986 | 10 07 | 04 47.25 | +26 04.3 | | | | | |
| 1986 | 10 17 | 04 48.51 | +26 43.4 | 1.592 | 2.348 | -1.55 | -4.5 | 16.7 |
| 1986 | 10 27 | 04 46.34 | +27 18.5 | | | | | |
| 1986 | 11 06 | 04 40.68 | +27 47.5 | 1.429 | 2.340 | -1.78 | -5.5 | 16.3 |
| 1986 | 11 16 | 04 31.97 | +28 07.1 | | | | | |
| 1986 | 11 26 | 04 21.19 | +28 14.8 | 1.352 | 2.333 | -1.87 | -7.1 | 15.8 |
| 1986 | 12 06 | 04 09.80 | +28 10.0 | | | | | |
| 1986 | 12 16 | 03 59.48 | +27 55.5 | 1.381 | 2.327 | -1.75 | -8.3 | 16.1 |
| 1986 | 12 26 | 03 51.59 | +27 36.4 | | | | | |
| 1987 | 01 05 | 03 47.00 | +27 18.3 | 1.508 | 2.323 | -1.52 | -8.1 | 16.5 |
| 1987 | 01 15 | 03 46.02 | +27 05.5 | | | | | |
| 1987 | 01 25 | 03 48.54 | +27 00.1 | 1.704 | 2.320 | -1.30 | -7.0 | 16.9 |
| 1987 | 02 04 | 03 54.28 | +27 02.3 | | | | | |
| 1987 | 02 14 | 04 02.84 | +27 11.1 | 1.937 | 2.318 | -1.14 | -5.5 | 17.3 |

1981 RK5 a,e,i = 2.71, 0.04, 8 Elements MPC 10154

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 33.80 | +24 15.5 | 2.347 | 2.605 | 93.2 | 22.7 | 17.4 |
| 1986 | 09 17 | 04 41.82 | +25 01.1 | | | | | |
| 1986 | 09 27 | 04 47.69 | +25 44.5 | 2.094 | 2.604 | 109.3 | 21.3 | 17.1 |
| 1986 | 10 07 | 04 51.00 | +26 26.1 | | | | | |
| 1986 | 10 17 | 04 51.40 | +27 05.6 | 1.869 | 2.603 | 127.9 | 17.6 | 16.7 |
| 1986 | 10 27 | 04 48.70 | +27 41.8 | | | | | |
| 1986 | 11 06 | 04 42.90 | +28 12.4 | 1.702 | 2.604 | 149.3 | 11.2 | 16.3 |
| 1986 | 11 16 | 04 34.42 | +28 34.8 | | | | | |
| 1986 | 11 26 | 04 24.14 | +28 46.6 | 1.626 | 2.605 | 170.7 | 3.5 | 15.9 |
| 1986 | 12 06 | 04 13.31 | +28 47.1 | | | | | |
| 1986 | 12 16 | 04 03.33 | +28 38.2 | 1.661 | 2.606 | 159.7 | 7.5 | 16.2 |
| 1986 | 12 26 | 03 55.40 | +28 24.1 | | | | | |
| 1987 | 01 05 | 03 50.29 | +28 09.3 | 1.799 | 2.609 | 137.3 | 14.8 | 16.6 |
| 1987 | 01 15 | 03 48.36 | +27 58.0 | | | | | |
| 1987 | 01 25 | 03 49.59 | +27 52.4 | 2.012 | 2.611 | 117.1 | 19.6 | 17.0 |
| 1987 | 02 04 | 03 53.77 | +27 53.3 | | | | | |
| 1987 | 02 14 | 04 00.58 | +28 00.3 | 2.265 | 2.615 | 99.4 | 21.9 | 17.3 |

(3340) 1979 TK a,e,i = 2.23, 0.19, 6 Elements MPC 10300

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 38.66 | +22 59.6 | 1.818 | 2.113 | 92.2 | 28.5 | 18.5 |
| 1986 | 09 17 | 04 48.66 | +23 44.3 | | | | | |
| 1986 | 09 27 | 04 56.00 | +24 25.2 | 1.632 | 2.159 | 107.6 | 26.3 | 18.3 |
| 1986 | 10 07 | 05 00.17 | +25 03.2 | | | | | |
| 1986 | 10 17 | 05 00.73 | +25 38.5 | 1.465 | 2.204 | 126.1 | 21.4 | 18.0 |
| 1986 | 10 27 | 04 57.44 | +26 09.9 | | | | | |
| 1986 | 11 06 | 04 50.31 | +26 35.1 | 1.346 | 2.249 | 148.1 | 13.5 | 17.6 |
| 1986 | 11 16 | 04 39.95 | +26 50.9 | | | | | |
| 1986 | 11 26 | 04 27.58 | +26 55.0 | 1.312 | 2.293 | 171.7 | 3.6 | 17.2 |
| 1986 | 12 06 | 04 14.84 | +26 47.2 | | | | | |
| 1986 | 12 16 | 04 03.51 | +26 31.1 | 1.386 | 2.336 | 160.0 | 8.3 | 17.6 |
| 1986 | 12 26 | 03 54.89 | +26 12.1 | | | | | |
| 1987 | 01 05 | 03 49.69 | +25 55.4 | 1.561 | 2.376 | 137.0 | 16.4 | 18.1 |
| 1987 | 01 15 | 03 48.11 | +25 45.0 | | | | | |
| 1987 | 01 25 | 03 49.91 | +25 42.2 | 1.806 | 2.415 | 116.8 | 21.3 | 18.6 |
| 1987 | 02 04 | 03 54.74 | +25 46.9 | | | | | |
| 1987 | 02 14 | 04 02.17 | +25 58.0 | 2.089 | 2.451 | 99.4 | 23.4 | 19.0 |

1967 JP a,e,i = 3.12, 0.11, 4 Elements MPC 9416

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 45.41 | +26 41.9 | 3.322 | 3.475 | 90.2 | 16.9 | 19.1 |
| 1986 | 09 17 | 04 50.59 | +27 02.4 | | | | | |
| 1986 | 09 27 | 04 53.93 | +27 20.1 | 3.035 | 3.473 | 107.7 | 16.0 | 18.9 |
| 1986 | 10 07 | 04 55.19 | +27 34.8 | | | | | |
| 1986 | 10 17 | 04 54.21 | +27 45.9 | 2.776 | 3.470 | 127.2 | 13.2 | 18.6 |
| 1986 | 10 27 | 04 50.94 | +27 52.4 | | | | | |
| 1986 | 11 06 | 04 45.49 | +27 53.1 | 2.580 | 3.466 | 148.8 | 8.5 | 18.3 |
| 1986 | 11 16 | 04 38.22 | +27 46.8 | | | | | |
| 1986 | 11 26 | 04 29.73 | +27 32.9 | 2.483 | 3.461 | 170.9 | 2.6 | 17.9 |
| 1986 | 12 06 | 04 20.83 | +27 12.0 | | | | | |
| 1986 | 12 16 | 04 12.39 | +26 46.1 | 2.505 | 3.455 | 162.0 | 5.1 | 18.1 |
| 1986 | 12 26 | 04 05.19 | +26 17.8 | | | | | |
| 1987 | 01 05 | 03 59.83 | +25 50.5 | 2.642 | 3.447 | 139.2 | 10.7 | 18.4 |
| 1987 | 01 15 | 03 56.66 | +25 26.9 | | | | | |
| 1987 | 01 25 | 03 55.80 | +25 08.9 | 2.865 | 3.439 | 118.0 | 14.6 | 18.7 |
| 1987 | 02 04 | 03 57.20 | +24 57.2 | | | | | |
| 1987 | 02 14 | 04 00.71 | +24 51.9 | 3.136 | 3.429 | 98.8 | 16.5 | 18.9 |

2533 P-L a,e,i = 2.18, 0.22, 2 Elements MPC 5523

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 43.40 | +20 22.6 | 1.738 | 2.032 | 91.5 | 29.7 | 19.1 |
| 1986 | 09 17 | 04 54.25 | +20 35.6 | | | | | |
| 1986 | 09 27 | 05 02.37 | +20 41.9 | 1.563 | 2.083 | 106.5 | 27.5 | 18.8 |
| 1986 | 10 07 | 05 07.31 | +20 42.7 | | | | | |
| 1986 | 10 17 | 05 08.65 | +20 39.0 | 1.402 | 2.134 | 124.8 | 22.5 | 18.5 |
| 1986 | 10 27 | 05 06.13 | +20 31.5 | | | | | |
| 1986 | 11 06 | 04 59.79 | +20 20.0 | 1.287 | 2.185 | 146.8 | 14.4 | 18.2 |
| 1986 | 11 16 | 04 50.18 | +20 04.8 | | | | | |
| 1986 | 11 26 | 04 38.45 | +19 46.5 | 1.253 | 2.234 | 171.7 | 3.6 | 17.7 |
| 1986 | 12 06 | 04 26.16 | +19 26.9 | | | | | |
| 1986 | 12 16 | 04 15.03 | +19 09.5 | 1.325 | 2.282 | 162.0 | 7.7 | 18.1 |
| 1986 | 12 26 | 04 06.36 | +18 57.7 | | | | | |
| 1987 | 01 05 | 04 00.91 | +18 54.3 | 1.499 | 2.327 | 138.4 | 16.3 | 18.7 |
| 1987 | 01 15 | 03 58.94 | +19 00.2 | | | | | |
| 1987 | 01 25 | 04 00.27 | +19 14.9 | 1.744 | 2.371 | 117.9 | 21.5 | 19.2 |
| 1987 | 02 04 | 04 04.56 | +19 36.9 | | | | | |
| 1987 | 02 14 | 04 11.43 | +20 04.2 | 2.029 | 2.411 | 100.4 | 23.8 | 19.6 |

1981 EB28 a,e,i = 2.29, 0.16, 2 Elements MPC 8288

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 09 07 | 04 50.26 | +20 11.6 | 2.447 | 2.645 | 89.9 | 22.4 | 19.5 |
| 1986 09 17 | 04 57.81 | +20 16.2 | | | | | |
| 1986 09 27 | 05 03.22 | +20 16.1 | 2.192 | 2.655 | 106.4 | 21.2 | 19.2 |
| 1986 10 07 | 05 06.13 | +20 11.7 | | | | | |
| 1986 10 17 | 05 06.25 | +20 03.5 | 1.957 | 2.661 | 125.4 | 17.8 | 18.9 |
| 1986 10 27 | 05 03.39 | +19 51.9 | | | | | |
| 1986 11 06 | 04 57.54 | +19 37.0 | 1.776 | 2.665 | 147.4 | 11.6 | 18.5 |
| 1986 11 16 | 04 49.07 | +19 18.9 | | | | | |
| 1986 11 26 | 04 38.74 | +18 58.5 | 1.686 | 2.667 | 171.5 | 3.1 | 18.0 |
| 1986 12 06 | 04 27.63 | +18 37.4 | | | | | |
| 1986 12 16 | 04 17.06 | +18 18.1 | 1.711 | 2.665 | 162.2 | 6.5 | 18.2 |
| 1986 12 26 | 04 08.14 | +18 03.6 | | | | | |
| 1987 01 05 | 04 01.71 | +17 56.3 | 1.845 | 2.661 | 138.3 | 14.2 | 18.7 |
| 1987 01 15 | 03 58.19 | +17 57.7 | | | | | |
| 1987 01 25 | 03 57.65 | +18 07.8 | 2.057 | 2.654 | 117.1 | 19.3 | 19.0 |
| 1987 02 04 | 03 59.95 | +18 25.8 | | | | | |
| 1987 02 14 | 04 04.82 | +18 50.1 | 2.310 | 2.644 | 98.6 | 21.7 | 19.4 |

1983 AV a,e,i = 2.66, 0.21, 13 Elements MPC 7938

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 09 07 | 04 44.86 | +12 01.4 | 2.515 | 2.746 | 92.2 | 21.5 | 18.1 |
| 1986 09 17 | 04 52.35 | +12 04.2 | | | | | |
| 1986 09 27 | 04 57.99 | +12 03.2 | 2.217 | 2.703 | 108.2 | 20.6 | 17.8 |
| 1986 10 07 | 05 01.41 | +11 59.6 | | | | | |
| 1986 10 17 | 05 02.31 | +11 55.1 | 1.945 | 2.660 | 126.4 | 17.5 | 17.4 |
| 1986 10 27 | 05 00.43 | +11 51.8 | | | | | |
| 1986 11 06 | 04 55.68 | +11 51.6 | 1.727 | 2.616 | 147.2 | 11.9 | 16.9 |
| 1986 11 16 | 04 48.28 | +11 56.8 | | | | | |
| 1986 11 26 | 04 38.81 | +12 09.3 | 1.598 | 2.572 | 167.9 | 4.6 | 16.4 |
| 1986 12 06 | 04 28.24 | +12 30.4 | | | | | |
| 1986 12 16 | 04 17.84 | +13 00.9 | 1.580 | 2.527 | 160.0 | 7.7 | 16.5 |
| 1986 12 26 | 04 08.83 | +13 40.9 | | | | | |
| 1987 01 05 | 04 02.18 | +14 29.8 | 1.667 | 2.482 | 137.5 | 15.5 | 16.8 |
| 1987 01 15 | 03 58.51 | +15 26.4 | | | | | |
| 1987 01 25 | 03 58.00 | +16 29.1 | 1.831 | 2.438 | 116.8 | 21.1 | 17.2 |
| 1987 02 04 | 04 00.61 | +17 36.4 | | | | | |
| 1987 02 14 | 04 06.13 | +18 46.4 | 2.035 | 2.395 | 98.9 | 24.0 | 17.4 |

1979 OB a,e,i = 2.22, 0.28, 6 Elements MPC 7020

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 09 07 | 04 46.17 | +17 59.8 | 1.663 | 1.962 | 91.2 | 30.9 | 18.7 |
| 1986 09 17 | 04 57.28 | +17 41.2 | | | | | |
| 1986 09 27 | 05 05.50 | +17 13.4 | 1.509 | 2.029 | 106.1 | 28.3 | 18.5 |
| 1986 10 07 | 05 10.39 | +16 37.9 | | | | | |
| 1986 10 17 | 05 11.59 | +15 56.3 | 1.368 | 2.097 | 124.2 | 23.1 | 18.3 |
| 1986 10 27 | 05 08.95 | +15 10.8 | | | | | |
| 1986 11 06 | 05 02.57 | +14 23.6 | 1.271 | 2.165 | 145.9 | 14.9 | 17.9 |
| 1986 11 16 | 04 53.08 | +13 38.2 | | | | | |
| 1986 11 26 | 04 41.65 | +12 58.2 | 1.256 | 2.231 | 168.0 | 5.3 | 17.6 |
| 1986 12 06 | 04 29.79 | +12 27.6 | | | | | |
| 1986 12 16 | 04 19.10 | +12 09.7 | 1.346 | 2.295 | 159.7 | 8.5 | 18.0 |
| 1986 12 26 | 04 10.79 | +12 06.0 | | | | | |
| 1987 01 05 | 04 05.53 | +12 16.2 | 1.536 | 2.356 | 137.5 | 16.4 | 18.6 |
| 1987 01 15 | 04 03.54 | +12 38.7 | | | | | |
| 1987 01 25 | 04 04.65 | +13 10.7 | 1.797 | 2.415 | 117.5 | 21.2 | 19.1 |
| 1987 02 04 | 04 08.55 | +13 49.6 | | | | | |
| 1987 02 14 | 04 14.87 | +14 32.5 | 2.098 | 2.471 | 100.1 | 23.2 | 19.5 |

1981 EJ17 a,e,i = 2.20, 0.11, 6 Elements MPC 10617

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 24.77 | +17 54.4 | 1.719 | 2.085 | 96.2 | 28.7 | 18.9 |
| 1986 | 09 17 | 04 36.88 | +17 39.7 | | | | | |
| 1986 | 09 27 | 04 46.82 | +17 12.8 | 1.483 | 2.061 | 110.5 | 27.1 | 18.5 |
| 1986 | 10 07 | 04 54.11 | +16 34.3 | | | | | |
| 1986 | 10 17 | 04 58.24 | +15 45.3 | 1.272 | 2.038 | 127.5 | 22.8 | 18.0 |
| 1986 | 10 27 | 04 58.85 | +14 47.4 | | | | | |
| 1986 | 11 06 | 04 55.71 | +13 43.3 | 1.110 | 2.017 | 147.5 | 15.3 | 17.5 |
| 1986 | 11 16 | 04 49.09 | +12 37.3 | | | | | |
| 1986 | 11 26 | 04 39.85 | +11 35.3 | 1.024 | 1.999 | 167.4 | 6.2 | 17.0 |
| 1986 | 12 06 | 04 29.38 | +10 44.0 | | | | | |
| 1986 | 12 16 | 04 19.50 | +10 10.1 | 1.034 | 1.983 | 158.6 | 10.4 | 17.1 |
| 1986 | 12 26 | 04 11.79 | +09 57.1 | | | | | |
| 1987 | 01 05 | 04 07.31 | +10 05.5 | 1.132 | 1.970 | 137.1 | 19.9 | 17.6 |
| 1987 | 01 15 | 04 06.58 | +10 33.0 | | | | | |
| 1987 | 01 25 | 04 09.56 | +11 15.1 | 1.292 | 1.960 | 118.2 | 26.3 | 18.1 |
| 1987 | 02 04 | 04 15.98 | +12 07.5 | | | | | |
| 1987 | 02 14 | 04 25.44 | +13 05.7 | 1.486 | 1.953 | 102.4 | 29.6 | 18.5 |

1965 AK1 a,e,i = 3.18, 0.11, 18 Elements MPC 10951

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 48.95 | +03 46.0 | 3.065 | 3.262 | 92.2 | 18.0 | 17.3 |
| 1986 | 09 17 | 04 54.48 | +03 16.0 | | | | | |
| 1986 | 09 27 | 04 58.26 | +02 40.8 | 2.785 | 3.243 | 108.3 | 17.1 | 17.1 |
| 1986 | 10 07 | 05 00.08 | +02 02.3 | | | | | |
| 1986 | 10 17 | 04 59.77 | +01 22.9 | 2.535 | 3.222 | 125.9 | 14.5 | 16.8 |
| 1986 | 10 27 | 04 57.27 | +00 45.5 | | | | | |
| 1986 | 11 06 | 04 52.65 | +00 13.9 | 2.346 | 3.202 | 144.1 | 10.5 | 16.5 |
| 1986 | 11 16 | 04 46.21 | -00 08.1 | | | | | |
| 1986 | 11 26 | 04 38.47 | -00 16.7 | 2.248 | 3.181 | 157.3 | 6.9 | 16.2 |
| 1986 | 12 06 | 04 30.14 | -00 09.3 | | | | | |
| 1986 | 12 16 | 04 22.06 | +00 15.2 | 2.259 | 3.160 | 151.6 | 8.5 | 16.3 |
| 1986 | 12 26 | 04 15.00 | +00 56.3 | | | | | |
| 1987 | 01 05 | 04 09.59 | +01 51.7 | 2.376 | 3.139 | 133.9 | 13.0 | 16.5 |
| 1987 | 01 15 | 04 06.25 | +02 58.5 | | | | | |
| 1987 | 01 25 | 04 05.14 | +04 13.4 | 2.572 | 3.118 | 115.0 | 16.6 | 16.8 |
| 1987 | 02 04 | 04 06.27 | +05 33.5 | | | | | |
| 1987 | 02 14 | 04 09.56 | +06 56.0 | 2.814 | 3.097 | 97.3 | 18.4 | 17.0 |

1980 JE a,e,i = 2.55, 0.19, 14 Elements MPC 9028

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 56.45 | +22 50.5 | 2.891 | 3.031 | 88.2 | 19.4 | 19.1 |
| 1986 | 09 17 | 05 02.69 | +23 27.3 | | | | | |
| 1986 | 09 27 | 05 07.01 | +24 03.8 | 2.602 | 3.023 | 105.2 | 18.7 | 18.8 |
| 1986 | 10 07 | 05 09.07 | +24 40.4 | | | | | |
| 1986 | 10 17 | 05 08.60 | +25 17.2 | 2.336 | 3.013 | 124.4 | 15.8 | 18.5 |
| 1986 | 10 27 | 05 05.38 | +25 53.7 | | | | | |
| 1986 | 11 06 | 04 59.38 | +26 28.3 | 2.126 | 3.000 | 146.1 | 10.6 | 18.1 |
| 1986 | 11 16 | 04 50.85 | +26 58.9 | | | | | |
| 1986 | 11 26 | 04 40.41 | +27 23.1 | 2.010 | 2.985 | 169.3 | 3.5 | 17.7 |
| 1986 | 12 06 | 04 29.03 | +27 39.1 | | | | | |
| 1986 | 12 16 | 04 17.90 | +27 47.2 | 2.013 | 2.968 | 163.0 | 5.6 | 17.8 |
| 1986 | 12 26 | 04 08.14 | +27 49.3 | | | | | |
| 1987 | 01 05 | 04 00.64 | +27 48.7 | 2.130 | 2.948 | 139.6 | 12.5 | 18.1 |
| 1987 | 01 15 | 03 55.92 | +27 48.8 | | | | | |
| 1987 | 01 25 | 03 54.14 | +27 52.1 | 2.331 | 2.926 | 118.1 | 17.3 | 18.5 |
| 1987 | 02 04 | 03 55.23 | +28 00.2 | | | | | |
| 1987 | 02 14 | 03 58.99 | +28 13.4 | 2.578 | 2.902 | 99.1 | 19.6 | 18.7 |

1942 DB a,e,i = 2.58, 0.12, 12 Elements MPC 10157

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 52.39 | +35 22.2 | 2.710 | 2.853 | 87.7 | 20.7 | 17.3 |
| 1986 | 09 17 | 05 00.99 | +36 13.5 | | | | | |
| 1986 | 09 27 | 05 07.53 | +37 03.7 | 2.437 | 2.842 | 103.4 | 20.1 | 17.1 |
| 1986 | 10 07 | 05 11.58 | +37 52.5 | | | | | |
| 1986 | 10 17 | 05 12.73 | +38 38.6 | 2.184 | 2.830 | 121.0 | 17.6 | 16.8 |
| 1986 | 10 27 | 05 10.69 | +39 19.7 | | | | | |
| 1986 | 11 06 | 05 05.30 | +39 51.8 | 1.980 | 2.816 | 140.4 | 13.0 | 16.4 |
| 1986 | 11 16 | 04 56.82 | +40 10.0 | | | | | |
| 1986 | 11 26 | 04 45.96 | +40 09.3 | 1.858 | 2.801 | 158.6 | 7.4 | 16.1 |
| 1986 | 12 06 | 04 33.94 | +39 46.8 | | | | | |
| 1986 | 12 16 | 04 22.26 | +39 03.4 | 1.844 | 2.784 | 158.6 | 7.4 | 16.0 |
| 1986 | 12 26 | 04 12.33 | +38 04.1 | | | | | |
| 1987 | 01 05 | 04 05.15 | +36 56.3 | 1.939 | 2.766 | 140.1 | 13.2 | 16.3 |
| 1987 | 01 15 | 04 01.28 | +35 47.7 | | | | | |
| 1987 | 01 25 | 04 00.75 | +34 44.0 | 2.117 | 2.747 | 120.2 | 18.1 | 16.6 |
| 1987 | 02 04 | 04 03.39 | +33 48.4 | | | | | |
| 1987 | 02 14 | 04 08.87 | +33 02.2 | 2.345 | 2.726 | 102.0 | 20.7 | 16.9 |

(3320) 1982 VZ4 a,e,i = 2.46, 0.05, 4 Elements MPC 10152

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 47.67 | +21 27.7 | 2.355 | 2.567 | 90.4 | 23.1 | 18.4 |
| 1986 | 09 17 | 04 56.56 | +21 27.6 | | | | | |
| 1986 | 09 27 | 05 03.38 | +21 21.4 | 2.095 | 2.563 | 106.3 | 22.1 | 18.1 |
| 1986 | 10 07 | 05 07.75 | +21 09.4 | | | | | |
| 1986 | 10 17 | 05 09.36 | +20 52.0 | 1.857 | 2.558 | 124.6 | 18.7 | 17.7 |
| 1986 | 10 27 | 05 07.96 | +20 29.7 | | | | | |
| 1986 | 11 06 | 05 03.50 | +20 02.6 | 1.670 | 2.552 | 145.9 | 12.6 | 17.3 |
| 1986 | 11 16 | 04 56.27 | +19 31.3 | | | | | |
| 1986 | 11 26 | 04 46.96 | +18 57.2 | 1.569 | 2.546 | 169.6 | 4.0 | 16.8 |
| 1986 | 12 06 | 04 36.63 | +18 22.2 | | | | | |
| 1986 | 12 16 | 04 26.62 | +17 49.9 | 1.578 | 2.539 | 164.1 | 6.1 | 16.9 |
| 1986 | 12 26 | 04 18.13 | +17 23.6 | | | | | |
| 1987 | 01 05 | 04 12.06 | +17 06.3 | 1.694 | 2.531 | 140.5 | 14.3 | 17.4 |
| 1987 | 01 15 | 04 08.94 | +16 59.4 | | | | | |
| 1987 | 01 25 | 04 08.85 | +17 02.8 | 1.888 | 2.522 | 119.4 | 19.9 | 17.8 |
| 1987 | 02 04 | 04 11.68 | +17 15.4 | | | | | |
| 1987 | 02 14 | 04 17.18 | +17 35.1 | 2.127 | 2.513 | 101.3 | 22.7 | 18.1 |

1979 SG10 a,e,i = 3.42, 0.05, 1 Elements MPC 10941

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 53.30 | +23 14.6 | 3.121 | 3.261 | 88.9 | 18.0 | 17.4 |
| 1986 | 09 17 | 04 59.87 | +23 24.6 | | | | | |
| 1986 | 09 27 | 05 04.64 | +23 31.3 | 2.845 | 3.263 | 105.8 | 17.2 | 17.1 |
| 1986 | 10 07 | 05 07.36 | +23 34.7 | | | | | |
| 1986 | 10 17 | 05 07.85 | +23 35.1 | 2.594 | 3.266 | 124.7 | 14.5 | 16.9 |
| 1986 | 10 27 | 05 06.02 | +23 32.3 | | | | | |
| 1986 | 11 06 | 05 01.92 | +23 25.9 | 2.400 | 3.270 | 146.1 | 9.7 | 16.5 |
| 1986 | 11 16 | 04 55.83 | +23 15.6 | | | | | |
| 1986 | 11 26 | 04 48.29 | +23 01.5 | 2.298 | 3.273 | 169.4 | 3.2 | 16.2 |
| 1986 | 12 06 | 04 40.05 | +22 44.2 | | | | | |
| 1986 | 12 16 | 04 31.98 | +22 25.1 | 2.313 | 3.278 | 166.5 | 4.0 | 16.2 |
| 1986 | 12 26 | 04 24.92 | +22 06.5 | | | | | |
| 1987 | 01 05 | 04 19.52 | +21 50.5 | 2.442 | 3.282 | 143.2 | 10.3 | 16.6 |
| 1987 | 01 15 | 04 16.23 | +21 39.1 | | | | | |
| 1987 | 01 25 | 04 15.21 | +21 33.2 | 2.660 | 3.287 | 121.8 | 14.7 | 16.9 |
| 1987 | 02 04 | 04 16.48 | +21 33.3 | | | | | |
| 1987 | 02 14 | 04 19.90 | +21 38.7 | 2.933 | 3.293 | 102.6 | 17.0 | 17.2 |

(3391) 1977 DD3 a,e,i = 5.25, 0.08, 15 Elements MPC 10513

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 58.92 | +37 45.5 | 4.784 | 4.823 | 86.2 | 12.0 | 17.9 |
| 1986 | 09 17 | 05 03.33 | +38 21.8 | | | | | |
| 1986 | 09 27 | 05 06.23 | +38 57.3 | 4.488 | 4.819 | 103.4 | 11.7 | 17.7 |
| 1986 | 10 07 | 05 07.46 | +39 31.3 | | | | | |
| 1986 | 10 17 | 05 06.91 | +40 02.7 | 4.217 | 4.816 | 121.8 | 10.1 | 17.5 |
| 1986 | 10 27 | 05 04.56 | +40 30.0 | | | | | |
| 1986 | 11 06 | 05 00.49 | +40 51.2 | 4.005 | 4.814 | 140.8 | 7.5 | 17.3 |
| 1986 | 11 16 | 04 54.95 | +41 04.4 | | | | | |
| 1986 | 11 26 | 04 48.33 | +41 08.0 | 3.885 | 4.811 | 157.5 | 4.5 | 17.1 |
| 1986 | 12 06 | 04 41.17 | +41 01.0 | | | | | |
| 1986 | 12 16 | 04 34.10 | +40 43.9 | 3.878 | 4.810 | 158.9 | 4.2 | 17.1 |
| 1986 | 12 26 | 04 27.72 | +40 18.1 | | | | | |
| 1987 | 01 05 | 04 22.53 | +39 46.0 | 3.988 | 4.808 | 142.9 | 7.1 | 17.3 |
| 1987 | 01 15 | 04 18.91 | +39 10.4 | | | | | |
| 1987 | 01 25 | 04 17.04 | +38 34.2 | 4.193 | 4.807 | 123.5 | 9.8 | 17.5 |
| 1987 | 02 04 | 04 17.01 | +37 59.4 | | | | | |
| 1987 | 02 14 | 04 18.76 | +37 27.8 | 4.463 | 4.807 | 104.5 | 11.5 | 17.7 |

1981 RM a,e,i = 2.57, 0.13, 5 Elements MPC 10159

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 58.40 | +26 26.0 | 2.696 | 2.835 | 87.4 | 20.8 | 18.3 |
| 1986 | 09 17 | 05 06.20 | +26 39.5 | | | | | |
| 1986 | 09 27 | 05 11.95 | +26 49.3 | 2.438 | 2.848 | 103.8 | 20.0 | 18.1 |
| 1986 | 10 07 | 05 15.32 | +26 55.5 | | | | | |
| 1986 | 10 17 | 05 16.03 | +26 57.8 | 2.197 | 2.860 | 122.5 | 17.1 | 17.8 |
| 1986 | 10 27 | 05 13.90 | +26 55.7 | | | | | |
| 1986 | 11 06 | 05 08.91 | +26 47.8 | 2.007 | 2.869 | 144.0 | 11.7 | 17.4 |
| 1986 | 11 16 | 05 01.36 | +26 32.8 | | | | | |
| 1986 | 11 26 | 04 51.90 | +26 09.8 | 1.905 | 2.877 | 167.6 | 4.2 | 17.0 |
| 1986 | 12 06 | 04 41.51 | +25 39.2 | | | | | |
| 1986 | 12 16 | 04 31.37 | +25 03.1 | 1.918 | 2.884 | 166.4 | 4.6 | 17.1 |
| 1986 | 12 26 | 04 22.57 | +24 25.1 | | | | | |
| 1987 | 01 05 | 04 15.93 | +23 49.3 | 2.044 | 2.888 | 142.7 | 11.9 | 17.5 |
| 1987 | 01 15 | 04 11.96 | +23 19.2 | | | | | |
| 1987 | 01 25 | 04 10.77 | +22 56.7 | 2.258 | 2.891 | 121.0 | 17.0 | 17.9 |
| 1987 | 02 04 | 04 12.28 | +22 42.3 | | | | | |
| 1987 | 02 14 | 04 16.28 | +22 35.5 | 2.522 | 2.892 | 101.9 | 19.5 | 18.2 |

(3349) 1979 FH2 a,e,i = 2.74, 0.03, 4 Elements MPC 10304

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 07 | 04 54.93 | +22 16.2 | 2.657 | 2.819 | 88.6 | 20.9 | 18.3 |
| 1986 | 09 17 | 05 02.91 | +22 37.0 | | | | | |
| 1986 | 09 27 | 05 08.96 | +22 55.1 | 2.387 | 2.815 | 104.8 | 20.1 | 18.0 |
| 1986 | 10 07 | 05 12.75 | +23 10.9 | | | | | |
| 1986 | 10 17 | 05 14.00 | +23 25.0 | 2.138 | 2.812 | 123.4 | 17.2 | 17.7 |
| 1986 | 10 27 | 05 12.49 | +23 37.2 | | | | | |
| 1986 | 11 06 | 05 08.15 | +23 47.0 | 1.940 | 2.808 | 144.6 | 11.8 | 17.3 |
| 1986 | 11 16 | 05 01.23 | +23 53.5 | | | | | |
| 1986 | 11 26 | 04 52.30 | +23 55.6 | 1.830 | 2.803 | 168.3 | 4.1 | 16.9 |
| 1986 | 12 06 | 04 42.30 | +23 52.9 | | | | | |
| 1986 | 12 16 | 04 32.40 | +23 46.4 | 1.831 | 2.798 | 166.7 | 4.6 | 16.9 |
| 1986 | 12 26 | 04 23.72 | +23 38.3 | | | | | |
| 1987 | 01 05 | 04 17.17 | +23 31.2 | 1.945 | 2.793 | 142.9 | 12.3 | 17.3 |
| 1987 | 01 15 | 04 13.29 | +23 27.7 | | | | | |
| 1987 | 01 25 | 04 12.28 | +23 29.3 | 2.144 | 2.788 | 121.5 | 17.5 | 17.7 |
| 1987 | 02 04 | 04 14.07 | +23 36.6 | | | | | |
| 1987 | 02 14 | 04 18.48 | +23 49.2 | 2.393 | 2.782 | 102.6 | 20.3 | 18.0 |

1981 ER10 a,e,i = 2.28, 0.15, 2 Elements MPC 10769

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 08.11 | +24 10.0 | 1.561 | 2.061 | 104.9 | 28.0 | 19.1 |
| 1986 | 10 07 | 05 15.58 | +24 13.4 | | | | | |
| 1986 | 10 17 | 05 19.63 | +24 11.0 | 1.385 | 2.091 | 122.0 | 23.8 | 18.8 |
| 1986 | 10 27 | 05 19.90 | +24 03.4 | | | | | |
| 1986 | 11 06 | 05 16.20 | +23 50.2 | 1.248 | 2.124 | 142.8 | 16.4 | 18.4 |
| 1986 | 11 16 | 05 08.83 | +23 30.7 | | | | | |
| 1986 | 11 26 | 04 58.67 | +23 04.4 | 1.184 | 2.157 | 167.0 | 5.9 | 17.9 |
| 1986 | 12 06 | 04 47.15 | +22 32.6 | | | | | |
| 1986 | 12 16 | 04 36.07 | +21 58.7 | 1.221 | 2.192 | 167.4 | 5.6 | 18.0 |
| 1986 | 12 26 | 04 26.99 | +21 27.2 | | | | | |
| 1987 | 01 05 | 04 20.97 | +21 02.7 | 1.359 | 2.227 | 143.4 | 15.3 | 18.6 |
| 1987 | 01 15 | 04 18.48 | +20 47.7 | | | | | |
| 1987 | 01 25 | 04 19.48 | +20 42.8 | 1.573 | 2.261 | 122.6 | 21.5 | 19.2 |
| 1987 | 02 04 | 04 23.67 | +20 46.8 | | | | | |
| 1987 | 02 14 | 04 30.66 | +20 57.6 | 1.833 | 2.296 | 105.0 | 24.5 | 19.6 |
| 1987 | 02 24 | 04 40.01 | +21 12.7 | | | | | |
| 1987 | 03 06 | 04 51.34 | +21 29.9 | 2.113 | 2.330 | 89.7 | 25.2 | 20.0 |

1981 UT15 a,e,i = 2.84, 0.07, 2 Elements MPC 10757

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 10.61 | +24 38.9 | 2.288 | 2.715 | 104.3 | 21.0 | 17.9 |
| 1986 | 10 07 | 05 15.06 | +24 52.6 | | | | | |
| 1986 | 10 17 | 05 16.87 | +25 03.6 | 2.059 | 2.728 | 122.6 | 17.9 | 17.6 |
| 1986 | 10 27 | 05 15.81 | +25 11.7 | | | | | |
| 1986 | 11 06 | 05 11.85 | +25 16.1 | 1.879 | 2.741 | 143.6 | 12.4 | 17.2 |
| 1986 | 11 16 | 05 05.23 | +25 15.6 | | | | | |
| 1986 | 11 26 | 04 56.58 | +25 09.4 | 1.784 | 2.754 | 167.0 | 4.6 | 16.8 |
| 1986 | 12 06 | 04 46.84 | +24 57.1 | | | | | |
| 1986 | 12 16 | 04 37.24 | +24 40.1 | 1.799 | 2.768 | 167.8 | 4.3 | 16.8 |
| 1986 | 12 26 | 04 28.89 | +24 21.0 | | | | | |
| 1987 | 01 05 | 04 22.67 | +24 03.1 | 1.925 | 2.783 | 144.2 | 11.9 | 17.3 |
| 1987 | 01 15 | 04 19.13 | +23 49.2 | | | | | |
| 1987 | 01 25 | 04 18.40 | +23 41.1 | 2.138 | 2.797 | 122.9 | 17.2 | 17.7 |
| 1987 | 02 04 | 04 20.43 | +23 39.1 | | | | | |
| 1987 | 02 14 | 04 24.99 | +23 42.9 | 2.404 | 2.812 | 104.1 | 19.9 | 18.0 |
| 1987 | 02 24 | 04 31.78 | +23 51.2 | | | | | |
| 1987 | 03 06 | 04 40.51 | +24 02.6 | 2.690 | 2.827 | 87.5 | 20.5 | 18.3 |

1985 TT a,e,i = 3.97, 0.28, 7 Elements MPC 10634

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 14.23 | +16 22.0 | 3.888 | 4.244 | 104.0 | 13.2 | 17.9 |
| 1986 | 10 07 | 05 15.08 | +16 03.0 | | | | | |
| 1986 | 10 17 | 05 14.24 | +15 42.2 | 3.656 | 4.288 | 123.6 | 11.2 | 17.7 |
| 1986 | 10 27 | 05 11.73 | +15 20.3 | | | | | |
| 1986 | 11 06 | 05 07.65 | +14 58.0 | 3.484 | 4.332 | 144.7 | 7.6 | 17.5 |
| 1986 | 11 16 | 05 02.26 | +14 36.4 | | | | | |
| 1986 | 11 26 | 04 55.94 | +14 16.4 | 3.410 | 4.374 | 165.9 | 3.1 | 17.2 |
| 1986 | 12 06 | 04 49.17 | +13 59.3 | | | | | |
| 1986 | 12 16 | 04 42.48 | +13 46.0 | 3.456 | 4.415 | 165.2 | 3.3 | 17.3 |
| 1986 | 12 26 | 04 36.39 | +13 37.6 | | | | | |
| 1987 | 01 05 | 04 31.34 | +13 34.5 | 3.623 | 4.455 | 143.8 | 7.5 | 17.6 |
| 1987 | 01 15 | 04 27.64 | +13 36.9 | | | | | |
| 1987 | 01 25 | 04 25.47 | +13 44.6 | 3.887 | 4.494 | 122.6 | 10.6 | 17.9 |
| 1987 | 02 04 | 04 24.89 | +13 57.0 | | | | | |
| 1987 | 02 14 | 04 25.88 | +14 13.4 | 4.212 | 4.532 | 102.7 | 12.3 | 18.1 |
| 1987 | 02 24 | 04 28.35 | +14 32.7 | | | | | |
| 1987 | 03 06 | 04 32.16 | +14 54.1 | 4.559 | 4.569 | 84.3 | 12.5 | 18.3 |

1980 RZ2 a,e,i = 3.02, 0.11, 9 Elements MPC 10537

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 14.60 | +33 56.6 | 2.339 | 2.735 | 102.4 | 21.0 | 15.4 |
| 1986 | 10 07 | 05 19.96 | +34 35.6 | | | | | |
| 1986 | 10 17 | 05 22.53 | +35 11.9 | 2.114 | 2.750 | 119.9 | 18.3 | 15.2 |
| 1986 | 10 27 | 05 22.04 | +35 43.9 | | | | | |
| 1986 | 11 06 | 05 18.36 | +36 09.0 | 1.936 | 2.767 | 139.6 | 13.4 | 14.8 |
| 1986 | 11 16 | 05 11.73 | +36 23.3 | | | | | |
| 1986 | 11 26 | 05 02.76 | +36 23.4 | 1.837 | 2.784 | 159.7 | 7.1 | 14.5 |
| 1986 | 12 06 | 04 52.50 | +36 06.7 | | | | | |
| 1986 | 12 16 | 04 42.29 | +35 34.0 | 1.844 | 2.802 | 163.9 | 5.6 | 14.5 |
| 1986 | 12 26 | 04 33.39 | +34 49.0 | | | | | |
| 1987 | 01 05 | 04 26.80 | +33 57.2 | 1.960 | 2.822 | 144.9 | 11.6 | 14.8 |
| 1987 | 01 15 | 04 23.08 | +33 04.7 | | | | | |
| 1987 | 01 25 | 04 22.38 | +32 15.9 | 2.166 | 2.842 | 124.5 | 16.6 | 15.2 |
| 1987 | 02 04 | 04 24.58 | +31 33.5 | | | | | |
| 1987 | 02 14 | 04 29.42 | +30 58.4 | 2.428 | 2.863 | 106.0 | 19.4 | 15.6 |
| 1987 | 02 24 | 04 36.54 | +30 30.1 | | | | | |
| 1987 | 03 06 | 04 45.63 | +30 07.5 | 2.717 | 2.884 | 89.5 | 20.1 | 15.9 |

1978 SY6 a,e,i = 2.44, 0.15, 5 Elements MPC 8797

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 14.50 | +21 41.3 | 1.803 | 2.260 | 103.6 | 25.5 | 18.1 |
| 1986 | 10 07 | 05 20.87 | +21 20.3 | | | | | |
| 1986 | 10 17 | 05 24.15 | +20 53.3 | 1.610 | 2.291 | 121.2 | 21.9 | 17.8 |
| 1986 | 10 27 | 05 24.06 | +20 21.1 | | | | | |
| 1986 | 11 06 | 05 20.50 | +19 44.4 | 1.460 | 2.322 | 141.9 | 15.3 | 17.4 |
| 1986 | 11 16 | 05 13.75 | +19 04.4 | | | | | |
| 1986 | 11 26 | 05 04.54 | +18 22.8 | 1.386 | 2.354 | 165.4 | 6.1 | 17.0 |
| 1986 | 12 06 | 04 54.03 | +17 42.0 | | | | | |
| 1986 | 12 16 | 04 43.69 | +17 05.8 | 1.417 | 2.387 | 167.4 | 5.2 | 17.0 |
| 1986 | 12 26 | 04 34.87 | +16 37.4 | | | | | |
| 1987 | 01 05 | 04 28.53 | +16 19.5 | 1.554 | 2.420 | 144.1 | 13.8 | 17.6 |
| 1987 | 01 15 | 04 25.24 | +16 13.0 | | | | | |
| 1987 | 01 25 | 04 25.05 | +16 17.2 | 1.772 | 2.452 | 123.1 | 19.7 | 18.1 |
| 1987 | 02 04 | 04 27.81 | +16 30.2 | | | | | |
| 1987 | 02 14 | 04 33.22 | +16 49.8 | 2.039 | 2.484 | 104.9 | 22.6 | 18.5 |
| 1987 | 02 24 | 04 40.92 | +17 13.5 | | | | | |
| 1987 | 03 06 | 04 50.57 | +17 38.9 | 2.327 | 2.515 | 89.1 | 23.2 | 18.8 |

1984 EO1 a,e,i = 2.46, 0.10, 7 Elements MPC 9207

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 26.21 | +30 40.4 | 2.248 | 2.620 | 100.3 | 22.1 | 18.0 |
| 1986 | 10 07 | 05 31.71 | +31 14.3 | | | | | |
| 1986 | 10 17 | 05 34.40 | +31 47.0 | 2.015 | 2.634 | 118.0 | 19.5 | 17.7 |
| 1986 | 10 27 | 05 33.95 | +32 17.9 | | | | | |
| 1986 | 11 06 | 05 30.14 | +32 44.7 | 1.824 | 2.647 | 138.2 | 14.4 | 17.3 |
| 1986 | 11 16 | 05 23.08 | +33 04.0 | | | | | |
| 1986 | 11 26 | 05 13.32 | +33 12.1 | 1.709 | 2.658 | 160.1 | 7.3 | 17.0 |
| 1986 | 12 06 | 05 01.87 | +33 05.8 | | | | | |
| 1986 | 12 16 | 04 50.14 | +32 44.6 | 1.700 | 2.668 | 167.0 | 4.8 | 16.8 |
| 1986 | 12 26 | 04 39.57 | +32 11.3 | | | | | |
| 1987 | 01 05 | 04 31.34 | +31 31.3 | 1.803 | 2.677 | 146.2 | 11.8 | 17.2 |
| 1987 | 01 15 | 04 26.16 | +30 50.3 | | | | | |
| 1987 | 01 25 | 04 24.25 | +30 12.8 | 1.997 | 2.684 | 124.8 | 17.5 | 17.7 |
| 1987 | 02 04 | 04 25.52 | +29 41.5 | | | | | |
| 1987 | 02 14 | 04 29.69 | +29 17.4 | 2.246 | 2.689 | 105.9 | 20.7 | 18.0 |
| 1987 | 02 24 | 04 36.39 | +28 59.7 | | | | | |
| 1987 | 03 06 | 04 45.27 | +28 47.3 | 2.517 | 2.693 | 89.2 | 21.6 | 18.3 |

(3376) 1982 UJ8 a,e,i = 2.35, 0.07, 6 Elements MPC 10395

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 21.52 | +24 40.6 | 2.089 | 2.496 | 101.8 | 23.2 | 17.0 |
| 1986 | 10 07 | 05 27.48 | +24 31.3 | | | | | |
| 1986 | 10 17 | 05 30.68 | +24 17.0 | 1.843 | 2.490 | 119.5 | 20.4 | 16.6 |
| 1986 | 10 27 | 05 30.81 | +23 57.8 | | | | | |
| 1986 | 11 06 | 05 27.66 | +23 33.3 | 1.639 | 2.483 | 140.2 | 14.8 | 16.2 |
| 1986 | 11 16 | 05 21.32 | +23 03.0 | | | | | |
| 1986 | 11 26 | 05 12.32 | +22 26.8 | 1.511 | 2.474 | 163.9 | 6.3 | 15.7 |
| 1986 | 12 06 | 05 01.61 | +21 45.5 | | | | | |
| 1986 | 12 16 | 04 50.58 | +21 01.7 | 1.489 | 2.465 | 170.5 | 3.8 | 15.5 |
| 1986 | 12 26 | 04 40.64 | +20 19.3 | | | | | |
| 1987 | 01 05 | 04 32.94 | +19 42.6 | 1.578 | 2.455 | 145.9 | 13.0 | 16.0 |
| 1987 | 01 15 | 04 28.24 | +19 15.0 | | | | | |
| 1987 | 01 25 | 04 26.76 | +18 57.7 | 1.753 | 2.444 | 124.0 | 19.5 | 16.4 |
| 1987 | 02 04 | 04 28.47 | +18 50.5 | | | | | |
| 1987 | 02 14 | 04 33.11 | +18 51.9 | 1.978 | 2.431 | 105.2 | 23.1 | 16.8 |
| 1987 | 02 24 | 04 40.32 | +18 59.6 | | | | | |
| 1987 | 03 06 | 04 49.77 | +19 11.3 | 2.222 | 2.419 | 89.1 | 24.2 | 17.0 |

(3457) 1985 RA3 a,e,i = 2.85, 0.06, 3 Elements MPC 10835

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 24.15 | +20 50.0 | 2.539 | 2.909 | 101.5 | 19.7 | 18.2 |
| 1986 | 10 07 | 05 28.35 | +20 52.1 | | | | | |
| 1986 | 10 17 | 05 30.16 | +20 52.7 | 2.294 | 2.920 | 119.8 | 17.2 | 17.9 |
| 1986 | 10 27 | 05 29.39 | +20 52.1 | | | | | |
| 1986 | 11 06 | 05 25.95 | +20 50.7 | 2.094 | 2.929 | 140.7 | 12.4 | 17.6 |
| 1986 | 11 16 | 05 20.03 | +20 48.4 | | | | | |
| 1986 | 11 26 | 05 12.09 | +20 45.1 | 1.978 | 2.939 | 164.0 | 5.3 | 17.2 |
| 1986 | 12 06 | 05 02.88 | +20 40.8 | | | | | |
| 1986 | 12 16 | 04 53.42 | +20 36.1 | 1.972 | 2.948 | 171.0 | 3.0 | 17.1 |
| 1986 | 12 26 | 04 44.74 | +20 32.3 | | | | | |
| 1987 | 01 05 | 04 37.73 | +20 31.0 | 2.082 | 2.957 | 147.2 | 10.4 | 17.5 |
| 1987 | 01 15 | 04 33.02 | +20 33.7 | | | | | |
| 1987 | 01 25 | 04 30.88 | +20 41.2 | 2.285 | 2.965 | 125.3 | 15.7 | 17.9 |
| 1987 | 02 04 | 04 31.34 | +20 53.5 | | | | | |
| 1987 | 02 14 | 04 34.29 | +21 10.1 | 2.547 | 2.972 | 105.8 | 18.6 | 18.2 |
| 1987 | 02 24 | 04 39.48 | +21 29.9 | | | | | |
| 1987 | 03 06 | 04 46.65 | +21 51.8 | 2.832 | 2.979 | 88.7 | 19.4 | 18.5 |

1984 EV a,e,i = 2.37, 0.04, 7 Elements MPC 9025

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 25.21 | +30 39.0 | 2.023 | 2.416 | 100.5 | 24.1 | 17.9 |
| 1986 | 10 07 | 05 32.65 | +31 21.3 | | | | | |
| 1986 | 10 17 | 05 37.28 | +32 03.3 | 1.781 | 2.407 | 117.3 | 21.6 | 17.6 |
| 1986 | 10 27 | 05 38.67 | +32 44.6 | | | | | |
| 1986 | 11 06 | 05 36.43 | +33 23.4 | 1.578 | 2.398 | 136.8 | 16.4 | 17.2 |
| 1986 | 11 16 | 05 30.47 | +33 55.9 | | | | | |
| 1986 | 11 26 | 05 21.19 | +34 17.2 | 1.444 | 2.389 | 158.2 | 8.8 | 16.7 |
| 1986 | 12 06 | 05 09.54 | +34 22.4 | | | | | |
| 1986 | 12 16 | 04 57.13 | +34 09.1 | 1.410 | 2.379 | 166.9 | 5.4 | 16.5 |
| 1986 | 12 26 | 04 45.72 | +33 39.3 | | | | | |
| 1987 | 01 05 | 04 36.83 | +32 58.6 | 1.483 | 2.370 | 147.1 | 13.0 | 16.9 |
| 1987 | 01 15 | 04 31.41 | +32 14.3 | | | | | |
| 1987 | 01 25 | 04 29.79 | +31 32.3 | 1.642 | 2.360 | 126.1 | 19.7 | 17.3 |
| 1987 | 02 04 | 04 31.85 | +30 56.2 | | | | | |
| 1987 | 02 14 | 04 37.27 | +30 27.1 | 1.854 | 2.350 | 107.7 | 23.6 | 17.7 |
| 1987 | 02 24 | 04 45.58 | +30 04.5 | | | | | |
| 1987 | 03 06 | 04 56.37 | +29 46.8 | 2.090 | 2.340 | 91.8 | 25.1 | 18.0 |

9507 P-L a,e,i = 5.24, 0.08, 5 Elements MPC 9761

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 26.34 | +26 24.9 | 4.743 | 5.025 | 100.6 | 11.3 | 18.0 |
| 1986 | 10 07 | 05 27.78 | +26 36.3 | | | | | |
| 1986 | 10 17 | 05 27.73 | +26 46.8 | 4.465 | 5.037 | 120.0 | 9.9 | 17.8 |
| 1986 | 10 27 | 05 26.18 | +26 55.9 | | | | | |
| 1986 | 11 06 | 05 23.17 | +27 03.3 | 4.242 | 5.049 | 140.8 | 7.1 | 17.6 |
| 1986 | 11 16 | 05 18.87 | +27 08.4 | | | | | |
| 1986 | 11 26 | 05 13.57 | +27 10.7 | 4.110 | 5.061 | 162.8 | 3.3 | 17.4 |
| 1986 | 12 06 | 05 07.62 | +27 09.7 | | | | | |
| 1986 | 12 16 | 05 01.50 | +27 05.8 | 4.096 | 5.073 | 172.4 | 1.5 | 17.3 |
| 1986 | 12 26 | 04 55.69 | +26 59.4 | | | | | |
| 1987 | 01 05 | 04 50.60 | +26 51.4 | 4.205 | 5.085 | 150.6 | 5.4 | 17.5 |
| 1987 | 01 15 | 04 46.62 | +26 42.9 | | | | | |
| 1987 | 01 25 | 04 43.97 | +26 35.2 | 4.421 | 5.098 | 128.9 | 8.6 | 17.8 |
| 1987 | 02 04 | 04 42.79 | +26 29.0 | | | | | |
| 1987 | 02 14 | 04 43.12 | +26 25.0 | 4.710 | 5.110 | 108.5 | 10.6 | 18.0 |
| 1987 | 02 24 | 04 44.92 | +26 23.4 | | | | | |
| 1987 | 03 06 | 04 48.09 | +26 24.0 | 5.033 | 5.123 | 89.5 | 11.2 | 18.2 |

1984 CD1 a,e,i = 2.39, 0.16, 3 Elements MPC 8684

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 31.88 | +24 09.0 | 2.411 | 2.760 | 99.5 | 21.0 | 18.5 |
| 1986 | 10 07 | 05 36.89 | +24 22.6 | | | | | |
| 1986 | 10 17 | 05 39.41 | +24 35.5 | 2.142 | 2.748 | 117.5 | 18.8 | 18.2 |
| 1986 | 10 27 | 05 39.14 | +24 47.9 | | | | | |
| 1986 | 11 06 | 05 35.84 | +24 59.5 | 1.914 | 2.734 | 138.2 | 14.0 | 17.8 |
| 1986 | 11 16 | 05 29.55 | +25 08.9 | | | | | |
| 1986 | 11 26 | 05 20.65 | +25 14.5 | 1.763 | 2.718 | 161.7 | 6.5 | 17.3 |
| 1986 | 12 06 | 05 09.89 | +25 14.7 | | | | | |
| 1986 | 12 16 | 04 58.49 | +25 09.1 | 1.720 | 2.699 | 172.5 | 2.7 | 17.1 |
| 1986 | 12 26 | 04 47.76 | +24 58.7 | | | | | |
| 1987 | 01 05 | 04 38.87 | +24 46.3 | 1.793 | 2.678 | 148.0 | 11.2 | 17.5 |
| 1987 | 01 15 | 04 32.69 | +24 35.3 | | | | | |
| 1987 | 01 25 | 04 29.60 | +24 28.2 | 1.960 | 2.655 | 125.5 | 17.6 | 17.9 |
| 1987 | 02 04 | 04 29.65 | +24 26.3 | | | | | |
| 1987 | 02 14 | 04 32.68 | +24 29.9 | 2.181 | 2.630 | 105.9 | 21.2 | 18.2 |
| 1987 | 02 24 | 04 38.38 | +24 38.3 | | | | | |
| 1987 | 03 06 | 04 46.46 | +24 49.9 | 2.424 | 2.603 | 89.0 | 22.4 | 18.4 |

(3479) 1980 TQ a,e,i = 3.04, 0.11, 13 Elements MPC 10948

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 30.10 | +12 45.0 | 2.938 | 3.270 | 100.3 | 17.6 | 17.2 |
| 1986 | 10 07 | 05 33.30 | +12 00.8 | | | | | |
| 1986 | 10 17 | 05 34.43 | +11 13.3 | 2.689 | 3.284 | 118.5 | 15.5 | 17.0 |
| 1986 | 10 27 | 05 33.37 | +10 23.9 | | | | | |
| 1986 | 11 06 | 05 30.11 | +09 34.7 | 2.489 | 3.297 | 138.4 | 11.5 | 16.7 |
| 1986 | 11 16 | 05 24.84 | +08 48.1 | | | | | |
| 1986 | 11 26 | 05 17.95 | +08 06.9 | 2.373 | 3.309 | 158.0 | 6.4 | 16.4 |
| 1986 | 12 06 | 05 10.02 | +07 33.8 | | | | | |
| 1986 | 12 16 | 05 01.83 | +07 11.1 | 2.368 | 3.320 | 162.5 | 5.1 | 16.4 |
| 1986 | 12 26 | 04 54.16 | +07 00.2 | | | | | |
| 1987 | 01 05 | 04 47.70 | +07 01.2 | 2.478 | 3.330 | 144.7 | 9.8 | 16.6 |
| 1987 | 01 15 | 04 42.99 | +07 13.5 | | | | | |
| 1987 | 01 25 | 04 40.31 | +07 35.3 | 2.683 | 3.339 | 124.3 | 14.1 | 17.0 |
| 1987 | 02 04 | 04 39.77 | +08 04.6 | | | | | |
| 1987 | 02 14 | 04 41.33 | +08 39.1 | 2.947 | 3.347 | 105.3 | 16.5 | 17.2 |
| 1987 | 02 24 | 04 44.84 | +09 16.8 | | | | | |
| 1987 | 03 06 | 04 50.12 | +09 55.9 | 3.237 | 3.354 | 88.1 | 17.2 | 17.5 |

(3363) 1960 EE a,e,i = 2.78, 0.10, 3 Elements MPC 10388

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 29.09 | +19 58.0 | 2.310 | 2.678 | 100.3 | 21.6 | 16.9 |
| 1986 | 10 07 | 05 35.35 | +19 45.7 | | | | | |
| 1986 | 10 17 | 05 39.25 | +19 30.3 | 2.045 | 2.659 | 117.6 | 19.4 | 16.5 |
| 1986 | 10 27 | 05 40.51 | +19 12.6 | | | | | |
| 1986 | 11 06 | 05 38.91 | +18 53.6 | 1.821 | 2.639 | 137.6 | 14.7 | 16.1 |
| 1986 | 11 16 | 05 34.47 | +18 34.2 | | | | | |
| 1986 | 11 26 | 05 27.52 | +18 15.1 | 1.671 | 2.621 | 160.0 | 7.4 | 15.7 |
| 1986 | 12 06 | 05 18.74 | +17 57.4 | | | | | |
| 1986 | 12 16 | 05 09.18 | +17 42.4 | 1.624 | 2.603 | 172.5 | 2.8 | 15.4 |
| 1986 | 12 26 | 05 00.05 | +17 31.8 | | | | | |
| 1987 | 01 05 | 04 52.49 | +17 27.1 | 1.688 | 2.586 | 149.9 | 11.0 | 15.8 |
| 1987 | 01 15 | 04 47.34 | +17 29.5 | | | | | |
| 1987 | 01 25 | 04 45.03 | +17 39.2 | 1.845 | 2.571 | 128.0 | 17.6 | 16.2 |
| 1987 | 02 04 | 04 45.69 | +17 55.5 | | | | | |
| 1987 | 02 14 | 04 49.21 | +18 17.1 | 2.060 | 2.556 | 108.9 | 21.4 | 16.5 |
| 1987 | 02 24 | 04 55.33 | +18 42.1 | | | | | |
| 1987 | 03 06 | 05 03.76 | +19 08.6 | 2.302 | 2.543 | 92.3 | 22.9 | 16.8 |

1975 VK2 a,e,i = 3.00, 0.10, 3 Elements MPC 10761

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 34.52 | +22 09.3 | 2.494 | 2.829 | 99.0 | 20.5 | 18.6 |
| 1986 | 10 07 | 05 39.86 | +22 15.7 | | | | | |
| 1986 | 10 17 | 05 42.80 | +22 21.3 | 2.256 | 2.848 | 116.8 | 18.2 | 18.4 |
| 1986 | 10 27 | 05 43.14 | +22 26.4 | | | | | |
| 1986 | 11 06 | 05 40.74 | +22 31.3 | 2.060 | 2.868 | 137.2 | 13.6 | 18.0 |
| 1986 | 11 16 | 05 35.70 | +22 35.6 | | | | | |
| 1986 | 11 26 | 05 28.40 | +22 38.7 | 1.940 | 2.888 | 160.2 | 6.7 | 17.7 |
| 1986 | 12 06 | 05 19.55 | +22 39.9 | | | | | |
| 1986 | 12 16 | 05 10.15 | +22 39.1 | 1.926 | 2.908 | 175.3 | 1.6 | 17.4 |
| 1986 | 12 26 | 05 01.26 | +22 37.0 | | | | | |
| 1987 | 01 05 | 04 53.86 | +22 35.1 | 2.029 | 2.929 | 151.2 | 9.3 | 17.9 |
| 1987 | 01 15 | 04 48.67 | +22 35.0 | | | | | |
| 1987 | 01 25 | 04 46.03 | +22 38.0 | 2.229 | 2.950 | 129.0 | 15.0 | 18.3 |
| 1987 | 02 04 | 04 46.03 | +22 44.7 | | | | | |
| 1987 | 02 14 | 04 48.58 | +22 54.9 | 2.494 | 2.971 | 109.4 | 18.3 | 18.7 |
| 1987 | 02 24 | 04 53.43 | +23 08.0 | | | | | |
| 1987 | 03 06 | 05 00.33 | +23 22.8 | 2.789 | 2.992 | 92.0 | 19.4 | 19.0 |

1982 TQ a,e,i = 2.42, 0.18, 5 Elements MPC 9032

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 31.90 | +22 14.7 | 1.657 | 2.074 | 99.6 | 28.5 | 17.8 |
| 1986 | 10 07 | 05 41.44 | +21 53.7 | | | | | |
| 1986 | 10 17 | 05 47.90 | +21 27.0 | 1.474 | 2.106 | 115.6 | 25.3 | 17.5 |
| 1986 | 10 27 | 05 50.90 | +20 56.1 | | | | | |
| 1986 | 11 06 | 05 50.14 | +20 22.3 | 1.321 | 2.141 | 135.0 | 19.1 | 17.1 |
| 1986 | 11 16 | 05 45.64 | +19 46.9 | | | | | |
| 1986 | 11 26 | 05 37.87 | +19 11.0 | 1.232 | 2.177 | 157.8 | 9.9 | 16.7 |
| 1986 | 12 06 | 05 27.80 | +18 36.1 | | | | | |
| 1986 | 12 16 | 05 16.94 | +18 04.7 | 1.235 | 2.216 | 173.9 | 2.7 | 16.4 |
| 1986 | 12 26 | 05 06.90 | +17 39.3 | | | | | |
| 1987 | 01 05 | 04 59.04 | +17 22.5 | 1.344 | 2.256 | 151.4 | 12.1 | 17.0 |
| 1987 | 01 15 | 04 54.22 | +17 15.6 | | | | | |
| 1987 | 01 25 | 04 52.74 | +17 18.3 | 1.540 | 2.297 | 129.7 | 19.2 | 17.6 |
| 1987 | 02 04 | 04 54.52 | +17 29.1 | | | | | |
| 1987 | 02 14 | 04 59.28 | +17 45.7 | 1.793 | 2.339 | 111.2 | 23.2 | 18.1 |
| 1987 | 02 24 | 05 06.60 | +18 05.7 | | | | | |
| 1987 | 03 06 | 05 16.09 | +18 26.6 | 2.076 | 2.380 | 95.2 | 24.5 | 18.5 |

(3368) 1985 QT a,e,i = 3.38, 0.10, 19 Elements MPC 10392

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 46.39 | +42 20.1 | 2.969 | 3.222 | 95.4 | 18.0 | 16.7 |
| 1986 | 10 07 | 05 52.45 | +43 31.2 | | | | | |
| 1986 | 10 17 | 05 56.03 | +44 43.9 | 2.733 | 3.239 | 111.9 | 16.6 | 16.5 |
| 1986 | 10 27 | 05 56.77 | +45 56.7 | | | | | |
| 1986 | 11 06 | 05 54.38 | +47 06.7 | 2.537 | 3.257 | 129.3 | 13.6 | 16.3 |
| 1986 | 11 16 | 05 48.80 | +48 09.0 | | | | | |
| 1986 | 11 26 | 05 40.31 | +48 58.1 | 2.411 | 3.274 | 145.8 | 9.8 | 16.0 |
| 1986 | 12 06 | 05 29.61 | +49 28.3 | | | | | |
| 1986 | 12 16 | 05 17.89 | +49 35.8 | 2.382 | 3.292 | 153.6 | 7.6 | 16.0 |
| 1986 | 12 26 | 05 06.55 | +49 20.3 | | | | | |
| 1987 | 01 05 | 04 56.87 | +48 44.7 | 2.460 | 3.311 | 144.5 | 9.9 | 16.1 |
| 1987 | 01 15 | 04 49.83 | +47 55.0 | | | | | |
| 1987 | 01 25 | 04 45.88 | +46 57.5 | 2.634 | 3.329 | 127.8 | 13.5 | 16.4 |
| 1987 | 02 04 | 04 45.11 | +45 57.8 | | | | | |
| 1987 | 02 14 | 04 47.35 | +44 59.8 | 2.875 | 3.347 | 110.2 | 16.1 | 16.7 |
| 1987 | 02 24 | 04 52.24 | +44 05.8 | | | | | |
| 1987 | 03 06 | 04 59.45 | +43 16.7 | 3.153 | 3.365 | 93.7 | 17.1 | 16.9 |

1985 QX a,e,i = 2.99, 0.11, 10 Elements MPC 10403

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 42.61 | +14 19.2 | 2.703 | 2.999 | 97.3 | 19.4 | 17.8 |
| 1986 | 10 07 | 05 47.32 | +13 40.1 | | | | | |
| 1986 | 10 17 | 05 49.84 | +12 57.9 | 2.463 | 3.021 | 114.9 | 17.4 | 17.6 |
| 1986 | 10 27 | 05 50.02 | +12 14.3 | | | | | |
| 1986 | 11 06 | 05 47.77 | +11 31.0 | 2.263 | 3.042 | 134.6 | 13.4 | 17.3 |
| 1986 | 11 16 | 05 43.19 | +10 50.4 | | | | | |
| 1986 | 11 26 | 05 36.64 | +10 14.8 | 2.139 | 3.063 | 155.3 | 7.7 | 17.0 |
| 1986 | 12 06 | 05 28.67 | +09 46.5 | | | | | |
| 1986 | 12 16 | 05 20.11 | +09 27.9 | 2.120 | 3.084 | 166.0 | 4.4 | 16.8 |
| 1986 | 12 26 | 05 11.85 | +09 20.0 | | | | | |
| 1987 | 01 05 | 05 04.71 | +09 23.2 | 2.216 | 3.104 | 149.5 | 9.2 | 17.1 |
| 1987 | 01 15 | 04 59.36 | +09 36.9 | | | | | |
| 1987 | 01 25 | 04 56.16 | +09 59.3 | 2.411 | 3.123 | 128.8 | 14.2 | 17.5 |
| 1987 | 02 04 | 04 55.27 | +10 28.7 | | | | | |
| 1987 | 02 14 | 04 56.66 | +11 02.8 | 2.671 | 3.142 | 109.5 | 17.2 | 17.8 |
| 1987 | 02 24 | 05 00.16 | +11 39.6 | | | | | |
| 1987 | 03 06 | 05 05.59 | +12 17.2 | 2.964 | 3.160 | 92.1 | 18.3 | 18.1 |

1984 CQ a,e,i = 2.25, 0.08, 7 Elements MPC 8895

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 32.21 | +15 24.4 | 1.761 | 2.169 | 99.8 | 27.1 | 17.0 |
| 1986 | 10 07 | 05 41.52 | +15 06.9 | | | | | |
| 1986 | 10 17 | 05 48.27 | +14 46.3 | 1.528 | 2.152 | 115.4 | 24.7 | 16.6 |
| 1986 | 10 27 | 05 52.03 | +14 25.1 | | | | | |
| 1986 | 11 06 | 05 52.40 | +14 05.8 | 1.327 | 2.137 | 133.9 | 19.5 | 16.1 |
| 1986 | 11 16 | 05 49.16 | +13 51.6 | | | | | |
| 1986 | 11 26 | 05 42.49 | +13 45.1 | 1.185 | 2.122 | 155.4 | 11.2 | 15.6 |
| 1986 | 12 06 | 05 33.01 | +13 48.7 | | | | | |
| 1986 | 12 16 | 05 22.03 | +14 03.5 | 1.133 | 2.110 | 170.6 | 4.4 | 15.2 |
| 1986 | 12 26 | 05 11.19 | +14 29.7 | | | | | |
| 1987 | 01 05 | 05 02.13 | +15 06.2 | 1.182 | 2.098 | 151.4 | 13.0 | 15.6 |
| 1987 | 01 15 | 04 56.10 | +15 51.5 | | | | | |
| 1987 | 01 25 | 04 53.70 | +16 43.2 | 1.316 | 2.089 | 129.9 | 21.2 | 16.1 |
| 1987 | 02 04 | 04 55.07 | +17 38.8 | | | | | |
| 1987 | 02 14 | 05 00.01 | +18 35.9 | 1.506 | 2.081 | 111.5 | 26.2 | 16.5 |
| 1987 | 02 24 | 05 08.12 | +19 31.8 | | | | | |
| 1987 | 03 06 | 05 18.99 | +20 24.4 | 1.722 | 2.075 | 96.0 | 28.4 | 16.9 |

(3385) 1979 SK11 a,e,i = 2.22, 0.04, 7 Elements MPC 10398

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 40.44 | +17 54.5 | 1.944 | 2.304 | 97.7 | 25.5 | 17.3 |
| 1986 | 10 07 | 05 48.42 | +17 18.2 | | | | | |
| 1986 | 10 17 | 05 53.76 | +16 36.6 | 1.713 | 2.307 | 114.1 | 23.2 | 17.0 |
| 1986 | 10 27 | 05 56.11 | +15 51.3 | | | | | |
| 1986 | 11 06 | 05 55.14 | +15 04.1 | 1.514 | 2.310 | 133.4 | 18.2 | 16.5 |
| 1986 | 11 16 | 05 50.78 | +14 17.5 | | | | | |
| 1986 | 11 26 | 05 43.31 | +13 34.1 | 1.379 | 2.312 | 155.1 | 10.3 | 16.1 |
| 1986 | 12 06 | 05 33.44 | +12 56.9 | | | | | |
| 1986 | 12 16 | 05 22.40 | +12 29.2 | 1.339 | 2.313 | 169.1 | 4.6 | 15.8 |
| 1986 | 12 26 | 05 11.67 | +12 13.3 | | | | | |
| 1987 | 01 05 | 05 02.62 | +12 10.9 | 1.406 | 2.313 | 150.4 | 12.1 | 16.2 |
| 1987 | 01 15 | 04 56.31 | +12 21.5 | | | | | |
| 1987 | 01 25 | 04 53.22 | +12 43.4 | 1.564 | 2.312 | 128.8 | 19.4 | 16.7 |
| 1987 | 02 04 | 04 53.47 | +13 14.2 | | | | | |
| 1987 | 02 14 | 04 56.88 | +13 51.0 | 1.778 | 2.310 | 110.0 | 23.7 | 17.0 |
| 1987 | 02 24 | 05 03.11 | +14 30.7 | | | | | |
| 1987 | 03 06 | 05 11.81 | +15 10.8 | 2.017 | 2.307 | 93.9 | 25.4 | 17.4 |

1981 ER14 a,e,i = 2.34, 0.22, 9 Elements MPC 10821

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 55.80 | +33 28.8 | 2.238 | 2.514 | 93.9 | 23.4 | 18.7 |
| 1986 | 10 07 | 06 03.05 | +33 59.8 | | | | | |
| 1986 | 10 17 | 06 07.43 | +34 31.3 | 2.026 | 2.557 | 110.8 | 21.4 | 18.5 |
| 1986 | 10 27 | 06 08.56 | +35 02.8 | | | | | |
| 1986 | 11 06 | 06 06.10 | +35 32.6 | 1.842 | 2.597 | 130.4 | 16.9 | 18.2 |
| 1986 | 11 16 | 06 00.00 | +35 57.2 | | | | | |
| 1986 | 11 26 | 05 50.59 | +36 11.6 | 1.722 | 2.635 | 152.0 | 10.1 | 17.9 |
| 1986 | 12 06 | 05 38.69 | +36 11.0 | | | | | |
| 1986 | 12 16 | 05 25.70 | +35 52.4 | 1.701 | 2.670 | 167.4 | 4.6 | 17.6 |
| 1986 | 12 26 | 05 13.22 | +35 16.7 | | | | | |
| 1987 | 01 05 | 05 02.67 | +34 28.4 | 1.794 | 2.702 | 152.0 | 9.8 | 18.0 |
| 1987 | 01 15 | 04 55.07 | +33 34.2 | | | | | |
| 1987 | 01 25 | 04 50.81 | +32 40.2 | 1.988 | 2.732 | 130.5 | 15.9 | 18.4 |
| 1987 | 02 04 | 04 49.91 | +31 50.7 | | | | | |
| 1987 | 02 14 | 04 52.11 | +31 07.8 | 2.248 | 2.759 | 110.9 | 19.5 | 18.8 |
| 1987 | 02 24 | 04 57.00 | +30 31.8 | | | | | |
| 1987 | 03 06 | 05 04.22 | +30 02.0 | 2.540 | 2.782 | 93.5 | 20.8 | 19.1 |

(3342) 1982 BD3 a,e,i = 3.14, 0.07, 6 Elements MPC 10301

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 45.19 | +16 41.3 | 2.652 | 2.941 | 96.6 | 19.8 | 17.3 |
| 1986 | 10 07 | 05 51.05 | +16 25.3 | | | | | |
| 1986 | 10 17 | 05 54.80 | +16 07.7 | 2.387 | 2.935 | 113.9 | 18.1 | 17.1 |
| 1986 | 10 27 | 05 56.22 | +15 50.0 | | | | | |
| 1986 | 11 06 | 05 55.14 | +15 33.4 | 2.159 | 2.931 | 133.4 | 14.2 | 16.7 |
| 1986 | 11 16 | 05 51.58 | +15 19.4 | | | | | |
| 1986 | 11 26 | 05 45.77 | +15 09.2 | 2.002 | 2.927 | 155.1 | 8.2 | 16.3 |
| 1986 | 12 06 | 05 38.20 | +15 03.9 | | | | | |
| 1986 | 12 16 | 05 29.69 | +15 04.3 | 1.947 | 2.924 | 171.8 | 2.8 | 16.0 |
| 1986 | 12 26 | 05 21.19 | +15 10.7 | | | | | |
| 1987 | 01 05 | 05 13.67 | +15 23.5 | 2.006 | 2.922 | 154.1 | 8.5 | 16.4 |
| 1987 | 01 15 | 05 07.93 | +15 42.3 | | | | | |
| 1987 | 01 25 | 05 04.47 | +16 06.4 | 2.167 | 2.921 | 132.3 | 14.4 | 16.7 |
| 1987 | 02 04 | 05 03.52 | +16 35.0 | | | | | |
| 1987 | 02 14 | 05 05.12 | +17 06.6 | 2.398 | 2.921 | 112.5 | 18.2 | 17.1 |
| 1987 | 02 24 | 05 09.08 | +17 39.9 | | | | | |
| 1987 | 03 06 | 05 15.22 | +18 13.3 | 2.664 | 2.922 | 95.0 | 19.8 | 17.3 |

5550 P-L a,e,i = 2.60, 0.12, 12 Elements MPC 7841

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 50.41 | +33 10.5 | 2.381 | 2.664 | 95.0 | 22.0 | 17.9 |
| 1986 | 10 07 | 05 58.73 | +34 07.8 | | | | | |
| 1986 | 10 17 | 06 04.72 | +35 08.8 | 2.108 | 2.640 | 111.4 | 20.6 | 17.6 |
| 1986 | 10 27 | 06 07.95 | +36 13.6 | | | | | |
| 1986 | 11 06 | 06 07.95 | +37 21.3 | 1.869 | 2.616 | 129.7 | 17.0 | 17.2 |
| 1986 | 11 16 | 06 04.40 | +38 28.7 | | | | | |
| 1986 | 11 26 | 05 57.29 | +39 30.6 | 1.693 | 2.591 | 149.3 | 11.2 | 16.8 |
| 1986 | 12 06 | 05 47.03 | +40 19.9 | | | | | |
| 1986 | 12 16 | 05 34.75 | +40 49.8 | 1.611 | 2.566 | 162.4 | 6.7 | 16.5 |
| 1986 | 12 26 | 05 22.03 | +40 56.7 | | | | | |
| 1987 | 01 05 | 05 10.65 | +40 41.5 | 1.636 | 2.541 | 151.0 | 10.8 | 16.7 |
| 1987 | 01 15 | 05 02.07 | +40 09.6 | | | | | |
| 1987 | 01 25 | 04 57.12 | +39 28.3 | 1.757 | 2.517 | 131.2 | 17.1 | 17.0 |
| 1987 | 02 04 | 04 56.08 | +38 43.9 | | | | | |
| 1987 | 02 14 | 04 58.81 | +38 01.0 | 1.942 | 2.492 | 112.5 | 21.5 | 17.3 |
| 1987 | 02 24 | 05 04.89 | +37 21.4 | | | | | |
| 1987 | 03 06 | 05 13.90 | +36 45.5 | 2.160 | 2.469 | 96.0 | 23.6 | 17.6 |

1985 HC a,e,i = 2.77, 0.41, 29 Elements MPC 10039

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 07.87 | +05 59.6 | 2.413 | 2.629 | 91.0 | 22.4 | 17.0 |
| 1986 | 10 07 | 06 12.77 | +03 59.1 | | | | | |
| 1986 | 10 17 | 06 15.19 | +01 53.1 | 2.246 | 2.716 | 107.4 | 20.5 | 16.8 |
| 1986 | 10 27 | 06 14.98 | -00 15.5 | | | | | |
| 1986 | 11 06 | 06 12.05 | -02 22.1 | 2.114 | 2.801 | 124.9 | 16.9 | 16.7 |
| 1986 | 11 16 | 06 06.53 | -04 20.8 | | | | | |
| 1986 | 11 26 | 05 58.78 | -06 05.1 | 2.049 | 2.884 | 141.0 | 12.4 | 16.5 |
| 1986 | 12 06 | 05 49.43 | -07 28.5 | | | | | |
| 1986 | 12 16 | 05 39.36 | -08 26.0 | 2.081 | 2.964 | 148.2 | 10.1 | 16.5 |
| 1986 | 12 26 | 05 29.55 | -08 55.5 | | | | | |
| 1987 | 01 05 | 05 20.88 | -08 58.1 | 2.219 | 3.040 | 140.2 | 11.9 | 16.8 |
| 1987 | 01 15 | 05 14.05 | -08 37.4 | | | | | |
| 1987 | 01 25 | 05 09.44 | -07 58.9 | 2.447 | 3.114 | 124.6 | 15.1 | 17.1 |
| 1987 | 02 04 | 05 07.18 | -07 08.0 | | | | | |
| 1987 | 02 14 | 05 07.23 | -06 09.8 | 2.737 | 3.184 | 108.1 | 17.1 | 17.5 |
| 1987 | 02 24 | 05 09.39 | -05 08.4 | | | | | |
| 1987 | 03 06 | 05 13.45 | -04 07.2 | 3.057 | 3.251 | 92.3 | 17.7 | 17.8 |

(3406) 1969 DA a,e,i = 2.79, 0.13, 8 Elements MPC 10532

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 58.99 | +26 22.0 | 2.873 | 3.097 | 93.3 | 18.9 | 17.6 |
| 1986 | 10 07 | 06 04.76 | +26 14.8 | | | | | |
| 1986 | 10 17 | 06 08.39 | +26 06.0 | 2.582 | 3.082 | 110.9 | 17.6 | 17.3 |
| 1986 | 10 27 | 06 09.65 | +25 56.0 | | | | | |
| 1986 | 11 06 | 06 08.31 | +25 44.4 | 2.324 | 3.065 | 130.9 | 14.2 | 17.0 |
| 1986 | 11 16 | 06 04.33 | +25 30.7 | | | | | |
| 1986 | 11 26 | 05 57.87 | +25 14.0 | 2.133 | 3.047 | 153.3 | 8.4 | 16.6 |
| 1986 | 12 06 | 05 49.40 | +24 53.1 | | | | | |
| 1986 | 12 16 | 05 39.72 | +24 27.8 | 2.045 | 3.028 | 177.6 | 0.8 | 16.1 |
| 1986 | 12 26 | 05 29.83 | +23 58.8 | | | | | |
| 1987 | 01 05 | 05 20.80 | +23 27.9 | 2.076 | 3.008 | 157.4 | 7.2 | 16.4 |
| 1987 | 01 15 | 05 13.54 | +22 57.7 | | | | | |
| 1987 | 01 25 | 05 08.63 | +22 30.6 | 2.215 | 2.986 | 134.2 | 13.7 | 16.8 |
| 1987 | 02 04 | 05 06.38 | +22 08.3 | | | | | |
| 1987 | 02 14 | 05 06.81 | +21 51.4 | 2.429 | 2.964 | 113.4 | 17.8 | 17.1 |
| 1987 | 02 24 | 05 09.76 | +21 39.5 | | | | | |
| 1987 | 03 06 | 05 15.00 | +21 31.7 | 2.680 | 2.940 | 95.2 | 19.6 | 17.3 |

1981 YS a,e,i = 2.93, 0.16, 15 Elements MPC 7942

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 50.41 | +18 42.1 | 2.277 | 2.572 | 95.3 | 22.8 | 16.8 |
| 1986 | 10 07 | 05 58.55 | +19 10.8 | | | | | |
| 1986 | 10 17 | 06 04.54 | +19 42.9 | 2.007 | 2.550 | 111.7 | 21.3 | 16.5 |
| 1986 | 10 27 | 06 08.05 | +20 20.5 | | | | | |
| 1986 | 11 06 | 06 08.72 | +21 05.2 | 1.770 | 2.530 | 130.7 | 17.3 | 16.1 |
| 1986 | 11 16 | 06 06.32 | +21 57.6 | | | | | |
| 1986 | 11 26 | 06 00.86 | +22 56.9 | 1.595 | 2.513 | 152.7 | 10.4 | 15.6 |
| 1986 | 12 06 | 05 52.72 | +24 00.7 | | | | | |
| 1986 | 12 16 | 05 42.76 | +25 05.0 | 1.515 | 2.498 | 176.7 | 1.3 | 15.1 |
| 1986 | 12 26 | 05 32.23 | +26 05.5 | | | | | |
| 1987 | 01 05 | 05 22.55 | +26 59.6 | 1.548 | 2.487 | 157.7 | 8.6 | 15.4 |
| 1987 | 01 15 | 05 15.02 | +27 46.6 | | | | | |
| 1987 | 01 25 | 05 10.47 | +28 27.3 | 1.683 | 2.477 | 134.9 | 16.4 | 15.9 |
| 1987 | 02 04 | 05 09.28 | +29 03.4 | | | | | |
| 1987 | 02 14 | 05 11.50 | +29 36.2 | 1.886 | 2.471 | 115.0 | 21.2 | 16.3 |
| 1987 | 02 24 | 05 16.87 | +30 06.1 | | | | | |
| 1987 | 03 06 | 05 25.08 | +30 33.0 | 2.126 | 2.468 | 98.0 | 23.5 | 16.6 |

(3181) Ahnert a,e,i = 2.23, 0.07, 4 Elements MPC 9417

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 49.27 | +21 47.5 | 1.926 | 2.256 | 95.6 | 26.3 | 17.2 |
| 1986 | 10 07 | 05 59.18 | +21 28.5 | | | | | |
| 1986 | 10 17 | 06 06.63 | +21 05.3 | 1.678 | 2.241 | 111.2 | 24.5 | 16.9 |
| 1986 | 10 27 | 06 11.24 | +20 39.0 | | | | | |
| 1986 | 11 06 | 06 12.55 | +20 11.2 | 1.457 | 2.226 | 129.7 | 20.0 | 16.4 |
| 1986 | 11 16 | 06 10.29 | +19 42.9 | | | | | |
| 1986 | 11 26 | 06 04.50 | +19 15.0 | 1.292 | 2.211 | 151.6 | 12.3 | 15.9 |
| 1986 | 12 06 | 05 55.59 | +18 48.3 | | | | | |
| 1986 | 12 16 | 05 44.66 | +18 23.9 | 1.215 | 2.196 | 174.1 | 2.6 | 15.4 |
| 1986 | 12 26 | 05 33.24 | +18 03.1 | | | | | |
| 1987 | 01 05 | 05 22.98 | +17 48.1 | 1.242 | 2.181 | 157.0 | 10.2 | 15.7 |
| 1987 | 01 15 | 05 15.32 | +17 40.6 | | | | | |
| 1987 | 01 25 | 05 11.05 | +17 41.5 | 1.363 | 2.167 | 134.1 | 19.0 | 16.2 |
| 1987 | 02 04 | 05 10.49 | +17 50.3 | | | | | |
| 1987 | 02 14 | 05 13.51 | +18 05.4 | 1.546 | 2.153 | 114.6 | 24.6 | 16.6 |
| 1987 | 02 24 | 05 19.78 | +18 24.3 | | | | | |
| 1987 | 03 06 | 05 28.89 | +18 44.5 | 1.760 | 2.140 | 98.2 | 27.3 | 17.0 |

(3319) 1977 EJ5 a,e,i = 3.16, 0.16, 4 Elements MPC 10152

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 56.52 | +25 04.2 | 2.525 | 2.779 | 93.9 | 21.1 | 17.3 |
| 1986 | 10 07 | 06 03.73 | +24 59.9 | | | | | |
| 1986 | 10 17 | 06 08.62 | +24 54.3 | 2.289 | 2.803 | 110.9 | 19.4 | 17.1 |
| 1986 | 10 27 | 06 10.95 | +24 47.9 | | | | | |
| 1986 | 11 06 | 06 10.51 | +24 41.0 | 2.083 | 2.828 | 130.4 | 15.5 | 16.8 |
| 1986 | 11 16 | 06 07.28 | +24 33.3 | | | | | |
| 1986 | 11 26 | 06 01.49 | +24 24.1 | 1.943 | 2.855 | 152.6 | 9.2 | 16.5 |
| 1986 | 12 06 | 05 53.64 | +24 12.6 | | | | | |
| 1986 | 12 16 | 05 44.62 | +23 58.2 | 1.900 | 2.883 | 176.7 | 1.1 | 16.0 |
| 1986 | 12 26 | 05 35.50 | +23 41.3 | | | | | |
| 1987 | 01 05 | 05 27.32 | +23 23.3 | 1.973 | 2.912 | 158.9 | 7.0 | 16.4 |
| 1987 | 01 15 | 05 20.98 | +23 06.0 | | | | | |
| 1987 | 01 25 | 05 17.02 | +22 51.3 | 2.151 | 2.942 | 136.2 | 13.4 | 16.9 |
| 1987 | 02 04 | 05 15.66 | +22 40.3 | | | | | |
| 1987 | 02 14 | 05 16.90 | +22 33.1 | 2.406 | 2.972 | 115.8 | 17.4 | 17.3 |
| 1987 | 02 24 | 05 20.54 | +22 29.4 | | | | | |
| 1987 | 03 06 | 05 26.33 | +22 28.0 | 2.702 | 3.003 | 97.9 | 19.1 | 17.6 |

(3351) Smith a,e,i = 3.04, 0.27, 13 Elements MPC 10305

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 58.17 | +10 36.6 | 2.221 | 2.491 | 93.5 | 23.7 | 17.7 |
| 1986 | 10 07 | 06 05.74 | +09 31.2 | | | | | |
| 1986 | 10 17 | 06 10.88 | +08 22.0 | 2.031 | 2.541 | 109.3 | 21.7 | 17.5 |
| 1986 | 10 27 | 06 13.35 | +07 11.5 | | | | | |
| 1986 | 11 06 | 06 13.01 | +06 03.0 | 1.870 | 2.593 | 127.3 | 17.7 | 17.2 |
| 1986 | 11 16 | 06 09.87 | +05 00.6 | | | | | |
| 1986 | 11 26 | 06 04.21 | +04 08.6 | 1.768 | 2.646 | 146.3 | 11.9 | 17.0 |
| 1986 | 12 06 | 05 56.59 | +03 31.2 | | | | | |
| 1986 | 12 16 | 05 47.88 | +03 11.7 | 1.757 | 2.701 | 159.5 | 7.3 | 16.8 |
| 1986 | 12 26 | 05 39.12 | +03 11.5 | | | | | |
| 1987 | 01 05 | 05 31.32 | +03 29.7 | 1.852 | 2.756 | 151.3 | 9.9 | 17.1 |
| 1987 | 01 15 | 05 25.30 | +04 03.7 | | | | | |
| 1987 | 01 25 | 05 21.55 | +04 49.4 | 2.046 | 2.811 | 133.0 | 14.8 | 17.5 |
| 1987 | 02 04 | 05 20.29 | +05 42.8 | | | | | |
| 1987 | 02 14 | 05 21.51 | +06 40.1 | 2.311 | 2.867 | 114.7 | 18.2 | 17.9 |
| 1987 | 02 24 | 05 25.00 | +07 38.1 | | | | | |
| 1987 | 03 06 | 05 30.54 | +08 34.4 | 2.617 | 2.922 | 97.8 | 19.7 | 18.3 |

1941 UL a,e,i = 3.15, 0.20, 3 Elements MPC 6894

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 58.54 | +22 32.8 | 2.405 | 2.660 | 93.4 | 22.1 | 17.0 |
| 1986 | 10 07 | 06 06.31 | +22 36.4 | | | | | |
| 1986 | 10 17 | 06 11.76 | +22 39.8 | 2.180 | 2.690 | 110.1 | 20.4 | 16.7 |
| 1986 | 10 27 | 06 14.62 | +22 44.3 | | | | | |
| 1986 | 11 06 | 06 14.65 | +22 50.4 | 1.983 | 2.723 | 129.4 | 16.3 | 16.4 |
| 1986 | 11 16 | 06 11.81 | +22 58.3 | | | | | |
| 1986 | 11 26 | 06 06.28 | +23 07.4 | 1.849 | 2.756 | 151.5 | 9.8 | 16.1 |
| 1986 | 12 06 | 05 58.54 | +23 16.4 | | | | | |
| 1986 | 12 16 | 05 49.49 | +23 24.0 | 1.810 | 2.792 | 175.6 | 1.5 | 15.7 |
| 1986 | 12 26 | 05 40.21 | +23 29.4 | | | | | |
| 1987 | 01 05 | 05 31.80 | +23 33.0 | 1.885 | 2.829 | 160.0 | 6.8 | 16.1 |
| 1987 | 01 15 | 05 25.25 | +23 35.6 | | | | | |
| 1987 | 01 25 | 05 21.11 | +23 38.6 | 2.065 | 2.866 | 137.1 | 13.5 | 16.5 |
| 1987 | 02 04 | 05 19.67 | +23 42.9 | | | | | |
| 1987 | 02 14 | 05 20.91 | +23 48.8 | 2.322 | 2.905 | 116.8 | 17.7 | 17.0 |
| 1987 | 02 24 | 05 24.62 | +23 56.0 | | | | | |
| 1987 | 03 06 | 05 30.57 | +24 04.0 | 2.622 | 2.944 | 98.9 | 19.4 | 17.3 |

(3338) Richter a,e,i = 2.15, 0.17, 1 Elements MPC 10299

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 06.17 | +22 43.1 | 2.036 | 2.295 | 91.7 | 25.9 | 18.9 |
| 1986 | 10 07 | 06 15.01 | +22 39.4 | | | | | |
| 1986 | 10 17 | 06 21.23 | +22 35.2 | 1.820 | 2.328 | 107.9 | 24.0 | 18.6 |
| 1986 | 10 27 | 06 24.45 | +22 32.0 | | | | | |
| 1986 | 11 06 | 06 24.31 | +22 30.9 | 1.624 | 2.359 | 127.2 | 19.6 | 18.3 |
| 1986 | 11 16 | 06 20.59 | +22 32.1 | | | | | |
| 1986 | 11 26 | 06 13.39 | +22 34.8 | 1.482 | 2.387 | 149.8 | 12.0 | 17.9 |
| 1986 | 12 06 | 06 03.23 | +22 37.5 | | | | | |
| 1986 | 12 16 | 05 51.23 | +22 38.5 | 1.431 | 2.413 | 175.2 | 2.0 | 17.4 |
| 1986 | 12 26 | 05 38.86 | +22 36.8 | | | | | |
| 1987 | 01 05 | 05 27.67 | +22 33.2 | 1.492 | 2.436 | 158.9 | 8.3 | 17.8 |
| 1987 | 01 15 | 05 18.96 | +22 29.6 | | | | | |
| 1987 | 01 25 | 05 13.44 | +22 28.1 | 1.656 | 2.456 | 135.3 | 16.4 | 18.3 |
| 1987 | 02 04 | 05 11.35 | +22 29.8 | | | | | |
| 1987 | 02 14 | 05 12.59 | +22 35.1 | 1.890 | 2.473 | 114.8 | 21.2 | 18.8 |
| 1987 | 02 24 | 05 16.82 | +22 43.2 | | | | | |
| 1987 | 03 06 | 05 23.65 | +22 52.9 | 2.158 | 2.487 | 97.3 | 23.3 | 19.1 |

1977 QJ2 a,e,i = 2.55, 0.13, 5 Elements MPC 10766

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 09 27 | 06 07.92 | +28 54.8 | 2.529 | 2.743 | 91.3 | 21.4 | 18.1 |
| 1986 10 07 | 06 15.29 | +29 06.1 | | | | | |
| 1986 10 17 | 06 20.29 | +29 17.7 | 2.283 | 2.763 | 108.3 | 20.0 | 17.9 |
| 1986 10 27 | 06 22.60 | +29 30.3 | | | | | |
| 1986 11 06 | 06 21.93 | +29 43.3 | 2.063 | 2.782 | 127.7 | 16.4 | 17.6 |
| 1986 11 16 | 06 18.15 | +29 55.6 | | | | | |
| 1986 11 26 | 06 11.40 | +30 04.6 | 1.902 | 2.799 | 149.8 | 10.2 | 17.2 |
| 1986 12 06 | 06 02.14 | +30 07.4 | | | | | |
| 1986 12 16 | 05 51.32 | +30 01.3 | 1.837 | 2.815 | 171.8 | 2.9 | 16.8 |
| 1986 12 26 | 05 40.15 | +29 45.6 | | | | | |
| 1987 01 05 | 05 29.91 | +29 21.5 | 1.889 | 2.829 | 159.0 | 7.2 | 17.1 |
| 1987 01 15 | 05 21.70 | +28 52.2 | | | | | |
| 1987 01 25 | 05 16.20 | +28 21.5 | 2.049 | 2.842 | 136.1 | 13.9 | 17.5 |
| 1987 02 04 | 05 13.68 | +27 52.6 | | | | | |
| 1987 02 14 | 05 14.13 | +27 27.3 | 2.285 | 2.852 | 115.5 | 18.2 | 17.9 |
| 1987 02 24 | 05 17.30 | +27 06.2 | | | | | |
| 1987 03 06 | 05 22.89 | +26 48.8 | 2.560 | 2.861 | 97.3 | 20.1 | 18.2 |

(3341) 1980 OD a,e,i = 3.02, 0.24, 10 Elements MPC 10300

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 09 27 | 05 59.56 | +12 01.0 | 2.218 | 2.483 | 93.1 | 23.8 | 17.2 |
| 1986 10 07 | 06 07.61 | +11 29.7 | | | | | |
| 1986 10 17 | 06 13.28 | +10 57.0 | 2.014 | 2.522 | 109.0 | 21.9 | 17.0 |
| 1986 10 27 | 06 16.33 | +10 25.5 | | | | | |
| 1986 11 06 | 06 16.55 | +09 57.8 | 1.837 | 2.563 | 127.3 | 17.9 | 16.7 |
| 1986 11 16 | 06 13.89 | +09 36.9 | | | | | |
| 1986 11 26 | 06 08.57 | +09 25.6 | 1.717 | 2.606 | 147.8 | 11.6 | 16.4 |
| 1986 12 06 | 06 01.07 | +09 26.0 | | | | | |
| 1986 12 16 | 05 52.26 | +09 39.4 | 1.687 | 2.651 | 165.4 | 5.4 | 16.1 |
| 1986 12 26 | 05 43.23 | +10 05.4 | | | | | |
| 1987 01 05 | 05 35.03 | +10 42.5 | 1.766 | 2.697 | 156.6 | 8.3 | 16.4 |
| 1987 01 15 | 05 28.63 | +11 28.2 | | | | | |
| 1987 01 25 | 05 24.58 | +12 19.7 | 1.948 | 2.744 | 136.1 | 14.4 | 16.9 |
| 1987 02 04 | 05 23.15 | +13 14.2 | | | | | |
| 1987 02 14 | 05 24.36 | +14 09.3 | 2.205 | 2.791 | 116.7 | 18.4 | 17.3 |
| 1987 02 24 | 05 28.00 | +15 02.9 | | | | | |
| 1987 03 06 | 05 33.83 | +15 53.7 | 2.506 | 2.839 | 99.2 | 20.2 | 17.6 |

(3330) 1985 RU1 a,e,i = 3.13, 0.22, 10 Elements MPC 10164

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 09 27 | 06 14.15 | +33 17.1 | 3.201 | 3.356 | 90.1 | 17.4 | 17.0 |
| 1986 10 07 | 06 19.73 | +33 49.8 | | | | | |
| 1986 10 17 | 06 23.17 | +34 24.7 | 2.956 | 3.393 | 107.6 | 16.3 | 16.8 |
| 1986 10 27 | 06 24.25 | +35 01.6 | | | | | |
| 1986 11 06 | 06 22.75 | +35 39.3 | 2.739 | 3.428 | 127.0 | 13.3 | 16.5 |
| 1986 11 16 | 06 18.64 | +36 15.6 | | | | | |
| 1986 11 26 | 06 12.07 | +36 47.3 | 2.587 | 3.463 | 147.8 | 8.7 | 16.3 |
| 1986 12 06 | 06 03.47 | +37 10.9 | | | | | |
| 1986 12 16 | 05 53.61 | +37 23.2 | 2.536 | 3.496 | 165.0 | 4.2 | 16.1 |
| 1986 12 26 | 05 43.43 | +37 22.7 | | | | | |
| 1987 01 05 | 05 33.95 | +37 09.8 | 2.603 | 3.527 | 156.7 | 6.3 | 16.2 |
| 1987 01 15 | 05 26.07 | +36 47.1 | | | | | |
| 1987 01 25 | 05 20.36 | +36 18.1 | 2.781 | 3.557 | 136.2 | 11.0 | 16.6 |
| 1987 02 04 | 05 17.13 | +35 46.5 | | | | | |
| 1987 02 14 | 05 16.43 | +35 15.0 | 3.041 | 3.586 | 116.0 | 14.3 | 16.9 |
| 1987 02 24 | 05 18.13 | +34 45.6 | | | | | |
| 1987 03 06 | 05 22.00 | +34 18.8 | 3.347 | 3.613 | 97.5 | 15.8 | 17.2 |

(3324) 1983 CW1 a,e,i = 2.70, 0.03, 11 Elements MPC 10162

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 03.81 | +34 25.9 | 2.440 | 2.674 | 92.2 | 22.0 | 17.5 |
| 1986 | 10 07 | 06 12.81 | +34 49.9 | | | | | |
| 1986 | 10 17 | 06 19.43 | +35 14.1 | 2.182 | 2.669 | 108.3 | 20.8 | 17.2 |
| 1986 | 10 27 | 06 23.27 | +35 38.6 | | | | | |
| 1986 | 11 06 | 06 23.96 | +36 02.6 | 1.950 | 2.664 | 126.7 | 17.4 | 16.9 |
| 1986 | 11 16 | 06 21.24 | +36 23.9 | | | | | |
| 1986 | 11 26 | 06 15.17 | +36 38.6 | 1.775 | 2.659 | 147.3 | 11.6 | 16.5 |
| 1986 | 12 06 | 06 06.15 | +36 41.9 | | | | | |
| 1986 | 12 16 | 05 55.17 | +36 29.6 | 1.690 | 2.655 | 165.7 | 5.2 | 16.1 |
| 1986 | 12 26 | 05 43.61 | +35 59.7 | | | | | |
| 1987 | 01 05 | 05 32.98 | +35 14.2 | 1.715 | 2.651 | 157.5 | 8.2 | 16.3 |
| 1987 | 01 15 | 05 24.60 | +34 17.8 | | | | | |
| 1987 | 01 25 | 05 19.24 | +33 16.9 | 1.845 | 2.647 | 136.4 | 14.9 | 16.7 |
| 1987 | 02 04 | 05 17.23 | +32 16.8 | | | | | |
| 1987 | 02 14 | 05 18.51 | +31 20.9 | 2.050 | 2.643 | 116.5 | 19.5 | 17.0 |
| 1987 | 02 24 | 05 22.77 | +30 30.7 | | | | | |
| 1987 | 03 06 | 05 29.64 | +29 45.9 | 2.297 | 2.640 | 98.9 | 21.8 | 17.3 |

(3287) 1981 DK1 a,e,i = 2.37, 0.30, 12 Elements MPC 9829

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 17.60 | +15 17.2 | 2.405 | 2.586 | 88.8 | 22.8 | 18.9 |
| 1986 | 10 07 | 06 24.18 | +14 21.7 | | | | | |
| 1986 | 10 17 | 06 28.35 | +13 23.1 | 2.195 | 2.643 | 105.6 | 21.3 | 18.7 |
| 1986 | 10 27 | 06 29.88 | +12 23.0 | | | | | |
| 1986 | 11 06 | 06 28.58 | +11 23.4 | 2.006 | 2.697 | 124.7 | 17.6 | 18.5 |
| 1986 | 11 16 | 06 24.39 | +10 26.8 | | | | | |
| 1986 | 11 26 | 06 17.52 | +09 35.8 | 1.873 | 2.747 | 145.9 | 11.6 | 18.2 |
| 1986 | 12 06 | 06 08.46 | +08 53.5 | | | | | |
| 1986 | 12 16 | 05 58.06 | +08 22.6 | 1.835 | 2.794 | 163.7 | 5.7 | 17.9 |
| 1986 | 12 26 | 05 47.40 | +08 04.8 | | | | | |
| 1987 | 01 05 | 05 37.55 | +08 00.7 | 1.913 | 2.837 | 155.5 | 8.3 | 18.2 |
| 1987 | 01 15 | 05 29.46 | +08 09.5 | | | | | |
| 1987 | 01 25 | 05 23.72 | +08 29.0 | 2.097 | 2.877 | 134.8 | 14.0 | 18.6 |
| 1987 | 02 04 | 05 20.61 | +08 56.7 | | | | | |
| 1987 | 02 14 | 05 20.13 | +09 29.7 | 2.357 | 2.913 | 114.9 | 17.9 | 19.0 |
| 1987 | 02 24 | 05 22.12 | +10 05.6 | | | | | |
| 1987 | 03 06 | 05 26.31 | +10 42.2 | 2.656 | 2.946 | 97.0 | 19.5 | 19.3 |

1981 EE37 a,e,i = 2.28, 0.18, 5 Elements MPC 9752

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 08.26 | +27 04.9 | 1.909 | 2.176 | 91.2 | 27.4 | 17.9 |
| 1986 | 10 07 | 06 18.91 | +27 27.8 | | | | | |
| 1986 | 10 17 | 06 26.84 | +27 51.9 | 1.714 | 2.218 | 106.8 | 25.5 | 17.6 |
| 1986 | 10 27 | 06 31.64 | +28 18.8 | | | | | |
| 1986 | 11 06 | 06 32.85 | +28 49.1 | 1.537 | 2.260 | 125.4 | 21.0 | 17.3 |
| 1986 | 11 16 | 06 30.18 | +29 21.9 | | | | | |
| 1986 | 11 26 | 06 23.63 | +29 54.2 | 1.409 | 2.302 | 147.2 | 13.4 | 16.9 |
| 1986 | 12 06 | 06 13.68 | +30 21.3 | | | | | |
| 1986 | 12 16 | 06 01.47 | +30 38.3 | 1.367 | 2.342 | 169.9 | 4.2 | 16.6 |
| 1986 | 12 26 | 05 48.64 | +30 42.0 | | | | | |
| 1987 | 01 05 | 05 36.96 | +30 32.9 | 1.433 | 2.382 | 160.1 | 8.1 | 16.9 |
| 1987 | 01 15 | 05 27.88 | +30 14.6 | | | | | |
| 1987 | 01 25 | 05 22.23 | +29 52.1 | 1.601 | 2.419 | 137.4 | 16.0 | 17.4 |
| 1987 | 02 04 | 05 20.25 | +29 29.6 | | | | | |
| 1987 | 02 14 | 05 21.78 | +29 09.2 | 1.841 | 2.455 | 117.2 | 21.0 | 17.9 |
| 1987 | 02 24 | 05 26.42 | +28 51.8 | | | | | |
| 1987 | 03 06 | 05 33.72 | +28 36.8 | 2.120 | 2.489 | 99.8 | 23.1 | 18.3 |

1979 QK6 a,e,i = 2.18, 0.20, 4 Elements MPC 10037

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 11.73 | +19 45.3 | 1.968 | 2.214 | 90.3 | 26.9 | 18.8 |
| 1986 | 10 07 | 06 21.19 | +19 36.1 | | | | | |
| 1986 | 10 17 | 06 28.04 | +19 26.8 | 1.768 | 2.258 | 106.2 | 25.1 | 18.5 |
| 1986 | 10 27 | 06 31.90 | +19 19.4 | | | | | |
| 1986 | 11 06 | 06 32.41 | +19 15.6 | 1.584 | 2.301 | 125.0 | 20.7 | 18.2 |
| 1986 | 11 16 | 06 29.36 | +19 16.7 | | | | | |
| 1986 | 11 26 | 06 22.79 | +19 23.0 | 1.449 | 2.341 | 147.3 | 13.2 | 17.8 |
| 1986 | 12 06 | 06 13.17 | +19 33.7 | | | | | |
| 1986 | 12 16 | 06 01.54 | +19 47.3 | 1.401 | 2.379 | 172.0 | 3.3 | 17.4 |
| 1986 | 12 26 | 05 49.31 | +20 02.2 | | | | | |
| 1987 | 01 05 | 05 38.04 | +20 17.7 | 1.464 | 2.415 | 161.0 | 7.6 | 17.7 |
| 1987 | 01 15 | 05 29.07 | +20 33.9 | | | | | |
| 1987 | 01 25 | 05 23.18 | +20 51.3 | 1.631 | 2.448 | 137.4 | 15.8 | 18.3 |
| 1987 | 02 04 | 05 20.67 | +21 10.4 | | | | | |
| 1987 | 02 14 | 05 21.46 | +21 30.8 | 1.871 | 2.478 | 116.8 | 20.8 | 18.7 |
| 1987 | 02 24 | 05 25.25 | +21 51.9 | | | | | |
| 1987 | 03 06 | 05 31.66 | +22 12.5 | 2.150 | 2.506 | 99.1 | 23.0 | 19.1 |

1969 TK a,e,i = 3.96, 0.19, 4 Elements MPC 10307

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 05.28 | +25 14.4 | 3.078 | 3.268 | 91.9 | 17.9 | 16.3 |
| 1986 | 10 07 | 06 11.95 | +25 11.1 | | | | | |
| 1986 | 10 17 | 06 16.73 | +25 07.1 | 2.790 | 3.254 | 109.0 | 16.8 | 16.1 |
| 1986 | 10 27 | 06 19.41 | +25 02.9 | | | | | |
| 1986 | 11 06 | 06 19.81 | +24 58.8 | 2.533 | 3.242 | 128.3 | 13.9 | 15.8 |
| 1986 | 11 16 | 06 17.86 | +24 54.7 | | | | | |
| 1986 | 11 26 | 06 13.67 | +24 50.0 | 2.340 | 3.231 | 149.8 | 8.8 | 15.4 |
| 1986 | 12 06 | 06 07.57 | +24 43.8 | | | | | |
| 1986 | 12 16 | 06 00.16 | +24 35.5 | 2.244 | 3.223 | 173.1 | 2.1 | 15.0 |
| 1986 | 12 26 | 05 52.24 | +24 24.6 | | | | | |
| 1987 | 01 05 | 05 44.71 | +24 11.6 | 2.264 | 3.217 | 162.9 | 5.2 | 15.2 |
| 1987 | 01 15 | 05 38.41 | +23 57.7 | | | | | |
| 1987 | 01 25 | 05 33.96 | +23 44.2 | 2.395 | 3.213 | 140.1 | 11.3 | 15.5 |
| 1987 | 02 04 | 05 31.74 | +23 32.3 | | | | | |
| 1987 | 02 14 | 05 31.89 | +23 22.8 | 2.610 | 3.211 | 119.3 | 15.6 | 15.9 |
| 1987 | 02 24 | 05 34.35 | +23 15.5 | | | | | |
| 1987 | 03 06 | 05 38.97 | +23 10.0 | 2.874 | 3.211 | 100.8 | 17.7 | 16.1 |

1983 AD a,e,i = 2.56, 0.12, 10 Elements MPC 7766

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 02.57 | +22 11.3 | 2.163 | 2.423 | -1.08 | -3.2 | 17.5 |
| 1986 | 10 07 | 06 12.65 | +22 38.0 | | | | | |
| 1986 | 10 17 | 06 20.67 | +23 07.7 | 1.895 | 2.399 | -1.29 | -2.9 | 17.2 |
| 1986 | 10 27 | 06 26.24 | +23 42.3 | | | | | |
| 1986 | 11 06 | 06 28.91 | +24 23.6 | 1.652 | 2.376 | -1.55 | -2.9 | 16.7 |
| 1986 | 11 16 | 06 28.33 | +25 12.5 | | | | | |
| 1986 | 11 26 | 06 24.30 | +26 08.2 | 1.462 | 2.354 | -1.82 | -3.3 | 16.3 |
| 1986 | 12 06 | 06 16.96 | +27 07.6 | | | | | |
| 1986 | 12 16 | 06 07.01 | +28 06.0 | 1.358 | 2.334 | -1.96 | -4.6 | 15.7 |
| 1986 | 12 26 | 05 55.70 | +28 57.8 | | | | | |
| 1987 | 01 05 | 05 44.64 | +29 39.2 | 1.360 | 2.316 | -1.86 | -6.1 | 15.9 |
| 1987 | 01 15 | 05 35.48 | +30 09.4 | | | | | |
| 1987 | 01 25 | 05 29.41 | +30 30.4 | 1.465 | 2.299 | -1.60 | -6.7 | 16.3 |
| 1987 | 02 04 | 05 27.03 | +30 45.1 | | | | | |
| 1987 | 02 14 | 05 28.47 | +30 55.9 | 1.641 | 2.285 | -1.35 | -6.2 | 16.7 |
| 1987 | 02 24 | 05 33.49 | +31 04.2 | | | | | |
| 1987 | 03 06 | 05 41.69 | +31 10.1 | 1.856 | 2.273 | -1.20 | -4.9 | 17.1 |

1985 RL a,e,i = 2.87, 0.06, 3 Elements MPC 10943

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 15.03 | +20 40.1 | 2.746 | 2.916 | 89.6 | 20.1 | 17.9 |
| 1986 | 10 07 | 06 22.10 | +20 30.5 | | | | | |
| 1986 | 10 17 | 06 27.14 | +20 20.9 | 2.486 | 2.928 | 106.4 | 19.1 | 17.7 |
| 1986 | 10 27 | 06 29.88 | +20 12.4 | | | | | |
| 1986 | 11 06 | 06 30.10 | +20 05.8 | 2.250 | 2.940 | 125.6 | 15.9 | 17.4 |
| 1986 | 11 16 | 06 27.69 | +20 02.1 | | | | | |
| 1986 | 11 26 | 06 22.74 | +20 01.3 | 2.072 | 2.952 | 147.4 | 10.4 | 17.0 |
| 1986 | 12 06 | 06 15.55 | +20 03.0 | | | | | |
| 1986 | 12 16 | 06 06.80 | +20 06.7 | 1.987 | 2.963 | 171.0 | 3.0 | 16.6 |
| 1986 | 12 26 | 05 57.39 | +20 11.7 | | | | | |
| 1987 | 01 05 | 05 48.36 | +20 17.7 | 2.018 | 2.974 | 163.4 | 5.4 | 16.8 |
| 1987 | 01 15 | 05 40.68 | +20 24.8 | | | | | |
| 1987 | 01 25 | 05 35.07 | +20 33.3 | 2.161 | 2.984 | 140.1 | 12.2 | 17.2 |
| 1987 | 02 04 | 05 31.93 | +20 43.6 | | | | | |
| 1987 | 02 14 | 05 31.42 | +20 55.7 | 2.387 | 2.994 | 119.1 | 16.8 | 17.6 |
| 1987 | 02 24 | 05 33.43 | +21 08.9 | | | | | |
| 1987 | 03 06 | 05 37.77 | +21 22.7 | 2.660 | 3.003 | 100.5 | 19.0 | 17.9 |

1984 HR1 a,e,i = 2.60, 0.15, 5 Elements MPC 10763

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 24.61 | +27 12.0 | 2.844 | 2.976 | 87.6 | 19.7 | 19.0 |
| 1986 | 10 07 | 06 31.90 | +27 27.0 | | | | | |
| 1986 | 10 17 | 06 37.15 | +27 44.3 | 2.570 | 2.981 | 104.5 | 18.9 | 18.8 |
| 1986 | 10 27 | 06 40.07 | +28 04.7 | | | | | |
| 1986 | 11 06 | 06 40.37 | +28 28.4 | 2.318 | 2.984 | 123.7 | 16.0 | 18.5 |
| 1986 | 11 16 | 06 37.85 | +28 54.8 | | | | | |
| 1986 | 11 26 | 06 32.50 | +29 22.0 | 2.120 | 2.985 | 145.3 | 10.8 | 18.1 |
| 1986 | 12 06 | 06 24.56 | +29 47.2 | | | | | |
| 1986 | 12 16 | 06 14.66 | +30 07.0 | 2.015 | 2.984 | 168.0 | 3.9 | 17.7 |
| 1986 | 12 26 | 06 03.78 | +30 18.7 | | | | | |
| 1987 | 01 05 | 05 53.10 | +30 20.9 | 2.026 | 2.981 | 163.4 | 5.4 | 17.8 |
| 1987 | 01 15 | 05 43.78 | +30 14.8 | | | | | |
| 1987 | 01 25 | 05 36.70 | +30 02.8 | 2.150 | 2.977 | 140.5 | 12.1 | 18.2 |
| 1987 | 02 04 | 05 32.37 | +29 47.8 | | | | | |
| 1987 | 02 14 | 05 30.96 | +29 32.4 | 2.360 | 2.970 | 119.2 | 16.9 | 18.5 |
| 1987 | 02 24 | 05 32.38 | +29 18.1 | | | | | |
| 1987 | 03 06 | 05 36.40 | +29 05.3 | 2.617 | 2.961 | 100.4 | 19.2 | 18.8 |

1930 VD a,e,i = 2.79, 0.31, 7 Elements MPC 9684

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 05 51.30 | +28 11.7 | 1.560 | 1.926 | 95.0 | 31.2 | 16.1 |
| 1986 | 10 07 | 06 06.72 | +27 57.7 | | | | | |
| 1986 | 10 17 | 06 19.37 | +27 35.8 | 1.380 | 1.941 | 108.5 | 29.1 | 15.8 |
| 1986 | 10 27 | 06 28.76 | +27 08.0 | | | | | |
| 1986 | 11 06 | 06 34.38 | +26 35.9 | 1.221 | 1.965 | 125.0 | 24.4 | 15.4 |
| 1986 | 11 16 | 06 35.89 | +26 00.5 | | | | | |
| 1986 | 11 26 | 06 33.26 | +25 22.1 | 1.105 | 1.998 | 145.3 | 16.3 | 15.0 |
| 1986 | 12 06 | 06 26.87 | +24 40.3 | | | | | |
| 1986 | 12 16 | 06 17.83 | +23 55.0 | 1.063 | 2.038 | 169.1 | 5.2 | 14.6 |
| 1986 | 12 26 | 06 07.76 | +23 07.3 | | | | | |
| 1987 | 01 05 | 05 58.45 | +22 20.2 | 1.117 | 2.085 | 166.0 | 6.5 | 14.8 |
| 1987 | 01 15 | 05 51.44 | +21 37.3 | | | | | |
| 1987 | 01 25 | 05 47.61 | +21 01.4 | 1.267 | 2.138 | 143.1 | 16.1 | 15.4 |
| 1987 | 02 04 | 05 47.27 | +20 33.6 | | | | | |
| 1987 | 02 14 | 05 50.29 | +20 13.0 | 1.491 | 2.195 | 123.4 | 22.1 | 16.0 |
| 1987 | 02 24 | 05 56.27 | +19 57.7 | | | | | |
| 1987 | 03 06 | 06 04.78 | +19 45.4 | 1.761 | 2.256 | 106.7 | 24.9 | 16.5 |

1982 OK a,e,i = 2.24, 0.21, 4 Elements MPC 10033

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 25.34 | +18 53.3 | 2.159 | 2.334 | 87.1 | 25.4 | 19.0 |
| 1986 | 10 07 | 06 34.68 | +18 33.7 | | | | | |
| 1986 | 10 17 | 06 41.62 | +18 13.9 | 1.949 | 2.378 | 102.9 | 24.1 | 18.8 |
| 1986 | 10 27 | 06 45.84 | +17 55.7 | | | | | |
| 1986 | 11 06 | 06 46.99 | +17 41.1 | 1.752 | 2.421 | 121.4 | 20.5 | 18.5 |
| 1986 | 11 16 | 06 44.85 | +17 31.6 | | | | | |
| 1986 | 11 26 | 06 39.41 | +17 28.2 | 1.599 | 2.461 | 143.1 | 13.9 | 18.2 |
| 1986 | 12 06 | 06 30.97 | +17 31.1 | | | | | |
| 1986 | 12 16 | 06 20.32 | +17 39.7 | 1.530 | 2.499 | 167.1 | 5.1 | 17.8 |
| 1986 | 12 26 | 06 08.65 | +17 52.6 | | | | | |
| 1987 | 01 05 | 05 57.35 | +18 08.7 | 1.571 | 2.533 | 164.8 | 5.8 | 17.9 |
| 1987 | 01 15 | 05 47.76 | +18 27.3 | | | | | |
| 1987 | 01 25 | 05 40.78 | +18 47.9 | 1.722 | 2.565 | 141.3 | 13.9 | 18.4 |
| 1987 | 02 04 | 05 36.88 | +19 10.2 | | | | | |
| 1987 | 02 14 | 05 36.14 | +19 33.7 | 1.955 | 2.594 | 120.1 | 19.2 | 18.9 |
| 1987 | 02 24 | 05 38.36 | +19 57.4 | | | | | |
| 1987 | 03 06 | 05 43.23 | +20 20.3 | 2.233 | 2.620 | 101.7 | 21.8 | 19.3 |

1983 BN a,e,i = 2.74, 0.02, 6 Elements MPC 9072

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 20.27 | +19 37.3 | 2.634 | 2.790 | 88.3 | 21.0 | 17.2 |
| 1986 | 10 07 | 06 28.34 | +19 33.8 | | | | | |
| 1986 | 10 17 | 06 34.42 | +19 31.0 | 2.366 | 2.790 | 104.7 | 20.2 | 17.0 |
| 1986 | 10 27 | 06 38.26 | +19 30.5 | | | | | |
| 1986 | 11 06 | 06 39.55 | +19 33.8 | 2.118 | 2.789 | 123.4 | 17.3 | 16.7 |
| 1986 | 11 16 | 06 38.10 | +19 41.9 | | | | | |
| 1986 | 11 26 | 06 33.89 | +19 55.2 | 1.923 | 2.788 | 144.8 | 11.8 | 16.3 |
| 1986 | 12 06 | 06 27.13 | +20 13.2 | | | | | |
| 1986 | 12 16 | 06 18.40 | +20 34.7 | 1.815 | 2.787 | 168.6 | 4.0 | 15.8 |
| 1986 | 12 26 | 06 08.62 | +20 58.0 | | | | | |
| 1987 | 01 05 | 05 58.91 | +21 21.5 | 1.821 | 2.785 | 166.0 | 4.9 | 15.9 |
| 1987 | 01 15 | 05 50.41 | +21 44.2 | | | | | |
| 1987 | 01 25 | 05 44.01 | +22 06.1 | 1.938 | 2.783 | 142.3 | 12.5 | 16.3 |
| 1987 | 02 04 | 05 40.26 | +22 27.4 | | | | | |
| 1987 | 02 14 | 05 39.38 | +22 48.2 | 2.140 | 2.781 | 121.0 | 17.7 | 16.7 |
| 1987 | 02 24 | 05 41.31 | +23 08.3 | | | | | |
| 1987 | 03 06 | 05 45.85 | +23 27.4 | 2.392 | 2.779 | 102.4 | 20.4 | 17.0 |

(3328) 1985 QD1 a,e,i = 3.01, 0.11, 11 Elements MPC 10164

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 26.50 | +26 43.5 | 2.950 | 3.068 | 87.2 | 19.0 | 17.1 |
| 1986 | 10 07 | 06 33.74 | +27 11.1 | | | | | |
| 1986 | 10 17 | 06 39.02 | +27 42.1 | 2.691 | 3.089 | 104.1 | 18.2 | 16.9 |
| 1986 | 10 27 | 06 42.06 | +28 17.4 | | | | | |
| 1986 | 11 06 | 06 42.60 | +28 57.2 | 2.454 | 3.109 | 123.2 | 15.5 | 16.7 |
| 1986 | 11 16 | 06 40.47 | +29 40.8 | | | | | |
| 1986 | 11 26 | 06 35.67 | +30 26.1 | 2.273 | 3.129 | 144.5 | 10.5 | 16.3 |
| 1986 | 12 06 | 06 28.44 | +31 10.2 | | | | | |
| 1986 | 12 16 | 06 19.37 | +31 49.1 | 2.184 | 3.149 | 166.2 | 4.3 | 16.0 |
| 1986 | 12 26 | 06 09.33 | +32 19.5 | | | | | |
| 1987 | 01 05 | 05 59.39 | +32 39.5 | 2.212 | 3.167 | 163.5 | 5.1 | 16.1 |
| 1987 | 01 15 | 05 50.65 | +32 49.1 | | | | | |
| 1987 | 01 25 | 05 43.91 | +32 50.4 | 2.355 | 3.185 | 141.6 | 11.1 | 16.5 |
| 1987 | 02 04 | 05 39.68 | +32 46.1 | | | | | |
| 1987 | 02 14 | 05 38.19 | +32 38.6 | 2.584 | 3.203 | 120.7 | 15.4 | 16.8 |
| 1987 | 02 24 | 05 39.35 | +32 29.9 | | | | | |
| 1987 | 03 06 | 05 42.99 | +32 21.0 | 2.866 | 3.219 | 101.8 | 17.6 | 17.1 |

1971 UK a,e,i = 2.37, 0.17, 5 Elements MPC 10938

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 21.74 | +20 40.1 | 2.118 | 2.311 | 88.0 | 25.7 | 18.5 |
| 1986 | 10 07 | 06 31.72 | +20 07.9 | | | | | |
| 1986 | 10 17 | 06 39.28 | +19 33.4 | 1.907 | 2.349 | 103.5 | 24.4 | 18.3 |
| 1986 | 10 27 | 06 44.07 | +18 58.2 | | | | | |
| 1986 | 11 06 | 06 45.78 | +18 24.0 | 1.711 | 2.387 | 121.8 | 20.7 | 18.0 |
| 1986 | 11 16 | 06 44.19 | +17 52.6 | | | | | |
| 1986 | 11 26 | 06 39.29 | +17 25.1 | 1.561 | 2.424 | 143.1 | 14.1 | 17.6 |
| 1986 | 12 06 | 06 31.41 | +17 02.5 | | | | | |
| 1986 | 12 16 | 06 21.34 | +16 45.2 | 1.492 | 2.460 | 166.4 | 5.4 | 17.2 |
| 1986 | 12 26 | 06 10.27 | +16 33.5 | | | | | |
| 1987 | 01 05 | 05 59.58 | +16 27.6 | 1.533 | 2.495 | 164.7 | 6.0 | 17.3 |
| 1987 | 01 15 | 05 50.57 | +16 27.8 | | | | | |
| 1987 | 01 25 | 05 44.12 | +16 33.7 | 1.681 | 2.528 | 141.7 | 14.0 | 17.8 |
| 1987 | 02 04 | 05 40.70 | +16 44.6 | | | | | |
| 1987 | 02 14 | 05 40.38 | +16 59.4 | 1.909 | 2.559 | 120.8 | 19.3 | 18.3 |
| 1987 | 02 24 | 05 42.95 | +17 16.4 | | | | | |
| 1987 | 03 06 | 05 48.12 | +17 34.0 | 2.183 | 2.589 | 102.7 | 21.9 | 18.7 |

1977 CC a,e,i = 3.20, 0.22, 21 Elements MPC 10390

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 35.73 | +32 51.1 | 3.140 | 3.221 | 85.5 | 18.1 | 16.3 |
| 1986 | 10 07 | 06 42.16 | +32 38.0 | | | | | |
| 1986 | 10 17 | 06 46.43 | +32 25.0 | 2.894 | 3.262 | 102.7 | 17.3 | 16.2 |
| 1986 | 10 27 | 06 48.30 | +32 12.0 | | | | | |
| 1986 | 11 06 | 06 47.60 | +31 58.5 | 2.667 | 3.303 | 122.1 | 14.7 | 15.9 |
| 1986 | 11 16 | 06 44.25 | +31 43.2 | | | | | |
| 1986 | 11 26 | 06 38.38 | +31 24.4 | 2.495 | 3.343 | 143.8 | 10.0 | 15.7 |
| 1986 | 12 06 | 06 30.34 | +30 59.7 | | | | | |
| 1986 | 12 16 | 06 20.81 | +30 27.8 | 2.416 | 3.381 | 166.7 | 3.8 | 15.4 |
| 1986 | 12 26 | 06 10.67 | +29 47.9 | | | | | |
| 1987 | 01 05 | 06 00.88 | +29 01.3 | 2.458 | 3.419 | 165.5 | 4.1 | 15.5 |
| 1987 | 01 15 | 05 52.37 | +28 10.5 | | | | | |
| 1987 | 01 25 | 05 45.77 | +27 18.7 | 2.621 | 3.456 | 142.7 | 9.9 | 15.8 |
| 1987 | 02 04 | 05 41.46 | +26 28.6 | | | | | |
| 1987 | 02 14 | 05 39.55 | +25 42.3 | 2.877 | 3.491 | 121.1 | 14.0 | 16.2 |
| 1987 | 02 24 | 05 39.96 | +25 00.7 | | | | | |
| 1987 | 03 06 | 05 42.49 | +24 23.8 | 3.189 | 3.525 | 101.6 | 16.0 | 16.5 |

1979 SA10 a,e,i = 3.40, 0.18, 6 Elements MPC 10941

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 09 27 | 06 14.04 | +17 46.7 | 2.595 | 2.777 | 89.7 | 21.2 | 16.7 |
| 1986 | 10 07 | 06 22.75 | +17 17.7 | | | | | |
| 1986 | 10 17 | 06 29.52 | +16 46.4 | 2.332 | 2.772 | 105.6 | 20.3 | 16.4 |
| 1986 | 10 27 | 06 34.09 | +16 14.5 | | | | | |
| 1986 | 11 06 | 06 36.22 | +15 43.5 | 2.094 | 2.770 | 123.7 | 17.3 | 16.1 |
| 1986 | 11 16 | 06 35.75 | +15 15.3 | | | | | |
| 1986 | 11 26 | 06 32.71 | +14 51.5 | 1.909 | 2.770 | 144.1 | 12.1 | 15.8 |
| 1986 | 12 06 | 06 27.32 | +14 33.7 | | | | | |
| 1986 | 12 16 | 06 20.17 | +14 23.1 | 1.810 | 2.773 | 165.3 | 5.2 | 15.4 |
| 1986 | 12 26 | 06 12.08 | +14 20.0 | | | | | |
| 1987 | 01 05 | 06 04.06 | +14 24.7 | 1.819 | 2.779 | 164.5 | 5.4 | 15.4 |
| 1987 | 01 15 | 05 57.13 | +14 36.5 | | | | | |
| 1987 | 01 25 | 05 52.08 | +14 54.3 | 1.936 | 2.788 | 143.2 | 12.2 | 15.8 |
| 1987 | 02 04 | 05 49.41 | +15 16.8 | | | | | |
| 1987 | 02 14 | 05 49.34 | +15 42.2 | 2.138 | 2.799 | 122.8 | 17.2 | 16.2 |
| 1987 | 02 24 | 05 51.82 | +16 08.9 | | | | | |
| 1987 | 03 06 | 05 56.68 | +16 35.2 | 2.393 | 2.813 | 104.7 | 19.9 | 16.5 |

(3380) 1940 EF a,e,i = 2.84, 0.02, 3 Elements MPC 10396

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 35.94 | +22 13.4 | 2.362 | 2.784 | 104.5 | 20.3 | 17.0 |
| 1986 | 10 27 | 06 40.23 | +22 15.1 | | | | | |
| 1986 | 11 06 | 06 41.96 | +22 19.8 | 2.114 | 2.782 | 123.1 | 17.4 | 16.6 |
| 1986 | 11 16 | 06 40.92 | +22 28.4 | | | | | |
| 1986 | 11 26 | 06 37.09 | +22 40.8 | 1.917 | 2.779 | 144.4 | 11.9 | 16.3 |
| 1986 | 12 06 | 06 30.63 | +22 55.9 | | | | | |
| 1986 | 12 16 | 06 22.14 | +23 12.0 | 1.807 | 2.777 | 168.1 | 4.2 | 15.8 |
| 1986 | 12 26 | 06 12.52 | +23 27.3 | | | | | |
| 1987 | 01 05 | 06 02.89 | +23 40.2 | 1.809 | 2.776 | 167.1 | 4.5 | 15.9 |
| 1987 | 01 15 | 05 54.45 | +23 50.6 | | | | | |
| 1987 | 01 25 | 05 48.09 | +23 58.8 | 1.922 | 2.775 | 143.3 | 12.2 | 16.3 |
| 1987 | 02 04 | 05 44.38 | +24 06.1 | | | | | |
| 1987 | 02 14 | 05 43.57 | +24 13.0 | 2.121 | 2.774 | 122.0 | 17.6 | 16.7 |
| 1987 | 02 24 | 05 45.58 | +24 19.9 | | | | | |
| 1987 | 03 06 | 05 50.21 | +24 26.5 | 2.370 | 2.773 | 103.4 | 20.4 | 17.0 |
| 1987 | 03 16 | 05 57.17 | +24 32.1 | | | | | |
| 1987 | 03 26 | 06 06.13 | +24 35.6 | 2.638 | 2.773 | 87.1 | 21.1 | 17.2 |

(3367) Alex a,e,i = 2.78, 0.07, 5 Elements MPC 10392

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 35.61 | +23 17.4 | 2.248 | 2.680 | 104.6 | 21.1 | 18.3 |
| 1986 | 10 27 | 06 40.43 | +22 57.3 | | | | | |
| 1986 | 11 06 | 06 42.60 | +22 37.4 | 1.996 | 2.668 | 122.9 | 18.2 | 18.0 |
| 1986 | 11 16 | 06 41.89 | +22 18.6 | | | | | |
| 1986 | 11 26 | 06 38.24 | +22 00.8 | 1.794 | 2.657 | 144.0 | 12.6 | 17.5 |
| 1986 | 12 06 | 06 31.85 | +21 43.8 | | | | | |
| 1986 | 12 16 | 06 23.30 | +21 27.1 | 1.677 | 2.646 | 167.6 | 4.6 | 17.1 |
| 1986 | 12 26 | 06 13.56 | +21 10.3 | | | | | |
| 1987 | 01 05 | 06 03.83 | +20 53.6 | 1.669 | 2.637 | 167.1 | 4.8 | 17.1 |
| 1987 | 01 15 | 05 55.33 | +20 38.1 | | | | | |
| 1987 | 01 25 | 05 49.03 | +20 24.9 | 1.772 | 2.628 | 143.4 | 12.9 | 17.5 |
| 1987 | 02 04 | 05 45.49 | +20 15.2 | | | | | |
| 1987 | 02 14 | 05 44.95 | +20 09.1 | 1.958 | 2.620 | 122.2 | 18.6 | 17.9 |
| 1987 | 02 24 | 05 47.30 | +20 06.0 | | | | | |
| 1987 | 03 06 | 05 52.33 | +20 04.8 | 2.193 | 2.614 | 103.8 | 21.6 | 18.2 |
| 1987 | 03 16 | 05 59.72 | +20 04.1 | | | | | |
| 1987 | 03 26 | 06 09.13 | +20 02.3 | 2.447 | 2.608 | 87.9 | 22.5 | 18.5 |

(3314) 1981 FH a,e,i = 2.22, 0.04, 7 Elements MPC 10035

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 38.81 | +32 16.8 | 1.651 | 2.129 | 104.3 | 27.0 | 17.3 |
| 1986 | 10 27 | 06 47.43 | +32 56.8 | | | | | |
| 1986 | 11 06 | 06 52.67 | +33 41.4 | 1.447 | 2.134 | 121.0 | 23.5 | 16.9 |
| 1986 | 11 16 | 06 54.01 | +34 30.3 | | | | | |
| 1986 | 11 26 | 06 51.05 | +35 20.8 | 1.284 | 2.140 | 140.6 | 17.0 | 16.5 |
| 1986 | 12 06 | 06 43.75 | +36 07.0 | | | | | |
| 1986 | 12 16 | 06 32.78 | +36 40.7 | 1.193 | 2.147 | 161.0 | 8.6 | 16.1 |
| 1986 | 12 26 | 06 19.64 | +36 54.1 | | | | | |
| 1987 | 01 05 | 06 06.41 | +36 43.4 | 1.198 | 2.155 | 162.0 | 8.1 | 16.1 |
| 1987 | 01 15 | 05 55.25 | +36 11.3 | | | | | |
| 1987 | 01 25 | 05 47.66 | +35 24.7 | 1.303 | 2.164 | 141.8 | 16.3 | 16.5 |
| 1987 | 02 04 | 05 44.30 | +34 31.5 | | | | | |
| 1987 | 02 14 | 05 45.22 | +33 37.5 | 1.481 | 2.173 | 122.1 | 22.7 | 17.0 |
| 1987 | 02 24 | 05 49.95 | +32 45.7 | | | | | |
| 1987 | 03 06 | 05 57.97 | +31 56.7 | 1.704 | 2.182 | 105.0 | 26.0 | 17.4 |
| 1987 | 03 16 | 06 08.70 | +31 09.7 | | | | | |
| 1987 | 03 26 | 06 21.59 | +30 23.1 | 1.945 | 2.192 | 90.4 | 27.1 | 17.7 |

1931 TC1 a,e,i = 2.73, 0.24, 9 Elements MPC 10841

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 51.11 | +31 50.6 | 2.370 | 2.752 | 101.7 | 20.8 | 18.0 |
| 1986 | 10 27 | 06 55.38 | +32 30.3 | | | | | |
| 1986 | 11 06 | 06 56.75 | +33 14.7 | 2.168 | 2.800 | 120.2 | 17.8 | 17.7 |
| 1986 | 11 16 | 06 54.97 | +34 02.6 | | | | | |
| 1986 | 11 26 | 06 49.98 | +34 51.1 | 2.013 | 2.848 | 140.9 | 12.6 | 17.4 |
| 1986 | 12 06 | 06 41.99 | +35 35.6 | | | | | |
| 1986 | 12 16 | 06 31.69 | +36 10.6 | 1.944 | 2.894 | 161.5 | 6.2 | 17.2 |
| 1986 | 12 26 | 06 20.14 | +36 31.7 | | | | | |
| 1987 | 01 05 | 06 08.67 | +36 36.6 | 1.986 | 2.938 | 162.4 | 5.8 | 17.2 |
| 1987 | 01 15 | 05 58.62 | +36 26.6 | | | | | |
| 1987 | 01 25 | 05 50.93 | +36 05.3 | 2.141 | 2.981 | 142.3 | 11.7 | 17.6 |
| 1987 | 02 04 | 05 46.17 | +35 37.2 | | | | | |
| 1987 | 02 14 | 05 44.48 | +35 06.2 | 2.383 | 3.022 | 121.8 | 16.1 | 18.1 |
| 1987 | 02 24 | 05 45.71 | +34 35.2 | | | | | |
| 1987 | 03 06 | 05 49.57 | +34 05.3 | 2.678 | 3.061 | 103.2 | 18.4 | 18.4 |
| 1987 | 03 16 | 05 55.72 | +33 37.1 | | | | | |
| 1987 | 03 26 | 06 03.77 | +33 10.1 | 2.994 | 3.098 | 86.6 | 18.7 | 18.7 |

1971 OV a,e,i = 2.36, 0.33, 5 Elements MPC 8785

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 53.08 | +17 52.5 | 1.826 | 2.229 | 100.1 | 26.1 | 19.1 |
| 1986 | 10 27 | 06 57.97 | +17 18.4 | | | | | |
| 1986 | 11 06 | 06 59.61 | +16 47.8 | 1.664 | 2.305 | 118.3 | 22.3 | 18.9 |
| 1986 | 11 16 | 06 57.78 | +16 22.5 | | | | | |
| 1986 | 11 26 | 06 52.51 | +16 04.1 | 1.540 | 2.380 | 139.7 | 15.5 | 18.6 |
| 1986 | 12 06 | 06 44.11 | +15 53.3 | | | | | |
| 1986 | 12 16 | 06 33.42 | +15 50.1 | 1.493 | 2.452 | 163.4 | 6.6 | 18.3 |
| 1986 | 12 26 | 06 21.65 | +15 53.6 | | | | | |
| 1987 | 01 05 | 06 10.19 | +16 03.1 | 1.555 | 2.522 | 166.7 | 5.2 | 18.3 |
| 1987 | 01 15 | 06 00.40 | +16 17.3 | | | | | |
| 1987 | 01 25 | 05 53.15 | +16 35.4 | 1.728 | 2.588 | 143.8 | 13.0 | 18.9 |
| 1987 | 02 04 | 05 48.90 | +16 56.4 | | | | | |
| 1987 | 02 14 | 05 47.73 | +17 19.0 | 1.985 | 2.651 | 122.6 | 18.3 | 19.4 |
| 1987 | 02 24 | 05 49.41 | +17 42.0 | | | | | |
| 1987 | 03 06 | 05 53.64 | +18 04.2 | 2.293 | 2.711 | 104.1 | 20.8 | 19.9 |
| 1987 | 03 16 | 06 00.06 | +18 24.3 | | | | | |
| 1987 | 03 26 | 06 08.30 | +18 41.1 | 2.621 | 2.767 | 87.7 | 21.1 | 20.2 |

(3185) 1953 VY1 a,e,i = 2.37, 0.19, 4 Elements MPC 9420

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 46.00 | +23 20.4 | 1.783 | 2.220 | 102.3 | 26.0 | 18.0 |
| 1986 | 10 27 | 06 52.41 | +23 30.7 | | | | | |
| 1986 | 11 06 | 06 55.60 | +23 46.1 | 1.599 | 2.264 | 120.1 | 22.3 | 17.7 |
| 1986 | 11 16 | 06 55.24 | +24 07.8 | | | | | |
| 1986 | 11 26 | 06 51.19 | +24 35.3 | 1.454 | 2.308 | 141.3 | 15.5 | 17.4 |
| 1986 | 12 06 | 06 43.64 | +25 06.2 | | | | | |
| 1986 | 12 16 | 06 33.33 | +25 36.7 | 1.386 | 2.352 | 165.5 | 6.0 | 17.0 |
| 1986 | 12 26 | 06 21.53 | +26 02.6 | | | | | |
| 1987 | 01 05 | 06 09.81 | +26 21.2 | 1.424 | 2.395 | 168.2 | 4.8 | 17.0 |
| 1987 | 01 15 | 05 59.76 | +26 32.1 | | | | | |
| 1987 | 01 25 | 05 52.50 | +26 37.0 | 1.570 | 2.437 | 144.2 | 13.7 | 17.6 |
| 1987 | 02 04 | 05 48.59 | +26 38.3 | | | | | |
| 1987 | 02 14 | 05 48.14 | +26 38.0 | 1.797 | 2.478 | 123.0 | 19.5 | 18.1 |
| 1987 | 02 24 | 05 50.89 | +26 37.0 | | | | | |
| 1987 | 03 06 | 05 56.47 | +26 35.2 | 2.074 | 2.517 | 104.8 | 22.4 | 18.5 |
| 1987 | 03 16 | 06 04.47 | +26 32.1 | | | | | |
| 1987 | 03 26 | 06 14.46 | +26 26.8 | 2.370 | 2.555 | 89.0 | 23.0 | 18.9 |