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

ERRATA.

| MPC | Line | |
|---|---|---|
| 10068 | 18 | The observation on 1985 08 27.93429 (code 217) is to be deleted. |
| 10227-10228 | | The Pino Torinese observations were inadvertently duplicated from MPC 10081-10082. |
| 10894 | 10 | Add to the notes: The observations of comets 1981 XXI (MPC 10886) and 1984 XII (MPC 10892) correct those on MPC 10333 and 10357. |

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

| Object | | Date | UT | R. A. (1950) | Decl. | Reference | Mag. | N Obs. |
|---|---|---|---|---|---|---|---|---|
| 1977 KA1 | * | 1977 05 | 18.32917 | 15 41 44.61 | -18 47 45.5 | MPC 5768 | 19.0 | 1 675 |
| 1977 KA1 | | 1977 05 | 18.38125 | 15 41 41.54 | -18 47 42.7 | MPC 5768 | | 1 675 |
| 1977 KA1 | | 1977 05 | 19.30903 | 15 40 45.99 | -18 46 59.5 | MPC 5768 | | 1 675 |
| 1977 KA1 | | 1977 05 | 19.36111 | 15 40 42.98 | -18 46 56.5 | MPC 5768 | | 1 675 |
| 1977 KB1 | * | 1977 05 | 18.32917 | 15 48 26.35 | -20 52 30.3 | MPC 5768 | 19.0 | 1 675 |
| 1977 KB1 | | 1977 05 | 18.38125 | 15 48 22.97 | -20 52 13.9 | MPC 5768 | | 1 675 |
| 1977 KB1 | | 1977 05 | 19.30903 | 15 47 23.06 | -20 47 22.4 | MPC 5768 | | 1 675 |
| 1977 KB1 | | 1977 05 | 19.36111 | 15 47 20.12 | -20 47 08.0 | MPC 5769 | | 1 675 |
| 1977 KC1 | * | 1977 05 | 18.38577 | 16 17 06.61 | -22 37 38.8 | MPC 5769 | 18.0 | 3 675 |
| 1977 KC1 | | 1977 05 | 18.43785 | 16 17 04.18 | -22 37 32.8 | MPC 5769 | | 3 675 |
| 1977 KC1 | | 1977 05 | 19.36598 | 16 16 20.30 | -22 36 01.5 | MPC 5769 | | 3 675 |
| 1977 KC1 | | 1977 05 | 19.41806 | 16 16 17.91 | -22 35 55.5 | MPC 5769 | | 3 675 |
| 1977 LB | * | 1977 06 | 12.24132 | 16 49 20.32 | -21 55 25.8 | MPC 5769 | 19.0 | 1 675 |
| 1977 LB | | 1977 06 | 12.29341 | 16 49 16.93 | -21 55 12.9 | MPC 5769 | | 1 675 |
| 1977 LB | | 1977 06 | 13.26823 | 16 48 15.61 | -21 50 45.0 | MPC 5769 | | 1 675 |
| 1977 LB | | 1977 06 | 13.32032 | 16 48 12.04 | -21 50 30.6 | MPC 5769 | | 1 675 |
| 1977 LC | * | 1977 06 | 12.24132 | 16 54 13.30 | -22 01 57.5 | MPC 5769 | 19.0 | 1 675 |
| 1977 LC | | 1977 06 | 12.29341 | 16 54 10.46 | -22 01 56.5 | MPC 5769 | | 1 675 |
| 1977 LC | | 1977 06 | 13.26823 | 16 53 14.42 | -22 01 20.1 | MPC 5769 | | 1 675 |
| 1977 LC | | 1977 06 | 13.32032 | 16 53 11.85 | -22 01 19.2 | MPC 5769 | | 1 675 |
| 1977 LD | * | 1977 06 | 12.24132 | 16 55 30.76 | -20 04 39.0 | MPC 5769 | 19.5 | 1 675 |
| 1977 LD | | 1977 06 | 12.29341 | 16 55 27.62 | -20 04 30.5 | MPC 5769 | | 1 675 |
| 1977 LD | | 1977 06 | 13.26823 | 16 54 29.66 | -20 01 32.7 | MPC 5769 | | 1 675 |
| 1977 LD | | 1977 06 | 13.32032 | 16 54 26.81 | -20 01 24.7 | MPC 5769 | | 1 675 |
| 1977 LE | * | 1977 06 | 12.29827 | 17 04 55.40 | -22 22 52.1 | MPC 5769 | 18.5 | 1 675 |
| 1977 LE | | 1977 06 | 12.35035 | 17 04 52.76 | -22 22 50.7 | MPC 5769 | | 1 675 |
| 1977 LF | * | 1977 06 | 12.29827 | 17 07 17.82 | -21 43 29.1 | MPC 5769 | 19.5 | 1 675 |
| 1977 LF | | 1977 06 | 12.35035 | 17 07 14.22 | -21 43 21.7 | MPC 5769 | | 1 675 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1977 LF | | 1977 06 13.32547 | 17 06 13.84 | -21 41 09.3 | MPC 5769 | | 1 | 675 |
| 1977 LF | | 1977 06 13.37755 | 17 06 10.57 | -21 41 00.9 | MPC 5769 | | 1 | 675 |
| 1977 LG | * | 1977 06 14.40290 | 17 58 54.41 | -23 35 43.0 | MPC 5769 | 19.0 | 1 | 675 |
| 1977 LG | | 1977 06 14.45498 | 17 58 51.78 | -23 35 44.5 | MPC 5769 | | 1 | 675 |
| 1977 LH | * | 1977 06 14.40290 | 18 13 56.31 | -23 48 25.6 | MPC 5769 | 18.5 | 1 | 675 |
| 1977 LH | | 1977 06 14.45498 | 18 13 52.93 | -23 48 27.9 | MPC 5769 | | 1 | 675 |
| 1977 QE5 | * | 1977 08 19.29966 | 21 37 09.32 | -16 09 32.6 | MPC 5769 | 18.0 | 1 | 675 |
| 1977 QE5 | | 1977 08 19.35174 | 21 37 06.74 | -16 09 42.7 | MPC 5769 | | 1 | 675 |
| 1977 RC8 | * | 1977 09 08.21980 | 22 13 50.08 | -09 32 53.4 | MPC 5769 | 20.0 | 1 | 675 |
| 1977 RC8 | | 1977 09 08.27188 | 22 13 47.16 | -09 33 11.0 | MPC 5769 | | 1 | 675 |
| 1977 RC8 | | 1977 09 09.14618 | 22 13 02.92 | -09 38 15.6 | MPC 5769 | | 1 | 675 |
| 1977 RC8 | | 1977 09 09.19827 | 22 13 00.07 | -09 38 28.9 | MPC 5769 | | 1 | 675 |
| 1983 CC | * | 1983 02 11.27639 | 09 27 48.41 | +20 30 06.0 | MPC 7755 | 16.5 | | 688 |
| 1983 CC | | 1983 02 11.30833 | 09 27 46.18 | +20 30 51.9 | MPC 7755 | | | 688 |

Note 1: times orginally erroneously given 4 hours earlier. 2: 1977 KC1 = (2803). 3 = 1 + 2.

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 10885.

| Object | Date | UT | R. A. (1950) | Decl. | Old desig. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 1941 WH1 | * | 1941 11 24.89243 | 02 16 22.91 | +09 41 43.3 | 1941 UY | | 020 |
| 1979 SQ12 | * | 1979 09 28.89674 | 00 36 29.35 | +07 52 18.6 | 1979 SV2 | 17.0 | 095 |

* * * * *

INDEX TO ORBITAL ELEMENTS.

The following index to orbital elements continues that on MPC 10000-10005 and refers to orbits of both comets and minor planets published since then. Only the latest orbit for each object is indexed, and multiple-designation minor planets are listed only under the principal designation.

| Comet | MPC | Comet | MPC | Comet | MPC | Comet | MPC |
|---|---|---|---|---|---|---|---|
| /1982i | 10634 | /1984 XV | 10156 | /1984v | 10298 | /1985f | 10031 |
| /1985g | 10156 | /1985k | 10377 | /1985l | 10377 | /1985m | 10377 |
| /1985n | 10156 | /1985p | 10817 | /1986a | 10817 | /1986b | 10759 |
| /1986c | 10945 | /1986d | 10945 | /1986e | 10945 | /1986g | 10524 |
| /1986h | 10521 | | | | | | |

| Comet | MPC | Comet | MPC |
|---|---|---|---|
| /Borrelly | 10522 | /Brooks 2 | 10521 |
| /Bus | 10522 | /Comas Sola | 10521 |
| /Denning-Fujikawa | 10520 | /du Toit-Hartley | 10519 |
| /Encke | 10520 | /Gehrels 1 | 10521 |
| /Grigg-Skjellerup | 10519 | /Harrington | 10522 |
| /Howell | 10519 | /Jackson-Neujmin | 10519 |
| /Klemola | 10520 | /Kohoutek | 10522 |
| /Reinmuth 2 | 10522 | /Reinmuth 1 | 10524 |
| /Russell 2 | 10520 | /West-Kohoutek-Ikemura | 10520 |
| /Wild 1 | 10524 | /Wild 3 | 10521 |

| Planet | MPC | Planet | MPC | Planet | MPC | Planet | MPC | Planet | MPC |
|---|---|---|---|---|---|---|---|---|---|
| (46) | 10752 | (203) | 10817 | (280) | 10818 | (288) | 10818 | (385) | 10818 |
| (437) | 10818 | (727) | 10753 | (781) | 10818 | (1220) | 10818 | (1481) | 10819 |

| | | | | |
|---|---|---|---|---|
| (1561) 10022 | (1593) 10819 | (1627) 10752 | (1814) 10753 | (3303) 10022 |
| (3304) 10023 | (3305) 10023 | (3306) 10024 | (3307) 10024 | (3308) 10025 |
| (3309) 10030 | (3310) 10031 | (3311) 10031 | (3312) 10032 | (3313) 10034 |
| (3314) 10035 | (3315) 10035 | (3316) 10035 | (3317) 10036 | (3318) 10036 |
| (3319) 10152 | (3320) 10152 | (3321) 10156 | (3322) 10157 | (3323) 10161 |
| (3324) 10162 | (3325) 10162 | (3326) 10163 | (3327) 10163 | (3328) 10164 |
| (3329) 10164 | (3330) 10164 | (3331) 10291 | (3332) 10293 | (3333) 10293 |
| (3334) 10294 | (3335) 10299 | (3336) 10299 | (3337) 10299 | (3338) 10299 |
| (3339) 10300 | (3340) 10300 | (3341) 10300 | (3342) 10301 | (3343) 10301 |
| (3344) 10301 | (3345) 10302 | (3346) 10303 | (3347) 10304 | (3348) 10304 |
| (3349) 10304 | (3350) 10305 | (3351) 10305 | (3352) 10305 | (3353) 10306 |
| (3354) 10306 | (3355) 10306 | (3356) 10306 | (3357) 10307 | (3358) 10377 |
| (3359) 10378 | (3360) 10378 | (3361) 10379 | (3362) 10379 | (3363) 10388 |
| (3364) 10388 | (3365) 10389 | (3366) 10389 | (3367) 10392 | (3368) 10392 |
| (3369) 10392 | (3370) 10393 | (3371) 10393 | (3372) 10393 | (3373) 10394 |
| (3374) 10394 | (3375) 10394 | (3376) 10395 | (3377) 10395 | (3378) 10396 |
| (3379) 10396 | (3380) 10396 | (3381) 10397 | (3382) 10397 | (3383) 10398 |
| (3384) 10398 | (3385) 10398 | (3386) 10399 | (3387) 10399 | (3388) 10399 |
| (3389) 10400 | (3390) 10400 | (3391) 10513 | (3392) 10514 | (3393) 10514 |
| (3394) 10518 | (3395) 10518 | (3396) 10524 | (3397) 10524 | (3398) 10525 |
| (3399) 10525 | (3400) 10525 | (3401) 10526 | (3402) 10526 | (3403) 10526 |
| (3404) 10531 | (3405) 10532 | (3406) 10532 | (3407) 10532 | (3408) 10533 |
| (3409) 10533 | (3410) 10533 | (3411) 10534 | (3412) 10534 | (3413) 10534 |
| (3414) 10535 | (3415) 10610 | (3416) 10610 | (3417) 10611 | (3418) 10611 |
| (3419) 10611 | (3420) 10612 | (3421) 10626 | (3422) 10626 | (3423) 10626 |
| (3424) 10627 | (3425) 10628 | (3426) 10628 | (3427) 10628 | (3428) 10629 |
| (3429) 10629 | (3430) 10629 | (3431) 10630 | (3432) 10633 | (3433) 10753 |
| (3434) 10754 | (3435) 10754 | (3436) 10755 | (3437) 10756 | (3438) 10759 |
| (3439) 10760 | (3440) 10764 | (3441) 10764 | (3442) 10765 | (3443) 10765 |
| (3444) 10765 | (3445) 10766 | (3446) 10825 | (3447) 10826 | (3448) 10826 |
| (3449) 10826 | (3450) 10827 | (3451) 10827 | (3452) 10829 | (3453) 10833 |
| (3454) 10833 | (3455) 10834 | (3456) 10834 | (3457) 10835 | (3458) 10835 |
| (3459) 10837 | (3460) 10837 | (3461) 10838 | (3462) 10838 | (3463) 10838 |
| (3464) 10838 | (3465) 10839 | (3466) 10842 | (3467) 10842 | (3468) 10843 |
| (3469) 10937 | (3470) 10939 | (3471) 10939 | (3472) 10940 | (3473) 10946 |
| (3474) 10946 | (3475) 10946 | (3476) 10947 | (3477) 10947 | (3478) 10947 |
| (3479) 10948 | (3480) 10948 | (3481) 10949 | (3482) 10949 | (3483) 10950 |
| (3484) 10950 | (3485) 10950 | (3486) 10950 | | |

| Planet | MPC | Planet | MPC | Planet | MPC | Planet | MPC |
|---|---|---|---|---|---|---|---|
| 1927 UE | 10756 | 1931 TC1 | 10841 | 1931 UE | 10829 | 1934 CC | 10402 |
| 1936 QV | 10153 | 1936 UB | 10401 | 1937 TB | 10164 | 1939 SF | 10839 |
| 1940 YE | 10401 | 1941 SW | 10401 | 1942 DB | 10157 | 1949 QH1 | 10816 |
| 1952 QW | 10816 | 1955 BG | 10402 | 1963 RH | 10535 | 1964 CG | 10522 |
| 1964 TC1 | 10036 | 1964 TR1 | 10391 | 1964 TG2 | 10391 | 1964 TN2 | 10294 |
| 1964 TT2 | 10294 | 1964 VA3 | 10937 | 1965 AK1 | 10951 | 1965 UZ | 10536 |
| 1966 PK | 10938 | 1967 GF1 | 10840 | 1967 UV | 10841 | 1968 FJ | 10612 |
| 1969 TK | 10307 | 1970 WC | 10630 | 1971 QU | 10760 | 1971 UJ | 10536 |
| 1971 UK | 10938 | 1972 RT3 | 10032 | 1973 QG2 | 10829 | 1973 SO | 10379 |
| 1973 UF5 | 10380 | 1974 FV1 | 10843 | 1974 MG | 10295 | 1974 OE | 10612 |
| 1974 QM2 | 10773 | 1974 SB3 | 10634 | 1974 SB5 | 10380 | 1975 AN | 10527 |
| 1975 BF | 10756 | 1975 PG | 10816 | 1975 VZ | 10829 | 1975 VK2 | 10761 |
| 1975 VN5 | 10816 | 1975 VY5 | 10165 | 1975 XH | 10816 | 1976 EC | 10940 |
| 1976 GD2 | 10830 | 1976 GP3 | 10816 | 1976 GU3 | 10613 | 1976 GM7 | 10613 |
| 1976 HQ | 10843 | 1976 QU | 10816 | 1976 SE1 | 10937 | 1976 SN3 | 10527 |
| 1976 SZ3 | 10756 | 1976 SJ4 | 10165 | 1976 WD | 10816 | 1976 YU5 | 10032 |
| 1977 CC | 10390 | 1977 CK | 10816 | 1977 CL | 10816 | 1977 CO | 10936 |
| 1977 CP | 10816 | 1977 CQ | 10816 | 1977 CR | 10936 | 1977 CS | 10936 |
| 1977 CT | 10816 | 1977 CU | 10816 | 1977 CV | 10936 | 1977 CW | 10816 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1977 DG | 10816 | 1977 DO | 10816 | 1977 DS | 10816 | 1977 DU | 10816 |
| 1977 DX | 10816 | 1977 DB1 | 10816 | 1977 DD1 | 10816 | 1977 JD | 10940 |
| 1977 PF1 | 10750 | 1977 QA1 | 10816 | 1977 QE1 | 10165 | 1977 QK1 | 10816 |
| 1977 QJ2 | 10766 | 1977 QW2 | 10153 | 1977 RE2 | 10627 | 1977 RD4 | 10153 |
| 1978 ON | 10951 | 1978 PV2 | 10630 | 1978 QA2 | 10291 | 1978 RK | 10609 |
| 1978 RS | 10390 | 1978 RW | 10951 | 1978 RH1 | 10375 | 1978 RJ1 | 10375 |
| 1978 RN5 | 10025 | 1978 SQ2 | 10627 | 1978 SS2 | 10609 | 1978 SE3 | 10516 |
| 1978 SU5 | 10536 | 1978 SC6 | 10630 | 1978 SL6 | 10375 | 1978 SP6 | 10609 |
| 1978 ST6 | 10297 | 1978 SB8 | 10952 | 1978 TE | 10609 | 1978 TW2 | 10375 |
| 1978 TT8 | 10375 | 1978 UO2 | 10516 | 1978 VL7 | 10941 | 1978 VZ7 | 10613 |
| 1978 VO8 | 10157 | 1979 FE | 10527 | 1979 FV1 | 10033 | 1979 FD3 | 10609 |
| 1979 GE | 10630 | 1979 OB9 | 10633 | 1979 QB | 10390 | 1979 QC2 | 10307 |
| 1979 QK6 | 10037 | 1979 QL8 | 10631 | 1979 QZ9 | 10609 | 1979 SN | 10609 |
| 1979 SR2 | 10375 | 1979 SU2 | 10375 | 1979 SP9 | 10830 | 1979 SR9 | 10037 |
| 1979 SU9 | 10761 | 1979 SA10 | 10941 | 1979 SG10 | 10941 | 1979 SJ11 | 10627 |
| 1979 SO11 | 10830 | 1979 SQ11 | 10761 | 1979 TW1 | 10609 | 1979 TZ1 | 10941 |
| 1979 TS2 | 10609 | 1979 TT2 | 10609 | 1979 TV2 | 10609 | 1979 UY3 | 10942 |
| 1979 VG | 10512 | 1979 VN | 10516 | 1979 VS2 | 10512 | 1979 WY3 | 10609 |
| 1979 WF8 | 10512 | 1979 WG8 | 10512 | 1979 WJ8 | 10512 | 1979 WL8 | 10512 |
| 1979 XQ | 10512 | 1979 YM8 | 10631 | 1979 YN8 | 10632 | 1979 YV8 | 10632 |
| 1980 DS | 10292 | 1980 DE1 | 10613 | 1980 DO5 | 10938 | 1980 FB | 10830 |
| 1980 FR1 | 10757 | 1980 FV1 | 10952 | 1980 FY4 | 10295 | 1980 FG12 | 10952 |
| 1980 JH | 10295 | 1980 RC1 | 10952 | 1980 RO2 | 10158 | 1980 RU2 | 10942 |
| 1980 RZ2 | 10537 | 1980 RZ3 | 10750 | 1980 TG | 10958 | 1980 TN4 | 10517 |
| 1980 TB12 | 10289 | 1980 TQ14 | 10750 | 1980 TY14 | 10153 | 1980 TL15 | 10757 |
| 1981 DM | 10537 | 1981 DV | 10953 | 1981 DZ | 10819 | 1981 DB1 | 10289 |
| 1981 DM1 | 10289 | 1981 DN1 | 10289 | 1981 DZ1 | 10614 | 1981 DC2 | 10289 |
| 1981 DF2 | 10289 | 1981 DP2 | 10295 | 1981 DT2 | 10289 | 1981 DV2 | 10289 |
| 1981 DG3 | 10289 | 1981 DK3 | 10514 | 1981 DQ3 | 10289 | 1981 EF | 10528 |
| 1981 EN | 10768 | 1981 EO | 10289 | 1981 ET | 10289 | 1981 EZ | 10289 |
| 1981 ED1 | 10289 | 1981 EE1 | 10820 | 1981 EN2 | 10537 | 1981 EZ2 | 10289 |
| 1981 EH3 | 10380 | 1981 EW3 | 10289 | 1981 EX3 | 10820 | 1981 EH4 | 10768 |
| 1981 EK4 | 10289 | 1981 ES4 | 10289 | 1981 EU4 | 10289 | 1981 EA5 | 10537 |
| 1981 EF5 | 10769 | 1981 EG5 | 10289 | 1981 ED6 | 10769 | 1981 ER6 | 10158 |
| 1981 EU6 | 10289 | 1981 EA7 | 10380 | 1981 EM7 | 10289 | 1981 ET7 | 10381 |
| 1981 EV7 | 10614 | 1981 EZ7 | 10953 | 1981 EC8 | 10289 | 1981 EO8 | 10614 |
| 1981 ES8 | 10289 | 1981 ET8 | 10769 | 1981 EA9 | 10820 | 1981 EB9 | 10289 |
| 1981 EE9 | 10381 | 1981 EH9 | 10381 | 1981 EQ9 | 10614 | 1981 ET9 | 10382 |
| 1981 EW9 | 10538 | 1981 EP10 | 10820 | 1981 ER10 | 10769 | 1981 ES10 | 10382 |
| 1981 EV10 | 10382 | 1981 EX10 | 10615 | 1981 EZ10 | 10615 | 1981 ED11 | 10615 |
| 1981 EE11 | 10382 | 1981 EH11 | 10289 | 1981 EO11 | 10761 | 1981 ER11 | 10538 |
| 1981 EF12 | 10538 | 1981 EL12 | 10383 | 1981 EM12 | 10954 | 1981 EN12 | 10770 |
| 1981 EQ12 | 10821 | 1981 EH13 | 10770 | 1981 EN13 | 10289 | 1981 EP13 | 10159 |
| 1981 ET13 | 10538 | 1981 EW13 | 10770 | 1981 EX13 | 10771 | 1981 EC14 | 10383 |
| 1981 ED14 | 10539 | 1981 EE14 | 10771 | 1981 EF14 | 10539 | 1981 ER14 | 10821 |
| 1981 ES14 | 10616 | 1981 ET14 | 10616 | 1981 EX14 | 10616 | 1981 EY14 | 10383 |
| 1981 EZ14 | 10539 | 1981 EJ15 | 10616 | 1981 EO15 | 10821 | 1981 ER15 | 10539 |
| 1981 EU15 | 10383 | 1981 EN16 | 10822 | 1981 ET16 | 10384 | 1981 EJ17 | 10617 |
| 1981 EM17 | 10289 | 1981 EN17 | 10771 | 1981 ER17 | 10617 | 1981 EV17 | 10822 |
| 1981 EZ17 | 10289 | 1981 EE18 | 10540 | 1981 EK18 | 10289 | 1981 EM18 | 10289 |
| 1981 EV18 | 10617 | 1981 EZ18 | 10954 | 1981 ED19 | 10289 | 1981 EJ19 | 10384 |
| 1981 EK19 | 10289 | 1981 EO19 | 10618 | 1981 EQ19 | 10822 | 1981 ET19 | 10822 |
| 1981 EU19 | 10289 | 1981 EV19 | 10618 | 1981 EX19 | 10040 | 1981 EC20 | 10289 |
| 1981 ES20 | 10954 | 1981 EV20 | 10618 | 1981 EY20 | 10384 | 1981 EB21 | 10540 |
| 1981 EC21 | 10954 | 1981 EL21 | 10308 | 1981 EO21 | 10823 | 1981 ER21 | 10296 |
| 1981 EW21 | 10955 | 1981 EX21 | 10289 | 1981 EY21 | 10289 | 1981 EA22 | 10618 |
| 1981 EE22 | 10384 | 1981 EJ22 | 10619 | 1981 EO22 | 10823 | 1981 ET22 | 10289 |
| 1981 EU22 | 10289 | 1981 EZ22 | 10540 | 1981 EH23 | 10385 | 1981 EJ23 | 10541 |
| 1981 EK23 | 10515 | 1981 EX23 | 10955 | 1981 EZ23 | 10955 | 1981 EB24 | 10385 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1981 EG24 | 10619 | 1981 ER24 | 10771 | 1981 EC25 | 10541 | 1981 EF25 | 10823 |
| 1981 EG25 | 10289 | 1981 EP25 | 10619 | 1981 EC26 | 10823 | 1981 EF26 | 10289 |
| 1981 EN26 | 10619 | 1981 ET26 | 10541 | 1981 EX26 | 10290 | 1981 EY26 | 10956 |
| 1981 EF27 | 10956 | 1981 EG27 | 10620 | 1981 ET27 | 10385 | 1981 EV27 | 10620 |
| 1981 EY27 | 10290 | 1981 EA28 | 10290 | 1981 ED28 | 10026 | 1981 EF28 | 10290 |
| 1981 EP28 | 10620 | 1981 EQ28 | 10290 | 1981 EU28 | 10290 | 1981 EV28 | 10620 |
| 1981 EA29 | 10772 | 1981 EC29 | 10621 | 1981 EE29 | 10386 | 1981 ET29 | 10621 |
| 1981 EV29 | 10956 | 1981 EM30 | 10290 | 1981 EQ30 | 10290 | 1981 EX30 | 10824 |
| 1981 EY30 | 10290 | 1981 ER31 | 10824 | 1981 EO32 | 10621 | 1981 EQ32 | 10290 |
| 1981 EW32 | 10515 | 1981 EZ32 | 10621 | 1981 EL33 | 10290 | 1981 EQ33 | 10772 |
| 1981 EW33 | 10956 | 1981 EZ33 | 10622 | 1981 ED34 | 10622 | 1981 ED35 | 10824 |
| 1981 EE35 | 10772 | 1981 EO35 | 10541 | 1981 EY35 | 10542 | 1981 EB36 | 10622 |
| 1981 EG36 | 10622 | 1981 EW36 | 10623 | 1981 EF37 | 10290 | 1981 EP37 | 10542 |
| 1981 EU37 | 10542 | 1981 EZ37 | 10386 | 1981 EE38 | 10386 | 1981 EM38 | 10542 |
| 1981 EP38 | 10623 | 1981 EU38 | 10290 | 1981 EY38 | 10515 | 1981 ES39 | 10543 |
| 1981 EA40 | 10957 | 1981 EO40 | 10623 | 1981 EQ40 | 10167 | 1981 EY40 | 10623 |
| 1981 EA41 | 10386 | 1981 EH41 | 10290 | 1981 EL41 | 10632 | 1981 EV41 | 10543 |
| 1981 EF42 | 10623 | 1981 EO42 | 10543 | 1981 EP42 | 10957 | 1981 ES42 | 10957 |
| 1981 EY42 | 10824 | 1981 EA43 | 10825 | 1981 EQ43 | 10825 | 1981 ER43 | 10624 |
| 1981 ET43 | 10387 | 1981 EF45 | 10772 | 1981 EM45 | 10624 | 1981 ES45 | 10290 |
| 1981 EY45 | 10624 | 1981 EV46 | 10544 | 1981 EF47 | 10544 | 1981 ES47 | 10773 |
| 1981 EJ48 | 10290 | 1981 FP | 10825 | 1981 FQ | 10290 | 1981 FR | 10290 |
| 1981 FC1 | 10290 | 1981 GC | 10831 | 1981 GG | 10544 | 1981 GM1 | 10290 |
| 1981 GN1 | 10290 | 1981 JA | 10308 | 1981 JO | 10750 | 1981 JQ | 10544 |
| 1981 JA2 | 10298 | 1981 JJ2 | 10831 | 1981 PQ | 10750 | 1981 QN | 10528 |
| 1981 QP | 10308 | 1981 QG1 | 10041 | 1981 QD2 | 10528 | 1981 RM | 10159 |
| 1981 RU2 | 10026 | 1981 RM3 | 10512 | 1981 RR3 | 10023 | 1981 RV3 | 10037 |
| 1981 RQ4 | 10750 | 1981 RK5 | 10154 | 1981 SN | 10309 | 1981 SD1 | 10750 |
| 1981 SE1 | 10026 | 1981 SQ1 | 10026 | 1981 SU2 | 10528 | 1981 SG3 | 10750 |
| 1981 SW6 | 10027 | 1981 SC7 | 10836 | 1981 SW7 | 10027 | 1981 SX7 | 10027 |
| 1981 SZ7 | 10021 | 1981 SE9 | 10512 | 1981 SF9 | 10375 | 1981 TT | 10750 |
| 1981 TP1 | 10041 | 1981 TB2 | 10750 | 1981 TG2 | 10027 | 1981 TC3 | 10296 |
| 1981 TJ3 | 10021 | 1981 TO3 | 10028 | 1981 TF4 | 10750 | 1981 TH4 | 10296 |
| 1981 UN | 10624 | 1981 UB1 | 10750 | 1981 UC1 | 10757 | 1981 UT7 | 10750 |
| 1981 UC10 | 10942 | 1981 UM11 | 10290 | 1981 US14 | 10750 | 1981 UT15 | 10757 |
| 1981 UU15 | 10750 | 1981 VS | 10021 | 1981 VC1 | 10831 | 1981 WQ | 10762 |
| 1981 WG1 | 10160 | 1981 WV1 | 10166 | 1981 WK2 | 10154 | 1981 WE9 | 10375 |
| 1981 WF9 | 10375 | 1981 WG9 | 10942 | 1981 WH9 | 10375 | 1981 WJ9 | 10375 |
| 1981 WK9 | 10375 | 1981 XM2 | 10750 | 1981 YX1 | 10758 | 1981 YY1 | 10758 |
| 1982 BJ | 10828 | 1982 BQ | 10766 | 1982 BS | 10529 | 1982 BE1 | 10529 |
| 1982 BS1 | 10832 | 1982 BU1 | 10625 | 1982 DK | 10828 | 1982 DN | 10832 |
| 1982 DY2 | 10750 | 1982 DQ6 | 10387 | 1982 DT6 | 10375 | 1982 DU6 | 10375 |
| 1982 FN | 10762 | 1982 FH3 | 10844 | 1982 HF1 | 10625 | 1982 JE1 | 10938 |
| 1982 KC1 | 10767 | 1982 KN1 | 10828 | 1982 OD | 10750 | 1982 OK | 10033 |
| 1982 PC | 10750 | 1982 QM | 10375 | 1982 ST1 | 10750 | 1982 SU1 | 10750 |
| 1982 TA | 10160 | 1982 TP | 10034 | 1982 TR | 10040 | 1982 TW | 10943 |
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| 1982 UO7 | 10762 | 1982 UR7 | 10939 | 1982 UY7 | 10750 | 1982 UU8 | 10290 |
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| 1984 DH1 | 10943 | 1984 EM | 10041 | 1984 EZ | 10034 | 1984 FO | 10530 |

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| 1984 QO | 10767 | 1984 SM | 10513 | 1984 SO | 10512 | 1984 SX | 10518 |
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| 1984 WX1 | 10376 | 1984 WZ1 | 10512 | 1984 WA2 | 10376 | 1984 WB2 | 10376 |
| 1984 YC | 10390 | 1984 YY | 10842 | 1984 YR1 | 10376 | 1984 YY2 | 10376 |
| 1984 YZ2 | 10376 | 1985 BB | 10844 | 1985 CD | 10150 | 1985 CL | 10376 |
| 1985 CV | 10150 | 1985 CN1 | 10029 | 1985 CP1 | 10150 | 1985 CS1 | 10150 |
| 1985 CU1 | 10290 | 1985 CV1 | 10150 | 1985 CX1 | 10150 | 1985 CY1 | 10150 |
| 1985 CZ1 | 10309 | 1985 CA2 | 10150 | 1985 CB2 | 10150 | 1985 CC2 | 10290 |
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| 1985 PB1 | 10292 | 1985 PE1 | 10545 | 1985 PG1 | 10943 | 1985 PJ1 | 10022 |
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| 1985 QF1 | 10512 | 1985 QU1 | 10609 | 1985 QW1 | 10609 | 1985 QY1 | 10609 |
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| 1985 QE2 | 10609 | 1985 QF2 | 10817 | 1985 QK2 | 10609 | 1985 QO2 | 10290 |
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| 1985 QG4 | 10751 | 1985 QH4 | 10751 | 1985 RA | 10151 | 1985 RD | 10151 |
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| 1985 RU2 | 10751 | 1985 RV2 | 10751 | 1985 RW2 | 10751 | 1985 RX2 | 10751 |
| 1985 RZ2 | 10751 | 1985 RB3 | 10836 | 1985 RC3 | 10751 | 1985 RD3 | 10751 |
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| 1985 RY3 | 10751 | 1985 RA4 | 10751 | 1985 RB4 | 10936 | 1985 RC4 | 10751 |
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| 1985 RV4 | 10751 | 1985 SA | 10773 | 1985 SB | 10513 | 1985 SC1 | 10751 |
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| 1985 SJ1 | 10752 | 1985 TA | 10151 | 1985 TB | 10531 | 1985 TC | 10402 |
| 1985 TD | 10290 | 1985 TO | 10376 | 1985 TP | 10376 | 1985 TQ | 10513 |
| 1985 TR | 10376 | 1985 TS | 10376 | 1985 TT | 10634 | 1985 TU | 10376 |
| 1985 TV | 10376 | 1985 TW | 10376 | 1985 TX | 10391 | 1985 TA1 | 10376 |

| | | | | | | | |
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| 1985 TM1 | 10376 | 1985 TQ1 | 10376 | 1985 TB2 | 10290 | 1985 TC2 | 10290 |
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| 1985 UL | 10817 | 1985 UO | 10290 | 1985 UP | 10290 | 1985 UQ | 10291 |
| 1985 UR | 10291 | 1985 US | 10291 | 1985 UT | 10291 | 1985 UU | 10291 |
| 1985 UV | 10291 | 1985 UW | 10291 | 1985 UX | 10291 | 1985 VS | 10531 |
| 1985 VW | 10376 | 1985 VY | 10376 | 1985 VZ | 10376 | 1985 VA1 | 10376 |
| 1985 VB1 | 10376 | 1985 WA | 10767 | 1985 XA | 10609 | 1985 XB | 10763 |
| 1985 XR | 10817 | 1985 XS | 10817 | 1985 YH | 10513 | 1985 YP | 10763 |
| 1986 AB | 10513 | 1986 AD | 10513 | 1986 AE | 10610 | 1986 AH | 10610 |
| 1986 AJ | 10513 | 1986 AK | 10953 | 1986 AL | 10523 | 1986 AD1 | 10513 |
| 1986 AG1 | 10610 | 1986 AP1 | 10610 | 1986 AT2 | 10936 | 1986 AW2 | 10513 |
| 1986 CG | 10513 | 1986 CH | 10817 | 1986 CZ | 10513 | 1986 CK1 | 10953 |
| 1986 CL1 | 10936 | 1986 CN1 | 10936 | 1986 CO1 | 10936 | 1986 CP1 | 10944 |
| 1986 CQ1 | 10936 | 1986 CS1 | 10936 | 1986 CV1 | 10936 | 1986 CW1 | 10936 |
| 1986 CX1 | 10936 | 1986 CY1 | 10936 | 1986 CZ1 | 10936 | 1986 CB2 | 10936 |
| 1986 CC2 | 10936 | 1986 CD2 | 10936 | 1986 CE2 | 10936 | 1986 CF2 | 10936 |
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| 1986 GC | 10840 | 1986 GD | 10752 | 1986 GF | 10752 | 1986 GG | 10610 |
| 1986 GN | 10817 | 1986 GU | 10817 | 1986 GV | 10752 | 1986 GW | 10936 |
| 1986 GX | 10752 | 1986 GY | 10752 | 1986 GZ | 10936 | 1986 GQ1 | 10936 |
| 1986 HM | 10936 | 1986 JA | 10936 | 1986 JC | 10936 | 1986 JD | 10936 |
| 1986 JE | 10936 | 1986 JG | 10944 | 1986 JJ | 10817 | 1986 JK | 10833 |
| 1986 JL | 10817 | 1986 JM | 10936 | 1986 JQ | 10817 | 1986 JS | 10936 |
| 1986 JT | 10817 | 1986 JZ | 10817 | 1986 JA1 | 10936 | 1986 JN1 | 10945 |
| 1986 LA | 10949 | 1986 LG | 10936 | 1986 LH | 10936 | 1986 LO | 10936 |
| 4530 P-L | 10030 | 6034 P-L | 10310 | 6541 P-L | 10832 | 9602 P-L | 10833 |

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. Observer J. M. Codina. Measured by N. Torras.
010 Caussols. 0.9-m CERGA Schmidt. Observer C. Pollas.
051 Cape. Astrographic camera. Observer J. Churms.
056 Skalnate Pleso. 0.3-m f/5 astrograph. Observers L. Kornos and P. Rychtarcik. Communicated by J. Svoren.
071 Bulgarian National Observatory. Observer V. Shkodrov.
095 Crimean Astrophysical Observatory. Observer N. S. Chernykh.
114 Engelhardt Observatory, Zelenchukskaya Station. Observer V. N. Kitkin.
115 Special Astrophysical Observatory, Zelenchukskaya. 6-m reflector.
190 Gissar. Observer S. I. Gerasimenko.
210 Alma Ata. Observer K. I. Churyumov.
323 Perth Observatory, Bickley. Observers M. P. Candy, P. Jekabsons, A. Johns, A. McGrath and L. Stevens.
372 Geisei. 0.60-m reflector. Observer T. Seki.
392 JCPM Sapporo Station. 0.25-m reflector. Observer H. Kaneda.
576 Burwash. 0.57-m reflector (stopped down to 0.46 m). Observer A. Young. Measured by D. L. King at the Royal Greenwich Observatory.
657 Victoria. Observers J. B. Tatum and D. D. Balam.
675 Palomar. 1.2-m and 0.46-m Schmidts. Observers C. Wilson, E. Helin, S. Singer-Brewster, D. Schneeberger and S. Gerhart. Measured by M.

Rudnyk and S. Singer-Brewster.
688 Lowell Observatory, Anderson Mesa Station. Observer B. A. Skiff. Measured by B. A. Skiff and E. Bowell.
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.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
805 Cerro el Roble. Observer C. Torres.
996 Oxford. 0.30-m f/5 reflector. Observer W. G. Waddington.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
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| /1982i | 1985 | 03 23.75524 | 04 51 09.80 | +14 30 45.6 | | 1 | 115 |
| /1982i | 1985 | 11 10.00101 | 04 36 14.14 | +22 13 59.3 | | | 996 |
| /1982i | 1985 | 11 10.00200 | 04 36 13.70 | +22 13 59.5 | | | 996 |
| /1982i | 1985 | 11 10.00412 | 04 36 12.90 | +22 13 59.2 | | | 996 |
| /1982i | 1985 | 11 12.05249 | 04 21 42.90 | +22 11 15.3 | | | 996 |
| /1982i | 1985 | 11 12.05353 | 04 21 42.45 | +22 11 14.6 | | | 996 |
| /1982i | 1985 | 11 12.87648 | 04 15 24.03 | +22 08 27.9 | | | 996 |
| /1982i | 1985 | 11 12.87795 | 04 15 23.50 | +22 08 27.7 | | | 996 |
| /1982i | 1985 | 11 12.99980 | 04 14 25.57 | +22 07 58.6 | | | 996 |
| /1982i | 1985 | 11 13.91970 | 04 06 58.78 | +22 03 17.6 | | | 996 |
| /1982i | 1985 | 11 13.93032 | 04 06 53.53 | +22 03 14.3 | | | 996 |
| /1982i | 1985 | 11 15.85874 | 03 50 05.72 | +21 47 52.4 | | | 996 |
| /1982i | 1985 | 11 15.85984 | 03 50 05.12 | +21 47 51.5 | | | 996 |
| /1982i | 1985 | 12 03.95972 | 00 35 53.32 | +11 13 01.7 | | | 996 |
| /1982i | 1985 | 12 03.96157 | 00 35 52.40 | +11 12 57.1 | | | 996 |
| /1982i | 1985 | 12 03.96632 | 00 35 49.69 | +11 12 42.4 | | | 996 |
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| /1982i | 1985 | 12 18.83437 | 22 57 26.38 | +01 45 05.6 | | | 996 |
| /1982i | 1986 | 01 08.56406 | 21 58 37.57 | -04 11 31.7 | | | 190 |
| /1982i | 1986 | 01 09.60487 | 21 56 36.16 | -04 23 36.9 | | | 190 |
| /1982i | 1986 | 05 05.88976 | 10 41 54.55 | -14 40 00.5 | | | 996 |
| /1982i | 1986 | 05 05.89106 | 10 41 54.40 | -14 39 57.1 | | | 996 |
| /1982i | 1986 | 05 05.89905 | 10 41 53.44 | -14 39 37.7 | | | 996 |
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| /1982i | 1986 | 05 31.71840 | 10 23 52.76 | -06 35 55.1 | | | 190 |
| /1982i | 1986 | 06 01.08038 | 10 23 53.13 | -06 32 58.8 | | 3 | 805 |
| /1982i | 1986 | 06 01.08733 | 10 23 53.16 | -06 32 55.4 | | 3 | 805 |
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| /1982i | 1986 | 06 01.12257 | 10 23 53.20 | -06 32 39.3 | | 3 | 805 |
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| /1982i | 1986 | 06 02.07378 | 10 23 55.82 | -06 25 28.5 | | | 805 |
| /1982i | 1986 | 06 02.07726 | 10 23 55.88 | -06 25 26.9 | | | 805 |
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| /1982i | 1986 | 06 03.04045 | 10 24 00.02 | -06 18 34.4 | | 4 | 805 |
| /1982i | 1986 | 06 03.04531 | 10 24 00.03 | -06 18 32.5 | | 4 | 805 |

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| /1982i | 1986 | 06 | 05.81838 | 10 | 24 | 19.86 | -06 | 01 | 00.0 | 071 |
| /1982i | 1986 | 06 | 06.76389 | 10 | 24 | 29.06 | -05 | 55 | 38.4 | 114 |
| /1982i | 1986 | 06 | 06.77917 | 10 | 24 | 29.21 | -05 | 55 | 33.5 | 114 |
| /1982i | 1986 | 06 | 07.68548 | 10 | 24 | 39.06 | -05 | 50 | 44.3 | 190 |
| /1982i | 1986 | 06 | 07.70659 | 10 | 24 | 39.24 | -05 | 50 | 38.3 | 190 |
| /1982i | 1986 | 06 | 08.76808 | 10 | 24 | 52.46 | -05 | 45 | 21.6 | 114 |
| /1982i | 1986 | 06 | 08.77436 | 10 | 24 | 52.49 | -05 | 45 | 19.8 | 114 |
| /1982i | 1986 | 06 | 09.67708 | 10 | 25 | 04.50 | -05 | 41 | 07.4 | 190 |
| /1982i | 1986 | 06 | 10.50648 | 10 | 25 | 16.53 | -05 | 37 | 30.4 | 392 |
| /1982i | 1986 | 06 | 12.68532 | 10 | 25 | 51.52 | -05 | 28 | 53.4 | 190 |
| /1982i | 1986 | 06 | 16.68333 | 10 | 27 | 06.81 | -05 | 16 | 28.6 | 190 |
| /1982i | 1986 | 07 | 04.44861 | 10 | 34 | 52.20 | -05 | 00 | 09.1 | 323 |
| /1982i | 1986 | 07 | 04.46319 | 10 | 34 | 52.52 | -05 | 00 | 09.4 | 323 |
| /1982i | 1986 | 07 | 05.70804 | 10 | 35 | 30.95 | -05 | 00 | 51.5 | 051 |
| /1982i | 1986 | 07 | 06.51180 | 10 | 35 | 55.79 | -05 | 01 | 23.4 | 323 |
| /1982i | 1986 | 07 | 06.51944 | 10 | 35 | 56.06 | -05 | 01 | 24.0 | 323 |
| /1982i | 1986 | 07 | 06.52708 | 10 | 35 | 56.32 | -05 | 01 | 25.2 | 323 |
| /1982i | 1986 | 07 | 07.44097 | 10 | 36 | 25.10 | -05 | 02 | 08.4 | 323 |
| /1982i | 1986 | 07 | 07.47014 | 10 | 36 | 25.96 | -05 | 02 | 09.1 | 323 |
| /1982i | 1986 | 07 | 09.44583 | 10 | 37 | 29.06 | -05 | 04 | 04.5 | 323 |
| /1982i | 1986 | 07 | 09.46042 | 10 | 37 | 29.51 | -05 | 04 | 06.1 | 323 |
| /1982i | 1986 | 07 | 09.47500 | 10 | 37 | 29.91 | -05 | 04 | 06.2 | 323 |
| /1982i | 1986 | 07 | 10.44236 | 10 | 38 | 01.32 | -05 | 05 | 12.4 | 323 |
| /1982i | 1986 | 07 | 10.45694 | 10 | 38 | 01.83 | -05 | 05 | 13.7 | 323 |
| /1982i | 1986 | 07 | 10.47153 | 10 | 38 | 02.27 | -05 | 05 | 14.7 | 323 |
| /1982i | 1986 | 07 | 11.44514 | 10 | 38 | 34.12 | -05 | 06 | 26.9 | 323 |
| /1982i | 1986 | 07 | 11.45972 | 10 | 38 | 34.59 | -05 | 06 | 28.9 | 323 |
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| /1982i | 1986 | 07 | 15.44444 | 10 | 40 | 47.40 | -05 | 12 | 26.3 | 323 |
| /1982i | 1986 | 07 | 15.45903 | 10 | 40 | 47.93 | -05 | 12 | 28.8 | 323 |
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| /1982i | 1986 | 07 | 25.49930 | 10 | 46 | 36.27 | -05 | 33 | 55.1 | 323 |
| /1982i | 1986 | 07 | 28.46597 | 10 | 48 | 21.80 | -05 | 41 | 42.7 | 323 |
| /1982i | 1986 | 07 | 31.46806 | 10 | 50 | 09.74 | -05 | 50 | 13.9 | 323 |

Comet Hartley-Good (1985l)

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| /1985l | 1985 | 11 | 27.73924 | 17 | 47 | 24.01 | +14 | 49 | 05.5 | 006 |
| /1985l | 1985 | 11 | 27.75938 | 17 | 47 | 21.13 | +14 | 49 | 14.7 | 006 |
| /1985l | 1985 | 11 | 29.74167 | 17 | 42 | 18.56 | +15 | 07 | 18.9 | 006 |
| /1985l | 1985 | 11 | 29.77014 | 17 | 42 | 13.99 | +15 | 07 | 26.0 | 006 |
| /1985l | 1985 | 12 | 03.74167 | 17 | 32 | 10.06 | +15 | 29 | 46.8 | 006 |
| /1985l | 1985 | 12 | 03.74861 | 17 | 32 | 09.04 | +15 | 29 | 44.1 | 006 |
| /1985l | 1985 | 12 | 10.74167 | 17 | 14 | 44.76 | +15 | 23 | 24.1 | 006 |

Comet Thiele (1985m)

| | | | | | | | | | | |
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| /1985m | 1986 | 07 | 04.14517 | 16 | 24 | 42.92 | +05 | 54 | 15.4 | 5 801 |
| /1985m | 1986 | 07 | 12.26751 | 16 | 09 | 08.29 | +03 | 59 | 00.2 | 691 |
| /1985m | 1986 | 07 | 12.27595 | 16 | 09 | 07.47 | +03 | 58 | 52.3 | 6 691 |
| /1985m | 1986 | 07 | 30.22280 | 15 | 46 | 31.15 | +00 | 07 | 17.2 | 691 |
| /1985m | 1986 | 07 | 30.22887 | 15 | 46 | 30.91 | +00 | 07 | 17.2 | 691 |

Periodic Comet Singer Brewster

| | | | | | | | | | | |
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| /1986d | 1986 | 06 | 04.61632 | 14 | 40 | 14.17 | -02 | 57 | 01.1 | 323 |
| /1986d | 1986 | 07 | 08.08697 | 14 | 55 | 38.15 | -04 | 07 | 05.1 | 5 801 |
| /1986d | 1986 | 07 | 11.59792 | 14 | 58 | 55.83 | -04 | 27 | 32.9 | 323 |
| /1986d | 1986 | 07 | 27.19126 | 15 | 16 | 45.88 | -06 | 15 | 14.4 | 691 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986d | 1986 | 07 | 27.19777 | 15 | 16 | 46.42 | -06 | 15 | 17.7 | | | 691 |
| /1986d | 1986 | 07 | 27.20872 | 15 | 16 | 47.20 | -06 | 15 | 21.8 | | | 691 |
| | | | | | | | | | | | | |
| | | | Periodic Comet Machholz | | | | | | | | | |
| /1986e | 1986 | 05 | 18.42569 | 23 | 55 | 13.48 | +42 | 07 | 57.3 | | | 688 |
| /1986e | 1986 | 05 | 18.45139 | 23 | 54 | 59.92 | +42 | 08 | 49.6 | | | 688 |
| /1986e | 1986 | 05 | 19.44028 | 23 | 46 | 10.01 | +42 | 40 | 55.5 | | | 688 |
| /1986e | 1986 | 07 | 04.16594 | 16 | 33 | 16.60 | +03 | 27 | 15.8 | | | 801 |
| /1986e | 1986 | 07 | 07.60104 | 16 | 26 | 29.55 | +00 | 59 | 15.1 | | | 323 |
| /1986e | 1986 | 07 | 08.14043 | 16 | 25 | 34.45 | +00 | 37 | 42.2 | | | 801 |
| /1986e | 1986 | 07 | 10.29861 | 16 | 22 | 14.86 | -00 | 42 | 51.2 | | | 691 |
| /1986e | 1986 | 07 | 10.30634 | 16 | 22 | 14.16 | -00 | 43 | 07.5 | | | 691 |
| /1986e | 1986 | 07 | 10.31250 | 16 | 22 | 13.62 | -00 | 43 | 20.9 | | | 691 |
| /1986e | 1986 | 07 | 27.21388 | 16 | 09 | 54.94 | -08 | 09 | 26.1 | | | 691 |
| /1986e | 1986 | 07 | 27.22100 | 16 | 09 | 54.81 | -08 | 09 | 34.4 | | | 691 |
| /1986e | 1986 | 07 | 27.22722 | 16 | 09 | 54.71 | -08 | 09 | 42.2 | | | 691 |
| /1986e | 1986 | 07 | 30.24045 | 16 | 09 | 27.29 | -09 | 06 | 07.8 | | | 691 |
| /1986e | 1986 | 07 | 30.26292 | 16 | 09 | 27.12 | -09 | 06 | 31.9 | | | 691 |
| /1986e | 1986 | 07 | 30.26701 | 16 | 09 | 27.10 | -09 | 06 | 36.6 | | | 691 |
| | | | | | | | | | | | | |
| | | | Comet Churyumov-Solodovnikov (1986i) | | | | | | | | | |
| /1986i | 1986 | 07 | 15.89216 | 21 | 51 | 13.98 | -13 | 02 | 00.9 | 13 | T | 210 |
| /1986i | 1986 | 07 | 15.90031 | 21 | 51 | 13.16 | -13 | 02 | 19.4 | | | 210 |
| /1986i | 1986 | 07 | 17.97564 | 21 | 47 | 05.94 | -14 | 18 | 00.9 | 14 | T | 095 |
| /1986i | 1986 | 07 | 18.98970 | 21 | 45 | 01.00 | -14 | 55 | 27.8 | 14 | T | 095 |
| /1986i | 1986 | 07 | 18.99317 | 21 | 45 | 00.75 | -14 | 55 | 36.9 | | | 095 |
| /1986i | 1986 | 07 | 19.42153 | 21 | 44 | 07.07 | -15 | 11 | 23.7 | | | 657 |
| /1986i | 1986 | 07 | 19.44861 | 21 | 44 | 03.88 | -15 | 12 | 27.2 | | | 657 |
| /1986i | 1986 | 07 | 20.45035 | 21 | 41 | 56.70 | -15 | 49 | 47.9 | | 7 | 657 |
| /1986i | 1986 | 07 | 24.60625 | 21 | 32 | 45.93 | -18 | 26 | 10.4 | | | 323 |
| /1986i | 1986 | 07 | 24.63021 | 21 | 32 | 42.74 | -18 | 27 | 05.6 | | | 323 |
| /1986i | 1986 | 07 | 25.64791 | 21 | 30 | 21.79 | -19 | 05 | 34.6 | | | 323 |
| /1986i | 1986 | 07 | 27.31319 | 21 | 26 | 26.84 | -20 | 08 | 35.2 | | | 657 |
| /1986i | 1986 | 07 | 27.33686 | 21 | 26 | 23.88 | -20 | 09 | 25.3 | | | 691 |
| /1986i | 1986 | 07 | 27.34505 | 21 | 26 | 22.68 | -20 | 09 | 43.4 | | 6 | 691 |
| /1986i | 1986 | 07 | 27.35837 | 21 | 26 | 20.80 | -20 | 10 | 13.7 | | | 691 |
| /1986i | 1986 | 07 | 28.59132 | 21 | 23 | 23.31 | -20 | 56 | 41.2 | 15 | T | 372 |
| /1986i | 1986 | 07 | 28.63160 | 21 | 23 | 17.27 | -20 | 58 | 13.6 | | | 372 |
| /1986i | 1986 | 07 | 30.30424 | 21 | 19 | 12.51 | -22 | 00 | 53.3 | | 8 | 691 |
| /1986i | 1986 | 08 | 02.36910 | 21 | 11 | 32.60 | -23 | 54 | 07.2 | | 9 | 657 |
| /1986i | 1986 | 08 | 02.96001 | 21 | 10 | 02.29 | -24 | 15 | 39.3 | | | 056 |
| /1986i | 1986 | 08 | 03.00642 | 21 | 09 | 55.16 | -24 | 17 | 18.6 | | | 056 |
| /1986i | 1986 | 08 | 03.36181 | 21 | 09 | 00.79 | -24 | 30 | 12.5 | | | 657 |
| /1986i | 1986 | 08 | 04.35833 | 21 | 06 | 27.61 | -25 | 06 | 00.1 | | | 657 |
| /1986i | 1986 | 08 | 07.30528 | 20 | 58 | 50.15 | -26 | 49 | 38.9 | | A | 657 |
| /1986i | 1986 | 08 | 08.29139 | 20 | 56 | 15.76 | -27 | 23 | 23.5 | | | 657 |
| /1986i | 1986 | 08 | 09.27125 | 20 | 53 | 42.51 | -27 | 56 | 23.2 | | | 657 |
| | | | | | | | | | | | | |
| | | | Periodic Comet Comas Sola | | | | | | | | | |
| /1986j | 1986 | 07 | 30.41280 | 00 | 59 | 56.05 | -08 | 43 | 05.5 | 20 | T B | 691 |
| /1986j | 1986 | 07 | 30.44433 | 00 | 59 | 56.35 | -08 | 43 | 09.6 | | B | 691 |
| /1986j | 1986 | 07 | 30.46638 | 00 | 59 | 56.56 | -08 | 43 | 12.7 | | B | 691 |
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| /1986j | 1986 | 07 | 31.45382 | 01 | 00 | 06.86 | -08 | 45 | 11.1 | | | 691 |
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| | | | Periodic Comet Kohoutek | | | | | | | | | |
| /1986k | 1986 | 07 | 30.35050 | 21 | 38 | 52.31 | -07 | 30 | 42.2 | 19.5T | C | 691 |
| /1986k | 1986 | 07 | 30.36348 | 21 | 38 | 51.79 | -07 | 30 | 43.9 | | C | 691 |
| /1986k | 1986 | 07 | 30.37067 | 21 | 38 | 51.55 | -07 | 30 | 44.4 | | I | 691 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986k | 1986 | 07 | 31.32277 | 21 | 38 | 12.01 | -07 | 32 | 44.5 | C | 691 |
| /1986k | 1986 | 07 | 31.32749 | 21 | 38 | 11.68 | -07 | 32 | 45.7 | C | 691 |
| /1986k | 1986 | 07 | 31.33995 | 21 | 38 | 11.29 | -07 | 32 | 48.1 | C | 691 |
| /1986k | 1986 | 07 | 31.34948 | 21 | 38 | 10.81 | -07 | 32 | 48.5 | C | 691 |

Comet Wilson (1986l)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /1986l | 1986 | 08 | 05.33194 | 22 | 22 | 12.63 | +25 | 10 | 28.4 | 10.5T | | 675 |
| /1986l | 1986 | 08 | 05.37361 | 22 | 22 | 08.27 | +25 | 10 | 14.0 | | | 675 |
| /1986l | 1986 | 08 | 06.07813 | 22 | 20 | 56.22 | +25 | 06 | 40.7 | 11.5T | | 010 |
| /1986l | 1986 | 08 | 06.08860 | 22 | 20 | 55.55 | +25 | 06 | 38.7 | | | 010 |
| /1986l | 1986 | 08 | 06.15515 | 22 | 20 | 48.87 | +25 | 06 | 19.9 | 10 T | | 801 |
| /1986l | 1986 | 08 | 06.21979 | 22 | 20 | 42.24 | +25 | 06 | 01.1 | 10.5T | | 675 |
| /1986l | 1986 | 08 | 06.28811 | 22 | 20 | 35.12 | +25 | 05 | 40.3 | | | 801 |
| /1986l | 1986 | 08 | 06.33403 | 22 | 20 | 30.96 | +25 | 05 | 23.5 | | | 675 |
| /1986l | 1986 | 08 | 06.35486 | 22 | 20 | 29.30 | +25 | 05 | 17.7 | | | 675 |
| /1986l | 1986 | 08 | 07.06632 | 22 | 19 | 14.59 | +25 | 01 | 28.6 | | | 010 |
| /1986l | 1986 | 08 | 07.07465 | 22 | 19 | 13.82 | +25 | 01 | 25.3 | | | 010 |
| /1986l | 1986 | 08 | 07.23618 | 22 | 18 | 57.02 | +25 | 00 | 30.8 | | | 657 |
| /1986l | 1986 | 08 | 07.66319 | 22 | 18 | 11.82 | +24 | 58 | 07.6 | 11.5T | D | 372 |
| /1986l | 1986 | 08 | 07.69132 | 22 | 18 | 09.00 | +24 | 57 | 55.6 | | D | 372 |
| /1986l | 1986 | 08 | 07.93669 | 22 | 17 | 43.12 | +24 | 56 | 31.3 | | | 056 |
| /1986l | 1986 | 08 | 07.98206 | 22 | 17 | 38.47 | +24 | 56 | 14.7 | | | 056 |
| /1986l | 1986 | 08 | 08.25215 | 22 | 17 | 09.83 | +24 | 54 | 39.6 | | | 657 |
| /1986l | 1986 | 08 | 09.14296 | 22 | 15 | 34.72 | +24 | 49 | 13.7 | | | 801 |
| /1986l | 1986 | 08 | 09.14691 | 22 | 15 | 34.24 | +24 | 49 | 11.8 | | | 801 |
| /1986l | 1986 | 08 | 09.25528 | 22 | 15 | 22.52 | +24 | 48 | 29.8 | | | 657 |
| /1986l | 1986 | 08 | 09.94618 | 22 | 14 | 07.61 | +24 | 44 | 02.3 | | | 576 |
| /1986l | 1986 | 08 | 09.96007 | 22 | 14 | 06.08 | +24 | 43 | 59.2 | | | 576 |
| /1986l | 1986 | 08 | 10.20753 | 22 | 13 | 38.96 | +24 | 42 | 19.1 | | | 801 |
| /1986l | 1986 | 08 | 10.51933 | 22 | 13 | 04.9 | +24 | 40 | 12 | 12 T | | 392 |
| /1986l | 1986 | 08 | 10.52685 | 22 | 13 | 04.1 | +24 | 40 | 06 | | | 392 |
| /1986l | 1986 | 08 | 10.80660 | 22 | 12 | 33.10 | +24 | 38 | 11.9 | 11.5T | | 372 |
| /1986l | 1986 | 08 | 11.87546 | 22 | 10 | 34.50 | +24 | 30 | 34.5 | | | 056 |
| /1986l | 1986 | 08 | 11.91111 | 22 | 10 | 30.46 | +24 | 30 | 19.3 | | | 056 |
| /1986l | 1986 | 08 | 12.32292 | 22 | 09 | 44.10 | +24 | 27 | 12.5 | | | 657 |
| /1986l | 1986 | 08 | 13.28340 | 22 | 07 | 55.25 | +24 | 19 | 47.2 | | | 657 |
| /1986l | 1986 | 08 | 14.26257 | 22 | 06 | 02.74 | +24 | 11 | 49.0 | | | 657 |
| /1986l | 1986 | 08 | 15.34035 | 22 | 03 | 57.48 | +24 | 02 | 36.8 | | | 657 |
| /1986l | 1986 | 08 | 16.27083 | 22 | 02 | 08.16 | +23 | 54 | 13.2 | | | 657 |

Note 1: correction to MPC 9813. 2: time erroneously given as 05 13.79761 on MPC 10793. 3: plate overexposed. 4: faint image. 5: weak image; inkdot measured. 6: image involved with star. 7: very dark plate. 8: tail 4' long in p.a. 345 . 9: poor image. A: measurement difficult. B: indication of 6" tail in p.a. 260 . C: very diffuse and uncondensed and difficult to measure. D: tail 10" long in p.a. 300 . I = 6 + C.

* * * * *

OBSERVATIONS MADE AT CAUSSOLS.

Plates taken by A. Barthelemy, J. Ciffreo, J.-L. Heudier, M. Vijay and A. Robin with the 0.9-m Schmidt in association with the International Near-Earth Asteroid Survey (INAS). Measured by T. Baribaud, A. Barthelemy, R. Chemin, J.-L. Heudier and C. Pollas. Contact: J.-L. Heudier, CERGA Caussols, F-06460 Saint Vallier de Thiey, France.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 47 | 1985 12 | 14.91320 | 05 46 04.24 | +30 38 39.0 | 010 |
| 47 | 1985 12 | 14.99960 | 05 45 59.48 | +30 38 40.7 | 010 |
| 94 | 1985 10 | 11.95830 | 01 05 53.72 | +10 43 10.9 | 010 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 94 | 1985 | 10 | 11.99420 | 01 | 05 | 51.59 | +10 | 43 | 02.1 | 010 |
| 190 | 1986 | 07 | 07.98750 | 19 | 43 | 50.76 | -14 | 09 | 43.6 | 010 |
| 190 | 1986 | 07 | 08.02917 | 19 | 43 | 49.69 | -14 | 09 | 46.3 | 010 |
| 190 | 1986 | 07 | 10.98330 | 19 | 42 | 01.53 | -14 | 14 | 42.8 | 010 |
| 190 | 1986 | 07 | 11.06670 | 19 | 41 | 58.47 | -14 | 14 | 50.6 | 010 |
| 209 | 1985 | 10 | 11.95830 | 01 | 06 | 41.68 | +10 | 42 | 28.8 | 010 |
| 209 | 1985 | 10 | 11.99420 | 01 | 06 | 39.95 | +10 | 42 | 17.5 | 010 |
| 359 | 1985 | 10 | 11.95830 | 01 | 07 | 36.87 | +10 | 02 | 19.9 | 010 |
| 359 | 1985 | 10 | 11.99420 | 01 | 07 | 34.76 | +10 | 02 | 13.8 | 010 |
| 442 | 1986 | 07 | 10.93890 | 18 | 15 | 23.97 | -17 | 13 | 25.6 | 010 |
| 442 | 1986 | 07 | 10.97360 | 18 | 15 | 22.05 | -17 | 13 | 32.1 | 010 |
| 644 | 1986 | 07 | 04.02778 | 20 | 25 | 31.31 | -19 | 25 | 28.4 | 010 |
| 644 | 1986 | 07 | 04.04861 | 20 | 25 | 30.71 | -19 | 25 | 33.0 | 010 |
| 679 | 1986 | 07 | 04.02778 | 20 | 34 | 03.13 | -20 | 55 | 16.4 | 010 |
| 679 | 1986 | 07 | 04.04861 | 20 | 34 | 02.33 | -20 | 55 | 34.7 | 010 |
| 722 | 1985 | 12 | 14.91320 | 05 | 48 | 35.73 | +29 | 33 | 40.7 | 010 |
| 722 | 1985 | 12 | 14.99960 | 05 | 48 | 29.32 | +29 | 33 | 52.0 | 010 |
| 992 | 1985 | 10 | 11.95830 | 01 | 21 | 05.53 | +11 | 37 | 14.8 | 010 |
| 992 | 1985 | 10 | 11.99420 | 01 | 21 | 03.92 | +11 | 36 | 58.6 | 010 |
| 1102 | 1986 | 07 | 05.03125 | 20 | 48 | 42.76 | +06 | 22 | 31.0 | 010 |
| 1102 | 1986 | 07 | 05.06597 | 20 | 48 | 41.71 | +06 | 22 | 37.5 | 010 |
| 1121 | 1985 | 10 | 11.95830 | 01 | 15 | 33.90 | +12 | 43 | 57.4 | 010 |
| 1121 | 1985 | 10 | 11.99420 | 01 | 15 | 31.63 | +12 | 43 | 58.0 | 010 |
| 1125 | 1985 | 10 | 17.97150 | 01 | 59 | 54.84 | +07 | 39 | 03.6 | 010 |
| 1125 | 1985 | 10 | 18.01520 | 01 | 59 | 52.77 | +07 | 38 | 49.2 | 010 |
| 1143 | 1985 | 10 | 11.95830 | 01 | 08 | 52.11 | +08 | 52 | 08.1 | 010 |
| 1143 | 1985 | 10 | 11.99420 | 01 | 08 | 50.93 | +08 | 51 | 57.6 | 010 |
| 1377 | 1985 | 10 | 11.95830 | 01 | 18 | 01.30 | +12 | 20 | 51.0 | 010 |
| 1377 | 1985 | 10 | 11.99420 | 01 | 17 | 58.93 | +12 | 20 | 31.4 | 010 |
| 1502 | 1986 | 07 | 10.93890 | 18 | 08 | 14.11 | -17 | 33 | 41.9 | 010 |
| 1502 | 1986 | 07 | 10.97360 | 18 | 08 | 13.11 | -17 | 33 | 43.1 | 010 |
| 1647 | 1985 | 10 | 11.95830 | 01 | 16 | 10.45 | +12 | 40 | 55.6 | 010 |
| 1647 | 1985 | 10 | 11.99420 | 01 | 16 | 09.38 | +12 | 40 | 42.5 | 010 |
| 1704 | 1985 | 10 | 11.95830 | 01 | 07 | 46.24 | +08 | 45 | 43.0 | 010 |
| 1704 | 1985 | 10 | 11.99420 | 01 | 07 | 44.22 | +08 | 45 | 26.5 | 010 |
| 1810 | 1986 | 07 | 07.98750 | 19 | 47 | 22.84 | -16 | 53 | 32.8 | 010 |
| 1810 | 1986 | 07 | 08.02917 | 19 | 47 | 20.83 | -16 | 53 | 33.2 | 010 |
| 1870 | 1986 | 07 | 07.98750 | 19 | 29 | 08.94 | -14 | 18 | 46.3 | 010 |
| 1870 | 1986 | 07 | 08.02917 | 19 | 29 | 07.99 | -14 | 18 | 50.7 | 010 |
| 1912 | 1985 | 10 | 17.97150 | 01 | 51 | 48.54 | +07 | 23 | 31.8 | 010 |
| 1912 | 1985 | 10 | 18.01520 | 01 | 51 | 46.10 | +07 | 23 | 21.1 | 010 |
| 2190 | 1985 | 10 | 11.95830 | 01 | 06 | 04.91 | +08 | 18 | 46.3 | 010 |
| 2190 | 1985 | 10 | 11.99420 | 01 | 06 | 03.07 | +08 | 18 | 31.1 | 010 |
| 2319 | 1985 | 10 | 17.97150 | 01 | 59 | 11.77 | +07 | 07 | 24.2 | 010 |
| 2319 | 1985 | 10 | 18.01520 | 01 | 59 | 09.54 | +07 | 07 | 10.4 | 010 |
| 2353 | 1985 | 12 | 14.91320 | 05 | 42 | 00.16 | +29 | 37 | 07.6 | 010 |
| 2353 | 1985 | 12 | 14.99960 | 05 | 41 | 54.80 | +29 | 37 | 06.7 | 010 |
| 2417 | 1985 | 10 | 17.97150 | 01 | 56 | 55.20 | +07 | 46 | 51.0 | 010 |
| 2417 | 1985 | 10 | 18.01520 | 01 | 56 | 53.09 | +07 | 46 | 39.1 | 010 |
| 2422 | 1986 | 07 | 10.93890 | 18 | 18 | 05.46 | -12 | 54 | 57.4 | 010 |
| 2422 | 1986 | 07 | 10.97360 | 18 | 18 | 03.76 | -12 | 55 | 05.2 | 010 |
| 2460 | 1986 | 07 | 10.93890 | 18 | 10 | 39.07 | -17 | 21 | 38.6 | 010 |
| 2460 | 1986 | 07 | 10.97360 | 18 | 10 | 37.29 | -17 | 21 | 41.0 | 010 |
| 2489 | 1986 | 07 | 04.02778 | 20 | 31 | 00.97 | -21 | 26 | 07.5 | 010 |
| 2489 | 1986 | 07 | 04.04861 | 20 | 31 | 00.26 | -21 | 26 | 11.3 | 010 |
| 2632 | 1985 | 10 | 11.95830 | 01 | 24 | 45.82 | +09 | 51 | 11.3 | 010 |
| 2632 | 1985 | 10 | 11.99420 | 01 | 24 | 44.00 | +09 | 51 | 08.3 | 010 |
| 2720 | 1986 | 07 | 04.02778 | 20 | 35 | 14.54 | -18 | 46 | 44.6 | 010 |
| 2720 | 1986 | 07 | 04.04861 | 20 | 35 | 13.95 | -18 | 46 | 48.5 | 010 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2776 | | 1986 | 07 | 10.93890 | 18 | 15 | 07.21 | -15 | 40 | 43.3 | 010 |
| 2776 | | 1986 | 07 | 10.97360 | 18 | 15 | 05.49 | -15 | 40 | 45.9 | 010 |
| 2901 | | 1985 | 10 | 17.97150 | 01 | 53 | 27.70 | +08 | 11 | 15.7 | 010 |
| 2901 | | 1985 | 10 | 18.01520 | 01 | 53 | 25.29 | +08 | 11 | 04.4 | 010 |
| 2954 | | 1986 | 07 | 10.93890 | 18 | 06 | 02.24 | -16 | 30 | 23.8 | 010 |
| 2954 | | 1986 | 07 | 10.97360 | 18 | 06 | 00.78 | -16 | 30 | 28.1 | 010 |
| 3053 | | 1985 | 12 | 14.91320 | 05 | 45 | 41.81 | +30 | 43 | 54.1 | 010 |
| 3053 | | 1985 | 12 | 14.99960 | 05 | 45 | 34.97 | +30 | 43 | 55.0 | 010 |
| 1977 | PE1 | 1986 | 07 | 07.98750 | 19 | 40 | 17.95 | -14 | 41 | 14.0 | 010 |
| 1977 | PE1 | 1986 | 07 | 08.02917 | 19 | 40 | 16.33 | -14 | 41 | 14.7 | 010 |
| 1985 | TO | 1985 | 10 | 11.95830 | 01 | 16 | 43.24 | +10 | 21 | 39.7 | 010 |
| 1985 | TO | 1985 | 10 | 11.99420 | 01 | 16 | 40.81 | +10 | 21 | 28.6 | 010 |
| 1985 | TR | 1985 | 10 | 11.95830 | 01 | 17 | 29.87 | +08 | 56 | 30.5 | 010 |
| 1985 | TR | 1985 | 10 | 11.99420 | 01 | 17 | 27.89 | +08 | 56 | 20.1 | 010 |
| 1985 | TS | 1985 | 10 | 11.95830 | 01 | 20 | 34.47 | +10 | 38 | 59.6 | 010 |
| 1985 | TU | 1985 | 10 | 11.95830 | 01 | 20 | 28.87 | +10 | 31 | 35.7 | 010 |
| 1985 | TU | 1985 | 10 | 11.99420 | 01 | 20 | 27.05 | +10 | 31 | 21.4 | 010 |
| 1985 | TW | 1985 | 10 | 11.95830 | 01 | 23 | 38.90 | +09 | 27 | 53.0 | 010 |
| 1985 | TW | 1985 | 10 | 11.99420 | 01 | 23 | 36.82 | +09 | 27 | 41.5 | 010 |
| 1985 | TX | 1985 | 10 | 11.95830 | 01 | 24 | 14.03 | +10 | 25 | 54.0 | 010 |
| 1985 | TX | 1985 | 10 | 11.99420 | 01 | 24 | 11.84 | +10 | 25 | 36.6 | 010 |
| 1985 | TV2 * | 1985 | 10 | 11.95830 | 01 | 04 | 42.15 | +10 | 19 | 40.2 | 010 |
| 1985 | TV2 | 1985 | 10 | 11.99420 | 01 | 04 | 40.18 | +10 | 19 | 17.1 | 010 |
| 1985 | TW2 * | 1985 | 10 | 11.95830 | 01 | 18 | 16.92 | +12 | 41 | 54.3 | 010 |
| 1985 | TW2 | 1985 | 10 | 11.99420 | 01 | 18 | 14.34 | +12 | 42 | 13.3 | 010 |
| 1985 | TX2 * | 1985 | 10 | 11.95830 | 01 | 19 | 05.42 | +11 | 02 | 40.2 | 010 |
| 1985 | TX2 | 1985 | 10 | 11.99420 | 01 | 19 | 03.47 | +11 | 02 | 28.5 | 010 |
| 1985 | TY2 * | 1985 | 10 | 11.95830 | 01 | 21 | 04.98 | +09 | 32 | 34.2 | 010 |
| 1985 | TY2 | 1985 | 10 | 11.99420 | 01 | 21 | 03.08 | +09 | 32 | 21.9 | 010 |
| 1985 | TZ2 * | 1985 | 10 | 11.95830 | 01 | 21 | 35.16 | +09 | 48 | 24.5 | 010 |
| 1985 | TZ2 | 1985 | 10 | 11.99420 | 01 | 21 | 33.44 | +09 | 48 | 14.2 | 010 |
| 1985 | TA3 * | 1985 | 10 | 11.95830 | 01 | 22 | 33.17 | +09 | 30 | 13.0 | 010 |
| 1985 | TA3 | 1985 | 10 | 11.99420 | 01 | 22 | 31.31 | +09 | 30 | 04.1 | 010 |
| 1985 | UC | 1985 | 10 | 11.95830 | 01 | 10 | 11.29 | +12 | 25 | 05.8 | 010 |
| 1985 | UC | 1985 | 10 | 11.99420 | 01 | 10 | 08.62 | +12 | 25 | 11.5 | 010 |
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| 1985 | UV1 * | 1985 | 10 | 16.06940 | 03 | 00 | 09.41 | +28 | 24 | 11.6 | 010 |
| 1985 | UV1 | 1985 | 10 | 16.10420 | 03 | 00 | 07.94 | +28 | 23 | 58.1 | 010 |
| 1985 | UW1 * | 1985 | 10 | 16.06940 | 03 | 00 | 41.39 | +28 | 15 | 08.9 | 010 |
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| 1985 | UX1 * | 1985 | 10 | 16.06940 | 03 | 02 | 55.80 | +27 | 55 | 13.9 | 010 |
| 1985 | UX1 | 1985 | 10 | 16.10420 | 03 | 02 | 54.59 | +27 | 54 | 56.6 | 010 |
| 1985 | UY1 * | 1985 | 10 | 16.06940 | 03 | 09 | 48.42 | +28 | 00 | 56.3 | 010 |
| 1985 | UY1 | 1985 | 10 | 16.10420 | 03 | 09 | 47.14 | +28 | 00 | 47.7 | 010 |
| 1985 | UZ1 * | 1985 | 10 | 17.97150 | 01 | 47 | 46.34 | +05 | 05 | 38.0 | 010 |
| 1985 | UZ1 | 1985 | 10 | 18.01520 | 01 | 47 | 43.39 | +05 | 05 | 37.7 | 010 |
| 1985 | UA2 * | 1985 | 10 | 17.97150 | 01 | 47 | 53.88 | +04 | 52 | 15.8 | 010 |
| 1985 | UA2 | 1985 | 10 | 18.01520 | 01 | 47 | 52.20 | +04 | 51 | 51.5 | 010 |
| 1985 | UB2 * | 1985 | 10 | 17.97150 | 01 | 48 | 57.19 | +06 | 57 | 05.4 | 010 |
| 1985 | UB2 | 1985 | 10 | 18.01520 | 01 | 48 | 55.28 | +06 | 56 | 50.2 | 010 |
| 1985 | UC2 * | 1985 | 10 | 17.97150 | 01 | 49 | 56.59 | +07 | 30 | 58.4 | 010 |
| 1985 | UC2 | 1985 | 10 | 18.01520 | 01 | 49 | 54.43 | +07 | 30 | 32.1 | 010 |
| 1985 | UD2 * | 1985 | 10 | 17.97150 | 01 | 51 | 08.97 | +07 | 01 | 38.9 | 010 |
| 1985 | UD2 | 1985 | 10 | 18.01520 | 01 | 51 | 06.48 | +07 | 01 | 31.5 | 010 |
| 1985 | UE2 * | 1985 | 10 | 17.97150 | 01 | 51 | 15.97 | +03 | 55 | 05.5 | 010 |
| 1985 | UE2 | 1985 | 10 | 18.01520 | 01 | 51 | 13.98 | +03 | 54 | 48.3 | 010 |
| 1985 | UF2 * | 1985 | 10 | 17.97150 | 01 | 51 | 22.66 | +03 | 57 | 49.8 | 010 |
| 1985 | UF2 | 1985 | 10 | 18.01520 | 01 | 51 | 20.89 | +03 | 57 | 30.8 | 010 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | UG2 | * | 1985 | 10 | 17.97150 | 01 | 53 | 19.12 | +08 | 06 | 55.8 | 010 |
| 1985 | UG2 | | 1985 | 10 | 18.01520 | 01 | 53 | 16.59 | +08 | 06 | 36.8 | 010 |
| 1985 | UH2 | * | 1985 | 10 | 17.97150 | 01 | 53 | 24.84 | +07 | 38 | 59.1 | 010 |
| 1985 | UH2 | | 1985 | 10 | 18.01520 | 01 | 53 | 22.22 | +07 | 38 | 51.7 | 010 |
| 1985 | UJ2 | * | 1985 | 10 | 17.97150 | 01 | 54 | 10.23 | +05 | 09 | 54.7 | 010 |
| 1985 | UJ2 | | 1985 | 10 | 18.01520 | 01 | 54 | 07.41 | +05 | 09 | 46.0 | 010 |
| 1985 | UK2 | * | 1985 | 10 | 17.97150 | 01 | 54 | 15.44 | +06 | 25 | 54.7 | 010 |
| 1985 | UK2 | | 1985 | 10 | 18.01520 | 01 | 54 | 12.78 | +06 | 25 | 47.9 | 010 |
| 1985 | UL2 | * | 1985 | 10 | 17.97150 | 01 | 55 | 16.40 | +06 | 42 | 21.7 | 010 |
| 1985 | UL2 | | 1985 | 10 | 18.01520 | 01 | 55 | 13.86 | +06 | 42 | 12.4 | 010 |
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| 1985 | UM2 | | 1985 | 10 | 18.01520 | 01 | 55 | 27.31 | +05 | 43 | 53.4 | 010 |
| 1985 | UN2 | * | 1985 | 10 | 17.97150 | 01 | 56 | 47.77 | +07 | 52 | 26.2 | 010 |
| 1985 | UN2 | | 1985 | 10 | 18.01520 | 01 | 56 | 45.93 | +07 | 52 | 16.3 | 010 |
| 1985 | UO2 | * | 1985 | 10 | 17.97150 | 01 | 56 | 53.29 | +03 | 52 | 37.3 | 010 |
| 1985 | UO2 | | 1985 | 10 | 18.01520 | 01 | 56 | 50.73 | +03 | 52 | 22.8 | 010 |
| 1985 | UP2 | * | 1985 | 10 | 17.97150 | 01 | 57 | 14.68 | +05 | 01 | 08.7 | 010 |
| 1985 | UP2 | | 1985 | 10 | 18.01520 | 01 | 57 | 12.68 | +05 | 00 | 58.1 | 010 |
| 1985 | UQ2 | * | 1985 | 10 | 17.97150 | 01 | 57 | 25.91 | +03 | 52 | 03.7 | 010 |
| 1985 | UQ2 | | 1985 | 10 | 18.01520 | 01 | 57 | 23.69 | +03 | 51 | 49.3 | 010 |
| 1985 | UR2 | * | 1985 | 10 | 17.97150 | 01 | 58 | 29.95 | +06 | 20 | 29.6 | 010 |
| 1985 | UR2 | | 1985 | 10 | 18.01520 | 01 | 58 | 28.59 | +06 | 20 | 18.4 | 010 |
| 1985 | US2 | * | 1985 | 10 | 17.97150 | 02 | 01 | 16.93 | +04 | 32 | 37.8 | 010 |
| 1985 | US2 | | 1985 | 10 | 18.01520 | 02 | 01 | 15.31 | +04 | 32 | 33.8 | 010 |
| 1985 | UT2 | * | 1985 | 10 | 17.97150 | 02 | 02 | 23.87 | +05 | 36 | 35.1 | 010 |
| 1985 | UT2 | | 1985 | 10 | 18.01520 | 02 | 02 | 21.60 | +05 | 36 | 22.0 | 010 |
| 1985 | UU2 | * | 1985 | 10 | 17.97150 | 02 | 02 | 27.79 | +08 | 10 | 35.5 | 010 |
| 1985 | UU2 | | 1985 | 10 | 18.01520 | 02 | 02 | 25.22 | +08 | 10 | 11.4 | 010 |
| 1985 | UV2 | * | 1985 | 10 | 17.97150 | 02 | 02 | 31.84 | +05 | 27 | 32.5 | 010 |
| 1985 | UV2 | | 1985 | 10 | 18.01520 | 02 | 02 | 29.78 | +05 | 27 | 14.2 | 010 |
| 1985 | UW2 | * | 1985 | 10 | 17.97150 | 02 | 02 | 49.83 | +04 | 02 | 14.6 | 010 |
| 1985 | UW2 | | 1985 | 10 | 18.01520 | 02 | 02 | 47.88 | +04 | 01 | 55.0 | 010 |
| 1985 | UX2 | * | 1985 | 10 | 17.97150 | 02 | 02 | 59.65 | +03 | 50 | 35.3 | 010 |
| 1985 | UX2 | | 1985 | 10 | 18.01520 | 02 | 02 | 57.69 | +03 | 50 | 32.7 | 010 |
| 1985 | UY2 | * | 1985 | 10 | 17.97150 | 02 | 03 | 48.70 | +06 | 10 | 44.4 | 010 |
| 1985 | UY2 | | 1985 | 10 | 18.01520 | 02 | 03 | 46.64 | +06 | 10 | 34.0 | 010 |
| 1985 | UZ2 | * | 1985 | 10 | 17.97150 | 02 | 04 | 32.54 | +05 | 49 | 47.5 | 010 |
| 1985 | UZ2 | | 1985 | 10 | 18.01520 | 02 | 04 | 30.26 | +05 | 49 | 35.8 | 010 |
| 1985 | UA3 | * | 1985 | 10 | 17.97150 | 02 | 05 | 12.15 | +06 | 54 | 59.0 | 010 |
| 1985 | UA3 | | 1985 | 10 | 18.01520 | 02 | 05 | 09.55 | +06 | 54 | 42.2 | 010 |
| 1985 | UB3 | * | 1985 | 10 | 17.97150 | 02 | 05 | 37.20 | +06 | 01 | 26.8 | 010 |
| 1985 | UB3 | | 1985 | 10 | 18.01520 | 02 | 05 | 35.35 | +06 | 01 | 02.7 | 010 |
| 1985 | UC3 | * | 1985 | 10 | 17.97150 | 02 | 06 | 51.38 | +06 | 30 | 12.4 | 010 |
| 1985 | UC3 | | 1985 | 10 | 18.01520 | 02 | 06 | 49.89 | +06 | 30 | 04.0 | 010 |
| 1985 | XT | * | 1985 | 12 | 14.91320 | 05 | 36 | 20.44 | +31 | 47 | 13.6 | 010 |
| 1985 | XT | | 1985 | 12 | 14.99960 | 05 | 36 | 14.38 | +31 | 47 | 48.1 | 010 |
| 1985 | XU | * | 1985 | 12 | 14.91320 | 05 | 37 | 11.32 | +30 | 27 | 27.9 | 010 |
| 1985 | XU | | 1985 | 12 | 14.99960 | 05 | 37 | 05.63 | +30 | 27 | 20.2 | 010 |
| 1985 | XV | * | 1985 | 12 | 14.91320 | 05 | 37 | 12.82 | +30 | 15 | 27.7 | 010 |
| 1985 | XV | | 1985 | 12 | 14.99960 | 05 | 37 | 07.56 | +30 | 15 | 13.6 | 010 |
| 1985 | XW | * | 1985 | 12 | 14.91320 | 05 | 37 | 17.48 | +31 | 46 | 11.8 | 010 |
| 1985 | XW | | 1985 | 12 | 14.99960 | 05 | 37 | 12.60 | +31 | 45 | 55.8 | 010 |
| 1985 | XX | * | 1985 | 12 | 14.91320 | 05 | 37 | 54.75 | +30 | 15 | 50.5 | 010 |
| 1985 | XX | | 1985 | 12 | 14.99960 | 05 | 37 | 48.95 | +30 | 15 | 18.7 | 010 |
| 1985 | XY | * | 1985 | 12 | 14.91320 | 05 | 41 | 25.09 | +33 | 13 | 23.2 | 010 |
| 1985 | XY | | 1985 | 12 | 14.99960 | 05 | 41 | 18.70 | +33 | 13 | 17.4 | 010 |
| 1985 | XZ | * | 1985 | 12 | 14.91320 | 05 | 42 | 19.96 | +29 | 39 | 59.8 | 010 |
| 1985 | XZ | | 1985 | 12 | 14.99960 | 05 | 42 | 13.44 | +29 | 39 | 58.7 | 010 |
| 1985 | XA1 | * | 1985 | 12 | 14.91320 | 05 | 42 | 29.04 | +29 | 42 | 58.7 | 010 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | XA1 | | 1985 | 12 | 14.99960 | 05 | 42 | 23.04 | +29 | 42 47.9 | 010 |
| 1985 | XB1 | * | 1985 | 12 | 14.91320 | 05 | 43 | 53.98 | +29 | 49 06.5 | 010 |
| 1985 | XB1 | | 1985 | 12 | 14.99960 | 05 | 43 | 47.75 | +29 | 49 12.3 | 010 |
| 1985 | XC1 | * | 1985 | 12 | 14.91320 | 05 | 44 | 22.63 | +32 | 20 06.4 | 010 |
| 1985 | XC1 | | 1985 | 12 | 14.99960 | 05 | 44 | 17.21 | +32 | 20 09.1 | 010 |
| 1985 | XD1 | * | 1985 | 12 | 14.91320 | 05 | 44 | 55.70 | +33 | 33 41.3 | 010 |
| 1985 | XD1 | | 1985 | 12 | 14.99960 | 05 | 44 | 50.05 | +33 | 33 57.2 | 010 |
| 1985 | XE1 | * | 1985 | 12 | 14.91320 | 05 | 45 | 24.59 | +29 | 36 39.2 | 010 |
| 1985 | XE1 | | 1985 | 12 | 14.99960 | 05 | 45 | 20.38 | +29 | 36 51.9 | 010 |
| 1985 | XF1 | * | 1985 | 12 | 14.91320 | 05 | 45 | 30.81 | +30 | 51 12.7 | 010 |
| 1985 | XF1 | | 1985 | 12 | 14.99960 | 05 | 45 | 25.08 | +30 | 51 01.1 | 010 |
| 1985 | XG1 | * | 1985 | 12 | 14.91320 | 05 | 45 | 40.94 | +30 | 49 37.9 | 010 |
| 1985 | XG1 | | 1985 | 12 | 14.99960 | 05 | 45 | 35.57 | +30 | 49 27.7 | 010 |
| 1985 | XH1 | * | 1985 | 12 | 14.91320 | 05 | 47 | 53.51 | +29 | 38 42.5 | 010 |
| 1985 | XH1 | | 1985 | 12 | 14.99960 | 05 | 47 | 47.64 | +29 | 38 01.9 | 010 |
| 1985 | XJ1 | * | 1985 | 12 | 14.91320 | 05 | 49 | 11.72 | +30 | 16 50.2 | 010 |
| 1985 | XJ1 | | 1985 | 12 | 14.99960 | 05 | 49 | 06.98 | +30 | 16 57.6 | 010 |
| 1985 | XK1 | * | 1985 | 12 | 14.91320 | 05 | 50 | 53.29 | +31 | 38 24.7 | 010 |
| 1985 | XK1 | | 1985 | 12 | 14.99960 | 05 | 50 | 47.33 | +31 | 39 01.8 | 010 |
| 1985 | XL1 | * | 1985 | 12 | 14.91320 | 05 | 52 | 45.75 | +33 | 18 49.0 | 010 |
| 1985 | XL1 | | 1985 | 12 | 14.99960 | 05 | 52 | 42.46 | +33 | 18 48.1 | 010 |
| 1985 | XM1 | * | 1985 | 12 | 14.91320 | 05 | 53 | 04.02 | +32 | 08 55.2 | 010 |
| 1985 | XM1 | | 1985 | 12 | 14.99960 | 05 | 52 | 58.03 | +32 | 10 21.0 | 010 |
| 1985 | XN1 | * | 1985 | 12 | 14.91320 | 05 | 54 | 57.85 | +31 | 04 41.1 | 010 |
| 1985 | XN1 | | 1985 | 12 | 14.99960 | 05 | 54 | 52.04 | +31 | 05 09.7 | 010 |
| 1985 | XO1 | * | 1985 | 12 | 14.91320 | 05 | 55 | 36.34 | +30 | 09 35.2 | 010 |
| 1985 | XO1 | | 1985 | 12 | 14.99960 | 05 | 55 | 30.07 | +30 | 10 28.1 | 010 |
| 1986 | NE | * | 1986 | 07 | 07.98750 | 19 | 27 | 12.78 | -16 | 28 40.8 | 010 |
| 1986 | NE | | 1986 | 07 | 08.02917 | 19 | 27 | 10.73 | -16 | 28 47.0 | 010 |
| 1986 | NF | * | 1986 | 07 | 07.98750 | 19 | 28 | 35.08 | -14 | 45 08.7 | 010 |
| 1986 | NF | | 1986 | 07 | 08.02917 | 19 | 28 | 32.86 | -14 | 45 19.5 | 010 |
| 1986 | NG | * | 1986 | 07 | 07.98750 | 19 | 28 | 54.75 | -14 | 47 16.6 | 010 |
| 1986 | NG | | 1986 | 07 | 08.02917 | 19 | 28 | 52.85 | -14 | 47 24.8 | 010 |
| 1986 | NH | * | 1986 | 07 | 07.98750 | 19 | 29 | 37.73 | -17 | 33 13.0 | 010 |
| 1986 | NH | | 1986 | 07 | 08.02917 | 19 | 29 | 35.77 | -17 | 33 13.4 | 010 |
| 1986 | NJ | * | 1986 | 07 | 07.98750 | 19 | 31 | 24.67 | -13 | 27 06.1 | 010 |
| 1986 | NJ | | 1986 | 07 | 08.02917 | 19 | 31 | 22.02 | -13 | 27 06.4 | 010 |
| 1986 | NK | * | 1986 | 07 | 07.98750 | 19 | 37 | 07.26 | -17 | 18 22.5 | 010 |
| 1986 | NK | | 1986 | 07 | 08.02917 | 19 | 37 | 05.99 | -17 | 18 31.0 | 010 |
| 1986 | NL | * | 1986 | 07 | 07.98750 | 19 | 37 | 22.00 | -17 | 12 33.2 | 010 |
| 1986 | NL | | 1986 | 07 | 08.02917 | 19 | 37 | 20.54 | -17 | 12 42.9 | 010 |
| 1986 | NM | * | 1986 | 07 | 07.98750 | 19 | 39 | 38.94 | -12 | 57 16.4 | 010 |
| 1986 | NM | | 1986 | 07 | 08.02917 | 19 | 39 | 36.54 | -12 | 57 14.5 | 010 |
| 1986 | NN | * | 1986 | 07 | 07.98750 | 19 | 39 | 46.07 | -16 | 22 40.6 | 010 |
| 1986 | NN | | 1986 | 07 | 08.02917 | 19 | 39 | 44.25 | -16 | 22 53.0 | 010 |
| 1986 | NO | * | 1986 | 07 | 07.98750 | 19 | 40 | 31.66 | -16 | 45 33.4 | 010 |
| 1986 | NO | | 1986 | 07 | 08.02917 | 19 | 40 | 29.57 | -16 | 45 42.6 | 010 |
| 1986 | NP | * | 1986 | 07 | 07.98750 | 19 | 41 | 59.00 | -13 | 34 58.4 | 010 |
| 1986 | NP | | 1986 | 07 | 08.02917 | 19 | 41 | 56.85 | -13 | 34 45.4 | 010 |
| 1986 | NQ | * | 1986 | 07 | 07.98750 | 19 | 43 | 16.87 | -14 | 09 04.9 | 010 |
| 1986 | NQ | | 1986 | 07 | 08.02917 | 19 | 43 | 14.76 | -14 | 09 14.2 | 010 |
| 1986 | NR | * | 1986 | 07 | 07.98750 | 19 | 44 | 18.41 | -15 | 08 07.8 | 010 |
| 1986 | NR | | 1986 | 07 | 08.02917 | 19 | 44 | 16.24 | -15 | 08 10.6 | 010 |
| 1986 | NS | * | 1986 | 07 | 07.98750 | 19 | 47 | 11.39 | -16 | 23 19.9 | 010 |
| 1986 | NS | | 1986 | 07 | 08.02917 | 19 | 47 | 10.12 | -16 | 23 32.5 | 010 |
| 1986 | NT | * | 1986 | 07 | 10.93890 | 18 | 16 | 20.84 | -16 | 38 20.0 | 010 |
| 1986 | NT | | 1986 | 07 | 10.97360 | 18 | 16 | 19.25 | -16 | 38 21.9 | 010 |
| 1986 | NU | * | 1986 | 07 | 10.98330 | 19 | 43 | 39.01 | -18 | 15 56.3 | 010 |
| 1986 | NU | | 1986 | 07 | 11.06670 | 19 | 43 | 36.26 | -18 | 16 17.1 | 010 |

OBSERVATIONS MADE AT TAUTENBURG BY F. BORNGEN, HOGNER, L. KOHOUTEK, H. LOCHEL AND K. LOCHEL.

Plates taken with the 1.34-m (134/200/400 cm) Schmidt. Reductions by F. Borngen, using the SAO Catalog. Contact: S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|---|
| 450 | | 1962 | 09 26.02118 | 03 39 52.89 | +25 45 06.7 | | 033 |
| 450 | | 1962 | 09 26.03368 | 03 39 52.82 | +25 45 10.2 | 15.2 | 033 |
| 450 | | 1962 | 09 26.05521 | 03 39 52.78 | +25 45 16.2 | | 033 |
| 450 | | 1962 | 09 26.08576 | 03 39 52.72 | +25 45 24.5 | | 033 |
| 450 | | 1962 | 09 26.13507 | 03 39 52.45 | +25 45 39.1 | | 033 |
| 450 | | 1962 | 09 27.07382 | 03 39 49.13 | +25 50 03.3 | | 033 |
| 450 | | 1962 | 09 27.08368 | 03 39 49.07 | +25 50 06.2 | | 033 |
| 1790 | | 1962 | 09 25.06007 | 03 38 56.08 | +23 50 17.6 | | 033 |
| 1790 | | 1962 | 09 25.09583 | 03 38 56.50 | +23 50 24.3 | | 033 |
| 1790 | | 1962 | 09 26.02118 | 03 39 01.44 | +23 53 57.4 | | 033 |
| 1790 | | 1962 | 09 26.03368 | 03 39 01.47 | +23 54 00.3 | 16.7 | 033 |
| 1790 | | 1962 | 09 26.05521 | 03 39 01.53 | +23 54 05.4 | | 033 |
| 1790 | | 1962 | 09 26.08576 | 03 39 01.63 | +23 54 11.5 | | 033 |
| 1790 | | 1962 | 10 03.01562 | 03 38 43.91 | +24 18 10.4 | | 033 |
| 1964 EF | * | 1964 | 03 11.95208 | 12 05 52.31 | +10 25 41.9 | 16.6R | 033 |
| 1964 EF | | 1964 | 03 12.00417 | 12 05 49.65 | +10 26 01.6 | | 033 |
| 1964 EG | * | 1964 | 03 11.95208 | 12 07 29.13 | +10 26 50.5 | 16.3R | 033 |
| 1964 EG | | 1964 | 03 12.00417 | 12 07 25.95 | +10 26 52.8 | | 033 |
| 1964 EH | * | 1964 | 03 11.95208 | 12 09 04.03 | +11 27 43.6 | 17.9R | 033 |
| 1964 EH | | 1964 | 03 12.00417 | 12 09 01.29 | +11 28 08.1 | | 033 |
| 1964 EJ | * | 1964 | 03 11.95208 | 12 09 56.54 | +10 31 25.1 | 17.0R | 033 |
| 1964 EJ | | 1964 | 03 12.00417 | 12 09 54.97 | +10 31 31.3 | | 033 |
| 1964 EK | * | 1964 | 03 11.95208 | 12 10 48.00 | +10 04 47.6 | 17.2R | 033 |
| 1964 EK | | 1964 | 03 12.00417 | 12 10 45.56 | +10 04 49.2 | | 033 |
| 1964 EL | * | 1964 | 03 11.95208 | 12 10 55.70 | +10 53 22.2 | 17.1R | 033 |
| 1964 EL | | 1964 | 03 12.00417 | 12 10 53.48 | +10 53 34.1 | | 033 |
| 1964 EM | * | 1964 | 03 11.95208 | 12 11 06.19 | +10 08 31.5 | 17.1R | 033 |
| 1964 EM | | 1964 | 03 12.00417 | 12 11 04.16 | +10 08 47.4 | | 033 |
| 1964 EN | * | 1964 | 03 11.95208 | 12 11 35.36 | +09 20 00.7 | 16.2R | 033 |
| 1964 EN | | 1964 | 03 12.00417 | 12 11 33.38 | +09 20 20.2 | | 033 |
| 1964 EO | * | 1964 | 03 11.95208 | 12 12 40.48 | +09 54 39.5 | 15.7R | 033 |
| 1964 EO | | 1964 | 03 12.00417 | 12 12 37.77 | +09 54 59.3 | | 033 |
| 1964 EP | * | 1964 | 03 11.95208 | 12 14 02.31 | +09 09 33.2 | 16.0R | 033 |
| 1964 EP | | 1964 | 03 12.00417 | 12 13 59.83 | +09 09 54.6 | | 033 |
| 1964 EQ | * | 1964 | 03 11.95208 | 12 14 18.77 | +09 25 15.0 | 16.9R | 033 |
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| 1964 ER | * | 1964 | 03 11.95208 | 12 14 24.79 | +09 37 15.2 | 16.8R | 033 |
| 1964 ER | | 1964 | 03 12.00417 | 12 14 22.48 | +09 37 36.9 | | 033 |
| 1964 ES | * | 1964 | 03 11.95208 | 12 15 38.40 | +09 02 17.4 | 15.5R | 033 |
| 1964 ES | | 1964 | 03 12.00417 | 12 15 35.32 | +09 02 22.3 | | 033 |
| 1964 ET | * | 1964 | 03 11.95208 | 12 16 03.48 | +10 00 22.2 | 14.6R | 033 |
| 1964 ET | | 1964 | 03 12.00417 | 12 16 00.57 | +10 00 38.8 | | 033 |
| 1964 EU | * | 1964 | 03 11.95208 | 12 16 15.92 | +08 59 12.6 | 16.1R | 033 |
| 1964 EU | | 1964 | 03 12.00417 | 12 16 13.83 | +08 59 20.6 | | 033 |
| 1964 EV | * | 1964 | 03 11.95208 | 12 16 40.36 | +09 53 31.7 | 17.2R | 033 |
| 1964 EV | | 1964 | 03 12.00417 | 12 16 38.75 | +09 53 42.6 | | 033 |
| 1964 EW | * | 1964 | 03 11.95208 | 12 16 59.48 | +10 52 08.5 | 16.0R | 033 |
| 1964 EW | | 1964 | 03 12.00417 | 12 16 57.02 | +10 52 19.3 | | 033 |
| 1970 GR2 | * | 1970 | 04 02.91597 | 12 19 33.29 | +13 20 26.4 | 18.3 | 033 |
| 1970 GS2 | * | 1970 | 04 02.91597 | 12 23 14.07 | +12 14 46.6 | 18.9 | 033 |
| 1970 GT2 | * | 1970 | 04 02.91597 | 12 28 02.37 | +13 26 30.4 | 19.7 | 033 |
| 1976 SC11 | * | 1976 | 09 23.99306 | 01 49 20.98 | +28 20 23.6 | 16.5 | 033 |
| 1976 SC11 | | 1976 | 09 24.04167 | 01 49 19.47 | +28 20 44.4 | | 033 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1976 | SD11* | 1976 | 09 | 23.99306 | 01 | 56 | 39.45 | +28 | 50 | 13.0 | 17.0 033 |
| 1976 | SD11 | 1976 | 09 | 24.04167 | 01 | 56 | 37.59 | +28 | 50 | 28.9 | 033 |
| 1976 | SE11* | 1976 | 09 | 23.99306 | 01 | 57 | 10.32 | +26 | 55 | 13.9 | 16.5 033 |
| 1976 | SE11 | 1976 | 09 | 24.04167 | 01 | 57 | 09.53 | +26 | 55 | 12.8 | 033 |
| 1976 | SF11* | 1976 | 09 | 23.99306 | 01 | 59 | 00.50 | +28 | 34 | 55.7 | 18.0 033 |
| 1976 | SF11 | 1976 | 09 | 24.04167 | 01 | 58 | 59.12 | +28 | 35 | 11.0 | 033 |
| 1976 | SG11* | 1976 | 09 | 23.99306 | 02 | 00 | 07.47 | +29 | 02 | 09.9 | 17.5 033 |
| 1976 | SG11 | 1976 | 09 | 24.04167 | 02 | 00 | 06.15 | +29 | 02 | 07.1 | 033 |

OBSERVATIONS MADE AT KLET BY A. MRKOS, Z. VAVROVA AND M. TICHY.
Plates with the 0.6-m Maksutov reflector. Contact: A. Mrkos, Department of Astronomy and Astrophysics, Charles University, Svedska 8, C-15000 Prague 5, Czechoslovakia.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N Obs. |
|---|---|---|---|---|---|---|
| 51 | 1986 07 | 03.90278 | 18 05 25.58 | -06 33 08.5 | | 046 |
| 51 | 1986 07 | 03.91696 | 18 05 24.77 | -06 33 10.8 | | 046 |
| 80 | 1986 07 | 02.94583 | 18 16 54.92 | -09 18 40.0 | | 046 |
| 80 | 1986 07 | 02.95995 | 18 16 54.00 | -09 18 38.3 | | 046 |
| 80 | 1986 07 | 02.97934 | 18 16 52.58 | -09 18 35.8 | | 046 |
| 80 | 1986 07 | 02.99346 | 18 16 51.65 | -09 18 33.6 | | 046 |
| 234 | 1986 06 | 30.93617 | 17 53 45.36 | +00 03 23.3 | | 046 |
| 234 | 1986 06 | 30.95035 | 17 53 44.48 | +00 03 17.3 | | 046 |
| 266 | 1986 07 | 02.94583 | 18 09 21.92 | -10 13 47.1 | | 046 |
| 266 | 1986 07 | 02.95995 | 18 09 21.08 | -10 13 45.7 | | 046 |
| 490 | 1986 06 | 30.97083 | 18 03 55.50 | -10 03 30.0 | | 046 |
| 490 | 1986 06 | 30.98501 | 18 03 54.64 | -10 03 32.5 | | 046 |
| 633 | 1986 07 | 02.94583 | 18 11 30.37 | -10 11 36.6 | | 046 |
| 633 | 1986 07 | 02.95995 | 18 11 29.63 | -10 11 40.0 | | 046 |
| 683 | 1986 07 | 03.93750 | 20 18 44.12 | -02 31 19.7 | | 046 |
| 683 | 1986 07 | 03.95170 | 20 18 43.45 | -02 31 16.4 | | 046 |
| 764 | 1986 07 | 03.97170 | 20 29 29.71 | -09 35 46.2 | | 046 |
| 764 | 1986 07 | 03.98600 | 20 29 29.13 | -09 35 45.6 | | 046 |
| 920 | 1986 06 | 26.94472 | 17 49 21.17 | -06 07 19.5 | | 046 |
| 920 | 1986 06 | 26.95329 | 17 49 20.67 | -06 07 20.3 | | 046 |
| 920 | 1986 06 | 30.90295 | 17 45 57.32 | -06 08 03.9 | | 046 |
| 920 | 1986 06 | 30.91719 | 17 45 56.58 | -06 08 05.3 | | 046 |
| 1136 | 1986 07 | 03.93750 | 20 14 32.46 | -03 15 16.9 | | 046 |
| 1136 | 1986 07 | 03.95170 | 20 14 32.37 | -03 15 15.5 | | 046 |
| 1705 | 1986 07 | 02.97934 | 18 18 06.54 | -07 38 26.0 | | 046 |
| 1705 | 1986 07 | 02.99346 | 18 18 05.65 | -07 38 27.0 | | 046 |
| 1712 | 1986 06 | 26.94472 | 17 47 22.99 | -07 10 35.3 | | 046 |
| 1712 | 1986 06 | 26.95329 | 17 47 22.56 | -07 10 33.6 | | 046 |
| 1712 | 1986 06 | 30.90295 | 17 44 16.65 | -06 51 41.5 | | 046 |
| 1712 | 1986 06 | 30.91719 | 17 44 15.99 | -06 51 37.7 | | 046 |
| 1775 | 1986 06 | 30.93617 | 17 55 17.32 | -00 31 22.4 | | 046 |
| 1775 | 1986 06 | 30.95035 | 17 55 16.66 | -00 31 21.9 | | 046 |
| 2189 | 1986 06 | 26.94472 | 17 41 57.59 | -06 58 46.7 | | 046 |
| 2189 | 1986 06 | 26.95329 | 17 41 57.17 | -06 58 47.8 | | 046 |
| 2189 | 1986 06 | 30.90295 | 17 37 59.26 | -07 26 19.0 | | 046 |
| 2189 | 1986 06 | 30.91719 | 17 37 58.52 | -07 26 23.8 | | 046 |
| 2949 | 1986 07 | 02.91111 | 18 05 08.72 | -13 55 21.6 | | 046 |
| 2949 | 1986 07 | 02.92523 | 18 05 07.91 | -13 55 23.8 | | 046 |
| 3451 | 1986 06 | 25.92633 | 17 44 01.20 | +07 28 27.1 | | 046 |
| 3451 | 1986 06 | 25.93223 | 17 44 01.01 | +07 28 26.9 | | 046 |
| 3451 | 1986 06 | 26.88847 | 17 43 31.56 | +07 27 48.4 | | 046 |
| 3451 | 1986 06 | 26.89437 | 17 43 31.35 | +07 27 50.7 | | 046 |
| 3451 | 1986 06 | 27.89225 | 17 43 00.76 | +07 27 06.0 | | 046 |
| 3451 | 1986 06 | 27.89664 | 17 43 00.63 | +07 27 05.4 | | 046 |
| 3451 | 1986 07 | 02.89138 | 17 40 30.49 | +07 21 26.6 | | 046 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 3451 | | 1986 | 07 | 02.89572 | 17 40 30.33 | +07 | 21 | 25.2 | | | 046 |
| 3451 | | 1986 | 07 | 03.88333 | 17 40 01.54 | +07 | 19 | 57.4 | | | 046 |
| 3451 | | 1986 | 07 | 03.88767 | 17 40 01.39 | +07 | 19 | 56.9 | | | 046 |
| 1976 | GR6 | 1986 | 06 | 05.99229 | 16 56 40.70 | -14 | 03 | 49.3 | | | 046 |
| 1976 | GR6 | 1986 | 06 | 06.00641 | 16 56 39.67 | -14 | 03 | 50.3 | | | 046 |
| 1986 | LF1 * | 1986 | 06 | 05.99229 | 17 00 31.78 | -15 | 39 | 05.5 | | | 046 |
| 1986 | LF1 | 1986 | 06 | 06.00641 | 17 00 31.28 | -15 | 39 | 02.1 | | | 046 |
| 1986 | MA * | 1986 | 06 | 27.93773 | 17 47 17.40 | +01 | 12 | 34.7 | 16.6 | | 046 |
| 1986 | MA | 1986 | 06 | 27.94913 | 17 47 16.91 | +01 | 12 | 36.0 | | | 046 |
| 1986 | MB * | 1986 | 06 | 27.93773 | 17 49 07.65 | -01 | 50 | 10.4 | 16.8 | | 046 |
| 1986 | MB | 1986 | 06 | 27.94913 | 17 49 07.02 | -01 | 50 | 02.0 | | | 046 |
| 1986 | NW * | 1986 | 07 | 02.97934 | 18 14 13.38 | -07 | 45 | 26.8 | 16.8 | | 046 |
| 1986 | NW | 1986 | 07 | 02.99346 | 18 14 13.07 | -07 | 45 | 23.7 | | | 046 |
| 1986 | NX * | 1986 | 07 | 02.97934 | 18 15 49.57 | -08 | 59 | 21.2 | 16.5 | 1 | 046 |
| 1986 | NX | 1986 | 07 | 02.99346 | 18 15 48.87 | -08 | 59 | 23.2 | | 1 | 046 |
| 1986 | NY * | 1986 | 07 | 03.90278 | 18 07 29.77 | -06 | 21 | 18.6 | 16.7 | | 046 |
| 1986 | NY | 1986 | 07 | 03.91696 | 18 07 29.41 | -06 | 21 | 14.2 | | | 046 |
| 1986 | NZ * | 1986 | 07 | 03.97170 | 20 29 24.77 | -08 | 35 | 04.3 | 16.4 | | 046 |
| 1986 | NZ | 1986 | 07 | 03.98600 | 20 29 24.03 | -08 | 35 | 02.5 | | | 046 |

Note 1: image diffuse.

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

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 2842 | 1985 | 12 15.35069 | 04 25 19.13 | +37 15 34.8 | 293 |
| 2842 | 1985 | 12 15.36667 | 04 25 18.09 | +37 15 28.4 | 293 |
| 3425 | 1985 | 12 15.40625 | 07 19 34.15 | +25 07 41.4 | 293 |
| 3425 | 1985 | 12 15.42500 | 07 19 33.13 | +25 07 38.5 | 293 |
| 3431 | 1985 | 12 15.35069 | 04 26 44.17 | +37 00 35.9 | 293 |
| 3431 | 1985 | 12 15.36667 | 04 26 43.08 | +37 00 30.8 | 293 |

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

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 433 | 1982 | 04 23.49792 | 08 29 51.21 | -00 21 50.0 | 323 |
| 433 | 1982 | 05 13.46250 | 09 31 28.87 | -04 30 21.8 | 323 |
| 433 | 1982 | 05 31.45139 | 10 24 24.67 | -07 58 46.0 | 323 |
| 433 | 1983 | 11 01.83402 | 10 48 00.78 | +09 54 46.4 | 323 |
| 433 | 1984 | 04 09.81111 | 18 05 03.84 | -42 05 47.2 | 323 |
| 1980 TL15 | 1986 | 07 11.69653 | 19 46 06.94 | -16 35 40.0 | 323 |

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

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 256 | 1986 | 07 28.89167 | 20 42 07.77 | -01 30 46.4 | 15.0 | 552 |
| 256 | 1986 | 07 28.91319 | 20 42 06.80 | -01 30 52.2 | | 552 |
| 1986 OA * | 1986 | 07 28.89167 | 20 39 54.17 | -01 42 50.5 | 16.5 | 552 |
| 1986 OA | 1986 | 07 28.91319 | 20 39 52.84 | -01 42 48.8 | | 552 |
| 1986 OA | 1986 | 07 30.88194 | 20 37 59.75 | -01 42 00.9 | | 552 |
| 1986 OA | 1986 | 07 30.90347 | 20 37 58.42 | -01 42 01.1 | | 552 |
| 1986 OA | 1986 | 07 30.92500 | 20 37 57.03 | -01 41 59.6 | | 552 |

OBSERVATIONS MADE AT VICTORIA BY 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. |
|---|---|---|---|---|---|
| 3199 | 1986 08 | 14.43931 | 00 44 00.48 | -17 41 46.1 | 657 |
| 3199 | 1986 08 | 14.45250 | 00 43 59.13 | -17 41 03.5 | 657 |
| A919 SD | 1986 07 | 31.39174 | 23 27 01.90 | -01 20 49.6 | 657 |
| 1981 RV3 | 1986 08 | 06.31187 | 21 43 57.63 | -14 53 12.2 | 657 |
| 1981 RV3 | 1986 08 | 06.34729 | 21 43 56.14 | -14 53 24.6 | 657 |

OBSERVATIONS MADE AT OJAI.

Plates taken in the course of the Summer Science Program at Thacher School. Contact: D. A. Pierce, 7706 Westlawn Avenue, Los Angeles, CA 90045, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 3 | 1986 06 | 28.23438 | 16 15 58.71 | -03 23 37.4 | 669 |
| 3 | 1986 06 | 29.28472 | 16 15 20.47 | -03 24 59.8 | 669 |
| 3 | 1986 07 | 09.21007 | 16 10 16.93 | -03 44 37.2 | 669 |
| 3 | 1986 07 | 21.25590 | 16 06 42.66 | -04 22 46.5 | 669 |
| 32 | 1986 06 | 28.42292 | 18 58 27.35 | -14 44 22.8 | 669 |
| 32 | 1986 07 | 12.33333 | 18 45 26.36 | -14 48 05.4 | 669 |
| 32 | 1986 07 | 16.35139 | 18 41 53.08 | -14 51 33.7 | 669 |
| 32 | 1986 07 | 17.32569 | 18 41 03.45 | -14 52 33.7 | 669 |
| 32 | 1986 07 | 24.29028 | 18 35 33.26 | -15 00 51.7 | 669 |
| 39 | 1986 06 | 26.29375 | 15 53 13.94 | -05 02 14.5 | 669 |
| 39 | 1986 07 | 03.21042 | 15 50 09.98 | -05 18 25.8 | 669 |
| 39 | 1986 07 | 14.20313 | 15 47 30.67 | -05 56 29.2 | 669 |
| 39 | 1986 07 | 18.19792 | 15 47 14.23 | -06 13 27.3 | 669 |
| 39 | 1986 07 | 20.25139 | 15 47 14.46 | -06 22 47.2 | 669 |
| 51 | 1986 06 | 26.41944 | 18 12 30.24 | -06 18 23.4 | 669 |
| 51 | 1986 07 | 13.26806 | 17 57 27.25 | -07 04 43.5 | 669 |
| 51 | 1986 07 | 14.34861 | 17 56 37.95 | -07 09 11.3 | 669 |
| 51 | 1986 07 | 19.28472 | 17 53 12.77 | -07 31 32.4 | 669 |
| 92 | 1986 06 | 26.21111 | 14 57 00.61 | -07 33 38.2 | 669 |
| 92 | 1986 07 | 04.23628 | 14 55 35.45 | -07 59 13.6 | 669 |
| 92 | 1986 07 | 07.21111 | 14 55 23.62 | -08 10 16.2 | 669 |
| 92 | 1986 07 | 16.20625 | 14 55 53.39 | -08 47 49.2 | 669 |
| 92 | 1986 07 | 21.21458 | 14 56 50.96 | -09 11 15.7 | 669 |
| 92 | 1986 07 | 26.21597 | 14 58 16.64 | -09 36 13.2 | 669 |
| 287 | 1986 06 | 28.35625 | 17 28 58.31 | -08 57 21.5 | 669 |
| 287 | 1986 07 | 08.27222 | 17 20 46.14 | -09 44 54.8 | 669 |
| 287 | 1986 07 | 12.27569 | 17 18 03.33 | -10 07 30.0 | 669 |
| 287 | 1986 07 | 14.29236 | 17 16 51.12 | -10 19 34.4 | 669 |
| 287 | 1986 07 | 19.21668 | 17 14 22.59 | -10 50 17.2 | 669 |

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR BY C. T. KOWAL.

Plates scanned by S. J. Bus, E. L. G. Bowell and B. A. Skiff, measured by Bus and Bowell. Contact: S. J. Bus, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 1300 | 1977 06 | 12.32396 | 17 22 59.23 | -22 45 10.4 | | 675 |
| 1300 | 1977 06 | 13.35104 | 17 21 59.70 | -22 47 39.2 | | 675 |
| 1507 | 1978 07 | 09.41528 | 21 19 05.08 | -12 38 14.2 | | 675 |
| 1507 | 1978 07 | 09.45694 | 21 19 03.88 | -12 37 54.3 | | 675 |
| 1661 | 1979 12 | 20.36250 | 06 51 33.67 | +21 36 46.1 | | 675 |
| 1661 | 1979 12 | 20.41458 | 06 51 30.23 | +21 36 46.9 | | 675 |
| 1740 | 1977 06 | 12.32396 | 17 13 59.48 | -24 57 55.8 | | 675 |
| 1740 | 1977 06 | 13.35104 | 17 12 53.32 | -24 56 05.0 | | 675 |
| 1808 | 1977 06 | 12.24097 | 16 50 10.91 | -25 09 35.1 | | 675 |
| 1808 | 1977 06 | 13.29410 | 16 49 12.20 | -25 08 05.9 | | 675 |
| 1824 | 1977 06 | 12.26702 | 16 43 55.03 | -24 51 39.2 | | 675 |
| 1824 | 1977 06 | 13.29410 | 16 43 00.38 | -24 50 09.7 | | 675 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2119 | | | 1977 | 06 | 13.40926 | 17 | 40 | 48.31 | -23 | 59 | 21.7 | 675 |
| 2119 | | | 1977 | 06 | 14.37170 | 17 | 39 | 50.67 | -23 | 55 | 41.8 | 675 |
| 2165 | | | 1978 | 07 | 09.41528 | 21 | 26 | 41.78 | -16 | 25 | 50.9 | 675 |
| 2165 | | | 1978 | 07 | 09.45694 | 21 | 26 | 40.70 | -16 | 25 | 56.2 | 675 |
| 2377 | | | 1977 | 06 | 12.32396 | 17 | 19 | 23.19 | -23 | 10 | 47.6 | 675 |
| 2377 | | | 1977 | 06 | 13.35104 | 17 | 18 | 27.56 | -23 | 09 | 35.5 | 675 |
| 2484 | | | 1978 | 07 | 09.41528 | 21 | 27 | 11.56 | -12 | 33 | 37.7 | 675 |
| 2484 | | | 1978 | 07 | 09.45694 | 21 | 27 | 11.05 | -12 | 33 | 36.8 | 675 |
| 2568 | | | 1977 | 06 | 13.40926 | 17 | 38 | 19.95 | -22 | 04 | 09.3 | 675 |
| 2568 | | | 1977 | 06 | 14.37170 | 17 | 37 | 22.00 | -22 | 11 | 45.2 | 675 |
| 2818 | | | 1979 | 12 | 20.36250 | 06 | 28 | 59.33 | +26 | 05 | 33.1 | 675 |
| 2818 | | | 1979 | 12 | 20.41458 | 06 | 28 | 55.99 | +26 | 05 | 41.7 | 675 |
| 3010 | | | 1977 | 06 | 13.40926 | 17 | 52 | 05.78 | -21 | 15 | 55.2 | 675 |
| 3010 | | | 1977 | 06 | 14.37170 | 17 | 51 | 18.88 | -21 | 16 | 15.5 | 675 |
| 3091 | | | 1979 | 12 | 20.36250 | 06 | 42 | 09.69 | +20 | 45 | 44.9 | 675 |
| 3091 | | | 1979 | 12 | 20.41458 | 06 | 42 | 06.58 | +20 | 45 | 47.0 | 675 |
| 3137 | | | 1978 | 07 | 09.41528 | 21 | 06 | 48.99 | -15 | 20 | 34.7 | 675 |
| 3137 | | | 1978 | 07 | 09.45694 | 21 | 06 | 47.42 | -15 | 20 | 37.8 | 675 |
| 3178 | | | 1977 | 06 | 12.26702 | 16 | 44 | 30.26 | -19 | 59 | 25.3 | 675 |
| 3178 | | | 1977 | 06 | 13.29410 | 16 | 43 | 32.96 | -19 | 56 | 14.8 | 675 |
| 3240 | | | 1979 | 12 | 20.36250 | 06 | 47 | 02.59 | +23 | 49 | 43.5 | 675 |
| 3240 | | | 1979 | 12 | 20.41458 | 06 | 47 | 00.91 | +23 | 49 | 47.2 | 675 |
| 1975 | BF | | 1978 | 07 | 09.41528 | 21 | 06 | 32.48 | -15 | 19 | 01.5 | 675 |
| 1975 | BF | | 1978 | 07 | 09.45694 | 21 | 06 | 31.25 | -15 | 19 | 06.8 | 675 |
| 1975 | VG9 | | 1978 | 07 | 09.41528 | 21 | 14 | 53.05 | -17 | 36 | 39.0 | 675 |
| 1975 | VG9 | | 1978 | 07 | 09.45694 | 21 | 14 | 51.41 | -17 | 36 | 38.5 | 675 |
| 1977 | CF1 | * | 1977 | 02 | 13.42639 | 10 | 09 | 06.09 | +08 | 52 | 42.2 | 17.8 675 |
| 1977 | CF1 | | 1977 | 02 | 13.47847 | 10 | 09 | 03.23 | +08 | 54 | 01.7 | 675 |
| 1977 | FB | | 1977 | 02 | 13.42639 | 10 | 08 | 41.55 | +11 | 16 | 35.4 | 675 |
| 1977 | FB | | 1977 | 02 | 13.47847 | 10 | 08 | 39.12 | +11 | 16 | 53.9 | 675 |
| 1977 | LP | * | 1977 | 06 | 12.26702 | 16 | 41 | 31.55 | -21 | 53 | 28.6 | 17.0 675 |
| 1977 | LP | | 1977 | 06 | 13.29410 | 16 | 40 | 29.93 | -21 | 55 | 53.3 | 675 |
| 1977 | LQ | * | 1977 | 06 | 12.26702 | 16 | 42 | 38.27 | -20 | 58 | 05.9 | 18.2 675 |
| 1977 | LQ | | 1977 | 06 | 13.29410 | 16 | 41 | 46.49 | -20 | 57 | 14.3 | 675 |
| 1977 | LR | * | 1977 | 06 | 12.26702 | 16 | 44 | 58.49 | -19 | 55 | 05.7 | 17.5 675 |
| 1977 | LR | | 1977 | 06 | 13.29410 | 16 | 44 | 02.55 | -19 | 58 | 19.6 | 675 |
| 1977 | LS | * | 1977 | 06 | 12.26702 | 16 | 49 | 09.58 | -19 | 36 | 03.1 | 16.8 675 |
| 1977 | LS | | 1977 | 06 | 13.29410 | 16 | 48 | 14.22 | -19 | 38 | 34.3 | 675 |
| 1977 | LT | * | 1977 | 06 | 12.26702 | 16 | 49 | 35.59 | -20 | 19 | 34.6 | 18.2 675 |
| 1977 | LT | | 1977 | 06 | 13.29410 | 16 | 48 | 31.27 | -20 | 23 | 01.7 | 675 |
| 1977 | LU | * | 1977 | 06 | 12.26702 | 16 | 50 | 01.84 | -19 | 54 | 15.4 | 19.0 675 |
| 1977 | LU | | 1977 | 06 | 13.29410 | 16 | 49 | 11.24 | -19 | 53 | 04.1 | 675 |
| 1977 | LV | * | 1977 | 06 | 12.26702 | 16 | 50 | 41.85 | -22 | 03 | 21.3 | 17.0 675 |
| 1977 | LV | | 1977 | 06 | 13.29410 | 16 | 49 | 41.45 | -21 | 54 | 53.7 | 675 |
| 1977 | LW | * | 1977 | 06 | 12.26702 | 16 | 52 | 33.61 | -20 | 05 | 27.8 | 17.8 675 |
| 1977 | LW | | 1977 | 06 | 13.29410 | 16 | 51 | 44.43 | -19 | 50 | 31.1 | 675 |
| 1977 | LX | * | 1977 | 06 | 12.26702 | 16 | 53 | 04.11 | -19 | 59 | 37.8 | 17.8 675 |
| 1977 | LX | | 1977 | 06 | 13.29410 | 16 | 52 | 14.12 | -19 | 58 | 27.4 | 675 |
| 1977 | LY | * | 1977 | 06 | 12.32396 | 17 | 15 | 11.34 | -21 | 51 | 17.9 | 17.5 675 |
| 1977 | LY | | 1977 | 06 | 13.35104 | 17 | 14 | 11.26 | -21 | 47 | 32.7 | 675 |
| 1977 | LZ | * | 1977 | 06 | 12.32396 | 17 | 17 | 38.58 | -23 | 52 | 28.0 | 17.5 675 |
| 1977 | LZ | | 1977 | 06 | 13.35104 | 17 | 16 | 45.63 | -23 | 52 | 34.9 | 675 |
| 1977 | LA1 | * | 1977 | 06 | 12.32396 | 17 | 20 | 14.99 | -21 | 37 | 06.5 | 17.5 675 |
| 1977 | LA1 | | 1977 | 06 | 13.35104 | 17 | 19 | 12.27 | -21 | 33 | 01.1 | 675 |
| 1977 | LB1 | * | 1977 | 06 | 12.32396 | 17 | 25 | 11.06 | -24 | 10 | 40.4 | 17.0 675 |
| 1977 | LB1 | | 1977 | 06 | 13.35104 | 17 | 24 | 17.66 | -24 | 13 | 23.2 | 675 |
| 1977 | LC1 | * | 1977 | 06 | 12.32396 | 17 | 25 | 49.28 | -24 | 10 | 47.0 | 17.0 675 |
| 1977 | LC1 | | 1977 | 06 | 13.35104 | 17 | 24 | 51.17 | -24 | 06 | 14.1 | 675 |
| 1977 | LD1 | * | 1977 | 06 | 12.32396 | 17 | 26 | 55.69 | -22 | 24 | 39.1 | 17.8 675 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | LD1 | | 1977 | 06 | 13.35104 | 17 | 26 | 03.15 | -22 | 23 | 49.2 | | 675 |
| 1977 | LE1 | * | 1977 | 06 | 12.32396 | 17 | 29 | 46.27 | -24 | 11 | 09.7 | 17.8 | 675 |
| 1977 | LE1 | | 1977 | 06 | 13.35104 | 17 | 28 | 52.70 | -24 | 11 | 02.2 | | 675 |
| 1977 | LE1 | | 1977 | 06 | 13.40926 | 17 | 28 | 49.67 | -24 | 11 | 03.1 | 17.5 | 675 |
| 1977 | LE1 | | 1977 | 06 | 14.37170 | 17 | 27 | 59.47 | -24 | 10 | 55.2 | | 675 |
| 1977 | LF1 | * | 1977 | 06 | 12.32396 | 17 | 31 | 14.98 | -23 | 55 | 57.5 | 17.8 | 675 |
| 1977 | LF1 | | 1977 | 06 | 13.35104 | 17 | 30 | 13.51 | -24 | 01 | 25.2 | | 675 |
| 1977 | LG1 | * | 1977 | 06 | 12.32396 | 17 | 31 | 47.92 | -25 | 56 | 12.1 | 18.2 | 675 |
| 1977 | LG1 | | 1977 | 06 | 13.35104 | 17 | 30 | 46.28 | -25 | 55 | 34.6 | | 675 |
| 1977 | LG1 | | 1977 | 06 | 13.40926 | 17 | 30 | 42.81 | -25 | 55 | 36.9 | 18.2 | 675 |
| 1977 | LG1 | | 1977 | 06 | 14.37170 | 17 | 29 | 44.81 | -25 | 54 | 57.2 | | 675 |
| 1977 | LH1 | * | 1977 | 06 | 13.32500 | 17 | 31 | 21.37 | -20 | 23 | 16.5 | 19.0 | 675 |
| 1977 | LH1 | | 1977 | 06 | 13.37708 | 17 | 31 | 18.37 | -20 | 23 | 16.7 | | 675 |
| 1977 | LH1 | | 1977 | 06 | 13.40926 | 17 | 31 | 17.27 | -20 | 23 | 17.2 | 18.5 | 675 |
| 1977 | LH1 | | 1977 | 06 | 14.37170 | 17 | 30 | 25.82 | -20 | 23 | 20.2 | | 675 |
| 1977 | LJ1 | * | 1977 | 06 | 13.40926 | 17 | 30 | 10.00 | -24 | 01 | 41.8 | 17.5 | 675 |
| 1977 | LJ1 | | 1977 | 06 | 14.37170 | 17 | 29 | 12.45 | -24 | 06 | 47.5 | | 675 |
| 1977 | LK1 | * | 1977 | 06 | 13.40926 | 17 | 32 | 40.67 | -24 | 47 | 23.6 | 17.0 | 675 |
| 1977 | LK1 | | 1977 | 06 | 14.37170 | 17 | 31 | 45.19 | -24 | 47 | 11.1 | | 675 |
| 1977 | LL1 | * | 1977 | 06 | 13.40926 | 17 | 32 | 53.90 | -25 | 17 | 40.6 | 18.2 | 675 |
| 1977 | LL1 | | 1977 | 06 | 14.37170 | 17 | 32 | 03.86 | -25 | 14 | 49.3 | | 675 |
| 1977 | LM1 | * | 1977 | 06 | 13.40926 | 17 | 34 | 00.87 | -26 | 21 | 57.3 | 16.5 | 675 |
| 1977 | LM1 | | 1977 | 06 | 14.37170 | 17 | 33 | 08.88 | -26 | 16 | 56.8 | | 675 |
| 1977 | LN1 | * | 1977 | 06 | 13.40926 | 17 | 36 | 39.27 | -25 | 21 | 16.4 | 18.8 | 675 |
| 1977 | LN1 | | 1977 | 06 | 14.37170 | 17 | 35 | 34.35 | -25 | 23 | 03.0 | | 675 |
| 1977 | LO1 | * | 1977 | 06 | 13.40926 | 17 | 42 | 55.67 | -24 | 27 | 44.9 | 17.2 | 675 |
| 1977 | LO1 | | 1977 | 06 | 14.37170 | 17 | 42 | 05.87 | -24 | 28 | 08.3 | | 675 |
| 1977 | LP1 | * | 1977 | 06 | 13.40926 | 17 | 43 | 42.45 | -24 | 55 | 39.4 | 16.5 | 675 |
| 1977 | LP1 | | 1977 | 06 | 14.37170 | 17 | 42 | 52.56 | -24 | 55 | 32.0 | | 675 |
| 1977 | LQ1 | * | 1977 | 06 | 13.40926 | 17 | 46 | 57.05 | -25 | 05 | 31.9 | 17.0 | 675 |
| 1977 | LQ1 | | 1977 | 06 | 14.37170 | 17 | 46 | 07.51 | -25 | 06 | 06.4 | | 675 |
| 1977 | LR1 | * | 1977 | 06 | 13.40926 | 17 | 48 | 03.78 | -26 | 12 | 52.5 | 17.8 | 675 |
| 1977 | LR1 | | 1977 | 06 | 14.37170 | 17 | 47 | 06.21 | -26 | 11 | 13.2 | | 675 |
| 1977 | LS1 | * | 1977 | 06 | 13.40926 | 17 | 53 | 57.93 | -26 | 19 | 30.0 | 18.8 | 675 |
| 1977 | LS1 | | 1977 | 06 | 14.37170 | 17 | 53 | 04.54 | -26 | 19 | 51.7 | | 675 |
| 1977 | LT1 | * | 1977 | 06 | 13.40926 | 17 | 54 | 02.05 | -23 | 44 | 54.0 | 17.5 | 675 |
| 1977 | LT1 | | 1977 | 06 | 14.37170 | 17 | 53 | 13.83 | -23 | 45 | 27.6 | | 675 |
| 1978 | NV7 | * | 1978 | 07 | 09.41528 | 21 | 16 | 02.43 | -16 | 25 | 36.2 | 17.8 | 675 |
| 1978 | NV7 | | 1978 | 07 | 09.45694 | 21 | 16 | 01.35 | -16 | 25 | 55.3 | | 675 |
| 1978 | NW7 | * | 1978 | 07 | 09.41528 | 21 | 26 | 49.17 | -14 | 22 | 46.4 | 17.5 | 675 |
| 1978 | NW7 | | 1978 | 07 | 09.45694 | 21 | 26 | 48.27 | -14 | 22 | 46.7 | | 675 |
| 1978 | QC | | 1977 | 06 | 12.29306 | 16 | 57 | 15.05 | -20 | 41 | 38.8 | | 675 |
| 1978 | QC | | 1977 | 06 | 13.29410 | 16 | 56 | 24.21 | -20 | 40 | 15.5 | | 675 |
| 1978 | QX | | 1979 | 12 | 20.36250 | 06 | 49 | 51.33 | +23 | 46 | 48.6 | | 675 |
| 1978 | QX | | 1979 | 12 | 20.41458 | 06 | 49 | 47.78 | +23 | 46 | 53.4 | | 675 |
| 1978 | TM6 | | 1977 | 06 | 12.26702 | 17 | 07 | 17.23 | -24 | 36 | 25.2 | | 675 |
| 1978 | TM6 | | 1977 | 06 | 12.29792 | 17 | 07 | 15.27 | -24 | 36 | 17.1 | | 675 |
| 1978 | TM6 | | 1977 | 06 | 13.29410 | 17 | 06 | 14.10 | -24 | 33 | 31.1 | | 675 |
| 1978 | TM6 | | 1977 | 06 | 13.32500 | 17 | 06 | 12.03 | -24 | 33 | 24.3 | | 675 |
| 1979 | SJ11 | | 1978 | 07 | 09.41528 | 21 | 04 | 04.03 | -13 | 19 | 12.9 | | 675 |
| 1979 | SJ11 | | 1978 | 07 | 09.45694 | 21 | 04 | 02.61 | -13 | 19 | 15.1 | | 675 |
| 1979 | YA10 | * | 1979 | 12 | 20.36250 | 06 | 37 | 51.95 | +23 | 34 | 19.5 | 19.0 | 675 |
| 1979 | YA10 | | 1979 | 12 | 20.41458 | 06 | 37 | 49.35 | +23 | 34 | 23.3 | | 675 |
| 1981 | EW3 | | 1979 | 12 | 20.36250 | 06 | 35 | 04.46 | +23 | 40 | 33.0 | | 675 |
| 1981 | EW3 | | 1979 | 12 | 20.41458 | 06 | 35 | 01.22 | +23 | 40 | 30.2 | | 675 |
| 1981 | EB11 | | 1978 | 07 | 09.41528 | 21 | 16 | 11.23 | -13 | 32 | 34.7 | | 675 |
| 1981 | EB11 | | 1978 | 07 | 09.45694 | 21 | 16 | 10.16 | -13 | 32 | 32.1 | | 675 |
| 1981 | EB11 | | 1979 | 12 | 20.36250 | 06 | 42 | 51.67 | +23 | 07 | 34.1 | | 675 |
| 1981 | EB11 | | 1979 | 12 | 20.41458 | 06 | 42 | 48.26 | +23 | 07 | 35.2 | | 675 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1981 EQ18 | 1979 12 20.36250 | 06 28 46.00 | +20 57 21.5 | | | 675 |
| 1981 EQ18 | 1979 12 20.41458 | 06 28 43.42 | +20 57 24.8 | | | 675 |
| 1981 ET19 | 1978 07 09.41528 | 21 15 52.60 | -15 09 18.8 | | | 675 |
| 1981 ET19 | 1978 07 09.45694 | 21 15 51.31 | -15 09 26.4 | | | 675 |
| 1981 EY19 | 1977 06 12.26702 | 16 59 13.28 | -22 46 47.1 | | | 675 |
| 1981 EY19 | 1977 06 13.29410 | 16 58 18.49 | -22 45 04.1 | | | 675 |
| 1981 EY20 | 1977 06 12.26945 | 17 06 29.81 | -24 28 52.5 | | | 675 |
| 1981 EY20 | 1977 06 12.35000 | 17 06 25.48 | -24 28 45.8 | | | 675 |
| 1981 EY20 | 1977 06 13.29410 | 17 05 33.92 | -24 27 31.0 | | | 675 |
| 1981 EY20 | 1977 06 13.35104 | 17 05 30.81 | -24 27 24.1 | | | 675 |
| 1981 EO21 | 1977 02 13.42639 | 09 59 57.34 | +11 44 20.7 | | | 675 |
| 1981 EO21 | 1977 02 13.47847 | 09 59 54.10 | +11 44 37.7 | | | 675 |
| 1981 ER22 | 1977 02 13.42639 | 10 20 09.44 | +10 48 55.8 | | | 675 |
| 1981 ER22 | 1977 02 13.47847 | 10 20 06.33 | +10 49 13.2 | | | 675 |
| 1981 EL24 | 1977 06 12.26702 | 16 55 20.14 | -24 04 04.8 | | | 675 |
| 1981 EL24 | 1977 06 13.29410 | 16 54 25.44 | -24 02 22.8 | | | 675 |
| 1981 EV26 | 1977 06 13.40926 | 17 52 27.50 | -24 02 42.2 | | | 675 |
| 1981 EV26 | 1977 06 14.37170 | 17 51 36.05 | -24 02 17.0 | | | 675 |
| 1981 EG27 | 1979 12 20.36250 | 06 26 37.83 | +25 30 35.5 | | | 675 |
| 1981 EG27 | 1979 12 20.41458 | 06 26 34.64 | +25 30 34.9 | | | 675 |
| 1981 ET27 | 1979 12 20.36250 | 06 29 05.98 | +20 08 56.6 | | | 675 |
| 1981 ET27 | 1979 12 20.41458 | 06 29 03.31 | +20 08 59.2 | | | 675 |
| 1981 EC29 | 1979 12 20.36250 | 06 35 11.95 | +23 29 08.1 | | | 675 |
| 1981 EC29 | 1979 12 20.41458 | 06 35 08.87 | +23 29 07.9 | | | 675 |
| 1981 EZ33 | 1979 12 20.36250 | 06 34 02.71 | +21 58 18.4 | | | 675 |
| 1981 EZ33 | 1979 12 20.41458 | 06 34 00.06 | +21 58 17.6 | | | 675 |
| 1981 EH34 | 1977 06 12.26702 | 16 58 37.19 | -25 22 22.7 | | | 675 |
| 1981 EH34 | 1977 06 13.29410 | 16 57 41.21 | -25 20 59.7 | | | 675 |
| 1981 EB36 | 1977 02 13.42639 | 10 13 32.03 | +13 30 32.2 | | | 675 |
| 1981 EB36 | 1977 02 13.47847 | 10 13 28.84 | +13 30 45.5 | | | 675 |
| 1981 EE38 | 1978 07 09.41528 | 21 22 24.07 | -15 47 08.5 | | | 675 |
| 1981 EE38 | 1978 07 09.45694 | 21 22 22.68 | -15 47 12.9 | | | 675 |
| 1981 EF42 | 1977 06 12.32396 | 17 30 09.35 | -25 13 08.0 | | | 675 |
| 1981 EF42 | 1977 06 13.35104 | 17 29 11.62 | -25 13 11.3 | | | 675 |
| 1981 EF42 | 1977 06 13.40926 | 17 29 08.40 | -25 13 14.7 | | | 675 |
| 1981 EF42 | 1977 06 14.37170 | 17 28 14.26 | -25 13 14.5 | | | 675 |
| 1981 ET42 | 1977 02 13.42639 | 10 11 35.37 | +11 23 59.6 | | | 675 |
| 1981 ET42 | 1977 02 13.47847 | 10 11 32.37 | +11 24 14.0 | | | 675 |
| 1981 ET42 | 1979 12 20.36250 | 06 29 29.52 | +25 40 05.0 | | | 675 |
| 1981 ET42 | 1979 12 20.41458 | 06 29 26.18 | +25 40 06.4 | | | 675 |
| 1981 ER43 | 1979 12 20.36250 | 06 38 53.94 | +23 16 18.4 | | | 675 |
| 1981 ER43 | 1979 12 20.41458 | 06 38 51.06 | +23 16 20.8 | | | 675 |
| 1981 SU2 | 1977 06 12.32396 | 17 26 11.38 | -26 01 54.0 | | | 675 |
| 1981 SU2 | 1977 06 13.35104 | 17 25 01.03 | -26 00 27.4 | | | 675 |
| 1983 WP | 1977 06 13.40926 | 17 46 27.94 | -25 08 31.0 | | | 675 |
| 1983 WP | 1977 06 14.37170 | 17 45 27.65 | -25 12 44.1 | | | 675 |
| 6624 P-L | 1977 06 12.32396 | 17 28 23.93 | -25 21 30.6 | | | 675 |
| 6624 P-L | 1977 06 13.35104 | 17 27 15.27 | -25 22 01.3 | | | 675 |

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.

Plates taken by C. Wilson, E. Helin and G. Carlson (assisted by R. Day and J. Mueller) in the course of Palomar Sky Survey II. Measured by S. Gerhart, K. Sangster and M. Rudnyk. 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. |
|---|---|---|---|---|---|
| 798 | 1986 08 04.35763 | 21 50 38.55 | +00 41 25.1 | 13.5 | 675 |
| 798 | 1986 08 04.39930 | 21 50 36.91 | +00 41 17.7 | | 675 |
| 798 | 1986 08 05.39444 | 21 49 56.35 | +00 38 12.8 | | 675 |
| 798 | 1986 08 05.41527 | 21 49 55.37 | +00 38 07.8 | | 675 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 RD | | 1986 08 01.27986 | 19 | 25 | 19.38 | +08 | 38 | 25.2 | | | | 675 |
| 1983 RD | | 1986 08 01.32153 | 19 | 25 | 17.47 | +08 | 38 | 20.2 | | 16 | | 675 |
| 1986 NA | * | 1986 07 08.33194 | 18 | 34 | 34.89 | +20 | 50 | 12.9 | | 18.5 | 1 | 675 |
| 1986 NA | | 1986 07 09.26944 | 18 | 36 | 45.95 | +21 | 17 | 54.5 | | | | 675 |
| 1986 NA | | 1986 07 09.31111 | 18 | 36 | 51.11 | +21 | 19 | 10.3 | | | | 675 |
| 1986 NA | | 1986 07 12.24305 | 18 | 43 | 33.13 | +22 | 35 | 04.4 | | | | 675 |
| 1986 NA | | 1986 07 12.28472 | 18 | 43 | 37.95 | +22 | 36 | 00.7 | | | | 675 |
| 1986 NB | * | 1986 07 09.26944 | 18 | 18 | 26.27 | +21 | 12 | 03.8 | | 17.2 | 1 | 675 |
| 1986 NB | | 1986 07 09.31111 | 18 | 18 | 23.87 | +21 | 11 | 52.2 | | | | 675 |
| 1986 NC | * | 1986 07 09.26944 | 18 | 23 | 14.58 | +18 | 09 | 50.0 | | 18.0 | 1 | 675 |
| 1986 NC | | 1986 07 09.31111 | 18 | 23 | 11.59 | +18 | 09 | 41.4 | | | | 675 |
| 1986 ND | * | 1986 07 09.26944 | 18 | 23 | 43.91 | +17 | 12 | 49.6 | | 17.8 | 2 | 675 |
| 1986 ND | | 1986 07 09.31111 | 18 | 23 | 39.51 | +17 | 14 | 08.3 | | | | 675 |
| 1986 PA | * | 1986 08 02.27500 | 20 | 00 | 56.85 | +01 | 36 | 43.1 | | 18.2 | 3 | 675 |
| 1986 PA | | 1986 08 02.31667 | 20 | 00 | 47.50 | +01 | 35 | 44.6 | | | | 675 |
| 1986 PA | | 1986 08 04.19444 | 19 | 54 | 19.52 | +00 | 53 | 47.4 | | | | 675 |
| 1986 PA | | 1986 08 04.23611 | 19 | 54 | 10.24 | +00 | 52 | 47.1 | | | | 675 |
| 1986 PA | | 1986 08 05.20902 | 19 | 50 | 45.97 | +00 | 29 | 44.7 | | | | 675 |
| 1986 PA | | 1986 08 05.25069 | 19 | 50 | 36.54 | +00 | 28 | 43.0 | | | | 675 |
| 1986 PA | | 1986 08 09.18125 | 19 | 36 | 29.42 | -01 | 14 | 00.9 | | | | 675 |
| 1986 PA | | 1986 08 09.22291 | 19 | 36 | 19.85 | -01 | 15 | 08.6 | | | | 675 |
| 1986 PB | * | 1986 08 04.35763 | 21 | 49 | 37.28 | +00 | 12 | 37.0 | | 17.2 | 3 | 675 |
| 1986 PB | | 1986 08 04.39930 | 21 | 49 | 35.37 | +00 | 11 | 32.2 | | | | 675 |
| 1986 PB | | 1986 08 05.39444 | 21 | 48 | 51.74 | -00 | 14 | 31.1 | | | | 675 |
| 1986 PB | | 1986 08 05.41527 | 21 | 48 | 50.46 | -00 | 15 | 07.5 | | | | 675 |
| 1986 PC | * | 1986 08 01.27986 | 19 | 13 | 54.20 | +11 | 12 | 09.8 | | 17.2 | 3 | 675 |
| 1986 PC | | 1986 08 01.32153 | 19 | 13 | 52.30 | +11 | 12 | 01.0 | | | | 675 |
| 1986 PD | * | 1986 08 01.27986 | 19 | 21 | 34.49 | +11 | 25 | 05.2 | | 17.5 | 3 | 675 |
| 1986 PD | | 1986 08 01.32153 | 19 | 21 | 32.99 | +11 | 24 | 02.5 | | | | 675 |

Note 1: discoverer A. Maury. 2: discoverer M. Rudnyk. 3: discoverer E. Helin.

OBSERVATIONS MADE WITH THE 0.46-m SCHMIDT AT PALOMAR.

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

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 937 | 1986 04 | 08.33229 | 12 39 56.93 | -09 28 22.5 | 16.0 | 675 |
| 937 | 1986 04 | 08.36019 | 12 39 55.07 | -09 28 10.1 | | 675 |
| 937 | 1986 04 | 09.35736 | 12 38 55.14 | -09 20 35.0 | | 675 |
| 3470 | 1986 04 | 08.33229 | 12 24 37.66 | -06 29 23.3 | 16.2 | 675 |
| 3470 | 1986 04 | 08.36019 | 12 24 36.31 | -06 29 13.6 | | 675 |
| 3470 | 1986 04 | 09.35736 | 12 23 48.94 | -06 22 14.3 | | 675 |
| 1985 QC2 | 1985 08 | 20.40000 | 21 35 35.19 | -03 38 02.5 | 16.5 | 675 |
| 1985 QC2 | 1985 08 | 20.42535 | 21 35 33.99 | -03 38 15.1 | | 675 |
| 1985 QC3 | 1985 08 | 20.40000 | 21 39 08.19 | -03 34 47.5 | 16.5 | 675 |
| 1985 QC3 | 1985 08 | 20.42535 | 21 39 05.38 | -03 34 27.6 | | 675 |
| 1986 EK1 | 1986 04 | 08.33229 | 12 23 25.11 | -08 54 37.2 | 16.5 | 675 |
| 1986 EK1 | 1986 04 | 08.36019 | 12 23 22.44 | -08 54 46.3 | | 675 |
| 1986 GM | 1986 04 | 08.33229 | 12 25 26.18 | -05 37 41.2 | 16.5 | 675 |
| 1986 GM | 1986 04 | 08.36019 | 12 25 24.87 | -05 37 22.4 | | 675 |
| 1986 GM | 1986 04 | 09.35736 | 12 24 43.54 | -05 28 34.0 | | 675 |
| 1986 GV1 | 1986 04 | 29.30347 | 13 07 55.39 | +05 25 23.8 | 16.5 | 675 |
| 1986 GV1 | 1986 04 | 29.32361 | 13 07 54.14 | +05 25 23.8 | | 675 |
| 1986 GV1 | 1986 05 | 03.23333 | 13 04 35.39 | +05 16 12.2 | | 675 |
| 1986 GC2 * | 1986 04 | 08.33229 | 12 34 55.76 | -08 41 50.6 | 16.7 | 675 |
| 1986 GC2 | 1986 04 | 08.36019 | 12 34 54.47 | -08 41 40.2 | | 675 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | GC2 | | 1986 | 04 | 09.35736 | 12 | 34 | 13.06 | -08 | 34 | 29.2 | | 675 |
| 1986 | JH | | 1986 | 06 | 06.30417 | 14 | 44 | 19.35 | -26 | 05 | 23.6 | 16.5 | 675 |
| 1986 | JH | | 1986 | 06 | 06.32743 | 14 | 44 | 17.60 | -26 | 05 | 29.2 | | 675 |
| 1986 | JH | | 1986 | 06 | 09.29168 | 14 | 40 | 45.04 | -26 | 21 | 48.6 | | 675 |
| 1986 | LB | | 1986 | 06 | 08.30382 | 15 | 47 | 51.90 | -00 | 01 | 35.0 | 17.0 | 675 |
| 1986 | LB | | 1986 | 06 | 08.32917 | 15 | 47 | 50.86 | -00 | 01 | 33.4 | | 675 |
| 1986 | LC | | 1986 | 06 | 08.32917 | 15 | 56 | 29.39 | -00 | 17 | 23.8 | 16.8 | 675 |
| 1986 | LC | | 1986 | 06 | 09.37014 | 15 | 55 | 40.60 | -00 | 22 | 37.5 | | 675 |
| 1986 | LJ1 | * | 1986 | 06 | 08.30382 | 15 | 41 | 50.23 | +00 | 10 | 59.9 | 16.8 | 675 |
| 1986 | LJ1 | | 1986 | 06 | 08.32917 | 15 | 41 | 49.16 | +00 | 10 | 47.7 | | 675 |
| 1986 | LJ1 | | 1986 | 06 | 09.37014 | 15 | 41 | 05.26 | +00 | 01 | 51.1 | | 675 |
| 1986 | PE | * | 1986 | 08 | 04.39826 | 21 | 51 | 23.77 | +02 | 51 | 54.5 | 16.8 | 675 |
| 1986 | PE | | 1986 | 08 | 04.41875 | 21 | 51 | 22.67 | +02 | 51 | 56.9 | | 675 |
| 1986 | PE | | 1986 | 08 | 06.41111 | 21 | 49 | 41.52 | +02 | 52 | 50.2 | | 675 |
| 1986 | PF | * | 1986 | 08 | 04.39826 | 22 | 11 | 45.24 | -01 | 42 | 29.3 | 16.5 | 675 |
| 1986 | PF | | 1986 | 08 | 04.41875 | 22 | 11 | 44.39 | -01 | 42 | 30.5 | | 675 |
| 1986 | PF | | 1986 | 08 | 06.41111 | 22 | 10 | 19.34 | -01 | 46 | 29.6 | | 675 |
| 1986 | PG | * | 1986 | 08 | 04.39826 | 22 | 17 | 14.09 | +00 | 22 | 30.5 | 16.8 | 675 |
| 1986 | PG | | 1986 | 08 | 04.41875 | 22 | 17 | 13.08 | +00 | 22 | 27.4 | | 675 |
| 1986 | PG | | 1986 | 08 | 06.41111 | 22 | 15 | 46.81 | +00 | 15 | 39.3 | | 675 |
| 1986 | PL | * | 1986 | 08 | 02.35833 | 21 | 14 | 23.18 | -17 | 16 | 25.2 | 16.0 | 675 |
| 1986 | PL | | 1986 | 08 | 04.34236 | 21 | 12 | 27.39 | -17 | 16 | 11.4 | | 675 |
| 1986 | PL | | 1986 | 08 | 06.33090 | 21 | 10 | 29.12 | -17 | 15 | 53.6 | | 675 |
| 1986 | PM | * | 1986 | 08 | 02.35833 | 21 | 21 | 37.44 | -12 | 07 | 00.0 | 16.5 | 675 |
| 1986 | PM | | 1986 | 08 | 04.34236 | 21 | 19 | 37.11 | -12 | 07 | 30.2 | | 675 |
| 1986 | PM | | 1986 | 08 | 06.33090 | 21 | 17 | 34.96 | -12 | 08 | 17.8 | | 675 |
| 1986 | PN | * | 1986 | 08 | 02.35833 | 21 | 35 | 12.70 | -12 | 40 | 16.8 | 17.0 | 675 |
| 1986 | PN | | 1986 | 08 | 04.34236 | 21 | 33 | 12.10 | -12 | 38 | 31.2 | | 675 |
| 1986 | PN | | 1986 | 08 | 06.33090 | 21 | 31 | 06.65 | -12 | 37 | 11.6 | | 675 |

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

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

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N Obs. |
|---|---|---|---|---|---|---|
| 39 | 1986 06 | 08.23322 | 16 05 20.17 | -04 52 16.7 | | 688 |
| 39 | 1986 06 | 08.31606 | 16 05 16.08 | -04 52 12.6 | | 688 |
| 147 | 1986 07 | 06.29236 | 19 31 00.04 | -19 57 27.8 | | 688 |
| 147 | 1986 07 | 06.34583 | 19 30 57.41 | -19 57 31.7 | | 688 |
| 223 | 1986 06 | 08.20712 | 14 50 41.21 | -16 42 17.4 | | 688 |
| 439 | 1986 07 | 09.31163 | 21 54 01.68 | +10 47 27.7 | | 688 |
| 439 | 1986 07 | 09.35660 | 21 54 00.90 | +10 47 33.1 | | 688 |
| 461 | 1986 06 | 10.29583 | 17 24 41.65 | -21 14 13.6 | | 688 |
| 461 | 1986 06 | 10.32731 | 17 24 40.17 | -21 14 12.5 | | 688 |
| 528 | 1986 06 | 08.20712 | 14 35 25.57 | -15 40 17.1 | | 688 |
| 528 | 1986 06 | 08.29042 | 14 35 22.99 | -15 40 19.5 | | 688 |
| 572 | 1986 06 | 08.23322 | 16 10 36.43 | -07 15 24.2 | | 688 |
| 641 | 1986 07 | 06.29236 | 19 45 42.19 | -24 02 50.4 | | 688 |
| 641 | 1986 07 | 06.34583 | 19 45 38.76 | -24 03 00.3 | | 688 |
| 643 | 1986 07 | 09.31163 | 22 01 24.97 | +05 08 45.0 | | 688 |
| 643 | 1986 07 | 09.35660 | 22 01 24.06 | +05 08 53.1 | | 688 |
| 662 | 1986 07 | 06.29236 | 19 49 07.49 | -17 42 22.3 | | 688 |
| 662 | 1986 07 | 06.34583 | 19 49 04.97 | -17 42 37.0 | | 688 |
| 758 | 1986 06 | 08.17778 | 14 05 45.62 | -05 58 02.0 | | 688 |
| 758 | 1986 06 | 08.26118 | 14 05 44.11 | -05 58 00.9 | | 688 |
| 851 | 1986 06 | 08.20712 | 14 45 24.71 | -11 44 39.4 | | 688 |
| 851 | 1986 06 | 08.29042 | 14 45 22.11 | -11 44 35.4 | | 688 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 921 | | 1986 | 06 | 08.23322 | 16 | 04 | 12.48 | -03 | 30 | 16.0 | | 688 |
| 921 | | 1986 | 06 | 08.31606 | 16 | 04 | 09.00 | -03 | 29 | 52.0 | | 688 |
| 1083 | | 1986 | 07 | 06.29236 | 19 | 41 | 51.92 | -25 | 22 | 21.9 | | 688 |
| 1083 | | 1986 | 07 | 06.34583 | 19 | 41 | 48.53 | -25 | 22 | 35.9 | | 688 |
| 1091 | | 1986 | 06 | 08.20712 | 14 | 40 | 37.40 | -14 | 50 | 50.8 | | 688 |
| 1091 | | 1986 | 06 | 08.29042 | 14 | 40 | 35.10 | -14 | 50 | 42.6 | | 688 |
| 1093 | | 1986 | 06 | 08.17778 | 14 | 13 | 01.47 | -08 | 17 | 55.8 | | 688 |
| 1093 | | 1986 | 06 | 08.26118 | 14 | 12 | 58.24 | -08 | 18 | 28.3 | | 688 |
| 1128 | | 1986 | 07 | 06.29236 | 19 | 48 | 33.57 | -22 | 24 | 35.6 | | 688 |
| 1128 | | 1986 | 07 | 06.34583 | 19 | 48 | 30.79 | -22 | 24 | 43.9 | | 688 |
| 1185 | | 1986 | 06 | 08.20712 | 14 | 54 | 00.30 | -14 | 20 | 21.9 | | 688 |
| 1185 | | 1986 | 06 | 08.29042 | 14 | 53 | 56.77 | -14 | 20 | 20.6 | | 688 |
| 1309 | | 1986 | 06 | 08.20712 | 14 | 52 | 00.70 | -09 | 54 | 16.3 | | 688 |
| 1309 | | 1986 | 06 | 08.29042 | 14 | 51 | 58.23 | -09 | 54 | 03.0 | | 688 |
| 1736 | | 1986 | 06 | 08.20712 | 14 | 56 | 15.33 | -09 | 38 | 29.6 | | 688 |
| 1736 | | 1986 | 06 | 08.29042 | 14 | 56 | 11.87 | -09 | 38 | 19.7 | | 688 |
| 1799 | | 1986 | 06 | 08.23322 | 15 | 54 | 28.66 | -03 | 12 | 59.0 | | 688 |
| 1799 | | 1986 | 06 | 08.31606 | 15 | 54 | 24.91 | -03 | 12 | 56.4 | | 688 |
| 1959 | | 1986 | 07 | 06.29236 | 19 | 48 | 08.65 | -20 | 06 | 26.3 | 16.5 | 688 |
| 1959 | | 1986 | 07 | 06.34583 | 19 | 48 | 05.54 | -20 | 06 | 20.3 | | 688 |
| 1988 | | 1986 | 06 | 08.20712 | 14 | 50 | 33.95 | -10 | 40 | 17.3 | | 688 |
| 1988 | | 1986 | 06 | 08.29042 | 14 | 50 | 30.38 | -10 | 40 | 15.0 | | 688 |
| 2097 | | 1986 | 07 | 06.29236 | 19 | 52 | 20.21 | -24 | 26 | 42.8 | | 688 |
| 2097 | | 1986 | 07 | 06.34583 | 19 | 52 | 17.55 | -24 | 26 | 46.2 | | 688 |
| 2166 | | 1986 | 06 | 08.23322 | 16 | 01 | 15.36 | -10 | 07 | 44.6 | | 688 |
| 2166 | | 1986 | 06 | 08.31606 | 16 | 01 | 10.95 | -10 | 07 | 35.4 | | 688 |
| 2303 | | 1986 | 07 | 09.31163 | 22 | 04 | 21.12 | +09 | 07 | 44.7 | 17.2 | 688 |
| 2303 | | 1986 | 07 | 09.35660 | 22 | 04 | 20.38 | +09 | 07 | 46.0 | | 688 |
| 2334 | | 1986 | 06 | 08.20712 | 14 | 42 | 40.84 | -09 | 02 | 01.8 | | 688 |
| 2334 | | 1986 | 06 | 08.29042 | 14 | 42 | 38.41 | -09 | 02 | 08.3 | | 688 |
| 2473 | | 1986 | 06 | 08.17778 | 14 | 08 | 28.74 | -07 | 21 | 35.6 | | 688 |
| 2473 | | 1986 | 06 | 08.26118 | 14 | 08 | 27.10 | -07 | 21 | 30.2 | | 688 |
| 2635 | | 1986 | 07 | 06.29236 | 19 | 55 | 48.43 | -18 | 53 | 06.6 | | 688 |
| 2635 | | 1986 | 07 | 06.34583 | 19 | 55 | 44.99 | -18 | 53 | 08.6 | | 688 |
| 2742 | | 1986 | 06 | 08.20712 | 14 | 50 | 28.78 | -12 | 02 | 05.3 | | 688 |
| 2742 | | 1986 | 06 | 08.29042 | 14 | 50 | 26.03 | -12 | 01 | 59.2 | | 688 |
| 2743 | | 1986 | 07 | 09.35660 | 21 | 50 | 33.86 | +04 | 16 | 40.5 | | 688 |
| 2891 | | 1986 | 06 | 08.23322 | 15 | 50 | 55.56 | -09 | 46 | 37.0 | | 688 |
| 2891 | | 1986 | 06 | 08.31606 | 15 | 50 | 52.01 | -09 | 46 | 35.1 | | 688 |
| 3003 | | 1986 | 06 | 08.23322 | 16 | 04 | 47.50 | -10 | 24 | 08.3 | | 688 |
| 3003 | | 1986 | 06 | 08.31606 | 16 | 04 | 43.58 | -10 | 24 | 11.7 | | 688 |
| 3014 | | 1986 | 07 | 06.29236 | 19 | 54 | 41.73 | -19 | 44 | 02.7 | | 688 |
| 3014 | | 1986 | 07 | 06.34583 | 19 | 54 | 39.26 | -19 | 44 | 11.4 | | 688 |
| 3039 | | 1986 | 07 | 09.31163 | 22 | 09 | 19.07 | +08 | 22 | 30.9 | | 688 |
| 3039 | | 1986 | 07 | 09.35660 | 22 | 09 | 18.73 | +08 | 22 | 35.4 | | 688 |
| 3272 | | 1986 | 07 | 06.34583 | 19 | 52 | 57.58 | -22 | 54 | 08.9 | | 688 |
| 3290 | | 1986 | 06 | 08.20712 | 14 | 41 | 44.00 | -14 | 11 | 07.9 | | 688 |
| 3290 | | 1986 | 06 | 08.29042 | 14 | 41 | 42.20 | -14 | 11 | 03.1 | | 688 |
| 3318 | | 1986 | 07 | 06.29236 | 19 | 44 | 18.33 | -21 | 44 | 32.4 | | 688 |
| 3318 | | 1986 | 07 | 06.34583 | 19 | 44 | 15.51 | -21 | 44 | 50.8 | | 688 |
| 3371 | | 1986 | 07 | 06.29236 | 19 | 41 | 25.56 | -22 | 28 | 37.2 | | 688 |
| 3371 | | 1986 | 07 | 06.34583 | 19 | 41 | 22.50 | -22 | 28 | 34.2 | | 688 |
| 3473 | | 1986 | 06 | 08.20712 | 14 | 36 | 37.19 | -13 | 37 | 13.0 | 17.0 | 688 |
| 3473 | | 1986 | 06 | 08.29042 | 14 | 36 | 35.66 | -13 | 37 | 07.3 | | 688 |
| 3483 | | 1986 | 06 | 08.23322 | 16 | 09 | 51.93 | -07 | 06 | 34.9 | 16.8 | 688 |
| 3483 | | 1986 | 06 | 08.31606 | 16 | 09 | 44.03 | -07 | 07 | 38.2 | 1 | 688 |
| 1981 | JJ2 | 1986 | 06 | 08.20712 | 14 | 56 | 07.70 | -09 | 12 | 34.8 | 17.5 | 688 |
| 1981 | JJ2 | 1986 | 06 | 08.29042 | 14 | 56 | 04.78 | -09 | 12 | 17.4 | | 688 |
| 1981 | NU | 1986 | 06 | 08.20712 | 14 | 54 | 42.40 | -13 | 08 | 19.7 | 16.2 | 688 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | NU | | 1986 | 06 | 08.29042 | 14 54 39.94 | -13 08 15.5 | | | | 688 |
| 1982 | KC1 | | 1986 | 06 | 08.20712 | 14 57 36.54 | -12 41 40.2 | | 16.5 | | 688 |
| 1982 | KC1 | | 1986 | 06 | 08.29042 | 14 57 34.17 | -12 41 21.4 | | | | 688 |
| 1986 | JT | | 1986 | 06 | 08.17778 | 14 07 46.37 | -08 06 49.7 | | 17.0 | | 688 |
| 1986 | JT | | 1986 | 06 | 08.26118 | 14 07 45.59 | -08 06 36.8 | | | | 688 |
| 1986 | JV | | 1986 | 06 | 08.20712 | 14 37 29.91 | -12 49 42.9 | | 16.8 | | 688 |
| 1986 | JV | | 1986 | 06 | 08.29042 | 14 37 27.03 | -12 49 49.0 | | | | 688 |
| 1986 | JZ | | 1986 | 06 | 10.29583 | 17 21 05.69 | -22 08 32.5 | | | 3 | 688 |
| 1986 | JZ | | 1986 | 06 | 10.32731 | 17 21 02.74 | -22 09 19.9 | | | | 688 |
| 1986 | LG1 | * | 1986 | 06 | 08.23322 | 15 50 07.64 | -04 22 14.8 | | 16.8 | 4 | 688 |
| 1986 | LG1 | | 1986 | 06 | 08.31606 | 15 50 03.93 | -04 22 16.7 | | | | 688 |
| 1986 | LH1 | * | 1986 | 06 | 08.23322 | 15 51 57.12 | -06 43 06.1 | | 17.0 | 4 | 688 |
| 1986 | LH1 | | 1986 | 06 | 08.31606 | 15 51 52.64 | -06 43 17.3 | | | | 688 |
| 1986 | NA1 | * | 1986 | 07 | 09.31163 | 21 47 39.89 | +07 55 28.8 | | 17.0 | 4 | 688 |
| 1986 | NA1 | | 1986 | 07 | 09.35660 | 21 47 39.01 | +07 55 35.2 | | | | 688 |

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

OBSERVATIONS MADE WITH THE SPACEWATCH CAMERA 0.91-m TELESCOPE ON KITT PEAK.
Observations made by T. Gehrels with a CCD in scanning mode. Reduced by J. V. Scotti and C. Lykins using reference stars from the SAO 1984 catalog. For further details see 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) | Decl. | Mag. | Obs. |
|---|---|---|---|---|---|---|
| 2368 | 1986 07 | 27.16221 | 14 42 18.94 | -18 55 33.2 | | 691 |
| 2368 | 1986 07 | 27.17738 | 14 42 20.23 | -18 55 33.4 | 17.9V | 691 |
| 2368 | 1986 07 | 27.18728 | 14 42 21.07 | -18 55 33.2 | | 691 |
| 3103 | 1986 07 | 10.36963 | 22 22 19.16 | +09 51 34.4 | | 691 |
| 3103 | 1986 07 | 10.38650 | 22 22 23.34 | +09 51 17.2 | | 691 |
| 3103 | 1986 07 | 10.39296 | 22 22 24.93 | +09 51 10.3 | | 691 |
| 1977 RC | 1986 07 | 12.41964 | 00 29 54.10 | -14 48 49.9 | | 691 |
| 1977 RC | 1986 07 | 12.42339 | 00 29 54.51 | -14 48 52.6 | | 691 |
| 1977 RC | 1986 07 | 12.44520 | 00 29 56.83 | -14 49 09.2 | 18.8V | 691 |
| 1977 RC | 1986 07 | 12.44993 | 00 29 57.33 | -14 49 12.6 | | 691 |
| 1977 RC | 1986 07 | 12.45439 | 00 29 57.82 | -14 49 15.4 | | 691 |
| 1977 RC | 1986 07 | 31.44830 | 01 04 10.71 | -19 58 29.5 | | 691 |
| 1977 RC | 1986 07 | 31.45876 | 01 04 11.80 | -19 58 42.3 | | 691 |
| 1977 RC | 1986 07 | 31.46733 | 01 04 12.76 | -19 58 53.1 | 18.6V | 691 |
| 1982 TX | 1986 07 | 12.32716 | 22 23 09.84 | +15 31 28.5 | | 691 |
| 1982 TX | 1986 07 | 12.33944 | 22 23 09.95 | +15 31 36.3 | 18.6V | 691 |
| 1982 TX | 1986 07 | 12.39045 | 22 23 10.42 | +15 32 08.8 | | 691 |
| 1982 TX | 1986 07 | 31.31685 | 22 22 03.84 | +18 20 23.5 | | 691 |
| 1982 TX | 1986 07 | 31.36909 | 22 22 02.74 | +18 20 44.6 | | 691 |
| 1982 TX | 1986 07 | 31.37407 | 22 22 02.63 | +18 20 46.4 | | 691 |
| 1983 RD | 1986 07 | 27.23654 | 19 29 18.24 | +08 37 01.1 | 16.5V | 691 |
| 1983 RD | 1986 07 | 27.26911 | 19 29 16.72 | +08 37 04.3 | | 691 |
| 1983 RD | 1986 07 | 30.27667 | 19 26 53.82 | +08 40 05.8 | | 691 |
| 1983 RD | 1986 07 | 30.28435 | 19 26 53.39 | +08 40 05.8 | | 691 |
| 1983 RD | 1986 07 | 30.29259 | 19 26 52.92 | +08 40 05.8 | | 691 |
| 1983 RD | 1986 07 | 31.27259 | 19 26 06.78 | +08 39 39.6 | | 691 |
| 1983 RD | 1986 07 | 31.28502 | 19 26 06.08 | +08 39 38.9 | | 691 |
| 1983 RD | 1986 07 | 31.29203 | 19 26 05.68 | +08 39 38.8 | | 691 |
| 1986 DA | 1986 07 | 30.17922 | 16 01 42.25 | -24 25 35.5 | | 691 |
| 1986 DA | 1986 07 | 30.18959 | 16 01 43.37 | -24 25 38.9 | 18.6V | 691 |
| 1986 DA | 1986 07 | 30.19921 | 16 01 44.42 | -24 25 42.0 | | 691 |
| 1986 GZ | 1986 07 | 06.16094 | 13 06 30.58 | +03 15 34.0 | | 691 |
| 1986 GZ | 1986 07 | 06.17458 | 13 06 31.27 | +03 15 32.0 | | 691 |
| 1986 GZ | 1986 07 | 06.21998 | 13 06 33.47 | +03 15 25.4 | | 691 |
| 1986 GZ | 1986 07 | 31.15715 | 13 32 34.01 | +01 47 00.7 | 20.2V | 691 |

| | | | | | |
|---|---|---|---|---|---|
| 1986 GZ | 1986 07 31.16345 | 13 32 34.50 | +01 46 59.3 | | 691 |
| 1986 GZ | 1986 07 31.19766 | 13 32 37.01 | +01 46 49.1 | | 691 |
| 1986 LA | 1986 07 27.27523 | 15 27 39.01 | +24 55 29.1 | | 691 |
| 1986 LA | 1986 07 27.28124 | 15 27 39.76 | +24 55 35.0 | 17.9V | 691 |
| 1986 LA | 1986 07 27.29398 | 15 27 41.46 | +24 55 47.2 | | 691 |

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

Plates measured and reduced at Indiana University under the direction of D. Owings in response to requests from the Minor Planet Center. Contact: F. K. Edmondson, Swain Hall West 319A, Indiana University, Bloomington, IN 47401, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1949 SN | 1949 09 27.10934 | 21 54 11.36 | -10 16 49.6 | | 760 |
| 1949 SN | 1949 09 27.17668 | 21 54 10.29 | -10 17 01.9 | | 760 |
| 1950 BX | 1950 01 28.37361 | 08 47 33.44 | +16 54 01.4 | | 760 |
| 1950 BX | 1950 01 28.39304 | 08 47 32.04 | +16 54 11.9 | | 760 |
| 1957 HL | 1957 04 24.83247 | 14 24 07.87 | -12 51 19.1 | | 076 |
| 1957 HL | 1957 04 24.89774 | 14 24 04.37 | -12 50 56.0 | | 076 |
| 1962 WS | 1962 11 24.29717 | 04 11 52.47 | +21 30 18.1 | | 760 |
| 1962 WS | 1962 11 24.34092 | 04 11 50.17 | +21 30 09.5 | | 760 |
| 1963 TB1 | 1963 10 15.10765 | 00 54 31.18 | +07 15 07.9 | | 760 |
| 1963 TB1 | 1963 10 15.15072 | 00 54 29.47 | +07 14 44.8 | | 760 |

OBSERVATIONS MADE BY W. S. PENHALLOW AT QUONOCHONTAUG OBSERVATORY.

Plates taken with the 0.24-m Schmidt. Contact: W. S. Penhallow, Dept. of Physics, University of Rhode Island, East Hall, Kingston, RI 02881, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 679 | 1986 07 15.22743 | 20 26 05.85 | -24 08 05.6 | | 792 |
| 679 | 1986 07 15.23090 | 20 26 05.68 | -24 08 07.9 | | 792 |
| 679 | 1986 07 15.23437 | 20 26 05.50 | -24 08 11.3 | | 792 |
| 679 | 1986 07 15.23785 | 20 26 05.38 | -24 08 15.8 | | 792 |
| 679 | 1986 07 15.24133 | 20 26 05.26 | -24 08 19.6 | | 792 |

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

Plates with the 1.5-m reflector, reduced using the Astrographic Catalogue. Coordination and verification by, and assistance with identifications from, C. M. Bardwell. Contact: R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A.

| Object | Date | UT | R. A. (1950) | Decl. | Mag. | N Obs. |
|---|---|---|---|---|---|---|
| 861 | 1986 07 08.20370 | 18 49 57.89 | -20 20 49.4 | | | 801 |
| 3103 | 1986 07 08.30755 | 22 13 49.34 | +10 24 47.6 | | | 801 |
| 3103 | 1986 07 10.32670 | 22 22 07.28 | +09 52 17.2 | | | 801 |
| 3484 | 1986 04 12.35042 | 16 40 50.49 | -00 36 50.6 | | | 801 |
| A919 SD | 1986 07 08.32167 | 23 17 19.21 | -04 03 58.9 | | | 801 |
| 1941 SW | 1986 06 03.32384 | 20 11 59.18 | -07 58 29.7 | | | 801 |
| 1941 SW | 1986 07 04.26488 | 20 02 57.24 | -06 30 47.5 | | | 801 |
| 1976 GR6 | 1986 07 08.15836 | 16 30 16.62 | -15 32 31.8 | | | 801 |
| 1977 PE1 | 1986 07 08.27299 | 19 40 04.03 | -14 41 18.8 | | | 801 |
| 1978 UF | 1986 06 10.31457 | 21 35 40.35 | +03 00 21.7 | | | 801 |
| 1978 UF | 1986 07 10.31138 | 21 42 44.66 | +05 46 59.4 | | | 801 |
| 1979 HF5 | 1986 06 05.27954 | 19 50 52.11 | -12 18 16.8 | | | 801 |
| 1979 HF5 | 1986 07 10.17645 | 19 28 23.71 | -12 25 52.4 | | | 801 |
| 1981 EE27 | 1986 06 05.25590 | 18 43 33.74 | -03 20 09.6 | | | 801 |
| 1981 EE27 | 1986 07 08.18433 | 18 16 06.33 | -03 21 52.3 | | | 801 |
| 1981 FB | 1986 06 04.26855 | 18 07 24.05 | -04 28 24.2 | | | 801 |
| 1981 FB | 1986 07 04.21611 | 17 41 43.47 | -03 54 58.9 | | | 801 |
| 1982 TX | 1986 08 04.28050 | 22 20 36.12 | +18 44 12.4 | | | 801 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1982 TX | | 1986 08 10.28984 | 22 17 35.97 | +19 09 57.1 | | | | | | 801 |
| 1983 RO2 | | 1986 06 04.21646 | 17 03 20.10 | -15 11 19.8 | | | | | | 801 |
| 1983 RO2 | | 1986 07 04.19252 | 16 35 50.47 | -15 24 07.5 | | | | | | 801 |
| 1984 WB | | 1986 06 05.32113 | 21 42 35.60 | +11 59 51.4 | | | | | | 801 |
| 1984 WB | | 1986 07 08.29142 | 21 41 16.49 | +21 21 03.4 | | | | | | 801 |
| 1985 DQ | | 1986 06 09.30512 | 21 16 56.12 | -08 26 29.8 | | | | | | 801 |
| 1985 DQ | | 1986 07 04.28787 | 21 15 23.90 | -09 58 20.5 | | | | | | 801 |
| 1986 NV | * | 1986 07 08.22817 | 19 04 36.71 | -19 47 11.3 | | | | 17.5 | | 801 |
| 1986 PA | | 1986 08 10.18648 | 19 32 48.63 | -01 42 24.3 | | | | | 1 | 801 |

Note 1: trailed image.

OBSERVATIONS MADE AT CAMPINAS.

Observations made with a 0.40-m f/5 astrograph. Contact: L. E. da Silva Machado, Observatorio do Valongo, CEP 20080 Rio de Janeiro, Brazil.

| Object | Date | UT | R. A. (1950) | Decl. | N | Obs. |
|---|---|---|---|---|---|---|
| 628 | 1986 06 11.90104 | 11 11 44.57 | +17 25 44.2 | | 1 | 870 |
| 628 | 1986 06 11.91146 | 11 11 45.38 | +17 25 38.6 | | 1 | 870 |
| 628 | 1986 06 11.92187 | 11 11 45.76 | +17 25 34.2 | | 1 | 870 |

Note 1: observatory code 870, Long. and Parallax 313.17, -398, +153 (see MPC 7759).

OBSERVATIONS MADE AT OJIMA BY T. NIIJIMA AND T. URATA.

From Nihondaira Obs. Circ. No. 1562. Contact: T. Urata, 1-8-303, 1 Chome, Dobayashi, Shimizu, Shizuoka 424, Japan.

| Object | | Date | UT | R. A. (1950) | Decl. | Mag. | N | Obs. |
|---|---|---|---|---|---|---|---|---|
| 1986 PH | * | 1986 08 05.60816 | 21 17 20.19 | -10 41 48.0 | | 16.5 | 1 | 887 |
| 1986 PH | | 1986 08 05.62639 | 21 17 19.10 | -10 41 50.6 | | | | 887 |
| 1986 PJ | * | 1986 08 05.60816 | 21 17 24.42 | -10 30 37.8 | | 17 | 1 | 887 |
| 1986 PJ | | 1986 08 05.62639 | 21 17 23.51 | -10 30 46.5 | | | | 887 |
| 1986 PK | * | 1986 08 05.60816 | 21 17 42.70 | -09 41 07.4 | | 16 | 2 | 887 |
| 1986 PK | | 1986 08 05.62639 | 21 17 41.77 | -09 41 17.0 | | | | 887 |

Note 1: discoverer Urata. 2: discoverer Niijima.

OBSERVATIONS MADE WITH THE AUTOMATIC MERIDIAN CIRCLE AT FLOIRAC BY M. RAPAPORT, Y. REQUIEME AND J. M. MAZURIER.

Contact: M. Rapaport, Observatoire de l'Universite de Bordeaux, B.P. 21, F-33270 Floirac, France.

| Object | Date | UT | R. A. (1950) | Decl. | Obs. |
|---|---|---|---|---|---|
| 1 | 1984 10 09.10234 | 03 35 41.77 | +09 28 20.7 | | 999 |
| 1 | 1984 10 09.10339 | 03 35 41.75 | +09 28 20.6 | | 999 |
| 2 | 1984 09 26.92379 | 22 30 39.20 | -02 29 34.6 | | 999 |
| 2 | 1984 09 26.92483 | 22 30 39.16 | -02 29 35.4 | | 999 |
| 2 | 1985 10 17.18982 | 06 12 46.66 | -19 53 14.7 | | 999 |
| 2 | 1985 10 17.19069 | 06 12 46.70 | -19 53 15.4 | | 999 |
| 2 | 1985 10 18.18746 | 06 13 29.42 | -20 10 44.8 | | 999 |
| 2 | 1985 10 18.18833 | 06 13 29.44 | -20 10 45.5 | | 999 |
| 2 | 1985 10 21.18063 | 06 15 28.89 | -21 03 21.8 | | 999 |
| 2 | 1985 10 21.18150 | 06 15 28.90 | -21 03 23.0 | | 999 |
| 2 | 1985 10 24.17401 | 06 17 14.71 | -21 55 59.4 | | 999 |
| 2 | 1985 11 11.12812 | 06 22 35.04 | -27 00 09.1 | | 999 |
| 2 | 1985 11 11.12902 | 06 22 35.06 | -27 00 10.9 | | 999 |
| 3 | 1985 03 06.07475 | 12 39 25.35 | -00 07 55.0 | | 999 |
| 3 | 1985 03 18.03687 | 12 30 52.74 | +01 39 11.5 | | 999 |
| 3 | 1985 03 19.03280 | 12 30 06.33 | +01 48 17.1 | | 999 |
| 3 | 1985 03 19.03367 | 12 30 06.28 | +01 48 17.5 | | 999 |
| 3 | 1985 03 29.00002 | 12 22 11.76 | +03 17 31.9 | | 999 |
| 3 | 1985 03 29.00093 | 12 22 11.72 | +03 17 32.7 | | 999 |
| 3 | 1985 04 02.98367 | 12 18 18.28 | +03 59 28.2 | | 999 |
| 3 | 1985 04 09.96137 | 12 13 10.64 | +04 53 14.3 | | 999 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 1985 | 04 | 16.93875 | 12 | 08 | 38.10 | +05 | 39 | 45.1 | 999 |
| 3 | 1985 | 04 | 16.93963 | 12 | 08 | 38.07 | +05 | 39 | 45.5 | 999 |
| 3 | 1985 | 04 | 17.93561 | 12 | 08 | 02.76 | +05 | 45 | 43.8 | 999 |
| 3 | 1985 | 04 | 19.92936 | 12 | 06 | 55.07 | +05 | 57 | 09.5 | 999 |
| 3 | 1985 | 04 | 20.92626 | 12 | 06 | 22.78 | +06 | 02 | 36.2 | 999 |
| 3 | 1985 | 04 | 26.90876 | 12 | 03 | 32.26 | +06 | 31 | 24.9 | 999 |
| 4 | 1984 | 02 | 18.79287 | 04 | 50 | 07.68 | +21 | 18 | 06.4 | 999 |
| 4 | 1984 | 02 | 18.79392 | 04 | 50 | 07.70 | +21 | 18 | 06.4 | 999 |
| 4 | 1985 | 03 | 29.08199 | 14 | 19 | 16.44 | -00 | 56 | 12.8 | 999 |
| 4 | 1985 | 04 | 03.06528 | 14 | 16 | 08.04 | -00 | 27 | 24.0 | 999 |
| 4 | 1985 | 04 | 03.06614 | 14 | 16 | 08.00 | -00 | 27 | 23.7 | 999 |
| 4 | 1985 | 04 | 17.01907 | 14 | 04 | 37.15 | +00 | 48 | 01.2 | 999 |
| 4 | 1985 | 04 | 17.01995 | 14 | 04 | 37.10 | +00 | 48 | 01.6 | 999 |
| 4 | 1985 | 04 | 18.01576 | 14 | 03 | 41.71 | +00 | 52 | 42.2 | 999 |
| 4 | 1985 | 04 | 18.01664 | 14 | 03 | 41.68 | +00 | 52 | 42.6 | 999 |
| 4 | 1985 | 04 | 19.01232 | 14 | 02 | 45.91 | +00 | 57 | 14.6 | 999 |
| 4 | 1985 | 04 | 20.00895 | 14 | 01 | 49.79 | +01 | 01 | 38.2 | 999 |
| 4 | 1985 | 04 | 21.00624 | 14 | 00 | 53.38 | +01 | 05 | 52.7 | 999 |
| 4 | 1985 | 04 | 24.99232 | 13 | 57 | 07.32 | +01 | 21 | 07.4 | 999 |
| 4 | 1985 | 04 | 25.98905 | 13 | 56 | 11.08 | +01 | 24 | 29.0 | 999 |
| 4 | 1985 | 04 | 27.98192 | 13 | 54 | 19.52 | +01 | 30 | 36.1 | 999 |
| 4 | 1985 | 04 | 27.98281 | 13 | 54 | 19.46 | +01 | 30 | 36.2 | 999 |
| 4 | 1985 | 04 | 30.97246 | 13 | 51 | 35.57 | +01 | 38 | 13.0 | 999 |
| 4 | 1985 | 05 | 28.88415 | 13 | 34 | 16.19 | +01 | 10 | 11.9 | 999 |
| 5 | 1984 | 06 | 18.06215 | 19 | 10 | 31.10 | -17 | 07 | 32.7 | 999 |
| 5 | 1985 | 08 | 27.08683 | 00 | 21 | 30.16 | -02 | 16 | 11.1 | 999 |
| 5 | 1985 | 08 | 29.07972 | 00 | 20 | 26.74 | -02 | 27 | 39.4 | 999 |
| 5 | 1985 | 08 | 29.08055 | 00 | 20 | 26.72 | -02 | 27 | 39.8 | 999 |
| 5 | 1985 | 08 | 30.07659 | 00 | 19 | 53.32 | -02 | 33 | 33.5 | 999 |
| 5 | 1985 | 09 | 05.05868 | 00 | 16 | 10.51 | -03 | 10 | 54.3 | 999 |
| 5 | 1985 | 09 | 08.04801 | 00 | 14 | 06.06 | -03 | 30 | 36.5 | 999 |
| 5 | 1985 | 09 | 08.04885 | 00 | 14 | 06.03 | -03 | 30 | 36.7 | 999 |
| 5 | 1985 | 09 | 11.03842 | 00 | 11 | 54.11 | -03 | 50 | 50.0 | 999 |
| 5 | 1985 | 09 | 14.02863 | 00 | 09 | 35.83 | -04 | 11 | 23.5 | 999 |
| 5 | 1985 | 09 | 14.02946 | 00 | 09 | 35.80 | -04 | 11 | 23.9 | 999 |
| 5 | 1985 | 09 | 15.02524 | 00 | 08 | 48.54 | -04 | 18 | 17.9 | 999 |
| 5 | 1985 | 09 | 15.02608 | 00 | 08 | 48.50 | -04 | 18 | 18.1 | 999 |
| 5 | 1985 | 10 | 17.91777 | 23 | 43 | 11.61 | -07 | 33 | 57.9 | 999 |
| 5 | 1985 | 10 | 18.91516 | 23 | 42 | 35.64 | -07 | 37 | 49.9 | 999 |
| 5 | 1985 | 10 | 20.90808 | 23 | 41 | 27.13 | -07 | 45 | 05.1 | 999 |
| 5 | 1985 | 10 | 20.90891 | 23 | 41 | 27.15 | -07 | 45 | 04.8 | 999 |
| 5 | 1985 | 10 | 21.90490 | 23 | 40 | 54.69 | -07 | 48 | 26.5 | 999 |
| 5 | 1985 | 11 | 14.83553 | 23 | 34 | 35.13 | -08 | 16 | 33.4 | 999 |
| 5 | 1985 | 11 | 16.82959 | 23 | 34 | 40.12 | -08 | 14 | 24.4 | 999 |
| 5 | 1985 | 11 | 16.83043 | 23 | 34 | 40.14 | -08 | 14 | 24.5 | 999 |
| 5 | 1985 | 12 | 15.75902 | 23 | 45 | 40.59 | -06 | 37 | 56.9 | 999 |
| 8 | 1984 | 10 | 09.02130 | 01 | 38 | 21.32 | -03 | 12 | 54.6 | 999 |
| 9 | 1984 | 02 | 11.13542 | 12 | 33 | 26.06 | +05 | 27 | 26.8 | 999 |
| 9 | 1984 | 02 | 11.13643 | 12 | 33 | 26.04 | +05 | 27 | 27.0 | 999 |
| 9 | 1984 | 02 | 13.12961 | 12 | 32 | 55.79 | +05 | 35 | 41.8 | 999 |
| 9 | 1984 | 02 | 13.13061 | 12 | 32 | 55.78 | +05 | 35 | 42.0 | 999 |
| 9 | 1984 | 02 | 14.12667 | 12 | 32 | 37.97 | +05 | 40 | 01.4 | 999 |
| 9 | 1984 | 02 | 14.12768 | 12 | 32 | 37.94 | +05 | 40 | 02.1 | 999 |
| 9 | 1984 | 02 | 15.12371 | 12 | 32 | 18.37 | +05 | 44 | 30.0 | 999 |
| 9 | 1984 | 02 | 15.12472 | 12 | 32 | 18.34 | +05 | 44 | 30.1 | 999 |
| 9 | 1984 | 02 | 29.08028 | 12 | 24 | 46.84 | +06 | 58 | 53.1 | 999 |
| 9 | 1984 | 02 | 29.08130 | 12 | 24 | 46.79 | +06 | 58 | 53.5 | 999 |
| 9 | 1984 | 03 | 05.06395 | 12 | 20 | 55.02 | +07 | 28 | 46.8 | 999 |
| 9 | 1984 | 03 | 05.06499 | 12 | 20 | 54.97 | +07 | 28 | 46.9 | 999 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9 | | 1984 | 03 | 06.06065 | 12 | 20 | 05.12 | +07 34 48.6 | 999 |
| 9 | | 1984 | 03 | 06.06169 | 12 | 20 | 05.08 | +07 34 49.0 | 999 |
| 9 | | 1984 | 03 | 07.05751 | 12 | 19 | 14.18 | +07 40 50.8 | 999 |
| 9 | | 1984 | 03 | 08.05400 | 12 | 18 | 22.28 | +07 46 52.0 | 999 |
| 9 | | 1984 | 03 | 08.05503 | 12 | 18 | 22.22 | +07 46 52.3 | 999 |
| 9 | | 1984 | 03 | 09.05066 | 12 | 17 | 29.46 | +07 52 51.8 | 999 |
| 9 | | 1984 | 03 | 09.05169 | 12 | 17 | 29.40 | +07 52 52.2 | 999 |
| 9 | | 1984 | 03 | 14.03451 | 12 | 12 | 54.17 | +08 22 16.7 | 999 |
| 9 | | 1984 | 03 | 17.02411 | 12 | 10 | 02.66 | +08 39 08.4 | 999 |
| 9 | | 1984 | 03 | 23.00326 | 12 | 04 | 14.24 | +09 10 08.7 | 999 |
| 9 | | 1984 | 04 | 09.94316 | 11 | 48 | 25.27 | +10 09 29.3 | 999 |
| 9 | | 1984 | 04 | 12.93352 | 11 | 46 | 19.17 | +10 13 19.6 | 999 |
| 9 | | 1984 | 04 | 16.92138 | 11 | 43 | 50.46 | +10 15 37.5 | 999 |
| 9 | | 1984 | 04 | 17.91776 | 11 | 43 | 16.98 | +10 15 41.6 | 999 |
| 9 | | 1984 | 04 | 17.91879 | 11 | 43 | 16.94 | +10 15 41.6 | 999 |
| 9 | | 1984 | 04 | 19.91158 | 11 | 42 | 14.44 | +10 15 14.8 | 999 |
| 9 | | 1984 | 04 | 19.91262 | 11 | 42 | 14.42 | +10 15 14.6 | 999 |
| 9 | | 1984 | 04 | 20.90851 | 11 | 41 | 45.50 | +10 14 43.5 | 999 |
| 9 | | 1984 | 04 | 20.90954 | 11 | 41 | 45.48 | +10 14 43.4 | 999 |
| 9 | | 1984 | 04 | 22.90243 | 11 | 40 | 52.26 | +10 13 06.0 | 999 |
| 9 | | 1984 | 04 | 22.90348 | 11 | 40 | 52.25 | +10 13 05.9 | 999 |
| 9 | | 1984 | 04 | 25.89346 | 11 | 39 | 44.34 | +10 09 13.9 | 999 |
| 9 | | 1984 | 04 | 25.89450 | 11 | 39 | 44.32 | +10 09 13.8 | 999 |
| 9 | | 1984 | 04 | 26.89051 | 11 | 39 | 24.90 | +10 07 34.6 | 999 |
| 9 | | 1984 | 04 | 27.88801 | 11 | 39 | 07.06 | +10 05 43.6 | 999 |
| 9 | | 1984 | 05 | 09.85379 | 11 | 37 | 39.26 | +09 30 03.6 | 999 |
| 9 | | 1985 | 06 | 28.03278 | 19 | 07 | 25.25 | -27 29 46.9 | 999 |
| 9 | | 1985 | 06 | 29.02897 | 19 | 06 | 22.99 | -27 33 30.6 | 999 |
| 9 | | 1985 | 06 | 29.02993 | 19 | 06 | 22.93 | -27 33 30.7 | 999 |
| 9 | | 1985 | 07 | 10.98760 | 18 | 53 | 27.11 | -28 12 50.6 | 999 |
| 9 | | 1985 | 07 | 11.98422 | 18 | 52 | 22.29 | -28 15 34.5 | 999 |
| 9 | | 1985 | 07 | 12.98031 | 18 | 51 | 17.84 | -28 18 13.2 | 999 |
| 9 | | 1985 | 07 | 16.96683 | 18 | 47 | 04.77 | -28 27 47.7 | 999 |
| 9 | | 1985 | 07 | 17.96337 | 18 | 46 | 03.13 | -28 29 56.4 | 999 |
| 9 | | 1985 | 08 | 02.91085 | 18 | 32 | 06.89 | -28 51 23.6 | 999 |
| 9 | | 1985 | 08 | 07.89405 | 18 | 29 | 02.62 | -28 53 39.2 | 999 |
| 9 | | 1985 | 08 | 07.89501 | 18 | 29 | 02.59 | -28 53 39.1 | 999 |
| 9 | | 1985 | 08 | 08.89082 | 18 | 28 | 31.01 | -28 53 52.8 | 999 |
| 9 | | 1985 | 08 | 21.85343 | 18 | 24 | 27.41 | -28 51 41.9 | 999 |
| 10 | | 1984 | 09 | 25.83753 | 20 | 22 | 01.30 | -16 24 22.1 | 999 |
| 10 | | 1984 | 09 | 25.83861 | 20 | 22 | 01.32 | -16 24 21.9 | 999 |
| 10 | | 1984 | 09 | 26.83489 | 20 | 22 | 08.92 | -16 24 04.8 | 999 |
| 10 | | 1984 | 09 | 26.83596 | 20 | 22 | 08.95 | -16 24 05.0 | 999 |
| 10 | | 1985 | 09 | 05.12155 | 01 | 48 | 22.95 | +16 25 11.6 | 999 |
| 10 | | 1985 | 09 | 05.12243 | 01 | 48 | 22.97 | +16 25 11.5 | 999 |
| 10 | | 1985 | 09 | 08.11274 | 01 | 47 | 29.40 | +16 23 47.0 | 999 |
| 10 | | 1985 | 09 | 08.11360 | 01 | 47 | 29.40 | +16 23 47.0 | 999 |
| 10 | | 1985 | 09 | 12.10111 | 01 | 46 | 02.01 | +16 20 10.6 | 999 |
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| 704 | 1985 | 11 | 14.89200 | 00 | 56 | 55.81 | +32 | 08 | 12.5 | 999 |
| 704 | 1985 | 11 | 14.89295 | 00 | 56 | 55.79 | +32 | 08 | 11.8 | 999 |
| 704 | 1985 | 11 | 15.88904 | 00 | 56 | 35.44 | +31 | 57 | 45.0 | 999 |
| 704 | 1985 | 11 | 15.88998 | 00 | 56 | 35.40 | +31 | 57 | 44.5 | 999 |
| 704 | 1985 | 11 | 16.88646 | 00 | 56 | 16.71 | +31 | 47 | 17.3 | 999 |
| 704 | 1985 | 11 | 26.85772 | 00 | 54 | 44.56 | +30 | 04 | 23.2 | 999 |
| 704 | 1985 | 12 | 12.81714 | 00 | 58 | 09.95 | +27 | 39 | 53.8 | 999 |
| 704 | 1985 | 12 | 21.79601 | 01 | 03 | 01.45 | +26 | 35 | 48.1 | 999 |
| 704 | 1985 | 12 | 23.79147 | 01 | 04 | 21.62 | +26 | 23 | 28.5 | 999 |

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are b = F. N. Bowman, G = D. W. E. Green, h = K. Hurukawa, M = B. G. Marsden. For further information see MPC 10375.

| Planet | H | Epoch | M | Peri. | Node | Incl. | e | a | Arc | O | N | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 FB | 14.0 | 770226 | 68.81 | 279.00 | 150.21 | 2.81 | 0.1134 | 2.9599 | 37 | 6 | | M |
| 1983 CC | 14.0 | 830215 | 215.63 | 155.32 | 133.61 | 23.90 | 0.0485 | 1.9180 | 10 | 8 | | M |
| 1985 QC2 | 13.0 | 850803 | 307.55 | 230.12 | 172.31 | 13.25 | 0.2690 | 2.8272 | 4 | 6 | 1 | M |
| 1985 TW | 14.5 | 851022 | 23.50 | 342.40 | 6.96 | 1.32 | 0.1954 | 2.4187 | 26 | 8 | | G |
| 1985 UC | 14.0 | 851002 | 42.57 | 306.77 | 9.90 | 14.47 | 0.1894 | 2.4502 | 8 | 6 | | G |
| 1986 EK1 | 13.5 | 860311 | 46.90 | 108.19 | 5.85 | 23.10 | 0.2286 | 2.3046 | 35 | 6 | | M |
| 1986 JT | 13.0 | 860510 | 328.57 | 65.99 | 208.36 | 7.50 | 0.2611 | 2.9063 | 36 | 8 | | M |
| 1986 JZ | 13.5 | 860510 | 353.50 | 175.96 | 80.65 | 25.18 | 0.2309 | 2.3959 | 37 | 6 | 2 | M |
| 1986 LB | 12.0 | 860530 | 64.52 | 343.16 | 178.75 | 13.57 | 0.1385 | 2.6932 | 5 | 6 | | M |
| 1986 PM | 14.0 | 860729 | 26.42 | 338.90 | 296.56 | 5.09 | 0.1666 | 2.2449 | 4 | 3 | 1 | M |
| 1986 PN | 14.5 | 860729 | 309.15 | 83.02 | 308.45 | 6.45 | 0.2516 | 2.2085 | 4 | 3 | 1 | M |

Note 1: e assumed. 2: double designation 1986 JZ = 1986 LN (b, h, M).

* * * * *

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

(290) Bruna
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 17.56020 | (1950.0) | | P | Q |
| n | 0.27584402 | Peri. | 105.00264 | -0.41108552 | -0.90917653 |
| a | 2.3371881 | Node | 10.06789 | +0.61970797 | -0.33212226 |
| e | 0.2586425 | Incl. | 22.31720 | +0.66855869 | -0.25118287 |
| P | 3.57 | H | 12.2 | G 0.25 | |

From 22 observations at 9 oppositions 1924-1984, mean residual 1".5.

(502) Sigune
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 204.45111 | (1950.0) | P | Q |
| n | 0.26750260 | Peri. 18.87993 | -0.85570084 | -0.41324851 |
| a | 2.3855254 | Node 132.52731 | +0.40345699 | -0.90967893 |
| e | 0.1767419 | Incl. 25.00003 | +0.32403475 | +0.04135121 |
| P | 3.68 | H 10.7 | G 0.25 | |

From 36 observations at 16 oppositions 1903-1980, mean residual 1".3.

(704) Interamnia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 56.50589 | (1950.0) | P | Q |
| n | 0.18399768 | Peri. 91.84533 | +0.93279217 | -0.21052578 |
| a | 3.0614545 | Node 280.39186 | +0.06869991 | +0.90064319 |
| e | 0.1481683 | Incl. 17.30241 | +0.35380656 | +0.38015885 |
| P | 5.36 | H 6.2 | G 0.25 | |

From 482 observations at 35 oppositions 1915-1984, mean residual 0".6.

(732) Tjilaki
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 65.08585 | (1950.0) | P | Q |
| n | 0.25585589 | Peri. 65.73092 | -0.51925483 | +0.85429053 |
| a | 2.4573807 | Node 172.84746 | -0.83678268 | -0.50258347 |
| e | 0.0406063 | Incl. 10.97706 | -0.17369274 | -0.13265577 |
| P | 3.85 | H 10.9 | G 0.25 | |

From 57 observations at 21 oppositions 1913-1985, mean residual 1".4.

(835) Olivia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 55.17051 | (1950.0) | P | Q |
| n | 0.17137863 | Peri. 54.86551 | +0.99539545 | -0.08203935 |
| a | 3.2099500 | Node 309.78733 | +0.05242920 | +0.89893779 |
| e | 0.1049650 | Incl. 3.69883 | +0.08024385 | +0.43032591 |
| P | 5.75 | H 11.3 | G 0.25 | |

From 47 observations at 13 oppositions 1916-1985, mean residual 1".6.

(843) Nicolaia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 121.34919 | (1950.0) | P | Q |
| n | 0.28645026 | Peri. 316.21509 | 0.76579987 | 0.64301284 |
| a | 2.2791342 | Node 3.80285 | -0.54506538 | 0.65662469 |
| e | 0.2091065 | Incl. 7.99218 | -0.34125400 | 0.39418080 |
| P | 3.44 | H 13.8 | G 0.25 | |

From 27 observations at 4 oppositions 1916-1981, mean residual 1".6.

(886) Washingtonia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 112.71062 | (1950.0) | P | Q |
| n | 0.17409436 | Peri. 295.18500 | +0.96426313 | +0.08965638 |
| a | 3.1764808 | Node 60.56286 | +0.05212873 | +0.85841046 |
| e | 0.2691747 | Incl. 16.63509 | -0.25976763 | +0.50506753 |
| P | 5.66 | H 8.7 | G 0.25 | |

From 40 observations at 19 oppositions 1910-1983, mean residual 1".4.

(903) Nealley
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 162.71631 | (1950.0) | P | Q |
| n | 0.16873170 | Peri. 244.14738 | +0.71759043 | -0.69282425 |
| a | 3.2434330 | Node 159.45492 | +0.68923169 | +0.69174478 |
| e | 0.0248196 | Incl. 11.69273 | +0.10011817 | +0.20367554 |
| P | 5.84 | H 9.8 | G 0.25 | |

From 59 observations at 13 oppositions 1918-1982, mean residual 1".4.

(1024) Hale
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 338.73775 | (1950.0) | P | Q |
| n | 0.20314092 | Peri. 307.34566 | +0.96803004 | -0.08380867 |
| a | 2.8659664 | Node 58.62740 | +0.19790374 | +0.83429291 |
| e | 0.2273087 | Incl. 16.07540 | -0.15411670 | +0.54491417 |
| P | 4.85 | H 10.9 | G 0.25 | |

From 83 observations at 15 oppositions 1947-1985, mean residual 0".8.

(1131) Porzia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 28.25219 | (1950.0) | P | Q |
| n | 0.29631693 | Peri. 247.44706 | +0.97593553 | +0.21088143 |
| a | 2.2282559 | Node 100.34371 | -0.17353777 | +0.90519306 |
| e | 0.2858390 | Incl. 3.23344 | -0.13203969 | +0.36899125 |
| P | 3.33 | H 14.4 | G 0.25 | |

From 20 observations at 6 oppositions 1929-1985, mean residual 1".1.

(1170) Siva
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 222.48692 | (1950.0) | P | Q |
| n | 0.27807494 | Peri. 58.98649 | +0.50725582 | -0.86178720 |
| a | 2.3246709 | Node 0.57466 | +0.60384994 | +0.35228730 |
| e | 0.3007775 | Incl. 22.20078 | +0.61486323 | +0.36498833 |
| P | 3.54 | H 12.1 | G 0.25 | |

From 29 observations at 10 oppositions 1930-1985, mean residual 1".6.

(1178) Irmela
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 211.87012 | (1950.0) | P | Q |
| n | 0.22486056 | Peri. 356.77758 | -0.97260125 | -0.23147725 |
| a | 2.6783080 | Node 169.76113 | +0.21590721 | -0.93377072 |
| e | 0.1861434 | Incl. 6.96863 | +0.08620257 | -0.27292954 |
| P | 4.38 | H 12.0 | G 0.25 | |

From 48 observations at 11 oppositions 1931-1981, mean residual 1".3.

(1190) Pelagia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 200.40621 | (1950.0) | P | Q |
| n | 0.26019931 | Peri. 41.60896 | +0.38054493 | -0.92444416 |
| a | 2.4299572 | Node 26.05118 | +0.83314860 | +0.33134300 |
| e | 0.1330541 | Incl. 3.16662 | +0.40130907 | +0.18871885 |
| P | 3.79 | H 12.3 | G 0.25 | |

From 46 observations at 10 oppositions 1909-1983, mean residual 1".1.

(1192) Prisma
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 91.79174 | (1950.0) | P | Q |
| n | 0.27105907 | Peri. 130.69063 | -0.66355458 | -0.74809688 |
| a | 2.3646131 | Node 0.96452 | +0.50395952 | -0.45369770 |
| e | 0.2608137 | Incl. 23.86347 | +0.55291964 | -0.48426175 |
| P | 3.64 | H 12.7 | G 0.25 | |

From 37 observations at 7 oppositions 1931-1982, mean residual 1".5.

(1206) Numerowia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 241.63606 | (1950.0) | P | Q |
| n | 0.20319055 | Peri. 277.76611 | -0.45410839 | +0.88116856 |
| a | 2.8654998 | Node 324.26461 | -0.70244035 | -0.44498328 |
| e | 0.0551336 | Incl. 13.02548 | -0.54805394 | -0.15978686 |
| P | 4.85 | H 11.4 | G 0.25 | |

From 37 observations at 9 oppositions 1931-1984, mean residual 1".2.

(1325) Inanda
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 270.65130 | (1950.0) | P | Q |
| n | 0.24354577 | Peri. 336.82225 | +0.98623840 | +0.16235287 |
| a | 2.5395045 | Node 13.94274 | -0.12398049 | +0.85123207 |
| e | 0.2590414 | Incl. 7.44729 | -0.10937392 | +0.49904460 |
| P | 4.05 | H 12.3 | G 0.25 | |

From 28 observations at 9 oppositions 1934-1983, mean residual 1".3.

(1370) Hella
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 43.23598 | (1950.0) | P | Q |
| n | 0.29195689 | Peri. 3.15119 | +0.62610104 | +0.77676322 |
| a | 2.2503854 | Node 305.62339 | -0.71718374 | +0.53939816 |
| e | 0.1709955 | Incl. 4.80512 | -0.30601466 | +0.32509771 |
| P | 3.38 | H 14.0 | G 0.25 | |

From 18 observations at 7 oppositions 1935-1985, mean residual 1".7.

(1373) Cincinnati
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 20.30072 | (1950.0) | P | Q |
| n | 0.15727343 | Peri. 100.02562 | +0.60249536 | -0.56741634 |
| a | 3.3991147 | Node 296.99189 | +0.21398512 | +0.79234807 |
| e | 0.3232936 | Incl. 39.04250 | +0.76890163 | +0.22410541 |
| P | 6.27 | H 13.3 | G 0.25 | |

From 53 observations at 9 oppositions 1935-1974, mean residual 1".1.

(1448) Lindbladia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 93.98707 | (1950.0) | P | Q |
| n | 0.26985295 | Peri. 73.93871 | -0.47495919 | -0.87712224 |
| a | 2.3716537 | Node 44.64453 | +0.76364952 | -0.45101814 |
| e | 0.1872629 | Incl. 5.81586 | +0.43732503 | -0.16504310 |
| P | 3.65 | H 13.4 | G 0.25 | |

From 26 observations at 9 oppositions 1938-1984, mean residual 1".2.

(1454) Kalevala
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 319.21648 | (1950.0) | P | Q |
| n | 0.27114996 | Peri. 135.00327 | -0.60509202 | -0.79606434 |
| a | 2.3640846 | Node 352.20490 | +0.70314959 | -0.52724544 |
| e | 0.1432177 | Incl. 5.09734 | +0.37342241 | -0.29714275 |
| P | 3.63 | H 12.9 | G 0.25 | |

From 64 observations at 13 oppositions 1936-1985, mean residual 1".4.

(1472) Muonio
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 123.07277 | (1950.0) | P | Q |
| n | 0.29508581 | Peri. 318.29319 | +0.99705240 | -0.05233417 |
| a | 2.2344493 | Node 44.80253 | +0.07199656 | +0.89090561 |
| e | 0.1985250 | Incl. 4.56659 | -0.02651418 | +0.45116331 |
| P | 3.34 | H 12.8 | G 0.25 | |

From 61 observations at 14 oppositions 1931-1986, mean residual 1".3.

(1488) Aura
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 348.09372 | (1950.0) | P | Q |
| n | 0.18613027 | Peri. 115.49164 | -0.33833491 | -0.94084331 |
| a | 3.0380252 | Node 354.18985 | +0.78418200 | -0.27100409 |
| e | 0.1192914 | Incl. 10.54695 | +0.52018082 | -0.20339774 |
| P | 5.30 | H 11.0 | G 0.25 | |

From 53 observations at 17 oppositions 1905-1979, mean residual 1".2.

(1494) Savo
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 247.85867 | (1950.0) | P | Q |
| n | 0.30416821 | Peri. 184.18258 | +0.94691908 | -0.32129140 |
| a | 2.1897448 | Node 194.57239 | +0.29615906 | +0.88490370 |
| e | 0.1313177 | Incl. 2.45430 | +0.12503622 | +0.33721992 |
| P | 3.24 | H 13.0 | G 0.25 | |

From 76 observations at 14 oppositions 1938-1982, mean residual 1".2.

(1499) Pori
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 26.92368 | (1950.0) | P | Q |
| n | 0.22573798 | Peri. 74.23983 | +0.67140420 | +0.71848928 |
| a | 2.6713633 | Node 239.39489 | -0.73468257 | +0.61313643 |
| e | 0.1856348 | Incl. 12.18255 | -0.09725186 | +0.32838526 |
| P | 4.37 | H 11.7 | G 0.25 | |

From 49 observations at 13 oppositions 1938-1985, mean residual 1".3.

(1504) Lappeenranta
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 283.42726 | (1950.0) | P | Q |
| n | 0.26527192 | Peri. 51.69809 | -0.81553569 | -0.54631097 |
| a | 2.3988800 | Node 94.40193 | +0.45293274 | -0.80789550 |
| e | 0.1569252 | Incl. 11.03875 | +0.36021310 | -0.22101853 |
| P | 3.72 | H 12.0 | G 0.25 | |

From 56 observations at 13 oppositions 1939-1984, mean residual 1".2.

(1513) Matra
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 105.19188 | (1950.0) | P | Q |
| n | 0.30363459 | Peri. 26.01908 | -0.94927910 | -0.31068881 |
| a | 2.1923096 | Node 135.78909 | +0.27500639 | -0.89496882 |
| e | 0.0988147 | Incl. 3.97935 | +0.15244890 | -0.32016132 |
| P | 3.25 | H 13.1 | G 0.25 | |

From 28 observations at 7 oppositions 1950-1983, mean residual 1".3.

(1529) Oterma
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 84.10824 | (1950.0) | P | Q |
| n | 0.12279378 | Peri. 297.33223 | +0.77971530 | -0.60680538 |
| a | 4.0088377 | Node 100.43123 | +0.61549413 | +0.69754525 |
| e | 0.1934227 | Incl. 9.03096 | +0.11493924 | +0.38107460 |
| P | 8.03 | H 10.2 | G 0.25 | |

From 32 observations at 9 oppositions 1938-1983, mean residual 1".7.

(1660) Wood
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 28.66890 | (1950.0) | P | Q |
| n | 0.26619041 | Peri. 276.89638 | -0.60047617 | -0.77708286 |
| a | 2.3933586 | Node 212.48178 | +0.79893901 | -0.59291412 |
| e | 0.3040259 | Incl. 20.56030 | -0.03353836 | -0.21117545 |
| P | 3.70 | H 13.2 | G 0.25 | |

From 51 observations at 10 oppositions 1931-1983, mean residual 1".1.

(1677) Tycho Brahe
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 174.78394 | (1950.0) | P | Q |
| n | 0.24472872 | Peri. 315.61531 | +0.40283063 | +0.91007946 |
| a | 2.5313144 | Node 337.58741 | -0.75247417 | +0.26872885 |
| e | 0.1097270 | Incl. 14.79771 | -0.52106632 | +0.31549989 |
| P | 4.03 | H 12.4 | G 0.25 | |

From 20 observations at 10 oppositions 1935-1983, mean residual 1".0.

(1684) Iguassu
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 212.73470 | (1950.0) | P | Q |
| n | 0.18173263 | Peri. 149.02307 | -0.26901735 | +0.96116117 |
| a | 3.0868399 | Node 105.31076 | -0.89618705 | -0.22636240 |
| e | 0.1365808 | Incl. 3.66387 | -0.35281501 | -0.15789006 |
| P | 5.42 | H 11.8 | G 0.25 | |

From 57 observations at 18 oppositions 1922-1984, mean residual 1".1.

(1692) Subbotina
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 268.77350 | (1950.0) | P | Q |
| n | 0.21161067 | Peri. 111.78202 | +0.65846890 | +0.75247672 |
| a | 2.7889732 | Node 199.42220 | -0.70514575 | +0.61030973 |
| e | 0.1337486 | Incl. 2.42217 | -0.26303646 | +0.24759001 |
| P | 4.66 | H 11.5 | G 0.25 | |

From 56 observations at 13 oppositions 1931-1986, mean residual 1".7.

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

The identifications are by D. W. E. Green unless otherwise stated. The 1977-1979 Palomar observations of the 1981 UCAS objects were found by S. J. Bus.

(161) Athor
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 275.15850 | (1950.0) | P | Q |
| n | 0.26853932 | Peri. 294.42600 | +0.67415345 | +0.73694953 |
| a | 2.3793818 | Node 18.23812 | -0.60778212 | +0.59138756 |
| e | 0.1378776 | Incl. 9.04826 | -0.41966419 | +0.32736242 |
| P | 3.67 | H 9.4 | G 0.25 | |

From 42 observations at 15 oppositions 1921-1986, mean residual 1".1.

(701) Oriola
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 270.03120 | (1950.0) | P | Q |
| n | 0.18842473 | Peri. 318.28934 | -0.92198426 | +0.37090134 |
| a | 3.0133121 | Node 243.80113 | -0.31427517 | -0.88458404 |
| e | 0.0386203 | Incl. 7.12249 | -0.22622144 | -0.28274241 |
| P | 5.23 | H 9.4 | G 0.25 | |

From 49 observations at 25 oppositions 1906-1984, mean residual 1".0.

(703) Noemi
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 204.51564 | (1950.0) | P | Q |
| n | 0.30732931 | Peri. 174.36114 | +0.88552579 | -0.46399369 |
| a | 2.1747035 | Node 213.31646 | +0.42453952 | +0.82872554 |
| e | 0.1376771 | Incl. 2.45588 | +0.18870685 | +0.31292784 |
| P | 3.21 | H 12.7 | G 0.25 | |

From 34 observations at 15 oppositions 1923-1983, mean residual 1".0.

(705) Erminia
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 340.01670 | (1950.0) | P | Q |
| n | 0.19721321 | Peri. 101.12381 | -0.23197979 | -0.97254166 |
| a | 2.9231115 | Node 2.52913 | +0.64211346 | -0.16751406 |
| e | 0.0497412 | Incl. 25.01151 | +0.73066797 | -0.16156036 |
| P | 5.00 | H 8.5 | G 0.25 | |

From 28 observations at 15 oppositions 1928-1985, mean residual 1".5.

(2377) Shcheglov
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 141.11295 | (1950.0) | P | Q |
| n | 0.20178888 | Peri. 163.17207 | +0.41154680 | -0.91122234 |
| a | 2.8787541 | Node 262.52311 | +0.83410613 | +0.38427822 |
| e | 0.0568085 | Incl. 1.00607 | +0.36728218 | +0.14833778 |
| P | 4.88 | H 12.0 | G 0.25 | |

From 32 observations at 6 oppositions 1973-1986, mean residual 0".8.

1981 EW3 = 1974 QX

The identification was suggested by K. Hurukawa (JAM 1901) and by L. D. Schmadel.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 352.27902 | (1950.0) | | P | Q |
| n | 0.24413321 | Peri. | 32.95216 | +0.63212388 | +0.76409128 |
| a | 2.5354342 | Node | 276.59279 | -0.73599844 | +0.54008933 |
| e | 0.1590687 | Incl. | 7.44855 | -0.24233383 | +0.35280027 |
| P | 4.04 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 740821 095 | 0.7- | 1.7+ | 810307 413 | 0.2- | 1.8+ | 810407 413 | 0.1- | 1.3- |
| 791220 675 | 1.2- | 0.6- | 810307 413 | 1.8+ | 0.5+ | 810408 413 | 1.2- | 0.4+ |
| 791220 675 | 1.1+ | 0.9+ | 810310 413 | 0.2+ | 1.9+ | 810408 413 | 0.1+ | 1.0- |
| 810202 413 | 0.2+ | 0.2- | 810310 413 | 1.0+ | 1.4+ | 810409 413 | 1.2- | 0.2+ |
| 810214 413 | 1.3+ | 2.0- | 810312 413 | 0.7- | 0.1+ | 810409 413 | 0.4+ | 0.8- |
| 810302 413 | 0.3- | 1.2+ | 810312 413 | 0.1- | 0.7+ | 810429 413 | 0.1- | 2.2- |
| 810302 413 | 1.2+ | 0.5+ | 810407 413 | 1.5- | 0.1- | | | |

1981 EB11

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

| | | | | | |
|---|---|---|---|---|---|
| M | 23.08157 | (1950.0) | | P | Q |
| n | 0.25777029 | Peri. | 33.39507 | +0.63352776 | +0.77235206 |
| a | 2.4452035 | Node | 275.95918 | -0.71958112 | +0.56631424 |
| e | 0.2026002 | Incl. | 2.65017 | -0.28433360 | +0.28768122 |
| P | 3.82 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 780709 675 | 0.2+ | 1.0- | 810307 413 | 0.6+ | 0.3- | 810412 413 | 0.1+ | 0.6+ |
| 780709 675 | 0.4+ | 0.9- | 810307 413 | 1.3+ | 1.1+ | 810430 413 | 1.3+ | 1.1- |
| 791220 675 | 0.2- | 1.6- | 810315 413 | 2.2+ | 1.0+ | 810502 413 | 0.6- | 0.8- |
| 791220 675 | 0.1- | 1.3- | 810405 413 | 2.6- | 0.7- | 810503 413 | 0.8- | 1.6- |
| 810212 413 | 1.4- | 0.1+ | 810405 413 | 0.6+ | 0.1- | | | |
| 810301 413 | 0.7- | 0.2+ | 810406 413 | 0.6- | 0.2+ | | | |

1981 EQ18 = 1978 RB9

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

| | | | | | |
|---|---|---|---|---|---|
| M | 97.13848 | (1950.0) | | P | Q |
| n | 0.17737066 | Peri. | 254.50415 | +0.74801780 | -0.66344139 |
| a | 3.1372495 | Node | 147.05279 | +0.62070989 | +0.68987408 |
| e | 0.1736598 | Incl. | 1.86979 | +0.23492256 | +0.28968823 |
| P | 5.56 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 780902 809 | 0.6+ | 1.0- | 791220 675 | 2.1+ | 0.2- | 810311 413 | 0.1+ | 0.4- |
| 780902 809 | 0.1+ | 1.0- | 810202 413 | (2.3+ | 1.9-) | 810311 413 | (2.4+ | 1.9-) |
| 780902 809 | 0.2+ | 0.3- | 810213 413 | 1.3+ | 1.9- | 810407 413 | 2.4- | 0.2+ |
| 780902 809 | 0.1- | 0.4- | 810302 413 | 1.2+ | 0.8- | 810411 413 | 0.3+ | 0.9- |
| 780902 809 | 0.3+ | 1.0- | 810302 413 | (4.7+ | 3.6-) | 810502 413 | 1.3+ | 0.6- |
| 780906 809 | 0.5+ | 0.9- | 810307 413 | 1.7- | 0.2- | 810503 413 | 0.6+ | 0.0 |
| 791220 675 | 2.1- | 0.8- | 810307 413 | 2.3- | 0.1- | | | |

1981 EY19

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

| | | | | | |
|---|---|---|---|---|---|
| M | 265.28755 | (1950.0) | | P | Q |
| n | 0.20266081 | Peri. | 42.81709 | +0.53543903 | +0.84437443 |
| a | 2.8704968 | Node | 259.56450 | -0.77980277 | +0.48591273 |
| e | 0.0311021 | Incl. | 1.06936 | -0.32436505 | +0.22565604 |
| P | 4.86 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770612 675 | 2.6- | 0.6+ | 810303 413 | 0.4+ | 0.7- | 810408 413 | 1.0+ | 0.6- |
| 770613 675 | 2.8+ | 0.1- | 810307 413 | 0.1+ | 0.1- | 810408 413 | 1.4+ | 1.6- |
| 810209 413 | 1.0- | 0.4- | 810311 413 | 0.4- | 0.5+ | 810430 413 | 0.7- | 0.6+ |
| 810213 413 | 2.0+ | 0.1+ | 810311 413 | 1.2+ | 0.3- | 810502 413 | 0.7+ | 0.1+ |
| 810302 413 | 2.0- | 1.0+ | 810329 413 | 2.0- | 0.7+ | | | |
| 810302 413 | (4.4+ | 2.7-) | 810329 413 | 0.7- | 0.6+ | | | |

1981 ER22 = 1964 TV
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M 327.13975 | | (1950.0) | | P | Q |
| n 0.26736742 | Peri. | 246.20295 | +0.99990195 | | -0.01193755 |
| a 2.3863342 | Node | 114.48036 | +0.01385814 | | +0.91865812 |
| e 0.2132907 | Incl. | 0.46088 | -0.00201206 | | +0.39487307 |
| P 3.69 | H | 15.0 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 641008 330 | 0.8- | 2.0+ | 810302 413 | 2.1+ | 1.8- | 810329 413 | (3.8+ | 1.0-) |
| 770213 675 | 0.2+ | 0.7- | 810303 413 | 0.2- | 2.2+ | 810408 413 | 1.3- | 2.3+ |
| 770213 675 | 0.6- | 0.7- | 810307 413 | 2.1+ | 0.1- | 810426 413 | (2.9+ | 4.0-) |
| 810209 413 | 0.5+ | 0.1- | 810311 413 | 2.3- | 1.3+ | 810502 413 | 0.8+ | 1.0+ |
| 810213 413 | 0.2- | 1.2- | 810311 413 | 0.3+ | 0.1- | | | |
| 810302 413 | 0.1+ | 0.8+ | 810316 413 | 0.1- | 0.3- | | | |

1981 EL24
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M 152.28659 | | (1950.0) | | P | Q |
| n 0.19827900 | Peri. | 87.93440 | +0.74500564 | | -0.66690429 |
| a 2.9126330 | Node | 313.89379 | +0.60380723 | | +0.68333665 |
| e 0.0599178 | Incl. | 1.13916 | +0.28351970 | | +0.29713580 |
| P 4.97 | H | 13.5 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770612 675 | 0.2- | 1.9- | 810306 413 | 0.8- | 0.3+ | 810410 413 | 0.6+ | 0.7- |
| 770613 675 | 0.2+ | 1.9+ | 810311 413 | 1.0- | 0.8+ | 810426 413 | 0.6+ | 2.1- |
| 810209 413 | 0.5+ | 0.5- | 810315 413 | 1.3- | 2.0+ | 810502 413 | (2.9- | 0.1+) |
| 810213 413 | 0.5+ | 0.1+ | 810315 413 | 1.7+ | 0.3+ | 810503 413 | 0.9- | 0.1+ |
| 810302 413 | 0.6- | 0.4- | 810406 413 | 1.6- | 1.9+ | | | |
| 810302 413 | 1.9+ | 2.0- | 810406 413 | 0.5+ | 0.2- | | | |

1981 EV26
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M 173.58611 | | (1950.0) | | P | Q |
| n 0.19750747 | Peri. | 96.04519 | +0.90581705 | | -0.42334720 |
| a 2.9202132 | Node | 289.00186 | +0.38145354 | | +0.83189810 |
| e 0.0237652 | Incl. | 1.00059 | +0.18436016 | | +0.35877946 |
| P 4.99 | H | 13.0 | G | 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770613 675 | 0.5+ | 0.3+ | 810306 413 | 1.7- | 0.5+ | 810405 413 | (2.9+ | 1.4-) |
| 770614 675 | 0.5- | 1.1+ | 810306 413 | 1.1+ | 0.1+ | 810406 413 | (2.4- | 0.2+) |
| 810212 413 | 0.3- | 0.6+ | 810311 413 | 0.2+ | 0.5- | 810406 413 | 0.8+ | 1.7- |
| 810212 413 | 0.6- | 0.3+ | 810311 413 | 1.5+ | 0.1+ | 810501 413 | 1.1+ | 1.7- |
| 810213 413 | 0.6- | 0.5- | 810315 413 | 0.3- | 0.6+ | 810503 413 | 2.3- | 0.1- |
| 810302 413 | 0.7- | 0.6+ | 810315 413 | 0.5- | 1.4+ | | | |
| 810302 413 | 1.2+ | 0.1+ | 810405 413 | 0.1- | 0.8+ | | | |

1981 EH34
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 118.13622 | (1950.0) | | P | Q |
| n | 0.19873299 | Peri. | 83.54261 | +0.27029575 | -0.96276494 |
| a | 2.9081955 | Node | 350.77112 | +0.87080305 | +0.24663634 |
| e | 0.0210234 | Incl. | 1.74622 | +0.41066075 | +0.11069864 |
| P | 4.96 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770612 | 675 | 1.8+ | 0.6- | 810307 | 413 | 0.2- | 0.5+ | 810407 | 413 | 1.1+ | 0.3+ |
| 770613 | 675 | 2.4- | 1.9- | 810311 | 413 | 0.8- | 1.6+ | 810408 | 413 | 2.3- | 1.1+ |
| 810202 | 413 | 1.3+ | 0.2- | 810311 | 413 | 1.5+ | 0.3- | 810408 | 413 | 0.4- | 0.6+ |
| 810302 | 413 | 0.4- | 0.5+ | 810316 | 413 | (4.8+ | 2.7-) | 810411 | 413 | 1.8- | 1.4+ |
| 810302 | 413 | 0.0 | 1.7- | 810329 | 413 | 2.1- | 0.8+ | 810411 | 413 | 0.4- | 0.4- |
| 810303 | 413 | 0.0 | 0.1- | 810329 | 413 | 0.1- | 0.1+ | 810502 | 413 | 0.8+ | 0.5+ |
| 810303 | 413 | 1.4+ | 1.5- | 810407 | 413 | (3.1- | 0.9+) | 810503 | 413 | 0.4+ | 0.1+ |

1981 ET42 = 1978 NP7
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 59.01770 | (1950.0) | | P | Q |
| n | 0.26882433 | Peri. | 327.11349 | +0.49657851 | +0.86787105 |
| a | 2.3777044 | Node | 332.65223 | -0.78936413 | +0.44459552 |
| e | 0.2066452 | Incl. | 1.80607 | -0.36099038 | +0.22166341 |
| P | 3.67 | H | 15.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770213 | 675 | 1.8- | 2.0- | 791220 | 675 | (3.5+ | 2.9-) | 810311 | 413 | 2.2+ | 0.6- |
| 770213 | 675 | 0.0 | 2.6- | 810212 | 413 | 2.3- | 1.1+ | 810315 | 413 | 0.4+ | 1.2- |
| 780710 | 675 | 0.0 | 2.2- | 810212 | 413 | 0.3+ | 0.9+ | 810315 | 413 | 0.4+ | 0.0 |
| 780711 | 675 | (63.9- | 5.8+) | 810213 | 413 | 0.8- | 0.0 | 810501 | 413 | 0.6- | 0.5+ |
| 780713 | 675 | 0.4+ | 0.7- | 810302 | 413 | 0.6- | 2.0+ | 810503 | 413 | (3.4- | 1.0+) |
| 791220 | 675 | 0.3- | 2.4- | 810311 | 413 | (4.6- | 0.9+) | | | | |

The orbits published on MPC 10953-10957 were erroneously stated as (J-P), and the values of M and n were therefore incorrect. Revised values follow. The residuals are unchanged.

1981 DV
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 142.13156 | (1950.0) | | P | Q |
| n | 0.23118369 | 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 | |

1981 EZ7
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 276.51544 | (1950.0) | | P | Q |
| n | 0.22355805 | 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 | |

1981 EM12
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 259.52804 | | (1950.0) | | P | | Q |
| n | 0.17248985 | 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 | | |

1981 EZ18
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 269.98468 | | (1950.0) | | P | | Q |
| n | 0.22354381 | 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 | | |

1981 ES20
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 272.40491 | | (1950.0) | | P | | Q |
| n | 0.22454020 | 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 | | |

1981 EC21
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 147.92983 | | (1950.0) | | P | | Q |
| n | 0.22850648 | 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 | | |

1981 EW21
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 51.74284 | | (1950.0) | | P | | Q |
| n | 0.23167905 | 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 | | |

1981 EX23
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 303.88639 | | (1950.0) | | P | | Q |
| n | 0.21292014 | 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 | | |

1981 EZ23
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 40.81058 | | (1950.0) | | P | | Q |
| n | 0.23153592 | 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 | | |

1981 EY26
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 278.30179 | | (1950.0) | | P | | Q |
| n | 0.17384194 | 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 | | |

1981 EF27
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 41.54775 | | (1950.0) | | P | | Q |
| n | 0.23287192 | 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 | | |

1981 EV29
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 28.50050 | | (1950.0) | | P | | Q |
| n | 0.23064650 | 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 | | |

1981 EW33
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 246.93415 | | (1950.0) | | P | | Q |
| n | 0.22237337 | 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 | | |

1981 EA40
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 223.64563 | | (1950.0) | | P | | Q |
| n | 0.17393576 | 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 | | |

1981 EP42
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 214.74837 | | (1950.0) | | P | | Q |
| n | 0.22775114 | 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 | | |

1981 ES42
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | 142.00257 | | (1950.0) | | P | | Q |
| n | 0.22704436 | 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 | | |

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

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

Comet Churyumov-Solodovnikov (1986i)
T 1986 May 6.22840 ET

| | | | | |
|---|---|---|---|---|
| q 2.6410625 | | (1950.0) | P | Q |
| | Peri. | 157.65251 | +0.75692973 | -0.01698425 |
| | Node | 133.91756 | -0.64648286 | -0.16552527 |
| e 1.0 | Incl. | 114.91949 | +0.09548449 | -0.98605929 |

From 16 observations 1986 July 15-Aug. 9.

Comet Wilson (1986l)
T 1987 Apr. 21.44562 ET

| | | | | |
|---|---|---|---|---|
| q 1.2082999 | | (1950.0) | P | Q |
| | Peri. | 237.87090 | -0.47734193 | -0.71810537 |
| | Node | 110.74839 | -0.50518763 | +0.69582817 |
| e 1.0 | Incl. | 147.21077 | -0.71897854 | -0.01215889 |

From 29 observations 1986 Aug. 5-16.

(2803) Vilho
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 43.96338 | | (1950.0) | P | Q |
| n 0.17586497 | Peri. | 42.54585 | +0.45064705 | -0.89266412 |
| a 3.1551244 | Node | 20.67312 | +0.81258557 | +0.40636094 |
| e 0.1629844 | Incl. | 1.33844 | +0.36962403 | +0.19499116 |
| P 5.60 | H 12.0 | | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 291127 | 690 | 1.3+ | 0.7- | 621101 | 760 | 0.5- | 0.3- | 790924 | 095 | 0.6- | 1.0- |
| 291203 | 690 | 1.3+ | 0.4- | 730927 | 095 | 1.0+ | 4.0+ | 791014 | 095 | 1.0- | 0.4- |
| 291203 | 690 | 3.6- | 1.3- | 760402 | 095 | 0.0 | 2.1+ | 791116 | 095 | 0.6- | 1.6- |
| 401129 | 062 | 0.2- | 1.1+ | 770518 | 675 | 0.9- | 0.0 | 791122 | 095 | 0.6+ | 0.5+ |
| 401203 | 062 | 0.6- | 2.3+ | 770518 | 675 | 0.2+ | 0.8+ | 810308 | 095 | 1.8+ | 0.5+ |
| 401228 | 062 | 0.6+ | 1.6+ | 770519 | 675 | 0.9- | 0.1- | | | | |
| 401230 | 062 | 0.8+ | 0.1+ | 770519 | 675 | 1.1+ | 0.6+ | | | | |

(3487)* 1978 UF = 1957 UN = 1969 PO = 1982 RN1
Discovered 1978 Oct. 28 by H. L. Giclas at the Anderson Mesa Station of the Lowell Observatory.
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M 355.17979 | | (1950.0) | P | Q |
| n 0.23401998 | Peri. | 115.88574 | +0.64043342 | +0.76615713 |
| a 2.6079590 | Node | 194.33031 | -0.75894176 | +0.62068940 |
| e 0.1717560 | Incl. | 12.45214 | -0.11769638 | +0.16657708 |
| P 4.21 | H 14.5 | | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 571030 | 024 | 1.9+ | 0.5+ | 820825 | 561 | 1.5+ | 0.8+ | 820915 | 046 | 2.2- | 1.3- |
| 690813 | 095 | 1.7- | 0.8+ | 820825 | 561 | 1.5+ | 0.1- | 820916 | 046 | 0.3- | 1.3- |
| 780928 | 095 | (23.9- | 2.5-) | 820825 | 561 | 1.0+ | 0.4+ | 820916 | 046 | 0.6- | 0.4- |
| 781004 | 095 | 0.6- | 5.2+ | 820826 | 561 | 0.7+ | 0.1+ | 850324 | 688 | 1.1+ | 0.6- |
| 781028 | 688 | 0.6- | 2.2- | 820914 | 046 | 0.7- | 2.2- | 850324 | 688 | 1.2- | 0.3- |
| 820824 | 561 | 1.7+ | 0.4- | 820914 | 046 | 0.9- | 0.8+ | 860610 | 801 | 0.8+ | 0.3+ |
| 820824 | 561 | 1.0+ | 0.7+ | 820915 | 046 | 3.7- | 2.3- | 860710 | 801 | 2.3+ | 1.2+ |

(3488)* 1980 PM

Discovered 1980 Aug. 8 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 102.58038 | (1950.0) | P | Q | |
| n | 0.23406331 | Peri. | 243.11566 | +0.89120707 | -0.42759103 |
| a | 2.6076372 | Node | 141.66275 | +0.45170710 | +0.86704304 |
| e | 0.1820589 | Incl. | 14.12554 | -0.04135997 | +0.25573869 |
| P | 4.21 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 800717 | 688 | 0.6+ | 1.8- | 801002 | 688 | 1.0- | 0.7+ | 840731 | 801 | 0.9- | 0.6- |
| 800719 | 688 | 0.0 | 0.3+ | 801002 | 688 | 0.4- | 0.5- | 840825 | 801 | 0.3+ | 0.8+ |
| 800808 | 688 | 0.1+ | 0.7- | 820130 | 688 | 0.9+ | 1.5- | 840829 | 801 | 0.9+ | 0.7+ |
| 800904 | 688 | 0.2+ | 1.3- | 820130 | 688 | 1.3- | 0.9- | 860111 | 688 | 0.3+ | 0.0 |
| 800904 | 095 | 1.5- | 0.1+ | 840702 | 801 | 0.6- | 0.4- | | | | |
| 800907 | 688 | 2.5+ | 1.2+ | 840724 | 801 | 0.1+ | 0.9- | | | | |

(3489)* 1983 AT2 = 1974 TR = 1974 WJ1

Discovered 1983 Jan. 10 by K. Herkenhoff and G. Ojakangas at Palomar. The identifications are by W. Landgraf (MPC 8288).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 15.87522 | (1950.0) | P | Q | |
| n | 0.26376608 | Peri. | 45.60678 | +0.44816694 | -0.89331123 |
| a | 2.4080015 | Node | 17.85256 | +0.78562261 | +0.37554454 |
| e | 0.0956811 | Incl. | 6.32707 | +0.42654837 | +0.24690350 |
| P | 3.74 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 741012 | 330 | 1.0+ | 1.3+ | 830112 | 675 | 1.1- | 1.6+ | 850914 | 688 | 2.4+ | 0.5+ |
| 741118 | 330 | 1.4- | 0.6- | 830211 | 675 | 0.7+ | 0.2- | 850914 | 688 | 0.4- | 0.3- |
| 830110 | 675 | 0.7+ | 1.3- | 830211 | 675 | 0.3- | 0.2- | 850918 | 688 | 0.4- | 0.2+ |
| 830110 | 675 | 0.3+ | 0.4- | 830215 | 675 | 0.9- | 0.6+ | 850918 | 688 | 0.5- | 0.0 |
| 830111 | 675 | 1.4+ | 0.2+ | 850822 | 688 | 0.3+ | 0.2+ | 851012 | 688 | 0.3- | 0.9- |
| 830111 | 675 | 0.7- | 0.1- | 850822 | 688 | 1.7+ | 0.1+ | 851012 | 688 | 0.1+ | 0.9- |
| 830112 | 675 | 0.2- | 0.2- | 850913 | 801 | 2.3- | 0.4+ | | | | |

(3490)* 1984 SV = 1951 YE1 = 1969 RV1 = 1973 UX3

Discovered 1984 Sept. 20 by A. Mrkos at Klet. The identifications are by W. Landgraf (MPC 9414).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 99.92890 | (1950.0) | P | Q | |
| n | 0.26497448 | Peri. | 99.83394 | +0.11304144 | -0.99316743 |
| a | 2.4006749 | Node | 343.59067 | +0.86660331 | +0.11282146 |
| e | 0.1172022 | Incl. | 5.88889 | +0.48602504 | +0.02982897 |
| P | 3.72 | H | 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 511227 | 711 | 2.2- | 0.0 | Y | 840929 | 046 | 2.0+ | 0.3- | 860317 | 046 | 0.9+ | 1.4- |
| 511227 | 711 | 3.9+ | 1.7+ | Y | 840929 | 046 | 2.1+ | 0.8- | 860317 | 046 | 2.6- | 2.5- |
| 690913 | 095 | 2.3- | 0.1+ | | 840930 | 046 | 1.0- | 1.4- | 860401 | 046 | 1.8- | 2.6- |
| 731029 | 095 | 3.6- | 1.1- | | 840930 | 046 | 1.4+ | 1.3- | 860401 | 046 | 2.7- | 3.2- |
| 840920 | 046 | 2.0- | 0.8- | | 841026 | 688 | 0.2+ | 1.1- | 860413 | 801 | 0.9+ | 1.1- |
| 840920 | 046 | 0.2- | 0.4+ | | 841026 | 688 | 3.0+ | 0.3- | 860414 | 801 | 1.2+ | 1.5- |
| 840927 | 046 | 2.5+ | 1.4- | | 860209 | 801 | 1.6- | 2.1+ | | | | |
| 840927 | 046 | 2.2+ | 1.4- | | 860305 | 688 | 0.0 | 1.1+ | | | | |

(3491)* 1984 SM4 = 1974 OH1 = 1975 TU5 = 1979 QS5

Discovered 1984 Sept. 30 by P. Wild at Zimmerwald. The identifications are by W. Landgraf (MPC 9415).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 93.60635 | | (1950.0) | P | Q |
| n | 0.21100968 | Peri. | 248.00399 | +0.65410114 | -0.75606806 |
| a | 2.7942663 | Node | 161.08882 | +0.71718225 | +0.61038812 |
| e | 0.0945742 | Incl. | 4.00651 | +0.24041907 | +0.23619363 |
| P | 4.67 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 740719 | 808 | 1.0+ | 1.9- | 840928 | 809 | 0.4+ | 0.7+ | 840930 | 809 | 0.8+ | 0.2+ |
| 740719 | 808 | 0.7+ | 1.8- | 840928 | 809 | 0.5+ | 0.4+ | 840930 | 026 | 0.2+ | 0.5+ |
| 751014 | 095 | 0.5+ | 2.7- | 840928 | 809 | 0.7- | 0.2- | 841002 | 026 | 1.6+ | 2.0+ |
| 751106 | 095 | 1.4+ | 4.1- | 840928 | 809 | 0.4- | 0.3- | 841015 | 026 | 2.9- | 2.3+ |
| 790830 | 809 | 0.9- | 0.4- | 840928 | 809 | 0.0 | 0.2- | 841017 | 026 | 0.6+ | 0.4- |
| 790830 | 809 | 1.3- | 0.8- | 840929 | 809 | 0.5- | 0.0 | 841029 | 026 | 1.0+ | 1.8+ |
| 840927 | 809 | 0.0 | 0.8+ | 840929 | 809 | 0.4- | 0.1- | 841030 | 026 | 3.6- | 1.3- |
| 840927 | 809 | 0.2+ | 0.6+ | 840929 | 809 | 0.3- | 0.0 | 860111 | 386 | 1.4- | 2.2- |
| 840927 | 809 | 0.2+ | 0.4+ | 840930 | 809 | 0.7+ | 0.1- | 860111 | 386 | 1.1- | 0.2+ |
| 840928 | 809 | 0.3+ | 0.5+ | 840930 | 809 | 0.7+ | 0.3+ | 860213 | 801 | 2.3+ | 2.7+ |

(3492)* 1985 DQ = 1951 CG = 1978 SA1 = 1978 TK9 = 1980 CB

Discovered 1985 Feb. 16 by M. Mahrova at Klet. The identifications are by W. Landgraf (MPC 9678).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 51.37304 | | (1950.0) | P | Q |
| n | 0.23294724 | Peri. | 94.69558 | -0.57587527 | +0.80271961 |
| a | 2.6159594 | Node | 138.84076 | -0.81184223 | -0.53916565 |
| e | 0.1438094 | Incl. | 13.61687 | -0.09633208 | -0.25483649 |
| P | 4.23 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 510210 | 760 | 0.5+ | 0.6+ | 800206 | 801 | 2.3- | 2.4+ | 850315 | 046 | 2.0+ | 0.3+ |
| 510210 | 760 | 0.4- | 0.5+ | 800207 | 675 | 1.0+ | 1.8- | 850315 | 046 | 0.1- | 0.9- |
| 780927 | 095 | 0.4- | 2.6+ | 850216 | 046 | (5.0- | 0.4-) | 850324 | 046 | (2.6+ | 0.0 ) |
| 781007 | 095 | 1.4- | 0.7+ | 850216 | 046 | (7.1- | 0.3+) | 850324 | 046 | (3.6+ | 0.6-) |
| 800204 | 675 | 1.5+ | 1.1- | 850312 | 046 | 1.5- | 2.3+ | 860609 | 801 | 0.3- | 0.0 |
| 800205 | 675 | 1.4+ | 1.1- | 850312 | 046 | 0.4- | 1.2+ | 860704 | 801 | 0.8+ | 0.4+ |

1949 QH1 = 1949 SN = 1973 SF3 = 1973 UY = 1980 WN2

The identifications are by S. Nakano.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 260.12716 | | (1950.0) | P | Q |
| n | 0.28975753 | Peri. | 182.07231 | +0.92377729 | -0.38271527 |
| a | 2.2617630 | Node | 200.44426 | +0.35184054 | +0.86152202 |
| e | 0.2009750 | Incl. | 2.10455 | +0.15114149 | +0.33362978 |
| P | 3.40 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 490821 | 760 | 1.2+ | 0.3+ | 490927 | 760 | 0.4- | 0.1+ | 731026 | 095 | 0.2- | 1.1- |
| 490821 | 760 | 0.3- | 1.3- | 490927 | 760 | 0.1+ | 2.2+ | 801130 | 095 | 0.5- | 0.5- |
| 490827 | 760 | 1.0- | 0.2+ | 730922 | 095 | 0.8+ | 0.5- | 801210 | 095 | 0.5+ | 1.3+ |

1977 HH1 = 1978 QR = 1984 UV1

The key identification 1977 HH1 = 1984 UV1 is by A. Lowe.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 157.02508 | | (1950.0) | P | Q |
| n | 0.17906697 | Peri. | 307.95805 | +0.80212600 | +0.59715345 |
| a | 3.1174052 | Node | 15.37578 | -0.54632358 | +0.73471237 |
| e | 0.2139792 | Incl. | 0.27709 | -0.24109009 | +0.32187808 |
| P | 5.50 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770424 | 675 | 0.7- | 1.4- | | 780905 | 095 | 0.5+ | 0.3+ | | 841031 | 688 | 1.2+ | 1.1- |
| 770425 | 675 | 0.4- | 1.8- | | 841029 | 688 | 0.5+ | 0.4- | | 841031 | 688 | 1.6- | 0.0 |
| 780831 | 095 | 0.5- | 0.3- | | 841029 | 688 | 0.9+ | 1.6- | | | | | |

1977 KK1 = 1959 CK = 1978 QU = 1979 WL6

The key identification 1977 KK1 = 1978 QU is by A. Lowe.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 225.28266 | (1950.0) | | P | Q |
| n | 0.17458928 | Peri. | 71.66961 | -0.60499925 | +0.79621385 |
| a | 3.1704813 | Node | 161.09955 | -0.73552778 | -0.55675131 |
| e | 0.1091300 | Incl. | 0.77924 | -0.30491769 | -0.23679417 |
| P | 5.65 | H | 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 590208 | 024 | 0.3- | 0.8- | | 770519 | 675 | 0.0 | 0.2- | | 780905 | 095 | 0.8+ | 0.4+ |
| 770518 | 675 | 0.1- | 0.5- | | 780831 | 095 | 0.6- | 1.0- | | 791117 | 095 | 0.2+ | 0.7- |

1978 PB3 = 1977 LX = 1979 WX6

The key identification 1978 PB3 = 1977 LX is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 249.32269 | (1950.0) | | P | Q |
| n | 0.17549980 | Peri. | 53.86492 | -0.79497540 | +0.60658689 |
| a | 3.1595059 | Node | 163.47324 | -0.56535932 | -0.73593736 |
| e | 0.1240467 | Incl. | 1.64222 | -0.21996125 | -0.30074665 |
| P | 5.62 | H | 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770612 | 675 | 0.3- | 0.5- | | 780902 | 809 | 0.2+ | 0.7- | | 780910 | 809 | 0.4+ | 1.4+ |
| 770613 | 675 | 0.1+ | 0.6- | | 780902 | 809 | 0.6- | 1.2- | | 780910 | 809 | 0.1+ | 0.3- |
| 780808 | 095 | 0.4- | 1.3+ | | 780906 | 809 | 0.2+ | 1.0- | | 791117 | 095 | 0.3+ | 1.1- |
| 780902 | 809 | 0.0 | 0.4- | | 780910 | 809 | 0.9- | 1.8+ | | | | | |
| 780902 | 809 | 0.6+ | 0.7+ | | 780910 | 809 | 0.2+ | 1.0- | | | | | |

1978 RZ = 1977 LH1

The identification is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 193.59984 | (1950.0) | | P | Q |
| n | 0.19890871 | Peri. | 250.41736 | +0.97649284 | -0.21087626 |
| a | 2.9064825 | Node | 121.73332 | +0.21215495 | +0.90366086 |
| e | 0.0767711 | Incl. | 3.00879 | +0.03810534 | +0.37273082 |
| P | 4.96 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770613 | 675 | 2.6- | 0.9+ | | 770614 | 675 | 2.5+ | 0.5- | | 780907 | 095 | 0.9+ | 0.9- |
| 770613 | 675 | 4.6- | 0.8+ | | 780901 | 095 | 1.3- | 1.5- | | 780912 | 095 | 1.1+ | 0.2+ |
| 770613 | 675 | 4.8+ | 0.3+ | | 780905 | 095 | 0.4- | 0.6+ | | 781009 | 095 | 0.9- | 1.2+ |

1978 RK1 = 1977 LQ = 1980 BX3

The key identification 1978 RK1 = 1977 LQ is by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 142.59706 | (1950.0) | | P | Q |
| n | 0.17821198 | Peri. | 265.29124 | +0.99879701 | +0.01723473 |
| a | 3.1273679 | Node | 93.71627 | +0.00228838 | +0.91879676 |
| e | 0.1680532 | Incl. | 2.63678 | -0.04898271 | +0.39435450 |
| P | 5.53 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 770612 | 675 | 0.1- | 0.4- | | 780907 | 095 | 0.6+ | 0.5+ | | 800122 | 095 | 0.0 | 0.9- |
| 770613 | 675 | 0.0 | 0.5- | | 780928 | 095 | 0.2- | 0.4- | | | | | |
| 780905 | 095 | 0.4- | 0.1- | | 781004 | 095 | 0.1+ | 0.3- | | | | | |

1978 RL1 = 1977 LU

The identification is by E. Bowell.

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

| | | | | |
|---|---|---|---|---|
| M | 133.10169 | (1950.0) | P | Q |
| n | 0.17068865 | Peri. 195.79008 | +0.96249780 | +0.27079104 |
| a | 3.2186011 | Node 148.48377 | -0.24536265 | +0.89476268 |
| e | 0.1587104 | Incl. 1.80196 | -0.11573743 | +0.35506612 |
| P | 5.77 | H 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 770612 | 675 | 0.1+ | 0.1+ | 780905 | 095 | 1.1+ | 0.7- | 781004 095 0.8+ 0.3- |
| 770613 | 675 | 0.0 | 0.0 | 780907 | 095 | 1.1+ | 0.3+ | 781009 095 0.8- 0.6+ |
| 780901 | 095 | 1.6- | 0.5- | 780928 | 095 | 0.8- | 0.6+ | |

1978 SN4 = 1949 OR = 1972 RF3 = 1977 LE1 = 1984 UU3

The identifications 1978 SN4 = 1949 OR and 1978 SN4 = 1977 LE1 are by W. Landgraf and by E. Bowell, respectively.

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

| | | | | |
|---|---|---|---|---|
| M | 150.84961 | (1950.0) | P | Q |
| n | 0.17187007 | Peri. 276.93521 | +0.92503594 | +0.37906675 |
| a | 3.2038345 | Node 60.79154 | -0.33631150 | +0.84759507 |
| e | 0.1777586 | Incl. 1.63062 | -0.17664394 | +0.37133677 |
| P | 5.73 | H 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 490728 | 024 | 3.4- | 0.7+ | 770614 | 675 | 0.0 | 1.2- | 781002 095 (7.5- 5.6+) |
| 490730 | 024 | 1.9+ | 4.1+ | 780926 | 095 | (7.9- | 5.7+) | 781003 095 0.9+ 1.0+ |
| 720904 | 095 | 1.7+ | 3.8- | 780927 | 095 | 1.0- | 0.5+ | 781101 049 0.6+ 0.3- |
| 770612 | 675 | 0.3+ | 0.4- | 780930 | 049 | 0.6- | 1.1- | 781101 049 0.6+ 0.1+ |
| 770613 | 675 | 0.9- | 0.3+ | 780930 | 049 | 0.6+ | 0.5- | 841031 017 0.5+ 0.1- |
| 770613 | 675 | 0.4+ | 1.2- | 781001 | 049 | 0.8- | 0.2+ | 841031 017 0.9- 1.0+ |

1986 GZ

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 280.05658 | (1950.0) | P | Q |
| n | 0.27442218 | Peri. 126.60784 | +0.80506631 | +0.57981796 |
| a | 2.3452541 | Node 198.99805 | -0.58752354 | +0.80850923 |
| e | 0.2487057 | Incl. 22.62200 | +0.08175778 | +0.10061793 |
| P | 3.59 | H 15.5 | G 0.25 | |

From 27 observations 1986 Apr. 9-July 31, mean residual 1".1.

1986 LA

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 328.97360 | (1950.0) | P | Q |
| n | 0.51352320 | Peri. 86.52385 | +0.70504717 | +0.69482794 |
| a | 1.5444102 | Node 229.39802 | -0.70191163 | +0.65520945 |
| e | 0.3165922 | Incl. 10.76813 | -0.10113633 | +0.29650415 |
| P | 1.92 | H 18.5 | G 0.25 | |

From 21 observations 1986 June 4-July 27.

1986 NA

Epoch 1986 July 9.0 ET = JDE 2446620.5

| | | | | |
|---|---|---|---|---|
| M | 2.36795 | (1950.0) | P | Q |
| n | 0.31803810 | Peri. 35.58960 | +0.14728477 | +0.97596253 |
| a | 2.1256085 | Node 243.37089 | -0.94395539 | +0.09019418 |
| e | 0.4503017 | Incl. 10.35220 | -0.29539028 | +0.19839897 |
| P | 3.10 | H 20.0 | G 0.25 | |

From 5 observations 1986 July 8-12.

1986 PA
Epoch 1986 July 29.0 ET = JDE 2446640.5

| | | | | |
|---|---|---|---|---|
| M | 247.46816 | (1950.0) | P | Q |
| n | 0.90311231 | Peri. 296.19170 | -0.07156636 | -0.99470750 |
| a | 1.0600057 | Node 157.54217 | +0.97009042 | -0.08660258 |
| e | 0.4420898 | Incl. 11.12752 | +0.23195438 | +0.05528995 |
| P | 1.09 | H 18.0 | G 0.25 | |

From 6 observations 1986 Aug. 2-10.

* * * * *

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

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

(3493)* 1976 GR6 = 1976 KL1 = 1930 EC = 1983 NO
Discovered 1976 Apr. 3 by N. S. Chernykh at the Crimean Astrophysical Observatory. The double designation 1976 GR6 = 1976 KL1 is by B. G. Marsden (MPC 9078).
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 52.83339 | (1950.0) | P | Q |
| n | 0.30143257 | Peri. 75.57162 | -0.95017055 | +0.29888054 |
| a | 2.2029734 | Node 121.74956 | -0.31074216 | -0.88550468 |
| e | 0.0874014 | Incl. 5.97922 | -0.02480411 | -0.35574131 |
| P | 3.27 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 300303 | 024(17.4+ | 14.8-) | 830713 | 688 | 0.1- | 1.0- | 860609 | 046 | 0.3- | 0.8- |
| 760403 | 095 | 1.3- | 0.9- | 830713 | 688 | 0.7+ | 0.1- | 860609 | 046 | 0.3+ | 0.3- |
| 760407 | 095 | 1.9+ | 1.9- | 850221 | 801 | 0.0 | 0.7- | 860610 | 046 | 0.4+ | 1.6+ |
| 760530 | 095 | 1.6- | 0.6+ | 860603 | 801 | 0.3- | 0.7+ | 860610 | 046 | 1.5+ | 1.0+ |
| 830710 | 688 | 0.7+ | 1.8- | 860605 | 046 | 0.2- | 0.2+ | 860708 | 801 | 1.0+ | 1.1+ |
| 830710 | 688 | 0.9- | 0.5- | 860606 | 046 | 1.6- | 0.1+ | | | | |

1970 QA1 = 1934 NJ = 1960 OD = 1986 PL
The identifications 1970 QA1 = 1934 NJ = 1960 OD are by L. D. Schmadel.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 349.06365 | (1950.0) | P | Q |
| n | 0.30393395 | Peri. 348.97637 | +0.62157726 | +0.78193368 |
| a | 2.1908742 | Node 319.43113 | -0.71305083 | +0.53985667 |
| e | 0.1758674 | Incl. 4.15590 | -0.32434585 | +0.31166408 |
| P | 3.24 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 340706 | 078(26.6+ | 20.2-)X | 700905 | 095 | 2.0+ | 1.2- | 860802 | 675 | (8.6- | 1.3-) |
| 600721 | 760 | 0.4+ | 0.1- | 700910 | 095 | 0.0 | 0.6+ | 860804 | 675 | 0.4+ | 0.7- |
| 600721 | 760 | 0.5- | 0.5+ | 700927 | 095 | 0.7- | 0.3+ | 860806 | 675 | 0.3- | 0.6+ |
| 700830 | 095 | 0.5- | 0.6- | 701001 | 095 | 0.7- | 0.7+ | | | | |

1982 FP3 = 1982 HW2 = 1977 LO1
The double designation (MPC 7360) and identification are by E. Bowell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | |
|---|---|---|---|---|
| M | 256.65959 | (1950.0) | P | Q |
| n | 0.17440494 | Peri. 143.86754 | -0.85702151 | +0.51394425 |
| a | 3.1727150 | Node 67.09967 | -0.48168103 | -0.77349586 |
| e | 0.1335866 | Incl. 2.30735 | -0.18302327 | -0.37089819 |
| P | 5.65 | H 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 770613 | 675 | 0.1+ | 0.2- | 820326 | 809 | 1.2+ | 0.0 | 820329 | 809 | 0.1+ | 0.1+ |
| 770614 | 675 | 0.2- | 0.1+ | 820326 | 809 | 0.3+ | 0.8- | 820329 | 809 | 1.3+ | 0.5- |
| 820322 | 809 | 0.3+ | 0.5- | 820326 | 809 | 0.1+ | 1.1- | 820329 | 809 | 2.0+ | 1.3- |
| 820322 | 809 | 0.4+ | 0.4- | 820327 | 809 | 0.3- | 0.0 | 820329 | 809 | 1.6+ | 1.8- |
| 820322 | 809 | 0.6+ | 0.4- | 820327 | 809 | 0.2+ | 0.1- | 820401 | 809 | 0.9- | 0.2+ |
| 820323 | 809 | 0.3- | 0.6- | 820327 | 809 | 0.3+ | 0.2- | 820401 | 809 | 0.8- | 0.1+ |
| 820323 | 809 | 0.5- | 0.7- | 820328 | 809 | 0.4- | 1.1+ | 820401 | 809 | 0.8- | 0.2- |
| 820323 | 809 | 0.5- | 0.6- | 820328 | 809 | 0.2- | 1.5+ | 820425 | 033 | 2.1- | 1.9+ |
| 820324 | 809 | 0.4- | 0.3+ | 820328 | 809 | 0.1- | 0.7+ | 820425 | 033 | 1.9- | 1.7+ |
| 820324 | 809 | 0.3- | 0.4+ | 820329 | 809 | 0.1- | 0.3+ | 820427 | 033 | 0.2+ | 1.1+ |
| 820324 | 809 | 0.1- | 0.4+ | 820329 | 809 | 0.1- | 0.2+ | 820427 | 033 | 0.1+ | 0.9+ |

1982 TX
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 310.72423 | | (1950.0) | P | Q |
| n | 0.23791321 | Peri. | 193.40524 | +0.62771647 | -0.76011589 |
| a | 2.5794348 | Node | 218.10910 | +0.73692051 | +0.64975305 |
| e | 0.4301907 | Incl. | 15.78799 | +0.25083899 | -0.00669386 |
| P | 4.14 | H | 15.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 821014 | 095 | 5.8+ | 3.1- | 821112 | 095 | 2.0- | 2.1+ | 860731 | 691 | 0.9- | 0.5+ |
| 821020 | 095 | 0.9- | 0.4- | 821218 | 801 | 0.5+ | 0.6- | 860731 | 691 | 0.5- | 0.7+ |
| 821022 | 095 | 2.6- | 0.3- | 830114 | 801 | 2.8+ | 0.5+ | 860731 | 691 | 0.5- | 0.5+ |
| 821024 | 095 | 0.7+ | 0.6+ | 860712 | 691 | 0.1+ | 0.1- | 860804 | 801 | 0.1+ | 0.3+ |
| 821107 | 095 | 0.8- | 2.4- | 860712 | 691 | 0.0 | 0.2- | 860810 | 801 | 1.0+ | 0.5+ |
| 821108 | 095 | 1.4- | 3.0+ | 860712 | 691 | 0.1+ | 0.4- | | | | |

1982 TF2 = 1978 NW7 = 1978 PG1

The identifications 1982 TF2 = 1978 NW7 and 1982 TF2 = 1978 PG1 are by S. J. Bus and by W. Landgraf, respectively.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 40.27766 | | (1950.0) | P | Q |
| n | 0.27347497 | Peri. | 58.99451 | +0.98335950 | +0.17988545 |
| a | 2.3506710 | Node | 290.63206 | -0.17455564 | +0.89681677 |
| e | 0.1751389 | Incl. | 1.55544 | -0.05034312 | +0.40417930 |
| P | 3.60 | H | 14.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 780709 | 675 | 0.9- | 0.9+ | 821014 | 095 | 0.7+ | 0.5+ | 821109 | 095 | 0.1+ | 0.5+ |
| 780709 | 675 | 0.0 | 1.2+ | 821020 | 095 | 0.7- | 0.3+ | 821114 | 095 | 0.2+ | 0.7- |
| 780808 | 095 | 0.8+ | 2.1- | 821025 | 095 | 0.1- | 0.2+ | | | | |

1983 NK = 1954 GN = 1977 LM1 = 1977 NA

The key identification 1983 NK = 1977 LM1 is by E. Bowell. The identification 1983 NK = 1977 NA was suggested by W. Landgraf.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 207.20616 | | (1950.0) | P | Q |
| n | 0.17708514 | Peri. | 12.45644 | +0.23426231 | +0.94456828 |
| a | 3.1406208 | Node | 271.43294 | -0.91049222 | +0.13023146 |
| e | 0.1098073 | Incl. | 13.30284 | -0.34077131 | +0.30138103 |
| P | 5.57 | H | 11.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 540408 | 839 | 0.3- | 0.6- | 830710 | 688 | 0.1- | 0.3- | 830813 | 688 | 0.4+ | 0.5+ |
| 770613 | 675 | 1.1+ | 1.4+ | 830710 | 688 | 0.1- | 0.1- | 830813 | 688 | 0.5+ | 0.4+ |
| 770614 | 675 | 0.6- | 0.7+ | 830713 | 688 | 2.2+ | 1.0- | | | | |
| 770709 | 095 | 0.7- | 0.4- | 830713 | 688 | 2.9- | 0.1- | | | | |

1983 RD
Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | | |
|---|---|---|---|---|---|
| M | 324.78371 | | (1950.0) | P | Q |
| n | 0.32621346 | Peri. | 192.95138 | +0.99349603 | -0.11227165 |
| a | 2.0899447 | Node | 173.40604 | +0.11352396 | +0.96369590 |
| e | 0.4870690 | Incl. | 9.52015 | +0.00882911 | +0.24225049 |
| P | 3.02 | H | 17.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 830907 675 | 0.4- | 0.7+ | 830914 688 | 0.6- | 1.3- | 831009 675 | 0.1+ | 0.3- |
| 830907 675 | 0.6+ | 0.9+ | 830914 688 | 0.7+ | 1.4- | 831009 675 | 0.4- | 0.3+ |
| 830907 675 | 0.5- | 0.1+ | 830915 657 | 2.2+ | 3.5+ | 831010 808 | 1.9+ | 0.2- |
| 830907 675 | 1.4+ | 0.2+ | 830915 474 | 1.5- | 0.9+ | 831010 808 | 2.8+ | 0.2+ |
| 830907 675 | 0.9+ | 0.1+ | 830915 474 | 0.2- | 0.3- | 831011 808 | 0.3+ | 0.9+ |
| 830907 675 | 0.2- | 0.6+ | 830916 474 | 0.1- | 0.9+ | 831011 808 | 0.8+ | 2.0+ |
| 830912 675 | 2.4- | 1.1- | 830916 474 | 0.5- | 1.4+ | 831128 675 | 0.4- | 0.0 |
| 830912 675 | 2.4- | 1.1+ | 830928 474 | 1.6- | 0.2- | 831130 675 | (10.3- | 1.8+) |
| 830913 010 | 2.0+ | 0.8- | 830928 474 | 0.7- | 0.2+ | 831130 675 | (7.9- | 1.2-) |
| 830913 010 | 2.1- | 1.6+ | 831005 808 | 1.0+ | 1.0+ | 831209 801 | 0.2- | 0.2- |
| 830913 675 | 2.0+ | 0.8- | 831005 808 | 0.7+ | 0.6+ | 831214 675 | 1.0- | 1.5+ |
| 830913 675 | 1.0+ | 0.6- | 831006 413 | 1.2+ | 1.0- | 840104 801 | 0.7+ | 1.3+ |
| 830913 675 | 0.0 | 0.3+ | 831006 413 | 3.2- | 0.7- | 860727 691 | (3.8- | 1.3+) |
| 830913 675 | 0.1- | 0.2+ | 831007 049 | 0.2- | 4.3- | 860727 691 | 0.9+ | 0.4+ |
| 830914 688 | 0.3+ | 2.9+ | 831007 049 | 1.2- | 0.1+ | 860730 691 | 0.2- | 0.1- |
| 830914 675 | 0.1+ | 0.8+ | 831007 413 | 0.7+ | 0.6- | 860730 691 | 0.1- | 0.1- |
| 830914 688 | 0.5- | 1.1- | 831007 413 | 2.0- | 0.2- | 860730 691 | 0.1- | 0.0 |
| 830914 688 | 0.3+ | 0.8- | 831007 413 | 2.2+ | 0.4- | 860731 691 | 0.2- | 0.1- |
| 830914 688 | 1.1- | 0.3- | 831007 413 | 1.2- | 0.0 | 860731 691 | 0.1- | 0.1- |
| 830914 675 | 1.1+ | 1.9- | 831008 801 | 0.2- | 1.1+ | 860731 691 | 0.2- | 0.2+ |
| 830914 688 | 1.3+ | 2.6- | 831008 413 | (4.5+ | 1.0+) | 860801 675 | (3.3- | 1.4-) |
| 830914 688 | 0.7+ | 1.3- | 831008 413 | (1.3- | 3.8+) | 860801 675 | (3.2+ | 2.2-) |

1986 GV1 = 1957 QM = 1975 JD
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 331.31272 | | (1950.0) | P | Q |
| n | 0.26654040 | Peri. | 197.40781 | -0.12360853 | +0.98011970 |
| a | 2.3912678 | Node | 65.72162 | -0.88893485 | -0.03985619 |
| e | 0.1792419 | Incl. | 9.80266 | -0.44103941 | -0.19436268 |
| P | 3.70 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 570831 839 | 0.2- | 0.2- | 860408 675 | 4.0+ | 0.1+ | 860429 675 | 1.9- | 1.9+ |
| 750511 095 | 0.1- | 0.0 | 860410 675 | 2.6- | 2.1- | 860503 675 | 1.3- | 0.3- |
| 860408 675 | 0.9+ | 1.4+ | 860429 675 | 0.0 | 0.3- | | | |

1986 JH = 1950 TN3 = 1982 FF4 = 1983 VB2 = 1983 WK1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| | | | | | |
|---|---|---|---|---|---|
| M | 306.01806 | | (1950.0) | P | Q |
| n | 0.26951649 | Peri. | 280.03746 | +0.77561241 | +0.56398525 |
| a | 2.3736318 | Node | 46.32745 | -0.30473168 | +0.72783288 |
| e | 0.2553882 | Incl. | 23.07219 | -0.55277843 | +0.39010246 |
| P | 3.66 | H | 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 501013 760 | (88.1- | 38.1+)X | 831107 675 | 1.6- | 0.3+ | 860503 675 | 0.2+ | 2.1- |
| 820330 808 | 0.7+ | 0.8+ | 831128 688 | 1.1+ | 1.3+ | 860606 675 | 0.0 | 0.9- |
| 831107 675 | 1.6- | 0.3- | 831128 688 | 1.0+ | 0.6+ | 860606 675 | 0.6+ | 1.1+ |
| 831107 675 | 0.0 | 0.3+ | 860502 675 | 1.9- | 1.9+ | 860609 675 | (8.7+ | 2.7-) |
| 831107 675 | 0.7- | 0.6+ | 860502 675 | 2.7+ | 2.1+ | | | |

1986 JV = 1972 XC = 1981 JB1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| M 289.83307 | (1950.0) | P | Q |
|---|---|---|---|
| n 0.18849748 | Peri. 253.43542 | +0.69199604 | +0.70285358 |
| a 3.0125427 | Node 61.54950 | -0.57002214 | +0.67201560 |
| e 0.0921380 | Incl. 10.79907 | -0.44296302 | +0.23322066 |
| P 5.23 | H 11.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 721202 095 | 2.2- | 0.3+ | 810605 688 | 0.8- | 0.6- | 860513 688 | 2.1- | 0.3- |
| 721206 095 | 0.3- | 3.7+ | 810605 688 | 0.8- | 0.2+ | 860513 688 | 2.0- | 0.4- |
| 810505 688 | 0.7+ | 0.8- | 860504 688 | 3.2+ | 1.2+ | 860608 688 | 0.4+ | 1.4+ |
| 810505 688 | 1.0+ | 1.0- | 860504 688 | 2.7+ | 0.9+ | 860608 688 | 0.2- | 1.4+ |

* * * * *

ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

1986 LC = 1935 CS = 1952 DX2 = 1952 FV = 1975 VD8 = 1977 FN3 = 1978 NC2 = 1984 UM3

The identifications are by S. Nakano.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

| M 39.46364 | (1950.0) | P | Q |
|---|---|---|---|
| n 0.23489267 | Peri. 74.06071 | -0.93500886 | +0.29341907 |
| a 2.6015006 | Node 122.60939 | -0.34015164 | -0.90086317 |
| e 0.1412828 | Incl. 13.67574 | +0.10027613 | -0.31992312 |
| P 4.20 | H 12.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 350210 012(32.2- | 4.4-)X | | 770317 095 | 3.7+ | 0.8- | 860604 675 | 1.1+ | 0.6- |
| 520224 711 | 0.7+ | 2.4- Y | 780706 095 | 0.7+ | 5.3- | 860604 675 | 1.7- | 0.0 |
| 520322 711 | 3.2- | 1.6+ Y | 841030 033 | 1.6- | 1.8- | 860608 675 | 0.5- | 0.1- |
| 520322 711 | 0.7+ | 1.6- Y | 841030 033 | 2.0- | 1.3- | 860609 675 | 0.8+ | 0.5- |
| 751106 095 | 0.9+ | 1.4- | 860603 675 | 0.8+ | 1.6+ | | | |
| 751111 095 | 0.1+ | 2.0+ | 860603 675 | 0.9- | 2.7+ | | | |

* * * * *

ORBITAL ELEMENTS BY T. KOBAYASHI, TOKYO.

1982 UR10 = 1976 SG

The identification was found independently by T. Kobayashi and W. Landgraf.
Epoch 1986 June 19.0 ET = JDE 2446600.5

| M 236.58400 | (1950.0) | P | Q |
|---|---|---|---|
| n 0.17395344 | Peri. 14.70717 | +0.84506006 | -0.53459289 |
| a 3.1781962 | Node 17.61823 | +0.48741890 | +0.76322005 |
| e 0.2047899 | Incl. 1.73463 | +0.21976422 | +0.36291266 |
| P 5.67 | H 13.5 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 760920 049 | 0.4- | 0.8- | 760929 049 | 0.3+ | 0.6- | 821025 095 | 0.6- | 1.1+ |
| 760920 049 | 1.1+ | 1.2+ Y | 760929 049 | 1.4- | 0.3- | 821109 095 | 0.9- | 0.0 |
| 760920 049 | 0.3+ | 0.8- | 760930 049 | 0.1- | 0.8+ | 821114 095 | 1.6+ | 1.0- |
| 760920 049 | 0.1+ | 0.2- | 760930 049 | 0.3+ | 0.6+ | | | |

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are from JAM 2013-2015. The identifications are by H. Oishi unless otherwise stated.

(3494)* 1980 XW = 1962 WV1 = 1969 UD = 1972 OA

Discovered 1980 Dec. 7 at the Purple Mountain Observatory. The identifications 1980 XW = 1962 WV1 = 1969 UD are by T. Furuta (JAM 1888).

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 303.37832 | (1950.0) | P | Q |
| n | 0.27368612 | Peri. 72.02289 | +0.58608490 | +0.80605339 |
| a | 2.3494572 | Node 234.13946 | -0.77650263 | +0.52973684 |
| e | 0.1304492 | Incl. 5.83232 | -0.23140473 | +0.26392576 |
| P | 3.60 | H 13.0 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 621130 760 | 0.2- | 1.4+ | 801130 095 | 1.6- | 0.9- | 860504 688 | 0.5- | 0.9+ |
| 621130 760 | 0.3- | 1.7+ | 801207 330 | 1.2+ | 0.3+ | 860504 046 | 2.1+ | 0.0 |
| 691016 095 | 1.2+ | 0.3+ | 801210 095 | 0.2- | 0.6- | 860504 046 | (5.0+ | 1.9-) |
| 691018 095 | (5.4+ | 5.4+) | 860412 801 | 0.8+ | 0.5- | 860510 801 | 0.3- | 0.5- |
| 720718 095 | 0.5- | 0.6+ | 860504 688 | 1.3- | 1.3+ | | | |

(3495)* 1981 NU = 1981 NS1 = 1981 OC = 1935 KF = 1952 KA = 1974 EC = 1974 FX1 = 1980 ET1

Discovered 1981 July 2 by L. E. Gonzalez at Cerro El Roble. The double designation 1974 EC = 1974 FX1 is by B. G. Marsden (MPC 4576) and by O. Kippes (MPC 9957), who found it independently.

Epoch 1986 June 19.0 ET = JDE 2446600.5

| | | | | |
|---|---|---|---|---|
| M | 17.06923 | (1950.0) | P | Q |
| n | 0.17266185 | Peri. 92.55592 | -0.80922673 | +0.58640301 |
| a | 3.1940261 | Node 123.34867 | -0.55460368 | -0.74237870 |
| e | 0.1401911 | Incl. 2.45816 | -0.19382172 | -0.32404534 |
| P | 5.71 | H 11.2 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 350524 078 | 2.3- | 4.9+ | 810702 805 | 0.2+ | 2.8+ | 860504 688 | 0.3+ | 0.1+ |
| 350529 078 | 1.1+ | 0.6- | 810702 805 | 0.7- | 0.0 | 860504 688 | 0.5+ | 0.5- |
| 520517 078 | (3.5- | 10.5-)Y | 810710 808 | 2.4- | 0.3+ | 860508 657 | 1.3- | 1.6+ |
| 520524 711 | 1.0+ | 4.3- | 810710 808 | 0.1- | 0.0 | 860508 657 | 0.9+ | 0.1+ |
| 520525 711 | 1.0+ | 0.5- | 810726 688 | 1.9+ | 0.8- | 860510 801 | 0.4+ | 0.6+ |
| 740313 095 | 3.6+ | 2.3+ | 810726 688 | 1.1+ | 1.3- | 860513 688 | 0.5+ | 0.2- |
| 740315 095 | 1.7- | 1.6- | 860413 801 | 2.2+ | 1.3+ | 860513 688 | 1.6+ | 0.2- |
| 740319 095 | 2.4- | 1.6+ | 860501 046 | 3.3- | 0.6- | 860608 688 | (1.5+ | 1.1+) |
| 740326 808 | 0.1- | 0.7- | 860501 046 | 3.1- | 1.7- | 860608 688 | (1.3+ | 0.7+) |
| 740326 808 | 0.1+ | 0.2- | 860502 046 | 0.7- | 0.0 | | | |
| 800315 095 | 2.1+ | 1.0- | 860502 046 | 0.6- | 0.5- | | | |

1971 OU = 1976 YN3 = 1979 SQ6 = 1979 SQ12

The key identification 1971 OU = 1976 YN3 is by T. Urata (NOC 1043).

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

| | | | | |
|---|---|---|---|---|
| M | 340.72504 | (1950.0) | P | Q |
| n | 0.25686087 | Peri. 37.14676 | +0.13157230 | +0.99047476 |
| a | 2.4509716 | Node 240.44679 | -0.92030771 | +0.10682504 |
| e | 0.1809690 | Incl. 2.67519 | -0.36840529 | +0.08688020 |
| P | 3.84 | H 12.9 | G 0.25 | |

Residuals in seconds of arc

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 710726 095 | 0.0 | 1.8+ | 710824 095 | 1.1+ | 0.1- | 790928 095 | 1.4+ | 3.1- |
| 710727 095 | 1.1+ | 2.4+ | 761216 095 | 0.2+ | 2.2+ | | | |
| 710818 095 | 2.8- | 2.4- | 790923 095 | 1.0- | 2.0+ | | | |

1973 QD2 = 1935 RK = 1941 UY = 1957 TJ = 1977 EM3 = 1979 VW2 = 1981 AR2 = 1984 SE4

The identification 1973 QD2 = 1941 UY was independently suggested by E. Bowell.

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

| | | | | | |
|---|---|---|---|---|---|
| M | 160.05463 | (1950.0) | P | Q | |
| n | 0.18298287 | Peri. | 213.31420 | +0.65344296 | +0.75583542 |
| a | 3.0727693 | Node | 97.52368 | -0.68500131 | +0.61377326 |
| e | 0.2707875 | Incl. | 2.40112 | -0.32215757 | +0.22802458 |
| P | 5.39 | H | 12.0 | G | 0.25 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 350905 | 078(34.3- | 48.7-)X | 730831 | 095 | 0.5+ | 1.0- | 791114 | 095 | 2.7- | 2.8- |
| 411019 | 020 | 1.7+ | 2.2- | 730905 | 095 | 0.4+ | 1.2+ | 810108 | 381 | 1.2+ | 1.6+ |
| 411028 | 020 | 1.4+ | 1.2- | 730927 | 095 | 1.1+ | 1.5+ | 810108 | 381 | 2.6+ | 2.1+ |
| 571002 | 760 | 1.7- | 0.8+ | 770315 | 381 | 0.8- | 0.2+ | 840928 | 033 | 0.1+ | 0.1+ |
| 571002 | 760 | 2.8- | 2.1+ | 770315 | 381 | 0.7- | 0.3- | 840928 | 033 | 0.1+ | 0.3- |

1974 SX1 = 1981 WP4

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

| | | | | | |
|---|---|---|---|---|---|
| M | 151.37401 | (1950.0) | P | Q | |
| n | 0.28716697 | Peri. | 350.23215 | +0.99979024 | -0.00542169 |
| a | 2.2753450 | Node | 10.14124 | +0.01451758 | +0.86781697 |
| e | 0.1614481 | Incl. | 6.44046 | -0.01444700 | +0.49685442 |
| P | 3.43 | H | 14.2 | G | 0.25 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 740919 | 095 | 1.1- | 0.9+ | 740923 | 095 | 2.7+ | 0.9- | 811119 | 095 | 0.2- | 0.7+ |
| 740921 | 095 | 1.2- | 0.2- | 741009 | 095 | 0.4- | 0.3+ | 811124 | 095 | 0.2+ | 0.8- |

* * * * *

EPHEMERIDES.

1986 PA a,e,i = 1.06, 0.44, 11 Elements MPC 11052

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 08 | 18 | 19 04.67 | -05 44.8 | 0.320 | 1.273 | 139.5 | 31.1 | 17.2 |
| 1986 08 | 28 | 18 32.26 | -11 22.4 | | | | | |
| 1986 09 | 07 | 18 06.73 | -16 51.2 | 0.327 | 1.151 | 107.9 | 56.4 | 17.7 |
| 1986 09 | 17 | 17 47.94 | -21 55.1 | | | | | |
| 1986 09 | 27 | 17 32.98 | -26 38.1 | 0.345 | 1.007 | 80.9 | 79.4 | 18.3 |
| 1986 10 | 07 | 17 17.36 | -31 08.4 | | | | | |
| 1986 10 | 17 | 16 54.30 | -35 21.2 | 0.340 | 0.846 | 54.5 | 106.3 | 19.1 |

1983 RD a,e,i = 2.09, 0.49, 10 Elements MPC 11054

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 08 | 18 | 19 15.80 | +06 09.1 | 0.242 | 1.202 | 137.8 | 34.4 | 15.6 |
| 1986 08 | 23 | 19 15.49 | +04 29.7 | | | | | |
| 1986 08 | 28 | 19 17.07 | +02 20.2 | 0.204 | 1.157 | 132.0 | 40.4 | 15.3 |
| 1986 09 | 02 | 19 21.03 | -00 23.6 | | | | | |
| 1986 09 | 07 | 19 28.03 | -03 45.9 | 0.170 | 1.119 | 127.3 | 45.8 | 15.0 |
| 1986 09 | 12 | 19 38.89 | -07 51.5 | | | | | |
| 1986 09 | 17 | 19 54.60 | -12 43.8 | 0.142 | 1.092 | 124.5 | 49.4 | 14.6 |
| 1986 09 | 22 | 20 16.47 | -18 21.8 | | | | | |
| 1986 09 | 27 | 20 46.04 | -24 32.2 | 0.123 | 1.076 | 124.0 | 50.6 | 14.3 |
| 1986 10 | 02 | 21 24.63 | -30 40.4 | | | | | |
| 1986 10 | 07 | 22 12.08 | -35 51.6 | 0.119 | 1.072 | 125.2 | 49.6 | 14.2 |
| 1986 10 | 12 | 23 05.03 | -39 12.3 | | | | | |
| 1986 10 | 17 | 23 57.29 | -40 23.0 | 0.132 | 1.081 | 126.8 | 47.6 | 14.4 |
| 1986 10 | 22 | 00 43.16 | -39 44.2 | | | | | |
| 1986 10 | 27 | 01 20.22 | -37 54.1 | 0.161 | 1.102 | 128.7 | 44.7 | 14.8 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1986 11 01 | 01 48.93 | -35 25.7 | | | | | |
| 1986 11 06 | 02 10.93 | -32 39.5 | 0.201 | 1.133 | 131.1 | 41.2 | 15.2 |
| 1986 11 11 | 02 27.91 | -29 47.3 | | | | | |
| 1986 11 16 | 02 41.27 | -26 55.0 | 0.249 | 1.174 | 133.6 | 37.6 | 15.7 |
| 1986 11 21 | 02 52.02 | -24 05.6 | | | | | |
| 1986 11 26 | 03 00.92 | -21 20.1 | 0.305 | 1.223 | 135.2 | 34.6 | 16.1 |
| 1986 12 01 | 03 08.58 | -18 39.2 | | | | | |
| 1986 12 06 | 03 15.44 | -16 03.2 | 0.372 | 1.278 | 135.6 | 32.7 | 16.6 |
| 1986 12 11 | 03 21.83 | -13 32.7 | | | | | |
| 1986 12 16 | 03 27.97 | -11 08.5 | 0.448 | 1.337 | 134.4 | 31.8 | 17.1 |

1986 NA a,e,i = 2.13, 0.45, 10 Elements MPC 11051

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 19 55.14 | +22 12.0 | 0.333 | 1.270 | 135.1 | 34.2 | 19.4 |
| 1986 08 28 | 20 12.38 | +19 13.4 | | | | | |
| 1986 09 07 | 20 29.51 | +15 58.2 | 0.439 | 1.361 | 136.6 | 30.6 | 20.0 |
| 1986 09 17 | 20 46.85 | +12 49.4 | | | | | |
| 1986 09 27 | 21 04.42 | +10 02.4 | 0.589 | 1.467 | 132.7 | 30.1 | 20.8 |

Comet Churyumov-Solodovnikov (1986i) Elements MPC 11047

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 20 31.05 | -32 24.5 | 1.911 | 2.857 | 154.4 | 8.8 | 13.0 |
| 1986 08 28 | 20 06.86 | -36 28.3 | | | | | |
| 1986 09 07 | 19 46.33 | -39 27.1 | 2.240 | 2.943 | 125.6 | 16.2 | 13.4 |
| 1986 09 17 | 19 30.42 | -41 34.1 | | | | | |
| 1986 09 27 | 19 19.24 | -43 04.6 | 2.676 | 3.039 | 101.5 | 18.9 | 14.0 |
| 1986 10 07 | 19 12.39 | -44 11.1 | | | | | |
| 1986 10 17 | 19 09.28 | -45 02.7 | 3.141 | 3.144 | 81.1 | 18.2 | 14.5 |
| 1986 10 27 | 19 09.28 | -45 45.2 | | | | | |
| 1986 11 06 | 19 11.84 | -46 22.7 | 3.579 | 3.258 | 63.4 | 15.8 | 14.9 |
| 1986 11 16 | 19 16.48 | -46 57.8 | | | | | |
| 1986 11 26 | 19 22.81 | -47 32.3 | 3.957 | 3.378 | 48.1 | 12.6 | 15.3 |
| 1986 12 06 | 19 30.51 | -48 07.4 | | | | | |
| 1986 12 16 | 19 39.32 | -48 44.3 | 4.253 | 3.505 | 36.0 | 9.5 | 15.6 |

Comet Wilson (1986l) Elements MPC 11047

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m1 |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 21 58.70 | +23 37.7 | 2.650 | 3.511 | 142.8 | 10.0 | 11.1 |
| 1986 08 28 | 21 37.87 | +21 36.6 | | | | | |
| 1986 09 07 | 21 16.39 | +18 53.3 | 2.429 | 3.299 | 144.1 | 10.3 | 10.6 |
| 1986 09 17 | 20 55.76 | +15 35.7 | | | | | |
| 1986 09 27 | 20 37.24 | +11 58.0 | 2.388 | 3.084 | 125.9 | 15.3 | 10.3 |
| 1986 10 07 | 20 21.70 | +08 15.8 | | | | | |
| 1986 10 17 | 20 09.48 | +04 42.3 | 2.491 | 2.867 | 101.8 | 19.9 | 10.1 |
| 1986 10 27 | 20 00.53 | +01 25.8 | | | | | |
| 1986 11 06 | 19 54.58 | -01 30.2 | 2.663 | 2.647 | 78.4 | 21.5 | 9.9 |
| 1986 11 16 | 19 51.25 | -04 05.5 | | | | | |
| 1986 11 26 | 19 50.11 | -06 21.9 | 2.825 | 2.426 | 56.6 | 19.9 | 9.6 |
| 1986 12 06 | 19 50.79 | -08 21.9 | | | | | |
| 1986 12 16 | 19 52.95 | -10 08.7 | 2.918 | 2.205 | 36.4 | 15.4 | 9.3 |

Periodic Comet Wild 3 (1980 VII) Elements MPC 10521

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | m2 |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 12 01.54 | +13 01.8 | 3.871 | 3.050 | 30.1 | 9.4 | 20.3 |
| 1986 10 27 | 12 15.95 | +11 38.7 | | | | | |
| 1986 11 06 | 12 30.28 | +10 18.2 | 3.647 | 2.979 | 41.5 | 12.8 | 20.0 |
| 1986 11 16 | 12 44.49 | +09 01.4 | | | | | |
| 1986 11 26 | 12 58.52 | +07 49.0 | 3.383 | 2.908 | 53.7 | 15.9 | 19.8 |
| 1986 12 06 | 13 12.28 | +06 42.2 | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1986 12 16 | 13 25.66 | +05 41.8 | 3.087 | 2.839 | 66.3 | 18.5 | 19.5 |
| 1986 12 26 | 13 38.55 | +04 48.9 | | | | | |
| 1987 01 05 | 13 50.79 | +04 04.5 | 2.773 | 2.772 | 79.7 | 20.4 | 19.1 |
| 1987 01 15 | 14 02.20 | +03 29.3 | | | | | |
| 1987 01 25 | 14 12.56 | +03 04.0 | 2.453 | 2.706 | 94.0 | 21.3 | 18.8 |
| 1987 02 04 | 14 21.59 | +02 49.0 | | | | | |
| 1987 02 14 | 14 29.02 | +02 44.4 | 2.145 | 2.643 | 109.4 | 20.6 | 18.4 |
| 1987 02 24 | 14 34.53 | +02 49.7 | | | | | |
| 1987 03 06 | 14 37.79 | +03 03.6 | 1.869 | 2.583 | 126.3 | 18.0 | 18.0 |
| 1987 03 16 | 14 38.54 | +03 23.6 | | | | | |
| 1987 03 26 | 14 36.64 | +03 46.1 | 1.648 | 2.527 | 144.4 | 13.3 | 17.6 |
| 1987 04 05 | 14 32.15 | +04 06.3 | | | | | |
| 1987 04 15 | 14 25.48 | +04 17.8 | 1.507 | 2.475 | 160.4 | 7.8 | 17.3 |
| 1987 04 25 | 14 17.34 | +04 15.0 | | | | | |
| 1987 05 05 | 14 08.74 | +03 53.2 | 1.462 | 2.429 | 158.4 | 8.8 | 17.2 |
| 1987 05 15 | 14 00.81 | +03 09.8 | | | | | |
| 1987 05 25 | 13 54.50 | +02 05.5 | 1.513 | 2.388 | 141.2 | 15.4 | 17.2 |
| 1987 06 04 | 13 50.49 | +00 42.6 | | | | | |
| 1987 06 14 | 13 49.14 | -00 55.5 | 1.639 | 2.354 | 123.2 | 21.2 | 17.3 |
| 1987 06 24 | 13 50.51 | -02 45.0 | | | | | |
| 1987 07 04 | 13 54.50 | -04 42.8 | 1.814 | 2.327 | 107.2 | 24.7 | 17.5 |

Periodic Comet Halley — Elements MPC 10376

| Date ET | R. A. (1950) Decl. | Delta | r | Elong. | Phase | m2 |
|---|---|---|---|---|---|---|
| 1986 11 06 | 11 38.27 -13 05.8 | 4.608 | 3.959 | 44.3 | 10.1 | 17.8 |
| 1986 11 16 | 11 39.82 -13 51.8 | | | | | |
| 1986 11 26 | 11 40.20 -14 34.6 | 4.528 | 4.168 | 62.6 | 12.1 | 18.0 |
| 1986 12 06 | 11 39.22 -15 12.8 | | | | | |
| 1986 12 16 | 11 36.75 -15 44.8 | 4.390 | 4.371 | 82.4 | 12.9 | 18.1 |
| 1986 12 26 | 11 32.65 -16 08.8 | | | | | |
| 1987 01 05 | 11 26.84 -16 22.8 | 4.236 | 4.570 | 103.7 | 12.1 | 18.2 |
| 1987 01 15 | 11 19.36 -16 24.5 | | | | | |
| 1987 01 25 | 11 10.35 -16 12.5 | 4.118 | 4.764 | 126.1 | 9.6 | 18.4 |
| 1987 02 04 | 11 00.10 -15 45.5 | | | | | |
| 1987 02 14 | 10 49.05 -15 03.7 | 4.094 | 4.955 | 147.5 | 6.1 | 18.5 |
| 1987 02 24 | 10 37.73 -14 08.5 | | | | | |
| 1987 03 06 | 10 26.72 -13 02.9 | 4.204 | 5.142 | 158.9 | 4.0 | 18.7 |
| 1987 03 16 | 10 16.52 -11 50.8 | | | | | |
| 1987 03 26 | 10 07.55 -10 36.4 | 4.461 | 5.325 | 147.0 | 5.9 | 19.0 |
| 1987 04 05 | 10 00.04 -09 23.6 | | | | | |
| 1987 04 15 | 09 54.14 -08 15.7 | 4.843 | 5.505 | 127.0 | 8.4 | 19.3 |
| 1987 04 25 | 09 49.81 -07 14.7 | | | | | |
| 1987 05 05 | 09 46.99 -06 22.1 | 5.308 | 5.682 | 106.8 | 9.8 | 19.7 |
| 1987 05 15 | 09 45.54 -05 38.5 | | | | | |
| 1987 05 25 | 09 45.28 -05 03.8 | 5.809 | 5.857 | 87.7 | 10.0 | 20.0 |
| 1987 06 04 | 09 46.06 -04 37.9 | | | | | |
| 1987 06 14 | 09 47.71 -04 20.1 | 6.305 | 6.028 | 69.7 | 9.1 | 20.3 |
| 1987 06 24 | 09 50.08 -04 09.9 | | | | | |
| 1987 07 04 | 09 53.02 -04 06.7 | 6.760 | 6.197 | 52.7 | 7.5 | 20.6 |
| 1987 07 14 | 09 56.41 -04 09.7 | | | | | |
| 1987 07 24 | 10 00.12 -04 18.3 | 7.149 | 6.363 | 36.6 | 5.5 | 20.8 |

Periodic Comet Wild 1 — Elements MPC 10524

| Date ET | R. A. (1950) Decl. | Delta | r | Elong. | Phase | m2 |
|---|---|---|---|---|---|---|
| 1986 11 26 | 13 33.88 -13 12.6 | 2.759 | 2.051 | 36.5 | 16.6 | 19.8 |
| 1986 12 06 | 13 53.48 -16 15.4 | | | | | |
| 1986 12 16 | 14 12.77 -19 11.2 | 2.672 | 2.111 | 46.0 | 19.6 | 19.9 |
| 1986 12 26 | 14 31.67 -21 59.6 | | | | | |
| 1987 01 05 | 14 50.06 -24 40.2 | 2.568 | 2.185 | 56.5 | 22.0 | 19.9 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1987 01 15 | 15 07.75 | -27 13.3 | | | | | |
| 1987 01 25 | 15 24.56 | -29 39.1 | 2.447 | 2.271 | 68.1 | 23.7 | 20.0 |
| 1987 02 04 | 15 40.22 | -31 58.3 | | | | | |
| 1987 02 14 | 15 54.42 | -34 11.6 | 2.315 | 2.367 | 80.8 | 24.3 | 20.1 |
| 1987 02 24 | 16 06.84 | -36 20.0 | | | | | |
| 1987 03 06 | 16 17.04 | -38 24.0 | 2.179 | 2.471 | 95.0 | 23.6 | 20.1 |
| 1987 03 16 | 16 24.62 | -40 23.7 | | | | | |
| 1987 03 26 | 16 29.14 | -42 18.1 | 2.056 | 2.582 | 110.6 | 21.2 | 20.2 |
| 1987 04 05 | 16 30.20 | -44 04.9 | | | | | |
| 1987 04 15 | 16 27.62 | -45 40.1 | 1.968 | 2.697 | 127.3 | 17.2 | 20.3 |
| 1987 04 25 | 16 21.48 | -46 58.6 | | | | | |
| 1987 05 05 | 16 12.33 | -47 54.3 | 1.942 | 2.815 | 143.2 | 12.4 | 20.4 |

1981 EW3 a,e,i = 2.54, 0.16, 7 Elements MPC 11042

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 20 55.59 | -07 30.0 | 1.140 | 2.136 | 166.2 | 6.5 | 15.4 |
| 1986 08 28 | 20 48.03 | -07 43.3 | | | | | |
| 1986 09 07 | 20 42.94 | -07 59.0 | 1.233 | 2.144 | 146.1 | 15.2 | 15.8 |
| 1986 09 17 | 20 40.95 | -08 12.8 | | | | | |
| 1986 09 27 | 20 42.18 | -08 21.2 | 1.398 | 2.156 | 127.0 | 21.8 | 16.3 |
| 1986 10 07 | 20 46.47 | -08 21.8 | | | | | |
| 1986 10 17 | 20 53.52 | -08 12.9 | 1.613 | 2.171 | 110.4 | 25.5 | 16.8 |

1970 QA1 a,e,i = 2.19, 0.18, 4 Elements MPC 11052

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 20 59.25 | -17 11.0 | 0.808 | 1.810 | 168.1 | 6.6 | 14.8 |
| 1986 08 28 | 20 51.61 | -16 59.6 | | | | | |
| 1986 09 07 | 20 47.16 | -16 39.7 | 0.895 | 1.821 | 146.1 | 18.0 | 15.4 |
| 1986 09 17 | 20 46.55 | -16 10.9 | | | | | |
| 1986 09 27 | 20 49.74 | -15 33.2 | 1.047 | 1.837 | 127.5 | 25.7 | 16.0 |
| 1986 10 07 | 20 56.36 | -14 46.7 | | | | | |
| 1986 10 17 | 21 05.91 | -13 51.1 | 1.241 | 1.859 | 112.0 | 29.8 | 16.5 |

1982 TX a,e,i = 2.58, 0.43, 16 Elements MPC 11053

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 22 12.52 | +19 21.8 | 1.021 | 1.947 | 146.6 | 16.6 | 17.3 |
| 1986 08 28 | 22 04.45 | +18 55.9 | | | | | |
| 1986 09 07 | 21 55.90 | +17 39.4 | 0.900 | 1.848 | 151.2 | 15.2 | 16.8 |
| 1986 09 17 | 21 48.54 | +15 36.1 | | | | | |
| 1986 09 27 | 21 43.93 | +12 58.1 | 0.854 | 1.754 | 141.7 | 20.8 | 16.8 |
| 1986 10 07 | 21 43.24 | +10 02.2 | | | | | |
| 1986 10 17 | 21 47.09 | +07 07.2 | 0.873 | 1.668 | 126.2 | 28.8 | 16.9 |
| 1986 10 27 | 21 55.48 | +04 27.5 | | | | | |
| 1986 11 06 | 22 08.11 | +02 13.0 | 0.936 | 1.593 | 111.5 | 35.4 | 17.2 |

1981 ER22 a,e,i = 2.39, 0.21, 0 Elements MPC 11043

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 23 07.64 | -06 16.2 | 0.933 | 1.912 | 158.7 | 11.1 | 16.9 |
| 1986 08 28 | 23 01.25 | -07 00.7 | | | | | |
| 1986 09 07 | 22 53.43 | -07 52.5 | 0.886 | 1.894 | 177.9 | 1.1 | 16.3 |
| 1986 09 17 | 22 45.73 | -08 41.6 | | | | | |
| 1986 09 27 | 22 39.67 | -09 18.7 | 0.926 | 1.882 | 154.9 | 13.1 | 16.9 |
| 1986 10 07 | 22 36.39 | -09 37.7 | | | | | |
| 1986 10 17 | 22 36.51 | -09 35.6 | 1.041 | 1.877 | 134.3 | 22.3 | 17.4 |
| 1986 10 27 | 22 40.07 | -09 12.4 | | | | | |
| 1986 11 06 | 22 46.81 | -08 29.6 | 1.208 | 1.880 | 117.1 | 28.0 | 17.9 |
| 1986 11 16 | 22 56.30 | -07 29.1 | | | | | |
| 1986 11 26 | 23 08.06 | -06 13.5 | 1.409 | 1.890 | 102.7 | 30.6 | 18.3 |

1981 EB11 a,e,i = 2.45, 0.20, 3 Elements MPC 11042

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 08 18 | 01 54.10 | +15 39.6 | 1.505 | 2.108 | 112.2 | 26.4 | 19.1 |
| 1986 08 28 | 01 57.80 | +16 14.9 | | | | | |
| 1986 09 07 | 01 58.31 | +16 32.2 | 1.354 | 2.147 | 130.2 | 21.0 | 18.7 |
| 1986 09 17 | 01 55.51 | +16 29.8 | | | | | |
| 1986 09 27 | 01 49.65 | +16 07.0 | 1.254 | 2.188 | 151.6 | 12.6 | 18.3 |
| 1986 10 07 | 01 41.38 | +15 24.9 | | | | | |
| 1986 10 17 | 01 31.89 | +14 28.2 | 1.238 | 2.232 | 174.1 | 2.6 | 18.0 |
| 1986 10 27 | 01 22.58 | +13 24.5 | | | | | |
| 1986 11 06 | 01 14.75 | +12 22.8 | 1.324 | 2.276 | 158.8 | 9.1 | 18.4 |
| 1986 11 16 | 01 09.38 | +11 31.5 | | | | | |
| 1986 11 26 | 01 06.89 | +10 55.7 | 1.504 | 2.322 | 136.6 | 17.0 | 19.0 |
| 1986 12 06 | 01 07.37 | +10 37.7 | | | | | |
| 1986 12 16 | 01 10.61 | +10 37.5 | 1.751 | 2.367 | 117.1 | 21.7 | 19.5 |
| 1986 12 26 | 01 16.30 | +10 53.3 | | | | | |
| 1987 01 05 | 01 24.07 | +11 22.8 | 2.038 | 2.413 | 100.1 | 23.7 | 19.9 |
| 1987 01 15 | 01 33.63 | +12 03.5 | | | | | |
| 1987 01 25 | 01 44.65 | +12 52.8 | 2.340 | 2.457 | 85.0 | 23.5 | 20.3 |

1978 PX2 a,e,i = 2.39, 0.20, 2 Elements MPC 8797

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 06 49.95 | +25 40.5 | 1.782 | 2.209 | 101.6 | 26.2 | 18.5 |
| 1986 10 27 | 06 56.90 | +25 42.3 | | | | | |
| 1986 11 06 | 07 00.58 | +25 47.9 | 1.598 | 2.253 | 119.1 | 22.6 | 18.2 |
| 1986 11 16 | 07 00.66 | +25 57.9 | | | | | |
| 1986 11 26 | 06 56.98 | +26 11.7 | 1.452 | 2.298 | 140.0 | 16.0 | 17.9 |
| 1986 12 06 | 06 49.72 | +26 26.9 | | | | | |
| 1986 12 16 | 06 39.59 | +26 40.0 | 1.381 | 2.343 | 164.0 | 6.7 | 17.5 |
| 1986 12 26 | 06 27.84 | +26 47.3 | | | | | |
| 1987 01 05 | 06 16.07 | +26 46.7 | 1.414 | 2.387 | 169.5 | 4.3 | 17.5 |
| 1987 01 15 | 06 05.88 | +26 38.9 | | | | | |
| 1987 01 25 | 05 58.42 | +26 26.4 | 1.554 | 2.431 | 145.6 | 13.2 | 18.1 |
| 1987 02 04 | 05 54.30 | +26 11.9 | | | | | |
| 1987 02 14 | 05 53.61 | +25 57.6 | 1.779 | 2.473 | 124.3 | 19.3 | 18.6 |
| 1987 02 24 | 05 56.13 | +25 44.3 | | | | | |
| 1987 03 06 | 06 01.47 | +25 31.9 | 2.054 | 2.515 | 106.0 | 22.3 | 19.0 |
| 1987 03 16 | 06 09.22 | +25 19.5 | | | | | |
| 1987 03 26 | 06 18.95 | +25 05.9 | 2.352 | 2.554 | 90.0 | 23.0 | 19.4 |

1981 WG1 a,e,i = 2.81, 0.14, 9 Elements MPC 10160

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 06 40.72 | +13 01.2 | 2.016 | 2.436 | 102.5 | 23.5 | 16.9 |
| 1986 10 27 | 06 46.94 | +12 31.0 | | | | | |
| 1986 11 06 | 06 50.52 | +12 04.2 | 1.796 | 2.443 | 119.6 | 20.7 | 16.6 |
| 1986 11 16 | 06 51.23 | +11 43.9 | | | | | |
| 1986 11 26 | 06 48.97 | +11 32.7 | 1.618 | 2.452 | 139.3 | 15.2 | 16.2 |
| 1986 12 06 | 06 43.84 | +11 33.3 | | | | | |
| 1986 12 16 | 06 36.38 | +11 47.0 | 1.514 | 2.464 | 160.6 | 7.6 | 15.8 |
| 1986 12 26 | 06 27.47 | +12 13.8 | | | | | |
| 1987 01 05 | 06 18.27 | +12 52.2 | 1.513 | 2.478 | 166.2 | 5.4 | 15.8 |
| 1987 01 15 | 06 10.06 | +13 39.2 | | | | | |
| 1987 01 25 | 06 03.85 | +14 31.6 | 1.618 | 2.495 | 145.9 | 12.8 | 16.2 |
| 1987 02 04 | 06 00.32 | +15 26.3 | | | | | |
| 1987 02 14 | 05 59.77 | +16 20.5 | 1.809 | 2.514 | 125.4 | 18.7 | 16.6 |
| 1987 02 24 | 06 02.14 | +17 12.0 | | | | | |
| 1987 03 06 | 06 07.22 | +17 59.3 | 2.056 | 2.534 | 107.3 | 22.0 | 17.0 |
| 1987 03 16 | 06 14.72 | +18 40.8 | | | | | |
| 1987 03 26 | 06 24.26 | +19 15.5 | 2.328 | 2.556 | 91.4 | 23.0 | 17.3 |

(3284) 1953 NB a,e,i = 2.76, 0.39, 7 Elements MPC 9827

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 07.59 | +23 58.3 | 2.433 | 2.745 | 97.4 | 21.1 | 18.0 |
| 1986 | 10 27 | 07 11.56 | +24 12.9 | | | | | |
| 1986 | 11 06 | 07 12.82 | +24 33.2 | 2.243 | 2.825 | 116.2 | 18.3 | 17.8 |
| 1986 | 11 16 | 07 11.20 | +24 59.5 | | | | | |
| 1986 | 11 26 | 07 06.65 | +25 30.7 | 2.094 | 2.902 | 137.8 | 13.2 | 17.6 |
| 1986 | 12 06 | 06 59.37 | +26 04.6 | | | | | |
| 1986 | 12 16 | 06 49.90 | +26 37.8 | 2.026 | 2.977 | 161.7 | 6.0 | 17.3 |
| 1986 | 12 26 | 06 39.12 | +27 06.9 | | | | | |
| 1987 | 01 05 | 06 28.13 | +27 29.1 | 2.072 | 3.048 | 171.6 | 2.7 | 17.3 |
| 1987 | 01 15 | 06 18.08 | +27 43.7 | | | | | |
| 1987 | 01 25 | 06 09.90 | +27 51.2 | 2.239 | 3.117 | 148.0 | 9.6 | 17.8 |
| 1987 | 02 04 | 06 04.16 | +27 53.6 | | | | | |
| 1987 | 02 14 | 06 01.12 | +27 52.7 | 2.502 | 3.183 | 125.9 | 14.6 | 18.2 |
| 1987 | 02 24 | 06 00.73 | +27 50.0 | | | | | |
| 1987 | 03 06 | 06 02.80 | +27 46.4 | 2.826 | 3.246 | 106.2 | 17.1 | 18.6 |
| 1987 | 03 16 | 06 07.06 | +27 42.0 | | | | | |
| 1987 | 03 26 | 06 13.17 | +27 36.6 | 3.175 | 3.305 | 88.6 | 17.6 | 18.9 |

1981 EU22 a,e,i = 2.18, 0.07, 2 Elements MPC 10289

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 50.45 | +25 19.8 | 1.768 | 2.195 | -1.65 | +2.3 | 17.5 |
| 1986 | 10 27 | 06 59.22 | +25 17.6 | | | | | |
| 1986 | 11 06 | 07 05.13 | +25 18.5 | 1.530 | 2.179 | -2.00 | +3.4 | 17.1 |
| 1986 | 11 16 | 07 07.70 | +25 24.0 | | | | | |
| 1986 | 11 26 | 07 06.55 | +25 34.5 | 1.328 | 2.163 | -2.40 | +4.1 | 16.6 |
| 1986 | 12 06 | 07 01.48 | +25 49.1 | | | | | |
| 1986 | 12 16 | 06 52.80 | +26 04.5 | 1.192 | 2.147 | -2.73 | +3.8 | 16.1 |
| 1986 | 12 26 | 06 41.45 | +26 16.6 | | | | | |
| 1987 | 01 05 | 06 29.01 | +26 21.4 | 1.153 | 2.132 | -2.74 | +2.2 | 15.8 |
| 1987 | 01 15 | 06 17.46 | +26 17.6 | | | | | |
| 1987 | 01 25 | 06 08.48 | +26 06.9 | 1.217 | 2.116 | -2.43 | +0.7 | 16.3 |
| 1987 | 02 04 | 06 03.16 | +25 52.2 | | | | | |
| 1987 | 02 14 | 06 01.95 | +25 36.4 | 1.362 | 2.102 | -2.05 | +0.3 | 16.7 |
| 1987 | 02 24 | 06 04.68 | +25 20.7 | | | | | |
| 1987 | 03 06 | 06 10.98 | +25 05.1 | 1.555 | 2.088 | -1.75 | +0.8 | 17.1 |
| 1987 | 03 16 | 06 20.36 | +24 48.3 | | | | | |
| 1987 | 03 26 | 06 32.29 | +24 28.9 | 1.767 | 2.075 | -1.56 | +1.5 | 17.4 |

1985 QN a,e,i = 2.76, 0.14, 2 Elements MPC 10302

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 01.94 | +20 55.9 | 2.632 | 2.947 | 98.4 | 19.5 | 17.8 |
| 1986 | 10 27 | 07 06.29 | +20 47.8 | | | | | |
| 1986 | 11 06 | 07 08.26 | +20 43.4 | 2.387 | 2.969 | 116.8 | 17.3 | 17.6 |
| 1986 | 11 16 | 07 07.68 | +20 43.8 | | | | | |
| 1986 | 11 26 | 07 04.48 | +20 49.1 | 2.184 | 2.990 | 137.8 | 12.8 | 17.2 |
| 1986 | 12 06 | 06 58.75 | +20 59.0 | | | | | |
| 1986 | 12 16 | 06 50.90 | +21 12.3 | 2.062 | 3.010 | 161.3 | 6.0 | 16.9 |
| 1986 | 12 26 | 06 41.64 | +21 27.1 | | | | | |
| 1987 | 01 05 | 06 31.91 | +21 41.8 | 2.050 | 3.029 | 173.6 | 2.1 | 16.7 |
| 1987 | 01 15 | 06 22.75 | +21 55.2 | | | | | |
| 1987 | 01 25 | 06 15.10 | +22 06.8 | 2.156 | 3.046 | 149.5 | 9.4 | 17.1 |
| 1987 | 02 04 | 06 09.61 | +22 17.0 | | | | | |
| 1987 | 02 14 | 06 06.66 | +22 26.0 | 2.361 | 3.062 | 127.3 | 14.9 | 17.5 |
| 1987 | 02 24 | 06 06.29 | +22 34.1 | | | | | |
| 1987 | 03 06 | 06 08.42 | +22 41.2 | 2.628 | 3.076 | 107.6 | 17.9 | 17.9 |
| 1987 | 03 16 | 06 12.81 | +22 46.9 | | | | | |
| 1987 | 03 26 | 06 19.19 | +22 50.7 | 2.921 | 3.089 | 90.1 | 18.8 | 18.1 |

(3440) 1950 DD a,e,i = 2.80, 0.06, 8 Elements MPC 10764

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 59.97 | +14 14.9 | 2.592 | 2.905 | 98.0 | 19.9 | 17.3 |
| 1986 | 10 27 | 07 04.57 | +13 41.5 | | | | | |
| 1986 | 11 06 | 07 06.90 | +13 10.6 | 2.340 | 2.913 | 115.9 | 17.8 | 17.0 |
| 1986 | 11 16 | 07 06.79 | +12 44.2 | | | | | |
| 1986 | 11 26 | 07 04.16 | +12 24.2 | 2.129 | 2.921 | 136.0 | 13.6 | 16.7 |
| 1986 | 12 06 | 06 59.08 | +12 12.2 | | | | | |
| 1986 | 12 16 | 06 51.93 | +12 09.4 | 1.994 | 2.928 | 157.7 | 7.3 | 16.3 |
| 1986 | 12 26 | 06 43.35 | +12 16.1 | | | | | |
| 1987 | 01 05 | 06 34.23 | +12 31.8 | 1.966 | 2.935 | 168.2 | 3.9 | 16.1 |
| 1987 | 01 15 | 06 25.58 | +12 55.3 | | | | | |
| 1987 | 01 25 | 06 18.30 | +13 24.6 | 2.053 | 2.941 | 149.1 | 9.9 | 16.5 |
| 1987 | 02 04 | 06 13.07 | +13 57.8 | | | | | |
| 1987 | 02 14 | 06 10.29 | +14 32.9 | 2.237 | 2.947 | 127.7 | 15.4 | 16.8 |
| 1987 | 02 24 | 06 10.05 | +15 08.1 | | | | | |
| 1987 | 03 06 | 06 12.29 | +15 41.9 | 2.483 | 2.951 | 108.4 | 18.6 | 17.2 |
| 1987 | 03 16 | 06 16.82 | +16 12.9 | | | | | |
| 1987 | 03 26 | 06 23.36 | +16 40.0 | 2.759 | 2.955 | 91.3 | 19.7 | 17.4 |

(3366) 1985 SD1 a,e,i = 3.00, 0.09, 10 Elements MPC 10389

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 01.52 | +11 40.4 | 2.840 | 3.128 | 97.3 | 18.4 | 17.1 |
| 1986 | 10 27 | 07 05.41 | +10 59.7 | | | | | |
| 1986 | 11 06 | 07 07.19 | +10 21.1 | 2.588 | 3.142 | 115.3 | 16.6 | 16.8 |
| 1986 | 11 16 | 07 06.72 | +09 46.9 | | | | | |
| 1986 | 11 26 | 07 03.96 | +09 19.1 | 2.378 | 3.155 | 135.1 | 12.8 | 16.5 |
| 1986 | 12 06 | 06 59.03 | +08 59.5 | | | | | |
| 1986 | 12 16 | 06 52.27 | +08 50.0 | 2.245 | 3.168 | 155.7 | 7.4 | 16.2 |
| 1986 | 12 26 | 06 44.28 | +08 51.4 | | | | | |
| 1987 | 01 05 | 06 35.81 | +09 03.6 | 2.219 | 3.180 | 165.2 | 4.5 | 16.1 |
| 1987 | 01 15 | 06 27.75 | +09 25.8 | | | | | |
| 1987 | 01 25 | 06 20.88 | +09 56.0 | 2.309 | 3.191 | 148.6 | 9.3 | 16.4 |
| 1987 | 02 04 | 06 15.78 | +10 31.8 | | | | | |
| 1987 | 02 14 | 06 12.86 | +11 10.9 | 2.498 | 3.201 | 127.9 | 14.1 | 16.7 |
| 1987 | 02 24 | 06 12.21 | +11 51.1 | | | | | |
| 1987 | 03 06 | 06 13.82 | +12 30.3 | 2.752 | 3.211 | 108.7 | 17.0 | 17.0 |
| 1987 | 03 16 | 06 17.53 | +13 07.1 | | | | | |
| 1987 | 03 26 | 06 23.11 | +13 40.1 | 3.037 | 3.220 | 91.4 | 18.0 | 17.3 |

1982 UH a,e,i = 2.38, 0.19, 2 Elements MPC 7470

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 48.49 | +23 16.6 | 1.490 | 1.953 | 101.7 | 30.0 | 17.5 |
| 1986 | 10 27 | 06 59.04 | +22 51.3 | | | | | |
| 1986 | 11 06 | 07 06.31 | +22 27.0 | 1.313 | 1.977 | 117.5 | 26.4 | 17.1 |
| 1986 | 11 16 | 07 09.86 | +22 06.1 | | | | | |
| 1986 | 11 26 | 07 09.40 | +21 50.1 | 1.168 | 2.005 | 136.8 | 19.7 | 16.7 |
| 1986 | 12 06 | 07 04.88 | +21 39.6 | | | | | |
| 1986 | 12 16 | 06 56.82 | +21 33.5 | 1.084 | 2.037 | 160.0 | 9.5 | 16.3 |
| 1986 | 12 26 | 06 46.39 | +21 29.7 | | | | | |
| 1987 | 01 05 | 06 35.24 | +21 26.6 | 1.092 | 2.073 | 174.3 | 2.7 | 16.0 |
| 1987 | 01 15 | 06 25.26 | +21 23.2 | | | | | |
| 1987 | 01 25 | 06 17.91 | +21 19.9 | 1.200 | 2.111 | 150.2 | 13.4 | 16.7 |
| 1987 | 02 04 | 06 14.02 | +21 17.5 | | | | | |
| 1987 | 02 14 | 06 13.86 | +21 16.1 | 1.390 | 2.152 | 129.0 | 20.9 | 17.3 |
| 1987 | 02 24 | 06 17.17 | +21 15.0 | | | | | |
| 1987 | 03 06 | 06 23.57 | +21 13.1 | 1.633 | 2.195 | 111.1 | 24.9 | 17.8 |
| 1987 | 03 16 | 06 32.56 | +21 08.9 | | | | | |
| 1987 | 03 26 | 06 43.65 | +21 00.9 | 1.904 | 2.238 | 95.9 | 26.3 | 18.2 |

1974 SB5 a,e,i = 3.10, 0.17, 2 Elements MPC 10380

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 06.01 | +23 48.4 | 2.880 | 3.172 | 97.7 | 18.1 | 18.1 |
| 1986 | 10 27 | 07 10.05 | +23 48.7 | | | | | |
| 1986 | 11 06 | 07 11.83 | +23 52.9 | 2.638 | 3.204 | 116.4 | 16.1 | 17.9 |
| 1986 | 11 16 | 07 11.21 | +24 01.3 | | | | | |
| 1986 | 11 26 | 07 08.13 | +24 13.6 | 2.440 | 3.236 | 137.4 | 11.9 | 17.6 |
| 1986 | 12 06 | 07 02.71 | +24 28.7 | | | | | |
| 1986 | 12 16 | 06 55.33 | +24 44.9 | 2.322 | 3.266 | 160.6 | 5.8 | 17.3 |
| 1986 | 12 26 | 06 46.63 | +24 59.8 | | | | | |
| 1987 | 01 05 | 06 37.45 | +25 11.7 | 2.316 | 3.296 | 174.5 | 1.6 | 17.1 |
| 1987 | 01 15 | 06 28.76 | +25 19.5 | | | | | |
| 1987 | 01 25 | 06 21.37 | +25 23.4 | 2.431 | 3.325 | 150.8 | 8.3 | 17.5 |
| 1987 | 02 04 | 06 15.91 | +25 24.0 | | | | | |
| 1987 | 02 14 | 06 12.75 | +25 22.3 | 2.647 | 3.353 | 128.6 | 13.3 | 17.9 |
| 1987 | 02 24 | 06 11.97 | +25 19.3 | | | | | |
| 1987 | 03 06 | 06 13.50 | +25 15.3 | 2.929 | 3.380 | 108.7 | 16.1 | 18.2 |
| 1987 | 03 16 | 06 17.15 | +25 10.5 | | | | | |
| 1987 | 03 26 | 06 22.68 | +25 04.5 | 3.242 | 3.406 | 90.8 | 17.0 | 18.5 |

1973 DS a,e,i = 2.35, 0.15, 10 Elements MPC 9472

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 00.11 | +21 53.2 | 2.187 | 2.540 | 98.9 | 22.8 | 18.2 |
| 1986 | 10 27 | 07 06.92 | +22 08.9 | | | | | |
| 1986 | 11 06 | 07 11.29 | +22 31.6 | 1.911 | 2.513 | 116.3 | 20.7 | 17.8 |
| 1986 | 11 16 | 07 12.83 | +23 03.2 | | | | | |
| 1986 | 11 26 | 07 11.23 | +23 44.7 | 1.673 | 2.485 | 136.6 | 15.8 | 17.4 |
| 1986 | 12 06 | 07 06.27 | +24 35.5 | | | | | |
| 1986 | 12 16 | 06 58.16 | +25 32.6 | 1.507 | 2.455 | 159.9 | 7.9 | 16.8 |
| 1986 | 12 26 | 06 47.55 | +26 31.3 | | | | | |
| 1987 | 01 05 | 06 35.62 | +27 25.6 | 1.445 | 2.424 | 172.9 | 2.9 | 16.5 |
| 1987 | 01 15 | 06 23.96 | +28 11.1 | | | | | |
| 1987 | 01 25 | 06 14.10 | +28 45.9 | 1.496 | 2.392 | 148.7 | 12.3 | 16.9 |
| 1987 | 02 04 | 06 07.22 | +29 10.6 | | | | | |
| 1987 | 02 14 | 06 03.96 | +29 27.7 | 1.636 | 2.359 | 126.4 | 19.7 | 17.3 |
| 1987 | 02 24 | 06 04.43 | +29 39.1 | | | | | |
| 1987 | 03 06 | 06 08.45 | +29 46.2 | 1.828 | 2.326 | 107.4 | 24.0 | 17.6 |
| 1987 | 03 16 | 06 15.65 | +29 49.2 | | | | | |
| 1987 | 03 26 | 06 25.60 | +29 47.9 | 2.041 | 2.292 | 91.3 | 25.8 | 17.9 |

(3441) 1969 TS1 a,e,i = 3.10, 0.19, 3 Elements MPC 10764

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 04.46 | +21 06.1 | 2.473 | 2.789 | 97.8 | 20.7 | 17.6 |
| 1986 | 10 27 | 07 10.00 | +20 58.8 | | | | | |
| 1986 | 11 06 | 07 13.11 | +20 55.6 | 2.249 | 2.824 | 115.7 | 18.4 | 17.3 |
| 1986 | 11 16 | 07 13.60 | +20 57.7 | | | | | |
| 1986 | 11 26 | 07 11.38 | +21 05.4 | 2.064 | 2.860 | 136.3 | 13.8 | 17.0 |
| 1986 | 12 06 | 07 06.53 | +21 18.5 | | | | | |
| 1986 | 12 16 | 06 59.44 | +21 35.5 | 1.954 | 2.896 | 159.4 | 6.9 | 16.7 |
| 1986 | 12 26 | 06 50.80 | +21 54.4 | | | | | |
| 1987 | 01 05 | 06 41.57 | +22 13.2 | 1.951 | 2.933 | 175.9 | 1.4 | 16.5 |
| 1987 | 01 15 | 06 32.83 | +22 30.1 | | | | | |
| 1987 | 01 25 | 06 25.52 | +22 44.4 | 2.065 | 2.970 | 151.9 | 9.0 | 17.0 |
| 1987 | 02 04 | 06 20.34 | +22 56.2 | | | | | |
| 1987 | 02 14 | 06 17.68 | +23 05.8 | 2.277 | 3.007 | 129.8 | 14.6 | 17.4 |
| 1987 | 02 24 | 06 17.59 | +23 13.5 | | | | | |
| 1987 | 03 06 | 06 19.98 | +23 19.2 | 2.555 | 3.044 | 110.2 | 17.8 | 17.8 |
| 1987 | 03 16 | 06 24.63 | +23 22.9 | | | | | |
| 1987 | 03 26 | 06 31.22 | +23 23.9 | 2.865 | 3.081 | 92.9 | 18.9 | 18.1 |

1985 PG1 a,e,i = 3.00, 0.10, 10 Elements MPC 10943

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 07 04.40 | +11 53.9 | 2.581 | 2.872 | 96.7 | 20.2 | 17.7 |
| 1986 10 27 | 07 09.40 | +11 04.4 | | | | | |
| 1986 11 06 | 07 12.16 | +10 16.8 | 2.343 | 2.892 | 114.0 | 18.2 | 17.5 |
| 1986 11 16 | 07 12.51 | +09 33.3 | | | | | |
| 1986 11 26 | 07 10.38 | +08 56.3 | 2.143 | 2.912 | 133.5 | 14.2 | 17.2 |
| 1986 12 06 | 07 05.86 | +08 28.3 | | | | | |
| 1986 12 16 | 06 59.30 | +08 11.5 | 2.016 | 2.932 | 153.9 | 8.5 | 16.9 |
| 1986 12 26 | 06 51.30 | +08 07.1 | | | | | |
| 1987 01 05 | 06 42.69 | +08 15.5 | 1.992 | 2.953 | 165.0 | 4.9 | 16.7 |
| 1987 01 15 | 06 34.45 | +08 35.6 | | | | | |
| 1987 01 25 | 06 27.43 | +09 05.3 | 2.081 | 2.973 | 149.8 | 9.6 | 17.0 |
| 1987 02 04 | 06 22.31 | +09 41.8 | | | | | |
| 1987 02 14 | 06 19.49 | +10 22.3 | 2.268 | 2.994 | 129.4 | 14.8 | 17.4 |
| 1987 02 24 | 06 19.09 | +11 03.9 | | | | | |
| 1987 03 06 | 06 21.07 | +11 44.5 | 2.521 | 3.014 | 110.5 | 18.0 | 17.7 |
| 1987 03 16 | 06 25.25 | +12 22.1 | | | | | |
| 1987 03 26 | 06 31.36 | +12 55.4 | 2.807 | 3.035 | 93.4 | 19.2 | 18.0 |

1982 VJ11 a,e,i = 2.37, 0.08, 7 Elements MPC 10758

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 06 57.13 | +23 43.4 | 1.921 | 2.310 | 99.8 | 25.2 | 16.8 |
| 1986 10 27 | 07 05.82 | +24 02.8 | | | | | |
| 1986 11 06 | 07 11.94 | +24 29.1 | 1.674 | 2.293 | 116.4 | 22.8 | 16.4 |
| 1986 11 16 | 07 15.03 | +25 04.4 | | | | | |
| 1986 11 26 | 07 14.73 | +25 49.6 | 1.462 | 2.278 | 136.0 | 17.5 | 15.9 |
| 1986 12 06 | 07 10.79 | +26 43.7 | | | | | |
| 1986 12 16 | 07 03.36 | +27 43.1 | 1.318 | 2.263 | 158.6 | 9.1 | 15.4 |
| 1986 12 26 | 06 53.15 | +28 41.5 | | | | | |
| 1987 01 05 | 06 41.48 | +29 32.3 | 1.271 | 2.249 | 172.2 | 3.4 | 15.1 |
| 1987 01 15 | 06 30.13 | +30 10.3 | | | | | |
| 1987 01 25 | 06 20.78 | +30 34.3 | 1.331 | 2.237 | 149.8 | 12.8 | 15.5 |
| 1987 02 04 | 06 14.67 | +30 46.0 | | | | | |
| 1987 02 14 | 06 12.45 | +30 48.6 | 1.476 | 2.225 | 128.1 | 20.4 | 16.0 |
| 1987 02 24 | 06 14.12 | +30 45.0 | | | | | |
| 1987 03 06 | 06 19.42 | +30 36.7 | 1.675 | 2.215 | 109.7 | 24.9 | 16.4 |
| 1987 03 16 | 06 27.89 | +30 24.1 | | | | | |
| 1987 03 26 | 06 39.01 | +30 06.7 | 1.897 | 2.207 | 94.2 | 26.8 | 16.7 |

(3346) 1951 SD a,e,i = 3.18, 0.05, 22 Elements MPC 10303

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 07 14.44 | +46 19.4 | 2.842 | 3.142 | 98.1 | 18.3 | 16.6 |
| 1986 10 27 | 07 21.27 | +47 24.2 | | | | | |
| 1986 11 06 | 07 25.34 | +48 34.3 | 2.613 | 3.152 | 114.2 | 16.7 | 16.4 |
| 1986 11 16 | 07 26.22 | +49 47.7 | | | | | |
| 1986 11 26 | 07 23.58 | +51 00.6 | 2.427 | 3.162 | 130.8 | 13.7 | 16.1 |
| 1986 12 06 | 07 17.28 | +52 07.0 | | | | | |
| 1986 12 16 | 07 07.63 | +52 59.5 | 2.315 | 3.172 | 145.0 | 10.2 | 15.9 |
| 1986 12 26 | 06 55.52 | +53 30.6 | | | | | |
| 1987 01 05 | 06 42.32 | +53 35.1 | 2.298 | 3.182 | 149.0 | 9.2 | 15.9 |
| 1987 01 15 | 06 29.76 | +53 12.1 | | | | | |
| 1987 01 25 | 06 19.33 | +52 24.9 | 2.384 | 3.192 | 138.8 | 11.7 | 16.0 |
| 1987 02 04 | 06 12.03 | +51 19.7 | | | | | |
| 1987 02 14 | 06 08.30 | +50 03.5 | 2.558 | 3.202 | 122.8 | 15.0 | 16.3 |
| 1987 02 24 | 06 08.05 | +48 42.3 | | | | | |
| 1987 03 06 | 06 10.99 | +47 20.2 | 2.792 | 3.212 | 106.1 | 17.3 | 16.6 |
| 1987 03 16 | 06 16.66 | +45 59.7 | | | | | |
| 1987 03 26 | 06 24.60 | +44 41.7 | 3.056 | 3.221 | 90.4 | 18.0 | 16.8 |

1982 SV a,e,i = 2.42, 0.37, 22 Elements MPC 8393

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 06 13.49 | -03 53.7 | 0.925 | 1.544 | -3.35 | -0.1 | 16.6 |
| 1986 | 10 27 | 06 30.43 | -08 29.2 | | | | | |
| 1986 | 11 06 | 06 44.12 | -13 08.1 | 0.835 | 1.529 | -4.02 | -5.2 | 16.3 |
| 1986 | 11 16 | 06 54.08 | -17 34.5 | | | | | |
| 1986 | 11 26 | 06 59.99 | -21 31.9 | 0.782 | 1.533 | -4.96 | -8.6 | 16.1 |
| 1986 | 12 06 | 07 01.70 | -24 42.9 | | | | | |
| 1986 | 12 16 | 06 59.66 | -26 51.2 | 0.761 | 1.554 | -5.55 | -6.6 | 16.0 |
| 1986 | 12 26 | 06 54.87 | -27 44.8 | | | | | |
| 1987 | 01 05 | 06 48.88 | -27 17.5 | 0.772 | 1.593 | -5.23 | -0.1 | 16.1 |
| 1987 | 01 15 | 06 43.56 | -25 32.8 | | | | | |
| 1987 | 01 25 | 06 40.44 | -22 43.8 | 0.824 | 1.646 | -4.37 | +5.2 | 16.2 |
| 1987 | 02 04 | 06 40.50 | -19 09.4 | | | | | |
| 1987 | 02 14 | 06 44.10 | -15 11.8 | 0.927 | 1.711 | -3.57 | +6.1 | 16.6 |
| 1987 | 02 24 | 06 51.05 | -11 11.1 | | | | | |
| 1987 | 03 06 | 07 00.98 | -07 22.4 | 1.086 | 1.785 | -2.92 | +4.4 | 17.1 |
| 1987 | 03 16 | 07 13.39 | -03 56.6 | | | | | |
| 1987 | 03 26 | 07 27.73 | -00 59.2 | 1.298 | 1.865 | -2.39 | +2.6 | 17.6 |

1981 ET26 a,e,i = 2.23, 0.18, 4 Elements MPC 10541

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 16.15 | +26 42.4 | 2.332 | 2.627 | 95.8 | 22.2 | 18.9 |
| 1986 | 10 27 | 07 22.56 | +26 46.3 | | | | | |
| 1986 | 11 06 | 07 26.40 | +26 55.3 | 2.073 | 2.630 | 113.4 | 20.2 | 18.6 |
| 1986 | 11 16 | 07 27.32 | +27 10.3 | | | | | |
| 1986 | 11 26 | 07 25.05 | +27 31.0 | 1.848 | 2.629 | 133.8 | 15.7 | 18.2 |
| 1986 | 12 06 | 07 19.44 | +27 55.6 | | | | | |
| 1986 | 12 16 | 07 10.74 | +28 20.8 | 1.692 | 2.626 | 156.9 | 8.5 | 17.7 |
| 1986 | 12 26 | 06 59.63 | +28 42.0 | | | | | |
| 1987 | 01 05 | 06 47.28 | +28 54.9 | 1.641 | 2.620 | 173.3 | 2.5 | 17.4 |
| 1987 | 01 15 | 06 35.17 | +28 57.2 | | | | | |
| 1987 | 01 25 | 06 24.73 | +28 49.4 | 1.705 | 2.610 | 151.0 | 10.5 | 17.8 |
| 1987 | 02 04 | 06 17.01 | +28 34.0 | | | | | |
| 1987 | 02 14 | 06 12.60 | +28 14.3 | 1.867 | 2.598 | 128.4 | 17.3 | 18.2 |
| 1987 | 02 24 | 06 11.57 | +27 52.9 | | | | | |
| 1987 | 03 06 | 06 13.76 | +27 31.0 | 2.088 | 2.583 | 108.6 | 21.3 | 18.6 |
| 1987 | 03 16 | 06 18.83 | +27 09.1 | | | | | |
| 1987 | 03 26 | 06 26.37 | +26 46.7 | 2.335 | 2.564 | 91.6 | 22.9 | 18.8 |

(3354) McNair a,e,i = 2.32, 0.10, 6 Elements MPC 10306

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 16.15 | +28 29.5 | 2.221 | 2.528 | 96.0 | 23.1 | 17.7 |
| 1986 | 10 27 | 07 23.43 | +28 28.6 | | | | | |
| 1986 | 11 06 | 07 28.05 | +28 31.8 | 1.975 | 2.535 | 113.2 | 21.1 | 17.4 |
| 1986 | 11 16 | 07 29.63 | +28 40.0 | | | | | |
| 1986 | 11 26 | 07 27.88 | +28 52.5 | 1.761 | 2.541 | 133.3 | 16.4 | 17.0 |
| 1986 | 12 06 | 07 22.68 | +29 07.7 | | | | | |
| 1986 | 12 16 | 07 14.27 | +29 21.7 | 1.615 | 2.546 | 156.0 | 9.0 | 16.6 |
| 1986 | 12 26 | 07 03.37 | +29 30.2 | | | | | |
| 1987 | 01 05 | 06 51.20 | +29 29.0 | 1.569 | 2.548 | 173.0 | 2.7 | 16.3 |
| 1987 | 01 15 | 06 39.30 | +29 16.5 | | | | | |
| 1987 | 01 25 | 06 29.14 | +28 53.9 | 1.638 | 2.549 | 151.9 | 10.5 | 16.7 |
| 1987 | 02 04 | 06 21.76 | +28 24.5 | | | | | |
| 1987 | 02 14 | 06 17.73 | +27 51.8 | 1.803 | 2.548 | 129.5 | 17.4 | 17.1 |
| 1987 | 02 24 | 06 17.10 | +27 18.6 | | | | | |
| 1987 | 03 06 | 06 19.67 | +26 46.1 | 2.029 | 2.545 | 110.0 | 21.5 | 17.5 |
| 1987 | 03 16 | 06 25.07 | +26 14.5 | | | | | |
| 1987 | 03 26 | 06 32.88 | +25 43.1 | 2.283 | 2.541 | 93.1 | 23.1 | 17.8 |

1981 EA7 a,e,i = 2.26, 0.22, 6 Elements MPC 10380

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 14.73 | +23 59.9 | 1.698 | 2.054 | 95.8 | 28.9 | 18.8 |
| 1986 | 10 27 | 07 24.08 | +23 23.7 | | | | | |
| 1986 | 11 06 | 07 30.22 | +22 49.6 | 1.520 | 2.104 | 112.1 | 25.9 | 18.6 |
| 1986 | 11 16 | 07 32.79 | +22 19.6 | | | | | |
| 1986 | 11 26 | 07 31.51 | +21 54.9 | 1.368 | 2.155 | 131.8 | 20.0 | 18.2 |
| 1986 | 12 06 | 07 26.29 | +21 35.7 | | | | | |
| 1986 | 12 16 | 07 17.55 | +21 20.7 | 1.273 | 2.205 | 155.2 | 10.8 | 17.8 |
| 1986 | 12 26 | 07 06.25 | +21 08.1 | | | | | |
| 1987 | 01 05 | 06 53.86 | +20 56.0 | 1.273 | 2.256 | 177.8 | 0.9 | 17.4 |
| 1987 | 01 15 | 06 42.14 | +20 43.6 | | | | | |
| 1987 | 01 25 | 06 32.57 | +20 31.4 | 1.381 | 2.305 | 153.6 | 11.0 | 18.1 |
| 1987 | 02 04 | 06 26.12 | +20 20.3 | | | | | |
| 1987 | 02 14 | 06 23.19 | +20 10.9 | 1.582 | 2.352 | 131.1 | 18.4 | 18.7 |
| 1987 | 02 24 | 06 23.67 | +20 03.0 | | | | | |
| 1987 | 03 06 | 06 27.25 | +19 55.9 | 1.843 | 2.398 | 112.0 | 22.6 | 19.2 |
| 1987 | 03 16 | 06 33.50 | +19 48.2 | | | | | |
| 1987 | 03 26 | 06 41.95 | +19 38.5 | 2.134 | 2.442 | 95.6 | 24.0 | 19.6 |

1982 TF2 a,e,i = 2.35, 0.18, 2 Elements MPC 11053

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 20.20 | +23 00.7 | 1.998 | 2.301 | 94.4 | 25.6 | 18.3 |
| 1986 | 10 27 | 07 28.43 | +22 42.5 | | | | | |
| 1986 | 11 06 | 07 33.89 | +22 28.5 | 1.792 | 2.341 | 111.2 | 23.3 | 18.1 |
| 1986 | 11 16 | 07 36.22 | +22 20.6 | | | | | |
| 1986 | 11 26 | 07 35.18 | +22 19.5 | 1.613 | 2.380 | 131.0 | 18.2 | 17.7 |
| 1986 | 12 06 | 07 30.64 | +22 25.3 | | | | | |
| 1986 | 12 16 | 07 22.89 | +22 36.1 | 1.494 | 2.418 | 154.1 | 10.2 | 17.4 |
| 1986 | 12 26 | 07 12.64 | +22 49.1 | | | | | |
| 1987 | 01 05 | 07 01.09 | +23 00.9 | 1.472 | 2.455 | 179.5 | 0.2 | 16.8 |
| 1987 | 01 15 | 06 49.74 | +23 09.0 | | | | | |
| 1987 | 01 25 | 06 40.01 | +23 12.8 | 1.562 | 2.491 | 155.2 | 9.5 | 17.5 |
| 1987 | 02 04 | 06 32.92 | +23 12.8 | | | | | |
| 1987 | 02 14 | 06 29.03 | +23 10.2 | 1.751 | 2.525 | 132.4 | 16.8 | 18.0 |
| 1987 | 02 24 | 06 28.39 | +23 05.8 | | | | | |
| 1987 | 03 06 | 06 30.80 | +23 00.0 | 2.004 | 2.557 | 112.7 | 21.0 | 18.5 |
| 1987 | 03 16 | 06 35.93 | +22 52.5 | | | | | |
| 1987 | 03 26 | 06 43.36 | +22 42.4 | 2.290 | 2.587 | 95.7 | 22.6 | 18.8 |

1978 PU3 a,e,i = 2.33, 0.13, 7 Elements MPC 7773

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 19.89 | +14 32.9 | 2.195 | 2.462 | 93.3 | 23.8 | 19.0 |
| 1986 | 10 27 | 07 26.91 | +13 51.6 | | | | | |
| 1986 | 11 06 | 07 31.47 | +13 13.3 | 1.967 | 2.487 | 110.1 | 22.0 | 18.8 |
| 1986 | 11 16 | 07 33.27 | +12 40.6 | | | | | |
| 1986 | 11 26 | 07 32.10 | +12 15.9 | 1.765 | 2.511 | 129.5 | 17.7 | 18.4 |
| 1986 | 12 06 | 07 27.88 | +12 01.5 | | | | | |
| 1986 | 12 16 | 07 20.84 | +11 59.1 | 1.625 | 2.533 | 151.5 | 10.7 | 18.1 |
| 1986 | 12 26 | 07 11.57 | +12 09.0 | | | | | |
| 1987 | 01 05 | 07 01.05 | +12 30.5 | 1.580 | 2.554 | 169.7 | 3.9 | 17.7 |
| 1987 | 01 15 | 06 50.54 | +13 01.3 | | | | | |
| 1987 | 01 25 | 06 41.28 | +13 38.4 | 1.648 | 2.572 | 154.5 | 9.5 | 18.1 |
| 1987 | 02 04 | 06 34.26 | +14 18.9 | | | | | |
| 1987 | 02 14 | 06 30.07 | +15 00.1 | 1.817 | 2.589 | 132.5 | 16.3 | 18.5 |
| 1987 | 02 24 | 06 28.88 | +15 39.7 | | | | | |
| 1987 | 03 06 | 06 30.62 | +16 16.1 | 2.052 | 2.603 | 112.9 | 20.6 | 18.9 |
| 1987 | 03 16 | 06 35.04 | +16 48.0 | | | | | |
| 1987 | 03 26 | 06 41.78 | +17 14.3 | 2.321 | 2.616 | 95.7 | 22.3 | 19.3 |

1985 PB1 a,e,i = 2.25, 0.18, 6 Elements MPC 10292

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 23.73 | +15 57.0 | 2.402 | 2.642 | 92.6 | 22.1 | 19.0 |
| 1986 | 10 27 | 07 29.97 | +15 16.9 | | | | | |
| 1986 | 11 06 | 07 33.88 | +14 39.3 | 2.144 | 2.649 | 109.8 | 20.6 | 18.7 |
| 1986 | 11 16 | 07 35.19 | +14 06.2 | | | | | |
| 1986 | 11 26 | 07 33.67 | +13 39.4 | 1.913 | 2.653 | 129.5 | 16.7 | 18.3 |
| 1986 | 12 06 | 07 29.20 | +13 21.0 | | | | | |
| 1986 | 12 16 | 07 21.98 | +13 12.0 | 1.746 | 2.654 | 151.7 | 10.1 | 17.9 |
| 1986 | 12 26 | 07 12.53 | +13 13.0 | | | | | |
| 1987 | 01 05 | 07 01.73 | +13 23.4 | 1.676 | 2.651 | 170.6 | 3.5 | 17.5 |
| 1987 | 01 15 | 06 50.80 | +13 41.7 | | | | | |
| 1987 | 01 25 | 06 40.97 | +14 05.9 | 1.723 | 2.646 | 154.6 | 9.2 | 17.8 |
| 1987 | 02 04 | 06 33.24 | +14 34.0 | | | | | |
| 1987 | 02 14 | 06 28.27 | +15 03.7 | 1.872 | 2.638 | 132.1 | 16.1 | 18.2 |
| 1987 | 02 24 | 06 26.29 | +15 33.4 | | | | | |
| 1987 | 03 06 | 06 27.28 | +16 01.6 | 2.088 | 2.627 | 112.1 | 20.5 | 18.6 |
| 1987 | 03 16 | 06 31.02 | +16 26.7 | | | | | |
| 1987 | 03 26 | 06 37.19 | +16 47.7 | 2.336 | 2.613 | 94.6 | 22.4 | 18.9 |

1958 GQ a,e,i = 2.62, 0.28, 13 Elements MPC 9416

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 29.57 | +35 42.2 | 2.958 | 3.189 | 94.1 | 18.2 | 18.2 |
| 1986 | 10 27 | 07 35.62 | +36 15.6 | | | | | |
| 1986 | 11 06 | 07 39.43 | +36 55.9 | 2.655 | 3.157 | 111.6 | 17.0 | 17.9 |
| 1986 | 11 16 | 07 40.64 | +37 43.0 | | | | | |
| 1986 | 11 26 | 07 38.95 | +38 35.5 | 2.387 | 3.122 | 130.7 | 13.9 | 17.6 |
| 1986 | 12 06 | 07 34.13 | +39 30.0 | | | | | |
| 1986 | 12 16 | 07 26.26 | +40 21.4 | 2.191 | 3.084 | 150.3 | 9.1 | 17.2 |
| 1986 | 12 26 | 07 15.77 | +41 03.1 | | | | | |
| 1987 | 01 05 | 07 03.57 | +41 28.7 | 2.096 | 3.044 | 161.2 | 6.0 | 16.9 |
| 1987 | 01 15 | 06 50.99 | +41 34.2 | | | | | |
| 1987 | 01 25 | 06 39.44 | +41 19.1 | 2.117 | 3.001 | 148.5 | 9.9 | 17.1 |
| 1987 | 02 04 | 06 30.15 | +40 46.6 | | | | | |
| 1987 | 02 14 | 06 23.89 | +40 01.7 | 2.238 | 2.955 | 128.5 | 15.2 | 17.3 |
| 1987 | 02 24 | 06 20.98 | +39 09.8 | | | | | |
| 1987 | 03 06 | 06 21.36 | +38 14.8 | 2.425 | 2.907 | 109.3 | 18.8 | 17.6 |
| 1987 | 03 16 | 06 24.77 | +37 19.3 | | | | | |
| 1987 | 03 26 | 06 30.84 | +36 24.3 | 2.642 | 2.857 | 92.0 | 20.4 | 17.8 |

(3334) 1981 YR a,e,i = 2.85, 0.03, 3 Elements MPC 10294

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 21.01 | +22 18.1 | 2.679 | 2.925 | 94.1 | 19.9 | 17.3 |
| 1986 | 10 27 | 07 27.23 | +22 13.9 | | | | | |
| 1986 | 11 06 | 07 31.29 | +22 14.4 | 2.410 | 2.926 | 111.7 | 18.3 | 17.1 |
| 1986 | 11 16 | 07 32.93 | +22 20.8 | | | | | |
| 1986 | 11 26 | 07 31.97 | +22 33.8 | 2.174 | 2.926 | 131.8 | 14.6 | 16.7 |
| 1986 | 12 06 | 07 28.33 | +22 53.0 | | | | | |
| 1986 | 12 16 | 07 22.19 | +23 17.0 | 2.007 | 2.925 | 154.4 | 8.4 | 16.4 |
| 1986 | 12 26 | 07 14.02 | +23 43.5 | | | | | |
| 1987 | 01 05 | 07 04.62 | +24 09.2 | 1.942 | 2.924 | 178.1 | 0.6 | 15.9 |
| 1987 | 01 15 | 06 55.05 | +24 31.6 | | | | | |
| 1987 | 01 25 | 06 46.40 | +24 49.0 | 1.994 | 2.923 | 156.5 | 7.7 | 16.3 |
| 1987 | 02 04 | 06 39.58 | +25 01.0 | | | | | |
| 1987 | 02 14 | 06 35.22 | +25 08.3 | 2.151 | 2.922 | 133.7 | 14.1 | 16.7 |
| 1987 | 02 24 | 06 33.57 | +25 11.7 | | | | | |
| 1987 | 03 06 | 06 34.65 | +25 11.9 | 2.380 | 2.920 | 113.5 | 18.2 | 17.0 |
| 1987 | 03 16 | 06 38.29 | +25 09.2 | | | | | |
| 1987 | 03 26 | 06 44.20 | +25 03.5 | 2.645 | 2.918 | 95.7 | 19.9 | 17.3 |

1983 BM a,e,i = 2.66, 0.10, 11 Elements MPC 9677

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 23.98 | +34 02.6 | 2.410 | 2.688 | -1.48 | +4.3 | 17.5 |
| 1986 | 10 27 | 07 32.41 | +34 15.2 | | | | | |
| 1986 | 11 06 | 07 38.38 | +34 32.5 | 2.138 | 2.667 | -1.76 | +5.5 | 17.2 |
| 1986 | 11 16 | 07 41.51 | +34 55.0 | | | | | |
| 1986 | 11 26 | 07 41.44 | +35 21.6 | 1.898 | 2.646 | -2.07 | +6.4 | 16.8 |
| 1986 | 12 06 | 07 37.91 | +35 49.8 | | | | | |
| 1986 | 12 16 | 07 30.99 | +36 14.9 | 1.721 | 2.625 | -2.30 | +6.5 | 16.4 |
| 1986 | 12 26 | 07 21.19 | +36 30.6 | | | | | |
| 1987 | 01 05 | 07 09.52 | +36 31.1 | 1.639 | 2.604 | -2.31 | +5.5 | 16.0 |
| 1987 | 01 15 | 06 57.51 | +36 12.8 | | | | | |
| 1987 | 01 25 | 06 46.74 | +35 36.1 | 1.668 | 2.584 | -2.08 | +4.0 | 16.2 |
| 1987 | 02 04 | 06 38.48 | +34 45.1 | | | | | |
| 1987 | 02 14 | 06 33.52 | +33 45.4 | 1.796 | 2.564 | -1.78 | +3.2 | 16.6 |
| 1987 | 02 24 | 06 32.08 | +32 41.8 | | | | | |
| 1987 | 03 06 | 06 34.03 | +31 37.7 | 1.991 | 2.544 | -1.53 | +3.1 | 16.9 |
| 1987 | 03 16 | 06 39.01 | +30 34.6 | | | | | |
| 1987 | 03 26 | 06 46.59 | +29 32.7 | 2.220 | 2.525 | -1.36 | +3.4 | 17.2 |

1985 QR a,e,i = 3.02, 0.10, 10 Elements MPC 10403

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 20.87 | +11 53.7 | 2.530 | 2.762 | 92.7 | 21.1 | 17.9 |
| 1986 | 10 27 | 07 27.64 | +11 16.8 | | | | | |
| 1986 | 11 06 | 07 32.30 | +10 43.3 | 2.283 | 2.773 | 109.3 | 19.7 | 17.7 |
| 1986 | 11 16 | 07 34.61 | +10 15.6 | | | | | |
| 1986 | 11 26 | 07 34.43 | +09 56.2 | 2.065 | 2.786 | 128.2 | 16.2 | 17.4 |
| 1986 | 12 06 | 07 31.67 | +09 47.6 | | | | | |
| 1986 | 12 16 | 07 26.54 | +09 51.5 | 1.909 | 2.800 | 149.2 | 10.4 | 17.0 |
| 1986 | 12 26 | 07 19.47 | +10 08.7 | | | | | |
| 1987 | 01 05 | 07 11.19 | +10 38.7 | 1.846 | 2.814 | 167.6 | 4.3 | 16.7 |
| 1987 | 01 15 | 07 02.68 | +11 19.3 | | | | | |
| 1987 | 01 25 | 06 54.93 | +12 07.3 | 1.897 | 2.830 | 157.2 | 7.8 | 16.9 |
| 1987 | 02 04 | 06 48.81 | +12 59.2 | | | | | |
| 1987 | 02 14 | 06 44.94 | +13 51.8 | 2.052 | 2.847 | 136.0 | 13.9 | 17.3 |
| 1987 | 02 24 | 06 43.59 | +14 42.3 | | | | | |
| 1987 | 03 06 | 06 44.80 | +15 28.7 | 2.284 | 2.864 | 116.3 | 18.1 | 17.7 |
| 1987 | 03 16 | 06 48.44 | +16 09.6 | | | | | |
| 1987 | 03 26 | 06 54.25 | +16 44.0 | 2.557 | 2.882 | 98.7 | 20.0 | 18.0 |

1983 AH1 a,e,i = 2.55, 0.21, 17 Elements MPC 7935

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 01.26 | +11 22.0 | 1.679 | 2.060 | -1.48 | -6.3 | 17.8 |
| 1986 | 10 27 | 07 12.64 | +11 25.9 | | | | | |
| 1986 | 11 06 | 07 21.75 | +11 39.4 | 1.449 | 2.039 | -1.77 | -6.5 | 17.4 |
| 1986 | 11 16 | 07 28.18 | +12 07.9 | | | | | |
| 1986 | 11 26 | 07 31.50 | +12 56.3 | 1.246 | 2.025 | -2.16 | -6.5 | 16.9 |
| 1986 | 12 06 | 07 31.33 | +14 09.4 | | | | | |
| 1986 | 12 16 | 07 27.59 | +15 49.2 | 1.096 | 2.016 | -2.56 | -6.7 | 16.4 |
| 1986 | 12 26 | 07 20.61 | +17 53.1 | | | | | |
| 1987 | 01 05 | 07 11.32 | +20 13.2 | 1.031 | 2.013 | -2.77 | -7.5 | 15.8 |
| 1987 | 01 15 | 07 01.33 | +22 37.0 | | | | | |
| 1987 | 01 25 | 06 52.43 | +24 52.1 | 1.070 | 2.017 | -2.55 | -8.8 | 16.3 |
| 1987 | 02 04 | 06 46.21 | +26 49.8 | | | | | |
| 1987 | 02 14 | 06 43.72 | +28 26.3 | 1.203 | 2.026 | -2.10 | -9.1 | 16.8 |
| 1987 | 02 24 | 06 45.27 | +29 41.8 | | | | | |
| 1987 | 03 06 | 06 50.73 | +30 37.7 | 1.397 | 2.041 | -1.72 | -8.0 | 17.3 |
| 1987 | 03 16 | 06 59.68 | +31 15.8 | | | | | |
| 1987 | 03 26 | 07 11.54 | +31 37.4 | 1.626 | 2.062 | -1.49 | -6.1 | 17.7 |

(3335) 1966 AA a,e,i = 2.61, 0.13, 13 Elements MPC 10299

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 21.42 | +26 22.5 | 1.978 | 2.285 | 94.6 | 25.8 | 16.8 |
| 1986 | 10 27 | 07 31.45 | +25 28.4 | | | | | |
| 1986 | 11 06 | 07 38.83 | +24 32.2 | 1.736 | 2.279 | 110.4 | 24.1 | 16.5 |
| 1986 | 11 16 | 07 43.21 | +23 35.0 | | | | | |
| 1986 | 11 26 | 07 44.24 | +22 37.8 | 1.522 | 2.276 | 129.0 | 19.7 | 16.1 |
| 1986 | 12 06 | 07 41.71 | +21 41.1 | | | | | |
| 1986 | 12 16 | 07 35.72 | +20 44.9 | 1.366 | 2.276 | 150.9 | 12.1 | 15.6 |
| 1986 | 12 26 | 07 26.82 | +19 49.0 | | | | | |
| 1987 | 01 05 | 07 16.07 | +18 54.1 | 1.299 | 2.279 | 174.5 | 2.4 | 15.1 |
| 1987 | 01 15 | 07 04.98 | +18 01.2 | | | | | |
| 1987 | 01 25 | 06 55.11 | +17 12.3 | 1.340 | 2.285 | 158.5 | 9.1 | 15.5 |
| 1987 | 02 04 | 06 47.69 | +16 29.3 | | | | | |
| 1987 | 02 14 | 06 43.49 | +15 53.0 | 1.480 | 2.294 | 135.8 | 17.5 | 16.0 |
| 1987 | 02 24 | 06 42.68 | +15 22.9 | | | | | |
| 1987 | 03 06 | 06 45.15 | +14 57.6 | 1.686 | 2.305 | 116.4 | 22.7 | 16.4 |
| 1987 | 03 16 | 06 50.55 | +14 34.7 | | | | | |
| 1987 | 03 26 | 06 58.45 | +14 12.0 | 1.928 | 2.319 | 99.9 | 25.1 | 16.8 |

1980 JH a,e,i = 2.61, 0.17, 13 Elements MPC 10295

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 33.28 | +08 18.6 | 2.758 | 2.918 | 89.1 | 20.0 | 18.4 |
| 1986 | 10 27 | 07 38.80 | +07 15.6 | | | | | |
| 1986 | 11 06 | 07 42.26 | +06 14.0 | 2.512 | 2.941 | 105.8 | 18.9 | 18.2 |
| 1986 | 11 16 | 07 43.47 | +05 16.4 | | | | | |
| 1986 | 11 26 | 07 42.28 | +04 25.4 | 2.290 | 2.962 | 124.5 | 15.9 | 17.9 |
| 1986 | 12 06 | 07 38.66 | +03 43.9 | | | | | |
| 1986 | 12 16 | 07 32.77 | +03 15.1 | 2.126 | 2.981 | 144.3 | 11.1 | 17.6 |
| 1986 | 12 26 | 07 25.03 | +03 01.4 | | | | | |
| 1987 | 01 05 | 07 16.11 | +03 04.2 | 2.056 | 2.998 | 159.9 | 6.5 | 17.4 |
| 1987 | 01 15 | 07 06.90 | +03 23.3 | | | | | |
| 1987 | 01 25 | 06 58.33 | +03 56.5 | 2.098 | 3.013 | 153.9 | 8.3 | 17.5 |
| 1987 | 02 04 | 06 51.23 | +04 40.6 | | | | | |
| 1987 | 02 14 | 06 46.19 | +05 31.5 | 2.247 | 3.026 | 135.0 | 13.3 | 17.8 |
| 1987 | 02 24 | 06 43.51 | +06 25.1 | | | | | |
| 1987 | 03 06 | 06 43.26 | +07 18.3 | 2.473 | 3.037 | 115.7 | 17.1 | 18.2 |
| 1987 | 03 16 | 06 45.36 | +08 08.3 | | | | | |
| 1987 | 03 26 | 06 49.59 | +08 53.2 | 2.741 | 3.046 | 98.1 | 18.9 | 18.5 |

1979 OM15 a,e,i = 3.14, 0.19, 1 Elements MPC 6517

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 34.59 | +21 05.5 | 3.046 | 3.219 | 90.8 | 18.0 | 18.3 |
| 1986 | 10 27 | 07 39.80 | +20 51.6 | | | | | |
| 1986 | 11 06 | 07 42.99 | +20 41.9 | 2.796 | 3.254 | 108.8 | 16.8 | 18.1 |
| 1986 | 11 16 | 07 43.98 | +20 37.6 | | | | | |
| 1986 | 11 26 | 07 42.64 | +20 39.0 | 2.576 | 3.288 | 129.0 | 13.5 | 17.8 |
| 1986 | 12 06 | 07 38.98 | +20 46.1 | | | | | |
| 1986 | 12 16 | 07 33.19 | +20 58.0 | 2.423 | 3.322 | 151.5 | 8.1 | 17.5 |
| 1986 | 12 26 | 07 25.69 | +21 13.1 | | | | | |
| 1987 | 01 05 | 07 17.13 | +21 29.5 | 2.373 | 3.354 | 175.6 | 1.3 | 17.2 |
| 1987 | 01 15 | 07 08.36 | +21 45.0 | | | | | |
| 1987 | 01 25 | 07 00.23 | +21 58.4 | 2.444 | 3.385 | 160.0 | 5.7 | 17.5 |
| 1987 | 02 04 | 06 53.48 | +22 09.0 | | | | | |
| 1987 | 02 14 | 06 48.67 | +22 16.6 | 2.626 | 3.416 | 137.0 | 11.4 | 17.9 |
| 1987 | 02 24 | 06 46.06 | +22 21.5 | | | | | |
| 1987 | 03 06 | 06 45.70 | +22 23.8 | 2.890 | 3.445 | 116.2 | 15.0 | 18.2 |
| 1987 | 03 16 | 06 47.53 | +22 23.7 | | | | | |
| 1987 | 03 26 | 06 51.32 | +22 21.1 | 3.198 | 3.473 | 97.6 | 16.5 | 18.5 |

1983 EV a,e,i = 2.72, 0.11, 4 Elements MPC 8213

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 22.91 | +26 01.4 | 2.328 | 2.599 | 94.2 | 22.5 | 17.9 |
| 1986 | 10 27 | 07 31.75 | +26 00.2 | | | | | |
| 1986 | 11 06 | 07 38.37 | +26 03.6 | 2.055 | 2.577 | 110.7 | 21.1 | 17.5 |
| 1986 | 11 16 | 07 42.42 | +26 13.1 | | | | | |
| 1986 | 11 26 | 07 43.58 | +26 29.4 | 1.811 | 2.556 | 129.6 | 17.3 | 17.1 |
| 1986 | 12 06 | 07 41.60 | +26 52.2 | | | | | |
| 1986 | 12 16 | 07 36.48 | +27 19.4 | 1.629 | 2.536 | 151.3 | 10.7 | 16.7 |
| 1986 | 12 26 | 07 28.59 | +27 47.2 | | | | | |
| 1987 | 01 05 | 07 18.75 | +28 11.1 | 1.538 | 2.517 | 173.0 | 2.7 | 16.2 |
| 1987 | 01 15 | 07 08.25 | +28 26.6 | | | | | |
| 1987 | 01 25 | 06 58.51 | +28 31.7 | 1.559 | 2.500 | 158.2 | 8.4 | 16.5 |
| 1987 | 02 04 | 06 50.82 | +28 26.6 | | | | | |
| 1987 | 02 14 | 06 46.08 | +28 13.3 | 1.679 | 2.483 | 135.7 | 16.1 | 16.9 |
| 1987 | 02 24 | 06 44.63 | +27 54.3 | | | | | |
| 1987 | 03 06 | 06 46.50 | +27 31.3 | 1.869 | 2.469 | 115.9 | 21.2 | 17.2 |
| 1987 | 03 16 | 06 51.41 | +27 05.3 | | | | | |
| 1987 | 03 26 | 06 58.99 | +26 36.2 | 2.095 | 2.456 | 98.9 | 23.7 | 17.5 |

1984 EM a,e,i = 2.26, 0.13, 3 Elements MPC 10041

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 30.10 | +19 02.5 | 2.312 | 2.543 | 91.6 | 23.1 | 18.3 |
| 1986 | 10 27 | 07 38.04 | +18 35.6 | | | | | |
| 1986 | 11 06 | 07 43.76 | +18 12.1 | 2.042 | 2.533 | 108.2 | 21.8 | 18.0 |
| 1986 | 11 16 | 07 46.91 | +17 54.2 | | | | | |
| 1986 | 11 26 | 07 47.20 | +17 43.7 | 1.796 | 2.520 | 127.4 | 18.1 | 17.6 |
| 1986 | 12 06 | 07 44.38 | +17 42.0 | | | | | |
| 1986 | 12 16 | 07 38.46 | +17 49.7 | 1.607 | 2.506 | 149.6 | 11.5 | 17.1 |
| 1986 | 12 26 | 07 29.79 | +18 05.7 | | | | | |
| 1987 | 01 05 | 07 19.15 | +18 28.0 | 1.509 | 2.489 | 173.6 | 2.5 | 16.6 |
| 1987 | 01 15 | 07 07.81 | +18 53.4 | | | | | |
| 1987 | 01 25 | 06 57.17 | +19 19.1 | 1.525 | 2.470 | 159.3 | 8.1 | 16.9 |
| 1987 | 02 04 | 06 48.50 | +19 43.2 | | | | | |
| 1987 | 02 14 | 06 42.72 | +20 04.5 | 1.644 | 2.450 | 135.7 | 16.3 | 17.3 |
| 1987 | 02 24 | 06 40.23 | +20 22.8 | | | | | |
| 1987 | 03 06 | 06 41.06 | +20 37.5 | 1.833 | 2.427 | 115.2 | 21.7 | 17.7 |
| 1987 | 03 16 | 06 44.99 | +20 48.2 | | | | | |
| 1987 | 03 26 | 06 51.67 | +20 54.2 | 2.056 | 2.403 | 97.8 | 24.3 | 18.0 |

1971 QP a,e,i = 2.33, 0.20, 2 Elements MPC 8907

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 36.56 | +20 33.7 | 2.200 | 2.420 | 90.3 | 24.3 | 18.6 |
| 1986 | 10 27 | 07 44.54 | +20 04.3 | | | | | |
| 1986 | 11 06 | 07 50.00 | +19 39.2 | 1.983 | 2.462 | 107.0 | 22.6 | 18.4 |
| 1986 | 11 16 | 07 52.63 | +19 20.2 | | | | | |
| 1986 | 11 26 | 07 52.19 | +19 08.8 | 1.786 | 2.503 | 126.5 | 18.5 | 18.1 |
| 1986 | 12 06 | 07 48.52 | +19 05.7 | | | | | |
| 1986 | 12 16 | 07 41.75 | +19 10.7 | 1.646 | 2.541 | 149.2 | 11.4 | 17.7 |
| 1986 | 12 26 | 07 32.41 | +19 21.8 | | | | | |
| 1987 | 01 05 | 07 21.41 | +19 36.6 | 1.598 | 2.578 | 173.9 | 2.3 | 17.3 |
| 1987 | 01 15 | 07 10.05 | +19 52.1 | | | | | |
| 1987 | 01 25 | 06 59.68 | +20 06.3 | 1.665 | 2.611 | 159.9 | 7.4 | 17.7 |
| 1987 | 02 04 | 06 51.39 | +20 18.2 | | | | | |
| 1987 | 02 14 | 06 45.93 | +20 27.5 | 1.838 | 2.643 | 136.5 | 14.9 | 18.2 |
| 1987 | 02 24 | 06 43.51 | +20 34.3 | | | | | |
| 1987 | 03 06 | 06 44.10 | +20 38.6 | 2.084 | 2.672 | 115.9 | 19.5 | 18.6 |
| 1987 | 03 16 | 06 47.44 | +20 40.0 | | | | | |
| 1987 | 03 26 | 06 53.16 | +20 38.1 | 2.369 | 2.698 | 98.1 | 21.5 | 18.9 |

1981 EB20 a,e,i = 2.15, 0.09, 1 Elements MPC 8683

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 07 13.57 | +22 45.6 | 1.626 | 1.993 | 95.9 | 29.8 | 17.2 |
| 1986 10 27 | 07 26.47 | +22 17.3 | | | | | |
| 1986 11 06 | 07 36.88 | +21 50.1 | 1.402 | 1.979 | 110.4 | 28.0 | 16.8 |
| 1986 11 16 | 07 44.31 | +21 26.9 | | | | | |
| 1986 11 26 | 07 48.31 | +21 10.4 | 1.202 | 1.968 | 127.8 | 23.3 | 16.3 |
| 1986 12 06 | 07 48.40 | +21 02.6 | | | | | |
| 1986 12 16 | 07 44.41 | +21 04.2 | 1.049 | 1.959 | 149.0 | 15.0 | 15.8 |
| 1986 12 26 | 07 36.65 | +21 13.6 | | | | | |
| 1987 01 05 | 07 26.06 | +21 27.3 | 0.973 | 1.954 | 173.6 | 3.2 | 15.2 |
| 1987 01 15 | 07 14.42 | +21 41.0 | | | | | |
| 1987 01 25 | 07 03.73 | +21 51.3 | 0.994 | 1.950 | 160.8 | 9.6 | 15.5 |
| 1987 02 04 | 06 55.78 | +21 57.1 | | | | | |
| 1987 02 14 | 06 51.69 | +21 58.3 | 1.103 | 1.950 | 137.7 | 19.9 | 16.0 |
| 1987 02 24 | 06 51.78 | +21 55.6 | | | | | |
| 1987 03 06 | 06 55.86 | +21 48.8 | 1.273 | 1.953 | 118.6 | 26.5 | 16.5 |
| 1987 03 16 | 07 03.48 | +21 37.2 | | | | | |
| 1987 03 26 | 07 14.03 | +21 19.6 | 1.477 | 1.959 | 102.9 | 29.8 | 16.9 |

1975 XP3 a,e,i = 2.35, 0.13, 3 Elements MPC 7606

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 07 18.85 | +25 35.7 | 1.710 | 2.054 | 95.1 | 28.9 | 17.8 |
| 1986 10 27 | 07 31.35 | +25 28.4 | | | | | |
| 1986 11 06 | 07 41.21 | +25 25.0 | 1.502 | 2.063 | 110.0 | 26.9 | 17.5 |
| 1986 11 16 | 07 47.98 | +25 28.1 | | | | | |
| 1986 11 26 | 07 51.21 | +25 39.4 | 1.318 | 2.075 | 127.8 | 22.1 | 17.1 |
| 1986 12 06 | 07 50.51 | +25 59.5 | | | | | |
| 1986 12 16 | 07 45.83 | +26 26.3 | 1.184 | 2.091 | 149.2 | 13.9 | 16.7 |
| 1986 12 26 | 07 37.59 | +26 55.3 | | | | | |
| 1987 01 05 | 07 26.85 | +27 20.4 | 1.131 | 2.109 | 172.2 | 3.6 | 16.2 |
| 1987 01 15 | 07 15.33 | +27 35.8 | | | | | |
| 1987 01 25 | 07 04.92 | +27 39.0 | 1.179 | 2.130 | 159.8 | 9.2 | 16.5 |
| 1987 02 04 | 06 57.17 | +27 30.8 | | | | | |
| 1987 02 14 | 06 53.03 | +27 13.8 | 1.320 | 2.154 | 137.4 | 18.1 | 17.1 |
| 1987 02 24 | 06 52.73 | +26 50.9 | | | | | |
| 1987 03 06 | 06 56.06 | +26 24.1 | 1.528 | 2.179 | 118.1 | 23.7 | 17.6 |
| 1987 03 16 | 07 02.59 | +25 53.8 | | | | | |
| 1987 03 26 | 07 11.77 | +25 19.9 | 1.772 | 2.205 | 101.9 | 26.3 | 18.0 |

1977 EN1 a,e,i = 3.13, 0.15, 2 Elements MPC 9593

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 10 17 | 07 41.31 | +22 25.5 | 3.404 | 3.539 | 89.5 | 16.4 | 19.2 |
| 1986 10 27 | 07 46.43 | +22 19.1 | | | | | |
| 1986 11 06 | 07 49.77 | +22 17.2 | 3.100 | 3.527 | 107.5 | 15.5 | 18.9 |
| 1986 11 16 | 07 51.13 | +22 20.7 | | | | | |
| 1986 11 26 | 07 50.37 | +22 30.0 | 2.824 | 3.514 | 127.6 | 12.9 | 18.6 |
| 1986 12 06 | 07 47.40 | +22 45.0 | | | | | |
| 1986 12 16 | 07 42.32 | +23 04.7 | 2.614 | 3.500 | 149.8 | 8.1 | 18.3 |
| 1986 12 26 | 07 35.43 | +23 27.1 | | | | | |
| 1987 01 05 | 07 27.25 | +23 50.1 | 2.506 | 3.484 | 173.4 | 1.8 | 17.9 |
| 1987 01 15 | 07 18.52 | +24 11.1 | | | | | |
| 1987 01 25 | 07 10.09 | +24 28.3 | 2.519 | 3.468 | 161.9 | 5.1 | 18.1 |
| 1987 02 04 | 07 02.75 | +24 40.7 | | | | | |
| 1987 02 14 | 06 57.14 | +24 48.2 | 2.646 | 3.450 | 138.7 | 10.9 | 18.4 |
| 1987 02 24 | 06 53.65 | +24 51.4 | | | | | |
| 1987 03 06 | 06 52.46 | +24 50.8 | 2.858 | 3.431 | 117.5 | 14.9 | 18.7 |
| 1987 03 16 | 06 53.56 | +24 47.1 | | | | | |
| 1987 03 26 | 06 56.79 | +24 40.3 | 3.116 | 3.411 | 98.6 | 16.8 | 18.9 |

(3337) 1971 UG1 a,e,i = 2.84, 0.08, 2 Elements MPC 10299

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 35.09 | +19 28.9 | 2.505 | 2.704 | 90.5 | 21.6 | 17.6 |
| 1986 | 10 27 | 07 42.94 | +19 03.2 | | | | | |
| 1986 | 11 06 | 07 48.64 | +18 41.2 | 2.255 | 2.717 | 107.1 | 20.4 | 17.3 |
| 1986 | 11 16 | 07 51.94 | +18 24.9 | | | | | |
| 1986 | 11 26 | 07 52.60 | +18 15.6 | 2.029 | 2.730 | 126.2 | 17.0 | 17.0 |
| 1986 | 12 06 | 07 50.50 | +18 14.5 | | | | | |
| 1986 | 12 16 | 07 45.70 | +18 21.6 | 1.859 | 2.745 | 148.1 | 10.9 | 16.6 |
| 1986 | 12 26 | 07 38.57 | +18 35.9 | | | | | |
| 1987 | 01 05 | 07 29.80 | +18 55.3 | 1.782 | 2.759 | 171.9 | 2.9 | 16.2 |
| 1987 | 01 15 | 07 20.40 | +19 17.2 | | | | | |
| 1987 | 01 25 | 07 11.51 | +19 38.9 | 1.819 | 2.774 | 162.7 | 6.1 | 16.4 |
| 1987 | 02 04 | 07 04.13 | +19 58.8 | | | | | |
| 1987 | 02 14 | 06 59.04 | +20 15.7 | 1.964 | 2.790 | 139.5 | 13.3 | 16.9 |
| 1987 | 02 24 | 06 56.61 | +20 29.2 | | | | | |
| 1987 | 03 06 | 06 56.93 | +20 39.0 | 2.188 | 2.805 | 118.9 | 18.0 | 17.3 |
| 1987 | 03 16 | 06 59.87 | +20 44.7 | | | | | |
| 1987 | 03 26 | 07 05.14 | +20 46.0 | 2.456 | 2.821 | 100.9 | 20.3 | 17.6 |

1975 VD a,e,i = 2.31, 0.23, 5 Elements MPC 7614

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 42.50 | +27 26.4 | 1.998 | 2.234 | 90.1 | 26.5 | 19.0 |
| 1986 | 10 27 | 07 52.62 | +27 26.9 | | | | | |
| 1986 | 11 06 | 08 00.01 | +27 34.1 | 1.805 | 2.288 | 106.1 | 24.6 | 18.8 |
| 1986 | 11 16 | 08 04.27 | +27 49.9 | | | | | |
| 1986 | 11 26 | 08 05.07 | +28 14.9 | 1.629 | 2.340 | 125.1 | 20.2 | 18.5 |
| 1986 | 12 06 | 08 02.11 | +28 48.1 | | | | | |
| 1986 | 12 16 | 07 55.44 | +29 25.9 | 1.505 | 2.391 | 147.1 | 12.9 | 18.1 |
| 1986 | 12 26 | 07 45.54 | +30 02.5 | | | | | |
| 1987 | 01 05 | 07 33.44 | +30 31.2 | 1.468 | 2.441 | 169.1 | 4.4 | 17.8 |
| 1987 | 01 15 | 07 20.70 | +30 46.5 | | | | | |
| 1987 | 01 25 | 07 08.99 | +30 46.7 | 1.543 | 2.488 | 159.3 | 8.0 | 18.1 |
| 1987 | 02 04 | 06 59.66 | +30 33.3 | | | | | |
| 1987 | 02 14 | 06 53.58 | +30 10.0 | 1.721 | 2.533 | 136.9 | 15.4 | 18.6 |
| 1987 | 02 24 | 06 50.98 | +29 40.7 | | | | | |
| 1987 | 03 06 | 06 51.72 | +29 08.0 | 1.972 | 2.576 | 116.8 | 20.1 | 19.1 |
| 1987 | 03 16 | 06 55.45 | +28 33.4 | | | | | |
| 1987 | 03 26 | 07 01.70 | +27 57.4 | 2.262 | 2.616 | 99.3 | 22.1 | 19.5 |

1982 SA4 a,e,i = 2.27, 0.19, 5 Elements MPC 9067

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 46.90 | +25 43.2 | 2.192 | 2.389 | 88.8 | 24.6 | 18.5 |
| 1986 | 10 27 | 07 56.28 | +25 44.4 | | | | | |
| 1986 | 11 06 | 08 03.21 | +25 52.7 | 1.973 | 2.429 | 105.1 | 23.2 | 18.3 |
| 1986 | 11 16 | 08 07.32 | +26 10.0 | | | | | |
| 1986 | 11 26 | 08 08.27 | +26 37.2 | 1.772 | 2.466 | 124.2 | 19.3 | 18.0 |
| 1986 | 12 06 | 08 05.77 | +27 13.9 | | | | | |
| 1986 | 12 16 | 07 59.80 | +27 57.3 | 1.623 | 2.501 | 146.1 | 12.7 | 17.6 |
| 1986 | 12 26 | 07 50.69 | +28 42.5 | | | | | |
| 1987 | 01 05 | 07 39.28 | +29 23.1 | 1.562 | 2.533 | 168.8 | 4.3 | 17.2 |
| 1987 | 01 15 | 07 26.92 | +29 53.0 | | | | | |
| 1987 | 01 25 | 07 15.17 | +30 08.9 | 1.613 | 2.564 | 160.8 | 7.3 | 17.4 |
| 1987 | 02 04 | 07 05.42 | +30 10.8 | | | | | |
| 1987 | 02 14 | 06 58.63 | +30 01.2 | 1.771 | 2.591 | 138.0 | 14.8 | 17.9 |
| 1987 | 02 24 | 06 55.18 | +29 43.5 | | | | | |
| 1987 | 03 06 | 06 55.07 | +29 20.4 | 2.005 | 2.616 | 117.5 | 19.7 | 18.4 |
| 1987 | 03 16 | 06 58.03 | +28 53.8 | | | | | |
| 1987 | 03 26 | 07 03.62 | +28 24.4 | 2.280 | 2.638 | 99.7 | 21.9 | 18.7 |

1978 PR4 a,e,i = 2.24, 0.10, 5 Elements MPC 9424

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 35.21 | +25 52.0 | 2.084 | 2.333 | 91.5 | 25.3 | 18.0 |
| 1986 | 10 27 | 07 46.19 | +25 52.4 | | | | | |
| 1986 | 11 06 | 07 55.00 | +25 58.6 | 1.819 | 2.311 | 107.0 | 24.2 | 17.6 |
| 1986 | 11 16 | 08 01.24 | +26 13.0 | | | | | |
| 1986 | 11 26 | 08 04.48 | +26 37.4 | 1.576 | 2.289 | 125.0 | 20.7 | 17.2 |
| 1986 | 12 06 | 08 04.25 | +27 12.4 | | | | | |
| 1986 | 12 16 | 08 00.31 | +27 56.5 | 1.383 | 2.267 | 146.0 | 14.0 | 16.7 |
| 1986 | 12 26 | 07 52.75 | +28 45.3 | | | | | |
| 1987 | 01 05 | 07 42.17 | +29 32.0 | 1.272 | 2.243 | 168.2 | 5.1 | 16.2 |
| 1987 | 01 15 | 07 29.93 | +30 08.7 | | | | | |
| 1987 | 01 25 | 07 17.81 | +30 29.8 | 1.265 | 2.220 | 161.1 | 8.3 | 16.2 |
| 1987 | 02 04 | 07 07.60 | +30 33.9 | | | | | |
| 1987 | 02 14 | 07 00.69 | +30 23.2 | 1.358 | 2.196 | 138.3 | 17.4 | 16.7 |
| 1987 | 02 24 | 06 57.70 | +30 01.6 | | | | | |
| 1987 | 03 06 | 06 58.72 | +29 32.5 | 1.520 | 2.173 | 118.2 | 23.7 | 17.1 |
| 1987 | 03 16 | 07 03.44 | +28 58.0 | | | | | |
| 1987 | 03 26 | 07 11.37 | +28 18.9 | 1.718 | 2.150 | 101.4 | 27.1 | 17.4 |

1985 SA a,e,i = 2.32, 0.14, 7 Elements MPC 10773

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 50.21 | +17 22.4 | 2.449 | 2.589 | -0.90 | +0.4 | 18.2 |
| 1986 | 10 27 | 07 58.64 | +17 03.7 | | | | | |
| 1986 | 11 06 | 08 05.00 | +16 50.6 | 2.195 | 2.602 | -1.02 | +0.7 | 17.9 |
| 1986 | 11 16 | 08 09.01 | +16 45.6 | | | | | |
| 1986 | 11 26 | 08 10.36 | +16 50.6 | 1.956 | 2.614 | -1.18 | +1.1 | 17.6 |
| 1986 | 12 06 | 08 08.81 | +17 07.4 | | | | | |
| 1986 | 12 16 | 08 04.29 | +17 36.5 | 1.765 | 2.623 | -1.36 | +1.2 | 17.2 |
| 1986 | 12 26 | 07 57.00 | +18 16.7 | | | | | |
| 1987 | 01 05 | 07 47.49 | +19 05.1 | 1.660 | 2.630 | -1.48 | +1.0 | 16.7 |
| 1987 | 01 15 | 07 36.77 | +19 57.2 | | | | | |
| 1987 | 01 25 | 07 26.10 | +20 48.0 | 1.668 | 2.635 | -1.46 | +0.4 | 16.8 |
| 1987 | 02 04 | 07 16.71 | +21 33.8 | | | | | |
| 1987 | 02 14 | 07 09.65 | +22 12.4 | 1.789 | 2.637 | -1.32 | -0.2 | 17.2 |
| 1987 | 02 24 | 07 05.47 | +22 43.2 | | | | | |
| 1987 | 03 06 | 07 04.38 | +23 06.5 | 1.992 | 2.637 | -1.14 | -0.5 | 17.7 |
| 1987 | 03 16 | 07 06.28 | +23 22.5 | | | | | |
| 1987 | 03 26 | 07 10.89 | +23 31.7 | 2.242 | 2.635 | -1.00 | -0.3 | 18.0 |

1974 VG a,e,i = 3.17, 0.08, 10 Elements MPC 9354

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 10 17 | 07 48.08 | +28 56.2 | 2.773 | 2.933 | 89.2 | 19.9 | 17.4 |
| 1986 | 10 27 | 07 56.62 | +29 16.1 | | | | | |
| 1986 | 11 06 | 08 03.17 | +29 43.3 | 2.513 | 2.942 | 105.8 | 18.9 | 17.2 |
| 1986 | 11 16 | 08 07.43 | +30 18.9 | | | | | |
| 1986 | 11 26 | 08 09.14 | +31 03.0 | 2.279 | 2.952 | 124.5 | 16.0 | 16.9 |
| 1986 | 12 06 | 08 08.08 | +31 54.8 | | | | | |
| 1986 | 12 16 | 08 04.19 | +32 51.2 | 2.102 | 2.962 | 145.0 | 11.0 | 16.6 |
| 1986 | 12 26 | 07 57.71 | +33 47.5 | | | | | |
| 1987 | 01 05 | 07 49.18 | +34 38.0 | 2.017 | 2.974 | 163.8 | 5.3 | 16.3 |
| 1987 | 01 15 | 07 39.56 | +35 17.0 | | | | | |
| 1987 | 01 25 | 07 29.98 | +35 40.7 | 2.043 | 2.986 | 159.6 | 6.6 | 16.4 |
| 1987 | 02 04 | 07 21.61 | +35 48.2 | | | | | |
| 1987 | 02 14 | 07 15.37 | +35 41.1 | 2.178 | 2.999 | 139.5 | 12.3 | 16.7 |
| 1987 | 02 24 | 07 11.79 | +35 22.3 | | | | | |
| 1987 | 03 06 | 07 11.05 | +34 55.1 | 2.395 | 3.012 | 119.7 | 16.6 | 17.1 |
| 1987 | 03 16 | 07 13.08 | +34 21.9 | | | | | |
| 1987 | 03 26 | 07 17.61 | +33 44.6 | 2.660 | 3.026 | 101.8 | 18.8 | 17.4 |

1949 QC1 a,e,i = 2.21, 0.20, 7 Elements MPC 9583

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 08 16.35 | +26 32.5 | 1.992 | 2.408 | 102.4 | 23.7 | 18.4 |
| 1986 11 16 | 08 21.05 | +26 30.8 | | | | | |
| 1986 11 26 | 08 22.62 | +26 37.8 | 1.785 | 2.444 | 121.0 | 20.3 | 18.1 |
| 1986 12 06 | 08 20.74 | +26 53.4 | | | | | |
| 1986 12 16 | 08 15.29 | +27 15.7 | 1.622 | 2.478 | 142.7 | 13.9 | 17.7 |
| 1986 12 26 | 08 06.52 | +27 40.4 | | | | | |
| 1987 01 05 | 07 55.14 | +28 02.0 | 1.543 | 2.509 | 166.3 | 5.3 | 17.3 |
| 1987 01 15 | 07 42.45 | +28 15.0 | | | | | |
| 1987 01 25 | 07 29.98 | +28 15.8 | 1.575 | 2.537 | 164.5 | 5.9 | 17.4 |
| 1987 02 04 | 07 19.24 | +28 04.4 | | | | | |
| 1987 02 14 | 07 11.30 | +27 43.0 | 1.717 | 2.562 | 141.3 | 14.0 | 17.9 |
| 1987 02 24 | 07 06.69 | +27 14.8 | | | | | |
| 1987 03 06 | 07 05.46 | +26 42.6 | 1.940 | 2.585 | 120.2 | 19.4 | 18.4 |
| 1987 03 16 | 07 07.38 | +26 07.9 | | | | | |
| 1987 03 26 | 07 12.03 | +25 31.5 | 2.208 | 2.604 | 101.9 | 22.0 | 18.7 |
| 1987 04 05 | 07 19.02 | +24 53.1 | | | | | |
| 1987 04 15 | 07 27.93 | +24 12.2 | 2.491 | 2.619 | 86.0 | 22.5 | 19.0 |

(3345) 1982 YC1 a,e,i = 2.48, 0.19, 16 Elements MPC 10302

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 08 03.09 | +32 48.8 | 1.634 | 2.136 | 106.3 | 26.5 | 15.8 |
| 1986 11 16 | 08 11.39 | +32 14.0 | | | | | |
| 1986 11 26 | 08 16.27 | +31 39.4 | 1.399 | 2.106 | 123.0 | 23.1 | 15.3 |
| 1986 12 06 | 08 17.19 | +31 04.4 | | | | | |
| 1986 12 16 | 08 13.84 | +30 26.5 | 1.207 | 2.080 | 143.1 | 16.5 | 14.8 |
| 1986 12 26 | 08 06.29 | +29 41.3 | | | | | |
| 1987 01 05 | 07 55.23 | +28 43.9 | 1.089 | 2.057 | 166.0 | 6.6 | 14.2 |
| 1987 01 15 | 07 42.24 | +27 30.5 | | | | | |
| 1987 01 25 | 07 29.36 | +26 02.0 | 1.071 | 2.039 | 165.5 | 6.9 | 14.1 |
| 1987 02 04 | 07 18.58 | +24 23.8 | | | | | |
| 1987 02 14 | 07 11.38 | +22 43.2 | 1.154 | 2.026 | 142.2 | 17.4 | 14.6 |
| 1987 02 24 | 07 08.31 | +21 06.2 | | | | | |
| 1987 03 06 | 07 09.33 | +19 35.8 | 1.310 | 2.019 | 121.9 | 24.7 | 15.1 |
| 1987 03 16 | 07 14.06 | +18 11.9 | | | | | |
| 1987 03 26 | 07 21.89 | +16 53.0 | 1.509 | 2.016 | 105.3 | 28.5 | 15.5 |
| 1987 04 05 | 07 32.31 | +15 36.7 | | | | | |
| 1987 04 15 | 07 44.78 | +14 20.7 | 1.726 | 2.019 | 91.5 | 29.8 | 15.9 |

1979 QP8 a,e,i = 3.14, 0.19, 2 Elements MPC 9681

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 08 11.82 | +18 13.8 | 3.185 | 3.521 | 101.6 | 16.0 | 18.5 |
| 1986 11 16 | 08 13.74 | +18 00.7 | | | | | |
| 1986 11 26 | 08 13.63 | +17 53.8 | 2.933 | 3.547 | 121.3 | 13.8 | 18.3 |
| 1986 12 06 | 08 11.41 | +17 53.7 | | | | | |
| 1986 12 16 | 08 07.13 | +18 00.3 | 2.735 | 3.571 | 143.1 | 9.5 | 18.0 |
| 1986 12 26 | 08 01.04 | +18 12.7 | | | | | |
| 1987 01 05 | 07 53.55 | +18 29.4 | 2.630 | 3.593 | 166.6 | 3.6 | 17.7 |
| 1987 01 15 | 07 45.30 | +18 48.4 | | | | | |
| 1987 01 25 | 07 37.04 | +19 07.7 | 2.644 | 3.614 | 168.7 | 3.1 | 17.7 |
| 1987 02 04 | 07 29.50 | +19 25.5 | | | | | |
| 1987 02 14 | 07 23.34 | +19 40.7 | 2.779 | 3.634 | 145.3 | 8.9 | 18.0 |
| 1987 02 24 | 07 18.98 | +19 52.7 | | | | | |
| 1987 03 06 | 07 16.64 | +20 01.3 | 3.009 | 3.652 | 123.6 | 13.1 | 18.4 |
| 1987 03 16 | 07 16.40 | +20 06.2 | | | | | |
| 1987 03 26 | 07 18.14 | +20 07.5 | 3.297 | 3.669 | 104.0 | 15.3 | 18.7 |
| 1987 04 05 | 07 21.71 | +20 05.1 | | | | | |
| 1987 04 15 | 07 26.90 | +19 58.7 | 3.608 | 3.683 | 86.4 | 15.8 | 18.9 |

1981 VS a,e,i = 2.77, 0.29, 9 Elements MPC 10021

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 00.70 | +09 55.8 | 1.641 | 2.091 | -1.58 | +3.9 | 16.8 |
| 1986 | 11 16 | 08 07.67 | +08 33.9 | | | | | |
| 1986 | 11 26 | 08 11.58 | +07 19.5 | 1.479 | 2.136 | -1.74 | +4.1 | 16.5 |
| 1986 | 12 06 | 08 12.16 | +06 16.9 | | | | | |
| 1986 | 12 16 | 08 09.42 | +05 30.6 | 1.354 | 2.185 | -1.96 | +4.3 | 16.2 |
| 1986 | 12 26 | 08 03.66 | +05 04.3 | | | | | |
| 1987 | 01 05 | 07 55.57 | +05 00.5 | 1.298 | 2.239 | -2.13 | +4.7 | 15.9 |
| 1987 | 01 15 | 07 46.32 | +05 18.8 | | | | | |
| 1987 | 01 25 | 07 37.25 | +05 55.8 | 1.339 | 2.296 | -2.13 | +4.8 | 15.9 |
| 1987 | 02 04 | 07 29.66 | +06 46.1 | | | | | |
| 1987 | 02 14 | 07 24.49 | +07 43.1 | 1.479 | 2.355 | -1.93 | +4.4 | 16.4 |
| 1987 | 02 24 | 07 22.22 | +08 40.9 | | | | | |
| 1987 | 03 06 | 07 22.92 | +09 34.9 | 1.700 | 2.416 | -1.67 | +3.9 | 16.9 |
| 1987 | 03 16 | 07 26.42 | +10 22.0 | | | | | |
| 1987 | 03 26 | 07 32.38 | +11 00.2 | 1.975 | 2.478 | -1.42 | +3.4 | 17.4 |
| 1987 | 04 05 | 07 40.42 | +11 28.5 | | | | | |
| 1987 | 04 15 | 07 50.18 | +11 46.3 | 2.278 | 2.541 | -1.22 | +3.1 | 17.8 |

1982 WK a,e,i = 2.40, 0.10, 6 Elements MPC 10403

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 05.85 | +15 42.6 | 1.788 | 2.224 | 102.5 | 25.8 | 17.1 |
| 1986 | 11 16 | 08 12.26 | +14 45.2 | | | | | |
| 1986 | 11 26 | 08 15.74 | +13 53.9 | 1.582 | 2.242 | 119.8 | 22.5 | 16.8 |
| 1986 | 12 06 | 08 15.97 | +13 11.3 | | | | | |
| 1986 | 12 16 | 08 12.86 | +12 40.1 | 1.416 | 2.261 | 140.1 | 16.2 | 16.4 |
| 1986 | 12 26 | 08 06.57 | +12 21.8 | | | | | |
| 1987 | 01 05 | 07 57.71 | +12 17.1 | 1.324 | 2.281 | 162.6 | 7.4 | 16.0 |
| 1987 | 01 15 | 07 47.39 | +12 24.8 | | | | | |
| 1987 | 01 25 | 07 37.03 | +12 42.1 | 1.334 | 2.303 | 166.7 | 5.6 | 15.9 |
| 1987 | 02 04 | 07 28.05 | +13 05.8 | | | | | |
| 1987 | 02 14 | 07 21.57 | +13 32.1 | 1.447 | 2.325 | 144.9 | 14.1 | 16.4 |
| 1987 | 02 24 | 07 18.20 | +13 58.0 | | | | | |
| 1987 | 03 06 | 07 18.09 | +14 21.0 | 1.640 | 2.347 | 124.3 | 20.4 | 16.9 |
| 1987 | 03 16 | 07 21.08 | +14 39.2 | | | | | |
| 1987 | 03 26 | 07 26.82 | +14 51.2 | 1.883 | 2.370 | 106.7 | 23.8 | 17.3 |
| 1987 | 04 05 | 07 34.92 | +14 55.8 | | | | | |
| 1987 | 04 15 | 07 44.98 | +14 52.4 | 2.147 | 2.393 | 91.5 | 24.8 | 17.7 |

1939 SF a,e,i = 2.60, 0.23, 12 Elements MPC 10839

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 19.53 | +11 44.7 | 2.301 | 2.633 | 98.3 | 21.9 | 17.3 |
| 1986 | 11 16 | 08 23.17 | +10 34.4 | | | | | |
| 1986 | 11 26 | 08 24.23 | +09 29.6 | 2.092 | 2.681 | 116.4 | 19.2 | 17.1 |
| 1986 | 12 06 | 08 22.55 | +08 32.5 | | | | | |
| 1986 | 12 16 | 08 18.14 | +07 45.7 | 1.925 | 2.728 | 136.9 | 14.3 | 16.8 |
| 1986 | 12 26 | 08 11.23 | +07 11.3 | | | | | |
| 1987 | 01 05 | 08 02.36 | +06 50.6 | 1.837 | 2.773 | 158.0 | 7.6 | 16.5 |
| 1987 | 01 15 | 07 52.40 | +06 44.2 | | | | | |
| 1987 | 01 25 | 07 42.42 | +06 50.6 | 1.857 | 2.816 | 163.8 | 5.6 | 16.5 |
| 1987 | 02 04 | 07 33.44 | +07 07.5 | | | | | |
| 1987 | 02 14 | 07 26.34 | +07 31.5 | 1.991 | 2.858 | 145.2 | 11.4 | 16.9 |
| 1987 | 02 24 | 07 21.63 | +07 59.0 | | | | | |
| 1987 | 03 06 | 07 19.51 | +08 27.2 | 2.215 | 2.897 | 124.7 | 16.3 | 17.3 |
| 1987 | 03 16 | 07 19.97 | +08 53.2 | | | | | |
| 1987 | 03 26 | 07 22.78 | +09 15.2 | 2.495 | 2.935 | 106.2 | 19.0 | 17.7 |
| 1987 | 04 05 | 07 27.68 | +09 31.8 | | | | | |
| 1987 | 04 15 | 07 34.37 | +09 41.9 | 2.799 | 2.970 | 89.8 | 19.7 | 18.0 |

(3387) 1981 WE a,e,i = 2.60, 0.19, 13 Elements MPC 10399

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 17.44 | +05 59.8 | 2.595 | 2.893 | 97.3 | 19.9 | 18.3 |
| 1986 | 11 16 | 08 20.59 | +04 52.9 | | | | | |
| 1986 | 11 26 | 08 21.47 | +03 51.9 | 2.362 | 2.922 | 115.2 | 17.8 | 18.0 |
| 1986 | 12 06 | 08 19.93 | +02 59.4 | | | | | |
| 1986 | 12 16 | 08 15.96 | +02 18.5 | 2.170 | 2.948 | 134.8 | 13.7 | 17.7 |
| 1986 | 12 26 | 08 09.76 | +01 52.1 | | | | | |
| 1987 | 01 05 | 08 01.76 | +01 42.4 | 2.057 | 2.972 | 154.0 | 8.3 | 17.4 |
| 1987 | 01 15 | 07 52.70 | +01 50.1 | | | | | |
| 1987 | 01 25 | 07 43.47 | +02 14.0 | 2.049 | 2.994 | 160.2 | 6.4 | 17.4 |
| 1987 | 02 04 | 07 35.00 | +02 51.5 | | | | | |
| 1987 | 02 14 | 07 28.10 | +03 38.2 | 2.155 | 3.014 | 144.5 | 11.0 | 17.7 |
| 1987 | 02 24 | 07 23.31 | +04 29.6 | | | | | |
| 1987 | 03 06 | 07 20.90 | +05 21.6 | 2.353 | 3.032 | 124.9 | 15.6 | 18.0 |
| 1987 | 03 16 | 07 20.93 | +06 10.9 | | | | | |
| 1987 | 03 26 | 07 23.25 | +06 55.1 | 2.610 | 3.047 | 106.5 | 18.3 | 18.3 |
| 1987 | 04 05 | 07 27.64 | +07 32.5 | | | | | |
| 1987 | 04 15 | 07 33.86 | +08 02.0 | 2.893 | 3.061 | 89.9 | 19.1 | 18.6 |

4031 P-L a,e,i = 2.37, 0.18, 5 Elements MPC 8909

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 04.30 | +27 06.6 | 1.446 | 1.955 | 105.1 | 29.3 | 18.4 |
| 1986 | 11 16 | 08 14.24 | +26 57.1 | | | | | |
| 1986 | 11 26 | 08 20.73 | +26 55.3 | 1.268 | 1.972 | 121.4 | 25.3 | 18.0 |
| 1986 | 12 06 | 08 23.28 | +27 02.8 | | | | | |
| 1986 | 12 16 | 08 21.58 | +27 18.5 | 1.128 | 1.994 | 141.3 | 18.0 | 17.6 |
| 1986 | 12 26 | 08 15.71 | +27 38.9 | | | | | |
| 1987 | 01 05 | 08 06.33 | +27 57.6 | 1.057 | 2.020 | 163.9 | 7.7 | 17.1 |
| 1987 | 01 15 | 07 54.92 | +28 07.4 | | | | | |
| 1987 | 01 25 | 07 43.40 | +28 03.4 | 1.079 | 2.050 | 167.0 | 6.2 | 17.1 |
| 1987 | 02 04 | 07 33.70 | +27 44.6 | | | | | |
| 1987 | 02 14 | 07 27.25 | +27 13.8 | 1.198 | 2.084 | 144.8 | 15.9 | 17.7 |
| 1987 | 02 24 | 07 24.62 | +26 34.7 | | | | | |
| 1987 | 03 06 | 07 25.83 | +25 50.5 | 1.391 | 2.120 | 124.8 | 22.6 | 18.3 |
| 1987 | 03 16 | 07 30.51 | +25 02.7 | | | | | |
| 1987 | 03 26 | 07 38.08 | +24 11.9 | 1.631 | 2.158 | 108.0 | 26.1 | 18.8 |
| 1987 | 04 05 | 07 48.02 | +23 17.7 | | | | | |
| 1987 | 04 15 | 07 59.83 | +22 19.4 | 1.895 | 2.198 | 93.5 | 27.1 | 19.2 |

(3455) 1985 QC a,e,i = 2.24, 0.06, 4 Elements MPC 10834

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 07.76 | +15 50.9 | 1.762 | 2.194 | 102.0 | 26.2 | 17.0 |
| 1986 | 11 16 | 08 15.51 | +15 12.3 | | | | | |
| 1986 | 11 26 | 08 20.56 | +14 41.3 | 1.525 | 2.180 | 118.8 | 23.4 | 16.6 |
| 1986 | 12 06 | 08 22.51 | +14 21.3 | | | | | |
| 1986 | 12 16 | 08 21.07 | +14 14.9 | 1.327 | 2.167 | 138.8 | 17.4 | 16.1 |
| 1986 | 12 26 | 08 16.20 | +14 23.9 | | | | | |
| 1987 | 01 05 | 08 08.23 | +14 48.0 | 1.198 | 2.154 | 161.8 | 8.2 | 15.6 |
| 1987 | 01 15 | 07 58.12 | +15 24.6 | | | | | |
| 1987 | 01 25 | 07 47.31 | +16 08.7 | 1.165 | 2.142 | 170.5 | 4.4 | 15.3 |
| 1987 | 02 04 | 07 37.44 | +16 55.0 | | | | | |
| 1987 | 02 14 | 07 30.00 | +17 38.4 | 1.234 | 2.131 | 147.0 | 14.6 | 15.8 |
| 1987 | 02 24 | 07 25.89 | +18 15.8 | | | | | |
| 1987 | 03 06 | 07 25.49 | +18 45.3 | 1.383 | 2.122 | 125.8 | 22.3 | 16.3 |
| 1987 | 03 16 | 07 28.72 | +19 05.8 | | | | | |
| 1987 | 03 26 | 07 35.18 | +19 16.7 | 1.579 | 2.114 | 108.1 | 26.6 | 16.7 |
| 1987 | 04 05 | 07 44.45 | +19 17.4 | | | | | |
| 1987 | 04 15 | 07 56.05 | +19 07.4 | 1.796 | 2.107 | 93.3 | 28.4 | 17.0 |

1964 TT2 a,e,i = 2.62, 0.21, 3 Elements MPC 10294

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 24.41 | +22 39.3 | 2.476 | 2.819 | 99.8 | 20.3 | 18.3 |
| 1986 | 11 16 | 08 28.52 | +22 39.1 | | | | | |
| 1986 | 11 26 | 08 30.12 | +22 47.9 | 2.249 | 2.856 | 118.6 | 17.7 | 18.1 |
| 1986 | 12 06 | 08 28.97 | +23 05.9 | | | | | |
| 1986 | 12 16 | 08 25.03 | +23 32.4 | 2.067 | 2.892 | 140.1 | 12.6 | 17.7 |
| 1986 | 12 26 | 08 18.45 | +24 04.9 | | | | | |
| 1987 | 01 05 | 08 09.70 | +24 39.6 | 1.969 | 2.926 | 163.7 | 5.4 | 17.4 |
| 1987 | 01 15 | 07 59.62 | +25 12.2 | | | | | |
| 1987 | 01 25 | 07 49.27 | +25 38.4 | 1.984 | 2.957 | 169.6 | 3.5 | 17.3 |
| 1987 | 02 04 | 07 39.78 | +25 56.1 | | | | | |
| 1987 | 02 14 | 07 32.10 | +26 04.4 | 2.116 | 2.987 | 146.2 | 10.6 | 17.8 |
| 1987 | 02 24 | 07 26.84 | +26 04.3 | | | | | |
| 1987 | 03 06 | 07 24.28 | +25 57.3 | 2.340 | 3.014 | 124.4 | 15.7 | 18.2 |
| 1987 | 03 16 | 07 24.40 | +25 44.7 | | | | | |
| 1987 | 03 26 | 07 26.99 | +25 27.4 | 2.621 | 3.040 | 105.3 | 18.5 | 18.5 |
| 1987 | 04 05 | 07 31.79 | +25 05.9 | | | | | |
| 1987 | 04 15 | 07 38.48 | +24 40.5 | 2.924 | 3.063 | 88.3 | 19.1 | 18.8 |

1982 TH2 a,e,i = 2.36, 0.12, 4 Elements MPC 10028

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 14.38 | +25 17.3 | 1.678 | 2.127 | 102.6 | 27.1 | 17.6 |
| 1986 | 11 16 | 08 23.00 | +25 13.1 | | | | | |
| 1986 | 11 26 | 08 28.52 | +25 18.4 | 1.479 | 2.144 | 119.5 | 23.6 | 17.3 |
| 1986 | 12 06 | 08 30.50 | +25 34.7 | | | | | |
| 1986 | 12 16 | 08 28.67 | +26 01.6 | 1.319 | 2.165 | 139.6 | 17.1 | 16.9 |
| 1986 | 12 26 | 08 23.03 | +26 35.7 | | | | | |
| 1987 | 01 05 | 08 14.06 | +27 11.4 | 1.229 | 2.186 | 162.4 | 7.8 | 16.4 |
| 1987 | 01 15 | 08 02.96 | +27 41.4 | | | | | |
| 1987 | 01 25 | 07 51.36 | +27 59.2 | 1.237 | 2.210 | 168.4 | 5.2 | 16.4 |
| 1987 | 02 04 | 07 41.04 | +28 02.2 | | | | | |
| 1987 | 02 14 | 07 33.46 | +27 50.9 | 1.347 | 2.235 | 145.9 | 14.3 | 16.9 |
| 1987 | 02 24 | 07 29.37 | +27 28.3 | | | | | |
| 1987 | 03 06 | 07 28.95 | +26 57.6 | 1.538 | 2.261 | 125.3 | 21.0 | 17.4 |
| 1987 | 03 16 | 07 31.99 | +26 20.9 | | | | | |
| 1987 | 03 26 | 07 38.03 | +25 39.3 | 1.777 | 2.287 | 107.7 | 24.6 | 17.8 |
| 1987 | 04 05 | 07 46.58 | +24 53.2 | | | | | |
| 1987 | 04 15 | 07 57.15 | +24 02.3 | 2.040 | 2.314 | 92.6 | 25.7 | 18.2 |

1984 DS a,e,i = 2.22, 0.19, 4 Elements MPC 10763

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 25.69 | +15 25.3 | 2.298 | 2.623 | 97.8 | 22.0 | 19.3 |
| 1986 | 11 16 | 08 30.56 | +15 00.1 | | | | | |
| 1986 | 11 26 | 08 32.96 | +14 43.5 | 2.044 | 2.631 | 116.0 | 19.7 | 19.0 |
| 1986 | 12 06 | 08 32.61 | +14 37.7 | | | | | |
| 1986 | 12 16 | 08 29.34 | +14 44.2 | 1.829 | 2.636 | 137.0 | 14.7 | 18.6 |
| 1986 | 12 26 | 08 23.20 | +15 03.1 | | | | | |
| 1987 | 01 05 | 08 14.52 | +15 33.4 | 1.689 | 2.637 | 160.8 | 7.0 | 18.2 |
| 1987 | 01 15 | 08 04.09 | +16 12.0 | | | | | |
| 1987 | 01 25 | 07 53.02 | +16 54.7 | 1.657 | 2.636 | 172.0 | 3.0 | 18.0 |
| 1987 | 02 04 | 07 42.58 | +17 37.2 | | | | | |
| 1987 | 02 14 | 07 33.95 | +18 16.1 | 1.742 | 2.631 | 147.9 | 11.5 | 18.4 |
| 1987 | 02 24 | 07 27.93 | +18 49.1 | | | | | |
| 1987 | 03 06 | 07 24.90 | +19 15.4 | 1.919 | 2.623 | 125.6 | 17.9 | 18.8 |
| 1987 | 03 16 | 07 24.93 | +19 34.6 | | | | | |
| 1987 | 03 26 | 07 27.80 | +19 46.6 | 2.150 | 2.612 | 106.3 | 21.5 | 19.2 |
| 1987 | 04 05 | 07 33.23 | +19 51.3 | | | | | |
| 1987 | 04 15 | 07 40.85 | +19 48.6 | 2.403 | 2.598 | 89.6 | 22.7 | 19.4 |

1972 RT3 a,e,i = 2.67, 0.22, 4 Elements MPC 10032

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 08 26.89 | +18 18.0 | 2.457 | 2.777 | 98.2 | 20.7 | 18.1 |
| 1986 11 16 | 08 31.31 | +18 08.3 | | | | | |
| 1986 11 26 | 08 33.30 | +18 07.9 | 2.234 | 2.820 | 116.8 | 18.2 | 17.8 |
| 1986 12 06 | 08 32.65 | +18 18.0 | | | | | |
| 1986 12 16 | 08 29.29 | +18 38.6 | 2.052 | 2.862 | 138.1 | 13.3 | 17.5 |
| 1986 12 26 | 08 23.36 | +19 08.7 | | | | | |
| 1987 01 05 | 08 15.29 | +19 45.5 | 1.951 | 2.902 | 162.0 | 6.0 | 17.2 |
| 1987 01 15 | 08 05.84 | +20 25.2 | | | | | |
| 1987 01 25 | 07 56.02 | +21 03.6 | 1.961 | 2.940 | 172.9 | 2.4 | 17.0 |
| 1987 02 04 | 07 46.87 | +21 37.4 | | | | | |
| 1987 02 14 | 07 39.37 | +22 04.3 | 2.088 | 2.976 | 148.7 | 9.9 | 17.5 |
| 1987 02 24 | 07 34.13 | +22 23.7 | | | | | |
| 1987 03 06 | 07 31.45 | +22 35.9 | 2.312 | 3.011 | 126.7 | 15.3 | 18.0 |
| 1987 03 16 | 07 31.38 | +22 41.4 | | | | | |
| 1987 03 26 | 07 33.74 | +22 40.6 | 2.595 | 3.043 | 107.2 | 18.2 | 18.3 |
| 1987 04 05 | 07 38.28 | +22 34.1 | | | | | |
| 1987 04 15 | 07 44.70 | +22 21.9 | 2.904 | 3.074 | 90.1 | 19.0 | 18.6 |

(3405) 1964 UQ a,e,i = 2.61, 0.12, 13 Elements MPC 10532

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 08 27.17 | +08 26.6 | 2.627 | 2.897 | 95.6 | 19.9 | 17.8 |
| 1986 11 16 | 08 31.10 | +07 15.0 | | | | | |
| 1986 11 26 | 08 32.83 | +06 07.5 | 2.368 | 2.904 | 113.3 | 18.2 | 17.5 |
| 1986 12 06 | 08 32.17 | +05 06.7 | | | | | |
| 1986 12 16 | 08 29.04 | +04 15.2 | 2.148 | 2.909 | 132.9 | 14.3 | 17.2 |
| 1986 12 26 | 08 23.53 | +03 35.8 | | | | | |
| 1987 01 05 | 08 15.97 | +03 10.8 | 2.001 | 2.912 | 153.0 | 8.8 | 16.9 |
| 1987 01 15 | 08 07.01 | +03 01.8 | | | | | |
| 1987 01 25 | 07 57.52 | +03 08.3 | 1.959 | 2.913 | 162.5 | 5.8 | 16.7 |
| 1987 02 04 | 07 48.47 | +03 28.7 | | | | | |
| 1987 02 14 | 07 40.79 | +03 59.4 | 2.031 | 2.913 | 147.7 | 10.4 | 16.9 |
| 1987 02 24 | 07 35.16 | +04 36.4 | | | | | |
| 1987 03 06 | 07 31.96 | +05 15.7 | 2.198 | 2.912 | 127.7 | 15.6 | 17.3 |
| 1987 03 16 | 07 31.31 | +05 53.7 | | | | | |
| 1987 03 26 | 07 33.12 | +06 27.7 | 2.426 | 2.908 | 109.0 | 18.9 | 17.6 |
| 1987 04 05 | 07 37.18 | +06 55.9 | | | | | |
| 1987 04 15 | 07 43.25 | +07 16.7 | 2.684 | 2.903 | 92.4 | 20.2 | 17.8 |

1976 SV10 a,e,i = 2.73, 0.07, 2 Elements MPC 9753

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 08 31.42 | +19 15.0 | 2.632 | 2.929 | 97.4 | 19.6 | 17.8 |
| 1986 11 16 | 08 36.22 | +18 54.0 | | | | | |
| 1986 11 26 | 08 38.78 | +18 40.3 | 2.366 | 2.932 | 115.7 | 17.7 | 17.5 |
| 1986 12 06 | 08 38.89 | +18 35.1 | | | | | |
| 1986 12 16 | 08 36.41 | +18 39.0 | 2.141 | 2.934 | 136.5 | 13.3 | 17.2 |
| 1986 12 26 | 08 31.40 | +18 51.4 | | | | | |
| 1987 01 05 | 08 24.14 | +19 10.5 | 1.992 | 2.935 | 159.8 | 6.6 | 16.8 |
| 1987 01 15 | 08 15.28 | +19 33.5 | | | | | |
| 1987 01 25 | 08 05.71 | +19 56.9 | 1.953 | 2.935 | 175.4 | 1.5 | 16.5 |
| 1987 02 04 | 07 56.47 | +20 17.7 | | | | | |
| 1987 02 14 | 07 48.58 | +20 33.8 | 2.031 | 2.934 | 151.0 | 9.4 | 16.9 |
| 1987 02 24 | 07 42.76 | +20 44.0 | | | | | |
| 1987 03 06 | 07 39.46 | +20 48.3 | 2.207 | 2.932 | 128.8 | 15.3 | 17.3 |
| 1987 03 16 | 07 38.81 | +20 46.8 | | | | | |
| 1987 03 26 | 07 40.70 | +20 39.8 | 2.446 | 2.929 | 109.2 | 18.8 | 17.6 |
| 1987 04 05 | 07 44.93 | +20 27.4 | | | | | |
| 1987 04 15 | 07 51.20 | +20 09.4 | 2.713 | 2.925 | 92.0 | 20.0 | 17.9 |

(3355) Onizuka a,e,i = 2.19, 0.07, 4 Elements MPC 10306

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 23.38 | +15 43.3 | 1.652 | 2.047 | 98.4 | 28.6 | 17.3 |
| 1986 | 11 16 | 08 33.33 | +15 06.8 | | | | | |
| 1986 | 11 26 | 08 40.61 | +14 39.6 | 1.439 | 2.052 | 114.2 | 26.0 | 16.9 |
| 1986 | 12 06 | 08 44.80 | +14 25.7 | | | | | |
| 1986 | 12 16 | 08 45.54 | +14 28.3 | 1.256 | 2.059 | 133.2 | 20.4 | 16.5 |
| 1986 | 12 26 | 08 42.63 | +14 49.2 | | | | | |
| 1987 | 01 05 | 08 36.20 | +15 28.4 | 1.130 | 2.067 | 156.0 | 11.2 | 15.9 |
| 1987 | 01 15 | 08 27.00 | +16 22.2 | | | | | |
| 1987 | 01 25 | 08 16.31 | +17 23.8 | 1.093 | 2.077 | 177.2 | 1.3 | 15.4 |
| 1987 | 02 04 | 08 05.84 | +18 25.4 | | | | | |
| 1987 | 02 14 | 07 57.29 | +19 20.0 | 1.158 | 2.088 | 153.3 | 12.3 | 16.1 |
| 1987 | 02 24 | 07 51.84 | +20 03.5 | | | | | |
| 1987 | 03 06 | 07 50.04 | +20 34.5 | 1.309 | 2.100 | 131.3 | 20.8 | 16.6 |
| 1987 | 03 16 | 07 51.94 | +20 52.6 | | | | | |
| 1987 | 03 26 | 07 57.18 | +20 58.3 | 1.515 | 2.113 | 112.9 | 25.8 | 17.1 |
| 1987 | 04 05 | 08 05.33 | +20 52.2 | | | | | |
| 1987 | 04 15 | 08 15.87 | +20 34.4 | 1.749 | 2.127 | 97.6 | 27.9 | 17.4 |

(3390) 1984 ES1 a,e,i = 2.25, 0.12, 3 Elements MPC 10400

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 35.78 | +22 10.4 | 2.108 | 2.437 | 97.1 | 23.8 | 18.0 |
| 1986 | 11 16 | 08 43.42 | +21 50.4 | | | | | |
| 1986 | 11 26 | 08 48.62 | +21 38.8 | 1.841 | 2.419 | 114.2 | 21.9 | 17.7 |
| 1986 | 12 06 | 08 50.99 | +21 37.4 | | | | | |
| 1986 | 12 16 | 08 50.18 | +21 47.2 | 1.608 | 2.399 | 134.1 | 17.1 | 17.2 |
| 1986 | 12 26 | 08 46.01 | +22 07.6 | | | | | |
| 1987 | 01 05 | 08 38.57 | +22 36.0 | 1.441 | 2.378 | 157.1 | 9.3 | 16.7 |
| 1987 | 01 15 | 08 28.46 | +23 07.3 | | | | | |
| 1987 | 01 25 | 08 16.81 | +23 35.7 | 1.372 | 2.355 | 175.3 | 2.0 | 16.3 |
| 1987 | 02 04 | 08 05.14 | +23 55.9 | | | | | |
| 1987 | 02 14 | 07 55.04 | +24 04.8 | 1.414 | 2.331 | 151.7 | 11.6 | 16.7 |
| 1987 | 02 24 | 07 47.72 | +24 02.2 | | | | | |
| 1987 | 03 06 | 07 43.84 | +23 49.7 | 1.547 | 2.306 | 129.2 | 19.5 | 17.1 |
| 1987 | 03 16 | 07 43.58 | +23 28.8 | | | | | |
| 1987 | 03 26 | 07 46.69 | +23 00.9 | 1.736 | 2.280 | 110.1 | 24.3 | 17.5 |
| 1987 | 04 05 | 07 52.82 | +22 26.5 | | | | | |
| 1987 | 04 15 | 08 01.52 | +21 45.6 | 1.949 | 2.254 | 94.0 | 26.4 | 17.8 |

(3434) 1981 VO a,e,i = 2.64, 0.23, 3 Elements MPC 10754

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 42.88 | +19 30.0 | 2.547 | 2.809 | 94.8 | 20.6 | 18.0 |
| 1986 | 11 16 | 08 48.07 | +19 22.5 | | | | | |
| 1986 | 11 26 | 08 50.93 | +19 24.6 | 2.317 | 2.852 | 113.1 | 18.6 | 17.7 |
| 1986 | 12 06 | 08 51.23 | +19 37.6 | | | | | |
| 1986 | 12 16 | 08 48.85 | +20 01.6 | 2.122 | 2.894 | 134.0 | 14.2 | 17.4 |
| 1986 | 12 26 | 08 43.82 | +20 35.3 | | | | | |
| 1987 | 01 05 | 08 36.43 | +21 16.0 | 2.001 | 2.933 | 157.4 | 7.4 | 17.1 |
| 1987 | 01 15 | 08 27.31 | +21 59.4 | | | | | |
| 1987 | 01 25 | 08 17.38 | +22 40.8 | 1.988 | 2.971 | 176.1 | 1.3 | 16.8 |
| 1987 | 02 04 | 08 07.69 | +23 16.2 | | | | | |
| 1987 | 02 14 | 07 59.29 | +23 42.8 | 2.094 | 3.006 | 152.7 | 8.7 | 17.3 |
| 1987 | 02 24 | 07 52.92 | +23 59.9 | | | | | |
| 1987 | 03 06 | 07 49.02 | +24 08.0 | 2.302 | 3.039 | 130.3 | 14.4 | 17.7 |
| 1987 | 03 16 | 07 47.74 | +24 07.9 | | | | | |
| 1987 | 03 26 | 07 48.96 | +24 01.0 | 2.576 | 3.070 | 110.4 | 17.7 | 18.1 |
| 1987 | 04 05 | 07 52.47 | +23 47.8 | | | | | |
| 1987 | 04 15 | 07 57.98 | +23 28.9 | 2.881 | 3.098 | 92.9 | 18.9 | 18.4 |

(3445) 1983 FC a,e,i = 2.69, 0.13, 11 Elements MPC 10766

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 37.59 | +29 18.8 | 2.205 | 2.546 | 98.4 | 22.7 | 17.2 |
| 1986 | 11 16 | 08 45.57 | +29 07.1 | | | | | |
| 1986 | 11 26 | 08 51.03 | +29 02.6 | 1.938 | 2.522 | 115.2 | 20.7 | 16.8 |
| 1986 | 12 06 | 08 53.59 | +29 06.1 | | | | | |
| 1986 | 12 16 | 08 52.92 | +29 16.7 | 1.707 | 2.498 | 134.6 | 16.3 | 16.4 |
| 1986 | 12 26 | 08 48.86 | +29 32.1 | | | | | |
| 1987 | 01 05 | 08 41.54 | +29 47.6 | 1.544 | 2.475 | 156.0 | 9.3 | 16.0 |
| 1987 | 01 15 | 08 31.61 | +29 57.0 | | | | | |
| 1987 | 01 25 | 08 20.22 | +29 54.2 | 1.479 | 2.454 | 169.3 | 4.3 | 15.6 |
| 1987 | 02 04 | 08 08.89 | +29 35.7 | | | | | |
| 1987 | 02 14 | 07 59.16 | +29 01.1 | 1.524 | 2.434 | 150.7 | 11.4 | 16.0 |
| 1987 | 02 24 | 07 52.15 | +28 13.4 | | | | | |
| 1987 | 03 06 | 07 48.48 | +27 16.3 | 1.661 | 2.415 | 129.4 | 18.5 | 16.4 |
| 1987 | 03 16 | 07 48.26 | +26 13.3 | | | | | |
| 1987 | 03 26 | 07 51.25 | +25 06.6 | 1.858 | 2.399 | 110.7 | 22.9 | 16.7 |
| 1987 | 04 05 | 07 57.07 | +23 57.1 | | | | | |
| 1987 | 04 15 | 08 05.30 | +22 44.7 | 2.084 | 2.385 | 94.7 | 24.8 | 17.0 |

1984 FO a,e,i = 2.39, 0.25, 22 Elements MPC 10530

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 41.34 | -03 31.9 | 2.784 | 2.939 | 89.0 | 19.7 | 18.4 |
| 1986 | 11 16 | 08 46.18 | -04 41.1 | | | | | |
| 1986 | 11 26 | 08 49.08 | -05 45.0 | 2.501 | 2.918 | 105.1 | 19.1 | 18.2 |
| 1986 | 12 06 | 08 49.81 | -06 40.2 | | | | | |
| 1986 | 12 16 | 08 48.20 | -07 22.5 | 2.240 | 2.894 | 122.8 | 16.6 | 17.8 |
| 1986 | 12 26 | 08 44.19 | -07 47.2 | | | | | |
| 1987 | 01 05 | 08 37.90 | -07 49.9 | 2.035 | 2.867 | 141.0 | 12.5 | 17.5 |
| 1987 | 01 15 | 08 29.77 | -07 26.7 | | | | | |
| 1987 | 01 25 | 08 20.50 | -06 36.5 | 1.918 | 2.836 | 154.1 | 8.7 | 17.2 |
| 1987 | 02 04 | 08 11.01 | -05 20.7 | | | | | |
| 1987 | 02 14 | 08 02.33 | -03 44.7 | 1.909 | 2.802 | 149.0 | 10.4 | 17.2 |
| 1987 | 02 24 | 07 55.33 | -01 56.0 | | | | | |
| 1987 | 03 06 | 07 50.65 | -00 02.4 | 2.004 | 2.766 | 131.8 | 15.5 | 17.5 |
| 1987 | 03 16 | 07 48.61 | +01 48.7 | | | | | |
| 1987 | 03 26 | 07 49.25 | +03 32.2 | 2.174 | 2.726 | 113.2 | 19.7 | 17.7 |
| 1987 | 04 05 | 07 52.45 | +05 04.5 | | | | | |
| 1987 | 04 15 | 07 58.00 | +06 23.7 | 2.385 | 2.684 | 96.1 | 21.8 | 18.0 |

(3377) 4122 P-L a,e,i = 2.91, 0.06, 1 Elements MPC 10395

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 38.35 | +17 05.1 | 2.529 | 2.799 | 95.2 | 20.7 | 17.6 |
| 1986 | 11 16 | 08 44.40 | +16 36.1 | | | | | |
| 1986 | 11 26 | 08 48.28 | +16 14.7 | 2.274 | 2.809 | 112.9 | 18.9 | 17.4 |
| 1986 | 12 06 | 08 49.73 | +16 02.6 | | | | | |
| 1986 | 12 16 | 08 48.62 | +16 00.9 | 2.054 | 2.819 | 133.0 | 14.8 | 17.0 |
| 1986 | 12 26 | 08 44.93 | +16 09.9 | | | | | |
| 1987 | 01 05 | 08 38.88 | +16 28.5 | 1.904 | 2.829 | 155.7 | 8.2 | 16.7 |
| 1987 | 01 15 | 08 31.02 | +16 54.5 | | | | | |
| 1987 | 01 25 | 08 22.17 | +17 24.4 | 1.856 | 2.840 | 178.0 | 0.7 | 16.2 |
| 1987 | 02 04 | 08 13.36 | +17 54.4 | | | | | |
| 1987 | 02 14 | 08 05.63 | +18 21.3 | 1.923 | 2.851 | 155.4 | 8.3 | 16.7 |
| 1987 | 02 24 | 07 59.78 | +18 42.9 | | | | | |
| 1987 | 03 06 | 07 56.33 | +18 57.9 | 2.092 | 2.862 | 133.0 | 14.7 | 17.1 |
| 1987 | 03 16 | 07 55.49 | +19 06.0 | | | | | |
| 1987 | 03 26 | 07 57.18 | +19 07.0 | 2.330 | 2.873 | 113.3 | 18.6 | 17.5 |
| 1987 | 04 05 | 08 01.23 | +19 01.1 | | | | | |
| 1987 | 04 15 | 08 07.35 | +18 48.2 | 2.603 | 2.885 | 96.0 | 20.2 | 17.8 |

1977 KK1 a,e,i = 3.17, 0.11, 1 Elements MPC 11050

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 43.75 | +17 28.8 | 3.100 | 3.322 | 94.1 | 17.3 | 17.9 |
| 1986 | 11 16 | 08 48.51 | +17 09.3 | | | | | |
| 1986 | 11 26 | 08 51.42 | +16 56.7 | 2.800 | 3.303 | 112.3 | 16.0 | 17.6 |
| 1986 | 12 06 | 08 52.26 | +16 52.4 | | | | | |
| 1986 | 12 16 | 08 50.92 | +16 57.2 | 2.536 | 3.284 | 132.7 | 12.7 | 17.3 |
| 1986 | 12 26 | 08 47.40 | +17 10.8 | | | | | |
| 1987 | 01 05 | 08 41.84 | +17 32.4 | 2.345 | 3.265 | 155.4 | 7.2 | 16.9 |
| 1987 | 01 15 | 08 34.67 | +17 59.8 | | | | | |
| 1987 | 01 25 | 08 26.52 | +18 30.1 | 2.261 | 3.245 | 179.2 | 0.3 | 16.4 |
| 1987 | 02 04 | 08 18.21 | +19 00.0 | | | | | |
| 1987 | 02 14 | 08 10.62 | +19 26.5 | 2.296 | 3.225 | 156.3 | 7.1 | 16.8 |
| 1987 | 02 24 | 08 04.47 | +19 47.8 | | | | | |
| 1987 | 03 06 | 08 00.32 | +20 02.8 | 2.437 | 3.204 | 133.7 | 12.9 | 17.1 |
| 1987 | 03 16 | 07 58.45 | +20 11.0 | | | | | |
| 1987 | 03 26 | 07 58.90 | +20 12.5 | 2.652 | 3.183 | 113.4 | 16.7 | 17.4 |
| 1987 | 04 05 | 08 01.60 | +20 07.5 | | | | | |
| 1987 | 04 15 | 08 06.34 | +19 56.0 | 2.904 | 3.162 | 95.5 | 18.4 | 17.6 |

1979 EE a,e,i = 2.57, 0.24, 12 Elements MPC 7662

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 26.11 | +33 00.4 | 1.546 | 1.997 | 101.6 | 29.1 | 18.1 |
| 1986 | 11 16 | 08 39.24 | +32 35.4 | | | | | |
| 1986 | 11 26 | 08 49.37 | +32 13.6 | 1.330 | 1.974 | 116.1 | 26.7 | 17.7 |
| 1986 | 12 06 | 08 55.91 | +31 56.4 | | | | | |
| 1986 | 12 16 | 08 58.33 | +31 43.2 | 1.146 | 1.959 | 133.6 | 21.4 | 17.2 |
| 1986 | 12 26 | 08 56.31 | +31 31.1 | | | | | |
| 1987 | 01 05 | 08 49.85 | +31 14.5 | 1.019 | 1.951 | 154.0 | 12.8 | 16.7 |
| 1987 | 01 15 | 08 39.78 | +30 45.5 | | | | | |
| 1987 | 01 25 | 08 27.73 | +29 57.7 | 0.974 | 1.950 | 169.3 | 5.4 | 16.3 |
| 1987 | 02 04 | 08 15.85 | +28 48.9 | | | | | |
| 1987 | 02 14 | 08 06.26 | +27 22.5 | 1.025 | 1.956 | 152.8 | 13.3 | 16.7 |
| 1987 | 02 24 | 08 00.29 | +25 45.6 | | | | | |
| 1987 | 03 06 | 07 58.45 | +24 04.7 | 1.160 | 1.970 | 132.4 | 21.8 | 17.2 |
| 1987 | 03 16 | 08 00.63 | +22 23.9 | | | | | |
| 1987 | 03 26 | 08 06.28 | +20 44.9 | 1.352 | 1.991 | 115.0 | 27.0 | 17.7 |
| 1987 | 04 05 | 08 14.82 | +19 07.4 | | | | | |
| 1987 | 04 15 | 08 25.68 | +17 30.2 | 1.578 | 2.018 | 100.5 | 29.3 | 18.1 |

(3456) 1985 RS2 a,e,i = 2.16, 0.02, 2 Elements MPC 10834

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 37.19 | +19 22.2 | 1.851 | 2.191 | 96.1 | 26.7 | 17.6 |
| 1986 | 11 16 | 08 46.74 | +18 56.2 | | | | | |
| 1986 | 11 26 | 08 53.82 | +18 39.5 | 1.615 | 2.188 | 112.2 | 24.7 | 17.2 |
| 1986 | 12 06 | 08 57.98 | +18 35.0 | | | | | |
| 1986 | 12 16 | 08 58.85 | +18 45.0 | 1.406 | 2.186 | 131.4 | 19.7 | 16.8 |
| 1986 | 12 26 | 08 56.18 | +19 10.1 | | | | | |
| 1987 | 01 05 | 08 49.95 | +19 48.8 | 1.256 | 2.183 | 154.0 | 11.4 | 16.3 |
| 1987 | 01 15 | 08 40.70 | +20 36.4 | | | | | |
| 1987 | 01 25 | 08 29.56 | +21 26.0 | 1.196 | 2.180 | 177.6 | 1.1 | 15.7 |
| 1987 | 02 04 | 08 18.11 | +22 10.2 | | | | | |
| 1987 | 02 14 | 08 08.10 | +22 43.3 | 1.241 | 2.176 | 155.0 | 11.1 | 16.3 |
| 1987 | 02 24 | 08 00.87 | +23 03.0 | | | | | |
| 1987 | 03 06 | 07 57.18 | +23 09.7 | 1.377 | 2.173 | 132.3 | 19.7 | 16.8 |
| 1987 | 03 16 | 07 57.24 | +23 04.5 | | | | | |
| 1987 | 03 26 | 08 00.80 | +22 48.9 | 1.571 | 2.169 | 113.3 | 25.0 | 17.2 |
| 1987 | 04 05 | 08 07.43 | +22 23.7 | | | | | |
| 1987 | 04 15 | 08 16.66 | +21 49.4 | 1.793 | 2.166 | 97.5 | 27.3 | 17.5 |

1985 PL a,e,i = 2.57, 0.22, 13 Elements MPC 10152

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 57.87 | +24 56.9 | 2.479 | 2.716 | 92.9 | 21.4 | 18.5 |
| 1986 | 11 16 | 09 03.56 | +24 32.1 | | | | | |
| 1986 | 11 26 | 09 06.77 | +24 15.5 | 2.250 | 2.759 | 110.7 | 19.5 | 18.2 |
| 1986 | 12 06 | 09 07.21 | +24 07.6 | | | | | |
| 1986 | 12 16 | 09 04.72 | +24 08.1 | 2.052 | 2.801 | 131.3 | 15.3 | 17.9 |
| 1986 | 12 26 | 08 59.28 | +24 15.2 | | | | | |
| 1987 | 01 05 | 08 51.13 | +24 25.6 | 1.922 | 2.840 | 154.3 | 8.6 | 17.6 |
| 1987 | 01 15 | 08 40.92 | +24 35.2 | | | | | |
| 1987 | 01 25 | 08 29.65 | +24 39.6 | 1.896 | 2.877 | 174.5 | 1.9 | 17.3 |
| 1987 | 02 04 | 08 18.50 | +24 36.0 | | | | | |
| 1987 | 02 14 | 08 08.63 | +24 23.3 | 1.990 | 2.913 | 154.5 | 8.4 | 17.7 |
| 1987 | 02 24 | 08 00.93 | +24 02.3 | | | | | |
| 1987 | 03 06 | 07 55.88 | +23 34.6 | 2.189 | 2.946 | 132.0 | 14.5 | 18.2 |
| 1987 | 03 16 | 07 53.64 | +23 02.0 | | | | | |
| 1987 | 03 26 | 07 54.05 | +22 25.6 | 2.457 | 2.976 | 111.9 | 18.1 | 18.5 |
| 1987 | 04 05 | 07 56.88 | +21 46.1 | | | | | |
| 1987 | 04 15 | 08 01.80 | +21 03.8 | 2.759 | 3.005 | 94.2 | 19.4 | 18.9 |

1981 EJ5 a,e,i = 2.20, 0.23, 5 Elements MPC 9683

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 54.52 | +17 08.0 | 2.472 | 2.688 | 91.5 | 21.6 | 19.6 |
| 1986 | 11 16 | 09 00.49 | +16 29.9 | | | | | |
| 1986 | 11 26 | 09 04.24 | +15 59.2 | 2.202 | 2.692 | 109.1 | 20.3 | 19.4 |
| 1986 | 12 06 | 09 05.44 | +15 37.6 | | | | | |
| 1986 | 12 16 | 09 03.85 | +15 26.4 | 1.959 | 2.692 | 129.3 | 16.4 | 19.0 |
| 1986 | 12 26 | 08 59.36 | +15 26.3 | | | | | |
| 1987 | 01 05 | 08 52.05 | +15 36.8 | 1.778 | 2.689 | 152.4 | 9.7 | 18.6 |
| 1987 | 01 15 | 08 42.41 | +15 55.6 | | | | | |
| 1987 | 01 25 | 08 31.29 | +16 19.5 | 1.698 | 2.682 | 176.7 | 1.2 | 18.0 |
| 1987 | 02 04 | 08 19.88 | +16 44.5 | | | | | |
| 1987 | 02 14 | 08 09.45 | +17 07.0 | 1.737 | 2.671 | 156.4 | 8.5 | 18.4 |
| 1987 | 02 24 | 08 01.06 | +17 24.5 | | | | | |
| 1987 | 03 06 | 07 55.39 | +17 35.9 | 1.879 | 2.657 | 133.0 | 15.9 | 18.8 |
| 1987 | 03 16 | 07 52.76 | +17 40.8 | | | | | |
| 1987 | 03 26 | 07 53.08 | +17 39.2 | 2.090 | 2.639 | 112.6 | 20.4 | 19.2 |
| 1987 | 04 05 | 07 56.16 | +17 30.9 | | | | | |
| 1987 | 04 15 | 08 01.66 | +17 15.9 | 2.332 | 2.617 | 95.0 | 22.4 | 19.5 |

(3369) 1985 UZ a,e,i = 3.05, 0.13, 8 Elements MPC 10392

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 49.88 | +14 14.8 | 2.613 | 2.824 | 91.8 | 20.5 | 17.7 |
| 1986 | 11 16 | 08 55.87 | +13 19.5 | | | | | |
| 1986 | 11 26 | 08 59.76 | +12 29.8 | 2.367 | 2.847 | 109.1 | 19.1 | 17.5 |
| 1986 | 12 06 | 09 01.30 | +11 47.7 | | | | | |
| 1986 | 12 16 | 09 00.36 | +11 14.9 | 2.151 | 2.871 | 128.7 | 15.5 | 17.2 |
| 1986 | 12 26 | 08 56.94 | +10 52.4 | | | | | |
| 1987 | 01 05 | 08 51.22 | +10 41.0 | 1.999 | 2.896 | 150.6 | 9.6 | 16.9 |
| 1987 | 01 15 | 08 43.68 | +10 40.3 | | | | | |
| 1987 | 01 25 | 08 35.06 | +10 48.6 | 1.945 | 2.921 | 171.2 | 3.0 | 16.5 |
| 1987 | 02 04 | 08 26.30 | +11 03.7 | | | | | |
| 1987 | 02 14 | 08 18.36 | +11 22.3 | 2.006 | 2.947 | 158.5 | 7.1 | 16.8 |
| 1987 | 02 24 | 08 12.04 | +11 41.7 | | | | | |
| 1987 | 03 06 | 08 07.88 | +11 59.4 | 2.173 | 2.973 | 136.6 | 13.3 | 17.2 |
| 1987 | 03 16 | 08 06.13 | +12 13.3 | | | | | |
| 1987 | 03 26 | 08 06.78 | +12 22.2 | 2.416 | 2.999 | 116.6 | 17.3 | 17.6 |
| 1987 | 04 05 | 08 09.69 | +12 25.2 | | | | | |
| 1987 | 04 15 | 08 14.61 | +12 21.7 | 2.701 | 3.025 | 99.0 | 19.1 | 17.9 |

(3403) 1981 SW a,e,i = 2.41, 0.19, 5 Elements MPC 10526

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 55.90 | +12 15.6 | 2.702 | 2.876 | 89.9 | 20.2 | 18.3 |
| 1986 | 11 16 | 09 01.58 | +11 34.2 | | | | | |
| 1986 | 11 26 | 09 05.27 | +10 59.9 | 2.426 | 2.878 | 107.3 | 19.1 | 18.1 |
| 1986 | 12 06 | 09 06.68 | +10 34.7 | | | | | |
| 1986 | 12 16 | 09 05.64 | +10 20.5 | 2.174 | 2.878 | 127.2 | 15.8 | 17.7 |
| 1986 | 12 26 | 09 02.05 | +10 18.8 | | | | | |
| 1987 | 01 05 | 08 56.00 | +10 30.2 | 1.984 | 2.875 | 149.5 | 10.0 | 17.3 |
| 1987 | 01 15 | 08 47.89 | +10 54.2 | | | | | |
| 1987 | 01 25 | 08 38.40 | +11 28.3 | 1.892 | 2.870 | 171.6 | 2.9 | 16.9 |
| 1987 | 02 04 | 08 28.49 | +12 09.1 | | | | | |
| 1987 | 02 14 | 08 19.24 | +12 52.3 | 1.918 | 2.861 | 158.8 | 7.2 | 17.2 |
| 1987 | 02 24 | 08 11.57 | +13 34.0 | | | | | |
| 1987 | 03 06 | 08 06.16 | +14 11.1 | 2.052 | 2.850 | 136.0 | 14.0 | 17.5 |
| 1987 | 03 16 | 08 03.37 | +14 41.6 | | | | | |
| 1987 | 03 26 | 08 03.24 | +15 04.4 | 2.262 | 2.836 | 115.4 | 18.5 | 17.9 |
| 1987 | 04 05 | 08 05.64 | +15 18.9 | | | | | |
| 1987 | 04 15 | 08 10.34 | +15 24.9 | 2.509 | 2.819 | 97.4 | 20.7 | 18.1 |

1985 RF a,e,i = 2.26, 0.19, 3 Elements MPC 10303

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 09 00.63 | +14 01.1 | 2.490 | 2.668 | 89.2 | 21.8 | 18.5 |
| 1986 | 11 16 | 09 07.27 | +13 23.1 | | | | | |
| 1986 | 11 26 | 09 11.80 | +12 53.2 | 2.229 | 2.681 | 106.4 | 20.7 | 18.3 |
| 1986 | 12 06 | 09 13.93 | +12 33.5 | | | | | |
| 1986 | 12 16 | 09 13.41 | +12 26.1 | 1.990 | 2.691 | 126.2 | 17.2 | 17.9 |
| 1986 | 12 26 | 09 10.11 | +12 32.1 | | | | | |
| 1987 | 01 05 | 09 04.06 | +12 51.9 | 1.809 | 2.698 | 148.7 | 10.9 | 17.5 |
| 1987 | 01 15 | 08 55.64 | +13 23.9 | | | | | |
| 1987 | 01 25 | 08 45.60 | +14 04.9 | 1.722 | 2.702 | 172.9 | 2.6 | 17.1 |
| 1987 | 02 04 | 08 34.97 | +14 50.2 | | | | | |
| 1987 | 02 14 | 08 24.98 | +15 34.9 | 1.752 | 2.702 | 160.2 | 7.1 | 17.3 |
| 1987 | 02 24 | 08 16.68 | +16 14.9 | | | | | |
| 1987 | 03 06 | 08 10.83 | +16 47.6 | 1.890 | 2.699 | 136.7 | 14.6 | 17.8 |
| 1987 | 03 16 | 08 07.82 | +17 11.6 | | | | | |
| 1987 | 03 26 | 08 07.67 | +17 26.7 | 2.103 | 2.694 | 116.0 | 19.4 | 18.1 |
| 1987 | 04 05 | 08 10.23 | +17 32.7 | | | | | |
| 1987 | 04 15 | 08 15.20 | +17 29.9 | 2.353 | 2.685 | 98.1 | 21.7 | 18.4 |

1979 SP9 a,e,i = 3.25, 0.15, 2 Elements MPC 10830

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 09 06.27 | +18 37.8 | 2.848 | 3.003 | 89.3 | 19.3 | 18.0 |
| 1986 | 11 16 | 09 13.01 | +18 17.9 | | | | | |
| 1986 | 11 26 | 09 17.84 | +18 06.4 | 2.596 | 3.030 | 106.6 | 18.2 | 17.8 |
| 1986 | 12 06 | 09 20.51 | +18 04.8 | | | | | |
| 1986 | 12 16 | 09 20.87 | +18 14.0 | 2.370 | 3.057 | 126.2 | 15.1 | 17.5 |
| 1986 | 12 26 | 09 18.85 | +18 33.7 | | | | | |
| 1987 | 01 05 | 09 14.50 | +19 02.7 | 2.205 | 3.085 | 148.2 | 9.7 | 17.2 |
| 1987 | 01 15 | 09 08.18 | +19 38.1 | | | | | |
| 1987 | 01 25 | 09 00.46 | +20 16.1 | 2.136 | 3.113 | 171.6 | 2.6 | 16.9 |
| 1987 | 02 04 | 08 52.13 | +20 52.3 | | | | | |
| 1987 | 02 14 | 08 44.12 | +21 22.9 | 2.183 | 3.141 | 163.2 | 5.2 | 17.1 |
| 1987 | 02 24 | 08 37.28 | +21 45.2 | | | | | |
| 1987 | 03 06 | 08 32.24 | +21 58.1 | 2.341 | 3.170 | 140.5 | 11.5 | 17.5 |
| 1987 | 03 16 | 08 29.40 | +22 01.7 | | | | | |
| 1987 | 03 26 | 08 28.85 | +21 56.4 | 2.583 | 3.198 | 119.8 | 15.7 | 17.8 |
| 1987 | 04 05 | 08 30.54 | +21 43.2 | | | | | |
| 1987 | 04 15 | 08 34.27 | +21 22.8 | 2.873 | 3.227 | 101.5 | 17.7 | 18.1 |

(3438) 1974 SD5 a,e,i = 3.05, 0.20, 15 Elements MPC 10759

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 09 20.24 | +31 12.7 | 3.156 | 3.309 | 90.0 | 17.4 | 18.9 |
| 1986 | 11 16 | 09 26.19 | +31 20.9 | | | | | |
| 1986 | 11 26 | 09 30.10 | +31 38.7 | 2.909 | 3.341 | 107.5 | 16.4 | 18.7 |
| 1986 | 12 06 | 09 31.74 | +32 06.2 | | | | | |
| 1986 | 12 16 | 09 30.89 | +32 42.0 | 2.689 | 3.372 | 126.8 | 13.5 | 18.5 |
| 1986 | 12 26 | 09 27.48 | +33 23.6 | | | | | |
| 1987 | 01 05 | 09 21.58 | +34 06.9 | 2.535 | 3.401 | 146.9 | 9.1 | 18.2 |
| 1987 | 01 15 | 09 13.53 | +34 46.4 | | | | | |
| 1987 | 01 25 | 09 03.97 | +35 16.4 | 2.480 | 3.429 | 161.8 | 5.1 | 18.0 |
| 1987 | 02 04 | 08 53.79 | +35 32.5 | | | | | |
| 1987 | 02 14 | 08 44.00 | +35 32.1 | 2.542 | 3.456 | 153.8 | 7.2 | 18.2 |
| 1987 | 02 24 | 08 35.52 | +35 15.4 | | | | | |
| 1987 | 03 06 | 08 29.01 | +34 44.5 | 2.712 | 3.481 | 134.6 | 11.7 | 18.5 |
| 1987 | 03 16 | 08 24.85 | +34 02.3 | | | | | |
| 1987 | 03 26 | 08 23.13 | +33 12.0 | 2.962 | 3.504 | 115.2 | 14.9 | 18.8 |
| 1987 | 04 05 | 08 23.74 | +32 16.1 | | | | | |
| 1987 | 04 15 | 08 26.47 | +31 16.3 | 3.256 | 3.526 | 97.2 | 16.4 | 19.1 |

1982 SO4 a,e,i = 2.39, 0.29, 8 Elements MPC 9018

| Date | ET | R. A. (1950) | Decl. | Delta | r | Variation | | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 08 43.99 | +28 16.3 | 1.296 | 1.722 | -3.01 | +10.6 | 17.0 |
| 1986 | 11 16 | 09 01.06 | +28 05.0 | | | | | |
| 1986 | 11 26 | 09 14.99 | +28 02.6 | 1.152 | 1.753 | -3.58 | +14.6 | 16.7 |
| 1986 | 12 06 | 09 25.21 | +28 13.0 | | | | | |
| 1986 | 12 16 | 09 31.18 | +28 37.9 | 1.028 | 1.794 | -4.34 | +18.4 | 16.4 |
| 1986 | 12 26 | 09 32.45 | +29 16.3 | | | | | |
| 1987 | 01 05 | 09 28.82 | +30 03.1 | 0.945 | 1.844 | -5.13 | +20.6 | 16.0 |
| 1987 | 01 15 | 09 20.77 | +30 48.2 | | | | | |
| 1987 | 01 25 | 09 09.60 | +31 19.6 | 0.933 | 1.899 | -5.36 | +19.1 | 15.7 |
| 1987 | 02 04 | 08 57.37 | +31 27.3 | | | | | |
| 1987 | 02 14 | 08 46.38 | +31 07.6 | 1.010 | 1.960 | -4.70 | +14.7 | 16.1 |
| 1987 | 02 24 | 08 38.37 | +30 23.7 | | | | | |
| 1987 | 03 06 | 08 34.19 | +29 21.9 | 1.174 | 2.024 | -3.70 | +11.0 | 16.7 |
| 1987 | 03 16 | 08 33.98 | +28 08.5 | | | | | |
| 1987 | 03 26 | 08 37.29 | +26 48.0 | 1.402 | 2.090 | -2.87 | +9.1 | 17.3 |
| 1987 | 04 05 | 08 43.56 | +25 23.1 | | | | | |
| 1987 | 04 15 | 08 52.19 | +23 54.8 | 1.671 | 2.158 | -2.27 | +8.1 | 17.8 |

1940 YE a,e,i = 3.18, 0.17, 16 Elements MPC 10401

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 06 | 09 12.53 | +26 09.2 | 2.462 | 2.656 | 90.1 | 21.9 | 15.5 |
| 1986 | 11 16 | 09 21.15 | +25 22.6 | | | | | |
| 1986 | 11 26 | 09 27.59 | +24 41.6 | 2.199 | 2.651 | 106.3 | 20.9 | 15.2 |
| 1986 | 12 06 | 09 31.52 | +24 07.2 | | | | | |
| 1986 | 12 16 | 09 32.67 | +23 39.9 | 1.960 | 2.649 | 124.9 | 17.7 | 14.9 |
| 1986 | 12 26 | 09 30.85 | +23 18.8 | | | | | |
| 1987 | 01 05 | 09 26.02 | +23 02.5 | 1.775 | 2.650 | 146.2 | 11.9 | 14.5 |
| 1987 | 01 15 | 09 18.50 | +22 47.6 | | | | | |
| 1987 | 01 25 | 09 08.97 | +22 30.5 | 1.680 | 2.654 | 169.3 | 4.0 | 14.1 |
| 1987 | 02 04 | 08 58.47 | +22 07.7 | | | | | |
| 1987 | 02 14 | 08 48.29 | +21 37.0 | 1.697 | 2.660 | 164.0 | 5.9 | 14.2 |
| 1987 | 02 24 | 08 39.60 | +20 58.3 | | | | | |
| 1987 | 03 06 | 08 33.24 | +20 12.8 | 1.823 | 2.669 | 141.2 | 13.5 | 14.6 |
| 1987 | 03 16 | 08 29.69 | +19 21.9 | | | | | |
| 1987 | 03 26 | 08 29.01 | +18 27.1 | 2.030 | 2.681 | 120.8 | 18.6 | 15.0 |
| 1987 | 04 05 | 08 31.03 | +17 29.2 | | | | | |
| 1987 | 04 15 | 08 35.46 | +16 28.4 | 2.286 | 2.695 | 103.0 | 21.3 | 15.4 |

1978 PB3 a,e,i = 3.16, 0.12, 2 Elements MPC 11050

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 09 09.14 | +15 06.2 | 3.065 | 3.181 | 87.6 | 18.1 | 17.8 |
| 1986 11 16 | 09 15.69 | +14 35.3 | | | | | |
| 1986 11 26 | 09 20.57 | +14 11.3 | 2.758 | 3.158 | 104.8 | 17.6 | 17.5 |
| 1986 12 06 | 09 23.55 | +13 56.0 | | | | | |
| 1986 12 16 | 09 24.43 | +13 50.7 | 2.474 | 3.133 | 124.1 | 15.1 | 17.2 |
| 1986 12 26 | 09 23.09 | +13 56.3 | | | | | |
| 1987 01 05 | 09 19.52 | +14 13.1 | 2.247 | 3.109 | 145.7 | 10.3 | 16.8 |
| 1987 01 15 | 09 13.92 | +14 39.8 | | | | | |
| 1987 01 25 | 09 06.74 | +15 14.0 | 2.112 | 3.085 | 169.3 | 3.4 | 16.4 |
| 1987 02 04 | 08 58.65 | +15 52.2 | | | | | |
| 1987 02 14 | 08 50.56 | +16 30.1 | 2.093 | 3.061 | 166.2 | 4.4 | 16.4 |
| 1987 02 24 | 08 43.34 | +17 04.2 | | | | | |
| 1987 03 06 | 08 37.73 | +17 31.8 | 2.186 | 3.037 | 142.9 | 11.4 | 16.7 |
| 1987 03 16 | 08 34.26 | +17 51.0 | | | | | |
| 1987 03 26 | 08 33.15 | +18 01.4 | 2.366 | 3.014 | 121.8 | 16.3 | 17.0 |
| 1987 04 05 | 08 34.43 | +18 02.9 | | | | | |
| 1987 04 15 | 08 37.97 | +17 55.5 | 2.597 | 2.990 | 103.3 | 19.1 | 17.3 |

1985 TF1 a,e,i = 2.66, 0.12, 3 Elements MPC 10391

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 09 13.85 | +13 19.4 | 2.716 | 2.825 | 86.0 | 20.5 | 17.3 |
| 1986 11 16 | 09 20.89 | +12 35.1 | | | | | |
| 1986 11 26 | 09 26.02 | +11 58.0 | 2.459 | 2.846 | 102.8 | 19.8 | 17.1 |
| 1986 12 06 | 09 29.00 | +11 30.2 | | | | | |
| 1986 12 16 | 09 29.61 | +11 13.4 | 2.219 | 2.865 | 122.0 | 16.9 | 16.8 |
| 1986 12 26 | 09 27.72 | +11 08.9 | | | | | |
| 1987 01 05 | 09 23.35 | +11 17.4 | 2.032 | 2.884 | 143.8 | 11.6 | 16.5 |
| 1987 01 15 | 09 16.76 | +11 38.0 | | | | | |
| 1987 01 25 | 09 08.48 | +12 08.5 | 1.933 | 2.901 | 167.4 | 4.3 | 16.1 |
| 1987 02 04 | 08 59.34 | +12 45.4 | | | | | |
| 1987 02 14 | 08 50.34 | +13 24.2 | 1.948 | 2.917 | 166.4 | 4.6 | 16.1 |
| 1987 02 24 | 08 42.42 | +14 01.0 | | | | | |
| 1987 03 06 | 08 36.37 | +14 32.5 | 2.077 | 2.932 | 143.2 | 11.7 | 16.5 |
| 1987 03 16 | 08 32.64 | +14 56.6 | | | | | |
| 1987 03 26 | 08 31.41 | +15 12.3 | 2.292 | 2.945 | 122.0 | 16.7 | 16.9 |
| 1987 04 05 | 08 32.62 | +15 19.4 | | | | | |
| 1987 04 15 | 08 36.09 | +15 17.8 | 2.558 | 2.957 | 103.5 | 19.3 | 17.3 |

1974 OE a,e,i = 2.31, 0.12, 7 Elements MPC 10612

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 09 15.50 | +23 54.6 | 2.410 | 2.586 | 88.8 | 22.5 | 18.9 |
| 1986 11 16 | 09 24.36 | +23 41.3 | | | | | |
| 1986 11 26 | 09 31.17 | +23 38.0 | 2.145 | 2.586 | 105.2 | 21.6 | 18.6 |
| 1986 12 06 | 09 35.55 | +23 46.8 | | | | | |
| 1986 12 16 | 09 37.16 | +24 08.5 | 1.901 | 2.584 | 124.0 | 18.4 | 18.3 |
| 1986 12 26 | 09 35.74 | +24 42.9 | | | | | |
| 1987 01 05 | 09 31.11 | +25 27.6 | 1.710 | 2.580 | 145.3 | 12.5 | 17.9 |
| 1987 01 15 | 09 23.44 | +26 17.6 | | | | | |
| 1987 01 25 | 09 13.33 | +27 05.7 | 1.606 | 2.574 | 166.4 | 5.1 | 17.5 |
| 1987 02 04 | 09 01.84 | +27 44.4 | | | | | |
| 1987 02 14 | 08 50.39 | +28 07.5 | 1.614 | 2.565 | 160.4 | 7.4 | 17.6 |
| 1987 02 24 | 08 40.38 | +28 12.5 | | | | | |
| 1987 03 06 | 08 32.87 | +28 00.1 | 1.727 | 2.555 | 138.4 | 14.9 | 18.0 |
| 1987 03 16 | 08 28.50 | +27 33.0 | | | | | |
| 1987 03 26 | 08 27.36 | +26 54.4 | 1.916 | 2.543 | 118.1 | 20.2 | 18.3 |
| 1987 04 05 | 08 29.30 | +26 07.0 | | | | | |
| 1987 04 15 | 08 33.99 | +25 12.4 | 2.146 | 2.529 | 100.5 | 23.0 | 18.6 |

1981 JD2 a,e,i = 2.28, 0.16, 4 Elements MPC 7613

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 06 | 09 15.64 | +20 11.6 | 2.280 | 2.448 | 87.6 | 23.9 | 18.2 |
| 1986 11 16 | 09 24.69 | +19 51.5 | | | | | |
| 1986 11 26 | 09 31.56 | +19 41.8 | 2.046 | 2.477 | 104.0 | 22.7 | 18.0 |
| 1986 12 06 | 09 35.92 | +19 45.0 | | | | | |
| 1986 12 16 | 09 37.46 | +20 02.4 | 1.829 | 2.505 | 122.9 | 19.3 | 17.7 |
| 1986 12 26 | 09 35.93 | +20 34.3 | | | | | |
| 1987 01 05 | 09 31.22 | +21 19.0 | 1.662 | 2.530 | 144.8 | 12.9 | 17.3 |
| 1987 01 15 | 09 23.57 | +22 12.2 | | | | | |
| 1987 01 25 | 09 13.63 | +23 07.5 | 1.582 | 2.553 | 168.1 | 4.6 | 16.9 |
| 1987 02 04 | 09 02.48 | +23 57.3 | | | | | |
| 1987 02 14 | 08 51.50 | +24 35.4 | 1.613 | 2.573 | 163.0 | 6.5 | 17.0 |
| 1987 02 24 | 08 42.01 | +24 58.3 | | | | | |
| 1987 03 06 | 08 34.98 | +25 05.6 | 1.752 | 2.592 | 140.0 | 14.2 | 17.5 |
| 1987 03 16 | 08 30.96 | +24 58.7 | | | | | |
| 1987 03 26 | 08 30.03 | +24 40.0 | 1.969 | 2.607 | 119.3 | 19.5 | 17.9 |
| 1987 04 05 | 08 32.00 | +24 11.6 | | | | | |
| 1987 04 15 | 08 36.56 | +23 35.0 | 2.229 | 2.620 | 101.5 | 22.0 | 18.3 |

1982 FP3 a,e,i = 3.17, 0.13, 2 Elements MPC 11052

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 24.61 | +17 26.9 | 2.719 | 3.121 | 104.9 | 17.8 | 18.5 |
| 1986 12 06 | 09 28.03 | +17 21.2 | | | | | |
| 1986 12 16 | 09 29.31 | +17 25.9 | 2.435 | 3.095 | 124.1 | 15.3 | 18.1 |
| 1986 12 26 | 09 28.32 | +17 41.5 | | | | | |
| 1987 01 05 | 09 24.99 | +18 07.5 | 2.207 | 3.069 | 145.6 | 10.4 | 17.7 |
| 1987 01 15 | 09 19.52 | +18 41.9 | | | | | |
| 1987 01 25 | 09 12.32 | +19 21.3 | 2.072 | 3.044 | 168.9 | 3.6 | 17.3 |
| 1987 02 04 | 09 04.10 | +20 01.2 | | | | | |
| 1987 02 14 | 08 55.77 | +20 37.1 | 2.051 | 3.018 | 166.0 | 4.5 | 17.3 |
| 1987 02 24 | 08 48.25 | +21 05.5 | | | | | |
| 1987 03 06 | 08 42.36 | +21 24.1 | 2.142 | 2.993 | 142.9 | 11.5 | 17.7 |
| 1987 03 16 | 08 38.65 | +21 32.1 | | | | | |
| 1987 03 26 | 08 37.38 | +21 30.0 | 2.319 | 2.969 | 121.9 | 16.6 | 18.0 |
| 1987 04 05 | 08 38.57 | +21 18.3 | | | | | |
| 1987 04 15 | 08 42.10 | +20 57.8 | 2.546 | 2.945 | 103.4 | 19.4 | 18.2 |
| 1987 04 25 | 08 47.69 | +20 29.2 | | | | | |
| 1987 05 05 | 08 55.11 | +19 52.9 | 2.793 | 2.922 | 87.2 | 20.2 | 18.4 |

(3356) Resnik a,e,i = 2.19, 0.11, 4 Elements MPC 10306

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 26.74 | +15 45.1 | 1.963 | 2.399 | 103.9 | 23.5 | 17.8 |
| 1986 12 06 | 09 32.30 | +15 36.0 | | | | | |
| 1986 12 16 | 09 35.22 | +15 41.6 | 1.710 | 2.385 | 122.2 | 20.4 | 17.4 |
| 1986 12 26 | 09 35.19 | +16 03.7 | | | | | |
| 1987 01 05 | 09 31.96 | +16 43.0 | 1.504 | 2.368 | 143.6 | 14.3 | 17.0 |
| 1987 01 15 | 09 25.60 | +17 37.5 | | | | | |
| 1987 01 25 | 09 16.59 | +18 42.3 | 1.378 | 2.350 | 167.8 | 5.1 | 16.4 |
| 1987 02 04 | 09 05.87 | +19 50.0 | | | | | |
| 1987 02 14 | 08 54.89 | +20 52.0 | 1.360 | 2.330 | 165.7 | 6.0 | 16.4 |
| 1987 02 24 | 08 45.13 | +21 41.8 | | | | | |
| 1987 03 06 | 08 37.83 | +22 15.8 | 1.447 | 2.308 | 141.6 | 15.5 | 16.9 |
| 1987 03 16 | 08 33.77 | +22 33.2 | | | | | |
| 1987 03 26 | 08 33.16 | +22 35.5 | 1.610 | 2.285 | 120.6 | 22.1 | 17.3 |
| 1987 04 05 | 08 35.87 | +22 24.0 | | | | | |
| 1987 04 15 | 08 41.56 | +22 00.3 | 1.814 | 2.261 | 103.0 | 25.6 | 17.6 |
| 1987 04 25 | 08 49.80 | +21 25.4 | | | | | |
| 1987 05 05 | 09 00.17 | +20 40.0 | 2.030 | 2.236 | 88.1 | 26.8 | 17.8 |

1977 EO1 a,e,i = 3.03, 0.16, 3 Elements MPC 9476

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 28.56 | +18 09.8 | 2.766 | 3.157 | 104.2 | 17.6 | 18.4 |
| 1986 12 06 | 09 31.89 | +18 06.5 | | | | | |
| 1986 12 16 | 09 33.10 | +18 13.7 | 2.476 | 3.128 | 123.4 | 15.2 | 18.1 |
| 1986 12 26 | 09 32.02 | +18 31.7 | | | | | |
| 1987 01 05 | 09 28.59 | +19 00.1 | 2.241 | 3.098 | 145.0 | 10.5 | 17.7 |
| 1987 01 15 | 09 22.96 | +19 36.4 | | | | | |
| 1987 01 25 | 09 15.55 | +20 17.3 | 2.097 | 3.067 | 168.1 | 3.8 | 17.3 |
| 1987 02 04 | 09 07.02 | +20 58.0 | | | | | |
| 1987 02 14 | 08 58.30 | +21 33.9 | 2.069 | 3.037 | 166.0 | 4.5 | 17.2 |
| 1987 02 24 | 08 50.34 | +22 01.4 | | | | | |
| 1987 03 06 | 08 43.96 | +22 18.3 | 2.154 | 3.005 | 142.9 | 11.5 | 17.6 |
| 1987 03 16 | 08 39.77 | +22 24.2 | | | | | |
| 1987 03 26 | 08 38.04 | +22 19.5 | 2.325 | 2.974 | 121.8 | 16.6 | 17.9 |
| 1987 04 05 | 08 38.81 | +22 05.1 | | | | | |
| 1987 04 15 | 08 41.97 | +21 41.9 | 2.547 | 2.942 | 103.2 | 19.4 | 18.1 |
| 1987 04 25 | 08 47.25 | +21 10.8 | | | | | |
| 1987 05 05 | 08 54.40 | +20 32.2 | 2.787 | 2.911 | 86.8 | 20.2 | 18.3 |

1981 WO1 a,e,i = 1.79, 0.08, 19 Elements MPC 9828

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 12.13 | -06 20.0 | 1.167 | 1.649 | 99.6 | 36.2 | 17.2 |
| 1986 12 06 | 09 22.18 | -10 28.8 | | | | | |
| 1986 12 16 | 09 29.22 | -14 37.6 | 1.019 | 1.645 | 110.4 | 34.1 | 16.9 |
| 1986 12 26 | 09 32.75 | -18 37.9 | | | | | |
| 1987 01 05 | 09 32.31 | -22 17.8 | 0.900 | 1.644 | 121.5 | 30.7 | 16.5 |
| 1987 01 15 | 09 27.73 | -25 22.0 | | | | | |
| 1987 01 25 | 09 19.40 | -27 34.0 | 0.821 | 1.646 | 131.4 | 26.7 | 16.2 |
| 1987 02 04 | 09 08.45 | -28 38.6 | | | | | |
| 1987 02 14 | 08 56.95 | -28 28.3 | 0.791 | 1.653 | 136.4 | 24.3 | 16.1 |
| 1987 02 24 | 08 47.14 | -27 07.6 | | | | | |
| 1987 03 06 | 08 40.90 | -24 50.8 | 0.815 | 1.662 | 133.7 | 25.6 | 16.2 |
| 1987 03 16 | 08 39.27 | -21 59.7 | | | | | |
| 1987 03 26 | 08 42.33 | -18 55.8 | 0.890 | 1.675 | 125.0 | 29.2 | 16.5 |
| 1987 04 05 | 08 49.71 | -15 56.1 | | | | | |
| 1987 04 15 | 09 00.77 | -13 13.0 | 1.009 | 1.691 | 114.3 | 32.7 | 16.9 |
| 1987 04 25 | 09 14.76 | -10 53.4 | | | | | |
| 1987 05 05 | 09 31.07 | -09 00.5 | 1.161 | 1.708 | 103.7 | 35.0 | 17.3 |

1977 DO4 a,e,i = 2.25, 0.07, 3 Elements MPC 9753

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 24.77 | +18 53.2 | 1.610 | 2.099 | 105.3 | 27.0 | 18.2 |
| 1986 12 06 | 09 32.60 | +18 27.3 | | | | | |
| 1986 12 16 | 09 37.47 | +18 14.4 | 1.395 | 2.095 | 122.4 | 23.4 | 17.8 |
| 1986 12 26 | 09 38.98 | +18 16.5 | | | | | |
| 1987 01 05 | 09 36.84 | +18 34.0 | 1.222 | 2.093 | 143.0 | 16.4 | 17.3 |
| 1987 01 15 | 09 31.08 | +19 04.5 | | | | | |
| 1987 01 25 | 09 22.26 | +19 42.7 | 1.122 | 2.092 | 166.5 | 6.3 | 16.8 |
| 1987 02 04 | 09 11.52 | +20 20.9 | | | | | |
| 1987 02 14 | 09 00.57 | +20 51.1 | 1.120 | 2.094 | 166.8 | 6.2 | 16.8 |
| 1987 02 24 | 08 51.12 | +21 08.1 | | | | | |
| 1987 03 06 | 08 44.52 | +21 09.8 | 1.215 | 2.097 | 143.4 | 16.4 | 17.3 |
| 1987 03 16 | 08 41.50 | +20 56.7 | | | | | |
| 1987 03 26 | 08 42.15 | +20 30.7 | 1.383 | 2.102 | 123.2 | 23.4 | 17.8 |
| 1987 04 05 | 08 46.19 | +19 53.4 | | | | | |
| 1987 04 15 | 08 53.19 | +19 05.9 | 1.593 | 2.109 | 106.4 | 27.1 | 18.2 |
| 1987 04 25 | 09 02.61 | +18 09.1 | | | | | |
| 1987 05 05 | 09 14.00 | +17 03.5 | 1.823 | 2.117 | 92.3 | 28.4 | 18.5 |

(3437) 1982 UZ5 a,e,i = 2.27, 0.07, 4 Elements MPC 10756

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 28.43 | +20 09.7 | 1.620 | 2.102 | 104.8 | 27.0 | 17.2 |
| 1986 | 12 06 | 09 36.71 | +19 57.3 | | | | | |
| 1986 | 12 16 | 09 42.06 | +19 59.4 | 1.409 | 2.102 | 121.9 | 23.4 | 16.8 |
| 1986 | 12 26 | 09 44.07 | +20 17.6 | | | | | |
| 1987 | 01 05 | 09 42.42 | +20 51.9 | 1.239 | 2.104 | 142.1 | 16.7 | 16.4 |
| 1987 | 01 15 | 09 37.11 | +21 38.8 | | | | | |
| 1987 | 01 25 | 09 28.64 | +22 31.5 | 1.142 | 2.108 | 164.8 | 7.0 | 15.9 |
| 1987 | 02 04 | 09 18.09 | +23 20.9 | | | | | |
| 1987 | 02 14 | 09 07.16 | +23 57.9 | 1.142 | 2.114 | 166.0 | 6.5 | 15.8 |
| 1987 | 02 24 | 08 57.57 | +24 16.8 | | | | | |
| 1987 | 03 06 | 08 50.71 | +24 16.2 | 1.240 | 2.122 | 143.6 | 16.1 | 16.4 |
| 1987 | 03 16 | 08 47.37 | +23 57.7 | | | | | |
| 1987 | 03 26 | 08 47.67 | +23 24.4 | 1.411 | 2.131 | 123.6 | 23.0 | 16.9 |
| 1987 | 04 05 | 08 51.37 | +22 38.8 | | | | | |
| 1987 | 04 15 | 08 58.01 | +21 42.9 | 1.626 | 2.143 | 106.7 | 26.6 | 17.3 |
| 1987 | 04 25 | 09 07.08 | +20 38.0 | | | | | |
| 1987 | 05 05 | 09 18.11 | +19 24.7 | 1.861 | 2.155 | 92.5 | 27.9 | 17.6 |

1981 EC25 a,e,i = 2.17, 0.17, 4 Elements MPC 10541

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 46.74 | +17 40.8 | 2.066 | 2.439 | 99.9 | 23.5 | 19.0 |
| 1986 | 12 06 | 09 51.98 | +17 25.9 | | | | | |
| 1986 | 12 16 | 09 54.52 | +17 24.7 | 1.839 | 2.463 | 118.3 | 20.6 | 18.7 |
| 1986 | 12 26 | 09 54.07 | +17 38.2 | | | | | |
| 1987 | 01 05 | 09 50.43 | +18 06.2 | 1.652 | 2.485 | 139.7 | 14.8 | 18.3 |
| 1987 | 01 15 | 09 43.67 | +18 46.0 | | | | | |
| 1987 | 01 25 | 09 34.25 | +19 32.6 | 1.543 | 2.503 | 163.7 | 6.3 | 17.9 |
| 1987 | 02 04 | 09 23.10 | +20 19.5 | | | | | |
| 1987 | 02 14 | 09 11.53 | +20 59.5 | 1.543 | 2.519 | 168.8 | 4.4 | 17.8 |
| 1987 | 02 24 | 09 00.94 | +21 27.5 | | | | | |
| 1987 | 03 06 | 08 52.50 | +21 41.4 | 1.654 | 2.532 | 145.0 | 13.0 | 18.3 |
| 1987 | 03 16 | 08 46.95 | +21 41.2 | | | | | |
| 1987 | 03 26 | 08 44.53 | +21 28.6 | 1.851 | 2.541 | 123.5 | 19.1 | 18.7 |
| 1987 | 04 05 | 08 45.17 | +21 05.2 | | | | | |
| 1987 | 04 15 | 08 48.57 | +20 32.6 | 2.097 | 2.547 | 105.0 | 22.4 | 19.1 |
| 1987 | 04 25 | 08 54.34 | +19 51.9 | | | | | |
| 1987 | 05 05 | 09 02.10 | +19 03.7 | 2.361 | 2.551 | 89.0 | 23.3 | 19.4 |

1979 SL11 a,e,i = 2.98, 0.29, 17 Elements MPC 9417

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 53.81 | +32 21.6 | 3.478 | 3.821 | 102.9 | 14.6 | 18.8 |
| 1986 | 12 06 | 09 56.31 | +32 58.0 | | | | | |
| 1986 | 12 16 | 09 56.75 | +33 44.2 | 3.201 | 3.809 | 121.5 | 12.7 | 18.6 |
| 1986 | 12 26 | 09 54.96 | +34 38.2 | | | | | |
| 1987 | 01 05 | 09 50.86 | +35 37.0 | 2.982 | 3.794 | 140.7 | 9.4 | 18.3 |
| 1987 | 01 15 | 09 44.55 | +36 35.5 | | | | | |
| 1987 | 01 25 | 09 36.37 | +37 28.3 | 2.856 | 3.777 | 156.1 | 6.1 | 18.1 |
| 1987 | 02 04 | 09 26.92 | +38 09.5 | | | | | |
| 1987 | 02 14 | 09 17.03 | +38 34.8 | 2.845 | 3.758 | 154.0 | 6.6 | 18.1 |
| 1987 | 02 24 | 09 07.60 | +38 41.8 | | | | | |
| 1987 | 03 06 | 08 59.45 | +38 30.7 | 2.945 | 3.736 | 137.3 | 10.4 | 18.3 |
| 1987 | 03 16 | 08 53.21 | +38 03.5 | | | | | |
| 1987 | 03 26 | 08 49.21 | +37 23.4 | 3.133 | 3.712 | 118.4 | 13.7 | 18.5 |
| 1987 | 04 05 | 08 47.56 | +36 33.2 | | | | | |
| 1987 | 04 15 | 08 48.17 | +35 35.9 | 3.372 | 3.685 | 100.3 | 15.5 | 18.7 |
| 1987 | 04 25 | 08 50.84 | +34 33.4 | | | | | |
| 1987 | 05 05 | 08 55.33 | +33 27.0 | 3.629 | 3.657 | 83.6 | 15.9 | 18.9 |

1978 RJ2 a,e,i = 2.38, 0.21, 1 Elements MPC 6206

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 45.61 | +14 24.7 | 1.842 | 2.224 | 99.1 | 26.0 | 19.1 |
| 1986 | 12 06 | 09 52.10 | +13 49.4 | | | | | |
| 1986 | 12 16 | 09 55.72 | +13 28.1 | 1.652 | 2.272 | 116.8 | 22.7 | 18.8 |
| 1986 | 12 26 | 09 56.22 | +13 22.4 | | | | | |
| 1987 | 01 05 | 09 53.42 | +13 33.3 | 1.497 | 2.321 | 137.7 | 16.6 | 18.5 |
| 1987 | 01 15 | 09 47.45 | +13 59.6 | | | | | |
| 1987 | 01 25 | 09 38.81 | +14 37.5 | 1.414 | 2.369 | 161.8 | 7.5 | 18.1 |
| 1987 | 02 04 | 09 28.47 | +15 21.4 | | | | | |
| 1987 | 02 14 | 09 17.78 | +16 04.3 | 1.434 | 2.417 | 172.7 | 3.0 | 18.0 |
| 1987 | 02 24 | 09 08.12 | +16 40.4 | | | | | |
| 1987 | 03 06 | 09 00.58 | +17 06.0 | 1.563 | 2.463 | 148.3 | 12.2 | 18.6 |
| 1987 | 03 16 | 08 55.88 | +17 19.5 | | | | | |
| 1987 | 03 26 | 08 54.20 | +17 21.0 | 1.779 | 2.507 | 126.8 | 18.6 | 19.1 |
| 1987 | 04 05 | 08 55.43 | +17 11.4 | | | | | |
| 1987 | 04 15 | 08 59.26 | +16 51.6 | 2.049 | 2.550 | 108.4 | 21.9 | 19.5 |
| 1987 | 04 25 | 09 05.30 | +16 22.5 | | | | | |
| 1987 | 05 05 | 09 13.19 | +15 44.9 | 2.344 | 2.591 | 92.5 | 22.9 | 19.9 |

(3395) 1985 UN a,e,i = 2.79, 0.06, 4 Elements MPC 10518

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 42.22 | +18 17.2 | 2.263 | 2.638 | 101.1 | 21.5 | 16.8 |
| 1986 | 12 06 | 09 47.90 | +17 59.1 | | | | | |
| 1986 | 12 16 | 09 51.18 | +17 52.6 | 2.016 | 2.640 | 119.2 | 19.0 | 16.5 |
| 1986 | 12 26 | 09 51.82 | +17 58.5 | | | | | |
| 1987 | 01 05 | 09 49.66 | +18 16.7 | 1.814 | 2.643 | 139.9 | 13.9 | 16.1 |
| 1987 | 01 15 | 09 44.76 | +18 45.2 | | | | | |
| 1987 | 01 25 | 09 37.51 | +19 20.1 | 1.690 | 2.647 | 162.9 | 6.3 | 15.7 |
| 1987 | 02 04 | 09 28.64 | +19 56.1 | | | | | |
| 1987 | 02 14 | 09 19.23 | +20 27.2 | 1.673 | 2.652 | 170.5 | 3.5 | 15.5 |
| 1987 | 02 24 | 09 10.45 | +20 49.0 | | | | | |
| 1987 | 03 06 | 09 03.34 | +20 58.9 | 1.766 | 2.658 | 147.6 | 11.5 | 16.0 |
| 1987 | 03 16 | 08 58.65 | +20 56.1 | | | | | |
| 1987 | 03 26 | 08 56.69 | +20 41.6 | 1.948 | 2.664 | 126.4 | 17.5 | 16.4 |
| 1987 | 04 05 | 08 57.48 | +20 16.6 | | | | | |
| 1987 | 04 15 | 09 00.83 | +19 42.2 | 2.185 | 2.671 | 108.0 | 20.9 | 16.7 |
| 1987 | 04 25 | 09 06.43 | +18 59.5 | | | | | |
| 1987 | 05 05 | 09 13.94 | +18 09.2 | 2.448 | 2.679 | 91.9 | 22.1 | 17.0 |

1983 CN a,e,i = 2.53, 0.03, 15 Elements MPC 8062

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 52.09 | +25 39.0 | 2.080 | 2.470 | 101.3 | 23.1 | 17.5 |
| 1986 | 12 06 | 09 58.25 | +25 17.6 | | | | | |
| 1986 | 12 16 | 10 01.64 | +25 06.6 | 1.838 | 2.468 | 118.8 | 20.5 | 17.2 |
| 1986 | 12 26 | 10 01.93 | +25 05.8 | | | | | |
| 1987 | 01 05 | 09 58.84 | +25 13.7 | 1.637 | 2.466 | 139.0 | 15.2 | 16.8 |
| 1987 | 01 15 | 09 52.40 | +25 26.3 | | | | | |
| 1987 | 01 25 | 09 43.02 | +25 37.6 | 1.513 | 2.464 | 160.9 | 7.5 | 16.3 |
| 1987 | 02 04 | 09 31.59 | +25 41.0 | | | | | |
| 1987 | 02 14 | 09 19.51 | +25 30.6 | 1.492 | 2.463 | 166.4 | 5.4 | 16.2 |
| 1987 | 02 24 | 09 08.31 | +25 03.9 | | | | | |
| 1987 | 03 06 | 08 59.28 | +24 21.6 | 1.581 | 2.463 | 145.3 | 13.2 | 16.6 |
| 1987 | 03 16 | 08 53.25 | +23 26.6 | | | | | |
| 1987 | 03 26 | 08 50.50 | +22 22.4 | 1.757 | 2.463 | 124.5 | 19.5 | 17.0 |
| 1987 | 04 05 | 08 50.93 | +21 11.6 | | | | | |
| 1987 | 04 15 | 08 54.24 | +19 56.0 | 1.984 | 2.464 | 106.4 | 23.0 | 17.4 |
| 1987 | 04 25 | 09 00.00 | +18 36.4 | | | | | |
| 1987 | 05 05 | 09 07.81 | +17 13.0 | 2.235 | 2.465 | 90.8 | 24.1 | 17.7 |

1977 RD4 a,e,i = 2.40, 0.22, 9 Elements MPC 10153

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 47.43 | +09 30.5 | 2.620 | 2.911 | 97.1 | 19.7 | 17.9 |
| 1986 | 12 06 | 09 51.71 | +09 13.9 | | | | | |
| 1986 | 12 16 | 09 53.89 | +09 09.7 | 2.335 | 2.900 | 115.7 | 17.8 | 17.6 |
| 1986 | 12 26 | 09 53.77 | +09 20.1 | | | | | |
| 1987 | 01 05 | 09 51.17 | +09 46.5 | 2.090 | 2.887 | 136.9 | 13.5 | 17.2 |
| 1987 | 01 15 | 09 46.14 | +10 28.9 | | | | | |
| 1987 | 01 25 | 09 38.94 | +11 25.6 | 1.923 | 2.870 | 160.6 | 6.6 | 16.7 |
| 1987 | 02 04 | 09 30.14 | +12 32.8 | | | | | |
| 1987 | 02 14 | 09 20.65 | +13 44.7 | 1.867 | 2.850 | 173.8 | 2.1 | 16.4 |
| 1987 | 02 24 | 09 11.46 | +14 54.9 | | | | | |
| 1987 | 03 06 | 09 03.59 | +15 57.8 | 1.929 | 2.828 | 149.3 | 10.3 | 16.9 |
| 1987 | 03 16 | 08 57.80 | +16 49.7 | | | | | |
| 1987 | 03 26 | 08 54.52 | +17 28.7 | 2.088 | 2.803 | 126.9 | 16.5 | 17.2 |
| 1987 | 04 05 | 08 53.91 | +17 54.4 | | | | | |
| 1987 | 04 15 | 08 55.88 | +18 07.1 | 2.306 | 2.775 | 107.3 | 20.2 | 17.5 |
| 1987 | 04 25 | 09 00.21 | +18 07.9 | | | | | |
| 1987 | 05 05 | 09 06.62 | +17 57.5 | 2.546 | 2.744 | 90.3 | 21.6 | 17.7 |

1937 TB a,e,i = 2.68, 0.19, 3 Elements MPC 10164

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 53.12 | +16 30.1 | 2.370 | 2.693 | 98.1 | 21.3 | 17.9 |
| 1986 | 12 06 | 09 58.11 | +16 15.4 | | | | | |
| 1986 | 12 16 | 10 00.68 | +16 13.4 | 2.148 | 2.733 | 116.6 | 18.8 | 17.7 |
| 1986 | 12 26 | 10 00.66 | +16 24.7 | | | | | |
| 1987 | 01 05 | 09 57.91 | +16 49.2 | 1.966 | 2.773 | 137.7 | 13.8 | 17.4 |
| 1987 | 01 15 | 09 52.55 | +17 24.8 | | | | | |
| 1987 | 01 25 | 09 44.95 | +18 07.5 | 1.862 | 2.811 | 161.1 | 6.5 | 17.0 |
| 1987 | 02 04 | 09 35.84 | +18 52.2 | | | | | |
| 1987 | 02 14 | 09 26.21 | +19 33.0 | 1.866 | 2.848 | 172.2 | 2.7 | 16.9 |
| 1987 | 02 24 | 09 17.15 | +20 05.1 | | | | | |
| 1987 | 03 06 | 09 09.59 | +20 25.9 | 1.987 | 2.883 | 149.2 | 10.2 | 17.4 |
| 1987 | 03 16 | 09 04.24 | +20 34.2 | | | | | |
| 1987 | 03 26 | 09 01.39 | +20 30.9 | 2.201 | 2.918 | 127.5 | 15.7 | 17.8 |
| 1987 | 04 05 | 09 01.08 | +20 16.9 | | | | | |
| 1987 | 04 15 | 09 03.16 | +19 53.5 | 2.475 | 2.950 | 108.4 | 18.8 | 18.2 |
| 1987 | 04 25 | 09 07.35 | +19 22.0 | | | | | |
| 1987 | 05 05 | 09 13.37 | +18 43.2 | 2.776 | 2.981 | 91.6 | 19.8 | 18.5 |

(3426) 1932 CQ a,e,i = 2.62, 0.10, 13 Elements MPC 10628

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 56.15 | +27 02.9 | 2.462 | 2.819 | 100.8 | 20.1 | 18.1 |
| 1986 | 12 06 | 10 01.47 | +27 09.7 | | | | | |
| 1986 | 12 16 | 10 04.36 | +27 28.6 | 2.198 | 2.807 | 118.8 | 17.9 | 17.8 |
| 1986 | 12 26 | 10 04.52 | +27 58.8 | | | | | |
| 1987 | 01 05 | 10 01.71 | +28 38.4 | 1.979 | 2.794 | 138.7 | 13.4 | 17.4 |
| 1987 | 01 15 | 09 55.91 | +29 22.9 | | | | | |
| 1987 | 01 25 | 09 47.45 | +30 05.6 | 1.840 | 2.779 | 158.4 | 7.5 | 17.0 |
| 1987 | 02 04 | 09 37.03 | +30 39.2 | | | | | |
| 1987 | 02 14 | 09 25.79 | +30 56.7 | 1.808 | 2.764 | 161.9 | 6.4 | 16.9 |
| 1987 | 02 24 | 09 15.03 | +30 54.4 | | | | | |
| 1987 | 03 06 | 09 05.95 | +30 31.8 | 1.887 | 2.747 | 143.4 | 12.4 | 17.2 |
| 1987 | 03 16 | 08 59.43 | +29 51.5 | | | | | |
| 1987 | 03 26 | 08 55.84 | +28 57.3 | 2.053 | 2.730 | 123.2 | 17.8 | 17.6 |
| 1987 | 04 05 | 08 55.24 | +27 52.6 | | | | | |
| 1987 | 04 15 | 08 57.42 | +26 40.4 | 2.272 | 2.712 | 105.1 | 20.9 | 17.9 |
| 1987 | 04 25 | 09 02.03 | +25 22.4 | | | | | |
| 1987 | 05 05 | 09 08.73 | +23 59.7 | 2.514 | 2.693 | 89.0 | 22.0 | 18.1 |

(3430) 1980 TF4 a,e,i = 2.76, 0.10, 4 Elements MPC 10629

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 56.91 | +17 42.2 | 2.726 | 3.020 | 97.7 | 18.9 | 17.9 |
| 1986 | 12 06 | 10 01.58 | +17 35.5 | | | | | |
| 1986 | 12 16 | 10 04.14 | +17 40.5 | 2.457 | 3.024 | 116.2 | 17.0 | 17.6 |
| 1986 | 12 26 | 10 04.41 | +17 57.8 | | | | | |
| 1987 | 01 05 | 10 02.24 | +18 27.1 | 2.231 | 3.026 | 137.1 | 12.8 | 17.3 |
| 1987 | 01 15 | 09 57.65 | +19 06.4 | | | | | |
| 1987 | 01 25 | 09 50.92 | +19 52.1 | 2.084 | 3.027 | 159.8 | 6.5 | 16.9 |
| 1987 | 02 04 | 09 42.58 | +20 39.4 | | | | | |
| 1987 | 02 14 | 09 33.48 | +21 22.6 | 2.047 | 3.027 | 171.5 | 2.8 | 16.7 |
| 1987 | 02 24 | 09 24.59 | +21 56.8 | | | | | |
| 1987 | 03 06 | 09 16.84 | +22 19.1 | 2.127 | 3.026 | 149.8 | 9.5 | 17.1 |
| 1987 | 03 16 | 09 10.97 | +22 28.2 | | | | | |
| 1987 | 03 26 | 09 07.40 | +22 24.5 | 2.304 | 3.023 | 128.2 | 15.0 | 17.4 |
| 1987 | 04 05 | 09 06.30 | +22 09.4 | | | | | |
| 1987 | 04 15 | 09 07.60 | +21 44.2 | 2.542 | 3.020 | 108.8 | 18.3 | 17.8 |
| 1987 | 04 25 | 09 11.09 | +21 10.2 | | | | | |
| 1987 | 05 05 | 09 16.52 | +20 28.6 | 2.809 | 3.015 | 91.8 | 19.5 | 18.0 |

1981 JH a,e,i = 2.22, 0.19, 4 Elements MPC 9683

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 09 59.42 | +16 42.3 | 2.334 | 2.639 | 96.8 | 21.8 | 18.7 |
| 1986 | 12 06 | 10 05.25 | +16 29.7 | | | | | |
| 1986 | 12 16 | 10 08.81 | +16 30.2 | 2.062 | 2.631 | 114.8 | 19.8 | 18.3 |
| 1986 | 12 26 | 10 09.78 | +16 45.3 | | | | | |
| 1987 | 01 05 | 10 07.90 | +17 15.6 | 1.827 | 2.621 | 135.5 | 15.3 | 17.9 |
| 1987 | 01 15 | 10 03.06 | +17 59.7 | | | | | |
| 1987 | 01 25 | 09 55.46 | +18 53.9 | 1.665 | 2.607 | 158.7 | 7.9 | 17.5 |
| 1987 | 02 04 | 09 45.65 | +19 52.1 | | | | | |
| 1987 | 02 14 | 09 34.67 | +20 46.9 | 1.608 | 2.590 | 172.2 | 3.0 | 17.2 |
| 1987 | 02 24 | 09 23.79 | +21 31.3 | | | | | |
| 1987 | 03 06 | 09 14.27 | +22 00.9 | 1.665 | 2.570 | 149.5 | 11.3 | 17.6 |
| 1987 | 03 16 | 09 07.15 | +22 13.9 | | | | | |
| 1987 | 03 26 | 09 02.95 | +22 11.3 | 1.816 | 2.547 | 127.3 | 18.2 | 18.0 |
| 1987 | 04 05 | 09 01.84 | +21 54.8 | | | | | |
| 1987 | 04 15 | 09 03.70 | +21 26.3 | 2.022 | 2.520 | 108.1 | 22.2 | 18.3 |
| 1987 | 04 25 | 09 08.19 | +20 47.4 | | | | | |
| 1987 | 05 05 | 09 14.96 | +19 59.2 | 2.250 | 2.492 | 91.6 | 23.9 | 18.5 |

1979 SQ11 a,e,i = 3.19, 0.17, 0 Elements MPC 10761

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|---|
| 1986 | 11 26 | 10 00.50 | +12 38.2 | 3.145 | 3.379 | 95.1 | 16.9 | 17.9 |
| 1986 | 12 06 | 10 04.16 | +12 20.1 | | | | | |
| 1986 | 12 16 | 10 05.96 | +12 12.1 | 2.885 | 3.407 | 114.0 | 15.3 | 17.7 |
| 1986 | 12 26 | 10 05.76 | +12 15.0 | | | | | |
| 1987 | 01 05 | 10 03.50 | +12 29.1 | 2.666 | 3.433 | 135.1 | 11.7 | 17.4 |
| 1987 | 01 15 | 09 59.27 | +12 53.5 | | | | | |
| 1987 | 01 25 | 09 53.34 | +13 26.2 | 2.526 | 3.459 | 158.1 | 6.1 | 17.1 |
| 1987 | 02 04 | 09 46.17 | +14 04.3 | | | | | |
| 1987 | 02 14 | 09 38.41 | +14 43.9 | 2.497 | 3.484 | 177.7 | 0.6 | 16.8 |
| 1987 | 02 24 | 09 30.79 | +15 21.2 | | | | | |
| 1987 | 03 06 | 09 24.02 | +15 52.9 | 2.589 | 3.507 | 154.0 | 7.1 | 17.2 |
| 1987 | 03 16 | 09 18.68 | +16 16.8 | | | | | |
| 1987 | 03 26 | 09 15.14 | +16 31.7 | 2.785 | 3.530 | 131.9 | 12.1 | 17.6 |
| 1987 | 04 05 | 09 13.57 | +16 37.5 | | | | | |
| 1987 | 04 15 | 09 13.97 | +16 34.4 | 3.053 | 3.551 | 111.9 | 15.2 | 17.9 |
| 1987 | 04 25 | 09 16.22 | +16 22.9 | | | | | |
| 1987 | 05 05 | 09 20.15 | +16 03.7 | 3.357 | 3.571 | 94.0 | 16.4 | 18.2 |

1981 JA2 a,e,i = 2.19, 0.14, 2 Elements MPC 10298

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 56.43 | +10 46.6 | 2.160 | 2.458 | 95.4 | 23.6 | 18.6 |
| 1986 12 06 | 10 03.15 | +09 59.2 | | | | | |
| 1986 12 16 | 10 07.61 | +09 22.6 | 1.891 | 2.445 | 112.6 | 21.8 | 18.3 |
| 1986 12 26 | 10 09.50 | +08 59.1 | | | | | |
| 1987 01 05 | 10 08.52 | +08 51.1 | 1.653 | 2.428 | 132.6 | 17.3 | 17.8 |
| 1987 01 15 | 10 04.52 | +08 59.9 | | | | | |
| 1987 01 25 | 09 57.63 | +09 25.2 | 1.479 | 2.410 | 155.6 | 9.7 | 17.3 |
| 1987 02 04 | 09 48.37 | +10 04.8 | | | | | |
| 1987 02 14 | 09 37.75 | +10 53.4 | 1.403 | 2.389 | 176.7 | 1.4 | 16.8 |
| 1987 02 24 | 09 27.08 | +11 44.4 | | | | | |
| 1987 03 06 | 09 17.71 | +12 31.2 | 1.437 | 2.366 | 153.4 | 10.8 | 17.3 |
| 1987 03 16 | 09 10.77 | +13 08.7 | | | | | |
| 1987 03 26 | 09 06.86 | +13 34.0 | 1.565 | 2.342 | 130.8 | 18.8 | 17.7 |
| 1987 04 05 | 09 06.19 | +13 46.1 | | | | | |
| 1987 04 15 | 09 08.64 | +13 44.8 | 1.752 | 2.315 | 111.5 | 23.8 | 18.0 |
| 1987 04 25 | 09 13.87 | +13 30.7 | | | | | |
| 1987 05 05 | 09 21.51 | +13 04.3 | 1.964 | 2.287 | 95.2 | 26.0 | 18.3 |

1981 EX19 a,e,i = 2.15, 0.21, 1 Elements MPC 10040

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 10 02.76 | +10 45.3 | 2.299 | 2.564 | 93.9 | 22.6 | 19.3 |
| 1986 12 06 | 10 08.44 | +10 10.6 | | | | | |
| 1986 12 16 | 10 11.82 | +09 48.1 | 2.048 | 2.581 | 111.8 | 20.7 | 19.0 |
| 1986 12 26 | 10 12.63 | +09 39.9 | | | | | |
| 1987 01 05 | 10 10.62 | +09 47.7 | 1.826 | 2.594 | 132.5 | 16.2 | 18.6 |
| 1987 01 15 | 10 05.75 | +10 12.0 | | | | | |
| 1987 01 25 | 09 58.22 | +10 51.3 | 1.673 | 2.603 | 156.0 | 8.8 | 18.2 |
| 1987 02 04 | 09 48.61 | +11 42.0 | | | | | |
| 1987 02 14 | 09 37.92 | +12 38.3 | 1.622 | 2.609 | 177.8 | 0.8 | 17.8 |
| 1987 02 24 | 09 27.34 | +13 33.6 | | | | | |
| 1987 03 06 | 09 18.07 | +14 22.1 | 1.688 | 2.611 | 153.1 | 9.9 | 18.3 |
| 1987 03 16 | 09 11.05 | +14 59.8 | | | | | |
| 1987 03 26 | 09 06.79 | +15 24.8 | 1.852 | 2.610 | 130.3 | 17.0 | 18.7 |
| 1987 04 05 | 09 05.45 | +15 36.8 | | | | | |
| 1987 04 15 | 09 06.91 | +15 36.4 | 2.077 | 2.605 | 110.5 | 21.1 | 19.1 |
| 1987 04 25 | 09 10.88 | +15 24.4 | | | | | |
| 1987 05 05 | 09 17.04 | +15 01.7 | 2.330 | 2.596 | 93.6 | 22.8 | 19.4 |

1978 ST6 a,e,i = 2.31, 0.13, 6 Elements MPC 10297

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 59.34 | +05 52.0 | 2.314 | 2.563 | 93.0 | 22.6 | 17.3 |
| 1986 12 06 | 10 05.12 | +04 50.8 | | | | | |
| 1986 12 16 | 10 08.68 | +03 59.6 | 2.064 | 2.577 | 110.3 | 21.0 | 17.0 |
| 1986 12 26 | 10 09.76 | +03 20.8 | | | | | |
| 1987 01 05 | 10 08.14 | +02 57.2 | 1.844 | 2.590 | 130.1 | 16.9 | 16.7 |
| 1987 01 15 | 10 03.80 | +02 51.0 | | | | | |
| 1987 01 25 | 09 56.94 | +03 03.2 | 1.687 | 2.600 | 152.3 | 10.1 | 16.3 |
| 1987 02 04 | 09 48.12 | +03 33.2 | | | | | |
| 1987 02 14 | 09 38.27 | +04 17.6 | 1.628 | 2.608 | 170.6 | 3.5 | 15.9 |
| 1987 02 24 | 09 28.52 | +05 11.0 | | | | | |
| 1987 03 06 | 09 19.98 | +06 07.4 | 1.683 | 2.613 | 154.5 | 9.4 | 16.3 |
| 1987 03 16 | 09 13.56 | +07 00.4 | | | | | |
| 1987 03 26 | 09 09.75 | +07 45.7 | 1.836 | 2.617 | 132.7 | 16.3 | 16.7 |
| 1987 04 05 | 09 08.73 | +08 20.5 | | | | | |
| 1987 04 15 | 09 10.41 | +08 43.2 | 2.055 | 2.618 | 113.2 | 20.6 | 17.0 |
| 1987 04 25 | 09 14.53 | +08 53.5 | | | | | |
| 1987 05 05 | 09 20.79 | +08 51.7 | 2.307 | 2.617 | 96.3 | 22.5 | 17.4 |

1980 EE2 a,e,i = 2.31, 0.10, 3 Elements MPC 9210

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 42.93 | +09 48.0 | 1.757 | 2.134 | 98.2 | 27.2 | 17.4 |
| 1986 12 06 | 09 52.10 | +08 37.6 | | | | | |
| 1986 12 16 | 09 58.90 | +07 36.8 | 1.518 | 2.119 | 114.0 | 25.1 | 17.1 |
| 1986 12 26 | 10 02.97 | +06 48.9 | | | | | |
| 1987 01 05 | 10 03.94 | +06 17.4 | 1.311 | 2.105 | 132.6 | 20.1 | 16.6 |
| 1987 01 15 | 10 01.63 | +06 05.5 | | | | | |
| 1987 01 25 | 09 56.15 | +06 14.4 | 1.162 | 2.093 | 154.3 | 11.8 | 16.1 |
| 1987 02 04 | 09 48.06 | +06 43.7 | | | | | |
| 1987 02 14 | 09 38.51 | +07 28.6 | 1.100 | 2.084 | 173.7 | 3.0 | 15.6 |
| 1987 02 24 | 09 29.00 | +08 21.9 | | | | | |
| 1987 03 06 | 09 21.05 | +09 15.5 | 1.138 | 2.078 | 154.7 | 11.8 | 16.0 |
| 1987 03 16 | 09 15.86 | +10 01.7 | | | | | |
| 1987 03 26 | 09 14.02 | +10 35.9 | 1.261 | 2.075 | 133.2 | 20.5 | 16.5 |
| 1987 04 05 | 09 15.65 | +10 55.6 | | | | | |
| 1987 04 15 | 09 20.51 | +10 59.6 | 1.440 | 2.074 | 115.0 | 26.0 | 16.9 |
| 1987 04 25 | 09 28.16 | +10 48.4 | | | | | |
| 1987 05 05 | 09 38.18 | +10 22.6 | 1.649 | 2.076 | 99.9 | 28.6 | 17.3 |

1967 UT a,e,i = 2.39, 0.05, 3 Elements MPC 9031

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 56.49 | +14 26.9 | 2.204 | 2.517 | 96.7 | 22.9 | 18.3 |
| 1986 12 06 | 10 03.33 | +14 07.4 | | | | | |
| 1986 12 16 | 10 07.91 | +14 01.3 | 1.951 | 2.519 | 114.2 | 20.9 | 18.0 |
| 1986 12 26 | 10 09.92 | +14 10.4 | | | | | |
| 1987 01 05 | 10 09.10 | +14 36.0 | 1.733 | 2.521 | 134.4 | 16.2 | 17.6 |
| 1987 01 15 | 10 05.36 | +15 17.4 | | | | | |
| 1987 01 25 | 09 58.91 | +16 11.6 | 1.583 | 2.521 | 157.5 | 8.6 | 17.1 |
| 1987 02 04 | 09 50.27 | +17 13.3 | | | | | |
| 1987 02 14 | 09 40.45 | +18 14.8 | 1.535 | 2.521 | 175.0 | 2.0 | 16.7 |
| 1987 02 24 | 09 30.68 | +19 08.9 | | | | | |
| 1987 03 06 | 09 22.20 | +19 50.1 | 1.599 | 2.519 | 152.1 | 10.6 | 17.2 |
| 1987 03 16 | 09 15.99 | +20 15.3 | | | | | |
| 1987 03 26 | 09 12.59 | +20 24.5 | 1.756 | 2.516 | 130.0 | 17.7 | 17.6 |
| 1987 04 05 | 09 12.15 | +20 18.7 | | | | | |
| 1987 04 15 | 09 14.56 | +19 59.5 | 1.973 | 2.513 | 110.9 | 21.9 | 18.0 |
| 1987 04 25 | 09 19.49 | +19 28.6 | | | | | |
| 1987 05 05 | 09 26.62 | +18 47.1 | 2.217 | 2.508 | 94.6 | 23.6 | 18.3 |

1964 VE a,e,i = 2.34, 0.28, 25 Elements MPC 7459

| Date ET | R. A. (1950) | Decl. | Delta | r | Elong. | Phase | V |
|---|---|---|---|---|---|---|---|
| 1986 11 26 | 09 53.05 | -16 27.1 | 1.836 | 2.032 | 86.6 | 29.0 | 18.5 |
| 1986 12 06 | 10 01.39 | -18 58.5 | | | | | |
| 1986 12 16 | 10 07.10 | -21 18.0 | 1.699 | 2.096 | 99.3 | 27.6 | 18.3 |
| 1986 12 26 | 10 09.90 | -23 20.6 | | | | | |
| 1987 01 05 | 10 09.53 | -24 59.9 | 1.571 | 2.161 | 113.6 | 24.6 | 18.2 |
| 1987 01 15 | 10 05.96 | -26 08.0 | | | | | |
| 1987 01 25 | 09 59.47 | -26 37.4 | 1.474 | 2.226 | 128.7 | 20.2 | 18.0 |
| 1987 02 04 | 09 50.77 | -26 21.4 | | | | | |
| 1987 02 14 | 09 41.04 | -25 17.8 | 1.435 | 2.290 | 141.2 | 15.7 | 17.8 |
| 1987 02 24 | 09 31.65 | -23 30.6 | | | | | |
| 1987 03 06 | 09 23.85 | -21 09.9 | 1.481 | 2.353 | 143.5 | 14.5 | 17.9 |
| 1987 03 16 | 09 18.58 | -18 30.2 | | | | | |
| 1987 03 26 | 09 16.24 | -15 46.2 | 1.616 | 2.414 | 133.6 | 17.4 | 18.3 |
| 1987 04 05 | 09 16.86 | -13 09.8 | | | | | |
| 1987 04 15 | 09 20.23 | -10 49.5 | 1.828 | 2.474 | 118.9 | 20.8 | 18.7 |
| 1987 04 25 | 09 25.96 | -08 49.7 | | | | | |
| 1987 05 05 | 09 33.69 | -07 12.1 | 2.092 | 2.530 | 103.8 | 22.8 | 19.1 |