

ASTROMETRIC POSITIONS OF MINOR PLANETS

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(Received: 1 May Revised: 13 July)

The following precise astrometric positions have been measured from photographs obtained with a Newtonian reflector of 41 cm aperture, 1.943 meter focal length, and hypersensitized KODAK TP 2415 film. The location of the observatory is: Longitude 4°12'34" E; Latitude 45°22'50" N; Altitude 448 meters.

	UT	RA (1950.0)	Dec
148 Gallia	1989 05 08.050694	15 02 27.953	+18 55 44.87
264 Libussa	1989 10 22.920833	01 36 05.407	+02 16 21.39
264 Libussa	1989 10 23.949305	01 35 06.133	+02 16 30.99
264 Libussa	1989 10 26.987500	01 32 15.541	+02 16 45.07
264 Libussa	1989 11 28.889580	01 11 59.773	+03 39 58.12
264 Libussa	1989 11 29.924305	01 11 48.423	+03 45 02.55
365 Corduba	1989 10 22.872222	00 18 20.347	-01 34 43.66
365 Corduba	1989 10 23.912500	00 17 51.418	-01 43 50.15
365 Corduba	1989 10 25.906250	00 17 05.438	-02 00 33.36
365 Corduba	1989 10 26.960416	00 16 35.981	-02 09 04.99
365 Corduba	1989 11 29.898611	00 17 37.348	-04 21 40.15
433 Eros	1989 01 03.790277	00 55 48.401	+25 13 01.81
433 Eros	1989 01 03.869444	00 56 00.350	+25 12 42.49
433 Eros	1989 01 25.767361	02 04 37.855	+23 38 36.55
433 Eros	1989 01 25.788194	02 04 41.965	+23 38 31.43
433 Eros	1989 01 26.870138	02 08 27.125	+23 34 22.17
433 Eros	1989 01 27.785416	02 11 40.216	+23 30 49.23
433 Eros	1989 01 28.793750	02 15 13.434	+23 26 52.37
433 Eros	1989 02 01.859722	02 29 48.907	+23 10 10.22
1497 Tampere	1990 03 23.926388	10 25 33.968	+08 44 43.84
1497 Tampere	1990 03 23.993750	10 25 31.426	+08 44 59.72
1509 Esclangona	1990 01 21.972222	06 49 16.013	+15 18 49.85
1509 Esclangona	1990 01 21.990972	06 49 09.345	+15 17 43.33
1509 Esclangona	1990 01 22.918750	06 47 50.579	+15 04 09.49
1509 Esclangona	1990 02 17.899305	06 27 09.617	+10 04 18.30

	UT	RA (1950.0)	Dec
1509 Esclangona	1990 02 19.913194	06 26 55.475	+09 47 48.10
1509 Esclangona	1990 02 20.931944	06 26 52.454	+09 39 48.73
1509 Esclangona	1990 02 23.888888	06 26 59.997	+09 17 40.40
1509 Esclangona	1990 02 24.904861	06 27 07.545	+09 10 26.04
1580 Betulia	1989 05 08.099305	17 04 54.606	+60 59 25.46
1629 Pecker	1989 03 06.069444	11 21 31.292	+15 03 46.37
1629 Pecker	1989 03 07.034027	11 20 40.704	+15 15 24.19
1917 Cuyo	1989 10 04.902777	20 43 23.099	-06 33 22.30
1917 Cuyo	1989 10 04.916666	20 43 26.855	-06 35 32.22
1917 Cuyo	1989 10 05.845949	20 48 10.146	-09 14 23.24
1917 Cuyo	1989 10 05.852893	20 48 12.353	-09 15 35.25
2001 Einstein	1989 02 09.028333	08 53 07.702	+51 21 16.03
2001 Einstein	1989 02 10.072222	08 50 53.918	+51 10 17.04
2001 Einstein	1989 03 05.918750	08 16 19.341	+44 34 49.32
3040 Kozai	1989 03 06.013888	10 29 14.917	+39 55 37.59
3040 Kozai	1989 03 06.979166	10 27 56.351	+40 29 09.52
3043 San Diego	1989 03 06.092361	10 55 08.865	+13 44 36.05
3043 San Diego	1989 03 07.002083	10 53 37.724	+13 40 24.82
3043 San Diego	1989 03 10.036111	10 48 39.600	+13 25 40.63
3119 Dobronravin	1989 02 08.993055	08 38 24.963	+21 15 54.74
3119 Dobronravin	1989 02 10.001666	08 37 36.031	+21 20 23.83
3398 1978 PC	1989 12 27.001388	05 46 35.039	+49 27 03.82
3398 1978 PC	1989 12 27.048611	05 46 29.601	+49 27 58.50
3410 1978 S27	1990 02 24.006944	10 50 14.629	+07 38 03.98
3410 1978 S27	1990 02 24.054861	10 50 11.591	+07 38 11.76
3410 1978 S27	1990 02 24.945139	10 49 15.540	+07 40 40.76
3410 1978 S27	1990 02 24.954861	10 49 14.881	+07 40 42.58
3410 1978 S27	1990 02 25.020833	10 49 10.620	+07 40 53.73
3410 1978 S27	1990 03 23.926388	10 23 40.459	+08 41 17.7
3410 1978 S27	1990 03 23.993750	10 23 37.637	+08 41 22.30
3629 1982 WK	1989 09 24.904166	23 19 05.730	+05 01 18.39
4179 1989 AC	1989 01 25.813194	05 56 10.643	+23 07 02.60
4179 1989 AC	1989 01 26.908333	05 59 56.773	+23 09 18.07
4197 1982 TA	1989 10 04.983333	00 37 30.395	+05 07 44.59
4197 1982 TA	1989 10 04.998263	00 37 28.570	+05 07 39.50
1967 DB	1990 03 23.955555	11 28 03.618	+18 02 35.59
1967 DB	1990 03 24.006250	11 28 01.337	+18 03 01.17
1989 OB	1989 08 25.947916	21 28 53.929	+12 05 31.80
1989 OB	1989 08 25.961805	21 28 53.977	+12 06 07.48
1989 OB	1989 08 30.916666	21 30 45.621	+15 20 52.39
1989 OB	1989 08 30.938888	21 30 46.099	+15 21 40.59
1989 OB	1989 08 30.958333	21 30 46.728	+15 22 30.87
1989 OB	1989 08 30.979166	21 30 46.938	+15 23 07.44
1989 OB	1989 09 04.923611	21 33 41.750	+18 31 32.69
1989 OB	1989 09 04.944444	21 33 42.039	+18 32 08.59
1989 PB	1989 08 23.965280	00 51 34.810	+46 01 57.30

ASTROMETRIC POSITIONS OF MINOR PLANETS

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The following astrometric positions of minor planets are reprinted in the *Minor Planet Bulletin* from the German periodical *KPM*, issues 11-13.

The following observations have been made by Dieter Ewald, Melchow, German Democratic Republic with a visual micrometer attached to a 7.5 cm refractor. Each is averaged from a listed number N of observations made on the night specified. The observatory coordinates are Longitude 13°42'06" East, Latitude 52°46'48" North, Altitude 50 meters.

Planet	1989 UT	RA (1950.0)	Dec	N	Mag
3	01 28 23.33	10 ^h 24 ^m 06.7 ^s	+01°04'19"	4	
6	01 26 21.41	08 20 35.4	+13 37 02	3	
6	02 10 20:57	08 06 50.0	+16 02 39	4	
6	02 20 21:10	08 00 07.4	+17 29 37	1	
6	03 06 20:55	07 55 17.9	+19 08 23	4	
6	03 09 19:32	07 55 02.3	+19 26 05	3	
7	02 04 22:31	09 25 09.9	+06 27 38	4	
7	02 10 21:19	09 18 50.7	+06 50 29	4	
7	03 06 21:13	08 58 42.0	+08 34 10	3	
7	03 07 20:08	08 58 11.8	+08 43 31	3	
7	03 09 18:52	08 57 14.7	+08 45 40	5	
8	02 11 22:12	11 28 37.5	+11 11 46	2	
8	03 07 20:56	11 05 31.6	+14 38 35	2	
8	03 09 20:23	11 04 32.1	+14 45 47	6	
11	09 05 22:17	23 34 40.3	-08 51 39	2	9.3
12	08 25 21:57	22 12 47.7	+07 54 29	3	8.8
12	08 29 21:41	22 09 42.9	+07 28 24	2	8.8
12	09 05 21:40	22 04 40.8	+06 55 53	3	8.9
12	09 07 21:36	22 03 23.4	+06 13 03	3	8.9
12	09 29 20:42	21 56 33.6	+02 58 07	3	9.4
12	10 20 20:33	22 03 51.8	+00 32 08	4	10.0
15	08 25 22:11	22 02 57.6	+02 23 54	3	7.9
15	09 05 21:57	21 52 28.7	+02 15 26	3	8.1
30	09 30 22:47	01 05 10.4	+10 59 12	3	9.8
30	10 20 21:43	00 47 12.8	+09 13 28	3	9.7
51	03 10 22:14	11 41 53.1	+01 01 30	3	
52	03 07 21:31	11 45 03.3	+09 55 17	4	
79	09 05 21:13	23 20 53.6	+01 42 49	3	10.2
79	09 29 21:08	23 02 07.2	-01 23 38	3	10.2
230	09 30 23:49	02 43 36.8	+23 56 13	3	10.6
747	10 27 23:31	04 10 25.8	-13 06 21	3	10.3
980	08 29 21:16	21 12 28.1	+04 19 51	4	10.6
980	08 31 21:37	21 10 46.4	+04 20 03	3	10.7

The following positions of 1989 PB have been obtained by Bernd Koch, Solingen, German Federal Republic, as measured off photographs by a 20 cm Newtonian reflector. The observatory coordinates are Longitude 07°00'45" East, Latitude 51°05'28" North, Altitude 133 meters.

Planet	1989 UT	RA (1950.0)	Dec	Mag
1989 PB 08 22	22:02:00	00 ^h 25 ^m 24.02 ^s	+31°50'26.8"	11.5
1989 PB 08 22	22:07:00	00 25 27.31	+31 52 46.7	11.5
1989 PB 08 22	22:11:00	00 25 30.54	+31 54 51.1	11.5

The following positions of 349 Dembowska have been obtained by Mike Kretlow, Wiesbaden, German Federal Republic, as measured off photographs by a 12.7 cm refractor. The observatory coordinates are Longitude 08°15'36" East, Latitude 50°03'00" North, Altitude 100 meters.

Planet	1989 UT	RA (1950.0)	Dec
349	07 03 00:38:57	10 ^h 51 ^m 47.2 ^s	+17°31'48"
349	07 03 00:45:57	10 51 46.8	+17 31 49
349	07 03 01:00:57	10 51 46.1	+17 31 50
349	07 03 01:07:57	10 51 45.9	+17 31 54

PHOTOGRAPHIC POSITIONS OF MINOR PLANETS

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(Received: 1 May Revised: 10 May)

The following positions of minor planets have been made photographically using a 75 mm f/9.2 achromatic photographic objective on T MAX 400 Kodak films. The reported UT time is that of mid-exposure. The estimated precision for each measurement is ± 1.5 arcsecond.

Photographs of 216 Kleopatra and 1917 Cuyo were made from longitude 13°12'12" E, latitude 41°57'27" N, altitude 1820 $\pm$ 5 meters. Photographs of 521 Brixia were obtained from longitude 11°10'29" E, latitude 42°23'08" N, altitude 635 $\pm$ 5 meters.

Planet	1989 UT	RA (1950.0)	Dec
216 Kleopatra	Jul 28.95000	20 ^h 09 ^m 52.6 ^s	+ 1° 36' 03"
216 Kleopatra	Jul 28.98263	20 09 51.0	+ 1 35 56
1917 Cuyo	Oct 6.84791	20 53 39.2	-12 13 30
1917 Cuyo	Oct 6.87152	20 53 32.2	-12 09 20
521 Brixia	Oct 21.87708	1 10 01.0	-13 07 45
521 Brixia	Oct 22.85556	1 09 14.8	-13 06 46

REPORT FROM THE RECORDER

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I am attending the Corporation for Research Amateur Astronomy Baja '91 Symposium at La Paz, Mexico, around the time of the solar eclipse July 11, 1991. Here I shall present a paper, "The Minor Planets Section of the Association of Lunar and Planetary Observers." I shall appreciate the support of any Minor Planets Section members who can also attend. Even if you cannot attend the Symposium, please contact me about any of your activities which you wish for me to include. I shall peruse the last 2 years' issues of the *Minor Planet Bulletin*, plus those to be published up to the time of the Symposium, for as complete a range of our undertakings as I can find.

Persons who have not yet reserved spaces should immediately contact:

Corporation for Research Amateur Astronomy
P. O. Box 16542
San Francisco, CA 94116 USA

LETTER TO THE EDITOR

Dear Editor,

I was a bit surprised to find in the current issue of *MPB* a short article by Floyd Hutson in which he reported residuals between his astrometric observations and positions predicted by my ephemeris program. My program is intended only for finding objects, not reducing astrometric observations, as it does not include topocentric or aberration of light corrections, among others, and some arithmetic is done in single precision. The O-C residuals he reported are, if anything, smaller than the errors I would have expected in my computations alone, so it is no surprise that the residuals are larger than his solution error estimates. Indeed, it is entirely possible that his observations, if measured against a higher precision ephemeris, might yield much smaller residuals.

Sincerely yours,

Alan Harris