

PHOTOMETRY OF 804 HISPANIA, 899 JOKASTE, 1306 SCYTHIA, AND 2074 SHOEMAKER

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(Received: 19 December)

Results for the following asteroids (lightcurve period and amplitude) observed from Santana Observatory during the period September to December 2003 are reported: 804 Hispania (14.845 ± 0.01 hours and 0.21 mag.), 899 Jokaste (6.245 ± 0.005 hours and 0.28 mag.), 1306 Scythia (15.05 ± 0.01 hours and 0.18 mag.), 2074 Shoemaker (57.02 ± 0.1 hours and 0.45 mag.).

Santana Observatory (MPC Code 646) is located in Rancho Cucamonga, California at an elevation of 400 meters and is operated by Robert D. Stephens. Details of the equipment and reduction techniques are found in Stephens (2003) and at the author's web site (<http://home.earthlink.net/~rdstephens/default.htm>). All of the asteroids were selected from the "CALL" web site "List of Potential Lightcurve Targets" (Warner 2003). Shoemaker was selected because it is a Hungaria asteroid and because it is named in honor of Eugene Shoemaker.

804 Hispania

Discovered March 20, 1915 by J. Comas Solá at Barcelona, Hispania is a main-belt asteroid. Hispania is the Latin name of Spain. Seven hundred sixty nine observations over five sessions between October 7 and 13, 2003 were used to derive the synodic rotational period of 14.845 ± 0.01 hours with an amplitude of 0.21 ± 0.02 magnitude. Table I gives the phase angles during the observing run.

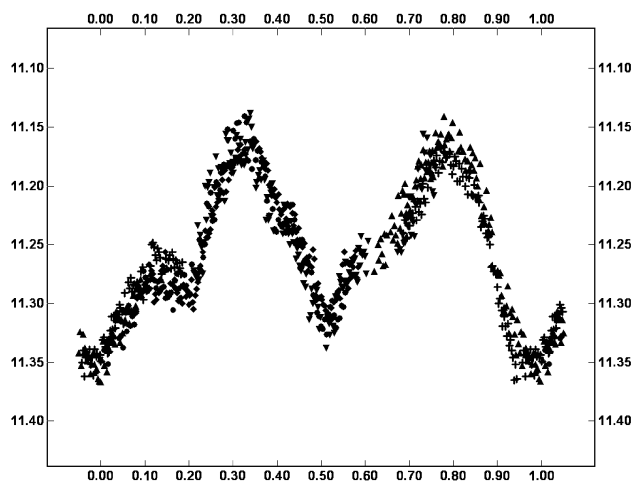


Figure 1: Lightcurve of 804 Hispania based upon a derived period of 14.845 ± 0.01 hours. Zero phase is J.D. 2452920.867512 (corrected for light-time).

Date	Phase Angle	PAB (Long.)	PAB (Lat.)	No. Obs.
2003/10/07	4.9	16.4	9.6	130
2003/10/08	4.8	16.4	9.7	151
2003/10/09	4.8	16.4	9.8	151
2003/10/12	4.9	16.4	10.0	173
2003/10/13	5.1	16.4	10.1	165

Table I: Observing circumstances for 804 Hispania

899 Jokaste

899 Jokaste is a main-belt asteroid discovered August 3, 1918 by M. Wolf at Heidelberg. It is probably named for a figure in the opera *Die Fledermaus* by Johann Strauss. Three hundred one observations over three sessions between November 27 and December 3, 2003 were used to derive the synodic rotational period of 6.245 ± 0.005 hours with an amplitude of 0.28 ± 0.02 magnitude. Table II gives the observed range of phase angles.

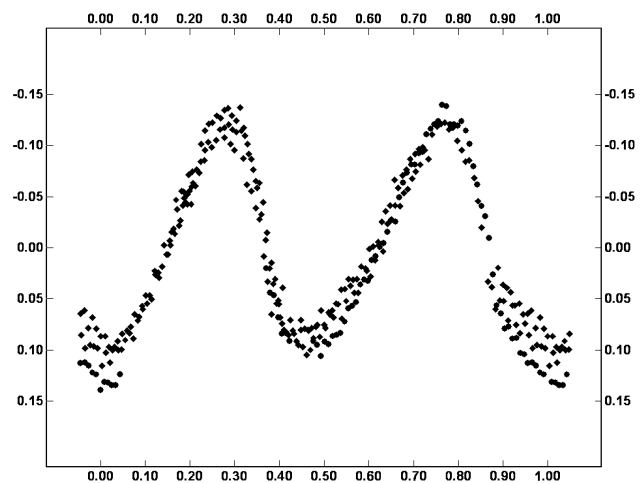


Figure 2: Lightcurve of 899 Jokaste based upon a derived period of 6.245 ± 0.005 hours. Zero phase equals J.D. 2452975.801180 (corrected for light-time).

Date	Phase Angle	PAB (Long.)	PAB (Lat.)	No. Obs.
2003/11/27	1.8	67.3	1.9	104
2003/12/02	1.2	67.4	1.5	73
2003/12/03	1.6	67.4	1.4	124

Table II: Observing circumstances for 899 Jokaste

1306 Scythia

Discovered July 22, 1930 by G. N. Neuymin at Simeis, Scythia is a main-belt asteroid. It is named for the country of the ancient Scythians, comprising parts of Europe and Asia in regions north of the Black sea and east of the Aral Sea. Its estimated size is 34 km in diameter. Three hundred eighty four observations over four sessions between September 23 and 30, 2003 were used to derive the synodic rotational period of 15.05 ± 0.01 hours with an amplitude of 0.18 ± 0.03 magnitude. Table III gives the phase angles during the observing run.

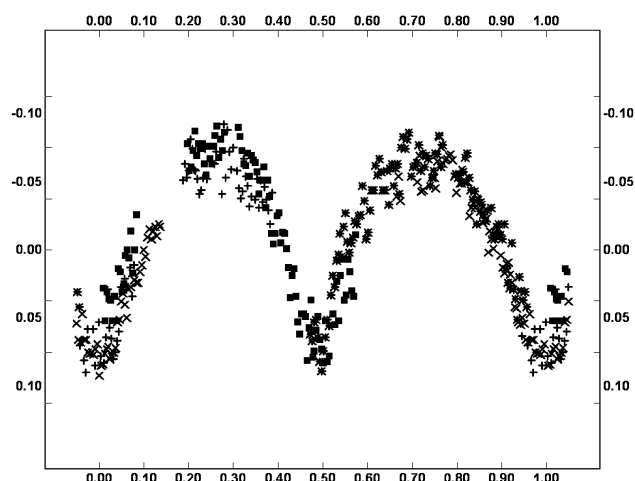


Figure 3: Lightcurve of 1306 Scythia based upon a derived period of 15.05 ± 0.01 hours. Zero phase equals J.D. 2452908.860012 (corrected for light-time).

Date	Phase Angle	PAB (Long.)	PAB (Lat.)	No. Obs.
2003/09/23	9.1	12.5	18.5	72
2003/09/26	8.5	12.5	18.6	101
2003/09/29	8.1	12.6	18.6	109
2003/09/30	8.0	12.6	18.6	102

Table III: Observing circumstances for 1306 Scythia

2074 Shoemaker

2074 Shoemaker is a Hungaria asteroid discovered by E. Helin at Palomar on October 17, 1974. It is named in honor of Eugene Shoemaker (1928-1997). Based upon its H value, Shoemaker is estimated to be between 4 and 9 km in size. Seven hundred twenty two observations over nine nights between October 15 and November 3, 2003 were used to derive the synodic rotational period of 57.02 ± 0.10 hours with an amplitude of 0.45 ± 0.03 magnitude. Its long period made it very difficult to get adequate overlap between the sessions. Each session contributed barely 10 percent to the lightcurve. Finally, the California wildfires, which burned to within a half a kilometer of the observatory curtailed observations until the asteroid was too low to observe. Because the asteroid was moving so fast, each night had to be split into two sessions with different comparison stars which were corrected with zero point adjustments. Table IV gives the phase angles during the observing run.

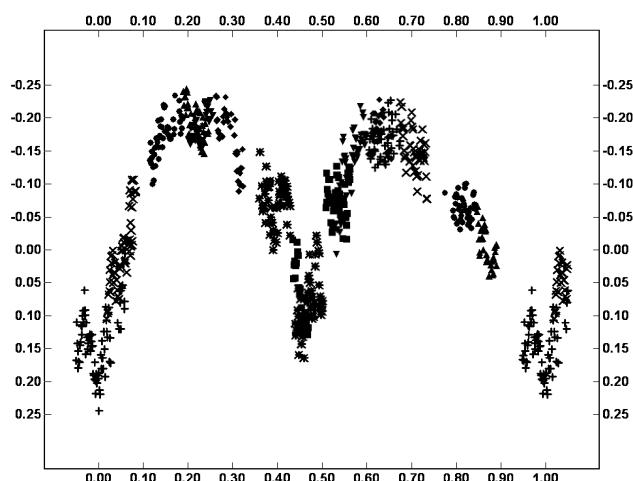


Figure 4: Lightcurve of 2074 Shoemaker based upon a derived period of 57.02 ± 0.10 hours. Zero phase equals J.D. 2452929.762632 (corrected for light-time).

Date	Phase Angle	PAB (Long.)	PAB (Lat.)	No. Obs.
2003/10/15	4.9	22.1	5.7	86
2003/10/16	4.5	22.1	5.3	82
2003/10/17	4.2	22.0	4.9	103
2003/10/18	4.2	22.0	4.4	81
2003/10/19	4.3	22.0	4.0	76
2003/10/20	4.7	22.0	3.6	78
2003/10/21	5.1	22.0	3.2	87
2003/10/23	6.4	21.9	2.4	95
2003/11/03	15.0	22.1	-2.1	34

Table IV: Observing circumstances for 2074 Shoemaker

Acknowledgements

Many thanks to Brian Warner for his continuing work and enhancements to the software program “Canopus” which makes it possible for amateur astronomers to analyze and collaborate on asteroid rotational period projects and for maintaining the CALL Web site which helps coordinate collaborative projects between amateur astronomers.

References

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