

PHOTOELECTRIC PHOTOMETRY OF ASTEROIDS 29 AMPHITRITE AND 88 THISBE

Frank J. Melillo
North Valley Stream Observatory
870 Franklin Ave.
N. Valley Stream, N.Y. 11580

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Photoelectric photometry observations of the asteroids 29 Amphitrite and 88 Thisbe were made from North Valley Stream Observatory during the period August 29 to September 1, 1986 UT. The lightcurves for both asteroids are consistent with previously determined rotation periods. Amphitrite and Thisbe displayed lightcurve amplitudes of 0.15 and 0.20 magnitudes, respectively.

In the late summer of 1986, the asteroids 29 Amphitrite and 88 Thisbe were in a good position for photometric studies, especially 88 Thisbe which reached a favorable opposition. Both asteroids were nearly 10 degrees from each other on north and south directions. The predicted opposition B magnitudes for Amphitrite and Thisbe were 9.8 and 10.6, respectively. The photometric observations described here were taken from North Valley Stream Observatory located on Long Island approximately 20 miles east of New York City.

The observations were made using an Optec SSP-3 Solid State photometer coupled to an 8-inch Schmidt-Cassegrain telescope with digital readouts. From August 29th to September 1st, both asteroids were observed photometrically using no filter. Observational circumstance of both asteroids are shown in Table I.

The sky conditions were excellent, however heavy dew caused some problems. It delayed some reading intervals to 20 minutes, instead of 10 minutes, especially when 29 Amphitrite was monitored. The corrector plate on the C-8 telescope was checked carefully before the readings were taken.

For each asteroid, a nearby comparison star was chosen easily. A 7.6 magnitude comparison star was selected 3/4 degree east and southeast of 88 Thisbe and an 8.0 magnitude comparison star was selected 1/2 degree south of 29 Amphitrite. This was to minimize the atmospheric extinction between the asteroids and the comparison stars.

During all four nights, photometric integration times of 10 seconds were used and three to five photometric measurements of the asteroids were obtained each hour. The photometric data produced some interesting results.

29 Amphitrite

29 Amphitrite is listed by Bowell et al. (1979) as an S-class asteroid with a diameter of 199 km. It has been previously observed and the rotation period is determined to be 5.390 hours. 29 Amphitrite was observed photometrically on two consecutive nights on August 31 and September 1st, 1986 UT. The August 31 minimum at 6:30 UT and the September 1 minimum at 4:30 UT occur roughly 22 hours apart. Assuming four elapsed rotation cycles yields a period of 5.50 ± 0.15 hours, consistent with previous results. Noise present in the data and a short baseline of only 22 hours does not allow a more precise period determination to be made. The lightcurve amplitudes are a bit larger than expected. The maximum amplitude ever previously observed was 0.13 magnitude. The results here show it to be no larger than 0.15 ± 0.02 magnitude on both nights.

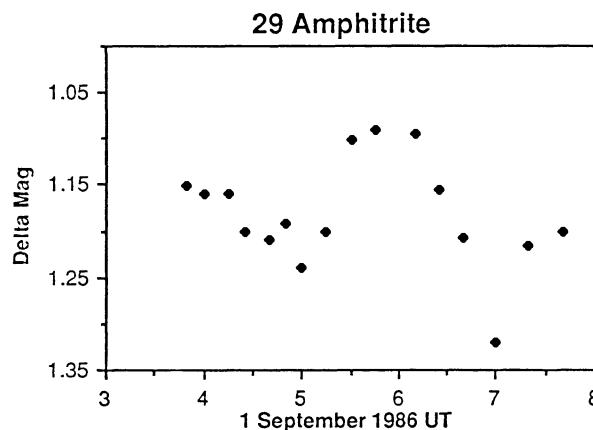
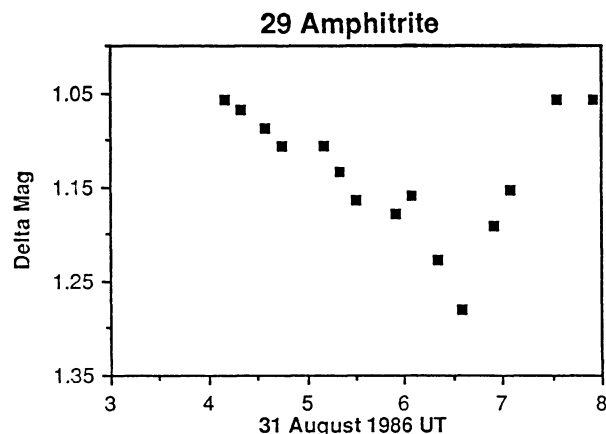


Table I. Asteroid Aspect Data

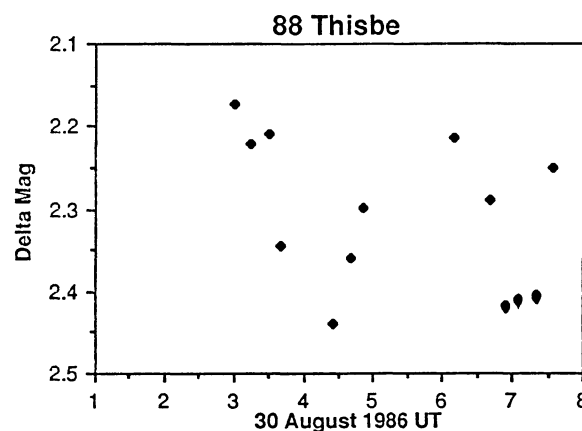
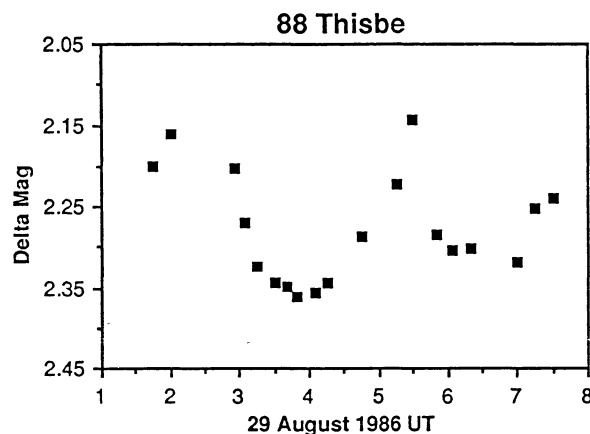
Asteroid	Date (UT)	(1950)		Ecliptic		r (AU)	Δ (AU)	Phase Angle
		R.A.	Dec.	Long.	Lat.			
29 Amphitrite	8/31/86	22h 37m	-12° 21'	336°	-3°	2.51	1.50	1.38°
	9/01/86	22h 36m	-12° 24'	336°	-3°	2.51	1.50	1.51°
88 Thisbe	8/29/86	22h 18m	-2° 04'	335°	7°	2.34	1.33	3.40°
	8/30/86	22h 18m	-2° 08'	335°	7°	2.34	1.34	3.38°

88 Thisbe

88 Thisbe is listed by *Bowell et al. (1979)* as a CF-class asteroid with a diameter of 210 km. While this apparition was favorable, it was a rewarding object for photoelectric photometry. It has been observed quite well with a rotation period 6.042^h . However, additional observations were undertaken as a check on this result. 88 Thisbe was observed photometrically two consecutive nights on August 29th and August 30th, 1986 UT. Results here at North Valley Stream Observatory show that maxima occurred on August 29th, 5:30 UT and August 30th, 5:40 UT. Minima occurred on August 29th 4:00 UT and 6:40 UT, August 30th 4:10 and 7:10 UT. Four elapsed periods occur in $24^h 10^m$ which is consistent with the timings of extrema, with no more than ten minutes in error. The amplitudes of light variation during each rotational period were 0.20 ± 0.02 mag. Both maxima and minima have equal amplitudes per rotation. The polar axis is not well-known for 88 Thisbe. However, further observations at other ecliptic longitudes will be needed to investigate whether the amplitudes will be smaller or larger at other aspects.

Reference

Bowell, E., Gehrels, T., and Zellner, B. (1979). "Magnitude, Colors, Types and Adopted Diameters of the Asteroids." In *Asteroids*, (T. Gehrels, Ed.), pp 1108-1129. University of Arizona Press, Tucson.

**A GERMAN-LANGUAGE JOURNAL FOR COMETS, ASTEROIDS, AND METEORS**

Jost Jahn
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The German-language journal *Kometen Planetoiden Meteore* is introduced and the contents of its first three issues are described.

Founded in December 1985, the German journal *Kometen Planetoiden Meteore* (Comets Asteroids Meteors) is now published three times a year. The next issue is planned for April 1987. A German-language journal about these minor bodies in the solar system wasn't available until the first issue of *KPM* was published in April 1986.

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This writer would be pleased to receive papers for *KPM* written in German. English papers are also welcome, but a short German translation will be performed. Photographs cannot be published. Of special interest would be reports from foreign groups on their working methods, etc.