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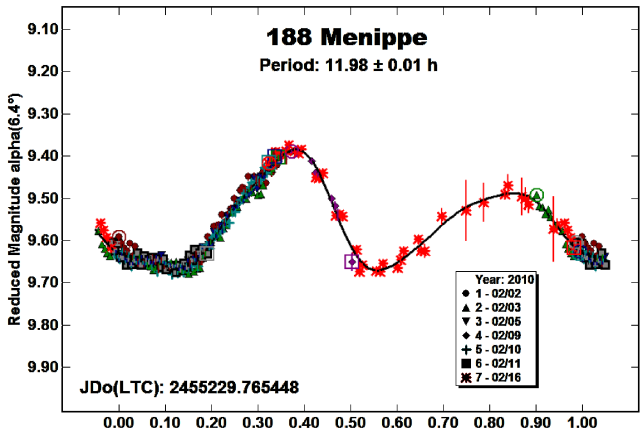

ROTATION PERIOD DETERMINATION FOR 310 MARGARITA

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A synodic rotation period of 12.069 ± 0.001 h and amplitude 0.15 ± 0.02 mag. have been found for 310 Margarita.

The two authors began observing 310 Margarita independently. When they learned of each other's work on the CALL Website (2010) they agreed to combine their observations and prepare a collaborative paper. The observations by Pilcher were made at the Organ Mesa Observatory with a 35 cm Meade LS200 GPS S-C, SBIG STL1001-E CCD, unguided, clear filter, 60 s exposures, differential photometry only. Those by Oey were made at the Kingsgrove Observatory with a 25 cm S-C telescope with a SBIG ST9XE CCD operating at f10 unfiltered. Image measurement and data analysis are with *MPO Canopus*. In the lightcurve the large number of data points acquired for each target have been binned into sets of 3 with a maximum time difference of 5 minutes between plotted points.

Harris et al. (2009) list no previous observations. The first sessions suggested a period near 12.07 hours, slightly greater than Earth commensurable, for which the portion of the lightcurve observable from a single location will circulate very slowly to the left. This makes it especially valuable to make observations from two locations at widely different longitudes. Those parts of the lightcurve not visible within a several day interval from one location may be sampled from the other. Observations on 25 nights 2010 Mar. 9 – May 31 show a period 12.069 ± 0.001 hours, amplitude 0.15 ± 0.02 magnitudes. Over this interval observations at either single site would be compatible also with a period twice as great, likely with 4 maxima and minima per cycle, but with a considerable portion of the lightcurve unsampled. Combining the observations provides full phase coverage for an assumed 24.141 hour period. It should be noted that in the lightcurve phased to 12.069 hours the minimum near phase 0.1 is 0.04 magnitude lower May 30-31 near phase angle 20.4 degrees than on several previous nights at much smaller phase angles. These May 30 and 31 observations are the only ones showing this particular minimum in the 24.141 hour lightcurve, the two halves of which otherwise look nearly identical. We favor a 12.069 hour rotation period in which the greater depth of the minimum observed May 30 and 31 is a consequence of amplitude being greater at larger phase angles due to enhanced shadowing effects. Therefore we reject the 24.141 hour period with quadrimodal lightcurve and shape almost but not entirely symmetric over a 180 degree rotation.

Acknowledgement

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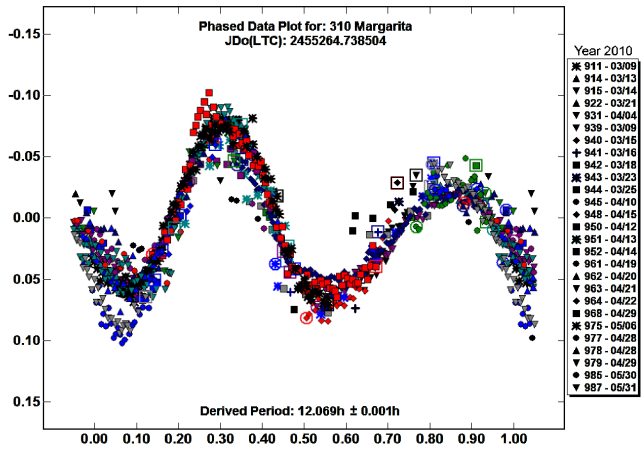

LIGHTCURVE DETERMINATION OF 2954 DELSEMME, 3305 CEADAMS, AND 7476 OGILSBIE

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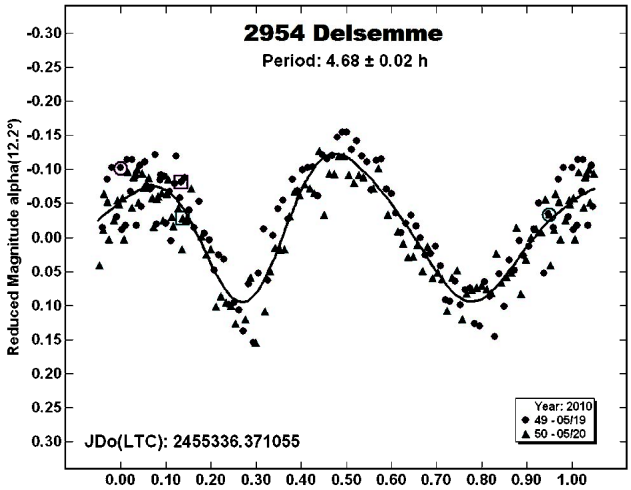
CCD photometric observations of three asteroids were obtained and analyzed at the Bigmuskie Observatory, Italy, in 2010 April and May: 2954 Delsemme; 3305 Ceadams; and 7476 Ogilsbie

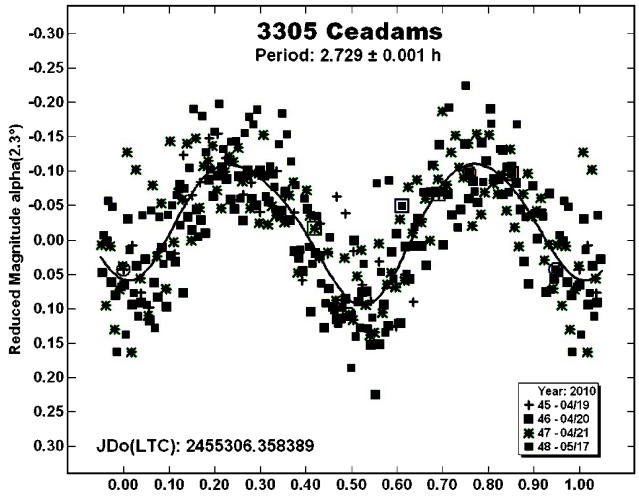
Starting in 2010 April, I added photometric studies of asteroids in addition to my ongoing work of measuring astrometric positions. My goal was to observe asteroids reaching a favorable sky location from my position to obtain the lightcurves and then determine rotation periods. Observations were made using a 0.3-m Ritchey-Chretien working at f/8 coupled to a Finger Lakes MaxCam CM-9 CCD camera. The camera was operated at –20°C. *MPO Canopus* (Warner 2010) was used to measure the unfiltered images using differential photometry as well as for period analysis of the data. The maximum duration for observing runs was about 7 hours, less if the asteroid had a negative declination.

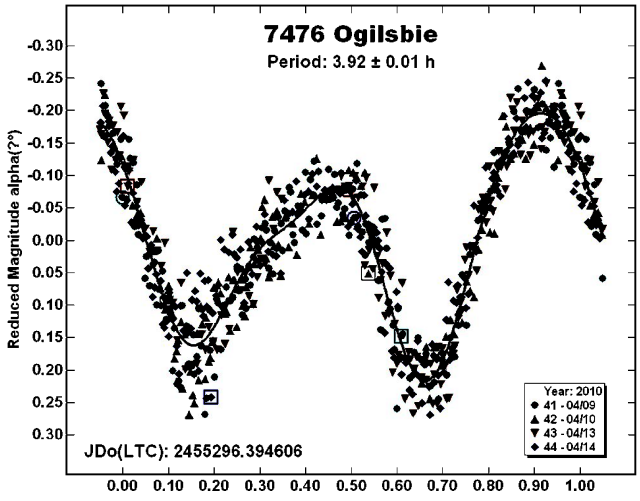
2954 Delsemme. The initial session on 2010 May 19 clearly showed a bimodal curve with a period $P \sim 4.7$ h, although the period spectrum did show other possible solutions. The second session on May 20 refined the period solution to 4.68 ± 0.02 h. This is in good agreement with Wisniewski et al. (1997), who found $P = 4.69$ h.

3305 Ceadams. Because this asteroid was faint (V > 15) it was a more difficult target for my system. I obtained additional sessions to make sure of the period solution. The initial solution was for a curve with four maxima and minima per cycle. The second session changed this to three pairs but the data had a very poor fit to the modeled curve. After three sessions followed by about three weeks of bad weather, a fourth session helped to reach the final bimodal lightcurve solution of $P = 2.729 \pm 0.001$ h.

7476 Ogilsbie. Using four sessions in 2010 April, I found a convincing solution with a period of $P = 3.92 \pm 0.01$ h. Analysis using less than the full data produced less secure results.







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