

LIGHTCURVE RESULTS FOR MINOR PLANETS 228 AGATHE, 297 CAECILLIA, 744 AGUNTINA, 1062 LJUBA, 1605 MILANKOVITCH, AND 3125 HAY

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(Received: 28 August)

Based on differential lightcurve photometry, we report synodic period and amplitude results for six asteroids: 228 Agathe 6.484 ± 0.01 h, 0.27 mag.; 297 Caecillia 4.163 ± 0.004 h, 0.20 mag.; 744 Aguntina 17.47 ± 0.05 h, 0.50 mag.; 1062 Ljuba 33.8 ± 0.2 h, 0.17 mag.; 1605 Milankovitch 11.60 ± 0.05 h, 0.12 mag.; 3125 Hay 14.31 ± 0.03 h, 0.5 mag.

We report results from Blackberry Observatory (MPC 929) which employs a 12" SCT and Apogee AP-7 CCD camera. See Cooney and Robinson (2002) for details on the equipment and methods. Integration times of 4 minutes were used. Images were reduced with MIRA. Data were corrected for light travel time from the asteroids and are for mid-exposure. Dates are in UT.

228 Agathe. Agathe was imaged with a Bessel prescription R filter. All data for Agathe were put on a single instrumental r-magnitude scale by calibrating the reference stars against each other. This allowed for the multiple night data to be phased with only two adjustable parameters, rotation period and slope parameter, G . The Agathe data benefited from the fact that Agathe was moving in parallel to Ljuba and was imaged each night in the same field as Ljuba. The calibrations were done in order to add confidence to the period solution for the slow rotator, Ljuba. The same r-instrumental calibrated reference stars were used to reduce the data for both Agathe and Ljuba. The proposed synodic period for Agathe is 6.484 ± 0.01 hours with an amplitude of 0.27 ± 0.03 magnitudes. The best fit slope parameter was 0.0 indicating a low albedo. The phase angle varied from approximately 4 to 8 degrees over the course of the observations. This asteroid was also imaged by another team during the same time period. Ivarsen et al. (2004) published a period of 6.47 ± 0.01 hours, consistent with our results.

297 Caecillia. This work on Caecillia finds a period of 4.163 ± 0.004 hours with an amplitude of 0.20 ± 0.02 magnitudes. The data were unfiltered and the reference stars were not calibrated between nights. Edwin Sheridan published a period for Caecillia of 4.1505 ± 0.0002 hours and an amplitude of 0.15 magnitudes on Brian Warner's CALL website, statistically similar to the results we report here.

744 Aguntina. There is no previously published period for Aguntina per Harris (2003). This work finds a period of 17.47 ± 0.05 hours with an amplitude of 0.50 ± 0.05 magnitudes. These data were unfiltered and were phased by shifting individual nights along the magnitude access to obtain a consistent lightcurve.

1062 Ljuba. The same r-instrumental calibrated reference stars were used to reduce the data of Ljuba. Previous work by Binzel (1987) indicated a period of 36 hours ± 2 hours from 13 total data points over the course of three consecutive nights. Using 976 data points collected over 10 nights spaced over two weeks, this work

refines the synodic period for Ljuba to be 33.8 ± 0.2 hours. The amplitude was found to be 0.17 ± 0.02 magnitudes. A slope parameter of 0.15 resulted in a reasonable fit of the data over which the phase angle changed from 2 to 5 degrees.

1605 Milankovitch. The lightcurve summary list of Harris (2003) lists some unpublished results for Milankovitch but no result has appeared in the literature. This work finds a period for Milankovitch of 11.60 ± 0.05 hours with an amplitude of 0.12 ± 0.03 magnitudes. These data were unfiltered and reference stars were not calibrated between nights.

3125 Hay. No previous period has been published for Hay per Harris (2003). This work finds a period of 14.31 ± 0.03 hours with an amplitude of 0.5 ± 0.05 magnitudes. The data were unfiltered and reference stars were not calibrated between nights.

Acknowledgements

The author wishes to thank Brian Warner for writing and maintaining his (CALL) website which greatly facilitates target selection and communication to others. Thanks also to Dr. Richard Binzel who provided the author with a reprint of Binzel (1987) and to Dr. Alan Harris for his continuing help as mentor for this author and many more.

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