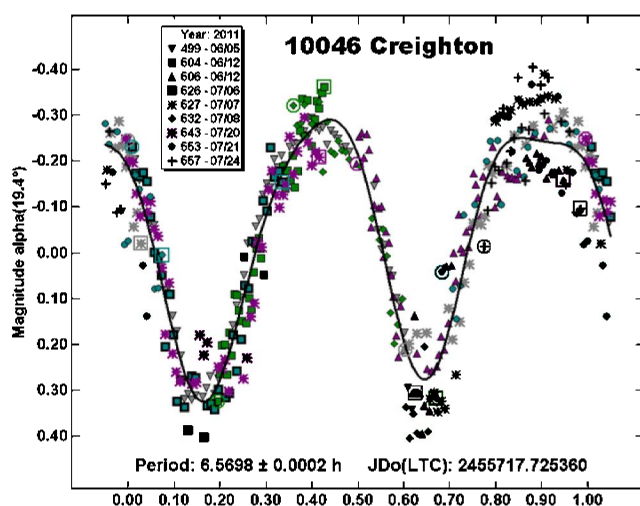
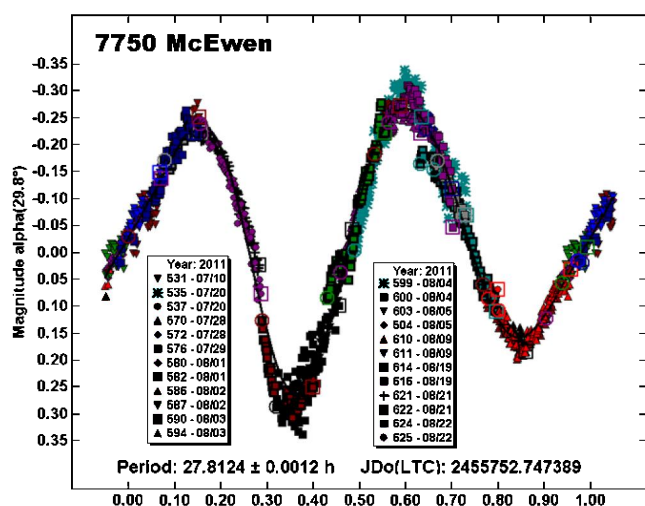
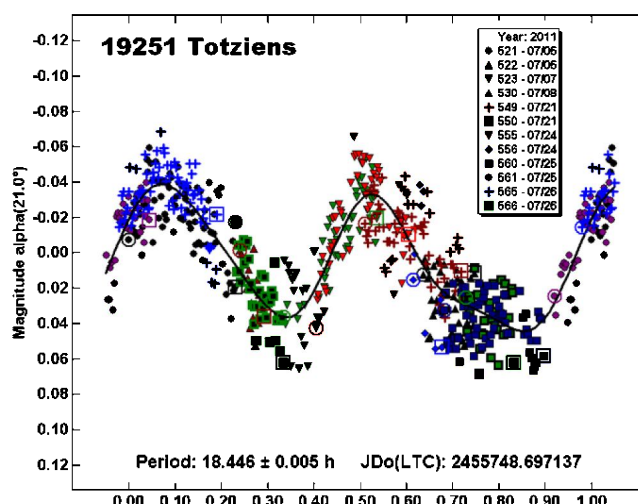
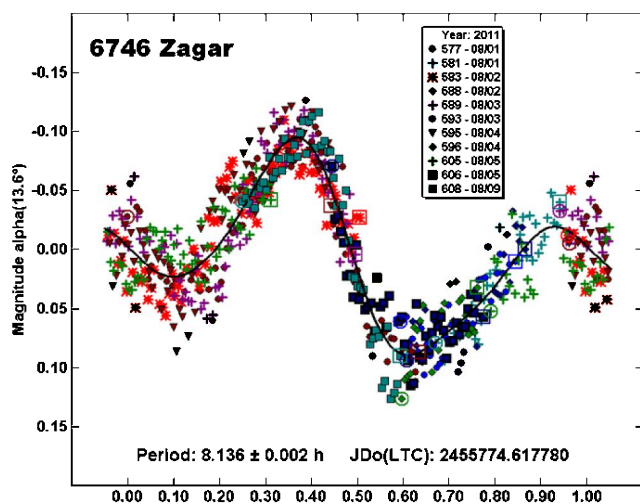




LIGHTCURVE DETERMINATION AT THE BIGMUSKIE OBSERVATORY FROM 2011 JULY- DECEMBER

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Lightcurves for eight asteroids were obtained at the Bigmuskie Observatory, Italy, during 2011 July-December: 613 Ginevra, 987 Wallia, 1718 Namibia, 1771 Makover, 2423 Ibarruri, 7750 McEwen, 6306 Nishimura, and (16959) 1998 QE17.

Thanks to many consecutive clear nights during 2011 July-December, the Bigmuskie Observatory worked to obtain lightcurves for eight asteroids. Because of this unusually long period of clear skies, it was possible to work even long-period asteroids and find secure results on these targets that are usually difficult to solve. The same hardware was used to obtain data for all eight asteroids: a Marcon f/8 0.3m Ritchey-Chretien equipped with an SBIG ST9 CCD camera. This setup provides a field of view of about 15x15 arcminutes and a resolution of 1.7 arcsec per pixel. An Rc filter was used for all the images. Every image was calibrated and measured with *MPO Canopus* v10 (Bdw Publishing) while *CCDsoft* V5 controlled the CCD camera. The Comp Star Selector utility in *MPO Canopus* was used to choose the comparison stars, making it possible to link the individual observing sessions to ± 0.05 mag.

613 Ginevra. Two short sessions of about three hours were worked towards the end of 2011 September. When combined with four longer sessions recorded at the end of November, the analysis found a period of 13.024 ± 0.001 h and amplitude of 0.20 mag.

987 Wallia. Without a doubt, this asteroid produced the most complex and interesting lightcurve of all eight asteroids. A period of 10.52 h was reported in the list of potential lightcurve targets for 2011 July-September on the CALL website (<http://www.MinorPlanet.info/call.html>). Period analysis of the

observations from six sessions found a period of 10.082 ± 0.001 h with an amplitude of 0.16 mag.

1718 Namibia. Analysis of the first six nights of observations indicated a period of 7.2 h, even if a less than perfect linkage between sessions near phase 0.60 was evident. After the seventh session, the period changed to 8.61 ± 0.01 h with an amplitude of 0.2 mag and a much better linkage of all seven sessions.

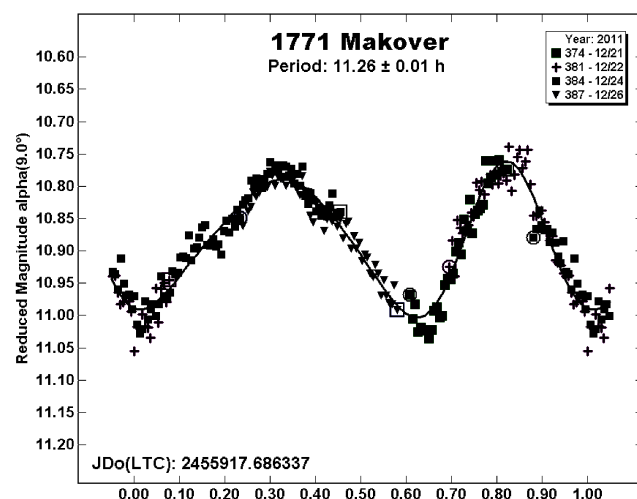
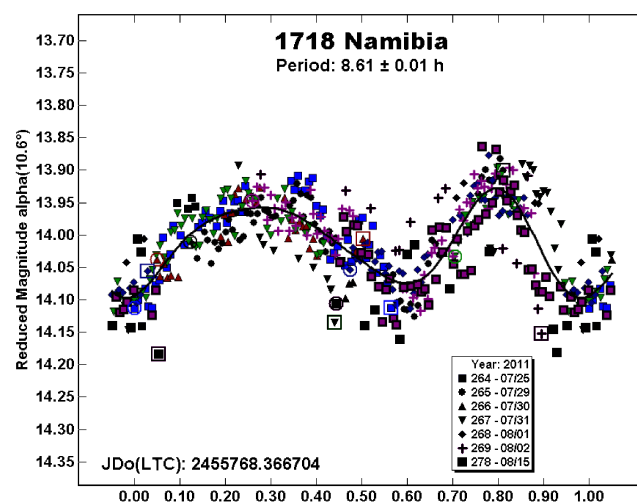
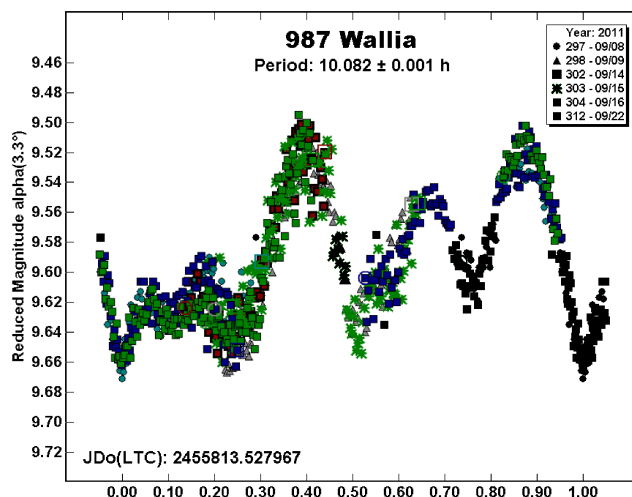
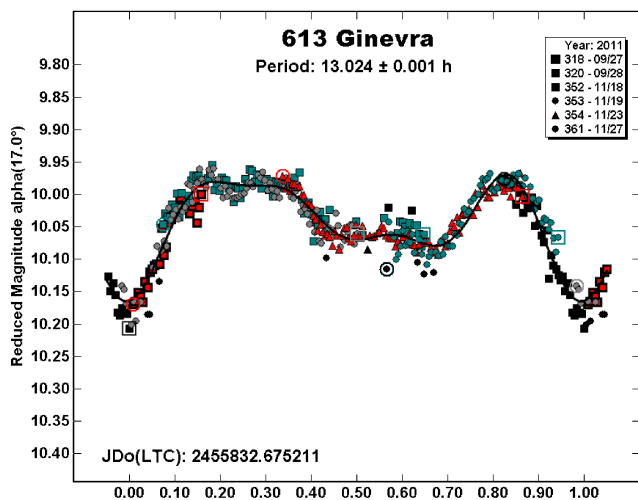
1771 Makover. Using data from four sessions, *MPO Canopus* found a period of 11.26 ± 0.01 h and an amplitude of 0.25 mag.

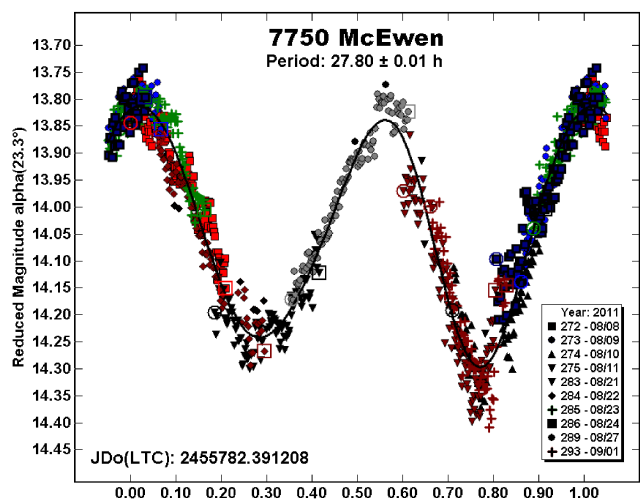
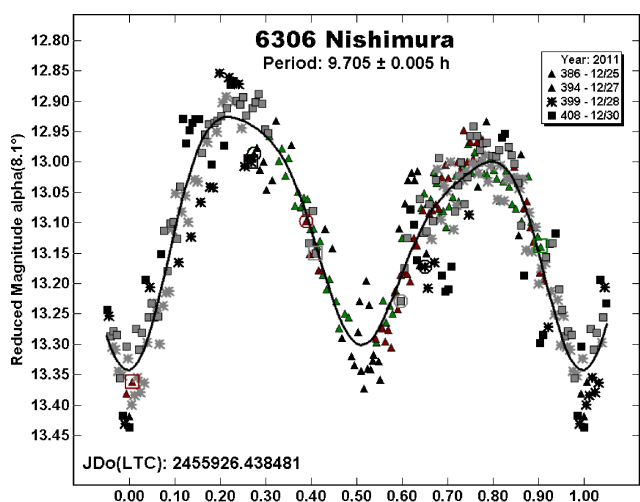
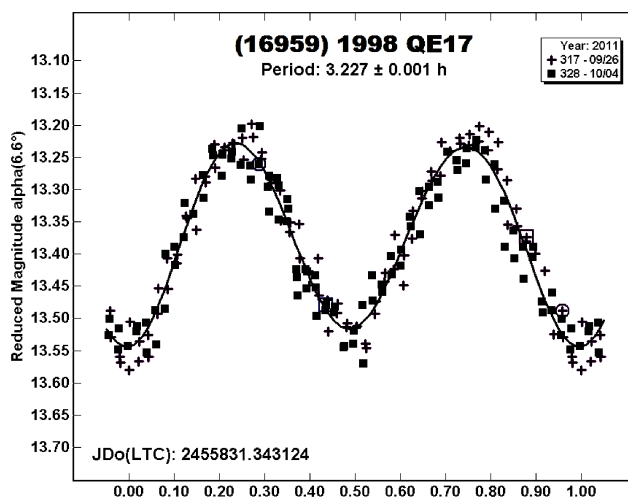
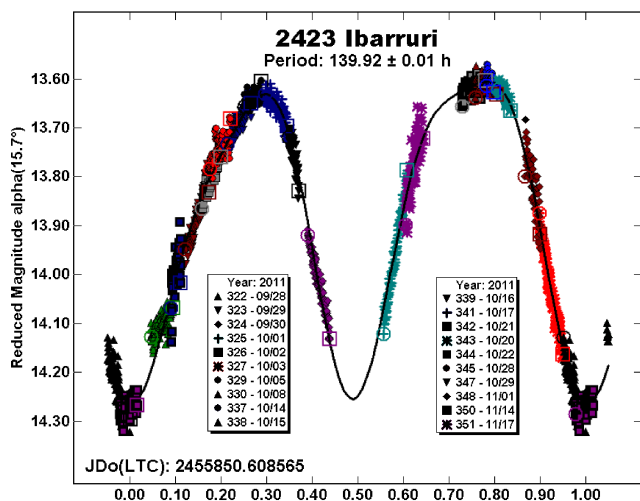
2423 Ibarruri. Data from 20 different sessions from Sep. 28 to Nov 17 were required to find the period 139.92 ± 0.01 h and an amplitude of 0.7 mag. Unfortunately, because of poor weather, the minimum at phase 0.50 was not covered.

6306 Nishimura. After the first two sessions, analysis found a period around 8.5 h. After the third session, the period increased to 9.7 h and, after the fourth session, settled to 9.705 ± 0.005 h with an amplitude of 0.55 mag.

7750 McEwen. Using data from 10 nights, the solution of $P = 27.80 \pm 0.01$ h and $A = 0.6$ mag appears to be secure, with no alias solutions and very good linkage between the sessions.

(16959) 1998 QE17. The short period of 3.227 ± 0.001 h with an amplitude of 0.35 mag was evident from the first session of Sept 26. The second sessions recorded on Oct 4 reduced the estimated error of the period.





LIGHTCURVE PHOTOMETRY AND H-G PARAMETERS FOR 1077 CAMPANULA

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Photometric observations of main-belt asteroid 1077 Campanula were made at two observatories over 10 nights from 2011 September-November. Analysis of the resulting data found a synodic period $P = 3.85085 \pm 0.00005$ h with an amplitude $AV = 0.24 \pm 0.01$ mag (corrected to zero phase). The measured absolute magnitude, $H = 12.50 \pm 0.02$ mag, slope parameter $G = 0.24 \pm 0.03$, and color index $V-R = 0.40 \pm 0.07$ mag are consistent with a medium albedo M or S-type object. The diameter is estimated to be $D = 9 \pm 2$ km.

The main-belt asteroid 1077 Campanula was reported as a lightcurve photometry opportunity in the *Minor Planet Bulletin* (Warner *et al.*, 2011). Observations were carried out from Balzaretto Observatory (A81) in Rome, Italy, and Bigmuskie Observatory (B88) in Mombercelli, Asti, Italy, over the period of 2011 September 17 to November 2, or a total span of 46 days and 10 observing nights (Table I). The equipment used for observations is reported in Table II. All images were calibrated with dark and flat-field frames. Measurements of the images were made with *MPO Canopus* (Warner, 2010) using differential photometry.

The V and R magnitudes were calibrated using the method described by Dymock and Miles (2009) and CMC-14 stars with near-solar color indexes selected by using Vizier (2011). The same method was also applied to the clear filter observations after conversion to V magnitudes using previously determined transformation coefficients. The observations in V and R band were acquired in alternating sequence (VRVR...).