

Phased Plot: 15621 Erikhovland

Figure 1. The lightcurve of 15621 Erikhovland with a period of 5.3426 ± 0.0001 h and an amplitude of 0.81 ± 0.02 mag.

Figure 2. Visual reduced magnitude vs. phase angle for $H_v = 12.14 \pm 0.09$ mag. and the slope parameter, $G = 0.08 \pm 0.09$

LIGHTCURVE OF THE POTENTIALLY HAZARDOUS ASTEROID (163249) 2002 GT

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Photometric observations of the potentially hazardous asteroid (PHA) (163249) 2002 GT were made on 2013 June 16 and 17, before the object's relatively close approach to the Earth. Analysis of the resulting data found a synodic period $P = 3.77 \pm 0.01$ h with an amplitude $A = 0.36 \pm 0.03$ mag.

The Apollo class potentially hazardous asteroid (PHA) (163249) 2002 GT was discovered by Spacewatch at Kitt Peak on 2002 April 3. Due to its relatively close approach to the Earth, it was scheduled as a radar target from Arecibo and/or Goldstone in 2013 June. The JPL Small-Body Database Browser reported an absolute magnitude $H = 18.3$, or an estimated diameter from 0.6 (medium albedo) to 1.3 km (low albedo).

The asteroid was observed at San Marcello Pistoiese (MPC Code 104) for two nights on 2013 June 16 and 17, for a total of 491 unfiltered images, each of 45 seconds exposure. Data were collected with a 0.60-m f/4 reflector and Apogee Alta 1024x1024 CCD camera. This combination gave a field of view of 35x35 arcmin and a pixel scale of 2 arcsec/pixel. All images were calibrated with dark and flat-field frames. Differential photometry and period analysis were done using *MPO Canopus* (Warner, 2012) at Balzaretto Observatory (A81).

The derived synodic period was $P = 3.77 \pm 0.01$ h with an amplitude of $A = 0.36 \pm 0.03$ mag. While the period spectrum shows two nearly equal solutions, the bimodal solution is much more likely given the large amplitude of the lightcurve.

Figure 1. The lightcurve of PHA (163249) 2002 GT with a period of 3.77 ± 0.01 h and an amplitude of 0.36 ± 0.03 mag.

Figure 2. The period spectrum for (163249) 2002 GT shows minimums for the monomodal and bimodal solutions.

References

Warner, B.D. (2012). MPO Software, *MPO Canopus* version 10.4.1.9. Bdw Publishing. <http://minorplanetobserver.com/>