



### PERIOD DETERMINATION FOR (15337) 1993 VT2

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Lightcurve analysis for asteroid (15337) 1993 VT2 was performed from observations during its 2012 favorable opposition. The previously unknown synodic rotation period was found to be  $3.338 \pm 0.001$  h and the lightcurve amplitude was  $0.27 \pm 0.04$  mag.

The main-belt asteroid (15337) 1993 VT2 was discovered by the Scottish-Australian astronomer Robert H. McNaught, a prolific discoverer of more than 400 asteroids and 60 comets. The asteroid was chosen from the 2012 October list at the *CALL* web site's *Potential Lightcurve Targets* page because it was within range of the equipment, it had no defined lightcurve parameters, and it was reaching one of its five brightest apparitions between the years 1995-2050.

Unfiltered CCD photometric images were taken at Observatorio Los Algarrobos, Salto, Uruguay (MPC Code I38) from 2012 October 26 through November 3 using a 0.3-m Meade LX-200R reduced to  $f/6.9$ . The CCD imager was a QSI 516wsg using a non-antiblooming gate (NABG) chip with a 1536 x 1024 array of 9-micron pixels. 2x2 binning was used, yielding an image scale of 1.77 arcsec per pixel. Exposures were 120 seconds. The camera was worked at  $-10^{\circ}\text{C}$  and off-axis guided by means of a SX Lodestar camera and *PHD Guiding* (Stark Labs) software.

All images were dark and flat-field corrected and then measured using *MPO Canopus* (Bdw Publishing) version 10.4.0.20 with a differential photometry technique. The data were light-time corrected. Night-to-night zero-point calibration was accomplished by selecting up to five comp stars with near solar colors according to recommendations by Warner (2007) and Stephens (2008). Period analysis was also done with *MPO Canopus*, which incorporates the Fourier analysis algorithm developed by Harris (Harris *et al.*, 1989).

Five nights were devoted to observe this asteroid exclusively over a span of eight days. About 23.5 hours of effective observation time produced more than 650 data points used in the data analysis. The phase angle varied from  $25.1^{\circ}$  to  $25.6^{\circ}$ , the phase angle bisector ecliptic longitude from  $21.3^{\circ}$  to  $23.1^{\circ}$ , and the phase angle bisector ecliptic latitude from  $-32.6^{\circ}$  to  $-31.1^{\circ}$ . The rotational period for (15337) 1993 VT2 was determined to be  $3.338 \pm 0.001$  h along with a peak-to-peak amplitude of  $0.27 \pm 0.04$  mag. The dual-period tool in *MPO Canopus* was used to check for the possibility that the asteroid is binary; no positive result was obtained.

### References

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