

THE ROTATION PERIOD OF 3394 BANNO AND THE RAW LIGHTCURVE OF (48697) 1996 HX14

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Over the course of five nights of observations, we observed asteroid 3394 Banno using iTelescope facilities in New Mexico and Australia. Using the software MPO Canopus, we analyzed and plotted our data to find a rotation period of 7.321 ± 0.025 hours. Additionally, we present raw data for the asteroid (48697) 1996 HX14 found in one night of our observations.

3394 Banno was observed via photometric systems from both Siding Spring, Australia and Mayhill, New Mexico. Images were taken by the T30 and T21 telescopes from iTelescope.net, respectively, over a nine-day period between 2018 April 11 and 2018 April 18 with a clear filter and 300-s exposures. The T30 telescope is a 0.50-m f/6.8 reflector + CCD + f/4.5 focal reducer telescope, and the T21 is a 0.43-m f/6.8 reflector + CCD + f/4.5 focal reducer. The 160-plus images taken were processed via MPO Canopus to yield a lightcurve. Within MPO Canopus, the magnitude of 3394 Banno was compared to comparison stars, which were selected based on their lack of proximity to the edges of the images and signal-to-noise ratio. The generated lightcurves were then phased using Fourier analysis to identify the period of 7.321 ± 0.025 h.

Consulting the Asteroid Lightcurve Database, it was found that no prior rotation period for 3394 Banno has been recorded, so we are unable to compare the period found against prior analysis.

(48697) 1996 HX14 was found while performing data analysis on images for 3394 Banno. (48697) 1996 HX14 is markedly dimmer than 3394 Banno, with apparent magnitudes of 18.15 and 14.6, respectively on 2018 April 11, and (48697) 1996 HX14 only appeared in one set of images taken. Because of this, no phased lightcurve for (48697) 1996 HX14 was generated, but raw data have been provided for future analysis.

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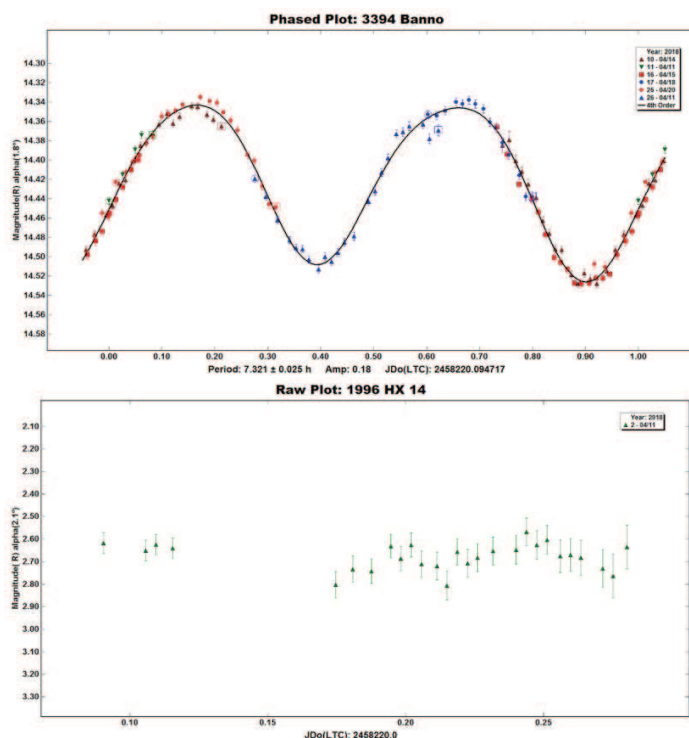
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Number	Name	2018 mm/dd	Pts	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
3394	Banno	04/11-04/20	160	13.5	207.2	3.8	7.321	0.025	0.21	0.016	MB
48697	1996 HX14	04/11	27	9.8	205.4	1.7	---	---	---	---	MB

Table I. Observing circumstances and results. Pts is the number of data points. The phase angle is given for the first and last date. L_{PAB} and B_{PAB} are the approximate phase angle bisector longitude and latitude at mid-date range (see Harris *et al.*, 1984). Grp is the asteroid family/group (Warner *et al.*, 2009).