

TWO POSSIBLE ROTATION PERIODS
FOR (86401) 2000 AF143

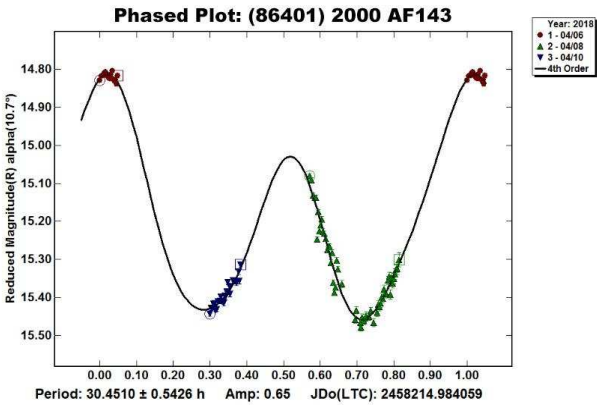
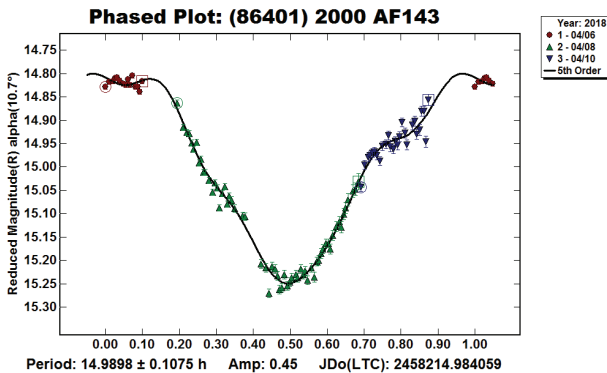
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The minor planet (86401) 2000 AF143 was observed remotely using the T27 telescope located in Siding Spring, Australia. Two aliasing periods are potential rotation periods: 15.0 ± 0.3 h and 30 ± 2 h.

The asteroid was observed from 2018 Apr 6 to 2018 Apr 10. Observations were made using iTelescope’s T27 telescope located in Siding Spring, Australia. The telescope is a 0.70-m f/6.6 reflector with a FLI PL09000 CCD. All images were taken with a luminance filter with a 300-second exposure time. The camera operated at a temperature of -35°C with a focal length of 4531 mm and a resolution of 0.53” per pixel.

Photometric reduction and rotation period analyses were performed using the MPO Canopus software, yielding the differential magnitudes shown in the figures. The rotation period was fitted by *MPO Canopus* using the Fourier analysis algorithm developed by Harris (Harris *et al.* 1989).



(86401) 2000 AF143 was discovered by the LINEAR project at Socorro, New Mexico on 2000 Jan 5 (JPL, 2018). A search for the asteroid in the Asteroid Lightcurve Database (Warner *et al.*, 2009) yielded no results. Due to observational constraints, there are several gaps in the data, contributing to the lack of a conclusive result. Two aliasing rotation periods for the asteroid are presented: 15.0 ± 0.3 h and 30 ± 2 h. While a 2-peak lightcurve is more common in the literature, thus the 30 h period is preferred, we cannot rule out the 15 h scenario.

Acknowledgements

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References

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Number	Name	2018 mm/dd	Pts	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	Grp
86401	2000 AF143	04/06–04/10	103	10.9, 9.1	206.3	–8.5	15.0	0.3	0.45	MC
86401	2000 AF143	04/06–04/10	93	10.9, 9.1	206.3	–8.5	30	2	0.65	MC

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 average phase angle bisector longitude and latitude (see Harris *et al.*, 1984). Grp is the asteroid family/group (Warner *et al.*, 2009). MC = Mars-crossing asteroid. For a more conservative estimate, reported period error is three times that calculated by *MPO Canopus*.