ROTATION PERIOD DETERMINATION FOR 3157 NOVIKOV - ADDENDUM

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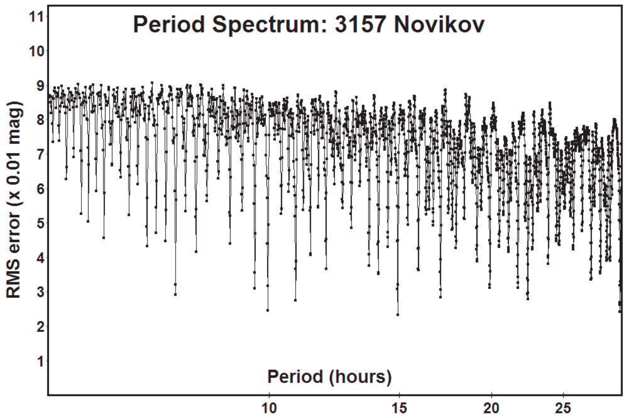
New analysis of data we obtained for 3157 Novikov leads to a revised synodic period of 14.930 ± 0.001 h and lightcurve amplitude of 0.27 ± 0.03 mag.

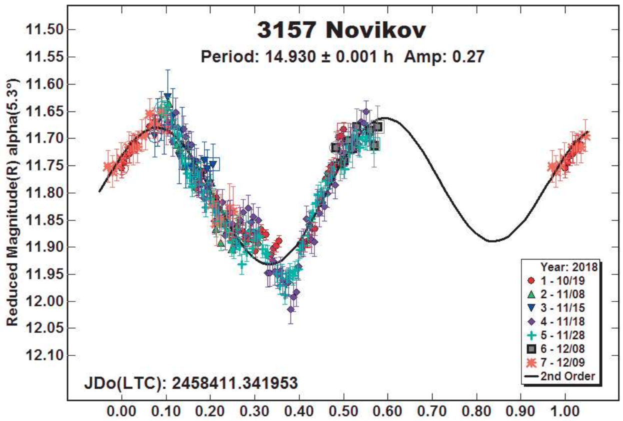
In a previous paper (Marchini et al., 2019), we presented our work on the asteroid 3157 Novikov. From the analysis of our data, we concluded the most likely synodic period was $P = 9.952 \pm 0.001$ h.

After the publication of the paper, Brian Warner (private communication) noted that the large gaps in days between sessions and overall range of almost seven weeks allowed for a large number of alias periods, i.e., those differing by an integral number of half or full rotations over the total period. Furthermore, the data were obtained at a relatively small phase angle and the amplitude was 0.31 mag. This combination should likely result in a somewhat symmetrical bimodal lightcurve (Harris et al., 2014) whereas the shape of our result was an asymmetrical lightcurve with the two maxima at 0.8 rotation phase apart.

We analyzed our data set again with a result of finding a more symmetric bimodal lightcurve with $P = 14.930 \pm 0.001$ and peak-to-peak amplitude of 0.27 ± 0.03 mag. It's worth noting that the new period is almost exactly 1.5x our original result. This adds to the possibility that a *rotational alias* (miscount of the number of rotations) affected our previous analysis. Observing circumstances and the new result for 3157 Novikov are shown in Table I.

Unfortunately, we did not have enough observations to cover the entire lightcurve, which leaves a clearly visible gap. Observations in the future will be gladly welcomed to help better define the lightcurve and refine the synodic period.





Acknowledgments

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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	A.E.
3157	Novikov	10/20-12/09	308	4.9,14.5	39	0	14.930	0.001	0.27	0.03

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).