UPON FURTHER REVIEW: II. AN EXAMINATION OF PREVIOUS LIGHTCURVE ANALYSIS FROM THE PALMER DIVIDE OBSERVATORY

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Updated results are given for six asteroids previously reported from the Palmer Divide Observatory. The original images were remeasured to obtain new data sets using the latest version of MPO Canopus photometry software, analysis tools, and revised techniques for linking multiple observing runs covering several days to several weeks. Results that were previously not reported or had significantly different periods and/or amplitudes were found for 1329 Eliane, 1582 Martir, 2023 Asaph, 8041 Masumoto, (26853) 1992 UQ2, and (52387) 1993 OM7. This is the second in a series of papers that examines results obtained during the initial years of the asteroid lightcurve program at PDO.

The availability of improved analysis tools and techniques along with the experience gained over more than a decade of asteroid lightcurve photometry have lead to a program to re-examine the early work and results at the Palmer Divide Observatory (c. 1999-2006). In most cases, changes in the period and/or amplitude as a result of the new analysis were statistically insignificant. However, there were some cases where the new results were significantly different. This paper is the second in a series that reports updated results from the new analysis, giving updates on 6 of the 17 significant revisions. Subsequent papers will complete the list of revisions from the initial state of this effort. Subsequent stages will likely produce additional updates.

For background on the justification and methodology of this project, see the first paper in the series (Warner, 2010).

Presentation of the New Analysis

A brief analysis of the new data set and lightcurve based on that new data set are given below, even if there is no significant difference in the period. The "improvement" may be a revised amplitude or "simply better data" to be used for modeling in the future (e.g., the U code may have a higher rating; see Warner et al., 2009, for information about the U code rating system). The exact observing details will not be given. Instead, a table lists the original and new results along with a reference to the original paper. The original reference gives data on the equipment used and references to results from other authors and so those will not be repeated here.

The plots show the *R-band* reduced magnitude of the asteroid. This means that the data for each night were corrected to "unity distance" using –5*log(rR) where r was the Earth-asteroid distance and R was the Sun-asteroid distance, both in AU. The data were also corrected to the phase angle of the earliest session using G = 0.15 (unless otherwise stated).

1329 Eliane. This appears to be a slow rotator that was incorrectly identified in the previous work due to the lack of linking onto an internal standard. The period given here is based on a half-period solution but is still rather weak.

1582 Martir. A half-period solution with good fit to a monomodal curve is the foundation for the proposed new period of 9.84 h for this asteroid. Fits of the new data to the previous period of 15.67 h were unrealistic.

2023 Asaph. The revised data could not be fit to the original period of 4.74 h. However periods of 3.87 h and 6.28 h were more likely. The low amplitude and large errors make for an uncertain solution.

8041 Masumoto. The solution of P = 34 h offered here is based on a half-period search (monomodal curve). The nearly 0.3 mag amplitude of the lightcurve and low phase angle virtually assure a bimodal solution.

(26853) 1992 UQ2. Analysis for this asteroid was not previously reported. The trimodal solution seems real due to the asymmetry of the various segments of the curve.

(52387) 1993 OM7. The previous solution of ~8 h was eliminated after re-measurement removed much of the short-term variations and the linking to an internal standard showed a long-term component. The revised analysis is in agreement with that by Pravec (2010) and Benner et al. (2006).

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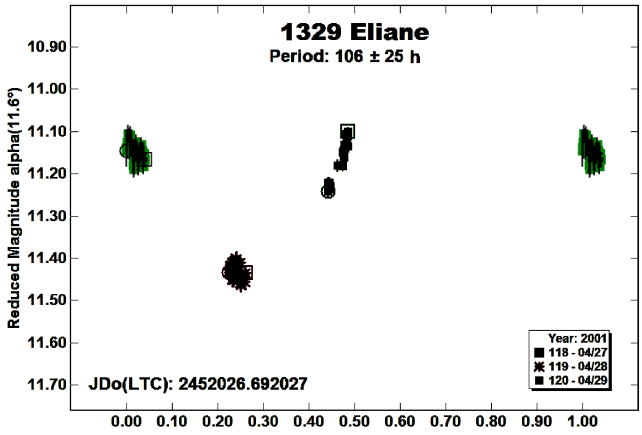

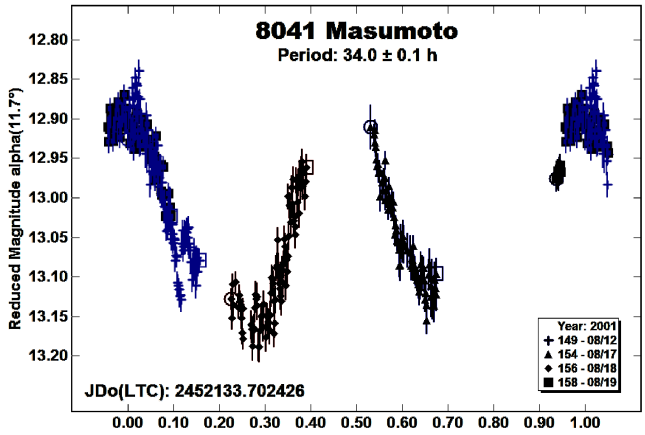

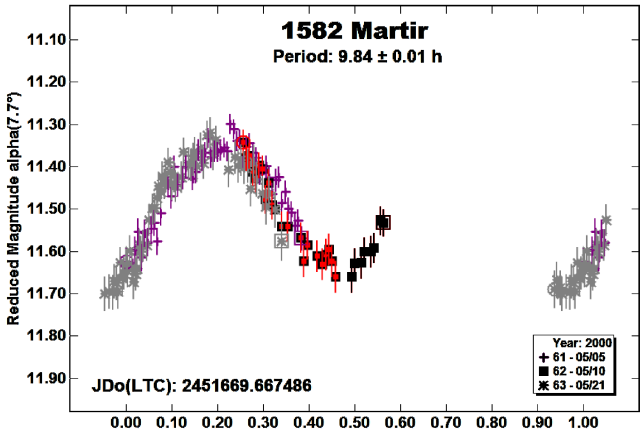

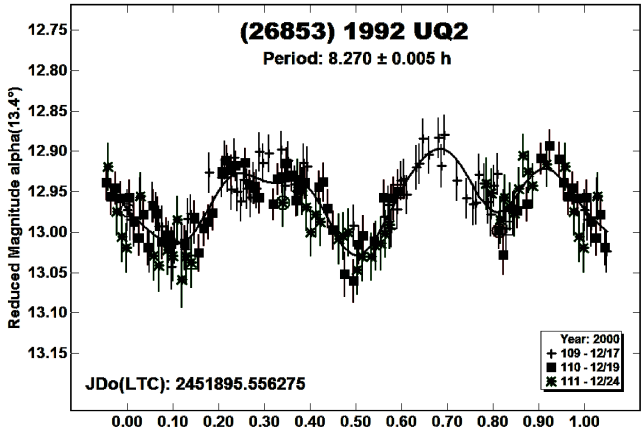

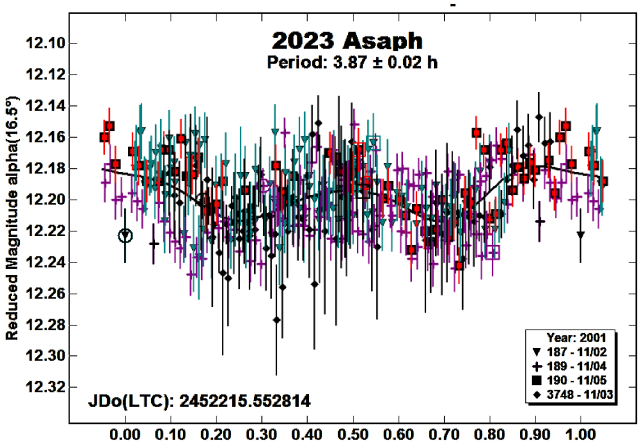

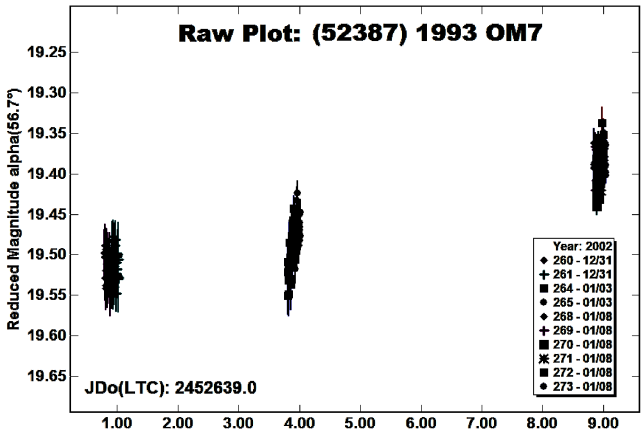

#	Name	Original Per	Amp	U	Ref	Revised Per	PE	Amp	AE	U
1329	Eliane	8.0	0.08	2	Warner; MPB 29, 14-15	106	25	>0.30		2-
1582	Martir	15.757	0.36	2	Warner; MPB 27, 53-54	9.84	0.01	0.31	0.01	2
2023	Asaph	4.74	0.06	2-	Warner; MPB 30, 61-64	3.87[1]	0.02	0.05	0.01	2-
8041	Masumoto	14.10	0.30	2	Warner; MPB 29, 14-15	34.0	0.1	0.27	0.03	2
26853	1992 UQ2				Not previously published	8.270	0.005	0.14	0.01	2+
52387	1993 OM7	7.412	0.10	2	Not previously published	Long				1

Table I. Summary of original and revised results. The period is in hour and the amplitude is in magnitudes. The U code rating is based on the criteria outlined in the Lightcurve Database (Warner et al., 2009c). Unless otherwise stated, the references are from the *Minor Planet Bulletin* for the original results, with only the volume and page numbers given.

[1] Ambiguous; 6.28 h also possible.