

ASTEROIDS OBSERVED FROM GMARS AND SANTANA OBSERVATORIES: EARLY 2008

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Lightcurve period and amplitude results from Santana and GMARS Observatories are reported for 2008 January to March: 411 Xanthe (11.344 ± 0.002 h and 0.10 mag), 655 Briseis (160.66 ± 0.12 h and 0.40 mag), and (5851) 1991 DM1 (367.52 ± 0.5 h and 0.90 mag).

The author operates telescopes at two observatories. Santana Observatory (MPC Code 646) is located in Rancho Cucamonga, California and GMARS (Goat Mountain Astronomical Research Station, MPC G79) located at the Riverside Astronomical Society's observing site. Details of the equipment are in Stephens (2006).

All of the targets were chosen from the list of asteroid photometry opportunities published by Brian Warner and Alan Harris on the Collaborative Asteroid Lightcurve Link (CALL) website (Harris 2007). The author measured the images using *MPO Canopus*, which employs differential aperture photometry to produce the raw data. Period analysis was done using *Canopus*, which incorporates the Fourier analysis algorithm (FALC) developed by Harris (1989).

411 Xanthe. Xanthe was reported to have a period of 7.48008 h (Behrend 2007). Images on April 25 were acquired using the 0.30-m Schmidt-Cassegrain (SCT) at Santana Observatory with an SBIG STL-1001 CCD camera. All other images were acquired using the 0.35-m SCT at GMARS.

655 Briseis. The April 6 and 13 data were acquired using a 0.35-m SCT at GMARS with an SBIG STL-1001 CCD camera. All of the other data were acquired using the 0.30-m SCT at Santana Observatory. The data were linked to an internal standard using a method developed by Warner (2007) and described by Stephens (2008) included in the latest release of *Canopus*.

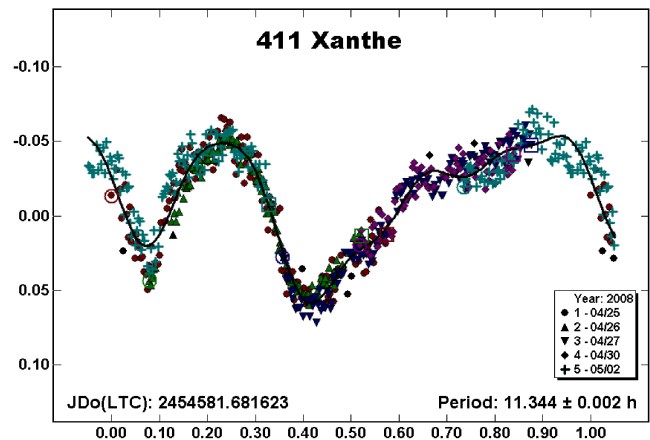
(5851) 1991 DM1. The asteroid was observed well past opposition, which resulted in short nightly sessions. Given the long period, each night mostly represented a single data point and was binned for clarity. The data were linked to an internal standard using *Canopus*. The asteroid displayed some evidence of non-principal axis rotation ("tumbling"). This is not entirely unexpected since, with an estimated size of 12.5 km, if the asteroid had entered a tumbling state at some point, the damping time could be longer than the age of the solar system (Pravec 2005).

Acknowledgements

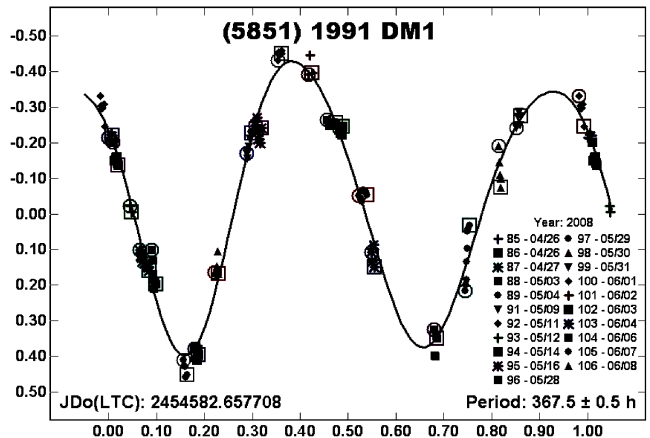
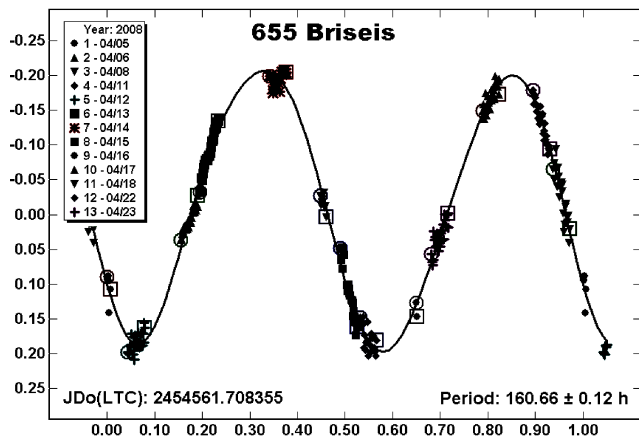
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Asteroid	Dates (2008) mm/dd	Sess	Phase	L _{PAB}	B _{PAB}	Per (h)	PE	Amp	AE
411 Xanthe	04/24 – 05/02	5	7.8,8.3	214.8	18.6, 18.4	11.344	0.002	0.10	0.02
655 Briseis	04/05 – 04/23	13	2.8,4.4	203.9,203.7	7.6	160.66	0.12	0.40	0.05
(5851) 1991 DM1	04/26 – 06/08	20	7.7,21.5	207.4,210.5	12.7, 13.7	367.52	0.5	0.90	0.05



ASTEROID LIGHTCURVE ANALYSIS AT THE VIA CAPOTE OBSERVATORY: 2ND QUARTER 2008

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Lightcurves for ten asteroids were measured at the Via Capote Observatory from 2008 April through June: 411 Xanthe (7.56 h), 455 Bruchsalia (11.85 h), 742 Edisona (18.52 h), 1633 Chimay (6.58 h), 1793 Zoya (5.753 h), 4215 Kamo (11.67 h), 4399 Ashizuri (2.829 h), 4585 Ainonai (38.31 h), 6274 Taizaburo (3.13 h), and 8132 Vitginzburg (7.28 h).

The observations were made using a Meade LX200 14-inch (356 mm) SCT operating at f/10. The CCD imager was an Alta U6 featuring a 1024x1024 array of 24-micron pixels. All observations were made unfiltered at 1x binning yielding an image scale of 1.44 arc seconds per pixel. All images were dark and flat-field corrected. Images were measured using *MPO Canopus* (Bdw Publishing) and differential photometry. The data were light-time corrected. Period analysis was also done with *Canopus*, incorporating the Fourier analysis algorithm developed by Harris (1989).

The results are summarized in the table below and include average phase angle information across the observational period. Individual lightcurve plots along with additional comments, as required, are also presented.

411 Xanthe. My results are consistent with those of Riccioli

(1995) and Behrend (2008), who both reported a 7.48 h period.

455 Bruchsalia. My results are somewhat different from those reported earlier for this target by Blanco (2000), who measured 10.645 h, but are very similar to results by Koff (2006) and Behrend (2008), who measured 11.838 h and 11.8 h respectively.

742 Edisona. Behrend (2008) reports a similar period of 18.58 h.

1633 Chimay. The accompanying lightcurve plot used binned data (2x, 5 min maximum separation) for a total of 240 points.

4215 Kamo. Data taken on 2008 April 21 were not used for lightcurve analysis due to poor S/N caused by inadequate integration time.

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#	Name	Date Range (mm/dd) 2008	Data Points	Phase	L _{PAB}	B _{PAB}	Per (h)	PE	Amp (mag)	AE
411	Xanthe	05/21 - 05/23	253	4.7	250.3	4.3	7.56	0.01	0.12	0.02
455	Bruchsalia	05/23 - 06/24	276	14.8	215.2	7.9	11.85	0.01	1.0	0.02
742	Edisona	04/25 - 05/01	421	8.6	194.2	9.6	18.52	0.01	0.3	0.01
1633	Chimay	04/15 - 04/16	479	9.0	184.8	3.2	6.58	0.01	0.41	0.02
1793	Zoya	05/11 - 05/31	130	10.1	224.0	0.1	5.753	0.001	0.40	0.03
4215	Kamo	04/21 - 05/01	274	12.3	193.6	-5.7	11.67	0.02	0.11	0.02
4399	Ashizuri	06/25 - 06/30	144	7.9	265.0	7.1	2.829	0.001	0.36	0.02
4585	Ainonai	05/30 - 06/06	207	8.45	239.7	5.0	38.31	0.05	0.31	0.01
6274	Taizaburo	06/24 - 07/01	94	23.0	240.6	2.2	3.13	0.01	0.34	0.05
8132	Vitginzburg	06/08 - 06/10	55	13.0	233.5	4.5	7.28	0.02	0.50	0.02