

LIGHTCURVES OF 494 VIRTUS, 556 PHYLLIS, 624 HEKTOR, 657 GUNLOD, 1111 REINMUTHIA, 1188 GOTHLANDIA, AND 1376 MICHELLE

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Lightcurves for seven asteroids were obtained at the Hamanowa Astronomical Observatory from 2008 March to 2009 February. Synodic rotation periods and amplitudes have been found for 494 Virtus 5.570 ± 0.003 h, 0.033 ± 0.005 mag; 556 Phyllis 4.2909 ± 0.0003 h, 0.222 ± 0.005 mag; 624 Hektor 6.9210 ± 0.0001 h, 0.590 ± 0.005 mag; 657 Gunlod 15.6652 ± 0.0001 h, 0.193 ± 0.003 mag; 1111 Reinmuthia 4.0075 ± 0.0001 h, 0.945 ± 0.003 mag; 1188 Gothlandia 3.4915 ± 0.0001 h, 0.776 ± 0.005 mag; 1376 Michelle 5.9748 ± 0.0002 h, 0.199 ± 0.003 mag.

The observations reported here were made with the 40-cm telescope of the Hamanowa Astronomical Observatory (MPC D91). The CCD imager was a SBIG ST-8E featuring a 1530×1020 array of 9-micron pixels. All observations were made with R-band filter (UBVRI) at 2x binning yielding an image scale of 2.0 arc seconds per pixel. All images were dark and flat-field corrected. Images were measured using *Stella Image* v5 (Astro Arts) and *IRAF*. The data were light-time corrected. The period analysis was done with *Cycrocode*, which was developed by B. Dermawan (2003). 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.

494 Virtus. Our period is consistent with those in the asteroid lightcurve database (LCDB, Harris et al., 2007), which listed reported periods of 5.57 h and 5.570 h, but our amplitude, $A = 0.033$ mag., is smaller than the $A = 0.12$ mag reported previously, most likely indicating a different viewing aspect.

556 Phyllis. Data were collected from 2008 October 13 through November 14 resulting in 4 data sets. A period of 4.2909 ± 0.0003 h was determined. This result is nearly consistent with those in the LCDB.

624 Hektor. Lightcurve observations of the Trojan asteroid 624 Hektor were obtained from 2008 December 29 through 2009 January 28 resulting in 11 data sets. A period of 6.9210 ± 0.0001 h with two un-symmetrical peaks and amplitude of 0.590 ± 0.005 mag were determined. These agree with previous results.

657 Gunlod. Data were collected from 2008 December 1 through 2009 January 1 resulting in 9 data sets. A period of 15.6652 ± 0.0001 h was determined. This result is consistent with Pilcher (1980).

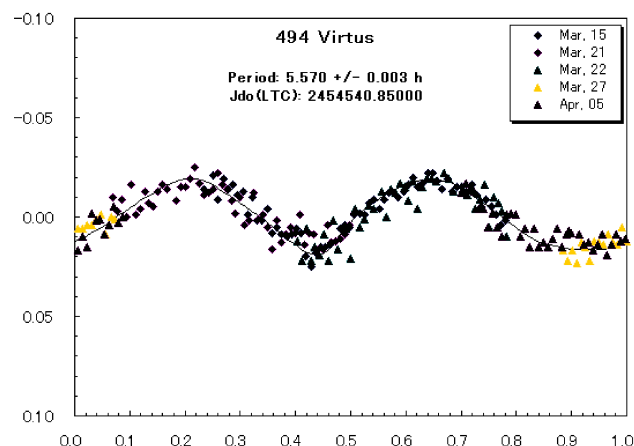
1111 Reinmuthia. A period of 4.0075 ± 0.0001 h was derived from 6 nights of photometric observations. The only previous lightcurve of Reinmuthia was reported to have a period of 4.02 h (Binzel, 1987). Our observations from 2009 January through February 14 found a period of 4.0074 ± 0.0001 h.

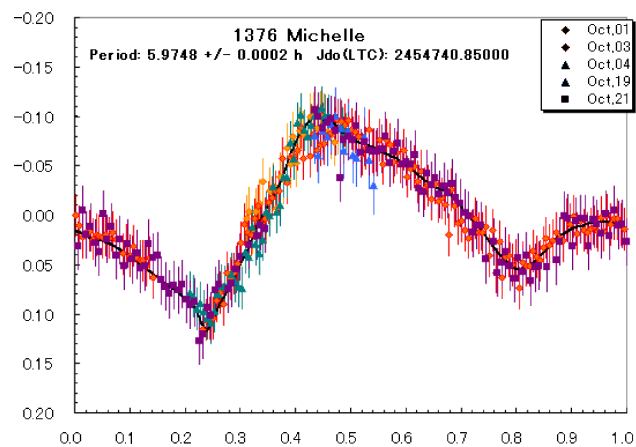
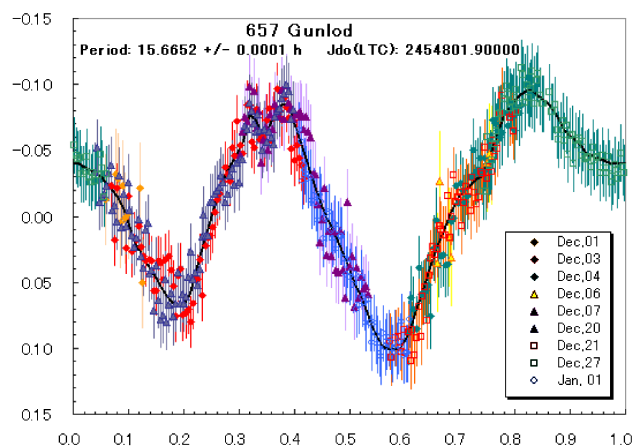
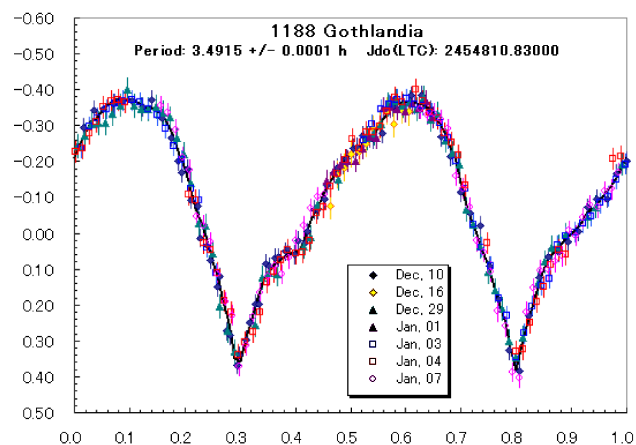
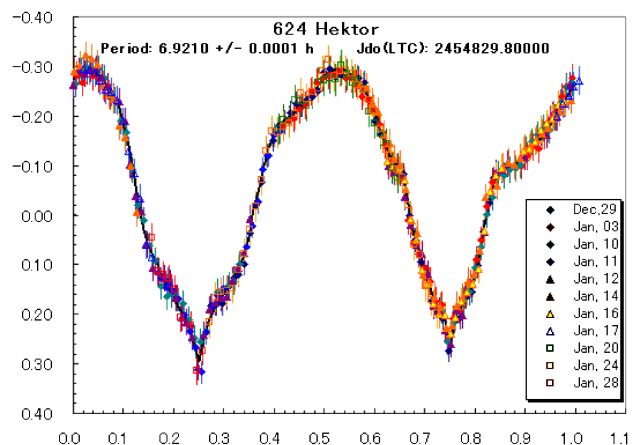
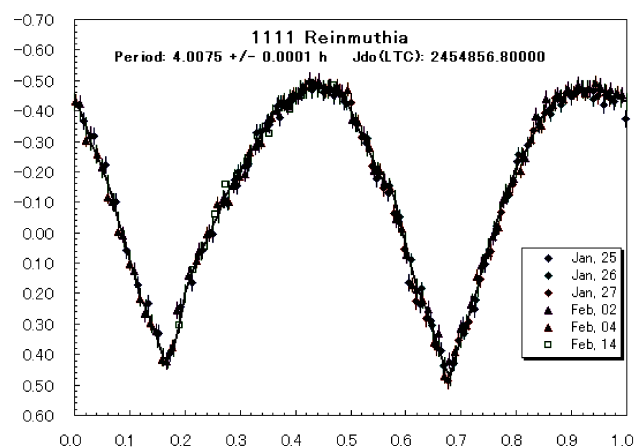
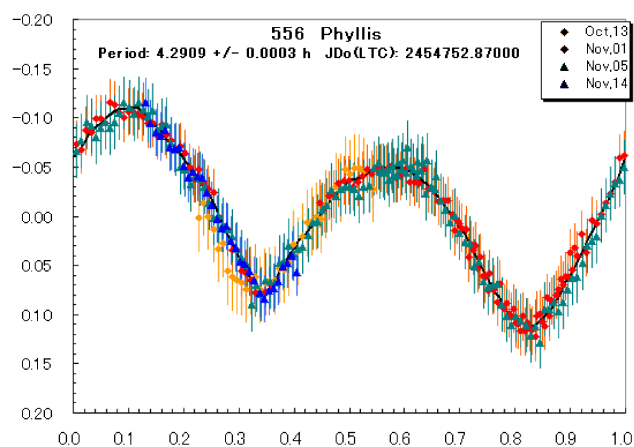
1188 Gothlandia. Data were collected from 2008 December 10 through 2009 January 7 resulting in 7 data sets. A period of 3.4915 ± 0.0001 h was determined. The only previous lightcurve of Gothlandia was reported to have a period of 3.493 h (Di Martino et al., 1994).

1376 Michelle. Data were collected from 2008 December 1 through October 21 resulting in 5 data sets. A period of 5.9748 ± 0.0002 h was determined. The only previous lightcurve of Michelle was reported to have a period of 6.0 h (Wisniewski et al., 1997).

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#	Name	Date Range (yyyy/mm/dd)	Phase	L-PAB	B-PAB	Per (h)	PE	Amp (mag)	AE
494	Virtus	2008/03/15-2008/04/05	5.9	166.7	7.1	5.570	0.003	0.033	0.005
556	Phyllis	2008/10/13-2008/11/14	7.6	31.3	6.3	4.2909	0.0003	0.222	0.005
624	Hektor	2008/12/29-2009/01/28	15.4	20.2	12.5	6.9210	0.0001	0.590	0.005
657	Gunlod	2008/12/01-2009/01/01	6.2	87.7	6.9	15.6652	0.0001	0.193	0.003
1111	Reinmuthia	2009/01/25-2009/02/14	9.0	107.8	-1.6	4.0075	0.0001	0.945	0.003
1188	Gothlandia	2008/12/10-2009/01/07	14.2	74.7	6.6	3.4915	0.0001	0.776	0.005
1376	Michelle	2008/10/01-2008/10/21	8.8	5.3	-2.4	5.9748	0.0002	0.199	0.003