3 ASTEROIDS' LIGHTCURVE ANALYSIS FROM BASSANO BRESCIANO OBSERVATORY

Luca Strabla, Ulisse Quadri, Roberto Girelli
Bassano Bresciano Observatory
via San Michele 4 Bassano Bresciano (BS) Italy
lucapietro.strabla@fastwebnet.it

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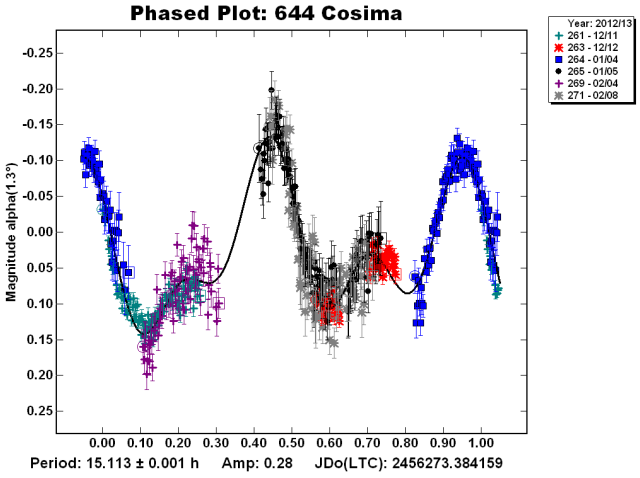
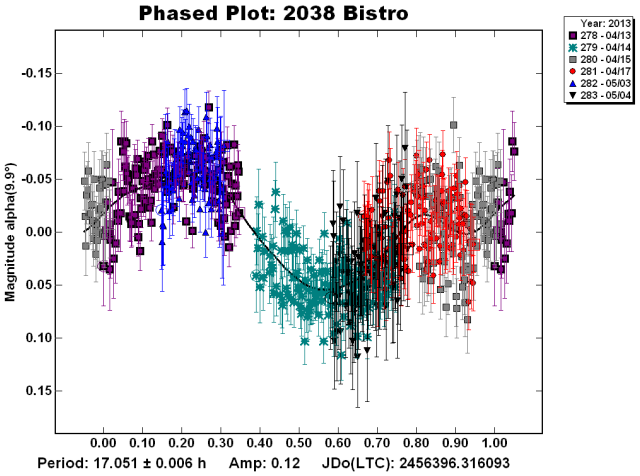
Lightcurves for 3 minor planets were obtained at Bassano Bresciano Observatory from December 2012 to May 2012: 644 Cosima, 2038 Bistro, 2448 Sholokhlov.

Usually winter and spring are the best seasons for astronomical activities at Bassano Bresciano Observatory (565). This year we have had the worse weather since years. In this paper there are the products of the only ones available nights. Photometric measurements of three minor planets were obtained with the 0.32-m *f*/3.1 Schmidt and Starlight HX-516 CCD camera. *Polypus* software release 1.9 (Bassano Bresciano Observatory, 2013) was used to control the robotic observations. Exposures were taken when the target's altitude was more than 30°, unfiltered, unguided with 120 s exposure times. Raw images were processed with flat field and dark frames. *MPO Canopus* ver.10.4.0.20 (Bdw Publishing, 2010) was used to perform differential photometry on the reduced images. Solar-coloured comparison stars were used in order to minimize colour difference errors by using the Comp Star Selector in *MPO Canopus*. Data were light-time corrected but not reduced to standard magnitudes. The periods reported here were based on those having the lowest RMS error. Night-to-night calibration was done by adjusting the DeltaComp value in MPO *Canopus*. Data have been sent to the ALCDEF database.

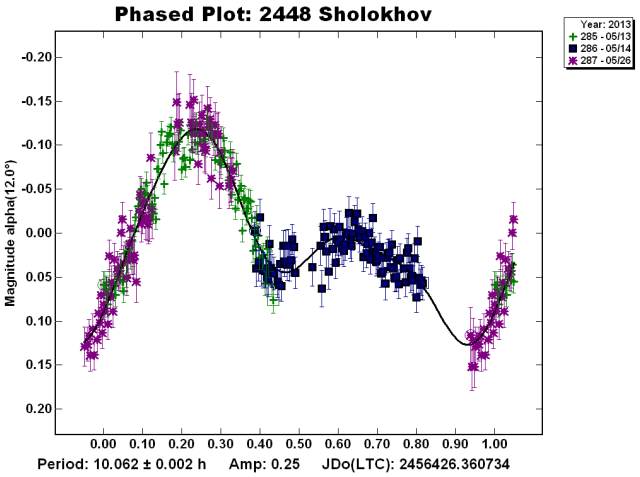
644 Cosima. It was selected from "Lightcurve Photometry opportunities: 2012 October December " *Minor Planet Bulletin* **39**. With period = 15.13 hours, amplitude 0.16 Mag. and quality code 1, (Binzel 1987). It was been observed for 6 nights covering 59 days. Weather was not very good in that time so we weren't able to have complete lightcurve coverage. Period spectrum analysis doesn't show other possible period than the previous with a little difference. P = 15.113 ± 0.001 hours with amplitude *A* = 0.28 ± 0.03 mag.



2038 Bistro. It was selected from "Lightcurve Photometry opportunities: 2013 April-June " *Minor Planet Bulletin* **40**. With period = 7.88 hours, amplitude 0.24 Mag. and quality code 1 (DeGraff 1998). It was been observed for 6 nights covering 21 days span. It shows very low amplitude comparable with the measurement noise. Fortunately all sessions have very low dispersion in the measurements of the known catalogue stars. A good correlation was be found on period P =17.071 hours with amplitude A = 0.12 ± 0.02 mag.



2448 Sholokhlov. It was selected from "Lightcurve Photometry opportunities: 2013 April-June " *Minor Planet Bulletin* **40**. With period = 10.065 hours, amplitude 0.63 Mag. and quality code 2+. (Warner 2005). It was observed for 3 nights covering 13 days span. Amplitude was lower than Warner observation but our observation seems to confirm period P =10.062 hours with amplitude A = 0.252 ± 0.03 mag.



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Asteroid		Date	Phase Angle	Time h.	Num. Obs
644	Cosima	2012-12-11	1.3	5.7	102
644	Cosima	2012-12-12	1.8	3.2	53
644	Cosima	2013-01-04	12.6	3.7	86
644	Cosima	2013-01-05	13.0	6.0	107
644	Cosima	2013-02-04	21.3	3.0	74
644	Cosima	2013-02-08	21.9	4.0	80
2038	Bistro	2013-04-13	9.9	5.0	146
2038	Bistro	2013-04-14	10.0	5.0	157
2038	Bistro	2013-04-15	10.3	4.0	106
2038	Bistro	2013-04-17	10.8	4.8	118
2038	Bistro	2013-05-03	15.7	3.7	70
2038	Bistro	2013-05-04	16.0	3.4	76
2448	Sholokhlov	2013-05-13	12.0	4.4	117
2448	Sholokhlov	2013-05-14	12.1	4.3	99
2448	Sholokhlov	2013-05-23	14.4	4.4	79

TARGET ASTEROIDS! OBSERVING TARGETS FOR OCTOBER THROUGH DECEMBER 2013

Carl Hergenrother and Dolores Hill
Lunar & Planetary Laboratory
University of Arizona
1629 E. University Blvd.
Tucson, AZ 85721 USA
chergen@lpl.arizona.edu

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Asteroids to be observed by the Target Asteroids! program during the period of July to September 2013 are presented. In addition to asteroids on the original *Target Asteroids!* list of easily accessible spacecraft targets, an effort has been made to identify other asteroids that are 1) brighter and, hence, easier to observe for small telescope users and 2) analogous to (101955) Bennu, the target asteroid of the OSIRIS-REx sample return mission.

Introduction

The *Target Asteroids!* program strives to engage telescope users of all skill levels and telescope apertures to observe asteroids that are viable targets for robotic sample return. The program also focuses on the study of asteroids that are analogous to (101955) Bennu (formerly 1999 RQ36), the target asteroid of the NASA OSIRIS-REx sample return mission.

Even though many of the observable objects for this program are faint, acquiring a large number of low S/N observations allows many important parameters of the asteroid to be determined. For example, an asteroid's phase function can be constrained by obtaining photometry taken over a wide range of phase angles. There is a direct correlation between the phase function and albedo. The absolute magnitude can be estimated by extrapolating the phase function to a phase angle of 0°. By combining the albedo and absolute magnitude, the size of the object can be estimated.

An introduction to the program can be found at Hergenrother and Hill (2013).

Quarterly Targets

There are many list asteroids that are observable in very large telescopes. For this observing plan only objects that become brighter than V = 20.0 are listed. A short summary of our knowledge about each asteroid and 10-day (shorter intervals for objects that warrant it) ephemerides are presented. The ephemerides include rough RA and Dec positions, distance from the Sun in AU (r), distance from Earth in AU (Δ), V magnitude, phase angle in degrees (PH) and elongation from the Sun in degrees (Elong).

The selected targets are split up into four sections: 1) Carbonaceous *Target Asteroids!* List targets, 2) *Target Asteroids!* List targets of unknown type, 3) Non-carbonaceous *Target Asteroids!* List targets, and 4) Other asteroids analogous to the OSIRIS-REx target Bennu.

The ephemerides listed below are just for planning purposes. In order to produce ephemerides for your observing location, date and