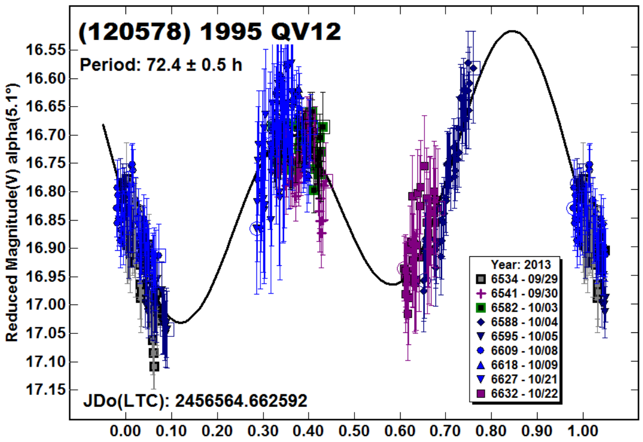

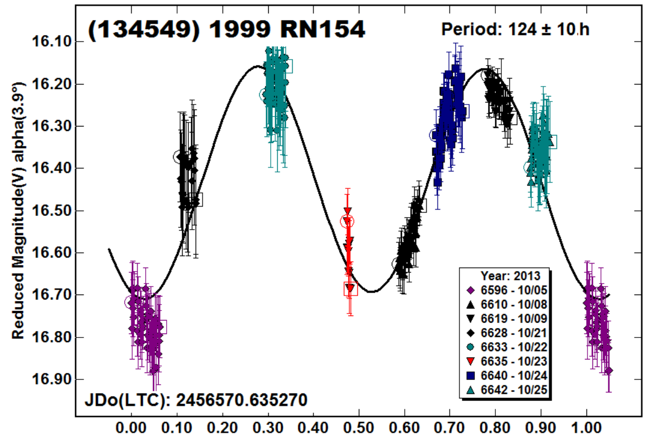

ROTATION PERIODS OF 3618 KUPRIN AND 3896 PORDENONE

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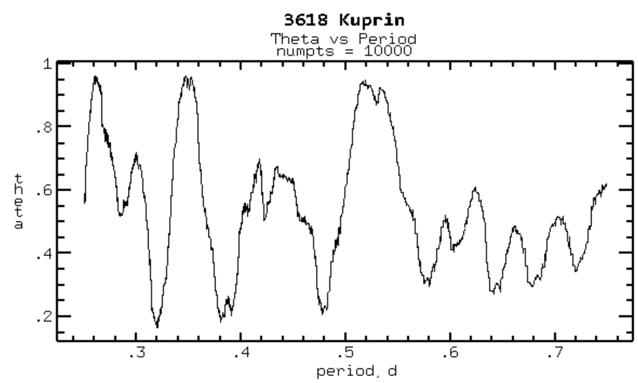
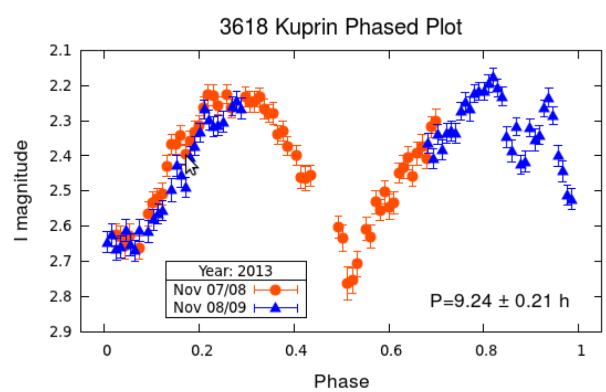
Photometric observations of two main-belt asteroids were obtained in 2013 November. Lightcurve analysis of 3618 Kuprin found a synodic rotation period of 9.24 ± 0.21 h with an amplitude of 0.56 ± 0.04 mag. Further studies of this object are necessary. For 3896 Pordenone, we found a synodic period of 3.995 ± 0.010 h and an amplitude of 0.37 ± 0.04 mag

A field near the ecliptic was imaged on two consecutive nights (2013 Nov 07 and 08) at the Bulgarian National Astronomical Observatory (NAO Rozhen, 41°42′N 24°44′E) as a part of an ultracool dwarf monitoring program. A total of 134 frames in standard I filter were obtained with the 50/70-cm Schmidt telescope (*f*/3.44) and an FLI PL-16803 CCD camera. The duration of each exposure was 300 s. Asteroids 3618 Kuprin and 3896 Pordenone were identified in the field using the Minor Planet Center's MPChecker. Two reference stars were used to calculate differential magnitudes of both minor planets. The aperture was set at 4 arcseconds which yielded a final error in the range of 0.02–0.03 mag. All image processing was done using *IRAF (Image Reduction and Analysis Facility)*.

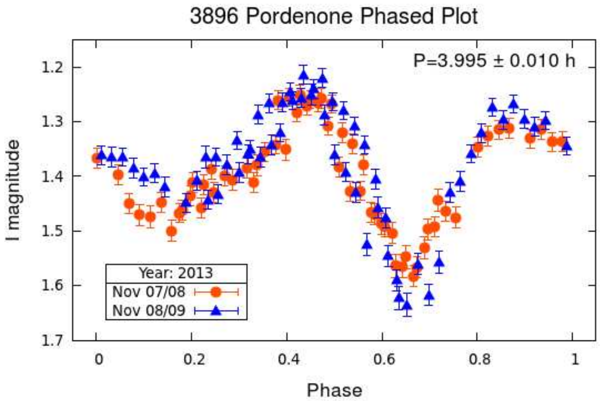
3618 Kuprin. As of 2013 January, there was no lightcurve or rotation period information for this object in the asteroid lightcurve database (LCDB; Warner *et al.*, 2009). Our data are insufficient to determine the period with a high level of confidence. The *IRAF pdm* procedure, which was run within a trial period range from 0.25 to 0.75 d, showed three possible periods: ~0.32 d, ~0.38 d and ~0.48 d. We suggest a synodic period corresponding to P = 9.24 ± 0.21 h with an amplitude A = 0.56 ± 0.04 mag since this is the only option that accepts the two 4σ lightcurve features at phase ~ 0.9 (on the phased plot) as a local minimum followed by a local maximum rather than data noise.

3618 Kuprin was in opposition in 2013 November and the next closer approach is not until 2018. However, considering the high amplitude of the object, we encourage a more thorough photometric investigation.





3896 Pordenone. A rotation period of 4.009 h obtained by Higgins in 2007 and a maximum amplitude A = 0.28 mag are listed in the Asteroid Lightcurve Database (LCDB; Warner *et al.*, 2009). Hanuš *et al.* (2013) found a sidereal period of 4.0037 h. Using the Phase Dispersion Minimization (PDM) technique (Stellingwerf, 1978) we obtained P = 3.995 ± 0.010 h, which is in agreement with the previous studies. However, we derived a higher amplitude (A = 0.37 ± 0.04 mag).



Acknowledgements

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NEAR-EARTH ASTEROID LIGHTCURVE ANALYSIS AT CS3-PALMER DIVIDE STATION: 2013 SEPTEMBER-DECEMBER

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Lightcurves for 36 near-Earth asteroids (NEAs) were obtained at the Center for Solar System Studies-Palmer Divide Station (CS3-PDS) from 2013 September-December.

CCD photometric observations of 36 near-Earth asteroids were made at the Center for Solar System Studies-Palmer Divide Station (CS3-PDS) in 2013 September through December. Table I gives a listing of the telescope/CCD camera combinations used for the observations. All the cameras use CCD chips from the KAF blue-enhanced family and so have essentially the same response. The pixel scales for the combinations range from 1.24-1.60 arcsec/pixel.

Desig	Telescope	Camera
PDS-1-12N	0.30-m f/6.3 Schmidt-Cass	ST-9XE
PDS-1-14S	0.35-m f/9.1 Schmidt-Cass	FLI-1001E
PDS-2-14N	0.35-m f/9.1 Schmidt-Cass	STL-1001E
PDS-2-14S	0.35-m f/9.1 Schmidt-Cass	STL-1001E
PDS-20	0.50-m f/8.1 Ritchey-Chretien	FLI-1001E

Table I. List of CS3-PDS telescope/CCD camera combinations.

All lightcurve observations were made with no filter (a clear filter can result in a 0.1-0.3 magnitude loss) and were guided on a field star, resulting in some cases in a trailed image for the asteroid. The exposure varied depending on the asteroid's brightness and sky motion.

Measurements were done using *MPO Canopus*. If necessary, an elliptical aperture with the long axis parallel to the asteroid's path was used. The Comp Star Selector utility in *MPO Canopus* finds up to five comparison stars of near solar-color to be used in differential photometry. Catalog magnitudes are usually taken from the MPOSC3 catalog, which is based on the 2MASS catalog (*http://www.ipac.caltech.edu/2mass*) but with magnitudes converted from J-K to BVRI using formulae developed by Warner (2007). When possible, magnitudes are taken from the APASS catalog (Henden *et al.,* 2009) since these are derived directly from reductions based on Landolt standard fields. Using either catalog, the nightly zero points have been found to be consistent to about ±0.05 magnitude or better, but on occasion are as large as 0.1 mag. This reasonably good consistency is critical to analysis of long period and/or tumbling asteroids. Period analysis is also done using *MPO Canopus*, which implements the FALC algorithm developed by Harris (Harris *et al.,* 1989).

In the plots below, the "Reduced Magnitude" is Johnson V (or Cousins R) as indicated in the Y-axis title. These are values that have been converted from sky magnitudes to unity distance by applying $-5*\log(r\Delta)$ to the measured sky magnitudes with r and Δ being, respectively, the Sun-asteroid and Earth-asteroid distances in AU. The magnitudes were normalized to the phase angle given in parentheses, e.g., alpha(6.5°), using G = 0.15, unless otherwise stated. The horizontal axis is the rotational phase and ranges from –0.05 to 1.05.

For the sake of brevity, only some of the previously reported results may be referenced in the discussions on specific asteroids. For a more complete listing, the reader is directed to the asteroid lightcurve database (LCDB; Warner *et al.* 2009). The on-line version at *http://www.minorplanet.info/lightcurvedatabase.html* allows direct queries that can be filtered a number of ways and the results saved to a text file. A set of text files of the main LCDB