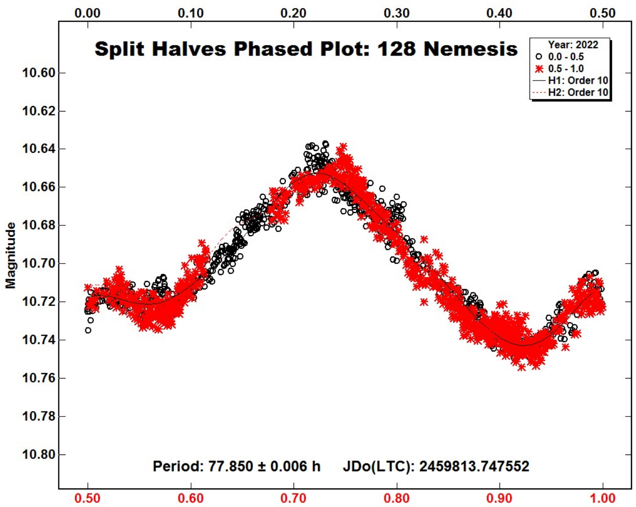

Five dense lightcurves well distributed around the sky, and disk resolved images from adaptive optics, are all compatible with a period very close to the 38.922 hours found in this study. The period ambiguity has been resolved and a period near 38.922 hours can be considered secure; bringing a match to the conclusions reached through independent techniques.

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ROTATIONAL PERIOD DETERMINATION AND TAXONOMIC CLASSIFICATION FOR ASTEROID (1399) TENERIFFA

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CCD photometric observations of one main-belt asteroid was obtained in order to measure its rotation period and define their taxonomic class. These measures were performed on October 2022 using the instrumentation available at the two observatories.

CCD photometric observations of (1399) Teneriffa were carried out in 2022 October at the Osservatorio Astronomico Margherita Hack (A57) and Osservatorio Astronomico Orciatico. The Osservatorio Astronomico Margherita Hack is equipped with a 0.35-m f/8.25 Schmidt-Cassegrain telescope, a SBIG ST10 XME ccd camera and Johnson-Cousins BVRc photometric filters. The pixel scale was 1 arcsec when binned at 2×2 pixels. The Osservatorio Astronomico Orciatico is equipped with a 0.35-m f/7.4 Schmidt-Cassegrain telescope and a SBIG ST1603 XME ccd camera with Johnson-Cousins BVRcIc photometric filters, having the pixel scale of 1.41 arcsec in bin 2×2. Data processing and analysis were done with *MPO Canopus* (Warner, 2021). All the images were calibrated with dark and flat field frames using *Astroart 6.0.* and Ricerca (Warner, 2006). Table I shows the observing circumstances and results.

1399 Teneriffa was discovered on 1936 Aug 23 at Heidelberg by the german astronomer Karl Wilhelm Reinmuth. The asteroid takes its name from the island of Tenerife, the largest of the Canary Islands. It was chosen from the list of lightcurve photometry opportunities on the *Minor Planet Bulletin* (Warner et al., 2022). It is a main-belt asteroid with a semi-major axis of 2.21576 AU, eccentricity 0.1663, inclination 6.507°, and an orbital period of 3.298 years. Its absolute magnitude is H = 13.62 (JPL, 2022; MPC, 2022). Our observations were conducted in two different steps. The first step consisted in collecting 209 data points during 4 nights across 18/10/2022 and 29/10/2022. The period analysis shows a bimodal solution for the rotational period with P = 2.69247 ± 0.00009h and an amplitude A = 0.15 mag, AE = 0.01 mag (Figure 1). The split-halves plot (Figure 2) let us solve the potential ambiguity between monomodal and bimodal solution by showing that the two halves of the 2.69247 h solution are not well superimposable even if very similar. This makes the bimodal solution much more probable. Moreover, we consulted the asteroid lightcurve database (LCDB; Warner et al., 2009) and we found one previous calculated period: P = 2.692 (Waszczak, 2015). The period we found seems to be in very good agreement with the previous mentioned period.

Number	Name	2022 mm/dd	Pts	Phase	L_{PAB}	B_{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
1399	Teneriffa	10/18-10/29	209	5.87-7.53	28,9	-7.55	2.6925	±0.0001	0.15	0.01	MBA

Table I. Observing circumstances and results. Pts is the number of data points. The phase angle is given for the first and last date. L_{PAB} and B_{PAB} are the approximate phase angle bisector longitude and latitude at mid-date range (see Harris et al., 1984). Grp is the asteroid family/group (Warner et al., 2009).

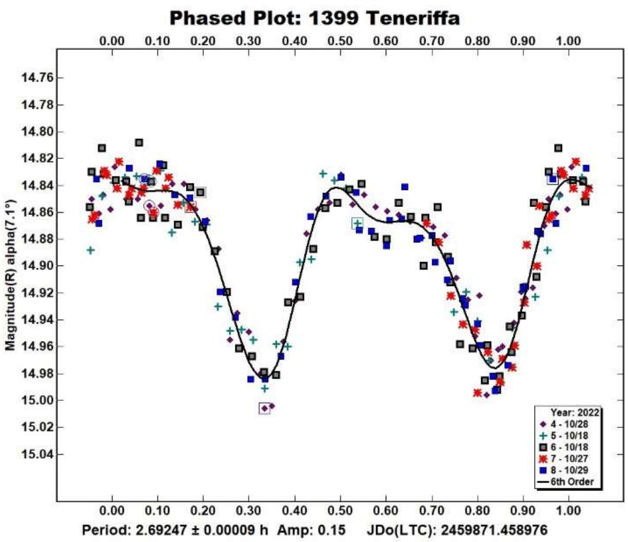

Figure 1. Phased lightcurve of 1399 Teneriffa.

In the second step we collected further 39 data points in one night using filters B, V, Rc and Ic. This allowed us to determine the color indexes (B-V) = 0.81 +/- 0.025, (V-Rc) = 0.495 +/- 0.015 and (Rc-Ic) = 0.405 +/- 0.015 (Figure 3). These values are consistent with a medium albedo S-type taxonomic class (Shevchenko and Lupishko, 1998), and the albedo value of 0.227 reported in the bibliography (JPL, 2022) is also consistent with a taxonomic class of type S (Shevchenko and Lupishko, 1998).

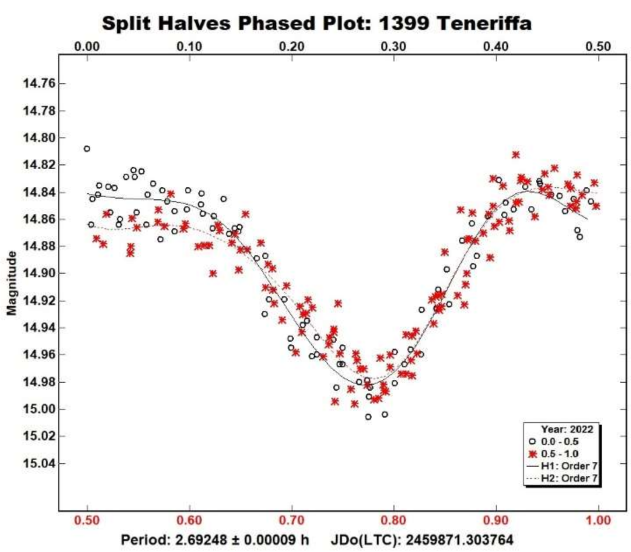

Figure 2. Split halves lightcurve of 1399 Teneriffa.

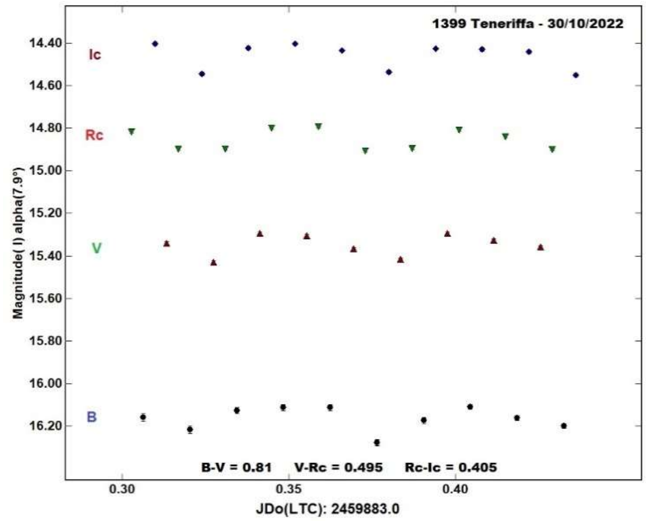

Figure 3. (B-V), (V-Rc) and (Rc-Ic) raw plot of 1399 Teneriffa

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