COLLABORATIVE ASTEROID PHOTOMETRY FROM UAI: 2024 JULY-SEPTEMBER

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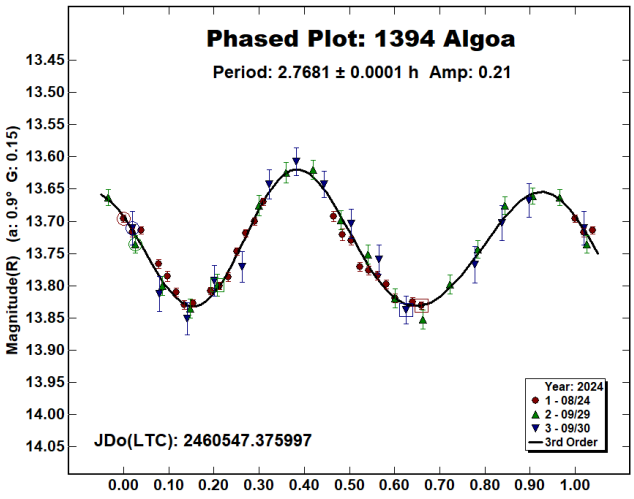
Photometric observations of four asteroids were made in order to acquire lightcurves for shape/spin axis modeling. Lightcurves were acquired for 1394 Algoa, 8577 Choseikomori, 21088 Chelyabinsk, and (66251) 1999 GJ2.

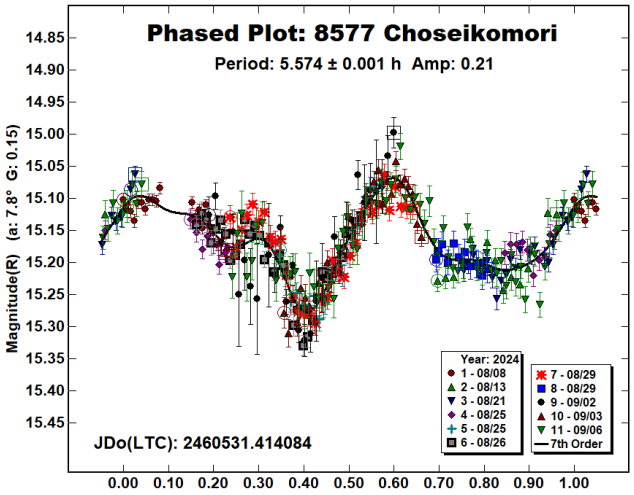
Collaborative asteroid photometry was done inside the Italian Amateur Astronomers Union (UAI; 2024) group. The targets were selected mainly in order to acquire lightcurves for shape/spin axis modeling. Table I shows the observing circumstances and results.

The CCD observations of four asteroids were made in 2024 July-September using the instrumentation described in the Table II. Lightcurve analysis was performed at the Balzaretto Observatory with *MPO Canopus* (Warner, 2023). All the images were calibrated with dark and flat frames and converted to standard magnitudes using solar colored field stars from CMC15 and ATLAS catalogues, distributed with *MPO Canopus*. For brevity, "LCDB" is a reference to the asteroid lightcurve database (Warner et al., 2009).

1394 Algoa is a low albedo inner main-belt asteroid. Collaborative observations were made over three nights. The period analysis shows a synodic period of $P = 2.7681 \pm 0.0001$ h with an amplitude $A = 0.21 \pm 0.01$ mag. The period is close to the previously published results in the LCDB.



8577 Choseikomori is a medium albedo inner main-belt asteroid. Collaborative observations were made over nine nights. The period analysis shows a synodic period of $P = 5.574 \pm 0.001$ h with an amplitude $A = 0.21 \pm 0.03$ mag. The period is close to the previously published results in the LCDB.



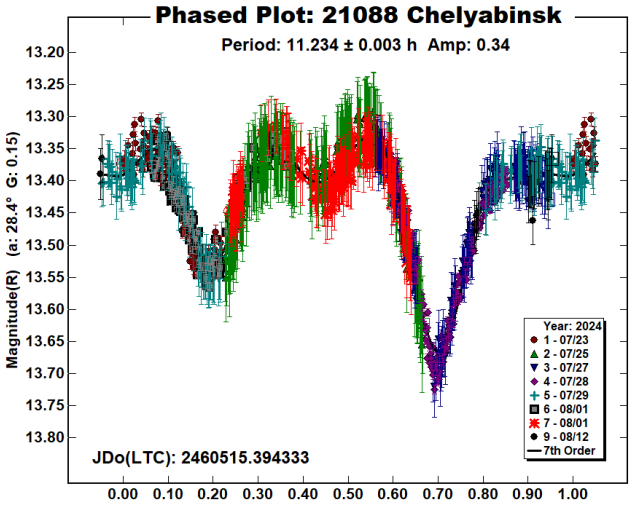
21088 Chelyabinsk is an Amor Near-Earth asteroid. Collaborative observations were made over seven nights. The period analysis shows a synodic period of $P = 11.234 \pm 0.003$ h with an amplitude $A = 0.34 \pm 0.03$ mag. The period is close to the previously published results in the LCDB. Multiband photometry was made by G. Scarfi (K78) on 2024 August 12. We found V-R = 0.47 ± 0.05. This color index is consistent with a S-type asteroid (Shevchenko and Lupishko, 1998; 0.49 ± 0.05).

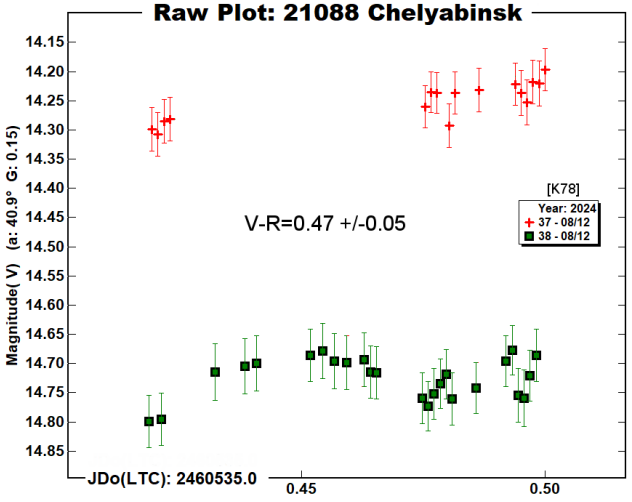
Number	Name	2024 mm/dd	Phase	L_{PAB}	B_{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
1394	Algoa	08/24-09/30	0.9,16.8	333	1	2.7681	0.001	0.21	0.01	MB-I
8577	Choseikomori	08/08-09/06	*7.8,14.2	324	8	5.574	0.001	0.21	0.03	MB-I
21088	Chelyabinsk	07/23-08/12	28.4,40.8	317	28	11.234	0.003	0.34	0.03	NEA
66251	1999 GJ2	09/27-09/28	15.6,15.8	357	8	2.464	0.003	0.10	0.03	NEA

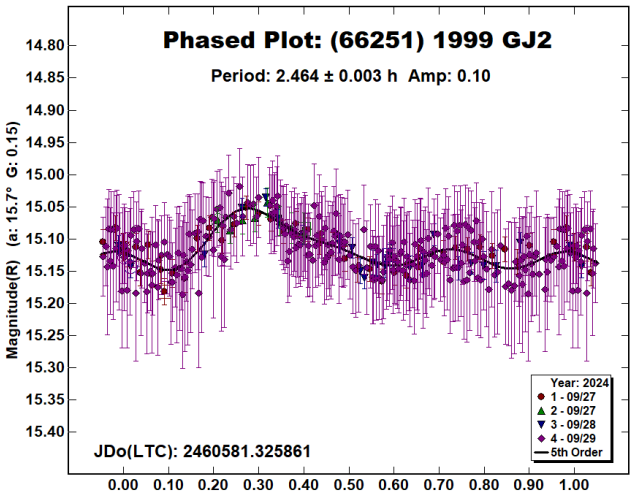
Table I. Observing circumstances and results. The first line gives the results for the primary of a binary system. The second line gives the orbital period of the satellite and the maximum attenuation. The phase angle is given for the first and last date. If preceded by an asterisk, the phase angle reached an extrema during the period. L_{PAB} and B_{PAB} are the approximate phase angle bisector longitude/latitude at mid-date range (see Harris et al., 1984). Grp is the asteroid family/group (Warner et al., 2009).

Observatory (MPC code)	Telescope	CCD	Filter	Observed Asteroids (#Sessions)
Iota Scorpii(K78)	0.40-m RCT f/6.1	CMOS QHY 268 (bin 4×4)	V,Rc,C	21088(6), 66251(1)
Osservatorio Astronomico Nastro Verde (C82)	0.35-m SCT f/6.3	SBIG ST10XME (bin 2×2)	C	1394(1), 8577(4)
Zen Observatory (M26)	0.30-m RCT f/7.4	ATIK 383L+	C	8577(2), 21088(3)
Beppe Forti Observatory (K83)	0.40-m RCT f/8.0	SBIG ALUMA 4040	C	8577(2)
GiaGa Observatory (203)	0.36-m SCT f/5.8	Moravian G2-3200	C	66251(2)
Balzaretto Observatory (A81)	0.20-m SCT f/5.0	SBIG ST7-XME	C	1394(2)
HOB Astronomical Observatory (L63)	0.20-m SCT f/6.0	ATIK 383L+	C	8577(1)

Table II. Observing Instrumentations. RCT: Ritchey-Chretien, SCT: Schmidt-Cassegrain.







(66251) 1999 GJ2 is an Amor Near-Earth asteroid. Collaborative observations were made over two nights. The period analysis shows a synodic period of $P = 2.464 \pm 0.003$ h with an amplitude $A = 0.10 \pm 0.03$ mag. The period is close to the previously published results in the LCDB.

References

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