

## QUASISYNCHRONOUS OBSERVATIONS OF ASTEROID (6478) GAULT IN TAJIKISTAN AND

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**Introduction:** The results of quasi-synchronous optical observations of the asteroid (6478) Gault, carried out on the Zeiss-1000 telescope of the Sanglokh Observatory Institute of Astrophysics NAST and the 1.3-m and 0.61-m telescopes of the Skalnate Pleso observatory of the Astronomical Institute of the Slovak Academy of Sciences in August-October 2020 are presented in this paper.

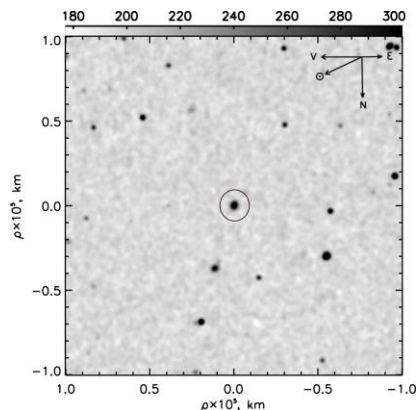
The object episodically shows a signs of cometary activity and therefore is classified as an active asteroid in the Main Belt. The apparent and absolute brightness of the asteroid in the BVR bands was determined, based on the color indices the mineralogical composition of the asteroid was suggested. According to our estimates, the average diameter of the asteroid is 2.8 km. During the observation period the activity of the asteroid was not detected.

**Observations:** Observations of asteroid 6478 (Gault) were carried out over 7 nights - August till October.

2020, UT	<i>r</i> , a.e.	<i>A</i> a.e.	<i>ph</i> , deg.	<i>N/Bands</i>	<i>t</i> , c	Telescope
August 20.71	2.196	1.370	19.4	10V, 10R	240	1.3-M (Skalnate Pleso)
August 23.72	2.203	1.351	18.2	10V, 10R	240	1.3-M (Skalnate Pleso)
September 21.70	2.266	1.268	3.8	14V, 14R	240	0.61-M (Skalnate Pleso)
September 22.71	2.268	1.269	3.2	38R	90	Zeiss-1000 (Sanglokh)
September 23.72	2.270	1.270	2.6	40R	90	Zeiss-1000 (Sanglokh)
September 24.70	2.272	1.271	2.0	37V, 35R,	90	Zeiss-1000 (Sanglokh)
October 9.70	2.307	1.331	6.8	12B, 12V, 12R	240	0.61-M (Skalnate Pleso)

Asteroid observation journal (6478) Gault at Skalnate Pleso and Sanglokh observatories.

**Analyses:** As a result, the absolute brightness of the asteroid was obtained: 14.42-15.05 ( $\pm 0.13$ ) and 14.87-15.49 ( $\pm 0.11$ ) magnitudes in the R and V filters, respectively. According to our images, taken a year and a half after the manifestation of increased activity, the brightness of the asteroid has significantly decreased, which gives us reason to conclude that we observed it in an inactive state. Our brightness measurements agree with the estimates of other observations of this period.



R-filter images of asteroid (6478) Gault at the Sanglokh Observatory on September 23, 2020

The light curve testifies to the inhomogeneous surface of the asteroid, and the upper rotation period of the asteroid is 2.7 hours;

The color indicators of the asteroid correspond to Q-type asteroids, which are most similar in spectral properties to meteorites consisting of ordinary chondrites;

The estimate of the diameter of the asteroid according to our measurements is from 2.5 to 3 ( $\pm 0.13$ ) km and is in good agreement with the estimates of other observations in the same period. Taking into account the observations during the period when the asteroid was not active, we consider this estimate to be the most reliable;

**Conclusion:** Photometric data of new observations confirm the absence of asteroid activity during the monitoring period. We note the good compatibility of the results of our quasi-synchronous observations carried out with different telescopes.

**Key words:** asteroid, photometry, brightness, diameter.