



Calculation of the rotational period of inner main belt asteroids.

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The project-Target Selection

The main goal of the project is to find the rotational period of the inner main belt asteroids in order to study the evolution of our solar system.

A group of great interest are the Mars crossers asteroids

Their basic characteristic is the close encounters they make with the orbit of Mars.

The target selection was done accordingly to their magnitude and the quality of their previous lightcurves.

As a result we observed (478) Tergeste, (664) Judith, (266) Aline and also the Mars crosser (32910) 1994 TE15.

Observations

Both observations were done during August 2010.

- (478) Tergeste, (266) Aline, (664) Judith

Observations were undertaken at Holomon Astronomical station, Chalkidiki, Greece using an 11" telescope.

- (32910) 1994 TE15

Observation were undertaken at Skinakas Observatory, Herakleion, Crete, Greece using the 1.3 m Telescope with an Andor DZ436 CCD camera and a Johnson-Cousins R-filter.

Exposure time was depending on the magnitude of the target and the telescope.

Results

We managed to calculate the unknown period of (32910) 1994TE15 and also to produce parts of the phase of the first three asteroids.

| Target | mag | Solar Elongation (o) | Rate ("/sec) |
|----------|------|----------------------|---------------|
| Aline | 12.6 | 147.2-152.3 | 0.0066-0.0077 |
| Judith | 13.7 | 150.8 | 0.0058 |
| Tergeste | 13 | 156.5-147.8 | 0.0061-0.0074 |
| 1994TE15 | 15.3 | 168 | 0.0083 |

Table 1: Orbit elements

Data reduction and photometry were done using MPO CANOPUS which is a specific program for moving targets.

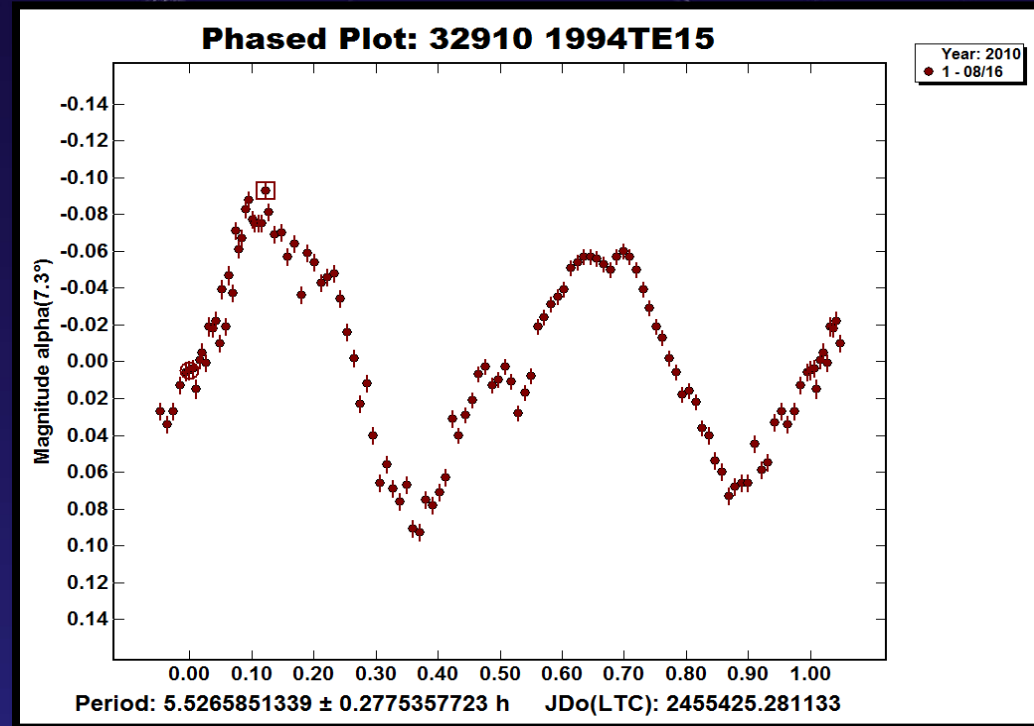


Figure 1: The phase of (32910) 1995 TE15

Future work

As future work we intent to re-observe (32910) 1994TE15 in different solar elongation in order to construct its shape.