The Teide Observatory Tenerife Asteroid Survey

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Since 2010, the near-Earth object (NEO) segment of ESA's Space Situational Awareness programme has been using a 1-m telescope on Tenerife regularly for asteroid observations. The emphasis of the observations are follow-up of objects on the NEO Confirmation Page [1] of the Minor Planet Center and of objects on the priority list of the Spaceguard Central Node [2], now hosted by ESA. Part of the time is used to demonstrate and test strategies to search for NEOs.

The telescope is a 1-m Zeiss Ritchey-Cretien telescope (IAU observatory code J04), called the Optical Ground Station (OGS). It is used with a field flattener/reducer at f/4.4. With a 4k×4k CCD camera it reaches a field of view with a diagonal of about 1 degree.

The search programme is called TOTAS (Teide Observatory Tenerife Asteroid Survey). It is based on a software developed by one of us (MB) for the Starkenburg Observatory Heppenheim and later adapted to be able to control the OGS. Until March 2014, the survey has discovered more than 1500 asteroids and 5 NEOs in about 300 hours of total observing time.

This paper will describe the survey strategy and the setup of the data processing pipeline used within the programme.

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References: [1] http://www.minorplanetcenter.org/ [2] http://neo.ssa.esa.int/web/guest/priority-list