PDC 2025
Stellenbosch, Cape Town, South Africa

- ○ **Ongoing and Upcoming Mission Highlights**
- ○ **Apophis T-4 Years**
- ○ **Hypothetical Asteroid Threat Exercise**
- ○ **Key International and Political Developments**
- ○ **Near-Earth Object (NEO) Discovery**
- ◉ **NEO Characterization**
- ○ **Deflection & Disruption Modeling and Testing**
- ○ **Space Mission & Campaign Design**
- ○ **Earth Impact Effects & Consequences**
- ○ **Disaster Management & Impact Response**
- ○ **Public Education and Communication**
- ○ **The Decision to Act: Political, Legal, Social, and Economic Aspects**

Near-Earth Asteroid Follow-up Observations at the SAAO

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Keywords: near-Earth asteroids, follow-up observations, photometric characterisation

The South African Astronomical Observatory (SAAO) has made significant contributions to the observation and characterisation of near-Earth asteroids (NEAs), supporting global planetary defense efforts. Located near the town of Sutherland in the Northern Cape, SAAO's diverse array of telescopes, ranging from 10-m to 1-m in diameter, offers capabilities in spectroscopy, multi-filter photometry, and polarimetry, with rapid-response options enabled by the robotic 1.0-meter Lesedi telescope. Many of these facilities have contributed data to the international NEA planetary defense exercises organised by the International Asteroid Warning Network (IAWN), including participation in the "2012 TC" [1], "Apophis" [2], and, most recently, the "2023 DZ2" [3] campaigns. Several telescopes located at the SAAO also contributed to the ground-based monitoring of the DART spacecraft's impact with Dimorphos [4].

With SAAO hosting one of the nodes of the Asteroid Terrestrial-impact Last Alert System (ATLAS, [5]) and making good progress with its "Intelligent Observatory" or "IO" initiative [6], the observatory has significantly enhanced its automated follow-up capabilities. This setup now allows for rapid same-night follow-up observations of newly discovered NEAs identified by ATLAS.

This presentation will highlight the facilities at SAAO used for NEA follow-up and characterisation, both in the past and present. It will also showcase some of the scientific highlights and discuss future plans to utilise new or currently underused facilities available on-site.

Comments:

The presentation will cover contributions to three of the IAWN campaigns so an alternative session could be: Hypothetical Asteroid Threat Exercise. We request an Oral presentation for this contribution.

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