USE OF A NIGHT-TRACKING CAMERA DURING DAYTIME

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ABSTRACT

Generally, the accuracy of the results of an orbit determination procedure depends on the kind of measurements processed, on their accuracy, and what is known as observation geometry. The latter is influenced by the number of observing stations, the length of the observed arc of orbit, and the distribution of the observation along the orbit. The limits in the achievable accuracy due to the observation geometry are even more evident for observations of space debris in LEO regimes performed by a single observing station during nighttime only.
In this paper, we will show the results obtained from the observation tests performed during daytime with the night-tracking camera. First, we will investigate the kind of measurements and their quality gathered during these observation sessions, then we will analyze the influence of this data especially focusing on the orbit determination products. This study is carried out only with the observations provided by the night-tracking camera recently installed at the Swiss Optical Ground Station and Geodynamics Observatory Zimmerwald. The orbit determination process is carried out using the tools and expertise available at the Astronomical Institute of the University of Bern (AIUB).

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