

15th IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Measurements (1)

Author: Dr. Hauke Fiedler
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

SMARTNET(TM) - STATUS AND STATISTICS

Abstract

Situation awareness of objects in the geostationary regime is of great interest for collision avoidance by active satellites as well as for scientific research on the space debris population and their evolution over time. As the number of satellite operators and researches in this field is large, it makes sense to set up a sensor network with multiple entities to combine all available sensor measurements for a comprehensive situational picture. This will allow for cost sharing and optimising observation strategies to gain as much information as possible about the desired objects. Therefore, the German Space Operation Center, GSOC, together with the Astronomical Institute of the University of Bern, AIUB, are setting up a global optical sensor network called SMARTnetTM: the Small Aperture Robotic Telescope Network. The main objective is the free exchange of all information gathered, mainly in form of tracklet observations, within all partners involved.

In this paper, the operation of the first half year of SMARTnetTM: is presented. Results on object correlation, loss of objects of the catalogue, statistics on observable nights as well as accuracy on orbit determination is shown. Furthermore, an outlook on future stations is given. Additionally, the partnering system is introduced including the possibility for other entities to join the network and it is shown how tracklets are exchanged.