

SPACE DEBRIS SYMPOSIUM (A6)  
Measurements (1)

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## OBSERVATIONS STRATEGIES FOR SPACE DEBRIS ON HIGHLY-ECCENTRIC MEO ORBITS

**Abstract**

The Medium Earth Orbit (MEO) region becomes increasingly populated as new satellite constellations are deployed or existing constellations are replenished with new satellites. As a consequence a growing number of space debris including small size objects could be also expected in this region. After the already investigated circular MEO orbits of the GPS and GLONASS constellations the Astronomical Institute of the University of Bern (AIUB) developed survey and follow-up strategies for the search of space debris in highly-eccentric MEO orbits. These eccentric orbits include Molniya and Tundra orbits. None of these orbital planes has been systematically investigated for potential space debris so far. In this paper we present different survey and follow-up strategies for searching debris objects in highly-eccentric orbits and to acquire orbits which are sufficiently accurate for cataloguing with the objective of maintaining orbits over longer time spans. Simulations were performed to compare the performance of different strategies.