

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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GEO AND HEO DEBRIS OBJECTS TRACKING IMPROVEMENT USING AMR AND BRIGHTNESS
DISTRIBUTION INFO**Abstract**

Array of data accumulated since 2003 in KIAM space objects database include at present more than 4.5 millions of optical measurements (astrometric position and estimation of brightness) produced by numerous instruments of International Scientific Optical Network (ISON) and more than 1 million of orbital parameter estimations for nearly 3000 high altitude objects. The most interesting group of objects is represented by GEO and HEO debris. Many of them are very hard to track. Sometimes it happens due to large orbit propagation errors caused by either lack of measurements used in orbital solution or by unaccounted AMR variations resulting in improper solar radiation pressure influence modeling. But in many cases the primary cause is large short and long-term brightness variations.

We performed analysis of collected data on brightness variations and orbit propagation errors for a few hundreds of GEO and HEO debris in order to understand how to take into account these parameters in order to improve reliability of object tracking. Results of analysis are presented in this paper.