

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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EOP-1/EOP-2 MINI-OBSERVATORIES FOR SPACE DEBRIS OBSERVATIONS:
CHARACTERISTICS, TASKS AND FIRST RESULTS OF OPERATION**Abstract**

ISON optical network represents one of the largest ground-based systems specialized in observation of space debris and other objects in high geocentric orbits. Annual volume of measurements is many millions for thousands objects. Nevertheless, involvement of the KIAM in the Roscosmos project “Automated System for Prediction and Warning on the dangerous situations in the near-Earth space” (ASPOS OKP) clearly displayed that existing data stream is not enough for quality collision risk analysis in high orbits. Therefore KIAM proposed and elaborated the conception of six dedicated mini-observatories of two series (four EOP-1 and two EOP-2) sponsored by Roscosmos grants. It was planned that these mini-observatories created using the best ISON project experience would allow to quickly double the performances of ISON network. The main target of the project is a significant improvement of the situation with detecting and tracking of HEO objects and increasing the regularity of the GEO surveys in Western Hemisphere.

EOP-1 includes twin 19.2 cm telescope VT-78a with FOV of 7x9 degree, one 25-cm telescope ORI-25 with FOV 3.3 degree and one 40 cm telescope ORI-40 with FOV 2.3 degree in pavilions with moving roof. First two observatories EOP-1 are installed in Kislovodsk (North Caucasus) and Byurakan (Armenia).

EOP-2 includes quadruple VT-78a with FOV of 14x9 degree, one 40 cm telescope ORI-40 with FOV 2.3 degree and one 65 cm telescope SANTEL-650 with FOV of 2.2 degree in rotating domes. First observatory EOP-2 will be installed in Blagoveschensk (close to Far East).

VT-78 telescopes are using for surveys of HEO and GEO, ORI-25 – for survey of GEO and tracking observations of objects at GEO. HEO and LEO, ORI-40 – for tracking observations of faint objects at GEO and GTO, SANTEL-650 – for barrier observations of GEO and MEO.

The first year of operation of EOP-1 in Kislovodsk (provided by Astronomical Scientific Center, JSC) shows that a very powerful complex was created - twin 19.2 cm telescope VT-78e produced 1 million measurements of 8 million obtained by the whole ISON network. The analysis of results obtained will be presented and discussed.