Paper ID: 76215
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21st IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Space Debris Detection, Tracking and Characterization - SST (1)

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NEW STATUS OF ISON — AN OPEN INTERNATIONAL PRIVATE PROJECT

Abstract

International Scientific Optical Network (ISON) was an open international scientific project specializing in observations of the near-Earth space objects. Started in Pulkovo observatory in 2004, ISON project then continued in Keldysh Institute of Applied Mathematics RAS (KIAM RAS), and is currently under supervision of the dedicated company Small Innovation Enterprise "ISON Ballistics-Service" (SIE ISON-BS). With this goal SIE ISON-BS developed the observation scheduling center and database with possibility to provide the conjunction assessment analysis. At the peak of the project's development, it included almost 100 telescopes, but then part of the observatories associated with Roscosmos, the Vimpel Corporation and the KIAM RAS was separated. Although the termination of cooperation with government organizations led to a reduction in the number of observatories participating in the ISON to 22, the project gained more freedom in handling the measurements obtained. This allowed the SIE ISON-BS to establish an international exchange of information with a number of observatories, universities and scientific institutes, thanks to which the volume of measurements in the database has grown few times. In 2022 ISON database received in average daily 100 thousand measurements and obtained to end of year over 40 mln. measurements in almost 5 mln. tracklets, and maintains the orbits of about 10000 space objects (including 3000 GEO and 5000 HEO), from that 3000 are objects with high are to mass ratio (including 850 GEO and 1400 HEO). ISON carries out the scientific and commercial activities under grants and contracts with foreign organizations. In particular, for last 3 year it was published the 35 scientific articles including 12 on space debris topic. . The development of new high-performance measuring instruments (twin 27-cm telescopes with FOV 7x14 degrees) is underway to improve the accuracy of the orbits in catalogue. Each such telescope can obtain up to 40000 measurements in 5000 tracklets for 1000 space objects per night.