SPACE DEBRIS SYMPOSIUM (A6)
Modelling and Orbit Determination (9)

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RESULTS OF TWO YEAR DEDICATED MOLNIYA-TYPE HEO SURVEYS

Abstract

In 2012 regular surveys of Molniya-type HEO orbits were initiated within the framework of International Scientific Optical Network (ISON). Small (20cm) aperture instruments were used. Due to peculiarities of evolution of Molniya-type orbits and pretty narrow range of argument of perigee values for orbits of existing objects, near-apogee part of all such orbits are concentrated in a 'fixed band' on a celestial sphere that makes possible to build survey strategy similar to the one we are using for GEO region.

We will present results of HEO surveys performed by the ISON optical network during the last two years. Dozens of previously unknown objects were discovered in Molniya-type orbits. Along with this, more than 100 new fragments at other types of high-elliptical orbits (HEO) were discovered and studied. Each of discovered objects then was repeatedly observed in follow-up mode in order to establish and maintain accurate orbit. Brightness estimations (in integral light) were also obtained in addition to positional measurements. We will present the results of assessment of orbital (including accuracy estimation) and brightness characteristics of observed HEO objects.