Paper ID: 18408
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SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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ISON DEDICATED SURVEY INSTRUMENTS DEVELOPMENT

Abstract

International Scientific Optical Network (ISON) represents one of largest systems specializing in observation of space objects. ISON project is continuously developing and is joining now the 30 observation facilities in 14 countries with 50 telescopes of different class (aperture from 18 cm to 2.6 m). 5.8 millions of measurements in 795 thousands of tracks are collected for about 3200 objects in 2012. 270 new high-orbits objects are discovered during 2012.

Three ISON subsystems are formed for survey observations of bright objects (15m-16m) at GEO-region, ephemerides observations of high-orbit faint fragments (17m-18m) and ephemerides observations of bright GEO and HEO objects. The subsystem for surveying the HEO-objects is in development. Few telescopes of new series with large FOV were installed in ISON observatories. Two 18-cm VT-52c telescopes with FOV of 7 were installed in Nauchny-1 in Crimea. VT-78a telescopes with FOV of 7 were installed in Sanlglok in Tajikistan, Khureltogot in Mongolia and Kislovodsk, North Caucasus. Coupled VT-78a telescope with FOV of 14x4.5 was installed in Kislovodsk.

Trial surveys of HEO objects are carried out with VT-52c during 2012. Lot of uncatalogued HEO-objects is discovered. The GEO surveys are regularly fulfilled with VT-78a and twine VT-78a with large output up to 12000 measurements for 600+ objects per night. Increased measurement arc length (up to 600 minutes) is very important from the point of view of obtaining more precise orbits from just one night observations.

50-cm aperture ORI-50 telescope with FOV of 2.5 in Ussuriysk is used for local surveys of faint fragments. It will allow obtaining about 500 tracks of unknown objects and 200 of which were used for new object discovering discovery. This work is continuing with new series 65-cm aperture telescope with FOV of 2.6 that was installed in Ussuriysk in beginning of 2013.

Achieved parameters of the above mentioned telescopes, peculiarities of application and obtained results will be presented and discussed.