Paper ID: 33440
student

14TH IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Interactive Presentations (IP)

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THE AUTOMATION OF THE EQUO ON-GROUND OBSERVATORY AT BROGLIO SPACE CENTER FOR SPACE SURVEILLANCE

Abstract

The arrangement of an equatorial observatory fully dedicated to orbital debris observation significantly increase Italian and European capability to deliver support to operative spacecraft both in LEO (Low Earth Orbit) and GEO (Geostationary Earth Orbit) impact risk management and in orbital maneuver measurement. The presented paper describes the installation and the operations of the fully remote controlled EQUO (Equatorial Observatory) On-Ground at Broglio Space Center (BSC) in Malindi (Kenya) for orbital debris observation. The project is developed in the framework of the Italian Space Agency (ASI) – University of Rome "La Sapienza" Agreement for scientific cooperation at the BSC. The observatory has been developed by Sapienza Space Systems and Space Surveillance Laboratory (S5Lab) research group in order to increase space debris observation potential and it is characterized by a 200mm diameter f/4 telescope in Newtonian configuration and it is equipped with a CCD sensor with a wide Field of View (FOV) of about 9 degrees squared. The results of the observatory installation campaign at BSC concerning the firsts operations of the whole system are shown. Special focus is dedicated on how remote operations are performed in order to acquire data from different observing strategies (tracking, beam park and follow-up) at different orbital regimes and the results of the observing campaigns performed.