SPACE DEBRIS SYMPOSIUM (A6)
Measurements and Space Surveillance (1)

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POTENTIAL OF NETWORKED GROUND-BASED OPTICAL SYSTEMS FOR EARTH ORBITING DEBRIS MONITORING

Abstract

Architectures traditionally considered for Space Surveillance Systems rely on radar sensors for LEO survey and tracking, and on telescopes for the survey and tracking of MEO and beyond. Nevertheless, the enhanced positioning accuracy accessible with optical wavelengths, associated with the high sensitivity and efficiency of ground-based optical systems show very good potential in covering survey and tracking needs for objects as low as LEO. Put together with their high TRL, lightweight, easy implementation, low environmental impact and affordable development and operation costs, it appears that Space situational Awareness infrastructures can benefit from enhanced use of such ground-based optical solutions. The paper describes this potential and explains how the diurnal cycle and weather issues can be easily overcome to guaranty an availability, a reactivity and a revisit time similar to those of the radar systems. Preliminary results of on-going experiments based on Astrium Space Transportation breadboard are presented and promising perspective discussed.