SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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FAST-MOVING OBJECT DETECTION IN SPACE SURVEILLANCE

Abstract

A characteristic feature of space surveillance in optical is the fast apparent motion of space objects with respect to field stars. Reliable detection of such objects is hence a must in space situation awareness and space surveillance and tracking (SSA/SST). We describe a "brute-force" algorithm for automatic detection of moving objects, including artificial satellites, space debris, and asteroids. The algorithm is compared to other approaches, and a number of its advantages are discussed, including its flexibility and scalability to the wide range of velocities. The method presented is implemented in the Apex II image processing system and is used over the years by the International Scientific Optical Network (ISON) project for its regular SST tasks.