

SPACE DEBRIS SYMPOSIUM (A6)
Space Surveillance and Space Situational Awareness (5)

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PROCESSING SPACE DEBRIS OPTICAL MEASUREMENTS FROM SURVEY-ONLY STRATEGIES:
DEVELOPMENT OF A CATALOGUING OPERATIONAL TOOL AND VALIDATION CAMPAIGNS

Abstract

We have developed an operational tool, Prediction Visibility Tool (PreVisTo) that allows correlating space debris optical measurements. PreVisTo has several functionalities, between them: catalogue download module, that is thought for being used in the telescope station and it downloads and propagates the “public” (the software supports several formats, TLE, CCSDS, etc) catalogue for the observational period of the night; prediction module that is also thought for being used in the telescope station and it process the in-coming (in real-time) measurements and by comparison with the catalogue classifies the measurements into two different lists: new and already catalogued objects; catalogue construction and up-date module that is thought to be used in a control data centre and it re-processes the two lists of measurements (the corresponding to the new objects and to the already-catalogued objects), correlates and computes initial and routine orbit determination.

PreVisTo has been validated with an observation campaign performed from La Sagra Observatory. The campaigns of validation use the TLE catalogues. Comparison between orbits provided by PreVisTo and TLE historical are performed in this work. Moreover, the TLE historical from the observed objects have been refined with appropriated numerical techniques and the corresponding orbits have also been compared within the ones computed by PreVisTo.