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A NEW DATA SET OF MULTI-MISSION/MULTI-FREQUENCY SAR DATA FOR MARITIME MONITORING: FIRST RESULTS AND CRITICAL ANALYSIS

Abstract

This paper evaluates the capabilities offered by the synergic exploitation of multi-frequency and multi-mission Synthetic Aperture Radar (SAR) images for the enhancement of Maritime Situational Awareness (MSA). Nowadays, SAR-based ship detection methodologies have proven their effectiveness overpassing current limitations of existing monitoring systems based on Automatic Identification System (AIS). However, SAR potential for maritime surveillance is still underutilized, e.g., the fusion among data gathered by different SAR missions. A new data base of multi-mission/multi-frequency SAR data has been recently developed by the authors in the framework of COAST project, funded by the Italian Space Agency. The data base includes COSMO-SkyMed, SAOCOM, and Sentinel-1 images collected over the same areas with less than 15 minutes time lag between consecutive acquisitions. The preliminary analysis of the data set has been just completed revealing the value of multi-mission/multi-frequency SAR data for MSA.