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Sentinel-3 SAR Altimetry over Coastal and Open Ocean: performance assessment and improved retrieval methods in the ESA SCOOP Project.

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The European Sentinel-3 satellite, launched by ESA in February 2016 as a part of the Copernicus programme, is the second satellite to operate a SAR mode altimeter. The Sentinel 3 Synthetic Aperture Radar Altimeter (SRAL) is based on the heritage from CryoSat-2, but this time complemented by a Microwave Radiometer (MWR) to provide a wet troposphere correction, and operating at Ku and C-Bands to provide an accurate along-track ionospheric correction.

SRAL is operated in SAR mode over the whole ocean and promises increased performance w.r.t. conventional altimetry. SCOOP (SAR Altimetry Coastal & Open Ocean Performance) is a project funded under the ESA SEOM (Scientific Exploitation of Operational Missions) Programme Element, started in September 2015, to characterise the expected performance of Sentinel-3 SRAL SAR mode altimeter products, in the coastal zone and open ocean, and then to develop and evaluate enhancements to the baseline processing scheme in terms of improvements to ocean measurements. Another objective is to develop and evaluate an improved Wet Troposphere correction for Sentinel-3, based on the measurements from the on-board MWR, further enhanced mostly in the coastal and polar regions using third party data, and provide recommendations for use.

In this presentation we present results from the SCOOP project that demonstrate the excellent performance of SRAL in terms of measurement precision, and we illustrate the development and testing of new processing approaches designed specifically to improve performance close to the coast.

The SCOOP test data sets and relevant documentation are available to external researchers on application to the project team. At the end of the project recommendations for further developments and implementations will be provided through a scientific road