SCOOP: Evaluating the performance of Sentinel-3 SRAL SAR Altimetry in the Coastal and Open Ocean, and developing improved retrieval methods.

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SAR altimeters offer improvements to measurements of sea level in terms of higher precision, higher along track resolution (to ~300m), and the ability to retrieve measurements close to the coast.

The ESA Sentinel-3 satellite, launched in February 2016, will be the second satellite to operate a SAR mode altimeter, after the CryoSat-2 mission. The Sentinel 3 Synthetic Aperture Radar Altimeter (SRAL) is based on the heritage from Cryosat-2, but will be complemented by a Microwave Radiometer (MWR) to provide a wet troposphere correction, and will operate at Ku and C-Bands to provide an accurate along track ionospheric correction. Together this instrument package, including both GPS and DORIS instruments for accurate positioning, will allow accurate measurements of sea surface height over the ocean, as well as measurements of significant wave height and surface wind speed.

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. There is also a work package to develop and evaluate an improved Wet Troposphere correction for Sentinel-3.

The presentation will provide an overview of the SCOOP project, describe the expected performance of the Sentinel-3 SRAL in terms of sea level measurements, and discuss the anticipated benefits to monitoring of sea-level climate and open and coastal ocean circulation.
Keywords: altimeter, SAR, sea-level, open-ocean, coastal-zone

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