LOTUS— Preparing Sentinel-3 SAR Altimetry Processing for Ocean and Land.

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The Sentinel-3 satellite mission with its SRAL instrumentation contains new features compared to the conventional radar altimeter mission that form the basis for new innovative scientific analyses of both ocean and inland water levels. To utilize the full potential of the new data source, new methods and processing chains need to be developed. Subsequently, new potential Copernicus products should be developed that utilize the improved along-track resolution over both the oceans and over land. The main objective of the LOTUS project is to prepare the scientific and operational use of data from Sentinels 3. Then new operational processing, validation and delivery mechanisms need to be developed and implemented for generating the new dynamic products. Finally, the take-up of the new Copernicus products by the value-adding sectors needs to be stimulated and demonstrated to ensure that they will be used for commercial activities. LOTUS will develop processing scheme for extracting high-resolution sea surface heights, wave heights and wind speeds from SAR mode data. Over land, the LOTUS will develop processing scheme for extracting high-resolution river and lake heights, soil moisture, and snow water equivalents. This presentation shows results based on analyses using CRYOSAT data and available S-3 data. Furthermore, new DEMO data sets are presented and examples of scientific impact demonstrated.