4.3: Processed prototype datasets

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1. Dataset overview

LOTUS is a Copernicus project funded by the European Commission aiming at developing applications of Sentinel-3 (based on the use of SAR-mode data) to complete the space observation infrastructures that are designed for land and ocean monitoring for Copernicus. This in turn will support operational ocean and land services, but also provide useful value-added products for commercial activities.

Processing chains have been set up based on new methodologies and new data processing, to produce new data products for end users. Several objectives were pursued in this development:

- To utilize the full potential of the SAR-mode
- To form the basis for new innovative Copernicus products and applications that are not considered or implemented in the Copernicus services yet
- To adress the different surface targets of the Sentinel-3 topography measurements (open oceans, coastal seas, sea ice covered regions, in-land water in rivers and lakes, soil moisture, and snow water equivalent)
- To meet the needs of the different users (complementing the ESA Sentinel-3 L2 data products, and enabling the end users to get an easy access to specific higher-level information they need)

In the frame of the LOTUS project, data are processed to Levels 1, 2, 3, and 4 over the different targeted test areas (open ocean, polar ocean, coastal zone, river and lakes, soil moisture and snow). And LOTUS will distribute Levels 2, 3, and 4 data products where applicable and if relevant for end-users. Level-1 products are not available to users and are considered only as inputs to Level-2 processing.

This document lists all the prototype datasets generated in the LOTUS project. A document change log on page 2 reports all information about the prototype dataset release and notable changes made to the released datasets.

The prototype datasets are listed in the section 3.

2. Dataset processing

The LOTUS processing chains consist of refined scientific algorithms that have been designed and developed for the different surface types of interest for the Sentinel-3 mission. Processing takes place at the premises of each partner responsible of an algorithm, and data products are coordinated by CLS for distribution to the science community through the CLS cloud server (linked to the LOTUS project website http://www.fp7-lotus.eu/).

For each product the associated algorithm is described in the Algorithm Theoretical Basis Documents (ATBDs) written in WP1 and WP3.

3. Dataset list

The LOTUS project produces and distributes data products for the user community. The prototype datasets are hosted in a data center facility at CLS in Toulouse, France, and accessed over a cloud server service.

The table below lists all available prototype datasets for the end-users;

Table 3-1: LOTUS prototype datasets

Product description	Product short name	Temporal Coverage	Geographic area	File Size (MB)
L2 Open Ocean product derived from Cryosat-2 data (CPP)	CS_CPP_OO_2_OCE	1st May 2012 – 30th April 2014	N.E. Atlantic	339
			Adriatic sea	41
			Singapore bay	206
L2 Coastal Sea product derived from Cryosat-2 data (CPP)	CS_CPP_CS_2_OCE	1st May 2012 – 30th April 2013	N.E. Atlantic	200
			Adriatic sea	25
L2 Open Ocean product derived from Cryosat-2 data (ESA)	CS_ESA_PO_2_OCE	1 January 2012-31 December 2012	Svalbard	193
		20 March 2011 15-28 March 2012 20 March 2013-24 April 2013	Artic tracks	13
L2 River and Lake product derived from Cryosat-2 data (ESA)	CS_ESA_RL_2_LAN	16 July 2010 – 10 July 2014	Denmark	103
		16 July 2010 – 8 July 2014	Thailand Chao Phraya River	65
		1 October 2012 - 9 July 2014	Amazon River	332
		13 October 2012	Brahmaputra	14

Product description	Product short name	Temporal Coverage	Geographic area	File Size (MB)
		– 3 July 2014	River	
L3 Soil Moisture product derived from Cryosat-2 data (ESA)	CS_ESA_SM_2_LAN	1 January - 31 December 2013	Simpson desert	0.006
		1 January - 31 December 2013	Tenere desert	0.015
		1 January - 31 December 2013	Kalahari desert	0.008

A naming convention has been applied to LOTUS data products to help users to identify the type of data, but also the time period and the area of interest (see D4.1 and D4.2 deliverables):

The following convention is employed to name all LOTUS data products:
[Product ID]_[Zone]_[Zone Coord]_[First Date/Time Stamp]_[Last Date/Time Stamp].[ext]

Product ID:
The Product ID is based on the short name for each LOTUS data product, for example: CS_CPP_OO_2_OCE. See D3.1 and D3.2 deliverables.
The short name contains the mission identifier ("CS" for Cryosat), the data processing identifier (for example "CPP" or "ESA"), the surface type ("OO" for Open Ocean), the data level and a designator for marine or land product (typically "OCE" for ocean and "LAN" for land).

Zone designator:
The filename contains the name of the selected test area and a geographical coordinate designator that references the southwest corner and the northeast corner of this bounding box.

First Date/Time Stamp:
The UTC date/time stamp of the first data measurement that appears in the product file. Format is: YYYYMMDDThhmmss

Last Date/Time Stamp:
The UTC date/time stamp of the last data measurement that appears in the product file. Format is: YYYYMMDDThhmmss

Extension
The products are in netcdf format; the extension will be .nc

Example File Names
CS_CPP_OO_2_OCE_Adriatic-Sea_12E20E40N46N_20120506T152940_20120506T153053.nc
CS_CPP_CS_2_OCE_Adriatic-Sea_10E22E38N48N_20120506T152940_20120506T153053.nc

Note that the test area coordinates and date time designator provide the major means of identification.

4. Dataset access

All LOTUS data products will be made available to the user community.

To download LOTUS prototype datasets from the CLS Cloud shared file service, follow the link at the LOTUS's website:
http://www.fp7-lotus.eu/Publications/Prototype-data

Details of the content for each product are provided in the Data Product User Manual (DPUM) D3.2 deliverable.

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