

# SENTINEL-3 SURFACE TOPOGRAPHY MISSION (STM) USER DATA PRODUCTS

Remko Scharroo<sup>1</sup>, Carolina Nogueira Loddó<sup>1</sup>, Hilary Wilson<sup>1</sup>, Hans Boonekamp<sup>1</sup>, Vincenzo Santacesaria<sup>1</sup>, Pierre Féménias<sup>2</sup>,  
Laiba Amarouche<sup>3</sup>, Philippe Sicard<sup>3</sup>, Alessandra Buongiorno<sup>2</sup>

<sup>1</sup> EUMETSAT, Germany; <sup>2</sup> ESA, Italy; <sup>3</sup> CLS, France



## INTRODUCTION

The Sentinel-3 Surface Topography Mission (STM) is a key component of the Copernicus Sentinel-3 mission, set to revolutionise operational oceanography with a suite of advanced surface topography data products over ocean and sea-ice. In addition the STM will collect data over all earth surfaces providing improved monitoring of River and Lake stage heights and inputs to the development of Digital Elevation Models.

The STM includes a dual-frequency (Ku and C band) advanced Synthetic Aperture Radar Altimeter (SRAL) supported by a microwave radiometer (MWR) for atmospheric correction and by a GNSS and a DORIS receiver for orbit positioning. It will be the first Earth Observation mission with the capability to provide up to 100% SAR altimetry coverage. In order to fully exploit the SAR capability, and validating the algorithms evolution, lower level data products (L1A, L1B and L1B-S) will potentially be made available to the users, in addition to the level 2 products.

This poster provides an overview of the S-3 STM data products that will be generated operationally within the Sentinel-3 Payload Data Ground Segment by the Instrument Processing Facilities (IPFs), including the potential new products.

## SRAL PROCESSING LEVELS, PRIMARY USER APPLICATION AND TIMELINESS

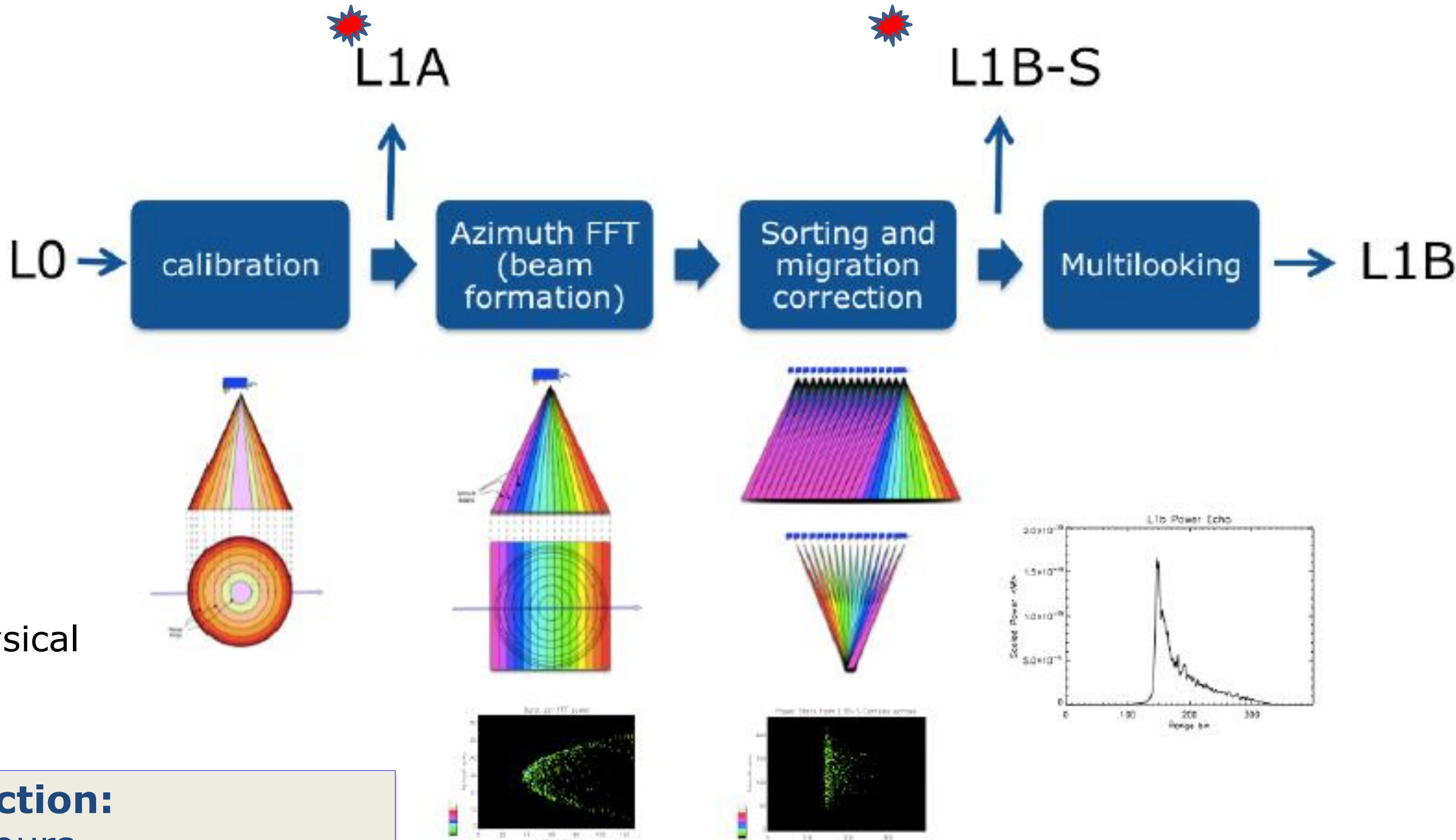
**L0:** reconstructed and time sorted ISPs  
➤ *internal product not distributed*

**L1A:** sorted and calibrated unpacked L0 complex echoes including geo-location information  
➤ *Intended to be used by SAR processing experts (STC, NTC)*

**L1B-S:** Geo-located, calibrated azimuth formed complex (I and Q) echoes after slant/Doppler range correction over a fixed point on the ground-track. No averaging of individual Ku waveforms (i.e. multi-looking/stacking)  
➤ *intended to be used by geophysical retrieval algorithm developers and QC systems (STC, NTC)*

**L1B:** geo-located engineering calibrated data  
➤ *user product (NRT, STC)*

**L-2:** altimeter range, orbital altitude, time, water vapour from the MWR and geophysical corrections, along with significant wave height and wind-speed information  
➤ *user products (NRT, STC, NTC)*

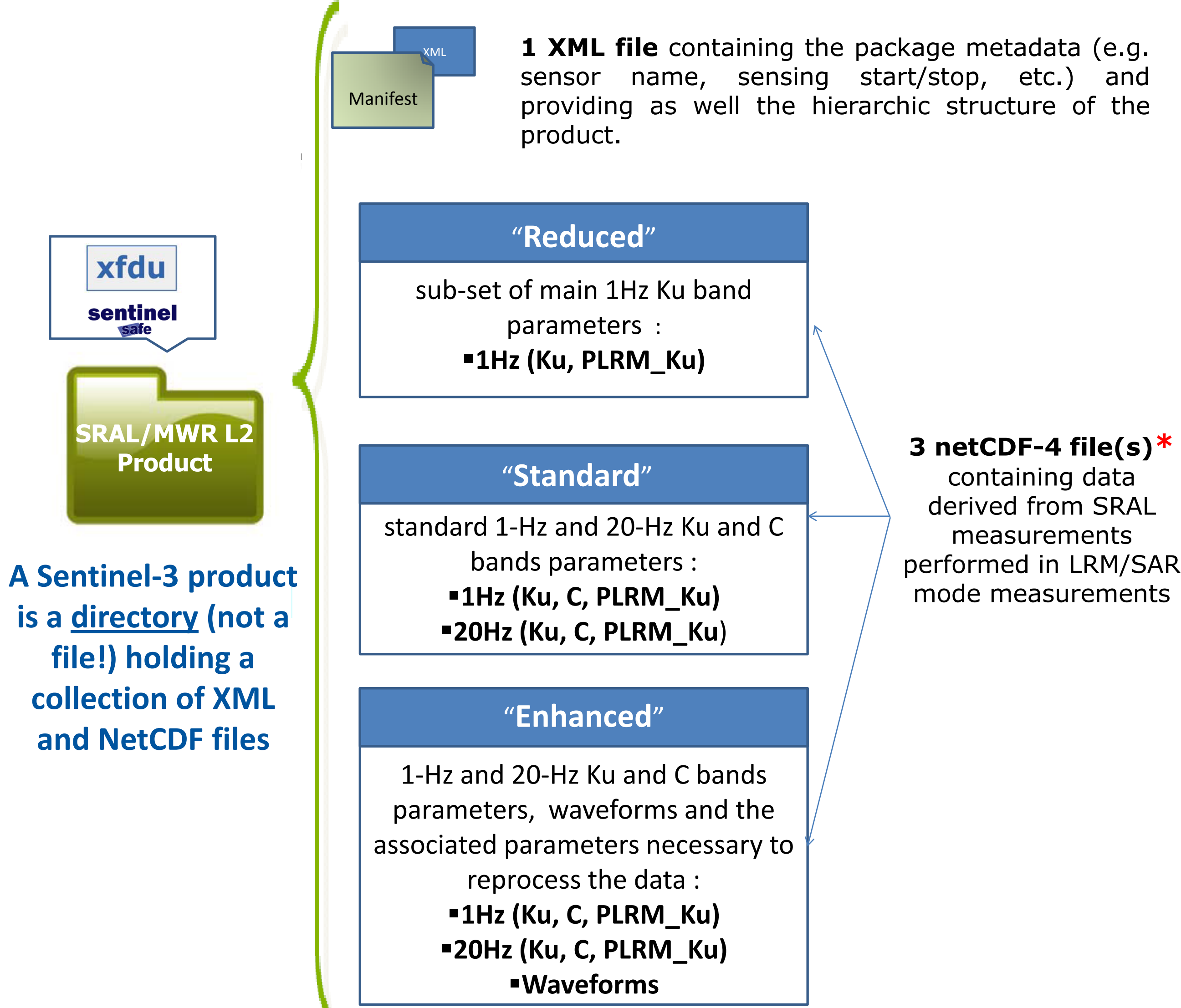


**Global and Systematic Production:**

- Near Real Time (**NRT**) < 3 hours
- Short Time Critical (**STC**) < 48 hours
- Non Time Critical (**NTC**) < than 1 month

**Potential NEW products**

## L2 FORMAT AND CONTENTS



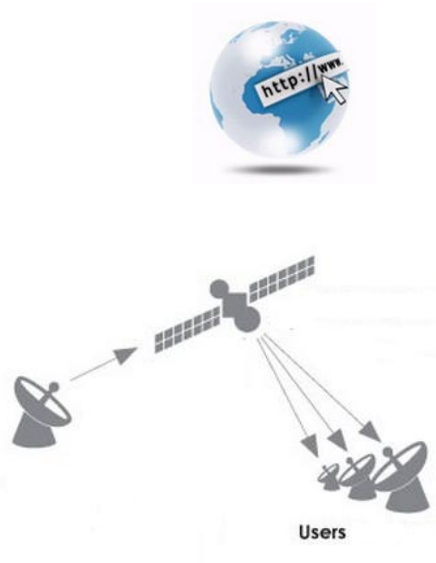
\*The complete SRAL/MWR L2 Package consists of 3 netcdf files, in addition to the XML files, although subscription to online data access for retrieval of pre-defined datasets is also foreseen, e.g.:



## DISTRIBUTION

➤ ESA & EUMETSAT will provide access to data **online** (subscription for products retrieval from an operational ftp server)

➤ EUMETSAT will also disseminate NRT and STC Products through EUMETCast Dissemination Service, directly at the reception station (subscription to **EUMETCast**)

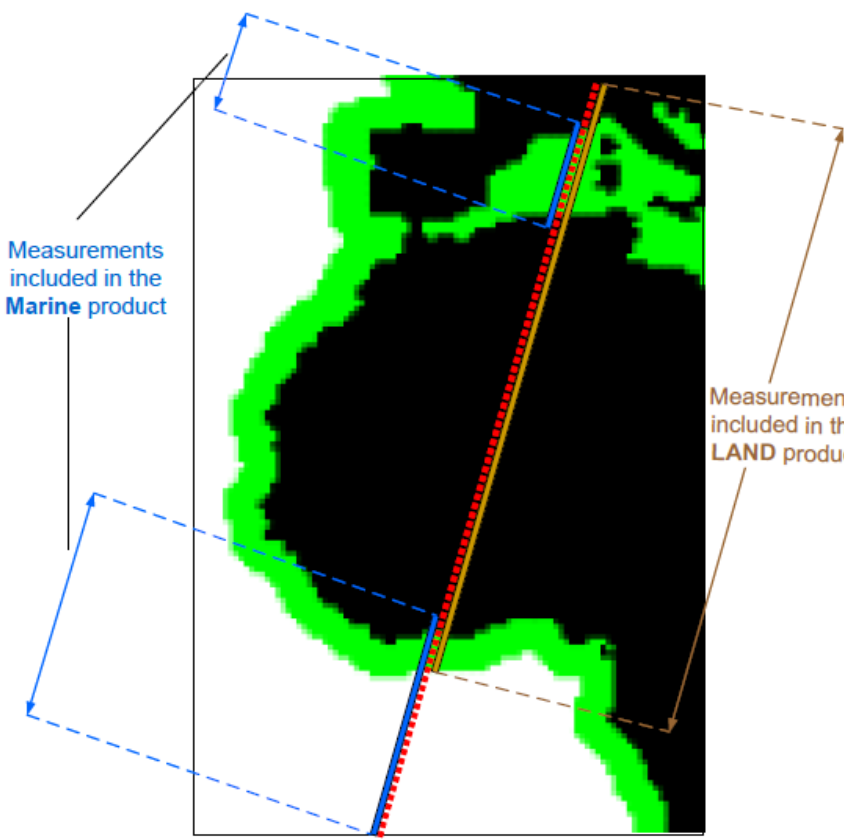
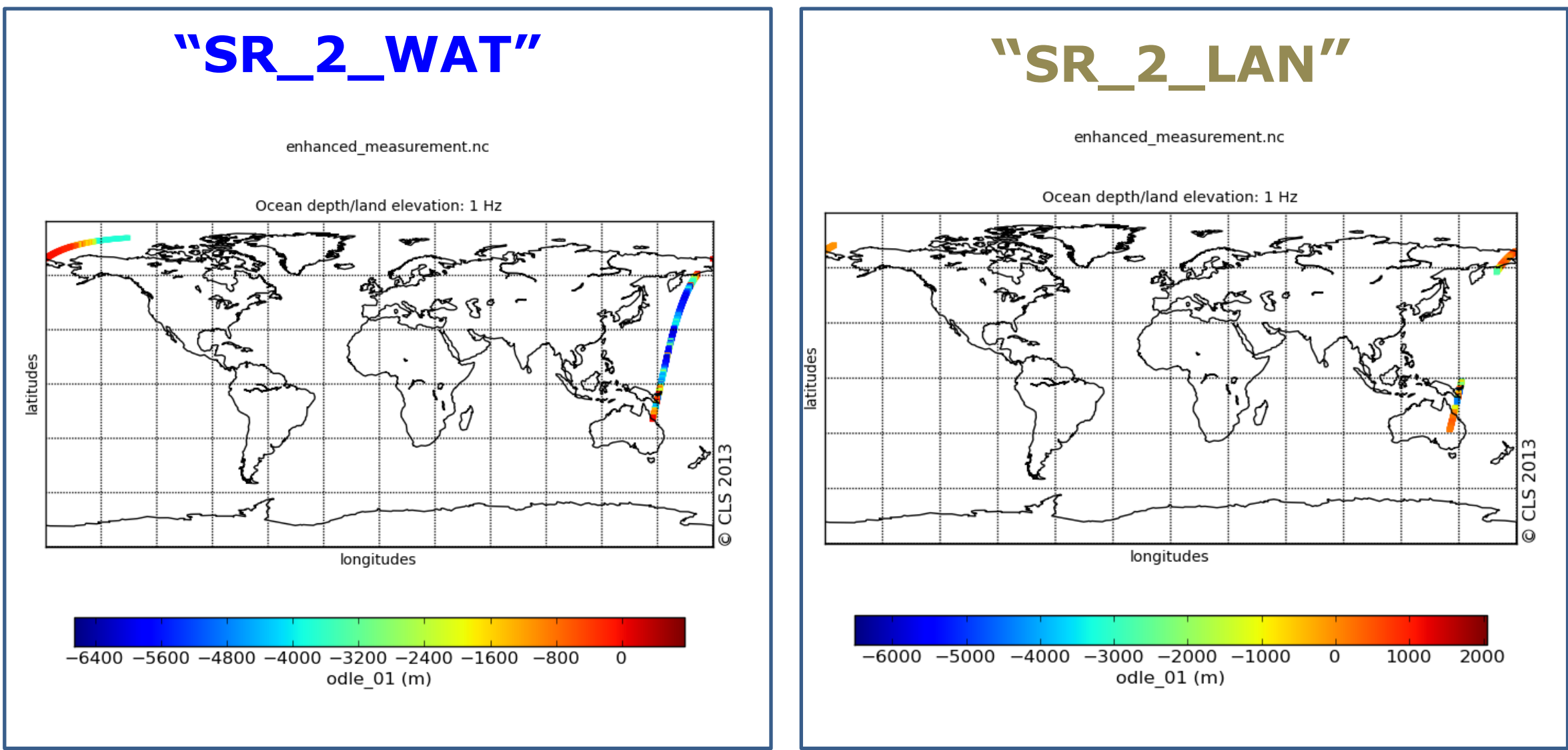


## L2 PRODUCTS CLASSIFICATION

L2 products are split into **Marine** and **Land** using a Land/Water mask:

- Open ocean and sea-ice are included in the **Marine** products
- Land, in-land water and in-land ice are included in the **Land** products
- Coastal area (~ 300 Km) are included in **Marine** and **Land** products

Examples of L2 Marine (**SR\_2\_WAT**) and Land (**SR\_2\_LAN**) products from the IPF (generated by CLS)



### PDGS Centres generating L2 Products:

**SR\_2\_WAT** : Marine Centre (NRT, STC, NTC)

**SR\_2\_LAN** : Core Ground Station (NRT)  
Land STM Centre (STC, NTC)

## DISTRIBUTION SUMMARY

Product	EUMETCast	ODA (*) only special users	Long Term Archive (UMARF/ NgEO)	Timeliness	Size per orbit (GB)
SRAL L0		(✓)	(✓)	NRT	8.3
MWR L0		(✓)	(✓)	NRT	0.02
MWR 1B		(✓)	(✓)	NRT	0.02
SRAL L1A		✓	✓	STC, NTC	8.3
SRAL L1B	✓	✓	✓	NRT, STC	0.75
SRAL L1B-S		✓	✓	NTC	
SRAL L2 WAT	✓	✓	✓	STC, NTC	8.3
SRAL L2 LAN	✓	✓	✓	NRT, STC	0.2
		✓	✓	NTC	0.2

**Potential NEW products**



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