Sentinel-3 L2P-L3 Sea Level Marine **Altimetry Service**

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Introduction

The Sentinel-3 L2P/L3 Sea Level Marine Altimetry Service is supported by Eumetsat in the frame of the Copernicus program funded by the European Union. It operational service an operated by CNES and CLS (operational since 27th of June 2017) for marine surface for NRT (near-real-time), STC (short-timecritical), NTC (non-time-critical) products. intended The users are: operational oceanography, modelers, climate researchers. This poster presents:

Audeu value of LZF/LS products				
L2 products (altimetry)	L2P products (altimetry)	L3 products (altimetry)		
 Along-track products containing all information measured by altimetry satellite over ocean and land Comments : Altimetry standards and format not homogenous between the different altimetry missions Relative biases uncorrected for altimeter parameters 	 Along-track products containing information relative to sea-level only on marine surface Added value versus L2 : >Homogenization of format and altimetry standards between all the altimetry missions >Global and regional sea-level biases are corrected versus a reference mission >Selection of valid measurements to calculate sea-level height >Empirical correction to remove errors in L2 products (e.g. time tag bias) 	 Along-track products that contain time, sea leanomaly and absolute dynamic topography for variantic surfaces Added value versus L2P: Projection of measurements on a mean ground trate Discrepancies between altimetry missions areduced (e.g. error orbit, long wavelength errors) Sea-Level height is filtered out and subsampled provide users with a useful sea-level content oceanographic applications 		

Added value of 12D/12 products

• Main objectives of Sentinel-3 L2P-L3 Service

• Complementarity with other existing services : (SALP/CNES and CMEMS), a status of the current operational production Information on how to access L2P/L3products and the evolutions for potential this service

Presentation of the L2P/L3 service

Sentinel-3 L2P/L3service is complementary to other existing services:

L2P-SALP service supported by CNES for several years for all the altimetry missions (excepted S3) :

o Jason-2/3, SARAL/AltiKa, Crysoat-2, HY-2A for current altimetry missions

• TOPEX/Poseidon, ERS-1, ERS-2, GFO, Envisat, Jason-1 for ended missions

L3-CMEMS service supported by

Mercator for all the altimetry missions . (excepted S3)



Input : Sentinel-3 L2 data from Eumetsat and auxiliary data •

- **Production** of L2P and L3 products
- **Dissemination** on AVISO+ ftp (L2P) and by CMEMS (L3)

Distribution of **quality monitoring reports**

- Archiving of L2P and L3 products
- Users can ask questions to the help desk •

Status of operational production

The Sentinel-3 L2P/L3 Altimetry Service was in **pre-operational phase since** the 15th of December 2016, and has been now an operational service since the 27th of June 2017

Product type	timeliness	Production status
S3A-L2P	NRT	From 14/12/2016 to present (t - ~4 hours)
	STC	From 12/01/2017 to present (t - ~2 days)
		From $\frac{24}{12}$



- Several operational requirements exist for this service as for instance :
 - The delivery delay of Near Real Time L2P products upon reception of the input NRT L2 shall be less than 1 hour with a goal of 0.5 hours.
 - The availability of L2P products shall be better than 85% in 1h with regard to the available corresponding L2 products.

120

Key Point Indicators (KPI) has been developed to follow the efficiency and the quality of the service



More than 93% of L2P NRT products are delivered to users within 1h after the corresponding L2 product is





	NTC	(t - ~40 days)
S3A-L3	NRT/STC	From 29/03/2017 to present (t - ~5 hours)
	Delayed time	From 24/12/2016 to 6/01/2017

20

20

0.1

Sea Level Anomaly L2P (m)

0.1

Sea Level Anomaly L2 (m)

- L2-NTC products have been recently reprocessed from 15/06/2016 : •
- \Rightarrow L2P and L3 products (NTC delayed time) are also reprocessed over the same period (on going)
- ⇒ Available on November 2017 for L2P and in March 2018 for L3 products

30

30

0.2

0.2

S3-A sea-level anomalies (L2P STC)

- products : Spurious measurements and biases L2 between missions are detected
- b) L2P products : Spurious measurements and global biases are removed, SLA is more homogenous
- c) L3 products : sea-level is filtered and subsampled and discrepancies between missions adjusted

Along-track SLA for : Jason-3 (IGDR), SARAL/AltiKa (IGDR), Sentinel-3A (STC) from 01/09/2017 to 15/09/2017



Conclusions and perspectives

- Sentinel-3 L2P/L3 Marine Altimetry Service is fully operational:
 - S3-A L2P products are provided in 3 timeliness's (NRT, STC, NTC)
 - S3-A L3 products are provided in 2 timeliness's (NRT/STC, NTC)
 - Timeliness requirements are reached
 - with L2P-SALP • Complementary and L3-CMEMS services
- Evolution of the S3 L2P/L3 marine altimetry service in 2018 :
- S3-B will be integrated : first L2P/L3 products are expected by the end of 2018
- Reprocessing of L2P S3-A products is foreseen to take into account evolution of S3 L2 products (see Labroue's talk)
- Reprocessing is on going to extend dataset from 15/06/2016 onwards
- In the future, others kinds of products derived from Altimetry and Sentinel-3 missions could be integrated in the marine L2P/L3 service as :

32

L2 products

-0.1

L2P products

-0.1

10

10

0.0

0.0

- Significant Wave Height and Wind L2P/L3 products
- High resolution L2P/L3 sea-level products (see Faugere's talk)

Data access			
Products	Missions	Timeliness	
	All (*)	NTC (delayed time)	AVISO+ FTP: <u>https://www.aviso.altimetry.fr/en/data/data-accessregistration-form.html</u>
L2P	S3A	NRT and STC (real time)	 AVISO+ FTP: <u>https://www.aviso.altimetry.fr/en/data/data-access/endatadata-accessregistration-form.html</u> EUMETCAST:<u>https://www.eumetsat.int/website/home/</u>Data/DataDelivery/EUMETCast/index.html
L3	All (*)	NRT/STC (real time) and NTC	CMEMS: <u>http://marine.copernicus.eu/services-</u> portfolio/register-now/), products:

(*) All = Jason-2/3, SARAL/Altika, Crysoat-2, HY-2A (for current altimetry missions) and TOPEX/Poseidon, ERS-1, ERS-2, GFO, Envisat, Jason-1 (for ended missions) Handbooks:

(delayed time)

- L2P products : https://www.aviso.altimetry.fr/fileadmin/documents/data/tools/hdbk_L2P_S3.pdf
- L3 products : <u>http://marine.copernicus.eu/documents/PUM/CMEMS-SL-PUM-008-032-051.pdf</u>



OST/ST meeting, Oct 23rd- Oct 27th, 2017



- SEALEVEL_GLO_PHY_L3_NRT_OBSERVATIONS_008_044

- SEALEVEL GLO PHY L3 REP OBSERVATIONS 008 045