



RÉPUBLIQUE  
FRANÇAISE

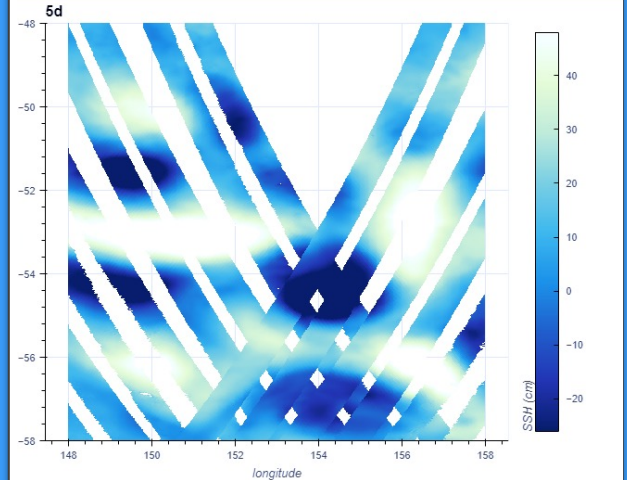
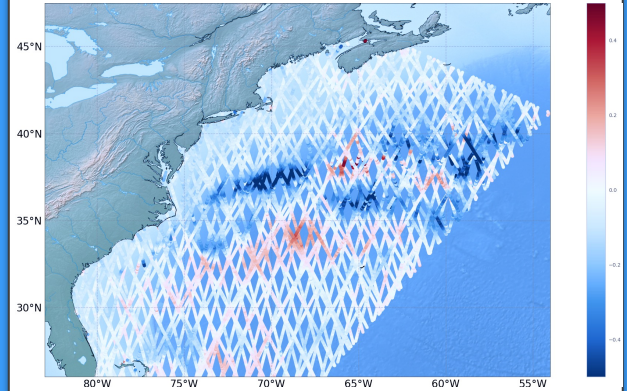
*Liberté  
Égalité  
Fraternité*



UNIVERSITÉ  
TOULOUSE III  
PAUL SABATIER

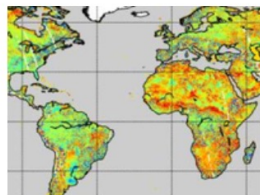
# CTOH products and altimetry applications over the ocean, coasts, and continental surfaces

Fernando Niño, Damien Allain; Florence Birol;  
Fabien Blarel; Robin Chevrier; Wassim Fkaier;  
Benoît Laurent; Fabien Léger; Rosemary Morrow



# The new CTOH website, access through catalogue matrix.

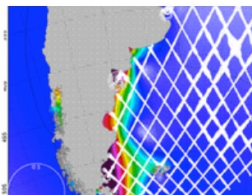
Welcome to the CTOH website, here you will find information about this team, its goals, its products, and the applications we work on.



## CTOH PRODUCTS

Access to CTOH's data and products. To download and use data, you must be a registered user, but anyone can browse the catal...

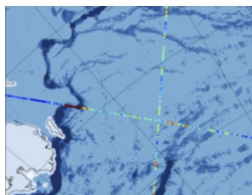
[Read more →](#)



## COASTAL ALTIMETRY

Regional Products The CTOH computes and distributes specific, coastal products: One hertz along track Sea Level Anomaly : SLA 1Hz Hi...

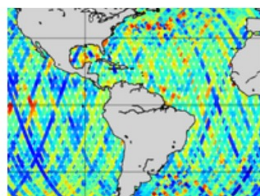
[Read more →](#)



## SEA-ICE ALTIMETRY

Sea Ice Thickness measurement using Satellite Altimetry A new version is available: It includes the ice freeboard, the snow depth and the sea l...

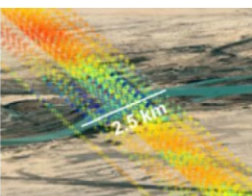
[Read more →](#)



## MESOSCALE OCEAN ALTIMETRY

Description and data access to enhanced Alongtrack MGDR data – available over the oceans and continents. Data access Access...

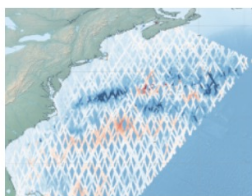
[Read more →](#)



## HYDROLOGY AND ALTIMETRY

Altimetry can be used to obtain water level heights on sites where no data has been collected. Efforts for obtaining reliable long-ti...

[Read more →](#)



## CTOH PROJECTS

Current Projects Archived Projects & Products Please note all these products are not distributed anymore. Some of these have been migrat...

[Read more →](#)

Application	Product Name	Product Kind	Coverage	Time range
Ocean / Coastal / Hydrology & Cont. Surf.	<a href="#">Altimetric normalized pass (available soon)</a>	Along Track, L2	Global	1995 – now
Ocean	<a href="#">FES2014 altimetric corrections</a>	Gridded	Global Ocean	1992 – 2020
	<a href="#">Inertial Currents</a>	Gridded	Global Ocean	1999 – 2006
	<a href="#">Antarctic Circumpolar Current (ACC) – fronts product</a>	Gridded	Regional	1993 – 2021
	<a href="#">Southern Ocean Polar Fronts (Obsolete)</a>	Gridded	Regional	1993 – 2018
Sea Ice	<a href="#">Sea-Ice Thickness North Hemisphere CryoSat-2</a>	Gridded	Regional	2010 – 2019
	<a href="#">Sea-Ice Thickness North Hemisphere Envisat</a>	Gridded	Regional	2002-2012
	<a href="#">Sea-Ice Thickness North Hemisphere Envisat CryoSat-2</a>	Gridded	Regional	2002-2017
	<a href="#">Sea-Ice Thickness from Altimetry</a>	Gridded	Regional	1994-2022
	<a href="#">Altimetric data of the Cryosat-2 mission (Obsolete)</a>	Along Track, L2	Global	2010 – 2015
Hydrology and continental surfaces	<a href="#">Altimetric data of the ERS-2 mission</a>	Along Track, L2	Global	1995 – 2003
	<a href="#">Altimetric data of the TOPEX mission</a>	Along Track, L2	Global	1992 – 2002
	<a href="#">Hydrological surface monitoring and river discharge using multi-sensor satellite observations in the McKenzie Delta (Canada)</a>	Time series	Regional	2006 – 2012
	<a href="#">Hydrological surface monitoring in the Inner Niger Delta</a>	Time series	Regional	1995 – 2017
	<a href="#">Water level monitoring in the Ogooue river basin (Gabon)</a>	Time series	Regional	1995 – 2017
	<a href="#">Altimetric Backscattering</a>	Along Track, L2	Continental	1995 – 2010

# Data access – information and download

Log In

This page is a global login system for Aeris and DataTerra partners. Please login or register with your SSO Account, Renater or Orcid.



Email  
fernando.nino@legos.obs-mip.fr



Password  
.....

Remember me [Forgot Password?](#)

[Log In](#)


New user? [Register](#)

 [Go to LEOS Website](#) [Administration](#) [Contact](#) 

[HOME](#) [ABOUT CTOH](#) [CTOH PRODUCTS](#) [MY DATA REQUESTS](#)

Catalogue

 **Inertial Currents**

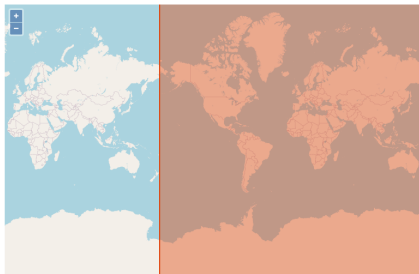
[INFORMATION](#) [DOWNLOAD](#) [STATISTICS](#)

## Abstract

Climatology of near-inertial currents.

Global climatology of near-inertial current characteristics from satellite-tracked drifters. Data analysed : 8500 near-surface attached at 15 m depth.

## Spatial extents




## Contacts

### Authors

CTOH  
 Observatoire Midi Pyrénées (OMP) - Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEOS)  
 <https://www.legos.obs-mip.fr/ctoh>

### Publisher

 Université de Toulouse, CNRS, UPS, IRD, CNES

 **Inertial Currents**

[INFORMATION](#) [DOWNLOAD](#) [STATISTICS](#) [INTEROPERABILITY](#)

### How to cite

**Main entry citation**  
CTOH. (2008). Inertial Currents. [Dataset]. Odata. [https://doi.org/10.6096/CTOH\\_INTERNAL\\_CURRENTS\\_2012\\_01](https://doi.org/10.6096/CTOH_INTERNAL_CURRENTS_2012_01)

**Cite specific versions**

### Data policy


**Description**  
Learn more about licensing  
<https://www.legos.obs-mip.fr/legos/licence-to-use-ctoh-products/>

### Data Download

I agree to the Data Policy [DOWNLOAD ALL](#)


/

**PARENT DIRECTORY**

 Global\_climatology\_Inertial\_Current\_Characteristics.nc 361.2 kB — 16/10/2023 02:33:36

[NEW FOLDER HERE](#) [UPLOAD FILE\(S\) HERE](#)

### Data Access Permissions

 Sign-in is required to download data.

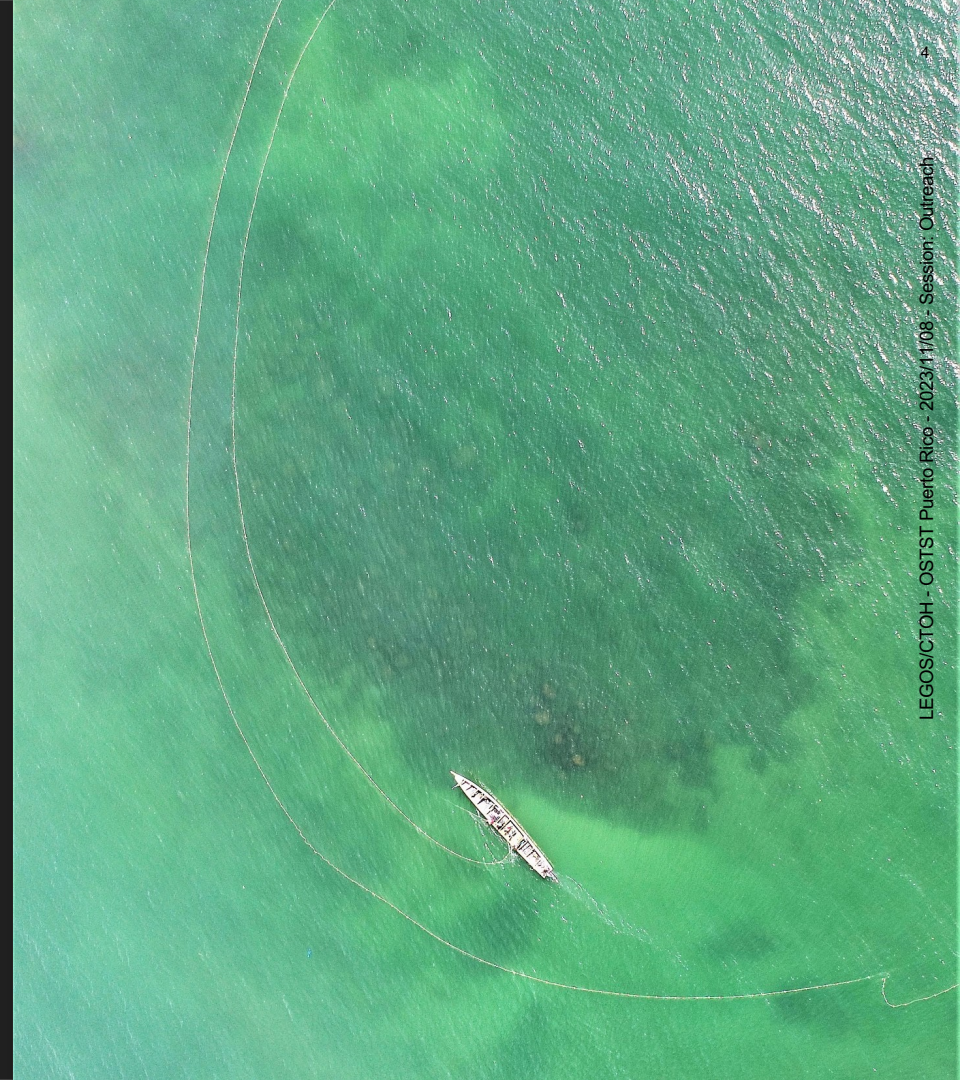
### Versions

Version	Type	Created date	Comments	Share
01	Created	2008-05-01	Temporal resolution: Annual and Seasonal (averaged)	



“

# Ocean products



# Antarctic Circumpolar Current (ACC) - weekly position of 3 major polar fronts

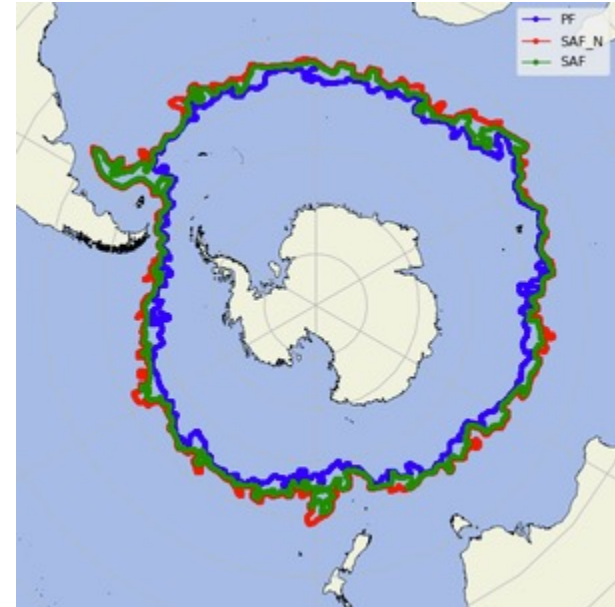
*F. Leger & R. Morrow (CTOH/LEGOS)*

The technique assumes that iso-contours of satellite absolute dynamic topography (ADT) can be proxies for the traditional sub-surface hydrographic definition of the main Southern Ocean fronts. (*Sallee et al., 2008; Auger, 2018*)

**Contents:** monitor the position of the three main fronts of the Antarctic Circumpolar Current (ACC)

- the Polar Front,
- the northern and southern branches of the Subantarctic Front (SAF-N and SAF-S).

<https://www.aviso.altimetry.fr/en/data/products/value-added-products/acc-fronts-product.html>



*Example : Mean Polar Fronts positions during the week 05 Mar 2012. Credits CNES/LEGOS/CTOH.*

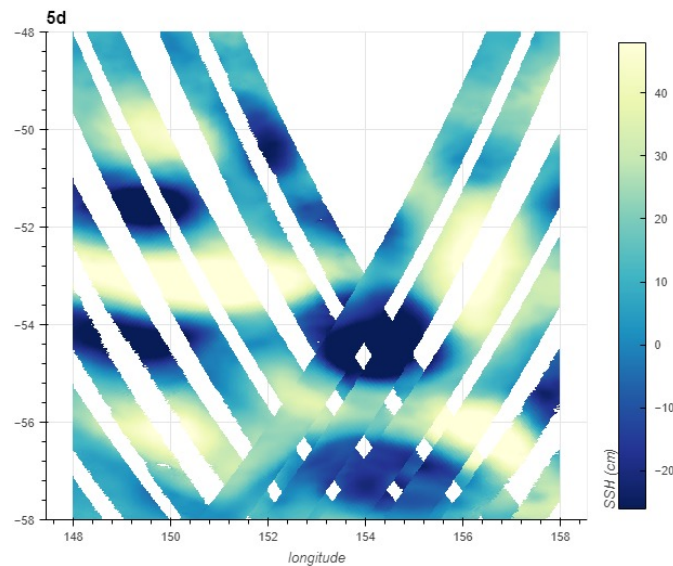
# CTOH Support for accessing SWOT data for science studies

*R. Chevrier (CLS), O. Vergara (CLS), R. Morrow (LEGOS)*



- Spectral analyses of nadir altimetry and SWOT KaRIn : code & analyses
- Support for running SWOT ocean simulations on CNES machines
- User support for accessing the SWOT Ocean LR data on CNES server : SWOT Science Team members
- Code sharing for SWOT data access and early analyses on CNES machines, and on a SWOT github (future : after SWOT ST meeting)
  - for SWOT KaRIn and nadir data
  - SWOT and multi-mission altimetry data
  - SWOT and multi-satellite data (SST, ocean colour, ...)
- Regular training for users

5-days of Karin SSH : Southern Ocean





“

# Coastal sea level products



# CTOH coastal sea level products

All the CTOH coastal product derived from the X-TRACK processing, developed in the 2000s in order to recover as much altimetry sea level data as possible in the coastal zones.

In Improving the number and quality of near-shore sea level data, X-TRACK allows to better understand the coastal ocean, its variability (past, present, future) and how sea level evolves from the open ocean to the coastal zone.

From the initial X-TRACK sea level product, the CTOH derives different products for coastal applications such as :

- Tidal
- Coastal dynamics studies
- Long-term sea level change.

**All are freely available through different web portals.**

*CTOH sea level products table and altimetry missions associated*

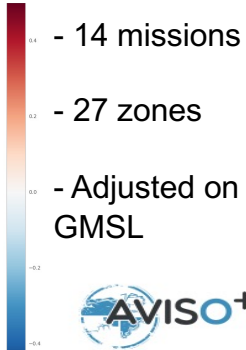
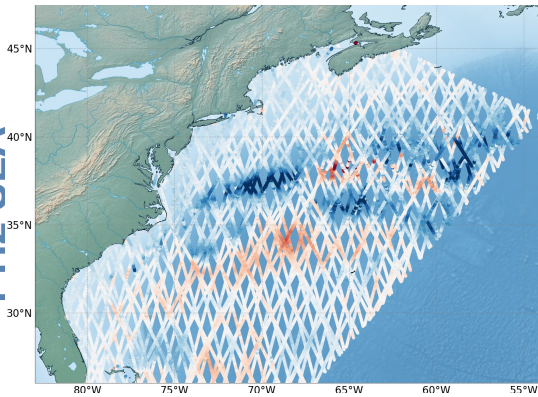
X-TRACK Product	Altimetry mission													
	Topex	Jason-1	Jason-2	Jason-3	Topex interleaved	Jason-1 interleaved	Jason-2 interleaved	ERS-1	ERS-2	Envisat	SARAL	Geosat Follow-On	Sentinel-3A	HaiYang-2A
Historical 1 Hz	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Tidal 1 Hz	Green	Green	Green	White	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
ALES 20 Hz	White	Green	Green	Green	White	White	White	White	White	Green	Green	Green	Green	Green
Trends 20 Hz	White	Green	Green	Green	White	White	White	White	White	White	White	White	White	White
L2P 1 Hz	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green



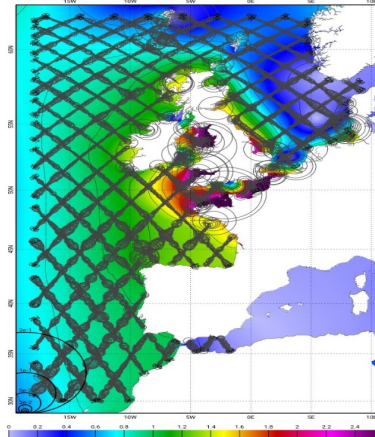
# CTOH coastal sea level products

X-TRACK/L2P

1 Hz SLA



X-TRACK tidal constituent



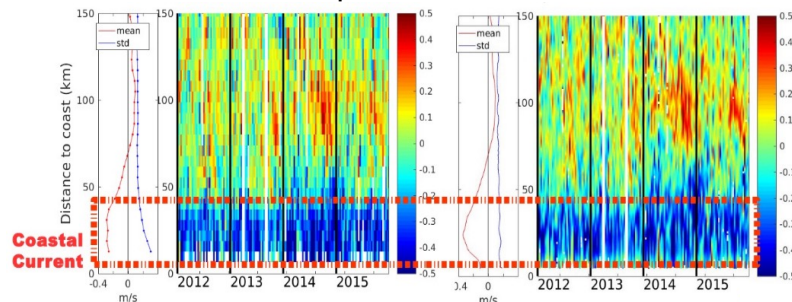
- 2 different orbits
- 73 tidal constituents
- 22 coastal zones



- High spatial resolution product



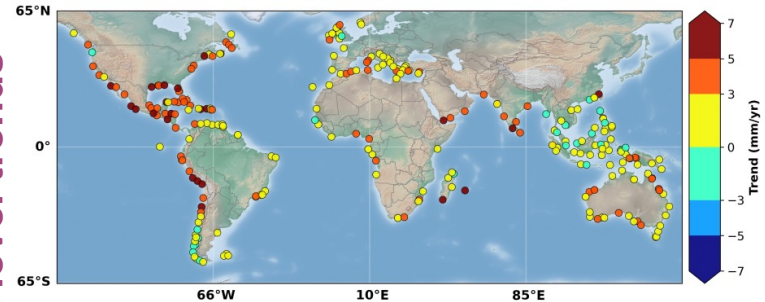
- sea level time series up to 1.2-4 km to the coast



X-TRACK/ALES

20 Hz SLA

Long-term coastal sea level trends



- 756 altimetry virtual coastal stations

- trends from 18 years time series



“

# Hydrology and Altimetry

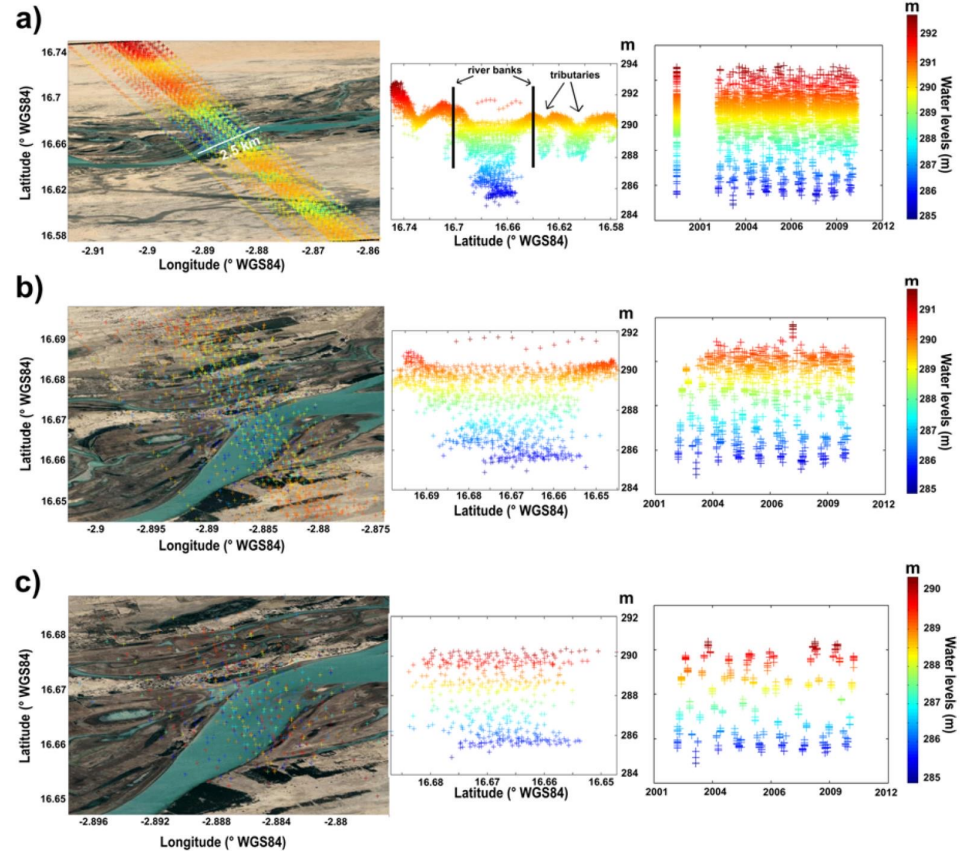




# Hydrology

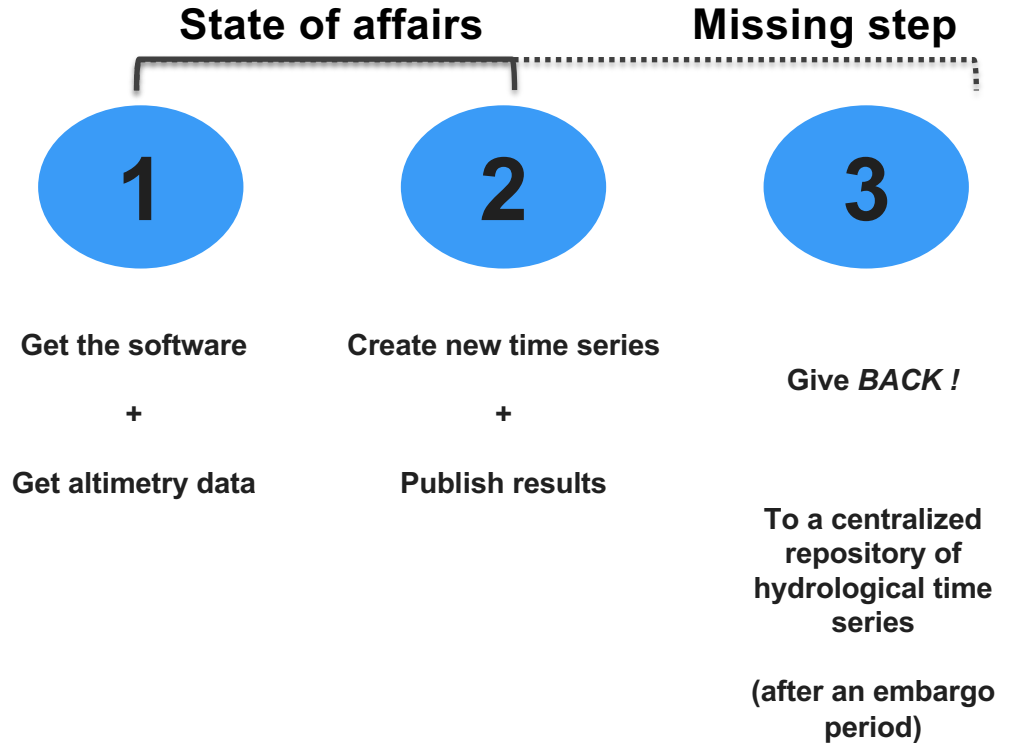
Main products:

- *AITiS – Altimetric Time Series* software for hydrological applications
- Data for AITiS
- River water level from SINC retracker



## Two main products:

- **AITiS – Altimetric Time Series software for hydrological applications**
- **Data for AITiS**





# In summary

## Data Access



Single Sign-On for education, connecting identity federations around the world.

DOI link to data catalogue

## Ocean Products

Updated polar fronts product

Support for accessing SWOT data for science studies

## Coastal Sea Level Products

New Products at 1Hz and 20Hz, many missions considered.

X-TRACK  
Tidal constituents  
SLR trends

## Hydrology

AITiS Software & data for determination of Water Surface Level in hydrology virtual Stations.

WSL time series for rivers  
SINC retracker