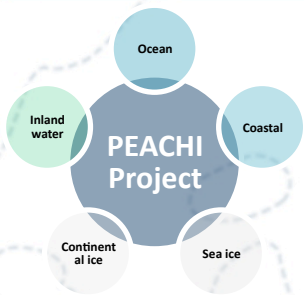


# On the use of the PEACHI Prototype to improve Ka-band altimeter data along coastal areas

**G. Valladeau, P. Thibaut** : Collecte Localisation Satellite, France

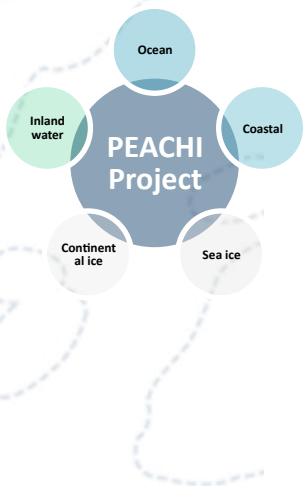
**A. Guillot, N. Picot** : Centre National d'Etudes Spatiales, France

**& the PEACHI team (CLS, CNES, LEGOS)**

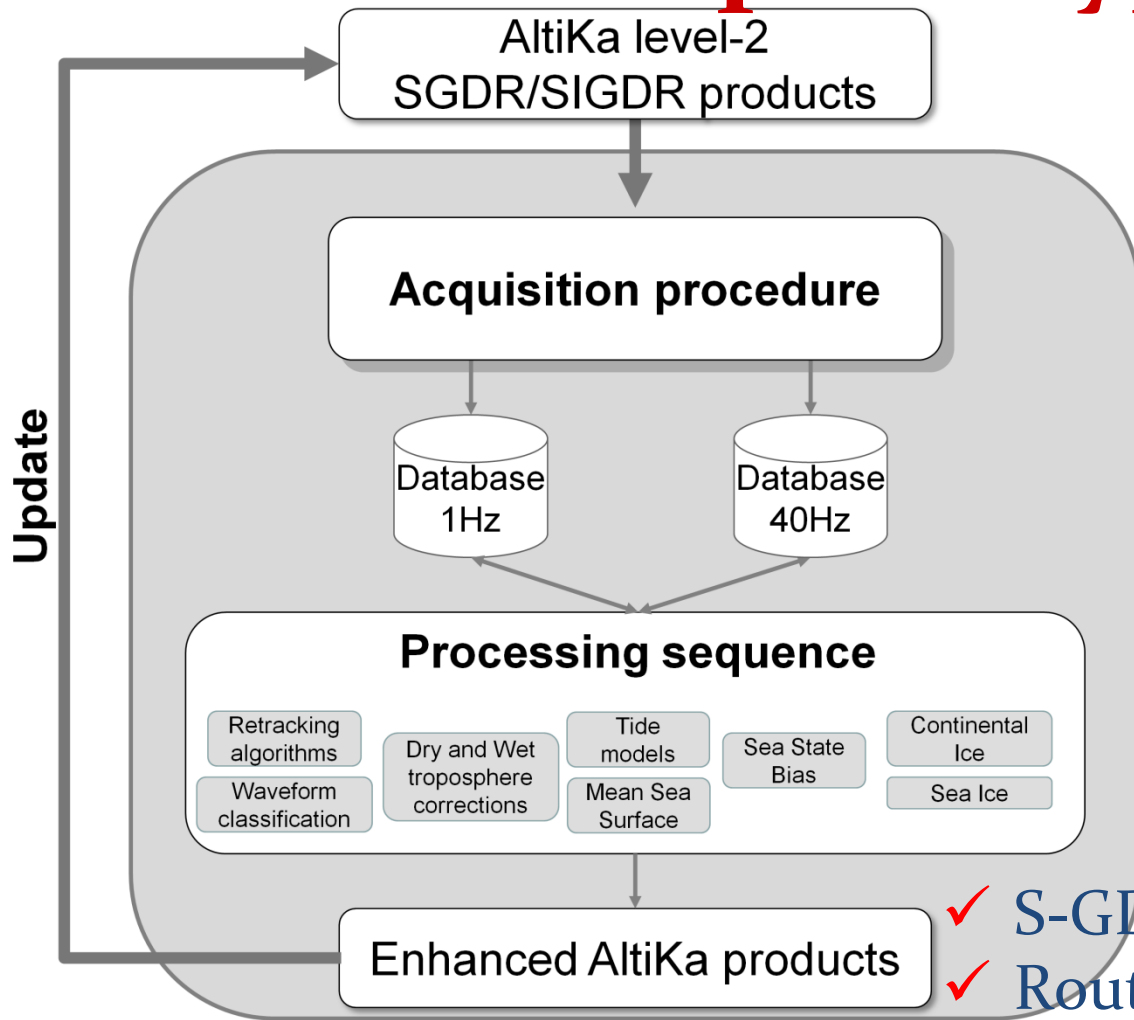


# The PEACHI project

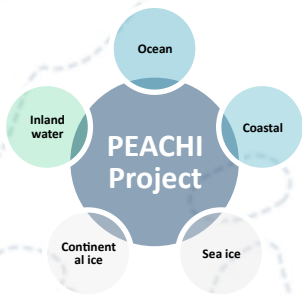
- Analyze and improve dedicated processings relative to the Ka band, especially for the SARAL mission
- Validate and implement the existing algorithms before their application in the operationnal products
- Process new algorithms and parameters linked to scientific applications (coastal areas, surface hydrology, ice, ...)
- Ensure both complementarity and continuity with the altimeter products provided in the open ocean



# The PEACHI prototype

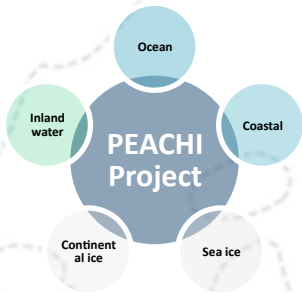


✓ S-GDR and S-IGDR  
 ✓ Routinely performed



# Presentation outline

- Coastal performances of AltiKa
- Retracking process in coastal areas
- Radiometer coastal assessment
- Availability of products from the PEACHI prototype



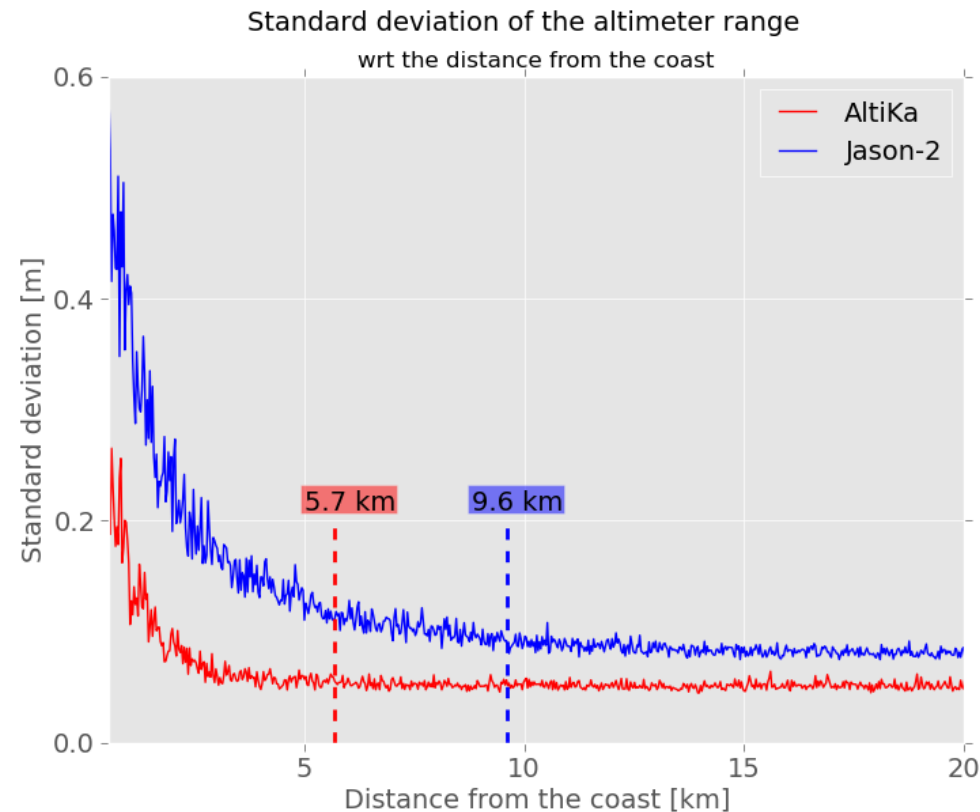
# Coastal performances of AltiKa

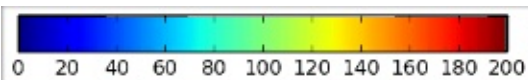
# Coastal performances

With respect to Jason-2, better performances are expected close to the coasts thanks to 40 Hz sampling and a smaller waveform footprint:

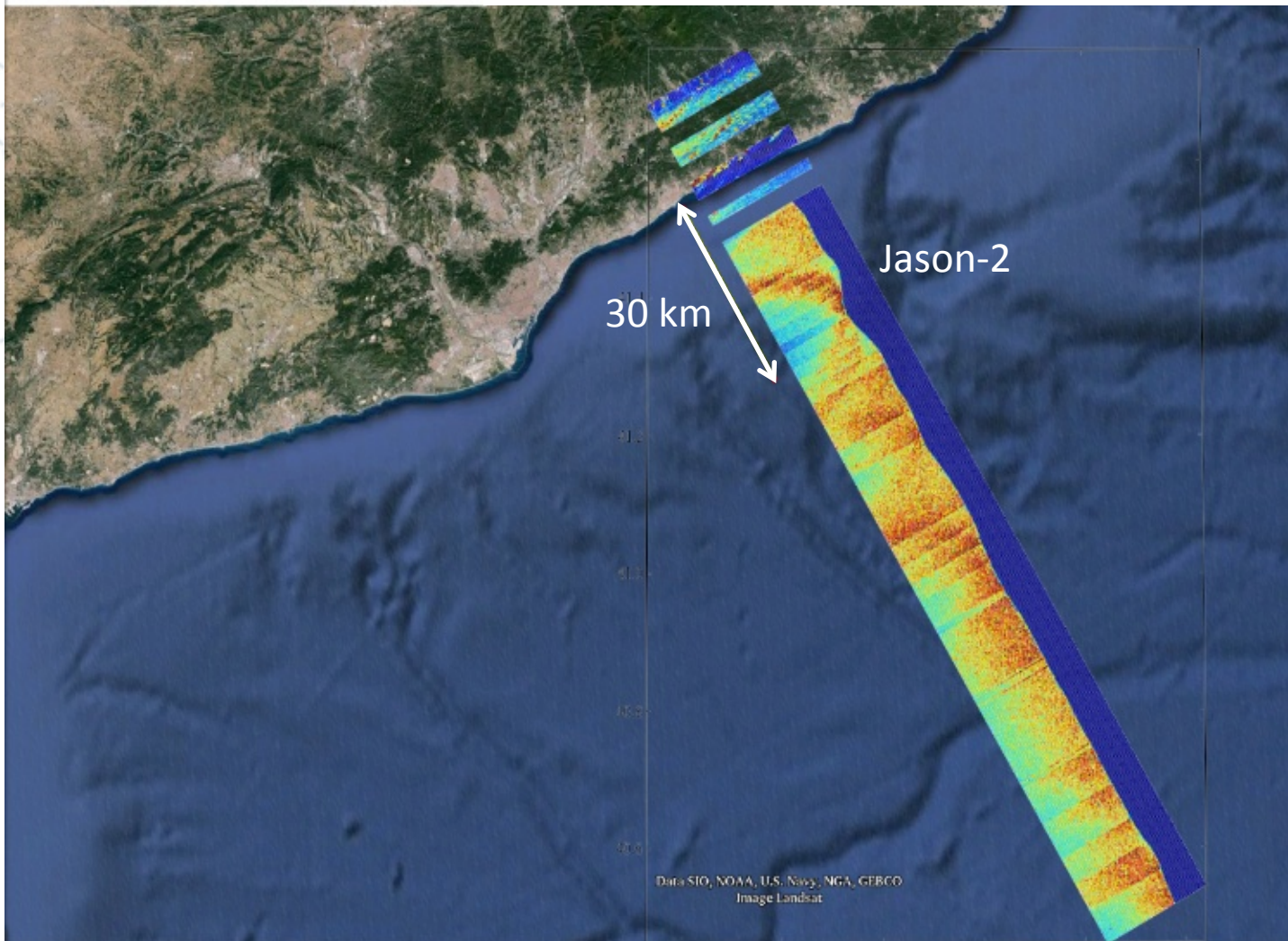
- larger bandwidth
- lower orbit
- increased PRF
- reduced antenna beam width

Global CalVal statistics confirm these expectations: excellent behavior of AltiKa closer to the coast in terms of standard variation

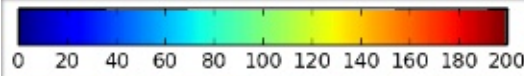




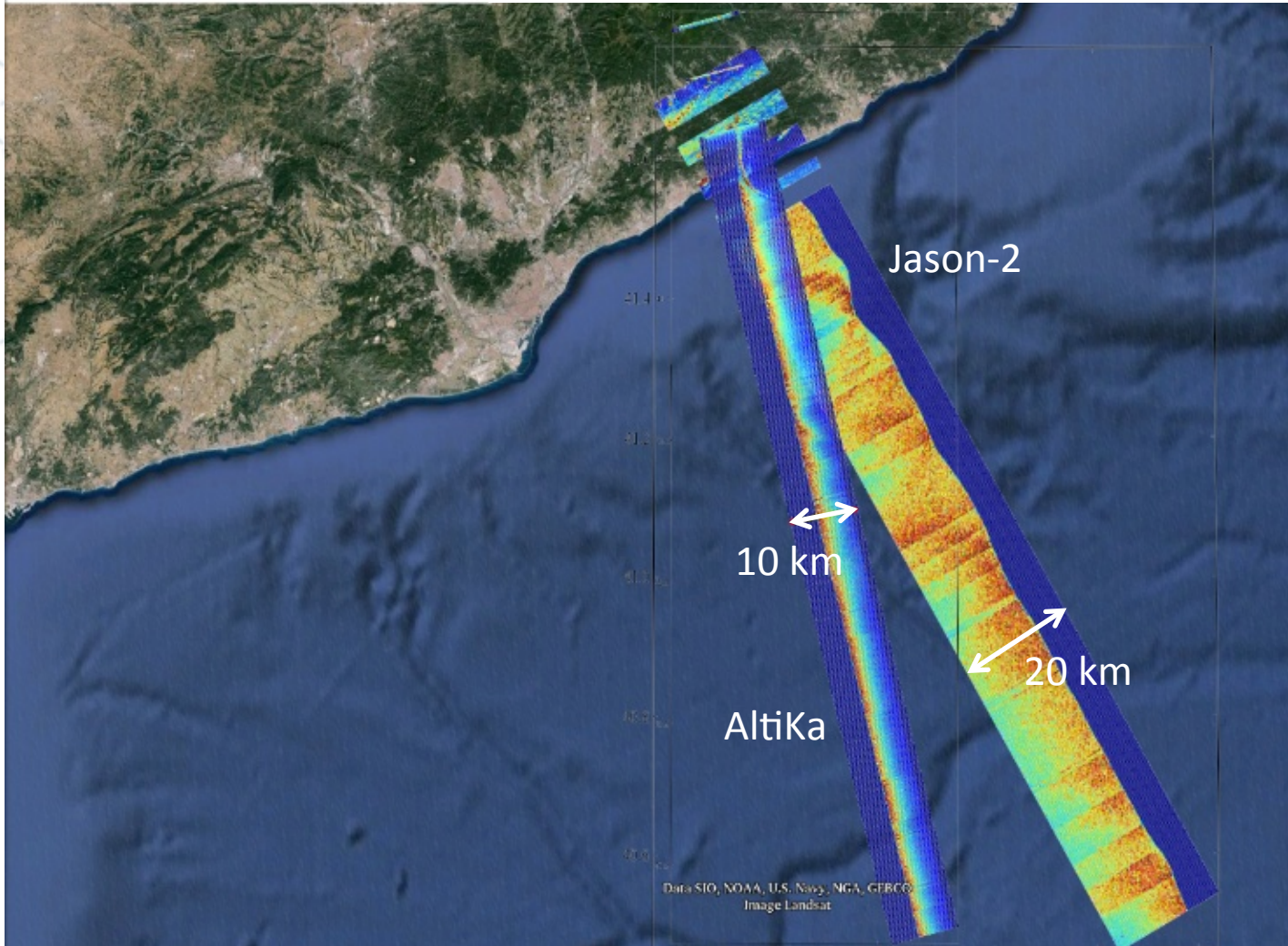
# AltiKa / Jason-2 West Mediterranean Sea



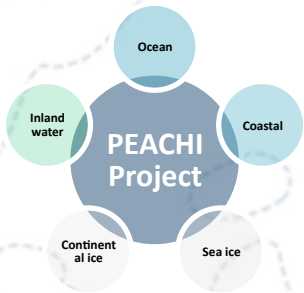
Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image Landsat



# AltiKa / Jason-2 West Mediterranean Sea

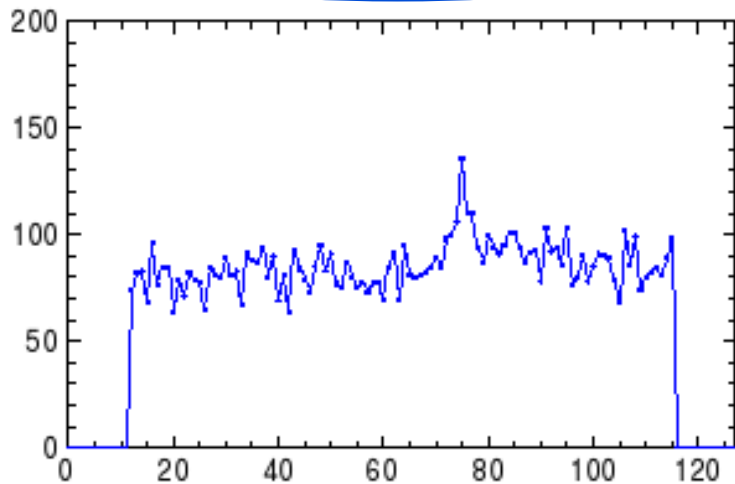
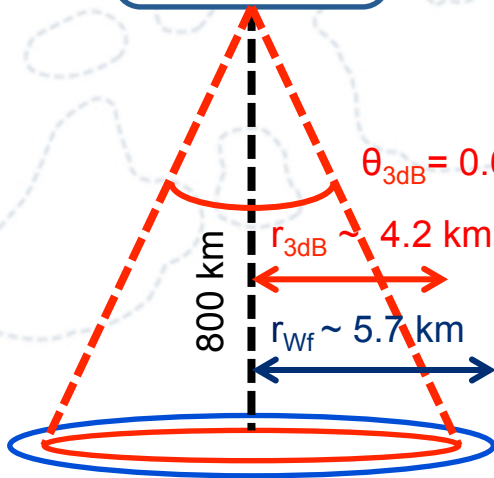




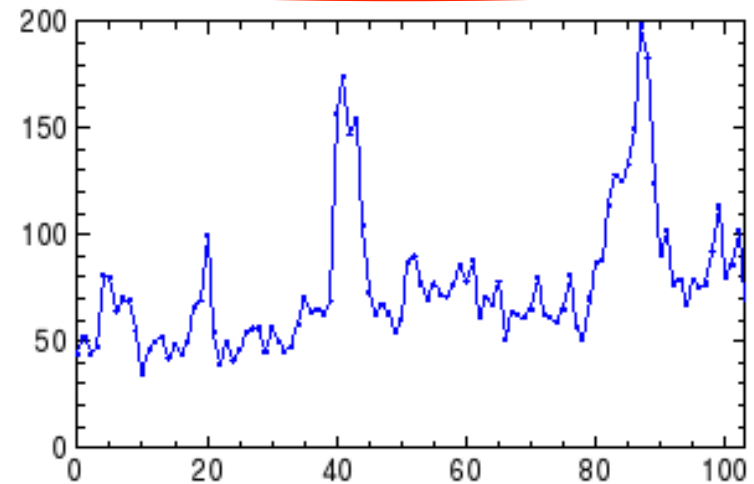
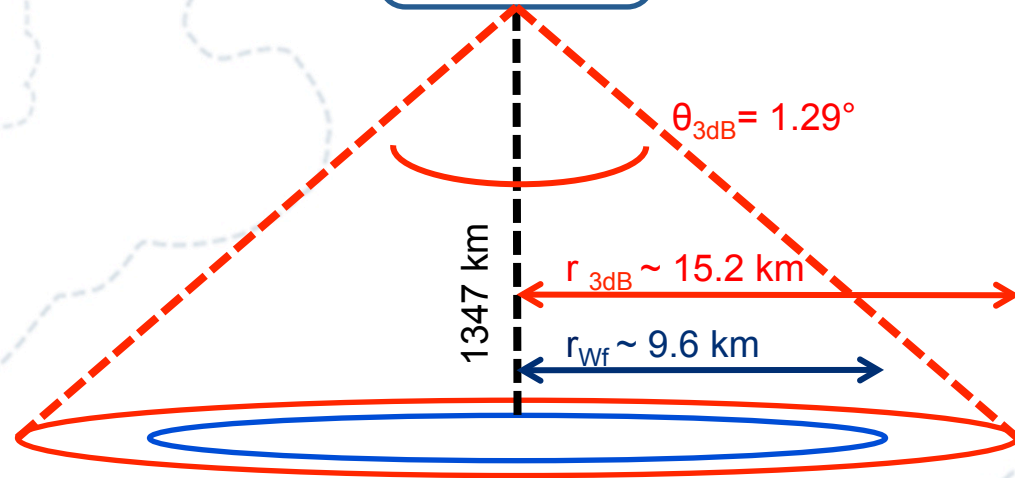


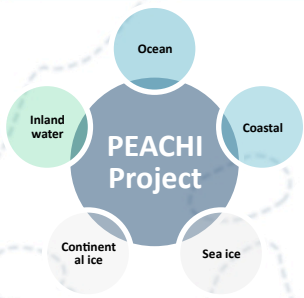
# Retracking process in coastal areas

# SARAL



# Jason-2

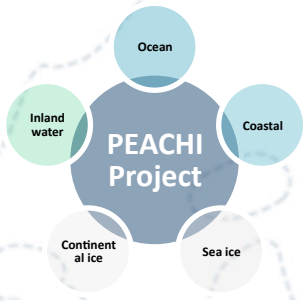




# Waveform Classification

□ Better characterize the WFs:

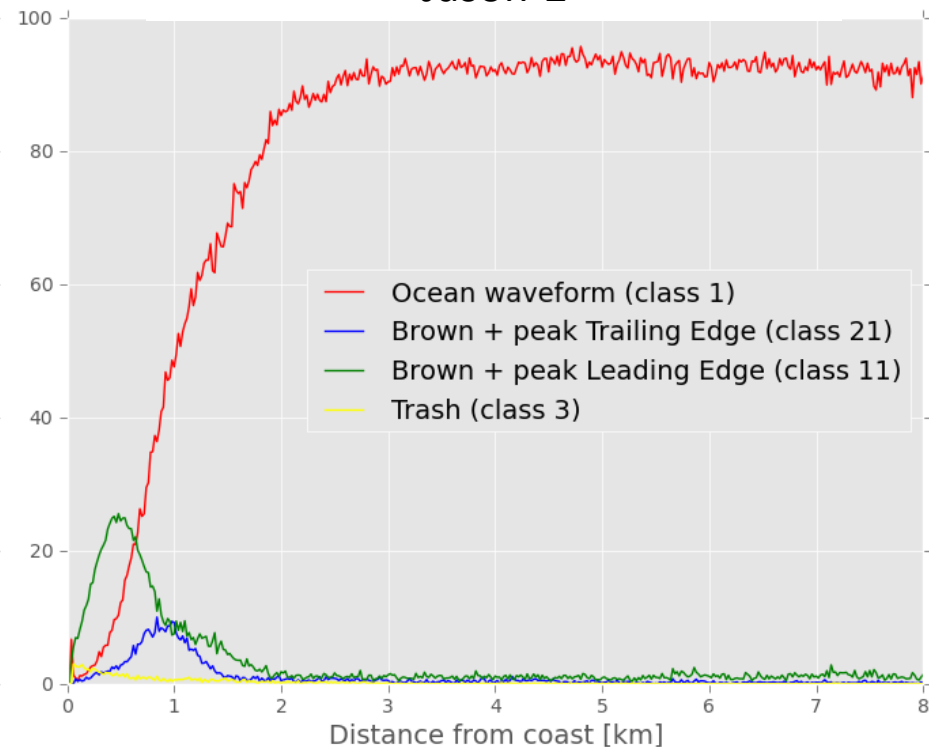
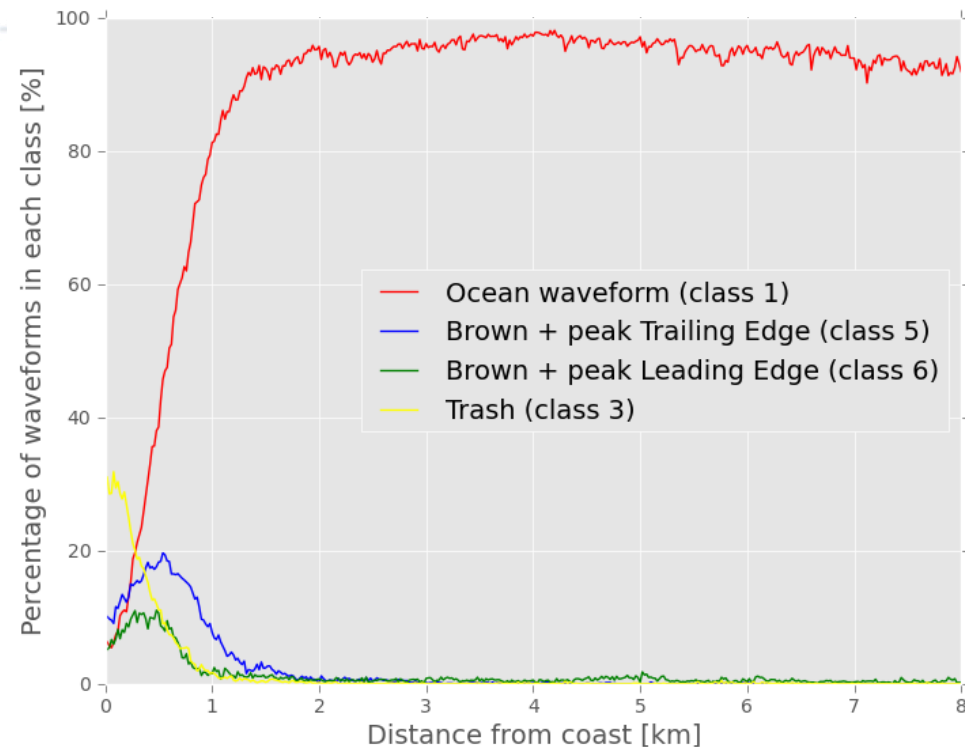
- **Separate surface types** (ocean, land, coastal areas, surface hydrology, blooms, ice, ...)
- **Highlight the different echoes:** brownian, peaks, ...
- **Improve the retracking algorithms**

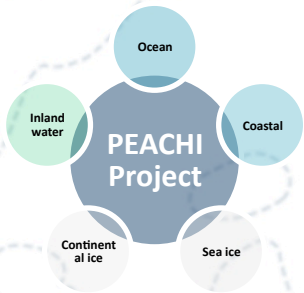


# WF classification coastal behavior

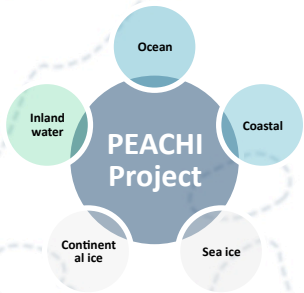
AltiKa

Jason-2



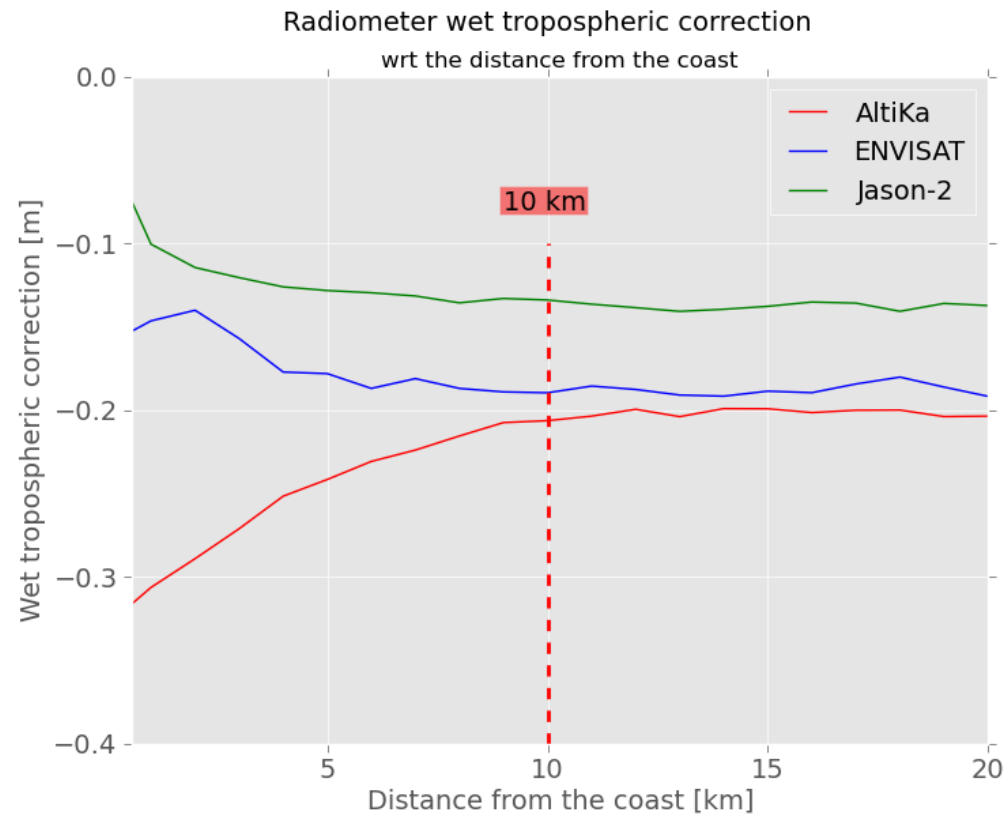


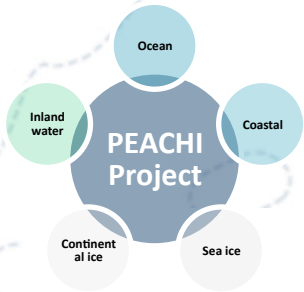
# Radiometer coastal assessment



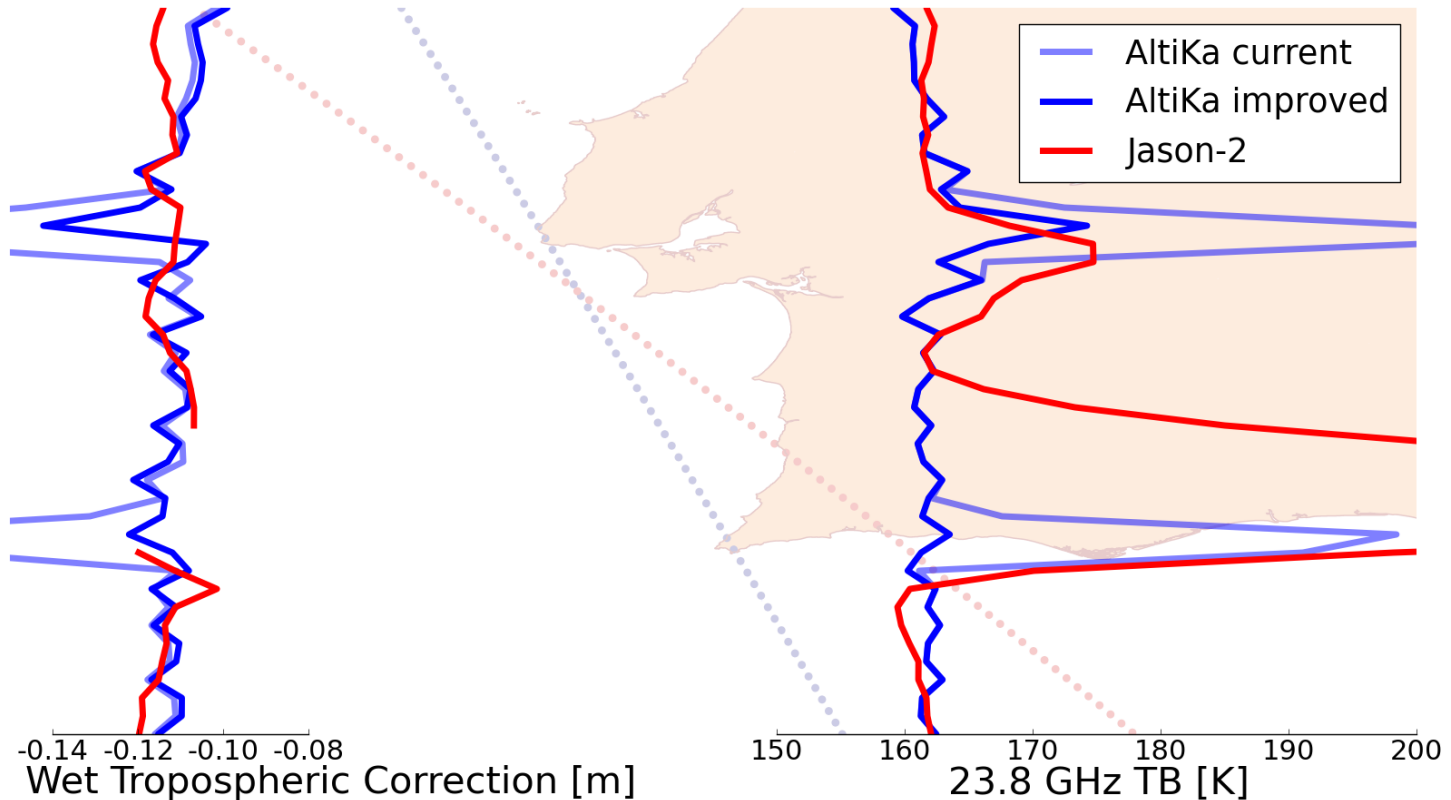
# Radiometer coastal assessment

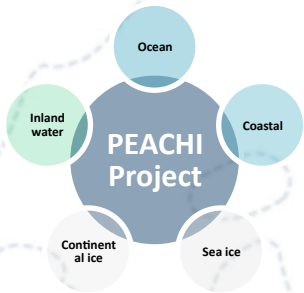
Although no dedicated processing is applied on coastal approach for AltiKa radiometer, the wet tropospheric correction shows no contamination up to 10 km from the coast





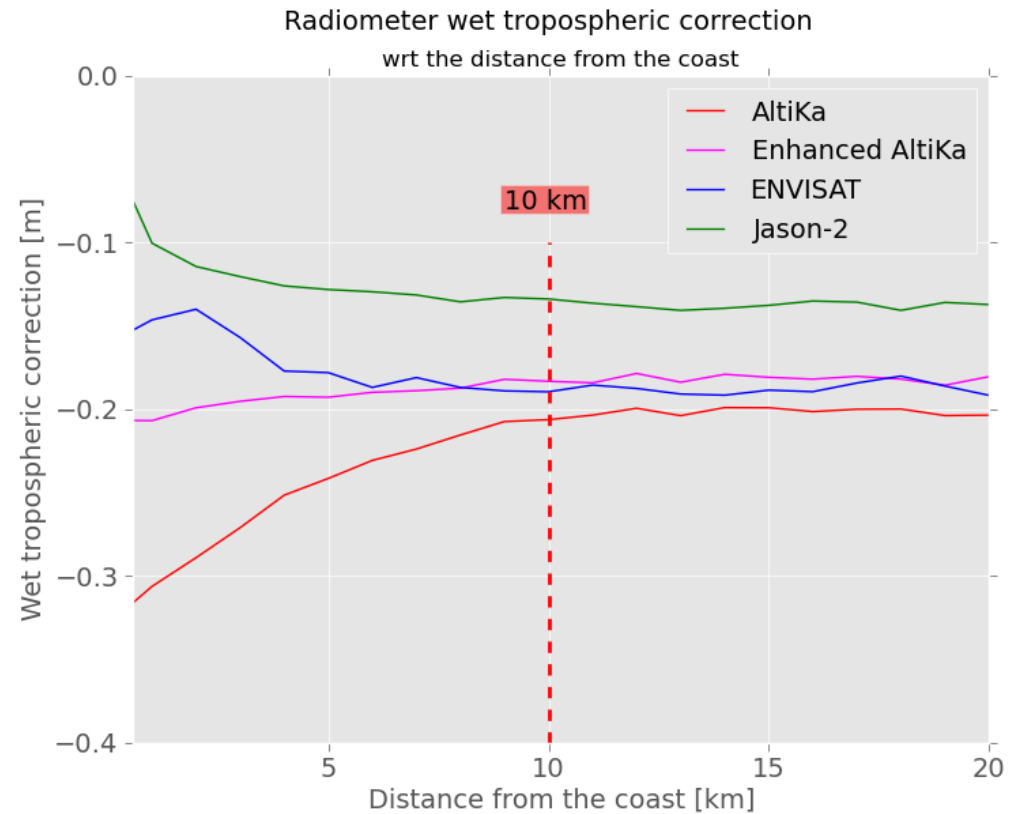
# Radiometer coastal assessment



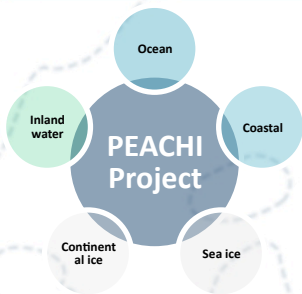


# Radiometer coastal assessment

□ Applying Envisat extrapolation method provide « decontaminated » brightness temperatures and thus valid wet tropospheric correction closer to the coast







# Availability of products from the PEACHI prototype

# Online Data Extraction Service



AVISO+  
Satellite Altimetry Data

An interactive interface with expert & innovative altimetry data

Select a category

- PISTACH
- NATIVE IGDR
- NATIVE GDR
- ENHANCED GDR
- X-TRACK
- CORRSSH
- PEACHI

Selection of missions

Selection of parameters at download

<input type="checkbox"/> TRACKING	<input type="checkbox"/> C BAND AMPLITUDE (R) (UNITS: COUNT)
<input type="checkbox"/> LAND WIRES	<input type="checkbox"/> OCEAN DEPTH/LAND ELEVATION (UNITS: M)
<input type="checkbox"/> SEA LEVEL ANOMALIES (OPEN OCEAN)	<input type="checkbox"/> C BAND MDE (PSTACH) (UNITS: COUNT)
<input type="checkbox"/> SEA LEVEL ANOMALIES (COASTAL)	<input type="checkbox"/> C BAND CORRECTED AL. CORR. (UNITS: M)
<input type="checkbox"/> HYDROLOGY	<input type="checkbox"/> PISTACH PROCESSING BAND (UNITS: T)
<input type="checkbox"/> LAND COVER CLASS AC. N	<input type="checkbox"/> PISTACH PROCESSING BAND (UNITS: T)
<input type="checkbox"/> C BAND AMPLITUDE (I) (UNITS: COUNT)	<input type="checkbox"/> C BAND THERMAL NOISE (UNITS: COUNT)
<input type="checkbox"/> C BAND MDE (PSTACH) (UNITS: M)	<input type="checkbox"/> LAND ELEVATION (UNITS: COUNT)
<input type="checkbox"/> C BAND CORRECTED AL. CORR. (UNITS: M)	<input type="checkbox"/> MOST PROBABLE (UNITS: COUNT)
<input type="checkbox"/> PEAKNESS ON KU BAND S (UNITS: COUNT)	<input type="checkbox"/> C BAND WIDTH (UNITS: COUNT)
<input type="checkbox"/> PEAKNESS ON C BAND S (UNITS: COUNT)	<input type="checkbox"/> C BAND WIDTH (UNITS: COUNT)
<input type="checkbox"/> PISTACH CORRECTED A. CORR. (UNITS: M)	<input type="checkbox"/> C BAND WIDTH (UNITS: COUNT)
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<input type="checkbox"/> MOST PROBABLE CLASS. D	<input type="checkbox"/> C BAND WIDTH (UNITS: COUNT)
<input type="checkbox"/> MOST PROBABLE CLASS. D	<input type="checkbox"/> C BAND WIDTH (UNITS: COUNT)
<input type="checkbox"/> MOST PROBABLE CLASS. D	<input type="checkbox"/> C BAND WIDTH (UNITS: COUNT)

Classical & Innovative products

AVISO+ ONLINE DATA EXTRACTION SERVICE

PISTACH Hydro J2 2008-07-12 | 2014-04-22 Select an area Download

Area selected

Selection of parameters at download

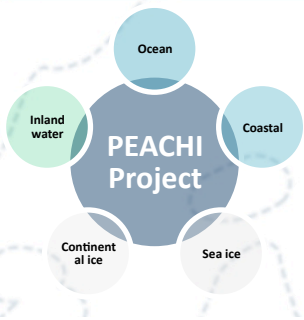


FTP "on-the-fly"

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<http://odes.altimetry.cnes.fr>

No waiting, nor size limit



# Thank you for your attention !