



National Oceanography
Centre, Southampton



→ 2nd COASTAL ALTIMETRY WORKSHOP

USER REQUIREMENTS

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6-7 November 2008, Pisa, Italy





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During the 1st Workshop in Silver Springs ...

From W.Smith's talk

“In order to fulfill the need for long-term altimeter records, a **global coastal ocean data set** shall be produced containing **all historical along-track and auxiliary data and meta-data**. Ideally, this will be

- in a common data format
- processed for multi-satellite consistency
- at the highest resolution possible (10, 18, 20 Hz)
- seamless between coastal and open ocean
- use best-available regional models to the extent possible.”



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PISTACH

brief description



CENTRE NATIONAL D'ÉTUDES SPATIALES

- Project Funded by CNES to improve altimeter processing in coastal zone
- Started in Nov 2007 – 18 months
- **Conception** of an altimetry product dedicated to the monitoring of coastal areas and continental waters using new standards
- **Realization & operation** of a prototype for generating level2 products during Jason-2 CalVal Phase



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COASTALT *brief description*



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Centre, Southampton
UNIVERSITY OF SOUTHAMPTON AND
NATURAL ENVIRONMENT RESEARCH COUNCIL



Proudman
Oceanographic Laboratory
NATURAL ENVIRONMENT RESEARCH COUNCIL



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U. PORTO

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- Project Funded by ESA (started in early 2008 – 18 months)
- The **main objective** of the **COASTALT Project** is to make the status of pulse-limited coastal altimetry operational, by defining and testing the **new coastal radar altimeter product** so that ESA can routinely generate and distribute the **Envisat** coastal altimetry product.
- COASTALT USER REQUIREMENTS focus on:
 - The definition of the requirements for such a product in collaboration with ESA, Coastal Altimetry community
 - <http://www.coastalt.eu>



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Methodology

- Around 130 scientists contacted : Answer rate ~ **40 %**
33 PISTACH, 20 COASTALT : from both altimetry-experts and altimetry-novices
- User Requirements questionnaires:



- Distribution by emailing & at First CLOSS/NOAA Coastal Altimetry Workshop
- PISTACH & COASTALT results merged if possible



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Joint Recommendations



- ✓ Coastal altimetry products will be **largely used with a model** for validation (34%) or for assimilation (24%)
- ✓ Physical contents needed : SLA (40%) and SSH (25%)
- ✓ Spatial resolution : max ie 18-20 Hz but also 1Hz (-> 3Hz? 5Hz?)
- ✓ Both coastal and open ocean products needed (80%)
- ✓ **NetCDF format (60%)** and **distributed via FTP (46%)** and **OPeNDAP** ;
DVD for bandwidth constrains users (7%).
- ✓ Quality control needed
- ✓ **develop delayed products**, but compatible with the delivery of near-real-time and real-time data
- ✓ Coastal MDT



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COASTALT

Recommendations

- ✓ **include** not only SSH, but also SWH and Wind speed
- ✓ **include data** as close to the **coast** as possible, even when none of the main estimated parameters (height, significant wave height and wind) are considered reliable
- ✓ Improve **corrections (including local corrections) and retracking** so that **accuracy and precision are optimized**
- ✓ Provide **quality flags** together with **all the separate corrections**
- ✓ **Easy to merge across missions** → cross-calibration of SSH, wind and wave information from Envisat with those from other



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Recommendations

- ✓ **Coastal ocean** : 0-200 km from shore line (88%)
- ✓ SSH/SLA **Along-track** products (54%)
- ✓ also gridded fields (29%)
- ✓ GDR users are only 17%
- ✓ Strong need of **continuity** between coastal and global products
- ✓ Need of continuity/homogeneity between 2 coastal areas (58%)
- ✓ Provide global quality flag with data
- ✓ Reading tool = Matlab (43%) and personal tools (34%)



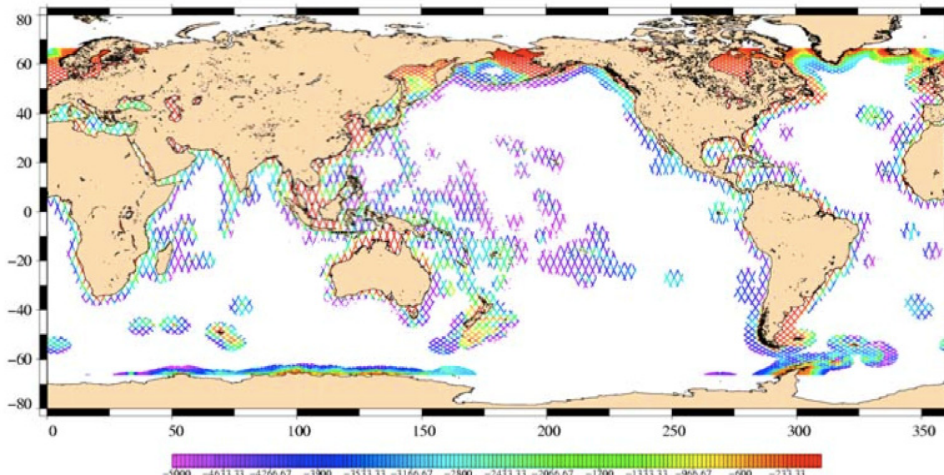
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Which geographical domain of Application ?

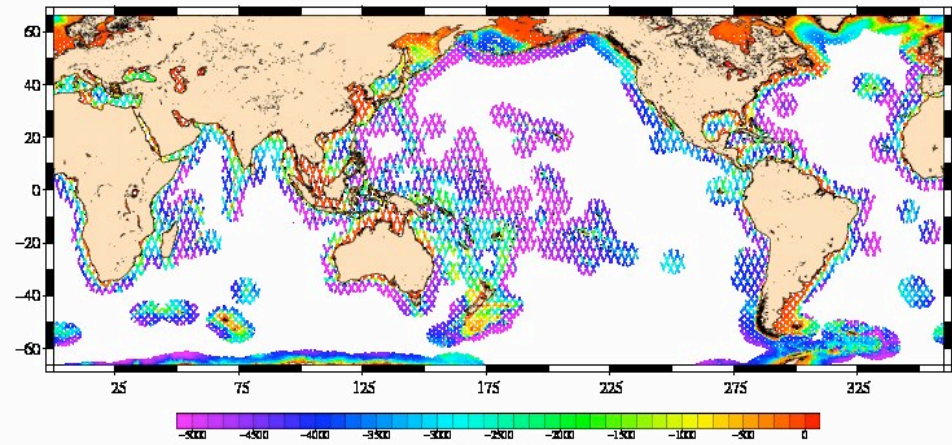
Coastal processing is expected to **improve in precision** in coastal zones. Then:

- It should include all shelf areas, where tides are problematic
- It should include completely some specific basins (ex: Mediterranean Sea)

How to define the coastal product?



Complex criterion on shoreline dist & bathymetry



criterion on shoreline dist only (<500km)

or global coverage ?



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Seed questions & Discussion

1. Any user requirements or application left out ?
2. Any further specific requirements from the **Sea Level** community ?
what are its expectations from Coastal Altimetry?
3. Any further specific requirements from the **coastal modelling** community ? what are its expectations from Coastal Altimetry?
What corrections should be applied or not ?
What spatial resolution ?
What spatial coverage for the products? Global? Coastal band?
5. Actual need of continuity between 2 coastal areas ?
6. Need for an International Altimeter Service for the **standardisation** of data sets? (standard data formats)