

MORE DATA

ALTICORE

A consortium serving European Seas with Coastal Altimetry

THE CONCEPT

As coastal altimetry we define altimetry over that domain close to land where standard processing is problematic.

We want to recover that information and exploit it to improve our knowledge of coastal ocean processes.

THE PROJECT IN A NUTSHELL

➡ Making data of better quality

- ✓ Backward reanalysis of official products
- ✓ New processing strategy

➡ Making data more accessible

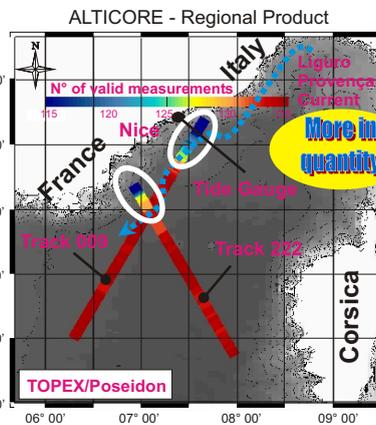
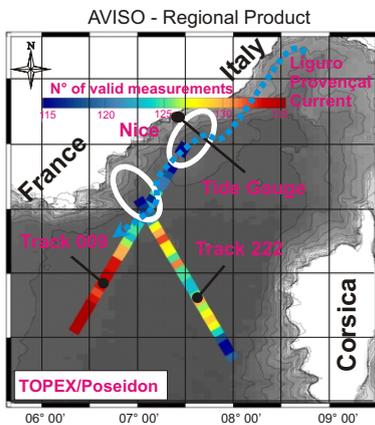
- ✓ Avoid duplication of efforts
- ✓ Data available at a mouse click

➡ Exploiting data in the coastal context

- ✓ Comparison with in situ data (sea truth)
- ✓ Use for circulation, coastal dynamics, coastal modelling

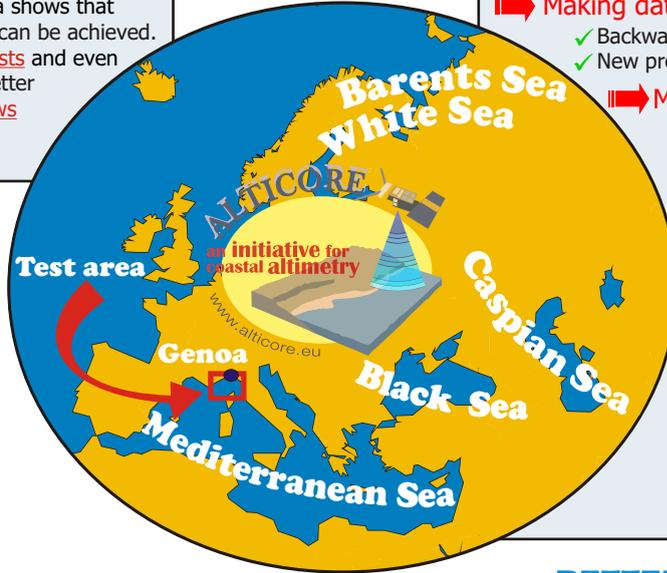
➡ Building capacity in coastal altimetry

- ✓ Transferring know-how
- ✓ Improving cooperation between Europe and Eastern Countries



The coastal altimetry work carried out in the test area shows that a reasonable increase in quantity and quality of data can be achieved.

The improved processing provides data nearer to coasts and even more data in the open sea region. This promises a better monitoring of the Liguro-Provençal Current which flows very close to the coast and exhibits a small spatial extension.



The table summarizes the performance at Genoa station for both improved (ALTICORE) and standard altimetry (AVISO) in a multi-mission scenario.

| | ALTICORE | | | | AVISO | | | |
|--------------|------------------|--------------------|----------------|-------------|------------------|--------------------|----------------|-------------|
| | Number of tracks | Mean time Sampling | Rms Difference | Correlation | Number of tracks | Mean time sampling | Rms Difference | Correlation |
| Genoa | 5 | 7.3 | 3.5 | 0.78 | 2 | 16.6 | 3.9 | 0.82 |

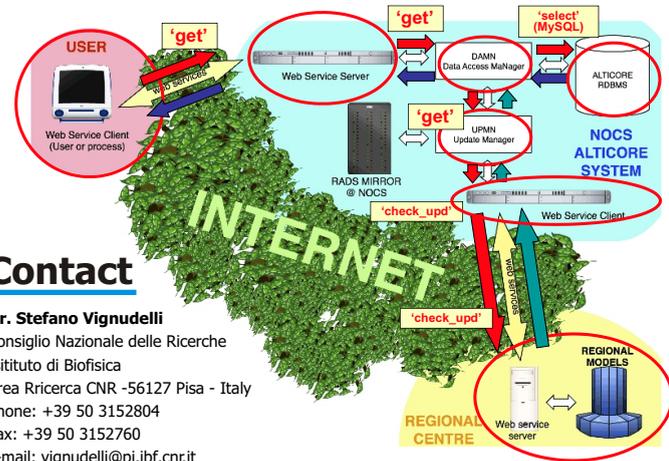
BETTER ACCURACY

EASIER ACCESS TO DATA

The issue is how to timely process, update, archive and distribute the data. In the early phase of the project, we have explored two different architectures for the ALTICORE system:

- 1) keep data in a relational database (DB)
- 2) keep data files in native (or otherwise standard, for instance NETCDF) format

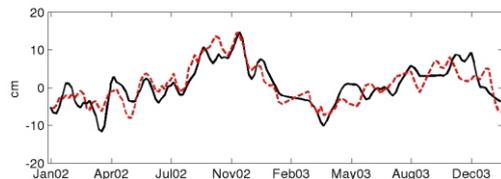
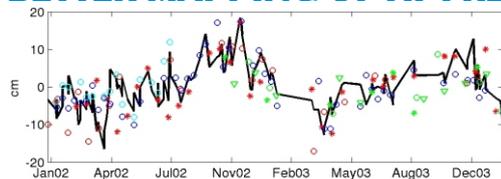
With reference to the DB-based case, the Figure shows an example of user/system interaction where a data request triggers real-time check and download of updates from regional centres.



Contact

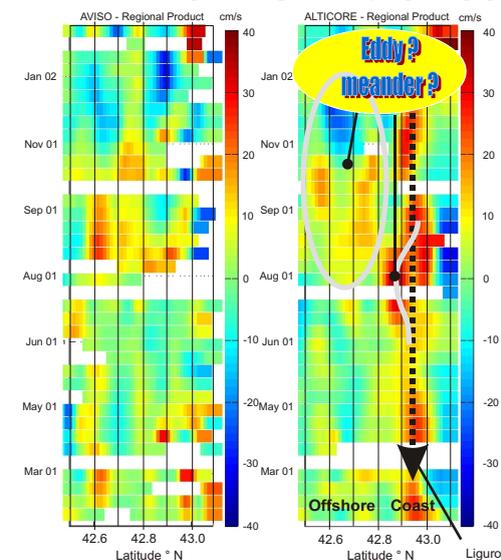
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BETTER MAPPING OF HI-FREQ



As an example, we compare time series of sea level derived from four satellites in proximity of a tide gauge at Genoa station. Bottom panel shows the time-filtered in situ sea level anomalies (black line) against the time-filtered multi-satellite altimetry sea level anomalies (red line). Multi-satellite altimetry agrees well with the in situ measurements even at time scales shorter than seasonal.

BETTER MONITORING OF COASTAL CIRCULATION



As an example, we selected the ground track, pass 222, which crosses the flow at an angle nearly perpendicular to it. Altimeter-derived current velocities are obtained from along-track sea level anomaly slopes assuming geostrophy. The Hovmuller diagram shows that the Liguro-Provençal Current system may have different dynamics in relation to the distance from the coast. A relatively stable geostrophic flow is generally observed alongslope. Episodical meander- or eddy-like structures are seen to depart from the coast.



Satellite ALTImetry in COastal REGIONS
www.alticore.eu

