GNSS applications for the maritime navigation

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Maritime transports in the Action Plan on GNSS

- Maritime transport is an important domain in the action plan GNSS – present and future

Maritime transport and action plan

Action 5

Adoption of EGNOS, then GALILEO, will be sought for maritime transport in cooperation with the International Maritime Organization (IMO), taking into account International Conventions such as the International Convention for the Safety of Life at Sea (SOLAS).

Maritime transport monitoring and surveillance would be greatly improved by EGNOS and GALILEO applications for navigation, including in ports, coastal areas or dangerous shipping lanes like the English Channel. GNSS is also a key tool for new European traffic monitoring systems (LRIT — Long Range Identification and Tracking). Used in mountains and desert areas too, the GALILEO Search an d Rescue (SAR) service is be ing designed specifically for the safety of fishermen and sailors.

By making it easier to track ships, GALILEO can also facilitate customs procedures.

Another application is on inland waterways where GNSS, with its improved accuracy, should be an important source of data for the River Information Services (RIS). For all such safety-critical applications certification is required.

A strategy for maritime transport

- Vitrociset and the partner companies are carrying out many projects (past, present and future) compliant with the GNSS action plan, giving indications on the needs of the sector and on the next action plan too.

Goals & vision

in maritime tranport

- Commercial applications
- Regulated applications

- Certified equipments
- Certified environment

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Experimenting applications

- Project COSMEMOS - Commercial applications

A cooperative system to gather meteo data and supplying weather routing commercial services

- Project MEDUSE - Regulated applications

Use of AIS with chipset GALILEO – develops services Pay per Use and Low-enforcement – provide a quality test on EGNOS performance

Certificated services & equipment

IMO & SOLAS Standards

- **The harbour** – as control and regulation centre for the landing of the ships and boats

A certified area with a GNSS-EGNOS signal available robust, integer, continuous, authenticated.

- **Ships and boats**- certified equipment for interactive positioning an safety

***All** maritime users will be equipped with terminals for collision avoid, meteo warning and other services.*

Projects on maritime transport can give:

- indirect economic (including energy consumption) and social benefits
- positive influence on emissions and other types of pollution
- positive influence on the operation of the single market and cross-border trade
- positive influence on the interoperability of applications

Thanks to GNSS good news from the meteorology for maritime navigation.

COSMEMOS

GSA presents a collaborative project, focused on the maritime navigation needs, developing new sensors based on the GNSS signal and new data processing

The COSMEMOS research project has received funding from the European Union Framework Programme (FP7/2007-2013) under grant agreement n° [287162]

The problem facing us

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COSMEMOS project

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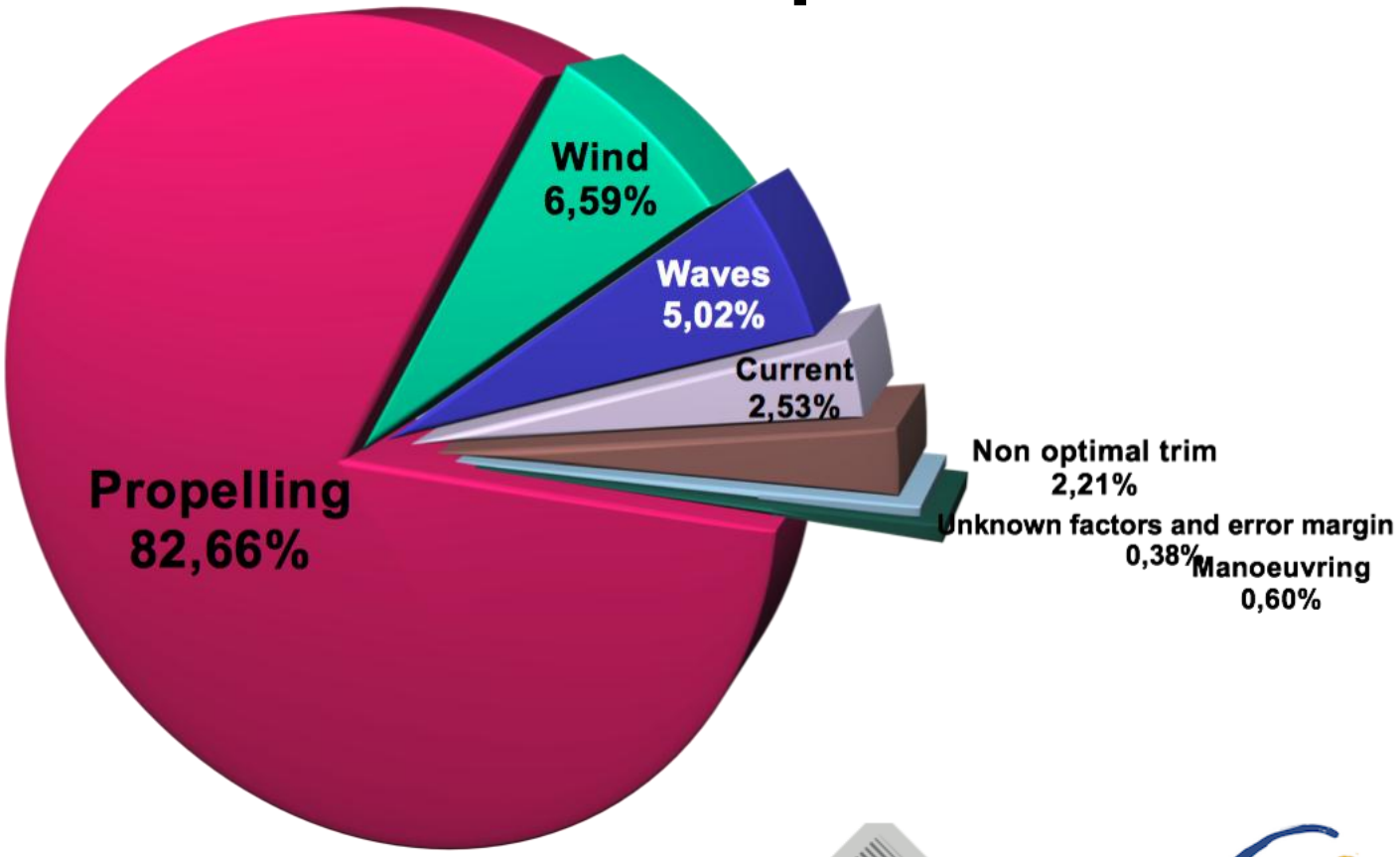
problem #1

Meteorological factors influence fuel consumption



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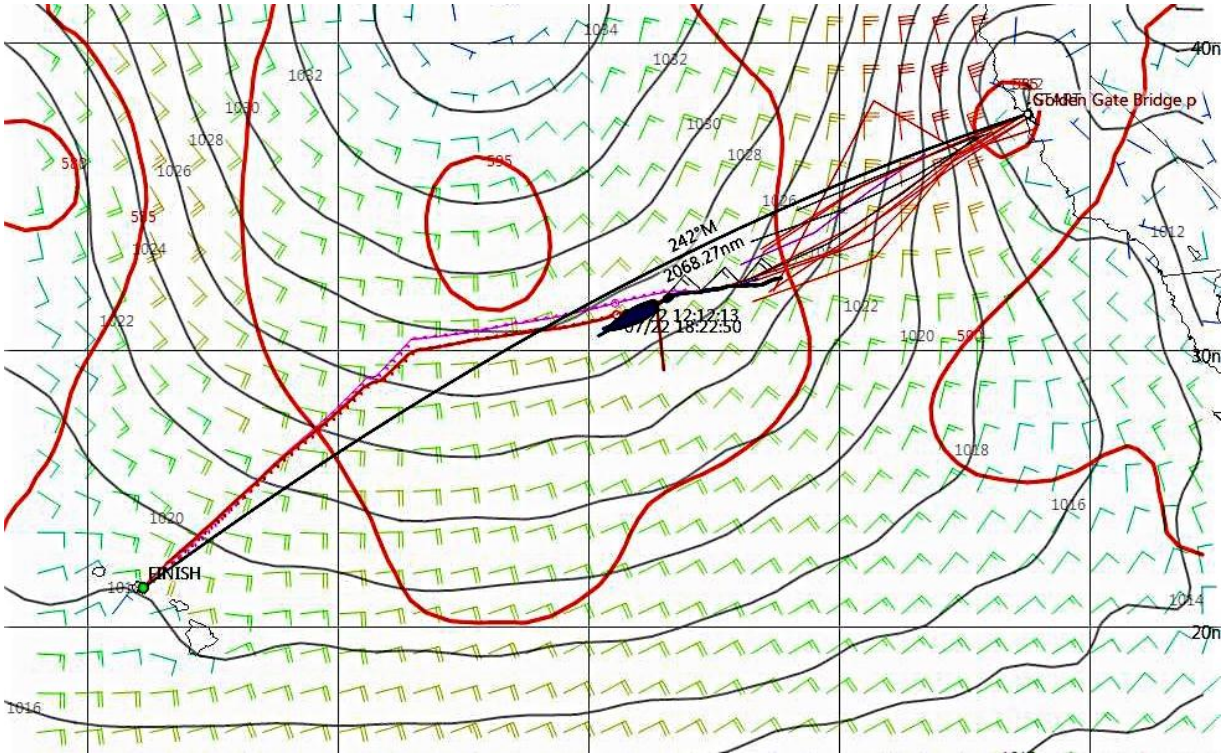
problem #2

Weather routing is available only for long leg



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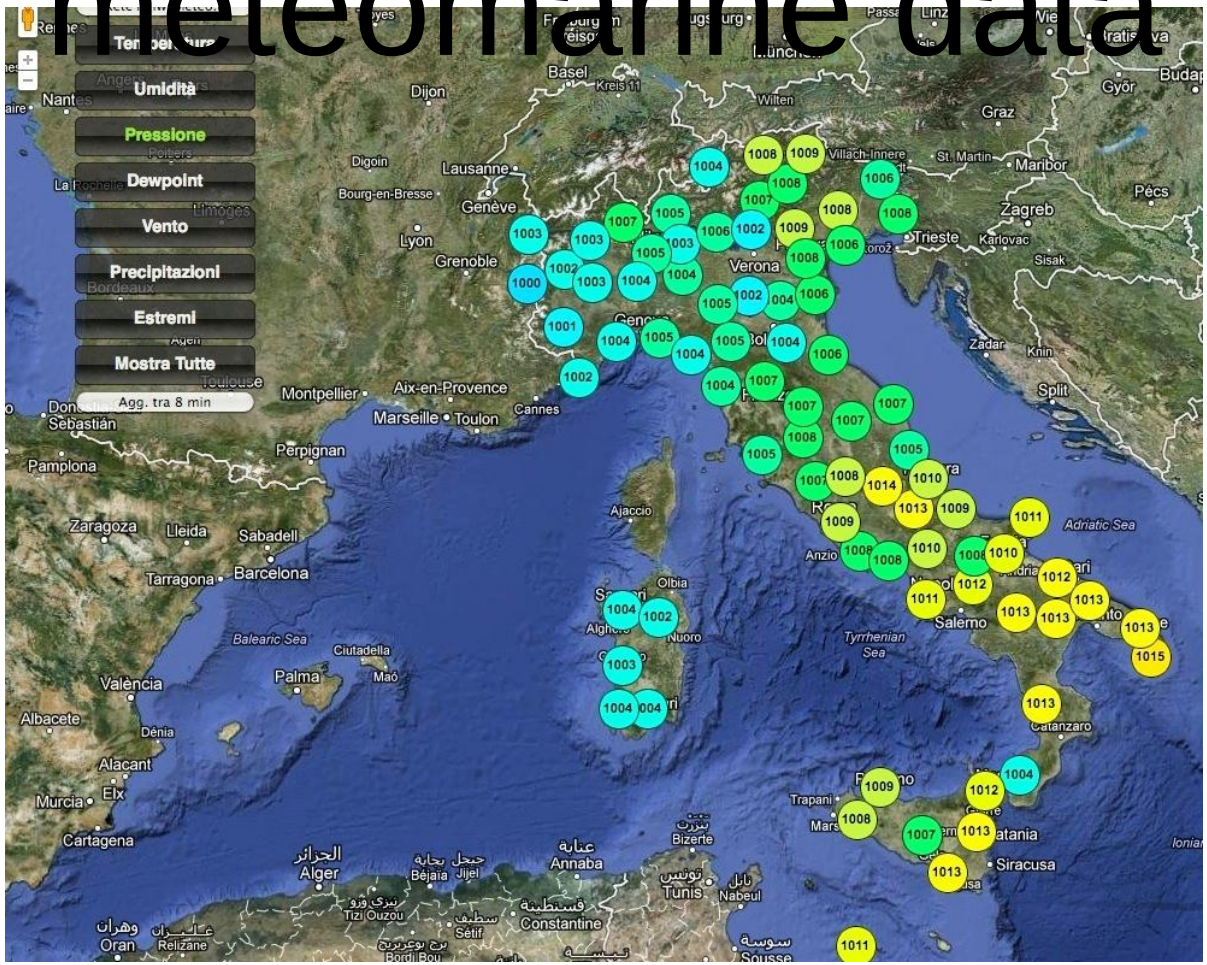
problem #3

Seas are scarcely covered from meteomarine data



COSMEMOS project

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What COSMEMOS proposes?

1. A **collaborative system** to gather meteo and position data over the seas
2. Two additional sensors based on the GNSS signal: waves and vertical profile
3. Two new **commercial services** for short leg navigation based on an innovative meteo data fusion and modelling

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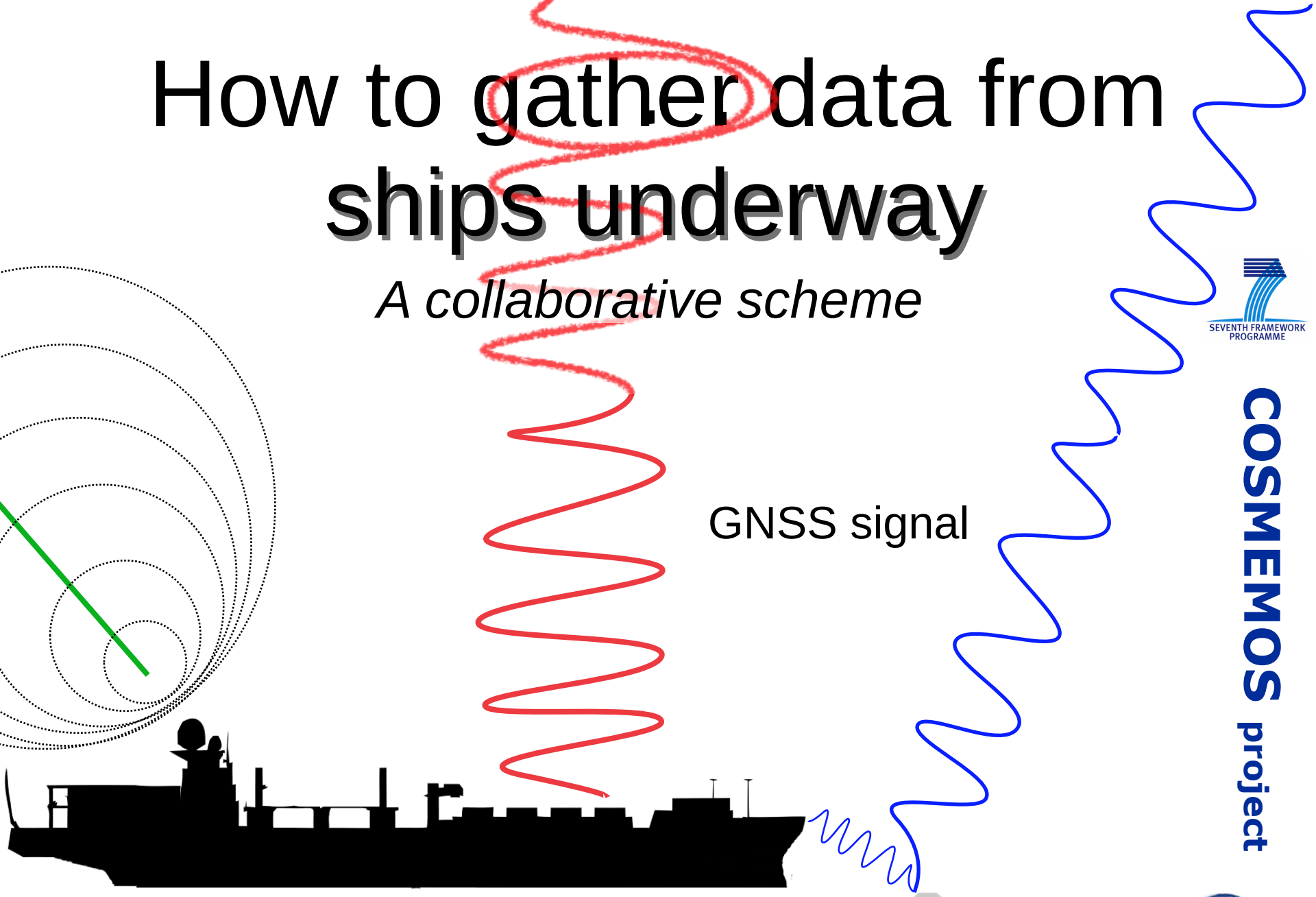
How to gather data from ships underway

A collaborative scheme



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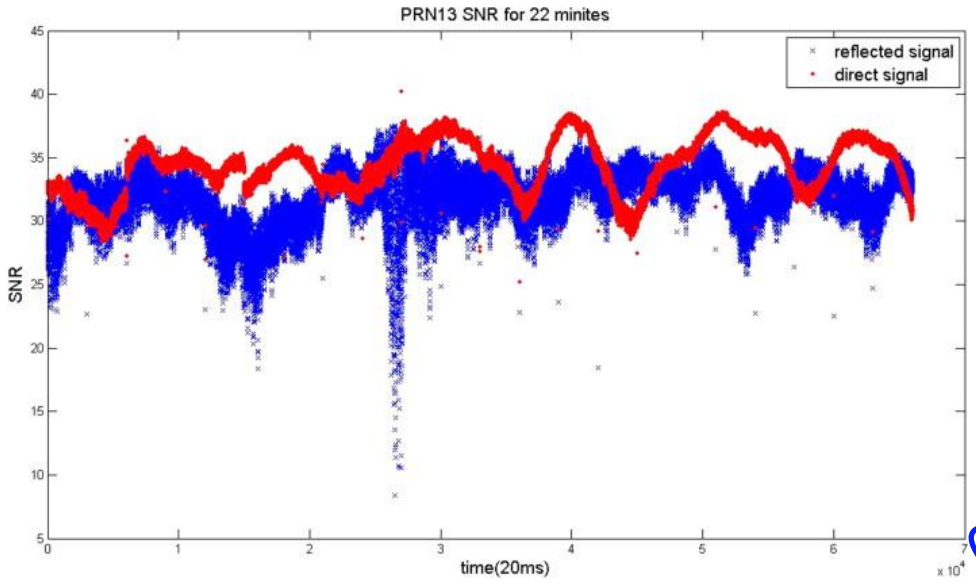
Innovative application

Wave height measurement



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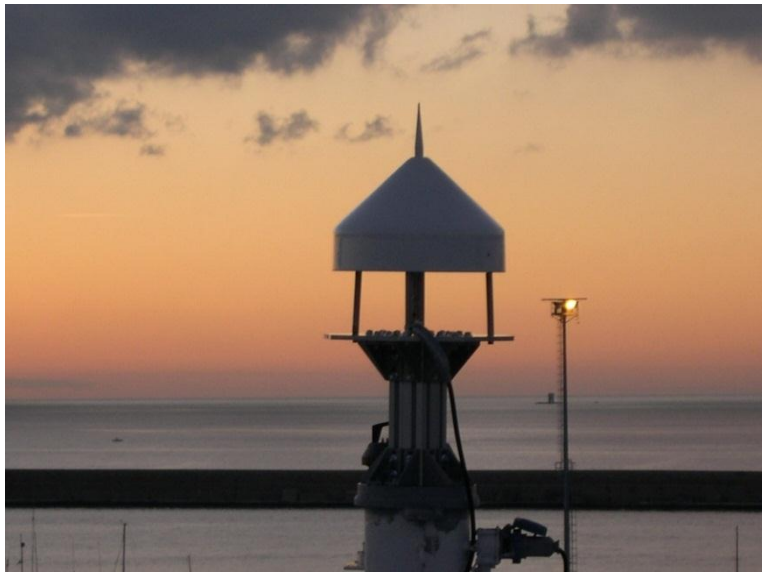
Vertical profile of meteo parameters

Innovative use of GNSS signal

GNSS signal



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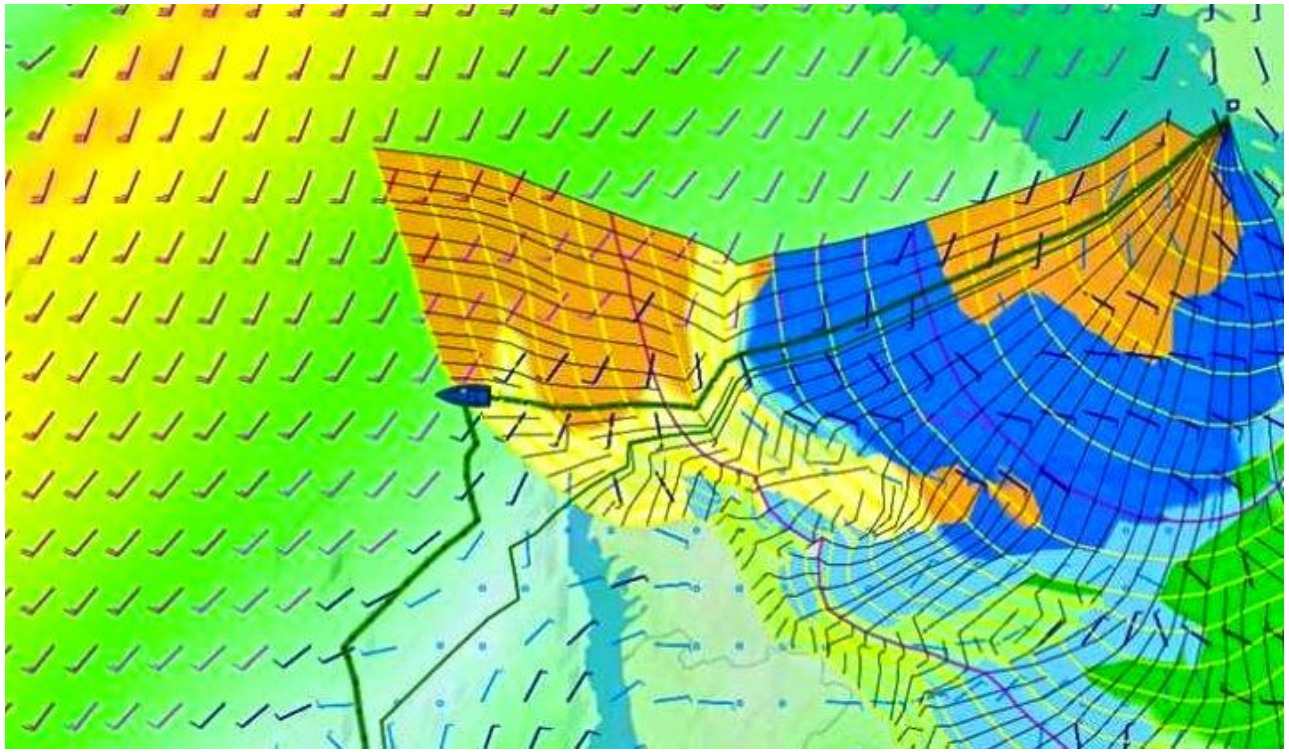
service #1

Dynamic re-routing at Mediterranean scale



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service #2

Navigation assistance

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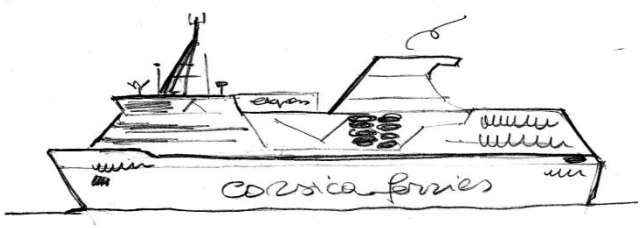
COSMEMOS evolution

Ro-Ro



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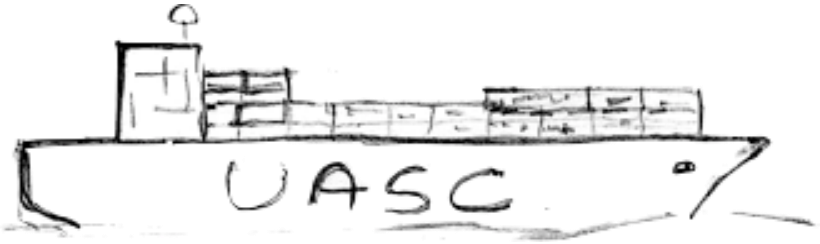

Sails and boats

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Other information

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