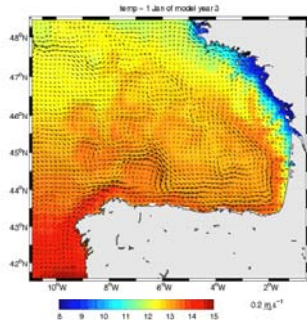




Summary of activities (1)

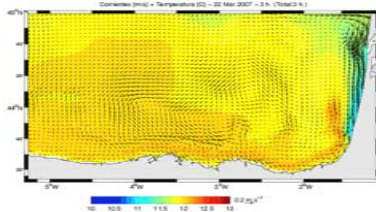
Study areas

REGIONAL FIELDS



ROMS 6,6km – 32 sigma levels

SUBREGIONAL FIELDS



ROMS 2,2km→600m – 32 sigma levels

Actions in modelling developments

Force with **hourly atmospheric information** (until right now, due to computational time and memory space, the model has been using 3-hourly information).

Improve the **spatial resolution** of the model grid, changing the present horizontal resolution of the Basque Country region from 2.2 km to **less than 600 m**.

Test different **initial and boundary conditions** for the model in the Basque Country region. (IBI, MANGA, ESEOOAT, climatology).

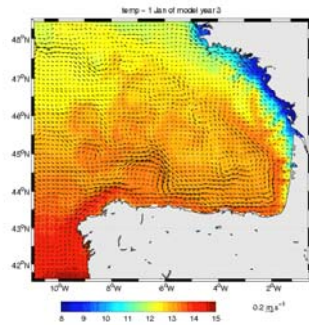
Incorporate river discharge in the Basque Country region.

Link between ROMS output with a LPTM (**Lagrangian Particle-Tracking Model**, Individual Based Model) at several depths and especially in river mouths, for analyzing the particle dispersion.

Summary of activities (2)

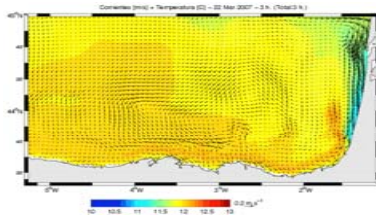
Study areas

REGIONAL FIELDS



ROMS 6,6km – 32 sigma levels

SUBREGIONAL FIELDS



ROMS 2,2km – 32 sigma levels
500m

Actions in validation

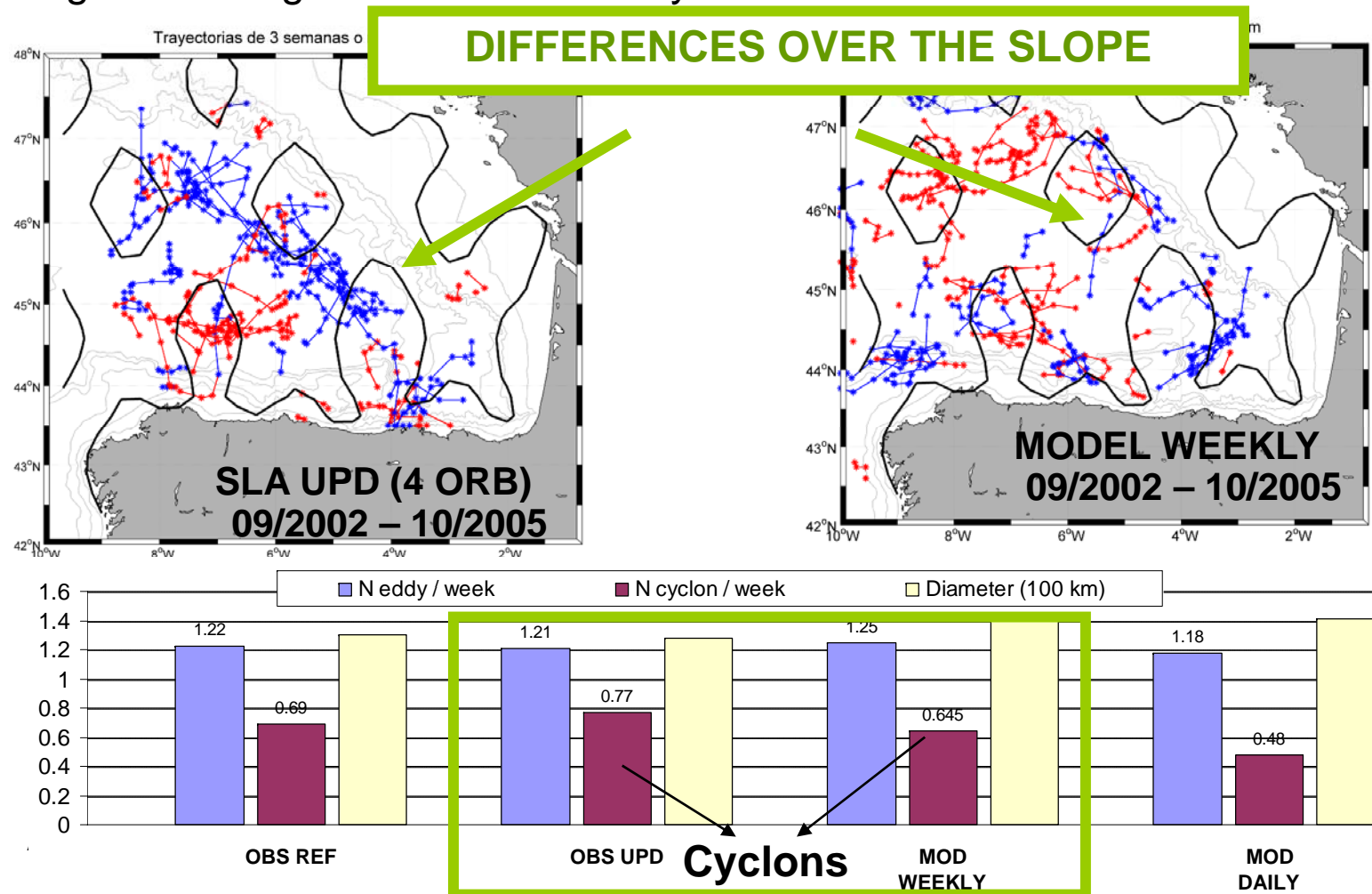
REGIONAL AND SUBREGIONAL SCALES **Process-oriented validation exercises**

1. MESOSCALE VARIABILITY
2. CIRCULATION AND TS OVER THE SHELF/SLOPE:
SEASONAL AND HF VARIABILITY
3. SURFACE PATTERNS FROM HF RADAR

REGIONAL AND SUBREGIONAL SCALES

Process-oriented validation exercises

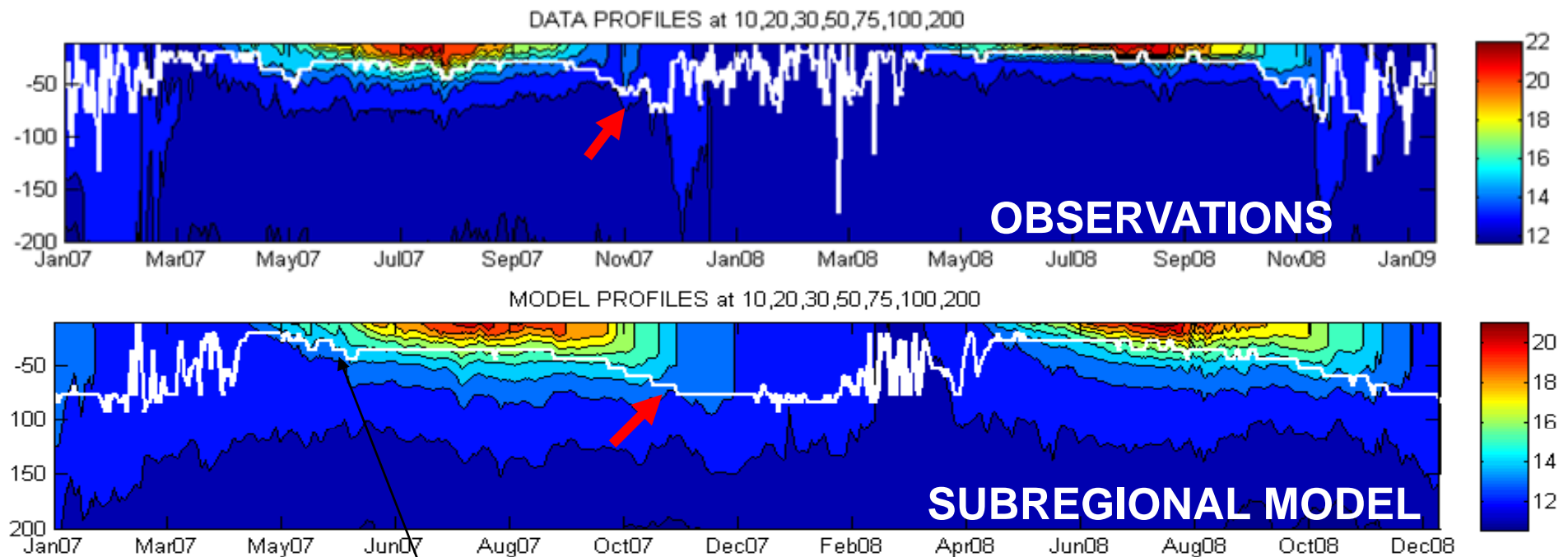
1. MESOSCALE VARIABILITY. National ESTIBB project 2010-2012 + participation in WASSCO-GMMC project (LPO). Eddy tracking in ROMS regional configuration and altimetry data.



REGIONAL AND SUBREGIONAL SCALES Process-oriented validation exercises

2. CIRCULATION AND TS OVER THE SHELF/SLOPE:
SEASONAL AND HF VARIABILITY. Model – data comparisons

TS properties and seasonal variability over the slope



Thermocline depth with least squares fit to logistic function (following A. Azcárate et al EGU 2009)

REGIONAL AND SUBREGIONAL SCALES

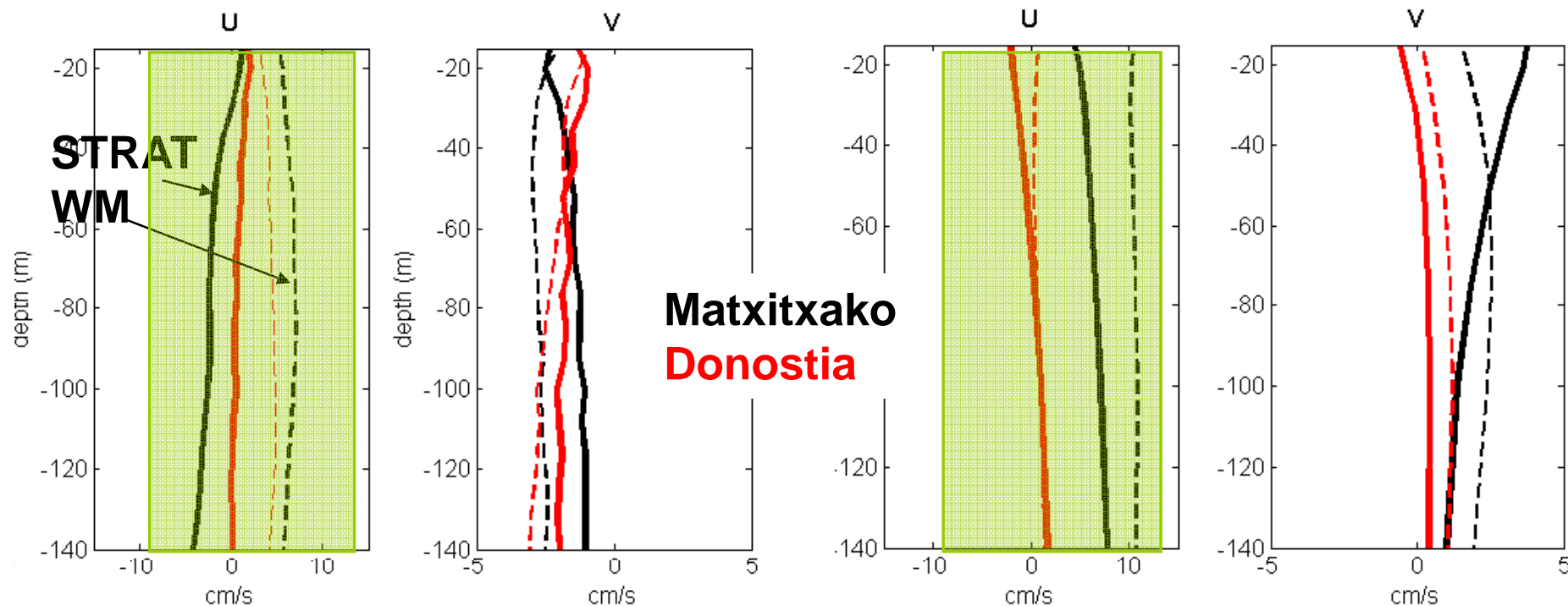
Process-oriented validation exercises

2. CIRCULATION AND TS OVER THE SHELF/SLOPESHELF/SLOPE: SEASONAL AND HF VARIABILITY. Model – data comparisons

Currents over the slope and high frequency variability

OBSERVATIONS

MODEL



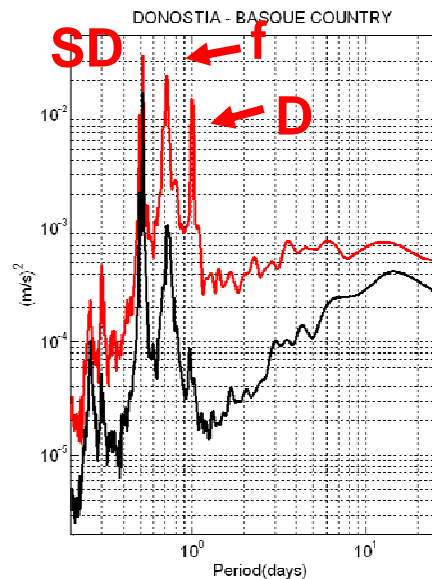
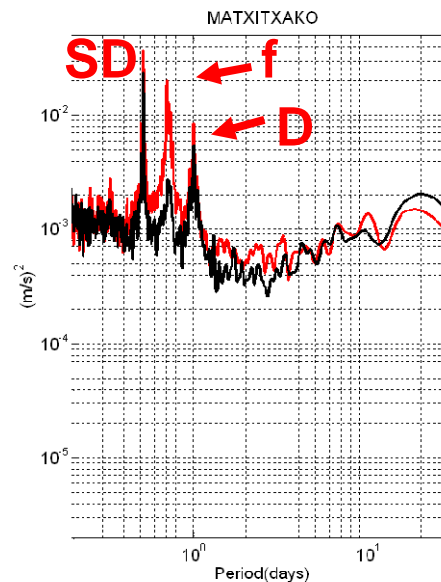
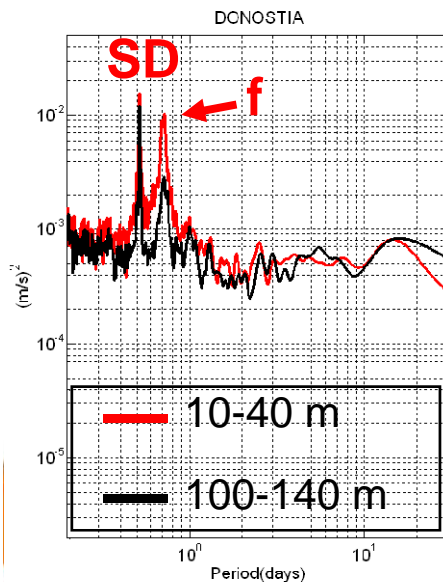
REGIONAL AND SUBREGIONAL SCALES

Process-oriented validation exercises

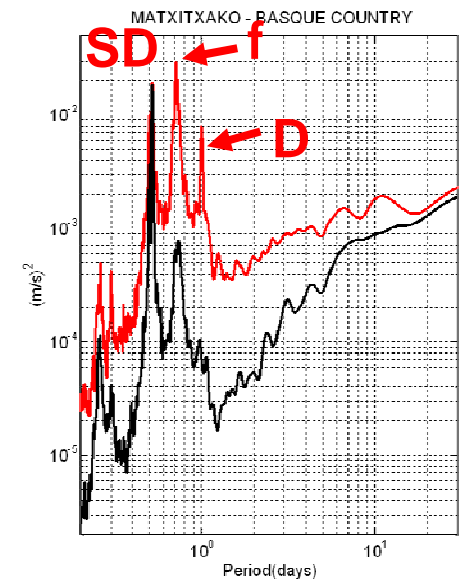
2. CIRCULATION AND TS OVER THE SHELF/SLOPESHELF/SLOPE: SEASONAL AND HF VARIABILITY. Model – data comparisons

Currents over the slope and high frequency variability

OBSERVATIONS



MODEL



REGIONAL AND SUBREGIONAL SCALES

Process-oriented validation exercises

2. CIRCULATION AND TS OVER THE SHELF/SLOPE: SEASONAL AND HF VARIABILITY. Process studies.

- Rubio, A., A. Fontán, P. Lazure, M. González, V. Valencia, L. Ferrer, J. Mader, C. Hernández, 2010 submitted. On the seasonal to tidal variability of currents and temperature in water of the continental slope, southeastern Bay of Biscay. Journal of Marine Systems.
- Fontán, A., J. Sáenz, M. González, A. Rubio, G. Esnaola, P. Liria, U. Ganzedo, C. Hernández, M. Collins, 2010 submitted. Coastal water circulation response to radiational and gravitational tides within the southeastern Bay of Biscay. Journal of Marine Systems.
- Alzorriz, N., A. Rubio, A. Fontán, L. Ferrer, M. González, 2011 submitted. Ocean surface circulation along the Cantabrian continental slope (Bay of Biscay): insight from observational data and model simulations. Scientia Marina.

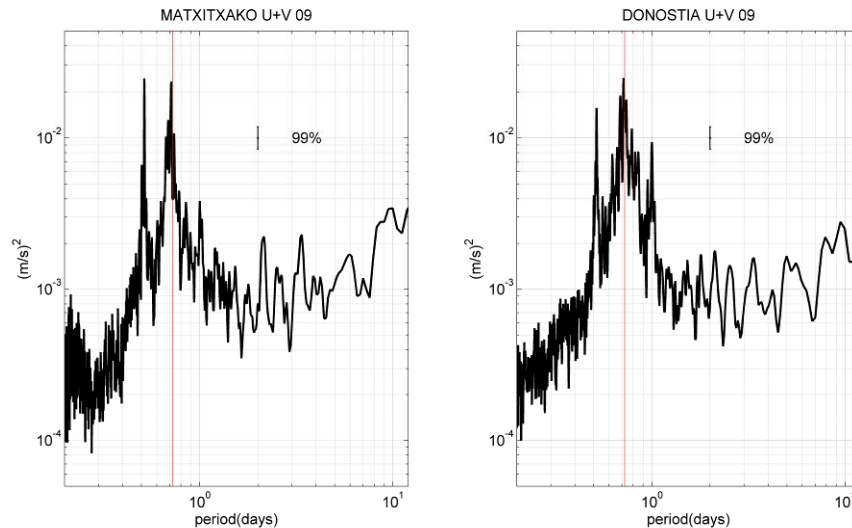
REGIONAL AND SUBREGIONAL SCALES

Process-oriented validation exercises

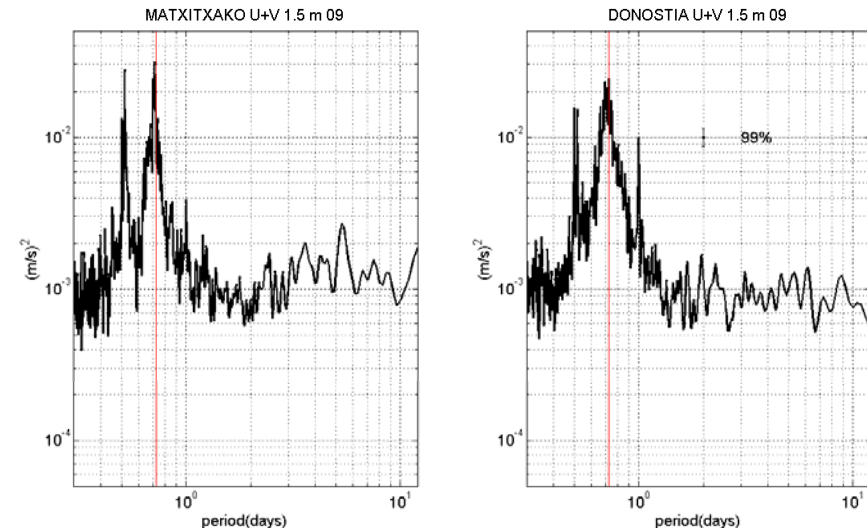
3. SURFACE PATTERNS FROM HF RADAR

- Processing, validation and analysis of HF radar data

HF RADAR



SLOPE BUOYS



- Solabarrieta, L., 2011. Patrones medios mensuales de la corriente superficial a partir de datos de radar HF en el sureste del Golfo de Bizkaia. Universidad de Cantabria, Tesina de Máster universitario en Ingeniería de Costas y Puertos. Codirigida por: Raúl Medina (IH Cantabria), Anna Rubio y Almudena Fontán.

REGIONAL AND SUBREGIONAL SCALES

Process-oriented validation exercises

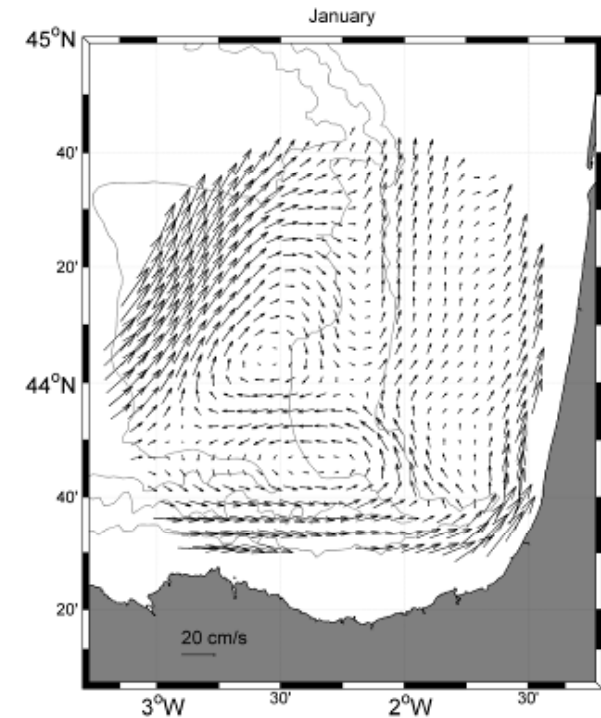
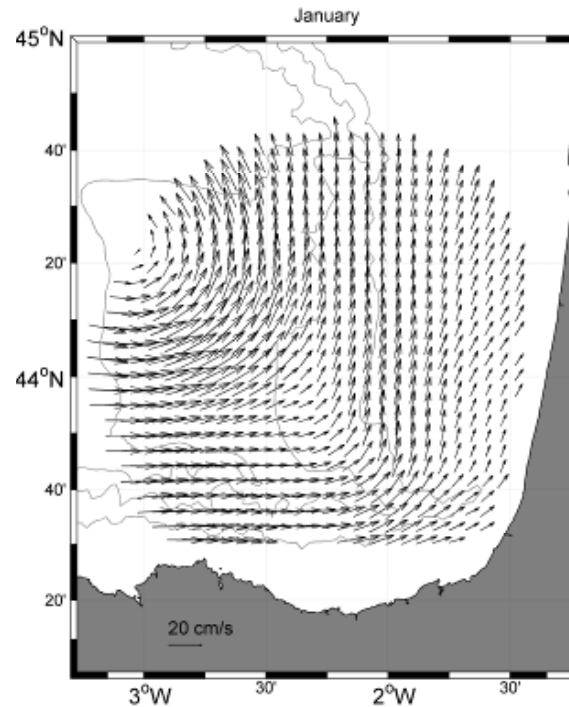
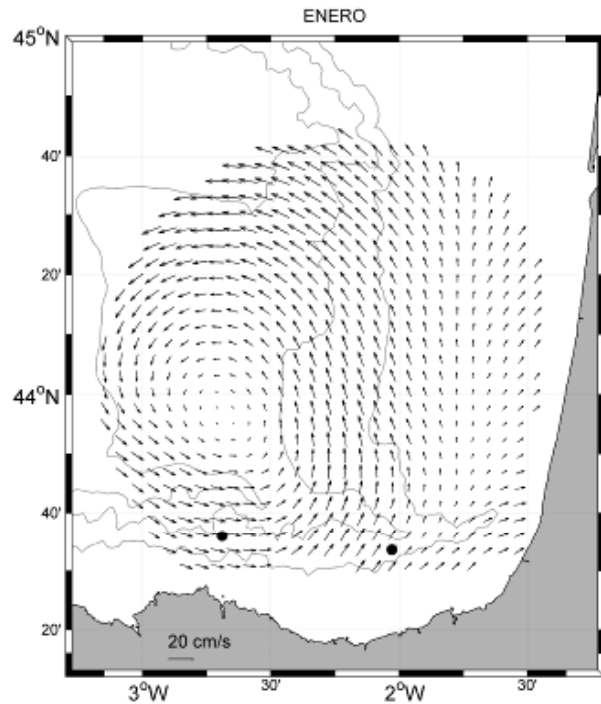
3. SURFACE PATTERNS FROM HF RADAR

- Model – data comparisons; MONTHLY PATTERNS

HF Radars

Regional ROMS

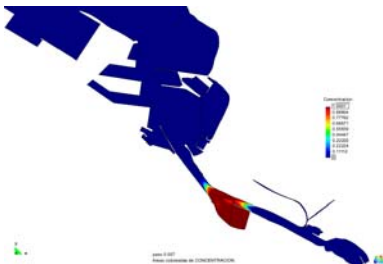
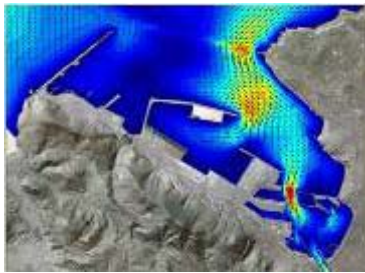
Coastal ROMS



Summary of activities (3)

Study areas

LOCAL FIELDS



**Harbors and littoral
TRIMODENA, ROMS,
MOHID and Transport
modules**

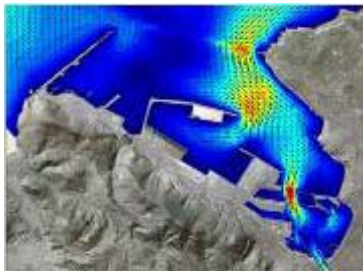
Actions

- Hydrodynamic operational model in Bilbao and Pasaia harbors (applied for the prediction of oil slick dispersion)

Summary of activities (2)

Study areas

LOCAL FIELDS

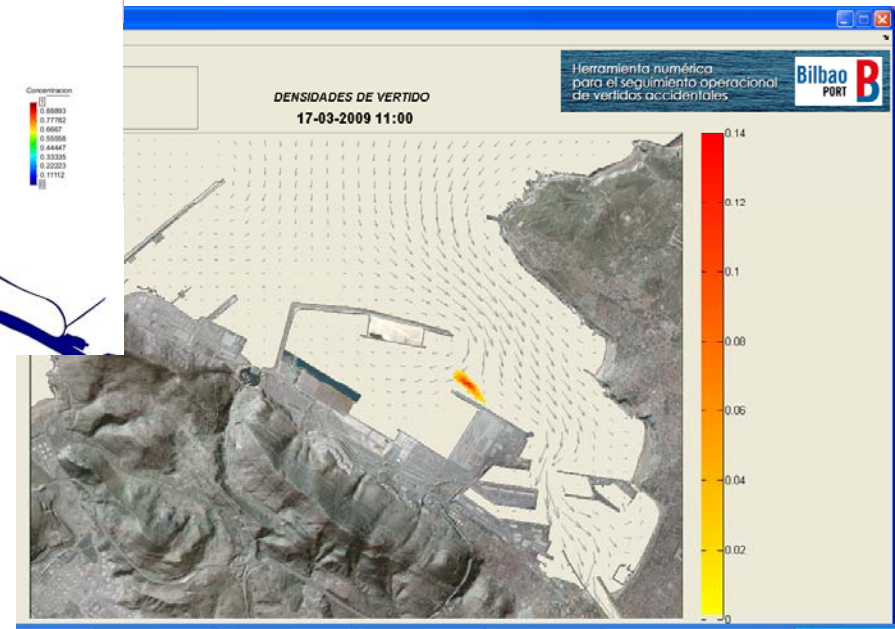
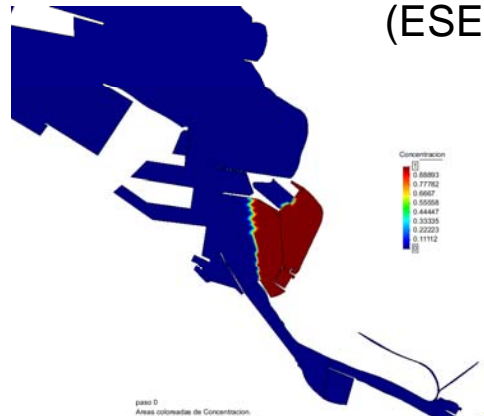


**Harbors and littoral
<2 km
TRIMODENA, ROMS,
MOHID and Transport
modules**

Actions

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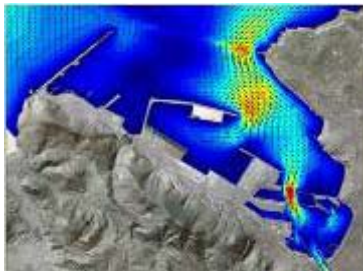
Nested System with collaboration of
Puertos del Estado
(ESEOO-AT→BCROMS→Harbour)



Summary of activities (2)

Study areas

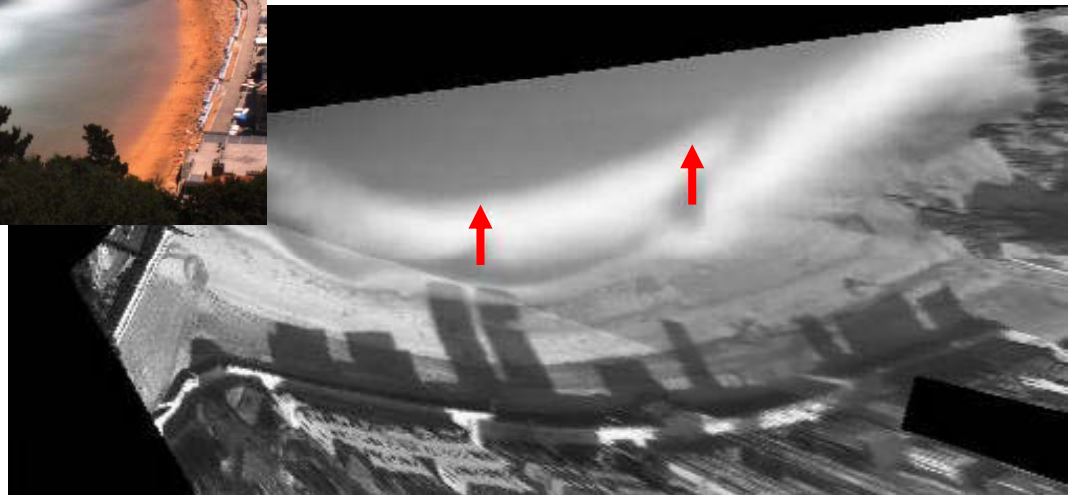
LOCAL FIELDS



**Harbors and littoral
TRIMODENA, ROMS,
MOHID and Transport
modules**

Actions

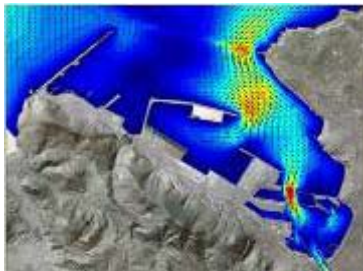
- Hydrodynamic operational model in Bilbao and Pasaia harbors (applied for the prediction of oil slick dispersion)
- Couple ROMS model with MOHID model in several pilots areas (LOREA Project): Saturraran and Zarautz beaches for bathing waters quality



Summary of activities (2)

Study areas

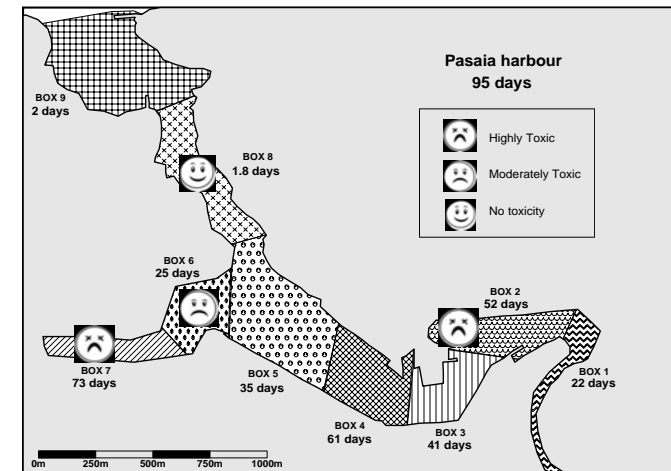
LOCAL FIELDS



**Harbors and littoral
TRIMODENA, ROMS,
MOHID and Transport
modules**

Actions

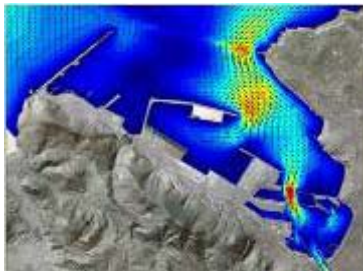
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- Estimation of water renovation parameters for environmental quality management within harbors (MODELTOX and AMPLIRED projects)



Summary of activities (2)

Study areas

LOCAL FIELDS



**Harbors and littoral
TRIMODENA, ROMS,
MOHID and Transport
modules**

Actions

- Hydrodynamic operational model in Bilbao and Pasaia harbors (applied for the prediction of oil slick dispersion)
- Couple ROMS model with MOHID model in several pilots areas (LOREA Project): Saturraran and Zarautz beaches for bathing waters quality
- Estimation of water renovation parameters for environmental quality management within harbors (MODELTOX and AMPLIRED projects)
- Wave model local validation; WAM pre-operational; Developments of specific products and services for Marine Energy

