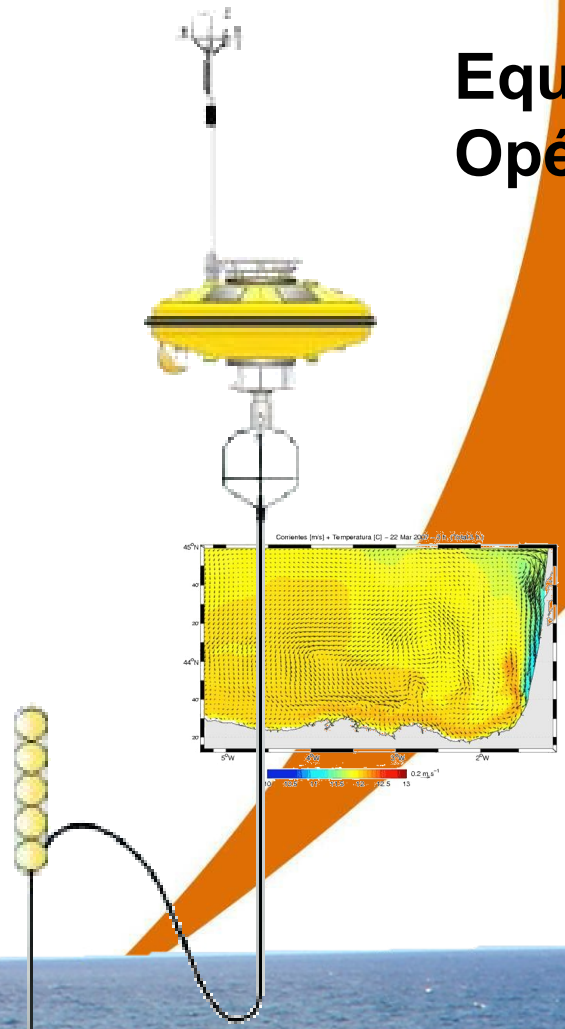
Réunion EPIGRAM
18-20 mars 2009



Equipe Dynamique Marine et Océanographie Opérationnelle:

Hydrodynamique:

Almudena Fontán, Luis Ferrer, Manuel González, Andrea Del Campo, Anna Rubio, Julien Mader

Houle, Morphodynamique, Cartographie:

Pedro Liria, Carlos Hernandez, Ibon Galparsoro

Téledetection:

Yolanda Sagarminaga, Guillem Chust, Ainhoa Caballero

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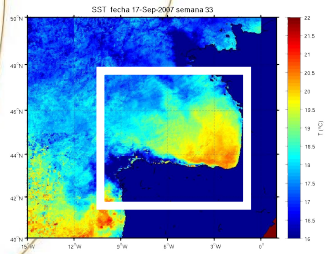
Système d'océanographie opérationnelle



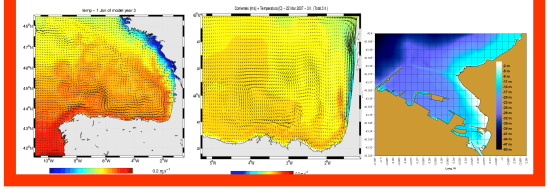
Observations

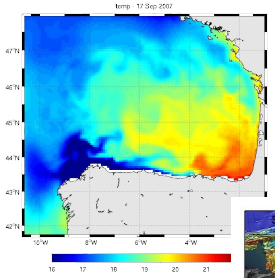
In situ: Bouées, radar HF, Stations côtières

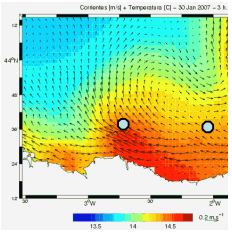
Remote sensing: SST, SSH, Ocean Colour

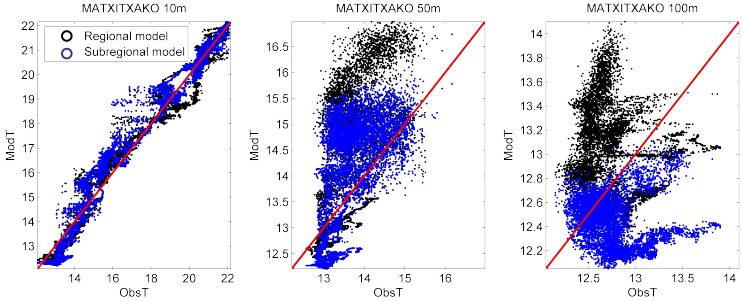
Modèles

Régional, interrégional et configurations locales









Problématiques à différentes échelles:

–REGIONAL: Halieutique, Dispersion hydrocarbures

–LOCALE: Pollution, qualité des eaux, transport de sédiments…

Processus :

–Circulation générale sur le plateau et pente (et sa variabilité)

–Dynamique de la couche surface

–Effets des événements extrêmes (tempêtes)

–Effets des apports fluviaux sur l'hydrodynamique côtière et évolution des panaches…

COOPERACIÓN TERRITORIAL COOPÉRATION TERRITORIALE
ESPAÑA-FRANCE-ANDORRA
2007-2013

www.lorea.eu
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Litoral Ozeano Rivières Euskadi-Aquitaine

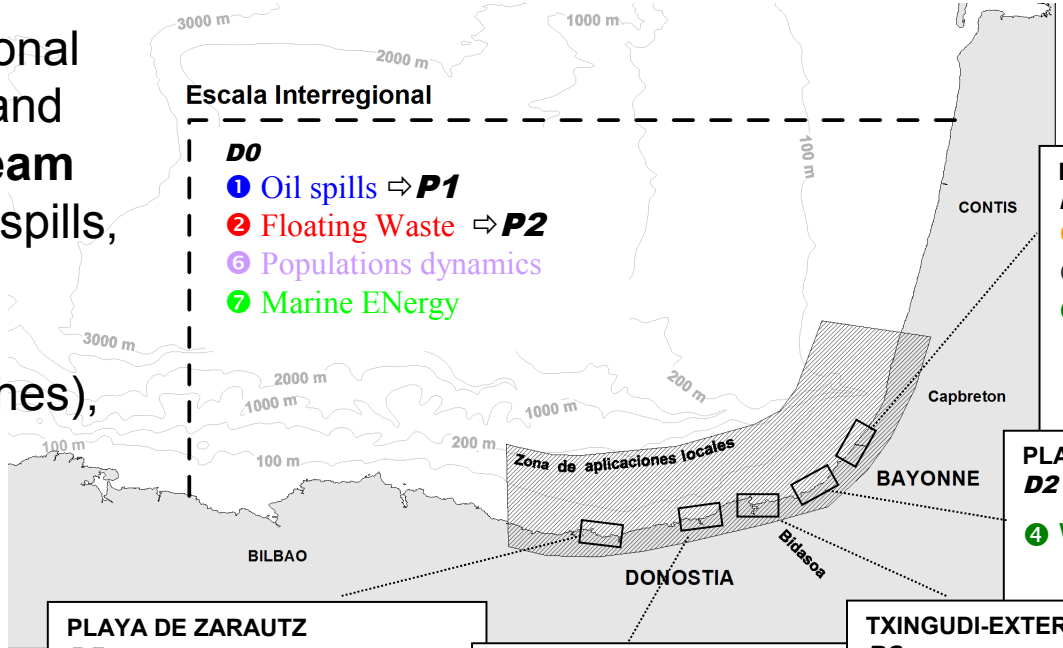
2009-2011

INTERREG IVa Project

LOREA: Littoral, Ocean and Rivers in Euskadi-Aquitaine

Interregional System of Littoral Oceanography System

Coastal operational oceanography and **local downstream services** on oil spills, water quality (bacteriological impact on beaches), safety,…
in pilot areas



D0
- ❶ Oil spills ⇨ ***P1***
- ❷ Floating Waste ⇨ ***P2***
- ❻ Populations dynamics
- ❼ Marine ENergy

DESEMBOCADURA DEL ADOUR
D1
- ❸ Sediment dynamics
- ❺ Beaches security ⇨ ***P5***
- ❹ Water Quality

PLAYAS DE GUÉTARY-BIDART
D2
- ❹ Water Quality ⇨ ***P3***

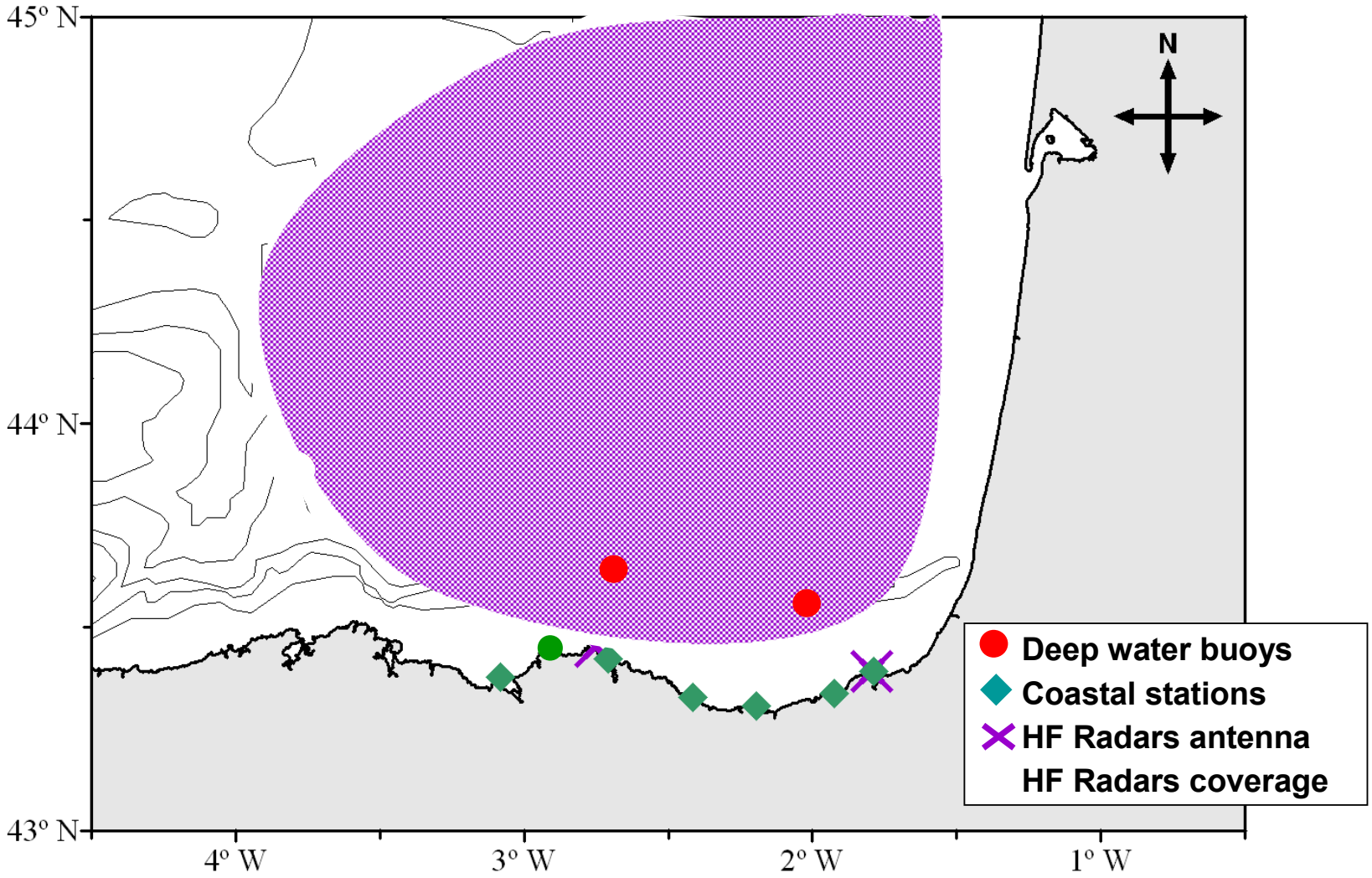
PLAYA DE ZARAUTZ
D5
- ❺ Beaches security ⇨ ***P4***
- ❸ Sediment dynamics
- ❹ Water quality

PASAIA
D4
- ❸ Sediment dynamics
- ❶ Oil spills

TXINGUDI-EXTERIOR
D3
- ❸ Sediment dynamics

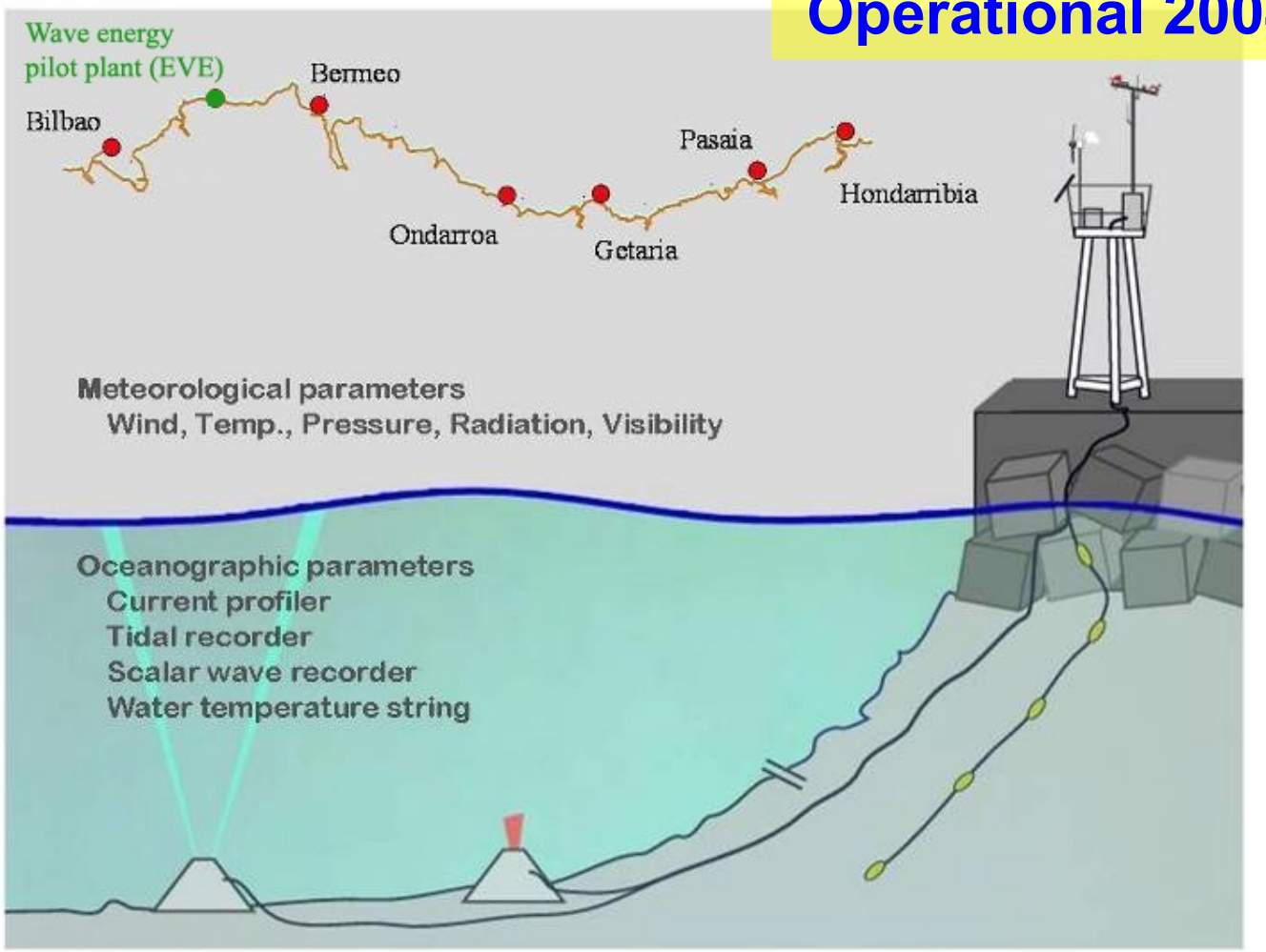
PYRENEES ATLANTIQUES CONSEIL GENERAL · azti tecnalia · EUSKO JAURLARITZA GOBIERNO VASCO · Ifremer · SYNDICAT MIXTE KOSTA GARBIA · Lyonnaise des Eaux SUEZ · UNIVERSITÉ DE PAU ET DES PAYS DE L'ADOUR · LaSAGeC² · CASAGEC Cellule Aquitaine de Suivi et d'Analyse pour une Gestion intégrée des Environnements Côtiers

Basque Ocean meteorological network in 2009



Phase I: Coastal platforms

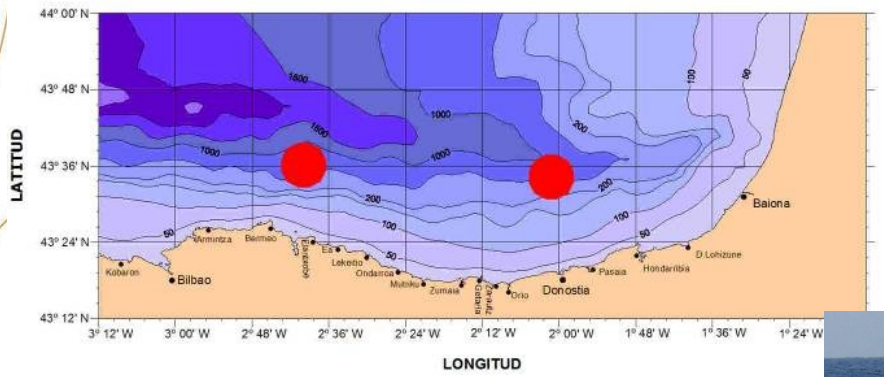
Operational 2004.

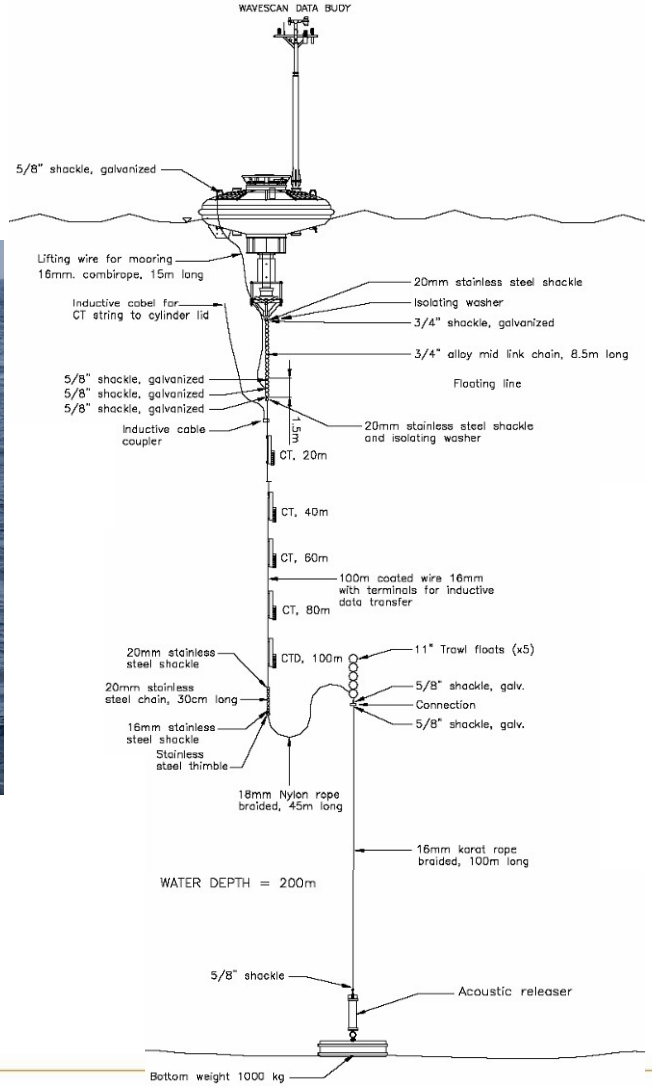


Tidal and wind-induced circulation within the Southeastern limit of the Bay of Biscay: Pasaia Bay, Basque Coast.
Fontán A. et al. CSR, 2009 in press (doi:10.1016/j.csr.2008.12.013)

Phase II: Offshore OM buoys

Operational 2007.





Ocean-meteorological buoys (2+1)

Meteorological sensors:
- **Air temperature sensor**
- **Air pressure**
- **Wind sensor**
- **Solar and Net radiation**

Oceanographic parameters:
- **Directional wave sensor**
- **Surface current sensor**
- **Current profile in the upper 200m of the water column**
- **Temperature and salinity in the upper 10-200m of the water column**

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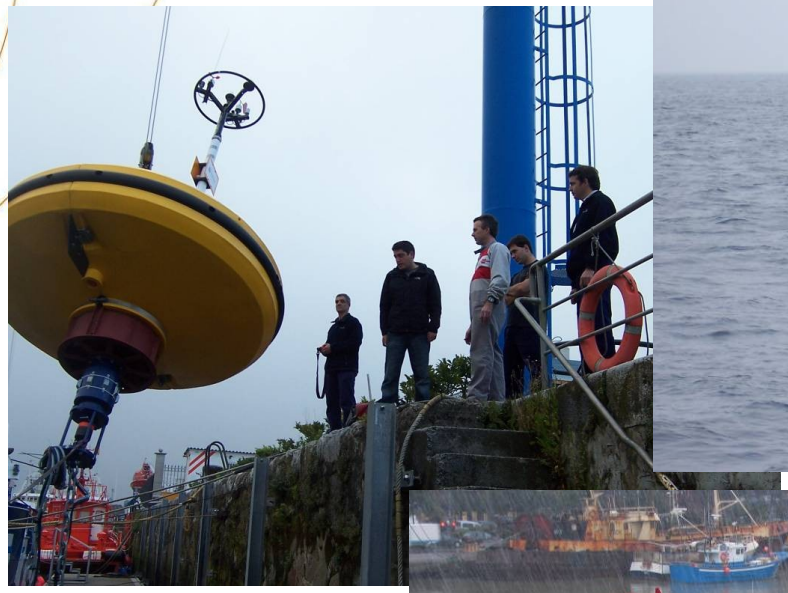
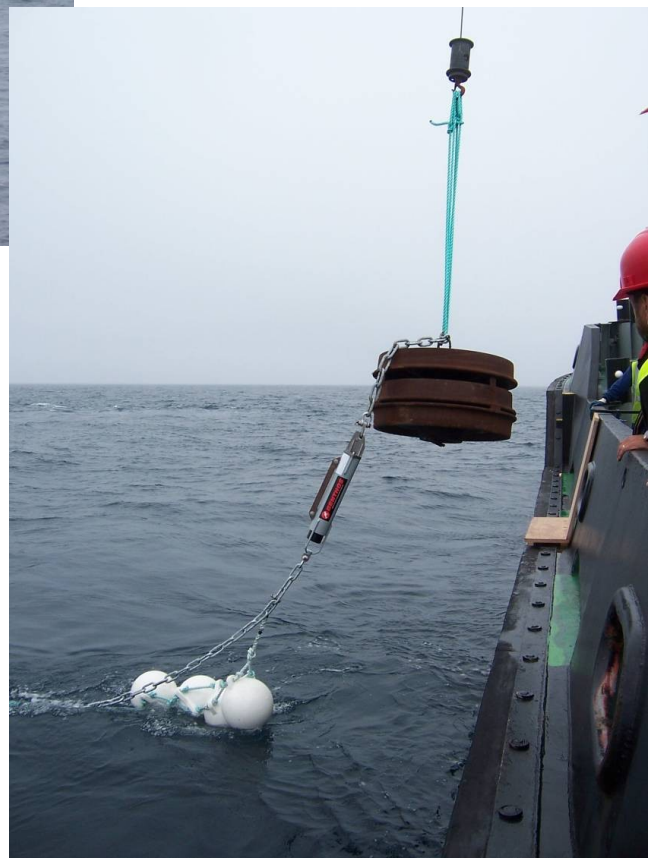
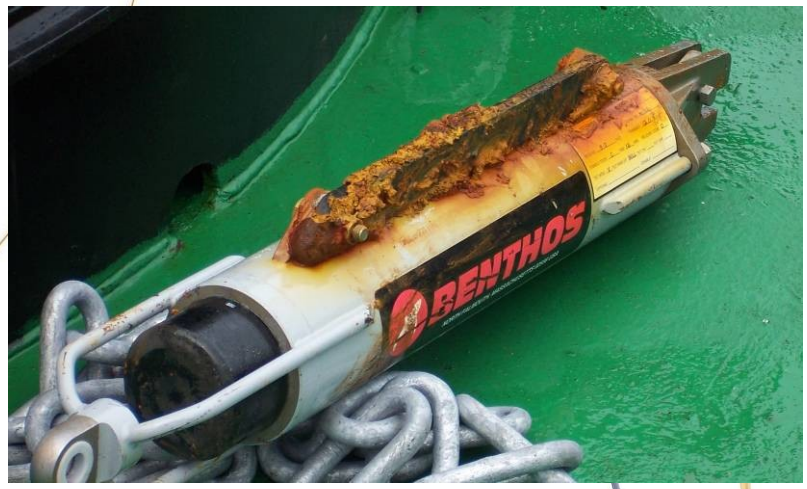
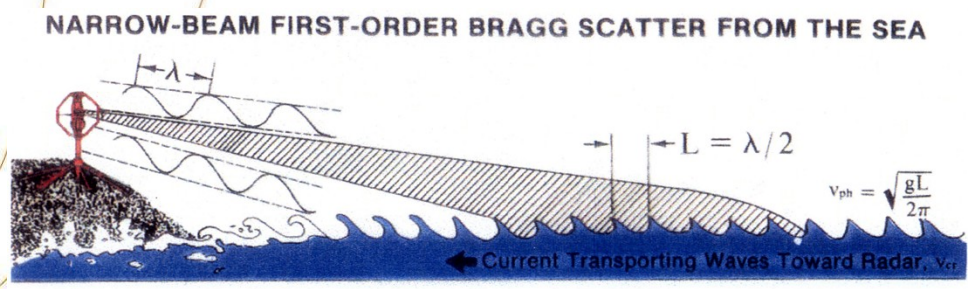




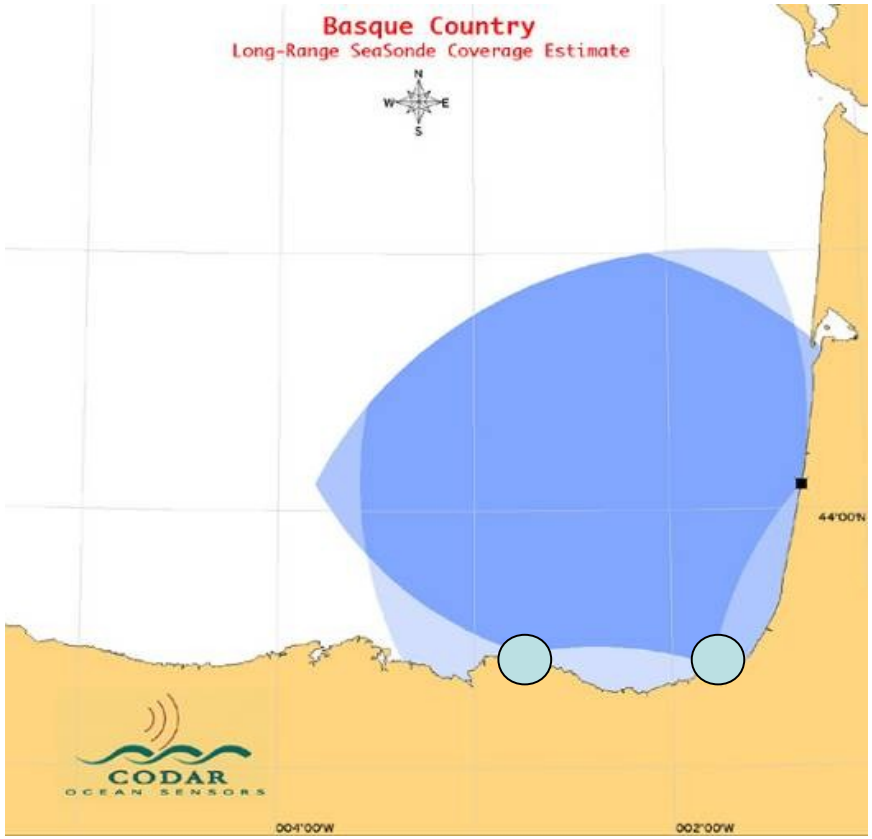

BENTHOS


Wavescan

Phase III: HF Radars

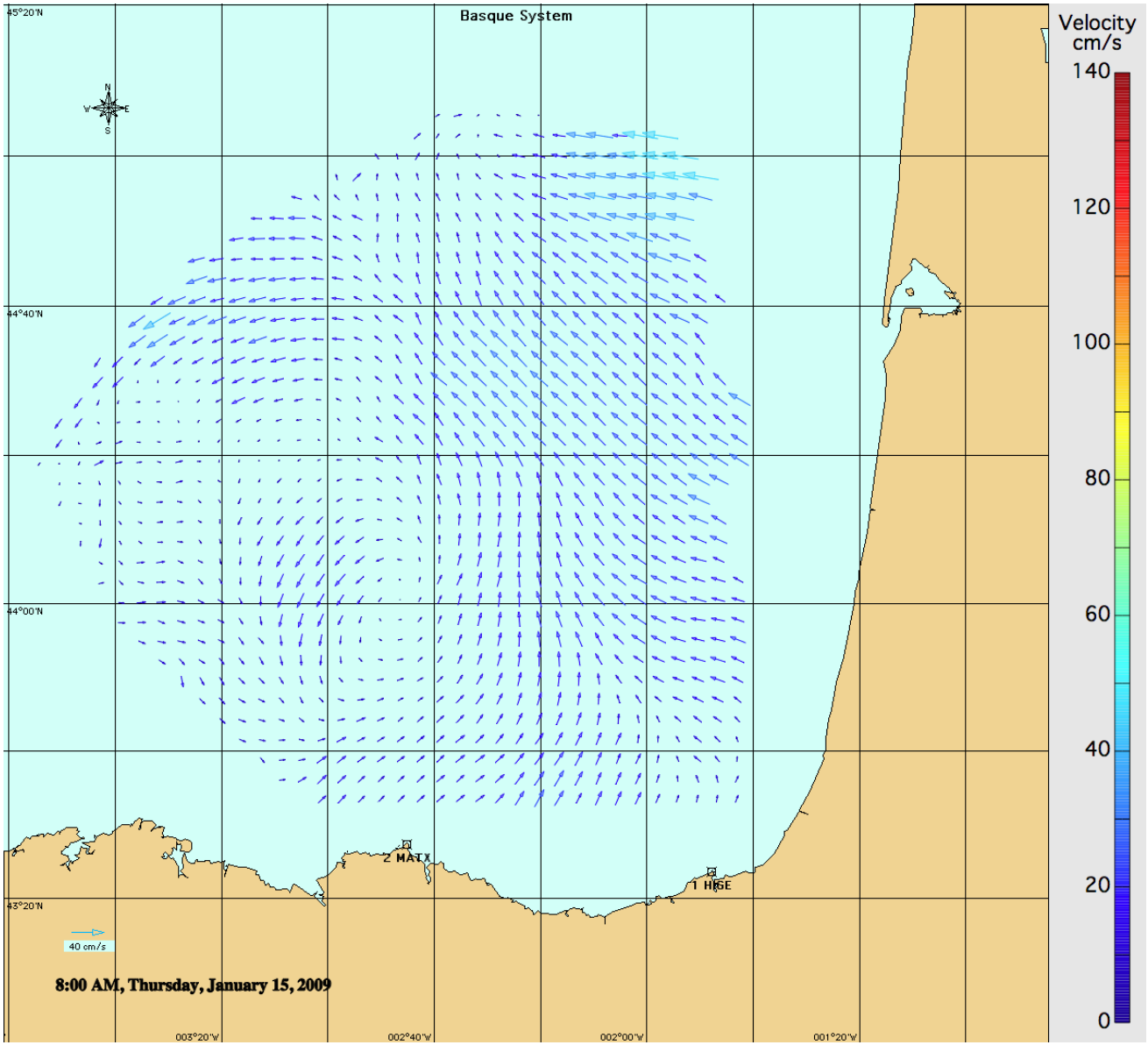


Operational in 2008
Data validation on progress

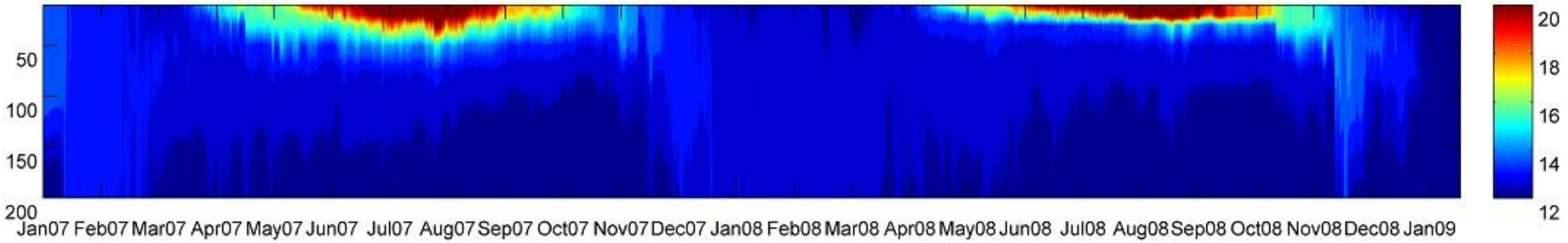


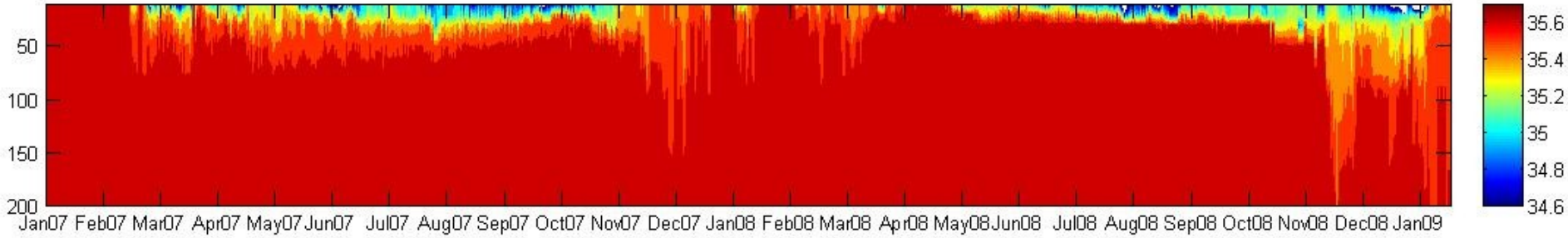
Surface currents and Sea state distribution

Long-Range SeaSonde [~5 MHz] Range : 200 km Resolution: 6 km

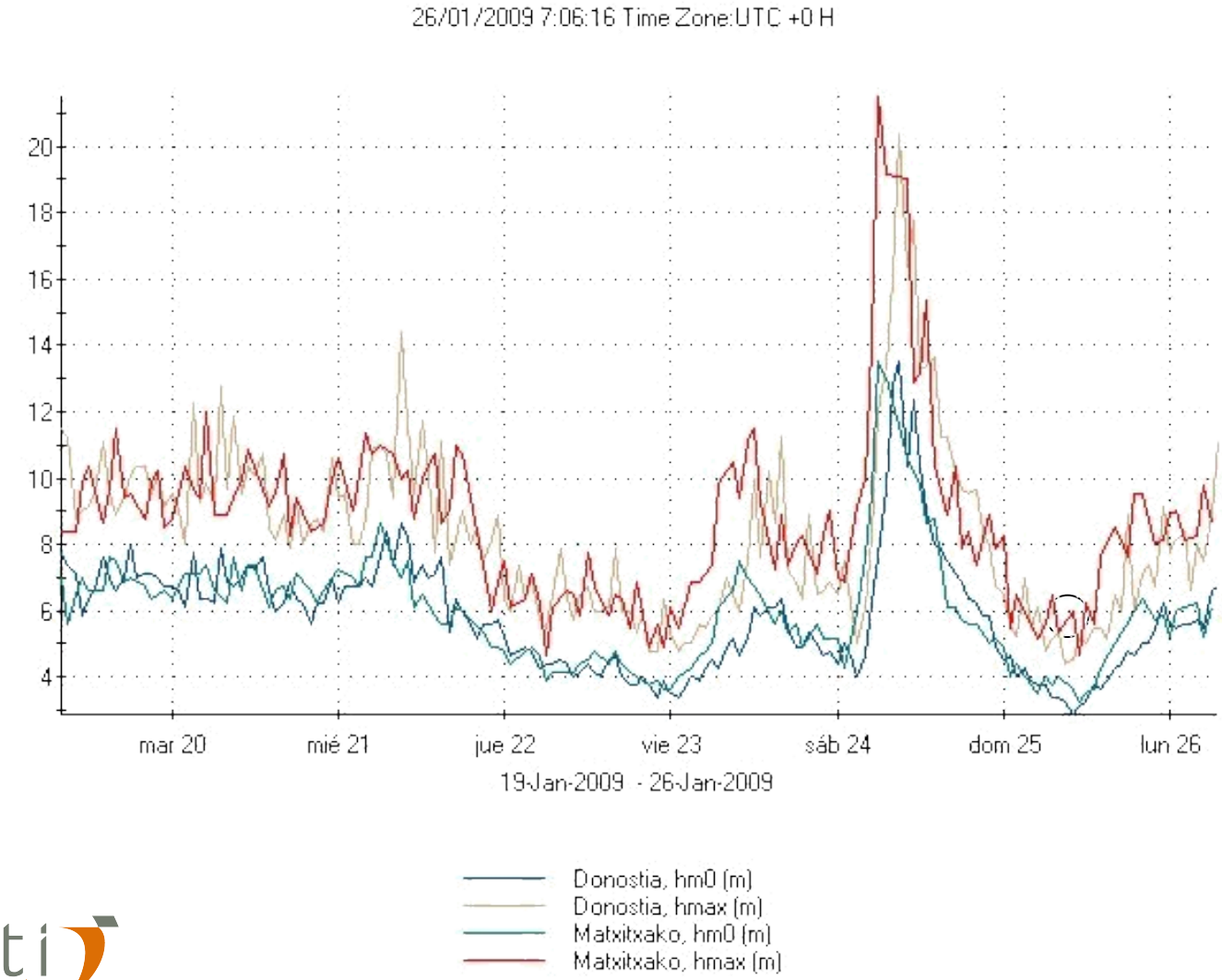

Basque System
Velocity
cm/s
140
120
100
80
60
40
20
0
45°20'N
44°40'N
44°00'N
43°20'N
003°20'W
002°40'W
002°00'W
001°20'W
N
S
W
E
2 MATX
1 HGE
40 cm/s
8:00 AM, Thursday, January 15, 2009

Profils à partir de CTs à 10, 20, 30, 50, 75, 100, 200m
Données horaires
Janvier 2007-Janvier 2009

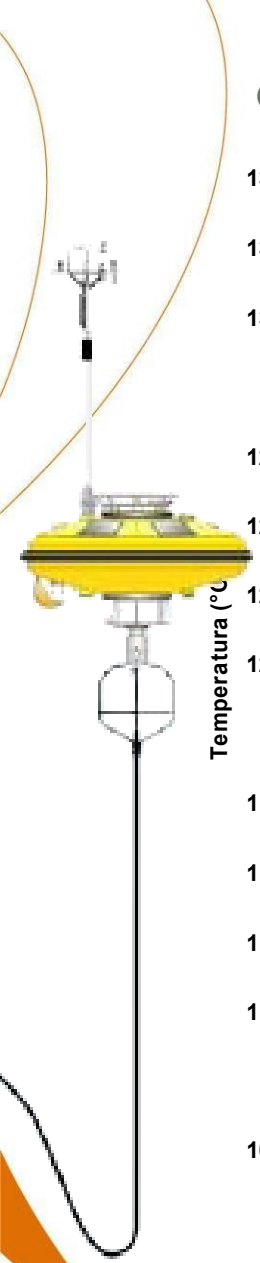


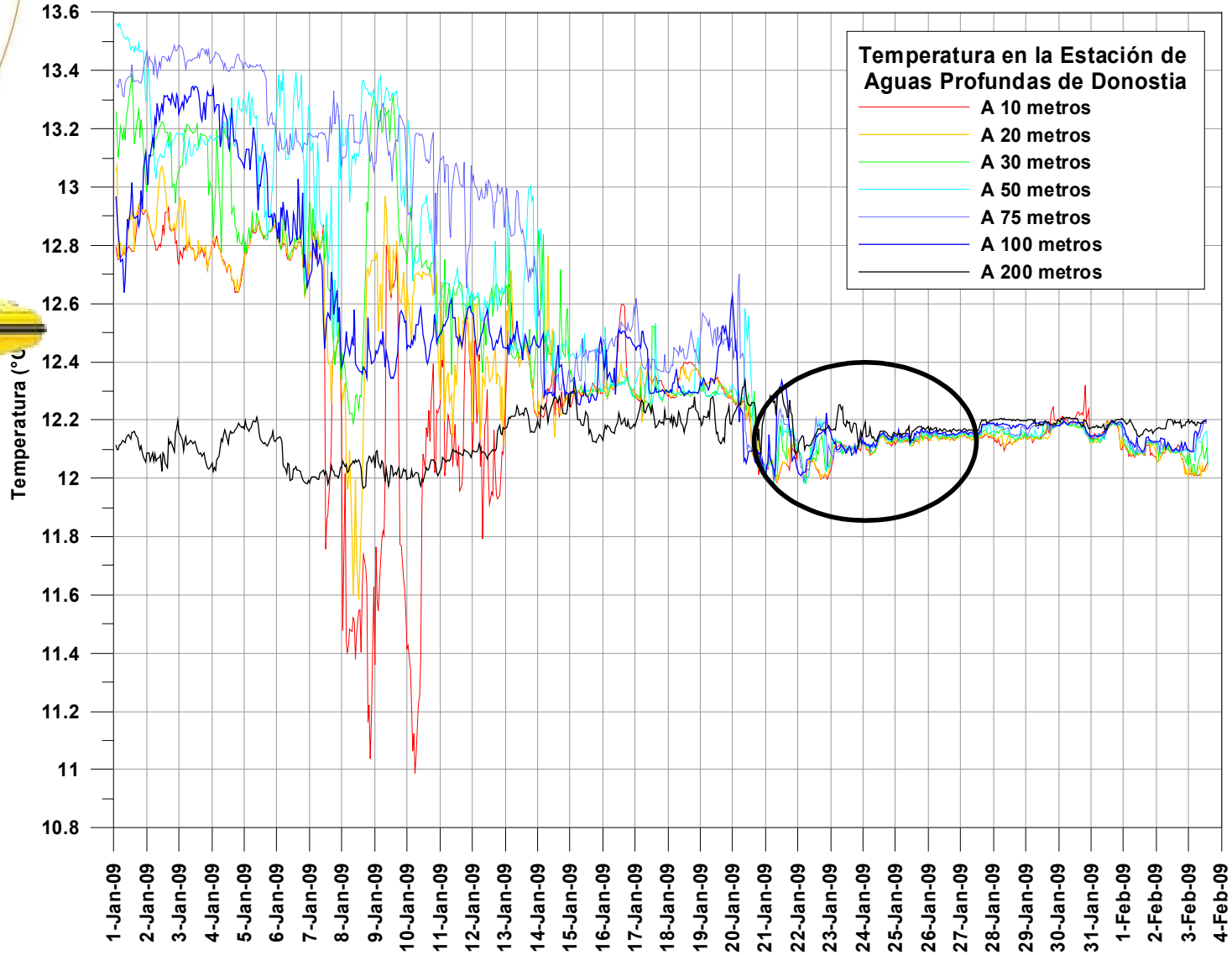


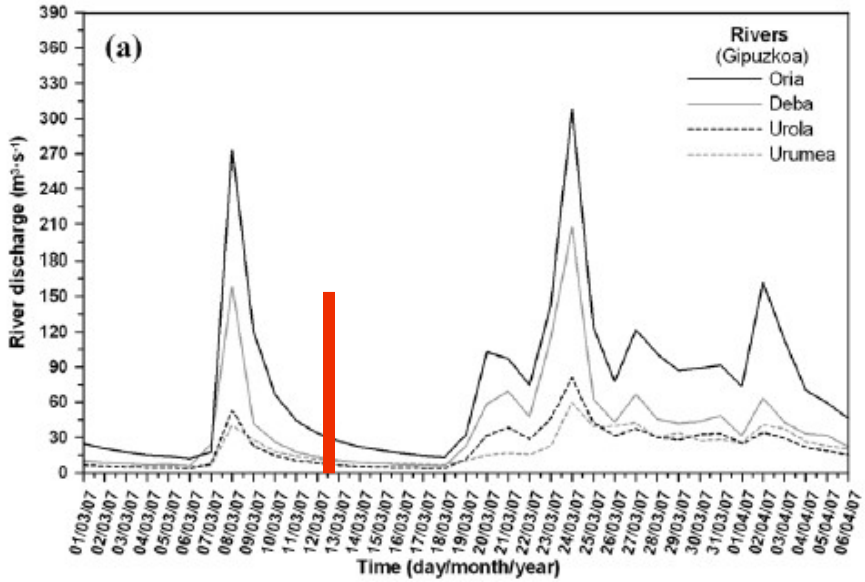
Wave heights during the “Klaus” storm 24/01/2009

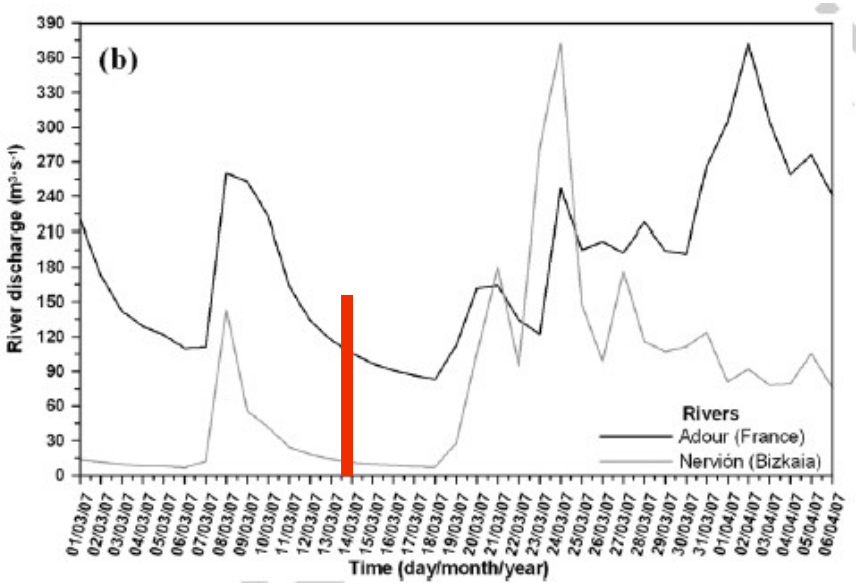


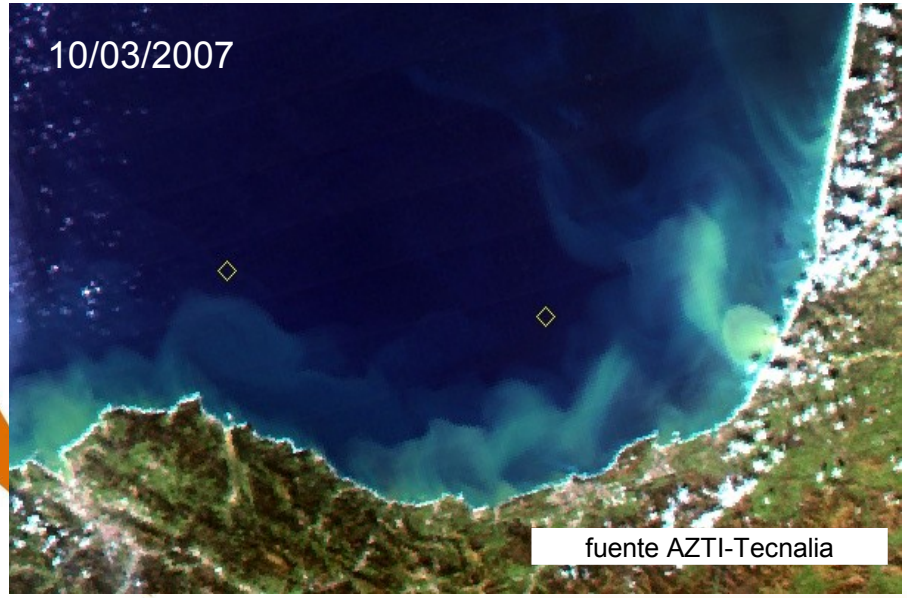
CTs profiles (0-200m) and mixing processes

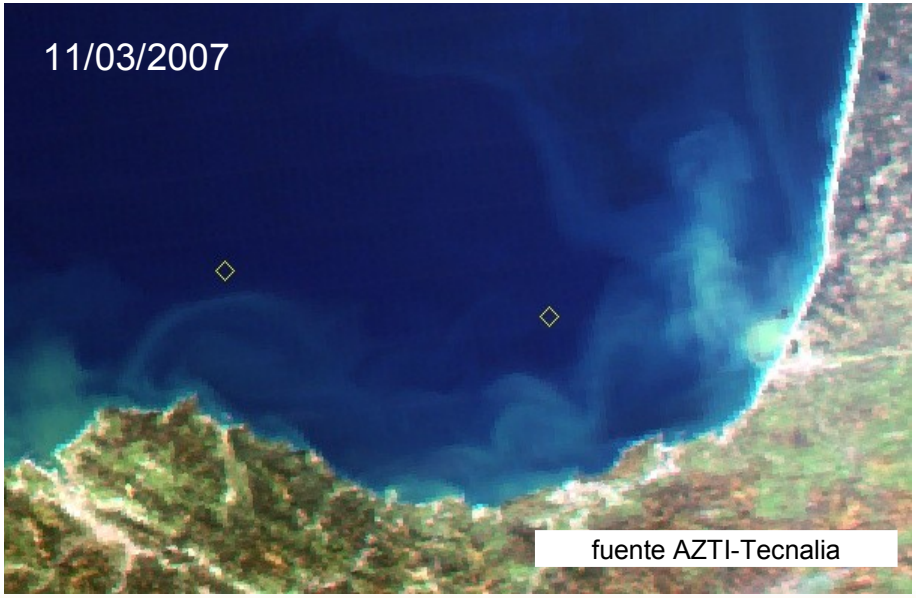


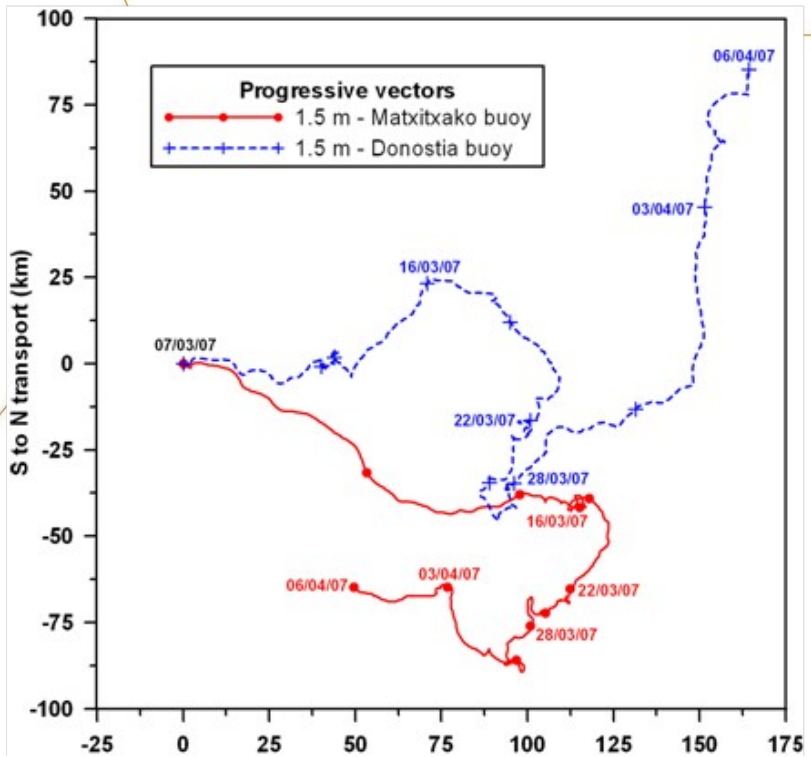


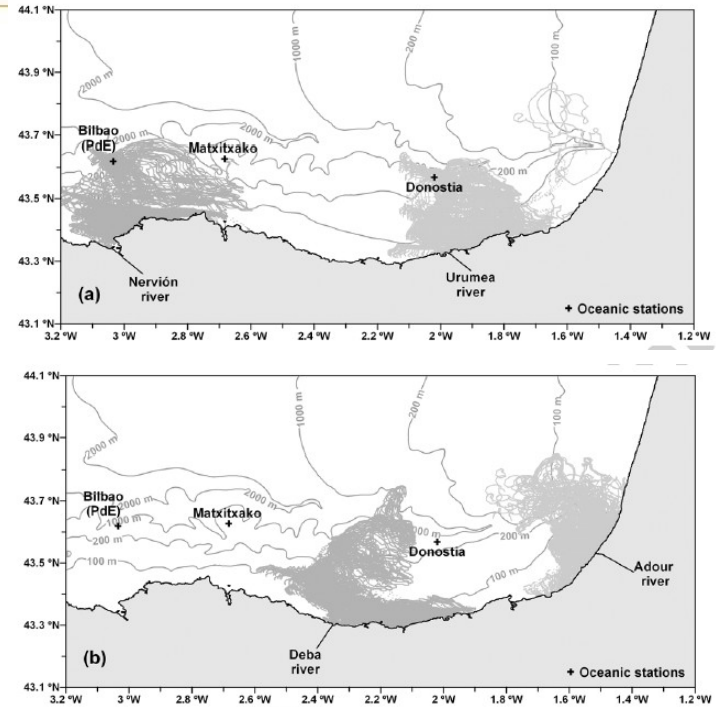

(a)
Rivers
(Gipuzkoa)
Oria
Deba
Urola
Urumea
River discharge (m³·s⁻¹)
Time (day/month/year)

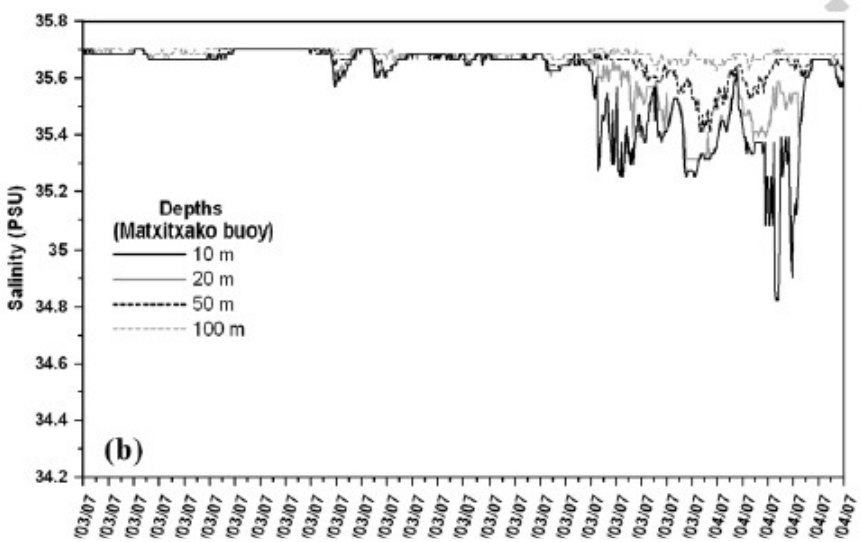

(b)
Rivers
Adour (France)
Nervión (Bizkaia)
River discharge (m³·s⁻¹)
Time (day/month/year)

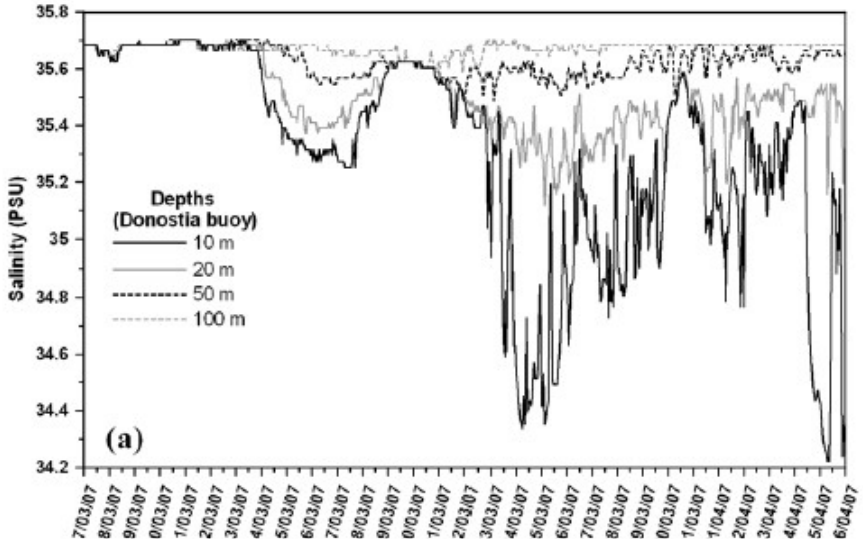

10/03/2007
fuente AZTI-Tecnalia


11/03/2007
fuente AZTI-Tecnalia









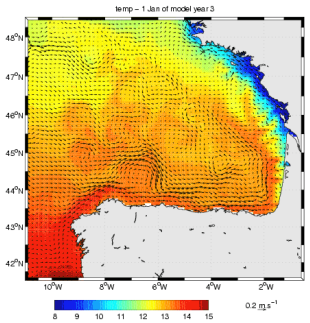
Ferrer, L. et al. 2009. Low salinity plumes in the oceanic region of the Basque Country. Continental Shelf Research. Doi:10.1016/j.csr.2008.12.014.

Modelling activities

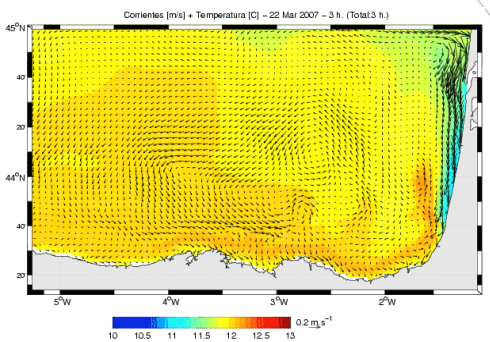
ITSASEUS PROJECT Modelling and oceanographic forecasting

Basque Plan of Science, Technology and Innovation
2007-2009 Strategic Research

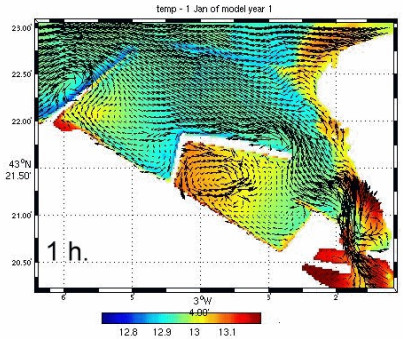
REGIONAL FIELDS



SUBREGIONAL FIELDS



LOCAL FIELDS



- Regional - Bay of Biscay 6,6km – 32 sigma levels ROMS
- Subregional - Basque coastline 2,2km – 32 sigma levels ROMS
- Local models <2 km ROMS, TRIMODENA