Harmonization and dissemination of TSG data from IEO research vessels: Integrating biogeochemical sensors for application in HAB data services.

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IEO research vessels fleet

Lura

Margalef

Alvariño

Navarro

Vizconde de Eza (SGP)

Oliver (SGP)

Navaz
Cruise activities

- Give response to institutional/research/social demands
- Consolidate oceano-meteorologic observation ship-based network
- Develop of new technologies in the field of oceanography monitoring
- Creation of common data infrastructure platform
- Development of specific final user products
R. V. Lura

- Base port A Coruña
- Length 14 m
- TSG data
  - 2016-Actualidad
    - Monthly sections
  - 2019
    - Weekly sections
Sensors

SBE 21 Thermosalinograph

Calibration: CTDs, salinometer
General Data Flow

Vessels → Data Processing → OGC Data servers → Final Users
Data processing system

- Reception of vessel data by email
- Data conversion
- Quality Control
- Control figures.
- Convert to output formats
  - netcdf
  - shapefiles (GIS)
- Submit to data servers
  - Thredds
  - Geoserver
General Data Flow

Vessels → Data Processing → OGC Data servers → Final Users
Adventages

– Concentrate the programming efforts to data conversion, basic QC, and populate the database.
– Facilitate the application both automatic and supervised QC (on postgreSQL).
– The use of standard technologies reduce the efforts to programming data dissemination
  • Data compatible with GIS world
  • Facilitate graphical outputs
– Facilitate the integration with other data sources.
– Facilitate the development of interactive resources both graphics tools and data analysis products.
New paradigm

Database
- PostgreSQL
- PostGIS

WMS
- GeoServer
- OGC

WFS

GIS clients
- QGIS
- ArcGIS

Web App/ Web Services
- LibreOffice
- Office
- Flask
- Shiny
- python
- R
- MATLAB

Programming languages
Geoserver (Openlayer)

- Temperature
- Salinity
- Fluorescence
- CDOM
- Turbidity

Lura
– Development of HAB prediction weekly bulletins
  • Integrate TSG in the bulletins with whole the available information.
– Facilitate the availability of TSG data
  • To validate or force the oceanographic models.
  • To facilitate the data analysis (e.g. HAB habitat modeling).
HAB bulletin

- Observations
- Biotoxines
- Satellite data
- HAB Cell counts
- Surface Currents
- Temperatures
- Particle Transport
- Upwelling Index

Eulerian Models

Lagrangian Models
Pending tasks

– Extend this methodology to the rest of the fleet
– Development of a web app to facilitate the application of supervised quality control.
– Development of a dedicated web portal to visualize and download the TSG data.
– Convert the HAB bulletins (pdf) to web app.
Thank you for your attention