CORIOLIS: A DATA MANAGEMENT SERVICE FOR OPERATIONAL OCEANOGRAPHY

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The Coriolis data service is a contribution to operational oceanography from the main French Meteorological and Oceanographic agencies[1] . It was initiated in the context of the Global Ocean Data Assimilation Experiment (GODAE) as a global supplier of in-situ data and products. Coriolis data service collects, controls and distributes physical oceanographic in-situ measurements : temperature, salinity, current profiles and trajectories.
It provides a data management structure for
. National projects : Mercator, Soap (Shom)
. European projects : Mediterranean Forecasting System, Gyroscope
. Global projects : Argo (as one of the two global data centres), GTSPP, TOGA/WOCE/CLIVAR

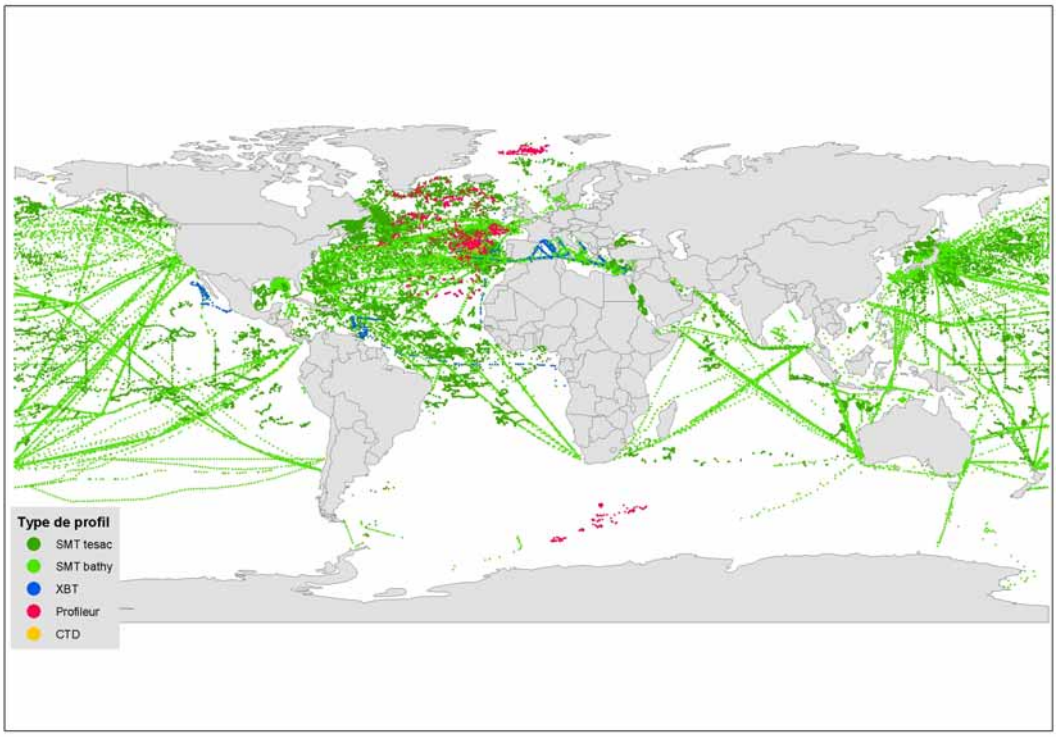
Coriolis data service fulfils the operational oceanography data delivery requirements (48 hours from the observation to the Global Transmission System) and delivers daily data sets to modellers. The data are controlled with automatic procedures and checked by an operator if necessary. The total qualified data set is freely available through ftp and web interfaces.
Coriolis extends progressively its service to new data types:
. Moorings data from projects like Pirata;
. Thermosalinographs and full resolution XBT and CTD;
. Integration of historical data sets to real time data sets.

Coriolis data service also offers added value products such as objective analyses maps (Atlantic ocean), maps of data distribution . It supplies statistics of data management activity and a permanent monitoring of the availability of the service.

Conclusion: A data management structure developed with a database and with web services enables to deal with both historical and recent data of whatsoever type with immediate access.

[1] Coriolis data service partners are CNES, IFREMER, INSU, IPEV, IRD and Meteo-France

Coriolis global data set of temperature and salinity profiles
Since 2001, more than 250.000 temperature and salinity profiles have been collected and disseminated in real time by Coriolis data service with a world wide coverage.



Coriolis global data set of thermosalinograph data
More than 550 000 temperature and salinity measurements from WOCE experiments are available in Coriolis data-base.

Coriolis
OPERATIONAL OCEANOGRAPHY

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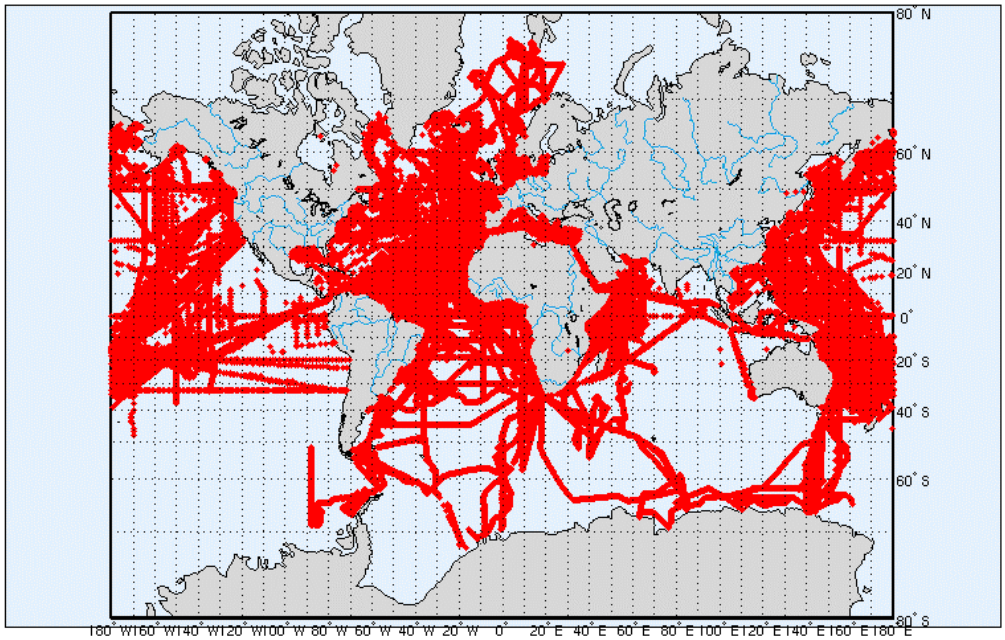
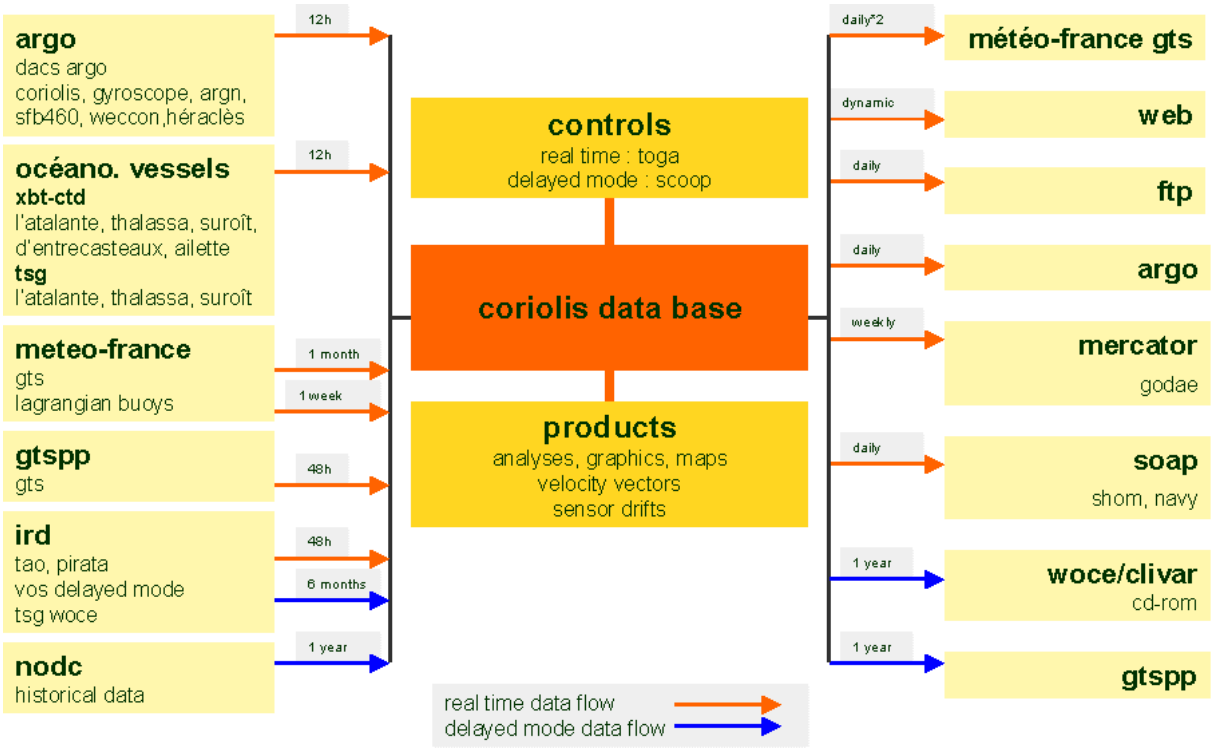
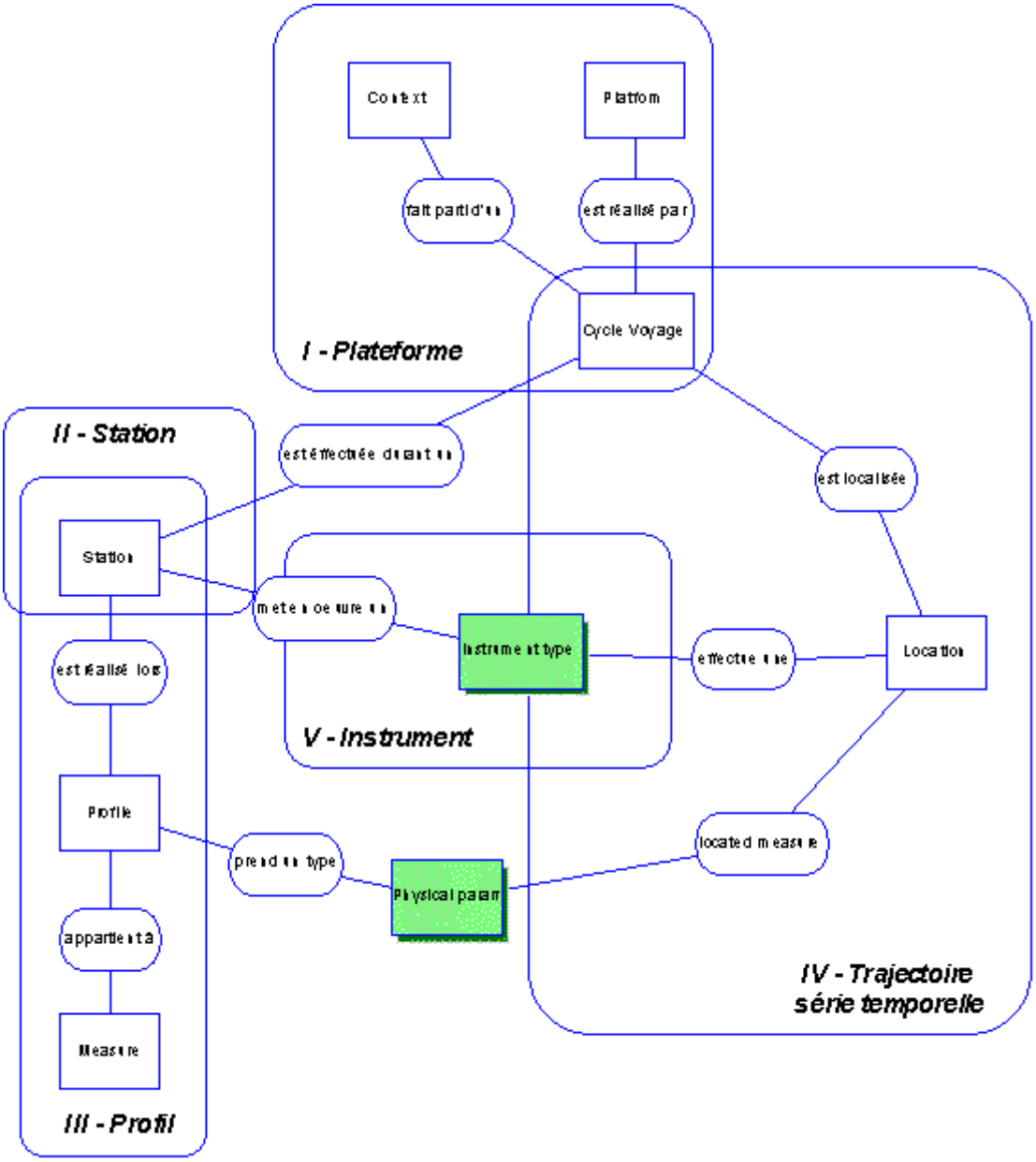


Coriolis data flow : a continuously managed data-base
Data are processed in real time mode and continuously replaced by higher quality delayed mode data. Each set of measurements has a data state indicator that is describes its processing level. Real time data are processed within a few hours from measurements (up to 30 days for some data sets). Delayed mode data may be available within months or even years for some data sets.

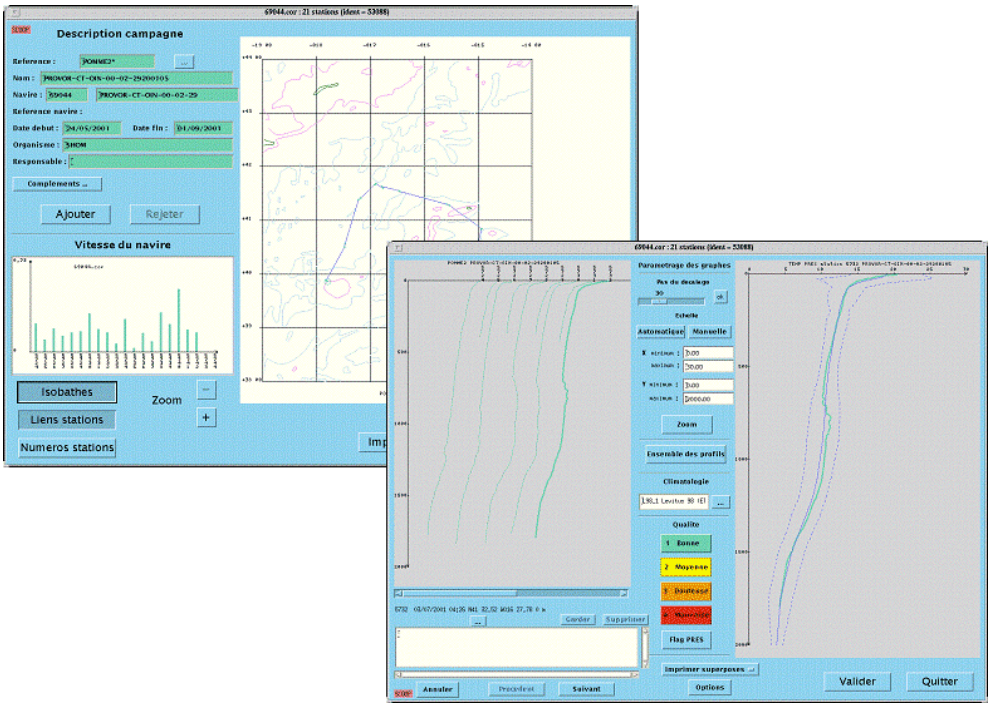


An oracle data-base

Coriolis is built on an Oracle data-base, continuously updated by incoming data.
The data-base is designed to handle up to 2 billions of measurements from up to 99 parameters (examples : temperatures, salinities, currents).

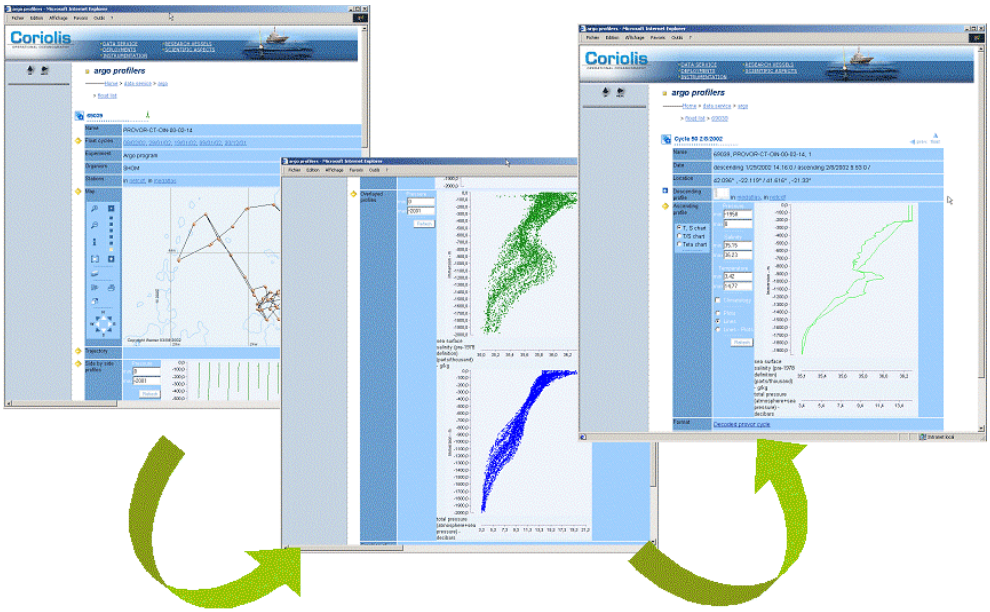


Automatic and visual quality control
All data are controlled by automated procedure. If necessary, an operator can validate measurements.



Real-time dissemination on the web
Coriolis web site performs dynamic queries of Oracle data-base to display meta-data, data, graphics and geographic maps.
The following processes are available as dynamic web services :

- queries on the data-base
- generation of geographic maps
- generation of graphic charts
- generation of data file



Example of products : objective analysis on North Atlantic

Analysis ‘in real-time’ are performed once a week. Each analysis takes into account the data measured within –20/+5 days intervals around the date of the estimation. The ‘re-analysis’ takes into account the measurements within -20/+20 days intervals.