

OPERATIONAL OCEANOGRAPHY IN FRANCE

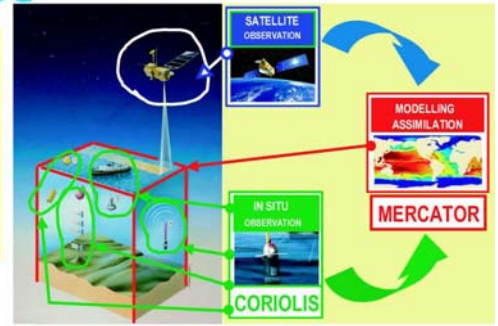
The Coriolis Project

An operational oceanographic system is being developed in France to monitor and forecast ocean behavior. It is composed of three projects:

- o o o - Sea-surface observation using satellite sensors,
- o o o - In situ measurements from ships, moored or drifting autonomous systems,
- o o o - Assimilation of in-situ and satellite data in an ocean circulation model.

Coriolis contributes to the in situ part of this system, with the objective of developing continuous, automatic, and permanent observation networks. The data collected will enable water properties to be mapped, such as temperature, and ocean circulation.

PARTNERS : CNES, CNRS, IFRTP, IRD, METEO FRANCE, SHOM and IFREMER

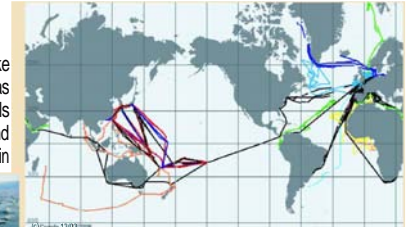


INSTRUMENT DEVELOPMENT

- PROVOR : a self ballasted float able to drift at a given parking depth and then to dive down to 2000m before profiling up to the surface where data are transmitted through the ARGOS link. More than 100 cycles are performed during its 3year lifetime.
- A new generation profiler, less expensive, which may be deployed by non specialized operators, from vessels or planes.
- Integration of new sensors (acoustic - oxygen).

REAL TIME DATA FROM RESEARCH VESSELS

Coriolis partners have research vessels that are able to make temperature and salinity measurements routinely. This was not made because of a lack of procedures between vessels and data center. Procedures are now set up for XBT and Thermo-salinograph. ADCP will be transferred routinely in 2006.



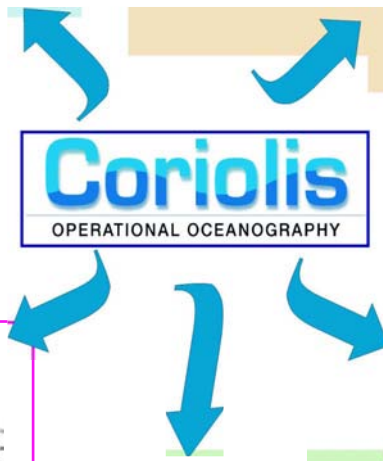
Thermo-salinograph data collected from 19 research vessels and ships or opportunity within the GOSUD project.

SCIENCE

Coriolis relies on a group of scientists from different research laboratories. The scientific group provides its expertise in measurement techniques, data processing and data analysis on a short time scale. It also ensures that Coriolis is integrated in scientific programs at national and international levels. Scientific questions relevant to Coriolis that require studies over longer time scales (1 to 2 years) are submitted to the national community in the annual call for proposals emitted by the Groupe Mission Mercator Coriolis (GMMC).

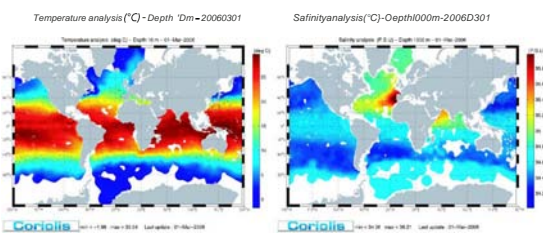
FLOAT DEPLOYMENT

Within the Coriolis Project, up to 400 floats will be bought by IFREMER, INSU, SHOM before end 2006. Most of these floats will be deployed using opportunities on research vessels. The deployments will be made essentially in Atlantic Ocean and some in Indian Ocean. These deployments must meet Argo objectives in order to have a 3x3° coverage of the global ocean.



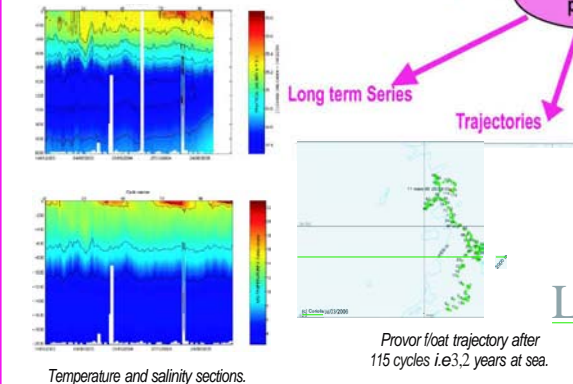
Temperature and salinity gridded fields

Temperature fields and data position at 10 m and 1000m on March 2006. Black dots are the measurements used.



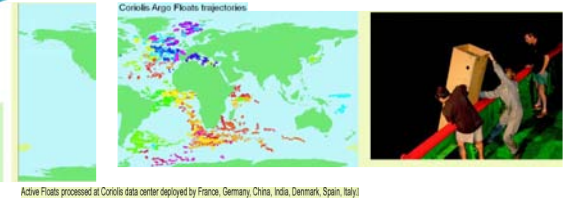
Analysis of temperature & salinity over the Global Ocean in real time :

Data set: temperature and salinity profiles from Coriolis database.
 Temperature and salinity fields : weekly temperature and salinity fields are objectively analyzed on a grid with 13 degrees resolution in latitude and longitude at 51 levels from 5 to 2000m. Analysis are performed once a week. Each analysis takes into account the data measured within -21/421 days intervals around the date of the estimation.
 These analysis are available on a LAS Server at : <http://www.ifremer.fr/las/>

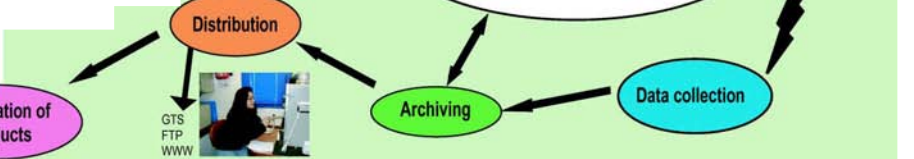


AN EASY ACCESS TO DATA:
Dwww.coriolis.eu.org

The Coriolis data center provides both in real-time, less than 24 hours, and delayed mode, qualified data from floats but also from XBT, XCTO, Thermo-salinograph. Data are available on WWW together with interactif visualisation tools (maps, profile visualisation with QC flags, meta-data, trajectories...).

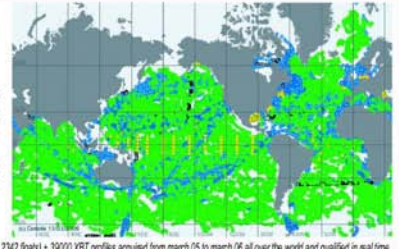


Active Floats processed at Coriolis data center deployed by France, Germany, China, India, Denmark, Spain, Italy)

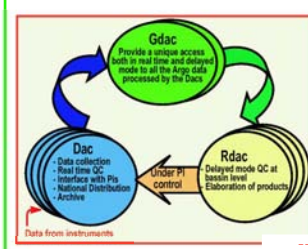


Coriolis, the French contribution to Argo Data Management Network

Together with the US Godae center in Monterey, Coriolis provides a centralized homogeneous access to Argo data acquired all over the world. National Argo data centers validate the data for the floats they deploy according to quality control procedures defined by the Argo data management team. This team is cochaired by IFREMER/France and MEDS/Canada.



2342 floats + 39000 XBT profiles acquired from march 05 to march 06 all over the world and qualified in real time.



Since the beginning of Argo, more than 2500 floats have been deployed and nearly 1500 are still active. The eldest ones have been at sea for more than 3 years. These floats are mainly located in the northern oceans but deployments are slowly moving to the southern hemisphere. More than 95% of the data are transmited within 24 hours both to GTS and Global DACS providing an efficient access to Argo data to most of the potential users. Since october 2003 MERCATOR is assimilating the Argo float data and saw significant improvements in the model outputs.

