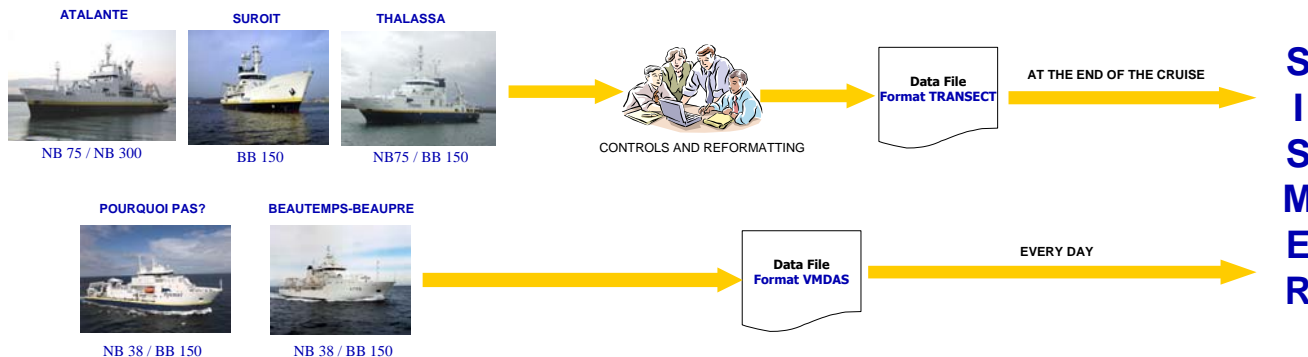


Processing and Quality Checks of Shipboard ADCP Data

V. Tosello, N. Carn, M. Fichaut, F. Le Hingrat
 IFREMER, Centre de Brest, 29280 Plouzané, FRANCE
 sismar@ifremer.fr

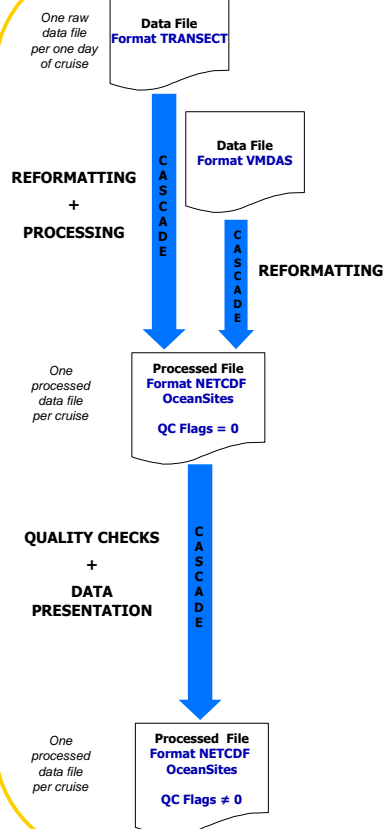
Since 2001, ADCP (Acoustic Doppler Current Profiler) shipboard data are collected underway along the track of three IFREMER ships: ATALANTE, SUROIT and THALASSA. Since 2004 and 2006, two new French Hydrographic Service ships have been equipped with ADCP: POURQUOI PAS? and BEAUTEmps-BEAUPRE. Collected during valorized transits or deep ocean cruises, the ADCP data are transmitted to and managed by the National Oceanographic Data Centre for France (SISMER, IFREMER) from the processing to the quality control, the archiving and the data dissemination.

Data acquisition and Data Transmission



Data Processing and Quality Checks

TOOL: Software CASCADE developed in IFREMER by the Laboratory of Physical Oceanography (collection of Matlab routines)

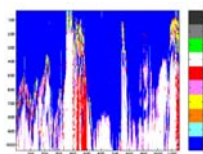


◆ **REFORMATTING:** Raw binary data files into NetCDF files (One raw data file per one day of cruise)

◆ **PROCESSING:** Generation of processed files (One processed data file per cruise)
 Step 1: Drift estimation, Attitude and time corrections
 Step 2: Calculation of terrestrial coordinates, Addition of vessel navigation, Cleaning of aberrant speeds, Means
 Step 3: Ground speed calculation

◆ **QUALITY CHECKS**

Automatic and visual quality checks of the data



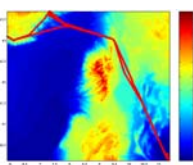
Flags scale

ADCP	
1	Good data
2	Doubtful data (outliers)
3	Spikes
4	Gradient > 0.05 cm/s
5	Vertical current speed > 30 cm/s
6	Horizontal current speed component > 4 m/s
7	Missing data
8	Data under the bottom (bottom ping)
9	Data visually rejected (inconsistent)
10	Data under the bottom (compared to gridded bathymetry)

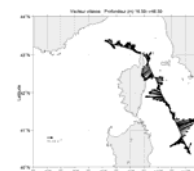
GTSP	
1	Good
2	Probably good
3	Doubtful
4	Bad
5	Modified
6	Not used
7	Not used
8	Not used
9	Missing value

◆ **DATA PRESENTATION**

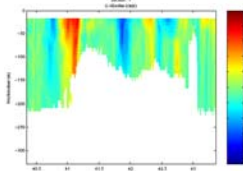
Data presentation along a particular section



Cruise track and bathymetry



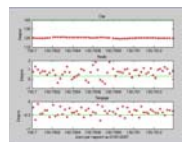
Current - Horizontal section Vectors



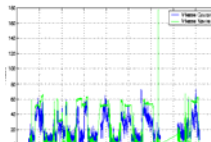
Current - Vertical section East component

◆ **ERRORS DETECTION**

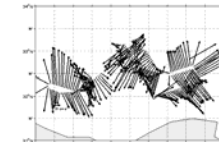
Errors detected at the beginning of data processing or after data processing



Attitude problems

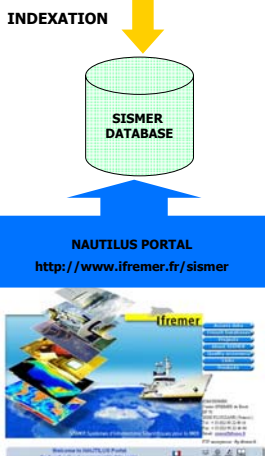


Correlation between current speed and ship velocity



Unrealistic current vectors

Data Archiving and Data Access



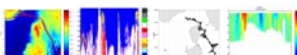
For each cruise:

◆ **Two NetCDF files per cruise (raw data and processed data)**

Date/time, Latitude, Longitude, Depth, North and East current components, Vertical current speed, Echo intensity

◆ **One UNIX tar file with figures**

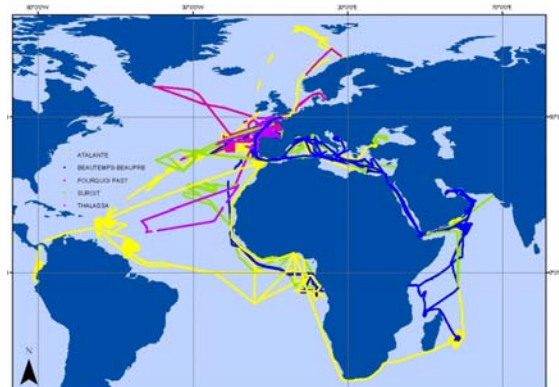
Section maps, images and vector plots of the sections



◆ **One report**

Information about data collection
 Information about the quality checks
 Information about the processing procedures
 Any problem encountered with the data

Data Distribution



202 ADCP cruises (2001 - 2007)