Focus on time series from in-situ observations
In-situ Observations

- Profilers
- CTD/XBT
- Moorings
- Drifters
- buoys
- Sea gliders
- TSGs
In-situ Measurements

Regional TAC
ARGO
Oceansites
GTSP
Scientific campaigns
GOSUD/EOG/..

Formating + RT validation

Real Time Dataset

Validation

CORA Dataset

Objective Analysis

CORA OA
Coriolis Real time dataset

1st step : Data collection

- Real-time: observations of year 2015
  - 2 millions de vertical profiles
  - 89 millions of time-series/trajectory observations (TSG, Ferrybox, buoys, moorings, floats)

- Historical data, status for the end of 2015
  - 16 million vertical profiles, 110 million trajectory points, 45 millions of time-series
  - 5 billion of observations from 80 parameters (temperature, salinity, current, oxygen, chlorophyll, nitrates, turbidity, etc...)
  - 31 000 platforms
Coriolis Real time dataset

2nd step: Data formatting/Real time validation

- Formatting
  - NetCDF format
  - Uniform metadata
- Quality control and duplicate check
  - Delete the duplicated profiles
  - Run automatic real time quality control checks
- Synchronization between regions
In-situ Measurements

- Regional TAC
- ARGO
- Oceansites
- GTSP
- Scientific campaigns
- GOSUD/EOG/..

Validation

Objective Analysis

Real Time Dataset

CORA Dataset

CORA OA
CORA dataset

Available data

- MBT/Bottles only
- XBT/CTD production
- WOCE campaigns
- TAO/RAMA/PIRATA Mooring programs
- ARGOS PROGRAM
- ARGO PROGRAM
- XBT
- MBT/Bottles
- CTD
- Moorings
- Profilers
- undulating CTD + Sea Mammals
- Drifters
- TSG
- Others

MBT/Bottles only

XBT/CTD production

WOCE campaigns

TAO/RAMA/PIRATA Mooring programs
Available data

January 1970

January 1990

January 2000

January 2015
CORA dataset

Ocean basin sampling rates

- North Atlantic
- South Atlantic
- Indian Ocean
- North Pacific
- South Pacific
- Antarctic Ocean
- Global Ocean

Graph showing the coverage percentages of different ocean basins from 1950 to 2010.
CORA dataset

Objective analysis

TEMP, Jan 2013

TEMP Errorbar, Jan 2013

- Objective analysis on a standard 3d grid
- Global coverage, 1990-2015
- 152 vertical levels
- Easy to handle
## CORA usage

### Global Temperature and salinity datasets

<table>
<thead>
<tr>
<th>Provider</th>
<th>Coverage</th>
<th>Validation</th>
<th>Data types</th>
<th>Distributed data</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORA 5.0</td>
<td>Copernicus CMEMS</td>
<td>1950-2015</td>
<td>Semi – Automatic, all levels, Visual control of suspicious data</td>
<td>Profiles + timeseries</td>
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<td>Profiles only</td>
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<td>Nodc.noaa.gov</td>
<td>1772-2012</td>
<td>Automatic – standard levels validation only</td>
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## CORA usage

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- Designed for **reanalysis** purposes and **climate change studies**
- All profiles are **validated** and **distributed** : good for scientific studies
- Timeseries available (TSG, drifters, etc...): **surface/subsurface** studies
- **Objective analysis** available
Examples

- Displaying measured temperature at global/regional scale

XBT transect studies

Global ocean studies Jan 2015/July 2015 ARGO floats
Examples

- Study on 2nd order products, global/regional scale

Mean surface temperature in 3*5° cells around Hawaii and Azores islands

Global heat content estimation (K.VonSchuckmann)
Copernicus catalogue

http://marine.copernicus.eu/
Copernicus catalogue

http://marine.copernicus.eu/
Copernicus catalogue

Available In-Situ products
- **Global ocean NRT observation**
  - Many parameters
- **Delayed time mode in-situ currents from drifters**
  - Meridional and zonal velocities
- **CORA datasets**
  - [http://doi.org/10.17882/46219](http://doi.org/10.17882/46219)

Soon:
- Updates of the products
- New in-situ product: **wave measurements**

Any question, any time:

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