Mean Sea Level on Aviso web
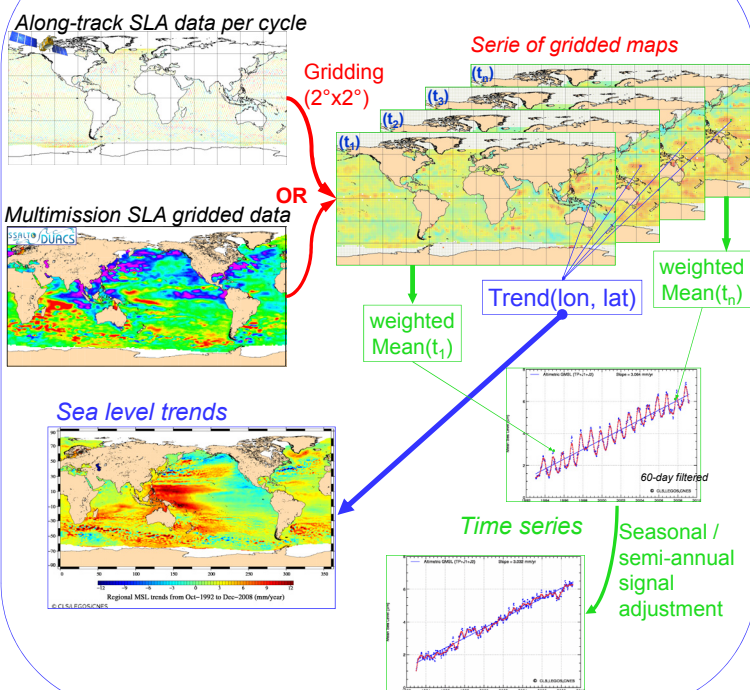## http://www.aviso.oceanobs.com/msl/

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The aim of this service is to provide the more recent global Mean Sea Level (MSL) data series and regional trends. It allows selections on several altimeter mission data series in order to compute Mean Sea Level estimations from different criteria. MSL time series can be downloaded for Topex/Poseidon, Jason-1, and 2, together with geographical estimations of regional MSL rise, corrections used, and low frequency signals (seasonal) depending on the selected configuration.

Comparisons with ocean mass variations from gravity missions (Grace), steric variations using in-situ temperature and salinity profiles, and MSL from tide gauges network are also discussed. Through frequent updates and scientific analysis, the goal of this web site is to gather a large number of results and thus become a source for MSL change studies.

Data & method

Along-track SLA data per cycle

Serie of gridded maps

Gridding (2°x2°)

Multimission SLA gridded data

OR

weighted Mean(t₁) → $Mean(t_1)$

Trend(lon, lat)

weighted Mean(t_n) → $Mean(t_n)$

Sea level trends

60-day filtered

Time series

Seasonal / semi-annual signal adjustment

Results

Maps

Jason-1 Sea Level Trends (period : Jan–2002 to Mar–2009) [cycles 1 to 264]

Trends (mm/year, I.B. : applied / wet tropo. : MODEL–derived, seasonal signal removed)

Altimetric MSL (TP)   Slope = 3.128 mm/yr

Time series

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- **Maps** and **time series** (as **figures** and as **data**)
- since January 1993 (depending on the mission)
- **With / without** Inverse Barometer correction (Jason-1, T/P)
- By satellite (T/P, Jason-1) and merging all high-precision altimetry satellites (T/P, Jason-1 and Jason-2)
- Radiometer or model Wet Tropospheric correction for Jason-1
- Time series over basins (N. & S. Atlantic and Pacific, Indian, Mediterranean,
- Time series corrected or uncorrected from seasonal variations,
- Global time series corrected or uncorrected from Glacial Isostatic Adjustment (Merged, Jason-1, T/P)
- **Updated for every cycle processed and validated**

On the web

MSL "home page" http://www.aviso.oceanobs.com/msl/

Data and Image selection
Web interface to choose between the options, to view a figure, and/or download data (NetCDF)

Processing & corrections used
How the altimetry data are computed, Corrections and models applied

Overview
The basics of Mean Sea Level, rise sources, and MSL measurements

Comparisons with other techniques
MSL results from other techniques *(in situ, Grace)*

Recent developments

Grace
Analysis from the Grace satellite, computed by GOHS/Legos have been added, combined with Argo and altimetry to estimate MSL budget.
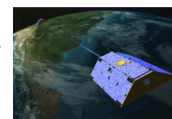
Glacial Isostatic Adjustment (Post-Glacial Rebund)
The GIA effect on Mean Sea Level have been added to the global time series.

Validation by comparison with tide gauges
Mean sea level computed from tide gauges network will be shown for validation issues. Those will be computed operationally as altimetry MSL.

Mean sea level accuracy
The MSL accuracy can be impacted by different error sources, including inhomegeneities between satellites. For example, wet tropospheric correction has to be estimated from radiometer or ECMWF model depending on the satellite; orbits are not homogeneous. Other corrections could impact the MSL as e.g. the ECMWF pressure fields in the T/P data. GOHS/Legos and CLS are jointly conducting studies to estimate a more realistic MSL error budget.

Merged time series continued with Jason-2
Jason-2 data added to continue the T/P-Jason-1 series

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