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SEABASS

SEABASS (Sea Box for Assimilation) is a NEMO reference configuration for Data Assimilation. SEABASS is of interest for DA systems developers and users.

For the first, SEABASS has been tested with various DA systems, from different methodological families (both probabilistic and variational method). It gives to DA developers the opportunity to compare the results of their own systems with those previous experiments.

For the users, SEABASS is a simple configuration to take in hand but that exhibits important characteristics of a turbulent oceanic circulation at midlatitudes (well-observed region, especially by altimetry satellites)

For NEMO DA components developers, this version ensures to provide a light validation platform (e.g. non-regressive test).

SEABASS is available as a reference configuration with the NEMO 3.4_STABLE version.

Technical Description

SEABASS is an idealized configuration similar to the GYRE configuration, representing double gyres circulation, at mid-latitudes in the north hemisphere. Its principal characteristics are:

- A non-rotated spheric grid, with a regular grid-spacing (between 24 and 44°N and 60°W and 30°W)
- 11 vertical levels
- Biharmonic viscosity and diffusion
- Salinity is forced to 35.5 PSU
- The only forcing is an analytical stationary zonal wind

By default, the horizontal resolution of SEABASS is 1/4°. But, the horizontal resolution can be easily changed in modifying the *jp_cfg* variable in the *OPA_SRC/par_SEABASS.h90* file, before compilation.

Below, a table summarizes essential parameters for different resolutions of the SEABASS configuration.
As previously said, *jp_cfg* has to be modified in the *OPA_SRC/par_SEABASS.h90* source file before compilation. r*n_rdt, rn_aht_0* and *rn_ahm_0_blp* have to be modified in the namelist.

Horizontal resolution	jp_cfg	rn_rdt	rn_aht_0	rn_ahm_0_blp
1/4°	4	900	-8.E10	-8.E10
1/12°	12	300	-0.89E10	-0.89E10

CPP keys and a reference namelist for SEABASS (at 1/4° horizontal resolution) can be found under the CONFIG/SEABASS/EXP00 directory.

SEABASS is described in Bouttier, P.-A., Blayo, E., & Verron, J. (2014). Towards variational assimilation of altimetric data in a high resolution ocean model. Newsletter Mercator Océan, September 2012