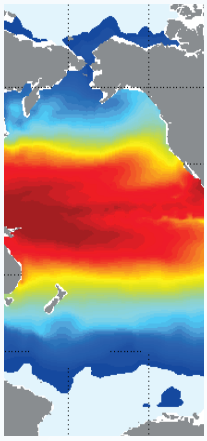
SYSTEM FOR GLOBAL OCEAN PHYSICAL REANALYSIS AT 1/4°



Geographical coverage : Global Ocean (180°W-180°E; 77°S-90°N)
Physics or Biogeochemistry : Physics
Grid and Resolutions : ORCA025 [1/4°; 75 levels]
Grid size : 1442x1021x50 (partial steps)
Code et Version : Nemo3.1
Data assimilation : Yes
Sea Ice Modeling : LIM2 EVP Sea Ice Model
Tides : No
Bathymetry : ETOPO1 for deep ocean and GEBCO8 on coast and continental shelf. Free run configuration name : ORCA025_LGGE_MJM105b
Time step : 1080 s
Update : None

Reference : **GLORYS2V4**

Forcing and Data Assimilation

• Data assimilation :	Yes
• Data assimilation scheme:	SAM2v1 (Kalman filter with SEEK formulation) with Incremental Analysis Update and bias correction
• Data assimilated :	- Sea Surface Temperature (Reynolds AVHRR-AMSR 1/4°), - Reprocessing of Sea Surface Height (Jason1, Jason2, Envisat, T/P, GFO, ERS1-2), - Reprocessing of InSitu profiles and "NASA team" for sea-ice -Elephant seals database - Hybrid MSSH - Sea ice concentration (IFREMER/ Cersat)
• Atmospheric forcings	- 3-Hourly ERA-interim ECMWF forcings; - Bulk CORE Formulation with radiative flux correction and diurnal cycle
• Runoff :	Dai and Trenberth (2002) Monthly Climatology/ 109 rivers/ total rivers runoff 1.3Sv
• Open Boundary Conditions :	No

Initial Conditions and Relaxation

• Initial conditions :	- T and S Levitus (1998) and PHC2.1 in the Arctic Ocean and Medatlas for Mediterranean Sea. - NSIDC Bootstrap for Sea ice concentration and thickness.
• Surface relaxation :	No
• Water column (3D) relaxation :	Relaxation toward Gouretski for deep Antarctic waters
• Convection :	By intensification of vertical mixing (diffusion term)

Parameterisation

• Surface physics parametrisation :	Free Surface (explicit + filtering)
• Bottom friction :	Non linear (constant bottom drag)
• Lateral friction :	Partial slip (shlat = 0.5)
• Vertical mixing :	TKE 1.5 closure scheme
• Advection :	TVD advection scheme
• Tracer diffusion :	Isopycnal laplacian
• Momentum diffusion :	Horizontal bilaplacian + laplacian (2000m2/s) in Ob and Ienisseï estuaries
• Horizontal diffusion coefficient for tracers and momentum :	aht0 = 300 m2/s ahm0 = -1.8 e11 m2/
• Vertical diffusion coefficient for tracers and momentum :	avt0 = 1.0 e-5 m2/s avm0 = 1.0 e-4 m2/s