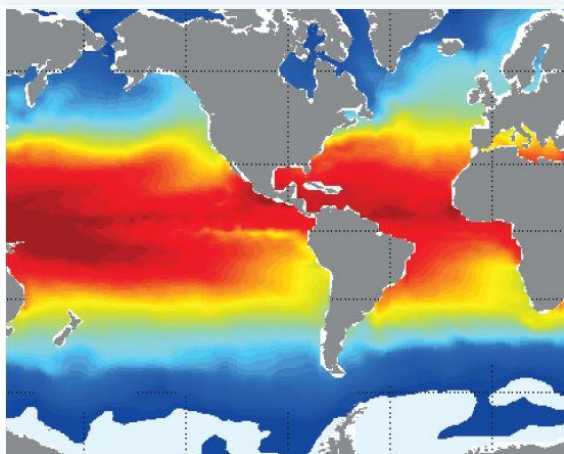


NATIVE GRID PRODUCT - ANALYSIS AND FORECAST - GLOBAL OCEAN - PHY - 1/4°



This product contains analysis and forecast of the Global Ocean Physics at 1/4° (~28 km at the equator) – Temperature, Salinity, Sea Surface Height, Mixed layer Thickness, Currents, Sea Ice thickness, Concentration and drift - with a daily update of the latest ocean fields. The numerical files are displayed on the native grid 1/4°.

Reference: GLO4V3R3

• Variables

PHY

Sea water salinity	psu
Sea water potential temperature	°C
Sea surface height above geoid	m
Sea water x velocity	m/s
Sea water y velocity	m/s
Mixed layer thickness (sigma-theta)	m
Mixed layer thickness (temp)	m
Mixed layer thickness (turbocline)	m

ICE

Sea ice thickness	
Sea ice fraction	m
Sea ice x velocity	[0;1]
Sea ice y velocity	m/s
	m/s

• Geographical coverage

Global Ocean (180°W-180°E; 77°S-90°N)

• Grid and spatial horizontal resolution

1/4°~28km at the equator on ORCA025 Native Grid (ARAKAWA C, no interpolation)

• Spatial vertical resolution

50 vertical levels (from -5500.0m to 0.0m)

• Temporal resolution

Daily-mean for 3D - hourly-mean for 2D and monthly-mean

• Temporal coverage

Analyses (27/12/2006) up to 10 day-forecast

• Update frequency

Daily update

	<p>Domain : Global Ocean (180°W-180°E ; 77°S-90°N) Physic or Biogeochemistry : Physic Code and Version : Nemo3.1</p> <hr/> <p>Grid and resolution : ORCA025 [1/4°; 50 levels] Grid size : 1442*1021 *50 (partial steps) Data Assimilation: Yes/ Tide : No Sea Ice : Sea Ice model LIM2 EVP Bathymetry: ETOPO1 for the deep ocean and GEBCO8 close to the cost and slope. Time step : 1440s Update : daily with 10-day forecast</p>
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Reference GLO4V3R3	
Forcing and Data Assimilation	
Data assimilation	Yes
Data assimilation scheme	SAM2 (SEEK Kernel) + IAU + 3D-Var bias correction (1 month time window)
Data assimilated	Sea Level - In-Situ TS Profiles – SST - Sea Ice Concentration and/or Thickness
Atmospheric or Biogeochemical forcings:	- Operational forcing : 3 hours from ECMWF - Bulk formulation : CORE
Runoff:	Dai and Trenberth monthly climatology (2002); addition of run-off from iceberg melt.
Open boundary conditions:	No
Initial Conditions and Relaxation	
Initial Conditions	Levitus (2009 T and S) for the ocean. Ifremer/Cersat data for ice concentration and GLORYS2V1 for ice thickness.
Surface relaxation	No
Water column (3D) relaxation	No
Convection	By increasing vertical mixing
Parametrisation	
Surface Physics parametrisation	Free surface (explicit+filtering)
Bottom friction	No linear (constant bottom friction)
Lateral friction	Partial slip (shlat = 0.5) ; Mediterranean and Indonesia (shlat=2) and in Canadian straits and Cap Horn (shlat = 0)
Vertical mixing	TKE 1.5 closure scheme
Advection	Turbulent closure model (order 1.5 and mixing length of 30m) adapted by Blanke and Delecluse (1993)
Tracer diffusion	Laplacian lateral isopycnal diffusion on tracers
Momentum diffusion	Horizontal biharmonic viscosity for momentum
Horizontal diffusion coefficient for tracers and momentum	ah _{t0} = 300 m ² /s ah _{m0} = -1 10 ¹⁰ m ² /s
Vertical diffusion coefficient for tracers and momentum	av _{t0} = 1. 10 ⁻⁵ m ² /s av _{m0} = 1. 10 ⁻⁴ m ² /s