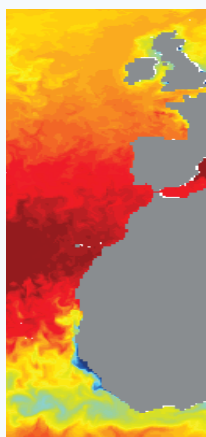


## SYSTEM FOR ATLANTIC OCEAN AND MEDITERRANEAN SEA PHYSICAL ANALYSIS AND FORECAST AT 1/12°



Geographical coverage : Atlantic Ocean and Mediterranean Sea (103°W-57°E; 20°S-81°N); No Black Sea  
 Physics or Biogeochemistry : Physics  
 Grid and Resolutions : ORCA12 [1/12°; 50 levels]  
 Grid size : 1612x1585x50 (partial steps)  
 Code et Version : Nemo3.1  
 Data assimilation : Yes  
 Sea Ice Modeling : LIM2 EVP Sea Ice Model  
 Tides : No  
 Bathymetry : ETOPO2  
 Free run configuration name : ATL12-T67  
 Time step : 450s  
 Update : Daily

Reference : PSY2V4R4

## 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°); Sea Surface Height (Jason2, Cryosat, Saral); InSitu temperature and salinity vertical profiles from Coriolis Center with Extra Quality control; Hybrid MSSH
• Atmospheric forcings :	3-Hourly ECMWF operational forcings; Bulk CORE Formulation; Only 50% of the surface wind velocity is taken into account to compute wind stress
• Runoff :	Dai and Trenberth (2002) Monthly Climatology (Cf Bourdalle-Badie and Treguier, 2006) yes at the North and South boundaries; Open Boundaries data are interpolated from daily outputs from PSY3V3R3;
• Open Boundary Conditions :	

## Initial Conditions and Relaxation

• Initial conditions :	T and S Levitus (2009); Ifremer/Cersat data for sea ice concentration and GLORYS2V1 for sea ice thickness.
• Surface relaxation :	No
• Water column (3D) relaxation :	Relaxation towards T et S from Levitus (2009) in Marmara Sea
• 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) in Atlantic Ocean and Mediterranean Sea (shlat=2)
• Vertical mixing :	TKE 1.5 closure scheme; New parameterisation of vertical mixing
• Advection :	TVD 2nd order centered scheme and energy/enstrophy conservation scheme
• Tracer diffusion :	Isopycnal laplacian
• Momentum diffusion :	Horizontal bilaplacian
• Horizontal diffusion coefficient for tracers and momentum :	aht0 = 125 m2/s ahm0 = -1.5 e10 m2/s
• Vertical diffusion coefficient for tracers and momentum :	avt0 = 1.0 e-5 m2/s avm0 = 1.0 e-4 m2/s