

**BLUElink> Ocean Model, Analysis and Prediction System version 2.0
(OceanMAPSv2.0)**

Technical Specification

November 2011

Ocean General Circulation Model:

Modular Ocean Model version4p1

State variables:

Potential Temperature (T, °C)

Salinity (S, psu)

Sea surface height (η , m)

Momentum variables:

Zonal velocity (u, ms^{-1})

Meridional velocity (v, ms^{-1})

Domain:

Longitude range: 0-360E

Latitude range: 75S-75N

Depth range: 0-5000m

Resolution:

$\Delta x =$ 0.1° – (90E -180E)
0.1° to 0.9° – (12E-90E, 180E – 282E)
0.9° to 2.0° otherwise

$\Delta y =$ 0.1° – (75S -16N)
 $\leq 0.2^\circ$ – (16N-21N)
 $\leq 0.5^\circ$ – (21N-25N)
 $\leq 0.9^\circ$ – (25N-35N)
0.9° to 2.0° otherwise

$\Delta z =$ 10m (0-20m)
5 to 10m (20-90m)
 $\geq 10\text{m}$ - otherwise

Bathymetry:

Based on the Smith and Sandwell, version 11.1 (Smith and Sandwell, 1997)

River runoff:

Based on the global climatology (Dai and Trenberth,2002)

Real-time observations:

Argo profiling floats

expendable bathythermograph

Conductivity Temperature Depth (CTD)

Jason-1 IGDR, Jason-2 IGDR, Envisat

NAVOCEANO L2P SST

Ocean data assimilation system:

BLUElink Ocean Data Assimilation System (BODAS, Oke et al., 2008, Oke et al., 2009)

Ensemble optimal interpolation

Analysed variables, T, S, η

Background - daily average

Initialisation:

Nudging variables: T, S, η

Nudging period: 24 hours

Adaptive nonlinear dynamical initialisation scheme (Sandery et al., 2011)

Atmospheric fluxes:

Global Australian Community Climate and Earth-System Simulator (ACCESS-G) (Bureau of Meteorology, 2010).

3hr average

Surface wind stress (τ^x , τ^y , Pa)

Shortwave radiation (Q_{SW} , Wm^{-2})

Longwave radiation (Q_{LW} , Wm^{-2})

Sensible heat flux (Q_{sens} , Wm^{-2})

Rate of evaporation ($kgm^{-2}s^{-1}$)

Rate of precipitation ($kgm^{-2}s^{-1}$)

Forecast cycle:

Base dates: every day

Forecast period: 7 days

Ocean Model, Analysis and Prediction System version 2 (Brassington et al., 2011)

Near real-time analysis cycle:

Base dates: 5 days behind real-time (NRT)

Simulation period: 5 days

Observation window: -8 days to +2 days for altimeter

Behind real-time analysis cycle:

Base dates: 9 days behind real-time (BRT)

Simulation period: 4 days

Observation window: -5 days to +5 days for altimeter

Data products:

Format: netcdf3 packed

OFAM, daily average, 3D:

temp, potential temperature, ($^{\circ}C$)

salt, salinity, (psu)

u, zonal current, (ms^{-1})

v, meridional current, (ms^{-1})

OFAM, daily average, 2D:

eta_t, surface height, (m)

OFAM, 3hrs average, 2D:

eta_t, surface height, (m)

SST, sea surface temperature, (°C)

SSS, sea surface salinity, (psu)

usurf, zonal surface current, (ms⁻¹)

vsurf, surface meridional current, (ms⁻¹)

References

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