

PREFACE Milestone Report

Milestone#: MS18

Milestone name: Forced models reference experiments

WP#: WP5

Lead beneficiary: IOW

Delivery date from annex I: 31.10.2016

Milestone achieved: YES (final report sent in on 14.11.2016)

Comments:

The milestone contributes to the specific objectives 2 and 3 of WP5:

2. Carry out model process studies aimed at isolating the effect of specific internal or external forcing, to quantify the role of specific processes on observed variability.

3. Conduct numerical experiments to test the sensitivity to model configurations, and to propose OGCM improvements to better simulate tropical Atlantic variability.

Decadal model experiments have been carried out, are validated with observations and are analysed under regional or process directed aspects. An overview over the available reference model configurations is given in the table below. The listed models are basis of deliverables D5.1 and D5.2.

	Resolution/ remark	Responsible	Domain/ boundary data source	Forcing	Period	Objectives
L-NEMO ATL025-46	1/4° ORCA025 tripolar 46 levels *	UPMC Martín del Rey ,Lazar	Atlantic	DFS4.4	1960-2011	1) Process studies
NEMO3.6 ATL025-75	1/4° 75 levels	LEGOS- IRD/UAC Jouanno	35°S-35°N, 100°W-15°E GLORYS2V3	DFS5.2 with/without - river runoff - chlorophyll - interannual wind/precipitation - intraseasonal wind/ wind stress - atmospheric slab- layer	1979-2012	1) Process studies 2) Sensitivity tests
NEMO3.1.1 INALT01	1/10° 46(76) levels	GOMAR Krebs	50°S-5°N, 70°W-70°E ORCA05	CORE CCMP QuikSCAT/CCMP	1999-2009	2) Sensitivity tests
NEMO3.1.1 REBUS30	1/30° 46(76) levels	GOMAR Krebs	34°S-13°S, 4°E-19°E INALT01	CORE CCMP QuikSCAT/CCMP	1999-2009	

	Resolution/ remark	Responsible	Domain/ boundary data source	Forcing	Period	Objectives
MOM-5.1 EABCM-P	8 km 89 levels ⁺	IOW Schmidt	34°S-8°N 10°W-20°E ECCO	DSF5.2 fluxes, different winds: - QuikSCAT,daily - ERA-interim - NCEP - CCMP with/without reduced solar radiation	1999-2009	2) Sensitivity tests
MOM-5.1 EABCM-P	8 km 89 levels ⁺	IOW Schmidt	34°S-8°N 10°W-20°E ECCO	DSF5.2 fluxes, different winds: - QuikSCAT,daily Enhanced and reduced local winds With reduced solar radiation	1999-2009	2) Sensitivity tests
MOM-5.1 EABCM-E	8 km 89 levels ⁺ ecosystem	IOW Schmidt	34°S-8°N 10°W-20°E ECCO	QuikSCAT/ASCA T (daily)	1999-2015	1) Process studies
MOM-5.1 EABCM-F	8 km 89 levels ⁺ ecosystem Tracer release experiments	IOW Schmidt	34°S-8°N 10°W-20°E CUBE92	QuikSCAT/ASCA T (daily)	1999-2016	1) Process studies
ROMS CAN10	10km	URD/UCAD Capet, Sow, Ndoye	8°N-38°N 30°W-5°W ECCO, SODA	- QuikSCAT (monthly) - CFSR - SCOW - Quikscat daily	20 y climato + 3 sets of simulations for 2000-2009.	1) Process studies 2) Sensitivity tests
ROMS SEN2	2km	URD/UCAD Capet, Sow, Ndoye	12°N-18°N 20°W-16°W CAN10 (nested)	- QuikSCAT (monthly) - CFSR - SCOW - Quikscat daily	20 y climato + 3 sets of simulations for 2000-2009.	
ROMS NGOG5	1/5°	UAC/CRO/U CT/IRD Djakouré	10°S-14°N 65°W-15°E WOA09	QuikSCAT (monthly) + COADS	climatological	
ROMS NGOG15	1/15°	UAC/CRO/U CT/IRD Djakouré	4°S-8°N 12°W-12°E NGOG5 (nested)	QuikSCAT (monthly) + COADS with/without - smoothed coastline - nonlinear terms	climatological	
ROMS GOG15	1/15°	IRD Herbert	17°S-8°N 10°W-15°E NGOG5 (nested)	QuikSCAT (monthly) + COADS	climatological	1) Process studies
ROMS GOG15	1/15°	IRD Herbert	17°S-8°N 10°W-15°E NGOG5 (nested)	CFSR	1979-2008	

Additional experiments available through a collaboration with the DRAKKAR group:

	Resolution/ remark	Responsible	Domain/ boundary data source	Forcing	Period	Objectives
HV-GRD88 GLOB025	1/4° ORCA025 tripolar 75 levels**	DRAKKAR group	Global	DFS4.4	1960-2011	2) Sensitivity tests
HH-MJM88 GLOB12	1/12° ORCA12 tripolar 46 levels	DRAKKAR group	Global	DFS4.4	1960-2011	

* The 46 vertical levels are ranging from 5 m thickness in the upper 30 m to 200 m thickness at the bottom. 17 levels cover the first 300m.

**The 75 vertical levels are ranging from of 1m near the surface and 200 meters in the deep ocean. 36 levels cover the first 300m comparing with the 17 levels of L46 configuration.

+ The horizontal grid is extended westward. The vertical grid resolution starts with 3m in the upper 100 m and is stretched slowly below.