

CONTRIBUTING INSTITUTES AND MODELS OF THE MED-CORDEX BASELINE RUNS

version 0: S. Somot, January 2020

version 1: S. Somot, March 2021

version 2: S. Somot, Oct 2021, merging Phase 1 and Phase 2 run lists

version 3: S. Somot, Feb 2021, last update

In Med-CORDEX, 21 different RCSMs (coupled Regional Climate System Models) have been developed and used so far by 11 different institutes. This includes phase 1 and phase 2 models. When different versions have been developed by the same institute, the latest version is indicated.

Model ready, **Model under development**

Model Naming	Institute	Contact	Climate components	Model short description	Status	Last update
CNRM-RCSM4	CNRM	S. Somot, F. Sevault	Atmosphere Land River Ocean	Atmosphere: ALADIN5 @50km, Land-surface: ISBA @50km, River: CTRIP @50km, Ocean: NEMOMED8 @9-12km, coupler: OASIS @1day, <i>Ref: Sevault et al. 2014</i>	ready	2022-01-20
CNRM-RCSM6	CNRM	S. Somot , F. Sevault, P. Nabat	Atmosphere Aerosols Land (incl. Lake) River Ocean	Atmosphere: ALADIN6 @12km, Aerosol: TACTIC @12km, Land-Surface: SURFEX8 @12km (incl. lake), SurfHydrology: CTRIPv2 @50km, Ocean: NEMOV3.6-MED12-75L @7km, coupler: OASIS-MCT @1hour, <i>Ref: Darmaraki et al. 2019b, GRL</i>	ready (latest CNRM model version)	2022-01-20
ENEA-PROTHEUS v2	ENEA	A. Dell'Aquila	Atmosphere Land River Ocean	30km	ready	
ENEA-RegCM-ES	ENEA	G. Sannino	Atmosphere Land River	including RegCM4.5 (20km), MedMIT at 1/12°, HD, ESMF as coupler 3hourly or 1hourly <i>Ref:</i>	ready (latest ENEA model)	2021-03-22

			Ocean		version)	
ENEA-REG	ENEA	G. Sannino	Atmosphere Land River Ocean	including WRF (12km), MedMIT at 1/12°, HD (0.5°), RegESM as coupler 3hourly/1day <i>Ref: Anav et al. 2021</i>	ready (latest ENEA model version)	2021-03-31
CLMcom-GUF-CCLM-NEMO	GUF	B. Ahrens	Atmosphere Land Ocean	including COSMO-CLMv5.00clm9 (50km), NEMOv3.6-MED12,	ready	
CLMcom-GUF-CCLM5-0-9-N EMOMED12-3-6	GUF	B. Ahrens P. Kumar	Atmosphere Land River Ocean	including COSMO-CLMv5.00clm9 (12km), NEMOv3.6-MED12, CTRIP, OASIS3-MCT3.0 (1h) <i>Ref: Primo et al. 2019</i>	ready (latest GUF model version)	2019-11-24
LMD-LMDZMED_v1	LMD	L. Li	Atmosphere Land Ocean	including LMDZ4@30km, ORCHIDEE@30km, NEMOMED8, no river coupling, <i>Ref: L'Hévéder et al. 2013</i>	ready	
LMD-LMDZMED_v2	LMD	L. Li	Atmosphere Land River Ocean	including LMDZ4@30km, ORCHIDEE@30km, NEMOMED8, simple river coupling scheme <i>Ref:</i>	ready (latest LMD model version)	2019-11-26
IPSL-MORCEMED	IPSL	S. Bastin	Atmosphere Land Ocean	WRF311@20km , NEMOMED12	ready	
IPSL-RegIPSL	IPSL	Y. Polcher R. Pennel	Atmosphere Land River Ocean	including WRF.3.7.1@20km-46L, ORCHIDEE@20km, NEMOMED12-75L OASIS-MCT@1h <i>Ref:</i>	Ready (latest IPSL model version)	2019-11-20
IPSL-RegIPSLv2	IPSL	Y. Polcher R. Pennel	Atmosphere Land River Ocean	including WRF4.3.1@20km, ORCHIDEE-@20km, NEMO4-MED36, OASIS-MCT@1h <i>Ref:</i>	under development	2019-11-26

CMCC-CCLM4-21-NEMOMFS (50km)	CMCC	L. Cavicchia P. Lionello	Atmosphere Land Ocean	COSMO-CLM v4.21 at 50km and 45L, Nemo_MFS v4.3 at 7km, 71L, OASIS3-MCT (no river coupling)	ready	
CMCC-CCLM4-21-NEMOMFS (12km)	CMCC	D. Conte P. Lionello	Atmosphere Land Ocean	including COSMO-CLM v4.21 at 12km and 45L, Nemo_MFS v4.3 at 7km, 71L, OASIS3-MCT (no river coupling) <i>Ref:</i>	ready (latest CMCC model version)	2019-11-15
UBEL-EBUPOM2c	UBELGRADE	V. Djurdjevic	Atmosphere Land Ocean	including Eta (EBU=Eta Belgrade University), POM (still the phase 1 model) <i>Ref:</i>	ready	2020-11
ITU-RegESM1	ITU	B. Onol F. Batibeniz	Atmosphere Land Ocean	including RegCM4-6-0@50km	ready	
ITU-RegESM1.2	ITU	B. Onol F. Batibeniz	Atmosphere Land Ocean	including RegCM4-6-0@12km, ROMSr809@9km, WAM.4@14km (no river coupling in this configuration but this can be activated using RTM module from MPI). 1hr-coupling frequency <i>Ref: Turuncoglu and Sannino (2017), Turuncoglu (2019)</i>	ready (latest ITU model version)	2021-03-30
AWI-GERICS-ROM44	AWI-GERICS	D. Sein W. Cabos	Atmosphere Land River Ocean Biogeochemistry	including REMO@25km, MPIOM(variable from 20 to 7km), HD, Biogeochemistry module, OASIS <i>Ref:</i>	ready	
AWI-GERICS-ROM22	AWI-GERICS	D. Sein W. Cabos	Atmosphere Land River Ocean Biogeochemistry	including REMO@25km, MPIOM(variable from 20 to 7km), HD, Biogeochemistry module, OASIS <i>Ref:</i>	ready	2019-11-26
AWI-GERICS-ROM11	AWI-GERICS	D. Sein W. Cabos	Atmosphere Land River	including REMO@12km, MPIOM(variable from 3 to 12km), HD, Biogeochemistry module, OASIS <i>Ref:</i>	ready (latest AWI model version)	2021-03-23

			Ocean Biogeochemistry			
ICTP-RegCM-ES	ICTP	E. Coppola R. Farneti F. Di Sante	Atmosphere Land River Ocean	including RegCM.4.9.3@12km, MITgcm 1/12°, CHyM@6km (close to ENEA model but different hydro model) <i>Ref: Sitz et al. 2017, Di Sante et al. 2019</i>	ready	2021-03-29
INSTM-LMDZ/ROMS-MED	INSTM	A. Harzallah	Atmosphere Land Ocean	LMDZ4 and ROMS-MED	ready	

REFERENCES:

- Anav, A., Carillo, A., Palma, M., Struglia, M. V., Turuncoglu, U. U., and Sannino, G.: The ENEA-REG system (v1.0), a multi-component regional earth system model. Sensitivity to different atmospheric component over Med-CORDEX region, *Geosci. Model Dev. Discuss.* <https://doi.org/10.5194/gmd-2020-248>, in review, 2021.
- Darmaraki S., Somot S., Sevault F., Nabat P. (2019b) Past Variability of Mediterranean Sea Marine Heatwaves. *GRL*, 46, 9813-9823, [doi:10.1029/2019GL082933](https://doi.org/10.1029/2019GL082933). *Special Section: The CNRM Climate and Earth System Models for CMIP6*
- Di Sante, F., Coppola, E., Farneti, R. et al. Indian Summer Monsoon as simulated by the regional earth system model RegCM-ES: the role of local air-sea interaction. *Clim Dyn* 53, 759–778 (2019). <https://doi.org/10.1007/s00382-019-04612-8>
- Sitz, L. E., Di Sante, F., Farneti, R., Fuentes-Franco, R., Coppola, E., Mariotti, L., ... & Giuliani, G. (2017). Description and evaluation of the Earth System Regional Climate Model (RegCM-ES). *Journal of Advances in Modeling Earth Systems*, 9(4), 1863-1886.
- Sevault, F., Somot, S., Alias, A., Dubois, C., Lebeau-pin-Brossier, C., Nabat, P., ... & Decharme, B. (2014). A fully coupled Mediterranean regional climate system model: design and evaluation of the ocean component for the 1980–2012 period. *Tellus A: Dynamic Meteorology and Oceanography*, 66(1), 23967.
- Turuncoglu, U. U. 2019. Toward modular in situ visualization in Earth system models: the regional modeling system RegESM 1.1, *Geosci. Model Dev.*, 12, 233–259, <https://doi.org/10.5194/gmd-12-233-2019>, 2019.