

Report on Med-CORDEX activities for 2017/2018

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Funding:

- MISTRALS meta-programme: 10 to 20 keuros/year
- National projects: ANR REMEMBER (France), MARCO (Spain)
- European projects: H2020 EUCP, H2020 SOCLIMPACT, COPERNICUS C3S_34b_lot1

Activities in 2016/2017

- Most of the simulations planned in the Med-CORDEX phase 1 have been completed. 111 simulations by 22 different modelling groups including 64 atmosphere simulations, 11 ocean simulations, 6 land-surface simulations and 30 coupled simulations using RCSM (Regional Climate System Models). See the list here <https://www.medcordex.eu/simulations-phase1.php>.

- List of the scientific publications concerning phase 1 runs: <https://www.medcordex.eu/publications.php>. This means 77 publications since 2011 including 25 articles in the Climate Dynamics special issue dedicated to Med-CORDEX. 13 manuscripts out of the 25 use a multi-model approach, 13 manuscripts out of the 25 have co-authorship from more than one institute. First authors come from institutes in France (12), Italy (5), Germany (3), Spain (2), Tunisia (1), Greece (1), Croatia (1).

- Med-CORDEX database (<https://www.medcordex.eu/medcordex.php>) 140.000 files for 7 To of data. Since August 2012, 577.000 files have been downloaded meaning more than 23 To by about 200 users. The Atmosphere-RCM data are being transferred to the COPERNICUS Climate Data (project C3S_34b_lot1).

- The reference Med-CORDEX article is Ruti et al. 2016 in BAMS and Med-CORDEX simulations were used for the first time in an highly-cited journal Nature Geoscience (Giorgi et al. 2016).

Ruti PM, Somot S, Giorgi F, Dubois C, Flaounas E, Obermann A, Dell'Aquila A, Pisacane G, Harzallah A, Lombardi E, Ahrens B, Akhtar N, Alias A, Arsouze T, Aznar R, Bastin S, Bartholy J, Béranger K, Beuvier J, Bouffies-Cloch  S, Brauch J, Cabos W, Calmanti S, Calvet J-C, Carillo A, Conte D, Coppola E, Djurdjevic V, Drobinski P, Elizalde-Arellano A, Gaertner M, Gal n P, Gallardo C, Gualdi S, Goncalves M, Jorba O, Jord  G, L'Heveder B, Lebeaupin-Brossier C, Li L, Liguori G, Lionello P, Maci s D, Nabat P, Onol B, Raikovic B, Ramage K, Sevault F, Sannino G, Struglia MV, Sanna A, Torma C, Vervatis V (2016) MED-CORDEX initiative for Mediterranean Climate studies. *Bull. Amer. Meteor. Soc.*, 97(7), 1187-1208, July 2016n doi: <http://dx.doi.org/10.1175/BAMS-D-14-00176.1>
<http://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-14-00176.1>

Giorgi F., Torma C., Coppola E., Ban N., Sch r C., Somot S. (2016) Enhanced summer convective rainfall at Alpine high elevations in response to climate warming. *Nature Geoscience*, 9, 584–589, doi:10.1038/ngeo2761

- The organization of the Med-CORDEX phase 2 has been finalized in 2017 with 5 main pillars:

- The **baseline simulations** using coupled RCMs including at least the following components: atmosphere, land, river, ocean. The CORDEX framework is kept for these baseline runs with evaluation runs (1979-2018) and scenario runs (RCP8.5, 1950-2100). A common simulation protocol has been finalized. These simulations represent a natural link with the Med-CORDEX phase 1.
- The **FPS convection**
- The **FPS air-sea**
- The **FPS aerosol**
- The **Free Modelling Zone (FMZ)** that allows to test the current CORDEX modelling protocols and to explore new ideas.

- Meetings: The 5th Med-CORDEX workshop was held in Barcelona in July 2017 jointly with the HyMeX workshop and included specific FPS sessions and discussions. In addition, the FPS-convection group met in Hamburg in January 2017 and in Trieste in November 2017.

- Med-CORDEX was strongly involved in the MISTRALS workshop in Montpellier (France) October 2017 dealing with the Mediterranean impacts of climate change <https://cc-mistrals2017.sciencesconf.org/?forward-action=index&forward-controller=index&lang=en>

Planned activities for 2018

- The groups participating to the baseline simulations and to the FPS-airsea will meet in Majorca in March 2018 in a Med-CORDEX / Baltic Earth joint meeting <http://www.baltic-earth.eu/mallorca2018/index.html>

- The FPS-aerosol group will meet in Toulouse in June 2018

- The FPS-convection group will meet in Hamburg in January 2018 and will probably meet again in November or December 2018

- Med-CORDEX will contribute to the MedECC report, that can be seen as a regional climate change assessment report targeting the stakeholders, <http://www.medecc.org/>

- Concerning scientific publications, the emphasis will be put on multi-model studies using the coupled RCSM scenario simulations (phase 1 and baseline runs) and on the first FPS-related publications.