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Poster.1: . **Precipitation frequency in Med-CORDEX and EURO-CORDEX ensembles from 0.44° to convection-permitting resolution: Impact of model resolution and convection representation**

[1]**Minh-Truong HA**, [2]**Sophie Bastin**, [3]**Philippe Drobinski**, [4]**Lluís Fita**, [5,6]**Olivier Bock** and [7]**simulations providers**

[1]*LATMOS/IPSL, Sorbonne Universite, UVSQ, CNRS, France*
[2]*LATMOS/IPSL, UVSQ Universite Paris-Saclay, SU, CNRS, France*
[3]*LMD/IPSL, Ecole Polytechnique, ENS, SU, CNRS, France*
[4]*Centro de Investigaciones del Mar y la Atmósfera (CIMA), CONICET-UBA, CNRS IRL-IFAECI, Buenos Aires, Argentina*
[5]*Université de Paris, Institut de physique du globe de Paris, CNRS, IGN, F-75005 Paris, France*
[6]*ENSG-Géomatique, IGN, F-77455 Marne-la-Vallée, France*
[7]*Multiple institutions*

contact: sophie.bastin@latmos.ipsl.fr

Abstract

Our goal is to better understand what explains the weaker frequency of precipitation in the CP ensemble by assessing the triggering process of precipitation in the MED & EURO-CORDEX and the CORDEX FPS "Convective Phenomena over Europe and the Mediterranean" ensembles available over Europe. We focus on the statistical relationship between tropospheric temperature, humidity and precipitation. The results show that all model ensembles capture the temperature dependence of the critical value of IWV (IWVcv), above which an increase in precipitation frequency occurs, but the differences between the models in terms of the value of IWVcv, and the probability of its being exceeded, can be large at higher temperatures. The lower frequency of precipitation in CP simulations is not only explained by higher temperatures but also by a higher IWVcv and a lower probability to exceed it. The spread between models in simulating IWVcv and the probability of exceeding IWVcv is reduced over land with explicit convection, especially at high temperatures, when the influence of the representation of entrainment in models impacts more. To analyse further the impact of resolution versus convection representation, we used a small ensemble of three models, each one with a group of three simulations: with and without parametrized deep convection at 0.11° of resolution and without parametrisation of deep convection at 3km resolution.