



Characterization of rainfall spatiotemporal variability over South-East France for regional climate model evaluation

Stéphanie Froidurot, Gilles Molinié, and Arona Diedhiou

Université de Grenoble, IRD, CNRS, LTHE, Grenoble, France (stephanie.froidurot@ujf-grenoble.fr)

In order to evaluate Regional Climate Models (RCMs), a multi-scale cross analysis of observed and simulated rainfall intensities is performed in a mountainous Mediterranean region.

Rainfall organization results from various atmospheric processes occurring at different spatial and temporal scales, from microphysics to synoptic mechanisms. The relative contribution of each atmospheric process varies depending on the scales at which the rainfall intensity is analyzed. Thus, a multi-scale analysis of the rainfall intensity and its structure is necessary for a comprehensive characterization of rainfall and to retrieve the signature of the original precipitating system.

We have built a reference rainfall database at the same spatial and temporal resolutions as Med-CORDEX RCMs from a high density raingages network (density around $1/70 \text{ km}^{-2}$). We use geostatistical tools to spatialize these sparse raingage observations. One of the issues is to take into account the rainfall intermittency. From this reference, we proceed the multi-scale analysis of rainfall intensity and pattern. We notice that rainfall intensity has a different sensitivity to spatial and to temporal aggregation. Interaction between air dynamics and the relief is a key factor on these differences at RCM scales. A similar analysis is carried out on the simulated rainfall in order to evaluate Med-CORDEX RCMs with regard to the physical processes at stake.