# Heavy Precipitating Events (HPEs) over Southern France in a climate change scenario: a dynamical downscaling approach.

**O. Nuissier**, B. Joly, S. Somot, V. Ducrocq and A. Joly

National Center for Meteorological Research (CNRM), Meteo-France, Toulouse, France.
(olivier.nuissier@meteo.fr / Fax: (33)561-079-626)

Climate simulations have been performed at CNRM / Météo-France, with the Atmospheric Oceanic Regional Climate Model (AORCM) with the GICC A2 scenario, in the CYPRIM framework. The theme 3 of CYPRIM aims at assessing the frequency evolution of the synoptic environments associated with Heavy Precipitating Events (HPEs) over Southern France in a future climate scenario.

A methodology of selection (already described in a companion contribution for the Plinius conference) has permitted to finger out in the climate simulations outputs statistical classes of synoptic patterns propitious to heavy precipitation, similar than those identified in the ERA40 reanalysis. The results show weak inner-core variations for the both classes representative of the main part of HPEs, between the present and future climate. However, one of these two classes ("cut-off" patterns) seems to include much more HPEs in the future climate scenario, at the other classes' expense. Furthermore, the first preliminary tests have shown the capability of initializing the Meso-NH non-hydrostatic mesoscale numerical model from the AORCM outputs, and obtaining realistic finer-scale features of HPEs over Southern France.

Although at this time this study cannot conclude on the possible changes in structure and rainfall distribution of these events, a future work would be to apply dynamical downscaling to a few cases of HPEs in the future climate scenario and draw the possible evolution of the phenomana in term of fine-scale rainfall structure and even hydrological consequences.