

**PARALLEL SESSION A : BENEFITS OF DOWNSCALING  
A3: FROM DATA TO INFORMATION - A DISTILLATION DILEMMA**

**The Multi-MIP regional distillation dilemma. Results from the Spanish PNACC-2012  
Program**

**Jesús FERNANDEZ**

Universidad de Cantabria - Spain

During the last decades, a huge amount of global and regional climate change projections have been produced as a result of successive projects and MIP initiatives, with a focus on the observed warming trend of the last century and the projection of future scenarios for the current one. This heterogeneous (and sometimes contradictory) global and statistical/dynamically downscaled data has been used as primary input to feed vulnerability, impacts and adaptation (VIA) studies.

Over Europe, regional climate downscaling output from EU FP7 ENSEMBLES and CORDEX has become available in the last 10 years. Additionally, national efforts have produced additional information for particular regions. For instance, the National Adaptation Program for Climate Change (PNACC-2012) produced two additional datasets of statistical and dynamically downscaled scenarios for Spain. Even though such initiatives have promoted coordination, the ensembles produced remain as ensembles of opportunity, in the sense that their experimental design does not favour the systematic study of different sources of uncertainty. In any case, this is the information available to assess climate change. Even though new models, or even new processes, are included in the most recent MIPs, previous efforts still contain valid, and widely unexplored, information.

This work focuses on simple, common analyses, based on temperature and precipitation delta changes, arising from three recent regional MIPs which produced future climate information over continental Spain. The main focus is on analysing different sources of uncertainty (GHG scenarios, GCMs, downscaling approaches, and spatial resolution) and compare the common or conflicting messages arising from the available datasets. The work is based on publicly available data provided by the ENSEMBLES, EURO-CORDEX, and the Spanish PNACC2012 initiatives. The latter used roughly the same global (CMIP3) and downscaling model generation as ENSEMBLES. However, additional GHG scenarios were considered. CORDEX relies on the latest generation of scenarios and models (CMIP5), reaching unprecedented spatial resolution over the area. The grand ensemble contains over 100 future projections for the region, including those downscaled at different resolutions and the raw output of their driving GCMs. This is a great source of potential information, but conflicting messages necessarily appear and need to be understood by both the climate and VIA communities.

Jesús Fernández<sup>1</sup>, M. Dolores Frías<sup>1</sup>, Sixto Herrera<sup>1</sup>, José Manuel Gutiérrez<sup>2</sup>, ESCENA Team<sup>3</sup>, esTcena Team<sup>4</sup>

<sup>1</sup>Grupo de Meteorología. Dpto. de Matemática Aplicada y C.C. Universidad de Cantabria. Santander, <sup>2</sup>Grupo de Meteorología. Instituto de Física de Cantabria. CSIC-UC. Santander, <sup>3</sup>Universidad de Castilla La Mancha. Universidad de Alcalá de Henares. Universidad de Murcia. Universidad de Cantabria, <sup>4</sup>Universidad de Cantabria. Universidad de Zaragoza. Universitat de les Illes Balears. Universitat de Barcelona. Fundación para la Investigación del Clima.