



Statistical downscaling of daily precipitation over Llobregat River Basin in Catalunya, Spain using analog method.

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Since anthropogenic climate change has become an important issue, the need to provide regional climate change information has increased, both for impact assessment studies and policy making. A regional climate is determined by interactions at large, regional and local scales. The general circulation models (GCMs) are run at too coarse resolution to permit accurate description of these regional and local interactions. So far, they have been unable to provide consistent estimates of climate change on a local scale. Several regionalization techniques have been developed to bridge the gap between the large-scale information provided by GCMs and fine spatial scales required for regional and environmental impact studies.

Statistical downscaling technique is based on the view that regional climate may be seen to be conditioned by two factors: large-scale climatic state and regional/local features. Local climate information is derived by first developing a statistical model which relates large-scale variables or “predictors” for which GCMs are trustable to regional or local surface “predictands” for which models are less skilful. The main advantage of these techniques is that they are computationally inexpensive, and can be applied to outputs from different GCM experiments. In dynamical downscaling methods, a regional climate model (RCM) uses GCM outputs as its initial and boundary conditions.

A statistical downscaling procedure based on an analogue technique has been used to determine projections for future climate change in the Llobregat River Basin in Catalunya, Spain. Llobregat Basin is one of the most important of Catalonia because it provides a significant amount of water for numerous cities that make up including Barcelona. This work is part of the European project “Water Change” (included in the LIFE + Environment Policy and Governance program). It deals with Medium and long term water resources modelling as a tool for planning and global change adaptation.

This poster presents the results of the downscaling method and the next stages of the “Water Change” project. It details the use of historical data provided by 2 stakeholders involved in the project Catalan Water Agency (ACA) and the State Meteorological Agency (AEMET) for the creation of future rainfall scenarios at the rain gauge location.