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VALUE - A European wide network for the validation and development of downscaling methods

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Our understanding of future global climate change is mainly based on General Circulation Models (GCMs) . They typically provide a horizontal resolution coarser than 100 km. Yet the impacts of climate change such as changes in heavy rain and flooding, heat waves and droughts are mainly experienced on regional scales. Thus to fully assess climate change impacts, robust high-resolution scenarios for relevant meteorological variables need to be derived from coarse-resolution GCM simulations.

Validation of downscaling methods is crucial for the provision of robust regional climate change scenarios. Yet the representation of the following aspects has not been systematically assessed: variability on decadal and longer time-scales, extreme occurring once a decade or less, spatial variability and coherence, sub-daily variability and inter-relations of variables. Furthermore, collaboration and knowledge exchange between different downscaling communities, in particular regional climate modellers, statistical downscalers from the climate community and statisticians has been limited. As a consequence, also different downscaling approaches such as dynamical downscaling, perfect prog (PP) statistical downscaling and model output statistics (MOS)/bias correction have not been systematically compared.

VALUE will provide a network to develop a common European wide validation framework for downscaling methods. For the first time, it will compare RCMs, PP and MOS and systematically assess all the aspects listed above.
VALUE will considerably improve the networking between the dispersed research activities and with stakeholders. It will provide a platform for an inventory of existing methods, to identify requirements for downscaling methods, to define common validation criteria, to improve existing methods and to foster the development of new methods. Furthermore, VALUE will help to better understand regional climate change, its causes and the related uncertainties, and guide the development of improved regional climate change scenarios for Europe. VALUE will identify and directly respond to the needs of stakeholders by offering knowledge transfer workshops and by providing downscaling guidelines.