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Co-Developing a Knowledge Portal for the Presentation and Analysis of Uncertain Global Multi-Model Based Information on Freshwater-Related Hazards of Climate Change

Fabian Kneier (1), Carina Zang (2), Dirk Schwanenberg (3), Stephan Dietrich (2), Harald Köthe (2), and Petra Döll (1)

(1) Goethe University Frankfurt, Institute of Physical Geography, Hydrology, Germany (f.kneier@em.uni-frankfurt.de), (2) International Centre for Water Resouces and Gobal Change (UNESCO), German Federal Institute of Hydrology, Germany, (3) Kisters AG, Aachen, Germany

The integration of climate service information and associated tools in decision-making processes related to climate change (CC) impacts and risks is increasingly important for stakeholders in climate-dependent sectors. However, there is a lack of studies on how to integrate multi-model ensemble information into basin-to-regional-scale assessments of water-related CC risks and adaptation measures in a participatory manner. Furthermore, it remains even more challenging to represent quantitative uncertainties in a way that is both scientifically correct and useful to the diverse users of the hazard information.
The ERA4CS project CO-MICC ("Co-development of methods to utilize uncertain multi-model based information on freshwater-related hazards of climate change") wants to address these gaps in co-developing a knowledge platform together with relevant stakeholders. The platform will serve multiple purposes with a focus on enabling (end-)users around the world to freely access global-scale multi-model ensemble information of hydrological variables and derived products. Furthermore, it aims at providing relevant information for the global assessment of freshwater-related CC hazards including model based uncertainties.
Stakeholder dialogues from focus regions in Europe and Africa will serve to gain (1) experience from experts in regions with high knowledge levels of using and providing climate impact modelling data (Spain) and (2) input from regions which do not have access to sophisticated regional impact models. Through the co-development of sector specific indicators, the global multi-model ensemble information generated in CO-MICC can fill gaps for sites without regional models and provide complementary information at sites where hydrological models may already be available at basin scale.
CO-MICC will design and implement appropriate end-user products in close coordination with stakeholders. These encompass interactive maps, time series graphs, diagrams, and statistics, with suitable visualization of uncertainty. Stakeholder requirements will be structured and documented in order to support the specification and design of the information system. Simulation results and derived products will comply with user and international requirements and will be properly exchangeable through web services. Appropriate meta-information, tutorials and documentation will complement the visualization tools. Finally, the project will produce new knowledge about the optimal design of co-development processes while enabling social learning and capacity building.