

European freshwater vulnerability under high rates of global warming and plausible socio-economic narratives.

Aristeidis Koutroulis, Lamprini Papadimitriou, Manolis Grillakis, and Ioannis Tsanis Technical University of Crete, School of Environmental Engineering, Chania, Greece

Recent developments could postpone climate actions in the frame of the global climate deal of the Paris Agreement, making higher-end global warming increasingly plausible. Although not clear in the COP21 water security is fundamental to achieving low-carbon ambitions, thus climate and water policies are closely related. The projection of the relationship between global warming, water availability and water stress through their complex interactions among different sectors, along with the synergies and trade-offs between adaptation and mitigation actions, is a rather challenging task under the prism of climate change. Here we try to develop and apply a simple, transparent conceptual framework describing European vulnerability to hydrological drought of current hydro-climatic and socioeconomic status as well as projected vulnerability at specific levels of global warming (1.5oC, 2oC and 4oC) following highly rates of climatic change (RCP8.5) and considering different levels of adaptation associated to specific socioeconomic pathways (SSP2, SSP3 and SSP5).