Modelling the human-climate feedback at different spatial-temporal scales

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Understanding the feedback between climate change and adaptation actions is of pivotal importance to achieving a resilient future. Models are often built to represent the feedback mechanisms generated by the complex interplays between the human and water systems. While different models have been proposed over the last decades to better represent the human influence on natural systems, models that formalize the feedback between climate change, adaptation actions, and climate services information at different temporal scales are still lacking. Within the I-CISK H2020 project, we will develop modelling approaches to show how socio-economic activities and actions to respond to short/medium term predictions (e.g., sub-seasonal to seasonal forecasts), based on climate services information merged with local knowledge, can influence longer (decadal and climate) time scales and vice versa. Multiple goals of the different end-users will be also accounted for. Future scenarios of climate services availability and climate change (e.g. using climate models, e.g. CMIP6) will be defined to assess the dependence of local adaptations actions at larger spatial scales and different sectors. The model findings will be used to explore the influence of adaptation actions and climate services availability in reaching a resilient future and define a new set of end-user's adaptive behaviours and climate service data.