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## Territorial climate change: understanding, mitigating and adapting

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Territories are complex environments with many issues at stake. The issues of human health and energy consumption for instance are linked to local weather and climate change. Despite the scientific and societal developments of the last decades, some of the physical and social processes of territorial climate change are still not well understood, and the implementation of mitigation and adaptation is slow. The following studies address these aspects of processes, mitigation, and adaptation, based on different methods in climate and social sciences.

The first study investigates the seasonality of weather conditions in Europe by using classification approaches (weather types, local analogues) on climate observations, simulations and projections. Simulations are close on average to the observed variability, winter conditions decrease while summer conditions increase, and Mediterranean seasonality expands Northwest while Scandinavian seasonality declines.

The second study investigates the social perception of climate change and the acceptability of territorial options (mitigation, adaptation) by inhabitants and decision-makers, based on field interviews and foresight activities in the Gulf of Morbihan (France). A strong territorial seasonality (climate, socio-economy) and a complex role of climate change are found, as well as general agreement between local experiences and scientific knowledge. Despite divergent visions among inhabitants, two long-term scenarios and about twenty short-term actions emerged from foresight activities.

A third study investigates the effect of urban parameters on city temperature, and how urban planning options can optimize thermal comfort and reduce energy consumption and GHG emissions, based on urban climate observations and simulations. The city size drives urban warming, followed by urban fraction but building heights can cool the city depending on the season. Model adjustment and sensitivity simulations are presented for the urban planning approach.