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The societal benefits of Earth System Modelling for climate services

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Climate change is affecting many sectors and stakeholders, including policy-makers, decision-makers, businesses and non-profit, public and private institutions. While many research projects are providing actionable results through scientific research on climate change, the European Roadmap on Climate Services stresses a need for stronger links between providers and users of climate change knowledge and information.
The Coordinating Support Action Climateurope responds to this demand by providing information on Earth System Modelling (ESM) and climate service provision in Europe, involving expertise from these communities and a range of stakeholders. Here we present the progress on the integration of climate services and ESM, including new opportunities in ESM applications and a survey of climate services, with special attention to marketable products.
Different types of climate service products are identified, ranging from model and observational data products to climate adaptation products (including decision support tools, model data, observations...) or commercial climate service products. Bundling the plethora of climate service products from a stakeholder perspective is challenging. A distinction between providers and users is neither simple to do not necessarily useful, since many users are at the same time providers of climate services to another community; the so-called climate service intermediaries. Hence, other categories should be used to classify stakeholders, e.g. their ability to deal with data, their time availability or the expected use of information (policy, decision-making, education, etc.).
Additional highlights are the importance to develop models able to simulate local characteristics with enough confidence, e.g. the climate in a city, in mountainous areas or along the coast, and the need to guarantee the continuity and maintenance of data sets and portals through a smooth transition of data from proof-of-concept contracts to operational services, e.g. in the Copernicus Climate Data Store. Although there is an emerging market for climate services, a good part of their development is still based on research grants or designated as public good and used free of charge.
We will summarize findings in three reports. The first report has been already published and available at www.climateurope.eu/publications-climateurope/. The reports are going to summarize lessons learned from the ongoing convergence in climate services to serve recommendations to the different communities engaged and, especially, for the European Commission.