A multi-scenario comparison of climate change in European regions based on the IPCC Interactive Atlas

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In 2021-22, the Intergovernmental Panel on Climate Change (IPCC) published its Sixth Assessment Report on the matter of climate change, providing new data and results to researchers and decision makers. Moreover, as a brand-new element to climate research, an Interactive Atlas has been provided that not only makes the understanding of climate impacts easier with its eye-catching maps and graphs, but also assembles data collected by the climate research community over the last decades. For this reason, the Interactive Atlas is a useful tool to create interregional climate analysis using the built-in options of datasets, scenarios, and variables available. In this study, we compared the potential climate change of the three European climate regions (defined as IPCC WGI reference regions) on the basis of the maps, diagrams, and charts of the Atlas. Our goal was to analyse the frequency and the magnitude of the potential climate extremes that European citizens will have to face towards the second half of the 21st century. For this purpose, we chose the TX35 and CDD indices, defined as the number of days with maximum temperature above 35 °C and the maximum number of consecutive dry days (precipitation < 1 mm), respectively. From the available datasets, the EURO-CORDEX dataset was selected as it provides the highest resolution for the target domain, hence the best punctuality out of the possible options. Our results show that throughout the next decades, both the frequency and the magnitude of the climate extremes are likely to increase in the whole European continent. However, huge spatial differences and a high influence of climate policies and mitigation can be seen on the speed and magnitude of this increase, implying that the positive response of society is essential to reduce the impacts of climate change.