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Historical and projected heat waves in Croatia

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Introduction: Last IPCC AR6 reported with very high confidence that more frequent hot extremes will increase for the severity of heatwaves all-round the globe. It is known that heat and hot weather that can last for several days (so called heatwaves) can significantly influence human health as well as rise in heat-related deaths.

Design and methods: In this work, climate simulations obtained by regional climate model RegCM4 over Croatia are used. RegCM4 was forced by four different global climate models on 12.5 km horizontal resolution. Historical climate simulated by model is compared with observed daily data measured at Croatian meteorological stations in order to evaluate simulations. Future climate is considered by three different IPCC scenarios: the lowest RCP2.6, the middle RCP4.5 and the highest RCP8.5 emission scenario. We considered three future time slices: 2021-2050 (P1), 2031-2060 (P2) and 2041-2070 (P3).

Results: The range of climate change for maximum temperature during summer will be examined in the future time slices. We will also look into duration and number of heat waves in different parts of Croatia. Knowledge of the current situation as well as possible change in the future can help in the planning future adaptation and mitigation measures.