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Health protection from heat waves in Croatia - today and in the future

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Some recent research shows that the average annual excess of deaths is higher due to cold than warm events. Despite that fact, the last two decades are the warmest in history of air temperature monitoring so the long term series analyses show the increase in the frequency but also the severity of the heat waves.

A heat wave early warning system is a very useful way of protecting human health. This system in Croatia has been operational since 2012 and thanks to it vulnerable groups of people are timely warned about the level of possible risk. In this work, we will briefly explain how Croatian early warning system works nowadays and show the change of number and level of heat wave risks through the past.

The possible change in heat wave risk in the future will be analysed by using regional climate simulations from the EURO-CORDEX data set. Simulations will cover a set of projections on 12.5 km horizontal resolution, taking into account moderate and high RCP scenarios. The future climate will be considered for three 30-year time slices.

The operational criteria currently used in the Croatian heat wave early warning system will be applied to the projected daily minimum and maximum air temperatures. The modelled data will be bias-corrected according to the measured data at Croatian meteorological stations. Original outputs and bias-corrected data will be analysed and compared to see which data sets approach closer to the measured data set. Historical climate risk simulated by models will be compared with issued warnings to evaluate simulations. The difference between projected and historical climate risk will be analysed by level of risk, duration, and spatial distribution.