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Future fire risk projections for south-eastern Europe in the framework of DISARM project

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The DISARM (Drought and fIre ObServatory and eArly waRning systeM) Interreg Balkan-Med project, co-funded by the European Union and national funds of the three participating countries, aims at developing, validating and demonstrating an integrated set of services to support prediction and foster prevention of drought and wildland fires. Bringing together countries of the south-eastern part of Europe, i.e. Greece, Bulgaria and Cyprus, considered a climate change hot spot, the overall project objective is to deliver an innovative observatory platform, as well as an early warning system that will serve as a key tool for preventing, addressing and finally mitigating the adverse impacts of droughts and wildland fires from a climate perspective.

According to several climate studies, the observed trend towards warmer and drier conditions in south-eastern Europe is projected to persist over the next decades, subsequently leading to increased fire risk. Thus, and in accordance to DISARM objectives, a climate component has been developed as part of the observatory platform that provides assessments of fire risk over the study area for the following 50 years based on state-of-the-art regional climate simulations under two climate change scenarios.

The assessment of fire risk utilizes several meteorological based indices. These indices include the Canadian Fire Weather Index (FWI), the Fosberg Fire Weather Index (FFWI) and the Swedish Angstrom Index. In order to calculate these, meteorological input, i.e. 3-hourly data of temperature, precipitation, relative humidity and wind speed of five RCM/GCM couples at a horizontal resolution of 12km, developed within the EURO-CORDEX initiative, have been used. Within the platform, geographical maps presenting the ensemble mean of these couples have been developed, referring to the current climate (1971-2000), as well as to the changes between the current and future (2021-2050) climate under RCP4.5 and RCP8.5, for each of the three countries.