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## S2S prediction of summer heatwaves in the Iberian Peninsula using convolutional networks

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In this ongoing study we aim at using machine learning algorithms to better understand and improve southern Europe summer heatwave prediction on sub-seasonal to seasonal timescales (S2S). Summer heatwaves are extreme events that have large socio-economic impacts on mortality rate, crop yields, energy demand or water resources and southern Europe is particularly prone and vulnerable to such events.

To do this, we train a convolutional network coupled with a multilayer perceptron to forecast with a 15-day and 1-month lead times the occurrence and intensity of heatwave in summer. This forecast model is trained with ERA5 data. The predictors fed to this model are monthly means of the SST, local soil moisture, outgoing longwave radiation, snow cover and sea-ice cover. The target is a monthly-mean heatwave index integrated over a sub-area of southern Europe.

Here, we will present the initial results of this ongoing work and the next steps, focusing first on the Iberian Peninsula only.