SPATIAL EXTENSION OF HEAT AND DROUGHT STRESS IN EUROPEAN WHEAT PRODUCING AREAS

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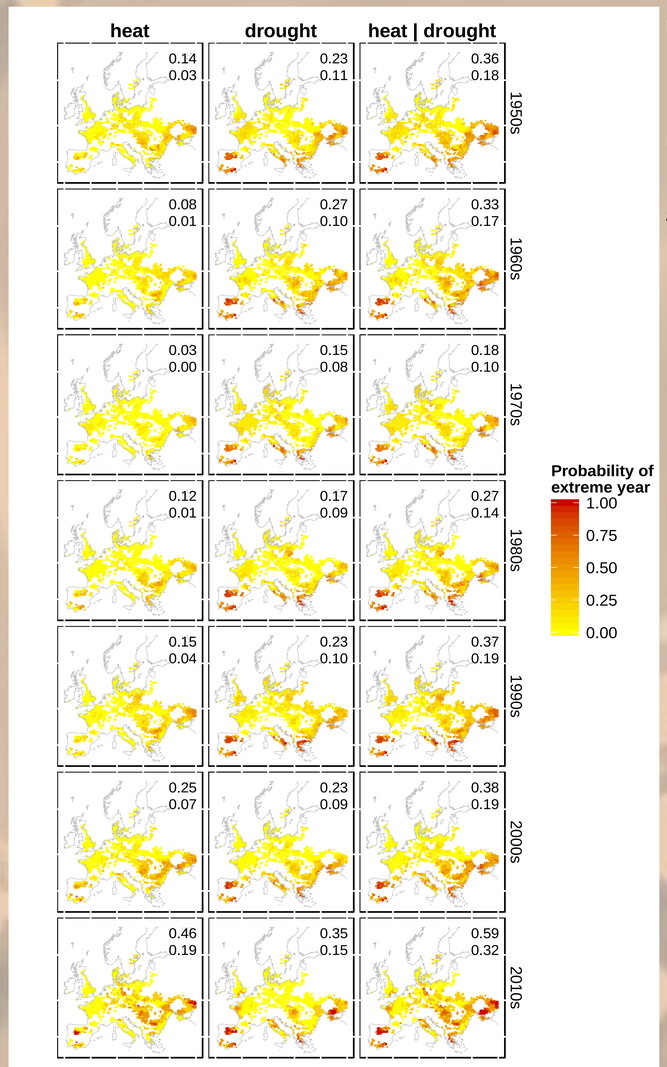
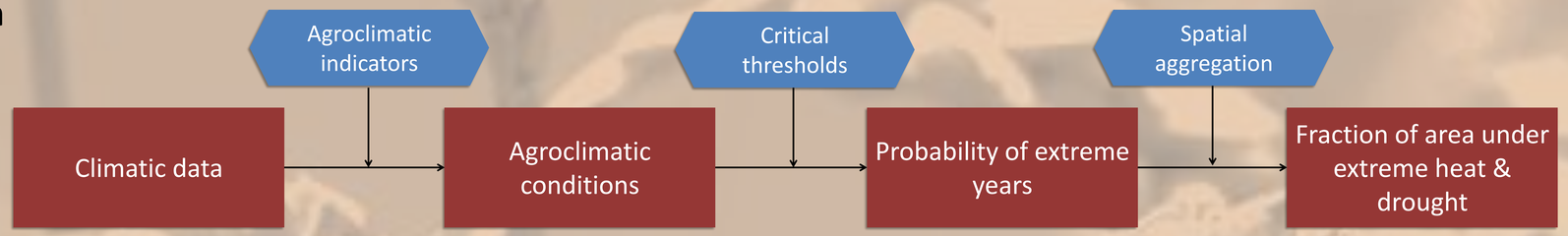


Fig. 1: Probability of experiencing an extreme year (color scale) and fraction of total wheat cropping area of Europe with at least a 25%, resp. 50% chance of being under extreme heat or drought (numbers in the upper right corner)

Objectives Investigate the spatial extent of the European wheat production area under extreme heat and drought

Climatic baseline Gridded data from the ENSEMBLES EU-FP6 project (E-OBS) spanning 1950-2013

Approach



Results Since the 1970s, a growing share of European wheat production areas has been affected by either extreme heat or drought (Fig. 1, left). The fraction of total area with at least a 25% chance of experiencing adverse climatic conditions has increased from less than 0.2 in the 1970s to about 0.5 in the 2010s. This increase is most pronounced in Eastern and Central Europe and over the Iberian Peninsula.

At the national scale (Fig. 2, right), we found contrasting results, i.e. a marked increase of the area affected by heat stress in many of key producing countries, including Spain, Germany, Poland and Ukraine, with no clear tendency in France.

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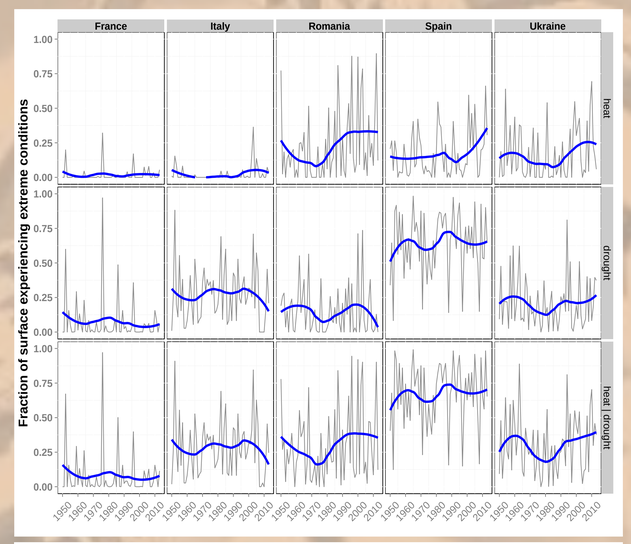

Fig. 2: Evolution, 1950-2013, of the fraction of area experiencing extreme conditions in major European wheat producing countries. From left to right: France, Italy, Romania, Spain and Ukraine.

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