SEE Project Idea
3rd Call for Proposal – Priority 2
Climate Change Adaptation: assessing vulnerabilities and risks and translating them to implementation actions at the regional and local levels

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SEE Project idea for: *Cross border drought risk assessment and mapping to establish strategies for managing drought in the Middle Danubian Basin*

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The importance of drought management in Europe is quite evidence

Over the past thirty years, droughts have dramatically increased in number, in frequency and intensity in the EU.

The number of areas and people affected by droughts went up by almost 20% between 1976 and 2006.

Cross border drought risk assessment and mapping to establish strategies for managing drought in the Middle Danubian Basin

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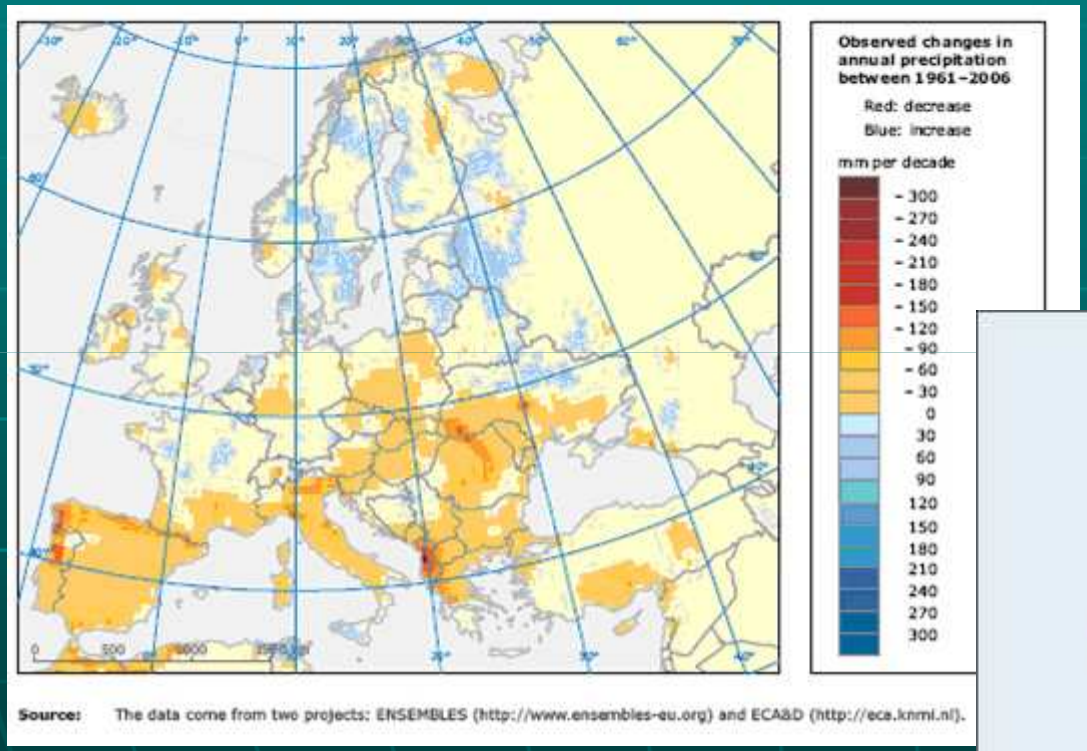
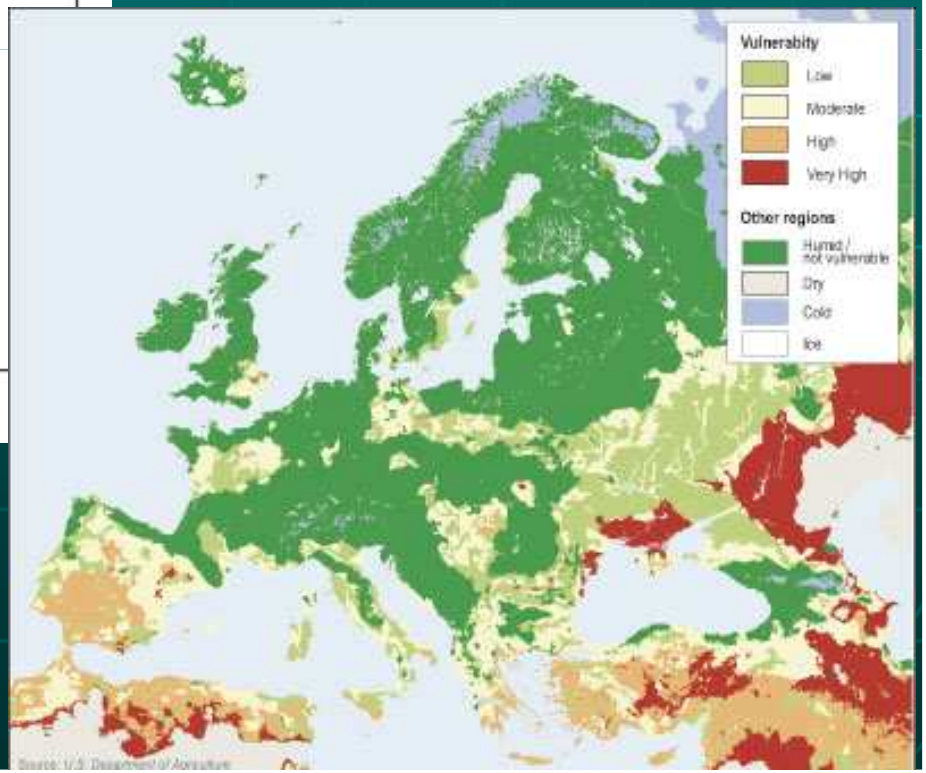


Observed changes in annual precipitation between 1961-2006



Desertification Vulnerability map of Europe based on a reclassification of the global soil climate map and global soil map.

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey. Division, World Soil Resources, Washington, D.C. 2001.

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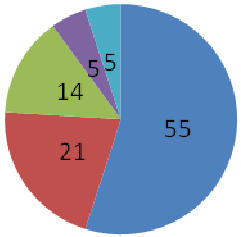
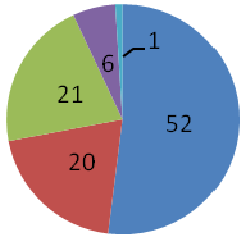
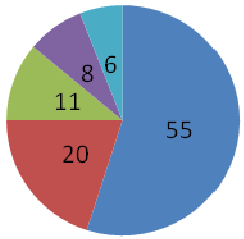
Occurrence of droughty years in the 18th century



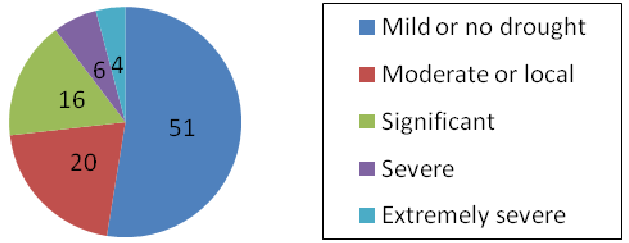
Occurrence of droughty years in the 19th century

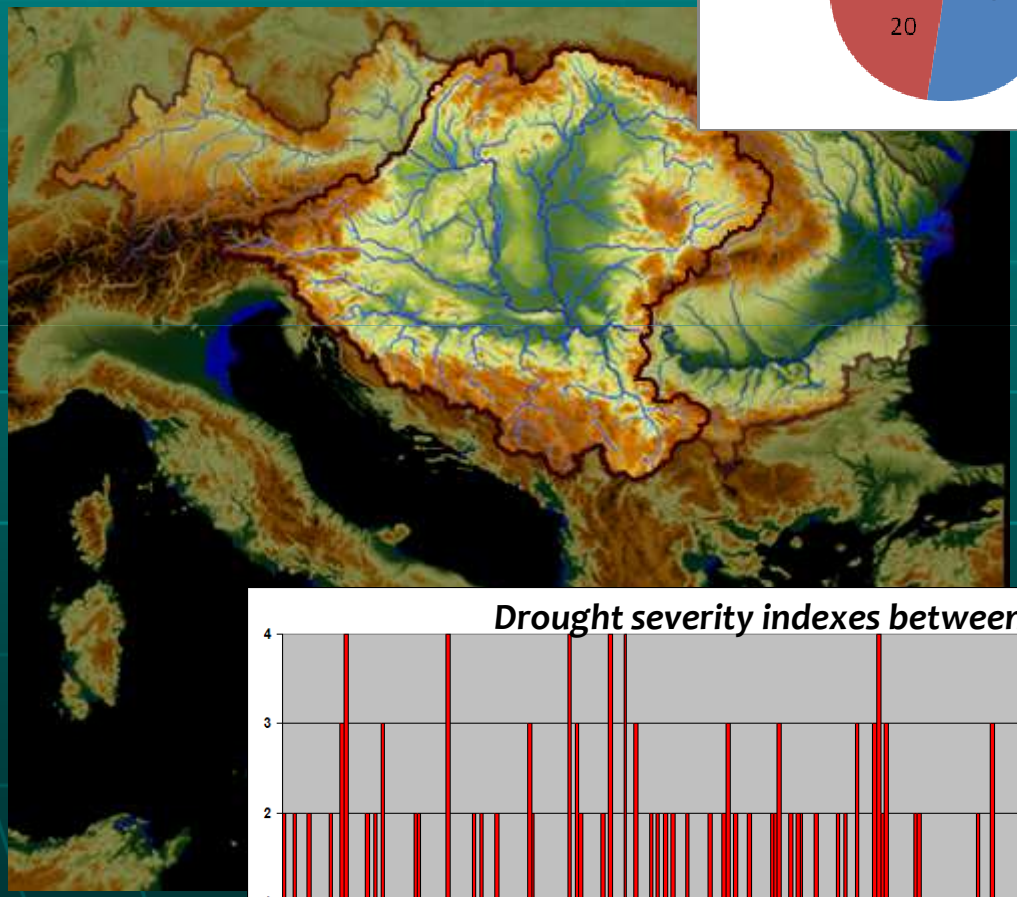


Occurrence of droughty years in the 20th century

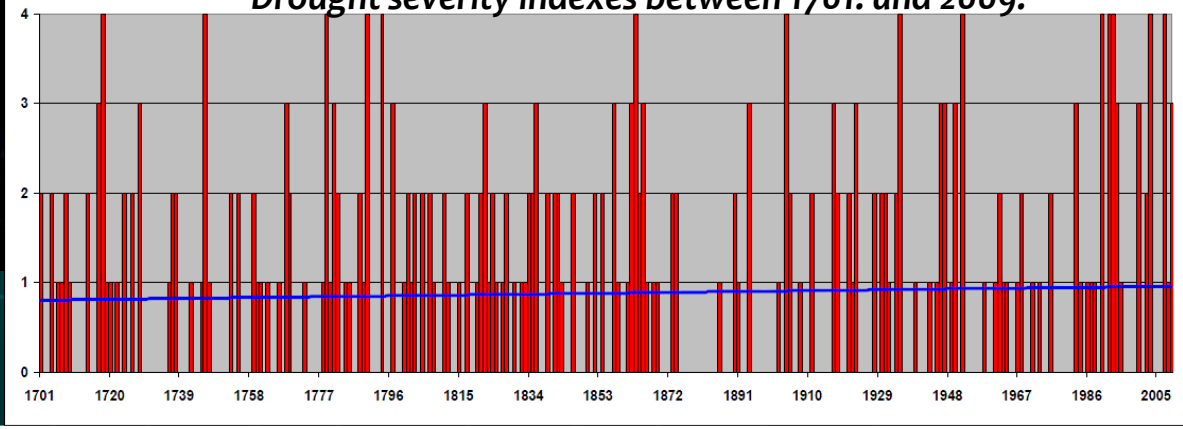


Frequency of droughts between 1701. and 2000.





Drought severity indexes between 1701. and 2009.



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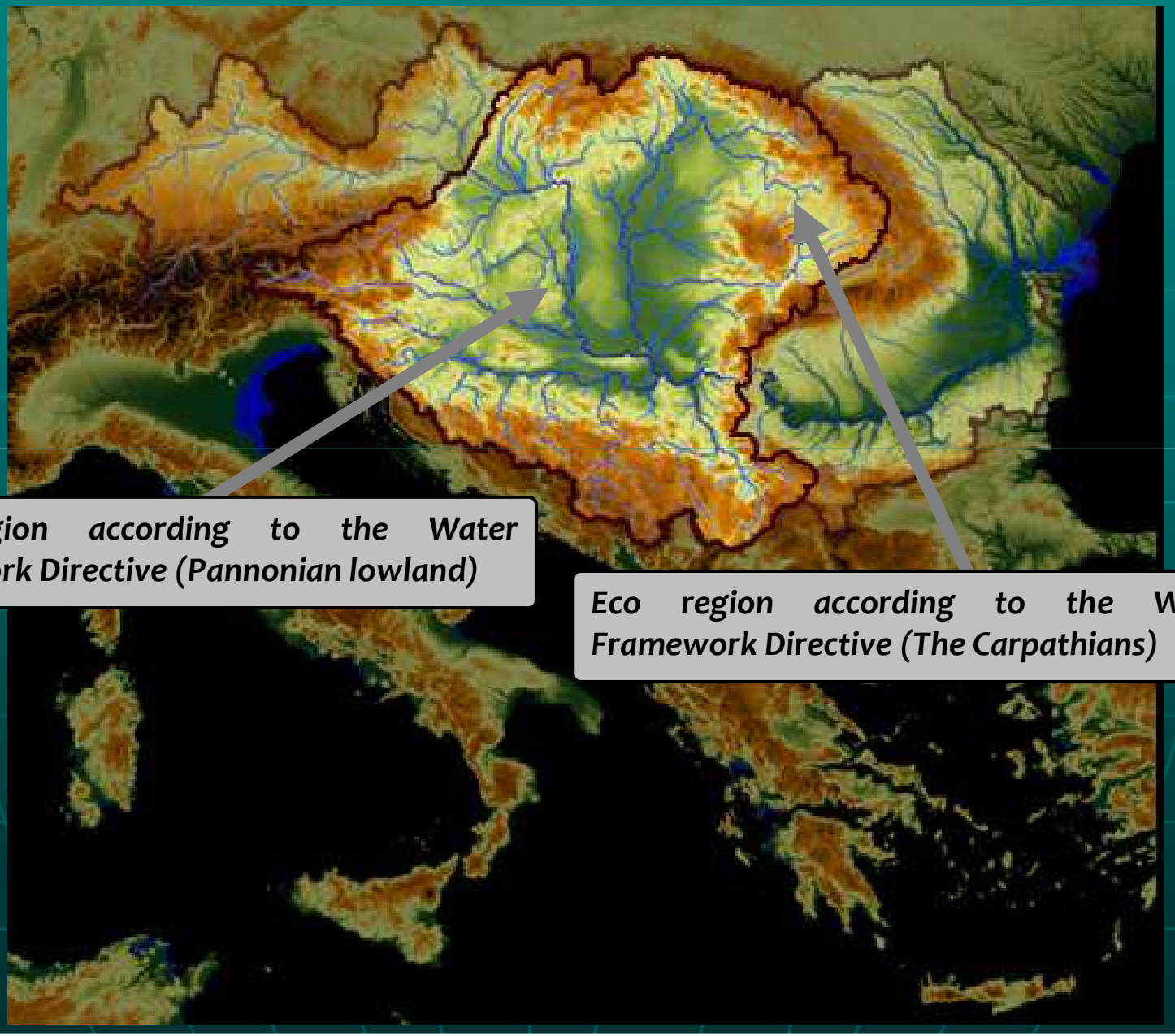

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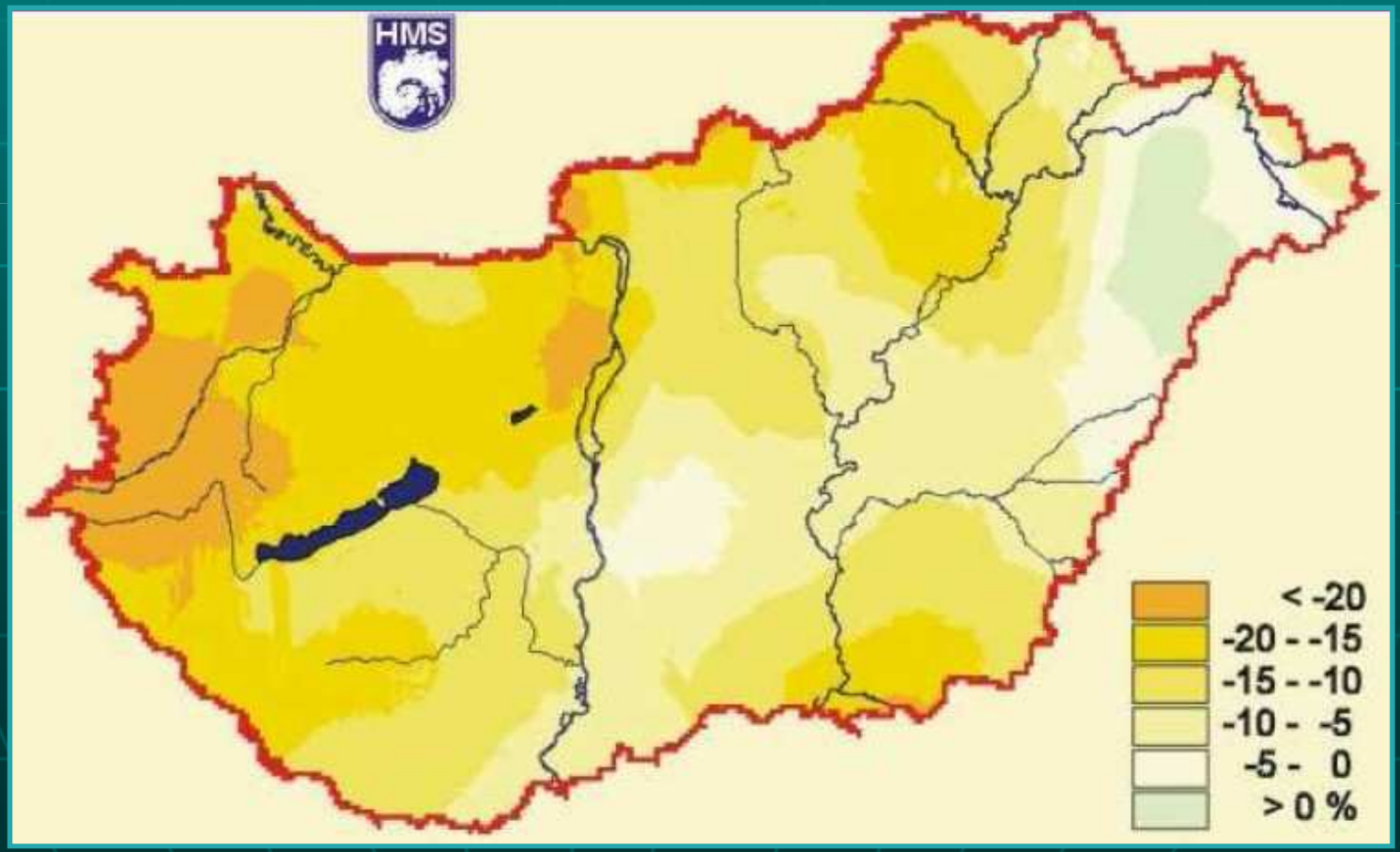
Derived from time series analysis of long-term trends of averages and extremes.
It has been detected that:

Decreasing trend of precipitation is typical with lower number of precipitation events.
Figure: Trends of annual precipitation (%/54 years) for 1951-2004 (Szalai S. et al., 2006)



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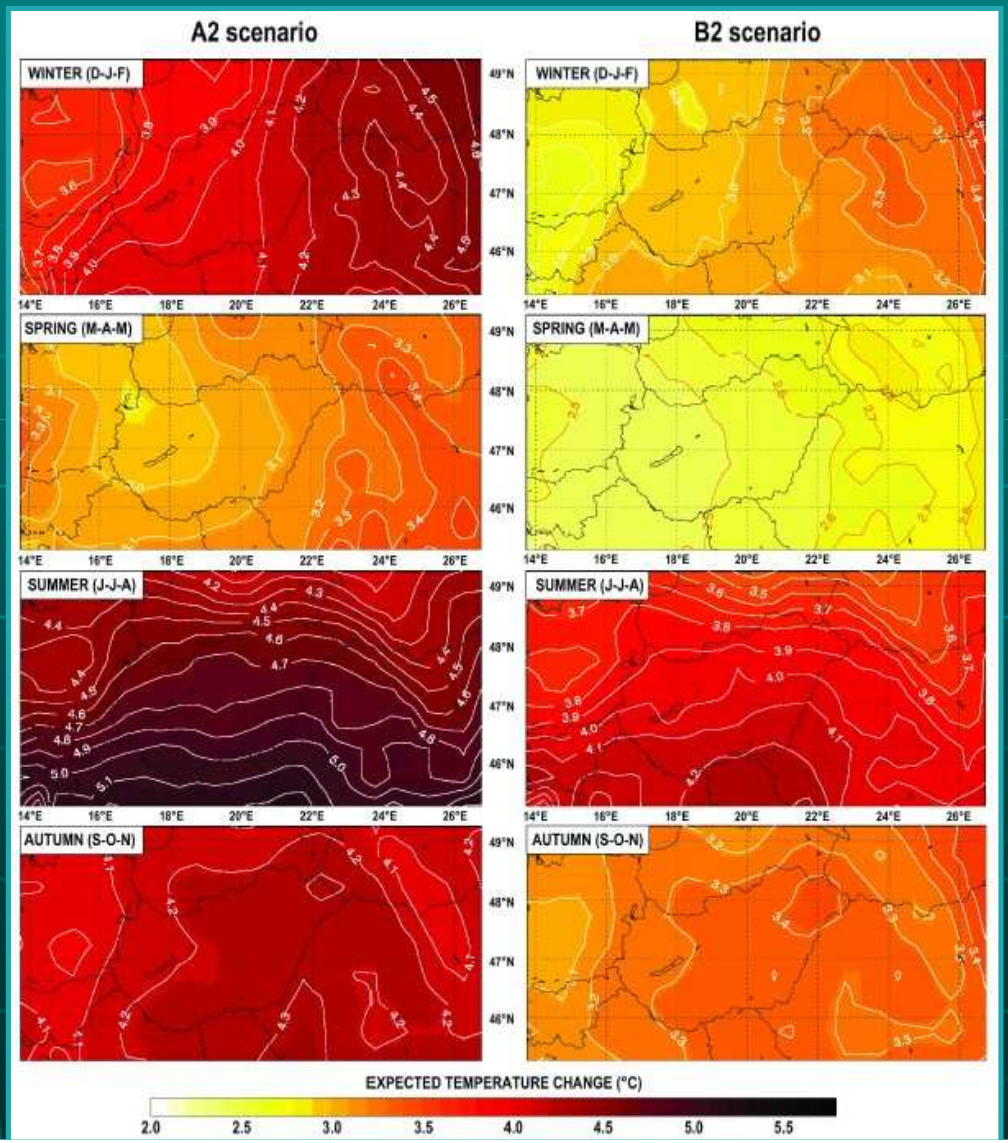
Based on regional climate modelling and analysis of expected climate over Middle Danubian Basin, it has been predicted that:

Faster than global mean temperature increases in all seasons.

Figure: Seasonal temperature change (°C) expected by 2071–2100 for the Carpathian Basin using the outputs of 16 and 8 RCM simulations in case of A2 and B2 scenarios, respectively (reference period: 1961–1990).



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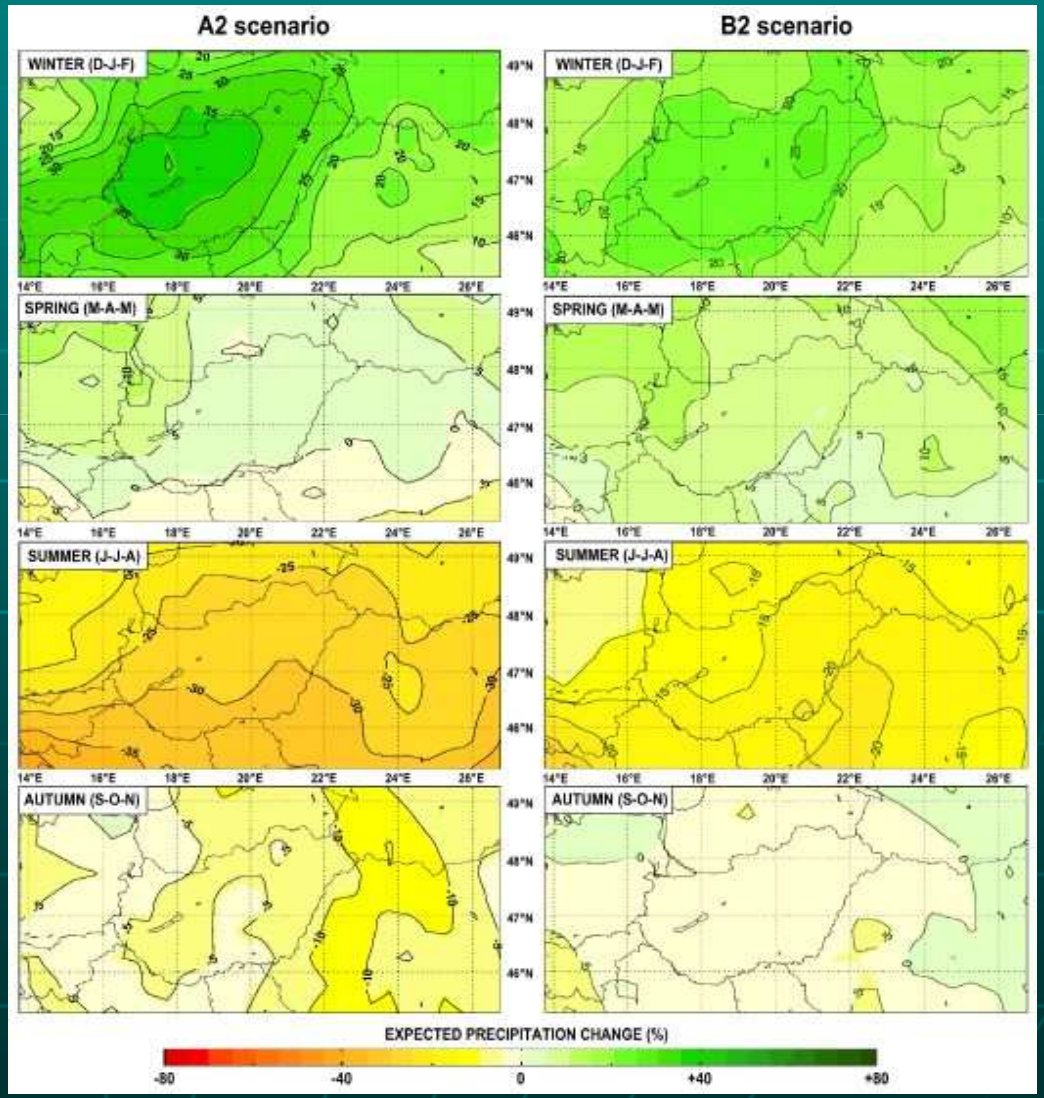
Based on regional climate modelling and analysis of expected climate over **Middle Danubian Basin**, it has been predicted that:

With strongly decreasing precipitation in summer and autumn, but with increased amounts in winter and spring.

Figure: Seasonal precipitation change (%) expected by 2071–2100 for the Carpathian Basin using the outputs of 16 and 8 RCM simulations in case of A2 and B2 scenarios, respectively (reference period: 1961–1990).



Based on regional climate modelling and analysis of expected climate over Middle Danubian Basin, it has been predicted that:

- There is also a fair agreement among the approaches (deterministic and empirical) in the frequency of high temperature extremes and in the maxima of daily precipitation totals in all regions of the country.
- No ideal coincidence in frequency of the frozen days and in frequency of the wet days. The deterministic model-approaches indicate decrease in both variables, while the empirical analysis yields opposite results.

According to a wide-ranging comparison of drought-related data, we can conclude that this region is one of the most drought vulnerable area of Europe, which negative feature is expected to increase in the future along with a large negative impact on the environment, on the economic and on the social well being as well.

In order to mitigate the damaging impacts of droughts in the region, **the importance of drought management policy/strategy is highlighted!**

Cross border drought risk assessment and mapping to establish strategies for managing drought in the Middle Danubian Basin

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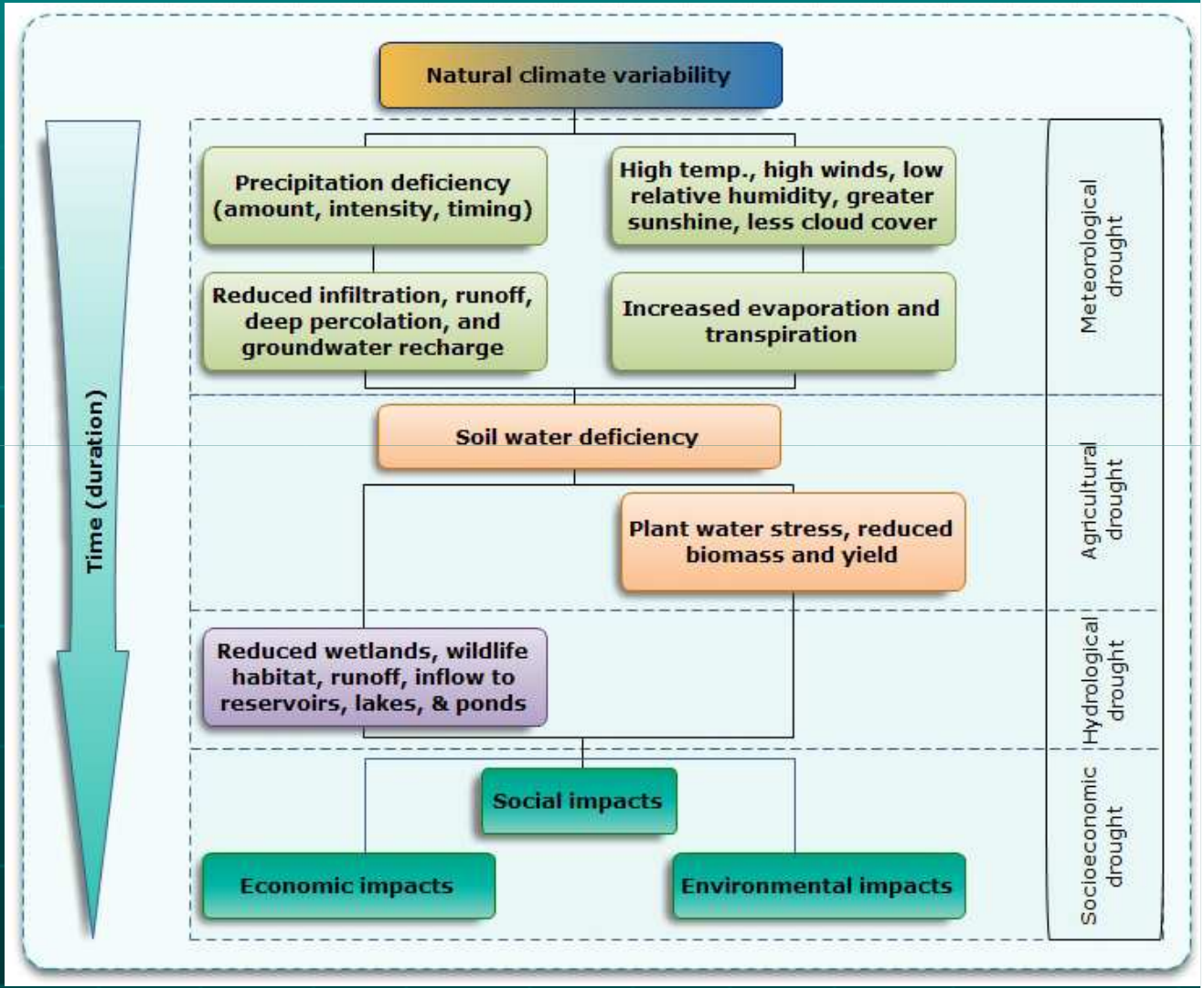
With the purpose of provide efficient assistance to elaborate a region-wide drought strategy/management plan, an overall evaluation and prediction of drought risk should be essential for all the four major categories of drought, such as for meteorological, agricultural, hydrological and socio-economical drought



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As a result of the facts for present situation of droughts, and its predicted values, we would like to propose to launch a project with the primary objective to provide large scale, high resolution (1x1 km) drought risk assessment and mapping to establish national level strategies for managing drought in the countries that situated in the area of the Middle Danubian Basin.

Within the project we intended to simultaneously concentrate for the four major categories of drought, such as for meteorological, agricultural, hydrological and socio-economical drought.

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Thank you for your kindly attention!