



## **Seasonal forecasts of impact-relevant climate information indices developed as part of the EUPORIAS project**

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Climate information indices (CIIs) represent a way to communicate climate conditions to specific sectors and the public. As such, CIIs provide actionable information to stakeholders in an efficient way. Due to their non-linear nature, such CIIs can behave differently than the underlying variables, such as temperature. At the same time, CIIs do not involve impact models with different sources of uncertainties.

As part of the EU project EUPORIAS (EUropean Provision Of Regional Impact Assessment on a Seasonal-to-decadal timescale) we have developed examples of seasonal forecasts of CIIs. We present forecasts and analyses of the skill of seasonal forecasts for CIIs that are relevant to a variety of economic sectors and a range of stakeholders: heating and cooling degree days as proxies for energy demand, various precipitation and drought-related measures relevant to agriculture and hydrology, a wild fire index, a climate-driven mortality index and wind-related indices tailored to renewable energy producers.

Common to all examples is the finding of limited forecast skill over Europe, highlighting the challenge for providing added-value services to stakeholders operating in Europe. The reasons for the lack of forecast skill vary: often we find little skill in the underlying variable(s) precisely in those areas that are relevant for the CII, in other cases the nature of the CII is particularly demanding for predictions, as seen in the case of counting measures such as frost days or cool nights. On the other hand, several results suggest there may be some predictability in sub-regions for certain indices. Several of the exemplary analyses show potential for skillful forecasts and prospect for improvements by investing in post-processing. Furthermore, those cases for which CII forecasts showed similar skill values as those of the underlying meteorological variables, forecasts of CIIs provide added value from a user perspective.