

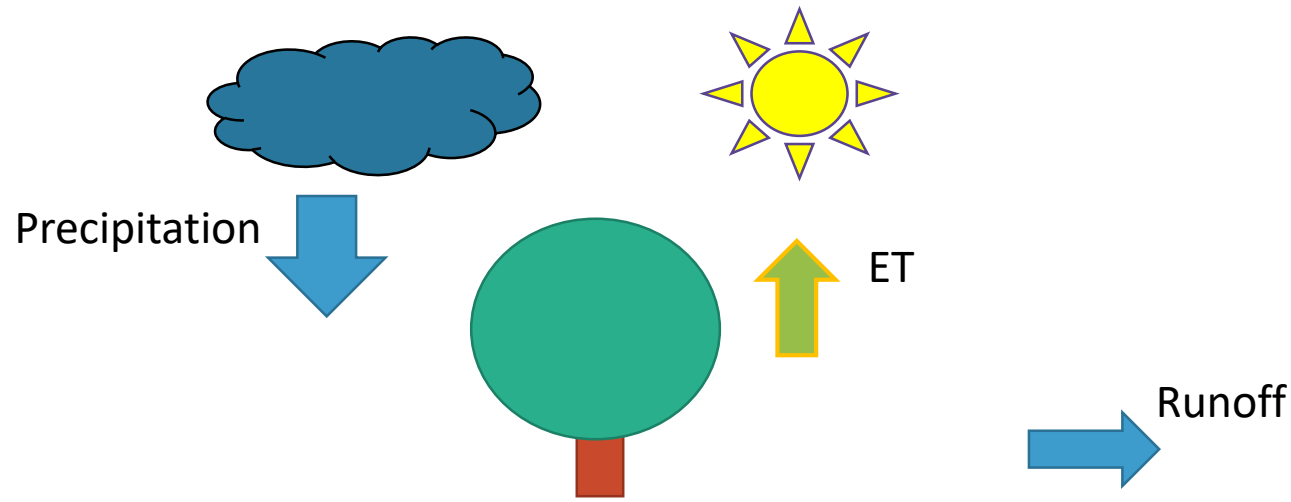
Climate-dependent propagation of precipitation uncertainty into the water cycle

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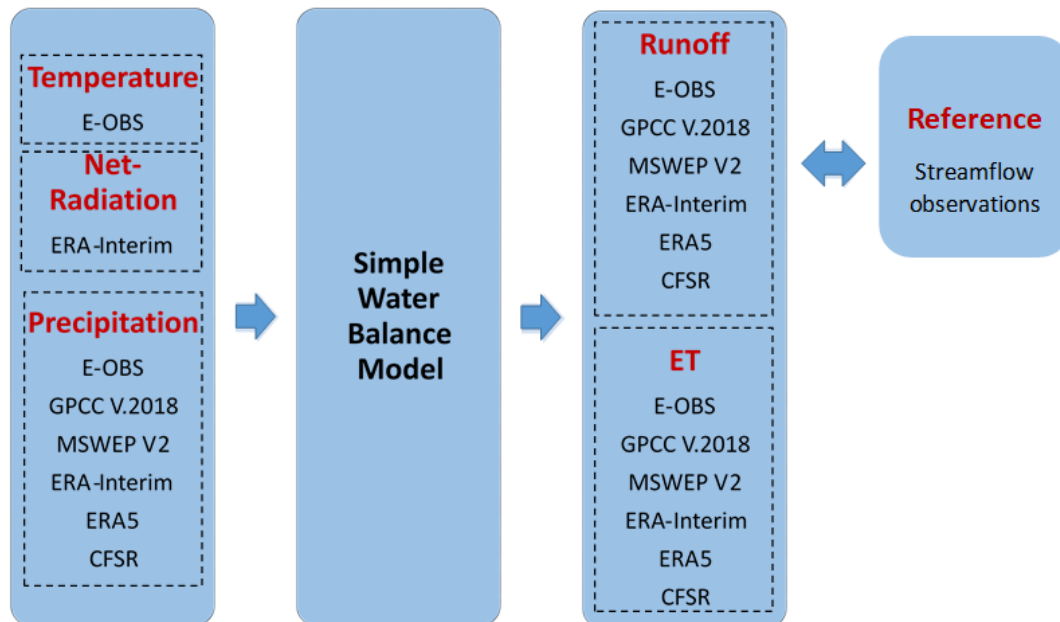
Online on Tuesday 5 May 10:45-12:30 Session: [HS7.1](#)



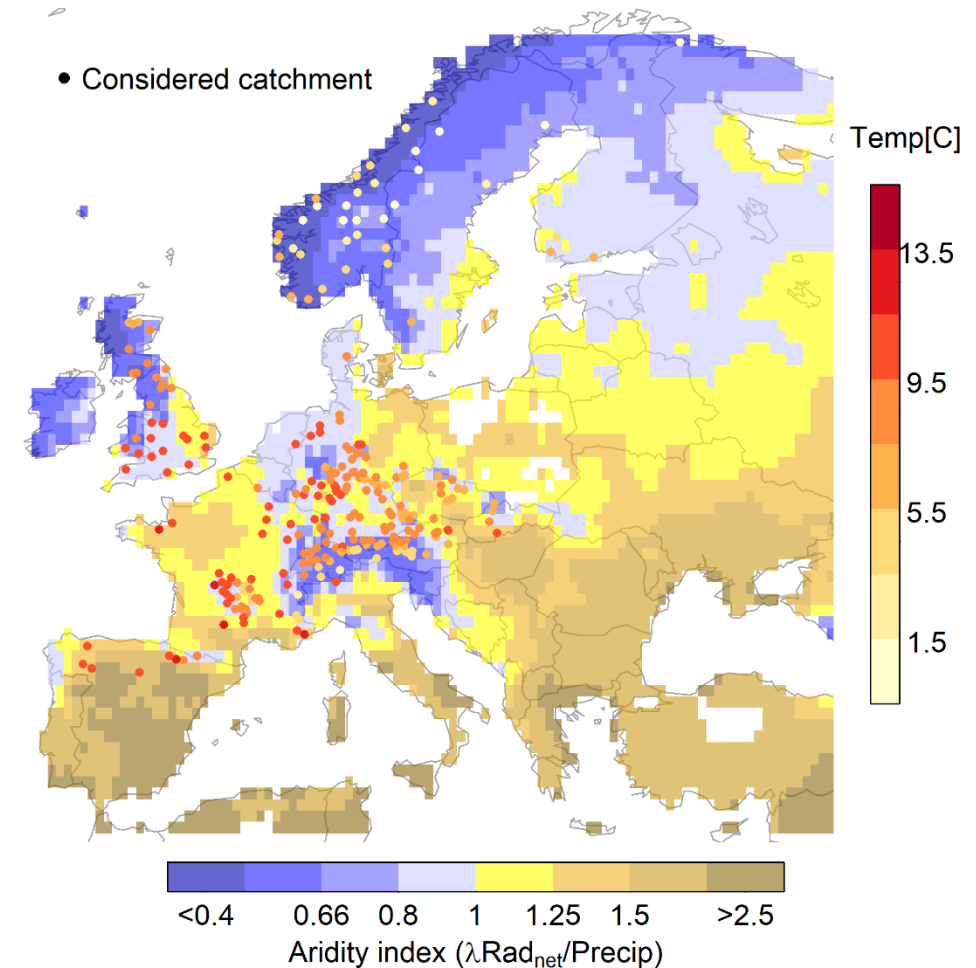
Questions:

1. How much simulated runoff and evapotranspiration are influenced by uncertainties within precipitation products?
2. What is the impact of climate on precipitation uncertainty and its propagation into runoff and ET?
3. How useful are the state-of-the-art precipitation datasets in hydrological modelling?

Method:



For every catchment, the SWBM model is forced with consistent Netrad and temp data, but six different precipitation datasets (1984-2007).



Results:

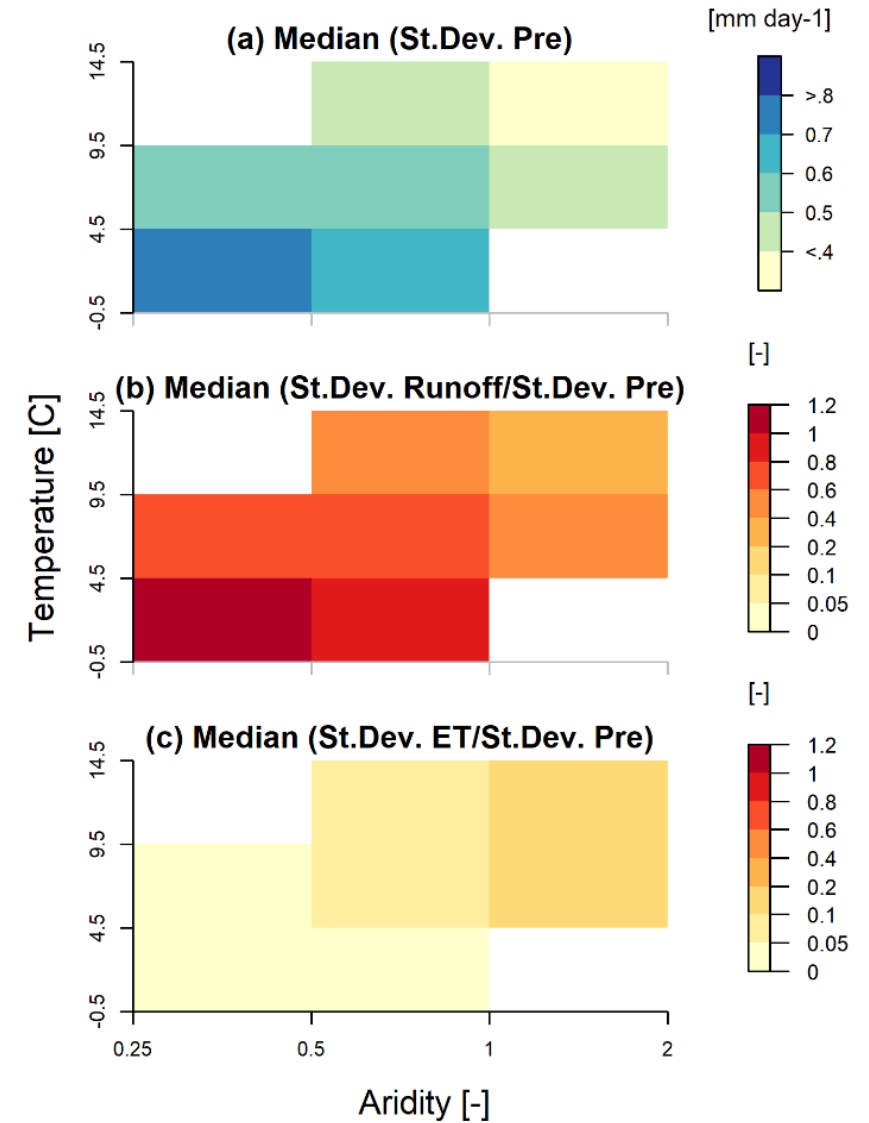
The fraction of precipitation uncertainty propagating into runoff and ET

1. Simulated Runoff is highly dependent on the accuracy of precipitation inputs

Evapotranspiration is generally much less influenced in our comparatively wet study region.

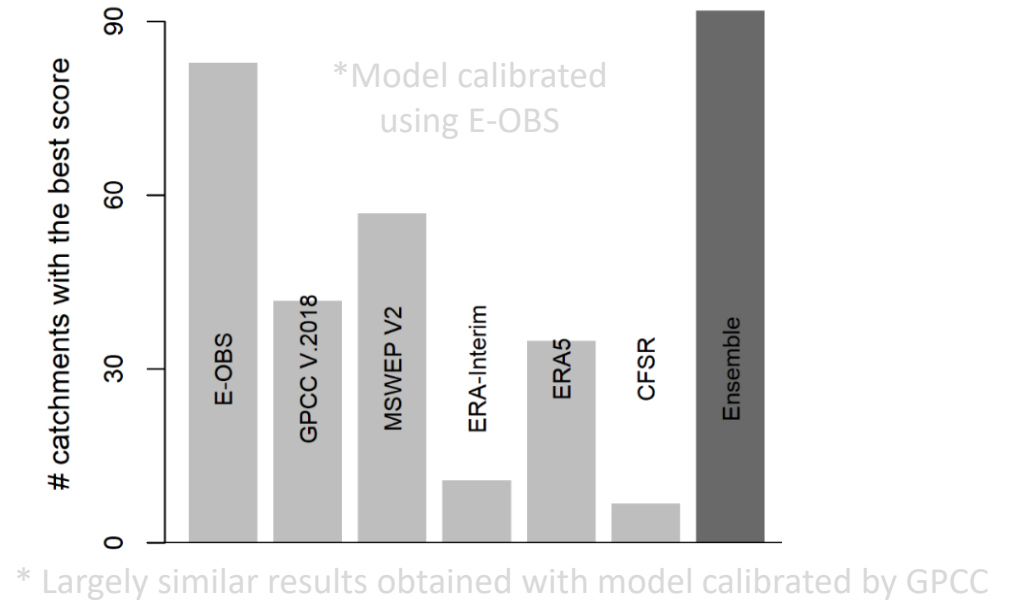
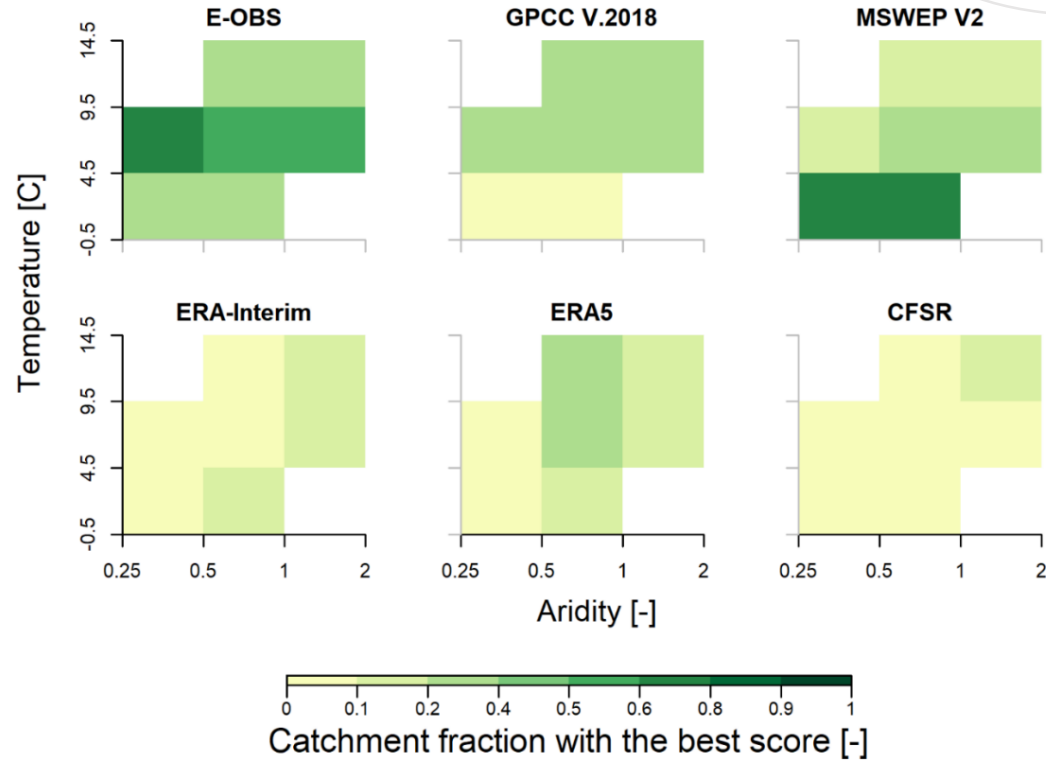
2. Impact of precipitation uncertainty on simulated runoff increases towards wetter regions,

while the opposite is observed in the case of evapotranspiration.



Results:

Number of catchments where each precipitation product yields the best agreement (anomalies correlation and absolute bias) with **runoff observations**



2. Performance of the considered datasets is climate-dependent.

3. The overall best agreement is achieved when using an ensemble mean.

Take-home message

1. Uncertainty across precipitation datasets propagates mainly into runoff rather than ET simulations in Europe.
2. Partitioning of precipitation uncertainty between runoff and ET is climate-dependent, and accuracies in some precipitation datasets are climate-dependent.
3. Ensemble mean of the considered precipitation datasets outperforms the individual datasets.

Thank you for your attention!

In case of further questions, please contact me:
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