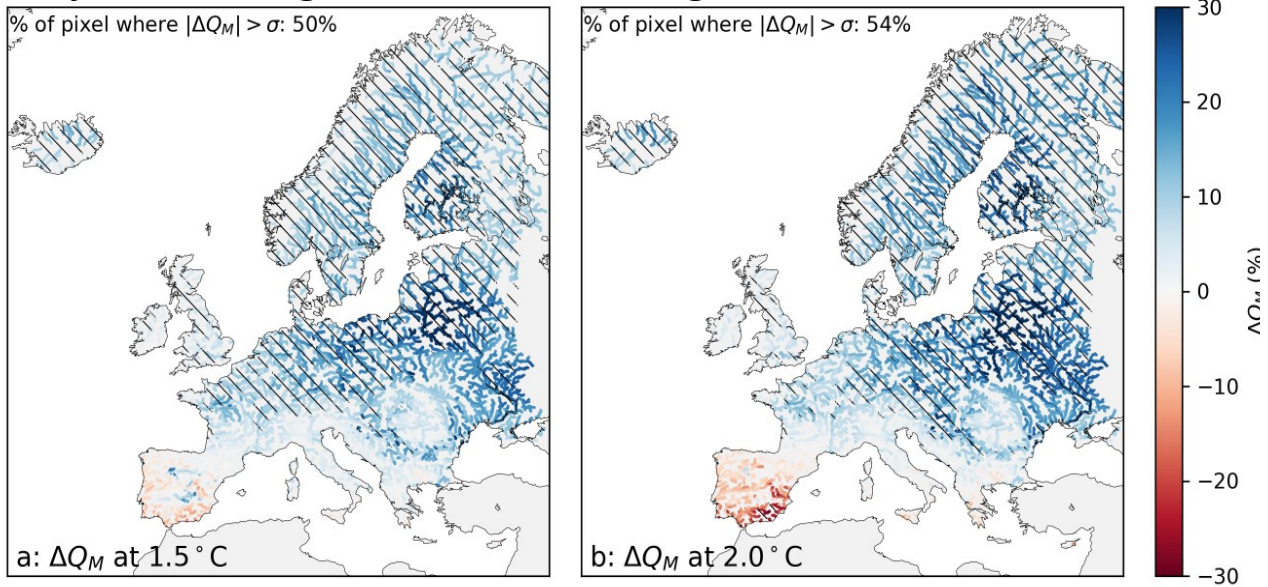
On the independence from the emission pathway of the projected changes of river runoff

As the objectives of the Paris Agreement are stated in terms of degrees of Global Warming, it is important to assess the contribution of the pathway to projections' uncertainty.

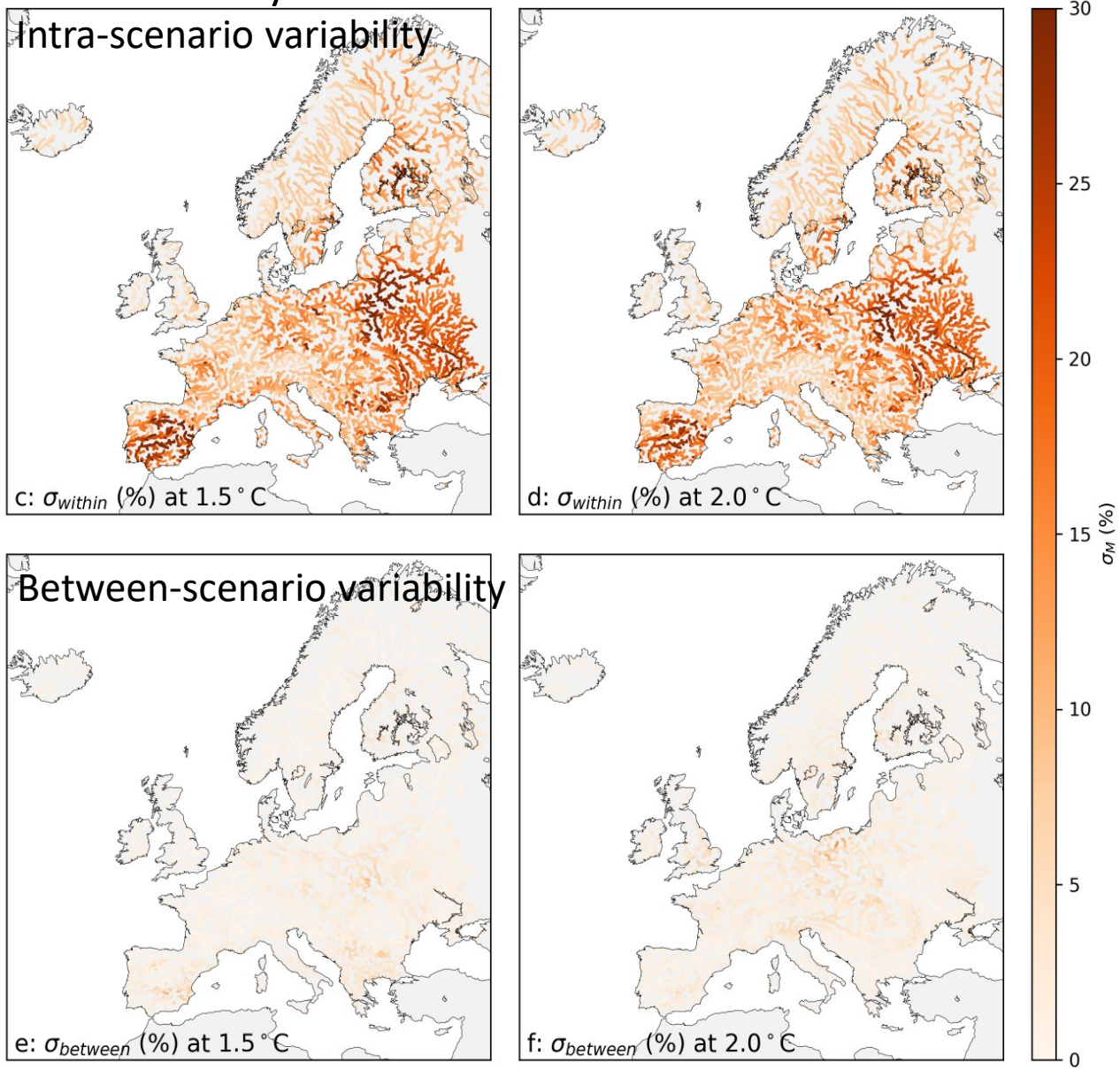
In this study we carried out projections of river runoff with the model LISFLOOD forced by 11 Euro-CORDEX models, in scenarios RCP4.5 and RCP8.5.

For mean and high/low extremes of runoff, the differences between the 2 scenarios at 1.5°C and 2°C were found to be small compared with the intra-scenario model variability.

Projected changes of mean discharge



ANOVA analysis



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Independence of Future Changes of River Runoff in Europe from the Pathway to Global Warming

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Abstract

The outcomes of the 2015 Paris Agreement triggered a number of climate impact assessments, such as for floods and droughts, to focus on future time frames corresponding to the years of reaching specific levels of global warming. Yet, the links between the timing of the warming levels and the corresponding greenhouse gas concentration pathways to reach them remain poorly understood. To address this gap, we compared projected changes of annual mean, extreme high, and extreme low river discharges in Europe at 1.5 °C and 2 °C under Representative Concentration Pathways