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Methodology for qualitative uncertainty assessment of climate impact indicators

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The FP7 project "Climate Information Portal for Copernicus" (CLIPC) is developing an integrated platform of climate data services to provide a single point of access for authoritative scientific information on climate change and climate change impacts. In this project, the Climate Service Center Germany (GERICS) has been in charge of the development of a methodology on how to assess the uncertainties related to climate impact indicators.

Existing climate data portals mainly treat the uncertainties in two ways: Either they provide generic guidance and/or express with statistical measures the quantifiable fraction of the uncertainty. However, none of the climate data portals give the users a qualitative guidance how confident they can be in the validity of the displayed data. The need for such guidance was identified in CLIPC user consultations.

Therefore, we aim to provide an uncertainty assessment that provides the users with climate impact indicator-specific guidance on the degree to which they can trust the outcome. We will present an approach that provides information on the importance of different sources of uncertainties associated with a specific climate impact indicator and how these sources affect the overall 'degree of confidence' of this respective indicator. To meet users requirements in the effective communication of uncertainties, their feedback has been involved during the development process of the methodology.

Assessing and visualising the quantitative component of uncertainty is part of the qualitative guidance. As visual analysis method, we apply the Climate Signal Maps (Pfeifer et al. 2015), which highlight only those areas with robust climate change signals. Here, robustness is defined as a combination of model agreement and the significance of the individual model projections.

Reference

Pfeifer, S., Bülow, K., Gobiet, A., Hänsler, A., Mudelsee, M., Otto, J., Rechid, D., Teichmann, C. and Jacob, D.: Robustness of Ensemble Climate Projections Analyzed with Climate Signal Maps: Seasonal and Extreme Precipitation for Germany, Atmosphere (Basel)., 6(5), 677–698, doi:10.3390/atmos6050677, 2015.