

Towards a Quality Control concept for Destination Earth (DE373)

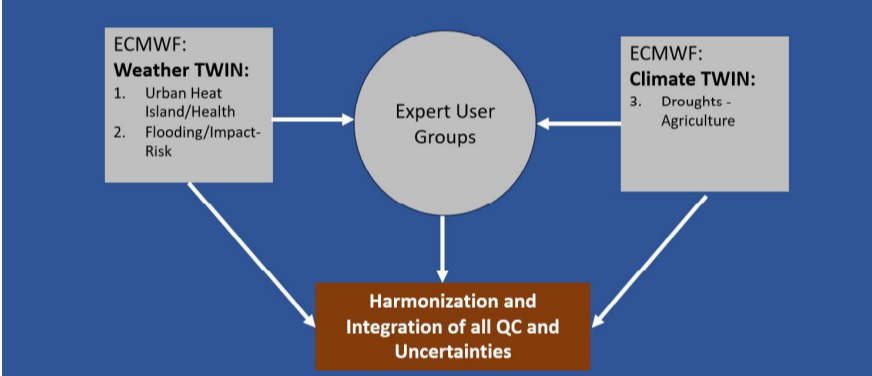
Project motivation

Destination Earth aims to provide actionable and reliable climate and weather data for different end users. To assess and communicate the quality of this information, a Quality Control concept is needed. Such a concept covers a wide spectrum: from the origin of uncertainties in the Digital Twins to the specific context in which the end users integrate the data to inform their decision making. Within the project DE373, the consortium members are working together on the development of this Quality Control concept.

Stakeholder interviews

We selected three use-cases (urban heat, flooding risk, agricultural drought) and conducted interviews with potential users of DestinE from national to local governments, academic and research institutes, consultancy companies and financial institutions. Interviews were conducted following a semi-structured approach to understand current use of climate data and role of quality control.

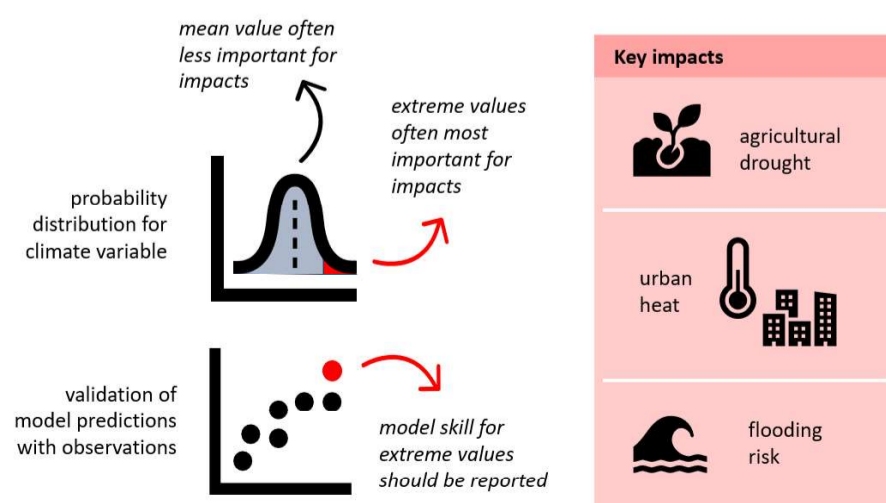
DestinE – Roadmap from TWIN to User



Skill in predicting extreme values

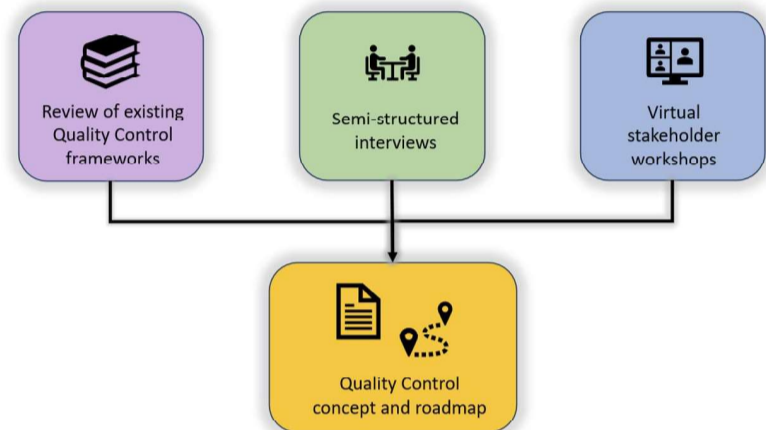
Across the use-cases, we noted that especially the skill of climate models for predicting extreme values was highly valued, because extremes are typically more important for climate impacts than mean changes in climate.

For instance, for the urban heat case, the ability of a model or DT to predict heatwaves or tropical nights (number of days with temperature remaining above 20 °C) is relevant within a policy and spatial planning context.



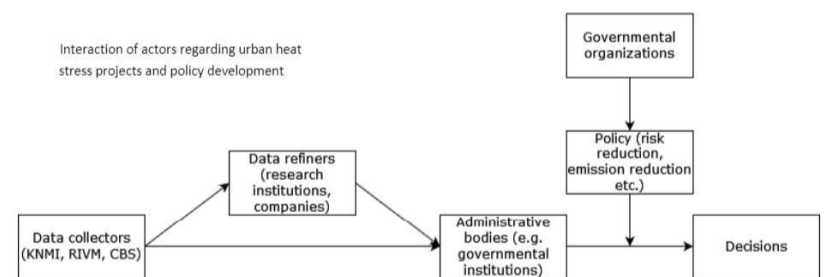
Project approach

To develop a DestinE Quality Control (QC) concept and roadmap, existing QC frameworks are being reviewed, including those from EU's Copernicus programs and selected National Meteorological and Hydrological Services (NMHSs). Additional input from potential users of DestinE is collected through semi-structured interviews. Finally, knowledge exchange between developers of DTs and potential end users is facilitated through virtual workshops.



Data flow and decision-making

We noted that potential end users of DestinE (e.g., policy makers or spatial planners) are currently receiving climate data through several data providers. In many cases key processing steps of climate data occur before potential end users see the data, effectively distributing decision-making over different organizations. An interactive DT could enable users to take more control and take better informed decisions



Specific use-case requirements

There exist large differences between requirements of climate data or DTs for different use-cases. Within the urban heat case, there is a demand for high-spatial resolution at the street level, which is less critical for the other two selected use-cases.

