



## **Quality control and homogenization benchmarking-based progress from the INDECIS Project.**

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The project “Integrated approach for the development across Europe of user oriented climate indicators for GFCS high-priority sectors: agriculture, disaster risk reduction, energy, health, water and tourism”, INDECIS, has as a core part of its development a Work Package dedicated to the improvement of quality control and homogenization techniques based on benchmarking approaches.

INDECIS is working in the improvement of quality control (QC) and homogenization techniques at the daily scale for the variables contained in the European Climate Assessment and Dataset (ECA&D). In particular, the project is using two test regions (Slovenia and South Sweden), which contain high density and quality data suitable for benchmarking purposes.

The benchmarking process will be conducted following the usual steps: creation of the homogeneous worlds, introduction of quality control problems/inhomogeneities, application of quality control and homogenization approaches and validations of the results.

The creation of the homogeneous worlds is done using Regional Climate Models and Reanalysis Data to extract the long-term signals. The introduction of quality control problems and inhomogeneities is approached studying the selected regions of the ECA&D dataset: first, the frequency of QC issues and breakpoints will mimic the frequency of such problems encountered in the current operational procedures of the ECA&D dataset. The shape of the inhomogeneities, which represents a serious drawback to the attempts of benchmarking at the daily resolution, is resolved using parallel measurements, both obtained from other datasets (e.g. ISTI-POST) or created by swapping segments of neighboring stations. The application of available techniques is centralized with the ProClimDB software, plus other stand-alone codes. Finally, a battery of validation measures will be applied to identify the most suitable approaches for each variable. The last step will be an analysis of the uncertainty introduced by the homogenization procedures.

INDECIS’ work on homogenization is intended to be finalized by the end of 2018. In this contribution, we concentrate on the description of the processes involved in the creation of the homogeneous worlds and their corruption for benchmarking purposes.

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