EMS Annual Meeting Abstracts
Vol. 13, EMS2016-729, 2016
16th EMS / 11th ECAC

How to establish confidence into usage of climate data products?

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Climate Services providing information to policy and decision makers rely on a value adding chain that produces trustworthy information from observations and model simulations or a combination of both. In the case of observations for climate this chain has pillars that characterise the processes of taking the measurements, converting them into data records suitable to analyse climate variability and change, the usage of the data records in a specific application, e.g., in the energy sector, that extracts the information from several available data records. For each of the pillars experts or purveyors are needed that can transfer the needed information from pillar to pillar.

To deliver consistent, accurate and well documented information to policy and decision making, also considering involved uncertainties in measurement and modelling approaches, it is essential to have quality assurance measures in place that help to build confidence into the use of specific data products. But even this may not be enough because experts and purveyors judge data/information by the heuristic of reputation of the source.

A potential strategy to build reputation and by this confidence for using a specific data product could have three major elements:

- Active management of data/information user needs by structured product feedback
- Quality assurance of the processes that create the data/information
- Peer review process for the application oriented quality of the data/information

The first pillar can be addressed by systematically collecting user needs and by specific events for user groups addressing feedback from specific applications on existing data products that can be used for improvements. In addition, such events allow the consideration of evolving needs that a data producer can take up to steer its development activities. The second element can be addressed by using a so called maturity index approach such as developed in the FP7 CORE-CLIMAX and H2020 GAIA-CLIM projects and applying ISO standards. The maturity index approach tries to index different independent processes, such as scientific approach, engineering approach, and user interaction of the generation of a climate data records from observations. Doing this provides a distinct picture of strengths and weaknesses of the approach to generate data records. Peer review for the data records can be addressed by dedicated publication of data records and international data record quality assessments that involve a review by independent experts. This last element is very important to build reputation. The results achieved for each element need to be publicly available in form of publications or web based information.

The presentation will provide examples for all three elements addressing the generation of climate data records from satellite data.