



Spatial data standards meet meteorological data - pushing the boundaries

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The data archive of the European Centre for Medium-Range Weather Forecasts (ECMWF) holds around 120 PB of data and is world's largest archive of meteorological data. This information is of great value for many Earth Science disciplines, but the complexity of the data (up to five dimensions and different time axis domains) and its native data format GRIB, while being an efficient archive format, limits the overall data uptake especially from users outside the MetOcean domain. ECMWF's MARS WebAPI is a very efficient and flexible system for expert users to access and retrieve meteorological data, though challenging for users outside the MetOcean domain.

With the help of web-based standards for data access and processing, ECMWF wants to make more than 1 PB of meteorological and climate data easier accessible to users across different Earth Science disciplines. As climate data provider for the H2020 project EarthServer-2, ECMWF explores the feasibility to give on-demand access to its MARS archive via the OGC standard interface Web Coverage Service (WCS).

Despite the potential a WCS for climate and meteorological data offers, the standards-based modelling of meteorological and climate data entails many challenges and reveals the boundaries of the current Web Coverage Service 2.0 standard. Challenges range from valid semantic data models for meteorological data to optimal and efficient data structures for a scalable web service.

The presentation reviews the applicability of the current Web Coverage Service 2.0 standard to meteorological and climate data and discusses challenges that are necessary to overcome in order to achieve real interoperability and to ensure the conformant sharing and exchange of meteorological data.