



Bridging the gap between Big Earth data users and future (cloud-based) data systems - Towards a better understanding of user requirements of cloud-based data systems

Julia Wagemann^{1,2}, Stephan Siemen², Jörg Bendix¹, and Bernhard Seeger³

¹Philipps University of Marburg, Faculty of Geography, Laboratory of Climatology and Remote Sensing, Marburg, Germany
(julia.wagemann@geo.uni-marburg.de)

²European Centre for Medium-Range Weather Forecasts (ECMWF), Reading, UK

³Philipps University of Marburg, Department of Mathematics and Computer Science, Database Research Group, Marburg, Germany

The European Commission's Earth Observation programme Copernicus produces an unprecedented amount of openly available multi-dimensional environmental data. However, data 'accessibility' remains one of the biggest obstacles for users of open Big Earth Data and hinders full data exploitation. Data services have to evolve from pure download services to offer an easier and more on-demand data access. There are currently different concepts explored to make Big Earth Data better accessible for users, e.g. virtual research infrastructures, data cube technologies, standardised web services or cloud processing services, such as the Google Earth Engine or the Copernicus Climate Data Store Toolbox. Each offering provides different types of data, tools and functionalities. Data services are often developed solely satisfying specific user requirements and needs.

For this reason, we conducted a user requirements survey between November 2018 and June 2019 among users of Big Earth Data (including users of Earth Observation data, meteorological and environmental forecasts and other geospatial data) to better understand user requirements of Big Earth Data. To reach an active data user community for this survey, we partnered with ECMWF, which has 40 years of experience in providing data services for weather forecast data and environmental data sets of the Copernicus Programme.

We were interested in which datasets users currently use, which datasets they would like to use in the future and the reasons why they have not yet explored certain datasets. We were interested in the tools and software they use to process the data and what challenges they face in accessing and handling Big Earth Data. Another part focused on future (cloud-based) data services and there, we were interested in the users' motivation to migrate their data processing tasks to cloud-based data services and asked them what aspects of these services they consider being important.

While preliminary results of the study were released last year, this year the final study results are presented. A specific focus will be put on users' expectation of future (cloud-based) data services aligned with recommendations for data users and data providers alike to ensure the full

exploitation of Big Earth Data in the future.