



C3S Climate Data Store: Enhancing open access to Climate Data and Services (EMS Technology Achievement Award 2019)

Cedric Bergeron, Baudouin Raoult, and Angel Lopez
members of the CDS team at ECMWF, UK

Copernicus is a European system for monitoring the Earth. The European Commission (EU) entrusted ECMWF with the implementation of the Copernicus Climate Change Service (C3S) which provides information to increase the knowledge base to support Climate adaptation and mitigation policies.

The Climate Data Store (CDS) constitutes the core infrastructure supporting the implementation of the C3S. It contributes to the provision of Essential Climate Variables (ECVs), climate analyses, projections and indicators at temporal and spatial scales relevant for various sectoral and societal benefit areas. The CDS is designed as a distributed system and open framework, providing improved access to a wide catalogue of datasets via a powerful service-oriented architecture. It offers seamless web-based and API-based search and retrieve facilities to access climate data and information.

In addition, one of the major features of the CDS is the provision of a generic software toolbox that allow users to develop web-based applications making use of datasets available in the CDS. The variety of data types, data formats, as well as large data volumes, makes their combined use highly challenging. The toolbox abstracts the physical location of the datasets, their access methods, formats, units, etc. allowing applications developers to focus on algorithms. The toolbox provides a series of state-of-the-art data tools to perform basic operations on the datasets, such as differences or re-gridding, as well as statistical computations such as means or standard deviations; tools can be combined into more elaborated workflows, and present results graphically on the CDS web site in the form of interactive applications required to analyse, monitor and predict the patterns of both the climate drivers and impacts.

After one year in operation, more than 14k registered users and near 7PB of data delivered, the aim of this presentation is to guide the audience through the past and present of the CDS and its Toolbox to enhance them in a common future.

CDS is available at: <https://cds.climate.copernicus.eu>