EMS Annual Meeting Abstracts
Vol. 16, EMS2019-528, 2019

FAIR – User-friendly provisioning of Climate- and Weather Data

Richard Figura (1), Frank Kaspar (2), Jan Keller (2), Till Adams (3,4), Miriam Felkers (5), Bernd Fischer (1), Marcus Handte (6,7), Pedro José Marrón (6,7), Hinrich Paulsen (3,4), Jochen Schiewe (8), Marvin Schuchert (9), and Richard Wacker (10)

(1) CISS TDI GmbH, Sinzig, Germany (r.figura@ciss.de), (2) Deutscher Wetterdienst, Offenbach, Germany (jan.keller@dwd.de), (3) terrestris GmbH & Co. KG, Bonn, Germany (adams@terrestris.de), (4) mundialis GmbH & Co. KG, Bonn, Germany (paulsen@mundialis.de), (5) BayWa r.e. Wind GmbH, München, Germany (miriam.felkers@baywa-re.com), (6) Universität Duisburg-Essen, Essen, Germany (pjmarron@uni-due.de), (7) Locoslab GmbH, Bonn, Germany (handte@locoslab.com), (8) HafenCity Universität Hamburg, Hamburg, Germany (jochen.schiewe@hcu-hamburg.de), (9) KME Karlsuhe Marketing und Event GmbH, Karlsruhe, Germany (schuchert@karlsruhe-event.de), (10) YellowMap AG, Karlsruhe, Germany (richard.wacker@yellowmap.de)

The quote ”Data is the new oil” most clearly describes the increasing impact of information on our society and economy. One particularly valuable source of information in this regard is climate and weather data, which is instrumental in safeguarding of traffic and transportation, the optimisation of industries, the identification of potentials and risks of climate change and the development of corresponding adaptation and mitigation strategies. However, a correct understanding and handling of such data is often difficult for users without a meteorological background. Furthermore, processing and analysing this data is a challenging task that requires specialised software solutions and an infrastructure that is able to deal with huge data sets. This is a critical issue since almost 60% of the economic value in the EU is provided by SMEs[1], which do neither have the resources nor the knowledge to process weather and climate data efficiently.

Here we present FAIR, a new research project supported by the German Federal Ministry for Transport and Digital Infrastructure (BMVI) with 2.5 Million Euros. The goal of FAIR is to simplify the information exchange between the German national meteorological service (Deutscher Wetterdienst, DWD) and the economical- and public players using exemplary applications from various areas. For this purpose, FAIR defines a set of federated micro services for processing, visualisation and analysis of meteorological data. An Infrastructure as a Service (IaaS) allows small companies (or even individuals) to access these resources on demand. Further services target the extraction of specific information from model data (such as COSMO) and the conversion of the result into common formats (like GeoJSON) or the provision of the same data in OGC compliant geoservices (such as WMS/WFS) or services defined by the W3C (like SOAP or SPARQL). Assembling these kind of micro services allows us to support different kinds of applications while, at the same time, being able to acquire data from third parties and provide it to a weather service (e.g. for data assimilation).

To demonstrate the benefits of these micro services, three test scenarios are envisioned: 1) the planning of wind farms, 2) the integration of meteorological data for individual traffic routing and 3) the planning of social events, such as festivals. Three additional scenarios demonstrate data acquisition and provision by users: 1) crowdsourced sensing data coming from individual smartphones, 2) processed raster data coming from MODIS LST and 3) telemetry from airplanes.

[1] Europäische Mittelstandspolitik - Eine kritische Bestandsaufnahme, Institut der deutschen Wirtschaft Köln, IW-Analysen 116, 2017