



## **The Road to Democratizing Data – Opening of Data, Source Code and Infrastructure at FMI**

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Data is valuable only when it is used. Giving end-users access to data and means to analyze it, breeds innovation as people from different backgrounds gains insights from data in new ways.

MetOcean data comes in huge volumes, and often in such complex formats, that it is near impossible to use or understand outside MetOcean community. As organizations seek to decentralize decision-making and increase responsiveness, they are seeking to empower staff by providing easy access to data in every level. Opening data involves not only data itself but tools to analyze and visualize it. In the time of cloud services organizations of any size or even individuals can now have access to computing resources previously not possible. These resources and infrastructure can now be easily defined as code and opened for any users.

At Finnish Meteorological Institute (FMI) first step was to open data in machine readable format. FMI Open Data API has been available since June 2013. To have good technical accessibility the FMI Open Data Portal provides INSPIRE and OGC services such as Catalog Service for Web (CSW), Web Map Service (WMS) and Web Feature Service (WFS) to find, view and download the data. Data formats provided follows OGC Observation and Measurement (O&M) guidelines and INSPIRE specifications. Beyond INSPIRE requirements, more compact data formats are provided for users requiring better performance.

Second step has been opening the tools and source code. After gaining access to data users need tools to analyze and gain actionable insights from data and make more informed decisions. Opening the source code and software started with SmartMet Server. It is a data and product server for MetOcean Data. It has been basis of both FMI INSPIRE and Open Data portal since 2013. Several software components have been identified and will be released including HIMAN post processing tools and SmartMet Workstation to analyze and visualize data.

Third step will be to open infrastructure as code. This enables anyone from individuals to small and big companies to run needed IT-infrastructure at desired scale in a way that has not been previously possible. Services which now serve both FMI's customers and open data users will run also in the cloud environment. Definition of this infrastructure will be provided as open source.

There has been significant growth of developers using FMI Open Data since 2013. Data has been used in new innovative ways and combined with information from other sources. It has allowed companies have more open access to include information to their decision-making processes. Open data has also boosted government efficiency allowing easier use of information between government agencies.