

EGOWS 2019

Summary of presentations

ECMWF update and European Weather Cloud, Stephan Siemen, ECMWF

The talk will give an update on the various projects we currently have at ECMWF. This includes the move to Bologna and the pilot of the European Weather Cloud.

IT-migration KNMI, René Joosten, KNMI

An overview of the IT-migration at the KNMI, from local computers to the cloud.

ADAGUC Open source visualization, Maarten Plieger, KNMI

ADAGUC is an Open Source geographical information system to visualize scientific data formats like NetCDF, HDF5, CSV and GeoJSON over the web. Supported file formats are “true color netCDF” for satellite imagery, structured grids, curvilinear grids, satellite swaths, point observations, point timeseries and polygons stored in GeoJSON. The software consists of a server-side C++ application and a client-side JavaScript application. It uses OGC Web Mapping and Web Coverage standards for data dissemination and OGC Web Processing for data analytics. Web clients like GoogleMaps, OpenLayers and Leaflet are supported and can directly use the exposed webservice. ADAGUC is used in numerous projects like KNMI GeoWeb, KNMI Data Centre, IS-ENES Climate4impact, CLIPC and C3S-34a lot 2 Magic.

ADAGUC has a number of data converters and data post processors to support various data conventions. Datasets consisting of several netCDF files can be aggregated into a single dataset and are offered over WMS, WCS and OPeNDAP. Any number of dimensions are supported (e.g. time, elevation, ensemble member, threshold, reference times) , and it can update and aggregate data on an operational webservice. ADAGUC can be used as a component for Web Processing Services to subset data and convert GeoJSON to grids. Latest developments include tiling of huge satellite imagery like HIMAWARI and NOAA GOES-16 to provide interactive zooming and panning while running an animation loop.

In the KNMI GeoWeb project we are building a new and open web based meteorological working station to support operational weather forecasting. ADAGUC is used to provide real-time visualization and animation loops of satellite imagery in combination with observations from automated weather stations and predictions from weather models. The frontend is built using ReactJS, a JavaScript library for building user interfaces and integrates ADAGUC-viewer as a component.

Results and lessons learned will be presented at the conference.

OGC WCS using Open Weather, Jozef Matula, IBL software engineering

GeoWeb project, Rutger Boonstra, KNMI

Overview of the GeoWeb project, the new meteorological workstation of the KNMI and other associated institutes.

Metview in a Pythonic World, Iain Russell, ECMWF

Metview's Python interface is proving to be a popular way of processing and visualising ECMWF's data. This talk will summarise the development and look at new avenues that have been opened up thanks to Python.

Autotext, Jürgen Schulze, MET Norway

Autotext is a system to create automated text forecasts, based on model output, over sea areas. The development of the system is driven by an iterative process, in close dialogue with norwegian forecasters. This talk will focus on the experiences of this process.

A binned-weight approach to Barnes interpolation, Anna O'Faoláin de Bhróithe, DWD

Barnes interpolation is a weighted-averaging interpolation scheme for the analysis of randomly-spaced data. The irregularly-spaced observations are interpolated to a regular target grid for plotting and visualisation. As every observation affects the interpolated value at each point of the target grid, very many calculations are required to produce the final result and the processing power of modern computers is easily negated by the increasing number of observations as well as the use of high-resolution screens, which in turn determine the size of the target grid for the interpolation. This presentation discusses a discretisation procedure to drastically reduce the processing time, making Barnes interpolation feasible for on-the-fly analysis in an interactive user environment.

Forecasting tools across borders, a Synergie history, Stéphane Bigot and Frank Guibert, Météo-France

SYNERGIE-WEB provides a dedicated integrated environment for meteorological forecasting. The system enables real-time meteorological data management and quick analysis of the meteorological situation thanks to combined data display and multi-screen configuration. Through a brief history and an inventory of the 2019 situation, we will present the latest outputs of the Synergie-Web software showing figures, images and animations. Interoperability through its military extension and performance through substantial projects will be detailed.

Collaborative SIGMET editing integrating between Visual Weather and NinJo, Jan Korosi, IBL Software Engineering

The harmonization of SIGMET between different countries is getting much more important nowadays. The cooperation of Single European Sky members can be enhanced by direct collaboration between forecasters while issuing the SIGMETs for corresponding FIRs. The demonstrated solution integrates NinJo and Visual Weather systems' forecast workflow.

On-the-fly, hybrid-seeded streamline calculation Anna O'Faoláin de Bhróithe DWD

Streamlines are a common representation of vector data such as wind or ocean currents. However, it can be a challenge to produce a set of streamlines that sufficiently describe the underlying vector field, are aesthetically pleasing, and are performant enough to be generated dynamically, e.g., in an interactive user environment. In the approach described here, streamlines are generated with a hybrid seeding model: a starting grid of uniformly distributed seed points is dynamically extended (non-uniformly) as each new streamline is calculated, resulting in evenly-spaced streamlines across the map area. Routines are also included to prevent streamlines bouncing in discontinuous regions of the vector field or forming closed loops or tight spirals.

Deviating from the standard development process to facilitate evaluation: Examples and experiences, Marcus Werner, DWD

Our meteorological workstation system NinJo is developed based on the requirements of key users. We apply both agile and traditional methods to drive our development efforts. One of our principal goals is to walk into the direction expected by our users. However, the process of capturing, documenting, and understanding new requirements is difficult: it often leads to surprising results, requires long rework iterations, or delivers new functionality in unacceptable timelines. At the same time, being able to deliver prototype results quickly seems to be more important than

the documentation-based approach. Delivering prototypes in an early stage and with low bureaucratic overhead also helps to involve users into the development process, and it supports them to formulate their requirements in a more goal-directed manner.

Thus, we experimented with alternative approaches to deliver functionality to our users and to collect information from the system itself to advance of the “non-functional” characteristics of our platform.

MetWork, an opensource framework for building Linux production systems in Meteorology, IoT or other domains, Fabien Marty, Météo-France

MetWork (as METeorological frameWORK) was originally built by Météo-France as the core of its "cloud ready" new weather forecasting workstation: Synopsis.

As this framework was successful internally, even for developing things far away from its original domain, we released it recently as an independent product under a very permissive BSD license and we maintain it through a truly open process on public GitHub.

It is very difficult to collaborate internationally on complex business tools like Synopsis. But this "server side" modular framework has maybe the good size (not too big, not too small) to build an open community around it. As the product is already a success in Météo-France, we are now ready to work with you to achieve this exciting goal !

Summary of demonstrations

EcCharts and Metview, Stephan Siemen & Iain Russell, ECMWF

Will show ecCharts and Metview in operation.

SmartMet meteorological Workstation, Jesse Heikkilä, FMI

Demonstration of the features and the usage of the SmartMet workstation.

From an idea to a "production ready" system with MetWork Framework (presentation demo)

Fabien Marty Météo-France

From an idea to a "production ready" system with MetWork Framework.

Demonstration of SmartMet aviation message tool, Johanna Ruotsalainen, FMI

SmartMet aviation message tool is a new editor for sending TAFs and SIGMETs in IWXXM and TAC (text) format. Forecasters can easily generate and monitor TAFs and distribute workload between field offices with the Java-based tool developed by FMI.

NinJo in operations, Andreas Höfer, DWD

Demonstration of NinJo in operation.

Visual weather 5 cloud, Michal Weis, IBL software engineering

Visual weather 5 in operation.

Diana, Lisbeth Bergholt, MET Norway

The current Norwegian meteorological workstation.

Demonstration of ADAGUC server and viewer, Maarten Plieger, KNMI

We will show how to configure your own data in the system and make an animation loop.