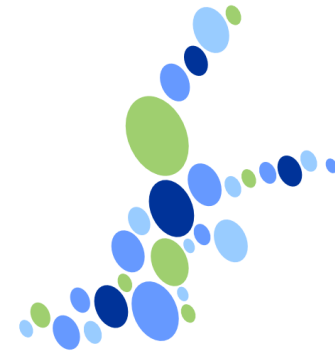


baltrad



BALTRAD application for nuclear safety: BALTRAD WMS

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Radiation and Nuclear Safety Authority STUK

BALTRAD+ User Forum IV, Berlin, 22 November 2013



STUK's role during nuclear or radiological emergencies

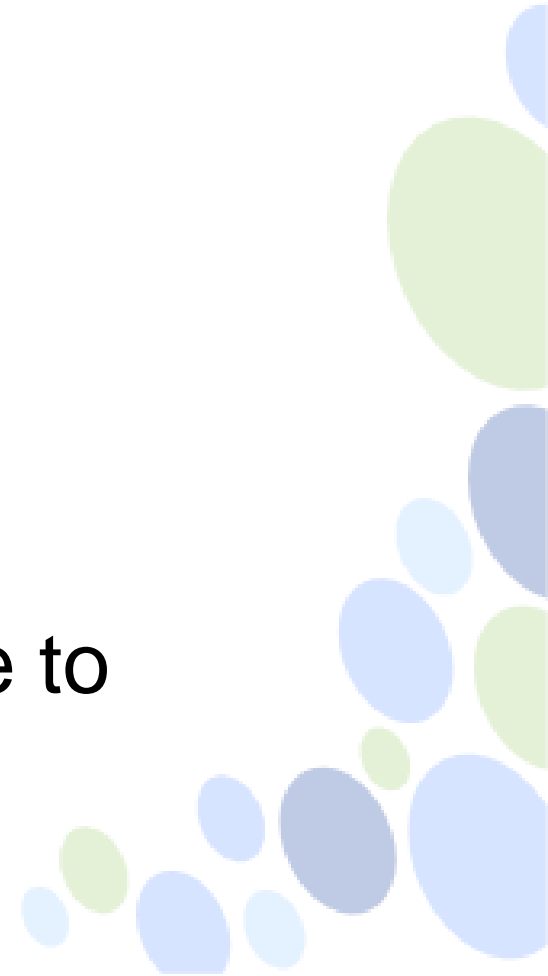
- To create and maintain an overview of the radiological situation
- STUK is responsible authority for making protective recommendations for the public and for other authorities
- Recommendations are based on analyses of the threat and estimations of development of situation (**weather**, situation at the accident site, information received from others etc.)

The importance of Weather considering radiation protection

- Wind field and turbulence determine dispersion conditions
- Rain affects strongly on the deposition
- Poor weather - heavy rain, strong wind - may prevent certain types of radiation measurements (e.g. those performed with airborne platforms).
- Rain data is useful also in routine situations because it helps to interpret higher-than-normal background radiation levels.

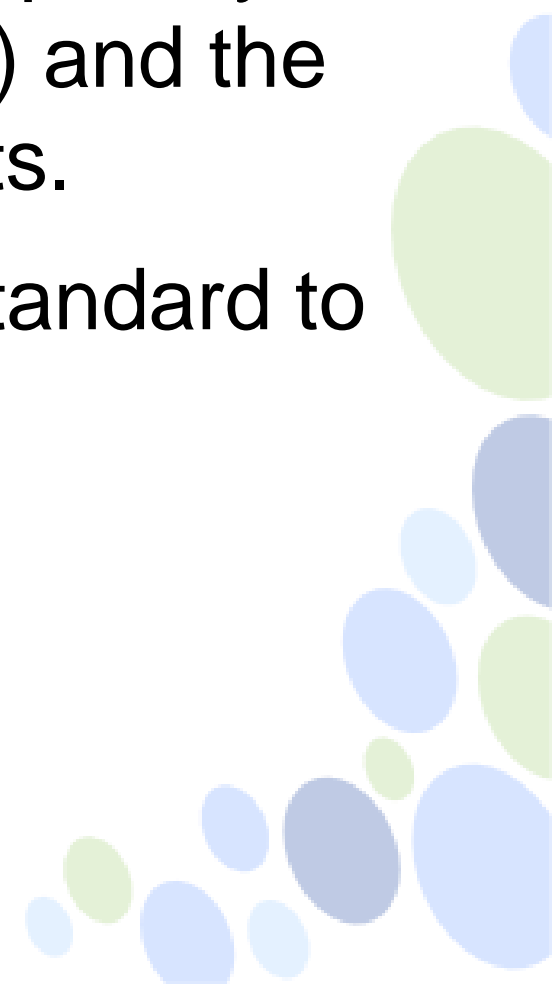
Using of radar data in STUK

- Systems of STUK use WMS protocol to serve all kinds of georeferenced data using Web GIS interface
 - Weather (observations, NWP)
 - Dispersion models
 - Measurements
 - Etc.
- STUK has developed WMS interface to visualize BALTRAD data



BALTRAD WMS package: General

- WMS is a standard protocol for serving map images over the Internet. It is developed by Open Geospatial Consortium (OGC) and the protocol is supported by many clients.
- WMS/WFS is EU Inspire directive standard to provide any geospatial information



Experiences in STUK

- Integrated to collaborative emergency management software "TIUKU" and dose-rate monitoring network web interface "USVA"
- Has been running for over two years operationally in STUK



Technical specifications

- Independent of BALTRAD node
 - Only HDF5/GeoTIFF files are needed for data input
- Python scripts based on Mapserver software
 - Visualization script
 - Data converter script (from H5 to GeoTIFF raster image)
 - Sample scripts for data exchange also included



BALTRAD WMS package

Development in 2013

- Data storage changed from text file to database
 - Multiple write access allowed, any major DB engine supported
- Added support for serving data using GeoTIFF files only
 - Requirement: Data is stored in GeoTIFF and data projection is known (PROJ4 string/EPSSG code)
 - Case: FMI Open radar data (other met institutions in the future too?)
 - Script for fetching and storing FMI Open data included

BALTRAD WMS package Development in 2013

- Improved colour scales
 - Scales taken from FMI Open Development project
<https://github.com/fmidev/opendata-resources>
- Improved configuration options
- Added WSGI script in addition to Python CGI
 - More efficient memory handling



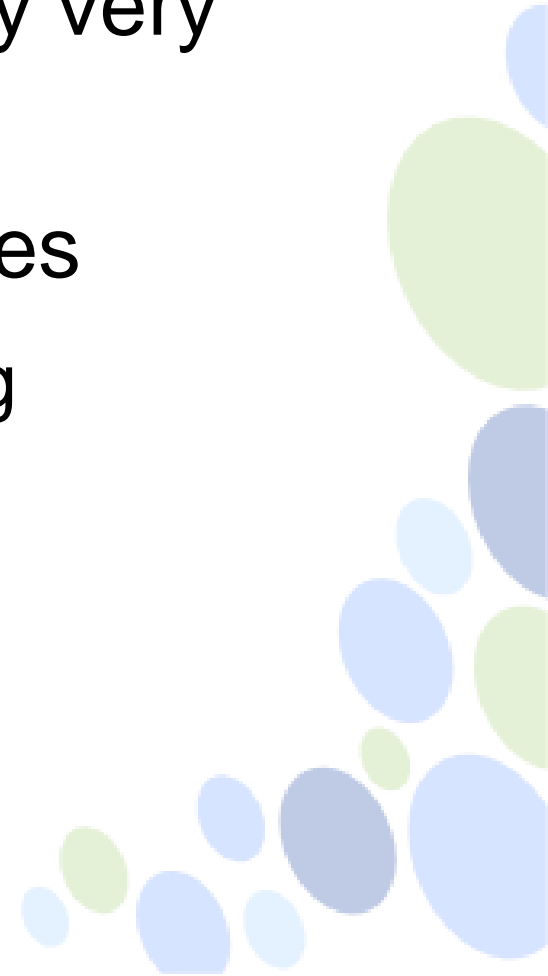
Things TODO during 2013

- Documentation
 - Installation, configuration, deployment etc.
- Updating to GIT repository
 - <http://git.baltrad.eu/git/?p=baltrad-wms.git>
- More comments and cleanup for the source code
 - Not very much code
 - Based mostly on 3rd party libraries



BALTRAD WMS development beyond BALTRAD+ project

- STUK will continue maintaining of the package as long it is in use by STUK (probably very long)
- Mostly bug fixes and compatibility fixes
 - 3rd party libraries may break something
 - Data formats can change



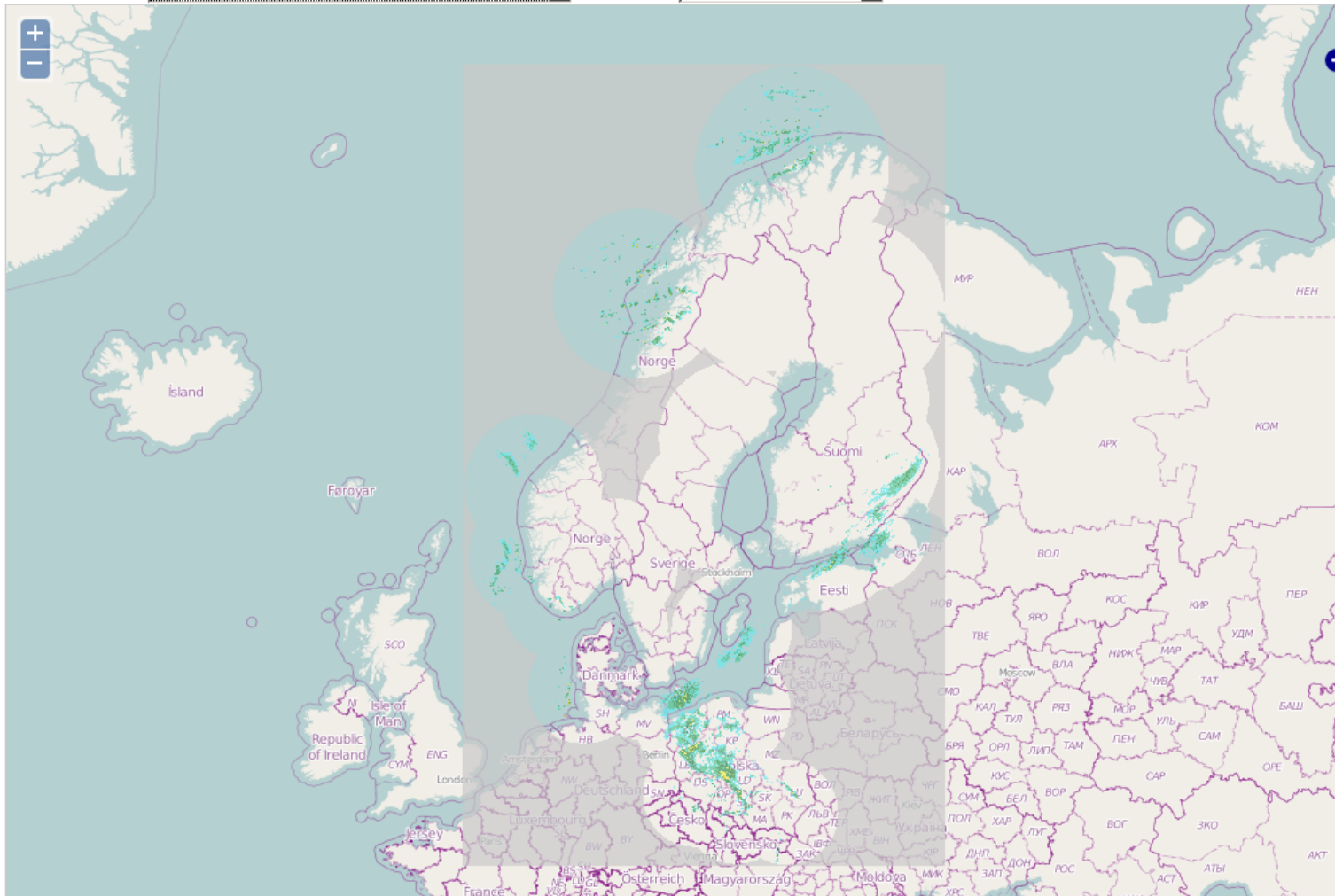
Demonstration



Demo distributed via GIT

Baltrad WMS demo

Choose product: Timestamp:



- dBZ
- very heavy
- very heavy
- very heavy
- very heavy
- very heavy
- heavy
- heavy
- moderate
- moderate

Click map to get values.

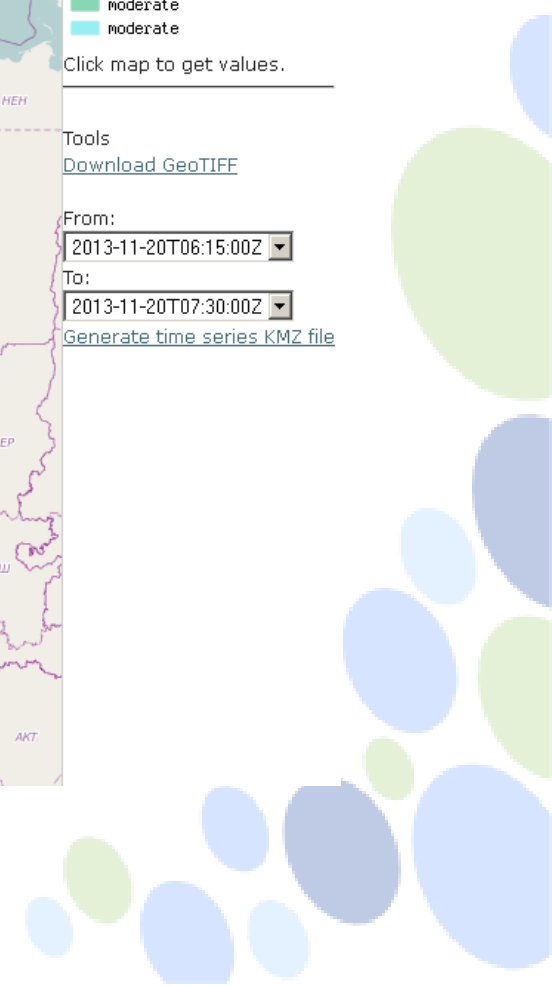
Tools

[Download GeoTIFF](#)

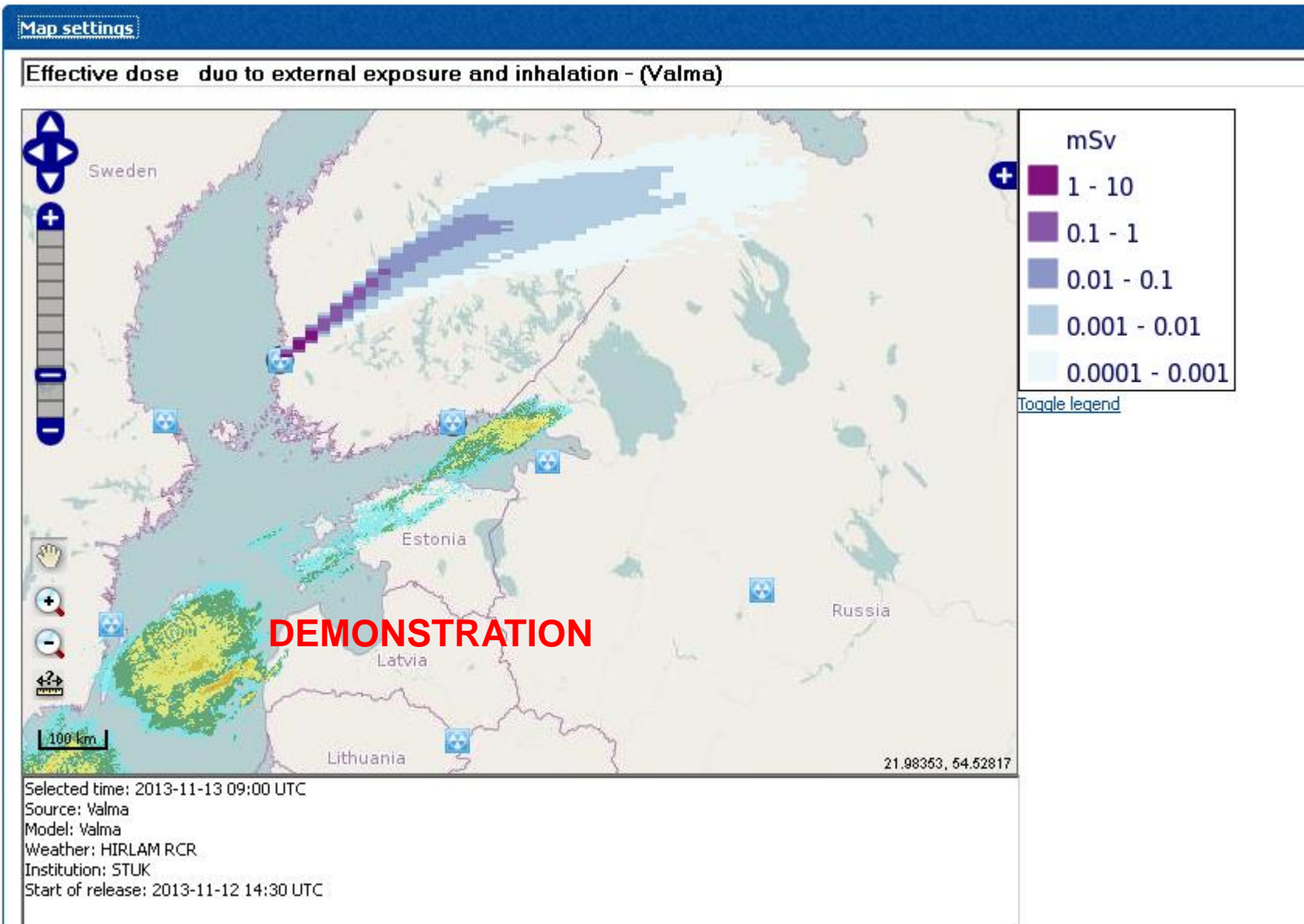
From:

To:

[Generate time series KMZ file](#)



TIUKU: Dispersion model and radar



Dose-rate monitoring network results with radar

