
baltrad Newsletter

January 2011

An advanced weather radar network for the Baltic Sea Region

The innovation lies in the development of an ICT network architecture which allows real-time data exchange and processing of weather radar data using common methods according to local needs in each country.

Highlights: BALTRAD now, The BALTRAD System, End-user event in Aalborg, BALTRAD in Minsk.

BALTRAD now

The project is now in the second half of its lifetime. After the initial stages of conceptualizing the product and starting the developments, the first tangible pieces of software that prove the concept and show its applicability in practice are now in practical use. The second release of the BALTRAD software is in operation and partners are feeding their weather radar data into the system. The results are encouraging and have been presented to the user community.

The first event where the progress has been presented was the so-called "End User Event" that took place on 26th October 2010 in Aalborg, Denmark. The workshop attracted nearly 50 participants that contributed to the success of the event. The BSR programme encourages projects to include partners from Belarus. BALTRAD has taken this opportunity and included the Republican Hydro-meteorological Center in the project. The cooperation with the colleagues in Minsk was intense in the second half of 2010; the progress made is promising.

The BALTRAD System

The BALTRAD system is evolving in small but significant steps. The team is doing this according to the principle of agile software development, where the system grows organically but through disciplined and well-organized methods. Agile software development implies that new functionality can be implemented in relatively short time, and it is tested and verified to ensure that it meets the project's needs. If new functionality does not work out, the development cycle ensures that it will be replaced quickly with functionality that will work.

Applying this concept, the BALTRAD system now includes functionality for data exchange, managing a catalogue of data, and scheduling of various activities. Data processing is being organized through a concept which we refer to as the "toolbox". In practice, the project is collecting contributed data processing algorithms and making them available in a harmonized way. This means that all projects partners, and inevitably all organizations that run our system, have access to the same collection of algorithms and may use them in ways that suit them best. The toolbox itself is designed to facilitate the application of the various algorithms, but the use of the algorithms themselves is decided locally in each country. This is the power of the decentralized BALTRAD concept: everyone has the same toolbox with the same tools in it, but the use of the tools is not dictated centrally.

Users of BALTRAD data and products are already benefitting from the advanced software being developed. A prototype visualization portal, illustrated in Figure 1, is being made available as part of the system. Other methods of product visualization can also be made available in the BALTRAD toolbox and used locally to support local end-user needs. According to the agile principles described above, more products will be added to this front end, which means they will be instantly available to the users. We look forward to receiving feedback that will help us improve our services.

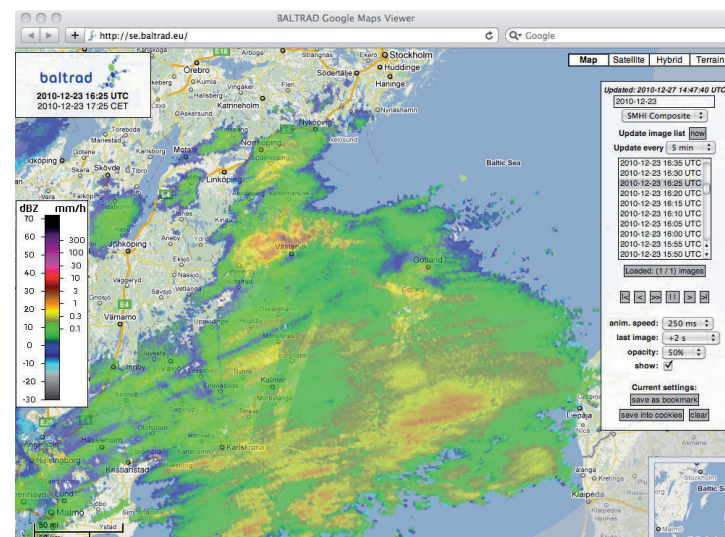


Figure 1. BALTRAD prototype product visualization using Google Maps. The weather illustrated here is from 23 December 2010 at 17:25 Central European time. Snow storms are impacting the Swedish islands of Gotland and Öland, along with the east coast. This date is one of the most intense traffic days of the year, and the weather affected roads, railways, ferries, and air traffic negatively. This front end requires only a Javascript-enabled browser, e.g. Firefox, Chrome, OPERA, and Safari, making it very easy to deploy and maintain.

End user event in Aalborg

The BALTRAD workshop “Improved use of information from weather radar in transport, public safety and recreation sector” was held on 26th October 2010 at Aalborg University, Denmark. It attracted nearly 50 participants. The workshop was geared to inform about the project and its products’ use in customized applications that can be of value when local and regional bodies want to improve their services for citizens.

The first part of the workshop presented the project structure, data quality issues, radar technology, radar data visualization, etc. During the second part end users presented their experiences with weather radar data implementation and the evaluation and interpretation of these data. The cases presented were: “Local Area Weather Radar (LAWR) System to Approve Drainage Systems Capacity and Case Study from Egedal”, Denmark; “Local Area Weather Radars in Denmark”, Denmark; “Experience with Radar based Flow Forecasts in Waste Water Systems”; “Road Construction and Traffic Applications”, Denmark; “Modelling the atmospheric migration of radio nuclides with use of the information of radar in case of emergency situation”, Belarus. A key element of the event was the interaction between the project and users on their specific needs and expectations from the BALTRAD project. The key findings were:

1. There are cases where raw radar data are more important for end-users than “cleaned data” after processing by the BALTRAD system. It depends on the needs of a user what kind of data to deliver.
2. To some users, instead of receiving particular products, it is more important to get a “toolbox” in which the data are available together with tools for visualization and analysis and methodologies for the data interpretation.
3. An interface dedicated to end users should be able to work with Google Maps, but the “toolbox” approach will allow other ways of data visualization too.

The results of the workshop gave the BALTRAD team a deeper insight in the end users’ expectations. BALTRAD will intensify the contacts with end users.

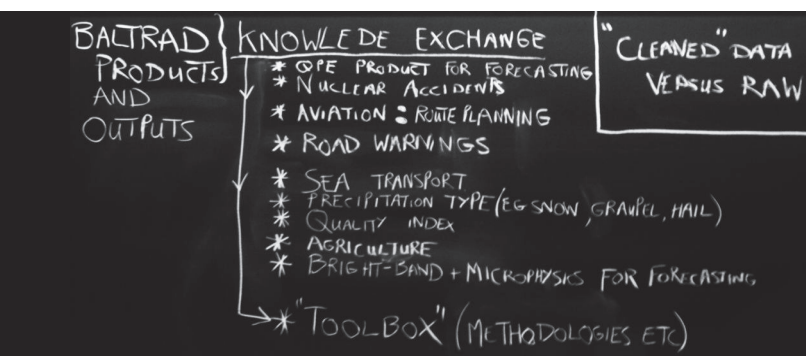
BALTRAD in Minsk

Two project meetings were held in the Republic of Belarus during the autumn of 2010. The first of these was an administrative meeting designed to gauge our project partner's ability to participate in the project despite the administrative challenges that have presented themselves. It should be noted in this context that BALTRAD is in many ways a pioneer project, and that achieving active participation from a partner in Belarus cannot be taken for granted. We were delighted to learn from this meeting that no obstacles presented themselves, and that we could count on the full integration of the Republican Hydrometeorological Institute in BALTRAD.

As a result of this positive outcome, a second meeting was held and this one was of technical character. Technical experts from Estonia, Poland, and Sweden visited Minsk, and we were joined by colleagues from Russia to discuss the potential for cooperation. Two full days were devoted to these meetings, and during this time we had the chance to visit both old MRL-5 and new Selex-Gematronik radars located at Minsk-2 airport. The main focus of our work was to determine how data from the new radar could be accessed and integrated into the BALTRAD network. We succeeded in achieving in-depth knowledge of how the new radar is managed, and how a technical integration of its data can be achieved. We also had a wonderful time thanks to the generous hospitality of our local hosts. We now look forward to realizing data exchange between Belarus and the other BALTRAD partners.



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Figure 2. Gathering Ideas at the Aalborg Workshop.