

INFROM: results of the scientific cooperation for monitoring the cross-border Natural-technological systems

In May 2014 the INFROM project was officially finished, therefore the main outcomes of the Project can be summarized. During two years of scientific cooperation between project partners, namely Riga Technical University (Latvia) and St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences (Russia) scientific research in a variety of monitoring technologies and methods resulted in the development of an integrated platform for monitoring natural-technological systems (NTS) based on processing and analysis of heterogeneous data received from space and ground-based facilities and its approbation for different applications.

The novelty of the scientific development within the project implementation is cross functional application of combined methods and algorithms for supporting decision making in various monitoring problems, including forecasting and safety control of complex objects. Following are the main outcomes of the project:

1. Intelligent technologic platform is developed for synthesis of integrated real-time monitoring and control systems; it includes methods and models for analysis and synthesis of monitoring and control systems based on ground-space data, techniques for adaptation of NTS ground-space monitoring technologies for different economic cases, for example, flood forecasting, oil pollution monitoring and prediction of forest fires; as well as techniques for automatic analysis and synthesis of an NTS monitoring programme.
2. Infrastructure of the integrated distribution network implementing a unified approach to monitoring and control of complex systems including natural, technological, economic and social elements is elaborated. The developed software prototype allows automated generation and processing integrated data information and knowledge of NTS for the analysis of the current changes based on the modelling of the possible scenarios by means of a geoinformation platform.
3. A variety of approbation studies for the municipalities in Latvia and Russia demonstrated the functionality of the developed platform for the following cases: operational flood forecasting and modelling in Latvia, evaluation of forest fire protection and state monitoring in Madona district in Latvia and Pskov Region in Russia, estimation of ecological states of water basins based on analysis of Lubana Lake's overgrowing in Latvia and pollution of the Gulf of Finland in Russia, aerospace-ground monitoring of the nature use and tourism recreation objects. Approbation studies raised a high interest among municipalities in both countries. The particular interest in Latvia was on a social action "Daugavpils against floods" in April 2013 which demonstrated benefits of the developed platform application for short term flood forecasting by using the crowd-sourcing technology.
4. To ensure the sustainability of the project results, the particular focus was on the capacity building resulted in development of an international research and education institution network and related training facilities. In total, 40 representatives of municipalities and academia were trained. Important is also the established collaboration among project partners and target groups during trainings, seminars and social activities.
5. The project results and approbations studies were demonstrated at a number of international scientific conferences. At the Final project conference in February 2014, the representatives of the target groups in Latvia and Russia Municipalities (Daugavpils, Madona, Riga and St.Petersburg) as well as project associated partners (Committee on IT and Communications of the Government of St. Petersburg, Russia; Latvian Transport Development and Education Association, Riga, Latvia; Diplomatic Economic Club, Riga, Latvia) highlighted the actuality of the project results for supporting decision making at municipalities and emergency services. The high assessment of the project results by target groups is documented in reports with a positive feedback.

The successful cooperation between project participants toward achieving the project objectives gave the synergetic effect in exchanging the knowledge and information, as well as in expanding the level of expertise in the field of monitoring cross-boarder natural-technological systems.

The achieved results would not be possible without active participation of the target groups, as well as the permanent highly professional support of the Joint Technical Secretariat officers!

Project participants express their gratitude to everyone who contributed to the implementation of the INFROM project!



INFROM Project ELRI-184
"Integrated Intelligent Platform for
Monitoring the Cross-Border
Natural-Technological Systems».

IMPLEMENTED BY RTU



Estonia – Latvia – Russia Cross Border Cooperation Programme within the European Neighbourhood and Partnership Instrument 2007-2013 financially supports joint cross border development activities for the improvement of the region's competitiveness by utilising its potential and beneficial location on the crossroads between the EU and Russian Federation.

The Programme web-site is www.estlatrus.eu.