

# **RSMC Obninsk report of activities for 2014**

## **Executive Summary**

Primary activities for 2014 consisted of the RSMC exercises conducted by IAEA and incremental updates and improvements to the response procedures. In addition, enhancements have been made to the RSMC job procedures and software, as well as improvements in the underlying dispersion model used. The Provisional Technical Secretariat (PTS) of the Comprehensive Test Ban Treaty Organization (CTBTO) made both operational and planned requests for inverse modelling support by RSMC Obninsk from January to June and in August, November and December.

### **1. Introduction**

The Federal Environmental Emergency Response Centre of Roshydromet (FEERC of Roshydromet) is designated by the WMO as the Obninsk Regional Specialized Meteorological Centre (RSMC) for the provision of atmospheric transport model products for environmental emergency response. The region of responsibility is WMO Regional Association (RA) II, which encompasses Asia. RSMC Obninsk performs its functions jointly with RSMC Tokyo and RSMC Beijing in WMO RA II. In addition to emergency response, RSMC Obninsk contributes global inverse modelling support to the CTBTO.

### **2. Operational Contact Information**

RSMC OBNINSK  
4 Pobeda street  
249038 OBNINSK  
Kaluga Region  
Russian Federation

Business Contact:  
Dr Valery KOSYKH

Tel. Obninsk: +(7 484) 39 7 18 08  
Fax Obninsk: +(7 484) 39 4 07 04  
Email: [vsk@feerc.ru](mailto:vsk@feerc.ru)

Operational Contact (24 hours):

Tel. Obninsk: +(7 484) 39 4 49 50  
Fax Obninsk: +(7 484) 39 4 07 04  
Email: [rsmc@feerc.ru](mailto:rsmc@feerc.ru)

### **3. Exercises and routine tests**

#### **Quarterly Tests:**

The exercise, which was planned to be conducted in May, was postponed.

#### **ConvEx-2d:**

RSMC Obninsk participated in ConvEx-2d exercise conducted by IAEA on 25 November 2014. During the exercise, the draft of Joint Statement was sent to RSMC Beijing (chief RSMC in RAI) and the standard RSMC EER products were uploaded to the common web pages of websites of RSMC Washington, Montreal, Melbourne, Toulouse, Tokyo, Beijing and Obninsk.

Also transport model graphical products were sent by fax to NMHSs of the countries of RA-II.

Only 20 from 27 National Meteorological Services, registered in RA-II, were available for fax-transfer standard products. Most of the recipients did not confirm the receipt of information.

### **4. Summary and status of the operational atmospheric transport and dispersion models**

At present, the following models of regional and global atmospheric transport are used:

- The trajectory model generates a map with a set of 3-D trajectories of air masses starting at specified heights above ground level.
- The STADIUM (STochastic Atmospheric Diffusion Model) is used for modeling atmospheric transport and dispersion of pollutants (radioactive or chemical) over medium and long ranges of distances. The STADIUM is based on Lagrangian approach with turbulent dispersion simulated by a random walk technique (Monte-Carlo method). Such an approach allows applying modern parameterizations for turbulent dispersion and deposition processes. Deposition including both wet and dry deposition is computed using a deposition velocity for the dry component of the removal process and in-cloud and below-cloud removal rates for the wet deposition. The model allows considering the essential features associated with instability and non-uniformity of the atmospheric boundary layer, spatial heterogeneity of the underlying surface.

The STADIUM provides a set of spatial-temporal fields of air concentration and deposition (dry and wet) of pollutants.

### **5. Plans for 2015:**

- Continue the work with all RSMCs on using the common web page and posting their products on the RSMC mirrored Web sites.
- Improve contacts with NMHSs in WMO RA II.
- Learn to use new software for running atmospheric transport model calculations.

## References

WMO, 2014: Documentation on RSMC Support for Environmental Emergency Response. *WMO-TD/No.778*. Available online at <http://www.wmo.int/pages/prog/www/DPFSERA/td778.html>