

# **RSMC Obninsk report of activities for 2010**

## **Executive Summary**

Primary activities for 2010 consisted of the RSMC quarterly tests conducted by IAEA and incremental updates and improvements to the response procedures, and software. 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 in May, July, August and November.

RSMC Obninsk, together with RSMC Beijing and RSMC Tokyo, agreed to revise a regional arrangement titled «Memorandum of the RSMCs for EER in RA-II», which indicates the procedures to present the standard products and joint statements using e-mail connection and mirrored web-sites.

### **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 modelling in case of an 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**

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### 3. Responses and information on dissemination of products

#### i. Dissemination of products

Transport model graphical products and joint statements are posted to secure joint web pages, and faxed to relevant RSMCs and NMHCs.

Only 11 from 27 National Meteorological Services, registered in RA-II, are available for fax-transfer standard products.

#### ii. Response to requests by CTBTO-PTS

There were a total of 21 requests from the Provisional Technical Secretariat of the Comprehensive Test Ban Treaty Organization. Ten Operational requests were received in May between 4 and 28. Next requests were received July 20 and August 5. The other nine requests were between 08 and 12 November. In all cases, the products were supplied to CTBTO within a few hours of receiving the request.

### 4. Routine operations

#### Quarterly Tests:

RSMC Obninsk participated in tests conducted by IAEA. Table 1 contains summary information on these tests. The results of the tests were uploaded to RSMC Obninsk website and to Joint RSMC secure Webpage.

Month	Source location	Initiated by	WMO Regional Associations
March 24	Beznau, Switzerland	IAEA	VI
May 20	Darlington, Canada	IAEA	IV
August 19	Dukovany, Czech Republic	IAEA	VI
September 13	Koeberg, South Africa	IAEA	I
October 29	Lingao NPP, China	IAEA	II
November 18	Hamaoka	IAEA	II
November 26	Brokdorf, Germany	IAEA	VI

*Table 1: RSMC tests for 2010*

Notes:

1. The RSMCs products we also faxed to NMHSs in WMO RA II, in accordance with existing procedures.

## **Common web pages:**

RSMC Obninsk continues to maintain and update, as needed, the common web page code. In addition, RSMCs Washington, Montreal, Tokyo and Melbourne regularly post their results to the RSMC Obninsk common web page for IAEA exercises. The objective is for all RSMCs to post their products on all common web pages whenever possible.

## **5. Operational issues and challenges:**

- Contact information of some NMHSs is stale, attempts to send a fax to the indicated fax numbers were unsuccessful. All of NMHSs do not acknowledge the receipt of the fax message.

## **6. 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 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.

## **7. Plans for 2011:**

- The schedule of tests (quarterly and others) has been defined in collaboration with the IAEA.
- Continue the work towards all RSMCs using common web page and posting their results on all common web pages.
- Improve contacts with NMHSs in WMO RA II.

## **References**

WMO, 2008: 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>