

RSMC Tokyo Activity Report for 2016

Executive summary

This document outlines activities conducted by the Regional Specialised Meteorological Centre (RSMC) Tokyo in 2016 to support environmental emergency response (EER), and atmospheric backtracking. It highlights operational issues, exercises and routine tests, challenges, and plans for 2017. Major activities are summarized below.

- i) RSMC Tokyo updated its atmospheric transport, dispersion, and deposition model (ATDM) for EER in October.
- ii) The common web at RSMC Tokyo was expanded in March to present ATDM forecast results for past cases.
- iii) RSMC Tokyo participated in the WMO EER Quarterly Test for Regional Association II (RA II) in May. The centre also continued its efforts with internal tests and exercises.
- iv) In November, RSMC Tokyo examined email and fax communications with registered organizations in RA II. The results were presented to RSMCs Beijing and Obninsk, and the WMO Secretariat.

1. Introduction

In July 1997, the Japan Meteorological Agency (JMA) was designated by the World Meteorological Organization (WMO) as a Regional Specialized Meteorological Centre (RSMC) supporting environmental emergency response (EER) activities. RSMC Tokyo is responsible for providing atmospheric transport modelling (ATM) products in response to requests from the International Atomic Energy Agency (IAEA) and Members of the WMO Regional Association II (RA II). In such work, RSMC Tokyo responds jointly with RSMCs Beijing and Obninsk.

Based on the Manual on the Global Data-Processing and Forecasting System (WMO No. 485), RSMC Tokyo provides atmospheric backtracking products in response to requests for support from the International Data Centre (IDC) of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

At the 15th session of RA II held in Doha in December 2012, it was decided that Emergency Response Activities (ERA) would be launched within the region as part of activities engaged in by the Expert Group on Operational Forecasting (EG-OF). Mr. Masami Sakamoto of RSMC Tokyo was appointed as the Theme Leader in Emergency Response Activities (TL-ERA) with responsibility for (a) monitoring the provision of products and services, and (b) advising on evolving requirements for ERA operational systems and services.

2. Contact information

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3. Exercises and routine tests

3. i. Quarterly tests

RSMC Tokyo participated in the quarterly EER exercise for RA II on 17 May. The Centre distributed standard products, and a joint statement was issued by RSMC Obninsk after the arrival of a termination message from the Incident Emergency Centre (IEC) of IAEA. IEC sent a private request asking RSMCs to provide services only to the requestor, while an Early Notification of a Nuclear Accident (EMERCON/WNXX01 IAEA) was delivered via the Global Telecommunication System (GTS).

At the meeting of the CBS Expert Team on Emergency Response Activities (ET-ERA) in Buenos Aires in November and December 2015, it was decided that all RSMCs should post their products as soon as possible but not later than 36 hours after the reception of the request and that the products should be removed within 84 hours. RSMC Tokyo processed and posted its atmospheric transport, dispersion, and deposition modelling (ATDM) products for quarterly tests conducted on 16 February, 16 August, and 15 November. Tokyo's products were removed from common webs as appropriate at eight centres within 84 hours of request receipt.

3. ii. Monthly internal training

RSMC Tokyo conducted monthly internal training to maintain its operational capability for emergency response to nuclear accidents and for atmospheric backtracking.

3. iii. ConvEx-2d

The ConvEx-2d exercise was conducted on 5 October. IAEA sent no message to WMO. The manual (EPR-IEComm 2012) describes WMO's participation in the exercise as shown below.

“ This exercise is conducted once every four years on a specified announced date and lasts no more than 8 hours (elapsed time). In advance of this exercise, the IEC invites all Contact Points to participate. This exercise is conducted jointly with the WMO and is expected to involve national meteorological services.”

4. Operational issues/challenges

4. i. Email and fax test within RA II

In November, RSMC Tokyo conducted an email and fax communication test within RA II in line with the technical memorandum issued by RA II RSMCs. The results showed that 28 out of 29 registered organizations were accessible, and that 27 organizations were able to receive

email appropriately. The test results were shared with RSMCs Beijing and Obninsk, and the WMO Secretariat.

4. ii. Creation of all-product link

At an ET-ERA meeting in November and December 2015, an action item was adopted for RSMCs to include an "All products" web link on the common-web page where an archive of all past modelling results will be maintained. RSMC Tokyo set up the ATDM archive on 2 March, thereby allowing users to view ATDM test results processed by RSMC Tokyo.

5. Operational atmospheric transport model status

The status of RSMC Tokyo's operational atmospheric transport model is described in Annex 4 of WMO Technical Documentation No. 778 (WMO/TD-No. 778).

RSMC Tokyo updated its operational ATDM system for EER on 7 October, and time-integrated concentration and deposition have been calculated at 0.5-degree intervals since then. The number of tracer particles was increased to a million and the horizontal diffusion treatment proposed by Gifford (1982) was introduced. The user interpretation guide for RSMC Tokyo's product in Annex-4 of WMO/TD-No. 778 was updated on 20 October.

6. Other related matters

RA II user request survey

As part of activities conducted by RA II's EG-OF, TL-ERA Masami Sakamoto of RSMC Tokyo developed a leaflet on the WMO ERA and a questionnaire for a user request survey. The documents were reviewed by experts in ET-ERA and other relevant figures in RA II (Mr. W. M. Ma of the Hong Kong Observatory and Dr. S. Kim of NIMR/KMA), the coordinators of EG-OF and the chair of the Working-Group on Weather Service (WGWS) in RA II.

In June, the Regional Office for Asia and the South-West Pacific (RAP) in the WMO Development and Regional Activities (DRA) department distributed the leaflet to all 35 Members in RA II. RAP asked 29 registered Members to complete the questionnaire and return it to TL-ERA. For Members who did not reply by the initial deadline in July, TL-ERA asked the contact points for EER to respond to the survey. A total of 17 out of 29 registered Members (59%) had responded by November

A report on the survey was compiled by TL-ERA and reviewed by ET-ERA and RA II experts before being submitted to the coordinators of EG-OF in November. It should be noted that the seventeenth World Meteorological Congress (Cg-17) in 2015 noted this RA II user request survey and encouraged Members to actively respond [WMO No. 1157 4.1.46]. The survey results will be presented to ET-ERA members at the next meeting.

7. Plans for 2017

RSMC Tokyo remains committed to fulfilling its responsibilities as an RSMC providing ATM products as necessary. The Centre will participate in international exercises planned for 2017 to maintain its nuclear emergency response capabilities based on requests from IAEA/IEC, CTBTO/IDC and WMO RA II Members.

RSMC Tokyo continues its work on the development of an hourly 0.5-degree backtracking system in response to a request made by CTBTO/IDC at ET-ERA in 2015.

An expert from RSMC Tokyo will participate in/conduct the following activities in 2017:

- Discussions on Time of Arrival (ToA) chart specification
- Formulation of Lagrangian ATM comparisons for WMO RSMCs and related discussion at the ET-ERA meeting