

RSMC Melbourne report of activities for 2012

Executive Summary

Primary activities for 2012 were the monthly tests conducted for scenarios over Canada, the United States and Australia and the IAEA quarterly tests for scenarios over Canada, Guam (as Lead Centre), Iran and France. The Provisional Technical Secretariat (PTS) of the Comprehensive Test Ban Treaty Organization (CTBTO) made 23 requests for inverse modelling support throughout the year.

1. Introduction

The National Meteorological and Oceanographic Centre (NMOC) of the Australian Bureau of Meteorology is designated by the WMO as the Melbourne Regional Specialized Meteorological Centre (RSMC) with the specialization to provide atmospheric transport model products for environmental emergency response. The region of responsibility is WMO Regional Association (RA) V, which includes the countries: Australia, Brunei Darussalam, Fiji, Indonesia, Malaysia, New Zealand, Papua New Guinea, Philippines and Singapore. RSMCs Washington and Montréal also respond jointly in support of RSMC Melbourne in case of an event in WMO RA-V until a second RSMC can be designated for this region. In addition to emergency response, RSMC Melbourne contributes global inverse modelling support to the CTBTO's verification system.

2. Operational Contact Information

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3. Responses and information on dissemination of products

i. Fukushima Daiichi NPP accident: Cessation of routine RA-V NMHS requests

Routine trajectory and dispersion charts from a source located at Fukushima Daiichi NPP, which had been produced for the Singapore NMS since April 2011, were discontinued on 19 January 2012.

ii. Dissemination of products

Transport model graphical products and joint statements are posted to secure joint web pages, and faxed to relevant RSMCs and NMHSs. For examples of the graphical products, see Annex 4 of **WMO, 2011**.

In addition to the other RSMCs, the following RA-V member countries' NMHSs are in our email and fax lists:

Brunei Darussalam
 Fiji
 Indonesia
 Malaysia
 New Zealand
 Papua New Guinea
 Philippines
 Singapore

iii. Response to requests by CTBTO-PTS

A total of 23 requests for support were received from the Provisional Technical Secretariat of the Comprehensive Test Ban Treaty Organization between 5 January March and 8 Dec 2012. In all cases, the products were supplied to CTBTO within the allowed time limit.

4. Routine operations

Monthly Test:

RSMCs Melbourne, Montréal and Washington generally hold a joint exercise on the second Thursday of every month. In addition, RSMC Melbourne participated in four IAEA-initiated exercises during the year, one in which RSMC Melbourne was lead with support from RSMC Montréal and RSMC Washington. The table below shows the list of tests held in 2012.

Once the model products are posted to the common web pages, an email and fax is sent in English to the relevant RSMCs, the NMHS contact points in WMO RA-V, the IAEA and WMO. The email contains login information to retrieve the RSMC products from the common web pages.

Month	Source location	Initiated by	RSMC providing joint statement
January	Port Adelaide , South Australia	RSMC Melbourne	Melbourne
February	Pickering NPP, Ontario, Canada	IAEA	RA III/IV RSMCs
March	Laguna Verde, Mexico	RSMC Washington	Montreal
April	Point Lepreau, New Brunswick, Canada	RSMC Montreal	Washington
May	Guam, Apra Harbour	IAEA	Melbourne
June	Lucas Heights, NSW, Australia	RSMC Melbourne	Melbourne
July	Donald Cook NPP, Michigan	RSMC Washington	Montreal
August	Penly, France	IAEA	Exeter/Toulouse
September	Donald Cook NPP, Michigan	RSMC Washington	Washington
October	Pickering NPP, Ontario, Canada	RSMC Montreal	Washington
November	Bushehr NPP, Iran	IAEA	RA II RSMCs
December	Fort Calhoun NPP, Nebraska, USA	RSMC Washington	Montreal

Table 1: RSMC monthly tests for 2012

5. Lessons learned and significant operational or technical changes:

- On 28 March 2012, RSMC Melbourne commenced using meteorological fields from a new 40km version of our global “ACCESS-G” NWP model as input to our dispersion model.
- RSMC Melbourne participated in the joint RSMC tests with the ENSEMBLE project of the Joint Research Centre of the European Commission (JRC-EC). A preliminary test session by ENSEMBLE was held on 26 January. A request to produce model ensemble products was sent on 18 April. Unfortunately, due to staff shortages the initial deadline (2-3 weeks) was not able to be met and products were not successfully uploaded until 7 August. Scripts have now been written to allow timely processing of future requests.

6. Operational issues and challenges:

The routine monthly RSMC tests continue to be invaluable for identifying and rectifying any problems in our scripts or in the uploading of data to the various ftp sites, as well as helping our operational staff maintain familiarity with the procedures for responding to requests for support.

7. Summary and status of the operational atmospheric transport and dispersion models

RSMC Melbourne’s operational Environmental Emergency Response (EER) system is currently based on version 4.9 of the Hybrid Single-Particle Lagrangian Integrated Trajectories (HYSPLIT), Model, developed by Roland Draxler at the NOAA Air Resources Laboratory. HYSPLIT is driven by meteorological input from the various operational numerical weather prediction systems run in the Bureau of Meteorology. The system is available for running on demand and produces forecast trajectories, concentrations (or exposures) and depositions for nuclear accident, volcanic ash, smoke and other episodes. For most initial responses to requests for nuclear EER products, input to HYSPLIT is provided by the N320L70 (approximately 40km horizontal resolution) global ACCESS-G system.

8. Plans for 2013:

- An upgrade of the regional ACCESS-R NWP system, increasing horizontal resolution from 0.375° to 0.11°, is planned for the first half of 2013.
- Use of model-level ACCESS meteorological fields rather than interpolated sigma-level fields.
- The schedule of routine monthly tests for 2013 has been set up in collaboration with RSMCs Montréal and Washington. Each RSMC will select the simulated accident location and write the joint statement on a rotating basis. Quarterly tests are also scheduled with the IAEA.

References

WMO, 2011: 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>