

# **RSMC Vienna report of activities for 2018**

## **Executive Summary**

Primary activities at RSMC Vienna for 2018 consisted in processing several operational backtracking products for the Provisional Technical Secretariat (PTS) of the Comprehensive Test Ban Treaty Organization (CTBTO). Other activities included the re-design, re-coding and migration of the response system to a new computer system.

### **1. Introduction**

The Zentralanstalt für Meteorologie und Geodynamik (ZAMG) is designated by the World Meteorological Organisation (WMO) as Regional Specialized Meteorological Centre (RSMC) Vienna (backtracking only) since July 1<sup>st</sup>, 2011 and supports the CTBTO verification system with inverse atmospheric modelling activities on a global scale.

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

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

#### **a. Responses to requests from CTBTO**

During 2018, RSMC Vienna (backtracking only) responded to a total of 9 requests for support from the Provisional Technical Secretariat of the Comprehensive Test Ban Treaty Organization (CTBTO). Except for the last request on December 6<sup>th</sup>, the products were supplied to CTBTO within the allowed time limit in all cases, as specified in the request form.

#### **4. Routine operations**

RSMC Vienna (backtracking only) does not participate in exercises and tests designed for emergency response activities in forward mode.

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

RSMC Vienna (backtracking only) was not able to respond to the last request for support from CTBTO on December 6<sup>th</sup> within the allowed time. This was due to the fact that the request email was received from RSMC Vienna (backtracking only) with a delay of nearly two days. Investigations are still ongoing.

In December 2018 ZAMG submitted its application to the chair and co-chair of the WMO ET-ERA group for a designation as a nuclear and non-nuclear ERA RSMC.

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

RSMC Vienna (backtracking only) participates in the CTBTO-WMO Backtracking Response System since its entry into operations in 2008. For backtracking the Lagrangian Particle Dispersion Model FLEXPART Version 6.2 is used. The system is driven by meteorological input data from the European Centre for Medium-Range Weather Forecasts (ECMWF) with 1° horizontal resolution and a temporal resolution of 3 hours.

In the first half of 2018, the response system has been completely re-designed and was re-coded in Python and was put into operation at the beginning of the 4<sup>th</sup> quarter. Each step – from receiving and decoding the request to the uploading of the results to the CTBTO server via a secured internet connection – is a fully automated process.

##### **Plans for 2019:**

- RSMC Vienna (backtracking only) will increase the horizontal resolution of the Source-Receptor-Sensitivity (SRS) output fields (SRS) from 1° to 0.5°.
- The provision of SRS fields at a 0.5° resolution will be put into operation latest by March, 31<sup>st</sup> 2019.
- The feasibility to upgrade the LPDM FLEXPART to version 10 will be investigated.
- The participation on the WMO-CTBTO atmospheric backtracking response system will be continued.
- The finalization of ZAMG's application for designation as RSMC for Nuclear and Non-nuclear emergency response activities.

## **References**

Final report of the meeting of the CBS Expert Team on Emergency Response Activities (ET-ERA), Vienna, Austria, 1 October to 5 October 2018

WMO, 2017: Manual on the Global Data-Processing and Forecasting System (WMO-No. 485)