

# RSMC TOULOUSE 2016 REPORT

## Executive Summary

Primary activities for 2016 consisted of the Regional Specialized Meteorological Centre (RSMC) tests, including quarterly IAEA tests and regular monthly tests and incremental updates and improvements to the response procedures, software, and to the joint RSMC secure web pages, which are used for communicating transport model products to National Meteorological and Hydrological Services (NMHS) and between RSMCs. RSMC Toulouse received – both operational and planned - requests for inverse modelling support from the Provisional Technical Secretariat (PTS) of the Comprehensive Test Ban Treaty Organization (CTBTO) during all the year.

## 1. Introduction

Météo-France is designated by the WMO as the Regional Specialized Meteorological Centre (RSMC) for the provision of atmospheric transport modelling in case of an environmental Emergency Response. The regions of responsibility are WMO Regional Associations (RA) I & VI which encompasses Europe, Ukraine, the Russian Federation and Africa.. This responsibility is shared with RSMC Exeter. Météo-France National Forecast Centre operates 24 hours a day, 7 days a week and has the responsibility of providing forecasts for the spread of pollutants (nuclear, chemical). The service consists on an immediate delivery of meteorological observation data, followed by forecast and modelling dispersion products. In case of a nuclear accident, national meteorological services could « request for RSMC support ».

In addition to emergency response, RSMC Toulouse contributes global inverse modelling support to the CTBTO verification system

## 2. Operational Contact Information

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

#### 1) Models used

The annex 4, WMO TD-No. 778 has been updated for RSMC Toulouse.

Two models may be used, according to the needs :

- The global **MOCAGE** model coupled with the French atmospheric global model ARPEGE or with the European ECMWF global model. Standard outputs are available 20 minutes after launch, for a three days or more forecast. MOCAGE offers the possibility of computing retro-trajectories for CTBTO. The resolution is 0.5° for 47 vertical levels
- The local **PERLE** high resolution dispersion model system.

3 possibilities of meteorological coupling :

- AROME model up to 2,5 km resolution covering France
- ARPEGE/MESO-NH covering Europe
- ECMWF/MESO-NH global cover.

LPDM diffusion model is used. First outputs are available 15 minutes after launch. The forecast is up to 24 hours, the outputs resolution is 2 km, for a 60km\*60 km domain and 8km for a 240km\*240 km.

Products are distributed either by fax, email, on internet (mirror web sites of Toulouse RSMC, with a specific external link created for each new event)

The presentation of RSMC Toulouse is available on <http://www.meteorologie.eu.org/CMC>

#### 2) Participation in international inverse dispersion modelling events and exercises with CTBTO

During 2016 RSMC Toulouse received occasional requests for both real and exercise scenarios from the Provisional Technical Secretariat of the Comprehensive Test Ban Treaty Organisation (CTBTO). These were all responded to within the expected timescale

#### 3) Routine operations

Quarterly exercises: RSMC Toulouse took part in the different quarterly exercise planned by IAEA. Graphics were posted to the relevant RSMC mirrored websites, as well as to the IAEA and to NMSs within RA I and RA VI  
In addition, RSMC Toulouse has been responding to the monthly tests hold by RSMCs Melbourne, Montreal and Washington by running dispersion models and sending output onto the mirrored RSMC web pages.

RSMC Toulouse has participated to a specific exercise, responding to a IAEA request (13<sup>th</sup> December on Olkiluoto).

#### **4. Significant operational or technical changes in 2016 :**

- Development of a new GUI for launching dispersion models
- MOCAGE :
  - New high resolution of IFS (coupling)
  - Porting on the new super-computer
  - GRIB2 output (begin of the dev.)
- PERLE :
  - New high resolution of IFS (coupling)
  - Porting on the new super-computer
  - Development of an extended version (begin of the dev.)
  - GRIB2 output (begin of the dev.)

#### **5. Plans for 2017-2018 :**

##### **Developments and studies**

- Development of operational "Time of Arrival" product (as soon as the WMO ERA group will set up a standard product)
- MOCAGE:
  - high resolution (from 0.5° to 0.1°)
  - GRIB2 output (end of the dev.)
- PERLE :
  - Development of an extended version (end of the dev.)
  - GRIB2 output (end of the dev.)
- Studies on ensemble forecasting on dispersion model (to be continued).
- End of development of a new GUI for launching dispersion models
- Study on replacing LPDM by FLEXPART
- Running HR dispersion model on overseas areas

##### **International exercises**

- RSMC Toulouse will take part in all IAEA or WMO emergencies requests, tests and exercises, and in all CTBTO requests.
- RSMC Toulouse will participate to the monthly test hold by RSMC Washington/Melbourne/Montreal.
- In June 2017, RSMC Exeter and RSMC Toulouse will be the lead RSMCs for a ConvEx-3 NPP accident exercise, based on a theoretical release from Paks NPP, Hungary.

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