



# Intercomparison exercise for source apportionment models (RMs and CTMs)

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# THIRD SOURCE APPORTIONMENT INTERCOMPARISON OBJECTIVES

## MAIN OBJECTIVES

- Assess model performances
- Quantify model uncertainties
- Compare different approaches

## OTHER OBJECTIVES

- Identify synergies between different models/approaches
- Identify strengths and areas for improvement of models / approaches
- Harmonize definition of key concepts
- (e.g. definition of source category, source contribution estimates)
- Agree common rules (e.g. for SCE reporting)
- Set up QA/QC procedures

## JOINT SA INTERCOMPARISON

### TECHNICAL ASPECTS (CTMs and RMs)

- Target pollutants
- Study site
- Domain
- Time window
- Input data
- Format of the output
- Definition of sources (Activities/macrosectors vs Source Categories)
- Source profiles (chemical species, trace elements?)
- Time schedule

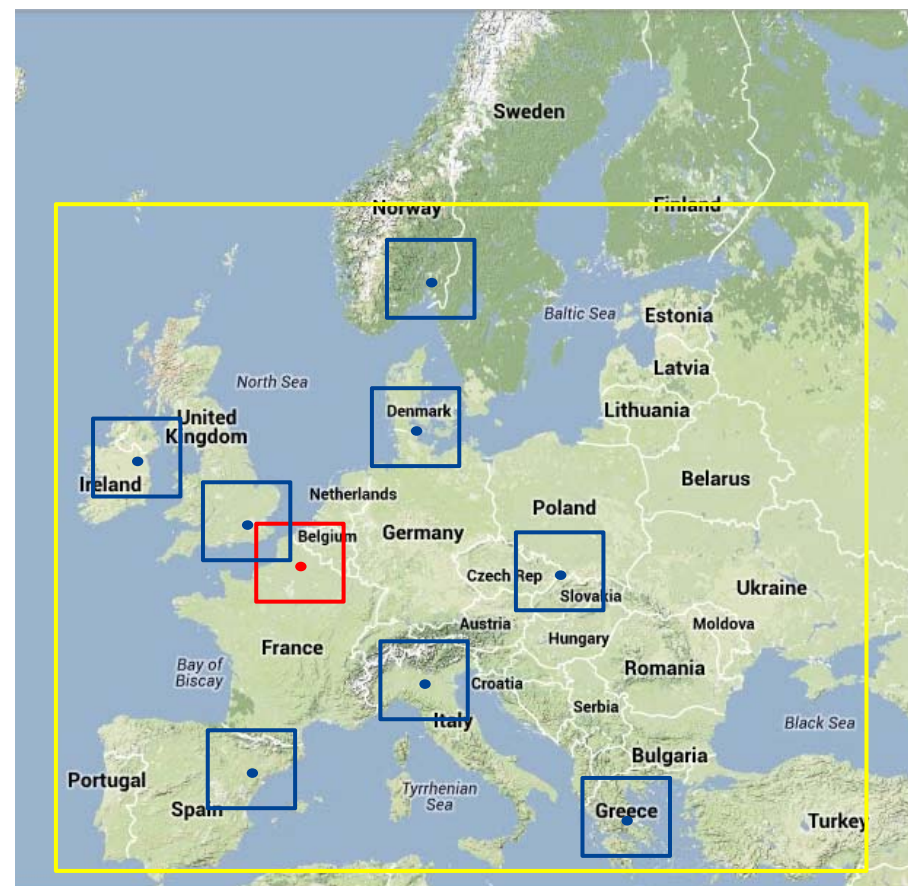
## JOINT SA INTERCOMPARISON SET UP DISCUSSED IN OSLO

### RM

- One reference site with a dataset suitable for RMs provided by the organisers
- Secondary sites in the areas selected by participants where datasets are available

### CTMs

- Large European domain (EURODELTA) at medium resolution (ca. 28x28km)
- Many smaller National/Regional domains around the reference and secondary sites at higher resolution (ca. 7x7 km)



## EVALUATION OF THE INTERCOMPARISON

### 1) **Comparing source apportionment results:**

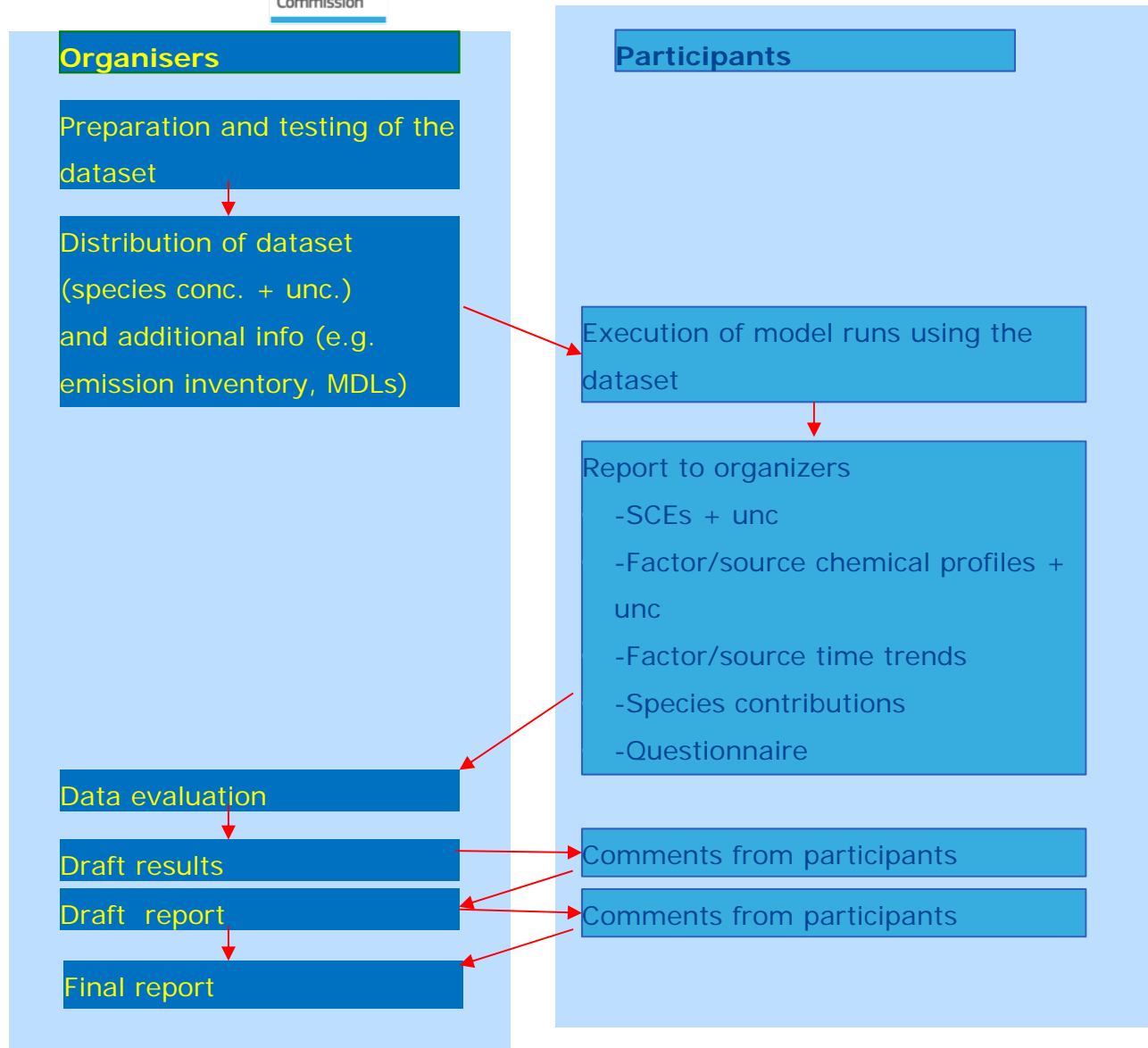
- a. Ensemble of CTMs
- b. Ensemble of RMs
- c. CTMs vs RMs

### 2) **Additional aspects that may be considered**

- d. CTMs at European vs local scale
- e. Seasonal vs hourly analysis
- f. PM bulk mass vs PM compounds
- g. Primary vs secondary pollutants

The methodology will be discussed later in another presentation

# FLOW DIAGRAM OF THE IE





## SOURCE APPORTIONMENT INTERCOMPARISON

### Input data for RMs

- Real world dataset of speciated PM10 with uncertainties
- Meteorological data from the nearest monitoring station
- Emission inventory (extracted for the cell of the monitoring site)

### Data to be reported for RMs

**Matrix 1:** source categories x species (contributions in  $\mu\text{g}/\text{m}^3$ )

**Matrix 2:** uncertainties of matrix 1 (in  $\mu\text{g}/\text{m}^3$ )

**Matrix 3:** source categories' contributions in every sample ( $\mu\text{g}/\text{m}^3$ )

**Matrix 4:** contribution to species (%)

Questionnaire



# SOURCE APPORTIONMENT INTERCOMPARISON

## DATA SET WITH SPECIATED PM

### Time schedule RMs

- Expression of interest July 2015
- Distribution of intercomparison workpackage July 2015
- Submission of results November 2015
- Check and confirmation of submitted results December 2015
- Preliminary evaluation of intercomparison March-April 2016
- Draft intercomparison report May 2016
- Final intercomparison report June 2016





Thank you for your  
attention