COST ES0602:

Towards a European Network on Chemical Weather Forecasting and Information Systems

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http://www.chemicalweather.eu
**Motivation**

Legislation: to inform the public on AQ throughout the territory of MSs. Forecasting the AQ and exceedances of limit and target values, assessing possible measures to abate exceedances using modelling tools. Exists today: various national systems in terms of model tools, monitoring data and institutional arrangements. EEA: an annual assessment through NRCs, near real-time “Ozone on the Web.”

NMSs: weather data and modelling, development of tools and models, sometimes AQ forecasts. NEAs: dissemination of AQ information. Often AQ monitoring, sometimes AQ forecasts.

Extra complexity: AQ is an essentially transboundary phenomenon, limiting to national approaches. Forecasting the AQ is more difficult and less accurate than e.g. weather forecasting. Single-model forecasts are uncertain.
Motivation (2): structure of AQ forecasting system

- **MetService**
  - Physiography
  - Meteo data
  - Initial chemistry fields
  - Remote sensing products
  - AQ observations
  - Emission

- **ESA, NOAA, proc.centres**

- **NEA, EEA**

- **AQ Model(s)**

- **AQ forecast**

- **Evaluation**

- **AQ products**

- **Users**
Objectives

To setup a forum for benchmarking, harmonizing and developing approaches and practices for chemical weather forecasting network and near-real-time information systems in Europe.

- Identify needs for the optimisation and harmonization of exchange of AQ data & integration of modelling systems;
- Find out the gaps of existing knowledge and practices;
- Review the potential for and means of multi-model ensemble and chemical data assimilation;
- QA/QC criteria for CW forecasting systems;
- Assess visualisation and dissemination platforms, arrangements, formats and protocols;
- Build up on current systems, enhance cooperation and coordination between providers, operators, and users for improving the science and application of CW forecasting;
- Establish and/or strengthen links with similar ongoing national and international activities and dedicated projects
Scientific Programme

WP1. Exchange of AQ forecasts and input data (Kjetil Torseth, NILU):
- requirements on data exchange frequency, formats, existing infrastructure. Combining forecast data and NRT observations in a single system. Provisions for quality checks.

WP2. Multi-scale forecasting, multi-model ensemble, boundary data (Mikhail Sofiev, FMI)

WP3. Dissemination and visualization (Kostantinos Karatsas, AUT):
- Dissemination of AQ information to users. What to display, harmonization possibilities: separate pollutants vs. AQ index. Inventory of national systems, other activities and organisations.

A cross-cutting activity: to coordinate with other organizations (EEA, EUMETNET/WG-ENV, WMO, etc.) and ongoing activities (GEMS, PROMOTE).
Time table, Management, Dissemination

Phase 1: Planning, operational arrangements, establishment of WGs and inventory activities (year 1);
Phase 2: Main assessment, benchmarking and development work to be conducted by all WGs (years 2, 3);
Phase 3: Final conclusions and recommendations to be formulated in reports and final publications (year 4).

Participation / contributions: EoC
Web-site: continuous updating: reports & selected results
Workshops with proceedings;
Dedicated attention to relevant international organisations concerning the process, solutions and outreach in order to achieve a broader impact, e.g.: the UN-ECE, WMO, EEA, DG-ENV, …
Participants

From each country:
- one met-service delegate to MC
- one environmental agency (or other AQ forecast provider) delegate to MC

EEA

Key on-going European activities in the field
- GEMS (Global and regional Earth-system Monitoring using Satellite and in-situ data), lead by ECMWF
  - involvement of WMO through ECMWF
- PROMOTE (Near-Real-Time delivery of the satellite products of GMES system), project of ESA lead by DLR
  - involvement of ESA