



Regional Air Quality

**METO-UK, CNRS, MPI-M, KNMI, FMI, DMI, NKUA,
METEO-FR, ARPA-SIM, ISAC, met.no, FRIUUK,
INERIS, CHMI, EPAI, PIEP, ICSTM + SMHI**

II. Report of the split session and plans

Time → Work package And tasks ↓		Year 1				Year 4								
		Q 1	Q 2	Q 3	Q 4	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4			
WP_RAQ_1														
Tasks	1.1													
	1.2													
	1.3													
WP_RAQ_2														
Tasks	2.1													
	2.2													
	2.3													
	2.4													
WP_RAQ_3														
Tasks	3.1													
	3.2													
	3.3													
	3.4													
WP_RAQ_4														
Tasks	4.1													
	4.2													
	4.3													
	4.4													
WP_RAQ_5														
Tasks	5.0													
	5.1													
	5.2													
	5.3													
	5.4													
WP_RAQ_6														
Tasks	6.1													
	6.2													
	6.3													
	6.4													

RAQ-1

Coordination, interfaces and communication between ECMWF and partner institutes

Task-1.1 (m12-18) : Build interface between IFS archive and RAQ models

m12 – Y1 report contributions by all modeling groups on model configuration, including plans for local zooms and increasing resolution.

m12 – Specification of the dispersion test (2 cases).

m15 – Synthesis report on model configurations.

m18 – Report on the dispersion cases.

Task-1.1 ends m18. To be re-activated around m36 : update on models configuration.

RAQ-1**Task-1.2 (m12-24) : Communication and exchanges of numerical fields**

m15+6 – Synthesis report on model configurations, data flows and volumes for NRT activities and Y2003 studies.

Task-1.3 (m18-30...) : Test of RAQ models in « realistic » configuration

Background task on model evaluation and improvement.

m18 – Define common reference period within 2003 (~2 months, summer and winter) for coordinated simulations.

Need AER, GRG chemical boundaries

m27 – Report on coordinated simulations, views for ensemble and WP5 (re-analysis)

RAQ-2

Impact of global-scale boundary conditions, of high-resolution data assimilation and of detailed emissions

Task-2.1 (m12-24) : Chemical coupling between RAQ models and GRG, AER

m12 – Y1 report

GRG: over a test period in 2003 (1.3), 3-hourly output of GRG with a core list of species (~8-10) and an extended list (+10-15 NMVOC).

AER: concerns about the 4 tracers approach proposed for the purpose of boundary conditions (main problem is the accumulation mode). Skill in the « raw » model (dusts...), even if little observational constraint from remote-sensing.

m24 – Report on sensitivities to chemical boundaries. To what extent is it model dependent. Spin-out from coordinated work in 1.3

RAQ-2**Task-2.2 (m12-48) : Assess the impact of meso-scale representation of meteorology**

Input Y1 report on model configuration : some models use directly IFS forcings, some other include mesoscale meteorological model. Limited manpower. Context of COST-728.

- m18 – plan for sensitivity studies (together with 1.3).
- m24 – Report on sensitivities to met fields.

Task-2.3 (m12-48) : Chemical data assimilation at regional scale

Review of available data ; review of assimilation partners plan

- m15 – detailed plan for Y2003, NRT, tests using post-2003 instruments (OMI, IASI,...)
- m18+6 – Tests with the different systems involved

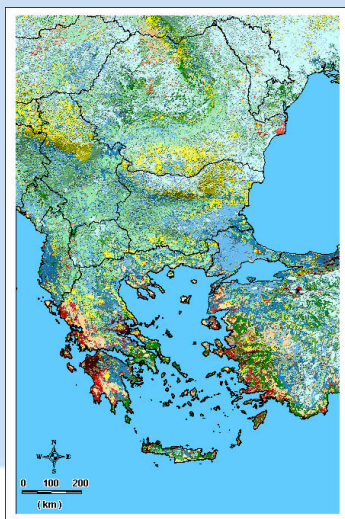
RAQ-2

Task-2.4 (m12-24) : Emissions

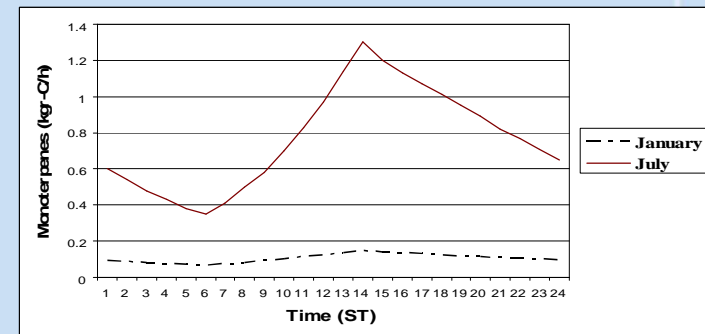
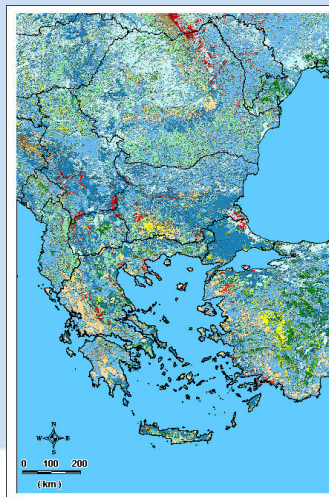
For anthropogenic emissions, subcontract (tbc) to TNO for a 5km inventory over GEMS european domain, bottom-up approach and consistency verification with the national totals. Interesting point is also that GEMS GRG inventory, based on RETRO. 2nd semester 2006 (2-3 months).

For biogenic emissions, extension of NKUA work on the balkan region. Provision of 5km maps of emissions factors over the European domains, to be jointly adopted by RAQ models.

Isoprene (kgr-C/year)



Monoterpenes (kgr-C/year)



Central Greece

RAQ-3

Coordinated access to verification data over Europe

Task-3.1 (12) : Define reference GEMS air quality data for RAQ model evaluation

Y1 report, including strategy. Distinct approach for Y2003 and for NRT (3.4). Purposes range from model evaluation, skill calibration, data assimilation and evaluation of impact of GRG/AER. Agreement on a « snapshot database », with conversion to (extended) BUFR. Campaigns? Add. national data?

<p>OECD-LRTAP</p>		<p>AirBase - the European Air quality dataBase </p>
	 <p>OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic</p>	
		 <p>World Data Centre for Aerosols </p>
<p>World Precipitation Chemistry Data</p>		

RAQ-3**Task-3.2 (m12-18+6) : Access and interface tools to different existing database for RAQ evaluation**

m12 - Y1 report, including metadata specification for extended BUFR

m18 - Italy and Poland report and database system for NRT

m24 - Metadata for GEMS RAQ database. Work with PRO for BUFR conversion.

Task-3.3 (m12-24) : MOZAIC profiles over Europe

m24 - Raw profiles over the 4 MOZAIC european airport converted to BUFR and included in GEMS-RAQ database. Point in current BUFR extension : NO_x, NO_y.

RAQ-3**Task-3.4 (m12-48) : Access to NRT AQ data in Europe**

Key discussion of a Memorandum of Understanding. Great help for partners and RAQ advisory board. Pathways for success : negociation between GEMS (IP, finite in time) and national AQ agencies ; contact point in each country, enhance discussions and collaboration ; strict use of data for NRT evaluation, with a clear description of data flow, handling and storage ; dismiss data after a week ; consider AQ agency needs ; use GEMS as a forum. « Avoid stumbling blocks ». More ambitious views have also been expressed.

m12 - draft MoU ; circulate questionnaire among GEMS partnership and Avisory board.

m13 - reviewed MoU. Overview of dataflow and status of contacts, feasibility. Negotiate MoUs. Contacts outside GEMS partnership.

m18 - first MoU signed.

m24 - more MoUs signed. First data streams arrive at central site.

RAQ-4**Pre-operational NRT forecasts****Task-4.1 (m6-13) : Skill scores and tools**

Session on proposed strategy for skill score. Core set of indicators including « odds ratio ». Discussion on other indicators (crops). Distinguish NRT and WP5. Use of MetPy for central evaluation and local evaluation (PRO). Offer of a FMI (windows based) tool for local evaluation.

m12 - Y1 report, including overview of the work coordinated by METO-UK.

m13 - report

Reactivate task around m30 for update and possible extension of skill scores for central verification.

RAQ-4**Task-4.2 (m24-48) : Perform and evaluate NRT RAQ forecasts.**

m24 - Begin NRT forecasts.

m30 - Report on summer 2007 including views for ensemble forecasts (4.4, starting m36).

Task-4.3 (m12-30) : « Statistical » forecasts.

Cross-cutting issue around model error characterization, bias removal and statistical adaptation of forecasts, data assimilation and ensemble forecasting.

m18 - Report on methods availables and strategy for implementation.

m24 - Develop tools and tests on cases, start with 4.2.

m30 - Update on m18 report, based upon the m24-30 NRT experience.

RAQ-5**Regional simulations over reanalysis period****Task-5.0 (m12-24) : Preparation for the REMO model and plan for re-analysis**

m24 – Detailed plans for Y2003 study.

m24 – REMO model ready for hindcasts.

Task-5.1 (m24-48) : RAQ hindcasts over GEMS reanalysis period

Depends upon the availability of GRG,AER. Task 1.3 ends m27.
Start model runs over 2003.

RAQ-6

Use of GEMS data to assess the public health effects of long-range aerosol and reactive gases

Task-6.1 (m12-48) : Estimation of dose response relationship.

m24 – epidemiological review report

Task-6.2 (m12-48) : UK and Ireland national study

m24 – UK and Ireland study report

Task-6.3 (m12-48) : Czech republic national study

m24 – UK and Ireland study report

Task-6.4 (m24-48) : Link with forecast health forecast system

Starts on 2003 cases (1.3). Link with NRT.