




EGU-2001 Section AS4.25

Integrated physical and chemical weather modelling with two-way interactions

<http://meetingorganizer.copernicus.org/EGU2011/session/7498>

Convener: Alexander Baklanov 

Co-Conveners: Georg Grell , Johannes Flemming 

[Oral Programme](#) / Room 19 / Wed, 06 Apr, 08:30–10:15

[Poster Programme](#) / Halls X/Y / Attendance Wed, 06 Apr, 17:30–19:00 / Display 08:00–19:30

This session will focus on a new generation of online integrated Atmospheric Chemical Transport (ACT) and Meteorology (Numerical Weather Prediction and Climate) modelling with two-way interactions between different atmospheric processes including chemistry (both gases and aerosols), clouds, radiation, boundary layer, emissions, meteorology and climate. At least, two application areas of the integrated modelling are expected to be considered: (i) improved numerical weather prediction (NWP) and chemical weather forecasting (CWF) with short-term feedbacks of aerosols and chemistry on meteorological variables, and (ii) two-way interactions between atmospheric pollution/ composition and climate variability/change.

This session welcomes papers that focus on different aspects of the integrated meteorology-chemistry modelling, including: (i) Strategy and framework for online integrated modelling; (ii) Interactions, parameterisations and feedback mechanisms; (iii) Chemical data assimilation in integrated models; (iv) Evaluation, validation, and applications of integrated systems.

The Section is organised by the COST Action ES1004 'European framework for online integrated air quality and meteorology modelling (EuMetChem)'.

The Oral Programme AS4.25 will be continued as two Related events:

SPM1.22 - Room SM6 / Wed, 06 Apr, 10:30–12:00

SPM2.20 – Room SM7 / Wed, 06 Apr, 13:30–17:00

with short presentations of AS4.25 posters (up to 10 min) and COST Action ES1004 'EuMetChem' scientific meeting.

Section Program

Main Oral Program of AS4.25

http://meetingorganizer.copernicus.org/EGU2011/oral_programme/7498

Wednesday, 06 Apr 2011

Room: 19

Chairperson: Alexander Baklanov

08:30–09:00

[EGU2011-2288](#)

Mark Jacobson

Coupling cloud and aerosol microphysical processes in a nested climate-weather-air pollution model and its implications for the cloud and climate effects of black carbon (solicited)

09:00–09:15

[EGU2011-473](#)

Yang Zhang, Yaosheng Chen, Shiang-Yuh Wu, Shuai Zhu, Karine Sartelet, Pierret Tran, and Christian Seigneur

Application of WRF/Chem-MADRID in Europe: Model Evaluation and Aerosol-Meteorology Interactions (solicited)

09:15–09:30

[EGU2011-8546](#)

Johannes Flemming, Vincent Huijnen, Antje Inness, Joaquim Arteta, Olaf Stein, Martin G. Schultz, Angela Benedetti, Jean-Jacques Morcrette, Adrian Simmons, and Luke Jones

Towards the integration of atmospheric chemistry in the ECMWF integrated forecast system (solicited)

09:30–09:45

[EGU2011-8536](#)

Georg Grell, Stuart McKeen, Tom Henderson, Paul Madden, Susan Sahm, and Stan Benjamin
Impact of chemistry on forecasting weather using WRF-Chem and FIM-Chem

09:45–10:00

[EGU2011-1864](#)

Bernhard Vogel, Max Bangert, Heike Vogel, Rayk Rinke, and Kristina Lundgren

The Fully Online Integrated Model System COSMO-ART to Simulate Interactions of Aerosols, Clouds, and Radiation on the Regional to the Continental Scale (XY207 / EGU2011-1864);

10:00–10:15

[EGU2011-9212](#)

Jonathan Pleim, Rohit Mathur, David Wong, Shaocai Yu, and Frank Binkowski

Development and Evaluation of the 2-Way Coupled WRF-CMAQ Model

AS4.25 short presentations and COST Action ES1004: 'EuMetChem' scientific meeting (public) – SPM1.22

<http://meetingorganizer.copernicus.org/EGU2011/session/8773>

Wednesday, 06 Apr 2011, 10:30–12:00

Room: SM6

Short presentations (also presented as posters, see the poster program) and discussion:

1) **Alexander Baklanov** and EuMetChem COST Action team European framework for online integrated air quality and meteorology modelling: Methodology and plans of COST Action ES1004 (XY206 / EGU2011-13432);

2) **Oriol Jorba**, Carlos Pérez, Karsten Haustein, Zavisla Janjic, Jose Maria Baldasano, Donald Dabdub, Alba Badia, and Michele Spada The NMMB/BSC-CHEM online chemical weather

prediction system: current status of development and feedback interactions (XY208 / EGU2011-4223);

3) **Benjamin Aouizerats**, Pierre Tulet, and Laurent Gomes Radiative impacts of aerosols on dynamics: Application to the CAPITOUL field experiment (XY209 / EGU2011-792);

4) **Felicita Russo**, Alberto Maurizi, and Francesco Tampieri Studying the feedback processes in the model BOLCHEM (XY210 / EGU2011-14069);

5) Alexander Baklanov, Ulrik Korsholm, **Alexander Mahura**, Ashraf Zakey, Roman Nuterman, Bent Sass, Kristian Nielsen, Brian Soerensen, and Iratxe Gonzalez-Aparicio Enviro-HIRLAM online integrated ACT-NWP modeling system with two-way interactions: History and current status (XY211 / EGU2011-13492);

6) Jacek W. Kaminski and **Joanna Struzewska** Development and performance of a semi-operational chemical weather forecasting system EcoForecast.EU (XY212 / EGU2011-8816);

7) **Shuai Zhu** and Yang Zhang Sensitivity of Simulated Chemical Concentrations and Aerosol-Meteorology Interactions to Aerosol Treatments in WRF/Chem (XY213 / EGU2011-474).

AS4.25 short presentations and COST Action ES1004: 'EuMetChem' meeting (public) - SPM2.20

<http://meetingorganizer.copernicus.org/EGU2011/session/8160>

Wednesday, 06 Apr 2011, 13:30–17:00

Room: SM7

Short presentations (also presented as posters, see the poster program) and discussion:

9) **Renate Forkel**, Johannes Werhahn, Rainer Schmitz, Tim Butler, Uli Uhrner, and Peter Suppan Application of the online coupled meteorology-chemistry model WRF/chem and the Lagrangian model GRAL to the Santiago de Chile region (XY214 / EGU2011-12190);

10) **Idir Bouarar**, Claire Granier, Kathy Law, Ariela Dangiola, Aude Mieville, Andreas Richter, Henk Eskes, and Randall Martin Evaluation of chemistry transport model simulations in the MACC project: comparison with satellite and in-situ data (XY218 / EGU2011-6390);

11) Quentin Errera and **Richard Ménard** Implementation of spatial correlations in the background error covariance matrix in the BASCOE system (XY220 / EGU2011-8136);

12) **Rohit Mathur**, Jonathan Pleim, David Wong, Shaocai Yu, St Rao, Shawn Roselle, and Francis Binkowski Applications and Sensitivity Analysis with the 2-Way Coupled WRF-CMAQ Model (XY222 / EGU2011-9383);

13). **Johannes Werhahn**, Renate Forkel, Ayoe Buus Hansen, Georg Grell, Stuart McKeen, Steven Peckham, and Peter Suppan Effect of aerosol-radiation feedback on regional air quality - A sensitivity study with WRF/chem. (XY224 / EGU2011-12033);

14). **Yafang Cheng**, Stephan Nordmann, Wolfram Birmili, Sarika Kulkarni, Chao Wei, Denier van der Gon, David Streets, Hang Su, Gregory Carmichael, Alfred Wiedensohler and the Gregory Carmichael Team WRF-Chem simulation of black carbon episodes over Europe: transportation, regional radiative forcing, and influence on snow melting in Alpine region (XY225 / EGU2011-9519);

15). **Tov Elperin**, Andrew Fominykh, Boris Krasovitev, and Alexander Vikhansky Effect of Rain Scavenging on Altitudinal Distribution of Soluble Gaseous Pollutants in the Atmosphere (XY217 / EGU2011-4811);

16) Other posters overview and COST ES1004 discussion.

Continuation of the first meeting SPM1.22 of the new COST Action ES1004: 'EuMetChem - European Framework for Online Integrated Air Quality and Meteorology Modelling' linked with the Section AS4.25 'Integrated physical and chemical weather modelling with two-way interactions'. Merged with the Discussions Session PSD154 (AS4.25 Posters Summary & Discussions). Scientific discussions and further work planning.

AS4.25 Poster Program:

http://meetingorganizer.copernicus.org/EGU2011/poster_programme/7498

Display Time: Wednesday, 06 Apr, 08:00–19:30

Chairperson: Johannes Flemming

<*Discussions Session PSD154* (Posters Summary & Discussions) Oral Programme>

This Discussions Session PSD154 (AS4.25 Posters Summary & Discussions) will be merged with the Splinter meeting SPM1.22: 'COST Action ES1004: 'EuMetChem' scientific meeting' and scheduled Wednesday, 06 Apr 10:30–12:00, Room SM6 (instead of Room 40). The Section will comprise short presentations of poster contributions to AS4.25 as well as some additional discussions on open problems and future perspectives of online integrated modelling.

Poster Attendance Time: Wed, 06 Apr, 17:30–19:00

SPM2.21 COST Action ES1004 EuMetChem Working Meeting (by invitation only)

<http://meetingorganizer.copernicus.org/EGU2011/session/8161>

Thursday, 07 Apr 08:30–12:00, Room SM8

(Another option is to move it to Wednesday, 06 Apr 19:00 – 20:00)

Expert Group and Management Committee Meeting (MCM) of the COST Action AS1004: 'EuMetChem - European Framework for Online Integrated Air Quality and Meteorology Modelling'.