# Minutes of the DAP working group meeting at the 7th COPS workshop

## Participants

Thomas Schwitalla (U. Hohenheim)
Christian Keil (DLR Oberpfaffenhofen)
Mathias Rotach (MeteoSwiss)
Olivier Caumont (MeteoFrance)
Pierre Brousseau (MeteoFrance)
Daniel Kirshbaum (U. Reading)
Ines Langer (FU Berlin)
Matthias Grzeschik (LA Toulouse)
Theresa Gorgas (U Vienna)
Florian Zus (U Hohenheim)
Volker Wulfmeyer (U Hohenheim)
George Craig (DLR Oberpfaffenhofen) (chair)
Günther Zängl (German Met. Service)
Christoph Selbach (U Cologne)
Tanja Weusthoff (MeteoSwiss)
Hans-Stefan Bauer (U Hohenheim) (co-chair)

At the beginning of the meeting every participant introduced himself/herself to prepare a basis for future collaborations. This is briefly summarized in the following.

### Günther Zängl:
- Representative of DWD and its part in the DFG SPP 1167 COPS-GRID[1] project.

### Christoph Selbach:
- Representative of GOP
- Evaluation of the German COSMO models using different observation (e.g. GPS…)

### Tanja Weusthoff:
- D-PHASE-ENSEMBLE[2] project
- Evaluation of D-PHASE model data based on standard scores.
- Special studies with COSMO and probably other high-resolution models using the fuzzy method

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[1] Acronym fort he project „High-resolution reanalyses and impact studies for improving process understanding and precipitation forecast skill based on the COPS data set" within the priority program 1167 (Quantitative Precipitation Forecasting" of the German Research Foundation (DFG).
[2] My suggestion of an acronym for the project „Studies of the process chain and the predictability of precipitation with the D-PHASE Ensemble and COPS observations" within the priority program 1167 of the DFG.

**Hans-Stefan Bauer:**
- DFG SPP1167 Projects COPS-GRID and D-PHASE ENSEMBLE
- Assimilation of GPS STD and radar radial velocity into the MM5/WRF 4DVAR
- High-resolution process and impact studies for selected COPS IOPs
- Process analysis with the D_PHASE ensemble

**Thomas Schwitalla:**
- DFG SPP1167 project COPS-GRID
- Assimilation of GPS STD and radar radial velocity into the WRF 4DVAR
- High-resolution process and impact studies for selected COPS IOPs
- Preparation of European precipitation data sets for model evaluation together with Theresa Gorgas (University of Vienna)

**Christian Keil:**
- DFG SPP1167 project DAQUA[3]
- Ensembles with the German COSMO models
- Assimilation of data collected by the DLR-Falcon into the COSMO model

**Mathias Rotach:**
- Chair of the D-PHASE FDP
- DFG SPP1167 project DAQUA

**Olivier Caumont:**
- Assimilation of GPS ZTD and radar data into AROME (3DVAR)

**Pierre Brousseau:**
- Observing system experiments with COPS data and AROME

**Daniel Kirshbaum:**
- Predictability studies

**Ines Langer:**
- Collection of precipitation data
- Statistical evaluation of the COSMO-EU and COSMO-DE models

**Matthias Grzeschik:**
- Assimilation of lidar data collected during COPS into AROME (Leandre II)

**Theresa Gorgas:**
- Collection of European GTS and non-GTS data
- Preparation of precipitation data sets together with Thomas Schwitalla
- Analysis and model verification using the VERA tool

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[3] Acronym for the project „Combined Data Assimilation with Radar and Satellite Retrievals and Ensemble Modelling for the Improvement of Short Range Quantitative Precipitation Forecasts" within the priority program 1167 of the DFG.

**Florian Zus:**
- DFG SPP1167 project COPS-GRID
- Assimilation of GPS STD and radar radial velocity into the MM5/WRF 4DVAR
- Statistical evaluation of the performance of the assimilation

**Volker Wulfmeyer:**
- Chair of COPS
- Representative WWRP working group on Mesoscale Weather Forecasting (MWF)
- DFG SPP1167 projects COPS-GRID and D-PHASE-ENSEMBLE

**George Craig:**
- Representative of THORPEX
- DFG research group PANDOWAE – ensemble studies of high-impact weather, including COPS cases, emphasizing large-scale versus local interactions
- DFG SPP1167 project DAQUA – data assimilation with SIR filter

Afterwards, Christian Keil, chair of the WG1 „Radar data quality and assimilation into high res NWP models" of the COST-731 action ("Propagation of uncertainty in meteo-hydrological forecast models"), presented results of an initiative taken by COST731 proposing:

- „An intercomparison of data assimilation schemes using COPS data"
- So far, MeteoSwiss, MeteoFrance, U Hohenheim, Univ. Warsaw, Swedish Met Service (SMHI), Finish Met Service (FMI), Hungarian Met Service (HMS) and UK MetOffice are interested to participate.
- Aim is to intercompare different data assimilation systems of different models using an as unified as possible set-up.
- Idea is to run experiments for different COPS IOPs (see further below)
- Follow the example of other international test beds

Volker Wulfmeyer reported that such a joint effort fully fits into the WWRP strategic plan 2009-2015 prepared by the WG on Mesoscale Weather Forecasting (MWF). He presented some slides about earlier test bed configurations from the Data Assimilation Testbed Center (DATC) and pointed out that an endorsement as a WWRP RDP may be possible if more international groups are found that are also interested to participate. Therefore, we will contact the members of the WG on MWF.

We discussed interesting data sets for the assimilation in such a test bed. When investigating the systematic impact of different data assimilation systems it is important that the used observations cover a large spatial region. Therefore, it is planned to focus on data sets available in networks:

- Radar reflectivity
- Radar radial velocity
- GPS (STD, ZTD, IWV)
- Conventional observations (as e.g. SYNOP, TEMP, AMDAR…)

Furthermore, it will be necessary to composite the data of the different national networks (e.g. radar, GPS). The problems of such compositing (format, processing strategies and software packages, error correction …) were shortly discussed. In case of radar data at least, the full 3D data from France, Switzerland and the southern part of Germany will be available for assimilation. Theresa Gorgas will check the data provided by different European weather services for additionally available radar data.

We agreed about the compilation of an overview table containing all available data (GOP, Vienna, COPS archive …) before sending new requests to additional data providers to avoid double requests.

We briefly discussed interesting COPS IOPs. It was concluded that the suggestions made on the last COPS workshop are still valid with one exception.

- IOP 4 (20 June 2007)
- Instead of IOP 8b (15 July 2007) it was suggested to select a more active „airmass case" from the beginning of June (e.g. IOP 1)
- IOP 9c (20 July 2007)
- IOP 13ab (1/2 August 2007)

Concerning the COPS data base, the WG DAP is more a consumer than a provider of the data. Therefore we discussed whether the data necessary for the assimilation is available and what is still missing. Most important point in this case is the necessity to convince the data providers to send accurate error estimates to the data base together with their data.