The COPS Operations Center

Christian Barthlott, Ulrich Corsmeier, Christoph Kottmeier

5th COPS Workshop Hohenheim

1. Location and Layout
2. Operations Coordination: Suggestion for OC Staff and Mission Planning
3. Status quo of NinJo
5. Accommodation possibilities at Baden-Airpark
6. Open points
1. Location and Layout

- located near COPS central region, close to aircraft crews, easy access by car and public transport, enough parking space
- outside of the safety area ⇒ for everyone accessible
- 3 rooms have been rented, configuration and installation will start in May
4th floor of western part of ABC, access to rooftop with 360 deg. panoramic view
Layout: Division in OC, Server Room and “Internet Cafe“

"internet cafe"

server room

operations center

pc

balcony

access to roof top (360 deg panoramic view)
Interior View

Operations center

"Internet cafe"

Server room

Elevator

Balcony

Access to roof top

(360 deg panoramic view)
Weekly debriefings in the conference room “Venezia“

- 2 min. away from OC
- place for up to 200 seatings
- stage with 70 m²
- permanently installed video projector and sound system
- internet connection
- reserved every Friday
2. Operations Coordination

Proposed composition of Mission Selection Team (MST) and Operations Center Team (OCT):

<table>
<thead>
<tr>
<th>MST</th>
<th>OCT</th>
<th>Function</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4 WG Representatives</td>
<td>WG Representatives CI, ACM, PPL, DAP</td>
</tr>
<tr>
<td></td>
<td>×</td>
<td>Operations Director</td>
<td>Members of the ISSC, Wernli, Kalthoff, 2 DLR members, ...</td>
</tr>
<tr>
<td>×</td>
<td></td>
<td>Deputy Ops. Dir.</td>
<td></td>
</tr>
<tr>
<td>×</td>
<td></td>
<td>Operations Supervisor</td>
<td>Barthlott, Trentmann, Kunz, Kohler</td>
</tr>
<tr>
<td></td>
<td>×</td>
<td>Aircraft Coordinator</td>
<td>COPS Air Crew (Aircraft PI’s), 2 DLR members, Finkenzeller/Grillenbeck?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weather Forecaster 1</td>
<td>Mühr, Groenemeijer, Ehmann, 2 × MeteoFrance, NN</td>
</tr>
<tr>
<td>×</td>
<td></td>
<td>Weather Forecaster 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communications/Networking Coordinator</td>
<td>Brückel, Klinck</td>
</tr>
<tr>
<td>×</td>
<td></td>
<td>Helper</td>
<td>Ehmann, Vonderach, Maisenbacher</td>
</tr>
</tbody>
</table>

Operations Director

- Director for scientific mission decisions
- Convenes and co-chairs the COPS Daily Planning Meeting
- Leads daily mission planning discussion
- Decides the final deployment of mobile facilities, ...

Deputy Operations Director

- supports Ops. Dir. with respect to all his responsibilities
- Notifies ground-based sites of special observing schedules and operating instructions

Aircraft Coordinator

- Acts as single point of contact for all COPS Aircraft Facility Managers; Convenes aircraft briefing and debriefing
- Provides updated information to aircraft during flight operations as necessary to ensure successful missions, ...

Operations Supervisor

- Prepares and presents summary status report for Daily Meeting
- Provides daily input on usage and availability of expendable resources
- Coordinates OC space and systems support, ...

Weather Forecaster 1+2

- Provides weather analysis and forecast for the next 3 days
- Presents weather forecast and outlook at daily planning meeting, ...

Communications/Networking Coordinator

- Manages LAN and related computer support, ...

⇒ We provided a document with detailed description of the functions and responsibilities which was distributed via email prior to this workshop and can be discussed in the WG tomorrow
### Daily routine dependent on 4 possible cases

<table>
<thead>
<tr>
<th>Time (LT)</th>
<th>Participants and responsible persons</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800-1700</td>
<td>Weather forecasters</td>
<td></td>
</tr>
<tr>
<td>until 0900</td>
<td>COPS scientists</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>MST + OCT</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Operations supervisor, helper</td>
<td></td>
</tr>
</tbody>
</table>

#### Day without IOP

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800-1700</td>
<td>Present at OC</td>
</tr>
<tr>
<td>until 0900</td>
<td>Deliver status report from all facilities</td>
</tr>
<tr>
<td>1000</td>
<td>Daily planning meeting</td>
</tr>
<tr>
<td>1100</td>
<td>Distribute daily briefing package</td>
</tr>
</tbody>
</table>

#### Case A: no IOP tomorrow

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>OCT</td>
</tr>
</tbody>
</table>

#### Case B: IOP tomorrow

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100</td>
<td>Aircraft mission briefing</td>
</tr>
<tr>
<td>1200</td>
<td>Provides notification and alerts to ATC</td>
</tr>
<tr>
<td>1200</td>
<td>Notifies ground-based sites of special observing schedules and operating instructions</td>
</tr>
<tr>
<td>1200</td>
<td>Disposition, control of weather development</td>
</tr>
<tr>
<td>1700</td>
<td>Forecast update</td>
</tr>
</tbody>
</table>

#### Case C: IOP today

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>0630</td>
<td>Weather analysis and forecast</td>
</tr>
<tr>
<td>0700</td>
<td>Daily planning meeting</td>
</tr>
<tr>
<td>0800</td>
<td>Provides updates to ATC</td>
</tr>
<tr>
<td>0800</td>
<td>Distribute daily briefing package</td>
</tr>
<tr>
<td>0800</td>
<td>Notifies ground-based sites of special observing schedules and operating instructions</td>
</tr>
<tr>
<td>until 0900</td>
<td>Deliver status report from all facilities</td>
</tr>
<tr>
<td>end of IOP</td>
<td>Observation/modification of scheduled mission</td>
</tr>
</tbody>
</table>

#### Case D: IOP yesterday

<table>
<thead>
<tr>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800-1700</td>
<td>Present at OC</td>
</tr>
<tr>
<td>0900</td>
<td>Aircraft debriefing</td>
</tr>
<tr>
<td>until 0900</td>
<td>Deliver status report from all facilities</td>
</tr>
<tr>
<td>1000</td>
<td>Daily planning meeting</td>
</tr>
<tr>
<td>1100</td>
<td>Distribute daily briefing package</td>
</tr>
<tr>
<td>1200</td>
<td>Disposition, control of weather development</td>
</tr>
</tbody>
</table>

"IOP yesterday" and "IOP tom." → "IOP tom."; "IOP today" and "IOP tom." → "IOP today"
Daily operations and planning schedule. Valid 7 days/week unless down day.

Down days: result of the weather situation, specific amount of consecutive days, significant amount of COPS instruments not operational, remaining resources too small
Schematic of suggested COPS interactions and decision sequences

⇒ WG tomorrow: discuss details, adjustment of OC staff and decision process
3. Status Quo of NinJo

- System has been installed at IMK
- Problems with sorting incoming files into the right directories ➞ up to now, not all available data can be received (synop data is still missing)
- Model data, Radar data, Satellite data √
- Meteosat 8 high-res. images incl. sat. products √ (cloud type, cloud top height, cloud top temperature, total precipitable water, layer prec. water (upper, mid, low), stability analysis imagery)
- Move whole system to OC (sat. dish, server, client) or just install client?

⇒ skip screenshots
Contact:
Phone Operations Director: 0180...
Mail Operations Center: copsoc(at)gmail.com

Address:
COPS Operations Center
Airport Boulevard B210
D-77836 Rheinmünster

You can find us using Google Maps

Baden-Airpark with Airpark Business Center (location of COPS Operations Center) and conference room Venezia.
The Operations Center is located in the 4th floor of the Airpark Business Center.
The Debriefings will be held in the conference room Venezia in building B206.
⇒ Link to OC location with Google Maps
COPS

Convective and Orographically-induced Precipitation Study

Intensive Observation Period of the Priority Program 1167
"Quantitative Precipitation Forecast" of the German Research Foundation (DFG)

A Research and Development Project within the World Weather Research Programme
of the World Meteorological Organization (WMO)

Project Summary

The Convective and Orographically-induced Precipitation Study (COPS) is an international field campaign initiated within the German 6-year Priority Program 1167 "Quantitative Precipitation Forecast-PQF (Precipitations Quantitative Predictio)". The German Research Foundation (DFG) provides basic funding for PQF. Within this project, 11 universities, 3 research centers, and two meteorological services are working together on 23 projects in connection with surface-atmospheric exchange, orographic effects, convection, cloud microphysics, data assimilation, and parameterization. For the field experiment, a region in southwestern Germany/eastern France has been selected, where, on the one hand, severe thunderstorm activity is frequent in summer with significant amounts of precipitation and risk of flash flood events. On the other hand, the skill of numerical weather forecasts in this region is particularly low.

The objective of COPS is to identify the physical and chemical processes responsible for the deficiencies in QPF over low-mountain regions with the goal to improve their model representation. Consequently, the overarching goal of COPS is to

- Advance the quality of forecasts of orographically-induced convective precipitation by 4D observations and modeling of its life cycle.
- Through strong collaboration between modelers, instrument PIs, weather forecast centers, and hydrologists a list of fundamental hypotheses has been developed, which will be addressed by combining three fundamental components of COPS:
  1. Synergy of unique in-situ and remote sensing instruments with unique measurement properties on different platforms.
  2. Advanced high-resolution models optimized for operation in complex terrain.
  3. Data assimilation and ensemble prediction systems.

- Intense links to international research programs such as THORPEX and MAP-DFPDP-PHASE have already been established, as these are considered essential to reach the scientific goals. The first link ensures the improvement of the modeling of the large-scale conditions in the COPS region and studies of the interaction of small-scale and large-scale processes. The latter provides operational deterministic and probabilistic forecasts for the COPS region for mission planning but also for a validation of these forecasts with previously unachieved details.
- The strong collaboration between instrument PIs and the modeling community will ensure a long-term, significant improvement of operational QPF. COPS also contains a strong educational component, which ensures that students from schools and universities will get hands-on experience in the performance of measurements during an international field campaign. It is expected that these activities will improve the competences of students in weather and climate education at schools and universities.
- If the science goal of COPS is accomplished, advanced process understanding will lead to improved QPF in a critical region where skillful prediction of rain is especially important for economy and society. We expect that the results can also be applied in other regions of interest all over the world.

COPS is supported by an initiative of German Helmholtz Centers within the framework of the "Transport and Chemical Conversion in Convective Systems" project

⇒ Information about COPS and TRACKS, Project office, and Links to related projects

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Table will grow every day during the field campaign
Facility status summary for every month, colours define actual status (up, down, provisional, no report), click on specific day...
...to get the summary of this day ➞ all PI’s will get a user-id and a password to deliver the status report of their instruments (actual list is incorrect and still under construction)
⇒ after login, click on your instrument (marked blue); only right to edit your own instrument

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choose the status from a drop-down menu (up, down, provisional) and enter your comments; Facility status will be updated immediately, re-edit is possible
### Missions

<table>
<thead>
<tr>
<th>IOP</th>
<th>Begin Date/Time</th>
<th>End Date/Time</th>
<th>Scenario</th>
<th>Daily Reports</th>
<th>Notes</th>
</tr>
</thead>
</table>

⇒ Information about all IOP's will be summarized here
Forum provides exchange possibilities between COPS scientists:
upload of text and pictures; archive for every day
daily briefing package and other information will also be distributed via email, please subscribe to this list by entering your email address here
a password will be sent to you immediately; please confirm your subscription by entering the password (Preferences: change pw, change or add email address)
5. Accommodation possibilities at Baden-Airpark

- 3 double rooms in the building of the conference room B206
- modern and comfortable furniture with double bedrooms, TV, and shower or bath tub
- please contact Sybille Klug for booking or further information: +49 (0)7229 662 111
  Sybille.Klug@baden-airpark.de

- approx. 10 single rooms in building B112
- TV/Sat, showers on each floor and partly a common kitchen (for long-term residence)
- Inquiries/bookings can be carried out by calling +491727245059 (Mr Breuer) book early!
- Prices including VAT: 1 day 35; 1 week 120; 14 days 200; 1 month 350 Euro

A selection of hotels in the surrounding of Baden-Airpark: Search with Google Maps
6. Open points

- **Operational Products**
  - what measurement systems are capable of regularly transmitting quicklooks to the OC? e.g. radiosonde data and quicklooks would be very helpful for mission planning ⇒ please contact me during the workshop

- **D-PHASE Products**
  - reduce the number of plots to 10000 - 15000 per day (storage capacity!)
  - IMK will provide an ftp-server, where all participating model groups can upload their quicklooks ⇒ we need to know at what time of day the files will be sent for preparation of the visualisation area

- **Operations Coordination**
  - further adjustment of OC staff and decision process? ⇒ WG tomorrow
Thank you

...please don’t forget to visit http://www.cops2007.de for registering to the COPS mailing list!