

Minutes of the MAP D-PHASE Steering Committee meeting, 13-14 March, Zurich

Participants: Silvio Davolio, Manfred Dorninger, Christoph Hegg (only on Monday), Roberto Ranzi, Evelyne Richard, Mathias Rotach, Yann Seity, Michael Staudinger (from 16:30 on Monday), Hans Volkert, Volker Wulfmeyer (only on Tuesday), and Marco Arpagaus (MD coordinator; minutes)

Excused: Giuseppe Frustaci, Ken Mylne, and Christoph Schär

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1. Opening, adoption of the agenda, minutes, action list

Mathias Rotach opened the first MAP D-PHASE Steering Committee meeting and welcomed all participants.

The agenda was adopted unanimously. – Since some of the participants were not able to attend the entire meeting, a few items on the agenda have been shifted during the course of the meeting. For better readability, the minutes however follow the order of the items as given on the agenda.

The minutes of the meeting of the WG chairs (7-8 Nov 2005, in Zurich) have been approved.

The action list from the meeting of the WG chairs (7-8 Nov 2005, in Zurich) has been reviewed. The status of the different tasks is given in the table below. Tasks that are mentioned in the MAP D-PHASE Implementation Plan (see respective item on the agenda) are marked with '*→ IP*' and have not been discussed. They however re-appear in the updated action list in appendix 1, possibly in a re-phrased form. – *Comments to some of the tasks are printed in italics.*

Action list of WG-chair meeting, 7-8 November 2005

#	Action	Responsible	Due date	Status, remarks	Done
WG-DI 1	Elect new chairman of the WG-DI.	Rotach	12.2005		13.3.2006
<i>Andrea Montani (ARPA-SIM, Bologna) has been elected as new chair of WG-DI.</i>					
WG-DI 2	Work out common specification for data format (atmospheric and hydrological model output, observational data) and data flow (including timing, i.e., when what data needs to be where).	WG-DI	02.2006	Coordinate with WG-VER and Beijing 2008 FDP.	→ IP
WG-DI 3	Work out requirements (for automated alerts, cf. WG-EU 4, and model selection, cf. WG-DI-4) by hydrological modellers concerning area-averaged precipitation sums provided by (all) the atmospheric models.	WG-DI	02.2006	6h, 12h, or 24h sums? Lead times? – What thresholds (for alerts)? – Different requirements for different target areas?	→ IP
WG-DI 4	Work out conceptual procedure to select high-resolution atmospheric model runs (and COSMO LEPS members) that best represent the uncertainty of the different high-resolution atmospheric models (spread of the COSMO LEPS), for all target areas. The selected model runs will serve as input for the hydrological model ensembles.	WG-DI	02.2006	How many members? What percentiles? – Coordinate with WG-EU.	→ IP
WG-DI 5	Work out technical realization of automated alerts for the hydrological modellers based on atmospheric model outputs.	WG-DI and MD-Co	02.2006	How will the alerts be stored on the data interface, and how will the information be retrieved? – Part of the implementation plan.	→ IP
WG-DI 6	Work out data flow and technical realization for collection of end user evaluation.	WG-DI	02.2006	Coordinate with WG-VER.	→ IP
WG-EU 1	Complete and approve the end user questionnaire and prepare the mailing list.	WG-EU	12.2005	50% already done by 11.2005.	13.3.2006
<i>See WG report later on.</i>					
WG-EU 2	Contact Landesamt für Umweltschutz Baden-Württemberg (Werner Schulz, Karlsruhe) to coordinate hydrological forecasts for the COPS area.	WG-EU	12.2005		
<i>No information (Roberto Ranzi will contact Uwe Ehret again).</i>					
WG-EU 3	Set-up list of pairs 'hydrological modeller – end user'; define contents of this list and collect the respective information for the already known hydrological modellers / end users. Coordinate the end user involvement (and appoint responsible hydrological data provider) for large target areas	WG-EU	01.2006	Necessary information for the end user list: hydrological modeller, end user, target area, additional data providers (e.g. nowcasting). –	→ IP

Action list of WG-chair meeting, 7-8 November 2005

#	Action	Responsible	Due date	Status, remarks	Done
	with more than one end user.			Constant updating of this list with new hydrological modeller / end user pairs.	
WG-EU 4	Work out thresholds for atmospheric models (and nowcasting tools) for automated alerts (for each target area) to the hydrological modellers.	WG-EU	02.2006	Coordinate with WG-DI.	→ IP
WG-EU 5	Organize end user workshops, mainly for training/educational purposes (tentatively planned for spring 2007).	WG-EU	as needed	Input: results / information of end user questionnaire.	
WG-EU 6	Prepare questionnaire for collection of cost/loss specifications of the end users.	WG-EU	07.2006		
WG-VER 1	Work out variables and lead times to be verified, both for atmospheric and hydrological models. Agree on scores to be used.	WG-VER	02.2006		→ IP
WG-VER 2	Work out evaluation protocols for end users.	WG-VER	02.2006	Coordinate with WG-EU.	→ IP
WG-DP 1	Ensure that all necessary observational data will be provided.	WG-DP	02.2006	Observational data should be available xxx (to be defined by WG-VER) months after measurement time. – Met Services should be the main data providers. – Coordinate with COPS.	
<i>See WG report later on.</i>					
WG-DP 2	Investigate possibility to obtain non-GTS data from COSMO.	WG-DP	02.2006	E.g., precipitation data.	
<i>Possibility exists, yes. Formalisation pending.</i>					
MD-Ch 1	Contact Michael Denhard to discuss possibility of setting up a micro-PEPS (constructed from the high-resolution atmospheric models).	Rotach	12.2005		13.3.2006
<i>Michael Denhard is not able to set up a micro-PEPS due to other responsibilities at DWD.</i>					
MD-Ch 2	Clarify status of additional observations by EUCOS.	Rotach	12.2005		
<i>Not yet done. – Coordinate with MEDEX efforts.</i>					
MD-Ch 3	Prepare WWRP FDP and/or MAP D-PHASE letter of recommendation for possible proposals to national funding bodies.	Rotach	on request		

Action list of WG-chair meeting, 7-8 November 2005

#	Action	Responsible	Due date	Status, remarks	Done
MD-Ch 4	Nominate chairman of local organizing committee of MAP D-PHASE meeting. (Note added in proof: An offer has been made to host the MAP D-PHASE meeting at the University of Vienna.)	Rotach	02.2006	Meeting in cooperation with COPS? Where?	13.3.2006
<i>The meeting will take place in Vienna on 6-8 November 2006. Manfred Dorninger will be the chairman of the local organizing committee. See item 'MAP D-PHASE Meeting' on the agenda.</i>					
MD-Ch 5	Organize MD-SC Meeting for 13.3.2006.	Rotach	12.2005		13.3.2006
MD-Co 1	Set up first draft of MAP D-PHASE implementation plan.	Arpagaus	12.2005		13.3.2006
<i>See item 'MAP D-PHASE Implementation Plan' on the agenda.</i>					
MD-Co 2	Set up a MAP D-PHASE web-site.	Arpagaus	12.2005		13.3.2006
<i>See item 'Information, web-site' on the agenda.</i>					
MD-Co 3	Put mail addresses of all MD members on the MD web-site.	Arpagaus	12.2005	Identify all MD members as members of a WG, if needed by sending out a mail to all MD members (WG chairs provide a short WG description as soon as possible). Additionally, mark them as being atmospheric or hydrological modellers or nowcasting/real-time observational data provider, respectively.	13.3.2006
<i>See item 'Information, web-site' on the agenda.</i>					
MD-Co 4	Evaluate MAP D-PHASE information platform.	Arpagaus	12.2005	E.g., publish an electronic MAP D-PHASE newsletter at regular intervals.	13.3.2006
<i>See item 'Information, web-site' on the agenda.</i>					
MD-Co 5	Work out technical realization of storage and display of end user alerts (for each target area) by hydrological modellers.	Arpagaus	02.2006	Aim: information to end users (and other involved groups) about alerts for other target areas than their own (for which the alerts will be provided to the end users by the respective	→ IP

Action list of WG-chair meeting, 7-8 November 2005

#	Action	Responsible	Due date	Status, remarks	Done
				responsible hydrological modeller). – Part of the implementation plan.	

The updated action list, resulting from this meeting, as well as a list of acronyms can be found in appendix 1 and 2, respectively, at the end of this document.

2. Information

WWRP FDP (Rotach)

WWRP has endorsed MAP D-PHASE as WWRP FDP at its meeting in Kunming (China) in November 2005. – The WWRP/SSC urged MAP D-PHASE to establish a strong cooperation with the Beijing 2008 RDP/FDP and COPS RDP projects in order to share data formats and software.

In February 2006, the WMO CAS (Commission for Atmospheric Science) has welcomed and acknowledged MAP D-PHASE as WWRP FDP.

COST 731 (Rotach)

The Swiss National Science Foundation has funded two PhD positions in the framework COST 731. For more information on COST 731 see item 'Related Projects'.

Meteorisk II (Rotach)

The proposal for Meteorisk II (INTERREG IIIB Alpine Space) has not been funded. For more information on Meteorisk see item 'Related Projects'.

ECMWF strategy for 2006 – 2015 (Volkert)

The strategy for ECMWF has been published on the internet (cf. <http://www.ecmwf.int/about/programmatic/2006/index.html>). It contains some interesting information concerning warnings. Some of it may be helpful for MAP D-PHASE, and it may be worthwhile for MAP D-PHASE to approach ECMWF in this respect.

Web-site (Arpagaus)

A first version for a new MAP web-site was examined during the meeting. Hans Volkert as chairman of the MAP Steering Committee encouraged MAP D-PHASE to make the MAP D-PHASE parts of the web-site more prominent. The MAP D-PHASE coordinator will try to make the site more appealing and will allow himself more freedom in changing the site to the benefit of MAP D-PHASE. – The new web-site should be online at <http://www.map.meteoswiss.ch> by the end of April.

As a remark (and result of a short discussion), the name 'MAP D-PHASE' may in general be shortened to 'D-PHASE', which reflects the more important part of the Project and is itself the acronym for 'Demonstration of Probabilistic Hydrological and Atmospheric Simulation of flood Events in the Alpine region'. However, D-PHASE will always remember its origin and hence use 'MAP D-PHASE' whenever appropriate.

Concerning a D-PHASE logo, some ideas have been put forward for a new logo. Urs Germann will be contacted to prepare a draft of a new logo.

3. Reports from the working groups

WG-DI (NN)

No information, since the working group had no chairman up to today. – Andrea Montani (ARPA-SIM, Bologna) is the new chairman as of today, and will take up his duties as soon as possible.

WG-EU (Ranzi)

- A questionnaire (in Italian, German, French, Slovenian, and English) to potential end users has been circulated. – 13 answers have been received (from Italy and Switzerland so far). In some countries (e.g., France, Austria), the distribution of the questionnaire is still pending. The amount of replies is encouraging. A second, more detailed questionnaire will need to be prepared to obtain the necessary information for the Implementation Plan from the end users.
- The name of the working group has been changed to 'Hydrology and End Users' (WG-HEU). The group will be co-chaired by Roberto Ranzi and Christoph Hegg.

WG-VER (Dorninger)

- The working group has been subdivided into sub-tasks as follows (coordinators in brackets):
 - EPS verification (Chiara Marsigli)
 - HRES grid point verification (Manfred Dorninger)
 - Object oriented verification (Christian Keil)
 - Verification of hydrological models (NN)
 - Measure of overall success (with WG-HEU)The task of the coordinators is to centralize and unify the calculation and the output of the products, i.e.,
 - to identify who is working in this field;
 - to collect and combine the results;
 - to estimate the man power needed.
- Contact has been established with WWRP/WGNE Working Group on Verification (Barb Brown) and TIGGE (Beth Ebert).

WG-DP (Rotach)

- Letters to the data providers have been prepared and are (almost) ready to be sent out.
- Radar data: A short discussion on radar data highlighted the wish for a radar composite product as produced for the MAP SOP. Also, a gridded product derived from rain gauges would be very much appreciated.
- Some precipitation and radar data may be made available through Meteorisk. Mathias Rotach will check with Michael Staudinger.

4. MAP D-PHASE Implementation Plan

Marco Arpagaus gave a short overview of the MAP D-PHASE Implementation Plan (MD-IP; draft version 0.5). Thereafter, various aspects of the MD-IP were discussed.

The decisions made by the Steering Committee, many of them related to questions raised in version 0.5 of the MD-IP, are as follows:

- The basic assumptions put forward by version 0.5 of the MD-IP have been approved. These are:

- *All data, all alerts, and all feedbacks* are stored on the common *data interface* (DI) and are verified or evaluated, respectively.
- *All data* (predefined set of products) are *visualised* on the common *data visualisation platform* (DVP). – Note added in proof: For technical reasons, the MD-IP does currently not foresee to visualise observational data or products derived from observational data in real-time.
- *All alerts* are *visualised* on the common *warning and feedback platform* (WFP). The WFP is also used to collect user feedback.
- The *implementation* is *in general* accomplished *individually* by the participating institutions (examples: delivery of data in common format). Exceptions to this rule are the implementation of the data interface, the common visualisation platform, and the warning and feedback platform, respectively, the visualisation of atmospheric and hydrological model products as well as of all the alerts, and the generation of alerts from atmospheric and hydrological models (see MD-IP for details).
- The data interface (DI) will be realised in collaboration with COPS (position financed by DFG). The data interface will store all data, all alerts, and all feedbacks produced within the MAP D-PHASE framework.
- The data visualisation platform (DVP) will be realised in collaboration with COPS (position financed by DFG). It will visualise all data produced within the MAP D-PHASE framework.
- The DI and the DVP will be realised at the DKRZ in Hamburg.
- The two project coordinators (Andreas Behrendt for COPS and Marco Arpagaus for MAP D-PHASE) take the lead in building up an intensive collaboration between the COPS and MAP D-PHASE communities on which future work can be based. As part of this initiative, they will use their data (mainly model data) as prototype input for the data interface and data visualisation platform to get a first taste of and experience with the full DI and DVP systems running during MAP D-PHASE. The two coordinators are also responsible for the detailed specification of the technical realisation of storage and retrieval of data, alerts, and feedback and of the technical realisation of common data visualisation platform, respectively (tasks MD-Co 6 and MD-Co 7). – Note added in proof: This collaboration has already started successfully, and some of the activity triggered in this context has caused the substantial delay of the completion of these minutes ...
- Meteorisk is ready to investigate the possibility of visualising the alerts produced in the MAP D-PHASE framework. The additional resources needed to realise the warning and feedback platform (WFP) will have to be explored, and Meteorisk will possibly ask for some financial contribution from D-PHASE. In parallel, D-PHASE will be part of the future Meteorisk II proposal to hopefully secure some additional INTERREG resources.
- Most individual tasks mentioned in the MD-IP were attributed to the Working Groups, specific persons, or components of the end-to-end forecasting system as suggested by the MD-IP draft. Exception to this rule are:
 - Detailed specification of the products to be visualised (sections 3.1.4, 4.1.4, 5.1.4, and 6.1.4, respectively): WG-DI rather than WG-HEU.
 - Detailed specification of online monitoring products to be visualised (section 9.1.4): WG-DI rather than WG-HEU.

- NN was replaced by MD-DC (the responsible for the MAP D-PHASE Data Centre, comprising the DI and DVP), MD-WP (the responsible for the MAP D-PHASE Warning Platform, the host for the WFP) MD-Co and COPS-Co, respectively, according to the decisions documented above.
- Detailed specification of target areas (section 2.4) has been assigned to MD-WP.

As a concluding remark, Hans Volkert stated that the most important thing for MAP D-PHASE and COPS is to establish mutual trust between the two projects. There will always be potential conflicts concerning resources, so it must be ensured that requirements of COPS and D-PHASE are not competing with each other.

The updated version of the MD-IP, incorporating all the changes mentioned above, as well as suggestions and comments made during the discussion of the MD-IP (which are not explicitly documented in these minutes), is version 1.0, and is available at www.map.meteoswiss.ch, the MAP D-PHASE web-site.

Additionally, all pending tasks mentioned in the MD-IP are documented in the action list (appendix 1). As new due dates, June 2006 has been set for all the *specification* tasks and February 2007 for all the *implementation* tasks (except for components providing input data for other automated components, i.e., atmospheric models, nowcasting tools, and observational data, as well as for the data interface, for which November 2006 has been set). The due date for a prototype system (full system, but only with prototype input provided by some of the D-PHASE participants) is the MAP D-PHASE meeting in Vienna, i.e., November 2006 (see next item).

5. MAP D-PHASE Meeting

- The meeting will take place **6-8 November** (Monday to Wednesday), 2006, in Vienna.
- The Springer Schlössl (a castle!) close to Schloss Schönbrunn (space for some 80 people, absolute maximum 100) would be a possible venue. – Reservation deadline for this venue is end of March.
- The meeting may last from Nov 6, morning or noon, to Nov 8, noon. A MD-SC meeting is planned for Nov 8, afternoon.
- A room for side meetings will be available for WG meetings. Informal meeting possibilities are also available.
- The WG chairs constitute the Programme committee. Hans Volkert will act as advisor.

6. Money – new opportunities on the horizon

There are still no finances for a micro-PEPS, i.e., the poor man's ensemble based on the high-resolution atmospheric models.

Ideas for funding resources put forward:

- Deutsche Bundesländer (Germany)? – Volker Wulfmeyer will check in Baden-Württemberg.
- European Science Foundation (ESF) / EUROCORES: deadline for proposals for new EUROCORES Programmes (EUROCORES Themes) is 1 June 2006. – Note added in proof: This potential funding is too late (first call for proposals based on new themes in March 2007). Additionally, CORISK, a potentially interesting theme

selected in last year's call for EUROCORES Themes, was not able to launch a call for proposals due to lack of financial support from the ESF member organisations.

- Wherever, based on the ECMWF strategy (see item 'Information' above)?

7. Related projects

COPS

Volker Wulfmeyer gave a short overview of COPS ('Convective and Orographically induced Precipitation Study'), the Intensive Observation Period of the German funded PQP (Praecipitationis Quantitativae Praedictio) Programme. The COPS period is June to August 2007. In addition to the intensive observation period, a general observation period (GOP) will span the entire year 2007, covering a larger geographical domain than COPS.

The COPS Data Archive will be realised by the Group 'Models and Data' at the DKRZ in Hamburg. Head of the group is Michael Lautenschlager.

One of the measurement super-sites will be the ARM Mobile Facility, which will be taking data from 1 April to 31 December 2007.

The next COPS workshop will take place on 10-11 April in Hohenheim.

The financing decision by the DFG will be finalised at a meeting of the DFG on the 7th of April. – Note added in proof: The DFG has allocated roughly 2 MEuro for the COPS project.

Meteorisk II

Michael Staudinger provided an overview on Meteorisk.

- Meteorisk has experience with assessing model output across boundaries (e.g., discussion among forecasters of different weather centres concerning different simulations).
- A lesson learned within Meteorisk is that warning information to the public has to be much more detailed as has been done so far.
- Meteorisk has gathered a lot of (precipitation) data and has done statistical analysis based on these data.
- Funding for Meteorisk II could start as soon as 2007 (exact date depending on the next Alpine Space call), but no funding is currently guaranteed.

Due to lack of time, the reports on all the other related projects (i.e., TIGGE, ETReC07, Beijing 2008, Risk-AWARE II, PREVIEW, and COST 731) had to be dropped.

8. Next meeting and any other business

The next meeting of the MAP D-PHASE Steering Committee will take place on 8.11.2006, in Vienna.

Appendix 1: Action list¹

Action list of MAP D-PHASE Steering Committee meeting, 13-14 March 2006

#	Action	Responsible	Due date	Status, remarks	Done
WG-DI 2	Work out detailed specification of information flow for and common format of output data. Define variables and lead times needed as input for the hydrological models	WG-DI	06.2006	See MD-IP sections 3.1.2, 3.1.3, 4.1.2, 4.1.3, 5.1.2, 5.1.3, 6.1.2, and 6.1.3. – Coordinate with WG-VER 1.	
WG-DI 4	Work out detailed specification of warning criteria for alerts by limited area EPSs and the high-resolution EPS for ensemble hydrological models	WG-DI	06.2006	See MD-IP section 3.2.2.	
WG-DI 6	Work out detailed specification of information flow for feedback.	WG-DI	06.2006	See MD-IP sections 7.3.2 and 8.3.2. – Coordinate with WG-VER 2.	
WG-DI 7	Work out detailed specification of atmospheric model / hydrological model / nowcasting products to be visualised.	WG-DI	06.2006	See MD-IP sections 3.1.4, 4.1.4, 5.1.4, and 6.1.4.	
WG-DI 8	Work out detailed specification of warning criteria for alerts by limited-area EPSs for atmospheric models.	WG-DI	06.2006	See MD-IP section 3.2.2.	
WG-DI 9	Work out detailed specification of information flow for alerts.	WG-DI	06.2006	See MD-IP sections 3.2.3, 4.2.3, 5.2.3, 6.2.3, and 7.2.3.	
WG-DI 10	Work out detailed specification of common format of alerts.	WG-DI	06.2006	See MD-IP sections 3.2.4, 4.2.4, 5.2.4, 6.2.4, and 7.2.4.	
WG-DI 11	Work out detailed specification of common format for feedback.	WG-DI	06.2006	See MD-IP sections 7.3.3 and 8.3.3.	
WG-DI 12	Work out detailed specification of online monitoring products to be visualised.	WG-DI	06.2006	See MD-IP section 9.1.4.	
WG-HEU 2	Contact Landesamt für Umweltschutz Baden-Württemberg (Werner Schulz, Karlsruhe) to coordinate hydrological forecasts for the COPS area.	WG-HEU	06.2006		

¹ For acronyms, check appendix 2.

Action list of MAP D-PHASE Steering Committee meeting, 13-14 March 2006

#	Action	Responsible	Due date	Status, remarks	Done
WG-HEU 3	Work out detailed specification of impact areas.	WG-HEU	06.2006	See MD-IP section 2.4.	
WG-HEU 4	Work out detailed specification of warning criteria for alerts produced for (deterministic) hydrological models	WG-HEU	06.2006	See MD-IP sections 3.2.2, 5.2.2, and 6.2.2.	
WG-HEU 5	Organize end user workshops, mainly for training/educational purposes (tentatively planned for spring 2007).	WG-HEU	as needed	Input: results / information of end user questionnaire.	
WG-HEU 6	Prepare questionnaire for collection of cost/loss specifications of the end users.	WG-HEU	07.2006		
WG-HEU 7	Work out detailed specification of visualisation of alerts.	WG-HEU	06.2006	See MD-IP sections 3.2.5, 4.2.5, 5.2.5, 6.2.5, and 7.2.5.	
WG-HEU 8	Work out detailed specification of warning criteria for alerts produced for hydrological forecasters.	WG-HEU	06.2006	See MD-IP sections 3.2.2, 4.2.2, 5.2.2, 6.2.2, and 7.2.2.	
WG-HEU 9	Collect and document end user specifications concerning alerts (warning criteria).	WG-HEU	06.2006	See MD-IP section 7.2.2.	
WG-VER 1	Define variables and lead times to be verified.	WG-VER	06.2006	See MD-IP sections 3.1.3, 4.1.3, 5.1.3, and 6.1.3. – Coordinate with WG-DI 2.	
WG-VER 2	Work out detailed specification of evaluation protocol for feedback.	WG-VER	06.2006	See MD-IP sections 7.3.1 and 8.3.1. – Coordinate with WG-HEU.	
WG-VER 3	Work out detailed specification of offline verification.	WG-VER	06.2006	See MD-IP section 9.2.	
WG-VER 4	Make offline verification.	WG-VER		See MD-IP section 9.2.	
WG-VER 5	Work out detailed specification of feedback evaluation.	WG-VER	06.2006	See MD-IP section 9.3.	
WG-VER 6	Make feedback evaluation.	WG-VER		See MD-IP section 9.3.	
WG-DP 1	Ensure that all necessary observational data will be provided (Met Services should be the main data providers).	WG-DP	06.2006	Observational data should be available n month (to be defined by WG-VER) after measurement time. – Coordinate with COPS.	
WG-DP 2	Investigate possibility to obtain non-GTS data from COSMO.	WG-DP	06.2006	E.g., precipitation data. – Possibility exists; formalisation pending.	

Action list of MAP D-PHASE Steering Committee meeting, 13-14 March 2006

#	Action	Responsible	Due date	Status, remarks	Done
WG-DP 3	Work out detailed specification of coordination required to initiate extra observations.	WG-DP	06.2006	See MD-IP section 2.3.	
MD-Ch 2	Clarify status of additional observations by EUCOS.	Rotach	06.2006	Coordinate with MEDEX efforts.	
MD-Ch 3	Prepare WWRP FDP and/or MAP D-PHASE letter of recommendation for possible proposals to national funding bodies.	Rotach	on request		
MD-Co 6	Work out detailed specification of the technical realisation of storage and retrieval of data, alerts, and feedback.	Arpagaus	06.2006	In collaboration with COPS-Co and MD-DC. – See MD-IP sections 10.1.1 – 10.1.3.	
MD-Co 7	Work out detailed specification of the technical realisation of common data visualisation platform.	Arpagaus	06.2006	In collaboration with COPS-Co and MD-DC. – See MD-IP section 10.2.	
MD-Co 8	Work out detailed specification of the technical realisation of common warning and feedback platform.	Arpagaus	06.2006	In collaboration with MD-WP. – See MD-IP section 10.3.	
MD-Co 9	Work out detailed specification of warning criteria for alerts for meteorological forecasters.	Arpagaus	06.2006	See MD-IP sections 3.2.2, 5.2.2, and 6.2.2.	
MD-DC 1	Implement the technical realisation of storage and retrieval of data, alerts, and feedback.	NN	10.2006	See MD-IP sections 10.1.1 – 10.1.3.	
MD-DC 2	Implement the technical realisation of common data visualisation platform.	NN	02.2007	See MD-IP section 10.2.	
MD-DC 3	Work out detailed specification of the technical realisation of information flow.	NN	06.2006	In collaboration with MD-WP. – See MD-IP section 10.4.	
MD-DC 4	Implement the technical realisation of information flow.	NN	02.2007	In collaboration with MD-WP. – See MD-IP section 10.4.	
MD-DC 5	Implement the visualisation of atmospheric and hydrological model products.	NN	02.2007	See MD-IP sections 3.1.4 and 4.1.4.	
MD-DC 6	Implement alerts produced by atmospheric and hydrological models, including implementation of information flow and common data format for alerts.	NN	02.2007	See MD-IP sections 3.2.2 – 3.2.4 and 4.2.2 – 4.2.4.	
MD-WP 1	Implement the technical realisation of common warning and feedback platform.	NN	02.2007	See MD-IP section 10.3.	

Action list of MAP D-PHASE Steering Committee meeting, 13-14 March 2006

#	Action	Responsible	Due date	Status, remarks	Done
MD-WP 2	Implement visualisation of alerts.	NN	02.2007	See MD-IP sections 3.2.5, 4.2.5, 5.2.5, 6.2.5, and 7.2.5.	
MD-WP 3	Implement evaluation protocol for feedback.	NN	02.2007	See MD-IP sections 7.3.1 and 8.3.1.	
MD-WP 4	Implement information flow for feedback.	NN	02.2007	See MD-IP sections 7.3.2 and 8.3.2.	
MD-WP 5	Implement common format for feedback.	NN	02.2007	See MD-IP sections 7.3.3 and 8.3.3.	
MD-WP 6	Work out detailed specification of target areas.	NN	06.2006	See MD-IP section 2.4.	

Appendix 2: List of acronyms

COPS	Convective and Orographically-induced Precipitation Study; Intensive Observation Period of the Priority Program 1167 "Quantitative Precipitation Forecast" of the German Research Foundation, June – August 2007, south-western Germany and north-eastern France; http://www.uni-hohenheim.de/spp-iop
COPS-Co	COPS Coordinator (Andreas Behrendt; behrendt [at] uni-hohenheim.de)
DI	Data Interface
DFG	Deutsche Forschungsgemeinschaft
DKRZ	Deutsches Klimarechenzentrum, Hamburg, Germany
DVP	Data Visualisation Platform
IP	Implementation Plan
MD	MAP D-PHASE; only for internal use
MD-	MD, (optional) prefix for MD specific acronyms
MD-Ch	Chairman of the MD-SC (Mathias Rotach; mathias.rotach [at] meteoswiss.ch)
MD-Co	MD Coordinator (Marco Arpagaus; marco.arpagaus [at] meteoswiss.ch)
MD-DC	MD Data Centre <i>and</i> Person responsible for the MD Data Centre (NN [at] DKRZ)
MD-SC	MD Steering Committee
MD-WP	MD Warning Platform <i>and</i> Person responsible for the MD Warning Platform (NN)
Meteorisk	EU (INTERREG IIIB Alpine Space) funded project; http://www.meteorisk.info
WFP	Warning and Feedback Platform
WG	Working Group
WG-DI	WG Data Interface
WG-DP	WG Data Policy
WG-HEU	WG Hydrology and End Users
WG-VER	WG Verification