

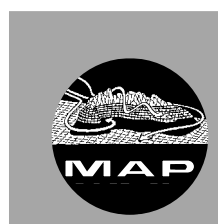
The Mesoscale Alpine Programme

newsletter



MAP

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The MAP newsletter invites short articles on MAP-related topics. **Contributions** to the MAP newsletter should be sent to the Editor Andrea Rossa. **Please deliver your text (graphs included) in a camera-ready format** (pdf or ps in A4 format, see templates at the MAP Data Centre), and be sure that figures are suitable for black and white reproduction.

Your contribution must not exceed 2 pages!

Camera-ready format:
 16.0 cm (6.3 inch)

Title
 Author(s)
 Address(es)

Text

25.0 cm (9.8 inch)

➡ **Deadline for contributions to the MAP newsletter No. 16:**
February 18, 2002 (to appear in March 2002) ⬅

Editorial

It has been approximately a year and a half since the completion of the MAP SOP. The first results are starting to come in and were reported at the recent MAP Science Meeting in Schliersee. The editors of the MAP Newsletter have asked me to give my impressions of our progress and problems in reaching the MAP science objectives. Impressions being what they are, I have made no attempt to discuss here each MAP objective and each line of research being pursued.

One of the emerging themes that struck me was that the split between “dry” and “wet” phenomena was not clear-cut in many cases. For example a number of papers at the Schliersee meeting showed that, for cases of moist southerly flow, moist processes on the south side of the Alps define the characteristics of the medium in which waves (e.g. Foehn and lee waves) on the north side propagate. There were, however, a number of papers concerning gap flow, Foehn, and gravity waves where the effects of moisture could be safely neglected.

Measurements in the Wipptal show fairly convincing evidence for hydraulic-jump-like features in gap flow; theoretical work using the shallow water equations (SWE) generally supports this interpretation. On the other hand, primitive equation models of continuously stratified flow past a ridge with a gap in it are starting to address some of the larger-scale influences. It is my view that we are several steps away from a satisfactory understanding. One of the problems is an old one for mountain meteorologists: Do the SWE capture the essence of the behavior of a vertically unbounded continuously stratified fluid in the circumstances under study? And if so, why?

Newer problems to be addressed are the importance of cold-air advection and drainage effects which were observed during gap flow events.

Prediction of the precise location and timing of mountain-induced gravity-wave activity remains an illusive goal, in part due the uncertainty of effects associated with the existence of a blocked layers in the valleys between mountain

ridges. Unknown at the present are the effects of uncertainties in the initial/boundary conditions used in making the wave predictions. I think it's time to consider making probabilistic forecasts (presumably through ensembles) of gravity-wave events. Similar remarks apply to Foehn prediction. MAP contributions to the latter are still in the potential-to-realized state. The data sets are impressive and some good cases were observed. I look forward to some definitive answers to questions such as “How is the downstream cold-air pool removed?”.

The PV banner work is showing the existence of wakes behind major Alpine peaks, more or less as predicted by models. It is my view that the only quantity that was measured with the required accuracy is the horizontal wind component perpendicular to the mean Alpine ridge (and hence the vertical component of vorticity, assuming the parallel wind component is small). I look forward to seeing results of the model vorticity budgets in the near future.

My own personal experience during the SOP was with precipitation studies. I spent seven weeks at the POC in Milano and was personally involved with events IOP4 - IOP15. I spent countless hours staring at radar images from the Lago Maggiore Target Area (LMTA) and I can count on the fingers of one hand the number of times I saw a convective cell. With the exception of IOP2a and other isolated events, the precipitation over the LMTA had a predominantly stratiform character. This conclusion was reinforced by a number of papers given at the Schliersee meeting. Another personal observation from my time in Milano during the SOP was that, although we expected southerly winds during the strong precipitation events, low-level winds at Milano always had a distinct easterly component. Analysis of observations and models of several IOPs indicate that the easterly component is due to flow deflection by the Alpine Massif and that the blocking can exert a strong influence on precipitation in the LMTA. Forecasting of the properties of the blocked layer (and hence the precipitation) was often difficult.

There were a number of papers looking at the effects of a conditionally unstable flow impinging on an Alps-like obstacle, motivated by unstable soundings observed in Corsica (upwind) during heavy rain events. To reconcile these studies with my remarks in the previous paragraph, I think that the instability hardly ever reached the LMTA. It is my opinion that these idealized studies are more relevant to the Maritime Alps, Ligurian coastal mountains, and the Apennines, rather than the Alps north and west of the Po Valley. Heavy convective activity was observed by aircraft and radars in those locations. A related subjective impression I had was that all models typically under-predicted precipitation

in the Po Valley; my guess is that the coastal convection has an effect on the flow in the wake of the Apennines (i.e. the Po Valley) that is not well-handled by the models.

In summary, I am encouraged and gratified by the contributions we MAPsters are making to the science of mountain meteorology. The SOP data set contains a wealth of information yet to be exploited, and the team at the MDC is making it easier for us to do so. I'm confident that improved understanding and predictive skill will soon follow.

Rich Rotunno NCAR Boulder, Colorado, USA

Summary of the MAP Committee Meetings

Peter Binder, MeteoSwiss, 8044 Zurich, Switzerland

A brief summary of the major outcomes from the meetings of the:

- MAP Steering Committee (MSC, 16-18 May 2001),
- International Governing Panel (IGP, 16/17 May 2001), and
- MAP-NWS Board (17 May 2001)

is given in the following.

■ MAP Steering Committee alive

Tailored to the challenges of managing MAP during the evaluation phase the MAP Steering Committee (MSC) was officially formed at the Schliersee meeting. Philippe Bougeault was elected as chairman, Peter Binder and Ron B.

Smith as co-vice-chairmen of the committee. These votes were taken unanimously. A list of members is given in Table 1. The composition is to assure a reasonable balance and representation of all scientific MAP projects, nations and institutions by experienced and highly committed MAP scientists. Membership was approved by the IGP.

As to the leadership of the IGP, Thomas Gutermaun was re-elected chairman of the IGP for his third term of office, while Roberto Sorani, who recently changed position to the director of the Italian National Weather Service, resigned from his IGP vice-chairmanship. This position has been taken by Peter Steinhauser, director of the Austrian National Weather Service.

■ MAP Data Centre

The MSC expressed a strong request that the MDC should continue its service at the same level of user support for at least another 5 years. The current EUMETNET contract MAP-NWS provides funding until the end of 2002. Positive signals have been received from EUMETNET to negotiate a solution for a follow-up of MAP-NWS. Details are under investigation.

The MAP-NWS budget allows to maintain staffing of the MDC at the current level until the end of 2001, i.e. Hans Hirter supported by Esther Haller, Felix Baum and Claudia Schmengler (amounting to 2.3 additional full positions). In 2002 funding is guaranteed for Hans Hirter and one additional full position.

During March the MDC monitoring, feedback and advisory group has provided more than 50 suggestions, major and minor, to improve the structure and contents of the MDC. MDC staff has already realized a substantial part of these amendments (e.g. MDC News Sheet).

■ DAQUAMAP

The effort for Data Quality Control of MAP surface data will be continued in 2002 (MAP-NWS funded). DAQUAMAP correction proposals are subject to checking by the data providers before they are released in the MAP Data Base. It was decided that the most convenient way of making DAQUAMAP correction proposals available to the users is by storing them in parallel to the original observations.

It was reported that Vaisala radio soundings may suffer from a dry bias of up to 1g/kg at low levels. This can lead to an error in CAPE of a factor of two. Given the outstanding role of radio soundings for NWP initial conditions, the MSC decided to investigate this issue. If it turns out that something can be done about it, DAQUAMAP will be extended to correct the radio soundings.

■ MAP SOP Reanalysis

The MSC decided to open an announcement of opportunity for a reanalysis of the MAP SOP. Invited to tender will be weather centres which run a proven data assimilation suite. The idea is to produce a high-resolution "reference analy-

sis" for the SOP, which includes as many special MAP observations as possible.

In addition, the MSC encourages research in data assimilation at small scales, and WG-NM to take an expert on data assimilation on board.

■ Priorities

Given the limited budget available from MAP-NWS, the MSC defined the following priorities of projects: 1. user service at MDC, 2. DAQUAMAP, 3. possible extension of DAQUAMAP to radio soundings and the moisture bias problem, 4. reanalysis. The financial situation until the end of the contract was seriously considered by the MAP-NWS board. The very positive conclusion was that all proposed projects can be supported.

■ Varia

MAP spin-offs: The two projects that grew out from MAP initiatives under their working titles FACT (Forecasting in the Alps and Complex Terrain) and MAC (Mesoscale Alpine Climate) are strongly supported by the MSC, the IGP and the MAP-NWS board. For more information about these projects see the MAP Newsletter #14.

Future MAP Meetings: As decided at the Innsbruck meeting in autumn 2000, the MAP Meeting 2002 will be joint with the Mountain Meteorology Conference of the AMS in Park City, Utah (17-21 June 2002). The MSC also accepted the invitation by the responsables of ICAM (International Conference on Alpine Meteorology) to jointly organize the MAP Meeting and the ICAM in 2003 in Switzerland.

MAP publications: It was decided to go for a special issue about MAP results in a high-level scientific journal. Investigations about the condition offered by a selection of journals are underway. An official announcement will be published in due course.

MAP Working Groups: There are 12 active MAP Working Groups (see Table 2). They gather scientists interested in the various topics, initiate and coordinate common research and foster exchange of experience and results. Everybody is invited to join the working group of his own interest by getting into contact through the chairperson or a member of the working group (see also the home pages at the MDC).

Table 1 List of Members of the MAP Steering Committee (MSC).

name	institution	country	main SOP contribution
Dr. Robert Benoit	Recherche en Prévision Numérique Environnement Canada	Canada	MC2 Numerical Model, MST
Dr. Peter Binder	MeteoSchweiz	Switzerland	Operations Director
Dr. Philippe Bougeault	CNRM/GMME Météo France	France	Science Director
Dr. Adrian Broad	U.K. Meteorological Office	UK	P6, C-130 missions, MST
Dr. Andrea Buzzi	ISAO-CNR	Italy	P1, Italian Coordination, MST
Dr. Carlo Cacciamani	ARPA-SMR	Italy	Climatology
Prof. Huw C. Davies	Institute for Atmospheric Science ETH	Switzerland	P2, MST
Prof. Dale R. Durran	Dep. of Atmospheric Sciences, AK-40 University of Washington	USA	P4, Electra missions, MST
Dr. Cyrille Flamant	Service d'Aeronomie CNRS/UPMC	France	P1, P4, P5, P7, Fokker missions
Dr. Giuseppe Frustaci	Centro Meteorologico Regionale	Italy	POC Director
Dr. Vanda Grubisic	Desert Research Institute Atmospheric Sciences Center	USA	P7, Electra missions
Dr. Klaus-Peter Hoinka	Institut für Physik der Atmosphäre	Germany	P2, Falcon missions, MST
Prof. Robert Houze	Atmospheric Sciences University of Washington	USA	P1, S-Pol, POC Science Coordinator, MST
Dr. Joachim Kuettner	NCAR	USA	P6, MST
Dr. Georg Mayr	Institut f. Meteorologie und Geophysik Universität Innsbruck	Austria	P4, Brenner Pass instrumentation, MST
Mag. Peter Parson	ZAMG Wetterdienst Innsbruck	Austria	Head of MOC Forecasting Center
Dr. Roberto Ranzi	Università di Brescia Dipartimento di Ingegneria Civile	Italy	P3, Hydrology Coordinator
Dr. Evelyne Richard	Lab. d'Aerologie CNRS/UPS	France	P1, P5, Modelling Coordinator, MST
Prof. Hans Richner	Institute for Atmospheric Science ETH	Switzerland	P5, FORM Master Coordinator
Dr. Mathias Rotach	Institute for Climate Research ETH	Switzerland	P8, Riviera Coordinator
Dr. Richard Rotunno	NCAR	USA	P1, POC Science Coordinator, MST
Dr. Frank Roux	Lab. d'Aerologie CNRS/UPS	France	P1, Electra missions, MST
Prof. Christoph Schär	Institute for Climate Research ETH	Switzerland	P6, P7, Electra missions, MST
Prof. Ron B. Smith	Dep. of Geophysics and Geology Yale University	USA	Science Director
Prof. Reinhold Steinacker	Institut für Meteorologie und Geophysik der Universität Wien	Austria	P4, P5, MST, Austrian Coordinator
Prof. Gunter Stephan	Volkswirtschaftliches Institut, Abteilung Angewandte Mikroökonomie Universität Bern	Switzerland	Social scientist
Dr. Hans Volkert	Institut für Physik der Atmosphäre	Germany	P6, Falcon missions, German Coordinator, MST
Dr. Tomaz Vrhovc	University Ljubljana Department of Physics	Slovenia	Slovenian Coordinator

Status reports of the MAP Working Groups

Various Authors

In the following the status of actively running MAP Working Groups as reported to the MSC in Schliersee are summarized. For more information on the MSC Meeting see P. Binder's article

"Summary of the MAP Committee Meetings" on page 2. Note that not each of the MAP WGs (listed in Table 2) has submitted a summary.

Table 2 List of MAP Working Groups with chair or contact persons.

	WG	chair/contact	email
1.	FORM	Hans Richner	richner@atmos.umnw.ethz.ch
2.	GAP	Georg Mayr	georg.mayr@uibk.ac.at
3.	Numerical Modelling (WG-NM)	Evelyne Richard	rice@aero.obs-mip.fr
4.	Forecasters Group (WG-FC)	Peter Parson	parson@zamg.ac.at
5.	Observational Networks and Mesoscale Climatology (WG-ROUND, MAC)	Christian Häberli Carlo Cacciamani	chi@meteoswiss.ch c.cacciamani@smr.arpa.emr.it
6.	Gravity Wave Breaking (WG-GWB)	Adrian Broad	asbroad@meto.gov.uk
7.	PV-Banners (WG-PVB)	Ron B. Smith	ronald.smith@yale.edu
8.	Hydrological Models (WG-HYD)	Roberto Ranzi	ranzi@bsing.ing.unibs.it
9.	Radar (WG-RAD)	Frank Roux	rouf@aero.obs-mip.fr
10.	Upper-level PV-Anomalies (WG-UPV)	Klaus-Peter Hoinka	klaus.hoinka@dlr.de
11.	Planetary Boundary Layer (WG-PBL)	Mathias Rotach	rotach@geo.umnw.ethz.ch
12.	Lidar (WG-LID)	Cyrille Flamant	flamant@lmd.polytechnique.fr

■ FORM

The group chaired by Hans Richner and Reinhold Steinacker consists of approximately 20 members from following institutions:

- CNRM Toulouse, F
- ETH Zurich, CH
- IMG Vienna, A
- IMK Karlsruhe, D
- LA Lannemezan, F
- LMD Palaiseau, F
- Meteo Suisse Zurich and Payerne, CH
- Obs. Neuchatel, CH
- PSI Villigen, CH
- UIV Bregenz, A
- ZAMG Vienna, A

The key scientific issues are flow splitting, removal of cold air, and role of tributary valleys, with priorities IOP2, IOP8(+9+10), and IOP15. Feedback is given to DAQUAMAP. Semi-annual meetings are being held to exploit synergies and to streamline objectives:

- 1st Meeting in Lochau, A, February 2000
- 2nd Meeting in Charmey, CH, October 2000
- 3rd Meeting held in Vienna, A, April 2001
- 4th Meeting scheduled in CH (Rhine Valley), November 8/9, 2001
- 5th Meeting scheduled in F, Spring 2002

For a list of joint publications see the FORM homepage at the MDC: <http://www.map.ethz/form/title2.html>). The MAP-FORM-WG intends to coordinate submissions to AMS MMC/MAP2002.

■ GAP

The GAP working group evolved out of the people planning for, installing, and operating the measurement platforms in the Brenner target area. After the SOP the focus shifted to ascertaining the quality of the observations and providing them to the MDC. Recently the group was invited to become a formal working group. Since teams from the US, Canada, the UK, France, and Austria participate, meetings are held during international conferences with a MAP focus -

once or twice a year. Most recently we met during the fabulous MAP meeting in Schliersee. An overview article for BAMS is in the internal review phase.

Tasks for the GAP group are to provide the last not yet delivered data to the MDC, and to sift through all the data to find answers to the scientific objectives of GAP. The strategy is to distribute the analyses of all the intensively observed (with aircraft and Doppler lidar) cases among the partners. At the same time, we use idealized numerical simulations to study the key mechanisms and processes behind gap flow.

The data set and the knowledge of the key processes we have so far identified will be a boon for "realistic" modelers who want to take their numerical models to the limits. The steep and narrow terrain together with the frequent sharp inversion on top of the gap flow layer are two of the main challenges.

The next meeting of the GAP group will be in Park City at the Mountain Meteorology/MAP conference.

■ Numerical Modelling

The working group on Numerical Modelling decided to undertake an intercomparison exercise focused on the IOP2b situation aiming i) to assess and compare different high-resolution precipitation forecasts on the Lago Maggiore Target Area and ii) to evaluate their potential for improving flood forecasting. Six different non hydrostatic models (BOLAM, COAMPS, LM, MC2, MM5, Meso-NH) will be run using a common simulation protocol (horizontal resolution as close as possible to 2km, initial and boundary conditions taken from operational ECMWF analysis, 30-hour forecast starting on Sep 19., 1200UTC, ...). The model outputs will be made available on the MDC (in the format defined for the RAPHAEL EU project) and will be used as input for one and possibly two hydrological models. In addition, specific validation products will be defined with the help of the radar groups working on this situation.

MAP-SOP model intercomparison (A. Buzzi):

The Dept. of Physics of the Uni Genova group has undertaken a systematic model intercomparison of models that were run during the MAP SOP (see presentation of Arena et al. at MAP

2001). So far, model data were processed for the following models for precipitation (6-12h) only: ECMWF, LM, BOLAM, SM, MC2. They are looking forward to receiving precip model output from other models, e.g. COAMPS, ALADIN, MM5, LAMBO, ... The work will be repeated using updated MDC precip data, and applying more scores, also following any suggestion from the MAP community about best scores and best procedures to be applied.

■ Gravity wave breaking

There are four main groups working in the subject area of mountain forced gravity waves from the MAP-SOP. These are from Yale University, USA (led by Ron Smith), from NRL, Monterey, USA (Jim Doyle), from DLR, Oberpfaffenhofen, Germany (led by Hans Volkert) and from the Met Office, UK (led by Adrian Broad). The working group has highlighted 3 IOP's from the SOP for in-depth investigation: i) IOP2b - large amplitude trapped lee waves over Austria, ii) IOP13 - moderate amplitude lee waves over Mt Blanc, and iii) IOP15 - trapped lee waves and upwardly propagating longer waves over Monte Rosa.

Linear and non-linear numerical models (Smith linear model and COAMPS) are being used, in conjunction with aircraft observational data, to investigate the complex dynamics involved in these cases. The linear model has been adapted to include an absorption factor at the bottom boundary in an attempt to represent the effect of the atmospheric boundary layer. Scientifically the working group aims to advance understanding of 3D mountain gravity waves from systematic analysis of the exceptional MAP-SOP observational dataset. Two further issues are of prime interest. Firstly to explore the predictability of mesoscale features such as non-hydrostatic gravity waves with very high resolution numerical models. Secondly there is an aim to utilize the observations and high resolution modeling studies to compare against, and improve, current subgrid-scale orographic parametrization schemes in NWP forecast models. A particular issue to address is the partitioning between partially resolved features and unresolved features which need parametrization. Systematic study of this partitioning is required as NWP model horizontal resolution increases, both in global and limited area models.

Achievements to date have been an examination of IOP13 which has led to an appreciation of how the atmospheric boundary layer can modulate gravity wave amplitude and activity in high mountainous terrain. There are indications from IOP2b that the boundary layer is also playing a role in interacting with the gravity lee wave field in this case. Further investigations are on going in all cases.

■ PV-Banners

The PV-Banner Working Group met during the MAP2001 meeting in Schliersee, Bavaria. The items below summarize the MAP PV cases and research projects. PV Cases being studied from MAP are:

- IOP 4-Mistral

- IOP 8-Bavaria
- IOP 15- Mistral
- IOP 15- Po Valley
- IOP 15 -Bora

A partial list of research groups is given in Table 3. The additional issues discussed by the Working Group included:

- The quality of aircraft in situ data
- Model intercomparisons
- Email communications of progress and problems
- Coordinated publications
- Future overview paper on PV-Banners
- WG meeting in park City
- Leadership of the WG (V. Grubisic and C. Schär)

Table 3 Partial list of research groups contributing in the WG PV banners.

Organization	Staff	Cases studied	Model or approach	MAP2001
CNRM	Benech, Flament	IOP 15-Mistral , Po	MesoNH, MC2	
DRI	Grubisic	IOP 8,15-Bora	COAMPS	Session IX
ETH	Schar, Schmidli	IOP 4, 15-Po	MC2	Session IX, B29
Leeds	Mobbs, Ross, Pascoe	Gap flow	Blasius	A9, A10
NCAR	Rotunno	?	Theory	
NOAA	Nance, Ralph	?	?	
NRL	Doyle	IOP 4, 8, 15-Mistral	COAMPS	A20
Italian Met Service	Frustaci	IOP 5, 10	impacts	A19
Vienna	Steinacker	15-Po	impacts	
Yale	Smith, Jiang	IOP 4, 8, 15-Mistral	COAMPS	A20

■ Hydrological models (R. Ranzi)

Now the Technical Report on the experiments of hydrological interest (P3) in the Lago Maggiore Target Area is ready. The papers, indicated below, will soon be ready also as pdf files at the WG site <http://www.ing.unibs.it/~dic-segr/maphyd.htm>. The Report - each paper was revised by one reviewer, in most cases anonymous - aims at providing a description on when, where and how the measurements or the numerical experiments were conducted. This is a necessary and non sufficient condition for a successful scientific experiment, in the Galileo's concept¹.

Sometimes on papers on scientific journals there is not sufficient space to describe the experiments in detail and our collection of papers,

maybe not yet at a 'top' level, might help in better understanding how they are framed in the MAP-SOP experiment. The WG-HYD has been asked by the WG-NM to run hydrological models (WATFLOOD and DIMOSOP implemented at the time of the SOP and, maybe, others) forced by mesoscale models for the IOP-2 with the aim 'to provide a quantitative assessment of high-resolution model capabilities in term of rain (and eventually flood) forecasting ...'. In the group we will hope to find the resources to contribute to this experiment.

¹did you know that Benedetto Castelli, one of his fellows, who was born in Brescia, did the first rainfall measurements, in Italy, for hydrological purposes?

Hydrological aspects in the Mesoscale Alpine Programme-SOP experiment, Technical Report of the Department of Civile Engineering of the University of Brescia, Nr. 10, 2000, Brescia, May 2000, Edited by R. Ranzi and B. Bacchi

1. Ranzi, R., Hydrological aspects in the Mesoscale Alpine Programme-SOP experiment: an overview.

2. Zappa M., Matzinger N., Gurtz J., Hydrological and Meteorological Measurements at Claro (CH)- Lago Maggiore Target Area in the MAP-SOP 1999 RIVIERA experiment including first evaluation.

3. Falappi L., S. Barontini, A. Clerici, G. Grossi, E. Savoldi, R. Ranzi, Field and laboratory soil measurements in the Toce Valley (Italy), during the MAP-SOP 1999 TOCEX experiment.

4. Paloscia, S., G. Macelloni, P. Pampaloni, E. Santi, R. Ruisi Monitoring of soil moisture and vegetation biomass in the Toce Valley (Italy) by using microware radiometry.

5. Menziani M., S. Pugnaghi, S. Vincenzi, L. Pilan, Soil Moisture TDR Measurements at Pallanzeno - Lago Maggiore Target Area in the MAP-SOP 1999 TOCEX experiment.

6. E. Eccel, L. Sicher, Toller, G., The field and laboratory measurements of soil hydraulic properties in the MAP-SOP 1999 TOCEX experiment.

7. Obled, Ch. and A. Djerboua, Quantitative precipitation forecasts: a real time exercise during the MAP experiment.

8. Grossi, G., B. Bacchi, F. Gagni, R. Ranzi, Hydrometeorological monitoring in the Toce valley in the MAP-SOP 1999 TOCEX experiment.

9. Kouwen N. and J. Innes, Coupled MC2-Wat-flood flood forecasting.

10. Montaldo, M., V. Toninelli, M. Mancini, J. D. Albertson and P. A. Troch, Estimation of actual evapotranspiration and soil moisture in the Pieve Vergonte case study.

11. Tagliazucca, M., U. Giostra, L. Falappi, Measurements of turbulent fluxes in the surface layer in the Domodossola-Siberia site during the MAP-SOP 1999 TOCEX experiment.

■ Upper-level PV-anomalies

Work on PV-streamers is in progress at ETH/Zurich and DLR/Oberpfaffenhofen. The IOPs 15 and 17 of MAP-SOP are the key periods of interest. Recently a Diploma-thesis (ETH) and a PhD-thesis (DLR) were finished. At DLR DIAL data in combination with dropsonde data and numerical simulations (MESO-NH) are presently ana-

lyzed. During the SOP of MAP it was planned to perform a validation of the DIAL instrument, however, this was not carried out. Therefore, on 28.03.01 an experiment was performed in order to validate humidity data remotely sensed by the DIAL. This was done in cooperation with ETH/Zurich.

■ Planetary boundary layer

The working group as such has not been very active in the last months, mainly because its destiny (establishing contacts, defining scientific tasks, preparing specific experiments) seems to be fulfilled. The scientists of WG-PBL have, according to their involvement in the various projects dispersed into many other working groups (FORM, TOCEX, Po valley, Riviera). At the moment WG-PBL exists as an address list, which can be activated if necessary. MR will coordinate this and - as a first occasion - will try to stimulate an extract from the (yet to be built) literature list of MAP publications with an emphasis on boundary layer issues in complex terrain.

As far as the Riviera project is concerned, which probably forms the project that was most specifically devoted to the research issues of WG-PBL, large efforts were undertaken for the preparation of post processed data and the establishment of a so-called Meta Data Report. This can be found on the net (http://www.geo.umw.ethz.ch/research/map_riviera/index.html) and will — among other things — serve as a 'read-me file' for the data to appear at the MDC (data will be made available in short time). Besides data analysis, a number of mesoscale numerical models are being used for the simulation of some of the R-IOPs (Riviera IOPs).

As far as publications are concerned there is an overview paper for BAMS in its late stage of preparation. Also, some more technical papers are already in the review process. For 2002, a workshop organized by the Riviera community is planned, for which input from the other WG-PBL members will be sought.

Ongoing Activities and Future Events

■ Activities within MAP

date	event
Nov 15-16, 2001	MAP Steering Committee (MSC) Meeting 2, Milano, Italy
Oct/Nov, 2001	1st workshop in Alpine Forecasting and official start of FACT
Jun 17-21, 2002	MAP Meeting 2002 joint to the AMS Conference on Mountain Meteorology, Park City UT, USA (http://www.ametsoc.org/AMS/meet/meetinfo_hp.html)
Jun 22, 2002	MAP Steering Committee (MSC) Meeting 3, Park City UT, USA

■ Future events related to MAP

date	event
Jul 10-18, 2001	8th Scientific Assembly of IAMAS, Innsbruck, Austria (http://meteo.uibk.ac.at/IAMAS2001)
Jul 19-25, 2001	30th AMS Conference on Radar Meteorology, Munich, Germany
Jul 30-Aug 2, 2001	18th AMS Conference on Weather Analysis and Forecasting, and 14th Conference on Numerical Weather Prediction, Fort Lauderdale, FL, USA
Jul 30-Aug 2, 2001	Ninth AMS Conference on Mesoscale Processes, Fort Lauderdale, FL, USA
Sep 18-21, 2001	DACH-MT: Deutsch-Oesterreichisch-Schweizerische Meteorologen-Tagung, Wien, Oesterreich (http://www.zamg.ac.at/~DACH2001)
Sep 24-25, 2001	International SRNWP Workshop on Nonhydrostatic Modelling, Bad Orb, Germany
Sep 24-28, 2001	ECAM 2001, Fifth European Conference on Applications of Meteorology in conjunction with the First Annual Meeting of the European Meteorological Society (EMS), Budapest, Hungary
Sep 26-28, 2001	International Conference on Mesoscale Meteorology and Typhoon in East Asia, Taipei, Taiwan
Sep 2-6, 2002	International Conference on Quantitative Precipitation Forecast (QPF), Reading, UK
Sep 23-29, 2002	2nd European Conference on Radar Meteorology, Delft, The Netherlands

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