EMS Newsletter

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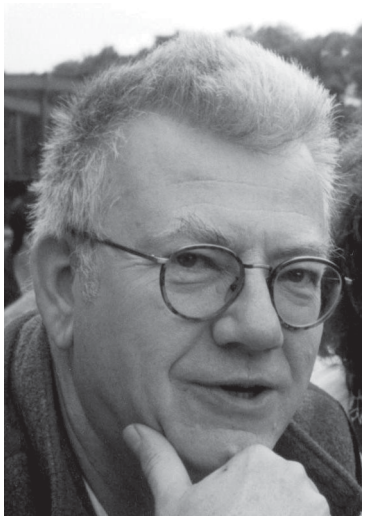

# Editorial

Being elected as EMS President in Brussels in November 2002, I took over responsibilities for EMS from René Morin. EMS and I myself have to thank René, now our Past President, for his very successful efforts in establishing the young society. He did great work! As he often said, EMS has begun as a child, now growing more and more – but there is a long way to become a grown-up: Let us say, in this moment, EMS is a rather large youngster (32 member Societies from 26 European countries and 18 Associates), representing more than 10.000 individual members. NB: The American Meteorological Society (AMS) has of about 12.000 members. But AMS is more than 80 years old whereas EMS just becomes four years old.

With both, AMS and WMO (World Meteorological Organization), EMS has signed co-operational agreements. Especially these organizations expect an increasing role of EMS in all areas of European Meteorology, and I'm sure, our Members do think similarly.

So, EMS has to develop more and more to a platform for all parts of applications of Meteorology and of all applicants. EMS will give all players in Meteorology, i.e. research Institutes, Services, private companies, and users of meteorological information (industry, media, publishers etc.) and, surely, every scientist, the possibility to introduce and discuss their work and results. According to its Constitution, EMS has to support this goal in all aspects to be dealt Europe-wide: Education, accreditation, media information, conferences and publications.

On page 7 of this Newsletter, you may read about the new style of the following EMS Annual Meetings, partly organized "bottom-up" in order to give everybody the opportunity to propose sessions and conveners.

The future work of EMS to be performed successfully is very large: I myself will try to approach this goal together with the EMS Council, Assembly, all Members and Associates. Only these joint efforts will guide EMS to become a grown-up and to play its Europe-wide important role.

Werner Wehry, EMS President

## Contents



EMS BULLETIN OF THE EUROPEAN METEOROLOGICAL SOCIETY

# A message from the EMS Past President

After three years as president of EMS, I have just transferred the full responsibility to Werner Wehry. This gives me an opportunity to look back over the recent past of EMS and to draw some tentative conclusions.

Clearly, what has been done during these three years is very little compared to what is still to be done! However, the efforts of successive Bureau Members and Councillors, working together, have produced some worthwhile achievements. First of all, almost all Meteorological Societies in western and central Europe decided to join: confirming that the idea of creating EMS was sound. The infant has grown as Associate Members have joined: European Meteorological Organizations ECMWF and EUMETSAT, ESA, many National Meteorological Services in Europe, private sector Companies and well-known manufacturers. Our 1st Annual Meeting, held in Budapest in 2001 together with ECAM, was an opportunity to demonstrate that EMS was in a position to bring together important actors in Meteorology and have them openly discuss problems of common interest. Our 2nd Annual Meeting had been organized together with ECAC in Brussels to look at problems related to Climate Change and the economy in Europe. Our 3rd Annual Meeting on strategies of key players in Meteorology will be in Rome, in parallel with ECAM. In the future, the intention is that our Annual Meeting should be twinned with ECAM and ECAC in alternating years, showing our close cooperation with the Meteorological Services. A committee on Meetings, initially chaired by Dominique Marbouty of ECMWF and now chaired by the former Director of the Swedish SMHI, Hans Sandebring, has accepted responsibility in this field, as well as for other meetings and conferences of Europe-wide interest.

To launch and organize other activities, other Committees have started to work:

- an Accreditation Committee chaired by David Axford (a past Deputy Secretary-General of WMO),
- an Education Committee initially chaired by Jon Wieringa (University of Wageningen, Netherlands) and now chaired by Tomas Halenka (Charles University, Praha, Czech Republic),
- an Awards Committee chaired by Werner Wehry (Free University, Berlin),
- a Media Committee chaired by Tanja Cegnar (Slovenian Meteorological and Hydrological Service), and
- a Publications Committee initially chaired by Mike Phillips (EUMETSAT) now chaired by Robert Riddaway (MetOffice).

We are now poised ready to expand our activities.

For EMS, the American Meteorological Society (AMS) is a model we should aspire to emulate in the future, even if Europe is not — yet — one country. It is why I consider that cooperation with AMS is so important. The agreement signed with AMS is an affirmation of the common will of the two Societies to cooperate for their mutual benefit. Meanwhile, a Cooperative Agreement with WMO has been signed as well.

I have very much enjoyed being so much involved in the creation and the first steps of EMS. Also how wonderful it has been to work with very active, cooperative and friendly Vice-Presidents (Stan Cornford, Fritz Neuwirth, Jon Wieringa, Werner Wehry) and all our other Councillors. I want to thank all of them wholeheartedly for their very efficient support and patience. I also have to thank the Presidents of the Member Societies for their constant cooperation.

My gratitude also goes to the Presidents/Directors of all our Associate Members for putting their trust in the future of EMS: their continuing financial, political, moral and practical support is absolutely necessary and one of the conditions for our success.

I must make a special mention of our Executive Secretary. Arne Spekat has been constantly ready to start new action, to prepare a new report, to make a new suggestion. In the long run, he will be the memory of EMS and will play a growing role in EMS. The every warmest of thanks to you indeed, Arne!

Finally, let me say that to develop the activities of EMS in the years to come along the lines already forecast — and trying to balance the books while making the best possible use of the hopefully growing income — will be an enormous, challenging and exciting task. I am sure that Werner is the right man to guide EMS in the right way. And I wish him complete success.

■ Rene Morin, *Société Météorologique de France*

# First Annual Meeting of the European Meteorological Society, 25-26 September 2001, Budapest. Notes from the Round Table

Launching its Meetings series, the European Meteorological Society held a two-day conference which was embedded in the 5th European Conference on Applications of Meteorology (ECAM) in Budapest. The audience at the 1st Annual Meeting of EMS "The Future of Meteorology" had the opportunity to see invited lectures from a host of key figures in meteorology. Another highlight of 1st Annual Meeting was the Round Table, organized and chaired by the EMS President, René Morin. It included Lennart Bengtsson (Max-Planck-Institute for Meteorology, Hamburg), Olivier Moch (Météo France, Toulouse), Harry Otten (MeteoConsult, Wageningen), Hans Sandebring (SMHI, Norrköping) and John Zillman (WMO).

The Round Table was vivid and controversial – as one voice from the floor remarked, it was one of the few that actually worked. A wide range of questions from the floor were asked. They referred to ongoing discussions in the meteorology community, and thus the Round Table did not aim at producing "results". This report has the character of a snapshot, and this observer will introduce to you the strands and threads of the discussion.

**Strand 1: The role of meteorologists in the future**

The main role is research and operational services, though these are rather different. This requires much more specialization. The customers enforce growth in non-automated operational services. Moreover, education in adjacent fields is needed. The ultimate goal is to push forward the frontier of knowledge. One should be proud to be part of a science of public value.

**Strand 2: Public and private Services**

*2a The future of National Meteorological and Hydrological Services (NMHS)*

Weather Services will be remaining as national entities – installing a larger organization is not a short-term issue. On a number of areas, co-operation already exists, e.g. ECMWF and EUMETNET. There is competition between the Services as well, which ultimately improves the quality and the price, to the benefit of the consumers. Doubt was raised whether the NMHS are really interested in uniting. It could be that in a developing world individual services lose their visibility.

*2b Roles of private and public sectors*

The real challenge is to determine which areas are open for competition between the private and the public sector and which areas are not. Two fields in which public authorities must remain in the leading position are infrastructure and public safety. Even though the national funding situation for the upkeep of basic functions is often far from ideal, real problems would be generated by fully privatizing the National Services. In general, both parties involved, though, ought to aim at mutual supportive roles.

**Strand 3: Data Pricing**

Currently we find two paradigms: (i) the urge to make a revenue, in other words *it is immoral for the user not to contribute to the total costs* and (ii) everything paid by the public is public, in other words *it is immoral to charge twice*. A compromise between those only seems to exist in the case when lives are at stake and overarching obligations exist.

**Strand 4: Quality and verification**

The own products are always presented as being of top quality. As for verification, there is no consensus on which means to apply, thus the *quality* of the quality verification is under debate. It should, however, be a challenge to the NMHS to participate in ongoing verification activities carried out on the internet.

**Strand 5: Questions to EMS**

The European Meteorological Society, being a comparably young force in Meteorology, is quite interested to accommodate the needs of the community. Thus questions to EMS were specifically invited.

*5a The role of EMS*

It is obvious that many activities can only or at least be better carried out on a European level. However, EMS aims at a linkage and not a replacement of national Societies. It was added that a vision of the far future might include that these Societies evolve into EMS Chapters.

*5b The activities of EMS*

EMS has launched or is on its way to launch Committees in fields that require concerted actions: (i) Awards for aspiring scientists, (ii) Accreditation for maintaining the quality of professional meteorologist, (iii) Education for fighting the general lack of science in the public, (iv) Media for focusing on the presentation of meteorology, (v) Meetings for co-ordinating scientific conferences and (vi) Publications for reviewing and co-ordinating the dissemination of knowledge. At the moment, EMS aims not at making statements on meteorological issues, but this may evolve with EMS' developing status.

*5c The usefulness of EMS*

The European Meteorological Society offers an overarching structure and a neutral ground for Meteorology in Europe and elsewhere. It advocates the role of science in a time of public over-simplifica-

tion. Several key players in Meteorology have recommended to support EMS; furthermore, the establishment of good linkages with the American Meteorological Society is much appreciated.

*5d EMS-EGS connections*
There had been clear signals from the fellow European Geophysical Society that, for its own good, EMS should become a strong Society. There will be cooperation, e.g., with respect to the organization of conferences, in which the Copernicus organization offers an excellent infrastructure.

The round table concluded with an address of the EMS President, warmly thanking all participants, including the audience, in this highly interesting Round Table. Gratitude was extended to the director of the Hungarian Weather Service, Iván Mersich, for co-hosting the ECAM and the starting conference of EMS.

*Meanwhile, the EMS Publication Series (its ISSN is 1726-5762; see also page 11 of this Newsletter) has been launched. Its first issue of February 2003 covers the lectures held at the EMS First Annual Meeting. Please contact the EMS Secretariat for more details.*

Arne Spekat, *EMS Executive Secretary*

# Second Annual Meeting of the European Meteorological Society, 14-15 November 2002, Brussels. Notes from the Round Table

In November 2002, in conjunction with the European Conference on Applied Climatology (ECAC), EMS held its Second Annual Meeting. The central theme was "Climate Variability and the European Economy". In the course of the two days, three sessions covered regional scenarios, long and short term effects, adaptation, economic protection and climate policy. In the afternoon of 15 November, a Round Table was organized and chaired by René Morin. It included
Ulrich Cubasch (Free University of Berlin), Marc Gillet (Observatoire National des Effets du Rechauffement Climatique), Richard Klein (Potsdam Institute of Climate Impact Research), Martin Parry (University of East Anglia), Christian Patermann (EU) and Rick Rosen (American Meteorological Society).

As at the 1st Annual Meeting, the Round Table drew a lot of attention and there were a great many questions asked from the floor to the esteemed panelists. This report summarizes the areas covered in the course of the Round Table discussion.

**Category 1: Climate Change Science**
Q: What kind of research do you wish to be encouraged for extreme events?
A: There is a scattered landscape of ongoing research; it is not global enough and needs more coordination and less of a single-minded, holistic approach.
A: Should it be restricted to meteorological extremes? Impact extremes are important as well. On the side of the climatologists, robust scenarios of the probability of extreme values are in high demand. Reference was made to an article by Palmer and Räisänen that appeared in Nature in January 2002: *Quantifying the risk of extreme seasonal precipitation events in a changing climate*.

Q: When will be the next Assessment Report of the IPCC?
A: It can be expected that the 4th IPCC Assessment will be completed in 2007. There will be three Working Groups: Climatology, Impacts/Adaptation and Mitigation. This Report is currently in its very early stage. Cross-cutting issues, such as water, vulnerabilities, regional level information, common sets of assumptions and scenarios will be dealt with to a great extent.

Q: Do you agree that there is a growing number of people who think that IPCC is wrong?
A: The debate on this issue is right, of course. However, there is a rather vocal minority doubting IPCC. The voice are louder in the US and Australia, countries which are more hostile to mitigation actions. There is indication that the funds for this minority come, e.g., from the fossil fuel industry. Some individual scolars are not convinced by the IPCC findings as well, though it can be guessed that over 90% of the scientists agree with the results.
A: There is of course uncertainty with respect to, e.g., solar variability and a direct solar impact. A chapter of the IPCC report is devoted to this topic. The effects seem to be rather small, yet growing the last years. Another unsure aspect is the interstellar particle flux, the "space weather" and its potential connection to lower cloudiness.

Q: What should EMS do about all this?
A: The central task of EMS is to provide a forum for open discussion.

Q: How are the IPCC scenarios defined?
A: Scenario IS95 is basically the same as IS92a, though the emissions are modified. As for the model integrations: Those details and the data itself is readily available from the Max Planck Institute of Meteorology in Hamburg.

**Category 2: Adaptation**
Q: What are the costs for mitigation and adaptation
A: It is not possible to give figures for these costs;

they extremely difficult to quantify. Health costs are crucial. An assessment with respect to damages needs to be conducted, aiming at finding out what the costs and what the benefits from the post-Kyoto process are. So far there are no sufficient answers.
A: This issue has philosophical implications and a moral dimension – benefit cannot be the only framework!
A: New approaches to reach an understanding of the problems are needed.

**Category 3: Impact science**
Q: Can uncertainties of emission be properly addressed?
A: The different combinations of technical sophistication and societal developments, known as A1, B1, A2 and B2 from the 2001 IPCC Report need to be better characterized on a global level; moreover, their regionalization needs future attention as well.

Q: What kind of climate data is missing for proper studies of impacts?
A: There is a major need for observational data in order to solve the question whether we are already observing early impacts. The Third Assessment Report of IPCC concluded that we can, indeed, detect early signs of a change, though systematic studies are needed for both, atmospheric variables and ecosystem variables.
A: Observations are of quite high quality in many areas. The largest gaps are in overseas areas. Much work needs to be done on historical data in order to obtain consistent series which are to be compiled into data bases.

Q: Is there a necessity for European Centers on Meteorology and Climatology?
A: There is a great deal of competence in the Meteorological Services. A better co-operation between the centers which lead to networks of excellence ought to be achieved. The consequence would be an increased synergy.

**Category 4: Communication with governments**
Q: What is the responsibility of Meteorology with respect to Global Change?
A: There is an important responsibility of climatologists, since they can further an understanding of the matter within the general public and with governments as well. The next step should be to home in on regional responsibility to produce worthwhile assessments and robust findings, too. All sides must be aware of the risks involved.
A: It should be pointed out that, in a unique step, EUMETSAT has changed its Charter to incorporate climate change.
A: Probabilistic assessments are extremely important. Everyone needs to prepare for and respond to climate change. The need for an excellent information flow needs to be underlined.
A: It should be noted that the users of climate data are very welcome in EMS.

Q: What is the scientists' opinion towards the climate policy of the Bush administration? Is there an AMS focus?
A: The AMS has its main focus on the publication of journals and on the organization of conferences. However they have launched a new Atmospheric Policy Program, which deals with emergency preparedness and energy saving. Several fora were held in the past and there was an AMS statement on climate science. It should be added that even if we reduce the uncertainties, the US government would not substantially alter its course, since the forces behind it are strong. The general opinion with respect to the post-Kyoto process is that it is too expensive for too little results. As a comment: The AMS is a powerful Society and positive that EMS will become one, as well.

**Category 5: Seasonal and statistical/dynamical forecast for Europe**
Q: What is the current status of seasonal forecasts?
A: It might be doubted if operational climate projections are really necessary. GFDL has already started and needs to constantly recalculate their projections. There is not much fascination in re-running climate scenarios.

Q: What opportunities are there to influence governments?
A: There are a number of filters between scientists and politicians. It is a public misunderstanding on the role of the scientists and the frequency of meetings with politicians, though a more direct approach is not really needed – good briefing and lobbying should be favoured.
A: At the 150th Anniversary of the SMF in Paris there has been an exhibition on air pollution, a topic favoured by the "green" Mayor, who likes promoting public transportation – a topic also supported by SMF.

Q: How worthwhile is an emission climate atlas?
A: It is very worthwhile and the NCDC in Asheville/ North Carolina is charged with the collection and organization of climate data.

Q: Could Europe benefit from a unified warning system or does the wide variety call for local warning systems?
A: The paramount fact is the necessity to have a warning system. Whatever a unified system will be, it cannot be the same as in the US. Prerequisites are at any rate that harmonized and comparable data are exchanged and, if need be, large territorial data sets are used. There are doubts if enough coherence is already achieved. The data products need to be compatible among countries. Together with ESA and initiative towards monitoring and early warning has been launched.

A: With respect to floods there are large co-ordination problems in Eastern Europe. It is rather clear-cut in France where the Meteorological Service collects the data, the hydrological services evaluate them and the government issues the warnings, though the chain itself is complex and improved co-ordination between the levels involved is necessary.

Q: What is the user liaison with climate resources?
A: Potential impact areas are to be identified. The translation of results into impacts is difficult and the decision maker need high quality information.

Q: In England, 60% of the science teacher places offered at the universities are not used. What might be an explanation?
A: First and foremost, the education system is a competence of the EU Member states, limiting EU's own competence. In areas where there is space for manoeuvering, EU is helping. The DG Education is doing stimulation work with respect to science education. A large area „Science and Society" has been created and public acceptance of science is a central topic for the 6th Framework Program. In the future EU aims at producing material for schools, though it must be repeated that competence in the individual countries cannot an will not be substituted. Public awareness of the necessity for more efforts need to grow. It is better developed in the new EU candidate countries than in the „old" EU countries. A unified continent needs more synergy to alert the intelligent public.

Q: Since Societies change with a changing climate how does that reflect in the education?
A: The future of science education is a problem in the US as well. AMS has launched its Outreach Program for teachers; it enhances education and stimulates the use of data in schools. Meteorology has in some cases become part of the High School curricula. The target group for future development are the head teachers.
A: There is a variety of means. The 6th Framework Program has stepped up its effort for mobility of researchers including areas outside of Europe, since stimulation can come from a cultural exchange too. One should not underestimate the knowledge of the elder generations with their responsive care. Not only are weather and climate definitely topics per se, they constitute a wonderful chance for scientists.
A: It should be remembered that the next generation will need to be more scientifically literate. There is a demand for a risk-free society. Consequently risk education must receive high priority – though a residual risk will remain.

Q: Should I buy land in Northern Scotland for my grandchildren, so they can grow water melons there or should I buy land on Mars when there is too much greenhouse warming already? Will there be skiing in 2100, albeit in much higher altitudes?
A: Do not smile too much about these questions, since investors take them rather seriously. Insurance companies and others involved in derivatives are looking into similar matters.

The Chair congratulated the panel for their vivid contributions and answers. He thanked the organizing KMI and the ECAC organizers as well as all lecturers. To his delight, the presence of two EU representatives (one lecturer and one member of the Round Table) was noted. He underlined that EMS will strive to follow the ideals of AMS and invited to come to the 3rd Annual Meeting of EMS in Rome 2003 during the ECAM conference. He furthermore extended an invitation to ECAC to be partner of the 4th Annual Meeting of EMS with a close involvement of the ECAC Scientific Committee.

■ Arne Spekat, *EMS Executive Secretary*

## Third Annual Meeting of the European Meteorological Society, 16 September 2003, Rome

As of this writing, the 3rd Annual Meeting is drawing near. It will be held during the 6th ECAM which will take place 15-19 September 2003 in Rome. EMS, again, has identified a topic which will be of high interest to participants and lecturers alike: The strategies of key players in Meteorology.

The presentations of views and strategies at the 3rd Annual Meeting come from various fields. There are major European organizations, such as ECMWF, ESA and EUMETSAT; lectures will be held by representatives of national weather services, such as the Czech CHMI, DWD, the Hungarian Weather Service, KNMI, Météo France, the UK MetOffice, Meteo Swiss, SMHI, the Italian UGM and ZAMG; the views of companies, service providers and regional weather services will presented by OSMER from the Friul Region, MeteoConsult, Vaisala and WNI.

A true highlight of the EMS3 and ECAM conference will be a joint special session on the future of satellites. Organized and chaired by André Lebeau, four lectures by experts from ECMWF, ESA, Eumetsat and WMO will be held, followed by a panel discussion.

■ Arne Spekat, *EMS Executive Secretary*

# Fourth Annual Meeting of the European Meteorological Society, 26-30 September 2004, Nice

According to a consent reached within ICWED, the EMS will have a more central role in organizing major European conferences, including the well-established ECAM and ECAC series, in the framework of its Annual Meetings. Starting with the Fourth Annual Meeting of EMS in Nice 2004 the character changes from an open symposium to an open scientific conference.

The EMS Annual meeting will be a platform where all scientists working in – mostly applied – atmospheric and related sciences (e.g. system research, hydrology, natural hazards, social impacts) and users (e.g. tools, insurance, energy, water) will meet.

As reported in the previous articles, the Annual Meetings 2001 until 2003 can be characterized by a more symposium-like structure with invited speakers. The overall approach is top-down (TD) with EMS steering and determining the topics. In the future there will be a mixture of TD and bottom-up (BU) approach.

TD: EMS is involved in the shape and direction of a conference, as well as the contents of a number of sessions which can, e.g., be invited sessions (to achieve this, EMS is going to stimulate distinguished scientists to attract speakers and participants for special sessions and to chair these sessions). The fact that ECAM/ECAC are established conferences and will be the nucleus to the EMS Annual Meetings can be considered TD as well.

BU: As a novelty to EMS Annual Meetings, sessions can and will be proposed via the entire scientific community using, e.g., internet means; a dedicated site will be launched in autumn 2003, accessible through the EMS web site www.emetsoc.org as well.

This approach, in particular, has proved to be quite successful for the EGS – now EGU – Annual Meetings and is widely accepted in the community.

A Program Committee (PC) for the EMS Annual Meeting will have to be formed; it has to discuss, assemble and formulate the Core Programme. For existing Conferences, such as ECAC or ECAM, the Chair of the respective Programme Committee/Advisory Board will be a Member of the EMS Annual Meeting PC.

A Core Program including all areas of interest is to be defined. It will have to take into account the industry and user exhibitions will have to be incorporated into the EMS Annual Meeting.

This is a major leap forward for EMS and it constitutes a promising path towards a major European conference at the interface of meteorology, climatology and all kinds of applications. Everyone can help broaden the base of support.

Werner Wehry, *EMS President*

# The catastrophic flood of August 2002 in the Czech Republic

The floods in August 2002 were caused by very intensive and large rainfall that hit the south and west part of Bohemia mainly. There were two following rainfall events, the first on the 6 and 7 August (Tuesday and Wednesday) and the second on the 11 and 12 August (Sunday and Monday) that continued also on Tuesday but not in so huge extend. The total sum of rainfall amount in the area was 150 to 200 mm; in mountains areas more than 250 mm and in some sites more than 300 mm. Such rainfall values, on such large space scale, are extraordinary in Czech conditions. Maps of precipitation totals are enclosed.

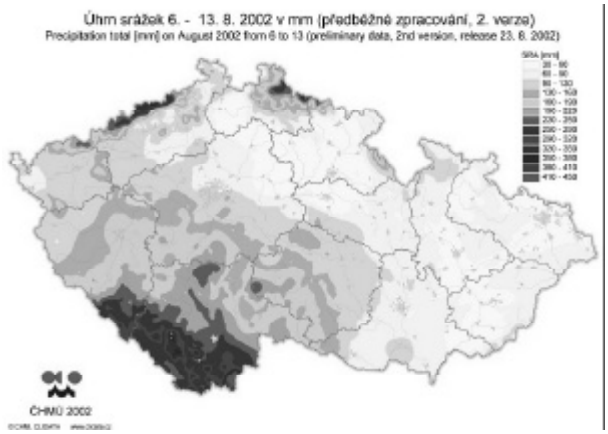


**Figure 1**: Map of precipitation total from 6 to 13 August 2002 (preliminary data) - the web version of the EMS Newsletter shows this figure in colour.

The first wave of rainfall caused floods in the majority of rivers that were in "normal" rate.

There were 10- to 20-year floods, exceptionally 100-year flood are more rivers in the south and west part of Bohemia. (100-year flood is a statistical characteristic for a value of peak discharge that in long-term average can occur once in 100 years.)

When the second wave of rainfall followed the first one, the rivers and soil were still full of water and therefore a response of runoff was very strong and quick. Water levels in all rivers rose very quickly again and they reached historical maximum in many places. The peak discharges in majority of rivers reached or exceeded 100-year flood and in some rivers 1000-year flood.

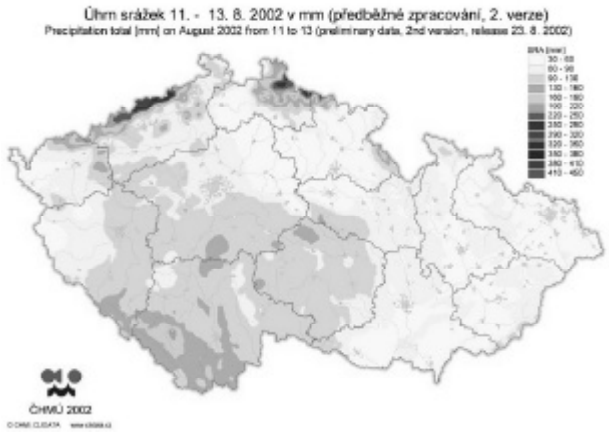


**Figure 2**: Map of precipitation total from 11 to 13 August 2002 (preliminary data) – the web version of the EMS Newsletter shows this figure in colour.

The capital of the Czech Republic Prague is on the confluence of two rivers: Vltava and Berounka. The flow in the Vltava river can partly be controlled by operation of reservoirs upstream the river (the Vltava cascade), the flow in Berounka is natural. During the first food event the essential part of the wave was captured in the cascade and the discharge in Prague was decreased. During the second event the inflow into the cascade was so big that reservoirs were filled before the maximum flood level. The peak flow from Berounka river met with the maximum outflow from the Vltava cascade. As a consequence the peak discharge in Prague on Wednesday the 14th of August reached about 5300 $m^3$ $s^{-1}$ and it has been preliminary estimated as 500-year flood.

Under the confluence of the Vltava and Labe rivers the flood wave proceeded in the Labe and flooded a large area along the river. Therefore the peak discharge decreased a little and was about 5100 $m^3$ $s^{-1}$ in the towns of Usti and Decin. After leaving the Czech Republic the flood wave caused great losses in Germany.

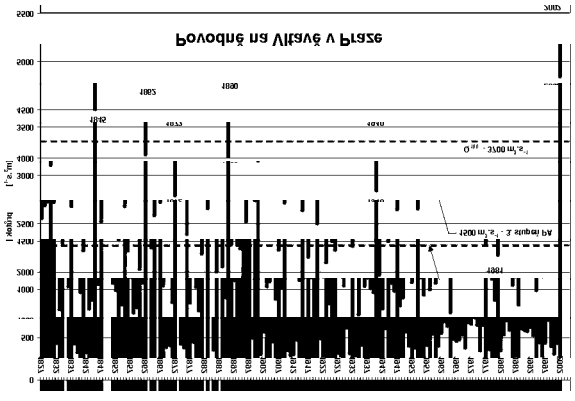

**Figure 3**: Historical floods on the Vltava river in Prague

We have 175-year long observation series on the Vltava river in Prague (from 1827) and the present flood was bigger than all measured floods in the period (see Fig. 3). On the Labe (Elbe) river the situation was also very critical. Fortunately in the Labe river catchment over the confluence with Vltava (in the eastern part of Bohemia) the rainfall was not so heavy and the outflow from the basin was relatively small. In spite of the fact that the flood on the downstream part of Labe river was also enormous, it has not exceeded the 1845 flood.

The influence of the Vltava cascade on the course of the flood will be analysed in detail. But it is clear and not surprising for hydrologists and other experts that the cascade could not protect Prague during such an extreme flood. The possible effect of the cascade was analysed in several studies, including the use of mathematical modelling. But there has still been an incorrect opinion, in the part of the public, that the cascade can protect Prague against a flood. Nobody thinks so after this event.

The flood caused many damages and losses in all regions including the towns of Ceske Budejovice and Plzen, the capital Prague and others. About 100 towns and villages were fully flooded and 350 partly flooded. 1.6 million people were affected by the flood, 220 thousand were moved from their houses, 15 people died. The total looses are assessed at 60 000 to 90 000 million Czech crowns.

The crises status was announced by the government on Monday the 12 August. The large part of Prague was flooded and all bridges except one were closed (fortunately none was destroyed). Several station of the Prague Metro were flooded and heavily

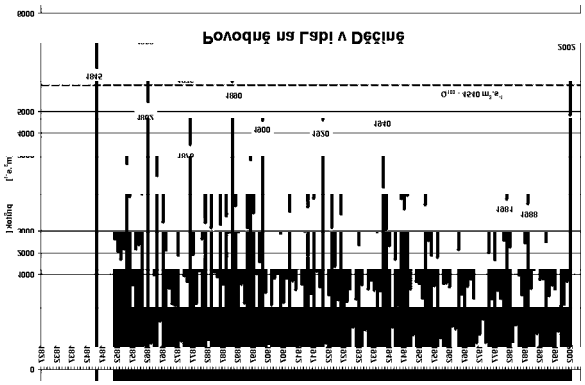

**Figure 4**: Historical floods on the Labe river in Decin.

damaged. A part of the town remained closed because it was not safe for people to return back to their homes.

CHMI is responsible for flood forecasting and both meteorologists and hydrologists from the institute were strongly involved in this event. We have been continually preparing, forecasts, warnings and reports for decision-taking bodies and for the public as well and have supported the state integrated rescue system. The flood protection and rescue system as a whole have worked very well and many protective measures were taken during the flood including evacuation of people. In general, the system has been more effective than during the previous catastrophic flood in 1997 in Moravia. The experience from the August flood and adoption of the new crisis management and integral rescue system laws has had a positive influence on the fast and positive people response.

The library and information centre of the Dept. of Meteorology and Environment Protection (Charles University in Prague) has also been flooded. About 5,000 volumes of books and documents were destroyed. The department has received book donations and will be needing further help.

■ Eva Zizkova, *Czech Meteorological Society*

## Focus on media: An interview with Gerald Fleming (International Association of Broadcast Meteorology – IABM)

Weather presentations in the media pose unique opportunities to bring science to the general public. This is a field used and abused by those bringing us the weather. For more than a decade now, a festival is organized which gathers invited weather presenters from all over the world. Initially francophone, the Festival de la Météologie is broadening its scope and addresses the English-speaking remainder of the world as well. I was among the *spectateurs* in Issy-les-Moulineaux (near Paris) as well as in Zagreb, Croatia, and had, among other pleasures, the pleasure to meet the IABM Chair Gerald Fleming and asked him about matters pertaining to the Festival and about general aspects of Meteorology in the Media.

**Who are you?**

My name is Gerald Fleming. I am a meteorologist who works as a bench forecaster with Met Éireann, the Irish Met Service, and also a broadcast meteorologist with RTÉ, the Irish public service broadcaster. I joined Met Éireann fresh out of university in 1980, so I have more than 20 years experience at this stage. I commenced radio broadcasting in 1984, television broadcasting in 1985, and have been a constant presence on the Irish airwaves ever since. In 1994, together with some colleagues, I founded the International Association of Broadcast Meteorology (IABM); I served a three year term as Chair of this organisation; then as Treasurer during the time when Inge Niedek was Chair; now I am again Chair and heading into the second year of what will probably be another three-year term. (Our rules specify rotation of officers after three years). I am also Chair of the Expert Team on Media Issues within WMO; working with the "Public Weather Services" unit of WMO and reporting to the Commission on Basic Structures. All this sitting down being Chair is bad for my fitness!!

**What does the Festival de la Meteorologie mean to you?**

The Festival is a celebration of weather broadcasting that operates on many levels. It is well-named as a "Festival" as it is not, nor does it try to be, a conference in the scientific sense. The central idea; a friendly competition to vote the best weather presentation, is good, and the Festival is the best place to see a great variety of styles of weather presentation in the one venue. The Festival also acts as a promotional tool for the town of Issy-les-Moulineaux, its originator and principal sponsor, and for its Mayor, M. Andre Santini. There is no doubt that through the Festival, the town has acquired an international reputation within the admittedly narrow field of weather broadcasting. The Festival also acts as a showcase for French gastronomy - the best gastronomy in the world, in my humble opinion. This arises from the personal interest in gastronomy of M François Fandeux, the creator of the Festival and its principal organiser. The Festival is an authentic reflection of the French style of weather broadcasting, which emphasises the personality of the presenter and the "showbiz" aspects while playing down the scientific background and content.

**What does IABM mean to you?**

The IABM is a professional organisation that seeks to enhance and improve the status of broadcast meteorology and to be a representative body for weather broadcasters. In many ways, the IABM is trying to establish that weather broadcasting is a profession, because weather broadcasters have historically (in Europe, at any rate) found themselves stranded between the worlds of meteorology and media. Broadcast Meteorology should be seen as a specialised area within our science, just as Satellite Meteorology, Radar Meteorology, or Numerical Modelling are seen. The IABM is a centre around which the profession can organise itself; a centre which can attract both meteorologists and broadcasters, because both are needed to implement a successful weather broadcast service. For me personally, coming from a small country at the outer edges of Europe, the IABM is my umbilical cord to colleagues in other countries with whom I can learn, share experiences, and have fun!

**Coming to a more practical profession-oriented field: The presenter in the media of today, to which percentages should it be a mixture of Scientist, Actor, Comedian, Journalist, XYZ? What is your recommended recipe?**

The background of Scientist should represent the basic ingredient of the recipe. I believe that you need to understand a subject thoroughly in order to be able to talk about it with credibility. A little bit of the Actor is needed - not much, because the weather broadcast should reflect the personality of the weather broadcaster; the weather presenter should be able to show themselves with confidence, not

hide behind a "character" or public face. However, the presenter should know how to relate to an audience and keep their attention, and this is certainly part of the Actors skill. In regard to Comedian - I do not think that this is appropriate at all for the weather broadcast. There should be enough of interest meteorologically without distracting the audience by adding in bits of comedy. This does not mean that you need to be deathly serious - it is possible to present weather with a light touch while respecting the information. We need to take the weather seriously, but not take ourselves too seriously. The Journalist, has characteristics which are needed in weather broadcasting - curiosity; the ability to research a story; the knowledge of what "angle" the public will find appealing; the right words to use to convey an idea. These are all journalistic skills which should be used in weather broadcasting. So, in summary, we might say that the ideal weather broadcaster is 50% Scientist, 40% Journalist, and 10% Actor.

**How important is age and gender and - yes - sex, for a weather presentation?**

None of these should be important - but our world is far from ideal. Television is a visual medium, and a weather presenter should, in my opinion, be "normal" looking; that is, not so ugly nor so beautiful as to distract the audience too much from the message. (My apologies to my IABM colleagues if this wounds their egos!). A very young person will not normally carry the credibility that is an essential part of the weather forecast. A man can carry on up to retirement age and still be accepted by the public as a weather broadcaster; but a woman has more difficulty because of the stereotype that women in the media should all be young and "good-looking" - a culturally variable concept. On the basis of keeping work and play apart, sex should have no place in weather broadcasting.

**In weather presentations, what potential for teaching the public do you see?**

The public are thirsty for knowledge about the world around them and the environment is an especially important topic in these times. I think that weather broadcasters have a duty to teach - sometimes a short explanation, even a half-sentence, in the middle of a weather broadcast can have tremendous impact and get people wondering and asking for more. The frustrating thing is that we do not normally have enough time within the weather broadcast to explain and teach as much as we would like to do - but we can open the door in peoples minds and bring them in to the world of science, at which stage other facilities and institutions can step in to fulfil the needs.

**How should presenters be taught to do a good job? Do you see a potential in universities to share this task?**

Teaching weather presentation is not easy - ideally the candidate should have a background in meteorology, some experience of forecasting, and a stable and outgoing personality. Because there are two streams of people coming into the profession, the training needs are different. Those coming from a meteorological background need instruction in scripting, in presentation, and sometimes in improving their appearance! Those coming from a journalistic background need instruction in meteorology and forecasting. I think it would help if Universities were to take up this challenge, but a course in weather broadcasting should be a post-graduate course, open only to those who have already studied meteorology and have some forecasting experience. (Alternatively a course open only to journalists, but that would be a very different course). There are some (undergraduate) university courses in Broadcast Meteorology in the US, but my contacts with experienced weather broadcasters there reveal that they are very unhappy with the quality of many of the graduates. The danger of such course and undergraduate level is that they will attract those who only want the "glamour" of the on-screen job and who have no real interest in, or commitment to, Meteorology as a science.

**Coming to the Festival itself: What could be done to enlarge the number of Anglophone participants?**

There were in the past more participants from Anglophone countries, but their number has dropped off. This is probably because of the very different styles of weather presentation in Francophone countries as against Anglophone countries. Comparing them is like comparing chalk with cheese - they are almost a different broadcasting product. I get the sense that the French see the Anglophone tradition as a threat - which is a great pity because our world of broadcast meteorology is not so large that we can afford to divide it into sub-groups (Anglophone or Francophone; Meteorologist or Journalist etc). I think that to become a truly world event the Festival needs to involve some outside people in its organisation - it needs to let go a little bit. I am not sure that this is possible when the Festival must also serve the needs of the town of Issy-les-Moulineaux. The Festival is really rooted in French culture - not just the language but the whole visual sense of the French; the style; the great emphasis on public relations and promotion; the gastronomy. These are the strengths of the Festival, but also its weaknesses - because they make it very difficult for it to relate to the Anglophone world. To remove French culture from the Festival would be to change it beyond recognition - and perhaps to kill it.

**When judging the presentations for their quality or an award, what do you look for?**

First I look for the information. Has it been explained and transferred to the viewer with the proper use of words and graphics? Some weather presentations are about the weather, and some are really about the personality of the presenter - these I do not rate very highly. I try to keep in mind the audience that the weather presentation is aimed at, and the likely technology that the presenter has at his or her disposal, so that we can fairly compare, for example, a presentation from Sweden with a presentation from Senegal. But really the basics are - has the presenter explained how the weather is developing; have they emphasised the most important trends, and the significant hazards, and have they given enough detail. I ask myself; will the television viewer know, before they open their curtains next morning, what to expect when they look out at the sky?

**Last question: Accreditation and professional quality is an important issue for meteorology. What could be your contribution in the next years to improve the situation?**
The IABM has suggested an accreditation scheme for which we are hoping to get the support of the WMO. The scheme would involve the IABM in drawing up a template, or a list of desirable qualities by which a weather broadcaster should be judged. We envisage that this template would be taken by the National Met Societies, who would adapt it for their own region and culture, and who would actually run the scheme in their own countries. Perhaps the IABM would provide an "external examiner" to work with the national examiners to help provide the necessary objectivity (this may be especially important in small countries, where the examiner and candidate will probably be well known to one another). Finally the qualification, or "seal of approval" should carry the authority of the WMO. The scheme would require successful candidates to pursue a programme of continuing professional development to retain their award; most probably this would be by attending courses in third-level institutions, or conferences and seminars organised by their National Met Society. We feel that this scheme combines both global and national aspects successfully.

*Remark: Meanwhile, the IABM has signed an agreement with WMO and from 2-5 June 2004 there will be the first World Conference on Broadcast Meteorology in Barcelona.*

■ Interview conducted by
*Arne Spekat, EMS Executive Secretary*

## Publications: EMS Publication Series launched


Publications are a sector in which the EMS will establish and maintain visibility. Therefore, in 2002 an ISSN publication number was requested and in February 2002 the first issue of the EMS Publication Series appeared. It contains extended versions of the lectures given at the First EMS Annual Meeting in Budapest - the future of meteorology in Europe:

**Topic 1: The demands on Meteorology**
- John Zillman: Demands on Meteorology

**Topic 2: The tools of Meteorology**
- Tillmann Mohr: Evolution to an integrated global (earth) observing system
- Rupert Collins-White: Possible futures for handling meteorological data, especially the dissemination of products to the consumer

**Topic 3: The structures of Meteorology**
- Claude Pastre: Evolution of linkages between public meteorological entities
- Olivier Moch: The future of the national meteorological services in Europe within the next ten years
- Iván Mersich: Overview of the evolution of linkage between the Hungarian Meteorological Service and other national meteorological services in Europe
- Hans Sandebring: The structure of linkages between providers of meteorological products, advice and data - a perspective from existing National Meteorological and Hydrological Services
- Harry Otten: Private and public sector meteorology

■ Arne Spekat, *EMS Executive Secretary*

## Publications: The European Metorological Calendar 2004


Once upon a time, long before EMS came to being, a group of determined and dedicated meteorologists in Berlin launched a project, which, being born in the realms of their common hobby has evolved to remarkable size: The Meteorological Calendar.

Now in its 22nd year, the 2004 European Meteorological Calendar is, of course, a beautiful addition to any wall with its spectacular pictures of meteorological phenomena. Moreover it is a source of meteorological knowledge with a host of explanations for those interested in *further reading*. All the texts are in German, English and French, which makes it really unique. Like it used to be with its predecessor, the 2004 Calendar has an overall topic: Aviation Meteorology. It will be available in autumn 2003. If you feel inclined to ordering your copy, please go to the EMS web site and use the Calendar icon.

■ Werner Wehry, *EMS President and Calendar editor*

## Publications: Krška, Karel – Šamaj, Ferdinand: The History of Meteorology in the Czech Lands and in Slovakia (Dejiny meteorologie v ceských zemích a na Slovensku)

Published by the Charles's University in Prague, Karolinum Publisher, with the financial assistance of the Czech Hydrometeorological Institute, Prague, 2001. 568 pages. In Czech with English resumé (42 pages).

To write the history of meteorology on the territory of the then Czechoslovakia was the goal already at the time of its origin in 1958 of the Czechoslovak Meteorological Society in association with the Czechoslovak Academy of Sciences. Originally, several Czech and Slovak experts intended to cooperate, however the extensive research was in the end written by only two experienced meteorologists with many years experience in hydrometeorological service and at universities. The authors researched numerous literary and archive materials and informations from many specialists from all areas of both theoretical and applied meteorology and climatology.

This publication is the first work to deal systematically with weather monitoring and forecasting, and to research the climate on the territory of what used to be Czechoslovakia, from the oldest chronicle records to the present, that is, for the past 1000 years. It evaluates personalities and institutions which contributed to the development of meteorology as a science, a service and as a field for school education. It was not only Czechs and Slovaks, but also Germans, Hungarians and Jews who during their work on the territory of Czechoslovakia and abroad enriched both the national and world meteorology.

The origin and progress of meteorology is judged in context with social conditions, which in central Europe were very varied and even formed milestones in its development. That is why the book is divided into three parts, which time-wise correspond to significant periods of Czech and Slovak history. Every part contains an overview of development of meteorological knowledge in the world, so that it is possible to compare the journey of Czech and Slovak meteorology with that of Europe and the world.

The first part describes the time before the origin of the Czechoslovak Republic, that is from the earliest times to the year 1918. During this extended time the development of meteorology reached the stage of a functioning network of monitoring stations and observatories, and meteorology gained the character of a state service and was anchored also at universities. Because the development of meteorology in the Czech Lands, which were a part of Austria, and in Slovakia, which was a part of Hungary (both until 1918), occurred separately, it is described in separate chapters.

The second part contains the relatively short history of Czechoslovakia between both World Wars (1919-1938), which was very important for the establishment of meteorology within the borders of the new state. Meteorological service was performed by the State Meteorological Institute in Prague, however the State Hydrological Institute (Ombrometry) and Bioclimatological Research Institutes (agricultural and forestry meteorology and spa climatology) also took part. The works of university professors in Prague and Brno, brought forth noteworthy results.

The third part includes the complicated period of World War II and following its conclusion a renewed Czechoslovakia, which ended in 1992 with the partition of Czech and Slovak Republics. It describes the unusual personal and material growth of meteorological institutions including the workplaces of the Academy of Sciences and universities during the last 40 years, when meteorology found utilisation in various walks of life, its new fields were developed and new technologies were introduced to it. In this part it is not forgotten, how the periods of Nazi and communist regimes negatively influenced the lives of several meteorologists and institutions.

The authors wanted with their work to give recognition and thanks to thousands of scientists and enthusiasts – meteorologists and specialists of other professions, as well as to countless voluntary observers, who by their work contributed to the knowledge of weather and climate of the Czech Lands and Slovakia, and enriched meteorology on a wider scale. Brief biographies are included on: J. Kepler, J. Marcus Marci, P. Diviš, J. Stepling, K. Kreil, G. Mendel, E. Purkynì, M. Konkoly-Thege, G. Friesenhof, F. Augustin, S. Hanzlík, R. Štefánik, G. Swoboda, A. Gregor, M. Konèek, B. Hrudièka, W. Findeisen, V. Novák, S. Brandejs and Š. Petroviè. The index of persons contains more than 1100 names of Czech/Slovak and foreign experts. The literature lists have some 900 items.

The book printed on art paper is supplemented by a list of abbreviations and technical expressions, and a colour appendix with photographs of researchers, historical and presently existing buildings, and meteorological apparatuses. This absorbing journey through history is made easier by a lucid division of the text into chapters and subchapters, and by both the publishing and graphically excellent standard of the publication. There are not many national meteorological services that have their history described in this much detail.

■ Jan Bednar, *Czech Meteorological Society*

## Europe's new generation of weather satellites

For Europe's citizens, few projects have made the benefits of space flight so obvious as the European Meteosat programme. Every TV channel shows daily Meteosat moving pictures from space and weather forecasters would not want to do without the information that it provides.


**Figure 1**: First Meteosat image taken in 1977

Meteosat-1 was the first Earth observation satellite of the European Space Agency (ESA). Launched in 1977 into a geostationary orbit at 36000 km over the Gulf of Guinea, Meteosat overlooked almost half of the globe including more than 100 countries in Europe and Africa as well as the Atlantic ocean and parts of the Indian ocean. To date seven Meteosat satellites have been launched and, since 1981, at any one time one is operational and one is in standby orbit in order to guarantee an uninterrupted flow of meteorological data.

ESA ran fully the Meteosat programme until 1987, a few months after Eumetsat foundation. Eumetsat is an intergovernmental organisation with 18 member states at present. ESA continued to manage the programme on behalf of Eumetsat until December 1995, when the latter organization took over full operations of the Meteosat system.

In the early 1980s ESA, together with European scientists and engineers**,** initiated the next step in the technological development of meteorological satellites. As a result and in co-operation with Eumetsat, in 1994 European industry, led by Alcatel-Espace (F) under contract to ESA, began working on the Meteosat Second Generation (MSG). MSG will in the future replace the previous Meteosat satellites.

MSG is equipped with a 12-channel radiometer (SEVIRI, Spinning Enhanced Visible and Infra-red Imager) that delivers one scan every 15 minutes in high resolution (1 km in the visible band). It will provide meteorologists with new insights into the atmosphere (particularly clouds), land and ocean surfaces, contributing significantly to the accuracy of both nowcasting and medium-range weather forecasts.

Its new data relay is digital and 10 times faster than the previous Meteosat transmission capacity. MSG also carries a system to collect and transmit environmental data from remote platforms, a search and rescue transponder for humanitarian purposes, and the Geostationary Earth Radiation Budget instrument (GERB) for climate monitoring. GERB will be able to measure for the fist time the Earth's radiation budget at the top of the atmosphere from a geostationary position.

**Figure 2**: MSG-1 being installed in the Ariane 5 launcher. (This figure will appear in colour in the web version of the EMS Newsletter.)

**Figure 3**: Envisat launch from Kourou (French Guiana) on 28 August 2002. (This picture will appear in colour on the web).

With seven years of design lifetime and at least three satellites to be

launched, MSG will carry on Europe's meteorological space programme for the next two decades. MSG is fully operated by Eumetsat, while ESA has developed the technology and is responsible for procuring the next 2 or 3 identical satellites.

MSG-1 was successfully launched on 28 August 2002 from Europe's spaceport at Kourou in French Guyana and is currently under commissioning. The first images from SEVIRI were acquired on 28th November and those of GERB on 12th December 2002.

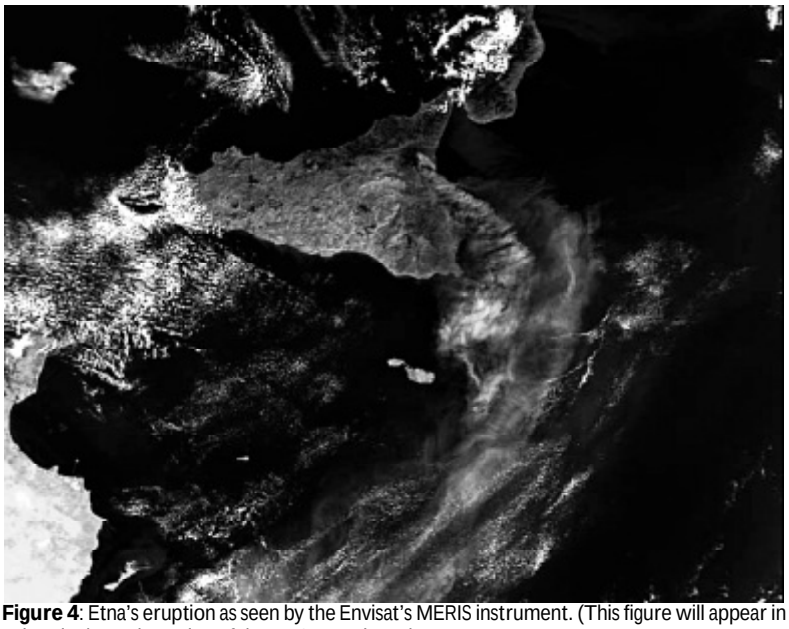

**Figure 4**: Etna's eruption as seen by the Envisat's MERIS instrument. (This figure will appear in colour in the web version of the EMS Newsletter)

In addition to MSG, other ESA satellites also contribute to observing the atmosphere and the climate. ERS-2 delivers huge amounts of data for thousands of scientific investigators worldwide concerned with climate change, atmospheric research and ocean monitoring, same as its predecessor ERS-1. Its accurate ocean surface wind and temperature measurements, together with ozone information, are used regularly in meteorological and ocean models, and its capability to pinpoint fires, floods and soil movement is appreciated by rescue and security forces. Envisat, launched on 1st March 2002, will continue and greatly enhance these capabilities.

Amongst the future ESA Earth observation space projects, the most imminent is Cryosat to observe polar ice caps - scheduled for launch in 2004 - and Met Op, the first European operational polar orbit satellite to monitor the weather and climate, that will join the NOAA polar satellites. Metop, which is scheduled for launch in 2005, is also being developed in partnership with Eumetsat.

With its ongoing and future space programmes to monitor the Earth, Europe is becoming a leader in climate science and weather data applications from space. It is the shared aim of ESA and Eumetsat to continue this success well into the future.

Evangelina Oriol-Pibernat, *ESA/ESRIN (Italy)*

## Awards to young scientists

The European Meteorological Society has launched its awards programme to honour excellence in young, aspiring scientists. There are two types of award given: The Young Student's Travel Award, in the order of a few hundred Euro, intended as a source of co-financing the recipient's conference participation. The Young Scientist Award, 1000 Euro plus travelling to the awarding ceremony for an outstanding scientist.

In the year 2002, the Young Student's Travel Awards was launched and awards were given to the following European participants at the AMS/MAP Alpine Meteorology Conference in Utah:

Massimiliano de Franceschi, University of Trento for his paper *Further investigations of the „Ora del Garda" valley wind*.

Marie Lothon, Paul Sabatier University, Toulouse, France for her paper *Foehn analysis in the Rhine Valley: From synoptic scale to turbulence one*.

Simon Tschanett, University of Vienna, Austria for his paper *What can we learn of surface mesonets in foehn valleys?*

Martin Weissmann, University of Innsbruck, Austria for his paper *Temporal evolution and structure of gap flow in the Wipp Valley on 2 and 3 October 1999*.

Matthias Zillig, ETH Zurich, Switzerland for his paper *Influence of lateral shear upon mesoscale orographic flow*.

In the year 2003, Young Student's Travel Awards were given to the following participants at the ICAM/MAP Conference in Brig/ Switzerland to

Lucia-Maria Wielke, University of Vienna, Austria for her paper *Duration of Snow Cover in Switzerland and Austria*

Monica Ionita, University of Bucharest, Romania for her paper *Changes in winter temperature at mountain stations in Romania and their relationship with North Atlantic teleconnection indices.*

Furthermore in 2003 a number of Young Student's Travel Awards were given at the Education Weather Ocean and Climate (EWOC) Conference in Madrid: A group of students led by Dr. Francisca Wheeler from Ampleforth College, York, UK, consisting of Edward Chu, Ky Derek Ng, Kevin Woo and Daniel Yuen received the award for their paper *Learning science through the environment*.

Michal Belda, Charles University, Prague, Czech Republic was honoured for his paper *ECTOM2, the European catalog on training opportunities.*
A group of students from the Free University of Berlin, Germany received awards as well: Markus Boljahn for his paper *The Berlin weather forecasting contest*. Sevim Müller for her paper *Aktion Wetterpate (Adopt-A-Vortex) - an initiative of students of meteorology at the Free University of Berlin*. Sebastian Unger for his paper *The Berlin Stormchasers*. Claudia Voß for her paper *Weather observations by students at the Freie Universität Berlin*.

In 2003, the EMS Young Scientist Award is launched. Candidates were proposed by Member Societies and the Award will be presented to Dr, Daniela Meloni (University of Rome, Italy) and to Dr. Richard Forbes (University of Reading, U.K.) at the 3rd EMS Annual Meeting in Rome, Italy.

For further information, including the requirements and submission protocol for the Awards, please visit the following web page
http://www.emetsoc.org/ems_awards.html.

Werner Wehry, *EMS President and Chair of the Awards Committee*

# Action targets for European meteorological education

## 1. Introduction

"Education is not really concerned with progress: its purpose is to make widely available knowledge that seems to be useful. It is communicative, not creative." This cynical observation by Edward De Bono deserves to be kept in mind when discussing what an Education Committee of the EMS should and can do. Three target populations must be considered: the meteorological professionals, the active users of meteorological information, and the general public. Four ways to teach them can be distinguished: compulsory school education of children, education institutes for selected groups (e.g. universities, NWS-training), special outreach activities (summer camps, international projects like GLOBE, lectures), and media like television or the press.

Not all teaching ways are relevant to all target populations. Some areas of activity are practically not feasible for the EMS.

National meteorological societies in Europe consist mainly of professionals and active weather users. They find in practice that society around them knows too little about their field of interest, weather and climate, to appreciate it to their advantage. So these societies have various outreach activities, but small societies have limited means for this and only the largest, the Royal Meteorological Society, has some consistent tradition of education activity. European cooperation increases significantly the capacity to do things in this field.

For the Education Committee we have managed to get an active crew with wide-ranging variation in experience – NWS training, universities and schools – from all across Europe. With some support of the EMS budget it was possible to organize in Brussels in November 2002 a Committee meeting for mutual introduction and joint planning. In other words, a cooperative network was formed from rather isolated experts on meteorological education. Discussions at the Brussels meeting made clear which lines of activity seem most sensible for the EMS to work on at present. For follow-up the Committee met at EWOC in July 2003 (see below).

## 2. Earlier European Community action

Before the EMS was actually constituted, in 1999, its founding group was already active to try promoting meteorological education in schools. Aware that joint work across Europe requires some funding, at least for travel, they tried several times to get support for an EC project. Our EC-COST Action project (721) on education and accreditation got support in 1999 for a working group action to rewrite the project setup for the education segment. The rewritten text was accepted by the Technical Commission of EC-COST in 2000, but the deciding COST-CSO did not follow its TC's recommendation as a matter of principle, stating that COST should not deal with education. This was a pity, because COST projects are efficient to execute since they do not carry a large administrative overhead.

The EMS Council then decided in 2001 that submission of a similar project proposal for the Socrates Action-6 programme of EC-Education should be undertaken. The first attempt to do so, in 2001, failed partly because of limited experience in handling the very complex Socrates proposal style, partly because science was not a preferred subject that year. In 2002, science was actually one of the three preferred subjects but our proposal, well-written according to experienced outsiders, was not among the 10% accepted by Socrates. Their given reason for non-acceptance was the unspecific unargued statement : „the objectives of the proposal are rather interesting but the intended outcomes are not very clearly defined and coherent with these objectives, the dissemination measures are rather vague" — one wonders if our proposal was seriously read. Because in 2003 again the word science was not even mentioned in the text announcing preferred subjects, we did not re-submit our proposal to Socrates.

The Sixth EC Framework Program is mostly tailored to research. Only a small part, with a large administration overhead and accessible only to „existing science teacher networks", refers to education. A new academic action group, ESPERE, is supported in this context for gathering chemistry-linked

Participants of the EMS Education Committee Workshop on 16 November 2002 in Brussels. Front row: Nicholas Prezerakos (Greece), Jon Wieringa (Netherlands), Carola Sundius (Finland), Kees Floor (Netherlands). Centre row: Christian Zick (Germany), Agueda Benito Capa (Spain), Marina Grcic (Croatia), Ross Reynolds (U.K.), Vincent Pircher (France). Third row: Pal Kirkeby Hansen (Norway), Arne Spekat (Europe) und Tomas Halenka (Czech Republic).

climate subjects into a web-accessible framework. The importance of secondary schools, which furnish science students for education at the university level, appears to be acknowledged to some degree by EC-Socrates. However, the Socrates-accepted projects do not show any support of primary education science — although that might make science attractive as a secondary school subject by showing to young children, that a scientific approach to the surrounding world can be both useful and interesting.

### 3. EWOC Conference, Madrid, July 2003

Five world-wide conferences on meteorological education have structured this field of action. The first one was in Oxford, 1984 (see Weather 39, 384) and the sixth one took place 2003 in Madrid – one of its organizers, Agueda Benito, is member of the EMS Education Committee.

The EWOC in Madrid surely was a foremost opportunity to establish contacts of our new Committee with other active parties, such as international groups for GLOBE (in which one EMS Committee member, Marina Grcic, is active, see EMS Newsletter 7) or the educationalists of the RMS (by way of MetLinkInternational), of the AMS and of other organizations across the world. A necessary condition for such contacts, however, is visible existence of our EMS Committee. Fifteen papers were presented or co-authored by Committee members:

1. Benito, A., A. Cruz, A. Portela: El cambio climático: Una oportunidad para la práctica de la búsqueda e integración de la información en estudiantes universitarios (Climate Change: A chance for practising information search and handling in pregraduate students).
2. Benito, A., A. Portela, R. Mª Rodríguez-Jiménez: La Meteorología en la formación académica Española: Análisis de los Currículos Nacionales (Meteorology in Spanish formal education: Analysing the national curricula).
3. Benito, A., J. Rivalaygua, L. Benito, R.Mª Rodríguez, A. Portela: Cómo mejorar la comprensión de la información probabilística del tempo (Improving communication of probabilistic weather forecast).
4. Benito, A., R.Mª Rodríguez-Jiménez, E. Camacho-Berlanga, A. Portela: Adaptación de las previsiones meteorológicas de la televisión a los conocimientos del público (Bringing televised weather forecasts closer to public understanding).
5. Conchon, N., M. Daudier, V. Pircher, J.Ch. Doublier, J. Chouchana: Promoting Youth activities in Meteorology in France through a partnership between Météo-France and the associations SMF, Planète-Sciences and AAM: The Météo-Jeunes Meetings.
6. Grcic, M.: Teaching basic physics by using GLOBE resources.
7. Floor, K.: Reaching members of the general public by newspaper.
8. Floor, K.: Learning with rollover images.
9. Halenka, T., M. Belda: ECTOM 2: need for update of information on access to Education and training in meteorology.
10. Hansen, P.J.K.: Weather and Climate: Topics in Scandinavian curricula for compulsory schools.
11. Hansen, P.J.K.: The greenhouse effect and the effects of the ozone layer: Norwegian teacher students' development of knowledge and teaching skills.
12. Pircher, V.: Meteo-France activities towards Education and Youth : status and perspectives
13. Reynolds, R.: Teaching elements of Physics using weather satellites
14. Spekat, A., J. Wieringa: Meteorology in European school curricula
15. Wieringa, J., A. Spekat: Teaching natural science at primary schools - politically not important or educationally too difficult?

### 4. Professional education in meteorology

Vocations in meteorology are practised in four ways:

(a) at a National Weather Service, working at weather forecasting, climate analysis, or research and advisory work in specialized subjects like air pollution;
(b) at a University, in teaching and research;
(c) in the media, presenting actual weather or background information;
(d) in the private sector, doing or supporting advisory work and presentation.

For NWS work, a relevant university degree (physics, astronomy, mathematics or geography being alternatives for meteorology) is an advantage, but not necessary for all types of work. Because the supply of academics with an appropriate qualification is limited, NWS's usually have some in-house training. Such NWS training has been since the sixties been supported by WMO, and in recent times also by other cooperative actions like EUROMET or NOMEC. The Committee summarized at the Brussels meeting its opinion in the following resolution: „The full Education Committee of the European Meteorological Society (EMS), meeting on 16 November 2002 in Brussels, Belgium, agrees that right now there is no obvious job or role for this Committee to fulfil in the area of vocational NWS training."

The Committee has yet to decide if it should deal at all with media training. Contents of media publications and presentations are attended to by the EMS Media Committee, and quality of the presenters by the Accreditation Committee.

However, it was already recognized in the mid-nineties that one obvious communication task for universities and similar institutes of higher learning can best be done by the EMS — namely to produce and update an inter-European review of existing possibilities for students to follow courses or specializations in meteorology in other European countries. The first such review was published in 1997, resulting from cooperation of SMF (Gerald De Moor) and DMG (Werner Wehry). Because new members have acceded to EMS, and European academic degree studies are changing into new bachelor-master patterns, the Committee considers it essential that this European Catalogue of Training Opportunities in Meteorology (ECTOM) will be updated now in the form of a website (presented at the EWOC by Tomas Halenka and Michal Belda, see paper 9 above).

### 5. Weather and climate in regular school education

Schooling in meteorology, and in science in general, varies highly across Europe. In the EMS formation period, in 1997, Werner Wehry published a rough summary (EMS Newsletter no.3) of the situation in a number of countries. One of the first tasks which the Committee is undertaking is to check, complete, update and expand this review. Three of the above-listed EWOC papers (2, 10 and 14) bear on this. Overall there seems to be no obvious level for weather and climate schooling, and science and geography are in some countries too small subjects to have time.

In the EC proposals for COST and Socrates a major aim was to make the authorities consider to introduce or expand natural science curricula, top-down. At the Brussels meeting several school-experienced members stated that teachers have considerable freedom in using the formal curriculum, and that they often take major guidance from the available textbook. Development of a teachers manual, based on the experience across Europe, is then a possible bottom-up approach to increasing science coverage at primary and secondary schools. Croatia has run a teacher instruction workshop for GLOBE. Good coverage of politically respectable subjects, e.g. climate change and weather risk, seems essential.

Another type of outreach action towards schools are pupil projects: MetLink International (U.K.), the Rencontres Météo Jeunes (France) and Weather and Water (Norway). The practical problem is to obtain dedicated manpower to run them – for a limited period, both because of school schedules, and because continuous projects like GLOBE appear to be too large a commitment for many possible participants.

### 6. Organization of the EMS Education Committee

After a fulfilled academic life, during which I invested some time and effort into the cause of the EMS and its Education Committee, I have to retire. Therefore the torch has been passed on, and EMS Councillor Tomas Halenka from Charles University in Prague was appointed by Council to be my successor. In July 2003, at the Committee Meeting at the EWOC in Madrid, the Education chairmanship was transferred to him.

■ Jon Wieringa, *De Bilt*

## From the Royal Meteorological Society

### 1. Presidency

At its recent Annual General Meeting, the Royal Meteorological Society elected Dr Howard Cattle, the new Director of CLIVAR, as its President for the next two years. Dr Cattle has had a long and distinguished career in meteorology and oceanography with the UK Met Office and has only recently taken up his new post with CLIVAR at the Southampton Oceanographic Centre. Dr David Burridge, Director of ECMWF, the retiring President, becomes a Vice President of the Society.

### 2. Representative to EMS

The RMS has appointed Dr David Axford, formerly Deputy Secretary General of the WMO, as its new representative to the EMS Council in succession to Mr Stan Cornford who retires by rotation in November. Dr Axford is Chairman of the EMS Committee on Accreditation, is Chairman of the RMS Accreditation Board, is a Member of the RMS Council and was formerly a Vice President and General Secretary of the RMS.

**3. Rupert Ford Memorial Fund**
The Royal Meteorological Society is delighted to announce the establishment of the Rupert Ford Memorial Fund from a legacy and donations made in memory of one of its most brilliant and distinguished young Fellows, who earlier in the year tragically died from an undiagnosed illness. The Fund will be administered by the Society and will mainly provide bursaries for outstanding young scientists to take up short term study or work sabbaticals outside their own laboratories, and usually in a foreign country. These awards will be open to any applicant from around the world; membership of the RMS is not a requirement. Arrangements for the application and adjudication of the Awards have not yet been finalized but anyone interested in applying should contact the Executive Director of the Royal Meteorological Society in the first instance.

**4. IT management**
The RMS have appointed a full time IT manager to its staff. Dave Pentin will support all of the Society's IT activity including maintaining the Society WWW site. He can be contacted at davepentin@royalmetsoc.org Watch for changes in our Web site.

**5. Web domain name change**
The RMS has changed its domain name from ….royalmet-soc.org.uk, to ……royalmetsoc.org. The old form will continue to work for some time but will eventually be phased out.

**6. RMS Conference 2003**
From 1st – 5th September 2003 the RMS will hold its „Conference 2003" at the University of East Anglia, Norwich UK. This conference will cover work within the UK and elsewhere on every aspect of Meteorology and its related disciplines. Specific topic areas to be covered will be climate, weather, atmospheric composition, data assimilation, earth observation, media, education and impacts on society. This will be a major conference with over 400 attendees expected. Further details can be obtained from the Executive Director of the RMS, or, in due course, from the RMS WWW site.

**7. RMS Journals on-line**
The RMS *Quarterly Journal* and *Weather* are available on-line. They can be accessed through the RMS WWW site.

**8. Obituary**
We are sad to report the untimely death of James Squires. James, who worked for BIRAL and who had many contacts in meteorological and other earth observation activities world wide, was very active in the Society and was Chairman of our Specialist Group on Instruments and Observations. His cheerful, unbounded enthusiasm and effective contributions will be sorely missed.

**9. RMS becomes Associate Member of the Society for the Environment**
The RMS has become an Associate Member of the Society for the Environment, a newly formed federation of learned and professional organisations covering all aspects of environmental science and engineering in the UK.

**10. Young Scientist Award of the European Meteorological Society goes to Richard Forbes**
The first Young Scientist Award of EMS is going to Dr. Richard Forbes of the U.K. MetOffice's Joint Centre for Mesoscale Meteorology at the University of Reading, Dr. Forbes is a Fellow of RMS. During the European Conference on Applications of Meteorology (ECAM) and the EMS 3rd Annual Meeting in Rome in September 2003, he will receive the Award the for his thesis *Numerical model parametrization of ice microphysics and the impact of evaporative cooling on frontal dynamics*.

David Axford, *Bracknell*

# Hot Spot: Remarks about the Summer of 2003 in Germany

*The continuously high positive anomalies of +3K to +5 K, the excess of sunshine and the lack of precipitation seemed to have displaced our climate to the south-east, into the steppes between Dnjepr and Don! Therefore, even in later centuries (!) 1947 will be considered a year of record values, the steppe summer of 1947.* This sentence comes from a long essay by H. Grebe and was published 1948 in Wetter und Klima.

The summer of 2003 surpassed the summer of the century, 1947, by far in heat intensity. In the second half of July and the first half of August the heat wave had its peak, particularly in the South and the Southwest of Germany. Large areas reported anomalies above 5K for the mean daily temperature in August; at Feldberg in the Black Forest the anomaly reached 6.6K! Since the start of the weather records, such values never occurred. There is a record of an August mean temperature of 25°C from Breslau 1807. This tendency reflects in mean daily maxima as well: Karlsruhe reported 30.6°C in August - which never occurred before anywhere in Germany and would be typical for a city like Rome. Karlsruhe also reported an uninterrupted sequence of 12 days (3 to 14 August) on which the temperature rose above 35°C, which peaked at 40.2°C on 9 and 13 August. It may well be that higher temperature values were reached at automatic or semi-official station not operated by the German Weather Service. This is subject to further investigations.

An other indicator for the extreme heat were the

high daily temperature minima recorded. 27.6°C reached in Neustadt/Weinstraße mark a level never reached before in Germany.

Heat was less pronounced in Northern Germany. As an example, Berlin-Dahlem had 10 days with maxima over 30°C but the 35°C-threshold was not surpassed.

The heatwave was coupled with large insolation, of course. In Karlsruhe, a record 322 hours occurred in August. Similar to 1947, an excess of sunshine on the order of 40 to 70% was reported for large areas. Exact precipitation figures are not yet available as of this writing.

When summer as a whole is considered, daily mean temperature values of 2003 surpass all current records by far. Anomalies with respect to the 30-year reference period 1961-1990 of 4.4 and 4.7K, respectively, occurred in Karlsruhe and Freiburg/Breisgau. The amount of these anomalies is particularly noteworthy since the values are scattering considerably less in summer as compared to winter. Only the four most severe winters of the 20th century exhibit a deviation of more than 4K; consequently, even a 1K summer anomaly, let alone one of 4 and more degrees, can already be considered extreme. As a comparison: The drought summer of 1947 was 3 to 4 degrees too warm in Western and Southern Germany and the notorious 1834 summer had a positive temperature anomaly of 3.2K.

The count of days above 25 (summer days) and above 30°C (hot days) reached record highs as well, with 84 days in the former and 54 days in the latter category in Freiburg/Breisgau - in turn, a mere 8 days had maxima *below* 25°C! Normal values are 40 summer days and 8 to 10 hot days. In 1947, Karlsruhe reported just 66 summer days and 37 hot days, though overall 100 summer days occurred then, because the warm weather started in April already and lasted until October with a September heat wave of up to 19 summer days for certain regions.

In Northern Germany the summer 2003 was not as extraordinarily warm. Mean daily temperature for the three summer months reached 20.0°C and ranks first together with the 1992 summer in a series of observations which dates back to 1908. During the 19th century, the record is held by the summer of 1834 with 21.2°C which is followed by the summer of 1868 with 20.3°C. The absolute peak was reached - according to HELLMANN - in the summer of 1757 with a mean temperature of 21.5°C.

More figures? With respect to summer days (maxima above 25°C), the Berlin-Dahlem series ranks 1992 first with 54 days, followed by 1997 with 53 days and 1983 as well as 2003 with 50 days. The absolute highest number of summer days was recorded in 1834 with 66, of which in July alone 29 occurred. In that summer, 23 hot days (maxima above 30°C) were counted as well. If hot days are considered in the Berlin-Dahlem series, 2003 ranks first with 1994, both of which had 19 such days. They are followed by 1995 with 18 and 1992 with 15 hot days. Summer 1947 had only 12 hot days - yet the count for the whole year was 19 since in May 1947 the temperature rose above 30°C once and it did so 6 more times in September.

A final remark: This year, in the wake of an extraordinarily hot summer, a climate change was frequently discussed. When the drought summer of 1947 occurred, feelings ran high even with famous meteorologists. A. SCHMAUSS, for example, posed the question: Is Europe threatened by a drought? Some texts referred to a steppe formation in Central Europe and in the Berichte des Wetterdienstes in der US-Zone an essay was published dealing with a secular turning point of climate around 1940 and the year of catastrophes 1947. After World War II the drought of summer 1947 definitely constituted a catastrophe, in particular since it was preceded by one of the most severe winters of the 20th century.

*Note: This is an abbreviated version of a text that appeared in German in the publication series* Beilagen zur Berliner Wetterkarte *(ISSN 0177-3984) on 3 September 2003.*

Dieter Niketta, *Berlin*


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