

EGOWS : EUROPEAN WORKING GROUP ON OPERATIONAL
METEOROLOGICAL WORKSTATIONS

M.-F. Voidrot-Martinez
Meteo France
Toulouse, France

Summary : In June 1990, a working group was formed to promote the development of meteorological workstations for weather monitoring and forecasting. This paper introduces the reasons why the group was created, how it works, and which are its purposes.

1. INTRODUCTION

Two years ago, during the workshop on meteorological operational systems at ECMWF, representants of several countries noticed that they had a common interest in workstations dedicated to operational weather monitoring and forecasting and that they had similar projects at different stages of maturity.

We met informally in Oslo in June 1990 to define whether or not it could be interesting to create a working group about this subject. Four countries were represented : Norway, Sweden, Finland and France and we asked Mister Daabeck from ECMWF to come as a consultant to be sure we were going the right way. Afterwards, we called this meeting EGOWS 1.

2. EGOWS 1 (e.g. DNMI (1990))

2.1 The concept of Meteorological WorkStation

The first point during this meeting was to agree on a common concept of Meteorological WorkStation (MWS) voluntarily limited towards a workstation for general weather monitoring and weather forecasting.

A MWS should give access to all type of meteorological data : observations, output fields from numerical weather prediction models, images (satellite as well as radar), messages, mail, climatological databases.

A MWS should allow postprocessing like interpolation to maps, derivation of additional parameters (such as vorticity, divergence, potential vorticity, stability indices, gust estimates), trajectories, image manipulation, verification and dynamical or statistical interpretation.

A MWS should be able to display the results of this postprocessing in an interactive way.

At last, a MWS should allow dissemination to end users.

2.2 Recommendations on MWS development

After a presentation of all the different projects in process, we agreed on several recommendations and requirements :

- The response time to get a new product should be small and less than a few (two/three) seconds.

- A MWS should include postprocessing and presentation. The display should be interactive.

- Flexible interactive display of observation plots, model output and images should be available. Classical meteorological maps for visualization , such as cross sections, meteograms and trajectories, should be included.

- Forecast verification should be included.

- A "mouse" or equivalent equipment should be used to select products.

- The user interfaces for operational use should be based on icons. Language dependent systems should be avoided.

- The computation system should be flexible and open-ended.

- Animation or "flipping" of products should be available.

- The design of a MWS should be modular with clean separation between the data handling, graphics and user interface.

- Two dimensional systems should be implemented. Extensions toward three-dimensional graphics are welcomed. Also such graphics should be interactive.

- No recommendation on the hardware platform was given.

2.3 Recommendations on standards

The WMO meteorological standards GRIB and BUFFER should be adopted, and the suitability of these standards for image data should be investigated.

SQL systems for catalogues should be investigated to make it easy to select data from a file.

UNIX is recommended (it is normally used by workstations)

The programming languages should be C or Fortran. Use of object oriented languages should be investigated (e.g. C++).

The user interface should be designed using window concepts such as X-Window.

There is a need for high level toolkits when developing user interfaces. In this connection standards like MOTIF/OPEN LOOK are desired.

2.4 Creation of a frame of a cooperation structure

2.4.1 Creation of a working group

As a result of the numerous common goals our discussions revealed, we agreed on forming a working group to promote development of meteorological workstations for weather monitoring and forecasting. We chose EGOWS as a name, meaning : European working Group on Operational meteorological Work Stations.

Its objectives are :

To promote cooperation between the meteorological organizations in Member States of ECMWF in the field of work stations for operational weather monitoring and forecasting. The group will establish cooperation to promote development and progress in this field and serve as a medium for exchange of information between the participating organizations.

The meeting decided to focus on the following activities to fulfil the objectives :

- Exchange of information, including meetings and computer codes
- Exchange of people working in the field
- Establishment of projects between two or more countries.

In order to concentrate the cooperative efforts, contact persons, acting as representatives for the organizations were nominated at the meeting.

The report of this meeting (which is largely reproduced in this paper) was submitted to all national meteorological services in the Member States of ECMWF.

It was decided to let the group be informal in the same way as the European working group on limited area modelling. If the national services wish so, a formal relation to the TAC of ECMWF is possible.

2.4.2 Exchange of information

Computer programs and electronic mail

The meeting agreed on the following recommendations concerning exchange of information in daily work:

- Common simple rules for programming should be established. Separation between different kinds of processing, such as decoding, graphics, data handling and computations should be included.
- Program comments should be in English and should contain a heading with information on : function, language (including information on nonstandard programming), needed libraries, author and creation date, information on input/output.
- A list of available programs and subroutines should be made.

-Designers in the different services should be able to exchange codes and ask technical questions through electronic mail. A bulletin board should be established for a closed group of users. The possibility to establish a mailing system through ECMWF should be investigated.

Meetings and newsletters

It was agreed that an international annual meeting is required. Such a meeting will concentrate on presentations of developments and plans in the different organizations. Special lectures on relevant topics from the participants or invited speakers are welcomed. The organizer is encouraged to make suitable equipments available for demonstration sessions on workstations.

Cooperational and organizational matters will also be dealt with. An important point will be to review and discuss cooperation between the organizations.

After the annual meeting a Newsletter should be circulated to members. This publication will be devoted to achievements and technical problems concerning MWS. It is important that successes and failures as well as plans are reported. The publication will be held at an informal level and will primarily contain short contributions. The newsletter will be in A4-format and the manuscripts submitted must be ready to print with figures fitted into the text.

The organization having organized the last annual meeting will be responsible for the next newsletter and the issue should be distributed within six weeks after the annual meeting.

The newsletter will automatically be distributed with a certain number of copies to the contact persons.

Small brain storming meetings in order to bring forward new ideas (for instance in the design of user interfaces) should be promoted.

Exchange of persons

An important aspect of the cooperation is the possibility for persons actively involved in the development of MWS to go to some of the other organizations on an exchange basis. The meeting agreed on this being of a great importance in the promotion of an European cooperation. Possible ways of exchange were discussed, such as temporary positions at the organizations, exchange grants or providing accomodation for visitors.

It is up to each organization to find out the best possible ways to promote such exchange programs.

Formation of projects

The aim of the work with MWS is as previously mentioned similar in different organizations. Common projects between two or more organizations should therefore be beneficial. Possibilities exist for grants from European science foundations for the purposes of projects between organizations. These possibilities should be exploited.

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The second EGOWS' workshop took place in Paris in June 1991. There were 25 participants from 12 countries. Each country presented his MWS project and everybody approved the objectives of the group.

Several demonstrations were made and we could see very different products at different stages of maturity but always including interesting ideas or functionalities : Significant weather chart drawing from Germany, use of PHIGS in Norway, beautiful user interface from Finland, use of OS2 on PCs in Poland, ...

Papers discribing all this products are included in the second workshop report available from the contact person of each country listed in appendix 1.

No really new recommendation was made during this three days meeting due to the fact we wanted to let the 12 countries present their project and express their opinion on the first meeting recommendations. So this meeting was more an extension of the influence of the group rather than a real progress.

Nevertheless this meeting was important to confirm the group was going the right way and to help each team convince their respective directors to give them the required means to make the collaboration start.

It was decided that the next meeting should be a bit longer and that people having even a small experience about a point of interest (databases, C++, Phigs, Unix portability, outputs ...) could propose an abstract before the meeting. The lecture isn't supposed to provide an exhaustive information but to be a starting point for exchange of experiences and ideas.

4 FUTURE OF THE GROUP

Next meeting will take place in Helsinki.

Appendix I

Participants at EGOWS Paris workshop

18 - 20 JUNE 1991

SECOND EGOWS MEETING

Paris 18 - 20 June 1991

List of participants

Josef CHARVAT (Austria)
A QUINET (Belgium)
Jacob BROCK (Denmark)
Kurd CHRISTENSON (Denmark)
Jens DAABECK (ECMWF)
Sylvie THEPAUT (ECMWF)
Paul COWLEY (U.K)
Lars WINBERG (Finland)
Gerhard SCHMIDT (Germany)
Wolfgang KUSCH (Germany)
Rund IVENS (Netherland)
Anstein FOSS (Norway)
Stanislaw KOZLOWSKI (Poland)
Przemyslaw IGNATOWICZ (Poland)
Gunnar BERGH (Sweden)
Bo LINDGREN (Sweden)
Roland MUHLEBACH (Switzerland)
Peter ROTH (Switzerland)
Isabelle SCHMIDELY (France)
Marie-Françoise VOIDROT (France)
Claude BERTHOU (France)
Jean COIFFIER (France)
Alain FOIDART (France)
Geir AUSTAD (Norway)
Robert GOURIOU (Lannion)

CONTACT PERSON

NAME : CHARVAT Josef
CONTRY : AUSTRIA
ADRESS : HOHE-WARTE 38 1190 VIENNA
PHONE NUMBER : 36-44-53 / 2604
TELEFAX : 36-91-1233
ELECTRONIC MAIL :

CONTACT PERSON

NAME : JACOB BROCK
CONTRY : DENMARK
ADRESS : DMI,VE, LYNGBYVEJ 100,DK-2100 KOBENHAUN O
PHONE NUMBER : +45 31 29 21 00 EXT 334
TELEFAX :

CONTACT PERSON

NAME : QUINET A
CONTRY : BELGIUM
ADRESS : INSTITUT ROYAL METEOROLOGIQUE
3 AVENUE CIRCULAIRE B-1180 BRUXELLES
PHONE NUMBER : 32 2 3750207
TELEFAX : IRM
ELECTRONIC MAIL :

CONTACT PERSON

NAME : DAABECK JENS
CONTRY : ECMWF
ADRESS : SHINFIELD PARK
READING BERKSHIRE RG29AX ENGLAND
PHONE NUMBER : + 44 734 499 375
TELEFAX : + 44 734 869 450
ELECTRONIC MAIL :

CONTACT PERSON

NAME : VESA KARHILA
CONTRY : FINLAND
ADRESS : FINNISH MET.INSTITUTE P.O BOX 503
SF-00101 HELSINKI
PHONE NUMBER : + 358 0 19291
TELEFAX : + 358 0 1795 81
ELECTRONIC MAIL :

CONTACT PERSON

NAME : COIFFIER JEAN
CONTRY : FRANCE
ADRESS : SCEM/PREVI 42 AVENUE CORIOLIS
31057 TOULOUSE CEDEX
PHONE NUMBER : + 61 07 82 10
TELEFAX :
ELECTRONIC MAIL :

CONTACT PERSON

NAME : WOLFGANG KUSCH
CONTRY : GERMANY
ADRESS : FRANKFURTER STR.135
605 OFFENBACH /M.
PHONE NUMBER : 069 8062 584
TELEFAX :
ELECTRONIC MAIL :

CONTACT PERSON

NAME : ANSTEIN FOSS
CONTRY : NORWAY
ADRESS : THE NORWEGIAN METEOROLOGICAL INSTITUTE
Po BOX 43 BLINDERN, 0313 OSLO 3
PHONE NUMBER : + 47 2 96 30 00
TELEFAX : + 47 2 69 30 50
ELECTRONIC MAIL :

CONTACT PERSON

NAME : KOZLOWSKI STANISLAW
CONTRY : POLAND
ADRESS : POLAND, WARSAW, INSTUTE OF METEOROLOGY AND
WATER MANAGEMENT, UL. PODLESNA 61
PHONE NUMBER : 34 16 51 INTERNAL 265
TELEFAX :
ELECTRONIC MAIL. :

CONTACT PERSON

NAME : BO LINDGREN
CONTRY : SWEDEN
ADRESS : SMHI 60176 NORRKOPING
PHONE NUMBER : + 46 11 15 84 59
TELEFAX : + 46 11 17 0 207
ELECTRONIC MAIL :

CONTACT PERSON

NAME : ROTH PETER
CONTRY : SWITZERLAND
ADRESS : SWISS METEOROLOGICAL INSTITUTE
KOUHBÜHLSTR 58 CH 8044 ZURICH
PHONE NUMBER : 01 256 93 50 (DIRECT LINE)
TELEFAX : 01 256 94 78
ELECTRONIC MAIL :

CONTACT PERSON

NAME : BD MET O (SD) (CURRENTLY DR.S.MATTINGLY)
CONTRY : U.K
ADRESS : THE METEOROLOGICAL OFFICE LONDON ROAD
BRACKNELL, BERKS RG12 2SZ
PHONE NUMBER : 0344 20242
TELEFAX : 0344 854 412
ELECTRONIC MAIL :