European Centre
for Medium Range Weather Forecasts

ECMWF NEWSLETTER

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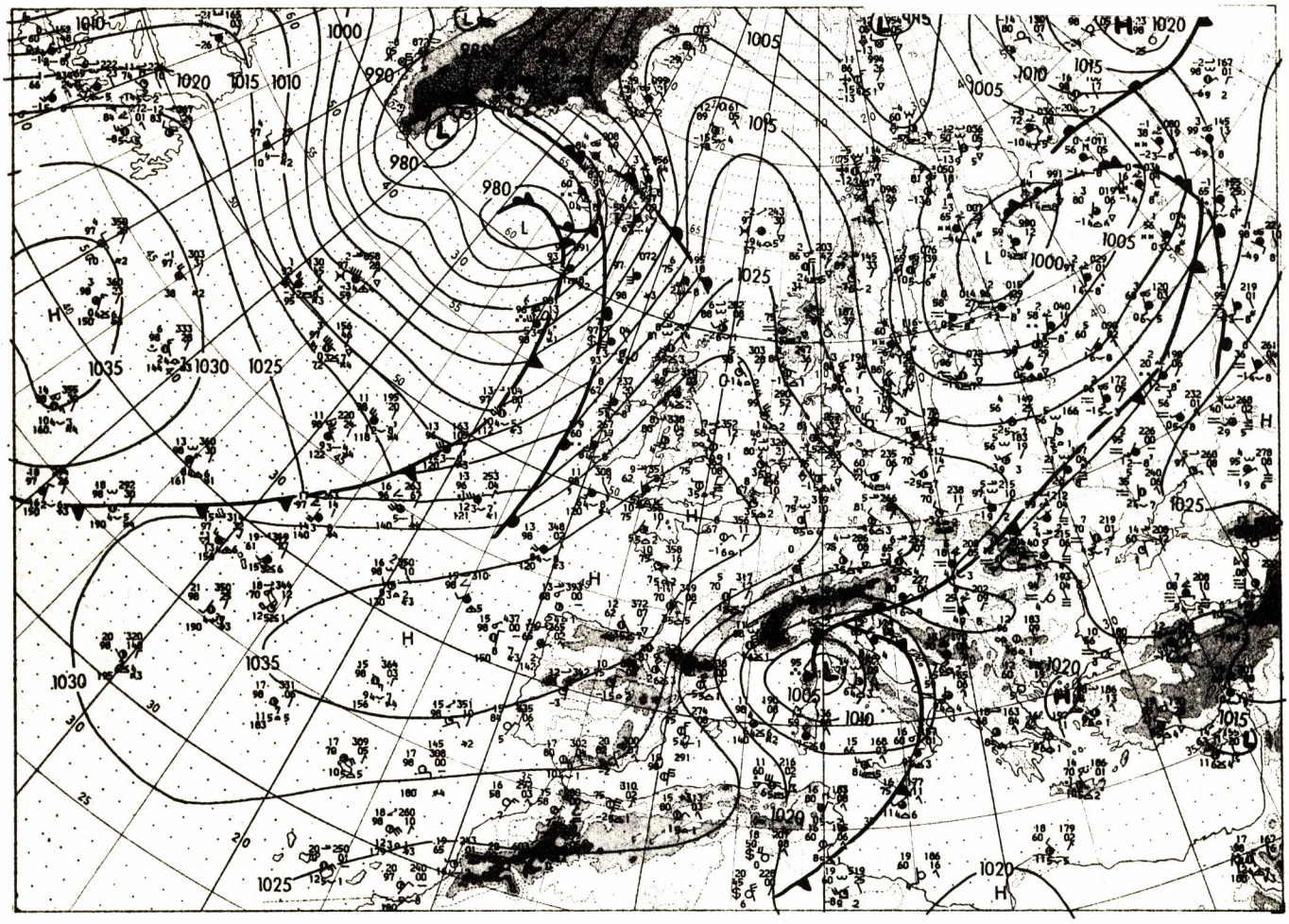

IN THIS ISSUE:

METEOROLOGICAL

COMPUTING

GENERAL

* NOTE: These articles directly concern the computer service; we recommend that computer users read them all.

COVER: The analysed PMSL - 12 GMT, 5 March 1982, from the European Meteorological Bulletin, showing a case of Genoa Cyclogenesis which occurred during the period of the ALPEX experiment. See article on page 6 for further details.

This Newsletter is edited and produced by User Support.

The next issue will appear in October 1982

THE TENTH SESSION OF THE SCIENTIFIC ADVISORY COMMITTEE

The tenth session of the ECMWF Scientific Advisory Committee was held at Shinfield Park, 1-2 June 1982. The meeting was opened by the Director who welcomed Dr. J. Peixoto, Dr. L. LaValle and Dr. B. Machenhaur to their first meeting of the Committee. The last two members replaced last year's outgoing members Dr. E. Eliasen and Dr. K. Hasselmann. The meeting was then passed into the hands of the Chairman, Professor F. Mesinger (University of Belgrade).

The meeting, following the format established over the last few years, discussed the general progress achieved during the past year, scientific papers on special topics and the Centre's proposed four year plan of activities for 1983-1986.

The Committee was highly satisfied to note the exceptional progress in research that has been made over the past year, especially in so far as it provides new insight into the nature and causes of some of the systematic errors present in the operational forecasting system. Of particular importance for the future work of the Centre is the result obtained by Professor E. Lorenz, while on sabbatical leave at the Centre, that there is potential for further improvements in useful predictability due to model developments alone. The Committee noted that this optimistic view was supported by recent results from the Centre's programme of numerical experimentation in which (i) the introduction of an "envelope" orography into the research version of the operational model resulted in substantially improved forecasts for days 4 to 10 for a series of winter cases, and (ii) encouraging results had already been obtained by increasing the vertical and horizontal resolution in a number of pilot studies.

The Committee was very favourably impressed by the manner in which the Centre had completed the FGGE III-b analyses and was convinced that this had been most valuable both to the Centre itself and, more generally, to the international meteorological community. It noted the widespread use already made of the Centre's analyses and stressed that scientists in the Member States should be aware that a wider range of products was available to them from the Centre than was defined in the FGGE data management plan.

The Committee endorsed the overall objectives of the proposed four year research plan which aims to improve the quality of the forecasts and to increase the predictive skill of the Centre's operational model in the medium range. This is to be achieved by developing a new forecasting system to be implemented into operation in mid-1985.

At the close of the meeting Mr. F.H. Bushby was unanimously elected Chairman of the Scientific Advisory Committee, following the conclusion of Professor Mesinger's term of office. Mr. Bushby's term of office will commence on 20 November 1982, following the sixteenth session of Council.

- Dave Burridge

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THE FOURTH SESSION OF THE TECHNICAL ADVISORY COMMITTEE

The fourth session of the ECMWF Technical Advisory Committee was held at the ECMWF Headquarters, Shinfield, 15-18 June 1982, under the continuing Chairmanship of Mr. J. Lepas, France.

Amongst the wide range of topics covered, the report of the Core Working Group on the range and presentation of the Centre's products was presented to the Committee, establishing some principles governing the range of products disseminated by the Centre. It is now agreed that the principle of dissemination of basic quantities should only be used as a basic guideline, not as a strict rule. The Centre is allowed the possibility of disseminating derived products under certain circumstances, on condition that any derived products made available to one Member State or non Member State be made available to all Member States, by being added to the Product Catalogue. Decisions on how best to assist Member States in obtaining derived products are to be left to the discretion of the Centre, with the agreement of the Chairman of the Technical Advisory Committee.

It was also agreed that various requests for additional disseminated products should be met, so 6-10 day mean Z_{500}, mean sea level pressure, T_{850} and precipitation fields will be added to the list of experimental products. Vertical velocities will be made available at all standard levels up to 300 mb and total precipitation will be made available at 6 hour intervals to H+96, then at the same 12 hour intervals as at present. The current Product Catalogue will be reviewed when a new analysis system is implemented.

Results of further experiments comparing the quality of medium-range forecasts starting from 12Z data, as at present, with forecasts starting from 00Z were presented. Although the Committee fully appreciated the improvements achieved by using the later data (on the average of all the experiments carried out in 1981 and 1982 there was a gain of 9.6 ± 1 hour for the northern hemisphere, of 11.2 ± 3 hours for the European area, and of 6 ± 1.5 hours for the southern hemisphere in the standard deviation scores) the majority were concerned that the data could not be guaranteed to be available daily in time to meet their operational schedules, particularly bearing in mind differences between Greenwich and local time and summer time changes. The Committee consequently concluded that a change to using 00Z data was not possible.

Having been presented with verifications and evaluations of the Centre's forecasts from Australia, Hong Kong and the United States, and with the latest results of the Numerical Weather Prediction Intercomparison Project (proposed by the Commission of Atmospheric Science Working Group on Weather Prediction Research and being carried out by the Finnish Meteorological Institute), which all clearly show the Centre's forecasts to be superior, the Committee agreed the following overall view regarding the quality of the Centre's products:

1. The Centre's model is the best model available at present.

2. From the beginning of the Centre's activities the model has been progressively improving.

3. The impressive results achieved by the Centre fully justify the financial contribution made by the Member States to the Centre.

4. There is evidence of increasing use, within almost all Member States, of ECMWF products on a daily operational basis for their medium-range forecasts. For many Member States the Centre's model output is the basis of all their medium range forecasting activity.

The Committee were presented with the Centre's proposals regarding its technical activity and development of technical facilities, as contained in the draft budget for 1983 and the four year plan for 1983-1986. Recommendations regarding these proposals, and the proposed allocations of computer resources to Member States, were made to Council.

The Centre's planned graphics strategy was described to the Committee, who wholeheartedly supported the proposals, which are based on the development of specialised graphics facilities with standard software which could be used in the Member States. It was particularly felt that the Member States will be able to draw great benefit from the Centre's work and experience in graphics development, and that emphasis should be put upon the portability of the software eventually implemented.

The implementation schedule for the remaining medium-speed circuits in the ECMWF telecommunications network was discussed, and taking into account the changes announced by the Member States concerned, the implementation schedule proposed by the Committee is shown in the table below:

Member State	Date approved	Speed	Proposed changes
Belgium	January 1983	4800	None
Greece	May 1982	2400	May 1983
Italy	January 1983	4800	June 1983
Yugoslavia	January 1983	2400	July 1983
Switzerland	July 1984	2400	None
Turkey	January 1985	2400	June 1984

The Committee heard the report on last year's meeting of Member State Computing Representatives. They considered that such meetings serve a very useful purpose, providing an efficient means of passing information to the Member States, but required that a proposed agenda should be presented to the Committee beforehand, to show the justification for each particular meeting. It was proposed that the next Member States Computing Representatives meeting take place in the first quarter of 1983, when details of the planned system acquisitions can be presented to them.

At the end of the meeting the Chairman, Mr. J. Lepas, regretfully announced that owing to his recent appointment to Deputy Director of the French Meteorological Service, he would be unable to continue his Chairmanship of the Committee. Mr. W.H. Wann, the Irish delegate, was unanimously elected the new Chairman and Dr. A.P.M. Baede the new Vice-Chairman of the Technical Advisory Committee. Their term of office will commence on 20 November, 1982, following the sixteenth session of Council.

- Daniel Söderman

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RELATIVE PERFORMANCE OF ECMWF AND NMC FORECAST SYSTEMS - AN EVALUATION BY NMC

The following is extracted from a memorandum on the above subject from Dr. W.D. Bonner, Director of the National Meteorological Centre, Washington to Dr. R.E. Hallgren, Director on the National Weather Service. The complete memorandum is available from ECMWF on request.

"Since February 1982 NMC has been receiving the 24-through 120-hour ECMWF forecasts of 500 mb height and sea level pressure on a near real time basis. More recently (early May) NMC has also been receiving the "D+8" 500 mb height fields map (the 5 day mean map centred on forecast hour 204). The forecasts are received over the GTS on a 5^{o} latitude longitude grid for the Northern Hemisphere north of 20^{o} and are biquadratically interpolated to NMC's "standard" 65 x 65 polar stereographic grid for display and verification purposes. The relative skill of ECMWF versus NMC forecasts has been assessed objectively and subjectively. The following presents the results of our evaluations through April 1982.

Objective verifications

Comparative objective verifications of the ECMWF model and NMC's spectral model forecasts of 500 mb height are presented in Figure 1, for the three months available to date. The particular verification statistic shown here is the standard deviation of the error of the 500 mb heights plotted as a function of forecast hour. For the spectral model (SMG3C - the symbols connected by solid lines). the statistic is plotted every 12 hours up to 48 hours and is for all the forecasts (averaged) for the month; after that time forecasts from the 00Z initial time (the only ones made) are, naturally, the only ones considered. The ECMWF model (the symbols connected by dashed lines) scores are the monthly means for the once per day forecasts made from the 12Z initial time and plotted every 24 hours - the only times available.

The calculation of these statistics is done by comparing the forecast field in question with verifying radiosonde observations for a quasi-uniformly distributed selection of 102 RAOBS over the Northern Hemisphere. Figure 1 shows that, in general, the errors in ECMWF forecasts of 500 mb height are lower by 10-15% than those of the current NMC spectral model. This is equivalent to about a 12-hour difference in skill between the two global systems.

There is no indication that the ECMWF model is generally pulling ahead of NMC at the longer ranges in spite of the considerably more sophisticated physical parameterisations in that model. Five days may be too short a time for those effects to reach full potential, however; the recently received D+8 maps may tell a different story in the future.

The statistics for the NH102 network compare quite favourably both in terms of numerical values and information content with those presented by Bengtsson and Lange ("Results of the WMO/CAS NWP Data Study and Intercomparison Project for forecasts for the Northern Hemisphere in 1979-80" - WMO, updated).

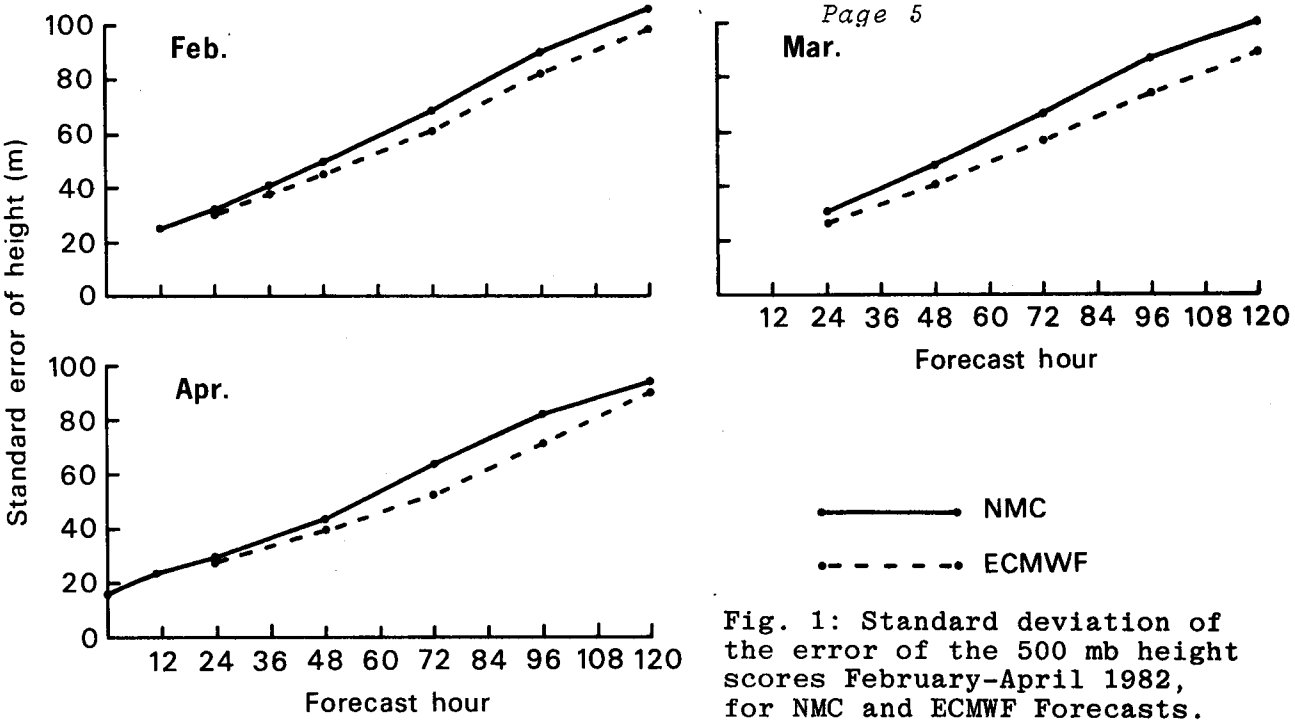

Fig. 1: Standard deviation of the error of the 500 mb height scores February-April 1982, for NMC and ECMWF Forecasts.

Subjective Evaluations

Subjective evaluations of ECMWF versus NMC spectral model forecasts were performed to assess the meteorological significance of differences between them. Qualitative judgements, which were based upon such factors as the position, amplitude and vertical consistency of weather systems, were according to a 5-point scale, ranging from 5 (ECMWF much better) to 1 (ECMWF much worse).

Separate assessments were made for the sea-level pressure and 500 mb height fields. In these evaluations, NMC was given a 12-hour advantage in rendering judgements since only the 12-hour old ECMWF guidance is available near the deadline for issuing medium range predictions. Thus, for example, the 96-hour ECMWF prognoses were assessed relative to the 84-hour NMC spectral forecasts value at the same 1200 GMT verifying time.

The results of subjective evaluation of the short-term (24 + 48 hour) March and April predictions show that there is a distinct tendency for the ECMWF forecasts to be judged better than the NMC guidance. Of the 16 possible combinations of month, level, time period, and region, ECMWF was considered more useful in 12, worse in 3, and the same in 1. At both 500 mb and the surface the advantage of ECMWF over NMC was larger in March than April and more consistent over western North America than eastern North America.

Another view of the overall results of subjective evaluation of the short-term forecasts is provided by the percentage of judgements falling into each of the categories, 1-5, for the combined sample of surface and 500 mb, 24 and 48 hours, and eastern plus western North America. In March of the total judgements rendered, 40 per cent were ECMWF and NMC the same. The balance of judgements was clearly skewed towards "ECMWF better", with an overall average of 3.4. During April, the percentage of neutral judgements increased to 50 percent, with a slight skewness towards "ECMWF better", producing an overall average of 3.1.

The results of evaluation of the extended range forecasts show that for both months ECMWF tends to be as good as or better than NMC, over western North America and Europe, but is consistently worse over eastern North America. Otherwise, there is no obvious stratification of results amongst the possible combinations of area, time range, or level.

In interpreting these later results, keep in mind that the NMC extended guidance has a built in 12-hour advantage in the subjective appraisal, i.e. a "same" implies that the ECMWF 12-hour old forecasts are as good as the latest NMC prognosis.

Summary and conclusions

In summary, the results of subjective evaluation demonstrate a generally consistent superiority of ECMWF over the current NMC spectral model forecasts. In this regard, the subjective assessment virtually echoes the results of the objective verifications.

The ECMWF model is a state-of-the-art system that shows clearly what can be done with the power of a Class VI machine. We look forward with enthusiasm and optimism to the realisation of similar improvements with the increased computer power expected to be available at NMC within the next year."

- Austin Woods

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THE ECMWF LIMITED AREA MODEL EXPLORES THE POSSIBILITIES OF HIGHER RESOLUTION : GENOA CYCLOGENESIS

1. Introduction

The Limited Area Model (LAM) was built and is implemented at ECMWF as a research tool. A forecast that is interesting for a particular meteorological situation over a limited area of the globe can be repeated at little expense with different physical parameterisation, topography or resolution. In this sense, the limited area model can be used as a laboratory in which to test many of the changes that can be introduced into the global model, from which the LAM is derived.

As a laboratory, the LAM is useful to test even the effects of changes which, at present, cannot be introduced into the global model. Typical cases are the resolution experiments which, for the global model are limited by the memory capacity of the computer. They are of great importance, since increasing the number of points at which the different variables are computed should increase both the accuracy of the computation and the detail of the forecast.

Quite a few Member States use the LAM, or a modified version of it, as a research tool or as a reference system, when building their own model.

2. Characteristics of the model

The area of integration can be any latitude-longitude portion of the globe that does not contain the poles or an entire latitude band. This area is delimited by boundaries whose treatment is, in general, one of the weakest points of the limited area models. In the LAM, a

practical approach was chosen to avoid the reflection of waves against the boundaries interfering with, and eventually destroying, the internal fields. The values of the variables in the boundary zone of the area are a combination of external and internally computed values. The former can be either analysed or forecast data. The difference between two consecutive data files, generally taken every twelve hours, is linearly interpolated in time to have the new external values every timestep. The variables in the outermost points of the area are completely replaced by the external ones, then the internal points are more and more influenced by the computed ones rather than by the prescribed values. A boundary zone of four grid points is, in general, able to prevent boundary instability. A balance must be found between the size of the area of integration, the size of the boundary zone and the frequency of insertion of external data to permit all the systems containing important meteorological information to enter the area.

A filter-diffusion algorithm is used, as in the global model, both to filter the short waves due to the convergence of the meridians towards the poles and to diffuse the fields horizontally.

3. A resolution experiment

The case of cyclogenesis which occurred on 5 March 1982, just at the beginning of the ALPEX experiment period, is a good example of the use of the limited area model. All the LAM two-day forecasts shown used the operational initialised analyses at 12h intervals, starting at 0012 GMT on 3 March 1982, as initial and boundary data.

Figure 1 shows the evolution of a vortex that, initially centred at 60^{o}N-0^{o}E, travelled east to reach 67^{o}N-35^{o}E after two days. The frontal system associated with this low interacted with the Alpine range; the flow was deflected, a low pressure centre was established in the lee of the Alps and a classic Genoa cyclone was produced which reached its maximum development on D+2.

Figure 2 shows four experiments performed on this case with the LAM. The first is an N48 (operational) resolution (1.875^{o}) two day forecast, very similar to the one produced by the global model. The cyclogenesis was obtained, but many synoptic deficiencies can be noticed in the forecast. Even taking into account the different map projections, the shape of the Mediterranean cyclone is quite different from the one observed in Figure 1: the flow does not "turn around" the Alps in the right way and it is too geostrophic. The trough connected with the parent low is not deep enough and no closed low can be seen on the north Atlantic area. Finally, the effect of the Atlas mountains on the circulation is almost non-existent.

The second experiment is an N96 resolution ($.9375^{o}$) run (double that of the operational model) with fields interpolated from the global N48 analysis. The topography is also interpolated from the N48 grid and, therefore, contains no new, higher resolution, information. The effect of the increased accuracy of the computation can be discerned from the closed circulation in the north Atlantic, in the deepening of the trough connected with the flow in the north-east part of the area, the high pressure over the Gulf of Sirte, and (not shown) the strengthening of the wind over the ocean, west of the Atlas mountains. However, the position of the Alpine lee-cyclone is the same as in the N48 run, the flow around the mountains is still too geostrophic, the shape of the circulation in the cyclone is

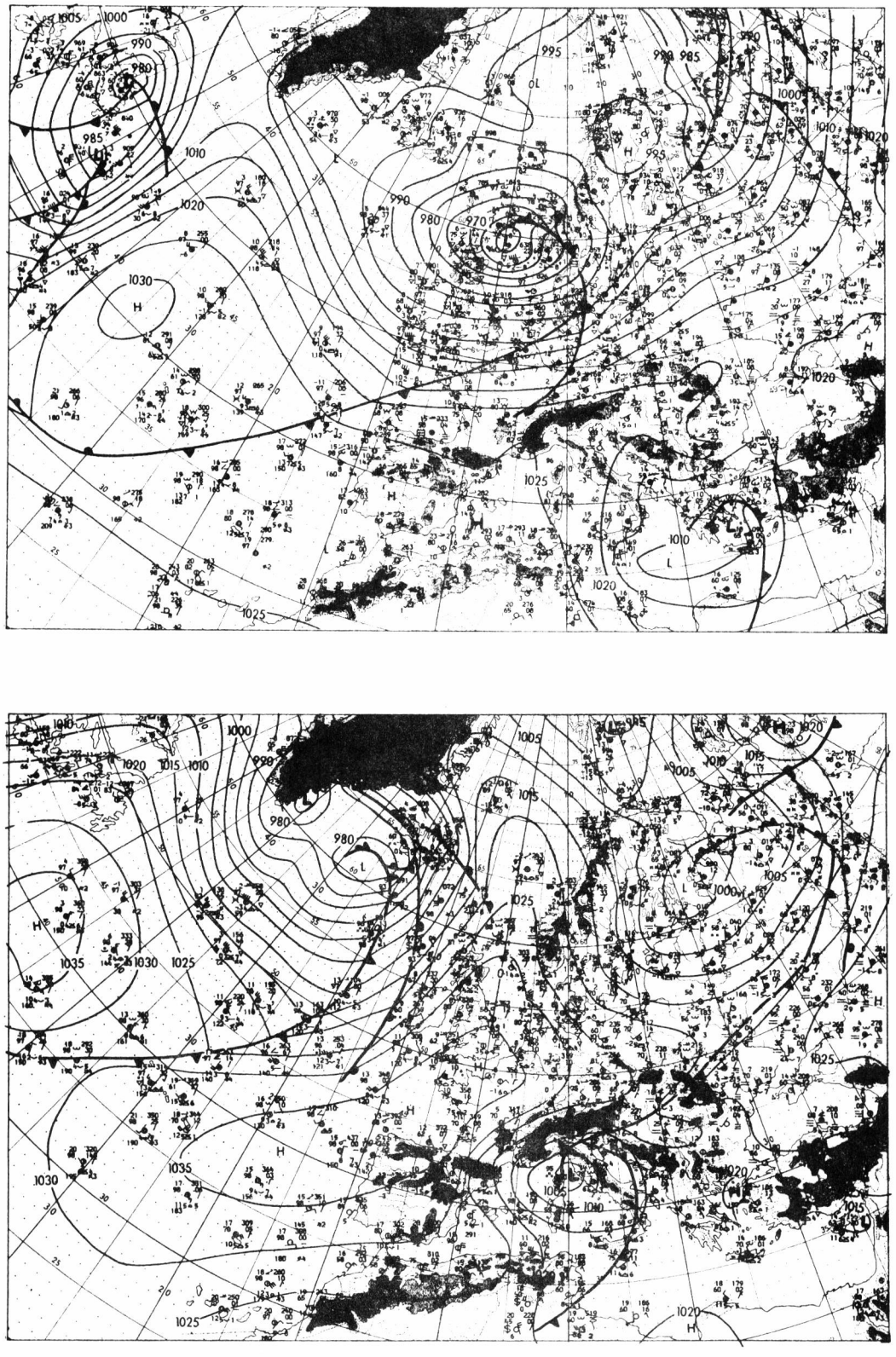

Fig. 1 Maps of the analysed PMSL, from the European Meteorological Bulletin; upper panel - the initial conditions 12 GMT 3 March 1982; lower panel - 12 GMT 5 March 1981 against which the two day forecasts should be verified.

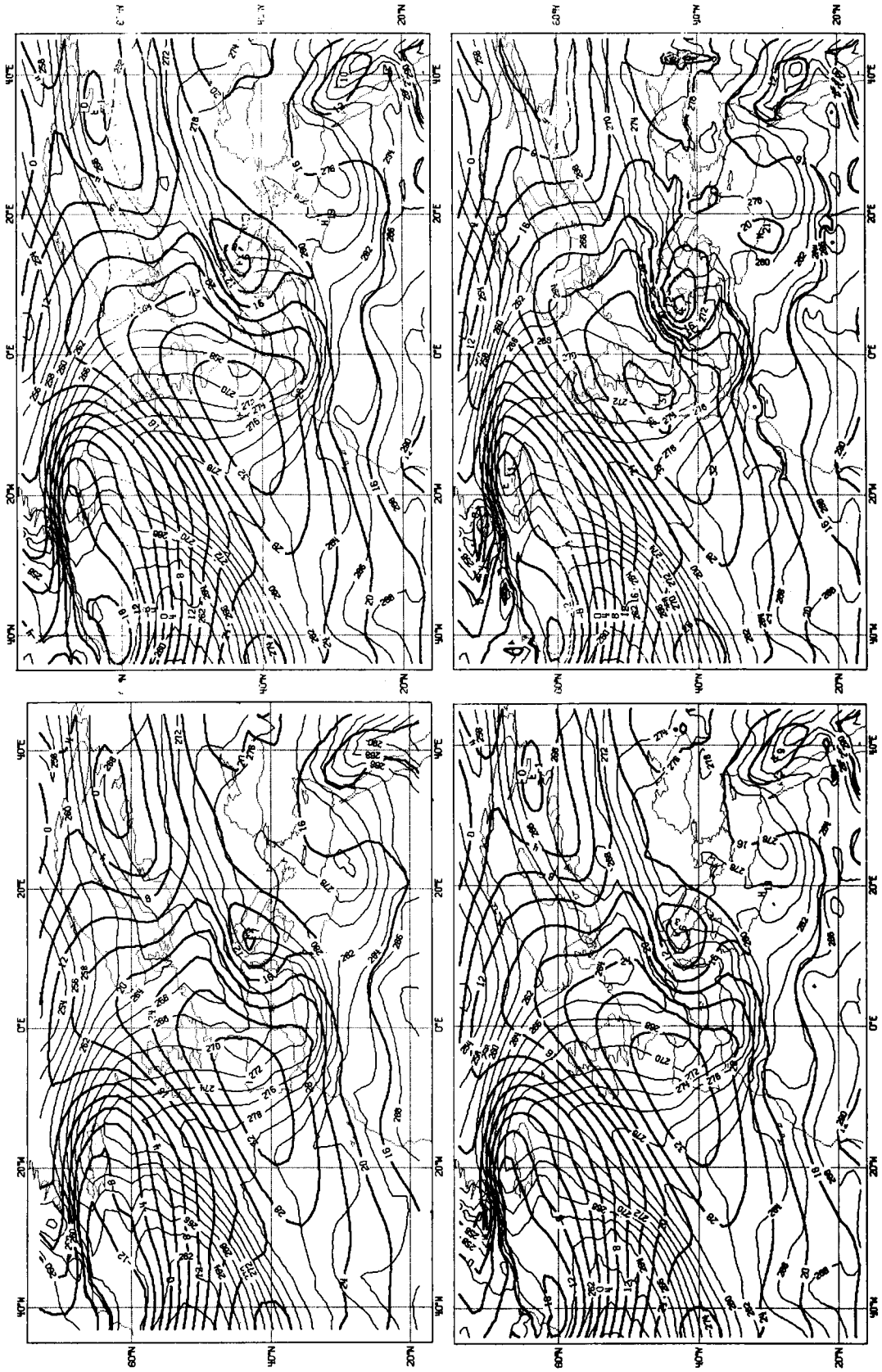

Fig. 2. Maps of 1000 mb geopotential height (thick line) and temperature from D+2 of the following limited area forecast experiments: N48 resolution (top left), N96 resolution with N48 interpolated orography (top right), N96 resolution with N96 orography (bottom left), N96 resolution with N96 envelope orography (bottom right).

incorrect and the maximum wind speed in the Rhone valley (the "mistral") is only 15 ms^{-1} instead of the observed 20 ms^{-1}.

The third experiment is an N96 resolution run with the insertion of a corresponding N96 orography re-computed from original topographical data for this purpose. The height of the Alps is therefore increased from the previous 1200 metres to about 1900 metres. It can be seen that new and more detailed information inserted into the orography brings improvements in the forecast: the shape of the cyclone in the lee of the Alps is changed, though the position of its centre remains too far to the east, the flow is more ageostrophic, a tongue of cold air travels south east of the Alps and the effect of the Atlas mountains can now be seen on the geopotential field.

The last experiment is again an N96 resolution run, but with much higher mountains; the so-called "envelope" orography which brings the height of the Alps to about 3000 metres. The effect of these new mountains is significant. The Genoa cyclone assumes a shape very similar to that observed, with the thermal field showing the cold front, the warm front and the occlusion in the right position with respect to the cyclone, whose centre is now a little too far to the west. Small scale features in the geopotential west of the Alps show the presence of mesoscale effects that only a mesoscale analysis could verify. A tongue in the geopotential field protruding south-east of the Alps and a small area of high pressure over Greece represent features very close to those observed. The wind in the Rhone valley now reaches 20 ms^{-1} and a closed high pressure contour is present in the Gulf of Sirte.

This last run shows that the increased height of the mountains improves many features of the Genoa cyclone but, on the other hand, the exaggerated orography could be responsible for the too westerly position of its centre and for the absence of the closed contour of its parent low. A compromise between the orographies of the last two N96 runs should be tried: the limited area model could be the right tool for doing this.

- Lorenzo Dell'Osso

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NWP DATA, 1979-1981, FROM EIGHT CENTRES, AVAILABLE FROM ECMWF

1. Introduction

Analysis and forecast data from 1979-1981 have been collected for the WMO Commission of Atmospheric Sciences (WMO-CAS) working group on weather prediction research by the Finnish Meteorological Institute. ECMWF has included these data in its databank to make them available to the scientific community at the Centre and in the Member States. Although the data have a very different structure from those in the ECMWF databank, retrieval is possible using GETDATA (described in ECWMF Meteorological Bulletin M1.9/3 or Computer Bulletin 6.7/4)*. The basic goal of the project which collected these data was to produce a data set for research. A set of numerical analyses and forecasts from different NWP centres covering the same area and the same time period constitutes an important data base which can be used for the study of a number of NWP research problems.

- Intercomparison of analyses

In spite of considerable improvements in data transmission over the GTS circuits, there are still variations in the availability of data at different NWP centres. There are also large variations in analysis procedures and the way in which the first guess is used. These variations not only give differences in the small scale of the spectrum but also, as has been found in a data study at ECMWF, affect the very long waves. A systematic intercomparison of different numerical analyses will improve our knowledge of our present operational network and provide data material where the accuracy of the initial state can be assessed in a better way.

- Evaluation of forecasts

Evaluations of numerical forecasts indicate that there are more similarities between individual forecasts than between an individual forecast and reality. It is of great importance to show if this is also true for large variations in the predictability for different weather situations and between different periods. It is important to find out if this is valid for a particular model only or if all models, or several models, have a simultaneous variation in predictability. Furthermore, it is of great practical significance to compare the performance of simpler inexpensive models with sophisticated ones.

2. Data Availability

This dataset consists of NWP data from eight centres: Canada, Federal Republic of Germany, France, Japan, Sweden, United Kingdom, United States of America, ECMWF, which have provided both hemispheric and regional data.

- Hemispheric data

Area: 20N to 90N; 5^{o}x5^{o} resolution

Dates: 1 January 1979 to 31 December 1981

Forecast length (hours): 24,48,72,96,120 (also 144,168 and 192 by ECMWF and Japan, although by Japan only twice per week).

Levels: Surface pressure or 1000 mb height, 500 mb height

- Regional data

Data are also available at 2.5^{o}x2.5^{o} resolution from ten regional areas, including two in the Southern Hemisphere, for forecasts at 12 hour intervals to 48 hours. For example, five centres have supplied data for areas 35^{o}N to 70^{o}N, 0^{o}E to 42.5^{o}E (Europe) and 35^{o}N to 70^{o}N, 45^{o}W to 2.5^{o}W (eastern North Atlantic). For exceptions and further details, see Meteorological Bulletin M1.9/3 or Computer Bulletin 6.7/4.*

3. Retrieval of the data

For details, see article on page 15.

- Per Undén

* The Meteorological Bulletin (M1.9/3) has been distributed, the Computer Bulletin (B6.7/4) containing the same information, is being produced and will be distributed shortly.

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We are pleased to be able to publish the following article, recently received from the Netherlands, describing their communication system with the Centre.

THE B800 SYSTEM AT THE KNMI, NETHERLANDS, FOR DIRECT COMMUNICATION BETWEEN THE MAIN COMPUTER AND ECMWF

The medium speed link (2400 bps) between ECMWF and KNMI is handled at KNMI by a Burroughs B800 minicomputer. This B800 is linked to our main computer system, a double Burroughs B6800, via a 9600 bps channel. A detailed layout of the system is shown in Figure 1, opposite.

All the software needed for communication with ECMWF is implemented on the B800. After receiving the ECMWF products, the B800 passes them to the B6800. Thereupon, the data are plotted on a Versatec electrostatic plotter (type 8222A, 200 dots/inch and 22 inch width). This is all done without operator intervention. The B800 minicomputer can also be used as a remote job entry terminal to utilise the ECMWF computer facilities. Jobs can be prepared by means of a VDU terminal connected to the B800. After the USER IDENTIFIER and PROJECT IDENTIFIER have been validated, these jobs are transmitted to ECMWF.

The results of the jobs can either be printed by B800 or by B6800; by using the ROUTEDF facility, results can also be routed to the B6800 to be stored on disc. More extensive facilities are offered by utilising the B6800 as a remote job entry terminal to ECMWF. In this case the B800 functions only as a communication computer and the user has the same routing facilities at his disposal. All software needed for this project, with the exception of that for handling the X25 protocol, was developed by our own staff.

- G.D.G. Folkers
Royal Netherlands
Meteorological Institute

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SUBMIT AND DISPOSE

As reported in Newsletter Number 8 (April 1981), the Cray control statement SUBMIT will be replaced in a future release of COS by a new control statement also called SUBMIT but having different parameters. The next release of COS (1.11) contains this change and is now being tested at ECMWF. Users therefore have a limited time left in which to change to the equivalent statement LAUNCH.

Users of the subroutine interface in ECLIB should also change to CALL LAUNCH. The ECLIB routine DISPOSE can also cause confusion with the Cray library routine of the same name. The equivalent routine STAGE has also been available for some time now, so DISPOSE will be removed from ECLIB at the same time as SUBMIT. Please make sure you no longer use these routines.

- David Dent

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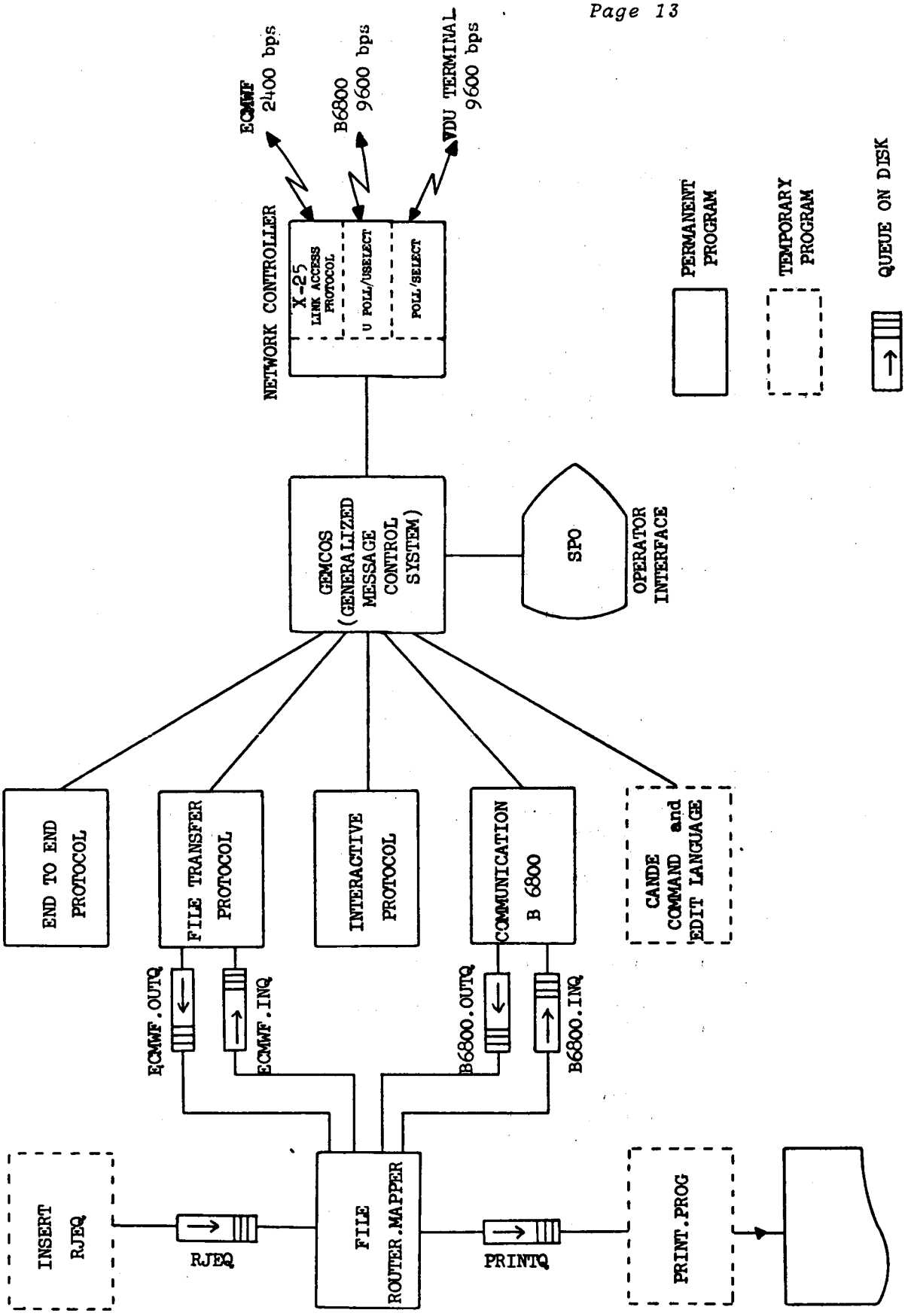

Fig. 1 B800 Software Implementation Scheme

A SUMMARY OF FACILITIES AVAILABLE FOR ACCESS TO THE OPERATIONAL ARCHIVES

Non-chargeable access to the operational archives: FINDATA

Retrieval using GETDATA can involve some costly processing, particularly when large numbers of upper air grid point fields are generated from the archived spherical harmonic coefficients. To remove this cost from archive users, the fourth session of the Technical Advisory Committee recommended that retrieval of observations and standard pressure level fields normally accessed using GETDATA should be possible using a non-chargeable account. The FINDATA utility was introduced on 1 July 1982 to do this. It allows a user to submit a retrieval with a format very similar to GETDATA; the retrieval submits a GETDATA job which is charged to a central ECMWF account. Retrieved fields and reports are handled in the usual way except that the target file is automatically catalogued. Some controls were introduced with FINDATA to give computer operators an advance list of magnetic tapes required in the retrieval and to allow them to hold jobs if the Cyber tape units were already heavily used.

Reference:

Utility for retrieval under non-chargeable account from ECMWF data bank of reports and fields on standard pressure levels (FINDATA). ECMWF Meteorological Bulletin M1.9/2, ECMWF Computer Bulletin B6.7/3.

- Per Undén

Direct plotting from the archives: GETPLOT

A system has been developed for plotting fields from the databank using a utility procedure, GETPLOT. This operates in a manner similar to GETDATA with user directives selecting fields to be plotted and specifying the area and projection of the plot. The fields may be from the global or European area, archived with display options similar to those available via the operational watch facilities (OPWATCH):

- Northern/Southern hemisphere polar stereographic
- global cylindrical
- user defined area on a cylindrical projection
- standard European area on a cylindrical projection
- standard European area on a polar stereographic projection
- standard Atlantic/European area on a polar stereographic projection

It is envisaged that GETPLOT facilities will eventually offer overlaying of fields on a map, overlaying of observations on analyses, tephigrams, data coverage maps and cross-section plots.

Reference:

GETPLOT User Guide. Operations Department Technical Note File 462

- Paddy O'Sullivan

GETDATA retrieval of WMO-CAS Intercomparison study data

In addition to data generated at ECMWF, a set of analyses and forecasts over hemispheric and regional areas from eight national weather services for the years 1979-1981 has been added to the ECMWF databank. These data have been collected for the WMO Commission of Atmospheric Sciences (WMO-CAS) working group on weather prediction research for an NWP Data Study and Intercomparison Project carried out at the Finnish Meteorological Institute. Although the data has a very different structure from that in the ECMWF databank, retrieval is possible using GETDATA. Further details of the data available are given in the article on pages 10 and 11 of this Newsletter.

Reference:
GETDATA retrieval of WMO-CAS Intercomparison Data. ECMWF Meteorological Bulletin M1.9/3, ECMWF Computer Bulletin B6.7/4.

- Per Undén

ECMWF databank retrieval utilities

GETSGMA

Forecast sigma level data are available in the databank for surface and upper air fields. The upper air archive runs from 24 November 1981 and the surface archive from 31 March 1982. Sigma data can be retrieved using the GETSGMA procedure which builds a target file on disc for a complete set of sigma levels for selected timesteps.

Reference:
Archiving of sigma level data (GETSGMA) Ops. Dept. Memorandum.File 461

- Brian Norris

GETOPER

In addition to the packed and reformatted archive data streams in the databank, a short term 'operational archive' stream is stored each day and kept for about a year. This stream is designed to allow rerunning of either an operational analysis or forecast in an environment as close to the original operational run as possible. These archives hold four files of reports used by the four analysis steps and analysis and forecast input data sets disposed from the Cray in transparent mode. The reports and input data sets can be retrieved as complete files using the procedure GETOPER.

Reference:
Operational Archiving (GETOPER) Ops. Dept. Technical note, File 27.3

- Brian Norris

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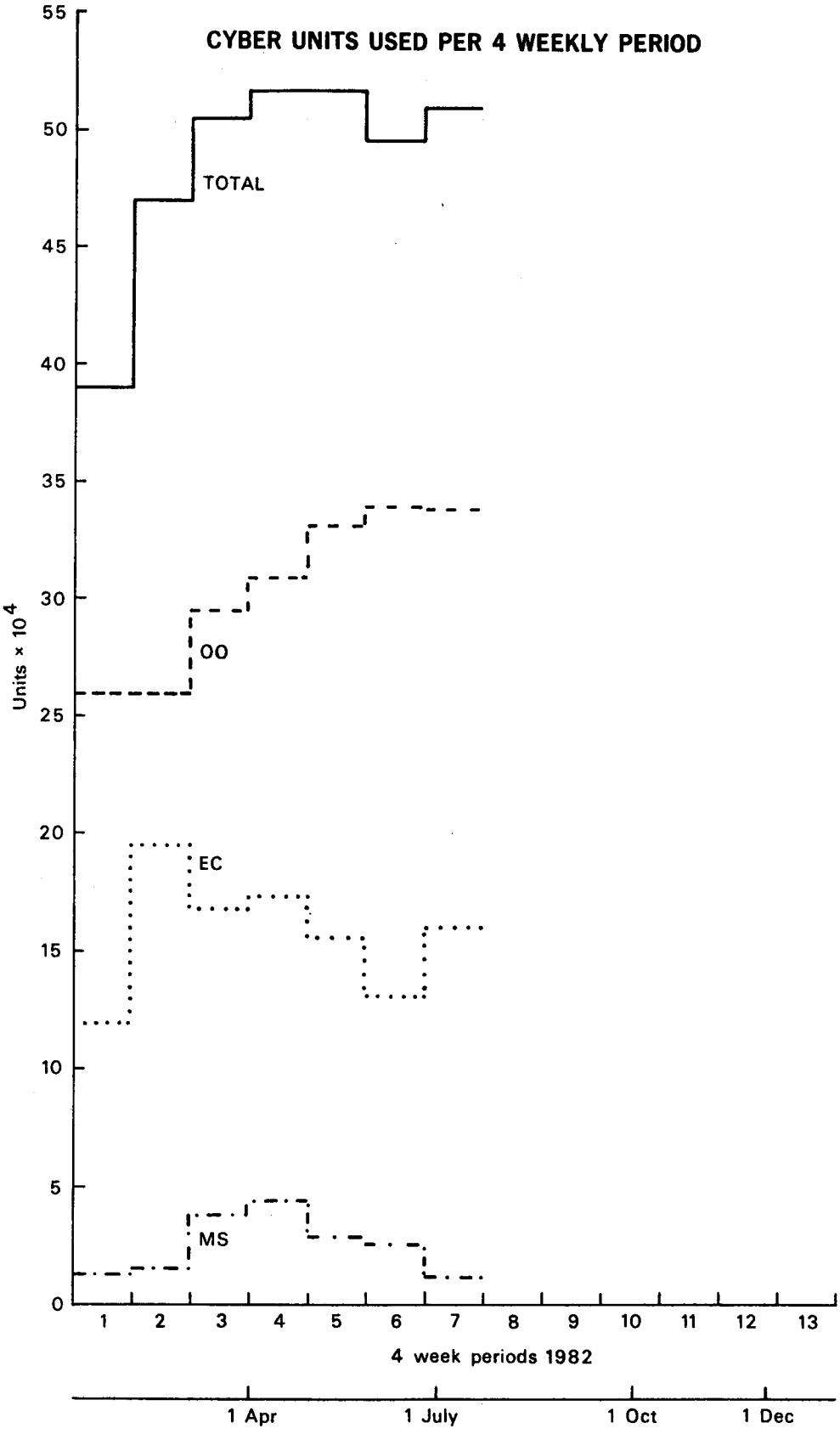
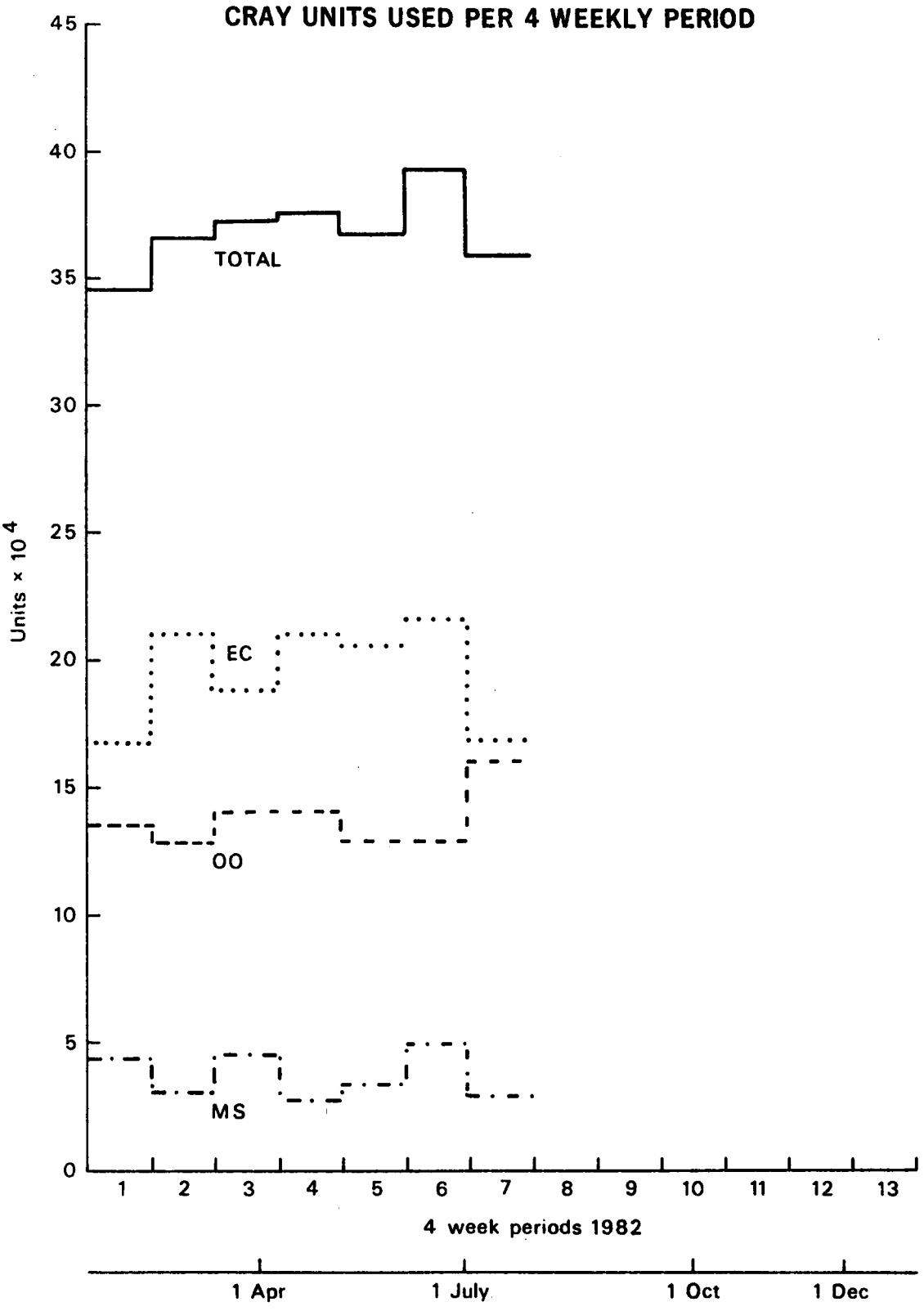
COMPUTER USAGE STATISTICS 1982



Total = total usage less those jobs classed as systems overheads
OO = operational suite running
EC = Centre users
MS = Member State users, including Special Projects



NFEP TERMINAL STATISTICS

From 24.5.82-18.7.82

COUNTRY	AVERAGE TOTAL DATA (KCHAR/DAY)		DATA RATE (CH/SEC)	
	INPUT	OUTPUT	INPUT	OUTPUT
Denmark	2.2	1357.6	188.9	227.9
F.R. Germany	5070.5	3105.7	68.2	293.7
Ireland	8.1	2388.4	102.1	202.1
Spain	16.7	832.3	222.8	189.7
France	136.8	1429.4	335.8	271.7
*Greece	0.0	549.5	0.0	13.1
*Italy	0.0	321.9	0.0	13.5
*Yugoslavia	0.0	53.3	0.0	6.5
Netherlands	55.7	1182.6	141.4	173.4
Austria	0.0	1171.4	0.0	185.5
Portugal	0.3	2984.9	88.4	198.2
Finland	0.6	2083.1	130.4	281.5
Sweden	3.4	4778.1	224.1	270.3
*Turkey	0.0	103.5	0.0	6.9
United Kingdom	5891.3	1191.7	74.0	195.5

*Low speed line only

Explanations

TOTAL DATA — Input data is data acquisition (UK and Germany only) plus remote job entry (medium speed lines only). Output data is batch output (medium speed lines only) plus dissemination data.

DATA RATE — gives the average transmission speed in characters per second for an input or output file respectively, including overheads at all levels per protocol.

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STILL VALID NEWS SHEETS

Below is a list of News Sheets that still contain some valid information which has not been incorporated into the Bulletin set (up to News Sheet 134). All other News Sheets are redundant and can be thrown away.

No.	Still Valid Article
16	Checkpointing and program termination
19	CRAY UPDATE (temporary datasets used)
47	Libraries on the Cray-1
53	Writing 6250 bpi tapes (EEC parameter)
54	Things not to do to the Station
56	DISP
67	Attention Cyber BUFFER IN users
73	Minimum Cyber field length
89	Minimum field length for Cray jobs
93	Stranger tapes
98	Cray symmetric multiply (rounding factors)
108	SUBMIT
114	Cray jobcard memory parameter
118	Terminal timeout
120	Non-permanent ACQUIRE to the Cray
	Local terminal line speeds
121	Cyber job class structure
122	Cyber FORTRAN News (level 538, FTN4 & FTN5)
126	Unnecessary waiting for permanent files
127	(25.1.82) Cyber 730E introduction- user interface advice
	IMSL Library
129	Optimisation problems with CFT 1.09
	Terminal fault reporting and testing
130	Cyber software: PACKS; SPACE
	Contouring package: addition of highs and lows
131	File storage on TEMP
132	(21 June 1982) NOS/BE level 552, including SORT/MERGE5.
134	CFT1.10

The following News Sheets can be thrown away since this list was last published: 65, 119, 132 (14 May 1982).

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ECMWF PUBLICATIONS

Technical Memorandum No. 56: The forecast and analysis post-processing package.

Technical Memorandum No. 57: Experimental forecasts from 00Z data with a 3 hour cutoff compared with operational ECMWF forecasts.

Technical Memorandum No. 58: An overview of current graphics hardware.

Technical Report No. 30: Review and reassessment of ECNET - A private network with open architecture

ECMWF Forecast Charts: up to 20 June 1982

ECMWF Verification Charts: up to 15 June 1982

FGGE-III Daily global analysis: Part 4, September-November 1979

ECMWF Forecast Report Nos. 15 and 16: July-September and October-December 1981

Seminar 1981: Problems and prospects in long and medium-range weather forecasting (14-18 September 1981)

Annual Report 1981 (English version)

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CALENDAR OF EVENTS AT ECMWF

13-17 September 1982	Seminar)	on the Interpretation of numerical weather prediction products
20-24 September 1982	Workshop)	
11-15 October 1982	Course B: Basic Usage)	Computer user training courses
18-22 October 1982	Course C: Cray user)	
25-29 October 1982	Course D: Cyber user)	
18-19 November 1982	Council 16th session	

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INDEX OF STILL VALID NEWSLETTER ARTICLES

This is an index of the major articles published in the ECMWF Newsletter plus those in the original ECMWF Technical Newsletter series. As one goes back in time, some points in these articles may have been superseded. When in doubt, contact the author or User Support.

GENERAL

METEOROLOGY

* T indicates the original Technical Newsletter series

USEFUL NAMES AND 'PHONE NUMBERS WITHIN ECMWF

		Room*	Ext**
Head of Operations Department	- Daniel Söderman	OB 010A	373
ADVISORY OFFICE - Open 9-12, 14-17 daily Other methods of quick contact: - telex (No. 847908) - COMFILE (see Bulletin B1.5/1)		CB 037	308/309
Computer Division Head	- Geerd Hoffmann	OB 009A	340/342
Communications & Graphics Section Head	- Peter Gray	OB 227	448
COMPUTER OPERATIONS			
Console	- Shift Leaders	CB Hall	334
Reception Counter) Terminal Queries) Tape Requests)	- Judy Pearce	CB Hall	332
Operations Section Head	- Eric Walton	CB 023	351
Deputy Ops. Section Head	- Graham Holt	CB 035	209
DOCUMENTATION	- Pam Prior	OB 016	355
Libraries (ECMWF,NAG,CERN,etc.)	- John Greenaway	OB 017	354
METEOROLOGICAL DIVISION			
Division Head	- Frédéric Delsol	OB 008	343
Applications Section Head	- John Chambers	OB 007	344
Operations Section Head	- Austin Woods	OB 107	406
Meteorological Analysts	- Ove Åkesson	OB 106	380
	- Veli Akyildiz	OB 104A	379
	- Horst Böttger	OB 130	310
	- Rauno Nieminen	OB 104A	378
	- Herbert Pümpel	OB 106	380
Meteorological Operations Room		CB Hall	328/443
REGISTRATION (User and Project Identifiers, INTERCOM)	- Pam Prior	OB 016	355
Research Department Computer Co-ordinator	- Rex Gibson	OB 126	384
Systems Software Section Head	- Claus Hilberg	CB 133	323
TELECOMMUNICATIONS			
Fault Reporting	- Stuart Andell	CB 024	306
User Support Section Head	- Andrew Lea	OB 003	348

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* CB - Computer Block
OB - Office Block

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