



European Centre
for Medium Range Weather Forecasts

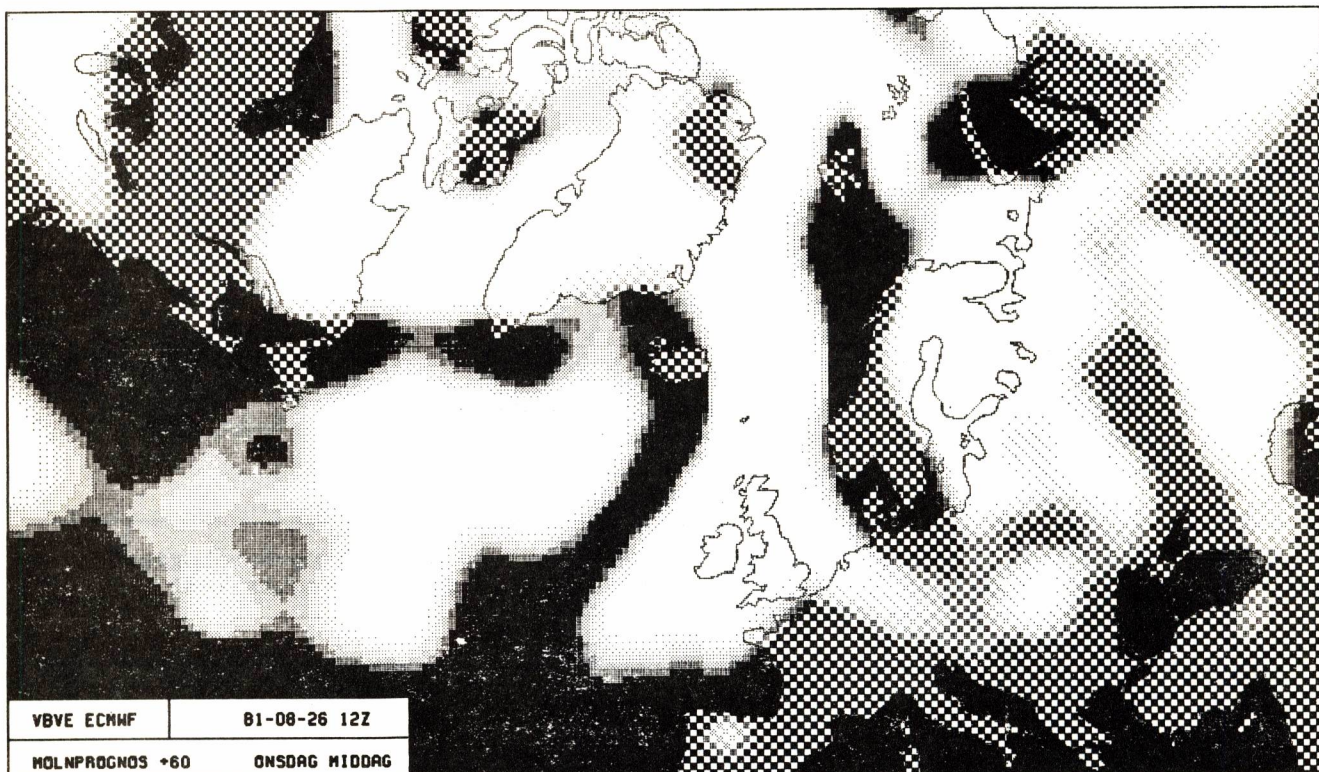
ECMWF NEWSLETTER

Shinfield Park, Reading, Berkshire RG2 9AX, England

Reading (0734) 85411 Telex 847908

Number 11 - September 1981

**NOT TO BE
TAKEN AWAY**



IN THIS ISSUE:

METEOROLOGICAL	Page
The Alpex data management and the international Alpex data centre	1
An example of using ECMWF forecasts of cloudiness information in a member state	8
The 700mb vertical velocity field in the prediction of North African depressions	10
COMPUTING	
Cray discs	12
*COS 1.10 implementation	12
NOS-BE Level 538 upgrade	13
Second Cyber	13
*ECLIB additions	13
*COMFILE	14
NFEP terminal statistics	14
Upper and lower case text files	15
Computer usage statistics 1981	16
LINPACK on the Cray-1	18
Visiting ECMWF to use the computer facilities	19
Still valid news sheets	19
GENERAL	
Calendar of events at ECMWF	20
ECMWF publications	20
Vacancy at ECMWF	20
Index of still valid newsletter articles	21

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

COVER: ECMWF forecast of cloud amount plotted at the Swedish Meteorological and Hydrological Institute. 60 hrs forecast from 26 August 1981, valid time 29 August 1981 00z.

This Newsletter is edited and produced by User Support for the Operations Department of ECMWF.

The next issue will appear in December.

THE ALPEX DATA MANAGEMENT AND THE INTERNATIONAL ALPEX DATA CENTRE1. Objectives

One of the main objectives of the Alpine Experiment, which forms part of the Global Atmospheric Research Program, is the creation of a data set describing the meteorological parameters in and around the Alpine area during a certain period. This data set will be a basis for the analysis, testing and modelling of further research work on the mountain-atmosphere interactions.

A plan for the management of the data has been proposed and its main aspects are described here.

2. The Experiment

Two geographical areas have been defined. The Alpex Inner Experimental Area (A.I.E.A.) encompasses the Alps Massif ($38^{\circ}\text{N} - 50^{\circ}\text{N}/5^{\circ}\text{W} - 30^{\circ}\text{E}$). The Alpex Outer Experimental Area (A.O.E.A.) encompasses almost all Europe and half of the Atlantic in order to trace connections between general circulation patterns and phenomena like lee cyclogenesis ($30^{\circ}\text{N} - 60^{\circ}\text{N}/30^{\circ}\text{W} - 30^{\circ}\text{E}$). The areas are shown in Figure 1.

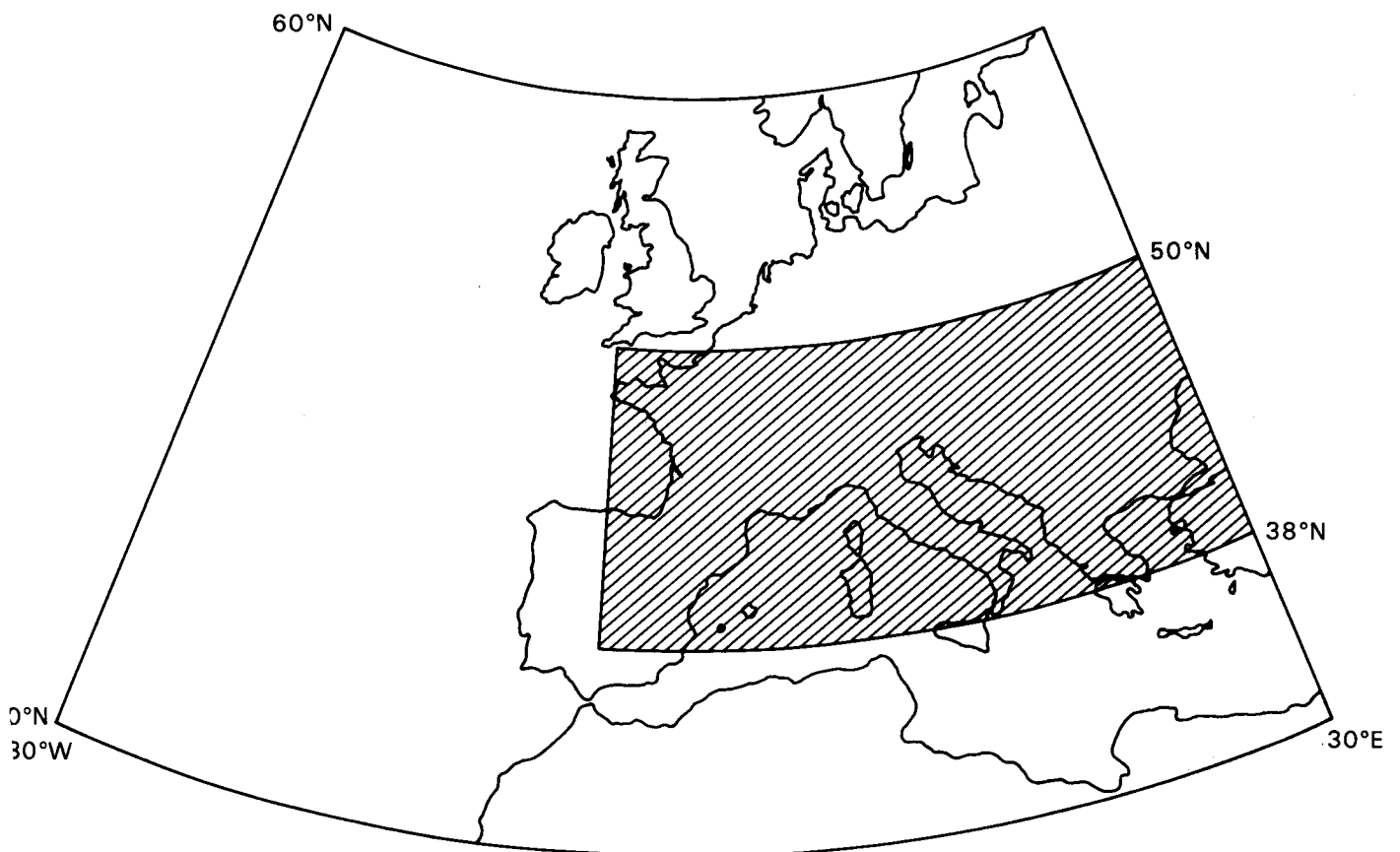
ALPEX OUTER AREA: $30^{\circ}\text{N}-60^{\circ}\text{N}/30^{\circ}\text{W}-30^{\circ}\text{E}$ ALPEX INNER AREA: $38^{\circ}\text{N}-50^{\circ}\text{N}/5^{\circ}\text{W}-30^{\circ}\text{E}$

Fig. 1

During the Alpex Observing Period (A.O.P.), from 1.9.81 to 30.9.82, the National Alpex Data Centres (N.A.P.C.) situated in the countries participating in the project, are asked to archive carefully all their current national data covering the Alpex areas.

During the Special Observing Period (S.O.P.), from 1.3.82 to 30.4.82, several extra observing systems will be operated to complement the current World Weather Watch system; aircraft, drop-sondes, constant density balloons, microbarographs, gliders, supplementary radio-sondes (about 100 per day) etc. A more detailed list of the observations and data sets is given in Table 1.

DATA TYPES	NATURE OF DATA	QUICK-LOOK DATA SET			LEVEL II-B DATA SET		
		PERIOD	AREA	VOLUME	PERIOD	AREA	VOLUME
G.T.S.	TEMP, PILOT, SYNOP, SHIP, AIREP, ASDAR, SATEM, SATOB, DRIBU, BATHY, TESSAC	AQLDP 15.1 - 15.5	AOEA	About 50x10 ⁶ characters	SOP 1.3 - 30.4	AOEA	About 40x10 ⁶ characters
SPECIAL DATA MERGEABLE WITH G.T.S. TYPE DATA	SATELLITE WINDS, NAVAID, DROP-SONDE, AIRCRAFT, SHIPS	NOT INCLUDED			SOP	AOEA	?
LEVEL III-A ANALYSIS	ECMWF GLOBAL OPERATIONAL ANALYSIS	AQLDP 15.1 - 15.5	GLOBAL	About 1200x10 ⁶ characters	NOT INCLUDED		
CONVENTIONAL DATA	PRECIPITATIONS (3H/24H), SNOW (COVER, WATER CONTENT, DEPTH) SOIL MOISTURE, SOIL TEMPERATURE	NOT INCLUDED			SOP	AIEA	About 60x10 ⁶ characters
SURFACE RADIATION	RADIATION MEASUREMENTS	NOT INCLUDED			SOP	AOEA	?
SPECIAL DATA	AIRCRAFT, CONSTANT DENSITY BALLOON, SATELLITE, OCEANOGRAPHY, MICROBAROGRAPH, LIDAR, ACOUSTIC SOUNDER, CHEMICAL TRACER, INFRARED, LASER, RADAR, AIOS	NOT INCLUDED			SOP	AOEA	?
NON-COMPUTER COMPATIBLE	SATELLITE IMAGERY, FILMS, MICRO-FILMS, CHARTS, FLIGHT REPORTS, ETC.	SOP 1.3 - 30.4	ALL AVAIL- ABLE	NON-COMPUTER COMPATIBLE	NOT INCLUDED		

Table 1. ALPEX DATA

3. The Data Sets

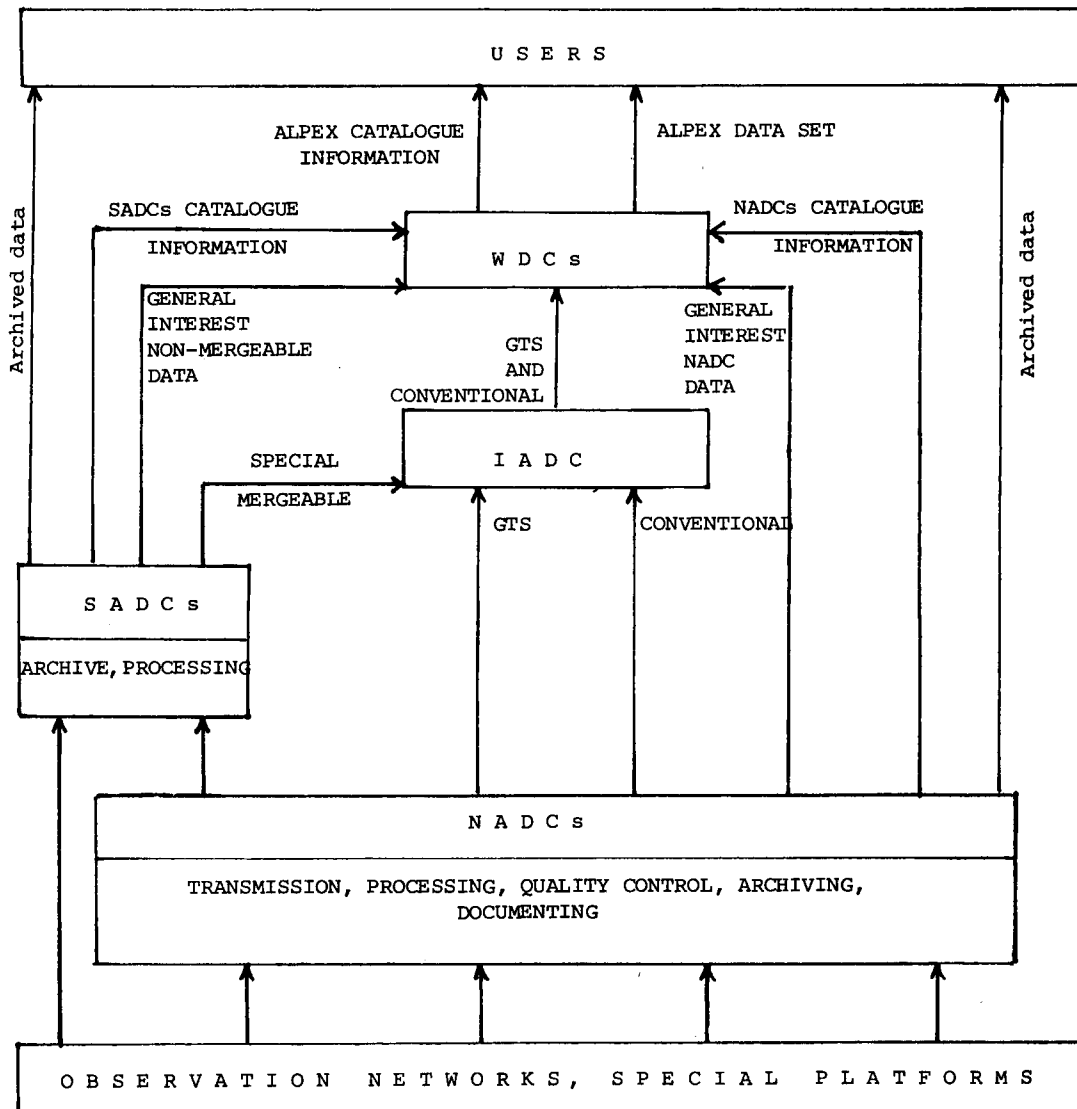
The main objective of the ALPEX data management is the building of two data sets. The first one is called the Quick-look data set and will cover the period 15.1.82 to 15.5.82. It will contain all the data normally available through the usual operational procedures of the Global Telecommunications System, on which countries will transmit supplementary observations during the S.O.P., and also the Operational Global Analysis of ECMWF, a detailed topography of the A.E.O.A. and miscellaneous non-computer compatible data. This data set will not be thoroughly quality controlled, the principal requirement being immediate availability, i.e. in June 1982.

The second data set is called the Level II-B AlpeX Data Set. It will correspond to the S.O.P.: 1.3.82 to 30.4.82, and will contain all the Global Telecommunications System data and any special data obtained during the S.O.P. which are mergeable with G.T.S. data. It should also contain the non-G.T.S. conventional data (precipitation, snow, etc.) and all special data from special observing platforms; aircraft, micro-barographs, etc. The second data set is intended to be exhaustive and fully quality controlled. The data sets are described in detail in Table 1.

4. The Data Flows

In order to build up these data sets, the observations data will have to flow through the N.A.D.C.'s, the S.A.D.C's (Special AlpeX Data Centres) and the I.A.D.C. (International AlpeX Data Centre) to be archived eventually at the WorldData Centres (U.S.A. and U.S.S.R.). The general AlpeX data Flow is shown in Figure 2. Each Data Centre will have to process the AlpeX data according to the requirements of the plan, depending on the type of data. The different tasks of the data centres are listed in Table 2.

Figure 2. General AlpeX Data Flow



DATA TYPES	NADC's	SADC's	IADC
G.T.S.	<ul style="list-style-type: none"> - MONITOR TRANSMISSION - RETAIN COPIES - COLLECT AND COMPLETE - FORMATTING IN G.T.S. OR LEVEL II-B FGGE - SEND TAPE TO IADC 	NOT CONCERNED	<ul style="list-style-type: none"> - MONITOR MISSING REPORTS IN QUICK-LOOK SET - DECODING - QUALITY CONTROL: AUTOMATIC AND MANUAL - FORMATTING IN LEVEL II-B FGGE - SEND TAPES TO WDC
SPECIAL DATA MERGEABLE WITH G.T.S. TYPE DATA	<ul style="list-style-type: none"> - COLLECT - SEND TO SADC 	<ul style="list-style-type: none"> - COLLECT - QUALITY CONTROL - FORMATTING IN LEVEL II-B FGGE - SEND TAPE TO IADC 	<ul style="list-style-type: none"> - READABILITY CHECK - DECODING? - RE-QUALITY CONTROL? - MERGING WITH G.T.S. TYPE
LEVEL III-A ANALYSIS	NOT CONCERNED	NOT CONCERNED	<ul style="list-style-type: none"> - FORMATTING IN LEVEL III-B FGGE - SEND TAPES TO WDC
CONVENTIONAL DATA	<ul style="list-style-type: none"> - COLLECT - QUALITY CONTROL - FORMATTING IN LEVEL II-B FGGE - SEND TAPE TO IADC 	NOT CONCERNED	<ul style="list-style-type: none"> - READABILITY CHECK - MERGING - SEND TAPE TO WDC
SURFACE RADIATION SPECIAL DATA	<ul style="list-style-type: none"> - COLLECT - SEND TO SADC 	<ul style="list-style-type: none"> - COLLECT - QUALITY CONTROL - FORMATTING IN LEVEL II-B FGGE - SEND TAPE TO WDC OR - RETAIN ARCHIVES 	NOT CONCERNED
NON-COMPUTER COMPATIBLE	<ul style="list-style-type: none"> - COLLECT - SEND TO WDC 	<ul style="list-style-type: none"> - COLLECT - SEND TO WDC OR - RETAIN ARCHIVES 	NOT CONCERNED

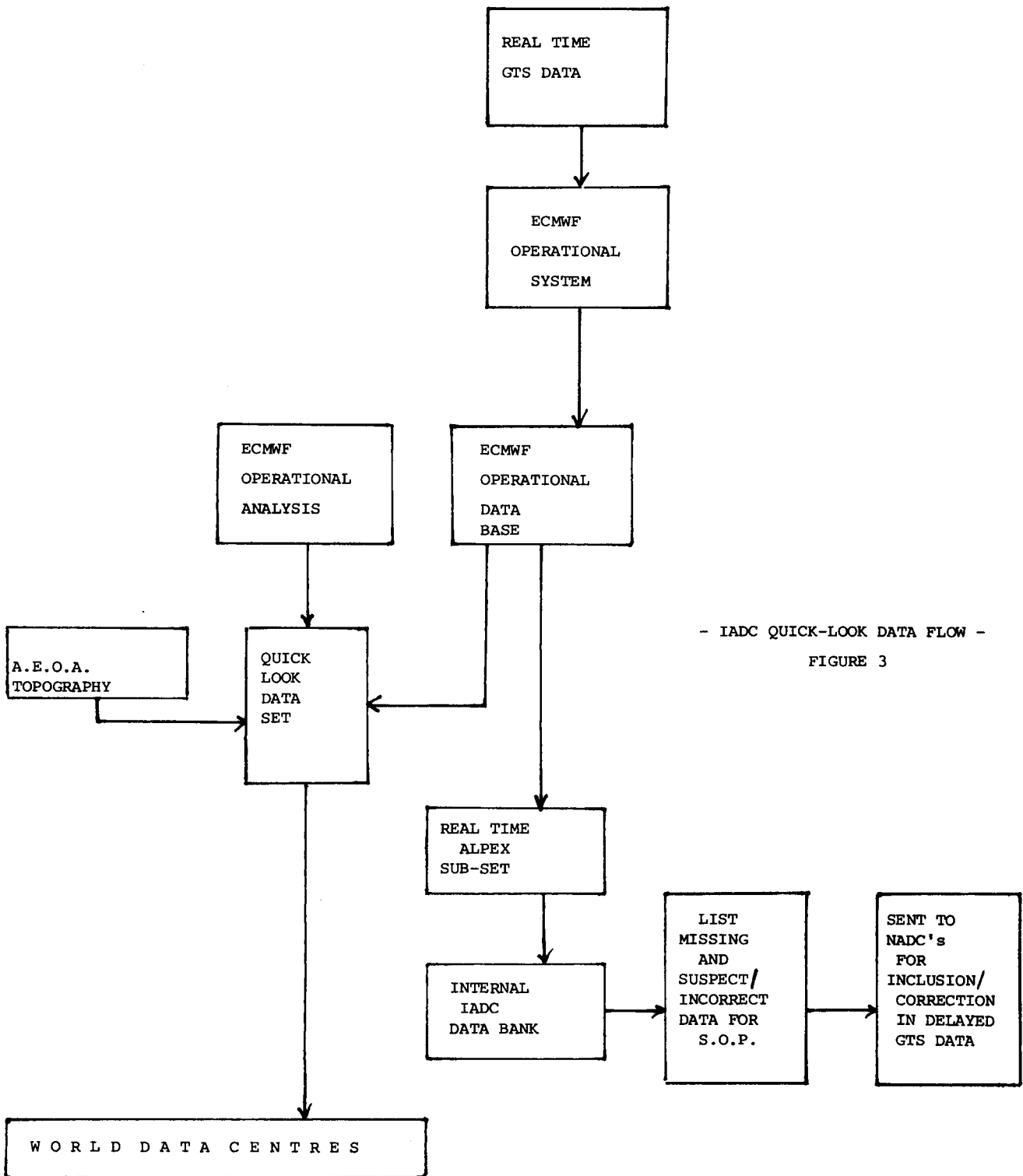
Table 2. ALPEX CENTRE TASKS

5. The IADC

The role of the I.A.D.C. has been reduced compared to the original requirements, because of the limited financial and staff resources offered by the countries involved. The I.A.D.C. will build up the computer-compatible Quick-look data set, using currently available operational procedures, and part of the S.O.P. Level II-B data set, undertaking the quality control of only the G.T.S. type data and simply checking readability, format and merging of non-G.T.S. conventional data. The special data sets will be elaborated by the S.A.D.C.'s without I.A.D.C. participation (see Table 2).

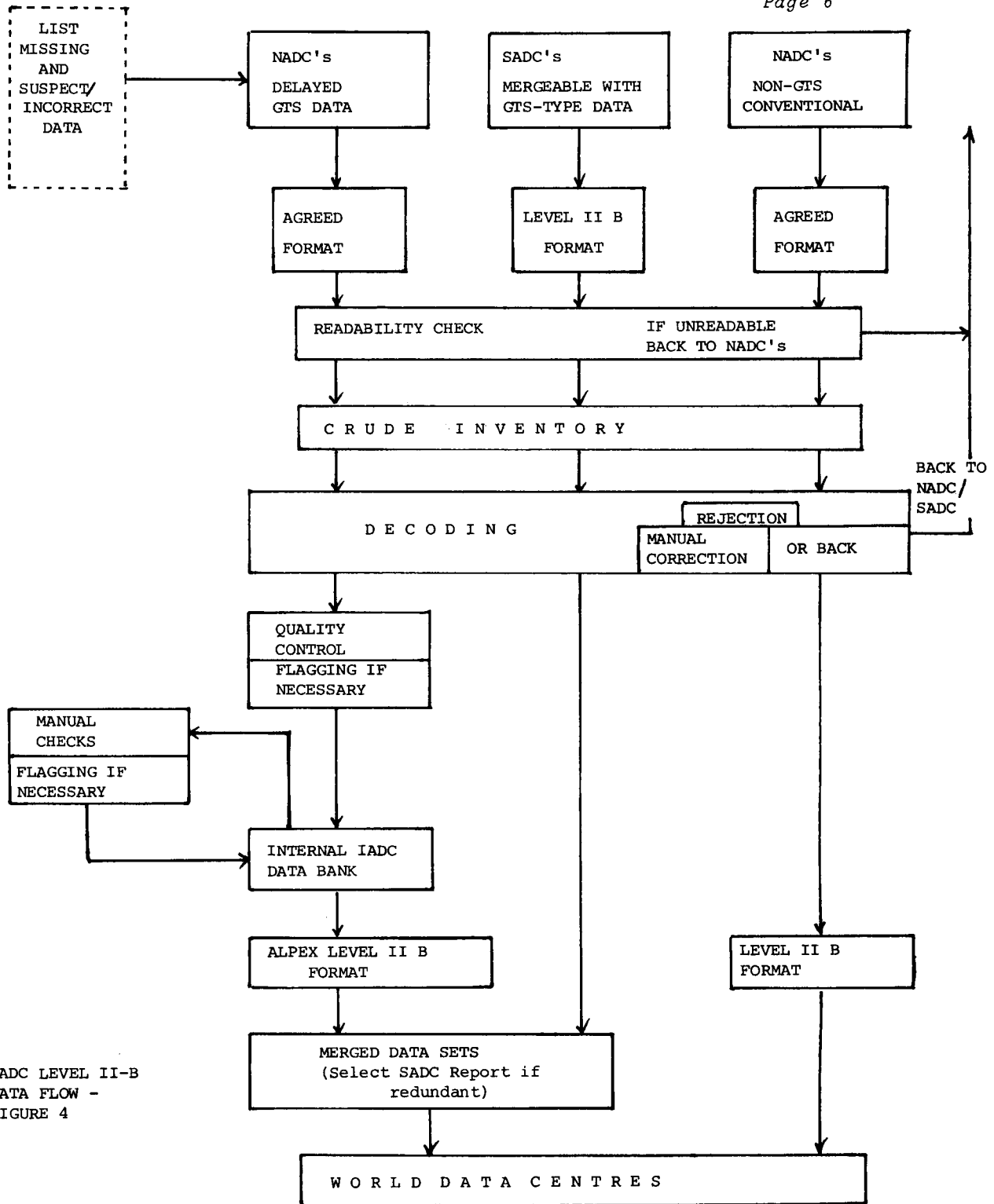
ECMWF has offered to host the I.A.D.C., having been originally approached because of the advantage which could be drawn from the existing efficient and quality-sufficient operational system. The I.A.D.C. will make use of the already developed operational software of ECMWF.

The data flow within the I.A.D.C. for the Quick-look data set is described in Figure 3. Programs plugged into the ECMWF operational system will enable the extraction of ECMWF operational global analysis and of the A.O.E.A. G.T.S. data to create the Quick-look data set. The A.O.E.A. G.T.S. observations will be stored in an Internal AlpeX Data Bank. A list of missing, suspect and incorrect data will be sent to the NADC's for further corrections and inclusion in the so-called delayed data set, corresponding to the S.O.P., but transmitted by magnetic tapes in delayed mode, to form part of the Level II-B data set.



- IADC QUICK-LOOK DATA FLOW -
FIGURE 3

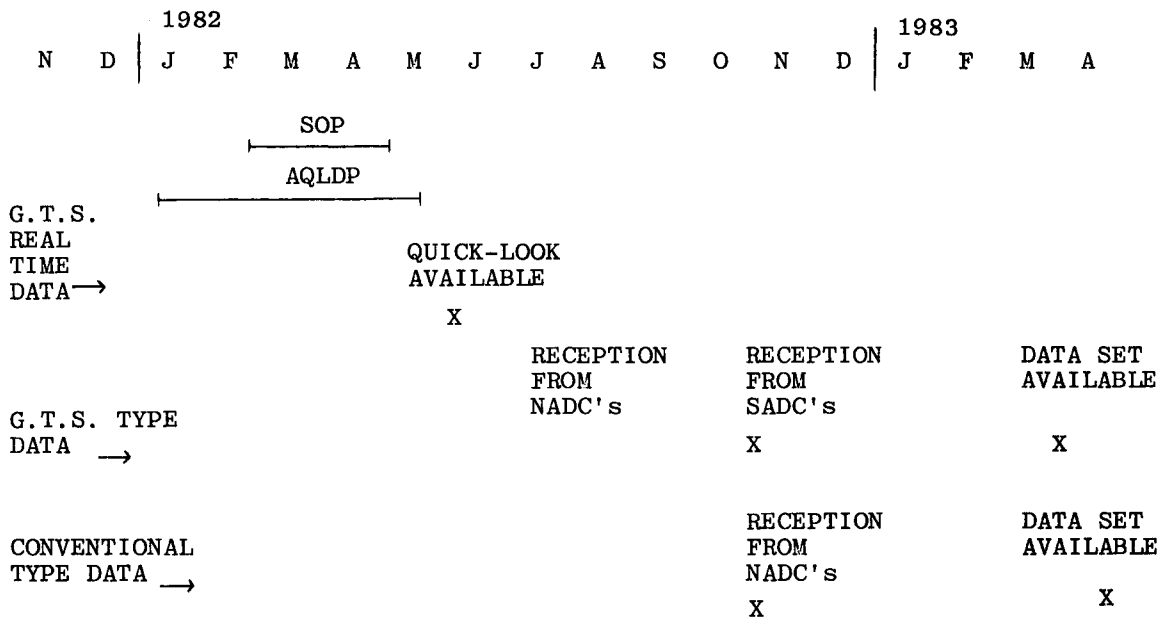
The Level II-B data flow is described in Figure 4. Automatic and manual quality controls will be applied only to G.T.S. delayed data and special data which is mergeable with G.T.S. data. The observations will eventually be formatted in FGGE Level II-B format. The operational software of ECMWF will be adapted to the Alpex requirements to suit the Alpex area, special quality controls and formats. The computer resources necessary for the operation of the I.A.D.C. will be provided by a portion of the computer allocations of the Member States willing to contribute to the Alpex project.



- IADC LEVEL II-B DATA FLOW - FIGURE 4

The schedule for the International Apex Data Centre has been defined according to a minimum length of time, in order to decrease staff requirements. The I.A.D.C. will have the difficult task of finalising the G.T.S. type data set in Level II-B FGGE format by March 1983, and the conventional type data set by April 1983. The I.A.D.C. is planned to exist from 1 November 1981 to 30 April 1983. The first half of the I.A.D.C. time will be essentially devoted to planning/analysis/programming/system developments and the second half to data checking and quality controls. The number of I.A.D.C. staff will vary from two at the start to six at the peak period in summer 1982. The I.A.D.C. schedule is summarised in Figure 5.

TASKS



STAFF

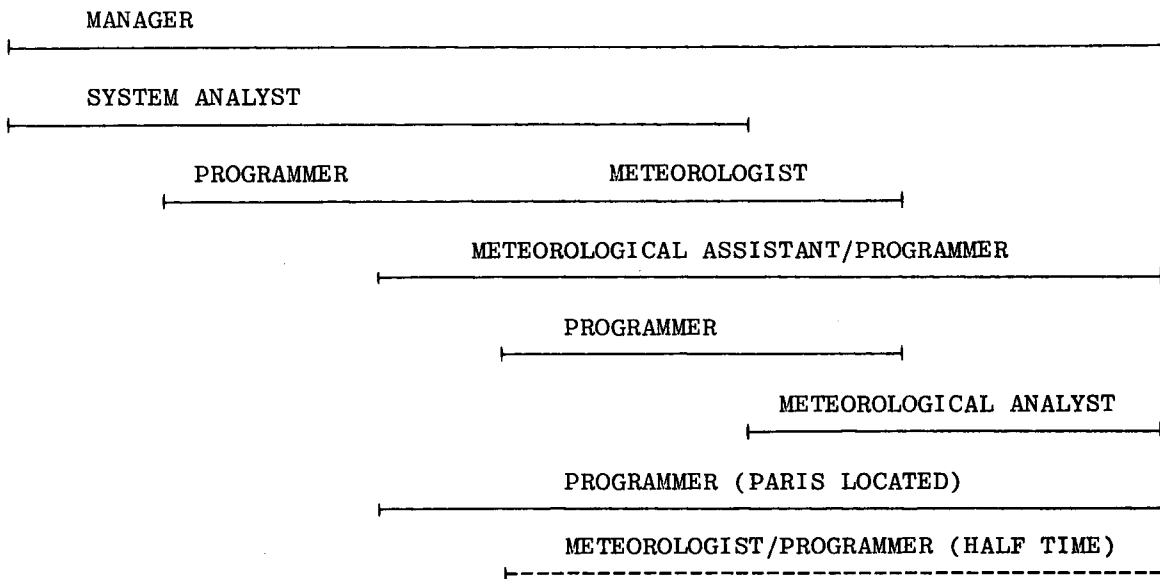


Figure 5. I.A.D.C. Schedule

- Joël Martellet

* * * * *

AN EXAMPLE OF USING ECMWF FORECASTS OF CLOUDINESS INFORMATION IN
A MEMBER STATE

At the SMHI in Norrköping, Sweden, the ECMWF forecast product $n_2, n_2 = 77$ "cloudiness information" is now being used in a way similar to the technique previously described by J-F. Geleyn in ECMWF Newsletter Number 1, February 1980.

Figure 1 shows an example of the SMHI version of a chart giving distribution of model-predicted cloud in a 60-hour forecast from 26 August 1981, valid time 29 August 1981 00z. The technique applied allows simulation of a satellite image with white areas covered by cloud and cloud-free areas shown black. SMHI distinguishes between six different intensities and smoothes the picture by interpolating between gridpoints.

For comparison, figure 2 gives the same 60 hour forecast of cloud distribution in a chart as plotted at ECMWF. Both cloud pictures cover approximately the same area. In this version of presenting the cloud forecast, the original model resolution is kept and reflected in the box display, and up to 30 different intensities are used.

The ECMWF plot can be simulated in the member states by making use of the product $n_2, n_2 = 78$ "cloud information in digital form ('pseudo-satellite' picture)", which is available for dissemination from ECMWF. In order to use this product in a satisfactory way, the member state requires additional software, appropriate computing facilities and a raster plotter.

The verification of the cloud picture, though with a time lag of seven to ten hours, is given in Figure 3, showing the visible image from satellite NOAA-6. Note the verifying clouds over Sweden, Finland and the areas south east of the Baltic, the bands of frontal clouds across Britain and Ireland towards the east of Iceland and the Arctic Sea and the cloudmass of the low south of Greenland.

- H. Böttger

*Footnote: See ECMWF Meteorological Bulletin M3.1/1(2), ECMWF current product catalogue, which specifies products available operationally from ECMWF.

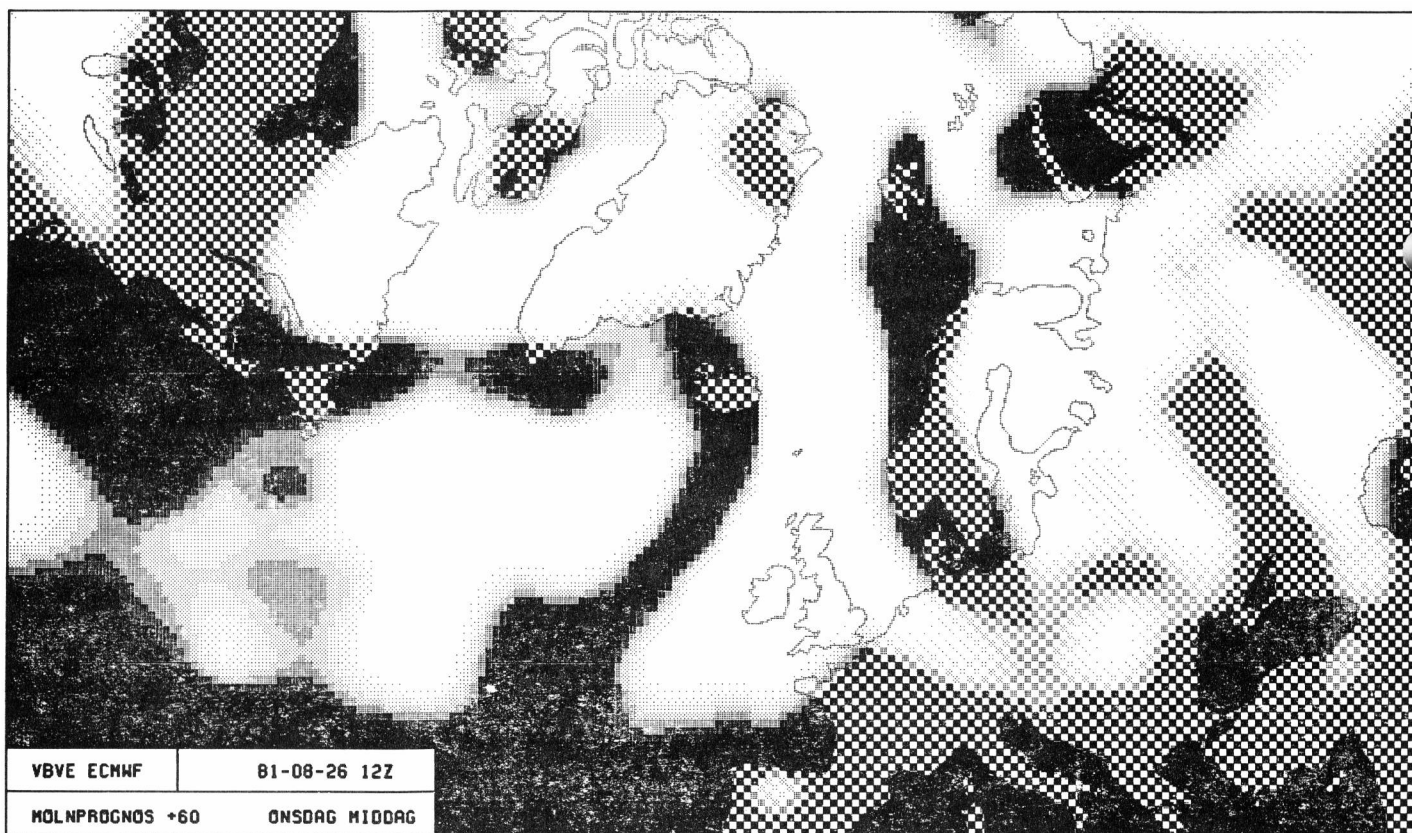


Figure 1. ECMWF forecast of cloud amount plotted at SMHI. 60 hrs forecast from 26 August 1981, valid time 29 August 1981 00z.



Figure 2. Same as Figure 1. Plotted at ECMWF.

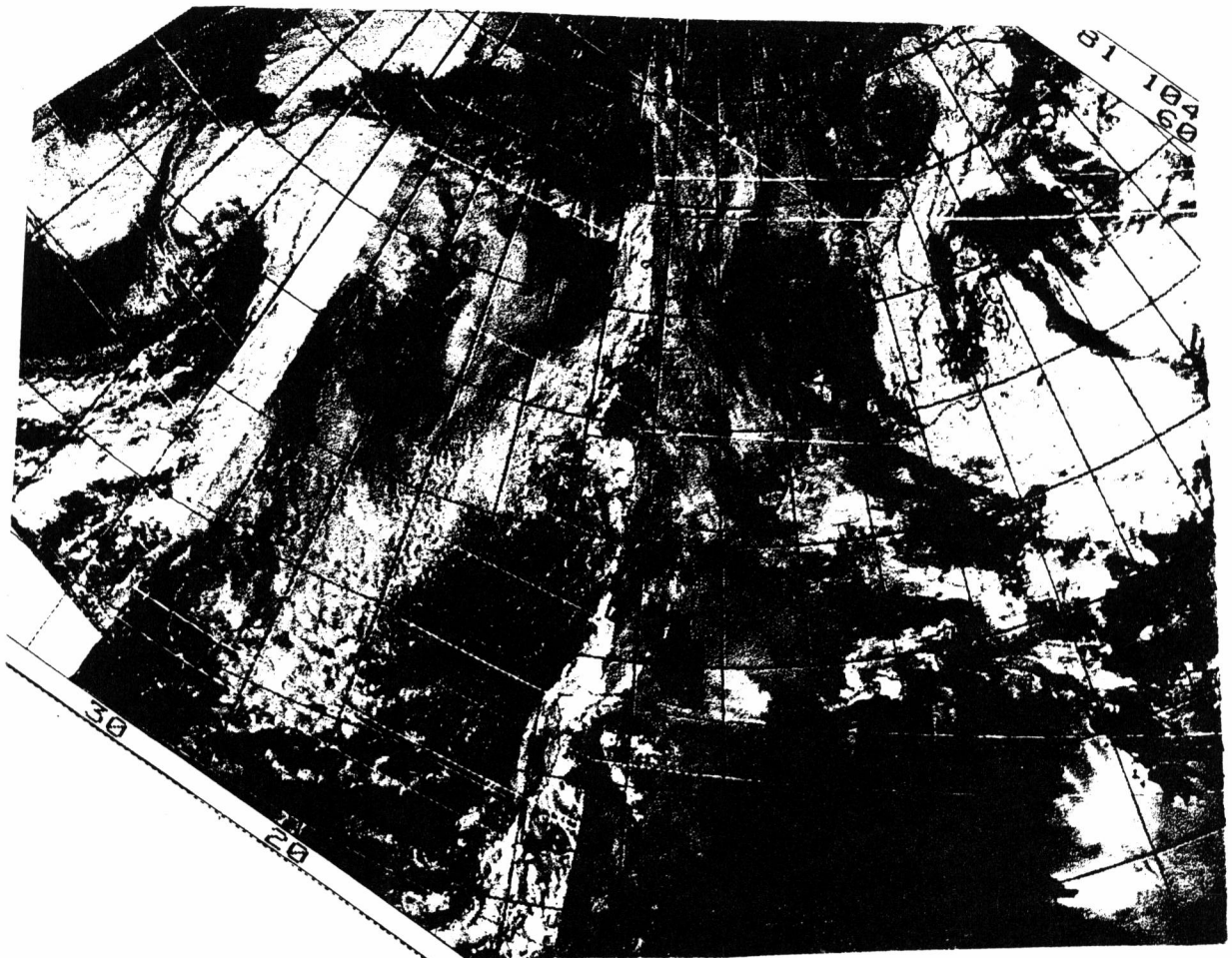


Figure 3. Visualisation of verification from orbital satellite NOAA6, 29 August 1981, 0721 to 1041 GMT, courtesy of the British Meteorological Office, Bracknell.

THE 700MB VERTICAL VELOCITY FIELD IN THE PREDICTION OF
NORTH AFRICAN DEPRESSIONS

The following is a text of a letter received from A. Nania, Director, Aeronautica Militare, Rome:

During May and June 1981, many African depressions developed over northern Algeria and Tunisia influencing thereafter the weather in southern Italian region. It is well known that the synoptic analysis and forecast of these depressions is quite difficult, due to their poor evidence in the mass field and the frequent large absence of data reports from northern Africa.

Nevertheless, the ECMWF model has shown good evidence of those depressions, especially in the vertical velocity field at 700mb, where intense and well defined nuclei of upward motion were revealed in connection with those cyclonic disturbances.

Therefore, the vertical velocity field at 700mb might assume a role of increased importance for predicting both the development and the path of these systems of African origin.

I wish to point out this important feature and result of the ECMWF model with regard to the Mediterranean area and northern Africa.

An example of an African depression as mentioned by A. Nania is shown in Figures 2 and 3. It moved northeastward towards Algeria on 14 and 15 May 1981. The intensification of the depression within 24 hours is clearly reflected in the analysed fields of the vertical motion at 700mb. This large upward motion over the southern Mediterranean between Tunisia and Sicily was well predicted by the ECMWF in the 24 hour forecast from 14 May 1981, valid at 15 May 1981 12z (Figure 2).

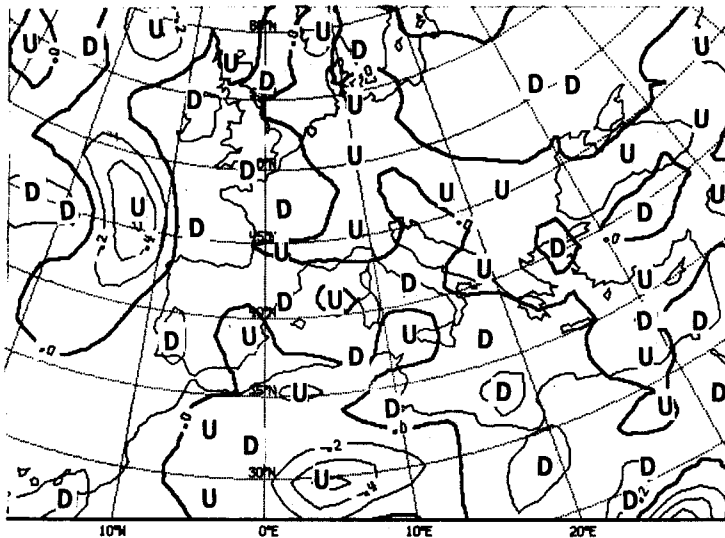


Figure 1a

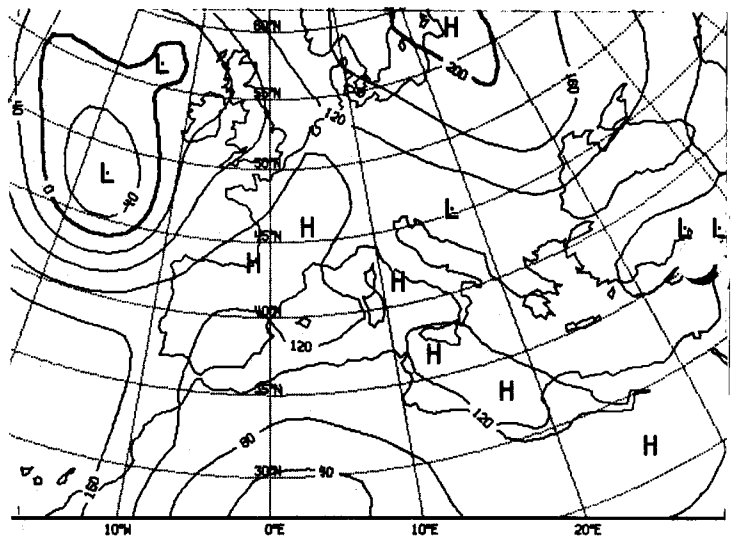


Figure 1b

Figure 1. 700mb vertical velocity in Pa s^{-1} (a), and 1000mb height analysis in gpm (b)

From 14 May 1981 12z

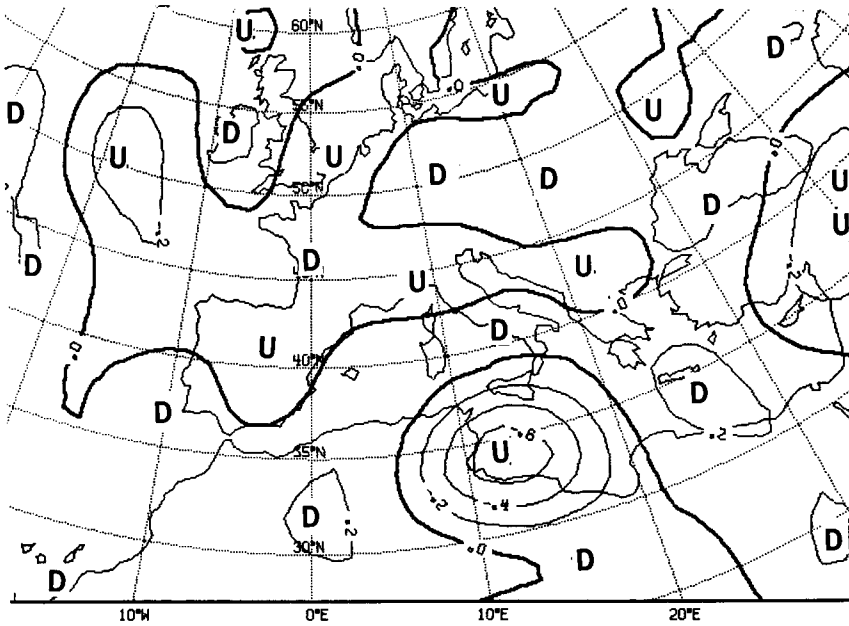


Figure 2. 700mb vertical velocity in Pa s^{-1} 24 hour forecast from 14 May 1981, valid time 15 May 1981 12z

Figure 2

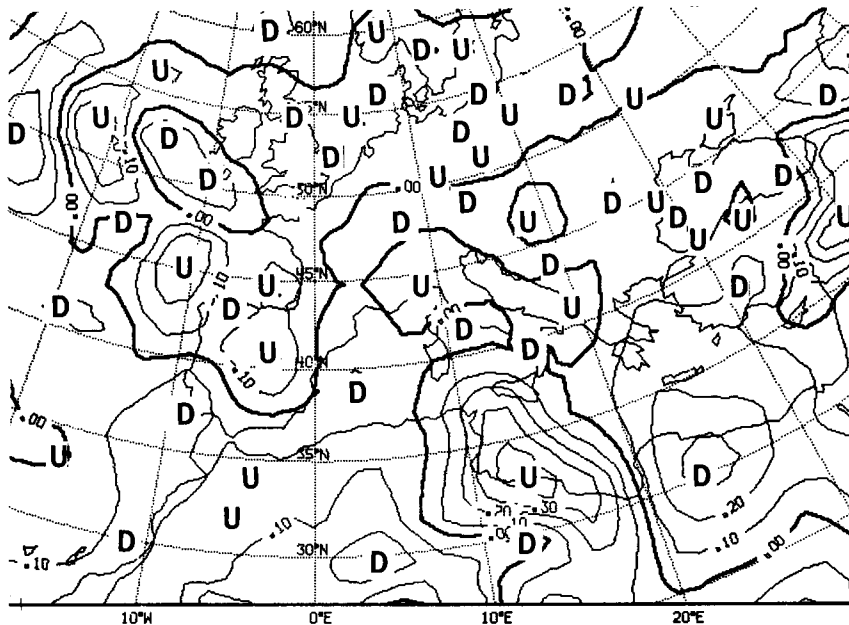


Figure 3. 700mb vertical velocity in Pa s^{-1} (a), and 1000mb height analysis in gpm (b) from 15 May 1981 12z

Figure 3a

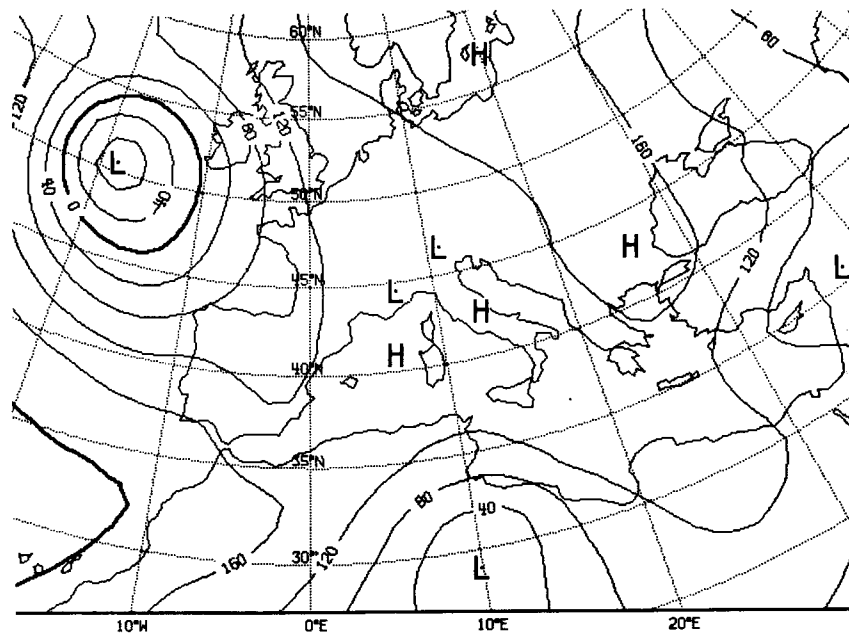


Figure 3b

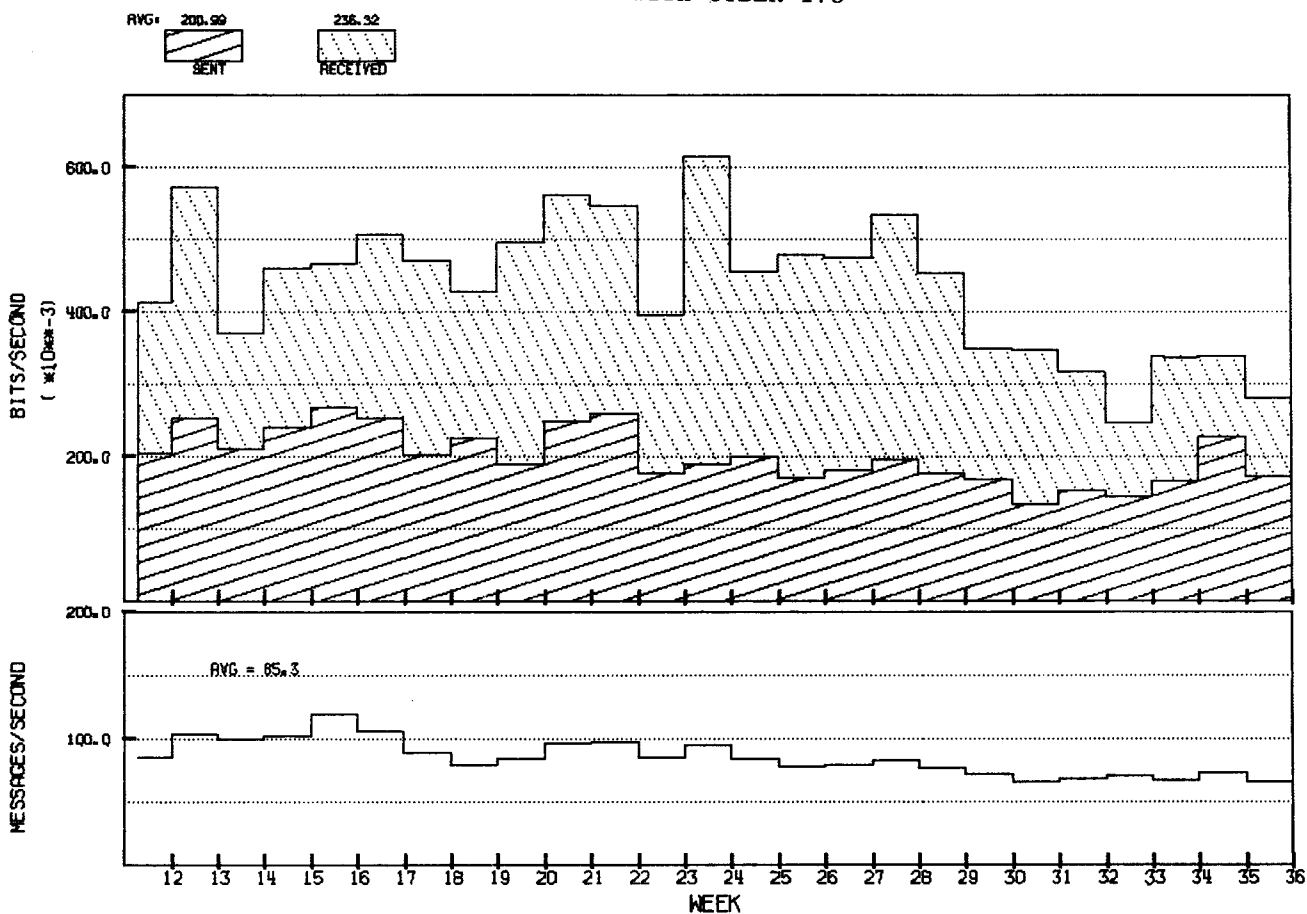
CRAY DISCS

The 3 DD-29 discs and 2 DCU-3 disc controllers started acceptance on 13 July and entered service on 20 July. Since then, they have performed reliably and we have noticed some improvement in Cray performance.

Their greatest effect, however, has been a significant reduction in the amount of data passed to the Cray from the Cyber, due to our ability to leave files for longer periods of time on the Cray discs.

As can be seen from the graph below (produced by our Cray statistics package), the amount of data received by the Cray fell considerably from week 29, when the new discs entered service. The graph shows weekly average transfer rates, across the Cyber/Cray link.

ECMWF CRAY-1 LINK STATISTICS
FOR 1981 22 MAR 1981 TO 6 SEP 1981
LINK WITH CYBER 175



- Peter Gray

* * * * *

*COS 1.10 IMPLEMENTATION

COS 1.10 has now been delivered and testing has begun. It has been decided to try to accelerate the testing of this system, in order that it can be implemented early in November. In order to achieve this goal, a project team of ECMWF, Cray UK and Cray USA staff has been formed, and intensive testing will soon begin. We expect to announce user trials in mid-October and expect to meet the implementation date provided that no major problems arise.

CFT 1.10 (the full ANSI 77 version) has not yet been released, but is expected in time to commence testing following the successful implementation of COS 1.10.

These are major new facilities in COS 1.10 which are relevant to ECMWF:

A means of suppressing the writing of control statements to the user's \$LOG file.

A full Job Control Language implementation.

A facility to recover and dump flowtrace information when a program aborts with flowtrace active.

Several internal changes to improve reliability and maintainability.

Better operator information provided by the job class scheduler.

Incidentally, the Data General Eclipse software has already been updated to level 1.10, and 'VERSION 1.10' is displayed on the top line of the display. COS, however, remains at 1.08 in the Cray for the present.

- Peter Gray

* * * * *

NOS-BE LEVEL 538 UPGRADE

NOS-BE and the program products were upgraded to level 538 on Wednesday, 26 August following a period of testing. Since then, no severe problems have been found with the system.

This particular upgrade was a prerequisite to the installation of the second Cyber at the end of 1981, and it is unlikely that further level changes will be necessary during the forthcoming months.

- Peter Gray

* * * * *

SECOND CYBER

The second Cyber is almost with us. Already two disc drives are being shipped from the USA, and the remaining peripherals for the new machine should be shipped early in October. We hope to have the new processor on site early in November, and expect to start acceptance testing before Christmas. The second Cyber should be in full service early next year.

The second Cyber/Cray coupler has also been delivered and is being prepared for acceptance testing.

- Peter Gray

* * * * *

*ECLIB ADDITIONS

Some of the expected additions to ECLIB which were listed in the last Newsletter (August) are now available. These are:

- | | | | |
|-------|---|------------------|--|
| Cyber | - | BBCONTR | File conversion from Cray TR to Cyber WI |
| | | GPGRAPH | Graph plotting package |
| | | XREF | Global cross reference utility |
| | | GBYTE, SBYTE | } Field manipulation routines |
| | | GBYTES, SBYTES | |
| Cray | - | GPGRAPH | see Cyber |
| | | SYMSOL | Solution of linear system of equations |
| | | unblocked random | I/O |
| | | GBYTE, SBYTE | } see Cyber |
| | | GBYTES, SBYTES | |

The remaining new additions will be available shortly. Documentation will be distributed as soon as possible. In the meantime, information on the use of these routines may be obtained from the Advisory Office.

- David Dent

* * * * *

*COMFILE (The postman does not ring twice any more!)

The COMFILE procedure, described in the Computer Bulletin 1.5/1, which is used by Member States equipped with RJE facilities, has been upgraded to identify and "stamp" the messages sent to the User Support Section.

It is now possible to use two extra parameters to direct the message to a particular member of staff and to identify it by the name of the sender:

ATTACH,COMFILE,ID=USX
COMFILE,to,from

7/8/9

Message

- to is an optional parameter which defaults to 'DUTY' which is a one to seven character string starting by a letter; possible values (non exhaustive list) are: ANDREW (Lea), DAVID (Dent), JOHN (Greenaway), LUIGI (Bertuzzi), MICHEL (Miqueu), NORBERT (Kreitz), PAM (Prior), TAPELIB (Tape Librarian).
- from is an optional parameter which defaults to 'SENDER' and follows the same syntax rules as 'to'.

The body of the message - made of the next record of the input stream - will then be directed to the appropriate addressee via a Fileset file on the Cyber which acts as a computer letter box, where messages are sorted by addressee, and date and time of arrival, and which will be examined regularly by User Support section staff.

Note that any query to the Tape Librarian (e.g. a request for slot number(s) for stranger tape(s), etc.) can now be passed more easily using COMFILE,to,from, by addressing the message to TAPELIB. The system will also accept any other staff name whom the member state wishes to contact.

On successful completion of COMFILE, two lines will appear in the sender's job dayfile:

to/jobname ADDED
to/jobname DOC. ADDED

meaning that a message with name < jobname > has been posted to addressee < to > for the first line, in a "stamped" envelope mentioning the sender's name, for the second line.

- Michel Miqueu

NFEP TERMINAL STATISTICS

From 20/7/81 to 14/9/81

COUNTRY	TOTAL DATA (KCHAR/DAY)		DATA RATE (CH/SEC)	
	INPUT	OUTPUT	INPUT	OUTPUT
Test port	154.7	618.7	20.8	119.4
Denmark	21.1	42125.9	123.2	208.8
F.R. Germany	259768.2	143529.5	58.7	351.6
Ireland	30.8	116332.9	47.1	200.3
Spain	.0	19989.3	.0	14.4
France	2114.7	73355.6	305.1	295.0
Greece	.0	22434.0	.0	13.4
Italy	.0	15242.8	.0	13.2
Yugoslavia	.0	2691.5	.0	6.7
Netherlands	.0	11437.9	.0	13.3
Austria	1.7	1618.9	53.8	200.2
Portugal	.0	7991.5	.0	6.5
Finland	27.5	102138.8	124.6	338.2
Sweden	2650.4	128112.9	306.9	294.4
Turkey	.0	7958.6	.0	6.7
United Kingdom	265419.8	65756.0	58.5	153.1

UPPER AND LOWER CASE TEXT FILES

Character data is held on the Cray in ASCII code. This representation uses 8 bits for each character. On the Cyber, DISPLAY CODE is the default character code. This is a 6 bit code which does not allow lower case letters or special characters to be represented. A 12 bit ASCII code is also available and must be used if you wish to hold lower case text. This is particularly valuable when documents are to be held as Cyber permanent files. The usual way to create Cyber ASCII files is by using the editor EDIT:

```
EDIT,lfn/ASCII.
```

See Computer Bulletin B4.10/2 for a user guide to EDIT. Existing ASCII files may be examined and modified using EDIT:

```
EDIT,lfn.
```

The utility PAGE may also be used to look at the contents of an ASCII file:

```
PAGE,lfn.
```

```
l,+      where 'l' represents 'lower'.
          If this is omitted, the displayed text will be nonsense.
          To revert to display code, use
u,+      where 'u' represents 'upper'
```

ASCII files may also be transferred from Cray to Cyber using the parameter DF=AB on a Cray DISPOSE statement. Note, however, that the reverse process (ACQUIRE) is not possible. If Cyber ASCII files are routed to a line printer, the result will be unreadable unless special parameters are included:

```
ROUTE,lfn,IC=ASCII,EC=A9.....
```

One line printer now has an ASCII print chain mounted permanently so that it is possible to receive lower case printout as quickly as normal printout. Files are automatically routed to this printer when the ROUTE statement contains these special parameters.

The procedure library statement

```
PRINT,lfn,ASCII.....
```

may be used to accomplish the same task.

It is important to note that it is not possible to insert a print control character at the front of each line of text in an ASCII file, using

```
COPYSBF,lfna,lfnb.
```

However, EDIT may easily be used to perform this task.

```
EDIT,lfn.
?IS/ /*
```

This technique is utilised in the procedure library statement

```
PRINT,lfn,S,ASCII.....
```

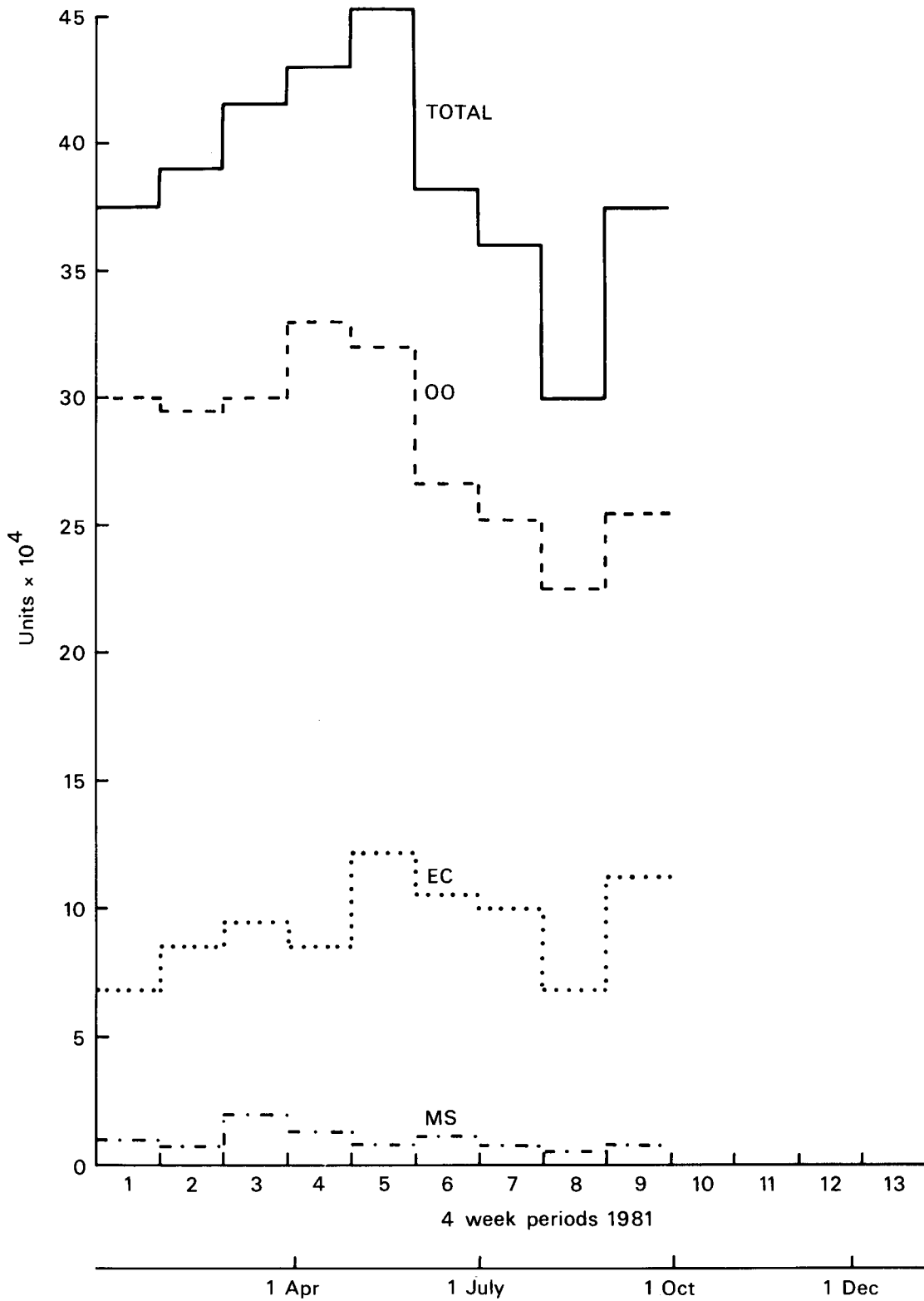
which will have the desired effect.

- David Dent

* * * * *

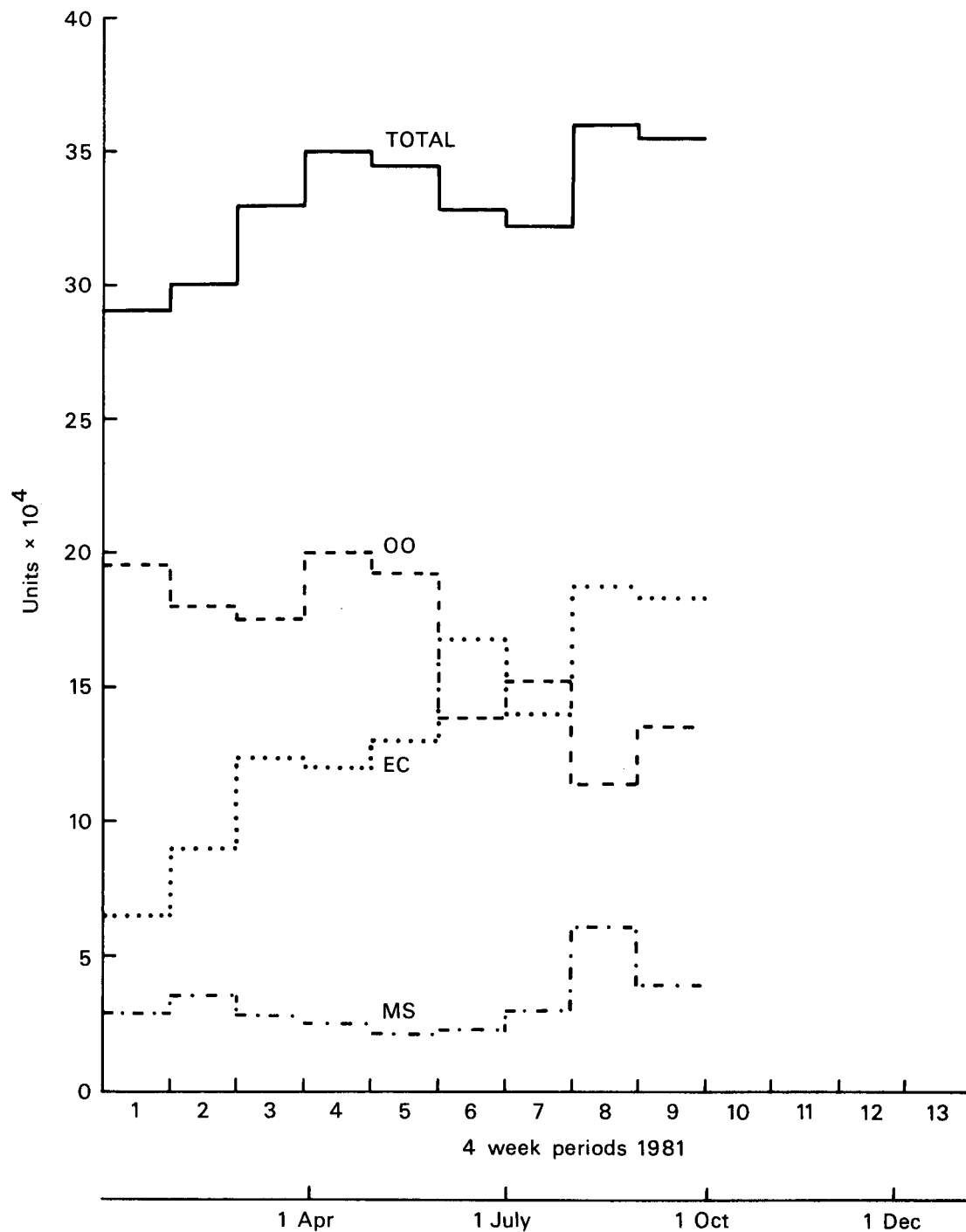
COMPUTER USAGE STATISTICS 1981

CYBER UNITS USED PER 4 WEEKLY PERIOD



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

CRAY UNITS USED PER 4 WEEKLY PERIOD



LINPACK ON THE CRAY-1

LINPACK is a collection of Fortran subroutines which analyse and solve various systems of simultaneous linear algebra equations. Many of the subroutines deal with square coefficient matrices, where there are as many equations as unknowns. Some of the subroutines process rectangular coefficient matrices, where the system may be over or under determined.

A subroutine naming convention is employed in which each subroutine name is a coded specification of the computation done by that subroutine. All names consist of 5 letters in the form TXXYY.

T indicates the data type: S real
 D double precision
 C complex

The next two letters, XX, indicate the form of the matrix or its decomposition:

- GE General
- GB General band
- PO Positive definite
- PP Positive definite packed
- PB Positive definite band
- SI Symmetric indefinite
- SP Symmetric indefinite packed
- HI Hermitian indefinite
- HP Hermitian indefinite packed
- TR Triangular
- GT General tridiagonal
- PT Positive definite tridiagonal
- CH Cholesky decomposition
- QR Orthogonal-triangular decomposition
- SV Singular value decomposition

The final two letters, YY, indicate the computation done by a particular subroutine:

- FA Factor
- CO Factor and estimate condition
- SL Solve
- DI Determinant and/or inverse and/or inertia
- DC Decompose
- UD Update
- DD Downdate
- EX Exchange

All single precision LINPACK subroutines have been implemented on the CRAY-1 and are available in the \$SCILIB library (automatically searched by the loader) at release level 1.09. To obtain this library, include

```

NEXT (PROD = CFT)
or NEXT (PROD = $SCILIB)
    
```

before your program execution.

The following chart shows all LINPACK subroutines available in this library.

YY =	CO	FA	SL	DI	
SGE	✓	✓	✓	✓	
SGB	✓	✓	✓	✓	
SPO	✓	✓	✓	✓	
SPP	✓	✓	✓	✓	
SPB	✓	✓	✓	✓	
SSI	✓	✓	✓	✓	
SSP	✓	✓	✓	✓	
STR	✓		✓	✓	
SGT			✓		
SPT			✓		
YY =	DC	SL	UD	DD	EX
SCH	✓		✓	✓	✓
SQR	✓	✓			
SSV	✓				

VISITING ECMWF TO USE THE COMPUTER FACILITIES

Over the summer months we have again experienced problems with Member State visitors coming to use the ECMWF computer facilities, but without contacting User Support beforehand. One particular incident occurred when a Member States Cray job ran into problems and we had to contact the owner quickly. After telephoning and telexing the person concerned in his Member State, it was, quite by accident, discovered he was in the ECMWF building all the time!

Thus may I remind everyone of the complete procedure when visiting:

- i) before the visit contact User Support, preferably in writing. If you arrange your visit through another member of the ECMWF staff, please send a copy of your letter to User Support;
- ii) on arrival at the Centre, please contact User Support and then register at the Computer Reception desk in the User Area of the Computer Hall. This is so that the operators know of your arrival, to help them when it comes to job and output identification. If this is not done, and problems occur with one of your jobs, the operators may well drop it, if they are unable to contact you quickly.

Finally, please note that if a clash occurs, for example over office space, or job running, then those who have contacted User Support will take priority over those who have not.

- Andrew Lea

* * * * *

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 122). All other News Sheets are redundant and can be thrown away.

<u>No.</u>	<u>Still Valid Article</u>
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
65	Data security on Cyber and Cray
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)
101	Allocations and priority groups 1981
106	Gandalf PACXIV upgrade
108	SUBMIT
114	Cray jobcard memory parameter
116	TEMP
118	Terminal timeout
119	New version of FICHE
120	Non-permanent ACQUIPE to the Cray Local terminal line speeds
121	NOS/BE Version 1.5, level 538 (including new Cyber job class structure)
122	Cyber FORTRAN News (level 538, FTN4 & FTN5)

The News Sheets which can be thrown away since this list was last published are numbers 15, 71, 109, 112.

- Andrew Lea

* * * * *

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.

	<u>Newsletter</u>		
	<u>No.*</u>	<u>Date</u>	<u>Page</u>
<u>CRAY-1</u>			
Computer Architecture	T2	Apr. 79	10
	T3	June 79	10
	T4	Aug. 79	8
Control of Cray jobs	7	Feb. 81	16
COS 1.10 implementation	11	Sept. 81	12
File transfer to a named device	T2	Apr. 79	14
Public Libraries	T5	Oct. 79	6
Software - level 1.08 of COS	7	Feb. 81	8
Submit and Dispose	8	Apr. 81	6
<u>CYBER 175</u>			
CMM-Fortran interface	10	Aug. 81	11
Cyber 175 processor described	1	Feb. 80	6
Dynamic file buffers for standard formatted/ unformatted data	3	June 80	17
ECLIB additions	11	Sept. 81	13
Formatted I/O - some efficiency hints	4	Aug. 80	9
FTN4 to FTN5 conversion	6	Dec. 80	15
FTN5 effective programming	9&10	June 81	13
Graphics - COM	7	Aug. 81	13
- hints on memory and time saving	T6	Feb. 81	13
		Dec. 79	20
- libraries	T5	Oct. 79	8
Libraries - NAG developments	T5	Oct. 79	7
- public libraries	T5	Oct. 79	6
Jobs - hints on processing	T2	Apr. 79	23
- input queue delays	4	Aug. 80	12
Magnetic tapes - hints on use	T2	Apr. 79	17
- LOOK9 analysis program	T3	June 79	18
- EEC parameter	T4	Aug. 79	14
- making back-up copies	1	Feb. 80	9
- Stranger tapes	5	Oct. 80	10
Permanent files - dumping	T6	Dec. 79	15
- RT=W, BT=I file structure	T1	Feb. 79	18

GENERAL

COMFILE	11	Sept.81	14
Computing facility - status and plans	7	Feb. 81	7
Cyber-Cray link software	2	Apr. 80	13
Cyber-Cray speed comparison	T3	June 79	19
Cyber-Cray I/O efficiency comparison	1	Feb. 80	11
Fortran 77	5	Oct. 80	6
Mass Storage Systems (MSS)	5	Oct. 80	8
Member State Technical and Computing Representatives	8	Apr. 81	12
News Sheets still valid	11	Oct. 81	
Priority parameter on the JOB card	7	Feb. 81	8
Resource allocation for 1981	6	Dec. 80	11
Resource allocation - Council rules for	6	Dec. 80	10
SMHI Computer Links	9	Jun. 81	6
Technical Advisory Committee - 3rd session	10	Aug. 81	1
Telecommunications - state of ECMWF network	9	Jun. 81	8
Upper and lower case text files	11	Sept.81	15

METEOROLOGY

Alpex data management and the international Alpex data centre	11	Sept.81	1
Baltic Storm of October 1980	6	Dec. 80	2
ECMWF Analysis and Data Assimilation System	T3	June 79	2
ECMWF Operational Forecasting Model	5	Oct. 80	2
	6	Dec. 80	7
Facilities to verify and diagnose forecasts provided by the Data and Diagnostics Section	8	Apr. 81	3
Forecast products of various centres decoded and plotted at ECMWF	9	Jun. 81	3
Forecast results - distribution to Member States	T5	Oct. 79	2
- production schedule	6	Dec. 80	5
Meteorology Division	T1	Feb. 79	4
Operational Forecast Suite (EMOS)			
- general description	T1	Feb. 79	6
- data acquisition and decoding	T6	Dec. 79	1
- initialisation	T6	Dec. 79	4
- quality control	1	Feb. 80	3
- bulletin corrections (CORBUL)	2	Apr. 80	1
- archiving	3	June 80	4
- post processing	4	Aug. 80	3
Pseudo "satellite picture" presentation of model results	1	Feb. 80	2
Research Department activities			
- FGGE	3	June 80	8
Retrieval of data from the Centre's data bases	5	Oct. 80	3
Spectral model	7	Feb. 81	4
Weather-routing of ships based on ECMWF forecasts	10	Aug. 81	3

* T indicates the original Technical Newsletter series

USEFUL NAMES AND 'PHONE NUMBERS WITHIN ECMWF

		<u>Room*</u>	<u>Ext**</u>	
Head of Operations Department	- Daniel Söderman	OB 010A	373	
ADVISORY OFFICE - Open 9-12, 14-17 daily	Other methods of quick contact;	CB 037	308/309	
	- telex (No. 847908)			
	- COMFILE (see Bulletin Bl.5/1)			
Computer Division Head	- Geerd Hoffmann	OB 009A	340/342	
COMPUTER OPERATIONS				
Console	- Shift Leaders	CB Hall	334	
Reception Counter	}	CB Hall	332	
Terminal Queries				- Judy Herring
Tape Requests				
Operations Section Head	- Eric Walton	CB 023	351	
Deputy Operations 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 (Acting)	- Austin Woods	OB 008	343	
Applications Section Head	- Joel Martellet	OB 011	360	
Operations Section Head (Acting)	- Horst Böttger	OB 107	406	
Meteorological Analysts	- Ove Åkesson	OB 106	380	
	- Veli Akyildiz	OB 104A	379	
	- Horst Böttger	OB 104A	378	
	- 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	- Peter Gray	CB 133	323	
TELECOMMUNICATIONS				
Fault Reporting	- Pierre-Pascal Regnault	CB 028	397/375	
User Support Section Head	- Andrew Lea	OB 003	348	

* CB - Computer Block
OB - Office Block

** The ECMWF telephone number is READING (0734) 85411,international+44 734 85411