COMPUTING CENTRE NEWSLETTER

May 1981 - N. **51**

CONTENTS

EDITORIAL NOTE

The Computing Centre Newsletter is published monthly except for August and December.
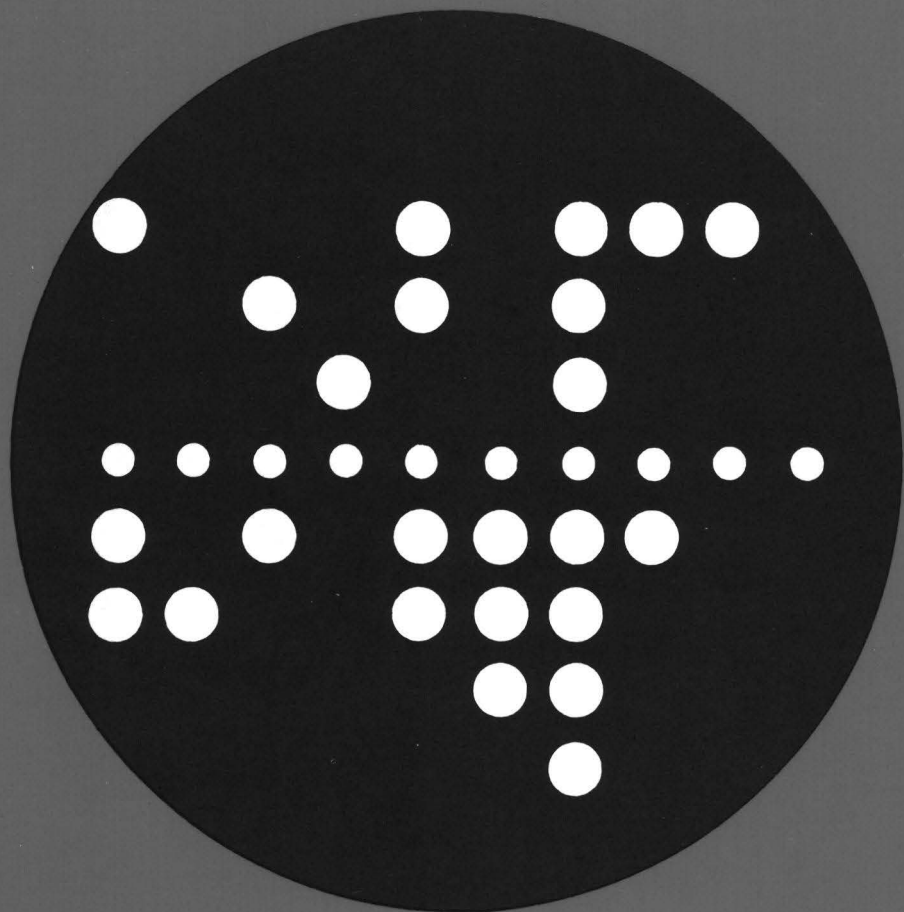
It describes developments, modifications and specific topics in relation to the use of the computing installations of the Joint Research Centre, Ispra Establishment.

The aim of the Newsletter is to provide information of importance to the users of the computing installations, in a form which is both interesting and readable.

The Newsletter also includes articles which are of intellectual and educational value in order to keep the users informed of new advances in computer science topics.

The Editorial Board is composed as follows:

DISK MANAGEMENT SYSTEM

M. DOWELL

1. Introduction

A new and important software system is being implemented on the Central Computing Service. This system which is named D.M.S. (Disk Management System) will be of immense importance to the users of the service, making their computer tasks easier and more sensibly organized, and their information stored on disk more secure.

The DMS system will be of considerable benefit to both batch and TSO users.

This DMS system will provide the following facilities:

a) A regular security copy of all data sets residing on user disks.

b) A security copy taken daily whenever a data set has been updated.

c) The ability to access the magnetic tape back-up of an individual data set in case of physical damage to the part of the disk containing the online copy.

d) The facility to move less used data sets onto magnetic tape with the ability to restore them to disk when needed by using simple TSO commands or batch procedures.

e) The ability of the DMS system to manage more efficiently the use of the user disk space and thus provide more available space for new data sets.

Another advantage for the users is that it will no longer be necessary to reserve their data sets. Simply creating them on a user disk (either in a TSO session or a batch job) will be sufficient to inform the DMS system of the presence of the new data set and the relevant authorisation details. There will no longer be a six months time limit with a need for re-reservation. Data sets which are in regular use will tend to remain on disk, whereas data sets which are accessed infrequently will be kept in a secure manner on the magnetic tape library of the DMS system. Only data sets which have not been accessed (i.e. either read or written) for a very long time (more than, for example, one year or more) will be deleted from the system.

The introduction of this new system may, however, require
some changes to be made by the users.
The only requirement of the system is that all user data
sets are cataloged and have a standard naming convention.
For existing TSO users who have all of their data sets with
their TSO identifier as leading part of the data set name
and have all of their data sets cataloged (for example all
data sets created with CREARES), there will be no need for
any changes.
For others with data sets with names not according to the
TSO conventions or with non-cataloged data sets it will be
necessary to change the data set name and catalog the data
sets. Suitable TSO procedures and examples of batch jobs for
performing these changes are described in the following
sections of this article.

2. The Implementation Schedule

The policy for the implementation has been decided in order
to make the changes which the users must perform as simple
as possible. The following is a summary of the planned
actions which are relevant to the users:
a) Already a "Note to the Users of the Computing Centre
   Service" has been circulated giving an overview of the
   facilities of DMS. This article is a more detailed
   version of that information.
b) At the beginning of June a seminar describing in more
   detail the facilities of the DMS system will be given by
   members of the Computing Centre staff. This will also
   provide a forum for users to ask questions about the new
   system. Full details of the time and place of this
   seminar will be provided shortly.
c) The details of how to use the various commands of the DMS
   system will be provided in a user note in mid-June and
   will be repeated in the June issue of the Computing
   Newsletter.
d) Beginning Monday 29th June 1981 the DMS system will be
   in use. All data sets residing on USERxx disks must have
   been changed (if necessary) by the end of the day of the
   22th June.
   All data sets on users disks will be copied by the
   Computing Centre during the morning of the 29th June from
   the existing 3330-1 user disks (USEROA, USEROB,...) to
   the new 3350 user disks (USERO1, USERO2,...).
   All data sets not conforming to the new naming
   conventions will not be copied.
e) At some suitable date after 1st July 1981 another seminar
   will be held to enable further information to be passed
   to the users and to allow the users to give their views
   about the DMS system.

3. Changes which must be made by Users with Data Sets on User Disks Before the Implementation of DMS

The DMS system requires that:

* All data sets on user disks must have a name conforming to a defined standard (details of this standard are given in the following sections of this document) and must be cataloged.

* All access to these data sets should be via the catalog.

Therefore, it _may_ be necessary for users to rename and/or catalog existing data sets. It may also be necessary for users to change existing batch jobs to access their data sets via the catalog.

> The changes described in the following sections _may_ be made now. These changes _must_ be made before the 22nd June 1981.

3.1 For Users With a Valid TSO Userid

i)   All of your data sets created with CREARES in a TSO session already have an acceptable name (i.e. their full name is already TSOxyz.------.------). For these you must make sure that the end of the **reservation period is after 1st July 1981.**

ii) If you have created data sets in batch either with the naming convention of your TSO userid (i.e. TSOxyz.------.------) or Librarian masterfiles with the naming convention SYSU.------, then these data sets will not need to be changed.
     If, however, they are not cataloged it will be necessary to catalog them. For these you must make sure that the end of the **reservation period is after 1st July 1981.**

iii) If you have data sets which are not named according to conventions described in i) & ii) then:
     a) These should be renamed.
           e.g. ABC.FORT should be renamed TSOxyz.ABC.FORT
                Librarian masterfile MASTF should be renamed SYSU.MASTF

     b) After the name changes described in a) the data sets should be cataloged and **re-reserved.**

3.2 For Users Without a TSO Userid

If you are considering using TSO in the near future then it would be sensible to obtain a TSO userid now and then follow the procedure described in 3.1. Otherwise the following should be your course of action:

i) All of your data sets should be renamed to have leading parts USER.------ or SYSU.------ (for Librarian masterfile).
    > e.g data set XYZ.FORT should be renamed USER.XYZ.FORT
    > Librarian masterfile LIBMAST should be renamed SYSU.LIBMAST

ii) Any data set which has been renamed should be cataloged and **reserved.**

To assist users in making the changes described in sections 3.1 and 3.2 details of a TSO procedure and information about relevant batch procedure are described in the following sections.

3.3 TSO Command for Rename, Catalog and Reservation

RENRESCT is a TSO procedure provided to rename data sets on user volumes which do not have standard TSO type names. The newly named data set is cataloged and reserved:

The form of the TSO command procedure is:

RENRESCT   dsname1   dsname2   VOL(userOx)

where: **dsname1**   is the fully qualified name of the data set to be renamed <u>without</u> apostrophes

dsname2   is the local name of the newly renamed data set (without the TSO identifier)

userOx   is the user volume on which **dsname1** is to be found (USEROA, USEROB,...)

Example 1

      RENRESCT XYZ.FORT ABC.FORT VOL(USEROB)

Given that the TSO userid for the session is TSORST, then
the use of this RENRESCT command renames the data set
'XYZ.FORT' which is on disk USEROB. The new name is
'TSORST.ABC.FORT'. (i.e. the user gives the name ABC.FORT
when accessing the data set whilst logged-on under the TSO
userid TSORST). The data set is cataloged and reserved.

Example 2

      RENRESCT LMN.FORT LMN.FORT VOL(USEROC)

As in example 1 above except that the name of the data set
is changed from 'LMN.FORT' to 'TSORST.LMN.FORT'.

3.4 A Batch Job for Rename, Catalog and Reserve

The following gives the format of a batch job suitable for
the rename, catalog and reservation of a data set. The new
name given has a leading part USER as described in section
3.2.

```
//         JOB(your job card)
//         EXEC PGM=IEHPROGM
//SYSPRINT DD SYSOUT=A
//DD1      DD UNIT=DK11,VOL=SER=user0x,DISP=OLD
//SYSIN    DD *
   RENAME DSNAME=bbb,VOL=DK11=user0x,NEWNAME=USER.ccc
   CATLG  DSNAME=USER.ccc,VOL=DK11=user0x
/*
//         EXEC EURUDR,U=DK11,V=user0x
//GO.SYSPRINT DD SYSOUT=A
//GO.SYSIN    DD *
      xxxx yyyy 999999 USER.ccc
/*
```

where   bbb   is the full old name of the data set
        user0x is the user volume on which bbb is to be
                found
        ccc   is the new name of the data set (full name
                is USER.ccc)
        xxxx   is authorization number for the reservation
        yyyy   is the programmer number

Example

A user with authorization 9999 and programmer number 8888
has a data set named X23.FORT on user disk USEROC.
The following job may be used to rename the data set
USER.PRGX.FORT and to catalog and reserve the data set.

```
//         JOB(your job card)
//      EXEC PGM=IEHPROGM
//SYSPRINT DD SYSOUT=A
//DD1      DD UNIT=DK11,VOL=SER=USEROC,DISP=OLD
//SYSIN    DD *
  RENAME DSNAME=X23.FORT,VOL=DK11=USEROC,NEWNAME=USER.PRGX.FORT
  CATLG  DSNAME=USER.PRGX.FORT,VOL=DK11=USEROC
/*
//      EXEC EURUDR,U=DK11,V=USEROC
//GO.SYSPRINT DD SYSOUT=A
//GO.SYSIN    DD *
        9999 8888 999999 USER.PRGX.FORT
/*
```

4. Changes For Users with Personal Subroutines Libraries

Some users have their own data sets which contain libraries
of subroutines named SYS1.LIB-------. These are normally used
with the PRN=, ULB= and VLB= parameters of the major
language batch procedures. After the 1st July 1981 it will
no longer be possible to have a user data set named
SYS1.------ on a user disk.

Therefore, users should rename all data sets of the form
SYS1.LIB------ either to be TSOxyz.LIB------ or
USER.LIB------ and then catalog and reserve the newly named
data sets (using the procedures described in the previous
sections).
The relevant batch procedures have been modified to allow
for this change in the following way:

* Because all such library data sets must be cataloged the
  VLB= and ULB= parameters are no longer necessary for
  users data sets and should not be given.

* The user should add a UID=--- parameter which is
    either: UID=TSOxyz (if the data set is TSOxyz.LIB---)
    or: UID=USER   (if the data set is USER.LIB---)

* The use of the PRN= parameter remains unchanged

Note. The above changes apply only to user libraries and not
to the use of system libraries. (e.g. SYS1.LIBNAGS,
SYS1.LIBMASXS,...)

Example
===

A user who does not have a TSO userid with a subroutine
library named SYS1.LIBMYSUB on disk USER0C.

a) The user should rename (as USER.LIBMYSUB) reserve and
   catalog the data set using as a model the job described
   in section 3.4.

b) The library may then be used in a batch job with, for
   example, the FTG1CLG procedure as follows:

```
//          JOB(your job card)
$    CLASS 2
//STEP1    EXEC FTG1CLG,PRM=MYSUB,UID=USER
//CMP.SYSIN  DD *
  .
  .
  .          (FORTRAN program)
  .
  .
/*
```

5. Using the Catalog to Access Data Sets
===

As already stated, the introduction of the new system means
that it is necessary for all user data sets to be
cataloged. Although this involves some work for the users
(as described in the previous section) it also has many
advantages for users. In particular, access to cataloged
data sets is much simpler for the users.

a) For TSO Users
   If a TSO user follows the course of actions described in
   section 3.1 then all of his data sets will have their TSO
   userid as leading part (except for Librarian masterfile
   of the form SYSU.------). All of the TSO data sets will
   be shown in a LISTCAT listing (because they are all
   cataloged). Thus, the user can manipulate these data sets
   in a TSO session more easily.
   Of course any of these TSO data sets may be used in a
   batch job in a very simple way. The following example
   shows one such case.

Example
A user with a TSO userid TSOABC had a data set
(containing a FORTRAN source program) on disk USEROC. The
user prior to making the changes accesses this data set
in batch in the following job.

```
//        JOB(your job card)
$    CLASS 2
//S1       EXEC FTG1CLG
//CMP.SYSIN  DD  DSN=PROGMART.FORT,DISP=SHR,
//             UNIT=DISK,VOL=SER=USEROC,
//             DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
```

Following the advice given in section 3.1 the user
renames the data set using the RENRESCT TSO command
procedure as follows:

```
RENRESCT  PROGMART.FORT  PROGMART.FORT  VOL(USEROC)
```

The data set may now easily be used and modified in a TSO
session. The previously shown batch use of this data set
may now be written as follows:

```
//        JOB(your job card)
$    CLASS 2
//S1       EXEC FTG1CLG
//CMP.SYSIN  DD  DSN=TSOABC.PROGMART.FORT,DISP=SHR
```

Now the access is via the catalog and the form of the DD
command is much simpler.

b) For Users Who do not Have a TSO Userid
For user who do not have a TSO userid, the action is very
similar to that described in section a). Jobs using the
renamed and newly cataloged data sets should be modified
to access these data sets via the catalog.

Example
A batch user who does not have a TSO userid has a data
set named MYDATA.DATA on disk USEROF.
The user prior to making the changes accesses the data
sets in the following job:

```
//        JOB(your job card)
$    CLASS 2
//S1       EXEC FTG1CLG
//CMP.SYSIN DD *
.
.          (FORTRAN source program)
.
/*
//GO.FT05F001 DD UNIT=DISK,VOL=SER=USEROF,DISP=SHR,
//             DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB),
//             DSN=MYDATA.DATA
```

Following the advice given in section 3.2 the user
renames (to USER.MYDATA.DATA) catalogs and reserves that
data set as specified. The job given above should now be
modified as following:

```
//        JOB(your job card)
$    CLASS 2
//S1       EXEC  FTG1CLG
//CMP.SYSIN DD *
.
.
.
.          (FORTRAN source program)
.
.
/*
//GO.FT05F001 DD DSN=USER.MYDATA.DATA,DISP=SHR
```

Any user having questions or problems concerning
the changes described in this article should
contact Mr. Martyn DOWELL, room 1866, tel. 701

CHANGES IN THE GRAPHICS SYSTEM

M. DOWELL

Introduction

Because of the introduction of the new Disk Management System
(DMS) and also the new ATAPE parameters for the new magnetic
tape units (see Newsletter N. 50, April 1981, page 3), it may
be necessary for some users of the graphics facilities to make
changes in their batch procedures and/or TSO usage. This
article describes the situations in which changes are necessary
and gives details of the relevant courses of action.

Renaming of Intermediate Files

For the DMS system it is necessary that "intermediate files"
are named according to the standard naming conventions (see
article in this issue of the Newsletter beginning on page 3).

* A user with a TSO userid who inspects his graphics inter-
  mediate file using a Tektronix terminal should have an inter-
  mediate file name beginning with his TSO userid (e.g.
  TSOABC.INTER).

  Example. A user with TSO userid TSOABC who at present has an
  intermediate file named MDINTERF should rename/catalog/
  reserve it with the new name TSOABC.MDINTERF.
  (Note. This rename/catalog/reserve may easily be performed by
  using the RENRESCT TSO command as specified in section 3.3 of
  the previous article).

* A user who does not have a TSO userid (and thus obviously
  uses the graphics facilities only for batch jobs) should
  rename/catalog/reserve his intermediate file to have a lead-
  ing part USER.--- (e.g. USER.INTER).

  Example. A user with an intermediate file named XYINTER
  should rename it USER.XYINTER.
  (Note. This rename/catalog/reserve may easily be performed by
  using the batch job as specified in section 3.4 of the prev-
  ious article).

Using Intermediate File in TSO

Having performed the rename/reserve/catalog (as specified in the first part of the previous section), TSO users who wish to view the contents of their intermediate files should follow the actions listed below.

i) They should no longer use the TSO command procedure PLOTE. This is now obsolete.

ii) They should, however, continue to use the command procedure GRAPHIT followed by the new command procedure PLOTF. The syntax of PLOTF is given below:

<div align="center">

PLOTF   dsname

</div>

where: dsname is the local name of the intermediate file data set (i.e. without the TSO userid) or the full data set name between apostrophes.

Example session 1

For a user with TSO userid TSOABC (who is logged on to that TSO userid) who wishes to examine the contents of the intermediate file TSOABC.MDINTERF:

```
   .
   .
READY
GRAPHIT
READY
PLOTF MDINTERF
   .
   .          (start of graphics session)
   .
   .
```

Example session 2

For a user with TSO userid TSOABC (who is logged on to that TSO userid) who wishes to examine the content of the intermediate file TSOXYZ.XXINTER of a colleague (who is, for example, working on the same project for example)

```
   .
   .
READY
GRAPHIT
READY
PLOTF 'TSOXYZ.XXINTER'
   .
   .          (start of graphic session)
   .
   .
```

Using Intermediate Files in Batch

Following the advice in section 2, the intermediate file will
now be named either TSOXYZ.--- or USER.--- and will be
cataloged. The following job gives an example of a FORTRAN job
containing to an intermediate file. (USER.INTERF).

```
//          JOB(your job card)
//          EXEC FTG1CLG,PRM=ERTY,VLB=COPICB,ULB=DISK
//CMP.SYSIN DD *
.
.
.          (FORTRAN source program)
.
/*
//GO.FT16F001 DD DSN=USER.INTERF,DISP=(OLD,KEEP)
```

Changes for the ATAPE Parameter

Users of the BENSON, GOULD and GOULDX batch procedures for
producing magnetic tapes for the BENSON penplotter or the GOULD
electrostatic plotter should make changes to incorporate the
new ATAPE parameters. The procedure shave already been modified
to include the UNIT=ATAPE parameters where appropriate and so
the users should modify their $OC cards to include ATAPE
instead of TP9.

Example. A user wishes to plot the contents of intermediate
file TSOXYZ.MDINTERF on magnetic tape GR9999.

```
//          JOB(your job card)
$OC ATAPE=GR9999,SL,Y
$OC M=GOULD T=GR9999 ABEND=NO F=1
//          EXEC GOULD,TAPE='GR9999'
//GLD.FT15F001 DD DSN=TSOXYZ.MDINTERF,DISP=OLD
//GLD.SYSIN    DD *
.
.          (GOULD parameters)
.
/*
```

Note. Similar changes should be made for the BENSON and GOULDX
procedures.

Users who wish to find out more details about the
graphics system at the JRC-Ispra should read the
"green book" "JRC Computer Graphics" (see last
page of this Newsletter for details).
(Note. At present details of the PLOTF command are
not in the green book. An amendement will be issued
shortly.

STATISTICS OF COMPUTING INSTALLATION UTILIZATION.
REPORT OF COMPUTING INSTALLATION EXPLOITATION
FOR THE MONTH OF APRIL 1981.

	YEAR 1980	YEAR 1981
General		
Number of working days	19 d	18 d
Work hours from 8.00 to 24.00 for	16.00h	16.00h
Duration of scheduled maintenance	15.68h	18.83h
Duration of unexpected maintenance	22.53h	6.17h**
Total maintenance time	38.21h	25.00h
Total exploitation time	290.64h+	271.00h++
CPU time in problem mode	192.80h	312.90h*
Batch Processing		
Number of jobs	7526	6960
Number of cards input	1197000	430900
Number of lines printed	23687000	22446000
Number of cards punched	145000	16500
CPU Time	170.66h	258.98h
Number of I/O (Disks)	19270000	22822000
Number of I/O (Magnetic tape)	3924000	3575000
T.S.O.		
Number of LOGON's	3427	4092
Number of messages sent by terminals	221000	305400
Number of messages received by terminals	1271000	1906000
CPU time	20.30h	42.05h*
Number of I/O (Disk)	3047300	4143000
Connect time	2429.88h	3097.92
ADABAS		
Total time service is available	-	10.22h*
CPU time	-	1763000
Number of I/O (Disk)	-	156.71h
IMS		
Total time service is available	104.90h	106.70h
CPU time	1.84h	1.65h
Number of I/O (Disk)	388500	325000

*   Real CPU has been multiplied by a factor of 2 to indicate the increased throughput of the AMDAHL.

** Covering all the configuration.

\+   Including 24.50hrs overtime.

++ Including 8.00hrs overtime.

UTILIZATION OF COMPUTING CENTRE BY OBJECTIVES & APPROPRIATION ACCOUNTS FOR THE MONTH OF APRIL 1981.

AMDAHL 470/V7A
equivalent time in hours

33001	Reactor Safety	264.70
33002	Plutonium Fuel and Actinide Research	-
33003	Safety of Nulcear Materials	1.28
33004	Fissile Materials Control and Management	8.54
33005	Super-SARA Test Programme SSTP	71.91
33011	Solar Energy	7.90
33012	Hydrogen Production, Energy Storage and Transport	0.18
33013	Thermonuclear Fusion Technology	52.15
33014	High Temperature Materials	2.98
33021	Protection of the Environment	19.61
33022	Remote Sensing from Space	0.64
33041	Informatics	77.21
33043	Support to the Community - Bureau of References	2.54
33044	Training and Education	-
33046	Provision of Scientific and Technical Services	8.13
1.20.1 1.20.2	General Administration - JRC General Services - Administration - Ispra	59.14
1.20.3	General Services - Technical - Ispra	1.07
1.30.0	Central Workshop Ispra	1.32
1.40.2	ESSOR	2.12
	TOTAL	**581.42**
1.94.0	Services to External Users	4.60
	TOTAL	**586.02**

BATCH PROCESSING DISTRIBUTED BY REQUESTED CORE MEMORY SIZE

|	100 k	200 k	300 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1400 > k
No. of jobs	2019	1719	942	1003	525	108	138	35	2	29
Elapsed time	69	176	179	240	208	43	87	30	4	13
CPU time	5.2	28.0	42.9	47.4	83.7	12.5	24.7	5.4	1.9	7.3
"Equiv" time	23	54	76	88	101	17	35	12	3	9
"Turn" time	1.0	2.0	2.5	4.1	4.4	4.5	3.0	4.5	15.0	9.5
I/O (disk)	1604	3597	3226	5429	2432	690	1416	949	84	172
I/O tape	2013	217	370	715	104	35	95	0.5	–	0.6

NOTE.
All times are in hours.
"Equiv" means equivalent.
"Turn" means turn around.
All I/O transfers are measured in 1000's.

PERCENTAGE OF JOBS FINISHED IN LESS THAN:

TIME	15mn	30mn	1hr	2hrs	4hrs	8hrs	1day	2day	3day	6day
%year 1980	23	36	51	64	78	89	97	100	100	100
%year 1981	29	41	54	67	81	92	97	100	100	100

HISTOGRAM OF TOTAL EQUIVALENT TIME(HRS)
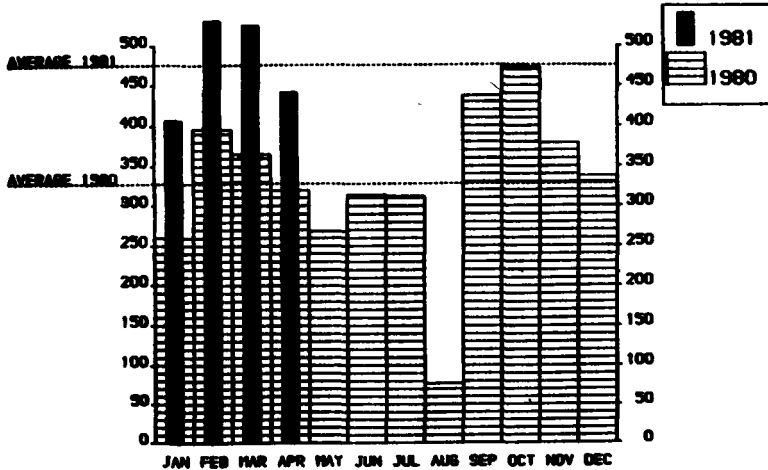
Projected total for 1981 = 5710 hours(using average)

Total for 1980 was   = 3936 hours

REFERENCES TO THE PERSONNEL/FUNCTIONS OF THE COMPUTING CENTRE

Manager of the Computing Centre   J. Pire

  Responsible for User Registration   Ms. G. Rambs

Operations Sector
  Responsible for the Computer Room   A. Binda-Rossetti
  Substituted in case of absence by:

Responsible for Peripherals   G. Nocera

Systems Software Sector
  Responsible for the sector   D. König
  Substituted in case of abscence by: P.A. Moinil

Responsible for TSO Registration   C. Daolio

                                                    Room Tel.
Informatics Support Sector
  Responsible for the Sector   (f.f.) H. de Wolde 1883 787

  Secretary   Ms. G. Hudry   1873 787

Responsible for User Support   M. Dowell   1886 701

General Inf./Support Library   Ms. A. Cambon 1871 730

Advisory Service /List of Consultants(See Note 1)   1870 730

A. Inzaghi   H. I. de Wolde
                  A. A. Pollicini
R. Meelhuysen   M. Dowell

Note 1. The advisory service is available in the same room as
the Computing Support Library (room 1870). Exact details of the
advisory service times for a specific week can be found at the
head of any output listing (for that week).
Any informatics problem may be raised. However, the service is
not designed to help users with problems which are their sole
responsability. For example, debugging of the logic of programs
and requests for information which can easily be retrieved from
available documentation.
If necessary, other competent personnel from the informatics
division may be contacted by the consultant but not directly by
the users.
The users should only contáct the person who is the consultant
for that specific day and only during the specific hours.
Outside the specific hours general information may be requested
from Ms. A. Cambon in the Computing Support Library.

HOW TO OBTAIN COMPUTING CENTRE DOCUMENTATION

Person interested in receiving copies of the Computing Centre "green books" or in receiving regularly the "Computing Centre Newsletter" are requested to complete the appropriate par of the following form and send it to:

> Ms. A. Cambon
>
> Support to Computing
>
> Building 36
>
> Tel. 730.

Indicate with a (✓) which option are required.

Please add my name to Newsletter mailing list   ( )

Please send me copies of the following "green books":

JRC-TSO Primer   ( )

JRC Computer Graphics (new version)   ( )

Towards a New Programming Style   ( )

LIBRARIAN   ( )

> NAME ....
>
> ADDRESS ....
>
> ....
>
> ....
>
> TELEPHONE ....