The Record

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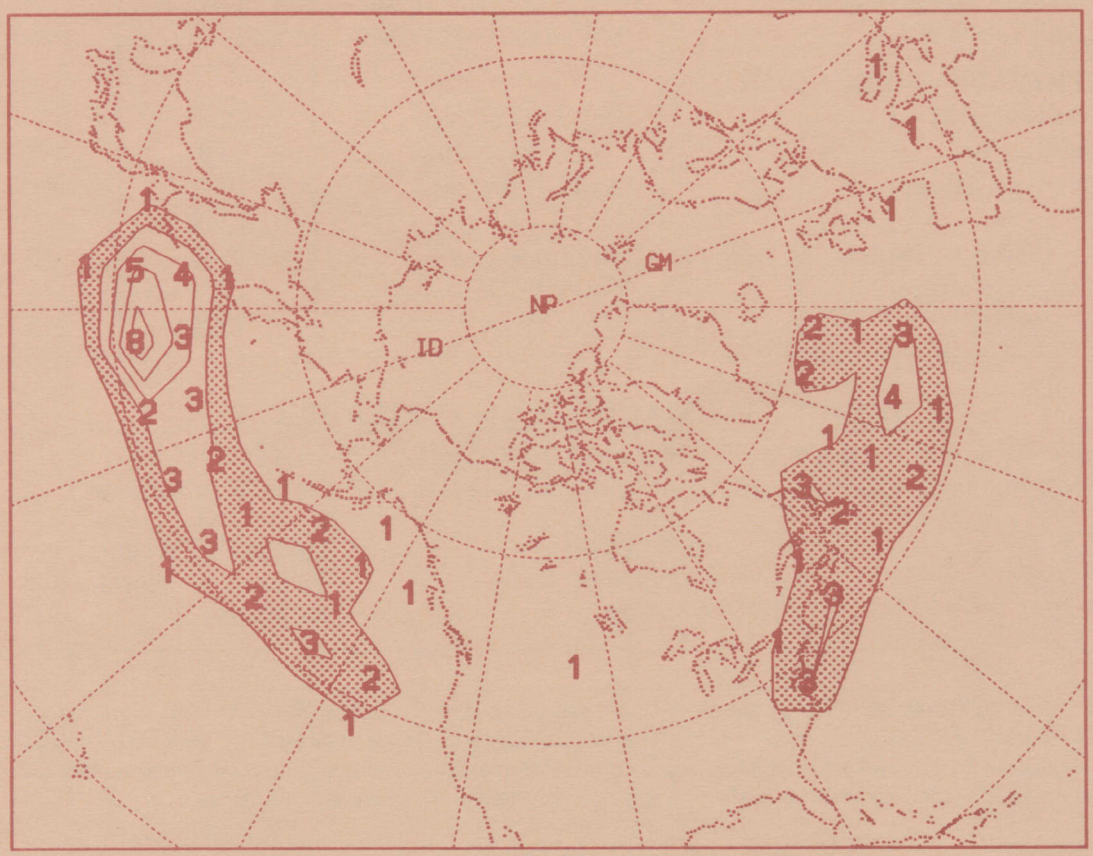

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SCHEDULE OF MACHINE UNAVAILABILITY

All machines may be down from 07:00 until 08:30 daily for Systems Checkout.
In addition, some machines will be down for Preventive Maintenance as follows:

CRAY,C1	06:00-08:00	Monday & Wednesday
CRAY,CX	06:00-09:00	Tuesday & Thursday
IBM 4381 (IO)	07:00-08:30	As needed

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Robert Nicol, Editor
Nancy Dawson, Contributing Editor
Alan McClellan, Assistant Editor
Diane Huntrods and Sandy McCullough, Editorial Assistants
Frieda Garcia and Karen Hack, SCDUG Minutes
JoAn Knudson, Computer Resources Allocated
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Cover Graphic

The graphic on the cover of this issue was created by Steve Mullen, Assistant Professor of Atmospheric Science at the University of Michigan at Ann Arbor. Steve generated the plot as part of a study of explosive cyclogenesis during a 150-day cycle, using data results from a preliminary high-resolution version of the NCAR Community Climate Model (CCM), provided by Dave Williamson of the Atmospheric Analysis and Prediction Division. The graphic shows the number of cyclones in an area of 5 degrees of latitude by 10 degrees of longitude that fulfilled a "deepening" criterion of 24 millibars in a 24-hour period. The large numbers in the plot indicate the number of cyclones that met the criterion; the contour lines represent smoothed values of those numbers, where each line indicates an increase of one, and the shaded area shows the boundaries between values of one and two.

Steve used a variety of NCAR Graphics routines to produce the plot, including EZMAP, CNRCSMTH, CONBND, FILL, and PWRIT. Bob Chervin (AAP) provided assistance with graphics production.

If you have an interesting plot that you would like to share with our readers, please use the Your Turn mailer at the back of this issue to send us a sample. Graphical contributions are much appreciated.

Consulting Office Update

Ginger Caldwell has been appointed to lead the Consulting Group, replacing Ann Cowley, who retired last month. In order to provide better service to SCD users, the Consulting Group staff are assessing current procedures and methods. A schedule for the consultants' shifts is not available for this month; however, the Consulting Office hours remain the same, and the procedures for contacting consultants have not changed. Further updates on the Consulting Office will be published in *The Record* when necessary.

Consulting Office Hours

Consulting Office hours are 08:30-11:30 and 13:00-16:00 daily, Monday through Friday. You can reach the consultants by calling (303) 497-1278. You can also send electronic mail to the CONSULT1 virtual machine on the IBM 4381 (IO) front-end computer.

All consultants attend SCD computing status meetings from 08:40-08:55 on Tuesday and Thursday mornings. The Consulting Office is closed during these periods.

Correction to the DROPJQ Article in Last Month's Issue

The article on the DROPJQ utility in the previous issue (pp. 12-15) contains incorrect information regarding the project number of the job to be dropped. Testing by our staff indicated that the following method is in effect: If you wish to drop a job from the job queue on either of the CRAY computers, you must use the same *user number* on your DROPJQ job as on the job to be dropped; however, the project number is irrelevant as long as you use the same user number. You do not have to specify a different project number as described on pages 14 and 15.

More detailed information on user number restrictions and methods for identifying queued jobs is available in the SCD document entitled "Using DROPJQ to Drop Jobs from the CRAY Job Queues," Version 1.1, May 1987. See the "Documentation Update" column in this issue for a description and ordering instructions.

DICOMED Charges Decreased in May

The large increase in DICOMED graphics processing charges that went into effect on March 1, 1987 has produced the desired results. Throughput on the DICOMED cameras has returned to a reasonable rate. Because of the improvement, SCD reduced DICOMED processing charges from the current rate (five times the normal rate) to twice the normal rate as of May 1, 1987. On the same date, the charge for fiche processing was reduced to reflect current costs relative to 35mm film costs. Under the revised DICOMED charging algorithm, fiche is cheaper than 35mm film for any DICOMED job that requires more than 25 frames of output.

The revised DICOMED charging algorithm is:

$$GAUs = .0008D + .0012C + .00004M + .0001F$$

where

D = Megabytes of data read from disk drive
C = Megabytes of data transmitted to camera
M = Number of frames of microfilm generated
F = Number of fiche cards generated

Would You Like a 9600 BPS Asynchronous Connection to NCAR?

by Marla Meehl

SCD is considering the purchase of new high-speed modems to provide asynchronous dial-up access at 9600 bits-per-second (bps). This article is intended to solicit responses from the user community so that SCD communications staff can gather information about the level of user interest regarding 9600 bps access. The response from you and your colleagues will determine at what level this service is implemented, including the number of 9600 bps modems purchased by NCAR to enable access at this end.

If you are interested in asynchronous dial-up access to NCAR computers at 9600 bps, you should be aware of the following points:

- To enable this capability, you must purchase your own 9600 bps modem that is compatible with those purchased by NCAR. There are several brands of modem available with this capability, at an average price of approximately $1500.00.
- You cannot use 9600 bps access via Telenet, since Telenet service currently supports only 2400 bps access or less. This means that you must use direct-dial access and pay long-distance telephone charges for your connect-time.

If you are interested in 9600 bps access under the conditions described above, you should let us know as soon as possible. You can express your interest and address any questions on this topic to Marla Meehl at (303) 497-1301, or send electronic mail to MARLA@SCDSW1.UCAR.EDU (be sure to include your telephone number).

Marla Meehl is a telecommunications specialist in the User Services Section of SCD.

1987 Summer Supercomputing Institute Scheduled

The University Corporation for Atmospheric Research has scheduled the third annual Summer Supercomputing Institute, to be held at the Mesa Laboratory from August 10-21 of this year. The Institute is coordinated by NCAR's Scientific Computing Division and sponsored by the National Science Foundation's Division of Advanced Scientific Computing (NSF/DASC) with assistance from the NSF Physical Oceanography Program.

Summary of Institute Format

The Summer Supercomputing Institute is an intensive, two-week course on using supercomputing capabilities to augment scientific research. One key objective of the course is teaching participants how to apply supercomputing techniques and methods to a variety of investigations that require large-scale computation. The Institute format is carefully arranged to give each participant opportunities to explore new approaches to using supercomputing technology. It includes lectures by internationally recognized experts in the field of supercomputing, and hands-on laboratory sessions that provide experience in real-world applications based on current supercomputing research efforts.

A maximum of 25 participants will be selected from the applicant group. Each will receive funding for travel, per diem, and accommodation expenses. In addition, participants will be allocated computing time on the NCAR CRAY X-MP/48 supercomputer at the Mesa Laboratory and accompanying support services.

Summary of Institute Curriculum:

The 1987 Summer Supercomputing Institute curriculum will include the following topics:

- Operating Systems and Machine Configurations
- Vectorization and Optimization Techniques
- Parallel Processing
- Numerical Techniques
- Communications and Networking
- Graphics

Application Requirements

Applicants must be senior graduate students, post-doctoral fellows, or junior faculty at accredited universities and research centers that confer advanced degrees in atmospheric and physical oceanographic sciences, solar physics, and related disciplines. They should be involved in research projects that utilize supercomputers or anticipate doing so in the near future. All candidates must provide two letters of recommendation detailing research capabilities and describing the potential for the research efforts to advance disciplinary knowledge, and an abstract of not more than 250 words indicating how the candidate's research work (either planned or underway) would benefit from the application of supercomputing technology. Graduate student applicants should have a minimum graduate grade point average of 3.5, and all applicants should have a working knowledge of FORTRAN 77.

Successful applicants will be notified of their acceptance to the Institute by July 1.

Application Deadline: June 15, 1987

SCD has sent a copy of the application form and flyers containing detailed information about the Institute to departments of atmospheric, oceanographic and related sciences at universities throughout the country. If you wish to apply for the Institute, please check with your local departments first for materials; if they are not available, please contact:

Richard K. Sato
1987 NSSI
Scientific Computing Division
National Center for Atmospheric Research
P.O. Box 3000
Boulder, CO 80307

Telephone: (303) 497-1287

Using the EMAIL Feature on the IBM 4381 Front-end Computer

by Marla Meehl

Introduction

EMAIL is a TCP/IP-based facility on the IBM 4381 (IO) front-end computer that handles electronic mail transfer through the Ethernet connection. EMAIL does not use the NCAR Local Network (HYPERchannel), as do the TO, MSG, and MAIL facilities.

EMAIL allows you to send messages via electronic mail (e-mail) to any other user on the IBM 4381 computer or to a user at any node defined in the IBM 4381 IPNODES (TCP/IP address) host table (such as host computers on the USAN and NSFnet TCP/IP networks). See the section below for details on checking for valid nodes. The EMAIL feature also allows users on all other nodes to send messages to any user on the IBM 4381 via their local machine's mail function. Note: At this time, EMAIL does not allow you to relay or forward messages to other networks such as CSNET or BITNET.

This discussion of EMAIL assumes that you are familiar with the XEDIT text editor and commands. It is limited to screen-mode terminal operation only; the supporting software does not function very well in line-mode.

How to Send Messages Using EMAIL

To send a message from the IBM 4381 computer, enter:

EMAIL '*user_name*' AT '*node_name*'

Replace *user_name* with the user name of the recipient. This parameter is required. Replace *node_name* with the name of the remote computer that includes *user_name*. This parameter is required if the recipient is on a host other than the IBM 4381 computer.

Checking for Valid Node Names

The node name must be a valid node name as defined in the IBM 4381 host table, and must be eight characters or less. To check the validity of a node name, enter:

QNODE '*node_name*'

or

QNODE '*ip_node_address*'

Replace *node_name* with the name of the node you wish to check, or replace *ip_node_address* with the numeric TCP/IP network address you wish to check. **Note:** You cannot use the IP node address to actually send mail, since it may be longer than eight characters. You must use the node name instead.

HELP Files for EMAIL and QNODE

HELP files are available for these two facilities. Enter:

HELP EMAIL or EMAIL ?

to display the EMAIL HELP file.

Enter:

HELP QNODE or QNODE ?

to display the QNODE HELP file.

Editing Your Message

When you invoke the EMAIL command, it places you in the XEDIT editor environment. The heading for your message appears on the top half of the screen.

To start typing your message, you must enter the insert command on the command line at the bottom of the screen. Enter:

i <RETURN>

Type in and edit your message using XEDIT commands: for example, backspace, carriage return, arrow keys, and so on.

When you finish typing your message, enter:

<RETURN><RETURN>

When you are ready to send the message, press the PF5 key. (The PF keys correspond to various physical keys on your keyboard, depending on the type of terminal and emulation package you are using. If you are not sure which keys are your PF keys, contact Marla Meehl for information.)

Important Note: Do not save the file with the XEDIT FILE command. The file is automatically saved and appended to your ALL NOTEBOOK A file when you press the PF5 key.

After you have sent your message, a message appears on your screen, similar to the following example:

Note BILLR NOTE A0 sent to MARLA at SCD4381 on 01/21/87 13:57

NOTE added to ALL NOTEBOOK A0.

Important Note: A response like the one shown above does *not* indicate successful transmission via the TCP/IP network or completed delivery to the recipient. However, if your message is not delivered successfully, you should receive an error message within 15 minutes. If you experience excessive delays, please contact Marla Meehl at (303) 497-1301. If delivery is successful, you do not receive a message.

Undeliverable messages are put in your reader (RDR) as a file named RETURN MAIL. An error message appears at the top of the file. The following error message descriptions indicate why messages are not delivered and the corresponding error.

1. UNKNOWN NODE: The node name you specified is unknown to the IBM 4381. Check the host table with the QNODE command to make sure the specified name is in the table.
2. UNKNOWN USER: The user name you specified is unknown to the receiving node. If the recipient is on the IBM 4381 computer, you can check the user name by entering:

   WHOIS *user_name*

3. UNABLE TO DELIVER: The time limit has expired. The remote node may be down, the IBM Spartacus system may be down, or the network may be congested. Try sending the message again later or check with Marla Meehl.
4. UNABLE TO SAVE ON DISK: The mail system is out of disk space, or it sensed a disk error. Contact Marla Meehl.

Additional Features

EMAIL has useful features such as the cc: (carbon copy to:) option. For more information, display the EMAIL HELP file as shown above.

Receiving Mail Messages

Messages sent to you from a remote node on the TCP/IP network are also processed through the EMAIL function. The sender simply uses the remote computer's mailing feature and addresses the mail to you at SCD4381.UCAR.EDU (or just SCD4381 if the computer is on the local NCAR Ethernet).

The mail message appears in your reader (RDR). The filename is the user name of the sender and the filetype is MAIL.

To read EMAIL messages in your virtual reader, enter:

RDRLIST

RDRLIST displays a full-screen list of reader files. To read (PEEK) the file, press the PF11 key. To append (RECEIVE) the message to your ALL NOTEBOOK A file, press the PF9 key.

NOTE: Messages in your reader can be from two sources. If the mail is from a computer other than the IBM 4381 computer, you can read it using any of the reader (RDR) facilities provided, such as RDR, RDRX, RDRSCAN, and so on. However, if the message was sent by someone on the IBM 4381 computer using the EMAIL facility, it is in standard IBM "MAIL" format. Because this format is unique to the MAIL facility, you must use the RDRLIST command to look at such a message or to store it on your disk.

This article is a brief overview of the EMAIL facility. If you have questions, please call Marla Meehl at (303) 497-1301 or send electronic mail to MARLA@SCDSW1.UCAR.EDU (or to MARLA AT SCDSW1 if you are using EMAIL on the IBM 4381 computer) and include your name, your question, and your telephone number.

Marla Meehl is a telecommunications specialist in the User Services Section of SCD.

ECMFFT: Multiple Fast Fourier Transform Routines

by Alan McClellan

If you have a program designed to take advantage of transforming multiple vectors in one subroutine call, it is to your advantage to use the ECMFFT library, which is a binary library of real and complex Fast Fourier Transforms (FFTs) optimized for the CRAY computers. These transforms are frequently referred to as *Temperton* FFTs because they were originally written by Clive Temperton. They are also referred to as *Multiple* FFTs because they are capable of transforming many vectors within one subroutine call.

The ECMFFT library contains both real and complex transforms, which include the following subroutines:

Real Transforms:

FFT99 Given an array of real vectors, this routine returns a set of Fourier coefficient vectors. It also performs the inverse transforms.

FFT991 This routine performs exactly like FFT99, except that the coefficients are returned in a slightly different order.

FFTFAX: This is the initialization routine for FFT99 and FFT991.

Complex Transforms:

CFFT99 Given an array of complex vectors, this routine performs exactly like FFT99, except that REAL=COMPLEX.

CFTFAX This is the initialization routine for CFFT99.

If your program is not set up to take advantage of transforming multiple vectors in one subroutine call, it is recommended that you use FFTPACK on CRAY binary library $NCARLB instead of ECMFFT.

The European Centre for Medium Range Weather Forecasts (ECMWF) provided the source code for real transforms in October 1985 under a software exchange agreement. Dr. Robert Kerr of NCAR's Mesoscale and Microscale Meteorology provided the source code for complex transforms in July 1985.

Note: ECMFFT is a binary library maintained on the CRAY computers. While, generally speaking, the binary library will meet your needs, the source code for these transforms is available. For more detailed information or directions on obtaining the source code, see the document entitled "ECMFFT: Multiple Fast Fourier Transform Routines," which also describes general procedures and examples for using the real and complex transforms available in NCAR's ECMFFT library. To order this document, send mail TO MARYB on the IBM 4381 (IO) front-end computer or call Mary Buck at (303) 497-1201.

Assistant Editor Alan McClellan is a documentation student assistant in the User Services Section of SCD.

New Version of SLATEC Library Available

by Richard Valent

At NCAR, the SLATEC library is highly recommended to CRAY users because it

- is upgraded on a yearly basis,
- is maintained at many computing sites, and
- contains well-known mathematical software.

Version 3.0 of the SLATEC library is now available to NCAR's CRAY users. To use the new binary library in your CRAY jobs, include the following access statement:

```
ACCESS, DN=SLATEC, ID=XSLG.
```

Next specify LIB=SLATEC on subsequent LDR or SEGLDR invocations. If you want to invoke GETDOC or GETSRC on the 3.0 version of the source code, you may do so by specifying VAR=LIB00 in those commands, as in the following examples:

```
GETDOC (LIB=SLATEC,  DOC=(BDIFF:BKIAS), VAR=LIB00, L=$OUT)
GETSRC (LIB=SLATEC, FILE=(BDIFF:BKIAS), VAR=LIB00, L=SRC)
```

As is customary with new applications software on the NCAR CRAY computers, SLATEC version 3.0 will remain available to users in the manner explained above for about one month. On July 8, if no major problems are encountered, version 3.0 will become the default SLATEC library on the CRAY computers. Please report any related problems or concerns to Dick Valent at (303) 497-1302.

SLATEC 3.0 contains 1080 routines, as compared to 946 in version 2.0; there are 130 new routines, and 118 replaced routines. A list of the new routines is shown below; no descriptions are given because most of the new routines are double-precision versions of existing routines.

BDIFF	DCOV	DINTP	DPCHID	DPLPUP	DU11US	PSIFN
BKIAS	DCV	DLLSIA	DPCHIM	DPNNZR	DU12LS	RC
BKISR	DDES	DLPDP	DPCHIP	DPOLCF	DU12US	RD
BSKIN	DDIFF	DLSEI	DPCHMC	DPOLFT	DULSIA	RF
DBDIFF	DEFC	DLSI	DPCHNG	DPOLVL	DUSRMT	RJ
DBKIAS	DEFCMN	DMOUT	DPCHSP	DPOPT	DVOUT	SBOCLS
DBKISR	DES	DMPAR	DPCHST	DPRWPG	DWNLIT	SBOLS
DBNDAC	DFC	DNLS1	DPCHSW	DPRWVR	DWNLSM	SBOLSM
DBNDSL	DFCMN	DNLS1E	DPCOEF	DPSIFN	DWNNLS	SCLOSM
DBOCLS	DFDJC3	DNTERV	DPINCW	DQRSLV	DWRITP	SINTRP
DBOLS	DFSPVD	DP1VLU	DPINIT	DRC	DWUPDT	SMOUT
DBOLSM	DFSPVN	DPCHCE	DPINTM	DRD	GAMRN	SOPENM
DBSKIN	DFULMT	DPCHCI	DPLINT	DREADP	HKSEQ	SREADP
DBVLUE	DFZERO	DPCHCS	DPLPCE	DRF	ISWAP	STEPS
DCHFDV	DGAMRN	DPCHDF	DPLPDM	DRJ	LA05AD	SWRITP
DCHFEV	DGLSS	DPCHFD	DPLPFE	DSORT	LA05BD	USRMAT
DCHFMC	DH12	DPCHFE	DPLPFL	DSPLP	LA05CD	
DCHIV	DHFTI	DPCHIA	DPLPMN	DSTEPS	LA05ED	
DCOPYM	DHKSEQ	DPCHIC	DPLPMU	DU11LS	MC20AD	

The following list shows the replaced routines:

ASYJY	DBSGQ8	DPJAC	IPLOC	PCHIA	R1MACH	U11US
BESJ	DBSKNU	DPOCH	ISAMAX	PCHIC	RPZERO	XERABT
BSPDOC	DBSYNU	DPSI	IVOUT	PCHID	SCOV	XERCLR
CAXPY	DCHU	DQAGPE	J4SAVE	PCHIM	SPINCW	XERCTL
CDCDOT	DCOT	DQAWO	LA05AS	PCHIP	SPINIT	XERDMP
CFFTB	DDEABM	DQAWOE	LA05BS	PCHMC	SPLP	XERMAX
CFFTF	DDEBDF	DQRFAC	LA05CS	PCHNGS	SPLPCE	XERPRT
CHFDV	DEABM	DRSCO	LA05ES	PCHSP	SPLPDM	XERROR
CHFEV	DERF	DSLVS	MC20AS	PCHST	SPLPFE	XERRWV
CHFIV	DGAMIC	DSTOD	MENU	PCHSW	SPLPFL	XERSAV
CHFMC	DGAMIT	DSVCO	NUMXER	PINITM	SPLPMN	XGETF
COST	DGAMMA	FDUMP	PCHCE	PNNZRS	SPLPMU	XGETUA
D1MACH	DGAMR	FULMAT	PCHCI	PRWPGE	SPLPUP	XGETUN
DASYJY	DINTYD	FZERO	PCHCS	PRWVIR	SPOPT	XSETF
DBESJ	DLGAMS	I1MACH	PCHDF	QAGPE	SSPEV	XSETUA
DBETAI	DLNGAM	ICAMAX	PCHFD	QAWO	SVOUT	XSETUN
DBINOM	DLSOD	IDAMAX	PCHFE	QAWOE	U11LS	

Richard Valent is a CRAY software librarian in the User Services Section of SCD.

New Telenet Logon Procedure

by Suzanne Brossard

Introduction

As of June 15, 1987 there is a new logon procedure for Telenet users. This procedure affects those users who currently enter "3037" at the Telenet prompt to connect to NCAR.

The new procedure allows either full-screen full-duplex access, line-mode half-duplex access, or line-mode access using the SIMWARE full-screen emulation software. This article describes these three ways of accessing our computer systems.

Preliminary Steps

The first three steps to follow in using each of the three types of access are identical:

1. At your modem prompt, enter the correct Telenet phone number.
2. After receiving the "CONNECT XXXX" message, you must indicate whether you are using 1200 or 2400 baud access. For 1200 baud, enter:

   <RETURN><RETURN>

   For 2400 baud, enter:

   @<RETURN>

3. When your terminal displays the "TERMINAL=" prompt, enter:

   u2<RETURN>

Full-screen Mode

To enter full-screen mode, follow the steps below.

1. At the "@" prompt, enter either of the following two commands:

   3037.50 <RETURN>

   or

   3038.50 <RETURN>

   Note: Both responses provide identical access. If your access is blocked through one entry, try the other. There are more access lines available on 3038 than 3037.

2. When you see the '303 7 CONNECTED' or the '303 8 CONNECTED' message, enter:

   <RETURN>

3. At the "Enter class:" prompt, enter:

   tio<RETURN>

4. At the "ENTER TERMINAL TYPE:" prompt, enter:

   terminal_type<RETURN>

   where *terminal_type* is the code for the type of terminal you are using.

   Note: Press <RETURN> (with no code) for a list of the available terminal types.

5. After the full-screen "NCAR" logo appears, enter:

   <RETURN>

6. To log on to the IBM 4381 (IO) front-end computer, enter:

   l *login_ID*<RETURN>

   where *login_ID* is your login ID.

7. After the "ENTER PASSWORD..." message appears, enter:

   password<RETURN>

   where *password* is your password.

8. To run your PROFILE EXEC and begin your interactive session, enter:

   <RETURN>

Line-mode Access

To enter half-duplex line-mode, follow the steps below.

1. At the "@" prompt, enter either of the following two commands:

   3037.50 <RETURN>

   or

   3038.50 <RETURN>

2. When you see the '303 7 CONNECTED' or the '303 8 CONNECTED' message, enter:

   <RETURN>

3. At the "Enter class:" prompt, enter:

   ti3725<RETURN>

4. After the "WARNING..." message appears, enter:

   <RETURN>

   or

   <BREAK>

5. To log on to the IBM 4381 (IO) front-end computer, at the "." prompt, enter:

   l *login_ID*<RETURN>

   where *login_ID* is your login ID.

6. After the "ENTER PASSWORD..." message appears, enter:

   password<RETURN>

   where *password* is your password.

7. If your terminal is not echoing commands and you wish to start command echoing, enter:

   <RETURN>@<RETURN>

   and at the "@" prompt, enter:

   set 2:1<RETURN>

8. To return to your interactive session, enter:

   cont<RETURN><RETURN>

   Note: You can also set echo to on by setting your PC (via software) or terminal to half-duplex or echo on.

SIMWARE Line-mode Access

To enter full-screen emulation line mode using the SIMWARE software package, follow the steps below.

1. Follow the line-mode access procedure described above through Step 4. When the "." prompt appears, enter:

   dial sim3278 <RETURN>

   Note: You may not see these commands echoed.

2. At the "ENTER TERMINAL TYPE:" prompt, enter:

   terminal_type<RETURN>

   where *terminal_type* is the code for the type of terminal you are using.

Note: Press <RETURN> (with no code) for a list of the terminal types that are available with SIMWARE.

3. After the full-screen "NCAR" logo appears, enter:

   <RETURN>

4. To log on to the IBM 4381 (IO) front-end computer, enter:

   l *login_ID*<RETURN>

   where *login_ID* is your login ID.

5. After the "ENTER PASSWORD..." message appears, enter:

   password<RETURN>

   where *password* is your password.

6. To run your PROFILE EXEC and begin your interactive session, enter:

   <RETURN>

7. If the echo is not already on, you can turn it on by entering:

   <RETURN>@<RETURN>

   and at the "@" prompt, enter:

   set 2:1<RETURN>

8. To return to your interactive session, enter:

   cont<RETURN><RETURN>

   Note: You can also set echo to on by setting your PC (via software) or terminal to half-duplex or echo on.

If you have questions or problems with the new Telenet access procedures, please contact Marla Meehl at (303) 497-1301 or Suzanne Brossard at (303) 497-1299, or send electronic mail on the IBM 4381 (IO) computer TO MARLA or TO BROSSARD, respectively.

Suzanne Brossard is a telecommunications student assistant in the User Services Section of SCD.

REMOVE: Deleting Permanent Datasets from the CRAY Disks

by Richard Valent

Introduction

In recent months, the consultants have observed several examples of incorrect use of the REMOVE utility on the NCAR CRAY computers. This article describes the REMOVE command, which allows you to delete an edition or all existing editions of a permanent dataset that is stored on the CRAY disks. It discusses the usage, input parameters, and special conditions, and also supplies examples.

The Scientific Computing Division (SCD) staff wrote REMOVE in June 1982 and last revised the program in March 1987. This article is also available as a separate document of the same title; it replaces the Consulting Office document entitled "REMOVE," September 1984.

Usage

The format of the REMOVE command is as follows:

REMOVE, PDN=*pdn,* ED=*ed,* M=*m,* ID=*id.*

Input Parameters

PDN=*pdn* — Replace *pdn* with the name of a permanent dataset you wish to delete. This is a required parameter.

ED=*ed* — Replace *ed* with the edition number of the permanent dataset you wish to delete. If you do not specify the ED parameter, REMOVE deletes all editions of the permanent dataset.

ID=*id* — Replace *id* with the permanent dataset identifier. If you defined *id* at the time the job was saved, you must specify the ID parameter on the REMOVE control statement. The default value for ID is a null string. Please use an *id* specific to your job runs in order to prevent dataset conflicts as explained under the "Special Conditions" section below.

M=*m* — The value of M is the maintenance control word you specified when the job was saved. If you specified a value for M at save time, you must replace *m* with that value on the REMOVE control statement.

Special Conditions

- If there are no editions of the permanent dataset specified in the REMOVE statement, the job continues execution.
- If an edition of the specified permanent dataset exists, but the job is unable to remove it, the job aborts (for example, if the maintenance control word M is missing or incorrect).
- **Important Note:** If you share a PDN and ID with other users, a problem may occur because it is possible for a job to execute REMOVE successfully and then to be rolled out

or suspended. In the meantime, another job may ACQUIRE another edition of the permanent dataset with the same ID, and that other edition may be resident when the first job rolls back in. This first job then ACQUIREs that edition of the PDN from the CRAY disks and continues execution with what may well be invalid data belonging to the permanent dataset. To avoid this problem, you should carefully select unique PDN and ID pairs when creating CRAY files.

Examples

Example 1 The REMOVE format for deleting all existing editions of the dataset CIRRUSCLOUD:

```
REMOVE, PDN=CIRRUSCLOUD.
```

Example 2 The REMOVE format for deleting Edition 3 of the dataset CIRRUSCLOUD:

```
REMOVE, PDN=CIRRUSCLOUD, ED=3.
```

Example 3 The REMOVE format for deleting all existing editions of the dataset CIRRUSCLOUD with ID=CASE4 and M=XYZ:

```
REMOVE, PDN=CIRRUSCLOUD, ID=CASE4, M=XYZ.
```

Caution

For historical reasons, the DN parameter is supported for REMOVE. However, DN is an obsolete parameter and its use is *not* recommended. If you must use it, please be sure it follows the rule of being shorter than eight characters.

Richard Valent is a CRAY software librarian in the User Services Section of SCD.

SCD Advisory Panel Meeting Schedule

Revised Review Process for Small Requests

Following a recommendation made by the SCD Advisory Panel at its meeting on April 6, allocations of computer resources up to 50 General Accounting Units (GAUs) will, in the future, be made by the Director of SCD after preliminary peer review. Requests for 20 GAUs or less will be sent to one reviewer. Larger requests will be sent to at least two reviewers. If the Director has concerns regarding a request, he may refer it to the Panel at his discretion. The Panel will conduct a post hoc review of allocations made by the Director.

Requests that entail a total commitment of more than 50 GAUs to a project will continue to be reviewed by the Panel after preliminary peer review.

Users are reminded that projects should be described in sufficient detail for realistic review. It is also important to justify carefully the amount of resources requested.

Next Panel Meeting

Requests for a total of more than 50 GAUs on the NCAR CRAY computers must be considered by the SCD Advisory Panel, which will meet October 1-2, 1987. University users should submit large requests to John Adams of the Scientific Computing Division by July 24, 1987. Nine to ten weeks are needed for the preliminary review of requests and for the preparation, printing and distribution of Panel materials. Please note that requests for 50 GAUs or less can be processed at any time.

Documentation Update

SCD Documentation

"ECMFFT: Multiple Fast Transform Routines," by Richard Valent, Version 1.1, May 1987.

(See the article on ECMFFT in this issue.) This document describes general procedures and examples for using the real and complex transforms available in NCAR's ECMFFT library. It contains both a general description and an algorithm description of these FFT routines. This version replaces the Consulting Office document entitled "ECMFFT on the NCAR CRAY Computers."

"SPY: A Timing Information Utility," by Richard Sato, Version 1.0, April 1987.

SPY provides timing information about program execution, which can help you cut down the CPU time of your programs. SPY is available on both CRAY computers.

"REMOVE: Deleting Permanent Datasets from the CRAY Disks," by Richard Valent, Version 1.1, May 1987.

This document describes how to delete an edition or editions of a permanent dataset that is stored on the CRAY disks. It discusses usage, input parameters, and special conditions. This version replaces the Consulting Office document entitled "REMOVE."

"Collected Algorithms of the ACM, 1975-1979 and 1980-1984," by Michael Pernice, Version 1.1, April 1987.

This document provides a summary of the software collection of the Association for Computing Machinery (ACM) that is available at NCAR. The text briefly summarizes over 130 mathematical software algorithms. The summary of each algorithm includes the NCAR classification category (as used in the "NCAR Software Catalog") for the algorithm, as well as references to full descriptions and further information This document replaces the April 1986 document of the same name.

"Using DROPJQ to Drop Jobs from the CRAY Job Queues," by Barb Horner-Miller and Gene Schumacher, Version 1.1, May 1987.

This document explains how to access the job queue status display to determine your job status and your job name or job queue sequence number, and how to drop jobs that are queued for a job execution slot on the CRAY computers. It gives the command formats, describes the parameters, and provides an example of how to drop a job from the CRAY job queue using either the CRAY computers or the IBM 4381 (IO) front-end computer.

To order SCD documentation, send electronic mail TO MARYB on the IBM 4381 (IO) front-end computer, or call Mary Buck at (303) 497-1201. Allow two weeks for delivery. Users at the Mesa Laboratory can obtain SCD documentation from the bookshelves and filing cabinet in the SCD Consulting Office, Room 17, in the first basement.

Minutes of the SCD Users Group Meeting

April 23, 2987

Ray Bovet (HAO) called the meeting to order. No corrections or additions were made to the March SCDUG minutes and they were approved. Bovet introduced Dr. Buzbee to the Group.

Discussion with SCD's Director — Dr. Bill Buzbee

Dr. Buzbee stated that he was delighted to be a part of SCD. Because he was trained as a mathematician and has spent quite a number of years using supercomputers, he has always considered himself a user. Consequently, he will welcome input from the SCD Users Group.

Questions:

1. UNIX

   Dick Friesen (ATD), inquired about SCD's UNIX conversion concept, method and approach.

   Dr. Buzbee replied that a conversion to UNIX, if such occurs, will be a long-term project. He stated that many people believe UNIX will be the world's standard operating system, not only for supercomputers but essentially for the entire spectrum of computers. However, UNIX on supercomputers has drawn mixed reviews among the user communities that he is familiar with. At Los Alamos, UNICOS is being run on one CRAY a few hours a day and a number of measurements have been made. As of yet, every application has run as fast under UNICOS as CTSS. This says something about I/O, system efficiency, and so on. In the long-term, SCD will likely go to UNIX, but it will take some evolution and development. UNIX will be whatever SCD wants it to be. Over the next few months, SCD will study some of the key issues in making a transition to UNIX.

2. Hardware Procurement/Software Development

   Tom Mayer (CGE/AAP) asked Dr. Buzbee where SCD places its priorities in terms of hardware procurement or software development.

In the area of software, there are certain areas of emphasis:

a. Distributed Computing:

— Will be a big part of SCD's future.

— Needs to be planned carefully.

— Has major implications in networking, and other areas.

b. Improving the ease of using supercomputers for the user:

— Emphasize to the SCD staff that more thought be given to the user interface, especially concepts that are found in the desktop world.

3. Hardware Procurement

Dr. Buzbee commented that now is the time to start thinking about the next generation of equipment and to begin some preparation. The next generation of equipment, whether it be a CRAY-II, CRAY-III, or whatever, will have to be justified in the context of the science it will be used to support. In some sense, this is the user's problem. SCD will certainly help put the case together. To better understand what the requirements are will require close collaboration between the user community and SCD.

4. Distributed Computing

Mayer commented that currently, front-ending for the CRAY is distributed somewhat between SCD and scattered between the other divisions. He asked about SCD's role in perhaps coordinating this type of distributed computing.

Greg Woods (HAO) added that the fact that a computer must be attached to the HYPERchannel* to be able to submit jobs to the CRAY is currently a big problem. The host adapter box that attaches to the HYPERchannel costs $50,000, and one can buy a fair chunk of computing power for this amount of money. Currently people are buying computers that cost that much or less with Ethernet capability, but they cannot be attached to the HYPERchannel.

Joe Choy (SCD) reported that SCD, all NCAR divisions, and the NCAR Director's Office see a need for a centralized gateway computer for all divisions to use for accessing the CRAY computers from their local computers. Joe informed the Group that he had chaired a committee for Dr. Anthes addressing this issue. A written proposal from this committee, was approved; it proposed that for the interim, and until the long-term plan can be implemented, SCD will host a VAX 11/750** for those individuals using the DECNET** protocol. The long-term plan entails bringing in another gateway computer like the USAN gateway computer for NCAR divisions only. In principal, Dr. Anthes is committed to the long-term plan, provided funds can be made available. (Funds for the long-term plan must be appropriated in FY 88). Joe informed the SCDUG members that if they feel that this is an important part of what they want to see here at NCAR, they need to recommend that monies for this purpose be made available in the NCAR FY '88 budget.

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* HYPERchannel is a trademark of the Network Systems Corporation.

** VAX and DECNET are trademarks of the Digital Equipment Corporation.

5. Graphics

Mayer stated that one of the big problems SCD has experienced is that of matching various resources to the users — specifically, being able to upgrade to a CRAY X-MP, but being unable to upgrade graphics facilities.

Paul Bailey (ACD) commented that users want graphical output. Dr. Buzbee said he is optimistic that SCD will be able to increase graphics capacity. The capability aspect will also need to be addressed. Certainly, when one increases computing capacity, demands on all other components of the system go up (for example, storage, output, and so on). So SCD must try to maintain a balanced system.

Dr. Buzbee asked the Group if there was interest in video tapes. Paul Bailey commented that the users have been asking for this capability for over three years and that there is virtually no color output capability here at NCAR. AAP is planning to purchase a SUN-3* workstation with the capability of interactive color graphics.

Dr. Buzbee commented that over the next few months, SCD will seek counsel from the SCD Users Group on this particular topic. He stressed that if the users want color graphics, it's important that NCAR management be informed of this, as well as NCAR divisional management.

6. SCDUG's Role

Bovet asked Dr. Buzbee in what ways he would like to get input from the user community at NCAR, and what role he sees the SCDUG serving. Dr. Buzbee stated that one of the recommendations out of the SPEC Review addresses this issue. SCD needs to think about this and perhaps the User Group should also consider it. One area where the user community can help is in setting priorities. Somebody has to prioritize and decide what is going to be done and what is not going to be done. In making these decisions one tries to cover the needs of as many people and as many projects as is possible. SCD management will be thinking of ways in which the user community can assist SCD in doing this.

Dr. Buzbee commented that he places high priority on users and urges users to call him or to stop by his office.

Current Status — B. O'Lear

Disk Farm

O'Lear explained that the disk farm is up and there are now about four friendly users testing it. He asked people to sign up if they wish to be a friendly user during this test period. Dave Kitts (SCD) will assess the need for additional users and will call upon the users as the need arises.

* SUN-3 is a trademark of Sun Microsystems, Inc.

Xerox Laser Printers

A question was asked about the status of printing plot files on the laser printers. One of the biggest problems is doing metacode translation on the IBM 4381 Mass Storage Control Processor (MSCP) and O'Lear was asked if there is any way of improving this.

He replied that friendly users' graphics files are currently going to the IBM 4381 MSCP and to the Xerox 4050 Laser Printers. The software purchased from Xerox is exceedingly slow and needs optimizing. One of the current discussions in Systems is centered on how graphics I/O should be handled.

Future Agenda Items

Bob Lackman will give a presentation at the next SCDUG meeting regarding the issues of graphics. O'Lear will give a presentation on the IEEE meeting scheduled for May 10 in Tucson, and will also address the issue of one-half inch tape access on the mass storage system.

Important Note: The next meeting of the SCD Users Group will be on Tuesday, May 26, 1987, in the Damon Room at 1:30 p.m.

Summary of Daily Bulletin Items

CRAY Computers

CRAY COMPUTERS
A change was made to the operating system of the CRAY computers today. The change should be transparent to users, but if you encounter any problems, please contact the Consulting Office at (303) 497-1278. (April 13)

CRAY,CX FORTRAN COMPILER CHANGE
On Wed., Apr. 18, the default FORTRAN compiler on the CRAY,CX will be changed to the 1.15 Bugfix 2 compiler. The previous default compiler will still be available to CRAY,CX users. If you have problems with the new compiler, please notify Jim McInerney or Tom Engel at (303) 497-1297 or the Consulting Office at (303) 497-1278. (April 14)

CRAY,CX APPLICATION LIBRARY CHANGES
Today, April 16, applications libraries that have been compiled under the CFT 1.15 Bugfix Level 2 version of the compiler will be installed on the CRAY,CX computer. The following libraries are affected:

$NCARLB	EISPKD	IMSL	PORT
AMOSLIB	FITPACK	ITPACK	SLATEC
ECMFFT	FUNPACK	LINPACK	SSDLIN
EDA	GGLNCAR	MINPACK	STARPAC
EISPACK	GKSNCAR	NAG	STATLIB

If you have problems with any of these libraries, contact Dick Valent at (303) 497-1302. (April 16)

CFT 1.16 NOW AVAILABLE ON CRAY,CX
The Beta-test version of the CFT 1.16 compiler is now available for testing on the CRAY,CX computer. All users are invited to run tests on the compiler and report any problems to Jim McInerney or Tom Engel at (303) 497-1297.

The CFT 1.16 compiler generates code that requires use of the segment loader (SEGLDR) and also requires use of the 1.16 version of $ARLIB. To avoid incompatibilities between the default $ARLIB and SEGLDR and those needed by CFT 1.16, a procedure has been installed on the CRAY,CX computer to access the proper datasets for testing the compiler. If you wish to test code with the new compiler, include the following JCL statement

CFT116.

prior to attempting to compile or load. The 1.16 compiler has several new optimization features and should produce code that executes faster than that generated with CFT 1.15; compile times should be slightly slower. (April 30)

NEW C COMPILER RELEASE ON CRAY,CX
The new release of the CRAY C compiler (C 2.0) is now the default C compiler on the CRAY,CX computer. The new compiler performs more optimization and adds automatic vectorization of inner FOR loops. Please report any problems with the C compiler to either Jim McInerney or Tom Engel at (303) 497-1297. (May 5)

BG3 CLASS TO BE REMOVED FROM CRAYS
Overuse of the BG3 (Background 3) class to the exclusion of the other job classes has resulted in inadequate charging for CRAY use. To correct this problem, the BG3 class will be removed from the job class structure on both CRAY computers at 08:00 on Monday, May 11. Any jobs still queued for BG3 at that time will be dropped. Note: the appropriate class to use for low-priority production runs is BG2. (May 6)

CRAY APPLICATIONS SOFTWARE NAME CHANGE
Due to a name conflict, LOCLIB source file CFFT99 was renamed CFFT99F on Thursday, May 7. None of the CRAY binary libraries are affected. Please address related questions or concerns to Richard Valent at (303) 497-1302. (May 7)

IBM 4381 (IO) Front-end Computer

IBM 4381 (IO) OS CHANGED
The operating system on the IBM 4381 (IO) front-end computer was changed today. This change should be transparent to users. Contact the Consulting Office at (303) 497-1278 with problems. (April 21)

Computer Resources Allocated in April 1987

SCIENTIST	PROJECT TITLE	GAU Request	GAU Alloc.
Norman L. Miller University of Wisconsin-at Madison	Collection efficiency of aerosols by snow crystals	3.0	3.0
John L. Stanford Iowa State University	Investigations of large-scale atmospheric circulation	22.0	22.0
Robert L. Grossman University of Colorado	Genesis of Atlantic laws experiment (GALE) Boundary layer studies using aircraft	12.0	12.0
Roland W. Garwood, Jr. Naval Postgraduate School	Thermally coupled one-dimensional air ocean model	6.67	6.67
Wolfgang Kouker University of Washington	3-D modeling of transport in the middle atmosphere	40.0	40.0
* John S. Allen (OCE) Oregon State University	Intermediate model for flow over the continental slope	100.0	100.0
* Douglas R. MacAyeal University of Chicago	Modeling ice-shelf flow and response to climatic change	15.0	15.0
Ernest M. Agee Purdue University	Heat flux transitions in thermal convection	10.0	10.0
* Worth Nowlin (OCE) Texas A & M University	A first World Ocean Circulation Experiment (WOCE) community modeling effort	1,432.0	1,432.0
* Dale B. Haidvogel (OCE) Johns Hopkins University	A balanced model of the gyre-scale ocean circulation	340.0	340.0
* Barbara N. Hale University of Missouri-Rolla	Ice formation in absorbed water layers: comparison with bulk ice properties	45.9	20.0
* Philip S. Marcus Harvard University	Stability and equilibria of non-axisymmetric streams	103.3	103.3

SCIENTIST	PROJECT TITLE	GAU Request	GAU Alloc.
* Kelvin K. Droegemeier Douglas K. Lilly University of Oklahoma	Numerical simulation of thunderstorm initiation and subcloud phenomena	358.0	358.0
* Richard J. Pearson Colorado State University	DYCOMS budget and entrainment measurements	15.0	15.0
* Peter B. Rhines (OCE) University of Washington	Spin-up of the wind-driven ocean circulation	80.0	80.0
* Timothy J. Dunkerton Northwest Research Associates, Inc.	Nonlinear instabilities of rotating, stratified shear flow	60.0	60.0
* Stephen G. Warren University of Washington	Solar and infrared radiation modeling for the polar regions	75.0	75.0
* Douglas K. Lilly University of Oklahoma	Phoenix 2 radar data analysis	45.0	45.0
* Frederick H. Carr University of Oklahoma	Four-dimensional data assimilation	52.8	52.8
* Roland B. Stull University of Wisconsin	Simulation of fair weather cumulus onset - BLX83	53.4	53.4
Carlos R. Mechoso Akio Arakawa UCLA	Frontal instability and upper level frontogenesis	16.0	16.0
* Eugene S. Takle Iowa State University	Modeling boundary layer flows	29.0	29.0
* Robert J. Oglesby Yale University	Paleoclimatic implications of closing the Drake Passage	70.0	50.0
* V. Ramanathan University of Chicago	Cloud-climate interactions: CCM studies	50.0	50.0
* Eric J. Pitcher University of Miami	CCM studies of climate anomalies	109.0	90.0

SCIENTIST	PROJECT TITLE	GAU Request	GAU Alloc.
* Jenn-Luen Song Colorado State University	Methodology of evaluating cumulus parameterization techniques for use in sub-synoptic domains	162.0	162.0
* David G. Murcray University of Denver	Laboratory spectra of atmospheric trace gasses	38.0	38.0
* Steven L. Guberman Institute for Scientific Research	Theoretical studies in aeronomy	57.1	57.1
* Mark Gregory Hadfield Colorado State University	Effect of microscale surface features on the convective boundary layer	40.0	40.0
* John Molinari State University of New York at Albany	Cumulus convection in mesoscale models	92.0	92.0
* Robert L. Gall University of Arizona	Gravity wave generation during frontogenesis	80.0	80.0
* James R. Holton University of Washington	Stratospheric general circulation modeling	203.0	203.0
* Graeme L. Stephens Colorado State University	Modeling radiation properties of cirrus clouds	16.0	16.0
* Rui Xin Huang (OCE) Woods Hole Oceanographic Institution	A hybrid multi-layer model for the ocean circulation	96.0	96.0
* Albert J. Semtner, Jr. (OCE) Naval Postgraduate School	Interannual variability of Arctic Ocean and ice	38.0	38.0
* Mark DeMaria North Carolina State University	Global aspects of tropical cyclone modeling	28.7	28.7
* William R. Cotton Roger A. Pielke Colorado State University	Application of nested-grid version of RAMS to QPF and LES	250.0	250.0

SCIENTIST	PROJECT TITLE	GAU Request	GAU Alloc.
* Kerry A. Emanuel Massachusetts Institute of Technology	Baroclinic instability with surface fluxes and convection	36.0	36.0
* T. N. Krishnamurti Florida State University	Tropical dynamics	340.0	340.0
* Paola M. Rizzoli (OCE) Massachusetts Institute of of Technology	Modeling of the eastern Mediterranean general circulation under different driving forces	20.0	20.0
**Michael E. Schlesinger Oregon State University	GCM cloud parameterization	177.0	177.0

* These requests were reviewed by the Scientific Computing Division Advisory Panel on April 6-7, 1987.

** This request was reviewed by the Scientific Computing Division Advisory Panel on September 29-30, 1986.

OCE These allocations were made from the 10% of SCD's computing resources earmarked for University Oceanography.

Note: A request may be supported at a lower level than requested because:

a. It exceeds the 50 GAU limit (roughly equivalent to 25 CPU hours in the Foreground 2 class) above which Panel review is required; or

b. Reviewers consider the amount of time requested to be excessive.

Summary of NCAR Computer Use for April 1987

CRAY,CX COMPUTER

	April		Fiscal YTD	
	Total	Day Avg.	Total	Day Avg.
Processor Hours in the Month	2880.00	96.000	14496.00	96.000
less Scheduled PM	27.40	0.913	125.35	0.830
less Hardware Downtime	3.77	0.126	60.44	0.400
less Software Downtime	0.60	0.020	8.92	0.059
less Environmental Downtime	14.45	0.482	38.03	0.252
less Operations Use	0.03	0.001	2.27	0.015
less Other Causes	0.12	0.004	1.67	0.011
Processor Hours Up	2833.63	94.454	14259.32	94.433
less Systems Checkout	0.18	0.006	4.37	0.029
Processor Hours Avail. to Users	2833.45	94.448	14254.95	94.404
less Idle Time	623.57	20.786	1882.04	12.464
Processor Hours in Use	2209.88	73.663	12372.91	81.940
% Available Hours Used	77.99 %		86.80 %	

CRAY,C1 COMPUTER

	April		Fiscal YTD	
	Total	Day Avg.	Total	Day Avg.
Processor Hours in the Month	720.00	24.000	5088.00	24.000
less Scheduled PM	18.00	0.600	116.77	0.551
less Hardware Downtime	0.00	0.000	23.28	0.110
less Software Downtime	1.42	0.047	10.22	0.048
less Environmental Downtime	14.32	0.477	48.02	0.227
less Operations Use	1.20	0.040	4.23	0.020
less Other Causes	0.18	0.006	1.97	0.009
Processor Hours Up	684.88	22.829	4883.51	23.035
less Systems Checkout	0.22	0.007	3.38	0.016
Processor Hours Avail. to Users	684.66	22.822	4880.13	23.019
less Idle Time	38.58	1.286	268.24	1.265
Processor Hours in Use	646.08	21.536	4611.89	21.754
% Available Hours Used	94.37 %		94.50 %	

The Record

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