Annual Reports of Activities

Roy Jenne
19 July 2000

Each spring I write a report to summarize my activities during the previous year. I include enough information that these reports give a rather good history of the projects of our Data Support Section. The reports are usually about 8 pages long. The documents included here are:

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1978-79

May 23, 1979

MEMO TO: Stu Patterson

FROM: Roy Jenne

SUBJECT: Information for Annual Review

During the past year my main activities have been:

1. Helped to define the data management procedures for MONEX. Visited the centers in New Delhi and in Malaysia. This activity also served the purpose of obtaining more information about climate data and helped to encourage its preparation for easy use. This took about 5 weeks of my time.

2. My major activity has been to manage the Data Management Component of the National Climate Program. From Aug. 78 through Jul. 79, I am spending three-fourths of my time in Rockville, Md. as a contribution by NCAR-NSF to this interagency planning and coordination function. This task has taken much time and effort. We recently (May 1979) finished the third version of the National Climate Preliminary 5-Year Plan. I am now trying to spend more time to analyze data strategies for satellite data in NASA and NOAA so that data volume and problems don't preclude its use for long term climate analyses. Archives of conventional data (observations and analyses for land and ocean areas) are also being looked at.

3. I have gathered more material for the text of a publication "The Global Data Base for Climatic Research" and produced a new draft of it.

4. In the Data Support Section of the Computing Facility, we have continued to make more data sets readily available. During the year, we added major sets of rawinsonde data from Australia, NZ, and the UK. Much of the effort also goes into keeping up to date with the data archive and in servicing customers at NCAR and the universities.

PLANS:

When the direct national climate planning involvement is reduced, I plan to work on these projects:

1. Finish the Climate Data publication in #3 above.
2. Work on a publication with NCC to make surface monthly data more readily available.
3. Complete a publication being done for an ICSU committee on Space and Time Dependent Data. The publication discusses data handling, display, and analysis methods. The Canadian chairman has had trouble getting funding, but as a chairman for the field of meteorology, I plan to publish the material outside of the ICSU channel if necessary. Many authors already have contributed valuable information.
4. We will continue to carry on various projects to update and extend the coverage of data at NCAR.
5. Although most of my time will remain involved in data set planning and preparation and in research support, I plan to again increase my involvement in research projects, concerning climate questions.
6. I will continue involvement in national and international data planning and coordination so that climate data will be easier to obtain, even though much of it won't be archived at NCAR.

Attached is a copy of biographical data identical to that submitted to you for use in the recommendation for Senior Specialist. I hope that this information, together with the above comments, will be sufficient for the review of my past years activities.

Certain of the references attached to this biographical statement are being contacted. I assume that the returns from these contacts could also be used for the Annual Review, if any are required.

-End of Memo-

/smg
1979-80

28 May 1980

MEMO TO: Walter Macintyre

FROM: Roy Jenne

SUBJECT: Information for Annual Review

During the past year I have been involved in a number of activities that will gradually make necessary data more readily available. This includes work in national and world climate planning, and interactions with people in many organizations. Our Data Support Section at NCAR has continued its activities to obtain, prepare and update data sets. We will now give additional information about some of the year’s activities.

A. National Climate Activities.

From Aug 1978 through 4 Aug 1979 I spent 80% of my time working in the National Climate Program Office, Rockville, Md. The Climate Act was signed by the President in Sept 1978: the charge to the office was to prepare a plan which included programs of the various agencies of the Federal Government (NSF, NOAA, NASA, DOI, DOE, etc.). My primary contribution was to prepare a background document for data management which included more details about actual data set options and methods than could be included in the national plan.

During the year in Washington, work was funded and started on a project to prepare observations (10,000 stations) in a more compact archive (was on 700 tapes). Also work on ship data and satellite microwave data was started. Many activities were pushed which should slowly produce results in making it easier to obtain data for climate research and application.

I have made three 5-day trips to the Washington office after
leaving there. During the Apr 1980 visit I gave a talk on the proposed world data program.

B. Work on World Climate Program Planning in Geneva

I spent 7 weeks at the World Meteorological Organization in Geneva during Jan-Feb 1980 to help plan activities for the data component of the world program. I prepared a draft of a 165 page document "Planning Guidance for the World Climate Data System." It is now under review. A related letter from WMO is attached.

*Note: It was published by WMO in Feb 1982 (it is WCP-19). A copy will be on-line at NCAR.*

While there, I also was involved with others in preparing information about referral systems and a text about data requirements for Applications.

C. Data Support Section, NCAR

Our section of the Computing Facility acquires and maintains archives of meteorological and related data for use by NCAR, the Universities and other research groups. There were a number of large orders for data. For example, Kyoto University in Japan received nearly 200 tapes of upper air data. For outside users, we read about 1400 tapes to prepare data on 780 tapes for shipment. Other people used our archives by submitting programs by remote entry.

We update data or obtain new data from a number of organizations, national and foreign. The correspondence and activities necessary to obtain some data stretches out over a period of many years. Thus it is an activity that takes some continual involvement.

I have been involved both in obtaining selected data, and in trying to influence data practices so that the information isn't so difficult and costly to obtain.
D. Visited USSR under exchange program

For several years I have been involved in trying to get a more active data exchange program going with the USSR. For this reason I was a member of the Oct 1979 delegation. I visited the Main Geophysical Observatory (MGO) in Leningrad, the USSR's main data archive near Moscow, and attended a climate modeling conference in Tbilisi. At the MGO I gave a talk which included the showing of a short movie about the 500 mb circulation. At Tbilisi I gave a paper about available data. Based on many conversations there, I have prepared information about the history of the USSR observing network and about the status of USSR data sets. They gave me some new written information about their data sets which has just been translated.

I am now working with NOAA to try to get the exchange working; only a minor amount of data has been sent/received so far.

E. Large data sets

In the USA and elsewhere, there is a good deal of trouble in using data because of the size and organization of the data sets. Thus I have been trying to spend more time to analyze strategies for preparing satellite data in NASA and NOAA. There are also sets of conventional data that present similar problems.

F. Information about data sets

I have continued to gather material for the text of a publication (draft is available): "The Global Data Base for Climatic Research."

Additional information about US data is routinely gathered. Also I am working with US agencies on overall inventory problems.

G. Academy committee on data

I have been appointed to serve on the Committee on Geophysical Data (CGD) of the NAS/NRC for the period 1 Jan 1980 - 30 June 1983.
H. Plans

I plan to work on these projects:

1. Finish or extend the publication: "The Global Data Base for Climatic Research."

2. Continue involvement in the specification of archives of data for cloud studies.

3. Complete a publication being done for an ICSU committee on Space and Time Dependent Data. The publication discusses data handling, display, and analysis methods. The Canadian chairman has had trouble getting funding, but as the chairman for the field of meteorology, I plan to publish the material outside of the ICSU channel if necessary. Many authors already have contributed valuable information.

4. Our NCAR group will continue to carry on various projects to update and extend the coverage of data at NCAR.

5. Continue involvement in national and international data planning and coordination so that climate data will be easier to obtain, even though much of it won’t be archived at NCAR.

I. Publications


Contributed to:


Other less formal writeups:

a. Data available for cloud studies (Sept 1979)

b. Large data sets - condensed data sets

c. A proposal to organize NOAA Satellite data and prepare new sea surface temperatures. (Dec 1979)

d. Visit to ETAC (with a description of their data).

e. Subsets of FGGE data for easier access. The recommendations from this document have now been incorporated into a US plan.

f. Proposed cloud data archive, an appendix for "Plan for implementation of a real-time satellite observed cloud climatology project."

g. Prepared the short reports:
   Data holdings in Finland
   Data in the USSR
AUG 28 1979

National Climate Program

Dr. Francis P. Bretherton
Director
National Center for Atmospheric Research
P. O. Box 3000
Boulder, Colorado 80307

Dear Dr. Bretherton:

This is, first, to thank you for permitting Mr. Roy Jenne, Director of the Data Support Section at NCAR, to serve for a year in the National Climate Program Office, and, second, to express our deep gratitude for the fine way Mr. Jenne served.

The start-up of any program is challenging, but the National Climate Program is in addition a new approach to coordinating activities of Federal, State and private institutions and individuals. Issues of climate data acquisition even involve international aspects. Thus, it was particularly desirable that this office have the service of a person with the breadth of experience, range of contacts, and depth of knowledge of Roy Jenne. It is also a credit to your sincere interest in the success of the National Climate Program, that you acknowledged the need and gave us the service of such a valuable person.

Among Roy's contributions during the year were that he helped organize a national Data Management Workshop; collected and analyzed agency budgets for Climate Data Management; wrote the detailed and summary versions of the Five Year Plan for Data Management; and participated in the planning for the World Climate Program. But still much remains to be done -- especially as we move to implement the plans so carefully laid. Therefore, even though we will fill Roy's position here in the office, we still hope to have the benefit of his unique perspective on key issues.

Sincerely,

Edward S. Epstein
Director, National Climate Program Office

Copies: Hoyer, Murino, Drake, Jenne, Personnel
Dear Dr. Benton,

I would like to take this opportunity to express the appreciation of the Secretariat for the services of Mr. Roy Jenne which were so kindly provided by your government and the National Center for Atmospheric Research.

With some assistance from other consultants, Mr. Jenne has prepared the foundations for WMO to move forward on the international aspects of a climate data system. Mr. Jenne's breadth of knowledge and devotion to the task have proved most helpful.

Naturally there is still a long way to go from a draft plan of action to the implementation of a working system. I trust that we can look forward to additional cooperation with the expert personnel of the United States' wide variety of advanced data services.

Yours sincerely,

(Sg.) A.C. Wiin-Nielsen

(A.C. Wiin-Nielsen)
Secretary-General

Dr. G.S. Benton
National Oceanic and Atmospheric Administration
Rockville, Maryland 20852

cc: Dr. E. Epstein, NOAA
    Dr. J. Firor, NCAR
August 2, 1979

MEMORANDUM TO Edward Epstein
National Climate Program Office

FROM: Wayne McGovern
U.S. FGGE Project Office

SUBJECT: Assistance of Roy Jenne to FGGE Project Office

I just learned that Roy is returning to NCAR at the end of this week. I know Roy came here to assist the National Climate Program Office, but before he leaves, I would like you to know that Roy has been of considerable assistance in helping me to look at alternate ways to restructure the FGGE data set.

You are well aware of the primary aims of FGGE and the ensuing structure of the FGGE data set. Several months ago it became obvious that if we could devise alternate additional ways of structuring the FGGE data set that the resulting data sets would be of increased value to potential FGGE researchers, particularly those outside of the area of large scale numerical modeling.

In this matter it was difficult for me to know exactly where to begin as this is a rather specialized area. Thanks in large part to Roy I think we have enough information to proceed and I feel many will benefit as a result of his advice to the FGGE Project Office.

cc: R. Fleming
   D. Bretherton, NCAR
May 14, 1980

Mr. Roy Jenne  
National Center for Atmospheric Research  
P.O. Box 3000  
Boulder, Colorado 80307

Dear Roy:

As a follow-up to our telephone conversation of last month, I would suggest that your proposal for a Complete FGGE Data Set at NCAR be forwarded to this office by July 1, 1980. This will enable us to consider funding of the proposal by the beginning of FY 1981, assuming that NCAR still wishes to submit such a proposal. Since the level of funding we discussed is relatively small, the proposal need not be elaborate.

Sincerely yours,

Wayne

Wayne E. McGovern  
Science Coordinator  
U.S. FGGE Project Office
DEC 6 1979

Mr. Roy L. Jenne  
National Center for Atmospheric Research  
P.O. Box 3000  
Boulder, Colorado 80307

Dear Roy,

This is to express my personal appreciation for your participation in the Climate Symposium held in Tbilisi, USSR during the period October 15-22, 1979. I have been informed that the symposium was highly successful in that it provided for the exchange of ideas between leading US and USSR scientists involved in climate research.

One of the principal objectives of the US-USSR Agreement on Protection of the Environment is to achieve a broadened scientist to scientist relationship between the two nations. As a member of the US delegation you have contributed significantly to this end.

I hope that you will continue your interest in Working Group VIII activities and that you will be able to take part in some of its future cooperative efforts with Soviet scientists.

A summary report of the symposium is enclosed for your information.

Sincerely,

Edward S. Epstein  
U.S. Cochairman  
Working Group VIII

Enclosure

cc:  
Dr. Leith  
Dr. Gates
Summary of Activities During the May 1982 - April 1983 Period

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

1. Papers and Talks

1.1 Primary Papers


Jenne, Roy L., 1983: Problems and costs of preparing and accessing databases. For publication in a University of Maryland report of an oceanographic meeting.

1.2 Other Papers and Talks. (First three were invited)

Jenne, Roy L., 1982: Talks on "NCAR Data Availability" and on "Recent Developments in Malankovitch Theory". At Department of Meteorology, Purdue University, Indiana, June.

Jenne, Roy L., 1982: Datasets and software. A talk presented in June to the CSSP/CSTR data panel of NAS.

Jenne, Roy L., 1982: Long-term climate datasets at NCAR. A talk to a group of invited climatologists interested in long period data. (May 1982).
Jenne, Roy L., 1982: Data availability at NCAR. P.O. Box 3000, Boulder, CO., 16 pp. unpublished.


A member of other less formal writups have been made such as:

- Status of FGGE data
- Sea surface temperature data
- Different computing subjects

2. Data activities of Roy Jenne and the whole DSS group

Many of the activities of the DSS are summarized in the annual report. Two of the largest hurdles during the past year were preparing for the shut-down of the CDC-7600 and handling a very large ship data project while still meeting the variety of user data needs without too much degradation.

The ship project processed over 100 million ship reports through several steps to provide statistics for climate use. It required over 100 hours of CRAY CPU time even though some methods, such as the use of Encode-Decode routines, were avoided to save time.

Work with S. Nicholson, (Clark College) to prepare long series of African rainfall data was largely completed except for documentation. Cooperative work with J. London (University of Colorado) and S. Warren (University of Washington) has been developing to make large amounts of surface synoptic data more readily available, and to prepare cloud statistics from surface observations. There has also been some cooperation with Liou and Koenig at the University of Utah regarding preparation of cloud statistics from the 3-D neph.

There have been large tasks of updating many datasets, adding new ones, machine conversions, and servicing many user requests. This includes handling a high volume of telephone calls and correspondence.

3. Other activities

3.1 US-India Monsoon Research Program

This program had its roots in R. Reagan - I. Gandhi meetings in July 1981. See Science 13 May 1983 for a short report. Meetings were held in Washington in March 1983 to define a proposed program which will then be negotiated with Indian scientists. Jenne is task leader for "Development of long-term records of data". We have planned subprojects based on conventional instrumental data, tree rings, lake pollen, and perhaps
historical records.

Since the data problems were scattered across a number of tasks in the overall research program, R. Jenne prepared a paper that summarized most of the data needs. It included problems yet to resolve, such as how much of the pertinent satellite data could be made available.

3.2 US-China programs

a. US-China bilateral

In December 1980, Jenne travelled to China to exchange technical information about data handling and data exchange. During the past year, inputs have been made to W. Hess and R. Hallgren (Director NWS and US exchange coordinator) to help work out an agreement for data exchange.

b. US-China Great Plains Research

There is a cooperative agreement with China to study the North China Plain and the N. American Great Plains (Canada is involved). Jenne is a task leader for the data advisory function.

3.3 US-USSR Exchange

Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, Jenne was named the US Coordinator for the data exchange function in this program. In April 1983, he met with the USSR coordinator for a week. Data holdings and status were discussed, and lists of data for exchange were prepared. A considerable amount of background material had to be prepared for the exchange, with coordination with others in the US on such subjects as: status of ship data exchange (poor), ocean XBT data, tree ring needs, need for Soviet ice data, etc.

3.4 International Satellite Cloud Climatology Project (ISCCP)

This project has been formed because of the need to improve the knowledge of the earth's cloud system, and the cloud-feedback problems so that climate change can be properly modelled, especially for the CO2 problem. It should result in better cloud-radiation parameterization for climate and GCM models. It involves groups in several countries.

Data gathering will start later in 1983 from 5 geosynchronous satellites and one polar orbiter. One of the problems was to define data sampling strategies so that the complete $62 \times 10^{12}$ bits of data per year do not have to be fully processed. Jenne has participated in three data management meetings during the past year. He also had a more limited participation in planning for a related US program (FIRE) for cloud research.

3.5 Other selected service activities

1. Jenne is the NCAR representative on the UCAR Personnel Committee.
2. Member of NCAR ARG Committee.

3. Reviewed about 7 to 10 proposals or papers for NSF, other agencies, and journals.

4. Academy panels

Roy Jenne is a member of two Academy Panels:

4.1 Academy CSSP/CSTR Data Panel

The purpose of this panel is to prepare recommendations for managing data that are important to the Space Sciences and Solar Terrestrial discipline areas. This includes data from both the UARS and OPEN satellite experiments that may fly in the late 1980's. It includes processing at a NASA central facility, and processing by a number of PI's. The panel met three times during the period and a report is hopefully within several months of completion.

4.2 Committee on Geophysical Data

Together with Carl Kreitzberg, he represents the atmospheric sciences on this committee. The committee has liaison with the Committee on Atmospheric Science (CAS), and the US Committee for GARP. There was one meeting in January during the year.

5. Work In Progress

This includes a continuation of many of the above involvements, preparation and updating of a number of datasets, and handling a steady stream of letters and phone calls from researchers who need data. The tasks are discussed more fully in Program Plans-FY84. A few of the tasks are:

- Complete the huge ship data project and prepare documentation.
- Get Indian rainfall data into the archive.
- Prepare new long-period Australian data for the archive.
- Complete a listing with additional summary information about our datasets. This will also be kept on-line.
- Work with others to finish a text on monthly African rainfall data.
- Prepare papers on Satellite data and on Antarctic data for the Hamburg meetings.
- Finish a contribution on mass storage needs for the next 10 years for an RFP.
- Do final work on a long data chapter for a "Handbook in Applied Meteorology".
Summary of Activities During the May 1983 - April 1984 Period

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

1. Papers and Talks

1.1 Primary Papers


1.2 Other Papers and Talks (First three were invited):


Talk to Instrument Society:
On 5 April 1984, Jenne gave a fifty minute talk to a Denver meeting of Instrument Society Engineers. About NCAR, Climate Research, CO$_2$, Data Flow, Etc.

Jenne, Roy L., 1983: Data availability at NCAR. P.O. Box 3000, Boulder, CO. 16 pp. unpublished.
1.3 Less Formal Writeups:

A number of less formal texts have been prepared to help cope with specific problems:

Surface Marine Dataset, 1850 - Present, Dec 1983.


Two other documents on Mass Storage Planning.


CRAY Charging Algorithm, A Simplified Guide, Feb 1984. Shows how the charges for different tasks can be estimated in advance.

Some writeups and information have been prepared for interactions with others doing carbon cycle research.


Sea Surface Temperature Data, Dec 1983. About various sets of sea surface temperature analyses in the US, procedures used, and problems such as effects of volcano dust on satellite data.

2. Data Activities of Roy Jenne and the Whole DSS Group:

Many of the activities of the DSS are summarized in the annual report.

A second set of ship data statistics has been prepared. The ship project processed over 100 million reports through several steps resulting in 72 million reports after duplicates were eliminated. The tasks have required many hours of CRAY CPU time even though some methods, such as the use of Encode-Decode routines, were avoided to save time.

Cooperative work with J. London (University of Colorado) and S. Warren (University of Washington) has been continuing to make large amounts of surface synoptic data more readily available, and to prepare cloud statistics from surface land observations. There has also been cooperation with Liou and Koenig at the University of Utah regarding preparation of cloud statistics from the 3-D neph.

There have been large tasks of updating many datasets, adding new
ones, conversions of programs from 7600 to CRAY, and servicing many user requests. This includes handling a high volume of telephone calls and correspondence.

3. Other Activities:

3.1 US-India Monsoon Research

This program had its roots in R. Reagan - I. Gandhi meetings in July 1981. See Science 13 May 1983 for a short report. Meetings were held in Washington in Sep 1983 to negotiate a proposed program with Indian scientists. Jenne is task leader for "Development of long-term records of data". He is also the US focal point for data planning and exchange under the program. This has involved meetings with Indian scientists, US embassy representatives, preparation of documents, and plans for trips to India in Aug and Nov 1984.

3.2 US-China Programs:

a. US-China bilateral

In December 1980, Jenne travelled to China to exchange technical information about data handling and data exchange. During the past year, inputs have been made to R. Hallgren (Director NWS and US Exchange Coordinator) and E. Bierly to help work out an agreement for data exchange. A new trip to China is planned.

b. US-China Great Plains Research

There is a cooperative agreement with China to study the North China Plain and the N. American Great Plains (Canada is involved). Jenne is a task leader for the data advisory function. A meeting was held in Nebraska in May 1984.

3.3 US-USSR Exchange

Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, Jenne was named the US Coordinator for the data exchange function in this program. In April 1983, he met with the USSR coordinator for a week. Data holdings and status were discussed, and lists of data for exchange were prepared. This involved coordination with others in the US on such subjects as: status of ship data exchange (poor); ocean XBT data; tree ring needs; need for Soviet ice data, etc. Between Sept 1983 and May 1984, several tapes and pieces of correspondence have been exchanged.

3.4 International Satellite Cloud Climatology Project (ISCCP)
This project has been formed because of the need to improve the knowledge of the earth's cloud system, and the cloud-feedback problems so that climate change can be properly modelled, especially for the CO₂ problem. It should result in better cloud-radiation parameterization for Climate and GCM models. It involves groups in several countries.

Data gathering started in July 1983 from 5 geosynchronous satellites and one polar orbiter. This program only required about 10 days of my involvement to prepare inputs. Jenne gave a talk on this program at the IUGG meeting in Hamburg, Aug 1983.

3.5 ECMWF Analysis Data Archives

NCAR has FGGE Year (Dec 78-Nov 79) analysis from both ECMWF (European Center for Medium Range Weather Forecasting) and GFDL. The research community would like to obtain ECMWF analyses and forecasts for later years, and for additional types of data. Jenne visited ECMWF in March 1984 to participate in archive planning. Written exchanges (by mail) will continue with ECMWF for several months. NCAR hopes to start receiving additional data from them during the coming year.

3.6 NSF/NCAR Incoherent Scatter Radar Project

Candidates were interviewed for the position of programmer to process incoherent scatter radar data. This NSF-NCAR project will make it easier to use data from several of these radars together. Jenne supervises the programmer that was hired (Roy Barnes) and interacts with the radar database scientist (Art Richmond) to help facilitate this project.

3.7 Ocean Data for World Climate Research

Jenne has been asked by Stan Wilson of NASA Headquarters, to help prepare information for an International Analysis of what steps need to be taken over the next several years to prepare satellite data so that it can readily be used for climate research.

3.8 Other Selected Service Activities

1. Jenne is the NCAR representative on the UCAR Personnel Committee until Jan 1985. This required a June 1983 Reno meeting and a fall meeting at NCAR.

2. Member of NCAR ARG Committee.

3. Reviewed about 3 proposals or papers for NSF, other agencies, and journals.
4. Carbon Dioxide Research. Jenne is a member of a "blue ribbon review panel for a major report describing the status of the global carbon dioxide research program as of 1984". He has started to review the first of several chapters.

4. Academy Panels:

Roy Jenne is a member of two Academy Panels. During the year, a report was completed for a third panel.

4.1 Committee on Geophysical Data (from 1982)

Together with Carl Kreitzberg, he represents the atmospheric sciences on this committee. The committee has liaison with the Committee on Atmospheric Science (CAS), and the US Committee for GARP. Jenne and Kreitzberg visited the Data Center at Asheville in January 1984 for discussions.

4.2 An Academy panel to study different aspects of climate data, of which Jenne is a member, had its first meeting in March 1984. Meetings of this panel will continue for about two years to accomplish the goals that have been set.

5. Work In Progress:

This includes a continuation of many of the above involvements, preparation and updating of a number of datasets, and handling a steady stream of letters and phone calls from researchers who need data. The tasks are discussed more fully in Program Plans FY 85. A few of the tasks are:

- Send 120 tapes of ship data to Asheville and prepare documentation.
- Prepare new Australian analysis data for the archive.
- Complete a listing with additional summary information about our datasets. This will also be kept on-line.
- Work with others to finish a text on monthly African rainfall data.
- Prepare a number of datasets for India for the Monsoon Research Data Exchange.
- Prepare US rawinsonde data for 1946-47.
- Prepare the world ship statistics into smaller subsets for easier access.
- Prepare material to give papers and chair sessions for workshops in August and October 1984.

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Summary of Activities During the May 1984 - April 1985 Period

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provide assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

1. Papers and Talks

1.1 Primary Papers


Jenne Roy L., 1985: Supercomputer Output at NCAR. A white paper for computer user meeting. Covers digital output onto mass store, microfilm, paper, etc. 20 pp.


1.2 Roy L. Jenne: Texts relating to the US-India Monsoon Research Program:

equipment for India, Tree ring data, Land use/irrigation/economics, etc. 60 pp.

Data for Monsoon Research: A paper presented at the "Interannual Variability of Monsoons" meeting in N. Delhi, Jan 1985. A copy is in the Library at N. Delhi and Pune.

List of Satellite Data for Monsoon Research (includes derived data such as snow cover, precipitation, ice cover, etc) NASA provided some of the input for this text. 24 pp.

Data Requests from India: 10 Jan 1985. A listing of India's requests and our dataset options for supplying the data needs. Includes sources of data and information.

Campbell, Garrett (CSU) and Roy Jenne, Sept 1984: Review of Inset Data. Comments on the Indian Geosynchronous Satellite Data we have received.

Jenne, Roy L., Feb 1985: Inset Data. Status of data and its exchange. Things for Kit Hayden (Univ. of Wisconsin) to ask India on his visit (to get cloud winds, etc.). 4 pp.

Plus other memos and letters regarding equipment purchase, data exchange, etc.

1.3 Texts prepared for NCAR real-time data and UNIDATA:


Shorter texts:

(1) Considerations for Data Flow in UNIDATA. (2) UNIDATA Meeting on Methods to Handle Data Flow. (3) NCAR needs for real-time data. (4) Local area data, Feb 1985. (5) Data Sources for UNIDATA. Plus, other memos on Zephyr communications problems.

1.4 Other Texts


Possible Data Initiatives at NCAR, Oct 1984: Discusses initiatives on ocean data, satellite data, atmospheric circulation statistics, and others.

Data for Kenya and East Africa, Apr 1985 (Trip report visit 28 Jan - 1 Feb, 25 pp. Information on their data archives, data receipt over Africa.

Ship Data Files, Oct 1984. Describes the basic ship data
and statistics files from our ship data project.

Selected Satellite Data, Jan 1985: A list of about 20 sets of satellite data that need to be saved.

Data for TOGA, May 1985: A list of about 13 major types of data needed for TOGA ocean research and what needs to be done to improve each. 6 pp.

Ocean Satellite Data, Oct 1984: Reviews different satellite sensors on several satellites for obtaining ocean variables during the period to 1992. Includes expected accuracies. 7 pp.

Selected Satellite Data: Briefly lists a number of main satellite datasets that should survive for use in climate research. 2 pp.

Considerations for Charging on the XMP/48, Mar 1985: Plus about 3 shorter texts on related issues.

2.0 Selected Presentations (Most were invited papers)

Data for Research, Paleoclimatic changes over 125,000 years, Pune, India.


Precipitation Station Networks and Sampling Errors. Oct 1984, WMO Meeting on Precipitation.


Data for Monsoon Research. Presented at Monsoon Variability meeting in N. Delhi, Jan 1985.

Data Availability for Research, and Changes in Climate Over The Last 100,000 Years. Univ. of Nairobi, Feb 1985.


3.0 Data Activities of Roy Jenne and the whole DSS Section:

Many of the activities of the DSS are summarized in the annual report.

Ship data and ship statistics have been sent to a number of users.
More of the ship output tapes have been put into the NODC format for them.

Large amounts of surface synoptic data were made more readily available, and we prepared cloud statistics from surface land observations. A publication with J. London (U. Colo.) and S. Warren (U. of Washington) has been prepared. There has also been cooperation with Liou and Koenig at the University of Utah regarding preparation of cloud statistics from the 3-D cloud data.

There have been large tasks of updating many dataset, adding new ones, and servicing many user requests. We sent out data on 750 magnetic tapes, selected from over 1660 archival volumes. This includes handling a high volume of telephone calls and correspondence.

4.0 Other Activities

4.1 US-India Monsoon Research

This program had its roots in R. Reagan - I. Gandhi meetings in July 1982. See Science 13 May 1983 for a short report. Jenne attended meetings that were held in Washington in Sept 1983 to negotiate a proposed program with Indian scientists. Jenne is task leader for "Development of long-term records of data". He is also the US focal point for all data planning and exchange under the program. This has involved meetings with Indian scientists, US embassy representatives and the preparation of documents.

In August 1984, Jenne went to India for a workshop on Monsoon Forecasting (Program I of the Bilateral) and associated data problems. In Jan 1985, I went again to attend the Program II meetings (and give a paper). During the two meetings a few of us also negotiated what equipment NSF would provide India (small computers in New Delhi and Pune with tape drives, disks, graphics output, etc.).

I have spent a good deal of time in laying out a program of data exchange. India has made many data requests of us. They will key enter 1,000,000 ship observations for us and provide many other data sets. We have received some tapes with Inset Satellite Data. This work is progressing. Two Indian scientists will visit in July 1985, to continue the agreements and data transfer.

4.2 US-China Programs:

a. US-China Bilateral

In December 1980, Jenne travelled to China to exchange technical information about data handling and data exchange. During the past year, inputs have been made to R. Hallgren (Director NWS and US Exchange Coordinator)
and E. Bierly to help work out an agreement for data exchange. A new trip to China is planned.

b. US-China Great Plains Research

There is a cooperative agreement with China to study the North China Plan and the N. American Great Plains (Canada is involved). Jenne is a task leader for the data advisory function. A meeting was held in Nebraska in May 1984. This program is now on hold until greater funding becomes certain.

4.3 US-USSR Exchange

Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, Jenne was named the US Coordinator for the data exchange function in this program. In April 1983, he met with the USSR coordinator for a week. Data holdings and status were discussed, and lists of data for exchange were prepared. This involved coordination with others in the US on such subjects as: status of ship data exchange (poor); ocean XBT data; tree ring needs; need for Soviet ice data, etc. Between Sept 1983 and Feb 1985, several datasets and correspondence have been exchanged. Another meeting and specification of sets of data for exchange is planned between Jenne and USSR counterpart.

4.4 International Satellite Cloud Climatology Project (ISCCP)

This project has been formed because of the need to improve the knowledge of the earth's cloud system, and the cloud-feedback problems so that climate change can be properly modelled, especially for the CO₂ problem. It should result in better cloud-radiation parameterization for Climate and CCM models. It involves groups in several countries. I was involved in developing data sampling and data planning strategies.

Data gathering started in July 1983, from 5 geosynchronous satellites and one polar orbiter. I am now involved in preparing a summary text with information about the data.

4.5 NSF/NCAR Incoherent Scatter Radar Project

This NSF-NCAR project will make it easier to use data from several of these radars together. Jenne supervises the programmer that was hired (Roy Earnes) and interacts with the radar databases scientist (Art Richmond) to help facilitate this project. All of the sites have submitted at least some data, and inventory programs are now being defined.

4.6 Global Precipitation for Climate Research
A meeting was held 17-19 Oct 1984, on this subject, sponsored by the World Meteorological Organization. Jenne chaired the meeting. I also prepared text to review research requirements for precipitation monitoring, the present precipitation station network, errors/accuracy and sampling considerations in land based networks. Other participants prepared text on satellite precipitation observing systems and other subjects.

4.7 Ocean Data Management for TOGA (Tropical Ocean Global Atmosphere) and WOCE (World Ocean Circulation Experiment).

In Oct 1984, I was invited to give a paper on the characteristics and availability of satellite data (and 10 year plans) at an international data planning meeting sponsored by international governmental (IOC) and international ocean science (CCCO). During the meeting I helped to write sections of the report on other types of data also.

Since Fall 1984, I have been a member of the US WOCE/TOGA Data Management Working Group. We have met twice, once at NCAR.

4.8 NCAR Real Time Data and UNIDATA

We have the problem at NCAR of continuing to obtain real-time weather data and facsimile charts when the present services are shut down. In addition we would like access to some of the local area data obtained by Profs. I have been involved in these efforts and the NCAR real-time data committee. I am also on a related UNIDATA Committee: wrote texts on data available (real-time and delayed) for UNIDATA and on questions to resolve for planning data flow and archival in the UNIDATA computers.

4.9 Data for East Africa

On the way back from India in February, I visited Kenya. I located a lot of information about data holdings in East Africa and have recorded this in extensive trip notes. Since then, there has been correspondence back and forth; we hope to obtain some of the Kenya data on tape.

4.10 WMO Planning for Tropical Forecast Centers

In Feb 1985, I visited WMO, Geneve to aid WMO and Krishnamurti (PSU) in their efforts to define what is needed to establish one to several centers in the tropics for preparing forecasts. We prepared text on what is needed for data inputs, for computing, display, weather analysis skills, numerical forecasting, and climate diagnostics.

4.11 Other

We have activities to obtain data from different countries, such
as S. Africa and Norway. Visitors from Belgium came in Oct 1984, to discuss their progress in preparing W. African data under a WMO project. I shared information about the African datasets that we have. We also obtained programs to calculate earth orbital parameters for the last million-plus years from Berger in Belgium.

4.12 More Satellite Data at NCAR

NCAR has very little of the higher resolution satellite data that is archived. Two issues are how much more data we should obtain, and whether associated research should be beefed up at NCAR. Hess and Anthee suggest that several of us (mostly Jim Coakley) organize a meeting (mostly outside experts) to deal with these issues. This may be held next winter. We are planning to obtain large amounts of NOAA data when they shut down their TFM. Planning for these data are going ahead.

4.13 Other Selected Service Activities

1. Member of NCAR ARG Committee.

2. Reviewed about 6 proposals or papers for NSF, other agencies, and journals.

3. Carbon Dioxide Research. Jenne is a member of a "blue ribbon review panel for a major report describing the status of the global carbon dioxide research program as of 1984". He reviewed two of the chapters for the text.

4. Member of SCD Committee on AVC Charging, and prepared associated documents for input.

5.0 Academy Panels:

Roy Jenne is a member of two Academy Panels.

5.1 Committee on Geophysical Data

Together with Carl Kreitzberg, he represents the atmospheric sciences on this committee. The committee has liaison with the Committee on Atmospheric Science (CAS), and the US Committee for GARP. Jenne and Kreitzberg visited the Data Center at Asheville in January 1984 for discussions. Final changes are being made in the notes from this visit. My membership has been extended for three more years.

5.2 An Academy panel to study different aspects of climate data, of which Jenne is a member, had its first meeting in March 1984. It has had three meetings in the past year. I helped organize one of our half-day sessions about satellite data and gave a talk. I am helping to prepare text for the
6.0 Work in Progress:

This includes a continuation of many of the above involvements, preparation and updating of a number of datasets, and handling a steady stream of letters and phone calls from researchers who need data. A few of the tasks are:

- Send 40 tapes of ship data to Asheville and prepare more documentation.
- Complete a new listing with additional summary information about our datasets. This will also be kept online.
- Work with others to finish a text on monthly African rainfall data.
- Prepare a number of datasets for India for the Monsoon Research Data Exchange.
- Send several datasets to the USSR and receive some.
- Prepare our new archives of riverflow data so they can be used for research.
In connection with the US-India Monsoon Research Bilateral Program, Jenne travelled to India for 10 days in late January. There was a conference to present papers concerning the interannual variability of the Monsoon. Jenne presented a paper and had meetings to decide on what equipment was needed for India under the program, and met agreements on the data exchange between India and the USA. There has also been follow-up work about obtaining more cloud-winds and radiance data from the Indian Satellite Insat.

Jenne visited the Kenya Meteorological Service and the University of Nairobi. He has prepared a text about the data that are available for East Africa. At WMO in Geneva, he and Krishnamurti (FSU) prepared a text about what functions should be planned for regional tropical forecast centers that will probably be established.

UCAR has a university - NSF program (UNIDATA) to develop systems for the real-time display of weather data at universities using inexpensive computing equipment. Jenne wrote a 30 page text outlining the real-time and delayed data sources. We are also establishing new methods to obtain the real-time data at NCAR.
Summary of Activities During the May 1985 - April 1986 Period

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

1.0 Papers and Talks

1.1 Primary Papers


Jenne Roy L., 1985: Supercomputer Output at NCAR. A white paper for computer user meeting. NCAR TN and longer version. Covers digital output onto mass store, microfilm, paper, etc. 20 pp.


* The book won 2nd place in the ann science book award.
1.2 Roy L. Jenne: Texts relating to the US-India Monsoon Research Program:

India Trip Notes (28 Jul - 11 Aug 1984) Sept 1984. Includes information about data, data exchange, history of India’s network, NSF equipment for India, Tree ring data, Land use/irrigation/economics, etc. 60 pp.

List of Satellite Data for Monsoon Research (includes derived data such as snow cover, precipitation, ice cover, etc) NASA provided some of the input for this text. 24 pp. (Updates and related text, Jul 1985 - Mar 1986.)

Data Requests from India: 10 Jan 1985. A listing of India’s requests and our dataset options for supplying the data needs. Includes sources of data and information. (Updates 1986)

Plus other phone calls, memos and letters regarding equipment purchase, data exchange, etc. In Mar-May 1986, worked with NMC about data for India’s numerical prediction work. Got information about U.S. needs for Indian satellite data. India delayed meetings scheduled for Jul 85, Feb 86, and Apr 86.

1.3 Other Texts

Jenne, Roy L., Oct 1985: Data Availability at NCAR. P.O. Box 3000, Boulder, CO. 18 pp, unpublished.


Jenne, Roy L., Jan 86: Navy analyses. This is a description of the Navy archives with information about how they do the analyses, and some on their forecasts.


Jenne, Roy L., Jan 1986. Data from ECMWF. (A comparison of several ECMWF forecast and analysis products.)

Jenne, Roy L., Apr 1986. A Research Archive of ECMWF analyses. A description of ECMWF archives with options for what we should obtain.


Ship Data Files, Oct 1984. Describes the basic ship data and statistics files from our ship data project.

Selected Satellite Data, Jan 1985: A list of about 20 sets of satellite data that need to be saved.
Data for TOGA, May 1985: A list of about 13 major types of data needed for TOGA ocean research and what needs to be done to improve each. 6 pp. (Updated 1986)

Ocean Satellite Data, Oct 1984: Reviews different satellite sensors on several satellites for obtaining ocean variables during the period to 1992. Includes expected accuracies. 7 pp.

Considerations for Charging on the XMP/48, Mar 1985: Plus about 3 shorter texts on related issues.

2.0 Award

Jan 1986: Received the Cleveland Abbe Award from the American Meteorological Society, for Outstanding Service to the national and international atmospheric science community in providing innovative and comprehensive data management.

3.0 Selected Presentations (Most were invited papers)

Data acquisition and quality control (for a meeting on real time data handling at Offutt AFB, Oct 1985).

Supercomputer Output: A presentation to the SCD annual Users Workshop.


4.0 Data Activities of Roy Jenne and the whole DSS Section:

Many of the activities of the DSS are summarized in the annual report.

Ship data and ship statistics have been sent to many users.

All the ship output tapes have been put into the NCDC format and sent to them.

There have been large tasks of updating many dataset, adding new ones, and servicing many user requests. We sent out data on 784 magnetic tapes, selected from 1697 archival volumes. This includes handling a high volume of telephone calls and correspondence.

5.0 Other Activities

5.1 US-India Monsoon Research

Jenne attended meetings that were held in Washington in Sept 1983 to negotiate a proposed program with Indian scientists. Jenne is task leader for "Development of long-term records of data." He is also the US focal point for all data planning and exchange under the program.


In August 1984, Jenne went to India for a workshop on Monsoon Forecasting (Program I of the Bilateral) and associated data problems. In Jan 1985, I went again to attend the Program II meetings (and give a paper). During the two meetings a few of us also negotiated what equipment NSF would provide India (small computers in New Delhi and Pune with tape drives, disks, graphics output, etc.). The equipment was sent in Spring 1986. There will be a Program I meeting in Washington, D. C. in June 1986.

I have spent a good deal of time in laying out a program of data exchange. India has made many data requests of us. They will key enter 1,000,000 ship observations for us and provide many other data sets. We have received some tapes with Insat Satellite Data. This work is progressing. A data meeting is scheduled in India in July 1986.

5.2 Working with ECMWF to Obtain Data

For over two years, I have been working with ECMWF to define procedures to make available more of the ECMWF analyses archives for research in the US. We had meetings in Jan and Mar 1986 and I have been interfacing with the US and TOGA research groups to help define needs.

5.3 Storage Requirements for the X-MP/4800

In early Aug 1985 there were arguments that if we didn't have enough mass storage capacity to feed the X-MP/4800, perhaps NCAR shouldn't get it. For a few weeks I got together updated statistics and helped develop a strategy under which we could handle the flow using a disk farm and the IBM 3480 cartridge tapes. P. Rotar did many of the hardware aspects and both of us discussed results with Bretherton and others on the committee.

5.4 Drought Research, Especially Africa

The U.N. General Assembly asked the World Meteorological Organization for information about drought in the world during the last 10 years. WMO called us in March 1986 to see if we had data and could calculate statistics within about 2 weeks. We defined some statistics and got them listings and computer maps from which they prepared a report to the U.N. A letter is attached.
For about 2 years, the National Climate Program Office has been trying to start more climate research for Africa. I attended a meeting in Dec 1985 and prepared a paper. A bill is pending in Congress.

5.5 US-China Programs:

There has been a little data exchange work during the last year, but I haven't had time to go there and push it. Also, NSF decided that it did not have funds to support the US-China Great Plains research projects.

5.6 US-USSR Exchange

Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, Jenne was named the US Coordinator for the data exchange function in this program. In April 1983, he met with the USSR coordinator for a week. Data holdings and status were discussed, and lists of data for exchange were prepared. This involved coordination with others in the US on such subjects as: status of ship data exchange (poor); ocean XBT data; tree ring needs; need for Soviet ice data, etc. Between Sept 1983 and Feb 1985, several datasets and correspondence have been exchanged. Another meeting and specification of sets of data for exchange was planned for June 1986 between Jenne and USSR counterpart. The USSR asked to delay this for several months.

5.7 NSF/NCAR Incoherent Scatter Radar Project

This NSF-NCAR project is making it easier to use data from several of these radars together. Jenne supervises the programmer that was hired (Roy Barnes) and interacts with the radar databases scientist (Art Richmond) to help facilitate this project. All of the sites have submitted some data and inventory programs are being run and there have been some data requests.

5.8 Ocean Data Management for TOGA (Tropical Ocean Global Atmosphere) and WOCE (World Ocean Circulation Experiment).

For about 2 years, I have been a member of a national committee on Ocean Data Management for TOGA (Tropical ocean, global atmosphere), and WOCE (World Ocean Circulation Experiment). There were two meetings for each last year.

In Sept 1985, I went to the National Data Buoy office to help NOAA with their Buoy data planning.
5.9 Data for East Africa

On the way back from India in February 1985, I visited Kenya. I located a lot of information about data holdings in East Africa and have recorded this in extensive trip notes. Since then, there has been correspondence back and forth; we have received daily precipitation data on tape.

5.10 More Satellite Data at NCAR

NCAR has very little of the higher resolution satellite data that is archived. Two issues are how much more data we should obtain, and whether associated research should be beefed up at NCAR. Hess and Anthes suggest that several of us (mostly Jim Coakley) organize a meeting (mostly outside experts) to deal with these issues. This was held in May 1986. We are planning to try to save TOVS data from NOAA TBM tapes for the missing period Feb 1980 - Jun 1983 (using some NASA support) before the NCAR TBM is shut down.

5.11 Other Selected Service Activities

1. Member of NCAR ARG Committee.

2. Reviewed about 5 proposals, papers, or Tech Notes.

3. Member of SCD Committee on AVC Charging, and prepared associated documents for input.

6.0 Academy Panels:

Roy Jenne is a member of several Academy Panels.

6.1 Committee on Geophysical Data

Together with Carl Kreitzberg and Joshua Holland, he represents the atmospheric sciences on this committee. The committee has liaison with the Committee on atmospheric Science (CAS), and the U.S. Committee for GARP. Jenne and Kreitzberg visited the Data Center at Asheville in January 1984 for discussions. Final changes were made in the notes from this visit in 1985 - 1986 for publication by NAS. My membership has been extended for three more years.

6.2 An Academy panel to study different aspects of climate data, of which Jenne is a member, had its first meeting in March 1984. It has had two meetings in the past year. I prepared several inputs for the text. The final report is under review.
6.3 NOAA Panel of the Ocean Studies Board (NAS panel)

This panel was formed about Mar 1986 to review NOAA budgets with respect to oceanography, and give recommendations to NOAA.

6.4 Member of NASA Information Systems Committee (Associated with the NRC Board on telecommunications--computer applications)

Member since March 1986. The purpose is to give NASA management advice on data systems.

6.5 NAS Meeting on 5-YR Climate Planning

Jenne attended meetings at Woods Hole, July 1985, to help write portions of a NAS report for the suggested direction of the US climate program.

7.0 Work in Progress:

This includes a continuation of many of the above involvements, preparation and updating of a number of datasets, and handling a steady stream of letters and phone calls from researchers who need data. A few of the tasks are:

- Prepare additional summary information about our datasets. This will be kept on-line.
- Work with others to finish a text on monthly African rainfall data.
- Prepare a number of datasets for India for the Monsoon Research Data Exchange.
- Send several datasets to the USSR and receive some.
- Prepare our new archives of riverflow data so they can be used for research.
May 27, 1986

Dr. Roy Jenne
Scientific Computing Division

Dr. Wilbur Spangler
Scientific Computing Division
National Center for Atmospheric Research
P.O. Box 3000
Boulder, CO 80307

Dear Roy and Will:

I recently received a copy of a letter from Secretary General Obasi of the World Meteorological Organization in which he expressed his gratitude for the data concerning drought, countries affected by drought, and drought duration provided WMO by the Scientific Computing Division. He especially expressed his appreciation to both of you for the assistance you provided. I am attaching a copy of this letter for your information.

This is to add my personal note of appreciation to both of you for your excellent work with respect to this complicated and urgent task.

Sincerely,

Clifford J. Murino
President

UCAR is an Equal Opportunity/Affirmative Action Employer
Dear Sir,

WMO was requested with very short notice, by the Economic and Social Council of the United Nations General Assembly to provide details on drought (as a climatic phenomenon, including a practical definition of drought), the countries affected by drought and on drought durations. Answering this apparently simple question turned out to be a rather complicated matter due to the lack of reliable data time-series and the short time available for the study.

I wish to express my gratitude for the assistance provided to WMO by the UCAR Data Support Division in processing climatological data in order to prepare statistics on drought over the entire globe during the last decade. I am especially grateful to Roy Jenne and his staff (in particular Bill Spangler) for agreeing to carry out the necessary data processing in response to our urgent request by telephone.

The final report, based on the statistics provided by UCAR and further analysis by the World Climate Data Programme, is enclosed for your information.

Thank you for the exceptional support of UCAR in this important task.

Yours faithfully,

(Sg) D.K. SMITH
(G.O.P. Obasi)
Secretary-General

The Director,
National Center for Atmospheric Research
P.O. Box 3000
Boulder, Colorado 80307
U.S.A.

cc: Dr. R. Hallgren, Permanent Representative of the U.S.A. with WMO
Dr. C. Morino, Director UCAR, Boulder, U.S.A.
Dr. E. Bierly, NSF, Washington D.C., U.S.A.
SUMMARY OF ACTIVITIES DURING THE
MAY 1987 – APRIL 1988 PERIOD

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

1. PAPERS AND TALKS

1.1 Primary Papers


1.2 Other Texts

Jenne, Roy L., Mar 1987: "Data Availability at NCAR." P. O. Box 3000, Boulder, CO 80307. 21 pp, (unpublished, updated each 12 to 18 months).


Data exchanges with USSR, China, India. Texts to document the data and plans, about 40 pp.

Documents with info about NASA and NOAA datasets (for Data Restoration Committee, about 20 pp).

Interagency Committee on global change, various issues, about 20 pp.

Also EIA, ~40 pp.

Computing concerns (mass store, CDrom, charging, etc), about 30 pp.

Document about datasets for Geneva (partial update), about 100 pp.

SCD: various texts for plans, reports, reviews, and info about datasets.

Texts for NCAR proposals: proposal to NSF (1987) for increased ocean activities at NCAR; proposal to NASA under the EOS RFP.

2. PRESENTATIONS

June 87: Two talks at SCD retreat

Oct 87: Talk to EPA Pls about climate model data and observed data.

Fall 87: Talk to SCD Panel

Nov 87: US/USSR bilateral: Research to develop proper long-period climate trends, avoiding city effects.

Dec 87: WMO climate monitoring: Proposal to develop a better world set of long-period monthly station data.
Jan 88: Talk about data to SCD User Conference.
Jan 88: Ocean modeling meeting: storing model data; packing and user access.
Mar 88: 3 talks in China, 3 hours each:
  • Data at NCAR, Data for Meteorological and Climate Research.
  • Energy Use, Climate Models and Effects of More CO₂, Paleoclimate Record 0 to
    150K Years BP.
  • Data Processing Methods and Techniques.

3. AWARD

January 1986: Received the Cleveland Abbe Award from the American Meteorological
Society, "for Outstanding Service to the national and international atmospheric science community in providing innovative and comprehensive data management."

4. DATA ACTIVITIES OF ROY JENNE AND THE WHOLE DATA SUPPORT SECTION

  • Many of the activities of the DSS are summarized elsewhere.
  • Ship data and ship statistics have been sent to about 90 users in the last three years.
  • There have been large tasks of updating many datasets, adding new ones, and servicing many user requests. We sent out data on 820 magnetic tapes, selected from 1804 archival volumes. More data was used on-line at NCAR. There was also a high volume of telephone calls and correspondence. This basic work takes about 65% of our time. The big projects such as ship updates and satellite data take another 20%.

5. PLANS

  • Prepare long and short versions of data support plans;
  • Prepare many plans for specific programs, described elsewhere;

Goal: Be ahead of world research needs for data. Not entirely possible, but we can satisfy most requests.
  • Do a lot of work ourselves to develop datasets and structure them for ease of access.
  • Do national and international work to keep the right data flowing into NCAR.
  • Do national and international work to establish concrete programs that will result in more data being available 5 to 15 years from now.
    — go for concrete tasks, not the bureaucratic snarls.

6. EPA ASSESSMENT STUDIES FOR USA

There is a national concern (and international), that the addition of CO₂ and other trace gases is likely to cause major changes in the earth's climate. In Spring 1987, Congress mandated EPA to prepare a report by Fall 1988 that would describe effects on USA agriculture, forestry, water resources, power generation, Great Lakes, coastal effects (sea level), and on the US economy. These assessment studies are based on the outputs of three climate models, and on observed data. The outputs from the agricultural, forestry, etc models were fed into more general US economic models.

Our Data Support Section has been very heavily involved in preparing and sending data to support these studies by about 30 to 40 scientific groups across the USA. The time pressure
was large for sending the data from three climate models (8 different model runs) and to send daily data for the present climate for 30 years for 130 stations.

The major products from NCAR have been:

- Four major mailings of model data and observed data to about 45 groups.
- Six sets of documentation about model characteristics and data formats sent to about 45 groups.
- This has gone well. The PIs used the data and there were very few questions about formats, etc.

7. BILATERAL PROGRAMS

7.1 US-China Data Exchange

- Trip to China Dec 1980
- Oct 1987: Meetings at NCAR with a Chinese delegation to start planning toward a more extensive data exchange. Documents are available.
- 10-25 March 1988: Extensive meetings in China with Depts of Meteorology (mostly), Hydrology, and Oceanography to acquire information about their science and data systems. Developed and signed plans for a bilateral data exchange. This includes many types of data. Text is available. Gave three long talks on data/science and held associated seminars.
  - took 27 papers to China for their library;
  - prepared text to suggest components of a national Chinese data system.

7.2 US-USSR Exchange

Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, Jenne was named the US Coordinator for the data exchange function in this program. There has been some data exchange activity each year since.

In Nov 1986 Jenne went to Leningrad to agree on datasets for exchange during the coming year, along with longer plans.

Major negotiations about datasets and projects were accomplished in Sept 87 and Nov 87. Texts are available. The data exchange has been given full project status within the US-USSR exchange. This presents more opportunities but also takes more time. Plans call for visits of USSR Scientists to the US about temperature trends and visits there re ice/snow exchange.

7.3 US-India Monsoon Research

This program had its roots in R. Reagan - I. Gandhi meetings in July 1982. See Science 13 May 1983 for a short report. Jenne is task leader for "Development of long-term records of data." He is also the US focal point for data planning and exchange under the program.

There are about 30 datasets involved in the negotiations between the US and India. Some of these still require preparation. India has been reluctant to provide the US with their geosynchronous satellite data 8x/day, or with an update to daily precipitation data. NSF is taking a firm stand about the satellite data. In late 86, I prepared proposed lists of datasets for exchange (with options) for NSF and India. In Feb 87, Bill Merrell (NSF), Pam Stephens (NSF), and I went to India for negotiations. After months, when the program was in limbo (late 87), India agreed to supply the more frequent satellite data. Tapes started coming again in Feb 88 (not 8x/day yet). There is continuing coordination, mostly with NSF, CSU, FSU.
8. OTHER ACTIVITIES

8.1 More Satellite Data at NCAR

In meetings with NASA, we agreed that NCAR would attempt to save TOVS sounder data from NOAA TBM tapes for the missing period (Feb 1980 – June 1983). NASA paid NCAR $210,000 for their contribution to this project. We have saved (1) all the TOVS for 6.5 years; (2) a missing terabit of 4 Km GAC; (3) extra GAC data; (4) several terabits of 1 Km data, the latter mostly for ocean research. The total volume is about 10.7 terabits.

This Project has gone well. Dennis Joseph won an NCAR award for his part in this. Negotiations are proceeding (Apr 88) about the return of data to NASA and NOAA.

8.2 Task to Send Satellite Data Back to NASA, NOAA

NASA got their cartridge drives in April 1988. I had a meeting with NASA/NOAA about sending data, and sent NASA HQ (Tilford) inventory info about the data, and strategy.

8.3 Update COADS Ship Dataset

Data are available through 1979. People badly need an update. For two years, we have had meetings, letters, phone, etc to make sure that problems are fixed, and we have necessary data to include. Much data for 1987 can now be included, as well as 1980 – 86.

We are about to put this task into high gear at NCAR.

8.4 NSF/NCAR Incoherent Scatter Radar Project

This NSF-NCAR project is making it easier to use data from several of these radars together. Jenne supervises the programmer that was hired (Roy Barnes) and interacts with the radar database scientist (Art Richmond) to help facilitate this project. All of the sites are submitting data, inventory programs are run and data requests are met. The project seems to be working well. Planning is continuing for the CEDAR project to include other types of data.

8.5 Data Planning for NASA

- NASA Information Systems Committee (Mar 86 – Nov 86) —Jenne chaired one of three panels to write the report. See NAS list here and NAS document.
- Catalogs. Involved in NASA catalog discussions about 1983 – 86. About Mar 87 – 1988; have been on the NASA Catalog Committee.
- Jan 88 – to about Sep 88. Chairman of NSSDC Data Restoration Committee (has scientists from Univ, NASA, NOAA). The National Space Science Data Center (NSSDC), is tasked by NASA. Review satellite earth observing datasets from 1960 – 1988. Advise on priorities for preserving these data. The effort also includes NOAA satellite data. Knowledge about the scientific aspects and the data have to be combined for these studies. This has been a very useful effort; it causes large resources to be expended in useful ways and will result in better info about data.

NASA has an oversight committee for all of their data systems called the ESADS. Since late 1986, Jenne has been a member of NASA planning efforts to pull together some of their activities, and prepare concrete data goals. In Feb 87, he attended a large workshop (~120 people) on this subject, and since has been appointed to the NASA ESADS steering committee. There have been two meetings per year. The ESADS has about 10 members from the research community. Jenne was named vice-chairman April 88.

8.6 NOAA Data Projects for the Surface and Upper-air Climate

NOAA may receive extra money in 1989 to use for data projects. They asked for a suggested list of projects to do. This document (12 pages) was made in Feb 88. It is helping to
establish some national programs. It has specific tasks for the data centers to do.

8.7 Data to Support the World Climate Research Program (WCRP)

- Kaneshige visited (Dec 87) from WCRP (Geneva), about our helping make available a number of archives for WCRP. Various groups will prepare them. We will have them.
  We will do it as long as we can keep it simple.
- A rep from the International TOGA program visited in Apr 88. We will have much data from that type of research.

8.8 Ocean Data Management for TOGA (Tropical Ocean Global Atmosphere) Band WOCE (World Ocean Circulation Experiment)

For about four years, I have been a member of a national committee on Ocean Data Management for TOGA (Tropical ocean, global atmosphere), and WOCE (World Ocean Circulation Experiment). There were two meetings for each last year.

8.9 Institution for Naval Oceanography

I was a member of a steering committee to help coordinate selected data and related science planning for this Navy and ocean science community effort. I went to the first meeting of the committee and associated workshop in April 1987. Report was out late 1987.

In Jan 1988, Worley and I went to a working group meeting on Ocean Surface Fluxes in New Orleans. In Feb 88, we worked with INO to help interview a candidate for handling their data problems. We also discussed our methods with him, as requested. This interaction will continue, including a 5-week summer ‘88 visit here.

8.10 SERI Committee (Solar Energy Research Inst)

SERI has a Resource Assessment Project to refine estimates of available solar and wind energy in various locations. In Mar 1988, I was named to their Science & Tech. Peer Review Committee (for present and future activities). We hope to fix problems with USA solar data.

8.11 Other Selected Service Activities

- Member of NCAR ARG Committee
- Reviewed about 7 proposals, papers, or Tech Notes
- Member of NCAR Computing Allocations Committee
- Vice-chair of NCAR History Committee
- Committee on NCAR highlights covering many years

9. ACADEMY PANELS

Roy Jenne is a member of several Academy Panels:

9.1 NAS/NRC Committee for Geophysical Data (from 1982)

Jenne and Cliff Mass (U. Wash) represent the atmospheric sciences on this committee. The committee has liaison with the Committee on Atmospheric Science (CAS), and the US Committee for GARP. Interactions with Asheville and NOAA have continued to try to protect their necessary activities from budget cuts.

9.2 NOAA Panel of the Ocean Studies Board (NAS panel)

This panel was formed about March 1986 to review NOAA budgets with respect to oceanography, and give recommendations to NOAA.
9.3 Ocean Climate Research Committee (active ~Mar 86 to now)

I have been on this panel from about Mar 86 to now. It is key in considering overall ocean science and data factors that relate to future research.

10. INFORMATION ABOUT AVAILABLE DATASETS


11. WORK WITH WEATHER CENTRALS TO DEFINE ADVANCED ANALYSIS ARCHIVE

For over two years, I have been working with ECMWF to define procedures to make available more of the ECMWF analyses archives for research in the U.S. We had meetings in 1984 and in Jan and Mar 1986. This work still continues.

The models at NMC are becoming very good and warrant the archival of selected data such as precipitation, more boundary level data, radiation diagnostics, etc. Since mid-1987, I have been working with NMC to help define new archives.

Our archives of analyses are the best anywhere. The above will add a new dimension to them and provide better surface winds for oceanography.

12. INTERAGENCY DATA PANEL (incl NSF) From Aug 1987

The concern is to have smooth running national data systems. I have prepared some documents for NSF, and two for a committee on data charging and money transfer (I'm the NSF representative).

13. WORK IN PROGRESS

This includes a continuation of many of the above involvements, preparation and updating of a number of datasets, and handling a steady stream of letters and phone calls from researchers who need data. A few of the tasks are:

- Update the ship data
- Send satellite data back to NASA and NOAA
- Prepare additional summary information about our datasets. Part of this will be kept on-line. It will also be offered on tape and perhaps CDrom. A list of info, now ready, is available.
- Send several datasets to the USSR and receive some.
- Prepare a number of datasets for India for the Monsoon Research Data Exchange.
- Working with N. Zealand to obtain their aircraft data. It was going to cost $8,000, but their research people helped.

~end~
MEMO TO: Roy Jenne
FROM: Bill Buzbee
SUBJECT: Evaluation Criteria
DATE: June 22, 1987

Since I will be evaluating your performance in 1988, the purpose of this memo is to set forth key areas of responsibility and job assignments. Per our earlier discussion, over the next year you should:

1. continue to operate as a member of the SCD Management Team;

2. continue to assist the SCD Director in leading the Division—advising him on key relationships between SCD and other organizations, keeping him informed of SCD activities within your cognizance, monitoring progress of the Division toward its goals, and watching for potential problems;

3. continue to manage the Data Support Section; development activities will include:
   
   Done a. acquiring and making available new datasets as needed by the atmospheric sciences community,
   
   Starting b. updating the global ship data (COADS),
   
   Coming along c. sending satellite data back to NASA and NOAA,
   
   Done d. making climate model data available,
   
   Done e. reducing backlog of necessary data updates,
   
   Progress f. preparing datasets for Monsoon research (India) and TOGA,
   
   Routine g. updating African monthly precipitation,
   
   Done h. staffing and support for oceanography;

   Done 4. continue your participation in various external activities;

   Done 5. assist in assessing trends in computing technology;

   Done 6. complete other assignments that will likely arise in the course of the year.

   Also - Moved from 11/70 to Environ
   - NCAR Tech support award for D. Joseph
   - Did huge EPA project

BB/bjt
PROFESSIONAL ACTIVITIES OF ROY JENNE
FY 1988

- Oct. 1987: Gave talk about observed data and climate model output at an EPA meeting to start the wide-ranging EPA climate assessment studies by about 35 PI groups. During Nov. 87 – Apr. 88, NCAR sent data to these groups.

- Nov. 87: US/USSR bilateral —Talk at Princeton: Research to develop proper long-period climate trends, avoiding city effects.

- Dec. 87: WMO climate monitoring —Talk at Wash, DC: Proposal to develop a better world set of long-period monthly station data.

- Jan. 5-8, 1988: Jenne and Worley met with working groups, at a meeting in New Orleans, about Ocean Surface Fluxes. Also working with NMC to produce a better archive of boundary layer analyses.

- Jan. 88: Talk about data to SCD User Conference at NCAR.

Jan. 88: Ocean modeling meeting at NCAR —Talk on: Storing model data; packing data and user access.

Mar. 10-25, 88: 3 talks in China, 3 hours each (this followed two earlier meetings in USA):

- Data at NCAR, Data for Meteorological and Climate Research.

- Energy Use, Climate Models and Effects of More CO₂, Paleoclimate Record 0 to 150K Years BP.

- Data Processing Methods and Techniques.

- Also:
  -- took 27 papers to China for their library;
  -- prepared text to suggest components of a national Chinese data system.


- May 22-29, 1987: NATO Climate Meeting in Belgium. Jenne presented the paper: "Data Management Methods; Data for Europe"

- June 6-7, 1988: NAS Committee on Geophys. Data, Wash, DC

- June 13-14, 1988: NODC Workshop, Wash, DC

- July 6-8, 1988: Meeting about ISCCP data (clouds) Banff, CANADA
- 2 -

- July 28-29, 1988: Attended SERI (Solar Energy Research Institute), panel meeting in Golden, CO and prepared texts on solar data.

  SERI has a Resource Assessment Project to refine estimates of available solar and wind energy in various locations. In Mar 1988, I was named to their Science & Tech. Peer Review Committee

- Aug. 9-18, 1988: Planning meetings for IGBP in Moscow, USSR. Jenne gave two talks and also made written plans for US-USSR data exchange:
  — Preparation of Meteorological Data for University Research
  — New Technologies

- Sept. 7-9, 1988: Panel on climate trends — The National Climate Program Office and NAS set up an ad hoc panel to help determine the best estimate of how climate has been changing and how to interpret the summer drought in the US. Many of the principal climate people in the world who are working on this problem, are on this panel.

- Sept. 13-16, 1988: NASA EOS review panel — NASA needed to review EOS proposals for interdisciplinary studies. Jenne reviewed six proposals and discussed them with a group of five people. Then he worked with a large panel to rate 25 proposals. (NASA received 150 proposals on this subject.)

- Sept. 27, 1988: US Information Agency live TV cast with India: Supercomputing and Weather Forecasting. Jenne and Krishnamurti (Florida State Univ.) were on this program in Wash., DC representing the US. Participants in India could ask questions and make comments. USIA stations in Europe also recorded the program.
SUMMARY OF ACTIVITIES DURING THE MAY 1988 - APRIL 1989 PERIOD

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

1. PAPERS AND TALKS

1.1 Primary Papers


1.2 Other Texts

Jenne, Roy L., Mar 1987: "Data Availability at NCAR." P. O. Box 3000, Boulder, CO 80307. 21 pp, (unpublished; have been working on an update).

Data exchanges with USSR, China, India. Texts to document the data and plans, about 40 pp.

Interagency Committee on global change, various issues, about 20 pp.

SCD: various texts for plans, reports, reviews, and info about datasets.

Info about data from NMC

- Jan 1989: Archives of analyses and forecasts from NMC
- May 1988: Info about NMC operational forecasts
- May 1988: NMC FGGE reanalyses (we got the data)
- May 1988: Analyses near the surface (at NMC)

Nov 88: Data for IGBP (some management considerations) eight pages. Also, many related planning documents. Mostly done for NSF and DOE. Includes info about strategies for data access. About 60 pages total.

Jan-Mar 89: Input for DOE for report to Congress: Prepared three texts: Comments for DOE Data Planning (five pages), Temperature Trends & Variability (six pages), and Selected Info about Precip Data (four pages).

CD-ROMS: Prepared about 15 pages of text and many attachments to summarize selected community activities to make CD-ROMS — Problems, amount of work, etc.

Other technology issues: Guess about 15 pages

2. PRESENTATIONS

Mar 88: Three talks in China, three hours each
May 88: Talk in Belgium, "Review of data management methods"
Aug 88: Talks at two meetings in Moscow
  — Preparation of meteorological data for University use (and IGBP plans)
  — New technologies to use for data
Oct 88: Talk to Int'l TOGA Panel about reanalyses
Oct 88: Presented paper about data and methods for reanalyses at Climate Diagnostics Meeting
Nov 88: Gave a short talk on data management methods to Interagency Workshop
Jan 89: Talk about data for geophysical sciences to AAAS
Feb 89: Gave a talk about data for reanalyses (special panel; reports to US & Int'l TOGA)

3. AWARD

Was named a Fellow of the AAAS in Jan 1989, with the words: "For exemplary research and dedicated service in management and assimilation of large datasets for national and international research programs in atmospheric and ocean sciences."

4. STATUS OF SELECTED SPECIFIC PROJECTS

1. ERBE optical WORM drive: Removed; NASA wanted Coakley to take it to Oregon.
2. History topics: Our NCAR Highlights Committee selected topics. Rotar has composed a text using some inputs from others in SCD.
3. Strategy to get Ocean CME to others: Data is being sent now.
4. Obtain data from NMC binary communication line from Zephyr (passive x .25): In early April, the data started being mechanically input. Some primitive software is being developed.
5. CD-ROM/Univ. of Washington Experiment: We have agreed with U. of Washington on how to share the work on making the first CD-ROM.

5. PLANS

Goal: Be ahead of world research needs for data. Not really possible, but we can still satisfy most requests.

- Do a lot of work ourselves to develop datasets and structure them for ease of access.
- Do national and international work to keep the right data flowing into NCAR.
• Do national and international work to establish concrete programs that will result in more data being available 5 to 15 years from now.

— Go for concrete tasks, not the bureaucratic snarls which are common.

a. Keep updating the broad NCAR archive of datasets and keep handling data requests. This takes 65% to 70% of our time.

b. COADS Ship Update

Keep this project moving (coordinate with five US organizations, UK, USSR, and Canada to make it happen); try to finish near end of 1989.

c. Return Satellite Data to NASA/NOAA

There are still big problems with the NCAR Export, but about 1,000 cartridges are done. GOAL: Finish first 3,000 cartridges by June 89. Solve NASA/NOAA politics to get more funds (in process).

d. Obtain enhanced archives from weather centers

Try to get some of the new, better data streams from NMC and ECMWF in place and flowing to NCAR.

e. Enhance Climate Model Support for Assessment Studies

We have plans on what to do for national and international studies, and funds from EPA and National Climate Program Office. A lot of work; not sure how we can find time to do it all.

f. We will receive 4,000 Cartridges of Satellite Data

Put it into archives. Data is worth about $350,000; obtained by bargaining.

g. Enhance Data Inputs to Reanalyze the Atmosphere

Allot at least four person-weeks to these data tasks (they need 18 person-months; they could use five person-years or more). Had to curtail work on aircraft for three years. Obtain more satellite cloud wind data.

h. Enhance Data for Long Period Climate Studies

Distribute work around US. Use three person-months here, to improve world monthly surface, and monthly raobs. This is a hot issue now.

i. Ocean datasets

Keep increasing the number of ocean datasets, and improve access. Add to the good progress in making ocean datasets available.

j. Ingest Data

Handle about 400 extra tapes of surface and UA data (from USAF, NOAA).

k. Keep Strong Exchanges going with China and USSR

Involves many datasets, many plans, national coordination

l. Data to Support the World Climate Research Program (WCRP)

The WCRP in Geneva wants us to help make available, selected data on monthly world grids, 2.5° resolution. Meetings Dec. 87, Apr 88, July 88, Oct 88. It is a good idea. We will try to be responsive as long as the manpower needs can be kept very low.
m. National and international data planning.
   Work with Interagency Group in US and with International IGBP to assist in plans.
   Limit the time.

n. Catalogs and Inventories
   Find a little time to keep this coming along

o. Other
   - Keep INSAT data going. Handle new data (lightning, deep sea cores, etc) for NSF.
   - Achieve some progress on CD-ROMS (work with U. Wash; make another here).
   - Keep STORM progressing.
   - Enhance availability of satellite cloud climatology data (work with NASA, CSU, FSU)
   - Obtain a little of the data needed for African and Arctic studies

6. DATA ACTIVITIES OF ROY JENNE AND THE WHOLE DATA SUPPORT SECTION
   - Many of the activities of the DSS are summarized elsewhere.
   - Ship data and ship statistics have been sent to about 95 users during the last four years.
   - There have been large tasks of updating many datasets, adding new ones, and servicing
     many user requests. We sent out data on 900 magnetic tapes, selected from 1900
     archival volumes. More data was used on-line at NCAR. There was also a high volume
     of telephone calls and correspondence. This basic work takes about 70% of our time.
     There has not been enough time to complete enough basic dataset development work.
     The big projects such as ship updates and satellite data take another 15 to 20% of our
     time.

7. UPDATE COADS SHIP DATASET
   Data are available through 1979. People badly need an update. For three years, we have
   had meetings, letters, phone, etc to make sure that problems are fixed, and we have necessary
   data to include. Much data for 1988 can now be included, as well as 1980 – 87.

   Canada will help clean up the buoy data. We got most inputs on the mass store. It is coming
   along but a little too slowly — too many interruptions. It is a very big project.

8. EPA ASSESSMENT STUDIES FOR USA
   Our Data Support Section was very heavily involved in preparing and sending climate
   model data to support these US climate assessment studies by about 30 to 40 scientific groups
   across the US. Mostly done Oct 87 – May 88. The time pressure was intense.

   This has gone very well. The PIs used the data and there were very few questions about
   formats, etc. We are still under contract to prepare data for follow-on work.

   Also, I wrote a paper about the climate models, and prepared an eight-page text about a
   possible new CO² model run at NCAR.

   A major related international program (IPCC) started Jan 1989 for world climate assess-
   ments.

   — We will help make data available for these studies (under contract with National Climate
   Program Office).
9. TASKS TO SEND AND RECEIVE SATELLITE DATA

9.1 More Satellite Data at NCAR

In a big project done Aug 86–June 87, NCAR saved missing TOVS data from NOAA TBM tapes. Dennis was the main hero. NCAR got a total of 12 trillion bits for the archives. This Project has gone well.

9.2 Task to Send Satellite Data Back to NASA, NOAA

In the summer of 1988, Dennis worked out the exact data structure with NOAA/NASA. I have gotten ¾ of the political agreements worked out: enough to send 4,000 cartridges. Dennis worked from Nov 88–Apr 89 to prepare most volumes to send. We also made subsets that are needed for two groups.

10. PANEL ON CLIMATE TRENDS

Sept. 7-9, 1988: —The National Climate Program Office and NAS set up an ad hoc panel to help determine the best estimate of how climate has been changing and how to interpret the summer drought in the US. Many of the principal climate people in the world who are working on this problem, are on this panel. There has also been additional work since September.

— The summer 1988 drought over the US: There were many questions; this made it almost impossible to handle all new needs, especially in the June – Oct 88 period.

11. BILATERAL PROGRAMS

11.1 US-China Data Exchange

- 10-25 March 1988: Extensive meetings in China. Developed and signed plans for a bilateral data exchange. This includes many types of data. Text is available.

- During 1988–89, we have sent about ten datasets to China. They have sent only two, but these tapes were from huge manual-intensive projects in China.

11.2 US-USSR Exchange

Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, Jenne was named the US Coordinator for the data exchange function in this program. There has been some data exchange activity each year since.

In Aug 1988, Jenne visited with Smirnov in USSR to agree on activities for one or two years. The data exchange was given full project status within the US-USSR bilateral in Nov 1987. This presents more opportunities, but also takes more time. It is now a very active exchange, and hard to keep up with. The USGS just got me a list of river data that we could exchange. Several NOAA centers have helped send and receive data.

11.3 US-India Monsoon Research

This program had its roots in R. Reagan - I. Gandhi meetings in July 1982. See Science 13 May 1983 for a short report. Jenne is the US focal point for data planning and exchange under the program.

- India started sending 3-hourly data from the INSAT satellite. This was a political breakthrough.

- Otherwise the program is in limbo. NSF suggests that I quietly push some aspects. A good idea, but I have not had time.
12. OTHER ACTIVITIES

12.1 NSF/NCAR Incoherent Scatter Radar Project

Data for this NSF-NCAR project is coming along nicely, thanks to Roy Barnes and Art Richmond.

12.2 Data Planning for NASA

- Chairman of NSSDC Data Restoration Committee (has scientists from Univ, NASA, NOAA), Jan 88 – to about Sept. 88 and continues. The National Space Science Data Center (NSSDC), asked our committee to review satellite earth observing datasets from 1960 – 1988. In June 1988, we advised NASA on priorities for preserving these data. The effort also includes NOAA satellite data. Knowledge about the scientific aspects and the data have to be combined for these studies. This has been a very useful effort; it causes large resources to be expended in useful ways and will result in better info about data.

- NASA has an oversight committee for all of their data systems called the ESADS. Since late 1986, Jenne has been a member of NASA planning efforts to pull together some of their activities, and prepare concrete data goals. The ESADS has about 10 members from the research community. Jenne was named vice-chairman April 88. Finished with this Feb 1989.

- Catalogs. Involved in NASA catalog discussions about 1983 – 86. About Mar 87 – 1989; have been on the NASA Catalog Committee, and Lexicons, etc. (This is tied to interagency projects).

- NASA EOS Review Panel

  Sept. 13-16, 1988: —NASA needed to review EOS proposals for interdisciplinary studies. Jenne reviewed six proposals and discussed them with a group of five people. Then he worked with a large panel to rate 25 proposals. (NASA received 150 proposals on this subject.)

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NOAA may receive extra money in 1989 to use for data projects. They asked for a suggested list of projects to do. This document (12 pages) was made in Feb 88. It is helping to establish some national programs. It has specific tasks for the data centers to do. We are woking with a US-Canada water project (Spring 89) that may help to accomplish part of this.

12.4 SERI Committee (Solar Energy Research Inst)

SERI has a Resource Assessment Project to refine estimates of available solar and wind energy in various locations. In Mar 1988, I was named to their Science & Tech. Peer Review Committee (for present and future activities). Meetings July 1988, and new one Aug 1989. We hope to fix selected problems with USA solar data.

12.5 USIA Live TV Cast With India

Sept. 27, 1988: Supercomputing and Weather Forecasting —Jenne and Krishnamurti (Florida State Univ.) were on this program in Wash., DC representing the US. Participants in India could ask questions and make comments.

13. ACADEMY PANELS

Roy Jenne is a member of several Academy Panels:

- NAS Ocean Climate Research Committee (from Mar 1986)
Finished term as member of this committee in March 1989.

- NAS Committee for Geophysical Data (from 1982)
  
  This committee is now active in Global Change planning. It oversees the World Data Centers. I will chair a subpanel for reviewing Asheville.

- NOAA Panel of the Ocean Studies Board (NAS panel)
  
  Formed about March 1986 to review NOAA budgets with respect to Oceanography, and give recommendations to NOAA. The last meeting was May 1988 at Scripps.

- Panel on Model-Assimilated Datasets for Atmospheric and Oceanic Research:
  
  This is a new panel to consider the issue of reanalyses. Data Reanalysis could really help the science. First meeting in May, 1989.

14. OTHER SELECTED SERVICE ACTIVITIES

- Member of NCAR ARG Committee
- Member of NCAR Computing Allocations Committee
- Vice-chair of NCAR History Committee
- Committee on NCAR highlights covering many years (NCAR text nearly completed)
- Reviewed about 7 additional proposals, papers, or Tech Notes

15. WORK WITH WEATHER CENTRALS TO DEFINE ADVANCED ANALYSIS ARCHIVE

For over three years, I have been working with ECMWF to define procedures to make available more of the ECMWF analyses archives for research in the U.S. This data flow is now better, but there are problems with volume and cost that can't be avoided.

The models at NMC are becoming very good and warrant the archival of selected data such as precipitation, more boundary level data, radiation diagnostics, etc. Since mid-1987, I have been working with NMC to help define new archives. The last meeting with the NMC of R&D was Jan 89. The plans are coming together. I need a little more time to commit to it.

15.1 Help With Data, Science, and Plans for IGBP (Global Change)

Attended two meetings on this subject in Moscow. Gave talks at each. Am preparing a formal paper for one of them. Hopefully, the data plans are in a little better shape now.

Prepared a talk and a written paper for a meeting in Belgium, May 1988.

During the Moscow meetings and later, I headed an effort to gather top level info about where to locate data. The project is about half done. The Landsat Center is getting me more info about the world centers with Landsat data (Rasool, NASA, and Bretherton are involved).

16. INTERAGENCY DATA PANEL (incl NSF) From Aug 1987

The concern is to have smooth running national data systems for Global Change, etc. I have prepared some documents for NSF, and two for a committee on data charging and money transfer (I'm the NSF representative).

— Attended a major interagency data workshop in Nov 1988. Planning is still very fluid in this area. It needs more focus. I've been working with Sushel Unninayar and Jay Fein at NSF.
January 23, 1989

Mr. Roy L. Jenne
1850 Table Mesa Drive
Boulder, Colorado 80303

Dear Mr. Jenne:

I am pleased to inform you that you have been elected to the rank of Fellow of the AAAS. Congratulations on this well-deserved recognition of your accomplishments. A Fellow of the AAAS is defined as "a Member whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." Your nomination for this recognition was presented to the AAAS Council on January 18. The citation for your nomination read as follows:

"For exemplary research and dedicated service in management and assimilation of large data sets for national and international research programs in atmospheric and ocean sciences."

Your certificate of election is enclosed.

By the time you receive this letter, I will have left the AAAS and started my duties as the Director of the Oak Ridge National Laboratory. During my tenure at the AAAS, I started several activities and made some changes in the organization. I hope that these will prove to have been positive steps, but only time will tell. One of the activities that I did not get very far with is trying to improve ways in which you, the Fellows, could play a larger role in the programs and functions of the AAAS. I regret this because I believe that you collectively are an under-utilized resource that could be tapped to the benefit of the Association and the science enterprise in the United States. I hope that you will give some thought to this matter and let the next Executive Officer have the benefit of your suggestions.

Sincerely,

Alvin W. Trivelpiece

AWT: 1m
Enc.
Dear Dr. Jenne:

Thank you for your excellent discussion of the "Role of Supercomputers in Weather Forecasting" in the September 29 WORLDNET Dialogue program with participants in New Delhi.

I am enclosing a report of overseas reaction to the program. Because Public Law 80-402, basic enabling legislation of the U.S. Information Agency, prohibits the domestic dissemination of USIA program materials, this report and any other complimentary material relating to this program are provided for your personal and private use only.

Again, let me express my appreciation for your having taken time from your busy schedule to participate in this important public affairs program.

Best regards.

Sincerely,

[Signature]

Charles Z. Wick
Director

THE U.S. EXPERTS, DR. ROY JENNE AND PROFESSOR T.N. KRISHNAMURTI WERE IDEAL CHOICES. THEY SHOWED GREAT UNDERSTANDING OF INDIA'S MONSOON FORECASTING CHALLENGES, AND WHAT ACQUISITION OF THE CRAY XMP-14 SUPERCOMPUTER MIGHT MEAN FOR METEOROLOGY IN INDIA AND FOR INTERNATIONAL WEATHER RESEARCH COOPERATION.

THREE PROMINENT INDIAN WEATHER FORECASTING EXPERTS POSED QUESTIONS:

DR. R. P. SARKER, DIRECTOR-GENERAL, IMD, WHERE THE NEW CRAY XMP-14 WILL BE BASED; PROFESSOR M. P. SINGH, HEAD, CENTER FOR ATMOSPHERIC SCIENCES, INDIAN INSTITUTE OF TECHNOLOGY (IIT); AND DR. P. K. DAS, PROFESSOR, CENTER FOR ATMOSPHERIC SCIENCES, IIT, AND FORMER DIRECTOR-GENERAL OF THE INDIA METEOROLOGICAL DEPARTMENT.

THE POST'S AUDIENCE, OF ABOUT 60, WAS PROBABLY THE LARGEST ONE EVER TO OBSERVE A LIVE WORLDNET INTERACTIVE IN NEW DELHI, AND INCLUDED: RESEARCHERS; GOVERNMENT AND PRIVATE COMPUTER EXPERTS; PLANNERS AND JOURNALISTS; CRAY RESEARCH, INC. REPRESENTATIVES; THE NEW DEPUTY SECRETARY FOR THE MINISTRY OF EXTERNAL AFFAIRS; THE EXECUTIVE DIRECTOR OF THE GOVERNMENT'S COMPUTER MAINTENANCE CORPORATION; AND THE PRESIDENT OF THE COMPUTER SOCIETY OF INDIA.
SUMMARY OF ACTIVITIES DURING THE
MAY 1989 - APRIL 1990 PERIOD

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

A. PAPERS

1. Primary Papers


"The Occurrence of Extreme Events," November 1989 — input for IPCC report. I prepared a section for Larry Gates about the likely changes in extreme events with Greenhouse warming. A big task. The paper covers droughts, tropical storms (help by Bill Gray, CSU), thunderstorms, and extreme temperatures. Much more related research is still needed.

A NASA paper was in the March 30, 1990 issue of Science magazine. It includes very interesting climate trend info based on the satellite TOVS data we sent them. Bretherton notes that it was very fortunate that NCAR was able to save the three years of TOVS data that would have been lost. Also, it was possible for NCAR to achieve 98% data recovery, not 75%, on all 6.5 years in the data save effort; October 1978 - April 1985). The paper included credit to NCAR.

2. Selected Texts About Data Availability


b. "Data Availability for Climate Studies," March 1990 — it is a heavy summary (3 pages) on where to find information. Gene Rasmusson, University of Maryland will use it in a book. He said it is perfect for what he needs.


e. "Data Available for Brazil," January - April 1990 — wrote 70% of what is needed (a major text). Visited there April 1990.


g. "Status of Selected CO₂ Climate Model Runs, March 1990.

h. "Satellite Microwave Data," — got more info about the SSMI dataset of microwave data emitted from the surface. Used for sea ice, surface winds, etc. Sent a copy of the notes to the snow and ice center for review.
3. Other Texts

a. "Data Management for Climate and Global Change," February 1990—a position paper for a NSF-sponsored meeting on database systems at the University of Virginia.

b. "Data Methods and Philosophy of NCAR Data Support,"—several texts.


d. "US - USSR Data Exchange,"—several texts were written to push the exchange.

e. Many other texts, planning documents, and proposals have been written during the year.

4. Invited Talks

a. IAMAP MEETINGS: August 7-13, 1989 in England—attended many sessions. I was scheduled to give one talk, but ended up giving three: Overall aspects of Data for Meteorology, Atmospheric Chemistry, and Oceanography. Also visited ECMWF.

b. NASA MEETING: September 1989, about climate data systems. Gave a talk about NCAR data, and about strategies for a national data system. About 150 participants from universities and government labs attended the meeting.

c. NMC MEETING: September 1989—advised them on their plans to develop a climate data assimilation system (CDAS). This long-term committee was organized by UCAR.

I gave a talk about national data activities, strategies to handle model data, and observed data available to use as inputs for reanalyses. About 15 participants from universities and government labs attended this meeting.

d. WMO MEETING: January 1990 (Asheville)—Baseline Datasets. A number of datasets that are needed to study climate change and climate variability still need a lot of improvement (e.g., monthly station temperature and precip, upper air data. WMO sponsored a meeting in Asheville to work out international recommendations. To get quicker results, I pushed for a pilot project to gather data from the countries represented. This will happen. The countries cover a lot of area.—I gave a talk on formats, etc.

e. EPA MEETING: January 1990—world agriculture assessment studies, 25 countries. I gave a talk about climate models.


B. OTHER ACTIVITIES (Some Main Accomplishments)

1. Satellite Data

a. All of the agreed 6.5 years of TOVS data and 1 Tbit of GAC data was sent to NASA and NOAA (total of 4500 cartridges).

b. Received several years of data from the Japanese, GMS, satellite in trade for Pacific Ocean GAC data for one year.

c. We received 3700 cartridges of TOVS satellite data from NOAA, April 1985 - December 1988, to update our set.

2. Data for World Climate Assessment Studies

NCAR’s DSS is known as The World Data Center for model data for these studies. Data from several new model runs were added. Dennis compacted the format (still simple) that has transparent unpackers. About 45 new research groups (from many countries) are using the data for studies of agriculture, rivers, forests, model comparison, etc.

I prepared a lot more information about the models.

3. Ocean Data

Worley added 14 new ocean datasets, and updated (or enhanced) another 8 existing sets. This is a major amount of new data added.

4. Obtain Advanced Data Products from NMC and ECMWF

After working several years, data is starting to flow (I made about 4 contacts with each center this year).

a. Negotiated a half-price deal with ECMWF and they are copying 275 tapes.

b. The first batch of new types of data arrived from NMC in February 1990.

c. The problems are far from solved on all we need, but this is a good start.

5. CD-ROM

We worked with Cliff Mass, University of Washington to update and improve a CD-ROM with 30-50 year series if North Hemisphere analyses. There will be about 650 MB of data on it. The CD-ROM will be mastered and copied by about 25 April 1990.

6. US - USSR Data Exchange

Lots of data are starting to flow in both directions. Data for the atmosphere and ocean are coming along well. I am trying to get rivers, glaciers and solar started.

7. STORM Data Planning

We had several involvements in this planning process. Our inputs have helped avoid program problems (better products will be available). Things are going fairly well.

C. WORK IN PROGRESS (and Plans)

Goal: Be ahead of world research needs for data. Not really possible, but we can still satisfy most requests.

- Do a lot of work ourselves to develop datasets and structure them for ease of access.
- Do national and international work to keep the right data flowing into NCAR.
- Do national and international work to establish concrete programs that will result in more data being available 5 to 15 years from now.

- Go for concrete tasks, not the bureaucratic snarks which are common.

1. Keep updating the broad NCAR archive of datasets and keep handling data requests. This takes 65% to 70% of our time.

2. COADS Ship Update

This is a very large project. The results are badly needed. Keep this project moving (coordinate with five US organizations, UK, USSR, and Canada to make it happen); try to finish near end of 1990.
3. Obtain Enhanced Archives from Weather Centers
   Get more of the new, better data streams from NMC and ECMWF in place and
   flowing to NCAR. But we don’t have staff to handle it adequately.

4. Enhance Climate Model Support for Assessment Studies
   We have plans on what to do for national and international studies, and funds from
   EPA. A lot of work; not sure how we can find time to do it all.

5. Enhance Data Inputs to Reanalyze the Atmosphere
   Allot at least four person-weeks to these data tasks (they need 18 person-months; they
   could use five person-years or more). Had to curtail work on aircraft for three years.
   Obtain more satellite cloud wind data (I am a PI on two proposals to do this).

6. Enhance Data for Long Period Climate Studies
   Distribute this work around the US. Use three person-months here, to improve world
   monthly surface, and monthly raob data. This is a hot issue now. I attended a meeting spon-
   sored by WMO in January 1990, to help foster this work.

7. Ocean Datasets
   Keep increasing the number of ocean datasets, and improve access. Add to the good
   progress in making ocean datasets available.

8. Ingest Data
   Handle about 500 extra tapes of surface and UA data (from USAF, NOAA).

9. Keep Strong Exchanges Going with the USSR
   Involves many datasets, many plans, national coordination. The China exchange is
   more quiet now.

10. Catalogs and Inventories
    Find a little time to keep this coming along

11. Other
    - Keep STORM progressing.
    - Obtain some of the data needed for African and Arctic studies

D. ROLE AS LEADER IN FIELD

1. Bilateral Programs
   a. US-China Data Exchange
      - 10-25 March 1988: Extensive meetings in China. Developed and signed plans
        for a bilateral data exchange. This includes many types of data. Text is avail-
        able.
      - In April 1989, we received a tape from China with daily precipitation for 180
        stations, 1951 - 82.
   b. US-USSR Exchange
      Climate research is prominent under the US-USSR WG-VIII agreements for the
      protection of the environment. In September 1982, I was named the US Coordinator
      for the data exchange function in this program. There has been some data exchange
activity each year since. I need to write several documents each year.

In September 1989, I visited with Smirnov from USSR (met in Asheville) to agree on activities for one or two years. The data exchange was given full project status within the US-USSR bilateral in Nov 1987. This presents more opportunities, but also takes more time. It is now a very active exchange, and hard to keep up with. I have several NOAA and USGS facilities involved in the programs.

c. Data for Australia and Brazil

Since I was invited to these countries for other reasons, I also set up contacts to obtain lots of information about data for these areas. These countries cover much land area for which data is very important. Because of the invitations, part of this work is being accomplished two years earlier than planned.

2. EPA Assessment Studies for USA

Our Data Support Section was very heavily involved in preparing and sending climate model data to support these US climate assessment studies by about 30 to 40 scientific groups across the US. Most intense period Oct 87 - May 88.

This has gone very well. The PIs used the data and there were very few questions about formats, etc. We are still under contract to prepare data for follow-on work.

Also, I wrote a paper giving updated info about the climate models.

A major related international program (IPCC) started Jan 1989 for world climate assessments. In December 1989, I went to Australia in connection with one of the programs.

— We will help make data available for these studies.

SELECTED TASKS RELATING TO THE MODEL DATA WERE:

- NCAR hosted an EPA meeting in September 1989 to help plan the international projects.
- Several texts and a strategy memo were provided for EPA to send to PIs.
- Dennis attended the meeting in Wash., DC in December 1989 (model data comparison thrust).
- An international agricultural assessments project (sponsored by EPA, and US AID) to assess yields under climate change (main meeting, Jan. 1990). Each of 24 countries got three PC disks (1.2 MB) with three variables from three models. Transient data will be sent later. I gave a talk.
- An international rivers project (main meeting Feb. 1990); I gave a talk.
- An international forest assessment project.
- US-USSR cooperative work on Great Lakes and Caspian Sea.
- A tape went to the USSR about June 1989. It should be updated.
- A tape went to Australia for assessment studies there.
- Model data for various other projects.
- Prepared much more text about the models, especially for the new UK model.
- Prepared text about who has used the data.
3. Panel on Climate Trends

The National Climate Program Office and NAS set up an ad hoc panel to help determine the best estimate of how climate has been changing and how to interpret the summer drought in the US. Many of the principal climate people in the world who are working on this problem, are on this panel.

- Meeting September 1988
- Meeting at Amherst, May 1989

4. Hero Info: Two Calls in Search of Data

a. A funny call

Ian Macky called in August 1989 (cartographer, Univ. of CA, Santa Cruise). Someone gave him our catalog. He said "You have a lot of datasets. My hardest problem is to find the data. I've talked to a lot of government agencies and it looks like I've found the right one." He ordered four datasets and then said, "This has been far, far too easy."

b. Brazil data

Bob Mahoney (Goddard) needs Brazil data. On 2-6 September 1989, there was a (recent) field experiment in Brazil about forest burning. They need surface observations on visibility, winds, etc.

He called NCDC (Asheville) and got the answer "We don't handle foreign data;" (This was a wrong answer from NCDC, but Bob had no way to know that). He called CAC and they said that they had daily averages from stations. This wouldn't help him. Someone at Goddard referred them to NCAR. I told him that we could either select a Brazil window of the needed data, or just copy the world.

He ended by saying "I was very frustrated trying to find the data I needed for this project. I called around to various places and couldn't find anything. It is good that someone sent me to you."

5. Work With USAF/Asheville to Obtain Past Data

The USAF has been working for more than a year to send us global surface and upper air data, mostly for 1945 - 65. They will start sending us 600 tapes about May 1990.

The data is needed for reanalyses, for trends studies, and for more African data that was requested by users about 1985.

6. SERI Committee (Solar Energy Research Inst)

SERI has a Resource Assessment Project to refine estimates of available solar and wind energy in various locations. In March 1988, I was named to their Science & Tech. Peer Review Committee (for present and future activities). Meetings July 1988, and one August 1989. We hope to fix selected problems with USA solar data.

7. Data Catalog Information

Attended a meeting at Goddard, 2-4 May about the National Data Catalog. I've been on the panel for two or three years. Met with the head of the program about December 1989.

The work on our own catalog is making some progress, but very little time has been available.
8. Will NWS Observing Changes Kill Climate Trend Info?

This subject has been brewing for more than a year. I sent out info to warn scientist NWS has had plans to fully automate the US surface observations. This would eliminate clouds about 12K feet, drop cloud types, and alter precipitation records. I’ve been involved (since April 1989) in arguing for the needs for climate. J. London (CU) said that I should also send info about it to Bierly, Bretherton, and Suomi. That was done 24 August. Bretherton felt that it should also go to the NOAA Climate and Global Change office (Mike Hall, Eileen Shea), and to Kevin Trenberth [NCAR]. This was done. In January 1990, Bierly wrote to NWS. In the summer of 1989, I was named to a NOAA panel to state what was needed for climate studies. The panel report was prepared September 1989. The issue is brewing.

9. Academy Panels

I am a member of some Academy Panels:

- NAS Committee for Geophysical Data (from 1982)
  This committee is now active in Global Change planning. It oversees the World Data Centers.

- Panel on Model-Assimilated Datasets for Atmospheric and Oceanic Research:
  This is a new panel to consider the issue of reanalyses. Data Reanalyses could really help the science. The first meeting was in May 1989, and another about September 1989. I wrote parts of the text.

10. Interagency Data Panel(incl NSF) From Aug 1987

The concern is to have smooth running national data systems for Global Change, etc. I have prepared some documents for NSF, and two for a committee on data charging and money transfer (I’m the NSF representative).

— Attended a major interagency data workshop in Nov 1988. Planning is still very fluid in this area. It needs more focus. I’ve been working with Susan Unninaray and Jay Fein at NSF. About May 1989, I wrote a review text for them to try to avoid a system that is too complicated.

E. LEADER IN DIVISION AND NCAR

1. Data Activities of the Whole Data Support Section

   a. Many of the activities of the DSS are summarized elsewhere.

   b. Ship data and ship statistics have been sent to about 150 users during the last four years.

   c. There have been large tasks of updating many datasets, adding new ones, and servicing many user requests. We sent out data on 900 magnetic tapes, selected from 1900 archival volumes. More data was used online at NCAR. There was also a high volume of telephone calls and correspondence. This basic work takes about 70% of our time. There has not been enough time to complete enough basic dataset development work. The big projects such as ship updates and satellite data take another 15 to 20% of our time.

2. Update COADS Ship Dataset

Data are available through 1979. People badly need an update. For three years, we have had meetings, letters, phone, etc to make sure that problems are fixed, and we have necessary data to include. Much data for 1989 can now be included, as well as 1980 – 88.
Canada is helping to clean up the buoy data. We have most inputs on the mass store. It is coming along but too slowly —too many interruptions. It is a very big project.

3. **NSF/NCAR Incoherent Scatter Radar Project**

Data for this NSF-NCAR project is coming along nicely, thanks to Roy Barnes and Art Richmond.

4. **Transportability of Data Across Systems**

Our procedures to achieve ease of data access across many computer systems are working well. To achieve this for binary-packed data, we require one subroutine (GBBYTES) on the target computer. We can supply the needed subroutine for most common computers.

The use of our GBYTES software keeps spreading. It helps to make the exchange of binary-packed data relatively painless and transparent. In August 1989, I visited ECMWF. They said "Thanks for being generous with the software," and that they have sent it to at least 50 groups, worldwide.

5. **Member of NCAR ARG Committee**

6. **Vice-chair of NCAR History Committee**

7. **Reviewed About 7 Additional Proposals, Papers, or Tech Notes**

8. **Technology for Data Storage and Transfer**

Periodically, I prepare review information about the most promising of these technologies needed to handle data. This helps to assess system design. It also is a resource used to answer questions, both from NCAR and the outside community.
FY-90 Seminars, Workshops, Presentations

December 1989, EPA MEETING IN WASHINGTON: Comparison of climate model data to the real climate. Dennis Joseph talked about the climate models and climate data.

January 28 - February 1, 1990, IMPLICATIONS OF CLIMATE CHANGE FOR INTERNATIONAL AGRICULTURE WORKSHOP: Sponsored by US EPA and US AID. The main purpose was to sponsor crop modeling in many countries for the present climate and for several possible future CO$_2$ climates. Representatives from 24 countries attended. Roy Jenne gave a talk about climate models, and the data available for these studies.

February 1990, RIVERS PROJECTS FOR EPA: Plans are to examine various aspects of water quantity, quality, and demand under scenarios of climate change. A workshop (Feb. 1990) helped start these projects. For the basins: Indus, LaPlata (S. America), MeKong, Zambezi and Senegal. Jenne presented info about the climate models and about the data that we provide.

February 26-28, 1990, ARCTIC DATA: There was a meeting about Arctic research programs held in Boulder. Jenne joined a discussion on 27 Feb. about inventories, data management, and CD-ROMs. At some point, we will need to extract several data subsets for polar studies.

March 12-13, 1990, DATABASE MEETING IN VA: At this meeting about scientific databases, sponsored by NSF, there were eight or nine people who knew about the data in various disciplines (astronomy, biology, meteorology, oceanography, etc.). About a dozen people from computer science departments had organized the meeting. We discussed data management and wrote a report.

March, 1990, NEW FORECAST CENTER IN BRAZIL: Jenne attended a meeting in Brazil to help define activities. He presented a paper about data. Brazil will soon achieve the capability to prepare operational analyses and forecasts, both global and regional. The new forecast organization has been established, called CPTEC. In April 1990, it had a staff of 44 people; the planned staff is 150. The new supercomputer will be installed about July 1991. About 70 people from Brazil and the US attended.

June 10-17, 1990, ALASKA: Attended the conference "Role of the Polar Region in Global Change" held at the University of Alaska, Fairbanks. Jenne was on a panel; also gave a poster paper. Audience, about 300, world-wide participants. Jenne wrote a paper about data availability for Polar studies that will be in the proceedings.

July 24-27, 1990, DATABASES: Attended workshop on the management of environmental databases (Monterey). Jenne talked about overall data management approaches. About 100 people from US labs attended, mostly oceanography. Many groups gave presentations, mostly ocean and fisheries people. A few groups will get into computer timing problems because of the methods being used; most are OK.

September 19-21, 1990, NOAA LIBRARY COMMITTEE MEETING and WORKSHOP: This meeting was held in Rockville, MD to determine whether data listed in old documents would help with climate research. We also had to address issues of document preservation. A report has been written that has recommendations and a discussion of the issues. It includes a section about microfilm and scanning technologies to preserve documents. Jenne is the chief scribe for this report. About 12 people from across the US.
SUMMARY OF ACTIVITIES DURING THE
MAY 1990 – APRIL 1991 PERIOD

Roy Jenne is manager of the Data Support Section (DSS) of the Scientific Computing Division. This group maintains a large archive of computer-readable research data and provides assistance to users in locating data appropriate to their research needs, interfacing their programs with the datasets, and accessing utility routines for manipulation of the data. Users can access the data from remote terminals, in addition to using the data at NCAR or receiving tapes.

A. PAPERS

1. Primary Papers


"Technology for Data Transfer and Storage," April 1991, last draft. This report reviews CD-ROM, DAT, and many other technologies. A July 1990 version was reviewed by several people including staff at the University of WI. Extensive updates were made January - March 1991. About 90% done.

2. Selected Texts About Data Availability


b. "Data Available on CD-ROMs," April 1991. After a few people asked for information about what data are available on CD-ROMs, I took a few days to prepare this report.


3. Other Texts


d. "Selected Data Information Available from NCAR," October 1990. This is a five-page guide to about forty of our documents.
e. "Data Methods and Philosophy of NCAR Data Support."—several texts.
f. Many other texts, planning documents, and proposals have been written during the year.

B. INVITED TALKS

1. ALASKA 10-17 June 1990: Attended the conference "Role of the Polar Region in Global Change" held at the University of Alaska, Fairbanks. I was on a panel; also gave a poster paper. There were many good talks; Antarctic and Greenland ice cores (CO$_2$, temperature, methane, dust, sulfate, etc.). One thousand years of tree-ring temperature over N. Russia; Model of the Greenland ice sheet for 150,000 years; sea ice from satellite microwave; etc.

2. DATABASES: Attended workshop on the management of environmental databases (Monterey, 24-27 July). Many groups gave presentations, mostly ocean and fisheries people. A few groups will get into computer timing problems because of the methods being used; most are OK. I gave the first talk, (about 80 people).

3. NOAA LIBRARY COMMITTEE MEETING, 19-21 Sept.: This meeting was held in Rockville, MD to determine whether data listed in old documents would help with climate research. We also had to address issues of document preservation. A report is nearly written that has recommendations and a discussion of the issues. It includes a section about microfilm and scanning technologies to preserve documents. Jenne is the chief scribe on this report.

4. MEETING OF NAS CLIMATE RESEARCH COMMITTEE: I was asked to attend this meeting, November 14-15, to report on the effect of the planned automated observing net (ASOS) on the US climate record, (about 20 people).

5. WMO MEETING OF EXPERTS TO PLAN THE CLIMATE CHANGE DETECTION PROJECT, November 25-30, 1990: I attended this meeting near Toronto to give a talk about NCAR activities that contribute toward climate change detection, and to participate in the discussions and writing that lead to a plan. The NCAR projects that help are climate modeling activities and our data activities which include many climate datasets, climate model data, and data preparation for reanalysis, (about 40 people).


C. OTHER ACTIVITIES (Some Main Accomplishments)

1. Data for World Climate Assessment Studies

   NCAR’s DSS is known as The World Data Center for model data for assessment studies. Data from some new model runs were added. There are now about 45 research groups (from many countries) using the data for studies of agriculture, rivers, forests, and model comparison, etc. (EPA sponsored). Many labs and countries are also using the data for studies not paid by EPA. I know of two such studies in the USSR.

   I prepared more information about the models, and texts that are available.

2. Obtain Advanced Data Products from NMC and ECMWF

   After working with the centers for several years, data is flowing nicely (I made about 4 contacts with each center this year). These are important archives. I am pleased that the data is finally becoming available to PIs.

   • ECMWF sent us 275 tapes with model data. We are still sorting out problems (can’t read tapes, missing data, duplicate data).
• The first batch of new types of data arrived from NMC in February 1990. Other products started by December 1990.
• Now I’m working with Kreitzberg (at Drexel) to solve some of the mesoscale archive problems.

3. CD-ROM

We worked with Cliff Mass, University of Washington to update and improve a CD-ROM with 30-50 year series of North Hemisphere analyses. There are about 650 MB of data on it. Copies became available about June 1990.

4. STORM Data Planning

We have had several involvements in this planning process. Also, we are increasing our archives of mesoscale data.

D. WORK IN PROGRESS (and Plans)

Goal: Be ahead of world research needs for data. Not really possible, but we can still satisfy most requests.

• Do a lot of work ourselves to develop datasets and structure them for ease of access.
• Do national and international work to keep the right data flowing into NCAR.
• Do national and international work to establish concrete programs that will result in more data being available 5 to 15 years from now.
  — Go for concrete tasks, not the bureaucratic snarls which are common.

1. Keep updating the broad NCAR archive of datasets and keep handling data requests. There are now about 380 datasets; this takes 65% to 70% of our time. There is also a high volume of telephone calls and correspondence.

2. Reanalysis Program

I have been heavily involved (about three years) in initiating a project to reanalyze the atmosphere, each six hours, for the past 35 years. This is a very big project.

• Proposal for funding: Worked with NMC to develop four successively better versions of a proposal (Jan. 1990 - March 1991). I am Co-PI with Eugenia Kalnay (Development Division, NMC).
• Wrote a 50-page text that describes the data projects in more detail, and indicates how other collaborators contribute. Main collaborators on the data aspects are Kung (Univ. of MO), Oort (GFDL), NCDC.
• NOAA Funds ($90K) for FY-91 arrived at NCAR in April 1991. The request was for about $300K each year.
• VISIT TO UNIVERSITY OF MO: On Feb. 18-20 I visited the University of MO. Ernie Kung and two grad students will work with us on the reanalysis project. I also gave a more general talk to the department about reanalysis, data availability, and NCAR, (about 30 people).
• The Air Force (Asheville) worked for over a year to prepare data for us. On 15 August 1990, the tapes arrived:
  — 195 tapes with world upper-air data prior to 1965;
— 405 tapes with surface three-hour data before about 1967;
— The data is needed for reanalyses, for trends studies, and for more African data that was requested by users about 1985.

3. COADS Ship Update

This is a very large project. The results are badly needed. Keep this project moving (coordinate with five US organizations, UK, USSR, and Canada to make it happen); try to finish near end of 1991. Ship data and ship statistics have been sent to about 150 groups during the last four years.

4. Enhance Climate Model Support for Assessment Studies

We have plans on what to do for national and international studies, using funds from EPA. It is hard to find time to do the work.

5. Ocean Datasets

Keep increasing the number of ocean datasets, and improve access. Add to the good progress in making ocean datasets available.

6. Keep Exchanges Going with the USSR and China

Involves many datasets, many plans, national coordination. The US/USSR exchange is going well. The China exchange is coming back to life (I think).

7. Catalogs and Inventories

Find a little time to keep this coming along

E. ROLE AS LEADER IN FIELD

1. Bilateral Programs


b. US-USSR Exchange: Climate research is prominent under the US-USSR WG-VIII agreements for the protection of the environment. In September 1982, I was named the US Coordinator for the data exchange function in this program.

In September 1989, I visited with Reitenbach near Moscow (our annual planning meeting; a report is available).

• The exchange of climate and ship data is going well.
• I am working with USGS and the Soil Conservation Service to start exchange of river discharge and mountain snowpack data.
• Pollution data, solar data and glaciers need more attention.

2. Reanalysis Program

Heavily involved in helping to get this major program started.

3. EPA Assessment Studies for USA and World

Our Data Support Section was very heavily involved in preparing and sending climate model data to support these US climate assessment studies by about 30 to 40 scientific groups across the US. Most intense period Oct 87 – May 88. A major international program started Oct. 1989. We are still very involved. This has gone very well.
4. Panel on Climate Trends

The National Climate Program Office and NAS set up an ad hoc panel to help determine the best estimate of how climate has been changing and how to interpret the summer drought in the US. Many of the principal climate people in the world who are working on this problem were on this panel.

- Meeting September 1988

5. SERI Committee (Solar Energy Research Inst)

SERI has a Resource Assessment Project to refine estimates of available solar and wind energy in various locations. In March 1988, I was named to their Science & Tech. Peer Review Committee (for present and future activities). Meetings July 1988, August 1989, and Dec. 1990. We hope to fix selected problems with USA solar data.

6. Academy Panels

- I am a member of an Academy Panel: NAS Committee for Geophysical Data (from 1982)
  This committee is now active in Global Change planning. It oversees the World Data Centers.
- In Nov. 1990 I spoke to the Committee for Climate Research about several data problems (changes in NWS observations, solar data problems, turbidity data shut-off).

7. Interagency Data Panel(incl NSF) From Aug 1987

The concern is to have smooth running national data systems for Global Change, etc.

- About May 1989 I wrote a review text to try to avoid a US data system that is too complicated.
- Attended an interagency data workshop in April 1991. This is the fourth attempt to get a viable interagency plan.

F. OTHER

- I was asked to attend a NOAA meeting (April 91, 60 people) on data quality control. The only outsider, but I like NOAA.
- Invited to a NOAA CD-ROM policy meeting in May 1991.

G. LEADER IN DIVISION AND NCAR

1. Take Part in Division Planning

Many of the activities of the DSS are summarized elsewhere. We are involved most heavily in data storage and data flow questions.

2. Member of NCAR ARG Committee

3. Member of NCAR History Committee (the last meeting was held March 1991)

4. Reviewed About Seven Additional Proposals, Papers, or Tech Notes