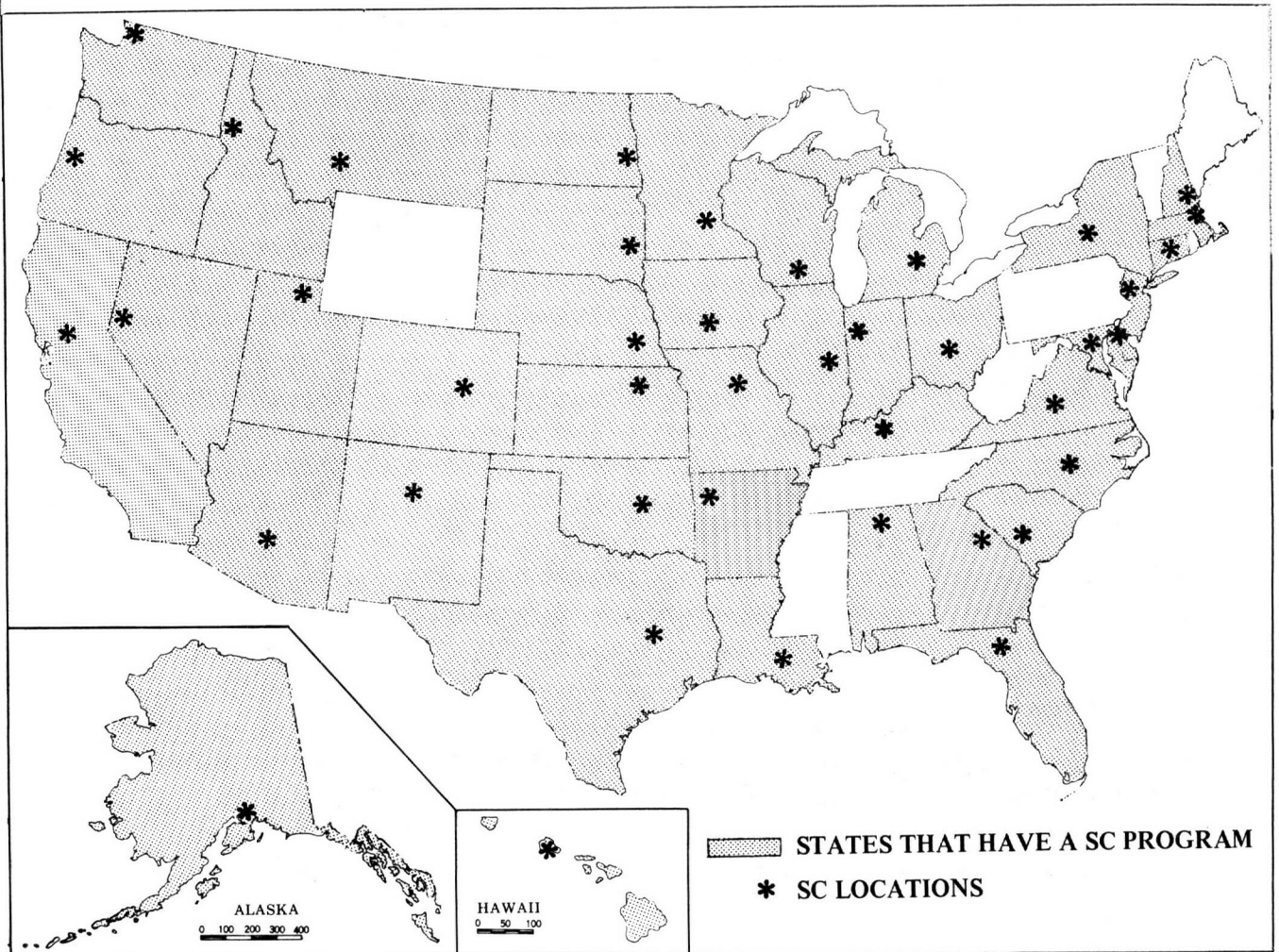


National Oceanic and Atmospheric Administration  
Environmental Data and Information Service  
National Climatic Center

# NEWS LETTER

IN COOPERATION WITH  
THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS



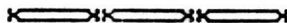
VOLUME 4 NUMBER 3 NOVEMBER 1980

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## NCC BRIEFS

The following is a resolution from the 1980 Annual Meeting of the North Central Regional Technical Committee NC-94:

"Whereas the NCC of EDIS has continued to send climatological publications and copies of basic forms to SC designates since the termination of the NOAA state climatologist program in 1973, and whereas it has budgeted a small contingency fund for all SCs, be it resolved that the NC-94 Committee commends the NCC, EDIS for essential support to maintain minimum state programs and climatological data service to the general public in the United States during a crucial period of generally decreasing state and federal budget support."



### AASC COMPUTER REVIEW

The Oklahoma Climatological Survey, supported by a NOAA/EDIS grant, hosted a computer demonstration on June 27-28 at the O.C.S. facility in Norman, Oklahoma, and a second one at the AASC meeting, August 28-29, in Milwaukee, Wisconsin. Potential users from a variety of private, State, and Federal agencies attended the first meeting and attendees of both the AMS and AASC, the second. Amos Eddy, Oklahoma State Climatologist, introduced an inter- and intra-state information acquisition and exchange plan which includes state climate offices, private users, local, state and federal agencies. Jo Ann Oberst and Ellen Cooter of the O.C.S. demonstrated examples of data acquisition, processing, and presentation using a commercial micro-processing system costing about \$10,000. Several operational information dissemination systems, e.g., Greenthumb, AGNET, ENDEX, HISARS, D/RADEX, etc., were presented and discussed. Brief presentations by representatives of Perkin-Elmer, United Computing Services of Kansas City, and Tektronix of Milwaukee were part of an open discussion of climate information user-identification and service. Plans for a user-oriented meeting were proposed and suggestions and comments solicited. Attendees were urged to put their comments into letters and forward them to their state climatologists as well as federally supported climate data centers.

AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

ANNUAL BUSINESS MEETING  
MILWAUKEE, WISCONSIN

The meeting was called to order at 1:15 p.m. August 29, 1980, by President McKee.

1. The minutes of the 1979 Annual Business Meeting, having been published in the AASC Newsletter, Vol. 4, No. 1 (January 1980) were approved as published.

2. Secretary/Treasurer Robinson reported that the main secretarial business of the year had been the initiation of steps to obtain Tax-Exempt status for the Association. A firm of accountants had been retained to smooth this process. Two constitutional amendments were needed to meet IRS regulations - one concerning prohibited activities, one concerning dissolution. Ten voting members of the Association duly petitioned the Executive Board for such amendments. A mail ballot was taken. The results were:

Prohibited activities amendment - 29 for, 1 against - amendment passed  
Dissolution amendment - 30 for, 0 against - amendment passed

The tax-exemption process is continuing.

Paid up membership stood at 21 prior to this present meeting; it is now 25. Income for the year was \$925, and expenses were \$225. This leaves a current balance of approximately \$950 as the assets of the Association. The major outstanding debt is for the President's expenses, estimated to be about \$200. The Secretary/Treasurer recommended that future dues be assessed on a calendar year basis, and that the Association's financial year run from July 1 to June 30. This would allow a more realistic financial report at the Annual Business meeting, notably allowing the expenses for the Annual Meeting to be included.

3. The Nominating Committee (Waite, Carter, Richardson) presented a slate of nominees for the new Executive Board. For Secretary/Treasurer, Conner was nominated. Mitchell proposed and Nurnberger seconded a motion that nominations be closed. Motion passed. For President-Elect, Dethier was nominated. Nurnberger proposed and Molnau seconded a motion that nominations be closed. Motion was passed. By acclamation the following were duly elected:

President-Elect - Dethier (New York)  
Secretary/Treasurer - Conner (Kentucky)

4. The report of the AASC/NOAA Communications Committee (Schaal, Waite, Kuehnast) was presented by Waite. The main activity has been a letter sent to each NWS regional director encouraging SNSs to work closely with SCs. Each Director responded positively, although with varying degrees of enthusiasm. A copy of the response has been sent to all SCs in the region.

5. The report of the Committee on State Programs was presented by President McKee. No formal activities had been undertaken. It was noted that the survey of the Computer Committee included much that was generally applicable to State Programs. Care must be taken to avoid duplication of committee activities. It was recommended that the file of State programs be maintained by the next committee chairman. It was further recommended that the AASC pay for the duplication of the file, or parts of it, when information is requested by a member. The recommendation was unanimously accepted.

6. The Constitution Committee reported no activity beyond preparation for the discussion of membership and dues later in the meeting.

7. No formal report was received from the Computer Committee at the business meeting because of the previous demonstration and discussion. McKee thanked Eddy for the time and effort involved in undertaking the tasks and for presenting the results. He also noted that those not responding to the survey should do so as soon as possible. The results should be very useful both to AASC and to EDIS.

There was some discussion of how far AASC should pursue the hardware question, now that a solid base has been established. Local needs and priorities were emphasized, along with the current capability in individual states. Compatibility between systems is important, but commercial distributed networks may be too expensive. NCC should be considered as the central point of any network, while NCAR may become involved in the future. It was suggested that the Federal government might be able to provide some hardware, specifying and providing a basic hardware set. It was noted that communication within a state was often a more immediate problem than communicating between states. For many instances, personnel are a more immediate need than hardware.

8. The Membership and Dues Committee report was presented by Michaels. A proposed statement to clarify membership and associate membership was discussed. After a motion by Eddy to delete the requirement for "recognition by the Director of NCC" from the constitution failed to receive a second, Mitchell suggested a reaffirmation of the membership portion of the constitution. Affirmed 23 for, 1 opposed.

9. The committee also proposed assessment of dues, \$25 for voting members and \$15 for non-voting members. Critchfield suggested an annual establishment of dues and McKee moved for adoption, seconded by Nurnberger, carried on first reading, 23 for, none opposed. Second reading will be at the 1981 meeting.

10. Motion by Nurnberger, seconded by Waite, that 1980 assessment be \$25 for voting members and that any other assessments be made through registration fees. Carried 24 for, none opposed.

11. Motion by Rosenberg, seconded by Caprio, that the Constitution Committee examine the issue of membership and purpose of membership and present recommendations at the next meeting. Passed 24 for, none opposed.

12. Critchfield made a motion, seconded by Nurnberger, that the Constitution Committee submit an amendment to Section III, clause 2, of the constitution to add "and payment of dues." Passed 24 for, none opposed.

13. Motion was made by Nurnberger, seconded by Critchfield, to establish associate membership dues of \$15 for 1981. Passed 24 for, none opposed.

14. The use of AASC funds to help defray the costs of trips the President makes representing the AASC was discussed. Several members spoke in support of such expenditures. No opposition was voiced.

15. The new President Stanley Changnon, appointed six committees; Nominating, State Programs, Constitution and Bylaws, Relations with EDIS and NWS, Computer, and Severe Storms. In addition, the Executive Board will act as a Committee for Publications Inventory to design a sampling questionnaire to determine what publications the State Climatologists produce. The membership of the committees is:

A. Nominating Committee

1. Howard Critchfield, Chairman
2. Russ Mather
3. Wayne Decker

E. Computer Committee

1. Myron Molnau, Chairman
2. Gayther Plummer
3. Val Mitchell
4. Norm Rosenberg
5. Amos Eddy

B. State Programs

1. Dean Bark, Chairman
2. Gene Carter
3. Jim Goodrich
4. Bill Lytle

F. Severe Storms Committee

1. Paul Waite, Chairman
2. Bill Bartlett
3. Malcolm Reid

C. Constitution and Bylaws

1. Pat Michaels, Chairman
2. Fred Nurnberger
3. Joe Caprio

G. Publications Inventory

To be accomplished by  
the Executive Board  
(Changnon, McKee,  
Dethier, and Conner)

D. Relations with EDIS and NWS

1. Larry Schaal, Chairman
2. Earl Kuhneast
3. Paul Waite

16. President Changnon expressed the Association's appreciation for the outstanding efforts of Amos Eddy and his staff on the computer project. The President also noted the attendance of individuals from the Federal level and expressed his appreciation for their interest and support.

17. The President requested that recommendations or suggestion for individuals for the role of State Climatologist in states without a SC be forwarded to members of the Executive Board.
18. A House and Senate Committee membership list was provided by NOAA to the Association members. Mr. Charles O'Dell, Congressional Liaison Officer for NOAA (301 443-8948) can arrange meetings with members of Congress.
19. McKee moved, seconded by Eddy, to hold the next meeting in Lincoln, Nebraska, in mid-October 1981. Passed without opposition.
20. Critchfield moved to adjourn, seconded by Mitchell. Adjourned at 3:00 p.m. August 29, 1980.

REPORT OF THE SECRETARY/TREASURER  
FOR THE YEAR 1979 - 80

The Minutes of the 1979 Annual Meeting were circulated in the AASC Newsletter.

The main business has been to take appropriate steps to secure Tax-Exempt status for the Association. A firm of Certified Public Accountants was retained to undertake this. They noted that contributions to the Association by individuals are already tax-deductible under the IRS code. Necessary first steps were to obtain an Employer Identification Number, which has been obtained, and to amend the Constitution into an acceptable form. Two amendments were needed concerning prohibited activities and concerning dissolution. Ten voting members of the Association duely petitioned the Executive Board for such amendments. A mail ballot was taken. The results were:

Prohibited activities amendment - 29 for, 1 against - passed  
Dissolution amendment - 30 for, 0 against - passed

The Accountants filed the necessary forms with IRS, and a preliminary ruling is awaited. This may take another three months.

Paid-up membership for the year is 21 (20 SCs + 1 Federal employee).

The financial report for the year is appended.

FINANCIAL STATEMENT  
1979 - 1980

INCOME

1979 Meeting Registrations	
40 @ \$10.00	400.00
1979-1980 dues	
21 @ \$25.00	525.00
 Total Income	 <u>\$925.00</u>

EXPENSES

1979 Meeting Guest Entertainment	27.50
Check printing	4.00
Stationery	72.75
Accountant fees	50.00
Treasurer-Exec. Board Meeting	67.82
Treasurer-Stamps, etc.	2.38

Total Expenses \$224.45

Excess Income over Expenses      \$700.55

Balance 10/15/79	253.61
Excess Income	700.55

Balance 8/27/80      \$954.16

On deposit, First Union National Bank, Asheville, NC	\$954.04
Cash on hand	.12

TOTAL ASSETS      \$954.16

FINANCIAL ACTIVITY AT ANNUAL CONFERENCE

INCOME

Dues (4 @ \$25.00)	100.00
Registration	
(27 @ \$10.00)	270.00
 Total	 <u>\$370.00</u>

EXPENSES

Hotel meeting room	26.00
Conference coffee	44.85
 Total	 <u>\$70.85</u>

Income in cash	240.00	Expenses paid in cash	\$70.85
Income in checks	130.00		

\$370.00

Excess Income over Expenses      \$299.15

Transmitted to First Union National Bank:	Checks	130.00
	Cash	169.15

TOTAL DEPOSIT      \$299.15

## IOWA STATE CLIMATOLOGY PROGRAM

The Iowa Department of Agriculture expanded its weather services by establishing the Office of State Climatology in June 1976. The previous climate archival and limited public service program was quickly expanded in 1976 to also include regular climatic assessments, applied climatic studies, professional consultations and cooperation with other government agencies. The archives were expanded. Public service contacts quickly increased, reaching a total of 5,000 per year by the second year of operation. The office emphasizes prompt service to all Iowa users. In addition to supporting agriculture, the State Climatology Office provides information to engineers, lawyers, the news media, insurance interests, energy users, transportation, hydrologic interests, governmental agencies and the private citizen. reaching all segments of society with a myriad of climatic related informational applications.

The State of Iowa (Department of Agriculture) operates a soil temperature network in cooperation with the National Weather Service. From this network a Soil Climatology is being prepared for Iowa. Operational information is routinely available describing soil temperatures during the crop planting season and during the winter frost penetration season. The soil temperature program is scheduled for additional sites and expanded information next season.

Other projects include the preparation of a sunspot vs. Iowa precipitation relationship and the preparation of Iowa climatological probability sequences for long range planning. This office is participating in the EDIS-CONFER computer network program.



### CLIMATOLOGY CENTER PREPARES FOR THE FUTURE

by

**Norman J. Rosenberg**

Drought in Africa south of the Sahara in the early seventies, drought in North America in 1976-77, the "great grain robbery" that depleted U.S. grain reserves and the dangerously low world food reserves in the early 1970's, predictions of a cooler global climate - perhaps even a little ice age, predictions of a warmer climate because our fossil fuels consumption is causing an increase of carbon dioxide in the earth's atmosphere -- all items of recent climatological concern.

Some of these events and trends may seem remote to Nebraskans but these and other climatic impacts may profoundly affect agriculture and society here, if they have not already done so.



As a result of the increase in concern about the impacts of climate on man, we see new integrated scientific efforts beginning throughout the world. International cooperation in the study of climate is being strengthened through new programs in the World Meteorological Organization, an agency of the United Nations.

In September 1978, the Congress of the United States enacted The National Climate Program Act. This Act provides for the creation of a National Climate Program Office whose main responsibility is to increase and improve our national capability for research aimed at understanding climate processes, improving long range climate forecasting, understanding the impacts of climatic events on, and providing climatic information services and advice to agriculture, industry and the public in general.

Agriculture is probably Nebraska's most weather-sensitive business. Recognizing this, the Board of Regents of the University of Nebraska, in February 1979, created a new unit - the Center for Agricultural Meteorology and Climatology (CAMaC) - within the Institute of Agriculture and Natural Resources (IANR). Weather and climate greatly affect not only our agriculture but also our need for energy - to heat the house and to pump the irrigation water. They also directly affect the need for and availability of ground and surface water supplies. Thus the location of CAMaC in IANR is a fitting choice.

### Early Involvement

The University of Nebraska's Institute of Agriculture and Natural Resources has been involved in research and service work on climatic problems for some time. In the early 1960's our program in Agricultural Climatology began when the Nebraska Agricultural Experiment Station hired its first Agricultural Meteorologist.

Four faculty scientists (B.L. Blad, S. B. Verma, A. Weiss and N.J. Rosenberg) with supporting staff and graduate students were assigned, until creation of CAMaC, to the Agricultural Meteorology Section of the Department of Agricultural Engineering.

These scientists have been engaged, primarily, in field research to understand the microclimate in which crops grow. Two major field research laboratories have been developed for this work - at the University of Nebraska Field Laboratory near Mead and at the Panhandle Station in Scottsbluff.

Climate related research has also been underway in other units of the Institute. Professor Ralph Neild, in the Department of Horticulture, has been involved in developing climate probability statistics and in applying this information to farm management decisions.

In 1973, the National Weather Service State Climatology Program was terminated. This program was responsible for maintaining records from the 300-plus volunteer weather observers distributed throughout the State and for providing information on Nebraska's climate to public and

private users. Since termination of the Nebraska State Climatology Office, the program has been maintained by a reduced staff (Esther Culwell with the help of R. E. Myers, former State Climatologist acting in a voluntary capacity). The office has operated under supervision of the Conservation and Survey Division of IANR.

Thus, it was a logical step to combine the three organizations described above into a single unit to better coordinate all weather and climate related work already underway within the Institute of Agriculture and Natural Resources. The serious need for greater activity in this area has prompted other Institute units to assign additional faculty members to work with CAMaC. Dr. Donald Wilhite of the Water Resources Center, Dr. John Norman of the Department of Agronomy, and Dr. LeRoy Hahn of the USDA's Meat Animal Research Center have also become affiliated with CAMaC by joint or courtesy appointment.

### Program Development

The program of the new Center is being developed through a series of internal planning sessions and conferences with Experiment Station, Cooperative Extension, and other University personnel. Interested State agencies, farmers, and others are being consulted. Our first steps involve continuation, but closer coordination, of ongoing research projects.

We believe it possible to maintain or even increase crop production while using less water by changing the plant's environment or by changing the actual form of the plant itself. Windbreaks, irrigation, and alterations in planting patterns have already proven effective techniques that can be used for this purpose. In the near future we will begin to conduct studies of the influence of plant morphological factors such as pubescence, leaf shape and leaf distribution on plant water use and production.

When plants begin to run out of water, their temperature rises since evaporative cooling of the leaves decreases greatly. We will continue research now underway on means of remotely sensing plant temperatures to determine when crops are suffering from water shortages. We have been conducting studies to see whether it is practical to observe plant temperature with instruments called thermal-radiometers carried on aircraft or satellites.

Air is always in motion. Research is underway aimed at understanding the nature of turbulence near the ground. These studies require very complex instrumentation and computer analysis of the resulting measurement. Results may lead to improved methods of aerial and ground-borne spray and dust applications, and reductions in evaporative losses of sprinkler applied irrigations.

The concentration of the gas carbon dioxide ( $\text{CO}_2$ ) is increasing in the atmosphere as a result of the burning of fossil fuels (petroleum, gas, coal). Since plants use  $\text{CO}_2$  in photosynthesis, it is expected that the rates of photosynthesis in most species will increase as the concentration

continues to rise. We are engaged in a program to monitor the concentration and also to observe the rates of capture and respiratory releases by the vegetation growing in this region. In this way we are contributing to an understanding of the global carbon balance, helping to predict the ultimate impacts of the carbon dioxide increase, and gaining additional knowledge of the photosynthetic and yield potential of the crops we grow.

Research will also continue and be intensified on ways to predict and monitor soil moisture status throughout the state from a knowledge of the rainfall and evaporation occurring at a few typical sites.

### Questions to Answer

We also intend to continue and intensify our computation of climatic probability statistics which bear on and can be applied to the solution of agricultural problems. For example: the probability of receiving one inch of rain during the week of May 10 at North Platte and similar statistics

have already been calculated. But there are a considerable number of other useful statistics that can be drawn from the nearly 100 years of climatic records already accumulated within the state to answer questions like these:

- What maturity class of corn hybrid can be used at a new center pivot operation in the Sandhills and how late can the corn be safely planted?

- How favorable are soil moisture conditions likely to be by planting time? Should dryland corn be planted at normal rates and be fertilized? Should seeding be reduced if the likelihood of dry weather is great or is the best strategy to plant the field to milo?

- How early and how late may home garden vegetables be planted at different locations in the state?

- Knowing the temperatures to date, how can I estimate my winter fuel bill if the remainder of the season proves to be normal?

- When is my corn crop likely to mature and how likely are favorable conditions for natural grain drying?

### New Research Areas

New areas of research activity are also contemplated. Instruments carried aloft on balloons at a few critical locations can be used to provide information on the heat and water vapor carried into and out of the state. Such data can be used to maintain surveillance on the general hydrologic balance in Nebraska and be used to help in water resource planning.

The advent of the computer age now permits us to analyze extremely complicated interactions between the environment and organisms affected by the weather. Models to predict plant growth processes, the spread of disease or insect pests, the exchange of energy between animals and their environment, and others are being developed. These models require reliable climatic data if the results are to be meaningful.

We also intend to begin research on the impacts of climate and possible impacts of climatic change on the various sectors of society. We have one such study already underway. That study deals with the impact of drought on the agriculture, the economy, and the political and social aspects of life in the Great Plains region. We also have need to know considerably more about how climatic fluctuations may affect the need for supplies of energy.

New studies will also be undertaken on the impacts of weather and climate on animal production on the open range, in feedlots, and in confined housing. We have begun an analysis of the specific needs of the animal production industry for climatic information. Dr. Robert Balling, Assistant Professor of Geography, is working with us as a summer faculty research fellow on this analysis.

Currently available climatic information and advisory services to agricultural industry, business, and citizens of the state have been necessarily modest. Climatic data collected throughout the state are archived in Lincoln. Monthly summaries of temperature and precipitation for a number of selected stations are produced and disseminated quickly. Additional information is gathered daily from the National Weather Service for a limited number of stations in Nebraska and nearby states. These data are used for daily predictions of soil temperature, antecedent soil moisture status, rate of growth of major crops during the growing season, stage of development, and anticipated harvest dates.

Creation of the Center should enable an increased effort to collect, analyze, and disseminate climatic data rapidly to those who need the information. We hope to be able, in the near future, to develop automated weather stations for placement at a number of locations throughout the state. The weather observing stations will deliver their data via telephone lines to a central processing computer in Lincoln. The data will be checked and made available for immediate use. For example, the AGNET system uses weather and climate information in a number of programs - irrigation scheduling, crop drying, and others. The data will also be archived for later climatological research.

### Teaching Mission

Two of the traditional functions of the Land Grant College, research and service, have been described above. The creation of the Center will also lead to coordination of teaching efforts in agricultural- and biometeorology and climatology. The Center will continue and expand its involvement in training graduate students to the Masters and Ph.D levels.

There is a healthy demand for highly trained specialists in this field. Federal agencies including USDA, NASA, and NOAA and many state agencies and universities need people who understand the way the atmosphere works and the impacts of weather and climate on agriculture, energy, and water resources. A number of industries have begun to hire agricultural meteorologists to help them in long term production planning and in stabilizing supplies of raw materials.

Thus, the Center begins its mission with a good deal of accumulated experience and a great many challenges ahead.



## WINTER HOME ENVIRONMENT FOR PLANTS

by

E. Arlo Richardson

Utah State Department of Agriculture Climatology

During this season of the year, most home gardeners are turning their thoughts toward methods of maintaining some of their favorite plants for the coming winter season. The obvious answer is, of course, to move plants inside where the environment is more conducive to survival. This is an easy matter for the lucky few who have a greenhouse, but not quite as simple for the average gardener.

### Temperature and Humidity

Average home temperatures are quite satisfactory for many plants. The household temperatures are even better for the plants when the home owner reduces nighttime temperatures by about ten degrees to produce a daily temperature change more comparable to the temperature change the plants had experienced in the outdoors.

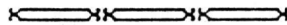
The humidity in the winter atmosphere inside the home may not be so congenial for many plants. During the long months of winter the relative humidity outside the home is frequently near 100 percent as witnessed by the fog in many of Utah's valleys. But what happens when this same air is brought inside the home and raised to the temperature at which man is most comfortable? Let's look at an example. Assume one of those foggy days so typical of winter when the relative humidity outside is near 100 percent and the air temperature 20 degrees Fahrenheit. When that same air is brought inside and raised to a comfortable 70 degrees Fahrenheit without the addition of any moisture, the relative humidity will drop to 15 percent. Such a low humidity will cause considerable stress to humans as well as to many plants. To reduce this stress some home owners have added humidifiers to their furnaces to increase the moisture content of the air, but in most homes with central heating another means must be used to reduce this stress.

In earlier years when the kitchen range was the major source of heat in small pioneer homes, a teakettle was almost always boiling to add extra moisture to the environment. Plants in the home transpire some moisture 24 hours a day but plants which originated in more tropical, humid environments are placed under stress by the low humidities. To overcome this stress several simple methods can be used. Frequently, the indoor plants are placed in a pan which has several inches of gravel on the bottom and the gravel base is kept full of water just below the bottom of the plant containers. Evaporation from this wet gravel surface will appreciably increase the humidity near the plant and help to reduce the stress. Such a method means additional expense but containers for the moist gravel will last for years.

Another method of increasing the moisture in the plant's vicinity is to build a glass enclosed case in which the higher humidity required by the plants can be maintained. This method is expensive and many people prefer to have their plants scattered about the room. Such precautions relating to humidity stress are required only with the more sensitive plants.

### Light Intensity

Another consideration when bring the plants indoors is their light requirement. Outside plants have been subject to full sun or at least shaded light during the growing season. By positioning the plants about the room the proper light environment for most plants can be found. Those requiring considerable sunshine should be placed near the south windows while those requiring shade or little direct sunlight are placed near the north windows. As with planning the outdoor garden, the indoor gardner should study the microclimate of this home and place the plants in the microclimate best adapted to each variety.



THE  
LABORATORY OF CLIMATOLOGY  
AT  
ARIZONA STATE UNIVERSITY

Introduction

The Laboratory of Climatology was established by the Arizona Board of Regents in September 1973. At that time the Laboratory acquired weather and climate data and research materials formerly held by the Office of the State Climatologist of the National Weather Service. Dr. Robert W. Durrenberger of the Department of Geography at ASU was the first director of the Laboratory and was also the State Climatologist for Arizona. The current director of the Laboratory and State Climatologist is Dr. Anthony J. Brazel, who also holds an academic appointment with the Department of Geography. The Laboratory is an integral part of the College of Liberal Arts.

Facilities

The Laboratory is housed in the north half of a building located on the east side of College Avenue between 6th and 7th Streets in Tempe.

Climatic/Meteorologic Data Resources

In cooperation with the State Climatologist program, the Laboratory has acquired and organized several sources of climate and weather data for Arizona and surrounding states, including Mexico. The Laboratory houses complete records of first order and cooperative National Weather Service stations in Arizona. These are in paper copy format as well as on microfiche and computer tape. Recent records for other southwestern states are available in paper form. Various climatic data are kept for Sinaloa and Sonora, Mexico. Other data include information from governmental, private and volunteer groups. All solar radiation data for the State of Arizona are available on computer tape as well as in paper copy form in several Laboratory publications. SOLMET tapes for selected locations in the southwestern United States are also on hand. The Laboratory maintains a collection of facsimile weather maps, GOES west satellite photographs, Mexican weather maps, World Satellite maps, and daily U.S. synoptic weather charts.

Library and Publications

A small, but specialized, library contains more than 100 different journals, magazines, newsletters, and government publication series that include topics such as solar energy, water resources, agriculture, air quality and land use in addition to meteorology and climatology. A complete file of all Arizona publications of the National Climatic Center is cataloged. The Laboratory has initiated a publication program including bibliographies, research papers, solar energy data catalogs, and climatologies of various cities and regions of the state.

### Computer Facility

The Laboratory operates a computer facility which is made up of a NOVA 3 minicomputer with 32 K words memory, 10 megabyte disk drive and dual floppy disk drives. An 800/1600 BPI, 9 track tape drive, a 132 column line printer, a CRT, a hard copy Teletype, and a plotter additionally make up the system. The computer facility is self-contained to produce most operations related to Arizona climatic analyses. Major research activity is accomplished by utilizing phone linkages from the Laboratory to the University's 1110 UNIVAC computer system. In January 1980, a new IBM 3031 system replaced the UNIVAC.

### Graphic Arts Facility

One section of the Laboratory is set aside for the basic drafting equipment needed in the preparation of graphs and maps used as illustrations in climatological reports that are published by the Laboratory.

### Meteorological/Climatological Observatory

In conjunction with the Department of Geography, the Laboratory participates in an ongoing observational program that includes measurements of a number of meteorological parameters, such as solar and terrestrial radiation, air temperature, wind, humidity, and air pressure. Instruments are located atop a 10m tower on the roof of the Classroom Office Building.

### Conference Room

The Laboratory building contains a conference room that seats approximately 20 to 30 individuals. This room is used for conferences on research, in addition to meetings such as the American Meteorological Society local chapter, solar energy meetings, and water resources conferences.

\* \* \* \* \*

### **ACTIVITIES**

Personnel at the Laboratory assist in the meteorological observation program, conduct library research, analyze numerous types of climatic data, and participate in teaching on campus. Specific research and public service activities that are carried on at the Laboratory are discussed in greater detail below.

### Service Role - Arizona Weather Watchers

The Laboratory coordinates the activities of a group of weather watcher observers located in various parts of Arizona. Members are encouraged to observe and record weather conditions at their location and submit these records monthly to the Laboratory. The program enhances analysis of the National Weather Service's data particularly for events such as thunderstorms, severe minimum temperatures, and gusty and damaging wind conditions.



### Arizona's Weather Word

The Laboratory publishes a monthly newsletter which contains articles of interest to individuals in Arizona utilizing weather and climate data. Additionally, temperature and precipitation data for Weather Watcher stations are presented in quarterly issues. The WEATHER WORD is available on request from the Laboratory.

### Climate Summary Program

Climatic summaries are being prepared for a number of key Arizona stations that are representative of the major climate zones of the state. These summaries make use of graphic and statistical methods of analysis to portray normal and extreme conditions at the station and to identify trends or changes that have occurred in the climate of the station during the instrumental period of record. A series of state climatic maps of temperature, precipitation, solar energy, evaporation, and climatic regions have been constructed and are available.

### Research and Consulting

The Laboratory's main function is to promote research activity in meteorologic and climatologic-related phenomena, and participate in the initiation and execution of the basic research. The major area of research to date has been that of solar energy monitoring and analysis - both of the Salt River Valley and of the state as a whole. Much of this work has been funded by the Arizona Solar Energy Research Commission and the U.S. Department of Energy.

The Laboratory has the capability to become involved in several areas of research, because it possesses a computer system, graphic arts facility, and a data file inventory. The Laboratory has participated in consulting activities including storm precipitation analyses, heating and cooling requirement analyses, agricultural crop potential analyses, tourism potential analyses, and other related subjects.

### Climatic Observatory Program

The Laboratory maintains a comprehensive program of monitoring solar and terrestrial radiation cooperatively as part of a climatic observatory with the Department of Geography. These data have been utilized in solar energy research and aerosol-climate studies, and provide an accurate data base for regional analyses of the southwest desert region.



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
Washington, D. C. 20230  
OFFICE OF THE ADMINISTRATOR

UNIVERSITY AFFAIRS LETTER

Washington, D.C., August 1980

Dear Colleague,

NOAA's moving ahead. . .in climate analysis and prediction. . .within the recently established Climate Analysis Center (CAC). The new Center's mission is to maintain a continuous watch on short-term climate variations and diagnosis and predict the variations. Modest grant and contract funds are available to support university R&D. For further information write to Dr. Jay S. Winston, Director, Climate Analysis Center, World Weather Building, Washington, D.C. 20233.

A NOAA-University connection. . .was strengthened recently. . .by the award of a \$2 million contract to Princeton University, for the construction of a major addition to NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) located on the Princeton campus. A preeminent research center, under the leadership of Dr. Joseph Smagorinsky, the laboratory will celebrate its 25th anniversary in October 1980 by hosting a major international symposium on "A Quarter Century of Modeling of Geophysical Fluid Processes -- A Retrospective." Happy Birthday to GFDL.

An IPA Appointment. . .in NOAA's Office of Ocean Engineering, Washington, D.C. A one or two year opportunity to establish close ties with the Federal Government's ocean engineering activities, and participate in one of the major ocean energy engineering programs of our times. For more information contact Dr. Joseph R. Vadus, Manager, Advanced Ocean Technology, National Oceanic and Atmospheric Administration, Rockville, Md. 20852.

Writing to his home campus. . .an IPA appointee. . .in his fifteenth month of work in NOAA noted the following: "An IPA appointment gives an opportunity to do something for your Government as a participant . . .and the Government gets an infusion of new life from a university employee."

More on IPA appointments. . .See page 2 of the May 1980 University Affairs Letter for. . .a program announcement to bring into NOAA each year a few of the top senior academicians through term or IPA appointments. This is a NOAA-wide effort to further strengthen the personal bonds between the university community and the NOAA community. Application deadline is January 1, 1981.



*A last minute reminder. . .that NOAA has requested proposals for the establishment of the first experimental climate forecast center. Multi-year funding is anticipated. There have been many announcements of this request for proposals (RFP). The proposal deadline is September 10, 1980. Write to or call: William A. Sprigg, National Climate Program Office, National Oceanic and Atmospheric Administration, 6010 Executive Boulevard, Room 705, Rockville, Md. 20852 (telephone: (301) 443-8981).*

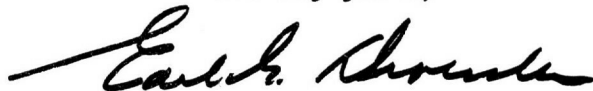
*Three recent laws. . .will shape NOAA of the future. . .and should lead to increased support for university R&D. The general areas covered under the new laws are deep seabed mining, acid precipitation and ocean thermal energy conversion. Caution: These are new areas of responsibility for NOAA, and R&D budgets are a few years away, watch for program planning reports and develop your contacts with NOAA program offices. This is longer-range planning, FY 83 and beyond, but something faculty members might think about as they look ahead to cooperative research opportunities with NOAA.*

*Meteorological research data is available. . .for the First Global GARP Experiment (FGGE). Included are satellite data, upper air profiles, flight level data, and land surface and marine data. A catalogue and catalogue supplements indicates what's available and also indicates the recording media, the cost of the FGGE data and gives instructions for acquiring copies. Catalogue inquiries should be addressed to: Mr. Daniel B. Mitchell, Director, World Data Center-A for Meteorology, National Climatic Center, Federal Building, Asheville, North Carolina 28801.*

*Two new valuable reports. . .point the way to future university R&D supported by NOAA. The first is "The Atmospheric Sciences: National Objectives for the 1980's." It scopes the problems and opportunities for atmospheric research requiring attention in the years ahead. The other report is called "Technological and Scientific Opportunities for Improved Weather and Hydrological Services in the Coming Decade." It discusses technological opportunities to substantially improve the weather and hydrological services that serve the public needs. For copies of the reports write to the Committee on Atmospheric Sciences and the Select Committee on the National Weather Service respectively, at the National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.*

*The NOAA Office of University Affairs. . .is located in Main Commerce Building, Room 5808, in downtown Washington. Please drop by for a visit or telephone (202) 377-5020.*

*Sincerely yours,*



Earl G. Droessler

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UNIVERSITY AFFAIRS LETTER

Washington, D.C., October 1980

Dear Colleague,

Colorado State University. . .and NOAA. . .last month signed a memorandum of understanding establishing the Cooperative Institute for Research in the Atmosphere (CIRA) on the Colorado State University (CSU) campus. NOAA scientists and university faculty are joined under the Institute in collaborative research on remote sensing of mesoscale weather features. Included will be VISSR atmospheric sounder observations from NOAA's GOES-4 weather satellite.

More on CIRA. . .The new Institute will be supported by CSU and by two units of NOAA, the Environmental Research Laboratories (Dr. Donald W. Beran), and the National Earth Satellite Service (Dr. Harold W. Yates). CSU negotiations were lead by Dr. Thomas Vonder Haar, Head, Department of Atmospheric Science. This is the seventh cooperative institute established by NOAA. The other six are located at the universities of Colorado, Miami, Washington, Hawaii, Oklahoma, and Wisconsin-Madison.

Dr. Ronald L. Lavoie has moved up. . .to a senior meteorologist post in NOAA. . .having accepted an appointment recently as the Director of the Office of Atmospheric Programs for NOAA R&D. Ron came to NOAA in August of 1973 from the faculty of Pennsylvania State University.

Also moving up. . .is Dr. William Aron who recently assumed the Directorship of the Northwest and Alaska Fisheries Center, 2725 Montlake Boulevard, East, Seattle, Washington 98112. Dr. Aron looks forward to establishing more relations with academic institutions along the Pacific Coast states and Alaska, and he "cordially extends an open invitation to the academic community to visit him and the Center."

A temporary appointment. . .is available. . .in NOAA's Office of Congressional Affairs, Washington, D.C. A one or two year opportunity to work first-hand on national issues that engage the legislative/executive functions of NOAA. For more information contact James C. Williams, Office of Congressional Affairs, NOAA, Department of Commerce, Washington, D.C. 20230, telephone number (202) 377-4981.

See the September 1980 U.A. Letter. . .for details on a new program aimed at bringing into NOAA each year a few of the top senior academicians. The goal for 1981 is to invite about seven energetic and creative academic leaders, at the full professor level, to take temporary appointments in the most attractive positions that can be found for them within NOAA. Send inquiries to Dr. Earl G. Droessler, Director of University Affairs, NOAA, Department of Commerce, Washington, D.C. 20230, telephone number (202) 377-5020.

Sincerely yours

Earl G. Droessler  
Director of University Affairs

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**10TH ANNIVERSARY 1970-1980**  
**National Oceanic and Atmospheric Administration**  
A young agency with an historic  
tradition of service to the Nation

GRANTS FOR FIRST YEAR OF NOAA RECENT POSTDOCTORAL RESEARCH SUPPORT PROGRAM

Postdoctoral	University Receiving Grant	Research Title	Award Amount	Term	NOAA Sponsor
BLECHMAN, JEROME B. Ph.D., Meteorology, 1979 Univ. of Wisconsin	Univ. of Wisconsin	Long Range Climate Forecasting with an Experimental Deterministic Model	\$39,500	12 mos. beginning 9/1/80	Dr. Robert Livezey Climate Analysis Cntr. NMC, Washington, D.C.
BOHNSACK, JAMES A. Ph.D., Biology, 1979 Univ. of Miami	Univ. of Miami	The Effects of Predator Removal on Coral Reef Fish Community Structure	\$40,000	12 mos. beginning 12/1/80	Dr. William Richards Miami Laboratory NMFS, Miami, Fla.
GILLIS, JAMES R. Ph.D., Physics, 1979 Michigan State Univ.	Univ. of Denver	Quantification of Atmospheric Ozone from UV, Visible & IR Atmospheric Spectra	\$35,000	12 mos. beginning 9/1/80	Dr. John J. Duluisi Global Mon. for Climate Change Program RD/ERL, Boulder, Colo.
RACE, MARGARET S. Ph.D., Zoology, 1979 Univ. of California, Berkeley	Stanford University	Field Investigations of Invertebrate Fauna and Community Development in Natural and Man-Made Salt Marshes in San Francisco Bay	\$45,500	24 mos. beginning 10/1/80	Dr. Robert R. Kifer NEPA Compliance Program CZM, Washington, D.C.
SCARBOROUGH, ANN Ph.D., Zoology/Fisheries 1979 Louisiana State Univ.	Johns Hopkins Univ.	Fertilization in Striped Bass, <u>Morone saxatilis</u> , and the Effects of Environmental Pollutants	\$40,000	12 mos. beginning 10/1/80	Dr. Aaron Rosenfield Oxford Laboratory NMFS, Oxford, Md.
SHARIS, MICHAEL P. Ph.D., Ecology, 1979 Univ. of Tennessee	Univ. of Maryland	Co-oxidation of Aromatic Hydrocarbons by Estuarine Microorganisms	\$40,000	12 mos. beginning 9/1/80	Dr. Joel S. O'Connor North East, Office of Marine Pollution Assessment, NOAA Stony Brook, New York

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When the six grants . . . to the universities noted above were awarded last month by NOAA, the first round of a modest new NOAA research grants program was completed. The grants will support the on-campus research of these few recent postdoctorals who have built outstanding records and have exceptional promise in academic research, in front-line scientific work on atmospheric, fisheries, and ocean sciences, and related fields that undergird the mission of NOAA.

From across the country. . . thirty-six proposals were received by NOAA from recent postdoctorals. These were reviewed internally and then ranked by a NOAA review board, resulting in the six grants listed above. Each grantee will establish a visiting relationship with a NOAA laboratory or facility and the NOAA sponsor will help the grantee to feel at home in NOAA.

The next round. . . of recent postdoctoral research support grants is expected to be announced through the University Affairs Letter and Federal Register in January 1981. Watch for it.