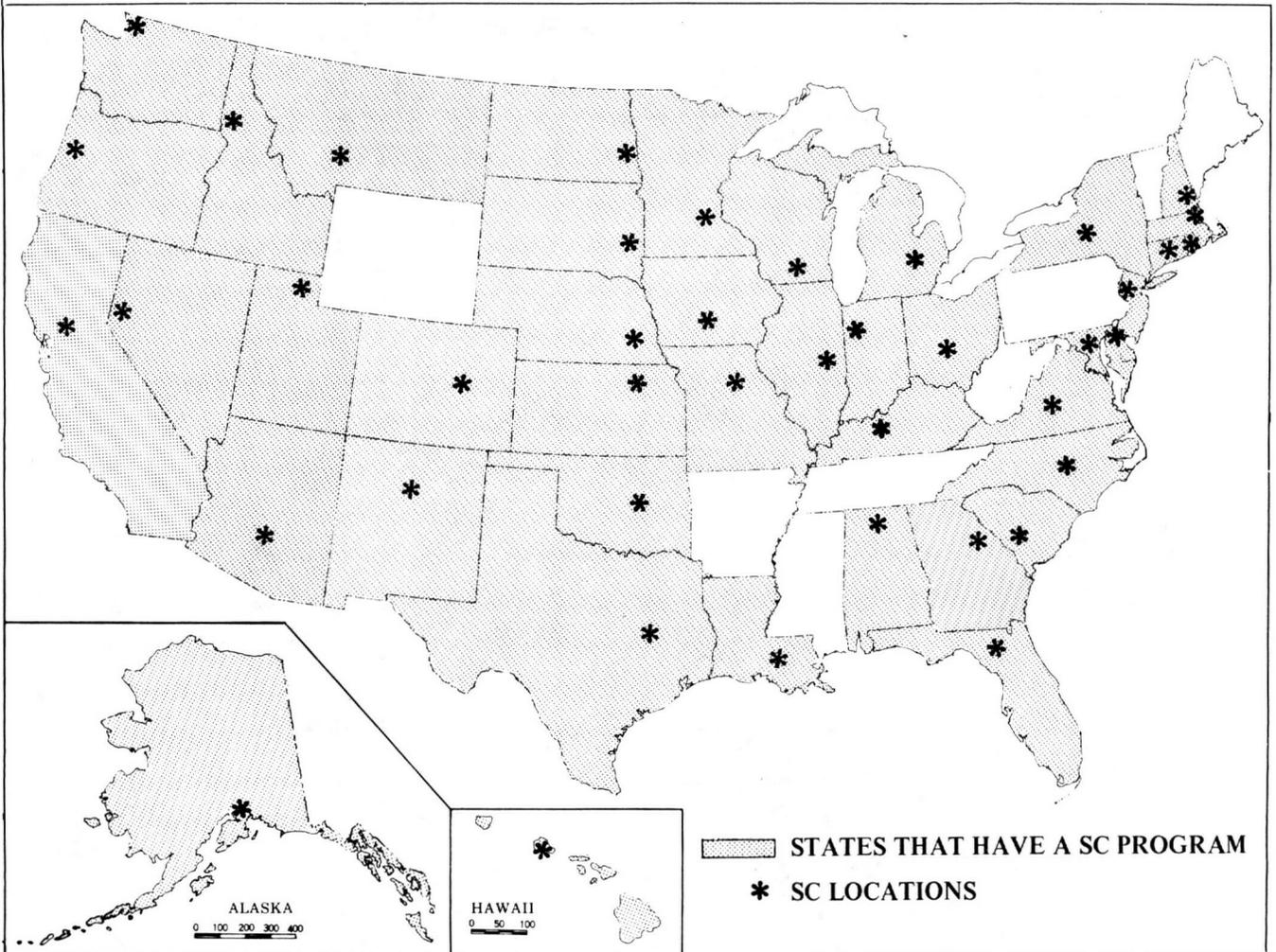


National Oceanic and Atmospheric Administration
Environmental Data and Information Service
National Climatic Center

NEWS LETTER

IN COOPERATION WITH
THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS



VOLUME 3 NUMBER 1 JULY 1979

PUBLISHED QUARTERLY AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, N.C.

NCC BRIEFS

NCC is pleased to announce that two more States - Georgia and Connecticut, have established SC positions since the last AASC Newsletter was published. The new SC's are as follows:

Dr. Gayther L. Plummer
State Climatologist - Georgia
Plant Science Building
University of Georgia
Athens, GA 30602

Dr. David R. Miller
Department of Natural Resources
Conservation
University of Connecticut, U-87
Storrs, CT 06268

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The 1979 AASC Annual Meeting has been scheduled for 16-18 October at NCC in Asheville. The agenda will include items vital to the future of AASC and the development of State Climate Programs. Both old and new members will have opportunities to review services and facilities of NCC. If you have not made motel reservations, you should do so as soon as possible.

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Data Base Management System (DBMS) Status and Developments. The EDIS DMS1100 Implementation Task Group met at NCC on May 21, and established the DMS Implementation Project. The Univac supplied DMS1100 (DBMS software) will be used. A list of system generation specifications for the implementation of DMS1100 has been produced as a result of this meeting. DMS1100 has since been brought up and NCC has two pilot data sets under DMS1100.

a. A small climatological "Summary of the Day" data base has been designed and brought up under DMS1100. The data set contains 50,000 observations of daily maximum/minimum temperatures and total precipitation for 30 First Order NWS stations for a four year period.

b. A small data set containing information for managing subscriptions to NCC publications has been designed and implemented under DMS1100. Background material about NCC requirements has been collected in order to evaluate the benefits of developing an operational information data base.

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Special Data Files and Summary Projects:

a. A digital file of about 55 long-term U. S. stations that have records covering the period from the 1870s to present has been created. The file is identified by city name but data are separated into airport and city locations. Station histories also have been compiled.

b. Three Mile Island Data Set. A set of low level upper air observations taken during the Three Mile Island, Pennsylvania, nuclear power plant incident were received from NOAA for quality control review and archiving. The data file covers the period March 31 through April 18, 1979; the observations were made up to the 700 mb level and include as many as 8 observations per day for some days. The records have been microfilmed and are held in a special file in anticipation of future requests.

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It has been suggested that the AASC Newsletter publish a "typical" job description for a State Climatologist. The Publications and Promotions Committee, appointed by Dr. Critchfield, will undertake this if some of you will send job descriptions, which you have written, to the committee. We will try to assemble a "boiler plate" job description to cover most of the jobs. Individuals may then pick and choose from it and modify for their own needs. Please mail job descriptions to a committee member or to the committee chairman, E. A. Carter, State Climatologist, UAH/JEEC, P. O. Box 1247, Huntsville, Alabama 35807. Anonymity of origin will be maintained.

The Publications and Promotions Committee also is seeking new ideas to pass along to members. Give your suggestions to anyone on the committee. Specifically, new or novel ways of presenting information and ways of meeting special data requirements are sought. Your solutions may also help others to solve similar problems.

Examples which have come to our attention:

a. Rhode Island is publishing a climate newsletter semi-annually.

b. New Hampshire generates computer graphic displays of precipitation, temperature and solar radiation on a monthly basis.

c. Alabama has distributed to interested universities a bibliography of climate data available and reports published. The prime NWS offices have contributed summaries for a one page presentation of a map of Alabama counties and climatic regions, with tabulated climatic data of the major population centers.

For additional details concerning a, b, or c above, contact the appropriate State Climatologist.

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KENTUCKY CLIMATE CENTER - In November 1978, a Department of Housing and Urban Development grant was awarded to Western Kentucky University through the Kentucky Department for Local Government to develop climatological summaries for each of the 15 Area Development Districts (ADD) in Kentucky. The ADDs were organized several years ago as a non-profit corporation chartered under Kentucky law. They serve as the official planning and development agencies through which cities and counties interact with one another, the State, and the Federal Government. The ADDs provide planning,

programming, and budgeting assistance to local governments and develop district wide development plans. Because virtually all urban and regional plans require climatic information, the development of the climatological summaries was authorized.

Each summary is being tailored to the specific ADD's needs for data and information. The completed summaries will address each climatic element separately, provide a summary of climate by season, and suggest possible applications of the data to climate related or induced problems.

Glen Conner, State Climatologist for Kentucky, is directing the project. Robert W. Sanderson and Robert Ashby have been employed as research associates and Mike Phipps is the graduate assistant.

The publication of these summaries and distribution throughout the State to local and State Governments will serve to expand the general awareness of the types of data and services available from the Office of the State Climatologist.

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DISTRIBUTION OF THE A NETWORK OF CLIMATOLOGICAL STATIONS

By E. Arlo Richardson
Utah State Climatologist

In reference to the distribution of the A network of climatological stations, I feel very strongly that the major purpose of any climate network should be to enable us to define the climate and climatic variations within the desired area. To define the climate means that we must sample not only spatially, but vertically as well in our mountainous terrain.

The current spatial distribution by use of a grid does not achieve this goal. In the past, we have made certain assumptions on the compatibility of stations. For example, a change in elevation of less than 100 feet or a change in distance of less than five miles is assumed to maintain the flat terrain of the plains and much of the eastern portion of the nation, but they are definitely not satisfactory for a State such as Utah.

Let's consider four stations which we have in Cache Vally, all within a distance of one mile from the center point. Logan USU, at an elevation of 4,785 feet, has an average growing season of 159 days. Logan KVNU Radio, at an elevation of 4,504 feet, has a growing season of only 129 days. The Logan USU Experiment Station, elevation 4,608, drops to 127 days, while North Logan, elevation 4,710, has a growing season of 145 days. All of these variations are the result of local topographic influences such as canyon drainages, the height of the inversion which forms in the valley, and the shading effect of the surrounding mountains.

In the table below, I have compared the standard temperature and precipitation values for the four stations.

<u>Station</u>	<u>Elevation</u>	<u>Temperatures</u>			<u>Precipitation</u>
		<u>Max.</u>	<u>Min.</u>	<u>Avg.</u>	
Logan KVNU Radio	4,504	59.8	33.3	46.6	15.35
USU Experiment Sta.	4,608	60.6	34.0	47.3	16.47
North Logan	4,710	58.9	33.4	46.2	18.44
Logan USU	4,785	69.0	17.0	48.0	16.23

Looking at this table, we note that the average temperature does not decrease with increasing elevation at all stations nor do either the maximum or minimum averages show any elevation relationships. However, when we consider the local topography, heights of the inversion, and drainage winds, such variations take on an explainable pattern.

This is just one example of the need for selecting station locations on the basis of the needs to define the climate and not on the basis of any predefined grid. I would like to recommend that the new network distribution combine the advantages of both systems. First, we should set up a basic climatological network in each State where the stations will be maintained on a continuing basis with as few changes in location as possible. Any changes in exposure at these stations, such as construction of building, growth of vegetation, addition of concrete or blacktop sidewalks and driveways, should be documented. This should be done by the network specialist each time he visits the station. The second group of stations should be satellite stations which are installed for periods of 10 to 15 years or more if required to define local climate variations. Data from these satellite stations should be related to the adjacent basic network stations for analysis. Once the climate relationships have been established to the satisfaction of the climatologist who is analyzing the State, then the satellite stations can be moved to other sites which require more specific information. The satellite stations should be under the supervision of the SC. This is necessary since he will be the one using the data and have the best knowledge of the needs of the State insofar as definition of the climate is concerned.

In addition to the two groupings in the climate network in a State, consideration should be made for meeting requirements for additional information such as evaporation, wind and solar radiation measurements that are now urgently needed in the western U. S. to meet the growing impact of the energy crisis and air pollution potentials.

If anyone has questions regarding this brief explanation of my views, please feel free to contact me.

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ANNOUNCEMENT

CENTER FOR AGRICULTURAL METEOROLOGY AND CLIMATOLOGY

Lincoln, Nebraska
February, 1979

The Board of Regents of the University of Nebraska voted on January 13, 1979 to create a Center for Agricultural Meteorology and Climatology within the Institute of Agriculture and Natural Resources of the University of Nebraska-Lincoln. Current programs in agricultural meteorology and climatology research, extension and public service will be incorporated into this unit.

Staff members of IANR affiliated with the Center wholly or by joint or courtesy appointment with other units are: B. L. Blad, R. E. Neild, J. Norman, T. G. Redford, Jr., N. J. Rosenberg, A. Weiss, D. Wilhite and S. B. Verma. Technical and clerical staff include: E. Culwell, N. Brown, J. Hines, T. Keber, D. Lukens, R. Sandhorst and D. Sandin. Professor N. J. Rosenberg will coordinate development of the Center.

The reorganization will facilitate coordinated planning and will increase the efficiency of basic and applied research work on the relations of weather and climate to crop and animal production. Research projects now underway which will receive additional emphasis in the Center include:

- studies of energy and mass exchanges (especially photosynthesis and evapotranspiration) under irrigated and dryland conditions.
- evaluation of alternatives to increase yield and improve the water use efficiency of Nebraska's major crops, as for example, by alterations in plant morphological features or canopy architecture.
- improvement of techniques to predict optimum periods for planting and harvesting.
- evaluation of the potential for using data on pre-plant soil moisture and temperature and precipitation occurrence during the growing season to predict crop yields.
- studies of the effects of irrigation practices on microclimate conditions and crop disease.
- uses of weather and climate data inputs for plant growth and water use models.
- studies of the impacts of drift from sprinkler irrigation systems.
- uses of remote sensing from satellite images or low-level aircraft overflights to identify fields suffering drought stress and in need of irrigation.

- studies of the terrestrial sources and sinks for atmospheric carbon dioxide in order to improve knowledge of the global carbon cycle and the potential for photosynthesis in the Great Plains region.
- preparation of economic and agricultural strategies for use in times of drought.

New studies are being planned to develop applications of real-time weather data to pest management, crop modeling, management of conservation tillage systems and to the assessment of crop-weather conditions and energy requirements.

Current extension and service functions within IANR related to weather and climate include provision of early summaries for the state of monthly temperature and rainfall, surveillance on soil moisture conditions state-wide and provision of special climatic analyses for business, industry and citizens needing this information for planning enterprises or activities. These functions will be strengthened as current networks of reporting stations are linked to a central office by a real-time communication system. Plans are being made to initiate observations of solar radiation, atmospheric pressure, wind speed and direction, soil temperature, atmospheric humidity and soil moisture - for real-time applications to agricultural operations.

The Center will also act as a coordinator for the State of Nebraska with the National Climate Program Office and Intergovernmental Climate Program recently established by Act of Congress. These programs will encourage studies assessing the effects of climate and weather on agricultural production, energy use, water resources, transportation, human health and other aspects of the natural and economic environments.

The Center will develop a closer linkage between the experiment stations and the numerous volunteer weather observers in the State in order to facilitate the gathering, analysis and real-time dissemination of interpreted weather and climate information important to the State's agriculture and industries.

Creation of the Center will also facilitate the improvement of undergraduate and graduate level teaching in agricultural and bio-meteorology and climatology. Courses and degrees will be offered through the participating academic departments within IANR and other units of the University of Nebraska.

Faculty members of the Center already have underway active training programs leading to the M.S. and Ph.D. degrees. These programs will be augmented under the auspices of the new Center. We invite inquiries from prospective graduate students interested in undertaking programs leading to the M.S. or Ph.D. degree in Agricultural Meteorology and Climatology.

CENTER FOR AGRICULTURAL METEOROLOGY AND CLIMATOLOGY
Address inquiries to:

211 Agricultural Engineering Bldg.
University of Nebraska
Lincoln, Nebraska 68583

CONSTITUTION

AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

(Ratified 27 October 1977 at Asheville, NC)

I. Name

This non-profit organization shall be called the American Association of State Climatologists.

II. Objectives

The objectives of the Association are to:

1. Promote cooperation between State Climatologists and those federal, state, and private agencies whose functions include the collection, analysis, and dissemination of climatic information;
2. Facilitate exchange of information among State Climatologists; and
3. Provide mutual assistance in the development of effective State Climatologist Programs.

III. Membership

1. The Membership of the Association shall consist of:

Voting Members

Associate Members

2. Any person who is currently recognized by the Director of the National Climatic Center and a state agency as an official State Climatologist shall become a Voting Member upon voluntary registration of his or her name and address with the Secretary of the Association.
3. Any person who subscribes to the Constitution and By-laws of the Association shall be eligible for Associate Membership upon nomination by one or more Voting Members and election by a majority of Voting Members. Associate Members shall be entitled

to all rights and privileges of Association Membership except the right to vote and the right to hold office.

IV. Officers

A. Elected

1. In order to direct the activities of the Association toward its objectives an Executive Board, elected by majority vote of Voting Members, shall consist of a President, who shall be the immediate past President-Elect; a President-Elect; and a Secretary. Each must be a Voting Member of the Association. Their duties shall be those normally assigned to comparable offices in national scientific organizations.
2. Regular terms of office shall be for one year, or until the next Association meeting following the regular one-year term.
3. The Secretary shall be eligible for re-election.
4. If the office of President becomes vacant, the President-Elect shall assume that office for the unexpired term.
5. A vacancy in the unexpired term of the President-Elect shall be filled by election at the next meeting of the Association.
6. The President shall appoint a Voting Member of the Association to fill a vacancy in the office of Secretary, effective for the unexpired term.

B. Ex-officio

For the purpose of coordinating Association activities with the functions of the National Climatic Center and related federal agencies the Director of the National Climatic Center shall be invited to appoint an ex-officio, advisory member of the Executive Board.

V. Council

1. The Council of the Association shall consist of all registered Voting Members of the Association, including elected officers of the Executive Board, who shall be ex-officio officers of the Council.
2. Council members shall have the responsibility to promote communication between the Association and their respective State governments.
3. The Council shall be the body which represents the Association in official transactions with federal, state, or private agencies and in announcements to the public at large.
4. All corporate powers of the Association shall be vested solely in the Council.
5. A majority of Council members voting may direct the Executive Board to act on behalf of the Council for specified purposes.

VI. Amendments

1. This Constitution may be amended only by a mail ballot of the Voting Membership of the Association.
2. Submission of a proposed amendment to the Association shall require a majority vote at a scheduled meeting or a petition to the Executive Board signed by at least ten members.
3. Adoption of an amendment shall require a two-thirds majority of Voting Members who cast a vote.

BY-LAWS

1. The rules contained in Robert's Rules of Order Revised shall govern the Association in all cases to which they are applicable, and in which they are not inconsistent with the Constitution or By-laws of the Association.

2. Dues

The Association shall levy no regular membership dues. Any Association action which involves financial obligations shall incorporate a provision to meet each obligation on an ad hoc basis.

3. Meetings

The time and place for each meeting of the Association shall be designated by the Executive Board. Ordinarily, the Executive Board will solicit the advice of members at one meeting to determine the time, place, and tentative agenda for the next meeting. A meeting at which a quorum is present shall constitute an official meeting of the Council.

4. Quorum

A quorum for a meeting of the Association shall be a majority of the Voting Membership.

5. Invited Participants

The Executive Board shall be empowered to invite non-voting observers or advisors to attend meetings of the Association for any purpose that is consistent with Association objectives.

6. Nomination of Officers

A Nominating Committee, consisting of three Voting Members and elected by a majority vote of the Council, shall prepare a list of candidates in advance of an announced election. A nomination for any office may also be made by the signed petition of five or more Voting Members. Officers of the Executive Board are not eligible to serve on the Nominating

Committee, nor to sign a nominating petition.

7. Elections

Elections normally shall be held at meetings of the Association. The Executive Board shall be empowered to arrange an election by mail ballot when circumstances warrant.

8. Headquarters

The official headquarters address of this Association, its Executive Board, and its Council shall be at the National Climatic Center, Federal Building, Asheville, North Carolina 28801.

9. Amendment of By-laws

These by-laws may be amended at any meeting of the Association by a two-thirds majority of members voting, provided that the amendment was submitted at the previous meeting, or that it was presented in writing to the membership with the mail announcement of the meeting.

10. Amendment Passed 4 October 1978.

The Executive Board shall appoint as many members to a Standing Committee as deemed necessary to carry out its purposes. Appointments may be terminated or renewed by the Executive Board.

The Standing Committees of this Association shall be:

(a) Committee on State Climatology Programs.