THE STATE CLIMATOLOGIST

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IN COOPERATION WITH THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
NATIONAL CLIMATIC DATA CENTER

I realize this Fall 87 issue is late but please don't blame Grant. For the past several months Grant has been detailed to the position of Chief, Cooperative Data Branch. We are a bit short handed but yet we intend to do our very best to serve the State Climatologists.

Steve Doty

The Iowa State Capital in Des Moines. A remembrance of the 1987 Annual AASC meeting. Photograph by G. W. Goodge.

1. Introduction

The U.S. CLICOM system, as presented in the Spring 1986 issue of "The State Climatologist", has been enhanced in the ensuing year and a half. At present there are about 40 systems installed world-wide, 25 of them in the United States. During 1988, 26 international and about 20 national installations are planned. The Western Regional Climate Center is presently installing CLICOM systems in each of the 11 states in the region. Many of the current users are utilizing CLICOM to manage data supplied by the NCDC as well as to record and manage local area data networks not previously available in digital form. It is expected that much of this newly digitized data will find its way to the national archive at NCDC to be made available to interested parties throughout the country.

Since CLICOM's release in January 1986, much effort has been expended toward making it both easier to use and more responsive to the needs of users. The result of this effort is CLICOM Version 2.0 which is being released early in 1988. Additional data sets and more user control of element editing are two of the more significant enhancements provided.

2. Data Management

The four basic categories of information handled by CLICOM are unchanged. These are climatological data, inventory information, station history information, and data dictionary information. Of the four, climate data management has been most affected by the current upgrade.

Climate Data. The original five types of climatological data (monthly, daily, synoptic, hourly, and upper air soundings) have been expanded to include decadal (10 day) data and 15 minute observations. Processing of hourly and upper air data types has been enhanced. The ability to generate moisture variables in hourly data sets has been added to the key entry and quality control module. The upper air requirement of a pressure entry at every level has been removed. This provides the ability to process soundings with levels containing only wind and height information.

3. KEY ENTRY AND QUALITY CONTROL

Key Entry. The format and context of key entry has not changed but the capability to generate moisture variables has been added. The user has the option of generating missing moisture variables when sufficient input data exist. Elements to be generated when missing are preselected by the user. The hourly data set elements that may be generated are wet bulb temperature, dew point temperature, relative humidity, vapor pressure, and mixing ratio.

Quality Control. The user has been given total control of how many and which quality control tests are applied to each element; however the original defaults are still active. The elements may now be tested for relationships to elements in the previous entry as well as elements in the current entry. The number of relational tests applied to an element is limited only by the number of available related elements.

The Area QC has been changed. It now plots the desired data as colored points on a user defined map. The colored plots cover a seven color band ranging from deep blue at the lower end to red at the upper. The upper and lower bounds of the defined spectrum are controlled by the user. This offers the ability to tailor the plot to the climatological regimen at hand. A mouse capability has been added to expedite station selection on the plot screen.

4. Additional enhancements

Menus. The menu structure has been streamlined to facilitate task selection. Much of the menu text has been changed to better describe the choice being selected.

Tutorial. A comprehensive "how to" tutorial will be included with each release of CLICOM Version 2.0.

Manuals. The manuals have been rewritten to include the enhancements of Version 2.0. The reorganization and indexing of the manuals greatly increases their usability.

System control. The use of parameter and limits files has been expanded to give the user more control of system installation without the need to recompile programs or alter the Data Base Management System (DBMS).

Support. Support and training for U.S. installations of CLICOM remains at the NCDC in Asheville, NC. International installations are now supported by the International Affairs Division of the NWS Office of Meteorology in Washington, DC.

Data availability. NCDC now has the capability of supplying users with Daily, Hourly, and Upper Air climatological data formatted for direct loading into CLICOM. Station History data selected by state are also available for loading into CLICOM.

5. Future Plans

Graphics. Methods are presently under study to incorporate a completely device-independent graphics capability in CLICOM.

IBM PS/2. CLICOM will run in its present form on the IBM PS/2 under the Disk Operating System (DOS). Study is underway to identify methods of improving CLICOM performance utilizing the

increased capabilities of the PS/2 hardware.

6. More information

A booklet explaining the CLICOM system in much more detail and the latest pricing information are available from the NCDC. For further information contact:

Roger Bissinger or Wayne Brazille
Data Base Administration
National Climatic Data Center
Federal Building
Asheville, NC 28801

Phone (704)-259-0387 (FTS 672-0387)

* *

TEXAS A&M UNIVERSITY
COLLEGE OF GEOSCIENCES
COLLEGE STATION, TEXAS 77843

OFFICE OF THE STATE CLIMATOLOGIST
Telephone (409) 845-5044

Dear Grant:

As you may recall, Paul Waite and I are attempting to compile a history of State Climatologists' Offices. We should be very glad if you could put the endorsed "request for information" into the next issue of State Climatologist - it may elicit some useful facts.

Thank you. With very best wishes for 1988.

Most sincerely,

John F. Griffiths
Professor of Meteorology
& State Climatologist

STATE CLIMATOLOGISTS - PLEASE HELP

REQUEST FOR INFORMATION

We are trying to compile a history of State Climatologists and ask for your assistance. Would you please take a few minutes to fill in the following questionnaire as it applies to your state.

1. Names and period of service of previous state climatologists and location of the office.

2. History of special state-oriented publications or series by yourself and previous state climatologists.

NAME _____

STATE _____

DATE _____

AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

MINUTES OF ANNUAL MEETING

DES MOINES, IOWA AUGUST 6-7, 1987

The 12th annual meeting of the American Association of State Climatologists was called to order by President Dave Miller (CT) at 0900. The approximately 80 attendees were welcomed by Shirley Danskin-White, representing the Iowa Department of Agriculture.

Former president Stan Changnon (IL) gave the keynote address, "Challenges for the AASC". After outlining the benefits of membership in such an organization, he provided a brief review of the association's history. Next came a discussion of the issues arising as a result of growth, after which he highlighted some of the signs of an organization's maturity. He concluded with a reminder that personal willingness to contribute remains an essential issue.

Following a format different from recent meetings, a series of issue-oriented sections followed. In each, an initial speaker provided an overview, and aferward several respondents replied with agreements, rebuttals, elaborations, clarifications, objections, and other comments. At intervals, the audience was allowed to provide more of the same.

Topics were:

Data Availability and Quality	*	Ken Kunkel (NM SC) Ken Hadeen (NCDC) Tom McKee (CO SC) Jerry Barton (NWS) Jon Parien (NWS)
Regional Programs and Research	*	Dave Miller (CT SC, Pres) Ken Hubbard (NE SC) Alan Hecht (NCPO)
Corporate Membership and Professional Certification	*	Wayne Wendland (IL SC) John James (NV SC) Myron Molnau (ID SC)
AASC and the Climatic Change Issue	*	Pat Michaels (VA SC, Pres-elect) Peter Lamb (IL) John Griffiths (TX SC) Norton Strommen (USDA)
Journals and Publications	*	Paul Waite (IA SC) Grant Goodge (NCDC) Tony Brazel (AZ SC)
The Future of AASC	*	Peter Robinson (UNC) Gayther Plummer (GA SC) Bob Muller (LA SC)

The overviews and responses brought out numerous points of great interest and concern to the membership. Issues such as data quality, NCDC funding, communication among agencies, effects of new technology, recognition of climate as an important social concern, and many others, were recurring themes during these discussions.

At the noon luncheon, a video produced at NCDC was shown of the temporal trends in the spatial pattern of the Palmer Drought Index in the U.S. during this century.

Later, after breaking into small groups, the membership produced a series of statements on the six topics summarizing the discussions and reflecting the collective views of the group. These draft statements then were read to the group at large, and commentary was solicited from the audience. No attempt is made here to report on the diversity of points raised during overview, comment, and discussion sessions, in part because the statements are reproduced elsewhere in this publication.

Members then volunteered with only modest arm-twisting to write state sections for the USGS annual National Water Summary.

After a full day of talking, attendeees relaxed behind dessert bowls as Howard Critchfield, recently retired as Washington's state climatologist, provided a most amusing and entertaining recapitulaton of the pitfalls and rewards associated with this unique and rather unusual occupation.

A short business meeting occurred on the afternoon of the 7th.

The minutes of last year's meeting, printed in the 1986 edition of The State Climatologist, were approved.

Kelly Redmond (OR), treasurer, reported a balance of $5826 as of June 30, 1987. Dividend interest from the account at the Arcade Credit Union in Asheville provided $165 during the first 6 months of the year.

Ony two committees offered reports:

Ken Kunkel (NM) noted that the instrumentation committee continued to work on standards for height and exposure of automatic weather stations.

Fred Nurnberger (MI) is in the process of updating a membership survey on the status of state programs. It is hoped that this will become an ongoing activity of the organization.

Tom McKee (CO) moved that copies of the draft statements produced earlier in the meeting be reproduced and sent to all members, with two weeks allowed for response. The executive commiteee would then review the revised versions, and publish all of them in The State Climatologist, and some of them in a wider forum as appropriate.

A discussion of the length of AASC office terms ensued, but no action was taken.

New associate members were nominated and seconded, and accepted by voice vote. They are:

Harry Hillaker, Jr. IA	Waite/Michaels
Gerald Barton DC	Waite/Michaels
Jon Parein MD	Waite/Michaels
Greg Spode MN	Zandlo/Waite
Elwyn Taylor IA	Waite/Michaels
Mike McCorcle IA	Waite/Michaels
Scott Sidlow SC	Purvis/Waite
Jim Laver DC	Muller/Redmond
Richard Reinhardt NV	Redmond/Michaels
Mark Albright WA	Redmond/Waite
*David Stutsberg ??	not known
Peter Lamb IL	Miller/Michaels
William Easterling DC	Hubbard/Michaels
Dan Cayan CA	Redmond/Waite
William Koellner IA	Waite/Redmond
Wallace Akin IA	Waite/Redmond
John Grymes LA	Muller/Michaels
Robert Balling AZ	Brazel/James
David Stooksbury VA	Michaels/Waite

* Address and nominator now known (could you please speak up?)

A nominating committee of Nurnberger (MI), Muller (LA) and Molnau (ID), after delicate and extended deliberations, presented the following carefully selected slate:

Wayne Wendland	President
Kelly Redmond	Secretary/Treasurer

The candidates were elected unanimously. Victory speeches were short.

The location for the 1988 annual meeting was next debated. Tucson and Portland were promoted, with a general wish that the gathering occur in August once more. Climatological and radiative considerations prevailed, and the Portland area was selected.

Wayne Wendland (IL) brought to the members' attention the availability of a capable assistant from Alaska, victim of state budget cuts.

Paul Waite (IA) distributed copies to all SC's of "A Primer on Climatic Change," published by Resources For the Future.

Paul was next serenaded by a round of applause for arranging for the pleasant accommodations and facilities.

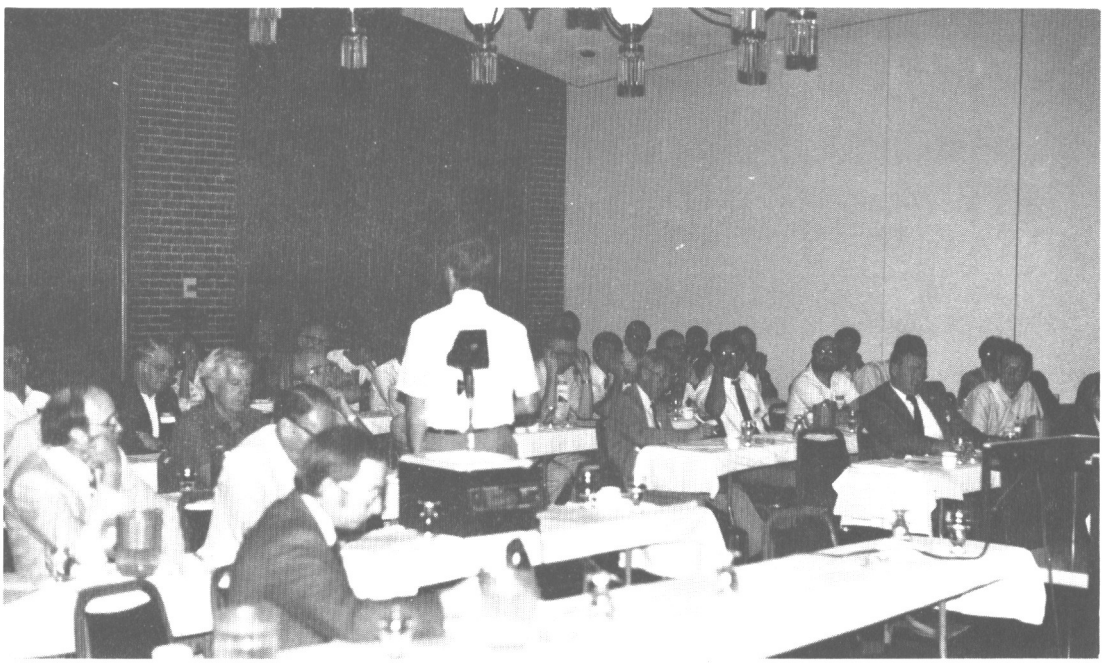
A similar fate awaited Dave Miller, in recognition of his year of service as President.

The gavel was passed to Pat Michaels, who promptly adjourned the meeting.

Members then departed to once again roam the endless corridors of the Des Moines Skywalk.

Respectfully submitted,

Kelly Redmond
Secretary/Treasurer



The audience is rather intense don't you think?

Howard Critchfield describes the pitfalls and rewards of being a State Climatologist.

Photographs by G. W. Goodge

DATA QUALITY AND AVAILABILITY - CRITICAL ISSUES
American Association of State Climatologists (AASC)

The AASC identifies three issues which will have a substantial impact on the future availability of timely and quality climatic data. These are:

1. The adoption of automatic electronic instrumentation by the National Weather Service (NWS).

2. The recent proliferation of non-NWS automatic weather station networks.

3. The decrease in budget for data quality control at the National Climatic Data Center (NCDC).

With regard to the first issue, the NWS has moved in recent years in the direction of automated electronic instrumentation. For example, temperature measurements within the Cooperative Observer Network have for many years been obtained by the liquid-in-glass thermometer housed within the Cotton Region Shelter (CRS). This system is now being replaced by the Maximum/Minimum Temperature System (MMTS), an electronic system. As a second example, the NWS and Federal Aviation Administration (FAA) are planning to implement the Automated Surface Observation System (ASOS) at airports around the country. These ongoing and proposed changes pose risks for the integrity of the nation's climatic data base. These new systems may not behave in a manner similar to the previous systems. Changes in systems may therefore result in changes in measurements of climatic variables such as mean temperature even though the actual climate may not change.

These instrumentation-caused changes in the consistency of the second will complicate future detection of climatic change. In order to minimize potential problems, the AASC recommends that the introduction of new systems follow these steps:

1. Many of these systems are used primarily for operational applications and are tested on that basis. However, these systems should also be evaluated for suitability to climatic applications. The National Oceanographic and Atmospheric Administration (NOAA) is charged with determining the climate. New systems should be tested not only for operation applications, but also for climatic applications.

2. Testing should be done in all major climatological regions of the United States.

3. Results of this testing should be published in peer-reviewed journals such as the Bulletin of the American Meteorological Society.

The Cooperative Observer Program of the NWS has been the backbone of the nation's climate monitoring network. During the past few years, there has been a gradual replacement of the CRS system by the MMTS. Unfortunately, the above steps were not following prior to deployment. Some preliminary work done by members of this committee comparing these systems indicates that the two systems do not necessarily produce the same readings under all situations.

There appears to be a real possibility that this change in instrumentation will result in changes in calculated values of the mean temperature at many of these sites, even though the actual mean temperature may not change. This will complicate future attempts to detect climatic change. The AASC recommends that the NWS now undertake a comprehensive, objective comparative test of these two systems under a wide variety of climatic conditions. The results of such a test will be essential for future attempts to detect real changes in the climate.

The NWS and the FAA are planning to install the ASOS at the nation's airports beginning in the early 1990's. This change also opens the possibility that our long-term data base of surface weather observations may be compromised. The AASC urges the NWS and FAA to follow the above steps in implementing this system.

A second issue of importance is the installation of non-NWS automatic weather stations which is occurring at a rapid rate throughout the country. The data from these networks are being used increasingly for climatic applications. The quality of these data is difficult to determine because of the lack of national standards. The AASC is working to alleviate this problem by developing guidelines for these networks dealing with sensor accuracy, sampling considerations, height, exposures, calibration and maintenance. The AASC recommends that the NWS work with the AASC in developing guidelines for these networks.

With regard to the final issue, the NCDC subjects the data obtained in the cooperative observer network to a well-defined quality control process. This process requires that quality control personnel be knowledgeable about the idiosyncrasies of the network. This requires experience and continuity of personnel. As a result of recent budget cuts and policy decisions, this process may be contracted out to the private sector. The AASC is concerned that this may result in lack of experience and continuity among quality control personnel. The AASC therefore recommends that adequate funds be made available to insure that this quality control process continue to be done by experienced personnel.

Committee members:

K. Kunkel, Chairman
G. Barton
T. Blackburn
D. Clark
A. Court
K. Hadeen
T. McKee
J. Laver
F. Nurenburger
G. Spoden
S. Williams

THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

PUBLICATIONS AND JOURNALS REPORT

Committee: Tony Brazel, Grant Goodge, David Stooksbury, Richard Becker and Paul Waite, chair.

The Committee asked that the Local Climatological Data (LCD) be preserved in its present format with equal quality printing and always as a non stapled product for certification integrity.

The committee compliments the NCDC (National Climatic Data Center) for its introduction of the historical and statistical climatic information in the Climatic Data (CD) by states beginning with the January 1987 issue, and for the return of each month's precipitation to one page in the CD rather than the prtevious split page presentations. The placement of the temperature observation time immediately following each station name greatly improves the CD data useage value for climatic consumers.

The Hourly Precipitation Data (HPD) delay factor in analyses and printing is still a problem but is quite understandable since only 3.5 people are expected to process some 3000 stations for the HPD's.

Storm Data (SD) graphics and narratives are excellent for which we commend Duane Stiegler. SD serves a very important function for the many users who need official verification of damaging storms and as such should be well identified by county and city locations rather than, as in some cases, forecast zones, which apparently are used to verify storm forecasts.

The NCDC are to be commended for the very useful series of climatic atlas, climatology and climatography publications produced during recent years. Those products have been very valuable to the operational state climatologists who provide services to our public.

The NOAA NWS CAC (Climate Analysis Center) is to be commended for their useful publications made available to state climatologists which include the Weekly Weather and Crop Bulletin, Daily Weather Maps, Monthly and Seasonal Outlooks and Climate Diagnostics Bulletin.

The publications of our climatological data by contract is opposed because the quality of the NCDC products is so important to the users.

The NCDC and CAC products are so important to the Nation's climatic users and to the state climatologists and other applied climatologists serving the millions of our Nation's climatic information consumers, that we should make this fact well known to our National administrators and leaders individually and collectively.

Relative to a journal for applied climatology it is recommended that the membership be surveyed for opinions contingent upon the future of this or another umbrella organization of applied climatologists and report at the next annual session of the American Association of State Climatologists. Although no single journal is devoted primarily to applied climatolgy it is recommended that the membership publish in journals, the Bulletin of the American Meteorological Society and similar outlets and advise the membership through the publication State Climatologist.

It is recommended that a small working advisory group be appointed by the AASC President to assist Grant Goodge with the development of content, editorial services and meeting publication deadlines and that the State Climatologist be made a quarterly publication again.

Recommendations include that the Fall issue be devoted to information from the AASC annual session in Des Moines, IA. The Winter issue should feature State Climatology activities, the Spring to news and features about the NCDC, CAC, NCPO and other associate membership and the Summer to the Regional Climate Centers and their achievments. Each issue should contain news items about the members.

AASC STATEMENT ON REGIONAL CLIMATE CENTERS

August 8, 1987

We believe the Regional Climate Centers should be managed to conduct both climate services and applied research. The RCC activities should be focused toward solution of problems that exist in the states within the region. To accomplish these with any continuity of purpose the RCCs must be adequately funded as line items in the budgets of the National Climate Data Center, Climate Analysis Center, and National Climate Program Office.

Each RCC should have an advisory board composed of the State Climatologists in the region. The board's charge will be to provide the necessary direction to insure that the RCCs are responsive to the needs of the states in applied research, services and the management of the RCCs themselves.

Applied research in the RCCs could be quite valuable to the State Climatologists, by helping us avoid duplicating work already done and arranging for research to be done to fit the SC's immediate and long term needs. Specifically the RCCs should be developing products and procedures that will make the results of past and current research "user-friendly" to the SCs. These should include developing ways to use atmospheric information with other resource information in a comprehensive way. Additionally they must provide very specfic training in the use of these products

and expert referral services on state of the art knowledge.

The RCCs service activities should insure easy access and communication between SCs nationwide, the RCCs and NCDC. This requires at least some common hardware and software. We think that the CLICOM system should be used as the standard data base system for both SCs and RCCs. The system can be run on commonly owned MS-DOS computers and it provides standard record formats which facilitates the exchange of data. It is currently in use by several state centers; it is relatively low cost, and is supported by NCDC.

Interactions between the state and federal climate centers have not, on the whole, been expanded in recent years. With the intiation of the RCCs the State Climatologists expect stronger linkages to develop between the state, regional and federal climate centers. The expectation is that there will be a reinforcement at all levels of the National Climate Program and subsequently an increase in climate services for the entire nation.

The RCCs should play a role in encouraging private sector efforts in production and dissemination of climate services. The RCCs should help focus private production of specialized products to user's needs in the region thereby reducing duplication and the funding and staffing requirements of the public centers.

Dave Miller, Chair

Recommendations

A. One of the objectives of the AASC is interaction with policy makers all levels of government. Hence the Association has a responsibiltiy to be alert to the possibilities of such interaction. This imples that the membership be aware of the emergence of issues of concern to State Climatologists and State Climate Progams arising in both the scientific community and in the policy makers arena. With this awarness comes the responsibility to prepare "Statement of Emerging Issues" for the attention of policy makers, and the need to be involved in the policy making process through actions such as the provision of background information papers and the presentation of testimony to the appropriate bodies.

In order to enhance this mission, to provide timely communication between members and to provide a stable focal point for these efforts, it is proposed:

The Association institute the position of "Executive Secretary" as a premanent official of the Association. (As a practical financial consideration, it is anticipated that this past be filled initially by a "retired but active volunteer")

B. In order to fulfull the mission of the Association the membership must be aware of the emerging scientific aspects of the discipline. This does not itself imply that all members must themselves be involved in scientific research, nor that the Association become a scientific society.

Nevertheless to foster scientific awareness, it is proposed.

1. The Association explore potential relationships with kindred societies on an international basis, with specific reference to the developments proposed by the Association of British Climatologists, and to the neighboring Friends of Climatology.

2. The Association consider establishing within the "State Climatologist", possibly renamed (for example "State Climatology"), a section of refereed papers.

3. The Executive Committe write to the President of the American Meteorological Society, expressing their concern for applied climatology, and indicating the mutual benefit gained from a close association in events such as joint meetings.

C. Acknowledging that people other than State Climatologists have valid concerns for the objectives of the Association, and that they in turn make a vital contribution to it, and that growth in membership assists in fostering the aims of the organization, it is recommended that:

The Association establish a single class of membership for individuals. All members shall have voting rights, but only active State Climatologists may hold office in the Association.

Peter Robinson, Chair

* *

Corporate Membership and Certification

The committee to consider corporate membership and certification makes the following recommendations:

We do not believe that a corporation membership category is warranted at present. Our Association is too small, and potential advantages are too few, to entice strong interest and support from the private sector and other "corporate-type" organizations.

We recommend that an information letter be prepared which contains the objectives of our Association and a list of state climatologists, with their addresses and telephone numbers. These letters would be mailed to consultants; instrument manufacturers and distributors; university departments of geography, meteorology, forestry and environmental studies; state departments of conservation, natural resources, water resources, and tourism; the Committee on Applied Climatology of the American Meteorological Society; and other professional associations and similar agencies.

In addition, an article (written in the professional note style of the Bulletin of the American Meteorological Society) including the above information should be prepared and submitted to journals of appropriate professional associations.

We believe that the theme of a future meeting should focus on corporations who (may) use climatic data on a continuing basis. The AASC should invite a limited number of individuals to speak to the Association on topics which address the common interest.

We see no compelling reason to initiate a certification program for the Association.

Comments and suggestions offered by
John Gleeson
Rolland K. Hauser
John James
Hal Klieforth
Myron Molnau
Wayne Wendland, Chair

"CLIMATE VARIABILITY AND ITS IMPACT"

Members of the American Association of State Climatologists have a long tradition of advisory service in their respective states and regions. This includes the provision of expert opinion on complicated scientific issues.

Few environmental issues have received more recent attention than the problem of climate variability and change.

Climate has and will continue to fluctuate on multiple temporal and spatial scales. The causes of these changes probably include both human activity and internal processes residing within the climate system itself. If the past is any key to the future, society will continue to experience costly impacts from the range of climate variability until it is better incorporated into planning, development, and resource management activities.

Climate simulation models strongly suggest major climatic changes by the middle of the next century. Althought they continue to increase in complexity, these models are still simplifications of the earth's climate system. Improvement of them is currently a major focus of research activity within the atmospheric science community. Nonetheless, the assumption that the future climate will be the same as that of the recent past is probably not tenable.

Resultant estimates of regional climatic change--including temperature and precipitation variability of the last several decades in many of the world's principal agricultural regions--are currently too unreliable to support a strongly interventionist social policy. Models have not yet been adequately verified by independent statistical tests. If recent variation remains unexplained, then the probable range of error in our estimates of climate through the next fifty years may be disturbingly large.

Understanding of the temporal and spatial variability of the last century is currently unobtained, and may not be attainable in the next decade. Further, our understanding of the causes of regional year-to-year climate variability remains inadequate. Nonetheless, it is this scale of variability that directly impacts several economic sectors and will continue to do so even in the absence of anthropogenic climatic change. It would be therefore be most inadvisasble to neglect research in this important area while directing increasing resources towards studies of anthropogenic change. In fact, research at these two interfaces represents a complimentary approach towards the problem of understanding the impact of climate fluctuation.

It is essential that high quality regional data and analyses be available for model verification. Recent trends in federal support for ground-based climate monitoring--including the vitally important cooperative observer network--presage a decline in the quality of the American data base. In light of the important social consequences of climate change, we urge a renewed committment to federal maintenance of a high quality observing system.

Pat Michaels, Chair

AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS MEETINGS

OFFICERS INSTALLED

Meeting Location and Dates	Incoming President	President-Elect	Secretary	Banquet Speaker
NCC, Asheville, N.C. October 5-6, 1976	E. Arlo Richardson Orgainizing Committee: E. Arlo Richardson, Paul Waite, Fred Nurnberger, Robert Muller plus Ex Officio Milo Andre and Bill Bartlett		Paul Waite	John Griffiths
NCC, Asheville, N.C. October 26-27, 1977	Paul Waite	Robert Durrenberger	Fred Nurnberger	Thomas Potter
Univ. of Maryland, College Park, Maryland October 4-5, 1978	Robert Durrenberger Robert W. Durrenberger resigned January 4, 1979 Howard Critchfield - January 4, 1979 to October 18, 1979	Howard Critchfield	Fred Nurnberger (Luncheon Speaker)	Helmut Landsberg Redford Byerly
NCC, Asheville, N.C. October 16-18, 1979	Thomas McKee	Stanley A. Changnon	Secretary-Treasurer Peter J. Robinson	Edward Epstein
Milwaukee, Wisconsin August 28-29, 1980	Stanley A. Changnon	Bernard E. Dethier	Glenn Connor	None
*Fort Collins, Colorado August 11-12, 1981	Bernard E. Dethier	Fred Nurnberger	Glenn Connor	None
*University of Virginia, Charlottesville, Virginia August 12-13, 1982	Fred Nurnberger	Robert A. Muller	Kenneth G. Hubbard	Bruce Hayden
NCDC, Asheville, N.C. August 9-11, 1983	Robert A. Muller	John F. Griffiths	Kenneth G. Hubbard	Robert E. Palmer
*Palatine, Illinois August 8-10, 1984	John F. Griffiths	Kenneth G. Hubbard	Myron Molnau	T. Theodore Fujita
*Reno, Nevada August 15-17, 1985	Kenneth G. Hubbard	David Miller	Myron Molnau	Horace Byers
NCDC, Asheville, N.C. August 8, 1986	David Miller	Patrick Michaels	Kelly T. Redmond	None
Des Moines, Iowa August 6-7, 1987	Patrick Michaels	Wayne Wendland	Kelly T. Redmond	Howard Critchfield

* Climate Tours
Compiled by Paul Waite

STATE CLIMATOLOGISTS
January 1988

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