

NCDC BRIEFS

NOAA Reorganization. Reference article in April 1982 issue of The State Climatologist. The National Environmental Satellite, Data and Information Service (NESDIS) came into being on 29 November 1982. NESDIS takes in the National Earth Satellite Service (NESS) and the Environmental Data and Information Service (EDIS). NESDIS is directed by Acting Assistant Administrator Dr. John H. McElroy. Acting Deputy Assistant Administrator for Satellites is Harold W. Yates and the Acting Deputy Assistant Administrator for Information Services is Margaret E. Courain. Under the newly organized NESDIS, the National Climatic Center will be known as the National Climatic Data Center (NCDC).

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New State Climatologists. We have two new faces in our ranks. Dr. Douglas Clark is the new State Climatologist for the State of Wisconsin, replacing Dr. Val L. Mitchell who has retired due to illness. Dr. Clark is working through the University of Wisconsin Extension, 1353 Meteorology & Space Science Building, 1225 West Dayton Street, Madison, WI 53706. His telephone number is 608-263-2374.

Mr. James Newman is now the State Climatologist for the State of Indiana. Mr. Newman replaces Mr. Larry Schaal who has retired. James is serving in an acting capacity until his appointment is confirmed. His address is Agronomy Department, Poultry Science Building, Purdue University, West Lafayette, IN 47907. He can be reached by telephone on 317-749-8100.

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Possible State Programs to be Established. Negotiations have been undertaken with Rhode Island, Mississippi, and Pennsylvania to establish a State Climatologist Program in each of these states. Details on these negotiations will follow as they become available.

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Clarification of Cooperative Data Processing System Output. The NCDC cooperative data processing system does produce original and edited data values as stated in Myron Molnau's Computer Committee Report (pg. 7, October 1982 State Climatologist). However, both values are present on a single tape and are available from a single tape copy. Also, a customer can select either type value or a combination of original and edit values based on the data quality flag.

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NCDC Briefs

Degree Day Data. The NCDC has published Annual Degree Days to Selected Bases. The publication contains the 1951-80 annual heating and cooling degree day normals for seven base temperatures at over 3,000 locations in the United States. These data are used in building design standards and to estimate the energy required to heat and cool a wide variety of buildings. Energy conservation has resulted in the need for degree day data at base temperatures other than the historical 65°F (18.3°C). The publication advertises a monthly summary that is available on microfiche.

NCDC Marketing. A meteorologist in the Information Services Division has been assigned part-time to coordinate public information efforts of the NCDC during FY 1983. He is the point of contact to arrange for shipment of quantities of NCDC brochures and price lists for use at regional conferences of scientific groups. The contact is Mr. Cleo G. Hogan, telephone 704-258-2850, extension 682.

VAX 11/780. The National Climatic Data Center (NCDC) has developed a service for the State Climatologists where they are able to dial into a VAX 11/780 at NCDC and selectively obtain climatological data records for their use. This service will expedite the accessibility of this information for the climatologists and will provide a means for recording the selected data onto storage mediums rather than have to enter the values from manuscripts. The data are available from four different areas of climatic data files: (1) the Summary of the Day data, (2) the PRELIM data, (3) the Climatological Monthly data, and (4) the Local Climatological Data. Additional information about access methodology may be obtained from Larry Griffin or Doug Mason at (704) 258-2850, extension 205 (FTS 672-0205). Information about the data files may be obtained from the NCDC User Services Branch (704) 258-2850, extension 682, (704) CLI-MATE, or FTS 672-0682.

Estimating Missing Max and Min Temperatures. The cooperative data areal edit program can estimate up to eight missing max temperatures and eight missing min temperatures in one month's data. One to three nearby stations are selected to provide the estimate for the missing data. The nearby stations are from the same time of observation group (AM, PM, or MID) as the missing data, but are not restricted by division or state boundaries. Also, the nearby stations are within 60 miles and have less than 1000 feet elevation difference from the station with missing data.

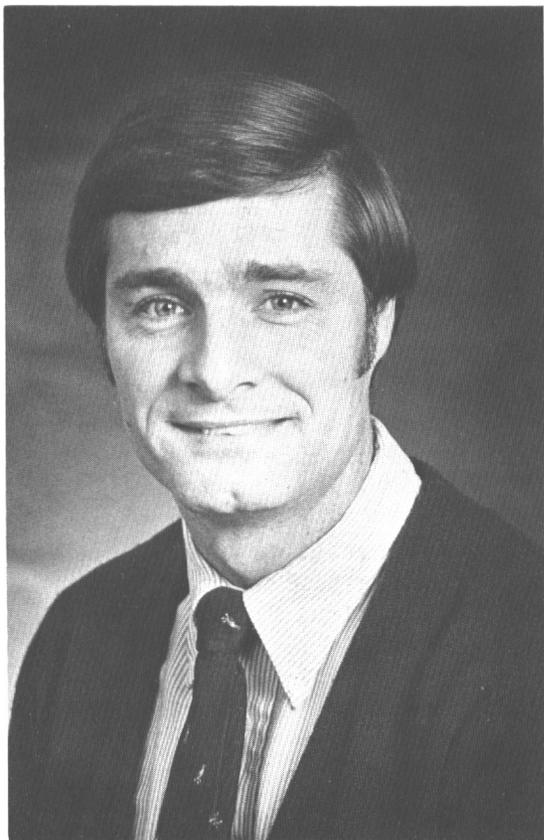
The general approach involves finding the combination of one to three nearby stations whose temperatures for the month most closely fit the temperature pattern of the station with the missing data. Individual station effects such as elevation and exposure are roughly accounted for by using deviations from each monthly station average. The estimated temperature is derived by averaging the appropriate nearby station deviations occurring on the day with missing data. None of the calculations use any data that have been "flagged" as suspicious by previous internal consistency or three standard deviation screening tests.

The specific calculation is as follows: First the surrounding station data are converted to standardized Z values by subtracting from each its row (monthly) mean and dividing by its standard deviation. An error variance is computed for each possible combination of surrounding stations. This error variance is computed by first finding an average Z value from the combination of

surrounding stations for each day of the month. Then, this average Z value is multiplied by the standard deviation (flagged points excluded) of the row containing the missing data to obtain a correction temperature in degrees F. Next, the row average is added to the correction temperature to produce a best guess for a particular day. This is repeated for all days that are not flagged or missing. The best guesses are then subtracted from the observed value on each day and the error variance associated with that combination of surrounding stations is computed and saved. This process is repeated for all combinations of surrounding stations. Finally, these error variances are sorted and the combination of surrounding stations associated with the lowest error variance is used to make the best guess for the missing values.

Once the minimum-error-variance-producing combination of nearby stations is found, it is used to provide the best guess estimate for the missing data. An average Z value from the optimum nearby station combination is found for the missing day. This tells how many standard deviations above or below the monthly mean one would expect the temperature to be on the missing day. This then is converted to a temperature departure from the mean by multiplying by the missing station's monthly standard deviation. The best guess is then computed by simply adding this departure from the mean to the monthly mean. After all calculations are complete, the estimated values are automatically checked for internal consistency. Finally, each estimate is checked by a meteorological technician to insure the value is reasonable.

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DR. CHARLES L. WAX

The National Climatic Data Center and the American Association of State Climatologists would like to welcome Dr. Charles L. Wax. Dr. Wax is the newly appointed State Climatologist for the State of Mississippi. This Mississippi native has been an assistant professor of geography at Mississippi State University for the past six years. Prior to assuming his duties at MSU, Dr. Wax served as a Graduate Research Assistant, Center for Wetland Resources, Louisiana State University. Dr. Wax is very excited and enthusiastic about the State Climatologist Program in Mississippi and says his goal is "to develop a climatology program and provide information on a voluntary basis to anyone who requests it. I'll be seeking ways to make the program work." Because of Mississippi's agricultural lean, Wax said he hopes the services will be most beneficial to farmers and foresters.

NATIONAL CLIMATIC DATA CENTER BRIEFS

New State Climatologist in West Virginia. The NCDC and the American Association of State Climatologists are pleased to announce the appointment of Dr. Stanley J. Tajchman as West Virginia's State Climatologist. Dr. Tajchman is a native of Poland and has been in the United States six years. He is with the Division of Forestry at West Virginia University. His mailing address is Division of Forestry, 337 Perceival Hall, West Virginia University, Morgantown, WV 26505. Telephone: 304-293-3411. We look forward to meeting him personally at our August meeting.

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NRC Publication. The Nuclear Regulatory Commission has published "A Dust Climatology of the Western United States" by Michael Changery of the Applied Climatology Branch, NCDC. Data for 180 stations and a 30-year period of record were utilized in analyses including the annual number of hours with dust-induced visibility below specified values, annual number of dust episodes of various intensities, and dust episode durations. Results will be used in standards development for nuclear plant siting. A limited supply is available at the NCDC, Federal Building, Asheville, NC 28801.

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Cooling Degree Day Publication. The NCDC has revised and updated the monthly and seasonal cooling degree day publication of its Historical Climatology Series (No. 5-2). The publication now includes data through December 1982 and the year rank (i.e., relative standing) of the annual cooling degree day value. The ranks are given for the individual states, geographical regions, and the entire country. The cooling degree day statistic serves as an index of air-conditioning requirements during the year's warm months, and the publication State, Regional and National Monthly and Seasonal Cooling Degree Days Weighted by Population (1980 Census) (January 1931-December 1982) summarizes the monthly values for the past 52-year cooling seasons.

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CLIMPAX. A plan for national experiment to assess the impact, perceptions, and adjustments to climate change was presented to the National Academy of Sciences (NAS) on June 16, 1983. The National Climate Program Office was represented at the meeting and indicated that they are willing to take a lead role bringing about the experiment. NCDC has been developing the methodology to identify the temporal and spatial characteristics of persistent climate anomalies to be used in the experiment.

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Buoy Inventory. NCDC has produced a 13-page brochure listing the availability of buoy data at the Center. Maps display the locations of 85 buoy stations from which over one million observations have been received since the early 1970's. The inventory lists the station ID, location, years of record, and number of observations for each station by element for wind, pressure, air temperature, sea temperature, wave height, and a grand total.

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CLIMATE DATA AND INFORMATION PROVIDED
BY THE NATIONAL CLIMATIC DATA CENTER

BY
STEPHEN R. DOTY

THE MISSION OF THE NATIONAL CLIMATIC DATA CENTER

The mission of the National Climatic Data Center (NCDC) is, simply put, the archiving and publishing of the data and information sufficient to describe the climate of these United States. Housed in the heart of downtown Asheville, North Carolina, the NCDC now has some 425 people accomplishing this bold mission.

Why Asheville, NC for the worlds largest Climate Center? To answer this one must go back to the early 1950's when the New Orleans Tabulation Unit was evicted from the U. S. Army embarkation center. At this same time the U. S. Post Office's Postal Accounts Division was decentralizing from the major center housed in the Grove Arcade Building in Asheville. So, as if by magic, the homeless weather records center was matched with the now empty building in the mountains of Western North Carolina. A few years later additional regional weather record processing centers (San Francisco, Kansas City, Chattanooga) were combined to form the National Weather Records Center (NWRC). Several other reorganizations brought about the National Climatic Center and finally last November the National Climatic Data Center.

The NCDC receives many different data sets and formats, for many different parameters, on many different scales (time and space), and for many stations. This paper will concern itself with two basic data sets that have the most significance to the energy community. The first data set to be discussed will be the hourly data as received from many "airports" across the land. The second data set will be the daily and monthly data as received from various sources but mainly the "cooperative network" of National Weather Service (NWS) run climate stations.

AVAILABILITY OF HOURLY SURFACE DATA AND INFORMATION

Manuscript

As with most data sets the hourly surface data (sometimes known as airways data) arrive at the NCDC via a handwritten original manuscript form sent through the U. S. Postal Service. At the present time five different forms are used by the various observing agencies in the United States. Table 1 gives the form name, the primary user of the form and the number of stations for which NCDC presently receives forms.

Table 1. Hourly data forms, primary users and number of observing stations.

<u>Form Name</u>	<u>Primary User</u>	<u>Number of Stations</u>
MF1-10A/B	First Order NWS	247
MF1-10C	FAA and Non-First Order NWS	900
MF1-10	Navy and Air Force	270
NOAA Form 72	U. S. Coast Guard	200

The primary stations send their completed forms to NCDC in three shipments per month (days 1-15, 16-25 and 26 - end of month). These forms are first logged in and then placed in special folders for their long journey to the permanent archive. These folders hold one month's data for a given station and printed on the folder are the station name, station number, data month and keying instructions. The stations that receive no further attention such as keying or copying are sent straight to archiving.

Digital

For the 280 or so "lucky" stations a quick manual review is given the forms before delivery to the Data Entry Section (DES). The manual review includes a cursory scan to make sure all entries are filled in and that data seem reasonable. Keying instructions are then noted on the folder.

In DES the individual hourly observations are keyed via an Inforex system directly to disk. The key entry person must translate "weather" symbols and abbreviations into NCDC codes. Still a good person can key twelve to fifteen hundred observations per day with an error rate of less than one half percent. After each day's keying the disk is dumped onto magnetic tape so that these data may be transferred to the mainframe computer. From here a computerized quality control program is applied against these data, the resulting errors flagged for human review and updates or corrections made.

At this point a comment needs to be made concerning the number of observations keyed per day. Historically all 24 observations per day were punched onto cards. For the most part this was done on-station. Then in 1965 it was decided that this procedure was too expensive, so the number of keyed observations per day was dropped from 24 to 8. The keying effort was transferred from the field station to NCDC. For the period January 1965 through July 1981 only eight observations per day were keyed. This procedure was for National Weather Service stations only as the Air Force and Navy followed various other schemes.

Beginning in August 1981 the NCDC again returned to keying all 24 observations per day. This was possible due to some support outside the NCDC budget. However, many stations have had select periods (usually five years) of hourly data "back-punched" on as a-customer-was-willing-to-pay basis.

These digital data are then added to the NCDC data base on a monthly basis approximately 45 days after the end of the data month. There is one magnetic tape per month containing data for all available stations. After a year's data are compiled these monthly tapes are merged into a yearly set of tapes.

These data are in a card image format, referred to as Card Deck 144, in sort by station number. During late spring yearly updates are then made to the master data base file known as Tape Data Family 14 (TDF-14). In the TDF-14 format six observations are grouped together to form one record on the tape. Each station is thus contained on one 9 track, 6250 bpi, ASCII tape in sort by time. Inventories are available on microfiche.

Microfiche

Once these data have been keyed and quality controlled the original manuscript forms are prepared for archiving on microfiche. Also being microfiched are those station's data that were not digitized. This archiving includes sorting the forms into day order, insuring that they are photogenic (some light or pale copies have to be enhanced by use of a special dry copying machine) and, finally, filming by use of a high speed TDC camera. The final product is one microfiche per station per month. The title is prepared so that the microfiche become self-indexing without the aid of a reading device. A master copy is made (and stored off-site) as well as several working copies. After rigid quality control measures are passed the original forms may be disposed.

Publications

These hourly data along with daily and monthly values are printed in the Local Climatological Data (LCD) publication. The LCD is produced via a COM unit from the digital files. At the present time there are 282 stations for which LCD's are published. These are available by subscription on a monthly and annual basis.

Each LCD contains a summary of each day in the month including maximum and minimum temperature, precipitation, cloud cover, degree days, wind, etc. Each third hour observation is presented along with the hourly precipitation amounts.

LCD's are available for some stations as far back as 1949. All LCD's are available on microfiche as old issues have been manually filmed and newer issues are placed on microfiche via COM.

AVAILABILITY OF DAILY AND MONTHLY SURFACE DATA AND INFORMATION

For the purposes of this article the inclusion of daily and monthly data into a subtopic will facilitate the discussion of these akin data and information. Even though the "hourly stations" also record daily and monthly values and these values are included in the following data set, the primary emphasis will be on the cooperative station network.

Manuscript

Each month the NCDC receives forms for archiving and publication from some 7800 stations commonly known as cooperative (COOP) stations. According to NWS statistics there are some 11500 stations in the network with 4100 receiving some compensation for their efforts with the remaining 7400 giving of their time freely. The NWS provides and maintains the instruments for these observers and supplies them with forms on which to record their daily observations. At the present time there are only two basic forms received.

Notice that a month's worth of daily data are now recorded on one form. The elements available are daily maximum and minimum temperatures, temperature at time of observation, total daily precipitation, occurrence of weather and, for a few hundred stations, evaporation and soil temperature.

These forms are mailed monthly directly to NCDC or through a regional NWS Cooperative Program Manager (CPM). After receipt and indexing at NCDC, the forms eventually find their way to individual station storage boxes where they will reside until permanent archival procedures (filming) take place.

Digital

A large portion of the forms (some 7600 stations) are sent to DES for keying. By the twentieth work day after the end of the data month most of these data will have been keyed and processed through the edit routines. This QC effort was upgraded beginning with the January 1982 data. New computer software using sophisticated qualitative decisions now replaces many subjective decisions once made by manual validation.

After about six weeks the final digital file is produced. A monthly tape containing all stations for the data month is then added to the data base. These data are in the new element structure format, assigned to Tape Deck 3200 (daily) and 3220 (monthly). This element format groups like elements together in a record (i.e., maximum temperature, daily precipitation, or monthly total precipitation) breaking with NCDC's historical format of having an observation a record.

After a year's data are compiled a merge is accomplished grouping the data into a sort by station, then time. After five years a period of record merge takes place. The general period of record for these data is 1948 through to present. Each state is on a separate set of tapes. For example, Rhode Island data are on one 9 track 6250 bpi, ASCII tape while Texas data are contained on 7 tapes. Several states have had data "back-punched" through cooperative efforts with state universities. These data begin as early as 1876. Detailed inventories of these files are maintained on tape and microfiche at the NCDC.

Microfiche

The original forms are archived in storage boxes until 5 years worth of data become available. These forms are filmed in standard 5-year time groups, such as 1950-54 and 1955-59. As with the hourly forms, a large effort is made to insure the integrity of these filmed records. All COOP forms are filmed when data for the 5-year standard period become available. All stations have been filmed back to 1950. Earlier files are now being completed by state as long as money holds out.

Publications

These daily and summarized monthly values are printed in the Climatological Data (CD) publication. This CD is printed by state on a monthly and annual basis available by subscription. Specifically, the CD contains monthly temperature data, maximum, minimum, average, departure from normal, and extremes; degree days; precipitation totals, departure, greatest daily, snow and snow depth. Also included are tables of daily precipitation, and daily temperatures.

CD's (or equivalent) are available back into the 1890's. These are maintained on microfiche at the NCDC.

SERVICES AVAILABLE AT NCDC

How to Obtain

The reason for the very being of the NCDC is to collect, process and publish climate data sufficient to describe the climate of the United States. At the heart of this mission is the dissemination process. Publications are available on a subscription basis (there are now some 48,000 subscribers to LCD's and CD's). Publications are maintained as stock items since 1979 issues with prior publications available as paper copies from microfiche.

Digital data are available on magnetic tape either as copies of library reels or through a selection or reformatting routine.

A staff of eleven data resource consultants is available to provide assistance via telephone or by letter. The address is:

National Climatic Data Center
Climatological Services Section
Federal Building
Asheville, NC 28801

704-258-2850 X682
FTS 672-0682

*** Effective September 5, 1983 ***
704-257-6682
FTS 672-6682

Normal delivery is 10 working days.

Price

Price is a function of the cost to reproduce the item. It is NOAA policy to recover actual costs incurred in the production or reproduction process. Table 2 gives a simple approach to NCDC prices. Always contact us to determine specific prices for the items of interest.

Table 2. Selected NCDC Prices

<u>PUBLICATION</u>	<u>SUBSCRIPTION</u>	<u>INDIVIDUAL</u>	<u>FICHE</u>
LCD	\$ 8.45/Stn Year	\$0.65/Stn Mo	\$0.70/Stn Yr
CD	\$19.50/State Year	\$1.50/State Mo	Variable
MANUSCRIPT	\$0.35 per page or (Minimum charge is \$5.00)	\$0.70 per microfiche	
<u>TAPE</u>	Input 1600 bpi	Input 6250 bpi	
Copy	\$ 99	\$154	
Selection	\$120 (\$65 each additional)	\$185 (\$120 each additional)	

NCDC BRIEFS

We are pleased to announce that upon his retirement Mr. William Bartlett received the Department of Commerce Silver Medal for his work in reestablishing the State Climatologist Program. As most of you know Bill had surgery in August, but he is now doing fine and enjoying his retirement in Asheville.

New capability - NCDC now has the capability of providing any product from the "fax" circuit within one week of real time. This service includes both alphanumeric (forecasts, surface aviation observations, etc.) as well as graphics (analyzed or forecast maps and charts). The system is called the Service Records Retention System (SRRS) and receives data from AFOS.

NCDC is still looking for a home for the original co-op records. Several state climatologists have accepted the records for their state while in several other states, historical societies, libraries, or state archives have agreed to accept the records. The NCDC will be making other types of original records available to those SC's who are interested. The original "Weather Radar Observations" forms for 1982 have been microfilmed and are now available. These forms contain information about the coverage, intensity, movement, and height of the tops of precipitation elements. If you are interested in these radar observations, please let us know by January 30, 1984. We will keep you notified as other original records are filmed and become available.

Mailing list update - We request those of you who are sending mail to NCDC in care of William Bartlett please update your address file to the following: Mr. Grant W. Goodge E/CCx3 (Stop 30) National Climatic Data Center Federal Building Asheville, NC 28801.

NCDC has an interactive retrieval system with expanded capabilities for data acquisition on the VAX 11/780. During December 1983 this system will be operational in a test phase for the State Climatologists. The original acquisition system will also remain in an operational mode during December 1983. If no problems arise during the test phase, the old system will be replaced by the new one on January 3, 1984. Those State Climatologists who want to test the new system should contact Larry Griffin or Bryce Winn at 704-259-0437 (FTS 672-0437) or Grant Goodge at 704-259-0473 (FTS 672-0473).

PUBLICATIONS

An article entitled "Some Spatial Characteristics of Drought Duration in the United States," by Thomas R. Karl, NCDC, has been published in the August 1983 issue of the Journal of Climate and Applied Meteorology. This article contains a detailed (but tractable) explanation of the Palmer Drought Severity Index (PDSI), and its sensitivity to some of the assumptions upon which the index is built. Customers requiring PDSI data should be aware of the information contained in this article. (T. Karl, FTS 672-0450) (Commercial 704-259-0450)

NCDC has revised two data summaries in the Historical Climatology Series: 4-1, "State, Regional, and National Monthly and Annual Temperatures-Weighted by Area (January 1931-December 1982);" and 4-2, "State, Regional, and National Monthly and Annual Total Precipitation-Weighted by Area (January 1931-December 1982)." Meaningful climatological averages of temperature and total precipitation were obtained for these summaries by weight-averaging state climatic division data, where the weights were the percentage areas of the total area represented by the climatologically homogeneous state-divisions-areas. Each publication gives the monthly and annual averages by year (beginning with 1931), long-term means and standard deviations for the individual months and annual total, and a rank value which gives the relative standing of the annual value in the 52-year period of record (1931-82). (W. J. Koss, FTS 672-0319) (Commercial 704-259-0319)

C-24. Environmental Information Summaries

In response to requests by climatological data users, the National Climatic Data Center (NCDC) has published various data summaries which are of particular interest and importance in the area of historical climatology. Examples of the types of records and summaries are: atlases of anomalies from long-term averages, indexes of records of climatologically-related observations, long-term summaries of degree day data, and comprehensive climatic summaries for specific geographical locations in the United States. These publications are issued in the NCDC's Historical Climatology Series (HCS) under one of six major categories according to their principal content:

1. Long Record of Weather Observations
2. Historical Index
3. Atlases
4. Areally-Weighted Data
5. Population-Weighted Data
6. Climatology

The Selective Guide to Climatic Data Sources has been revised and updated as of July 1983. It contains over 340 pages of examples and descriptions of NCDC's holdings. A copy of this publication will be mailed to each of the state climatologists free of charge. The publication is also available on microfiche.

The Illinois State Water Survey has published a 52 page report entitled THE SEVERE WINTER OF 1981-1982 in Illinois. This report has some excellent graphical analysis of individual storms as well as a verbal description of the storms and their impact upon human life and commerce in the state.

The National Climatic Data Center and the American Association of State Climatologists welcomes two new State Climatologists to the organization. They are from the states of West Virginia and Rhode Island. Following is a short biography of the gentlemen who have filled these positions.

In West Virginia, Dr. Stanislaw J. Tajchman has been appointed as the State Climatologist. Dr. Tajchman is a Professor of Forest Meteorology in the Division of Forestry at West Virginia University. He is a native of Poland who graduated with a degree in physics and then went on to further study and obtained an M.Sc. in geophysics from Warsaw University. Dr. Tajchman also received a Ph.D. in meteorology from Ludwig-Maximilian University in Munich, Germany. Presently Dr. Tajchman is involved both in teaching and research in Forestry and Meteorology. Some of his current research is in topoclimatology and potential bioproductivity of forest sites in the central Appalachians. In addition to being a member of the American Geophysical Union and the Scientific Research Society of America, Dr. Tajchman is also a frequent participant or chairman of various symposiums and workshops on forest meteorology.



DR. STANISLAW J. TAJCHMAN

Dr. Robert C. Wakefield is our most recent addition to the State Climatologist Program. Dr. Wakefield is a professor in the Plant Science Department of the University of Rhode Island. He received his B.S. degree from the University of Rhode Island, and then proceeded on to graduate work at Rutgers University, receiving both his M.S. and Ph.D. degrees. Upon receiving his Ph.D. degree in 1954, Dr. Wakefield returned to the University of Rhode Island where he has spent his life teaching courses in plant science as well as conducting research in agronomy at the Rhode Island Agriculture Experiment Station. He also is in charge of the university weather station from which he is able to maintain his own climatic records. Dr. Wakefield is a member of the Northeast Regional Technical Committee (NE-135) which is studying the "Impact of Climatic Variability on Agriculture". Despite his full schedule of academic activities he still finds time to devote to other interests such as being President of the Rhode Island Association of Conservation Districts. His hobbies are gardening, photography, and oil painting.



DR. ROBERT C. WAKEFIELD

The National Climatic Data Center and the American Association of State Climatologists would also like to welcome Mr. William A. Mork who will be replacing Mr. James Goodridge as the State Climatologist in California. Mr. Mork is presently a staff meteorologist with the California Department of Water Resource's Division of Flood Management in Sacramento. He has occupied that position since September 1982. Prior to his work with the state, Bill had been a meteorologist in the U.S. Air Force. He retired with the rank of Major after twenty-one years of service, several years of which were spent in Vietnam. His last four years were spent at Travis AFB as part of the 17th Squadron. Bill's educational background includes a B.S. in meteorology from Florida State in 1959 and a M.S. degree in Public Administration from Golden Gate University in 1975.

AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

ANNUAL BUSINESS MEETING
August 11, 1983
Asheville, North Carolina

President Fred Nurnberger (Michigan) called the business meeting to order at 8:30 a.m., August 11, 1983. Dr. Nurnberger gave a brief report on his activities as president of AASC. A survey of state climatologist programs and resources was brought to conclusion by the President during his tenure in office (1982-83). Dr. Nurnberger reported on this and other information that he presented at the NCPO sponsored workshop, "Regional, State and Local Climate Services", at Tallahassee, Florida on March 22-24, 1983. President Nurnberger then called for old business beginning with committee reports.

Secretary-Treasurer, Ken Hubbard, reported a balance of \$3,101.89 in the treasury with some expenditures still expected for the Asheville annual meeting in progress at that time. Minutes of the 1982 annual meeting were submitted and approved by the membership.

Chairman Waite (Iowa) of the Storm Data and Publications Committee reported on the committee's action during the year. Waite reported that the Storm Data editors had implemented an improved format, and also that there are now fewer late reports. Waite had interacted with T. Fujita (Chicago) and members of the NCDC and NWS staffs with the following recommendations:

- 1) continue the storm data publication;
- 2) give storm data gathering activities a higher priority at NWS offices;
- 3) collect storm data from State Climatologist offices where possible;
and
- 4) consider contracts for climate publications very carefully and selectively.

A discussion about the suitability of NCDC publication formats and potential

recommendations for the coming year followed the report.

Chairman Molnau (Idaho) reported on the work of the Computer Committee. A written statement submitted by Molnau is attached to these minutes. The report summarized the new interactive systems at both the Climate Analysis Center and the National Climate Data Center. Discussion following the report suggested that State Climatologists are beginning to gradually rely on digital products in place of the traditional hard copy publications. It was suggested that the AASC continue to maintain a climate-software referral system and that steps be taken to develop a cross reference for locating those state climatologists who have had experience with a given mini- or micro-computer system. Members are reminded to send their one-paragraph, software abstracts to Myron Molnau.

Chairman Michaels (Virginia) of the Constitution and Bylaws Committee reported that there had been no activity during the past year.

President Nurnberger called for new business. Names of nominees for Associate Membership were presented to the AASC. The following climatologists were nominated: Ms. Ernie Atkins (LA), Dr. Bruce Berryman (VT), Mr. Richard Davis (NC), Mr. Arnold Finklin (MT), Mr. Grant Goodge (NC), Mr. William Haggard (NC), Mr. Wayne Hamberger (TN), Mr. Cleo Hogan (NC), Mr. Rolland Houser (CA), Dr. L. Ray Hoxit (NC), Dr. Merlin Lawson (NE), Dr. Dale Linvill (SC), Mr. Mike Mogil (TX), Mr. James Ownbey (MS), Mr. Donald Pompella (MA), Dr. Kelly Redmond (OR), Dr. Brad Schneller (Ontario), Mr. Robert Strauss (TX), Mr. Mathew Werner (NE), Mr. Donald Whitman (MO). After deliberations, the AASC voted to accept these nominees as Associate Members.

New State Climatologists are appointed by the Governor or his represen-

tative in each state, and upon association with AASC and payment of dues they become members in AASC.

A motion was made to make membership dues payable between October 1 and September 30. The motion failed. The fiscal year for AASC business will begin, as in the past, with the adjournment of the annual meeting. The fiscal year will continue to the end of the next annual meeting. For example, the 1983-84 fiscal year will end at the conclusion of the annual meeting in Chicago.

A discussion about the format of the annual meeting followed. Comments included both a preference by some members for a workshop format and by others for the present format that highlights current topics. Meeting formats are currently decided by the Executive officers.

Chairman Waite (Iowa) of the Nominating Committee presented the officer nominations of Dr. John Griffiths (Texas) for President-elect and Dr. Kenneth G. Hubbard for Secretary-Treasurer. These individuals were elected by acclamation.

Some discussion ensued concerning the charging policy for various SC products, including those NCDC publications channelled through SC offices. The concensus was to continue with the current flexible system whereby each state sets their charging policy.

Several meeting sites were offered for the 1984 meeting, including: Illinois, Oklahoma, Louisiana, Texas and Idaho. A motion was made and approved to hold the 1984 annual meeting in Chicago, Illinois.

The AASC members discussed the inadequacy of the \$500 limit on NCDC data products made available to the states at no cost to SC programs. The proposed

NOAA fellowship for SC's for joint studies with NOAA staff was discussed, and a motion was made to show support for this NOAA fellowship.

The floor was opened to State Climatologists to name nominees for the three member Nominations Committee. Clark (WI), Goodridge (CA), Purvis (SC) and Bach (TN) volunteered to serve. Voting resulted in the election of Bach, Goodridge and Purvis to serve on the Nominations Committee during 1983-1984.

Submitted by Secretary-Treasurer, Kenneth G. Hubbard

STORM DATA AND OTHER CLIMATIC DATA CENTER
PUBLICATIONS REVIEW

Following the 1981 Storm Data report preparation, the order to discontinue Storm Data was cancelled. Beginning with the July 1981 Storm Data a greatly improved publication emerged because of NOAA commitment and the talents and efforts of Dr. Ted Fujita, University of Chicago. Outstanding storms of each month are artfully featured, thoroughly documented and illustrated by excellent photos and figures. National Weather Service attention and interest in Storm Data is illustrated, in part, by their dedication to entering state (or section) storm data in the current issues. The large percentage of late state entries have been largely overcome.

Three of the 1981 AASC recommendations are now effected namely:

- (1) continue Storm Data in an improved format,
- (2) determine a higher priority to storm data preparation,
- (3) publicizing Storm Data.

The Storm Data Committee continues to recommend that State Climatologists become involved in the cooperative gathering, analysis and processing of storm reports for delivery to the NWS representative. Those data may be obtained from E-15s, news reports and direct storm investigations. Impact data may also be provided the NESDIS Assessment and Information Services Center, Washington, D. C.

This Committee recognizes that while the Storm Data has considerable value as the official document about most damaging storms it does have research limitations. For example, only about 10% of the total hail losses were reported during several years past for hail researchers. Thus we conclude that State Climatologists should realistically use Storm Data as a means for documentation but quite cautiously with research projects which require Storm Data.