

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

# THE STATE CLIMATOLOGIST

IN COOPERATION WITH THE  
AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS



\* SC LOCATIONS  
# NO SC PROGRAM

VOLUME 8 NUMBER 2 APRIL 1984  
PUBLISHED QUARTERLY AT THE NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, N.C.



DR. KENNETH D. HADEEN  
NEW DIRECTOR

Dr. Kenneth D. Hadeen became the new Director of the National Climatic Data Center on May 13, 1984. Dr. Hadeen had been serving as the Deputy Director of the Assessment and Information Services Center (AISC) in Washington, DC.

A native of Haxtun, Colorado, Dr. Hadeen graduated from Colorado State University in 1953. He then entered the U. S. Air Force and received his initial meteorological training at the University of California at Los Angeles. After serving as Duty Forecaster in Colorado Springs, Detachment Commander in Korea, and Officer-In-Charge of a weather station in California, he received his M.S. degree in meteorology from Texas A&M in 1961 and his Ph.D. degree in 1966. His military career centered on meteorology and environmental support to the Defense Department. In 1977 he retired from the Air Force and joined NOAA

## NATIONAL CLIMATIC DATA CENTER BRIEFS

As a result of recent operational changes at NCDC, microfiche copies of original records are no longer being made. Therefore we will no longer be able to provide free copies to the State Climatologists. Those State Climatologists who still wish to obtain these fiche can do so by contacting the Climatological Services Section by mail or phone (704-259-0682).

The main DAMUS computer system has been upgraded to a SPERRY 1100/62 system with two million words of memory. This new system is expected to give a 300% increase in throughput and will provide much improved turnaround in processing and disseminating data. Computer runs which may have taken several days may now be completed in one day.

NCDC has purchased a new small computer system called "The Juggler." When operational, this system will read, write, and format 93 different types of floppy disks, thus allowing NCDC to provide data that can be used on a customer's mini-computer. The proposed operational date is now fall 1984.

NCDC produced a climate brochure for the Summer Olympics in Los Angeles, California. The brochure was designed for those persons attending the Olympic Games and/or touring the Greater Los Angeles area. There are weather tables for eight different sites in the area. The data are presented in both U. S. and metric units for the months of July and August. Also included in the brochure is a one page narrative and a locator map. A limited number of these brochures are available upon request.

### PUBLICATIONS

NCDC has updated the Index of Original Surface Weather Records (Hourly, Synoptic, and Autographic). There is a separate volume for all states and the U. S. Territories, and can be obtained on both paper and microfiche. The previous edition went through 1976, while the updated version goes through 1981.

The National Bureau of Standards (NBS) has published Directional Extreme Wind Speed Data For the Design of Buildings and Other Structures (Building Science Series 160) by Michael J. Changery of NCDC; Eugene J. Dumitriu - Valcea, a consulting engineer, and Emil Simiu of NBS. This report provides the highest yearly extreme wind speed data from each of eight directions at 38 stations in the U. S., and procedure for estimating extreme wind effects on structures. A limited number of copies are available from NCDC.

### PUBLICATIONS FROM THE STATES

Alaska: Arctic Ice Atlas. This 302-page atlas is a comprehensive work which includes not only a detailed analysis of ice edge location, concentration, and thickness, but also an analysis of climatic factors as well. Anyone interested in purchasing this atlas may do so by sending \$15 to: AEIDC, University of Alaska, 707 A Street, Anchorage, AK 99501.

North Carolina: Precipitation Probabilities Based on the Gamma Distribution at 76 North Carolina Locations. This publication was prepared by Dr. Jerry M. Davis and Martin W. Imhoff of the North Carolina Climate Program Office at N. C.

State University, Raleigh. The publication contains 52 weekly probability values for certain precipitation amounts that would be exceeded during a one, two, or three-week period.

South Carolina: State of South Carolina Weather and Crop Summaries, 1983. This 30-page publication has monthly tabular precipitation and temperature data for 52 stations in S. C., plus analyzed maps of these same parameters for the state. Also contained in the publication is a monthly narrative crop summary, notable storm events, flood data, and crop production statistics. Copies are available by writing John C. Purvis, State Climatologist, South Carolina, Water Resources Commission, P. O. Box 4440, Columbia, SC 29240.

Washington State: A Guide to Climatic Information - Washington State. This guide, which was assembled by Howard J. Critchfield, Office of the State Climatologist, is designed to assist those who are seeking climatic records or general information relating to the climate of Washington State. It contains a survey of the types of existing records, a selection of major agency sources of climatic information, and lists of publications that provide answers to questions often asked about the climate of the state. Copies may be obtained through the author at Western Washington University, Bellingham, WA 98225.

Illinois: Temporal Distributions of Global Thunder Days. Authored by Stanley A. Changnon, Jr., and Chin Fei Hsu, this publication is a study of the thunder-day frequencies during the 1901-1980 period from 90 weather stations throughout North America, and 131 other stations scattered around the world. The study was undertaken to describe the statistical properties and climatological rationale of the seasonal and annual fluctuations of thunderstorms. Copies can be obtained by writing the Illinois State Water Survey, Champaign, IL 61820.

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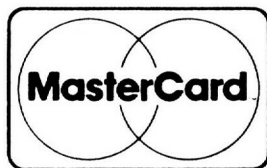
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REGIONAL COOPERATIVE PROGRAM MANAGEMENT CONFERENCE

NOTE: Following are selected items of interest to State Climatologist that were discussed at the Regional Cooperative Program Management Conference on May 1-4, 1984.

GWG

June 1, 1984

TO: Addressees Listed Below  
FROM: W/OTS21x4 - *William I. Pogerman*  
National Cooperative Program Manager  
SUBJECT: Recommendations and Actions - Chiefs, Regional Cooperative Program Management Conference  
REF: W/OTS21x4:WIP:memorandum, dated March 31, 1984, Chiefs Regional Cooperative Program Management Conference

Once again, a successful Chiefs, Cooperative Program Management Conference was held at the WSH, Silver Spring, MD. and concluded on May 4, 1984. This was the eight of a series of conferences and the sixth held in the Washington, DC area. In attendance were program leaders from the Weather Service Headquarters, Regions, National Climatic Data Center, National Climate Program Office, NOAA Logistics Supply Center National Reconditioning Center and the President-Elect of the American Association of State Climatologists. In addition to the above, we were once more fortunate in having four members of the Canadian Atmospheric Environment Service (AES) activity participate in the conference agenda. Their briefing on the activities of the Canadian Cooperative Station Program were both interesting and informative. Their operational problems and goals for the future are identical to ours.

The format for presenting agenda items were the same used so successfully in previous meetings. Program leaders with expertise in areas discussed in the agenda, were placed on panels and offered suggestions or information on issues discussed by the participants of the conference. This produced many lively exchanges of ideas on improving the cooperative program. The end result was a large number of recommendations which should help to improve the Cooperative Station Program.

Item 2: Eastern Region's Pilot Program, "Maintenance of Substation Network Test"

Discussion: Eastern Region's Pilot Program, "Maintenance of Substation Network Test," coordinated at WSFO, Pittsburgh, PA, came to a close on December 1983. The test program used a Cooperative Program Manager (CPM), a Hydrologist and a Hydrologic Technician to install and provide second-order maintenance of the electro-mechanical and mechanical equipment, at approximately 205 cooperative weather stations.

The results of this pilot program appear to have promise. A second pilot program at WSFO, Pittsburgh, PA, began on January 1, 1984. In addition, future expansion of this program is scheduled for RFC, Harrisburg, PA; WSFO, Albany, NY; WSFO, Philadelphia, PA; and WSFO, Washington, DC.

Recommendation: The group agreed that further testing of the pilot program should continue. A report on its progress should be submitted to W/OTS21x4 on a semiannual basis.

Item 3: Cross-Appalachian Tracer Experiment (CAPTEX)

Discussion: The Canadian contingent was extremely interested in the CAPTEX experiment held in the Northeast by the Air Resources Laboratory (ARL) and Eastern Region's cooperative weather observers. The use of perfluorocarbon tracer gas and samples used by cooperative observers was of particular interest to the Canadians.

Recommendation: Provide a full report of the fall 1983 CAPTEX experiment to Roy Bourke, Paul Shalapata, and Dave Law of the AES, Canada.

Item 5: Hazardous River Gage Sites

Discussion: Dave Smith, Regional Hydrologist - SR, discussed the problems of taking river gage observations at hazardous sites. This has been a continuing problem for many years. Dave suggested that hazardous sites be identified and steps taken to either move the river gage to a less hazardous area or provide proper clothing/identification to the cooperative observer taking the reading, e.g., portable light on car, red or orange jackets, staff gage, etc. Also, suggested was an increase in observer pay for those taking observations in hazardous areas.

Recommendation: It was unanimously agreed upon that hazardous sites should either be moved to safer areas or new equipment provided to eliminate accidents, e.g., staff gages. In addition, clothing and equipment which would identify the observer and his auto to traffic should be purchased immediately.

Item 7: Utah State Pilot Climate Program

Discussion: Tom Adler, Chief, Cooperative Program Mgt. Branch, Western Region, briefed the group on a proposed climate pilot program for

the state of Utah. Dr. Gail Bingham, Utah State Climatologist, Utah State University, Logan, Utah, plans to use about 20 stations in a program in which the sensors are automated to a computer system. The state will purchase the equipment and the Western Region, Cooperative Program Mgt. Branch, will provide the maintenance service. The equipment will consist of maximum/minimum thermometers, precipitation, solar radiation and wind sensors. The plan includes recording the data on EPROM type chips and mailing them on a monthly schedule to the Utah State Climatology Office for archiving and publication. The NCDC will have access to this data base.

**Recommendation:** The group agreed that the Utah State Pilot Climate Program should be supported by the National Weather Service. The results of this pilot program could have an important impact on the future automation plans for the Cooperative Station Program.

Item 15: EPROM CHIPS & NCDC

**Discussion:** With the development of EPROM chips and its planned use in the Reference Climate Station Pilot Program, the actions needed by NCDC to extract the data from the chip becomes an immediate concern. A plan should be developed to show the actions needed from the time the EPROM chip is taken by the cooperative observer from his equipment, through the mailing process, and finally to NCDC for processing.

**Recommendation:** The Cooperative Data Branch, NCDC, Asheville, N.C., in coordination with the Cooperative Program Management Office should develop a plan which includes all the actions necessary to archive and publish the data from EPROM chips.

Item 16: Climatological Station Maps

**Discussion:** Alan McNab, Chief, Cooperative Data Branch - E/CC12, advised the group that the procedures for procuring the various state maps were being changed. Climatological State Maps will no longer be given to the NWS on a gratis basis. The size and color of the map will also be changed.

**Recommendation:** The group was unanimous that NCDC should retain the present policy of providing Climatological State Maps to NWS users without charge. If this is found to be impractical, NCDC should provide the negatives so that the NWS could print their own maps. Maps should be 17" x 22" and in color.

Item 17: National Cooperative Observer Newsletter (NCON)

**Discussion:** Alan McNab, Chief, Cooperative Data Branch - E/CC12, discussed the possibility of NCDC not publishing and printing the NCON. Due to the contracting of the printing functions at NCDC, the NWS may have to find other ways of printing the NCON. The NWS pays NCDC 16.0K for this service.

Recommendation: Through the years the NCDC has printed and distributed the cooperative observer newsletters for the NWS. This service has always been excellent; with fine printing and good distribution to our cooperative observers and other users. The group unanimously urged the NCDC to make every effort to continue this outstanding service.

Item 18: Areal Edit Program

Discussion: The cooperative data areal edit program is used to detect erroneous data. There was a great deal of criticism that many anomalies did occur and that valuable data were edited out of the data base. Alan McNab agreed that there may be cases where good data were deleted by the areal edit program. Alan suggested that when a CPM believed that the edited data were correct at a particular cooperative station the NCDC should be advised with documented facts. At least five examples must be given to NCDC during the last two years of the date of occurrence.

Recommendation: Alan McNab's suggestion was approved and all CPM's will be advised of these new procedures.

Item 19: HPD Late Data

Discussion: HPD tapes/charts which do not meet the NCDC cutoff dates are not published in the HPD bulletins. In the past, late data were published in the annual HPD summaries. Due to budgetary problems at NCDC, the late data will no longer be published in the annual HPD edition. Late data will continue to be archived and made available to users at a cost.

Recommendation: The NWS should state the requirements, if any, to have late data published by NCDC. The cost/manpower needed for this program should be reported to the NWS.

Item 20: Climatological Reference Stations

Discussion: Dr. John Griffiths, President-Elect, ASSC, College Station, Texas A&M University, gave a briefing on the importance of the Climatological Reference Station program. Dr. Griffiths selected a group of cooperative stations in the NWS whose records indicate having the most accurate long term climatological data. A list of those stations was given to Cooperative Program Mgt. - W/OTS21x4 for distribution to regions.

Recommendation: Climatological Reference Stations identified by Dr. Griffiths should be maintained as official stations as long as possible. Station histories of these stations should be kept current and all changes to the siting be recorded immediately. All data from Climatological Reference Stations should also be published. A list of the Climatological Reference Stations should be given to regions for distribution to CPM's.

Item 21: Requirement for Temperature Comparisons

Discussion: Dr. Griffiths, AASC, discussed the need to have temperature comparisons made when there is a significant change in the station siting, e.g., change in observation site from roof to ground; an urban to rural environment; change in equipment (liquid-in-glass to MMTS).

Recommendation: The feasibility of taking temperature comparisons at stations where there are significant changes in the siting/instrument, was recommended as an action item. The State Climatologist should be given the task of making the evaluation of the comparison data. Comparisons should be made using the instructions in WSOM B-11, Section 5.3, 5.3.1.

Item 24: Documentation of Unofficial Cooperative Weather Stations

Discussion: Sol Sommer, Asst. Regional Hydrologist, Eastern Region, discussed the need to document unofficial stations which report data to the NWS, e.g., IFLOWS, ALERT, GOES, GDDS, SNOWTEL, etc. Also, the data from stations reported by other agencies which are used by NWS offices, should be documented.

Recommendation: The need to document data sites from unofficial networks and other agencies was unanimously agreed upon by the conference group, if definite requirements for the data exists. Such requirements must be fully documented before plans are made to implement the program. Questions which have to be answered before a documentation program is implemented are:

1. Will WS Form B-44a be adequate for documenting unofficial stations?
2. Who will have responsibility for the update and maintenance of the files?
3. Cost/resources needed to run program?
4. The feasibility of other agencies participating in this program?
5. Do we need a new computer data base or will the CSSA or HIRSNI or Communications Handbook #5 be adequate?

Item 25: NWSTC Training Course, "Operation of Hydrologic & Climatological Networks"

Discussion: The "Operation of Hydrologic & Climatological Networks" course, held at NWSTC, Kansas City, MO, was declared an outstanding success by the participants of the Conference. However, a few of the participants believed the course could be further improved by adding new areas of instruction on new equipment/programs being implemented in the Cooperative Station Program, e.g., MMTS, CSSA, etc.



Recommendation: Each year input should be given by the Regions/Field/WSH/AASC on new equipment/programs which should be added to the "Operation of Hydrologic & Climatological Networks course. Course should be geared to new programs and equipment being implemented in the NWS.

\* \* \* \* \*

DAMAGE PHOTOS OF THE MARCH 28, 1984 TORNADO OUTBREAK IN THE CAROLINAS.



1. Remains of a shopping center in Bennettsville, South Carolina.



2. Damaged chicken houses near Bennettsville, S.C.





3. Selective damage in a housing development in Bennettsville, S.C.



4. Total destruction of several mobile homes, and extensive damage to several frame houses SE of Fayetteville, N.C.



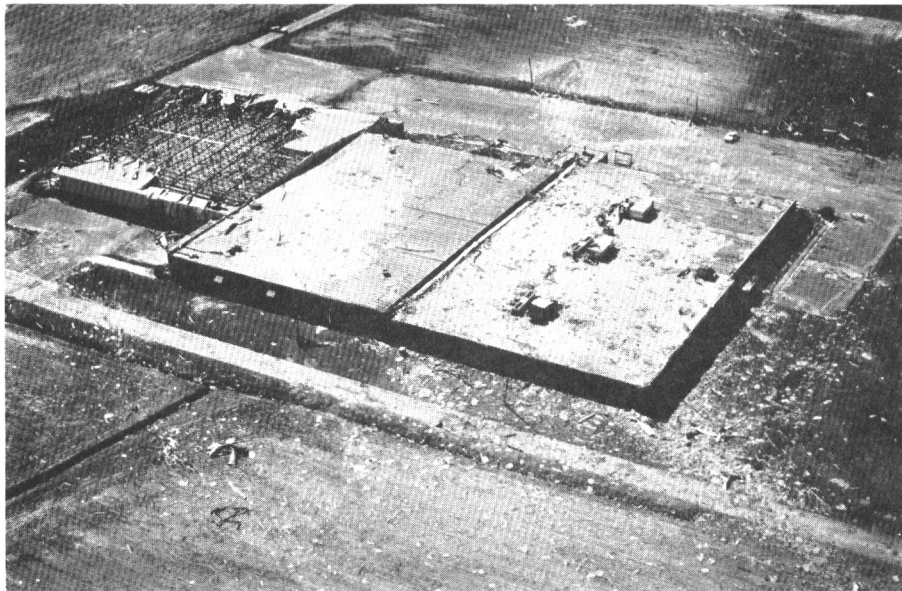
5. Circular tree-fall pattern in a pine forest SE of Fayetteville, N.C.



6. Selective damage to frame houses in Mt. Olive, N.C.



7. Six of eight mobile homes destroyed near Mt. Olive, N.C.



8. Damage to industrial warehouse near Mt. Olive, N.C.

Photos by  
Grant W. Goodge NCDC

## RECORD COLD DECEMBER

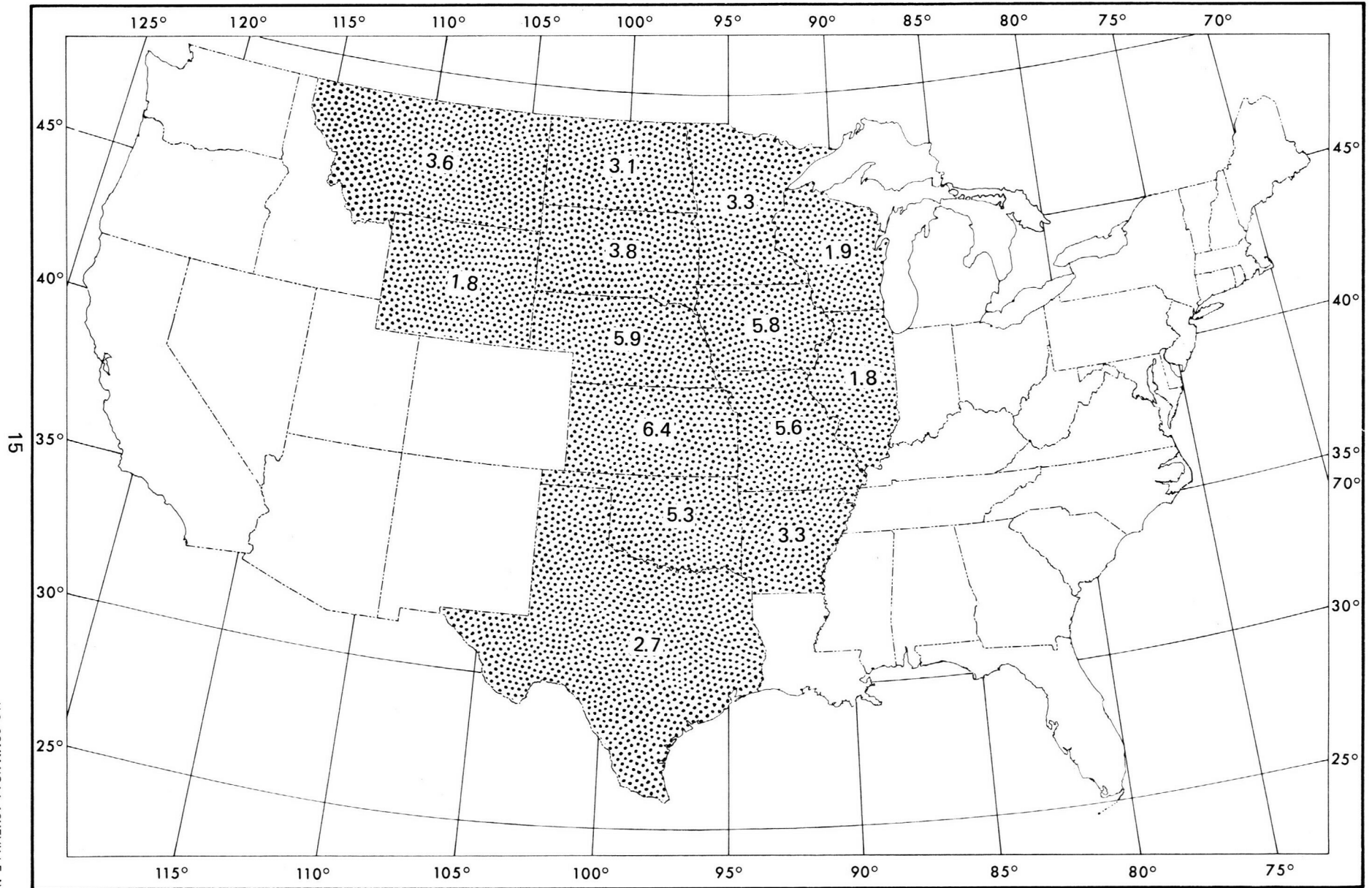
Record Cold December. Temperature data for December 1983 have established all-time-low temperature records (since 1895) for the conterminous United States, and for 14 individual states. The previous all-time-low national average temperature for December was recorded in 1909 at 27.1°F; last December's national average temperature, which is based on area-weighted divisional temperature observations from approximately 6,000 sites, was 26.2°F. This new national temperature record was due, in part, to the extremely cold temperatures recorded in the 14 midcontinent states\* which had the coldest December mean temperatures in 89 years. Relative to the previous all-time-low December mean temperatures, the average temperature for Kansas was 6.4°F colder, and four states had average temperatures at least 5°F colder (Nebraska - 5.9°, Iowa - 5.8°, Missouri - 5.6°, and Oklahoma - 5.3°).

Prior to December 1983, the ten coldest months for the nation, during the period 1895-1983, were all Januaries: 1979 (22.5°), 1977 (23.7°), 1930 (25.0°), 1940 (25.0°), 1918 (25.4°), 1963 (25.4°), 1912 (26.1°), 1937 (26.2°), 1978 (26.5°), and 1982 (26.7°). The national average temperature of 26.2° places a December into that group in the eighth rank. The coldest February (1899 - 26.8°) on record now ranks twelfth in the coldest months.

\*Arkansas, Illinois, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, Wisconsin, and Wyoming.

Walter James Koss  
Frank T. Quinlan  
NCDC

# RECORD COLD DECEMBER



SHADED STATES SET NEW RECORD LOW DECEMBER MEAN TEMPERATURES. NUMERICAL VALUES INDICATE THE DIFFERENCE BETWEEN THE PREVIOUS RECORD AND THE DECEMBER 1983 VALUES.

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