



UNITED STATES DEPARTMENT OF COMMERCE  
WEATHER BUREAU  
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MEMORANDUM

TO : Area and State Climatologists, NWRC, Field Aides (HC), Field Aides, River Forecast Centers, River District Offices, Regional Substation Management Units, and Area Hydrologic Engineers (with copies to Regional Administrative Offices, Agricultural Service Offices, and Agricultural Forecast Offices for information)

FROM : Director, Climatology

SUBJECT: Climatological Services Memorandum No. 103

1. 16TH MEETING OF THE ADVISORY COMMITTEE FOR CLIMATOLOGY: The Advisory Committee met at Suitland, Maryland, on December 12 and 13, 1963. The following members were in attendance: Chairman, Professor A. Vaughn Havens, Department of Meteorology, Rutgers University; Dr. Douglas B. Carter, Department of Geography, Syracuse University; Dr. John R. Mather, C. W. Thornthwaite Associates; Dr. David H. Miller, Pacific Southwest Forest and Range Experiment Station; and Dr. Kenneth R. Knoerr, School of Forestry of Duke University. Dr. Reid A. Bryson, Department of Meteorology, University of Wisconsin was unable to attend.

Also participating throughout the meeting were: Mr. Walter H. Bailey, Earth Sciences Division, NRC, and Dr. H. E. Landsberg, Office of Climatology, USWB.

Dr. Landsberg briefed the Committee on the change in leadership of the Weather Bureau. He related that Dr. Robert M. White, the newly appointed Chief, will place stress on service to the public and on mission-oriented research. No major changes in the role of Climatology are foreseen. Some problems will arise from the current economy drive of the Administration. Planned programs may have to be postponed or to be accomplished by reprogramming of resources.

Mr. Schloemer gave an account of the status of the Area and State Climatologist program. The major change since the last meeting of the Committee was the move of Mr. Milton L. Blanc from the Office of Climatology to Tempe, Arizona, as Southwest Area Climatologist. This completed the planned distribution of Area Climatologists. At present there are 36 full-time State Climatologists active. The planned additional positions in FY 1964 (Arkansas and Minnesota) and for FY 1965 (Mississippi and Northern New England) were not granted in the budgeting process. Also, there are still a number of Weather Bureau offices where the climatological functions are handled as part-time duties of meteorologists-in-charge and other employees.

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The Office of Climatology will now submit a plan to create the remaining needed positions in FY's 1966/67 as a single program. Problems still exist in covering State Climatologists for leave and absences. The question of the title of State Climatologists and the contribution of States to the program was raised.

The Committee expressed itself in favor of the over-all program and in agreement with the attempt to extend it to all remaining States.

One member of the Committee suggested that some of the difficulties might be overcome by forming sections and broadening the staff base.

Mr. Harshbarger gave an account of the climatological data processing function. He discussed the consolidation of the Weather Records Processing Centers. In 1962 those formerly in existence in San Francisco, Chattanooga, and Kansas City were incorporated into the National Weather Records Center at Asheville, N. C.

The use of modern machine methods has enabled us to change the complexion of climatological data processing over the years and do it with progressively smaller numbers of employees. This is shown in the following table:

Prior to 1947	260 employees
1948	205 "
1950	156 "
1962	*100 "
1963	* 72 "

\*The latter two figures are exclusive of those employees required for processing of Hourly Precipitation Data and for printing the publications. This work was separated from the WRPC earlier and now requires about 25 persons.

Data processing is now programmed on the Minneapolis Honeywell 800 Computer at NWRC and was handled for the first time by the computer for September 1963 data from the States. Electronic computer processing of data from regular Weather Bureau stations is close to realization.

Mr. Lippmann gave a status report on the Decennial Census of U. S. Climate. He indicated that normals for 123 regular Weather Bureau stations have to be recalculated because of the changes introduced by hygrothermometer installations.

Mr. Smedley reported on the activities of the Foreign Area Section, most of them financed by outside sources.

A progress report on the compilation of the World Weather Records 1951-1960 was also given. Most data listings are now in the hands of foreign weather services for checking. Some problems have arisen with newly independent nations and in connection with countries that are not members of the World Meteorological Organization. It is hoped that these difficulties can be

overcome. However, these problems have led to the decision to publish the material by continents in separate issues. This will also facilitate use, compared to a single big volume.

Mr. Bosen briefed the Committee on the continuing program of exploiting electronic data processing machines and developing new devices to cope with our peculiar problems. These procedures have enabled us to do more climatological work with fewer people. A current program is the conversion of the Local Climatological Data Supplement to computer procedure. He also outlined the future configuration of the Minneapolis-Honeywell 800 facility with six tape drives that are on order.

The FOSDIC development program is making good progress. The present punch (No. 2) can microfilm 820 punch cards per minute. The second model of the FOSDIC reader is up to 4 times faster than the current model, will have data output on magnetic tape and handle about 2,000 card images per minute. A high speed card punching machine is presently in the design stage.

A further problem under design study is the conversion of magnetic tape output from satellites to microfilm for archival storage.

The establishment of a special photographic laboratory at NWRC for satellite film processing has been a great step forward.

Mr. Cooperman related how the primary sources of marine weather data have been transformed into useful climatological information. Among the important output are the Mariners Weather Log, the Atlases for Mariners, Great Lakes study, and sailing direction information.

Mr. Schloemer informed the Committee on the current status of climatological charts for the National Atlas of the U. S. So far 128 charts on 18 sheets have been completed. Others will be prepared as time becomes available. In this connection, he raised the question of producing from this material a separate Climatic Atlas of the U. S. He also raised the bothersome question of space in the Weekly Weather and Crop Bulletin, that is occasionally too short for the available copy. On the other hand, the editor would still like a backlog of suitable short articles for publication when space permits.

Mr. Putnins presented the progress of the Greenland study, which proceeds under the sponsorship of the Army Electronic Materiel Agency. The mutual influences of the Greenland icecap and the general circulation of the area have been under scrutiny. The long range temperature trends and the climate of the area have been investigated. Special studies have concerned the inversions and lapse rates. Some work has been done on hourly wind data and the lapse rates over the icecap near Thule. Differences in circulation on the East Coast and the West Coast of Greenland have been related to the zonal index. Also the problem of steering of pressure systems has been tackled. Results of this work have been made available in the form of progress reports to the sponsors.

Mr. Ratner summarized the upper air climatological studies that have been going on for some time in support of the design studies for a supersonic transport aircraft. These cover the air space between 50,000 and 100,000 feet (100-10 mb). Routes considered were San Francisco-New York, New York-Paris, San Francisco-Stockholm, which offer a wide range of climatic conditions. Wind aid and retard data are under compilation, also deviations of temperatures from the standard atmosphere. Attempts will be made to estimate hail and raindrop encounters from radar echoes.

Dr. Mitchell gave a progress report on the bench-mark station program. This network has the primary purpose of studying climatic trends and oscillations. The emphasis has been on temperature because single rain gage studies suffer from obvious limitations. Homogeneity analysis of past records has advanced well (see, e.g.: W. B. Research Paper 41). Unfortunately, most of the past records are beset by inhomogeneities. Some of the present "candidates" for bench-mark stations do not have the most desirable exposure. It will therefore be necessary to add others with excellent exposures. Funds for additional equipment at some of these stations are in sight. Studies of worldwide climatic trends have made progress but search for causes is still in the speculative state.

Mr. H. C. S. Thom reported on his recent work with tornado statistics. The probability of a tornado striking a point is a very practical problem from many points of view. Log-normal distributions give some quite satisfactory solutions based on path-width and length data collected over the last decade. The frequency of storms is well fitted by the negative binomial distribution. This analysis has led to an areally smoothed tornado expectancy map. Another of his studies concerned the problem of snowloads. The U. S. Department of Agriculture, Federal Aviation Agency, and General Services Administration are very interested in this problem. The water equivalent data of snow on the ground can be represented by a log-normal distribution. From this probabilities of weights can be derived. Means, quantiles and standard deviation maps of this element are under preparation. The American Standards Association will use these for a new design standard.

Mr. Frederick briefly reported on his work on air pollution, which is in process of publication. He then related his new study which concerns an analysis of the singularities. This started with the daily Woodstock, Md., data using two 30-year periods of both temperature and precipitation. An interesting progress of the "January thaw" has been traced across the country from British Columbia to Jacksonville, Fla., using the middle day of the warmest January pentad.

Mr. Palmer presented his scheme for assessing climatic drought. This has now been programmed for the computer. Classes of drought severity for a 30-year period have been analyzed for 8 areas and will be expanded to most of the areas for which the system is valid in the near future. The divisions of the NE-35 area will soon be run. Weekly data do not show any appreciable difference from monthly values. Considerable interest in this work has been evoked by the agricultural economists.

The Committee expressed its appreciation for the briefing on present operational and research programs of the Office of Climatology.

Dr. Landsberg then presented to the Committee for discussion, areas of operations that might come under scrutiny for program adjustments.

One of these concerns the problem of how far we should go with processing of hourly data. Ten years of data have recently been summarized. The question is will further summaries materially improve the information content of such summaries. In addition, are there sound technical reasons for preparing LCD Supplements for all stations? Could occasional demands be met by photocopies of original data records?

The second question concerns the production of historical northern hemisphere charts. Could operational products be substituted? Would charts without the plotted data serve most purposes?

The arguments pro and con on these various questions were discussed by the Committee. Some preliminary tests that might help in answering them were suggested.

The Committee, without formal action, decided that enough guidance had been developed during the discussion to enable the Office of Climatology to handle any sudden requirements for change. However, gradual change to new systems seems more desirable. These will be the main item for discussion at the next meeting.

The Committee decided to hold its next meeting about the second week of June in Boston, Massachusetts.

2. LOCATION OF STATE CLIMATOLOGISTS AT UNIVERSITIES: The practice of locating the State Climatologists at Universities has been in effect now for several years. The University usually provides quarters and secretarial assistance. In some cases the State Climatologist holds an appointment as a consulting member of the faculty, and in all cases he works closely with departments interested in climatological problems. This arrangement has proved to be mutually beneficial.

Since State Climatologists who are not now located at Universities probably could benefit by similar cooperative arrangements it would be well for them to keep this in mind in their contacts with University representatives.

3. SELECTIVE GUIDE TO PUBLISHED CLIMATIC DATA SOURCES PREPARED BY U. S. WEATHER BUREAU: We feel that this publication is a very effective way to make known the availability of our publications. Although our stock of these is not large State Climatologists are invited to send us the names and addresses of selected cooperators and others in the State who might benefit from it.

4. PAR. 1009.65 OF INSTRUCTIONS FOR PREPARING MONTHLY CLIMATOLOGICAL DATA: The reference note referring to normals has been amended by adding the following note:

"DEP" in Table 4 refers to departures from normal, except for those stations indicated by a [reference mark], for which long term means based on periods varying from 10 to 29 years are used in place of normals.

5. CLEARANCE OF PUBLICATIONS COPY: Many State Climatologists have found it convenient to prepare mimeograph or similar copies of local data summaries which they are called upon to assemble from time to time in answer to repetitive inquiries.

Clearance for this type of material is not required providing all the following conditions are met:

1. No original research was involved.
2. No policy is expressed in the text.
3. Quantity of copies to be reproduced is small.
4. Summaries are intended only for local distribution on a "as required" basis.

6. STATE WEEKLY WEATHER AND CROP BULLETINS: There is a set of these bulletins on file here which can be loaned to any State Climatologist requesting them for information.

7. NEWSLETTERS: Volume 1, Number 1 of each of the four RSMU newsletters has been issued and distributed to cooperative observers. Future issues will be on a quarterly basis. State Climatologists who wish to contribute to their newsletter should send their material to the RSMU.

8. AGRICULTURAL METEOROLOGY, AN INTERNATIONAL JOURNAL: The first number of Volume 1 of this new journal will begin in January 1964. There will be four issues per volume per year, with some 320 pages per volume. It will be published in three languages - English, French and German - with all summaries in English.

The journal will deal with agricultural meteorology in the broadest sense of the word. The writing and publication of review articles will be stimulated. Descriptions of new methods and instrumentation, with comments on their advantages and disadvantages will be appreciated.

Contributions are solicited that have an international interest. The following types of contributions will be considered for publication:

- a. Review articles.
- b. Original research work not previously published in a generally accessible language in other periodicals.
- c. Short communications.
- d. Book reviews.
- e. Index to current literature.
- f. Announcements; Congress and Symposium reports; News.

We have a copy of "Hints to Authors" issued by the publishers. This can be made available to anyone desiring to send in a contribution.

Usual Weather Bureau clearance procedures should be followed for articles by Weather Bureau authors.

Subscription price for the new journal is \$12.50 per year. It will be published by the Elsevier Publishing Co., P. O. Box 211, Amsterdam, The Netherlands.

9. PUBLICATIONS DISTRIBUTED TO STATE AND AREA CLIMATOLOGISTS SINCE CSM #102:

Growing Degree Days, a Northeast Regional Research Publication, Bulletin 801 of the New York State Agricultural Experiment Station, Geneva, New York.

Meteorological Research in Air Pollution, U. S. Department of Health, Education and Welfare, Public Health Service, Cincinnati, Ohio.

  
H. E. Landsberg

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