

UNITED STATES DEPARTMENT OF COMMERCE

^{U.S.} WEATHER BUREAU

WASHINGTON

January 28, 1959

IN REPLY, PLEASE ADDRESS
CHIEF, U. S. WEATHER BUREAU
WASHINGTON 25, D. C.
AND REFER TO
C-3.1

MEMORANDUM

TO : Area and State Climatologists, Field Aides (HC), Field Aides, WRPCs, River Forecast Centers, River District Offices, and Area Engineers (with copies to Regional Offices for information)

FROM : Office of Climatology

SUBJECT : Climatological Services Memorandum No. 70

GENERAL

1. WARSAW MEETING OF THE COMMISSION FOR AGRICULTURAL METEOROLOGY: Item 3 in CSM No. 69 gave very briefly some of the facts regarding the second session of the Commission for Agricultural Meteorology which met in Warsaw, Poland, September 29 to October 17, 1958. In addition, an article in the December Topics (page 213-214) covers points of general interest. The following material gives additional information regarding organization of the meeting and technical matters accomplished at the session.

Dr. J. J. Burgos, Argentina, and Dr. H. Geslin, France, were President and Vice-President, respectively. Mr. P. M. Austin Bourke, Ireland, and Dr. M. S. Kulik, U.S.S.R., were elected President and Vice-President, respectively, to take office at the close of the Second Session.

In the WMO, the results of meetings of Technical Commissions are expressed principally in the form of Recommendations and Resolutions. Recommendations require approval by a higher body (the Executive Committee or Congress) before implementation. Resolutions do not require such prior approval. Working Groups to work on assigned problems between Sessions may be established by resolution and the members may be named subject to approval of the Permanent Representative of the country in which the expert lives.

Relevant actions by CAgM-II are summarized in the following list according to agenda item.

- a. Weather and plant pathology problems. A resolution was passed establishing a working group to prepare a Technical Note on the relationship of weather to outbreaks of apple scab. An expert from the U. S. is being requested to assist in this working group.
- b. Meteorological assistance in locust control. It was recommended that continued collaboration between meteorologists and locust control centers be carried on in the countries involved with locust problems. There were several very excellent papers submitted regarding work in locust control.

- c. Instruction in Agricultural Meteorology. A suggested syllabus for university training in agricultural meteorology was recommended for consideration by the member nations.
- d. Water Resource Development. A statement was included in the minutes of the meeting outlining the Commission's interest in hydrology and recommending that the WMO undertake increased responsibilities in this field.
- e. Soil Temperature. It was recommended that soil temperatures be observed at depths of 5, 10, 20, 50, and 100 centimeters for agricultural purposes and that additional levels could be used for special purposes and in forest areas if desired. (Note: The Commission for Climatology has included 150 and 300 centimeter depths.) They specified certain additional information regarding exposure and soil characteristics to be included with published records of soil temperature.
- f. Soil Moisture. It was recommended that soil moisture be measured in 10 centimeter increments down to 100 centimeters or by layers from surface to 10, 10 to 20, 20 to 50, and 50 to 100 centimeters. Because of the wide acceptance in the United States of the present practice of observing soil moisture by increments of six inches throughout the root-zone, there is some question whether this recommendation can be implemented in this country. This was pointed out during the discussions.
- g. Other Elements. Certain material was recommended for inclusion in the Guide (see second item following) regarding observations of evaporation, evapotranspiration, water vapor diffusion, and radiation. Attention was also called to the need for means of measuring duration of leaf wetness.
- h. Artificial Influences on Weather and Climate. There was not as much discussion of "rainmaking" at this session as was anticipated. There have been very excellent studies and statements issued on this subject and these were well known to the delegates and were simply noted.

The problem of frost protection was discussed and a Working Group was established to prepare a Technical Note on techniques in frost protection and frost forecasting. The United States was requested to assume Chairmanship of this group.

Another Working Group was established to prepare a study on wind breaks and shelter belts for use in the next session of this Commission. There is no U. S. member on this group.

- i. Guide to Agricultural Meteorological Practices. It was agreed to prepare a Guide to Agricultural Meteorological Practices for publication by the WMO. A form and content outline were adopted and several Working Groups were established. There will be U. S. mem-

bers on some of these. The target date for final completion of the project is July, 1961.

- j. Weather Forecasts for Agriculture. Two Working Groups were established under this item. One will prepare a chapter for the Guide with a U. S. Chairman and one will prepare a Technical Note on special forecasts for forest fire services. This latter group will have a Canadian Chairman who will call on experts in the United States for assistance.
- k. Agroclimatic Classifications and Representations. A Working Group was established to prepare a Technical Note on agroclimatic classifications and to prepare a chapter for the Guide. There is no U. S. member on this group.
- l. Storage Conditions and Animal Housing. This item was considered to cover too much territory for study in its entirety. A Working Group was established to study and report on the effects of growing-season weather on the keeping-quality of fruit for storage or shipping. This information would permit meteorologists to assist in planning the disposition of a fruit crop based on knowledge of the weather during the season. A U. S. expert in this field has been requested to assist this group.
- m. Meteorological Equipment for Individual Farms and Research Institutions. The Secretary-General of the WMO was requested to make a survey of simple instruments in use. He has already started to make this survey and we are collecting information for him.
- n. Bioclimatology and Biometeorology. The WMO has been requested to consider the extent to which human effects of weather should be included in their program. The Commission for Agricultural Meteorology is one possible Commission for undertaking work in this field. The consensus was that the group is very much interested but that inclusion of human bioclimatology would greatly increase their responsibilities and this might not be wise. The question was left open for decision by the WMO Congress.
- o. Agrometeorological Services for Modern Agricultural Machines. A Working Group was established to prepare a report on meteorological services required for aircraft employed in agricultural and forestry operations. Material was submitted by the United States at the session but no U. S. member was requested for this Working Group.
- p. Influences of Weather on Diseases of Livestock. Very little work in this field was available for discussion at the session. It was felt that sufficient Working Groups had been established and a simple recommendation was made that members should continue to study the influence of weather on epidemics of animal diseases. It is likely that more substantive action will be taken on this item at the next session of the Commission.

The General Regulations of the WMO provide that the Technical Commissions should meet at least once during every financial period and that the time and place shall be determined by the President of the Commission after consultation with the Secretary-General. The next financial period is 1960-1963 inclusive and all plans for reports by Working Groups and completion of the Guide were based on the probability of CAgM-III in late 1962 or 1963. While there was no formal discussion of the time and location of CAgM-III, it was evident that there was no lack of interest and enthusiasm. There was informal expression of the desirability of the next meeting being held in some South American capital, but no specific proposals were made.

2. UNOFFICIAL WEATHER RECORDS: In view of the fact that the degree of accuracy or of value applied to a given weather record cannot accurately be defined, the Office of Climatology has adopted the concept that all meteorological records, if properly documented, have value.

Therefore, the deciding factor on whether or not a record is worthy of retention is whether or not it is properly identified; i.e., with date, location, and something about the instrumentation and exposure.

Normally, the quality of observations can be enhanced by frequent inspections; however, experience has proved that this is not necessarily essential to proper documentation. Therefore, we can collect records even though the supporting service is not under our control nor inspected by us as long as we feel that they are properly documented.

We, of course, prefer high quality records from stations which we inspect at least once each year and we insist upon this for our own stations, but this should not preclude our acceptance of other information.

3. AMERICAN SOCIETY OF AGRONOMY COMMITTEE ON METEOROLOGY AND CLIMATOLOGY: The following information is extracted from a report in Agronomy Journal, Vol. 50, No. 21, December 1958:

"The newly appointed committee on meteorology and climatology for the American Society of Agronomy held the first official meeting on August 4, 1958, at Purdue University, Lafayette, Indiana.....

"The meeting opened with a discussion of the problems that confront persons working primarily in the field of agricultural meteorology and climatology when affiliated with the ASA as it is now organized. It was recognized by all members that agricultural meteorological and climatological studies and interests cut across many areas in agriculture as well as several existing sections within the ASA organization. The members felt that the Agronomy Society should be willing to recognize what many Agricultural Schools and Experiment Stations have already acknowledged--that agricultural meteorology is a subject area in its own right. Also, many professional persons are presently assigned or attached to agronomy, soils, or crops departments.....

"The committee also discussed the problems confronting a person in agricultural meteorology and climatology wishing to publish in one of the

existing ASA scientific journals. Some rather sharp feeling exists in this area, mainly due to some past reviews given to papers in this area. The majority of the members feel that steps should be taken in ASA organization to insure that papers in this area receive a more authoritative review.....

"In summary, the standing committee on meteorology and climatology makes two recommendations to the Executive Committee of the American Society of Agronomy, with two main objectives in mind: one, to avoid further splintering of present and potential society members; two, to decrease conflicts in common scientific interests at ASA meetings by holding down section numbers. In this mode of thought the committee recommends the following as specific actions for the executive committee to consider immediately:

1. Beginning with the 1959 annual meetings, papers of meteorology and climatology interest, now largely given in Divisions VI (Soil and Water Management) and VIII (Crop Physiology and Crop Ecology), should be given in joint meetings between these two divisions or joint meetings of Division VI with meteorology and climatology, plus a similar arrangement with Division VIII. These sessions should be scheduled in a manner that would avoid conflicts between the two joint meetings.

2. A reviewer, competent in the field of meteorology and climatology, should be appointed to the editorial staff of ASA.

Respectfully submitted,

V. G. Sprague

C. A. Lamb

R. H. Shaw

P. E. Waggoner

J. E. Newman, Chairman"

We believe that this action by the American Society of Agronomy to establish a committee on Meteorology and Climatology exemplifies the increasing awareness of the importance of closer working relationship among the several disciplines involved.

4. INDEX OF STATIONS BY COUNTIES: Recently, the Oregon State Climatologist completed and mimeographed an Index of Oregon Weather Stations by Counties. There are many obvious uses of such a publication by outside groups as well as being a helpful rapid reference manual for the State Climatologist's Office. Other State Climatologists might consider such an index, especially where clerical help is available. The following explanation is taken from the title page of the Oregon Index.

"Frequently the need occurs to have a quick reference as to the available climatological records for a given area. The Substation History provides this information for most stations but lists them in alphabetical order for the entire State. Also, there are three types of stations not included in the 1956 issue of this publication: (1) a scattered few climatological substations, mostly with very short records, which for one reason escaped having a history prepared at the time material used in this document was compiled; (2) first-order Weather Bureau offices;

(3) second-order and C.A.A. stations whose records were or could be used for climatological purposes.

"This index has been divided into four parts:

Part I: Includes all substations appearing in the 1956 Substation History with the names of the stations arranged by counties in alphabetical order with the page (or pages) on which they appear in that publication also shown. Since many stations have been carried under two or more names, effort has been made to list all known names with the reference to the name under which it is shown in the Substation History.

Part II: A listing, also arranged by counties, of substations not shown in the Substation History, together with the types of records obtained, some location data, and period of the records on file at the State Climatologist's office.

Part III: A listing of first-order Weather Bureau offices together with a brief summarization of the climatological data and the period of record for each.

Part IV: A listing by counties of various second-order Airways Weather or Synoptic stations, and C.A.A. stations together with their period of operation and the type of records obtained."

5. PLAN TO OBTAIN BRIEF CLIMATIC DATA FROM FIRST ORDER STATIONS: Replies to query # 16 of the attachment to our questionnaire of October 17, 1958 indicate that a few State Climatologists regularly require monthly data from certain first-order stations.

A simple plan to obtain this information would be, about 3 days before the end of each month, to send envelopes to the Weather Bureau offices containing a pre-addressed card with 15-20 words of typed questions covering monthly precipitation and mean temperatures and departures as well as snow and degree days in season.

6. CLIMATES OF THE STATES: Work has been completed on the first issue, that for Alabama, and it has been sent forward for printing. Each Weather Bureau Office will receive a copy when it is available.

7. FORM LETTER REGARDING POLLEN COUNT: The following form letter is used here, and the contents may have application in other offices.

"Unfortunately the Weather Bureau cannot provide the pollen count information requested.

"Although these counts are often listed with weather data in newspapers and indicated as being from Weather Bureau station locations, the Bureau's role in this program is limited to assisting the American Academy of Allergy by exposing slides for them. We do not analyze the samples obtained or maintain records on the subject.

"Following, however, are two sources from which pollen information can be obtained:

1. Abbott Laboratories, North Chicago, Illinois
Attention: Mr. O. C. Durham, Chairman, Pollen Survey
Committee, American Academy of Allergy

Materials furnished are free of charge. They provide "Hay Fever Holiday" and other published information on ragweed indices for locations throughout the country. To those interested in collecting and identifying pollen grains they send instructions and references.

2. American Foundation for Allergic Diseases
801 Second Avenue, New York 17, N. Y.

For 25 cents per copy you can obtain "Hayfever and What You Can Do About It" - including a pollen index."

8. LONG CLIMATOLOGICAL RECORD AT CHARLESTON, SOUTH CAROLINA: The MIC at Charleston, S. C. wishes to call attention of climatologists to the long and reliable climatological record for Charleston. The first systematic climatological observations with instruments, in the United States, were made in Charleston beginning in 1738. With the exception of a 30-year period covering the years of the Revolutionary War and a 15-year period from 1802 to 1817 the record is almost without a break. Most of the records before the time of the Weather Bureau were made by members of the medical profession and one doctor was the observer for over 50 years. Due to the professional nature of the observers and to the low turnover of observers the records are believed to be unusually accurate. Observations are still being made in the immediate vicinity of the original observational site and due to the location on a narrow peninsula between two large tidal rivers the environment has not changed too much.

9. PUBLICATIONS DISTRIBUTED TO STATE AND AREA CLIMATOLOGISTS SINCE CSM #69:

"The Phyto-Climate of Wisconsin Part 2." Temperature Normals and Hazards by Jen Yu Wang and V. E. Suomi. Published by The Agricultural Experiment Station, University of Wisconsin, Madison, Wis.

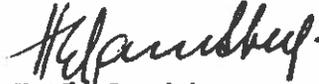
"The Distribution of Freeze-date and Freeze-free Period" for Climatological Series for Freezeless Years-Manuscript-H. C. S. Thom.

SCS Soils Memorandum SCS-22, dated May 15, 1958. "Soils-Land Capability Classification."

"Late-Spring and Early-Fall Low Temperatures in Texas" - Texas Agricultural Experiment Station and Extension Service.

"Land" - USDA 1958 Year Book

"Solar Energy", Research Bulletin #671 - University of Missouri by McQuigg and Decker.



H. E. Landsberg
Director, Office of Climatology

GUIDE TO CLIMATOLOGICAL SERVICES MEMORANDUM NO. 70

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