

UNITED STATES DEPARTMENT OF COMMERCE  
WEATHER BUREAU  
WASHINGTON

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IN REPLY, PLEASE ADDRESS  
CHIEF, U. S. WEATHER BUREAU  
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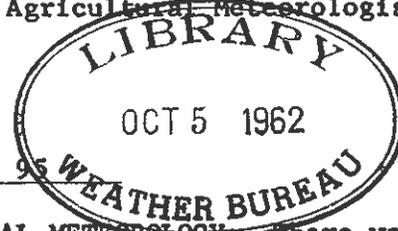
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MEMORANDUM

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

FROM : Director, Climatology

SUBJECT: Climatological Services Memorandum No. 95



(Climatological Services Memorandum No. 95)

1. TORONTO SESSION OF COMMISSION FOR AGRICULTURAL METEOROLOGY: There were 74 participants at the Third Session of the Commission for Agricultural Meteorology (CAGM-III) when it met in Toronto, Canada, during the period July 9-26, 1962. These included representatives from 32 countries and 6 international organizations. The officers elected at Warsaw (CAGM-II), Mr. P. M. Austin Bourke, Ireland, President and Dr. M. S. Kulik, U.S.S.R., Vice-President, presided at plenary meetings during the session. The United States delegation was headed by Mr. Milton L. Blanc, Chief of the Climatic Advisory Services Branch, Weather Bureau. With him were Mr. E. M. Vernon, Chief of the Division of Forecasts and Synoptic Reports, Weather Bureau; Mr. Lynn L. Means, Chief of the Public and Agricultural Forecast Section, Weather Bureau; and Dr. Darell E. McCloud, Research Leader, Humid Pasture and Range Investigations, U.S.D.A., Beltsville.

In addition to the four official U. S. delegates, there were nine other persons from the United States present in one role or another. Dr. Leo Alpert represented the International Geographical Union, and Dr. Roy C. Dawson represented the Food and Agriculture Organization. Mr. David M. Hershfield, Research Meteorologist, Hydrographic Laboratory, Soil and Water Conservation Service, Beltsville, sat in as a spectator during a number of plenary and Committee B meetings. The other six participated by invitation in three of the four scientific sessions which were held during the meeting. On Friday, July 13, the first two of these sessions were conducted rather formally, under the auspices of the Toronto Chapter of the Royal Meteorological Society. Dr. Andrew Thomson, retired director of the Canadian Meteorological Service, was Chairman. During the morning the general subject was water balance in the soil. Dr. Robert Shaw (Iowa State University, Ames), was one of the invited experts to give a paper. The afternoon session was on forest meteorology with Dr. William Reifsnyder (Yale) as the participating U. S. expert.

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On Monday, July 16, there was a rather informal session, the first part on Tropical Agricultural Meteorology followed by miscellaneous subjects. There was no U. S. participation. On the afternoon of Friday, July 20, there was

a session on crop yield forecasting with Mr. Milton L. Blanc as organizer and chairman. Professor James Newman (Purdue), Dr. Louis Thompson (Iowa State University, Ames), Mr. Robert Dale (Weather Bureau, Ames), and Mr. David Smedley (Weather Bureau, Washington) gave papers or assisted in the discussion.

#### Field Trips

In addition to the scientific sessions just mentioned, the delegates were provided with an excellent program of field trips to nearby points of agricultural and meteorological interest. Two buses were provided for all these trips, one with an English-speaking and one with a French-speaking guide. On the evening of Thursday, July 12 (from 4 to 9 p.m.) the two busloads of delegates were taken to the Southern Research Station of the Ontario Department of Lands and Forests, at Maple, Ontario. Here small groups were escorted through the several buildings and experimental plots at the central headquarters. Discussions and demonstrations were given concerning the various programs underway at this station. An all-day trip on Saturday, July 14, took the delegates to the Ontario Agricultural College at Guelph. This visit included an interesting demonstration of a very intensive micrometeorological project. On Monday evening, July 16, the delegates visited the Massey-Ferguson Farm. Farm machinery and equipment for all types of farm operations were demonstrated. On Tuesday evening, July 17, the delegates toured the Data Processing Section of the Meteorological Branch and on Thursday evening, July 19, the delegates visited the Instrumental Test Site and Physical Research Station of the Meteorological Branch.

On Saturday, July 21, there was an all-day excursion through the Niagara fruit belt. A stop was made at the Vineland Experiment Station for a demonstration of the plant breeding, plant introduction, and other work underway at that station. In the afternoon the delegates were escorted on a tour through the Ontario hydroelectric power plant at Niagara Falls, Ontario and later in the evening had an opportunity to view the Falls.

In addition, at the close of the session, arrangements were made for a 2-day post-conference tour for those who were staying longer. This was to the Forest Research Station at Petawawa, Ontario and to the Central Experimental Farm at Ottawa.

#### Conduct of the Session and Results

The physical facilities for the session were on the campus of the University of Toronto. This was an excellent choice. An entire suite of buildings, including dormitories, cafeteria, offices, and conference rooms, was provided. This unique arrangement permitted the delegates to live and work under one roof, thus giving a highly desirable sense of coherence and unity and adding greatly to the efficiency.

On Monday morning, July 9, at the opening plenary session, Dr. S. C. Barry, Deputy Minister of Agriculture, extended the formal welcome of the Government of Canada. Dr. McTaggart-Cowan, Director of the Meteorological Branch spoke for the meteorologists of Canada. This was followed by an address by Mr. Bourke, President of the Commission.

At the second plenary, on Monday afternoon, the Commission established two working committees, A and B, and divided the agenda items between them. Committee A, Chairman, Mr. Lionel P. Smith, U.K., was given those items which were essentially practical, administrative, or organizational in character. Committee B, Chairman, Mr. Milton L. Blanc, U.S.A., was given those items which were considered theoretical or scientific in character. Most of the work during the next two weeks was conducted in Committees A and B with short plenary sessions as required. Committee B, being the larger of the two, met in the main conference hall which was equipped for simultaneous translations in English and French. Committee A met in a smaller room where consecutive translations in English and French were provided. Each committee issued a summary of its work on each item as a working paper. Distinctive colors were used, green for Committee A and blue for Committee B. These papers were reviewed again in each committee of origin where they were either revised or approved. When approved, they were issued as pink documents for action in plenary. After approval in plenary they were issued as appropriate pages (white paper) of the provisional abridged final report and a notation of the action taken was recorded in the minutes of the plenary session. All documents were produced in the two official languages, English and French. Their production and distribution to the delegates were extremely expeditious and efficient.

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 study 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. Reports of Working Groups are often published in the Technical Note series of the WMO. This series is becoming an important source of very practical guidance information for the many new nations which are now establishing various technical services. This is especially true in agricultural meteorology and CAgM is working toward adding to this series.

The following summary of actions taken at Toronto is based on a selection of items which are considered of general interest:

1. Forecasts for Forest Fire Services. The report of the Working Group established at Warsaw has already been published as WMO Technical Note No. 42.
2. Weather and Plant Pathology Problems. The report of this Working Group on the influence of weather conditions in the occurrence of apple scab was recommended for publication as a WMO Technical Note. In addition, three new working groups in this general field were established. On one of them, concerning the epidemiology of wheat rusts, the U. S. will act as a correspondent through its CAgM members. On the other two, one on the climatic factors influencing the spread of the Oriental Fruit Moth and one on plant injury by air pollution, U. S. membership was requested.

3. Protection Against Frost Damage. The report of the Working Group on Protection Against Frost Damage (Milton L. Blanc, U.S. Chairman) was recommended for publication as a Technical Note.
4. Wind Breaks and Shelter Belts. Part of the material prepared by the Working Group on wind breaks and shelter belts was selected and recommended for publication as a Technical Note.
5. Guide to Agricultural Meteorological Practices. One of the major agenda items was concerned with preparation and publication by WMO of a Guide to Agricultural Meteorological Practices. Several working groups established at Warsaw had contributed sections. These were reviewed at Toronto. It was considered that although the Guide was incomplete in a few respects, it was essential that it be published in its present form and that some means be provided for continuing review and amendment. Suitable means for accomplishing these objectives were established by the formation of a new working group.
6. Agroclimatic Classification and Representation. On the basis of a paper presented by the German delegate, a working group on agrometeorological topoclimatology was established.
7. Storage Conditions for Agricultural Products. The report of the working group on storage of fruit was recommended for publication by WMO as a Technical Note. In addition, a new working group was established to study and report on the meteorological factors affecting the storage of cereals and other small seed food crops.
8. Moisture Balance in the Soil. The question of water balance in the soil was the subject of one of the scientific sessions. In all of its various phases it received full and careful study. It was not possible to agree upon any standard methods for measuring or computing soil moisture balance even though many countries now have some such programs in operation. It was decided to establish a working group to study and report on various aspects of soil moisture problems in practical agriculture. The Commission also recommended that Members be asked to make comparisons of various instruments and methods of computation in use in their countries and bring the results to the attention of CAgM-IV.
9. Climatic Requirements of Plants and Animals. A working group was established to review present knowledge of meteorological factors affecting the climatic adaptation and production of lucerne (alfalfa). Dr. McCloud, U.S.A. was requested to be chairman. In addition, a working group was established to assemble information on the taking of meteorological observations in connection with animal experiments and U.S. representation was requested.
10. Agricultural Meteorology in Tropical Areas. As an item under tropical agrometeorology, a report on the influence of climate on the production of bananas and pineapples was studied. This was recommended for publication as a WMO Technical Note.

11. Instruction in Agricultural Meteorology. The problems of training in agricultural meteorology received a great deal of attention. The need for textbooks was partially alleviated by the appearance (through use of P.L. 480 funds) of English translations of two books, one Russian and one Polish\*. The need for more detailed syllabi to guide institutions in planning training programs led to the establishment of a working group to prepare such syllabi and to propose a list of appropriate textbooks, published lectures, and monographs.

\*Ventskevich, G.Z. 1958 Agrometeorology. Translation Available OTS 60-51044 \$3.00 OTS, U.S. Dept. Comm., Wash. 25, D. C.

Molga, M. 1958 Agricultural Meteorology - Part II (Note: Part I, consisting mostly of basic meteorology, was not translated). Translation Available OTS 60-21419 \$3.75. OTS, U.S. Dept. Comm., Wash. 25, D. C.

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In summary, five new Technical Notes were recommended for publication. Ten new working groups were established with U.S. membership proposed for five of them. Several of these groups, perhaps as many as six or seven, may be expected to produce reports suitable for future publication in the Technical Note series.

#### Future Meetings

The Fourth Session of this Commission is scheduled for August or September 1967. The location has not been decided but a few informal inquiries were put forward by delegates at Toronto. A final decision will be worked out later by the President of the Commission in coordination with the WMO Secretariat at Geneva on the basis of formal invitations received from potential host countries.

The new officers elected at Toronto are Mr. Lionel P. Smith, U.K., President and Mrs. Zofia Pieslak (Molga), Poland, Vice-President.

2. STATEWIDE AIR POLLUTION SURVEYS: In reference to Item 2 of CSM 94 (3rd paragraph, page 2) and also Item 8, Mr. R. A. McCormick of WBRS, Cincinnati, Ohio, has supplied a list of the statewide air pollution surveys that have been prepared or are in process. There is no indication of the extent of participation by SCs in the individual surveys. The state reports listed are New York (July 1958), Washington (Dec. 1956), Tennessee (Sept. 1957), Connecticut (1957), North Carolina (Sept. 1959), Texas (1958), Illinois (1956), Minnesota (1960), Pennsylvania (Nov. 1961), California (March 1955), Florida (Feb. 1961), Georgia (in press, April 1962), South Dakota (in preparation, April 1962), and Colorado (in preparation, Aug. 1962). Also mentioned is a report prepared for Utah, surveys going on for Alabama and Montana, and plans to start a survey of Oklahoma this year.

Looking ahead, Mr. McCormick feels that there will be only a few more cases where a general report for an entire state will be prepared. Instead the trend will be toward studying specific problem areas such as urban or industrial centers, coal burning power plants, problem industries, or nuclear

installations. It would be helpful if the SC were knowledgeable in items such as stability indices affecting diffusion, fine structure of urban winds and temperatures, or the effects of slope, bodies of water, etc., on local conditions. We suggest that each SC give attention to any actual or potential problems within his area of responsibility.

3. WEATHERWISE ARTICLE: An arrangement has been worked out whereby in five of the six issues of Weatherwise a story will be carried of interest to cooperative observers. Space is not available in the February (almanac) issue for this story.

The August issue carried a story on "Data Processing Machines in Climatology". A two-issue series on uses of observations made by cooperative observers is planned for the October and December issues.

State Climatologists and others who would like to contribute to this series are asked to check with the Office of Climatology before starting a story in order to avoid duplication and to insure acceptance.

Approximately 1,200 words can be carried in one issue, and photographs or drawings are welcomed.

4. WRPC CONSOLIDATION AND ESTABLISHMENT OF REGIONAL SUBSTATION MANAGEMENT UNITS: October 1, 1962, has been set as the closing date for the Chattanooga WRPC and November 1, 1962, for the San Francisco office. A firm closing date has not yet been fixed for the Kansas City WRPC.

A number of employees will transfer from each center to the NWRC and it is hoped that publication schedules will have a minimum of delay.

O&SF Division reports excellent progress in the establishment of the Regional Substation Management Units. These units are now in operation in four Regions as follows:

New York	George S. Stephenson in charge
Salt Lake City	Richard B. Durrant in charge
Kansas City	M. Oliver Asp in charge
Fort Worth	David S. Hill in charge

It is expected that all four offices will be fully functioning by October 1.

5. EARLY USE OF MACHINE METHODS FOR WEATHER RECORDS: We are indebted to Dr. Whitnah's "A History of the U. S. Weather Bureau", for a reference to the following letter written by Chief M. W. Harrington in 1895. The proposal to use the newly invented Hollerith punched card equipment for handling weather records may be a "first" which speaks well for some alert and progressive WB personnel of 67 years ago. Unfortunately we do not know what became of the project but suspect it was shunted aside during the change of administration when Chief Harrington was replaced by Chief Willis L. Moore.

"Subject: Cards for Use in Connection with Hollerith Punching Machine

U. S. DEPARTMENT OF AGRICULTURE,  
WEATHER BUREAU.

Washington, D. C., June 15, 1895.

"The Honorable,

The Secretary of Agriculture.

Sir:-

I have the honor to inform you that ten thousand (10,000) cards, for use in connection with the Hollerith punching machine, one hundred (100) copies of a meteorological report for a given station, and one hundred (100) copies of instructions as to the manner of punching the data on the cards, have been sent to the United States Civil Service Commission in accordance with your letter of the 12th instant.

Very respectfully,

/s/ Mark W. Harrington

Chief of Bureau"

6. CLIMATOLOGICAL SUBSTATION SUMMARIES: Field Operations Division of the Statistical Reporting Service, U.S.D.A. has issued a memo to all field offices encouraging them to consider cooperation with the Weather Bureau in the preparation of substation summaries. State Climatologists should keep this in mind when contacting State Statisticians about this project.

The following is from a letter recently received from the Quartermaster Research and Engineering Command at Natick, Massachusetts:

"In May 1960 your office supplied us a set of Climatological Summaries for the Smaller Communities for the 241 stations on the enclosed list. If summaries for additional stations have since been published or if the original compilation included more than the 241 stations, we would like to receive the additional summaries to complete our set. In addition, we need an extra complete set for a contractor who is preparing world maps of temperature duration.

"I should like to add that, along with the annuals for first order stations, the smaller communities summaries have become our best ready reference for answering spot questions for other elements of this Command."

7. NEW TERRITORIAL CLIMATOLOGIST: Mr. J. V. Vaiksnoras of the NWRC has been selected as Territorial Climatologist for Puerto Rico and the Virgin Islands. He entered on duty September 11.

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8. PUBLICATIONS DISTRIBUTED TO STATE AND AREA CLIMATOLOGISTS SINCE CSM #94.  
"Air Pollution and Industrial Planning in the Columbia, South Carolina Area"  
by John C. Purvis, WBAS, Columbia, S. C.

"Tests of Significance for Temperature and Precipitation Normals" - H. C. S. Thom.

"Meteorological Drought - Its Measurement and Classification", W. C. Palmer.

"Temperature Guide for New England", University of New Hampshire.

"Evapotranspiration Measurements with Corn in Missouri", by Wayne L. Decker, University of Missouri.

"Agrometeorology", by G. Z. Ventskevich.

"Agricultural Meteorology - Part II Outline of Agrometeorological Problems", M. Molga (Note: Part I consisted of basic meteorology, and was not translated).

*H. E. Landsberg*

H. E. Landsberg

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MEMORANDUM NO. 95

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