

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON

January 25, 1961

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

C-3.1

FILE: 922 MEMO

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 : Director, Climatology

SUBJECT : Climatological Services Memorandum No. 84

1. DR. LANDSBERG REPORTS ON CCI-III MEETING: The following is taken from Dr. Landsberg's report of the London meetings:

World's Climatologists Meet

Church House in London, England, was the meeting place for the Technical Commission for Climatology (CCI) of the World Meteorological Organization (WMO) from December 1 to 15, 1960. This followed two preceding sessions in Washington in 1953 and 1957. The international cooperative efforts in the field of climatology follow early precedents stimulated by scientific academies in the outgoing 18th century and formal efforts under the International Meteorological Organization, the predecessor of WMO, since 1873.

The meeting of the Commission was opened by the Lord President of the Council, the Viscount Hailsham, Minister of Science, who recalled this long tradition of international cooperation in climatology. The Director-General of the Meteorological Office of the United Kingdom, Sir Graham Sutton, F. R. S., also welcomed the delegates and invited them to visit the various meteorological installations in the London area. Mr. Oliver M. Ashford, Chief of the Technical Division of WMO brought the greetings of the Secretary General of the organization. The President of the Commission, Mr. R. G. Veryard, stressed in his address the important tasks before the Commission, as laid down in its terms of reference. He placed particular emphasis on the importance of upper air climatology and the various practical applications of climatology. The guiding role of the commission for the climatological work of national meteorological services was highlighted.

A total of 38 members of WMO were represented at this session:

Argentina	India	Roumania
Australia	Iran	Saudi Arabia
Austria	Ireland	Sweden
Belgium	Israel	Switzerland
Byelorussian SSR	Italy	Thailand
Canada	Mauritius	Tunis

(Climatological Services Memorandum No. 84)

WASHINGTON, D. C.
1-25-61

Denmark	Netherlands	Turkey
Dominican Republic	Netherlands New Guinea	United Arab Republic
Federation of Rhodesia and Nyasaland	Norway	United Kingdom
Federal Republic of Germany	Pakistan	United States
Finland	Portugal	Union of South Africa
France	Portuguese East Africa	Union of Soviet Socialist Republic
Hungary	Portuguese West Africa	

Several international organizations had official observers present at the meeting. Among them the United Nations (UN), International Civil Aeronautics Organization (ICAO), the World's Food and Agricultural Organization (FAO), and the U. N. Educational, Scientific and Cultural Organization (UNESCO).

The U. S. delegation was composed of H. E. Landsberg and H. C. S. Thom of the U. S. Weather Bureau and G. E. Moxon, Air Weather Service, U. S. Air Force. They were ably supported by three advisors, F. Newhall, Soil Conservation Service, J. M. Frosio, Fleet Weather Central, and H. B. Harshbarger, Weather Bureau.

The agenda consisted of 9 administrative and 18 technical items. Most of the work was handled by two committees established for the duration of the session. One of these dealt primarily with the administrative regulatory and guidance material, while the other handled scientific matters. A great deal of preparatory work had been done by nine small working groups between sessions. Their reports and recommendations were before the commission for review and action. The exchange of views was greatly facilitated by the fact that over a score of the delegates were the same as at the preceding meeting. This personal acquaintance and inter-session correspondence produced an exceptionally friendly spirit. There was very little dissension and ultimately all actions were taken unanimously.

Even though the work schedule was heavy for the short period of the meeting, there were opportunities for relaxation and scientific events. The British Government, represented by the Parliamentary Under-Secretary of State for Air, Mr. W. J. Taylor, held a reception at Lancaster House. The Commission had arranged for an afternoon of lectures and discussions on the theme of Climatic Fluctuations. The Royal Meteorological Society held a special meeting devoted to problems of automatic data processing and entertained the delegates at tea. Visits were arranged to the Forecast Office at Dunstable, the Climatological Offices at Harrow and a factory manufacturing weather radars. The U. S. delegation had brought material for an exhibit of the latest U. S. technical publications, including a three-dimensional model of the average air motion in the atmosphere. Demand for copies of the publications stimulated arrangements for useful exchanges of literature with the other nations.

The meeting passed 9 resolutions concerning matters in which the Commission has authority and forwarded 17 recommendations to the Executive Committee of WMO for final approval. There is little doubt that most of these will be enacted to become part of the codified international practices in climatology. One of the continuing tasks of the Commission is the review of the climato-

logical section of the Technical Regulations of WMO. These lay down the basic procedures which the meteorological services of the WMO members are enjoined to follow. Most of them are designed to standardize practices and facilitate international exchange of information. With the rapid development of atmospheric science this requires continuing revision. To the layman these are boring technicalities but they are very essential for many practical applications. A good example are the requirements of international aviation. Summaries of wind conditions are needed for the planning of air routes and schedules for ever higher layers in the atmosphere. More information is needed on icing and severe turbulence which still are serious impediments to flight. Unfortunately also poor weather conditions near airports are potentially among the worst hazards of modern air transport. New agreements on climatological tabulations of these conditions were reached. Many meteorological services are presently engaged in the charting of the meandering upper air currents. In order to avoid unnecessary labor and duplication the WMO Secretariat has been charged with collection and publication of an inventory listing work completed and in progress along these lines.

From many points of view the most important endeavor in climatology is the concerted effort to produce a world climatological Atlas. This is being built up from national charts into regional maps, all prepared under a unified scheme. This task is under the guidance of a working group of specialists, one from each of the six WMO regions, which correspond essentially to the major continents. Precipitation maps have been given the highest priority in view of the importance of this element for agricultural planning. Completion of a substantial portion of this work before the next session of the Commission is now envisaged.

The meeting also passed on the major portions of a guide to climatological practices. Nine of the main chapters are finished and ready for issue. Arrangements have been made for smaller working parties to finish the four chapters still outstanding. This guide is a small compendium of practical experiences resulting from the work of national climatological services. It covers such problems as organization, collection and quality control of observations, automatic data handling and publications. It is particularly timely because of the establishment of new weather services in countries which have recently become independent. But it will also help those in the older services to align their time-honored procedures with the modern methods of analysis.

Every climatologist is interested in the problem of climatic fluctuations of shorter or longer duration. Long-range economic planning is much concerned with these vagarious atmospheric events. Rainfall changes are particularly critical in the world's arid and semi-arid lands. WMO, in cooperation with the Arid Zone Project of UNESCO, plans to have a scientific colloquium on these problems in Rome in October 1961. It was agreed at the CCI session that prior to this meeting a bibliography on publications for the last decade is to be cooperatively prepared. Further specifications were also laid down for the world-wide exchange of information on the departures from average of the major climatic elements at the end of each month. As period for comparison the interval from 1931 to 1960 was agreed upon. Some hold out hope that this information may contribute to longer-range outlooks of

climatic conditions. The U. S. contribution to this effort in form of the publication "Monthly Climatic Data for the World", sponsored by WMO, was highly praised.

In view of the success of this publication the WMO Secretariat was asked to look into possible arrangements for expanding a present U. S. publication of the day to day upper air observations of the northern hemisphere into one covering the whole world. This would solve many of the data exchange problems that remained in an unsatisfactory state for the research scientists after the end of the International Geophysical Year and the period of International Geophysical Cooperation. At any rate, recommendations for the exchange of data, particularly in a form suitable for machine processing, were made. In this connection the adoption of a uniform punched card which has been designed for data from ocean areas was urged upon the Executive Committee of WMO. For international exchange of observations from land areas a minimum contents for punched cards of observations was also agreed upon. Guide lines for the desired accuracy of these observations were also laid down.

In view of the rather infrequent meeting of the commission the WMO Secretariat was asked to collect and publish henceforth annual progress reports and bibliographies on climatology from member nations. This will replace the quadrennial compilations and facilitate more rapid exchange of information than heretofore. It was also arranged to have the Secretariat compile information on soil temperature measurements in various nations. These data are important in the assessment of the atmospheric energy budget. For the same purpose information on the extent of snow covers is also essential and arrangements for multilateral exchange of current maps were approved for countries where this element is observed.

The Commission went on record to have the reports of the working groups on climatic classifications and statistical procedures expanded and published in a suitable form. The desire was also expressed to publish a bibliography on instruments and methods used in microclimatology.

In recognition of the important effects of climate on human health and well-being the Commission suggested that national meteorological services explore problems of human bioclimatology more intensively than heretofore and cooperate, as appropriate, with the International Society for Bioclimatology and Biometeorology.

Several of the former working groups of the Commission, with their assignments completed, lapsed with this meeting. Four of the groups with continuing tasks were re-established. Four other working groups covering new ground were inaugurated. The President was given authority to establish another group at his pleasure. These groups are small parties of four to six experts. All of them are charged with preparation of specific reports. These are to be submitted in the interim between sessions.

In winding up its meeting the Commission's majority indicated a preference for holding its next meeting at WMO headquarters in Geneva, Switzerland. As the last act the Commission unanimously elected its Vice President,

Mr. C. C. Boughner of Canada to the presidency. Dr. C. C. Wallén of Sweden succeeded him as the new Vice President.

2. ARCHIVING AND SERVICING OF METEOROLOGICAL SATELLITE DATA: The following is quoted, for your information, from a recent memo to the NWRC:

"For the whole TIROS series of satellites, the cloud picture data will be similar in format and treatment. The cloud picture data for the NIMBUS series will probably be materially different, and we are still working on plans to archive and service these and other meteorological data deriving from satellites. Thus our comments will refer only to the cloud pictures obtained from the TIROS series.

"You will receive these data in the form of archival master negatives on 35mm sprocketed roll film, probably in 1,000-ft. rolls. These will have been edited by the Navy Photographic Interpretation Center (NPIC). The result will be a chronological series of pictures, grouped into sequences of varying lengths, and with not more than 4 sequences to any one orbit. On many orbits, however, no pictures were taken at all. Each sequence will be numbered, and will be preceded by a title frame.

"NPIC will also furnish you 3 sets of working masters, two positives and one negative, in 100-ft. rolls. The negative will be of the best density and contrast for producing paper enlargements, and very nearly identical to the archival negative. One of the positive copies will be a "viewing master", and the other will be a "copying master". The difference will be in the film contrast: the "viewing master" will have a greater contrast than the archival negative, the "copying master" will have a lesser contrast. The negative working master will have been prepared from the "copying master" positive. Tests have indicated that the Ozalid-J copying process increases the contrast somewhat, so that such copies of the "copying master" may be quite satisfactory for viewing purposes, rendering surplus the "viewing master" positive. Your own tests and experience will be the best guide to this. We believe that Ozalid-J copies of the working master negatives will be as satisfactory for producing paper enlargements ("hard copy") as the originals themselves.

"The film for TIROS-1 will amount to very roughly 3,000-ft. per set. The film for TIROS-2 will amount to considerably less than that. As for TIROS-3, we will have to wait and see. The archival negative will be used only to prepare additional working masters. The working masters will be used to prepare copies when these are requested.

"Interested scientists will be advised that you will be able to furnish copies of either the negatives or the positives in 100-ft. rolls, for the cost of reproduction. We believe, however, that the requesters will be more interested in obtaining copies of individual sequences that will often be found in several different rolls. We have therefore been experimenting with a unitized system for filing a working master set using the film jacket principle, and making use of a newly-developed semi-automatic loader. The system works excellently for all purposes except that of contact printing to a transparency, as with Kalfax, in which case the thickness of the jacket degrades

the image quality. New equipment being developed by the Kalvar Corporation, using an optical system to produce 1:1 copies, may solve this problem.

"In order to document the TIROS cloud pictures, MSL is preparing a set of classification sheets, in which each sequence will be identified by orbit number, sequence number, date, time, geographical area or areas (17 areas are defined), presence of identifiable landmarks, cloud formations, and roll number. Also included will be notations of certain types of errors. We would like you to transfer these to a punched card deck, developing one card for each sequence. After verifying the punching, a duplicate of the deck should be furnished to the Meteorological Satellite Laboratory, and the deck should be listed to prepare tabular copy for a publication to be included in the "Keys to Meteorological Records Documentation" series, and for which MSL would prepare the descriptive text. The publication would thus be an index to the cloud picture file."

3. NUMBER OF PAGES IN CLIMATOLOGICAL PUBLICATIONS: The following table shows the number of pages of various kinds of climatological data publications printed during the calendar year 1960:

Local Climatological Data, Supplement	5,246
Local Climatological Data, Monthly & Annual	4,652
Climatological Data, States	9,433
Monthly Climatic Data for the World	527
Climatological Data, National Summary	705
Storm Data	150
Northern Hemisphere Bulletin	9,406
Hourly Precipitation Data	4,286
Storage Gage	94
Weekly Weather and Crop Bulletin	416
Miscellaneous	85
Mariners Weather Log	240

TOTAL ----- 35,240

4. CLIMATOLOGY AT WORK: This publication was prepared to describe the functions, scope and capabilities of the National Weather Records Center. A copy was sent to each State Climatologist but not to each first-order station, since a limited number of copies were printed.

It would be well for each State Climatologist to circulate his copy to all first-order stations in his state for their information. One additional copy for this purpose will be sent to each State Climatologist.

5. NATIONAL CLIMATIC ATLAS: This project continues to progress. Within the past several months the following additions have been printed and distributed to State and Area Climatologists:

1. Maximum Persisting 1000 mb Dewpoints (°F), Monthly and of Record
2. Pan and Lake Evaporation
3. Mean Total Precipitation (Inches), Monthly, January -

August by State Climatic Divisions

4. Mean Total Precipitation (Inches), Monthly September - December and Division Names by State Climatic Divisions
5. Mean Percentage of Possible Sunshine, Monthly and Annual
6. STATE CLIMATOLOGISTS' MEETINGS: A series of meetings in each of the areas of the United States is planned for discussion of mutual problems. In attendance will be the Area Climatologist and representatives from WRPC and the Office of Climatology.

It is hoped to have meetings in all areas of the contiguous United States this calendar year, with the first meetings in the Central and Northwestern Areas.

As plans progress, Area Climatologists will advise State Climatologists of the details and of their part in these meetings.

7. THE COOPERATIVE WEATHER OBSERVER: This booklet has been revised and issued and a copy sent to each State and Area Climatologist's office, first-order station and cooperative observer. Please send us any newspaper clippings or other publicity items that come to your attention in connection with this publication.

The booklet is a good source of material for writers interested in preparing stories about cooperative observers.

8. PREPARATION OF SEVERE STORM INFORMATION: The Texas State Climatologist uses 5 x 8 inch cards in the preparation of storm data information. Mr. Orton reports as follows:

"Data are entered on 5 x 8 inch cards exactly as they will appear in the STORM DATA publication. Only one storm is entered on each card. The cards may then be arranged in the proper chronological order for typing on WB Form 614-3. After preparation of this form, the 5 x 8 inch cards then constitute a permanent file of storm data. We prefer to file the cards according to counties within the State. Other Climatologists might prefer to file them according to type of storm or in some other manner. To make the information more complete, the actual dollar damage of each storm is entered on the bottom of the card in addition to the code figure."

Various forms of work sheet can be devised for the entry of notes on individual storms and the summarizing of the final Storm Data entry at the top or bottom. Mr. Orton's 5 x 8 inch cards will require a small amount of additional work but this is probably justified by their usefulness as a semi-permanent storms file for the state.

9. SETS OF LOCAL CLIMATOLOGICAL DATA: Last year we obtained from Superintendent of Documents a bulk price of \$15.00 for a complete set of LCD Annuals. The NWRC reports that in the first year 25 sets were sold. Fifty sets of the 1960 issue will be assembled for this purpose. State, Territorial and Area Climatologists may have occasion to pass this information along to

potential users of sets.

10. LOCATION OF STATIONS WITH THE PROSPECT OF A LONG HOMOGENEOUS RECORD:

The following is a memo recently written by the Office of Climatology for the record:

"Since so much difficulty has been experienced in maintaining homogeneous observations from sites with the same environment, we have attempted to make use of those types of locations with a good prospect for little change.

"One of the best types of prospective locations would probably be at certain selected cemeteries. In general, state and federal laws are such as to resist any actions that might result in molesting burial sites. One might go further and design an instrument installation in the form of a memorial. This could be made available for installation and the services of the cemetery staff might be utilized as observers. We have already made use of these people for observations of frost depth.

11. PUBLICATIONS DISTRIBUTED TO STATE AND AREA CLIMATOLOGISTS SINCE CSM #83:

Climate of the Delta Area of Mississippi, J. A. Riley, Bulletin 605, Mississippi State University.

U.S. Department of Commerce, U.S. Weather Bureau - NSF 60-58, No. 7, reprinted from "Scientific Information Activities of Federal Agencies", National Science Foundation, Washington 25, D. C., October, 1960.

Summer Student Trainee Report for 1960, U. S. Weather Bureau, November, 1960.

A Critique of the Heat Unit Approach to Plant Response Studies, J. Y. Wang, University of Wisconsin.

12. JEFFERSON AND HOLM AWARDS FOR SUBSTATION OBSERVERS: Reference- Chapter D-51 of the W. B. Manual, Volume I.

February 15 is the closing date for receipt here of nominations for the above awards. The newly designed form, 037-2, should be used to forward recommendations to the WRPCs.



H. E. Landsberg
Director, Climatology

GUIDE TO CLIMATOLOGICAL SERVICES
MEMORANDUM NO. 84

<u>Item</u>	<u>Page</u>
1 DR. LANDSBERG REPORTS ON CCI-III MEETING.....	1
2 ARCHIVING AND SERVICING OF METEOROLOGICAL SATELLITE DATA.....	5
3 NUMBER OF PAGES IN CLIMATOLOGICAL PUBLICATIONS.....	6
4 CLIMATOLOGY AT WORK.....	6
5 NATIONAL CLIMATIC ATLAS.....	6
6 STATE CLIMATOLOGISTS' MEETINGS.....	7
7 THE COOPERATIVE WEATHER OBSERVER.....	7
8 PREPARATION OF SEVERE STORM INFORMATION.....	7
9 SETS OF LOCAL CLIMATOLOGICAL DATA.....	7
10 LOCATION OF STATIONS WITH THE PROSPECT OF A LONG HOMOGENEOUS RECORD	8
11 PUBLICATIONS DISTRIBUTED TO STATE AND AREA CLIMATOLOGISTS SINCE CSM # 83	8
12 JEFFERSON AND HOLM AWARDS FOR SUBSTATION OBSERVERS.....	8

