

UNITED STATES DEPARTMENT OF COMMERCE  
WEATHER BUREAU  
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MEMORANDUM

TO: Section Centers, Hydroclimatic Inspectors, Field Aides,  
WRPC's, and River Centers.  
(With copies to Regional Offices for Information.)

FROM: Chief, C&HS Division

SUBJECT: Climatological Service Memorandum No. 18.

INSTRUCTIONS

1. SUPERVISION OF SERVICES AT SUBSTATIONS IN THE HYDROCLIMATIC NETWORK: Certain questions have been raised as to the supervisory functions and responsibilities of the Section Center and the River District Office in connection with the operation of Rainfall (river) substations, i.e., substations in the river reporting service which may record precipitation data only or temperature and (on occasions) evaporation in addition to precipitation; substations recording or reporting river stage are excluded from this discussion. The following, in clarification of the instructions in Circular Letter No. 8-50, Sections B and C, outlines what is considered to be a workable functional relationship between the River District Office and the Section Center with respect to the administration of these Rainfall (river) substations. Any comments or suggestions will be welcome.

- I. Supervisory Functions and Responsibilities of Section Center.

- A. Maintains equipment.
- B. Carries all equipment on its property return.
- C. Relocates equipment, appoints new observer (only in agreement with River District Office).
- D. Mails routine forms and supplies to observer, as envelopes with Section Center address, charts, instrumental equipment, record forms, etc.
- E. Issues instructions on routine observations and care of equipment; issues newsletters to observers.

- F. Receives routine record forms direct from observer.
- G. Carries out full inspection program for Section Center area of responsibility.
- H. Informs River District Office of expected inspection visits in advance (Form 6060) so that River District Office may indicate what special service inspection is needed.
- I. Supplies River District Office with copies of inspection reports (6055).
- J. Supplies River District Office with copies of Form 4303, when prepared.
- K. Informs the River District Office of any proposed changes in station, equipment, etc.

II. Divided Responsibilities between Section Center and River District Office.

A. Appointment Papers:

- 1. Stations paid for rainfall (river) reports, unpaid for climatological.
  - a. Always signed by River District Office and forwarded to Regional Office for approval.
  - b. Usually prepared by River District Office.
  - c. May be prepared by hydroclimatic inspector.
- 2. Stations paid both for river services and for climatological or other Section Center services.
  - a. May be signed by either River District Office or Section Center with consent of office not signing, and forwarded to Regional Office for approval.

III. Supervisory Functions and Responsibilities of River District Office.

A. Supplies and Report Forms furnished observer.

1. Daily or occasional report cards.
2. Telegraph blanks where necessary.
3. River District Office return address envelope where necessary.

B. Instructions issued to observer.

1. Issues instructions on special reports as to what to report, when, and how.

C. Inspection.

1. Inspects reporting facilities and effectiveness of observer.
2. Combines travel with hydroclimatic inspector wherever possible.
3. Instructs hydroclimatic inspector on its wishes so that he may help inspect the reporting services on his routine inspections

D. Informs Section Center of:

1. Any expected changes in equipment or services.
2. Expected inspections, supplying copies of Forms 6060, 6065.

E. Furnishes Section Center with copies of all inspection and station description forms.

2. CLIMATOLOGICAL DATA MAPS: (This CSM item makes obsolete the following references: CSM No. 5, Item 1; CSM No. 8, Item 1; CSM No. 10, Item 5; CSM No. 11, Item 11; CSM No. 12, Item 2; CSM No. 14, Item 7; CSM No. 15, Item 8.) Climatological Data base maps for each of the 45 Section Centers have now been completed so that a standard set of maps showing the location of the climatological stations whose records are published in the Climatological Data is now available. This project was started in July 1949 and the last base map was completed in October 1950.

Instructions to the WRPC's require that one of these maps be printed in each annual Climatological Data Summary and that one be printed in each monthly Climatological Data whenever a blank page is available. Inclusion of these maps in the Climatological Data provides the public with a reference map on which station locations can be compared and preliminary climatological summaries made if desired. The maps also serve as auxiliary indices in all bulletins in which they are published.

The separates may be used for a variety of purposes both operational and climatological in Section Centers and the Central Office. They are of primary usefulness as graphical (isoline base) aids in studies in Climatological Data, preliminary summaries, etc.

Climatological Data maps (separates) are printed in two sizes, 7x9½ inches printed on a sheet size of 8½x11 inches, and 14x19 inches printed on a sheet size of 16x21 inches. Unless requested otherwise, the smaller maps are printed in black ink and the larger in brown ink.

Section Directors who desire supplies of either the small or large maps can obtain them by letter request to the Central Office. WRPCs, or other offices requiring negatives or revised maps, should request them through the Section Director. Accompanying each such request for reprints, the Section Director should provide the necessary information for correcting the master maps, which are maintained in the Central Office, to agree with the station and data published in the latest monthly Climatological Data. The coordinates of new or relocated stations, and the proper legend symbols for them, should be included. Indications should also be given for stations that should be deleted from the base map. The above information can best be shown on an existing base map which should accompany the request for reprinting.

After correction of the master maps and the preparation of new negatives of the maps, they will be printed either at the Processing Centers or in New Orleans.

Files of the latest 7x9½ inch negatives will be maintained at the Processing Centers. A revised 14x15 inch negative will be supplied to the New Orleans printing plant whenever larger maps are requested.

3. COOPERATIVE OBSERVER BULLETIN (REFERENCE: CSM NO. 13, ITEM 1): Work on preparation of copy for the Cooperative Observer bulletin is continuing satisfactorily. We hope to be able to issue the bulletin within the next two or three months.

If any observers for whom material has been submitted died before the end of 1950, we should be advised so that their story may be omitted. While we would like to recognize each deceased observer with an item, it is manifestly impossible to include them all. A paragraph in the introductory chapter will pay tribute in general terms to observers no longer living. Also, if any observer in the 10-20 year group has resigned before the end of the year we should be advised. Only retired observers with 20 or more years of service are to be listed.

As soon as the bulletin is printed, the desired number of copies will be sent to Section Centers for distribution.

4. W.B. FORMS 1053 (REFERENCE: CSM NO. 11, ITEM 9): W.B. Forms 1053 B, C, and F have been revised, and W.B. Form 1053 E, Weather and Crop Observer's Report, Southwestern States, has been designed, as a result of replies to the referenced item. These forms, for use primarily where the Weather Bureau and BAE are not yet cooperating in the collection of material and publication of a joint Weekly Weather and Crop Bulletin, have been distributed to the Regional Offices. Earlier Forms 1053 B, C, and F which do not carry approval of the Bureau of the Budget through December 31, 1951, should not be used in 1951.
5. TIME OF OBSERVATION (REFERENCE: CSM NO. 3, ITEM 3; CSM NO. 4, ITEM 4; AND CSM NO. 7, ITEM 7): In reviewing the referenced items regarding the time of observation at cooperative stations, we find that the primary reason for insisting on observations in the afternoon or evening at cooperative stations has not been clearly stated; namely, the bias which results from the tendency of the thermometers to repeat on the following day the temperature at the time of observation on the previous day (set maximum thermometer reading). This repetition of a set maximum temperature as a maximum or as a minimum occurs on the occasions when the daily march of temperature fails to rise above or fall below, respectively, the set maximum temperature at the previous reading. To minimize the number and magnitude of such errors, observations should be taken at the time of day at which the existing temperature approaches the mean for the day (late morning or late evening). If observations are taken in the early morning when temperature is near the minimum, then observed minimum and mean temperatures will be slightly too low, on the average. Conversely, observations taken near the time of the maximum will display a slight positive bias.

Because of convenience to the observer, most morning observations are taken at about 8 or 9 o'clock, while afternoon or evening observations are usually taken near sunset. With

respect to these two times (8 a.m. or sunset) it can be shown that the net bias is less for the p.m. observations. Moreover, both maximum and minimum temperatures are read on the date of occurrence if observations are made in the evening. Accordingly, it is strongly recommended that temperature observations be made in the late afternoon or evening if at all possible.

We realize that in many sections this transition will take some time to complete but it should be kept in mind that p.m. temperature observations are required at cooperative stations and agreement with new cooperative observers to take observations in the afternoon or evening should be obtained prior to the establishment of any new stations.

#### GENERAL

6. SUBSTATION RECORDS (REFERENCE: CSM NO. 16, ITEM 2): Replies to the referenced item show that some Section Centers use Form 1078 and others a card form to keep substation records by individual elements for a period of years. A few centers do not keep this type of record for substations.

These records should be maintained at the Section Center, if the Section Director feels that they are necessary. The form in which these records are kept is also optional with the Section Director. Variations of Form 1078, improvised forms, or cards now in use may be utilized. A 5x7 card form, W.B. Form 1067, has been designed for use to record various elements at those centers desiring it. This card form is printed on white stock, with a space in the heading for insertion of the element recorded. Space is provided for summarization at five year intervals. An initial supply has been sent to each Regional Office for further distribution to Section Centers upon requisition. A sample copy has also been sent from the Central Office to each Section Center.

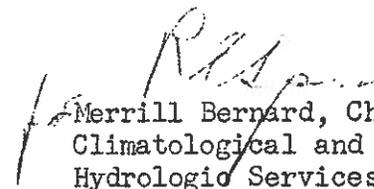
7. EXPANSION FILE FOLDERS, WALLET-TYPE (REFERENCE: CSM NO. 11, ITEM 12): About seven months ago the Huron, South Dakota, Section Center supplied cooperative observers with a wallet-type expansion file folder to assist them in keeping forms, envelopes, cards, etc. and related Weather Bureau correspondence in convenient order. A recent survey by the Section Director showed that about 92% of the observers were using them. The other 8%, while having no apparent dislike for the folder, had previous arrangements, such as a desk or cabinet, and did not need it.

Perhaps other Section Directors may be interested in supplying their cooperative observers in like manner. For

this purpose the open top wallet-type folders, size  $9\frac{1}{2} \times 14\text{-}\frac{3}{4}$  inches are available with or without tie, and with either  $1\text{-}\frac{3}{4}$  or  $3\frac{1}{2}$  inch expansion. The 1950 Store Stock Catalogue items are 53 F 4460 and 53 F 4590 for the  $1\text{-}\frac{3}{4}$  inch expansion with and without tie, respectively, and 53 F 4510 and 53 F 4620 for  $3\frac{1}{2}$  inch expansion with and without tie, respectively. The present price with tie is 17 cents each and 12 cents each without tie. Requests should be directed to the Regional Office.

8. PUBLICATION OF TEMPERATURES FOR THE DAY AFTER A MISSING PERIOD: The following instruction will soon be issued to the WRPC's:

"When one or more days of temperature record are missing the maximum and minimum readings on the first day after the missing period should be carefully scrutinized. If comparison of the temperatures with temperatures at surrounding stations indicate that they are correct for the day on which they are entered, they should be accepted and published on that date. Otherwise, the temperatures recorded after a period of missing record should not be accepted for publication or for computation of means and extremes."

  
Merrill Bernard, Chief,  
Climatological and  
Hydrologic Services

GUIDE TO CLIMATOLOGICAL SERVICE MEMORANDUM NO. 18.

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