

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

December 8, 1953

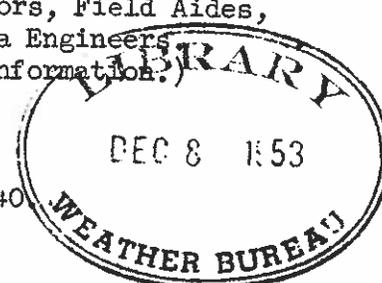
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MEMORANDUM

TO: Section Centers, Hydroclimatic Inspectors, Field Aides,
WRPCs, River District Offices, and Area Engineers
(With copies to Regional Offices for Information.)

FROM: Climatological Services Division

SUBJECT: Climatological Service Memorandum No. 40



INSTRUCTIONS

1. SUBSTATION NETWORK PLAN (REFERENCE: MAL NO. 37-53): From the review of the Substation Maps submitted in response to MAL No. 37-53, we find that some maps require further study at Section Centers and other offices before evaluation by the Central Office. The purpose of this item is to present a refinement of procedures and to offer suggestions that we believe will be helpful in the preparation of these maps.

A. It was the intent of Multiple Address Letter No. 37-53 to include in the "a" network only those temperature-precipitation substations required to provide an adequate sample of data for areal statistics on weather and climate. The "a" network (defined under Network Design in the attachment to MAL No. 37-53) should ordinarily contain about one temperature-precipitation substation per 600 square miles. The "a" network is to be confined to temperature-precipitation stations only.

It will help in plotting "a" stations to use a map with grid lines 25 miles apart and to plot only the "a" stations on this map. This grid map should be attached to the network map sent to us.

B. Precipitation-only stations are to be included in the "b" or "c" networks and none will be included in the "a" network. River service reporting substations (including those already existing or proposed for temperature-precipitation stations) which in the opinion of the River District Office, River Forecast Center, or Area Hydrologic Engineer will be needed to provide adequate river forecasting service, should be indicated as "b", and lettered "ab" if appropriate. A proposed river substation should be indicated as "b" (or "ab") if it is probable that precipitation (or temperature-precipitation) and river reports will be obtained.

File: 922

Memorandum - (Climatological Service Memorandum No. 40)

Washington, D.C.
12-8-53

C. Evaporation substations, since all make temperature records, will be indicated as "ab" if they serve the basic network as defined, otherwise as "b".

D. Mark "b" all recording-gage precipitation substations, including those in the S&E, FC-1, IRPN, etc. networks and/or those published in Hourly Precipitation Data.

At the beginning of the FC-1 program, a number of unpaid precipitation-only (non-recording) substations were incorporated into the FC-1 network with data published in the old Hydrologic Bulletin. These should also be indicated as "b".

Other precipitation and special observation substations, such as soil moisture, hygrothermograph, etc. stations, designed to meet hydrologic needs of the Weather Bureau or cooperative agencies should be indicated as "b". The "List of Hydrologic Stations Recommended at Regional Conferences (FIARBC)", MAL O-2.2, December 12, 1949, is in general the latest or only interpretation of the current requirements for additional hydrologic stations to meet Federal needs. It is important, therefore, that these recommendations be used as a guide (unless there are later indications or interpretations) to indicate the locations of new "b" network stations which will best meet the needs of all agencies.

E. CAA and Weather Bureau stations should be marked "a", "ab", "b", or "c", whichever is appropriate under basic definitions. (Rainfall reports transmitted by teletype are always used for hydrologic purposes.)

F. Substations should be indicated only as "a", "ab", "b", "c", or "x" (for stations to be closed). Instead of the summary requested in Item 4, Page 5 of MAL No. 37-53, it will be sufficient to summarize by the above classes; i.e., "a", "ab", "b", "c", and "x".

G. In all cases submit evidence that the "b" network has been coordinated with the appropriate River Centers, the Area Hydrologic Engineer, and the Section Center.

2. METHOD OF ARRIVING AT LENGTH OF RECORD TO BE PUBLISHED IN ANNUAL CLIMATOLOGICAL DATA: Except for evaporation stations regularly closed during the winter, the number to be published in the annual Climatological Data as "length of record, years" will be obtained as follows:

Subtract from the total number of years since station was established, all years in which there was no record or only part of a year's record (11 months or less). Once determined, the count for subsequent years should be obtained by adding 1 for each full year the station continues in operation.

In areas where evaporation pans must be discontinued because of freezing thus creating a seasonal condition the "length of record" for evaporation will be the number of full seasons actually on record.

Since the main purpose of publishing lengths of record is to provide a simple basis for comparison between stations, Section Centers will make the count indicated above only as time becomes available. However, any revision for publication should be complete as of the year in which it is made, and a brief explanatory note should be published in the annual for that year; as follows:

"Note: Length of record, in years, has been revised to show the total number of years in which records are complete for all 12 months of the year except for "evaporation" stations in which case the number of complete records for the season between freezing in spring and autumn is shown."

The portion of the above note beginning with "except for . . ." should be used only in those sections where the evaporation pan is regularly closed during the winter.

3. NORMALS FOR CLOSED FIRST-ORDER STATIONS (REFERENCE: CSM NO. 39, ITEM 2): Further consideration of this problem leads us to believe that normals for closed first-order stations should be used as they stand for substations in the near vicinity, unless there are radical differences in elevation or exposure between the two locations.

Section Directors, in reporting the closure of first-order stations and establishment or continuance of cooperative stations in the vicinity, should indicate whether or not the first-order station normals will be applicable to substation data.

4. CLIMATOLOGICAL CONTINUITY OF SUBSTATIONS (REFERENCE: CSM NO. 37, ITEM 8): A number of Section Centers are not including remarks on Form 531-1 relative to the continuity of climatological records in cases where a station has been moved. We quote from the referenced CSM item:

"In any case, the responsibility for determining whether or not a station relocation breaks the record continuity and requires a new number, rests with the Section Center. Form 531-1 should include a statement in each case as to whether the record of the new location is compatible with the former location."

Inclusion of this statement will be very helpful to users of Form 531-1.

5. FREEZE-FREE DATA (REFERENCE: CSM NO. 20, ITEM 3): For a number of sections freeze-free data as described in the referenced CSM item have been worked up. Following is a list of sections for which such basic data have been extracted:

| | | |
|----------|-------------------|----------------|
| Alabama | Kentucky | North Carolina |
| Arizona | Louisiana | North Dakota |
| Arkansas | Maryland-Delaware | Oregon |
| Georgia | Michigan | Pennsylvania |
| Illinois | Minnesota | Texas |
| Indiana | Mississippi | Virginia |
| Kansas | New York | Wyoming |

In order to avoid any possible duplication of this work, any Section Center (not listed above) now able to work on this job should so advise us. We will then furnish the work sheets and instructions.

6. PUBLIC SERVICE POLICY FOR COOPERATIVE OBSERVERS (REFERENCE: CSM NO. 32, ITEM 1): Some Section Centers have not yet carried Weather Bureau policy on the above subject in the section newsletter. This is to remind those centers that Paragraph C-0305a of Volume III of the Weather Bureau Manual should be published in an early newsletter issue.

GENERAL

7. MENTION OF NEW COOPERATIVE OBSERVERS IN NEWSLETTERS (REFERENCE: CSM NO. 39, ITEM 8): In the last paragraph of the referenced item we stated that all new observers should receive appropriate mention in the Section Newsletter.

The Oklahoma Section Director noted an occasional flurry of resignations following the release of a newsletter containing a list of changes of observers, but he was not able to determine whether the resignations would have occurred normally or whether the power of suggestion in the list of changes provided impetus for the resignations.

We would be interested in receiving comments from other Section Directors on this point. In the meantime, Section Directors will use their own discretion in the matter of publicizing changes in the Newsletter, but they are strongly encouraged to take appropriate action for direct welcome in line with the example given in CSM No. 39, Item 8.

8. BULLETIN W-SUPPLEMENT: Negatives for the first Bulletin W-Supplement (that for South Carolina) have been sent to the GPO for printing. We plan to send one copy of each Supplement printed to each first-order station, plus 25 copies to the Section Center for the section for which the Supplement is issued. The main reserve supply will be placed in stock at NWRC, and the Superintendent of Documents will maintain stock in Washington for sale.

Some work has been done at the NWRC on 11 other sections for which Station Histories have been completed by the Section Center.

9. COOPERATION WITH BAE: The recent reorganization of the Department of Agriculture is not expected to affect our cooperation with the Bureau of Agricultural Economics.

That part of BAE which was concerned with crop and livestock reports (and with which we cooperate in issuing Weekly Weather and Crop Bulletins) has been transferred, without change in duties, to the Division of Agricultural Estimates, under the Agricultural Marketing Service.

FOR WRPCS

10. PREPARATION OF TABLE 3 IN CLIMATOLOGICAL DATA ANNUAL: Use of Table 3 in the Climatological Data annual in connection with compilation of freeze-free dates revealed a large number of errors in dates in one section.

We realize that it is very difficult to keep errors out of this type of data compilation when done manually. We hope to be able to devise a method to do this efficiently by machine for 1954 and later years. In the meantime all WRPCS are urged to check, or to have Section Centers check, the dates of first and last temperatures for use in this table.

11. DAYS WITH .01 OR MORE PRECIPITATION IN TABLE 2 OF CLIMATOLOGICAL DATA: Investigation of the number of days with .01 or more of precipitation, as derived from substation records, showed that the count was inconsistent, frequently much lower than the count reflected by first-order records. Further investigation indicated that the substation bias disappeared for daily intensities of .10 inch and above.

Effective, therefore, with Climatological Data for January 1954, the number of days with .01 or more should be discontinued in Table 2 of Climatological Data and the number of days with .10 or more should be carried instead.

A supply of gummed headings will be furnished each WRPC for use on existing Forms 5102R. This change will be included in 5102R when next reprinted.

Climatological Data for all months of 1954 will carry the following in the reference notes, with a proper reference to the column headings:

"Data in the column formerly headed "No. of Days .01 or more" have been changed to "No. of Days .10 or more" effective January 1, 1954."

12. AMENDMENTS TO INSTRUCTIONS: Paragraph 1009.632 - Change the next to last sentence in this paragraph to read:

"If less than 10 days' temperature record is missing, the reference "M" should be attached to the average maximum or average minimum, and to the average for the month."

Paragraph 1009.6382 - Add as next to last sentence:

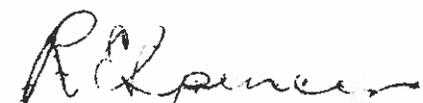
"Elevation entered should be the ground elevation for all stations."

Paragraph 1009.831 - Substitute the following for this paragraph:

"A list of all changes in station name during the past year should show the new name, the former name, and the month in which the change was made. This list should be headed: Changes in Station Names.

"A second list, headed Relocations, should show all station moves and date during the year, as for example: Wendell: Rain gage moved 250 feet north of old site on May 15, 1953. If a station has been moved, and the name changed, it should appear in both of these lists."

Paragraphs 1009.652, 1009.83, 1010.038 - Change the sale or subscription price note to read "Checks and money orders should be made payable to the 'Superintendent of Documents'" instead of the "Treasurer of the United States."


W. F. McDonald,
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Services Division

GUIDE TO CLIMATOLOGICAL SERVICE MEMORANDUM NO. 40.

| <u>ITEM NO.</u> | | <u>PAGE NO.</u> |
|---------------------|--|-----------------|
| <u>INSTRUCTIONS</u> | | |
| 1. | SUBSTATION NETWORK PLAN. | 1 - 2 |
| 2. | METHOD OF ARRIVING AT LENGTH OF RECORD TO BE PUBLISHED IN ANNUAL CLIMATOLOGICAL DATA. | 2 - 3 |
| 3. | NORMALS FOR CLOSED FIRST-ORDER STATIONS. | 3 |
| 4. | CLIMATOLOGICAL CONTINUITY OF SUBSTATIONS | 3 - 4 |
| 5. | FREEZE-FREE DATA | 4 |
| 6. | PUBLIC SERVICE POLICY FOR COOPERATIVE OBSERVERS. | 4 |
| <u>GENERAL</u> | | |
| 7. | MENTION OF NEW COOPERATIVE OBSERVERS IN NEWSLETTERS | 4 |
| 8. | BULLETIN W-SUPPLEMENT. | 5 |
| 9. | COOPERATION WITH BAE. | 5 |
| <u>FOR WRPCS</u> | | |
| 10. | PREPARATION OF TABLE 3 IN CLIMATOLOGICAL DATA ANNUAL. | 5 |
| 11. | DAYS WITH .01 OR MORE PRECIPITATION IN TABLE 2 OF CLIMATOLOGICAL DATA | 5 - 6 |
| 12. | AMENDMENTS TO INSTRUCTIONS | 6 |