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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: Climatological Branch, C&HS Division

SUBJECT: Climatological Service Memorandum No. 20.

INSTRUCTIONS

1. WEIGHTING STATE AVERAGES IN TABLE 1 OF CLIMATOLOGICAL DATA:
At present, unweighted state averages of temperature and precipitation are carried in Table 1 of Climatological Data for the earlier years through or nearly through 1948, with weighted values used for 1949 and 1950. Since weighted and unweighted values may differ considerably, all Section Centers where state averages are computed from division averages are encouraged to compute weighted values for the past years, using stations published in Climatological Data, in order to make the data in Table 1 more homogeneous. This may be done by multiplying each division average for each month of each year by its weighting factor and adding the products for all divisions to obtain the state average for that month. The weighting factors for each division, if not available at the Section Center, may be obtained from the WRPC. Weighted data for each month should then be furnished the WRPC for inclusion in Table 1.

Weighted division normals may then be prepared by averaging the weighted division values for each month for the period of record.

Individual division averages should be preserved at the Section Center for possible future use.

This weighting of past data should not be undertaken in those sections where a change in divisional breakdown is planned for the near future, or where the divisional breakdown is not stabilized.

Until past data in Table 1 have been weighted, the WRPCs will carry a note attached to this table similar to the following:

"Data for the period beginning with _____ in the above table have been weighted on an areal basis and are not comparable with unweighted values published in this table for earlier years."

2. SETTING BACK MAXIMUM TEMPERATURES: As we have pointed out in various CSMs, a.m. temperature observations are less valuable climatologically than observations made in the p.m. A continuing effort should be made as opportunity is presented to have climatological observations taken in the p.m.

In soliciting observers for stations where a monthly rate is paid for the observations, prospective observers should be made to understand that the evening observation is always required in addition to any other observation.

At a number of a.m. temperature stations the observer still sets the maximum temperature back one day to the probable date of occurrence (a few observers even set back the minimum). This necessitates correcting every date at the WRPC, or, worse still, may result in erroneous publication of the data. WRPCs and Section Centers should be alert for such irregularities and Section Centers should endeavor to have the practice of setting the entries back discontinued by the observers. If it is not possible to eliminate this practice, all such forms should be plainly marked "Maximum set back", or some similar notation, as they pass through the Section Center.

3. PROPOSED CHARTS OF FREEZE DATES AND FREEZE-FREE PERIODS: To assist in planning a project for the preparation of nation-wide charts of freeze dates and freeze-free periods for the use of agriculture, industry, commerce, etc., each Section Director is requested to provide us with the following information:

1. A climatological data base map on which is indicated all those temperature substations in his state for which a complete 30-year record is available for the period 1921 through 1950.

2. An estimate of the number of man hours required to extract from the record latest dates in spring and the earliest dates in fall of the occurrence of temperatures of 32, 28, 24, 20, and 16 degrees for each of the years 1921 through 1950 for stations listed under Item 1 above.

3. An estimate of the number of man hours required to extract the above information for all station records in the section for each of the years 1921 through 1950, i.e., both those stations with a complete 30 years of record and those with less than 30 years during this period.

4. An estimate of the number of man hours required to extract this information from all temperature station records in the Section from the beginning of the record through 1950.

5. A statement of the length of time required to accomplish the jobs listed under Items 2, 3, and 4 with present complement and within working hours.

4. ROUTING OF FORMS 1006: In order to clarify instructions contained in paragraph 3 of Attachment II to Circular Letter No. 8-50 in regard to routing of Forms 1006 containing river stages in addition to temperature and/or precipitation data, the following supplementary information is given:

Substations which record river stages only when the stage is above a certain limit or during a certain season of the year, but record precipitation throughout the year, should be treated as River and Rainfall substations, and Forms 1006 for these stations for all months of the year should be filed and routed in the same way as forms for stations recording daily river stage and precipitation data throughout the year.

5. ESTIMATING PRECIPITATION AMOUNTS FROM SNOWFALL: It has been called to our attention that some Section Directors have been adjusting the water equivalent measurements or interpolating them on Forms 1009 and 1006 for snowfall with ratios not 10 to 1. While it is not necessary that the Section Directors make these adjustments since they will be made by the Processing Centers in standard manner we would like to emphasize that any adjustments in the records by Section Centers should be made according to the arbitrary 10 to 1 ratio. This ratio is a fair statistical average even though such a ratio is far from reality in many specific cases.
6. AMENDMENT TO INSTRUCTIONS (REFERENCE: CSM NO. 18, ITEM 8): It has been pointed out to us that a number of stations do not take observations on Saturday or Sunday, and that if the Monday reading is thrown out many stations will end up with no computation of means. This is especially true in Hawaii where many of the stations are operated by plantation personnel.

CSM No. 18, Item 8, is therefore amended by inserting just before the last sentence:

"If no more than two days are missing and comparison of the temperatures on the first following day indicates that the actual dates of occurrence can be determined with reasonable accuracy, the date determination may be made and the temperature adjusted accordingly. Extreme maximum or minimum temperatures for a month recorded after more than two days of missing record, may be accepted and published as of the date of occurrence if the date determination can be made from arrays or observer's notes."

GENERAL

7. WB FORM 5201 (MACHINE FORM 1009) (REFERENCE: CSM NO. 19, ITEM 1): We have not yet received comments from all Section Centers on the question of the desirability of continuing the use of Form 5201. If you have not already done so, please let us have your opinion on this question.
8. FIRST-ORDER STATION NORMALS: Central Office plans include the publication of all normals developed as a result of Circular Letter No. 87-50. It is planned to publish the daily and monthly temperature and precipitation normals and quite likely the degree day normals, and in addition to provide weekly normals of temperature and precipitation, as well as progressive two-weekly, three-weekly, and four-weekly accumulated normals.

The plan outlined above is rather large and may take considerable time to accomplish. In fact, the development of the normals as outlined in Circular Letter No. 87-50 is challenging our staff to the limit but we still have hopes that the project can be completed within this year. In any event, we expect that the daily and monthly normals will be available for a large percentage of the first-order stations this year, and that they can be implemented effective January 1, 1952. If it should develop that the publication of these values will be greatly delayed, we shall keep in mind the need for first-order station normals at the Section Centers and take whatever steps are necessary to provide this information in lieu of the published data.

9. SUBSTATION NORMALS (REFERENCE: CSM NO. 19, ITEM 6): Owing to the time required in reviewing and processing the

the temperature and precipitation means submitted by first-order stations to obtain standard or provisional normals for first-order stations, it is now apparent that the instructions for preparation of substation normals mentioned in the reference item will have to be postponed until after the end of this calendar year.

In the meantime the situation with respect to substation normals should remain in status quo.

10. "SHOULD FARMERS GAMBLE WITH FROST": We are sending each Section Center a copy of the above pamphlet. This pamphlet was prepared by the Raleigh Section Center in cooperation with the North Carolina State College and is a good example of the results that may be obtained from such cooperation.

This pamphlet is sent only as an illustration of cooperation. C&HS contemplates a complete analysis of freeze statistics, see Item 3 of this CSM.

11. USE OF DIVIDING TABLES: From time to time it has been suggested that Weather Bureau dividing tables be revised in accordance with the present Weather Bureau rounding rule. There are considerable differences of opinion here on the usefulness of these division tables, especially since much of the computational work formerly done on stations is now being done at the WRPC.

We would, therefore, like to have an opinion on this question from Section Centers, River District Offices, and their associated Airport offices. Please advise us if you favor the printing of division tables, and if so, which tables.

12. "LIST OF CLIMATOLOGICAL RECORDS IN THE NATIONAL ARCHIVES": This publication was issued in March 1942 by the National Archives. It lists surface weather records on file at the Archives, covering in general the period from the inauguration of systematic meteorological observations by the Surgeon General's Office in 1819 to 1892. Entries in the list are arranged alphabetically by states and places and then chronologically for each place.

We are not sure of the distribution given this bulletin at the time of its issue, but some, if not all, Section Centers received a copy. It is not now available for general distribution, but, if any Section Center does not have a copy and would like to see one we will arrange for a loan of one of the few copies here in the Central Office.

13. ACTION SHEET FOR SUBSTATION CHANGES: We have been advised that the Houston Office has prepared an "Action Sheet" to check off the various steps required in making changes at substations.

The substance of the form used is given below with the idea that it may be helpful to other supervising offices if they wish to use it. Additional items pertaining to an individual supervising office could be included.

ACTION SHEET

Substation _____ Effective Date _____

1. Forms Received:

W-4____ 4076A____ 4076B____ 4303____ 4004C____ 6055____

2. Office Action:

A. Observer Changes:

Book entry____ Plates____ Index____ Hydro. list____

Paid Observers:

Pay Roll Data Cards____ Substation Pay Roll Entry____

B. Relocations:

County Maps: Lat.____ Long.____

Contour Maps: Elevation____

Master Maps: Location____ Symbols____

Small MCD Map: Location____ Symbols____

3. Forms Distribution: (#Original)

<u>W-4</u>	<u>4076</u>	<u>50</u>	<u>4076B</u>	<u>4303</u>	<u>4004C</u>	<u>6055</u>
#RO____	#CO____	#CO____	#CO____	#CO____	#CO____	#SC____
SC____	RO____		RO____	SC____	RDC____	SO____
SO____	SO____		SO____	WRPC____	FF____	FF____
Obs.____			Obs.____	FF____		

4. Inspection Record:

a. Form 6060 (Itinerary)_____

b. Form 6065 (Travel Report)_____

5. Action on this sheet completed_____ Ready for file_____

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GUIDE TO CLIMATOLOGICAL SERVICE MEMORANDUM NO. 20.

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