



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

0-2.13
File 080

April 13, 1949

MEMORANDUM

TO: Section Centers, WRPC's, and River Centers
(With Copies to Regional Offices for Information)

FROM: Chief, C&HS Division

SUBJECT: Climatological Service Memorandum No. 3.

1. LENGTH OF SERVICE AWARDS: Lists of substation observers qualified to receive the length of service awards are now being prepared at the Central Office. These lists with detailed instructions to assist in distributing the awards will be issued to supervising stations within the next few weeks.
2. SECTION CENTER NEWSLETTER: The results of the survey recently made by the Central Office, concerning the possible publication of a Section Center newsletter directed toward improving our relations with cooperative observers, will soon be made available, possibly by the time the next C.S.M. is issued.
3. TIME OF OBSERVATION: We feel strongly that the time of observation, especially at temperature stations, should be in the evening. Some Section Directors, Illinois for example, have arranged with observers in networks such as river or crop where a morning report is required, to make in addition an evening observation. The evening observation is then recorded on Form 1009.

We approve of the practice and suggest that all Section Directors try to have climatological observations taken in the evening.

4. CHECKING FORMS 1009 AT SECTION CENTERS: Checking of Forms 1009 and 1024 at Section Centers should be confined to a casual inspection, primarily to see that the form is properly identified, and to note and act on requests for forms and supplies or other administrative aspects of the program. Detailed checking, such as comparison of set maximum with maximum and minimum temperatures, comparison of precipitation times with amounts and dates and similar checks, should be left for the WRPC.

Attention of Section Center Officials is called to directives placing the actual checking in the WRPC's and to the now sufficiently long experience demonstrating the successful accomplishment of this task by machine methods.

Wasteful duplication in processing must be eliminated wherever such a condition may exist. If any Section Director hold that he has a special problem requiring exception, the case will be submitted to the Central Office for review and decision on its merits.

5. FORM 1009-H-48: In our Multiple Address Letter of November 21, 1947 we asked for comments on the above form. As a result of these replies we have decided not to adopt this form for use at crop reporting stations. In order to adequately cover the entire country with one form it would be necessary to list a great number of crops, more than could be conveniently shown.

We believe that the crop comments received on the weekly Form 1009-48, plus reports from B.A.E. cooperators, will suffice to give a satisfactory picture of the crop situation.

Forms 1009-H-48 will therefore not be available for distribution.

6. USE OF NEW FORM 1009: As outlined in the last paragraph of our Multiple Address Letter dated November 15, 1948, either the new weekly or monthly Form 1009 should be used instead of the old style Forms 1009 as soon as possible.

Since use of these forms will simplify their processing at the WRPC's, Section Directors are asked to introduce the new forms without delay, and to follow up by writing all observers who continue to report on the old style forms.

7. DUPLICATION OF REPORTING FORMS: Some WRPC's have reported difficulty with the new reporting forms in that some stations have used both Forms 1006 and 1009, for the same period, in some cases using both the weekly and monthly Forms 1009.

With distribution of Form 1006-Rev. 1948, due from G.P.O. in the near future, all duplication of forms should end. It should not be necessary for any station to report on more than one of the three reporting forms. The necessity for eliminating duplicate forms cannot be over-emphasized.

Cases of duplication noted should be handled individually by correspondence with the proper Section Director or River District Official in Charge.

8. PRICES FOR FORMS 1030 AND STATION ANNUALS: Prices have been established for the above publications. Instructions will soon be issued to all stations regarding eligibility for the free list and other details.

Establishment of a price will not only require the individual or business concern to carry a share of the cost of

the publications, but will also give us an effective control over their distribution to those self-styled "intensive research workers" who have at some time or other requested to be placed on the free list for practically every Form 1030 in the country.

Under the present policy for distribution of free publications these forms may still be distributed without cost to official users and to some other classes of public interest to be defined in the forthcoming instructions.

9. WB FORM 1095: Before WB Form 1095, request for late reports, is reprinted we would like to know if this card form is used frequently enough to justify its reprinting, or if other methods for obtaining late reports are preferable. Section and River Centers are invited to comment.
10. WB FORM 1193, CERTIFICATE OF AUTHORITY: We would like to know what Section Directors think of this form. Is it used in your section? If so, when is it issued and do the observers like to receive it?

If this form is used, we plan to revise it somewhat and try to make it a more attractive certificate. Suggestions for revisions will be welcomed.

11. ESTABLISHMENT OF NEW COOPERATIVE OR HYDROLOGIC STATIONS: Section and River Centers are reminded of requirements of Multiple Address Letter dated July 28, 1948, subject: "Restrictions in Establishment of New Cooperative Climatological Sections". WRPC's have been instructed to not check, process or publish records from new stations, whose establishment has not been approved by the Central Office.

Official approval of such stations in most cases will be given to WRPC by copy of the letter from the Central Office to the Section Director, River District Official or Regional Office which authorizes the substation.

12. FREE MAILING LIST FOR CLIMATOLOGICAL DATA: In Item 18 of C.S.M. No. 2 we emphasized that judgment on the part of Section Directors must be the guiding factor in the light of the general policy, in determining whether or not to put an address on the free mailing list. Requests of doubtful eligibility received at the WRPC's will be referred to the Section Centers before being placed on the free list; in a few cases it may be necessary for the Section Center to forward the request to the Central Office for decision.

Item in paragraph 18 (5) of C.S.M. No. 2 reads as follows:

Chambers of Commerce should pay for Climatological Data bulletins except in cases where they are

legitimately classed as "cooperators".

Further consideration of this group indicates that all Chambers of Commerce can well be considered as cooperators in making official information broadly available, and they may therefore be listed to receive Climatological Data free upon request.

13. LETTERS FROM COOPERATIVE OBSERVERS: A few Section Directors occasionally send to the Central Office interesting and unusual letters from their cooperative observers. We would like to encourage this practice since it tends to keep the Central Office staff in touch with and aware of the problems of these observers. Any such letters should be marked for Field Services Section of C&HS Division and should contain a note similar to the following on the face of the letter:

For information only, return to _____.

Letters of transmittal are ordinarily not necessary.

14. DAILY SNOWFALL TABLE IN THE COMBINED BULLETIN: Is a daily snowfall table necessary or desirable in the combined bulletin? This question comes up from time to time. A few sections did carry such a table for first-order stations in the old style type-set bulletins. At present, the only snowfall data published are for full climatological stations in Table 2.

A daily snowfall table for all stations could be patterned after Table 3 and published during the winter months. Please comment on the need for such a table, also on the reliability of snowfall observations made by cooperative observers.

15. NUMBER OF COMBINED BULLETINS PRINTED: When the printing of combined bulletins was started an additional number for each section, in most cases about 50, was printed to take care of Hydrologic Bulletin subscribers who did not formerly receive Climatological Data. In some cases this increase was larger than was needed. Section Directors are asked to check on the number of file copies they receive and if the number is larger than necessary, to request the WRPC to print fewer copies. On the other hand Section Directors should not hesitate to increase the number of copies for a particular issue whenever, due to unusual weather conditions, it appears that the demand will be especially heavy.

We would also like to have each Section Director report on the number of copies he feels it is desirable to keep on file.

16. GUIDE IN THE PREPARATION OF TEXTUAL MATERIAL FOR THE CLIMATOLOGICAL DATA: The purpose of the written text in the Climatological Data is to give a personalized narrative of the weather in that state which when continued from month to month, it becomes, in essence, the climate of the state. Thus this narration becomes for posterity the official weather story.

The following outline and accompanying guide is offered for the preparation of this text in order that a standard form - not the text - will be realized in all the bulletins. Items in this outline are not to be considered singly as separate entities but should be presented in such a way that continuity of the entire text will result.

1. WEATHER SUMMARY
 - a. Introductory or lead paragraph
 - b. Body of report
 - c. Weather effects
2. STORMS
3. FLOODS

These three categories listed would be the main headings or titles used for the text material. If storms and floods are minor in nature, they should be included in "b" of the Weather Summary.

In 1-a - introductory or lead paragraph - it is suggested that this first paragraph be similar to a lead paragraph in a newspaper article. Like a newspaper article, it would embody in a few sentences the main theme of the weather for the month. To the hurried or casual reader, it would give sufficient information or meaning for the month's weather.

Second, in sequence, would be the body of the report or essentially the detailed weather story for the month. Since the weather story is the personalized portion of the bulletin it must be written in a manner that is interesting to the general reader. If possible, it is recommended that the weather story be written in a chronological order so that a running picture or continuity throughout the month will be achieved. In doing this, the periods or spells of weather - good, bad and indifferent - could be grouped and discussed in their proper relationship to the month's events. This means that good growing weather should receive proper emphasis as well as periods of unfavorable weather. It also means that a narration of chronological events should never be given for their sake alone. The selection of material for this, as well as the lead paragraph, should be made with the purpose in mind that they are necessary to explain the weather effects upon the economy of the area.

The third portion of the weather summary would be these effects of weather upon the agriculture, commerce or other widespread aspects of the state's economy. For example, in an agricultural area, the weather effects and relation to the growing crops have an important and marked consequence on the economy of the people. In the past, all the bulletins have placed good emphasis on this phase of the summary. The main suggestion here is to give the proper perspective; i.e., a favorable June which advances the corn crop should receive the same attention as that given to an unfavorable June which seriously delays it.

When major storms or floods occur, this special information should be treated separately under an appropriate title such as HURRICANE OF SEPTEMBER 10-11, FLOODS, SEVERE STORM OF MAY 19, etc. This would provide the needed opportunity for greater detail, allow an easy and quick reference to these events and also would leave better continuity and emphasis in the Weather Summary itself. If reference to synoptic meteorology is made in this discussion, the phraseology should be such that the lay reader will be able to grasp the meaning or significance. Storms and floods of only minor intensity should be discussed in the Weather Summary.

In preparation of the textual material, care should be exercised in stating any remarks or facts that might be controversial in nature. This is particularly true in storm or flood damage reports. Credit should also be given to other organizations such as B.A.E., Red Cross, U.S.G.S., etc. when factual statements are extracted or paraphrased from their reports. The initial of the person writing the Weather Summary should be included at the end of the published text.

Comments and suggestions for the improvement of this guide will be appreciated.

17. DISTRIBUTION OF "WEATHERWISE": Comments from Section Centers indicate that the seniority plan of distribution is preferred over the round-robin plan suggested in C.S.M. No. 2. Several Section Directors, however, said they would prefer to distribute the magazines on the basis of interest shown and reports rendered by the observer. Section Directors are accordingly instructed to make the best possible distribution of the magazines they receive, using round-robin, seniority, or any other method they desire.

The subscriptions will begin with the April 1949 issue and the 1,000 copies will be distributed from the Central Office to Section Centers on the basis of one copy for every five temperature stations published in the Climatological Data.

A letter from the Section Director should accompany the first issue distributed. In this letter should be a statement to the effect that this action on the part of the Bureau is not to be taken as an official endorsement of the magazine by the Bureau.

18. EVAPORATION AMOUNTS: With the present equipment and methods used in measuring evaporation, it is generally recognized that there are inaccuracies in the day to day measurements. The inaccuracies are due to a number of reasons among which are, unequal catch of rainfall in the rain gage and the evaporation pan, an erroneous reading on one day which affects the amount not only for that day but also for the following day, etc. However, over a longer period of time, such as a month, these inaccuracies are largely cancelled and the monthly total is reasonably accurate.

Daily totals are in general considered of value particularly as related to meteorological factors such as daily temperatures, wind, and vapor pressure, and should therefore continue to be published.

The following changes are proposed in the publication of evaporation amounts, and should be placed into effect as soon as practicable:

1. Publish daily, monthly and annual evaporation amounts only to hundredths of an inch. Observers at stations equipped with micrometer hook gages which can be read to thousandths of an inch will continue to record the amounts to thousandths. The WRPC's will convert these readings to hundredths for punching and publication. New hook gages, purchased in the future, will be designed for reading only to hundredths of an inch.

2. Due to the inaccuracies that may be found in day to day measurements, together with the gain in water to the pan that may occur through condensation, "negative" daily evaporation amounts occasionally result. In order to avoid publishing these "negative" amounts, it is proposed that whenever a negative value appears, the accumulated algebraic total of this amount, and the amounts recorded on the previous day and the following day be published as of the latter date. Thus, if a "negative" amount is recorded on one day, a 3-day total will be used, if two consecutive days show "negative" amounts, a 4-day total, etc., will be used. This does not apply if the "negative" amount occurs on the first or last day of the month. Following are illustrative examples:

		<u>EVAPORATION</u>	
	<u>Date of Month</u>	<u>Recorded as</u>	<u>Published as</u>
A.	15	.028	*
	16	-.006	*
	17	.000	.02

B.	1	-.003	*
	2	*	*
	3	*	*
	4	.219	.22

C.	30	.024	*
	31	-.004	.02

D.	12	.040	*
	13	-.003	*
	14	.023	*
	15	-.021	*
	16	.050	.09

3. Unusually large negative values, or other daily amounts obviously in error, should be disregarded and the record considered as lost. It is difficult to set any rigid rules in this connection, but in general, a negative value of .05 inch or more should be disregarded. It may even be possible that an accumulated total, as outlined in item 2 above, may come out negative. In such a case, it is quite likely that an error has been introduced by the fact that the evaporation pan caught more rainfall than the rain gage, or through a miscalculation in emptying or filling the pan. A negative accumulated total should not be published, and in that case the daily negative amount should be regarded as a missing record.

19. CUSTODY OF RECORDS: It has long been the policy of the Weather Bureau to maintain custody of all weather record forms that could not be duplicated. This policy was relaxed somewhat during the WPA and war days, especially with regard to Forms 1130. The result is that considerable record, both original or carbon copy, is still missing. See our Memorandum, O-2.13, dated February 8, 1949, Subject: "Missing Forms 1130".

Original weather records and carbon copies, if they are the only available records, should never be loaned to outside interests. Such records should, of course, be made available to these outside interests wherever possible; this may be done by microfilming or photostating where practicable without expense to the Weather Bureau, and by giving these interests an opportunity to work with the records at the Weather Bureau Office.

20. STATE DIVISIONS: A number of Section Directors have indicated the need for partitioning their Sections into divisions which would be appropriate for weighting, joint publication of statistics, convenience in handling data, etc. After careful study of this matter, we have reached the conclusion that the best partitioning would result from the adoption of the B.A.E. Crop Reporting Districts as divisions or subdivisions. The following are some of the reasons for this conclusion: (1) The B.A.E. Districts attempt to divide the Section according to crop types and crop type is one of the better classifiers of climate. (2) Agriculture has been by far the most important applied field where climatology has an areal significance. (Most other applications of climate have been to individual points on local areas.) (3) Compilation of data on a Crop Reporting District (CRD) basis would greatly increase the usability for agricultural purposes and would not detract greatly from usefulness for other purposes. (4) The CRD partition is sufficiently fine for weighting and where it is too fine two or more districts may be combined. (5) In a number of Sections the CRD's are already being used and in other little adjustment would be necessary to adopt it. (6) The CRD's follow county lines. (7) Increased cooperation with B.A.E. makes it advantageous to use a common system of divisions.

Under separate cover we are sending a map of the B.A.E. divisions for your Section. We would appreciate receiving any comments you might make on this proposal, together with your recommendation for consolidation of CRD's.

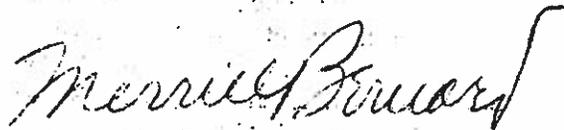
21. DEFINITION OF "AVERAGE" AND "MEAN": Many of you may have noticed that the words "average" and "mean", as employed in Climatological Data, have taken on different and fixed meanings over the past year. This was done in order to standardize the headings and footings of tables and to provide language for differentiating two types of means commonly employed in Climatological Data. The two means result from two types of sampling: (a) sampling over area for a fixed time interval such as one day or one month and sampling at a point through a fixed time interval; (b) sampling through a sequence of fixed time intervals such as the sequence of January 15 average temperatures or the sequence of average June temperatures. The result of the averaging process is called an "average" in (a) and a "mean" in (b). Thus we now speak of the average June temperature for a particular year and the mean June temperature for a sequence of Junes. A simple way to remember this distinction is to keep in mind that the "mean" is always an estimate of the normal values for the element while the "average" applies in all other instances.

22. STATE AND DIVISION AVERAGES: Since unweighted state temperature and precipitation averages for previous years are not comparable with weighted averages now published, it will eventually be

necessary to weight previous state averages as outlined in paragraph 1009.6322 of Instructions for Preparation of Monthly Climatological Data. This will be done by the Section Centers but should be postponed for the present until the question of reapportioning states into satisfactory climatological divisions is settled. (See above item 20.)

23.

REPORTS FROM SECTION CENTERS: We frequently have need for detailed information on Section Center activities. Since a complete report on all operations would be burdensome to prepare, we plan to request reports on individual phases. As the first report, we would like to have a detailed and complete discussion on the preparation of your Weekly Weather and Crop Bulletin and Cotton Region Bulletins where issued. It is requested that this report be submitted to the Central Office, attention C&HS Division, by the 15th of May.



Merrill Bernard, Chief,
Climatological and
Hydrologic Services

GUIDE TO CLIMATOLOGICAL SERVICE MEMORANDUM NO. 3

<u>ITEM NO.</u>		<u>PAGE NO.</u>
1.	LENGTH OF SERVICE AWARDS.....	1
2.	SECTION CENTER NEWSLETTER.....	1
3.	TIME OF OBSERVATION.....	1
4.	CHECKING FORMS 1009 AT SECTION CENTERS.....	1-2
5.	FORM 1009-H-48.....	2
6.	USE OF NEW FORM 1009.....	2
7.	DUPLICATION OF REPORTING FORMS.....	2
8.	PRICES FOR FORMS 1030 AND STATION ANNUALS.....	2-3
9.	WB FORM 1095.....	3
10.	WB FORM 1193, CERTIFICATE OF AUTHORITY.....	3
11.	ESTABLISHMENT OF NEW COOPERATIVE OR HYDROLOGIC STATIONS.....	3
12.	FREE MAILING LIST FOR CLIMATOLOGICAL DATA.....	3-4
13.	LETTERS FROM COOPERATIVE OBSERVERS.....	4
14.	DAILY SNOWFALL TABLE IN THE COMBINED BULLETIN...	4
15.	NUMBER OF COMBINED BULLETINS PRINTED.....	4
16.	GUIDE IN THE PREPARATION OF TEXTUAL MATERIAL FOR THE CLIMATOLOGICAL DATA.....	5-6
17.	DISTRIBUTION OF "WEATHERWISE".....	6
18.	EVAPORATION AMOUNTS.....	7-8
19.	CUSTODY OF RECORDS.....	8
20.	STATE DIVISIONS.....	9
21.	DEFINITION OF "AVERAGE" AND "MEAN".....	9
22.	STATE AND DIVISION AVERAGES.....	9-10
23.	REPORTS FROM SECTION CENTERS.....	10

1. Introduction

2. Methodology

3. Results and Discussion

4. Conclusion

5. References

6. Appendix

7. Tables

8. Figures

9. Notes

10. Index

11. Glossary

12. Abbreviations

13. Acronyms

14. Footnotes

15. Endnotes

16. References

17. Appendix

18. Tables

19. Figures