

## APPENDIX II

### RECORDING OF OBSERVATIONS FOR CLIMATOLOGICAL PURPOSES AT OBSERVING STATIONS

The Meteorological Office is the principal national custodian of meteorological data, and as such is called upon by many interests to supply information or advice based upon climatological considerations, e.g. for aviation, agriculture, hydrology, engineering, industry. Moreover, reliable meteorological data are required for the study of changes of climate. The climatological returns from all stations are thus of great value and of considerable economic importance. Returns are often photocopied for answering enquiries and the data entered on them are processed directly to a computer-accessible form; thus writing must be legible, and in black or blue-black permanent ink. Blue and other light shades of ink do not photograph well. Inks which fade with time should not be used. On no account should pencil be used.

#### II.1. CLIMATOLOGICAL STATIONS

The observations made at a climatological station reporting to the Meteorological Office are recorded in two ways. The original observation is entered in a Register (Metform 3100) at the time it is made: this Register is usually retained at the station. These observations are then transcribed to a form which constitutes a return. A return is completed for each month (Metform 3208B) and, in special cases, each week (Metform 3110/A/B). These monthly and weekly returns are sent to the Meteorological Office where they are used in the preparation of official weather reports and climatological summaries. They are filed at the Meteorological Office as the permanent register of the daily weather at the station concerned.

Climatological stations co-operating in the Health Resort Scheme also make returns of climatological observations on Metform 3208B. These returns are in addition to the special daily telephoned reports, details of which are supplied separately to those stations involved.

**II.1.1. Metform 3100: Pocket Register for observations at climatological stations.** The headings of the columns in this Register are largely self-explanatory.

Temperatures, wind speed and direction, rainfall and sunshine are among the entries which are made in a straightforward manner. Visibility is recorded in the letter (or number) scale which is directly derived from a series of visibility objects, and the state of the ground is recorded on one of the two scales given in 6.2 (page 96). The last column of the Register is headed 'Weather diary and remarks' and leaves sufficient space for valuable additional entries on unusual phenomena, the timing of particular events, a summary in Beaufort letters of the weather of the day ending at midnight GMT, and so on.

It should be clearly stated in the Register if Greenwich Mean Time or some other standard of time is being used; the standard having been stated, it should be strictly adhered to for all purposes.

Two special points are sometimes overlooked: firstly, when there has been no precipitation the appropriate entry in the Register should be a dash ( ' — ' ) and not '0.0'; secondly, when there has been no sunshine the entry should be '0.0'.

In both these cases, as with other types of observation (temperature or wind, for example), if no observation has been made the appropriate space should be left blank and a qualifying remark, giving the reason whenever possible, should be entered in the 'remarks' column.

Correctness in all these matters when using the Pocket Register will greatly simplify the preparation of monthly and weekly returns. Climatological observations entered in the Pocket Register are not normally required immediately, unlike synoptic observations which must be coded and transmitted at the regular hours of observation. Regularity and promptness are no less important in maintaining the record, if the full value of the observations is to be assured.

**II.1.2. Monthly returns at climatological stations: Metform 3208B.** Detailed instructions for the completion of Metform 3208B at co-operating climatological and agrometeorological stations are given in Metform 3100A which is the supplement to the Pocket Register and is issued to all observers concerned.

**II.1.3. Weekly returns at climatological stations: Metforms 3110/A/B.** Certain stations make weekly returns; Metform 3110 is used in England and Wales, Metform 3110A in Scotland and Metform 3110B in Northern Ireland, and they are dispatched to Meteorological Offices in Bracknell, Edinburgh and Belfast, respectively. The completed forms are used for the preparation of official reports to the Registrar-General and for other purposes. The headings and notes on the form call for little explanation and the information required can, for the most part, be taken directly from the Pocket Register when this is correctly maintained.

Metform 3110 is divided into two sections, one for completion at co-operating climatological stations, the other for use at meteorological offices and at auxiliary reporting stations (see II.2.3).

All totals and means should be calculated and checked and the completed form posted as soon as possible after the 0900 GMT observation on the Sunday. The address to which it should be sent is printed on the back of the form.

## II.2. AUXILIARY REPORTING STATIONS

In addition to the routine detailed in 1.2 (page 6), certain selected auxiliary stations also send climatological returns to the Meteorological Office.

**II.2.1. Registers of observations at auxiliary reporting stations.** Depending on the type of observation made by auxiliary reporting stations for synoptic purposes, one of two Registers is used for recording the original observation: Metform 2611 (Register of Observations) or Metform 2050 (Daily Register).

The headings of the columns in the Registers are largely self-explanatory. Details of the relevant codes and methods of observing are given in *Abbreviated weather reports* which is issued to auxiliary stations making abbreviated reports. At other auxiliary stations, which make reports in the full code, the observations are entered in Metform 2050.

**II.2.2. Monthly returns at auxiliary reporting stations (Metforms 3256B\*, 3257B\* and 3259A\*).** Selected auxiliary stations send to the Meteorological Office completed monthly returns on Metforms 3259A and 3256B or 3257B. Instructions for completing these returns are given in the *Handbook of weather messages*, Part III.

Metform 3256B is a monthly return of daily observations at fixed hours, at 0000, 0300, . . . 2100 GMT, or for a selection of these hours as arranged.

Metform 3257B is a monthly return of observations at each of the 24 hours.

Metform 3259A is a monthly return of daily observations of maximum and minimum temperatures, amounts of precipitation and sunshine, certain other observations, and includes a record of significant phenomena and a weather diary.

**II.2.3. Weekly returns at auxiliary reporting stations (Metforms 3110/A/B).** Certain auxiliary reporting stations make weekly returns; Metform 3110 is used in England and Wales, Metform 3110A in Scotland and Metform 3110B in Northern Ireland, and they are dispatched to Meteorological Offices in Bracknell, Edinburgh and Belfast, respectively. Details in II.1.3 apply to the completion of this return except that there is a slight difference at auxiliary stations where maximum and minimum thermometers are normally read at 0900 and 2100 GMT. The daily extremes of temperature entered are the maximum during the 12-hour period ending at 2100 GMT, and the minimum during the 12-hour period ending at 0900 GMT on the day in question. However, the entry at the foot of the form for the highest temperature of the week refers to the 24-hour period 0900 to 0900 GMT and is not necessarily the highest of the daily maxima for the period 0900 to 2100 GMT. When the highest temperature of the week occurs in the period from 2100 to 0900 GMT it is credited to the date of commencement of the period. Similarly, when the lowest temperature of the week occurs in the period 0900 to 2100 GMT it is credited to the day on which it occurs.

### II.3. METEOROLOGICAL OFFICE STATIONS

Climatological returns are completed by synoptic stations in accordance with instructions which are issued from time to time. Instructions for completing these returns are given in the *Handbook of weather messages*, Part III.

**II.3.1. Daily Register (Metform 2050).** Synoptic observations are entered in the Daily Register; instructions are given in the *Handbook of weather messages*, Part III, and further useful advice is given in the front pages of the Register.

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\*See Note on page 203.

**II.3.2. Monthly returns at synoptic stations (Metforms 3256B,\* 3257B\* and 3259A\*).** Selected Meteorological Office stations send to Headquarters monthly returns on Metform 3256B or 3257B, and 3259A. Instructions for completing these returns are given in the *Handbook of weather messages*, Part III.

**II.3.3. Weekly returns (Metforms 3110/A/B).** Selected stations make weekly returns as noted in II.2.3.

**II.3.4. Visibility and cloud height summaries (Metform 2326B\*).** Selected stations on aerodromes make these monthly returns.

## II.4. ADDITIONAL RETURNS

Some additional returns are made by stations equipped with instruments which are not widely distributed. Other returns are required from stations with a standard instrument but from which a more detailed extraction of the data is required for climatological purposes. The elements involved in these additional returns are wind direction and speed, sunshine and rainfall.

**II.4.1. Analysis of anemograms (Metform 6910).** This return should be made by stations with anemographs and provides an analysis of the hourly mean wind and maximum gust for each hour of the day, together with space for supplementary notes to be entered as necessary. It is completed on a monthly basis.

At some stations, where other commitments preclude this analysis, the anemogram is forwarded elsewhere for the return to be completed.

**II.4.2. Tabulation of hourly precipitation rate (Metform 7113).** A return of the hourly values of precipitation may be made once a month by those stations with a rain recorder—usually one of the siphoning variety. Instructions for the completion of the form are issued separately to the stations concerned and are not printed on the form itself.

**II.4.3. Duration and rate of rainfall (Metform 3441).** This return is made only by those stations with a siphoning rain recorder. It is usually completed once a month in conjunction with Metform 7113. This return gives information on the duration of any falls of rain exceeding certain specified amounts. Instructions for its completion are detailed on the form itself.

**II.4.4. Hourly values of sunshine (Metform 3445).** An analysis of the duration of sunshine for each hour of the day is made on Metform 3445. This return is completed monthly. Notes on the method of entering the values of sunshine duration are issued by the Climatological Services Branch.

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\**Note.* After an initial trial period it is hoped that the compilation of climatological archives by computer will make the completion of Metforms 2326B, 3256B, 3257B and 3259A unnecessary at synoptic stations, but weather diaries will still be required.