*MM Protocol*

# STANDARD METEOROLOGICAL OBSERVATIONS

**Aim**

***To conduct standard meteorological observations according to protocols laid down by the British Meteorological Office (BMO)***

**Rationale**

In common with a large number of sites in the UK, all ECN sites have some historic meteorological data, many of which have been collected to meet the criteria of the Meteorological Office. In order to preserve the continuity of these historic data and to provide calibration and back-up for the ECN automatic weather stations, each site will have an array of standard meteorological instruments which will be read at weekly intervals, except where they constitute an existing Meteorological Climatological Station at which daily recording is the norm.

**Method**

**Equipment**

Each meteorological station will have the following items:

Large Stevenson screen with iron stand
Dry and wet bulb thermometers(±0.1°C; 0.1°C)
Maximum and minimum thermometers (±0.1°C; 0.1°C)
Grass minimum thermometer(±0.1°C; 0.1°C)
Soil thermometers at 30 cm and 100 cm (±0.1°C; 0.1°C)
Octapent raingauge, BMO pattern Mk2A
Run-of-wind counter anemometer, to BMO specification (unless an alternative anemometer is already available in addition to the AWS).

Where appropriate, certification of thermometers to BSI standard is provided by the supplier.

**Location**

The manual station should be sited alongside the AWS if possible (see Figure 4), though where there is an existing Meteorological Office Climatological Station it is accepted that this may not be adjacent to the TSS and its AWS.

**Operation**

Except where otherwise stated, methods follow the standards given in the *Observers' handbook* (Meteorological Office 1982) produced by the BMO. All instrumentation should be to the BMO standard. For Climatological Stations, BMO personnel undertake field calibration of instruments periodically.

Instruments at stations established for ECN purposes will be read weekly on Wednesdays at 0900 GMT. Daily (0900 GMT) readings will continue for existing BMO Climatological Stations and for these Stations a copy of the monthly data sheet, as submitted to the BMO (Metform 3208B), will be sent to the ECN Data Manager in addition to the agreed machine-readable data. Any queries raised subsequently by the BMO as a result of their quality control process should be reported to the ECN Data Manager. If sites are already recording sunshine hours, snow depth and soil temperatures for non-ECN purposes, these data should also be sent to the ECN Data Manager.

**Time**

1h/month for the weekly sites.

**Supplier**

Casella London Ltd
Regent House
Wolseley Road
Kempston
Bedford MK42 7JY, UK

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**Reference**

**Meteorological Office**. 1982. *Observers handbook*. 4th ed. London: HMSO.

***MM Protocol***

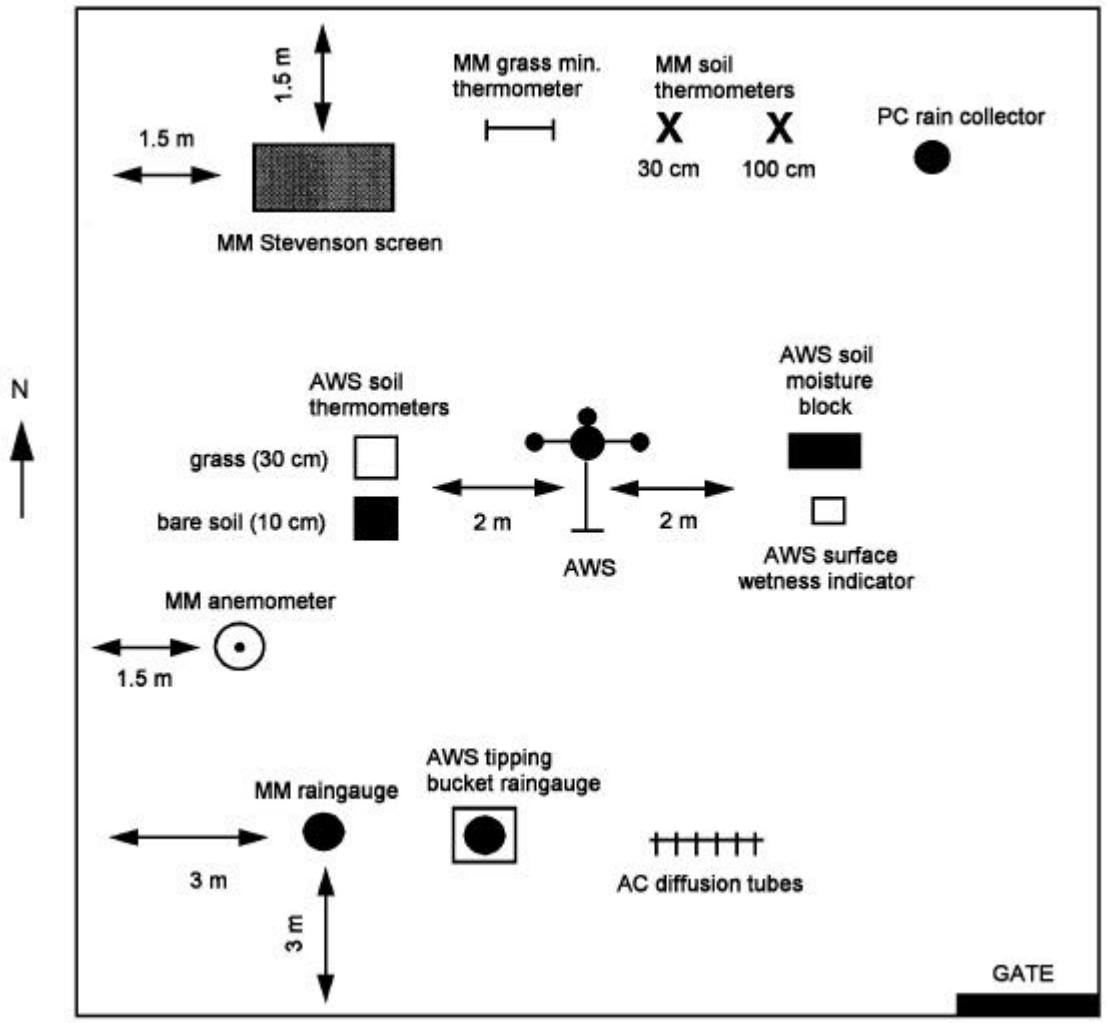


*Figure 4.* ECN meteorological enclosure

# Specification of results and recording conventions

The measurement variables listed below are those required for each MM sampling location at an ECN Site. Sites submitting data to the ECNCCU should refer to the accompanying Data Transfer documentation for the specification of ECN dataset formats, available on the restricted access Site Managers' extranet. Contact ecnccu@ceh.ac.uk if you need access to this documentation.

The first 4 key parameters uniquely identify a sample or recording occasion in space and time, and must be included within all datasets:

| | |
|---|---|
| • Site Identification Code (e.g. T05) | Unique code for each ECN Site |
| • Core Measurement Code (e.g. PC) | Unique code for each ECN 'core measurement' |
| • Location Code (e.g. 01) | Each ECN Site allocates its own code to replicate sampling locations for each core measurement (e.g. for different surface water collection points) |
| • Sampling Date (/time) | Date on which sample was collected or data recorded. This will include a time element where sampling is more frequent than daily |

*ECNCCU 2001*

## Core measurement: meteorology – manual (MM Protocol)

The following variables are recorded daily at 0900 GMT.

| Variable | Units | Precision of recording |
|---|---|---|
| Site Identification Code | | |
| Core Measurement Code | | |
| Location Code | | |
| Recording (Sampling) date | | |
| Recording (Sampling) time | GMT 24-h clock | 1 min |
| Dry bulb temperature | °C | 0.1 |
| Wet bulb temperature | °C | 0.1 |
| Maximum temperature | °C | 0.1 |
| Minimum temperature | °C | 0.1 |
| Grass minimum temperature | °C | 0.1 |
| Soil temperature 30 cm | °C | 0.1 |
| Soil temperature 100 cm | °C | 0.1 |
| Rainfall (total) | mm | 0.1 |
| Wind run (total) | km | 1 |

**Recording forms**
The standard British Meteorological Office recording form 3208B should be used for recording in the field, using the instruction booklet 3100A. Recorders should also refer to the Meteorological Office *Handbook* (1982).