

Using the Monthly Returns form (3208b)



The most common way of recording your daily climatological observations and weather diary entries has been on a hardcopy 3208b form. The weather diary and changes/remarks sections are for any extra information or notes. You record a month's worth of data, which is then posted the following month. However, more stations are now using a software facility, which provides an electronic 'softcopy' 3208b. (See 'DISCS II: data entry' booklet.)

Using the hardcopy 3208b

- ✓ Write clearly with black biro; only one entry per box.
- ✓ Leave boxes blank if you have not taken a reading.
- ✓ Make figures 6 and 9 clear, leave 7 'unbarred' and 4 'open' to avoid any possible confusion.
- ✓ Do not use decimal points.
- ✓ Leave the faint zeros in columns 12, 16, etc.
- ✓ If readings cover several days, enter the readings on the day you make it, e.g. on a Monday after no weekend readings.

- ✓ Make corrections either by crossing out the value with a diagonal stroke and writing the correct value in the same box, or by using correction fluid.

Please make sure that deputy observers also know how to fill the form in correctly.

The preamble (very important)

Station number	Enter agreed four-figure number for your station
Hr (UTC)	Enter time of observation, nearly always 09 (<i>two figs</i>)
Year	Enter year (<i>two figs</i>)
Month	Enter month (<i>two figs</i>)
Make sure this year/month is in the right order	

Main form (side 1)

All temperatures are in °C and tenths, rainfall in mm and tenths, and snow depth in whole cm. Overwrite any faint zeros if necessary.

Column(s)	Entry
1 to 2	Day of month — already printed
3	Total cloud-cover code
4 to 5	Wind direction (<i>in degrees</i>)
6 to 7	Wind speed (<i>in knots</i>)
8 to 9	Present weather code
10	Visibility code (<i>see code table on page 8</i>)
11 to 14	Dry-bulb temperature (<i>if below zero, enter X in column 11</i>)
15 to 18	Wet-bulb temperature (<i>if below zero, enter X in column 15</i>)
19 to 22	Maximum temperature (<i>if below zero, enter X in column 19</i>) Write today's reading against yesterday's date
23 to 26	Minimum temperature (<i>if below zero, enter X in column 23</i>)
27 to 30	Grass minimum temperature (<i>if below zero enter X in column 27</i>)
31 to 34	Concrete minimum temperature (<i>if below zero enter X in column 31</i>)
35 to 38	10 cm soil temperature (<i>if below zero enter X in column 35</i>)





Column(s)	Entry
39 to 42	20 cm soil temperature (<i>if below zero enter X in column 39</i>)
43 to 46	30 cm soil temperature (<i>if below zero enter X in column 43</i>)
47 to 49	50 cm soil temperature
50 to 52	100 cm soil temperature
53	State-of-ground code (<i>use if NO snow on ground</i>)
54	State-of-ground code (<i>use if snow IS present on ground</i>)
55 to 57	Snow depth in whole cm (<i>e.g. entry of 5 in column 57 indicates 5 cm</i>)
58 to 61	Rainfall in mm and tenths. Write today's reading against yesterday's date (<i>X in column 58 indicates trace of rain</i>)
62 to 65	Run of wind – leave blank, not needed by Met Office
66 to 68	Sunshine in hours and tenths (<i>covering sunrise to sunset on day of entry</i>)
69	Day of snow (<i>code 1 = sleet (rain and snow mixed), code 5 = snow</i>)
70	Day of hail (<i>code 4 or 5 usually applies</i>)
71	Day of thunder (<i>code 0 = NO, code 1 = YES</i>)
72	Day of gale (<i>code 0 = NO, code 1 = YES</i>)

Entries 69 to 72 inclusive cover the period 0000 to 2359 on day of entry.

Monthly summary (bottom of side 1)

Please fill in the totals, means and extremes.

Weather diary (side 2)

Entries here can expand the report on the day's weather and help with quality control. These need to be consistent with your observation on side 1 of the form. Comments about rain, drizzle, snow, sleet, fog, thunderstorms, hail, gales and showers are useful, e.g. a comment to say it was dry all day or a note of whether it was sunny, bright or cloudy can also help us to quality control sunshine cards from nearby stations.

Writing a weather diary

- Use Beaufort letters, plain English or a mixture.
 - Briefly describe the whole day, noting all the weather phenomena that occurred, in particular the start/stop times of thunderstorms, hail, gales and fog.
 - Record the cloud cover.
 - Note unusual weather phenomena, such as coloured dust after a period of rain.
 - Include details of extreme weather causing structural damage (include local newspaper cuttings and indicate if it was at your station or 'within the area').
 - Note changes to ice or snow cover (e.g. melting or refreezing), increase of snow cover to cover more than half of the ground or a sudden increase in snow depth.
 - If you keep long-term climatological records, note if any extremes have been exceeded during the period.
- Everything you record can be useful — you can never give too much detail.
- ✓ Do not use the word 'wintry' — please state if it was hail, rain, sleet, snow or snow showers.
 - ✓ If you can, include times of the onset and cessation of significant weather, like thunderstorms, heavy snow or heavy rain.
 - ✓ Abbreviations are good, such as SHWRS for showers, ISOL for isolated, OCNL for occasional and FREQ for frequent.
 - ✓ Record the size of hailstones, especially large ones.

Typical weather diary entries for a day may include the following.

Before 0900 UTC	After 0900 UTC
Drizzle for most of the morning	Drizzle clearing, leaving overcast skies
Dull and misty with some light drizzle	Dry with bright, sunny spells
Clear sky, cool	Bright, sunny
Overcast, breezy	Overcast, showers
Some blue sky, cool	Dull with heavy hail and rain showers
Dry bright and sunny	Heavy rain in afternoon with thunder and lightning
Snow showers, cold and frosty	Snow showers, windy
Intermittent hail showers (6 mm)	Mainly dry, wind becoming gale force
Cold, wet	Snow showers, sleet
Fog, light winds	Fog clearing late morning, rain late afternoon
Cold, ground frozen, southerly wind, dry	Westerly wind, dry, mild, gales, then heavy rain
Thunder, snow showers	Showers of hail

Changes or remarks (bottom of side 2)

Below the weather diary is space for 'Changes or remarks about the weather site or instruments this month'. Note things such as:

- a bubble in the min. thermometer, with dates found and fixed;
- problems with equipment, e.g. leaky rain gauge or poor screen condition;
- readings made by a new observer who is not fully trained.

Difficulties with the form

We spend a lot of time checking your forms and comparing data with close neighbours. Try and avoid these common types of error.

Total cloud

- ✓ Only use code 9 when you cannot see the clouds (not when it is dark). This is usually due to fog or moderate/heavy snow — report visibility as 3 or less.

Wind

- ✓ Calm winds **MUST** be reported as 0000 in columns 4 to 7 (i.e. no direction and no speed). Speed is recorded in knots, not Beaufort force.

Present weather

Check that your present weather code is *consistent* with the rest of your observation, e.g.:

- ✓ when reporting code 50 or above, a rainfall total must appear in columns 58 to 61 for yesterday and today, even if you only measured a 'trace';
- ✓ you would expect fog, moderate or heavy snow or drizzle to be occurring if visibility is coded as 3 or less;
- ✓ when reporting fog, you must report visibility code 3 or less;
- ✓ you would expect mist, fog patches or recent fog to be present if visibility is coded as 4 (just over fog limits);
- ✓ Remember that in fog, dry- and wet-bulb temperatures are usually the same and measure no more than 0.5 °C apart when there is mist.

Temperatures

- A temperature of exactly 0.0 °C is *not* negative. To report negative values, write 'X' in columns 11, 15, 19, etc.
- Your daily max. temperature is usually higher than the temperature at 0900 UTC. It may sometimes be the same but never lower.
- Your daily min. temperature is usually lower than the temperature at 0900 UTC. It may be the same but never higher.
- Always read the end of the index furthest from the thermometer bulb (see 'Temperature and relative humidity' booklet page 7). Always reset the max. and min. thermometers at 0900 XXXXXXXXXX
- Use the space above columns 27 to 30 to write the time you set out the grass min. thermometer. Write 09 if left out all day.

State of ground and snow depth

- ✓ Report state of ground for each day only once, *either* in column 53 or 54, *not in both*. Please make sure you always use the correct column.
- ✓ Snow depth is reported in whole cm, e.g. 11 cm reported as 011, 5 cm reported as 005.
- ✓ When less than half cover of snow is present on the ground, do not report snow depth.
- ✓ When snow is present to *at least* a depth of 0.5 cm and covers *at least* half the ground, report snow depth in columns 55 to 57.

Rainfall

- ✓ Make sure that present weather is *consistent* with any rainfall reported.
- ✓ Always report a trace (less than 0.05 mm) as an 'X' in column 58.

Sunshine

- ✓ If no sunshine has been recorded (no burns on the card), always insert 000 in columns 66 to 68.

Weather 00–24

- ✓ Make sure the entries in columns 69 to 72 are *consistent* with any weather diary entries.
- ✓ Snow (coded as 5) or mixed rain and snow (sleet — coded as 1) can be entered in column 69. Always enter 5 if *both* occurred.
- ✓ The most common entry for hail in column 70 is 4, but sometimes 5 applies.
- ✓ Enter 1 in column 71 if thunder occurred.
- ✓ Enter 1 in column 72 if a gale occurred.
- ✓ Leave the faint zeros if the events did not occur.

Visibility code table for climatological stations

The visibility codes used at climatological stations are shown below. The quoted distances have permissible

variations of +/- 10% (e.g. code 6 actually covers the range 3.6 km to 7.7 km).

Code	Distance	Description
X	<20 m	Dense fog
E	20 m	Dense fog
0	40 m	Thick fog
1	100 m	Thick fog
2	200 m	Fog
3	400 m	Moderate fog
4	1000 m	Very poor
5	2 km	Poor
6	4–7 km	Moderate
7	10 km	Good
8	20–30 km	Very good
9	40 km	Excellent