

# Present weather

Version 4. Amended December 2009

‘Present weather’ represents the weather conditions at the time of observation, coded as two figures. Codes range from 00 to 99, with the higher figures being more significant (except 17, which takes precedence over the range 20 to 49). The following notes will help you decide which code to use for present weather.

- ✓ Codes 50 to 99 are used when precipitation is falling at your station at the time of observation.
- ✓ Codes 00 to 49 are used when precipitation is not falling at your station at the time of observation.

These ranges of codes are then split into smaller groups of similar weather types.

**Note:** Remember to use the weather diary, the comments option on SAMOS or the SYNOP coded message for reporting special phenomena.

## Precipitation falling at the time of observation

- 80–99** All types of showers, or any type of precipitation associated with current and recent thunderstorms
- 70–79** Solid (i.e. frozen) precipitation (mainly snow) that has not fallen in the form of showers
- 68–69** Mixture of solid and liquid precipitation (rain, drizzle, snow)
- 50–67** Liquid precipitation (drizzle and/or rain)

## No precipitation falling at the time of observation

- 40–49** Fog
- 30–39** Phenomena other than fog affecting visibility, such as blowing or drifting snow
- 20–29** Weather not occurring at the time of observation but in the previous hour
- 00–19** Other weather phenomena, of varying significance, not included in the groups above

## Definitions

**At the station** — where the observation is normally made.

**At the time of observation** — observation time to the nearest minute.

**Distant/at a distance/within sight** — phenomenon being observed is not at your station.

**Recent/in past hour/during past hour** — phenomenon not occurring at time of observation but at some time during past hour.

**Continuous precipitation** — precipitation falling for 1 hour or more.

**Intermittent precipitation** — precipitation which hasn't fallen continuously for 1 hour or more.

**Visibility at the station** — defined as the greatest horizontal distance at which an object can be recognised in daylight (when visibility varies in different directions, the visibility at the station is to be taken as the lowest value).

## Present weather descriptions

**Precipitation** — rain, drizzle, snow, hail, snow pellets, snow grains, ice pellets, small hail, diamond dust and any combination of these falling from the sky. Therefore, drifting snow and blowing snow are not included.

**Showers** — precipitation falling from convective cloud (i.e. Cumulus or Cumulonimbus clouds). Showers tend to start and stop abruptly, they are often characterised by large variations in intensity over short periods of time and the raindrops tend to be larger than in non-showery precipitation.

**Rain/drizzle** — drizzle often appears to float in the air and the drops make no effect on puddles, whereas raindrops create rings as they hit the puddle surface.

**Freezing precipitation** — rain or drizzle that freezes on impact with the ground (it is liquid as it falls, turning to ice immediately on impact, forming a clear coating of ice on roads, twigs, overhead wires, etc.). This coating is called 'glaze' or, commonly, 'black ice'.

**Frozen precipitation** — precipitation that is already ice before it reaches the ground (i.e. snow, hail, small hail, ice pellets, snow pellets, snow grains and diamond dust). To decide what is falling, consider the appearance, size and clouds of origin.

**Mixed precipitation** — two or more types of precipitation falling together.

**Snow** — ice crystals that appear white (isolated star-like crystals and small flakes occur in colder weather, whereas large wet flakes are typical around 0 °C).

**Snow grains** — appear like small grains of rice, usually falling in small quantities over short periods; when they fall on hard ground, they do not bounce or break up (grains fall from stratus, or even fog, but never in the form of a shower).

**Hail** — transparent or opaque, spherical or irregular; main distinguishing feature is its size; diameters start at about 5 mm (always falls from very deep convective clouds, so is often associated with thunderstorms).

**Small hail** — typically diameters of 2 to 5 mm, more or less spherical and semi-transparent, though can be transparent (only falls from shower clouds, including thunderstorms; bounces with an audible sound when it falls on hard ground and is not easily crushed).

**Snow pellets** — usually rounded, white and opaque, having diameters of 2 to 5 mm; looking like tiny snow balls (usually fall from shower clouds, accompanied by rain or snow but — unlike small hail — they usually break up on impact, being brittle and easily crushed).

**Ice pellets** — spherical or irregular ice particles that are transparent, with diameters up to 5 mm. They are not easily crushed, bounce with an audible sound on impact and usually fall from altostratus or nimbostratus clouds.

**Diamond dust** — tiny ice crystals only visible when they glitter in the sunshine; falling from a clear sky; rarely experienced in UK.

**Fog** — tiny water droplets suspended in air, reducing the visibility below 1,000 m in ANY direction with the fog being at least 2 m deep above the ground; the relative humidity is 100% (or very nearly so) and the air usually feels clammy and raw (can be described as CONTINUOUS or occurring in PATCHES). Note: If, during the day, cloud or blue sky can be seen through the fog or, at night, stars are visible, then the sky is said to be visible. If, due to thick fog or heavy precipitation (usually snowfall), the sky, stars or cloud cannot be seen, then 'sky not visible' applies.

**Mist** — visibility 1,000 m or more but usually less than 10 km, and relative humidity greater than about 95%.

**Rime** — tiny fog droplets may freeze when they come into contact with objects like posts and twigs and, when this happens, a deposit of 'rime' ice gradually builds up on the windward side (in very cold weather, and with light winds or calm, rime can accumulate on all surfaces of objects, not just the windward side).

**Ice fog** — tiny ice particles suspended in the air at very low temperatures, unlikely to be experienced in UK.

**Shallow fog** — not higher than about 2 m; visibility below this height must be less than 1,000 m, but above this height is 1,000 m or more.

**Haze/smoke/dust** — tiny dry particles suspended in the air, such as smoke or industrial pollution, which reduces visibility.

**Drifting/blowing snow** — both conditions satisfied by snow that has fallen to the ground and is then raised by strong winds; however, only blowing snow seriously affects the visibility at eye level (heavy blowing snow will severely affect both vertical and horizontal visibility; heavy drifting snow will severely affect the horizontal visibility below eye level).

**Drifting/blowing sand/dust, sandstorm/duststorm, sand/dust whirls** — are well-developed features, unlikely to be experienced in the UK.

**Thunderstorm** — always report a single rumble of thunder, even if the thunderstorm is obviously a considerable distance away.

**Funnel cloud** — forms from cumulonimbus, characterised by rapid rotation and a downward extension of the dark cloud base towards the ground, often with loose material and debris raised and flung out of the circulation (if the associated intense wind circulation reaches the ground, the phenomena becomes a tornado — the huge convective clouds that produce these phenomena always have dark, ragged bases).

**Squall** — occurs when the mean wind speed increases suddenly by at least 16 kn (3 Beaufort forces) to a new mean of at least 22 kn (Beaufort force 6), and the increase lasts for at least one minute. Squalls are usually associated with thunderstorms and active cold fronts. Like funnel clouds, squalls are not reported as often as they might be because precipitation is often falling at the same time and this warrants the use of a higher code figure.

When you observe mixed precipitation, report the highest intensity. For example:

**Heavy rain falling with moderate snow** — report as heavy;

**Shower consisting of moderate rain and slight hail** — report as moderate.

## Summary of precipitation types and intensities

Type/intensities	Slight	Moderate	Heavy
<b>Drizzle</b>	Dampens ground surfaces.	Moisture starts to stream off surfaces, such as roads and windows; visibility reduced.	Moisture readily streams off surfaces; visibility significantly reduced.
<b>Rain</b>	Scattered, large drops or more-numerous smaller drops. Accumulation <0.5 mm/hr.	Puddles form rapidly; steady outflow from gutters. Accumulation 0.5–4.0 mm/hr.	Forms intense spray on roads, makes roaring noises on roofs; reduces visibility significantly. Accumulation >4.0 mm/hr.
<b>Snow and snow showers</b>	Few snowflakes of small size. Very slow accumulation on the ground ( <i>up to 0.5 cm/hr</i> ).	Large-sized snowflakes falling in sufficient numbers to significantly reduce visibility ( <i>often below fog limits</i> ). Steady accumulation on the ground ( <i>up to 4 cm/hr</i> ).	Significant accumulation on the ground ( <i>&gt;4 cm/hr</i> ) with persistent foggy conditions.
<b>Hail</b>	Small hailstones; not enough to whiten the ground.	Sufficient hailstones falling to whiten the ground.	Must be some hailstones >6 mm diameter causing significant damage to cars, greenhouses, etc.
<b>Showers</b>	Varies from a few scattered drops to enough rain falling to produce puddles. Accumulation <2 mm/hr.	Similar comments to moderate rain. Accumulation 2–10 mm/hr.	Similar comments to heavy rain. Accumulation 10–50 mm/hr.

## *Present weather codes and descriptions*

### **Thunderstorm and precipitation at time of observation**

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- 99 Heavy thunderstorm with hail, small hail or snow pellets
- 98 Thunderstorm associated with duststorm or sandstorm
- 97 Heavy thunderstorm with rain, snow or rain and snow mixed (sleet)
- 96 Moderate or slight thunderstorm with hail, small hail or snow pellets
- 95 Moderate or slight thunderstorm with rain, snow or rain and snow mixed (sleet)

### **Precipitation at time of observation but thunderstorm ceased in past hour**

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- 94 Heavy or moderate snow, rain and snow mixed (sleet), hail or snow pellets at the observation, with thunder in the past hour
- 93 Slight snow, rain and snow mixed (sleet), hail or snow pellets at the observation, with thunder in the past hour
- 92 Heavy or moderate rain at the observation, with thunder in the past hour
- 91 Slight rain at the observation, with thunder in the past hour

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### Showers at the time of observation (precipitation from convective clouds)

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- 90 Heavy or moderate showers of hail, with or without rain, or rain and snow mixed (sleet)
- 89 Slight showers of hail, with or without rain, or rain and snow mixed (sleet)
- 88 Heavy or moderate showers of snow pellets or small hail, with or without rain or sleet
- 87 Slight showers of snow pellets or small hail, with or without rain, or rain and snow mixed (sleet)
- 86 Heavy or moderate showers of snowflakes
- 85 Slight showers of snowflakes
- 84 Heavy or moderate showers of rain and snow (sleet)
- 83 Slight showers of rain and snow (sleet)
- 82 Violent showers of rain
- 81 Heavy or moderate showers of rain
- 80 Slight showers of rain

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### Solid precipitation at the time of observation (not from convective clouds — not showers)

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- 79 Ice pellets
- 78 Isolated star-shaped snow crystals
- 77 Snow grains
- 76 Ice crystals (diamond dust)
- 75 Continuous, heavy snowflakes
- 74 Intermittent, heavy snowflakes
- 73 Continuous, moderate snowflakes
- 72 Intermittent, moderate snowflakes
- 71 Continuous, slight snowflakes
- 70 Intermittent, slight snowflakes

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**Mixture of solid and liquid precipitation at time of observation (not from convective clouds — not showers)**

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- 69 Heavy or moderate, rain or drizzle and snow (sleet)
- 68 Slight, rain or drizzle and snow (sleet)

**Liquid precipitation at time of observation (not from convective clouds — not showers)**

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- 67 Heavy or moderate freezing rain
- 66 Slight freezing rain
- 65 Continuous, heavy rain
- 64 Intermittent, heavy rain
- 63 Continuous, moderate rain
- 62 Intermittent, moderate rain
- 61 Continuous, slight rain
- 60 Intermittent, slight rain
- 59 Heavy or moderate drizzle and rain falling together
- 58 Slight drizzle and rain falling together
- 57 Heavy or moderate freezing drizzle
- 56 Slight freezing drizzle
- 55 Continuous, heavy drizzle
- 54 Intermittent, heavy drizzle
- 53 Continuous, moderate drizzle
- 52 Intermittent, moderate drizzle
- 51 Continuous, slight drizzle
- 50 Intermittent, slight drizzle

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**No precipitation at the time of observation. Visibility less than 1,000 m in any direction (fog)**

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**All codes apply to fog or ice fog.**

- 49 Fog depositing rime; sky or clouds not visible
- 48 Fog depositing rime; sky or clouds visible
- 47 Fog has begun or is getting thicker during the past hour; sky or clouds not visible
- 46 Fog has begun or is getting thicker during the past hour; sky or clouds visible
- 45 No change in the fog during the past hour; sky or clouds not visible
- 44 No change in the fog during the past hour; sky or clouds visible
- 43 Fog getting thinner during the past hour; sky or clouds not visible
- 42 Fog getting thinner during the past hour; sky or clouds visible

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**No precipitation at time of observation. Visibility more than 1,000 m in at least some directions**

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- 41 Fog patches; visibility less than 1,000 m in some directions but not in others
- 40 Fog visible at a distance, but the visibility at station is 1,000 m or more. There must have been NO fog at station during the preceding hour

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**No precipitation at the time of observation. Blowing or drifting snow, sand or dust**

- 39 Heavy blowing snow, generally above eye level
- 38 Moderate or slight blowing snow, generally above eye level
- 37 Heavy drifting snow, generally below eye level
- 36 Moderate or slight drifting snow, generally below eye level
- 35 Severe sandstorm or duststorm has increased or begun during the past hour
- 34 Severe sandstorm or duststorm has not changed during the past hour
- 33 Severe sandstorm or duststorm has decreased during the past hour
- 32 Moderate or slight sandstorm or duststorm has increased or begun during the past hour
- 31 Moderate or slight sandstorm or duststorm has not changed during the past hour
- 30 Moderate or slight sandstorm or duststorm has decreased during the past hour

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**No precipitation at the time of observation. Phenomena ceased during the past hour**

- 29 Thunderstorm, with or without precipitation, ceased in the past hour
- 28 Fog cleared in the past hour. Visibility MUST now be 1,000 m or more
- 27 Showers of hail, small hail or rain with hail of any intensity ceased in the past hour
- 26 Showers of snow, or rain with snow (sleet), of any intensity ceased in the past hour
- 25 Showers of rain of any intensity ceased in the past hour
- 24 Freezing rain or freezing drizzle of any intensity ceased in the past hour
- 23 Rain with snow (sleet) or ice pellets of any intensity, but not showers, ceased in the past hour
- 22 Snow of any intensity, but not showers, ceased in the past hour
- 21 Rain (not freezing) of any intensity, but not showers, ceased in the past hour
- 20 Drizzle (not freezing) or snow grains of any intensity ceased in the past hour

### No precipitation (at the station) at the time of observation. Miscellaneous phenomena

- 19 Funnel cloud observed at or within sight of the station at the time of observation or within the past hour
- 18 Squalls observed at or within sight of the station at the time of observation or within the past hour
- 17 Thunderstorm WITHOUT precipitation — for codes 16, 15 and 14, only report precipitation falling from low clouds
- 16 Precipitation observed near to (but not at) the station reaching the ground (or sea surface) up to 5km away
- 15 Precipitation observed within sight of the station reaching the ground (or sea surface) but more than 5km away
- 14 Precipitation observed within sight of the station NOT reaching the ground (or sea surface)
- 13 Lightning seen BUT NO THUNDER HEARD
- 12 More or less continuous shallow fog. It is not deeper than about 2 m above ground level and the visibility above the shallow fog is 1,000 m or more
- 11 Patches of shallow fog. It is not deeper than about 2 m above ground level and the visibility above the shallow fog is 1,000 m or more
- 10 Mist. Visibility in ALL directions must be 1,000 m or more and humidity at least 95%
- 09 Duststorm or sandstorm observed within sight of the station
- 08 Well-developed dust or sand whirl observed at or near station at time of observation or in the preceding hour, but no duststorm or sandstorm
- 07 Dust or sand raised by the wind observed at the time of observation, but no well-developed dust or sand whirls at or near the station
- 06 Widespread dust in suspension in the air observed at or near the station, not raised by the wind
- 05 Haze

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- 04 Visibility reduced by smoke (e.g. industrial smoke or forest fires)
  - 03 Clouds generally forming or developing during the preceding hour
  - 02 State of sky generally unchanged during preceding hour — also applies to a clear sky for the past hour
  - 01 Clouds generally dissolving or becoming less developed during the preceding hour
  - 00 No cloud development observed