THE GREAT BRITISH WEATHER

CLOUD SPOTTING GUIDE

BBC one

Welcome

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Carol Kirkwood

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The Great British Weather Team have put together this guide. We hope it will help you identify those different fluffy (and not so fluffy) objects in the sky.

Even if you've never tried cloud spotting before, get started with our easy-to-use cloud manual. Once you think you know your Cumulus from your Cumulonimbus why not use the cloud spotter score card which rates the top ten clouds to spot. Can you spot all ten?

There are more things to discover about the weather at bbc.co.uk/greatbritishweather, including "How to" videos on building a rain gauge and understanding weather terminology.

There's also a safety guide for taking photographs of the weather (mostly common sense of course), but worth a look.

You can get involved with the production too by sending your best snaps to greatbritishweather@bbc.co.uk and they may be broadcast live on the BBC One show, on our special BBC Weather galleries or on a live weather forecast.

And don't forget to join in the weather banter @BBCbritweather and #BBCgbw from now till 5 August 2011.

Happy cloud spotting!

Introduction

Clouds are made of water – tiny droplets of water in the case of the low clouds and ice crystals in the high clouds (mid-level clouds often contain a mixture of the two).

There are ten basic types of cloud and they are grouped according to the way they look – whether they're made up of individual clumps, or layers or streaks – and how high they are – whether low, mid-level or high clouds. The ten types are divided up into many other species and varieties.

This guide contains just a few of the many different cloud types – some common and easy to spot, some rare. You never know when an interesting formation is going to appear, so always keep an eye on what is happening above.

bbc.co.uk/greatbritishweather

1. Cumulus

Cumulus

Cumulus – Inverness

What to look for

Cumulus clouds are the cotton wool puffs, with flat bases and cauliflower tops, which drift lazily across the sky on a sunny day. They generally form a few hours after daybreak and tend to scatter before sundown. They form on invisible columns of air (known as thermals) which rise from the ground as it is warmed by the Sun.

Most forms of Cumulus produce no rain or snow, and so are known as fair-weather clouds. When a Cumulus is fraying at the edges as it breaks up, having reached the ripe old age of 15 minutes or so, it is known as Cumulus fractus.

What they mean for us

The smaller Cumulus humilis never produce any rain or snow, but large Cumulus clouds can produce light to moderate showers. When Cumulus build upwards through the morning they're a warning of heavy showers by the afternoon: 'in the morning mountains, in the afternoon fountains'.

Cumulus humilis

Key facts

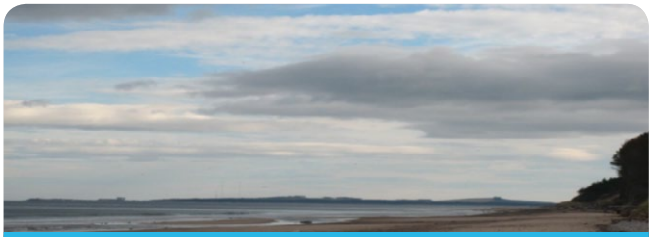
If you were to add together all the droplets in a medium sized Cumulus cloud, they'd weigh the same as 80 elephants.

60

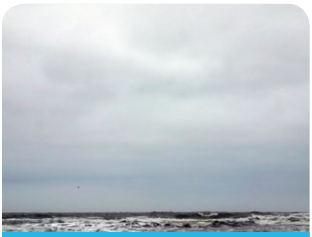
CLOUD POINTS

(because they are easy to recognise)

2. Stratocumulus



Stratocumulus – Culbin



Stratocumulus

What to look for

The most widespread of all cloud types in the UK, as well as many other regions of the world, Stratocumulus is a low layer or patch of cloud that has a clumpy base. The patches are either joined up, or have gaps in between. When the sky is overcast with a cloud base that appears to be low and the tones of the cloud vary from white to darker grey, you can be confident that you are looking at a Stratocumulus.

What they mean for us

Stratocumulus clouds do sometimes produce rain or snow, but this is generally quite light. Their main effect is of blocking out our beloved sunshine. Often in the UK, Cumulus clouds can become more and more plentiful through the morning, spreading out and joining together into a Stratocumulus layer that covers the sky.

"My favourite cloud is the cumulus as it normally means we can expect fair weather. Those white puffy clouds in a blue sky on a summer's day are a view hard to beat."
Carol Kirkwood

Key facts

Sometimes you can see fingers of sunlight shining down through breaks in a Stratocumulus cloud. These are known as 'crepuscular rays'.

CLOUD POINTS

(because they are so common)

3. Cumulonimbus

Cumulonimbus

Cumulonimbus

What to look for

Often described as the King of Clouds, the Cumulonimbus is an awesome powerhouse of the atmosphere. This enormous storm cloud can reach over 10 miles into the sky, often spreading out in its upper reaches to form a huge canopy of ice crystals that can give it the appearance of a blacksmith's anvil.

The anvil shape can only be seen when viewed from many miles away. Above you, it looks like a very dark, often ragged cloud base which extends across most of the sky.

What they mean for us

Cumulonimbus are the storm clouds. They produce heavy rain, snow or hailstones, as well as sometimes leading to thunder and lightning. Unlike the other main rain-bearing cloud, the dark, featureless 'wet blanket' called Nimbostratus that produces prolonged and continuous rain, Cumulonimbus delivers its load in dramatic, sudden downpours.

"I flew through clouds on a hang glider for the series. It was terrifying and exhilarating. The sky was so blue and the clouds a brilliant white. You simply don't appreciate the enormous size, and inherent magnitude of a cloud from the ground."
Carol Kirkwood

Key facts

Aircraft pilots are careful to avoid flying through these monsters because the powerful up and down draughts within them can be strong enough to flip a plane over.

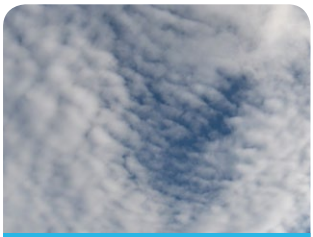
CLOUD POINTS

(especially if you see its anvil shape from afar)

4. Altocumulus

Altocumulus

Altocumulus



Cirrocumulus

What to look for

This mid-level cloud is in the form of layers or patches of individual clumps or rolls of cloud, known as 'cloudlets'. If you see a layer of cloud that looks like it is made of lots of regular cotton-wool balls, it might be an Altocumulus.

A similar looking cloud, though one that is rarer, is the higher Cirrocumulus. This is also a layer or patch composed of little cloudlets but they appear much smaller than the Altocumulus ones. To distinguish between the two, you need to hold a finger up at arm's length towards the cloud directly above you. If the cloudlets are smaller than the width of your finger, the cloud is Cirrocumulus; if they are wider, it is probably Altocumulus.

What they mean for us

The rain and snow from Altocumulus may not tend to reach ground level but, to the keen cloud spotter, these clouds can be early indicators of storms ahead. If the cloudlets have very bumpy tops they suggest that that atmosphere at that level is unstable. This means that any Cumulus clouds building up from below are likely to grow into Cumulonimbus storm clouds that will bring heavy showers in the afternoon.

Key facts

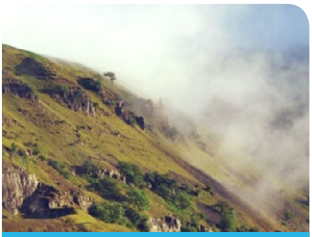
Altocumulus clouds sometimes produce rain or snow but it rarely reaches the ground, usually drying up as it falls. This creates trails below them which make the cloudlets look like jellyfish.

CLOUD POINTS

(especially if they are arranged in a beautiful organised layer, like a quilted blanket)

5. The Layer Clouds

Altostratus



Stratus

What to look for

Generally speaking, layer clouds are the most boring looking of all the cloud types. With no variation in tone from one part to the next, they are just a flat, overcast sky.

Layer clouds form at all three cloud levels. The low ones are called Stratus, and can be right down at ground level, when they are known as fog or mist. They often block the Sun completely. Mid-level layer clouds are called Altostratus, and often make the Sun appear as if through frosted glass. The high layer clouds are called Cirrostratus, which are made of ice crystals rather than droplets.

What they mean for us

Altostratus can produce light to moderate rain or snow, but the fourth layer cloud that produces most precipitation is the Nimbostratus. This thick blanket of cloud often extends through all three levels and rains and rains.

Key facts

Stratus clouds have bases at anywhere from the ground to 1,500ft. Altostratus are at 6,500-16,500ft. Cirrostratus have bases at 16,500-30,000ft, while Nimbostratus can be over 10,000ft deep.

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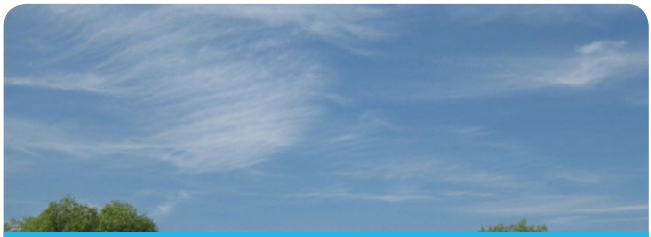
CLOUD POINTS

6. Cirrus



Cirrus – Hampstead Heath

Cirrus

What to look for

The most beautiful of the main cloud types, Cirrus clouds are like watercolour brush strokes across the blue. Composed of ice crystals cascading through the high atmosphere they are generally see-through. As the ice crystals fall downwards through different regions of the atmosphere, they pass through faster and slower winds and drier and moister air, which give the cloud its distinctive wavy strokes, known as 'fallstreaks'.

What they mean for us

The falling ice crystals of Cirrus clouds never reach the ground, tending instead to evaporate on the way down. If they are seen to join together and thicken into the high layer cloud Cirrostratus, they can be an early indication of a change in the weather that will lead to steady rain. Other than that, they just look nice.

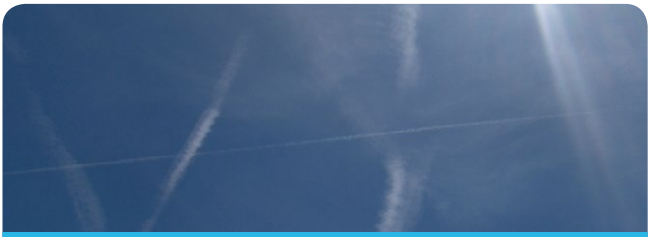
Cirrus – Bristol

Key facts

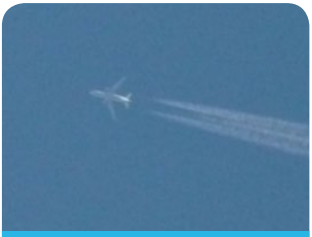
Cirrus clouds are named after the Latin for a lock of hair.

"Being up in the clouds was awesome. I couldn't taste anything – fear probably played a part in that – but thinking about it now, the smell was probably similar to when you open up the door of your deep freeze and you get that 'cold/icy' smell."
Carol Kirkwood

7. Contrails



Contrails



Contrails

What to look for

Short for 'condensation trails', these are the lines of cloud that can sometimes form behind aircraft up at cruising height. Formed from the water vapour (water in gas form) that is part of the aircraft exhaust, these straight, crisp lines of condensation could hardly look more different from the wild, chaotic forms of the natural clouds. They only appear when the air up at cruising height is cold enough and moist enough. At other times, no cloud appears behind the plane.

What they mean for us

Contrails are the most visible signs of human effect on our atmosphere – sharp lines of progress, dividing and dissecting the sky – man's marks on what, for many of us, is the last wilderness to gaze out at.

Key facts

Our atmosphere often consists of differing layers of air so it is not uncommon to see the contrails behind an aircraft appear to turn on and off as it climbs or descends.

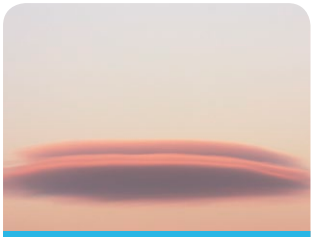
60

CLOUD POINTS

(because they are so common these days)

8. Lenticularis

Lenticularis



Lenticularis

Lenticularis

What to look for

Named after the Latin word for a lentil, these are discs of cloud with smooth, streamlined edges. They often look rather like UFOs. Lenticularis clouds form in stable conditions when moist winds have to rise to pass over raised ground such as a hill or mountain peak.

While lenticularis clouds are most often seen in hilly or mountainous regions, they can appear downwind of even gentle, rolling hills when the conditions are right. The water droplets of lenticularis clouds form at one end of the cloud and rush through it with the wind, only to disappear again at the back of the cloud. Though the droplets are moving, the cloud as a whole appears stationary in the steady wind at cloud level.

What they mean for us

Only very occasionally do lenticularis clouds produce any rain or snow that reaches the ground.

Key facts

Sometimes known as 'lennies' for short, these clouds can form at any of the three cloud levels but the most dramatic and impressive ones are found in the mid-level clouds, and are known as Altocumulus lenticularis.

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CLOUD POINTS

9. Mamma

Mammatus – Waterloo Bridge

Mammatus

What to look for

Also known as mammatus, these are pouches that hang down from the underside of a cloud layer. They are easiest to spot when the Sun is low, and is shining across the base of the cloud layer, picking out the udder-like formations (the name Mamma comes from the Latin for udders). They can be spotted hanging from the base of clouds at all three of the cloud levels. Mamma clouds are fairly rare so you have to keep an eye out for them.

What they mean for us

Mamma clouds tend to appear attached to the rear of the advancing storm and so they usually indicate that the heavy showers are falling some distance away, or that the storm has already passed over.

Key facts

Mamma are defined as 'supplementary features'. The most dramatic-looking ones form on the underside of the huge anvils that spread out at the top of Cumulonimbus storm clouds.

150
CLOUD POINTS

"You can carry on spotting when you're abroad – I saw mammatus in the USA. It's shaped like cows' udders and had the setting sunlight behind it. It looks heavy (it's descending air) almost like it is going to fall on top of you!"
Carol Kirkwood

10. Noctilucent

Noctilucent

Noctilucent

What to look for

Noctilucent clouds form so high up in the atmosphere – often around 50 miles up – that they are way higher than the 10–12 miles or so in which our normal weather clouds form.

These strange clouds have an eerie, bluish-white appearance, and often exhibit delicate ripples or billows that can extend across huge areas of the sky. Their name means night shining. Being so high, they still catch the sunlight when the rest of the sky is dark.

These clouds are rare, and only form in the summer – typically between the end of May and mid-August. Look for them when the sky is clear of lower clouds and within a few hours of sunset or sunrise.

What they mean for us

Noctilucent clouds are far, far too high to have any direct effect on weather down on the ground.

Key facts

The shifting patterns in the formation of these mysterious clouds are increasingly considered valuable indicators of our changing climate.

"Before you head out to take some pictures of clouds, make sure your camera is fully charged. I have come unstuck with this one in the past! If you have one, stick a spare battery in your pocket too."
Carol Kirkwood

Get spotting!

Use our handy score card to see how many of the clouds in our guide you can spot over the coming weeks and see if you can reach our grand total of 1,000.

Don't forget Carol's helpful tips about remembering to do some cloud spotting when you're on holiday.

Happy cloud spotting from the Great British Weather team.

1. Cumulus

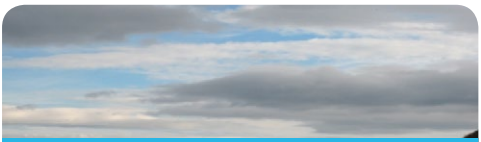
Altitude: Low: 1-5k ft

Rainfall:

Rarity score: 60

Date spotted:

Cloud score:



2. Stratocumulus

Altitude: Low: 1-4.5k ft

Rainfall:

Rarity score: 30

Date spotted:

Cloud score:

3. Cumulonimbus

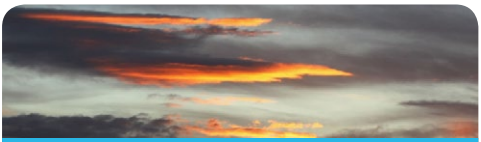
Altitude: Multi-level: 2-45k ft

Rainfall:

Rarity score: 100

Date spotted:

Cloud score:



4. Altocumulus

Altitude: Mid-level: 6.5-20k ft

Rainfall:

Rarity score: 70

Date spotted:

Cloud score:

5. The Layer Clouds

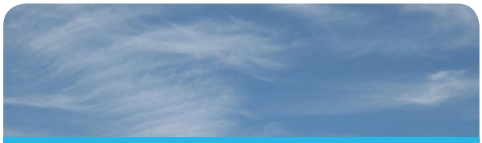
Altitude: All 3 layers

Rainfall:

Rarity score: 45

Date spotted:

Cloud score:



6. Cirrus

Altitude: High: 20-40k ft

Rainfall:

Rarity score: 60

Date spotted:

Cloud score:

7. Contrails

Altitude: High: 20-40k ft

Rainfall:

Rarity score: 60

Date spotted:

Cloud score:

8. Lenticularis

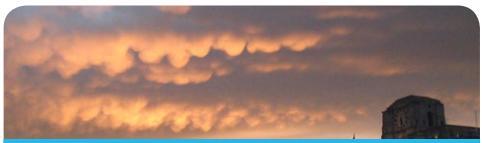
Altitude: Low: 1-5k ft

Rainfall:

Rarity score: 125

Date spotted:

Cloud score:



9. Mamma

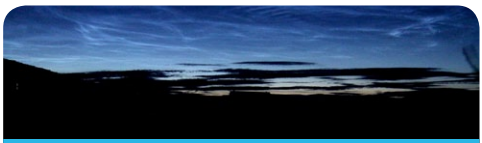
Altitude: All 3 layers

Rainfall:

Rarity score: 150

Date spotted:

Cloud score:



10. Noctilucent

Altitude: V.V. high: 30-50 miles

Rainfall:

Rarity score: 300

Date spotted:

Cloud score:

Grand total

THE GREAT BRITISH WEATHER

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