



SKY WATCHERS GUIDE TO



Cloud Identification

For more information on weather and additional teaching resources,
please visit www.on.ec.gc.ca/skywatchers



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Clouds themselves will give you clues to their identity: in their shape, in their height, and in the kind of precipitation they produce. If you can answer the questions below for each type of cloud you see, you can use the chart to help identify the cloud type. Refer to the pictures inside to confirm your identification.

1. Is the bottom of the cloud in the low, middle, or high range?
2. Is it a flat, smooth layer or is it broken into smaller pieces?
3. Do the clouds have lumpy tops or do they extend high into the atmosphere?
4. Is the cloud producing any precipitation?

	Rolled appearance or regularly arranged pieces	Smooth layer	Other characteristics or structure
Low clouds (near surface to 2 km)	Stratocumulus Rolls with or without spaces between Weak precipitation, if any	Stratus Fog-like appearance close to the ground May produce drizzle or very fine snow Nimbostratus Thick dark appearance Gives steady all-day rain or snow	
Middle clouds (2 - 6 km)	Alto cumulus Rolls with or without spaces between Seldom any precipitation	Altostratus Sun may be visible but no halo present May produce steady precipitation as it thickens	Alto cumulus Lenticularis Smooth disc-shaped clouds downwind of mountains or hills No precipitation
High clouds (6 - 12 km)	Cirrocumulus Rippled appearance No precipitation	Cirrostratus Thin veil produces a halo around the sun No precipitation	Cirrus Wispy No precipitation
Convective clouds (450 m to 3 km)			Cumulus Individual puffs with flat bases and irregular tops Brief, light showers or flurries Towering Cumulus Significant vertical extent well-defined scalloped tops Produces showers, sometimes heavy Cumulonimbus Dark bases and high tops anvil shaped top may be visible Produces heavy showers, thunderstorms, and sometimes hail





Stratus

This thin layer is normally smooth and almost featureless, but stratus can also appear in ragged patches or shreds, especially underneath other precipitation-producing clouds. Stratus is often low enough to obscure the tops of hills or tall buildings.



2

Cloud type: **Low cloud** | Height of bases: **near surface to 450 m**

Tip... Sometimes, morning fog will lift and become a stratus layer.



Stratocumulus

Sometimes stratocumulus appears as a continuous sheet of parallel rolls, and at other times blue sky can be seen between the rolls. It can appear ominously dark if the layer is thick enough or if other cloud layers are present above it.



3

Cloud type: **Low cloud** | Height of bases: **near surface to 2 km**

Tip... The cloud elements in stratocumulus appear larger because they're closer to the ground than altocumulus.



Nimbostratus

This dense grey cloud layer usually covers the entire sky and is thick enough to block out the sun completely. The bottom of the cloud often looks fuzzy, particularly when it's producing precipitation.



4

Cloud type: **Low cloud** | Height of bases: **near surface to 2 km**

Tip... Nimbostratus is usually darker in colour than altostratus and its thickness makes for a gloomy day.



Altocumulus

Altocumulus can have small lacy segments or almost continuous rolls similar to stratocumulus except higher. Hills or mountains may produce rolling wave-like winds aloft to smooth these clouds into the shape of a lens.



5

Cloud type: **Middle cloud** | Height of bases: **2 - 6 km**

Tip... The defining difference between altocumulus and stratocumulus is the height of their bases above ground.



Altostratus

This grey or blue sheet may be thin enough to allow the sun or moon to be dimly visible but is thick enough to prevent objects on the ground from casting a shadow. Altostratus will not produce a halo around the sun or moon.



6

Cloud type: **Middle cloud** | Height of bases: **2 - 6 km**

Tip... Be careful with this one . . . the sun is sometimes visible through thin spots in other types of cloud as well.



Cirrus

Often seen on good-weather days, this ice crystal cloud can appear as wispy streaks resembling mares' tails, as dense opaque patches, or as long narrow bands.



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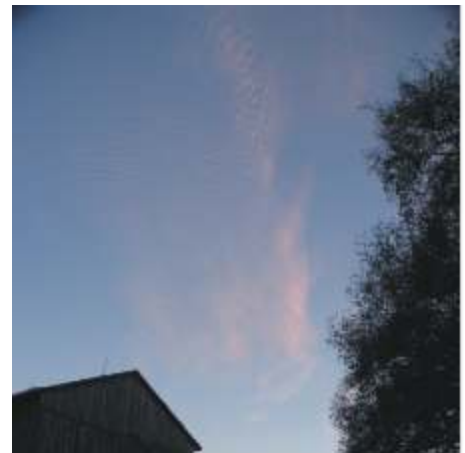
Cloud type: [High cloud](#) | Height of bases: 6 - 12 km

Tip... The sun refracting or reflecting through the ice crystals can produce bright spots, often brightly coloured, in cirrus cloud.



Cirrocumulus

These clouds can occur in extensive sheets, resembling the ripples that waves leave in the sand. Cirrocumulus is never opaque enough to completely hide the sun or moon.





Cirrostratus

This thin veil of ice crystals commonly occurs in sheets that cover the sky, allowing enough light through to produce weak shadows from objects on the ground.





Cumulus

These individual white puffs generally have flat bottoms and little vertical extent. On a typical summer day, so many cumulus clouds may form that they crowd together, resembling a layer of stratocumulus. Cumulus often appear with other cloud types.





Towering Cumulus

This bulging, cauliflower-topped cloud develops from smaller cumulus clouds when the air is unstable. All three stages of this cloud (cumulus, towering cumulus, and cumulonimbus) may be present at the same time.



II

Cloud type: **Convective cloud** | Height of bases: **450 m to 3 km**

Tip... Towering cumulus clouds are normally taller than they are wide, with a well-defined top.



Cumulonimbus

From the bottom, the base of this cloud appears very dark and may have rain shafts extending from it. When seen in profile from a distance, a cumulonimbus cloud has a flattened fibrous top shaped like an anvil. It has the greatest vertical extent of any cloud type.





Stratocumulus + Cirrus

Nature doesn't always cooperate by displaying clouds one type at a time. In this picture, a band of stratocumulus is visible well below the high-level cirrus.



Alto cumulus + Stratocumulus

In this picture, the predominant cloud type is altocumulus. In some spots, the sky is visible between cloud elements but in others, the cloud forms a solid layer. Stratocumulus can be seen stretching along the horizon below the altocumulus layer.



Cirrus + Cumulus

In this photo, dense patches of cirrus are visible high above the tufts of fair-weather cumulus. Between the two layers, a condensation trail (contrail) can be seen, marking the earlier path of a jet aircraft.

- For more information about clouds and the processes that cause them to form, check the educational publications at www.msc-smc.ec.gc.ca.
- For the latest weather information, visit www.weatheroffice.gc.ca.

Photo Credit: This booklet was made possible by Phil "the Forecaster" Chadwick, who generously shared his photo collection.