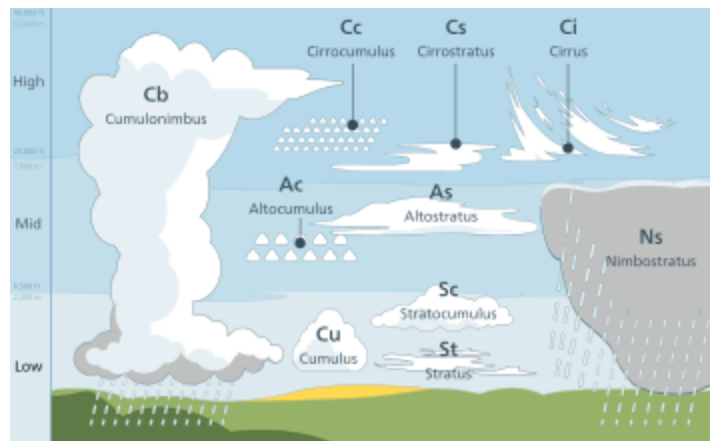


Clouds

At the field the other day I was explaining cloud types to a couple of visitor's kids. I realised I had forgotten more than I remembered, so decided to refresh my knowledge. A cloud is an aerosol made mostly of water droplets or ice. It is only the clouds in the lowest layer of the atmosphere - the troposphere - that interest model flyers. The Latin-based naming system was proposed in 1802 by Luke Howard. There are many forms often named with confusing combinations of the three basic types, cumulus, stratus and cirrus, together with nimbus which implies rain.

Clouds can be formed by an upward convection current (thermal), winds converging from different directions or hills or ridges either forcing moist air upwards or causing turbulent airflow. When I flew free flight F1a gliders it was rumoured that you could trigger a thermal on a hot day by a group of people running in a circle.



Picture from wiki commons

The only clouds of interest to glider pilots are the low convective ones, in other words those associated with thermals. I will therefore start with the convective clouds and then briefly touch on others that you might see at the field. I end with a picture I took of a roll cloud that appeared over the field the other day, probably marking the edge of a weather front or a cold sea breeze.

These are the approximate heights as used below:

Low	0 to 2000 m (0 to 6500 ft)
Middle	2000 to 7000 m (6500 to 23000 ft)
High	5000 to 14000 m (16500 to 45000 ft)

Cumulus (low or multi-level)

These are the clouds that appear in puffy mounds, domes or towers usually with flat bases. They are often visibly growing. The tops are usually sunlit and white with the base grey. They are at the tops of thermals so are a sign of instability and are convective. Usually the larger the cloud the stronger is the lift.

Cumulonimbus (multi-level)

These are the largest convective clouds and appear in highly unstable air. They often have complex structures, which makes them enormous and in various shapes, but still a single mass. They might lead to thunderstorms, hail or tornadoes, or rapidly lost gliders.

Stratus

Types: cirrostratus (high), altostratus (middle), stratus (low), and nimbostratus (multi-level)

These occur in stable air so are non-convective. It is a grey layer with an obvious base and might well be called 'over-cast'.

Stratocumulus

These are grey or whitish with a tiled or honeycomb pattern, a rounded mass or a roll form.

Cirrus (high only)

These are non-convective clouds of ice crystals that form high in stable air. They are made of white filaments so can appear like hair or silk.

Roll cloud at Northrepps August 2017



For a lot more information, and some superb pictures, take a look at

http://www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/library/factsheets/fact_sheet_no._1_clouds.compressed.pdf

Peter Scott