CLOUD

Seasonal changes in cloudiness vary with the distribution of rainfall. In the southern parts of the continent, particularly in the coastal and low lying areas the winter months are generally more cloudy than the summer months. This is due to the formation of extensive areas of stratiform cloud and fog during the colder months where the structure of the lower layers of the atmosphere favours the physical processes resulting in this type of cloud.

Particularly strong seasonal variability of cloud cover exists in northern Australia where skies are clouded during the summer wet months and mainly cloudless during the winter dry season. Cloud coverage is greater near the coast and on the windward slopes of the eastern uplands and less over the dry interior.

The following cumulus type clouds are best indicators of rain or possible rain:

CUMULUS HUMILIS

Small fair-weather cumulus clouds. Normally non-precipitating, but may grow rapidly into a precipitating cloud, when heated from below, or lifted over rising terrain, for instance. Most common in the afternoon near the top of the well-mixed planetary boundary layer. In the picture on the left, the cumulus cloud field is limited to land, illustrating a large difference between the marine PBL and the land PBL. The area in the upper left is ocean. A sea breeze is likely near the coast.

CUMULUS MEDIOCRIS

This example, taken by Jimmy Deguarra in Oakhurst near Sydney, Australia, is obviously rather shallow but produced some rain (evident in the rainbow).

CUMULUS CONGESTUS

Deeper cumulus cloud, possibly in a short-lived stage before heavy precipitation falls. Tops evolve quickly but don't have an anvil.

CUMULONIMBUS

Thunderstorm cloud with precipitation. The picture on the left, taken by Jimmy Deguarra in Oakhurst near Sydney, Australia, shows the early stages of the formation of an anvil. The bulging, darker billows in the anvil are mammata.

ALTOCUMULUS CASTELLANUS

Altocumulus are cumulus clouds not resulting from heating on the ground, i.e. they do not form on top of a deep convective PBL. Rather, they form within a mid-level less-stable layer, separate from the ground. In this case (castellanus), the clouds are shaped like turrets, indicating convective motion in weak shear. Thunderstorms are possible on days with Ac castellanus, if surface-based convection can connect to the mid-tropospheric unstable layer. (photo by A. Rangno in Seattle).

ALTOCUMULUS LENTICULARIS

Lens-shaped clouds in the lee of a mountain range. In the picture on the left, the family of lee-wave clouds includes a turbulent low-level roll cloud, a smooth mid-level Ac lenticularis (two cloud layers actually), and a smooth, more thin cirrocumulus lenticularis (again two cloud layers).

ALTOCUMULUS UNDULATUS

Stable cloud (often altostratus) modulated by wave motion. The picture on the left, taken by Jimmy Deguarra in Oakhurst near Sydney, Australia, shows a series of short waves within a broad Ac lenticularis cloud.

CIRROCUMULUS (USUALLY UNDULATUS)

Stable cloud layer (usually cirrostratus), usually broken by wave motion (photo by J. Deguarra near Sydney Australia). Occasionally irrocumulus results from upper-tropospheric convective motion. In this case fallstreaks (virga) are commonly present.