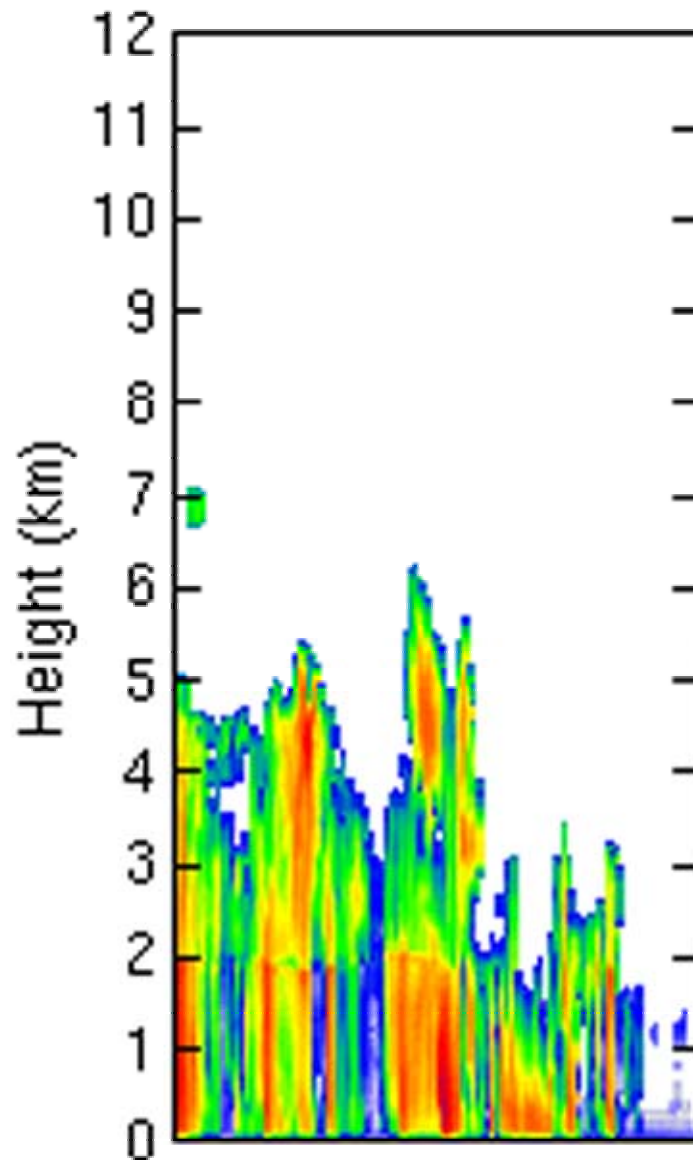


Frontal (Stratiform) Rain

- Frontal rain happens when warm moist air is undercut by denser cold air. The barrier between the warm and cold air is called a 'front'.
- Raindrops start out life as ice crystals high up in the atmosphere. As they fall towards the ground, they grow larger.
- Temperature rises the closer you get to the ground. At a certain height above the ground, the air reaches 0°C . At this point, falling ice starts to melt and turn into water. This is called the melting level.
- At the melting level, where falling ice becomes rain, the radar reflectivity increases sharply and the returned signals get much stronger i.e. there is an abrupt change in colour on the radar scan. The two differently coloured regions are separated by a line, which in this example occurs at 2.4km.
- Liquid water returns a much stronger radar signal than ice. The area above the melting level, where there are ice particles, therefore appears blue and green because radar reflectivity values are lower. The region below the line, where rain is falling, is much brighter and is coloured orange and red.



Convection Rainfall

- Convection rain falls when air at the Earth's surface heats up and rises rapidly in warm currents.
- Rainfall caused by rising air currents is much more variable in rate, so lots of different colours appear on the radar image.
- The radar images are less uniform than frontal or stratiform rain. In frontal rain, there is a sharp transition where falling ice turns to rain, which looks like a line on the radar image separating two differently coloured regions. The radar image of convection rainfall does not have this sharp line and instead looks jumbled and chaotic.