Tri cellular model essay

A2 GeographyWhat is the Tri-cellular model for atmospheric circulationThe Tri-cellular model shows how energy redistributed across the globe and ensures there is not a surplus at the equator and deficit at the Poles. This surplus or deficit would be the result of differential heating of the surface of the Earth by the sun. As suggested by the name, the model is made of three air masses known as cells which redistribute heat energy and control movement of air. There a three cells in each hemisphere: the Hadley cell, the Ferrel cell and the Polar cell.

Convection CellsConvection cells are self-contained zones in which warmer air in the centre is pushed upwards and is balanced by the downward motion of cooler air on the edge. UV radiation from the sun is absorbed which heats the ground before it is re-emitted with a longer wave length. As a result of this the temperature rises causing the air to expand and rise upwards due to convection; generating low pressure. Low pressure conditions are usually associated with cloud formation and precipitation.

This is because as air cool when it ascends meaning that it can hold less water vapour which in turn condenses to produce water droplets forming clouds. When the temperature decreases, the air contracts causing it to become denser and sinks, generating high pressure (associated with dry conditions). Originally, it was suggested that only two cells where present (The Hadley cells) on in the North and the other in the South Hemisphere. Heat would have been transferred from Equator as the Warm tropical rises to the Polar region at a much higher altitude. Air would then return to the equator as it cooled due to the low temperatures and high altitudes. This theory was later dismissed/improved by Hadley (who initially proposed it) in

1735 as it did not take into account the rotation of the Earth. Coriolis ForceThe Earth rotates in an Eastward direction which has a significant impact on atmospheric...