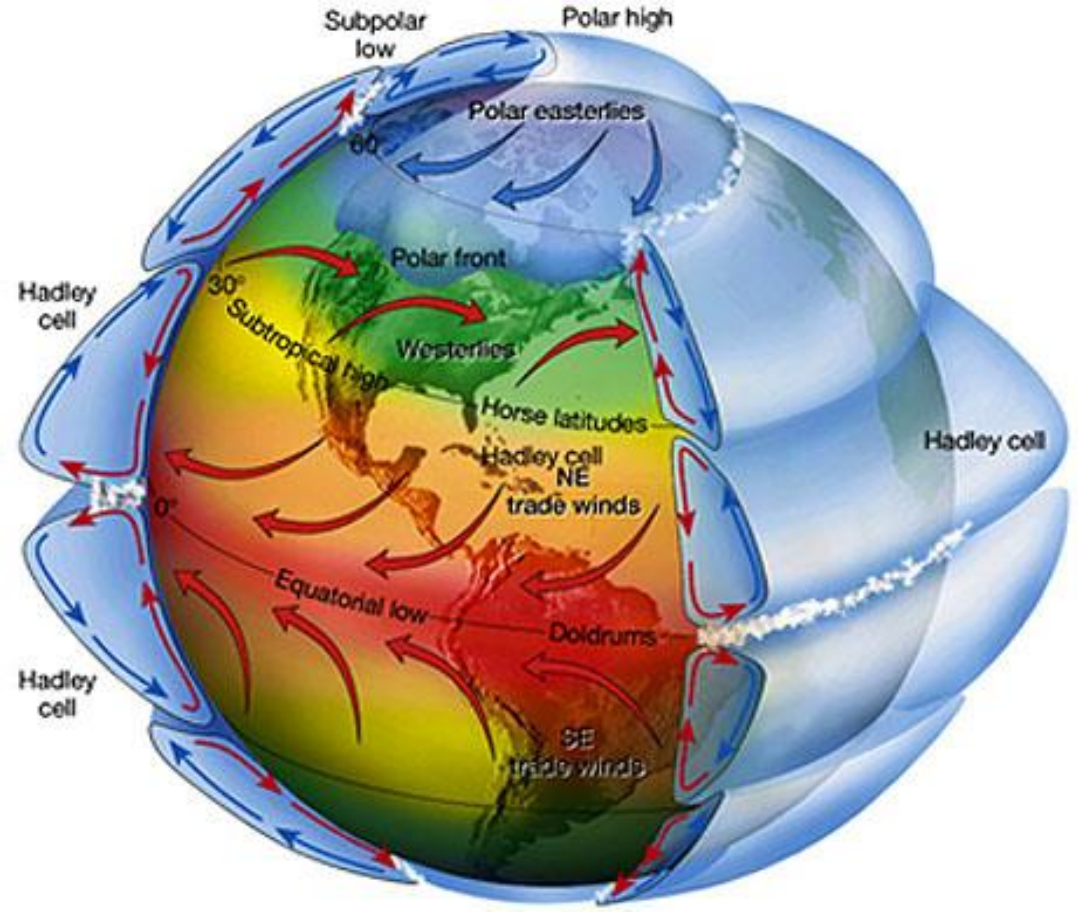
UNIT 3.3 THE TRI-CELLULAR MODEL

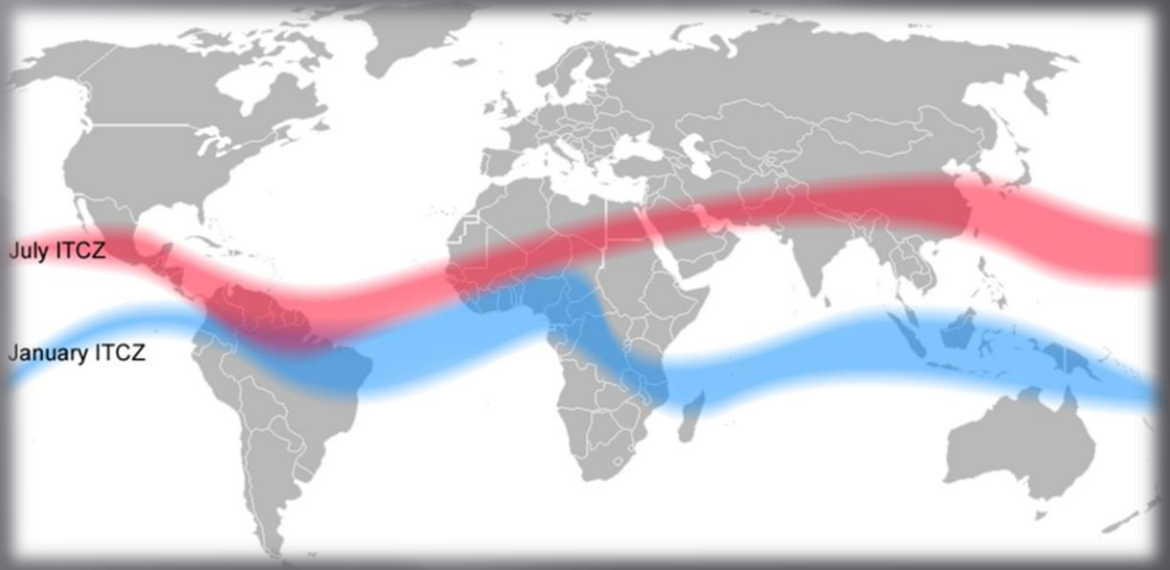


The Hadley cell

- Occurs between 0° and 30° north and south of the equator
- At the equator the air rises to form an aquatorial low and at 30° air sinks to form subtropical highs
- Surface winds blow from subtropical highs to the equatorial lows, and are deflected forming, tropical eaterly winds
- As they blow towards the equator they pick up moisture and rain is possible

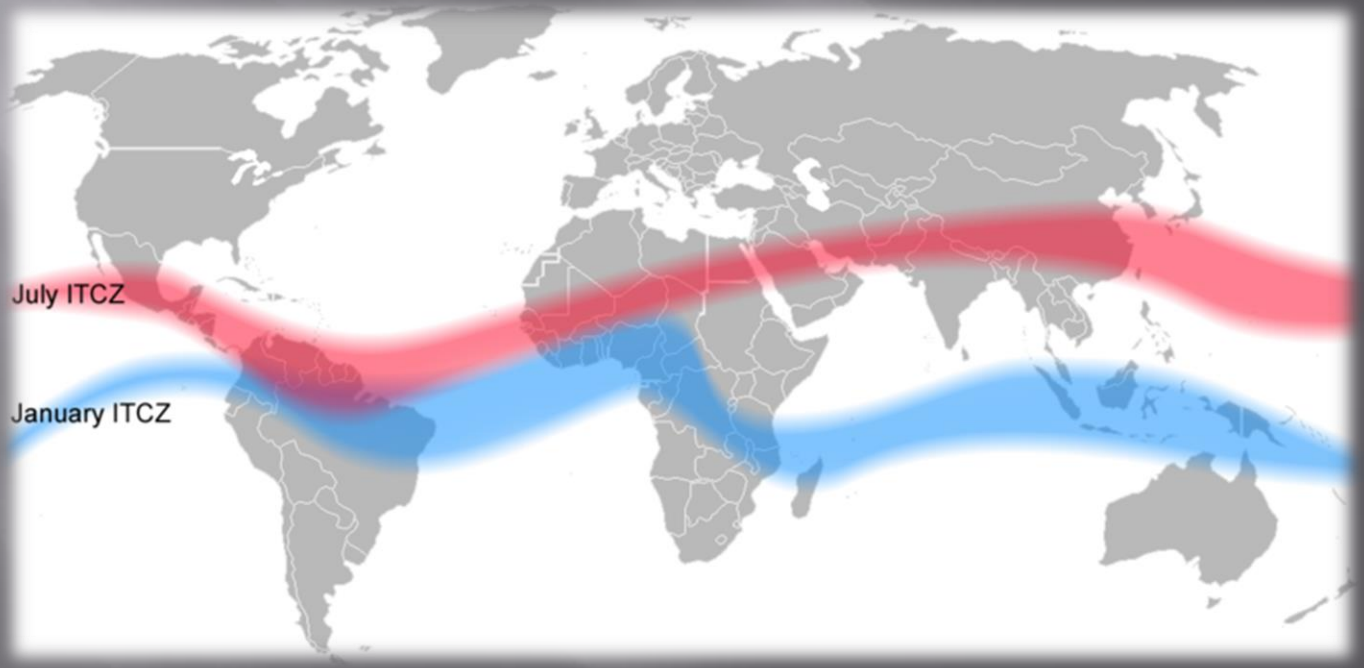
The Hadley cell

- Air converges and rises on the equator.
- On the surface there are very little to no wind
- Doldrums = no wind
- The ITCZ (Inter tropical convergence zone) occurs near the equator.



The Inter Tropical Convergence Zone

- Region of converging wind systems.
- Air is hot, humid and light winds
- The ITCZ shifts slightly north in January and south in July



The Ferrel cell

- Occur between 30° to 60° north and south of the equator.
- In the region of 30° air sinks to form the sub-tropical highs, and at 60°, air is rising at the subpolar lows.
- Winds travel from subtropical highs to the subpolar regions as westerly winds.
- Westerlies carry warm air to colder regions.
- As air moves polewards it is cooled
- Near the poles they create stormy and unpredictable weather.

The Ferrel cell

- Subpolar low pressure form as the warm air is forced to rise above the cooler air
- Warm air is less dense.
- Warm and cold air do not mix and uplift occurs.
- A polar front is formed. A front is an imaginary line that seperates air masses of different temperature

Polar Cell

- Occur between 60°-90° north and south of the equator.
- Rising air from the subpolar lows flows towards the poles. Once over the poles, the air sinks forming a polar high pressure zone.
- Surface winds in the polar cell form polar easterlies. These winds blow from the poles towards the subpolar lows.
- Strong winds occur that form huge snow storms