

WINDS WITHIN A HIGH

Winds Blow - clockwise and outwards

Area of Divergence

A flow of air outwards from a region and is associated with highs. Sinking air compensates for the flow of air outwards.

WINDS WITHIN A LOW

Winds Blow – counterclockwise and inwards

Area of Convergence

The flow of air into an area of low pressure is accompanied by rising air allowing the excess accumulation to escape.

Land Breeze

- blows at night
- land becomes cooler faster than water causing a high over the land
- wind blows from the land (high pressure area) towards the water (low pressure area)
- warm sea causes low pressure over the sea
- cool land causes high pressure over the land wind blows from high to a low

Sea Breeze

- occurs during the day
- land heats faster than water causing a low over the land
- wind blows from the sea (high pressure area) towards the land (low pressure area)
- warm land causes low pressure over the land
- cool sea causes high pressure over the sea
- wind blows from high to a low.

DIURNAL VARIATIONS

- daily variation of the wind
- caused by surface heating during the day
- causes turbulence in lower levels which transfers the stronger upper level winds to the surface
- this causes surface winds to veer and increase during the day
- surface winds back and decrease during the evening when daytime heating stops.

GUSTS

- A rapid and brief increase in the wind speed. It is often associated with rapid fluctuations in the wind direction.

SQUALL

- Similar to a gust but of longer duration. Caused by passage of a fast moving cold front or a thunderstorm. Sudden increase lasting for at least two minutes.

MECHANICAL TURBULENCE

- Friction between the air and surface features of the earth is responsible for the swirling vortices of air called "EDDIES"

TORNADOES

- Violent, circular whirlpools of air associated with severe thunderstorms and are very deep concentrated LOWS.

VEER

- The wind changes direction **clockwise**.
- Wind veers and increase as altitude increases
e.g. From 270° to 300°
- The wind *VEERS* and increases during the day.

BACK

- The wind changes direction **counter-clockwise**.
- Wind backs and decreases as altitude decreases
e.g. From 90° to 60°
- Wind *BACKS* and decreases at night

WIND SHEAR

- Sudden "tearing" or "shearing" change in wind speed or direction. Can be very violent.

JET STREAM

- Narrow band of exceedingly high speed winds known to exist in higher levels of the troposphere at altitudes ranging from 20,000-40,000 feet. Wind speed is usually 100-125 knots but may get as high as 250 knots.

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