**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

; and

* 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; and
* 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; and
* 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, and

e.g. From 270o to 300o

* The wind *VEERS* and increases during the day.

**BACK**

* The wind changes direction **counter-clockwise**;
* Windbacks and decreases as altitude decreases; and

e.g. From 90o to 60o

* 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.