TURBULENCE

The is an irregular motion of air resulting from "EDDIES" and vertical currents. Can cause light bumps or loss of control.

### TYPES/CAUSES OF TURBULENCE

**Mechanical Turbulence (EDDIES):**

Friction between the air and the ground especially from irregular terrain and manmade obstacles causes “EDDIES”.

**Thermal Turbulence:**

Happens on hot sunny days when the sun heats the earth’s surface unevenly. Isolated convection currents are set in motion and this results in turbulence.

**Frontal Turbulence:**

The lifting of the warm air by the sloping frontal surface and friction between the two opposing air masses produce turbulence in the frontal zone.

**Wind Shear:**

Marked changes in wind direction and speed either vertical or horizontal. If the change in wind is great you can expect severe turbulence.

## CLASSIFICATION OF TURBULENCE

**Light:**

Momentary slight changes in altitude and/or attitude or a slight bumpiness. Occupants may feel a slight strain against their seat belts.

**Moderate:**

Occupants will feel a definite strain against their seat belts and unsecured objects will be dislodged.

**Severe:**

Large and abrupt changes in altitude and/or attitude and usually, large variations in indicated air speed. The airplane may momentarily be out of control.

#### Extreme:

Airplane is tossed about violently and is impossible to control. May cause structural damage.

## Weather Signs

**Look For Unsettled Weather When:**

* barometer is falling;
* temperature at night is higher than usual;
* clouds move in different directions at different levels;
* cirrus clouds increase. A large ring appears around the sun or moon and stays there until the overcast clouds thicken and obscure the sun or moon; and
* summer afternoon clouds darken.

##### Look For Steady Precipitation When:

* there have been signs of unsettled weather; and
* the wind is southeast to northeast and the pressure is falling. Rain or snow within a day if the pressure is falling slowly. If falling rapidly, rain or snow soon, with strengthening winds.

**Look For Showers When:**

* cumulus clouds develop in a westerly wind; and
* cumulus clouds develop rapidly in spring or summer early afternoon.

**Look For Clearing Weather When:**

* the barometer rises;
* wind shifts into west or northwest; and
* the temperature falls.

**Look For Continued Bright Weather When:**

* sun sets like a ball of fire;
* barometer is steady or slowly rising;
* afternoon cloudiness decreases after 3PM to 4PM;
* morning fog breaks within two hours after sunrise;
* light breeze from west or northwest; and
* there is a red sunset.

***Red sky at night is a sailor’s delight. Red sky in morning, sailor take warning.***