

RESTRICTIONS TO VISIBILITY

- Cloud
- precipitation
- fog
- haze
- smoke
- blowing snow
- blowing dust
- blowing sand

VISIBILITY IN RELATION TO STABILITY

Stable Air:

- impurities are trapped in the lower levels
- drizzle
- fog

Unstable Air:

- may cause blowing snow, sand or dust.

VISIBILITY TERMS

Visibility

The distance at which prominent objects may be seen and identified by day and prominent lighted objects by night.

Flight Visibility

Range of visibility forward from the cockpit of an aircraft.

Slant Range Visibility

The distance a pilot can see over the nose of an aircraft towards the ground.

Ground Visibility

The visibility at an airport as reported by an accredited observer. Generally considered as visibility at eye level.

Prevailing Visibility

The distance at which objects of known distance are visible over at least half of the horizon.

Runway Visual Range

A mechanical device measuring changes in light intensity to estimate the visibility near the touch down point or mid point of a runway.

ICING

In temperatures at or below freezing, supercooled water droplets may strike your aircraft and freeze. This is known as icing. Dangerous icing can occur in cloud, freezing rain or freezing drizzle.

TYPES OF ICING:

Frozen Dew

- Sometimes dew will form on an aircraft parked outside at night. If the aircraft skin temperature falls below freezing this dew will freeze
- Must be removed before take-off

Hoar Frost

- A white, feathery, crystalline formation that covers the entire surface of the aircraft
- Forms by sublimation on cold clear nights
- Must be removed before take-off since it can increase stall speed and reduce lift
- Can form in clear air when a cold aircraft enters warmer, damper air during a steep descent
- May obscure vision by coating the windshield

Rime Ice

- An opaque or milky white ice that forms on an aircraft
- Forms by the almost instantaneous freezing of small supercooled water droplets
- Has no great weight
- Alters the aerodynamics of the airfoils
- Chokes off the orifices of the carburetor and the instruments
- Is very brittle and easily dislodged by de-icing equipment

Clear Ice

- A coating of glassy like ice
- Forms as large supercooled water droplets freeze slowly and spread
- Can form a strong, solid sheet of ice which is difficult to dislodge
- Can increase drag by as much as 300% to 500%
- Increases the weight of the aircraft
- Disrupts the smooth air flow over the wings and tail surfaces decreasing lift
- Unequal loading may cause vibrations
- As large blocks break off, the structure of the aircraft may be impaired

Protection From Icing

Fluids – released on leading edge to flow over the blades of propellers and wing surfaces.

Rubber Boots – membranes of rubber attached to the leading edges. They can be made to pulsate in such a way that ice is cracked and broken off after it has already formed.

Heating Devices – Heating vulnerable areas with hot air from the engine or special heaters is a method of preventing the buildup of ice.