

# HAZARDS IN AVIATION



## Hazards , hazardous conditions and precautions

**Pre-flight hazards** Correct precautions must be taken to ensure that a parked aircraft is safe and ready for flight. Even small amounts of frost, ice and snow can have disastrous consequences. Deposits on the wings and airframe can affect the weight of the aircraft, the centre of gravity and the freedom of movement of control surfaces. They can also cause severe damage to the engines. So, de-icing procedures and removal of snow must be undertaken. If the flight is delayed for any substantial period of time, they must be repeated.

Other possible hazards may occur during the pre-flight period. For example, incorrect or contaminated fuel may be put into the aircraft.

**In flight** During flight, the pilot can see and avoid many hazardous weather phenomena if he is aware of hurricanes thunderstorms and areas of severe turbulence. Fortunately the cruising altitudes of modern jet aircraft place the aircraft above the level of many weather conditions. However, there is one meteorological hazard known as clear air turbulence (CAT) that occurs at cruise altitude and which is very difficult to detect. CAT can cause sudden and severe turbulence. It is often encountered in areas where there is jet stream activity. During this event all people on board including flight crew, cabin crew and passengers have to be fastened in their seats to prevent possible health problems. And finally, lightning...Lightning strikes can occur while flying in areas where cumulonimbus clouds are present. Damage to the airframe, instruments, radio communications and even the pilot's vision can occur.

**Aircraft Icing** When the aircraft flies through super cooled rain, sleet or snow, ice may form. Ice can build up. may form on any part of the aircraft, including the compressor blades. If this happens, ice may be ingested into the engine causing damage. In this case engine shut down is required. Even if an aircraft is equipped with a de-icing system, the melting ice can run back over the airframe and re-freeze on trailing edge surfaces, introducing another hazard.

**Dust, haze and ash** With increasing pollution in the world's largest cities, levels of smoke and haze (tiny particles in the air, even at the highest altitudes) can affect visibility and the operation of aircraft components during flight, interfering with the engines. The particular combination of smoke and fog, known as smog, is becoming common in bigger cities. Ash emitted by active volcanoes in various locations around the world can also be extremely hazardous. There have been some reports on jet engines shutting down as a result of ash belts in the jet stream.

**Non meteorological factors** Non-meteorological hazards can be dangerous too. Large flocks of birds present at many airports located on the coast can cause severe damage to the aircraft when birds are ingested into an engine. Sometimes simple sun-glare (блик) can make landing very difficult, or can hide other traffic or obstacles from the pilot's view. Sometimes in a broad light a pilot is unable to see towers and other buildings near the airport and can just easily forget about them and therefore be hazardous for the pilot who is not paying attention.

**The pilot and the company** With the majority of accidents still being the result of 'pilot error', the pilot can be considered to be a potential hazard. His health, flying skills, decision-making and flight currency (зд. Текущий налет) should be taken into consideration. Simple cold or other illness or taking prescription medicine can seriously affect the pilot's ability to concentrate. Pre-flight inspection of the pilot is just as important as pre-flight inspection of the aircraft and equipment.