

*Wind Shear.* Wind shear is best described as a change in wind direction and/or speed within a very short distance in the atmosphere. Under certain conditions, the atmosphere is capable of producing some dramatic shears very close to the ground. This, however, is not something encountered every day. In fact, it is unusual, which makes it more of a problem.

The most prominent meteorological phenomena that cause significant low-level wind shear problems are thunderstorms and certain frontal systems at or near an airport.

Basically, there are two potentially hazardous shear situations. First, a tailwind may shear to either a calm or headwind component. In this instance, initially the airspeed increases, the aircraft pitches up and the altitude increases. Second, a headwind may shear to a calm or tailwind component. In this situation, initially the airspeed decreases, the aircraft pitches down, and the altitude decreases. Aircraft speed, aerodynamic characteristics, power/weight ratio, powerplant response time, and pilot reactions along with other factors have a bearing on wind shear effects. It is important, however, to remember that shear can cause problems for ANY aircraft and ANY pilot.