

Wake turbulence

Wake turbulence is another dangerous type of clear-air turbulence, but in this case the causes are quite different from those set out above. In the case of wake turbulence, the rotating vortex-pair created by the wings of a large aircraft as it travels lingers for a significant amount of time after the passage of the aircraft, sometimes more than a minute. When this occurs, the lingering turbulence caused by the wake of the wing tips can deflect or even flip a smaller aircraft on the ground or in the air. This phenomenon can also lead to accidents with large aircraft as well. Delta Air Lines Flight 9570 crashed at the Greater Southwest International Airport in 1972 while landing behind a DC-10. This accident led to new rules for minimum following separation time from "heavy" aircraft. American Airlines Flight 587 crashed shortly after takeoff from John F. Kennedy International Airport in 2001 due to pilot overreaction to wake turbulence from a Boeing 747.



This picture from a NASA study on wingtip vortices qualitatively illustrates wake turbulence.