

Brief description of storm relative helicity

Overview

In recent years, special emphasis has been placed on the lowest 2-3 km of the atmosphere, usually below the Level of Free Convection (LFC), which is considered the inflow layer into a convective storm. *Storm relative helicity* is an important parameter used to measure the potential storm rotation obtainable for a given environmental low-level wind field. Storm relative helicity is the summation of the streamwise vorticity through the storm inflow layer and indicates the rotation potential of a thunderstorm updraft. In other words, air parcels flowing toward the updraft region of a thunderstorm spin about a horizontal vorticity axis. When lifted into the updraft, this axis is tilted and stretched into the vertical and develops a cyclonic rotation.

How the NWS computes storm relative helicity

Storm relative helicity is computed as twice the area bounded by the hodograph between the storm inflow vectors at the top and bottom of the measured layer. It is assumed the storm motion is 30 degrees to the right of the 0-6 km mean wind, and 75% of its magnitude. This can then be modified as more data becomes available from Doppler radar and other sources.