

Simulated storms with different hodograph curvature

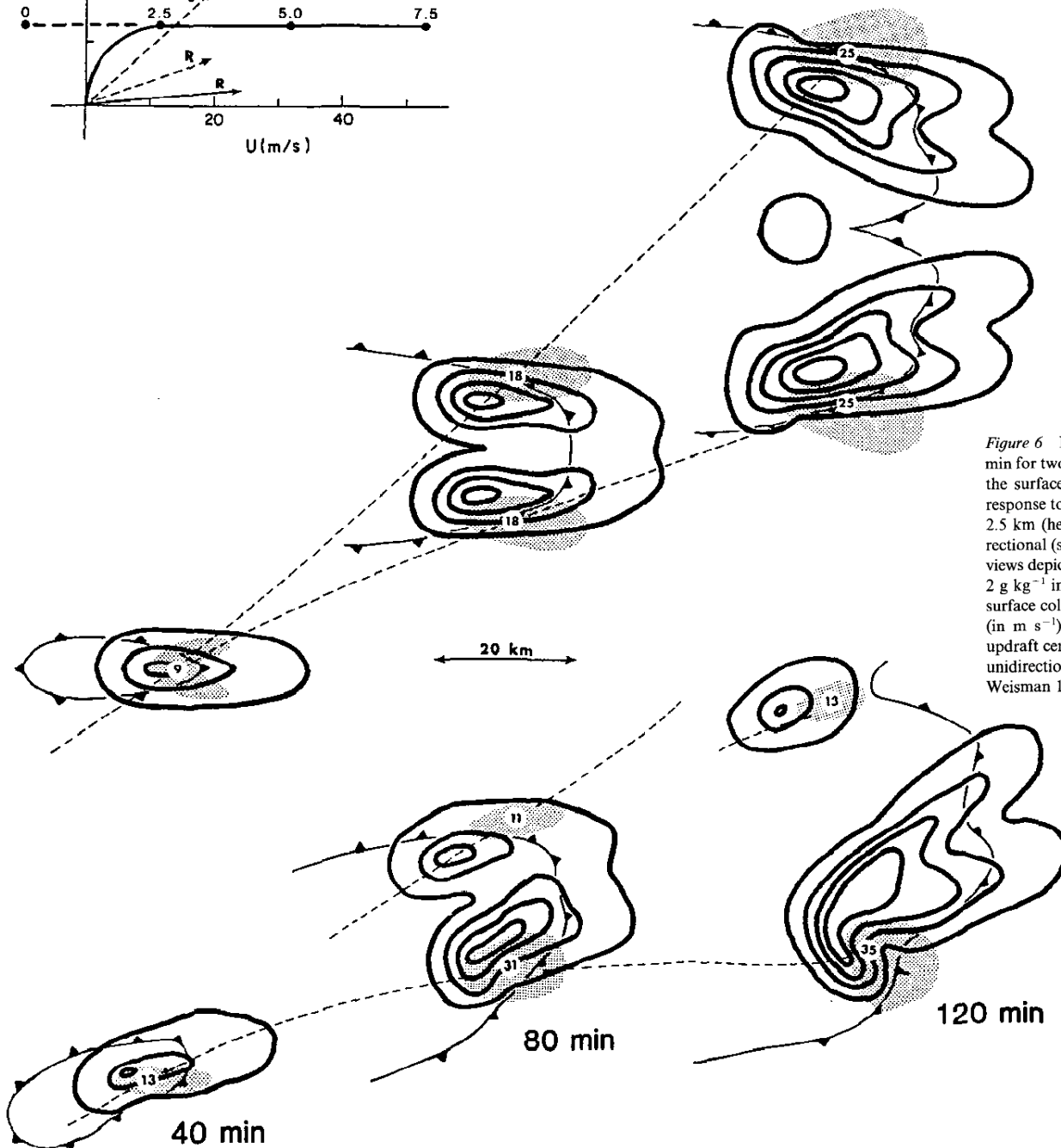


Figure 6 Plan views of numerically simulated thunderstorm structures at 40, 80, and 120 min for two environmental wind profiles (displayed at upper left) having wind shear between the surface and 7.5 km. The storm system in the lower portion of the figure evolves in response to the wind profile, in which S turns clockwise with height between the ground and 2.5 km (heavy solid line in wind plot), while the upper system develops when S is unidirectional (same wind profile except following the heavy dashed line below 2.5 km). The plan views depict the low-level (1.8 km) rainwater field (similar to radar reflectivity) contoured at 2 g kg^{-1} intervals, the midlevel (4.6 km) updraft (shaded regions), and the location of the surface cold-air outflow boundary (barbed lines). The maximum updraft velocity is labeled (in m s^{-1}) within each updraft at each time. The dashed lines track the path of each updraft center. Arrows in the wind plot indicate the supercell propagation velocities for the unidirectional (dashed) and turning (solid) wind-shear profiles. (Adapted from Klemp & Weisman 1983.)