

Tornado



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BUSTER**

Tornado is defined as a violently rotating column of air attended by a funnel-shaped or tubular cloud extending downward from the base of a cumulonimbus cloud. Tornadoes are the most violent of all the storms. They are very small in size and of short duration. These atmospheric disturbances may be ranked high among nature's most destructive forces. Tornadoes are also called 'twisters' or cyclones. They are intense centers of low pressure having a whirlpool-like structure of winds rotating around a central cavity where a partial vacuum is produced by the centrifugal forces.

The velocity of winds revolving tightly around the core reaches more than 300 km per hour. It shows the vertical cross-section of a typical tornado. Tornado is derived from the Spanish word, 'tronada', a thunderstorm, which comes from 'tronar' which means 'to thunder'. The diameter of this small-sized violent storm varies from 150 to 600 meters. The speed at which these storms travel over the ground is estimated to be 30 to 45 kilometers per hour. The length of the path of a tornado may be more than 26 kilometers.

It may be pointed out that a great deal of variation is found as regards the size, wind velocities, length of the path and speed of the tornadoes. Because of the storm fury, no direct measurement of the pressure and winds in a tornado is possible. Hence most of the information is obtained indirectly, i. e. from examining the after effects of the storm. Excessive instability and steep lapse rate in the atmosphere are necessary pre-requisites for the origin and growth of a tornado. It is invariably associated with severe thunderstorms.

Its most destructive part is its funnel which appears to be hanging from the base of a large cumulonimbus cloud. Its lower end which touches the ground may be 90 to 460 meters in diameter. When looked at from the ground, the

funnel appears dark because of the presence of condensed moisture and the dust and debris picked up from the ground by the whirling tornado. Pressures in the central part of tornadoes may be 100 mb less than those immediately outside the storm. Because of such a steep pressure gradient, wind speeds of about 650 kilometers per hour have been estimated.

Air caught into the vortex of the storm undergoes rapid uplift and cools adiabatically. The resulting condensed moisture lends a dark colour to the cloud funnel. Because the outside pressure falls rapidly with the passage of a tornado, the air under normal pressure within a building explodes violently destroying life and property. Tornadoes may be found to be moving singly or in families of several individual tornadoes. These storms usually move in straight paths at velocities controlled by the low-level jet. Besides, the exceptionally high winds whirling in a tornado produce a loud roaring sound.