The Birth of a Tornado from weather.com -- Learn More as the Likelihood for Tornadoes Ramps Up during Spring Months

Check out the Anatomy of a Tornado with weather.com VR Experience

ATLANTA, April 19, 2017 /PRNewswire/ -- While tornadoes touch down during every month of the year, spring months see the most on average in the United States. With the heightened likelihood of tornadic activity, The Weather Company, an IBM Business (NYSE: IBM), looks to better inform people to help them prepare ahead of time to keep themselves and their families safe during severe weather. This spring, The Weather Channel website weather.com has created a weather explainer showing the anatomy and creation of a tornado.

This 360 virtual reality (VR) interaction allows viewers to experience a tornado from the inside while learning how a tornado forms. The experience uses progressive enhancement web design strategy to make web content accessible and functional using any browser or Internet connection. So users can follow the birth of a tornado whether on desktop, tablet or mobile screens, or using either WebVR or polyfilled VR devices.

Four ingredients combine to help form tornadoes: shear, lift, instability and moisture, or SLIM:

- **Shear -** Tornadogenesis needs two types of wind shear. Vertical wind shear, changes in wind speed with height, helps spark a rotational column and tilts storms, which allows updrafts and downdrafts to form. Directional wind shear, changes in wind direction with height, pulls in different types of air mass to support tornado and thunderstorm growth.
- **Lift -** A storm can become more severe when air rises faster. Different sources can force air upward and increase a storm's ability to grow and strengthen due to a density change. Sources of lift include cold or warm fronts, dry lines, sea breezes and mountain ranges.
- **Instability -** When the temperature warms as height increases, the atmosphere is stable and clouds will be unable to grow. Instability occurs when air can move up freely into the atmosphere. Most winter or some spring storm systems lack heat, so instability limits them from producing larger severe weather outbreaks.
- **Moisture -** The more moisture available for storms to form, the more buoyant their environment will be and the more they can grow. Moisture feeds include the Gulf of Mexico and storm systems that move across the Rocky Mountains to the Great Plains.

Thunderstorms can form whenever the ground is heated and the air is moist, but storms that form in the warm, soupy air that precedes storm systems are generally more likely to produce tornadoes. Tornadogenesis is an evolving field of study, but while some tornadoes occur within lines of severe thunderstorms, most violent or significant tornadoes come from supercells although most supercells do not produce tornadoes. Supercells are thunderstorms that can last for hours in environments conducive to letting the storm breathe and grow.

"When vertical wind shear is intense near the surface, it creates a rolling tube of air that is parallel to the ground," The Weather Company meteorologist Jonathan Belles explains. "When lifted vertically, the rotating tube acts as a suction vacuum bringing up air, and that air falls as rain in areas surrounding and ahead of the strongest part of the storm. This is like the lungs of a thunderstorm that will keep breathing until the storm cannot breathe any longer. This is what makes a cell a supercell."

Learn more about how a tornado forms, and experience the VR interaction at weather.com. Developers can also view this article to get a behind-the-scenes look at a case study and what it took to create this WebVR experience.

Tornadoes can have winds from 70-200 mph and are rated on the Enhanced Fujita Scale, which estimates wind damage done to structures, cars or the ground. Tornadoes can be extremely destructive and deadly. It's important to know when the environment is right for a possible tornado to form. Be sure to check weather.com or wunderground.com for the latest weather

information and notifications nearby. Tornado Central by weather.com also features radar and areas under threat of severe weather, as well as news, photos and safety and preparedness tips.

The Weather Company, an IBM Business

The Weather Company, an IBM Business, is the world's largest private weather enterprise, helping people make informed decisions – and take action – in the face of weather. The company offers the most accurate, personalized and actionable weather data and insights to millions of consumers and thousands of businesses via Weather's API, its business solutions division, and its own digital products from The Weather Channel (weather.com) and Weather Underground (wunderground.com).

The company delivers billions of forecasts daily. Its products include a top weather app on all major mobile platforms globally; the world's largest network of personal weather stations; a top-20 U.S. website; the seventh most data-rich site in the world; one of the world's largest IoT data platforms; and industry-leading business solutions.

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