explainity explains
topic: whirlwinds
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Today, it's unbearably hot again. There are reports of heavy thunderstorms with gale-force winds. Extreme weather like this can also lead to whirlwinds! There are actually two kinds of whirlwinds, but more about that later. First, let's have a look at how whirlwinds form.

The sun is the decisive factor. It is responsible, in water, on the ground, and in the air, for large differences in air pressure and temperature. That can lead to wind, clouds, rain and thunderstorms.

If these temperature differences are very extreme, this creates a huge pull, where the warm, and moist humid air on the ground rises extremely fast. If winds of varying strengths from different directions, then hit the mass of clouds, they start to turn into a funnel shape towards the ground. The rotation direction is determined by the strongest wind.
We call these whirlwinds tornadoes, twisters, or land- and waterspouts, because all of them can form on water and on land in moist humid, warm areas. You even get them in Europe. These whirlwinds can happen completely out of the blue, and at speeds of up to 500 kilometers per hour, they can do a lot of damage. Their diameter ranges from 50 meters to 2,000 meters. Due to friction on the ground, they lose their energy and usually die down within a few minutes.

It's a bit different with tropical whirlwinds. They only form in the ocean between five and twenty degrees of latitude. They have different names depending on the region: hurricanes form off the coast of America, typhoons in the Asia-Pacific region, and cyclones in the Indian Ocean. In these places, the sun is so powerful that the sea water heats up to over 26 degrees Celsius. It evaporates, meets cold air above, condenses, and big rain and storm clouds are formed. In extreme cases, there's a vortex. But here, it isn't the wind direction that's responsible for the rotation, but the Earth's revolution. In the northern hemisphere, the vortex turns counter clockwise, and in the southern hemisphere, clockwise. In the middle of the whirlwind – in the so-called "eye of the storm", the cold air keeps on sucking in warm, humid air from all sides, which rises back to the top, bundling more and more energy. Tropical whirlwinds can be over 100 kilometers wide and reach speeds of 120 to 250 kilometers per hour. They go on for days and weeks and sometimes also hit land, where they can cause destruction and flooding. At the same time, there is no warm water to sustain them from below, so they gradually lose their energy and die down.

But whirlwinds aren't just a destructive force. They're also very important for our planet! They carry off excess heat from water, land, and air into space, helping us and our planet to cool down.