



## PRESS RELEASE

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### **Tornadoes in the U.S.A. compared to funnel clouds in the ABC Islands**

Several reports were published in recent days about the development of tornadoes in the U.S.A. Some of these in a few cases lead to the loss of a rather large amount of human lives and also to a material damage of billions of U.S. dollars.

These severe whirlwinds develop mainly during April and May and especially over the Great Plains of the U.S.A. The conditions that favor the development of these whirlwinds are:

- The clash between warm and moist air originating in the Gulf of Mexico and cooler and drier air which originates in the Rocky Mountains.
- A significant difference in wind direction and an increase in wind speed with increasing height.
- Unstable air.
- A strong jet stream above the area of inclement weather.



*The severe tornado of May 20, 2013, near Moore, Oklahoma*

When these conditions are present, so-called super cells will develop and possibly tornadoes as well. It is difficult to predict the development of these tornadoes well in advance (more than one hour).

Conditions like these don't occur in the tropics, including the ABC Islands. The type of whirlwinds that do develop occasionally over the ABC Islands, leading locally to damage, is a small scale weather phenomenon that is hard to predict well in advance. More often water spouts develop above the sea near our islands and in most cases these are incomplete. This means that the "trunk" below the cloud is only partially visible and is not reaching the Earth's surface.

These phenomena occur especially in the period between August and October over and near the ABC Islands. An exception on this rule was a small funnel cloud that developed on January 11, 2008 over sections of Santa Catharina (Curaçao). Several

funnel clouds were also observed in parts of Aruba and the one that occurred on September 18, 2004 is best remembered. As far as is known, no recent funnel cloud activity was observed in Bonaire.

On September 29, 1976 a funnel cloud developed over Julianadorp (Curaçao) in almost the same location as nearly five years ago (August 23, 2008). This phenomenon then moved in a southeasterly direction over a few quarters like De Savaan and Thorenquest and then finally dissipated over the Bay of Valentijn, which is the westernmost part of Schottegat Bay. One person was severely injured on this occasion and three other persons received minor injuries. The material damage was considerable.

The conditions that in general are favorable for the development of funnel clouds are:

- Light winds near the ground and in the lower levels of the atmosphere.
- Warm and moist air.
- Instability (a greater than normal decrease of temperature with increasing height), which leads to rising air motion.
- The presence of sufficient condensation nuclei (salt crystals) which favors a more rapid development of larger cloud droplets.

When these conditions are present, convective clouds of the Towering Cumulus or Cumulonimbus types are likely to develop, with possibly land spouts (funnel clouds over land). These whirlwinds are hard to predict well in advance. Although these conditions occur every year over the ABC Islands, the actual development of funnel clouds remains a rare occurrence. Specific early warnings for these therefore, with current technology, cannot be issued (yet) successfully.

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