

What's the Difference Between a Tropical Depression, Tropical Storm and Hurricane?

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Meteorologists use special terminology based on various classifications for developing tropical activity.

You may have heard meteorologists describe these weather formations as tropical systems, tropical disturbances, tropical depressions, tropical storms and hurricanes. What does all of this terminology really mean?



Pilot, Maj. J.D. Haig, left, and Aircraft Commander, Lt. Col. Troy "Bear" Anderson fly aboard an Air Force Reserve C-130 Hurricane Hunter plane as the crew flies over Cuba back to Homestead Air Reserve Base, Fla., from Tropical Storm Gustav, Wednesday, Aug. 27, 2008. (AP Photo/Wilfredo Lee)

Stages of Tropical Formation

The first official stage of a tropical classification is a tropical depression. But before this happens, meteorologists refer to this potential activity using many different terms, all which mean about the same thing.

You will hear them throw out some of these terms: tropical system, tropical feature, tropical activity, tropical disturbance, and tropical wave. These descriptions all refer to a weather formation that has the potential to strengthen and organize into a substantial tropical storm, or even a hurricane.

When these descriptors are used, the storm at its current state doesn't have strong enough sustained and organized winds or the pressure necessary to be classified as a tropical depression.

Tropical Depression

A tropical depression forms when a low-pressure area is accompanied by thunderstorms that produce a circular wind flow with maximum sustained winds below 39 mph. Most tropical depressions have *maximum sustained winds between 25 and 35 mph*.

In the U.S., the National Hurricane Center (NHC) is responsible for issuing advisories upgrading or downgrading tropical activity.

Reconnaissance aircraft missions are sent by the NHC flying into tropical storms to gather data, like wind speeds, to aid in making these classification changes. Surface data from islands, buoys and vessels can also be used to make changes.

Tropical Storm

An upgrade into a tropical storm occurs when cyclonic circulation becomes more organized and *maximum sustained winds gust consistently at or above 39 mph, and no higher than 73 mph*. Tropical storm status is when the naming of the storm takes place.

Hurricane

A tropical storm is then upgraded into Category 1 hurricane status as *maximum sustained winds increase to between 74 mph and 95 mph*.

The Saffir-Simpson Hurricane Scale is used to rate hurricane intensity in the Atlantic Basin. A 1-5 rating system is used, with Category 1 being a less intense storm and Category 5 very intense.



SAFFIR-SIMPSON SCALE		
CATEGORY	WIND (MPH)	DAMAGE POTENTIAL
5	>156	CATASTROPHIC
4	131-155	EXTREME
3	111-130	EXTENSIVE
2	96-110	MODERATE
1	74-95	MINIMAL