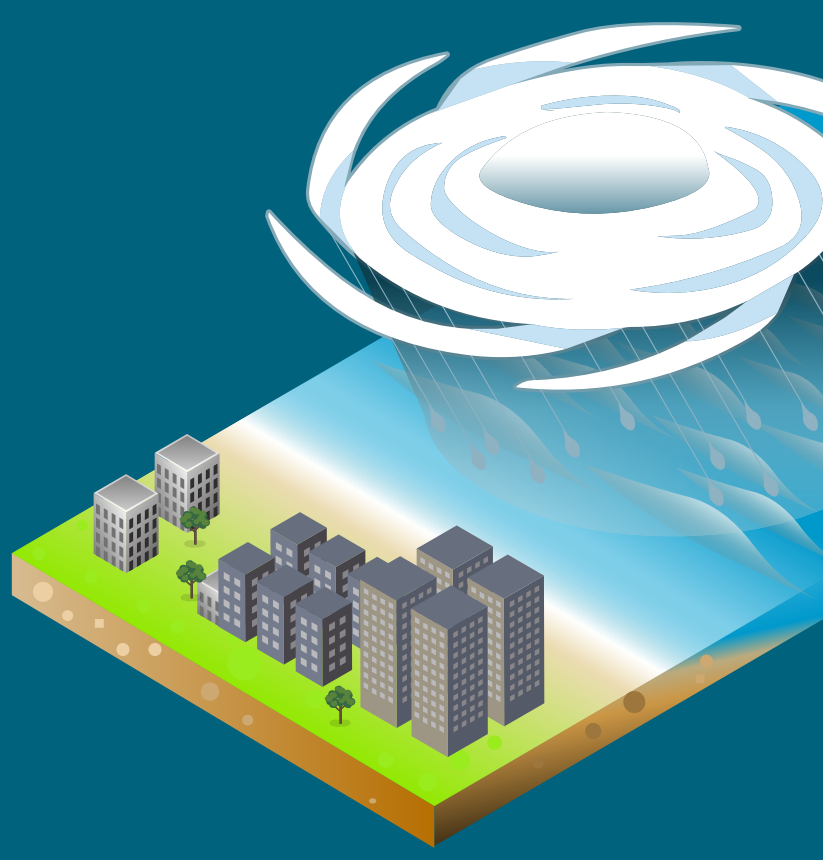# VAISALA

Into the eye of the storm

HOW DROPSONDE TECHNOLOGY AIDS HURRICANE HUNTERS

2020
The most active hurricane season on record

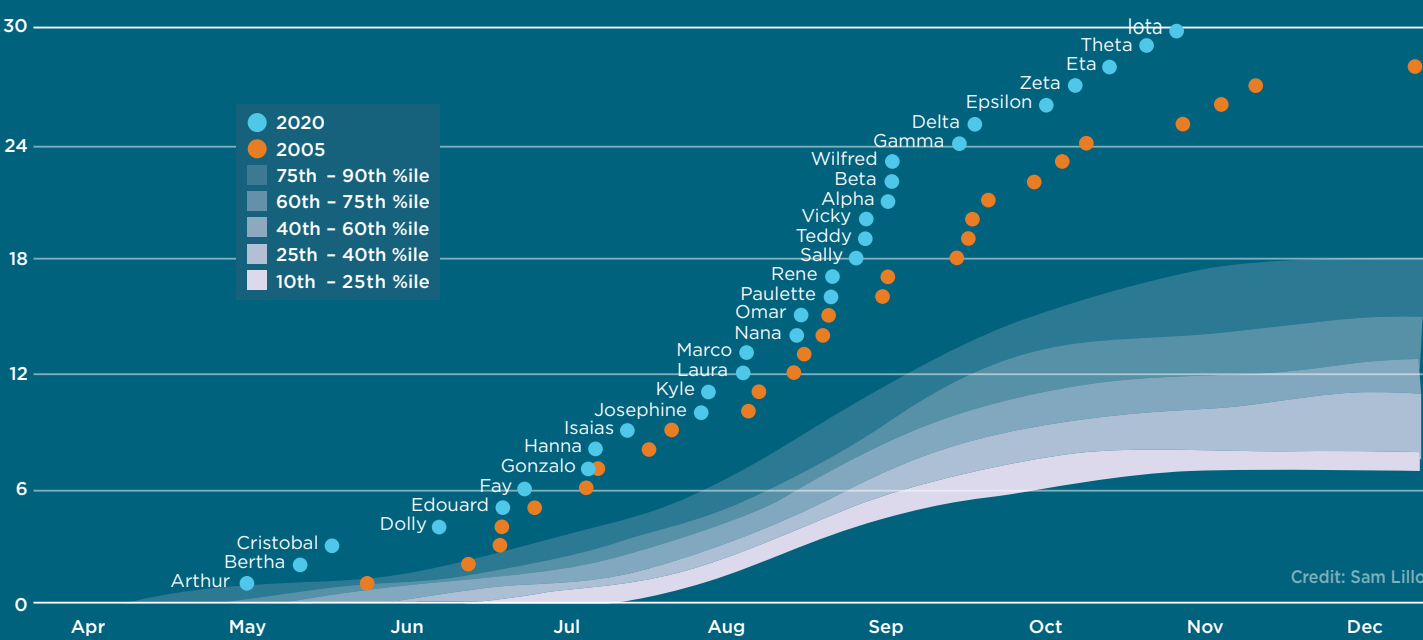**13** Hurricanes
(more than double the yearly average)[1]

12 Named storms made landfall on the U.S.[2]

6 Hurricanes made landfall on the U.S.[2]

99.6%
(3,598 miles)
Amount of U.S. Gulf and Atlantic coastlines included in weather watches or alerts[2]

1,950.5
Hours flown by U.S. Air Force Reserve and NOAA Hurricane Hunters (third-most hours on record)

Named storms 2005 vs. 2020

Legend:
- 2020
- 2005
- 75th – 90th %ile
- 60th – 75th %ile
- 40th – 60th %ile
- 25th – 40th %ile
- 10th – 25th %ile

Storm labels: Iota, Theta, Eta, Zeta, Epsilon, Delta, Gamma, Wilfred, Beta, Alpha, Vicky, Teddy, Sally, Rene, Paulette, Omar, Nana, Marco, Laura, Kyle, Josephine, Isaias, Hanna, Gonzalo, Fay, Edouard, Dolly, Cristobal, Bertha, Arthur

Axis: Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec — 0, 6, 12, 18, 24, 30

Credit: Sam Lillo

The value of dropsonde sensing

Dropsondes parachute down from passing aircraft directly into or near a storm, collecting and transmitting valuable real-time data:

- Wind speed and direction
- Humidity
- Barometric pressure
- Temperature

The result

Improved storm forecast accuracy by **10-15%**, potentially correcting storm trajectories by **hundreds of miles**.

The data flow

1 Falling dropsonde collects data

2 Data sent to aircraft in real time for quality check

3 Aircraft relays data to hurricane center

4 Forecasting, alerting, and other tasks enabled

Dropsonde RD41

- Provides atmospheric profiles from aircraft altitude to surface level.
- Used for storm reconnaissance and research, as well as various field campaigns to conduct meteorological research and validate other airborne instrumentation.
- Built by Vaisala under license from UCAR, the RD41 dropsonde, aircraft data system hardware, and software as used by hurricane hunters are designed by the Earth Observing Laboratory of the National Center of Atmospheric Research.

Measurements:
- Pressure
- Wind direction
- Temperature
- Wind speed
- Humidity

2,700+
Vaisala-built dropsondes deployed by the U.S. Air Force Reserve and NOAA Hurricane Hunters in 2020

- Technical precision and data quality
- Manufacturing capabilities to meet the quantities needed
- Available globally

20+ years of dropsonde experience

VAISALA

vaisala.com/soundings

AMBASSADOR
WRN
WEATHER READY NATION

Sources:
1. National Oceanic and Atmospheric Administration, "Record-breaking Atlantic hurricane season draws to an end," https://www.noaa.gov/media-release/record-breaking-atlantic-hurricane-season-draws-to-end
2. Chris Vagasky, "The 2020 Atlantic hurricane season swirls on," https://www.vaisala.com/en/blog/2020-11/2020-atlantic-hurricane-season-swirls