Dropsonde

The NCAR GPS Dropsonde system, also known as AVAPS (Airborne Vertical Atmospheric Profiling System), is a weather device designed to be dropped from an aircraft to more accurately measure (and therefore track) tropical storm conditions as the device falls through the atmosphere. A smaller version of the Dropsonde (MIST Sonde) is designed specifically to be deployed from the Driftsonde, a high-altitude balloon.

Both versions of the dropsonde contain a GPS receiver, along with pressure, temperature, and humidity (PTH) sensors to capture atmospheric thermodynamic and wind profiles data. It relays this data to a computer in the aircraft by radio transmission. The device’s descent is slowed by a parachute, allowing for high vertical resolution measurements of the atmosphere as it reaches the earth’s surface. Since its debut in 1997, it has flown on numerous missions in support of operational weather forecasting and atmospheric research, with impressive results.

Applications

» Tropical Meteorology
» Hurricane Research
» Numeric Weather Prediction
» Validation of Other Airborne Instrumentation

Requestable Facility

Requesting Dropsondes

As with all EOL facilities, National Science Foundation-funded investigators may request use of NCAR/EOL Dropsondes without charge, pending a panel review and final approval by NSF. Request applications are due 1 January and 1 July for experiments starting 10-16 months later.

For more information on how to request NSF/EOL Dropsondes, visit:
http://www.eol.ucar.edu/request-facilities
**Dropsonde**

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**Aircraft GPS Dropsonde**

» Deployed from Aircraft  
» Provides in-Situ Thermodynamic & Wind Measurements  
  » Pressure  
  » Temperature  
  » Humidity (2-sensors)  
  » Wind speed and direction (GPS receiver)  

» Provides detailed atmospheric profiles with high vertical resolution  
» Measures PTH & Wind Profile  
» Sensor sample rate 2Hz for PTH and 4Hz for GPS  
» Size: 2.75” Dia., 16” length  
» Mass: 360 grams  
» Very stable parachute  
» Fall velocity ~11.5 m/s at sea level

**MIST Sonde**

» Deployed from Drifsonde  
» Provides in-Situ Thermodynamic & Wind Measurements  
  » Pressure  
  » Temperature  
  » Humidity (2-sensors)  
» Wind speed and direction (GPS receiver)  
» Sensor sample rate 2Hz for PTH and 4 Hz for Winds (GPS)  
» Size: 1.75” Dia., 10” length  
» Mass: 175 grams  
» Very stable parachute

**Aircraft System**

» 4 channel systems allows for up to 4 sondes in the air simultaneously  
» A channel can be re-used within 3 or 4 minutes of previous drop  
» Single operator