Dropsonde NRD41

Dropsondes released from research aircraft into hurricanes, winter storms, and other scientifically interesting meteorological conditions provide high resolution measurements of pressure, temperature, humidity, and winds. These observations are used in fundamental research and operational forecasts of severe weather (hurricanes, atmospheric rivers, winter storms.)

NCAR Data Support

NCAR dropsonde systems are installed on many different research aircraft:
- NSF/NCAR: GV and C-130
- USAF: WC-130
- NOAA: WP-3D AND G-IV
- NASA: King Air, P-3, DC-8, Global Hawk
- NPS/CIRPAS: Twin Otter
- UWYO: King Air
- DLR: G550
- FAAAM: BAE-146
- CBW: G100
- KMA: King Air
- HKO: CL-605

Dropsonde Campaigns

Nearly 14,000 dropsondes developed at NCAR were launched in 70 field campaigns led or supported by NCAR over the last 35 years. Over 60,000 dropsondes launches by NOAA and USAF are not included here.

Dropsonde Campaigns and number of drops in each year since 1988

Dropsonde observations provide essential data to study a large range of atmospheric phenomena and to validate remote sensing instrumentation, e.g.:
- Tropical cyclones (e.g. Aberson et al., 2023)
- Downslope wind storms, SWEX (Carvalho et al., 2023)
- Validation of water vapor radar, CPEX (Millan et al., 2023)
- Convection, OTREC (Vömel et al., 2021)
- Aerosol-cloud interaction, ACTIVATE (Sorooshian et al., 2023), SOCRATES (McFarquhar et al., 2021)

Mass flux in convective events derived from dropsonde observations during OTREC (Fuchs-Stone et al., 2020)

REFERENCES