# Sharing UAS Weather Data via a Centralized Repository

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# Who We Are

Synoptic is committed to provide expanded access to environmental data to enhance public safety, improve the productivity of government agencies and commercial entities, and assist in research and educational initiatives to advance the understanding of Earth systems.

- Leader in aggregating, processing, and disseminating real-time and historical measured weather and environmental observations
- 20+ years of experience delivering mission-critical environmental data
- Accessible marketplace for both public and restricted/proprietary data and comprehensive historical archives of observations

| | |
|---|---|
| Daily Observations | 144M+ |
| Observation Stations | 140,000+ |
| Data Providers (networks) | 320+ |
| Data Parameters | 140+ |
| Daily Data Requests | 3M+ |

# Public Benefit Corporation

**WHAT IS A PBC?**
(PUBLIC BENEFIT CORPORATION)

A PBC is focused on people, the planet, and sustainability.

Total Number of PBCs in the US: **4,000+**

- Provide open access to real-time and historical weather data to educators and weather enthusiasts.
- Provide cost-effective service packages for all other users.
- Provide easy to use visualizations of observation data.
- Serve the weather community and provide as much support as possible for Open Access API users.
- Continue to be an exemplary steward of the National Mesonet Program.

Certified
B
Corporation

# Synoptic's History
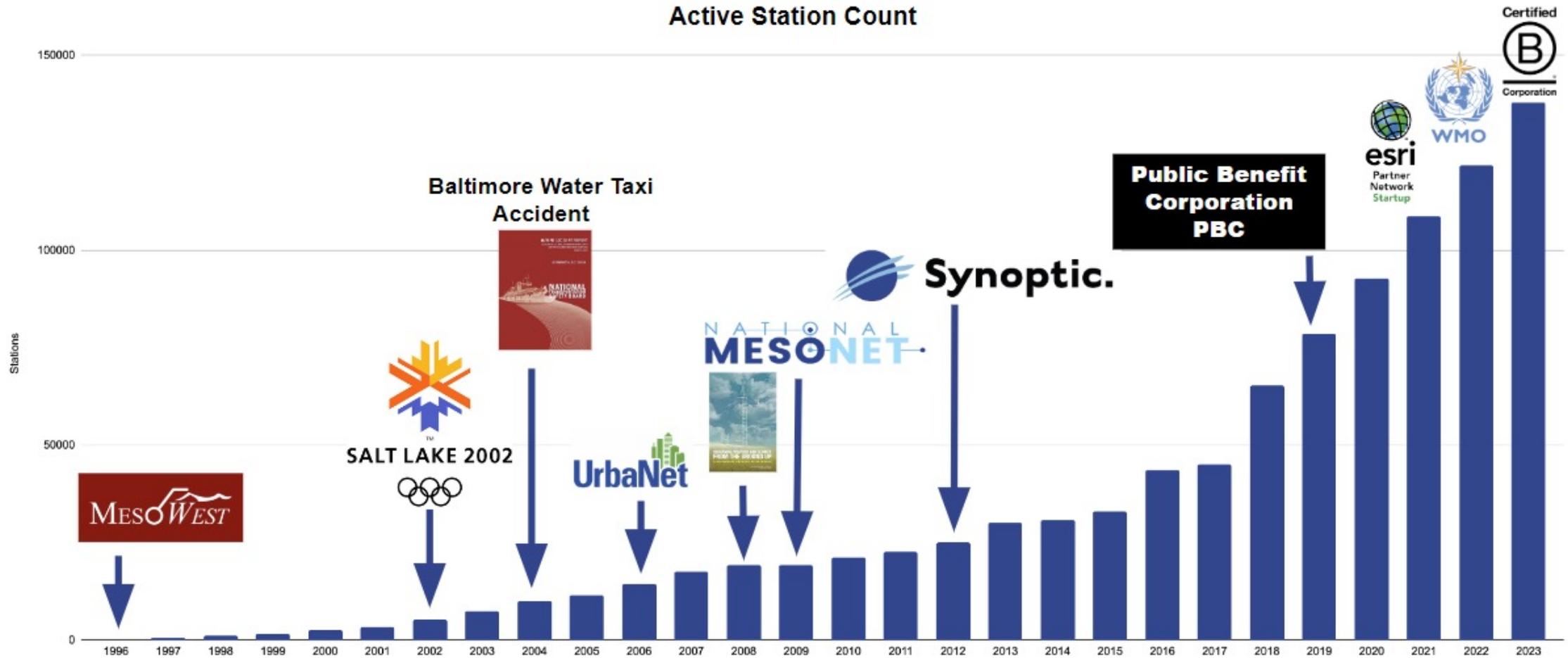
# Fill those gaps!
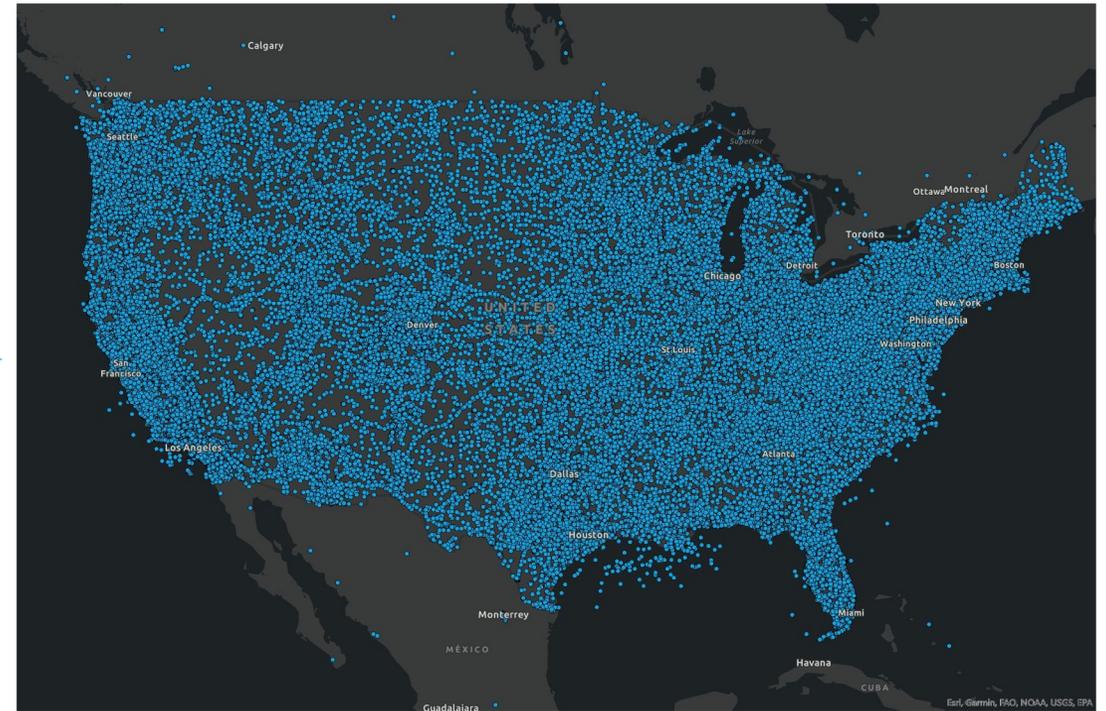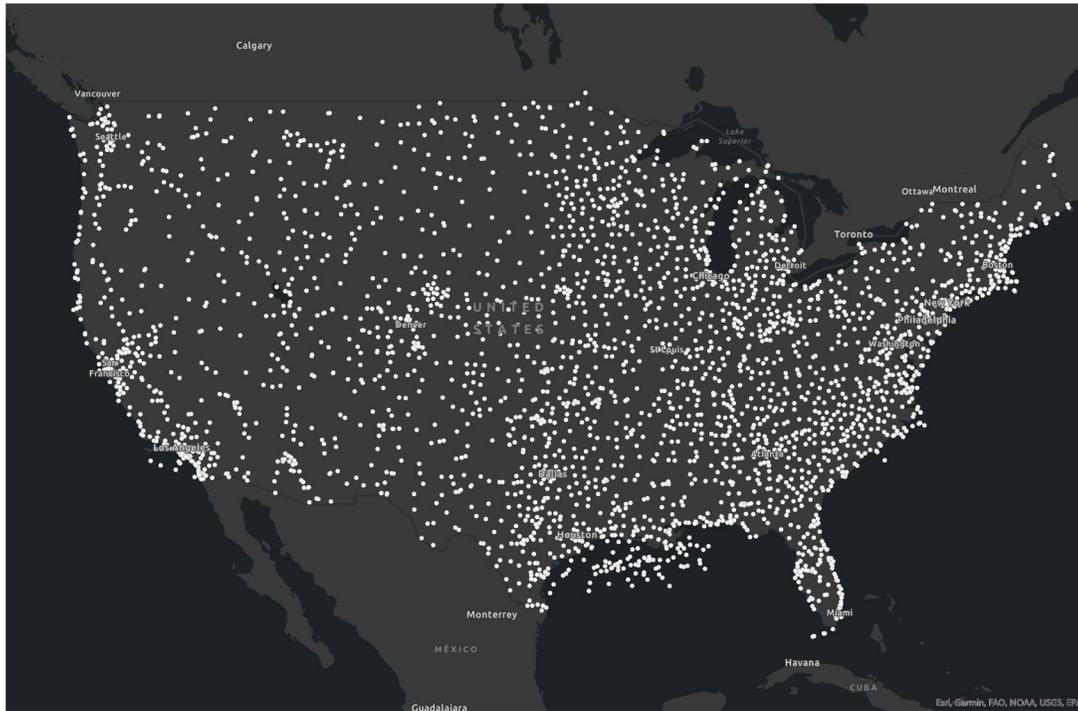
# National Mesonet Program

- Gold standard public-private-academic partnership between 54 partners and the National Weather Service
  - Academia
  - State/Local Government
  - Private Industry
- Data buy program
- Leverages non-federal networks to fill data gaps in the federal observing network
- Surface, **upper-air**, radar, and mobile (**aircraft, balloons**, and drifting buoys)



**National Mesonet Program**

The NMP Leverages networks in all 50 states and the U.S. territories of Puerto Rico, American Samoa, and the U.S. Virgin Islands. The institutions labeled and listed below are formal National Mesonet partners.

**National Commercial Partners**

| | | |
|---|---|---|
| FlightAware | Radiometrics | Sofar Ocean |
| L3Harris Geospatial | Davis Instruments | WeatherFlow |
| FLYHT Aerospace Solutions | Sonoma Technology | Synoptic Data PBC |
| Advanced Environmental Monitoring | | WindBorne Systems |

# Why a centralized repository?

- Easy access
  - Can access other data sets and types all in one place
  - Research projects
- Flexibility
  - Data formats
  - Delivery pathways
- Quality control
- Data monetization
  - Via National Mesonet Program (direct sales to NOAA) or rev share (other federal agencies or commercial entities)
- Centralized data sharing
  - Public, private, and academic sectors (both domestic and international)
- Increased exposure for your data set!
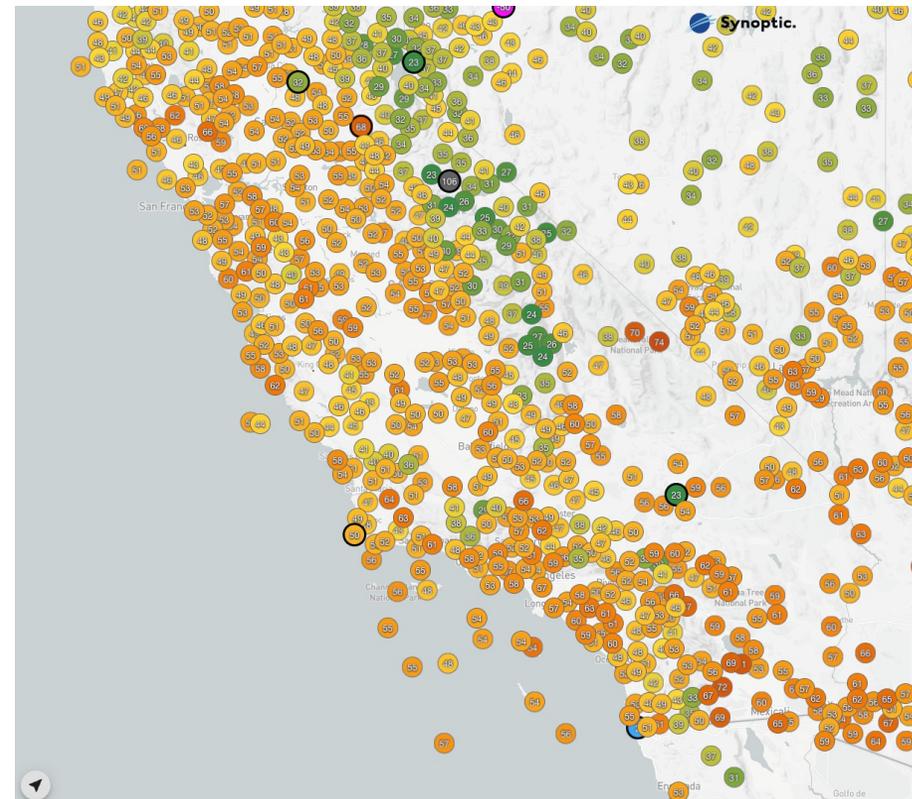
# Upper-air data

- FLYHT TAMDAR and AMDAR-over-AFIRS
- FlightAware Mode S
- WindBorne long-duration balloons
- WMO UAS Demonstration Campaign
- NOAA UAS CRADA (Meteomatics and GrandSky)



*Synoptic is a data reseller and/or delivery pathway for all above data sets and campaigns/projects.*

# WMO Information System (WIS 2.0)

- GTS replacement (~2030)
- Modern framework for countries to share data
- Supports WMO Unified Data Policy
- Synoptic signed LOE with WMO to be global implementation

partner for the U.S. WIS 2.0 Node and U.S. WIS 2.0 Global Cache

# WMO UAS DC

- Synoptic is the data repository for this campaign
- UAS NetCDF4 data sent to Synoptic via FTP
- Converted to BUFR
- Synoptic publishes message to WIS 2.0 Global Broker
- Approved subscribers download the data from Synoptic



World Meteorological Organization
Uncrewed Aircraft Systems
Demonstration Campaign (UAS-DC)
March – September 2024

# Thank You!

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