



## Site inventory

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## Trend detection need for upper troposphere / lower stratosphere

- **UT: Frequent observations, limited accuracy ok**
- **LS: higher accuracy, less frequency ok (?)**
- **The first (unmanaged) change in instrumentation impacts the data set most strongly**

## Satellite validation

- **Reference anchor needed → minimize uncertainty**
- **Generate statistically meaningful data set**

## Understanding the vertical column

- **Minimize uncertainty**

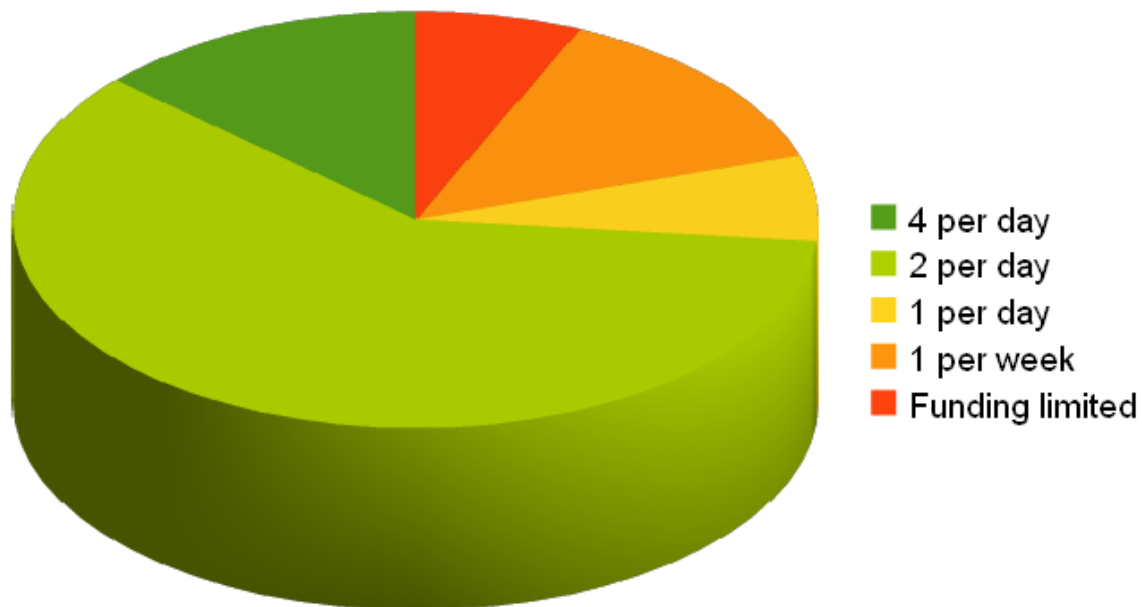
## GCOS Reference Upper-Air Network



## Site groups

- Operational radiosonde sites (9)
- Research sonde sites (6)
- Remote sensing sites (3)

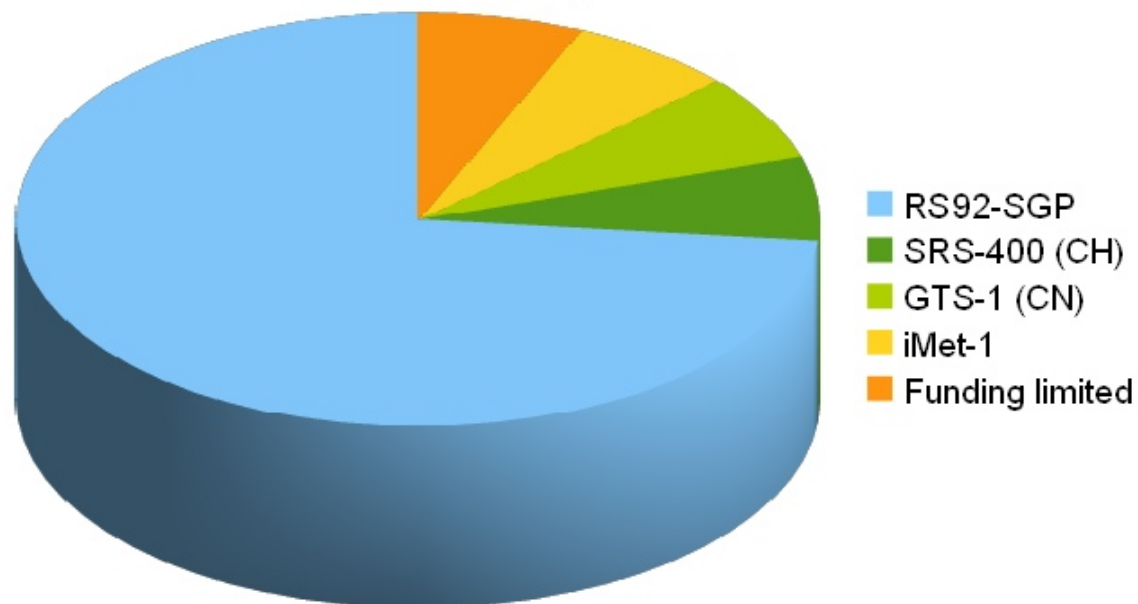
# Radiosonde launch frequency



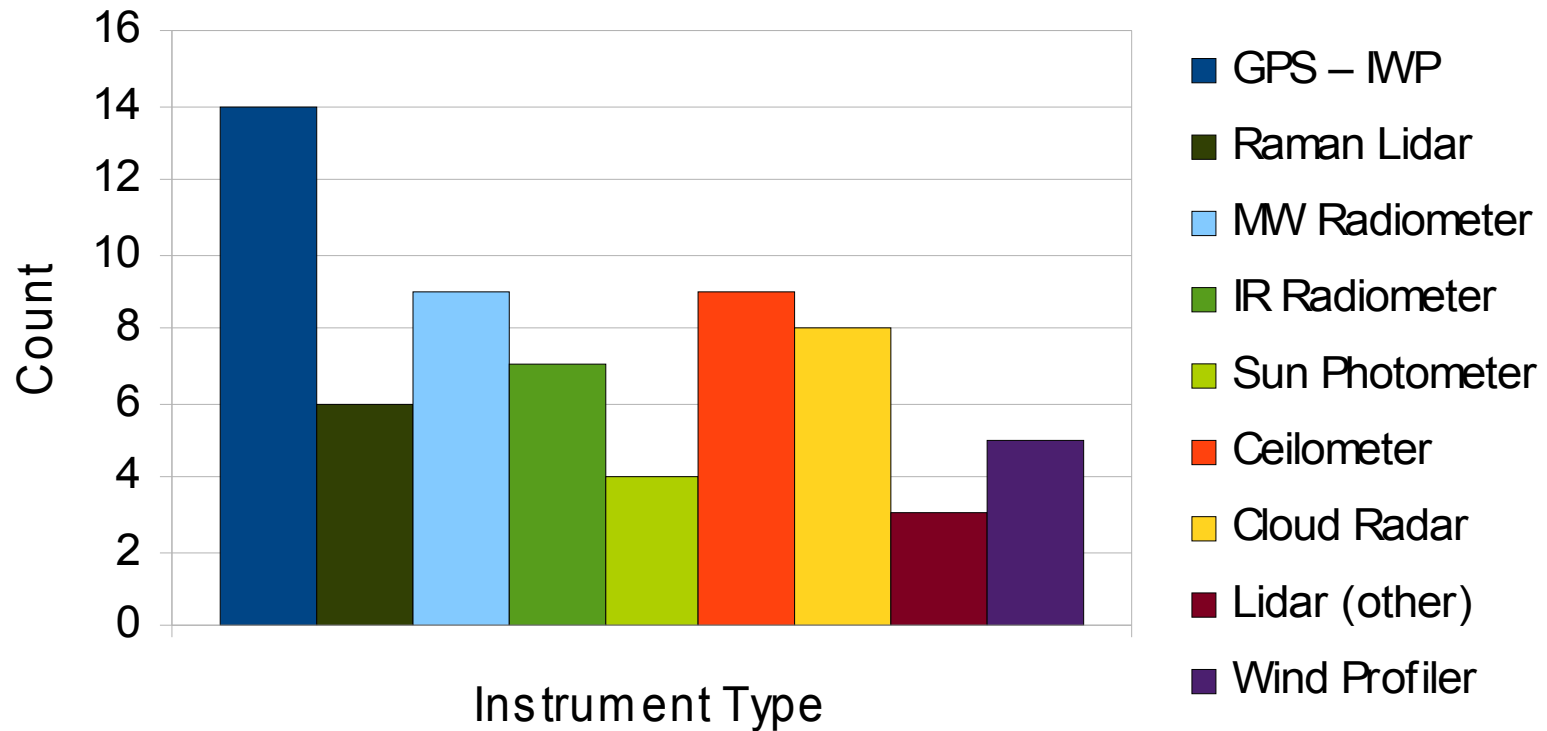
# Radiosonde Type



Routine Radiosonde Launch  
Type



# Remote Sensing



# Research Sondes



## Instruments to measure stratospheric water vapor

- **Cryogenic Frostpoint Hygrometer (CFH), 3 sites**
- **NOAA Frostpoint Hygrometer (FPH), 2 sites**
- **Fluorescent Lyman Alpha Stratospheric Hygrometer for Balloon (FLASH-B), 1 site**