

# NOAA WIND PROFILER NETWORK

ET – RS UAT&T

14-17 MARCH, 2005

GENEVA, SWITZERLAND

RAINER DOMBROWSKY, NOAA/NWS

Prepared with the assistance of Seth Gutman

NOAA, Forecast Systems Laboratory

# NOAA WIND PROFILER NETWORK

- **THE NOAA PROFILER NETWORK IS DEPLOYED OVER THE CENTRAL UNITED STATES AND ALASKA.**
- **THE NETWORK HAS BEEN IN PLACE SINCE 1988 AND OPERATES ON 404 MEGA HERTZ (MHz).**
- **THE NETWORK CONSISTS OF 35 WIND PROFILERS.**
- **EACH PROVIDES WIND PROFILES CONTAINING 64 MEASUREMENTS THROUGH 16 KILOMETERS EVERY 6 MINUTES.**
- **NETWORK COMPLIMENTED BY 80 COOPERATIVE AGENCY PROFILER.**

# NOAA WIND PROFILER NETWORK



**915 MHz BLP with RASS**

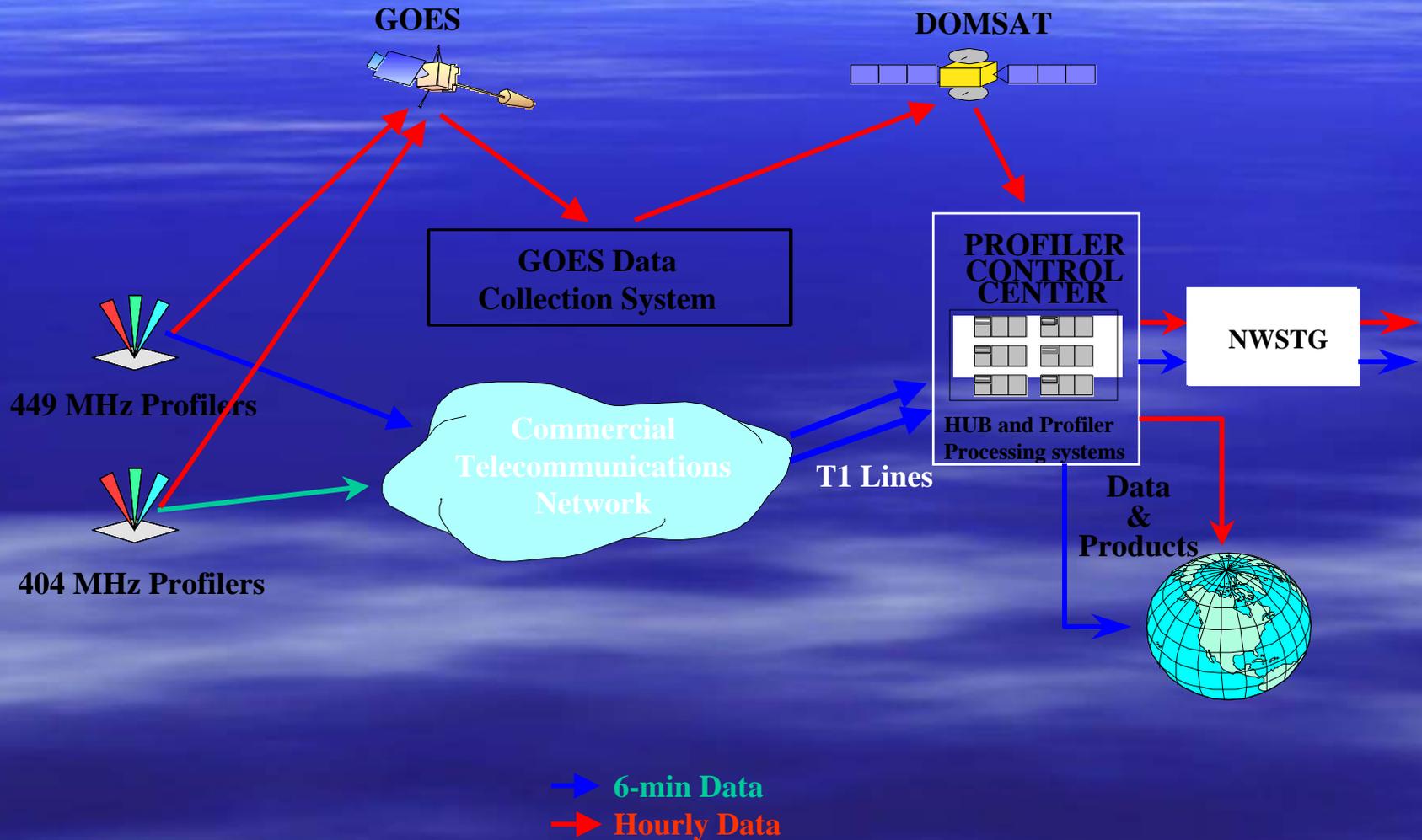


**900 MHz BLP**



**449 MHz PROFILER**

# NOAA Profiler Network Data Flow - Overview



# NOAA WIND PROFILER NETWORK

## *Forecasts and Warnings*

- High space- and time-resolution NPN wind measurements improve *warnings, watches, and numerical forecasts*:
  - *Warnings: Statistical improvements in POD, FAR, and Lead Time performance for tornadoes and flash floods*  
*Lead time improvements in representative winter storm, fire weather, and turbulence warning events*
  - *Watches and Outlooks: Statistical improvements in severe weather watch and outlook accuracy*
  - *Numerical Weather Prediction: Statistical improvements in 0-12 h forecasts*

# NOAA WIND PROFILER NETWORK

- ISSUES:

- LOSS OF OPERATIONAL FREQUENCY
- INCREASING COST OF OPERATION
- COST OF TERMINATION

# Integrated Upper Air Observing System

## *“Integrated”* Defined

**Goal of Integrated Observations:** Integrated observing system strategy transitions NOAA from a series of unrelated “stove-pipe” observing and data management capacities to a seamless “system-of-systems”

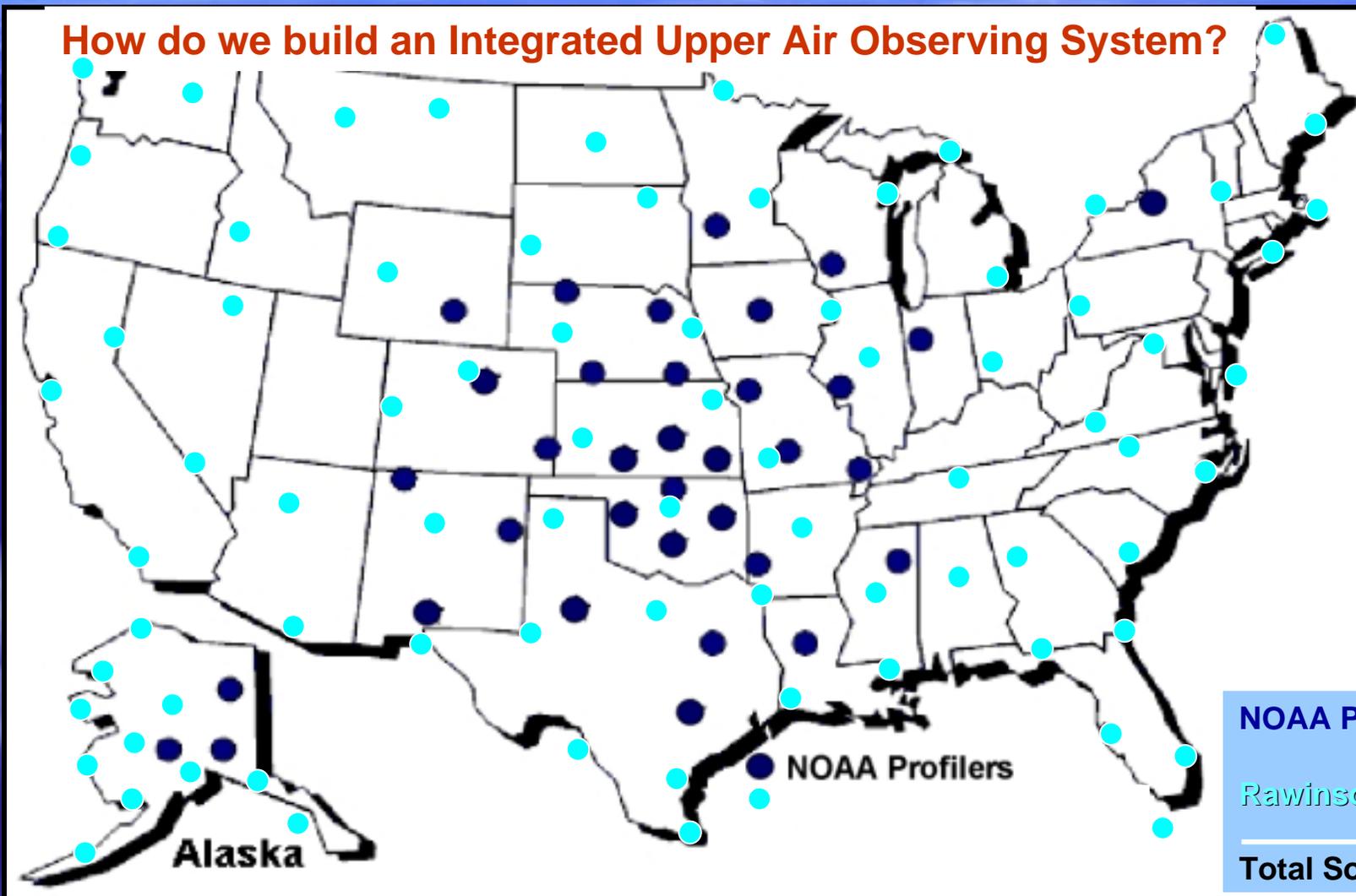
### • What is an “integrated” observing system?

- **Plans** – Drawn from integrated requirements (e.g. NOAA **Programs** – Integral to a larger observing system strategy (e.g. IROS, GEO, IGOS))
- **O&M** – Part of NOAA’s core monitoring, engineering, testing, processing, and distribution capacities
- **Outcomes** – Addresses greatest cross section of Mission Goal requirements (Climate, Eco-systems, Water and Water, Commerce and Transportation). *Outcomes must be defined in terms of societal benefits!*

# National Network

## *Current NOAA Profilers*

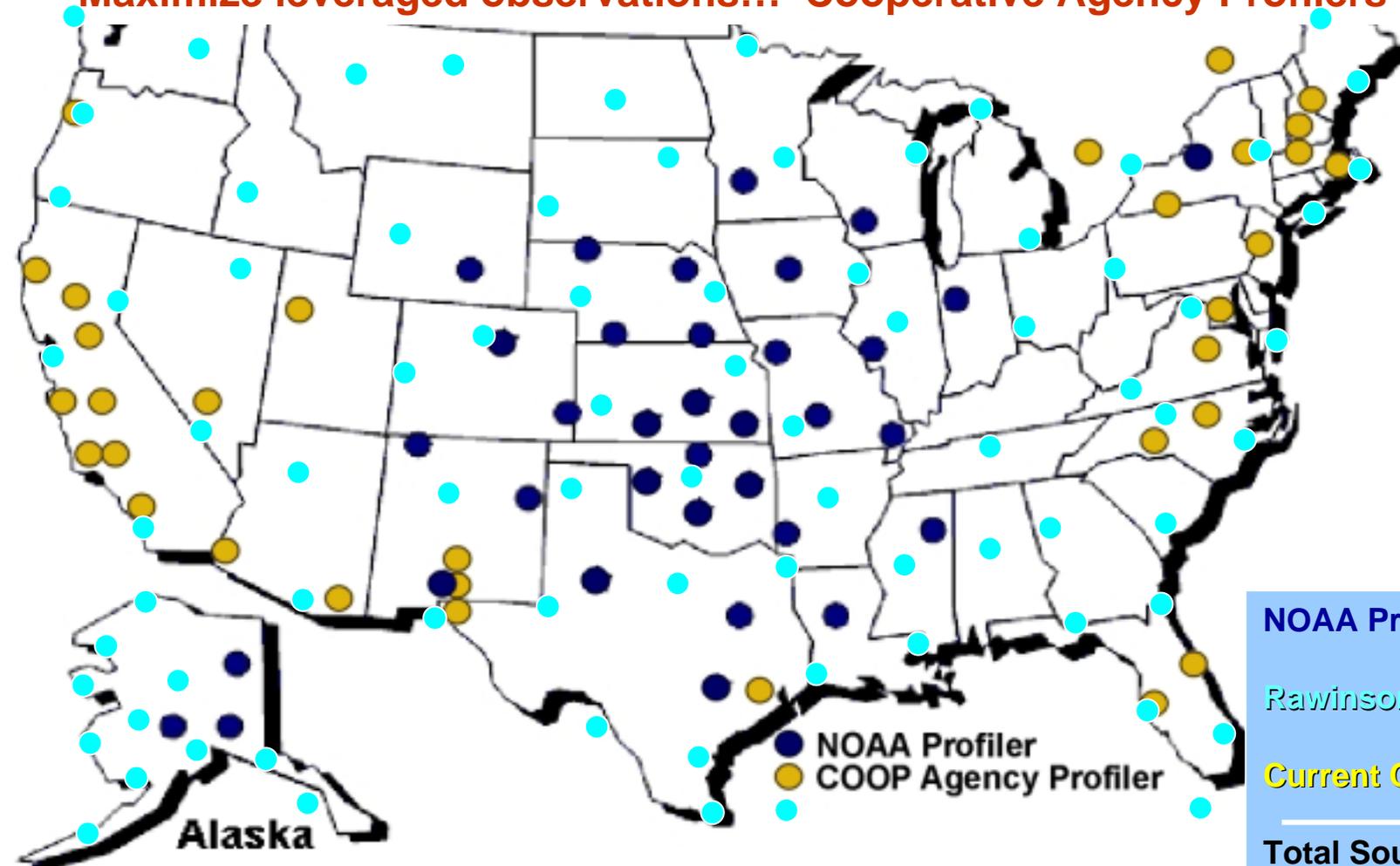
How do we build an Integrated Upper Air Observing System?



# National Network

## Current NOAA Profilers and CAPs

Maximize leveraged observations... Cooperative Agency Profilers

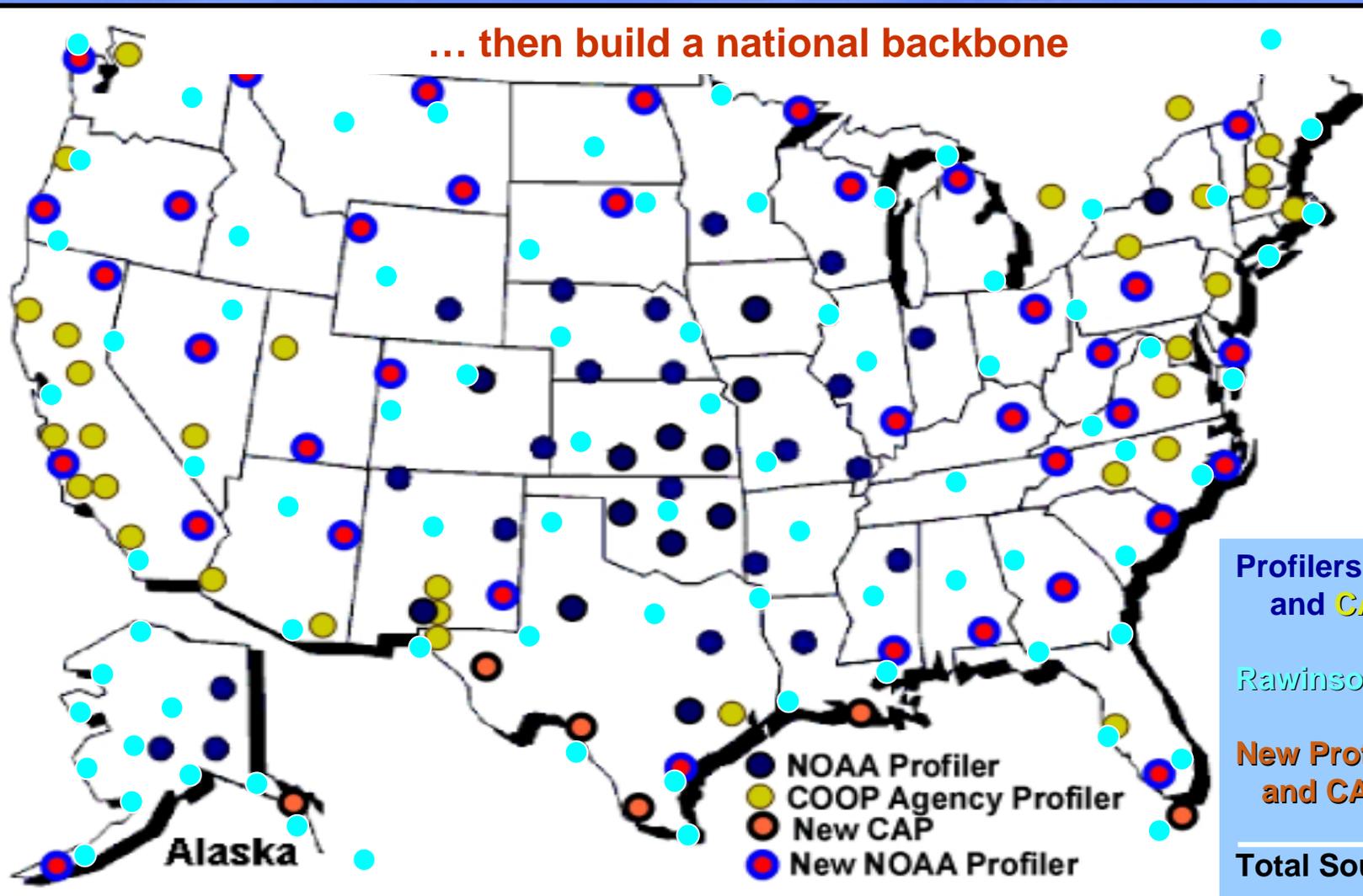


NOAA Profilers.....	35
Rawinsonde.....	102
Current CAPs.....	80
<hr/>	
Total Soundings.....	217

# National Network

*An Integrated Upper Air Observing System*

... then build a national backbone

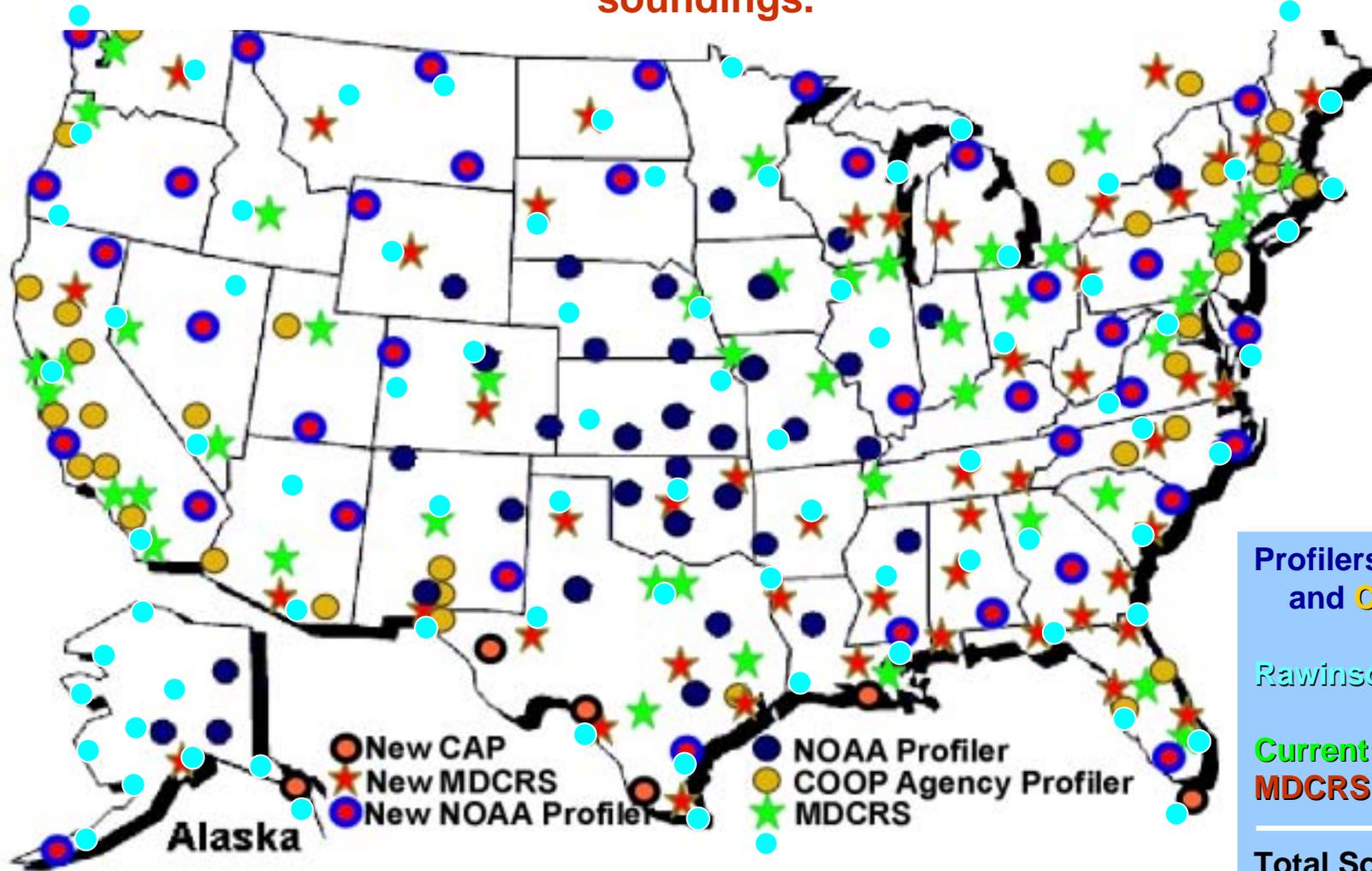


Profilers and CAPs.....	115
Rawinsonde.....	102
<b>New Profilors and CAPs.....</b>	<b>60</b>
<b>Total Soundings.....</b>	<b>277</b>

# National Network

*An Integrated Upper Air Observing System*

... finally, extend the backbone's impact with using aircraft soundings.



Profilers  
and CAPs..... 185

Rawinsonde.....102

Current and future  
MDCRS.....100

Total Soundings..... 387

# NOAA WIND PROFILER NETWORK

**Based upon demonstrated benefits and findings:**

- **Assessment shows fund NPN beyond FY04; change frequency**
- **Develop plan for Integrated Upper-air Observing System with NPN as component**