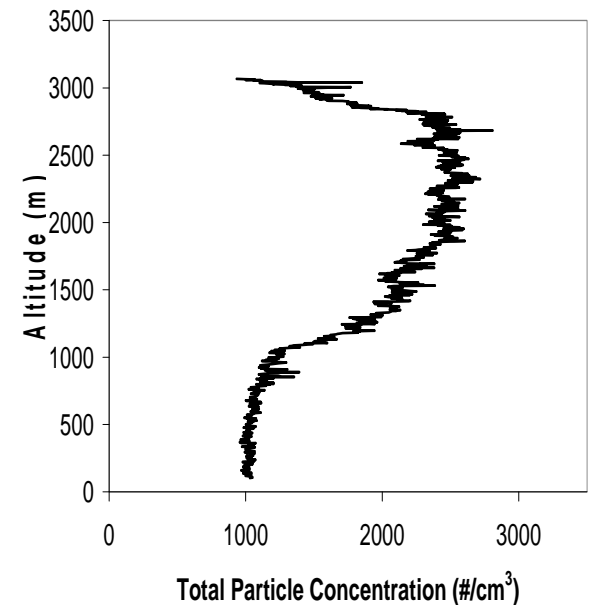
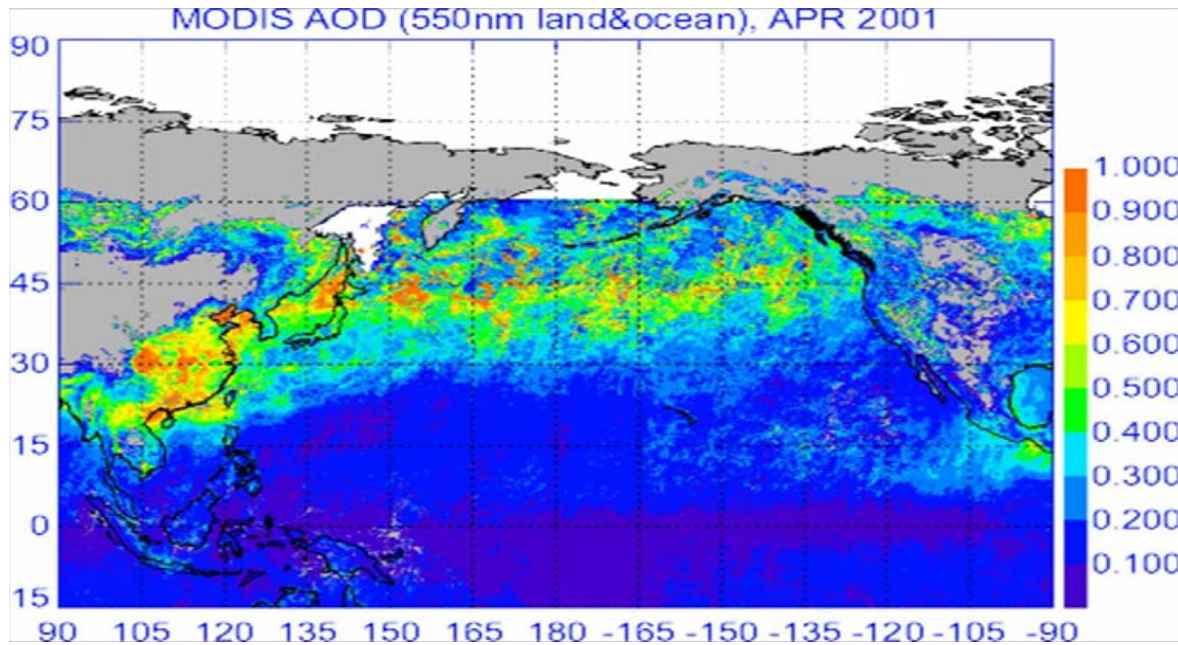


California AUAUV Air Pollution Profiling Study (CAPPS) Funded by Calif. Energy Commission



- Local emissions and Long range transport of pollution from Asia contributes to climate change in California
- Collect an annual record of the vertical distribution of aerosols, ozone and solar fluxes over central CA.
- Mar 2008 – Feb 2009

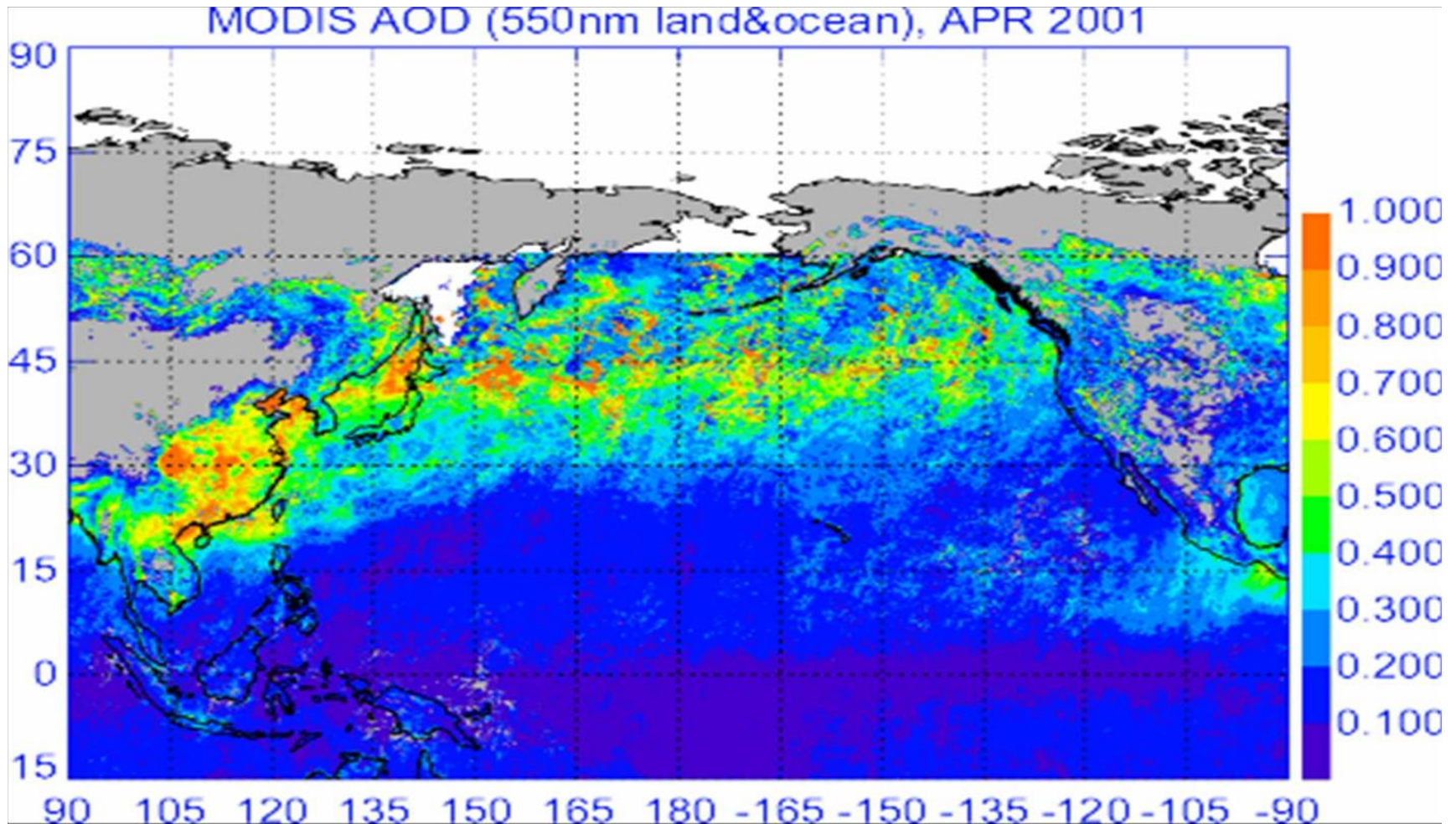
CAPPS

(California AUVAV Air Pollution Profiling Study)

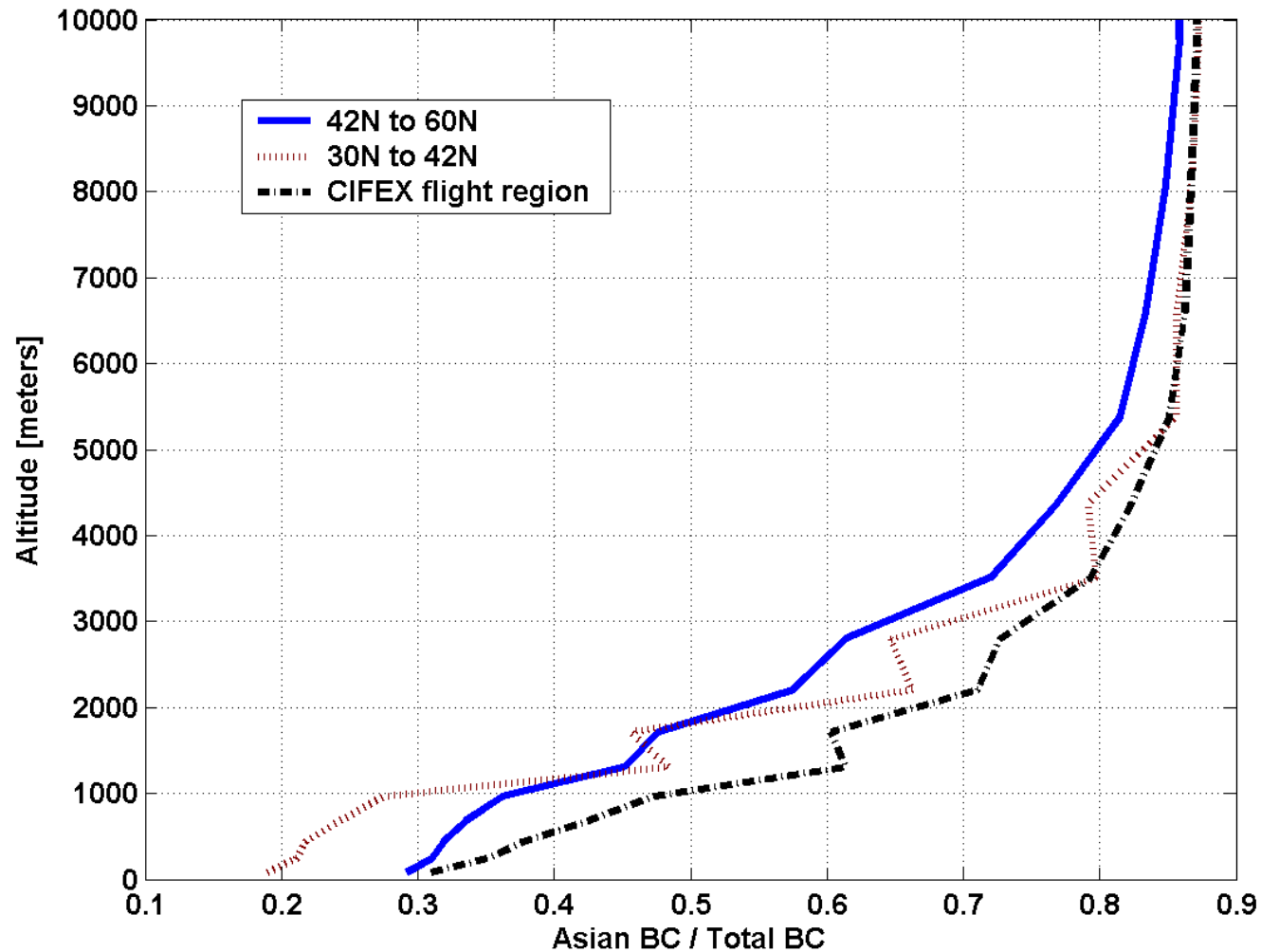
Funded by California Energy Commission.

- Collect an **annual record** of aerosol, black carbon, ozone, NO_x^* and CO^* pollution concentrations from surface up to 12,000 feet asl.
- California generated pollution vs. **long-range** pollution from other regions.
- Look at the impact of pollution layers on radiative forcing to quantify the amount of **solar dimming** and heating rates.

Asian particulate pollution transported to North America



Influence of Asian black carbon increases with altitude.



CAPPS Project Summary

- Fly missions twice a month (flexible)
- Missions will climb to 12,000 ft asl.
- Missions will last approx. 4-5 hours.
- Two aircraft will be launched (aerosol and gas measurements)
- Flights at NASA Dryden
- Mar 2008 – Feb 2009

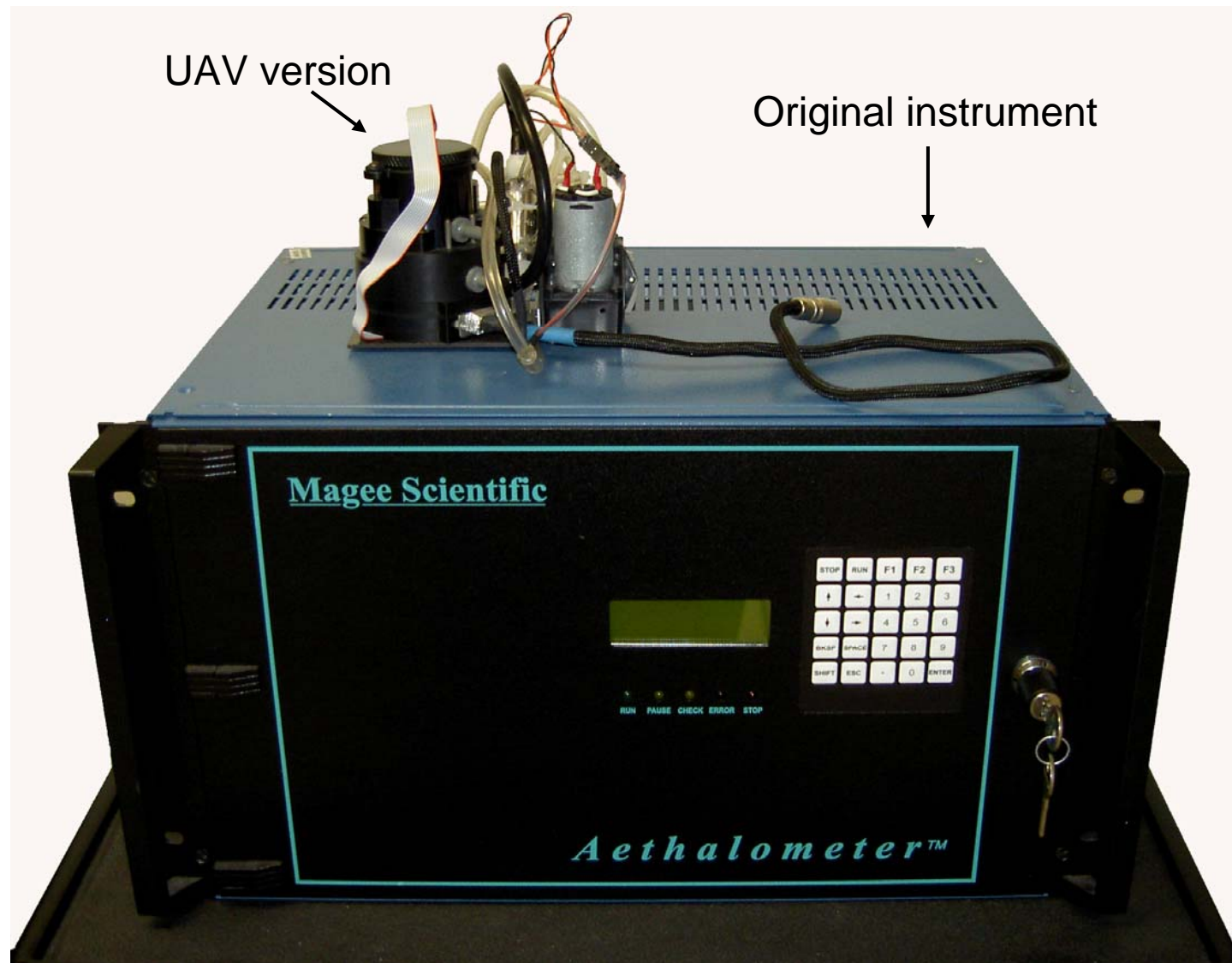


Measurements collected during CAPPS

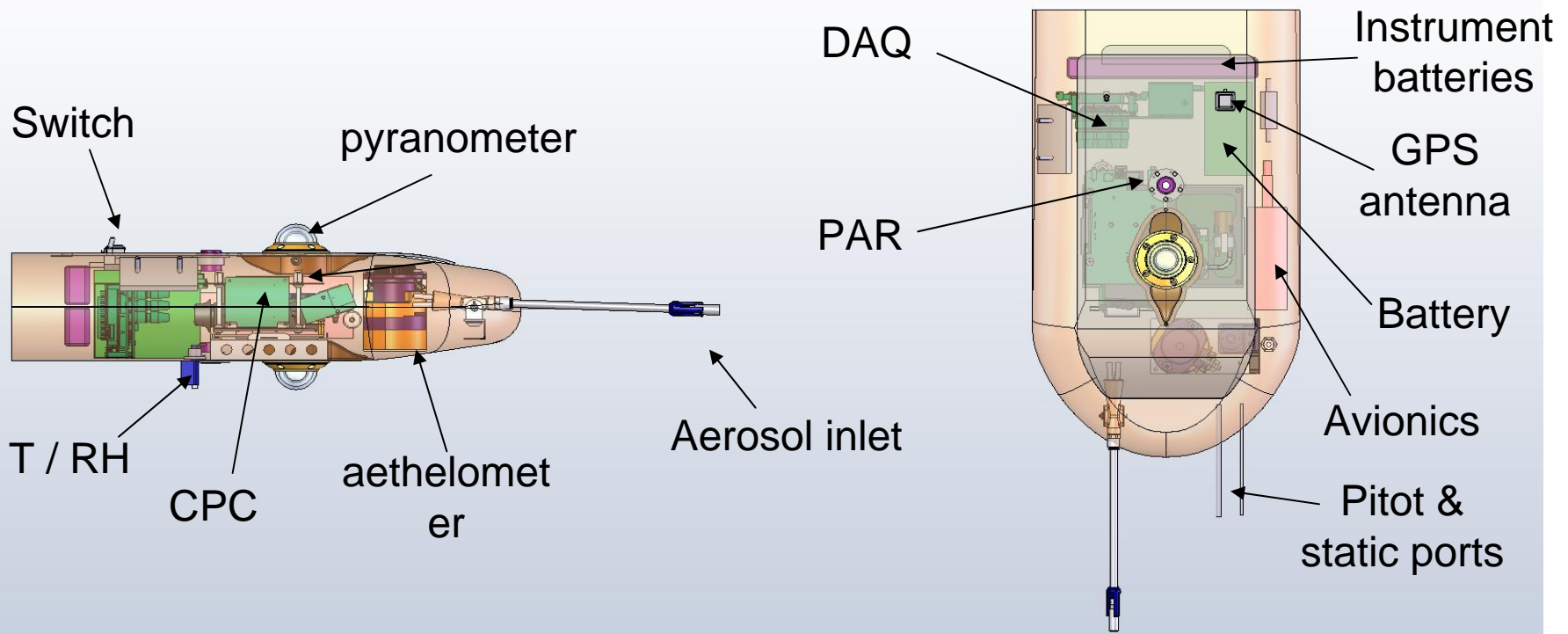
- Aerosol Number Concentration
- Aerosol Size Distribution (0.3 – 3 μm)
- Aerosol Absorption/Black Carbon Concentration
- Ozone*
- $\text{NO}_x/\text{NO}/\text{NO}_2$ *
- Solar Flux
- Temperature, Pressure, Relative Humidity

* New instrumentation

Miniaturization of Instruments to fit aboard a UAV



Integration of miniaturized instruments into UAV payload



New miniaturized ozone instrument compares well to commercial instrument

