VOCALS G-1 FLIGHTS

PRELIMINARY OBSERVATIONS

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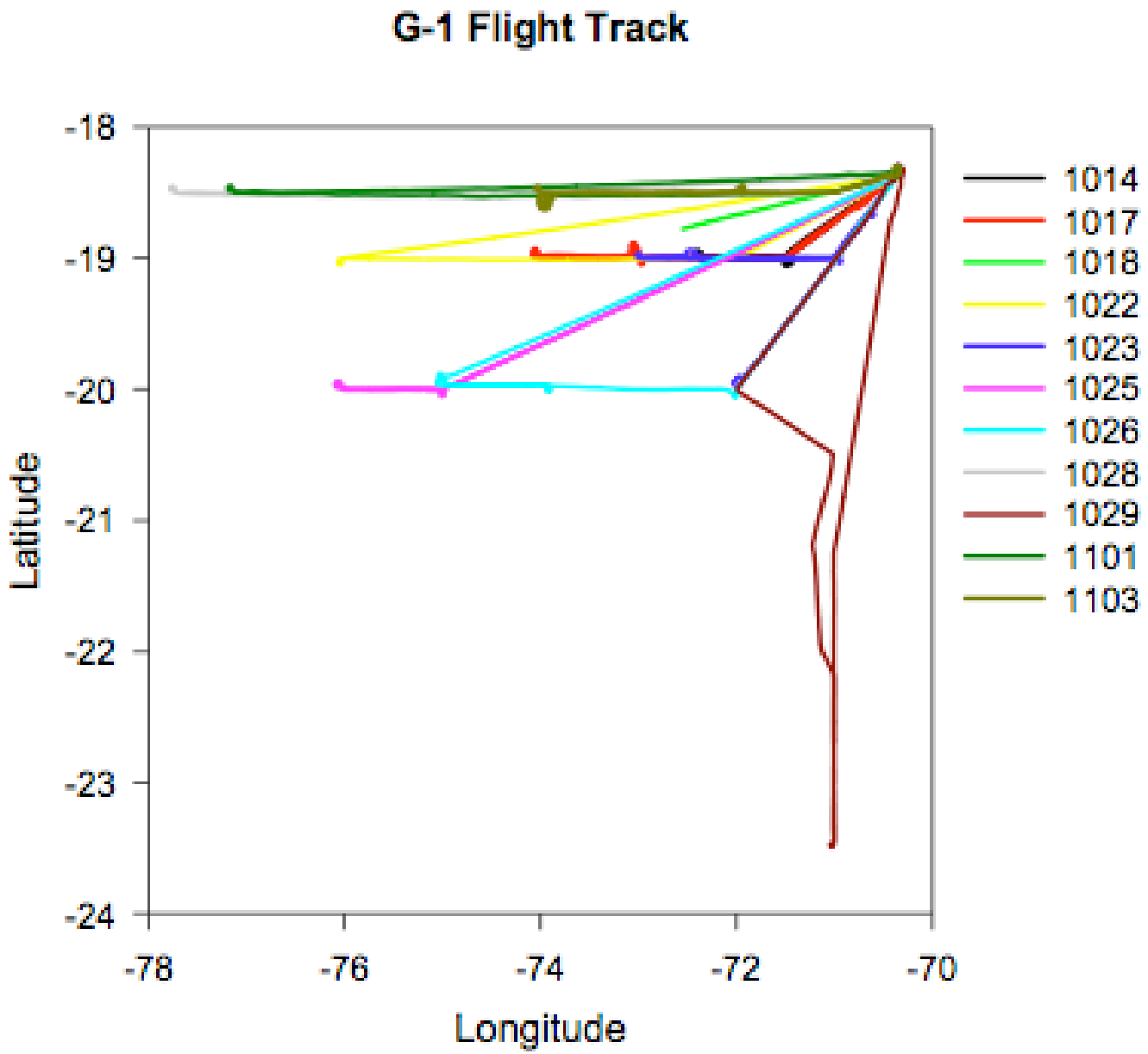
BROOKHAVEN NATIONAL LABORATORY

Presented to VOCALS Science Team
November 7, 2008

PRELIMINARY

VOCALS G-1 FLIGHTS



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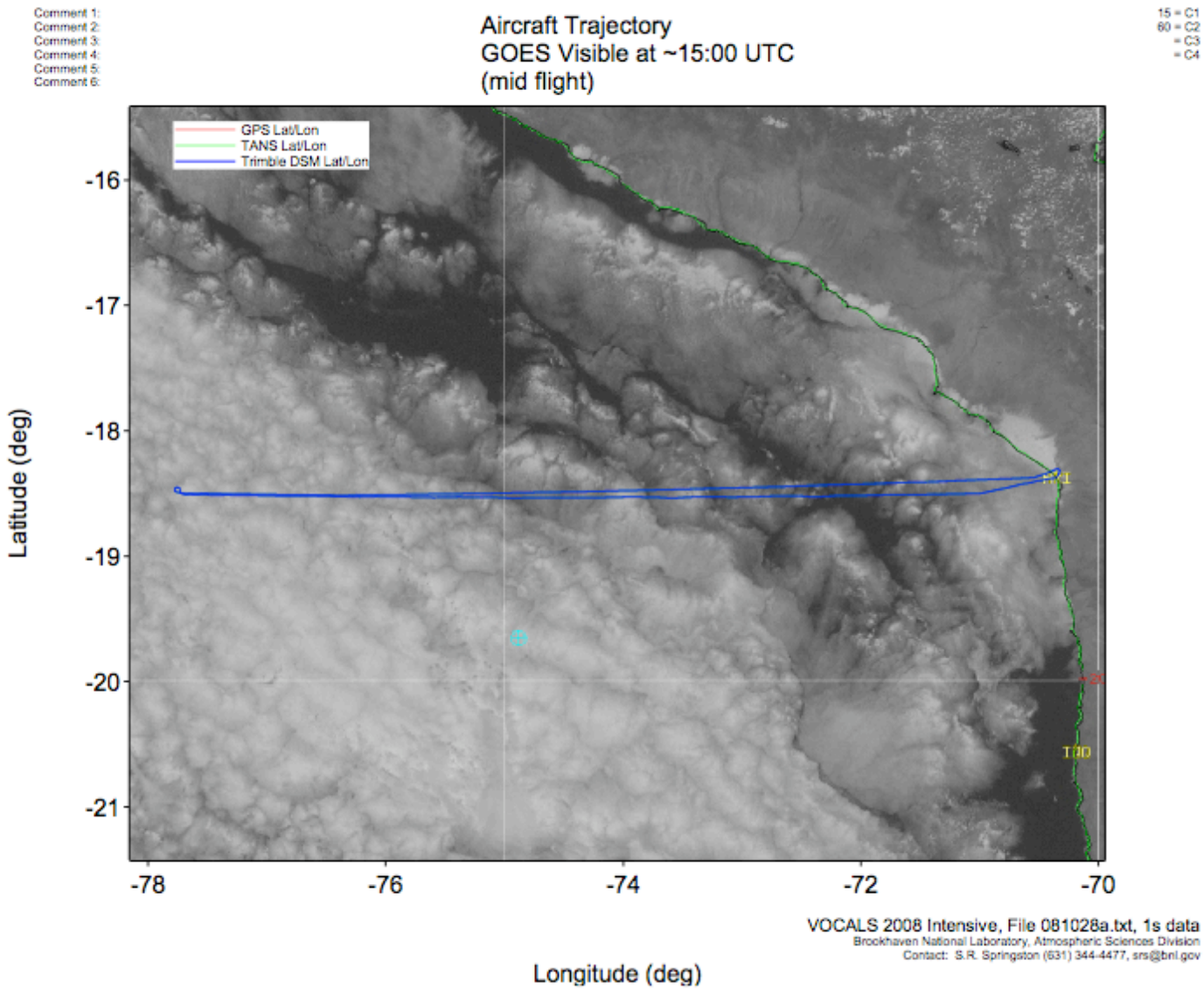
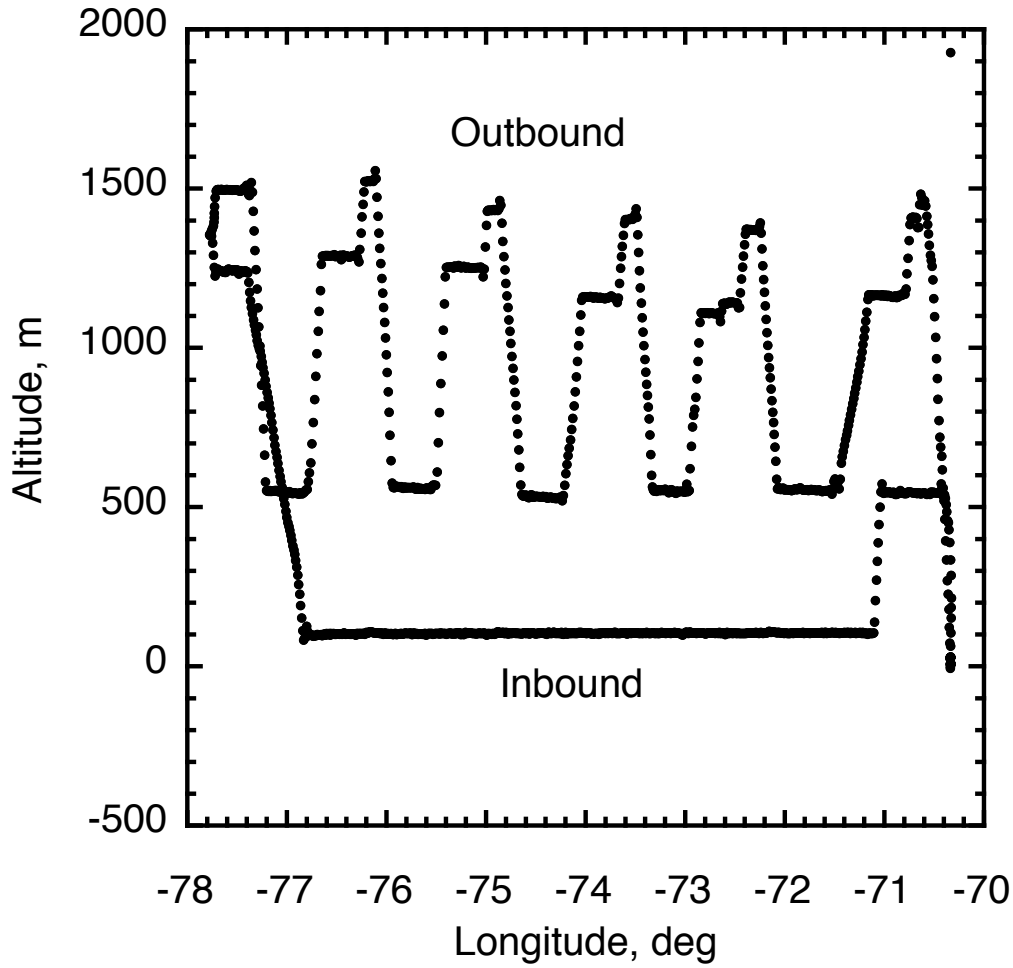
October 28 Gradient Flight



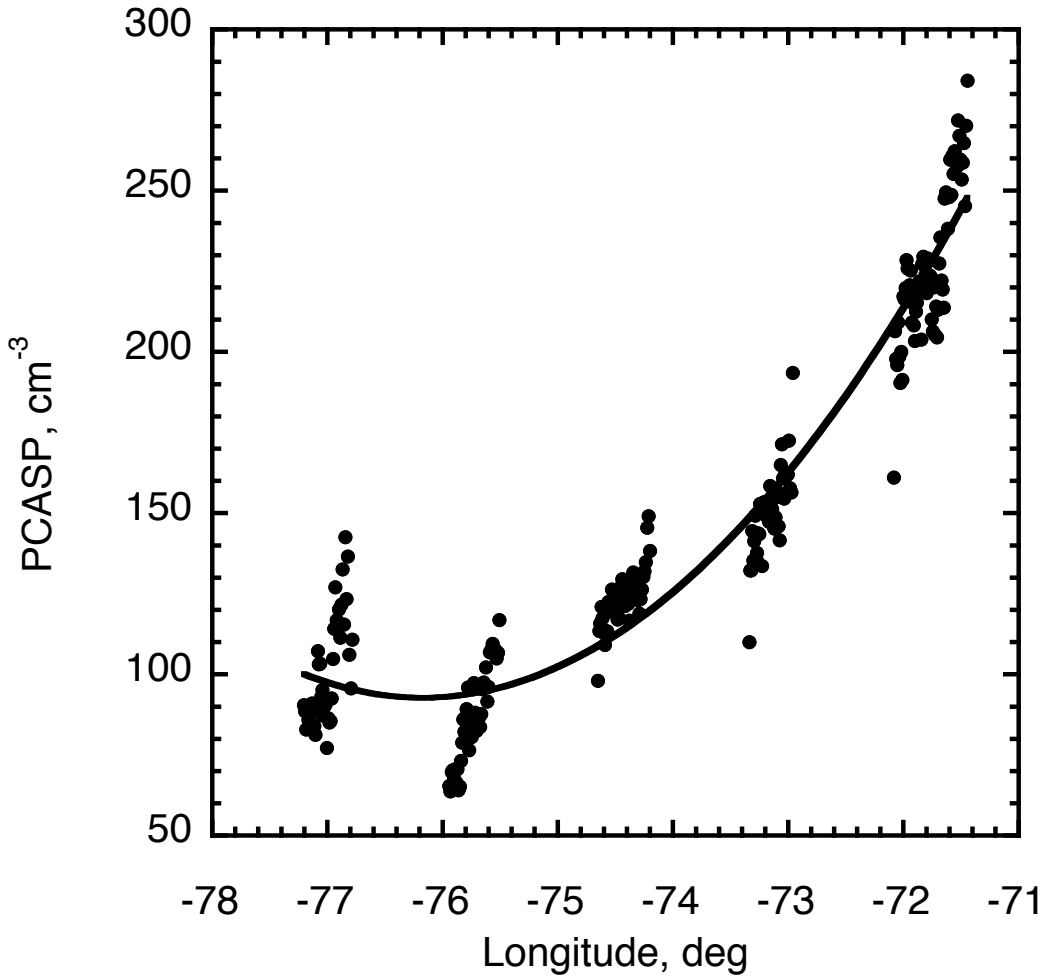
PRELIMINARY

October 28 Flight Profile



PRELIMINARY

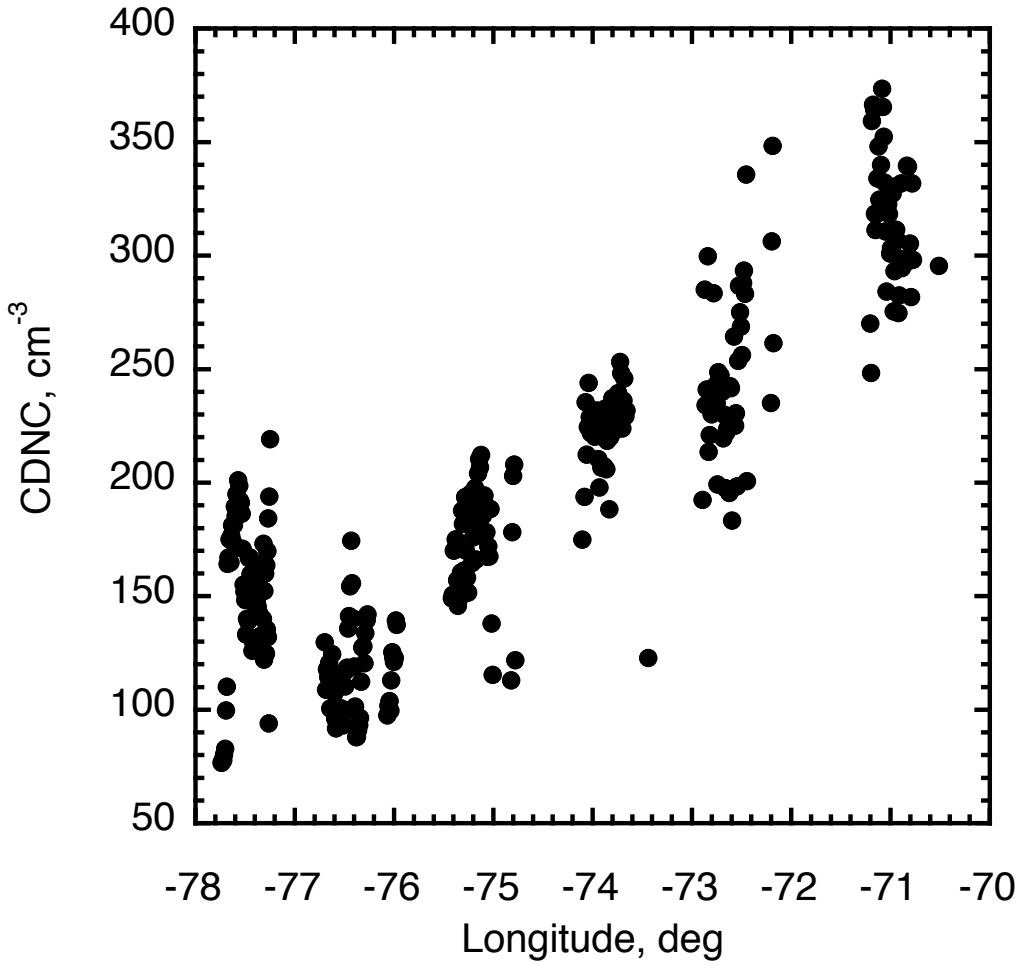
October 28 Aerosol number conc.



Smooth decrease in accumulation mode #concentration with distance offshore.

PRELIMINARY

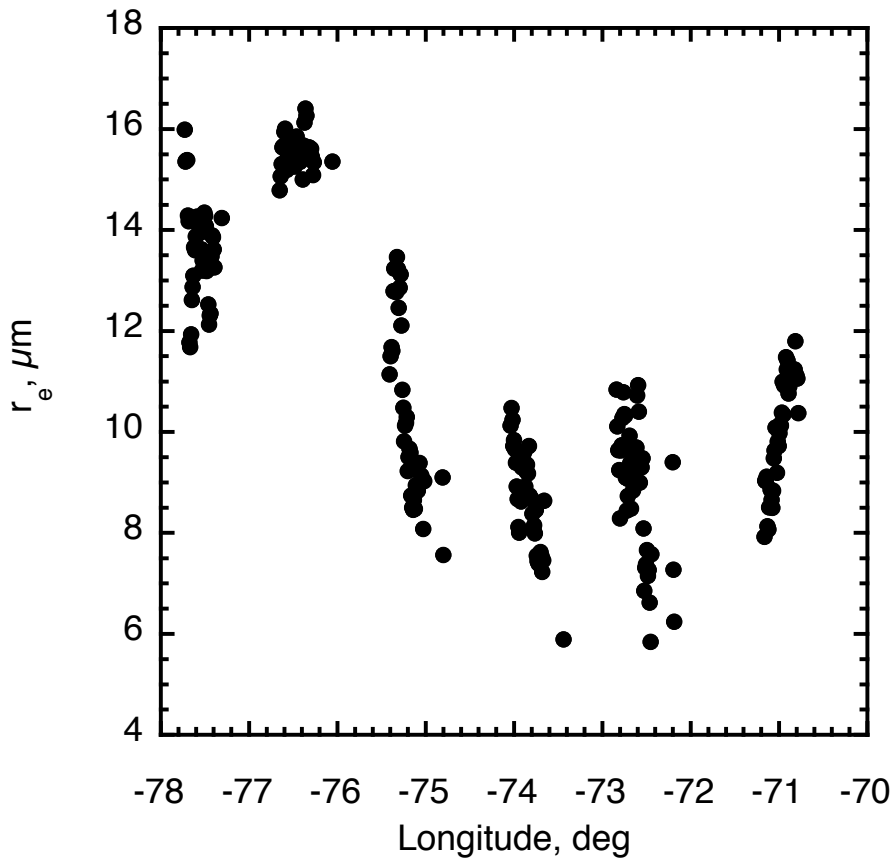
October 28 CDNC

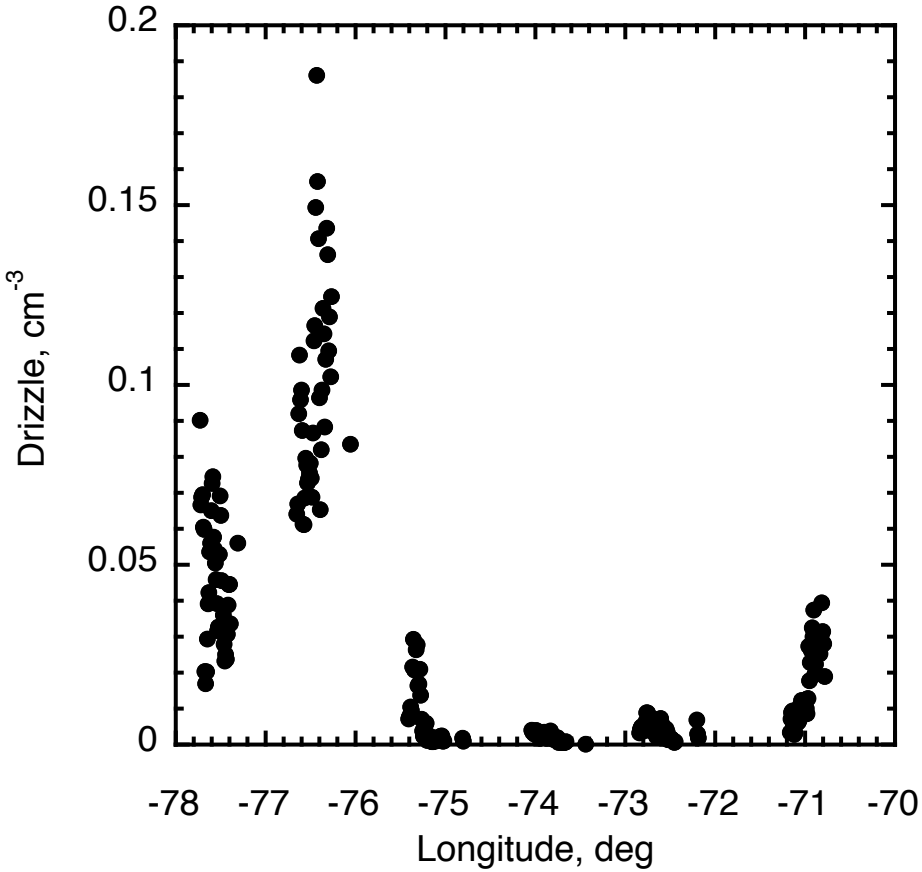


CDNC respond in the expected way to the gradient in aerosol concentration.

PRELIMINARY

October 28 CD size and drizzle

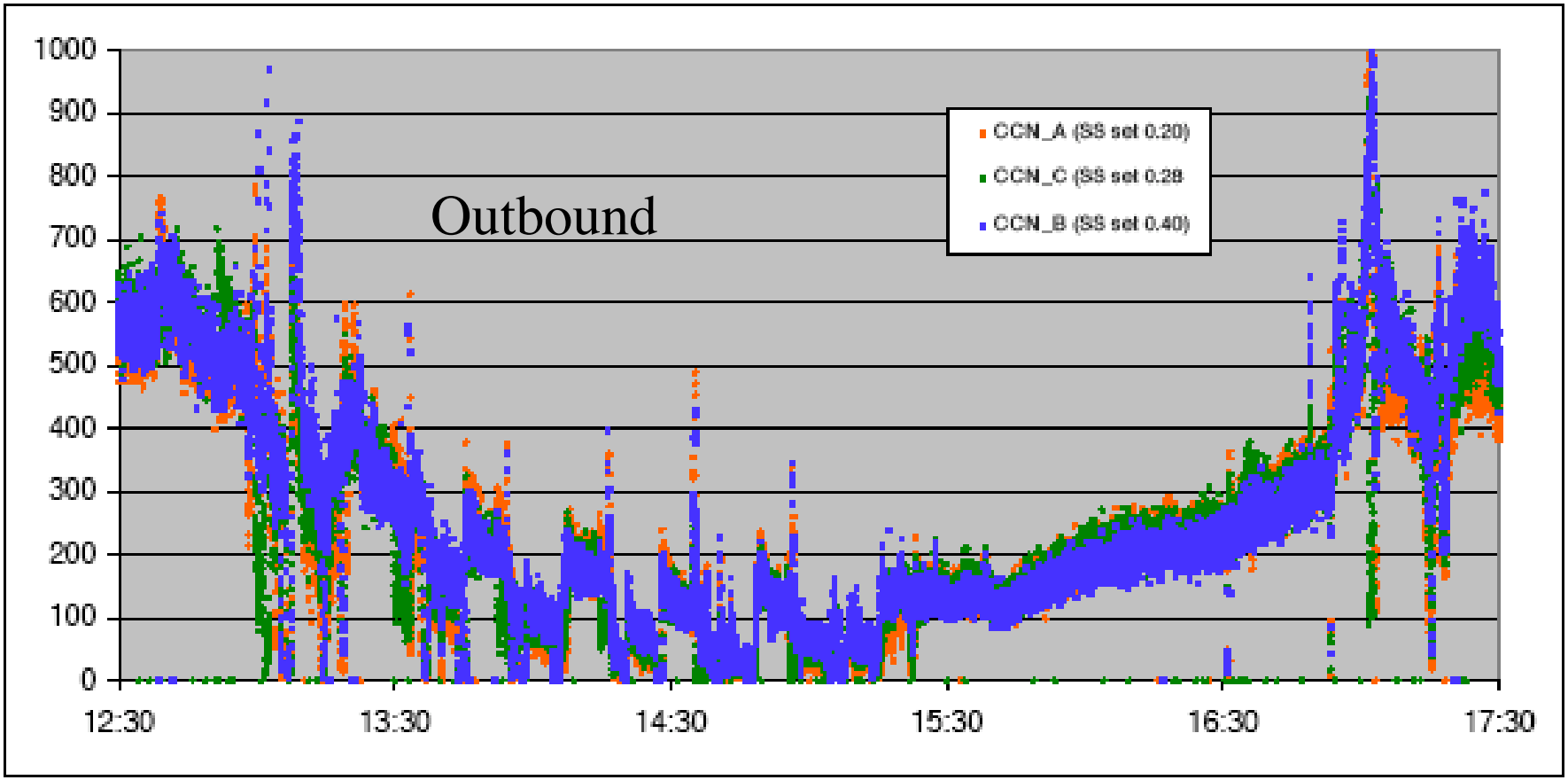




Highest r_e associated with lowest N, and with the presence of drizzle.

PRELIMINARY

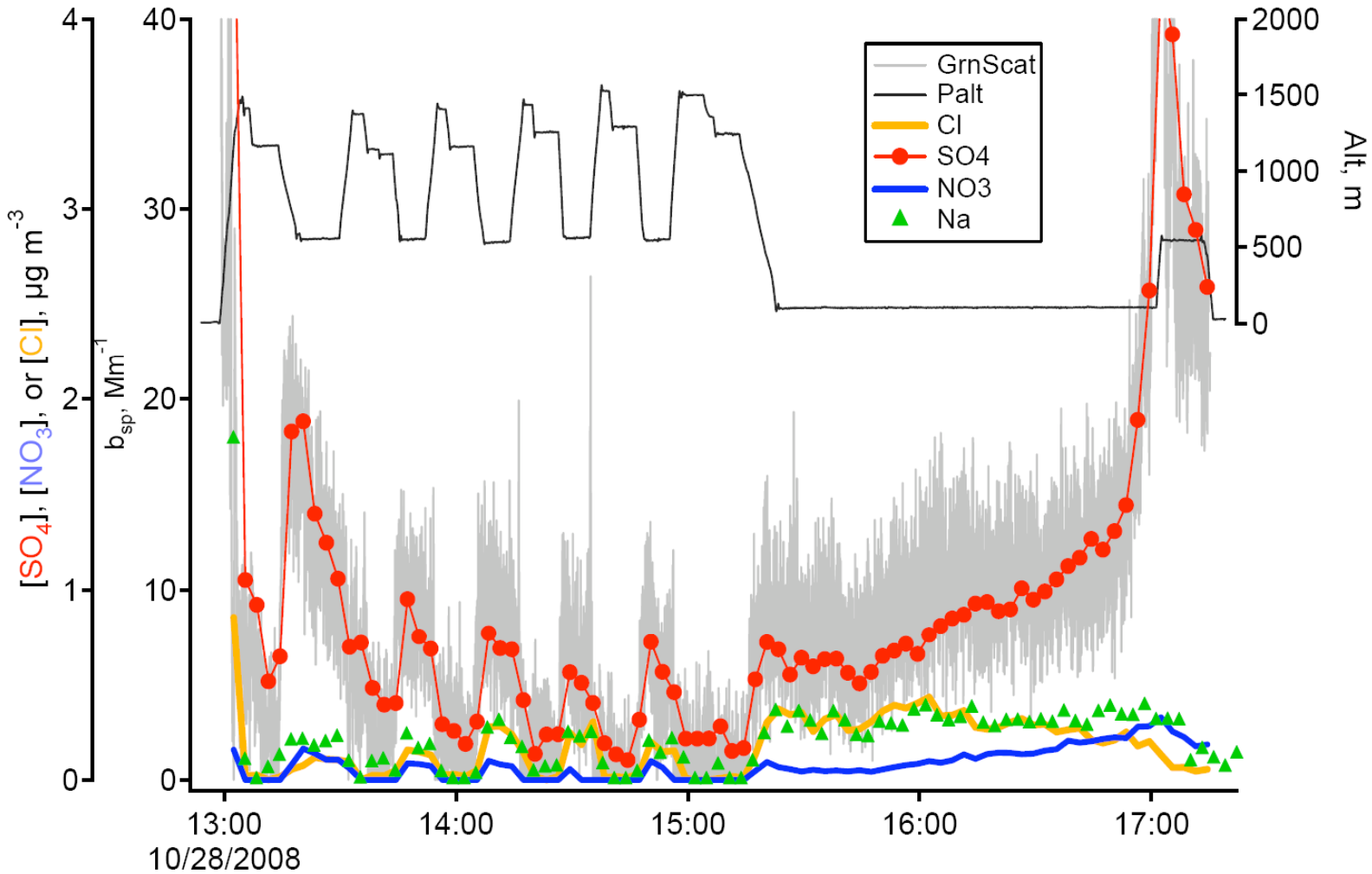
October 28 CCN Gradient



CCN at 3 different %SS identical. All particles activated at 0.2%. Trend identical to PCASP particle concentrations

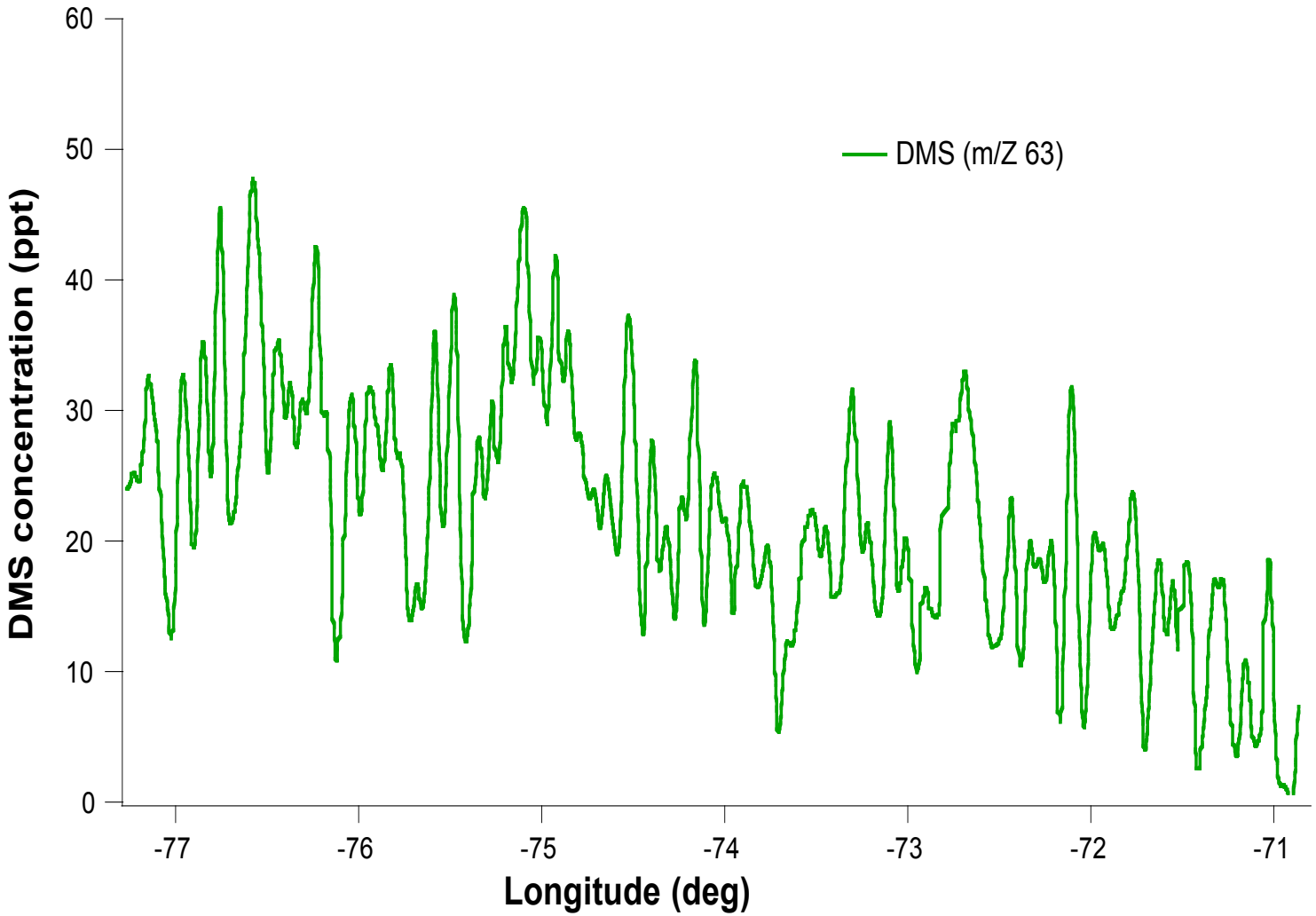
PRELIMINARY

081028 G1 Flight: A Gradient Study Along 18.5 S to 76.9 W (preliminary data)



PRELIMINARY

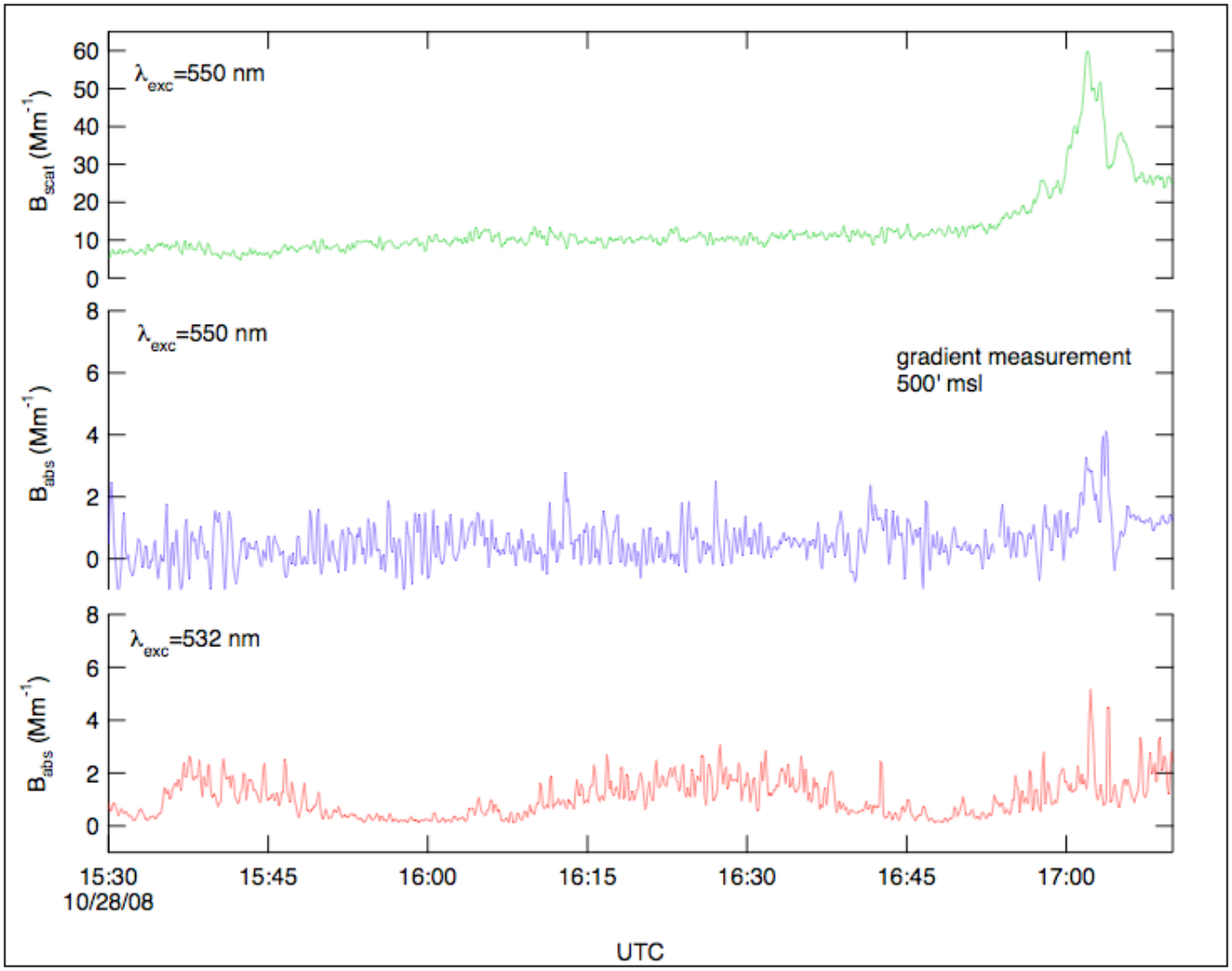
October 28 DMS



DMS Measured by PTR-MS on G1 at 500ft vs Longitude

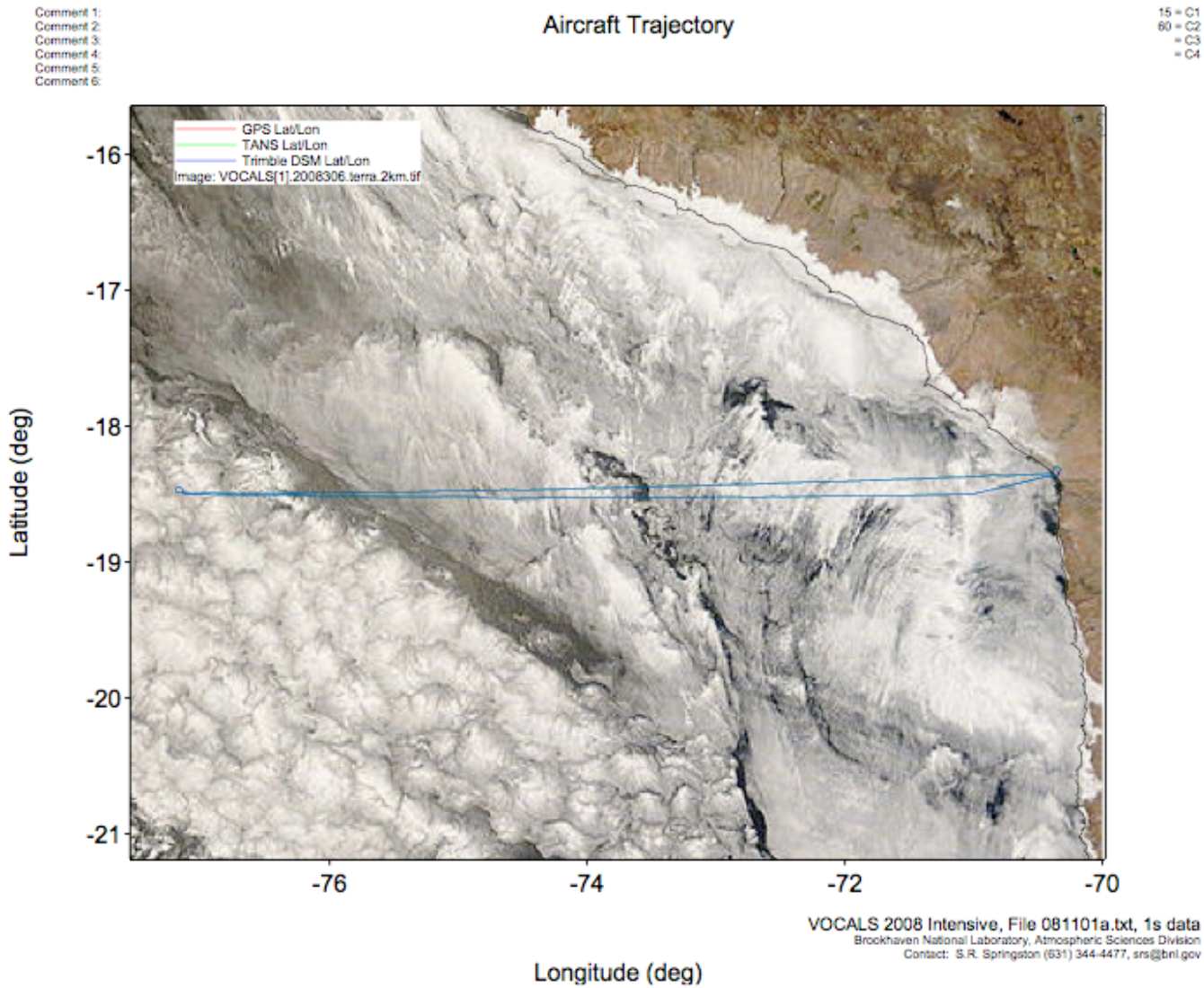
PRELIMINARY

October 28 Aerosol Absorption



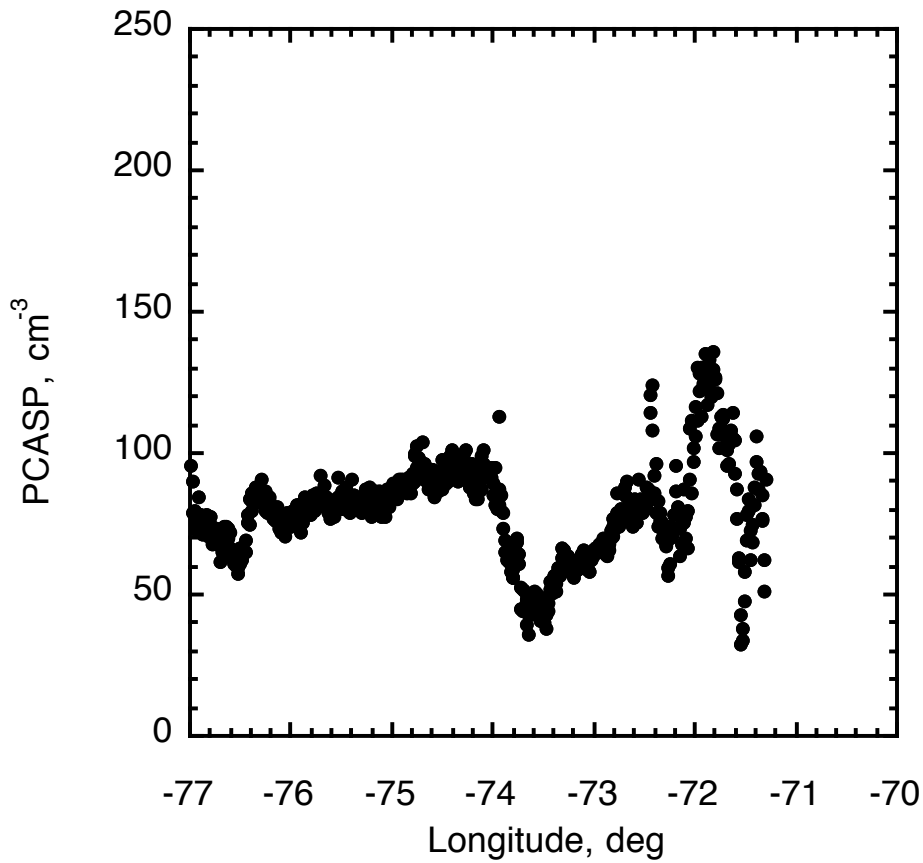
PRELIMINARY

November 1 flight Track



PRELIMINARY

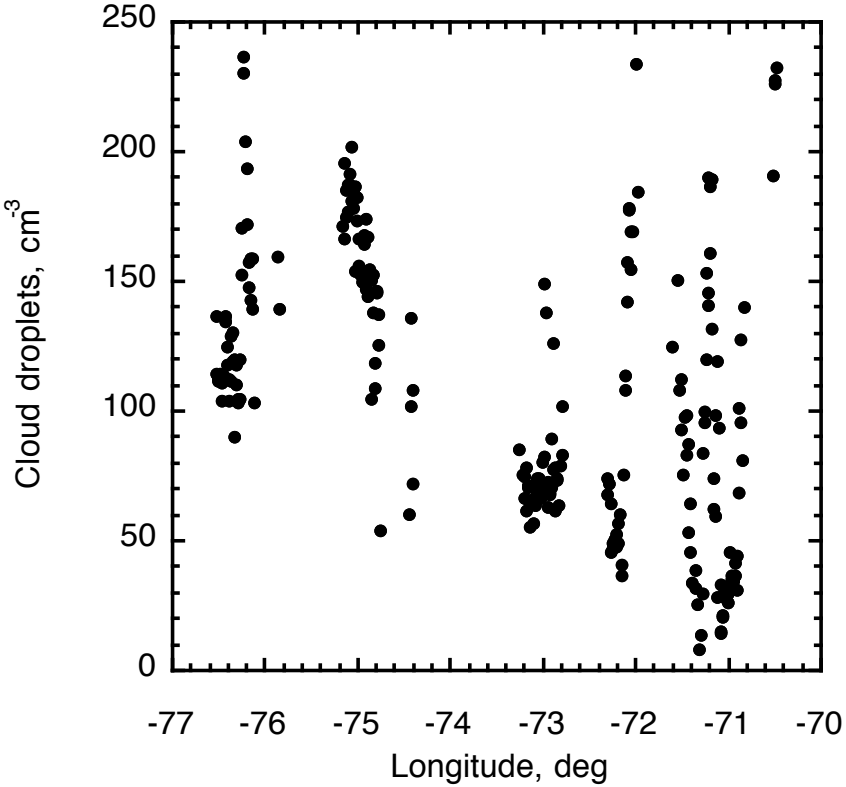
November 1 Below Cloud Aerosol

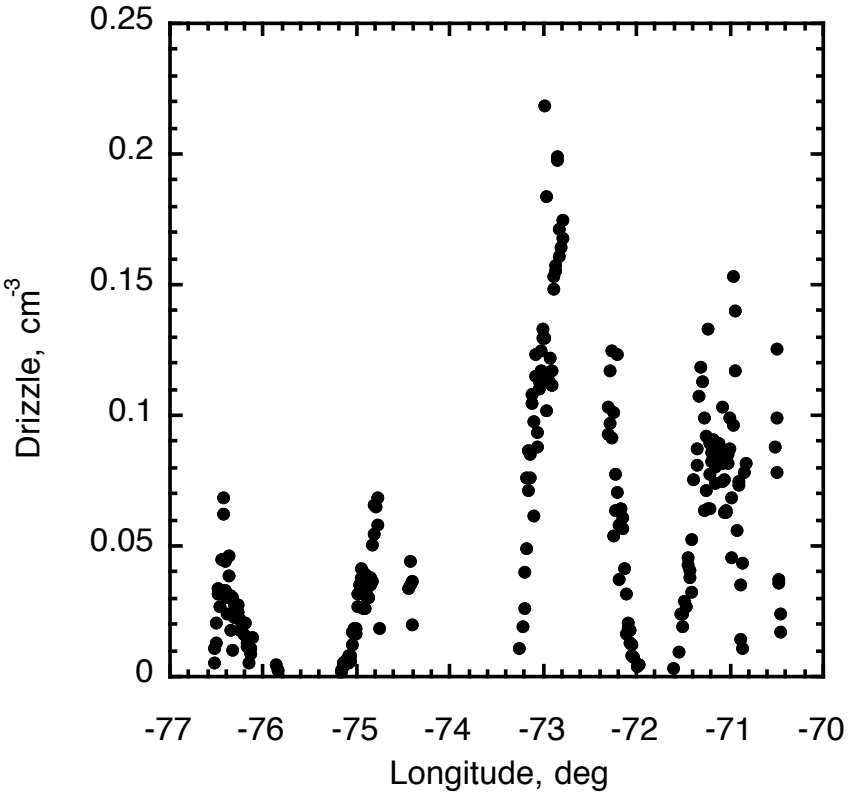


Lowest below cloud aerosol concentration measured thus far.

PRELIMINARY

Nov. 1- Cloud droplet and Drizzle

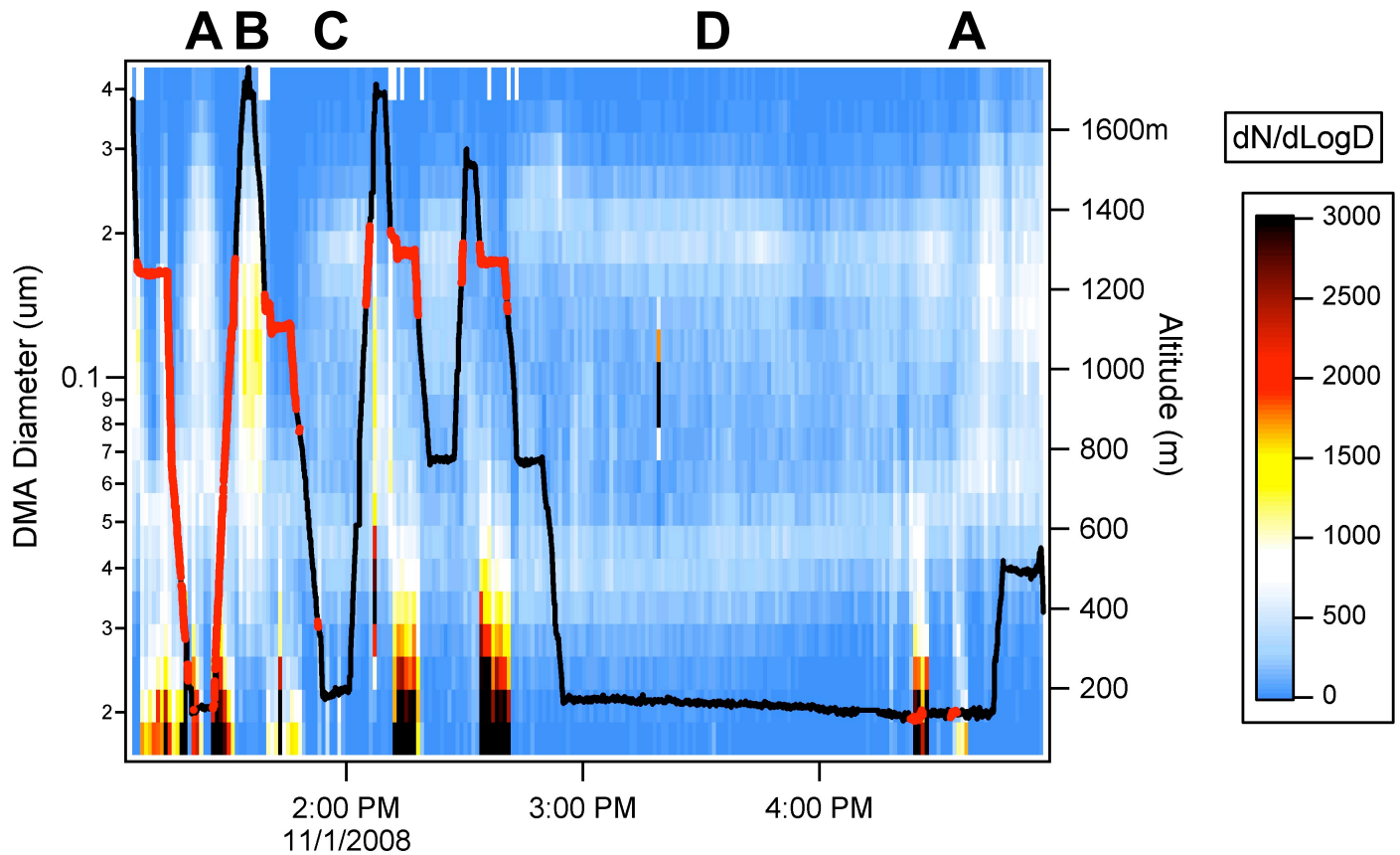




Cloud droplet concentrations generally low. Regions where lowest, drizzle concentrations are highest.

PRELIMINARY

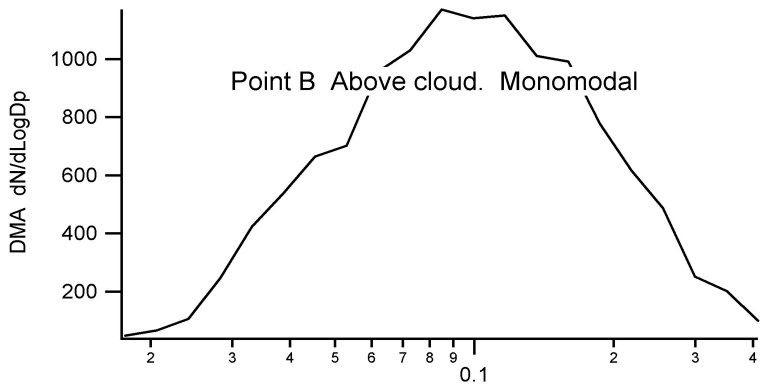
DMA 15 – 440 nm 11/01/2008

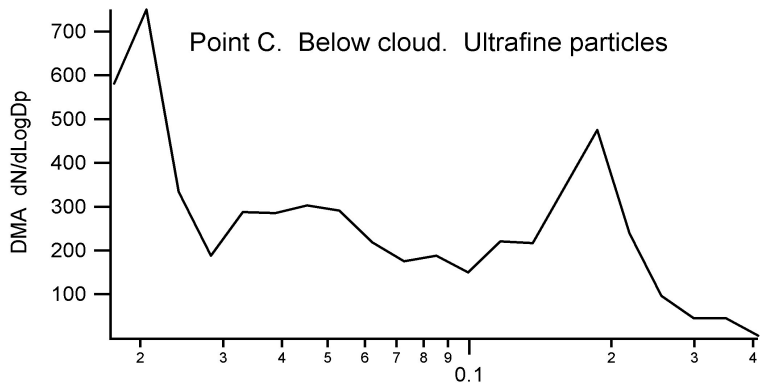


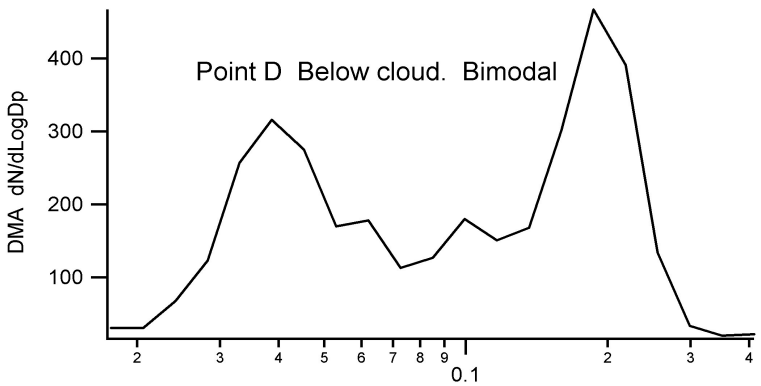
Highest number concentration East (A) and above Boundary layer (B)
Above Boundary Layer, monomodal distribution (B)
Some instances of ultrafine particles (C)
Below cloud spectra are bimodal; Hoppel minimum (D)
Droplet shattering in-cloud

PRELIMINARY

DMA Number Size Distributions 11/01/2008

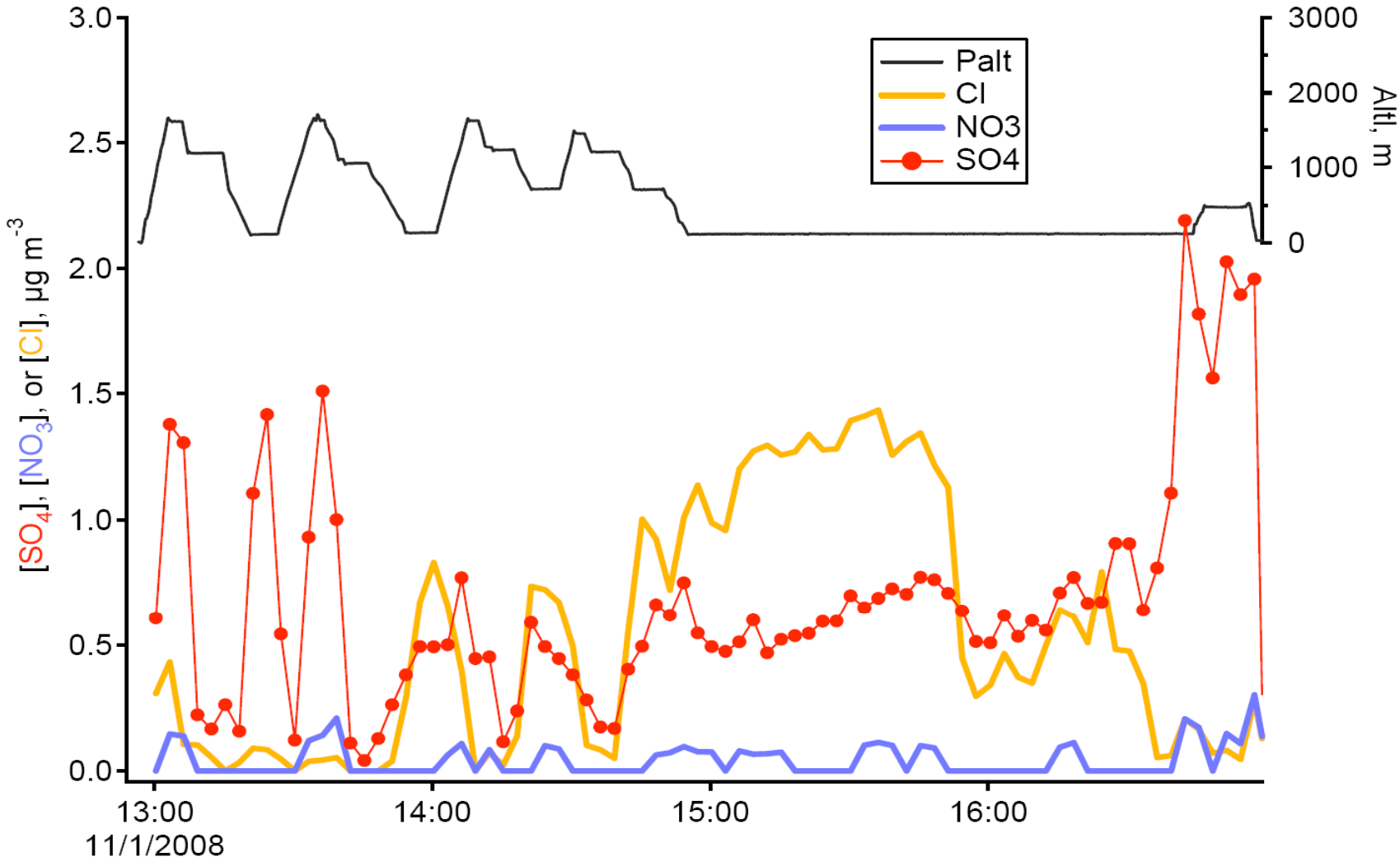






PRELIMINARY

081101 G1 Flight: Gradient Study Along 18.5 S to 77.2 W Showing Elevated SO_4 above Clouds (preliminary data)



Acknowledgments

Scientists - Steve Springston, Gunnar Senum, Larry Kleinman, Yin-Nan Lee, John Jayne, John Hubbe, Liz Alexander, Alex Laskin, Art Sedlacek, Ryan Moffet

Aircraft - Bob Hannigan, Dick Hone, Bill Svancara, Mikhail Pekour

DOE - For funding the science and the aircraft