Crew: Fagerstrom, Snider, French, Lukens

Weather: Low is NW of Arcata, we planned to go to 41/128.5 but hifreq radio did not test out, so target was 41/126, still saying well SE of the low. Objective is to get aerosol data in the vertical (soundings) look for existence of ultrafine particles. WCR used in ferry for stratus and for convection in dual-down-up and dual-side modes. Clouds were S-to-N oriented lines of cumuli. Alto cumulus with tops at ~8000 ft, perhaps even some Cs above that.

1700 (approximate), leak check of aerosol system before running the tug, then the tug was turned on. CCN set at S=1.6% and then to S=0.2% (nominal)

1744 waiting for ATC, trf 15C

Note: LICOR flows: inlet = 80 slpm, instrument = 8 slpm (flowi)

Copilot altimeter 220 ft, 3002, zft = 118 ft

Deice heat is on

1759 – takeoff, drizzly stuff ends at 3000 ft, there is a deck above that, we will level off at 6000 ft

1803 – level at 6000 ft, trf 4 C

1810 – to S=1.6%, drops registering on 2DC up to full range of display (800 um), most are in the 200 – 300 um range

1813 – WCR report, stratus below, patchier mid-level stratus above

1828 – pointer set, we will return do a sounding below the point, now passing to west of overhanging above-cloud edge then will return to the point

1847 – End sounding at sea surface

~1900 – adding water to CCN

1908 – Sounding start, spike in CCN operating at S=1.6%, what’s with that? Later DL finds that the upper pad detached (see comment at 1949)

1922 – aligned to fly downwind along convection, 2000 ft

192327 – realtime crashed
~1930 – restarting the DAQ, there will be two kingair files for this flight

1936 – 4000 ft pass along same line of convection, heading same direction as 2000 ft pass (S to N)

1939 – lots of rain on wind screen, big shattering artifact in PCASP

1942 – climbing to 6000 ft

1949 – top pad of CCN came off in climb, was it loose and causing the spike at 1908? Dual side pass

1957 – back to dual down / up mode, over the top of convection (N to S track)

2004 – start sounding downward, PCASP 130, CPC 200, UFN 250

2026 – enhanced UFN/CPC ratio in lower 500 ft of sounding, also CCN @ S=1.6% showing an enhancement. Less overcast here compared to first sounding. Where are the small particles sourcing from?

~2100 – CCN running at S=0.2%, lots of drizzle, rain, very little signal from CCN

2122 – Aerosol pump off, nadir door shut