## CVO EVENTS FOR 990828 - SATURDAY.

Yesterday had distrubed cloud cover,with large convective cells. There was no flight. CVO was hot and humid. Midlevel cloud band shifted slowly E, still showing NNW-SSE this morning. Low deck extends inland, see in the valley by Mary's, also reported by Melanie Wetzel from the coast.

Winds are light N at NPT. COAMPS shows very irregular surface wind pattern, more organized, generally from NW at 925 mb. MM5 has NNW surface winds. Neither model shows cloud in the area !!! COAMPS had thin band of clouds along the shore for hours bracketing 12Z, but nothing afterwards.

North Bend sounding from MM5 shows inversion and dry layer at 950 mb throughout the day.

By 1730 coastal band is narrowing somewhat. Break beyond that fluctuates in detail but remains persistent.

**FLIGHT – 16:27Z T/O; 19:40 L/D.** Crew: Hoshor, Kelly, Gill

Enroute at 10 kft we were just below a thin layer of altocu. The layer from here down to the st layer is very hazy -- probably smoke from forest fires in Calif. and Nev. (winds from 160). As approach W93 area, find the sky free of clouds above the st, and less hazy than over land and closer to shore. Can see breaks in the st to the NW.

1655 descent sounding through cloud top at 2800 ft and cloud base at 1900 ft, and cloud-level winds from 359-005 true. Also saw fssp concentrations up to about 260/cm3.

1706 300 ft run along 165 mag. Uniform cloud bases

1712-1715 orbit while chase radar computer problems.

1717 run at 2400 ft on 345 mag heading. Encountering deep undulations in cloud top. Radar still acting up.

1722-1740 spiral climb then orbit at 5 kft while re-boot radar computer. While circling, took photos of long, linear notch in cloud top and also waves in the cloud top.

1744 300 ft run along 345 mag. See lower "scud" to west of our location. Radar echo thinner in vertical extent at north end of the run.

1752 2400 ft run along 165 mag.

1758 2400 ft run along 345 mag.

1804 spiral up to 4000 ft.

1806 start porpoise run along 165 mag heading, between 1500 and 3200 ft. See cloud base about 1700 ft and scattered "scud" near the surface. On last porpoise registered bases at 1600 ft and tops at 2800 ft.

1814 spiral down to 300 ft.

1817 passed through one of the "scud," seeing fssp concentrations up to about 100/cm3

1818 300 ft pass along 345 mag. Seems to be more scud in the area than earlier. Also note that the horizontal wind speed decreases by 1 or more m/s as go from south to north. This is also evident in the sea surface appearance.

1828 2400 ft pass at 165 mag.

1834 2400 ft pass at 345 mag.

1841 start porpoising between 1500 and 3200 ft along 165 mag and with radar up-looking.

1849 porpoise between same levels along 345 mag, now with radar side-looking.

1857 climb-out sounding to 10 kft. Cloud cover goes sharply from overcast to scattered along a line west of the area we were flying in.

1906-1920 Rodi maneuvers

1940 land

Notes:
--highest droplet concentrations we have seen thus far
  this year (related to smoke from forest fires?).
--in spite of higher droplet concentrations and
  having cloud-top lwc values of 0.5 to 0.6 g/m3,
  there seemed to be surprisingly few drizzle
  drops (radar echoes not strong).
--the radar echoes showed a lot of structure in both
  the horizontal and vertical cross-sections. In
  places the planform pattern was remniscent of that
  seen looking down on the clouds from some distance
  above.
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Radar data system hung while changing number of gates. Had to shut down 'mantis' to restart.

PVM high rate run last portion of flight only.

**Post hoc notes:**

Cloud zone was at W to NW boundary of an area of fairly uniform cloud. Broken couds to N and NW moved toward the center of W93 with time.

Interesting conrast in the drizzle echo pattern between areas of relatively weak echoes (-20 dBZ maxima), where the maxima occur near cloud top and echoes are virga-like, versus areas with stronger echoes (0 dBZ maxima) showing distinct precipitation shafts.

Very similar day to 990817 in all quick-look aspects.

By 2030 cloud extended more inland than off shore.