

DMIMS06: 20060528a

Flight 5

Flight notes: System Scientist (3rd seat)

Crew:

Pilot: Kevin Fagerstrom
Flt Scientist: Jeff Snider
System Scientist: Jeff French
4th Seat: Don Lukens

Pre-flight:

CloudSAT/DMIMS flight, will try get to target region for satellite overpass and work box, if time left, will target drizzle cells

Radar faulted a couple of times on ground at startup, after ~10 minutes of playing got it started.

PVM acted up yesterday. When we put away last night baseline had restored to zero. On startup this AM, baseline was around ~0.1 g/m³, let run on ground for ~1.5 hours, baseline finally went back to zero, I expect problems with PVM on today's flight.

Wx: overcast, winds: 280@06 kts, T=13/Td=08C

Flight:

Wheels up 1758 UTC (all times hereafter are in UTC)
1803: climb out and level at 7000 ft
1803: **radar file** 18-03-59 dual down w/ incr, range (30 m gate spacing)
1827: start descent sounding at NE corner of box, wind at cloud top ~300 deg.
1827: **radar file** 18-27-10 up/dual down
1832: just after entering cloud, PVM baseline jumps up, pretty bad rest of flight
1843: set up on low level leg
1850: turn, climb to 1700 ft (??) near cloud base
190030: turn, turn climb to cloud top
1902: **radar file** 19-02-38 dual down
1905: PVM baseline returns to zero just after we ascend thru cloud top, colder/drier (??)
1914: turn and repeat above cloud top leg
1923: turn and go into cloud, at top ~5100 ft
1924: **radar file** 19-24-41 dual side/dual down
1935: turn and descend, middle of cloud ~4000 ft
1944: turn, descend to 3000 ft
1944: **radar file** 19-44-55 up/dual down
1951: turn descend to 1000 ft for aerosol runs
2001: turn and begin sawtooth from cloud base to just above cloud top
2001: **radar file** 20-01-12 up/dual down
2015: end sawtooth legs

2015: end satellite stuff, above clouds, begin looking for drizzle cells
2015: **radar file** 20-15-48 dual down

BEGIN drizzle cell 1
202115: mark drizzle cell
202515: pass over drizzle cell second time
2027: **radar file** 20-27-33 up/dual down
203120: pass ~4500 ft, just below top
203450: pass ~4500 ft
204035: pass ~4000 ft
2044 (?): pass ~4000 ft
2046: descend to 1000 ft for aerosol run
2047: **radar file** 20-47-37 up/dual down
END drizzle cell 1

2059: RTB at 700 ft
2124: shutdown radar, severe clear
2133 wheels down

Post-flight/impressions

PVM causing problems almost entire flight. After flight, decision is disassemble and clean optics before next flight

Started getting hot in cabin during low-level ferry back. Radar Temperature up to ~103, decided to de-pressurize cabin and see if that would help cooling, seemed to make big difference and cabin T (and radar T) both dropped. Had some discussion after flight that we may begin to operate un-pressurized for remainder of project.