

Flight Notes –29 May 2002—Margaret A. LeMone

Boundary-Layer Heterogeneity – West Track

Takeoff 154121. Haze layer above.

Flight pattern. Legs above BL to test dual-Doppler; and then to be at 0.8 h, 0.4 h and at 200 feet. The legs and times are as follows.

	Time1	Time2	Ht (msl)	Remarks
1	163915 (S)		6500	Above the BL, WCR dual-Doppler downward; uniform BL higher on the north side. Bumps as we descend, at 2733 agl.
2	165357 (N)	170825 (S)	4800	Only one patch of cirrus. Lower layer of Haze. Heiman-NDVI relationship shows a triangle, but basically the NDVI doesn't vary as much as the surface temp does. Skies clear except for patch of Ci.
3	171150 (S)	172235 (N)	3800	
4	175600 (N)	173850 (S)	200' agl	Sounding BL depth about 3000 feet deep.
5	1745E (S)	175252 (N)	6000	Ci toNW 1/8 or less; Refractivity boundary over S-Pol.
6	175622 (N)	180740 (S)	5200	
7	181037 (S)	182107 (N)	4000	
8	182433 (N)		200 agl	183222 Hill area. Cows point N.
9	1840E (S)	185115 (N)	5200	1/8 Ci, Cb developing toW (according to S-Pol these clouds are 80 km to west).
10	1854E (N)	190730 (S)	4000	1857 – over wildlife refuge. Winds Snow. NDVI-surface temp relationship an ellipse, with long axis along sfc temp.
11	190951 (S)	192121 (N)	200 agl	Lots of photos of washed out road. We seem to be the west of road.
12	192541 (N)	193726 (S)	5000?	Cu closer. Falcon over us on this leg. BL top 5000' where we are. Sam says that the BL top uneven.
13	194206 (S)	195437 (N)	200	Cows random. See site 3.
14	195815 (N)	21103(S)	4000	Photos (2) at the end of the leg. Winds are more south.
15	201300 (S)	202404 (N)	200	Photo of puddles to right. Sited blue minivan at site 3.

### Soundings

	Time1	Time2	H	Comments
1	162548	163915	2750	Looks like top of transition layer is about 6000 msl. Choose 6500 for first leg to be above the transition layer.
2	173850	175252		
3	193726	194206	2200	BL top uneven. Sounding to 6000 feet agl.
4	202404		5200	Sounding to 8000'. BL top 5200 ft.
5				Sounding going into Liberal
6	215316		5800	Sounding taking off from Liberal. Top of BL is indistinct.

Overall impressions. T<sub>surf</sub> to 50 C, (30-50 deg range); NDVI 0.4. South end of the leg was flooded, with roads washed out. Winds were light, ended up south to SW. The BL was heterogeneous and fairly shallow – may be adequate sample. More turbulent to the north. We arrived at the BL around the end of the morning of the morning transition. Q started out around 11 g/kg, and quickly dropped to 7 g/kg during the first cycle. Last sounding at Liberal showed very indefinite back

Winds were light. They started out of the NE, then SW, then S.

We were planning to do a few more passes over the area, but the BL seemed to have disappeared so we aborted and went home instead of flying more legs.

Intercomparison opportunities: We were close to falcon and Homestead on two instances.