Weather Briefing 20050616

The 500mb pattern of troughs on the coasts and a ridge over the midsection is well set, and promises to persist through the forecast period (next Monday). This means hot weather locally, with scattered to isolated thundershowers in the afternoons. North and east of us, there is an axis of instability running from Kansas/Oklahoma down into Arkansas and southern Louisiana. It follows the southeastward direction of the 500 mb flow over the ridge, and it gets its moisture from the persistent near southerly flow from the Gulf over the next few days. Mesoscale convective systems develop along this axis and propagate southeastward. The models have been consistent in keeping this out of our area, and I do not expect this to be a problem.

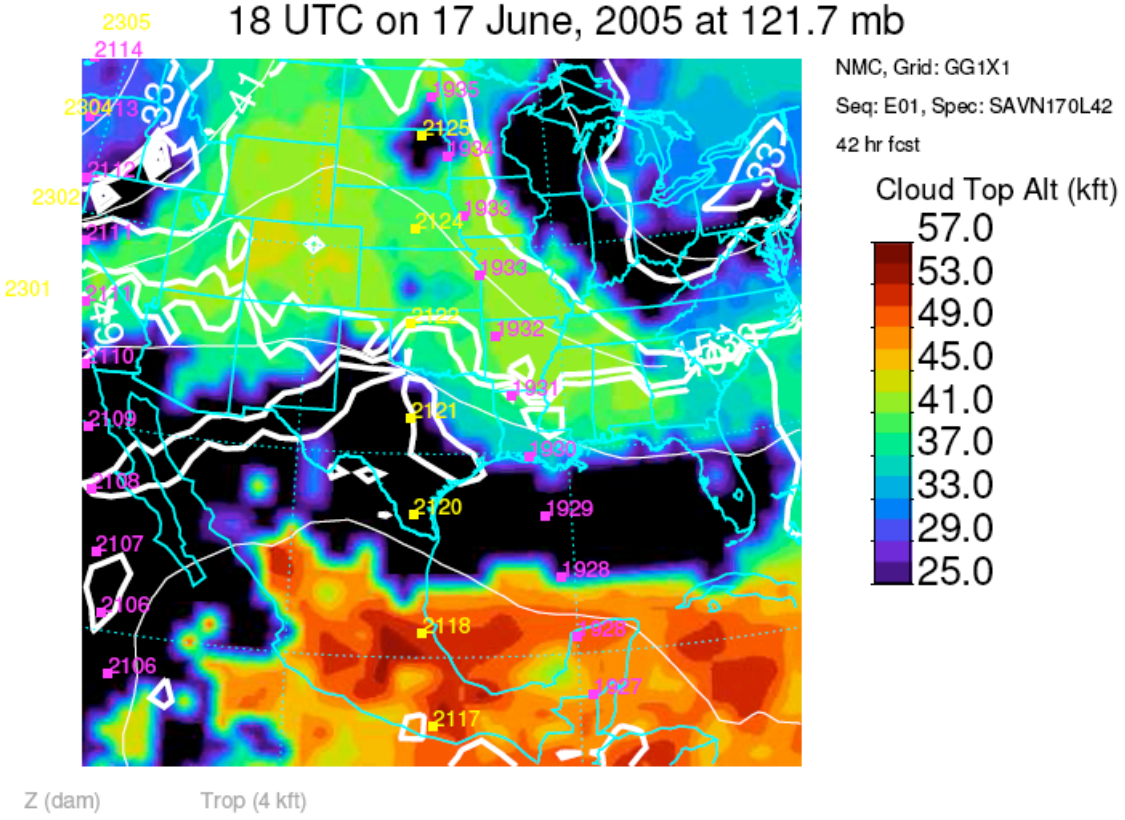
However, there is a forecast cloud issue for the HIRDLS track on tomorrow's flight. The basic situation here is that convection develops over the elevated regions of northern New Mexico and Colorado, propagates eastward, and develops into big systems over Oklahoma overnight. That is what happened last night, as an MCS is currently dissipating over OK. The implications of this picture for tomorrow's flight are that we should be OK over OK (sorry about that) because the major convection develops after we have done our flight. This is a well known pattern, with afternoon convection over the mountains propagating eastward and developing into major systems at around midnight or so over the plains. Still, there is a lot of moisture up there from all the convection, so cirrus may be present.

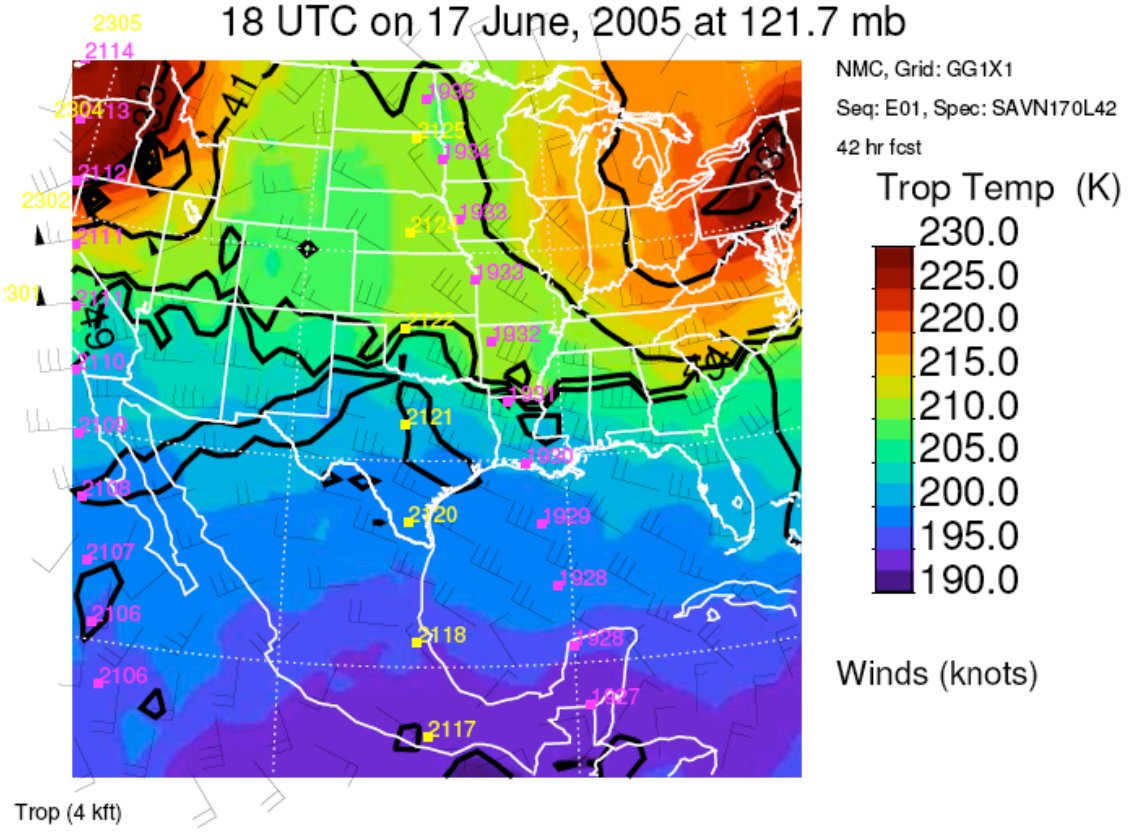
For Sunday, the ridge develops a southwest/northeast tilt, and the flow at 500mb is southward down the Mississippi. The axis of instability will weaken, with stronger subsidence developing over the east Texas/Louisiana area. 700 mb temperatures warm slightly, giving us a stronger cap on possible convection. This should reduce rain chances from those expected today and tomorrow. The Houston office keeps the canonical 20% chance of showers and T-storms throughout the forecast period, but notes that the weekend ought to be drier than the next two days. Clouds on Sunday's flight should not be a problem.

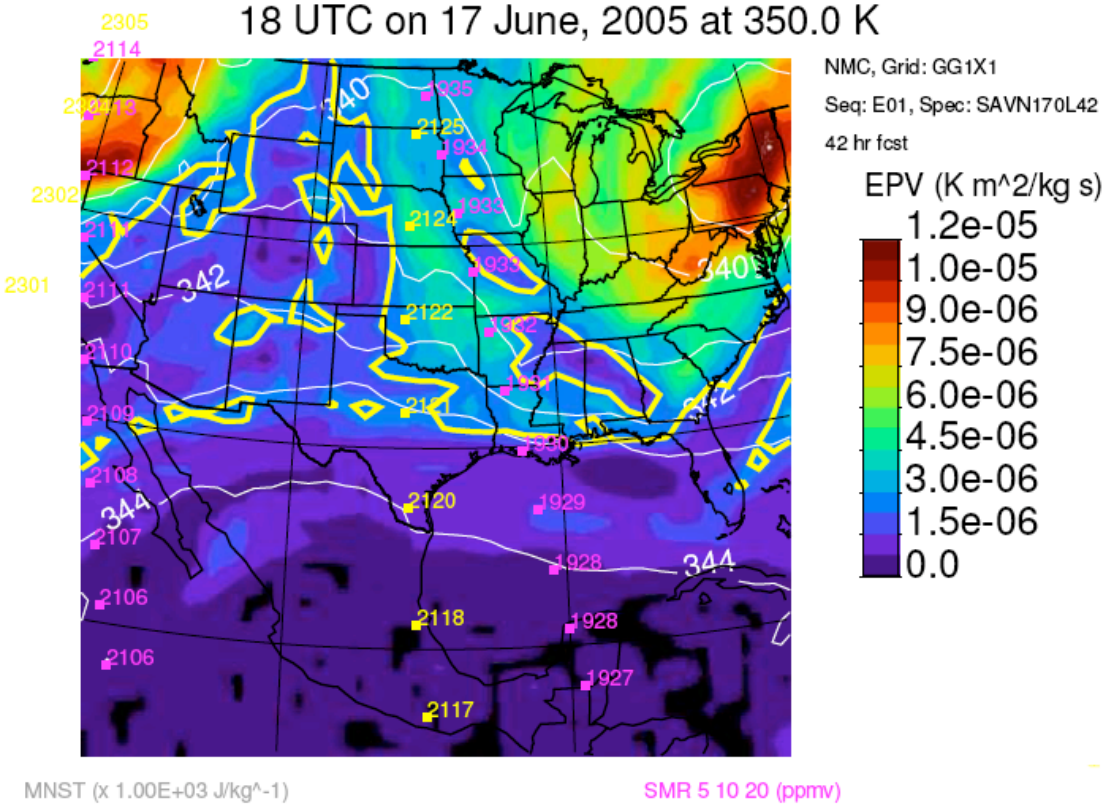
The promise of a cutoff low moving southwestward down through Tennessee and into Louisiana/Mississippi by next Tuesday from yesterday's model runs is not kept in today's GFS (NCEP) forecasts, though the European model keeps this feature. If this low materializes, it will increase our rain chances by next Tuesday. This is far out, and with models disagreeing, we need to wait and see. The GFS does have a disturbance coming southward along the front (eastern) side of the high giving us some rain chances on Monday. This is nearly five days out, though.

Science:

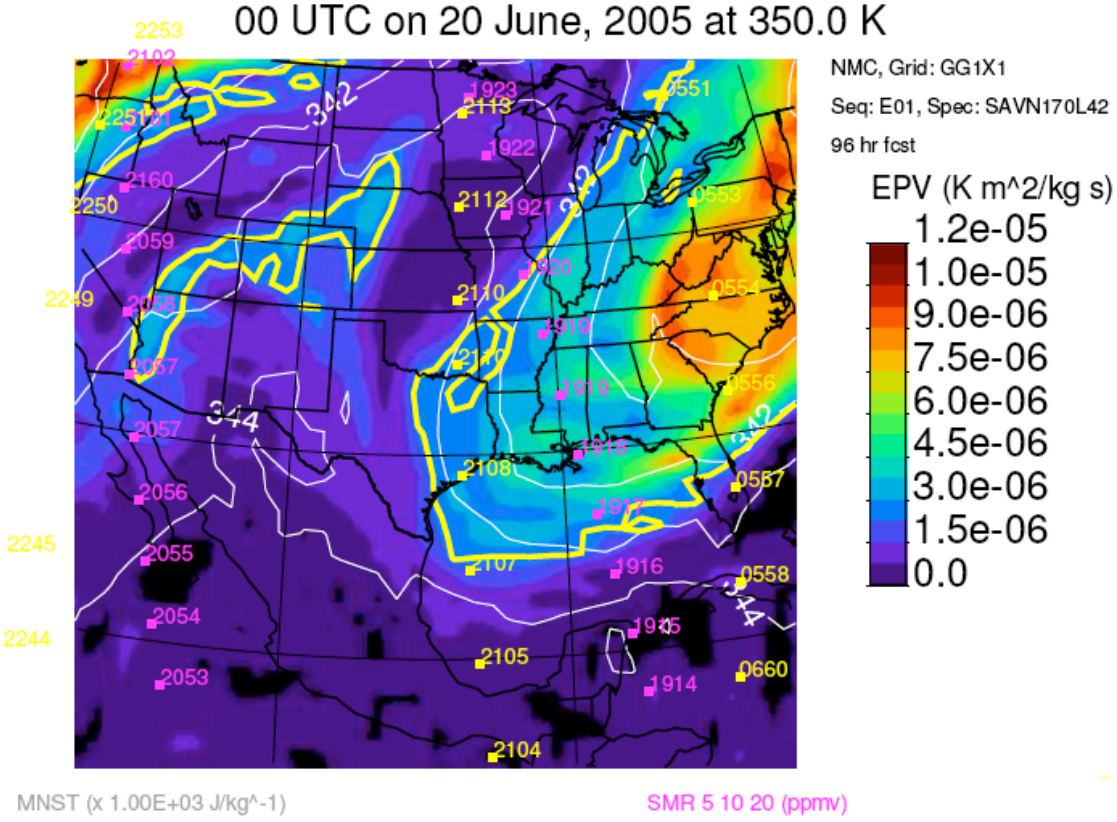
Tomorrow: Attached find the 350K surface PV plot, the Tropopause Temperature/Winds at 41Kft, and the cloud altitude forecasts. We will cross the STJ at 41Kft.


18 UTC on 17 June, 2005 at 121.7 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
42 hr fcst
Cloud Top Alt (kft)
57.0
53.0
49.0
45.0
41.0
37.0
33.0
29.0
25.0
Z (dam)
Trop (4 kft)


18 UTC on 17 June, 2005 at 121.7 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
42 hr fcst
Trop Temp (K)
230.0
225.0
220.0
215.0
210.0
205.0
200.0
195.0
190.0
Winds (knots)
Trop (4 kft)



Sunday: Another good HIRDLS opportunity. I attach the 350K surface plot. We may be able to transect the lobe of high PV completely.


00 UTC on 20 June, 2005 at 350.0 K
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
96 hr fcst
EPV (K m^2/kg s)
1.2e-05
1.0e-05
9.0e-06
7.5e-06
6.0e-06
4.5e-06
3.0e-06
1.5e-06
0.0
MNST (x 1.00E+03 J/kg^-1)
SMR 5 10 20 (ppmv)