Weather Briefing, 20050619

Summary:

(1) No rain in the forecast until Thursday evening. Confidence in this is high through Wednesday. Rain chances improve significantly on Friday, but models diverge.
(2) No major convective activity predicted along the flight track today (moderate confidence). Significant blowoff can be expected south of 20N from T-storms to the west on Mexican mainland. Also, a blob of low clouds north of us today. Otherwise clear
(3) PV feature at 350K just north of us is more broken up in today's model run.
(4) Tuesday's 350K pattern shows a good HIRDLS run across a streamer stretching across the northwestern Gulf.
(5) High tropopause from tropical/subtropical air over Missouri/Iowa on Tuesday. High thin cirrus expected there.
(6) Clear skies over our region Tuesday with east-northeast winds in BL.
(7) Wednesday's 350K pattern shows a good MLS run to the west across Wednesday's streamer stretching across the northwestern Gulf (streamer moving slowly southeastward).
(8) High thin cirrus possible over us on Wednesday.
(9) Thursday's satellite tracks a bit far away. Subsidence over us, expect reasonably clear skies during the day for OMI air pollution run. Winds from the SSE in the BL. Confidence low.

Narrative:

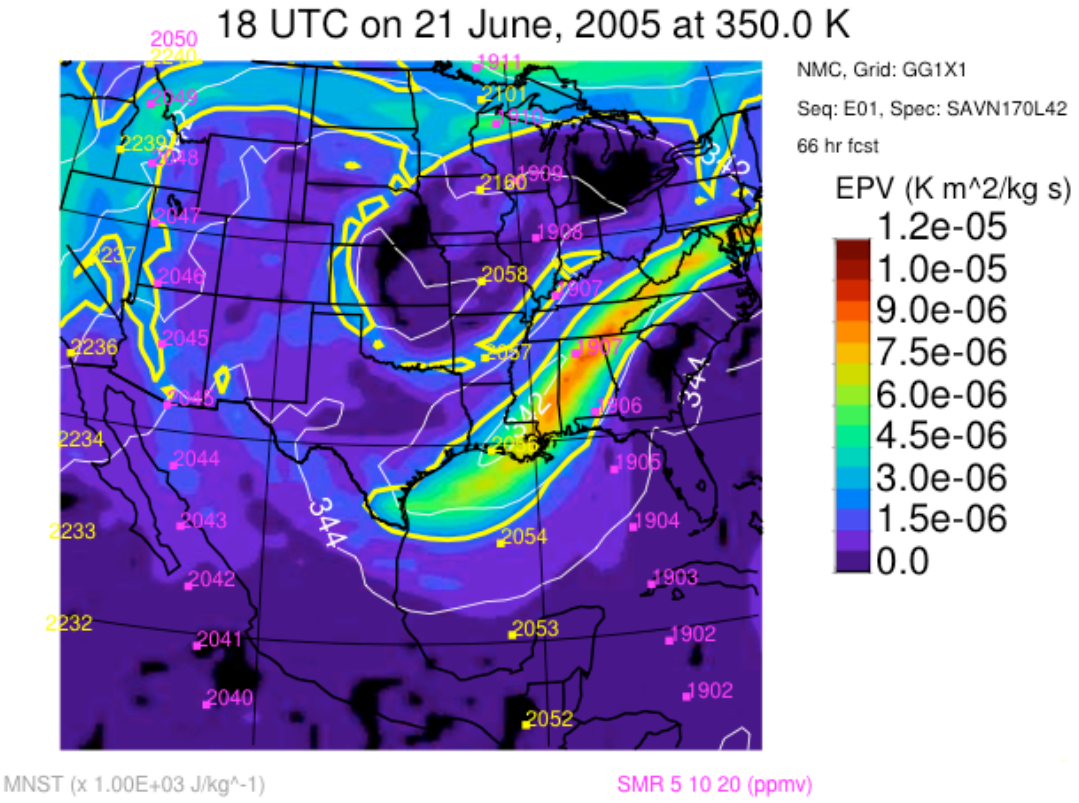
Major forecast problem for today are clouds at the south end of the flight track. Convective activity at this time (11UT) in the Gulf of Campeche (GOC) is not typical of the diurnal patter of the past few days. There is a major dissipating system over Mexico west of the GOC (atypical), some convection in the southeastern GOC (typical) moving northeastward (atypical), and extensive convection from the east Yucatan to Cuba (atypical). Outflow boundary convection is forming in the GOC south of 20N as a result of the major system on the coast, but it is not getting very high. The diurnal pattern is for convection over the GOC to maximize around now and dissipate by 18-23Z, replaced by convection on the Mexican coast west of the GOC and the Yucatan east of the GOC. I believe we will see this diurnal pattern, but the presence of diffluence at upper levels between Cuba and the Yucatan, and the resulting strong convection there, will suppress major convective activity in the GOC. Winds are from the west at upper levels, so we should see blowoff from convection on the Mexican mainland to the west of the GOC. Based on developments right now, Mexican mainland convection may be greater than usual. You can watch developments at http://bocachica.arc.nasa.gov/HAVE/forecasting.html And click on ARC IR loop in the lower left.

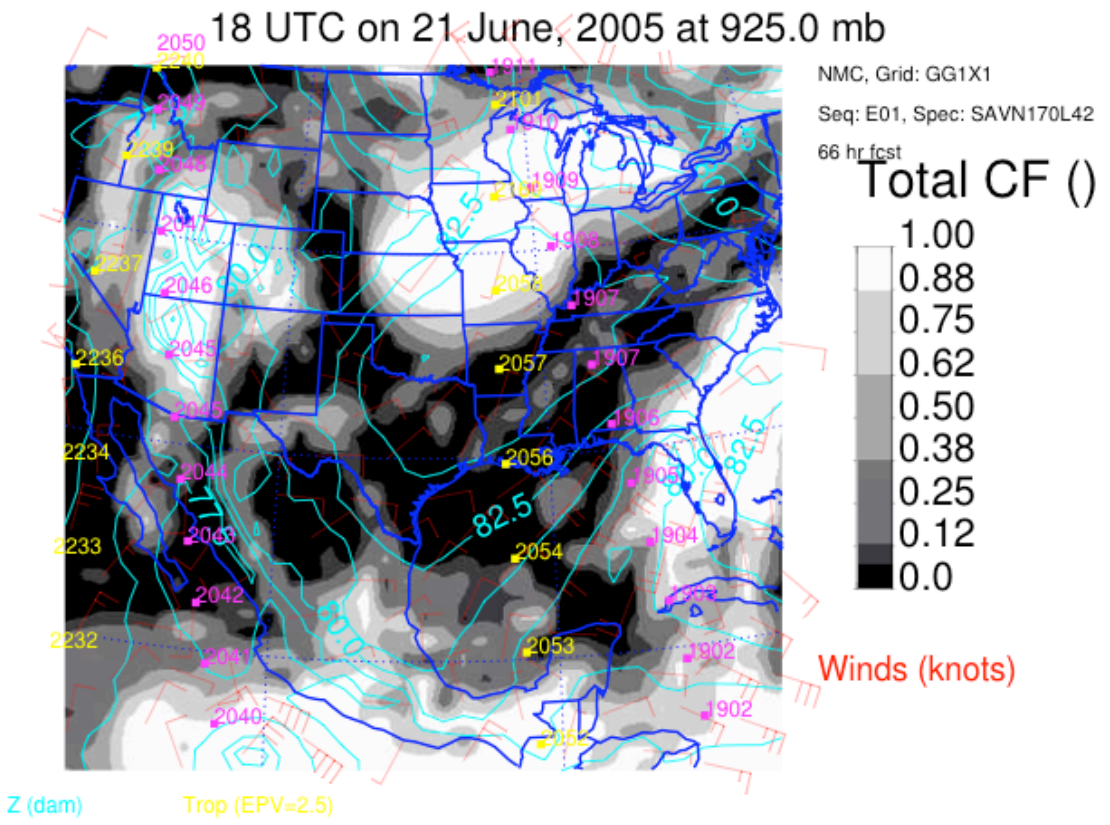
We should not encounter much cloud along the flight track beyond the southern end, though there is a good chance of low cloud near the northern end.

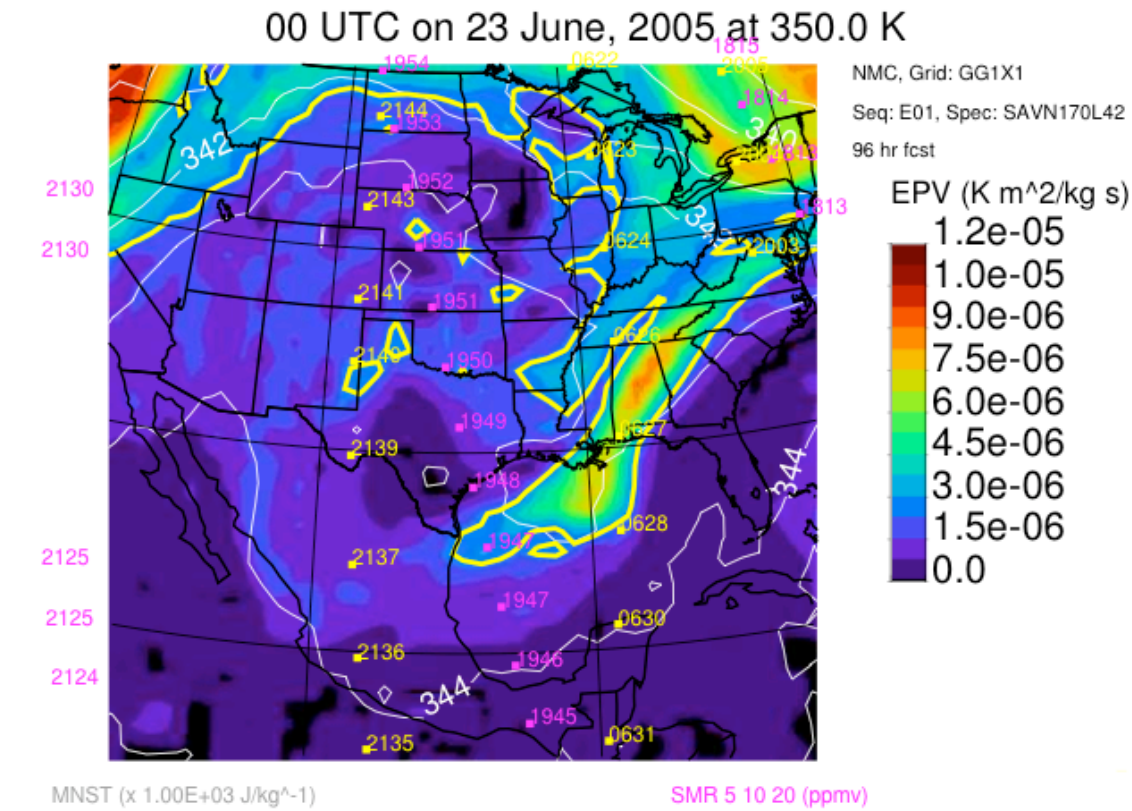
For our own weather, the 500mb ridge will be just to the west of us (longitude of the Texas panhandle), keeping us in a subsiding region for the next 3-4 days. By late Tuesday, there is a stationary 500mb trough to the southeast of us, with significant rain expected on a line from the Yucatan to Tampa Tuesday through Thursday. Confidence is low in the model runs beyond Wednesday. The GFS has been very inconsistent, with runs 24 hours ago showing an easterly wave giving us significant rain on Thursday, and current runs keeping us dry through Friday. The EC model is somewhat wetter. My judgment on this is no better than the pros in Houston. Confidence is low, but I believe conditions for flying will deteriorate by Friday, with Thursday risky.

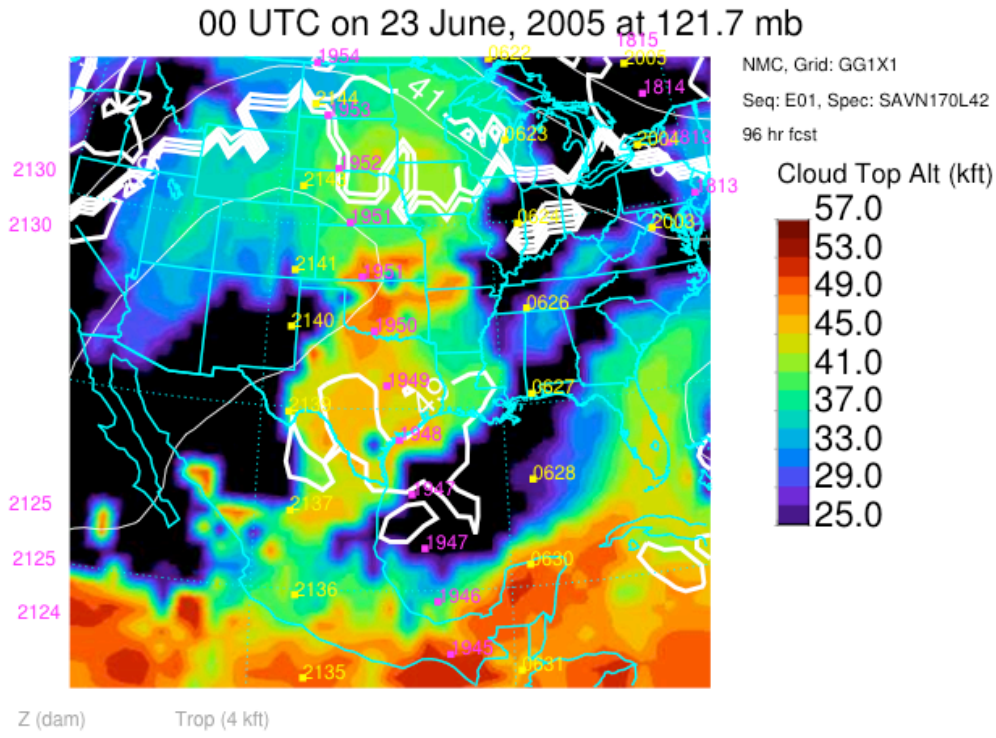
Science:

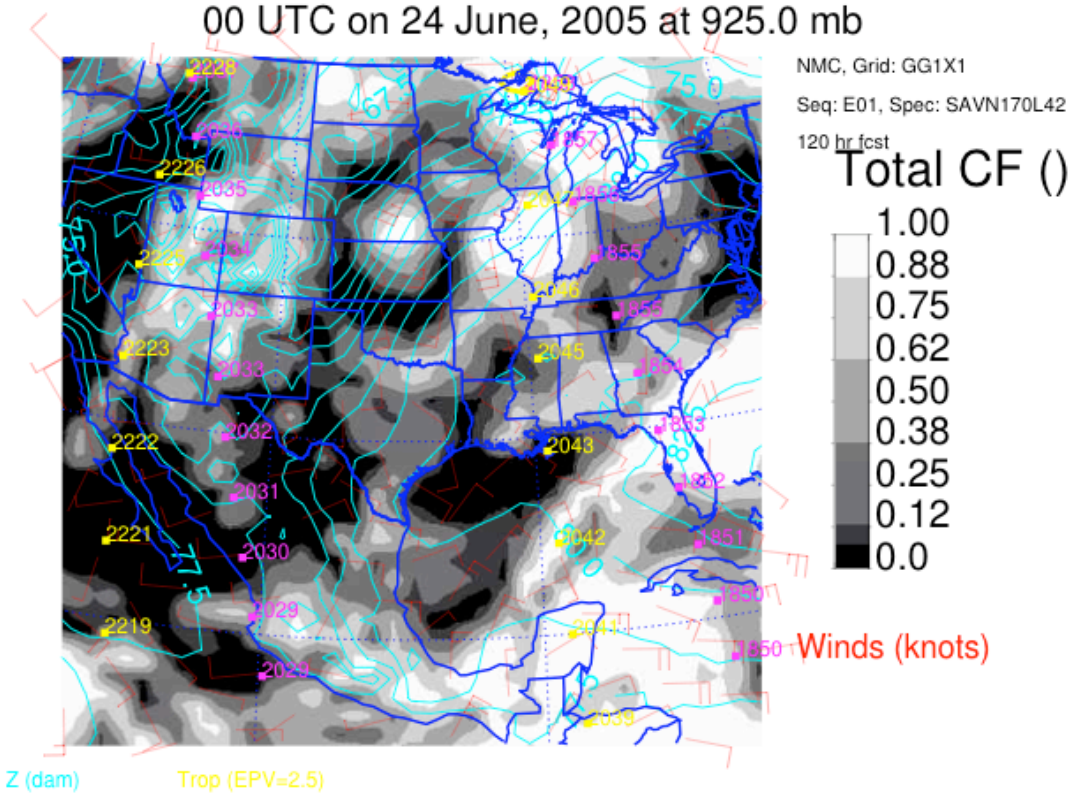
I have attached some figures for Tuesday, Wednesday and Thursday. Read the bulleted summary for comments on these figures.




18 UTC on 21 June, 2005 at 925.0 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
66 hr fcst
Total CF ()
1.00
0.88
0.75
0.62
0.50
0.38
0.25
0.12
0.0
Winds (knots)
Z (dam)
Trop (EPV=2.5)


00 UTC on 23 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)


00 UTC on 23 June, 2005 at 121.7 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
96 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)


00 UTC on 24 June, 2005 at 925.0 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
120 hr fcst
Total CF ()
1.00
0.88
0.75
0.62
0.50
0.38
0.25
0.12
0.0
Winds (knots)
Z (dam)
Trop (EPV=2.5)