

DISCOVER-AQ Outlook for Thursday, July 20, 2011

As this week's heat wave is getting into place today, southeasterly flow has pushed today's maximum ozone to the west and northwest of the main emission corridor. The winds will shift to more southwesterly tomorrow, leading to higher ozone within the corridor tomorrow. The 500 hPa ridge intensifies over the eastern US tomorrow, leading to hotter temperatures, along with high dew points. This pattern continues on Friday, with high temperatures around 100 F on both days. Dew points are forecast to be even higher on Friday, leading to the greater possibility of late afternoon/evening thunderstorms at about a 25% probability. We'll need to reassess this tomorrow. Code Orange or greater ozone is forecast for both days. Saturday and Sunday will likely have greater cloudiness, but the pollution episode will likely continue. We definitely recommend flying tomorrow to catch a day with little cloudiness and high ozone.



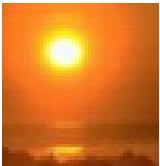



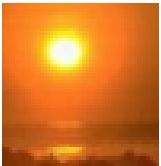

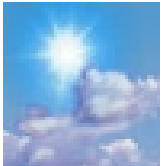
Recommendations July 21st-24th

July 21, Thursday: Can Fly

July 22, Friday: Can Fly – Possible PM Tstorms

July 23, Saturday: Clouds?

July 24, Sunday: Clouds?

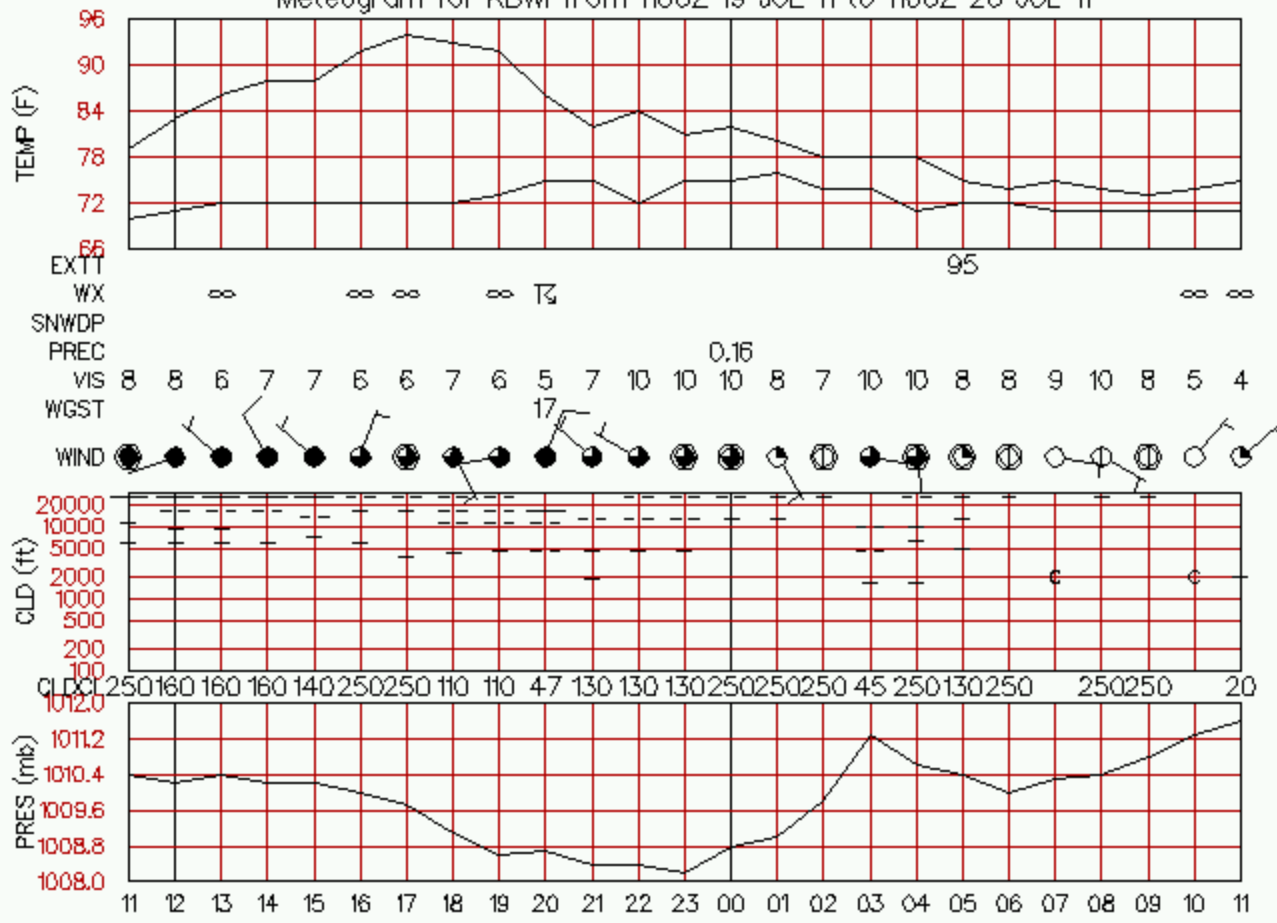
Today	Tonight	Thursday	Thursday Night	Friday	Friday Night	Saturday	Saturday Night	Sunday
								
20%				30%	30%			
Isolated Tstms	Mostly Clear	Hot	Mostly Clear	Scattered Tstms	Scattered Tstms	Hot	Partly Cloudy	Mostly Sunny
Hi 94 °F	Lo 76 °F	Hi 99 °F	Lo 77 °F	Hi 101 °F	Lo 81 °F	Hi 100 °F	Lo 77 °F	Hi 95 °F

Current Conditions at BWI, 11 am

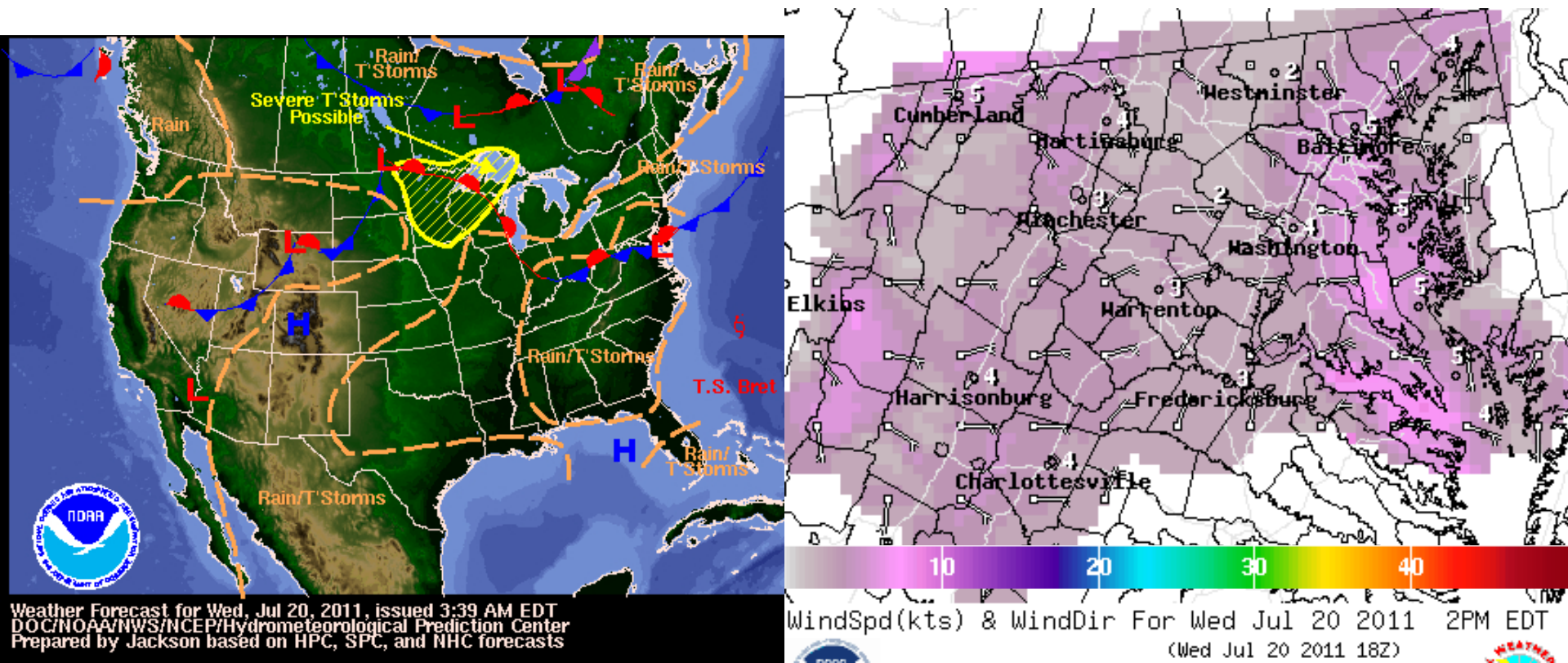
Temp: 87F
Dew point: 74F
Partly Cloudy, Haze
Scat. Clouds, 2600 ft
Vis: 6 mi.

▼ Plymouth State Weather Center ▼

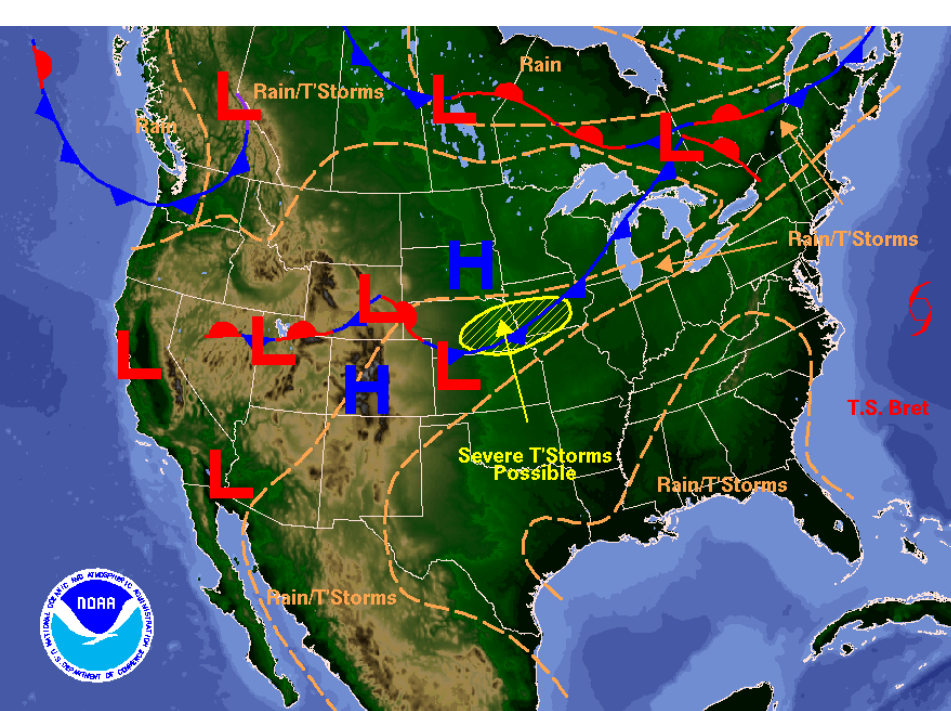
Meteogram for KBWI from 1100Z 19 JUL 11 to 1100Z 20 JUL 11



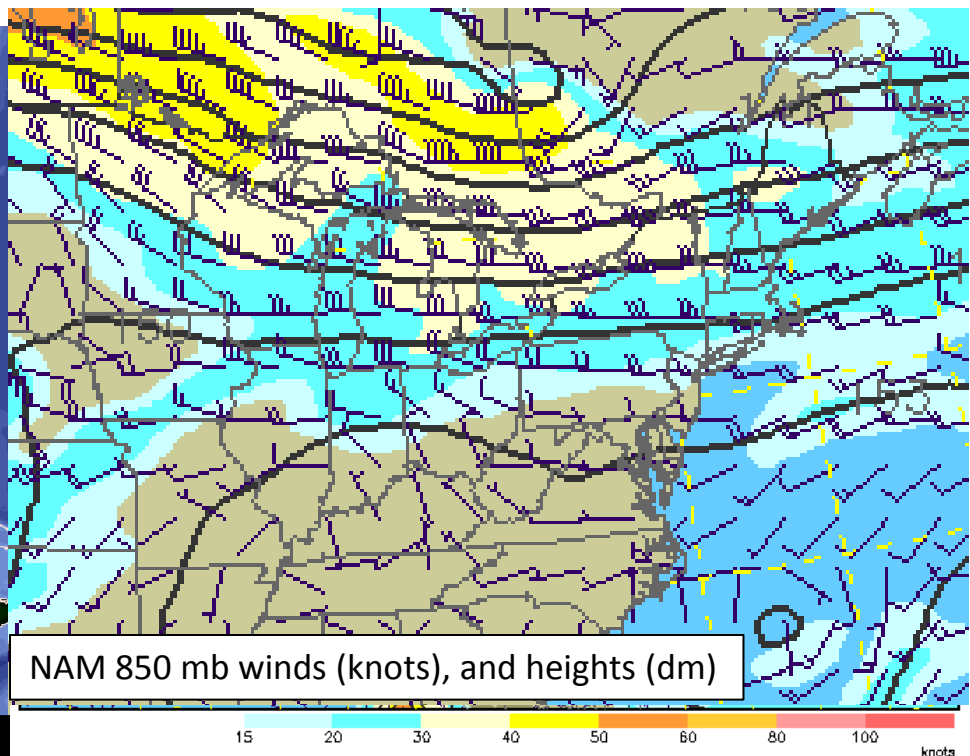
Today : Influence from the surface high near Bermuda will produce a light easterly flow. Slight chance of isolated thunderstorms as a result of bay breeze or terrain circulation forcing. The light easterly flow may aid a farther expansion of the bay breeze. Scattered fair weather cumulus are expected to develop across the region.



Tomorrow: Upper level high pressure builds eastward across the Mississippi River by Thu morning. Strong westerly flow predicted. This will result in the advection of a very warm airmass into our area. Subsidence and a cap will probably inhibit convection despite a well-mixed boundary layer and high moisture content. As a result, maxima should reach the upper 90s and lower 100s, with heat indices possibly approaching warning thresholds.

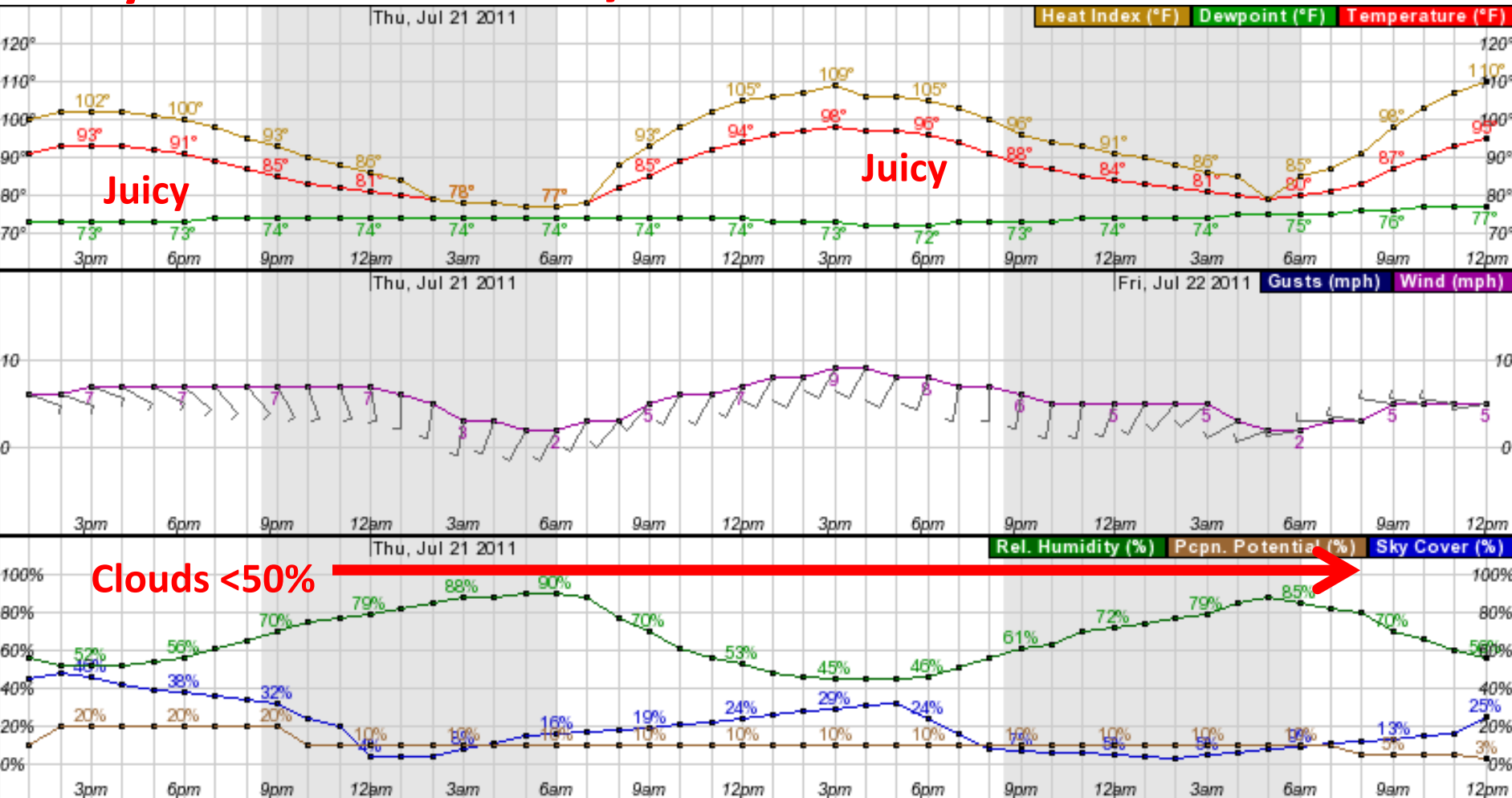


Weather Forecast for Thu, Jul 21, 2011, issued 3:58 AM EDT Wed, Jul 20, 2011
DOC/NOAA/NWS/NCEP/Hydrometeorological Prediction Center
Prepared by Jackson based on HPC, SPC, and NHC forecasts

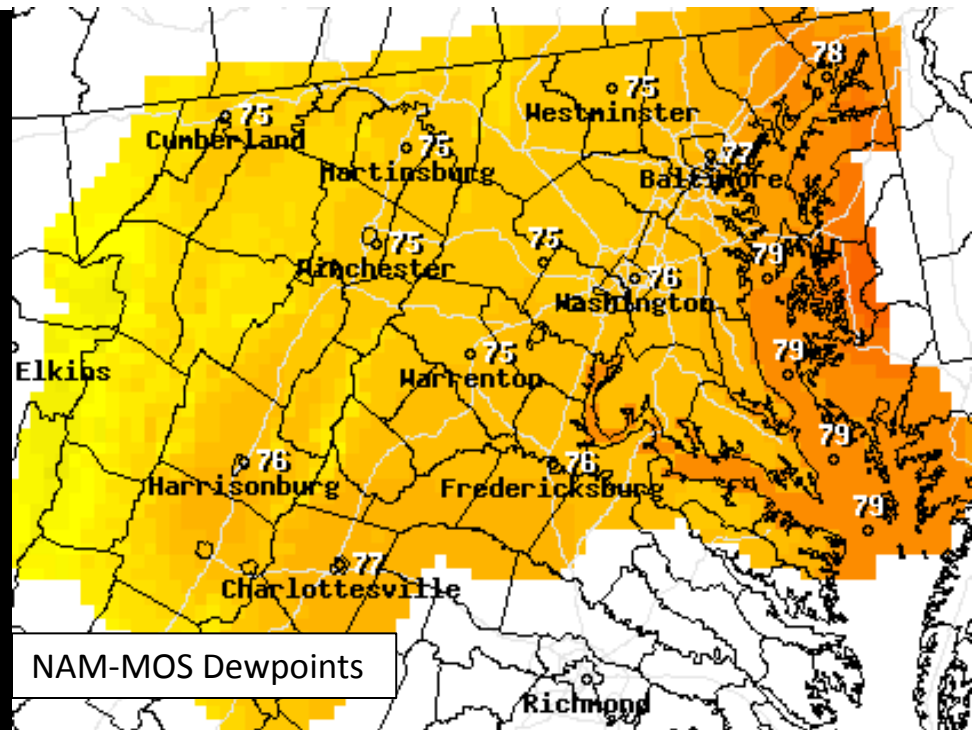
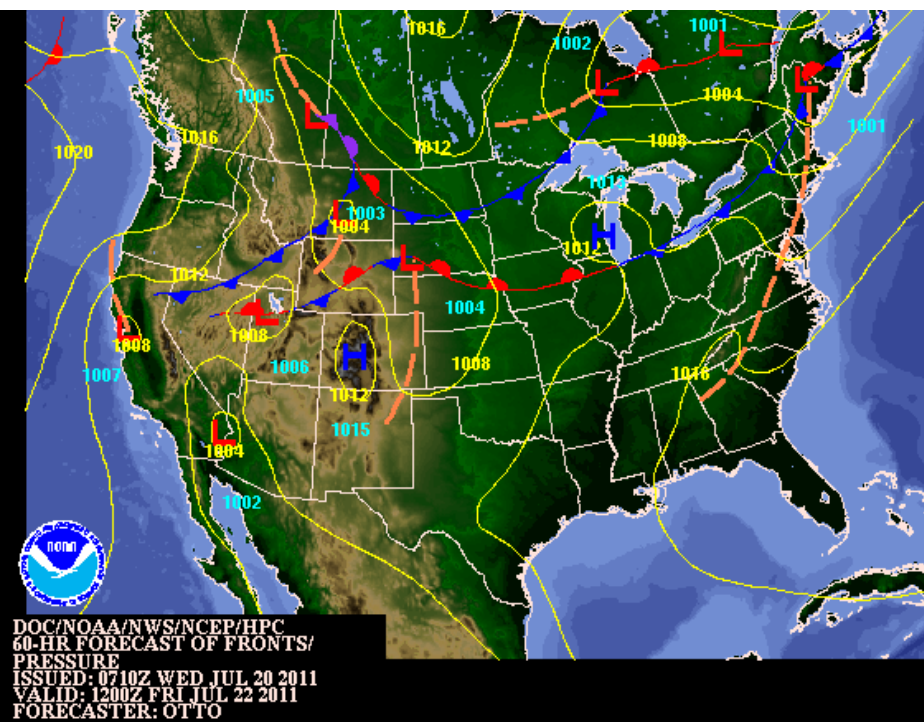


Today: Southeasterly flow with hazy, very hot, very humid conditions.
Thursday: Southwesterly flow with even more heinous conditions.

Today → Thursday →



Friday: A dangerous heat episode is expected Friday with widespread maxima above 100 and dewpoints in the low and mid 70s. The other danger for Friday is thunderstorm development. Deep mixing and very high dewpoints will cause instability to be extreme. Although shear will be weak, the instability may be sufficient to sustain pulse convection with the potential for isolated damaging wind gusts and hail. As of the 7/20/11 0Z forecast, there is a 25% chance of thunderstorms starting ~5 pm.

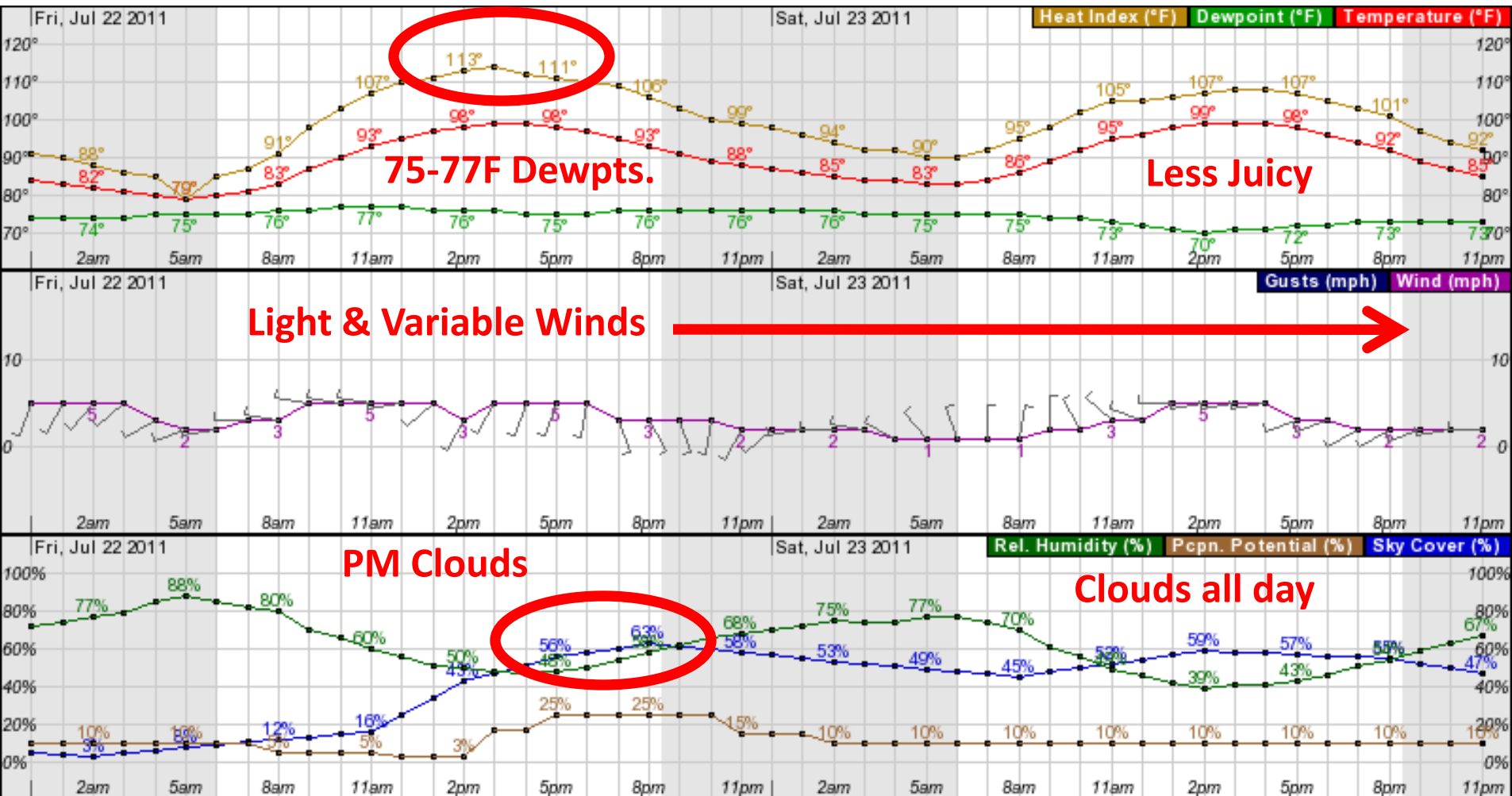


Friday: Dewpoints >75F w/ heat indices 110-114F! PM Clouds
Saturday: Lower dewpoints & clouds (>50%) all day.

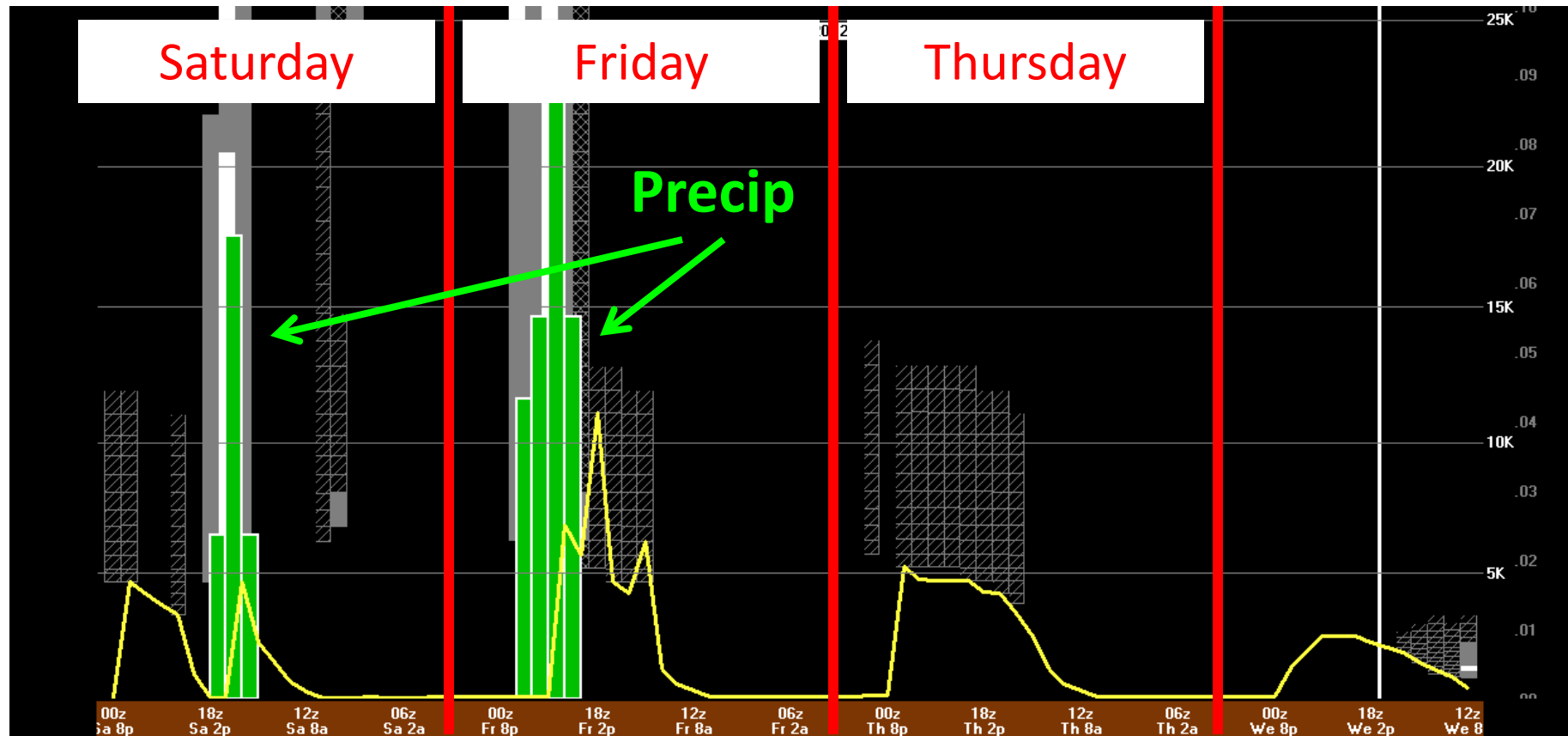
Friday→

Check on the elderly.

Saturday→



BUFKIT – NAM (12 UTC 20 July)

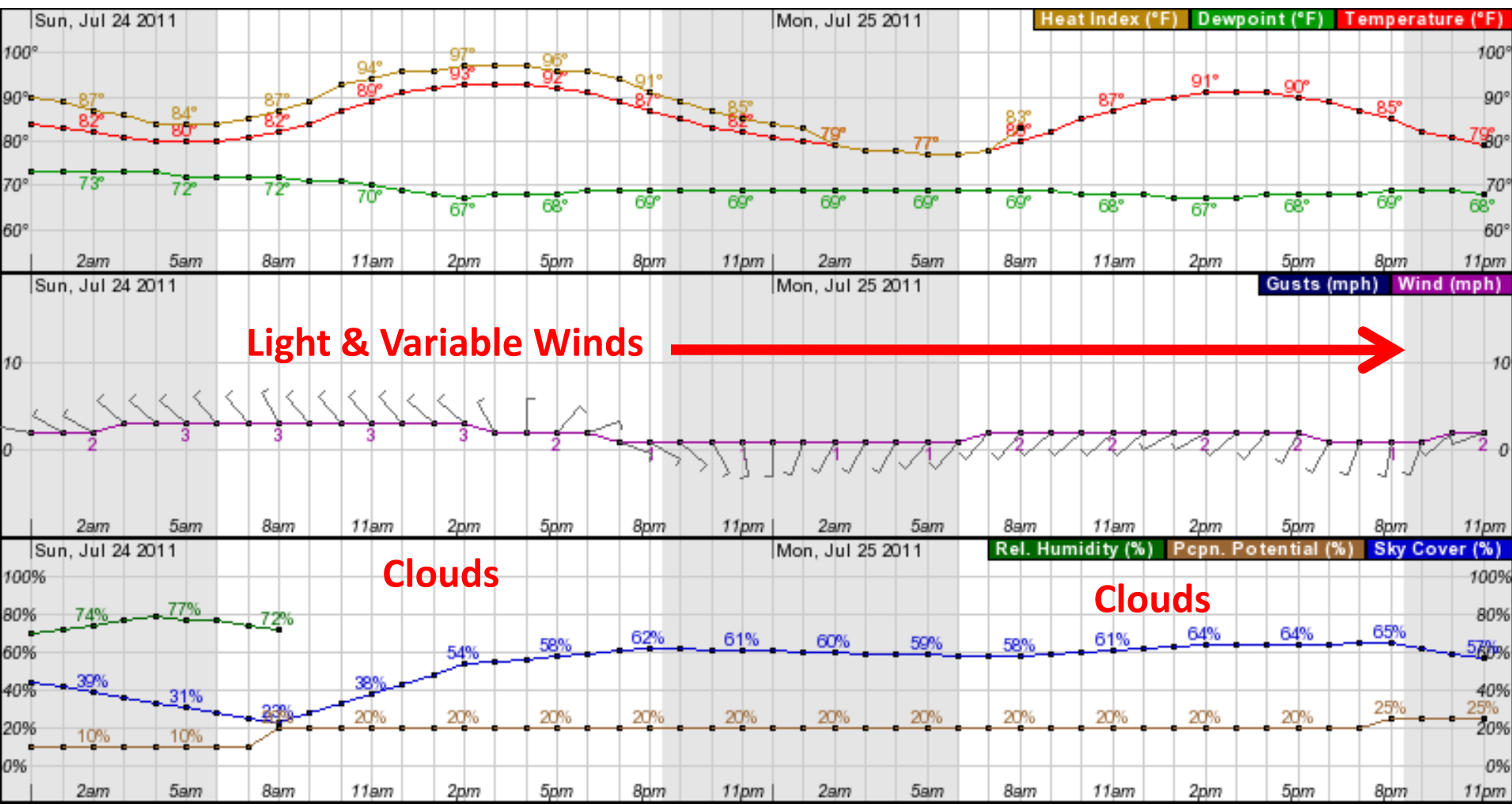


- Fair weather cumulus clouds Thursday
- Chance of precip Friday and Saturday

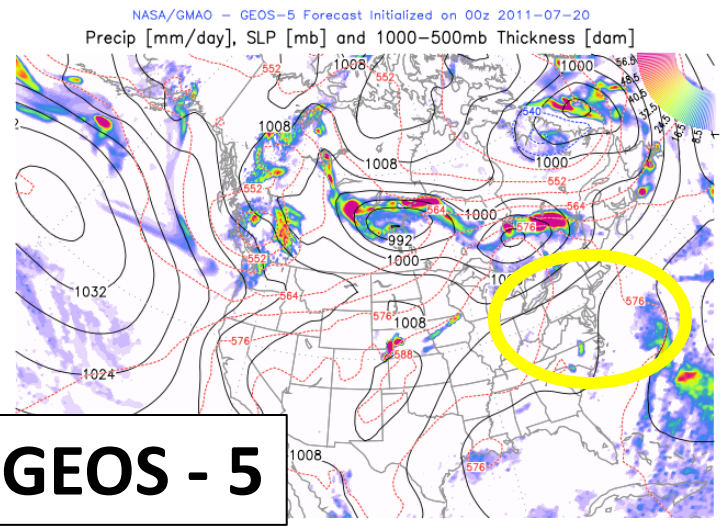
Sunday-Monday: More typical summertime conditions. Keep an eye on cloud forecasts.

Sunday→

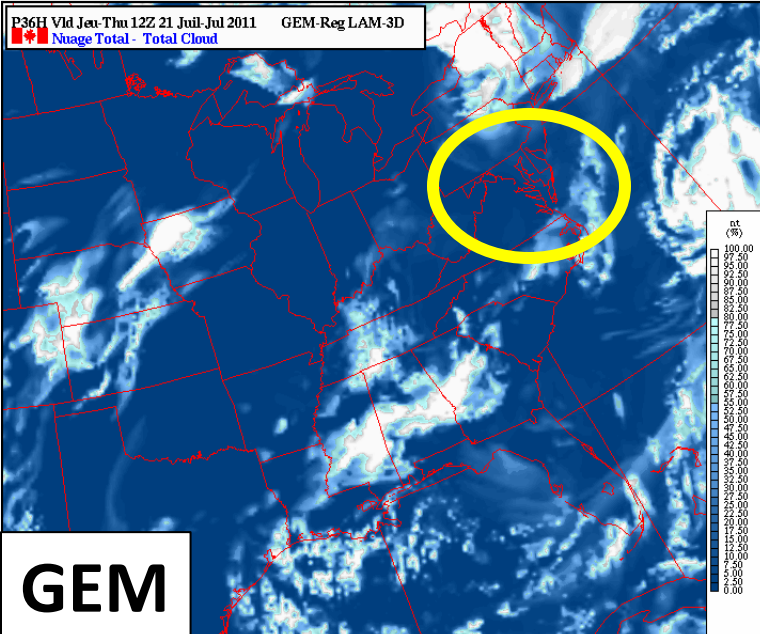
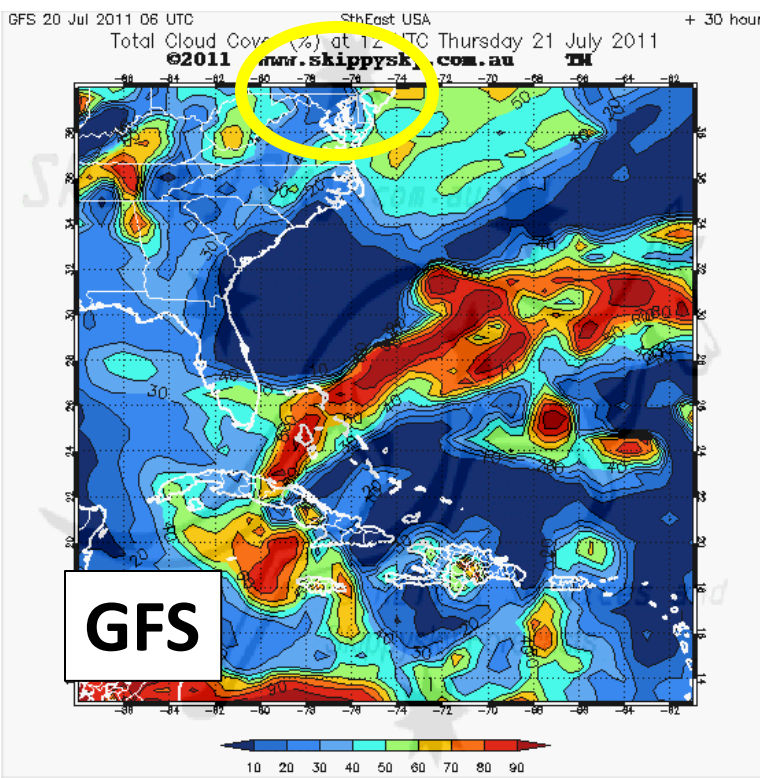
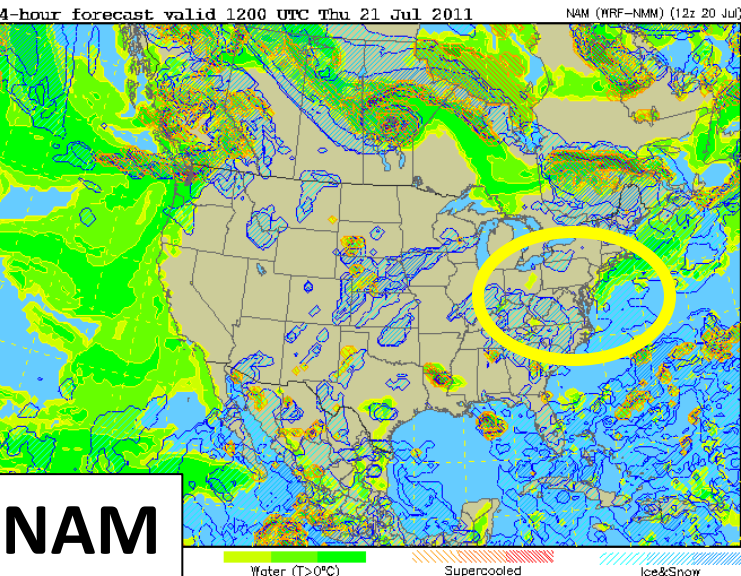
Monday→



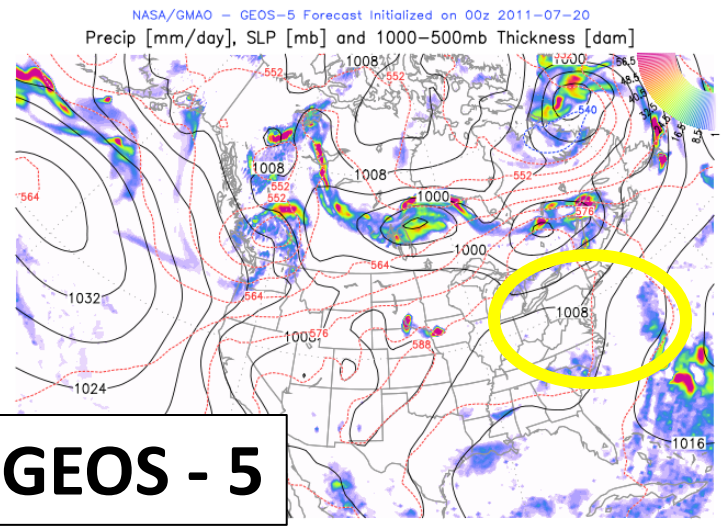
Thursday 8 am: GFS forecasts 10% high-level cloud cover.



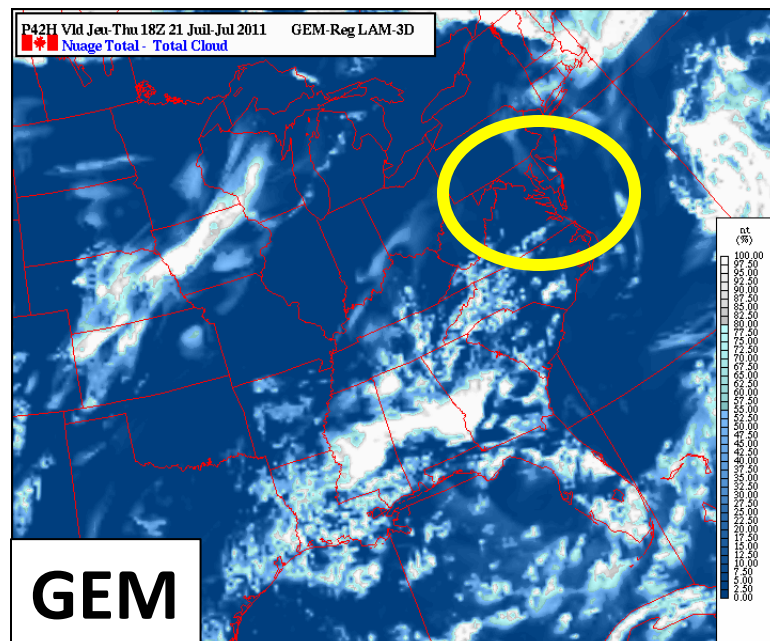
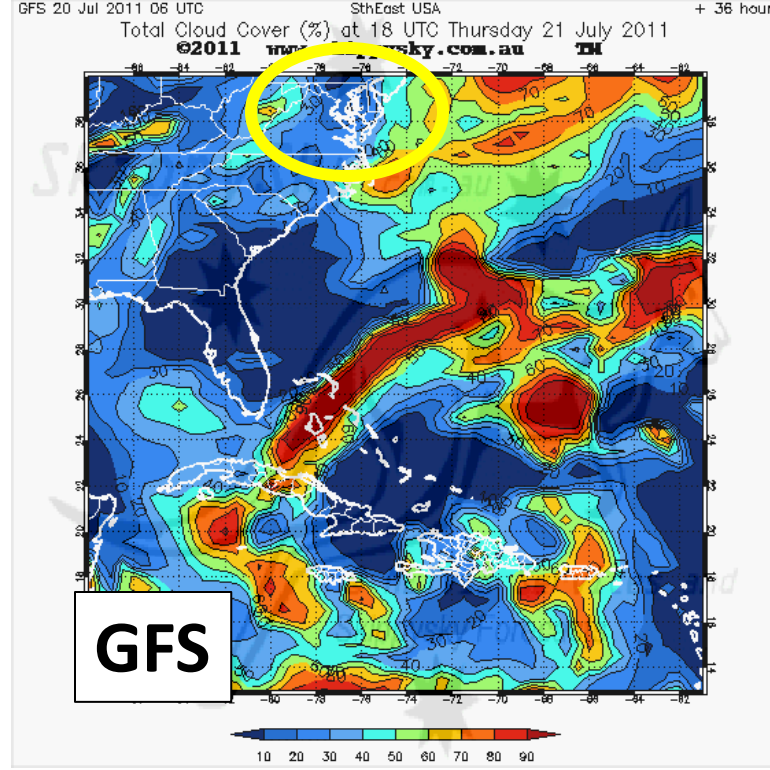
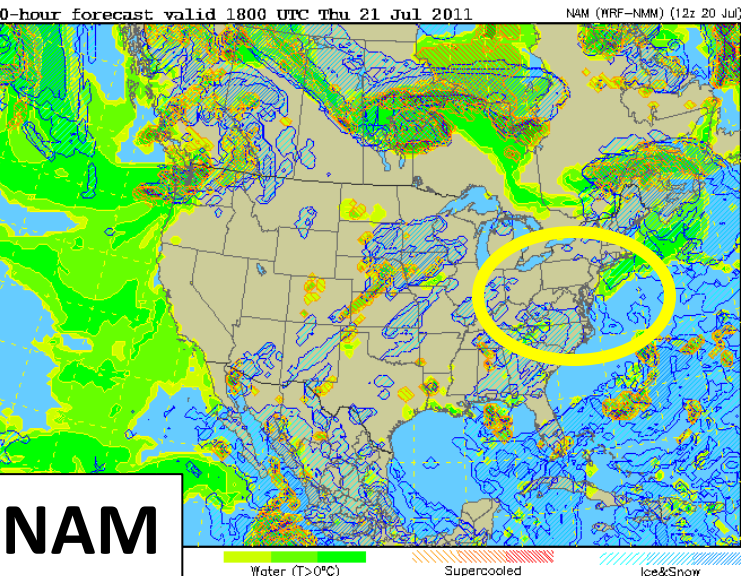
36-hr forecast valid Thu 12z 2011-07-21



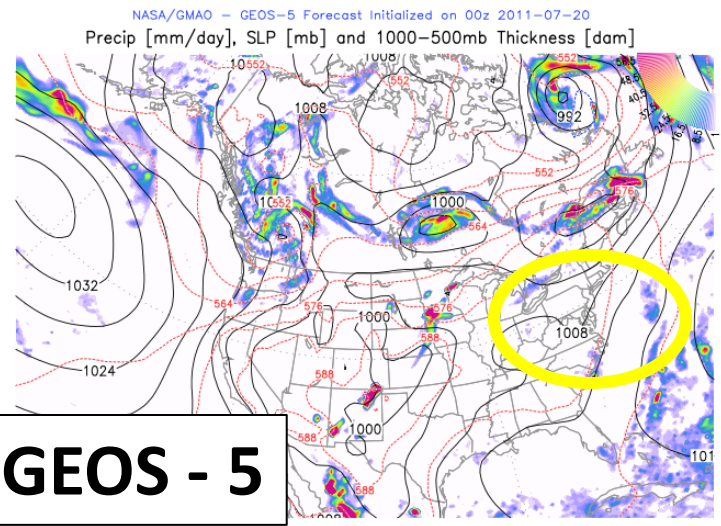
Thursday 2 pm: GFS forecasts 10% high-level cloud cover.



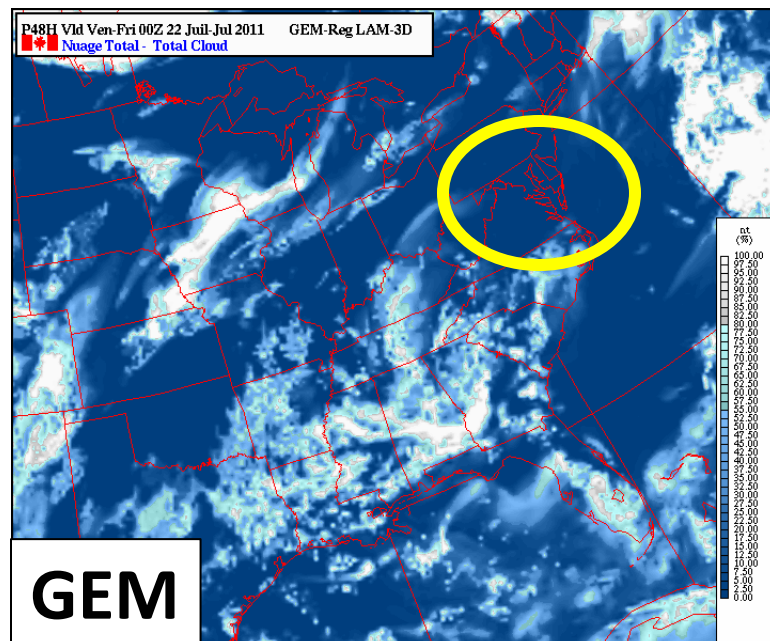
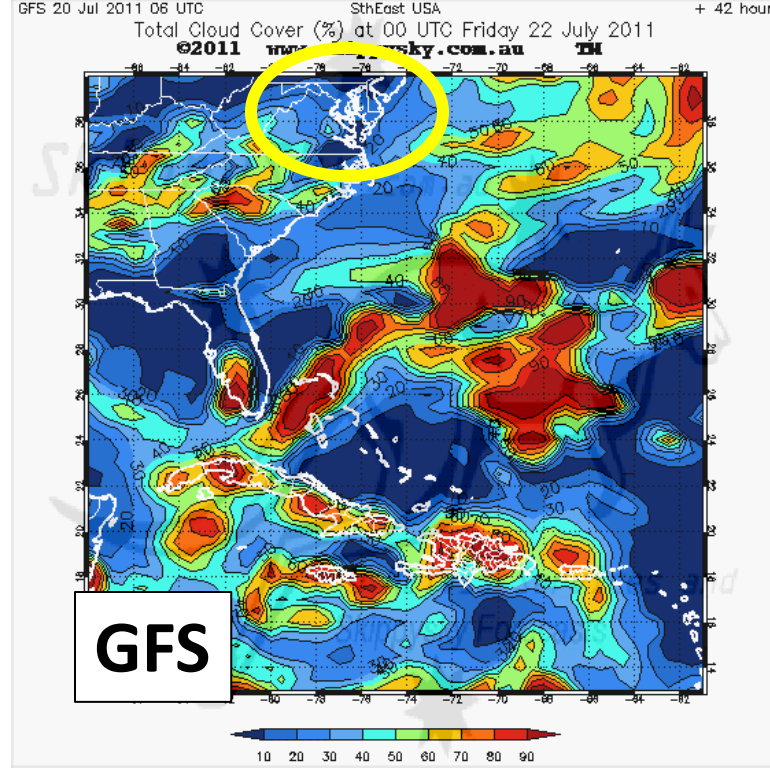
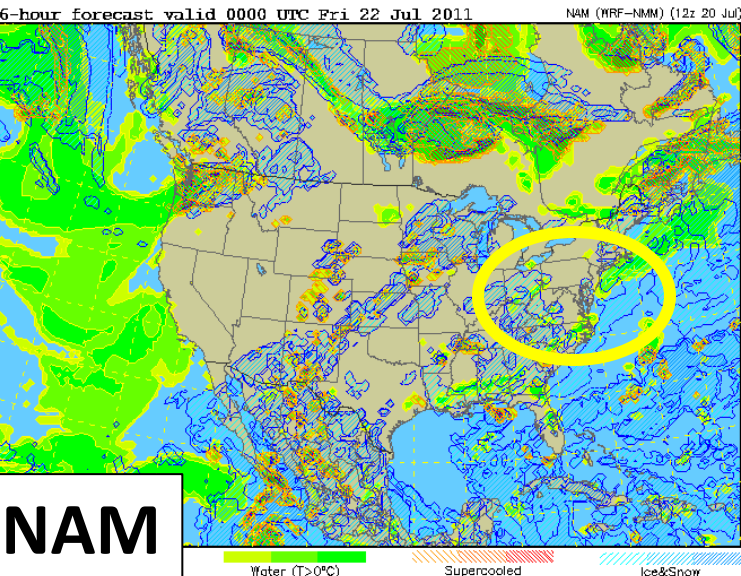
42-hr forecast valid Thu 18z 2011-07-21



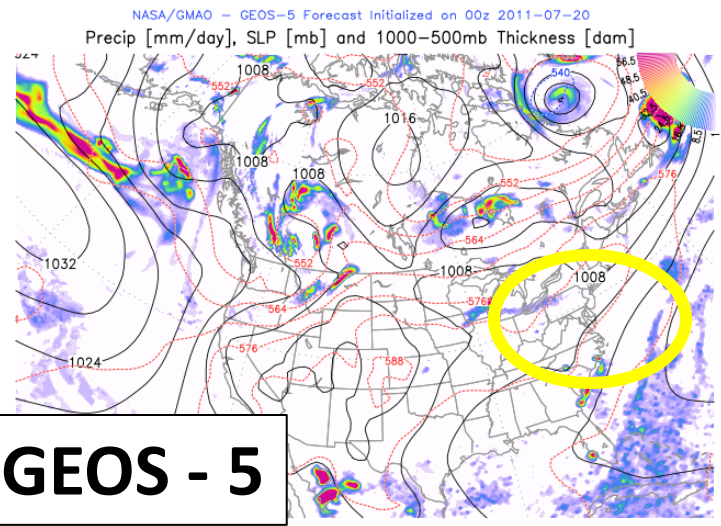
Thursday 8 pm: GFS forecasts 10% high-level cloud cover.



48-hr forecast valid Fri 00z 2011-07-22

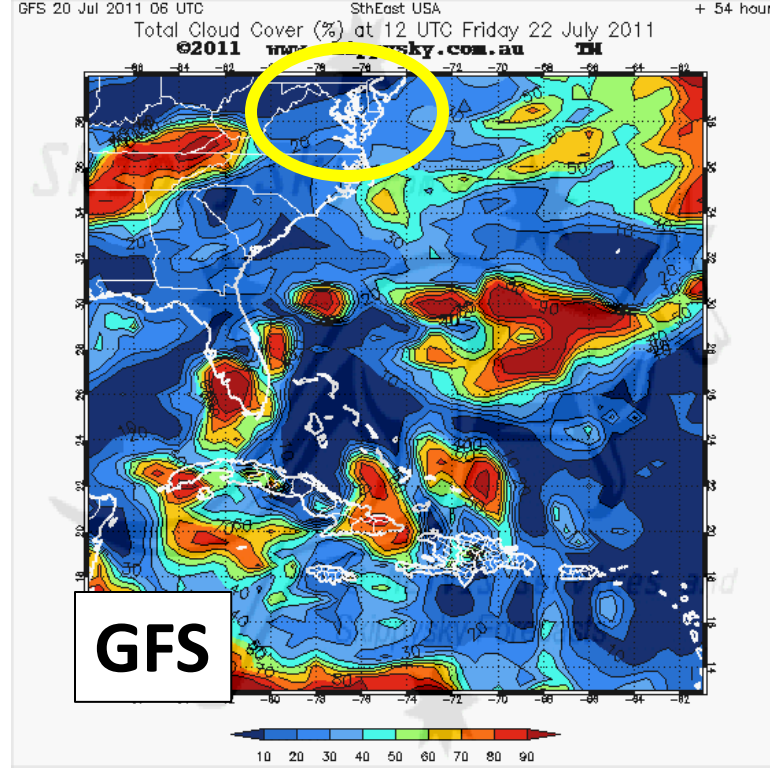
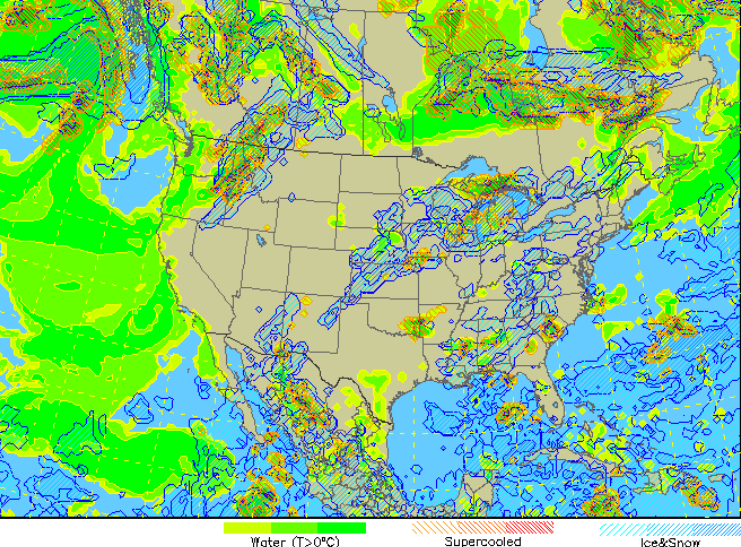


Friday 8 am: GFS forecasts 0-10% high-level cloud cover.

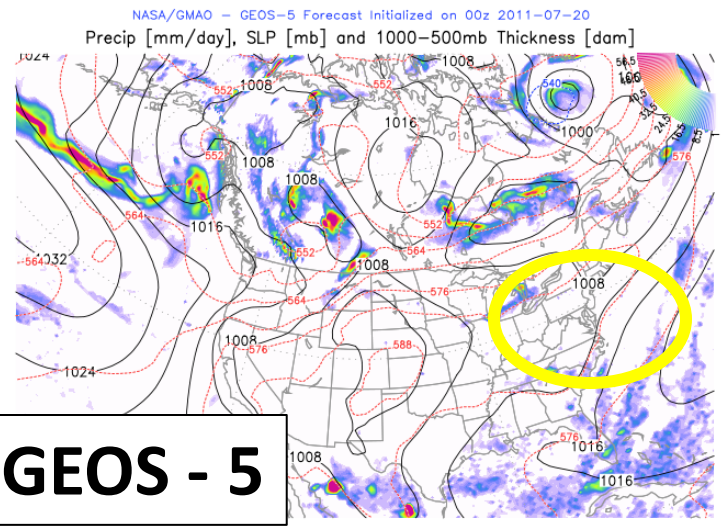


60-hr forecast valid Fri 12z 2011-07-22

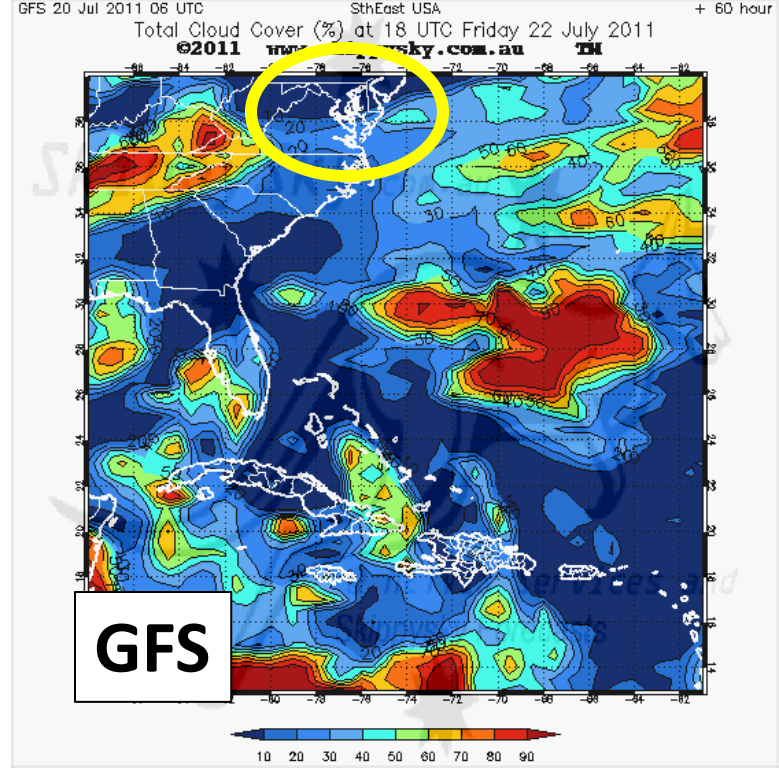
48-hour forecast valid 1200 UTC Fri 22 Jul 2011 NAM (WRF-NMM) (12z 20 Jul)



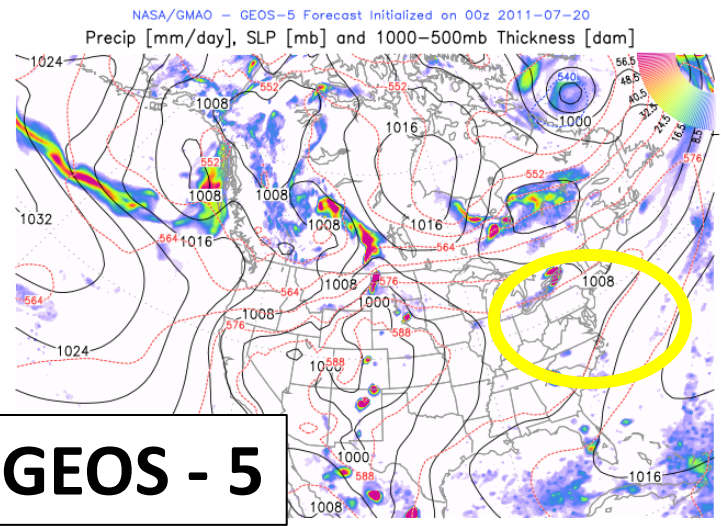
Friday 2 pm: All models clear.



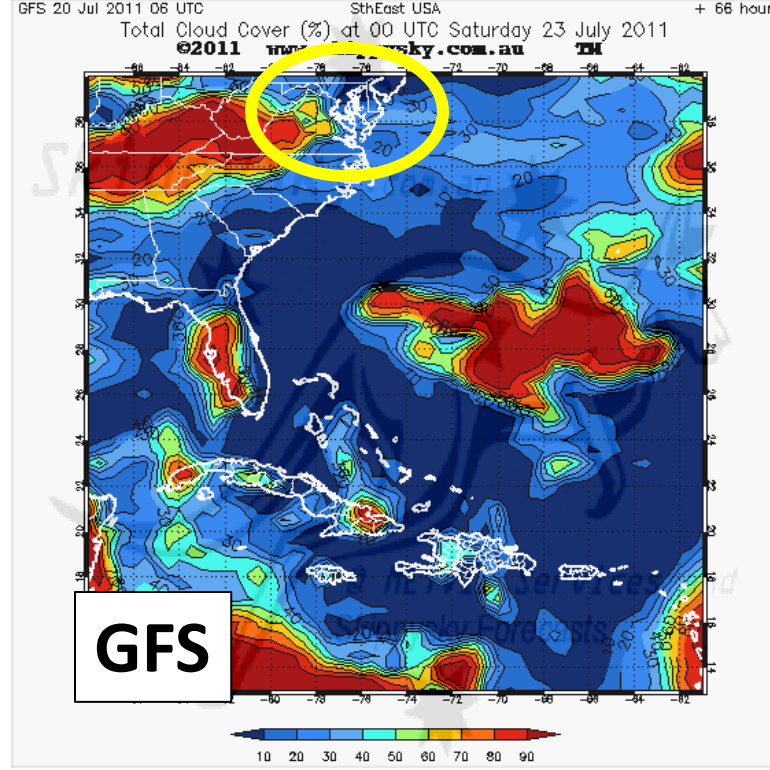
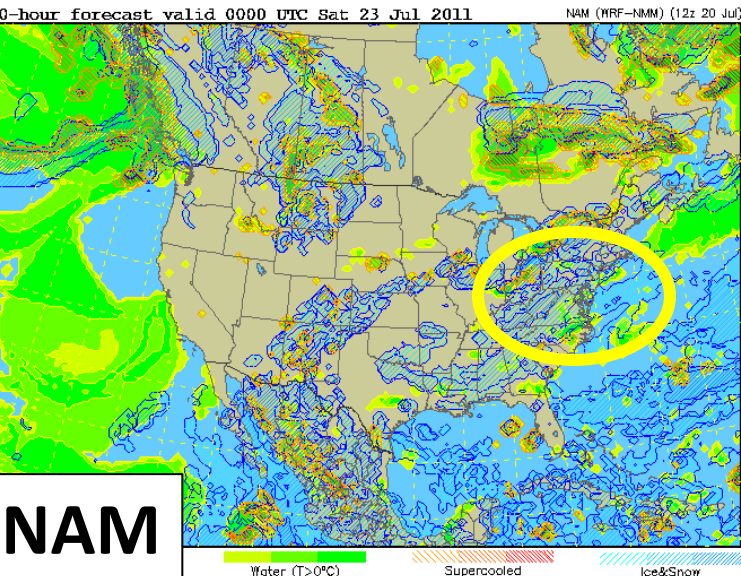
66-hr forecast valid Fri 18z 2011-07-22



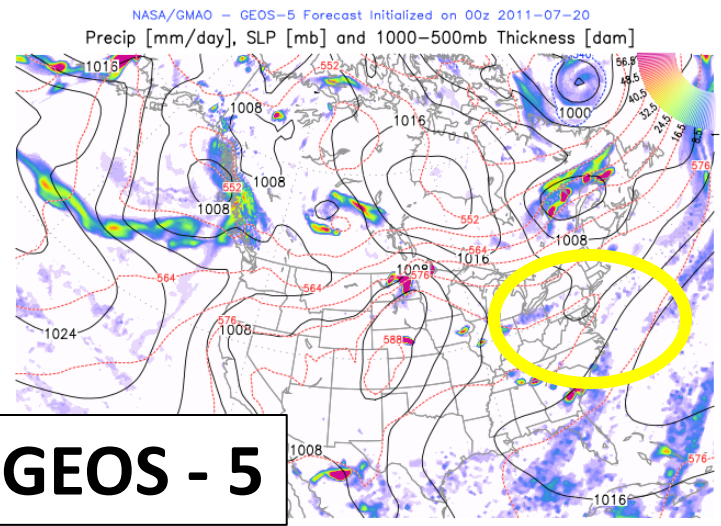
Friday 8 pm: GFS forecasts 10% high-level cloud cover with thick low clouds to our west. NAM predicts high-level cloud cover (18K+ ft).



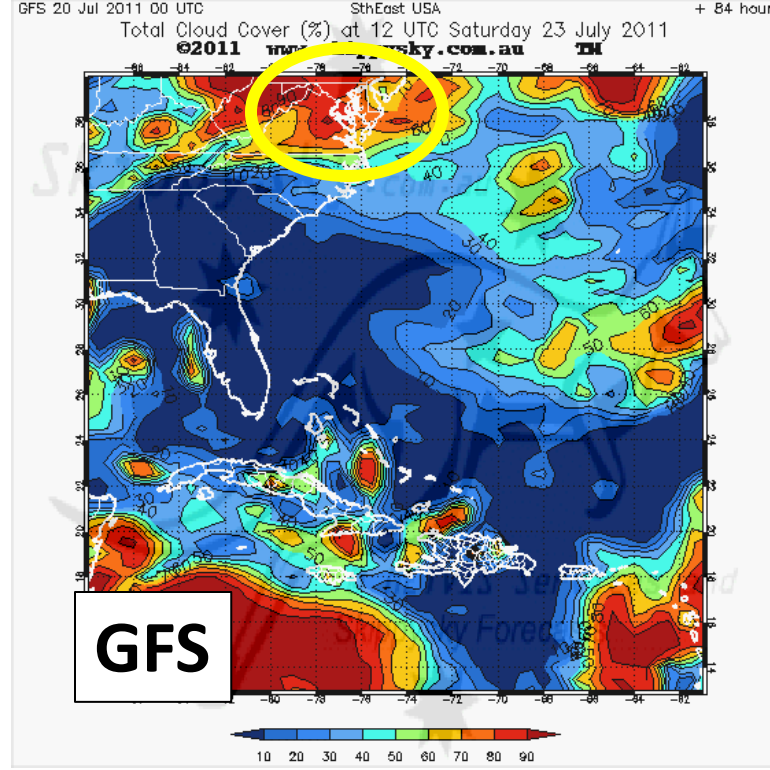
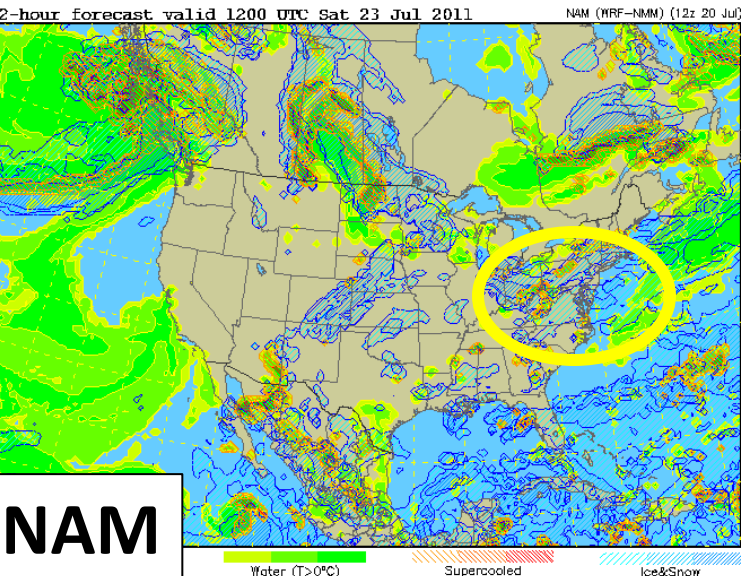
72-hr forecast valid Sat 00z 2011-07-23



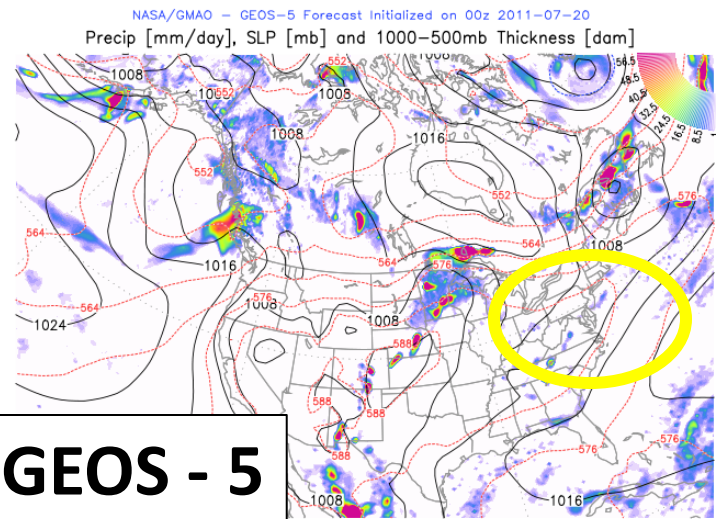
Saturday 8 am: GFS forecasts 70-80% high-level cloud cover. NAM predicts high-level cloud cover (18K+ ft).



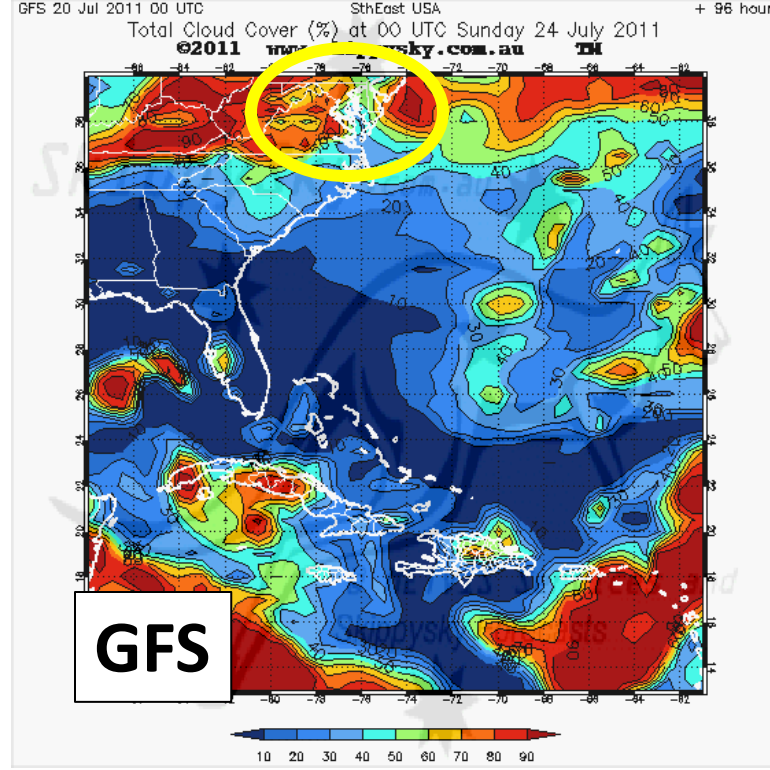
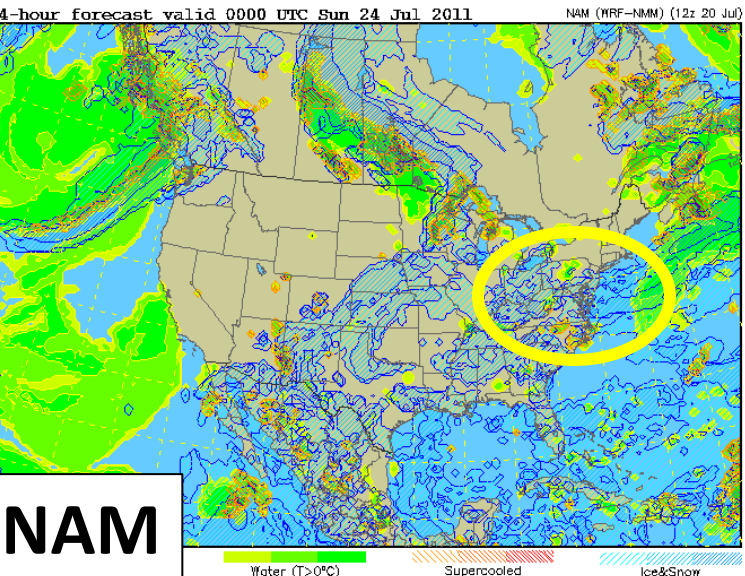
84-hr forecast valid Sat 12z 2011-07-23



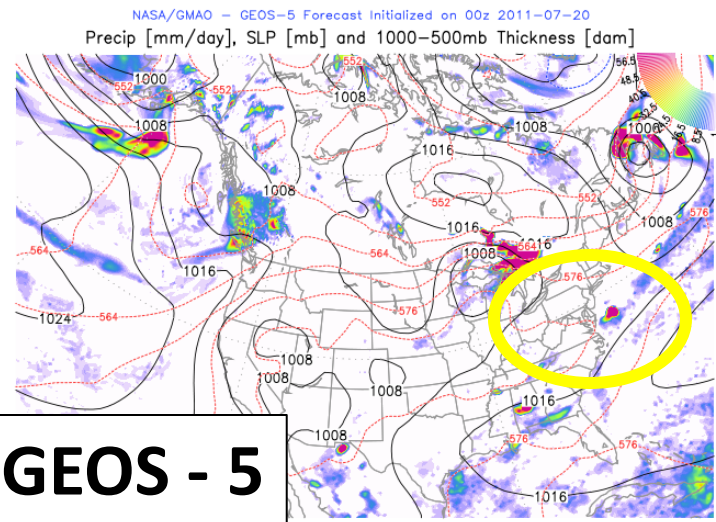
Saturday 8 pm: GFS forecasts 10-50% low level and ~40% high-level cloud cover. NAM predicts high-level cloud cover (18K+ ft).



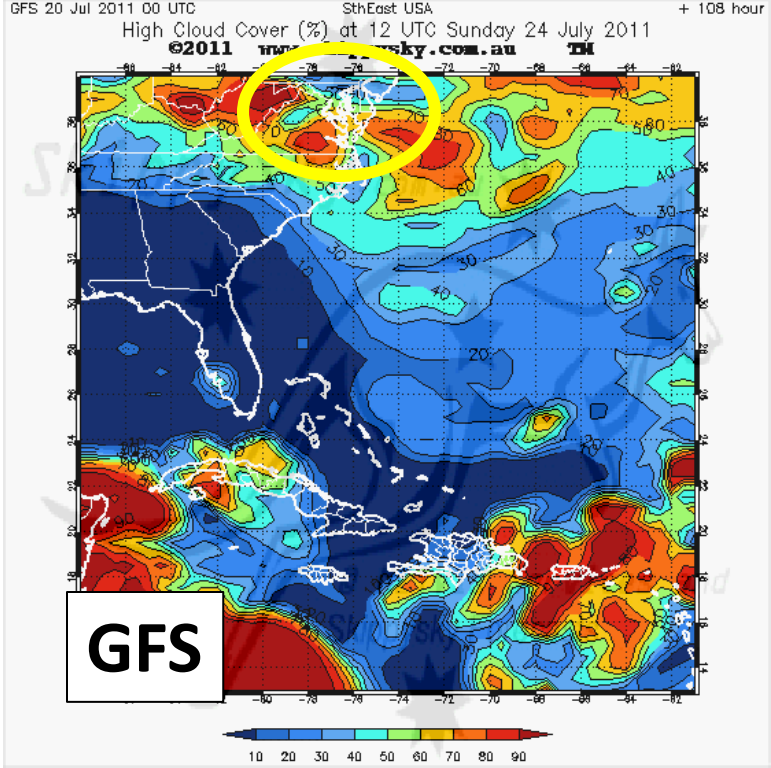
96-hr forecast valid Sun 00z 2011-07-24



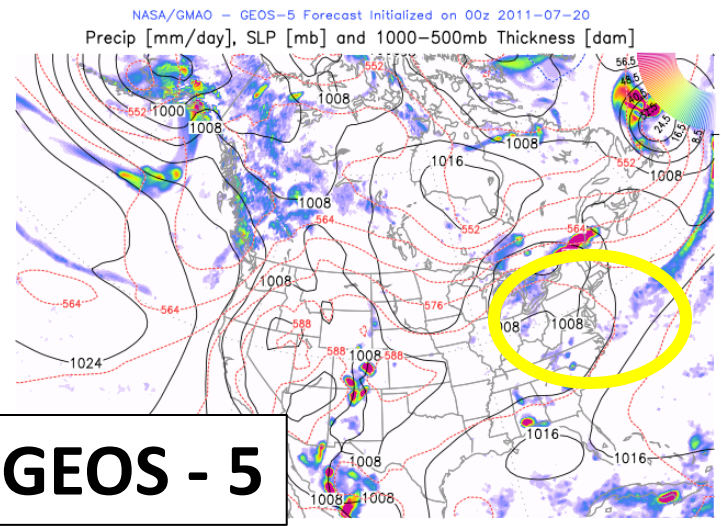
Sunday 8 am: GFS forecasts 30-50% high-level cloud cover.



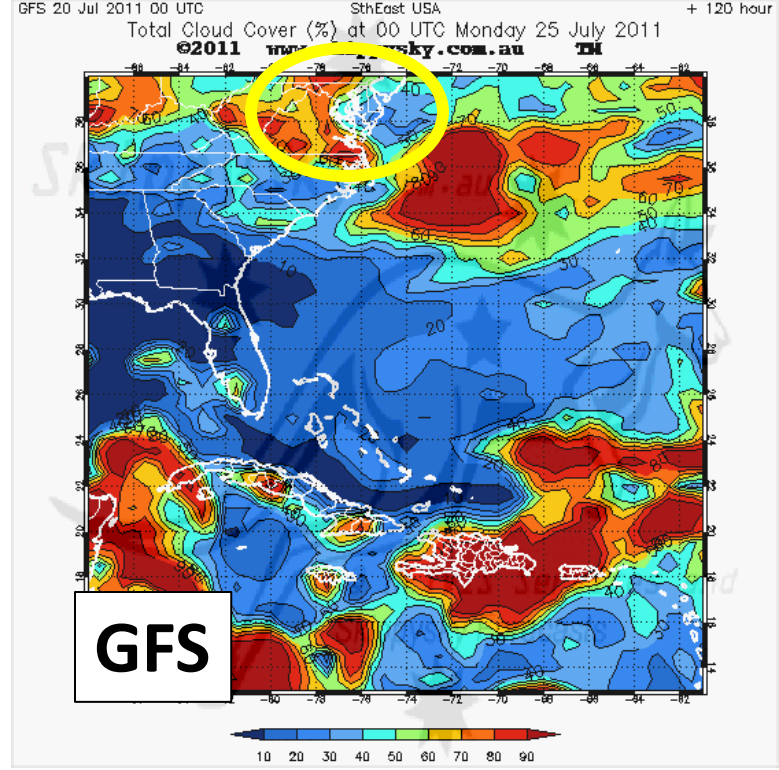
108-hr forecast valid Sun 12z 2011-07-24



Sunday 8 pm: GFS forecasts 40-60% high-level cloud cover.



120-hr forecast valid Mon 00z 2011-07-25

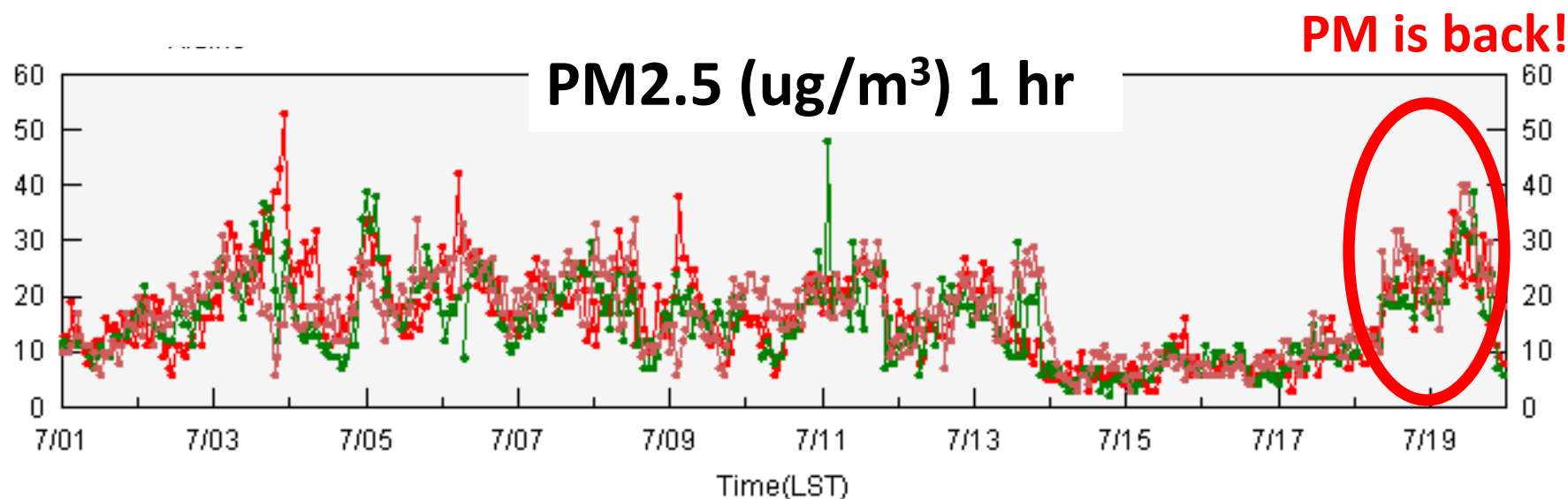
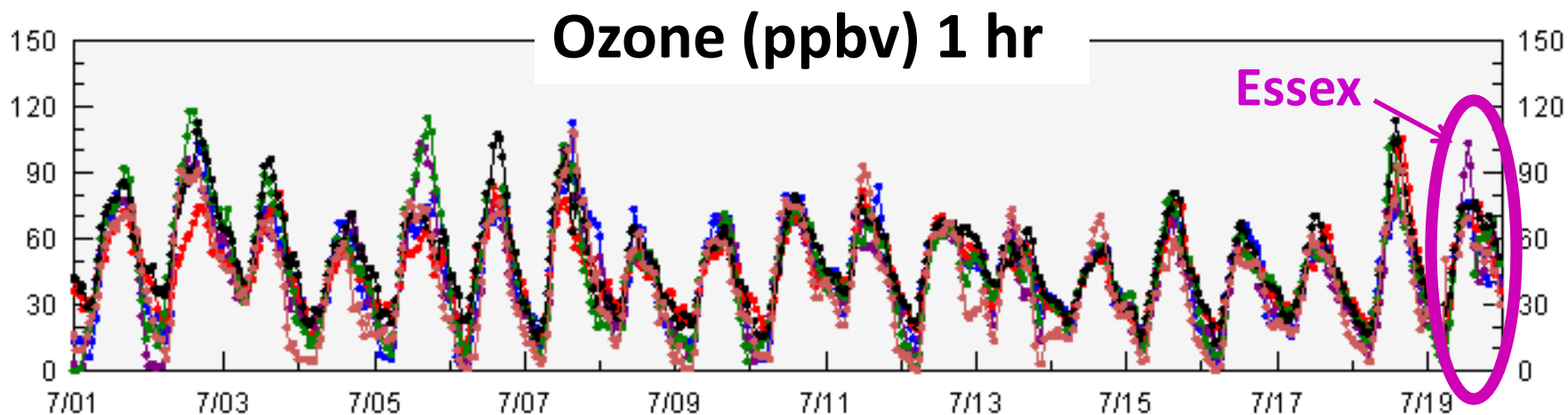


Extended forecast (Sunday through Tuesday):

A respite from the heat is forecasted for Sunday and beyond. An upper level ridge builds westward and falling heights are associated with an amplifying upper level trough over Eastern Canada.

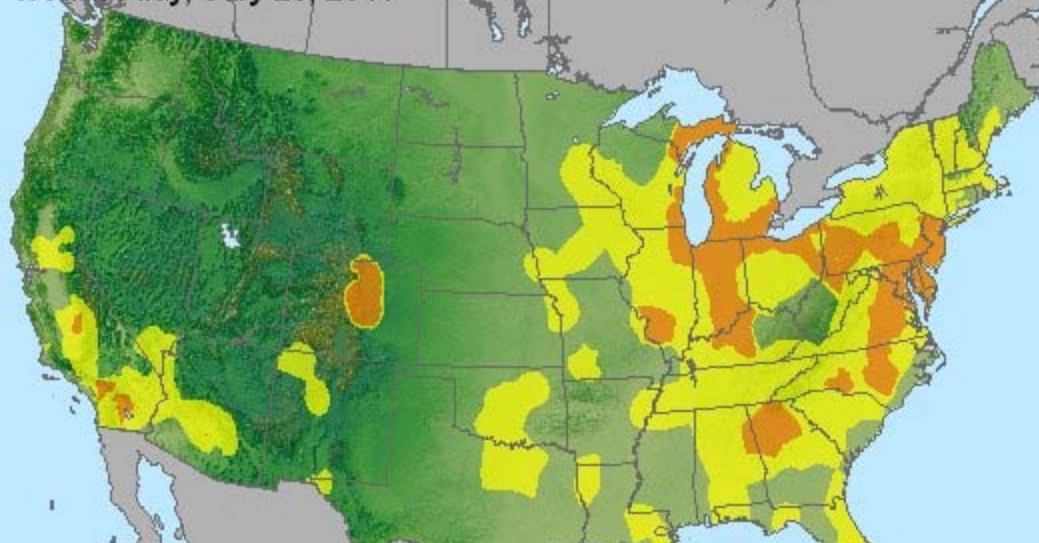
MDE Surface Sites

Padonia Beltsville Edgewood Aldino Essex Fairhill



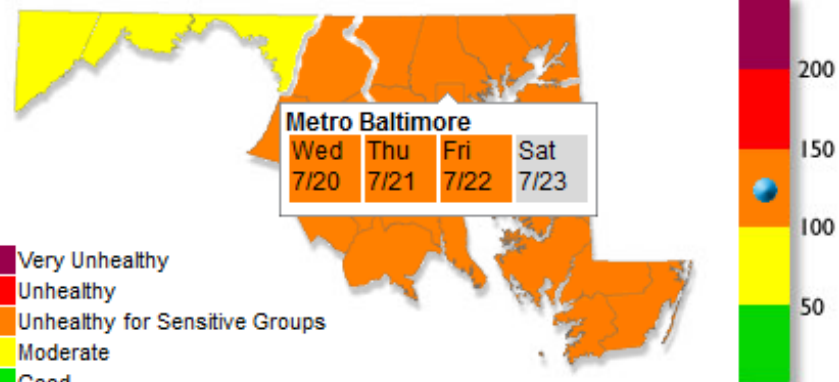
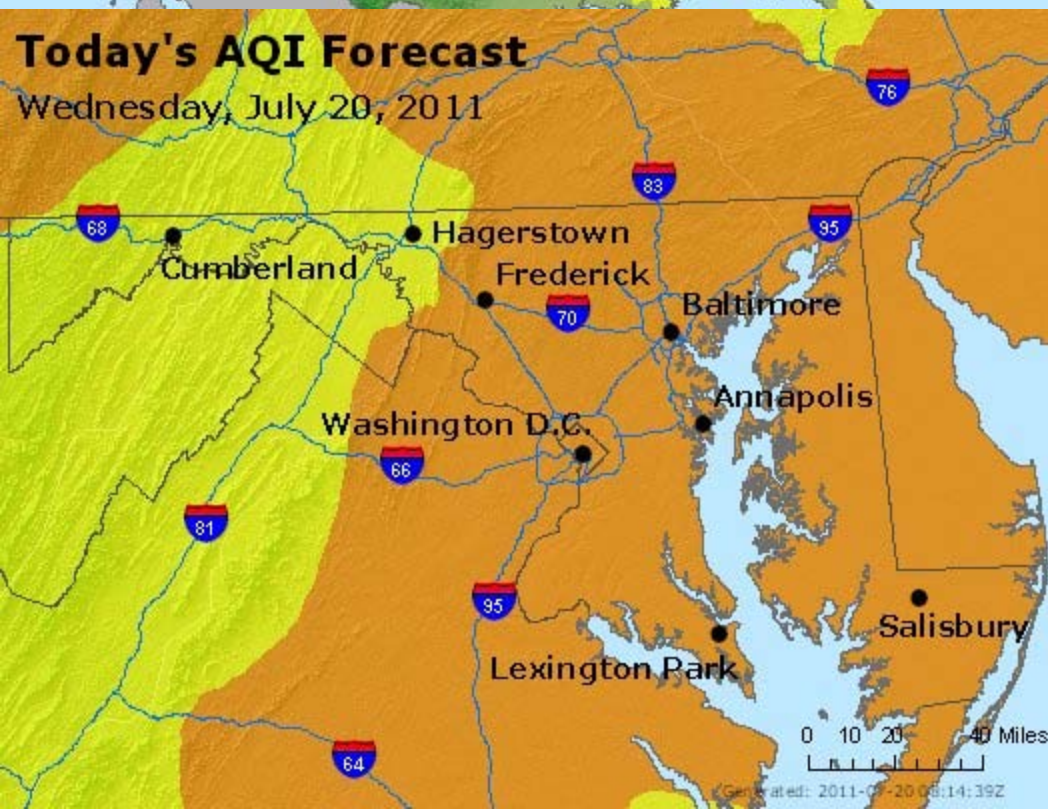
Today's AQI Forecast

Wednesday, July 20, 2011



Today's AQI Forecast

Wednesday, July 20, 2011



Metro Baltimore

Wed 7/20	Thu 7/21	Fri 7/22	Sat 7/23
124	137	137	137

Very Unhealthy
Unhealthy
Unhealthy for Sensitive Groups
Moderate
Good

Air Quality Forecast

Today's High

Air Quality Index (AQI)

124

Unhealthy for Sensitive Groups

Health Message: Active children and adults, and people with lung disease, such as asthma, should reduce prolonged or heavy exertion outdoors.

Tomorrow's High

Air Quality Index (AQI)

137

Unhealthy for Sensitive Groups

Health Message: Active children and adults, and people with lung disease, such as asthma, should reduce prolonged or heavy exertion outdoors.

AQI - Pollutant Details

Ozone

124

[Unhealthy for Sensitive Groups](#)

Particles (PM2.5)

92

[Moderate](#)

Ozone

137

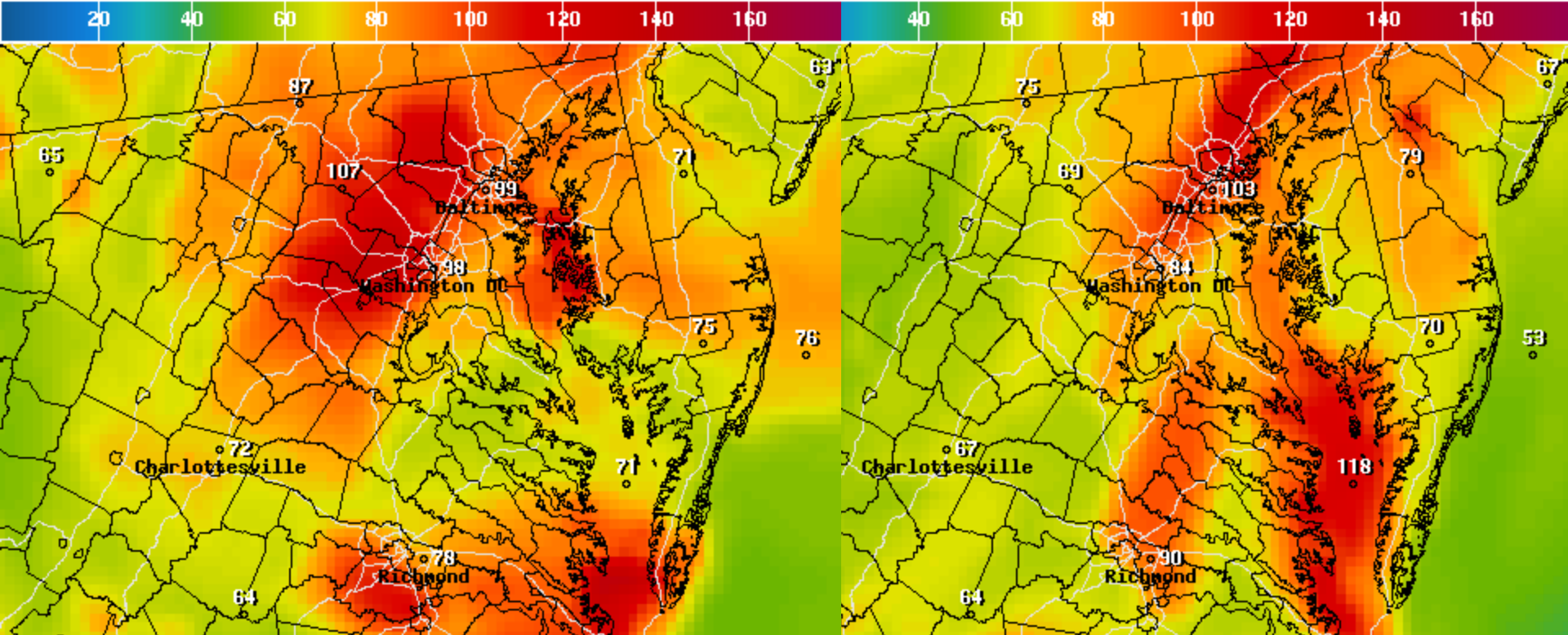
[Unhealthy for Sensitive Groups](#)

Particles (PM2.5)

97

[Moderate](#)

Forecast Discussion: Skies clear on Wednesday with hot and humid conditions. Ozone is expected to respond by rising into the Unhealthy for Sensitive Groups (USG) range and remain within these levels over the next few days. Fine particles will also be elevated along the Moderate/USG threshold. On Thursday, much hotter temperatures are expected to approach or exceed 100 F. The high pressure system over the Mid-Atlantic should be strong enough to inhibit the development of afternoon thunderstorms. On Friday, similar conditions continue, but there may be a better chance of thunderstorms arriving late in the day. Air quality in the USG range looks to continue through Friday. - MDE



Maximum 1Hr Ozone(PPB) Ending Wed Jul 20 2011 11PM EDT

(Thu Jul 21 2011 03Z)

National Digital Guidance Database

06z model run Graphic created-Jul 20 7:44AM EDT



1-hr Max Ozone (ppbv)
Wednesday

Maximum 1Hr Ozone(PPB) Ending Fri Jul 22 2011 12AM EDT

(Fri Jul 22 2011 04Z)

National Digital Guidance Database

06z model run Graphic created-Jul 20 7:44AM EDT

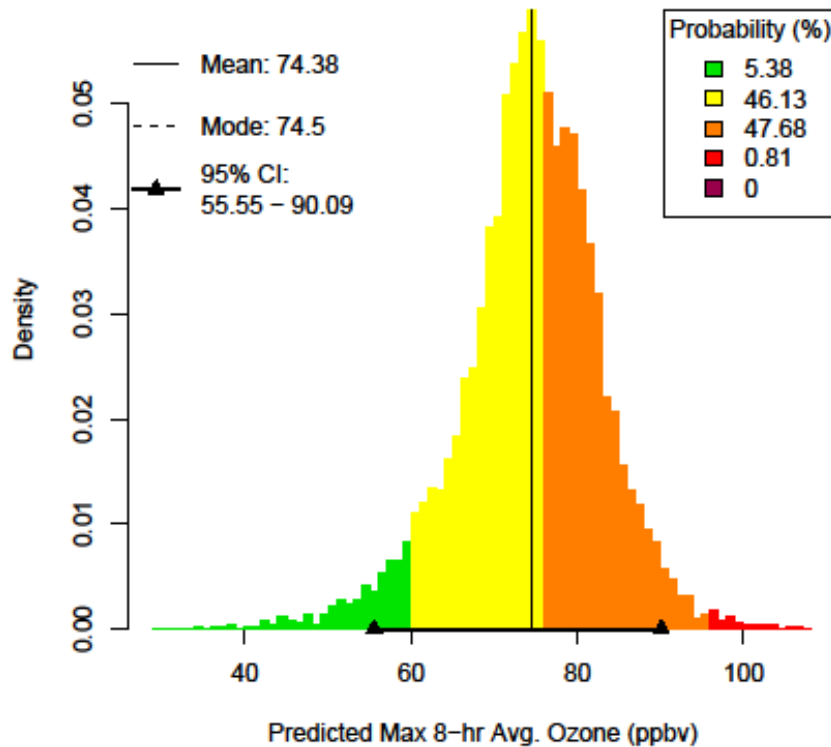


1-hr Max Ozone (ppbv)
Thursday



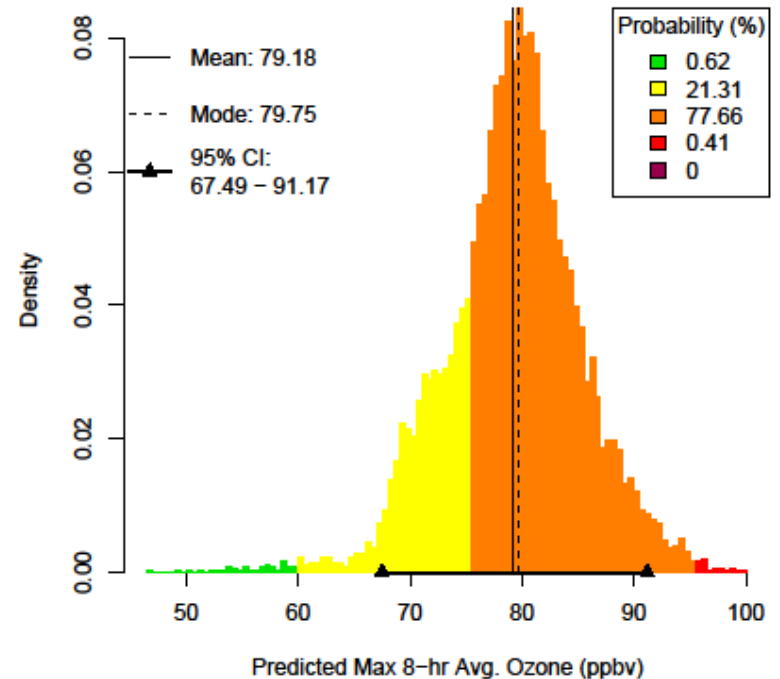
NAQFC-MOS valid for Thursday

ID: 240251001 VALID: 2011-07-21



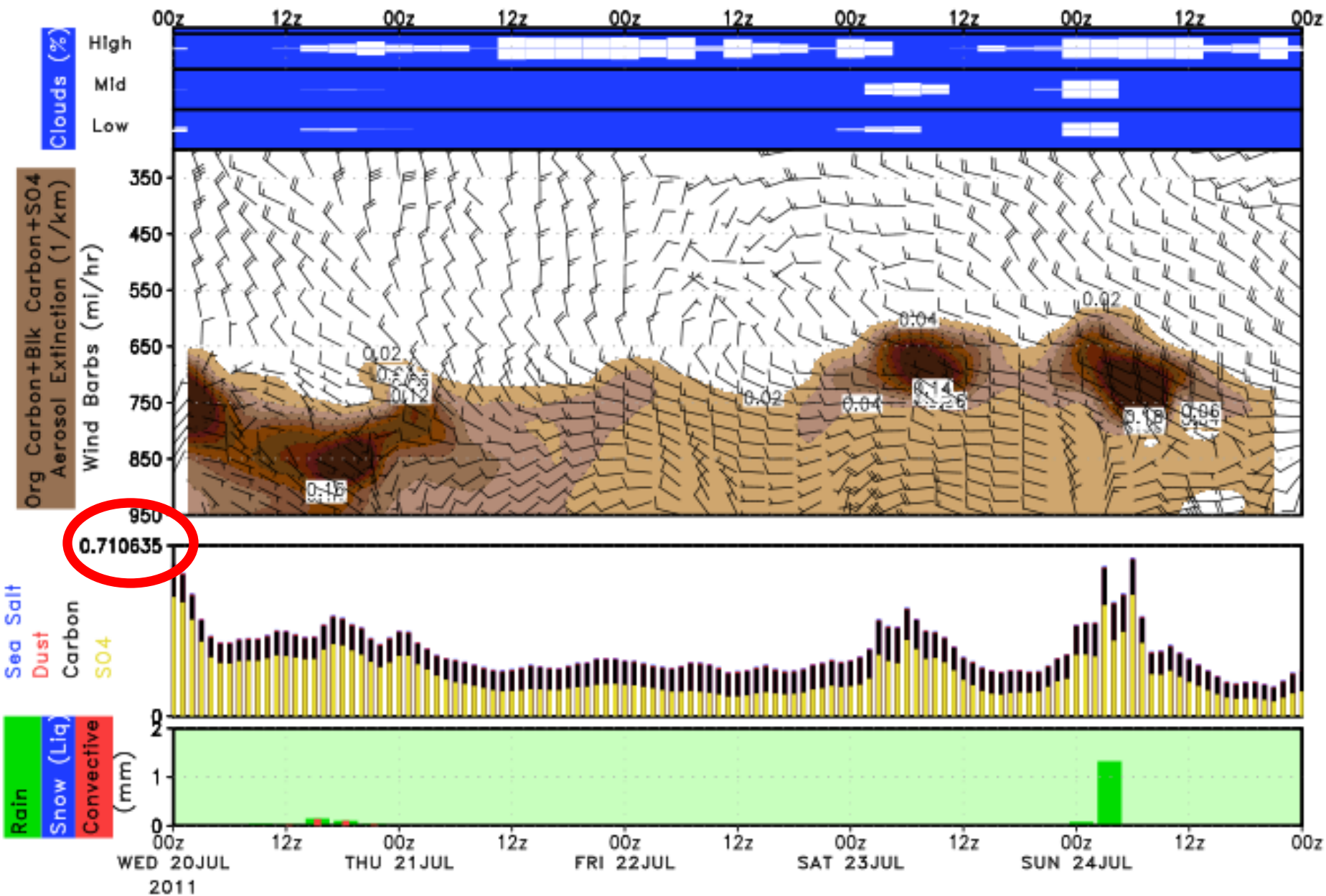
Edgewood

ID: 240330030 VALID: 2011-07-21

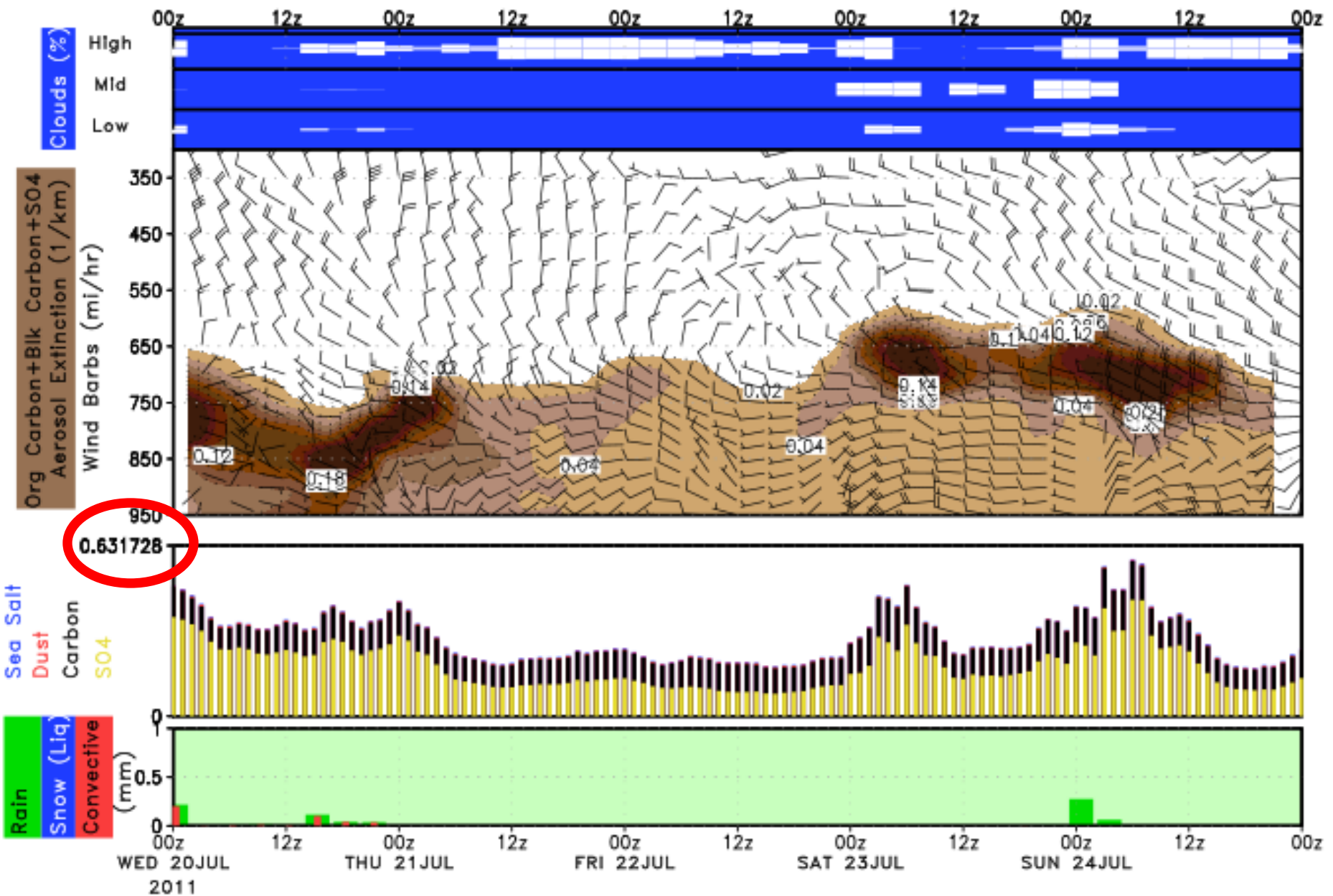


Beltsville

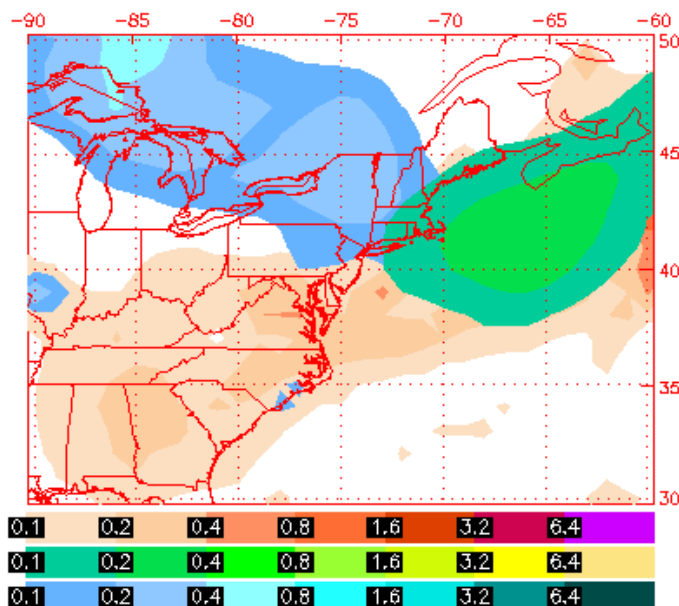
Essex



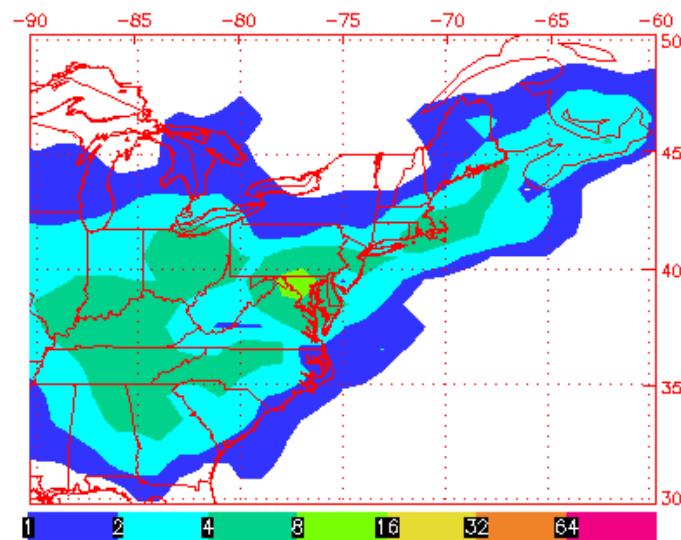
Beltsville



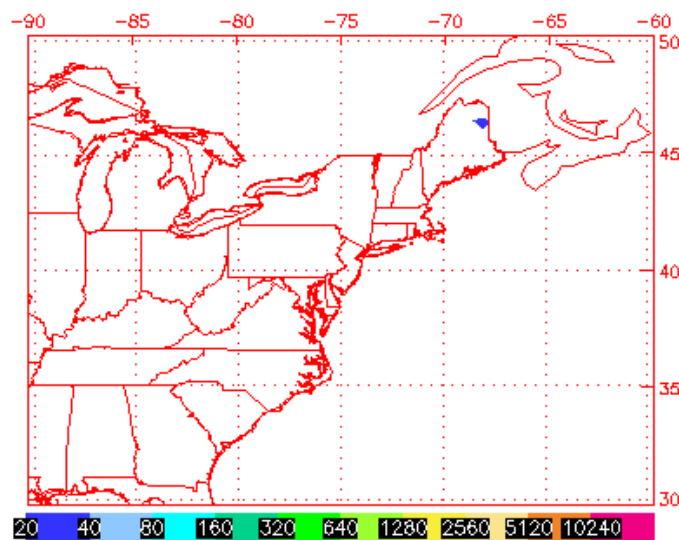
NAAPS Total Optical Depth for 00:00Z 20 Jul 2011
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue



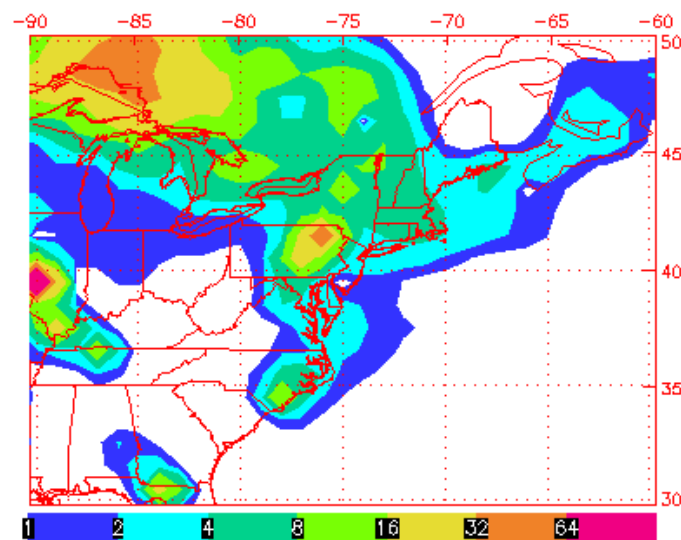
Sulfate Surface Concentration ($\mu\text{g}/\text{m}^3$)
for 00:00Z 20 Jul 2011



Dust Surface Concentration ($\mu\text{g}/\text{m}^3$)
for 00:00Z 20 Jul 2011



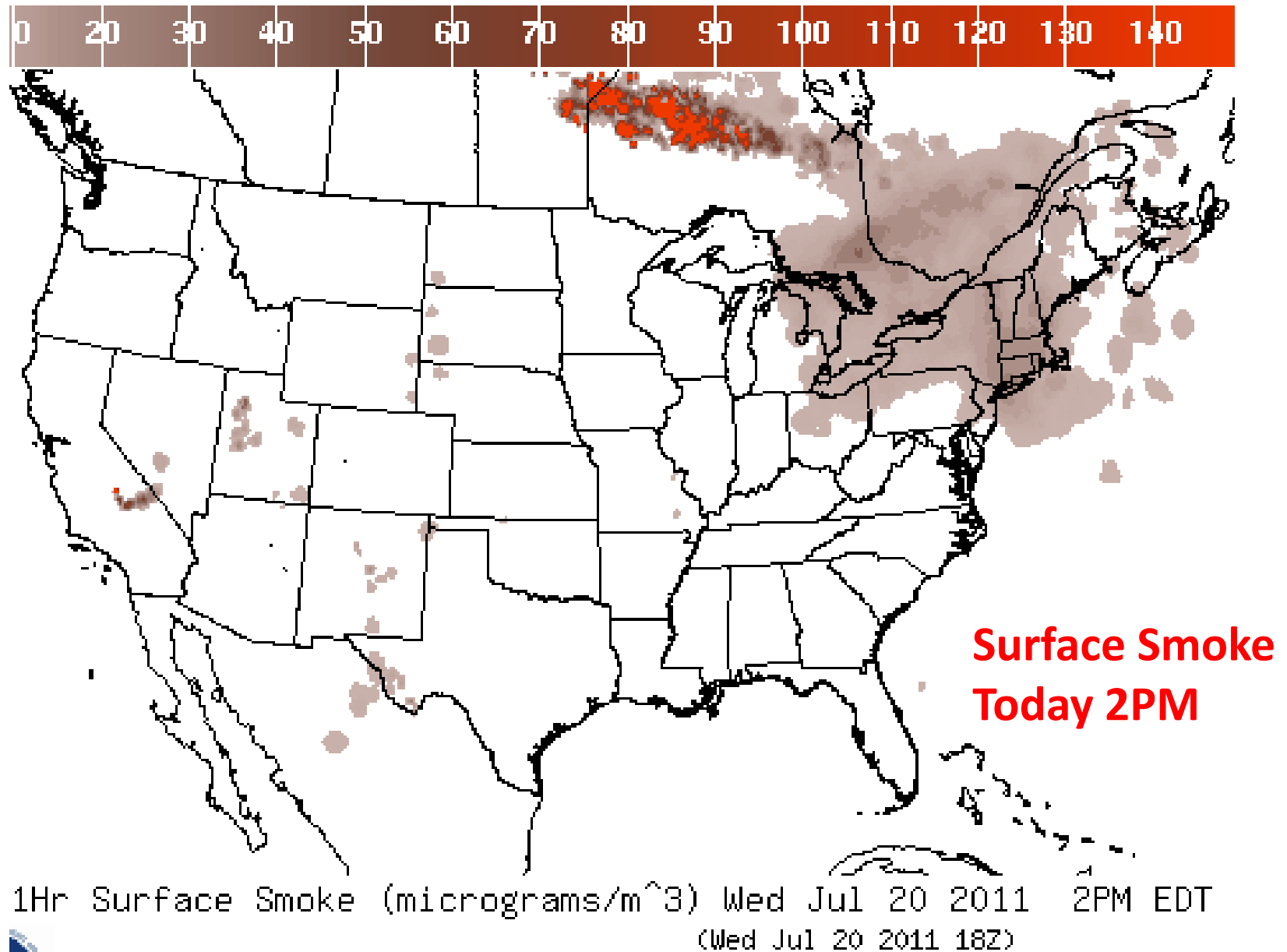
Smoke Surface Concentration ($\mu\text{g}/\text{m}^3$)
for 00:00Z 20 Jul 2011



Vertical column coverage looks very similar as surface.



Ontario wildfire smoke. Also, Siberian wildfire smoke stays to our north (not shown), but keep an eye on.



NATIONAL WEATHER SERVICE
BALTIMORE MD/WASHINGTON DC
1036 AM EDT WED JUL 20 2011

.SYNOPSIS... STRONG HIGH PRESSURE WILL BUILD ALOFT THROUGH THE LATTER HALF OF THE WEEK...LEADING TO HOT AND HUMID CONDITIONS. A RETURN TO SEASONABLE TEMPERATURES IS EXPECTED SUNDAY AND MONDAY BEFORE A COLD [FRONT](#) CROSSES THE REGION MONDAY NIGHT.

&& .NEAR TERM /UNTIL 6 PM THIS EVENING/... UPDATED PUBLIC PRODUCTS WITH ONLY MINOR CHANGES. [SLGT CHC/ISOLATED TSTM](#) WORDING INCLUDED WITH ALL ZONES FOR THE UPDATE. ACTIVITY MAY DEVELOP WITH THE AMPLE [MOISTURE/CAPE](#) AND LOCAL INFLUENCES. WEAK FRONTAL [BNDRY](#) ACROSS THE NRN AREAS...PER [HPC](#) ANALYSIS. THIS MAY ALSO HELP TRIGGER A FEW TSTMS THIS AFTERNOON. WINDS VERY LIGHT FROM AN ERLY DIRECTION MOSTLY. HOT AND STICKY TODAY WITH RATHER LIGHT [ELY FLOW](#)...DEWPOINTS IN THE LOW 70S...AND AMPLE HAZY SUNSHINE HEATING THE AREA INTO THE MID 90S. HEAT INDICES ARE EXPECTED TO BE IN THE 100 TO 102F RANGE...WHICH... WHILE HIGH...WOULD BE JUST UNDER THE GENERAL HEAT ADVISORY THRESHOLD OF 105F.

&& .SHORT TERM /6 PM THIS EVENING THROUGH FRIDAY/... TONIGHT...THE [SFC](#) QUICKLY DECOUPLES AFTER SUNSET. EXPECT A RATHER HUMID NIGHT. CLEAR SKIES ARE THE ONLY HINDRANCE TO RECORD HIGH MINS /SEE [CLIMATE](#) SECTION BELOW/. EXPECT [UPR](#) 70S IN URBAN AREAS AND NEAR LARGE BODIES OF WATER...MID 70S ELSEWHERE. [UPR](#) HIPRES WILL BUILD [EWD ACRS](#) MS [RVR](#) BY THU [MRNG](#). NRN STREAM [SHRTWV TROF](#) AND ASSOCIATED [SFC](#) LOPRES OVER S-[CNTRL](#) CANADA WILL INDUCE STRONG WSWLY [FLOW](#) IN THE LOW LVLS [ACRS](#) MID-ATLC [RGN](#). RESULT WILL BE [ADVCTN](#) OF VERY WARM [AMS](#) INTO [FCST](#) AREA...AIDED BY DOWNSLPG COMPONENT TO WIND AND GENLY [CLR](#) SKIES. [SUBSIDENCE](#) AND [CAP](#) WILL PRECLUDE CNVCTN THU [AFTN](#) DESPITE WELL- MIXED [BNDRY](#) LYR AND HIGH [MSTR](#) CONTENT. AS A RESULT...MAXIMA SHUD HAVE NO DIFFICULTY REACHING [UPR](#) 90S AND [LWR](#) 100S...WITH HEAT INDICES EASILY MEETING ADZY THRESHOLDS AND PSBLY [WRNG](#) THRESHOLDS. [EXCESSIVE HEAT WATCH](#) WAS RETAINED FOR THU. DANGEROUS HEAT EPISODE XPCD FRI AS MAXIMA IN EXCESS OF 100 DEG F XPCD TO BE [WDSPRD](#) WITH [DEWPT](#) TEMPS IN LOW-MID 70S. HEAT INDICES [ABV](#) 110 DEG F EASILY SHUD BE REACHED FRI [AFTN](#)...WITH MANY [ABV](#) 115 DEG F. [EXCESSIVE HEAT](#) HEADLINES [LKLY](#) WILL BE NEEDED FRI. ADDITIONAL CONCERN ON FRI WILL BE [TSTM](#) PSBLTY. AS [UPR RDG](#) FLATTENS...A LOW-[AMPLITUDE SHRTWV TROF](#) WILL CROSS THE OHVLY AND MOVE INTO WRN PA BY PEAK HEATING. WITH [DP](#) MIXING AND VERY HIGH DEWPTS...[INSTBY](#) WILL BE EXTREME. ALTHOUGH [SHEAR](#) WILL BE MEAGER... [INSTBY](#) MAY BE SUFFICIENT TO SUSTAIN [PULSE](#) CNVCTN WITH POTENTIAL FOR [ISOLD](#) DMGG WIND GUSTS AND [HAIL](#). [SAT](#) WILL FEATURE A THIRD DAY OF HEAT CONCERNS AS [LGT](#) BUT [DP WLY FLOW](#) PREVAILS IN [WAKE](#) OF WEAK [SFC TROF](#). HEAT INDICES [LKLY](#) WILL NOT BE AS HIGH AS THOSE ON FRI...BUT STILL WILL WARRANT HEAT HEADLINES. WITH [DP WLY FLOW](#) XPCD...CONCERN EXISTS FOR SLGTLY STRONGER [CAP](#) THAN MODELS SUGGEST. GUIDANCE [POPS](#) WERE UNDERCUT EXCEPT ON HIGHER TERRAIN...WHERE TERRAIN CIRCULATIONS COULD FOCUS CNVGNC SUFFICIENT TO SUSTAIN UPDRAFTS.

&& .LONG TERM /FRIDAY NIGHT THROUGH TUESDAY/... A RESPITE FROM THE HEAT IS XPCD SUN AND BEYOND AS THE [UPR RDG](#) BUILDS WWD AND [HEIGHT](#) FALLS ASSOCIATED WITH AMPLIFYING [UPR TROF](#) OVER ERN CANADA PROMOTE A RETURN TO MORE CLIMATOLOGICAL MAXIMA IN THE [LWR](#)-MID 90S. PRESENCE OF [LEE TROF](#) AND CONTD LOW-[LVL MSTR](#) SUN AND MON WARRANT [SLGT CHC POPS](#). [CDFNT](#) WILL [APRCH](#) FROM NW LATE MON [AFTN](#) AND WILL CROSS [FCST](#) AREA MON [NGT](#). [CHC POPS](#) WERE INCLUDED [DURG](#) THIS TIME AS [BNDRY](#) MAY HELP FOCUS CNVCTV DVLPMNT DESPITE UNFAVORABLE TIME OF [FROPA](#). [UPR RDG](#) NOSES [NEWD](#) AGAIN BY MID-[WK](#)...BUT MODEST HIPRES OVER NEW ENGLAND WILL PROMOTE [LGT](#) ONSHORE [FLOW](#) THAT MAY TEMPER HEAT THRU MUCH OF THE [WK](#). NO [POPS](#) XPCD IN LATTER PDS.