

## DISCOVER-AQ Outlook for Tuesday, July 26, 2011

A frontal system will make its way through the region overnight today bringing periods of shower and thunderstorm activity. Clearing is expected by morning, with a much drier day tomorrow. Dew points are expected to drop from the 70s today to the upper 50s by tomorrow afternoon. Much cleaner air (both for ozone and aerosols) will also be the case for the next couple of days. Conditions look fine for flying on both Tuesday and Wednesday. Longer term, winds shift back to southerly on Thursday with increasing humidity and pollution. However, we need to keep watch of deep convective activity over the upper Midwest on Wednesday and Wednesday night which may bring upper level convective outflow our way on Thursday. Friday is expected to continue the hot, humid, more polluted conditions with the possibility of increased clouds and greater risk of thunderstorms in the study area by Saturday and Sunday as the next frontal system approaches.

# Recommendations July 26<sup>th</sup>-29<sup>th</sup>

July 26, Tuesday: Can Fly

July 27, Wednesday: Can Fly

July 28, Thursday: Clouds?

July 29, Friday: Clouds?

Today



70%

Tstms  
Likely

Hi 90 °F

Tonight



60%

Tstms  
Likely

Lo 70 °F

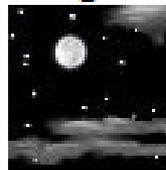
Tuesday



Sunny

Hi 92 °F

Tuesday  
Night



Mostly  
Clear

Lo 65 °F

Wednesday



Sunny

Hi 91 °F

Wednesday  
Night



Partly  
Cloudy

Lo 70 °F

Thursday



Mostly  
Sunny

Hi 95 °F

Thursday  
Night



Partly  
Cloudy

Lo 75 °F

Friday



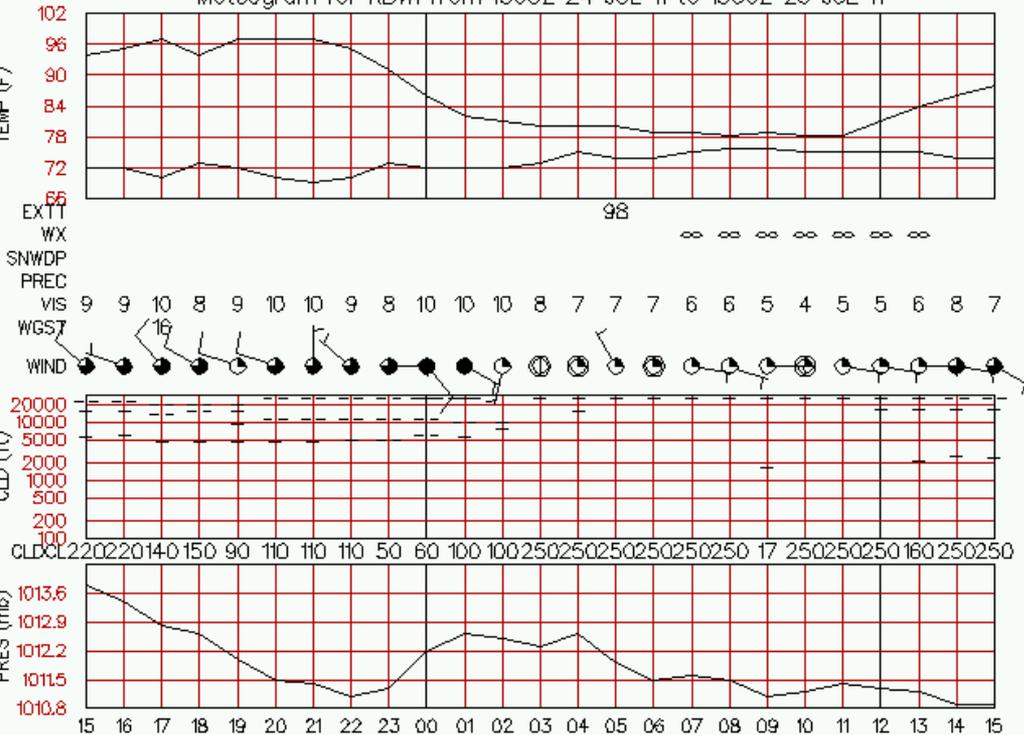
Mostly  
Sunny

Hi 96 °F

# Current Conditions at BWI, 11 am

## Plymouth State Weather Center

Meteogram for KBWI from 1500Z 24 JUL 11 to 1500Z 25 JUL 11



## Current Conditions [Move Up]

[view Yesterday's Weather](#)

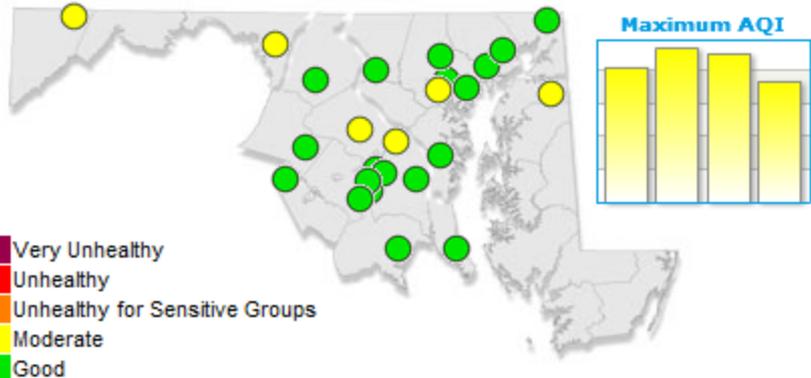
### Baltimore-Washington International Airport

Lat: 39.19 Lon: -76.67 Elev: 148  
Last Update on Jul 25, 10:54 am EDT

Mostly Cloudy

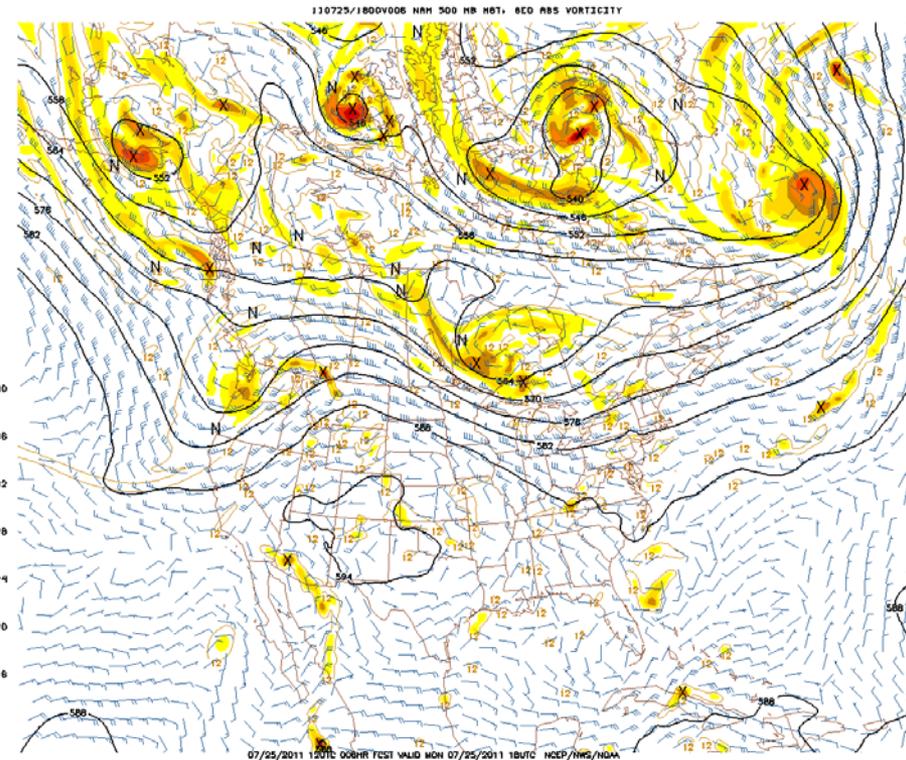
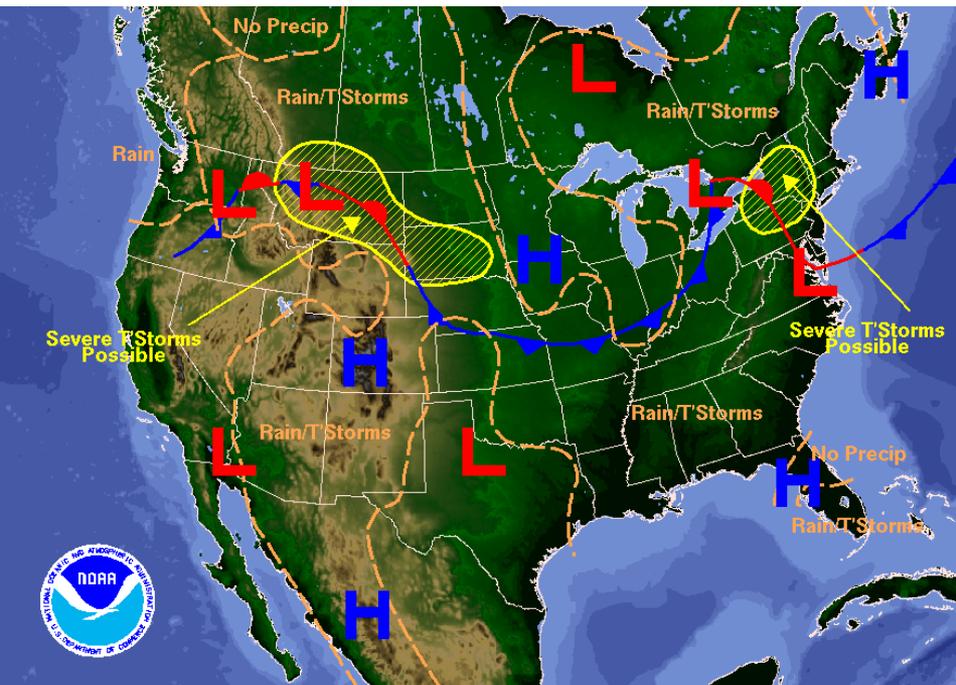
88 °F  
(31 °C)

Humidity:	63 %
Wind Speed:	SE 5 MPH
Barometer:	29.86" (1010.9 mb)
Dewpoint:	74 °F (23 °C)
Heat Index:	97 °F (36 °C)
Visibility:	7.00 mi.



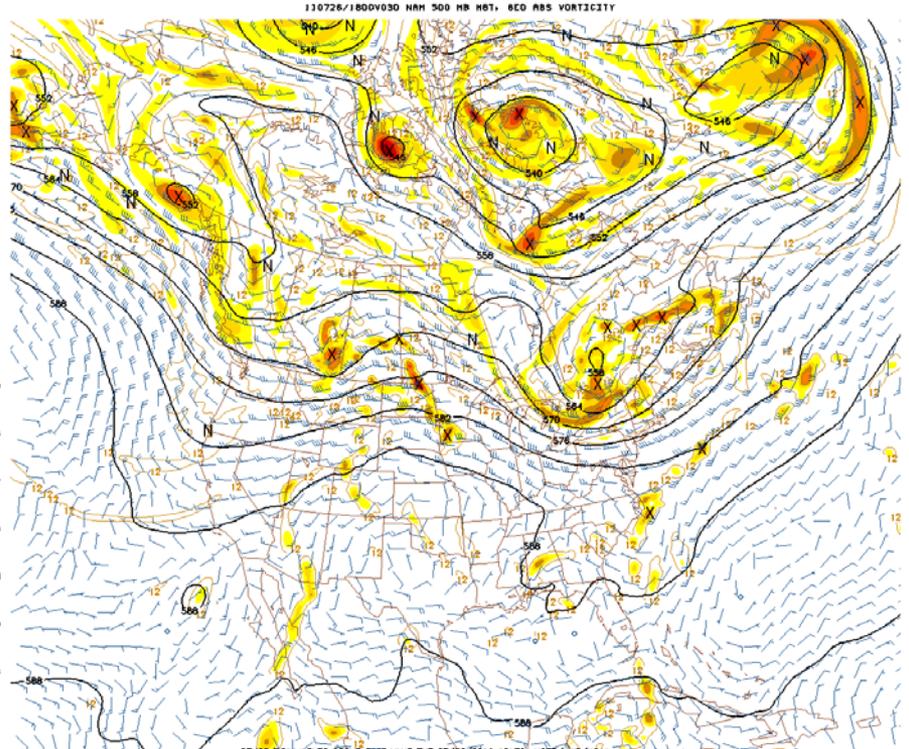
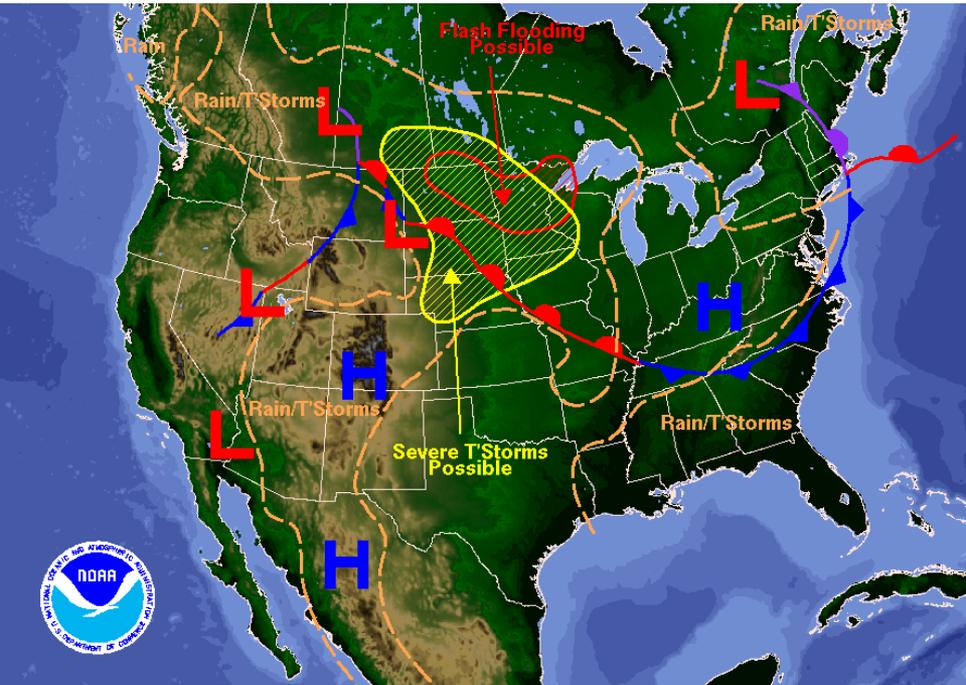
Today : Thunderstorms today and tonight as a cold front moves through.

500 mb NAM at 2 PM.



Tomorrow: High pressure and northerly winds bring mostly sunny skies and a decrease in humidity.

500 mb NAM at 2 PM.

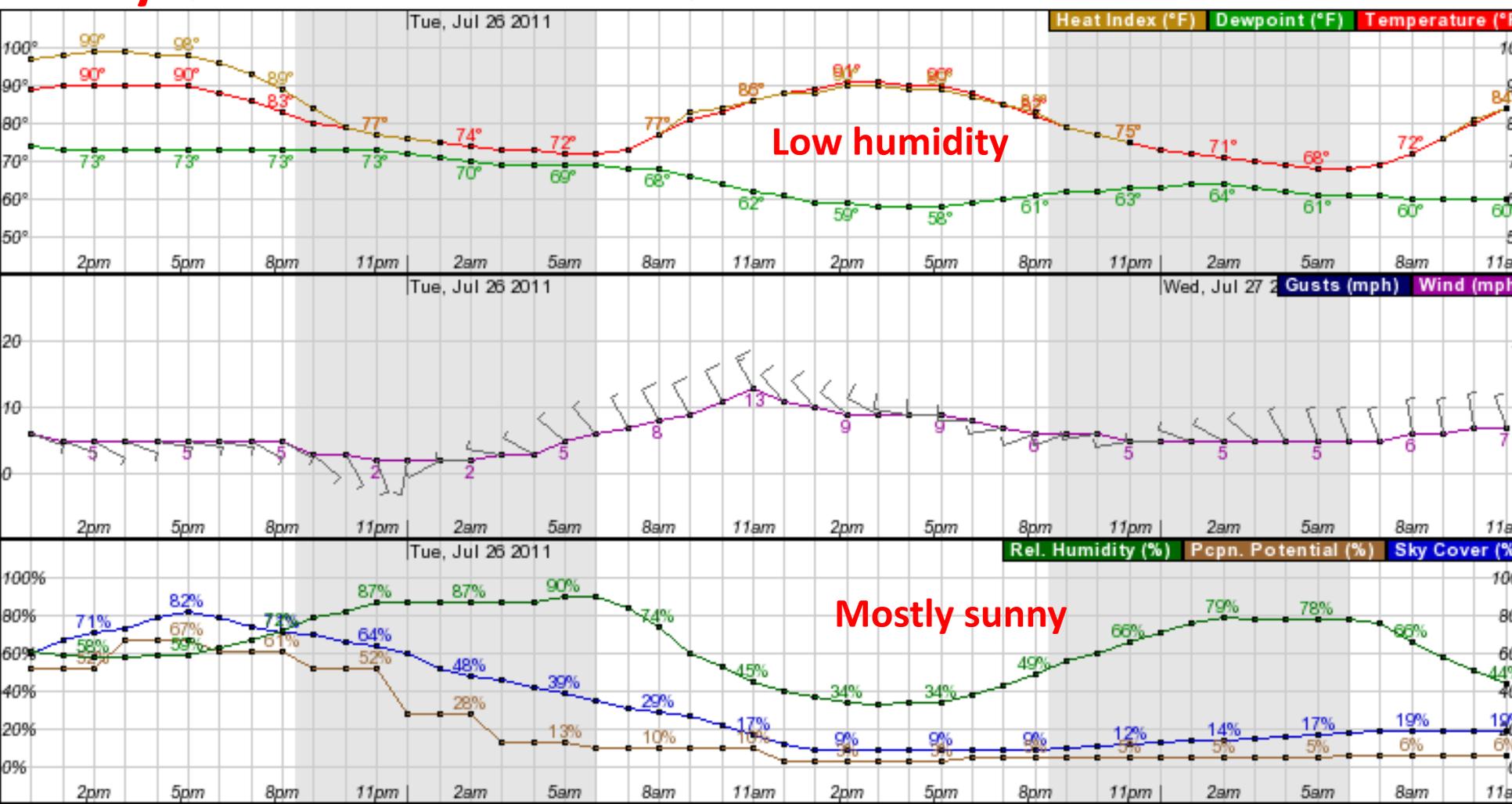


Today: Thunderstorms.

Tomorrow: Clear and low humidity.

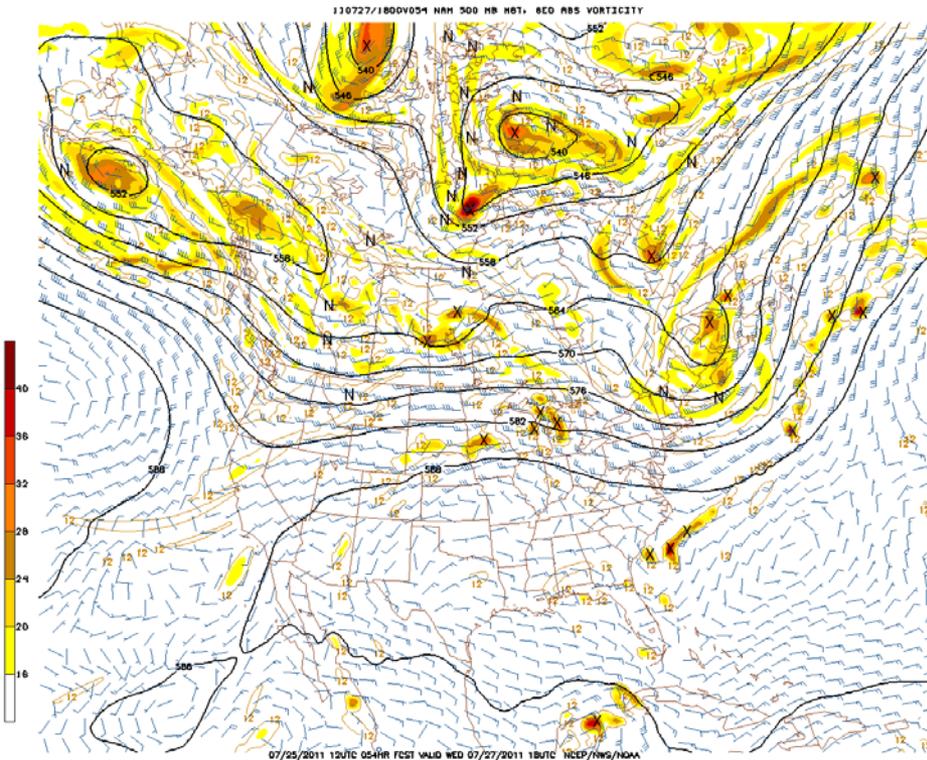
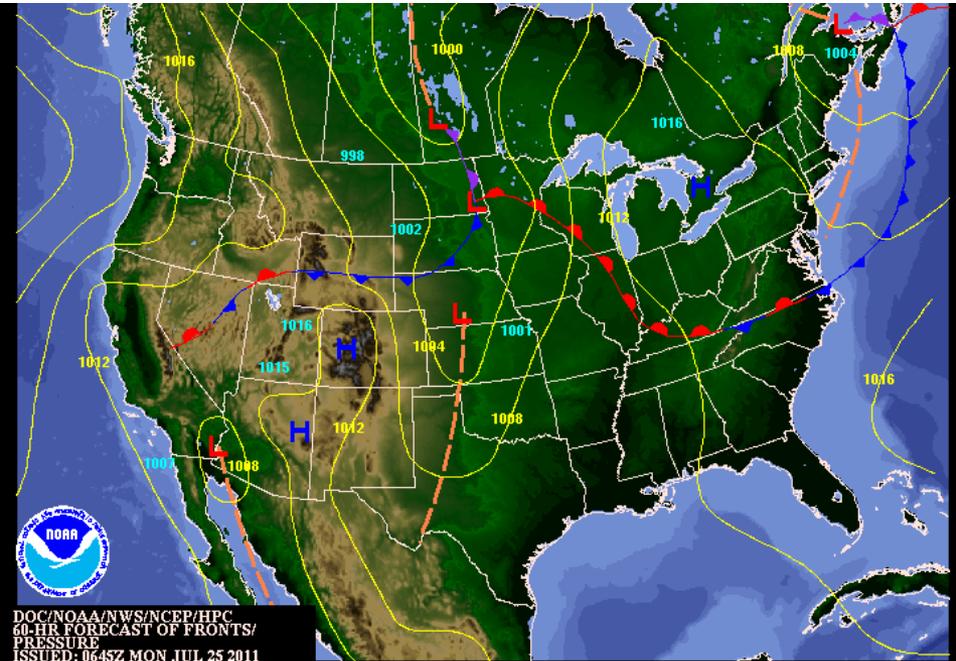
Today →

Tomorrow →



Wednesday: High pressure and northerly winds continue to provide dry air and mostly sunny skies.

500 mb NAM at 2 PM.

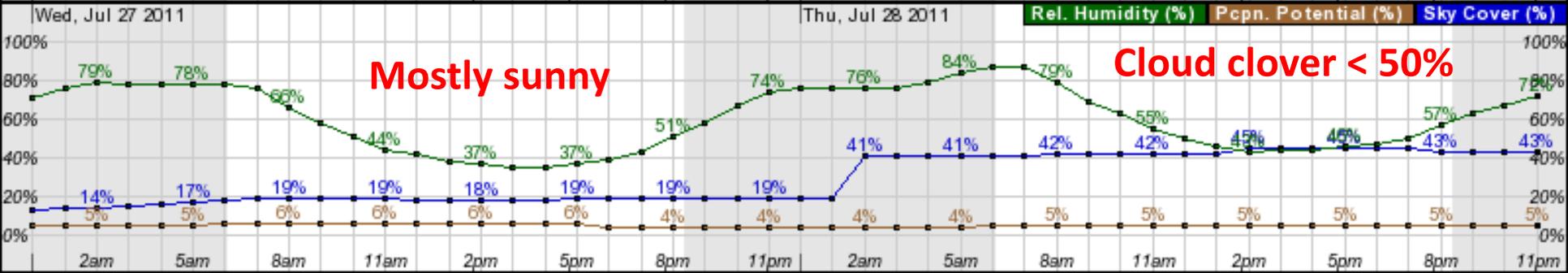
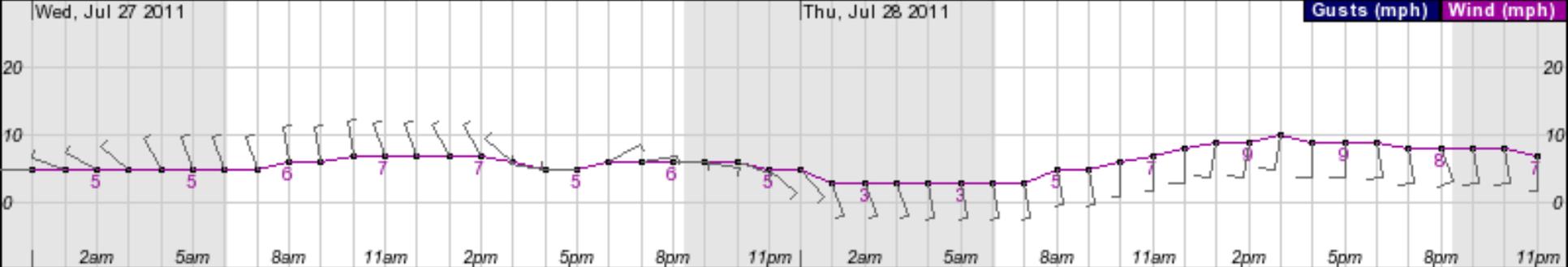
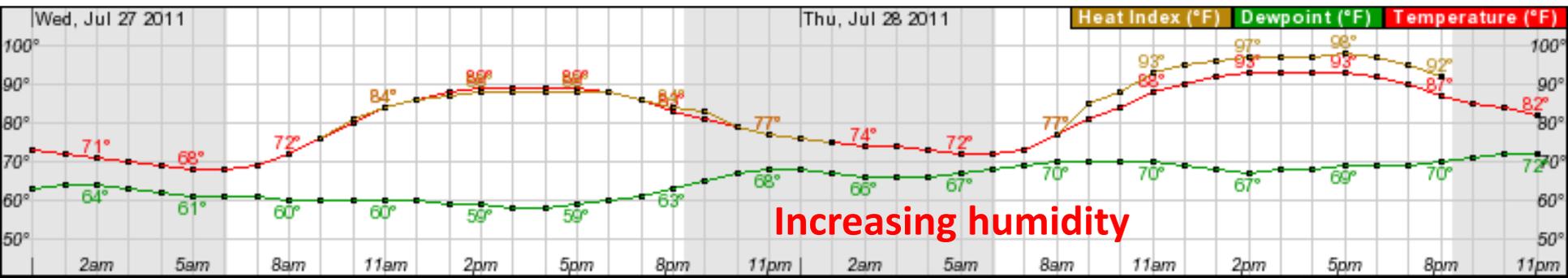


Wednesday: Clear and dry.

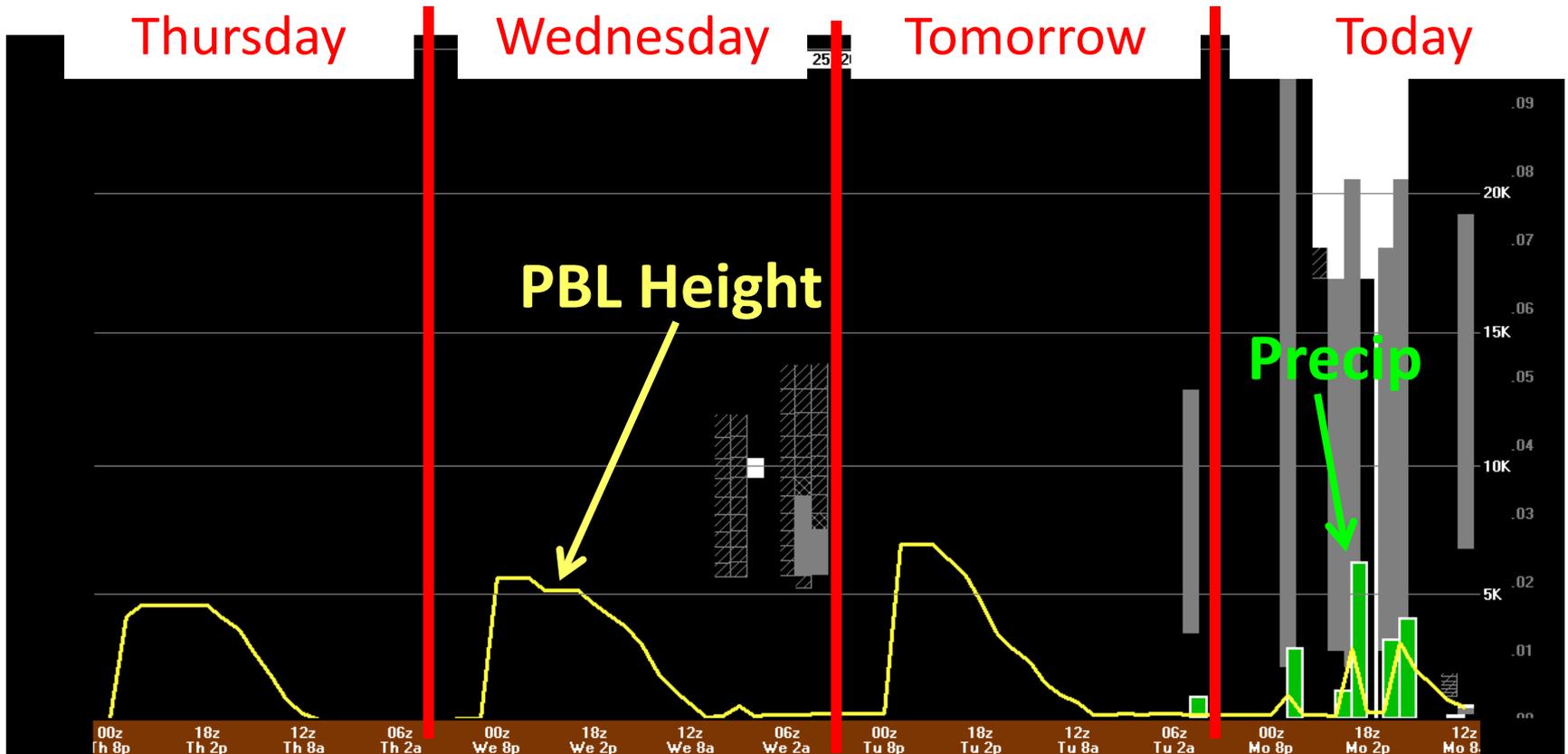
Thursday: Southerly flow returns causing dewpoints to rise.

Wednesday →

Thursday →



# BUFKIT – NAM (12 UTC 25 July)



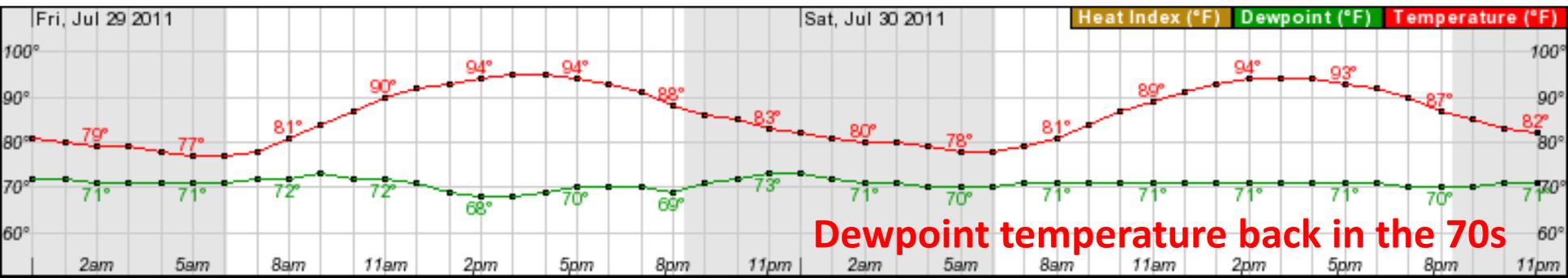
-Mostly sunny Tuesday, Wednesday, and Thursday

Friday: Dewpoints back into the upper 60s to low 70s.

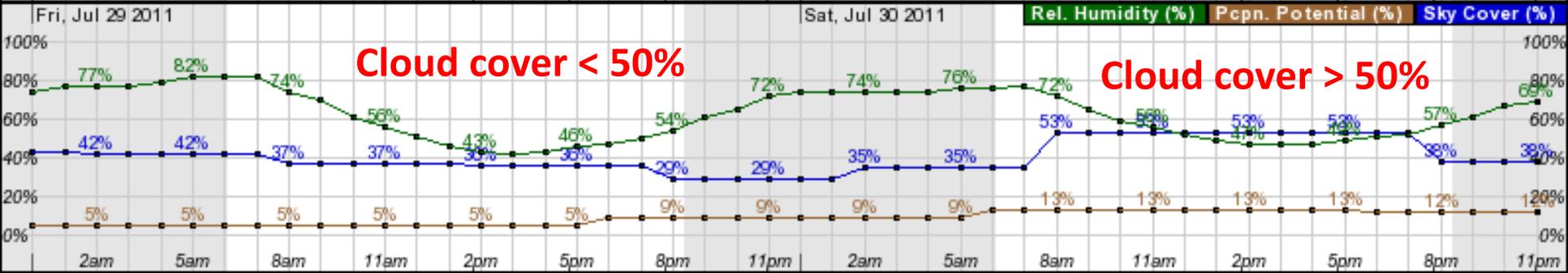
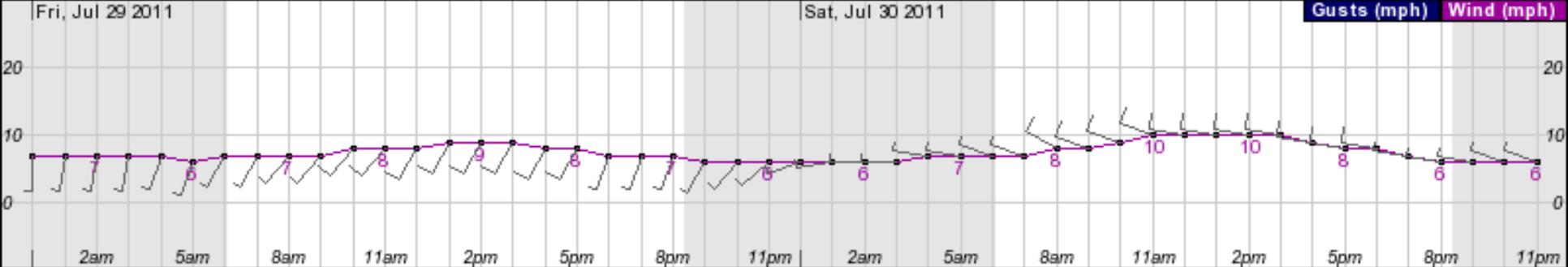
Saturday: Cloud cover greater than 50%.

Friday →

Saturday →



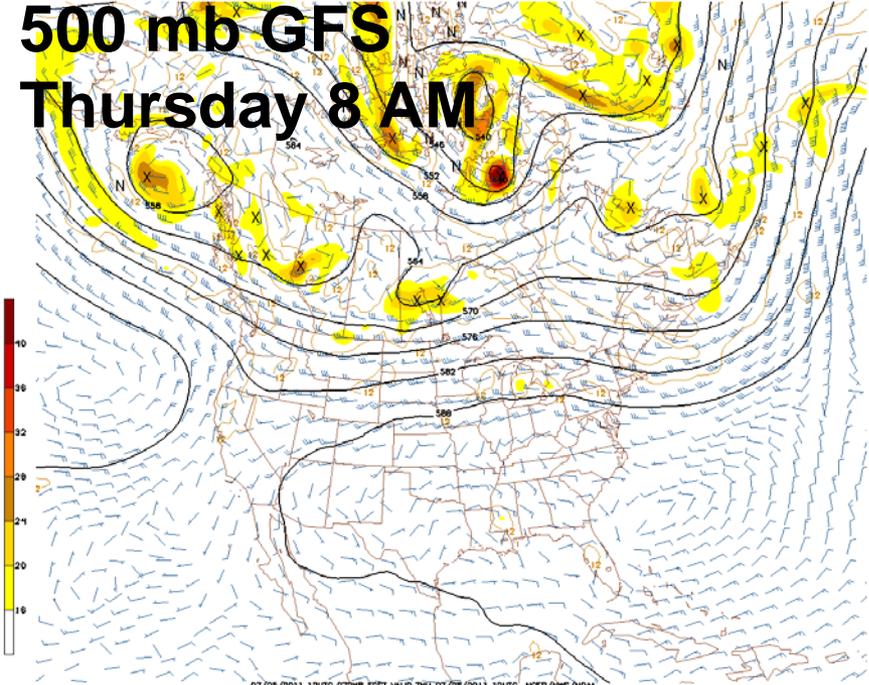
Dewpoint temperature back in the 70s



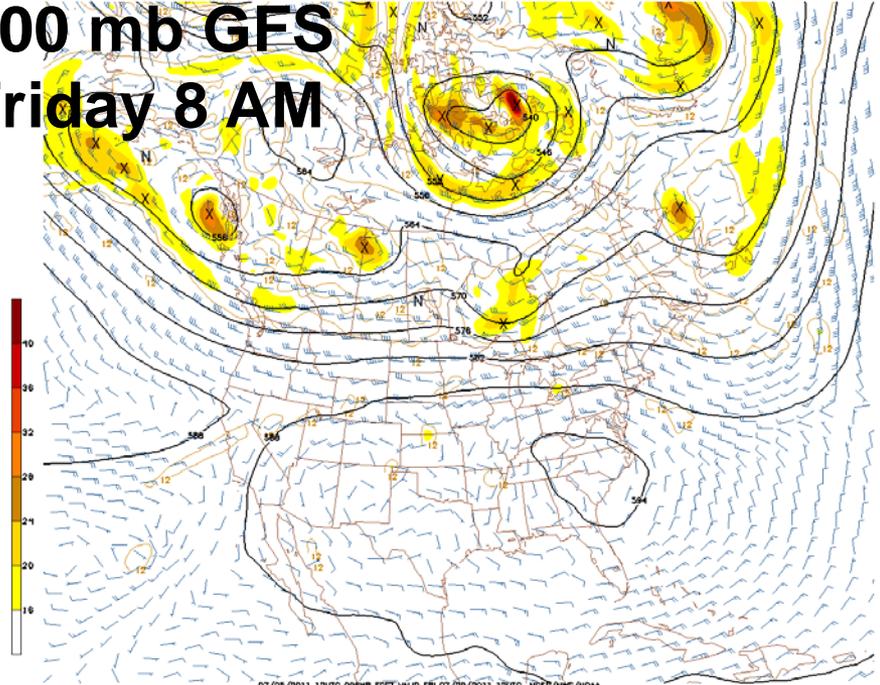
Cloud cover < 50%

Cloud cover > 50%

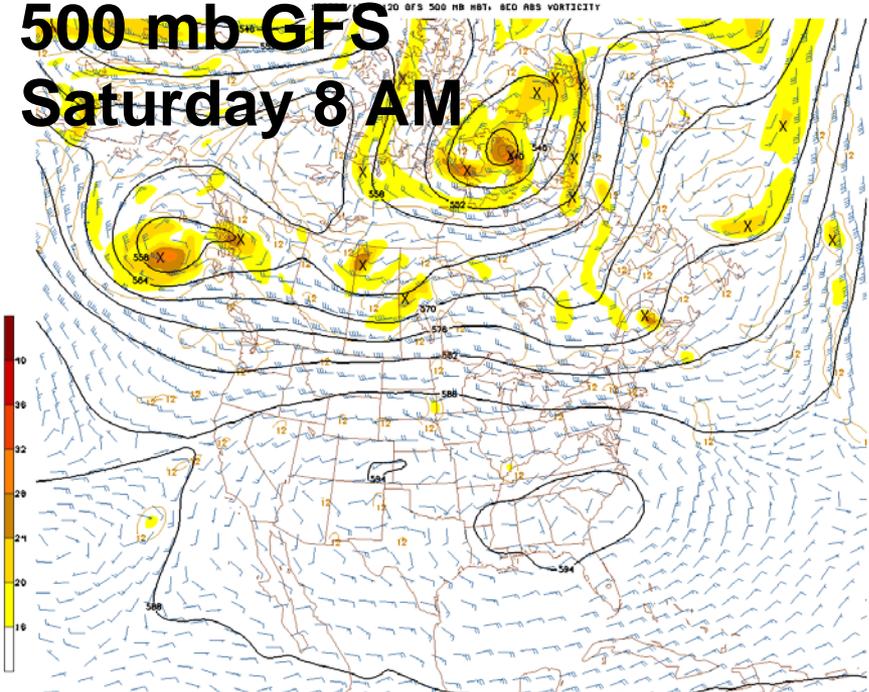
# 500 mb GFS Thursday 8 AM



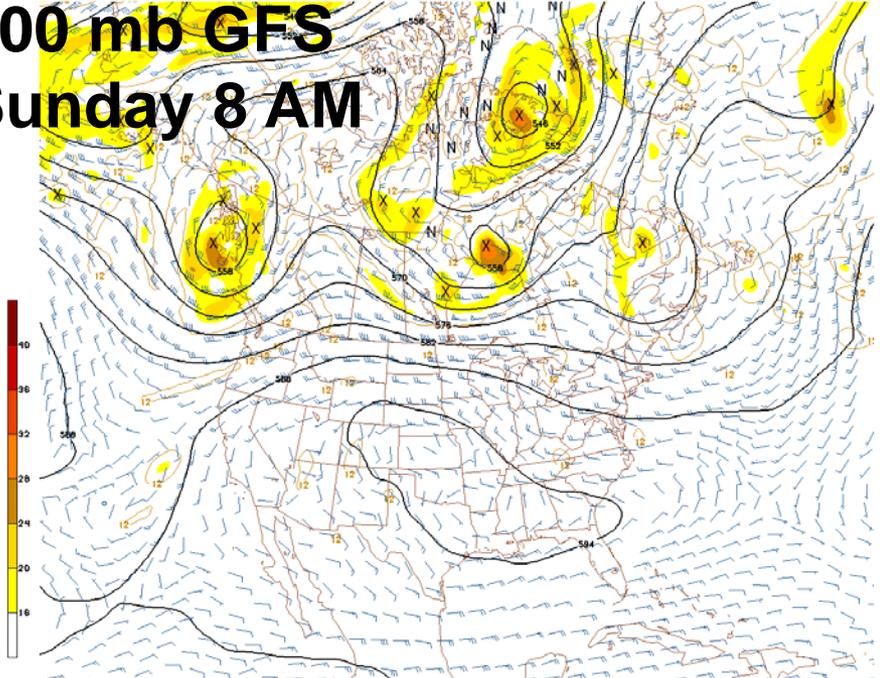
# 500 mb GFS Friday 8 AM



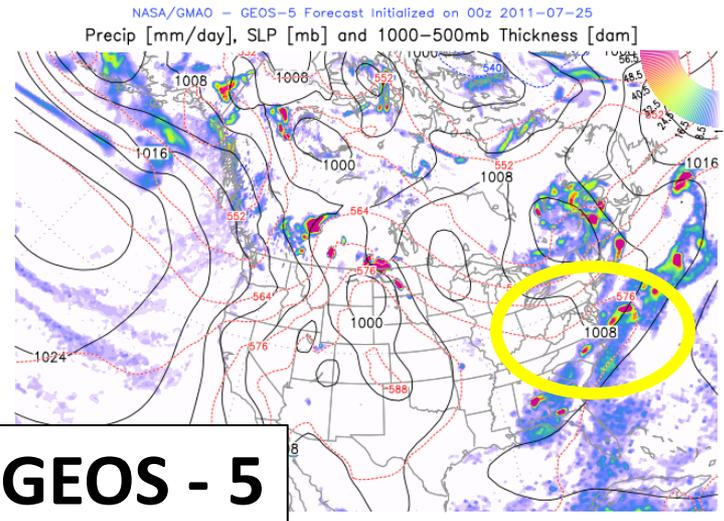
# 500 mb GFS Saturday 8 AM



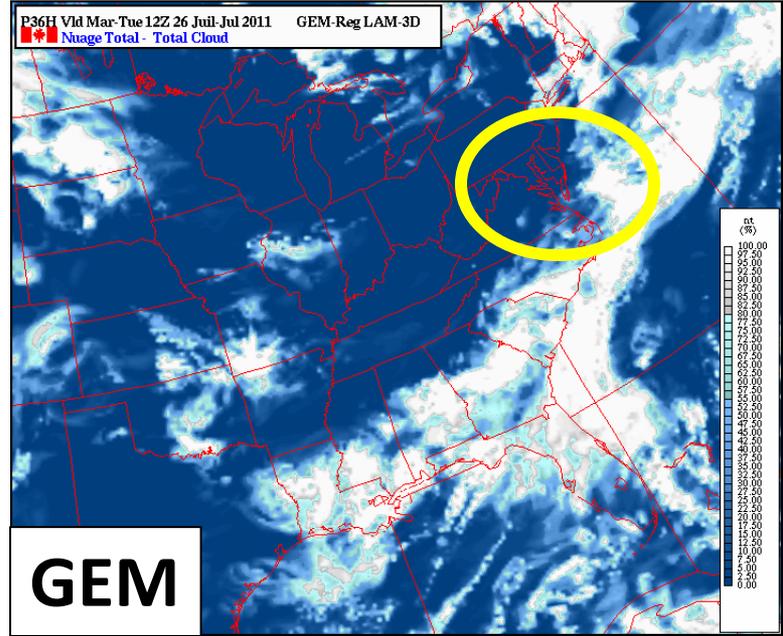
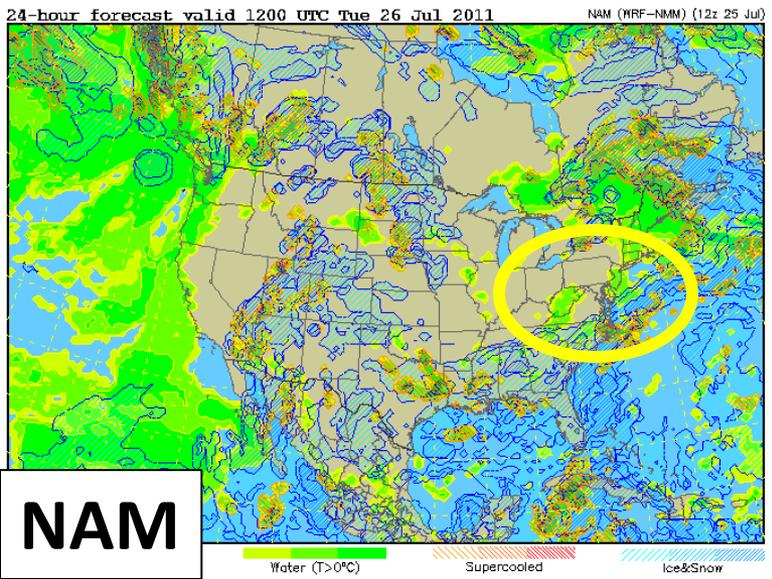
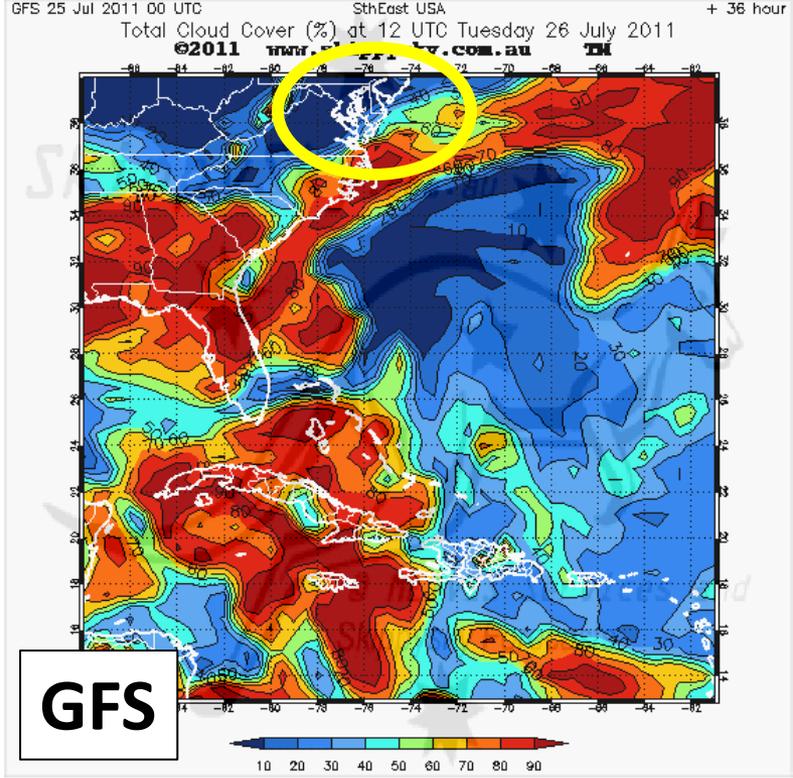
# 500 mb GFS Sunday 8 AM



Tuesday 8 am: Mostly sunny.

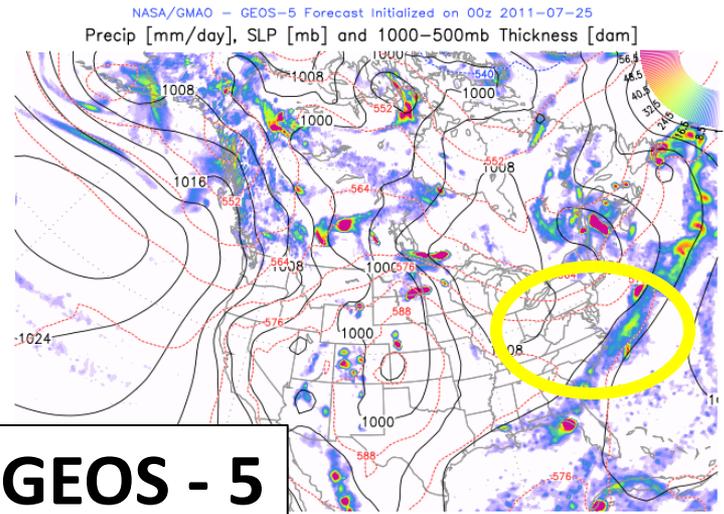


**GEOS - 5**



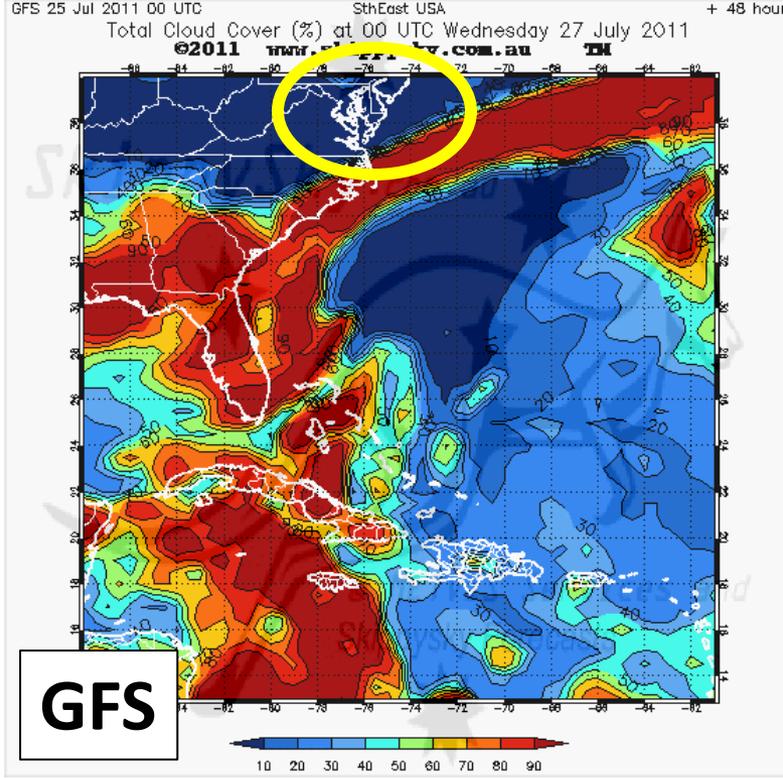


# Tuesday 8 pm: GFS – clear skies; GEM – partly cloudy.



**GEOS - 5**

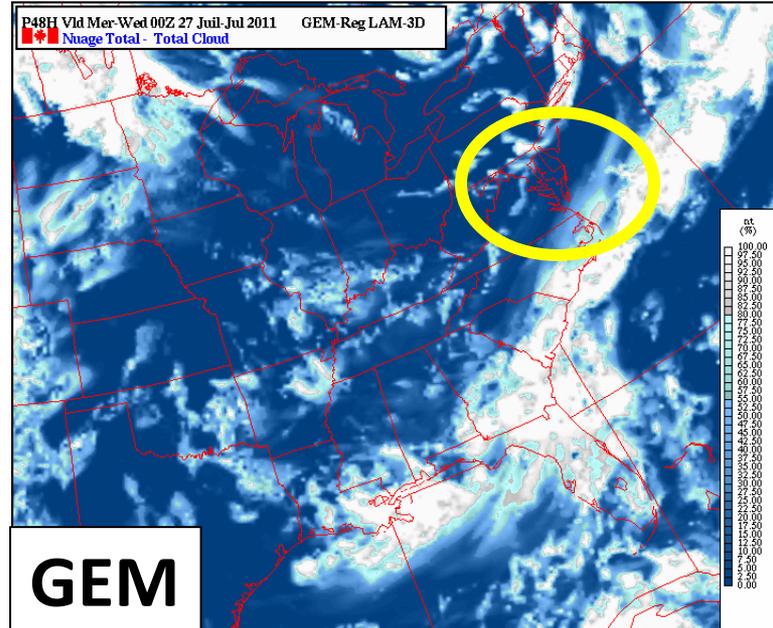
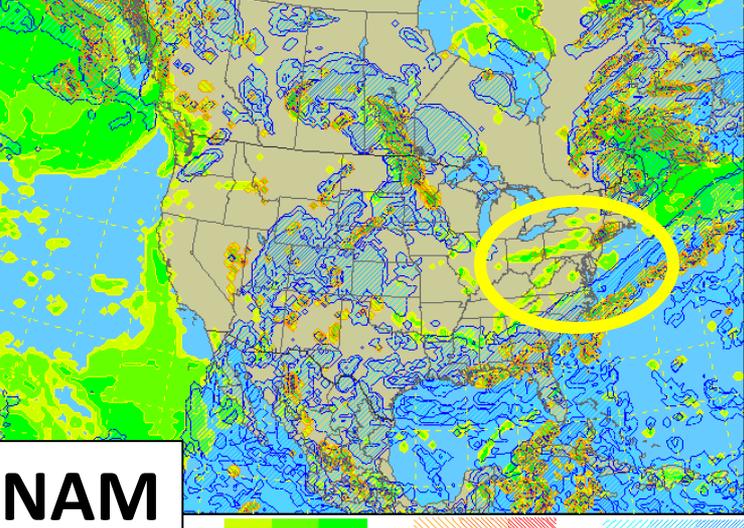
48-hr forecast valid Wed 00z 2011-07-27



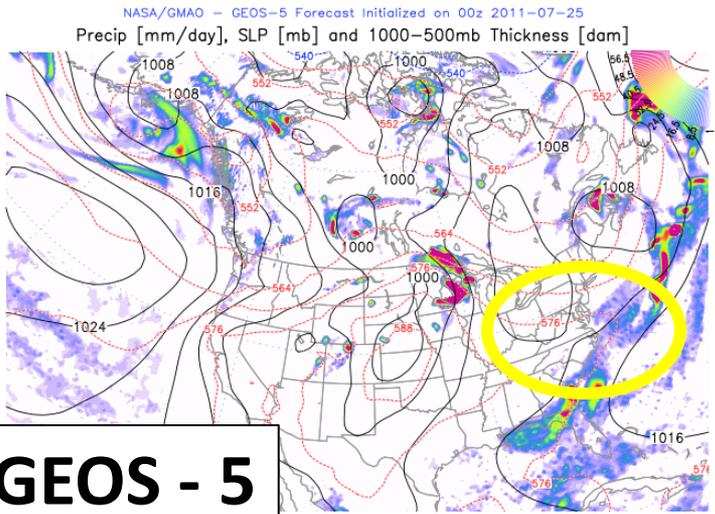
**GFS**

10 20 30 40 50 60 70 80 90

36-hour forecast valid 0000 UTC Wed 27 Jul 2011 NAM (MRF-NMM) (12z 25 Jul)

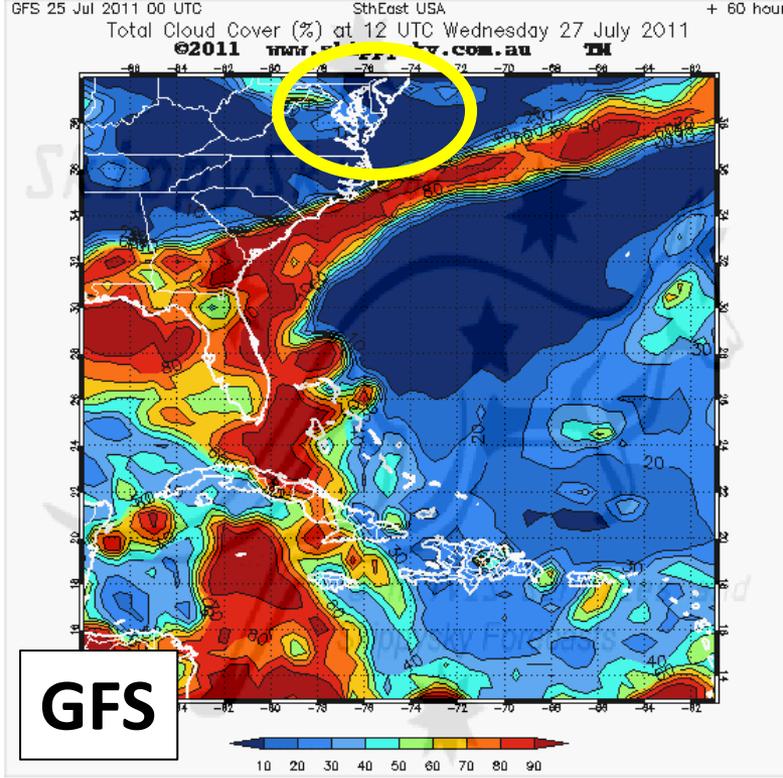


# Wednesday 8 am: Mostly sunny.



**GEOS - 5**

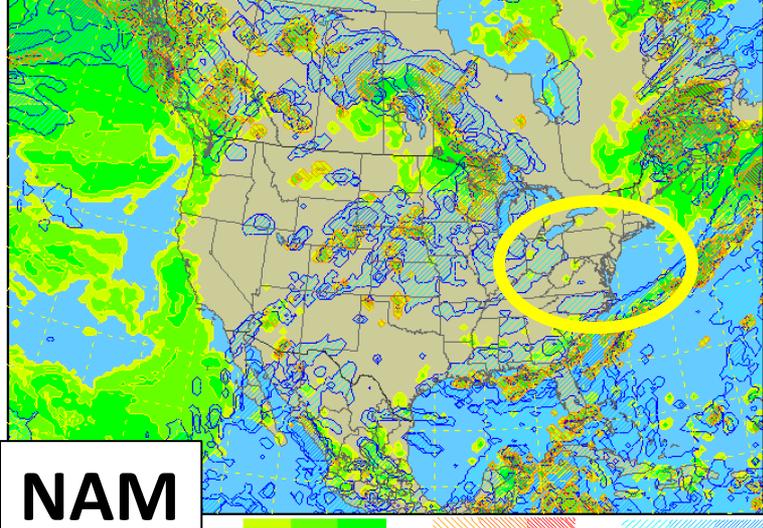
60-hr forecast valid Wed 12z 2011-07-27



**GFS**

10 20 30 40 50 60 70 80 90

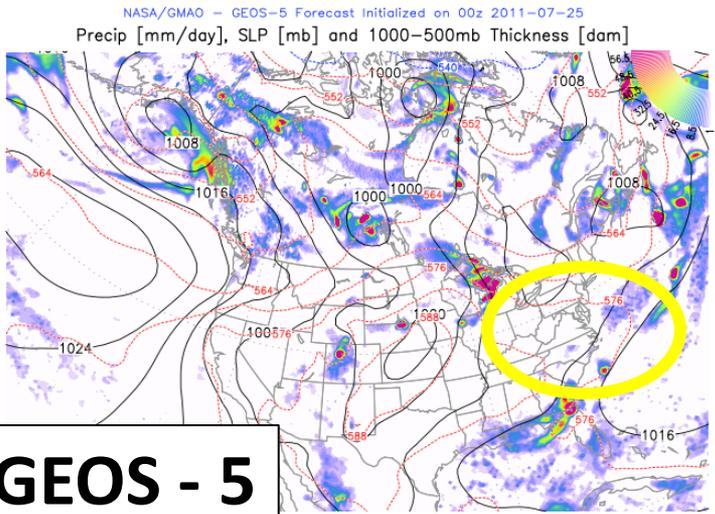
48-hour forecast valid 1200 UTC Wed 27 Jul 2011 NAM (MRF-NMM) (12z 25 Jul)



**NAM**

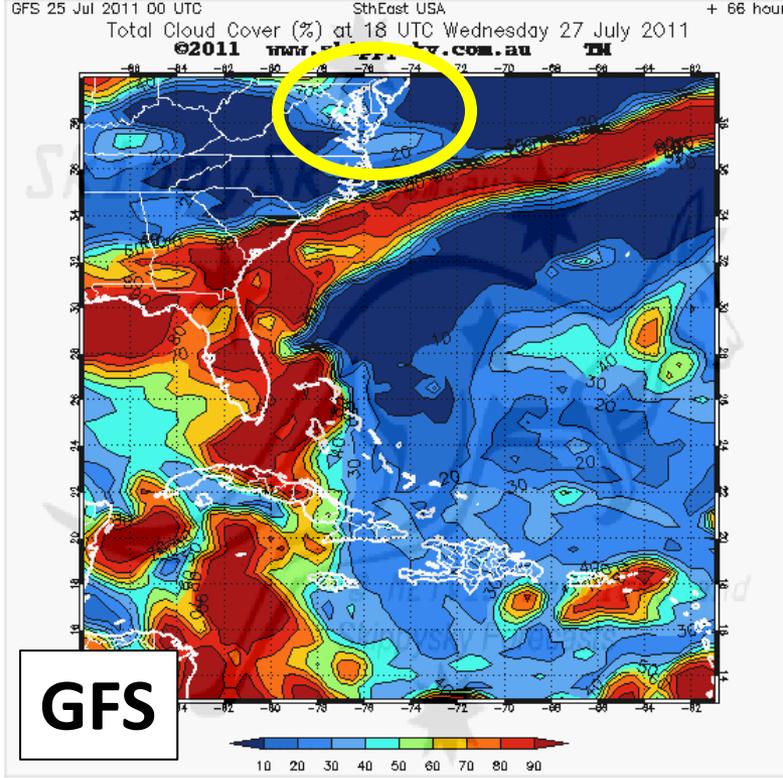
Water (T>0°C) Supercooled Ice&Snow

# Wednesday 2 pm: Mostly sunny.



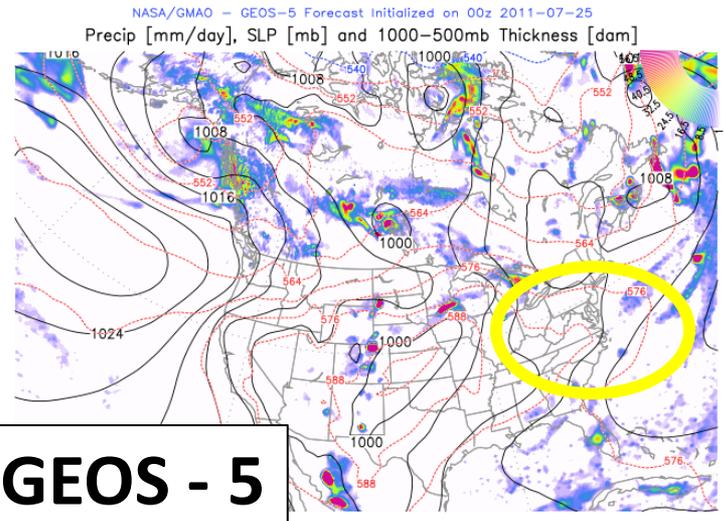
**GEOS - 5**

66-hr forecast valid Wed 18z 2011-07-27

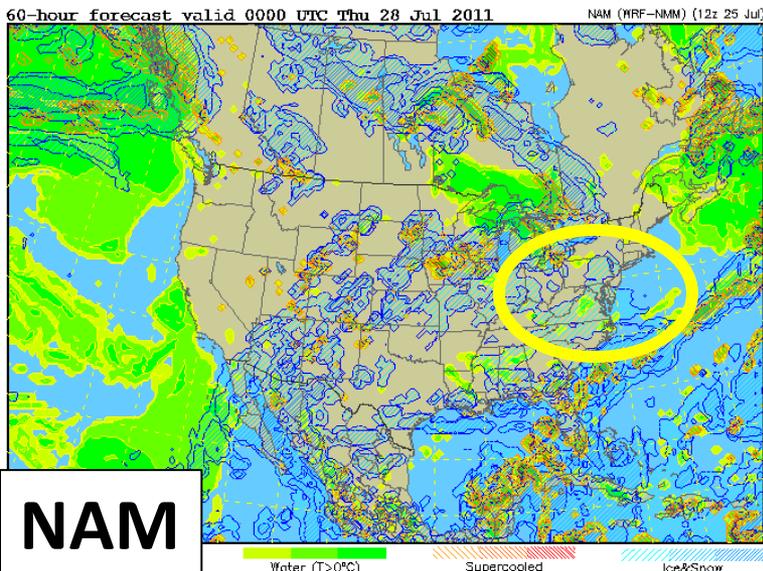
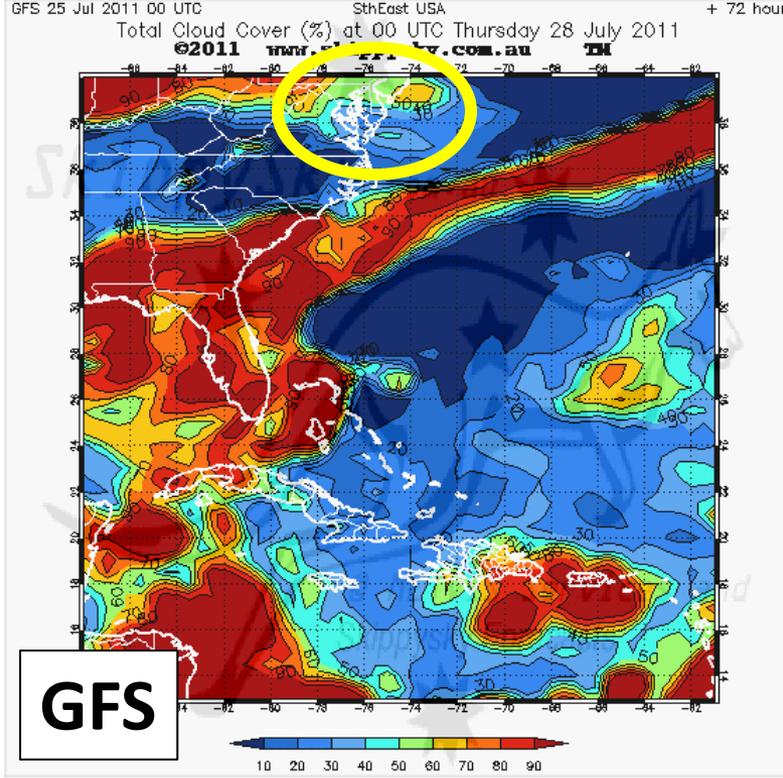


**GFS**

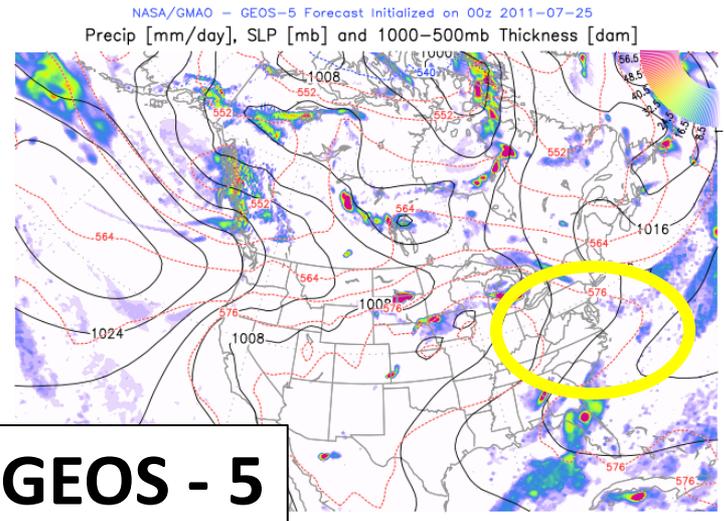
# Wednesday 8 pm: Cloud cover around 50%.



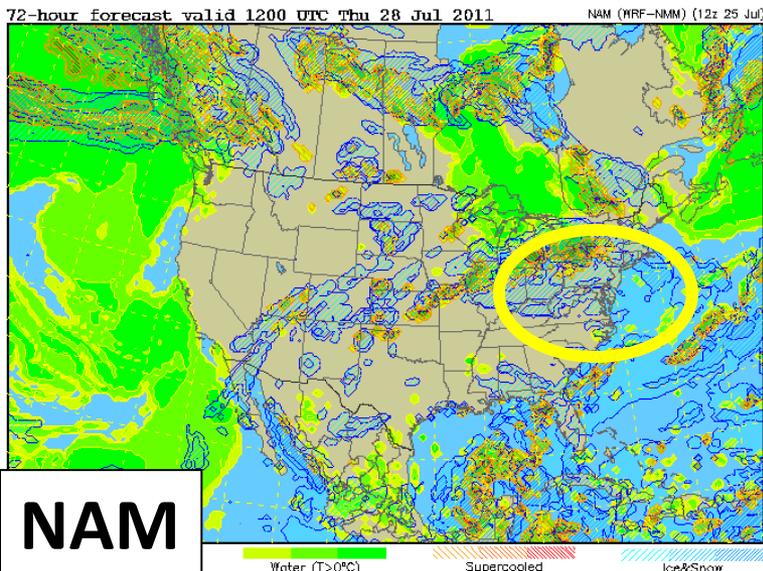
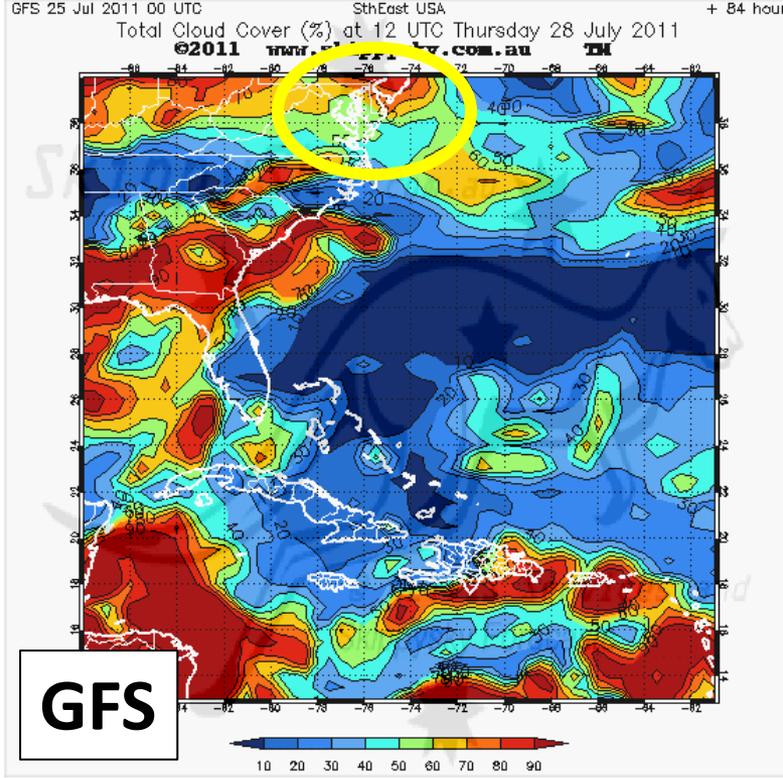
72-hr forecast valid Thu 00z 2011-07-28



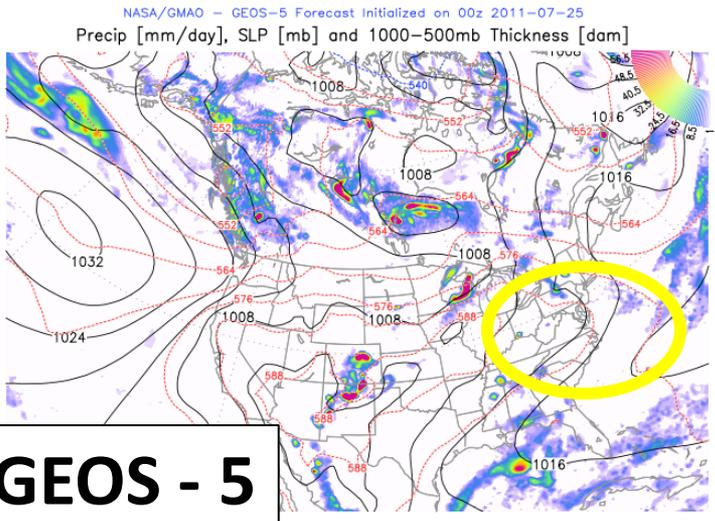
# Thursday 8 am: Cloud cover > 50%.



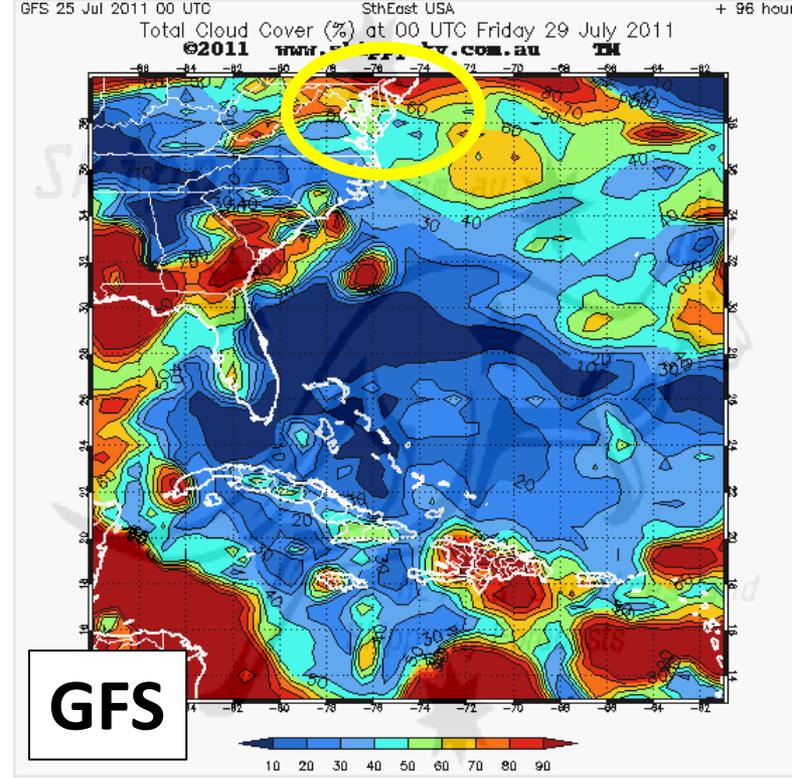
84-hr forecast valid Thu 12z 2011-07-28



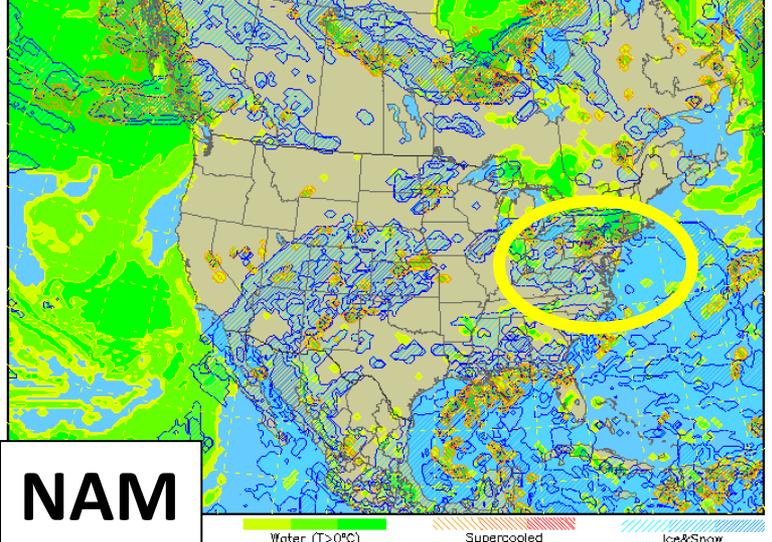
# Thursday 8 pm: Cloud cover > 50%.



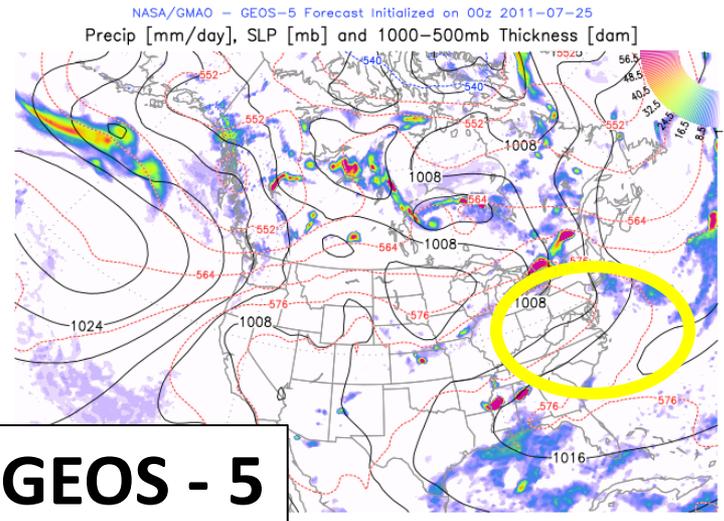
96-hr forecast valid Fri 00z 2011-07-29



84-hour forecast valid 0000 UTC Fri 29 Jul 2011 NAM (MRF-NMM) (12z 25 Jul)

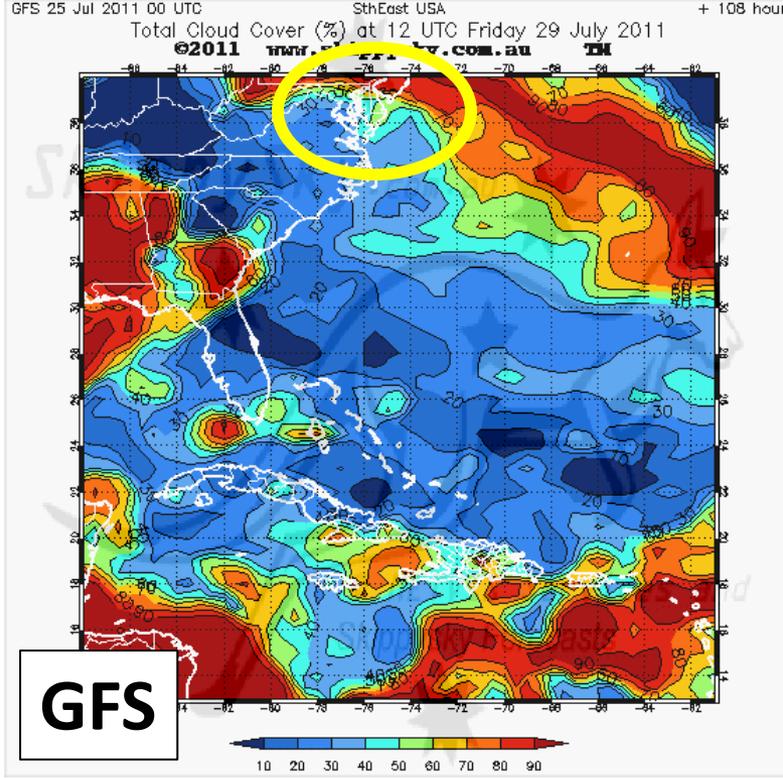


# Friday 8 am: Cloud cover > 50%.



**GEOS - 5**

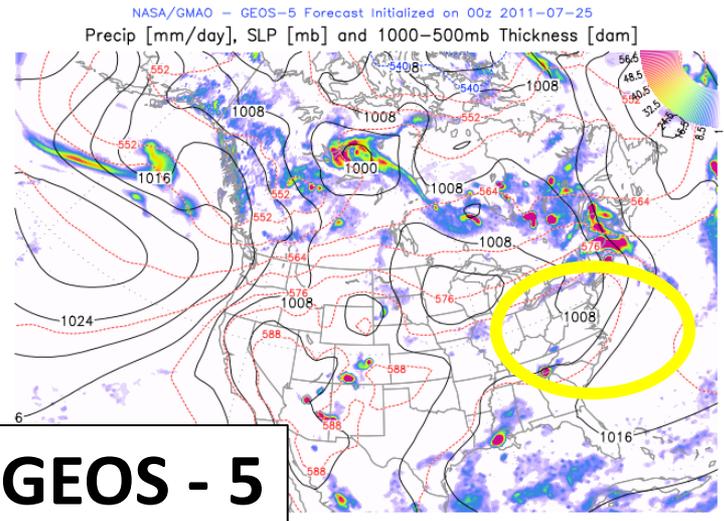
108-hr forecast valid Fri 12z 2011-07-29



**GFS**

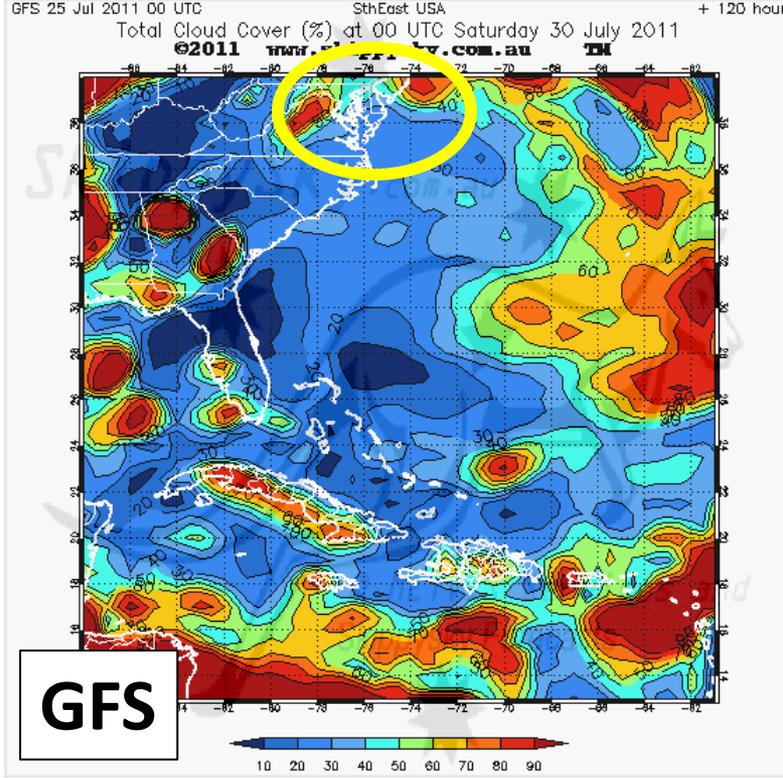
10 20 30 40 50 60 70 80 90

# Friday 8 pm: Cloud cover around 50%.



**GEOS - 5**

120-hr forecast valid Sat 00z 2011-07-30



**GFS**

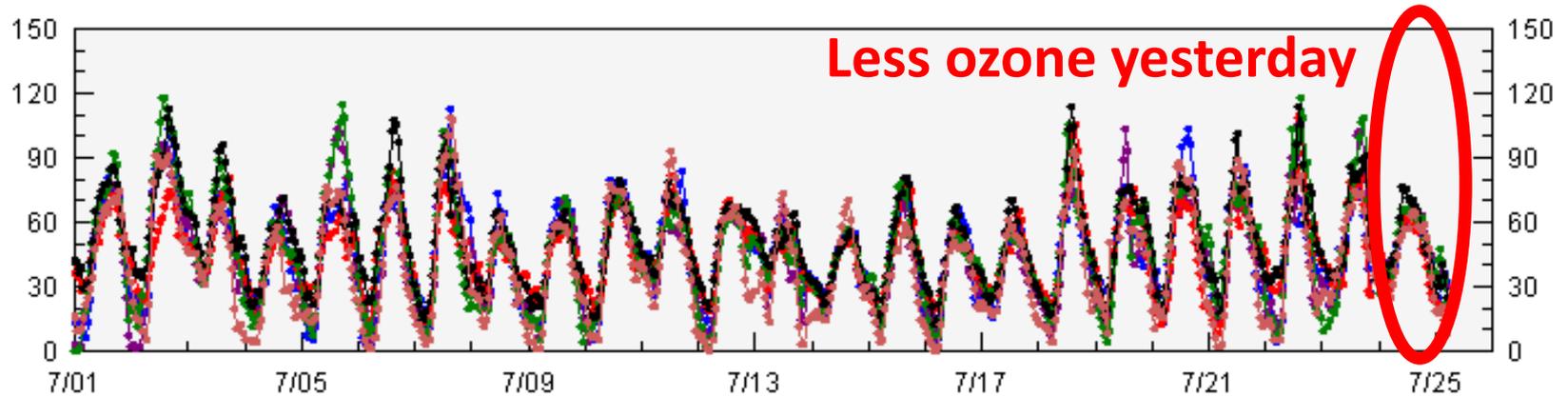
Extended forecast (Friday through Sunday):

Hot and humid with a surface high pressure system off the coast ushering in humid conditions Friday. Increasing clouds Saturday as a cold front approaches and moves over our region Sunday.

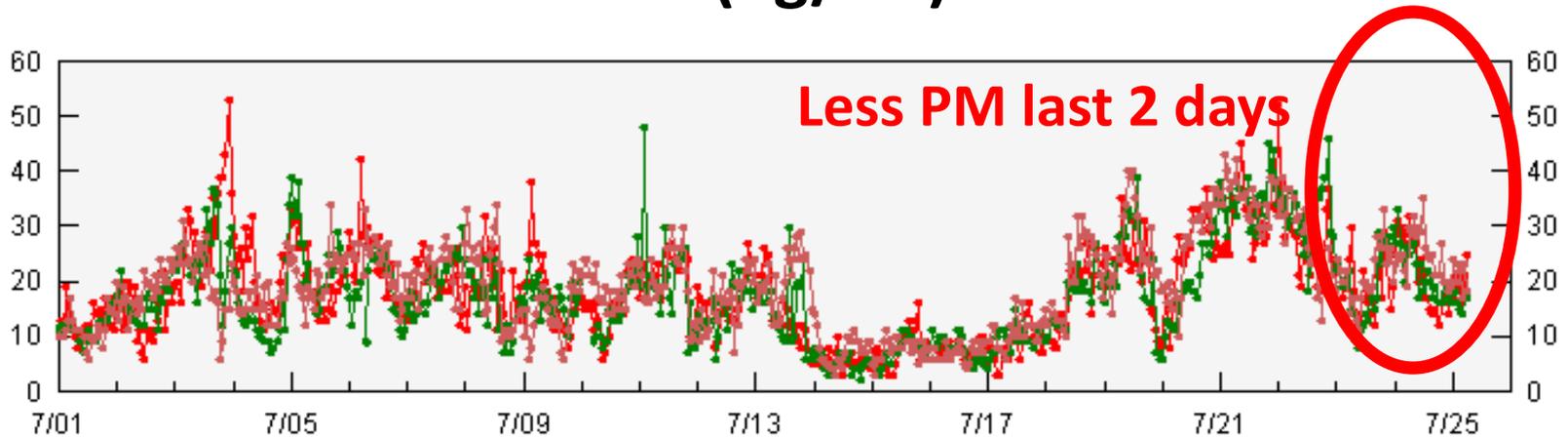
# MDE Surface Sites

Padonia    Beltsville    Edgewood    Aldino    Essex    Fairhill

## Ozone (ppbv) 1 hr

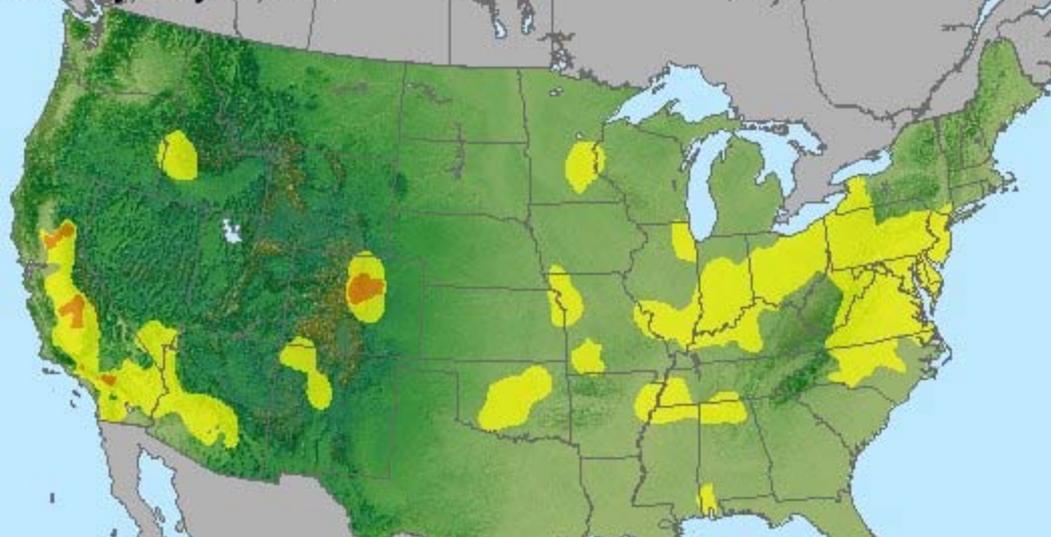


## PM2.5 ( $\mu\text{g}/\text{m}^3$ ) 1 hr



# Today's AQI Forecast

Monday, July 25, 2011



# Today's AQI Forecast

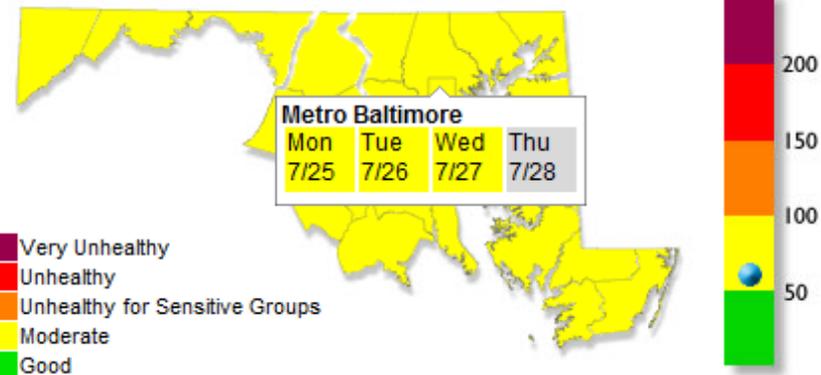
Monday, July 25, 2011

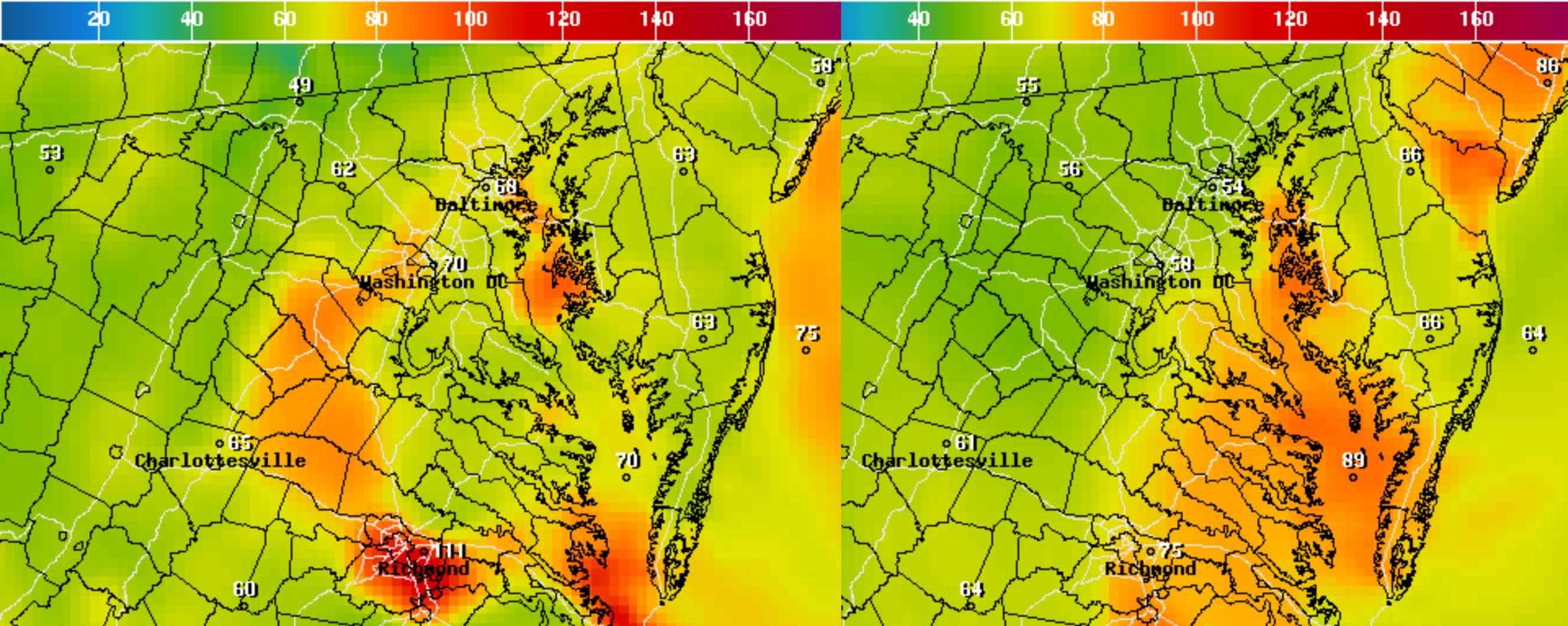


## Air Quality Forecast

Today's High		Tomorrow's High			
Air Quality Index (AQI)		Air Quality Index (AQI)			
61	Moderate	77	Moderate		
<b>Health Message:</b> Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors.		<b>Health Message:</b> Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors.			
AQI - Pollutant Details					
Ozone	61	<a href="#">Moderate</a>	Ozone	77	<a href="#">Moderate</a>
Particles (PM2.5)	57	<a href="#">Moderate</a>	Particles (PM2.5)	39	<a href="#">Good</a>

**Forecast Discussion:** A cold front approaches the region on Monday as the high pressure that has been in place for the duration of the heat wave weakens. Increased cloud cover and scatter showers will keep air quality in the Moderate range. On Tuesday, there will be a noticeable improvement in humidity as the cold front passes through in the morning. Winds from the northwest and seasonable temperatures will continue Moderate air quality. On Wednesday, a high pressure system begins to build in. Sunny skies and light recirculating winds will allow ozone and fine particles to rise. However, ozone should remain in the Moderate range while fine particles will stay within Good AQI. - MDE





Maximum 1Hr Ozone(PPB) Ending Mon Jul 25 2011 11PM EDT  
(Tue Jul 26 2011 03Z)

Maximum 1Hr Ozone(PPB) Ending Wed Jul 27 2011 12AM EDT  
(Wed Jul 27 2011 04Z)



**National Digital Guidance Database**  
06z model run    Graphic created-Jul 25 6:43AM EDT



**National Digital Guidance Database**  
06z model run    Graphic created-Jul 25 6:43AM EDT



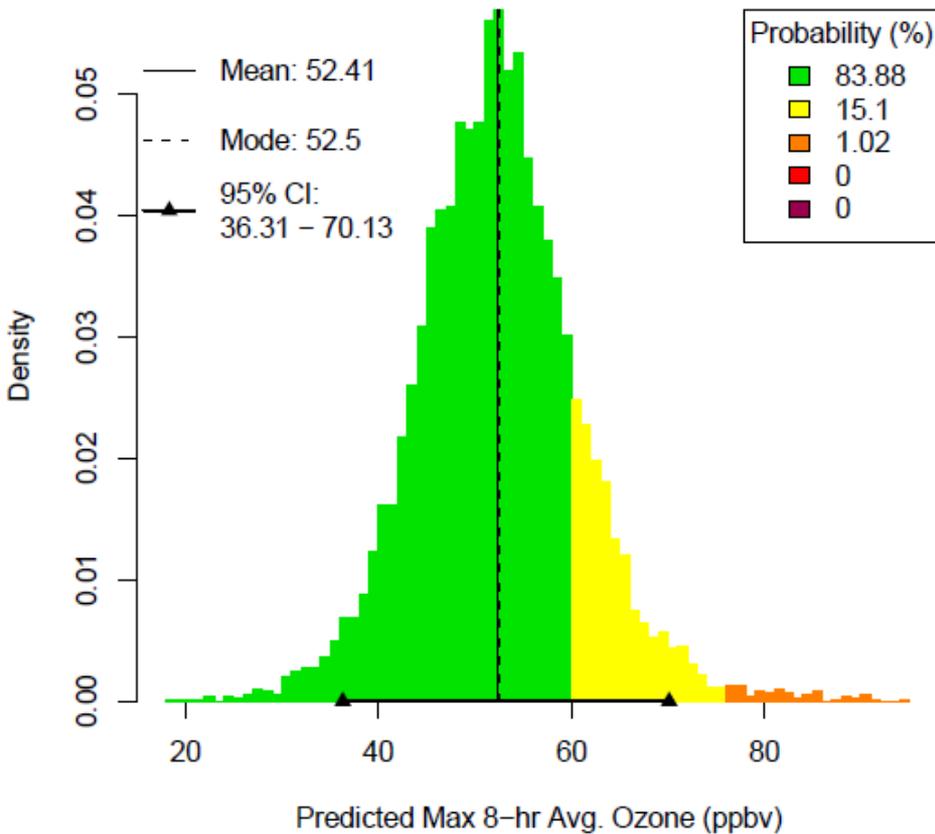
# 1-hr Max Ozone (ppbv) Today

# 1-hr Max Ozone (ppbv) Tomorrow

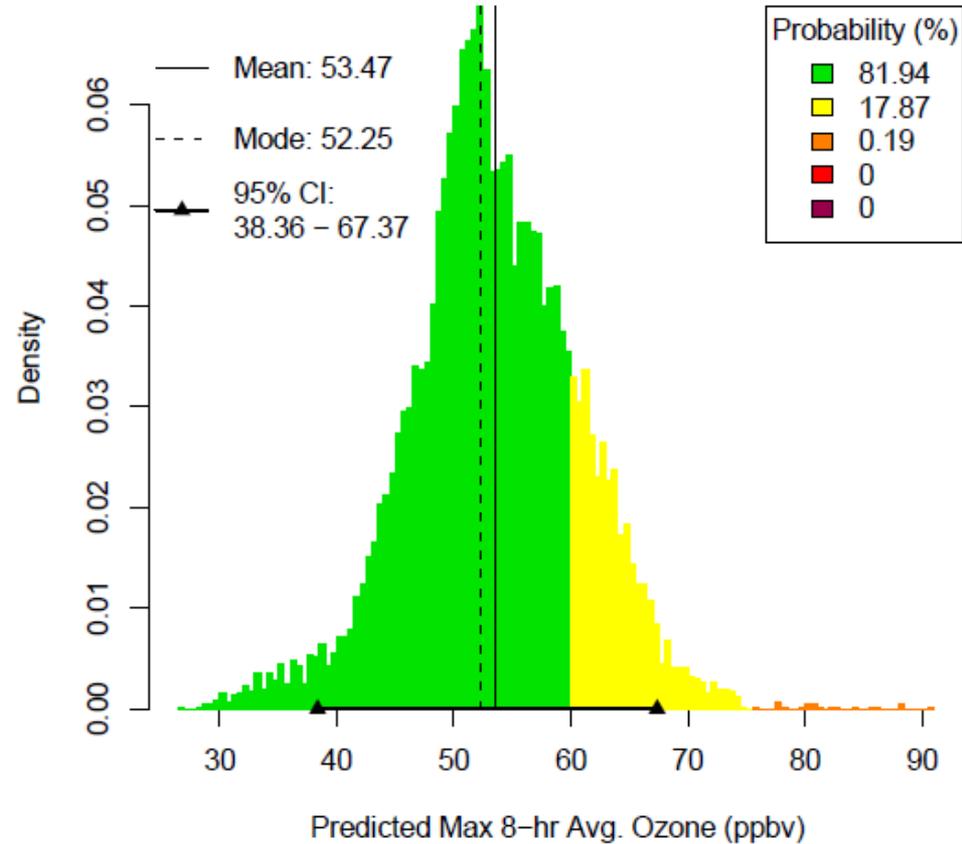
# NAQFC-MOS valid for Tomorrow

ID: 240251001 VALID: 2011-07-26

ID: 240330030 VALID: 2011-07-26

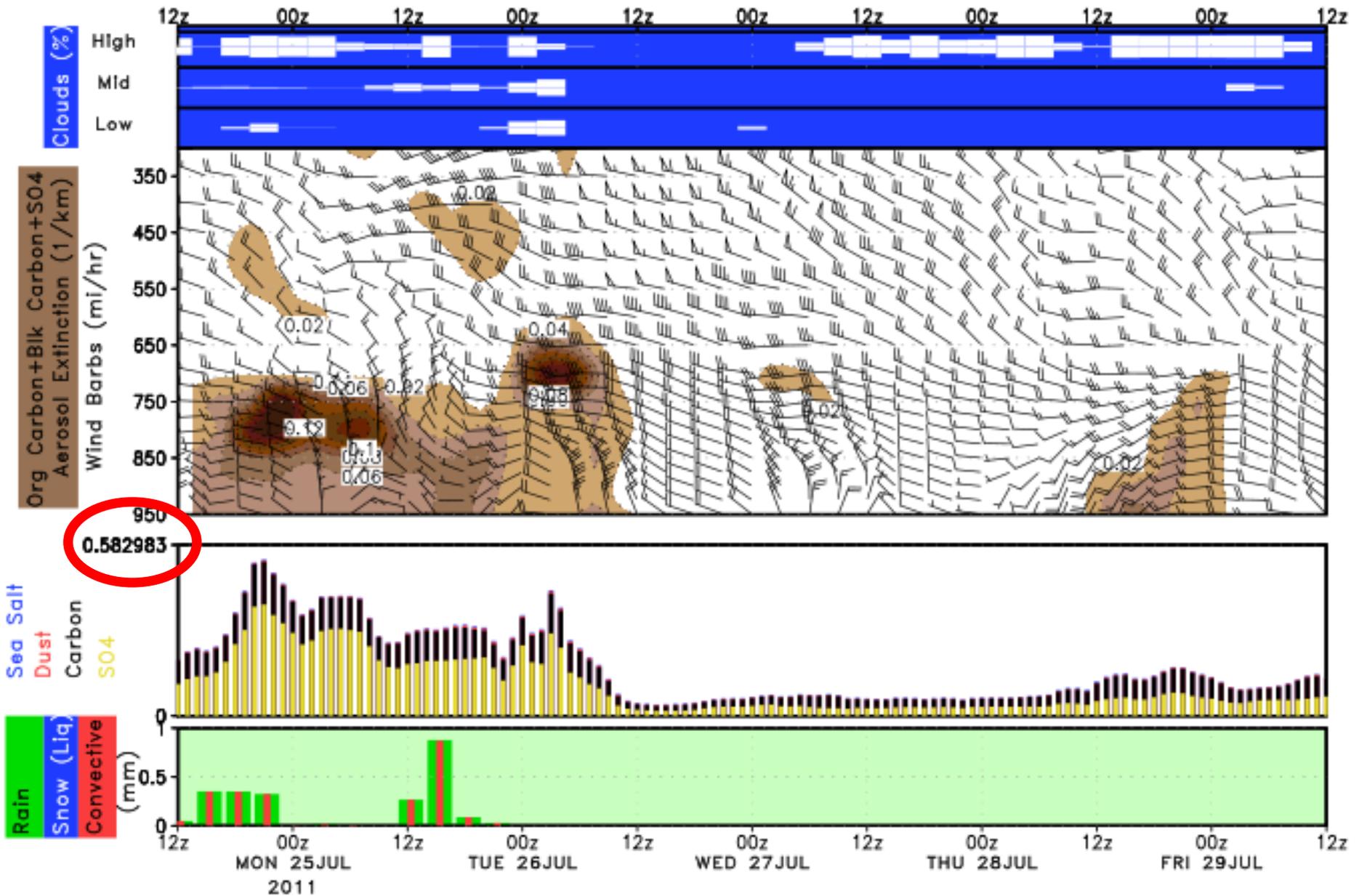


**Edgewood**

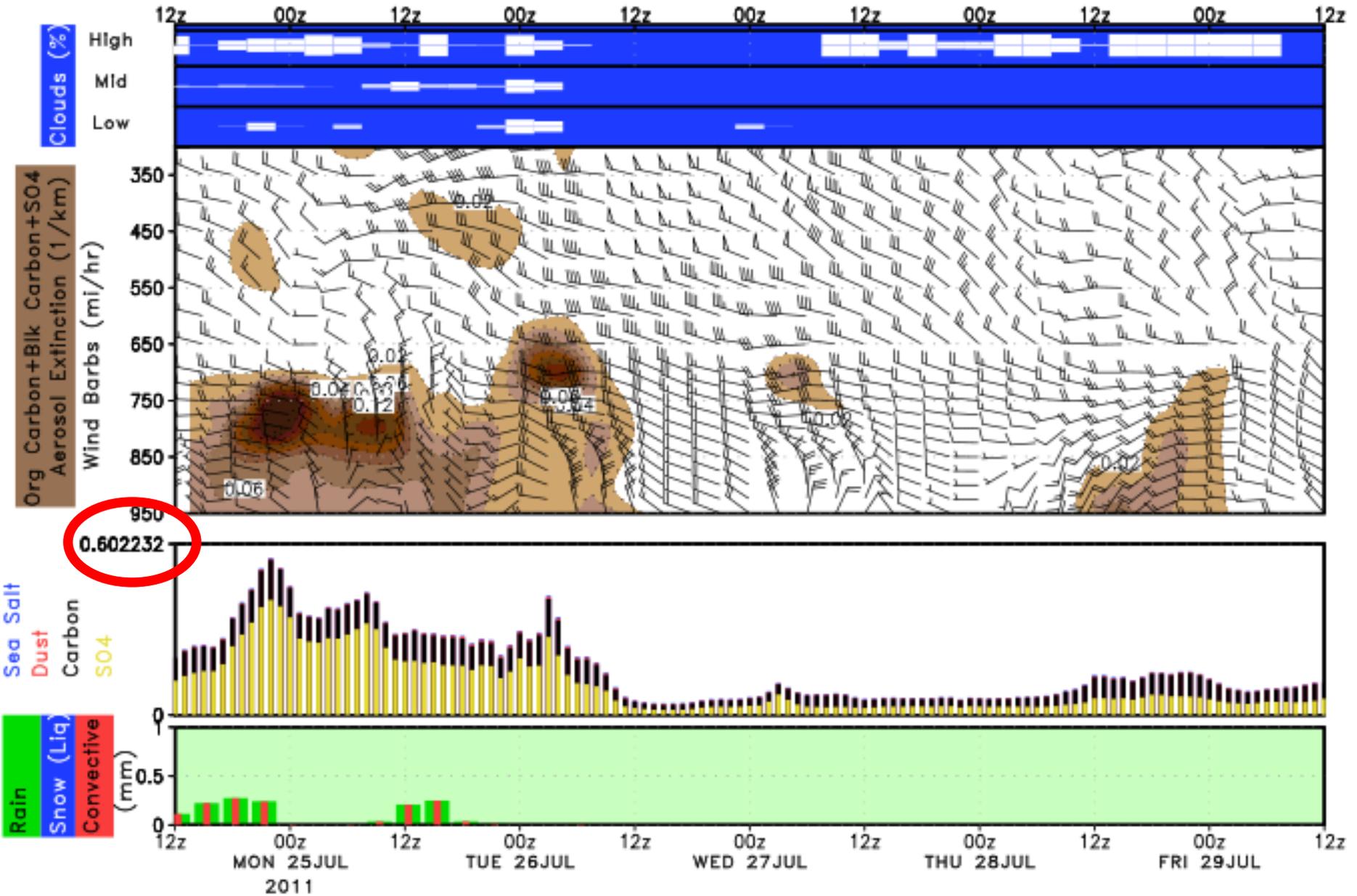


**Beltsville**

# Essex

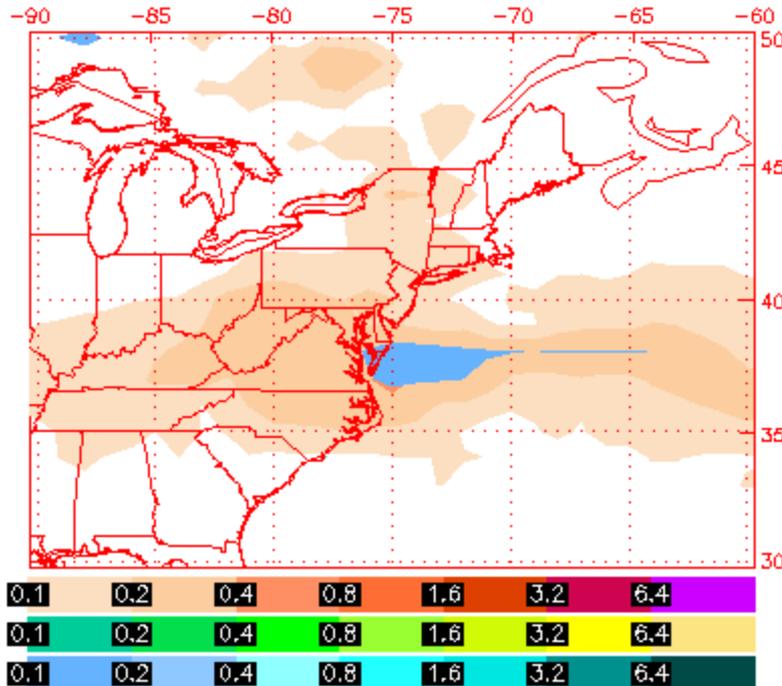


# Beltsville

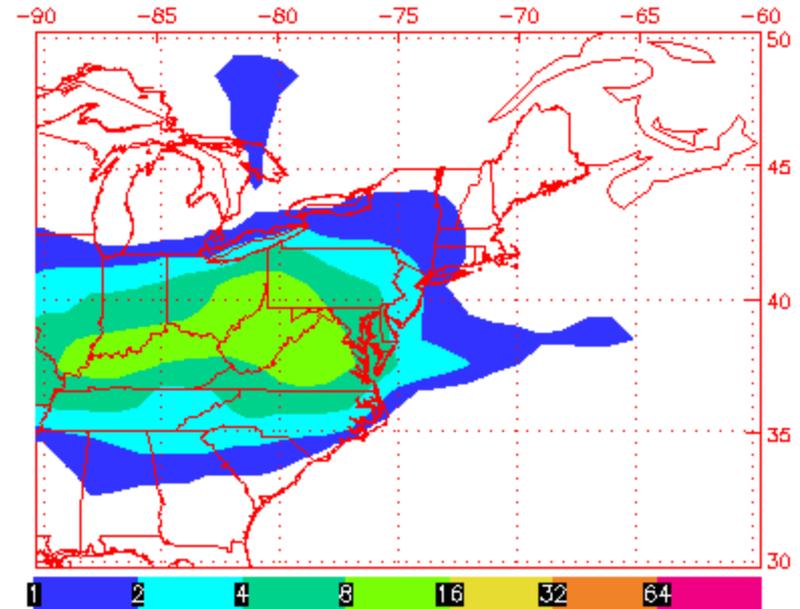


# Today 2 PM

NAAPS Total Optical Depth for 18:00Z 25 Jul 2011  
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue

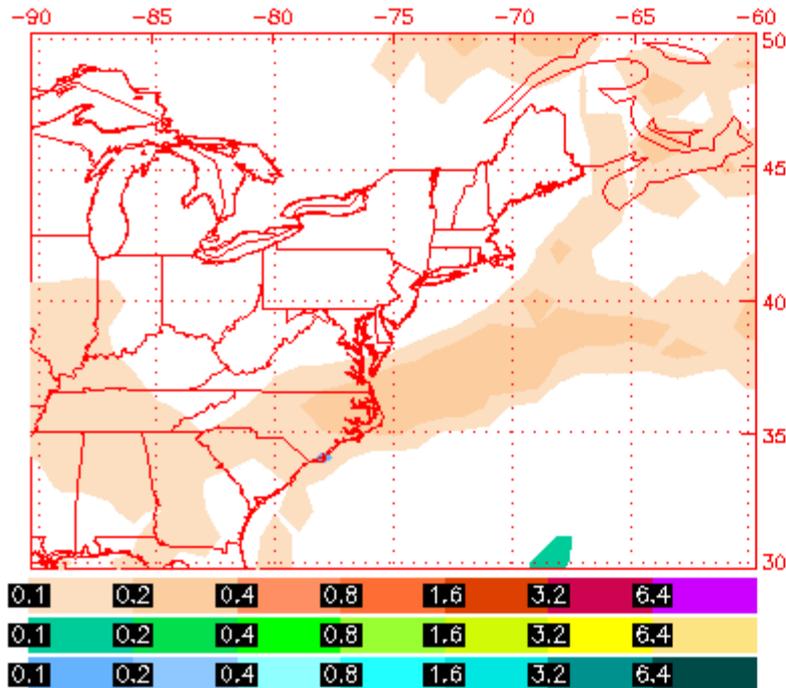


Sulfate Surface Concentration ( $\mu\text{g}/\text{m}^3$ )  
for 18:00Z 25 Jul 2011

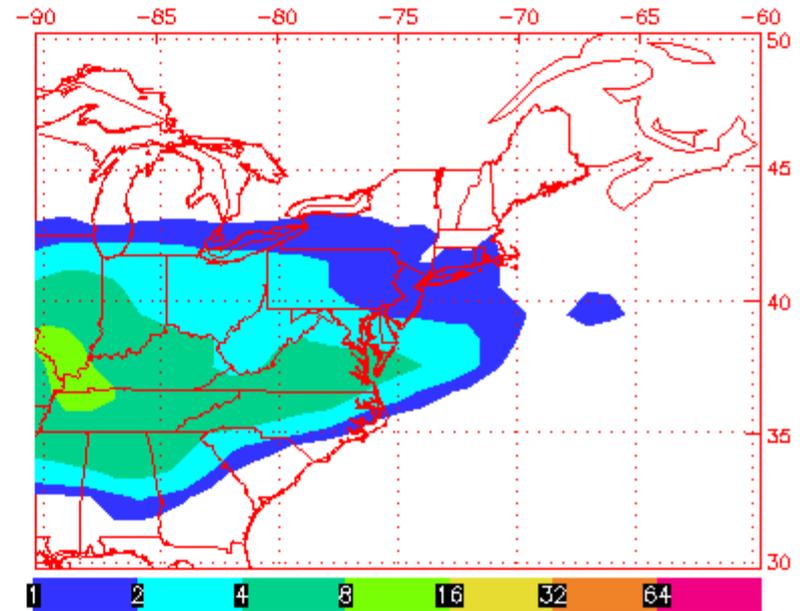


# Tomorrow 2 PM

NAAPS Total Optical Depth for 18:00Z 26 Jul 2011  
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue

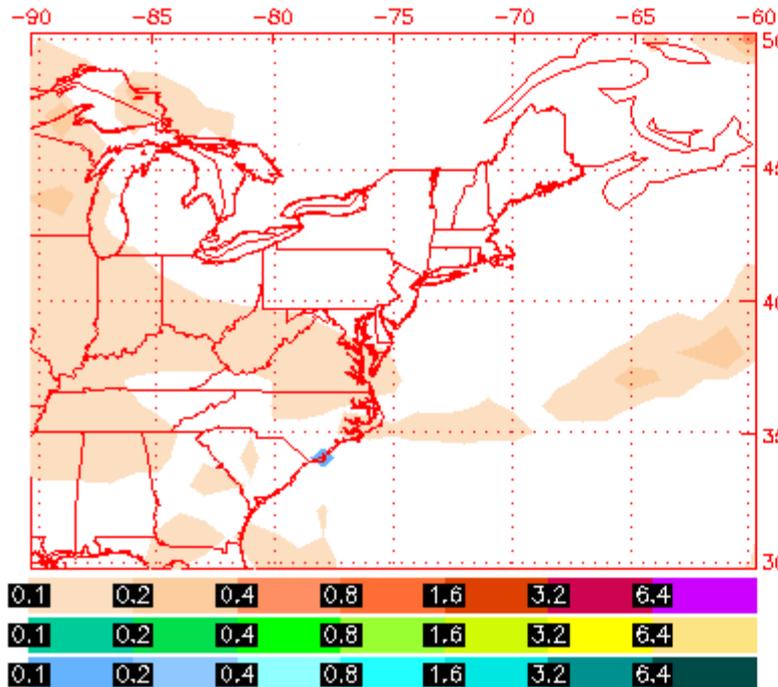


Sulfate Surface Concentration ( $\mu\text{g}/\text{m}^3$ )  
for 18:00Z 26 Jul 2011

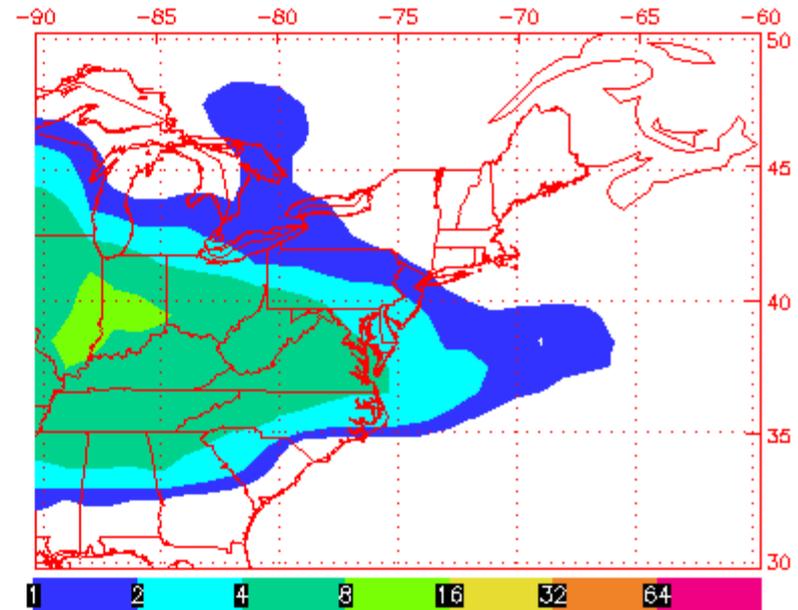


# Wednesday 2 PM

NAAPS Total Optical Depth for 18:00Z 27 Jul 2011  
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue

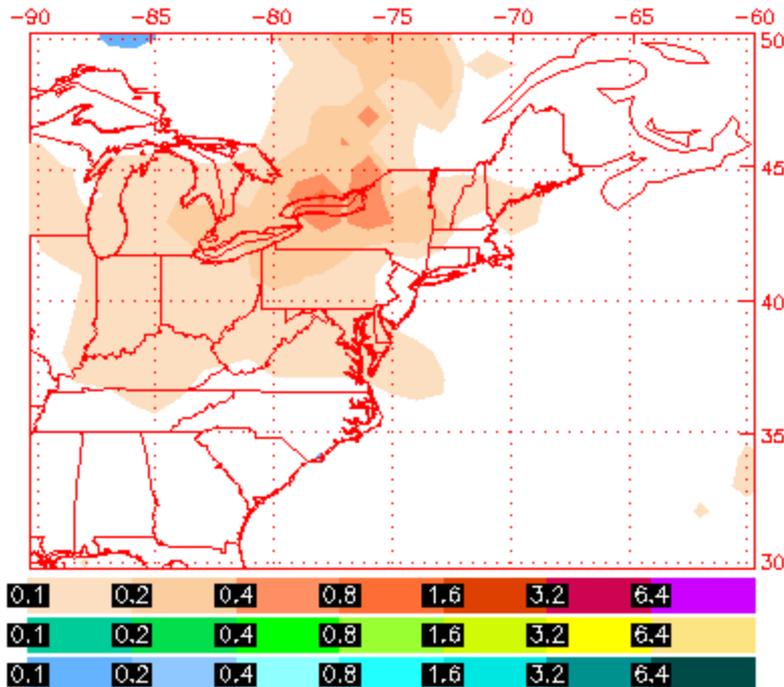


Sulfate Surface Concentration ( $\mu\text{g}/\text{m}^3$ )  
for 18:00Z 27 Jul 2011

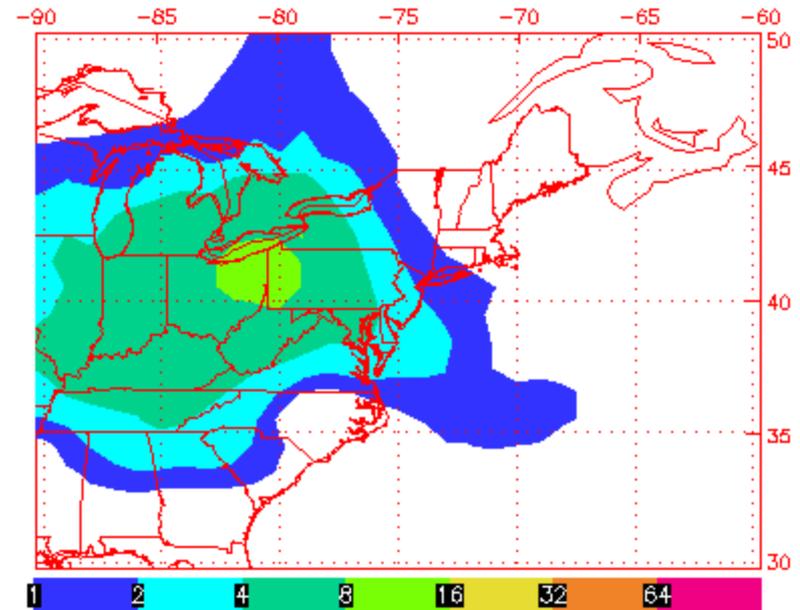


# Thursday 2 PM

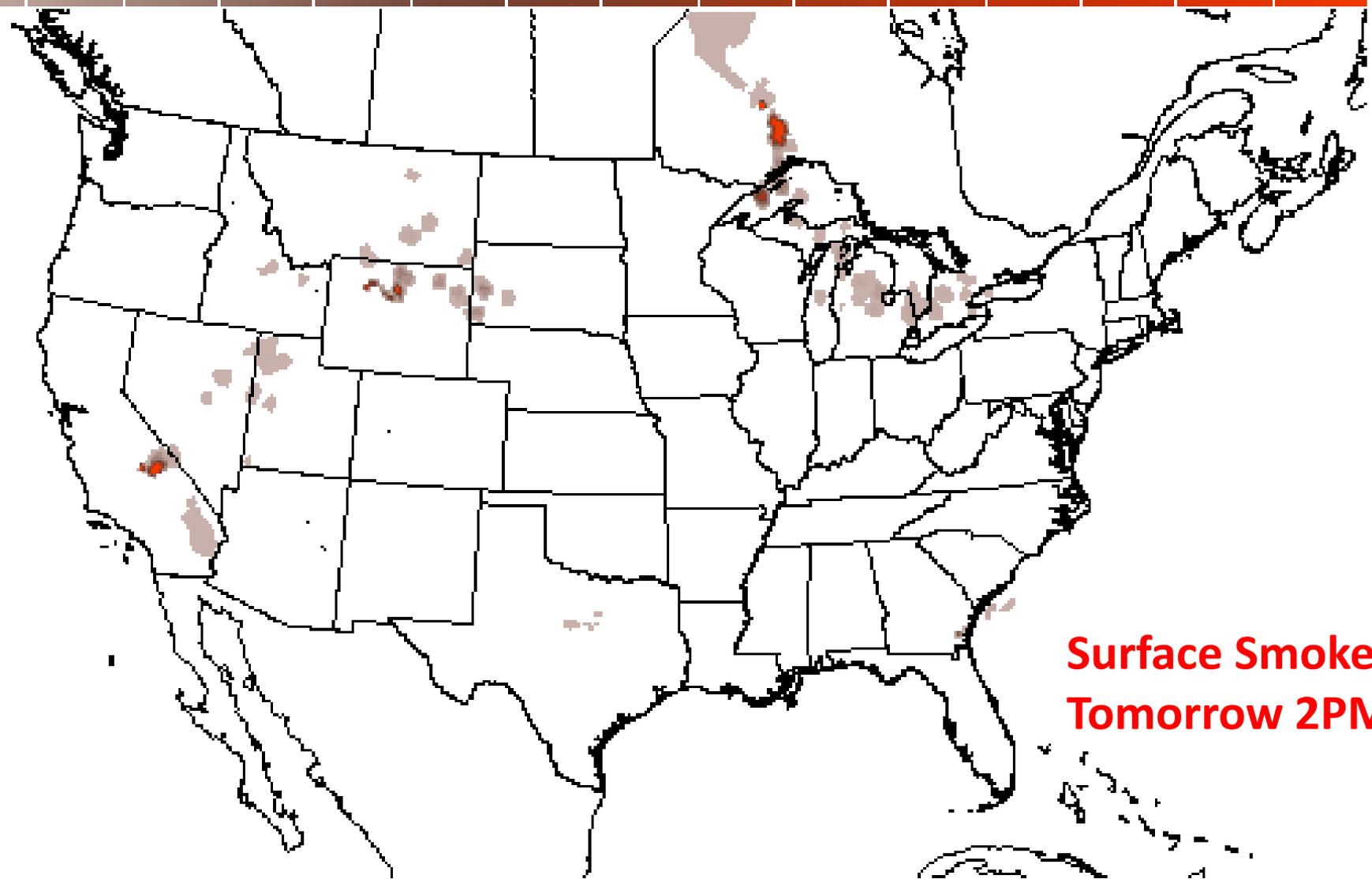
NAAPS Total Optical Depth for 18:00Z 28 Jul 2011  
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue



Sulfate Surface Concentration ( $\mu\text{g}/\text{m}^3$ )  
for 18:00Z 28 Jul 2011



10 20 30 40 50 60 70 80 90 100 110 120 130 140



**Surface Smoke  
Tomorrow 2PM**

1Hr Surface Smoke (micrograms/m<sup>3</sup>) Tue Jul 26 2011 2PM EDT  
(Tue Jul 26 2011 18Z)



**National Digital Guidance Database**

06z model run      Graphic created-Jul 25 7:44AM EDT

## AREA FORECAST DISCUSSION

NATIONAL WEATHER SERVICE BALTIMORE MD/WASHINGTON DC

1029 AM EDT MON JUL 25 2011

.SYNOPSIS... A COLD FRONT WILL MOVE THROUGH LATE THIS AFTERNOON INTO TONIGHT. HIGH PRESSURE WILL BUILD IN BEHIND THE FRONT FOR TUESDAY AND WEDNESDAY...BRINGING A RETURN OF MORE SEASONABLE CONDITIONS. HOT AND HUMID CONDITIONS WILL RETURN FOR LATE IN THE WEEK INTO THE WEEKEND AS HIGH PRESSURE MOVES OFF THE COAST.

.NEAR TERM /THROUGH TONIGHT/... ATMOSPHERE REMAINS SIMILAR TO THE PAST SEVERAL DAYS...WITH PLENTY OF MOISTURE /PRECIPITABLE WATER NEAR 2 INCHES FROM IAD RAOB/ AND A DECENT AMOUNT OF CAPE /AROUND 3000 J/KG AVAILABLE FOR THIS AFTERNOON/.

MESOSCALE TRIGGERS WILL BE PRESENT...AND THERE MAY BE SLIGHTLY BETTER SYNOPTIC SCALE LIFT IN PLACE FOR THIS AFTERNOON/EVENING AS WELL WHICH HASN/T BEEN AS APPARENT OVER THE LAST SEVERAL DAYS. COLD FRONT TO THE NORTH WILL DROP SOUTH AND EVENTUALLY CATCH UP TO A LEE TROUGH THIS EVENING. THEREFORE AM EXPECTING SCATTERED TO NUMEROUS SHOWERS AND THUNDERSTORMS TO DEVELOP OVER/MOVE INTO THE CWA THIS AFTERNOON.

SHEAR WILL REMAIN WEAK ALTHOUGH A LITTLE BETTER THAN RECENT DAYS. EVEN WITH WEAK SHEAR...CAPE PRESENT WILL PROVIDE THE RISK FOR DAMAGING WIND GUSTS FROM MICROBURSTS. HEAVY RAINFALL COULD ALSO PROMOTE LOCALIZED FLASH FLOODING.

DUE TO INCREASED CLOUD COVER/CONVECTION THIS AFTERNOON...WARMING WILL BE HELD DOWN COMPARED TO THE LAST SEVERAL DAYS BUT IT WILL STILL ABOVE NORMAL AND HEAT INDEX VALUES WHILE BELOW HEAT ADVISORY CRITERIA COULD GET CLOSE TO 100 ACROSS THE BALTIMORE/WASHINGTON CORRIDOR.

THUNDERSTORMS WILL EXHIBIT A SOUTHEAST MOVEMENT THROUGH THIS EVENING...AND SEMI-ORGANIZED CONVECTION SHOULD BE MOVING THROUGH THE BAY 02-04Z PER LWX WRF-ARW. WITH FRONT LURKING OUT STILL CANT RULE OUT A ROGUE STORM BEYOND THEN BUT THE BULK OF THE CONVECTION LOOKS TO BE DONE BY MIDNIGHT.

.SHORT TERM /TUESDAY THROUGH TUESDAY NIGHT/... SURFACE HIGH PRESSURE BEHIND A COLD FRONT WILL SLOWLY BUILD TOWARD THE REGION TUESDAY THROUGH TUESDAY NIGHT. A NORTHWEST FLOW BEHIND THE BOUNDARY WILL USHER IN RELATIVELY COOLER CONDITIONS COMPARED TO RECENT DAYS. HOWEVER...MAX TEMPS TUESDAY AFTERNOON WILL STILL BE IN THE LOWER 90S ACROSS MOST LOCATIONS. THE HUMIDITY WILL TURN OUT NOTICEABLY LOWER WITH DEWPOINTS IN THE 50S AND 60S.

HIGH PRESSURE WILL BRING MAINLY CLEAR SKIES AND LIGHT WINDS TUESDAY NIGHT. WITH LOWER DEWPOINTS...RADIATIONAL COOLING WILL ALLOW FOR TEMPS TO DROP INTO THE 50S AND 60S ACROSS MOST LOCATIONS. DOWNTOWN WASHINGTON AND BALTIMORE WILL BE A BIT WARMER DUE TO THE URBAN HEAT ISLAND AFFECT.

.LONG TERM /WEDNESDAY THROUGH SUNDAY/... HIGH PRESSURE WILL REMAIN OVER THE REGION WEDNESDAY WITH SEASONABLY WARM CONDITIONS EXPECTED. THE SURFACE HIGH WILL MOVE OFF THE COAST THURSDAY THROUGH SATURDAY ALLOWING A RETURN FLOW TO DEVELOP. THE RETURN FLOW WILL USHER IN MORE HUMID CONDITIONS. SUBSIDENCE DUE TO BUILDING UPPER-LEVEL HIGH PRESSURE WILL CAUSE HOT CONDITIONS TO RETURN AS WELL. HOT AND HUMID CONDITIONS THURSDAY THROUGH SATURDAY WILL LIKELY CAUSE HEAT INDICES TO RISE WELL ABOVE 100 DEGREES EACH DAY. A HEAT ADVISORY MAY BE WARRANTED FOR PORTIONS OF THE AREA DURING THE AFTERNOON AND EARLY EVENING HOURS EACH DAY.

A COLD FRONT MAY APPROACH THE REGION SUNDAY.