

DISCOVER-AQ Outlook for Tuesday, July 19, 2011

Poor flying conditions (clouds) are forecasted for Tuesday. Wednesday through the weekend is forecasted to be hazy, very hot, and very humid with intermittent clouds, so the cloud forecast should be monitored closely. This heatwave builds as the massive upper-level ridge plaguing the Plains moves east and the Bermuda High pumps very moist air into the Mid-Atlantic. Air quality is expected to be poor most of the work week.

Recommendations for July 19th-22nd

July 19th, Tuesday: No Fly - Clouds

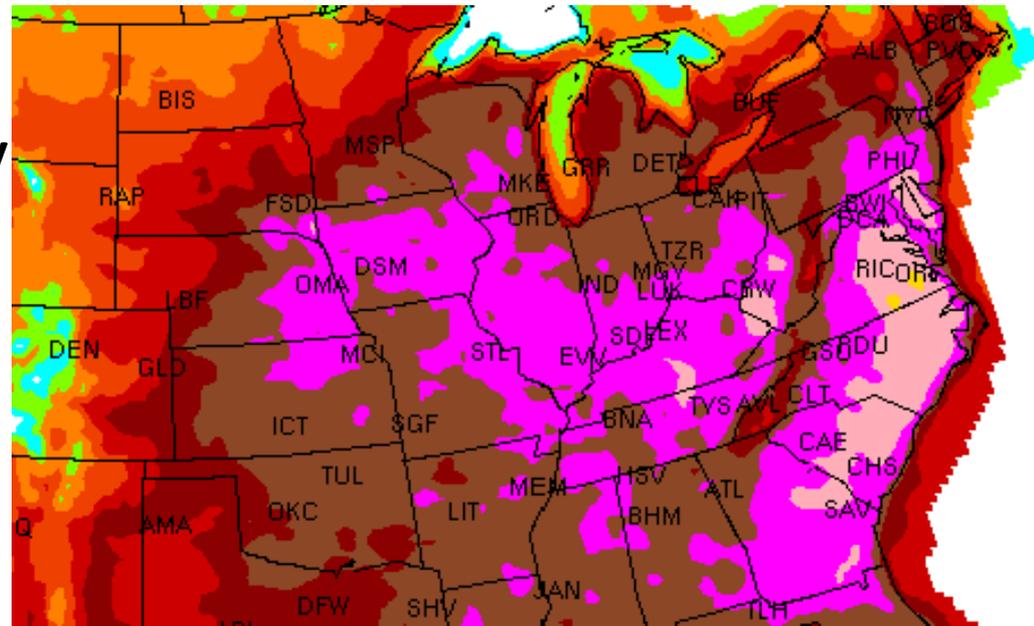
July 20th, Wednesday: Can Fly – Watch Cloud Forecast

July 21st, Thursday: Can Fly – Watch Cloud Forecast

July 22nd, Friday: Can Fly

Heat Indices for DC area 105-110°F Thursday

God-awful heatwave beginning on Wednesday and ramping up on Thursday into weekend. Extended period of high heat and high humidity.



Current Conditions at BWI, 11 am

Baltimore-Washington International Airport

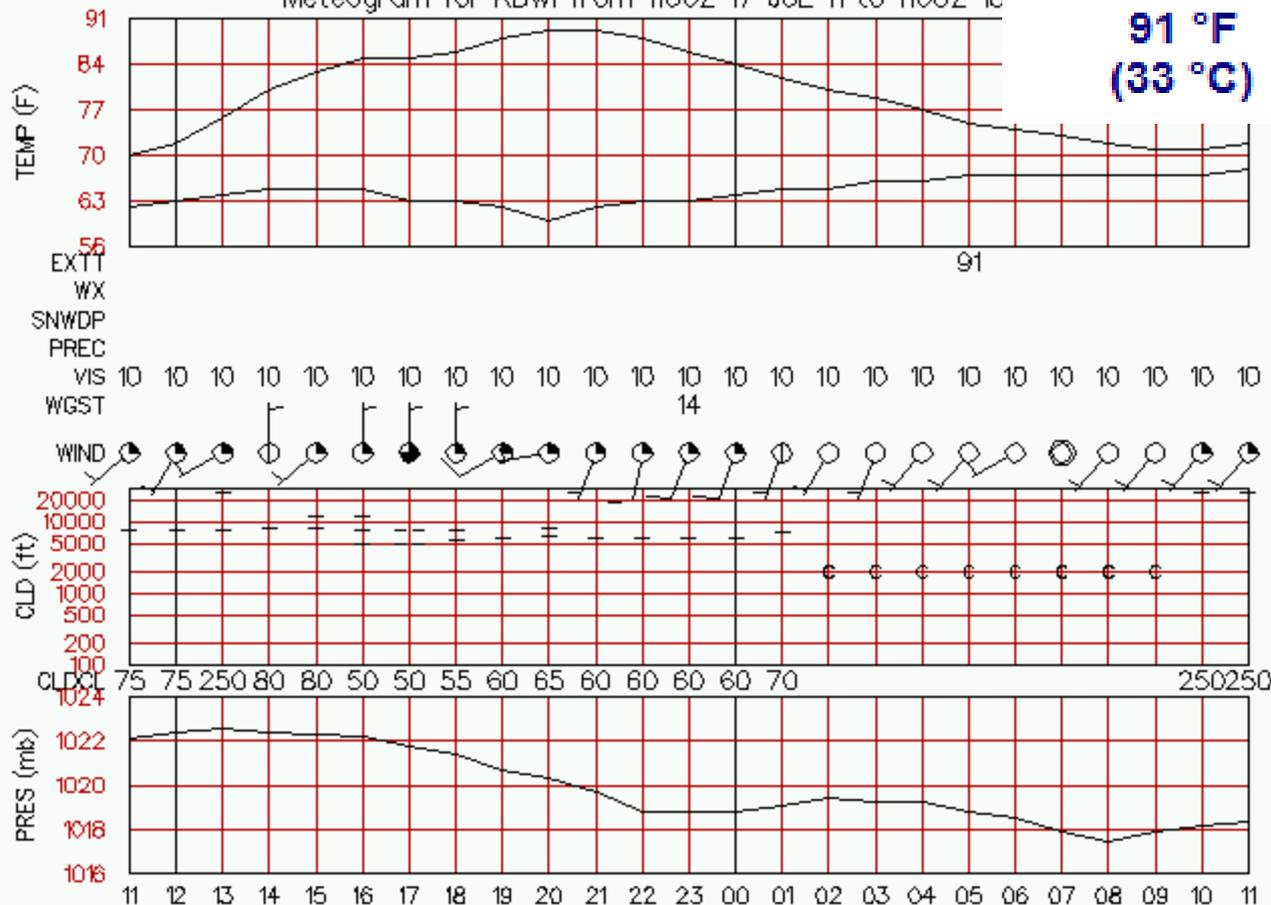
Lat: 39.19 Lon: -76.67 Elev: 148

Last Update on Jul 18, 11:54 am EDT

Humidity:	45 %
Wind Speed:	Calm
Barometer:	30.03" (1016.8 mb)
Dewpoint:	67 °F (19 °C)
Heat Index:	94 °F (34 °C)
Visibility:	10.00 mi.

Plymouth State Weather Center **Mostly Cloudy**

Meteogram for KBWI from 1100Z 17 JUL 11 to 1100Z 18



Forecast at a Glance

Today	Tonight	Tuesday	Tuesday Night	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday
								
Mostly Sunny	Slight Chc Tstms	Chance Tstms	Mostly Clear	Sunny	Mostly Clear	Hot	Mostly Clear	Hot
Hi 94 °F	Lo 74 °F	Hi 92 °F	Lo 72 °F	Hi 92 °F	Lo 74 °F	Hi 99 °F	Lo 78 °F	Hi 100 °F

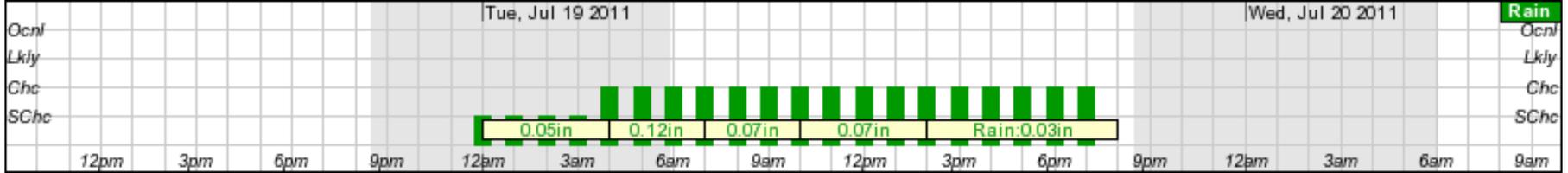
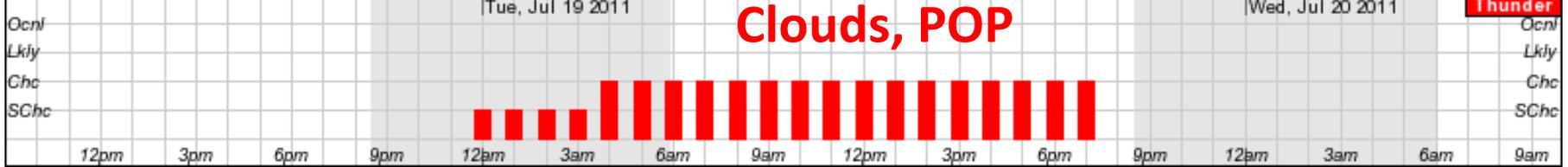
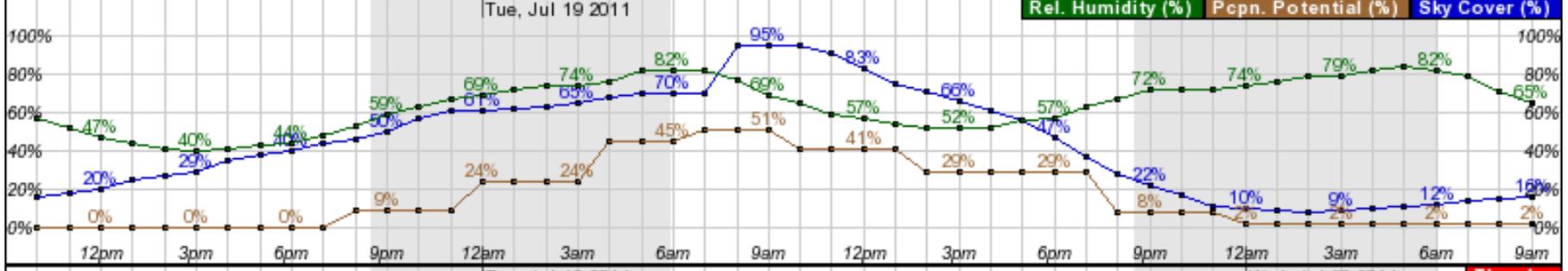
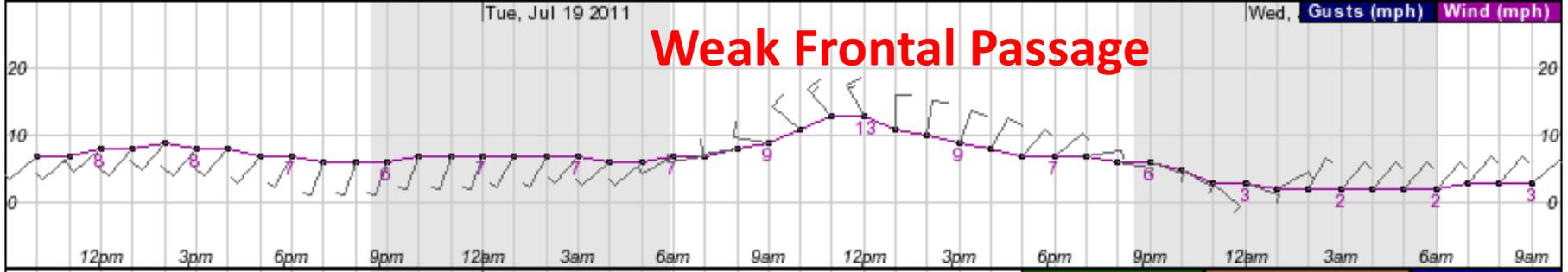
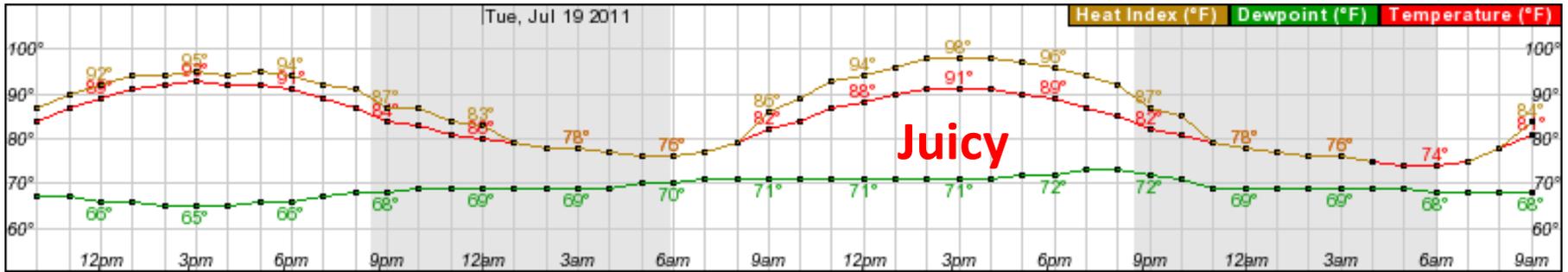
.SYNOPSIS... HIGH PRESSURE WILL REMAIN OFF THE MID ATLANTIC COAST TODAY. A COLD FRONT WILL DROP SOUTH INTO THE AREA LATE TONIGHT AND TUESDAY. HIGH PRESSURE IS THEN EXPECTED FOR THE REST OF THE WEEK INTO THE WEEKEND.

Today Jul 18	Tue 19	Wed 20	Thu 21	Fri 22	Sat 23	Sun 24	Mon 25	Tue 26	Wed 27
									
Partly Cloudy	Scattered T-Storms	Partly Cloudy	Mostly Sunny	Sunny	Isolated T-Storms	Scattered T-Storms	Scattered T-Storms	Scattered T-Storms	Partly Cloudy
94°F High	93°	93°	96°	99°	95°	91°	89°	89°	88°
75° Low	73°	74°	78°	78°	74°	72°	72°	69°	71°

Monday →

Tuesday →

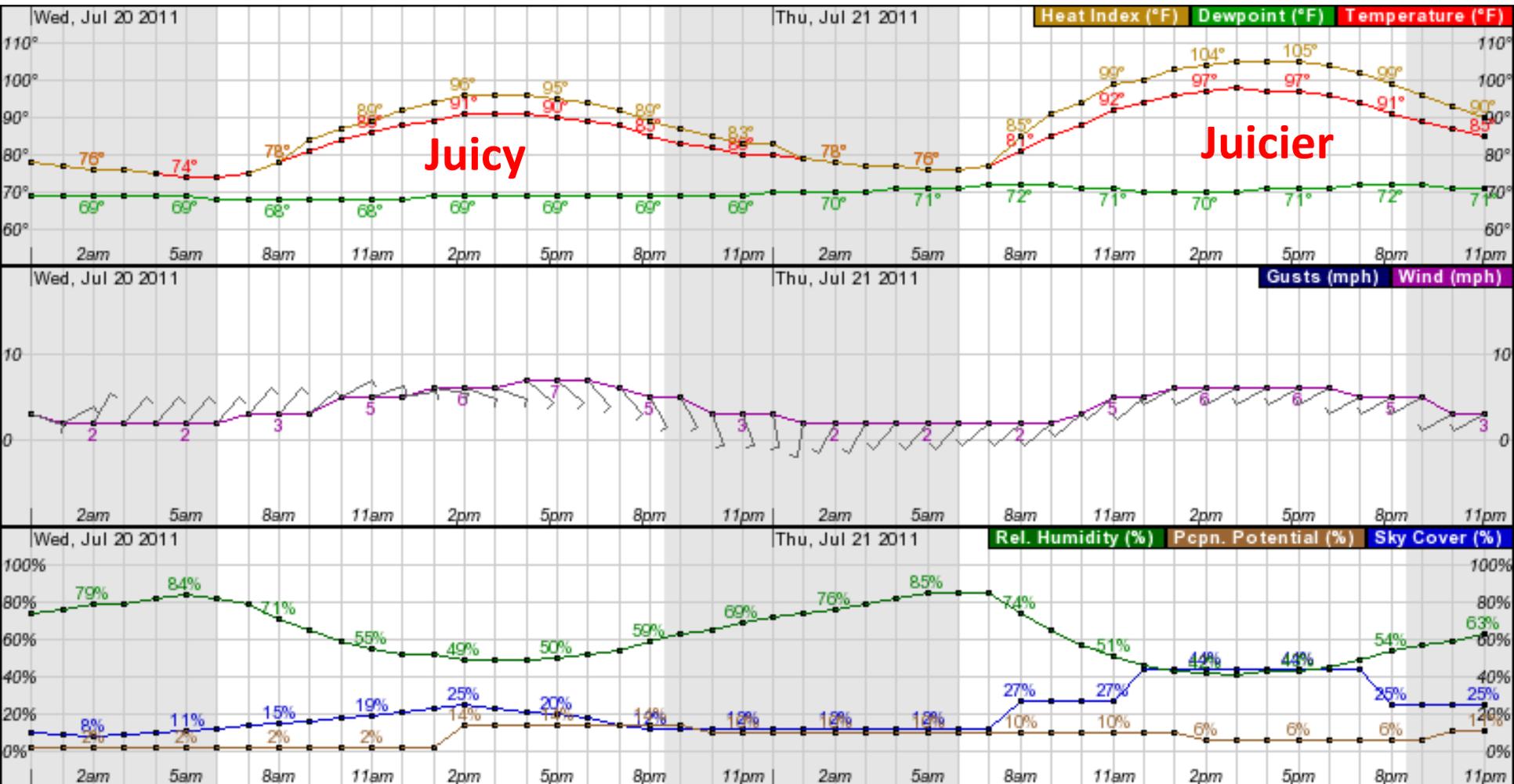
Wednesday



Hazy, Very Hot, Very Humid

Wednesday →

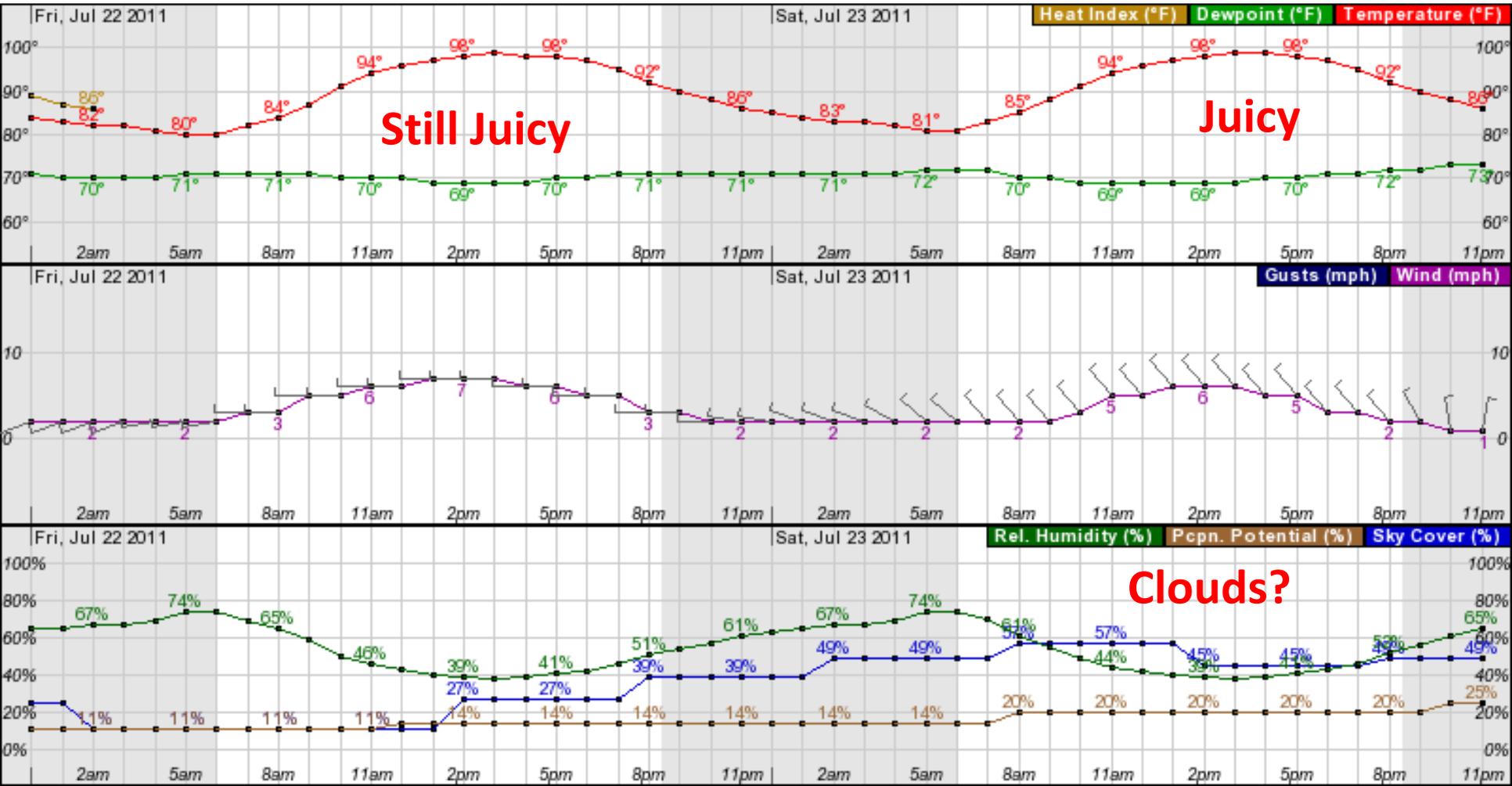
Thursday →



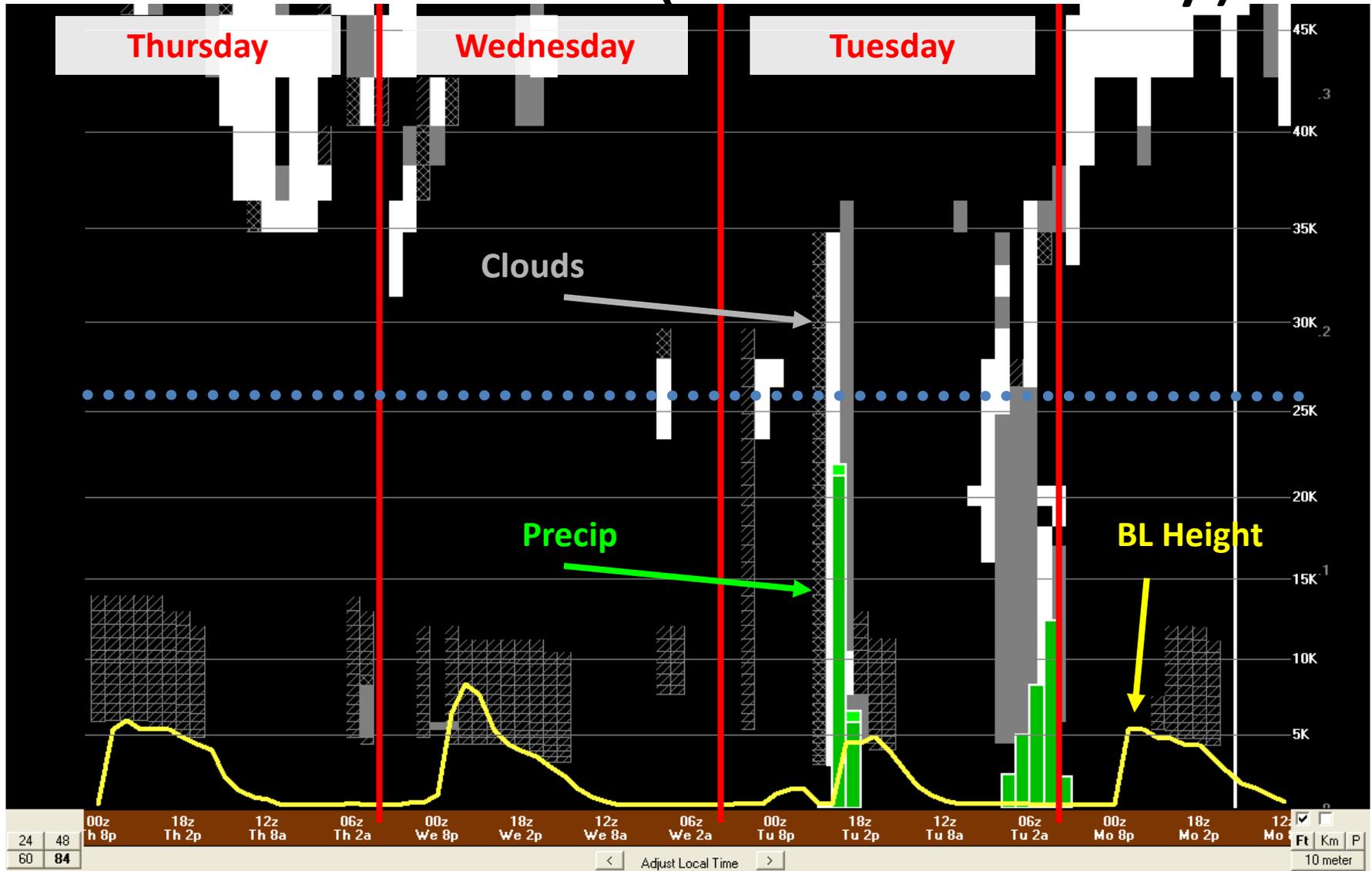
Hazy, Very Hot, Very Humid

Friday →

Saturday →



Bufkit – NAM (12 UTC 18 July)

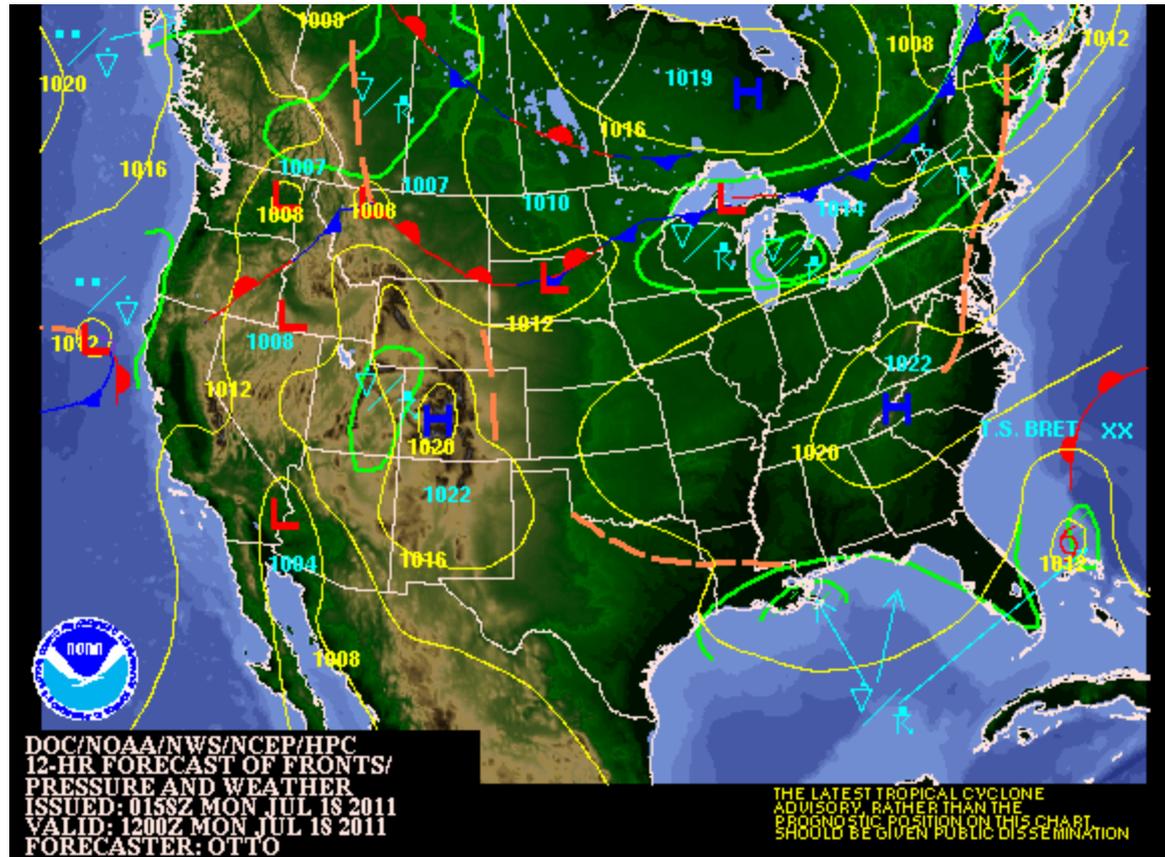


- Clouds and precip Tuesday morning and early afternoon

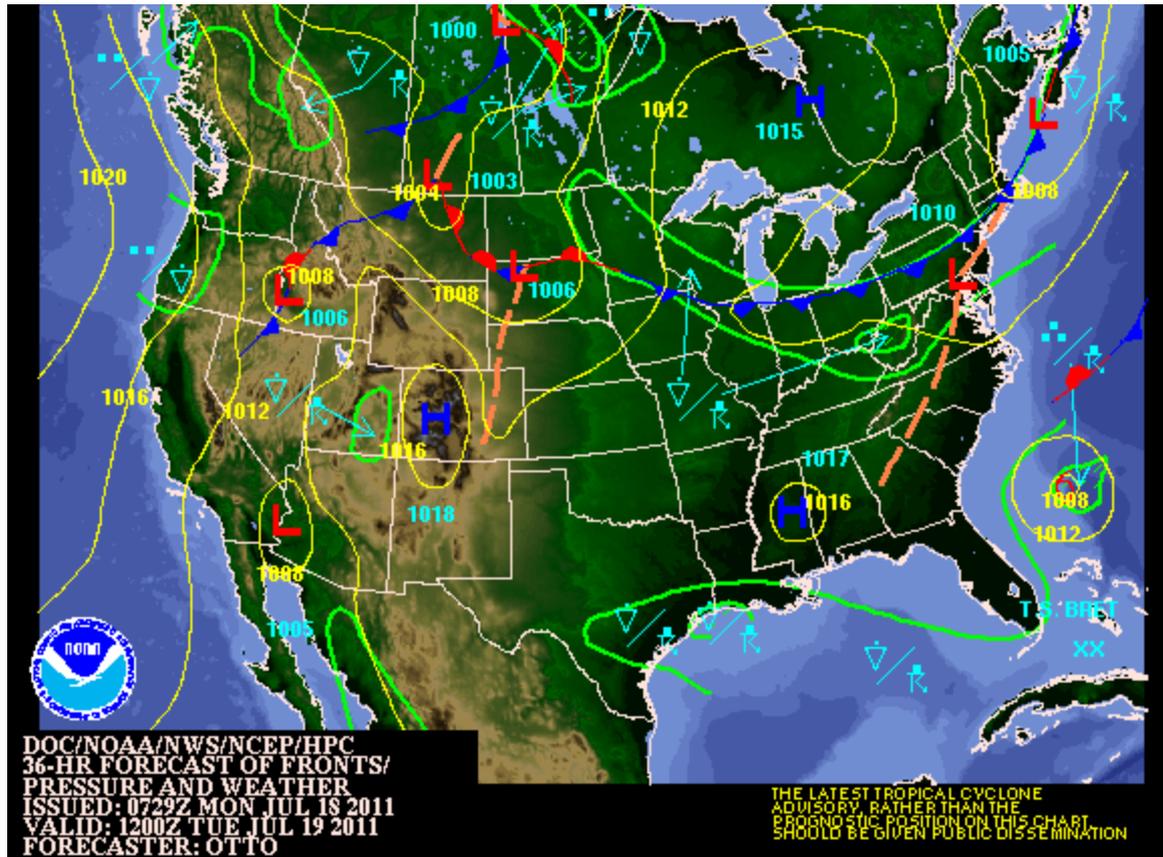
- Low clouds late morning on Wednesday, no precip
- Very deep BL Height on Wednesday

Today: High pressure remains nearly stationary over the next 24 hours. Flow around it will continue to increase moisture across our area.

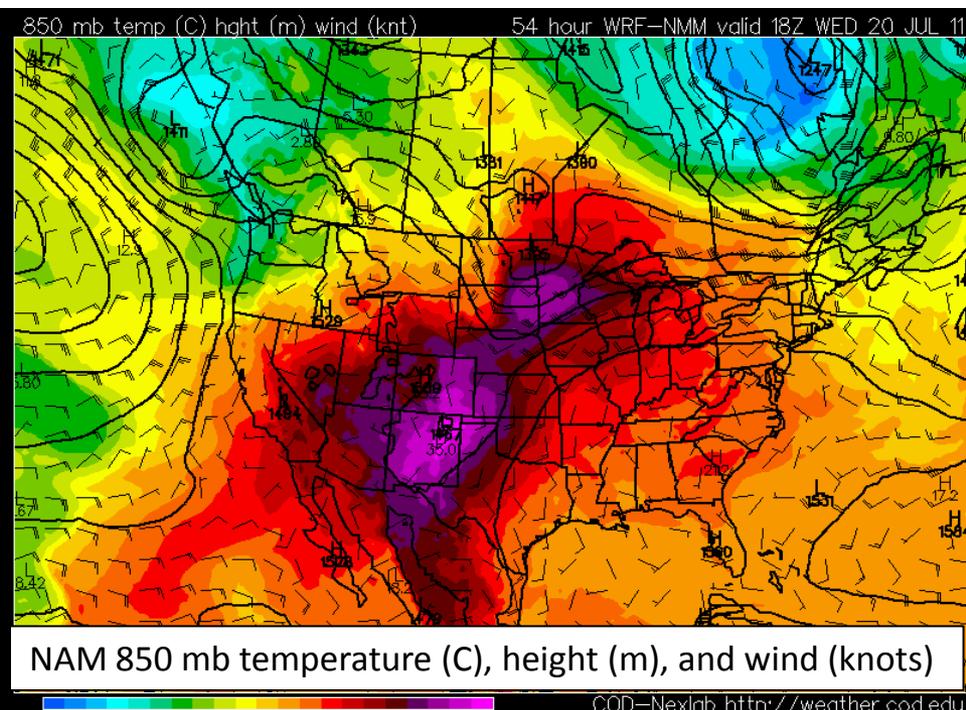
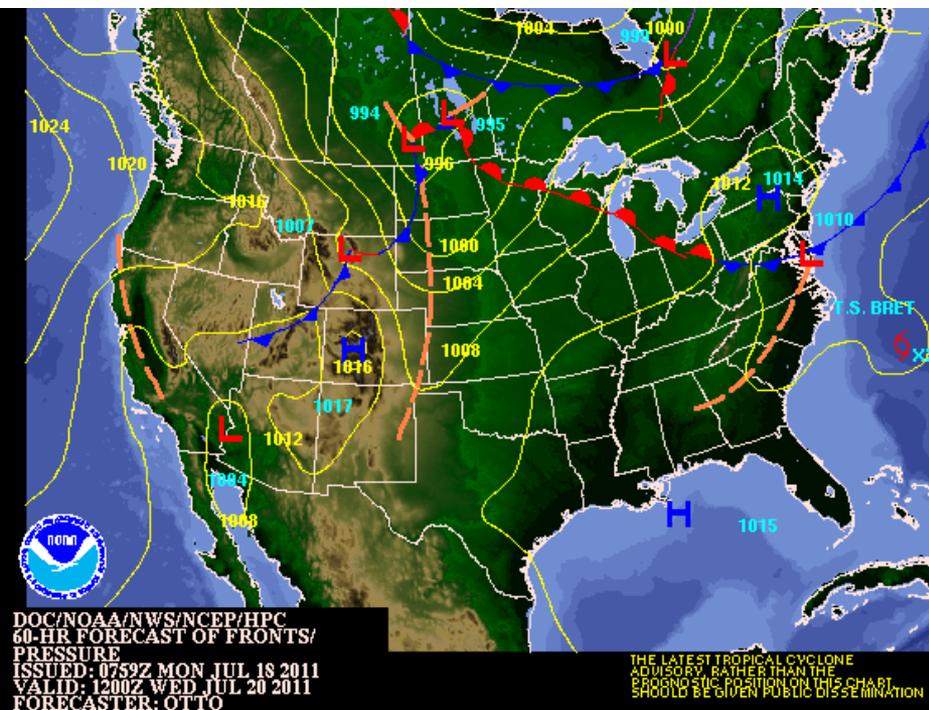
Activity from an MCS currently over Michigan and the passage of the cold front will contribute to thunderstorms this evening.



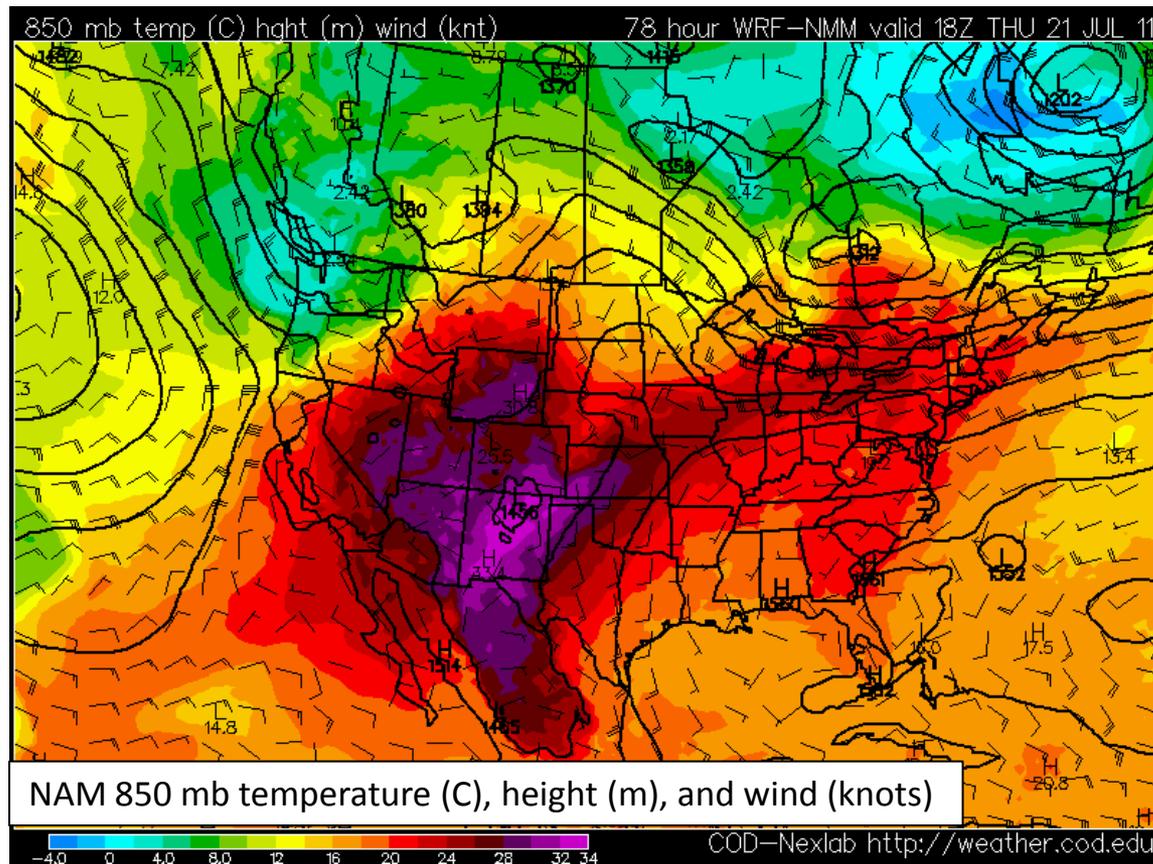
Tomorrow: Ongoing thunderstorm activity
as cold front passes through our region.
Probably of precipitation and cloud cover
decrease throughout the day



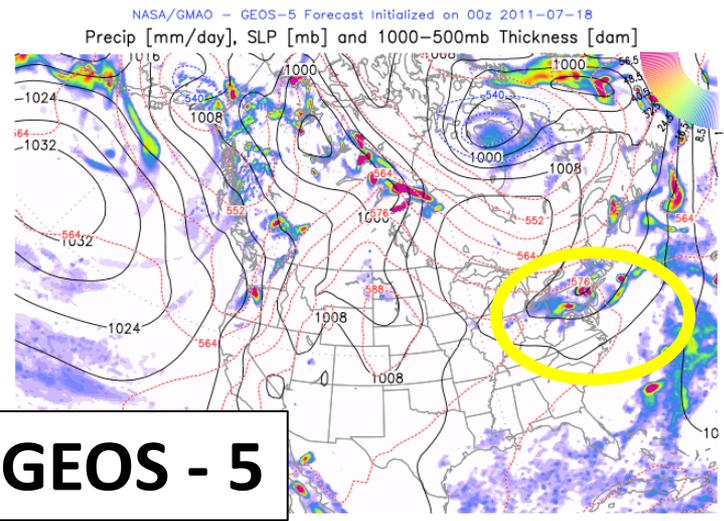
Wednesday: Front dissipates south of our area. Bermuda High begins to pump hottest air yet this year into the Mid-Atlantic.



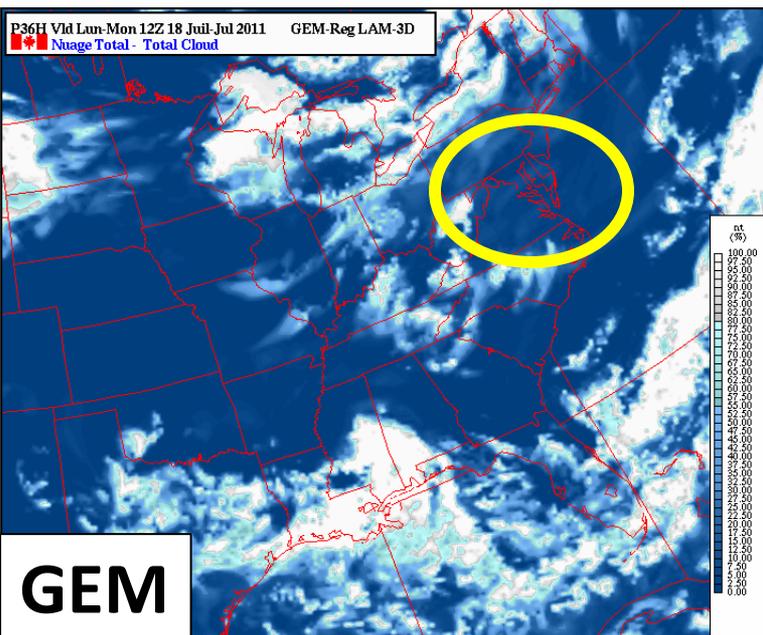
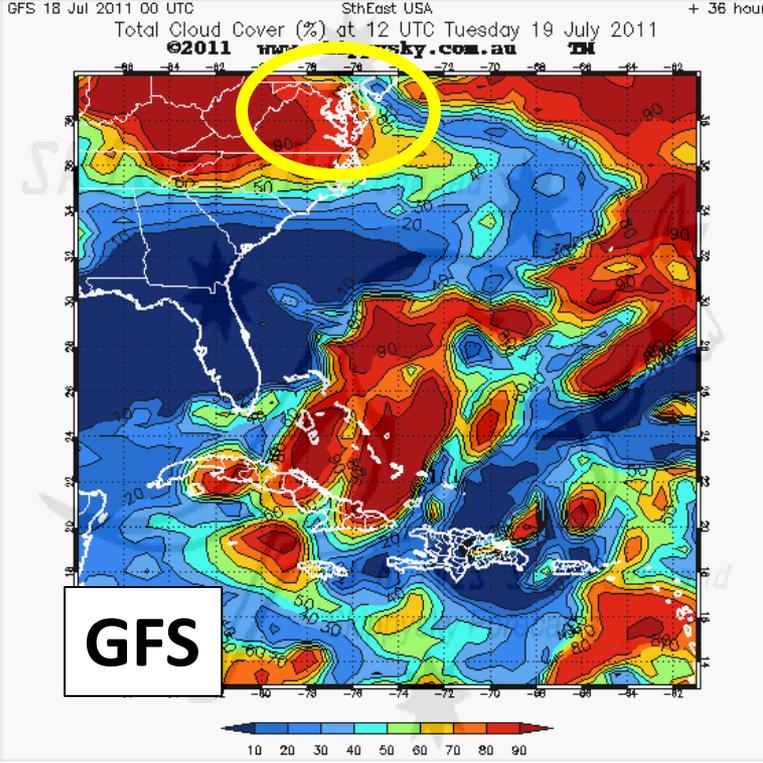
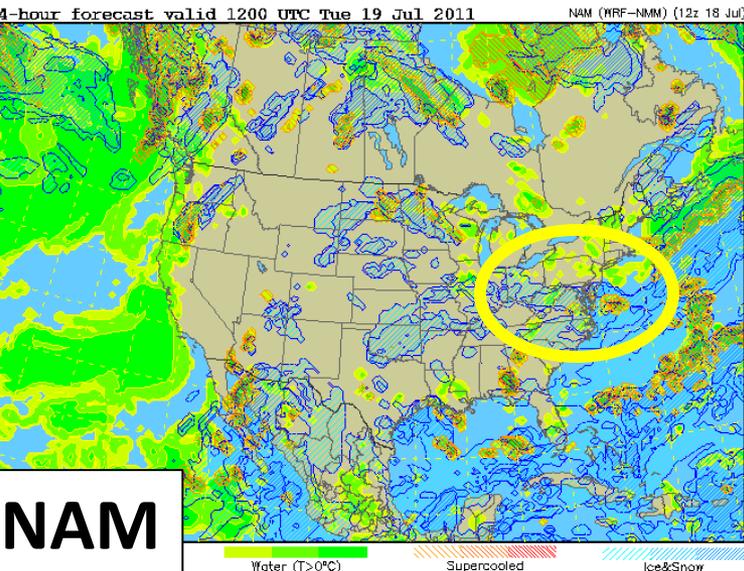
Thursday: Bermuda High continues to pump hot moist air into our region.



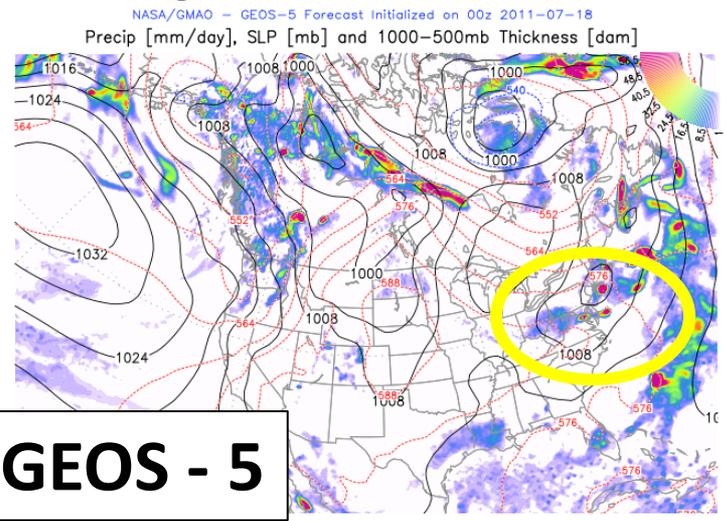
Tuesday 8 am: GFS forecasts high level cloud cover (50-80%). NAM showing high level (18K+ ft). GEOS-5 predicts precip. GEM model shows thin cloud cover.



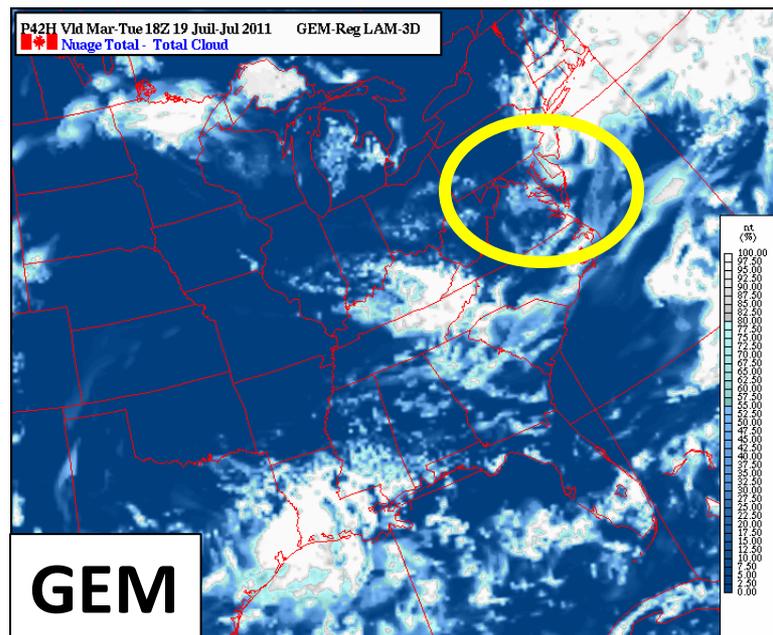
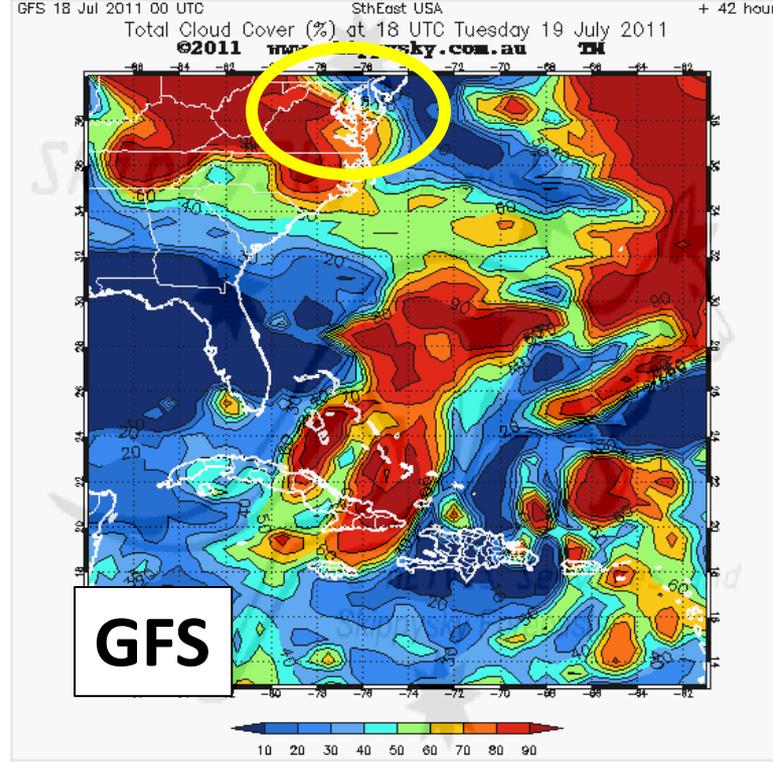
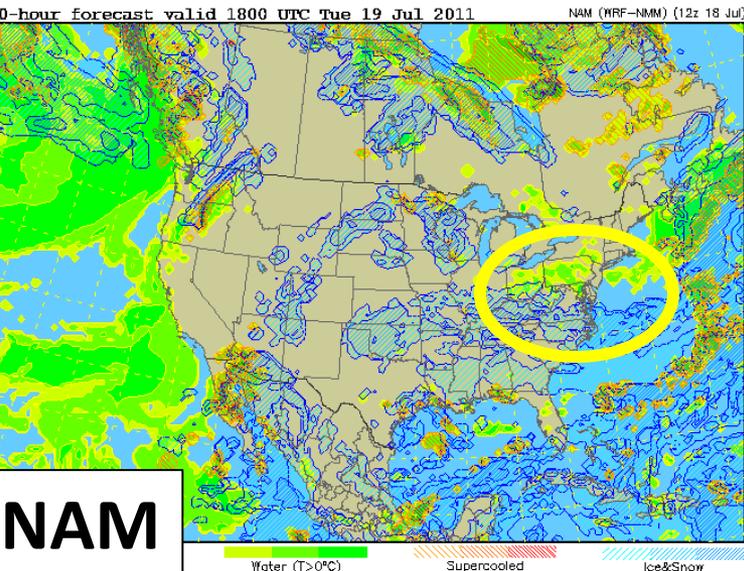
36-hr forecast valid Tue 12z 2011-07-19



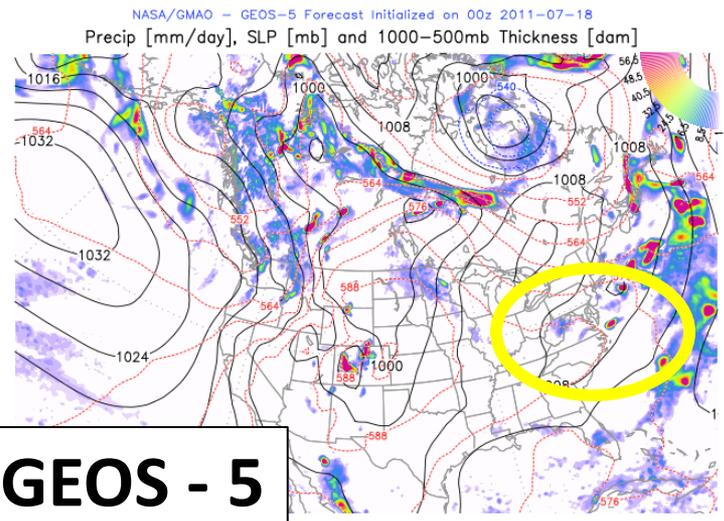
Tuesday 2 pm: GFS forecasts high level cloud cover (10-60%). NAM showing low level (< 6K – 12K ft). GEOS-5 predicts precip. GEM model showing increased cloud cover.



42-hr forecast valid Tue 18z 2011-07-19



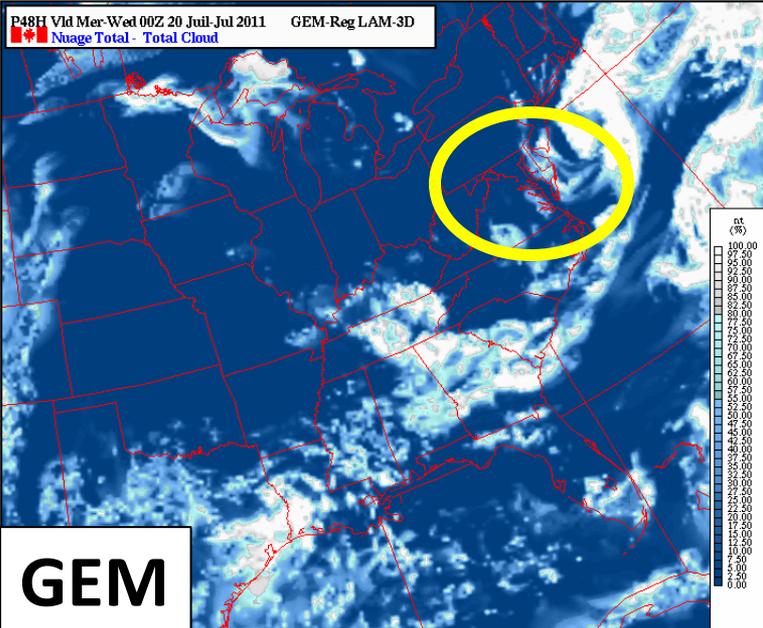
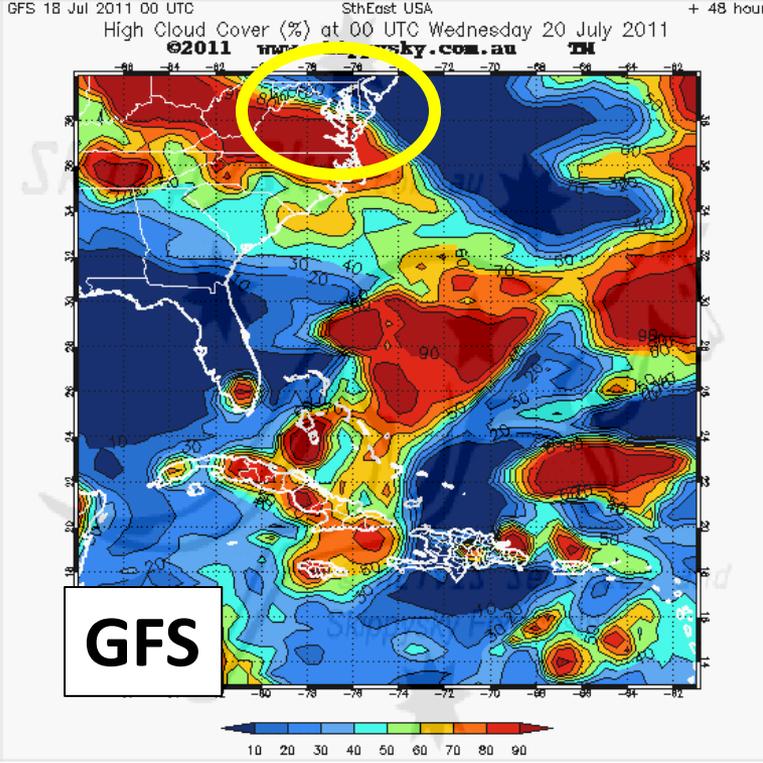
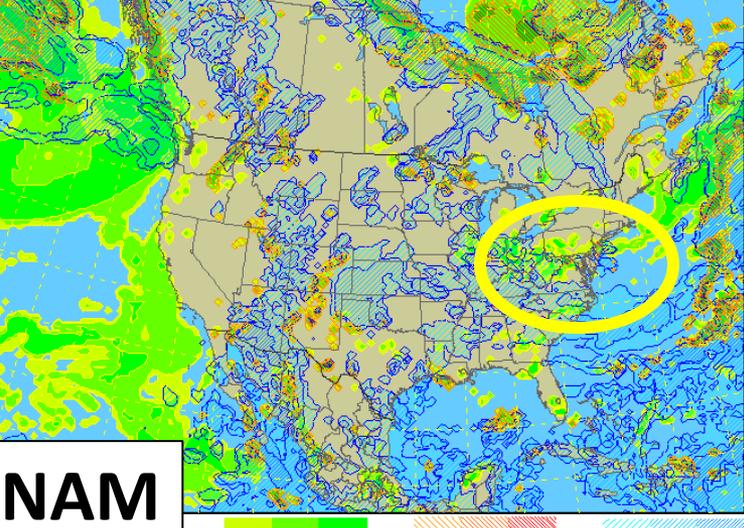
Tuesday 8 pm: GFS forecasts high level cloud cover (0-30%). NAM showing low and high level (< 6K and 18K+ ft).



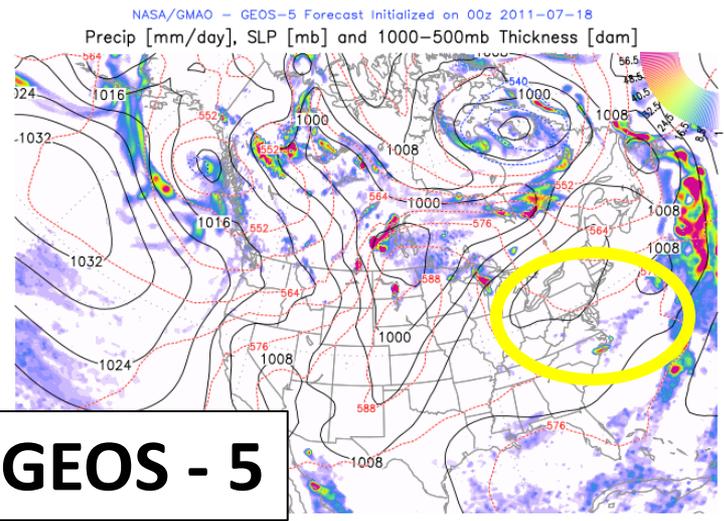
GEOS - 5

48-hr forecast valid Wed 00z 2011-07-20

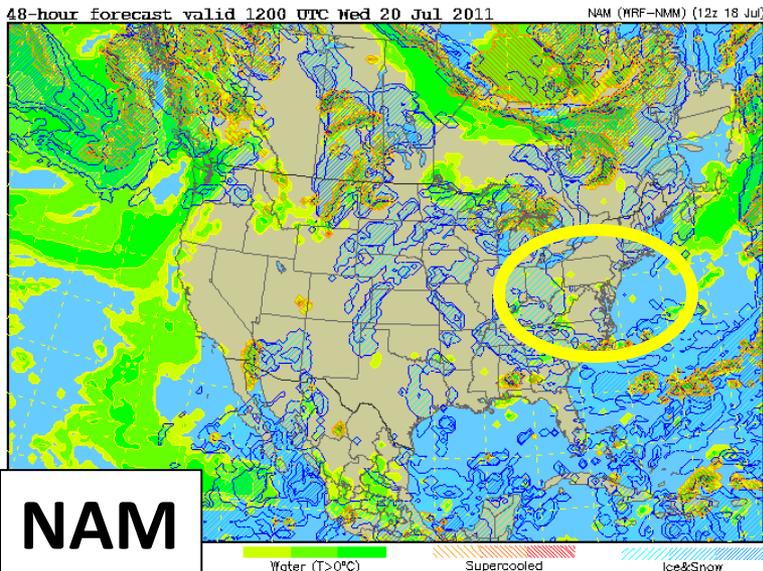
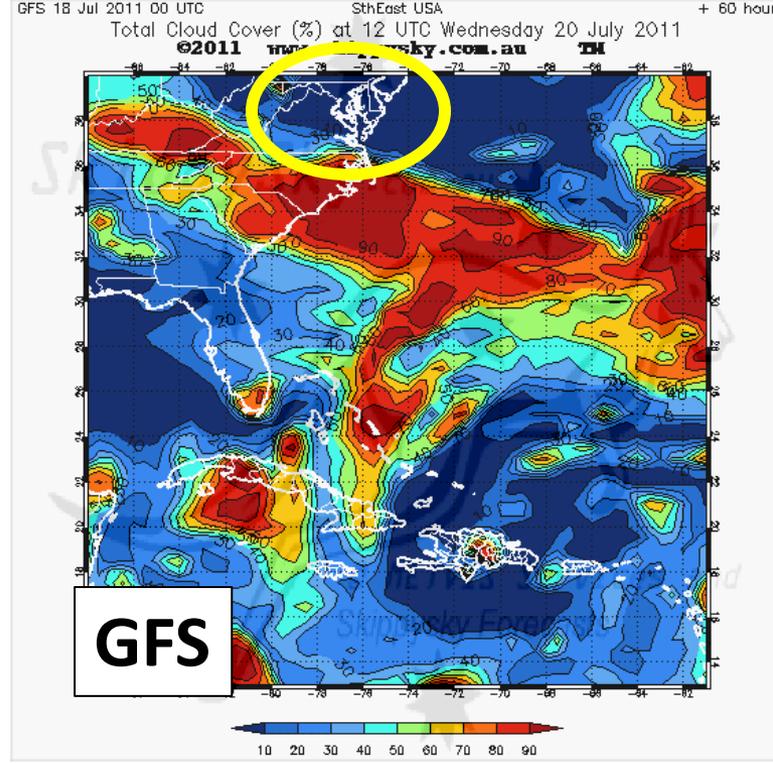
36-hour forecast valid 0000 UTC Wed 20 Jul 2011 NAM (MRF-NMM) (12z 18 Jul)



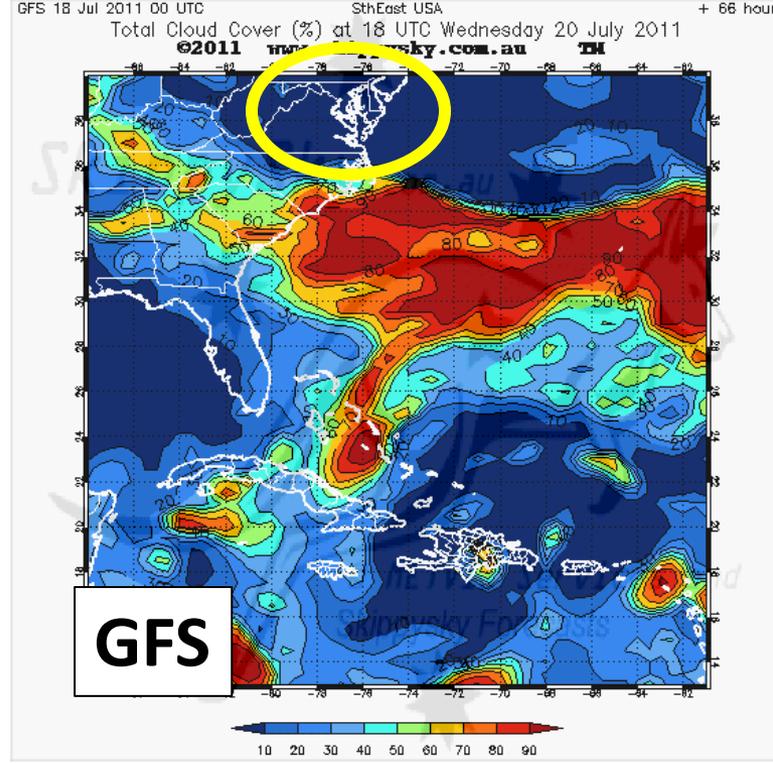
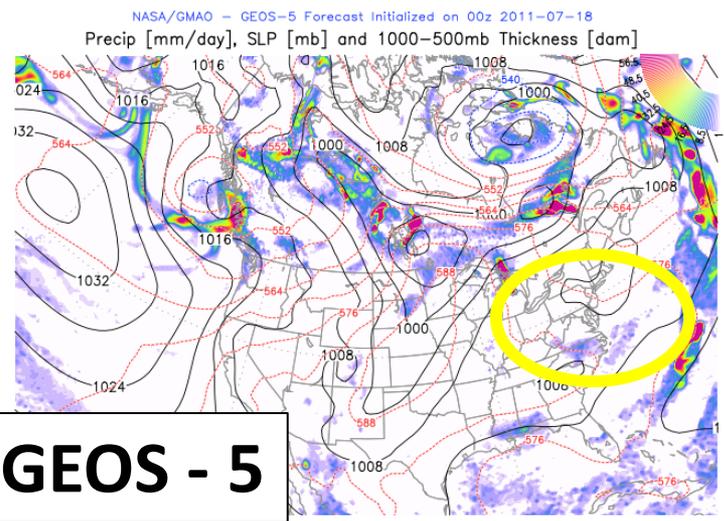
Wednesday 8 am: NAM showing cloud cover between 6K and 12K ft



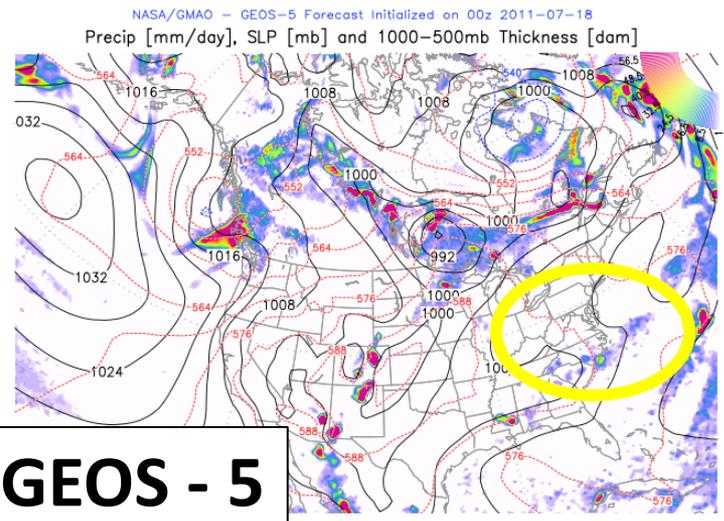
60-hr forecast valid Wed 12z 2011-07-20



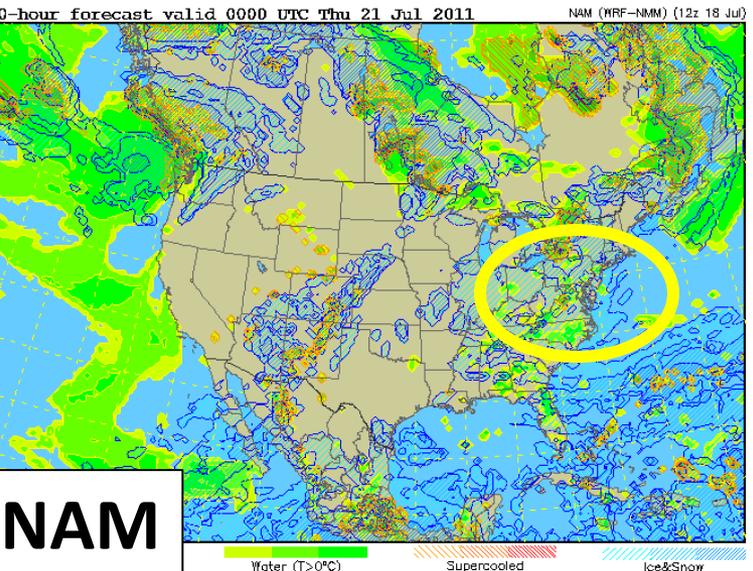
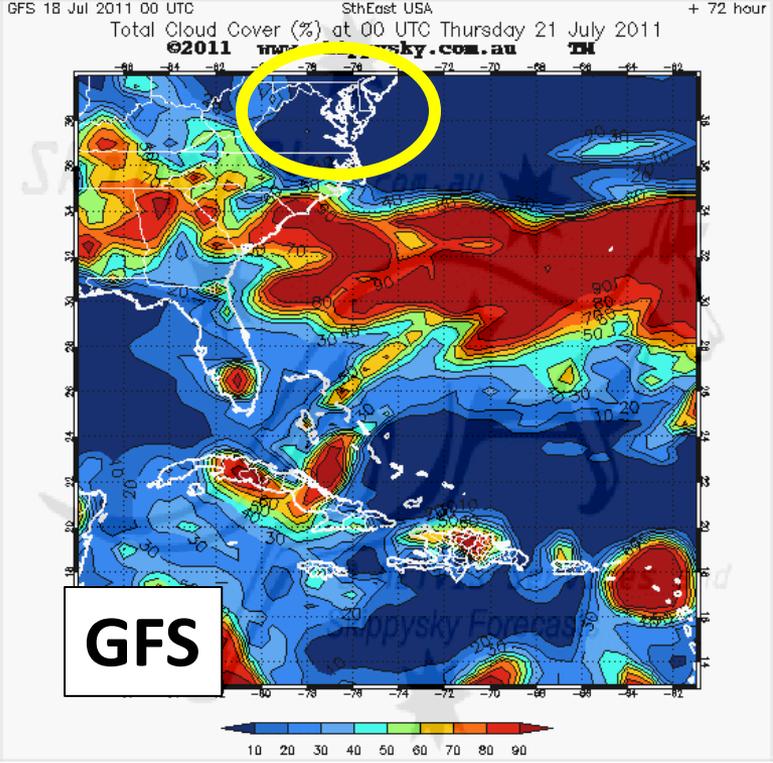
Wednesday 2 pm: All models clear



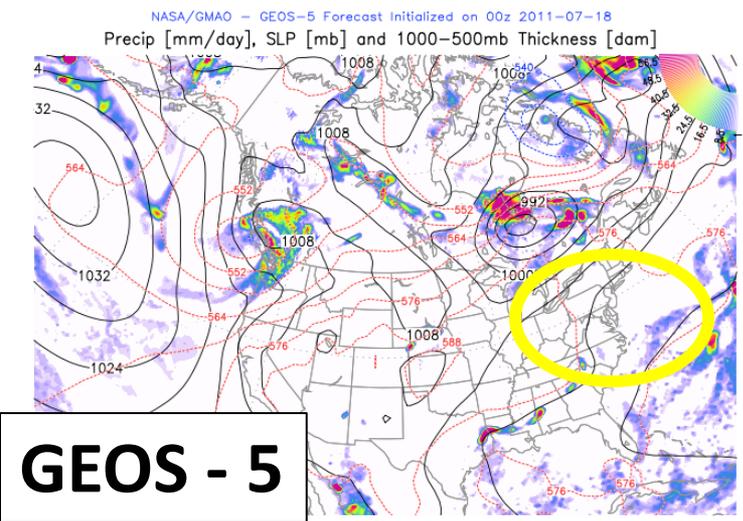
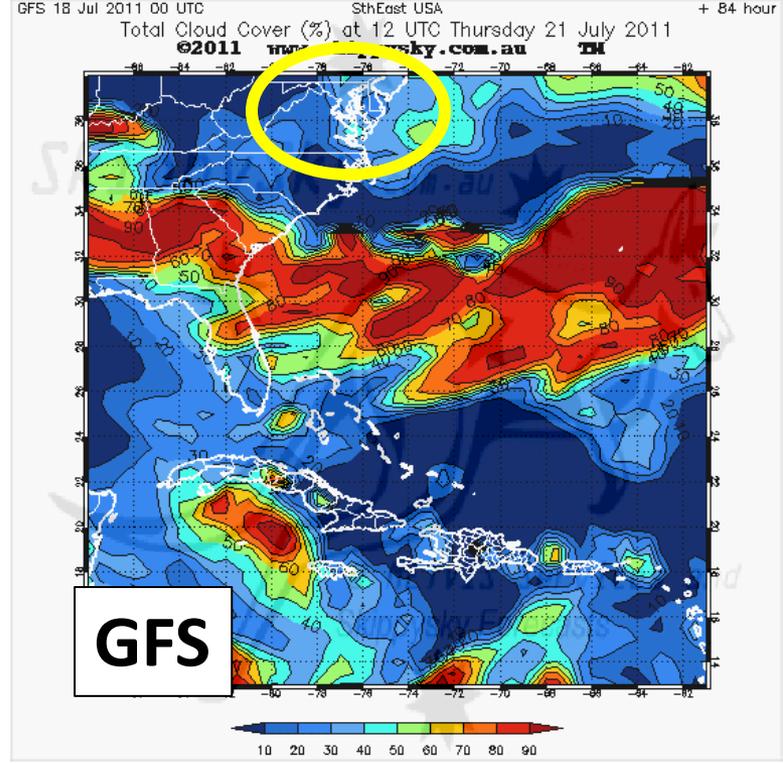
Wednesday 8 pm: NAM forecasting clouds from <6K – 12K ft and above 18K ft.



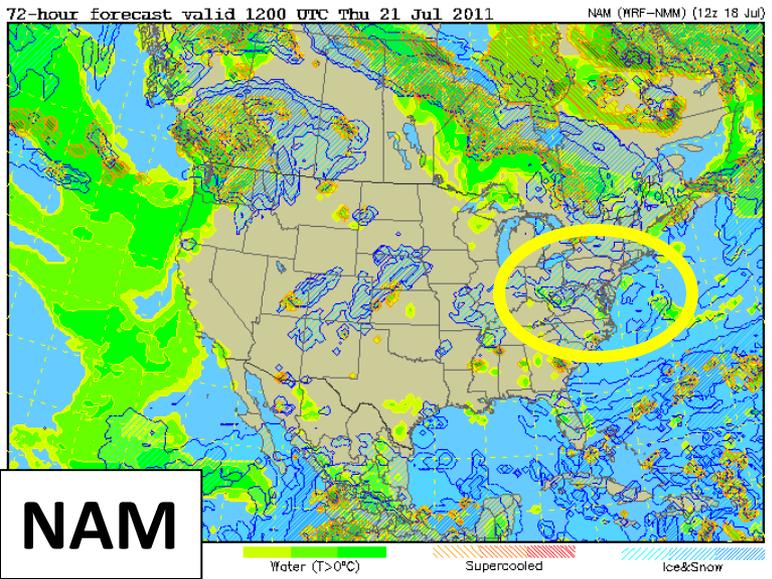
72-hr forecast valid Thu 00z 2011-07-21



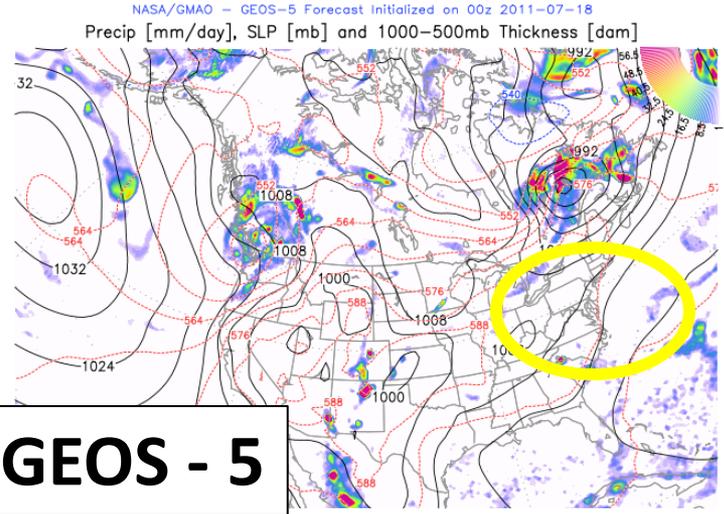
Thursday 8 am: GFS shows high cloud cover (10-30%). NAM forecasting clouds above 18K ft.



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

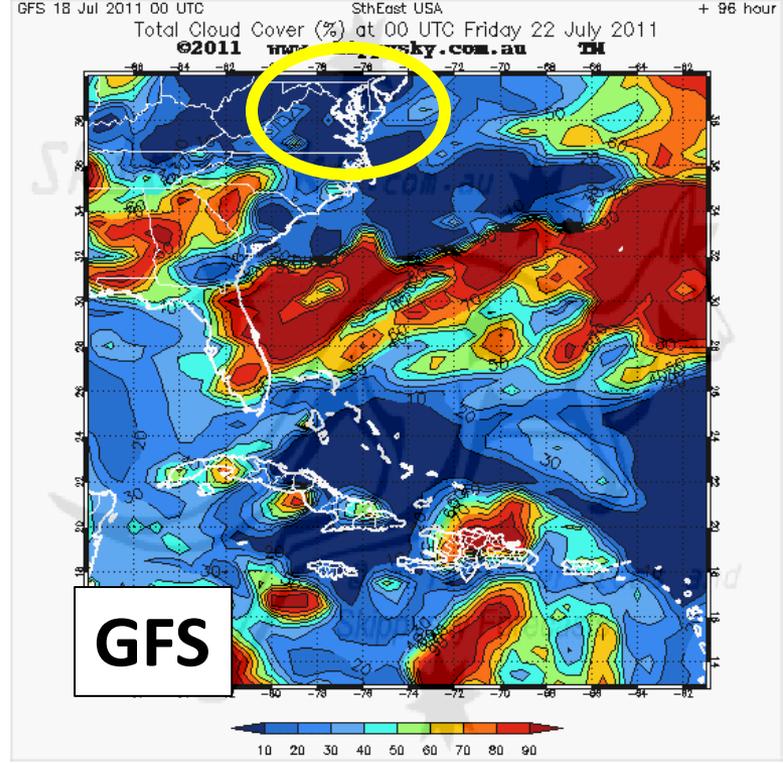
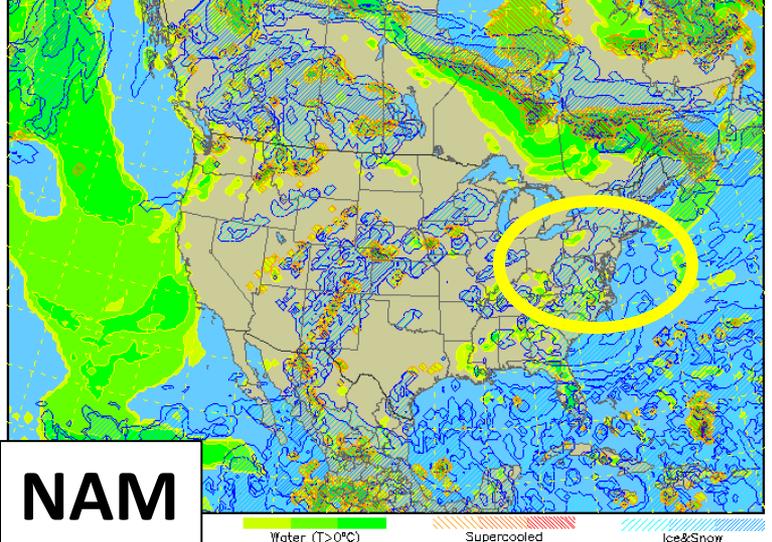


Thursday 8 pm: All models clear. NAM showing high level clouds to our west.

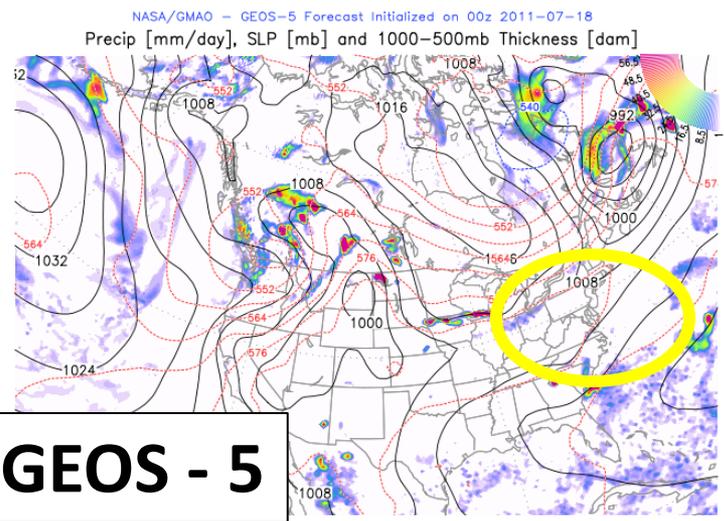


96-hr forecast valid Fri 00z 2011-07-22

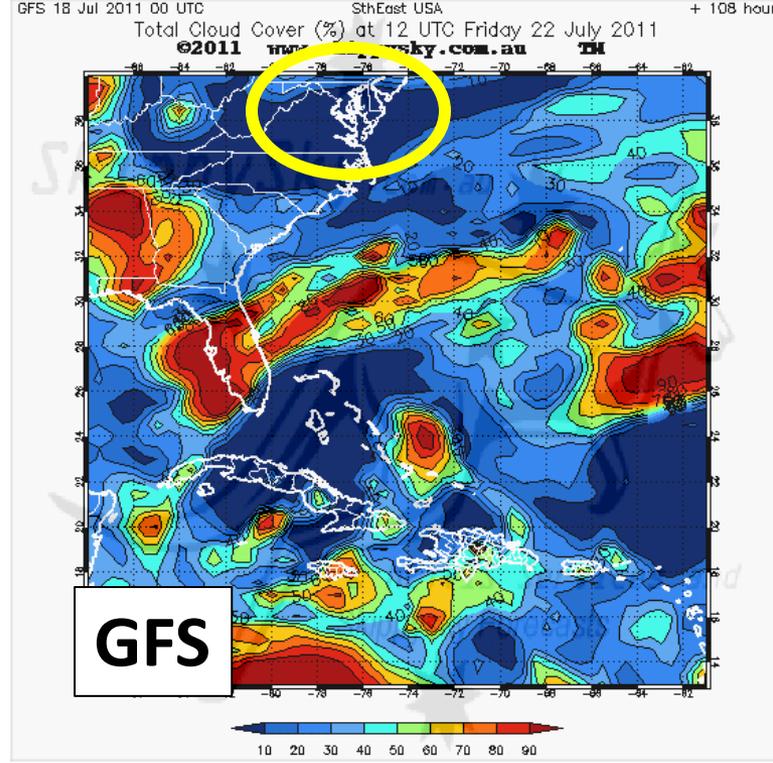
84-hour forecast valid 0000 UTC Fri 22 Jul 2011 NAM (MRF-NMM) (12z 18 Jul)



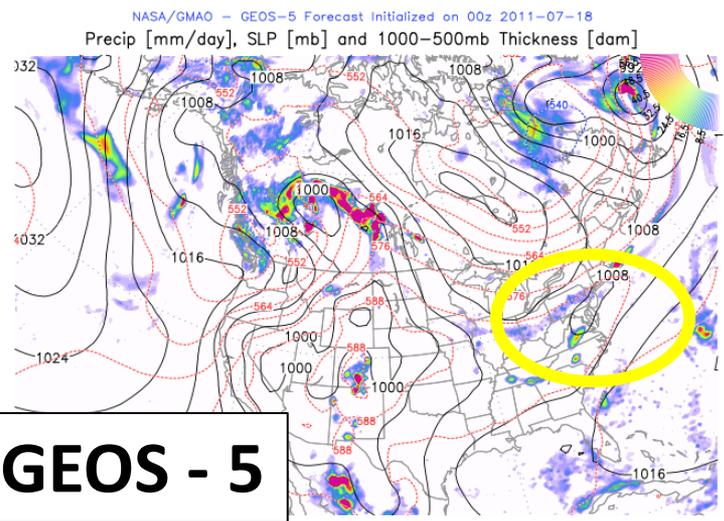
Friday 8 am: All models clear. GFS shows high level clouds over northern MD and southern PA.



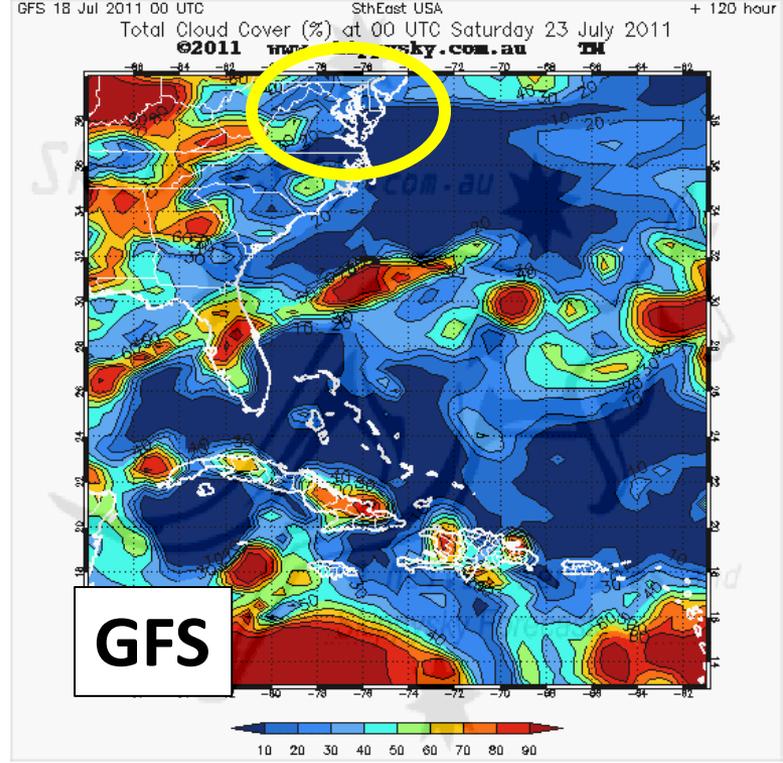
108-hr forecast valid Fri 12z 2011-07-22



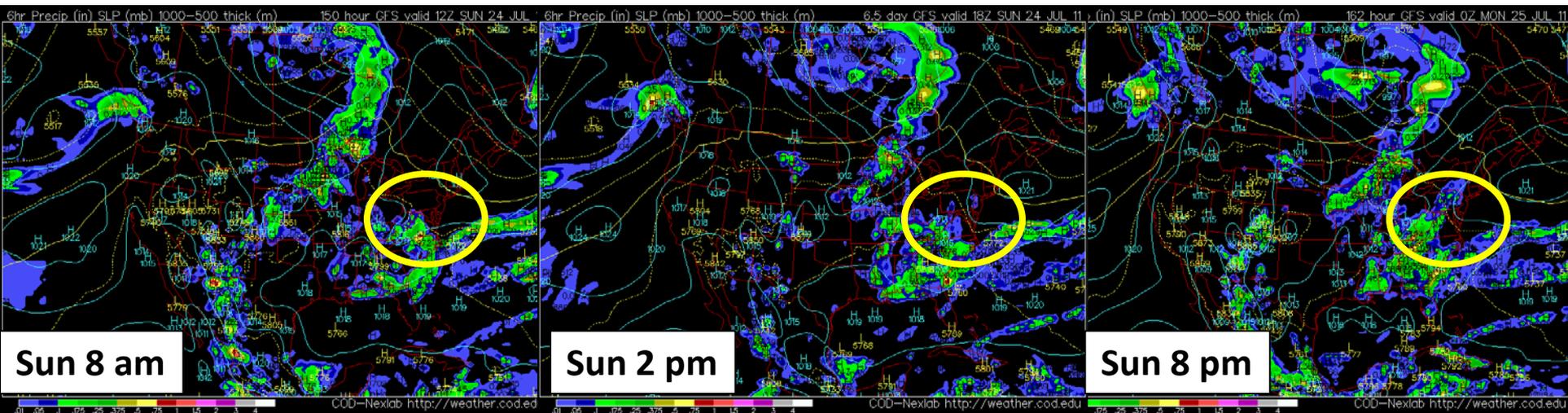
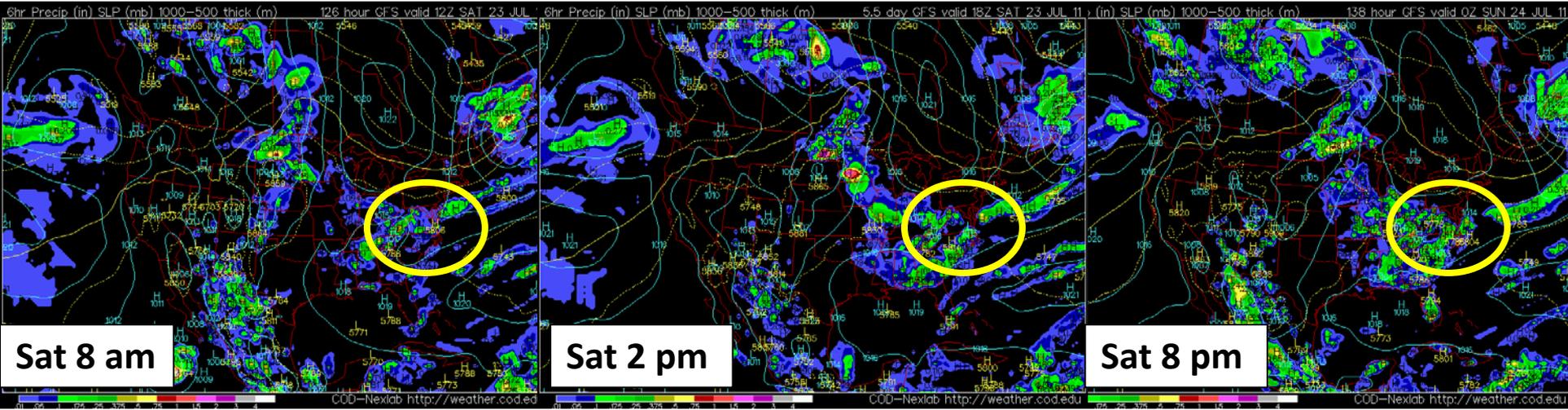
Friday 8 pm: GFS shows high level clouds over our region (10-30%).



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



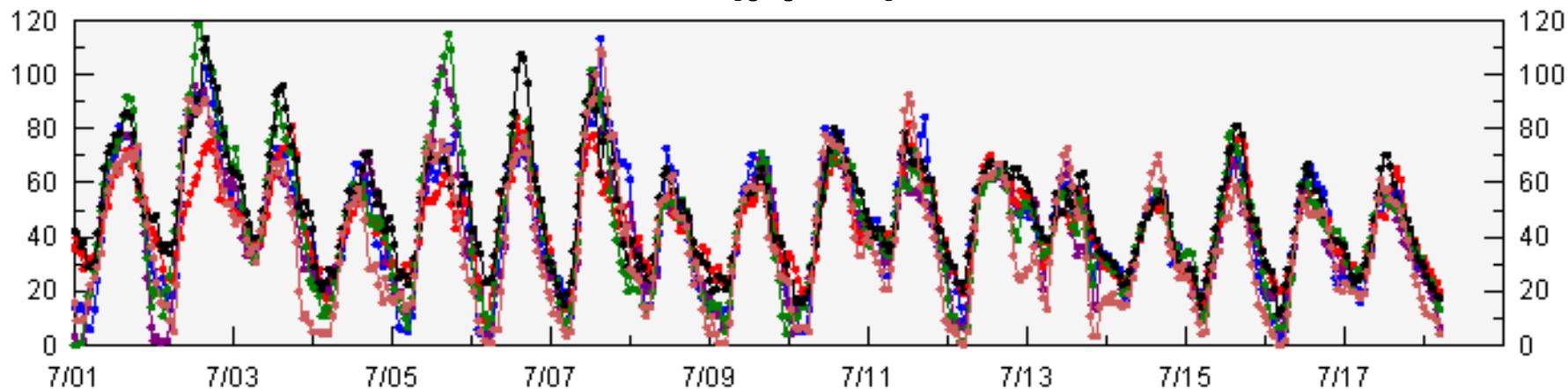
GFS extended forecast: Precip forecast for Saturday and Sunday



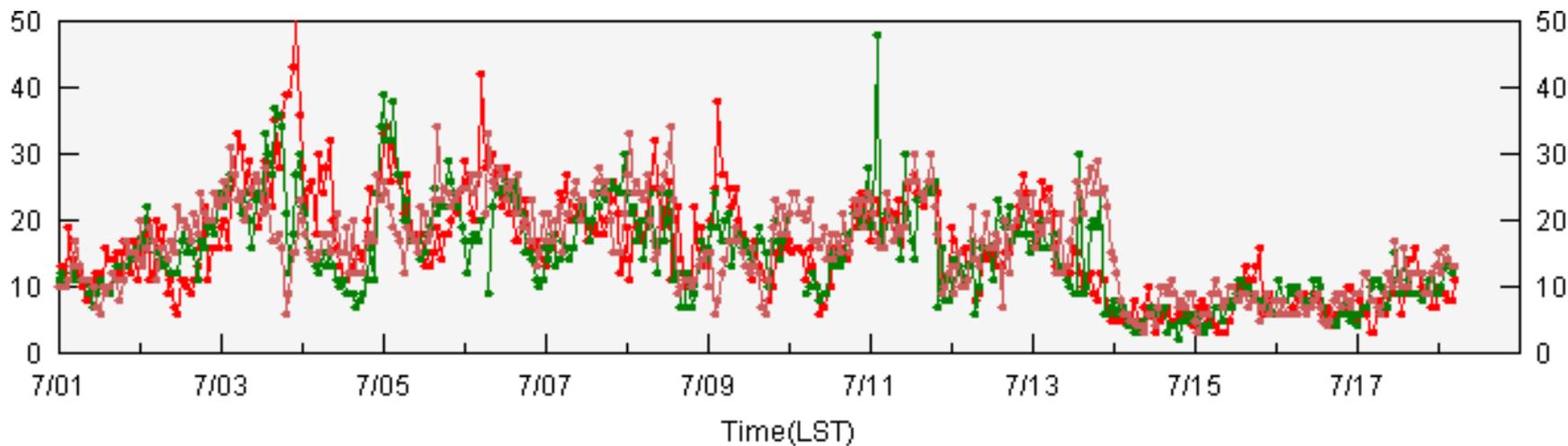
MDE Surface Sites

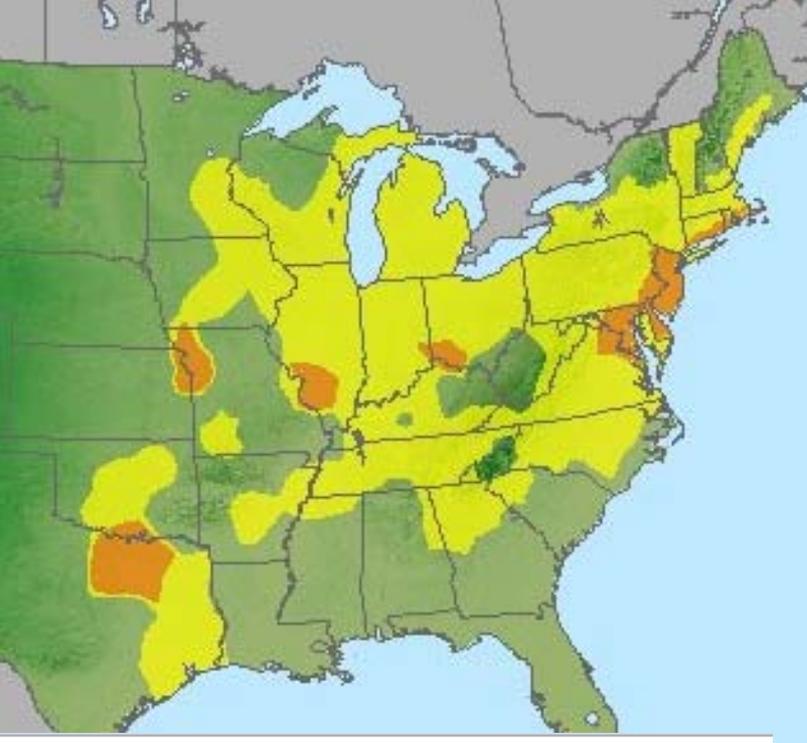
Padonia Beltsville Edgewood Aldino Essex Fairhill

Ozone (ppbv) 1 hr



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





Today's AQI Forecast

Monday, July 18, 2011



Air Quality Forecast

Today's High

Tomorrow's High

Air Quality Index (AQI)

Air Quality Index (AQI)

111

Unhealthy for Sensitive Groups

100

Moderate

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

Health Message: Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors.

AQI - Pollutant Details

Ozone

111

Unhealthy for Sensitive Groups

Ozone

100

Moderate

Particles (PM2.5)

52

Moderate

Particles (PM2.5)

55

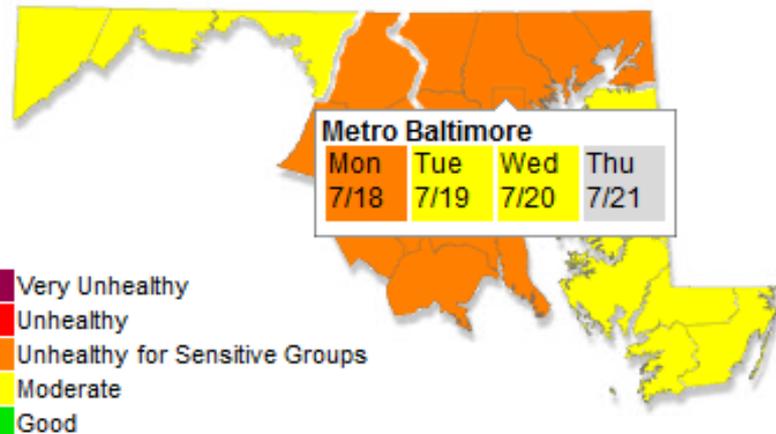
Moderate

Forecast

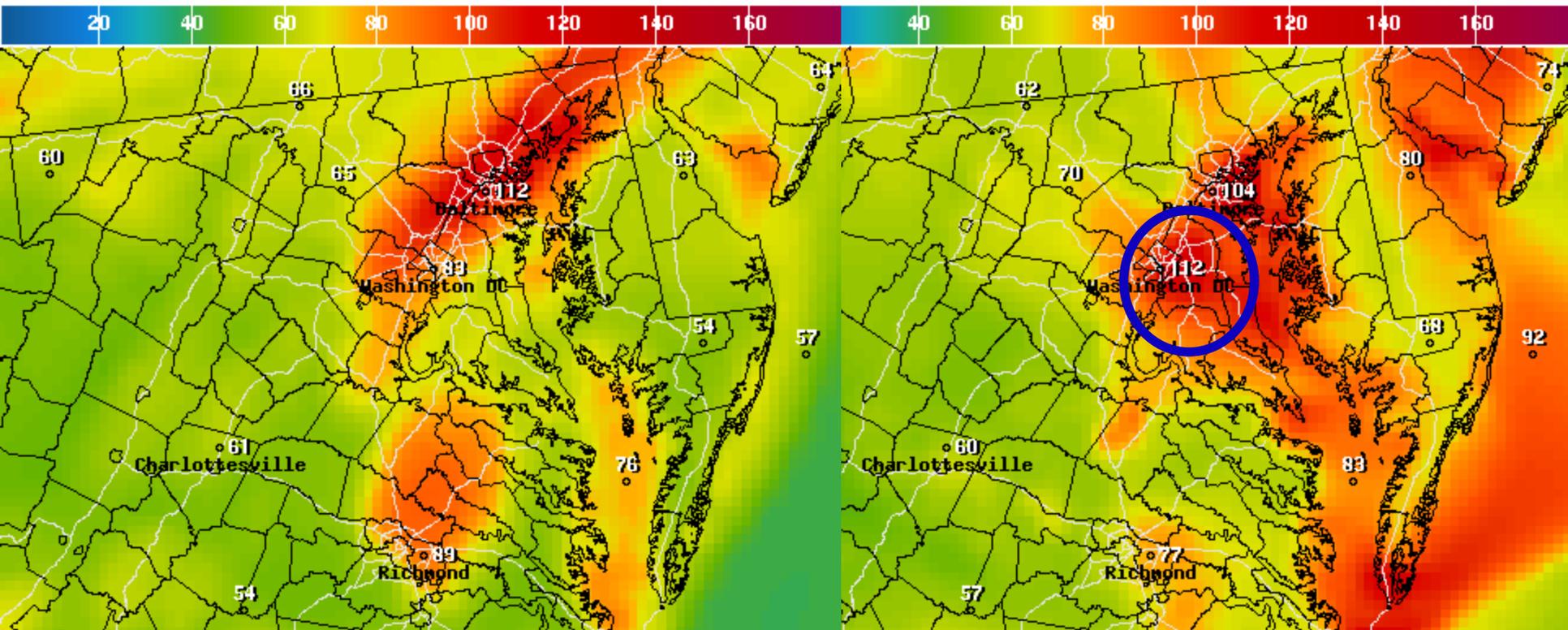
Current

Haze Cams

[Set as Default Tab](#)



Source: Maryland Department of the Environment



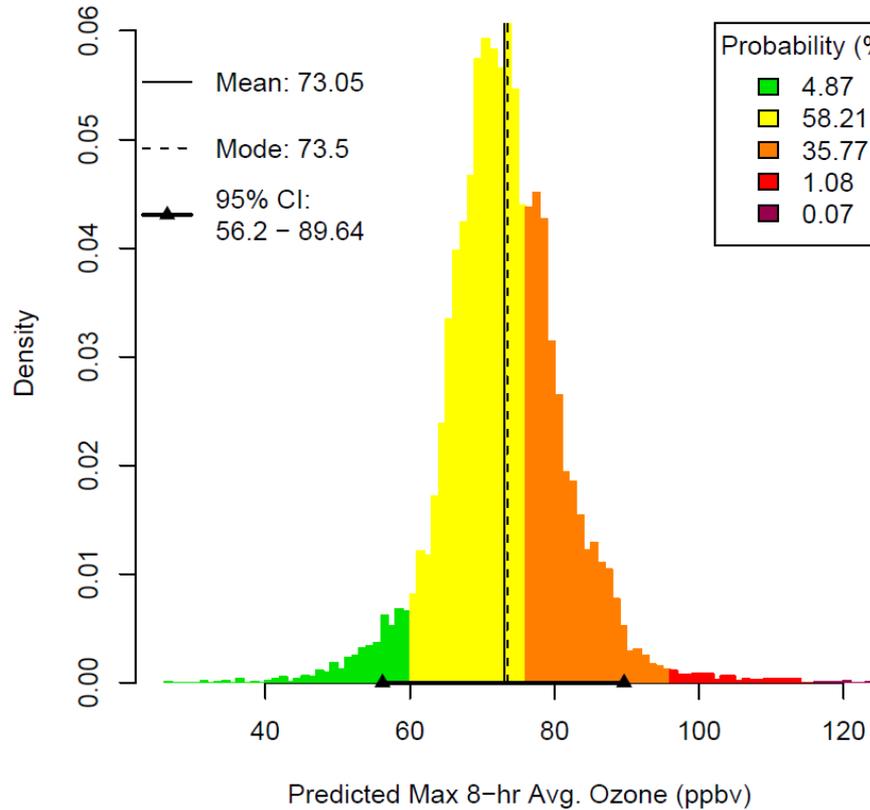
Monday: Max 1 hr ozone (ppbv)

Tuesday: Max 1 hr ozone (ppbv)

Bay breeze should get going Wednesday – Friday, which is conducive for poor air quality.

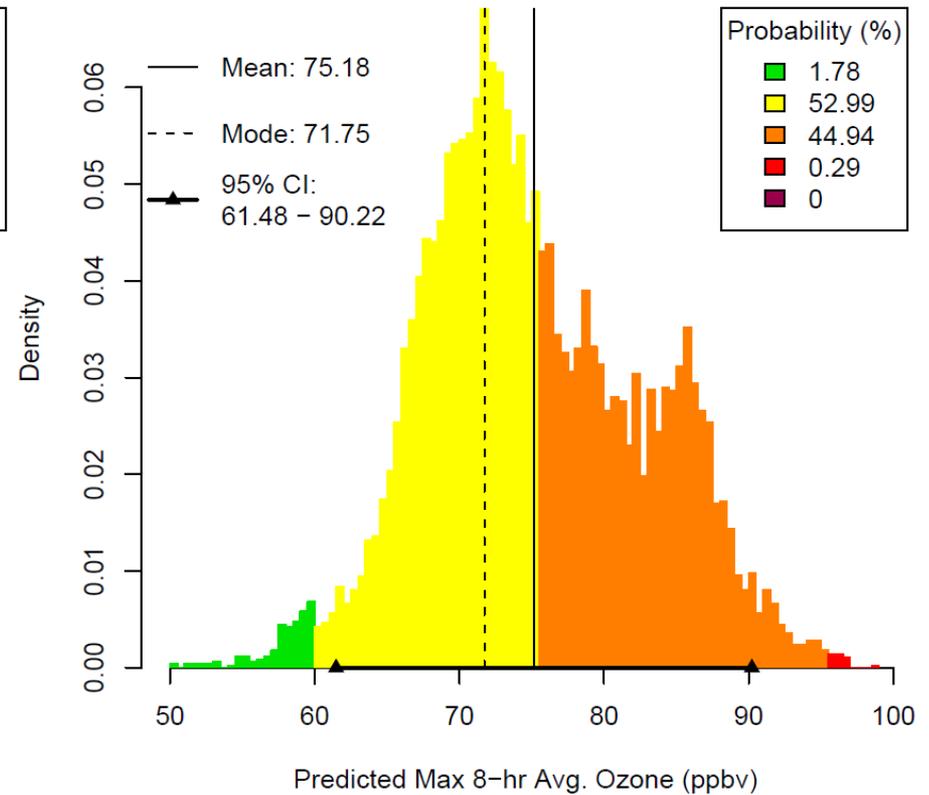
NAQFC-MOS valid for Tuesday

ID: 240251001 VALID: 2011-07-19



Edgewood

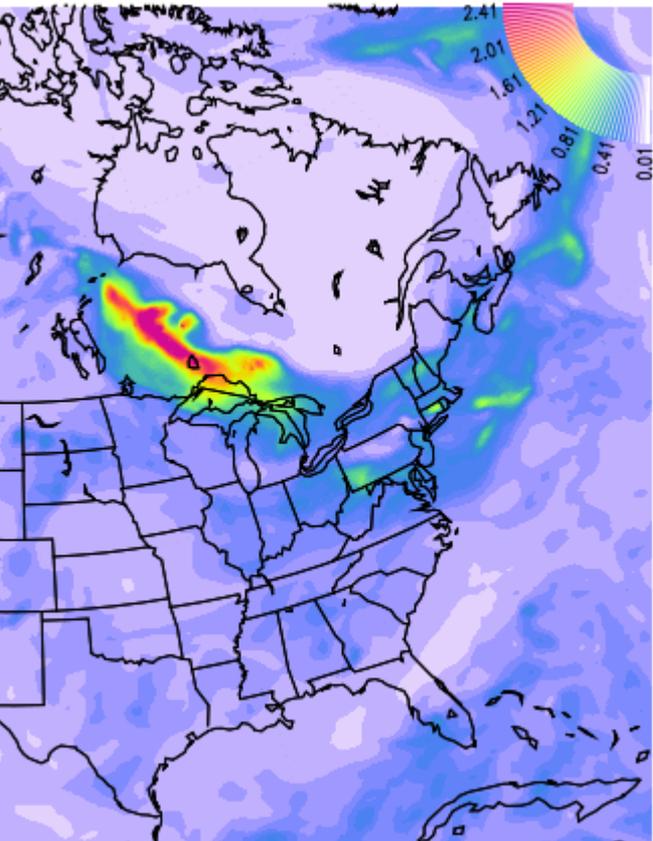
ID: 240330030 VALID: 2011-07-19



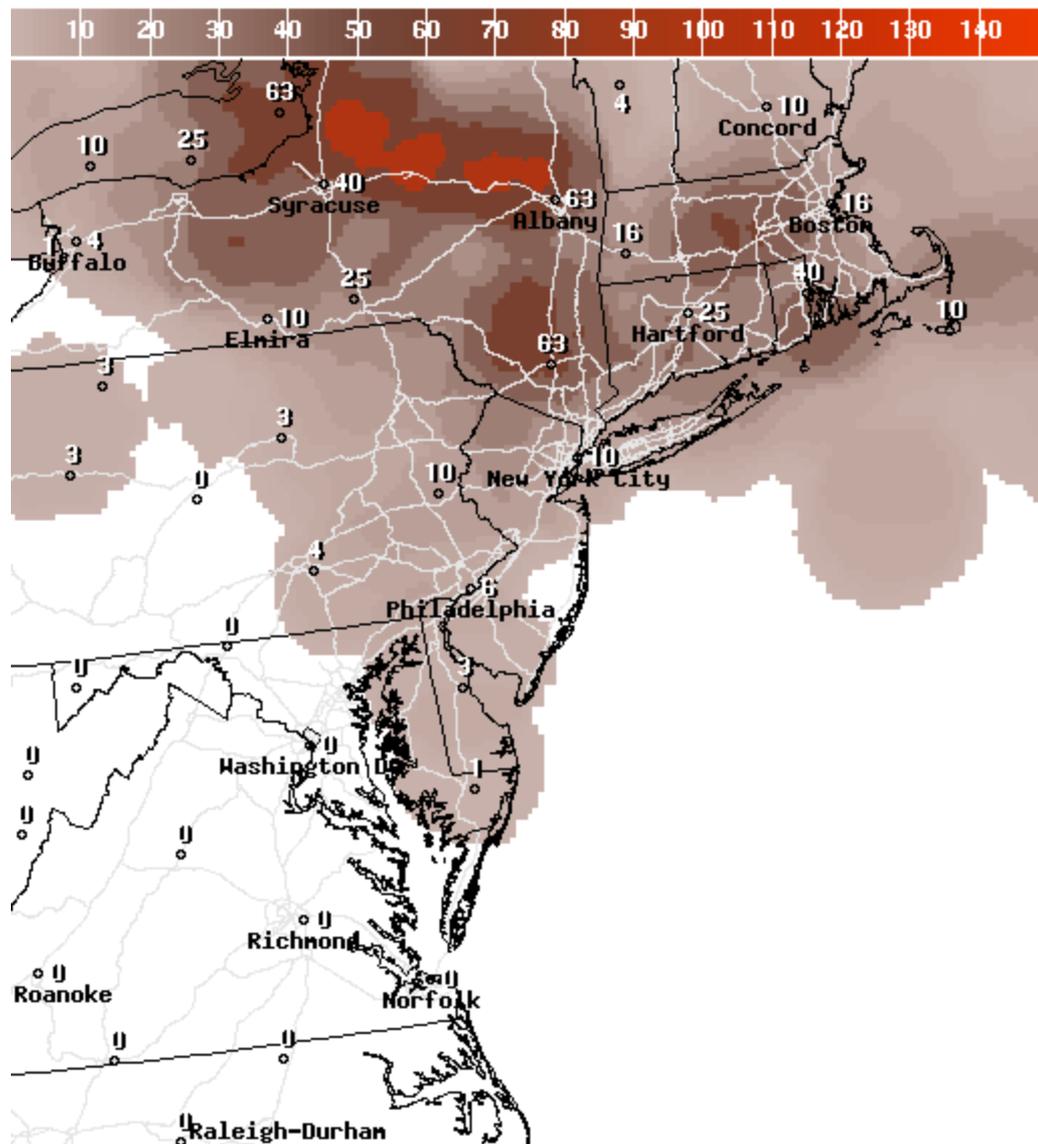
Beltsville

AQI Forecast

Forecast Discussion: A rapid change in air-mass is anticipated on Monday as the high pressure system off the Mid-Atlantic coast extends inland and creating a pronounced trough line along the I-95 corridor. This feature will enhance southwesterly flow and will transport a very warm and moist air-mass into the region for tomorrow. This coupled with most clear skies during the afternoon will be very conducive for high ozone production with Unhealthy for Sensitive Groups (USG) conditions along the Baltimore-Washington corridor and Moderate elsewhere. Particle pollution is also anticipated to quickly rise into the Moderate range on Monday. An approaching cold front is forecasted to arrive and bring possible showers and thunderstorms starting late afternoon/evening and may persist through Tuesday morning. At this time, cloud covers may be sufficient to inhibit ozone levels from reaching very high levels although the forecast is still uncertain. At this time, Moderate ozone is anticipated in most areas on Tuesday. Particle pollution will continue to be Moderate in all areas. On Wednesday, the frontal boundary is expected to move to the south and the Bermuda High will try to take control of the weather again. This could lead to another polluted day; however, the forecast is still very uncertain at this time. - MDE



Smoke from Ontario fires may brush area on Tuesday & Wednesday. Keep an eye out!

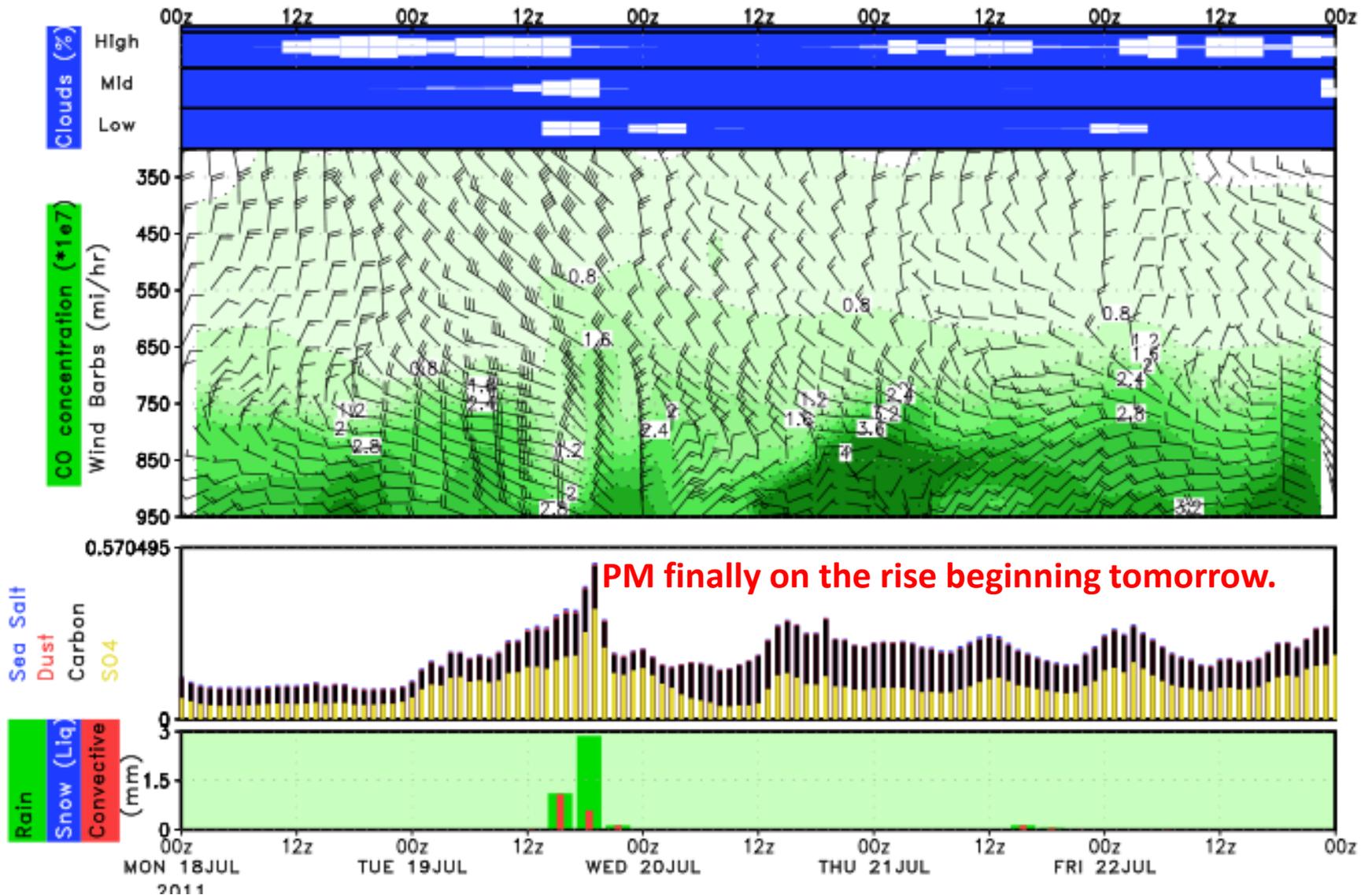


1Hr Surface Smoke (micrograms/m³) Wed Jul 20 2011 2AM EDT
(Wed Jul 20 2011 06Z)

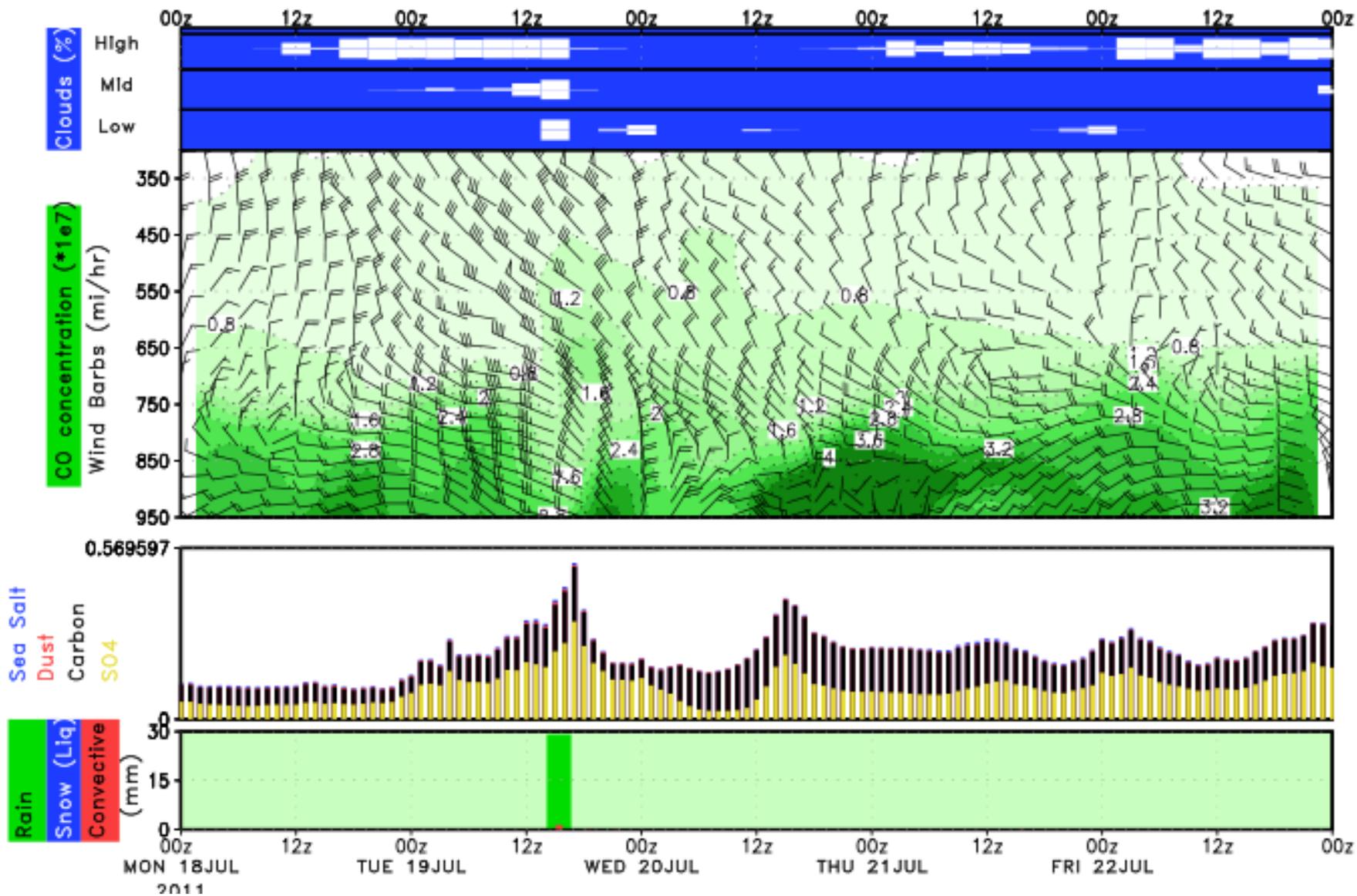


National Digital Guidance Database
06z model run Graphic created-Jul 18 8:35AM EDT

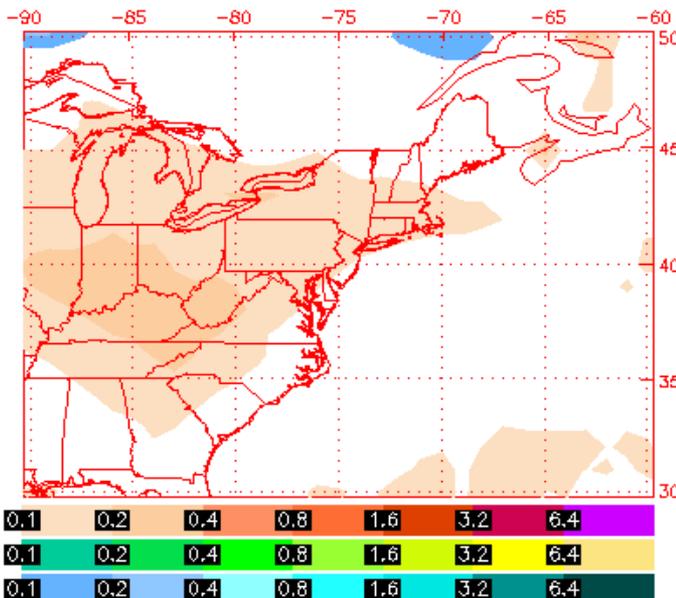
Beltsville



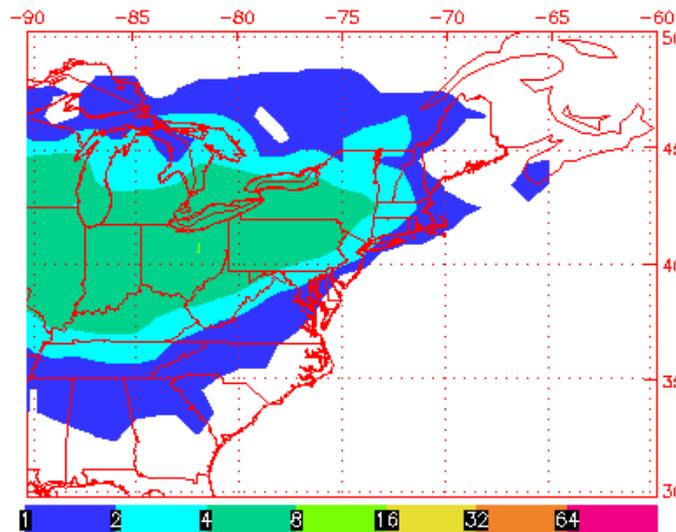
Essex



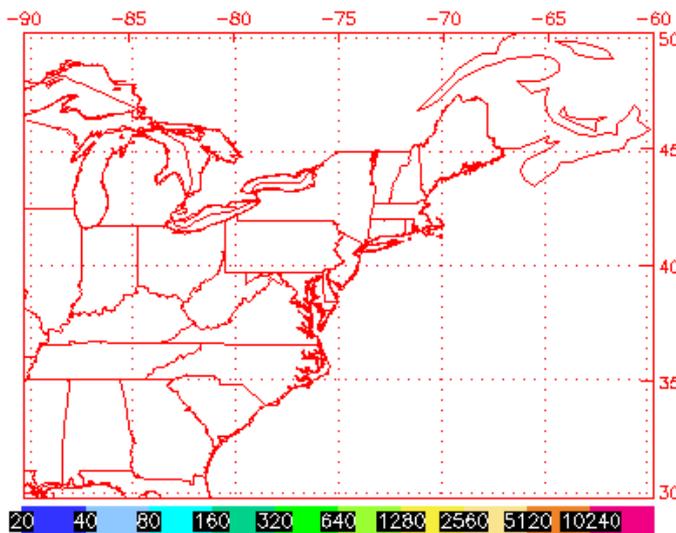
NAAPS Total Optical Depth for 00:00Z 18 Jul 2011
 Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue



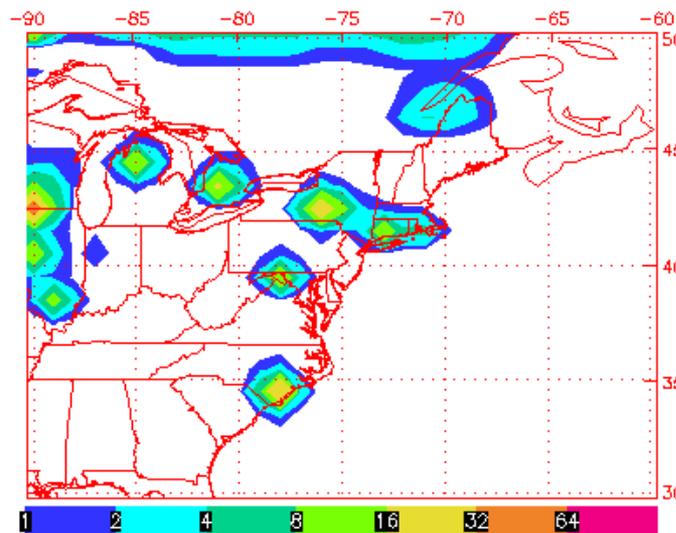
Sulfate Surface Concentration ($\mu\text{g}/\text{m}^3$)
 for 00:00Z 18 Jul 2011



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



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



NWS Forecast Discussion: Near Term

.NEAR TERM /THROUGH TONIGHT/...

MAIN ISSUES TO ADDRESS TODAY ARE CLOUDS...AND ANY CONVECTIVE SYSTEMS TO THE NORTH THAT MIGHT AFFECT THE [CWA](#) DURING THE OVERNIGHT PERIOD. HIGH PRESSURE WILL DOMINATE THE WEATHER TODAY...THEN A WEAK BOUNDARY...POSSIBLY THE REMNANTS FROM EARLIER CONVECTIVE [MESO](#) SYSTEMS...WILL SLOWLY DROP SOUTH TONIGHT AND BRING HIGHER CHANCES FOR PRECIP FOR THE AREA...WITH THE HIGHEST CHANCES ALONG THE NORTHERN TIER OF COUNTIES AND DECREASING SOUTHWARD. 12Z MORNING [SOUNDING](#) AT IAD MODIFIED FOR AFTERNOON CONDITIONS SHOWED A [CAPE](#) OF APPRX 900 [J/KG](#).

REGARDING CLOUDS TODAY...LATEST [SATL](#) TRENDS SHOW HIGH [CIRRUS](#) CLOUDS THINNING AS THEY PROGRESS SOUTHWEST INTO THE [CWA](#). MORNING SOUNDINGS WERE PRETTY DRY...BUT MOIST ENOUGH TO GIVE MOST OF THE [CWA](#) SOME AFTERNOON [CUMULUS](#) CLOUDS. BLENDED THE 13Z [IR](#) CLOUDS WITH PREVIOUS CLOUD FORECAST TO UPDATE GRIDS.

REGARDING [CONVECTION](#) TODAY...THINK TODAY WILL BE DRY THROUGHOUT THE [CWA](#)...SAVE THE FAR WESTERN MOUNTAINS...WHERE MODELS SUGGEST THE HIGHEST POTENTIAL TO REACH CONVECTIVE TEMPERATURES AND FIRE [CONVECTION](#).

NWS Forecast Discussion: Near Term

FOR TONIGHT...FORECAST CONTINGENT ON HOW [CONVECTION](#) FIRES TO THE NORTH WHERE THE BETTER [DYNAMICS](#) ARE. CONFIDENCE IS LOW IN WHAT EXACTLY WILL ENTER FROM THE NORTH AS CONVECTIVE-ALLOWING MODEL GUIDANCE IS ALL OVER THE PLACE WITH WHERE [CONVECTION](#) IS. BUT THE MODEL GUIDANCE IS CERTAIN THAT A BAND OF HIGHER PRECIP WATER WILL ADVECT INTO THE REGION FROM THE NORTH TONIGHT...WITH [PW](#) VALUES INCREASING TO NEARLY 1.75 INCHES. THIS [MOISTURE](#) INCREASE WILL HELP DESTABILIZE THE [ATMOSPHERE](#) TONIGHT. BEST [SHEAR DYNAMICS](#) STAY TO THE NORTH ASSOCIATED WITH THE [UPPER LEVEL JET STREAK](#). [SPC](#) HAS THE NORTHERN THIRD OF THE [CWA](#) FOR TONIGHT...ASSOCIATED WITH SOUTHWARD MOVING BOWING LINE SEGMENTS THAT MIGHT CROSS THE MASON DIXON LINE. NOTE...BRET IS FORECAST TO MOVE AWAY FROM THE EASTERN SEABOARD AND WILL NOT BE A FACTOR IN MID ATLANTIC WEATHER. CONSULT LATEST [NHC](#) FORECASTS ON BRET.

NWS Forecast Discussion: Short Term

.SHORT TERM / TUESDAY THROUGH 6 AM TUESDAY/...TUESDAY...ONGOING [SCATTERED THUNDERSTORM](#) ACTIVITY IS EXPECTED AS THE WEAK COLD SAGS SOUTH THROUGH THE CENTRAL MID ATLANTIC. LEFT [POPS](#) AS HIGH CHANCE /40S AND 50S/ GIVEN THE [MESOSCALE](#) NATURE OF REMNANT ACTIVITY FROM MONDAY NIGHT AND [DIURNAL](#) REDEVELOPMENT. SHOULD THERE REMNANT PRECIP BE A SHIELD IN THE MORNING...THE [POPS](#) WOULD OBVIOUSLY HAVE TO BE RAISED. REDUCED TEMPERATURES FROM BALTWASH AND SOUTH GIVEN EXPECTED CLOUD COVER...MAX TEMPS GENERALLY LOW 90S. TUESDAY NIGHT...[TROUGH](#) STRUGGLES TO CLEAR THE [SRN CWA](#) UNTIL MIDNIGHT TIME FRAME. THEREFORE...CHANCES [POPS](#) WERE EXTENDED THROUGH THE EVENING...BEFORE TAPERING OFF THROUGH MIDNIGHT. LOWERED MIN TEMPS WITH EXPECTED CLEARING...MIN TEMPS [UPR](#) 60S INLAND TO LOW 70S I-95 AND EAST /HIGH IN URBAN AREAS AND RIGHT ALONG THE WARM WATER/. SHOULD [NLY/NELY FLOW](#) BE STRONGER IN BUILDING HIGH PRESSURE...LOWER TEMPS CAN BE EXPECTED. WEDNESDAY...[TROUGH](#) DISSIPATES SOUTH OF THE LWX [CWA](#). PULLED MOST [POPS](#) EAST OF THE BLUE [RIDGE](#) GIVEN LACK OF NOTABLE FORCING MECHANISMS BESIDES TERRAIN [CIRCULATION](#)...WHICH IS WHY LOW CHANCE [POPS](#) FOR THUNDERSTORMS WERE MAINTAINED WEST OF THE BLUE [RIDGE](#). 20C 850MB TEMPS BUILD IN FROM WEST THROUGH THE DAY PER 00Z [GFS/ECMWF](#)...THEREFORE WENT MAX TEMPS IN THE MID 90S WEST OF THE BLUE [RIDGE](#) /AND [INVOF](#) KCHO/...LOW 90S EAST.

NWS Forecast Discussion: Wednesday night - Sunday

.LONG TERM /WEDNESDAY NIGHT THROUGH SUNDAY/... ZONAL [UPR FLOW](#) TO OUR NORTH /OVER THE GREAT LAKES AND NEW ENGLAND/ SETS UP AS A [BERMUDA HIGH](#) PUMPS THE HOTTEST AIR YET THIS YEAR INTO THE MID ATLANTIC. 850MB TEMPS ARE A GOOD MEASURE OF TEMPERATURES IN [BERMUDA HIGH](#) REGIMES. AROUND 22C TEMPS ON THURSDAY SUGGEST [UPR](#) 90S TO AROUND 100F EAST OF THE BLUE [RIDGE](#). THEN UP TO 24C TEMPS ON FRIDAY SUGGEST LOW 100S EAST OF THE BLUE [RIDGE](#)...AROUND 100F IN THE VALLEYS WEST. THE 00Z [GFS](#) FEATURES A [SFC TROUGH](#) DIPPING INTO THE REGION /SIMILAR TO THE ONE APPROACHING TONIGHT/ AND THE 12Z [ECMWF](#) SOMEWHAT AGREED. HOWEVER...NOW THE 00Z [ECMWF](#) KEEPS ANY [TROUGH](#) WELL NORTH...WITH 22/23C 850MB TEMPS OVER THE CENTRAL MID ATLANTIC...SUGGESTING A REPEAT OF FRIDAY. MAX TEMPS WERE DROPPED A DEGREE OR TWO...WILL HAVE TO MONITOR FOR ANY BREAKS TO THE HEAT...AND NOT BE OVERLY OPTIMISTIC...THIS IS GENUINELY HOT AIR COMING. WITH DEWPOINTS SOMEWHERE AROUND 70F...[EXCESSIVE HEAT](#) WATCHES MAY BE NEEDED BY MIDWEEK.