

## DISCOVER-AQ Outlook for Monday, July 11, 2011

Tomorrow the study region will be dominated by southwesterly flow around the west side of the Bermuda High. Temperatures will heat up to the mid 90s and ozone will likely build up to greater values than today. The main forecast concern for tomorrow is the possibility of high clouds moving into the study region as a result of convection active today out in the upper Midwest. Forward trajectories from the convection reach our study area by midday tomorrow. The NAM model keeps these clouds above 30 Kft. But, we will update the outlook concerning clouds at 0830 tomorrow morning. Clouds continue to increase during Tuesday with the passage of a surface trough early in the day and the frontal system now in the Midwest by late in the day. Shower activity is likely on Tuesday afternoon. Concern for Wednesday is how fast the clouds move out in the morning and the approach of an upper-level trough in the afternoon that may bring clouds in again. Will need to update this tomorrow. Ozone is forecast to reach Code Orange levels over a widespread region tomorrow. Aerosol will likely be greater than today with the recirculation of pollution around the high pressure region. We currently recommend flights for tomorrow with an update on clouds in the morning.

## Recommendations for July 11th-July 14th :

Mon., July 11: **Fly** (but keep watch of high clouds from upwind convection; update telecon at 0830 Mon.)

Tues., July 12: **No Fly** (clouds, frontal passage)

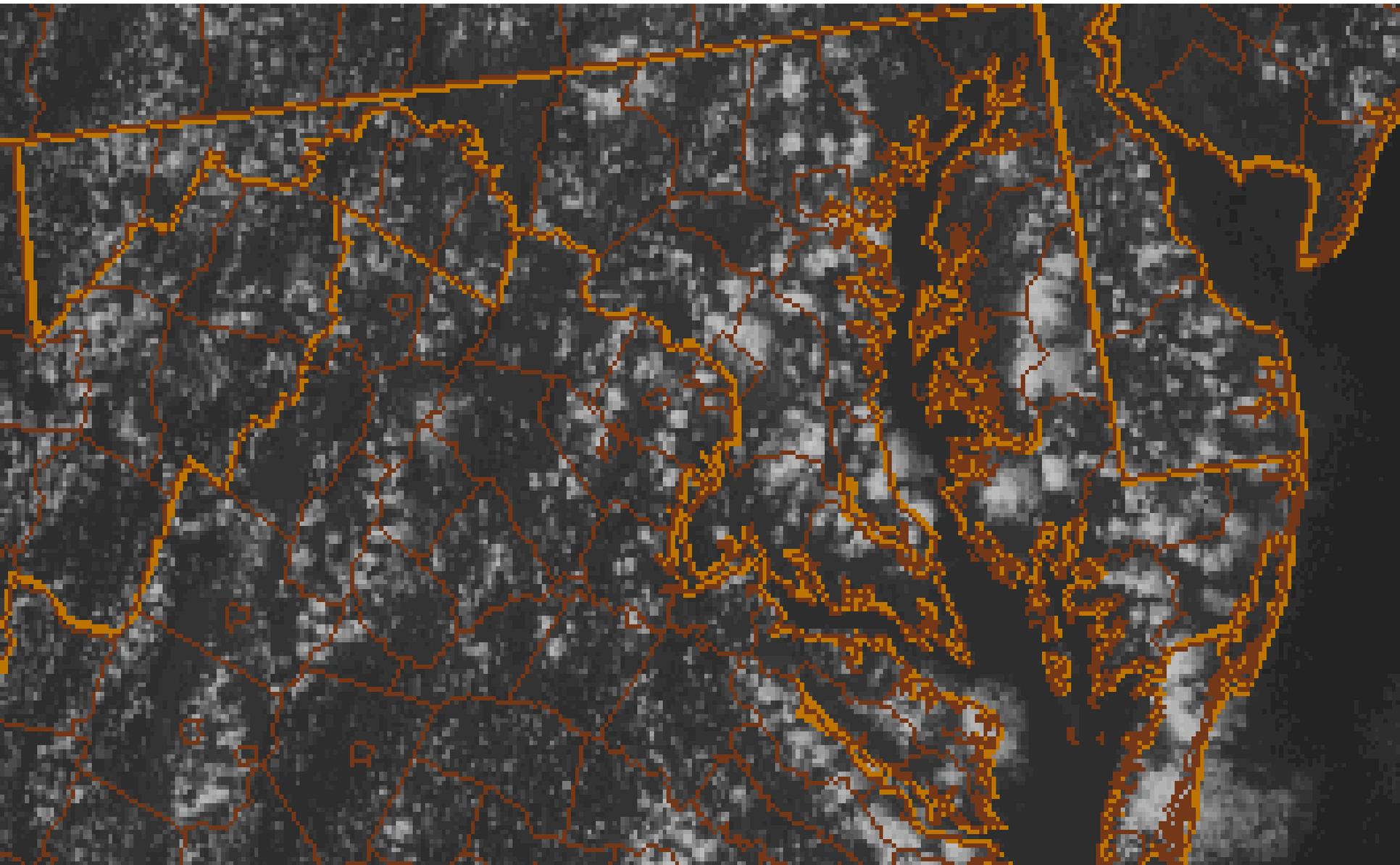
Wed., July 13: **Perhaps Fly** (check tomorrow's forecast for how quickly clearing takes place and on new approaching short wave)

Thurs., July 14: **Fly** (Canadian air mass)

Ken Pickering, Clare Flynn, Greg Garner

July 10, 2011

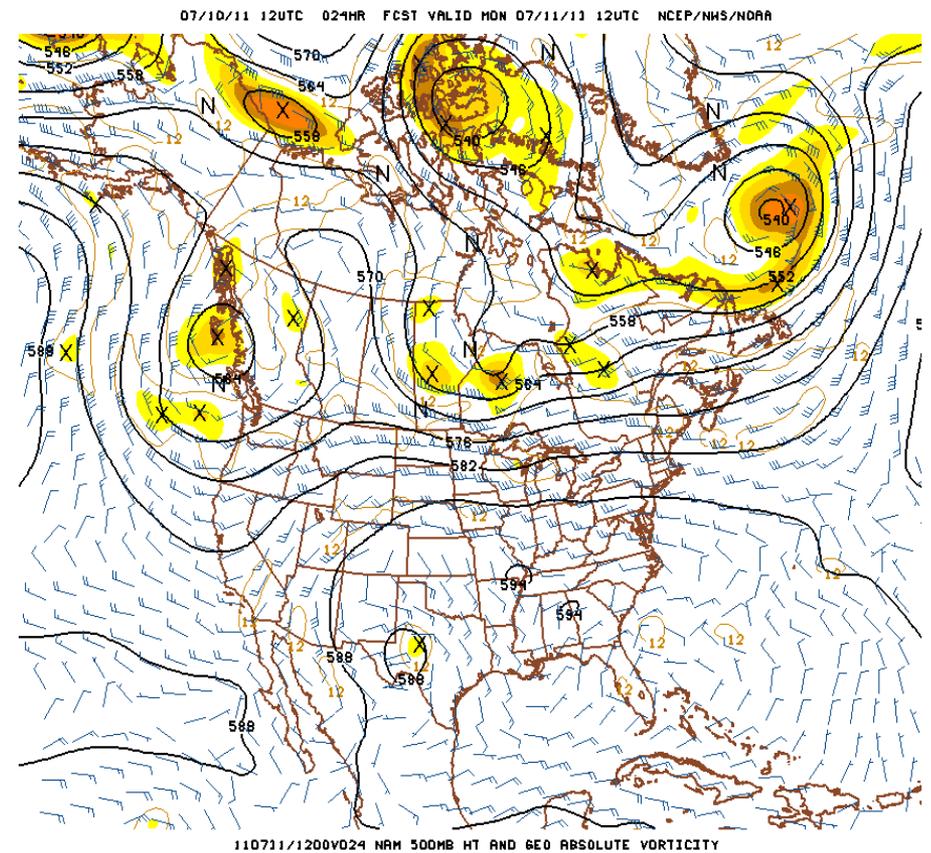
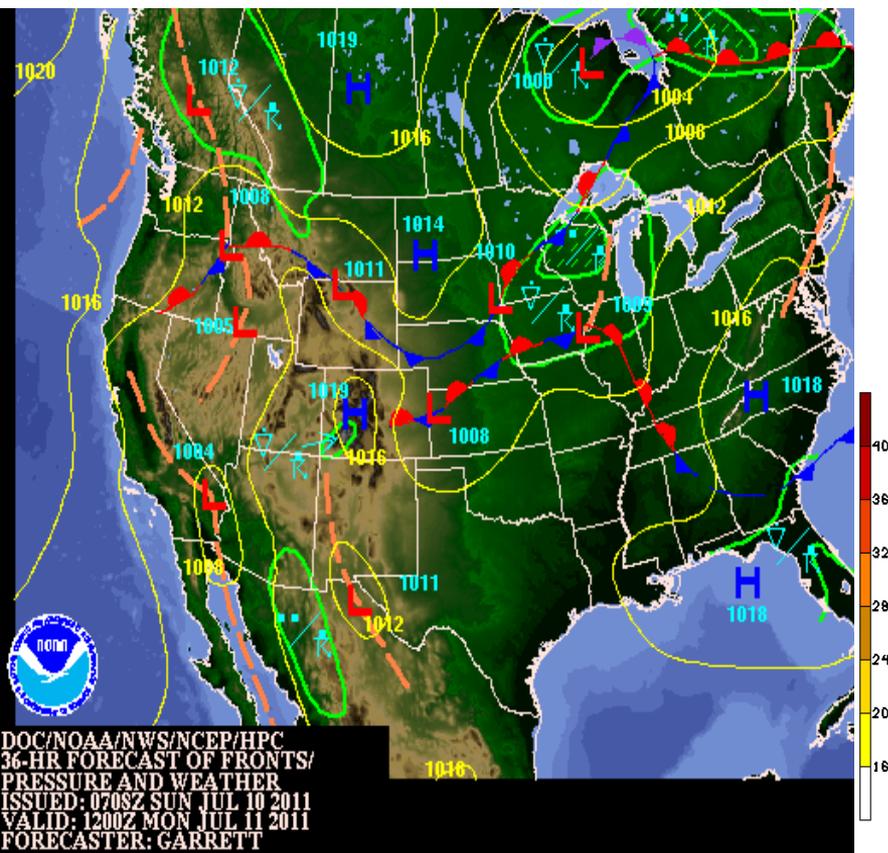
# GOES Visible Imagery for 1815 UTC 10 July



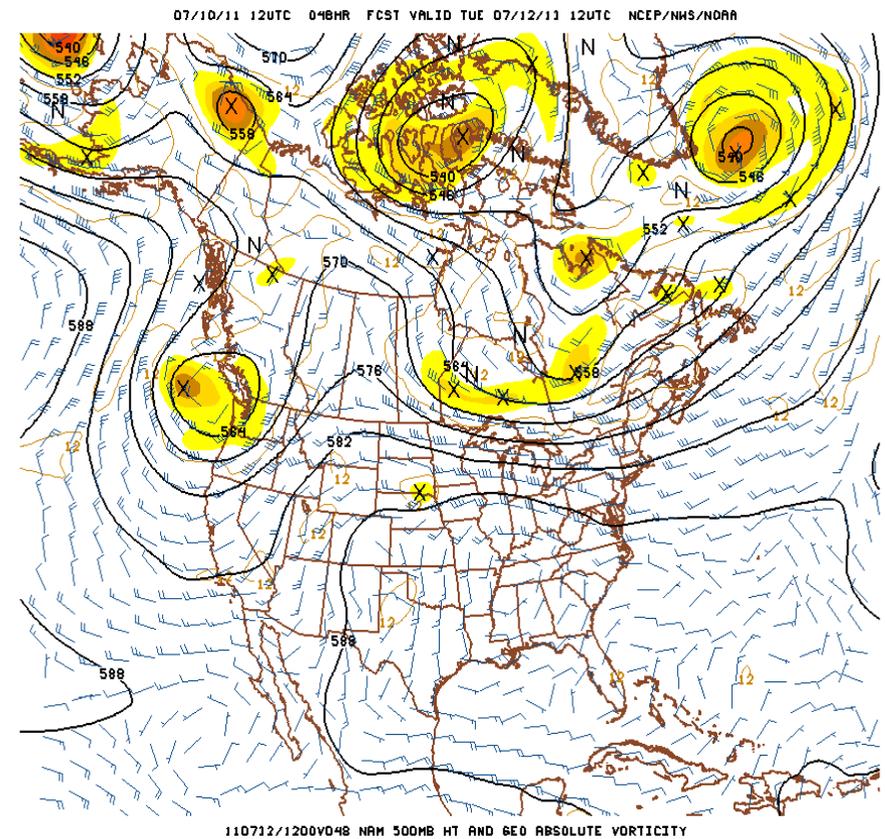
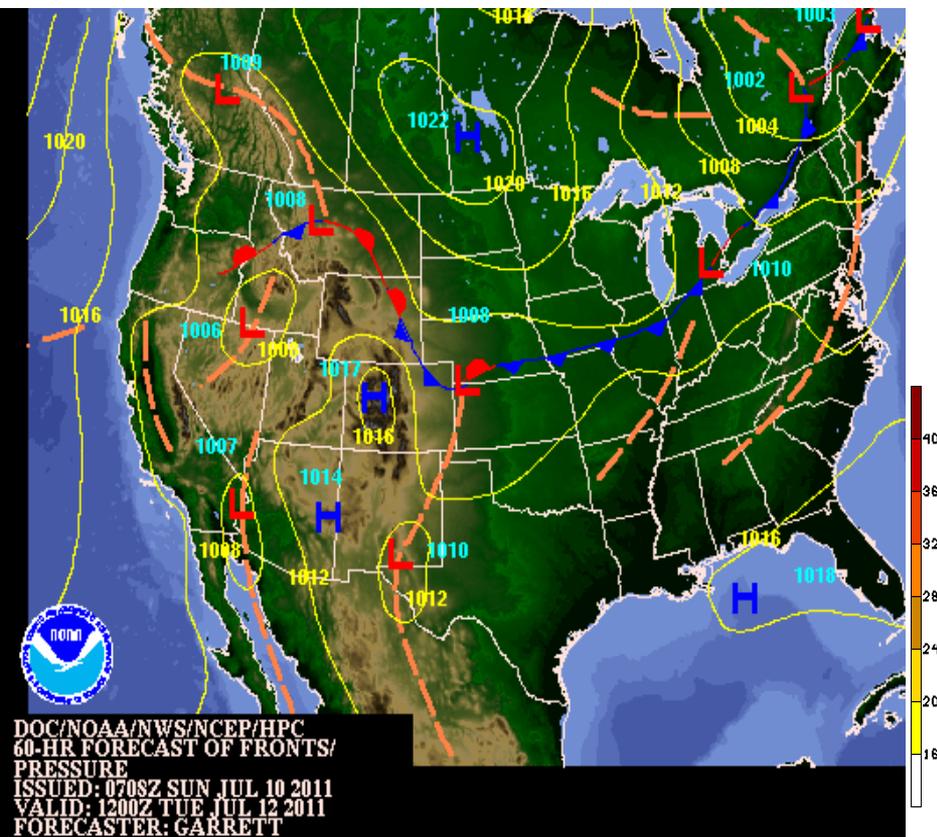




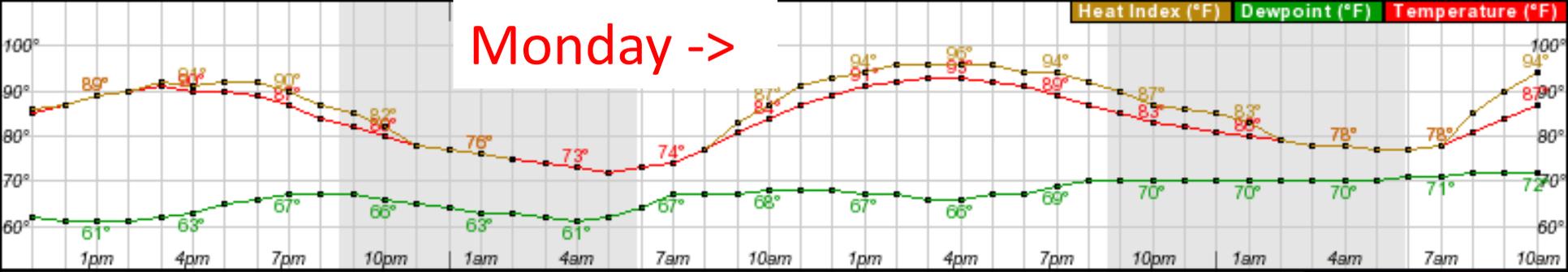
Monday: Region remains under influence of surface High. Air recirculates around the High. Sfc trough develops in region overnight.



Tuesday: High pressure has moved south, region now under influence of trough. Cold front approaches region from Great Lakes.



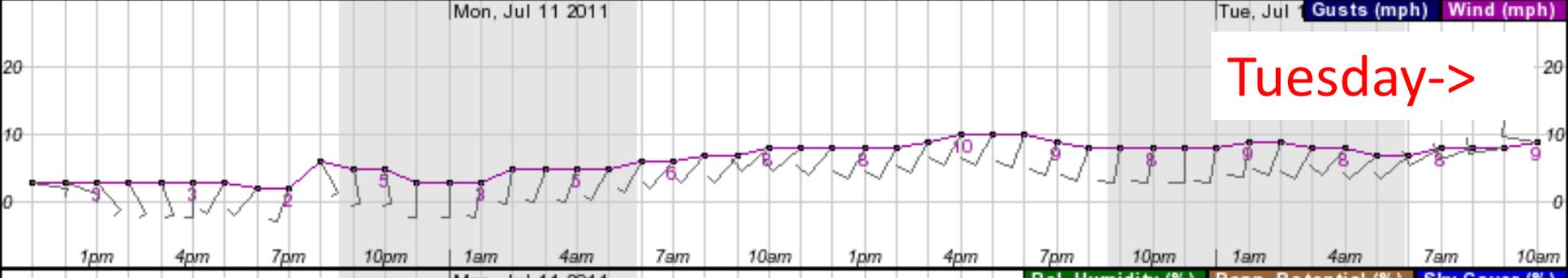
Monday ->



Mon, Jul 11 2011

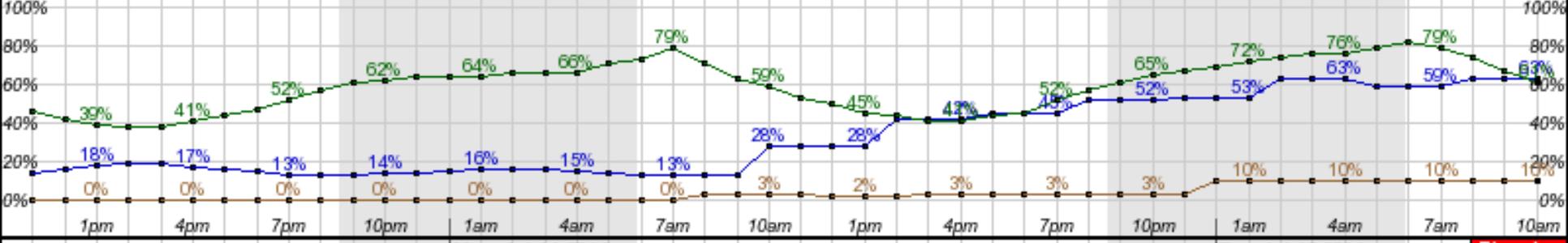
Tue, Jul 12 2011

Tuesday ->



Mon, Jul 11 2011

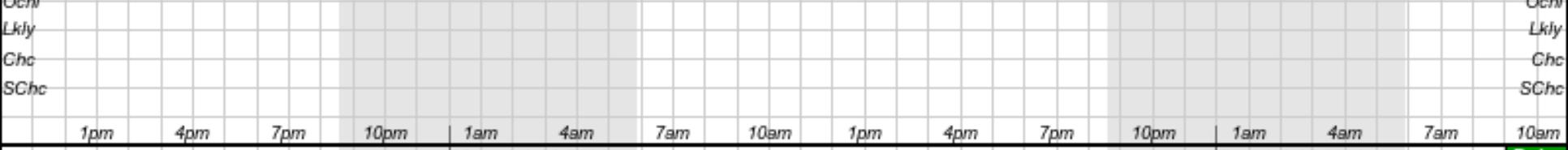
Rel. Humidity (%) Pcpn. Potential (%) Sky Cover (%)



Mon, Jul 11 2011

Tue, Jul 12 2011

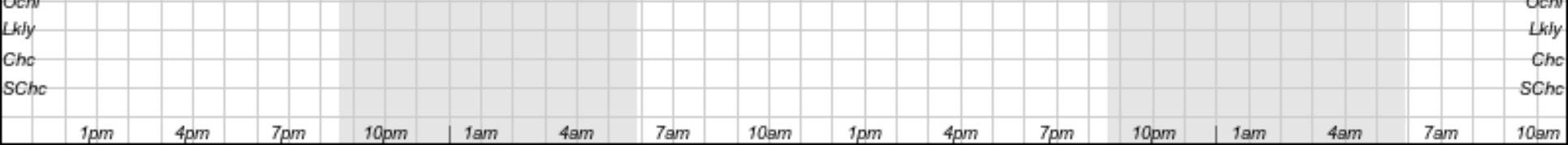
Thunder



Mon, Jul 11 2011

Tue, Jul 12 2011

Rain

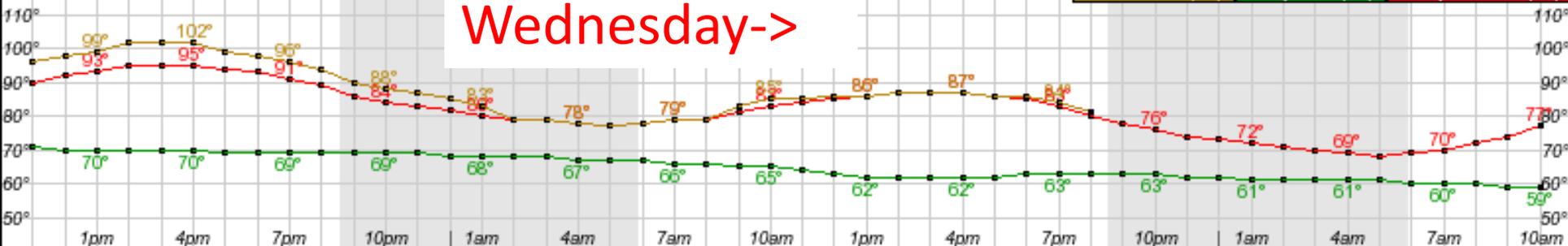


Mon, Jul 11 2011

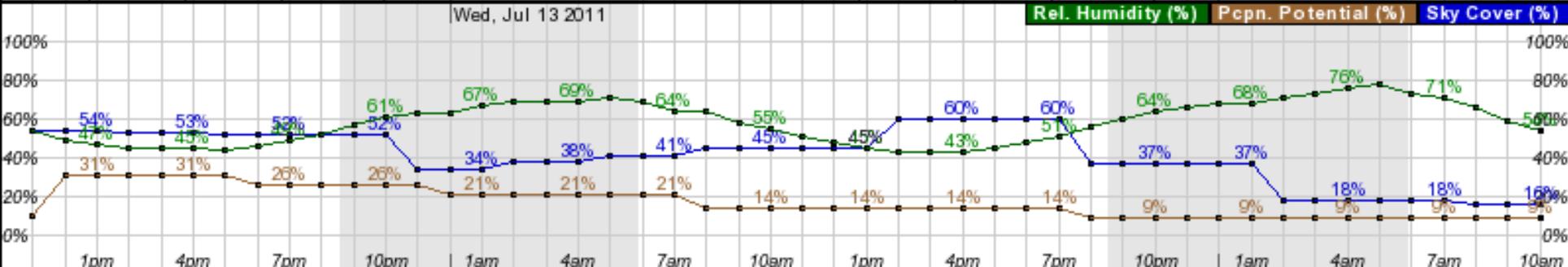
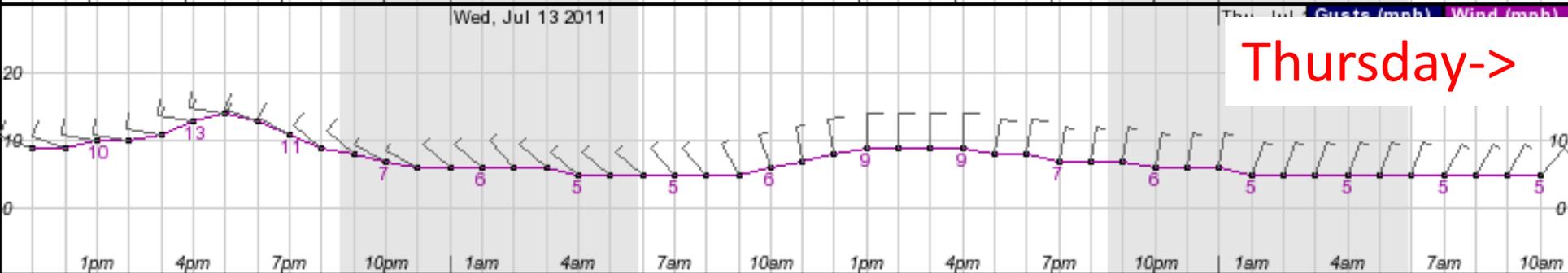
Tue, Jul 12 2011

# Wednesday->

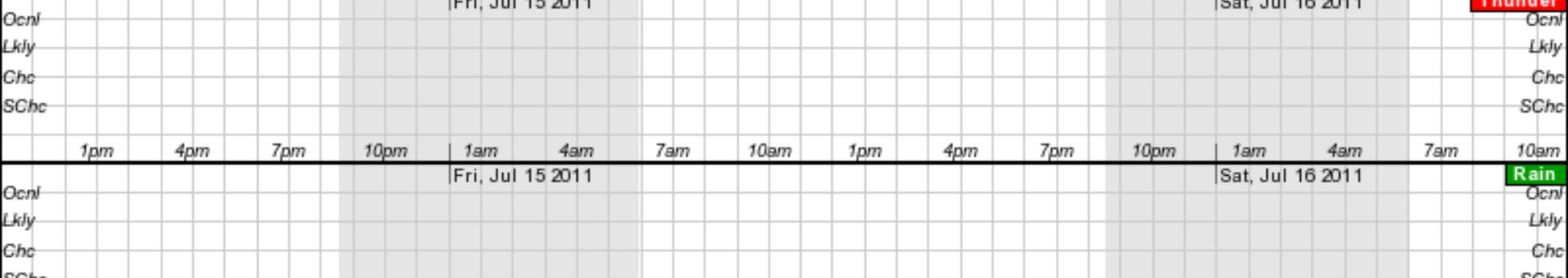
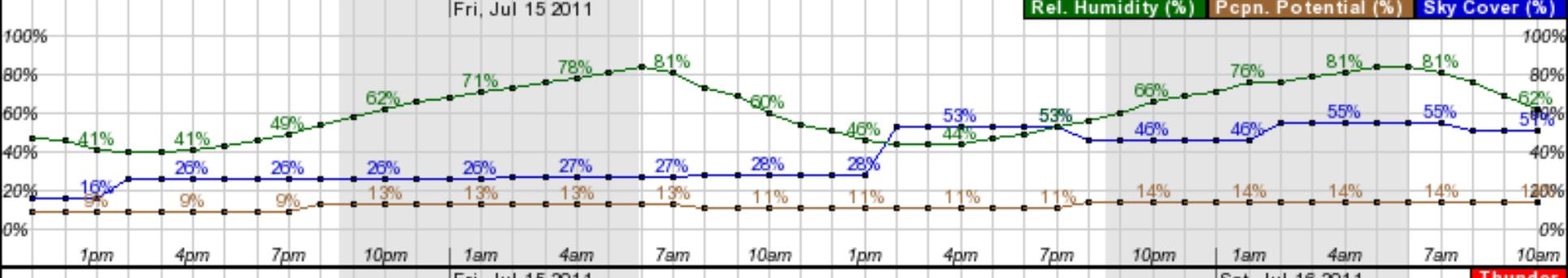
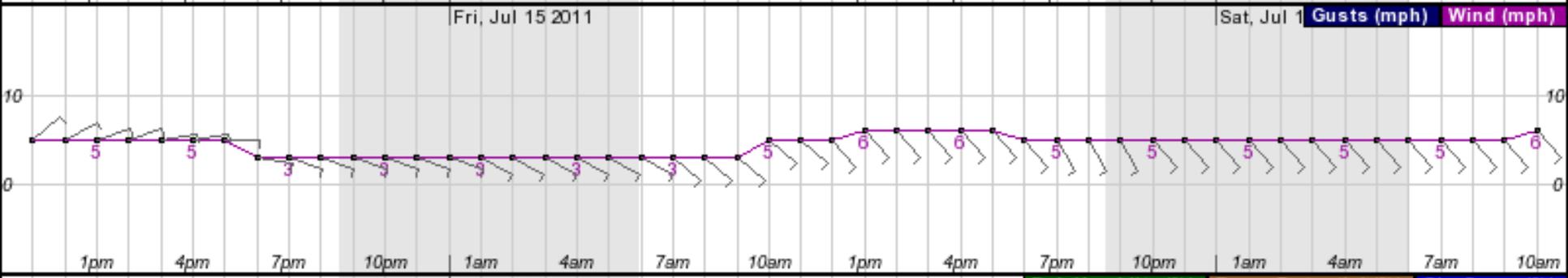
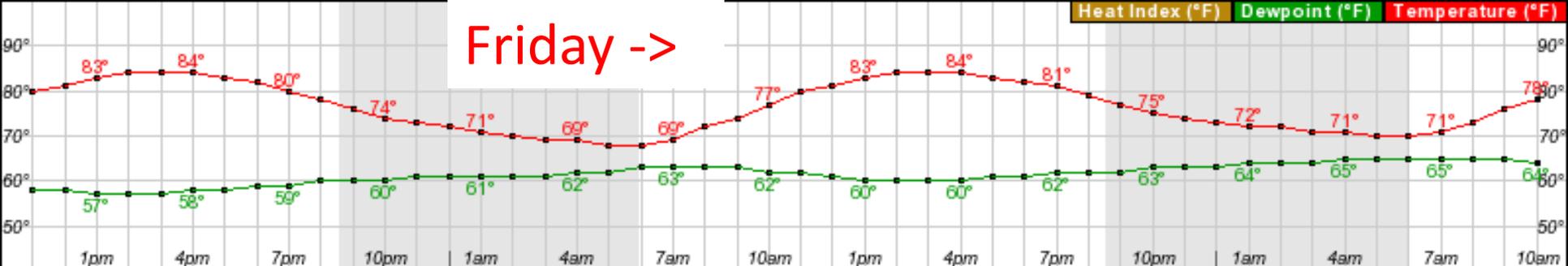
Heat Index (°F) Dewpoint (°F) Temperature (°F)



# Thursday->

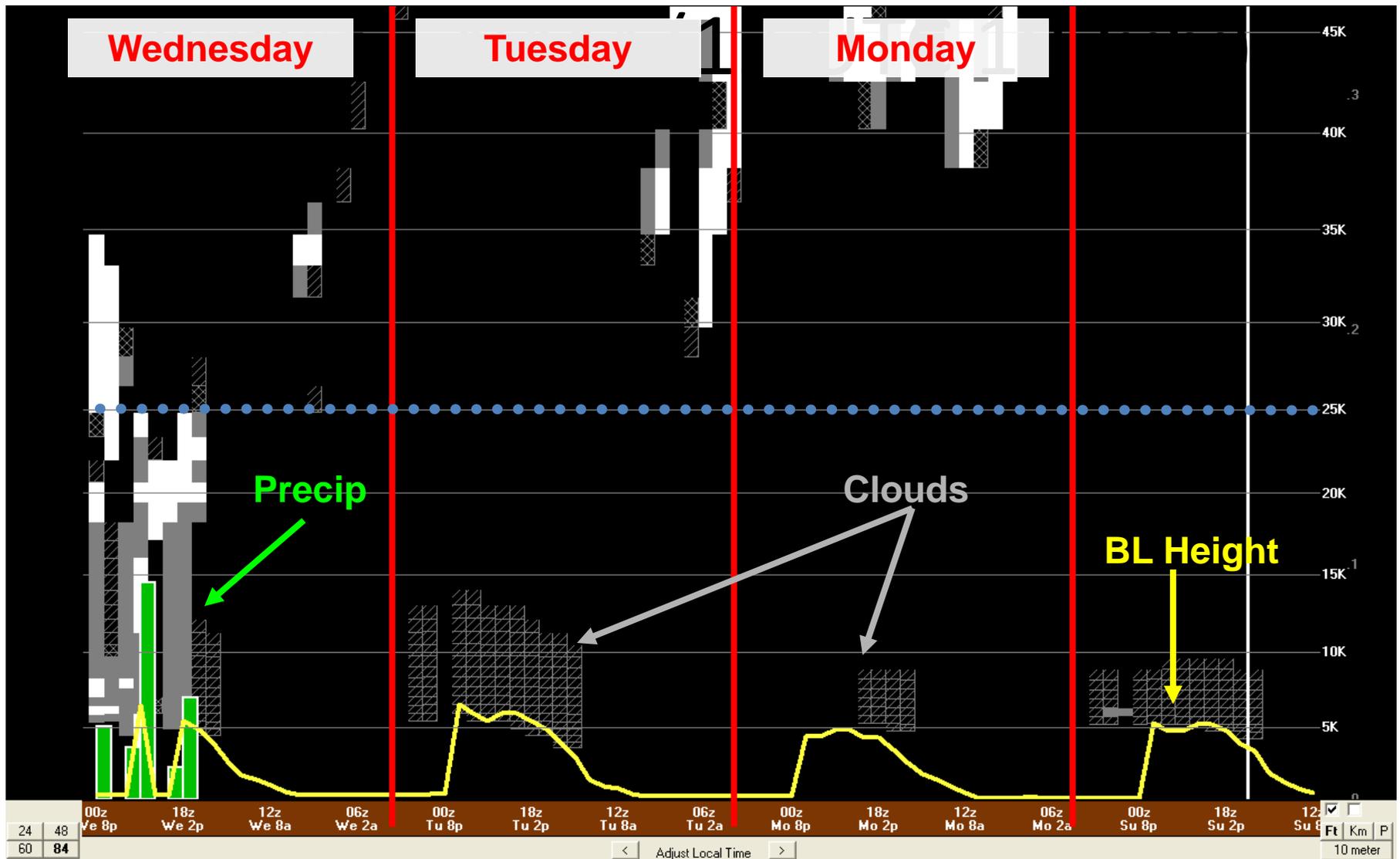


Friday ->



Rain amount forecast data is unavailable for this period

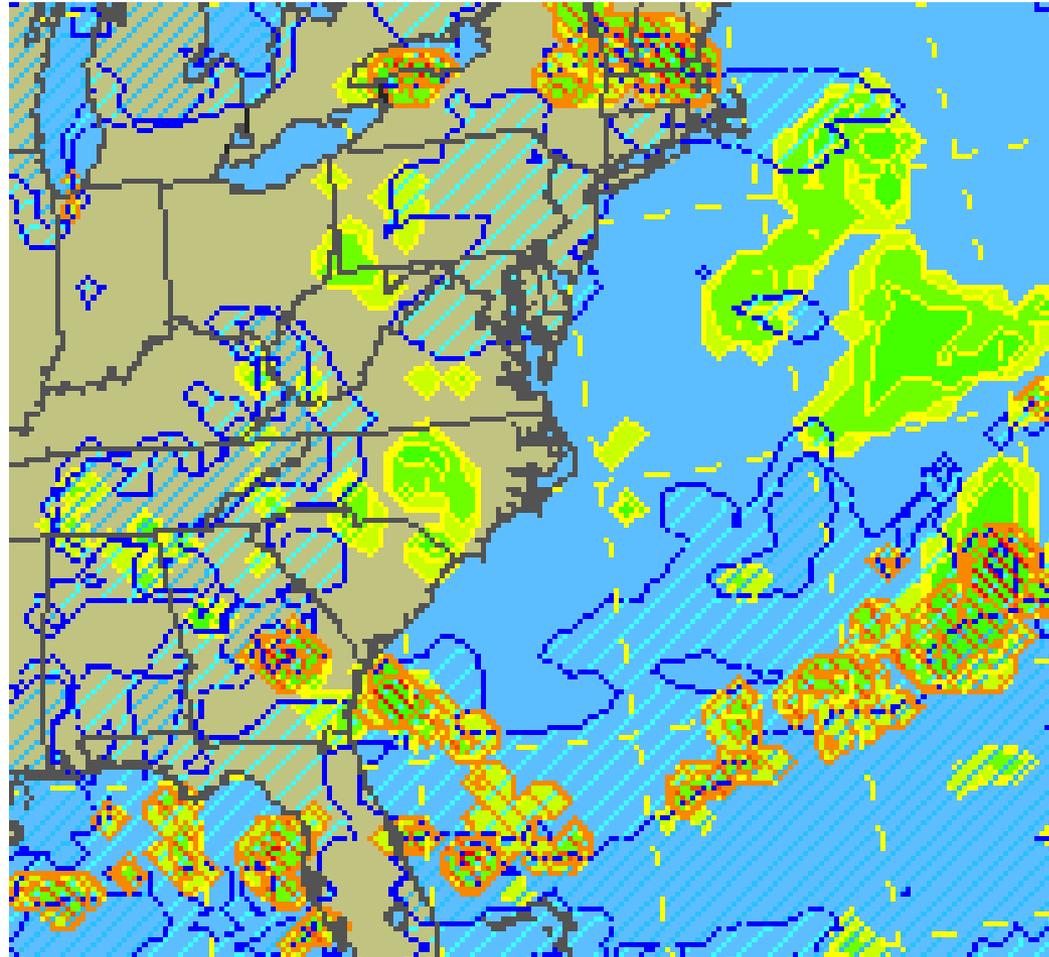




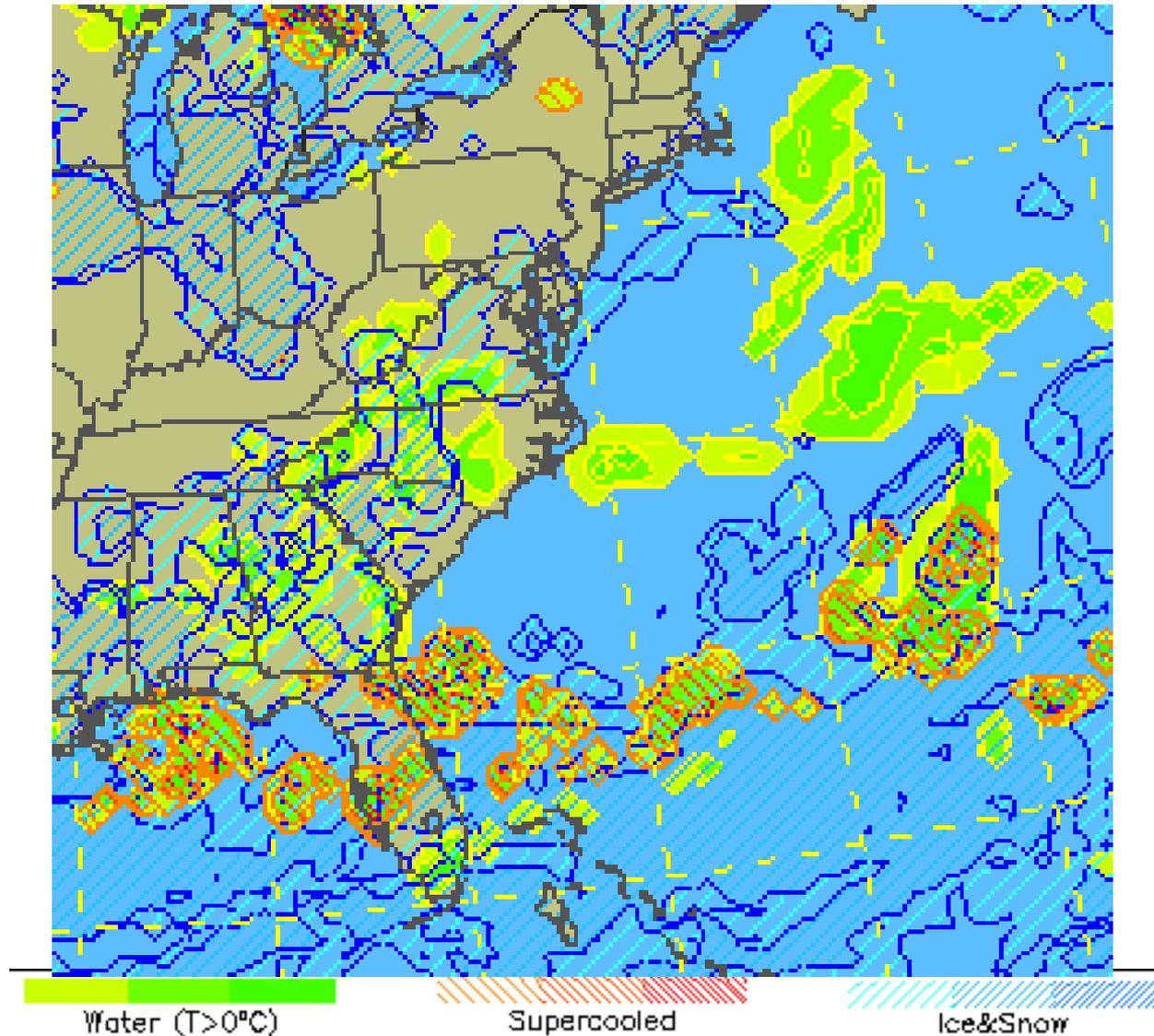
- Chance of thin low-level BL clouds on both Monday and Tuesday afternoon

- BL Height: 5000 ft on Mon., 6000 ft on Tue.  
 - Precip holds off until Wednesday afternoon (possibly convective)

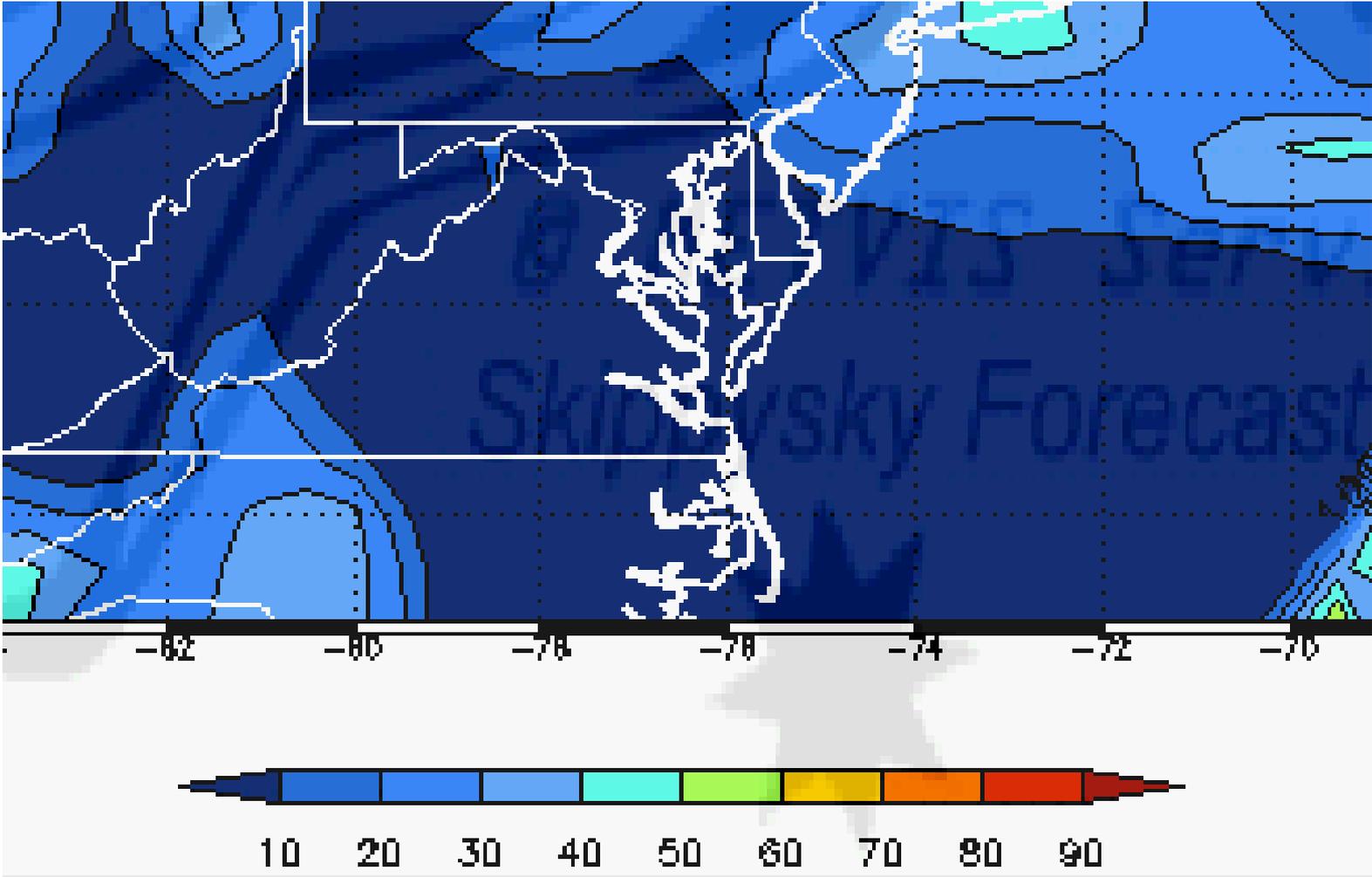
Monday 8am: NAM places high clouds (above 18,000ft) over region.



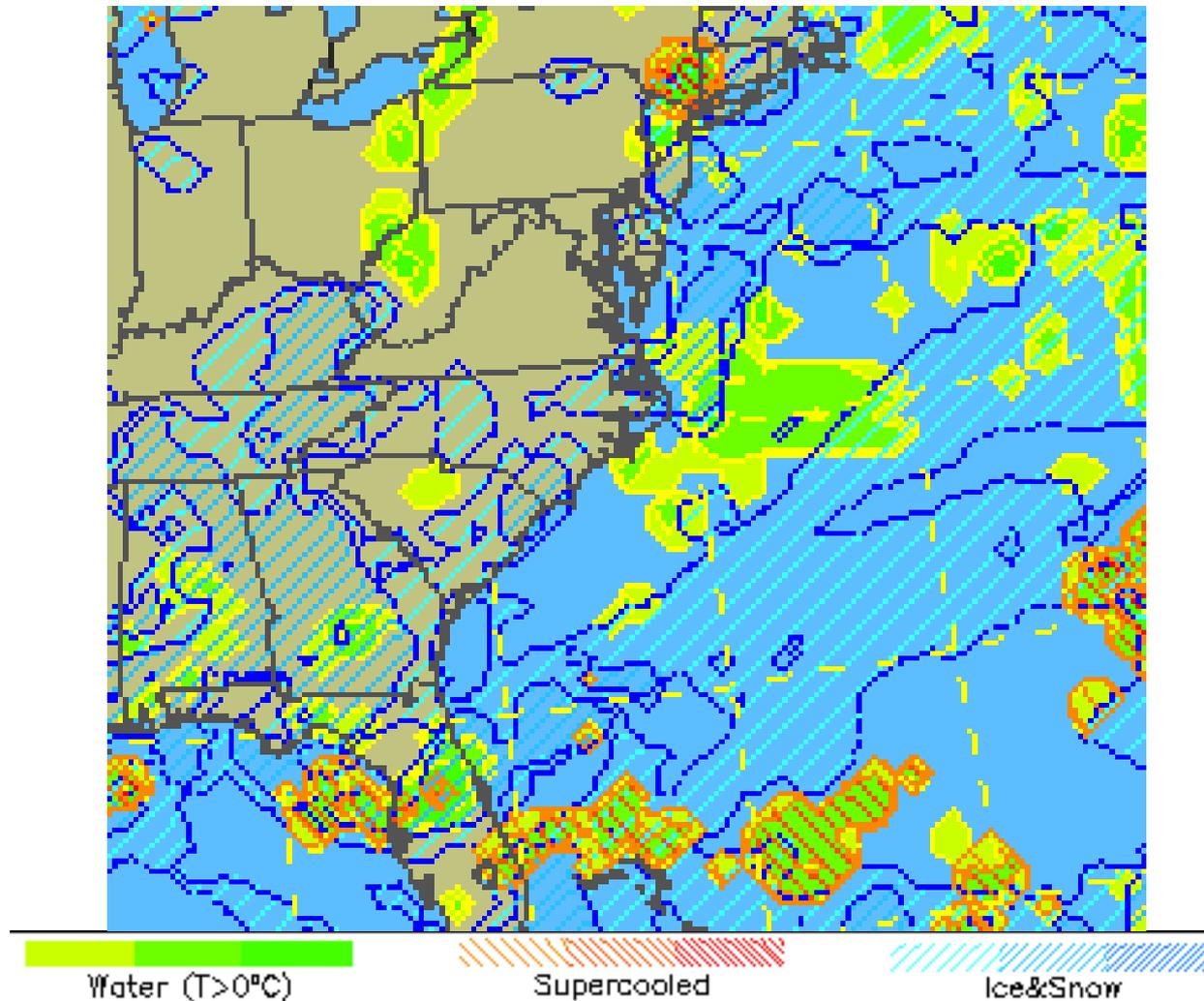
Monday 2pm: NAM keeps high clouds over most of region.



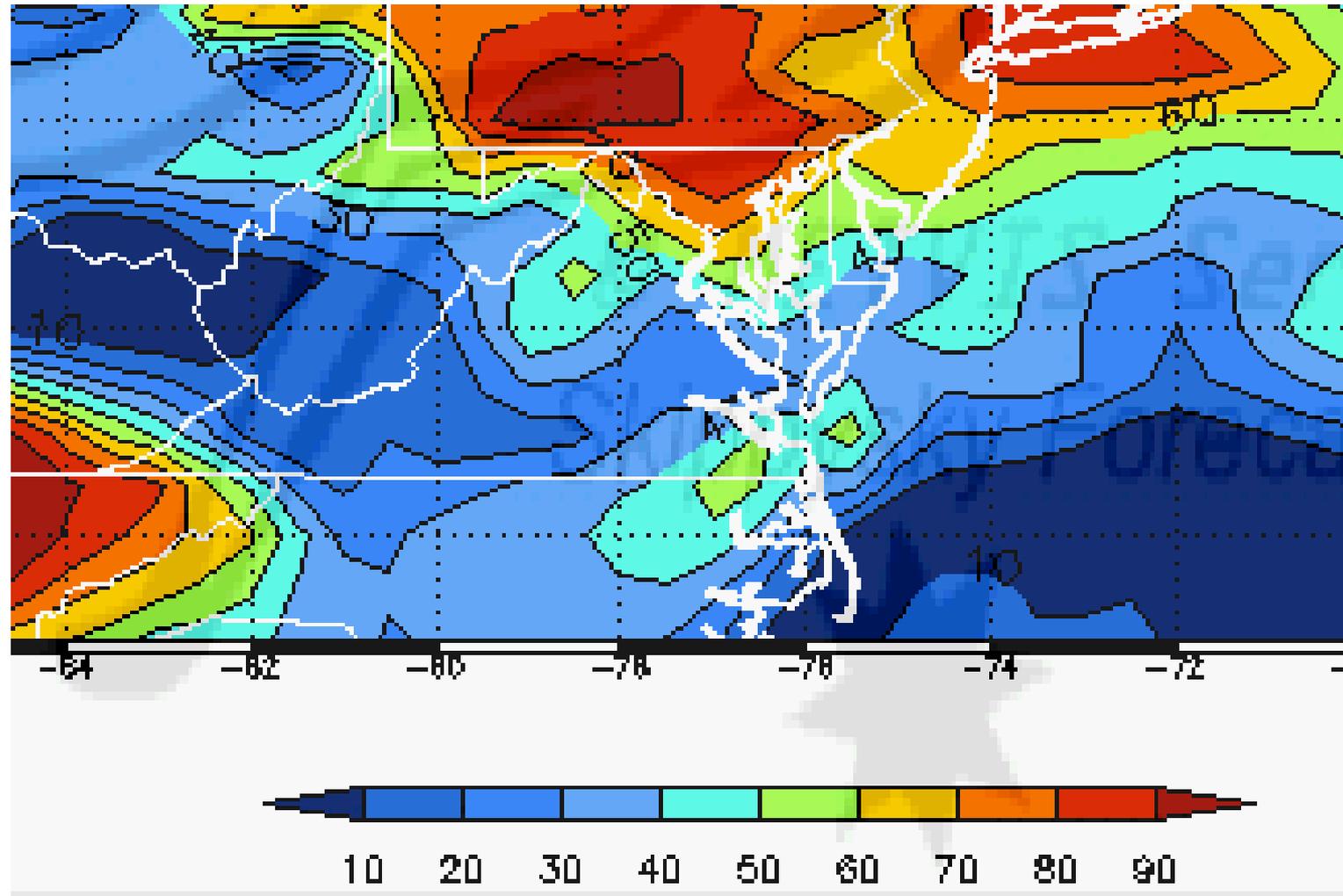
Monday 2pm: GFS keeps region clear throughout day.



Tuesday (8am): NAM keeps morning clear, but places clouds around region by 8pm.



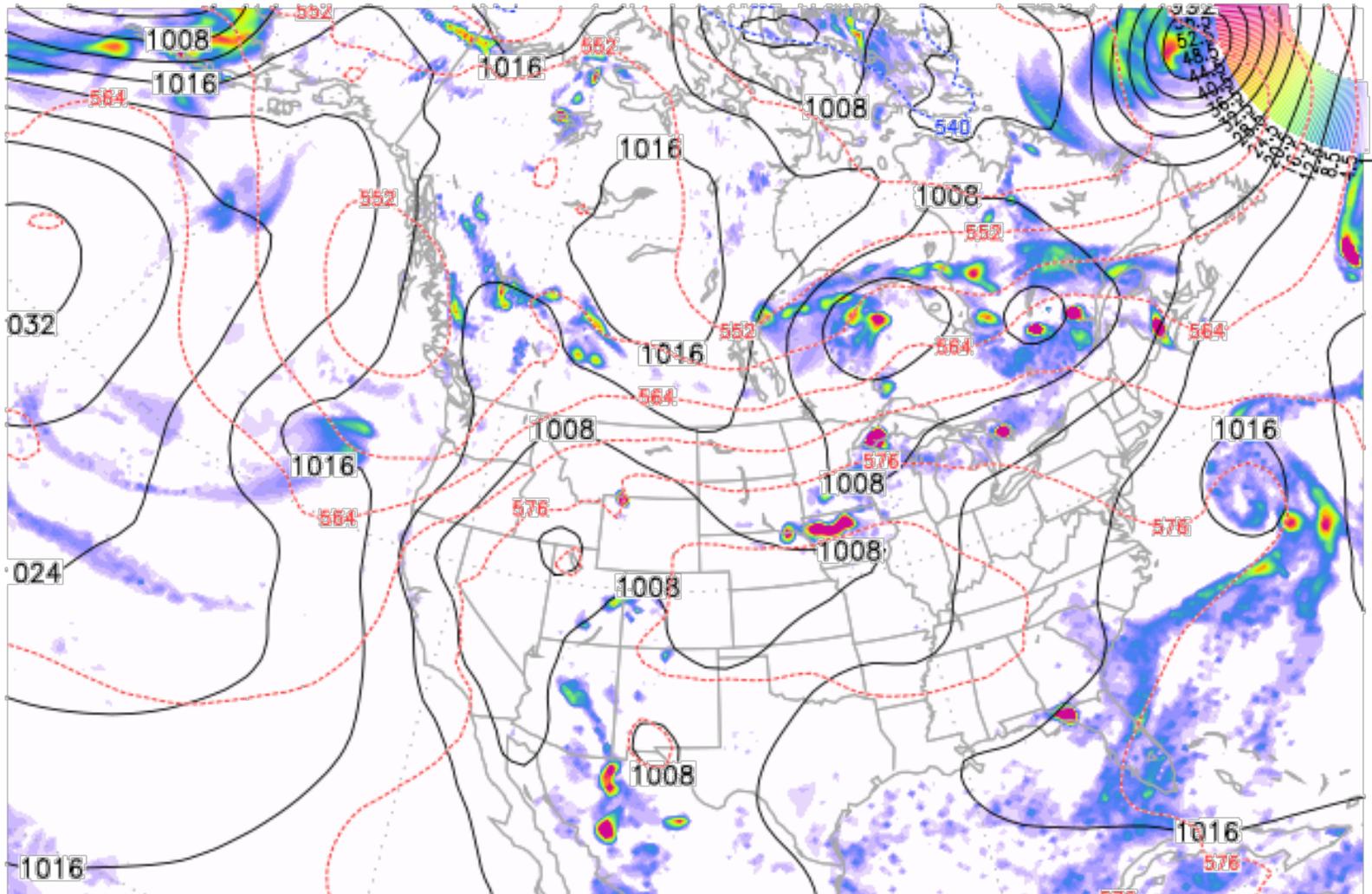
Tuesday (2pm): GFS places significant cloud cover in region by afternoon.



# GEOS-5: Monday Morning

NASA/GMAO - GEOS-5 Forecast Initialized on 00z 2011-07-10

Precip [mm/day], SLP [mb] and 1000-500mb Thickness [dam]

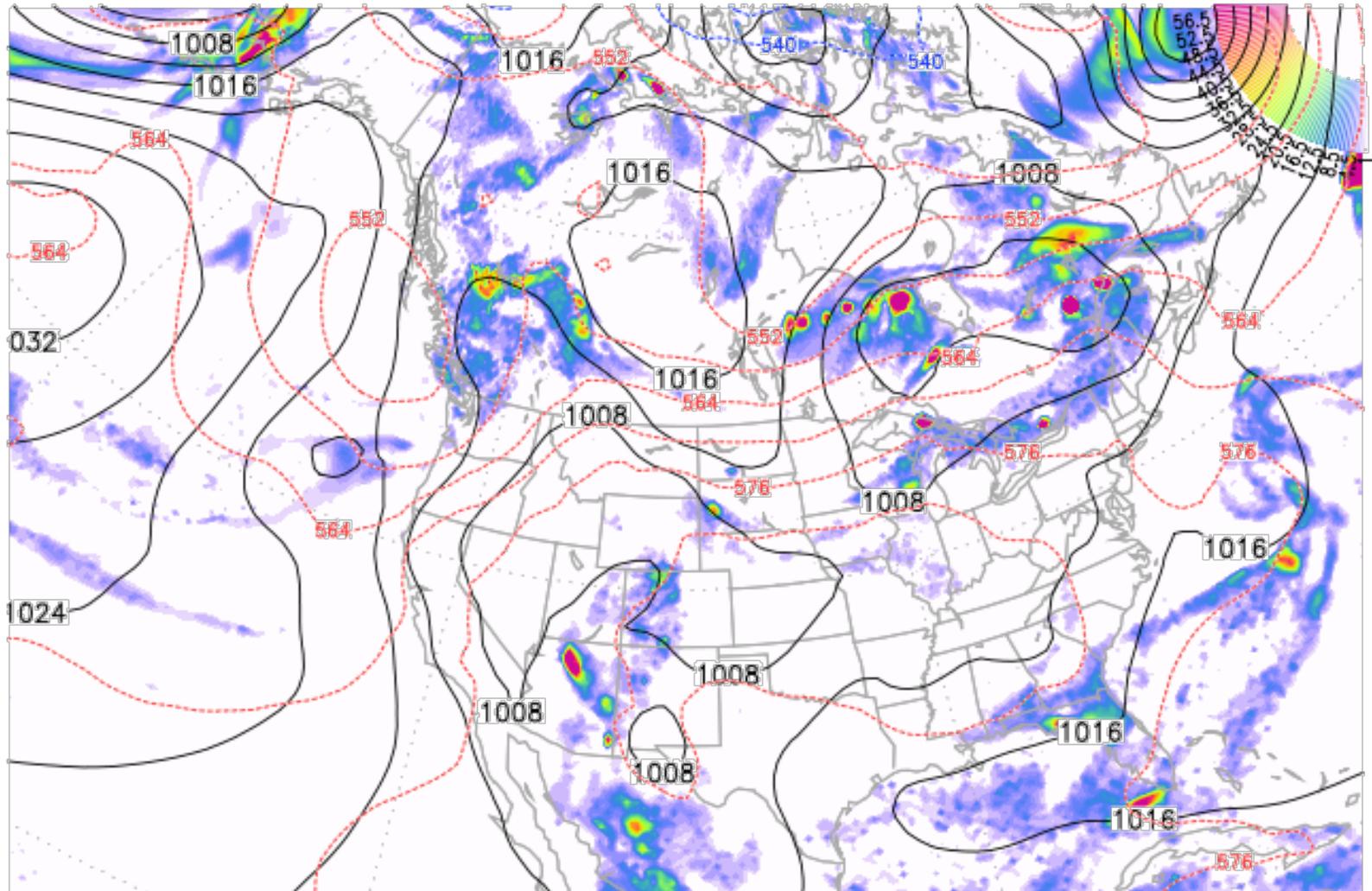


36 hr forecast valid Mon 12z 2011-07-11

# GEOS-5: Monday Afternoon

NASA/GMAO - GEOS-5 Forecast initialized on 00z 2011-07-10

Precip [mm/day], SLP [mb] and 1000-500mb Thickness [dam]

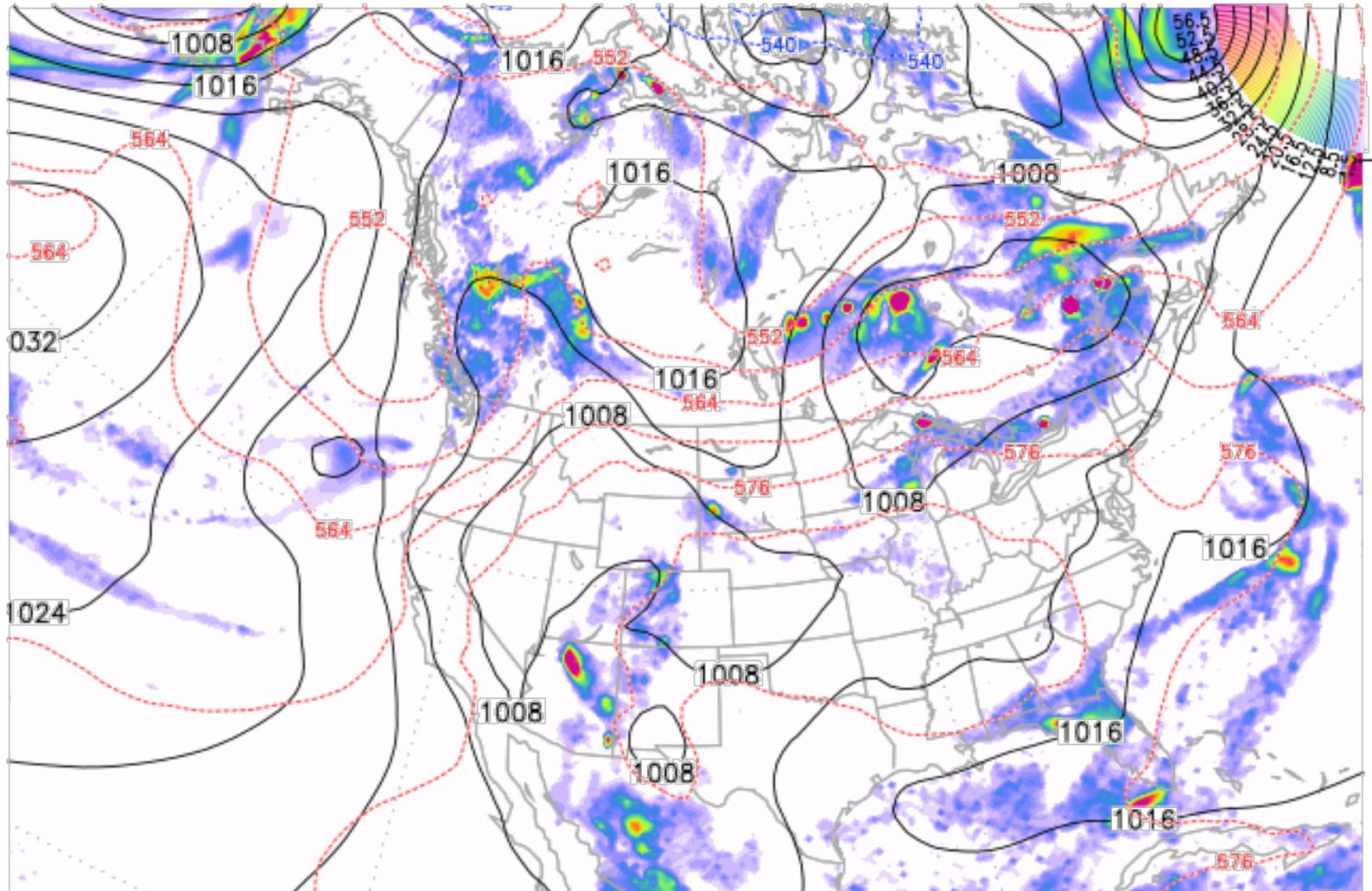


42 hr forecast valid Mon 18z 2011-07-11

# GEOS-5: Monday Afternoon

NASA/GMAO - GEOS-5 Forecast initialized on 00z 2011-07-10

Precip [mm/day], SLP [mb] and 1000-500mb Thickness [dam]

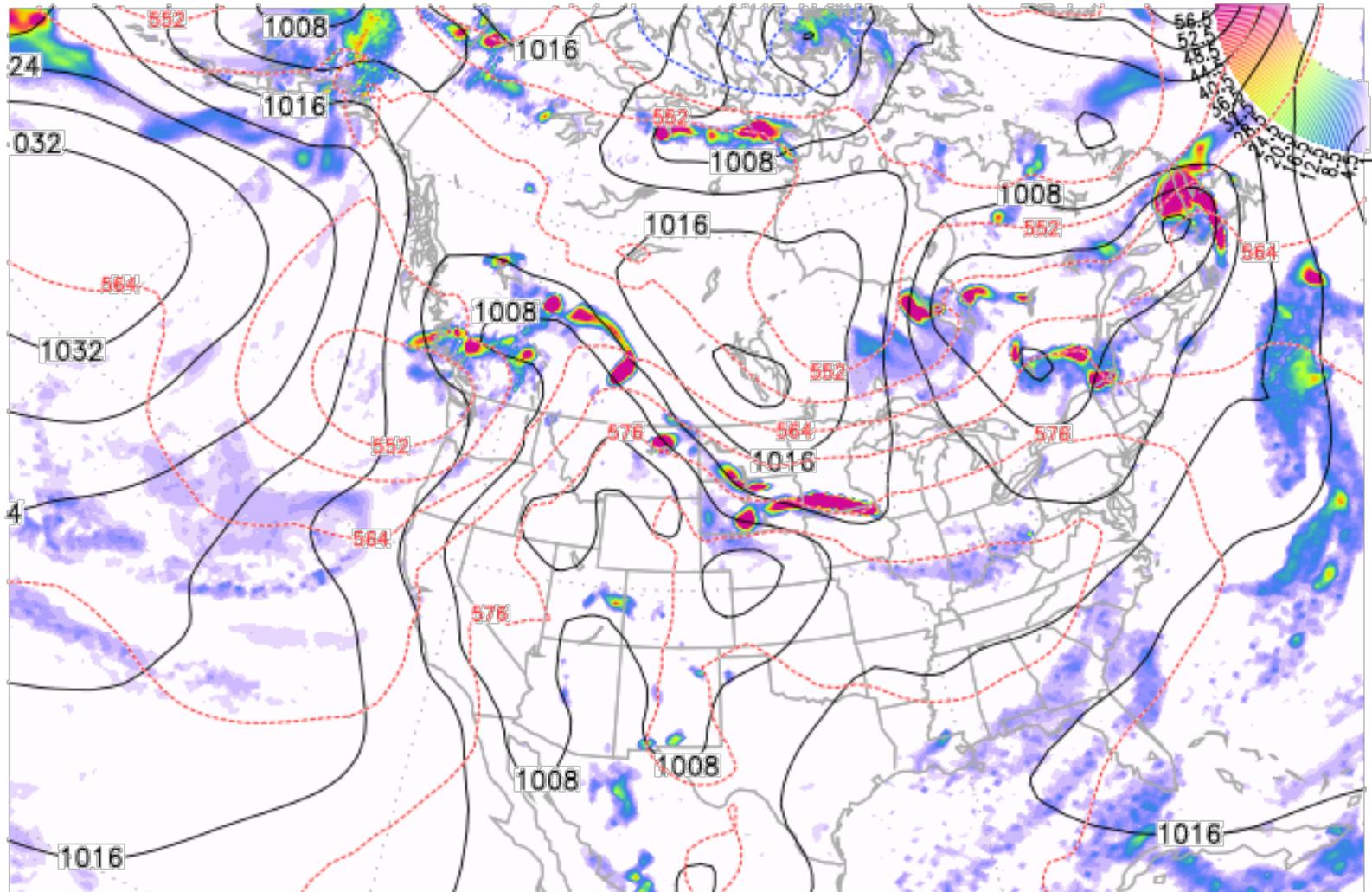


42 hr forecast valid Mon 18z 2011-07-11

# GEOS 5: Tuesday Morning

NASA/GMAO - GEOS-5 Forecast initialized on 00z 2011-07-10

Precip [mm/day], SLP [mb] and 1000-500mb Thickness [dam]

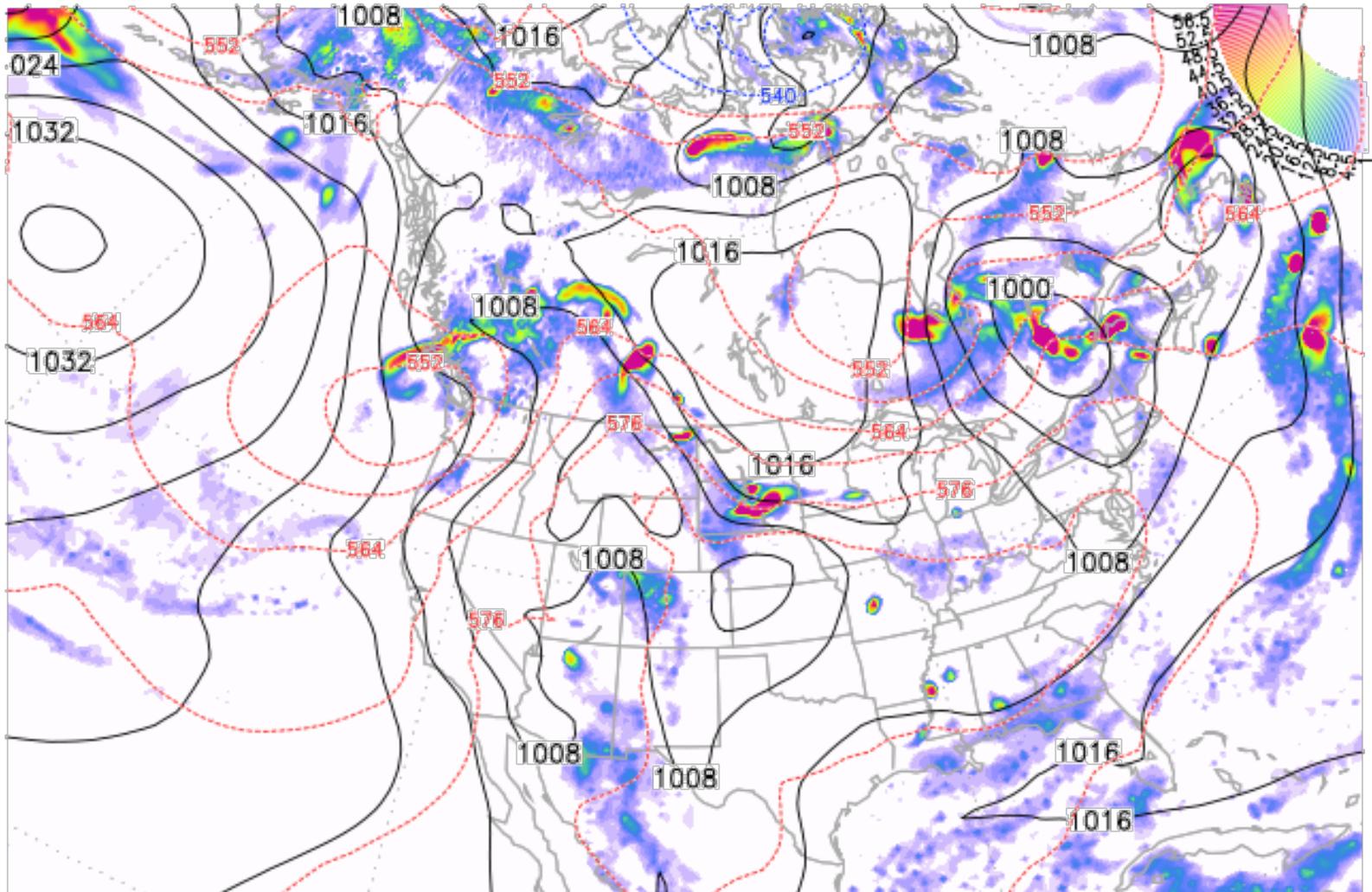


60 hr forecast valid Tue 12z 2011-07-12

# GEOS-5: Tuesday Afternoon

NASA/GMAO - GEOS-5 Forecast initialized on 00z 2011-07-10

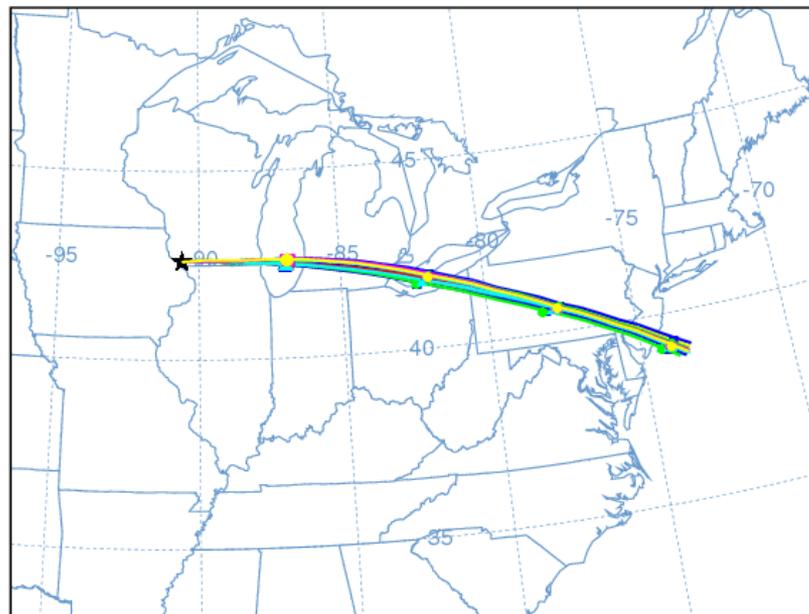
Precip [mm/day], SLP [mb] and 1000-500mb Thickness [dam]



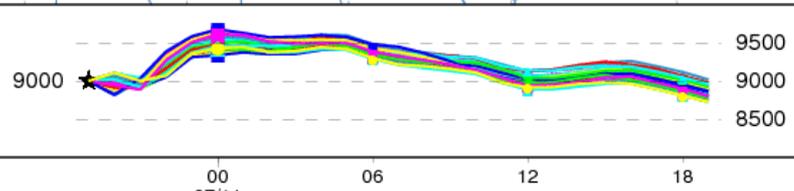
66 hr forecast valid Tue 18z 2011-07-12

NOAA HYSPLIT MODEL  
Forward trajectories starting at 1900 UTC 10 Jul 11  
12 UTC 10 Jul NAM Forecast Initialization

Source ★ at 42.60 N 90.61 W



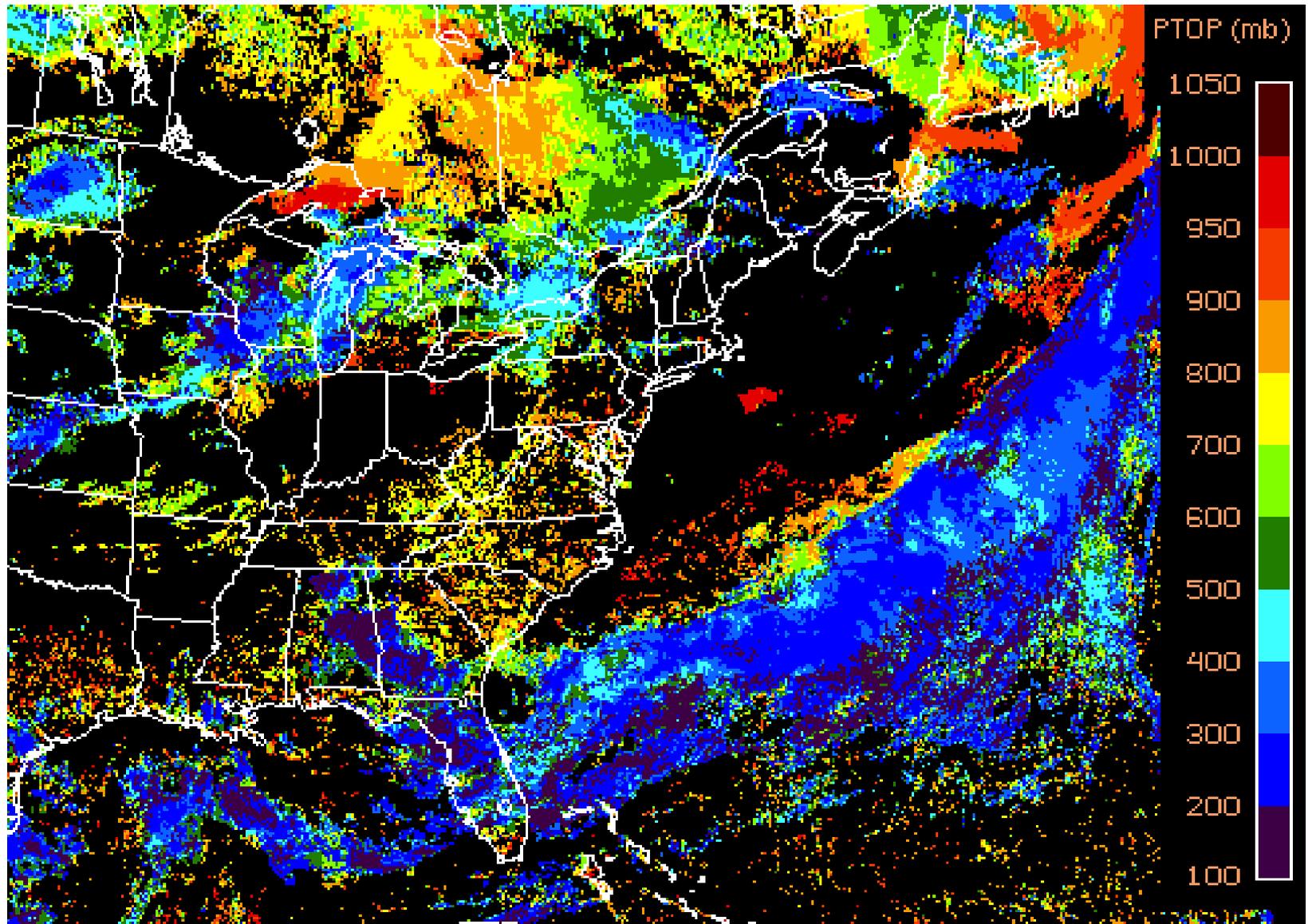
Meters AGL



This is not a NOAA product. It was produced by a web user.  
Job ID: 15294 Job Start: Sun Jul 10 19:30:19 UTC 2011  
Source 1 lat.: 42.6005556 lon.: -90.6088889 height: 9000 m AGL  
Trajectory Direction: Forward Duration: 24 hrs  
Vertical Motion Calculation Method: Model Vertical Velocity  
Meteorology: 1200Z 10 Jul 2011 - NAM 12 km



# GOES Cloud Top Pressure at 1845Z

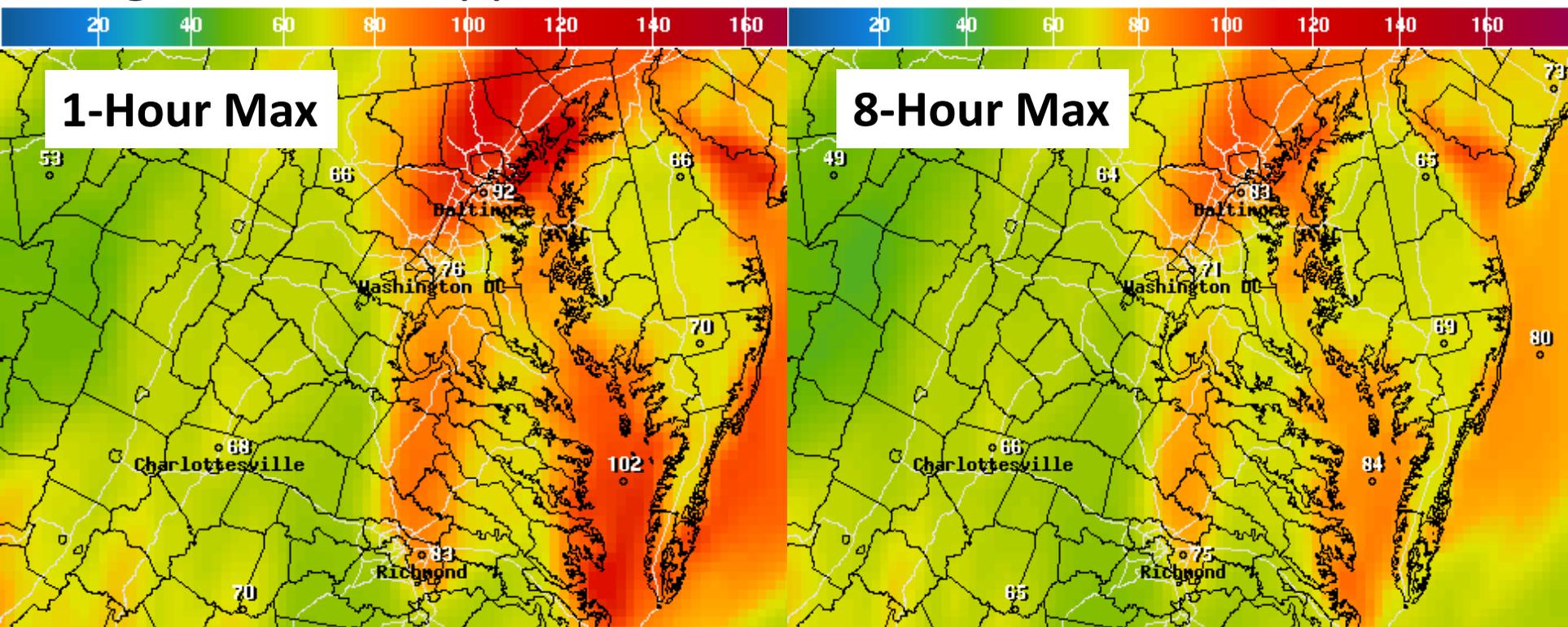


Monday: Monday should be another high ozone day with ozone reaching ~90ppbv (1-hr) and ~80ppbv (8-hr) near Baltimore.

Baltimore: 92 ppbv

Beltsville: 89 ppbv

Edgewood: 111 ppbv



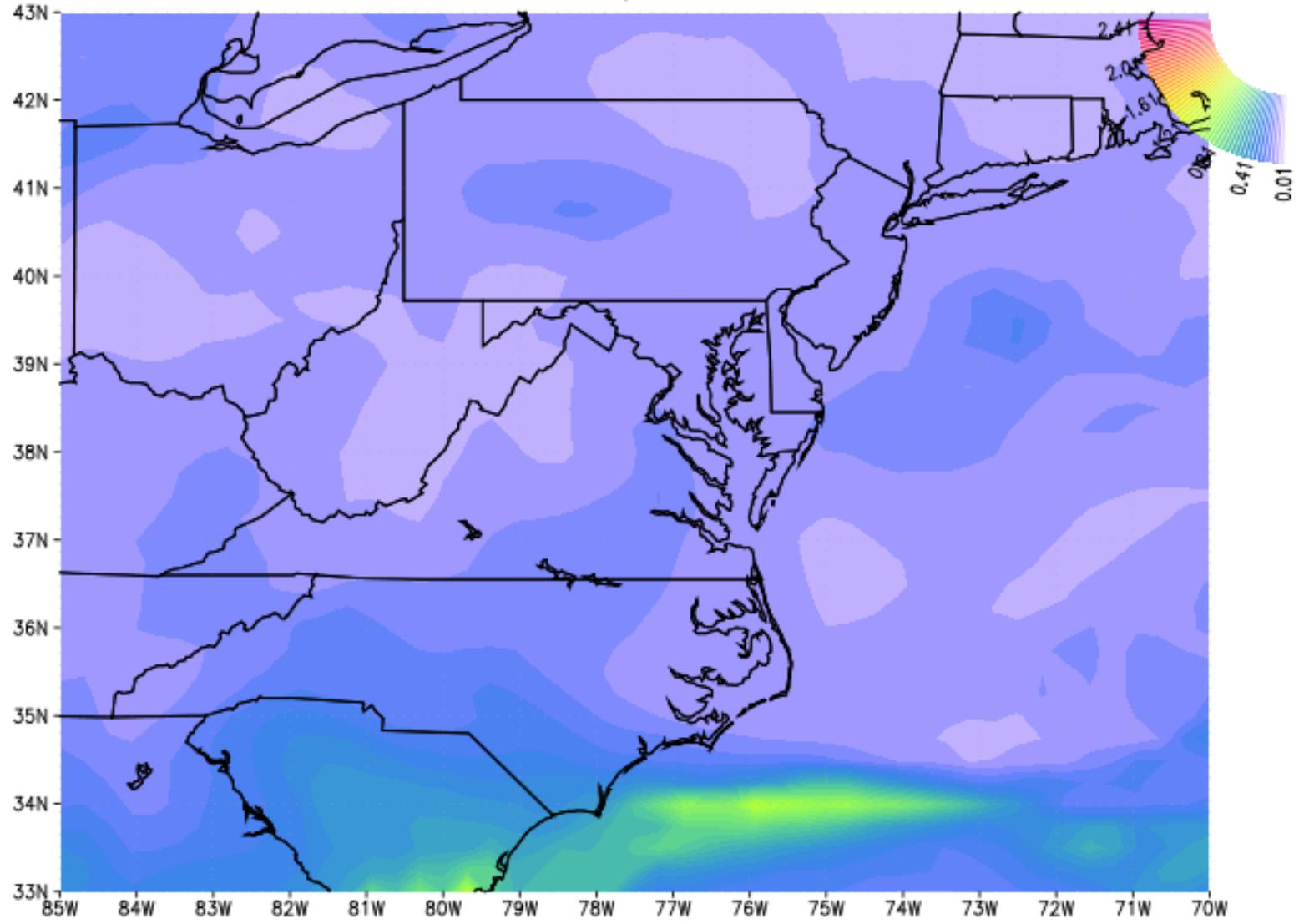
Maximum 1Hr Ozone(PPB) Ending Tue Jul 12 2011 12AM EDT  
(Tue Jul 12 2011 04Z)

Maximum 8hr Ozone(PPB) Ending Tue Jul 12 2011 3AM EDT  
(Tue Jul 12 2011 07Z)



# Today's AOT forecast: Minimal impact of aerosols.

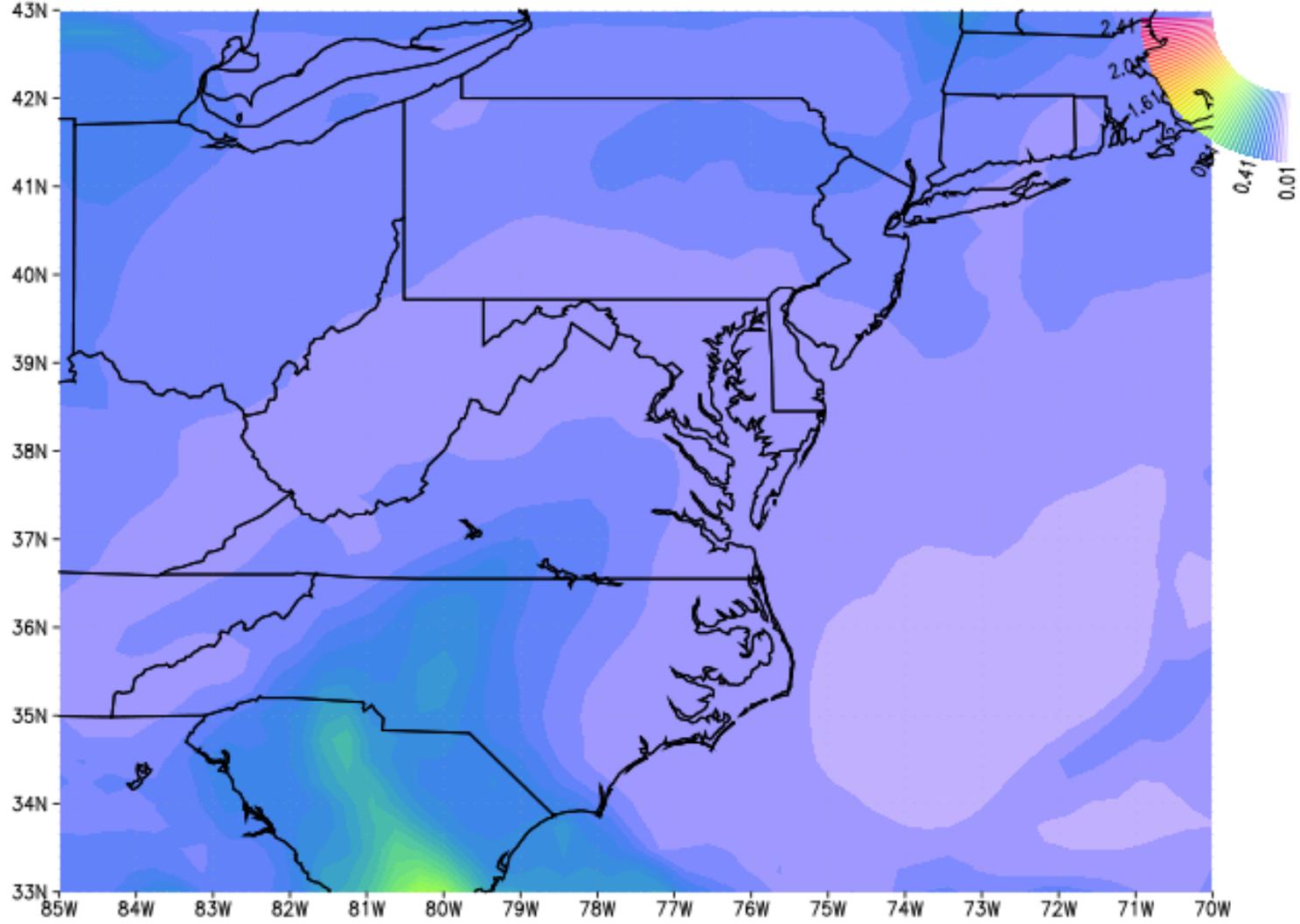
NASA/GMAO – GEOS-5 Forecast Initialized on 00z 2011-07-10  
Total Aerosol Optical Thickness



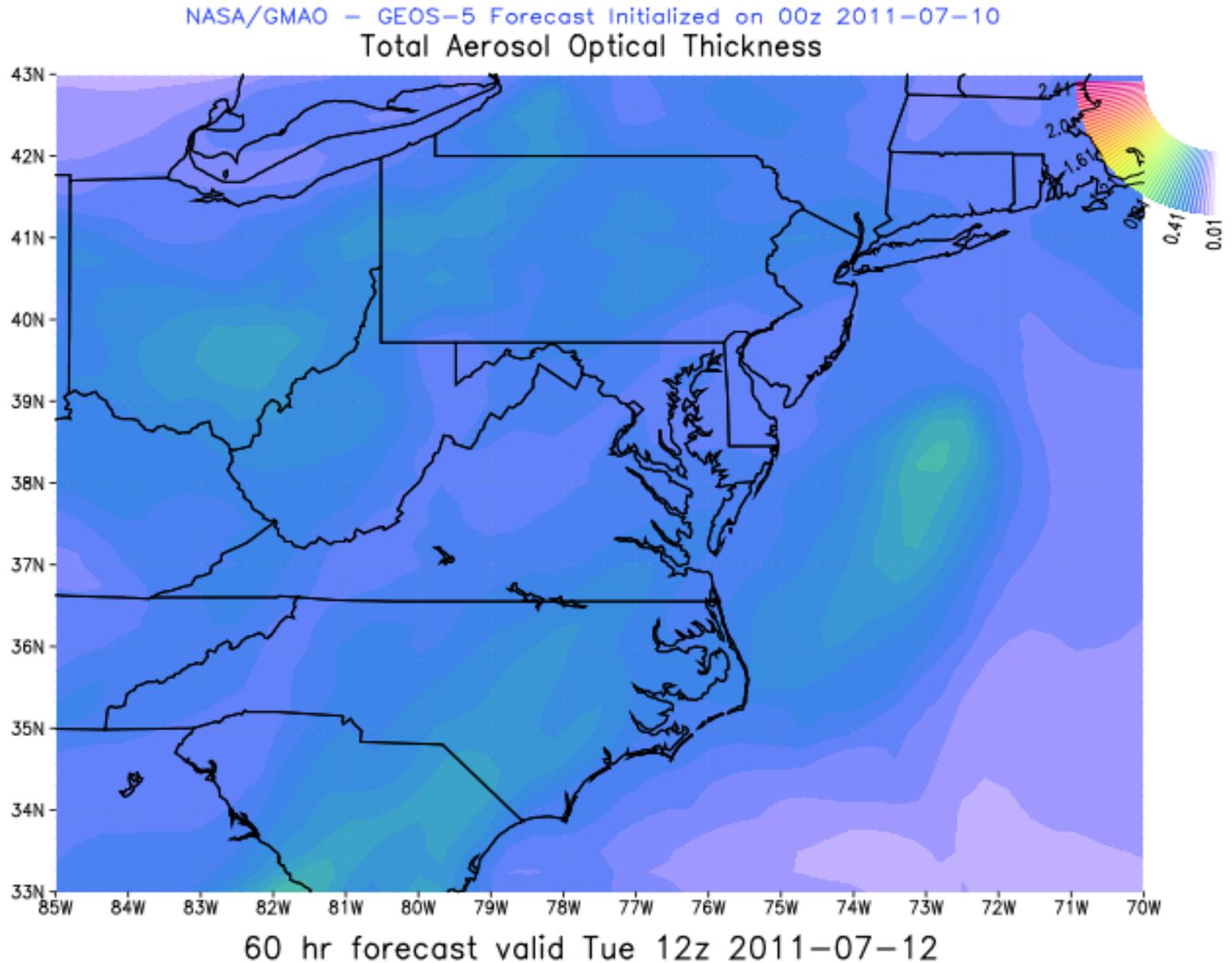
12 hr forecast valid Sun 12z 2011-07-10

# Monday: minimal aerosol impact.

NASA/GMAO – GEOS-5 Forecast Initialized on 00z 2011-07-10  
Total Aerosol Optical Thickness



**Tuesday: Some impact from wildfires/western power plants (seems like western and southern wildfires now).**



# GEOS-5 Envirogram ~~Belt~~ Raleigh 14 July 2011

