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)
| Agency | Site Name | AQS Code | Param | Date       | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | MAX |
| MD1    | Aldino   | 240259001| O3    | 07/10/2011 | 23| 23| 17| 16| 16| 17| 20| 29| 37| 45| 55| 66| 72| 74|-999|-999|-999|-999|-999|-999|-999|-999|-999|74 |
| MD1    | Edgewood | 240251001| O3    | 07/10/2011 | 11| 11| 10| 11| 14| 14| 23| 30| 41| 51| 57| 63| 71| 67|-999|-999|-999|-999|-999|-999|-999|-999|-999|71 |
| MD1    | Essex    | 240053001| O3    | 07/10/2011 | 10| 4 | 13| 16| 17| 20| 25| 28| 39| 48| 55| 69| 72| 72|-999|-999|-999|-999|-999|-999|-999|-999|-999|72 |
| MD1    | Fairhill | 240150003| O3    | 07/10/2011 | 34| 32| 28| 24| 20| 21| 23| 26| 32| 44| 54| 59| 64| 67|-999|-999|-999|-999|-999|-999|-999|-999|-999|67 |
| MD1    | HU-Beltsville | 2403300030 | O3 | 07/10/2011 | 23| 13| 7 | 6 | 7 | 7 | 5 | 24| 46| 60| 71| 78| 76| 75|-999|-999|-999|-999|-999|-999|-999|-999|-999|78 |
| MD1    | Padonia  | 240051007| O3    | 07/10/2011 | 15| 9 | 14| 5 | 6 | 13| 26| 40| 52| 69| 80| 78| 75|-999|-999|-999|-999|-999|-999|-999|-999|-999|80 |

**Hour** | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | MAX |
| Column Maximum | 34| 32| 28| 24| 20| 21| 25| 30| 46| 60| 71| 80| 78| 75| -999| -999| -999| -999| -999| -999| -999| -999| -999| -999| 80 |
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.
Friday ->

Friday, July 15, 2011
- 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/OMA - GEOS-5 Forecast initialized on CD2 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

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

42 hr forecast valid Mon 18z 2011–07–11
GEOS-5: Tuesday Morning

60 hr forecast valid Tue 12z 2011-07-12
GEOS-5: Tuesday Afternoon

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

66 hr forecast valid Tue 18z 2011-07-12
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
Today’s AOT forecast: Minimal impact of aerosols.
Monday: minimal aerosol impact.
Tuesday: Some impact from wildfires/western power plants (seems like western and southern wildfires now).