DISCOVER-AQ

HSRL Data Summary

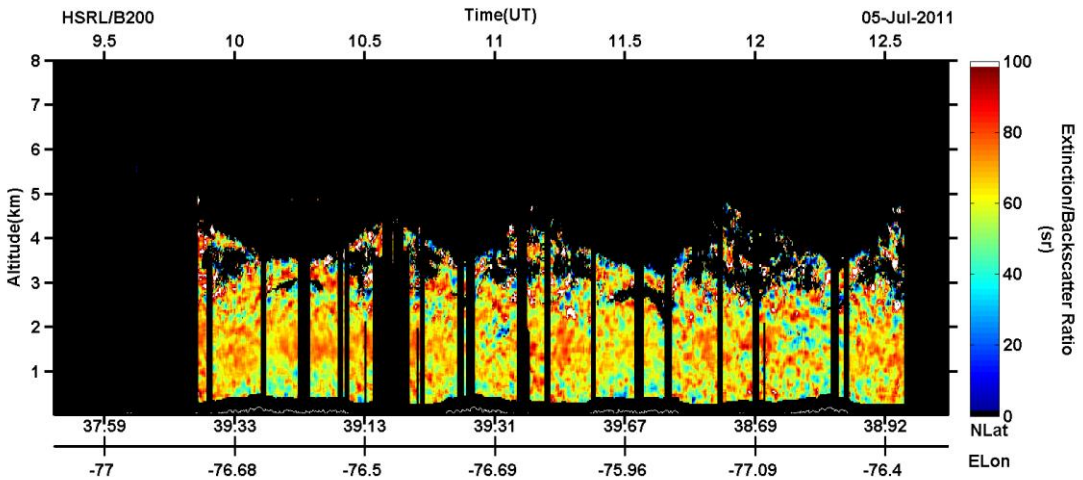
FLIGHT: Morning science flight (1 of 2)

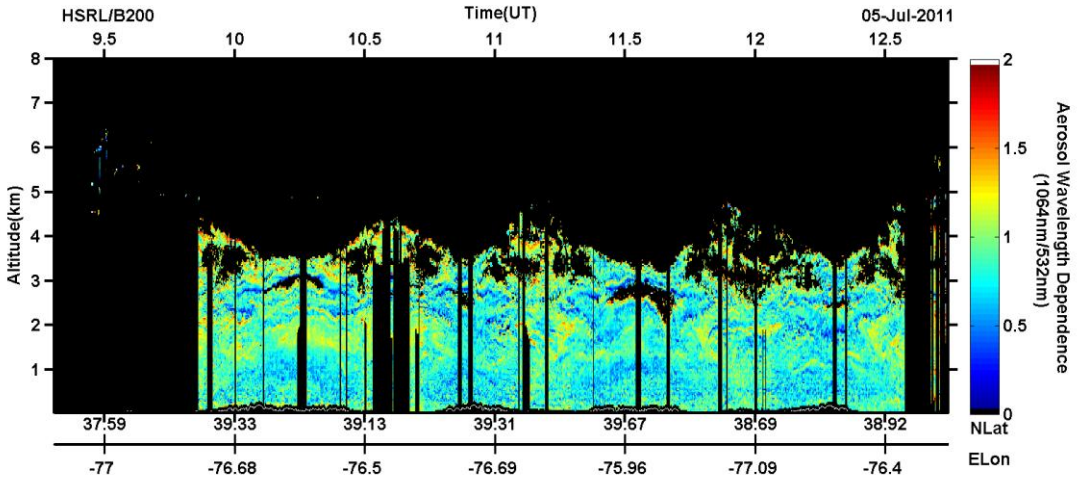
DATE: July 5, 2011

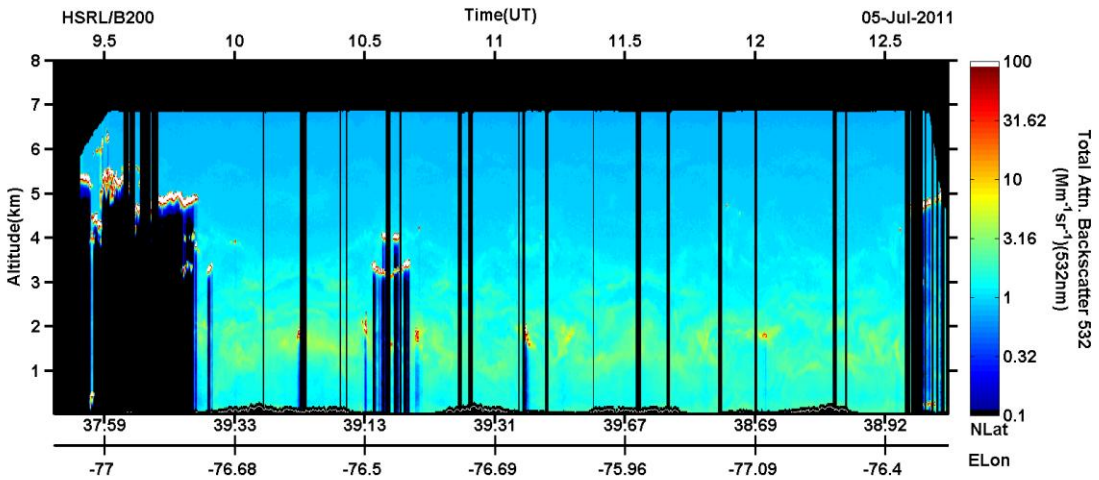
DURATION: 4.0 hours

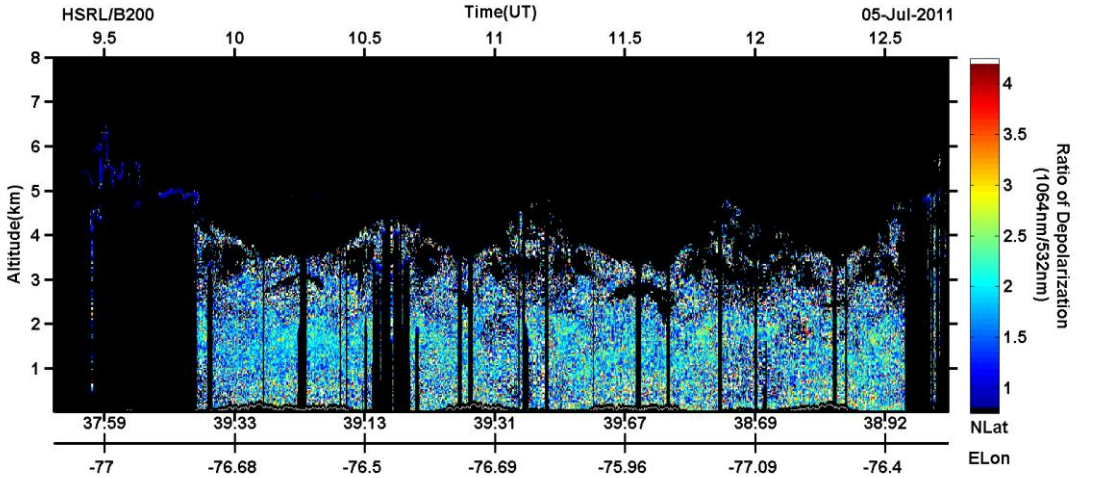
SUMMARY: We took off at about 5 AM local and landed at about 9 AM. There was a heavy cloud deck in the southern region of our flight plan but that really cleared out by the time we got up into the DC area. The boundary layer was rather chaotic and showed some decent extinction between about 1.5 km and 2 km. We flew the standard DAQ flight plan.

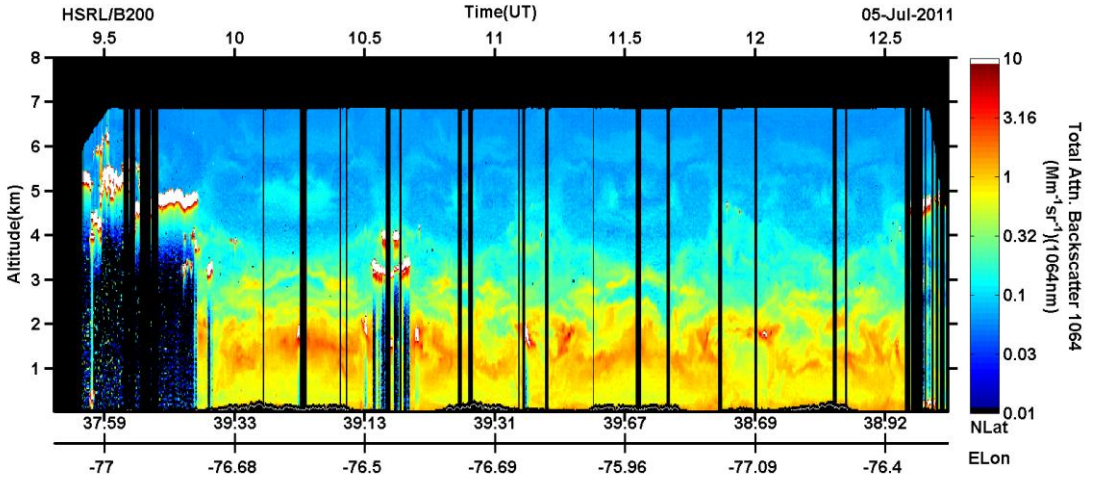
SUMMARY PLOTS:

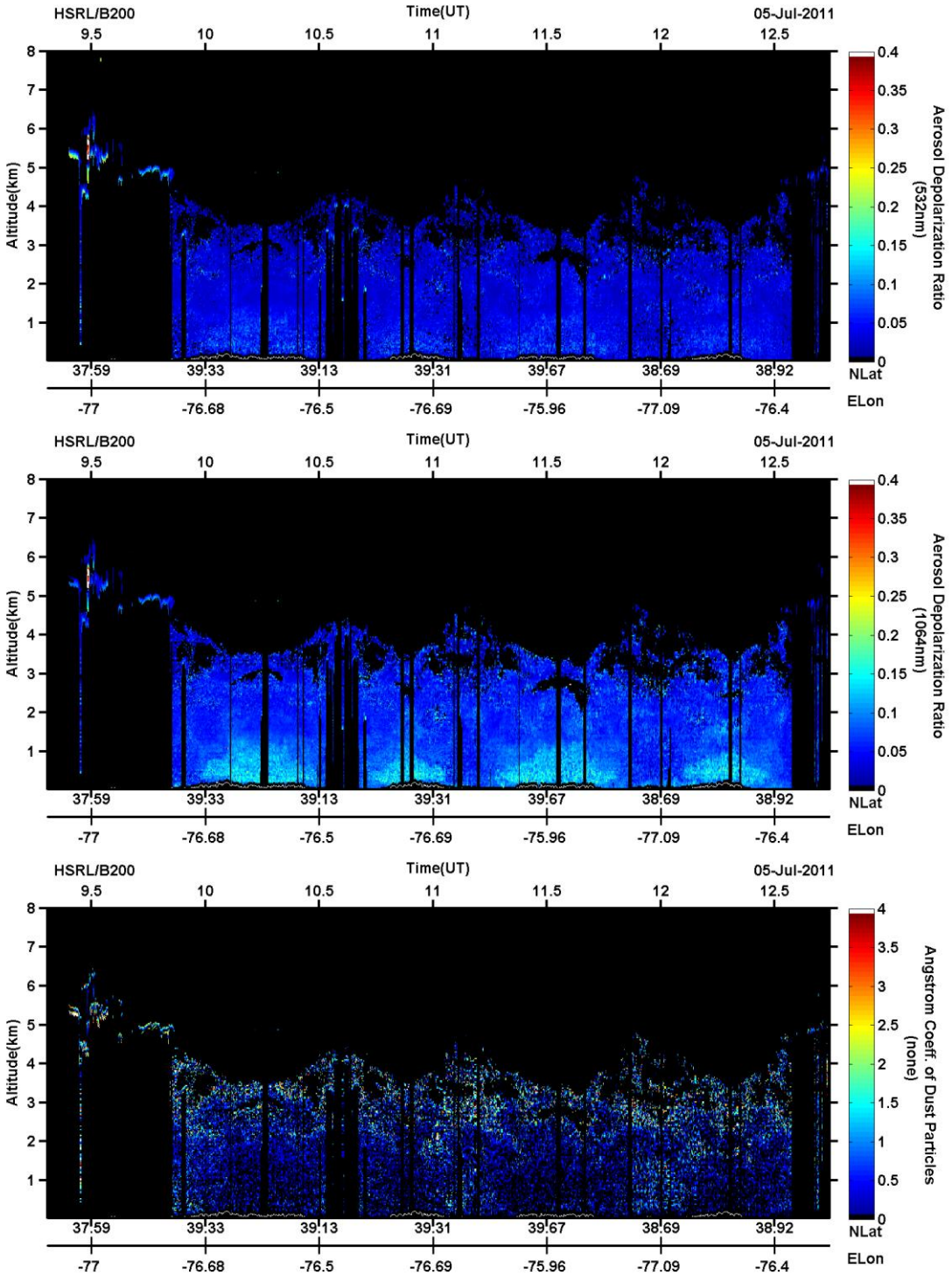


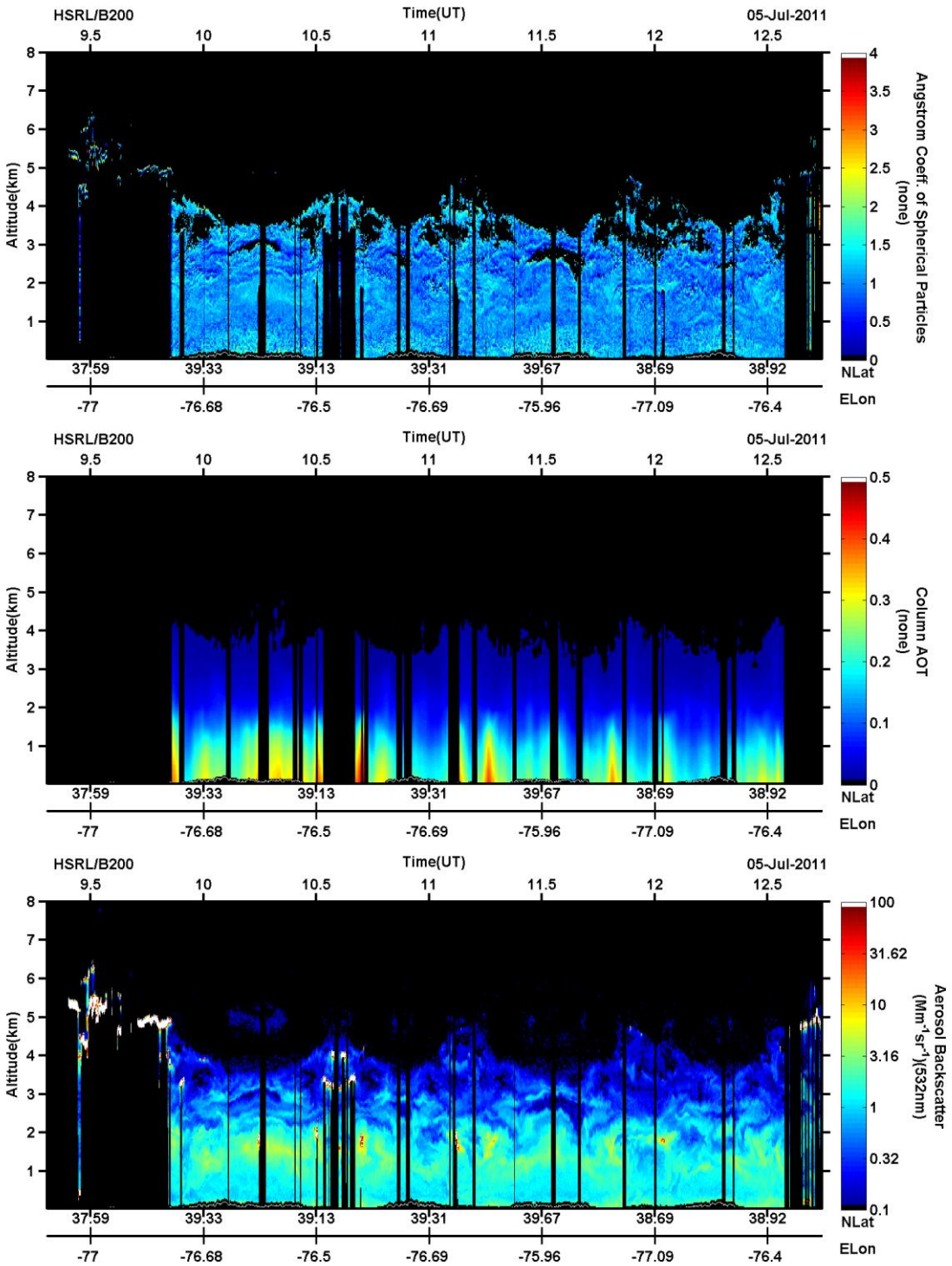



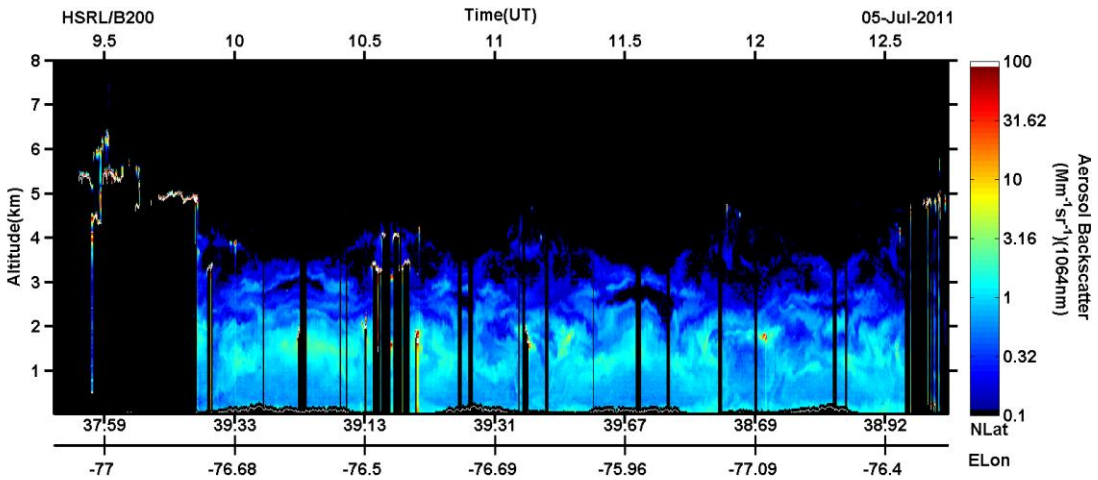

HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon
100
31.62
10
3.16
1
0.32
0.1
Total Attn. Backscatter 532
(Mm-1sr-1)(532nm)

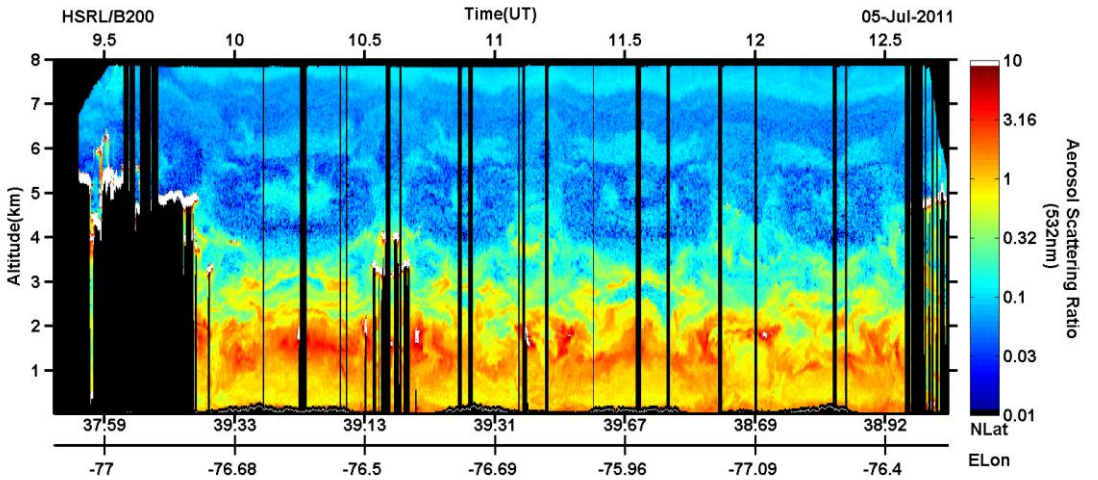

HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon
4
3.5
3
2.5
2
1.5
1
Ratio of Depolarization
(1064nm/532nm)

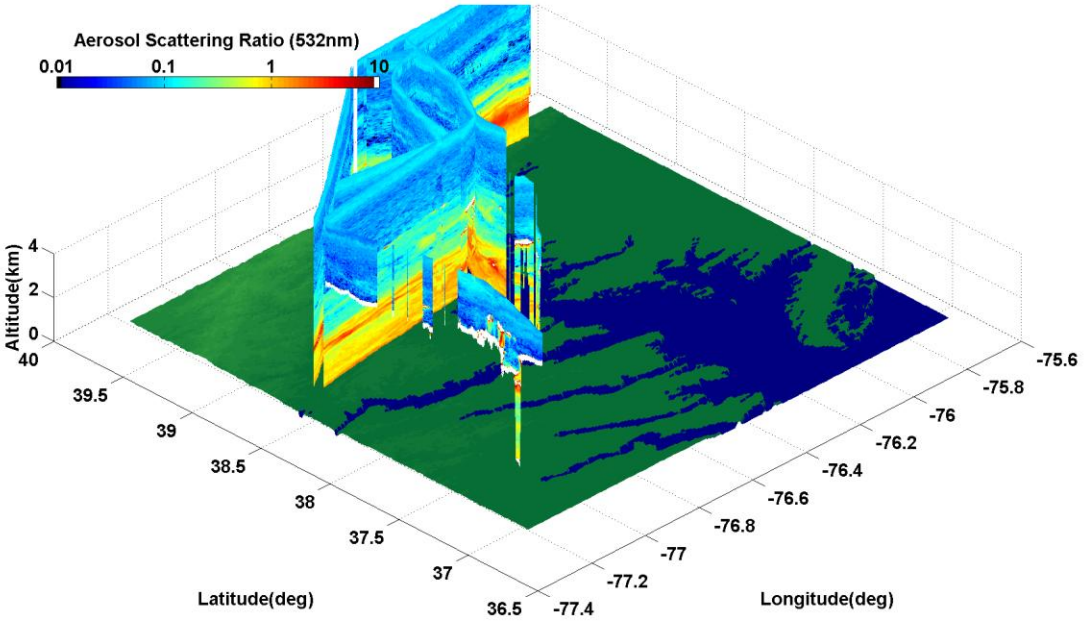

HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon
10
3.16
1
0.32
0.1
0.03
0.01
Total Attn. Backscatter 1064
(Mm-1sr-1)(1064nm)

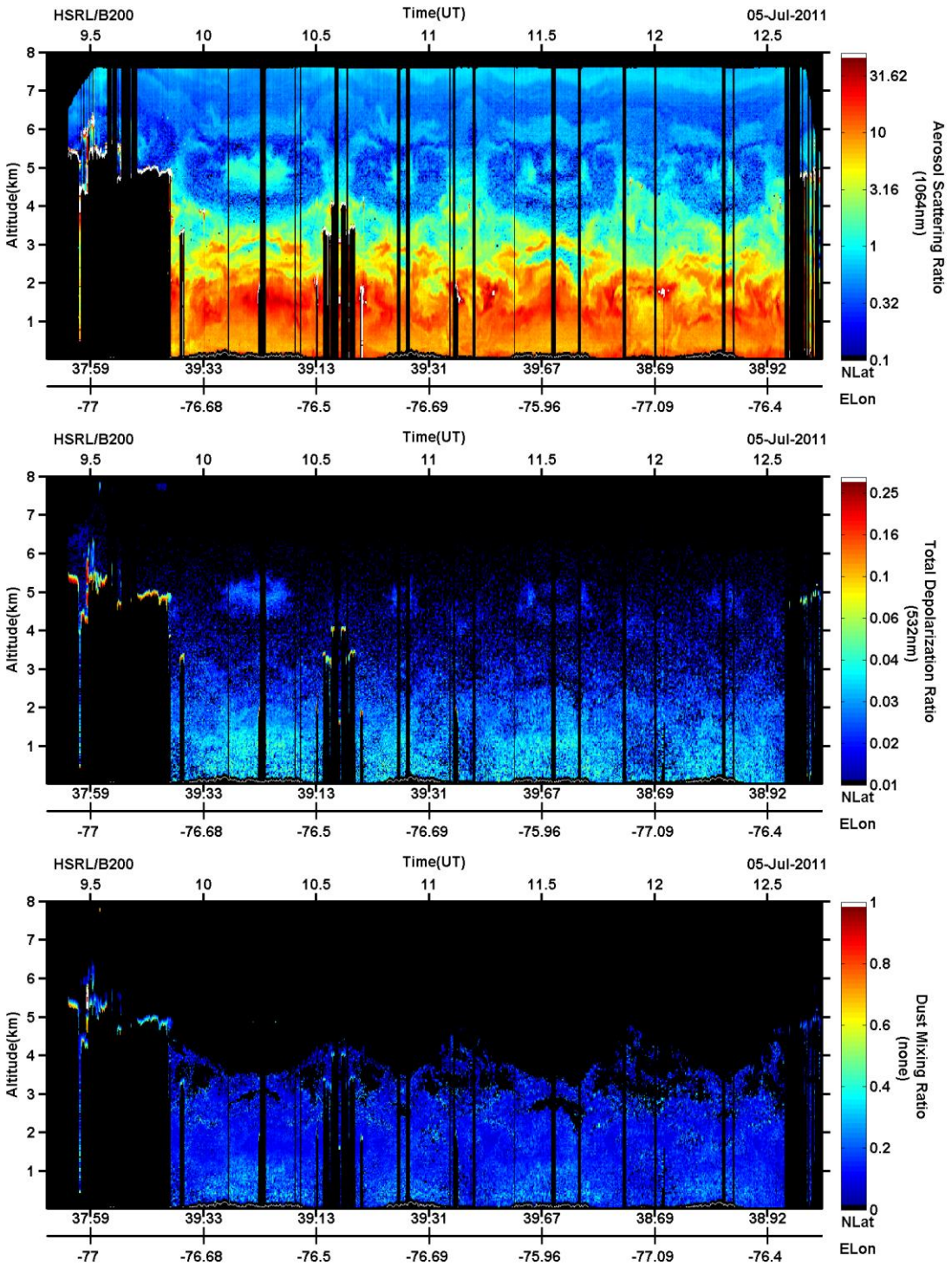

HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon
Aerosol Depolarization Ratio (532nm)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
HSRL/B200
Time(UT)
05-Jul-2011
Aerosol Depolarization Ratio (1064nm)
HSRL/B200
Time(UT)
05-Jul-2011
Angstrom Coeff. of Dust Particles (none)
4
3.5
3
2.5
2
1.5
1
0.5
0

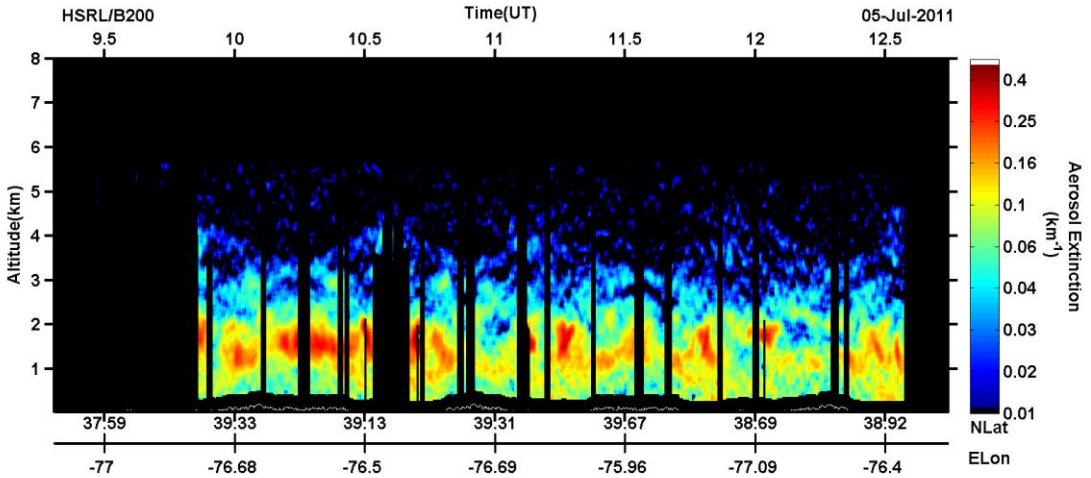

HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon
Angstrom Coeff. of Spherical Particles (none)
4
3.5
3
2.5
2
1.5
1
0.5
0
Column AOT (none)
0.5
0.4
0.3
0.2
0.1
0
Aerosol Backscatter (Mm-1sr-1)(532nm)
100
31.62
10
3.16
1
0.32
0.1


HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
100
31.62
10
3.16
1
0.32
0.1
Aerosol Backscatter
(Mm-1sr-1)(1064nm)
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon

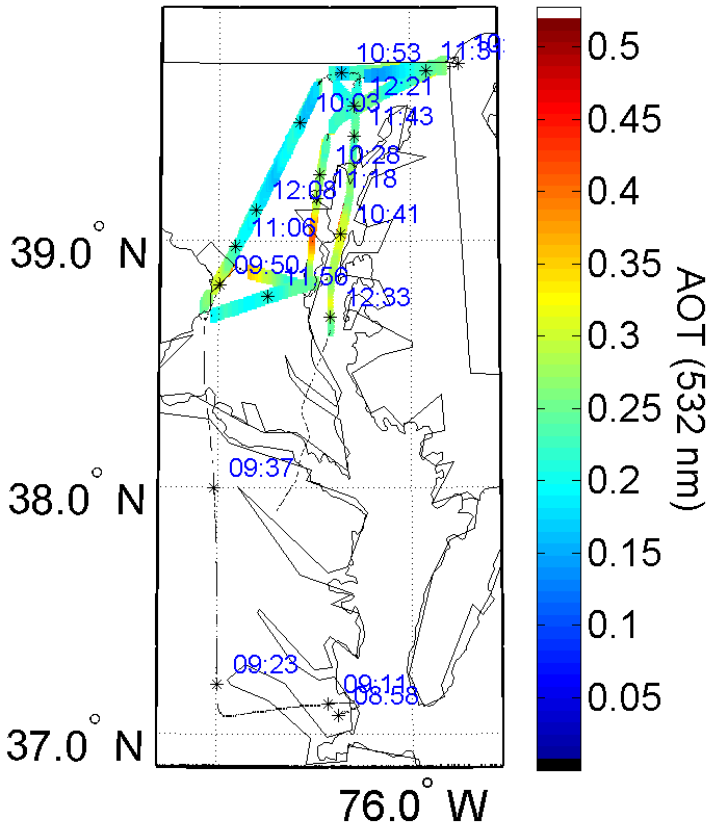

HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
10
3.16
1
0.32
0.1
0.03
0.01
Aerosol Scattering Ratio
(532nm)
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon


Aerosol Scattering Ratio (532nm)
0.01
0.1
1
10
Altitude(km)
4
2
0
40
39.5
39
38.5
38
37.5
37
36.5
Latitude(deg)
-77.4
-77.2
-77
-76.8
-76.6
-76.4
-76.2
-76
-75.8
-75.6
Longitude(deg)


HSRL/B200
Time(UT)
05-Jul-2011
9.5
10
10.5
11
11.5
12
12.5
Altitude(km)
8
7
6
5
4
3
2
1
37.59
39.33
39.13
39.31
39.67
38.69
38.92
NLat
-77
-76.68
-76.5
-76.69
-75.96
-77.09
-76.4
ELon
Aerosol Scattering Ratio
(1064nm)
31.62
10
3.16
1
0.32
0.1
Total Depolarization Ratio
(532nm)
0.25
0.16
0.1
0.06
0.04
0.03
0.02
0.01
Dust Mixing Ratio
(none)
1
0.8
0.6
0.4
0.2
0




NASA Langley HSRL/B200 05-Jul-2011



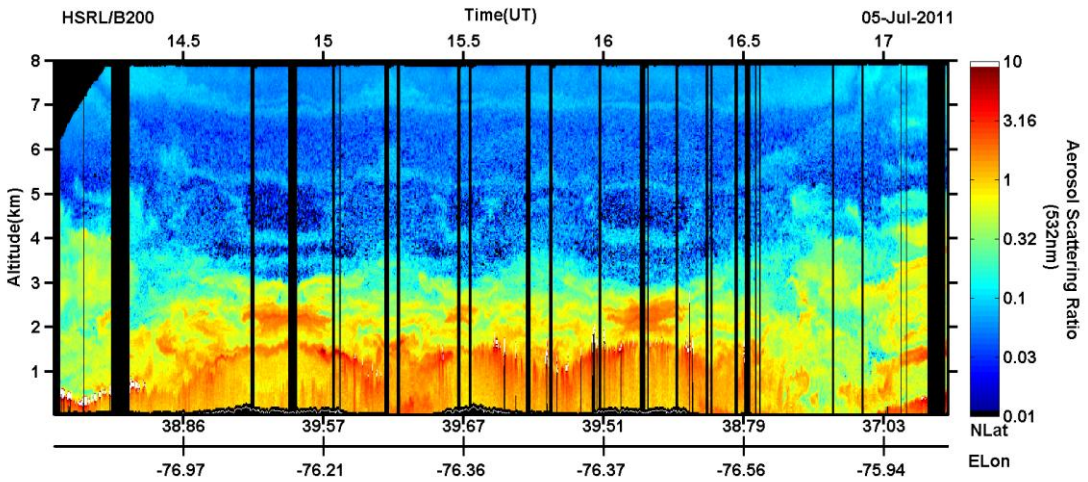
FLIGHT: Afternoon science flight (2 of 2)

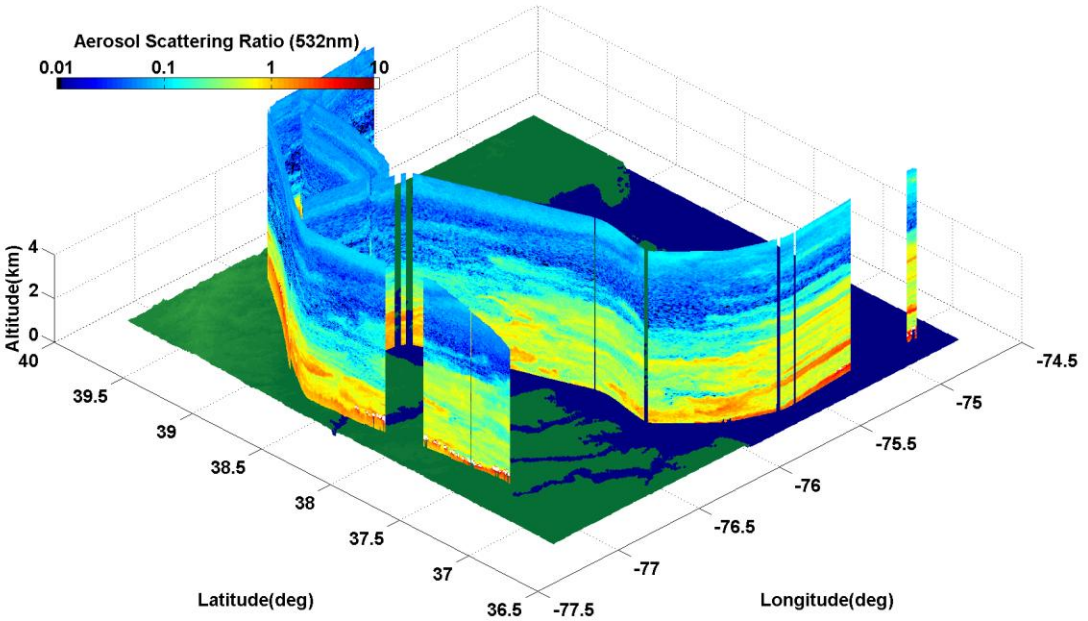
DATE: July 5, 2011

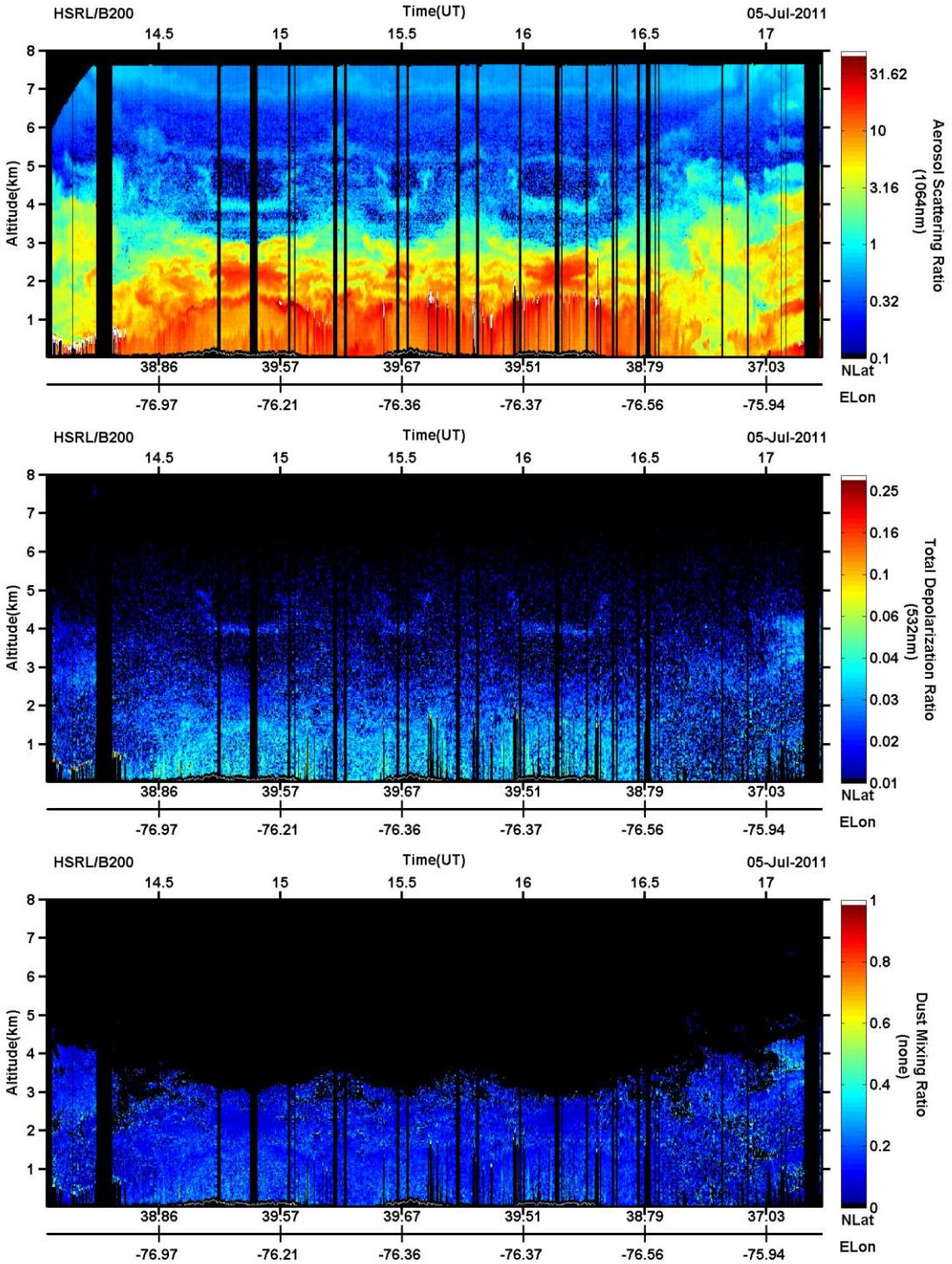
DURATION: 3.9 hours

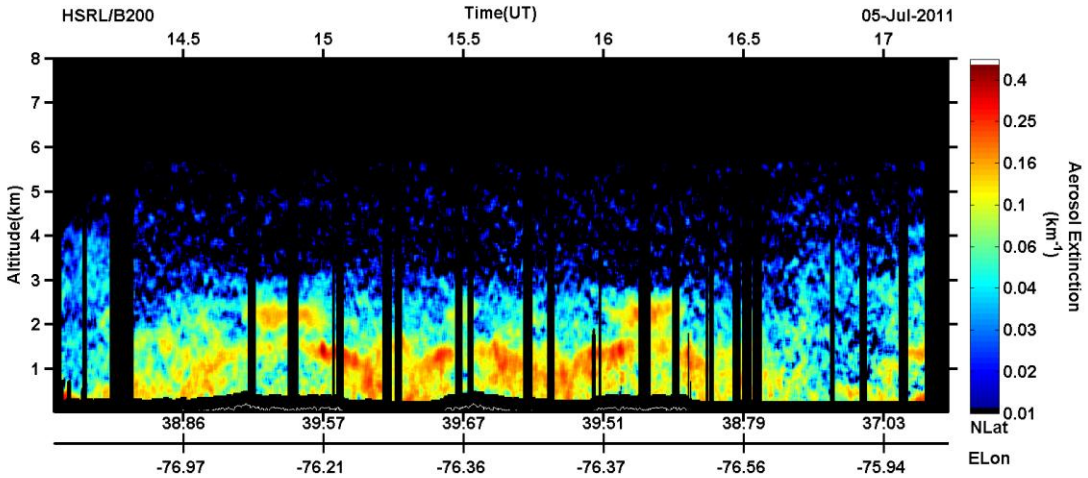
SUMMARY: This was the afternoon flight for DISCOVER-AQ. We flew the standard pattern over DC and ended with over-water data down the Chesapeake Bay (through Patuxent restricted area), across COVE AERONET, and out AR-9 into deeper water.

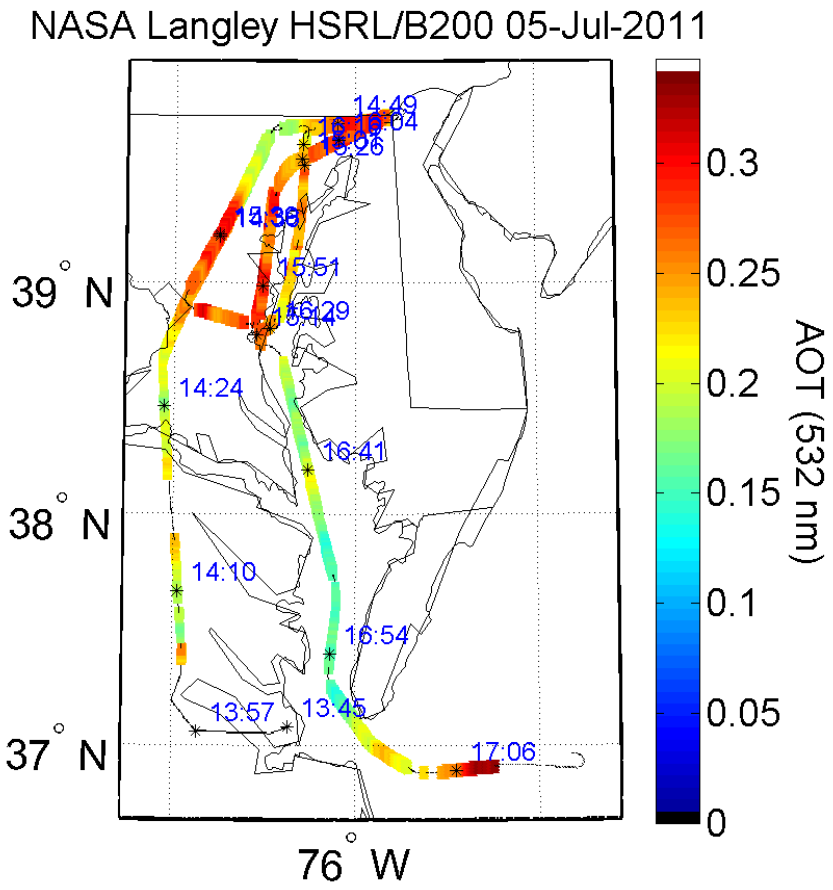
SUMMARY PLOTS:

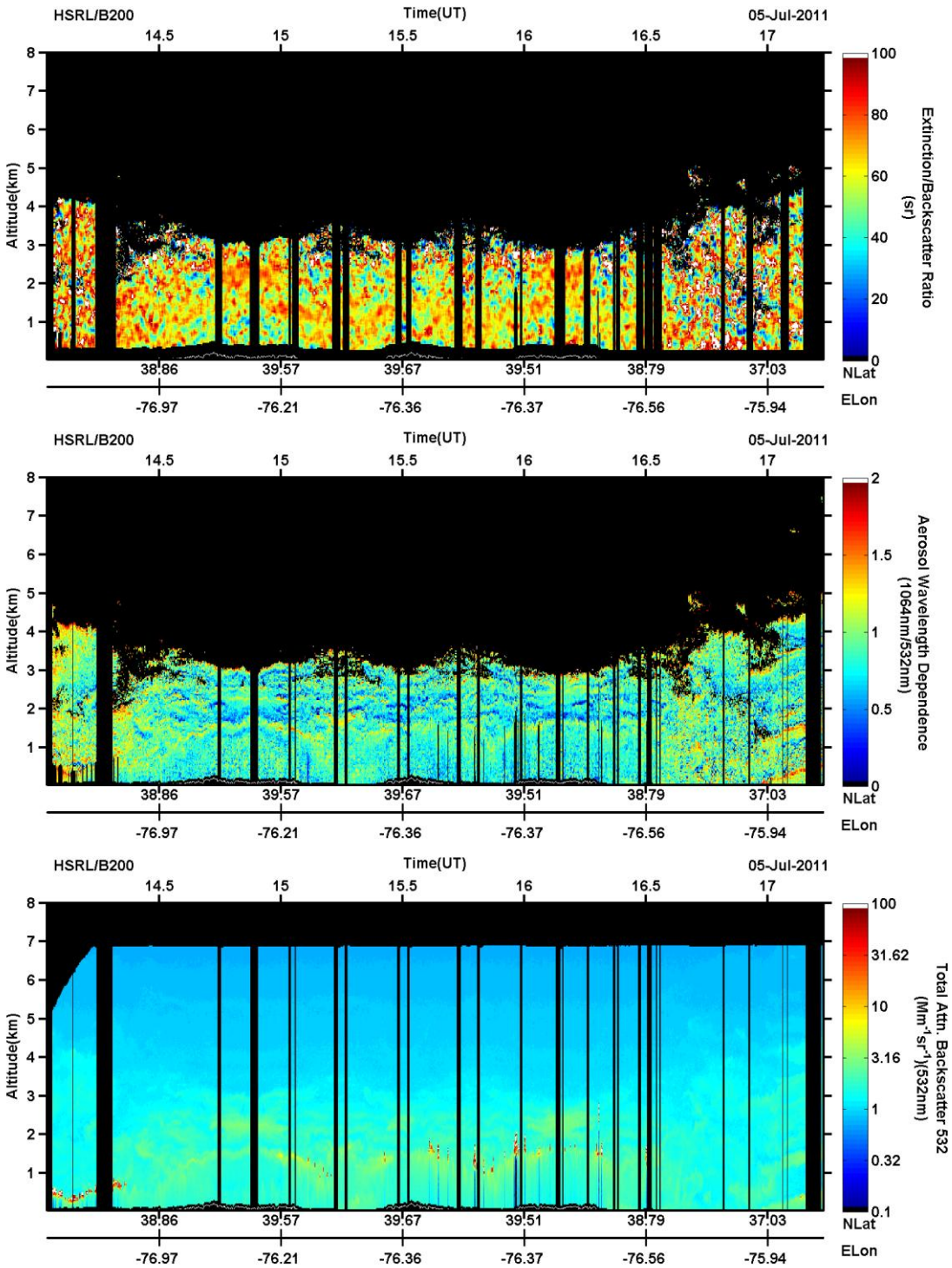


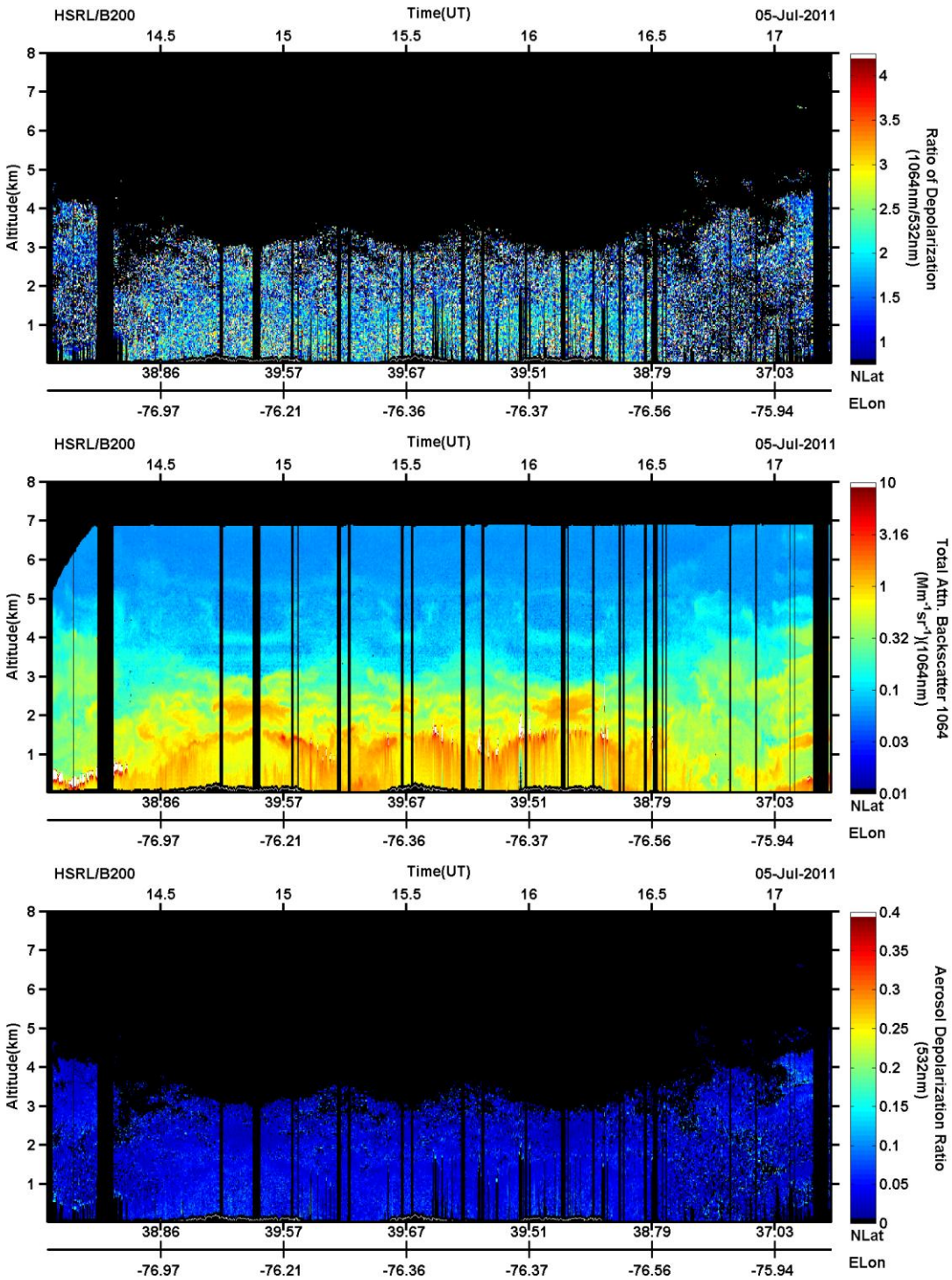



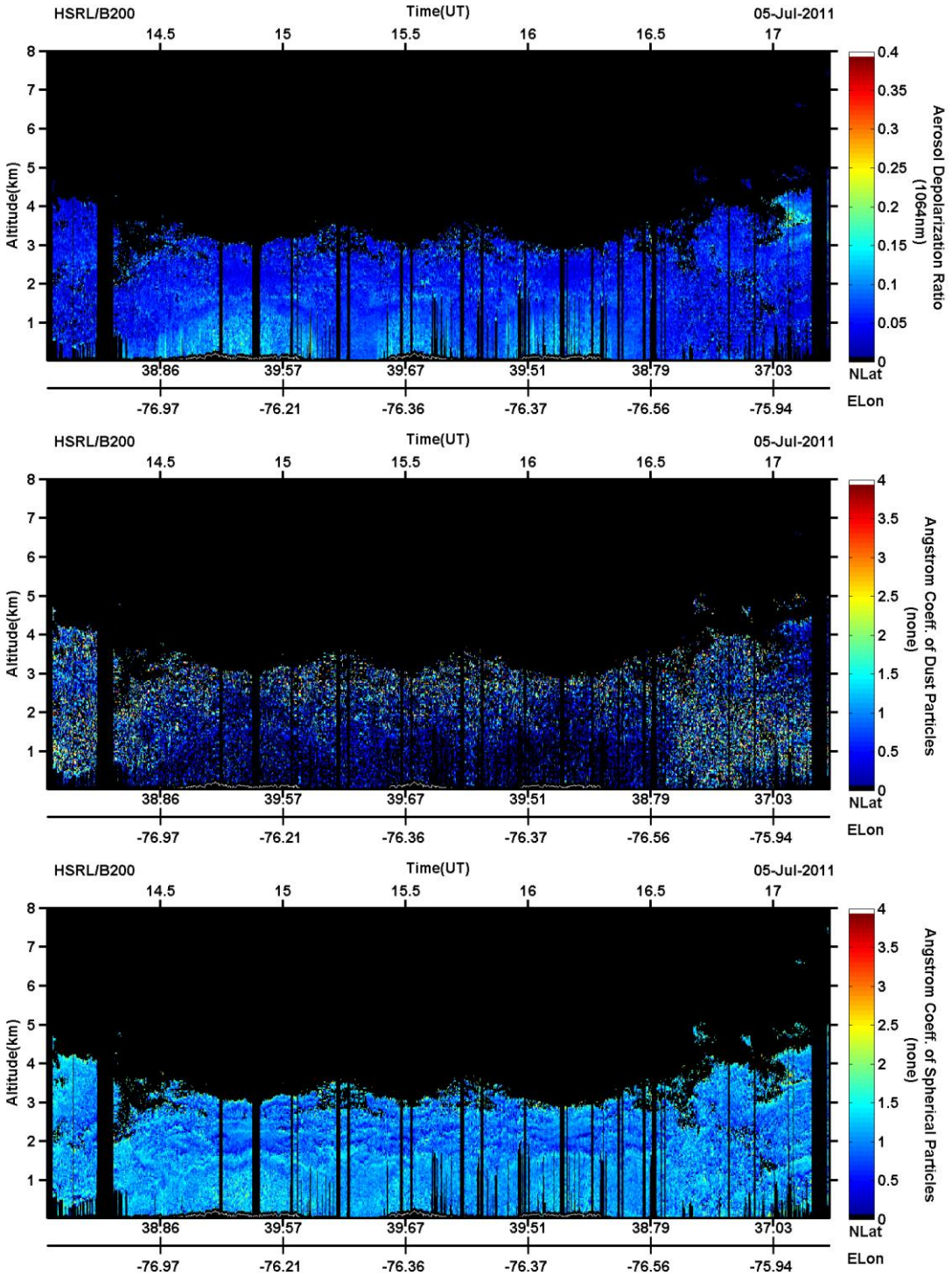

HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
8
7
6
5
4
3
2
1
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
31.62
10
3.16
1
0.32
0.1
Aerosol Scattering Ratio
(1064nm)
HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
0.25
0.16
0.1
0.06
0.04
0.03
0.02
0.01
Total Depolarization Ratio
(532nm)
HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
1
0.8
0.6
0.4
0.2
0
Dust Mixing Ratio
(none)

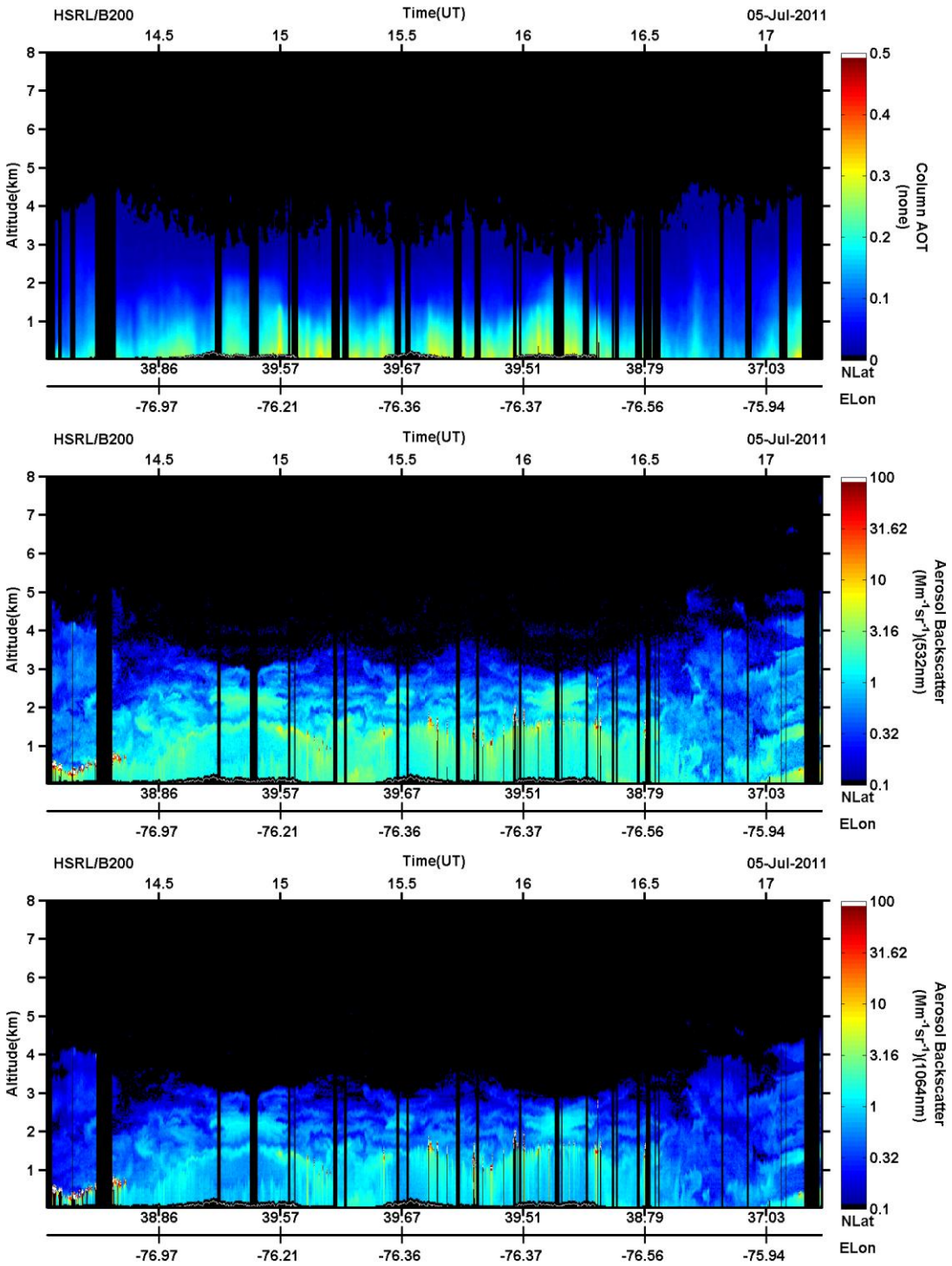

HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
8
7
6
5
4
3
2
1
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
0.4
0.25
0.16
0.1
0.06
0.04
0.03
0.02
0.01
Aerosol Extinction (km$^{-1}$)


NASA Langley HSRL/B200 05-Jul-2011
14:49
15:51
14:24
16:41
14:10
16:54
13:57
13:45
17:06
39° N
38° N
37° N
76° W
0.3
0.25
0.2
0.15
0.1
0.05
0
AOT (532 nm)


HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
8
7
6
5
4
3
2
1
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
Extinction/Backscatter Ratio (sr)
100
80
60
40
20
0
HSRL/B200
Time(UT)
05-Jul-2011
Aerosol Wavelength Dependence (1064nm/532nm)
2
1.5
1
0.5
0
HSRL/B200
Time(UT)
05-Jul-2011
Total Attn. Backscatter 532 (Mm-1sr-1)(532nm)
100
31.62
10
3.16
1
0.32
0.1


HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
8
7
6
5
4
3
2
1
38.86
39.57
39.67
39.51
38.79
37.03
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
NLat
ELon
Ratio of Depolarization
(1064nm/532nm)
4
3.5
3
2.5
2
1.5
1
HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
38.86
39.57
39.67
39.51
38.79
37.03
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
NLat
ELon
Total Attn. Backscatter 1064
(Mm-1sr-1)(1064nm)
10
3.16
1
0.32
0.1
0.03
0.01
HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
38.86
39.57
39.67
39.51
38.79
37.03
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
NLat
ELon
Aerosol Depolarization Ratio
(532nm)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0


HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
8
7
6
5
4
3
2
1
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
Aerosol Depolarization Ratio (1064nm)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
HSRL/B200
Time(UT)
05-Jul-2011
Angstrom Coeff. of Dust Particles (none)
4
3.5
3
2.5
2
1.5
1
0.5
0
HSRL/B200
Time(UT)
05-Jul-2011
Angstrom Coeff. of Spherical Particles (none)
4
3.5
3
2.5
2
1.5
1
0.5
0


HSRL/B200
Time(UT)
05-Jul-2011
14.5
15
15.5
16
16.5
17
Altitude(km)
8
7
6
5
4
3
2
1
38.86
39.57
39.67
39.51
38.79
37.03
NLat
-76.97
-76.21
-76.36
-76.37
-76.56
-75.94
ELon
Column AOT
(none)
0.5
0.4
0.3
0.2
0.1
0
HSRL/B200
Time(UT)
05-Jul-2011
Aerosol Backscatter
(Mm-1sr-1)(532nm)
100
31.62
10
3.16
1
0.32
0.1
HSRL/B200
Time(UT)
05-Jul-2011
Aerosol Backscatter
(Mm-1sr-1)(1064nm)
100
31.62
10
3.16
1
0.32
0.1