DISCOVER-AQ

HSRL Data Summary

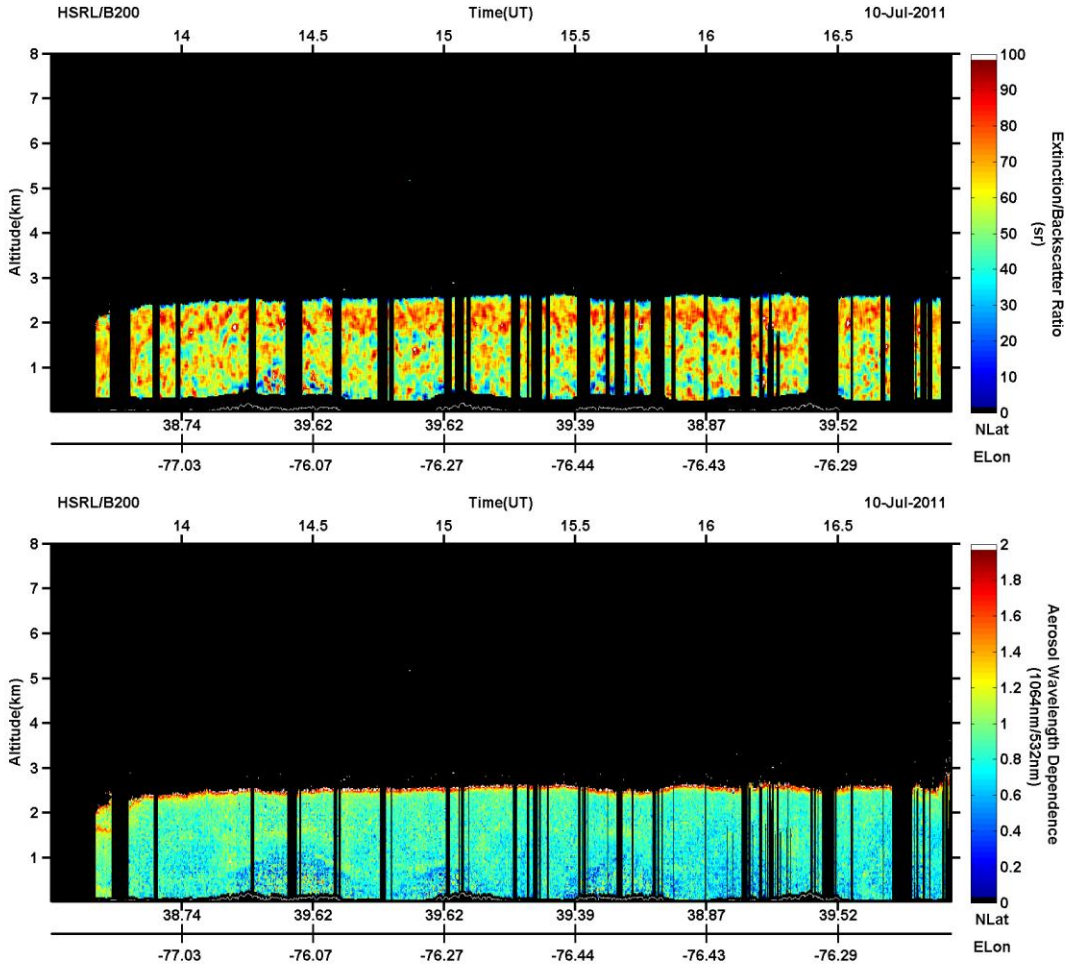
FLIGHT: Morning science flight (1 of 2)

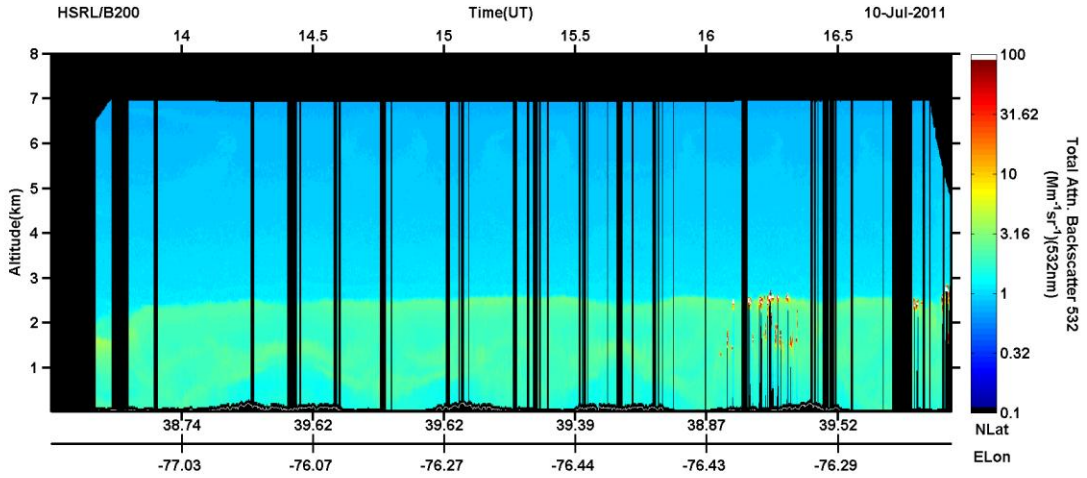
DATE: July 10, 2011

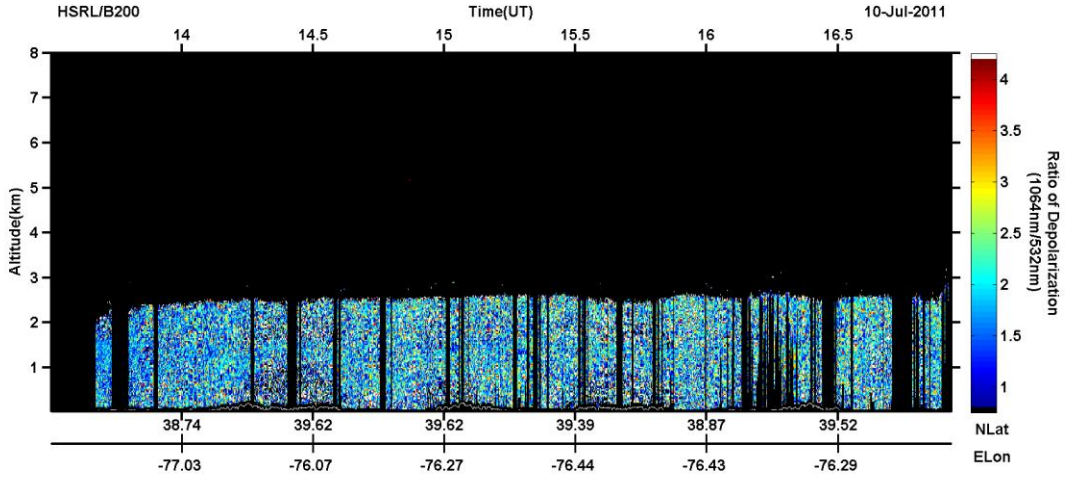
DURATION: 3.9 hours

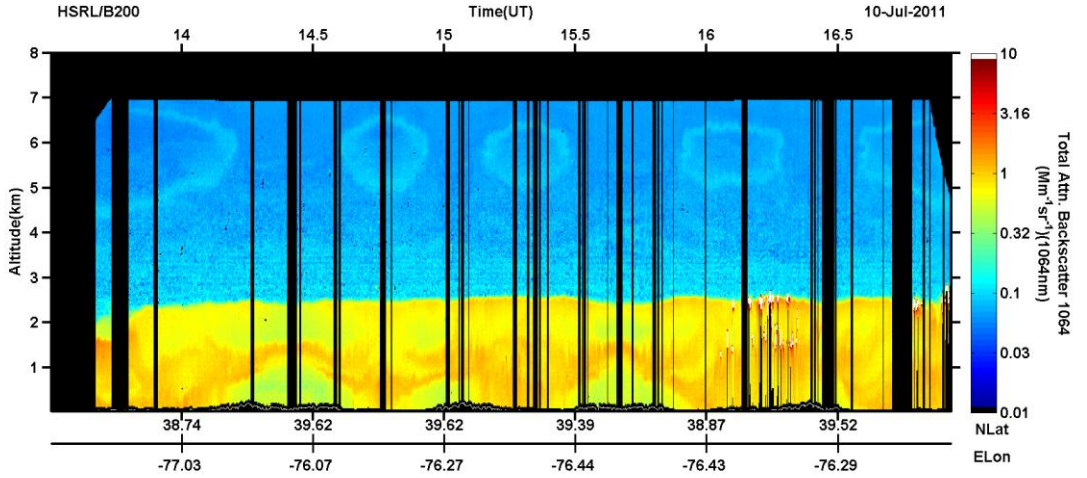
SUMMARY: Takeoff was 13:15 UTC. The standard DISCOVER-AQ flight plan was followed. Few clouds were present during the morning flight. The instrument operated well.

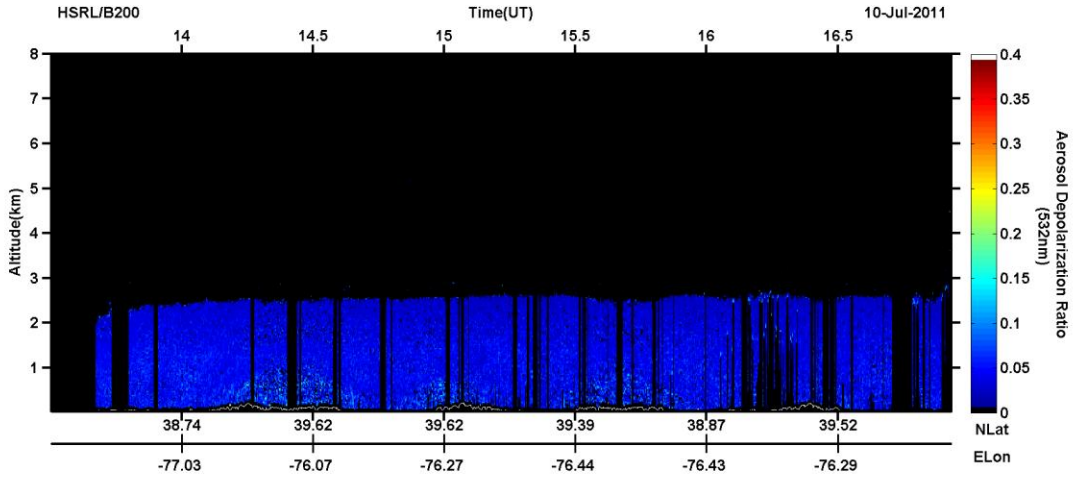
SUMMARY PLOTS:

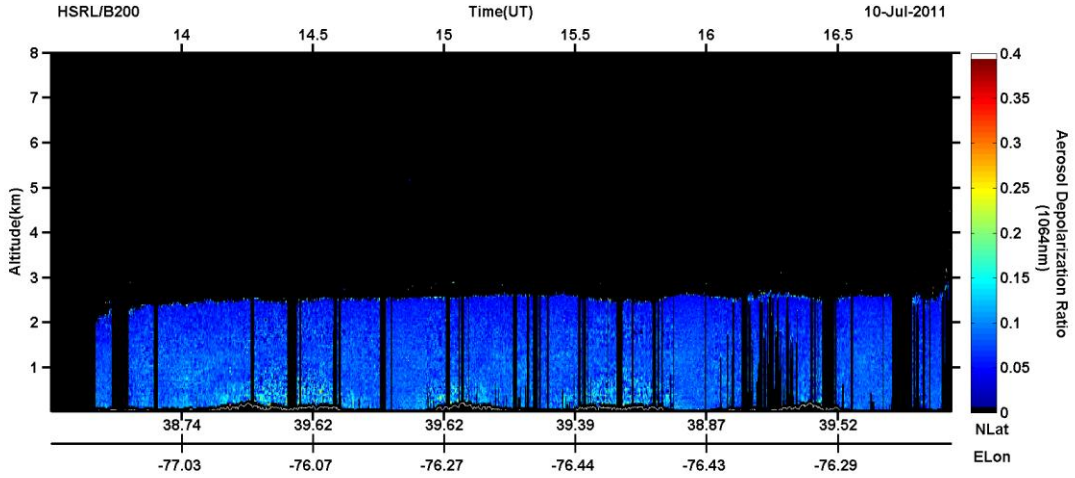


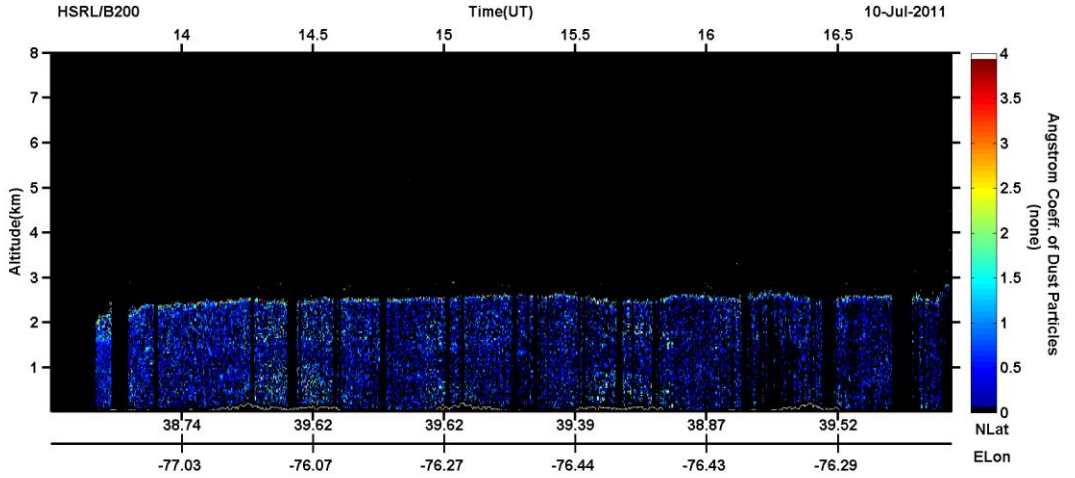

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
100
31.62
10
3.16
1
0.32
0.1
Total Attn. Backscatter 532
(Mm-1sr-1)(532nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

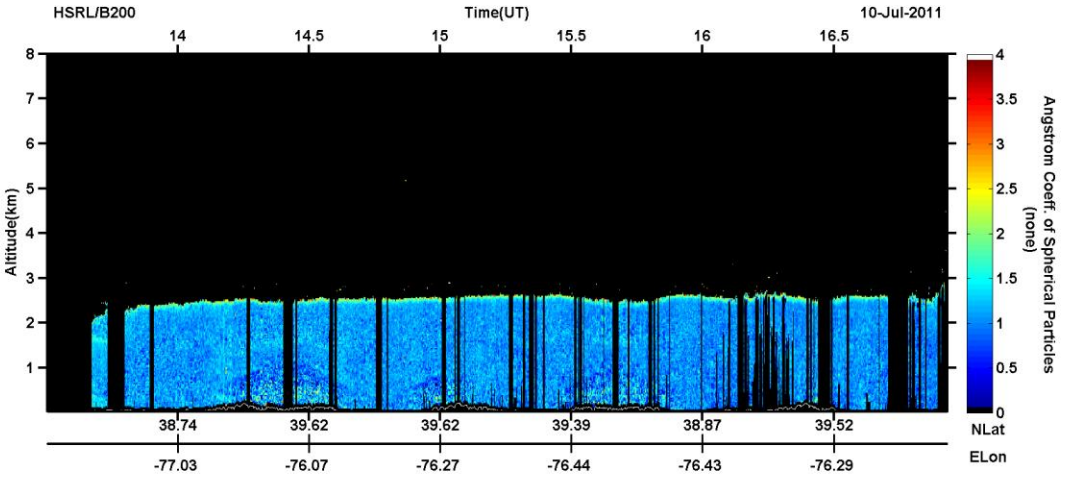

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
4
3.5
3
2.5
2
1.5
1
Ratio of Depolarization
(1064nm/532nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

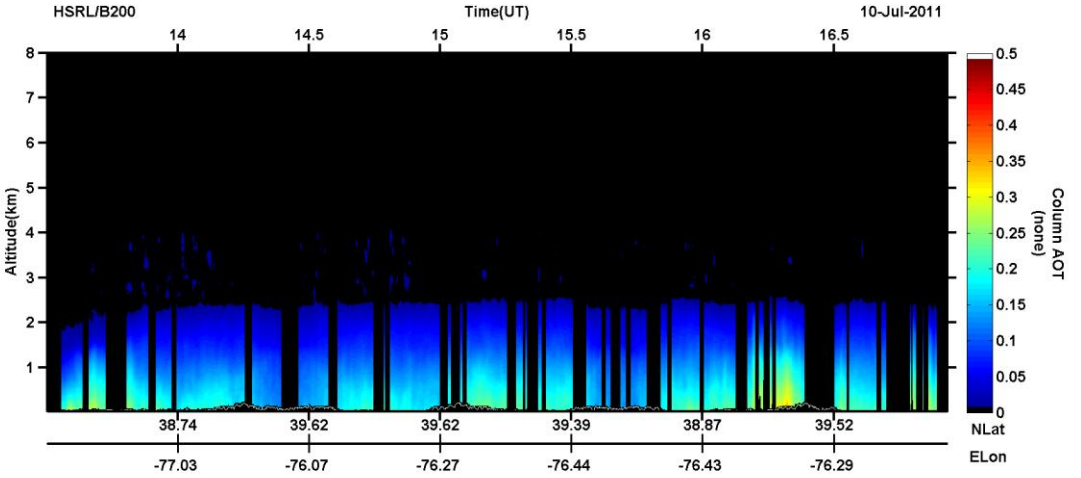

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
10
3.16
1
0.32
0.1
0.03
0.01
Total Attn. Backscatter 1064
(Mm-1sr-1)(1064nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

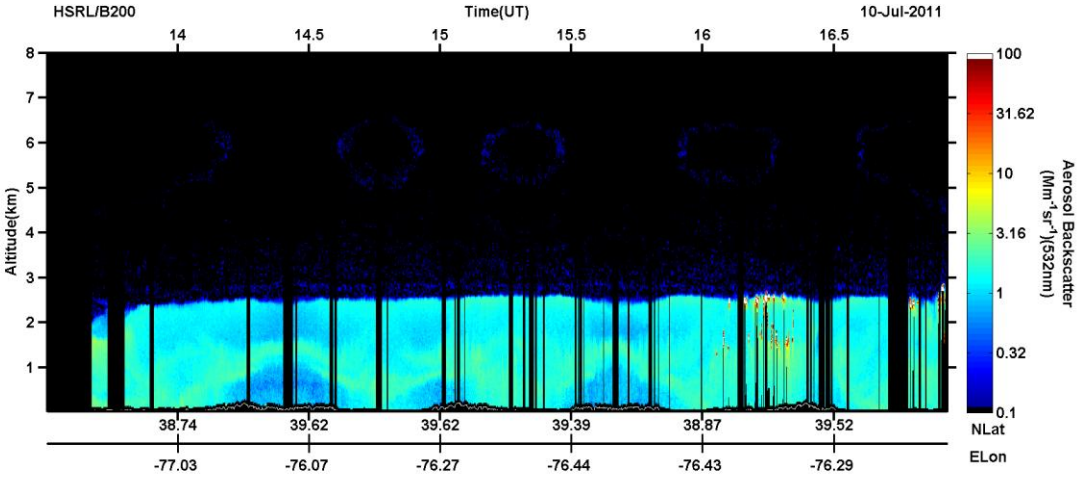

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aerosol Depolarization Ratio
(532nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

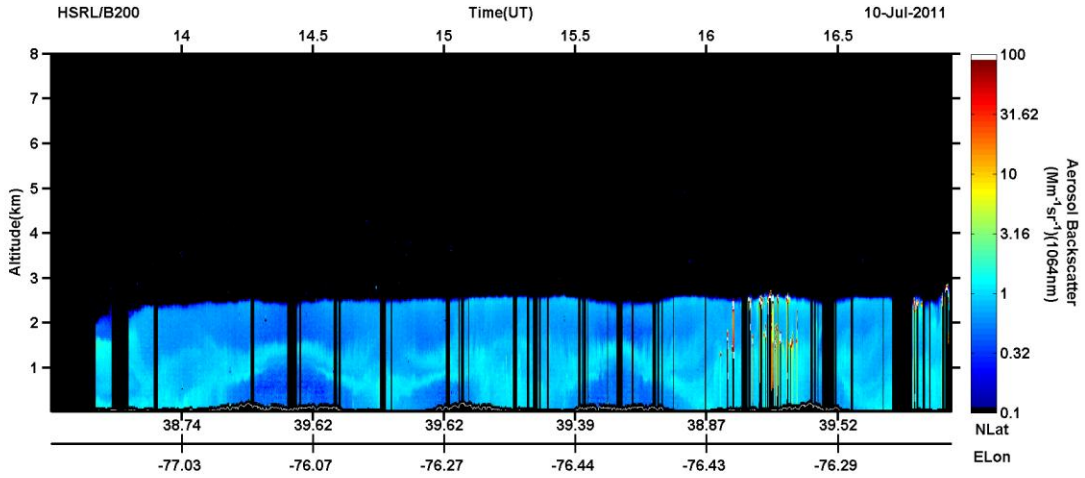

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aerosol Depolarization Ratio
(1064nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

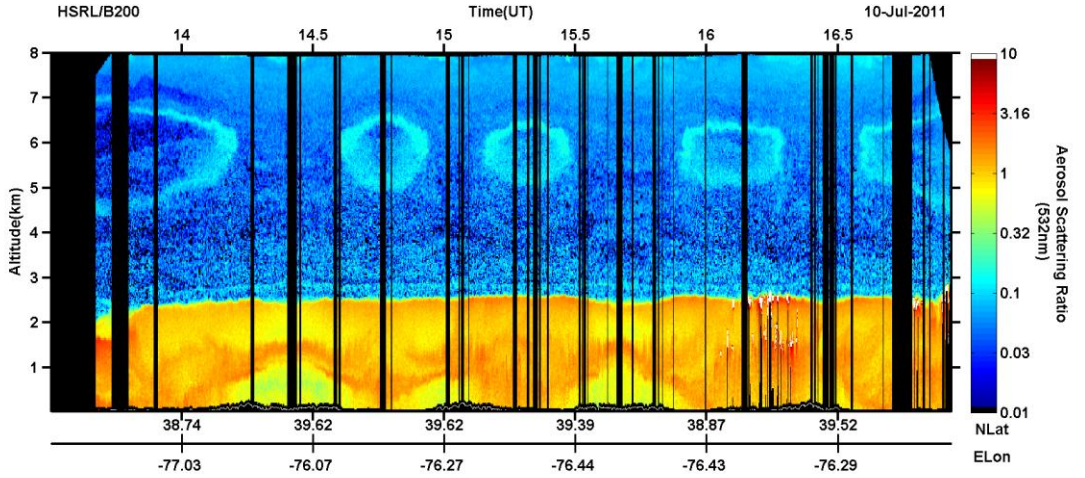

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
4
3.5
3
2.5
2
1.5
1
0.5
0
Angstrom Coeff. of Dust Particles
(none)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

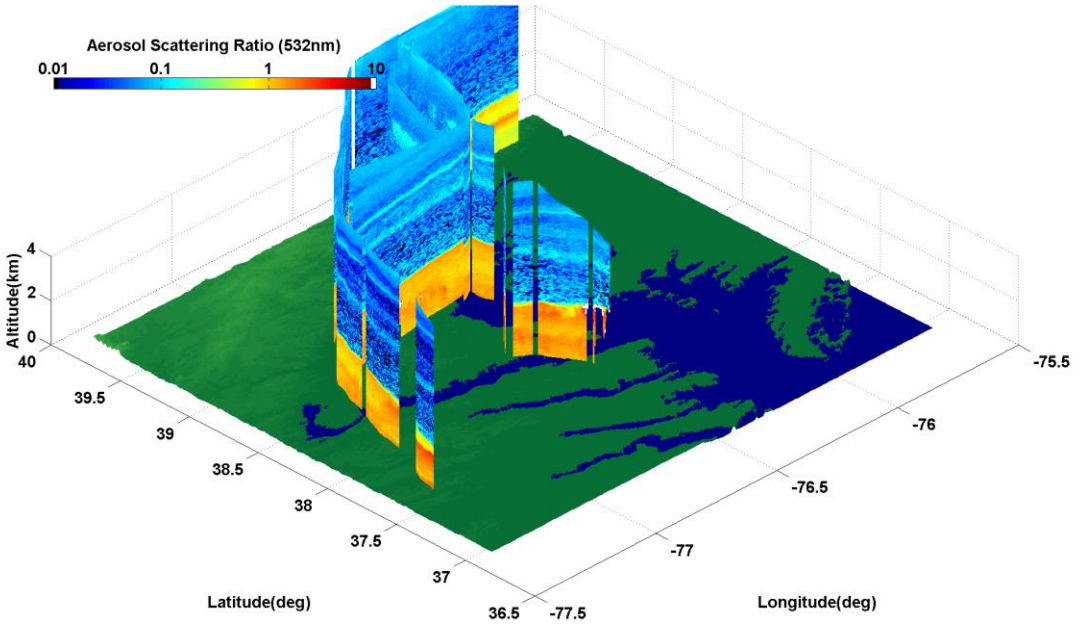

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
38.74
39.62
39.62
39.39
38.87
39.52
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
NLat
ELon
Angstrom Coeff. of Spherical Particles (none)
4
3.5
3
2.5
2
1.5
1
0.5
0

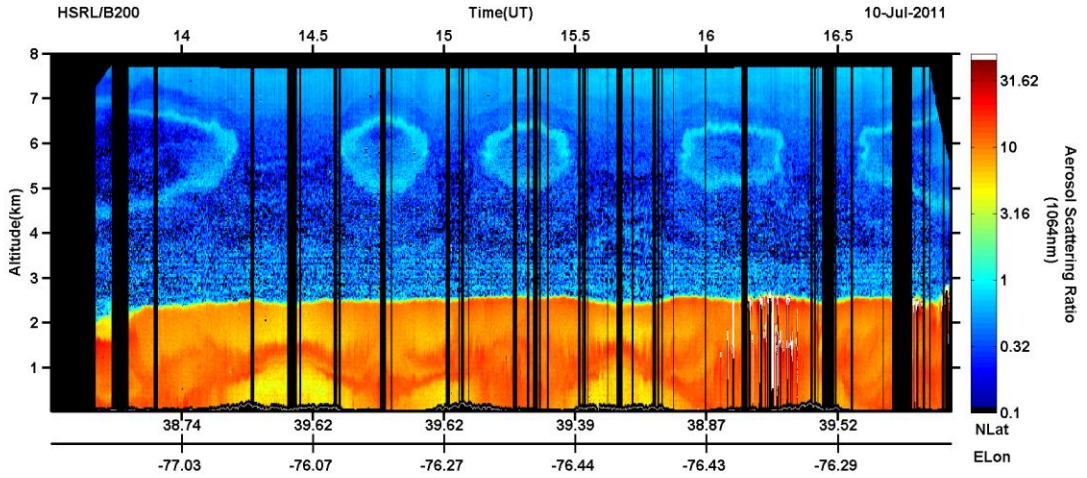

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
38.74
39.62
39.62
39.39
38.87
39.52
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
NLat
ELon
Column AOT (none)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

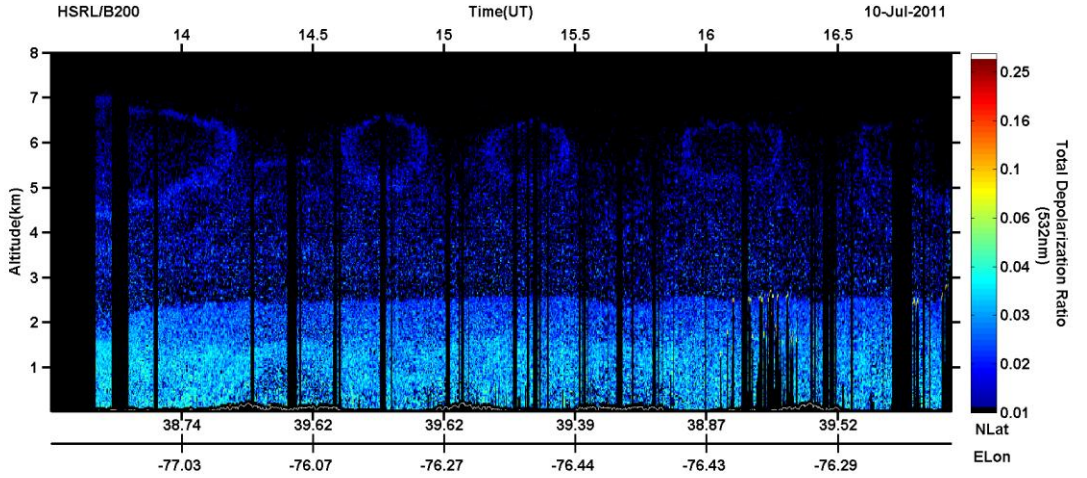

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
38.74
39.62
39.62
39.39
38.87
39.52
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
NLat
ELon
Aerosol Backscatter (Mm-1sr-1)(532nm)
100
31.62
10
3.16
1
0.32
0.1

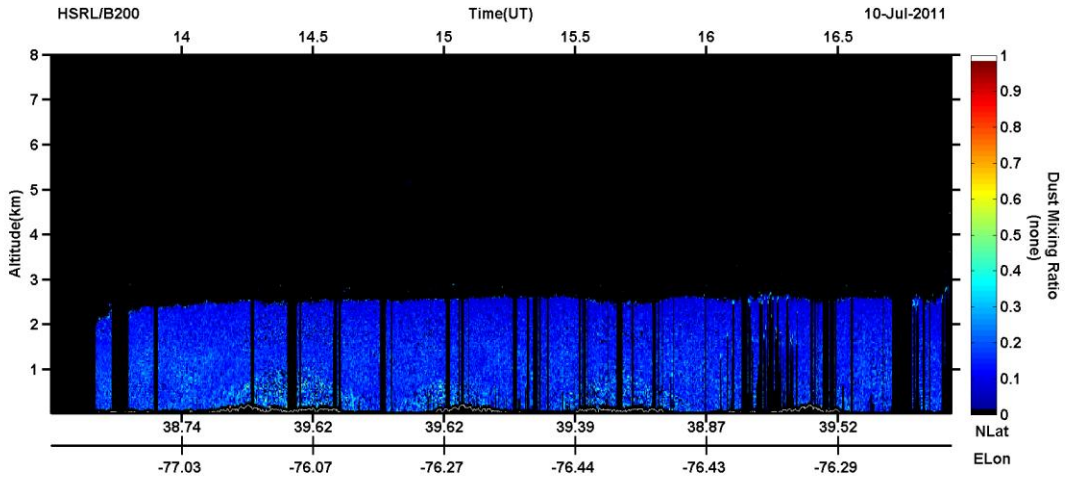

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
100
31.62
10
3.16
1
0.32
0.1
Aerosol Backscatter
(Mm-1sr-1)(1064nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

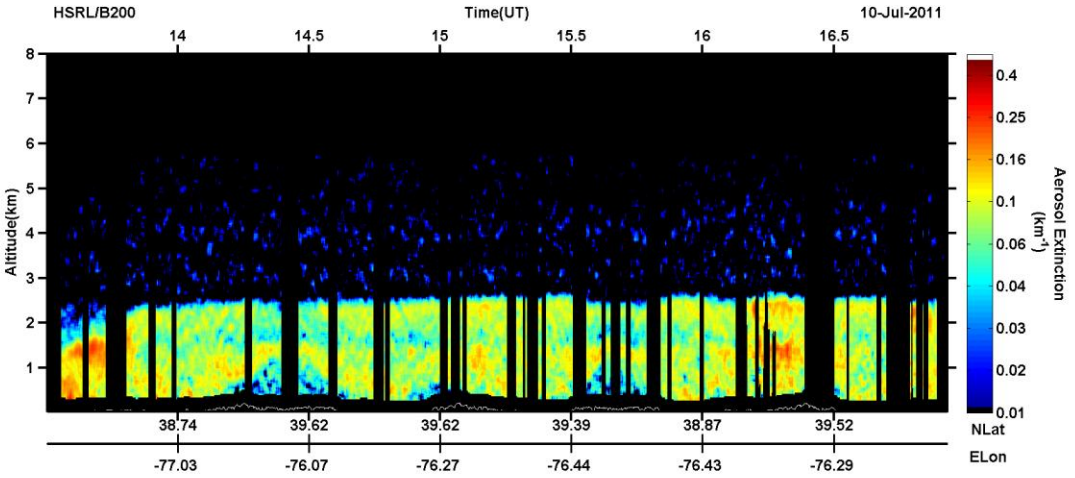

HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
8
7
6
5
4
3
2
1
10
3.16
1
0.32
0.1
0.03
0.01
Aerosol Scattering Ratio
(532nm)
38.74
39.62
39.62
39.39
38.87
39.52
NLat
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
ELon

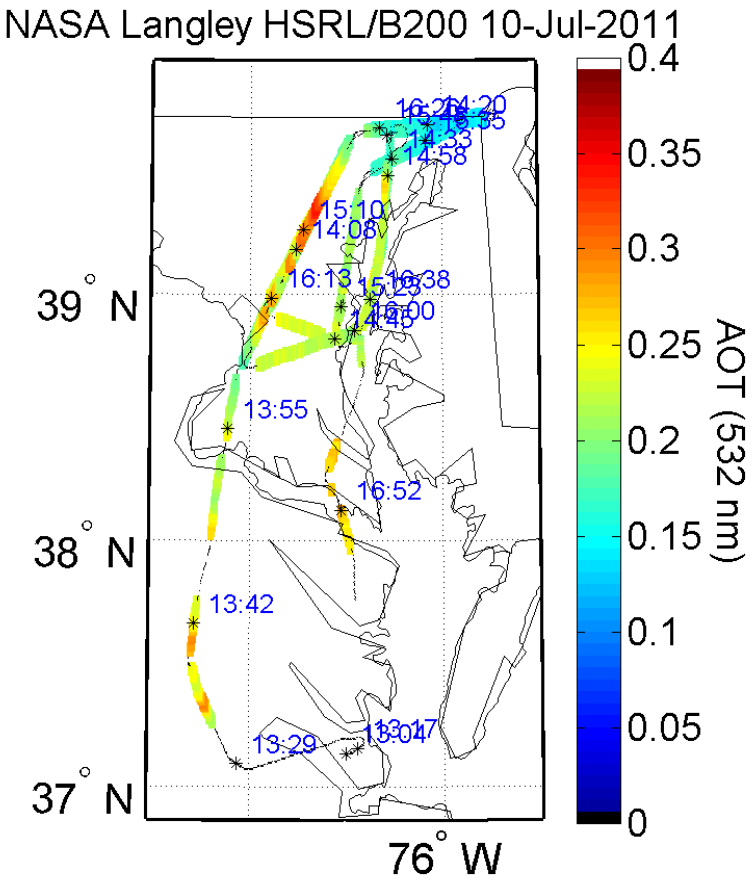

Aerosol Scattering Ratio (532nm)
0.01
0.1
1
10
Altitude(km)
4
2
0
40
39.5
39
38.5
38
37.5
37
36.5
Latitude(deg)
-77.5
-77
-76.5
-76
-75.5
Longitude(deg)


HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
1
2
3
4
5
6
7
8
38.74
39.62
39.62
39.39
38.87
39.52
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
NLat
ELon
Aerosol Scattering Ratio (1064nm)
31.62
10
3.16
1
0.32
0.1


HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
1
2
3
4
5
6
7
8
38.74
39.62
39.62
39.39
38.87
39.52
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
NLat
ELon
Total Depolarization Ratio (532nm)
0.25
0.16
0.1
0.06
0.04
0.03
0.02
0.01


HSRL/B200
Time(UT)
10-Jul-2011
14
14.5
15
15.5
16
16.5
Altitude(km)
1
2
3
4
5
6
7
8
38.74
39.62
39.62
39.39
38.87
39.52
-77.03
-76.07
-76.27
-76.44
-76.43
-76.29
NLat
ELon
Dust Mixing Ratio (none)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0





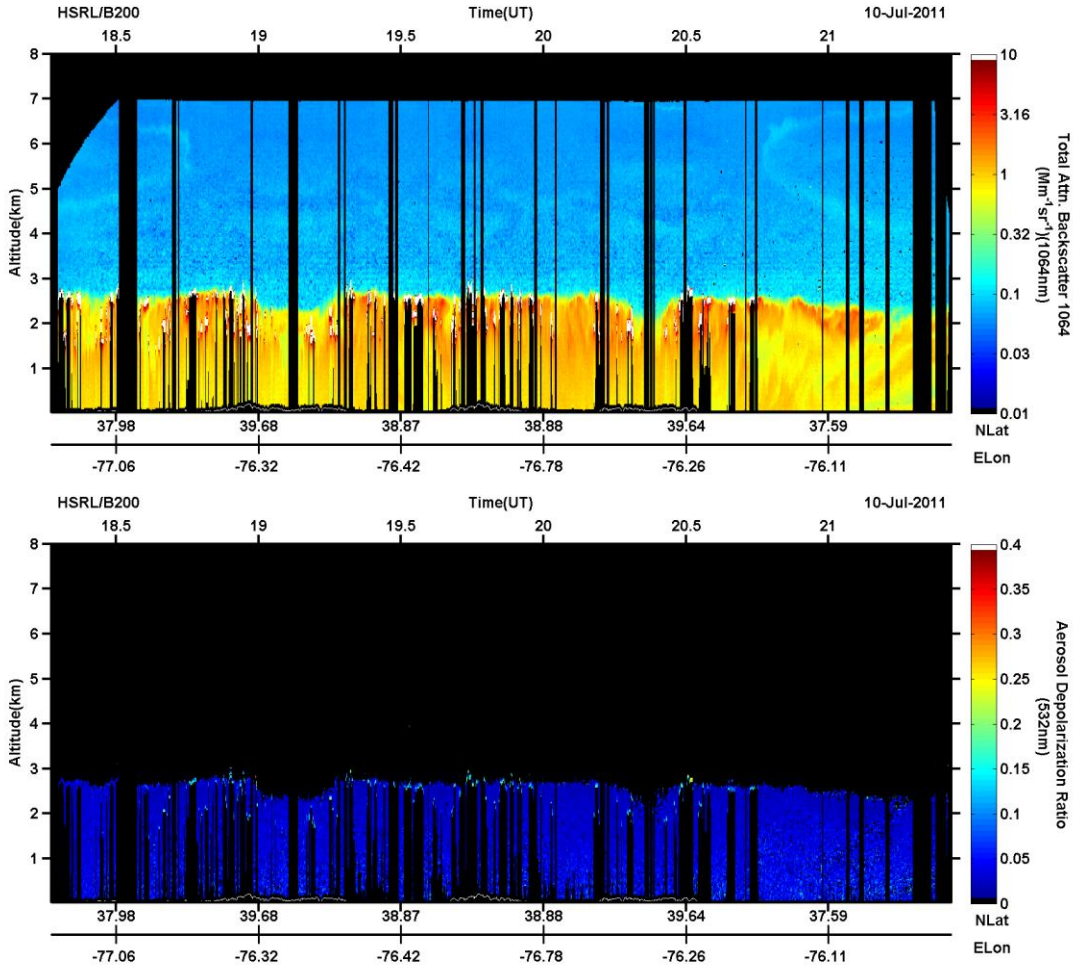
FLIGHT: Afternoon science flight (2 of 2)

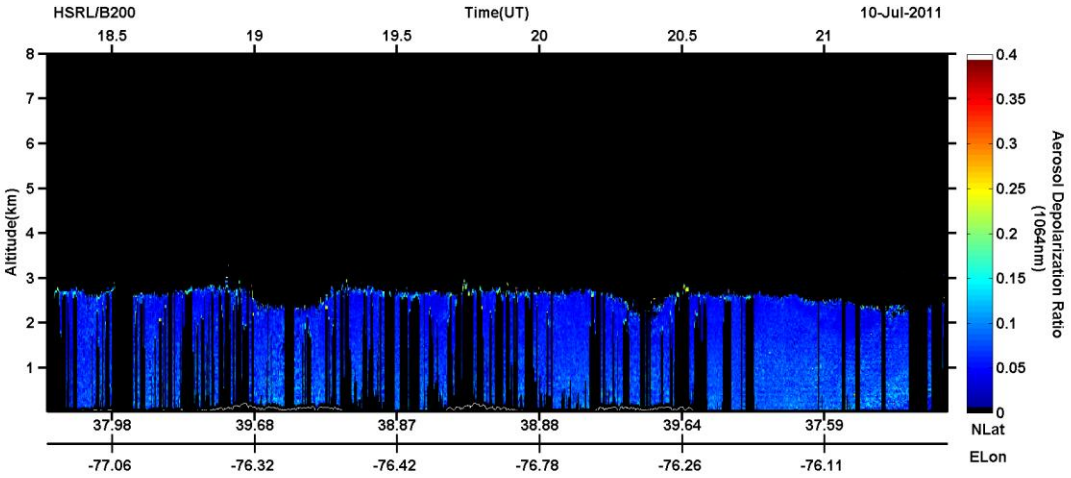
DATE: July 10, 2011

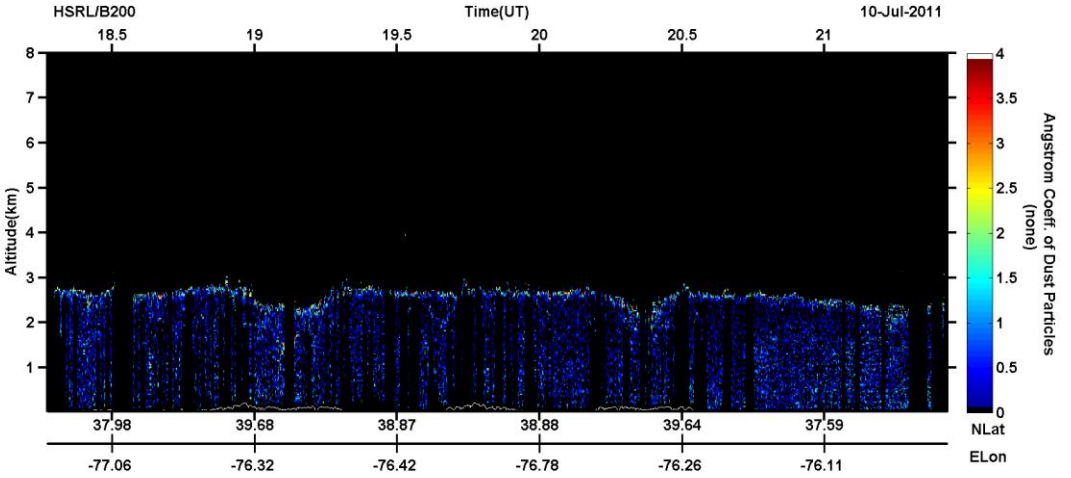
DURATION: 3.8 hours

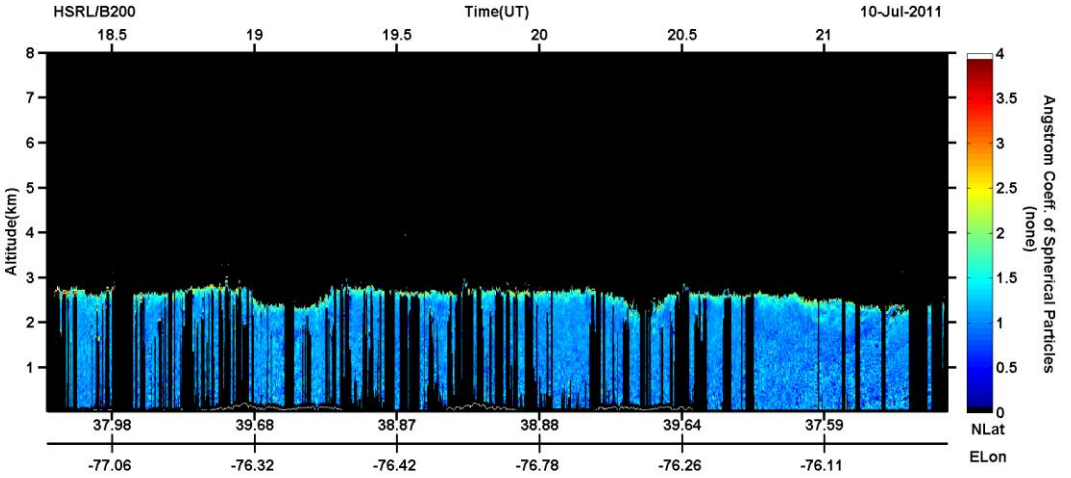
SUMMARY: Takeoff from Newport News, VA, (PHF) was 18:00 UTC. The boundary layer was more developed compared to the morning flight and the cloud cover was more significant. At the end of the flight data were taken over water in the Chesapeake Bay and east of Langley Research Center across the COVE AERONET site.

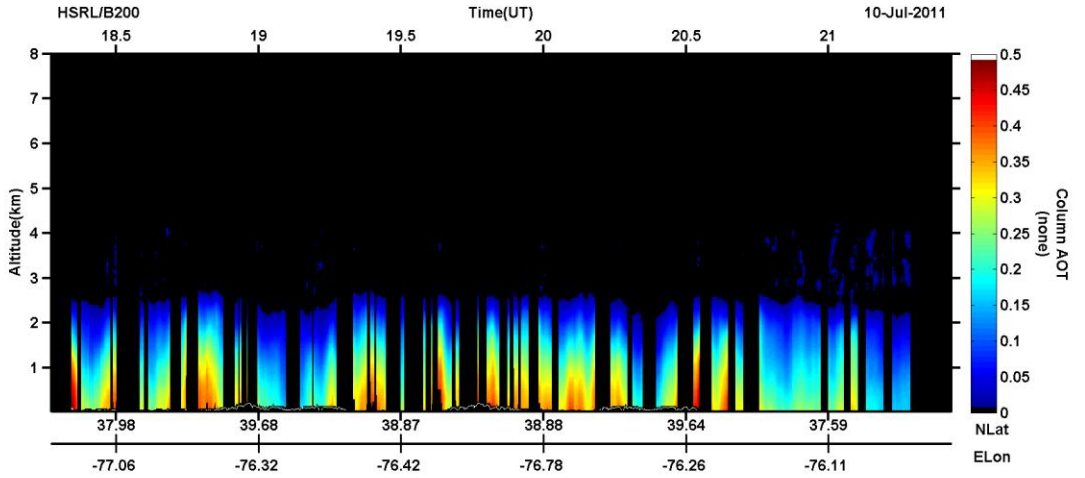
SUMMARY PLOTS:

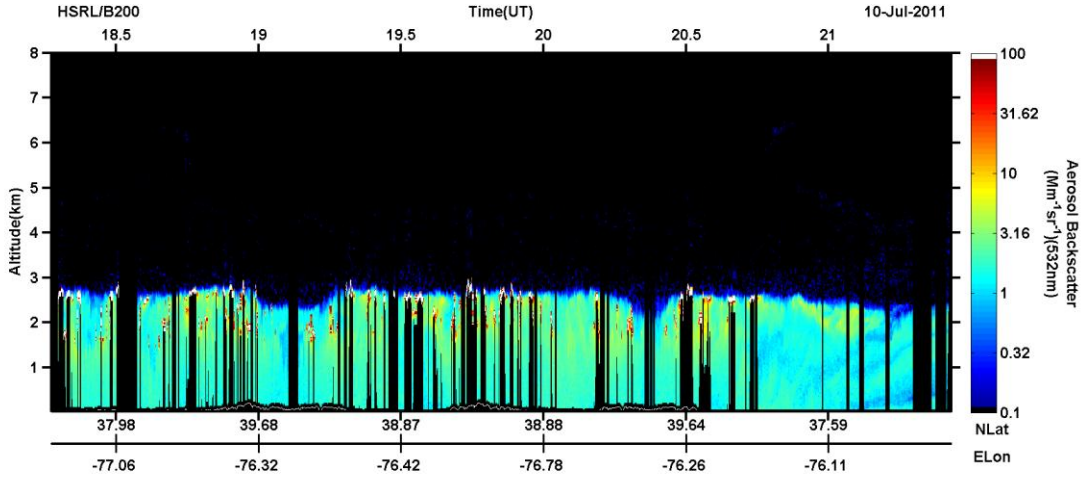


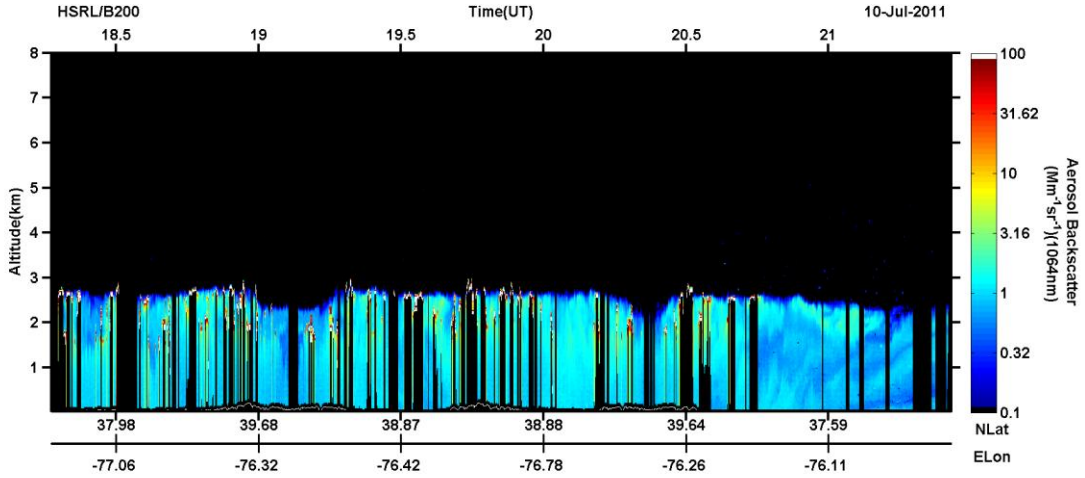

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aerosol Depolarization Ratio (1064nm)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

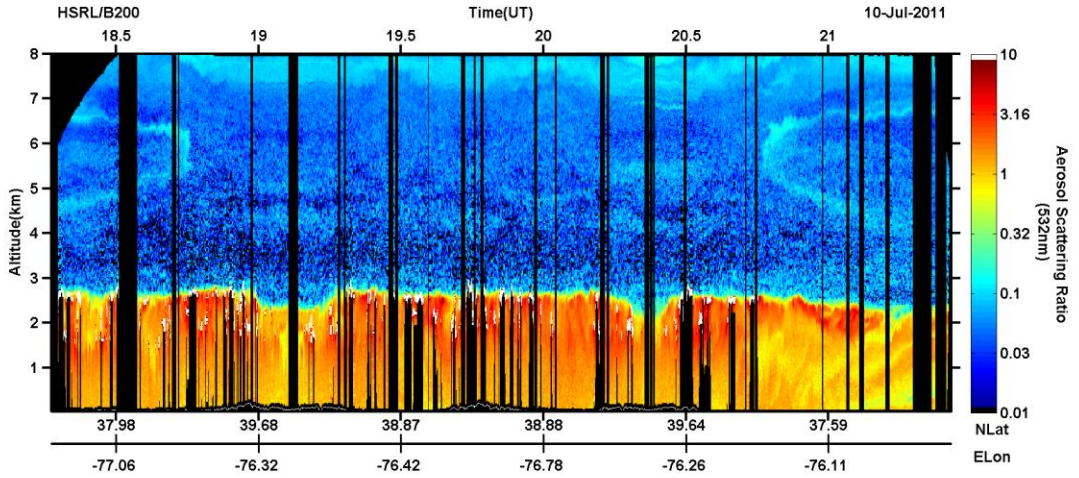

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
4
3.5
3
2.5
2
1.5
1
0.5
0
Angstrom Coeff. of Dust Particles (none)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

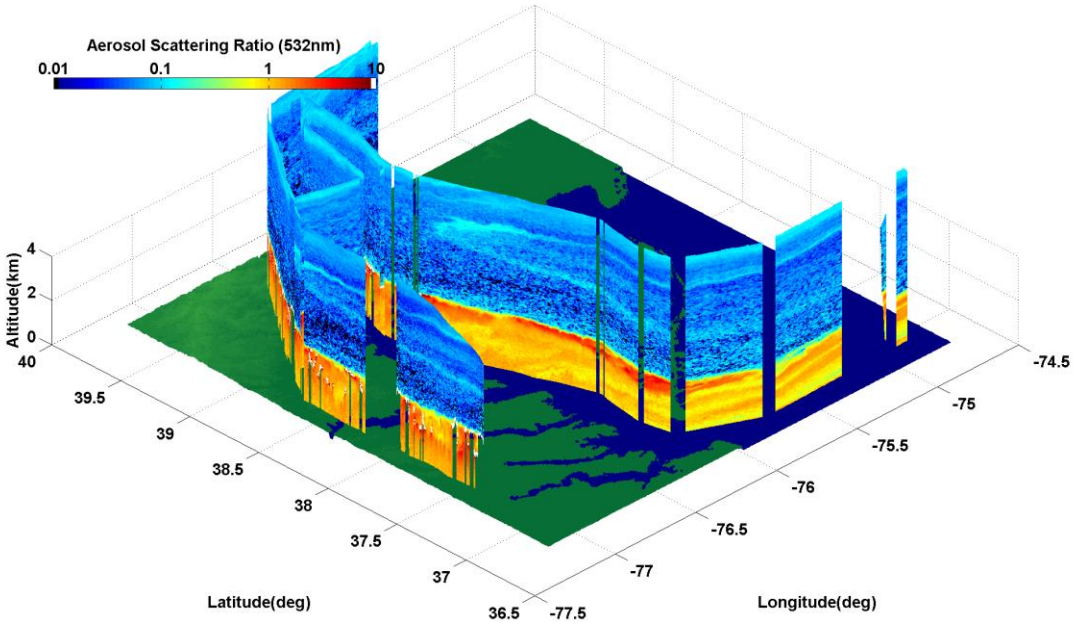

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
4
3.5
3
2.5
2
1.5
1
0.5
0
Angstrom Coeff. of Spherical Particles (none)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

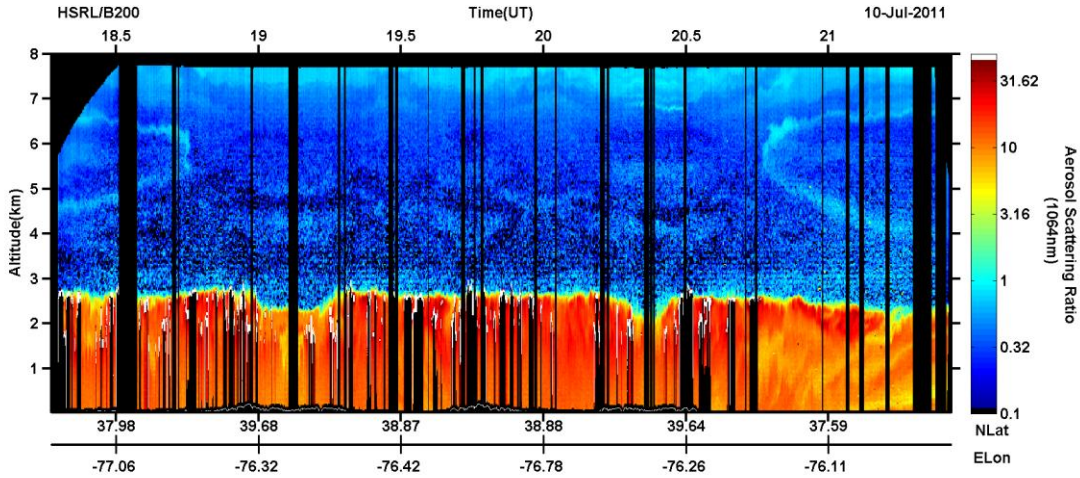

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Column AOT
(none)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

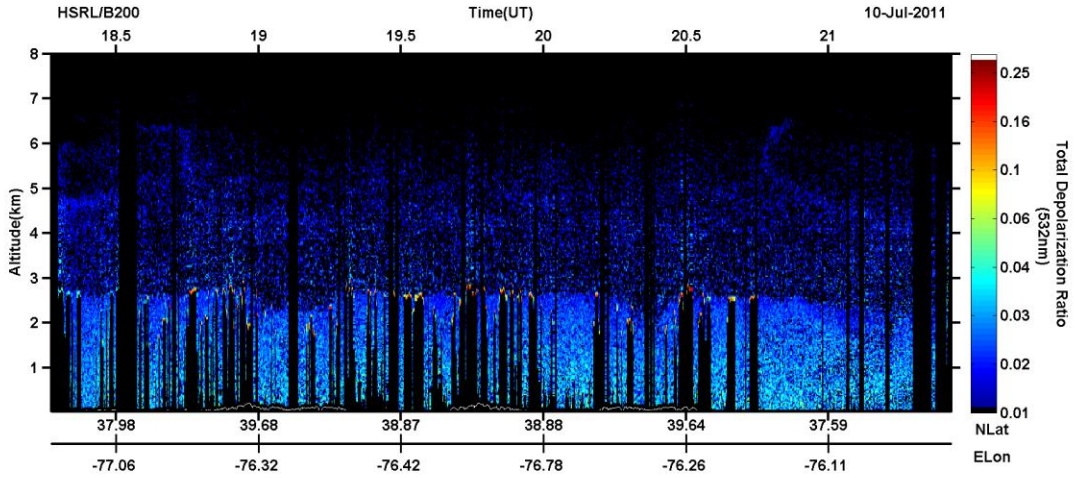

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
100
31.62
10
3.16
1
0.32
0.1
Aerosol Backscatter
(Mm-1sr-1)(532nm)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

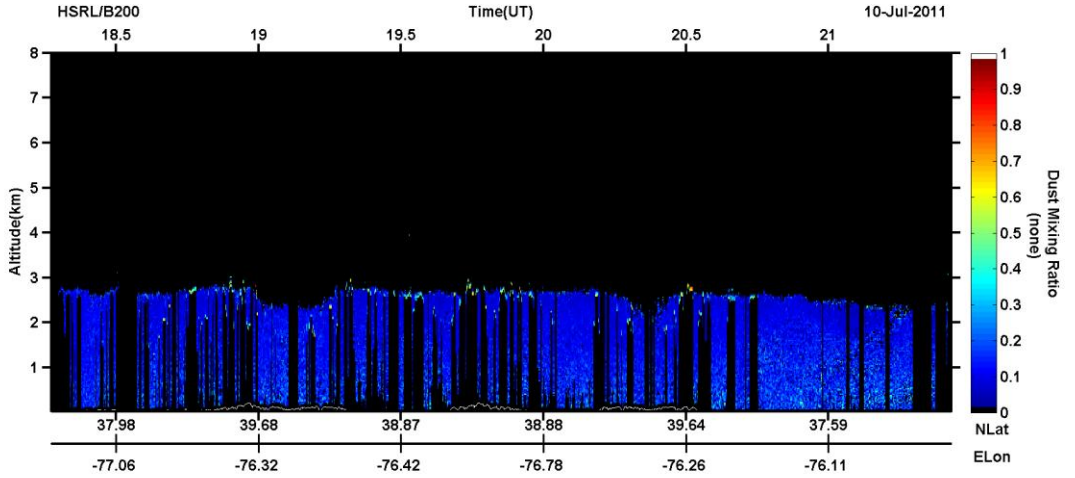

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
100
31.62
10
3.16
1
0.32
0.1
Aerosol Backscatter
(Mm-1sr-1)(1064nm)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

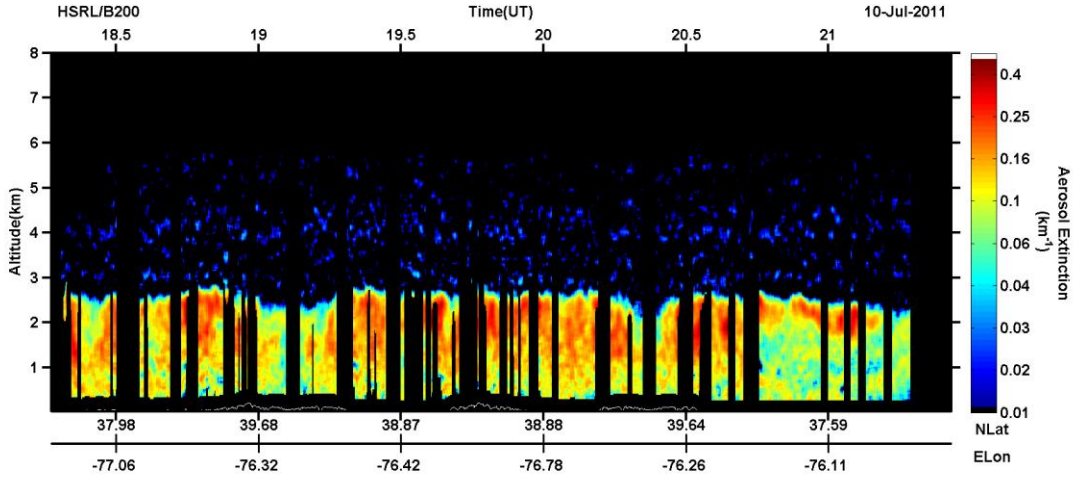

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
10
3.16
1
0.32
0.1
0.03
0.01
Aerosol Scattering Ratio (532nm)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

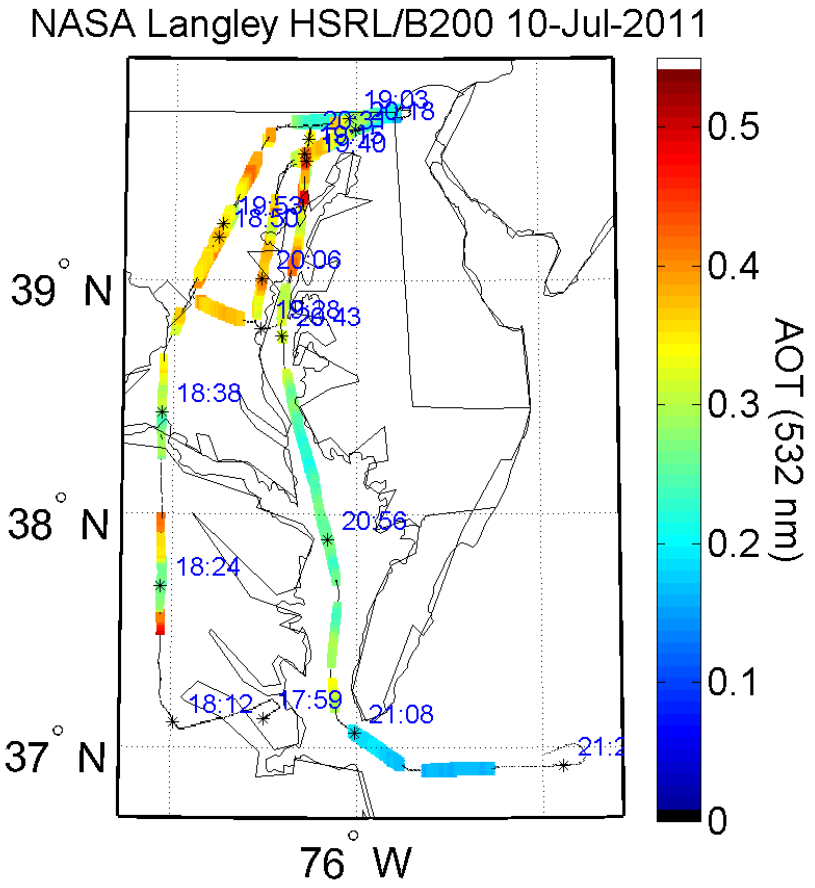

Aerosol Scattering Ratio (532nm)
0.01
0.1
1
10
Altitude(km)
4
2
0
40
39.5
39
38.5
38
37.5
37
36.5
Latitude(deg)
-77.5
-77
-76.5
-76
-75.5
-75
-74.5
Longitude(deg)

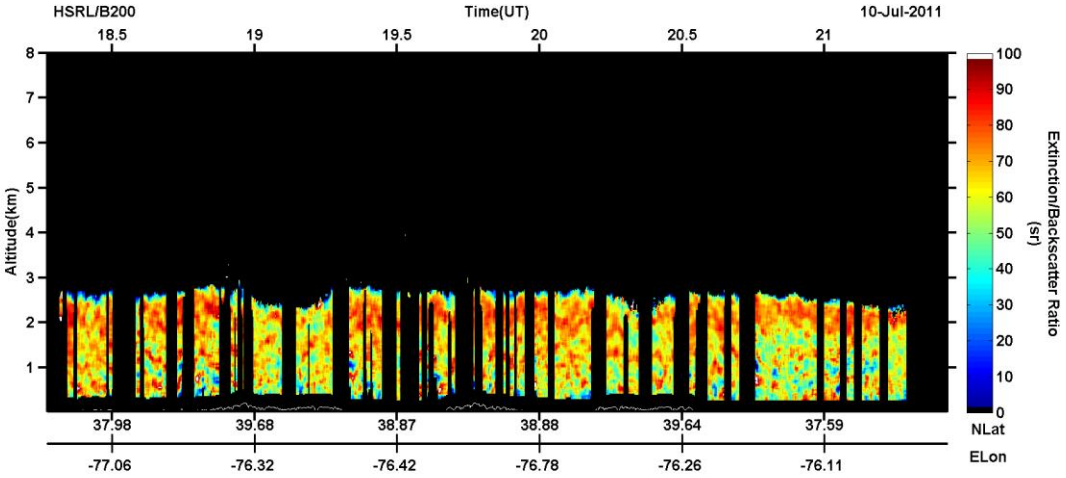

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
31.62
10
3.16
1
0.32
0.1
Aerosol Scattering Ratio (1064nm)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon

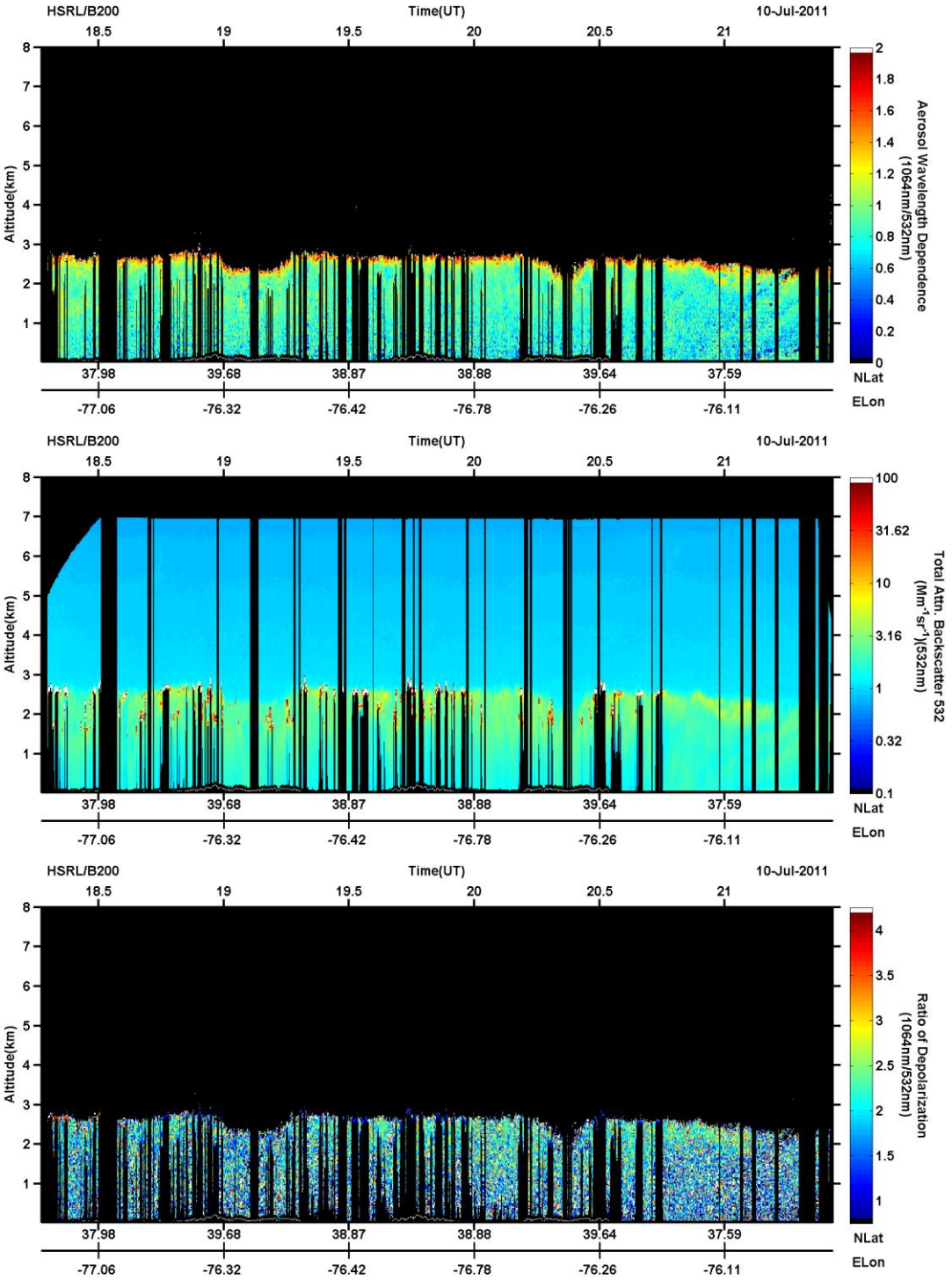

HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
0.25
0.16
0.1
0.06
0.04
0.03
0.02
0.01
Total Depolarization Ratio (532nm)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon


HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Dust Mixing Ratio (none)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon


HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
8
7
6
5
4
3
2
1
0.4
0.25
0.16
0.1
0.06
0.04
0.03
0.02
0.01
Aerosol Extinction (km-1)
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon


NASA Langley HSRL/B200 10-Jul-2011
39° N
38° N
37° N
76° W
19:03
19:40
19:53
18:50
20:06
18:38
20:56
18:24
18:12
17:59
21:08
AOT (532 nm)
0.5
0.4
0.3
0.2
0.1
0


HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
1
2
3
4
5
6
7
8
37.98
39.68
38.87
38.88
39.64
37.59
NLat
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
ELon
Extinction/Backscatter Ratio (sr)
100
90
80
70
60
50
40
30
20
10
0


HSRL/B200
Time(UT)
10-Jul-2011
18.5
19
19.5
20
20.5
21
Altitude(km)
Aerosol Wavelength Dependence (1064nm/532nm)
NLat
ELon
37.98
39.68
38.87
38.88
39.64
37.59
-77.06
-76.32
-76.42
-76.78
-76.26
-76.11
Total Attn. Backscatter 532 (Mm-1sr-1)(532nm)
Ratio of Depolarization (1064nm/532nm)