

DISCOVER-AQ HSRL Data Summary

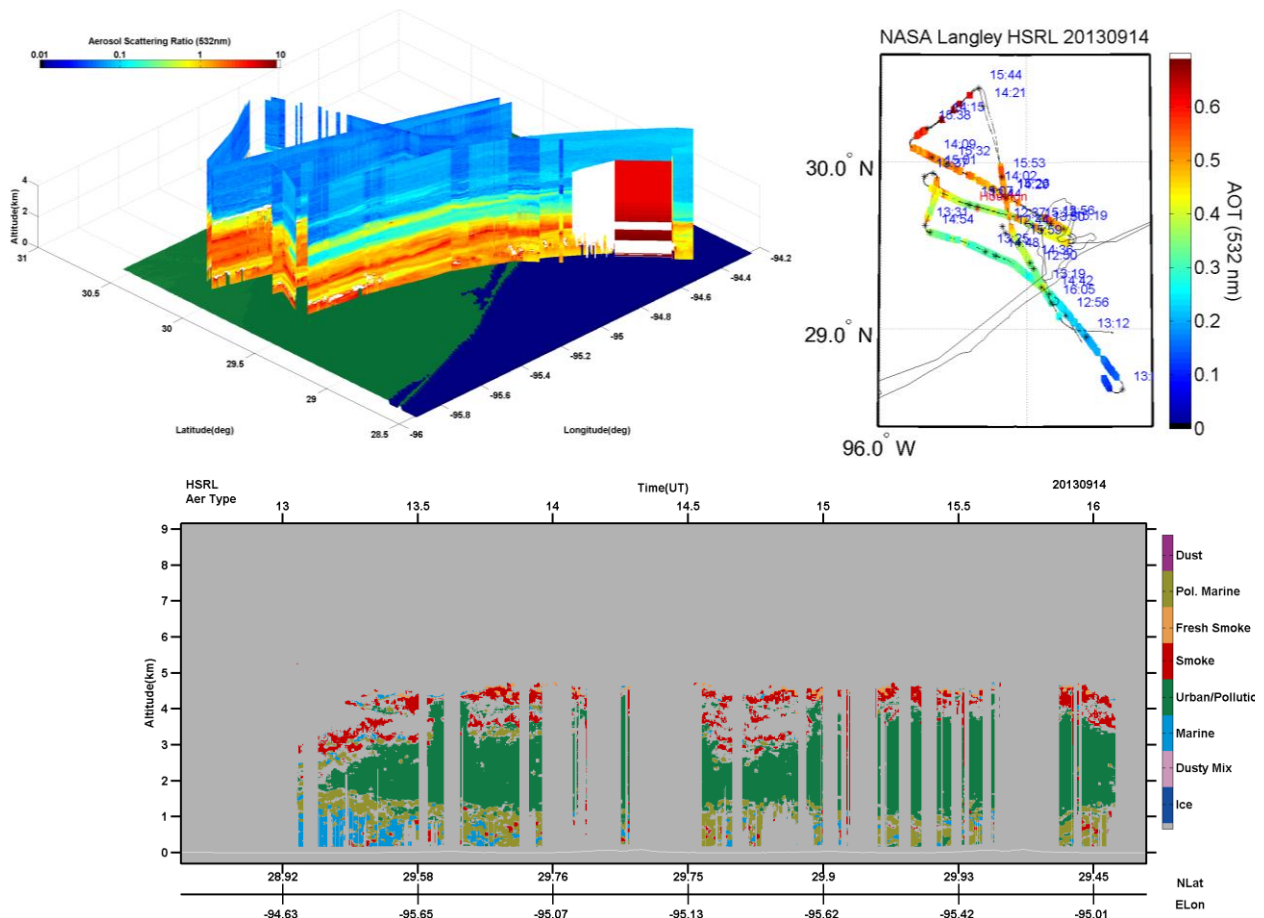
FLIGHT: Morning science flight (1 of 2)

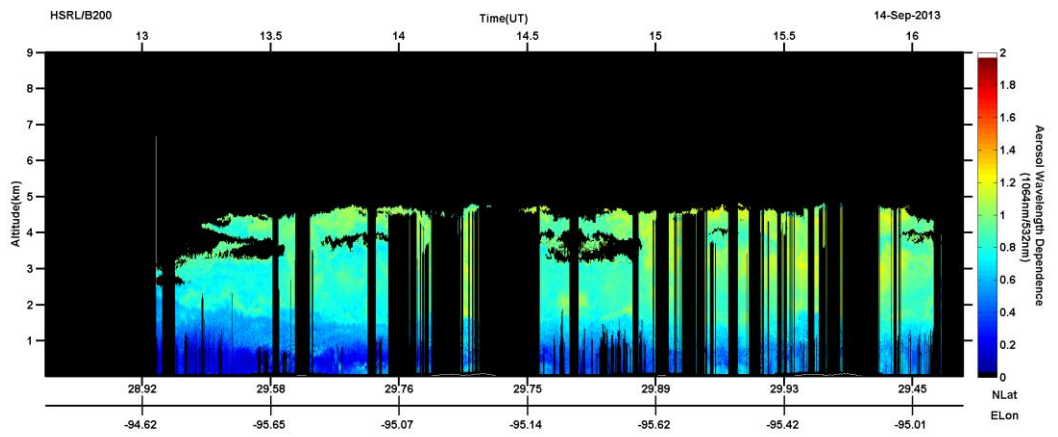
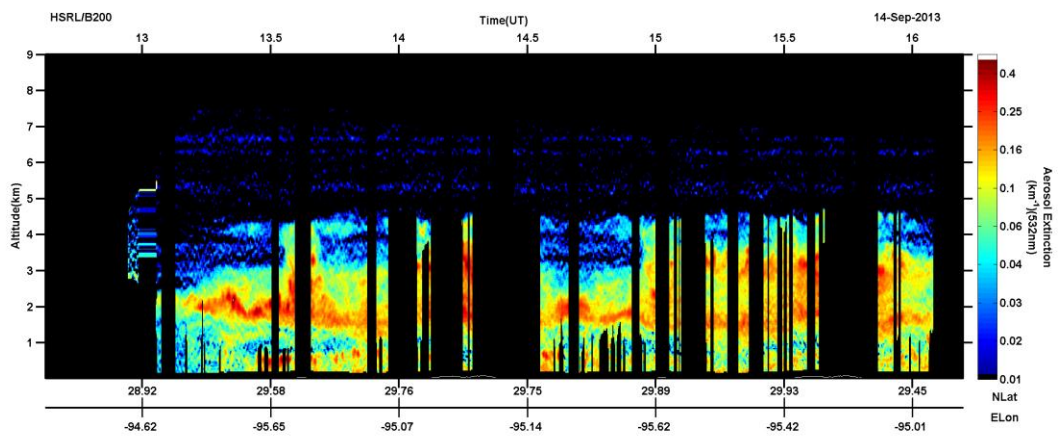
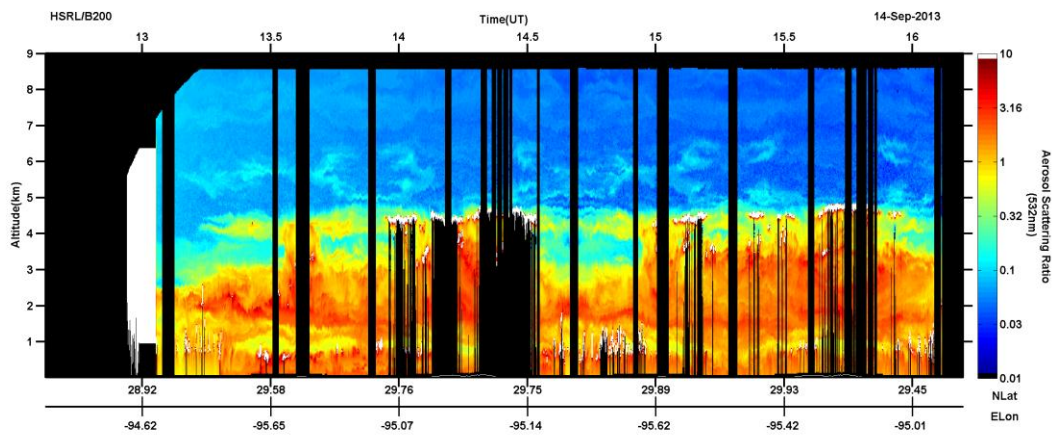
DATE: September 14, 2013

DURATION: 3.9 hours, 12:41 to 16:37 UTC

SUMMARY:

Today saw the most aerosol loading of the campaign so far, with optical depths in excess of 0.6 at the northern part of the flight pattern. The aerosol was most concentrated both in the boundary layer and in a layer between 3000 and 10000 ft. There was also a smoke plume at altitudes above 12,000 ft which was at first separated from the urban aerosol below, but merged with the aerosol at lower layers on the second loop of the flight. At the northern part of the pattern, HSRL-2 observed broken clouds at the top of the upper layer, which became more extensive as the day progressed. Aerosol in the boundary layer was typed as marine in the bay and near Galveston, and polluted marine elsewhere. The aerosol wavelength dependence (backscatter-related angstrom exponent) supports the inference of large particles in the boundary layer and small particles in the upper-level smoke layer.





Operator Flight Notes, Flight # 1:

- During ascent, noticed that 532 nm I2 molecular pmt was not at correct voltage. Reset detector power to correct. 1302 UTC The file might be corrupt.
 - Tuning INF at 1326 UTC
 - Tuning INF at 1345 UTC
 - Interesting 4 km layer, possible smoke? Layer has some broken cloud formation at top, took some photos from window, right side field is thicker at 4 km compared to left side of plane, 1410 UTC
 - OAC, PGR, I2 calcs at 1421 UTC
 - Tuning INF 1434 to 1439 UTC
 - Tuning INF 1537 to 1540
 - OAC, PGR, I2 calcs at 1547 UTC
 - Tuning INF at 1600 UTC
 - INF IGR cal at 1604 UTC
 - Dave testing something at 1606 UTC
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FLIGHT: Afternoon science flight (2 of 2)

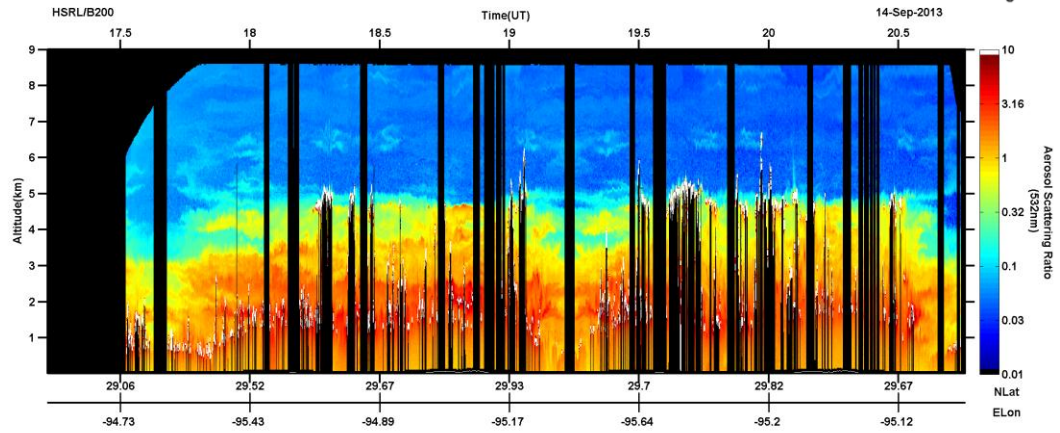
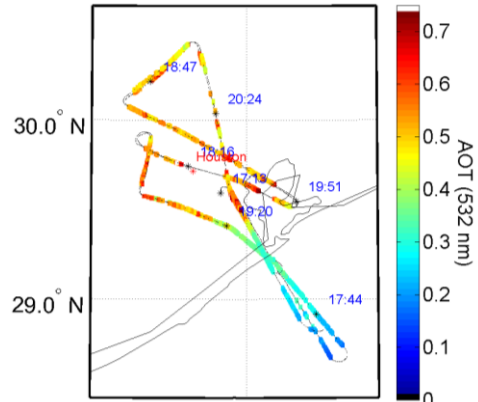
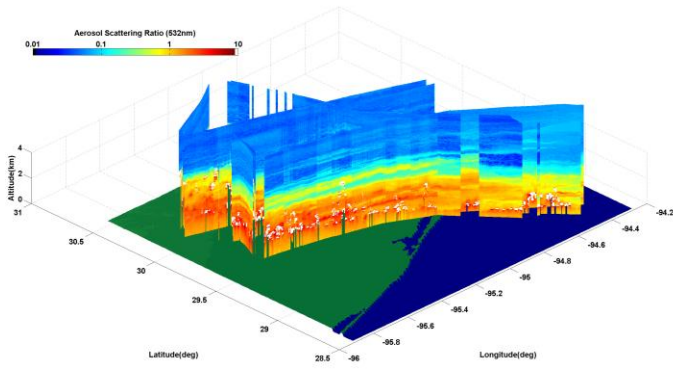
DATE: September 14, 2013

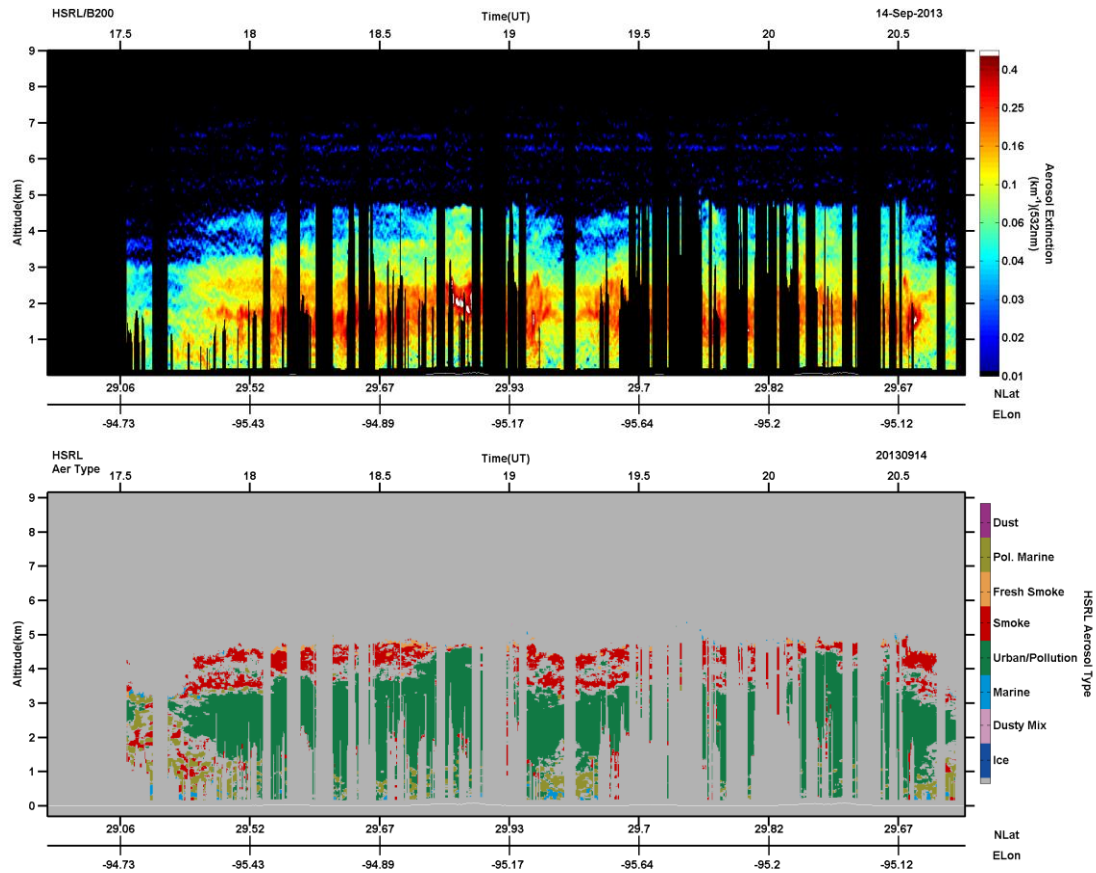
DURATION: 3.9 hours, 17:14 to 21:07 UTC

SUMMARY:

In the afternoon, the aerosol optical depth continued to build, exceeding 0.7 in parts of Houston and the western part of Galveston Bay. High clouds also increased in frequency, but measurements were possible between the clouds over the entire flight pattern.

NASA Langley HSRL 20130914





Operator Flight Notes, Flight # 2:

- INF near PZ limit, moved to another fringe and re-tuned 1808 to 1813 UTC, having some trouble dues to clouds blocking surface return
- OAC, PGR, I2 calcs started at 1854 UTC
- INF tuning 1908 to 1912 UTC
- INF tuning 1946 to 1949 UTC
- OAC, PGR, I2 calcs at 2020 UTC
- INF IGR cal at 2039 UTC