DISCOVER-AQ
HSRL Data Summary

FLIGHT: Morning science flight (1 of 2)
**DATE: September 12, 2013**
DURATION: 3.7 hours,   13:35 **to** 17:17   **UTC**

SUMMARY:

We see significantly less cloudiness than yesterday and the familiar pattern of higher AOD to the northern end of the track in the 0.3 range and some wispy smoke aloft up to ~4km. The 1km PBL near the surface has low lidar ratio (typed as marine) with a region of higher lidar ratio (typed as polluted marine) above that. Summary plots are shown below for Flight 1.
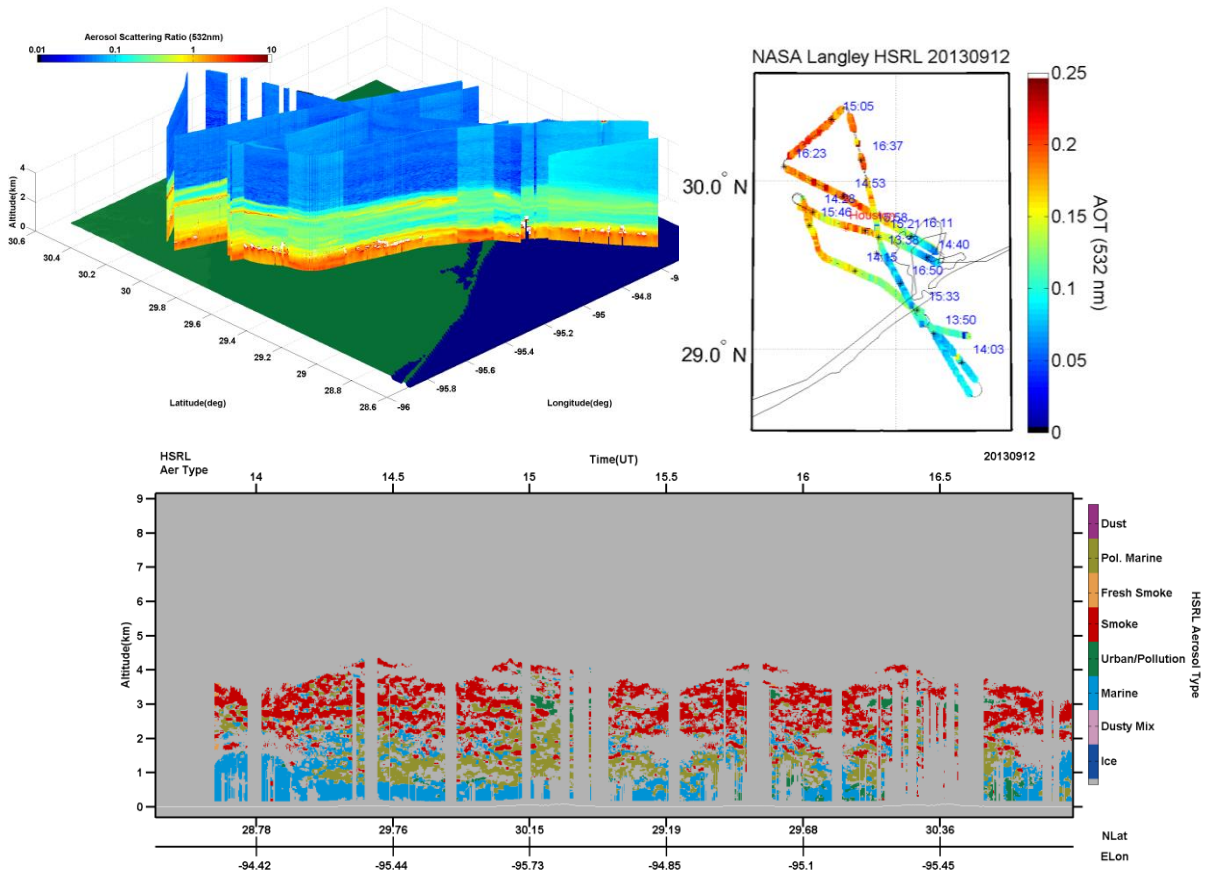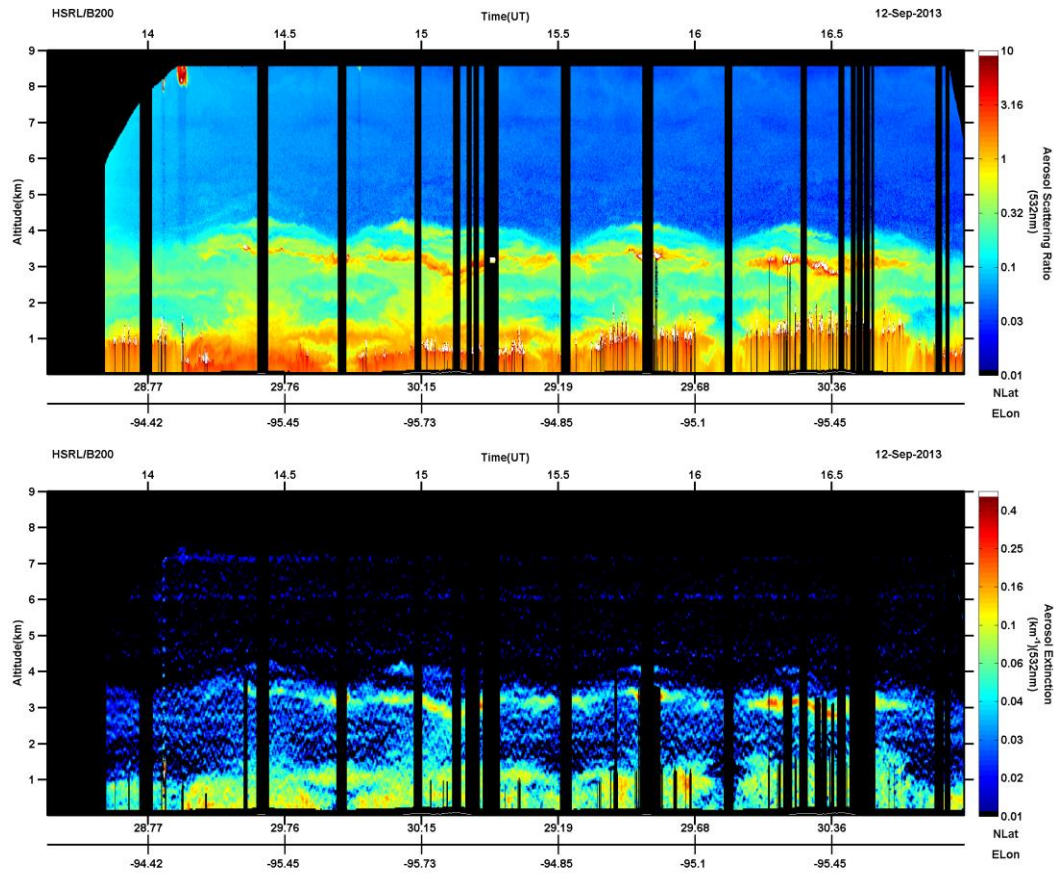
Operator Flight Notes, Flight # 1:

- Irridium communication issues
- ACAM heaters on at 1424 UTC
- Tuning INF 1439 UTC
- 355 nm Par detector dropout, voltage adjusted to 1000 to fix 1452 UTC
- OAC , PGR, I2 cals, I2 did not take on the first try, second time worked 1417 UTC
- Tuning INF 1600 UTC
- Cals OAC, PGD, I2 16:35
- INF IGR cal at 1652 UTC

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FLIGHT: Afternoon science flight (2 of 2)
DATE: September 11, 2013
DURATION: 3.8 hours, 18:30 **to** 22:16 **UTC**

SUMMARY:
This flight was conducted at 22 kft to stay beneath the scattered cirrus. Cloudiness reduced through the afternoon for the southern end of the research area. Aerosol backscatter was very low at NW Houston, NW Harris Co, and Conroe and depolarization was observed in this NW region of the study area. Aerosol loading was generally higher aloft than at ground level. The aerosol type indicator was less conclusive for the afternoon, presumably due to mixing, but the identification of the topmost layer as smoke was as on the first flight.
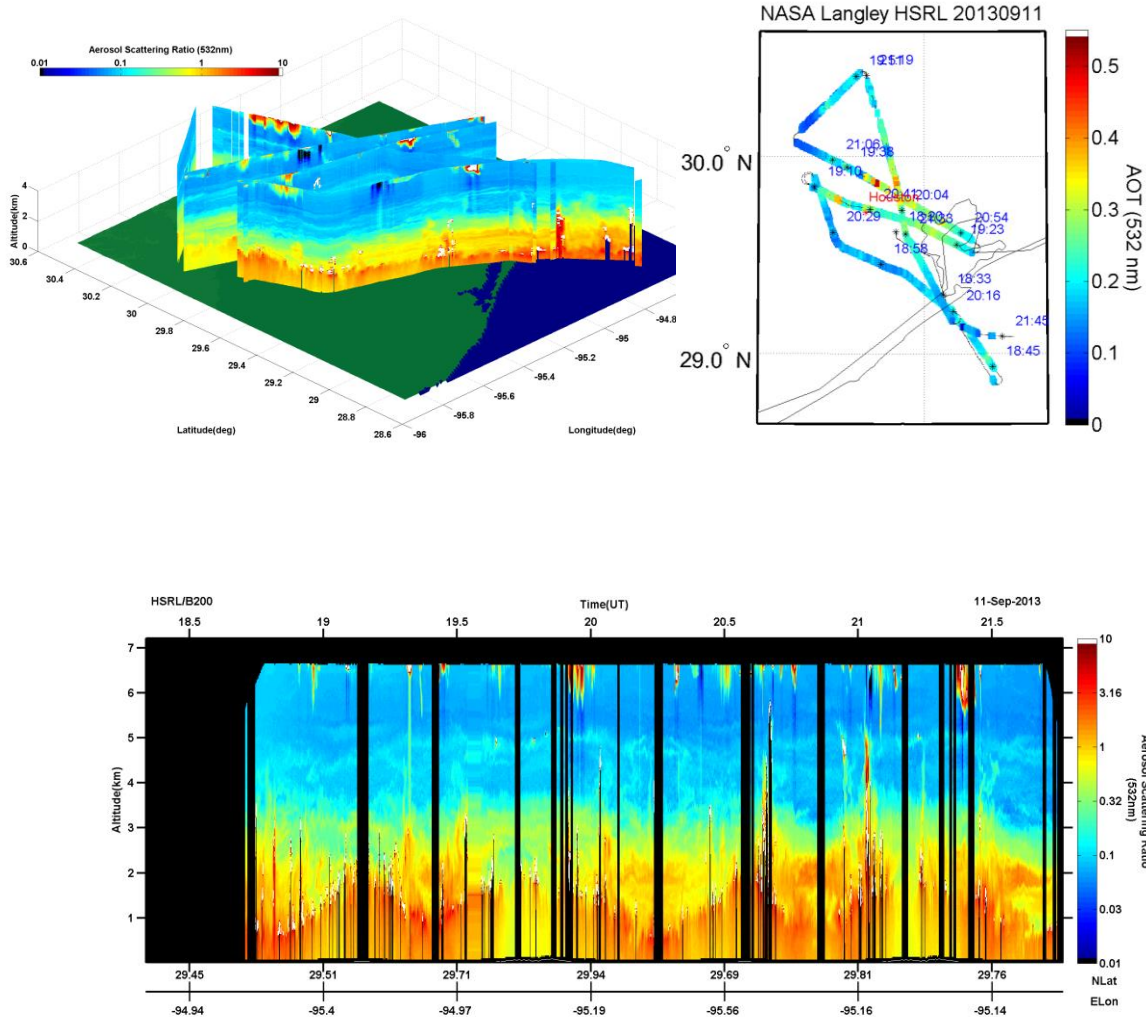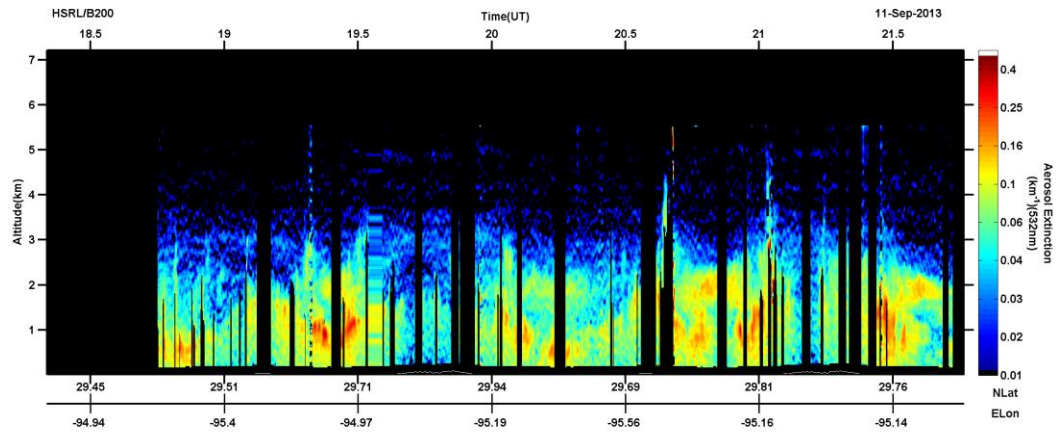
Operator Flight Notes, Flight # 2:

- INF found out of range, resetting 1907 UTC
- 355 par channel has detect offset issue, corrected at 1914 UTC
- INF found out of range, readjusting 1924 UTC
- INF adjustment 19:33 UTC
- PGR and I2 cals performed, skipped OAC due to clouds 1956 UTC
- INF near end of range, readjusted at 2019 UTC
- INF near end of range again, readjusted at 2033 UTC
- Low level clouds building up in altitude, anticipating significant interference 2058 UTC
- PGR, I2, and INF IGR cals 21:25 UTC
- INF IGR did not come back to optimum tilt, applying auto tilt to correct 2127 UTC