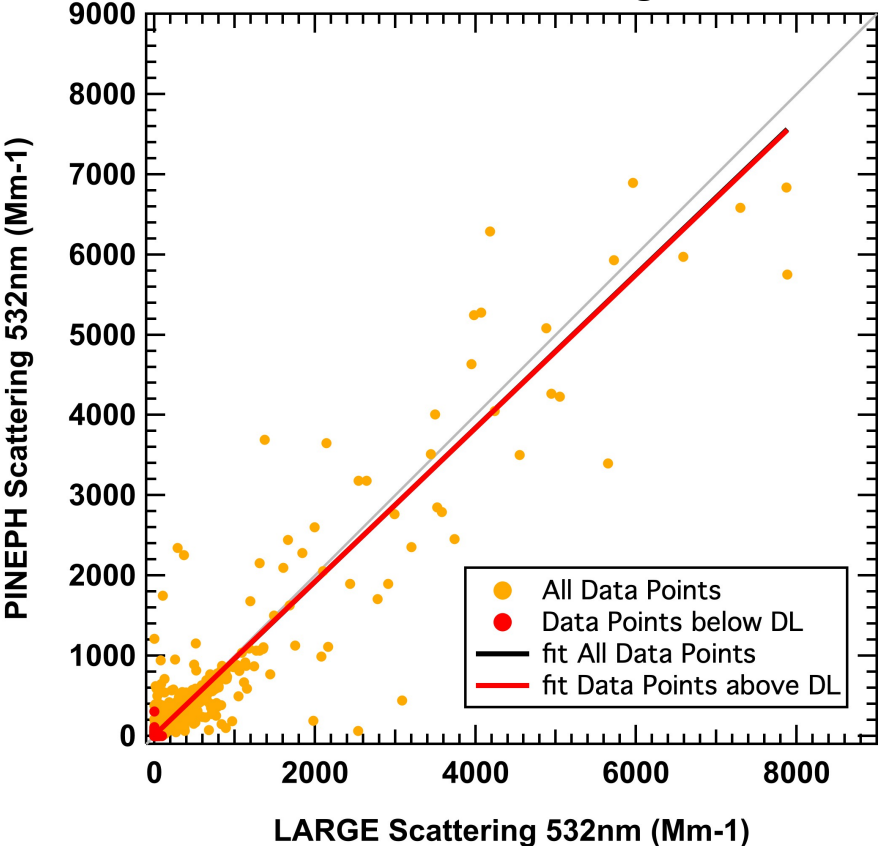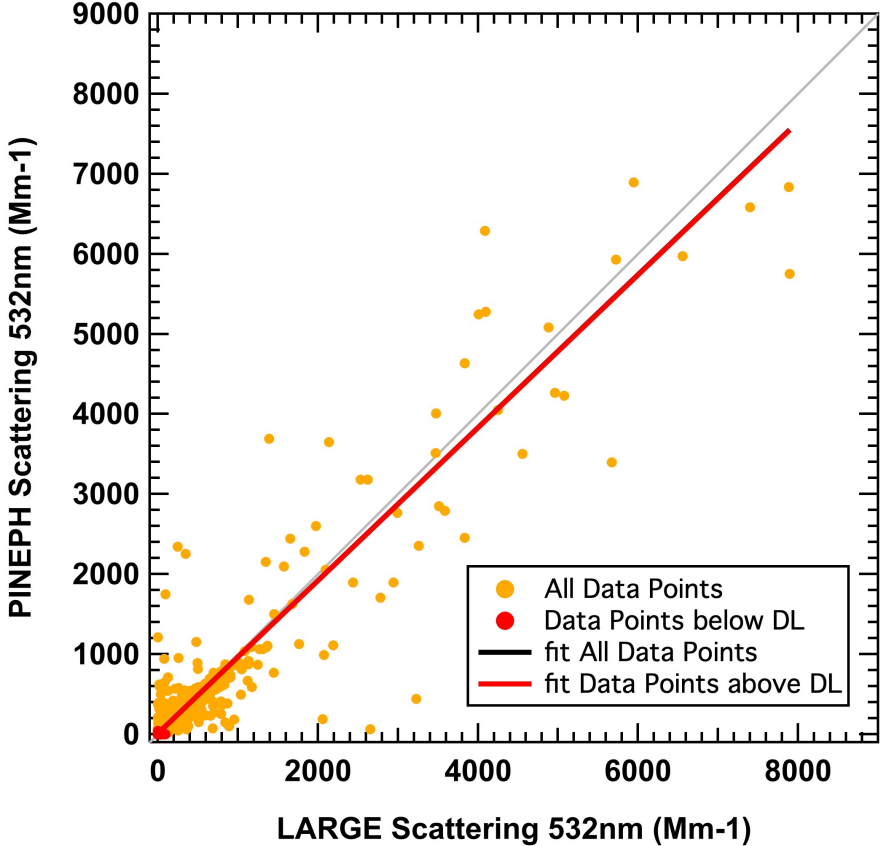# Dry Scattering at 532nm – UMBC PI-Neph vs LARGE Neph

Archive 10s Merge

10s Merge with 70% Data

All Data Points (21041 pts)
y = a + bx
a = 8.08 ± 0.45
b = 0.958 ± 0.0022
R^2 = 0.892

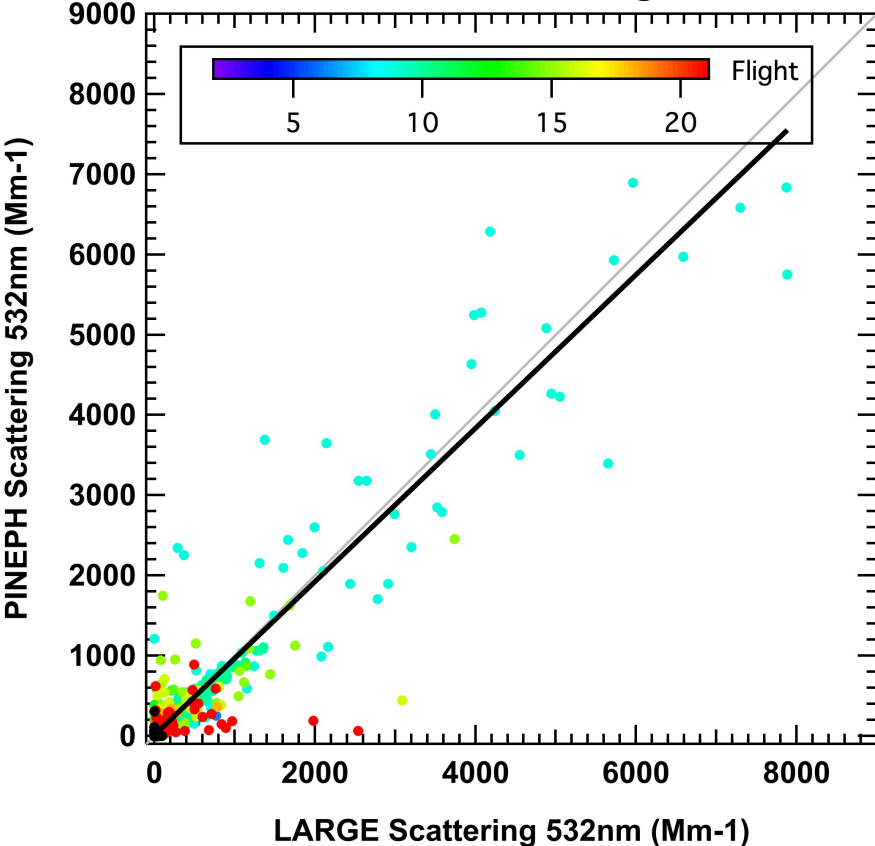**Data Points > DL** (19934 pts)
y = a + bx
a = 8.64 ± 0.48
b = 0.9571 ± 0.0023
R^2 = 0.892

All Data Points (20266 pts)
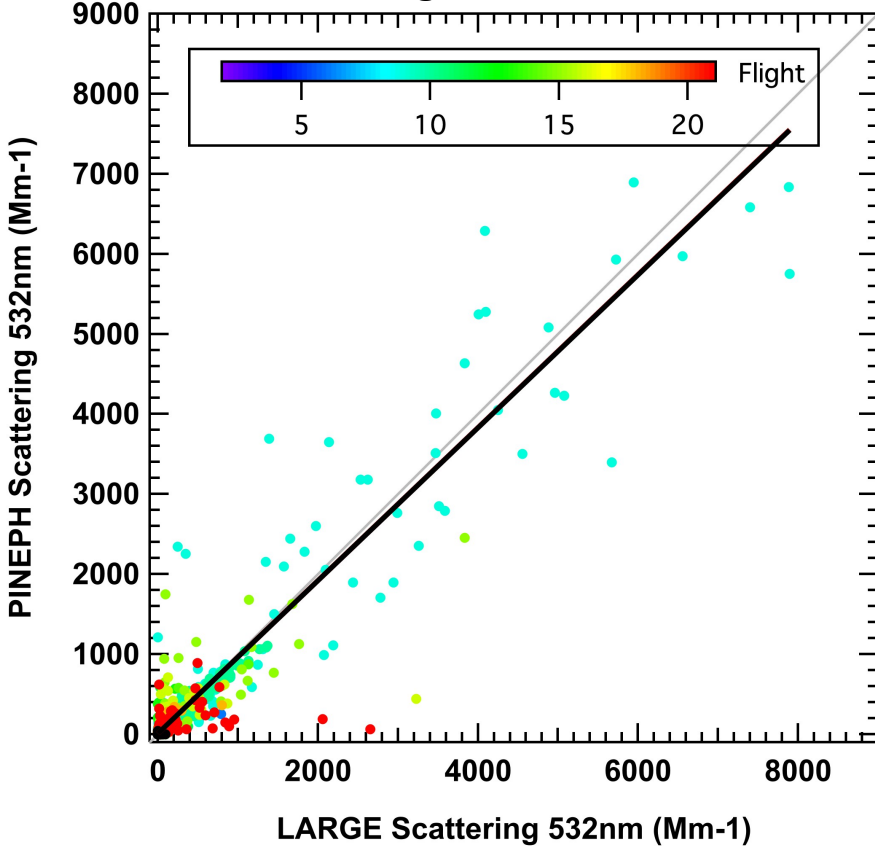y = a + bx
a = 8.53 ± 0.49
b = 0.9552 ± 0.0023
R^2 = 0.888

Data Points > DL (19370 pts)
y = a + bx
a = 8.89 ± 0.50
b = 0.9547 ± 0.0024
R^2 = 0.888

Dry Scattering at 532nm – UMBC PI-Neph vs LARGE Neph
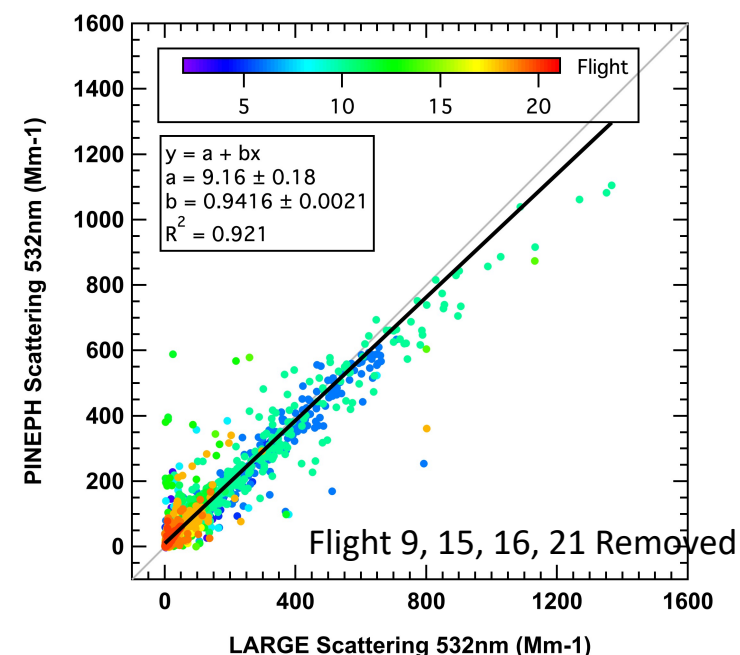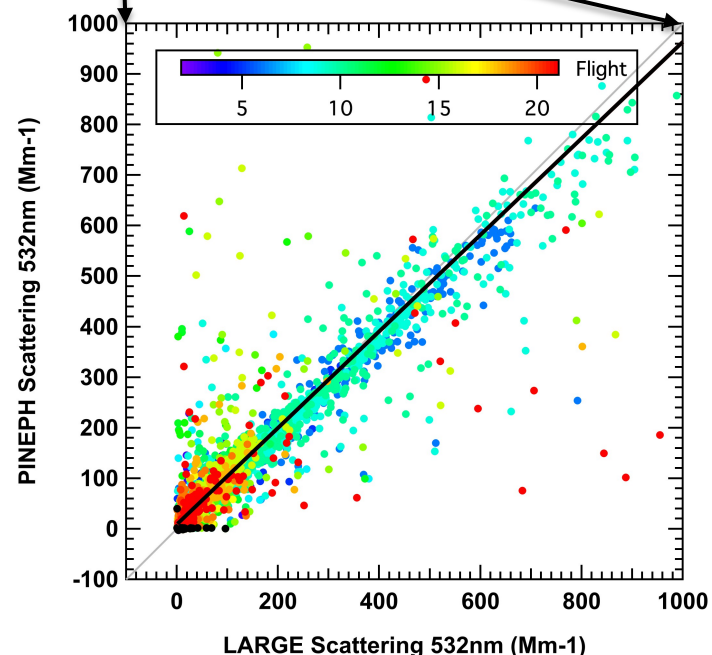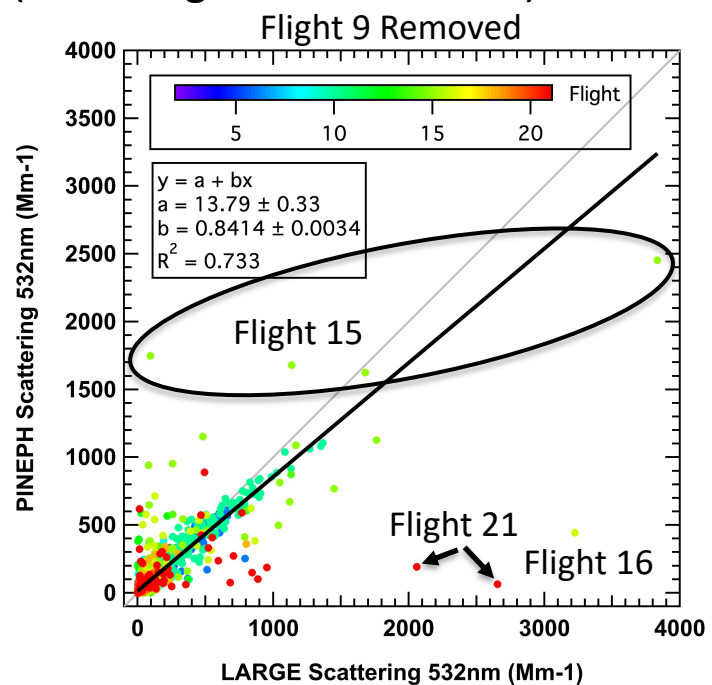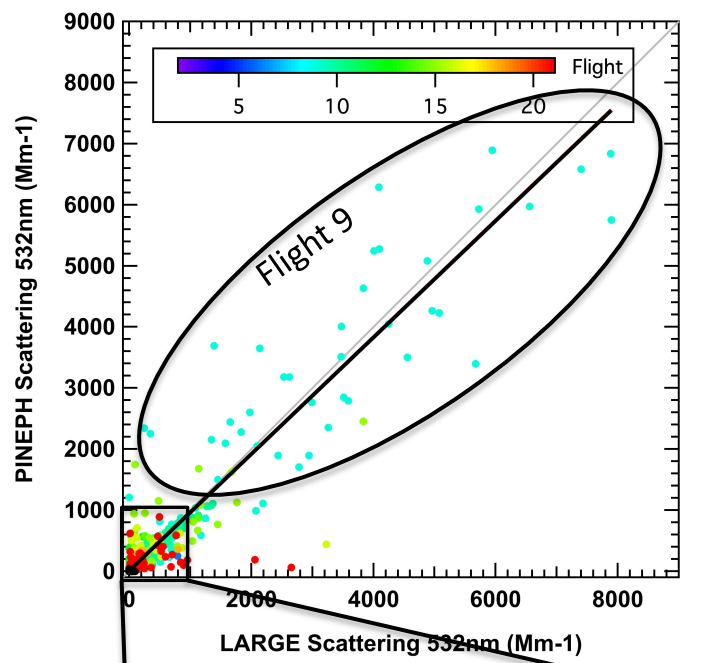

Archive 10s Merge

10s Merge with 70% Data

All Data Points (21041 pts)

y = a + bx
a = 8.08 ± 0.45
b = 0.958 ± 0.0022
R² = 0.892

Data Points > DL (19934 pts)
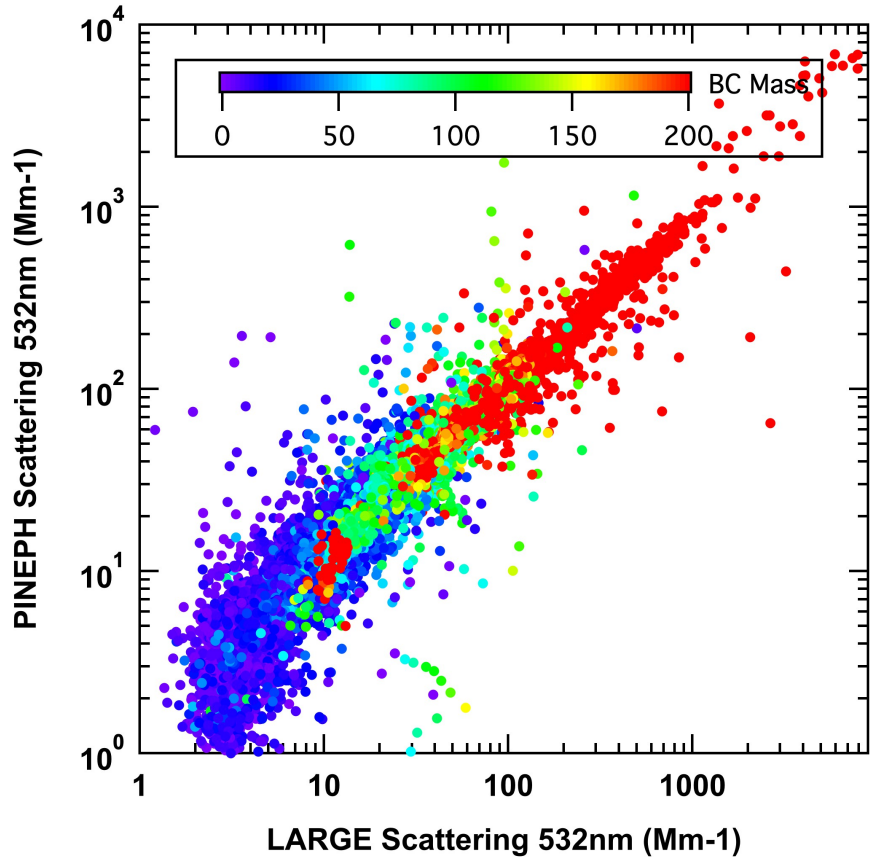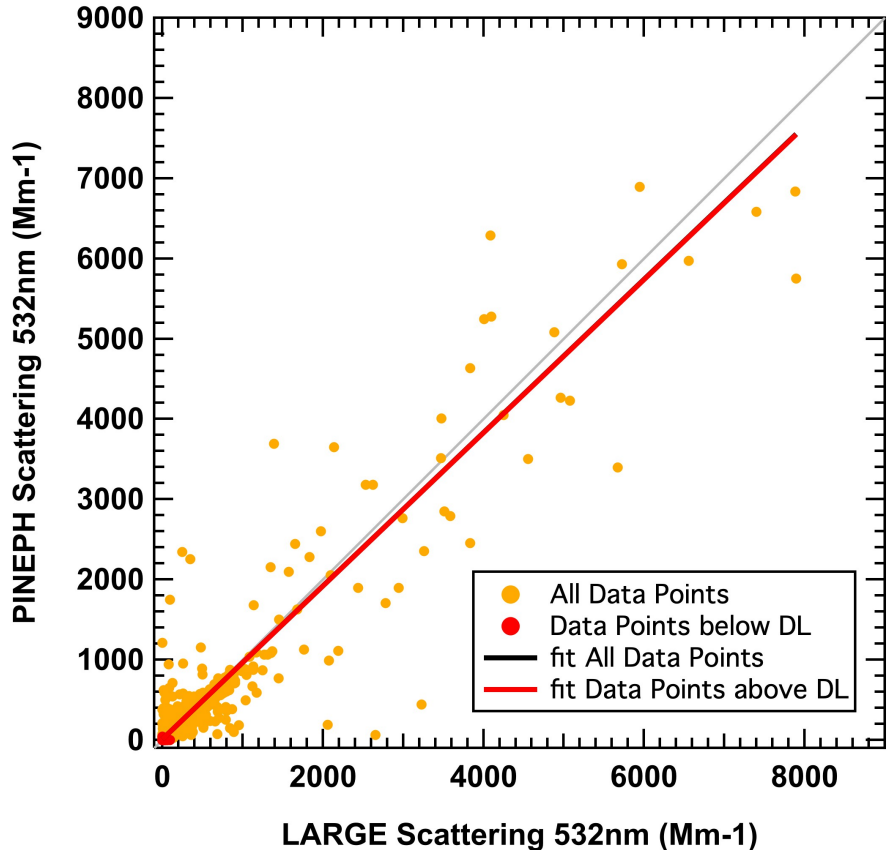
y = a + bx
a = 8.64 ± 0.48
b = 0.9571 ± 0.0023
R² = 0.892

All Data Points (20266 pts)

y = a + bx
a = 8.53 ± 0.49
b = 0.9552 ± 0.0023
R² = 0.888

Data Points > DL (19370 pts)

y = a + bx
a = 8.89 ± 0.50
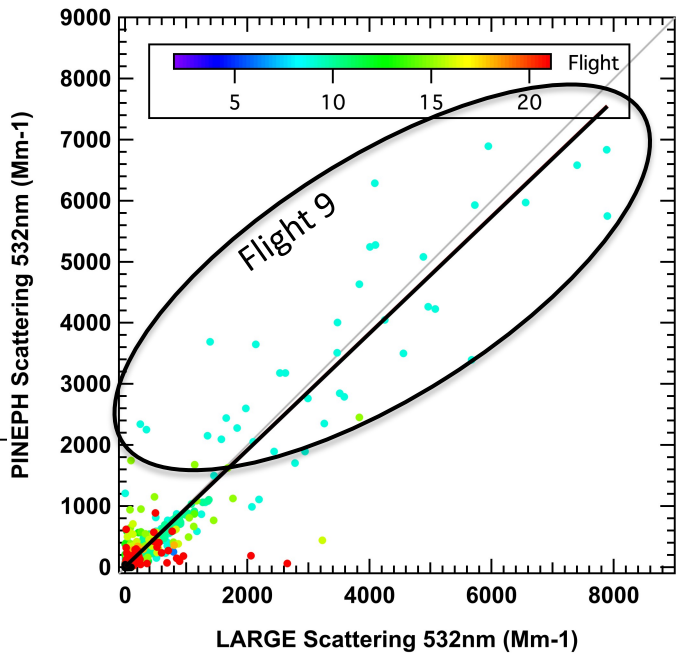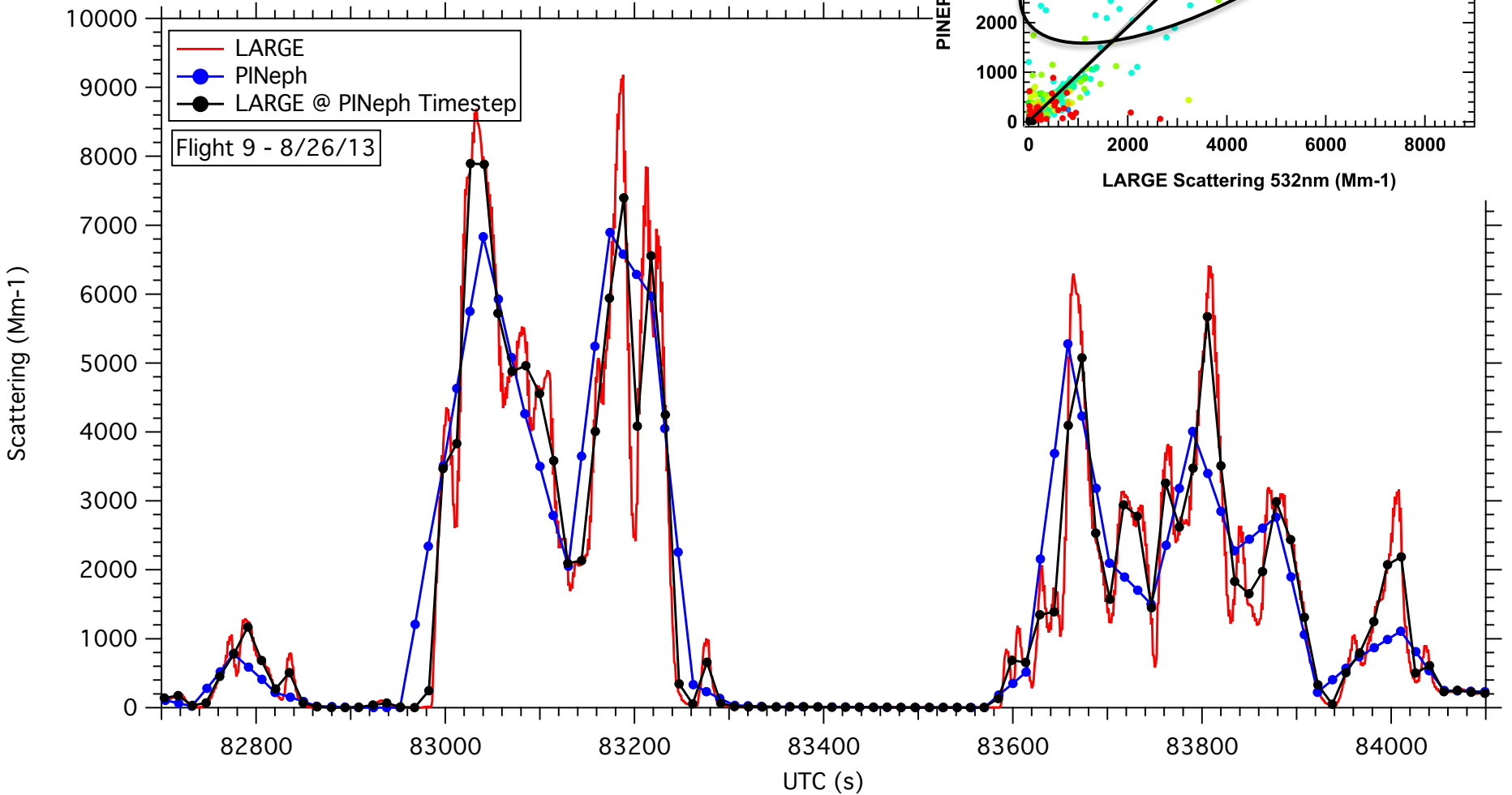b = 0.9547 ± 0.0024
R² = 0.888

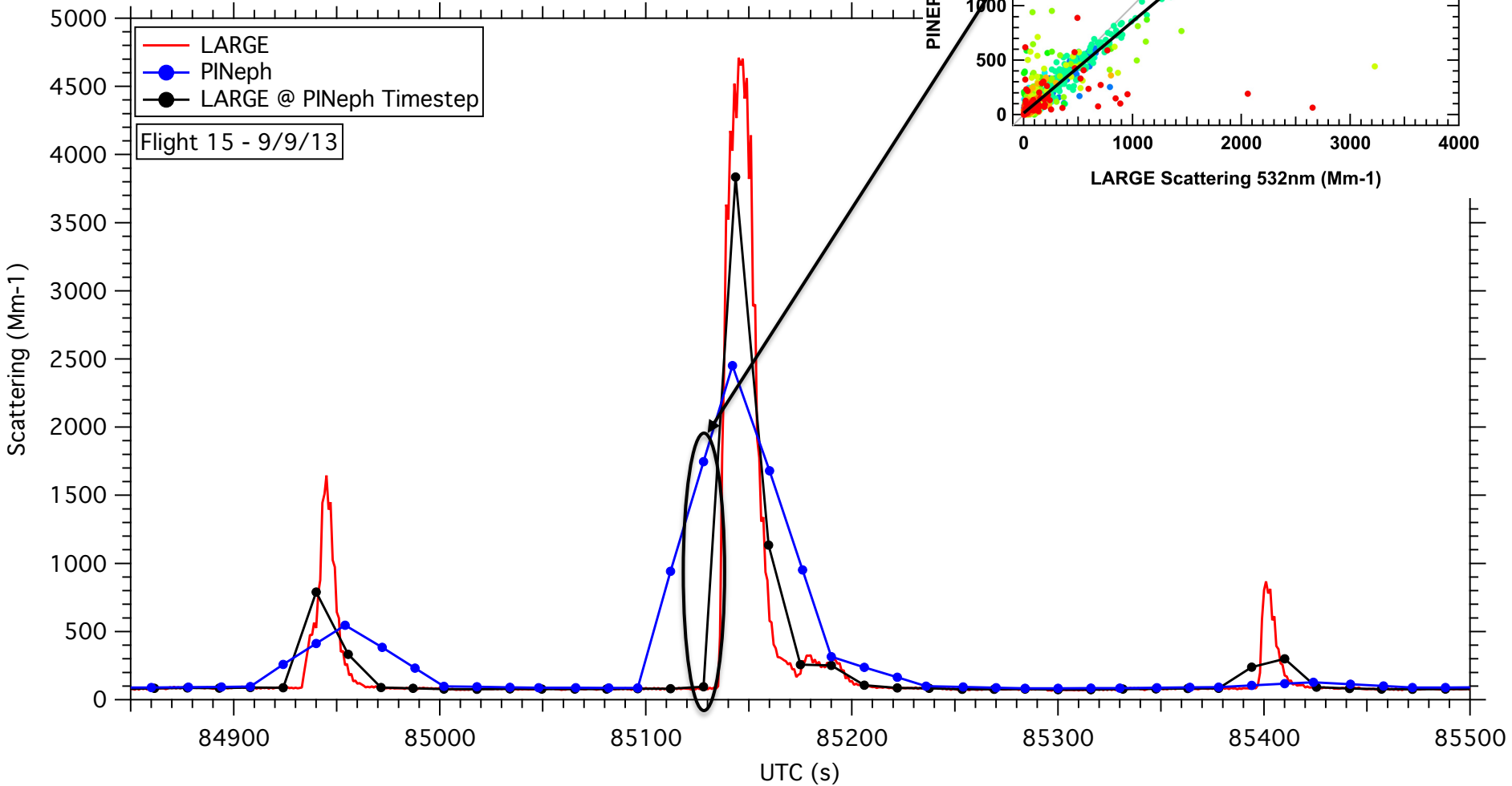# Dry Scattering at 532nm – Flights (10s Merge with 70% Data)

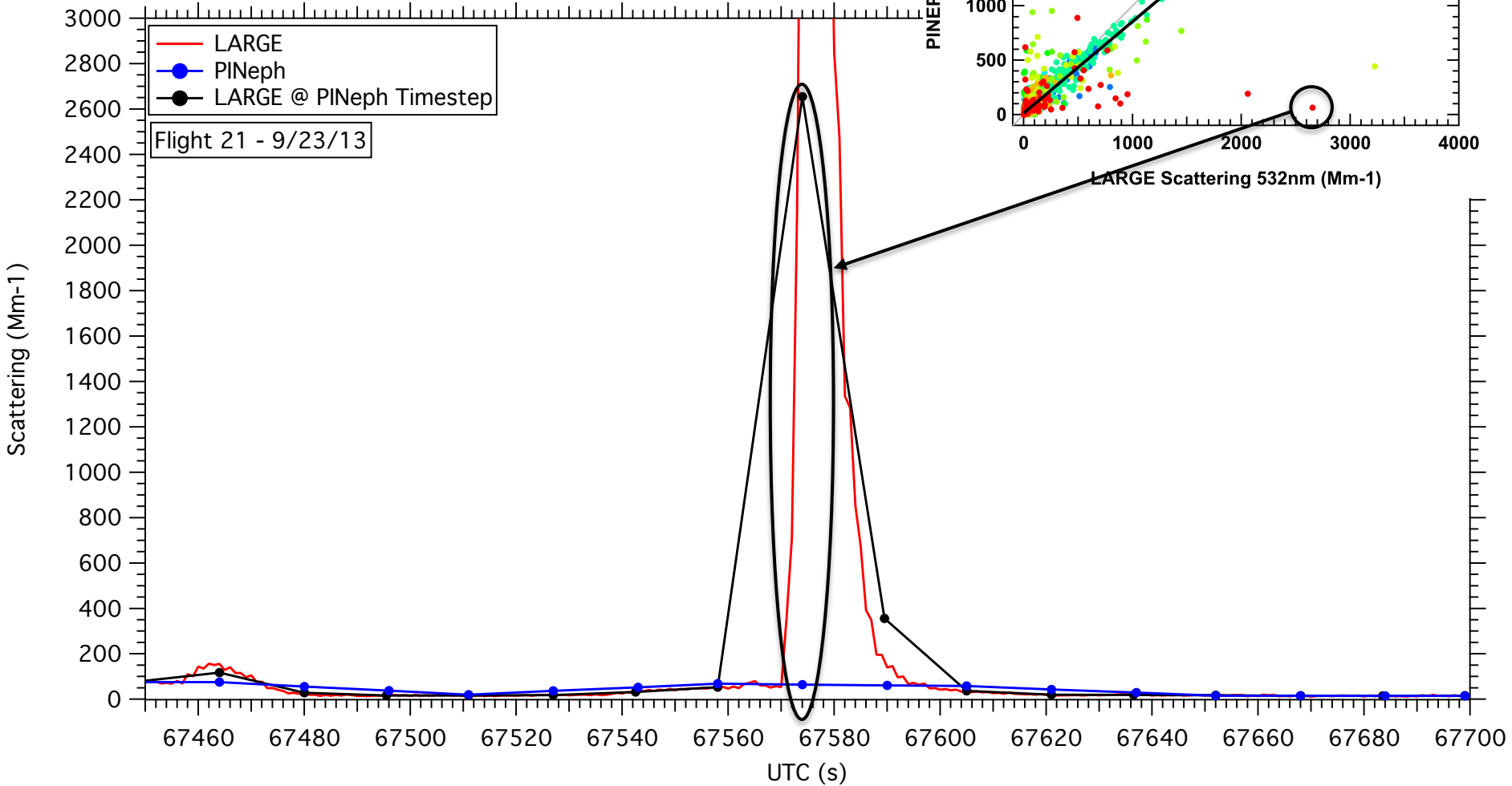# Dry Scattering at 532nm – Black Carbon Mass

Dry Scattering at 532nm – Outliers 8/26/13 (Flight 9)

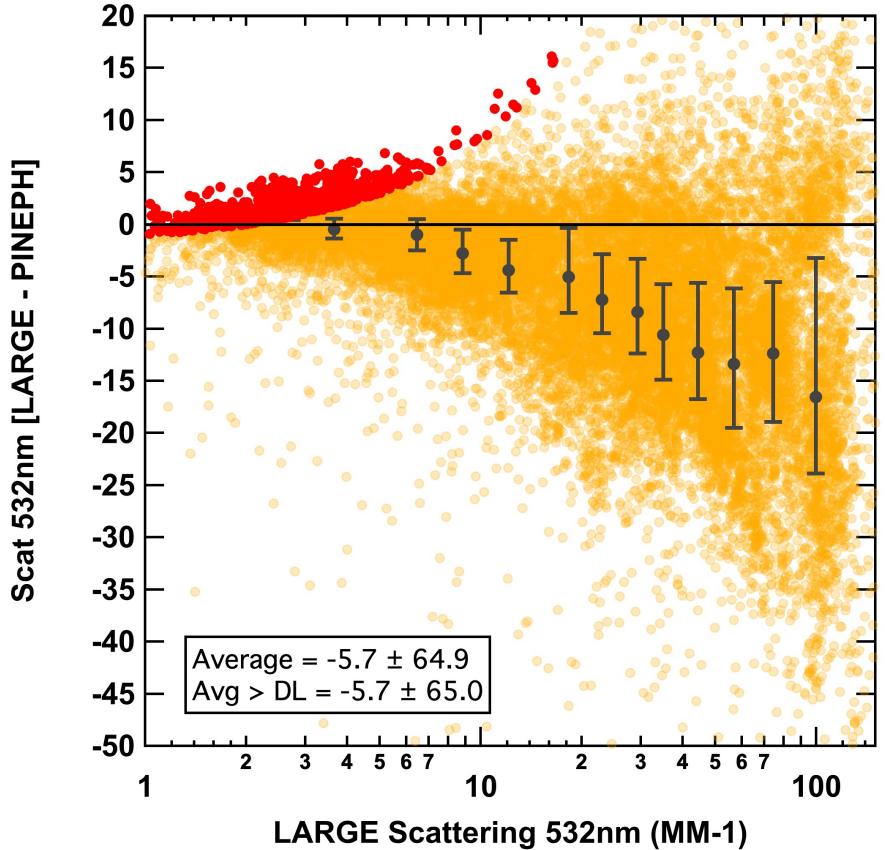Dry Scattering at 532nm – Outliers 9/09/13 (Flight 15)

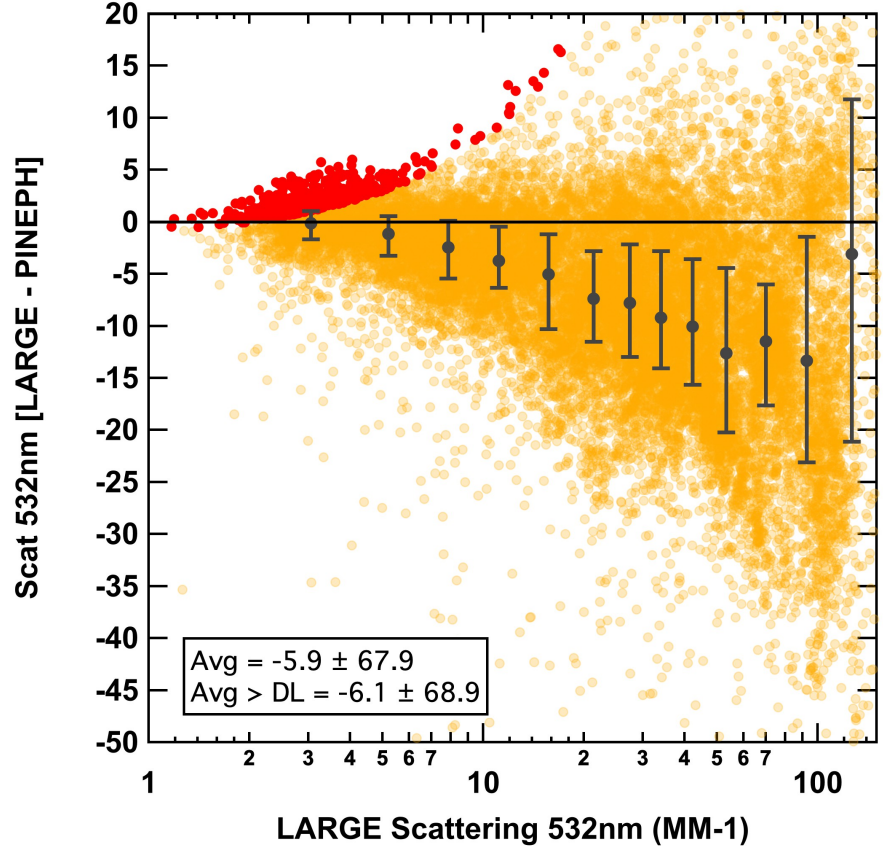# Dry Scattering at 532nm – Outliers 9/23/13 (Flight 21)

Difference dependence on scattering value

Data:
- **10s Merge:** SEAC4RS-mrg10-dc8_merge_20130806_R5_thru20130923.ict
- **1s PINEPH:** seac4rs-PINEPH-SCAT_DC8_########_R1.ict (######## = daily files from 20130808 – 20130923)
- **1s LARGE:** seac4rs-LARGE-OPTICAL_DC8_########_R1.ict (######## = daily files from 20130808 – 20130923)
- **1s Black Carbon:** seac4rs-HDSP2-BC_DC8_########_R1.ict (######## = daily files from 20130808 – 20130923)

Correlation:
- LARGE 532nm scattering calculated from Sc550_total and AE_Scattering_450to550nm variables.
- Manual Merge with 70% Data:
    - LARGE data merged to PINEPH time step. Each merge interval must contain at least 70% of data for analysis.
- Data points below the DL (LARGE < 1 Mm-1, PINeph < 2 Mm-1) are colored red.
- Fit lines are derived from orthogonal distance regressions.
- R^2 values are calculated independently, not from orthogonal distance regression.

Difference dependence on Scattering value:
- Absolute difference calculated by LARGE – PINEPH.
- Median, 25th, and 75th percentiles based on 1500 data point bins after data is sorted by LARGE scattering values.