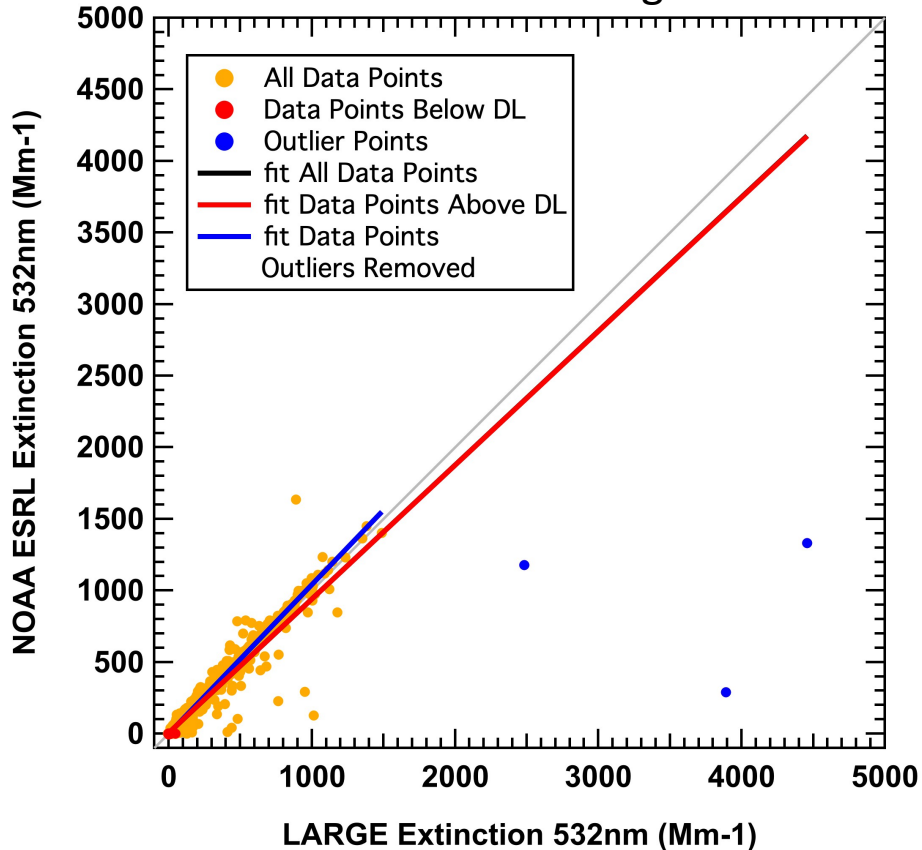
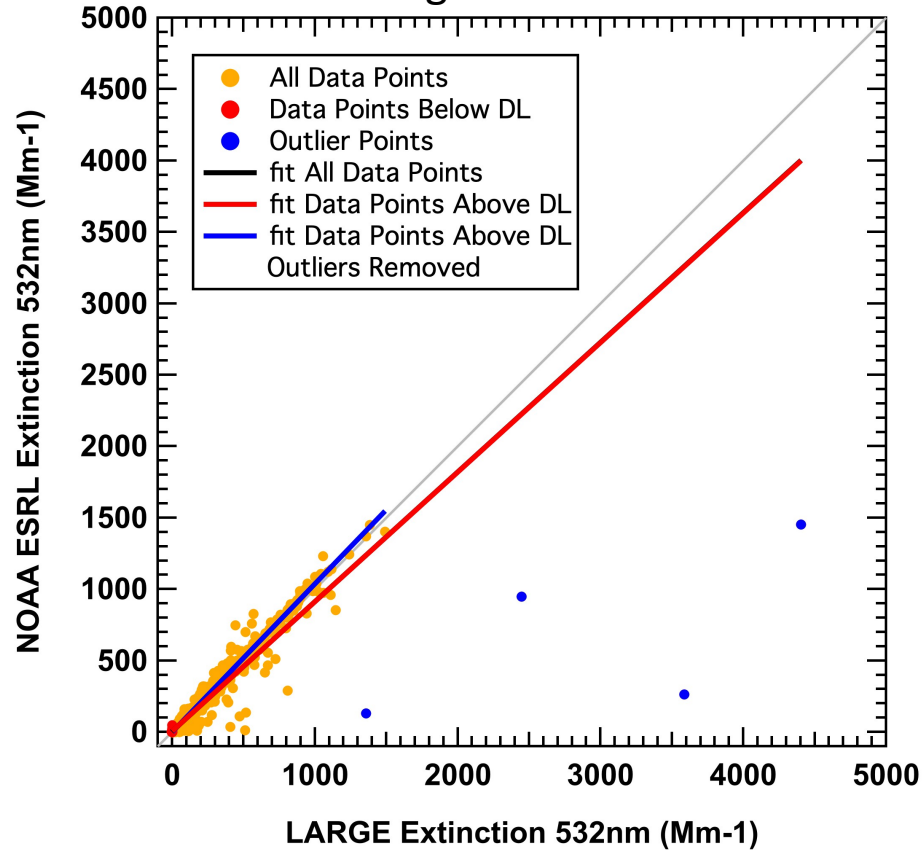


Dry Extinction at 532nm – NOAA CRDS vs LARGE

Archive 10s Merge



10s Merge with 70% Data



All Data Points
 (22475 pts)
 $y = a + bx$
 $a = 3.77 \pm 0.26$
 $b = 0.936 \pm 0.002$
 $R^2 = 0.855$

Data Points > DL
 (22162 pts)
 $y = a + bx$
 $a = 3.86 \pm 0.27$
 $b = 0.934 \pm 0.003$
 $R^2 = 0.854$

**Data Points > DL
 Outliers Removed**
 (22159 pts)
 $y = a + bx$
 $a = -1.18 \pm 0.11$
 $b = 1.043 \pm 0.001$
 $R^2 = 0.972$

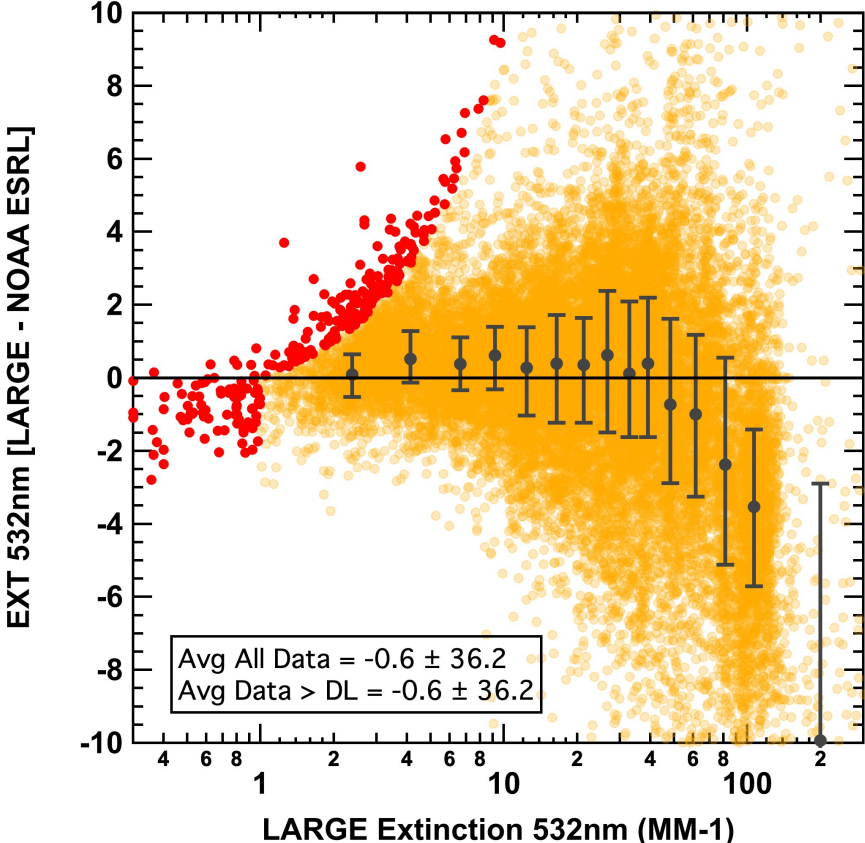
All Data Points
 (17571 pts)
 $y = a + bx$
 $a = 5.16 \pm 0.31$
 $b = 0.907 \pm 0.003$
 $R^2 = 0.837$

Data Points > DL
 (17482 pts)
 $y = a + bx$
 $a = 5.21 \pm 0.31$
 $b = 0.907 \pm 0.003$
 $R^2 = 0.836$

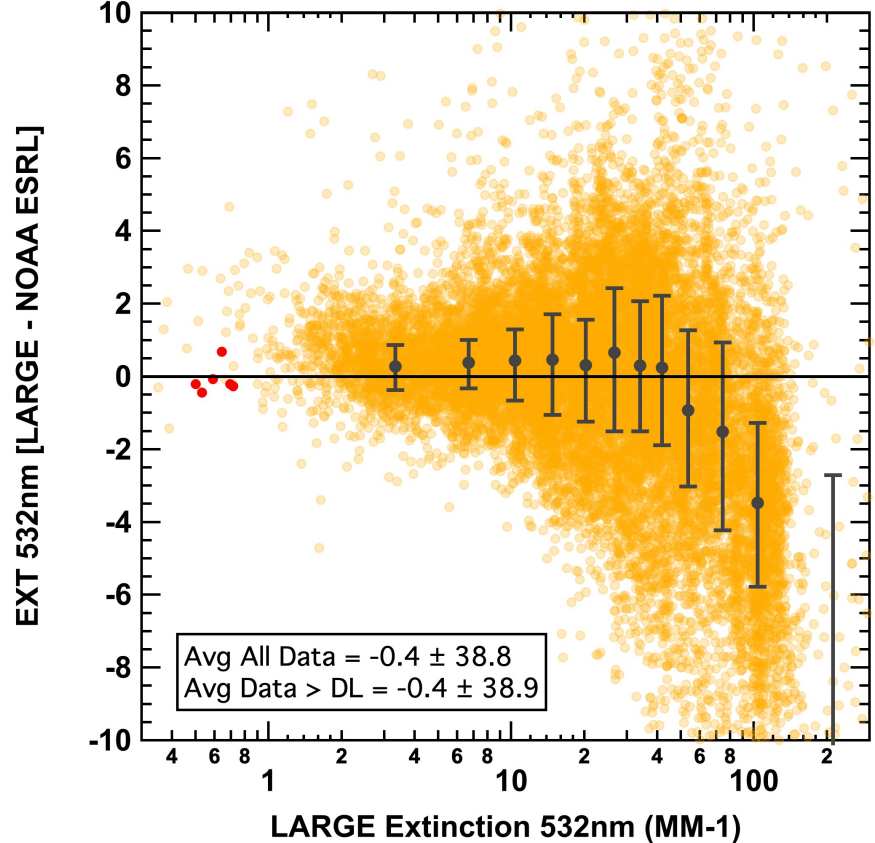
**Data Points > DL
 Outliers Removed**
 (17478 pts)
 $y = a + bx$
 $a = -1.04 \pm 0.11$
 $b = 1.039 \pm 0.001$
 $R^2 = 0.978$

Difference dependence on extinction value

Archive 10s Merge



10s Merge with 70% Data



(● All Data Points, ● Data Points < DL)

┌─── 75th Percentile
│ ● Median
└─── 25th Percentile

Data:

- **10s Merge:** SEAC4RS-mrg10-dc8_merge_20130806_R5_thru20130923.ict
- **1s LARGE:** SEAC4RS-LARGE-OPTICAL_DC8_#####_R3.ict (##### = daily files from 20130808 – 20130923)
- **1s NOAA ESRL:** seac4rs-NOAA-AeroExt_DC8_#####_R1.ict (##### = daily files from 20130808 – 20130923)

Correlation:

- 10s merge with 70% data are calculated using 1s PI data files. Each 10s interval must contain at least 70% of data for analysis.
- Data points below the DL (LARGE < 1 Mm⁻¹, NOAA < 1 Mm⁻¹) are colored red.
- 10s archive merge outliers removed iteratively when Cook's Distance > 1 (https://en.wikipedia.org/wiki/Cook%27s_distance).
- Outlier removed from 70% data 10s merge based on largest Cook's Distance.

- Fit lines are derived from orthogonal distance regressions.
- R² values are calculated independently, not from orthogonal distance regression.
- Data reported at STP (273 K & 1013 mb).

Difference dependence on extinction value:

- Absolute difference calculated by LARGE – NOAA.
- Median, 25th, and 75th percentiles based on 1500 data point bins after data is sorted by LARGE extinction values.