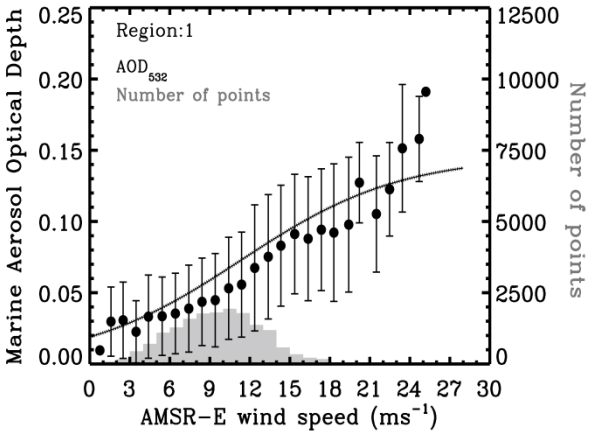
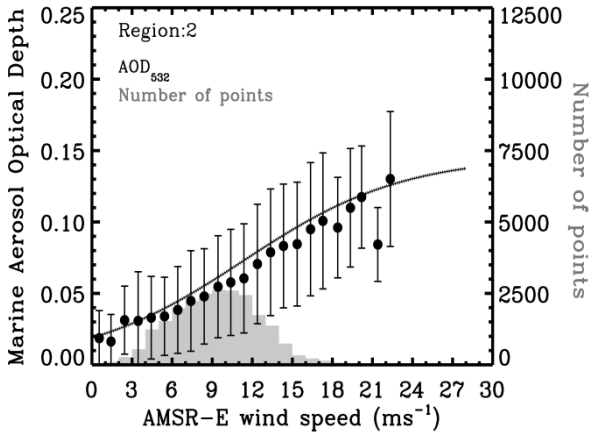
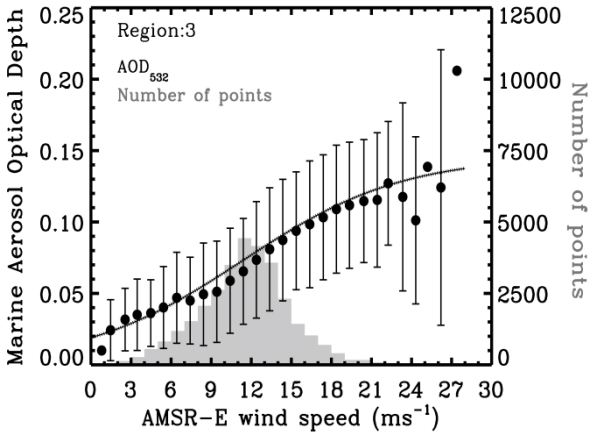
Supplementary Online Material

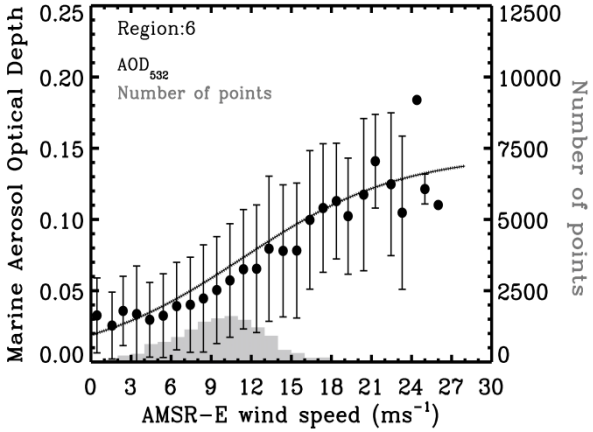
Table S1. Latitude and longitude of 15 regions selected for the detailed analysis

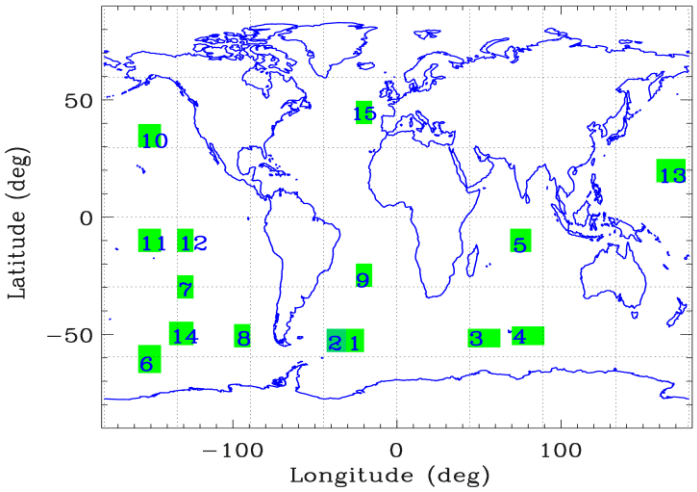
| Region № | Latitude (deg) | Longitude (deg) |
|---|---|---|
| 1 | 48°S to 58°S | 20°W to 31°W |
| 2 | 48°S to 58°S | 31°W to 43°W |
| 3 | 48°S to 56°S | 44°E to 64°E |
| 4 | 47°S to 55°S | 71°E to 91°E |
| 5 | 5°S to 15°S | 70°E to 83°E |
| 6 | 55°S to 67°S | 145°W to 159°W |
| 7 | 25°S to 35°S | 125°W to 135°W |
| 8 | 46°S to 56°S | 90°W to 100°W |
| 9 | 20°S to 30°S | 15°W to 25°W |
| 10 | 30°N to 40°N | 145°W to 159°W |
| 11 | 5°S to 15°S | 145°W to 159°W |
| 12 | 5°S to 15°S | 125°W to 135°W |
| 13 | 15°N to 25°N | 160°E to 178°E |
| 14 | 45°S to 55°S | 125°W to 140°W |
| 15 | 40°N to 50°N | 15°W to 25°W |

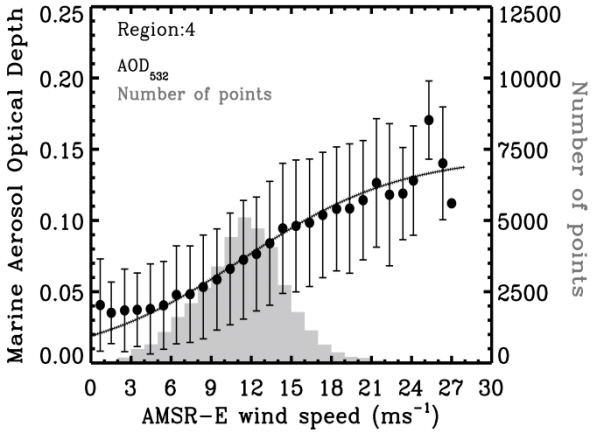

Region:1
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)

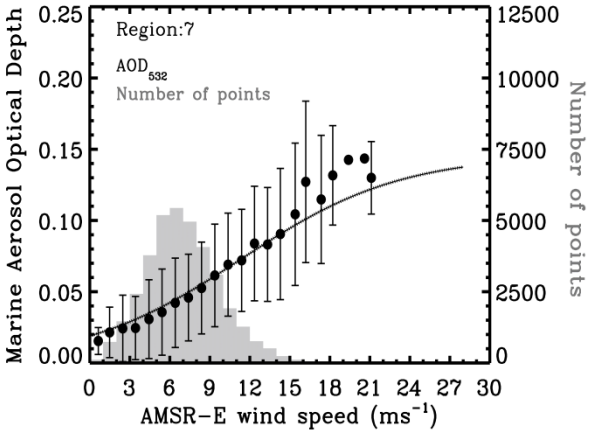

Region:2
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)

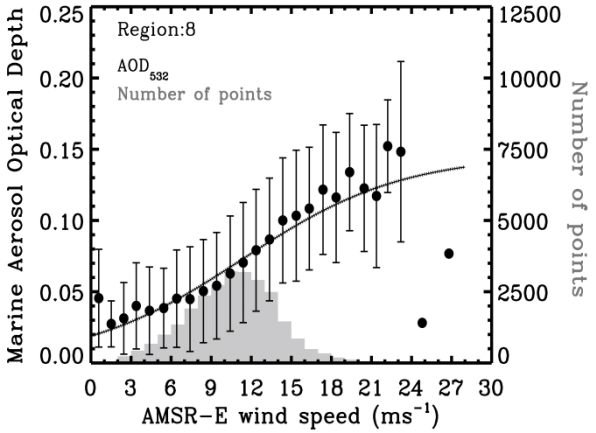

Region:3
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)

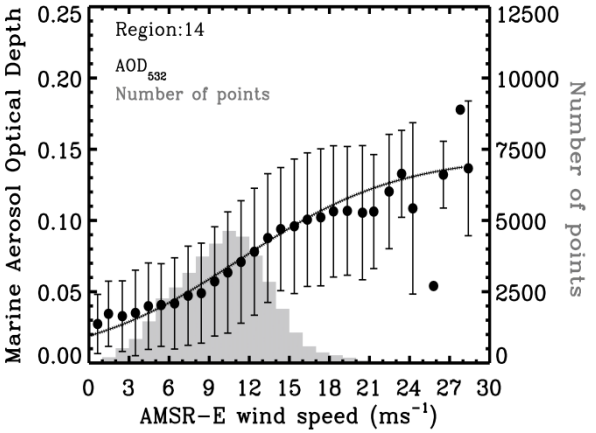

Region:6
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)


Latitude (deg)
Longitude (deg)
10
15
13
11
12
5
7
9
14
8
21
3
4
6


Region:4
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)


Region:7
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)


Region:8
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)


Region:14
AOD532
Number of points
Marine Aerosol Optical Depth
Number of points
AMSR−E wind speed (ms−1)

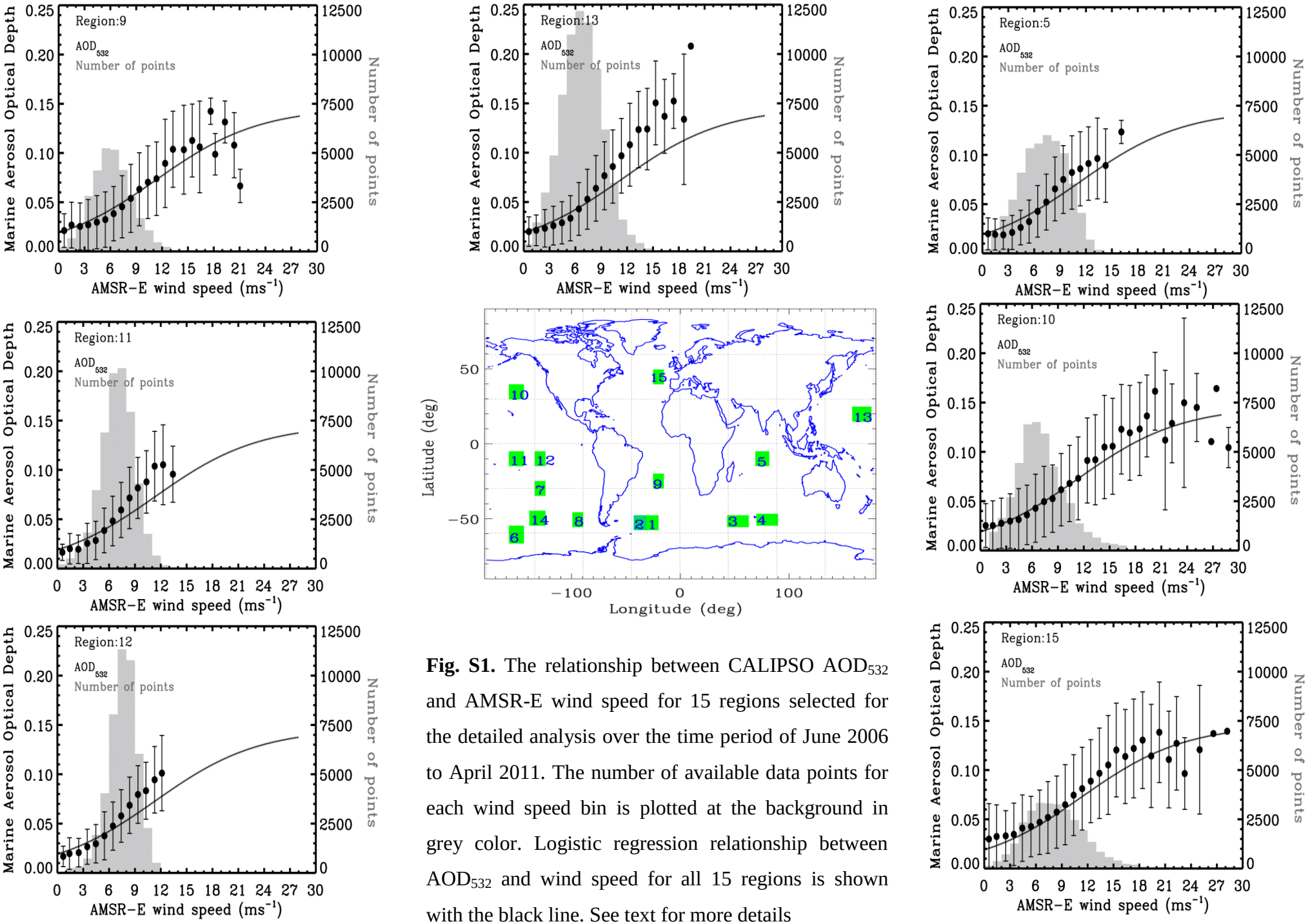



**Fig. S1.** The relationship between CALIPSO $AOD_{532}$ and AMSR-E wind speed for 15 regions selected for the detailed analysis over the time period of June 2006 to April 2011. The number of available data points for each wind speed bin is plotted at the background in grey color. Logistic regression relationship between $AOD_{532}$ and wind speed for all 15 regions is shown with the black line. See text for more details

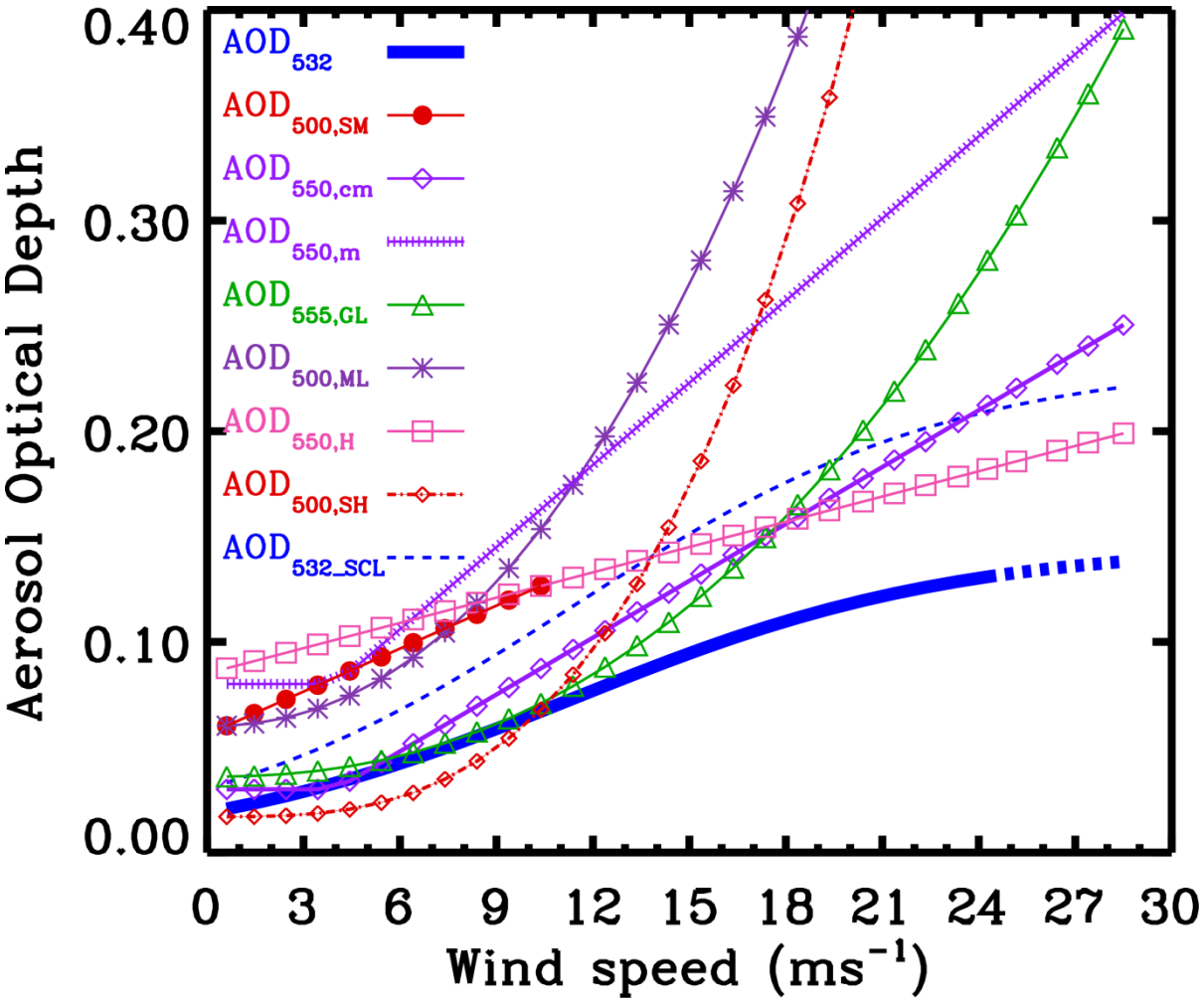



**Fig. S2.** Maritime aerosol optical depth as a function of wind speed. The regression statistics and the acronyms are summarized in Table 1. Thin dotted line shows CALIPSO-derived AOD (at 532 nm) with the lidar ratio of 34. See text for more details.