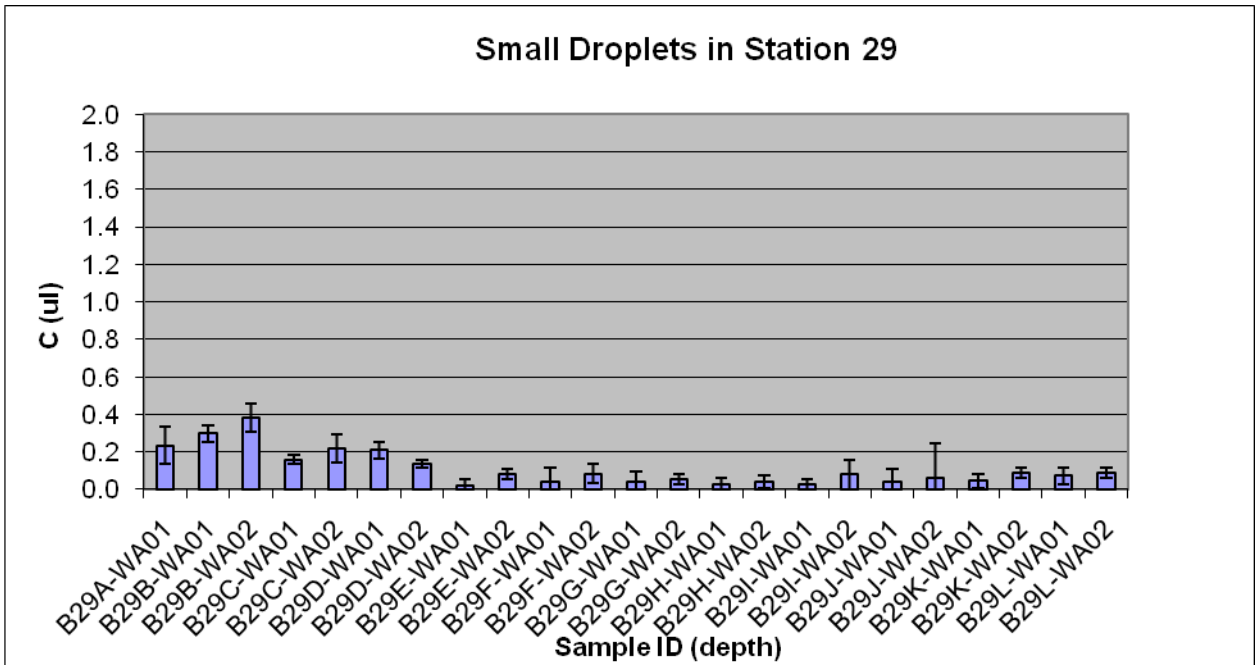
Evidence of dispersed oil droplets using the LISST-100X particle counter
May 19, 2010

Five stations were sampled for water column CTD, particle size distribution (LISST), and hydrocarbon analysis.

Figure 1 presents the small droplet particle size data for stations 29 through 33. In general, the small droplet concentrations were low throughout the water column. Consistent with the observations made on May 15-17, the data illustrates that the surface (0.5 to 2m) samples contained higher concentrations of small particles. The second highest small droplet concentrations were observed at from 100 to 200 m for all four stations. Concentrations were lower at depth (>1000m) than observed previously (i.e. Stations 24 and 26). These results appear to correlate with the *in situ* fluorometry measurements, most noticeably at the surface.

Intensity ratios obtained from a shore based Shimadzu RF-5301 fluorometer have supported the detection of dispersed oil by the LISST. Since this instrument cannot be operated at sea due to its sensitivity to vibrations, samples must be transported back to shore for analysis. The use of fixed wavelength fluorometers would allow for intensity ratio measurements to be made at sea, enabling rapid comparison with the LISST data.



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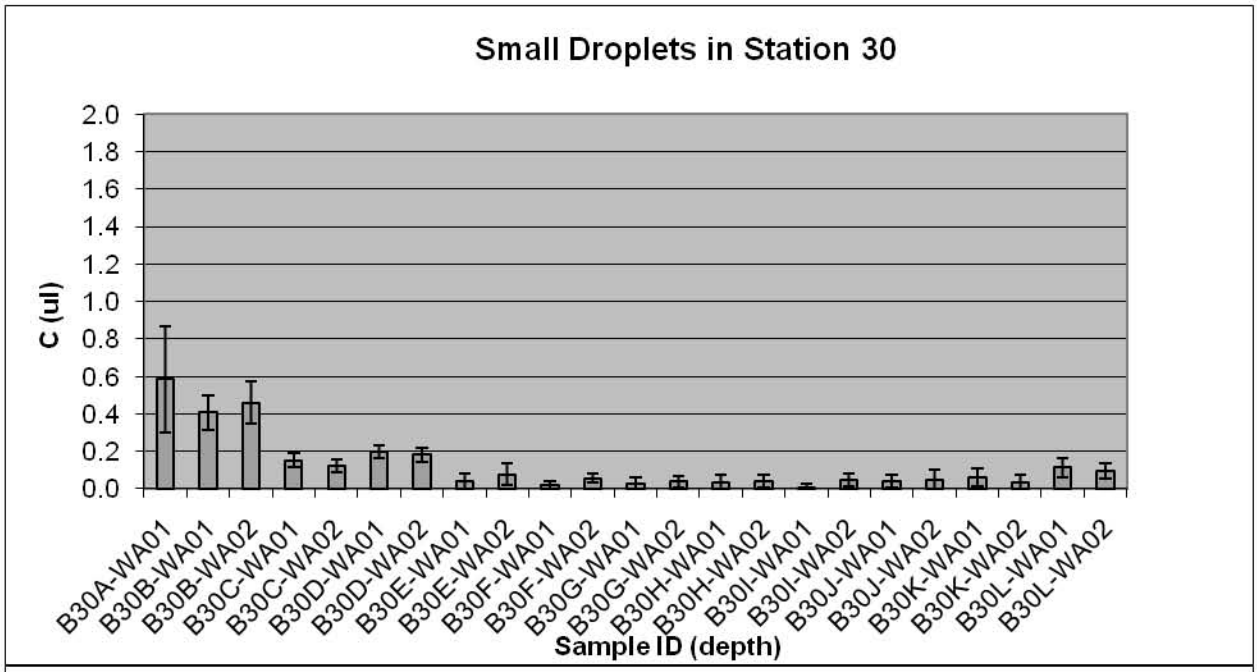
Small Droplets in Station 30
C (ul)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
B30A-WA01
B30B-WA01
B30B-WA02
B30C-WA01
B30C-WA02
B30D-WA01
B30D-WA02
B30E-WA01
B30E-WA02
B30F-WA01
B30F-WA02
B30G-WA01
B30G-WA02
B30H-WA01
B30H-WA02
B30I-WA01
B30I-WA02
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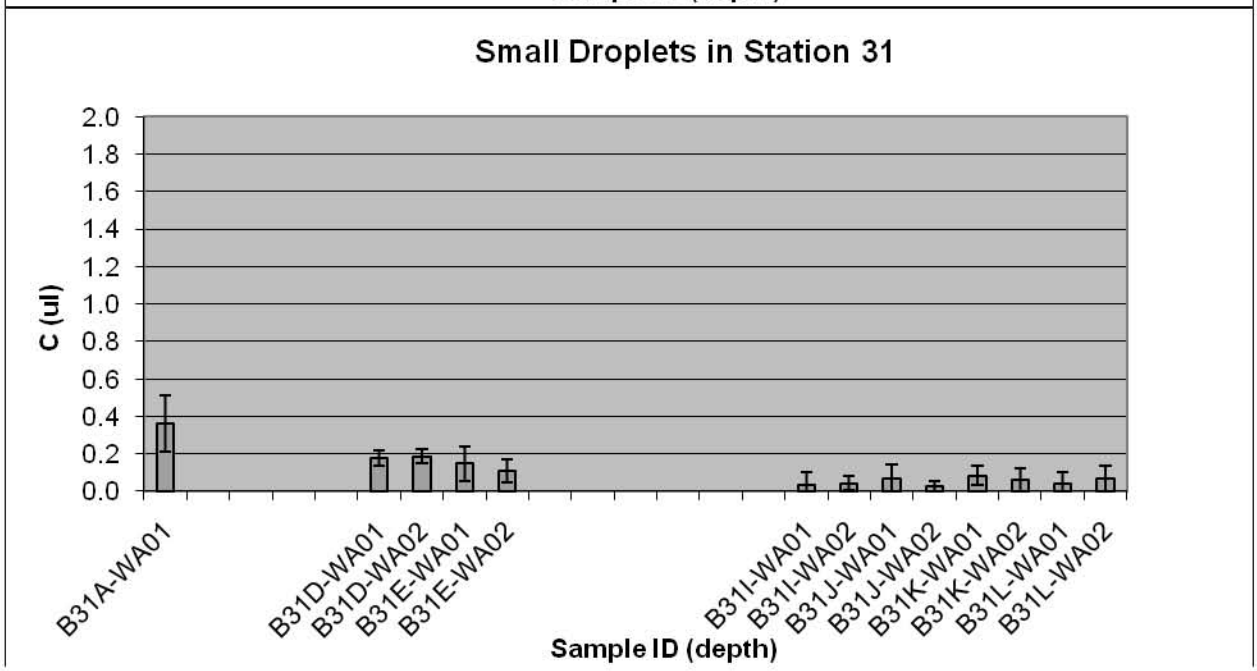
B30J-WA02
B30K-WA01
B30K-WA02
B30L-WA01
B30L-WA02
Sample ID (depth)


Small Droplets in Station 31
C (ul)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
B31A-WA01
B31D-WA01
B31D-WA02
B31E-WA01
B31E-WA02
B31I-WA01
B31I-WA02
B31J-WA01
B31J-WA02
B31K-WA01
B31K-WA02
B31L-WA01
B31L-WA02
Sample ID (depth)

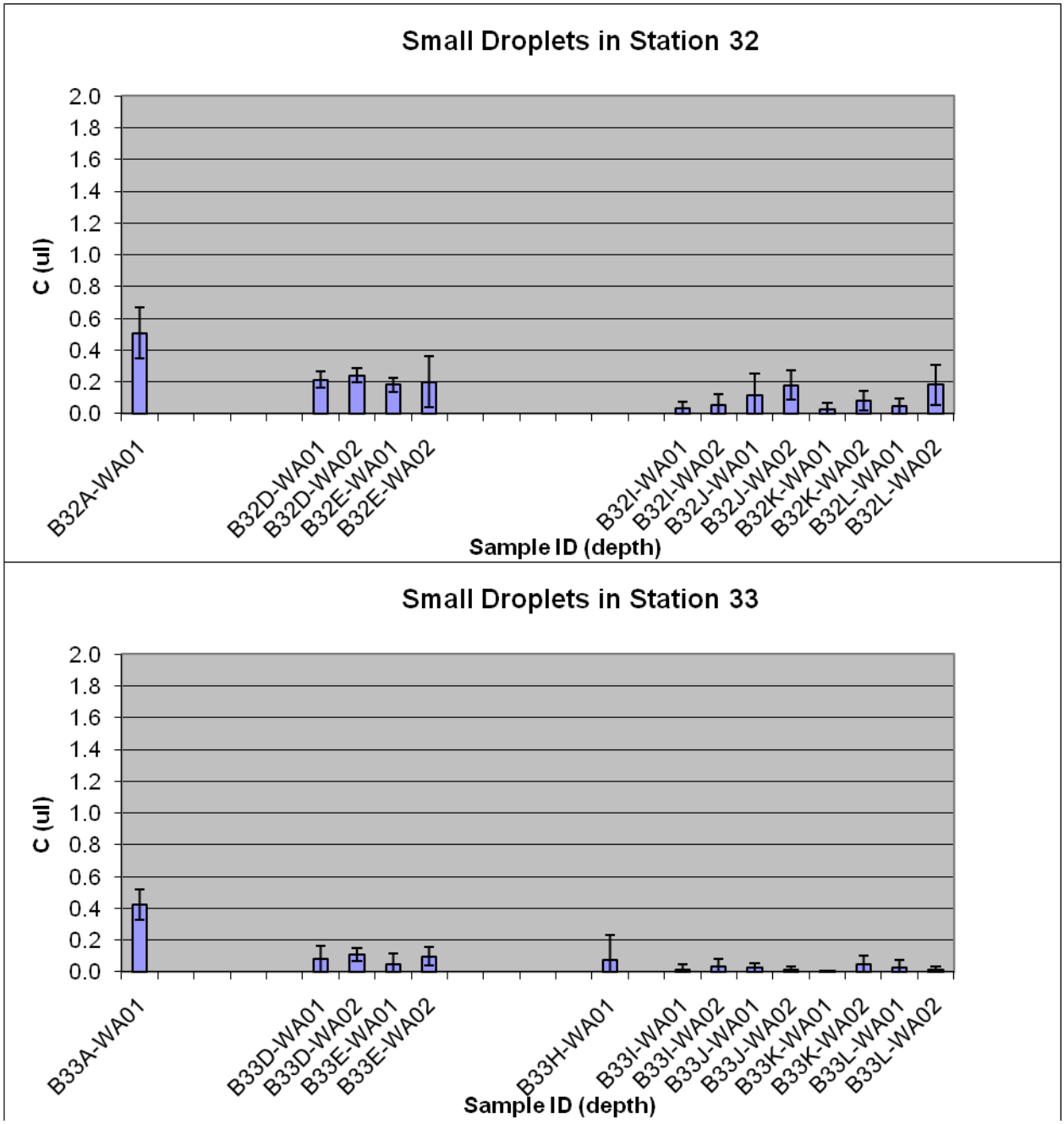


Figure1: Average small droplet concentration as a function of depth from stations 29 - 33.