

US EPA ARCHIVE DOCUMENT

Daily Report: Tracking the Plume of Dispersed Oil using Particle Size Distribution Measurements and Fluorescence Intensity Ratios

July 16, 2010

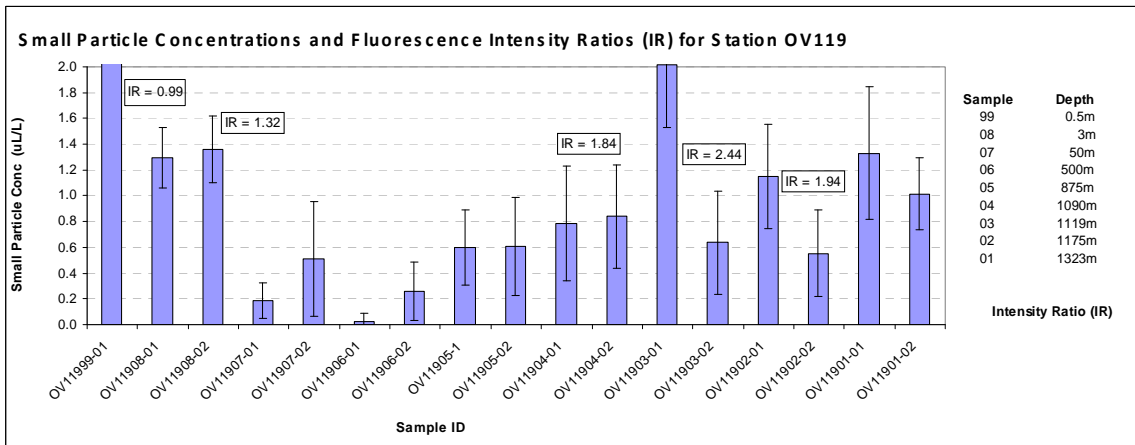
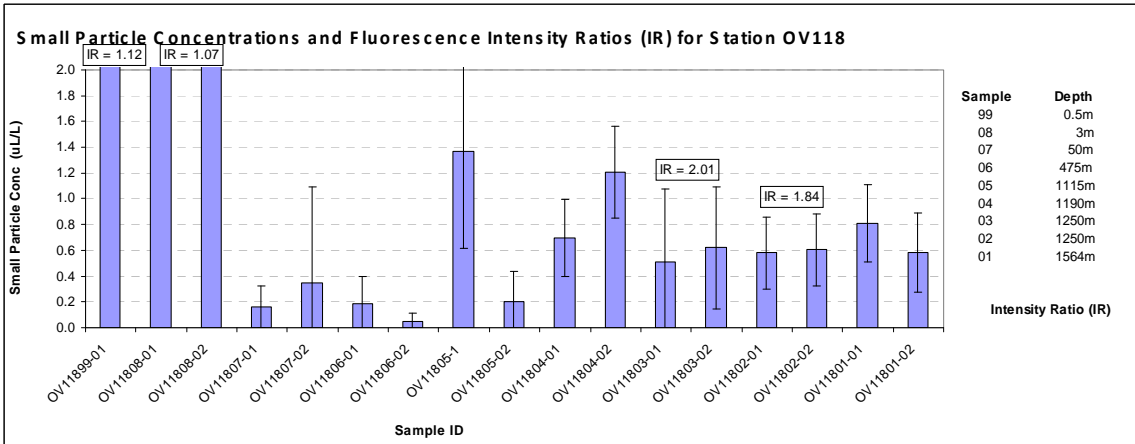
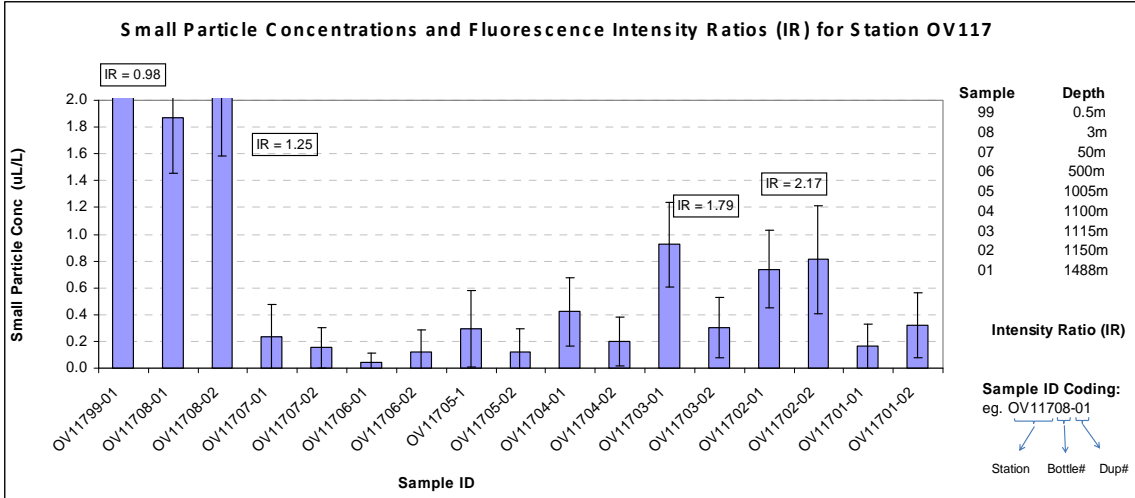
Water samples were collected at four stations for particle size distribution measurements using the LISST-100X particle counter. A total of 68 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio measurements and analyzed using a Quantech Life Sciences fixed wavelength fluorometer.

Figure 1 presents the small droplet (Σ 2.5 - 60 μ m) particle size data and fluorescence intensity ratios for stations OV116 through OV120. The station locations were:

OV117: Lat= 28.655291 Long= -88.493885
OV118: Lat= 28.631396 Long= -88.531250
OV119: Lat= 28.704517 Long= -88.517793
OV120: Lat= 28.617725 Long= -88.436787

Moderately elevated concentrations of small particles were detected at Station OV117, where the *in situ* CTD fluorometer detected a subsurface plume at approx. 1150m. Elevated concentrations of small particles were also detected at Station OV118, where the *in situ* CTD fluorometer did not detect a subsurface plume; however, there was a change in dissolved oxygen levels at approx. 1200m. Stations OV119 and OV120 had elevated concentrations of small particles in deep water at approx. 1200m where the *in situ* CTD fluorometer detected a subsurface plume. Extremely elevated concentrations of small particles were detected at the surface (0.5m and 3m) at station OV118. Highly elevated concentrations of small particles were detected in the surface samples (0.5 and 3 m) at Stations OV117, OV119 and OV120.

The results of fluorescence intensity ratios showed that low ratios were observed in both the near surface waters (3m or less) and in the deeper water samples for stations OV117 to OV120.



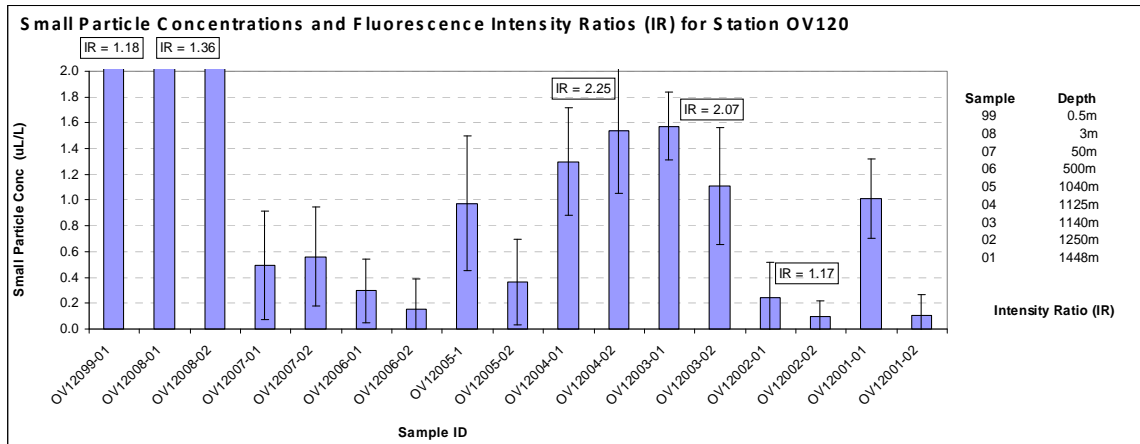


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV116 to OV120.