

US EPA ARCHIVE DOCUMENT

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

July 27, 2010

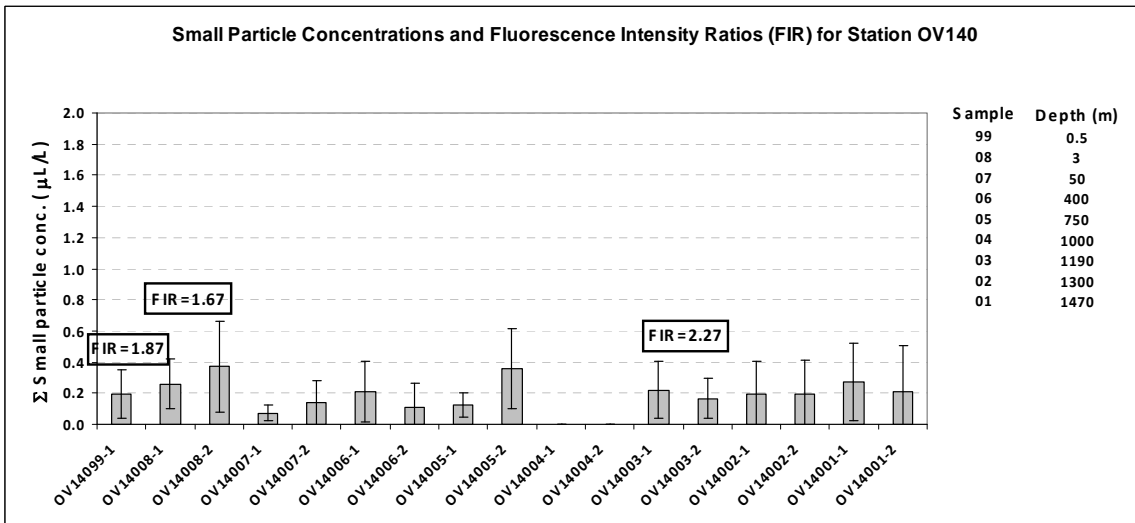
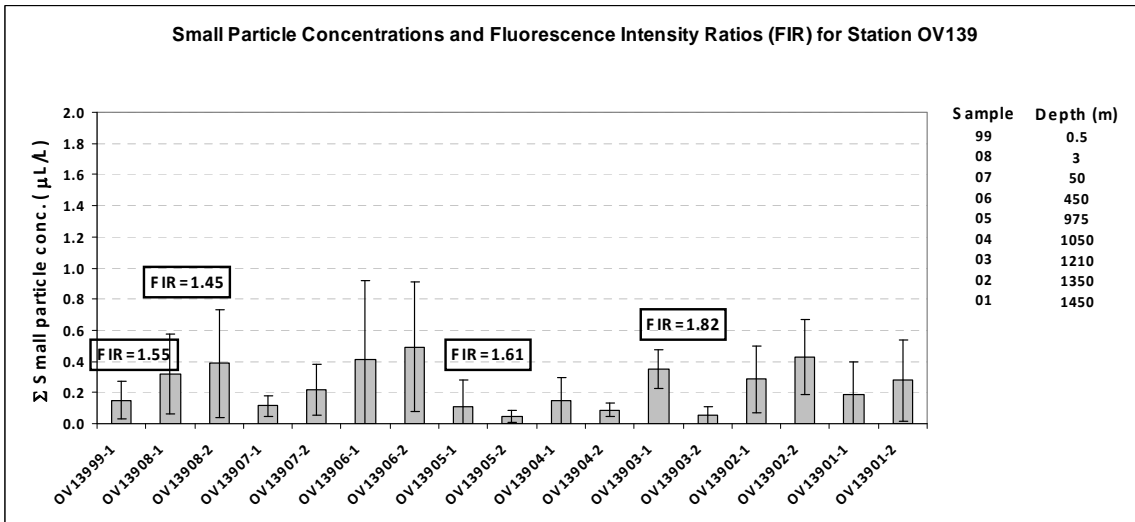
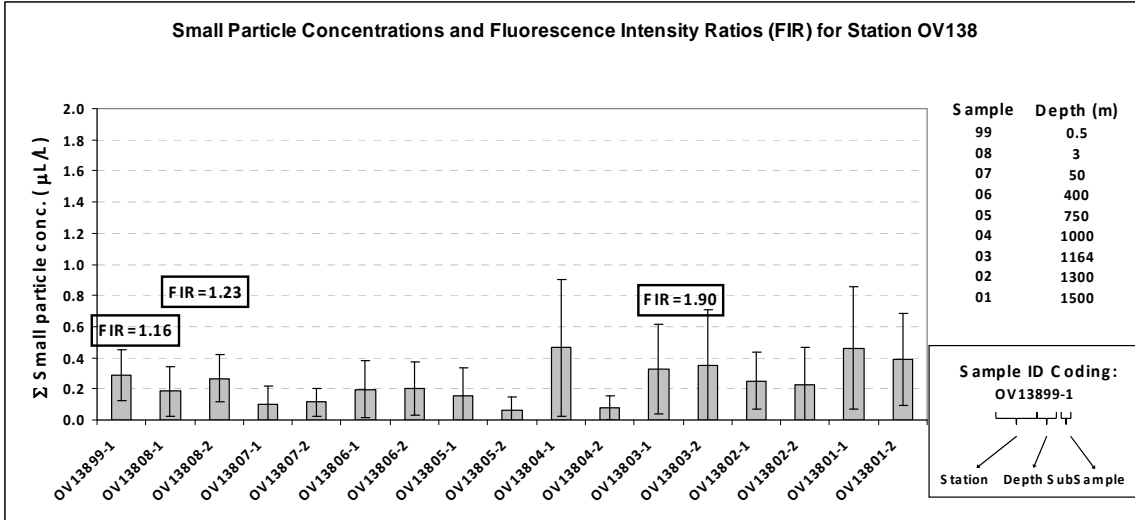
Water samples were collected at five stations for particle size distribution measurements using the LISST-100X particle counter. A total of 81 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio 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 OV138 through OV142. The station locations were:

OV138: Lat= 28.376637 Long= -88.379316
OV139: Lat= 28.426127 Long= -88.588203
OV140: Lat= 28.352121 Long= -88.630984
OV141: Lat= 28.446947 Long= -88.758943
OV142: Lat= 28.560495 Long= -88.835740

For Station OV138, there was a slight elevation in small particles concentrations at 1164 and 1500m. The *in situ* CTD fluorometer detected a small subsurface plume at 1164m. At Station OV139 small particles concentrations were variable at all depths. The *in situ* CTD fluorometer detected a subsurface plume at 975 and 1210m at Station OV139. For Station OV140 there was a slight elevation in small particles concentrations near the surface (3m). The *in situ* CTD fluorometer detected a subsurface plume at 1190m for Station OV140. Small particles concentrations were relatively consistent at all depths for Station OV141. There was a very slight subsurface plume detected at 1140m by the *in situ* fluorometer for Station OV141. For Station OV142 there were slightly elevated small particles concentrations at all depths except at 50m. There was no subsurface plume detected at this Station.

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 OV138 to OV142. The fluorescence intensity ratios observed for Stations OV138 to OV141 were slightly higher compared to those Stations observed on July 22, 2010.



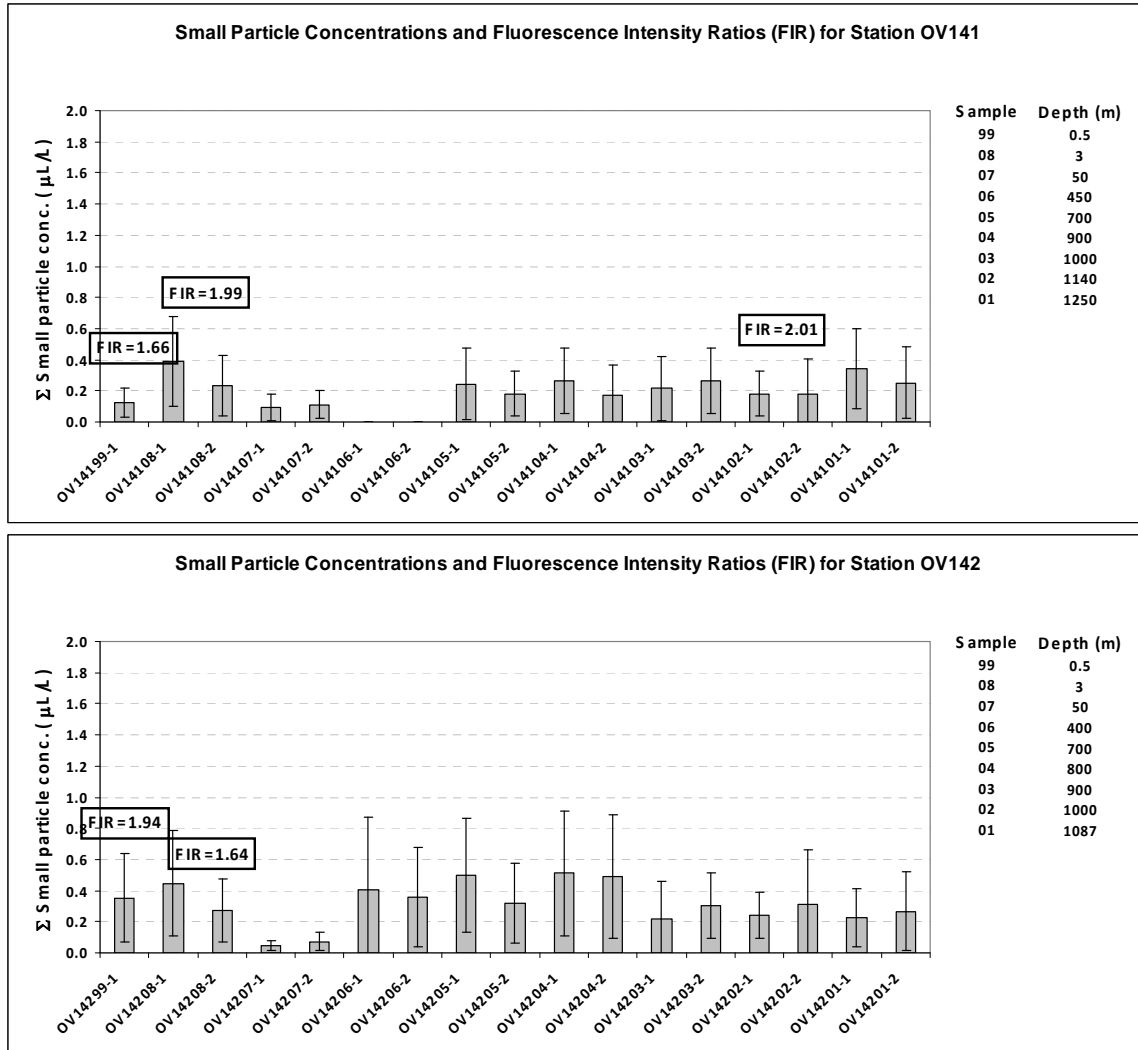


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations OV138 to OV142.