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

July 5, 2010

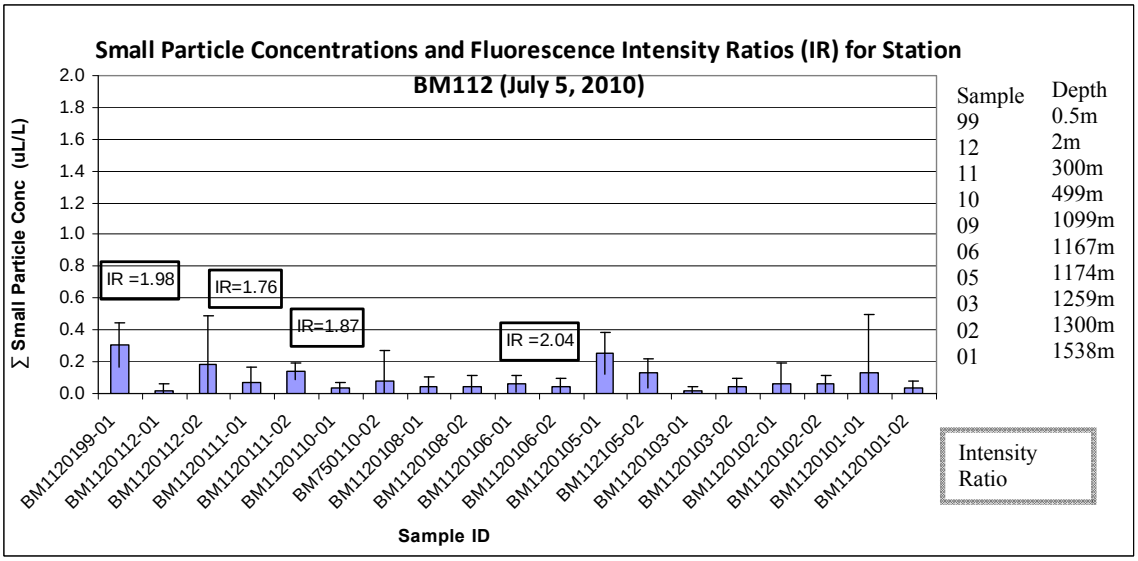
Water samples were collected at three stations for particle size distribution measurements using the LISST-100X particle counter. A total of 55 LISST samples were analyzed, including duplicates. Samples at depths of elevated fluorescence were selected from the CTD trace for fluorescence intensity ratio measurements and analyzed using a Quantech Life Sciences fixed wavelength fluorometer.

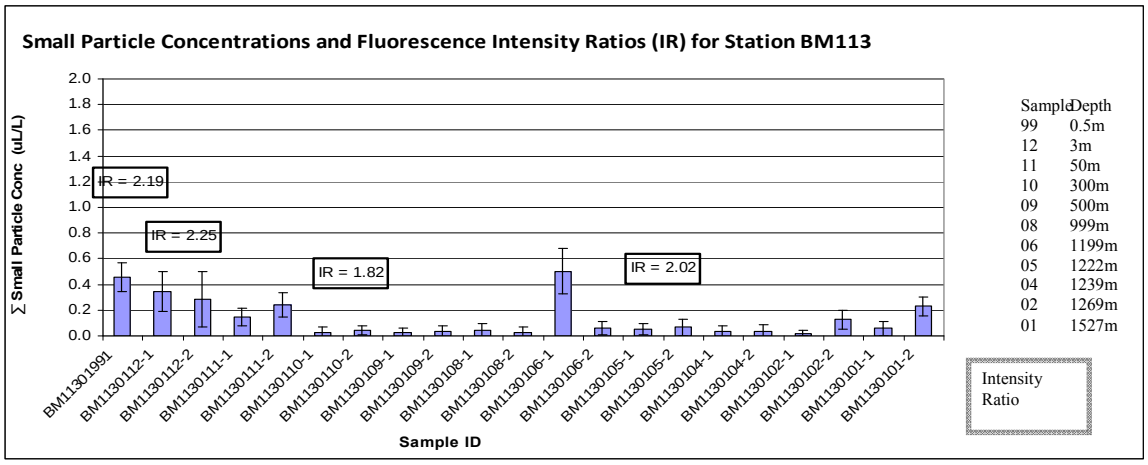
Figure 1 presents the small droplet (∑ 2.5 - 60µm) particle size data and fluorescence intensity ratios for stations BM112 through BM114. The station locations were:

BM112: Lat= 28.74139 Long= -88.346389
BM113: Lat= 28.7458 Long= -88.34775
BM114: Lat= 28.701694 Long= -88.336973

Slightly elevated concentrations of small particles were detected in the deep water (approx. 1160 – 1200m) at Stations BM112 through BM113, where the *in situ* CTD fluorometer detected a weak subsurface plume. The plume was not evident at Station BM114 in either the CTD trace or small particle concentrations. Elevated concentrations of small particles were detected in the surface sample (0.5 m) at Station BM114.

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. Slightly elevated intensity ratios were observed in the surface water samples at Station BM113.





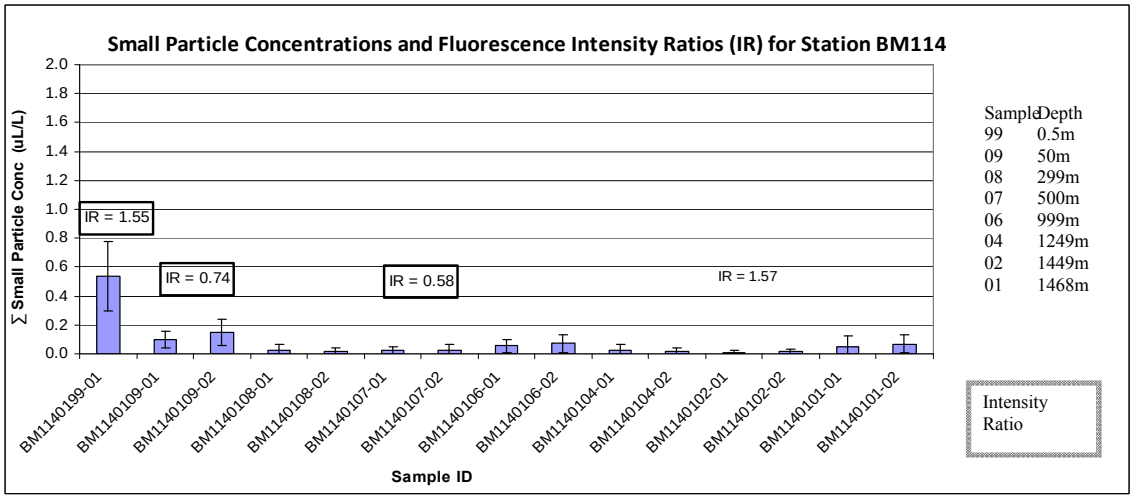


Figure 1: Average small particle concentrations and fluorescence intensity ratios as a function of depth for stations BM112 to BM114.