

C3 Fluorometer report and observations
 R/V Brooks McCall, 20 May 2010
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Below are graphs and explanations of the 3 C3 tows done today.

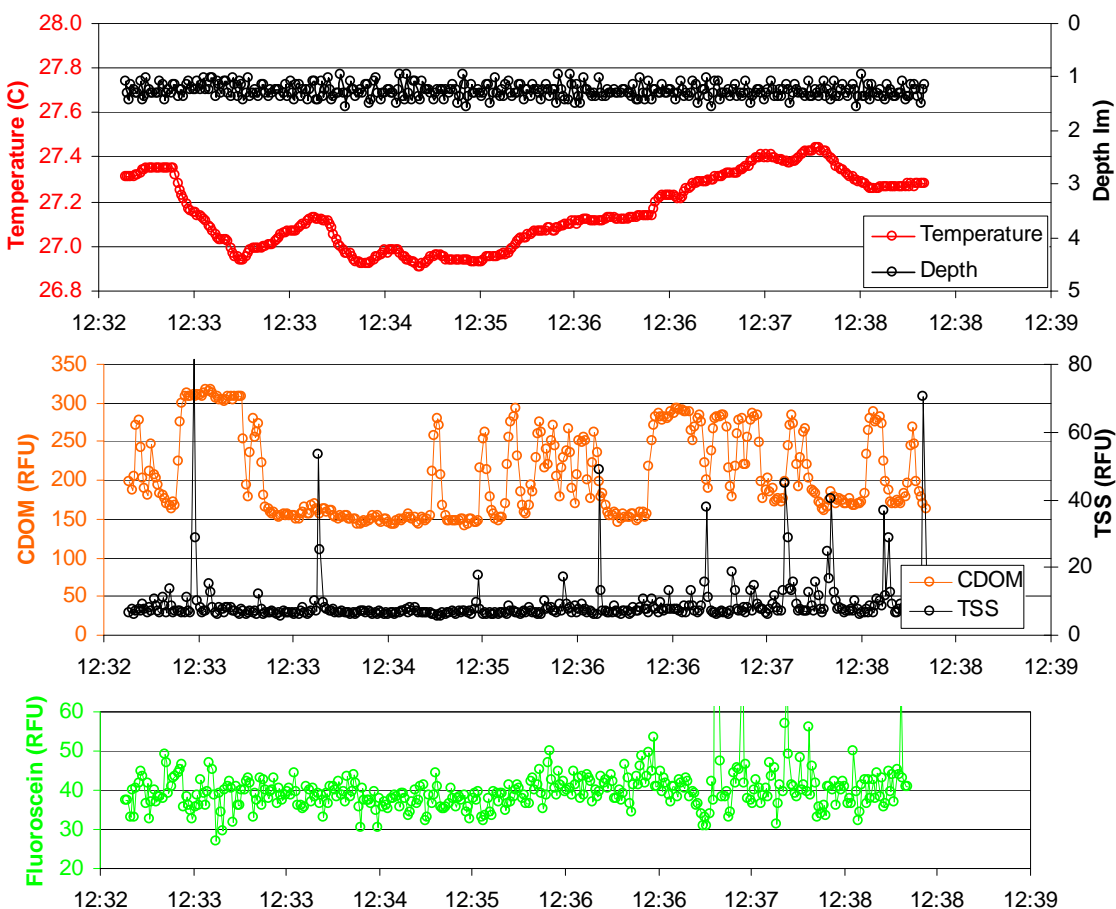


Figure 1: First tow of 20 May. It was only ~6 minutes duration between B35 and B36. Depth was very stable at ~1.5 m. Temperature varied in a lazy cyclical fashion from 26.9 to 27.4 °C. The CDOM (oil) channel varied from ~150 to slightly over 300 FSU, with peaks presumably due to patches of oil. The CDOM channel does not appear to covary with any other variables. The TSS (turbidity) channel is mostly low varying from 5 to 20 FSU with occasional spikes up to ~65 FSU., perhaps indicating large clumps of oil passing by the sensor. The fluorescein channel appears to show mostly noise, varying between 30 and 50 with occasional spikes above 60 units.

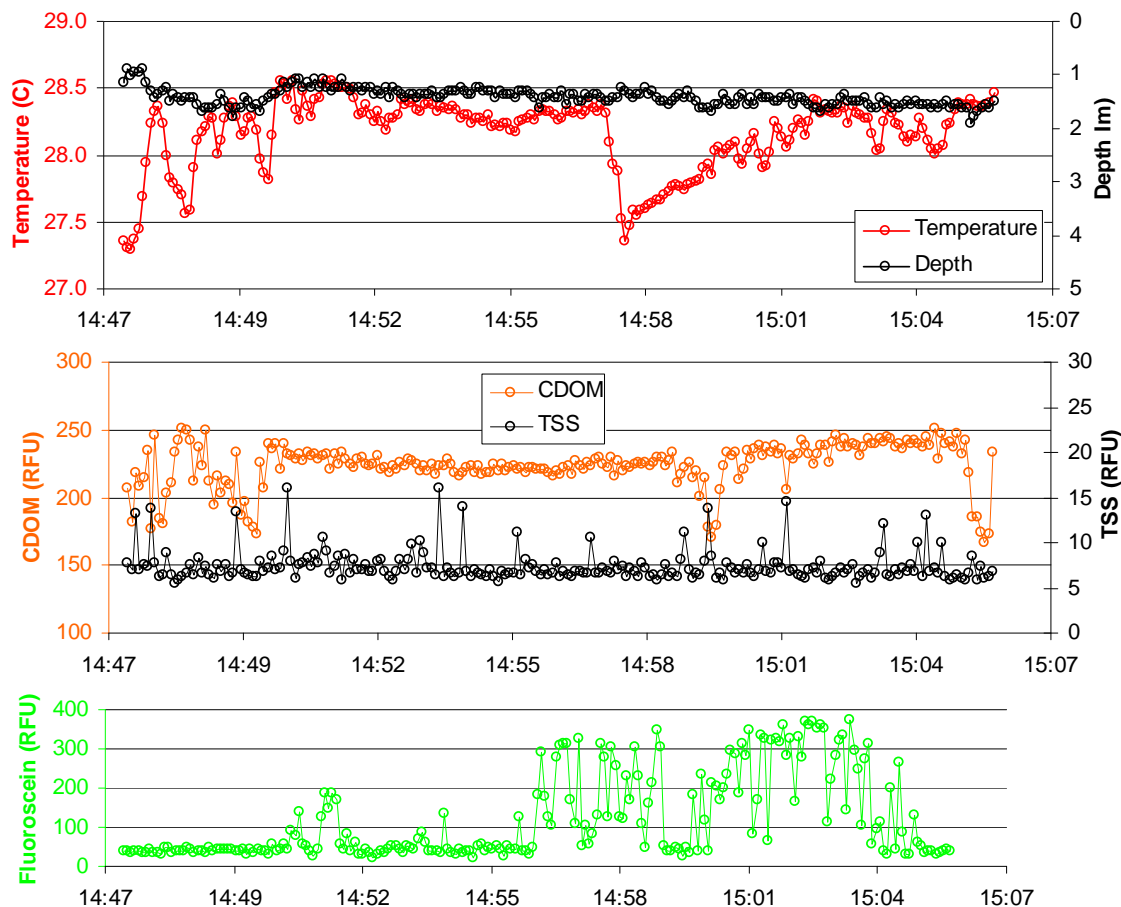


Figure 2: Second tow of 20 May of ~20 minutes duration between B36 and B37. Depth was very stable, varying between 1 and 1.5 m. Temperature varied in a cyclical fashion from 27.2 to 28.5 °C. The CDOM (oil) channel varied from ~170 to 250 FSU, with long periods of quite stable readings. I'm suspecting the window is getting fouled and hence the relatively constant high readings. Tomorrow I will be more conscious of this possibility and thoroughly clean the sensors before each deployment. Up until now, I assumed no significant oil fouling, but I did not actually clean the sensors. As before, the CDOM channel does not appear to covary with any other variables. The TSS (turbidity) channel is mostly low varying from 5 to 10 FSU with occasional spikes up to ~15 FSU, much smaller than spikes in first tow. Perhaps much smaller clumps of oil passing by the sensor? The fluorescein channel started out ~ 50 FSU and then abruptly jumped into a much higher but variable readings (100-300 FSU). By the end of the tow, the readings returned to those seen at the beginning. This pattern is not consistent with a fouling mechanism and thus may indicate oil, however this was not confirmed with visual observations.

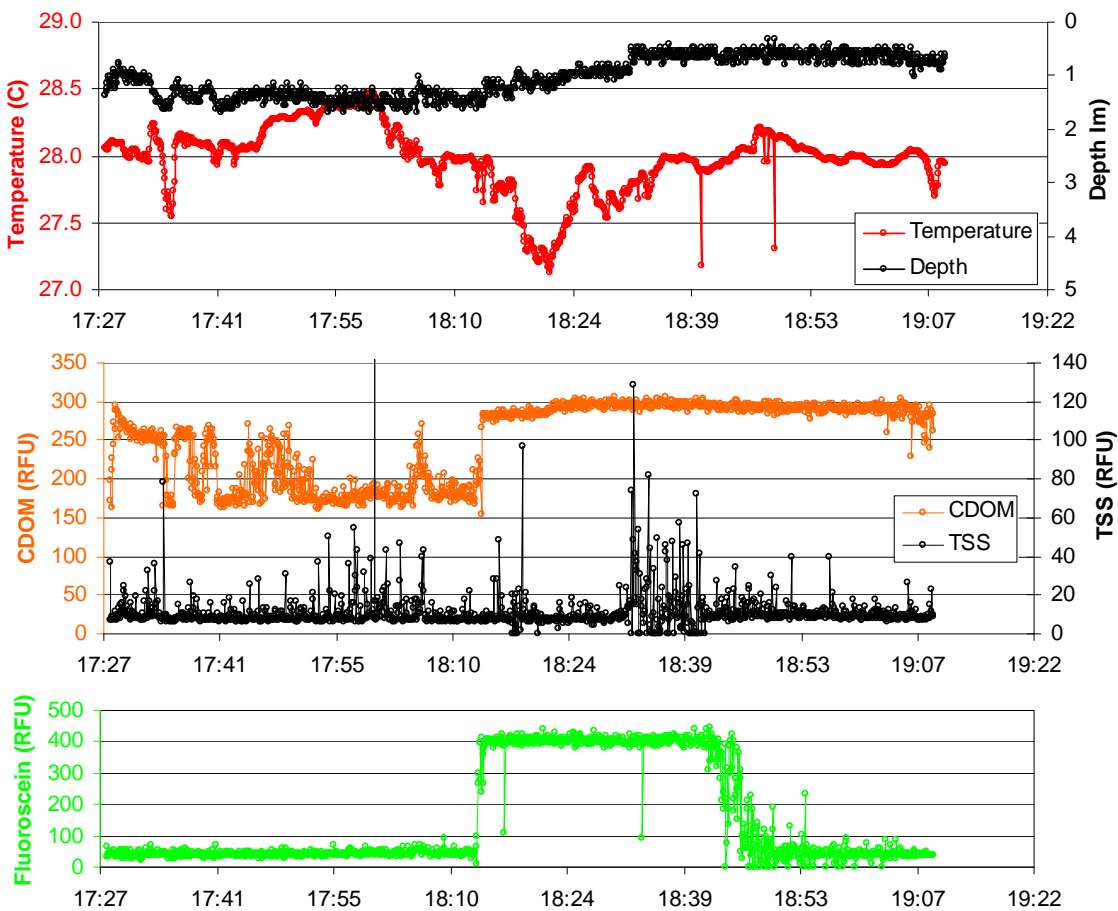


Figure 3: Third and final tow of 20 May of ~90 minutes duration after B37. The ship made a circle around the wellhead site at 1.5 km radius, starting from due south of the wellhead and making a clockwise circle around. Depth started at slightly over 1 m then gradually became shallower to ~0.5 m about $\frac{1}{2}$ way through the tow. Temperature varied in a quasi-cyclical fashion from 27.1 to 28.5 °C. The CDOM (oil) channel varied from ~170 to 300 FSU, with an abrupt increase when we got around the N side of the wellhead. This was when we moved through thick black oil. After this point, the readings stayed ‘pegged’ at 300 even after we moved out of the oil patch. I suspect the window became fouled. The TSS (turbidity) channel was mostly low varying from 5 to 10 FSU with occasional spikes up to ~60-100 FSU. The fluorescein channel started out ~ 50 FSU and then abruptly jumped into a much higher, stable reading of ~400 FSU coinciding with the jump in the CDOM channel and with entering the oil patch. However, in contrast to the CDOM channel, the fluorescein channel dropped back down after leaving the oil patch. Could it be one sensor was fouled but the other one not?