

Chlorophyll Concentration and Light Propagation in the Water Column

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During three weeks in July 2008 in a transect of the north Atlantic ranging from 32-40°N and 70-72°W, light propagation in the water column as a result of chlorophyll concentration was studied. Chlorophyll concentrations were obtained by calibrating fluorometer traces.

Photosynthetically available radiation (PAR) was measured using PAR loggers and a Satlantic MicroPro light cast. Chlorophyll concentration integrated across depth was shown to decrease in more oligotrophic waters. It was also shown that the peak chlorophyll content was found at lower depths in oligotrophic waters. Chlorophyll concentrations and K_{PAR} were compared to the Morel bio-optical model to show a trend of increasing attenuation in areas of higher chlorophyll content. PAR was shown to decrease with depth as light is attenuated by particles, dissolved materials, and water. It was also observed that light of longer wavelengths is attenuated faster than light of shorter wavelengths.