



## Impacts of Hurricane Igor on the mixed-layer depth and phytoplankton bloom over the Grand Banks

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In this study we used satellite observations as well as in situ data to investigate the changes of sea surface temperature, mixed-layer depth and chlorophyll concentration over the Grand Banks of Newfoundland with the passage of Hurricane Igor on September 21-22, 2010. The satellite data indicate a salient decline ( $6^{\circ}\text{C}$ ) of the sea surface temperature and a significant increase ( $0.8 \text{ mg/m}^3$ ) of phytoplankton concentration after the passage of the hurricane. The temperature decrease was supported by the buoy measurements. In situ density profiles show the mixed-layer depth increased from 18 to 60 m. The phytoplankton bloom is thought to be triggered by the entrainment of the mixed-layer deepening due to the strong wind mixing and also by the upwelling associated with the cyclonic wind stress curl.