Recent bloom event of coccolithophore, Emiliania huxleyi in the Bering Sea- Is it a signal of gradual global warming?

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Flourishes of coccolithophores can be detected by ocean-color imagery with data from the satellite-borne Sea-viewing Wide Field-of-view sensor (SeaWiFs). Flourishes, Emiliania huxleyi, in the Bering Sea in 2000 were intermittently observable for at least 9 months from the beginning of February to the beginning of November. Temporally and spatially large-scale blooms of E. huxleyi have been reported in the Bering Sea since 1997. However, it is debated from when the large-scale blooms of E. huxleyi have occurred in the Bering Sea. In 1997, a combination of atmospheric mechanisms produced summer weather anomalies such as calm winds, clear skies, and warm air temperature over the eastern Bering Sea, and the weather anomalies caused depletion of the subpycnocline nutrient reservoir (Napp and Hunt, 2001). After depletion of nitrate and silicate, a sustained (more than 4-month-long) bloom of E. huxleyi was observed (Stockwell et al, 2001). Because of the speed and magnitude with which parts of the Bering Sea ecosystem responded to changes in atmospheric factors (Napp and Hunt, 2001) and because a bloom of the coccolithophorid Coccolithus pelagicus was also detected in the northeastern Atlantic Ocean off Iceland every year since 1997 (Ostermann, 2001), the appearance of an E. huxleyi bloom in the Bering Sea could be related to atmospherically-forced decadal oscillations or global factors.

In this study, we measured alkenones, which is a biomarker produced by the E. huxleyi in the surface sediment collected in the Bering Sea. We discuss about from when the E. huxleyi blooms have occurred and relationship between the bloom events and regional or global climatic oscilations using the vertical profile of alkenones in the sediment.