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W.M. Balch, B.C. Bowler, L.C. Lubelczyk, M.W. Stevens

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Aerial extent, composition, bio-optics and biogeochemistry of a massive under-ice algal bloom in the Arctic

By W. M. Balch[a*], B. C. Bowler[a], L. C. Lubelczyk[a], M.W. Stevens, Jr. [b]

[a]Bigelow Laboratory for Ocean Sciences

60 Bigelow Drive, POB 380

East Boothbay, ME 04544 USA

[b]Colby College

Mayflower Hill Drive

Waterville, ME 04901 USA

*To whom correspondence should be addressed. E-mail: bbalch@bigelow.org

Key Words: Coccolithophores, Calcification, Photosynthesis, Arctic, Under-ice algal bloom, calcium carbonate, biogenic silica, colored dissolved organic matter, fluorescent dissolved organic matter, geographic bounding coordinates: 71°N to 74°N and 158.5°W to 169°W

Running head: Carbon fixation and composition of an under-ice algal bloom

Abstract

It has been long thought that coccolithophores are a minor component of the phytoplankton assemblage in Arctic waters, with diatoms typically being more dominant. Little is known about how the phytoplankton communities will change, however, as the Arctic warms. We participated in the 2011 ICESCAPE (Impacts of Climate on EcoSystems and Chemistry of the Arctic Pacific Environment) cruise to the western Arctic, performing a combination of