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Influence of the physical environment on high latitude phytoplankton blooms

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A summer phytoplankton bloom in the Barents Sea creates brilliantly colored whorls. (NASA Earth Observatories)

Short Abstract

The Arctic sea-ice cover is undergoing an unprecedented decline. Longer melting seasons result from increasingly earlier starts to spring melting, and ever-later starts to freeze-up in autumn. An increasing surface area of the Arctic Ocean is therefore exposed to direct sunlight and wind, resulting in a more extended season for phytoplankton growth. Overall, changes in the Arctic's physical environment are impacting phytoplankton dynamics. Phytoplankton production in subarctic seas can also be strongly influenced by the ongoing changes in the Arctic Ocean. This presentation summarizes some recent outcomes on the phenology of high-latitude phytoplankton blooms observed using surface chlorophyll-a concentrations derived from ocean-color remote sensing.