The seasonal cycle of phytoplankton biomass concentration along the coast of Japan

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The seasonal cycle of phytoplankton biomass concentration was investigated along the coast of Japan using chlorophyll-a concentrations observed by Himawari8 from 2016 to 2019. Phytoplankton blooms are major oceanic events that support marine biological production. The growth rate of phytoplankton is known to vary depending on various factors, such as the thickness of the mixed layer, the strength of convection and turbulence, and the zooplankton biomass concentration. Observations show spring blooms occurring along the coastal region of Japan from late February to April and autumn blooms occurring from late August to October. We also found that the concentration was high in Ise Bay, Suruga Bay and off Kushiro throughout the year. In high-latitude waters, the timing of spring bloom is delayed and the timing of autumn bloom is earlier compared to lower latitude waters. Observations further show the inter-annual variability in the timing of spring and autumn blooms and we plan to investigate the mechanism behind these variabilities.

