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## Is the source of iron River Amur or Asian Dust? -Estimation of air-borne Fe flux from ice core

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Iron is an essential nutrient for phytoplankton and plays an important role in the control of phytoplankton growth. Iron enrichment experiments carried out in the western and the eastern subarctic Pacific reveal that the iron limits phytoplankton growth in these areas. Possible sources of iron in the Sea of Okhotsk and/or Oyashio regions in the western subarctic Pacific are thought to be the iron-rich intermediate waters transported to surface by upwelling, and atmospheric dust that are lifted by dust storms generated over the Asian continent. We estimated air-borne iron fluxes into the northern North Pacific by an ice-core obtained from Mount Wrangell in Alaska, and aerosol monitoring carried out at Kushio and Toikanbetsu in Hokkaido. Estimated annual fluxes of air-borne iron were ranged from 10 to 270 mg/m<sup>2</sup>yr, which can influence to biological productivity in the northern North Pacific. We conclude that impact of air-borne Fe input is spatiotemporally limited and may have a role for sporadically occurring phytoplankton blooms in the open ocean, and consistently occurring events such as spring bloom in Oyashio region is controlled by iron originated from River Amur.

Keywords: ice core, aerosol, air-borne iron, Oyashio region, Okhotsk, Amur river