

## Iron distribution and supply along the Kuroshio current in the North Pacific

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The vertical turbulent dissolved iron (DFe) flux was estimated along the Kuroshio in the North Pacific based on observed vertical section profile of DFe concentrations which were obtained from a cross section of the Kuroshio front. The DFe fluxes were about  $3.0 \times 10^{-2} \mu\text{mol Fe m}^{-2} \text{ day}^{-1}$  on the northern side of the Kuroshio current axis and over the shelf slope, which were 1 to 2 orders higher than those ( $2.0 \times 10^{-4} \sim 7.3 \times 10^{-3} \mu\text{mol Fe m}^{-2} \text{ day}^{-1}$ ) on the southern part of the axis.

Enhanced turbulence and a large vertical DFe gradient, which was caused by Fe supply from the shelf slope, contributed to the large flux on the northern side, and high concentrations of chlorophyll-a and large nitrate flux were also observed. We evaluated the DFe to nitrate stoichiometry (Fe/N) supplied from below surface and compared it to the Fe/N demand of diatoms. The comparison of the Fe/N indicates that the Fe/N supply from below reached the ratio of the Fe/N demand and Fe is not a limiting factor for phytoplankton growth in this region.