

Kamae Y., H. Ueda, T. Inoue and H. Mitsudera, 2023: Atmospheric circulations associated with sea-ice reduction events in the Okhotsk Sea. *J. Meteor. Soc. Japan*, **101**, 125-137.

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Plain Language Summary: Sea ice concentration in the Okhotsk Sea is sometimes reduced rapidly. Sea ice reduction events tend to occur when surface easterly winds are observed over the Okhotsk Sea, which is opposite in direction to climatological westerly winds. Eastward-moving extratropical cyclones over the southern Okhotsk Sea bring surface easterly wind and resultant sea ice advection and sea ice melt over the northern and central Okhotsk Sea.

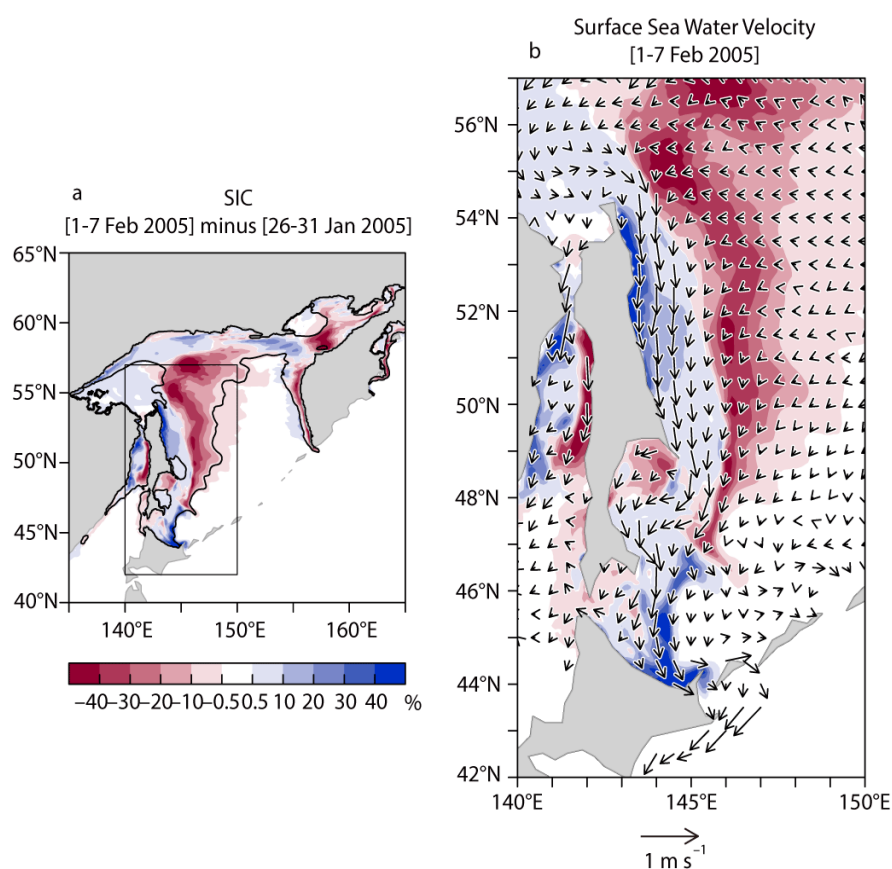


Figure 1. Sea ice concentration in the Okhotsk Sea in an example case of early February 2005. (a) Sea ice concentration anomaly between February 1-7 and January 26-31, 2005. (b) Sea ice concentration anomaly and surface sea water velocity during February 1-7, 2005.

- Relationships between sea ice concentration in the Okhotsk Sea and large-scale atmospheric circulation are investigated.
- Sea ice tends to be reduced rapidly when a developing extratropical cyclone moves eastward over the southern Okhotsk Sea.
- Sea ice advection and sea ice melt associated with easterly winds are the key factors for the sea ice reductions.