Characteristics of sea ice and causes of outflow in the southern Sea of Okhotsk

Yusuke Kohama[1], Kazutaka Tateyama[2] , Shotaro Uto [3], Koh Izumiyama [3]
[1] *Graduate School of Engineering, Kitami Institute of Tecnology*
[2] *Kitami Institute of Tecnology*
[3] *Arctic Research Center, Hokkaido University*

Sea ice from the Sea of Okhotsk rarely flows out to the Pacific Ocean through the Nemuro Strait, but once it does, it has a major impact on local industries such as fishing.Kioka et al. Tsunamis cause more damage than normal tsunamis, and can cause significant damage to people's lives and property.

In this study, we investigated the sea ice concentration and sea ice thickness, which occur frequently off the coast of Nemuro, the southernmost part of the Sea of Okhotsk. We also investigated the causes of sea ice flowing from the coast of Nemuro into the Pacific Ocean.

This analysis uses daily sea ice concentration data from 2012 to 2023 from AMSR-E, the microwave radiometer on board the Aqua satellite, and AMSR2 on board the GCOM-W satellite, and the ECMWF (The European Center for Medium-Range). Wind direction and speed data were used.

It has determined the characteristics of sea ice that flows from the coast of Nemuro into the Pacific Ocean based on the sea ice concentration and sea ice thickness, which frequently flow out. In addition, a correlation was found between the sea ice area in the southern Sea of Okhotsk and the frequency of sea ice occurrence off the coast of Nemuro.

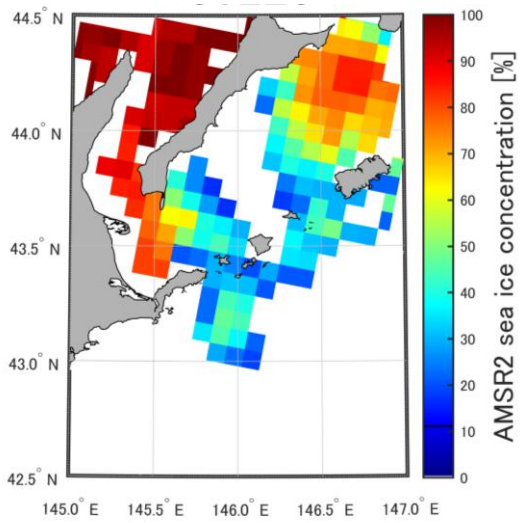

Figure 1. Sea ice density in the survey area off the coast of Nemuro

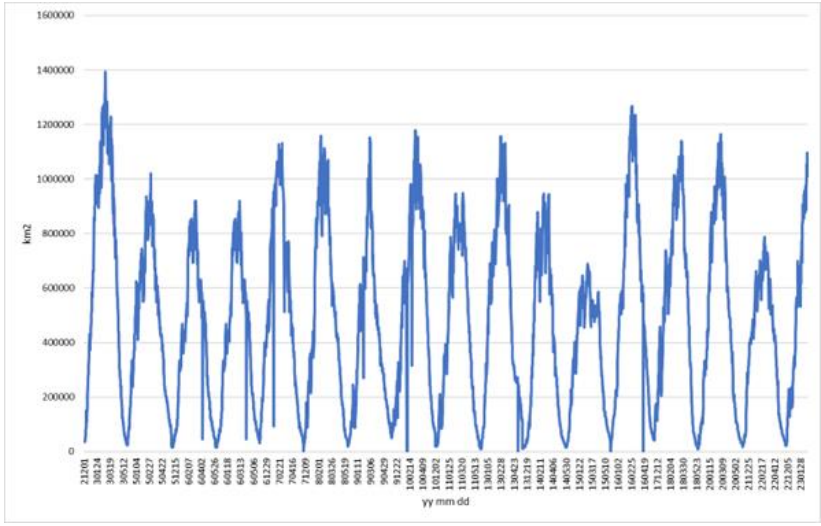

Figure 2. Sea ice area in the southern Sea of Okhotsk from 2002 to 2023

References

Shinji Kioka and 5 others(2014): Study on the characteristics of tsunami run-up to urban areas accompanied by sea ice,Proceedings of the Japan Society of Civil Engineers B2 (coastal engineering), 70(2), I_821-I_825