

## The sea of Japan's unique ocean structure and its influence in the weather of Japan in the end of January, 2022 that we found out in the atmosphere-ocean simultaneous observation

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The sea of Japan - the warm sea is located on the windward side of Japan in winter. It supplies the cold air which blows from the continent a large quantities of heat energy and water vapor. The wet air brings heavy snowfalls to the Hokuriku and Sanin region (sometimes the effect reaches the Tokai region). We observed atmosphere and ocean at same time in the end of January, 2022. In the observation data, we found out that the Sea of Japan' s unique ocean structure interacts with atmosphere. Main topics : 1. The effects of sea surface temperature and strong seasonal wind to Japan sea Polar air mass Convergence Zone that we observed off Oki Island. 2. The sensitivity of atmosphere for the strong gradient of sea surface temperature and its contribution to precipitable water that we observed along Noto Peninsula - Yamato Heap line. 3. The structure of the depression that we observed off Hokkaido west coast. 4. The effect that sea ice in Okhotsk can give weather conditions of Japan in winter.

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