wind speed distribution, on the basis of the relation between drifting snow and wind speed at Mizuho Station (70°42′S, 44°20′E) in Mizuho Plateau.

The horizontal divergence of drifting snow results in local net mass balance on a ice sheet surface. Positive value of the divergence means erosion of snow from the surface, which is loss in the mass balance, while negative value means accumulation of snow on the surface, which is gain in the mass balance.

At Mizuho Station, the annual net accumulation of 70 mm is much smaller than estimated precipitation about 200 mm, even by taking account of the vapor evaporation from a snow surface. This difference is explained by the negative divergence of drifting snow due to the convex topography around Mizuho Station.

Around the southern region of the Yamato Mountains, about 300 km westward from Mizuho Station, the divergence of drifting snow was high negative value due to convex topography and comparatively large inclination of the slope. This high negative divergence, adding to vapor evaporation from the ice surface, can explain the origin of the bare ice field in this region.

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THERMAL OSCILLATION IN POLAR OCEAN-SEA ICE SYSTEM (ABSTRACT)

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A two-layer model is presented to study the interaction between sea ice and convection in the ocean. The convection in the ocean is parameterized by two discrete values of vertical diffusion according to the stability of the stratification. The cooling rate at the surface also has two discrete values according to the surface temperature. This represents the insulation effect of the sea ice. The lower layer is continuously supplied with heat and salinity is subtracted from the upper layer to maintain the basic feature of the polar ocean.

This model shows self-sustained oscillation in which the sea ice disappears periodically. This oscillation mechanism is considered to be related to the polynya in the Antarctic Ocean.

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NUMERICAL SIMULATION OF TURBULENT HEAT TRANSFER PROCESSES OVER A MARGINAL ICE ZONE (ABSTRACT)

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Marginal ice zones (MIZs) are sites of transition from large ice floes to many small disintegrated floes, and so when an air mass moves over these zones, it encounters abrupt changes in surface temperature; a cold ice surface to a warm water surface, then back to ice (E. L. ANDREAS *et al.*: J. Geophys. Res., **84**, 649, 1984). The local turbulent heat transfer processes over an MIZ under the passage of thermally different air masses are numerically investigated by solving two-dimensional steady-state diffusion equations for heat and moisture.