

## Radiation characteristics of thin sea ice in the ice tank experiment using multifrequency passive microwave radiometers

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Microwave radiation characteristics of sea ice with a thickness ranged from 0 cm to around 30 cm was measured using the passive microwave radiometers having the observation frequencies of 6, 18, 36 GHz. Sea ice was grown in the ice tank which has a diameter of 2.6m and a depth of 0.9m and filled by 5 tons of saline water (32psu) transported from the Saroma-ko lagoon. The ice tank was set up outdoors next to the baseball ground in the campus of Kitami Institute of technology. In order to avoid the effects of melting by sunlight and disturbance by snow, a movable roof was installed and a refrigerator was installed inside the roof. Portable microwave radiometers MMRS2 were used and installed at same incident angle (55 degree) to GCOM-W/AMSR2.

The brightness temperature showed a rapid increasing from open water to newly formed sea ice. After maximum value appeared at a few centimeters thin ice, the brightness temperatures showed the tendency to decrease gradually with sea ice thickens.

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