

## Study on Thin Sea Ice Thickness using Passive Microwave Brightness Temperature

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The use of passive microwave data for estimating sea-ice thickness is limited by strong dependence of emissivity on near-surface brine. However, this particular characteristic becomes a basis for an algorithm to estimate thickness of thin sea-ice if a thickness-salinity-emissivity relationship is established. This study aims at developing an algorithm to estimate sea ice thickness on the basis of this relationship. In order to establish a thickness-salinity-emissivity relationship, we have conducted multi-platform synchronous observations in the Sea of Okhotsk. We note a positive relationship between thickness and brightness temperature. The derived relationship is qualitatively similar to the one based on Hoekstra and Cappillino's formulation. Our results suggest that for thin sea-ice in the winter period there is potential to develop an algorithm to estimate sea-ice thickness.