

SNOW DEPTH ON SEA ICE FROM SATELLITE PASSIVE MICROWAVE DATA: ISSUES AND RECENT VALIDATION EFFORTS

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Snow depth on sea ice plays a critical role in the heat exchange between ocean and atmosphere because of its thermal insulation, which is almost an order of magnitude greater than the thermal insulation of sea ice. Furthermore, a heavy snow load on the relatively thin Southern Ocean sea ice cover, frequently, submerges the ice floes below sea level, causing snow-to-ice conversion and thus an increase of sea ice thickness. As a matter of fact, the snow to ice conversion may significantly moderate snow depth variability so that inter-annual variations in precipitation are not fully reflected in snow depth data. The talk will present an analysis of the inter-annual and regional variability of snow depth on sea ice using an almost 30-year record of satellite passive microwave data and will compare the results with variations in the sea ice cover and with re-analysis precipitation data.