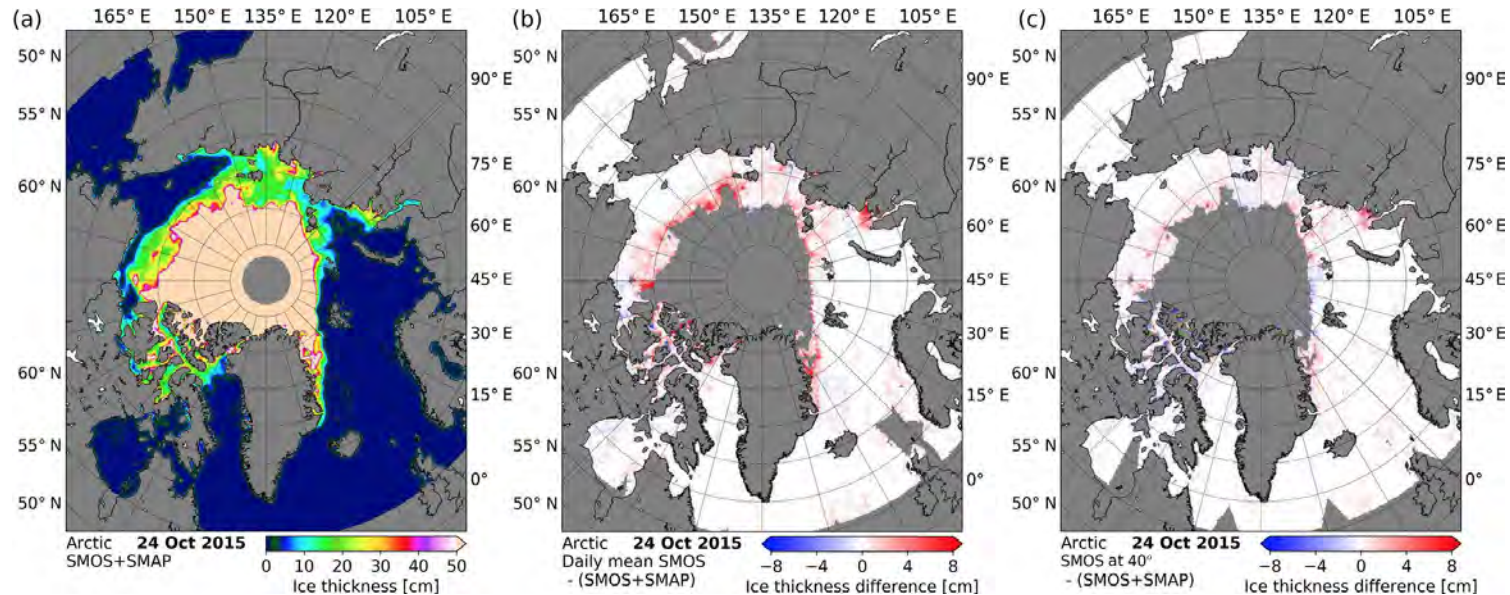


Combined SMAP–SMOS Track Sea Ice Thickness Near its Edges



Problem: Retrievals of ice thickness from IceSAT and Cryosat have poor accuracy for thin first year sea ice.



Sea ice thickness retrieved on 24 October 2015 for the joint SMOS–SMAP product (a), the SIT difference between the SMOS daily mean retrieval and the joint retrieval (b) and the SIT difference between SMOS fitted TBs at the 40 incidence angle and the joint retrieval (c)

Finding: We transfer a retrieval algorithm for the thickness of thin sea ice (up to 50 cm) from SMOS data at 40 to 50 incidence angle to the fixed incidence angle of SMAP. SMAP TBs are calibrated to SMOS to provide a merged SMOS–SMAP sea ice thickness product

Significance: The new merged SMOS–SMAP thin ice thickness product provides a better temporal and spatial coverage of the polar regions due to the usage of two sensors.

Patilea, Heygster, Huntemann, Spreen, 2019: Combined SMAP – SMOS thin sea ice thickness retrieval, *Cryosphere*.