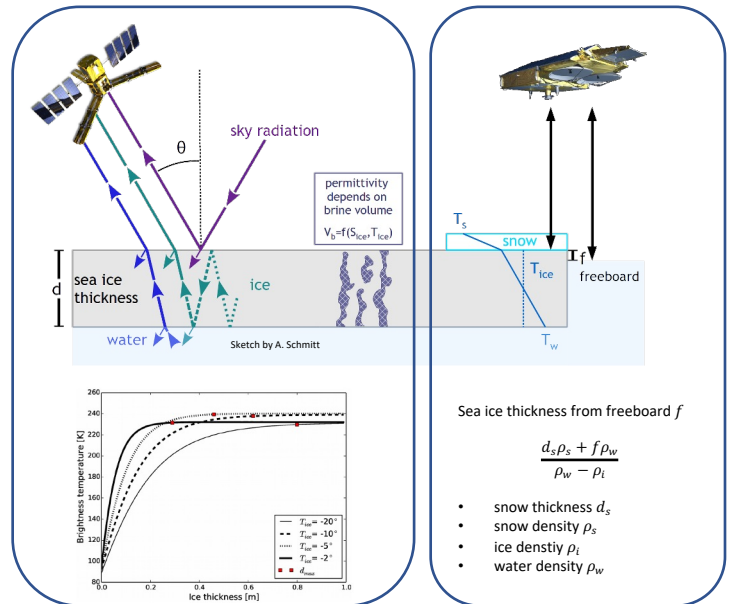


Long-term Observational Sea Ice Thickness Products from SMOS and CryoSat-2

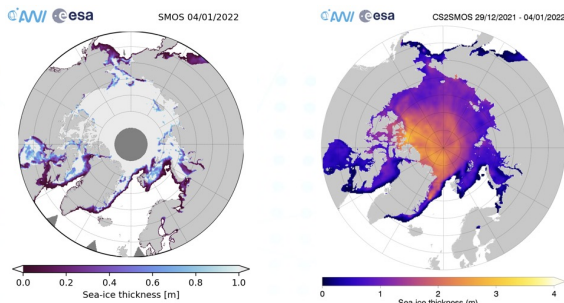
Xiangshan Tian-Kunze¹, Lars Kaleschke¹, Stefan Hendricks¹, Robert Ricker², and Antonio de la Fuente³

SMOS & CryoSat-2 Sea Ice Data Product Processing and Dissemination Service (CS2SMOS-PDS) operational at AWI, supported by ESA

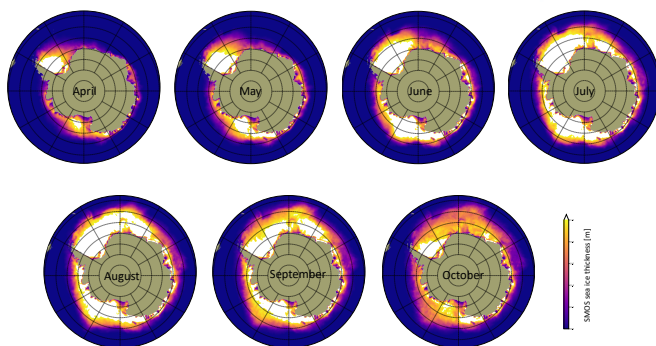
- Arctic SMOS and CryoSat2/SMOS merged sea ice products available during Arctic winter seasons (15 October - 15 April)
- Antarctic SMOS product (15 April - 15 October) will be soon available online
- Data disseminated over ftp.awi.de and <https://smos-diss.eo.esa.int>
- Documents and news can be found at <https://spaces.awi.de/display/CS2SMOS>



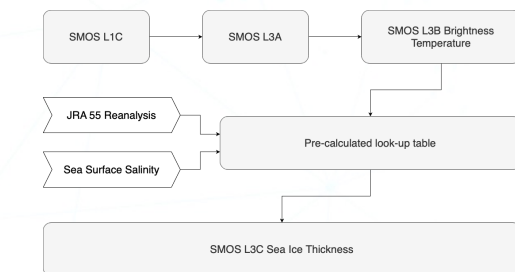
L-Band brightness temperatures measured by SMOS include thin ice thickness information due to the large penetration depth. CryoSat-2 measures the freeboard of sea ice layer and sea ice thickness is estimated using hydrostatic balance equation.



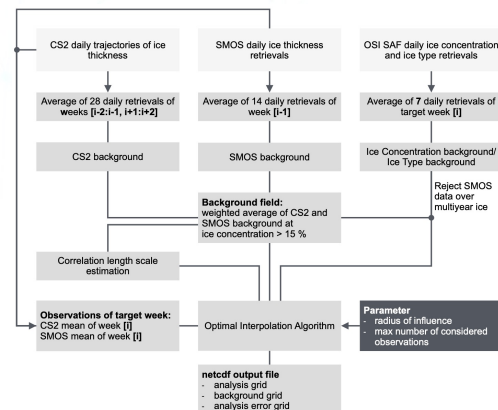
Quicklooks of daily L3 SMOS and L4 CS2SMOS sea ice thickness products in the Arctic.



SMOS Antarctic sea ice thickness climatology from 2010 to 2020. The retrieval algorithm is the same as in the Arctic.



Schematic chart of SMOS sea ice thickness retrieval.



Schematic chart of CS2SMOS sea ice thickness retrieval.

References:

Tian-Kunze, X., Kaleschke, L., Maaß, N., Mäkynen, M., Serra, N., Drusch, M., and Krumpen, T. (2014) SMOS-derived thin sea ice thickness: algorithm baseline, product specifications and initial verification, *The Cryosphere*, 8, 997-1018, doi:10.5194/tc-8-997-2014

Ricker, R., Hendricks, S., Kaleschke, L., Tian-Kunze, X., King, J., and Haas, C.: A weekly Arctic sea-ice thickness data record from merged CryoSat-2 and SMOS satellite data, *The Cryosphere*, 11, 1607-1623, <https://doi.org/10.5194/tc-11-1607-2017>, 2017.

