
Sea ice signature in SWIM off-nadir echoes

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Résumé

An algorithm was developed that is able to quantify the probability of open water versus sea ice presence in SWIM off-nadir echoes. It is an improvement from previous flagging methods based on ECMWF sea-ice forecasts, regardless of SWIM backscatter measurements. The objectives are twofold: being able to improve the flagging of SWIM ocean waves spectra impacted by the presence of sea ice, and providing a new insight into the ability of near-nadir Ku band radars to characterize sea-ice. For that purpose, various tools have been developed, especially a fully analytical Geophysical Model Function for SWIM echoes over the ocean and a proper statistical framework for the combination of beam estimates into a higher level product. In addition, sea ice concentration estimates have been performed which open the way for promising studies. Results are presented: sea-ice flag and concentration maps, colocations with Sentinel-1, etc ...

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