Using CFOSAT scatterometer for sea ice application : preliminary results from Ifremer/LOPS

Fanny Girard-Ardhuin*[1] and Jean-Francois Piollé[2]

[1]Ifremer-LOPS – Ifremer-CNRS-IRD-Ubo – France
[2]Ifremer-LOPS – Ifremer-CNRS-IRD-Ubo – France

Résumé

Microwave sensors onboard polar orbit satellites are commonly used for sea ice monitoring at high latitude. Since 1992, numerous scatterometers data at C and Ku-bands are available, allowing to build time series of data for sea ice monitoring for both Arctic and Antarctic areas.
Backscatter data enable to discriminate sea ice from open ocean areas, also they can also be used for sea ice type detection (first year from multi-year sea ice in the Arctic), moreover, sea ice displacement maps can be built. These applications were successfully realized using QuikSCAT data at Ku-band and we use CFOSAT scatterometer data for this purpose. In this presentation we will show first results over the poles using fall 2020 and winter 2020-2021 data. Application on sea ice edge detection will be shown and if possible examples of multiyear ice detection and motion. Comparison with ASCATs scatterometer data at C-band, available at the same period, will be presented, keeping in mind that C and Ku-band data over the pole have different behavior.

Sea ice long-term qualified data are routinely processed at Ifremer/CERSAT and available for the scientific community since 1992 :

• backscatter maps from C and Ku-band scatterometer

• displacement maps with the joint use of radiometer data

• ice edge

• first year/multiyear detection

providing an exceptional basis for analysis and synthesis of long-term variations of the sea ice in the polar areas, they are available through the CERSAT but also they are part of the CMEMS reanalysis datasets and the H2020 INTAROS system of systems of Arctic data.
From the results using CFOSAT data, we aim at adding these new data to these collections as soon as possible.

*Intervenant