I CONVEGNO ISTITUTO DI SCIENZE POLARI

Wind fields in polar coastal areas derived from satellite Synthetic Aperture Radar images - Campi di vento da immagini SAR satellitari nelle aree polari costiere

ovvero

Possibili applicazioni del SAR in ambienti polari marini

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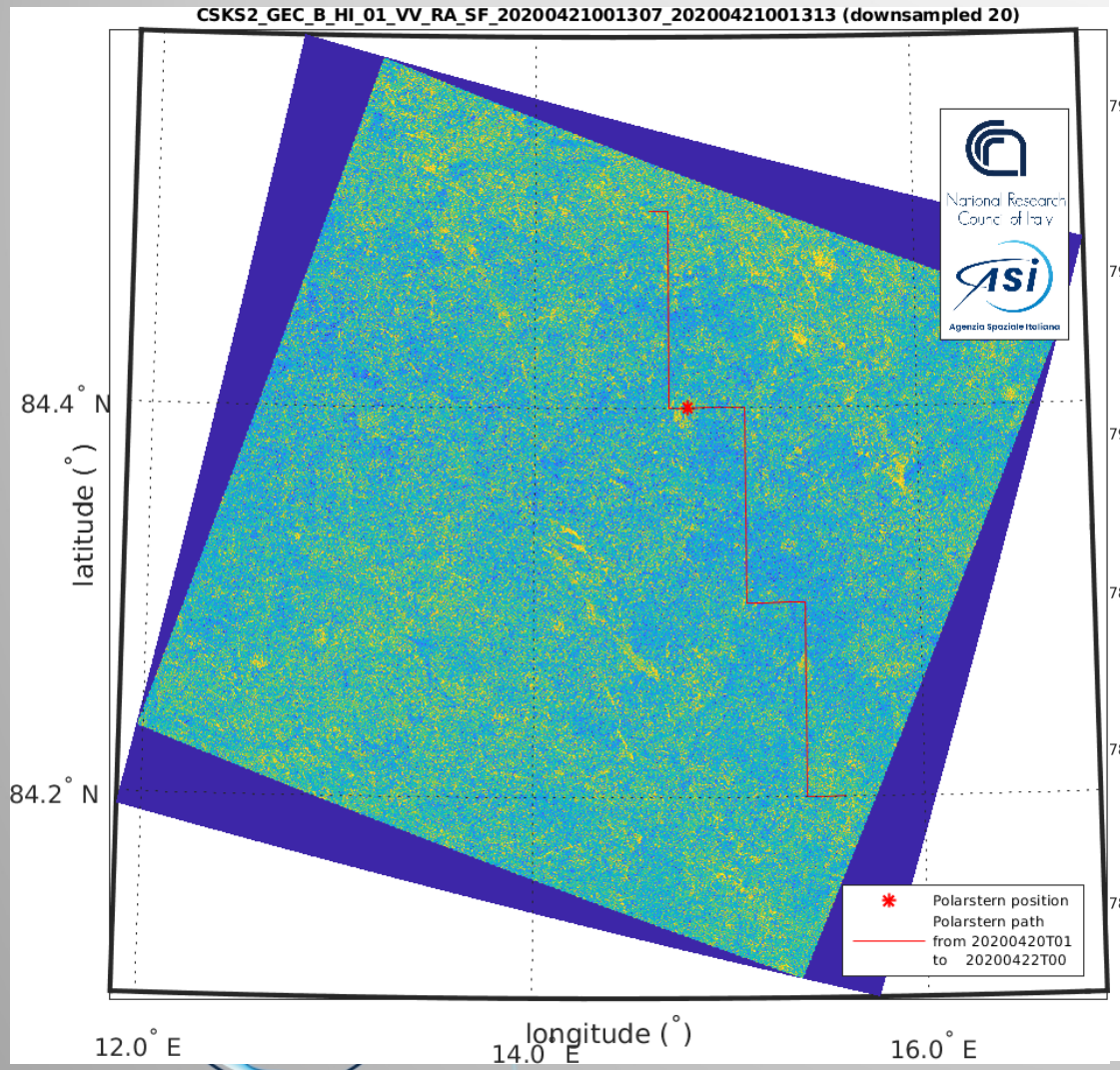
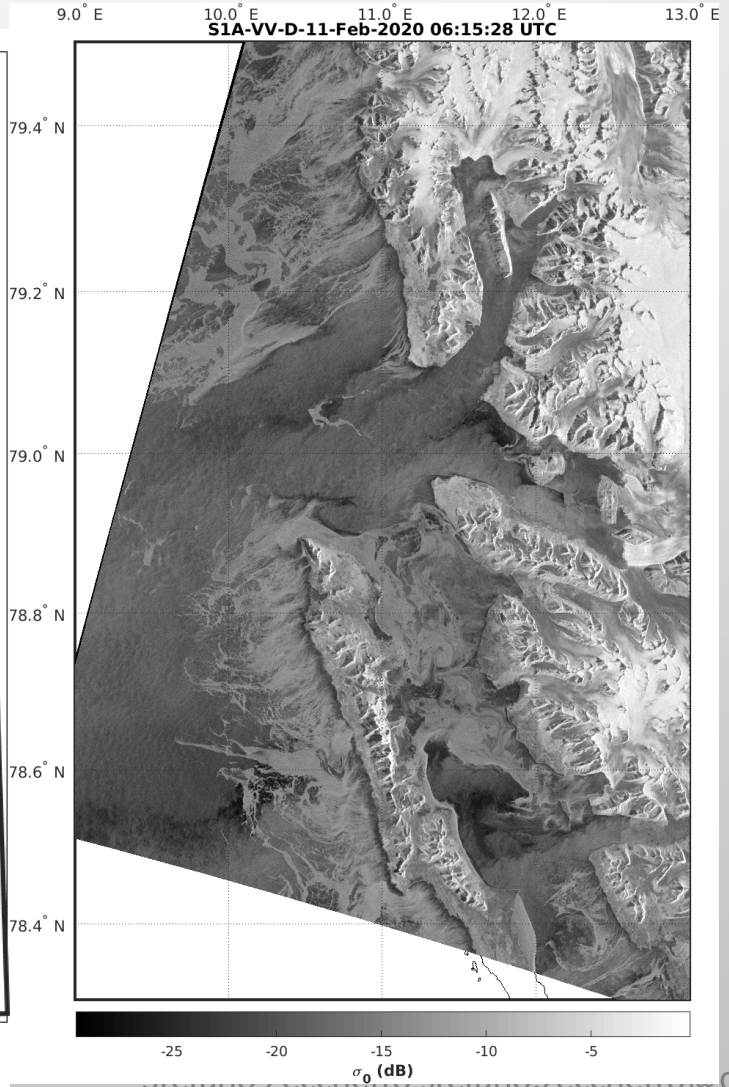
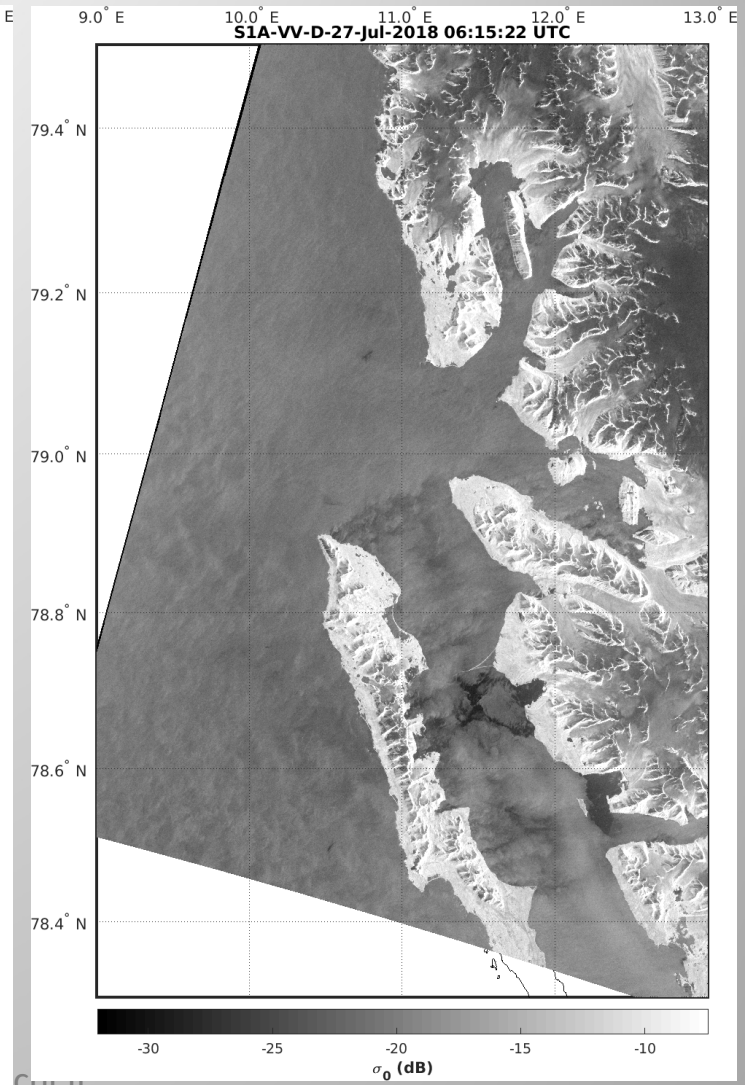
.SAR

The Synthetic Aperture Radar (SAR) is a microwave imaging device providing high resolution (~10 m) radar images of the Earth in all-weather and day-night time . It is extensively used both on ground and on sea.







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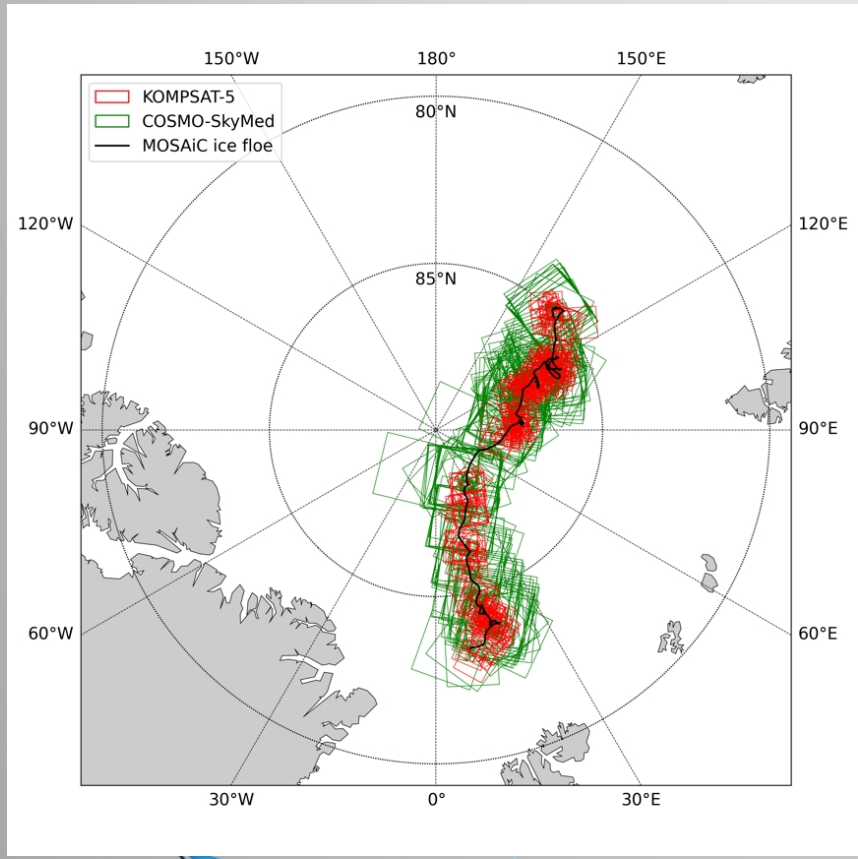
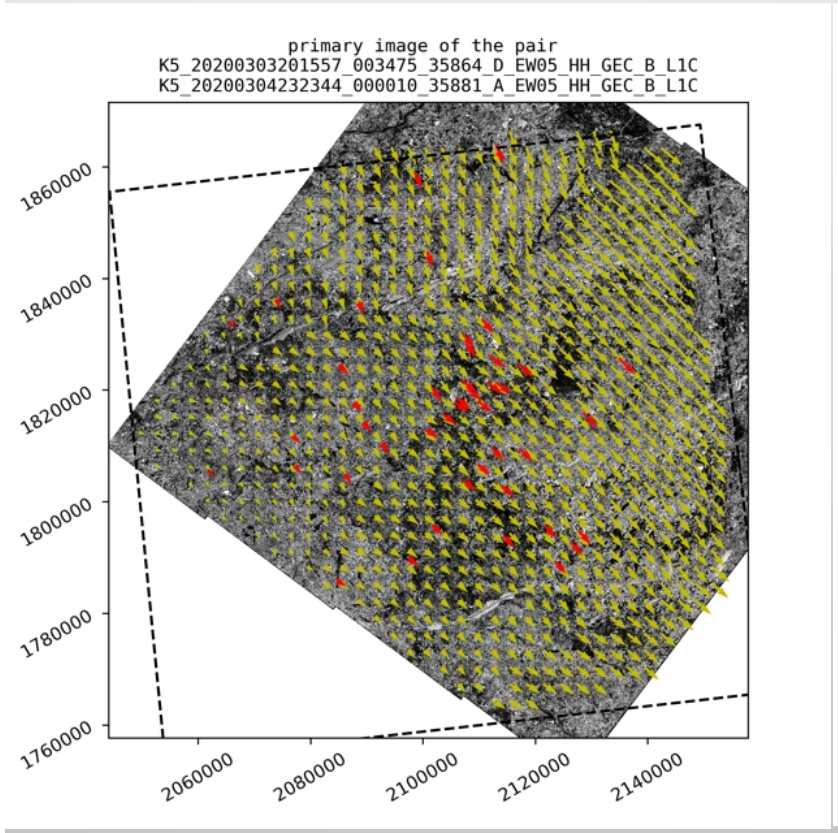
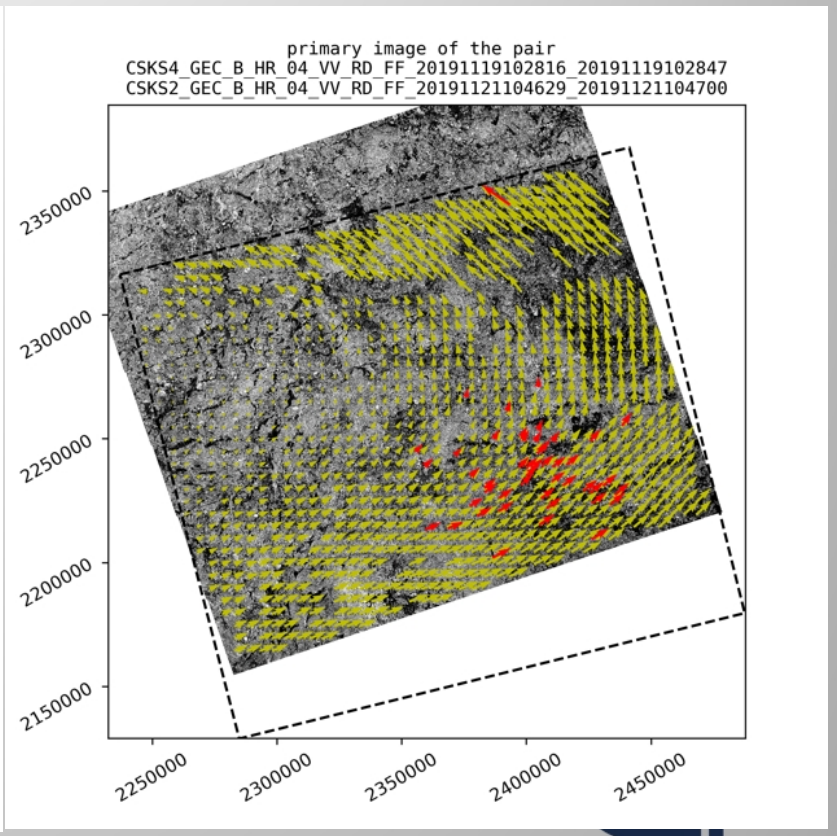
.Sea Ice Drift

..in September 2019, the German research icebreaker Polarstern set sail from Tromsø, Norway, to spend a year drifting through the Arctic Ocean - trapped in ice. The goal of the MOSAiC expedition was to take the closest look ever at the Arctic as the epicenter of global warming and to gain fundamental insights that are key to better understand global climate change.

from Park J.W., Kim H.C., Korosov A., Demchev D., Zecchetto S., Kim S.H., Kwon, Y.J., Han, H. and Hyun C.U., Feasibility Study on Estimation of Sea Ice Drift from KOMPSAT-5 and COSMO-SkyMed SAR images,Remote Sensing, submitted







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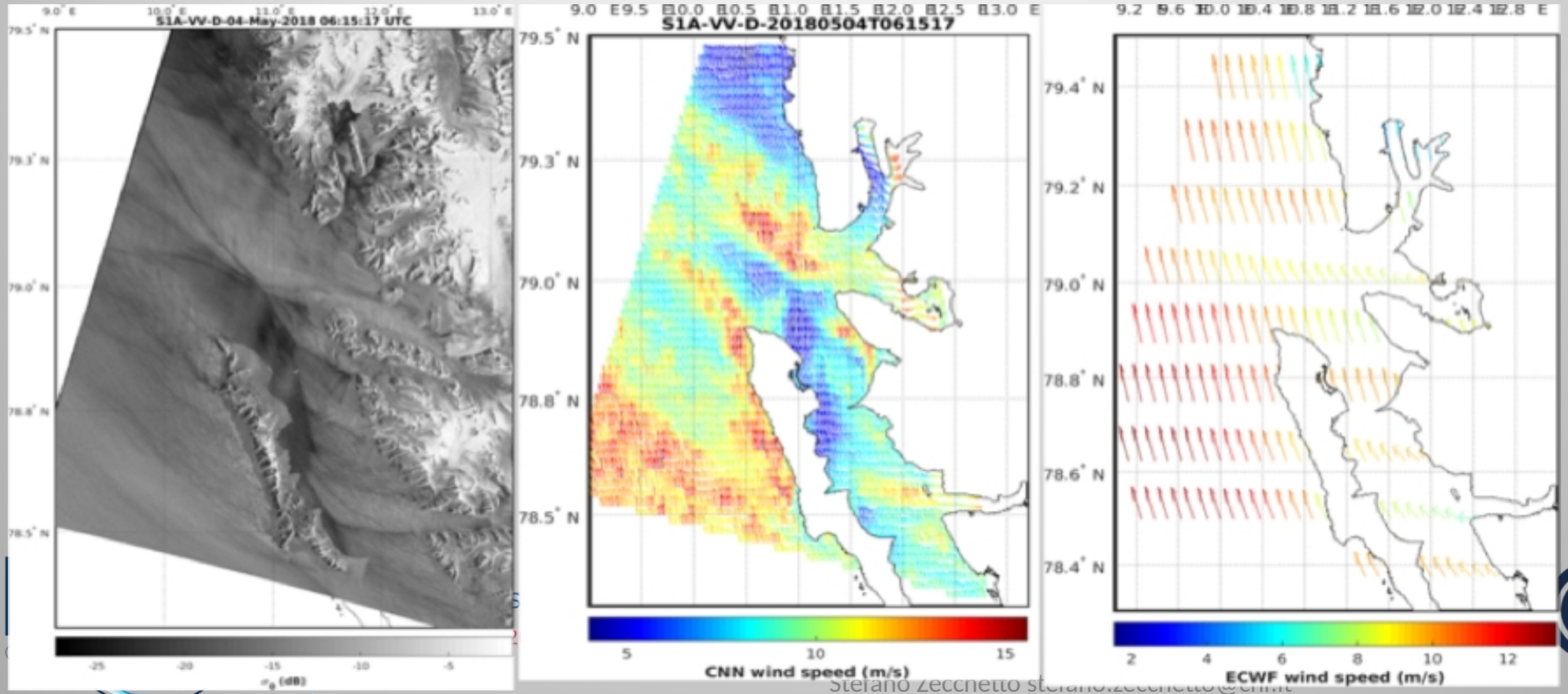
.Sea wind

One of the most relevant applications of SAR over the sea is the wind field retrieval at high resolution (up to 500 m) in coastal areas, at present possible only with SAR images.

from Zanchetta, A. and Zecchetto S., Wind direction retrieval from Sentinel-1 SAR images using ResNet, *Remote Sensing of Environment*, 253, doi: 0.1016/j.rse.2020.112178, 2021



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