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SodSAR radar system

SodSAR is a ground-based imaging radar system aiming to provide quasi-continuous monitoring capability of soil, snow cover and vegetation at microwave frequencies.

Ground-based radar systems are essential for calibration and validation of observations and products from Synthetic Aperture Radar satellites.

SodSAR is a fully polarimetric tower-based wide frequency (1-10 GHz) range Synthetic Aperture Radar (SAR) inistalled in Sodankylä, Finland (Fig. 1). The system is based on a Vector Network Analyzer (VNA) operated scatterometer mounted on a rail allowing the formation of SAR images, including interferometric pairs separated by a temporal baseline. The radar was developed in colleboration with FMI and Harp Technologies Ltd. (Finland).

Figure 1. SodSAR mounted on a 21 m tall tower

SodSAR will be used to develop retrieval methods for satellite SAR systems (e.g. ALOS2, Sentinel-1, TerraSAR X) with focus on cryosphere applications. Commercial ground-based systems with equivalent capabilities are not widely available, and SodSAR has a potential to provide unique multi-frequency datasets for refining existing satellite producs and enable the generation of new retrieval alogorithms.

Reference:
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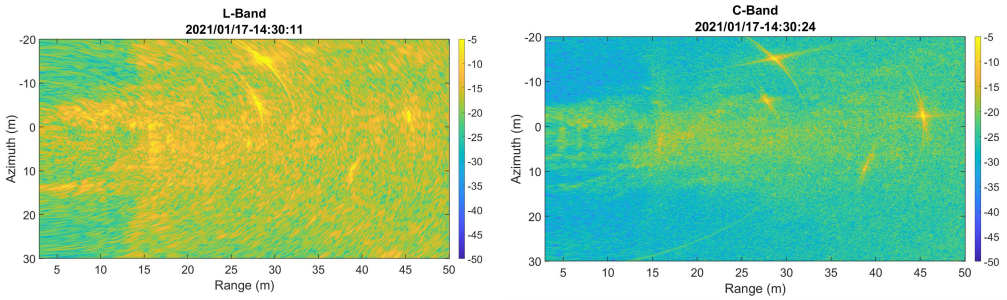

Figure 2. Examples of SodSAR imagery of backscatter (in dB) of a forested site. Imaging direction from left to right. Corner reflectors used for calibration appear as bright objects in the images.

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INTAROS

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