



## **Cloudsat data analysis. Detection of snowfall on ice surfaces combining microwave and infrared channels**

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Precipitation retrieval over high latitudes, particularly snowfall retrieval over ice and snow using satellite-based passive microwave spectrometers, is currently an unsolved problem.

The challenge results from the large variability of microwave emissivity spectra for surface snow and ice, which can mimic to some degree the spectral characteristics of snowfall.

This work focuses on the investigation of a new channels combination able to discriminate snowfall events in polar regions.

The space-borne Cloud Profiling Radar (on board CLOUDSAT), the Advanced Microwave Sensor units A and B (onboard NOAA-16) and the infrared spectrometer MODIS (onboard AQUA) have been co-located for 365 days, from October the 1st 2006 to September the 30th 2007.

The microwave and infrared channels have been compared with Cloudsat products.

A combination of water vapour sounding channels and the infrared window at 11  $\mu\text{m}$  seems to be able to discriminate snowfall and clear conditions at latitudes higher than 70°.

Preliminary results and new approaches to this challenge will be presented.