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Automatic measurements of snow spectral albedo

The SVC-FMI spectro-albedometer continuously measures spectral albedo in the solar wavelength range (350-2500 nm). It is built to operate in polar weather conditions.

The snow albedo feedback process shows large variability in the climate models. Snow albedo is therfore one of the key climate variables which need more observations

This prototype spectro-albedometer (Fig. 2), built in collaboration between Spectra Vista Corporation and FMI, has been calibrated, tested and then installed in Sodankylä to provide ground truth for satellite optical measurements. Raw data are collected every 2 minutes,(Fig. 3). Processed data stored in netCDF format will be openly accessible from FMI.

Figure 1. Deployment of spectro-albedometer in the field

The data will be used to validate/calibrate satellite-based radiances, radiative transfer codes and snow albedo schemes. These unique data will integrate and increase the value of the large collection of in situ surface and atmospheric variables measured at Sodankylä.

Data access:
https://en.ilmatieteenlaitos.fi/sodankyla-supersite

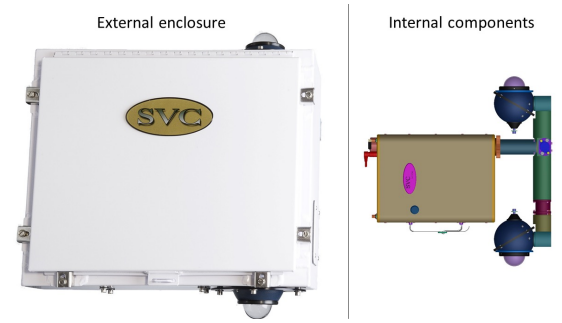

Figure 2. View of the SVC instrument left) and its internal components (right) where it is connected to the optical tube and the two integrating spheres.

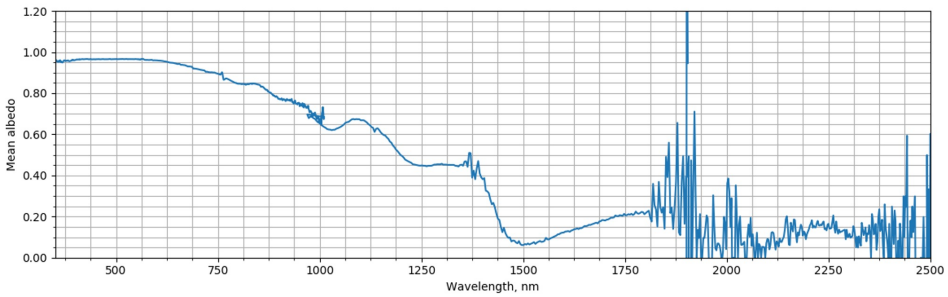

Figure 3. Example of raw spectra collected every 2 minutes

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