

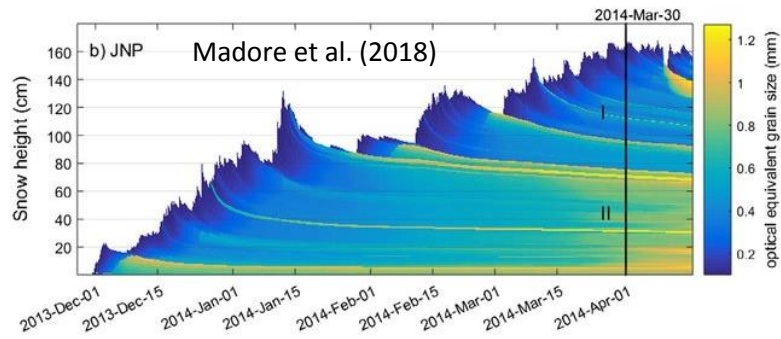
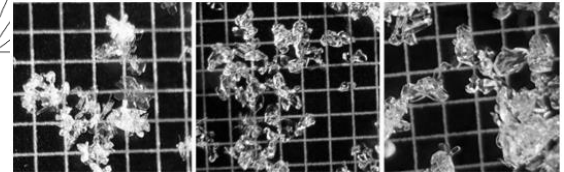
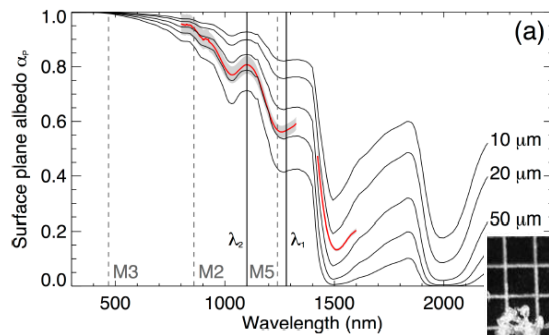


Topic for Master Thesis Seminar topic: Research & Methods



Group Atmospheric Radiation

Profiling the snow grain size of a snow layer with a spectral imager



- Master Thesis:**
- spectral measurements of reflected solar radiation in a snow pit
 - retrieving the snow grain size from the spectral snow absorption
 - constructing a snow grain profile
 - interpret the profile for snow methamorphism
 - comparison of different sites/snow structures

- Sem. Research:**
- relevance of the vertical structure of snow packs
 - aging of snow by snow methamorphism
 - differences of snow packs in alpine and arctic areas

- Sem. Methods:**
- remote sensing of snow grain size
 - spectral imaging of reflected solar radiation
 - simulation of snow methamorphism

Anmeldung eines Themas für ein/e

Forschungsseminar
Methodenseminar
Masterarbeit (bitte eines oder mehrere ankreuzen)

Thema	Profiling the snow grain size of a snow layer with a spectral imager
Datum	available from 24. Juni 2020
Betreuer (mit Kontaktdaten)	Univ.-Prof. Dr. Manfred Wendisch Leipzig Institute for Meteorology (LIM) Stephanstr. 3, D-04103 Leipzig, Germany ++49 (0) 341 97 32 851 (Phone)
ggf. weitere Kontaktperson	André Ehrlich, Phone: +49 341 97-32874 Email: a.ehrlich@uni-leipzig.de
Zweitgutachter	Prof. Dr. Andreas Macke, TROPOS
Kurzbeschreibung:	<p>Master Thesis:</p> <ul style="list-style-type: none"> - spectral measurements of reflected solar radiation in a snow pit - retrieving the snow grain size from the spectral snow absorption - constructing a snow grain profile - interpret the profile for snow methamorphism - comparison of different sites/snow structures <p>Sem. Research:</p> <ul style="list-style-type: none"> - relevance of the vertical structure of snow packs - aging of snow by snow methamorphism - differences of snow packs in alpine and arctic areas <p>Sem. Methods:</p> <ul style="list-style-type: none"> - remote sensing of snow grain size - spectral imaging of reflected solar radiation - simulation of snow methamorphism
Literatur:	<p>Molotch, N. P., Barnard, D. M., Burns, S. P., and Painter, T. H. (2016), Measuring spatiotemporal variation in snow optical grain size under a subalpine forest canopy using contact spectroscopy, <i>Water Resour. Res.</i>, 52, 7513– 7522, doi:10.1002/2016WR018954.</p> <p>Carlsen, T., Birnbaum, G., Ehrlich, A., Freitag, J., Heygster, G., Istomina, L., Kipfstuhl, S., Orsi, A., Schäfer, M., and M. Wendisch, Comparison of different methods to retrieve optical-equivalent snow grain size in central Antarctica, <i>The Cryosphere</i>, 11, 2727-2741, doi:10.5194/tc-11-2727-2017, 2017.</p> <p>https://www.slf.ch/de/services-und-produkte/snowpack.html</p>