

Snow grain size workshop, Grenoble 2013
Preliminary program, as of February 15, 2013

2 April 2013

- 09:15 - 10:00 **Registration, welcome of participants at LGGE (coffee)**
- 10:00 - 10:30 **Introduction and goals of the workshop - Ghislain Picard, Henning Löwe, Samuel Morin, Charles Fierz**
- 10:30 - 12:35 **Tomography and 3D reconstruction (chair Henning Löwe)**
- 10:30 - 11:20 › **KEYNOTE** The geometry of snow as seen by tomography and near-infrared photography - *Martin Schneebeli, WSL Institute for Snow and Avalanche Research SLF*
- 11:20 - 11:45 › Computation of grain sizes from microtomographic images of snow - *Frederic Flin, CEN, CNRM - GAME UMR 3589*
- 11:45 - 12:10 › Tomography-based snow morphology characterization via direct and indirect approaches - *Sophia Haussener, Ecole Polytechnique Fédérale de Lausanne*
- 12:10 - 12:35 › Specific surface area computed with X-ray micro-tomography: impact of the segmentation technique and the effective resolution - *Pascal Hagenmuller, Erosion torrentielle neige et avalanches*
- 12:35 - 14:00 **Lunch (Buffet, will be provided at LGGE)**
- 14:00 - 14:55 **Tomography and 3D reconstruction cont'd (chair Henning Löwe)**
- 14:00 - 14:25 › 3D-structure of snow constructed with successive section planes - *Kouichi NISHIMURA, Nagoya University*
- 14:25 - 14:55 › *General discussion on tomography and 3D reconstruction*
- 14:55 - 16:30 **BET methods (chair Samuel Morin)**
- 14:55 - 15:45 › **KEYNOTE** Measuring the specific surface area of snow using methane adsorption and IR reflectance: difficulties and some progress - *Florent Domine, Takuvik Joint International Laboratory*
- 15:45 - 16:10 › Measurement of snow specific surface area by the BET theory — investigation of suitable adsorbent for field use — - *Akihiro Hachikubo, Kitami Institute of Technology*
- 16:10 - 16:30 › *General discussion on BET methods*
- 16:30 - 17:00 **Coffee break**
- 17:00 - 18:35 **Visual inspection of grains (chair Samuel Morin)**
- 17:00 - 17:25 › Snow grain size measurements in Dronning Maud Land, Antarctica - *Roberta Pirazzini, Finnish Meteorological Institute*
- 17:25 - 17:50 › Photographic methods for Antarctic snow crystal evaluation - *Katherine Leonard, cryos*
- 17:50 - 18:15 › Comparison of Visual Grain Size and Specific Surface Area of Snow - *Leena Leppänen, Finnish Meteorological Institute, Arctic Research Centre - Anna Kontu, Finnish Meteorological Institute, Arctic Research Centre*
- 18:15 - 18:35 › *General discussion on visual inspection of grains*
- 18:35 - 20:00 **Poster session (Snacks and Drinks will be provided)**
- › Accuracy of simulated snow grain size and shortwave albedo by a 1-D physical snowpack model SMAP: Model validation at Sapporo, Japan and Greenland - *Masashi Niwano, Meteorological Research Institute*
- › Attempt of modeling water movement in snow cover using specific surface area - *Satoru Yamaguchi, National Research Institute for Earth Science and Disaster Prevention - Akihiro Hachikiubo, Kitami Institute of Technology - Hayato Arakawa, YAGAI-KAGAKU Co., Ltd. - teruo Aoki, Meteorological Research Institute*

- › Comparison between co-located high-resolution specific surface area and snow-micropenetrometry profiling in a mid-altitude alpine snowpack - *Carlo Carmagnola, Centre d'Etudes de la Neige (CNRM-GAME)*
- › From optical snow grain radius to microwave grain size parameterization: DMRT-ML simulations and validation analysis - *Alain Royer, Centre d'Applications et de Recherches en Télédétection*
- › Grain size in new generation snow-cover models: lessons from the past? - *Charles Fierz, WSL Institute for Snow and Avalanche Research SLF*
- › IceCube: an innovative optical instrument for measurement of the specific surface area of snow - *Nicolas ZUANON, A2 Photonic Sensors*
- › In situ measurements of snow properties and surface albedo at Kohonen Station, East Antarctic Plateau to improve prognostic snow models - *Gerit Birnbaum, Alfred Wegener Institute for Polar and Marine Research*
- › In-Situ Probe for Optical Snow Grain Size Measurement - *Noah Molotch, Jet Propulsion Laboratory [NASA], University of Colorado*
- › Intercomparison of retrieval algorithms for the specific surface area of snow from near-infrared satellite data in mountainous terrain, and comparison with the output of a semi-distributed snowpack model - *Marie Dumont, Groupe d'étude de l'atmosphère météorologique*

- › Modeling of snow grain size with SNOWPACK and comparison to in situ measurements - *Anna Kontu, Finnish Meteorological Institute*
- › Run-length dependence of specific surface area and intrinsic permeability in seasonal snow - *Hayato Arakawa, YAGAI-KAGAKU Co., Ltd.*
- › Snow LAyer Probing device (SLAP) - *Ali Arslan, Finnish Meteorological Institute*
- › Snow measurement methods for mountainous areas in Turkey - *Basar Bozoglu, Middle East Technical University*
- › Study of snowpacks using 3-D SAR imaging at X and Ku bands and meteorological data assimilation - *laurent Ferro-Famil, University of Rennes 1, IETR*
- › Talking about grain size (in different languages) - *Maria Hörhold, Institute of Environmental Physics, University of Bremen* - *Stefanie Linow, Alfred-Wegener-Institute for Polar and Marine Research*

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08:30 - 10:10 **Optical-based methods** (chair Ghislain Picard)

08:30 - 09:20 › **KEYNOTE** Utilizing Contact Spectroscopy for Retrieval of Snow Optical Grain Size Stratigraphy - *S. McKenzie Skiles, Joint Institute for Regional Earth System Science and Engineering, Department of Geography*

09:20 - 09:45 › "Alpine Snowpack Specific Surface Area Profiler" (ASSSAP): a new instrument to retrieve snow specific surface area with a 1cm resolution using infrared reflectance - *Ghislain Picard, Laboratoire de glaciologie et géophysique de l'environnement*

09:45 - 10:10 › A New shortwave infrared camera approach for snow specific surface area retrieval - *Benoit Montpetit, Centre d'Application et de Recherche en Télédétection*

10:10 - 10:40 **Coffee break**

10:40 - 13:10 **Theoretical studies optics** (chair Ghislain Picard)

10:40 - 11:05 › Comparison of Theoretical Approaches to Snow Optics - *Eleonora Zege, National Academy of Sciences of Belarus*

11:05 - 11:30 › Influence of the grain shape on the albedo and light extinction in snow - *Quentin Libois, Laboratoire de glaciologie et géophysique de l'environnement*

11:30 - 11:55 › Stereology approach to snow optics - *Aleksey Malinka, B.I. Stepanov Institute of Physics of National Academy of Sciences of Belarus*

11:55 - 12:30 › *General discussion on optical approaches*

12:30 - 14:00 **Lunch (Buffet, will be provided at LGGE)**

14:00 - 14:50 **Correlation function & length** (chair Ghislain Picard)

14:00 - 14:25 › Correlation function studies for snow revisited - Henning Loewe, WSL Institute for Snow and Avalanche Research SLF

14:25 - 14:50 › SnowMicroPen derived correlation length of snow - Martin Proksch, WSL Institute for Snow and Avalanche Research SLF

14:50 - 16:25 **Applications: Microwaves** (chair Alain Royer)

14:50 - 15:15 › Comparing field measurements of grain size for forcing microwave emission models - Michael Durand, Ohio State University

15:15 - 15:40 › Heterogeneity of snow stratigraphy and grain size within ground-based passive microwave radiometer footprints: implications for emission modelling - Nick Rutter, Northumbria University

15:40 - 16:05 › Campaign results and preparations for the Candidate Core Explorer mission CoReH2O - Michael Kern, European Space Agency

16:05 - 16:25 › General discussion on correlation length and microwave applications

16:25 - 16:55 **Coffee break**

16:55 - 18:00 **Applications: Snowpack models** (chair Charles Fierz)

16:55 - 17:20 › Prediction of snow grain size - Richard Essery, University of Edinburgh

17:20 - 17:45 › Implementation and evaluation of prognostic representations of the optical diameter of snow in the detailed snowpack model SURFEX/ISBA-Crocus - Carlo Carmagnola, Météo-France

17:45 - 18:00 › General discussion on snowpack models

18:00 - 18:30 **Planning and information for field trip**

18:30 - 20:00 **Poster session (Snacks and Drinks will be provided)**

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06:30 - 18:00 Field trip - Presentation of snow grain size instruments and methods in the mountains nearby Grenoble (Chamrousse, Lautaret or La Grave). Date and schedule subject to weather conditions. **Packed lunch will be provided**

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08:30 - 13:00 General discussion and outcome (detailed program in preparation)