
WORKSHOP PROGRAMME
(26.1.2017)
**Tuesday, 7th February**

### Welcome and opening

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>10:30 – 12:30</td>
<td>Registration and coffee</td>
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<tr>
<td>12:30 – 13:00</td>
<td>Chair LISSIG / EARSeL (Stefan Wunderle) Welcome</td>
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### Snow cover (regional to global scale) I

**Chair: Stefan Wunderle**

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<tr>
<th>Time</th>
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</table>
| 13:00 – 13:20 | Alexander Trishchenko (invited)  
Canada Centre for Remote Sensing, Canada  
What New Knowledge MODIS 250m Imagery Brings About Summer Snow and Ice Climatology Over the Northern Landmass? |
| 13:20 – 13:40 | Théo Masson, Marie Dumont, Mauro Dalla Mura, Pascal Siguey, Simon Gascoin, Jocelyn Chanussot, Jean-Pierre Dedieu  
GIPSA-lab, Grenoble-INP, France  
Accuracy Assessment of Existing Methodology to Retrieve Snow Cover Fraction From MODIS Data |
| 13:40 – 14:00 | Hong Xiaofeng, Yu Yangyue, Michael F. Baumgartner  
MFB-GeoConsulting, Switzerland  
Snow Cover Monitoring and Snowmelt Runoff Modeling in the Upper Jinsha River Basin (China) |
| 14:00 – 14:20 | Thomas Nagler, Gabrielle Schweizer, Elisabeth Ripper, Chris Derksen, Richard Fernandes, Kari Luojus, Oli-Pekka Mattila, Sari Metsämäki, Lawrence Murdyryk, Rune Solberg, Bojan Bojkov, Michael Kern  
ENVEO IT GmbH, Austria  
The International Snow Products Intercomparison and Evaluation Exercise – SnowPEx |

### Poster Session I

**Chair: Stefan Wunderle**

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<th>Time</th>
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| 14:20 – 14:40 | Short poster presentations (2min/poster)  
Vasco Conde, Giovanni Nico, Pedro Mateus, Joao Catalao, Anna Kontu, Maria Gritsevich  
University of Lisbon, Portugal  
Snow Water Equivalent Retrieval Using Synthetic Aperture Radar (SAR) Interferometry  
Martin Schneebeli, Henning Löwe, Matthias Jaggi, Margret Matzl  
WSL Institute for Snow and Avalanche Research SLF, Switzerland  
Minimal and Optimal Structural Measures to Characterize Snow for Remote Sensing at Different Wavelength  
Lukas Krieger, Dana Floriciou  
German Aerospace Center (DLR), Germany  
Rapid Thinning and Retreat of Marine Terminating Outlet Glaciers in Northeast Greenland |
Melanie Sütterlin, Anke Duguay-Tetzlaff, Stefan Wunderle
University of Bern, Switzerland
Lake Ice Detection From VIIRS Data

Yann Brouet, Raphael Marschall, Antonio Gracia Berná, Nicolas Thomas, Ekkehard Kührt
University of Bern, Switzerland
Brightness Temperature Modelling of Icy and Dusty Materials Applied to Comet 67P/Churyumov-Gerasimenko

Alexander Trishchenko, Calin Ungureanu
Canada Centre for Remote Sensing, Canada
Intercomparison of MODIS and VIIRS Results for Mapping Snow and Ice Extent Over Canadian Landmass

Fabia Hüsler, Stefan Wunderle
University of Bern, Switzerland
Towards a Consistent Pan-European Long-Term Snow Extent Product Derived From Historical AVHRR Data

Melanie Sütterlin, Anke Duguay-Tetzlaff, Stefan Wunderle
University of Bern, Switzerland
Lake Ice Detection From VIIRS Data

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Fabia Hüsler, Stefan Wunderle
University of Bern, Switzerland
Towards a Consistent Pan-European Long-Term Snow Extent Product Derived From Historical AVHRR Data

14:40 – 15:30  Poster session with coffee break

COST Action ES1404 HarmoSnow  Chair: Kari Luojus

15:30 – 15:50  Ali N. Arslan, Cemal Melih Tanis
Finnish Meteorological Institute, Finland
Automated Monitoring of Fractional Snow Cover From MONIMET Camera Network in Finland

15:50 – 16:10  David C. Finger
Reykjavik University, Iceland
The Value of Satellite Retrieved Snow Cover Images to Assess Water Resources and the Hydropower Potentials of Ungauged Mountain Areas

16:10 – 16:30  Semih Kuter, Zuhal Akyurek, Gerhard-Wilhelm Weber
Cankiri Karatekin University, Turkey
Fractional Snow Cover Mapping From MODIS Data Over European Alps by Multivariate Adaptive Regression Splines

16:30 – 16:50  Sari J. Metsämäki, Elisabeth Ripper, Olli-Pekka Mattila, Gabriele Schwaizer, Kari Luojus, Thomas Nagler, Richard Fernandes, Bojan Bojkov, Michael Kern
Finnish Environment Institute, Finland
Evaluation of Northern Hemisphere Snow Extent Products Using In-Situ Data Within ESA SnowPEx Project

16:50 – 17:10  Patricia de Rosnay, Mohamed Dahoui, Lars Isaksen
ECMWF, United Kingdom
Snow Data Assimilation for Numerical Weather Prediction

18:30  Ice breaker reception
Haus der Universität, Schlösslistrasse 5, 3012 Bern
**Wednesday, 8\textsuperscript{th} February**

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<thead>
<tr>
<th>Time</th>
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<tr>
<td>8:20 – 8:40</td>
<td><strong>New technologies (sensors/methods) I</strong> Chair: Sari Metsämäki</td>
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<td><strong>Andreas Wiesmann</strong>, Rafael Caduff, Othmar Frey, Martin Schneebeli, Thorsten Fehr</td>
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<td><em>GAMMA Remote Sensing AG, Switzerland</em></td>
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<td></td>
<td>ESA SnowLab - Microwave and Structural Measurements of Alpine Snow</td>
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<tr>
<td>8:40 – 9:00</td>
<td><strong>Christian Mätzler</strong>, Andreas Wiesmann, Mike Schwank, Urs Wegmüller</td>
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<td><em>Gamma Remote Sensing AG, Switzerland</em></td>
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<td>An Alternative Concept for Remote Sensing of Snow Mass</td>
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<td>9:00 – 9:20</td>
<td>Ghislain Picard, Melody Sandells, <strong>Henning Löwe</strong>, Christian Mätzler, Anna Kontu, Marie Dumont, Will Maslanka, Samuel Morin, Richard Essery, Juha Lemmetyinen, Andreas Wiesmann, Nicolas Floury, Michael Kern</td>
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<td><em>WSL Institute for Snow and Avalanche Research SLF, Switzerland</em></td>
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<td>Snow Microwave Radiative Transfer (SMRT): A New Model to Simulate Snow-Microwave Interactions for Active and Passive Remote Sensing</td>
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<td>9:20 – 9:40</td>
<td><strong>Yves Bühler</strong>, Marc Adams, Andreas Stoffel, Ruedi Bösch</td>
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<td>Snow Depth Mapping Applying Unmanned Aerial Systems – Closing the Gap Between Field Measurements and Low Spatial Resolution Satellite Data</td>
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<td>9:40 – 10:10</td>
<td><strong>Coffee break</strong></td>
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<td>10:10 – 10:30</td>
<td><strong>Snow hydrology I</strong> Chair: Simon Pinnock</td>
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<td><strong>Kari Luojus</strong>, Jouni Pulliainen, Juval Cohen, Jaakko Ikonen, Chris Derksen, Lawrence Mudryk, Thomas Nagler, Michael Kern, Bojan Bojkov</td>
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<td><em>Finnish Meteorological Institute, Finland</em></td>
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<td>Assessment of Northern Hemisphere Snow Water Equivalent Datasets in ESA SnowPEx Project</td>
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<td>10:30 – 10:50</td>
<td><strong>Richard Kelly</strong>, Nastaran Saberi, Qinghuan Li</td>
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<td><em>University of Waterloo, Canada</em></td>
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<td>The AMSR2 Satellite-Based Microwave Snow Algorithm (SMSA): A Parsimonious Snow Depth and Snow Water Equivalent Approach</td>
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<td>10:50 – 11:10</td>
<td><strong>Rune Solberg</strong>, Øystein Rudjord, Arnt-Børre Salberg, Øivind Due Trier, Gheorghe Stancalie, Andrei Diamandi, Anisoara Irimescu</td>
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<td><em>Norwegian Computing Center, Norway</em></td>
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<td>A Multi-Sensor Multi-Temporal Approach to Retrieving Snow Surface Wetness From a Combination of Sentinel-1 and Sentinel-3 Data</td>
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| 11:10 – 11:30 | **David Small**, Christoph Rohner, David Jäger, Adrian Schubert  
*University of Zurich, Switzerland*  
Wide Area Mapping of Wet Snow Extent With Multiple Spaceborne SAR Sensors |
| 11:30 – 11:50 | **Anna Wendleder**, Achim Heilig, Andreas Schmitt, Christoph Mayer  
*German Aerospace Center, Germany*  
Monitoring Wet Snow at High Alpine Glaciers Using Multi-Polarized TerraSAR-X Data |
| 11:50 – 12:10 | **Thomas Nagler**, Helmut Rott, Elisabeth Ripper, Gabriele Schwaizer  
*ENVEO IT GmbH, Austria*  
Monitoring Snowmelt Area by Means of Sentinel-1 Interferometric Wide Swath SAR |
| 12:10 – 13:20 | Lunch break                                                             |

**Essential Climate Variable: Snow**  
Chair: Alexander Trishchenko

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| 13:20 – 13:40 | **Simon Eggleston** (invited)  
*GCOS-WMO sec, Switzerland*  
GCOS: The new Implementation Plan and the Cryosphere |
| 13:40 – 14:00 | **Simon Pinnock** (invited)  
*ESA, United Kingdom*  
Ice and Snow in the ESA Climate Change Initiative |
| 14:00 – 14:20 | **Lothar Schüller** (invited)  
*EUMETSAT, Germany*  
From User Requirements to Product Requirements: EUMETSAT’s Snow Portfolio |
| 14:20 – 14:40 | **Piotr Struzik**  
*Institute of Meteorology and Water Management NRI, Poland*  
Snow ECV - Requirements vs. Available Products |
| 14:40 – 15:00 | All  
Discussion: User Needs, Product Retrieval and Data Providers |

**Poster Session II**  
Chair: Alexander Trishchenko

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<th>Time</th>
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| 15:00 – 15:15 | **Sabine Baumann**  
*TUM, Germany*  
Relating Satellite Gravimetry Data to Global Snow Water Equivalent Data |
|              | **Alexander Trishchenko**, Vladimir Kostylev, Dustin Whalen  
*Canada Centre for Remote Sensing, Canada*  
Probabilistic Approach for Mapping Landfast Ice in the Canadian Arctic From MODIS |
Lorenzo Rieg, Christoph Klug, Lindsey Nicholson, Hannah Prantl, Rudolf Sailer
University of Innsbruck, Austria
Investigation of Mass Balance Processes on Glaciers in the Khumbu-Himal (Nepal) Based on Optical Satellite Data

Alexandra Messerli, Geir Moholdt
Norwegian Polar Institute, Norway
Norwegian Copernicus Glacier Service: Svalbard Perspective

Julien Anet, Charles Fierz, Christoph Marty, Ali Nadir Arslan, Jürgen Helmert, Ekaterina Kurzeneva, Giovanni Macelloni, Ghislain Picard, Patricia de Rosnay, Wolfgang Schöner
WSL Institute for Snow and Avalanche Research SLF
The European Snow Booklet

15:15 – 16:00  Poster session with coffee break

Glaciers and Ice Caps I  
Chair: Fabia Hüsler

16:00 – 16:20  Dana Floricioiu, Wael Abdel Jaber, Helmut Rott, Erling Johnson
German Aerospace Center (DLR), Germany
Short Term Elevation Changes From TanDEM-X for the Mass Balance of the Patagonian Glaciers

16:20 – 16:40  Peter Friedl, Thorsten Seehaus, Anja Wendt, Matthias Braun
German Aerospace Center (DLR), Germany
Long-Term Monitoring of the Glaciers in Wordie Bay, Antarctic Peninsula, Using Multi-Mission SAR Time Series

Snow cover (regional to global scale) II  
Chair: Richard Kelly

16:40 – 17:00  Céline Dizerens, Fabia Hüsler, Stefan Wunderle
University of Bern, Switzerland
Snow Cover Monitoring in the Swiss Alps Using Webcam Images

17:00 – 17:20  Andreas Dietz
German Aerospace Center (DLR), Germany
Time Series Processing and Analysis of Terrestrial Daily Snow Cover Datasets to Describe Status and Development of Global Snow Cover

17:20 – 17:40  Stefan Wunderle, Timm Gross, Fabia Hüsler, Jörg Franke
University of Bern, Switzerland
Climate Impact on Snow Extent Variability in Lesotho (Southern-Africa)

19:00  Conference dinner
Restaurant zum Äusseren Stand
Zeughausgasse 17, 3011 Bern
### Thursday, 9th February

#### Glaciers and Ice Caps II

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<tr>
<td>8:20 – 8:40</td>
<td><strong>Georg Fischer</strong>, Irena Hajnsek</td>
<td>German Aerospace Center (DLR), Germany</td>
<td>Investigation of Penetration Bias of Surface Elevation Models From SAR Interferometry in Dependence of Subsurface Structure, Frequency and Polarization</td>
</tr>
<tr>
<td>8:40 – 9:00</td>
<td><strong>Christoph Rohner</strong>, David Small, Martin Lüthi, Andreas Vieli</td>
<td>University of Zurich, Switzerland</td>
<td>Variability in Glacier Flow Dynamics of a Greenland Outlet Glacier Using Sentinel-1 SAR Data: Validation With Multiple Ground-Based Measurements</td>
</tr>
<tr>
<td>9:00 – 9:20</td>
<td><strong>Gabriele Schwaizer</strong>, Johanna Nemec, Helmut Rott, Thomas Nagler</td>
<td>ENVEO IT GmbH, Austria</td>
<td>Processing Line for Monitoring Glacier Outlines and Snow Area Extent by Means of Sentinel-2 Data</td>
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<td>9:20 – 9:50</td>
<td>Coffee break</td>
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#### Snow hydrology II

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<td>9:50 – 10:10</td>
<td><strong>Piotr Struzik</strong>, Monika Pajek</td>
<td>Institute of Meteorology and Water Management NRI, Poland</td>
<td>Snow Depth From GCOM-W1 AMSR2 Instrument – Experience Gained From the Last Four Winters</td>
</tr>
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<td>10:10 – 10:30</td>
<td><strong>Paul Schattan</strong>, Matthias Huttenlau, Johannes Schöber, Robert</td>
<td>alpS Centre for Climate Change Adaptation, Austria</td>
<td>The Value of Optical and SAR Based Snow Products for Reconstructing SWE in a Snow Dominated Headwater Basin</td>
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<tr>
<td>10:30 – 10:50</td>
<td><strong>Mike Schwank</strong>, Reza Naderpour, Andreas Wiesmann</td>
<td>WSL-Birmensdorf, Switzerland</td>
<td>“MicroVegSnow” Project at Davos-Laret Remote Sensing Test-Site as Part of the “Swiss Alp-SnowLab for Climate-Research and Remote Observations” (SASCRO)</td>
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#### New technologies (sensors/methods) II

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<td>10:50 – 11:10</td>
<td><strong>Florian Appel</strong>, Franziska Koch, Patrick Henkel, Philipp Klug, Markus</td>
<td>VISTA Remote Sensing in Geosciences GmbH, Germany</td>
<td>Integration of Space Technologies for Snow Monitoring – GNSS, EO and SatCom – First Results of ESA IAP SnowSense Demo Project</td>
</tr>
<tr>
<td>11:10 – 11:30</td>
<td><strong>Rafael Caduff</strong>, Andreas Wiesmann, Urs Wegmüller</td>
<td>GAMMA Remote Sensing AG, Switzerland</td>
<td>Terrestrial Radar Interferometry – A Method to Detect Millimetric Snow Glide Deformation Hours to Days Before Wet Snow Avalanche Release</td>
</tr>
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</table>
11:30 – 11:50  **Othmar Frey**, Charles L. Werner, Rafael Caduff, Martin Schneebeli, Andreas Wiesmann

*Gamma Remote Sensing AG / ETH Zurich, Switzerland*

SnowScat's Tomographic Profiling Mode: A Time Series Acquired During the ESA SnowLab Campaign 2015/2016

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11:50 – 12:20  Closing session

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Further information is available at:

www.earsel.org/SIG/Snow-Ice/workshops.php

or from the workshop organisation committee

Dr. Stefan Wunderle (swun@giub.unibe.ch)

Dr. Fabia Hüsler (fabia.huesler@giub.unibe.ch)

Céline Dizerens (celine.dizerens@giub.unibe.ch)

Heide Bierbrauer (secretariat@earsel.org)