

8th EARSeL workshop on Land Ice and Snow

07 - 09 February 2017, Bern, Switzerland

Remote Sensing of the Cryosphere: Past – Present – Future

WORKSHOP PROGRAMME

(30.1.2017)



Swiss Academy of Sciences
Akademie der Naturwissenschaften
Accademia di scienze naturali
cadémie des sciences naturelles



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UNIVERSITÄT
BERN

OESCHGER CENTRE
CLIMATE CHANGE RESEARCH

Tuesday, 7th February

Welcome and opening

10:30 – 12:30 *Registration and coffee*

12:30 – 13:00 **Chair LISSIG / EARSeL (Stefan Wunderle)**
Welcome

Snow cover (regional to global scale) I

Chair: Stefan Wunderle

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 Sirguey, 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**, Gabriele Schwaizer, Elisabeth Ripper, Chris Derksen, Richard Fernandes, Kari Luojus, Oli-Pekka Mattila, Sari Metsämäki, Lawrence Murdryk, 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

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 Floricioiu
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

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**, Zuhail 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, Schösslistrasse 5, 3012 Bern

Wednesday, 8th February

New technologies (sensors/methods) I

Chair: Sari Metsämäki

- 8:20 – 8:40 **Andreas Wiesmann**, Rafael Caduff, Othmar Frey, Martin Schneebeli, Thorsten Fehr
GAMMA Remote Sensing AG, Switzerland
ESA SnowLab - Microwave and Structural Measurements of Alpine Snow
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- 8:40 – 9:00 **Christian Mätzler**, Andreas Wiesmann, Mike Schwank, Urs Wegmüller
Gamma Remote Sensing AG, Switzerland
An Alternative Concept for Remote Sensing of Snow Mass
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- 9:00 – 9:20 Ghislain Picard, Melody Sandells, **Henning Löwe**, Christian Mätzler, Anna Kontu, Marie Dumont, Will Maslanka, Samuel Morin, Richard Essery, Juha Lemmetyinen, Andreas Wiesmann, Nicolas Floury, Michael Kern
WSL Institute for Snow and Avalanche Research SLF, Switzerland
Snow Microwave Radiative Transfer (SMRT): A New Model to Simulate Snow-Microwave Interactions for Active and Passive Remote Sensing
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- 9:20 – 9:40 **Yves Bühler**, Marc Adams, Andreas Stoffel, Ruedi Bösch
WSL Institute for Snow and Avalanche Research SLF, Switzerland
Snow Depth Mapping Applying Unmanned Aerial Systems – Closing the Gap Between Field Measurements and Low Spatial Resolution Satellite Data

9:40 – 10:10 *Coffee break*

Snow hydrology I

Chair: Simon Pinnock

- 10:10 – 10:30 **Kari Luojus**, Jouni Pulliainen, Juval Cohen, Jaakko Ikonen, Chris Derksen, Lawrence Mudryk, Thomas Nagler, Michael Kern, Bojan Bojkov
Finnish Meteorological Institute, Finland
Assessment of Northern Hemisphere Snow Water Equivalent Datasets in ESA SnowPEX Project
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- 10:30 – 10:50 **Richard Kelly**, Nastaran Saberi, Qinghuan Li
University of Waterloo, Canada
The AMSR2 Satellite-Based Microwave Snow Algorithm (SMSA): A Parsimonious Snow Depth and Snow Water Equivalent Approach
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- 10:50 – 11:10 **Rune Solberg**, Øystein Rudjord, Arnt-Børre Salberg, Øivind Due Trier, Gheorghe Stancalie, Andrei Diamandi, Anisoara Irimescu
Norwegian Computing Center, Norway
A Multi-Sensor Multi-Temporal Approach to Retrieving Snow Surface Wetness From a Combination of Sentinel-1 and Sentinel-3 Data

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

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

15:00 – 15:15 Short poster presentations (2min/poster)

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: Thomas Nagler

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

Chair: Alexander Trishchenko

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

Snow hydrology II

Chair: Thomas Nagler

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

New technologies (sensors/methods) II

Chair: Stefan Wunderle

- 10:50 – 11:10 **Florian Appel**, Franziska Koch, Patrick Henkel, Philipp Klug, Markus Lamm, Monika Prasch, Heike Bach, Wolfram Mauser
VISTA Remote Sensing in Geosciences GmbH, Germany
Integration of Space Technologies for Snow Monitoring – GNSS, EO and SatCom – First Results of ESA IAP SnowSense Demo Project
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- 11:10 – 11:30 **Rafael Caduff**, Andreas Wiesmann, Urs Wegmüller
GAMMA Remote Sensing AG, Switzerland
Terrestrial Radar Interferometry – A Method to Detect Millimetric Snow Glide Deformation Hours to Days Before Wet Snow Avalanche Release

11:30 – 11:50	Othmar Frey , Charles L. Werner, Rafael Caduff, Martin Schneebeli, Andreas Wiesmann <i>Gamma Remote Sensing AG / ETH Zurich, Switzerland</i> SnowScat's Tomographic Profiling Mode: A Time Series Acquired During the ESA SnowLab Campaign 2015/2016
11:50 – 12:20	Closing session

Further information is available at:

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

or from the workshop organisation committee

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