

9th EARSeL workshop on Land Ice and Snow

03 - 05 February 2020, Bern, Switzerland

Remote Sensing of the Cryosphere: Monitor what is vanishing

PRELIMINARY WORKSHOP PROGRAMME



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

Monday, 3rd February

Welcome and opening

08:00 – 09:30 *Registration and coffee*

09:30 – 10:00 **Chair LISSIG / EARSeL (Stefan Wunderle)**
Welcome

Cryosphere and climate

Chair: Stefan Wunderle

10:00 – 10:20 **Carolin Richter (invited)**
Needs and Opportunities for Observing the Cryosphere

10:20 – 10:40 **Alexander Trishchenko**
Coastal Sea Ice in the Beaufort Sea Region from CCRS MODIS Composites Products Since 2000

10:40 – 11:00 **Helga Weber**
Is it Cloud or Snow? – Influence of Cloud Retrieval on AVHRR GAC Snow Records

11:00 – 11:20 **Anna-Maaria Kirsikka Heinilä**
The Copernicus Global Land Service Lake Ice Extent Product For Northern Hemisphere

11:20 – 11:40 **Kati Anttila**
Seasonal Snow Melt Season Timing In Northern Hemisphere From 1982 to 2015 Derived From CLARA-A2 SAL Data

11:40 – 13:00 *Lunch break*

Snow cover (regional to global scale) I

Chair: Richard Kelly

13:00 – 13:20 **Sari Johanna Metsämäki**
Multisensor Approach For Fractional Snow Cover And Snow Water Equivalent Retrievals

13:20 – 13:40 **Thomas Nagler**
Advancements of Snow Cover Monitoring Based on Synergy of Sentinel-1 SAR and Sentinel-3 SLSTR

13:40 – 14:00 **Semih Kuter**
Exploring the Recent Developments in Snow Cover Mapping by Machine Learning Algorithms

Poster Session I

Chair: Richard Kelly

14:00 – 14:30 Short poster presentations (2min/poster)

Gwendolyn Gasser
Analysis Of Backscatter Timeseries For Cryospheric Applications

Charlotte Poussin
Snow cover evolution in the Swiss Alps using Earth Observation Data Cube

Sophie Roberge
A New Snow Cover Extent Product over Eastern Canada Combining Fuzzy Logic and Ensemble Methods - Methodology

Gabriele Schwaizer
Physically Based Cloud Gap Filling Of Satellite Snow Products

Nagler Thomas

Development of a Snow Monitoring System for EUMETSAT EPS-SG / METimage

Soumita Patra

Accuracy Study Of Snow Cover Maps Based On AVHRR Data With Different Spatial Resolution

Jie Zhang

Potentials of Advanced Microwave Scanning Radiometer 2 (AMSR2) Brightness Temperature for Improving Snow Depth Retrieval in Sweden

Elin Aalstad

Lidar-based Remote Sensing of Blowing Snow Layers from Satellite and Ground Retrievals in Antarctica

Anna Wendleder

The Relationship Between Snow Depth, Vegetation, And Topography: A Study In The Arctic Tundra Based On A TerraSAR-X Time Series

Zuhal Akyurek

EUMETSAT HSAF SNOW COVER PRODUCTS: 10 Years On

Juval Cohen

Assessment of a Sentinel-1 Based Soil Frost/Thaw Detection Method for Various Boreal Forest Conditions

Arnab Muhuri

Annual Freeze-Thaw Impacts on Sentinel-1 SAR Backscattering From Continuous Permafrost Underlain Thermokarst Landscape Along Lena River Near Yakutsk City, North-Eastern Siberia

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

Albedo of the Cryosphere

Chair: Yves Bühler

15:30 – 15:50 **Patricia de Rosnay (invited)**
Impact Of Snow Cover Data Assimilation Over The Tibetan Plateau On Medium Range Numerical Weather Prediction

15:50 – 16:10 **Aku Riihelä**
A Comparative View Into Trends In Arctic Cryosphere's Surface Albedo During 1982-2015; Sea Ice, Seasonal Snow, And The Greenland Ice Sheet

16:10 – 16:30 **Jason Box**
Albedo of the cryosphere from Sentinel-3

16:30 – 16:50 **A. Terhikki Manninen**
Surface Roughness Effect on Snow Albedo

16:50 – 17:10 **Silvan Leinss**
Modeling the Evolution of the Structural Anisotropy of Snow

17:10 – 17:30 **Roberta Pirazzini**
Improvement Of The Snow Albedo Retrieval Combining Optical And Microwave Sensors: Ground-based Observations From The SnowAPP Campaign (Sodankylä, Finland)

18:30 **Ice Breaker reception**
Haus der Universität, Schösslistrasse 5, 3012 Bern

Tuesday, 4th February*

New technologies to observe the Cryosphere

Chair: Sari Metsämäki

8:40 – 9:00 **Sophie Roberge**
A New Snow Cover Extent Product over Eastern Canada Combining Fuzzy Logic and Ensemble Methods

9:00 – 9:20 **Hannah Augustin**
Semantic Earth Observation Data Cube as New Access to AVHRR Data for Land Ice and Snow Cover Monitoring

9:20 – 9:40 **Yves Bühler**
Photogrammetric Snow Depth Mapping: How good can we get?

09:40 – 10:00 **Andreas Wiesmann**
Wide Band Scatterometer Measurements of Alpine Snow

10:00 – 10:30 *Coffee break*

Glaciers and ice caps

Chair: Kathrin Naegeli

10:30 – 10:50 **Michael Zemp (invited)**
Internationally Coordinated Glacier Monitoring: From Early Warning Indicators Towards Memorials Of The Climate Crisis

10:50 – 11:10 **Johannes Marian Landman**
Comparing Automated Classifications of Snow on Glaciers Based on Sentinel-2 Imagery

11:10 – 11:30 **Martina Barandun**
Region-wide Estimate Of Annual Glacier Mass Balance For The Tien Shan And Pamir From 2000 To 2018.

11:30 – 11:50 **Sahra Abdullahi**
Investigation and estimation of penetration-related TanDEM-X elevation bias – A study over the Greenland Ice Sheet

11:50 – 12:10 **Alexander Raphael Groos**
The Potential Of Low-Cost UAVs And Open-Source Photogrammetry Software For High-Resolution Monitoring Of Alpine Glaciers: A Case Study From The Kanderfirn (Swiss Alps)

12:10 – 13:30 *Lunch break*

Snow on sea ice

Chair: Stefan Wunderle

13:30 – 13:50 **Julienne Stroeve**
MOSAIC campaign – Live from RV Polarstern

Snow cover (regional to global scale) II

Chair: Alexander Trishchenko

13:50 – 14:10 **Chunyu Dong**
Overestimation of MODIS Snow Cover Products and A Solution Method

14:10 – 14:30 **Céline Portenier**
Snow Line Elevation Analysis

* Fun Run 7:00 – 8:00; further information (available Jan.2020): www.earsel.org/SIG/Snow-Ice/workshops.php

Poster Session II

Chair: Alexander Trishchenko

14:30 – 14:55 Short poster presentations (2min/poster)

Hendrik Wulf

Global Assessment of Supraglacial Debris-Cover Extents

Alexander Trishchenko

Minimum Snow/Ice Cover Extent over Northern Circumpolar Landmass at 250-m Spatial Resolution from MODIS and VIIRS: Climatic Trends and Suitability for Annual Updates of Glacier Inventory since 2000

Amaury Dehecq

Towards A Unified Estimate Of Mountain Glaciers Contribution To Sea Level Rise since 1975

Ludwig Schröder

Supraglacial Hydrology at 79°N Glacier, Greenland – Lessons learned and Challenges

Baptiste Vandecrux

Greenland Ice Sheet Surface Albedo And Optical Properties From The Sentinel-3 OLCI Instrument

Martina Barandun

Light Absorbing Impurities In The Olivares Basin, Central Chile

Andrew Tedstone

Algal Growth and Weathering Crust Structure Drive Variability in Western Greenland Ice Sheet Ice Albedo

Rosamaria Salvatori

Snow-Ice Spectral library (SISpec) 2.0

Xiaodan Wu

Validation of Snow Extent Time Series Derived from AVHRR GAC Data at Himalaya-Hindukush

Gautam, Narayan Prasad

Effects of Climate Change and Nepal - a Case Study of the Langtang Catchment

14:55 – 16:00 *Poster session with coffee break***ESA CCI+ Snow**

Chair: Anna-Maria Trofaier

16:00 – 16:20 **Thomas Nagler**

The Snow Climate Change Initiative: Generation of a Long Term Global Snow Climate Data Record from Multi-Sensor Satellite Data

16:20 – 16:40 **Gabriele Schwaizer**

Development Of A Homogeneous Global Climate Data Record Of Snow Cover Fraction In The Frame Of ESA CCI+ Snow

16:40 – 17:00 **Kathrin Naegeli**

Towards a Global Time Series (1982 - 2018) of Snow Cover Extent Based on AVHRR GAC Data

17:00 – 17:20 **Carlo Marin**

Validation of ESA CCI+ Snow Cover Fraction Products

17:20 – 17:40 **Kari Luojus**
Development of Long Term Hemispherical Snow Mass Satellite Data Records
in the ESA Snow CCI Project

19:00 **Conference dinner**
TBD

Wednesday, 5th February

Snow hydrology

Chair: Kari Luojus

08:20 – 08:40 **Zuhal Akyurek**
Quantifying Snow Water Equivalent by Integration of Unmanned Aerial
Systems (UAS) and Ground Penetrating Radar (GPR) Surveys

08:40 – 09:00 **Matias Takala**
Development Of The New Snow Water Equivalent Product H65 In EUMETSAT
H SAF Project

09:00 – 09:20 **Rune Solberg**
Remote Sensing of Snow Properties with Sentinel-3 versus MODIS

09:20 – 09:40 **Clare Webster**
High Resolution Remotely Sensed Forest Datasets Facilitate High Spatio-
temporal Estimates Of Snow Surface Shading For Snowmelt And Land Surface
Reflectance Modelling

09:40 – 10:20 *Coffee break*

Operational monitoring of the Cryosphere

Chair: Patricia de Rosnay

10:20 – 10:40 **Lothar Schueller**
EUMETSAT – Satellite Application Facilities: an overview

10:40 – 11:00 **Kouki Kerttu**
Intercomparison of Daily Satellite-based H SAF and Cryoclim Snow Cover
Extent Products in Spring 2016

11:00 – 11:20 **Niilo Siljamo**
Operational Satellite-based Daily H SAF Snow Extent Products

11:20 – 11:40 **Gabriele Schwaizer**
The Copernicus Global Land Monitoring Service For Snow Cover Fraction

11:40 – 12:00 **Burak Simsek**
EUMETSAT HSAF AVHRR-Based Fractional Snow Cover Products

12:00 – 12:15 **Closing** (Stefan Wunderle)

Further information is available at:

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

or from the workshop organization committee

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