

Conference Program

Overview

Time (CET)	Tue, 30.Jan.2024	Wed, 31.Jan.2024	Thu, 1.Feb.2024	Fri, 2.Feb.2024	Time (CET)
09:00	Welcome	Session #2.1 Snow remote sensing I Space/airborne RS	Session #3.1 Snow modeling I Model evaluation	Excursion (6:15 - 17:30)	09:00
10:00	Session #1.1 Snow water resources I	Coffee Break	Coffee Break		10:00
11:00	Coffee Break	Session #2.2 Snow remote sensing II Space/airborne RS	Session #3.2 Snow modeling II Data assimilation		11:00
12:00	Session #1.2 Snow water resources II	Lunch Break	Lunch Break		12:00
13:00	Lunch Break	Poster Session & Coffee	Poster Session & Coffee		13:00
14:00	Poster Session & Coffee	Session #2.3 Snow remote sensing III Short range RS	Session #3.3 Snow modeling III Model development		14:00
15:00	Session #1.3 Snow in a changing climate I	Coffee Break	Coffee Break		15:00
16:00	Coffee Break	time for meetings and individual discussions	Session #3.4 Snow modeling IV Meteorological forcings		16:00
17:00	Session #1.4 Snow in a changing climate II	Conference Dinner	Closing		17:00
18:00	Ice Breaker / Drinks		18:00		
19:00					

Scientific Program

vs 19.01.2023. Please notify us at snowhydro2024@sciencesconf.org should you find any mistakes in the program or want to add missing authors or affiliations.

Tuesday, Jan-30th

9:00 – 9:30: Welcome & Information

9:30 – 10:30, Session # 1.1: Snow water resources I – Catchment hydrology

- **Revisiting our understanding of peak snow water equivalent and seasonal runoff volume**
Kat Bormann (1), Grayson Dozier (1), Jeff Deems (1), Tom Painter (1)
1 - Airborne Snow Observatories Inc. (United States)
- **Analyzing the basin-wide variability of mountain snowpack ripening with machine learning methods**
Clement Cherblanc (1), Joel Harper (1)
1 - University of Montana (United States)
- **Snow streamflow nexus in global mountains areas over 2000-2021**
Rafael Pimentel (1,2), Claudia Notarnicola (3)
1 - Fluvial Dynamics and Hydrology Research Group, Andalusian Institute for Earth System Research (IISTA), University of Córdoba, Córdoba, Spain (Spain), 2 - Department of Agronomy, Unit of Excellence María de Maeztu (DAUCO), University of Córdoba, Córdoba, Spain (Spain), 3 - Eurac Research, Institute for Earth Observation, Bolzano, Italy (Italy)
- **From flow to snow: streamflow-based snow mass reconstruction using inverse hydrological modeling**
Pau Wiersma (1), Grégoire Mariéthoz (2)
1 - University of Lausanne, Faculty of Geosciences and Environment (Switzerland), 2 - University of Lausanne, Faculty of Geosciences and Environment (Switzerland)

11:00 – 12:30, Session # 1.2: Snow water resources II – Regional case studies

- **Snow hydrology modeling for Lebanese watersheds: exploring long-term insights with machine learning techniques**
Rami Ismail (1), Simon Gascoin (2,3), Cynthia Andraos (1), Youssef Bakouny (1), Tina Yaacoub (1), Hadi Abou Daya (1), Alexandre Fadi Ghanem (1), Chantal Hajjar (1), Wassim Raphael (1)
1 - Saint Joseph University of Beirut, Faculty of Engineering, Beirut, Lebanon (Lebanon), 2 - Institut National des Sciences de l'Univers (France), 3 - Centre d'Etudes Spatiales de la Biosphère (France)
- **Snow and Glacier Water Resources in a Cold and Arid Geographical Corridor: An Ongoing Synthesis Investigation**
Hongyi Li (1), Xiaohua Hao (1), Guang Li (2)
1 - Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences (China), 2 - Lanzhou University (China)
- **Model vs. Sentinel: evaluation of two approaches to characterize the snowpack spatial distribution in a mountain catchment**
Laura Sourp (1), Simon Gascoin (1), Lionel Jarlan (1), Vanessa Pedinotti (2), Kat Bormann (3)
1 - Centre d'Etudes Spatiales de la Biosphère (CESBIO), Toulouse (France), 2 - Magellium (France), 3 - Airborne Snow Observatories (United States)
- **Towards high-resolution regional snow forecasts in the extratropical Andes Cordillera through snowdrift-permitting numerical modeling.**
María Courard (1), James McPhee (1), Diego Hernandez (1), Alonso Mejías (1)
1 - Universidad de Chile (Chile)
- **Evaluation of J2000G hydrological model on snow water equivalent simulations in rainy-snow basins: Roodak case study, Iran (unconfirmed)**
Houshang Behrawan (1)
1 - East Azarbaijan Agricultural and Natural Resources Research & Education Center (EAANRREC), AREEO (Iran)
- **Impact of the 2022 Alpine snow drought on water supply**
Francesco Avanzi (1), Francesca Munerol (1), Massimo Milelli(1), Simone Gabellani (1), Christia Massari, Manuela Giroto, Edoardo Cremonese (1), Marta Galvagno, Giulia Bruno, Umberto Morra Di Cella (1), Lauro Rossi (1), Marco Altamura (1), Luca Ferraris(1)
1 - CIMA Research Foundation, Savona (Italy)

13:30 – 14:30: Poster Session

All posters are listed further below

14:30 – 16:00, Session # 1.3: Snow in a changing climate I – Regional case studies

- **How warm and dry weather affects snow hydrology in the boreal forest of eastern Canada**
Benjamin Bouchard (1,2,3), Daniel F. Nadeau (1,2), Florent Domine (3,4,5), François Anctil (1,2), Tobias Jonas (6), Étienne Tremblay (1)
1 - Laval University, Civil and Water Engineering Department, Quebec City, Qc, Canada (Canada), 2 - CentrEau - Water Research Center, Quebec City, Qc, Canada (Canada), 3 - Centre d'Etudes Nordiques (Canada), 4 - Takuvik International Research Laboratory (Canada), 5 - Laval University, Chemistry Department, Quebec City, Qc, Canada (Canada), 6 - Swiss Federal Institute for Forest, Snow and Landscape Research WSL (Switzerland)
- **Impact on river basin due to the change of snow hydrology in Nepal Himalaya**
Narayan Gurung (1), Priti Gurung (2)
1 - Kadoorie Agricultural Aid Association, British Gurkhas Nepal, Pokhara (Nepal), 2 - Pokhara University, Pokhara Engineering College (Nepal)
- **Appraisals on snow cover and Kio spring discharge under climate change in Lorestan province, Iran (unconfirmed)**
Hamid Reza Nassery (1), Nejat Zeydalinejad, Ali Pour-Beyranvand, Babak Ghazi
1 - Shahid Beheshti University (Iran)
- **Modeling the historical snow contribution to streamflow in high-elevation Alpine catchments since the last Little Ice Age (1850) using a complex model cascade.**
Florentin Hofmeister (1,2), Madlene Pfeiffer (3), Inga Labuhn (3), Ben Marzeion (3), Bettina Schaeffli (4), Gabriele Chiogna (2)
1 - Bavarian Academy of Sciences and Humanities (Germany), 2 - Technical University of Munich (Germany), 3 - University of Bremen (Germany), 4 - University of Bern (Switzerland)
- **Climate downscaling and snow modeling in the southern Carpathians mountains and forests, 1940-2020**
Simon Filhol (1), Clare Webster (1), Giulia Mazzotti (2), Joel Fiddes (2), Mlreal Vasile (3), Alexandru Onaca (4), Flavius Sirbu (4), Sebastian Westermann (1), Bernd Eitzelmüller (1)
1 - University of Oslo (Norway), 2 - WSL Institute for Snow and Avalanche Research SLF (Switzerland), 3 - University of Bucarest (Romania), 4 - University of Timisoara (Romania)
- **Snow changes affect the frequency and extremity of rain-on-snow events in the rain-snow transition zone**
Michal Jenicek (1), Ondrej Hotovy (1), Ondrej Nedelcev (1)
1 - Charles University, Department of Physical Geography and Geoecology, Prague (Czech Republic)

16:30 – 17:45, Session # 1.4: Snow in a changing climate II – Regional case studies

- **Projection of snowfall extremes in the French Alps as a function of elevation and global warming level**
Erwan Le Roux, Guillaume Evin (1), Raphaëlle Samacoïts, Nicolas Eckert, Juliette Blanchet, Samuel Morin
1 - Institut des Géosciences de l'Environnement (France)
- **Trends in snow cover duration and melt out dates in the French Alps from three decades of high resolution satellite observations**
Zacharie Barrou Dumont (1), Simon Gascoïn (1), Jordi Inglada (1), Jonas Koehler (2), Andreas Dietz (2)
1 - Centre d'études spatiales de la biosphère (France), 2 - German Remote Sensing Data Center (Germany)
- **Snow drought indicators for early detection of low river flows in Mediterranean areas**
Maria J. Polo (1), Pedro Torralbo Muñoz (1), Rafael Pimentel (1)
1 - Fluvial Dynamics and Hydrology Research Group, Andalusian Institute for Earth System Research, DAUCO, University of Cordoba (Spain)
- **Anticipating How Rain-on-Snow Events Will Change through the 21st Century: Lessons from the 1997 New Year's Flood Event**
Alan Rhoades (1), Colin Zarzycki (2), Benjamin Hatchett (3), Héctor Inda-Díaz (1), Mohammed Ombadi (4), William Rudisill (1), Paul Ullrich (5), Michael Wehner (1), Andrew Jones (1)
1 - Lawrence Berkeley National Laboratory, Berkeley (United States), 2 - Pennsylvania State University (United States), 3 - NOAA Global Systems Laboratory (United States), 4 - University of Michigan, Ann Arbor (United States), 5 - University of California, Davis (United States)
- **The Chile megadrought is a snow megadrought: hydrological response of Andean catchments under multi-year drying and warming**
Diego Hernandez (1), Maria Courard (1), Alonso Mejías (1), James McPhee (1)
1 - Universidad de Chile (Chile)

Wednesday, Jan-31st

9:00 – 10:30, Session # 2.1: Snow remote sensing I - Space/airborne RS

- **High resolution mapping of snow parameters in alpine environments by active and passive microwave data integration based on machine learning.**
Emanuele Santi (1), Simone Pettinato (1), Simonetta Paloscia (1), Fabrizio Baroni (1), Simone Pilia (1), Giuliano Ramat (1), Roberto Colombo (2), Biagio Di Mauro (3)
1 - IFAC - CNR (Italy), 2 - University of Milano-Bicocca (Italy), 3 - Institute of Polar Sciences, Venezia-Mestre (Italy)
- **Melt detection in Antarctica using SMOS enhanced resolution brightness temperatures**
Pierre Zeiger (1), Ghislain Picard
1 - Institut des Géosciences de l'Environnement (IGE) (France)

- **The growing operational implementation of airborne snow observatories**

Thomas Painter (1), Kat Bormann (1), Jeff Deems (1)
1 - Airborne Snow Observatories Inc. (United States)

- **Snow parameters retrieval from hyperspectral remote sensing**

Ludovica De Gregorio (1), Mattia Callegari (1), Roberto Colombo (2), Biagio Di Mauro (3), Roberto Garzonio (2), Claudia Giardino (3), Federico Grosso (4), Carlo Marin (1), Erica Matta (3), Claudia Notarnicola (1), Monica Pepe (3), Paolo Pogliotti (4), Claudia Ravasio (2), Antonio Montuori (5), Giorgio Licciardi (5)
1 - Eurac Research (Italy), 2 - University of Milan-Bicocca (Italy), 3 - Consiglio Nazionale delle Ricerche (Italy), 4 - ARPA Val d'Aosta (Italy), 5 - Italian Space Agency (ASI) (Italy)

- **Estimation of snow liquid water content combining radiative transfer model, field data, and PRISMA imagery**

Claudia Ravasio (1), Roberto Garzonio (1), Biagio Di Mauro (2), Roberto Colombo (1)
1 - Earth and Environmental Sciences Department, University of Milano-Bicocca, Milan, Italy (Italy), 2 - Institute of Polar Sciences, National Research Council (Italy)

11:00 – 12:30, Session # 2.2: Snow remote sensing II - Space/airborne RS

- **New satellite products for monitoring physical parameters of the seasonal snow cover in mountain regions in support of water management**

Thomas Nagler (1), Gabriele Schwaizer (1), Nico Mölg (1), Lucia Felbauer (1), Markus Hetzenecker (1), Lars Keuris (1), Helmut Rott (1), Espen Volden (2)
1 - ENVEO Environmental Earth Observation IT GmbH (Austria), 2 - ESA Centre for Earth Observation (Italy)

- **Overview of snow products from high resolution satellite data within Copernicus HR-WSI portfolio for hydrological applications over Europe**

Matthieu Denisselle (1), Florence Marti (1), Robin Buratti (1), Adrien Ceschin (1), Joel Dorandeu (1), Kari Luojus (2), Cemal Melih Tanis (2), Thomas Nagler (3), Gabriele Schwaizer (3), Simon Gascoin (4), Olivier Hagolle (4), Tanja Gasber (5), Christian Schleicher (5), Joanna Przystawska (6), Lorenzo Solari (6)
1 - Magellium (France), 2 - Finnish Meteorological Institute (Finland), 3 - Environmental Earth Observation IT GmbH (Austria), 4 - Centre d'études spatiales de la biosphère (France), 5 - GeoVille GmbH (Austria), 6 - European Environmental Agency (Denmark)

- **Snowmelt dynamics in a temperate glacier using Sentinel-1 SAR images: a case study on Saint-Sorlin Glacier, French Alps**

Clémence Turbé (1), Fatima Karbou (2), Antoine Rabatel (3), Isabelle Gouttevin (2)
1 - Centre national de recherches météorologiques (France), 2 - Centre national de recherches météorologiques (France), 3 - Institut des Géosciences de l'Environnement (France)

- **Remote sensing of red algal blooms on snow in the European Alps**

Léon Roussel (1), Marie Dumont (1), Simon Gascoin (2), Mathias Bavay (3), Pierre Nabat(1), Eric Maréchal (4), Diego Monteiro (1), Mathieu Fructus (1)
1 - Centre national de recherches météorologiques (France), 2 - Centre d'études spatiales de la biosphère (France), 3 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland), 4 - Physiologie cellulaire et végétale (France)

- **Mapping and characteristics of avalanches on mountain glaciers with Sentinel-1**

Marin Kneib (1,2), Amaury Dehecq (1), Fanny Brun (1), Fatima Karbou (3), Laurane Charrier (1), Silvan Leinss(4), Patrick Wagnon (1), Fabien Maussion (2,5)
1 - Institut des Géosciences de l'Environnement (France), 2 - Department of Atmospheric and Cryosphere Sciences, Innsbruck (Austria), 3 - Centre d'Etudes de la Neige (France), 4 - GAMMA Remote Sensing (Switzerland), 5 - University of Bristol (United Kingdom)

- **Opportunities for monitoring seasonal snow exploiting MTG-FCI imaging capabilities**

Andrea Meraner (1), Thomas Nagler (2), Gabriele Schwaizer (2), Alessandro Burini (1), Johan Strandgren (1), Sauli Joro (1), Bojan Bojkov (1)
1 - EUMETSAT (Germany), 2 - Environmental Earth Observation IT GmbH (Austria)

13:30 – 14:30: Poster Session

All posters are listed further below

14:30 – 16:00, Session # 2.3: Snow remote sensing III - Shortrange RS

- **Predicting spatial forest snow patterns by blending existing LiDAR remote sensing products**

Joschka Geissler (1), Giulia Mazzotti (2,3), Markus Weiler (1)
1 - Faculty of Environment and Natural Sciences, Albert-Ludwigs University Freiburg (Germany), 2 - Univ. Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, Centre d'Études de la Neige, 38100 St. Martin d'Hères (France), 3 - WSL Institute for Snow and Avalanche Research SLF, Davos Dorf (Switzerland)

- **Advances in the high resolution measurements of the snow surface temperature in mountain regions**

Sara Arioli (1), Ghislain Picard (1), Simon Gascoin (2), Laurent Arnaud (1), Esteban Alonso-González (2)
1 - Institut des Géosciences de l'Environnement (France), 2 - Centre d'études spatiales de la biosphère (France)

- **Application of a superconducting gravimeter in snow hydrology and first results on spatiotemporal explanation of the integral snow-gravimetric signal**

Franziska Koch (1), Simon Gascoin (2), Korbinian Achmüller (3,4), Paul Schattan (1,5), Karl-Friedrich Wetzel (6), Till Rehm (7), Karsten Schulz (1), Christian Voigt (3)

1 - University of Natural Resources and Life Sciences, Vienna, Austria (Austria), 2 - CESBIO, Université de Toulouse, CNRS/CNES/IRD/INRA/UPS, Toulouse, France (France), 3 - German Research Centre for Geosciences (GFZ), Potsdam, Germany (Germany), 4 - Institute of Geodesy and Geoinformation Science, Technische Universität Berlin, Germany (Germany), 5 - Institute of Geography, University of Innsbruck, Austria (Austria), 6 - Institute of Geography, University of Augsburg, Germany (Germany), 7 - Environmental Research Station Schneefernerhaus (UFS), Zugspitze, Germany (Germany)

- **Towards cosmic rays neutron sensing networks for snow water equivalent monitoring**

Enrico Gazzola (1), Barbara Biasuzzi (1), Luca Stevanato (1), Mauro Valt (2), Paul Carrier (3), Arnaud Bellevill (3), Julien Lebrun (3), Stefano Gianessi (1), Luca Morselli (1), Marcello Lunardon (1,4), Federica Lorenzi (1)

1 - Finapp srl (Italy), 2 - Regional Agency for Environmental Prevention and Protection of the Veneto (Italy), 3 - EDF Hydro - DTG (France), 4 - Dipartimento di Fisica e Astronomia "Galileo Galilei" (Italy)

- **Optical fibre sensing mats for large scale snow water equivalent measurement**

Adam Funnell (1), Bård Henriksen (1), Peter Thomas (1)

1 - NORCE Norwegian Research Center (Norway)

16:30 – 18:00: Time for meetings/individual discussions

Thursday, Feb-1st

9:00 – 10:30, Session # 3.1: Snow modeling I - Model evaluation

- **Continuous monitoring of both snow properties and the surface energy budget on the Greenland ice sheet and on the Larsen C ice shelf, Antarctica**

Maurice Van Tiggelen (1), Carleen Reijmer (1), Paul Smeets (1), Michiel Van Den Broeke (1)

1 - Institute for Marine and Atmospheric research Utrecht (IMAU); Utrecht University (Netherlands)

- **The Davos Environmental Dataset: applications to numerical modeling**

Mathias Bavay (1)

1 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland)

- **The open source snow-hydrological model openAMUNDSEN and data from a monitoring network for snow processes in the Rofental (Ötztal Alps/Austria)**

Ulrich Strasser (1), Michael Warscher (1), Erwin Rottler (1), Florian Hanzer (1)

1 - University of Innsbruck (Austria)

- **Comparison of strategies combining snow and runoff measurements to constrain hydrological models**

Denis Ruelland (1)

1 - CNRS, HydroSciences Montpellier (France)

- **On the potential of wet snow maps derived from remote sensing data and distributed model simulations to support operational wet snow avalanche forecasting**

Erwin Rottler (1), Michael Warscher (1), Ulrich Strasser (1)

1 - Institut für Geographie, University of Innsbruck (Austria)

- **Retrievals of wet snow and snow cover fraction as a tool for snowpack model development and calibration in complex terrain**

Bertrand Cluzet (1), Jan Magnusson (1), Louis Quéno (1), Tobias Jonas (1)

1 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland)

11:00 – 12:30, Session # 3.2: Snow modeling II - Data assimilation

- **The assimilation of wet snow probabilities from Sentinel-1 in the snow model Crocus**

Fatima Karbou (1), Etienne Cap, Matthieu Lafaysse, Mathieu Fructus, Bertrand Cluzet

1 - Centre national de recherches météorologiques (France)

- **Learning from SENTINEL-2 snow cover images to improve spatial discretization in semi-distributed snow models**

Joseph Bellier <joseph.bellier@tenevia.com> (1), Timothée Michon (1), Ana Diaz-Sanchez (2), Etienne Dommanget (2), Guillaume Bontron (2)

1 - TENEVIA, Meylan, France (France), 2 - Compagnie Nationale du Rhône (CNR), Lyon, France (France)

- **Assimilating snow depth observations on operational services using Earth Observation: a way forward to improve hydrological modelling and flood forecasting in mountainous regions**

Tristan Brauchli (1), Saskia Gindraux (1), Theo Baracchini (1)

1 - Centre de recherche sur l'environnement alpin CREALP (Switzerland)

- **Adaptive particle methods for snow data assimilation**

Esteban Alonso-González (1), Kristoffer Aalstad (2)

1 - Pyrenean Institute of Ecology, Jaca (Spain), 2 - Department of Geosciences, University of Oslo (Norway)

- **Improving distributed snowpack simulations by correcting spatiotemporal errors in meteorological forcings inferred from particle filter assimilation of snow monitoring data**

Moritz Oberrauch (1,2), Bertrand Cluzet (1), Jan Magnusson(1), Tobias Jonas (1)

1 - WSL Institute for Snow and Avalanche Research SLF (Switzerland), 2 - Department of Civil, Environmental and Geomatic Engineering, ETH Zürich (Switzerland)

- **Spatio-temporal snow data assimilation with the ICESat-2 laser altimeter**

Marco Mazzolini (1), Kristoffer Aalstad (1), Désirée Treichler (1), Esteban Alonso-González (2)

1 - Department of Geosciences, University of Oslo (Norway), 2 - Centre d'Etudes Spatiales de la Biosphère (France)

13:30 – 14:30: Poster Session

All posters are listed further below

14:30 – 16:00, Session # 3.3: Snow modeling III - Model development

- **Influence of light absorbing particles on the simulation of snow in ORCHIDEE land surface model.**

Sujith Krishnakumar (1), Samuel Albani (1), Martin Menegoz (2), Catherine Ottlé (3), Yves Balkanski (3)

1 - Department of Environmental and Earth Sciences, University of Milano-Bicocca (Italy), 2 - Institut des Géosciences de l'Environnement (IGE), Université Grenoble Alpes (France), 3 - Laboratoire des Sciences du Climat et de l'Environnement (LSCE) (France)

- **Observation and modeling of the snowpack below the forest at the mid-altitude alpine Col de Porte site**

Axel Bouchet (1), Yves Lejeune (1), Aaron Boone (2)

1 - Centre d'Etudes de la Neige (France), 2 - Centre national de recherches météorologiques (France)

- **Spatially distributed snow modelling in subalpine forests: can different operational systems learn from each other?**

Giulia Mazzotti (1,2), Antoine Courteaud (2), Mathieu Fructus (2), Jari-Pekka Nousu (2,3), Matthieu Lafaysse (2)

1 - WSL Institute for Snow and Avalanche Research SLF (Switzerland), 2 - Centre d'Etudes de la Neige (France), 3 - university of Oulu (Finland)

- **Extended study of alpine grassland modelling with explicit snow-vegetation coupling**

Jérémie Dagaut (1), Matthieu Lafaysse (1), Aaron Boone (2), Matthieu Baron (1), Philippe Choler (3)

1 - Univ. Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, Centre d'étude de la Neige, Grenoble, France (France), 2 - CNRM, Université de Toulouse, Météo-France, CNRS, Toulouse, France (France), 3 - Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, LECA, Grenoble, France (France)

- **Recent advances in snow modelling in the framework of the ERC IVORI project**

Marie Dumont (1), Kévin Fourteau (1), Julien Brondex (1), Basile De Fleurian (1), Henning Loewe (2), Mathias Bavay(2), François Tuzet (1), Pascal Hagenmuller(1), Neige Calonne (1)

1 - Centre national de recherches météorologiques (France), 2 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland)

- **Improvements of the land surface configuration to better simulate seasonal snow cover in the European Alps with the CNRM-AROME high-resolution climate model (CP-RCM)**

Diego Monteiro (1), Adrien Napoly (2), Cécile Caillaud (2), Mathieu Fructus (2), Antoinette Alias (2), Samuel Morin (2)

1 - Univ. Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, Centre d'Etudes de la Neige, 38000 Grenoble (France), 2 - CNRM, Météo-France, CNRS, Université de Toulouse, Toulouse (France)

16:30 – 17:45, Session # 3.4: Snow modeling IV - Meteorological forcings

- **On the proper use of temperature measurements in weather forecasting models over mountains**

Danaé Préaux (1), Isabelle Gouttevin (2), Ingrid Dombrowski-Etchevers (1), Yann Seity (1)

1 - Centre national de recherches météorologiques (France), 2 - Centre d'Etudes de la Neige (France)

- **Evaluating snowfall line proxys from high resolution meteorological ensemble forecasts over the French Alps**

Sabine Radanovics (1), Matthieu Lafaysse (1), Anne Dufour(1), Ingrid Dombrowski-Etchevers (2)

1 - Météo-France, CNRM, Centre d'Etudes de la Neige (France), 2 - Centre national de recherches météorologiques (France)

- **A coupled atmosphere-snow model system for operational snow hydrological modelling**

Dylan Reynolds (1), Louis Quéno (1), Mahdi Jafari(1), Michael Haugeneder (1), Tobias Jonas(1), Michael Lehning (1,2), Rebecca Mott (1)

1 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland), 2 - EPFL (Switzerland)

- **Ensemble precipitation analyses based on radar and NWP precipitation estimates over mountainous areas**

Matthieu Vernay (1), Matthieu Lafaysse (1), Clotilde Augros (2), César Deschamps-Berger (3)

1 - Météo-France, CNRM, Centre d'Etudes de la Neige (France), 2 - GMME, CNRM, Université de Toulouse, Météo-France, CNRS, Toulouse, France (France), 3 - Instituto Pirenaico de Ecología, Consejo Superior de Investigaciones Científicas (IPE-CSIC), Zaragoza (Spain)

- **What level of wind field input complexity is required to represent snow redistribution in an intermediate-complexity snow modelling framework?**

Louis Quéno (1), Dylan Reynolds (1), Jérôme Dujardin (1), Rebecca Mott (1), Tobias Jonas (1)

1 - WSL Institute for Snow and Avalanche Research SLF (Switzerland)

17:45 – 18:00: Best Early Career Poster Award

18:00 – 18:30: Closing

Posters

Please note that all posters will be presented during all three poster sessions on Tuesday, Wednesday, and Thursday. A best early career student poster will be awarded Thursday afternoon before closing the conference.

- **Assessing the impact of snow sublimation for hydropower production in Norway**
Malin Ahlbäck (1), Norbert Pirk (1), Lena Merete Tallaksen (1), Olga Silantyeva (1)
1 - University of Oslo (Norway)
- **A practical field protocol for quantifying snow liquid water content based on melting calorimeter**
Riccardo Barella (1), Carlo Marin (1), Nicola Ciapponi (1), Francesca Carletti (2), Valentina Premier (1), Mathias Bavay (2)
1 - European Academy Bolzano (Italy), 2 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland)
- **The effects of snow models of varying complexity on simulated stream flow in high-alpine catchments**
Justine Berg (1), Pascal Horton (1), Martina Kauzlaric (1), Alexandra Von Der Esch (2), Bettina Schaeffli (2)
1 - University of Bern, Institute of Geography (Switzerland), 2 - Laboratory of Hydraulics, Hydrology and Glaciology (VAW), ETH Zurich (Switzerland)
- **Parameter transferability of temperature- and radiation-driven snow models: insights from intensive study plots around the world**
Giulia Blandini (1,2), Francesco Avanzi (1), Simone Gabellani (1), Lorenzo Campo (1), Giulia Ercolani (1), Edoardo Cremonese (1), Marta Galvagno (3), Umberto Morra Di Cella (1), Satoru Yamaguchi (4), Hiroyuki Hirashima (4), Luca Ferraris (1,2)
1 - CIMA Research Foundation, Savona (Italy), 2 - University of Genoa (Italy), 3 - Agenzia Regionale per la Protezione dell'Ambiente Valle D'Aosta (Italy), 4 - Snow and Ice Research Center, National Research Institute for Earth Science and Disaster Resilience, Nagaoka (Japan)
- **Assimilation high resolution optical and radar remote sensing SWE in a hydrological model for improving snowmelt modelling in alpine regions**
Michele Bozzoli (1,2), Giuseppe Formetta (1), Giacomo Bertoldi (2), Valentina Premier (2), Carlo Marin (2)
1 - University of Trento (Italy), 2 - European Academy Bozen/Bolzano (Italy)
- **Assessing the impacts of changes in snowfall patterns in Mediterranean mountains: a regional analysis over southern Spain**
Ana Calbet (1), Ana Andreu (1), Rafael Pimentel (1), María José Polo (1)
1 - Fluvial Dynamics and Hydrology Research Group, Andalusian Institute for Earth System Research, DAUCO, University of Cordoba (Spain)
- **SnowTinel high temporal resolution ground truth dataset for SAR remote sensing of snow**
Francesca Carletti (1), Mathias Bavay (1), Chiara Ghielmini (1), Benjamin Walter (1), Matthias Jaggi (1), Loïc Brouet (1), Christoph Marty (1), Thomas Stucki (1), Carlo Marin (2), Valentina Premier (2), Riccardo Barella (2), Michele Bozzoli (2), Giacomo Bertoldi (2)
1 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland), 2 - European Academy Bozen/Bolzano (Italy)
- **Elevation-dependent warming in the Alps estimated from MAR simulations over 1961-2100**
Ian Castellanos-Dupuy (1), Martin Ménégoz (1), Juliette Blanchet (1)
1 - Univ. Grenoble Alpes, CNRS, IRD, Grenoble INP, IGE, Grenoble (France)
- **Modeling the in-situ index of refraction profile of firn ice at the south pole**
Kenneth Couberly (1), David Besson (1)
1 - University of Kansas, Lawrence (United States)
- **Spatial variability of precipitation lapse rates in complex topographical regions - application in France**
Valentin Dura (1), Anne-Catherine Favre (2), David Penot (1), Guillaume Evin (3)
1 - EDF (France), 2 - Institut des Géosciences de l'Environnement (France), 3 - Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (France)
- **Morphological indexes to describe snow cover patterns in a high-alpine area**
Lucia Ferrarin (1), Franziska Koch (2), Karsten Schulz (2), Daniele Bocchiola (1)
1 - Politecnico di Milano (Italy), 2 - University of Natural Resources and Life, Vienna (Austria)
- **Assessing uncertainties in snow-related variables using ensemble-based simulations of CLM5 over European sites**
Buliao Guan (1), Bibi S. Naz (1), Harrie-Jan Hendricks-Franssen (1), Lukas Strebel (1), Simran Suresh (2), Gabrielle De Lannoy (3)
1 - Institute of Bio-Geosciences, Agrosphere, Forschungszentrum Jülich, (Germany), 2 - Institute of Geodesy and Geoinformation, University of Bonn, (Germany), 3 - Department of Earth and Environmental Sciences, KU Leuven, (Belgium)
- **Critical zone modelling and impact of climate change on the water and nutrients fluxes in an alpine watershed**
Aniket Gupta (1), Alix Reverdy (2), Jean-Martial Cohard (2), Didier Voisin (2)
1 - University of Arizona (United States), 2 - Université Grenoble Alpes (France)
- **Seasonal observations of the microstructure of snow in Alpine and Polar environments**
Pascal Hagenmuller (1), Neige Calonne (1), Julien Brondex (1), Kévin Fourteau (1), Rémi Granger (1), Pierre Lhuissier (2), François Tuzet (1), Louis Vedrine (1), Oscar Dick (1), Mathieu Fructus (1), Alvaro Robledano (1,3), Laurent Arnaud (3), Vincent Vionnet (4), Henning Loewe (5), Julien Méloche (6), Daniel Kramer (6), Alexandre Langlois (6), Florent Domine (7), Alper Bakic (8), Yannick Deliot (1), Jacques Rouille (1), Yves Lejeune (1), Marie Dumont (1)
1 - Centre national de recherches météorologiques (France), 2 - Science et Ingénierie des Matériaux et Procédés (France), 3 - Institut des Géosciences de l'Environnement (France), 4 - ECCC (Canada), 5 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland), 6 - Sherbrooke University, GRIMP (Canada), 7 - Takuvik International Laboratory, Université Laval and CNRS, Québec, Canada (Canada), 8 - ProCon X-Ray GmbH, Sarstedt (Germany)
- **Black Carbon analysis of snow samples collected during the MOSAiC expedition**
Anna-Marie Jörss (1), Zsófia Jurányi (1), Sebastian Zeppenfeld (2), Daniela Krampe (1), Andreas Herber (1)
1 - Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven (Germany), 2 - Leibniz Institute for Tropospheric Research, Leipzig (Germany)

- **Estimation of snow load data using Copernicus and in-situ data**

Elisa Kamir (1,2), Samuel Morin (1), Guillaume Evin (2), Ali Nadir Arslan (3), Bodo Wishura (4)

1 - Météo France (France), 2 - Université Grenoble Alpes (France), 3 - Kuopio Unit, FMI (Finland), 4 - Deutscher Wetterdienst, Offenbach (Germany)

- **Snowmelt, a major landslide triggering factor?**

Mathieu Le Breton (1), Yannick Thiery (2), Jérôme Faillettaz (3), Nicolas Villard (4), Muriel Gasc (5)

1 - Géolithe innov (France), 2 - BRGM, Pessac (France), 3 - CEREMA, GéoCoD, Bron (France), 4 - NGE, Domène (France), 5 - CEREMA, GéoCoD, Bron (France)

- **Near real time regional to continental scale remotely sensed snow surface properties served from Snow Today at the national snow and ice data center, USA.**

Sébastien J.P. Lénard (1), Karl Rittger(1), Ross T. Palomaki (1), Mary J. Brodzik (2)

1 - CU Boulder - INSTAAR (United States), 2 - CU Boulder - CIRES - NSIDC (United States)

- **Operational snow-hydrological modeling for Switzerland**

Jan Magnusson (1), Rebecca Mott (1), Bertrand Cluzet (1), Louis Quéno (1), Moritz Oberrauch (1), Tobias Jonas (1)

1 - SLF Institut pour l'étude de la neige et des avalanches (Switzerland)

- **Advancing snow monitoring in the Argentinean and Chilean Andes: a high-resolution dataset of snow cover area and snow water equivalent using remote sensing**

Carlo Marin (1), James McPhee (2), Mariano Masiokas, Valentina Premier (1), Ezequiel Toum (3), Nicola Ciapponi (1), Leandro Cara (3), Riccardo Barella (1), Maria Courard (2), Claudia Notarnicola (1)

1 - EURAC Research -Institute for Earth Observation, Bolzano (Italy), 2 - Universidad de Chile (Chile), 3 - Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales, Mendoza (Argentina)

- **Enhancing glacio-hydrological simulations through the integration of process-based and machine learning models**

Babak Mohammadi (1), Hongkai Gao (2,3), Petter Pilesjö (1), Zheng Duan (1)

1 - Department of Physical Geography and Ecosystem Science, Lund University (Sweden), 2 - School of Geographical Sciences, East China Normal University, Shanghai (China), 3 - State Key Laboratory of Tibetan Plateau Earth System and Resources Environment, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing (China)

- **Synthetic aperture radar images to estimate the spatial patterns of rain-on-snow events on the Brogger peninsula, Svalbard**

Marion Momber (1), Olivier Champagne (1), Jean-Pierre Dedieu (1), Olga Zolina (1), Eric Bernard(2), Hans-Werner Jacobi (1)

1 - Université Grenoble Alpes, IGE (France), 2 - Laboratoire ThéMa (France)

- **Snowpack modeling under structural uncertainty and hydroclimatic variability**

Yerel Morales (1,2), James McPhee (2)

1 - Universidad de Valparaíso, Valparaíso (Chile), 2 - Departamento de Ingeniería Civil, Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile, Santiago (Chile)

- **Dynamics of multi-specie pasturelands under potential snow cover changes. The Gran Paradiso Park of Italy**

Sonia Morgese (1,2), Francesca Casale (1), Ermes Movedi (3), Roberto Confalonieri (3), Daniele Bocchiola (1)

1 - Politecnico di Milano, Milan (Italy), 2 - Istituto Universitario di Studi Superiori (Italy), 3 - University of Milan (Italy)

- **Modelling snowpack dynamics in boreal peatlands and forests**

Jari-Pekka Nousu (1,2,3), Matthieu Lafaysse (4), Giulia Mazzotti (4), Antoine Corcket (4), Pertti Ala-Aho (2), Hannu Marttila (2), Mika Aurela (5), Pasi Kolari (6), Bertrand Cluzet (7), Annalea Lohila (5), Mathieu Fructus (4), Aaron Boone (8), Samuli Launiainen (3)

1 - Univ. Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, Centre d'Études de la Neige, Grenoble (France), 2 - Water, Energy and Environmental Engineering Research Unit, University of Oulu (Finland), 3 - Bioeconomy and Environment, Natural Resources Institute Finland, Helsinki (Finland), 4 - Univ. Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, Centre d'Études de la Neige, Grenoble (France), 5 - Climate System Research, Finnish Meteorological Institute, Helsinki (Finland), 6 - Institute for Atmospheric and Earth System Research INAR, University of Helsinki (Finland), 7 - WSL Institute for Snow and Avalanche Research SLF, Davos (Switzerland), 8 - CNRM, Université de Toulouse, Météo-France, CNRS, Toulouse (France)

- **Runoff variability in polar regions: Lessons from a conceptual model calibration with little data**

Ondrej Nedelcey (1), Michael Matějka (2), Kamil Láška (2), Zbyněk Engel (1), Jan Kavan (2), Michal Jenicek (1)

1 - Charles University, Department of Physical Geography and Geoecology, Prague (Czech Republic), 2 - Masaryk University, Department of Geography, Brno (Czech Republic)

- **Impacts of snow and permafrost on the changing Arctic River discharge**

Hotaek Park (1), Tetsuya Hiyama (2)

1 - JAMSTEC (Japan), 2 - Institute for Space-Earth Environmental Research, Nagoya University (Japan)

- **Cross-comparison and integration of physically based snow modeling components within GEOframe-NewAge and GEOtop systems in the Alpine region of the Po river district**

Gaia Roati (1,2), John Mohd Wani (1), Giuseppe Formetta (1), Riccardo Rigon (1), Marco Brian (2)

1 - Università degli Studi di Trento (Italy), 2 - Autorità di Bacino Distrettuale del Fiume Po (Italy), 3 - European Academy Bolzano (Italy)

- **Assessing future changes in water resources in the Alpes with a dynamic glacio-hydrological model. Application to the Isere catchment**

Emilie Rouzies (1), Matthieu Le Lay (1)

1 - EDF - DTG (France)

- **Improving the estimation of evapotranspiration from seasonal snow in the Mediterranean mountains of Sierra Nevada (Spain)**
Katharina Scheidt (1,2,3), Rafael Pimentel (1,3), Valentina Premier (2), Carlo Marin (2), Claudia Notarnicola (2), María José Polo (1,3)
 1 - Área de Ingeniería Hidráulica, Fluvial Dynamics and Hydrology Research Group- Campus Rabanales- Edificio Leonardo da Vinci, 14014 Córdoba (Spain), 2 - EURAC Research, Institute for Earth Observation- Viale Druso 1, 39100 Bolzano (Italy), 3 - Universidad de Córdoba, Department of Agronomy- Unit of Excellence María de Maeztu DAUCO, 14014 Córdoba (Spain)
- **Snow cover changes in the western Alps of Italy; the Ossola Valley**
Leonardo Stucchi (1), Claudia Dresti (2), Daniele Bocchiola (1)
 1 - Dipartimento di Ingegneria Civile e Ambientale (Italy), 2 - CNR Water Research Institute (Italy)
- **Identifying trends in temporal signatures of snow and their impact on catchment hydrology over Europe during 2000-2022 (unconfirmed)**
Simran Suresh (1), Bibi S. Naz (2), Jürgen Kusche (1)
 1 - Institute of Geodesy and Geoinformation, University of Bonn (Germany), 2 - Institute of Bio Geosciences (IBG-03), Forschungszentrum Juelich (Germany)
- **Integration of GRACE evapotranspiration data and shared socio-economic pathways (SSPs) for streamflow modeling using SWAT in Hongshui River Basin, China (unconfirmed)**
 Muhammad Touseef (1)
 1 - Guangxi University (China)