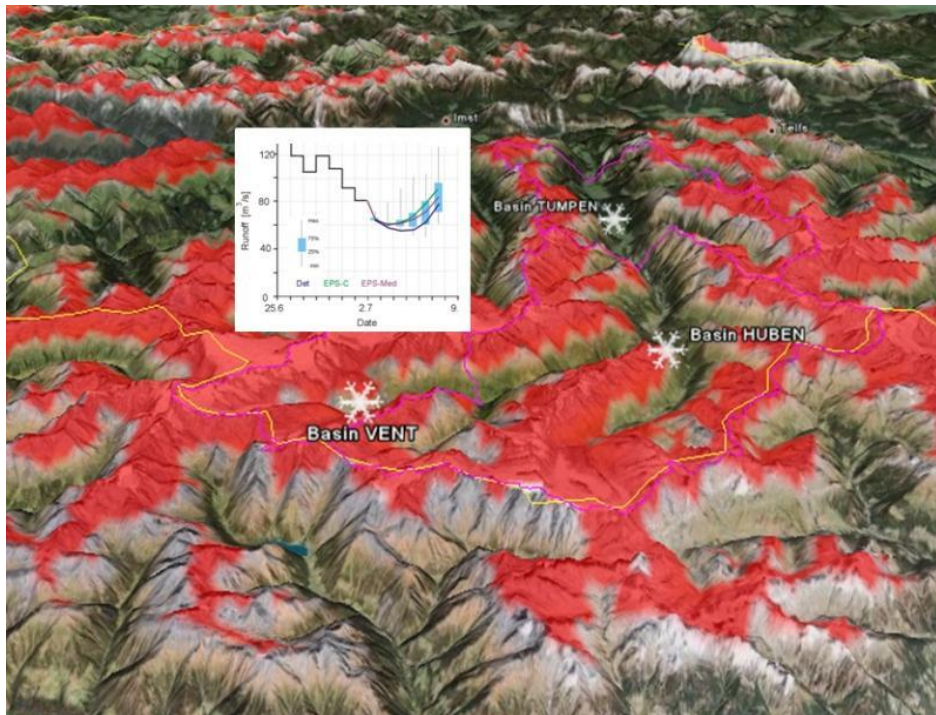


WORKSHOP ON COLD REGIONS HYDROLOGY

28-30 APRIL 2010
INNSBRUCK, AUSTRIA

PRELIMINARY PROGRAMME



Symposium Web Site:

<http://www.enveo.at/coldhydro2010>
<http://www.congrex.nl/10c06/>



FFG



Day 1, Wednesday 28 April 2010

OPENING SESSION

08:30 – 09:00	Meeting Registration, Badges	
09:00 – 09:05	Welcome and Organisational Matters	H. Rott (ENVEO & University of Innsbruck, Austria)
09:05 – 09:20	Welcome by Co-Sponsors (FFG-ALR, CliC, ICSIH, GLASS)	
09:20 – 09:40	Welcome; ESA Earth Observation Science Activities	S. Briggs (ESA)
09:40 – 09:55	Workshop Background and Objectives	H. Rott (ENVEO & University of Innsbruck, Austria)

SESSION: COREH₂O

09:55 – 10:10	CoReH ₂ O, Earth Explorer Core Mission Candidate: Mission and Science Overview	M. Kern (ESA)
10:10 – 10:25	CoReH ₂ O, Earth Explorer Core Mission Candidate: System Overview	A. Lécuyot (ESA)
10:25 – 10:40	CoReH ₂ O, Earth Explorer Core Mission Candidate: Payload and Technology Overview	F. Hélière (ESA)

10:40 – 11:10 **Break**

SESSION: SNOW ACCUMULATION PATTERNS - OBSERVATIONS AND MODELS

11:10 – 11:30	Distributed Snow Hydrological Modeling: the Importance of Appropriate Input Data	T. Jonas (WSL Institute for Snow & Avalanche Research SLF, CH)
11:30 – 11:50	Comparison of Two Spatial Interpolation Methods for estimating Snow Distribution in an Alpine Region	F. Demontis (CIMA Research Foundation, Italy)
11:50 – 12:10	Modelling the Spatial Variability of the Snowmelt Energy Balance and Meltwater Runoff in an Arctic Catchment	S. Pohl (Environment Canada, Canada)
12:10 – 12:30	Simulating Patterns of Snow Accumulation over Mountain Basins from Limited Data	A. Winstral (USDA-ARS NWRC USA)

12:30 – 14:00 **Lunch Break**

SESSION: SNOW BACKSCATTER THEORY AND INVERSION METHODS

14:00 – 14:20	The Development and Validation of a Multi-layer Multi-scattering Snow Model	J. Shi (University of California, USA)
14:20 – 14:40	Retrieval of Snow Mass from Ku- and X-Band Radar Backscatter Measurements	H. Rott (ENVEO & University of Innsbruck, Austria)
14:40 – 15:00	Evaluation of Vegetation Effect on the Retrieval of Snow Parameters from Backscattering Measurements	G. Macelloni (IFAC – CNR, Italy)
15:00 – 15:20	Global SWE Mapping by Combining Passive and Active Microwave Data: the Globsnow Approach and CoReH ₂ O	J. Pulliainen (Finnish Meteorological Institute, Finland)

15:20 – 16:00 **ORAL ANNOUNCEMENTS OF POSTERS**

16:00 – 16:30 **Break**

SESSION: SNOW PROCESSES - MEASUREMENTS AND MODELS

16:30 – 16:50	Integrated Observations and Hydrologic Modeling over a Snow-Dominated Mountain Basin	D. Marks (USDA-AR, USA)
16:50 – 17:10	Inclusion of Soil Physics in a Snow Mass and Energy Balance Model	M. Sandells (NCEO, University of Reading, UK)
17:10 – 17:30	Parameterize a Snow Slide Routine (SnowSlide) on the Basis of Remotely Sensed Data.	M. Bernhardt (LMU, Germany)
17:30 – 18:00	Discussion: Snow Accumulation and Snow Processes	

18:00 – 18:30 **Poster Presentation**

18:30 – 19:30 **Cocktail Reception by ENVEO**

Day 2, Thursday 29 April 2010

SESSION: FIELD EXPERIMENTS ON MICROWAVE SIGNATURES

08:40 – 09:00	Radar Backscatter (2-18 GHz) and Travel-Time Measurements of Ice and Snow	H.P. Marshall (Boise State University, USA)
09:00 – 09:20	Observations of Snowpack Properties to Evaluate Ground-Based Microwave Remote Sensing	N. Rutter (Northumbria University, UK)
09:20 – 09:40	The Canadian CoReH ₂ O Snow and Ice Experiment (Can-CSI) 2009: Overview and Early Results	C.R. Duguay (University of Waterloo, Canada)
09:40 – 10:00	Nordic Snow Radar Experiment	J. Lemmetyinen (Finnish Meteorological Institute, Finland)
10:00 – 10:20	Dual-Frequency Remote Sensing Radar Observations of Deep Snowpack in Grand Mesa, Colorado	S. Yueh (Jet Propulsion Laboratory, USA)

10:20 – 11:00 **Break and Poster Presentation**

SESSION: SAR SIGNATURES OF SNOW AND ICE

11:00 – 11:20	Coherent Scatterers Detection for Glacier Monitoring by Means of TerraSAR-X Data	M.J. Sanjuan-Ferrer (German Aerospace Centre, Germany)
11:20 – 11:40	Snow Properties Retrieval in Alpine Regions with Full Polarimetric Radarsat2 Data	J.P. Dedieu (CNRS, France)
11:40 – 12:00	Role of Wetlands in the Seasonal Distribution of Discharge of the Poluy, Nadym, Pur and Taz Rivers	E.A. Zakharova (LEGOS-OMP, France)
12:00 – 12:30	Discussion: Backscatter Signatures, Field Experiments, Inversion Methods	

12:30 – 14:00 **Lunch Break**

SESSION: REGIONAL SNOW MODELS AND DATA ASSIMILATION

14:00 – 14:20	Snow Data Assimilation	R. Essery (University of Edinburgh, UK)
14:20 – 14:40	Modelling of the Seasonal Snow Cover : the Example of the Safran-Crocus-Mepra Tool	P. Etchevers (METEO-France, France)
14:40 – 15:00	Large-scale Snow Simulations Driven by Regional Climate Model Output. A Case Study over the Austrian Alps	J. Parajka (Vienna University of Technology, Austria)
15:00 – 15:20	Revised Snow Scheme in the ECMWF Land Surface Model: Offline Validation and Impacts on EC-EARTH	E. Dutra (University of Lisbon, Portugal)
15:20 – 15:40	Using Satellite-derived Snow Cover Data to Implement a Snow Analysis in the Met Office Global NWP Model	S. Pullen (Met Office, UK)

15:40 – 16:30 **Break and Poster Presentations**

16:30 – 16:50	Assimilation of Satellite Derived Snow Information in the Canadian Land Data Assimilation System	C. Derksen (Environment Canada, Canada)
16:50 – 17:10	Synergistic Use of Satellite Radar Observations and Meteorological Data for Modelling Glacier Mass Balance and Runoff	T. Nagler (ENVEO, Austria)
17:10 – 17:30	Retrieving Glacier Albedo Using Remote Sensing and Albedo Assimilation into a Snow Model to Simulate Mass Balance	Y. Arnaud (IRD, France)
17:30 – 18:00	Discussion: Regional Snow Models and Data Assimilation	

Day 3, Friday 30 April 2010

SESSION: HYDROLOGICAL MODELLING

08:40 – 09:00	Quantitative Evaluation of Different Hydrological Modeling Approaches of a Glaciovival Watershed in Switzerland	J. Magnusson (WSL Institute for Snow and Avalanche Research SLF, Switzerland)
09:00 – 09:20	Statistical Estimation and Re-analysis of Precipitations over French Mountain Ranges using Weather Patterns, Water Balances and Snow Measurements Assimilation	F. Gottardi (EDF – DTG, France)
09:20 – 09:40	Simulation of the Hydrologic Response to Snowmelt and Summer Precipitation Events Using a Snowmelt-Rainfall-Runoff Model	W. Bolton (University of Alaska Fairbanks, USA)
09:40 – 10:00	The Contribution Potential of Glaciers and Snow Cover to River Runoff in Different Climate Regimes	G. Kaser (University of Innsbruck, Austria)
10:00 – 10:20	Hydrological Modelling at Echaurren Norte Glacier Basin, Central Chile, and Future Projections	G. Casassa (CECS, Chile)

10:20 – 10:50 **Break**

10:50 – 11:10	Using Remote Sensing Information on Snow Fraction for Hydrological Applications in the Period of Melting	I. Appel (IM Systems Group, USA)
11:10 – 11:30	Use of SWE Derived from Passive Microwave in a Hydrologic Modeling	C. Vuyovich (CRREL, USA)
11:30 – 11:50	Response and Role of Ice Cover in Lake-Climate Interactions: Observational Needs, Network Status, and Remote-sensing	C.R. Duguay (University of Waterloo, Canada)
11:50 – 12:30	Discussion: Hydrological Modelling	

12:30 – 14:00 **Lunch Break**

SESSION: SATELLITE SYSTEMS FOR SNOW OBSERVATIONS

14:00 – 14:20	A High Latitude and Arctic Satellite Proving Ground for Next-Generation Hydrometeorologic Products	J. Cherry (University of Alaska Fairbanks, USA)
14:20 – 14:40	Recent Advance in Precipitation Bias Correction and Application	D. Yang (Clic Int. Project Office, Norway)
14:40 – 15:00	Snow Accumulation Mapping in the Yukon Territory, Canada, Using Combined MODIS, AMSR-E and In Situ Measurements	R. Kelly (University of Waterloo, Canada)
15:00 – 15:20	Synergy of Satellite Optical and Microwave Observations for Better Snow Cover Monitoring	P. Romanov (University of Maryland, USA)

15:20 – 16:30 **Closing Session: Reports of Session Chairs; Summary of Discussions**

Poster Presentations

SNOW PROPERTIES AND PROCESSES

Effect of Forest Litter Production on Snow Surface Albedo	S. Boon (University of Lethbridge, Canada)
Multi-source testing of Distributed Energy Based Snow Model	J. Parajka (Vienna University of Technology, Austria)
Snow Melt Energy Balance in a Burned Versus Healthy Forest Stand, Crowsnest Pass, Alberta, Canada	K. Burles (University of Lethbridge, Canada)
A 25 Year Snowcover Simulation to Assess the Potential Impact of Climate Warming on Mountain Snowcovers	M. Reba (USDA-ARS, USA)
Densities of Freshly Fallen Snow in the Eastern Alps	C. Teutsch (University of Innsbruck, Austria)
Spatio-temporal Variability of Snowmelt Generated by Soil Heat Flux: Implications for Catchment Hydrology	R. Smith (University of Zurich, Switzerland)

Poster Presentations <i>(continued)</i>	
SNOW AND GLACIER HYDROLOGY AND MASS BALANCE	
Adaptations of a Physical-Based Hydrological Model for Alpine Catchments. Application to the Upper Durance Catchment.	M. Lafaysse (LTHE, France)
SWE and Mass Balance in an Alpine Catchment Through the Model GEOtop	M. Dall'Amico (Mountaineering SRL, Italy)
Studying the Impact of Climate Change on the Discharge of an Alpine Headwater Catchment with a Process-based	M. Bavay (SLF, Switzerland)
Inventorying and Monitoring Afghanistan's Glaciers Using Spaceborne Platforms and Parametric Analysis	B. Molnia (US Geological Survey, USA)
Past and Future Glacier Evolution and Consequences for Mountain Hydrology	A. Bauder (ETH, Switzerland)
Deriving Mass Balance from Direct Glaciological Measurements, DEMs and Repeated Optical Imagery	A. Fischer (University of Innsbruck, Austria)
Modelling Runoff in a Highly Glacierized Alpine Catchment Area	B. Hynek (ZAMG, Austria)
Using Snow Cover Data from Remote Sensing, Hydrological Modeling and Ground Measurements for Water Budget Estimation	C. Notarnicola (EURAC, Italy)
Assimilating Remote Sensed Data into a Hydrological Model for Catalonia	A. Reppucci (Starlab, Spain)
Model Concepts for Snow and Glacier Melt Modelling and the Improvement Potential by Remote Sensing Techniques	H. Holzmann (BOKU, Austria)
Assessing the Current Contribution of Snow- and Ice-melt to Streamflow in the Eastern Himalaya Using Remote Sensing	A. Racoviteanu (University of Colorado, USA)
Cold Regions Hydrology in the Climate and Cryosphere (CliC) Project	D. Yang (CliC Int. Project Office, Norway)
MICROWAVE SIGNATURE RESEARCH	
The Development of a Parameterized Snow Scattering Model	J. Du (Institute of Remote Sensing Applications, China)
Assessment and Development for SWE/Snow Depth Retrieval from Active and Passive Microwave Data.	M. Tedesco (CUNY – CCNY USA)
Time Domain Reflectivity Imaging (TDRI) - A New Technique for Snow Measurement	K. Morrison (Cranfield University, UK)
X- to Ku-Band Scatterometer (SnowScat) in Support of the CoReH ₂ O Mission	A. Wiesmann (GAMMA Remote Sensing AG, Switzerland)
Interpretation of Multi3Scat Radar Backscatter Data Obtained at C-, X-, and Ku-Band During Winter 2007/08 near Innsbruck	S. Kern (University of Hamburg, Germany)
Development of a UAV-borne Ku-band SAR-platform for Experimental Work related to CoReH ₂ O and Cryosat-2	E. Malnes (Norut, Norway)
The Importance of Snow Grain Size and Density in Measuring Snow Mass by Remote Sensing	I. Davenport (University of Reading, UK)
The Challenges of Radar Ice Maps Validation	Y. Gauthier (INRS, Canada)
Giant Ice Rings on Lake Baikal Ice – Potential Causes, Development and Satellite Monitoring	A. Kouraev (LEGOS-UPS, France)
SNOW AND GLACIER REMOTE SENSING - OPTICAL	
Remote Sensing of Snow Properties using MERIS Onboard ENVISAT	A. Kokhanovsky (University of Bremen, Germany)
Snow Cover Variations in Eastern Turkey as Observed from NOAA AVHRR	A. Erturk (Turkish State Meteorological Service, Turkey)
Satellite Mapping of Snow Cover Extent on Mt Kenya, 2000-2009	L. Nicholson (University of Innsbruck, Austria)
Himalayan Snow Cover: Variability, Effects on Radiative Heat Balance, and Amplified Warming	B. Akbar (University of Oxford, UK)

Poster Presentations <i>(continued)</i>	
SNOW SATELLITE PRODUCTS AND SERVICES	
The New Global Snow Extent Product Developed by the GlobSnow Project	R. Solberg (Norwegian Computing Center, Norway)
Satellite monitoring of the Snow on Svalbard	E. Malnes (Norut, Norway)
Runoff and Hydropower Modelling Based on Operational Snow Cover Mapping from Polar View Snow Service	H. Bach (Vista Remote Sensing GmbH, Germany)
Snow Services from GSE Polar View - Five Winters of Operational Service and the Extension Towards a Pan-European Service	F. Appel (Vista Remote Sensing GmbH, Germany)

Scientific Committee

Co-Chairs

Rott H.	ENVEO & University of Innsbruck	<i>Austria</i>
Pullianen J.	Finnish Meteorological Institute	<i>Finland</i>
Kern M.	ESA-ESTEC	<i>Netherlands</i>

Blöschl G.	Technical University Vienna	<i>Austria</i>
Cline D.	NOAA Hydrology Laboratory	<i>USA</i>
Drusch M.	ESA-ESTEC	<i>Netherlands</i>
Duguay C.	University of Waterloo	<i>Canada</i>
Durand Y.	GAME, Météo France	<i>France</i>
Essery R.	University of Edinburgh	<i>UK</i>
Etchevers P.	GAME, Météo France	<i>France</i>
Hajnsek I.	German Aerospace Center	<i>Germany</i>
Lehning M.	WSL-SLF, Davos	<i>Switzerland</i>
Macelloni M.	CNR, Institute for Applied Physics	<i>Italy</i>
Malnes E.	NORUT, Tromsø	<i>Norway</i>
Nagler T.	ENVEO IT, Innsbruck	<i>Austria</i>
Pomeroy J.	University of Saskatchewan	<i>Canada</i>
Prowse, T.D.	University of Victoria	<i>Canada</i>
Yang D.	CLIC International Project Office	<i>Norway</i>
Yueh S.	Jet Propulsion Laboratory, Caltech	<i>USA</i>

Accommodation

Contact for hotel accommodation <http://www.innsbruck.info/>.

Venue

The symposium will be held at the Seminar Facilities of Villa Blanka Restaurant/Tourism School at the foothills of the Nordkette mountains in Innsbruck, Austria. Web Page: <http://www.villablanka.com/>

Address:

Villa Blanka Restaurant/Tourism School
Weierburggasse 8, A-6020 Innsbruck

