

IGS 2012 Lahti – Symposium on Seasonal Snow and Ice

The symposium was held in 28 May – 1 June 2012 in Sibeliustalo Hall, Lahti, Finland. The organizers were International Glaciological Society (IGS) (<http://www.igsoc.org/>) and the Snow and Ice Laboratory of the Department of Physics of the University of Helsinki (<http://www.physics.helsinki.fi/english/index.html>). The symposium web site is <http://www.physics.helsinki.fi/tutkimus/get/IGS2012/>.

CONTENT

The IGS scientific meetings organized constitute the best continuous series of cryospheric science events. Each year 1–2 meetings are held. In 2012 there were two meetings, glacier meeting in Alaska and Seasonal Snow and Ice in Lahti. Much of seasonal snow and ice is found in the vicinity of climatological ice edge and is therefore highly sensitive to climatic variations. Also seasonal snow and ice exist in inhabited areas and influence strongly on practical life.

Delegates arrived at the symposium venue located at the southern end of the great "water lake," Vesijärvi (reference to the fact that this lake has water that can be drunk with great pleasure), on a delightful sunny afternoon with warm, shirtsleeve weather. Registration was set up in the Lahti Ski Museum, site of three giant ski jumps (to say nothing of the smaller, but still frightening "learner's jumps"), and featured in addition to the normal IGS paraphernalia, smart Marimekko bags (one of Finland's most popular design shops).

After a restful, and well lit, night (the sun rises at 2:30 AM in the summer in this high latitude part of the sub-Arctic), the Symposium opened with a welcome by Matti Leppäranta, the leader of the local organizing committee, another by Jorma Vaskelainen, the Director of Lahti's Municipal Engineering, a welcome by Yulia Zaika, President of APECS, and an opening statement by the IGS President, Doug MacAyeal. The opening presentation was a specially arranged talk by Prof. Pekka Aikio, who held the audience attention for a full hour while describing the life of reindeer in the changing environment. (We learned that these remarkable animals are specially adapted to seasonal snow and ice. During summer, they have a digestive system based on bacteria that can digest plant material. During winter, when only lichen is available beneath the snow cover, their gut is filled with protozoa, who help them digest fungus and algae.

The symposium venue was Lahti's most beautiful and famous public building, the great Sibeliustalo (Sibelius Hall), where the Lahti Symphony Orchestra resides when in season. The great maestro, Jean Sibelius, did not live in Lahti, but was a Finnish composer who was greatly inspired by the snowy landscapes of Finland. Of his 6th symphony, he was known to have said: "[It] reminds me of the scent of first snow." The Sibeliustalo was the center of all symposium activities, hosting the icebreaker on Monday evening, as well as all the coffee breaks and lunch buffets. The lecture hall, where oral presentations were given, was set in a wing adjacent to the great orchestra auditorium, and had a wonderful view of the Vesijärvi (the water lake). Posters were presented in the great lobby of the Sibeliustalo in an area adjacent to the coffee and lunch area.

Overall, the week was very demanding for the symposium attendees, as sessions began at 8:30 every day (except Monday) and did not close until usually after 17:00. There were sessions on: the physics of snow, the physics of sea ice, the microdynamics of snow and ice,

the ecology of ice-covered waters, lake ice, remote sensing of snow, frozen ground and glaciers, sea-ice modelling, and floating ice. On Tuesday afternoon following the first of the two poster sessions (the other being Thursday), Yulia Zaika, the able president of the APECS, convened a panel discussion on "international collaboration in the 'cool' sciences." This was well attended, as the Lahti symposium was remarkable for the large number of students and early career scientists who attended.

The mid-week excursion on Wednesday afternoon was the highlight of the week, as it allowed for much informal discussion of scientific research in addition to the pleasant trip by lake boat to the lake-side resort and sauna called Lehmonkärki. After 3 hours of boat travel under blue sky and between dense birch forests on either side, the variety of saunas at Lehmonkärki were a welcome way to relax. Featured were several saunas including an authentic Finnish "smoke sauna" which was enjoyed by all participants (and which left smoky "tattoos" on unwary bather's backs!). The signature formal event of the week was the symposium banquet held on Thursday evening in the Lahti Officer's Club. After a cocktail with lingon berries and Finnish vodka, the menu provided fine wines, Finnish delicacies and cheeses, a main course of reindeer fillet Wellington with Spring vegetables and new potato, and finished with Lapland cooked cheese and boyzenberry jam.

The symposium concluded on Friday afternoon, with departing delegates holding back their sadness to have to depart Lahti after an excellent stay, to say goodbye to their new and old colleagues, and to say goodbye to Finland and new Finnish friends until the next time the IGS shall gather in this wonderful country.

The symposium was sponsored by European Science Foundation (Micro-DICE) , Association of Scientific Societies of Finland, and the Department of Physics of the University of Helsinki.

The presentations in the symposium were invited to make a contribution to a Special Issue of Annals of Glaciology (<http://www.igsoc.org/annals/>), which is an IGS journal. Almost 50 out of the total of oral and poster presentation followed this invitation, and the special issue editorial work is now ongoing. The scientific committee of the symposium acts as the editorial board of this special issue.

Science Steering Committee

Chairman: Professor Matti Leppäranta, University of Helsinki, Finland

Members: Lauri Arvola, Hiroyuki Enomoto, Nikolai Filatov, Sebastian Gerland, Ethan Greene, Peter Jansson, Yuji Kodama, Zhijun Li, Lasse Makkonen Martin Schneebeli

PROGRAMME

Sunday, 27 May 2012

16–19 Registration desk open at Lahti Ski Museum
Address: Ski jumping hill (15 minute walk from centre)

Monday, 28 May 2012

8:00 Registration desk opens in the lobby of Sibeliustalo (symposium site)

9:00 *Opening ceremony, Hall Kuusi*
Chair: Matti Leppäranta
Opening of the symposium, *Douglas MacAyeal, President of IGS*
Greeting of Lahti town by Jorma Vaskelainen, Director of municipal engineering
Greeting of APECS, Yulia Zaika, President of APECS
Opening presentation: Reindeer in the changing environment and climate, *Pekka Aikio*

10:00 *Coffee break*

Chair: Lasse Makkonen

10:30 Martin Schneebeli — 62A231 *“Is there a difference in the metamorphism of seasonal snow and multi-year firn”*

11:15 Jouni Pulliainen — 62A999 *“Remote sensing of snow and ice”*

12:00 *Lunch break (buffet lunches are served in Sibeliustalo main hall)*

13:30 Session on Physics of Snow *Chair: Erik Brun*

13:30 Michael Lehning, Rebecca Mott, Thomas Grünwald and Michael Schirmer — 62A241 *“Physical and statistical descriptions of mountain snow distributions”*

13:50 Cecilia Johansson, Veijo Pohjola, Christer Jonasson and Terry V Challagan — 62A143 *“50 years of snow stratigraphy observations”*

14:10 Basang Drolma — 62A183 *“Investigation of snow cover over the Tibetan Plateau during 2003–2006”*

14:30 Mats P. Bjørkman, Rafael Kühnel, Daniel Partridge, Tjarda J. Roberts, Johan Strøm and Elisabeth Isaksson — 62A089 *“Nitrate dry deposition to Svalbard snow”*

14:50 Sven Kotlarski, Christian Steger and Christoph Schär — 62A199 *“Alpine snow cover in a changing climate and the snow-albedo feedback”*

15:10–15:40 *Coffee break*

15:40 Session on Physics of Sea Ice *Chair: Stefan Hendricks*

15:40 Takenobu Toyota and Haruki Ishii — 62A029 *“Temporal evolution of the structural properties of seasonal sea ice during the early melt season”*

16:00 Martin Doble — 62A052 *“Attenuation of waves in pancake ice: multi-wave buoy in situ measurements compared with a two-layer viscous model”*

16:20 Jari Haapala, Mikko Lensu, Jonna Lehtiranta and Christian Haas — 62A156 *“Inter-annual variability of deformed ice production in the Baltic Sea”*

16:40 Caixin Wang, Liqiong Shi, Sebastian Gerland, Mats A Granskog, Angelika H H Renner and Zhijun Li — 62A135 *“Snow and sea ice measurements in Rjippfjorden, Svalbard”*

17:00 Matthieu Chevallier, David Salas Y Mélia, Aurore Voldoire, Emilia Sanchez-Gomez, Gilles Garric, Sophie Belamari and Michel Déqué — 62A099 *“Seasonal forecasts of the Arctic sea ice cover : initialization strategy and skills of summer and winter predictions using CNRM-CM5 coupled climate model”*

17:30 Reception

Site: Sibelius Hall Main Lobby

Tuesday, 29 May 2012

- 8:30 Session on micro-dynamics of snow and ice *Chair: Paul Bons*
8:30 Frederic Flin, N. Calonne, C. Geindreau, B. Lesaffre, X. Wang, C. Carmagnola, S. Rolland du Roscoat, P. Charrier, S. Morin, D. Coeurjolly — 64A062+62A101 “3D imaging of snow microstructure for a better knowledge of snow properties and of their time evolution: 2 examples”
9:00 Ian Baker and Si Chen — 62A016 “Microstructural characterization of dry snow metamorphism”
9:20 Hiroyuki Hirashima and Osamu Abe — 62A120 “Snow temperature dependency of shear strength change for faceted crystals during equi-temperature metamorphism”
9:40 Andrew Kasurak, Josh King and Richard Kelly — 62A118 “An optical transmission based snow grain size sensor”
10:00 Maria Tikanmäki and Lasse Makkonen — 62A216 “Comparison of ice and snow friction models in winter sports”

10:20–10:50 Coffee break

- 10:50 Session continues *Chair: Ian Baker*
10:50 Paul Bons, Jens Rössiger and Albert Grier — 62A149 “Deformation of ice on the grain scale, using a combined front-tracking and FFT approach”
11:10 Sonke Maus, Sabine Leisinger and Martin Schneebeli — 62A201 “An X-ray micro-tomographic study of sea ice percolation”
11:30 Wenfeng Huang, Zhijun Li, Xiaoyan Liu, Haiqian Zhao, Shuai Guo and Qing Jia — 62A075 “Effective thermal conductivity of reservoir fresh ice with attention to high temperature”
11:50 Toshihiro Ozeki, Satoru Adachi, Takuma Sakamoto and Katsumi Kose — 62A154 “Field observations of sea-spray icing in Hokkaido, Japan”

12:10 Lunch break (buffet lunches are served in Sibelius Hall main hall)

- 13:50 Session on ecology of ice-covered waters *Chair: Daiki Nomura*
13:50 William Rizk, Georgiy Kirillin and Matti Leppäranta — 62A200 “Heat budget of the ice-covered Lake Pääjärvi during the early- and mid-winter season”
14:10 Galina Zdrovennova, Roman Zdrovennov, Nikolay Palshin and Arkady Terzhevik — 62A179 “Ice cover on Lake Vendyurskoy (1994–2011): Phenomenology and temporal-spatial dynamics”
14:30 Georgiy Kirillin, Matti Leppäranta and William Rizk — 62A173 “Direct measurements of convective mixing under melting lake ice”
14:50 Brigitte Nixdorf, Jacqueline Rücker and Ingo Henschke — 62A237 “In situ observation of lake ice phenomenology in temperate region – ecological impacts on phytoplankton response”
15:10 Ioanna Merkouriadi and Matti Leppäranta — 62A097 “Influence of landfast ice on hydrography and circulation in the coastal zone”

15:30 Poster session I with Coffee break

18:00–20:00 APECS Panel: International Collaborations in "Cool" Sciences
Chaired by Yulia Zaika, President of APECS. Panel members:
Lauri Arvola, University of Helsinki
Doug MacAyeal, IGS President, University of Chicago
Sebastian Gerland, Norwegian Polar Institute
Magnús Már Magnússon, IGS Secretary General
Eric Brun, Past IGS President, Meteo-France

Wednesday, 30 June

- 8:30 Session on Lake ice *Chair: Georgiy Kirillin*
8:30 Keynote talk: Nikolai Granin, Ilya Aslamov, Vladimir Kozlov, Andrey Zhdanov and Konstantin kucher — 62A127 “*Ice phenomena on Lake Baikal*”
9:10 Jennifer Sobiech and Wolfgang Dietrich — 62A037 “*Monitoring Lake-ice decay with Imaging Radar in the Siberian Arctic*”
9:30 Bin Cheng, Timo Vihma, Laura Rontu, Anna Kontu, Juha Lemmetyinen and Jouni Pulliainen — 62A181 “*Evolution of snow and ice thickness in Lake Orajärvi, northern Finland*”
9:50 Eirik Malnes, Heidi Hinberg and Olli-Pekka Mattila — 62A158 “*A multisensor monitoring system for lake ice parameters*”

10:10–10:40 *Coffee break*

- 10:40 Session on remote sensing of snow *Chair: Susanne Ingvander*
10:40 Sari Metsämäki, Olli-Pekka Mattila and Kirsikka Niemi — 62A109 “*Continental-scale mapping of fractional snow cover in Eurasian boreal forests and tundra using optical satellite data*”
11:00 Kirsikka Niemi, Sari Metsämäki, Jouni Pulliainen, Hanne Suokanerva, Kristin Böttcher, Matti Leppäranta and Petri Pellikka — 62A076 “*The behaviour of mast-borne spectra in a snow-covered boreal forest*”
11:20 Thomas Nagler, Gabriele Bippus, Helmut Rott, Christian Schiller, Sari Metsämäki, Jouni Pulliainen, Hans Larsen, Rune Solberg, Eirik Malnes, Andrei Diamandi, Andreas Wiesmann and David Gustafsson — 62A226 “*Monitoring snow and land ice using satellite data in the GMES project Cryoland*”
11:40 Galina Ragulina, Kjetil Melvold and Tuomo Saloranta — 62A108 “*Snow distribution investigations on Hardangervidda mountain plateau in 2008-2011, based on GPR-measurements*”
12:00 Miia Salminen — 62A084 “*Development of optical remote sensing methods for seasonal snow cover applications*”
12:20 Onni Järvinen and Matti Leppäranta — 62A031 “*Heat and mass balance of snow patches in summer in Basen nunatak, Dronning Maud Land*”

12:40 *Lunch*

- 13:45 Excursion (Please get into the ship, *M/S Suomen neito*, in 13:30–13:45, she will be in the dock 100 m or so from Sibeliusstall)
- boat trip Lake Vesijärvi – Lake Päijänne – Lehmonkärki (3 hours)
 - sauna, dinner at beach, party at Lehmonkärki lake shore
 - return to Lahti by bus 22 – 23 hrs

Thursday, 31 May 2012

- 8:30 Session on frozen ground and glaciers *Chair: Michael Kuhn*
Keynote: Vladimir V. Melentyev and I V Matelionok — 62A222 “*Improved theoretical model of emissivity in microwave and changing of the parameters by using AMSR-E*”
- 9:00 Kimmo Rautiainen, Jouni Pulliainen, Juha Lemmetyinen, Kristin Böttcher, Anna Kontu and Jaakko Ikonen — 62A130 “*Global detection of soil freezing and thawing*”
- 9:20 Tomas Kohout, Michal Bucko and Kai Rasmus — 62A150 “*Nondestructive investigation of palsas using ground penetrating radar*”
- 9:40 Mihaela Triglav-Čekada and Matej Gabrovec — 62A095 “*Documentation of Triglav glacier using non-metric panoramic images*”
- 10:00 Florian Karner, Friedrich Obleitner, Florian Bilgeri, Jack Kohler, Georg Jocher and Joachim Reuder — 62A119 “*Surface energy and mass balance along the central flow line of Kongsvegen glacier, Svalbard*”

10:20–10:50 Coffee break

- 10:50 Session on sea ice modelling and remote sensing *Chair: Jari Haapala*
- 10:50 Juha Karvonen — 62A042 “*Tracking of the motion of recognizable sea ice floes from coastal radar image sequences*”
- 11:10 Anders Berg and Leif Eriksson — 62A213 “*Evaluation of a sea ice drift algorithm using Synthetic Aperture Radar images*”
- 11:30 Agnieszka Herman — 62A055 “*Molecular-dynamics simulation of sea-ice at medium ice concentrations*”
- 11:50 Øystein Rudfjord, Øivind Due Trier and Rune Solberg — 62A102 “*Automatic estimation of seasonal sea ice thickness with MODIS data*”
- 12:10 Marko Mäkynen, Bin Cheng and Markku Similä — 62A166 “*On the accuracy of the thin ice thickness retrieval using MODIS thermal imagery over the Arctic first year ice*”

12:30 Lunch break (buffet lunches are served in Sibeliustalo main hall)

- 14:00 Session on snow *Chair: Michel Lehning*
- 14:00 Lino Schmid, Christop Mitterer, Achim Hellig, Jürg Schweizer, Olaf Elsen, Robert Okorn, Georg Brunnhofer and Thomas Platzer — 62A202 “*Deducing the temporal evolution of snow properties from upward-looking radar systems*”
- 14:20 Konosuke Sugiura — 62A048 “*Accuracy of the seasonal snow distribution in the Lena River basin, Siberia*”
- 14:40 Ahmet Emre Tekeli, Ibrahim Sönmez and Erdem Erdi — 62A175 “*Temperature, precipitation and snow cover changes over Türkiye*”
- 15:00 Kjetil Melvold and Thomas Skaugen — 62A160 “*Spatial variability of snow depth determined from airborne laser scanning: implication for snow course design example from Hardangervidda southern Norway*”
- 15:20 Hendrik Huwald, Chad W. Higgins, Sian R. Williams, Anne W. Nolin, Stephen A. Drake, John S. Selker and Marc B. Parlange — 62A164 “*Potential of fiber-optic distributed temperature sensing for alpine snowpack measurements*”
- 15:40 Christine Groot Zwaaftink and Michael Lehning — 62A227 “*Quantifying drifting snow sublimation in an Alpine catchment*”

Poster session II with coffee break

19:00 Banquet *Officers' club, Lahti*

Friday, 1 June 2012

- 8:30 Session on Sea Ice Physics *Chair: Martin Doble*
8:30 Keynote talk: Simon Prinsenberg, IK Peterson, J Scott Holladay and Louise Lalumiere — 62A184 “*Observing the ice and snow pack ice properties in Canadian coastal waters*”
9:00 Mikko Lensu, Bruce C. Elder and Jari Haapala — 62A194 “*Comparison of ice stress records in terms of extremal value analysis*”
9:20 Liqiong Shi, Caixin Wang Sebastian Gerland and Angelika H.H. Renner — 62A125 “*Comparison of sea ice texture at lower and higher latitudes*”
9:40 Thomas Skaugen and Frode Randen — 62A162 “*Updating the snow reservoir in hydrological models from satellite derived snow covered area*”

10:00–10:30 Coffee break

- 10:30 Session on snow *Chair: Frederick Flin*
10:30 Charles Fierz, Laura Anne Bakermans, Bruce Jamieson and Michael Lehning — 62A139 “*Short wave radiation penetration into the snowpack: model verification with snow temperatures*”
10:50 Susanne Ingvander, Gunhild Rosqvist, Jonas Svensson and Helen Dahlke — 62A229 “*Seasonal and inter-annual variability of black carbon in the snow pack of Storglaciären, Northern Sweden*”
11:10 Shunsuke Miyata — 62A209 “*Sensitivity analysis of degree-day method and snowmelt rate factor to meteorological condition comparing with a heat balance model*”
11:30 Chris Derksen, Arvids Silis, Juha Lemmetyinen, Jouni Pulliainen and Matthew Sturm — 62A169 “*Physical properties of high Arctic versus sub-Arctic snow: implications for snow emission modeling*”
11:50 Anna Kontu, Juho Vehviläinen, Juha Lemmetyinen and Jouni Pulliainen — 62A132 “*Simulating microwave brightness temperature of snow with SNOWPACK and HUT snow model*”

12:10 Lunch break (buffet lunches are served in Sibeliustalo main hall)

- 13:30 Session on snow modelling *Chair: Charles Fierz*
13:30 Erik Brun, Vincent Vionnet, Bertrand Decharme, Fatima Karbou, Yannick Peings, Samuel Morin and Rémi Valette — 62A078 “*Simulation of northern Eurasian local daily snow depth, mass and density using a detailed snowpack model and meteorological reanalyses*”
13:50 Daria Kluver — 62A035 “*Seasonal influences on snowfall in the United States with statistical forecasting applications*”
14:10 Hans-Werner Jacobi, Martin Ménégos and Hubert Gallée — 62A215 “*Development of a detailed snowpack model to study the impact of black carbon on the seasonal snow*”
14:30 Satoru Yamaguchi — 62A249 “*Application of soil physics to modeling the unsaturated hydraulic conductivity of snow cover*”

14:50 Coffee break

- 15:20 Session continues *Chair: Sari Metsämäki*
15:20 Cecile Menard, Richard Essery, Jouni Pulliainen and John Pomeroy — 62A103 “*Modelling snow distribution and albedo of shrub tundra*”
15:40 Kari Luojus, Jouni Pulliainen, Matias Takala, Juval Cohen, Jaakko Ikonen and Jouni Räisänen — 62A141 “*Investigating snow accumulation on northern hemisphere by utilizing satellite retrievals and climate model simulations*”
16:00 Yoshihiro Asaoka and Yuji Kominami — 62A218 “*Interannual variability of snow water equivalent over Japan with a snow model and satellite-derived snow cover data*”
16:20 Juval Cohen, Jouni Pulliainen, Kari Luojus, Bernt Johansen and Lauri Oksanen — 62A140 “*The influence of vegetation on snowmelt and surface albedo*”

16:40 Closing

Poster session I: Snow and ice on land

Tuesday, May 29, 2012, 15:30 hrs–

Satoru Yamaguchi — 62A302 “*Interannual fluctuation of winter precipitation - air temperature relationship in the warm temperature zone of Japan*”

Antero Kukko, Sanna Kaasalainen, Harri Kaartinen and Kati Anttila — 62A082 “*Mobile laser scanning in seasonal snow cover change detection*”

Cecilie Rolstad Denby and John Hulth — 62A083 “*Estimating spatially distributed snow accumulation from glacier snow line tracking and backward calculation of melt*”

Dagrun Vikhamar-Schuler and Karsten Müller — 62A087 “*Snow modeling using SURFEX with the CROCUS snow scheme for Norway*”

James Foster, Dorothy Hall, David Robinson and Tom Estilow — 62A090 “*Date of Snowmelt at 60 Degrees and 70 Degrees North Latitude as Determined from Visible Satellite Data*”

Sirpa Rasmus, Jouko Kumpula and Jukka Siitari — 62A094 “*Effect of snow structure on reindeer winter mortality and calf production in Finnish Lapland – combining snow modeling to weather and reindeer data*”

Timo Saarinen, Sirpa Rasmus, Robin Lundell, Olli-Kalle Kauppinen and Heikki Hänninen — 62A096 “*Responses of boreal dwarf shrubs to changing snow conditions – a snow manipulation experiment*”

Tuomo Saloranta — 62A098 “*Statistical evaluation of the seNorge snow model and the snow maps for Norway*”

Dagrun Vikhamar-Schuler, John M. Edwards, Gabriel Rooney and Jørn Kristiansen — 62A100 “*Evaluation of JULES multi-layer snow scheme for Norwegian snow conditions*”

Mats P. Bjørkman, Carmen Vega, Veijo Pohjola and Elisabeth Isaksson — 62A104 “*A chemical view of Svalbard snow*”

Carmen Vega, Veijo A. Pohjola, Rickard Pettersson, Elisabeth Isaksson, Margit Schwikowski and Emilie Beaudon — 62A106 “*In situ melting experiments: evaluating nitrate relocation after percolation events*”

Hotaek Park, Hironori Yabuki and Tetsuo Ohata — 62A114 “*Variability and trends in the Arctic terrestrial snow extent and depth*”

Peter Jansson, Hans W. Linderholm and Sven Blomqvist — 62A116 “*Small glaciers as amplifiers for environmental monitoring through chemical analysis of accumulated snow, an example from Storglaciären, Sweden*”

Peter Jansson and Hans W. Linderholm — 62A117 “*The sub-seasonal buildup of winter accumulation on Storglaciären, Sweden, from a combination of local meteorological measurements, snow chemistry and re-analysis wind-field data*”

Kati Anttila, Terhikki Manninen, Tuure Karjalainen, Panu Lahtinen, Aku Riihelä and Niilo Siljamo — 62A126 “*The development and spatial variation of snow surface roughness in Sodankylä Finnish Lapland in 2009-2010*”

Sonja Kivinen, Elina Kaarlejärvi, Kirsti Jylhä and Jouni Räisänen — 62A136 “*Warming climate and threatened snowbed and snow patch habitats in northwestern Finland*”

Sanja Forsstrøm, Elisabeth Isaksson, Ragnhild B. Skeie, Johan Strøm, Sebastian Gerland and Christina A. Pedersen — 62A144 “*Elemental carbon measurements in Arctic snow packs*”

Yuliya Zaika, Alexandr Volkov and Vikulina Marina — 62A153 “*Observations of snow cover properties and stratigraphy in the Khibiny Mountains area, Russia*”

Yukari Takeuchi and Hiroyuki Hirashima — 62A155 “*Snowpack estimations in the starting zone of large-scale snow avalanches in the Makunosawa valley, Myoko, Japan*”

Eirik Malnes, Cecilia Johanson, Hans Tømmervik, Jan Åge Riseth and Harald Johnsen — 62A159 “*Monitoring the effect of extreme winter warming events on snow covered reindeer pastures using satellite remote sensing data*”

Kjetil Melvold and Thomas Skaugen — 62A161 “*Spatial distribution of snow depth at Hardangervidda Mountain, Norway, measured by airborne laser scanning*”

Ross Brown and Chris Derksen — 62A170 “*Changes in Arctic snow cover during the satellite era*”

Jing Li, Shiyin Liu and Junfeng Wei — 62A172 “*The spatial variable response of snow cover in the Tarim River Basin to climate change*”

Xianbo Zhao, Zhenping Liu, Shiguo Xu and Tiejun Liu — 62A176 “*Freeze-Thaw Lead to Black Soil Erosion and Non-Point Source Pollution Preferences ¼ Alterable Fuzzy Optimum Model of Semi-structural Decision Applied*”

Xianbo Zhao, Zhenping Liu, Shiguo Xu and Tiejun Liu — 62A177 “*An Experimental Study of the Freeze-Thaw Lead to Black Soil Erosion and Non-Point Source Pollution*”

Hiroki Shibata, Koh Izumiyama, Kazutaka Tateyama, Hiroyuki Enomoto and Shuhei Takahashi — 62A123 “*Sea ice coverage variability on the Northern Sea Routes, 1980–2010*”

Susanne Ingvander, Helen Dahlke and Peter Jansson — 62A193 “*In situ sampled Snow Particle Sizes of the east Antarctic Ice Sheet and their relation to physical and remotely sensed snow surface parameters*”

Shinjiro Ohkubo, Yukiyoshi IWATA, Tomoyoshi Hirota — 62A198 “*Influence of snow-cover and soil-frost variations on continuously monitored CO₂ fluxes from agricultural land*”

Anca Munteanu, Narcisa Milian, Laura Comanescu and Alexandru Nedelea — 62A203 “*The snow condition, the avalanches caused and the dynamic of the avalanches corridors during the winter 2007-2008. Case study, Padinile Frumoase (Piatra Craiului Mountains, Romania)*”

Yukiyoshi Iwata, Tomotsugu Yazaki, Junichi Arima, Shinji Suzuki, Masaki Hayashi and Tomoyoshi Hirota — 62A204 “*Impacts of the change of snowfall pattern to the frost depth, water movement and nitrate movement in an arable field in northernmost Japan*”

Hiroaki Kawase, Masayuki Hara, Takao Yoshikane and Fujio Kimura — 62A206 “*Uncertainty in snow cover changes over the Central Japan projected by a regional climate model in the early 21st Century*”

Martin Menegoz, Hans-Werner Jacobi and Hubert Gallée — 62A210 “*Modelling precipitation and snow cover in the Himalayas with a regional model MAR*”

Koui Kim and Yukari Takeuchi — 62A220 “*Evaluation of blade penetrating application*”

Samuel Morin, Florent Domne, Anne-Sophie Taillandier, Eric Brun, Neige Calonne, Matthieu Lafaysse and William Simpson — 62A224 “*Measurements and simulations of the vertical profile of snow permeability at Fairbanks, Alaska*”

Christine Groot Zwaaftink, Katherine C. Leonard, Roland Meister, Daniel Lussi and Michael Lehning — 62A230 “*Drifting snow measurements performed with different sensors*”

Helen Dahlke, Ype Van Der Velde and Nikki Vercauteren — 62A232 “*Isotopic evolution of two snowpacks in the Tarfala valley, northern Sweden and its relation to changes in snowpack mass balance*”

Atsuishi Sato — 62A235 “*Interannual variation of the new snow density in heavy snowy region of Japan*”

Shinji Ikeda and Tomoyuki Noro — 62A236 “*Regional characteristics of snowpack related to avalanches in the Japanese central mountains*”

Jian Wang, Ji liang, Xiaohua Huo, Hongxing Li and Hongyi Li — 62A242 “*A prototype model for deriving the snow line elevation based on Bayes inference by using satellite data*”

Xiaohua Hao, Jian Wang, Tao Che and Liyun Dai — 62A243 “*A blending snow cover data base on MODIS and AMSR-E snow cover in Qinghai-Tibet Plateau*”

Hongyi Li , Zhiguang Tang, Jie Wang and Jian Wang — 62A244 “*Modeling snowpack distribution and melt at sub-grid scale in a mountainous region*”

Liyun Dai, Tao Che, Jian Wang and Pu Zhang — 62A245 “*Snow Depth and Snow Water Equivalent Estimation from AMSR-E Data in Xinjiang, China*”

Poster session II: Floating ice.

Thursday, May 31, 2012, 15:40 hrs–

Daiki NOMURA, Mats Granskog, Philipp Assmy, Gernot Nehrke, Yubin Hu, Michael Fischer and Gerhard Dieckmann — 62A034 “*Characterization of ikaite (CaCO₃.6H₂O) crystals in first-year Arctic sea ice north of Svalbard: Crystal size and melted-ice total alkalinity*”

Martin Doble and Jean-Raymond Bidlot — 62A051 “*Cross-MIZ wave attenuation coefficients derived from an in-situ wavebuoy and the WAM model*”

Peng Lu, Zhijun Li, Liqiong Shi and Wenfeng Huang — 62A086 “*Marine radar observations on icebergs distribution in summer Southern Ocean*”

Caixin Wang, Keguang Wang and Matti Leppäranta — 62A088 “*Impact of Antarctic ice shelf-ocean interaction on polar sea ice cover*”

Bing Tan, Peng Lu, Zhijun Li, Christian Haas, Marcel Nicolaus and Runling Li — 62A092 “*Form drag of pressure ridges and drag coefficient in the Northwestern Weddell Sea in winter*”

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