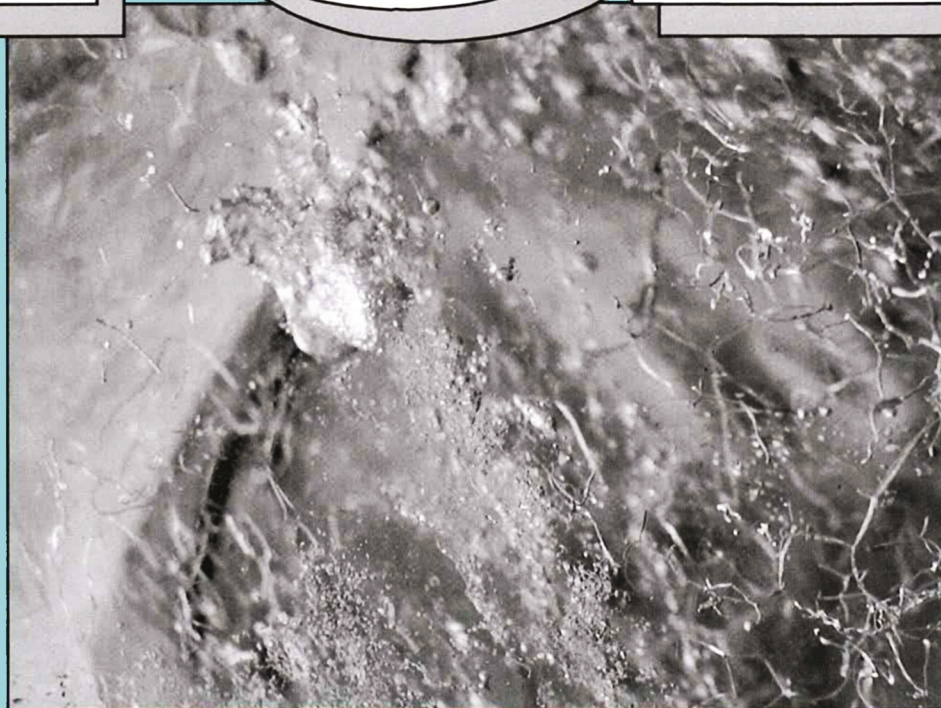


# ICE



**NEWS BULLETIN  
OF THE INTERNATIONAL  
GLACIOLOGICAL  
SOCIETY**





# Ice

## News Bulletin of the International Glaciological Society

---

Number 157

3rd Issue 2011

### Contents

<b>2 From the Editor</b>	<b>16 Meetings of other societies</b>
<b>4 International Glaciological Society</b>	16 50th Anniversary of Tien Shan
4 <i>Journal of Glaciology</i>	Glaciological Station, August 2011
5 <i>Annals of Glaciology</i> 52(59)	20 Report from the MicroDICE Conference,
5 <i>Annals of Glaciology</i> 53(60)	Grenoble, November 2011
6 The Grinch that Stole Science:	22 Report from the 3rd Third Pole
report from the La Jolla symposium,	Environment Workshop, Reykjavík,
June 2011	August–September 2011
12 Report from the British Branch Meeting,	<b>24 News</b>
Cambridge, September 2011	24 International Summer School in
13 Notes from the Production Team	Glaciology, University of Alaska,
14 Report from the Nordic Branch	Fairbanks, June 2012
Meeting, Oslo, October 2011	<b>26 Glaciological diary</b>
	<b>30 New members</b>

*Cover picture:* Bubbles inside the ice and air between grains on Mer de Glace Glacier, Mont Blanc massif.  
Photo by Luc Moreau, Edytem Cnrs, France.

Scanning electron micrograph of the ice crystal used in headings by kind permission of William P. Wergin,  
Agricultural Research Service, US Department of Agriculture

**EXCLUSION CLAUSE.** While care is taken to provide accurate accounts and information in this Newsletter, neither the editor nor the International Glaciological Society undertakes any liability for omissions or errors.

# From the Editor

Dear IGS member

Although you will be reading this in February 2012, this is the last issue of ICE for 2011. In issue 156 I announced that the renewal page for 2012 was open and encouraged you to renew promptly. Today, 4 February 2012, I am writing this on my return from the Alpine Glaciologist Meeting in Zurich and 735 members have already renewed. We had 785 paid-up members in total last year. We are very encouraged by your response and are hopeful we will reach new heights in membership numbers in 2012.

One thing I would like to tell you about is the linking of all IGS online publications under one access point. Up to now you have had to log in to the IGS members site to gain access to older publications and then log in again to Ingenta to access newer issues. By the time this reaches you, we hope you will only have to log in to the IGS Members site and from there you will have access to everything.

We have now introduced another item to our 'merchandise' list. A good quality 'beanie' with a warm Thinsulate lining. We

will be selling these at our symposia and workshops along with the IGS tie and our souvenir dish. You will of course be able to buy it online once we get our shopping basket sorted. And we are looking for more items to introduce to our IGS merchandise line. We are especially looking for something for the female members. Although a few ladies are proudly wearing the IGS tie we are looking for something more universal for the ladies. Watch this space.

We are looking into improving our website. Now that we have managed to get the Members site working we need to start producing material to have on the site.

We are hoping to introduce smartphone apps so you can read our papers 'on the move'. Symposia programmes and schedules will also have their mobile phone apps. You will be able to view the daily schedule and read the relevant abstracts on your iPad or smartphone. The idea is that it will be available on all platforms, Apple, Android and Windows. I hope you will like this new innovation.

**Magnús Már Magnússon**  
Secretary General



Photos by Clive Cooper.



# International Glaciological Society

## *JOURNAL OF GLACIOLOGY*

Papers accepted for publication between 15 October and 31 December 2011. The papers are listed in alphabetical order by first author. Some of these papers have already been published.

Fracture field for large-scale ice dynamics  
Torsten Albrecht, Anders Levermann

Unconformable stratigraphy in East Antarctica,  
Part I: Large firn cosets, recrystallized growth, and  
model evidence for intensified accumulation  
Steven A. Arcone, Robert W. Jacobel,  
Gordon S. Hamilton

Unconformable stratigraphy in East Antarctica,  
Part II: Englacial cosets and recrystallized layers  
Steven A. Arcone, Robert W. Jacobel,  
Gordon S. Hamilton

Behaviour of Chhota Shigri glacier (Western  
Himalaya, India)

Mohammed Farooq Azam, Patrick Wagnon,  
Alagappan Ramanathan, Christian Vincent,  
Parmanand Sharma, Yves Arnaud, Anurag Linda,  
José George Pottakkal, Pierre Chevallier,  
Virendra Bahadur Singh, Etienne Berthier

Glacier recession and water resources in Peru's  
Cordillera Blanca

Michel Baraer, Bryan G. Mark, Jeffrey M. McKenzie,  
Thomas Condom, Jeffrey Bury, Kyung In Huh,  
Cesar Portocarrero, Jesús Gómez, Sarah Rathay

Fractal grain distribution in snow avalanche  
deposits

Valerio de Biagi, Bernardino Chiaia, Barbara Frigo

Melt regimes, stratigraphy, flow dynamics and  
glaciochemistry of three glaciers in the Alaska  
Range

Seth Campbell, Karl Kreutz, Erich Osterberg,  
Steven Arcone, Cameron Wake, Douglas Introne,  
Kevin Volkening, Dominic Winski

Flow dynamics of an accumulation basin: a case  
study of the Upper Kahiltna Glacier on Mount  
McKinley, Alaska

Seth Campbell, Karl Kreutz, Erich Osterberg,  
Steven Arcone, Cameron Wake, Douglas Introne,  
Kevin Volkening, Dominic Winski

Variational assimilation of albedo in a snowpack  
model and reconstruction of the spatial mass  
balance distribution of an alpine glacier  
Marie Dumont, Yves Durand, Yves Arnaud,  
Delphine Six

Changes of the Petrov Glacier and its proglacial  
lake in the Akshiirak massif (the Central Tien Shan)  
since 1977

Zbyněk Engel, Miroslav Šobr, Sergei A. Yerokhin

Towards a method for high resolution  
measurements of the partial pressure of CO<sub>2</sub>  
within bulk sea ice  
N.X. Geilfus, B. Delille, Veronique Verbeke,  
Jean-Louis Tison

Twenty years of cold surface layer thinning at  
Storglaciären, sub-Arctic Sweden. 1989–2009  
Alessio Gusmeroli, Peter Jansson,  
Rickard Pettersson, Tavi Murray

Conventional versus reference-surface mass  
balance

Matthias Huss, Regine Hock, Andreas Bauder,  
Martin Funk

A detailed 2840 year record of explosive volcanism  
in a shallow ice core from Dome A East Antarctica  
Su Jiang, Jihong Cole-Dai, Yuansheng Li,  
Dave G. Ferris, Hongmei Ma, Chunlei An,  
Guitao Shi, Bo Sun

Mapping ice shelf flow with Interferometric

Synthetic Aperture Radar stacking  
Malcolm McMillan, Andrew Shepherd,  
Noel Gourmelen, Jeong-Won Park, Peter Nienow,  
Eero Rinne, Amber Leeson

A smoothed-particle hydrodynamics model for  
ice-sheet and ice-shelf dynamics

Wenxiao Pan, Alexandre M. Tartakovsky,  
Joe J. Monaghan

The tertiary creep of polycrystalline ice:  
experimental evidence for stress-dependent levels  
of strain-rate enhancement

Adam Treverrow, William F. Budd, T.H. Jacka,  
Roland C. Warner

Ice motion and mass balance at the Allan Hills  
Blue Ice Area, Antarctica, with implications for  
paleoclimate reconstructions

Nicole E. Spaulding, Vandy Blue Spikes,  
Gordon S. Hamilton, Paul A. Mayewski,  
Nelia W. Dunbar, Ralph P. Harvey, John Schutt,  
Andrei V. Kurbatov

## **ANNALS OF GLACIOLOGY 52(59)**

*The following paper has been selected for publication in Annals of Glaciology 52(59) (thematic issue on Earth's Disappearing Ice: Drivers, responses and impacts), edited by Kees van der Veen*

A new glacier inventory for the European Alps from Landsat TM scenes of 2003: challenges and results

F. Paul, H. Frey, R. Le Bris

*Annals 52(59) is now complete*

## **ANNALS OF GLACIOLOGY 53(60)**

*The following papers have been selected for publication in Annals of Glaciology 53(60) (thematic issue on Interactions of Ice Sheets and Glaciers with the Ocean), edited by Slawek Tulaczyk*

Hydrodynamic consequences for seismic signals generated by calving icebergs

Jason M. Amundson, Justin C. Burton, Sergio C. Correa

Observing calving-generated ocean waves with regional broadband seismometers, Jakobshavn Isbrae, Greenland

Jason M. Amundson, John F. Clinton, Mark A. Fahnestock, Martin Truffer, Martin P. Lüthi, Roman J. Motyka

Testing the effect of water in crevasses on a physically based calving model

S. Cook, T. Zwinger, I.C. Rutt, S. O'Neel, T. Murray

Impact of basal melting on a coupled dynamic 3d-SIA-SSA-Ocean model

Jürgen Determann, Malte Thoma, Klaus Grosfeld, Sylvia Massmann

Formation of ice shelf moraines by accretion of seawater and marine sediment at the southern margin of the McMurdo Ice Shelf, Antarctica

Sean J Fitzsimons, Sarah M Mager, Russell D Frew, Andrew Clifford, Gary S. Wilson

Adjoint sensitivities of sub-ice shelf melt rates to ocean circulation under Pine Island Ice Shelf, West Antarctica

Patrick Heimbach, Martin Losch

Relationships between iceberg plumes and sea-ice conditions on northeast Devon Ice Cap, Nunavut, Canada

Emilie Herdes, Luke Copland, Brad Danielson, Martin J. Sharp

Coastal and fjord terminating tidewater glacier dynamics in central East Greenland (1980s-2005) Hester Jiskoot, Daniel T. Juhlin, Heather StPierre, Michele Citterio

The influence of ice mélange on fjord seiches Douglas R. MacAyeal, Julian Freed-Brown, Wendy W. Zhang, Jason M. Amundson

Radar characterization of the basal interface across the grounding zone of an ice-rise promontory in East Antarctica Kenichi Matsuoka, Frank Pattyn, Denis Callens, Howard B. Conway

Basal crevasses and associated surface crevassing on the Larsen C Ice Shelf, Antarctica and their role in ice shelf instability

Daniel McGrath, Konrad Steffen, Theodore A. Scambos, Harihar Rajaram, Gino Casassa, José Luis Rodriguez

Passive acoustic evolution of a calving event Erin C. Pettit

Tropical forcing of Circumpolar Deep Water Inflow and outlet glacier thinning in the Amundsen Sea Embayment, West Antarctica E.J Steig, Q. Ding, D.S. Battisti, A. Jenkins

Blocking a wave: frequency band gaps in ice shelves with periodic crevasses Wendy W. Zhang, Julian Freed-Brown, Douglas R. MacAyeal

More papers for *Annals 53(60)* will be published in the next issue



# The GRINCH that Stole SCIENCE

*(a report on what almost happened at the IGS conference on  
'Interaction of Ice Sheets and Glaciers with the Ocean')*

La Jolla, California, USA, 5–10 June 2011)

*By D. R. M., 'Dr Eissse'*

I'd have no more troubles, that's what the man said,  
So I started to go, but I didn't, instead,  
I did some quick thinking inside of my head,

Then I started back home to the Valley of Vung  
I know I'll have troubles, I'll, maybe, get stung,  
I'll always have troubles, I'll, maybe, get bit,  
By that green-headed quail, on the place where I sit,

But I've bought a big bat, I'm all ready, you see  
*Now my troubles are going to have troubles with me.*

From Richard Alley's lecture 'WAIS Ice-Dynamics Progress', September, 2005;  
quoting Dr Suess (long-time resident of La Jolla, California), 'I Had Trouble in Getting to Solla Sollew'

Every Glaciologist at SCRIPPS liked Symposiums a  
lot  
But the Grinch who abode on the cliffs there Did  
NOT!  
The Grinch hated symposiums, and science all  
round!

Now, please don't ask why, it's just too profound.  
It could be his head wasn't screwed on just right,  
Or it could be his ice axe was lost out of sight.

Whatever the reason, his head or his tools,  
He felt glaciologists were nothing but fools.  
Staring down from his cliff with a sour Grinch frown,  
At the warm, sandy beaches of LaJolla town:  
'They're hanging their posters!' he snarled with a  
sneer,

'Tomorrow's the symposium! It's practically here!'  
The Grinch then growled with his Grinch fingers  
drumming,

'I MUST find a method to stop it from coming!'  
For tomorrow, he knew, all glaciologists fair,  
Would wake bright and early, to offer their ware.

They would project their presentations  
And discuss their representations  
And hob-nob over coffee and bagels and cheeses  
Telling stories and tales of a liquid that freezes.

(Then there would be questions  
And talk and interjections,  
Until someone would declare  
That a theory was fair...)



Helen Fricker was the guiding light and driving  
force behind a uniquely creative IGS symposium  
on ice/ocean interaction held at one of the world's  
foremost institutions of oceanographic research.

And the more that he thought of this Glaciological  
think

The more the Grinch wanted to make it all stink!  
'Why, for sixty-five years I've put up with it now!'  
'And I MUST stop this meeting from coming! But  
How?'

Then he got an idea! An Awful idea!  
The GRINCH GOT A WONDERFUL, AWFUL IDEA!  
'I know just what to do!' The Grinch laughed in  
his throat.  
And made a quick IGS tie, put a badge on his coat.



‘Now for a field assistant...’ The Grinch looked around.  
 But assistants are SCARCE, there were none to be found.  
 Did that stop the old Grinch? NO! The Grinch simply said,  
 ‘If I can’t find an assistant, I’ll make two instead!’  
 So he called up the TWINS, Douglas and Magnús,  
 With an IGS TIE each round their esophagus.  
 THEN he loaded some bags, and some old empty sacks,  
 On a scrap PARAGLIDER and hitched up his slacks.

Then the Grinch said, ‘GERONIMO!’ And the glider started down,  
 Toward the conference hall that he hoped to soon drown  
 Toward the beach-front venue with coffee tables and SURF  
 And landed a bit raucously, tripping up on the turf.

He crept into the lecture hall  
 And for a moment did stall,  
 At little thumb-drives all lined up in a row,  
 ‘These oral presentations will be the first thing to go!’  
 Then he slithered and slunk, with a smile most pretentious,  
 Around the lecture hall, and became quite a menace.  
 He grabbed at the talks on fjord stratification,  
 And then all of the slides on sea-ice classification,  
 And then came the material on ice-front stabilization,



Delegates are unphased by the fact that they have been turned out of the comfortable seminar room by the Grinch’s evil deeds. They seem to be able to adjust to the harsh, unusual conditions of the exterior climate of La Jolla, California.



Olga Sergienko and Rob Massom discuss the interaction of ocean swell with ice shelves.



It was unfortunate that the Scripps Institution of Oceanography was not located in a cold polar environment; however, the attendees adapted as best they could to the venue of the symposium. The poster hall opened out onto a lawn and sandy beach on which glaciologists and oceanographers would sink their toes into the new ideas of the day.



When the scientists found that the Grinch had stolen all their powerpoint slides and posters, they adapted immediately and began to knit together new ideas about how glaciers and ice-sheets interact with the ocean.



A fleeting glimpse of the Grinch....

And calculations on flexural-wave localization.  
 He nabbed all the transparencies that came from  
 GRACE,  
 And penned in false points on the whole  
 database.  
 Then came the talks about calving laws,  
 Which he stashed in his bag no matter their flaws.  
 Finally he came to the poster veranda,  
 'Oh, this is a bunch of student propaganda!  
 But he grabbed all that paper  
 Even using a scraper.  
 And he took all the lunches, and coffee and  
 pastry,  
 And replaced them with sandwiches that were  
 vaguely mangy,  
 And loaded it all on his paraglider wing,  
 And got ready to take off in one giant zing.  
 But then the Grinch heard a small sound like a  
 dove,  
 He turned around fast, and looked down from  
 above.



Sasha Carter presented the latest SEM (Sand Elevation Model) of the Antarctic Ice Sheet and embedded it in a laboratory-scale model of ice/ocean interaction. Featured in this model is the circumpolar current and its rich biological productivity.

He looked down real fast, and he saw a small  
 Who!  
 Little Daisy-Lou Who, who was just about two.  
 The Grinch had been caught by this tiny Who  
 daughter,  
 Who'd got out of her nap, for a cup of cold water.  
 She stared at the Grinch and she said, 'Tell me  
 why  
 'Are you spoiling our meeting, you nasty old spy?'  
 But, you know, that old Grinch was so smart and  
 so slick,  
 He thought up a lie, and he thought it up quick!  
 'My sweet little tot,' the fake glaciologist lied,  
 'There's a graph in a talk that's misspelled on one  
 side.  
 'So I'm taking it home to my laboratory, my dear.  
 'I'll fix it up there. Then I'll bring it back here.'  
 And this fib fooled the child. Then he patted her  
 head,  
 And he got her a drink and he sent her to bed.  
 'Pooh-pooh to the symposium!' he was  
 GRINCHISHLY humming  
 'They're finding out now that there's no meeting  
 coming!  
 'They're just gathering now, I know what they'll do!  
 'Their mouths will hang open a minute or two.  
 'Then the delegates will all cry Boo hoo-hoo hoo  
 hoo!  
 'That's a noise,' grinned the Grinch, 'that I simply  
 MUST hear!'  
 So he paused. And the Grinch put his hand to his  
 ear.  
 And he *did* hear a sound rising up over the sand  
 It started out low, but turned out to be grand.



As is often the case for newly formulated theories of ice/ocean interaction, they tend to get ripped apart by skeptics. The model proposed by Sasha Carter on the right is handily dismantled, with the circumpolar vortex being returned to the ocean; while the model on the left is being rapidly constructed as a perfectly plausible alternative.





The Secretary General struck a dapper pose in his elegant IGS tie at the top of the stairway leading from Walter Munk's garden to the terrace of his elegant house. Dr Munk hosted the entire symposium at his house for cocktails, dinner and relaxing conversation following the afternoon session on Tuesday.



Walter Munk (grey sweater, back to camera) and his partner greet the symposium attendees to their house, named 'Seiche' after one of the many subjects in oceanography that he did pioneering studies of. Receiving their warm welcome is Weili Wang, a Scientific Editor of the *Journal of Glaciology*.



A highlight of the social event on Tuesday evening was Eric Brun's presentation to the host of the evening's festivity, the eminent oceanographer Walter Munk, of an official IGS tie.



New delegates were delighted to learn that IGS symposia offer outstanding forms of social lubrication.

The delegates should have been desolate, very,  
But the sound wasn't sad! Why, this sound  
sounded merry!  
He stared down at LaJolla. The Grinch popped his  
eyes!  
Then he shook! What he saw was a shocking  
surprise!  
Every delegate at SCRIPPS, the tall and the smart,  
Were talking and talking, only inches apart!  
He HADN'T stopped the symposium from  
coming! IT CAME!  
Somehow or other, it came just the same!  
And the Grinch, with his Grinch-feet ice-cold on  
the sand,  
Stood puzzling and puzzling, 'Why is this! I  
demand!



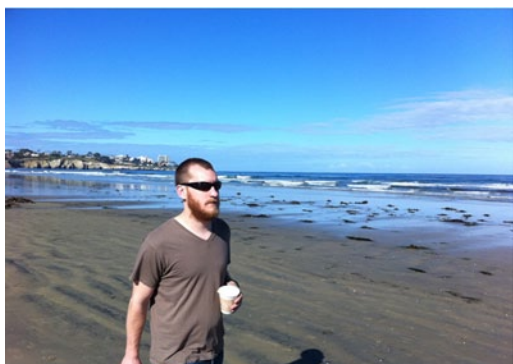
Our host and Hartmut Hellmer putting the world of glaciology to rights.



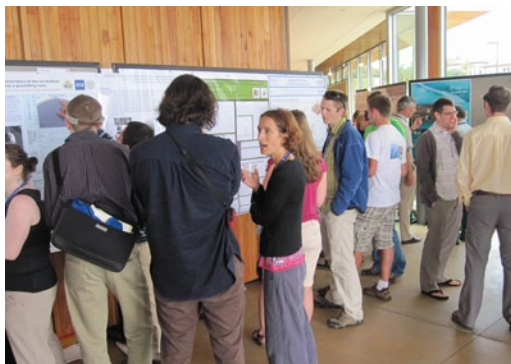
Unlike AGU and EGU meetings, IGS symposia reserve Wednesday afternoons for less formal interactions among its delegates. Here, Ted Scambos prepares to perform field observations on the hydrodynamics of floating objects such as icebergs and surfboards.



The Grinch attempted to infuriate the glaciologists by plucking all the leaves off the trees next to the lecture hall, however the glaciologists were so enthralled in conversation, they hardly noticed.



Sometimes it was a tough, wet walk to get from the hotel to the symposium venue, but a rich cup of latte often softened the experience....



Marion Bougamont describes her research poster to Sasha Carter. The posters were so interesting that the majority of delegates were oblivious to the fact that the surf was up just footsteps away.

‘It came without POWERPOINT, it came without nametags!  
It came without posters, or demos or shoulder bags!’

He puzzled for hours, till his puzzler was sore.  
Then the GRINCH thought of something he hadn’t before!

‘Maybe IGS symposiums,’ he thought, ‘aren’t typical AGU and EGU score.’

‘Perhaps IGS meetings ... are a little bit more!\*

‘Maybe it’s the single sessions, or the extra five minutes,

‘Or, maybe, more interesting venues for visits!

‘Maybe the coffee’s just better, or the lunches better supplied,

‘And the mid-week excursion’s a great thing to provide!’



Walter Munk took a front-row seat during several of the sessions to learn more about the difficulties, challenges and amazing results of ice/ocean research.



And what happened then? Well... the delegates  
all say,  
That the Grinch's small brain GREW three sizes  
that day!  
And the minute his brain didn't feel quite so light,  
He whizzed with his load down the cliff, what a  
sight!  
And brought back the thumbdrives, the posters  
and tags,  
And some IGS ties he had found in a bag,  
And he brought back the food for the great  
banquet feast!  
And he, HE HIMSELF! The Grinch! carved the  
roast beast!

THE END

\*Special thanks for hosting the meeting go to Zoe Fricker, sister of Daisy (who is just about two), who ran the registration, her mother Helen Fricker, who assisted, Donna Stout and her team, Fernando Paolo (for the website) and all the session conveners. Thanks also to Rob Massom, Sasha Carter, Mike Craven, Mac Cathles, Zhou Chunxia and Tatsuru Sato for the photographs

**Douglas R. MacAyeal**



Eric Brun looks on while Roiy Sayag (in the distance) frames a rather penetrating question during an oral session.



Pssst..! Pssst..! (whispering...) Now's a good time to ask the Editor if your paper is going to be accepted for the *Journal*....



The banquet venue, a restaurant with a Polynesian flair overlooking placid San Diego Bay, was enjoyed by Laura Herraiz-Borreguero and Lydie Lescarmonier.



Interaction of the International Glaciological Society (and friends) with the ocean and an excellent dinner too.



## REPORT FROM THE BRITISH BRANCH MEETING

Cambridge, UK, 7–8 September 2011

The 2011 British Branch meeting was hosted by the British Antarctic Survey in Cambridge on Wednesday and Thursday 7 and 8 September. For many of the 100 attenders it was an excellent opportunity to visit BAS for the first time and we were welcomed to the institute and introduced to a little of its history by the director, Nick Owens.

Over the two days, we were treated to 36 excellent presentations organised within five sessions. I had felt honoured to be given the first presentation of nine in the opening session on 'Greenland', but then I realised the order was simply alphabetical. The pressure then was to keep to the very tight time schedule of 10 minutes per talk. I am pleased to say I managed this challenge, along with every single one of the speakers in all of the sessions, in spite of Martyn Tranter's scepticism that only the 'young' ones would manage such self-control. The second session of the day, 'Antarctica and Climate Influences on Glaciers', began after lunch and another nine presentations took us through to the poster session at 4 pm.

The 29 poster presenters spent the next 2 hours fielding lively questions, the postgraduates keeping an eye out for John Glen as he wandered round with his notepad, until the lights were switched off and participants were forced reluctantly to make their way to the bar at Selwyn College. Conference dinner was provided in the Dining Hall of Selwyn College, an excellent three-course meal with plenty of wine, efficient service and live entertainment provided by British Branch president Pete Nienow and honoured guest Professor Doug MacAyeal from Chicago. Pete used his speech to exhort the British glaciological community to stand up for itself in supporting grant proposals in order to ensure the continuity of successful research and the futures of the next generation of glaciologists.

Doug's inspiring after-dinner speech was marred only by the disturbing suggestion that he, Magnús and Richard Hindmarsh intended to avail themselves of the nudist beach facility at the ice-core conference in October 2012 in Presqu'île-de-Giens, Côte d'Azur. The next day, Doug was to chair the final session, give another speech at the close of the meeting, and take his place on the mentoring panel of the APECS meeting, which followed the conference and where he claimed to hate public speaking!



IGS President Doug MacAyeal 'not enjoying public speaking'.

The first session at 9 am on Thursday – 'Iceland and models' – was impressively full, and concluded with the first talk of session 4 on 'Methods and Measurements', after which we enjoyed a welcome coffee break before the British Branch AGM.

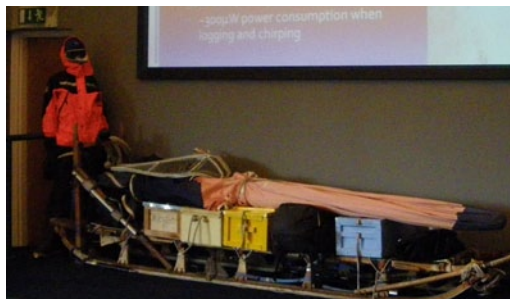
At the AGM the accounts were approved and it was confirmed that in 2012 the branch conference



The IGS staff attended the dinner en masse – from the left Christine Butler (Production Manager), Rowena Baxter (Reference Manager), Trevor Margereson (retiring Membership Secretary); opposite, Ann Leeding (Publishing Assistant), Craig Baxter (Production Assistant and social networking supremo).



The morning after the night before – an impressive turnout.



One poor BAS employee got 'trapped' at the meeting

would be held in Aberdeen. John Woodward will continue to act as branch Treasurer, Rob Bingham was elected as Secretary, Ed King as Vice President and Jemma Wadham steps up as President. After the AGM Magnús revealed details of the proposal to introduce an online-only IGS subscription, and gave a boost to the IGS membership drive by threatening to go through with the nudist beach visit if the number of IGS members had failed to reach 1000 by then.

The five remaining talks of session 4 took us to another sandwich lunch in the library and session 5 on 'Permafrost (but mostly Greenland again!)'. At 2.30 pm we all waited, on the edge of our seats, while John Glen talked us through the difficult process of deciding which students were to be honoured with prizes. After a couple of skilful feints, John announced that Anne Goldsack (Swansea University) and Andrew Fitzpatrick

(Aberystwyth University) had won the John Glen prizes for best oral presentation and best poster, respectively.

The last British Branch meeting to have been held at BAS was in 2001; it was in the wake of 9/11 and a minute's silence was held. Ten years later another interesting and motivating British Branch meeting came to a close. Many thanks to David Vaughan, Andy Smith, Gill Alexander, Glenda Harden, Nick Barrand, Gisela Hiess, Carlos Martin and Rosie Williams at BAS for organising a busy and enjoyable two days, and to all those who presented their work and participated in the meeting.

**Suzanne Bevan**



## Notes from the Production Team

Hello talented photographers out there! We've had some stunning *Journal* covers recently, but our stock of potential cover photos is running dry. We'd be very grateful to receive photographs you've taken, which you think might be suitable.

The cover is portrait-shaped; the photo will be sized and cropped to a final size of 17 × 23 cm. Please send suitable photos to [igsoc@igsoc.org](mailto:igsoc@igsoc.org)

**Christine Butler**





## REPORT FROM THE NORDIC BRANCH MEETING

Oslo, Norway, 27–29 October 2011

On 27–29 October 2011 the 19th Nordic Branch meeting convened in Oslo, Norway. The meeting was jointly organized by the Norwegian Water and Energy Board (NVE) and the University of Oslo. The work of the organizing committee, Liss M. Andreassen, Heidi H. Pikkarainen, Solveig H. Winsvold and Thomas Schuler, made the meeting a very successful event. It attracted nearly 100 participants from (in reverse order of attendance numbers) the USA, Germany, Belgium, the UK, the Netherlands, Poland, Iceland, Denmark, Finland, Sweden and Norway. We were particularly happy to see both the IGS President, Doug MacAyeal, and the IGS Secretary General, Magnús Már Magnússon generously sharing their time with us and helping to maintain the strong IGS connection. The support from IGS for this meeting quenched our thirst in the best way. Additional support for the meeting was supplied by NVE, the University of Oslo, and the Nordic Centre of Excellence Stability and Variations of Arctic Land Ice (SVALI) programme.

During the three days of the meeting 53 presentations and 14 posters were presented covering all aspects of glaciology ranging geographically from Svalbard to Antarctica and thematically from snow surveying to modelling of calving processes and turbulent winds. The first two days were organised at NVE. The first day saw talks on the themes of remote sensing, snow and glacier changes chaired by Liss M. Andreassen, Rune Engeset and Thomas Johannesson, respectively. The scientific agenda of the day closed with a



An attentive audience.

speed talk session on the posters, chaired by Miriam Jackson, followed by the poster session. The day was capped by an ice-breaker at NVE with food provided by the NVE cantina.

The second day saw sessions on surface processes and energy balance, mass balance modelling, dynamics and calving and subglacial processes, chaired by Thomas V. Schuler, Carleen Reijmer, Cecilie Rolstad Denby and Jon Ove Hagen, respectively. The evening was spent at the NVE cantina, where a tasty oriental buffet was provided along with an assortment of refreshments. The now world-famous (at NVE) trio Frost – Thomas Skaugen, Tuomo Saloranta and Klaus Vormoor, all from the section for glaciers, snow and ice – provided a short but much appreciated musical interlude.

The last day of the meeting was organized at the University of Oslo and saw talks on the topics of radar and ice sheets and ice cores, per-

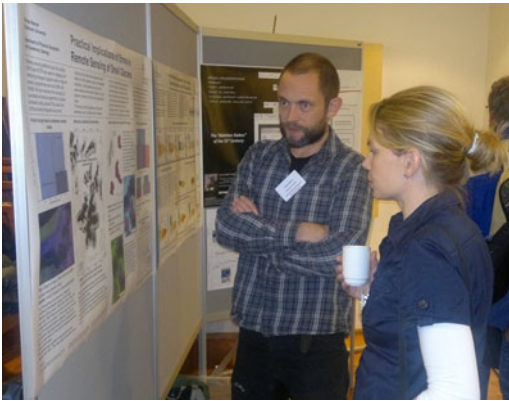


Am I at a psychology convention? Reminds me of the Bahamas!



In the heat of the night: Frost





This is what happens when you don't take any notice of the instructions supplied about the size of the poster boards....

mafrost and other themes, which were chaired by Veijo A. Pohjola and Thorben Dunse, respectively. The three days provided us with a very rich picture of ongoing research and I believe everyone left the meeting enriched with energy and new knowledge.

Regrettably, Gunnar chose sunny Spain over a rainy and rather cold Oslo, which we can fully appreciate; sadly this meant not having him at the meeting to share his wisdom on, for example, mass balance figures yet again.

The next Nordic Branch meeting will take place in Stockholm, Sweden, in 2012 so book 25–27 October in your diaries!

**Peter Jansson**



... and this is what happens when you follow the instructions to the letter!



There was plenty of time for socializing too.

# ❄ Meetings of other societies

## 50th Anniversary of Tien Shan Glaciological Station and Symposium on Science and Monitoring of Glaciers, 8–12 August 2011

This anniversary meeting took place in Xinjiang Province in Northwest China and began fittingly in its capital, Ürümqi, at the foot of the Tien Shan. When the late Shi Yafeng led the first glaciological expeditions to the source area of the Ürümqi River in the 1950s, it was with tremendous foresight that he and his colleagues decided to set up a station there for long-term glacier monitoring. Tien Shan Glaciological Station, established in 1959, has been a focal point of Chinese glaciological research since its beginning. An hour's walk from its upper station (3545 m a.s.l.) is Ürümqi Glacier No. 1, one of very few glaciers in the world with continuous mass-balance record over five decades. Research findings from this glacier and its environment have contributed in a sustained way to the fields of glacier physics, meteorology, hydrology and geomorphology, and to our knowledge of the ecosystems and glacial history of the Tien Shan. Today, the station continues to serve as a platform for international collaboration and a model for station-based monitoring efforts in China and other countries.

170 scholars from China and abroad attended the meeting, which opened on the Monday with the 'Symposium on Science and Monitoring of Glaciers'. Welcome addresses were first delivered to us that morning by our hosts, including Wang Tao, the Director of the Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI) in Lanzhou, and numerous academicians of the Chinese Academy of Sciences and government representatives from Xinjiang. All enthused about the triumph of Tien Shan Glaciological Station: its maintenance and success through a half-century is no mean feat and they stressed its value in offering long-term data for studying the impact of changing climate on glaciers and glacial water resources, the latter important for Xinjiang's environment and economy. Keynote talks followed and continued into the afternoon. Qin Dahe reported the latest progress of the IPCC, with its Fifth Assessment Report, setting the scene of our warming world. Atsumu Ohmura reminded us why we monitor glaciers and praised the uniqueness of the Station in providing combined glaciological, meteorological and hydrological observations.



**Fig. 1.** The IGS Secretary General sampling Uyghur cuisine in Ürümqi on the day of arrival for the meeting, in training for more mutton-eating to follow that week.

Wilfried Haeberli described the global network of climate and glacier observations and placed Ürümqi Glacier No. 1 in the context of long-term negative mass-balance trends. It was from him that I learned that we may soon need to recruit other glaciers for mass-balance monitoring to replace the shrinking and likely-to-vanish Glacier No. 1. Konrad Steffen then reviewed the latest figures of cryospheric contribution to sea-level rise. In the talk that followed, Roger Braithwaite praised the contributions of Chinese glaciologists working in the Tien Shan and Himalaya, notably their recognition of glaciers that are distinctly continental in character.

The afternoon session began with Magnús Magnússon's talk about the IGS and its *Journal and Annals*. The next keynotes, many involving glaciers of the Tien Shan, treated subjects no less diverse than the morning's. Hilmar Gudmundsson taught us the art of approximations in glacier-flow modelling. Jon Harbor recounted research on U-shaped valley formation and how recent papers on the subject using data from the Tien Shan had stimulated his collaboration with Chinese scientists. Steve Wells showed us the complexity of deciphering the palaeo-hydrology of mountain ranges, and Kumud Acharya reported melt-modelling results for the glacierized basin feeding Nam Co Lake in Tibet. Arjen Stroeven introduced



**Fig. 2.** The symposium banquet, where participants studied the mass balance of baijiu (bottles at lower left). l to r: Magnús Magnússon, Li Zhongqin, Qin Dahe, Ross Edwards, Roger Braithwaite, Yao Tandong, Atsumu Ohmura, Jo Jacka, Xiao Cunde.

us to the studies at Tarfala Research Station in Sweden, which mirror the work at Tien Shan Glaciological Station. Ross Edwards described the impact of black carbon on snow-melt on Tien Shan glaciers, and Nozomu Takeuchi followed this by giving us a tour of the micro-organisms living on Ürümqi Glacier No. 1. Finally, Felix Ng reported mathematical theories for the jökulhlaup phenomenon and for the problem of glacier-thickness estimation, motivated by data from the Tien Shan.

Chinese banquets are often amply lubricated by ‘baijiu’ (Chinese white liquor), and our banquet that evening lived up to this tradition. Qin Dahe opened it with a speech that echoed the sentiments of the morning’s addresses: the spirit of Tien Shan glaciological research. Fantastic dishes were then served, but before long they were devoured and many of us were in motion around the room, mingling with old and new friends and toasting each other. Much baijiu was drunk and the celebrations continued till midnight.

A trip to Tien Shan Glaciological Station and Ürümqi Glacier No. 1 was planned for Tuesday. The morning rain saw our 17 minibuses and a similar number of 4WDs cruising the highways across Ürümqi and out to the mountains. At the lower station (2130 m a.s.l.), we were treated to a talk by Li Zhongqin (Director of the Tien Shan Glaciological Station) summarizing the research being done there and to several specialized talks by his colleagues. The weather cleared in the afternoon as we snaked our way up the river and caught our first glimpse of Ürümqi Glacier No. 1. Soon, the glacier foreground and the way leading up to it were littered with our meeting’s participants. This glacier famously split into two



**Fig. 3.** On the road beside Ürümqi River between the lower and upper stations.

branches back in 1993 during its retreat. ‘Yes, the snout has gone back since the last time I was here’, confirmed someone in one of the crowds that I joined at the snout of the western branch. Nearby, others veterans reminisced about the tunnel dug there in the 1980s (now long gone) for studying basal processes or examined cryoconite sediment on the ice surface. After hearing the presentations of the last two days, our curiosity about the fate of



**Figs. 4 and 5.** Presentation at Tien Shan Glaciological Station by its Director, Li Zhongqin (photo by Hui Chen)...



... and his attentive audience.





**Fig. 6.** Ürümqi Glacier No. 1 from a distance (white splotch just right of centre in the photograph).



**Fig. 8.** Magnús Magnússon (left) with Felix Ng and his wife Connie at the snout of Ürümqi Glacier No. 1.

this glacier grew all the more intense as we now stood before it.

The nature reserve of Kanas ('Kanas' in Chinese) in the Altai Mountains, at the northern tip of Xinjiang, was our destination for the remaining 3 days of the meeting. A 15-hour bus ride took us there on Wednesday. It skirted the Junggar Desert, past the oil fields of Karamay and through steppes inhabited by Mongols. As we drove on into dusk, camel herds by the roadside attracted us and our cameras. After passing the town of Buerjin, whose architecture showed distinct Russian influence, we entered dark mountains on pine-forested roads. The journey reminded us how geographically and culturally diverse is the Silk Road.

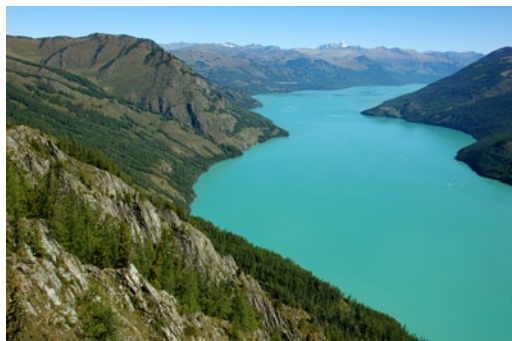
Kanas is also the name of a 24 km long glacial lake in the region; our group was based near the visitor centre at its southern end. The meeting on Thursday began with the unveiling ceremony of the newly-built Altai Station for Glacier, Snow and Environmental Research, located a couple of kilometres north of the centre. Following this was a scientific forum held at the centre itself, where

we heard presentations by several speakers – Cui Zhijiu on the Quaternary glacial history of the Kanas region, Jo Jacka on ice-core physics, Shen Yongping on long-term hydrological changes in the Altai, and Stephan Imbery on glacier–permafrost interactions. This forum and the earlier ceremony opened our eyes to the research opportunities in the Altai, so we were eager to go out and explore in the afternoon. Energetic parties hiked up to mountain tops, explored the lakeshore or visited the nearby Kazak villages (some to seek out the famous eagle), many returning sunburnt to share their adventure with others over Wusu beer in the evening.

Sunshine and blue skies prevailed again on Friday, the final day of the meeting and a day of organized excursions. These included a morning hike up the popular trail to the Fishview Pagoda overlooking Kanas Lake and a boat trip part-way up the lake in the afternoon. Although we could not reach the glaciers at the heart of the Altai on this visit, the beautiful experience will no doubt induce some of us to return.



**Fig. 7.** Hilmar Gudmundsson, Nozomu Takeuchi and the eastern branch of Ürümqi Glacier No. 1.



**Fig. 9.** The serene Kanas Lake from Guan Yu Ting ('Fishview Pagoda') in the Altai Mountains.



**Fig. 10.** Li Zhongqin (left) addressing the Guests of Honour and the audience at the opening ceremony of the Altai Station for Glacier, Snow and Environmental Research at Kanas on 11 August.



**Fig. 11.** The scientific forum in Kanas on 11 August. l to r: Li Zhongqin, Ma Wei, Liu Zhongkun, Wang Tao, Cheng Guodong, Kang Jian, An Lizhe, Wang Qingyi, Zhang Xiaojun (photo by Hui Chen).

This anniversary meeting was truly a week of celebrations. It rekindled many existing collaborations and seeded new ones. We were looked after extremely well and had the immense pleasure of joining our Chinese colleagues to celebrate their achievements and marvel at the glaciological wonders of China's northwest. For their hospitality and organization, sincere thanks are extended to our hosts at the State Key Laboratory of Cryospheric Sciences of CAREERI, the Tien Shan Glaciological Station, the Chinese Academy of Sciences and Kanas Nature Reserve.

Felix Ng







## REPORT FROM THE MicroDICE CONFERENCE

Grenoble, France, 7–9 November 2011



The audience listens attentively to Erland Schulson's presentation.



Secretary General Magnús Magnússon offering the Society's limited edition dish to Paul Duval during the ice breaker evening.



Colleagues from the LGGE modelling their special 'Paul Duval' T-shirts.

The roots of glaciology were initially high up in the mountains, walking on glaciers to observe, describe and measure in the field those objects which have forever fascinated and, in early days, sometimes frightened mankind. Microscopic details and properties of the material ice were not at first glance the main preoccupation of the pioneers of glaciology. In other words, glaciology was not 'iceology', even though *glace* means *ice* in French.

However, as science moved on, it became clearer and clearer that a detailed knowledge of ice physics and mechanics from the atomic scale is an essential step towards an understanding of glaciers, ice sheets, or sea ice. Indeed, dislocation motion and ice microstructure control the flow of glaciers, metamorphism processes at the snow crystal scale the properties of a snow cover, and the physics of ice fracture the evolution of Arctic sea ice.

To bridge the microstructural scale to geophysical scales was one of the purposes of the MicroDICE Conference 'Ice deformation: from the model material to ice in natural environments' which was held in Grenoble on 7-9 November 2011 at the MINATEC center, sponsored by the Micro-DICE project of the European Science Foundation, and with administrative support of the IGS. This symposium was also the occasion to honor Paul Duval, Emeritus 'Directeur de Recherche' at the Laboratoire de Glaciologie et Géophysique de l'Environnement' (LGGE). During his career, Paul became a world leading scientist on the physics of ice deformation. But, beyond his fundamental advances on creep and recrystallisation of the material ice, Paul always tried to analyze the consequences of such micro-scale mechanisms on the large scale behaviour of glaciers, ice sheets, or even icy moons. In that sense, the Micro-DICE conference, with its great diversity of topics, was in a perfect agreement with the Paul's contribution to glaciology and material science.

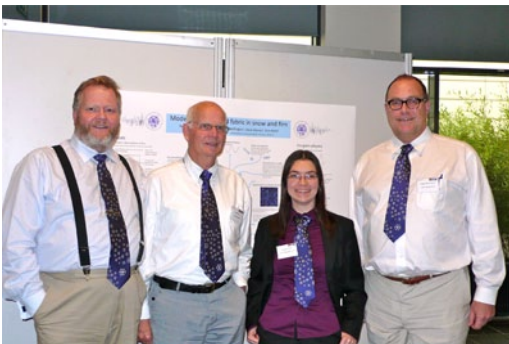
The conference brought together about 85 scientists from 17 countries all around the world, presenting keynote lectures or recent advances on subjects as various as ice sheet flow, sea ice fracturing, recrystallization processes in ice, icy moons, snow structure, ice cream physics, and more. Beyond 'glaciology', presentations on



The poster session.



Delegates enjoying a coffee break against the impressive backdrop of the Belledonne Massif.



A fine display of IGS ties observed at the poster session!

collective dislocation dynamics, recrystallization in metals, or crack growth in heterogeneous media, stressed the role of ice as a model material to tackle various fundamental problems in material science, a role recognized by Paul Duval for a long time.

In addition to these various communications, the perfect organization created a friendly atmosphere during breaks and lunches, allowing everybody to exchange and discuss around

Organizing Committee: Maurine Montagnat, Denis Samyn, Jens Rössiger, Paul Bons, Martyn Drury.

Scientific Committee: Maurine Montagnat, Olivier Castelnau, Denis Samyn, Paul Bons

website : <http://microdice.eu/activities/past/ice-deformation-from-the-model-material-to-polar-ice/>

Financial support: main support from ESF, secondary support from IGS, CNRS, UJF-Grenoble I, METRO, Ville de Grenoble.

a (French!) glass of wine and a piece of local cheese! In this way this MicroDICE conference confirmed that ice physics, mechanics and glaciology are more than ever a 'hot' topic that can learn from, but also instruct, other fields of physics and geophysics.

**Jérôme Weiss**



## REPORT FROM THE 3RD THIRD POLE ENVIRONMENT WORKSHOP

Reykjavik, Iceland, 29 August–3 September 2011

The 3rd TPE Workshop (Third Pole Environment, Chinese Academy of Sciences) was held in Reykjavik, Iceland, 29 August–3 September 2011, in collaboration with a local organizing committee at the University of Iceland.

The TPE study region is defined as being centred on the Tibetan Plateau but extending from the Pamir Plateau and Hindu-Kush in the west to the Hengduan Mountains in the east, and from the Kunlun and Qilian Mountains in the north to the Himalayas to the south. The TPE focuses on all aspects of environmental changes in this region that concern the livelihood of up to 1.5 billion people, including the specific theme of ‘water–ice–air–ecosystem–human’.

The two previous workshops were held in Beijing (2009) and Kathmandu (2010) and so it was a bit of a surprise to most of us that the 3rd Workshop was to be held in Iceland. This interesting choice of location was explained by the President of Iceland during his opening ceremony speech. President Ólafur Ragnar Grímsson had recently visited China and had met TPE co-chair Yao Tandong (Director, Institute of Tibetan Plateau Research, Chinese Academy of Sciences). During their discussions they noted the similarity of the environments found within the TPE and Iceland. Their thoughts then turned to the opportunity to



Vladimir Aizen's daughter Valerie and the President of Iceland.

hold the next TPE Workshop in Iceland, which ultimately became a reality. (Additional TPE Co-Chairs are Lonnie Thompson, Byrd Polar Research Center, Ohio State University and Volker Mosbrugger Senckenberg, Research Center for Nature Study, Frankfurt.)

Workshop presentations were made by participants from a dozen different countries across Asia, Europe and North America. Topics ranged from observations and modeling of changing cryospheric environments of the TPE region to the impacts of these changes on water resources. The importance of the integration of the human/social element with the physical sciences was also presented. Abstracts and selected presentations can be found at <http://www.tpe.ac.cn/wkshp3>.

A further goal of the 3rd TPE Workshop, beyond individual scientific presentations and panel group discussions by the participants, was to evaluate the recent progress of the TPE study, to highlight specific TPE-related scientific questions, to discuss the TPE science plan, to select flagship field stations and to help lay out the road ahead for the TPE study.

Beyond the actual scientific presentations, there were two major highlights. First, participants



IGS Secretary General Magnús Magnússon and a frozen Betsy Armstrong on the boat at the Breiðamerkurjökull glacier lagoon.





Richard Armstrong and Pradeep Mool.

were invited to a reception and dinner at the residence of the President of Iceland, following the first day of the workshop. A more gracious and congenial host one could not imagine. It was a delightful evening for all, with excellent food and friendly informative conversations.

The second was the 2-day post-workshop excursion, 'Glaciers, volcanoes and ecosystems of Southern Iceland', organized for participants and accompanying persons. The excursion route passed through the spectacular Skaftafell National Park as well as regions affected by recent volcanism and glacier outburst floods (jökulhlaups), with stops at hydrological and geophysical monitoring stations. A highlight was a visit to the geothermal site that provides the hot water to heat the entire city of Reykjavík, along with a portion of the electrical power by passing the geothermal steam through turbines. Geoscientists and biologists from the University of Iceland and the Icelandic Meteorological Office served as knowledgeable guides. A special, but rather chilly event was the boat trip on Jökulsárlón (Glacier Lagoon), a moraine-dammed lake at the front of



Richard Armstrong in a sod house in the national park Skaftafell, showing horses, diversion structures set up to protect against jökulhlaups from Grímsvötn and the outwash plain beyond.



Helgi and Þóra Ellen's fabulous spread.

the Breiðamerkurjökull outlet glacier. Also included were evening lectures by prominent Icelandic scientists on topics such as the hydrology, hazards and paleoclimate of the island nation. The social highlight of the excursion was, without doubt, the visit to the country home of Helgi Björnsson and Þóra Ellen Þórhallsdóttir, where participants enjoyed tasting an extensive and delicious spread of Icelandic delicacies and the warmest hospitality.

**Richard and Betsy Armstrong**

## **INTERNATIONAL SUMMER SCHOOL IN GLACIOLOGY**

organized by the University of Alaska, Fairbanks (UAF)

**McCarthy, Alaska, 10–20 June 2012**

### *OVERVIEW*

The Second UAF International Summer School in Glaciology, co-sponsored by the IGS, will be organized by the University of Alaska, Fairbanks (UAF) from 10–20 June 2012. The school will provide a comprehensive overview of the physics of glaciers and current research frontiers in glaciology with focus on quantitative glaciology, modeling and remote sensing. The course will be open to 25 graduate students from around the world, targeting primarily early-stage PhD students who perform glacier related research. It will be taught by faculty of UAF's glaciology group and several invited guest lecturers from outside Alaska (Bob, Anderson, Roger Braithwaite, Alex Gardner, Tad Pfeffer).

The course is scheduled to facilitate students to attend the IGS symposium on Glacier and Ice Sheets in a Warming Climate which will be held in Fairbanks, just a few days after the summer school (24–29 June 2012).

### *COURSE CONTENT*

Key topics to be covered include remote sensing in glaciology; glacier mass balance and meteorology; response of glaciers to climate change; glacier dynamics and hydrology, surging and tidewater glaciers, ice streams; ice-ocean interactions; and ice-sheet modeling. The course will consist of lectures, exercises, computer projects and field excursions.



### *COURSE LOCATION*

The course will be held in McCarthy, a small village in south central Alaska in immediate vicinity to 5000 km<sup>2</sup> glaciers originating in the Wrangell Mountains (up to 5000 m a.s.l.). Transport by van from and to Fairbanks will be offered.





## *COSTS*

Students will be expected to cover their travel to and from Fairbanks. Students also attending the IGS symposium can apply for travel grants. Additional student assistance may be available. In addition students need to pay a course fee of approx. US \$300 which includes accommodation and full board in McCarthy, transport Fairbanks to and from McCarthy and course material.

## *COURSE SPONSORS*

- \* National Aeronautics and Space Administration (NASA)
- \* College of Natural Sciences and Mathematics (CNSM), University of Alaska Fairbanks (UAF)
- \* Geophysical Institute (GI), University of Alaska, Fairbanks (UAF)
- \* International Glaciological Society (IGS)

## *APPLICATIONS*

Applications must be sent to Regine Hock (regine@gi.alaska.edu) by 1 February 2012. For more details see <http://glaciers.gi.alaska.edu/courses/summerschool2012..>



# Glaciological diary

\*\* IGS sponsored

\* IGS co-sponsored

## 2011

14–15 October 2011

### **2011 Northwest Glaciologists Meeting**

Portland, Oregon, USA

Contact Andrew Fountain [andrew@pdx.edu]

24–28 October 2011

### **World Climate Research Programme Open Science Conference: Climate Research in Service to Society**

Denver, Colorado, USA

Website: <http://conference2011.wcrp-climate.org/>

Contact the conference secretariat at [info.conf2011@wcrp-climate.org]

25–26 October 2011

### **10th Ny-Ålesund Seminar**

Kjeller, Norway

Website: <http://nyalesund-seminar.nilu.no/>

27–29 October 2011

### **\*\*International Glaciology Society Nordic Branch Meeting 2011**

NVE, Oslo, Norway

Website: <http://www.nve.no/en/Water/Hydrology/Glaciers/IGS-Nordic-Branch-Meeting-2011/>

2–3 November 2011

### **Polar Simulations with the Weather and Research Forecasting Model**

Columbus, Ohio

Website: [http://polarmet.osu.edu/workshops/pwrf\\_2011/](http://polarmet.osu.edu/workshops/pwrf_2011/)

7–9 November 2011

### **\*Ice Deformation: from the model material to ice in natural environments – Conference in honour of Paul Duval (part of the ESF project MicroDICE)**

Grenoble, France

Website: <http://microdice.eu/activities/ice-deformation-from-the-model-material-to-polar-ice/>

7–9 November 2011

### **Workshop: Assessing the History of the Greenland Ice Sheet through Ocean Drilling**

Corvallis, Oregon, USA

Contact Joseph Stoner [jstoner@coas.oregonstate.edu] or Anders Carlson [acarlson@geology.wisc.edu]

7–11 November 2011

### **Workshop: Simulation of Groundwater Flow with Freeze and Thaw**

Montréal, Canada

Course brochure: [eps.mcgill.ca/~mckenzie/SUTRA-Workshop-Nov7-11-2011.pdf](http://eps.mcgill.ca/~mckenzie/SUTRA-Workshop-Nov7-11-2011.pdf)

Contact Jeff McKenzie [jeffrey.mckenzie@mcgill.ca] or Cliff Voss [cvoss@usgs.gov]

20–27 November 2011

### **Advanced Workshop on the Micromorphology of Glacial Sediments**

School of Geography, Queen Mary University of London, London, UK

Conveners: Jaap J. M. van der Meer, Simon Carr, Emrys Phillips, Mark Tarplee

Contact Jaap van der Meer [j.meer@qmul.ac.uk]

29 November 2011

### **IPY: A Focus on Knowledge to Action**

Washington, DC, USA

Website: <http://tinyurl.com/IPY-Symposium>

5–9 December 2011

### **American Geophysical Union Fall Meeting**

San Francisco, California, USA

Website: <http://www.agu.org/meetings/>

12–13 December 2011

### **Workshop: Ice Sheet System Model**

(to coincide with software release)

Pasadena, California, USA

Website: <http://issm.jpl.nasa.gov/issmworkshop2011/>  
Contact issm@jpl.nasa.gov

## 2012

9–12 January 2012

### **Nordic Geological Winter Meeting**

Reykjavík, Iceland

Permafrost and Periglacial Processes session.

Conveners: Ivar Berthling [ivar.berthling@svt.ntnu.no] and Bernd Etzel Müller [Bernd.etzelmueller@geo.uio.no]

Website: [http://www.jfi.is/ngw\\_2012](http://www.jfi.is/ngw_2012)

10–13 January 2012

### **Workshop on the Dynamics and Mass Budget of Arctic Glaciers/IASC Network on Arctic Glaciology Annual Meeting**

Zieleniec, Poland

Details as PDF: [http://www.igsoc.org:8000/symposia/Flyers\\_etc/PolishMeetingJan2012.pdf](http://www.igsoc.org:8000/symposia/Flyers_etc/PolishMeetingJan2012.pdf)  
Contact Krzysztof Migala [krzysztof.migala@uni.wroc.pl]

20 January 2012

**Symposium: The mountain cryosphere – a holistic view on processes and their interactions**

University Zurich Irchel, Switzerland  
Flyer: [http://www.igsoc.org:8000/symposia/www.geo.uzh.ch/microsite/cryodata/cryosphere\\_flyer.pdf](http://www.igsoc.org:8000/symposia/www.geo.uzh.ch/microsite/cryodata/cryosphere_flyer.pdf)  
Contact Stephan Gruber [stephan.gruber@geo.uzh.ch]

30 January–1 February 2012

**Responding to Arctic Environmental Change: Translating Our Growing Understanding into a Research Agenda for Action**

Kingston, Ontario, Canada  
Website: <http://www.queensu.ca/qieep>

2–3 February 2012

**6th Alpine Glaciology Meeting**

ETH Zürich, Zürich, Switzerland  
Website: <http://people.ee.ethz.ch/~glacier/agm2012/>  
Contact: Martin Lüthi [luethi@vaw.ethz.ch] or Martin Funk [funk@vaw.ethz.ch]

6–7 February 2012

**Trans-Himalayan workshop: Glaciers, Snow Melt and Runoff in the Himalayas**

Kathmandu, Nepal  
Website: <http://www.eu-highnoon.org/workshopkathmandu2012>

9–10 February 2012

**\*The Geophysics of the Cryosphere and Glacial Products: Properties, Processes and Technical Advances: New Advances in Geophysics Meeting 2012**

British Geophysical Association/Royal Astronomical Society/The Geological Society  
Burlington House, London, UK  
Website: [http://www.swan.ac.uk/environment\\_society/newscentre/latestevents/bgacryosphericgeophysics.php](http://www.swan.ac.uk/environment_society/newscentre/latestevents/bgacryosphericgeophysics.php)

13–15 February 2012

**\*Snow and Ice Research Group (SIRG) New Zealand Annual Workshop 2012**

Lake Ruataniwha Rowing Complex, near Twizel, New Zealand  
Website: <http://www.sirg.org.nz/>

15–17 February 2012

**Land Ice Working Group (LIWG) of the Community Earth System Model (CESM) annual winter meeting**

Boulder, Colorado, USA  
To receive further meeting announcements, including information on how to register, sign up for the LIWG mailing list at <http://mailman.cgd.ucar.edu/mailman/listinfo/ccsm-liwg>

20–24 February 2012

**2012 Ocean Sciences Meeting**

Salt Lake City, Utah  
Website: <http://www.sgmeet.com/osm2012/>

24–28 February 2012

**2012 Association of American Geographers Annual Meeting**

New York, USA  
Website: <http://www.aag.org/cs/annualmeeting>

1–12 March 2012

**Short Course in Physical Principles of Hydrology**

Kananaskas Valley, Alberta, Canada  
Website: [http://www.cwra.org/Branches/CSHS/Principles\\_of\\_Hydrology\\_ShortCourse\\_2011.aspx](http://www.cwra.org/Branches/CSHS/Principles_of_Hydrology_ShortCourse_2011.aspx)

5–8 March 2012

**German Geophysical Society Meeting 2012**

Hamburg, Germany  
The conference has three key topics: Geophysical earth system research, Passive seismics in applied geophysics, and Natural Hazards and Geophysics  
Website: <http://www.dgg-2012.de/index.php?id=561&L=1>

7–9 March 2012

**42nd Annual International Arctic Workshop Winter Park, Colorado, USA**

Website: <http://instaar.colorado.edu/meetings/AW2012/>

19–22 March 2012

**SLALOM2012 (Sea-Level and Adjustment of the Land: Observations and Models) Conference**

Athens, Greece  
Website: <http://slalom2012.geol.uoa.gr/>

14–18 April 2012

**12th International Circumpolar Remote Sensing Symposium**

Levi, Finland  
Website: <http://alaska.usgs.gov/science/geography/CRSS2012/index.php>

19–22 April 2012

**Arctic Science Summit Week**

Montréal, Canada  
In conjunction with the IPY 2012 From Knowledge to Action conference  
Website: <http://www.assw2012.org/>

22–27 April 2012

**IPY From Knowledge to Action Conference Montreal, Québec, Canada**

Website: <http://www.ipy2012montreal.ca/index.php>

22–27 April 2012

**European Geosciences Union: General Assembly 2012**

Vienna, Austria

Website: <http://meetings.copernicus.org/egu2012/>

23–26 April 2012

**Interpraevent 2012 – 12th Congress: Protection of Living Spaces from Natural Hazards**

Grenoble, France

Website: <http://www.interpraevent2012.fr/>

26–27 April 2012

**David C. Sego Symposium**

Edmonton, Alberta, Canada

Website: <https://uofa-cee.gobigevent.com/>

14–18 May 2012

**12th International Circumpolar Remote Sensing Symposium**

Levi, Finland

Website: <http://alaska.usgs.gov/science/geography/CRSS2012/index.php>

28 May–1 June 2012

**\*\*International Symposium on Seasonal Snow and Ice**

Lahti, Finland

Links on website: <http://alaska.usgs.gov/science/geography/CRSS2012/index.php>

Contact: Secretary General, International Glaciological Society

3–8 June 2012

**XV Glaciological Symposium: Past, Present and Future of the Cryosphere**

Arkhangelsk, Russia

Contact: Stanislav Kutuzov [s.kutuzov@gmail.com]

Website: <http://glac2012.igras.ru/>

5–8 June 2012

**Canadian Geophysical Union Annual Meeting**

Banff, Alberta, Canada

Website: <http://www.elements2012.ca/>

11–15 June 2012

**21st IAHR International Symposium on Ice**

Dalian, China

Contact: Pat Langhorne [pat.langhorne@otago.ac.nz]

Website: <http://slcoe.dlut.edu.cn/ice/iahr2012.html>

12–14 June 2012

**26th international Forum for Research into Ice Shelf Processes (FRISP)**

Utö, Stockholm Archipelago, Sweden

Contact: Adrian Jenkins [ajen@bas.ac.uk]

Website: <http://rechenknecht.natgeo.su.se/FRISP2012>

24–29 June 2012

Goldschmidt Conference

Montréal, Québec, Canada

Website: <http://www.vmgoldschmidt.org/2012/index.htm>

25–29 June 2012

**\*\*International Symposium on Glaciers and Ice Sheets in a Warming Climate**

Fairbanks, Alaska, USA

Links on website: <http://glaciers.gi.alaska.edu/events/igs2012>

Contact: Secretary General, International Glaciological Society

25–29 June 2012

**Tenth International Conference on Permafrost**

Tyumen, Russia

Website: <http://www.ticop2012.org/>

2–6 July 2012

**International Training Workshop: Micromorphology of Glacigenic Sediments**

Centre for Micromorphology, Queen Mary, University of London, London, UK

Details: [http://www.igsoc.org:8000/symposia/Flyers\\_etc/CfM\\_2012.pdf](http://www.igsoc.org:8000/symposia/Flyers_etc/CfM_2012.pdf)

Contact: Simon Carr [s.carr@QMUL.AC.UK]

13–25 July 2012

**SCAR 2012: Antarctic Science and Policy Advice in a Changing World**

Portland, Oregon, USA

Website: <http://scar2012.geol.pdx.edu/>

13–17 August 2012

Asia Oceania Geosciences Society/American

Geophysical Union Joint Assembly

Resorts World Sentosa, Singapore

Website: <http://www.asiaoceania.org/aogs2012>

26–30 August 2012

IGU 32nd International Geographical Congress

Cologne, Germany

Website: <https://igc2012.org/frontend/index.php>

5–6 September 2012

**\*\*International Glaciology Society British Branch Meeting 2012**

Aberdeen, UK

Contact: Douglas Mair [d.mair@abdn.ac.uk]

11–22 September 2012

Karthus course on Ice Sheets and Glaciers in the Climate System

Karthus, Italy

Website: <http://www.projects.science.uu.nl/iceclimate/karthus/>



16–23 September 2012  
5th International Workshop on Ice Caves  
Barzio and Milano, Italy  
Website: <http://users.unimi.it/icecaves/IWIC-V/>

24–29 September 2012  
Symposium: 20 years of Progress in Radar Altimetry  
Venice-Lido, Italy  
Website: <http://www.altimetry2012.org/>

1–5 October 2012  
**\*International Symposium on Ice Core Science**

Giens, France  
Website: <http://www.ipics2012.org/>

13–20 October 2012  
**Interdisciplinary Climate Change Research Symposium**  
Colorado Springs, Colorado, USA  
To apply see DISCCRS website: [http://disccrs.org/application\\_instructions](http://disccrs.org/application_instructions)

10–12 November 2012  
**International Conference on the Cryosphere: Changes, Impacts and Adaptation**  
Sanya, China  
Website: <http://icc.skllcs.ac.cn/>

## 2013

8–13 July 2013  
**Joint IACS/IAMAS Conference: Air and ice – interaction processes**  
Davos, Switzerland  
Contact: Charles Fierz [[fierz@slf.ch](mailto:fierz@slf.ch)]

August 2013  
**\*\*International Symposium on Changes in Glaciers and Ice Sheets: observations, modelling and environmental interactions**  
Beijing, China  
Contact: Secretary General, International Glaciological Society

## 2014

March–April 2014  
**\*\*International Symposium on Sea Ice**  
Hobart, Australia  
Contact: Secretary General, International Glaciological Society

June 2014  
**\*\*International Symposium on Observations, Modelling and Prediction of the Cryospheric Contribution to Sea Level Change**  
Grenoble or Chamonix, France  
Contact: Secretary General, International Glaciological Society

25–30 August 2014  
**\*\*International Symposium on the Changing Arctic Cryosphere**  
Edmonton, Alberta, Canada  
Contact: Secretary General, International Glaciological Society

## 2015

August 2015  
**\*\*International Symposium on Contemporary Ice-Sheet Dynamics: ocean interaction, meltwater and non-linear effects**  
Cambridge, UK  
Contact: Secretary General, International Glaciological Society

September 2015  
**\*\*International Symposium on High Mountain Glaciology**  
China  
Contact: Secretary General, International Glaciological Society

## 2016

June 2016  
**\*\*International Symposium on the Hydrology of Glaciers and Ice Sheets**  
Iceland  
Contact: Secretary General, International Glaciological Society

August/September 2016  
**\*\*International Symposium on Polar Sea Ice, Polar Climate and Polar Change**  
Boulder, Colorado, USA  
Contact: Secretary General, International Glaciological Society



# New members

**Ms Charlotte Axtell**

Geography, Swansea University  
College of Science, Singleton Park, Swansea SA2  
8PP, UK  
607467@swansea.ac.uk

**Dr Sabine Baumann**

Institute for Astronomical and Physical Geodesy,  
Technical University of Munich  
Arcisstr. 22, DE-82194 Munich, Germany  
sabine.baumann@bv.tum.de

**Mr Marci J. Beitch**

Earth & Planetary Sciences, University of  
California Santa Cruz  
Earth & Marine Sci Bldg, 1156 High Street, Santa  
Cruz, CA 5064, USA  
Tel +1 925-786-5313  
mbeitch@ucsc.edu

**Mr Robert A Burrows**

National Park Service, Denali National Park  
P.O. Box 9, Denali Park Denali Borough, AK  
99755, USA  
Tel +1 907-683-6244  
Rob\_Burrows@nps.gov

**Mr Denis Callens**

Laboratoire de Glaciologie, Université Libre de  
Bruxelles  
CP 160/03, Avenue F.D. Roosevelt, 50, Bruxelles  
BE-1050, Belgium  
Tel +32 6502215  
dcallens@ulb.ac.be

**Ms Sarah Child**

Department of Geology, University of Kansas  
1475 Jayhawk Blvd, Lawrence KS 66044, USA  
s021c518@ku.edu

**Miss Eleanor Darlington**

Geography, Loughborough University  
Geography Department, Martin Hall,  
Loughborough Leics LE11 3TU, UK  
Tel +44 (0)7742852044  
e.f.darlington@lboro.ac.uk

**Mr Andrew Finlayson**

Geology & Landscape Scotland, British Geological  
Survey  
Murchison House, West Mains Road, Edinburgh  
EH9 3LA, UK  
Tel +44(0)1316500209  
afin@bgs.ac.uk

**Mr Shruthi Ganesh**

Chemical Engineering, SRM University  
A 1001, Prakriti Towers, Gokuldham, Goregaon  
East, Mumbai Maharashtra 400063, India  
Tel 02228425690  
shruthi.vatsyayani@gmail.com

**Mr William J. Gillman**

Department of Geography, University of Exeter  
16 Danes Road, Exeter Devon EX4 4LS, UK  
wjg204@exeter.ac.uk

**Mr Brad Gooch**

Geoscience, University of Texas Austin  
Apt 233, 12100 Metric Blvd, Austin, TX 78758,  
USA  
Tel +1 407 718 4629  
bgooch@utexas.edu

**Ms Adelaide Goodeve**

University College London  
22 Guildown Avenue, Guildford, Surrey GU2  
4HB, UK  
Tel +44(0)788 9523059  
a.goodeve@btinternet.com

**Mr Wolfgang Gurgiser**

Meteorology, Innsbruck University  
Innrain 52, Innsbruck AT-6020, Austria  
wolfgang@gurgiser.at

**Ms Marijke Habermann**

Geophysics, University of Alaska Fairbanks  
Geophysical Institute, UAF, 903 Koyukuk Dr,  
Fairbanks, AK 99775-7320, USA  
Tel +1 907 209 1738  
marijke.habermann@gi.alaska.edu

**Mr Richard J. Hayes**

University of Sheffield  
Department of Geography, Sheffield, South  
Yorkshire S10 2TN, UK  
richard.hayes@shef.ac.uk

**Michiel M. Helsen**

IMAU, Utrecht University  
Princetonplein 5, Utrecht 3584 CC, Netherlands  
Tel +31 30 2533155  
helsenm@gmail.com

**Mr James P. Hickman**

Institute of Geography and Earth Sciences,  
Aberystwyth University  
Llandinam Building, Penglais Campus,  
Aberystwyth SY23 3BD, UK  
Tel +44(0) 1970 622 606  
jph9@aber.ac.uk



**Dr Ruth Hindshaw**

NGU  
Postboks 6315 Sluppen, Trondheim NO-7491,  
Norway  
ruth.hindshaw@ngu.no

**Matthew Hoffman**

Fluid Dynamics Group, Los Alamos National  
Laboratory  
T-3, Mail Stop B216, Los Alamos, NM 87545,  
USA  
Tel +1 503-757-6010  
mhoffman@lanl.gov

**Mr Coen Hofstede**

Glaciology, Alfred Wegener Institute  
Am Alten Hafen 26, Bremerhaven DE-27578,  
Germany  
Tel +1 471 48311174  
coen.hofstede@awi.de

**Ms Katrina Hunter**

School of Earth and Environment, University of  
Leeds  
Office 8.03, Leeds LS2 9JT, UK  
Tel +44 (0)113 343 1182  
katrina.hunter4@googlemail.com

**Mr Takafumi Katsushima**

Department of Maritime Technology, Toyama  
National College of Technology  
1-2 EbieNeriya, Imizu 933-0293, Japan  
Tel +81-766-86-5220  
katusima@nc-toyama.ac.jp

**Dr Tim Kerr**

Applied Hydrology, NIWA  
10 Kyle St, Riccarton 8011, PO Box 8602,  
Christchurch, New Zealand  
Tel +64 3 3437802  
t.kerr@niwa.co.nz

**Ms Amélie Kirchaessner**

British Antarctic Survey  
High Cross, Madingley Road, Cambridge CB3  
0ET, UK  
amelie.kirchaessner@bas.ac.uk

**Dr Lora Koenig**

Cryospheric Sciences Branch, NASA Goddard  
Space Flight Center  
GSFC, Code 615.0, Greenbelt, MD 20901, USA  
Tel +301-614-5507  
lora.s.koenig@nasa.gov

**Dr Peter Kuipers Munneke**

Buys Ballot Laboratory (BBL)  
Room 656, Institute of Marine and Atmospheric  
Research Utrecht, PO Box 80005, Utrecht NL-  
3508 TA, Netherlands  
Tel +31 30 253 3274  
p.kuipersmunneke@uu.nl

**Mr Darren Larsen**

Geological Sciences, University of Colorado/  
INSTAAR  
Unit H, Boulder, CO 80304, USA  
Tel +1 845 304-1408  
darren.larsen@colorado.edu

**Ms Elisabeth Mayr**

Ludwig-Maximilians-Universität Munich  
Lebscheestrasse 4, Munich DE-81543, Germany  
lisa-mayr@gmx.de

**Dr Christine McCarthy**

Lamont-Doherty Earth Observatory, Columbia  
University  
61 Route 9W, SG&T, Palisades, NY 10964, USA  
Tel +1 845 365 8713  
mccarthy@ldeo.columbia.edu

**Ms Tomoko Nitta**

The University of Tokyo  
Be505, IIS, University of Tokyo, 4-6-1 Komaba,  
Meguro-ku, Tokyo 153-8505, Japan  
nitta@rainbow.iis.u-tokyo.ac.jp

**Mrs Ingeborg Pay**

Amdal, Hommelvik NO-7550, Norway  
ingeborgpay@yahoo.com

**Dr Stephen Pekar**

School of Earth and Environmental Sciences,  
Queens College, City University of New York  
65-30 Kissena Blvd., Flushing, NY 11367, USA  
Tel +1 7189973305  
stephen.pekar@qc.cuny.edu

**Mr David Podrasky**

Geophysical Institute  
903 Koyukuk Dr, Univ. of Alaska, Fairbanks, AK  
99709, USA  
Tel +1 907 474 1896  
david.podrasky@gi.alaska.edu

**Ms Angelika H. H. Renner**

Norwegian Polar Institute  
Fram Centre, Tromsø NO-9296, Norway  
Tel +4777750557  
angelika.renner@npolar.no

**Clemens Schannwell**

University of Bonn  
An der Warte 3, Rangsdorf DE-15834, Germany  
Clemens.Schannwell@gmx.de

**Ms Fiona Seifert**

Department of Geology, Portland State University  
PO Box 751, Portland, OR 97207-0751, USA  
Tel +1 360 4335828  
fionaseifert@msn.com

**Dr Jean Emmanuel Sicart**

IRD-LTHE

Représentation de l'IRD en Bolivie, CP9214, La Paz 00095, Bolivia

Tel +591 22772459

jean-emmanuel.sicart@ird.fr

**Mrs Nicole E. Spaulding**

Climate Change Institute, University of Maine

Sawyer Environment Research Building, Orono, ME 04469-5703, USA

nicole.spaulding@maine.edu

**Mr Tyler Sutterley**

Earth System Science, University of California, Irvine

1101 Croul Hall, Irvine CA 92617, USA

tsutterl@uci.edu

**Mr Rainer Unger**

Climate Change Impacts, Central Institute for Meteorology and Geodynamics

Hohe Warte 38, Vienna A-1190, Austria

r.unger@zamg.ac.at

**Mr Ward J. J. van Pelt**

IMAU, Utrecht University

Princetonplein 5, NL-3584 Utrecht CC, Netherlands

w.j.j.vanpelt@uu.nl

**Mr Thomas Watts**

School of the Built and Natural Environment, Northumbria University

Ellison Building, Newcastle upon Tyne NE1 8ST, UK

Tel +44 (0)788 6358565

tom.watts@northumbria.ac.uk

**Mr Christopher Williams**

School of Geography, University of Leeds

Leeds LS2 9JT, UK

gycnw@leeds.ac.uk

**Dr Thomas Zwinger**

Software and Data Solutions, CSC – IT Center for Science Ltd

PO Box 405, Keilaranta 14, Espoo FIN-02101, Finland

Tel +358-9-457 2183

thomas.zwinger@csc.fi

# International Glaciological Society

Secretary General M.M. Magnússon

## Council Members

## Concurrent service on Council, from

President	D.R. MacAyeal	2011–2014	2010
Vice-Presidents	P. Bartelt	2011–2014	2011
	C.L. Hulbe	2009–2012	2006
	F. Navarro	2011–2014	2011
Immediate Past President	E. Brun	2011–2013	2008
Treasurer	I.C. Willis	2009–2012	2006
Elective Members	D. Dahl-Jensen	2010–2013	2010
	G. Flowers	2009–2012	2009
	*S. Fujita	2011–2014	2011
	W.F. Kuhs	2009–2012	2009
	*M. Lappäranta	2010–2013	2010
	*R. Massom	2009–2012	2009
	*J. Oerlemans	2010–2013	2010
	J.A. Richter-Menge	2009–2012	2009
	*C. Ritz	2011–2014	2011
	*M. Schiwkowski	2011–2014	2011
	*Liu Shiyin	2010–2013	2010
	*Xiao Cunde	2011–2014	2011
Co-opted	T. Murray	2011	2011
	F. Pattyn	2011	2011

\*First term of service on the Council

## IGS Committees

Awards	M. Tranter (Chairman)
Nominations	E. Brun (Chairman)
Publications	C.L. Hulbe (Chairman)

## Correspondents

Australia	P. Heil
Austria	Friedrich Obleitner
Belgium	J.-L. Tison
Canada	H. Jiskoot
Chile	G. Casassa and Andrés Rivera
China	Yao Tandong
Denmark	A.P. Ahlström
Finland	M. Leppäranta
France	C. Ritz
Germany	H. Oerter
Iceland	P. Þorsteinsson
Italy	C. Smiraglia
Japan (Hokkaido)	T. Shiraiwa
Japan (Honshu)	K. Nishimura

Netherlands	J. Oerlemans
New Zealand	A. Mackintosh
Norway	J.C. Kohler
Poland	W. Dobinski
Russia	V.N. Mikhailenko
Spain	F. Navarro
Sweden	V.A. Pohjola
Switzerland	F. Paul
UK	B.P. Hubbard
USA (Eastern)	D.C. Finnegan
USA (Western)	H.B. Conway and
	E.D. Waddington
USA (Alaska)	M.A. Nolan

## Seligman Crystal

1963 G. Seligman	1986 G. de Q. Robin	2000 S.C. Colbeck
1967 H. Bader	1989 H. Oeschger	2001 G.S. Boulton
1969 J.F. Nye	1989 W.F. Weeks	2001 G.K.C. Clarke
1972 J.W. Glen	1990 C.R. Bentley	2003 K. Hutter
1972 B.L. Hansen	1990 A. Higashi	2005 R.B. Alley
1974 S. Evans	1992 H. Röthlisberger	2007 L.G. Thompson
1976 W. Dansgaard	1993 L. Lliboutry	2009 P.A. Mayewski
1977 W.B. Kamb	1995 A.J. Gow	
1982 M. de Quervain	1996 W.F. Budd	
1983 W.O. Field	1997 S.J. Johnsen	
1983 J. Weertman	1998 C. Lorius	
1985 M.F. Meier	1999 C.F. Raymond	

## Honorary Members

G.K.C. Clarke	J.W. Glen
V.M. Kotlyakov	M.F. Meier
W.S.B. Paterson	C.W.M. Swinbank
G. Østrem	G. Wakahama

## Richardson Medal

1993 H. Richardson	1999 J.A. Heap
1997 D.R. MacAyeal	2003 C.S.L. Ommanney
1998 G.K.C. Clarke	2010 T.H. Jacka

The Society is registered as a charity in the United Kingdom with the Charity Commissioners – No. 23104

# International Glaciological Society

Scott Polar Research Institute, Lensfield Road  
Cambridge CB2 1ER, UK

## DETAILS OF MEMBERSHIP

Membership is open to all individuals who have a scientific, practical or general interest in any aspect of snow and ice. Payment covers purchase of the *Journal of Glaciology* and *ICE*. Forms for enrolment can be obtained from the Secretary General or filled in on line on <http://www.igsoc.org/membership>. No proposer or seconder is required.

### ANNUAL MEMBERSHIP FEE 2012

	Sterling	US	Euro
Ordinary members	£82/72*	\$131/115*	€94/83*
Supporting members	£261	\$418	€300
Contributing members	£130	\$208	€150
Retired/partner members	£27	\$43	€31
Student members (and juniors under 30 years)	£41/36*	\$66/58*	€47/41*
Institutions, libraries for <i>Journal of Glaciology</i> Volume 58 <sup>†</sup>	£332/290*	\$531/464*	€382/334*

*Annals of Glaciology* – 53(60, part 1), 53(60, part 2) and 53(61)

Individual price to members	£33	\$53	€38
Subscription price to members (3 issues)	£78	\$125	€90
Individual price to libraries/institutions <sup>†</sup>	£78	\$125	€90
Subscription price to libraries/institutions (3 issues) <sup>†</sup>	£221/195*	\$354/312*	€254/224

\*Online only access.

<sup>†</sup>Net of VAT.

Note: Payments in currencies other than those listed above should be calculated at the exchange rate in force at the time of payment. Then add sufficient money to cover the bank charges. Any bank transfers from outside the UK into our £ sterling account incur bank charges. The Society needs the full payment, so bank charges should be paid by you. The most economical way is to transfer payments into the respective account, i.e. USD\$ into our \$ account and EURO€ into our € account. Payment may also be made by Access/Eurocard/MasterCard or VISA/Delta.

## ICE

Editor: M.M. Magnússon (Secretary General)

This news bulletin is issued to members of the International Glaciological Society and is published three times a year. Contributions should be sent to your National Correspondent or to the Secretary General, International Glaciological Society, Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER, UK.

Annual cost for libraries, etc., and for individuals who are not members of the Society:

Sterling £35.00 US\$56 €40

All enquiries about the International Glaciological Society should be addressed to:  
Secretary General, International Glaciological Society, Scott Polar Research Institute,  
Lensfield Road, Cambridge CB2 1ER, UK

Tel: +44 (1223) 355 974 Fax: +44 (1223) 354 931

E-mail: [igsoc@igsoc.org](mailto:igsoc@igsoc.org)

Web: <http://www.igsoc.org/>