

ICE



***NEWS BULLETIN
OF THE INTERNATIONAL
GLACIOLOGICAL
SOCIETY***



Ice

News Bulletin of the International Glaciological Society

Number 171

2nd Issue 2016

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Cover picture: Khumbu Glacier and Mount Everest (Qomolungma) from the Changri Nup Glacier, April 2014.
Photo by Andrea Soncini.

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

It is now a year since we signed the contract with Cambridge University Press. A lot has happened during this first year. In my last ICE editorial I told you about the new IGS Chief Editors under the direction of Graham Cogley. They have been very proactive and shortly you will be able to view online the fruit of their efforts. 'This material mostly involves "instructions to authors" and other technically pertinent information needed for submission, but it also includes (a) the IGS style guide, and (b) very importantly, elements of IGS publication policy that involve, for example, data archiving, etc.' to quote the IGS president.

However, there are other things we have tried to publicize that it appears our membership simply has not picked up on.

First, Article Processing Charges or APCs as they are generally termed. We no longer have page charges, where you pay according to the number of pages in the published article. We now have a two tier system, 'Articles' and 'Letters'. The distinction between the two is that 'Letters' contain five pages or fewer and 'Articles' contain six or more pages. The price is fixed at £600 for 'Letters' and £1200 for 'Articles'. And if you are a member of the IGS at the time of submission you get a 10% discount, i.e. the price becomes £540 or £1080 respectively.

Second is the question of Open Access. I still get asked what the Open Access charges are. Since we partnered with CUP, everything we publish is Gold Open Access and there is no separate OA fee.

Third relates to licensing of the published material. By default the licence is CC-BY (Attribution). If you want a different licence this is possible but you will have to inform

CUP of your choice. We will publish a detailed description of the different options in the next *ICE*.

In 2016 the membership dropped from 1100 to ~800. This is disappointing but perhaps understandable. You may say that now that IGS publications are Open Access why bother to be a member? But there is much more to being a member of the IGS than simply having access to our journals. First, you get 10% discount on the APCs, as mentioned above. Second, you get a substantially better rate when attending IGS symposia. But there is more. We try to support various activities such as summer schools and IGS branch meetings. I came back recently from the IGS Nordic Branch meeting in Tromsø with very favourable feedback from members, who expressed their gratitude that we organized small, intimate meetings of this type. To continue doing so we need your support. Not only for financial reasons but also for the backbone that a healthy membership gives the IGS. We are hoping to be able to make membership more affordable but the upheavals we have seen during the past year involved some expense. This will give us a return in that the operating costs are coming down and will hopefully continue to do so. In the next *ICE* we will introduce you to our new office. So at the risk of sounding repetitive I would like to repeat what I said in my last *ICE* editorials. 'Only by retaining our membership will we be able to provide you with our continued service as a prestigious learned society.'

The renewal notices for 2017 have just gone out, so those of you that 'forgot' to renew for 2016, please do so for 2017. We look forward to receiving your renewals.

Magnús Már Magnússon
Secretary General



Evans Family Professorship in Arctic Engineering

Thayer School of Engineering at Dartmouth seeks a candidate to be the inaugural holder of the newly-endowed Evans Family Professorship.

The successful candidate will:

- have a doctorate in engineering or related field;
- lead a strong externally-funded research program in engineering related to Arctic environments;
- be a gifted teacher with motivation and expertise that complements Thayer's interdisciplinary approach to engineering education;
- contribute to Dartmouth's research effort in cold regions science and engineering.

Thayer is undertaking a significant expansion of faculty and programs. This position is the first of three new Dartmouth hires focused on "Ice, Climate, and Energy" with potential for collaborations with Thayer's [Ice Research Laboratory](#), Dartmouth's new [Irving Institute for Energy and Society](#), and with the nearby [US Army Cold Regions Research and Engineering Laboratory](#).

Please submit:

- complete CV
- statement of research and teaching interests
- three references

Send in PDF format to: Thayer.Ice.Search@dartmouth.edu

Review of applications will begin on February 1st and continue until the position is filled. Questions should be directed to Professor Ian Baker at ian.baker@dartmouth.edu.

Dartmouth is a member of the Ivy League with a liberal arts curriculum and three professional schools — [Geisel School of Medicine](#), [Thayer School of Engineering](#), and [Tuck School of Business](#). The university combines its deep commitment to undergraduate liberal arts and graduate education with leading research and scholarship.

[Dartmouth's home](#), the Upper Connecticut River Valley, is a vibrant academic and professional community offering excellent schools, thriving arts, and an unmatched quality of life in a beautiful setting. Urban amenities in Boston MA, Burlington VT, and Montreal QC are all within a few hours drive.

Dartmouth College is an equal opportunity/affirmative action employer with a strong commitment to diversity and inclusion. We prohibit discrimination on the basis of race, color, religion, sex, age, national origin, sexual orientation, gender identity or expression, disability, veteran status, marital status, or any other legally protected status. Applications by members of all underrepresented groups are encouraged.



International Glaciological Society

JOURNAL OF GLACIOLOGY

Papers accepted for publication between 1 May and 31 August 2016. The papers are listed in alphabetical order by first author. Some of these papers have already been published.

Atanu Bhattacharya, Tobias Bolch, Kriti Mukherjee, Tino Pieczonka, Jan Kropáček, Manfred F Buchroithner

Overall recession and mass budget of Gangotri Glacier, Garhwal Himalayas, from 1965–2015 using remote sensing data

Andreas Born

Tracer transport in an isochronal ice sheet model

Luca Carturan

Replacing monitored glaciers undergoing extinction: a new measurement series on La Mare Glacier (Ortles–Cevedale, Italy)

Wing S. Chan, Merlin L. Mah, Ryan C. Bay, Joseph J. Talghader

Long-wavelength optical logging for high resolution detection of ash layers in glacier ice

Valerio Faraoni

Volume–area scaling of glaciers and ice caps and their longitudinal profiles

John W. Goodge, Jeffrey P. Severinghaus

Rapid access ice drill: a new tool for exploration of the deep Antarctic ice sheets and subglacial geology

Kevin Hammonds, Ian Baker

The effects of Ca^{2+} on the strength of polycrystalline ice

Anna E. Hogg, Andrew Shepherd, Noel Gourmelen, Marcus Engdahl

Grounding line migration from 1992 to 2011 on Petermann Glacier, northwest Greenland

Lasse Makkonen, Maria Tikanmäki, Panu Sainio

Friction in sliding heavy objects on ice

Colleen A. Mortimer, Martin Sharp, Bert Wouters

Glacier surface temperatures in the Canadian High Arctic, 2000–15

Paul Muzikar

Explicit solutions for a probabilistic moraine preservation model

F. Parrenin, S. Fujita, A. Abe-Ouchi, K. Kawamura, V. Masson-Delmotte, H. Motoyama, F. Saito, M. Severi, B. Stenni, R. Uemura, E. Wolff

Climate-dependent contrast in surface mass balance in East Antarctica over the past 216 ka

Kristin Poinar, Ian Joughin, Jan T. M. Lenaerts, Michiel R. van den Broeke

Englacial latent-heat transfer has limited influence on seaward ice flux in western Greenland

Antoine Rabatel, Jean Pierre Dedieu, Christian Vincent

Spatio-temporal changes in glacier-wide mass balance quantified by optical remote-sensing on 30 glaciers in the French Alps for the period 1983–2014

Marion Réveillet, Christian Vincent, Delphine Six, Antoine Rabatel

Which empirical model is best suited to simulate glacier mass balances?

N. Rutter, H-P. Marshall, K. Tape, R. Essery, J. King

Impact of spatial averaging on radar reflectivity at internal snowpack layer boundaries

Dustin M. Schroeder, Helene Seroussi, Winnie Chu, Duncan A. Young

Adaptively constraining radar attenuation and temperature across the Thwaites Glacier catchment using bed echoes

Laura I. Thomson, Michael Zemp, Luke Copland, J. Graham Cogley, Miles A. Ecclestone

Comparison of geodetic and glaciological mass budgets for White Glacier, Axel Heiberg Island, Canada

Shun Tsutaki, Shin Sugiyama, Daiki Sakakibara, Takanobu Sawagaki

Surface elevation changes during 2007–13 on Bowdoin and Tugto Glaciers, northwestern Greenland

Lizz Ultee, Jeremy Bassis

The future is Nye: an extension of the perfect plastic approximation to tidewater glaciers

**Surui Xie, Timothy H. Dixon, Denis Voytenko,
David M. Holland, Denise Holland,
Tiantian Zheng**

Precursor motion to iceberg calving at
Jakobshavn Isbræ, Greenland, observed with
terrestrial radar interferometry

**H. Jay Zwally, Jun Li, John W. Robbins,
Jack L. Saba, Donghui Yi, Anita C. Brenner**

Letter: Response to Comment by A. RICHTER, M.
HORWATH, R. DIETRICH (2016) on 'Mass gains
of the Antarctic ice sheet exceed losses' by H. J.
Zwally and others

**H. Jay Zwally, Jun Li, John W. Robbins,
Jack L. Saba, Donghui Yi, Anita C. Brenner**

Letter: Response to Comment by T. SCAMBOS
and C. SHUMAN (2016) on 'Mass gains of the
Antarctic ice sheet exceed losses' by H. J. Zwally
and others

ANNALS OF GLACIOLOGY 57(73)

*The following papers have been selected for publication in Annals of Glaciology 57(73) (thematic
issue on Contemporary ice-sheet dynamics), edited by Tony Payne*

**David E. Gwyther, Eva A. Cougnon,
Benjamin K. Galton-Fenzi, Jason L. Roberts,
John R. Hunter, Michael S. Dinniman**

Modelling the response of ice shelf basal melting
to different ocean cavity environmental regimes

**Wenfeng Huang, Peng Lu, Ruibo Lei,
Hongjie Xie, Zhijun Li**

Melt pond distribution and geometry in high
Arctic sea ice derived from aerial investigations

Christopher M. Little, Nathan M. Urban
CMIP5 temperature biases and 21st-century
warming around the Antarctic coast

**M. L. Pittard, J. L. Roberts, B. K. Galton-Fenzi,
C. S. Watson**

Sensitivity of the Lambert–Amery glacial system
to geothermal heat flux

**Christopher Shuman, Etienne Berthier,
Ted Scambos**

Changes in the Seal Nunataks ice shelf region
from imagery and altimetry

**S. Sun, S. L. Cornford, D. E. Gwyther,
R. M. Gladstone, B. K. Galton-Fenzi, L. Zhao,
J. C. Moore**

Impact of ocean forcing on the Aurora Basin in
the 21st and 22nd centuries

**Tiantian Wang, Bo Sun, Xueyuan Tang,
Xiaoping Pang, Xiangbin Cui, Jingxue Guo,
Hui Wang**

Spatio-temporal variability of past accumulation
rates inferred from isochronous layers at
Dome A, East Antarctica

Ryan Wilson, Daniela Carrión, Andrés Rivera

Detailed dynamic, geometric and supraglacial
moraine data for Glaciar Pio XI, the only surge-
type glacier of the Southern Patagonia Icefield

Annals 57(73) is now complete



Annual General Meeting 2016

Thursday 14 July

Scripps Seaside Forum, La Jolla, California, USA

The President, Douglas R. MacAyeal, was in the Chair.

88 persons from 16 countries attended, of whom 66 were members.

1. *The previous AGM's minutes*

The Minutes of the last Annual General Meeting, published in the 3rd issue of ICE 2015, No 169, p. 20–24, were approved on a motion by O. Sergienko, seconded by T. Bartholomäus and signed by the President.

2. *The President's report*

The President gave the following report for 2015/16:

Ladies and gentlemen, members of the IGS and dear colleagues

It is with considerable relief and satisfaction that I report to the membership that the myriad of strategic and structural changes that the IGS has contemplated for its publications over the past 3 years has finally come to fruition. The *Journal of Glaciology* and *Annals of Glaciology* are now produced as fully Open Access (gold) publications that are immediately available to the general readership, are produced at a competitive price that authors will find reasonable, and continue to be edited at the highest standards. We now have a new partner, Cambridge University Press, helping us produce our publications at competitive rates and with technology and elements of added value that are commensurate with a venerable non-profit publishing house that is second to none in terms of scholarly eminence. The retirement of our long-serving Chief Editor, Jo Jacka, has finally come, and I wish him well on behalf of the entire IGS along with passing to him our 'Thank you'. Five new Chief Editors (splitting coverage of the scientific areas covered by our publications) under the overall leadership of Graham Cogley are now in place to take on Jo's responsibilities, and they do so enthusiastically and with an eye toward continuing the striving for progress that Jo has so ably represented during his tenure.

Credit for undertaking these changes to the IGS publications is spread among many generous volunteers, officers and Council members within the IGS. Foremost are Christina Hulbe, Eric Wolff and the rest of the Publications Committee who have patiently advocated the important need to respond to the Open Access movement for many

years. Among the others to be recognized for their service in assisting the IGS make its transition are the Secretary General, Magnús Már Magnússon, Vice Presidents Gwenn Flowers and Regine Hock, the Treasurer, Ian Willis, former IGS president Liz Morris and Chief Editor Jo Jacka. All the IGS office staff also deserve recognition for their help in making the transition as smooth as possible.

The changes the IGS has undertaken over the past year are likely to be remembered as some of the most significant since the inception of the IGS as an international society. The work for this change continues, as the IGS with its CUP partner will be busy transforming the archive of past publications to free access in the coming year. Other changes will include downsizing the IGS headquarters office to account for the reduced staff. (I acknowledge with great appreciation for many years of long service the departure of Mrs Sukie Hunter, Mrs Rachel Brown and Mr Craig Baxter, as well as several other associates, who have left our employ at the conclusion of the last issue of the *Journal of Glaciology* produced by our in-house system.) The most important changes to come will involve the continued emphasis the IGS governance has, along with the Secretary General, on seeking ways to better serve the membership, the general community at large and the science of glaciology.

Among the areas of IGS activity that have my attention, and which are of significant importance to serving the membership, community and science, are:

1. an introspection of IGS governance and the various ways in which the Council, officers and Secretary General assess proposals and reach decisions that lead to improvements and modernizations of the IGS
2. an assessment of the IGS awards practices and traditions, particularly in recognition of the increasing diversity of IGS membership and scientific activity
3. the possible creation of a third publication of the IGS, loosely termed a 'Data Journal' for now, in partnership with the National Snow and Ice Data Center (NSIDC) of the USA.

The process and considerations for creating a new Data Journal have been widely discussed among the Publications Committee, the officers, our new

Chief Editors and the NSIDC staff over the past year, following the Council's decision at its August 2015 meeting (held in Cambridge) to pursue the idea. An informal report on this process and a chance to hear membership viewpoints will be one of the elements of 'new business' at this AGM.

Finally, it is my great pleasure to inform the membership that I and the IGS Council have decided upon a recommendation from the IGS Awards Committee to present the following people with IGS awards.

First we have decided to present an Honorary Membership to Professor Keiji Higuchi for formative contribution to the science of glaciology in Japan and in countries of the Himalaya. Professor Higuchi was a nucleating influence on Japanese glaciology during the years in which Japan rebuilt from the destruction it suffered in the mid-20th century. At a time when glaciology was considered a low-priority luxury, he initiated the earliest and longest-running studies of ice and snow in the Central Alps of Japan, and initiated the long-standing participation of Japanese glaciologists in the study of ice and snow in the Himalaya. The formidable scientific accomplishments of Japan, within the context of its local snow and ice phenomena, and very importantly also within the context of Japan's pioneering contributions to the study of snow and ice in the High Asian environment, broadly defined, owe their start to Professor Higuchi's leadership.

Second, the IGS awards the Richardson Medal to Trevor Chinn for a lifetime of service to New Zealand's glaciological science and for sustained contributions to research of snow and ice in New Zealand and Antarctica. Trevor is an original, intuitive scientist who leaves a lasting, positive impression on everyone who meets him. He is widely renowned for being 'the stalwart of New Zealand glaciology' for 50 years who initiated and maintained close study of the mass balance of New Zealand's many glaciers. Trevor Chinn is 'New Zealand's national treasure' when it comes to glaciology. He was its premier caretaker in the early days and is an energetic inspiration to the many youthful New Zealand glaciologists entering the community today.

Third, the IGS awards the Richardson Medal to Professor Elizabeth Morris for dedicated lifetime service in the facilitation of glaciological research in the UK and worldwide for pioneering contributions to the application of new observational methodology to the science of snow and ice. The glaciological community in the UK in particular and throughout the world in general is enriched in the range of its activity and the diversity of its people and interests because of the ways in which Professor

Morris stepped into leadership roles at critical times. She was the head of the ice and climate division at the British Antarctic Survey at a time when Antarctic Research stepped up from being simply 'a curiosity' to being 'essential' in guiding the world's public policy concerns to recognize human impacts on natural processes. She was the first, and so far only, woman to be President of the International Commission on Snow and Ice and the International Glaciological Society and as such she encouraged other organizations, such as the IUGG, to strengthen their commitment to glaciological sciences.

Council has decided that there is a need to reform the Awards Committee and to take a close look at IGS awards and honours. Council has approved that, as President, I should approach Laura Koenig to become the next chair of the committee.

I close my report by indicating that I am now in my sixth year as the president of your Council, and that I look forward to working with my successor to ensure a tidy transition and continuity of IGS effort.

Douglas R. MacAyeal
President

Further to the President's report, T. Scambos asked the membership to consider possible data articles they might be in a position to submit to a new data journal.

P. Langhorne expressed her opinion as a former chair of the Awards Committee that it was an excellent idea to take a close look at the way the IGS makes awards and to revisit the purpose of the committee.

T. Bartholomaeus raised the subject regarding the proposed data journal of whether the source code used by modellers should also be put into public repositories, as indeed the NSF encourages. T. Scambos responded and said that was indeed one of the considerations.

P. Langhorne proposed and U. Herzfeld seconded, that the President's report be accepted. This was carried unanimously.

3. The Treasurer's report

The Secretary General presented the Treasurer's report on behalf of the IGS Treasurer, Dr I.C. Willis, with the audited Financial Statements for the year ended 31 December 2015.

Fellow members, ladies and gentlemen

In previous years, an income of >£500k required us to have a full Audit rather than a less detailed (and less costly) Independent Examination. A change in UK Government rules now has this threshold at £1million. Our income was ~£512k

and we opted for an Independent Examination this year. Throughout this report, I will make reference to the Society's fully audited accounts for the year 2015 and refer to the relevant page numbers.

The Society's finances are summarized by considering the changes from 1 January 2015 to 31 December 2015, as shown on page 11 of the accounts. In the table, the Restricted Fund is money associated specifically with the Seligman Crystal and the Richardson Medal. The Unrestricted Funds is everything else.

Restricted Funds: increased by £118 from £5947 to £6065 as a result of the interest on investments; no Seligman Crystal was commissioned in 2015.

Unrestricted Funds: increased by £35 579 from £490 797 to £526 376 showing that the income to IGS largely from membership, sales of the *Journal* and *Annals*, page charges and symposia attendance slightly exceeded expenditure associated with *Journal* and *Annals* printing, publication and associated office support, and office support for activities related to organizing symposia and running the Society.

Total: The Society had net resources accrued before revaluation of £36 047 resulting in the positive movement in the Society's funds of £35 697 in 2015 compared with £97 204 in 2014, £8477 in 2013, £28 092 in 2012, and losses between 2008 and 2011.

Thus, I am pleased to report that the Society's finances are in profit for the fourth year in a row, the second biggest annual profit for over 10 years. The last 4 years have seen a cumulative profit of £169 470 which has now almost made up for the periods of loss between 2008 and 2011. Since 2007, we have a cumulative deficit of just £36 311. I hope the Society can close that entirely over the next year by turning in another modest profit similar to this year, for 2016. Our total funds at the end of the year were £532 441 and our average annual expenditure for the past 3 years has been £508 083. As I've stated in previous reports, I would like to see our total funds equal to our annual expenditure and I'm pleased to report that for the first time in 10 years we have achieved that

In more detail, income is itemized in notes 2–7, and expenditure is listed in notes 3 and 8–10 on pages 18–22 of the accounts. The accounts are presented under the headings '*Journal*, *ICE & Books*', '*Annals*', and '*Meetings/Symposia*' to reflect the three main activities of the Society.

Income:

Note 2. Donations were £92 in 2015 compared with £10 in 2014. There were no Grants received

in 2015. Note Royalty income, which used to feature here, now features in a separate Note 7.

Note 3. Trading activities associated with the sale of IGS merchandise turned in a very small profit of £154 in 2015 compared with the larger profit of £709 in 2014. Over the last four years, the cumulative profit associated with trading of T-shirts, fleeces, hats, etc. has been £1130!

Note 4. Income from interest on investments increased slightly in 2015 compared with 2014: up £2096 from £7795 to £9891. Income from this source has been rising steadily for the last few years, showing that our choice to invest in a particular 'higher interest' but still 'low risk' investment account has been a good one. The particular account to invest in is reviewed each year.

Note 5. Income associated with *Journal*, *ICE & Books* was down slightly by £14 055 from £307 137 in 2014 to £293 082 in 2015. This fluctuates somewhat from year to year (e.g. it was up by £56 457 between 2013 and 2014). Some of this decrease was due to reduced membership subscriptions, mentioned below the table in Note 5, where we see that membership income dropped by £3637 from £68 077 to £64 440. The remaining decrease associated with *Journal*, *ICE & Books* is associated with sales to non-members, libraries and other organizations, and page charges. These are discussed further below with respect to Note 6. Income associated with *Annals* was down slightly by £3844 from £123 960 in 2014 to £120 116 in 2015. I discuss this further below too with respect to Note 6. Income from Meetings and Symposia was down substantially by £117 136 from £202 636 in 2014 to £85 500 in 2015. This is despite the fact that only two Symposia took place in 2014 (Hobart, Chamonix) whereas three occurred in 2015 (Kathmandu, Iceland, Cambridge). This is to some extent offset by the lower costs of running the Meetings/Symposia in 2015 as compared to 2014 (see Note 8 below). As mentioned in my report last year, and as borne out again here, the Society's Meetings and Symposia tend to make a small loss (when overheads associated with the IGS Office are factored in), and the extent of this loss depends heavily on the 'success' of the meeting as measured by numbers attending and degree of sponsorship the local committee is able to muster (although I accept that there are other ways of measuring 'success' of a conference). Comparing the Meetings/Symposia items of Note 5 (Income) and Note 10 (Expenditure), we see that symposia made a net loss of £10 215 in 2014 (Hobart and Chamonix) and a bigger net loss of £39 579 in 2015 (Kathmandu, Iceland and Cambridge). These

differences reflect the fact that: i) the Hobart and Chamonix meetings were large and therefore relatively inexpensive due to the benefits of 'economies of scale'; ii) the Iceland meeting, by contrast, was small and therefore relatively costly; iii) the Chamonix meeting attracted an EU grant of €10k to help fund some delegates; iv) many delegates attending the Kathmandu conference were charged at a concessionary rate. Thus, the IGS should try to ensure that a significant number of its Meetings/Symposia will attract large numbers and, where possible, the IGS and the local organizing committees should try to obtain external sponsorship.

Note 6. Income from *Journal* sales to libraries and other organizations was up significantly by £13 600 from £91 348 in 2014 to £104 948 in 2015. This reflects the increased subscription rates that were implemented in 2015. For example the cost of the volume in 2014 was £357 and in 2015 was £414. Conversely, income from page charges dropped by £19 427 from £106 501 (2014) to £87 074 (2015) and the income from the Open Access Fee dropped from £34 500 (15 papers) in 2014 to £31 122 (13.5 papers) in 2015. Taken together, income to the *Journal* from authors dropped by £22 805. The number of pages published dropped only slightly between 2014 and 2015 (1231 pages to 1205 pages) and much of this apparent drop in income is not real, but associated with a difference in the timing of invoicing between the two years. Of course, the income stream associated with publication of the *Journal* will be completely different in future years now that it has gone fully Open Access and is being published in collaboration with CUP.

As mentioned above, total income from *Annals* is down between 2014 and 2015. This decrease in *Annals* income largely reflects a drop in page charge income of £15 302 and a drop in Open Access Fee income of £2300. This reflects the smaller number of *Annals* issues published in 2015 as compared to 2014 (four issues in 2014; two issues in 2015).

Expenditure:

Note 8. This section of the accounts is presented slightly differently from previous years with 'governance costs' (largely accountancy costs and the salary of our Secretary General) being added to 'support costs' (largely office rental, outgoings associated with Symposia, and salaries of the Membership & Accounts Manager and the Publication Team) and apportioned across the three main areas of IGS activity as appropriate. The totals for 2014 have been adjusted with respect to how they appeared in last year's accounts to reflect the current changes. Thus, expenditure associated

with *Journal*, *Ice & Books* is up slightly by £11 888; outgoings associated with *Annals* are up slightly by £599; but payments associated with Meetings/Symposia were down substantially by £90 210. These are discussed in more detail below.

Note 9. Printing costs have dropped by £16 206, reflecting both the publication of two fewer *Annals* volumes in 2015 than in 2014 and the fact that more members and libraries are subscribing to online-only. This latter continues a trend over recent years. Online submission fees rose by £3587. Wages and salaries associated with these activities dropped by £3240 as one less *Annals* issue was produced in 2015 cf. 2014. However, proof reading and editorial costs remained the same, despite one less *Annals* volume being produced. Editorial fees and expenses dropped back to 2013 levels as the Chief Editor's travel expenses dropped compared to 2014.

Note 10. The total support costs associated with *Journal*, *Annals* and Meetings/Symposia activity decreased by £72 855 from £368 104 (2014) to £295 249 (2015). This is largely associated with the decreased costs associated with running the Kathmandu, Iceland and Cambridge Meetings compared with running the Hobart and Chamonix Symposia (a decrease of £110 539). This is to some extent offset by the decreased income associated with Meetings/Symposia (£117 136) – see Note 5 above. Telephone, stationery and postage costs continue the falling trend of previous years as fewer paper copies of the *Journal* and *Annals* are posted.

The hike in Computer costs of £8066 is due to extra costs incurred this year associated with the move to CUP, notably ~£11k paid to the company Newgen to convert back issues of the *Journal* to appropriate .xml format, and ~£8k to our (then) website hosts Ingenta. These increases are offset by a saving of ~£10k compared to last year, as last year there had been a ~£10k hike due to a change in the date on which prepayment for website hosting occurred as compared to previous years (as mentioned in my report for last year).

Travel and subsistence costs (largely the 'out of Cambridge' costs of our Secretary General) has undergone a hike of £7468. This represents a modest rise of £1687 against Meetings/Symposia (understandable as there were three in 2015 and two in 2014) but a more substantial rise of £5781 against the *Journal*, *Ice* and *Books* column, largely representing expenses of attending Branch meetings, AGU and EGU. As one of the reasons for our Secretary General attending the AGU is to participate in a Council Meeting, a saving could be made here, should the Society wish it, by investigating the option of virtual conferencing.

This would have an added benefit of enabling the majority of Council members to participate, without the need for co-options.

Wages and salaries increased by £10 140, comprising a very small drop of £275 under the *Annals* heading (1 fewer *Annals* volume produced) a rise of £8022 under the Meetings heading (1 more Symposium organized) and a rise of £8266 against the *Journal* (largely associated with the extra work associated with the move to CUP).

A key item on this year's account sheet that was not on last years is under the heading of Termination costs. This is, of course, the costs of terminating the contracts of our three valued production staff, Craig Baxter, Sukie Hunter and Rachel Brown, following our partnership with CUP. Their contribution to the Society over the years is commemorated in the IGS News Bulletin, *ICE*, No. 169.

Governance support costs associated with running the Society increased by £13 965 in 2015 as compared to 2014. This largely reflects an increase in professional fees (associated with consultations about contract termination and the partnership agreement with CUP).

Salaries associated with governance dropped for the first time in many years by £4348 (although, as mentioned above, this is more than offset by the rise in the salaries under the general support costs).

Note 11. Overall staff costs went up by £4883 in 2015 compared to 2014 (2.7%) compared to £5696 (3.7%) in 2014 compared to 2013. This partly represents the annual increment linked to inflation (the RPI was 1% in 2015) but also slightly more hours worked by staff in the lead-up to the switch of production to CUP.

Summary

The Society's finances are in good shape and continuing the trend of recent years, with the second largest annual profit since before 2007. We ran a significant surplus in 2015 (~7% of funds). This compares with a more substantial surplus in 2014 (~20% of funds), a very small surplus in 2013 (~2% of funds), a comparable surplus in 2012 (~7% of funds), and various deficits between 2008 and 2011 (ranging from ~1% to ~27% of funds). The net result over the past few years is that we have largely closed the deficit accrued over the years before that. Our funds now approximate our annual expenditure, which is a healthy place in which to be. Given the uncertainties that we face over the next few years associated with the two main (and related) changes we have made – notably going fully Open Access with the *Journal* and *Annals* and partnering with CUP for their production – I suggest we wait a few years to see what the new

arrangement means for the finances of the Society before we make any other major changes to the way we function, which may reduce our income or increase our outgoings.

Future accounts will be very different to those I've been involved with since I became Treasurer. Our contract with CUP means that a certain income from publication will be guaranteed and may be steady for the next few years unless we can substantially increase the number of articles processed (which I hope we can) and CUP can market and sell more hard copies to more libraries (which might be difficult as we go OA). If so, our income will rise above the minimum we have been guaranteed by CUP. Similarly, major items of expenditure, notably wages for production staff, proof reading and printing of the *Journal* and *Annals* (*ICE* will continue to be printed in house) will disappear from our accounts.

Given the uncertainties associated with the *Journal* and *Annals* income and expenditure, it will be important for the Society to improve its budgeting and to investigate further the finances surrounding running its Symposia. Preliminary analysis given in my report from last year, and referenced again above in this report, shows that our Symposia have been running at a loss for the past few years, when overheads (i.e. support costs and governance costs) are factored in. The extent of the loss depends primarily on the number of delegates at the meeting (big meetings lose less) and whether external sponsorship (for example the €10k grant that was secured from the EU Social Fund for the Chamonix meeting) is obtained.

A key support cost, notably office rent and associated costs, will be substantially reduced from 2017 onwards as the IGS office is rehoused within the British Antarctic Survey (currently scheduled for September 2016) and this should help us move towards less loss-making (preferably slightly profitable) symposia. Costs associated with the move, however, will fall within the 2016 accounts year.

Other challenges for the Society that will affect our accounts are whether we can maintain an income through a (presumably reduced) membership fee in future years. I hope substantial numbers will want to pay a subscription fee but members will need to know what the benefits of membership are now that our publications are OA, and especially once the entire back catalogue of the *Journal* and *Annals* is made available freely online.

We should continue to ensure that wage inflation and travel and subsistence are kept in check.

Brexit

It is very difficult (essentially impossible) for me to judge right now what the implications of the UK Brexit vote will be for the finances of the Society. I do not think we will be affected in a major way and it will depend on precisely what deal may eventually be struck by the UK government with the EU parliament and how the UK and EU economies fare over the coming months / years.

Immediate effects are that the value of the pound has dropped against the euro, and even more against the US dollar and certain other currencies. This will make our goods/services (membership, page charges, library subscriptions costs) appear cheaper to people and organizations outside the UK. I do not imagine this will have any major impact on the Society, though. Subsistence costs will be more expensive for UK citizens abroad but cheaper for non-UK citizens coming to the UK. Perhaps the Society should organize another large symposium in the UK soon!

If the UK economy shrinks (and especially if it goes into recession) then interest rates will probably drop even further, which will reduce our income from this stream slightly, although it is already quite low. Conversely, inflation will be lowered even more, affecting the RPI and therefore annual wage increments. Again, this is not going to affect the Society in a major way.

Down the line, depending on precisely what is negotiated between London and Brussels, UK citizens may not have access to EU funds, for example the Social Fund grant that the organizers of the recent Chamonix Conference managed to secure. More money may be available for subsidized conference attendance/travel to students from countries remaining in the EU, but not for UK students. Sorry to end on a down-note. It's generally how I've been feeling since Friday 24 June.

Ian C. Willis, Treasurer
4 July 2016

The SG invited members to discuss the Treasurer's report.

J. Palais referred back to a period where it was possible for North American members to pay their dues to a person in the USA. She asked whether it would be feasible to reinstate that process in light of the substantial currency fluctuations that are taking place at present. The SG responded that the IGS is planning to upgrade its membership software such that it should be possible to pay dues directly into sterling, US dollar and euro accounts.

T. Bartholomaeus asked that Council look into the pricing of student membership, i.e. making it affordable. The SG responded that there was a

memorandum of understanding in place between the IGS and APECS in which we would instigate a joint membership. Admittedly, with all that has taken place in the past year this has not been a priority in the transitional period of moving to Gold Open Access and starting collaboration with Cambridge University Press. Council has expressed its interest in reducing membership costs overall. Council is also considering including student membership in the registration fee of conferences.

U. Herzfeld asked about printed copies of IGS publications. The SG responded that we will continue to make these available as long as it is 'economically' viable.

E. Enderlin proposed, and M. Haseloff seconded, that the Treasurer's report be accepted. This was carried unanimously.

4. Election of auditors for 2015 accounts

The Secretary General proposed that the IGS remain with our current auditors, Messrs Peters Elworthy and Moore: as they had been doing our accounts for several decades they knew the innards of the IGS very well.

On a motion from the Secretary General, J. Zwally proposed, and T. Scambos seconded, that Messrs Peters Elworthy and Moore of Cambridge be elected 'Independent Inspectors or Auditors', whichever is appropriate for the 2016 accounts. This was carried unanimously.

5. Elections to Council

After circulation to members of the Society the Council's suggested list of nominees for 2016–19, no further nominations were received, and the following members were therefore elected unanimously.

Elective Members: Liss Andreassen
Mikhail Ivanov
Dirk Notz
Allen Pope

These appointments were unanimously approved by the AGM.

The President raised the question of whether the Council should take steps to further involve the membership in the nominating process and to encourage members to be more proactive in putting forward nominations for officers and Council members. He then thanked the outgoing Council members and welcomed the newly elected members.

6. Other business

The President and the Secretary General responded to a period of open questions and discussion covering a variety of topics. Topics discussed included:

T. Scambos gave a summary of the NSIDC proposal for the IGS and NSIDC to enter into a collaboration to produce a data journal. He mentioned the start-up costs that would be incurred during the first 2 years and commented that these were still being evaluated but that there is the question of the overhead that the University of Colorado requests. He hopes that once a steady stream of submissions with associated article processing charges (APCs) is attained, the journal would be self-sustainable.

R. Massom asked whether the articles would be peer-reviewed and T. Scambos confirmed that that was the intention.

These days, a paper detailing characteristics of a single glacier would not be published in the current IGS journals. The President raised the point that a data journal would open up the possibility that articles based on a single glacier, e.g. in the Himalayas, could be submitted. Then the entire constellation of such papers would be of great research value to glaciology. If we could funnel such 'single-glacier' papers towards a data journal, the ensemble could be of great use, and the synthesis of many such papers could go into the *Journal* and *Annals of Glaciology*. T. Scambos also pointed out that there are many projects that produce high quality data but in the view of the authors do not warrant submission to a high-ranking journal. Hopefully, a data journal would capture these data, making them visible and of use to the wider public.

The President also pointed out that there are many modern glaciologists who work entirely on 'servicing' data and thus never get recognition for their contribution. A data journal would be a place where these glaciologists would get credit for their work and this might be another reason why it would be of interest to the IGS as a service to its members in promoting their work and their contribution to glaciology. The President also quoted a conversation that had taken place at the Council meeting the previous day where the issues of 'data rescue', 'small data sets' and 'long tail data' were suggested as potential contributions to a data journal.

J. Zwally commented that he thought this was a good thing for the community, regardless of specific individual concerns, to motivate the IGS to step forward.

The President then raised an issue that could be considered detrimental to the proposal, i.e. the cost. If we were to contribute substantial amounts to the start-up of a data journal it would seriously impede the IGS's ability to reduce membership fees in the immediate future. In effect, we would be asking members to contribute a part of their membership dues towards a project they might not necessarily use or contribute to.

But this would have to be a decision based on what is best for the glaciological community and what furthers the constitutional role of the IGS in promoting communication for this community and its members.

A discussion followed about the review process for such a journal. A question was raised as to whether we could rely on volunteers to do part of the work in producing a data journal. IGS Chief Editor G. Cogley said that such volunteer time would be much better spent reviewing. It was also pointed out that there were two sets of criteria involved in the review. One would be handled by data experts and the other would be run by the IGS Editorial Board, who would have to come up with criteria for what constitutes an acceptable publication with a stamp of peer review on it.

A question from the floor asked why there was a need for a new data journal and why the IGS should be involved. The President responded, based on information from T. Scambos, that 'other' data journals are so broad that it is very difficult for users to find articles in them. T. Scambos added that, although it is possible to use Google Scholar to search for such data articles, readers would need to be aware that there are such articles out there. With a glaciological data journal the data contributors would be aware that their data would be seen by the people most likely to be interested. The idea is also that it would be possible to coordinate publications between the *Journal of Glaciology* and the new data journal.

It was also pointed out that papers produced by undergraduate and master's students are often not sufficiently developed for mainstream research journals. They often describe technique and present new innovative data, yet with little research interpretation of the data. Such a data journal could possibly be a good vehicle for those contributions and the authors would get recognition for them. It would also allow for such data to be available to the community rather than be forgotten sitting on a dusty library shelf.

The new IGS Chief Editor pointed out that everyone seemed to be in agreement that a data journal was a good idea but he also pointed out that the consensus seems to be that a data paper is of somewhat lesser value than an analysis or research paper. He thus suggested that people go away with a quotation by Lord Kelvin, 'If you cannot measure something then your understanding is of a meagre and unsatisfactory kind.'

No other items were raised.

The AGM was adjourned on a motion from P. Langhorne and seconded by A. Robel at 13:05 PDT.

Glaciology of the Southern Andes

Mendoza, Argentina, 1–7 August 2016

Hosted by the Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales (IANIGLA-CONICET), the second postgraduate course in Glaciology of the Southern Andes provided an introduction to glaciology with examples from the Southern Andes.

A total of 27 students from institutions in Argentina and Chile attended this one-week course. They had quite diverse research interests and projects: there were undergraduate students filled with enthusiasm for a scientific career in glaciology, PhD students with research topics including the ice dynamics of the Patagonian Icefields, the mass balance of mountain glaciers, hazards related to the shrinkage of glaciers, glacier runoff and glacial geology, and technicians from government agencies concerned with the management of water resources in mountain areas. During the week, lectures were given by Lidia Ferri, Laura Zalazar, Maximiliano Viale, Pierre Pitte, Mariano Masiokas and Lucas Ruiz, all members of the research staff of IANIGLA-CONICET in Mendoza.

During the first five days of the course, lectures were given each morning in the facilities of the Centro Científico Tecnológico (CCT) CONICET Mendoza. Among other themes, students learned how regional and local climate changes along the Southern Andes, and how these changes control the distribution and type of glaciers. The mass and energy balance of glaciers in this region, together with their dynamics, hydrology and influence on mountain water runoff, were also discussed during

the lectures. A whole day was dedicated to exploring the use of remote sensing in glaciology. On the last day, students learned about glacier fluctuations and glacial geology in the different regions of the Andes.

To get to know each other, on the first day all students gave a short presentation of their research projects and interests. Subsequently, they spent the afternoons gaining hands-on experience through exercises based on the content of the morning lectures and examples from the Southern Andes. Among other exercises, students analysed the energy balance in the Desert Andes and explored the role of sublimation in the formation of penitentes. They also calculated the calving flux of Glaciar Upsala and analysed the role of subglacial water pressure in the ice dynamic of Glaciar Perito Moreno in the Southern Patagonian Icefield. Finally, the importance of glaciers as water resources along the Andes and different techniques for extracting glaciologically meaningful data from remote sensing sources were also covered in exercises during the course.

During the time spent in Mendoza, there was a great attitude and friendship between students, which was reflected in after-course meetings in local beer houses and a mixed-sex football match that took place on the second day.

The last two days of the course were dedicated to a field trip to Las Cuevas village, a former station on the railway that once crossed the Andes linking Mendoza in Argentina with Santiago in Chile. Las Cuevas is located at 3100 m above sea level in the heart of the Central Andes of Mendoza less than 50 km from the well-known peak Aconcagua (6962 m), the highest summit in both the Western and the Southern Hemisphere. All students and instructors stayed at Refugio Viento Blanco and



Students and instructors of the second postgraduate course on Glaciology of the Southern Andes at CCT-CONICET Mendoza.



The course was characterized by a great camaraderie between students and instructors.



Students and instructors calculating the winter mass balance of 'Glaciar Ferrari'.

because of the time of the year and the large amount of snow accumulated this winter, the field exercise focused on different techniques for retrieving the winter mass balance. Field works were conducted in a small snowfield close to the Refugio, which students christened 'Glaciar Ferrari' after a painting on one of the huge boulders from a Holocene rock avalanche that characterize the landscape of Las Cuevas. During the field work, students joined in groups to dig snow pits and measure the snow thickness by means of probes and ground penetration radar surveys. In the afternoons, when the sun went down, and after a hot meal to recover from the cold winter weather, each group worked closely with one of the instructors to obtain the 'winter mass balance of Glaciar Ferrari'.

The great camaraderie that we enjoyed in Mendoza continued during the field trip, and both nights at Las Cuevas culminated with music and dance. To celebrate our last dinner together, Ernesto 'Pepe' Corvalán, a living legend at IANIGLA, cooked a huge, delicious asado (Argentinean barbeque). This was a well-deserved culinary prize and a great way to close the course.

It would not have been possible to hold this second postgraduate course on Glaciology of the Southern Andes without generous support from the International Glaciology Society and CONICET in Argentina.



Snow probing over the ice field christened 'Glaciar Ferrari' by the students.



The students displayed a great attitude, conducting GPR surveys even in harsh winter weather.



Student Eneko Berian proudly shows off his 2.5 m deep snow pit.

Lucas Ruiz

IANIGLA-CONICET, Mendoza, Argentina



A typical Argentinean barbecue (asado), the best way to celebrate a week full of glaciology.



Work-life balance – a panel discussion

La Jolla, California, USA, July 2016

Work-life balance is something most scientists, researchers and professionals struggle with. Some people even call it an oxymoron. USAPECS (the US branch of the Association of Polar Early Career Scientists) held a panel discussion on this topic at the International Glaciological Society symposium that recently took place in La Jolla, California, USA. Panellists included Dave Sutherland (DS), Doug MacAyeal (DM), Fiamma Straneo (FS) and Helene Seroussi (HS).

We have pulled out some of the best nuggets of wisdom that the panellists shared with the group.

Q: How do you stay balanced (in your job and personal life)?

FS: Constantly re-evaluate what you're doing in your work and home lives and ask if it's the balance you want. If not, be proactive and adjust it.

DS: Try to gradually build-up responsibilities as your advance in your career so that you have time to slowly learn how to balance your responsibilities and you don't get too overwhelmed. Also, don't be afraid to say no to things.

Q: How do you decide what you actually need to do?

FS: Whether you know it or not, you actually have the power to pick and choose what you want to do (for the most part). You don't have to review every paper or be on every committee. Pick things that interest you and focus on them. Say no to things that don't interest you and will stretch you too thin.

DS: Don't sign on to every proposal someone offers to write with you. It's really difficult (or even impossible) to divide your time between more than two projects and you can really easily get over-committed.

HS: As a soft-money researcher, it's harder to turn-down opportunities to collaborate on proposals so you may have to take every opportunity that comes your way in that regard. It's critical to know how you're spending your time so that you are aware if you are wasting time on things.

DM: Don't let yourself get overwhelmed early in your career. It's easy to try to take on a bunch of projects and the associated students and postdocs but if you aren't strategic you may find yourself falling behind on the things you actually need to be doing. Limit the overflow of obligations.

Q: How do you figure out how to balance all your work responsibilities and not work an insane number of hours per week?

FS: Set boundaries and carve out blocks of time for the most important things to you. Keep a log of time for a few weeks to see where it all goes. If you have kids, you may find that your responsibilities to them help you cap the amount of time you spend on work each week. Regardless, you'll probably be more productive if you can carve out decent chunks of time to work because constant breaks are distracting and it's hard to pick up where you stopped.

DM: If you don't have little kids at home, you may find that you sometimes work at home in the evenings and/or on the weekends. If that's more productive for you, don't feel bad about it. You may need to work long hours sometimes so you should really love what you do because sometimes it is a bit of a sacrifice (personally).

HS: Acknowledge that you're not going to be perfect at everything. If you have little kids, you may need to work in the evenings after they go to sleep. That's not always the best time to do



things that are really mentally taxing but you can still make progress on things like reading papers, modifying model parameterizations, etc.

Q: Was it hard to find a job that you wanted? How much consideration did you place on where you lived? Was it hard on you and your family to not know where you were going to end up?

DS (note: wife is in academia with a different specialization): It may take a while to find a position and place to live that will make everyone at least moderately happy. Some postdocs allow you to work remotely and that may help you manage everything for a few years.

HS (note: husband is in academia with a very similar specialization): It may be easier to stay where you are for a while. If you want to have kids, staying in the same place for a few years can be easier on you, especially if you're a woman, because you don't have to prove that you're a good scientist while your kids are really young and taxing.

Q: How do you know when you need to take a break?

FS: If you're feeling drained, don't be afraid to take a break. If you're a grad student, you should ask your advisor if you can take a break for a long enough time that you come back to work feeling energized. If your advisor doesn't support you taking breaks for mental health, you may want to reconsider who you're working with.

Q: When looking for postdocs, how much weight (if any) did you put on your ability to advance at that location?

DS: Postdoc positions don't often lead to tenure-track jobs or long-term government jobs in the same place as the postdoc. When looking for a postdoc, you may want to focus on finding a place that gives you flexibility in when/where you work and possibly that gives you the opportunity to expand on your area of expertise.

Q: I've heard the best scientists always think about science. Do you ever deliberately 'turn your brain off' in regard to your science? If so, how?

HS: We talk about science at dinner so it's hard to say when you need to stop talking about it!

DS: Young kids don't want you to talk about science all the time so they force you to pull back sometimes.

DM: How much you think and talk about science is probably going to vary a lot between families. There's a balance of power in all relationships. If you feel like you want to talk science and your significant other doesn't because your work or opinion is perceived as less important, you need to talk about what's going on to avoid resentment building up.

Helen Fricker: To give yourself more time to think about or actually do science, consider getting help to tackle things at home that are big time sinks (such as cleaning). That will help you prioritize the important things like advancing your career and spending quality time with your family.

FS: Carve out spaces and time when you can focus on your science. It may come in fragments, but you'll make it work if you love it.

Q: We're in a culture of instant gratification. How do you deal with the pressure to get results in an unrealistic amount of time or even do something like answer e-mails immediately?

FS: Don't feel bad about how you allocate your time and make it clear where you draw the line with the people you work with. Also make it clear what is expected of everyone and whether those expectations are realistic. Ex: Let people know if you won't answer e-mail on weekends so that they don't expect something of you that will not happen.

DM: Make sure communications are packed with quality, not necessarily quantity. That will help you build your network without draining all your time. Don't be afraid to ask questions when you communicate with others because the exchange will help you psychologically and may help get your creative juices flowing.

DS: Try to work with people that you like, that you know do good science, and that you know will be helpful in advancing your research objectives and your career.

Q: How important is it to build relationships with people who will advocate for you and help you advance your career?

DM: It's incredibly helpful to talk to senior scientists at conferences and communicate with them in other ways. Even if you don't directly collaborate on projects, they will probably be asked to write letters for you when you go up for tenure review or when applying for jobs.

DS: It's very important to have mentors, especially outside your field. Build relationships with people in your department so that they'll help you navigate any hurdles that come your way.

FS: Don't be afraid to initiate conversations via e-mail then follow them up with in-person exchanges at conferences. By starting the dialogue in an e-mail, you'll have more fruitful in-person conversations. Also, be sure to engage other people in what you're doing and be proactive in establishing the exchange. Make sure you don't over-strategize because it probably won't help to think through things so much. Do good science and get feedback from those around you. Good science is the best strategy for success.

The takeaways from the event were these:

- Quality, not necessarily quantity.
- Good science is the best strategy for success.

USAPECS would very much like to thank the panellists for their thoughtful comments, the

IGS for letting us stage the panel, and attendees for asking some great questions. If you want to read more, the full notes from the event are at <http://bit.ly/2bMPM6j>.

Allen Pope
Ellyn Enderlin



Book review

Grant R. Bigg: *Icebergs: their science and links to global change*

Cambridge University Press, 2016; ISBN 978-1-107-06709-7 Hardback

Price: UK £79.99 (US \$125.00)

To my knowledge, there has been no previous publication of a book dedicated to the science of icebergs, in particular relating to global change. There is certainly, therefore, a need for this book. I found the book informative, even if on occasions I wondered whether the author had lost his way somewhat. I expected to read much about the physics of how icebergs form, how they move with wind and ocean currents (and what they can tell us about ocean currents), their distribution and melt rates in the polar oceans, etc., and while some (perhaps not enough) of that is included, I also read (for more than 60 pages, 1/4 of the book) about past climates, going back as far as 2000 Ma. While I thought these chapters informative, I sometimes wondered what the relevance to icebergs was. There is some relevance, so don't get me wrong – this is interesting stuff, but if I wanted to read about past climates I would not instinctively go to a book entitled 'Icebergs'.

I like the idea of introducing the book with the story of the *Titanic*, the history of the term 'iceberg' and their impacts with society. At times I felt the book was aimed at non-experts, at other times, experts. For example, in Chapter 2, 'The Origin of Icebergs', up until page 31, the book could be read and easily understood by a person with little mathematical background. Then on pages 32 and 33, differential and integral equations are used; and from there on, when necessary, on just a few occasions. I do not, of course, have any objection to the mathematics; it simply raises the question of audience. At whom is the book aimed? If it is aimed at trained (mathematically astute) students of glaciology then much of the book (especially the early chapters) is simplistic.

Chapter 3, 'The physics of icebergs', in my opinion, is the best and most relevant in the book, containing informative descriptions of iceberg movement, thermodynamics, coupling with the ocean and iceberg distribution. But this chapter could have contained more – movement tracks, dissolution rates (from melting, break-up, etc.), some of which is touched on (but not in great detail)

in sections dealing with freshwater input to the ocean, in Chapter 4.

Chapter 5 deals with interactions between icebergs and the sea floor: scouring of the sea floor and deposition on the sea floor from icebergs. The chapter includes sections on analysis techniques – radiogenic isotope provenancing and X-ray diffraction. The author highlights the importance of ice-rafted debris (IRD) as 'a major tool for reconstructing past global and regional climates', important background material for the following two chapters. Chapter 6, 'Icebergs and past climates', provides an informative and lengthy discussion of climate change from the IRD record (from before the Mesozoic until the Holocene) and Chapter 7, 'Abrupt climate change due to icebergs', concerns thermohaline circulation and predominantly, and in detail, Heinrich events.

At Chapter 8, the book alters course to discuss iceberg risk, i.e. risks to shipping, oil platforms, undersea cables, etc. It concludes with discussions of monitoring, predicting and avoiding risk. Chapter 9 summarizes the old questions from the 1970s concerning the utilization of icebergs as a fresh water source, and finally, Chapter 10 looks to the future, including discussion of the role of icebergs in a warming world, extending to the next millennium.

As Chief Editor of the *Journal of Glaciology* over the past 14 years, I have become somewhat pedantic with my (and others) writing of units and use of grammar. Apart from a few problems in the book with units (e.g. symbols used for year are 'y', 'yr' and 'a', and sometimes there are spaces between numbers and each unit (there should be), but at other times not), I found not one spelling or grammatical error. A few of the figures are poorly reproduced – e.g. Figs 4.6 and 4.7 are blurry – and in these figures, why include state and national boundaries within the USA, but not within all of Asia, Australia, etc? References, at the end of each chapter, are substantial and cumulatively provide an excellent compendium of the iceberg literature.

T.H. (Jo) Jacka



Richardson Medal for Trevor Chinn

The IGS awards the Richardson Medal to Trevor Chinn, DSc, for a lifetime of service to New Zealand's glaciological science and for sustained contributions to research of snow and ice in New Zealand and Antarctica. Trevor is an original, intuitive scientist who leaves a lasting, positive impression on everyone who meets him. He is widely renowned for being 'the stalwart of New Zealand glaciology' for 50 years, who initiated and maintained close study of the mass balance of New Zealand's many glaciers. These data, as well as his early glacier inventory for New Zealand, continue to be a resource for international researchers investigating the global-scale response of mountain glaciers to climate change. His research into New Zealand snow-line elevation has led to a rich observational record that enriches New Zealand's understanding of its environment, particularly given its reliance on Alpine snow and glacier ice for hydroelectric resources. Trevor Chinn is 'New Zealand's national treasure' when it comes to glaciology. He was its premier caretaker in the early days and is an energetic inspiration to the many youthful New Zealand glaciologists who are entering the community today. We honour Trevor Chinn for his enduring service to the practice and understanding of New Zealand glaciology and its community.



The Awards Committee of the International Glaciological Society

Richardson Medal for Elizabeth Morris

The IGS awards the Richardson Medal to Professor Elizabeth Morris, OBE, for dedicated lifetime service in the facilitation of glaciological research in the United Kingdom and for pioneering contributions to the application of new observational methodology to the science of snow and ice. The glaciological community in the UK in particular and throughout the world in general is enriched in the range of its activity and the diversity of its people and interests because of the ways in which Professor Morris stepped into leadership roles at critical times. She was the head of the ice and climate division at the British Antarctic Survey at a time when Antarctic Research stepped upward from being simply 'a curiosity' to being 'essential' in guiding the world's public policy concerns to recognize human impacts on natural processes. She was the first, and so far only, woman to be President of the International Commission on Snow and Ice and later the International Glaciological Society and as such she encouraged other organizations, such as the IUGG, to strengthen their commitment to glaciological sciences. In addition to Professor

Morris's critical contribution to the facilitation and organization of glaciological science, she has served the IGS community in many roles, as President, Vice President, member of Council, symposium organizer, editor, reviewer, and most recently as a critical member of the Council during its deliberations about the future of IGS publications and open access. Professor Elizabeth Morris exemplifies the best the international glaciological community has to offer. She is an engaged and engaging scholar whose work has always been timely. She has never shied away from a pitch just because it was steep and she has never lost sight of the community in which she works. She is an inspiration to the community of scientists, both locally in the UK and worldwide. We honour Professor Elizabeth Morris for her contributions to glaciology, both within and beyond the IGS.

The Awards Committee of the International Glaciological Society



New Honorary Member – Professor Keiji Higuchi, Japan



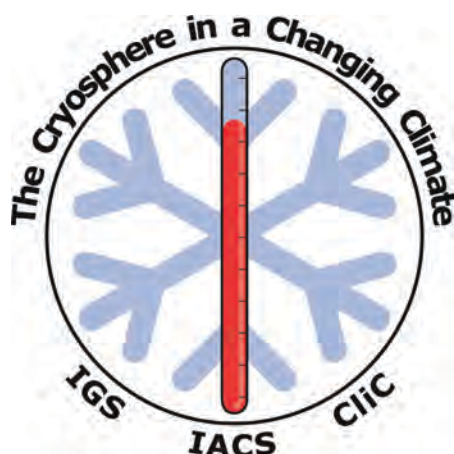
The IGS awards its Honorary Membership to Professor Keiji Higuchi for his formative contribution to the science of glaciology in Japan and in countries of the Himalaya. Professor Higuchi was a nucleating influence on Japanese glaciology during the years that Japan rebuilt from the destruction it suffered in the mid-20th century. At a time when glaciology was considered a low-priority luxury, he initiated the earliest and longest-running studies of ice and snow in the Central Alps of Japan, and initiated the long-standing participation of Japanese glaciologists in the study of ice and snow in the Himalaya. The formidable scientific accomplishments of Japan, within the context of its local snow and ice phenomena but, very importantly, also within the context of Japan's pioneering contributions to the study of snow and ice in the High Asian environment broadly defined, owe their start to Professor Higuchi's leadership. Among the rich cultural traditions of Japan is the notion that good leadership should be so exercised that it does not hover on the surface but works at the bottom of the movement, so that at the end people will say 'Oh! we have done it ourselves'. Professor Higuchi is the scientist who exemplifies this wonderful Japanese view of leadership. We honour Professor Keiji Higuchi for his foresight into the wonderful glaciological contributions Japan has since become renowned for, for his quiet leadership that lifted an entire community of scientists, and for his insightful and enduring contributions to the field of glaciology.



IACS



International Symposium on The Cryosphere in a Changing Climate



Wellington, New Zealand, 12–17 February 2017

Sponsored by:

- ❁ International Glaciological Society
- ❁ International Association of Cryospheric Sciences (IACS), an association of the International Union of Geodesy and Geophysics (IUGG)
- ❁ World Climate Research Programme Climate and Cryosphere (CLiC) project

Co-sponsored by:

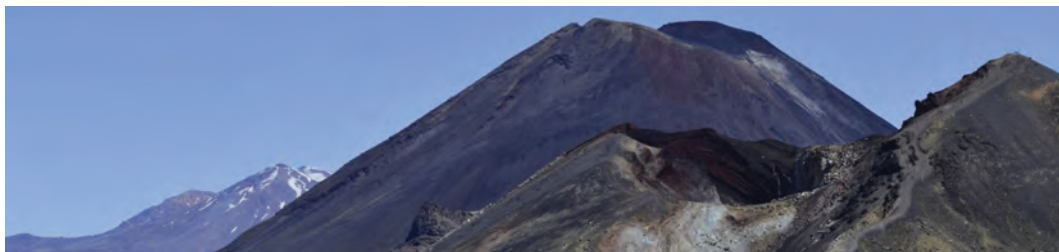
- ❁ National Institute for Water and Atmospheric Research (NIWA)
- ❁ University of Otago
- ❁ New Zealand Antarctic Research Institute (NZARI)
- ❁ Victoria University of Wellington
- ❁ GNS Science



SECOND CIRCULAR
August 2016

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





An International Symposium on 'The Cryosphere in a Changing Climate' will be hosted by Victoria University of Wellington, Wellington, New Zealand, from 12–17 February 2017.

CONTACTS

Magnus Mar Magnusson, Secretary General, International Glaciological Society (IGS); Andrew Mackintosh, Secretary General, International Association of Cryospheric Sciences (IACS) and Chair of Local Organizing Committee; Gwen Hamon, Executive Officer, CliC (World Climate Research Programme Climate and Cryosphere Project)

THEME

This is the first international symposium to bring together three of the leading international organizations in the field of cryospheric research: IGS, IACS and CliC. The theme of the conference, 'The Cryosphere in a Changing Climate', is global in scope with a focus on physical processes within the cryosphere and interactions between the cryosphere and the climate system. This symposium will also serve as the 2017 meeting of New Zealand Snow and Ice Research Group (SIRG; the NZ regional branch of the International Glaciological Society), as well as the location for the IACS Bureau and CliC Scientific Steering Group meetings.

Plenary speakers will include **Professor Rob DeConto** (University of Massachusetts, ice sheet modelling, 2016 Tinker–Muse prize winner), **Professor Ben Marzeion** (University of Bremen, mountain glaciers), **Professor Marilyn Raphael** (University of California, Los Angeles, sea ice, atmospheric circulation) and **Professor Dorte Dahl Jensen** (University of Copenhagen, ice cores and climate).



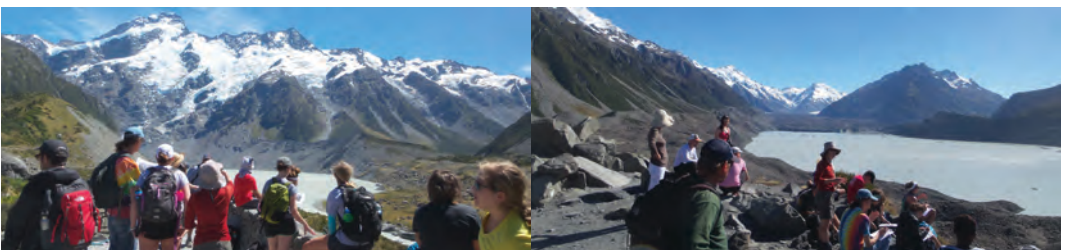


TOPICS

Topics will include (but are not limited to):

1. Contribution of glaciers and ice sheets to sea-level changes, past, present and future
2. Thresholds and processes for ice-shelf loss in a warming world
3. Attribution of cryospheric changes to natural and anthropogenic climate changes
4. Glacier and ice sheet dynamics: processes, uncertainties, boundary conditions, field and laboratory experiments and modelling
5. Coupling of global climate models to glacier, ice sheet and snow models
6. Ice cores and climate
7. Ice–ocean interactions in a changing climate
8. Contrasting hemispheric sea ice behaviour
9. Cryospheric feedbacks to climate change, including polar amplification of climate
10. Snow processes and their relevance in a changing climate
11. Snow and glacier hydrology, and changing runoff in a warming climate
12. Effects of climate variability and change on mountain glaciers
13. Emerging areas of cryosphere/climate research.

An expanded description of these topics is now available on the symposium website (<http://www.climate-cryosphere.org/meetings/upcoming-clic/2017-cryosphere-in-a-changing-climate-conference>).





REGISTRATION FEES

All fees are in New Zealand Dollars, NZD

Early registration until 15 Dec 2016

– Participant (IGS member):	\$745
– Participant (not IGS member):	\$845
– Student or retired (IGS member):	\$495
– Student or retired (not IGS member):	\$595
– Accompanying person (18+):	\$300
– Accompanying person (12–17):	\$200
– Accompanying person (<12):	Free
– Delegate registration from 16 Dec 2016:	+\$50
– Delegate late registration surcharge (from 16 Jan 2017):	\$100

All prices will be charged in UK£ equivalent at the exchange rate valid near the date of transaction.

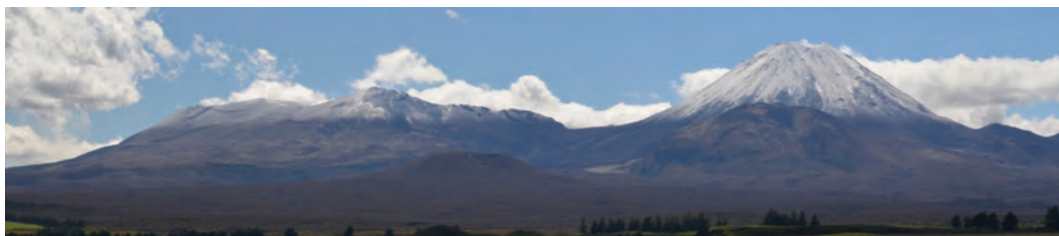
The fees include the Icebreaker, the Symposium Banquet, daily morning/afternoon refreshments and the Wednesday afternoon field trip.

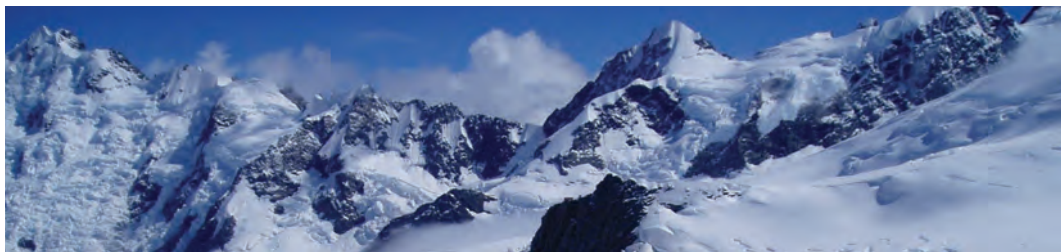
Please register for the symposium through the IGS website. If you cannot do this, contact the IGS office directly. If payment by credit card is not possible, contact the IGS office to arrange for a bank transfer.

Please check whether you will require a visa to enter New Zealand. If you need an invitation letter, please contact the IGS office at igsoc@igsoc.org. The sooner you do this the more likely it is that your visa will come through in good time. Apply early to allow enough time for your visa to be processed.

ACCOMPANYING PERSONS

The accompanying person's registration fee includes the Icebreaker, the Wednesday afternoon field trip and the Symposium Banquet. **It does not include attendance at the presentation sessions.**





ABSTRACT AND PAPER PUBLICATION

Participants wishing to present a paper (either oral or poster) at the Symposium must submit an abstract by Monday 17 October 2016. Abstracts need to be submitted via the IGS website. A collection of submitted abstracts will be provided for all participants at the Symposium.

The Council of the International Glaciological Society has decided to publish a thematic issue of the *Annals of Glaciology* on topics consistent with the Symposium themes. Submissions to this issue will not be contingent on presentation at the Symposium, and material presented at the symposium is not necessarily affirmed as being suitable for consideration for this issue of the *Annals*. Participants are encouraged, however, to submit manuscripts for this *Annals* volume. The deadline for submission of *Annals* papers will be 9 January 2017.

VENUE

The conference will be held at Rutherford House, located in the Pipitea Campus of Victoria University of Wellington. Rutherford House is conveniently located in the city centre, adjacent to the waterfront, Parliament, the railway station, shopping areas, cafes and restaurants, and within a 10–15-minute walk of nearly all major hotels. Registration, poster displays and coffee breaks will be held on the mezzanine floor of Rutherford House, immediately adjacent to Rutherford House Lecture Theatres 1 and 2 (where the oral presentations will be held).

LOCATION

Wellington is the capital city of New Zealand. Known for its quality of life and consistently featuring as a top destination on tourism hit lists, Wellington is affectionately known as ‘the coolest little capital’. It is a dynamic small city of approximately half a million residents, well known for its culinary scene, coffee and microbrewery culture. It has a strong





university and government research sector, and several hundred earth and atmospheric scientists are based at the Wellington campuses of Victoria University, GNS Science and NIWA.

Wellington is situated at the southern tip of the North Island of New Zealand in a hilly, harbour-side setting. Nature is close at hand: pockets of temperate rainforest, penguin and seal colonies are situated within the city limits. Outstanding mountain biking and sea kayaking can be found within a few minutes of the city centre. Oriental Bay offers good swimming in fine weather (30-minute walk from conference venue).

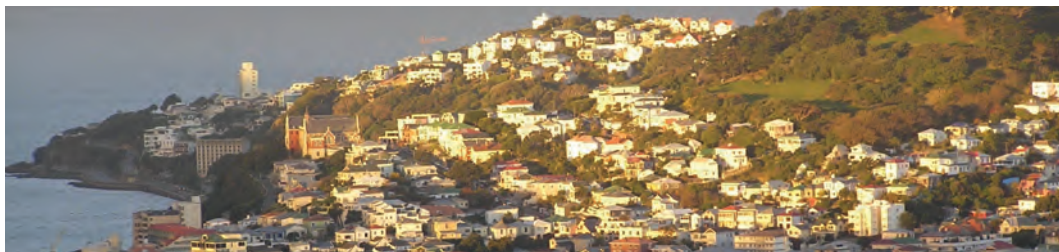
February is a lovely time of year to visit Wellington. The weather is at its warmest and most settled; mean daytime temperature is 20°C, and rarely exceeds 25°C. Overnight temperatures average a cool 13°C. It is also the best time of year to enjoy New Zealand as a whole.

ACCOMMODATION

A limited number of places will be available at Weir House, a student hall of residence located within 1.5 km of the conference venue (a 25-minute walk). Single rooms with linen and towel provided as well as free internet and including breakfast cost \$70 NZD per night. This accommodation must be booked and paid for online during the registration process. Please do this early to avoid disappointment.

A number of hotels have provided group rates for our conference. You must contact these hotels and make the bookings yourself. To book and guarantee your room, please provide them with your credit card details at least 45 days prior to arrival. Use the codes provided below (different for each hotel) to secure your room. All hotels listed below are located within walking distance of the conference venue. However, note that there are many other





Wellington hotels within walking distance of the venue, as well as less expensive backpacker accommodation. February is peak tourist season and we recommend that you book as early as possible.

- Rydges Hotel, 75 Featherston Street, Wellington (400 m to Rutherford House). Room only, \$199/\$219 NZD per night for 'Superior Room', subject to availability at time of booking. Use code X-VIC0217 to access this rate. Phone: +64 4 499 8686, Fax: +64 4 499 8687, Email: reservations_wellington@rydges.com
- Ibis Hotel, 153 Featherston St, Wellington (700 m to Rutherford House). Room plus breakfast, \$210 NZD per night, subject to availability at time of booking. Use code CCC120217 to access this rate. Email h3049-re1@accor.com or phone +64 4 496 1880 to make reservations.
- Novotel, 133 The Terrace, Wellington (800 m to Rutherford House). Room plus breakfast, \$249 NZD per night, subject to availability at time of booking. Use code CCC120217 to access this rate. Email h3049-re2@accor.com or phone +64 4 918 1900 to make reservations.
- Mercure, 345 The Terrace, Wellington (2 km to Rutherford House). Room plus breakfast, \$195 NZD per night. Use code CCC120217 to access this rate. Email h1991-re1@accor.com or phone +64 4 385 9829 (during business hours).

WiFi is complimentary at both Rydges and Weir House. It will be an additional cost at Ibis, Novotel and Mercure.





PRE-CONFERENCE FIELD TRIP 10–12 February

Organizer: Shaun Eaves

Tongariro National Park is one of only a few UNESCO ‘mixed’ cultural and natural World Heritage sites, famous for its spectacular active volcanoes, endemic vegetation and cultural heritage. At 2797 m, Mt Ruapehu is North Island’s highest peak and supports New Zealand’s northernmost glaciers. This field trip will include accommodation at a local lodge, a full-day (~8 h) mountain walk known as the ‘Tongariro Alpine Crossing’, as well as a soothing visit to a nearby geothermal pool. Alternatively, a range of shorter walks (~1–4 h) are also available. It is a 5-hour drive to Tongariro National Park, and guests will depart by coach from Wellington at midday on Friday 10 February, returning in time for the symposium Icebreaker on Sunday 12 February. The cost per person will be approximately NZ\$350 per person, depending on the type of accommodation selected. Registration must be carried out via the IGS website as part of the conference registration process. Spaces are limited.

ICEBREAKER

The Icebreaker, sponsored by the University of Otago, will be held on Sunday 12 February on the Mezzanine floor of Rutherford House, the conference venue. Refreshments (including drinks) and finger food will be available 5–7 pm. Delegates can also use this opportunity to complete their registration and collect their conference bag.

BANQUET

The banquet will be held at Macs Brewery on the evening of Thursday 16 February. It will include a three-course meal in this spectacular location on Wellington’s waterfront. Some drinks will be provided and in addition there will be a cash bar.





MID-CONFERENCE FIELD TRIP

On Wednesday 15 February, we will visit Martinborough in the Wairarapa, approximately 90 km east of Wellington, across the Rimutaka Range. This region is well known for its sunshine, fresh produce and fine Pinot Noir wines. We will stop en route to examine the remarkable geology and geomorphology of this region. The conference fee includes transportation to/from Wellington by coach, wine tastings and an early dinner in Martinborough.

POST-CONFERENCE FIELD TRIP, 18–21 February

Organizer: Heather Purdie.

A four-day field trip will be organized to immediately follow the conference. We will depart from Christchurch at 1 pm on Saturday 18 February and participants will spend three nights at Aoraki/Mt Cook village. On Sunday 19th there will be a guided walk up the Hooker Valley to view the Mueller and Hooker Glaciers, taking in the majestic alpine scenery, and tales of early exploration en route. On Monday 20th we will go for a cruise among the icebergs on Lake Tasman and engage with local scientists about their research on the highly dynamic Tasman Glacier. Participants will also have the opportunity to take a scenic flight around Tasman Glacier and the summits of Aoraki/Mt Cook and Mt Tasman (weather-dependent, at own cost), and there are a number of other walks and activity options in and around the village. We will depart Aoraki/Mount Cook on Tuesday 21st at 1 pm; arriving in Christchurch around 6 pm. Accommodation is bunk/dorm style and includes breakfast and a packed lunch each day. There are a variety of dining options (self-arranged) for evening meals depending on taste and budget. Cost per person will be \$450 NZD (includes coach transport to/from Christchurch, three nights accommodation, breakfast/lunches and boat trip on Lake Tasman). Field trip registration must be carried out via the IGS website as part of the conference registration process. Spaces are limited.

Participants will need to organize their own transport from Wellington to Christchurch (1 hour flight, >10 flights per day, see <http://www.airnewzealand.co.nz/> and <http://book.jetstar.com>).



Note: participants are welcome to arrange more expensive accommodation at Mt Cook village, with the cost of participation adjusted accordingly.

TRAVEL GRANTS FOR STUDENTS

Funding is available to partially support student and postdoc attendance at this symposium, in particular for early-career scientists from developing countries. Applications should be sent by e-mail to travelgrants@cryosphericsscience.org, and include

- a copy of your submitted abstract
- a short CV (max. one page)
- a brief statement of motivation, including why attendance at the conference will be beneficial (~½ page)
- a specification of your financial needs (must include a budget and disclosure of other sources of funding).

Deadline is Monday 17 October 2016. Please send the application as ONE SINGLE pdf file, using your first and last name as filename, e.g. `charles_fierz.pdf`. Applications exceeding two pages (not including the abstract) will not be considered. Grantees will be notified by Friday 11 November 2016. Grants will be paid in cash at the conference registration desk.

SYMPOSIUM ORGANIZATION

Magnús Már Magnússon (International Glaciological Society)

SCIENCE STEERING AND EDITORIAL COMMITTEE

Chief Editor: Ian Allison (Chair, Australia), Ben Galton Fenzi (Australia), Charles Fierz (Switzerland), Marika Holland (USA), Christina Hulbe (New Zealand), Christine Schøtt Hvidberg (Denmark), Gerhard Krinner (France), Andrew Mackintosh (New Zealand), Marilyn Raphael (USA), James Renwick (New Zealand), Shin Sugiyama (Japan), Carleen Tijm-Reijmer (Netherlands), Tessa Vance (Australia).





LOCAL ORGANIZING COMMITTEE

Andrew Mackintosh (Chair, Victoria University of Wellington), James Renwick, Ruzica Dadic, Brian Anderson, Huw Horgan, Nick Golledge, Nancy Bertler, Shaun Eaves, Richard Selwyn Jones, Tim Naish, Lionel Carter, Rob McKay, Kevin Norton (Victoria University of Wellington); Heather Purdie, Wolfgang Rack, Adrian McDonald (Canterbury University, Christchurch); Tim Kerr (Aqualinc Research Ltd, Christchurch); Christina Hulbe, Nicolas Cullen, Christian Ohneiser, Pat Langhorne, David Prior (Otago University, Dunedin), Andrew Lorrey, Natalie Robinson, Christian Zammit, Helen Bostock, Craig Stevens (NIWA), Richard Levy, Marcus Vandergoes (GNS Science), Matt King, Ben Galton Fenzi, Rob Massom (University of Tasmania, Hobart, Australia)



Antarctic Research Centre
Te Pūtahi Rangahau i te Kōpakatanga ki te Tonga



IMPORTANT DATES

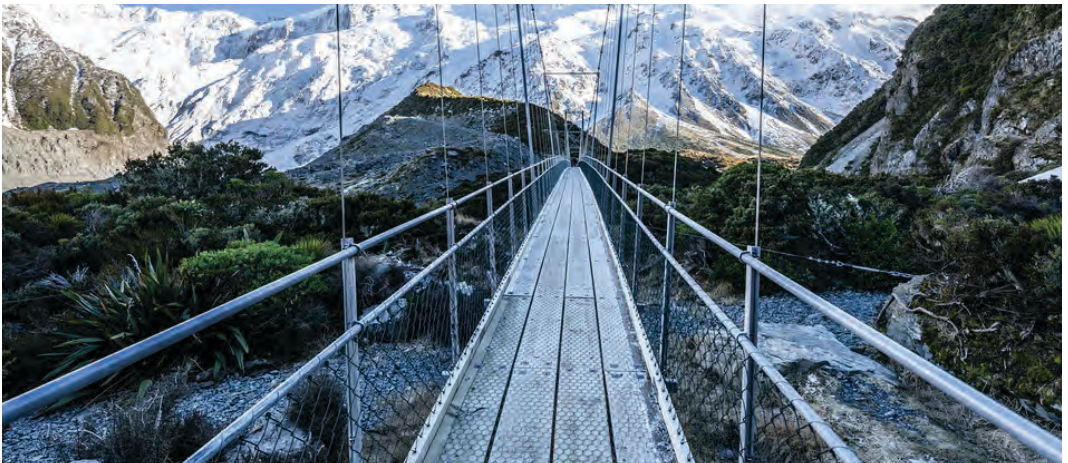
The Cryosphere in a Changing Climate

Abstract submission deadline:	17 October 2016
Deadline for travel grant application:	17 October 2016
Notification of acceptance:	31 October 2016
Opening of online registration:	10 September 2016
Notification of acceptance for travel grant	11 November 2016
Early registration deadline:	15 December 2016
Deadline for full refund:	9 January 2017
Deadline for refund on a sliding scale:	22 January 2017
Late registration surcharge:	16 January 2017
Pre-conference field trip:	10–12 February 2017
Registration and Icebreaker:	12 February 2017
Symposium starts:	13 February 2017
Post-conference field trip:	18–21 February 2017

Annals of Glaciology volume 59, issue 75

Paper submission deadline:	9 January 2017
Final revised papers deadline:	12 April 2017

Information will be updated on the conference website,
<http://www.igsoc.org/symposia/2017/newzealand/>
 as it becomes available.





Glaciological diary

** IGS sponsored

* IGS co-sponsored

2016

1 October 2016

Colorado Snow and Avalanche Workshop

Breckenridge, Colorado, USA

Website: <https://www.eventbrite.com/e/15th-annual-colorado-snow-and-avalanche-workshop-tickets-26958336109>

3 October 2016

Workshop: NECKLACE, an international programme to acquire time series of melt rates from Antarctic ice shelves

Gothenburg, Sweden

Contact Anna Wåhlin

<anna.wahlin@marine.gu.se>

3–7 October 2016

International Snow Science Workshop 2016

Breckenridge, Colorado, USA

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

4–6 October 2016

30th Forum for Research into Ice Shelf Processes (FRISP)

Gothenburg, Sweden

Website: <http://folk.uib.no/ngfso/FRISP/>

6–7 October 2016

International Conference on Geosciences

Orlando, Florida, USA

Website: <http://geosciences.conferenceseries.com/>

14–15 October 2016

44th annual North West Glaciologists' meeting

University of Washington, Seattle, USA

Website: <https://earthweb.ess.washington.edu/glacial/nwg16.html>

15–17 October 2016

Scientific seminar: The Importance of Calving (Frontal Ablation) for the Mass Budget of Arctic Glaciers

Sopot, Poland

Website: <http://nag.iasc.info/workshop>

17–21 October 2016

2016 ROMS/TOMS Asia-Pacific Workshop

Hobart, Tasmania, Australia

Website: http://www.myroms.org/tasmania_workshop

17–20 October 2016

5th International Geo-hazards Research Symposium – in memory of Prof. Tsanyao Frank Yang (IGRS 2016)

Taipei, Taiwan

Contact: organizing committee at igrs2016@gmail.com

21–22 October 2016

International Symposium on Polar Environmental Change and Public Governance

Wuhan, China

Website: <http://2016.chinare.cn/>

26–28 October 2016

International Glaciological Society Nordic Branch Meeting

Tromsø, Norway

Contact: Jack Kohler <jack.kohler@npolar.no>

Website: <http://www.npolar.no/en/events/2016/10-annual-meeting-of-the-nordic-branch-of-the-international-glaciological-society/>

1–4 November 2016

Forum for Arctic Modeling and Observational Synthesis: 2016 School and Workshop

Woods Hole, Massachusetts, USA

Contact: Michael Steele <mas@apl.washington.edu>

11 December 2016

Workshops: High Mountain Hazards and Disasters: Satellite Observations

San Francisco, California, USA

Contact: Jeffrey Kargel <jeffreyskargel@hotmail.com>

12–16 December 2016

AGU 2016 Fall Meeting

San Francisco, California, USA

Website: <http://fallmeeting.agu.org/2015/>

2017

22–26 January 2017

14th Conference on Polar Meteorology and Oceanography

held as part of the 97th Annual Meeting of the American Meteorological Society
Seattle, WA

Website: <https://annual.ametsoc.org/2017/index.cfm/programs/conferences-and-symposia/14th-conference-on-polar-meteorology-and-oceanography/>

1–3 February 2017

Workshop: Arctic Change and its Influence on Mid-Latitude Climate and Weather

Washington, DC, USA

Website: <https://usclivar.org/meetings/2017-arctic-midlatitude-workshop>

12–17 February, 2017

****International Symposium on the Southern Cryosphere: Climate Drivers and Global Connections**

Wellington, New Zealand

Contact: Secretary General, International Glaciological Society

20–24 February 2017

Practice Meets Science: International Advanced Training Course on 'Snow and Avalanches' 2017

Davos, Switzerland

Website: http://www.slf.ch/dienstleistungen/events/practice_meets_science/index_EN

20–24 March 2017

North-American CryoSat Science Meeting

Banff, Alberta, Canada

Website: <http://www.cryosat2017.org/>

27–29 March 2017

4th Polar Prediction Workshop

Bremerhaven, Germany

Contact: Betsy Turner-Bogren <betsy@arcus.org>

22–25 May 2017

International Conference on High Latitude Dust 2017

Reykjavík, Iceland

Website: <http://www.geomorphology.org.uk/meetings/international-conference-high-latitude-dust-2017>

14–19 August 2017

****International Symposium on Polar Ice, Polar Climate and Polar Change: Remote sensing advances in understanding the cryosphere**

Boulder, Colorado, USA

Contact: Secretary General, International Glaciological Society

6–7 September 2017

****International Glaciological Society British Branch Meeting**

Lancaster University

Contact: Amber Leeson <a.leeson@lancaster.ac.uk>

A local website will be available soon

2018

14–19 March 2018

****International Symposium on Cryosphere and Biosphere**

Kyoto, Japan

Contacts: Secretary General, International Glaciological Society

Professor Nozomu Takeuchi, Chiba University, Chiba, Japan <ntakeuch@faculty.chiba-u.jp>

15–27 June 2018

SCAR/IASC Conference

Davos, Switzerland

Contact: SCAR Secretariat [info@scar.org]



New members

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International Glaciological Society

Secretary General M.M. Magnússon

	Council Members	Concurrent service on Council, from
President	D.R. MacAyeal	2014–2017
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	S. Sugiyama	2014–2017
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	*H.A. Fricker	2015–2018
	*J.K. Hutchings	2015–2018
	*M. Ivanov	2016–2019
	*Kang Schichang	2015–2018
	*A. Mackintosh	2015–2018
	*M. Montagnat	2014–2017
	*D. Notz	2016–2019
	A. Rivera	2014–2017
	*B. Stenni	2014–2017
	*C. Tijm-Reijmer	2015–2018
Co-opted	K. Brunt	
	E. Enderlyn	
	I. Smith	

*First term of service on the Council

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Publications	C.L. Hulbe (Chairman)

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			E.D. Waddington
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1963 G. Seligman	1989 H. Oeschger	2001 G.K.C. Clarke	G.K.C. Clarke	J.W. Glen
1967 H. Bader	1989 W.F. Weeks	2003 K. Hutter	K. Higuchi	V.M. Kotlyakov
1969 J.F. Nye	1990 C.R. Bentley	2005 R.B. Alley	G. Østrem	G. Wakahama
1972 J.W. Glen	1990 A. Higashi	2007 L.G. Thompson	Yang Zhenning	
1972 B.L. Hansen	1992 H. Röthlisberger	2009 P.A. Mayewski		
1974 S. Evans	1993 L. Lliboutry	2011 A. Iken		
1976 W. Dansgaard	1995 A.J. Gow	2012 D.E. Sugden		
1977 W.B. Kamb	1996 W.F. Budd	2013 P. Duval		
1982 M. de Quervain	1997 S.J. Johnsen			
1983 W.O. Field	1998 C. Lorius			
1983 J. Weertman	1999 C.F. Raymond			
1985 M.F. Meier	2000 S.C. Colbeck			
1986 G. de Q. Robin	2001 G.S. Boulton			

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1993 H. Richardson	2012 W.S.B. Paterson
1997 D.R. MacAyeal	2013 J.W. Glen
1998 G.K.C. Clarke	2013 A. Weidick
1999 J.A. Heap	2016 T. Chinn
2003 C.S.L. Ommanney	2016 E.M. Morris
2010 T.H. Jacka	

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International Glaciological Society

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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, High Cross, Madingley Road, Cambridge CB3 0ET, UK.

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