

President's Report

IACS Informal Bureau Meeting, Stockholm, 22-23 November 2010

For Bureau Members only: not to be distributed

It is now over three years since IACS was established as a full Association within IUGG during the Perugia General Assembly. What have we achieved in that time, has it been in line with our stated objectives, and has it been enough? Briefly paraphrased our objectives are to promote studies and research of the cryosphere, to facilitate discussion and publication of the results, to promote education and public awareness on the cryosphere and to facilitate the standardisation of measurement and accessibility of data.

Projects addressing outreach and standardisation objectives are have led to the publications:

- Snow and Climate: Physical Processes, Surface Energy Exchange and Modeling edited by Richard Armstrong and Eric Brun published by Cambridge University Press in 2008 and recently republished as a paperback.
- The International Classification for Seasonal snow on the Ground edited by Charles Fierz and others and published as Technical Documents in Hydrology 83 by IHP/UNESCO in 2009.
- Glossary of Glacier and Mass Balance Terms edited by Graham Cogley and others and soon to be also published by IHP/UNESCO.

Each of these is identified as a product of IACS, and the latter two are also labelled as IACS Contribution No. 1 and No. 2 to IHP. But in reality the first two projects were initiated and the bulk of the work was done under ICSI, although IACS Officers were instrumental in securing publication of the snow classification. The Glacier Glossary is a "pure" IACS project. But we have no new projects of this nature currently in the pipeline.

The IACS participation in the MOCA09 Assembly, with our atmospheric and oceanographic colleagues, was very successful. IACS was especially involved in Joint Association symposia which were considered one of the main successes of the meeting. I thank all involved in assembling the program and in convening IACS sessions for their efforts. Over the last three years we have also co-sponsored a number of other relevant meetings, some with small funding support that we have been able to attract from IUGG. The next big conference is of course the IUGG General Assembly in Melbourne next July. IACS is involved as lead Association in 8 symposia, fewer than the other Associations but 50% of these are Joint symposia reaching across disciplinary boundaries. Some parts of our remit are not well represented at this meeting; for example sea ice only occurs within Joint sessions on modelling because we were unable to attract any one to lead the organisation of a more directly focussed sea ice symposium. However I believe that we are well on track with organisation of those symposia that we do lead. We need to continue to promote attendance and participation in the GA, to ensure that delegates from our community register as IACS affiliates, that they are encouraged to attend (with proper formal accreditation) our Plenary, and that they contribute to IACS activities - including advocating new ones.

In general we have good recognition and acceptance with other organisations and committees in our field of science. We have are represented in the management of WGMS, and have a role in the newly established GTN-G Advisory Board. We have a good working relationship with the International Glaciological Society, which published some of the IACS papers from the Perugia GA as

a dedicated volume of *Annals of Glaciology*. We are also connected to the World Climate Research Programme through our links with their Climate and Cryosphere (CliC) initiative. We have a generally good standing with our parent IUGG and our sister Associations, although there is a small residual resentment to a “new kid on the block” sharing the IUGG funding – we have to dispel this by demonstrating the strength of our activities. At the very top level, our recognition within ICSU is high, mostly I suspect because of ICSU’s awareness of cryospheric issues through their sponsorship of IPY 2007-2008, which they regard as “jewel in their crown”.

We have a formal MoU with the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Council (IASC). Collaboration with these bodies is slowly evolving. In August I attended the SCAR Open Science Conference and then the SCAR Delegates Meeting as an IACS observer (I was also the formal Delegate for IUGG and an observer for ICSU). There was little of direct consequence to any of the three ICSU organisations in the SCAR agenda, but in the margins of the meeting SCAR, IASC and IACS negotiated a proposal for a meeting in Italy in 2011 that is aimed to strengthen our collaboration and our visibility within ICSU. This is detailed in the agenda for the Stockholm Meeting and in an attached paper for that.

We are less recognised in the wider cryospheric community, which is a serious problem in advancing IACS objectives which are to serve that community. I receive little feedback from announcements we make, for example, on Cryolist (fortunately the few I do receive are positive and constructive). As an Association IACS can provide formal organisational support and help to promote activities of the cryospheric community. Proposals for new WGs to address specific problems originate largely from the community. But if the community doesn’t know us or talk to us we cannot help them. Raising the profile of IACS will be promoted largely through our activities and outcomes, such as the work of WGs. Success begets success, and the more useful activities we are involved in, the more we will be invited to organise. But we also need to promote these through our website and a newsletter (the two can be combined). We have procrastinated in establishing a newsletter – I suspect a major factor in this is that we have few activities that generate “news”.

Like all committees we have some members of our Bureau that are more active than others. We all have real jobs or other activities that impose on our time, and IACS activities are strictly voluntary. This and the requirement to have a good geographic representation of Bureau members is why we have a fairly large Bureau membership. Also, for most of us, English is not our native language. But I do feel that our Bureau as a whole is less active and involved than it needs to be to advance our objectives. Many of the action items from our previous Bureau meetings remain uncompleted. I was also disappointed to the response and input to agenda items for this (informal) Stockholm Bureau meeting.

Similarly, some Divisions are more active than others. But here we cannot afford to carry “sleepers”. If each of the five discipline areas covered is to be part of the IACS role, then every Division needs to be active. Providing the agreed brief description of Division missions and planned activities that could be placed on our web-site would advance the profile of IACS and the Divisions. The Division activities are largely carried out through the Working and Standing Groups. We have only three of these at present (and one new one proposed). The Glacier Glossary WG has essentially finished its work and will probably soon close. The other two groups (Glacier and Permafrost Hazards in Mountains; Commission on Volcano-Ice Interaction) are joint groups with other bodies. I am sure

that not all cryospheric problems are solved or adequately covered by other bodies – we must reinvigorate our efforts in this area.

Part of our difficulty is the problem of getting together for a Bureau meeting. This was amply illustrated by the difficulty in planning, and the eventual attendance outcome, of the Stockholm meeting. We are widely scattered across the globe (as we should be) and with the increased awareness of the importance of the cryosphere and a general expansion in cryospheric research, most of our scientific meetings have a sub-discipline focus and only a few of us would normally attend any one event. We shall (must) continue to meet at IUGG General Assemblies and at the intervening Association Assemblies. But for the “even-numbered” years when these do not occur we should plan tele-conferences. I would favour a number of regular short meetings (say 3-monthly) rather than one mammoth tele-Bureau meeting.

As a full IUGG Association, IACS has a budget that is modest, but far greater than any funding that ICSI ever had, to address our objectives. (Our current balance is ~€46,000). We have funding, but not at present the initiative or momentum: we are largely a responsive organisation rather than a forward looking one (and most of the things we respond to are administrative items related to our links with other scientific bodies). In less than one year we will have a largely new Bureau: I would hate to think that we bequeath them merely an empty shell of an Association. I urge us all to become more proactive in IACS activities.

I wish those of you in Stockholm a successful meeting, and hope that you can develop some considered recommendations for our future.

Ian Allison
IACS President
Hobart, 20 November 2010



Budget IACS

as of:

18.11.2010

| Year | Date | Docu- ment | Description | Income, € | Expense, € | Balance, € |
|-------------|---------|---------------|---|-----------|------------|------------|
| 2007 | 09. 09. | D 07.01 | Closing budget: UCCS (USD 793,79 at exchg. Rate of Nov. 30, 2007) | | | 536,69 |
| | 30. 11. | D 07.02 | MOCA09 planning Meeting, Montreal, Canada, GK, travel expenses | | 513,83 | 22,86 |
| | 01. 12. | | Miscellaneous costs for closing Swedish account | | 22,86 | 0,00 |
| | 27. 12. | D 08.02 | Starting budget: Kreissparkasse Steinfurt, Germany | | | 0,00 |
| 2008 | 05. 06. | D 08.01 | IUGG Allocation 2008: USD 22.980,00 | 14.707,20 | | 14.707,20 |
| | | D 08.02 | Courtage | | 3,68 | 14.703,52 |
| | 30. 06. | D 08.02 | Interest on balance | 25,49 | | 14.729,01 |
| | | D 08.02 | Tax | | 7,65 | 14.721,36 |
| | | D 08.02 | Solidarity fee | | 0,43 | 14.720,94 |
| | 18. 08. | D 08.03 | SCAR Delegate Meeting, Moscow, Russia; GK, travel expenses | | 770,25 | 13.950,69 |
| | 19. 08. | D 08.04 | IUGG EC Meeting, Karlsruhe, Germany; ML, travel expenses | | 366,00 | 13.584,69 |
| | 19. 08. | D 08.05 | Refund, deposit hotel, Montreal; ML | | 120,00 | 13.464,69 |
| | 30. 09. | D 08.02 | Interest on balance | 88,21 | | 13.552,90 |
| | | D 08.02 | Tax | | 26,46 | 13.526,44 |
| | | D 08.02 | Solidarity fee | | 1,45 | 13.524,99 |
| | 18. 12. | D 08.06 | Translation fee: Betsy Armstrong, Boulder, CO, USA, USD 573,00 | | 392,60 | 13.132,39 |
| | | D 08.07 | Courtage | | 2,00 | 13.130,39 |
| | | D 08.07 | Processing Fee | | 15,00 | 13.115,39 |
| | | D 08.07 | Expense | | 2,00 | 13.113,39 |
| | 31. 12. | D 08.07 | Interest on balance | 77,34 | | 13.190,73 |
| | | D 08.07 | Tax | | 23,20 | 13.167,53 |
| | | D 08.07 | Solidarity fee | | 1,27 | 13.166,26 |



| Year | Date | Docu- ment | Description | Income, € | Expense, € | Balance, € |
|-------------|---------|----------------------|---|-----------|------------|------------|
| 2009 | 19.01. | D 09.01 | Donation of Royalties, E. Brun; Cambridge Univ. Press: GBP 323,94 | 327,41 | | 13.493,67 |
| | 18. 02. | D 09.02 & D 09.03 | Travel expenses, GK; re-booking costs; STA Travel | | 227,05 | 13.266,62 |
| | 23. 03. | D 09.04 & D 09.06 | Travel expenses, GK; MOCA09 Planning Meeting, Montreal | | 263,49 | 13.003,13 |
| | | D 09.05 & D 09.06 | Travel expenses, GK; STA Travel | | 289,00 | 12.714,13 |
| | 31. 03. | D 09.07 | Interest on balance | 46,62 | | 12.760,75 |
| | | D 09.07 | Tax | | 11,66 | 12.749,09 |
| | | D 09.07 | Solidarity fee | | 0,64 | 12.748,45 |
| | 22. 05. | D 09.08 | Travel expenses, GK; IASC Meeting, Bergen | | 560,62 | 12.187,83 |
| | 26. 05. | D 09.09 & D 09.10 | IUGG Allocation 2009: USD 22027,00 | 15.714,49 | | 27.902,32 |
| | 27. 05. | D 09.10 & D 09.11 | Student grant, MOCA09: L. A. Rasmussen: CAD 800 | | 517,40 | 27.384,92 |
| | | D 09.10 & D 09.11 | Courtage | | 2,00 | 27.382,92 |
| | | D 09.10 & D 09.11 | Processing Fee | | 15,00 | 27.367,92 |
| | | D 09.10 & D 09.11 | Expense | | 2,00 | 27.365,92 |
| | 04. 06. | D 09.12 & D 09.11 | Contribution to Summer School, IASC; GBP 5179,00 | | 6.000,00 | 21.365,92 |
| | | D 09.12 & D 09.11 | Courtage | | 2,00 | 21.363,92 |



| Year | Date | Docu- ment | Description | Income, € | Expense, € | Balance, € |
|------|---------|-------------------------|---|-----------|------------|------------|
| | | D 09.12 & D 09.11 | Processing Fee | | 15,00 | 21.348,92 |
| | | D 09.12 & D 09.11 | Expense | | 2,00 | 21.346,92 |
| | 08. 06. | D 09.10 | Donation of Royalties, E. Brun; Cambridge Univ. Press: GBP 208,17 | 208,87 | | 21.555,79 |
| | 30. 06. | D 09.13 | Interest on balance | 45,13 | | 21.600,92 |
| | | D 09.13 | Tax | | 11,28 | 21.589,64 |
| | | D 09.13 | Solidarity fee | | 0,62 | 21.589,02 |
| | 10. 07. | D09.14a/b & D 09.15 | Gifts to MOCA 09 organizers - "The Snowflake"; Amazon | | 49,17 | 21.539,85 |
| | 23. 07. | D 09.15 & D 09.16a/b | Expenses for IACS Bar-B-Q (reimbursement Dr. R. Brown) | | 489,14 | 21.050,71 |
| | | D 09.15 | Courtage | | 2,00 | 21.048,71 |
| | | D 09.15 | Processing Fee | | 15,00 | 21.033,71 |
| | | D 09.15 | Expense | | 2,00 | 21.031,71 |
| | 24. 07. | D 09.15 & D 09.17 | Breakfast, Dr. Beer (IUGG President) and wife | | 29,64 | 21.002,07 |
| | 03. 08. | D 09.15 & D 09.18 | Travel support. IACS Bureau Meeting, Montreal, Prof. Dr. Lange | | 500,00 | 20.502,07 |
| | 24. 07. | D 09.15 & D 09.19 | Expenses Meeting room for IACS Bureau Meeting, Augerge Bonaparte | | 644,06 | 19.858,01 |
| | 12. 08. | D 09.20 & D 09.21 | Travel support, G. Jones; reimbursed to G. Kaser | | 210,00 | 19.648,01 |
| | 01.10. | D09.22 | Interest on balance | 46,82 | | 19.694,83 |
| | | D09.22 | Tax | | 11,71 | 19.683,12 |



| Year | Date | Docu- ment | Description | Income, € | Expense, € | Balance, € |
|-------------|--------|--------------------|--|-----------|------------|------------|
| | | D09.22 | Solidarity fee | | 0,64 | 19.682,48 |
| | 20.11. | D10.01 | Support GAPHAZ Workshop (A. Kääb) | | 1.000,00 | 18.682,48 |
| | 30.12. | D10.01 | Interest on balance | 31,24 | | 18.713,72 |
| | | D10.01 | Tax | | 7,81 | 18.705,91 |
| | | D10.01 | Solidarity fee | | 0,42 | 18.705,49 |
| 2010 | 05.03. | D10.01 & D10.02 | Surplus from Montreal Conference (US\$ 5 372,43) | 3.788,02 | | 22.493,51 |
| | 01.04. | D10.03 | Interest on balance | 27,08 | | 22.520,59 |
| | 01.04. | D10.03 | Tax | | 6,77 | 22.513,82 |
| | 01.04. | D10.03 | Solidarity fee | | 0,37 | 22.513,45 |
| | 30.04. | D10.04 | Royalty, University of Cambridge Press (| 382,01 | | 22.895,46 |
| | 09.06. | D10.04 & D10.05 | IUGG 2010 Allocation (US\$ 26 400) | 23.089,00 | | 45.984,46 |
| | 01.07. | D10.04 | Interest on balance | 38,32 | | 46.022,78 |
| | 01.07. | D10.04 | Tax | | 9,58 | 46.013,20 |
| | 01.07. | D10.04 | Solidarity fee | | 0,52 | 46.012,68 |
| | 01.10. | D10.06 | Interest on balance | 54,44 | | 46.067,12 |
| | | | Tax | | 13,61 | 46.053,51 |
| | | | Solidarity fee | | 0,74 | 46.052,77 |

Expenses (in €) for each cost category 2008-2010 and projections for 2011

| Cost categories | 2008 | 2009 | 2010 | Sum |
|--|------------------|------------------|------------------|------------------|
| 1. Routine administration (SG expenses, website, etc) | 83,14 | 101,78 | 31,59 | 216,51 |
| 2. Travel and meeting costs for IACS and IUGG-related business meeting (including teleconferencing) | 486,00 | 2.133,60 | 1.114,94 | 3.734,54 |
| 3. Travel and meeting costs with other science organizations | 770,25 | 560,62 | 0,00 | 1.330,87 |
| 4. Support to Working and Standing Group activities (incl., e.g., workshops) | 0,00 | 0,00 | 0,00 | 0,00 |
| 5. Support for young scientists and those from less developed nations to attend cryospheric conferences (including IUGG2011) | 0,00 | 517,40 | 0,00 | 517,40 |
| 6. Support for collaboration with other science organizations and initiatives | 0,00 | 7.489,14 | 0,00 | 7.489,14 |
| 7. Education and outreach activities | 0,00 | 0,00 | 0,00 | 0,00 |
| 8. Other costs | 392,60 | 788,10 | 0,00 | 1.180,70 |
| 9. Contingency | 0,00 | 0,00 | 0,00 | 0,00 |
| Sum | 1.731,99 | 11.590,64 | 1.146,53 | 14.469,16 |
| I1 | 14.707,20 | 15.714,49 | 26.877,02 | 57.298,71 |
| I2 | 191,04 | 169,81 | 119,84 | 480,69 |
| I3 | | 536,28 | 382,01 | 918,29 |
| Sum | 14.898,24 | 16.420,58 | 27.378,87 | 58.697,69 |

Income categories

| | |
|--|-----------|
| IUGG yearly funds or other contributions | I1 |
| Interest on bank account capital | I2 |
| Other contributions | I3 |

011

2011

80,00

1.500,00

750,00

500,00

600,00

1.000,00

500,00

500,00

1.000,00

6.430,00

15.000,00

120,00

500,00

15.620,00

| Cost categories | comments | 2008 | 2009 | 2010 | 2011 | 2011-Fz | | 20YY |
|------------------|--|-----------------------|------------------|------------------|------------------|------------------|----------|-----------------|
| | | EXPENSES (EUR) | | | | EUR | | EUR |
| E1 | Routine administration | 83.14 | 101.78 | 31.59 | 80.00 | 100.00 | | 100.00 |
| E2 | Travel and meeting costs for IACS and IUGG-related business meeting | 486.00 | 2 133.60 | 1 614.94 | 1 500.00 | 1 500.00 | | 1 500.00 |
| E3 | Travel and meeting costs in relation with other science organizations | 770.25 | 560.62 | | 750.00 | 1 000.00 | % 5.0 | % 6.0 |
| E4 | Support to WG and SG activities including, e.g., workshops | 392.60 | 1 000.00 | | 500.00 | 3 000.00 | 15.0 | 33.0 |
| E5 | Support for young scientists and those from less developed nations to attend cryospheric conferences | | 517.40 | | 600.00 | 10 000.00 | 50.0 | 22.0 |
| E6 | Support for collaboration with other science organizations and initiatives | | 6 000.00 | | 1 000.00 | 3 000.00 | 15.0 | 11.0 |
| E7 | Education and outreach activities | | | | 500.00 | 1 000.00 | 5.0 | 17.0 |
| E8 | Other costs | | 1 277.24 | | 500.00 | 1 000.00 | 5.0 | 3.0 |
| E9 | Contingency | | | | 1 000.00 | 1 000.00 | 5.0 | 8.0 |
| SUM | | 1 731.99 | 11 590.64 | 1 646.53 | 6 430.00 | 21 600.00 | 100.0 | 100.0 |
| | | INCOME (EUR) | | | | | | |
| I1 | IUGG yealy funds or contributions | 14 707.20 | 15 714.49 | 26 877.02 | 15 000.00 | 15 000.00 | | |
| I2 | Interest on bank account capital | 191.04 | 169.81 | 119.84 | 120.00 | 120.00 | | |
| I3 | Other contributions | | 536.28 | 382.01 | 500.00 | 500.00 | | |
| SUM | | 14 898.24 | 16 420.58 | 27 378.87 | 15 620.00 | 15 620.00 | | |
| Gain/Loss | | 13 166.25 | 4 829.94 | 25 732.34 | 9 190.00 | -5 980.00 | | |
| CAPITALIZATION | | | 17 996.19 | 30 562.28 | 34 922.34 | 19 752.34 | | |

Dear colleagues

I would like to bring your attention to the event planned to take place in Russia (Sakhalin island) in June 2011 devoted to discussion on fundamental issues in snow and snow cover research. Below would be text describing it. Unofficially, the organizers are really interested in gathering together as many people working in snow physics as possible with the main goal to find out common approaches and discrepancies in understanding the snow metamorphism processes leading to evolution of snow cover physical properties and the ways to observe and model various parameters (SSA, anisotropy, etc.) required for description and modeling. The institute in Sakhalin is covering snow avalanches forecast and avalanche protection in their region and all around Russia. Applied aspects are covered professionally and quite effectively. The understanding of physics, however, is still considered to be questionable. They think it would be good to discuss it.

Would anyone be interested in participation, including service in editorial board of the planned Annals and the organization committee? An invitation letter can be issued. Can you ask some others I do not have in my address book in this computer or simply missed?

Such letter had to be sent out at least year ago, no need to discuss it. What is good - the dates can be still adjusted. But they need to put something on a web page to proceed with funding rising

Thank you very much

Sincerely

Sergey

The IGS has received a request to co-sponsor an 'International
> Conference on Snow Physics and Mechanics' due to be held in June 2011,
> in Sakhalin, Russia. They have also requested that an Annals issue be
> dedicated to the theme 'Snow physics and snow mechanics'
> The cost of this Annals issue would be covered by a contribution from
> the Local Organizing Committee and page charges.
>
> The Russian Far East and the Sakhalin island in particular is the
> region where extensive snow avalanche research has been conducted for
> a long time. The research has been led by the Sakhalin Branch of the
> Far East Geological Institute of the Siberian Branch of the Russian
> Academy of Sciences (SB FEGI SB RAN). Specialists from this
> institution are recognized and participate in practically all
> snow-related research within Russia, but are not well known to the
> foreign snow research community.
>
> This conference is intended to fill this gap and to provide an
> opportunity for snow physics researchers from all over the world to
> discuss the results of fundamental research in the field of snow
> science.
>
> Jo Jacka has indicated he might be able to take on such an Annals issue.
>
> The Local organizing Committee would be led by the director of FEGI SB
> RAN: Academician RAS A.I. Khanchuk and the Governor of the Sakhalin
> region A.V. Khoroshavin. The organizing committee will include
> Academicians S.S. Grigoryan and V.M. Kotlyakov, as well as Professor
> A.N. Bozhinskii, Dr. P.A. Chernous, Dr. N.A. Kazakov and others. As
> Council will know, Academician V.M. Kotlyakov is an honorary member of
> the IGS

>
> The following have already expressed willingness to sit on the
> Scientific Steering and Editorial Committee: Jo Jacka, Perry Bartelt,
> Martin Schneebeli, Sergey Sokratov. Others are welcome.
>
> The focus of this Annals is quite narrow and should provide for an
> interesting Annals.

RE: Conference on Snow Physics and Mechanics due to be held in June 2011, in Sakhalin, Russia

Dear Professor Kotlyakov,
cc: Sergey, Ian, Manfred, Georg, Peter, Ralf, Brun, MMM, Jo

I am writing to you in your quality as member of the Organizing Committee of the planned conference on "Snow Physics and Mechanics".

I was quite astonished a few days ago reading for the first time that such a conference was planned. Indeed, the conference topic is relevant to IACS and in particular to the Divisions "Snow and Avalanches" and "Planetary and other Ices of the Solar System". Therefore IACS, if approached, may well consider sponsoring actively and maybe even financially the event. The conference would have to meet the criteria set by the Bureau though.

However, I was even more surprised realizing that the conference should take place in June 2011, a few days before the XXV General Assembly of IUGG 2011 in Melbourne, Australia. There Sessions closely related to the topic of the above conference will be convened, for example, Session C03 "Morphology of Snow and Ice on the Ground and in the Atmosphere" or J-M07 "Atmospheres and ices on terrestrial planets".

As Head of Division "Snow and Avalanches" and on behalf of IACS I would like to urge the Organizing Committee at large running the Conference on another much less conflicting date. I deeply doubt that having important events on related topics that nearly spaced in time is of profit to the cryospheric community. I sincerely hope the Organizing Committee of the "Conference on Snow Physics and Mechanics" will consider carefully the above recommendation.

As stated before, IACS would consider seriously co-sponsoring the event if taking place at another date and if approached in an early phase of preparation.

Sincerely yours
Charles Fierz

Vice-President's Report

IACS Informal Bureau Meeting, Stockholm, 22-23 November 2010

Report of activities (25 July 2009-21 November 2010)

- **Preparation of a symposium for the 2011 IUGG General Assembly in Melbourne.** (Preparation was done with the help of President Ian Allison.) An IACS symposium “C02: Ice Cores and Climate” will be held. Lead convener is Mark Curran (Australia), and co-conveners are Kumiko Goto-Azuma (Japan) and Tas van Ommen (Australia). Two invited talks are planned. Xiao Cunde (China) has agreed to give an invited talk. The conveners also invited David Etheridge to give an invited talk and are waiting for his reply. If he is not available, the conveners will approach another candidate. Announcements of the symposium have been made on a few occasions.
- **Assistance for making a video for the 2011 IUGG General Assembly.** Goto-Azuma sent a few video movies showing Japanese activities in Antarctica to Robert Kerton (Multimedia producer, CSIRO Publishing).
- **Introduction of IACS activities at the annual meeting of the Japanese Society of Snow and Ice (JSSI).** Tetuso Ohata and Kumiko Goto-Azuma organized a session at the meeting to strengthen cryospheric sciences in Japan and to promote international collaborations. Goto-Azuma reported the activities of IACS and IPICS at the session. It was decided at the session that a working group on Cryospheric Sciences will be formed within JSSI.
- **Preparation of a list of Divisions, working groups, standing groups, joint bodies and partner organizations.** Since a draft list was shown at the Montreal Bureau meeting, no progress was made. Goto-Azuma apologizes for the delay and will work on it soon. She will complete it before the next Bureau meeting.

Some thoughts on the IASC financial support for meetings etc.

- Registration fees for IUGG general assemblies and IACS assemblies in between them are generally high. We often select local scientists as invited speakers at IACS (and joint) symposia. Though travel costs for them are not so high, sometimes they find difficulties in paying the registration fee. Can't we support the registration fee for some of the invited speakers?
- Future meetings we might also consider supporting.
 - IPICS open science conference 1-5 October 2012, Giens, France
 - Third International Symposium on the Arctic Research (ISAR-3), autumn ? 2012, Tokyo, Japan. This is a series of symposia held every two years in Japan, most likely in or near Tokyo. The second one will be held in Tokyo 7-9 December 2010.

(<http://www-arctic.nipr.ac.jp/isar2/toppage/isar2top.htm>). ISAR-2 receives financial support from CliC and IASC.

IACS Bureau elections 2011

Could anyone tell me about current status of nominations. May I propose to nominate Professor Hiroyuki Enomoto (Japan) as a vice president or Division head of one of the three divisions, Continental Glaciers and Ice Sheets, Marine and Freshwater Ice, Cryosphere, Atmosphere and Climate, if there will be a vacancy in one of these positions? Hiroyuki Enomoto is currently based at Kitami Institute of Technology, but he is moving to National Institute of Polar Research in next April as a head of the Arctic Environment Research Center. His expertise covers broad range of cryospheric sciences, such as ice sheets and glaciers, sea ice, and meteorology in the Arctic, Antarctica, Patagonia, Svalbard, Alaska etc. He is very keen on promoting international collaboration.

If the current Bureau members decide to stay at these positions, or if there are already strong nominees for these positions, please forget about my proposal.

Kumiko Goto-Azuma
IACS Vice-President
Tokyo, 22 November 2010

International Association of Cryospheric Sciences

Division “Marine and Freshwater Ice”

Report of activities, 2009.07.25 – 2010.11.21

Since the last IACS Bureau Meetings in Montreal (2009.07.18-19 and 24), the activities of the division “Marine and Freshwater Ice” were as follows:

- **Issue of a new working group on Lake and River Ice (Action item 2.17).** A document proposing the establishment of a Working Group on “Lake Models” with a focus on the representation of ice cover is in development (to be delivered in December 2010). The proposal in development is the result of discussions that took place between C. Duguay and the modeling community during the *2nd Workshop on Parameterization of Lakes in Numerical Weather Prediction and Climate Modeling* held in Norrköping, Sweden, 15-17 September 2010. The workshop is held every two years. Hence, it will be used as the main instrument for meetings of WG members.
- **Preparation of a session for the 2011 IUGG General Assembly in Melbourne.** A joint IAPSO-IAMAS-IACS session on “Future state of the Arctic and potential impact” will be held. The Lead convenor is Bruno Tremblay (McGill University; IAPSO) and co-convenors are Göram Björk (Sweden), Claude Duguay (Canada), John Turner (United Kingdom) and John Cassano (USA).

Claude Duguay

Waterloo, Canada, 2010.11.21

International Association of Cryospheric Sciences

Division “Planetary and other Ices of the Solar System”

Report of activities, 2009.07.25 – 2010.11.21

Since the last IACS Bureau Meetings in Montreal (2009.07.18-19 and 24), the activities of the division “Planetary and other Ices of the Solar System” were as follows:

- Preparation of a new Working Group “Flow Law for Polycrystalline Ice”. This working group is essentially ready to launch (please see the accompanying document “IACS WG Flow Law (draft).doc”). **It should be approved by the IACS Bureau.**
- Preparation of a session for the 2011 IUGG General Assembly in Melbourne. Similar to MOCA-09, it will be a joint IAMAS-IACS session on “Atmospheres and ices on the terrestrial planets”. Lead convenor is Dimitri Titov (Max Planck for Solar System Research, Germany; IAMAS), co-convenors are Athéna Coustenis (Paris-Meudon Observatory, France; IAMAS) and me for IACS. We hope that the session will bring together scientists from both the planetary and terrestrial communities.
- Discussions with Steve Clifford (Lunar and Planetary Institute, Houston, Texas) about the next (5th) Conference on Mars Polar Science and Exploration, preliminarily planned to be held in Fairbanks, Alaska, in autumn 2011. Since the past conferences were very successful in fostering active exchange between the planetary and terrestrial cryosphere science communities, I think it would be an excellent opportunity if IACS acts as a co-sponsor of the upcoming conference. I also mentioned to Steve that there may be a chance that IACS provides limited financial support, for instance for the participation of students and retired professionals. **This should be discussed by the IACS Bureau.**

Ralf Greve

Sapporo, 2010.11.17

IACS



International Association of Cryospheric Sciences

DIVISION I SNOW AND AVALANCHES

HEAD: CHARLES FIERZ

Bureau Meeting, 22-23 November 2010, Stockholm

Head of division's report

General

I am afraid I did not make much progress towards the goals I set myself last year (see appended 2009 report that may not have been forwarded to all Bureau members). Even so the division could not start new WGs, I had contacts with scientists interested in chairing one. I hope to be able to convince them to draft proposals to be submitted to the Bureau in Melbourne. Tentative topics are: Polar Surface Features, Snow Microstructure, and Avalanche Classification.

Unfortunately I did not make it to contact the committees of the two well established North-American events, the Eastern Snow Conference ESC and the Western Snow Conference WSC. I think the next Bureau will have to decide how IACS should best seek collaborations with these established but not too formal organizations.

International Classification of Seasonal Snow on the Ground

At present, the classification is downloadable from resources -> publication on our web-site. VP Jansson and I suggest to have an entry resources->products where this kind of "products" will be available. It is also planned to put the text of the classification on our Wiki to provide a tool for future discussions and improvements.

Regarding translations, Siegfried Demuth (UNESCO-IHP) advised us to contact directly UNESCO publishing. This service provides a web based form for translation rights and permissions. Unfortunately, the response time is very slow and the latest inquiry by Norway got a response first! I will look into this again shortly.

Based on the revised snow classification, we worked with the Canadian Avalanche Association CAA and the European Avalanche Warning Services EAWS to define and provide an international data exchange format for snow profiles. The CAAML, that is XML and GML based, snow-profile format was presented at the last International Snow Science Workshop ISSW this fall and the response was very positive. I anticipate that we will be able to release a first version very soon after a few remaining open points have been resolved. I will also explore the possibility to start a WG that should continue this kind of work within the avalanche and snow science community. Who wants to have a first glimpse at it should visit <http://caaml.org/Schemas/V5.0/Profiles/SnowProfileIACS/>.



The International Association of Cryospheric Sciences (IACS) aims to promote the study of the Cryosphere in all of its aspects.
IACS is an Association under the International Union of Geodesy and Geophysics IUGG.
<http://www.iugg.org>

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Melbourne 2011 IACS post assembly excursion

Wolfgang Rack from the University of Canterbury and Jordy Hendrikx (NIWA) take charge of a NZ southern Alps field trip for the IACS program of IUGG 2011. See trip CF01 on the assembly web page.

DACA-13 Davos Atmosphere and Cryosphere Assembly 2013 – Ice & Air: Process Interactions

DACA-13 is on its way with a complete Swiss National Organising Committee SNOG. A designer works presently on the logo. The DACA-13 webpage is expected to be launched early next year. The Swiss cryospheric and atmospheric community is responding positively so far and I think quite a few ideas for joint symposia will be ready for consideration in Melbourne.

Meetings

Nothing to report.

Cryospheric Managers

There was almost no activity on this topic. I suggested VP Casassa to address it at the CliC meeting in Valdivia early this year but did not hear back since.

I still feel these telecons could be useful in particular regarding the coordination of activities (cryo-calendar). However, one of the cryospheric organizations should take the responsibility to convene the telecons and provide the necessary infrastructure as CliC did in the beginning.

4 December 2010 / C. Fierz

IACS working group 'Flow law for polycrystalline ice'

A realistic description of the flow of polycrystalline ice is essential to a range of research: from ice sheets and glaciers on Earth, to Martian ice caps and extra-terrestrial icy worlds. This is particularly important with the recent increase in activity in developing models of ice sheet systems in response to anthropogenic climate change issues. IACS has accordingly decided to establish a working group on this topic.

As a simple first step, we propose to reassess the traditional form of “flow law”. Later activities could explore in greater detail the range of more sophisticated flow relations, including micro/grain scale models, and general descriptions involving an effective tensor viscosity.

The deformation of ice is usually modelled by using a constitutive law called Glen’s flow law, which relates the strain rate tensor to the stress tensor (usually with a nonlinear dependence on stress) by a scalar factor. This factor is commonly split into a temperature-dependent part, the so called rate factor $A(T)$, an overall proportionality constant, and an enhancement factor E , which parameterises all other physical influences, like impurities, damage, grain size, crystal orientation patterns, etc., usually with respect to the proportionality observed at minimum (secondary) creep rate associated with pure, isotropic, polycrystalline ice under the corresponding temperature and stress conditions.

A first parameterisation of the rate factor assumed an Arrhenius relation, depending on temperature and activation energy (e.g. Cuffey and Paterson, 2010). This relation has most often been used in numerical simulations. Hooke (1981) presented a parameterisation that extended the Arrhenius relation. This is the most recent widely used fit of laboratory measurements to a function of temperature. Since then many new deformation experiments have been carried out. A re-analysis of all stress-strain rate datasets as a function of temperature and the assessment of the previously proposed parameterisations are thus initial tasks the working group will perform.

Beyond the temperature dependence of the rate factor, the question arises whether the Glen-type constitutive relation requires an extension or reformulation. The working group will evaluate the need for a new flow law and survey the prospects available in the literature.

We propose to begin by building a database of flow rates from field and laboratory studies with artificial and natural ice samples, discriminating between secondary and tertiary creep. Related to that, a bibliography of experimental papers, with an accompanying glossary to promote consistent definitions and terminology, as well as a bibliography of theoretical works on flow laws, will be assembled.

Call for contributions: In case you have performed laboratory deformation experiments, please get in contact with us! (mail to link einfügen: iacs_flowlaw@zmaw.de)

References:

Hooke, R. LeB. Flow law for polycrystalline ice in glaciers: comparison of theoretical predictions, laboratory data, and field measurements, *Reviews of Geophysics and Space Physics*, 19(4), 664-672, 1981.

Cuffey, K. M. and Paterson, W. S. B. *The Physics of Glaciers*, 4th edition, Elsevier, Amsterdam, 2010.

Working Group chair: Angelika Humbert.

Initial WG participants: Nobuhiko Azuma, Sepp Kipfstuhl, Luca Placidi, Adam Treverrow, Roland Warner, Ilka Weikusat.

We are also developing a wider group of advisors including Jo Jacka.

Minutes IACS-Website 2010-11-24, office of VP Jansson at Stockholm University.

Ad 16.2 IACS web site

The day after the „informal“ Bureau meeting, VP Jansson and HD Fierz met to discuss issues related to the IACS website. The website is hosted on a server located at CIRES, UoC, Boulder, Colorado, USA. Thanks to Koni Steffen's support this service will continue for the years to come and we are very grateful to Koni for this. Nevertheless, we feel we should have a short written agreement between CIRES and IACS stating what exactly we can expect from CIRES.

Action Item 5.x: VP Jansson and DH Fierz to draft a letter to CIRES.

VP Jansson is the current webmaster and it was agreed that DH Fierz will second him as „co-editor“ until IUGG2011.

Regarding the **content** of the web-site, we suggest:

- to update the content of the site before the Melbourne assembly, preferably by the closing date for abstracts. All Bureau members are thus urged to provide contributions by the end of December 2010 or earlier (description of divisions, see Action Item 2-12). Illuminating pictures are also welcome, animated gifs, etc can also be provided.
- to improve and correct the current text of the website.
- to show prominently what support IACS will provide given the criteria set in the terms of agreement for Standing and Working Groups. This should also hint to support possibilities outside Standing and Working Groups.
- to update the list of national representatives – and correspondents. Shall we have two lists, one containing the correspondents (designated by their countries) and another one listing the representatives designated by the Bureau? One possible solution is one list with the correspondents designated as it is currently. Whenever one name only is listed, representative and correspondent are the same person.

Action Item 5.x: All Bureau Members to provide input: description of divisions (see also Action Item 2-12) , pictures, reports on found errors (send a pdf-copy of web page with error marked on it)

Regarding the **design** of the web-site, we propose:

- to restrict the number of main menu tabs and sub-menu entries to at most 3 or 4 each (except the list of IACS officers, the list of Associations, or where required)
- to include a menu item “Products” under “Ressources”. Here the Mass Balance Terminology and the Snow Classification (see report by DH Fierz) would be located.
- to manage the Events-tab slightly differently. We envision to have a main Event tab expanding to a submenu (see below) with three entries:
 - IACS Events: *this list will contain all forthcoming IACS events, including Bureau Meetings and IACS related meetings and events (or separated in administrative and scientific?) (related==organizations with which we have MoUs, etc.)*
 - other events: *this list will contain all events that are brought to the attention of IACS and are related to our activities but not sponsored by us (ISSW, EARSeL, others)*

- past events: *this list will contain all past events from "IACS Events" above but with live links removed (cleaning-up after one year) to avoid tedious tracking of broken links.*

All Bureau members should let us know about events that should be included here. If feasible we plan to make this lists also available in form of calendars.

- Both of us will be reachable under webmaster@cryosphericsscience.org. Accordingly, Bureau Members are encouraged to address their requests and info to both of us. VP Jansson, however, remains responsible for the design and the site as such. DH Fierz will have access to the site and be able to perform minor editorial changes or additions to the text.

File: D:\d-home\icsu\iugg\associations\iacs\bureau\2010_stockholm\RE ICSI files_20101116.eml 2010-11-16, 12:44:18

From: Ian Allison
To: Liz Morris <emm36@cam.ac.uk>
CC: "Manfred A. Lange" <manfredcyp@gmail.com>, Georg Kaser <Georg.Kaser@uibk.ac.at>, Charles Fierz <fierz@slf.ch>
Subject: RE: ICSI files
Date: Thu, 4 Nov 2010 09:05:05 +0000

Dear Liz,

Thanks for the reminder on this. It has been nagging at the back of my mind for a while, but has never quite made it to the surface.

When I was in Cambridge in July I had a quick rummage through the 23 archive boxes in your field store and made a crude record of what was there. I was only there for a little over an hour, but the records are reasonably ordered so I was able to get a useful impression. I did not look in detail at any of the records. The attached file:

"Inventory of ICSI Archives (IA).doc"

is my inventory of each box.

Kate Gilbert was also able to provide me with a copy of the record from the BAS archives database. I got this only as I was leaving SPRI, but I have been able to reconcile that record pretty well with my own rough inventory. The attached file:

"ICSI Archive record (BAS+IA).doc"

is my amended version of the BAS record. I amended the original BAS record (which you probably have a copy of) so that each archive is now uniquely numbered. Instead (e.g.) of records 1 to 11 from Radok, records 1 to 33 from Fountain, they are now labelled R1-R11, F1-F33, etc. I have also attempted to link the two inventories. On my "Inventory of ICSI Archives" the 4th column (BAS archive record no.) links the BAS number to the box number. On the BAS record any identification number in red font is one that I have found a box for. The link is not quite complete and probably not quite correct.

So I think we now have a reasonable idea of what is in the archive, and where it is. Which does not answer the question of how to get it out of your field store!

My overall "plan" is to reduce the archive to a bare minimum of essential historical material and to digitise (commercially) what is left, and then find an electronic repository (probably easier). However here are a few interim steps in there that I have not resolved.

In reducing the archive I suggest eliminating those records that:

- * are duplicated (not necessarily easy to determine)
- * exist also as an electronic record (e.g. Box 16 and 17 are hard copies of email correspondence -do the emails still exist electronically?)
- * are published (e.g. the Field book). I have already eliminated one (only) box by trashing a whole lot of reprints (box 20).
- * are the primary responsibility of IAHS, rather than ICSI, and
- * are background material for some other completed project (e.g. the Radok research material in Box 13).

My very bottom line would be to retain ONLY minuted reports from Bureau

File: D:\d-home\icsu\iugg\associations\iacs\bureau\2010_stockholm\RE ICSI files_20101116.eml 2010-11-16, 12:44:18

meetings (assuming that these summarize correspondence, WG reports, etc); anything pre 1960; and some of the more formal (pre 1970, on letterhead paper) correspondence from/to the President and Secretary.

This requires assistance from some one "on-site". Are we able to employ someone casually in Cambridge to help with this (trashing, finding another temporary storage, arranging digitising of selected records, etc.)? I think we now have enough info to direct these tasks remotely.

I welcome input from others cc-ed on this message. Particularly on the status of any arrangements with NSIDC.

Best regards, Ian

ps: It was weird taking the plane from Australia to UK on that trip to find myself sitting next to your PhD adviser, Michael Berry. I assume you have since been in touch?

-----Original Message-----

From: Liz Morris [mailto:emm36@hermes.cam.ac.uk] On Behalf Of Liz Morris
Sent: Wednesday, 3 November 2010 10:28 PM
To: Ian Allison
Subject: ICSI files

Dear Ian, Can you let me know what the plans are for dealing with the ICSI material currently in the SPRI Field Store please? I really need to clear this space ready for packing equipment fairly soon.

Best wishes, Liz

--

Work Tel: +44 (0)1223 336568

EXTRACT FROM THE BRITISH ANTARCTIC SURVEY ARCHIVES DATABASE

D4/Review

1962 - 2002
(Access restricted
(ICSI President))

**Rough listing of the Records of the International Commission on Snow and Ice
Deposited in BAS Archives**

[group/series title]

File & Minutes & Conference proceedings & Newsletter & Programme of work & Book

Record creation

Compiler: Radok, U. & Lliboutry, L. & Morris, E.M. & Salm, B. & Fountain,
A.G.
Date: 1962 – 2002

Physical description

23 boxes (occupying 2.75 linear metres of shelving).

Related material

Registered files in BAS filing system

Acquisition

Accession number: 1995/137 (Salm) & 1997/155 (Radok) & 1999/129
(Fountain) & 1998/154 (Lliboutry) & 2000/23 (Morris) & 2003/121 (Morris)

Archival arrangement:

These records have been roughly sorted but require detailed arrangement and listing. Some records duplicate each other and an attempt should be made to identify the official minutes. The lists given here are from the accession record.

Date: 1995 = 2003.11

Listed by Rae, J.

Extract from database produced on 15th December 2009 at 03.28 pm.

Records renumbered by I. Allison to identify source, November 2010.

B. Salm = S1 to S21
U. Radok = R1 to R11
A. Fountain = F1 to F 34
L. Lliboutry = L1 to L 4
Inherited (Morris) = I 1 to I 4
E. Morris = E 1.1 to E 1.8; E 2.1 to E 2.5; E 3.1 to E 3.6.

RECORDS OF B. SALM (1995/137).

ICSI MEETINGS.

S 1-8. Files re annual ICSI Bureau Meetings, and associated workshops (includes agendas, papers, correspondence and minutes), 1975-94. (36 folders in 7 plastic leaflet racks and 1 box.)

S 9. Box labelled 'ICSI - Protokolle. Salm', containing files re publication of minutes of ICSI Bureau meetings, including master copy of text, 1988-91. (5 folders.)

GENERAL CORRESPONDENCE.

S 10. Plastic leaflet rack labelled 'Seasonal snow cover + avalanches. IAHS, UNESCO, WMO. De Quervain 1962-67'. Includes correspondence between ICSI and Dr MR de Quervain, Director of Swiss Federal Snow and Avalanche Research Institute, and with UNESCO re International Hydrological Decade. (3 folders + loose papers.)

S 11. Plastic leaflet rack labelled 'ICSI. Allgemeines. Newsletters. Geplante Veranstaltungen und publikationen. Ice mechanics', 1975-82. (6 folders.)

S 12. Lever arch file labelled 'ICSI Korrespondenz. Eigene. Mitglieder', 1977-91.

S 13. Plastic leaflet rack (unlabelled), containing 5 folders:

'ICSI. IAHS Allgemeines', 1977-95.

'ICSI. IHP/UNESCO', 1989-92.

'ICSI. Korrespondenz von ICSI Mitgliedern + IGS + UNESCO (allg)', 1990-92.

'Minutes IAHS', 1987-92.

'ICSI. Eigene korrespondenz', 1989-93.

S 14. Plastic leaflet rack labelled 'ICSI Working groups. PSFG/WGMS', 1980-84. (3 folders.)

S 15. Plastic leaflet rack labelled 'ICSI. WG snow classification. Technical report (pasy + present variations...). PSFG/TTS. IPA allgemeines. ICSI WG IDNDR. IAHS task force on developing countries. SCAR IASC', 1986-94. (7 folders.)

PUBLICATIONS.

S 16. Lever arch file labelled 'IAHS newsletters', 1984-95.

S 17. Copies of printed minutes of ICSI Bureau meetings, 1986 (3 copies), 1987 (3 copies), 1991 (10 copies), 1992 (5 copies), 1993 (1 copy). (22 volumes.)

S 18. 'IHP Information', newsletter re International Hydrological Programme, Jan/Mar 1993 - Apr/Jun 1994. (7 volumes.)

S 19. 'Proceedings of the UNESCO/WMO/ICSI International Conference on Hydrology', Mar 1993. (1 volume.)

S 20. 'International Hydrological Programme. Hydrology and water resources for sustainable development in a changing environment'. Detailed plan for IHP phase 4 (1990-95). 1990. (1 volume.)

S 21. 'Mountain glaciers of the northern hemisphere', ed. W.O. field. Vols. 1-2. 1975. (2 volumes.)

RECORDS OF U. RADOK (1997/155).

FILES CONCERNING HISTORY OF ICSI.

- R 1.** File, 'Article on CIG, ICSI history'. Reprints and photocopies used by U. Radok in preparation of 'The International Commission on Snow and Ice (ICSI) and its precursors, 1894 - 1994'. 1997. (Buff folder.)
- R 2.** File, 'CIG, ICSI. Biographical material', not dated. (Brown folder.)
- R 3.** File, 'CIG related excerpts'. (Buff folder.)
- R 4.** File, 'CG, CS 1927-36. ICSI 48-712'. (Buff folder.)
- R 5.** File, 'International Antarctic Glaciological Project (IAGP)', 1968-85. Includes reprints about IAGP and copies of IAGP Coordinating Council minutes. (Buff folder.)

PRESIDENT'S FOLDERS (compiled by Radok).

- R 6.** File, 'Pres. Nye 1971-74'. Covering letter, 1996, reports of meetings 1971-75. (Buff folder.)
- R 7.** File, 'Pres. Radok 1975-79'. Meetings minutes and agendas, 1976-79; presidential address 1979. (Buff folder.)
- R 8.** File, 'Pres. Roots 1979-83'. Minutes of meetings 1980-81; correspondence 1995-96. (Buff folder.)
- R 9.** File, 'Pres. Lliboutry 1983-87'. Minutes of meeting 1986; list of officers and activities 1983-87. (Buff folder.)
- R 10.** File, 'Pres. Kotlyakov 1987-91'. Minutes of meetings 1988-89; paper in Russian. (Buff folder.)
- R 11.** File, 'Pres. Kuhn 1991-95'. Minutes of meetings 1990-94, agenda 1995'. (Buff folder.)

RECORDS OF A.G. FOUNTAIN, ICSI SECRETARY 1995-99.

GENERAL FILES

F 1. 'Logo'.

F 2. 'Statutes'.

F 3. 'ICSI activities'.

F 4. 'ICSI report. a) Newsletter June 99. b) 5-yr report to IAHS'.

F 5. 'Final report July 1999'.

WORKING GROUP/SYMPOSIA FILES

F 6. 'WGMS review'.

F 7. 'Working group - Methods of Mass Balance Measurement'.

F 8. 'WG Himalayan Gls'.

F 9. 'Melbourn symposium'.

F 10. 'Correspondence relating to ICSI's symposium 'Glaciers of the southern hemisphere', July 1997 Melbourne, Australia'.

BUREAU MEETINGS FILES

F 11. 'Hanover Mtg', 1992-93.

F 12. 'Jul 95. Boulder, CO'.

F 13. 'Aug 96. Victoria, BC'.

F 14. 'Melbourne Bureau meeting July 1997'.

F 15. 'Oct 98. Brownsville, VT'.

F 16. 'ICSI 1998'.

CORRESPONDENCE FILES.

F 17-F 34. Title of each file indicates months and year of correspondence within it, each covering between 1-6 months. June 1995-June 1999. (18 folders.)

RECORDS OF L. LLIBOUTRY, ICSI PRESIDENT 1983-1987. (ACC 1998/154)

CORRESPONDENCE

- L 1. 'I.C.S.I. Bureau. Correspondence 1983-1987.'
- L 2. File of correspondence regarding the 'World Glacier Monitoring Service' and the 'Symposium de Vancouver 1986.' 1983 - 1987.

PUBLICATIONS

Offprints from 'The role of snow and ice in hydrology. Proceedings of the Banff Symposia. September 1972.'

- L 3. Volume 1. (9 articles).
- L 4. Volume 2. (98 articles).

RECORDS INHERITED BY ELIZABETH MORRIS, ICSI PRESIDENT 1995-2001.
(ACC 2003/121)

FILES

- I 1. 'ICSI WG on large scale effects of seasonal snow cover'. 27 Sep 1984 - 31 Jul 1986. (Box 22)
- I 2. 'ICSI WG on snow classification'. 20 Mar 1985 - 24 May 1991. (Box 22)
- I 3. 'Snow chemistry WG'. 4 Aug 1986 - 24 Sep 1989. (Box 22)
- I 4. 'Working group on snow atmosphere interactions'. 27 Aug 1990 - 10 Oct 1994. (Box 22)

RECORDS OF ELIZABETH MORRIS, ICSI PRESIDENT 1995-2001.

(ACC 2003/121)

1. PRESIDENT'S REGISTERED FILES

E 1.1. 36/38/3049 vol 3: 'Liaison, International. International Commission on Snow and Ice, President's correspondence'. 31 Aug 1999-28 Jun 2001. (Box 21)

E 1.2. 36/38/3089 vol 1: 'Liaison, International. International Commission on Snow and Ice, Working Group on River Ice'. 25 Aug 1995-14 Apr 2000. (Box 21)

E 1.3. 36/38/3090 vol 1: 'Liaison, International. International Commission on Snow and Ice, Working Group on Mass Balance'. 21 Aug 1995-18 Jan 1999. (Box 21)

E 1.4. 36/38/3090 vol 1: 'Liaison, International. International Commission on Snow and Ice, Working Group on Himalayan Glaciology'. 9 Aug 1995-11 Jul 2001. (Box 21)

E 1.5. 36/38/3093 vol 1: 'Liaison, International. International Commission on Snow and Ice, World glacier monitoring service'. 16 Jul 1995-13 Jul 2001. (Box 21)

E 1.6. 36/38/3172 vol 1: 'Liaison, International. International Commission on Snow and Ice, IAHS correspondence'. 17 Mar 2000-28 Jun 2001. (Box 22)

E 1.7. 36/38/3245 vol 1: 'Liaison, International. International Commission on Snow and Ice, relations with SCAR Specialist Group on Global Change in the Antarctic'. 10 Jun 1993-29 Jun 2000. (Box 22)

E 1.8. 36/38/4073 vol 1: 'Liaison, International. International Commission on Snow and Ice, Working Group on Rock Glaciers'. 8 Sep 1997. (Box 22)

2. PRESIDENT'S UNREGISTERED FILES

E 2.1. 'ICSI emails 27/11-8/12', Nov 1996-Apr 2000. (Buff envelope folder.) (Box 23)

E 2.2. 'Maastricht', Mar-Jul 2001. (Blue envelope folder.) (Box 23)

E 2.3. 'ICSI Paris', Feb-Mar 2002. (Blue envelope folder.) (Box 23)

E 2.4. 'ICSI Münster', Sep 2002-Feb 2003. (Buff envelope folder.) (Box 23)

E 2.5. 'ICSI', Jul 1995-Mar 1999'. (Buff folder.) (Box 23)

3. SECRETARY'S FILES (A FOUNTAIN)

E 3.1. '5.2 ICSI Bureau-Innsbruck 1994', Mar 1992-Sep 1994. (Orange envelope

folder.) (Box 18)

E 3.1. No title. Correspondence arising from ICSI Bureau meeting, Innsbruck 1994, Jan-Jun 1995. (Orange envelope folder.)(Box 18)

E 3.2. 'Report of the International Commission on Snow and Ice. Minutes of Bureau meeting, University of Victoria, Victoria, BC Canada. 16 August 1996'. (Booklet.)(Box 18)

E 3.3. 'Report of the International Commission on Snow and Ice. Minutes of Bureau meeting, Ascutney Resort, Brownsville, Vermont USA. 5 October 1998'. (Booklet.)(Box 18)

E 3.4. 'ICSI history/Radok'. Reprints of history written by Uwe Radok, published 1997. With correspondence, 1993-96, including obituaries for William H Ward (Building Research Station. (Cream folder.)(Box 18)

E 3.5. 'National representatives', 1995-96. (Cream folder.)(Box 18)

E 3.6. 'ICSI budget', 1995-99. (Cream folder.)(Box 18)

Inventory of ICSI Archives, I Allison, July 2010

| Box | Category | Date and/or details | BAS archive record no. | Comment |
|-------|--|---|--|---|
| Box 1 | Bureau minutes and papers | 1975 Grenoble, 1976 Cambridge, 1977 Seattle, 1978 Aletsch, 1979 Canberra, 1980 Sapporo, 1981 Quebec, 1982 Exeter. | S1 – S8 | |
| Box 2 | Bureau minutes and papers Workshop report | 1983 Hamburg, 1984 Paris, 1985 Alma Ata, 1986 Grenoble. "Strategies for hydrology in developing countries", Hamburg 1983 | S1 – S8 | - IAHS workshop |
| Box 3 | Bureau minutes and papers | 1987 Vancouver, 1988 Paris, 1989 Davos, 1990 Leningrad. | S1 – S8 | |
| Box 4 | Bureau minutes and papers | 1991 Wien, 1992 Paris, 1992 Kathmandu, 1993 Yokohama. | S1 – S8 | |
| Box 5 | Bureau minutes and papers | 1995 Innsbruck (centenary) | S1 – S8 | |
| Box 6 | Bureau minutes and papers | 1988 Paris, 1989 Davos, 1990 Leningrad, 1991 Wien. | S1 – S8 | These meetings also in Box 3, 4. Are they duplicates? |
| Box 7 | ICSI correspondence Newsletters and misc. publications. Reports and papers | Miscellanea 1967. Miscellanea ca 1975-1979. IUFRO-ICSI cooperation, 1981. 1977-1979. Task Group, Standardising testing methods for snow, 1975. WG Ice mechanics, 1979. Mapping of seasonal snow, 1967. Guide to variations of existing glaciers. Workshop on "Strategies for hydrology in developing countries", 1983 | S10 S12 S11 S10 | IAHS workshop |
| Box 8 | Correspondence and reports | WG prediction of glacier run-off, 1983. WG large scale snow studies, 1984. re IHP UNESCO, 1992. with IAHS Bureau, 1992. ICSI Bureau Yokohama, 1993 Miscellaneous reports, 1993 PSFG/WGMS, 1993-1994 ICSI-IAHS admin matters, 1995 | - - S13 S13 - S13 S14?? - | |

| | | | | |
|-----------|--|---|---|-----------------------------|
| Box 9 | Correspondence and reports | 1986 with PSFG 1986 WG on snow classification 1992-94 with SCAR and IASC 1992 with IPA 1992 IAHS developing country task force 1992 with WG IDNDR (natural disasters) 1992-1993 miscellanea | S15 S15 S15 S15 S15 S15 - | |
| Box 10 | IAHS Newsletters ICSI correspondence | Apr84-May95 Jul77-Nov89 | S16 - | |
| Box 11 | ICSI Bureau reports (published) | Aug86, May92, Aug92, Jul93, Aug97 | S17 | |
| Box 12 | Publications | Mountain Glaciers of NH (Field), V1, V2 IHP 1990-95 plan IHP Information Bulletins, 33 (1993) – 38 (1994) | S21 S20 S18 | |
| Box 13 | Radok "ICSI History" paper | Reprints and photocopies. Plus some earlier 1920-1930 material. | R1-R4 | Research material |
| Box 14 | ICSI correspondence | President Radok, 1975-79 President Roots, 1979-1983 President Lliboutry, 1983-1987 President Kotlyakov, 1987-1991 President Kuhn, 1991-1995 | R7 R8 R9 R10 R11 | |
| Box 15 | ICSI Correspondence ICSI logo designs New statutes Bureau minutes | WG mass balance measurements, Nov95-Mar97 WG Himalayan glaciers, Nov96 WGMS review, Aug96 Miscellaneous, Apr96 re Glaciers of SH Symposium (Melb., Jul97) re IAMAS-IAPSO Symposium (Melb., Jul97) - Sep95 Jul95, Aug96 (Victoria, BC), Jul97 (Melbourne), Oct98 (Brownsville, Vt) | F7 F8 F6 - F9 F10 F1 F2 F12-F15 | |
| Box 16 D4 | ICSI correspondence | June 1995-July 1996 | F17-F34 | Mostly hard copies of email |
| Box 17 D4 | ICSI correspondence | August 1996-April 1998 | F17-F34 | Mostly hard copies of email |

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|-----------|---|--|--|--|
| Box 18 D4 | Bureau reports Correspondence Correspondence Budgets; bank statements National report info. Radok "ICSI History" paper | Sep94, Aug96, Oct98. Jan 95–Jun 95. May 98-Jun 99 (2 files) Oct 96-Mar 99 1996-97 | E3.1-3.3 E3.1-3.3 E3.1-3.3 E3.6 E3.5 E3.4 | Some of E3.1-E3.3 may duplicate Fountain records in Box 15. Drafts and reprints |
| Box 19 | Archives | From Lliboutry | L1-L4 | |
| Box 20 | Offprints | Various IAHS proceedings | - | Already disposed |
| Box 21 | ICSI Correspondence (Liz Morris) | President Morris, 1999-2001 WG river ice, 1995-2000 WG Himalayan glaciers, ? – 2001 WG Mass balance, 1995-2001 WGMS, 1995-2001. | E1.1 E1.2 E1.4 E1.3 E1.5 | |
| Box 22 | ICSI Correspondence (Liz Morris) Morris inherited records | with IAHS, ? with SCAR-GLOCHANT, 1993-2000 re rock glaciers, 1997-2000 re snow-atmosphere interaction re large scale effects of seasonal snow re snow classification re snow chemistry | E1.6 E1.7 E1.8 I4 I1 I2 I3 | |
| Box 23 | Unsorted miscellanea | Liz Morris 1995-2002 | E2.1-E2.5 | Liz to advise. |

Research urgencies in the Polar Regions and their links to the ICSU Grand Challenges in Global Sustainability.

A two day symposium, Siena Italy in the context of the ICSU General Assembly 2011
and the ICSU Earth System visioning process.

Sponsored by the ICSU organisations SCAR, IASC and IACS (IUGG);
Supported by EPB-ESF, LESC-ESF, PNRA/MIUR, CNR; and
Hosted by the University of Siena.

Introduction:

ICSU, along with its partner the World Meteorological Organisation (WMO), cosponsored the recently completed International Polar Year 2007-2008 (IPY). IPY was an ambitious multidisciplinary and international collaboration in both Polar Regions, covering all scientific disciplines related to Earth System Science and social sciences. IPY emerged as the largest internationally coordinated planetary research effort in the past 50 years, engaging the intellectual resources of thousands of scientists, often from 'non-polar' countries. The two years of concentrated polar research during IPY yielded unprecedented achievements and critical data sets that advanced our understanding of the Polar Regions. The research urgencies in Polar Regions addressed during the IPY are directly relevant to and supportive of the ICSU Grand Challenges in Global Sustainability.

This two day symposium for 80-100 persons will be held in the historic city of Siena, Tuscany, prior to the ICSU General assembly in Rome beginning 26 September 2011. It will address all aspects of polar science, with a focus on the functioning of the Earth System in the Arctic and Antarctic, the major drivers of pervasive change and the as yet unaddressed research issues in these regions. These global issues will be considered in the polar regions within the context of the ICSU Grand Challenges and the research priorities of the Scientific Committee on Antarctic Research (SCAR), the International Arctic Science Committee (IASC) and other ICSU Unions and Interdisciplinary Scientific Bodies with interests in polar science.

Overview:

Both the Arctic and Antarctic are undergoing rapid environmental changes while human activities are on the rise, creating major uncertainties and environmental and human threats. IPY research, as well as large scale regional assessments, such as ACIA and ACCE, and global climate assessments such as IPCC in which the Polar Regions play a prominent role, provide strong evidence of change at the ends of the Earth. The IPY identified a number of "polar urgencies" for research required to address large and complex risks and uncertainties that ecosystems and human societies are facing in Polar Regions, and through global linkages to the rest of the world. The recent IPY conference theme summed it up, polar research with global implications.

Ongoing polar "urgencies" include rapid climate change in the Arctic and in parts of the Antarctic; diminishing snow and ice worldwide; the contribution of the great ice sheets to sea-level rise and the role of sub-glacial environments in controlling ice-sheet dynamics; global climate impacts of changes to ocean circulation; loss of polar biodiversity and changing ecosystem patterns and ranges; methane release to the atmosphere from melting permafrost; global transport of pollution and contamination to the polar regions; and the health and well-being of Arctic residents and communities. The ICSU Grand Challenges to improve the usefulness of forecasts of future environmental conditions and their consequences for people (*forecasting*); to develop the observation systems needed to manage global and regional environmental change (*observations*); and to determine how to anticipate, avoid and cope with dangerous

global environmental change (*thresholds*) are most relevant today in the context of the dramatic changes that the Polar Regions are experiencing in advance of global changes in many cases. New technological, policy, and social responses will need to be developed (*innovation*) to tackle polar research urgencies.

Identifying and acting on the **grand challenges** for 'global sustainability' research and transferring scientific outputs into reliable short-medium term advice for decision makers will be increasingly critical over the coming decades. This applies in Polar Regions as much as for other parts of the Earth. But in the Polar Regions the ICSU-sponsored *International Polar Year 2007-2008* has heightened public awareness of environmental issues and has opened a dialogue with policy makers to find sustainable solutions in the face of unprecedented and rapid change.

Meeting format:

Invited speakers will outline the major current global challenges and changes in terrestrial and oceanic domains in the Polar Regions and highlight how these are linked to the ICSU Grand Challenges in Global Sustainability. A Panel Session, involving representatives of a range of ICSU bodies, will discuss the relevance of polar urgencies to their organisations research priorities, and to the overall ICSU strategy.

The meeting also aims to provide input to the ongoing ICSU visioning process at the global level which states that. **".....Over the next 10 years the global scientific community must take on the challenge of delivering to society the knowledge and supporting information necessary to assess the risks humanity is facing from global environmental change, and to understand how society can effectively mitigate dangerous changes and cope with the change that we cannot manage...."**

Programme outline:

Day 1:

Introduction:

- General Introduction: Rector of the University of Siena, Minister of Education Universities and Research, ICSU representative
- Setting the Scene: ICSU Grand Challenges and research priorities in the Polar Regions (Invited speaker)
- The International Polar Year a unique snapshot of the Polar Regions and its status (David Carlson)

Examples of Polar research priorities:

- The Polar Oceans: Thermohaline Circulation/acidification/dynamic functioning [ICSU Challenges - *observations, forecasting, thresholds*] (invited speaker)

Press Conference and questions with Minister and speakers.

Lunch

- The Terrestrial Ice Sheets: dynamics, sub-glacial processes, stability and sea level rise [ICSU Challenges - *observations, forecasting, thresholds*] (invited speaker)
- Permafrost degradation and climate feedback processes [ICSU Challenges - *observations, forecasting, thresholds*] (invited speaker)
- The Polar Atmosphere: forecasts from climate and weather models [ICSU Challenges – *forecasting*] (invited Speaker)

Reception Antarctic Museum and visit to Historic Siena (dinner)

Day 2:

- Polar ecosystems: changes to life at the extremes [ICSU Challenges - *observations, forecasting, thresholds*] (invited speaker)
- Social and Economic Consequences of change in the Polar Regions [ICSU Challenges – *responses*] (invited Speaker)

Panel Session: with representatives of ICSU Unions and Interdisciplinary Bodies

- The overall directions of future polar research within ICSU. (questions and interaction with audience with a facilitator)
- Summary and final statement by ICSU Executive (or Secretariat??) representative

Buffet Lunch

Conclusion of symposium:

- At 15.00 hrs, with opportunities for coach tour to visit nearby Monteriggioni and/or San Gimignano.

CO1:

Remote Sensing of the Cryosphere - linking and validating measurements from satellite, air, and ground

Organiser: IACS

Lead Convenors: **Wolfgang Rack** (New Zealand), **Jan Lieser** (Australia)

Co-Convenors: **Rob Massom** (Australia), **Helmut Rott** (Austria)

wolfgang.rack@canterbury.ac.nz jan.lieser@aurora.aad.gov.au (till 29 November)

jan.lieser@utas.edu.au (from 30 Nov)

Rob.massom@aad.gov.au Helmut.Rott@uibk.ac.at

Invited speakers: **Christian Haas** (Canada), **Ted Scambos** (USA)

CO2:

Ice Cores and Climate

Organiser: IACS

Lead Convenor: **Mark Curran** (Australia)

Co-Convenors: **Kumiko Goto-Azuma** (Japan), **Tas van Ommen** (Australia)

mark.curran@aad.gov.au

kumikogotoazuma@hb.tp1.jp tas.van.ommen@aad.gov.au

CO3:

Morphology of Snow and Ice on the Ground and in the Atmosphere

Organiser: IACS

Co-sponsors: IAMAS

Lead Convenors: **Henning Löwe** (Switzerland), **Johanna Spiegel** (Switzerland)

Co-Convenors: **Ilka Weikusat** (Germany)

loewe@slf.ch johanna.spiegel@ipw.agrl.ethz.ch

Ilka.Weikusat@awi.de

Invited speakers: **Dr. Johannes Freitag** (AWI, Germany), **Dr. Frederic Flin** (Meteo-France, France)

CO4:

Glacier and Ice Cap Fluctuations

Organiser: IACS

Lead Convenor: **Nicolas Cullen** (New Zealand)

Co-Convenors: **Graham Cogley** (Canada), **Peter Jansson** (Sweden), **Andrew Mackintosh** (New Zealand)

njc@geography.otago.ac.nz

gcogley@trentu.ca peter.jansson@natgeo.su.se Andrew.Mackintosh@vuw.ac.nz

Invited speakers: **Gerard Roe** (Earth and Space Sciences, University of Washington), **Thomas Molg** (University of Innsbruck, Austria)

J-CO1:

Arctic System Modelling

Organiser: IACS

Co-sponsors: IAMAS, IAPSO

Lead Convenors: **Scott Elliot** (United States of America), **Andrew Roberts** (United States of America)

Co-Convenors: **Laxmi Sushama** (Canada), **Ralf Döscher** (Sweden), **Annette Rinke** (Germany)

sme@lanl.gov aroberts@arsc.edu

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ralf.doescher@smhi.se

Annette.Rinke@awi.de

J-CO2:

Snow and Avalanches in the Southern Hemisphere

Organiser: IACS

Co-sponsors: IAMAS

Lead Convenors: **Alejandro Casteller** (Argentina), **Jordy Hendrikx** (New Zealand)

casteller@mendoza-conicet.gov.ar j.hendrikx@niwa.co.nz

Additional abstract reviewer for this session: **Charles Fierz** (Switzerland)

fierz@slf.ch

J-CO3:

Snow – Atmosphere Interactions in Mountains

Organiser: IACS

Co-sponsors: IAMAS, IAHS(ICSIH)

Lead Convenors: **Michael Lehning** (Switzerland), **Marc Parlange** (Switzerland), **Pierre Etchevers** (France), **Eric Brun** (France)

Co-Convenors: Samuel Morin (France)

lehning@slf.ch marc.parlange@epfl.ch pierre.etchevers@meteo.fr eric.brun@meteo.fr

samuel.morin@ujf-grenoble.fr

J-CO4:

Ice Shelves and Glacier Tongues – Ice on the Edge

Organiser: IACS

Co-sponsors: IAPSO

Lead Convenors: **Roland Warner** (Australia), **Mike Dinniman** (United States of America)

Co-Convenors: **Lars Smedsrud** (Norway), **Anna Wåhlin** (Sweden)

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