

Minutes:
**Bureau meeting of the IUGG Commission for the Cryospheric
Sciences, UCCS**
Karthaus 20–22 June, 2006

Present Bureau Members:

Georg Kaser (President)
Peter Jansson (Secretary/Treasurer)
Gerry Jones (Past President)
Kumiko Goto-Azuma (Vice President)
Jon Ove Hagen (Vice President)
Konrad Steffen (Vice President)
Julian Dowdeswell (Division Head)
Charles Fierz (Division Head)
Manfred Lange (Division Head)

Invited participant absent with regrets:

Liz Morris

1. Welcome

The president, *Georg Kaser*, opened the meeting and welcomed the bureau members. This meeting covers only urgent business; all other business will be handled during the regular Bureau meeting in Geneva, Oct. 2006.

2. Agenda additions/modifications

The President *Georg Kaser* added item 5.2.8 to the Agenda. No other additions or modifications were suggested.

3. Paris Nov. 2005 minutes – approval, actions

Division Head *Charles Fierz* proposed to approve the minutes, Vice President *Konrad Steffen* seconded the proposition.

4. Budgets for Perugia and beyond

Secretary/Treasurer *Peter Jansson* tabled the UCCS finances up to June 18, 2006 (**APPENDIX A**). The finances are positive, especially when considering that the contribution from IUGG for 2006 has not been requested yet. This will be made immediately following the Bureau Meeting. For 2007 a similar allotment will be received from the IUGG. In addition, some funding will be gained from the Perugia meeting although the amount depends on registration and agreements with the existing Associations. In 2008, we estimate a possible IACS will receive approx. USD 20-25000 per year or about 4-5 times the current inflow of funding.

5. Ongoing UCCS business

The list of Action Items from the Paris bureau meeting was cross-checked. The following Actions need further attention

8. UCCS toward IACS

(iii) Further steps

ACTION ITEM, Georg Kaser: make draft on importance of the Cryosphere and coordinate with the IUGG SG. National IUGG Council delegates of countries leading in Cryospheric Sciences shall be identified and possibly approached by **UCCS Bureau members** in some cases.

This is not yet completed since the timing is too early for completion at the time of the Karthaus Bureau Meeting. Will be taken up immediately before Perugia.

ACTION ITEM, Georg Kaser: Provide list of national representatives to the Bureau members.

Not yet completed since IUGG has first to update the list. Will be carried over to the new list of ACTION ITEMS.

(iv) IACS logo

ACTION ITEM, Georg Kaser: Contact design bureau to provide necessary information on the requirements on a IACS logo.

Logo prototypes have been made and will be circulated within the Bureau for feedback.

9. WGMS

(ii) evaluation report

ACTION ITEM, Jon Ove Hagen, Julian Dowdeswell: appoint external reviewers for WGMS to produce evaluation and proposal by next bureau meeting

ACTION ITEM: Jon Ove Hagen, Julian Dowdeswell: Check for financing their travel to Zürich. Coordinate with WGMS

ACTION ITEM, Michael Zemp/Wilfried Haeberli: Check on WGMS funds for bringing evaluation committee to Zürich and coordinate with JOH/JD

Reviewers have been named, Roger Barry, Hans Oerlemans, Richard Armstrong, Graham Cogley and Eric Rignot. The question of assembling the group and financing their travel is yet unsolved. Jon Ove Hagen and Julian Dowdeswell will look further into this issue. The last two items will be carried over to the new list of ACTION ITEMS.

10. Working Groups

(i) Reports by Heads of Division or Chairmen of WGs

Division on Seasonal Snow Cover and Avalanches

ACTION ITEM, Georg Kaser: write letter to Eric Brun with thanks

Not yet completed and will be carried over to the new list of ACTION ITEMS.

ACTION ITEM, Charles Fierz, Manfred Lange: look for permanent commissions and prepare respective proposal to the Karthaus retreat meeting

Completed.

ACTION ITEM, Georg Kaser, Peter Jansson: prepare budget for Karthaus meeting

No preliminary budget has been assembled since it was deemed that discussions of the future direction of the possible IACS must precede such endeavours.

ACTION ITEM, Georg Kaser: to organise the Karthaus retreat meeting.

Completed!

Division on Lake, River and Sea Ice:

ACTION ITEM, Manfred Lange: to keep contact with Ralf Greve and explore further potential for WG or Division on extraterrestrial ice.

Contact has been made.

12. New cooperations with UCCS

(i) GLIMS:

ACTION ITEM, Georg Kaser: to inform Buce Raup and Richard Armstrong on the decision and ask for existing peer reviews.

Contact has been attempted but no reply yet.

ACTION ITEM, Jon Ove Hagen, Julian Dowdeswell: to collect comments on the GLIMS report and forward these to GLIMS for revisions.

No action yet

13. Finances (PJ): general discussion about financial policy in CCS and beyond

ACTION ITEM, Peter Jansson: establish a preliminary budget for the period up to Perugia 2007. To be discussed at the Karthaus retreat meeting.

No budget was made since a discussion on future activities as possible IACS must precede such endeavours.

14. IGS/CLiC/UCCS symposium, Cambridge 21–25 Aug. 2006

(i) report from UCCS delegates

ACTION ITEM, Julian Dowdeswell: to contact IGS about the Cambridge meeting and obtain an up to date picture to be reported soon

Completed. Reported below.

(ii) UCCS students prize

ACTION ITEM, Konrad Steffen: look for wood (equiv.) or print/hand written diploma. Costs for such items.

Discussed below.

15. Perugia 2007**(v) Financial supports**

ACTION ITEM, all bureau members: identify funding sources for participants.

Not sources identified yet. Will be carried over to the new list of ACTION ITEMS.

(vi) IGS offer: proceedings of all UCCS symposia in Annals of Glaciology; IAHS Red Book option /diff. Journals

ACTION ITEM, Georg Kaser: to talk to Liz Morris to clarify the extent and financial details of IGS publication of the Perugia proceedings. After, contact convenors of UCCS initiated symposia.

In progress, discussed below.

(ix) Visibility at Perugia: stand, public events, folders, else ?

ACTION ITEM, Konrad Steffen: Contact Ron Weaver to ask about NSDIC participation at Perugia.

ACTION ITEM, Georg Kaser: to explore possible professional designers' involvement.

ACTION ITEM, Georg Kaser: to ask LOC for stand rental costs.

All three items ongoing and discussed below.

(x) IACS celebration (decision will be made latest during the 2nd Council meeting on 6.7.2007).

ACTION ITEM, Georg Kaser: to investigate suitable celebration activity in Perugia.

Item ongoing and discussed below.

17. Future symposia/workshop/working group/assembly policy**(i) IACS Assembly 2009 IAPSO/IAMAS will jointly assemble in Montreal**

ACTION ITEM, Georg Kaser: talk to IAMAS and IAPSO about their expectation on a future IACS as a partner in the 2009 Assembly.

Item ongoing and discussed below.

18. Relations to other organisations

(i) UNESCO IHP

ACTION ITEM, Georg Kaser: to write a letter to Andreas Szöllösy-Nagy, the Deputy Assistant Director General of the International Hydrological Program of UNESCO in order to declare the UCCS will to further cooperate closely with UNESCO IHP and to identify UNESCO officers for UCCS contacts.

Not yet completed but will be soon.

(v) IPA

ACTION ITEM, Peter Jansson: check if short description of UCCS was sent to IPA for inclusion in their brochure.

Completed.

19. IPY and other I*Y's (now: international science years)

ACTION ITEMS, Julian Dowdeswell, Konrad Steffen: to check how UCCS can become active.

Completed. .

ACTION ITEM, Georg Kaser, Peter Jansson: to ask past President Gerry Jones to either rewrite or add to existing history of ICSI so as to bring it up to date to the formation of IACS.

Completed. Past President Gerry Jones accepted and has research material for an addendum to Radok's paper (Hydr. Sci J.).

20. Supporting Cryospheric Activities

(ii) 3D interactive glacier views from Matt Nolan

ACTION ITEM, Peter Jansson: link to Nolan's web page to IUGG/CCS web.

Completed.

21. Springer – cryosphere publications

ACTION ITEM, Georg Kaser: to contact Springer to state that UCCS does not have any ideas for publication forums at this time.

Not yet completed and will be carried over to the new list of ACTION ITEMS.

23. Any Other Business

(i) EGIG 50th Anniversary

ACTION ITEM, Georg Kaser: to inform Heinz Miller and Heinz Blatter about the UCCS bureau decision. To represent UCCS at the celebration event.

Completed. UCCS was represented by Prof. Mike Kuhn, a former President of ICSI.

(ii) CRYOSAT

ACTION ITEM, Georg Kaser: finish the letter and send signed copy to the responsible people at ESA.

Completed.

(iii) Web

ACTION ITEM, Peter Jansson: to investigate what names suitable for a cryospheric site exist and also to investigate if it would be possible to host the web-site at the IUGG server.

Partially completed, the physical location of a site is still open..

(iv) Ongoing changes at SLF

ACTION ITEM, Georg Kaser: to write a letter to director ad interim of WSL.

Completed.

24. The Next Bureau Meeting

ACTION ITEM, Konrad Steffen: suggest dates after contacting WMO for appropriate time frames.

Completed, suggested date 30--31 Oct, 2006.

5.1. Cambridge IGS/CliC/UCCS meeting (Dowdeswell, Hagen, Steffen)

Division Head Julian Dowdeswell reported that the planning for the meeting is progressing according to plan. UCCS members are on the editorial staff. The meeting has the largest number of submitted abstract recorded by IGS. It was decided that President Georg Kaser should give an introductory speech (in parallel with IGS and CliC representatives) to highlight UCCS and its efforts. It was further decided to produce a poster. The folder should also be made. The Perugia Assembly workshop list should be included in the folder. It was further suggested the UCCS logo (with the corresponding IGS and CliC) should be on an invitation card for visibility. UCCS may also become visible during a reception that CliC/CIRES will host.

ACTION ITEM 1, Georg Kaser: To prepare introductory speech for IGS conference.

ACTION ITEM 2, Konrad Steffen and Julian Dowdeswell: To prepare poster on UCCS based on existing folder.

ACTION ITEM 3, Konrad Steffen and Julian Dowdeswell: To prepare UCCS folder with Perugia info.

ACTION ITEM 4, Konrad Steffen: To discuss the invitation card with IGS and local organisers.

5.1.1. Student award

After some discussion it was decided that a diploma printed on nice paper will be produced, one for best poster and one for best talk for a student with a sum of USD100 associated with the recognition. Vice President *Konrad Steffen* agreed to print the diplomas, which will be signed by the UCCS President and the Secretary. An appropriate text should be written that allows minimal change in the event that UCCS becomes IACS. Division Head *Julian Dowdeswell* agreed to provide a first draft of such a text. A list of students should be made available, Division Head *Julian Dowdeswell*, in his capacity as local organizer can provide such a list. It was agreed that the prizes should be given in strong competition and hence not be given if only a very few talks or posters are given by students. A committee must be organized to judge posters and talks. Vice President *Jon Ove Hagen* will be in charge for such a committee. The President *Georg Kaser* will report on the prize to the IUGG Secretary Jo Ann Joselyn for inclusion in the IUGG newsletter.

ACTION ITEM 5, Konrad Steffen: To organize printing of diplomas once the text is finalized.

ACTION ITEM 6. Julian Dowdeswell: To produce diploma text draft.

ACTION ITEM 7. Julian Dowdeswell: To provide list of student posters and presentations.

ACTION ITEM 8, Jon Ove Hagen: To form committee to judge student poster and oral presentations.

ACTION ITEM 9, Georg Kaser: To report on the prize to the IUGG newsletter.

5.1.2.

No item

5.2. IUGG Perugia (Kaser)

The President Georg Kaser tabled the list of UCCS co-sponsored symposia during the Perugia Assembly (**APPENDIX B**). The status of JGS005 hosted by IAG is currently uncertain since the symposium has changed convener and title a number of times and that it is not listed as agreed in the official second circular. Symposia under IAHS, IAMAS, IAPSO, and IAVCEI are all continuing as planned. The discussion turned to the problem of publication of symposia proceedings. The President *Georg Kaser* reported that the financial situation for publishing proceedings in the *Annals of Glaciology* is not clear. One problem is that the UCCS contribution to the *Annals* may be marginal due to the way in which so-called "head tax" is collected from symposia attendees and transferred from the Associations to the UCCS. It was agreed that it would be useful to bring the President *Georg Kaser*, the IGS Secretary General Magnus Mar Magnusson, the IGS Past President Liz Morris and the IGS President Atsumu Ohmura together for a discussion around the funding situation and to what extent it would be possible to publish an *Annals* volume under the current financial situation. Unfortunately the President *Georg Kaser* cannot attend such a meeting before the IGS Cambridge meeting. If the result from such a discussion is negative it is important to forewarn the conveners as soon as possible so that they start looking for other publication venues.

The number of expected papers from the Perugia meeting will be 100-110.

ACTION ITEM 10, Georg Kaser: To inform Magnus Magnusson, Atsumu Ohmura and Liz Morris that UCCS cannot guarantee a fixed financial contribution to the

proceedings. If this means that the proceedings cannot be published as an Annals volume, conveners should be notified as soon as possible.

5.2.1. UCCS program

Covered under 5.2

5.2.2. Proceedings in IGS Annals

Covered under 5.2

5.2.3. "Head taxes" for UCCS

Covered under 5.2

5.2.4. IUGG >> IACS

Covered under 5.2

5.2.5. IACS promotion

Ongoing work. The cost for a booth is still unknown. We also need to find personnel to man the booth. It is possible that the designers that make the new logo may assist in producing promotional material. Costs for this are not known.

5.2.6. IACS evening program

Ongoing work The President *Georg Kaser* stated he may go to Perugia during summer to "look around" for a venue for an evening event.

5.2.7. Accommodation for Bureau members

Ongoing. This is also covered by the possible visit by the UCCS President to Perugia mentioned under 5.2.6.

ACTION ITEM 11, Georg Kaser. To contact LOC to attempt to gain more info on 5.2.5--7.

5.2.8. 200th birthday of Louis Agassiz, 167 years "Etudes sur les glaciers" (Kaser from A. Glazowsky)

The President *Georg Kaser* reported on this upcoming event. The President will write A. Glazowsky stating that it is not possible to include such a festivity in the current program at this stage. EGU will recognize the event and it would not be prudent for UCCS to duplicate that effort.

ACTION ITEM 12, Georg Kaser. To write A. Glazowsky on the Agassiz celebration.

5.3. **IAMAS/IAPSO/UCCS(IACS) Montreal 2009 (Jones, Kaser).** Who shall/can represent UCCS/IACS in the LOC? How to organise the scientific program?

The Past President Gerry Jones tabled his report from his participation in the local organization committee meeting in Toronto (**APPENDIX C**). The organizers are using a

convention center to organize the joint Assembly. They require estimates on the number of possible attendees (with number of students separated out) as well as the number of days and rooms/facilities required by the UCCS. Based on the requirements of IAMAS/IAPSO and a rough estimate that 200 persons + 100 students = 300 attend, we estimate that we need 5 days for UCCS activities. The Assembly will be rather expensive with costs of 750 CAD (300 CAD for students) given by the convention center. The Past President pointed out that IAMAS/IAPSO see this conference as very important since it will be timed so that the first results for IPY will start to emerge and that this may attract many to the meeting. IAMAS has requested that a head tax of 30 USD be taken out on top of the convention center rate. IAPSO have decided to follow and the Past President suggested that UCCS (IACS will follow suite. This would allow the new Association to an income of perhaps 9000 USD. A response on these issues must be given to the contact Laurier Forget before September 2006. A letter confirming UCCS participation in the conference must also be sent.

ACTION ITEM 13, Georg Kaser: Send letter to confirm UCCS participation.

ACTION ITEM 14, Georg Kaser, Gerry Jones: Send information on UCCS requirements to convention centre.

ACTION ITEM 15, Gerry Jones: To provide address to the contact person at the convention centre.

UCCS needs Canadian participation in the NOC meetings. Many names were suggested: John Pomeroy, Scot Munro, Martin Sharp, Mike Demuth, Ross Brown, and Dave Barber. Since names must be finalized by mid-august, it was decided that the President *Georg Kaser* should contact John Pomeroy and follow up on the result during the Cambridge meeting. Since IAMAS/IAPSO have same names in both NOC and LOC committees it was suggested UCCS (IACS) would attempt the same. This would probably benefit the organization of the meeting.

Professor Jaques Derome will act as scientific coordinator for the meeting. The first task will be to provide an overall theme for the assembly. Specific program details do not need to be worked out until after Perugia. A first flyer will be circulated by Sept 2006. A web-site will be run by the NRC.

ACTION ITEM 16, Georg Kaser: Discuss LOC names with John Pomeroy and follow up at the IAHS bureau meeting in Paris (2 July, 2006).

5.4. ICSU/IUGG

5.4.1. SCAR (Dowdeswell, Kaser)

The President *Georg Kaser* was contacted by the IUGG Secretary Jo Ann Joselyn regarding a wish from SCAR to tie in with the IUGG. It was decided that the President should contact Colin Summerhayes and ask him to contact Division Head *Julian Dowdeswell* for further discussions.

ACTION ITEM 17, Georg Kaser: Contact Colin Summerhayes to have him contact *Julian Dowdeswell* for further discussion.

5.4.2. ICSU panel on renewable energies (Kaser)

President *Georg Kaser* stated that from two potential candidates, namely:

Prof. *Paolo Burlando*, Chair of Hydrology and Water Resources Management, ETH Zürich, Switzerland, and *Arni Snorrason*, Director, Hydrological Service, National Energy Authority, Iceland, UCCS and ICSIH agreed to jointly name *Arni Snorrason* to IUGG

5.4.3. ICSU/IUGG – new FAGS white paper (Kaser)

The president *Georg Kaser* reported on WGMS. For the future activities such as GLIMS may be part of services provided by ICSU/IUGG. Both were included in the IUGG white paper.

5.4.4. IAHS – Bureau meeting, July 2, 2006 (Kaser)

President *Georg Kaser* reported that he will attend the bureau meeting in Paris. He will report on our position at present.

5.4.5. eGY (Kaser)

President *Georg Kaser* reported that Bruce Raup and Ron Weaver (NSIDC) will act on the behalf of UCCS within the eGY and report back to UCCS on matters of interest should such arise.

5.4.6. IPY classification proposal (Fierz)

Division Heads *Charles Fierz* and *Manfred Lange* reported that their IPY Cryosphere classification proposal was accepted but that the funding situation was unresolved at present. Nor is it clear where the product can be hosted. UCCS would be a good host for the classification product but it is uncertain how to finance the necessary staff for maintenance. It was suggested that the activity could be scaled down by reworking parts that need updating and only start from scratch where this is absolutely needed. It was also suggested that a standing committee be established within the UCCS for maintaining the classification but it is evident that such a permanent structure goes against the Commission idea of Working Group functions. If the outreach aspect is emphasized, the NSIDC may become a suitable host. The permafrost community should also be approached since they have had experience with similar projects. It was agreed that *Manfred Lange* and *Charles Fierz* should produce a more tangible proposal for future development. Tony Worby may be a good person to contact. *Julian Dowdeswell* emphasized the importance of clearly defining the end product and then to divide the work into packages, each with clear goals. SPRI could be involved in hosting a final product, especially if it is web-based. The classification can be produced in English and translations added at a later stage (simple with a combined web/database solution).

ACTION ITEM 18, Charles Fierz, Manfred Lange: Approach the International Permafrost Association to identify their line of action to produce classification scheme.

ACTION ITEM 19, Charles Fierz, Manfred Lange: To produce a more detailed proposal of future development based on the outcome of the Bureau discussion and experience from e.g. IPA.

ACTION ITEM 20, Julian Dowdeswell, Charles Fierz, Manfred Lange, Konrad Steffen: form a group to discuss scope of the classification.

5.5. CliC – joint EC proposal (Kaser)

The President *Georg Kaser*, reported that CliC has applied for EU-funding for network of excellence. UCCS is not on the first stage application but will be added on the next step application. Contact person is Vicky Lytle.

5.6. Arctic Glacier Mass Balance Group (Kaser)

The President *Georg Kaser* reported Hans Oerlemans has approached the UCCS to see what links can be established with the Arctic Glaciers Mass balance group within IASC. The

group is currently lacking funding since WCRP does not support such group for the long-term and a small amount of seed money is needed. The current UCCS funding level does not permit any such expenses; this may change if the Commission becomes an Association. UCCS may then be able to provide more assistance, in the mean time UCCS remains very supportive.

ACTION ITEM 21, Georg Kaser. To write letter to Hans Oerlemans and explain the current situation for UCCS and express UCCS support for the future.

5.7. EGIG (Kaser)

The President *Georg Kaser* reported that the EGIG at their 50th anniversary unanimously decided to dissolve. EGIG was started under the protection of ICSI and have always remained close to the Commission. The UCCS/ICSI was represented at the Anniversary by Prof Mike Kuhn, former ICSI President.

5.8. UCCS Web (Jansson)

Secretary *Peter Jansson* reported that the domain names such as www.cryosphericsscience.org are available. No action has yet been taken to secure the name in waiting for a permanent solution to where the web should be hosted. Vice President *Konrad Steffen* suggested the web could be hosted at CIRES in Boulder, CO, where domain names can be used. This could be a good long-term solution.

ACTION ITEM 22, Peter Jansson: Discuss details with Konrad Steffen and try to solve the web-hosting.

5.9. Symposia/workshops

5.9.1. Representation of Glaciers in Runoff Models, Obergurgl 2007, with ICSIH (Kaser)

The President *Georg Kaser* reported he would represent UCCS at the Obergurgl workshop.

5.9.2. 33rd Geological Congress in Oslo (Jansson)

Secretary *Peter Jansson* presented material from the coming 33rd Geological Congress in Oslo. UCCS activities may be possible at this meeting. *Jon Ove Hagen* suggested contacting Anders Solheim for possibilities for UCCS to link to other orgs.

ACTION ITEM 23, Peter Jansson: To contact Anders Solheim. And check for possible openings for UCCS

5.9.3. IGS Conference on Snow Science in Moscow 2007.

Division head *Seite: 11*

Charles Fierz will contact involved people in Davos and see whether a co-sponsoring by UCCS may (still) be feasible.

5.10. Geneva Bureau meeting (Steffen, Kaser)

First steps towards this Bureau meeting (30-31 Oct 2006) have been taken. More information will come out as we approach the meeting.

6. Closure

The president closed the meeting at lunch June 21, 2006.

ACTION ITEMS

ACTION ITEM 1, Georg Kaser: To prepare introductory speech for IGS conference.

ACTION ITEM 2, Konrad Steffen and Julian Dowdeswell: To prepare poster on UCCS based on existing folder.

ACTION ITEM 3, Konrad Steffen and Julian Dowdeswell: To prepare UCCS folder with Perugia info.

ACTION ITEM 4, Konrad Steffen: To discuss the invitation card with IGS and local organisers.

ACTION ITEM 5, Konrad Steffen: To organize printing of diplomas once the text is finalized.

ACTION ITEM 6, Julian Dowdeswell: To produce diploma text draft.

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ACTION ITEM 16, Georg Kaser: Discuss LOC names with John Pomeroy and follow up at the IAHS bureau meeting in Paris (2 July, 2006).

ACTION ITEM 17, Georg Kaser: Contact Colin Summerhayes to have him contact Julian Dowdeswell for further discussion.

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ACTION ITEM 19, Charles Fierz, Manfred Lange: To produce a more detailed proposal of future development based on the outcome of the Bureau discussion and experience from e.g. IPA.

ACTION ITEM 20, Julian Dowdeswell, Charles Fierz, Manfred Lange, Konrad Steffen: form a group to discuss scope of the classification.

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ACTION ITEM 22, Peter Jansson: Discuss details with Konrad Steffen and try to solve the web-hosting.

ACTION ITEM 23, Peter Jansson: To contact Anders Solheim. And check for possible openings for UCCS

The following are action items carried over from the Paris Bureau Meeting Minutes.

ACTION ITEM X1, Georg Kaser: Provide list of national representatives to the Bureau members.

ACTION ITEM X2, Jon Ove Hagen, Julian Dowdeswell: Check for financing their travel to Zürich. Coordinate with WGMS

ACTION ITEM X2, Michael Zemp/Wilfried Haeblerli: Check on WGMS funds for bringing evaluation committee to Zürich and coordinate with JOH/JD

ACTION ITEM X3, Georg Kaser: write letter to Eric Brun with thanks

ACTION ITEM X4, all bureau members: identify funding sources for participants.

ACTION ITEM X5, Georg Kaser: to contact Springer to state that UCCS does not have any ideas for publication forums at this time.

Appendices

APPENDIX A. UCCS finances.

APPENDIX B. List of UCCS sponsored symposia.

APPENDIX C. Past President's report on Montreal Assembly LOC meeting in Toronto

IUGG-CCS budget June 18, 2006

SEK:		SEK		USD		
	Date	Descr.	item	balance	item	balance
2004	2004-09-22	Deposit USD 1000 cash	7 222.50	7 222.50		
	2004-09-22	22241708324 Payment to G. Jones for IUGG Boulder 1	-3 918.40	3 304.10		
	2004-10-07	Deposit USD 1000 cash	7 210.00	10 514.10		
	2004-10-07	22241819287 Payment to G. Jones for IUGG Boulder 2	-3 756.86	6 757.24		
	2004-10-07	0140540 Psymment from IAHS	21 915.00	28 672.24		
	2004-12-08	Payment for meeting room at La Chateau Frontenac/Quebec 500 CAD	2 998.00	25 674.24		
						SEK balance for 2005
2005	2005-03-12	BMQuebec Expenses at Quebec conf. Centre	-3 816.00	21 858.24		
	2005-06-14	Contribution from IUGG for 2005	37 534.50	59 392.74		
	2005-08-17	Travelreimbursement for Quebec USD500 to M. Lange	-4 137.55	55 255.19		
	2005-10-19	Travel and participation costs IAMAS GA 2005, Beijing for P Jansson	-19 000.00	36 255.19		
	2005-11-01	Contribution from IAMAS for 2005	21 816.72	58 071.91		
	2005-11-01	Travel reimbursement for Paris USD300 to P. Jansson	-2 350.00	55 721.91		
						SEK balance for 2006
2006	2006-03-16	Reimbursements for travel costs G. Jones (Karthus UCCS meeting)	-16 401.56	39 320.35		
	2006-03-18	Travel reimbursement G. Kaser (UCCS Paris bureau meeting)	-4 964.00	34 356.35		
	2006-03-31	Reimbursements for travel costs (T. Ozeki)	-4 572.91	29 783.44		
	2006-06-17	Travel reimbursements P. Jansson (Karthus UCCS meeting)	-2 785.00	26 998.44		
	2006-06-18	Reimbursements for travel costs G. Kaser (IAHS Paris, 2006)	-3 640.00	23 358.44		
						Current SEK balance
USD:						
2004		Balance from 19 June 2004				5 041.10
		Banking fees			51.10	4 990.00
		Travel reimbursement M. Lange (Cambridge bureeau meeting) Aug 2004			300.00	4 690.00
		Deposit to swedish account			1 000.00	3 690.00
		Deposit to swedish account			1 000.00	2 690.00
						USD balance for 2005
2005		Travel reimbursement M. Lange (Paris bureeau meeting) Nov 2005			300.00	2 390.00
		Travel reimbursement G. Kaser (Paris bureeau meeting) Nov 2005			300.00	2 090.00
2006		Travel reimbursements M Lange (Karthus UCCS meeting)			300.00	1 790.00
		Travel reimbursements G Jones (Toronto IAMAS/IAPSO/UCCS National Organizing Committee Meeting)			720.00	1 070.00
Total balance for IUGG-CCS at Jun 18, 2006			SEK:	23 358.44	USD:	1 070.00
Net change 2004 ->2005				-32 363.47		-1 020.00
			approx USD equiv of SEK account:	6 906.00		
			approx total USD	7 976.00		

Appendix B

Perugia 2007 – IUGG General Assembly – Scientific Program

IUGG Commission for the Cryospheric Sciences (UCCS)

UCCS proposed symposia hosted by:

IAG

JGS005: Observations of the Cryosphere from Space (UCCS, IAMAS, IAPSO, IAHS, CliC, IGS) [Isabella Velicogna: isabella@colorado.edu; Konrad Steffen: Konrad.Steffen@colorado.edu] **25 – 30 papers**

IAHS

JHW001: *Interactions between snow, vegetation, and the atmosphere (UCCS, IAMAS-ICPM, iLEAPS, IGS)*

JHW002: Climate-Permafrost-Hydrology Interactions: The impact of changing climate on cold regions hydrology (UCCS, IAMAS, IAPSO, CliC, IGS, IPA) [Philip Marsh: Philip.Marsh@ec.gc.ca; Lev Kuchment - Russia, kuchment@mail.ru, Tingjun Zhang – USA/China, tzhang@nsidc.org, Oliver Frauenfeld, oliverf@kryos.colorado.edu; Tetsuo Ohata: ohata@pop.lowtem.hokudai.ac.jp] **30 – 40 papers**

JHS001: Debris Transport in Glaciers (UCCS, INQUA, IGS) [Michael J. Hambrey: mjh@aber.ac.uk] **30 – 40 papers**

JHS002: Natural ice microstructures (UCCS, IAMAS, IGS) [Jean-Bruno Brzoska: Jean-Bruno.Brzoska@meteo.fr; Martin Schneebeli: schneebeli@slf.ch; Ed Adams: eda@ce.montana.edu; Pierre Etchevers: pierre.etcchevers@meteo.fr; Charles Fierz: fierz@slf.ch] **15 – 20 papers**

IAMAS

JMS026: Ice cores and Climate (UCCS, IGS) [Dorthe Dahl-Jensen: ddj@gfy.ku.dk] **30 papers**

JMS027: Glacier fluctuations in the Asian High Mountains (UCCS, IAHS, CGI, Ev-K2-CRN, ICIMOD, HKH-FRIEND, IGS) [Claudio Smiraglia: claudio.smiraglia@unimi.it; Olga Solomina: olgasolomina@yandex.ru; Jiawen Ren: jwren@lzb.ac.cn; Mandira Shrestha: mshrestha@icimode.org.np; Christoph Mayer: christoph.mayer@LRZ.badw-muenchen.de] **30-40 presentations + 25 posters**

JMS028: *Consequences of Large Scale Circulation Variability on Snow and Ice Extent (UCCS, IAHS-ICSIH, GEWEX, IGS)*

JMS029: Snow Avalanches – Field Observations and Modelling (UCCS, IGS) [Karl Kleemayr: Karl.Kleemayr@uibk.ac.at; Andi Schaffhauser: andreas.schaffhauser@uibk.ac.at; Betty Sovilla: sovilla@slf.ch; Guido Luzi: guido.luzi@unifi.it; Margarita Eglit: eglit@mech.math.msu.su] **20 – 30 papers**

JMS030: Extraterrestrial Ice (UCCS, IAG, IGS) [Manfred Lange: langema@uni-muenster.de; Ralf Greve: greve@lowtem.hokudai.ac.jp] **30 – 40 papers**

IAPSO

JPSCCS04: Arctic Glaciers and Ice Caps Mass Balance/Calving (UCCS, IAMAS, CliC, IASC, IGS) [Jon-Ove Hagen: joh@geo.uio.no; Johannes Oerlemans: j.oerlemans@phys.uu.nl; Julian Dowdeswell: jd16@cam.ac.uk; Jacek Jania: jania@us.edu.pl; Andrey Glazovski: glazovsk@gol.ru] **30 – 40 papers**

JPSCCS05: Life in icy environments: interactions between the biology and chemistry of ice (UCCS, IABO, IGS) [Martyn Tranter: m.tranter@bristol.ac.uk; John Priscu: jpriscu@montana.edu] **20 – 30 papers + 25 posters**

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IAVCEI

JVS003: Ice –Volcano Interactions (UCCS, IAHS, IGS) [Ben Brock: b.w.brock@dundee.ac.uk; Andrés Rivera: arivera@cecs.cl] **15 – 20 papers**

In detail: UCCS proposed symposia led by:

IAG

JGS005:

Observations of the Cryosphere from Space (UCCS, IAMAS, IAPSO, IAHS, CliC, IGS)

Recent advances have been made in the development and implementation of new concepts for cryosphere-dedicated space missions, as well as the development and maturation of methods for retrieving a variety of important geophysical parameters. Both ESA and NASA have dedicated cryospheric sciences missions planned/in orbit. In addition, gravity missions such as CHAMP, GRACE and planned follow-ons and satellite altimeter missions such as ICESat, ENVISAT, JASON-1 are providing unique data on the topography and mass balance of the cryosphere. The purpose of this session is to present the latest results of observations of all aspects of the cryosphere from space. We invite presentations on the use of satellite, airborne and in-situ measurements to study sea-ice and terrestrial ice surfaces. We also invite presentations describing the accuracy and limitations of the different methods.

Lead Convenor:

[Isabella Velicogna](mailto:isabella@colorado.edu), NASA/JPL, CIRES & Department of Physics, University of Colorado, CAMPUS BOX 390, BOULDER, CO 80309-0390, USA. Phone: 303 492 5141 (work), 303 998 0794 (home), Fax: 303 492 7935, isabella@colorado.edu

Co-convenor:

[Konrad Steffen](mailto:Konrad.Steffen@colorado.edu), University of Colorado, CIRES, Campus Box 216, Boulder, CO 80309-0216; Tel: (303) 492 4524; Fax: (303) 492 1149; Konrad.Steffen@colorado.edu
1 – 2 days, **25 – 30 papers**

IAHS

JHW001:

Climate-Permafrost-Hydrology Interactions: The impact of changing climate on cold regions hydrology (UCCS, IAMAS, IAPSO, CliC, IGS, IPA)

In the cold regions, the surface condition is strongly controlled by complex interactions between the climate, permafrost and hydrology. These interactions are a subject of study by the 2007 International Polar Year. Interactions include those between climate, snow cover, soil moisture, soil heat conduction, evaporation, and vegetation for example. In order to consider future changes in hydrology due to anthropogenic climate change it is necessary to understand these interactions. However, the nature of these interactions, and our ability to model them, are currently very limited. It is expected that both natural climate variability and anthropogenic climate change will result in significant changes to both permafrost and hydrology, however, due to the complex interactions it is difficult to quantify changes in active layer depth, soil temperature, permafrost depth in areas where currently near the 0C isotherm, vegetation, snow accumulation and melt, snow free period, sub-surface flow patterns as related to active layer depth, and runoff for example. This workshop will address these issues by bringing together experts in the field of climate change, permafrost, and cold regions hydrology in order to discuss important issues and advances in both our understanding of the interactions between climate, permafrost and hydrology, and to consider future advances in this field.

Lead Convener:

[Philip Marsh](mailto:Philip.Marsh@ec.gc.ca), Aquatic Ecosystem Impacts Research Branch, National Water Research Institute, Environment Canada, 867 Lakeshore Road, P.O. Box 5050, Burlington, ON L7R 4A6 Canada, Phone number: (306) 975-5752, Fax number: (306) 975-5143,

Philip.Marsh@ec.gc.ca

Co-conveners,

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Lev Kuchment - Russia, kuchment@mail.ru,
Tingjun Zhang – USA/China, tzhang@nsidc.org ,
Oliver Frauenfeld, oliverf@kryos.colorado.edu – USA,
Tetsuo Ohata – Japan, ohata@pop.lowtem.hokudai.ac.jp .
2days, 30 – 40 papers

JHS001:

Debris Transport in Glaciers (UCCS, INQUA, IGS)

The aims of this session are to apply a multidisciplinary approach to (i) enhance our understanding of debris entrainment and transfer in glaciers, and subsequent deposition at contemporary ice margins, and (ii) to use this knowledge to constrain numerical models of contemporary and former ice masses. The principal themes will be: the disposition of debris within glaciers (particularly in relation to structure), contemporary glacial depositional processes, and numerical modelling of glacial depositional systems.

Lead Convenor.

Michael J. Hambrey, Centre for Glaciology, Institute of Geography & Earth Sciences, University of Wales, Aberystwyth, Ceredigion, SY23 3DB, United Kingdom, Tel. +44 (0)1970 621860, Fax. +44 (0)1970 622659, mjh@aber.ac.uk,
2 days, 30 – 40 papers

JHS002:

Natural ice microstructures (UCCS, IAMAS, IGS)

Similar phenomena happen at a given physical scale in any of the various environments addressed in the research fields of cryospheric sciences. This is specially the case of the so-called “capillary scale” (typically from micron to millimetre) that governs the behaviour of precipitation elements in clouds like graupel, the snow cover, the ice fabric in ground or marine ice as well as icing patterns on mobile or immobile substrates. Applications of these studies are numerous in snow science and glaciology, particularly for snow model parameterisations and ice core measurement interpretation. All these ice microstructures are fully tri-dimensional assemblies of grains and bonds with extremely complex interface shapes. They require specific techniques of investigation that range from 3D imaging and modelling to stereology (to bridge 2D to 3D properties) and statistical approaches to reach the scalar and continuous parameterisations required by current cryosphere models. Furthermore, snow parameters relating the laboratory capillary scale to the much simpler and coarser field observation method are needed such as described in the International Classification of Seasonal Snow on the Ground. The objective of this symposium/workshop is to develop a discussion and understanding of natural ice microstructures, with emphasis on the current state of the art in the field and promoting exchange of knowledge. Synergies are expected between the fields of glaciology, snow science, cloud meteorology, image processing and scientific instruments; interdisciplinary exchange with marine, aircraft or power engineering would be welcome.

Lead Convenor.

Jean-Bruno Brzoska, Météo-France, Centre d'Etudes de la Neige, 1441 r. de la Piscine, 38406 St Martin d'Hères Cedex, France, Tel : ++33 (0)476637925, Jean-Bruno.Brzoska@meteo.fr .

Co-conveners.

Martin Schneebeli, Eidgenössisches Institut für Schnee- und Lawinenforschung, Abteilung Schnee und Lawinen, Flüelastrasse 11, 7260 Davos, Switzerland, Tel: +41 814170171, schneebeli@slf.ch

Ed Adams, Department of Civil Engineering, 205 Cobleigh Hall, MSU-Bozeman, P.O. Box 173900, Bozeman, MT 59717-3900, USA, Telephone (406) 994-6122, eda@ce.montana.edu

Pierre Etchevers, Centre d'Etudes de la Neige, Domaine Universitaire, 1441, rue de la Piscine, 38406 SAINT MARTIN D'HERES Cedex, France, Tel : (33) 04.76.63.79.01, Fax : (33) 04.76.51.53.46, pierre.etcchevers@meteo.fr,

Charles Fierz, Eidgenössisches Institut für Schnee- und Lawinenforschung, Flüelastrasse

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11, 7260 Davos, Switzerland, Tel: +41 81 417 0165, fierz@slf.ch
1 day, 15 – 20 papers

JHW001:

Interactions between snow, vegetation, and the atmosphere (UCCS, IAMAS-ICPM, iLEAPS, IGS)

Vegetation influences snow distributions by trapping falling and wind-blown snow, and exposed vegetation canopies alter the radiative and turbulent energy fluxes to underlying snow and the atmosphere. Snow insulates the ground and releases water and nutrients on melt, in turn influencing distributions of vegetation. Snow and vegetation distributions both respond to and feedback on changing climates. For this workshop, submissions will be sought on observational and modelling studies of ecological, hydrological, meteorological and interdisciplinary aspects of interactions between snow, vegetation and the atmosphere.

Lead Convenor:

Richard Essery, Centre for Glaciology, Institute of Geography and Earth Sciences, University of Wales, Aberystwyth SY23 3DB, UK, Tel : +44 (0)1970 622784, rie@aber.ac.uk

Co-convenors:

Robert Baxter, Department of Biological Sciences, University of Durham, South Road, Durham DH1 3LE, UK, Tel. (+44) 0191 374 7561, robert.baxter@durham.ac.uk ,

John Pomeroy (IAHS), Canada Research Chair in Water Resource and Climate Change, Department of Geography, Rm 42 Kirk Hall, 117 Science Place, University of Saskatchewan, Saskatoon, SK Canada S7N 5C8, Phone: (306)966-1426, pomeroy@usask.ca

Matthew Sturm, USA-CRREL-Alaska, (Building 4070), P.O. Box 35170, Ft. Wainwright, Alaska 99703-0170, Phone: 907-353-5183, Matthew.Sturm@erdc.usace.army.mil

1 day, Attendance: 100

Takeshi Yamazaki, Institute of Observational Research for Global Change (IORGC), JAMSTEC, 2-15, Natsushima-cho, Yokosuka-city, Kanagawa, 237-0061, JAPAN, TEL: +81-46-867-9275, FAX: +81-46-867-9255, e-mail: yamaz@jamstec.go.jp

IAMAS

JMS026:

Ice cores and Climate (UCCS, IGS)

Ice Cores drilled through ice on ice sheets and glaciers contain records on the past climate reaching as far back as 900,000 years on the world's biggest and coldest ice sheet covering Antarctica. Ice core analysis has developed during the last decades and the span of parameters being measured on the modern ice cores has expanded. The high resolution records from the ice cores thereby are some of the best sources we have in palaeoclimate research to manifest the full dynamics of the coupled atmosphere-ocean-ice climate system. The aim of this session is to present climate related ice core records from the ice sheets and glaciers both from the Arctic and Antarctic regions but also from those regions where ice is rapidly disappearing and the need to obtain ice cores before the ice is gone is urgent.

Lead Convenor:

Dorthe Dahl-Jensen, Niels Bohr Institute, University of Copenhagen, Juliane Maries Vej 30, DK-2100 Copenhagen OE, Denmark, phone: +45 35 32 05 56, fax: +45 35 36 53 57, ddj@gfy.ku.dk,

2 days, 30 papers

JMS027:

Glacier fluctuations in the Asian High Mountains (UCCS, IAHS, CGI, Ev-K2-CRN, ICIMOD, HKH-FRIEND, IGS)

On the high mountain chains of Asia (Himalaya, Karakoram, Hindu Kush, Tian Shan etc.) the ongoing effects of climate variations on glaciers and, thus, on mountain landscape and water availability are becoming a topic of large and increasing interest. Beyond, the 20th century mass loss of the glaciers on the Asian High Mountains is considered to contribute markedly to sea level rise. There is a high variety of different climate settings from the monsoon

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regions to westerlies to very dry Inner Asian circumstances with very complex patterns of glaciers' sensitivity. The effects of changing climate include mass balance variability, supraglacial debris cover pattern, properties and influences on energy and mass fluxes, glacier surges, supraglacial meteorology, glacier terminus fluctuations, glacial risk. In order to evaluate future changes in the glacier resource of those areas due to changing climate it is necessary to understand and to quantify these interactions on different glaciers located on different high elevation sites. Moreover a strong contribution can be given by applying models able to reconstruct past glacier changes and to forecast the future glacier variability. The objective of this symposium is to discuss the current status and future of glacier fluctuations in the Asian High Mountains.

Lead Convener:

Claudio Smiraglia, Dipartimento di Scienze della Terra, Università degli Studi di Milano, Via Mangiagalli 34 - 20133 Milano, tel +39-02-50315516, fax +39-02-50315494, e-mail: claudio.smiraglia@unimi.it

Co- convenors.

Olga Solomina, Inst. Geography, Russian Academy of Sciences, Staromonetny 29, 109017 Moscow, Russia, olgasolomina@yandex.ru

Jiawen Ren, Key Lab of Cryosphere and Environment, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, Gansu 730000, China, Tel: +86 931 8272452, Fax: +86 931 8277094, jwren@lzb.ac.cn

Mandira Shrestha, MNR Division ICIMOD, PO Box 3226, Kathmandu, Nepal, mshrestha@icimod.org.np

Christoph Mayer, Glaziologische Kommission, Bayerische Akademie der Wissenschaften, Alfons Goppel Strasse 11, 80539 München, Germany, christoph.mayer@LRZ.badw-muenchen.de

2 days, 30-40 presentations + 25 posters

JMS028:

Consequences of Large Scale Circulation Variability on Snow and Ice Extent (UCCS, IAHS-ICSIH, GEWEX, IGS)

Circulation patterns, especially those that collect moisture over the oceans and release the moisture in the form of intense precipitation events, significantly influence the seasonal, inter-annual, and long term variations of snow cover extent and glacier mass balance. In turn, snow and ice also influence these larger scale circulation patterns. The linkage between the large scale air and moisture movement with solid phase water stores provides multi-directional feedback that further influences variability in both the circulation, and snow and ice accumulation, persistence and ablation. The objective of this symposium is to develop a discussion and understanding of the complex interaction between snow and ice, and circulation patterns at the large scale, and to synthesize the knowledge from various regions around the world.

Lead Convenor:

Steven Fassnacht, Snow Hydrology, Watershed Science Program, Natural Resources Building Room 335, Colorado State University, Fort Collins, Colorado 80523-1472, USA, voice +1.970.491.5454, fax +1.970.491.6754, srf@cnr.colostate.edu

Co-convenors.

Gwyn Rees, Centre for Ecology & Hydrology Wallingford, Maclean Building, Crowmarsh Gifford, Wallingford, Oxon, OX10 8BB, United Kingdom, phone +44 1491 692343, fax +44 1491 692424, hgrees@ceh.ac.uk

Peter Jansson, Department of Physical Geography and Quaternary Geology, Glaciology, Stockholm University, SE-106 91 Stockholm, Sweden, Tel.: +46-8-16 48 15,, Fax.: +46-8-16 48 18, peter.jansson@natgeo.su.se

Thomas Painter, National Snow and Ice Data Center, Cooperative Institute for Research in Environmental Sciences, 449 UCB, University of Colorado, Boulder, Boulder, CO 80309-0449, USA, Phone (303) 735-3743, Fax (425) 740-9260, tpainter@nsidc.org

Pratap Singh, Mountain Hydrology Division, National Institute of Hydrology, Roorkee 247

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667, India, pratap@nih.ernet.in

11/2 – 2 days, 24 – 32 oral presentations, 10 posters

JMS029:

Snow Avalanches – Field Observations and Modelling (UCCS, IGS)

Most of the currently used avalanche simulation models are either statistical run-out models that are restricted to avalanche tracks that fit into different categories, or one-dimensional centre of mass models. Additionally, the avalanche path has to be prescribed by the user. Field evidence for verification is difficult to obtain and therefore rare. The approaches simplify very much and cannot describe the deformation of the avalanche body. Two- and three-dimensional models based on fundamental fluid mechanics gained importance throughout the recent years. Two or higher dimensional models are able to predict the avalanche track as well as lateral spreading and run out distances, and request for additional verification criteria. The most important input parameters for avalanche simulation with two or three dimensional models are i) the release area, ii) the release depth distribution and iii) the release density (all in all: release mass). Generally, there are serious difficulties to measure the total release mass and its spatial distribution, particularly if the snow pack is redistributed by wind over a complex terrain. Therefore, snow drift is one of the most relevant parameters for avalanche risk estimation which demands for a correct description of the atmospheric boundary layer and its interaction with the snow surface. Furthermore, dry snow avalanches may add snow along the avalanche track by entrainment. In some cases the entrainment mass raises the initial avalanche mass by three to ten times. Verification and validation of the models rely on high-resolution information on the spatio-temporal distribution of the snow pack. During the last years several methods (Photo-optical systems, Laser scanner systems, GbSAR systems) have been developed to measure snow pack distribution, including snow drift, erosion (entrainment) and deposition at reasonably high resolution. The final objective of the session is to define the state of the art of determining the snow pack distribution in a high temporal and spatial resolution. Consequences for avalanche snow simulation techniques will be discussed.

Lead Convenor.

Karl Kleemayr, Institut fuer Naturgefahren und Waldgrenzregionen, BFW, Department for Natural Hazards and Timberline, BFW, Hofburg-Rennweg 1, 6020 Innsbruck, Austria, +43(0)512 573933 5102, Karl.Kleemayr@uibk.ac.at

Co-convenors.

Andi Schaffhauser, Department for Natural Hazards and Timberline, BFW, Hofburg-Rennweg 1, 6020 Innsbruck, Austria, +43(0)512 573933 5102, andreas.schaffhauser@uibk.ac.at,

Betty Sovilla, Swiss Federal Institute for Snow and Avalanche Research, Flüelastrasse 11, CH-7260 Davos Dorf, Tel: 0041 81 4170263, Fax:0041 81 4170110, sovilla@slf.ch

Dr. Guido Luzi, Department of Electronic and Telecommunications, University of Florence, Via c. Lombroso 6/b/11, I-50134 Florenz, Tel: +39 055 4796749, Fax: +39 055 494569, guido.luzi@unifi.it

Margarita Eglit, Department of Hydromechanics, Faculty of Mechanics and Mathematics, M.V. Lomonosov Moscow State University, Vorobjevy Gory, 119899 Moscow, Tel: +7 095 9393958, Fax: +7 095 9392090, eglit@mech.math.msu.su

JMS030:

Extraterrestrial Ice (UCCS, IAG, IGS)

Ice, either as H₂O or CO₂ ice (or other possible compositions) represents a common feature in the solar system, most notably, on the surfaces of the inner planets and as major constituents of the moons in the outer solar system. Knowledge about the occurrence of ice either at the surface or inside the planetary bodies stems primarily from astronomical and satellite observations of their surfaces and from measurements of geophysical parameters that reveal information on their internal structure. However, little is known about the exact properties, the development and the present dynamics of internal or surficial ice deposits on extraterrestrial planets. The terrestrial Cryosphere has been studied extensively, both in the

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field and in the laboratory. In addition, substantial insights have been gained from satellite remote sensing on the one hand and from numerical ice dynamics modelling on the other. This symposium is intended to provide an overview about our current understanding about extraterrestrial ices, their main characteristics and their development. Particular emphasis will be placed on possible analogues between terrestrial and extraterrestrial ice and possible synergies in studying the one or the other. The objective of this symposium lies in providing an overview about the current understanding of internal and surficial extraterrestrial ice deposits in our solar system. Moreover, the symposium will explore possible analogues between terrestrial and extraterrestrial ice and how our knowledge of the Cryosphere might help us in understanding extraterrestrial ice.

Lead Convener:

Manfred Lange, Institute for Geophysics and Centre for Environmental Research (ZUFO), University of Muenster, Corrensstrasse 24, 48149 Muenster, Germany, Tel: +49-251-833-3591, Fax: +49-251-833-6100, langema@uni-muenster.de

Co-convener:

Ralf Greve, Institute of Low Temperature Science (ILTS), Hokkaido University, Kita-19, Nishi-8, Kita-ku, Sapporo, 060-0819, Japan, PHONE: +81-11-706-5445,

greve@lowtem.hokudai.ac.jp

2 days, 30 – 40 papers

IAPSO

JPSCCS04:

Arctic Glaciers and Ice Caps Mass Balance/Calving (UCCS, IAMAS, CliC, IASC, IGS)

The Mass Balance of Glaciers and Ice caps are sensitive to climate changes and these glaciers will in the next hundred years, according to IPCC, probably contribute more to sea level changes than the large ice sheets of Greenland and Antarctica. About 50 % of the world's glaciers and Ice caps are located in the Arctic/sub-Arctic areas. It is therefore important to know the current and future volume changes of these glaciers. The calving flux from these glaciers contributes an important part, 10-50 % of the total mass loss. In spite of the large volume, the calving loss is not well known. It varies across the Arctic. There is observational evidence from the Antarctic Peninsula and from outlet ice streams from the Greenland Ice Sheet that the calving flux may change as a response to a warmer climate. It is important both to understand how the calving flux will change in a future possible warmer climate, and how this dynamic response can be incorporated in mass balance calculations and mass balance modelling of future response. The objective of this symposium is to discuss the current status and future of the mass balance of glaciers in the Arctic with a special focus on how to include the calving in mass balance assessments.

Lead Convener:

Jon-Ove Hagen, Department of Geosciences, Faculty of Mathematics and Natural Sciences, University of Oslo, POBox 1047 Blindern, N-0316 Oslo, Norway, e-mail: joh@geo.uio.no, Tel: +47 22854038, Fax: +47 22854215

Co-conveners:

Johannes Oerlemans (IASC), j.oerlemans@phys.uu.nl,

Julian Dowdeswell (CCS/IASC), jd16@cam.ac.uk,

Jacek Jania, jjania@us.edu.pl

Andrey Glazovskiy, glazovsk@gol.ru

2 days, 30 – 40 papers

JPSCCS05:

Life in icy environments: interactions between the biology and chemistry of ice (UCCS, IABO, IGS)

Interest in icy ecosystems derives from their sensitivity to climate perturbations on Earth, and the potential of ice to host life on other planetary bodies. Glaciers, ice sheets, seasonal snow covers and sea ice are viable habitats for a variety of biological organisms, including prokaryotic and eukaryotic microbes, diatoms and nematodes. Energy sources include direct sunlight and REDOX reactions involving a spectrum of organic and inorganic compounds, of

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both atmospheric and lithogenic origins. Nutrients can be obtained from the atmosphere and crustal debris also, and the fundamental control on there being life in these icy environments is often the presence of liquid water. Biological processes in icy habitats modify the chemical characteristics of these poorly buffered environments. In particular, nutrients are sequestered into organic phases, DOC is generated and both pH and Eh are perturbed by photosynthesis and/or respiration. Evidence of biological activity can also be found from the perturbation of the stable isotopes (S, C, N, O) in a variety of compounds. Biomarkers may also be generated, for example in subglacial environments, and act as indicators of biological activity in otherwise remote environments. It is likely that nutrient cycling in semi-isolated cryospheric environments is very tight, because new sources of nutrients are limited, and that recycling processes are of great importance. This holistic view of icy ecosystems suggests that there is a need to understand both the biology and the geochemistry as well as their interactions to gain a fuller appreciation of the operation of the ecosystem. The aim of the Symposium would be to attract an audience of interdisciplinary biologists, microbiologists, biogeochemists and glaciologists to focus on the following themes.

Lead Convenor.

Martyn Tranter, Bristol Glaciology Centre, School of Geographical Sciences, University of Bristol, Bristol BS8 1SS, U.K., tel: +44 (0)117 928 8307
fax: +44 (0)117 928 7878, m.tranter@bristol.ac.uk

Co-convenor.

John Priscu, Montana State University, jpriscu@montana.edu
2 days, 20 – 30 papers + 25 posters

IAVCEI

JVS003:

Ice –Volcano Interactions (UCCS, IAHS, IGS)

There are many important interactions between volcanism and glaciation, operating at different levels and over a wide range of timescales. In several regions of the world volcanoes generate the elevation necessary for glaciers and snow covers to form, while the deposition of pyroclastic material and eruptive and geothermal activity impact directly on glacier mass balance. On the other hand, expansion and contraction of glaciers over millennia and the release of meltwater during deglaciation can influence eruptive activity through the overburden pressure release and infiltration of water into the volcanic system. Catastrophic floods may be generated by subglacial eruptions and geothermal activity in the form of lahars and jökulhlaups, while landform evidence from moraines and flood and tephra deposits can provide important information on past glacier extent and the interactions between glacier fluctuations and eruptive activity. This session welcomes contributions on any aspect of ice-volcano interactions on Earth or on other bodies in the solar system, including results from field, remote sensing and modelling studies. The aim is to provide a forum for exchange of knowledge and ideas, particularly between scientists from different disciplines, and to encourage future collaborative research into these complex and challenging systems.

Lead Convenor:

Ben Brock, Department of Geography, University of Dundee, Dundee, UK, Tel: + (44) (0)1382 345443, b.w.brock@dundee.ac.uk;

Co-convenor:

Andrés Rivera, Glaciology and Climate Change Laboratory, Centre for Scientific Studies, Valdivia, Chile arivera@cecs.cl
1 day, **15 – 20 papers**

Appendix C

Minutes: Bureau meeting of the IUGG Commission for the Cryospheric Sciences, UCCSKarthus
20–22 June, 2006

IAMAS/IAPSO/UCCS Joint Scientific Assembly, 20-29th July 2009, Montréal, Canada

Report to the UCCS Bureau on the meeting of the National Organising Committee (NOC), 29th May, Sheraton Centre, Toronto,

H.G. Jones

A) *NOC Attendees*

I attended the NOC meeting on behalf of UCCS. Other members present at the meeting were:

Michel Beland (Director General, Atmospheric and Climate Science Directorate,
Meteorological Service of Canada, Environment Canada) Chair

Pierre Dubreil (Director, Interdepartmental Secretariat, Canadian Group on Earth
Observation, Government of Canada) Rapporteur

Lawrence Mysak (McGill University, Montréal) IAPSO Delegate to NOC

Charles Lin (McGill University, Montréal) IAMAS Delegate to NOC

Douglas Bancroft (Director, Oceanography and Climate Branch, Fisheries and Oceans,
Canada) Representing DFO

Kim Schmidt (Senior Policy/Program Advisor, Oceanography and Climate Branch,
Fisheries and Oceans, Canada) Representing DFO

Laurier Forget (Head, Conference Services and Property Management Branch, National
Research Council of Canada, Ottawa) Representing NRC

Gary Jarvis (York University, Toronto, and President of the Canadian Geophysical
Union) Representing CGU

also participating via phone link:

John Pomeroy (University of Saskatchewan, Saskatoon, and Vice President CGU)
Representing CGU.

B) *Discussion – Points of interest to the UCCS Bureau*

The Minutes of the meeting will be drawn up and circulated to NOC members by Pierre Dubreil, Rapporteur. However, from my notes taken at the meeting, I believe the UCCS Bureau members should familiarise themselves with, and also consider action on, the following points at the UCCS Bureau Meeting at Karthus, 20-22nd June:

- 1) The organisation of the meeting – the role of NRC

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- 2) The responsibilities of Associations and UCCS (IACS) vis-à-vis NRC
- 3) The Scientific Program – the role of a Scientific Co-ordinator, the Associations and UCCS
- 4) Publicity – flyers and website
- 5) Next meeting

1) Montréal 2009 – the role of NRC

NRC will organise the facilities and management of the meeting i.e. everything from Convention Centre to preferential hotel rates to coffee breaks. NRC does all the contracting and pays all the bills. NRC thus puts up the seed money and in essence could, or will, benefit from any surpluses and accept any deficits. Details, however, on the financial implications of surpluses and deficits – if need be - will be negotiated and spelled out in the final contracts between the negotiating parties (NRC, IAMAS, IAPSO, UCCS/IACS).

NRC has already drawn up a preliminary budget (copy attached) based on the projected number of attendees at Montreal 2009 already furnished by IAMAS and IAPSO (Total 1500 including 1200 professional attendees, 750\$CAN per head, and 300 students, 300\$CAN per head). The revenue from the registration fees (990,000\$) makes up 87% of the total revenue (1,140,000\$). The expenditures (1,106,000\$) are broken down in the budget summary, which includes rentals. The expenditures are based on the number of days that each association will require at the Convention Centre and the number of rented rooms each association will need during their respective time periods. IAMAS has asked for 9 days and 8 rooms; IAPSO for 6-7 days (?) and 8 rooms.

The budget will now have to be revised by including the number of projected attendees to be furnished by UCCS. I gave Mr Forget an idea of our requirements, 3-5 days, 4-5 rooms, during the discussion but indicated that UCCS will forward its estimate of potential attendees after the UCCS Bureau Meeting at Karthus.

UCCS will send a first official estimate of UCCS professional attendees and students plus the required time period and room-rental needs to Mr Forget

IAMAS has indicated to NRC that they will impose a head tax of 30\$; IAPSO has not requested a head tax as yet but it seems as though they may also adopt the 30\$ figure. It would seem that there would be a common Joint Assembly Registration Fee to which a head tax is added when the registrant indicates his Association affiliation.

UCCS needs to consider whether they want to impose a head tax or not; and if they do, to indicate the amount it will take.

It is recognised that UCCS is on an equal footing with IAMAS and IAPSO in all of the above considerations. Subsequent to the request of CGU, NRC will send an official invitation to all of the participating bodies to attend Montréal 2009.

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The Chair and/or NRC will communicate with the SGs (and/or other responsible association officers – see 2 below) of all association partners regarding both the general program and their specific needs for Montréal 2009

Finally, each participating body has to officially confirm to the Convention Centre (Palais de Congrès) of its intent to participate in Montréal 2009. NRC stated that IAMAS has already done so but IAPSO and UCCS have not.

UCCS should officially confirm its participation in Montréal 2009 through a letter to the Palais de Congrès de Montréal

2) *The responsibilities of Associations and UCCS (IACS) vis-à-vis NRC*

NRC requires the name of the responsible persons for all partners of Montréal 2009 i.e. the person or persons, who has/have the authority to negotiate and sign contracts with NRC. This is absolutely necessary, as NRC moves into further negotiations with the Montréal Convention Centre. Mr Beland, Chair of NOC, will contact the SG's of each participating body on the person(s), who will negotiate on their behalf.

UCCS to confirm the responsible persons for Montréal 2009

As far as the official Association delegates to the NOC are concerned, NRC would like to see both a delegate and a replacement delegate nominated in order to have an alternative communication choice in the event that the delegate is unable to carry out his duties on the NOC. As far as the official UCCS delegate on NOC is concerned I believe that he/she should be:

- Canadian
- Currently active in cryospheric science research
- Well connected to CGU

The first two are given. In addition, I believe the connection between the future UCCS/IACS Delegate to NOC and CGU is important in assuring the continuing support of CGU to the meeting and thus in benefiting from CGU's expertise in the cryospheric sciences. A good turnout of CGU members in Montreal 2009 will contribute significantly to the success of the UCCS/IACS Assembly at the joint meeting.

UCCS needs to inform NOC who will be the official UCCS Delegate to NOC for Montréal 2009

It is of note that the NOC delegates of IAMAS (Charles Lin) and IAPSO (Lawrence Mysak) are also the IAMAS and IAPSO delegates respectively on the Local Organising Committee (LOC) for Montréal 2009.

UCCS may want to examine as to whether the UCCS NOC delegate and the UCCS LOC delegate should be the same and one person.

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3) *The Scientific Program – the role of a Scientific Co-ordinator, the Associations and UCCS*

An action item from the previous NOC meeting was the selection of a Scientific Co-ordinator for the Scientific Program of Montréal 2009. This was deemed necessary as there were three distinct association scientific programs (IAMAS, IAPSO, UUCS/IACS), to be established by each Association, plus the various Association/UCCS combined programs. A Scientific Co-ordinator could harmonise the overall program through co-ordination of all the programs under a theme for the Joint Assembly.

Professor Jacques DeRome of McGill University, Montréal, has been approached to fill the position. Mr Beland will officially contact Professor DeRome to inquire as to whether he will accept the offer. In the event that Professor DeRome accepts the offer, he will work closely with the SG's of the Associations in establishing the overall Scientific Program. An overall theme for the Joint Assembly has not yet been chosen but will also be undertaken by the Scientific Co-ordinator in collaboration with the Associations/UCCS. Suggestions are welcome; key words could be Climate, Global, Earth Systems, Oceans, Atmosphere, Cryosphere, Warming, etc.

UCCS should start thinking about its specific program for Montréal 2009 in the coming year.

On the other hand, the SG's of IAMAS, IAPSO, and IACS should discuss joint programs at Perugia 2007. It should be noted that Mr Camfield, the SG of IAPSO, has stated that he will be stepping down at Perugia and that very little progress on the scientific program can be made for Montréal 2009 until the new Secretary General of IAPSO is elected at Perugia. I think that Roland List, the Secretary General of IAMAS, will also be stepping down at the same time (?)

4) *Publicity: flyers and website*

The preliminary draft of the First Flyer will be ready by September 2006. Mr Beland's wife is a commercial artist and will prepare the preliminary draft. The draft will be circulated so that each association can modify and add text at will. The draft will also contain the logos of each participating body and the question was raised as to whether UCCS/IACS has an official logo. I informed the Committee that UCCS has a logo but that IACS has not – although we have drawn up some potential designs. As we have not yet chosen an official logo for IACS, I suggest that we use the modified ICSI logo designed by Peter for UCCS for this meeting. If and when IACS does adopt a new logo between 2007 and 2009 the publicity can be adjusted to the new logo. The Second Flyer (2008) will reflect the transition of UCCS to IACS.

NRC will set up and operate the Montréal 2009 website with links to association websites.

UCCS to consider the information and graphics that it wishes to see on the Montréal 2009 publicity and website.

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5) *Next NOC Meeting*

The next meeting of NOC will be held at the Montréal Convention Centre (Palais de Congrès) during the week of the 11th of September next. This will be a good chance for any UCCS Bureau members who wish to examine the facilities of the Convention Centre first hand to visit Montréal.

H.G. Jones,
June 3rd 2006