

**IACS**  
**Bureau Meeting, Perugia, 14.7.2007, 9:00 – 18:35**  
Etruscan Chocohotel, Perugia

**AGENDA**

**Bureau Members Present**

Georg Kaser (President)  
Ian Allison (President-elect)  
Kumiko Goto- Azuma (Vice President)  
Gino Casassa (Vice President)  
Peter Jansson (Vice President)  
Manfred Lange (Secretary General)  
Julian Dowdeswell (Division Head; *Glaciers and Ice Sheets*)  
Charles Fierz (Division Head; *Snow and Avalanches*)  
Claude Duguay (Division Head; *Marine and Freshwater Ice*)  
Valérie Masson Delmotte (Division Head; *Cryosphere, Atmosphere and Climate*)

**Invited Participants**

Michael Zemp (WGMS)  
Jo Jacka (IGS)

**Bureau and invited Guests absent with regrets**

Ralf Greve (Division Head; *Planetary and Other Ices of the Solar System*)  
John Pommeroy (ICSIH)  
Mike Hambrey  
Richard Essrey  
Jerry Brown (IPA)

**1. Opening Remarks**

The President welcomes the participants and congratulates them to their appointment as Bureau Members of IACS.

**2. Agenda additions/modifications**

The agenda was briefly introduced and some modifications have been noted.

**3. The IUGG Council decision from July 4, 2007**

At the IUGG Council meeting on July 4, the International Association of Cryospheric Sciences (IACS) became the eighth Association of the International Union of Geodesy and Geophysics (IUGG), the vote in favour of this decision amounted to 35 yes votes, 3 no votes and 2 abstentions. On July 11, the Statutes and Bylaws and the Bureau for IACS have been discussed by the IUGG Council and have been accepted by a vote of: 37 yes votes, 0 no votes and 3 abstentions. The President briefly explained the composition of the IACS Bureau and the reasons for selecting the topics for the Divisions as set down in the Statutes of IACS.

Ian Allison moves to record the thanks and appreciation of the new Bureau to the former ICSI/UCSS Bureau members for achieving Association status. The move was seconded by Claude Duguay.

**4. Presentation of the Bureau members**

Bureau members introduce themselves.

4.1. Elections before 2011?

The President briefly addresses the issue of possible elections before 2011 and expressed his conviction that this would not be necessary. Ian Allison explained that he felt that the composition of the Bureau seems quite adequate and justifiable, but that he was of the opinion that a confirmation of the Bureau by the Cryospheric community might be in order. It was explained, though that this requires a Plenary meeting, which will be organized in Montreal in 2009. However, it was feared that there may not be a sufficient participation to achieve the desired objective. The Bureau agreed that there will be no elections prior to 2011.

**5. IACS**

5.1. Mission

The President explained that the missions of IASC have been set down in the Statutes of IASC.

5.2. Statutes

5.3. Structure of the Bureau

Comments have been voiced with regard to the inclusion of different communities not yet represented in the IACS Bureau. Julian commented that permafrost is missing from our Bureau, as well as sea ice in a more explicit way, as noted by Ian.

5.4. Workload allocation

The President briefly described some of the processes that led to the drafting of the Statutes and Bylaws. In particular, he referred to the role of the Secretary General (SG) of IACS. Contrary to our desires, the IUGG did not accept a more distributed work load for the tasks that the SG has to attend to. Thus, the SG will have to do the majority of the work. However, Peter Jansson agreed to assist the SG whenever necessary and appropriate.

As for the Vice-Presidents of IACS, they may take on the role of representing IACS within a larger region, i.e., Kumiko Goto- Azuma within the Asian realm and Gino Casassa within the Americas. In particular, the Bureau should observe any national or regional groups involved in Cryospheric research and explore ways of establishing links with these groups on whatever level appropriate.

There is a need for nominating National Delegates (NDs) for IACS. Sometimes, IUGG proposes individuals that may not be quite appropriate. In this case, the Bureau needs to come up with alternative suggestions.

The Bureau should also build up a network of National Correspondents/ Representatives (NC/Rs); it might be advantageous to have one person taking on both roles of ND and NC/R. Charles Fierz commented on the issue that there is apparently no clear distinction between ND and NC/R within the IUGG.

5.5. Promoting IACS to the cryospheric community

Ian explained that there are a few steps to be taken care of:

- (i) the community needs to be informed immediately (EOS)
- (ii) a note should be published in ICE (IGS)
- (iii) a note should also be published in CRYOLIST and CLIMLIST

**Action items:** Ian to formulate immediately a brief message that Georg will submit to both CRYOLIST and CLIMLIST; Ian and Gerry will also formulate an article to be circulated to the SG and Peter and subsequently be published in EOS and ICE. Gerry will be asked to provide names of past ICSI officers and to draft a letter informing them about the creation of IACS.

#### 5.6. Logo

The official logo was once again presented; it was noted that there are still inconsistencies with regard to the colour of the snowflake.

It was agreed that the SG will be provided the Bureau with a letterhead displaying the new logo.

It was furthermore agreed that the Bureau should prepare a poster about IACS to be on display at larger international conferences.

#### 5.7. Web Site

The ICAS web-site will be located at: [www.cryosphericsscience.org](http://www.cryosphericsscience.org). The site still needs completion and Peter has agreed to continue to be the web-master for the site. It was agreed that the Bureau should strive to have the IACS site on whatever level of completion accessible as soon as possible.

#### 5.8. IACS newsletter

Peter has started the Newsletter under UCSS. It was decided that we should continue this tradition and to send out the Newsletter in electronic format (PDF File).

#### 5.9. Future Student Awards

A student prize was first given during the Cambridge meeting (2004). The Bureau will consider continuing this practice in the future.

#### 5.10. Awards

There is an official proposal by John Pommeroy to honour past-President (ICSI/UCSS) Gerry Jones. However, this issue needs more consideration and will be taken up at the next Bureau meeting.

#### 5.11. Others

The issue of Email communication between the Bureau members was briefly explained by the President and discussed by the Bureau members.

### 6. IACS – IUGG

#### 6.1. IACS representation in IUGG

The President will be a member of the Executive Committee of the IUGG; the SG may accompany him, whenever appropriate. Other issues will be clarified once IUGG informs the Bureau about the details of the interactions between IUGG and IACS.

#### 6.2. Network of IACS National Delegates/Representatives

There exists a list of current National Representatives (to be found on the IACS web-site).

**Action item:** Georg to write to IUGG SG to find out when the IUGG needs names for National Representatives (and National Correspondents)

6.3. Request for IUGG support, symposia 2008

See **Appendix A** for more information on this item.

## 7. Minutes and Report of the UCCS Bureau Meeting, Perugia July 8, 2007

### 7.1. Finances

Peter presented the financial status of UCCS finances as of December 2006. The remaining funds will be transferred over to IACS. (see **Appendix B**) There are 800 US\$ given to the Bureau some time ago as a result of a surplus of a workshop. This money has been earmarked to be used to assist young scientists to attend scientific meetings. This money should be reserved until it has been spent for the purpose noted.

Charles briefly informed the Bureau that the IUGG Council decided that IACS will be provided with US\$ 20.000 per year for the next four years. Travel money for the President to attend the IUGG Executive Council will be provided by IUGG on top of this sum.

The President suggests that a budget plan be prepared by the SG and his Deputy as well as the Vice - Presidents and the President until the next Bureau meeting.

**Action item:** The President, the SG and Peter will prepare a tentative budget plan for the next four years of IACS.

### 7.2. Activities to be continued/finalized

## 8. IUGG Assembly Perugia 2007

### 8.1. Retrospect

This item has been postponed.

### 8.2. Proceedings in Annals of Glaciology

Jo Jacka briefly summarized the situation regarding the proceedings. There are currently 37 papers submitted (see **Appendix C**). Within the list of papers, one has not been presented in Perugia and will therefore not be published in the Annals. There are two additional ones that will be rejected, bringing the total number of papers of the Perugia volume to about 32.

As to timing, the editors are asked to return the final papers to Jo within the next two months. If a paper has not been revised within the next six months it will be rejected. This time frame will result in the Perugia Proceedings to be published within the next eight months.

The issue of the Annals being taken off the list of publications with an explicit impact factor by Thompson International has been raised by Gino and has been discussed extensively. Various options to react to this were discussed. It was agreed that Jo informs the authors in the Perugia Proceedings about this change in status. We will keep close contacts with the IGS and will offer any support to other groups affected by this change, as desired. We might also want to contact either IUGG or ICSU about this problem and will ask them to possibly contact Thompson International.

In summary, the Bureau expressed its concern about the change of status of the Annals of Glaciology in the ISI listing, which will affect the position of papers arising from the IUGG conference. The Bureau asks Ian to provide more information on this

matter and asks the President to explore ways for IUGG and/or ICSU to mitigate the impacts of this change in Thompson International's new policy.

**Action item:** Georg to find out the most appropriate way to react to this change from on the level of IUGG and/or ICSU. Gino and Ian will prepare a document that would be forwarded to IUGG and/or ICSU.

### 8.3. Paper on the history of CGI, ICSI, UCCS, IACS

The UCCS/IACS Bureau has asked Gerry Jones to extend his earlier versions of the paper on the history of CGI, ICSI, UCCS and IACS. The idea is to publish this as an Introduction to the Perugia Proceedings. As suggested by Peter, this paper may, after being further expanded by pictures and figures be published as a separate booklet in the future.

## 9. Divisions

### 9.1. Ongoing Working Groups

The President briefly commented on his views of the tasks and objectives of the Division Heads. They are also outlined in the Statutes and Bylaws of IACS. One important role that the Divisions play lies in the field of education, training, transfer of knowledge and capacity building. This is also an issue that distinguishes IACS from other groups such as IGS, AGU or EGU.

There are a number of tasks to be taken care of by the Division Heads within the near future:

- (i) Brief statement on the role of the Division
- (ii) Suggestions for and preparation of possible sessions for Montreal 2009, but also for Melbourne 2011.
- (iii) The Divisions have traditionally organized Working Groups (WGs) that address specific issues of relevance in the overall field of the Division. Some WGs have addressed specific issues of regional relevance (e.g., the Himalayas). The Division Heads are asked to review existing WGs and consider to add new ones.

**Action item:** Division Heads will prepare a brief statement describing the role, scope and objectives of the Division.

With regard to existing WGs, Charles reported that SNOWMIP-2 requests an extension by two years. The Bureau agrees that a two-year extension is being granted to SNOWMIP-2.

Within the Division on Glaciers and Ice Sheets there are two WGs:

- (i) jointly with IPA IACS runs a WG on Hazards; we should correspond with IPA as to the future of this WG
- (ii) There is also a WG on *Debris Transport in Glaciers* that is organized by Mike Hambrey. The group is quite active and successful and should be encouraged to continue its work.

**Action item:** Julian to find out whether the WG on *Debris Transport in Glaciers* wants to continue or not.

The Working Group on Andean Glaciers has progressed over a number of years and has more or less come to an end. Gino will present a brief report of the activities of the Working Group on Andean Glaciers.

**Action item:** Gino to prepare a brief written report to the next Bureau meeting on the Working Group on Andean Glaciers

#### 9.2. Guidelines for future Working Groups and Workshops

The President explained that Working Groups (WGs) will extend for no more than four years and will have a clear mandate/objective. In addition, the Statutes allow for Standing Groups. However, the Bureau should strictly limit the number of Standing Groups. There are already two possibilities for Standing Groups: (a) the Scientific Steering Group for WGMS and (b) the Standing Group on Snow and Ice Glossaries and Classifications.

The Guidelines for WGs will have to be continued to be formulated.

**Action item:** Julian and Georg to finalize the Guidelines for Working Groups until the next Bureau meeting.

#### 9.3. Proposals for new Working Groups and future Work Shops

There may be a need for a new WG on Marine and one on River ice; Claude, Ian and Manfred will look into this issue.

As explained by Valérie, a new group called IPICS (International Partnership in Ice Core Sciences) has been formed by the ice-core community. IACS should seek contacts to IPICS and try to establish formal links.

The Bureau noted that there is some need for additional WGs and/or deputies to the Division Head within the Division on Cryosphere, Atmosphere and Climate. In particular, the following issues need attention:

- (i) Ice-Atmosphere Boundary Layer Processes
- (ii) Remote sensing
- (iii) Links to Glaciers, Sea Ice and the Ocean

An alternative option might be to approach IPICS (see above) and to offer them to become a WG under the IACS Division on Cryosphere, Atmosphere and Climate.

#### 9.4. Joint WG with ICSIH on River Ice

A WG on River Ice has been proposed some time ago and has more recently been pursued jointly with ICSIH. However, the current status is that there are still no volunteers have been identified to start the WG.

#### 9.5. Glacier Mass Balance Terminology Initiative

There are a number of definitions and glossaries around related to mass balance properties of glaciers. Graham Cogley has been identified as a chair for a Working Group on Mass Balance of Glaciers Terminology. He has already presented a first draft (version zero) for such a Terminology, which is going to be sent out for comments. Michael remarked that WGMS is ready to contribute to this and suggested that the mandate be expanded to include methodologies, as well.

The Bureau unanimously agreed that the WG should be launched and that Graham Cogley be informed, accordingly and asked to lead the WG.

#### 9.6. Inter-Association Commission with IAVCEI on volcano – ice interaction

After initial initiatives, the Working Group on Volcano-Ice Interactions will become an Inter-Association Commission between IAVCEI and IACS as approved by the IAVCEI Bureau in its recent meeting. We await an official invitation by IAVCEI to

join them in the aforementioned Inter-Association Commission. Further discussion will take place during the next Bureau meeting.

## 10. WGMS

### 10.1. The Director's Report

Michael Zemp presented the report of the WGMS Director (see **Appendix D**). He briefly describes the cooperation that WGMS maintains with a number of organizations.

The WGMS has undergone an evaluation by ICSI/UCSS members (Jon-Ove Hagen, Julian Gowdeswell). A report of the evaluation has been finalized in 2007. As a result of the evaluation, a vision for a future cooperation structure has been drafted and has been introduced to the Bureau. One important element of the future direction of WGMS will be a Scientific Steering Committee (SSC) that will include members of the IACS Bureau.

It was briefly discussed, what exactly the relationships of NSIDC to the WGMS should be. It was proposed that until the next Bureau meeting, WGMS, in cooperation with Julian, should discuss a more concrete structure of the SSC and its possible membership. Julian briefly commented on these remarks and noted that the name of the SSC might be changed in conjunction with a slight change in its mandate. Until the next meeting, a proposal for a more formal set-up of the SSC will be presented. The SSC should not have more than seven members. The potential user groups should be encouraged to come up with the *Terms of Reference* for the SSC.

Julian suggests that it might be appropriate to provide an annular fund of up to a few 100 US\$ as a sign of commitment of the IACS to the WGMS and its services. The money to be given might be dedicated for a particular purpose. Peter Jansson suggested that support for travel of a WGMS representative to the IACS meeting might be an appropriate purpose for support to the WGMS from IACS.

Michael briefly presented the main results of last year's surveys on glacier retreat. He also reported his growing and improving relationships with GLIMS. ESA has initiated a three-year project called GlobGlacier to start in 2008, which will contribute to GLIMS.

WGMS members have been active in various groups and initiatives. The funding for WGMS, though improved in comparison to earlier times still needs additional resources.

**Action items:** Julian [and Jon-Ove] in cooperation with the WGMS will work out suggestions for a modified name for the SSC and proposes the Terms of references for the SSC. Michael should ask for formal letters from the main data providers (NSIDC, GLIMS) to be presented at the next Bureau meeting.

### 10.2. The evaluation (2006), next steps (steering committee, perspectives)

## 11. Cryosphere in GEOSS GEO Standards and Interoperability Forum (SIF)

There is an Email on this issue (see **Appendix E**) that we should note. IACS will continue to monitor the development with regard to GEOSS.

## 12. IAMAS-IAPSO-UCCS Assembly 2009 Montreal

### 12.1. State of the art – report of an organisational meeting in Perugia

There are two IACS representatives in the National and the Local Organizing Committee: Scott Munro and Ross Brown as his deputy. There have been various

discussions during the Perugia Assembly between IACS, IAMAS and IAPSO as well as members of the Local/National Organizing Committee.

12.2. The IACS Scientific Program

The Bureau briefly discussed the proposed IAMAS/IAPSO/IACS Joint Symposia (see **Appendix F**). Bureau members are asked to provide comments and suggestions both in terms of the topics to be covered as well as possible convenors. The President stressed that this meeting will be of significant importance to IACS and its standing within the IUGG.

**Action item:** all Bureau members to provide input to the list of Joint Symposia.

12.3. others

**13. Other scientific meetings**

13.1. ICSIH/IACS WS on Glaciers in Watershed and Global Hydrology, Obergurgl August 2007

13.2. 2<sup>nd</sup> WS on Methods of Mass Balance Measurements and Modelling, Norway, March 2008

13.3. International Geological Congress/ Geoscience World Congress 2008: [www.33igc.org](http://www.33igc.org)

**Action item:** Peter to contact the organizers of the Geological Congress to explore if a co-sponsorship of individual sessions is desired. If so, ask Jon-Ove and Hans Oerlemans to be our representative. It should also be explore to what extent the Geological Congress is ready to commemorate the founding of the *Commission Internationale de Glacier* during the Sixth World Congress in 1894.

13.4. International Conference on Hydrology and Climate Change in the Mountainous Areas (November 2008, Kathmandu)

13.5. IAHS Assembly Hyderabad 2009

13.6. IUGG Assembly 2011

13.7. Andean Cryosphere Meeting, CECS, Chile

The preliminary date has been set at: March 2010, IGS has been asked to co sponsor the meeting as well as CliC(?). Gino will investigate a more concrete date for the meeting. It is thought to be broad in themes, covering permafrost, snow, and ice in the SA Andes. IACS will co-sponsor.

13.8. 9<sup>th</sup> International Permafrost Conference in Fairbanks, AK, USA; in 2008;

**Action item:** Georg to ask Jerry about IACS co-sponsorship

**14. Contacts with other organisations and initiatives**

14.1. WMO (WCRP/CliC – liaison)

Mainly due to Koni Steffen, we have developed a very good relationship to CliC. Koni has offered to remain our official liaison between CliC and IACS. The Bureau unanimously confirmed this idea and asks Georg to write to Koni accordingly. It was particularly noted with satisfaction that this will allow us to have Koni remain as an “external member” of the IACS Bureau.

14.2. UNESCO-IHP

14.3. ICSIH

14.4. IGS

14.5. IPY

- 14.6. IPA
- 14.7. SCAR
- 14.8. IASC-WG Arctic glaciology

**15. Other business**

No further issues have been discussed.

**16. Next Bureau meeting**

Since we managed to go through the entire agenda of the present Bureau meeting, the Bureau decided to aim for a retreat meeting of about three days instead of a regular Bureau meeting. It was tentatively decided to have this retreat meeting in conjunction (i.e., after) with the next EGU meeting in Vienna in April 2008 and to have it probably close to Vienna somewhere in the country.

**17. Closure**

The President thanked all remaining Bureau members for their cooperation and closed the meeting at 18:35.

15.7.2007 G. Kaser, M. Lange

**List of Action items**

**Action items:** Ian to formulate immediately a brief message that Georg will submit to both CRYOLIST and CLIMLIST; Ian and Gerry will also formulate an article to be circulated to the SG and Peter and subsequently be published in EOS and ICE. Gerry will be asked to provide names of past ICSI officers and to draft a letter informing them about the creation of IACS.

**Action item:** Georg to write to IUGG SG to find out when the IUGG needs names for National Representatives (and National Correspondents)

**Action item:** The President, the SG and Peter will prepare a tentative budget plan for the next four years of IACS.

**Action item:** Georg to find out the most appropriate way to react to this change from on the level of IUGG and/or ICSU. Gino and Ian will prepare a document that would be forwarded to IUGG and/or ICSU.

**Action item:** Division Heads will prepare a brief statement describing the role, scope and objectives of the Division.

**Action item:** Julian to find out whether the WG on *Debris Transport in Glaciers* wants to continue or not.

**Action item:** all Bureau members to provide input to the list of Joint Symposia.

**Action item:** Gino to prepare a brief written report to the next Bureau meeting on the Working Group on Andean Glaciers

**Action item:** Julian and Georg to finalize the Guidelines for Working Groups until the next Bureau meeting.

**Action items:** Julian [and Jon-Ove] in cooperation with the WGMS will work out suggestions for a modified name for the SSC and proposes the Terms of references for the SSC. Michael should ask for formal letters from the main data providers (NSIDC, GLIMS) to be presented at the next Bureau meeting.

**Action item:** all Bureau members to provide input to the list of Joint Symposia.

IACS Bureau Meeting, Perugia, July 14, 2007

**Action item:** Peter to contact the organizers of the Geological Congress to explore if a co-sponsorship of individual sessions is desired. If so, ask Jon-Ove and Hans Oerlemans to be our representative. It should also be explore to what extent the Geological Congress is ready to commemorate the founding of the *Commission Internationale de Glacier* during the Sixth World Congress in 1894.

**Action item:** Georg to ask Jerry about IACS co-sponsorship



**UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE  
INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**

Karlsruhe, Germany 31 July 2007

To: Association Presidents and Secretaries-General  
Presidents and Secretaries of Union Commissions

**Subject: Guidelines for Requests for IUGG Support of Symposia to be held in 2008**  
**Deadline: 31 October 2007**

Dear Colleague,

The IUGG Budget for 2008-2011 provides \$20,000 to be allocated in 2008 to support regional symposia and workshops, or training programmes. Awards will generally be in the range of \$1,500±\$500.

A short report is required within three months after the meeting. New awards to an organization will not be given until the report for a past award is received.

Association Secretaries-General or appropriate offices of Union Commissions should send the following information to the IUGG Secretary General preferably by e-mail ([Alik.Ismail-Zadeh@gpi.uka.de](mailto:Alik.Ismail-Zadeh@gpi.uka.de)).

Guidelines for application of support:

- Name of meeting, venue and dates, and primary sponsors and other known co-sponsors
- Name and address of the Chair of the Local Organizing Committee, and the meeting web-site
- Scientific objective
- Estimated number of participants, abstracts, and sessions
- Level of support requested (in US\$) and how the money will be used
- Additional information as appropriate

The allocations will be suggested by the Secretary-General and reviewed by the Members of the IUGG Bureau to assure impartiality. Awards will be announced as soon as possible, but not later than 30 November 2007.

Best wishes,

Alik Ismail-Zadeh PhD DSc  
IUGG Secretary General

---

<i>President</i>	<i>Vice-President</i>	<i>Secretary-General</i>	<i>Treasurer</i>
TOM BEER	HARSH K. GUPTA	ALIK ISMAIL-ZADEH	AKSEL WALLOE HANSEN
CMAR PB1 Aspendale Victoria 3195 AUSTRALIA Tel: +61 3 9239 4546 Fax: +61 3 9239 4444 E-mail: Tom.Beer@csiro.au	National Geophysical Research Institute (NGRI) Uppal Road Hyderaad 500 007 INDIA Tel: +91 40 2343 4669 E-mail: harshgupta@nic.in	University of Karlsruhe Geophysical Institute Hertzstr. 16, Geb. 06.36 Karlsruhe 76187 GERMANY Tel: +49 721 608 4610 Fax: +49 721 71 173 E-mail: Alik.Ismail-Zadeh@gpi.uka.de	University of Copenhagen Department of Geophysics Julianes Maries Vej 30 2100 Copenhagen OE DENMARK Tel: +45 35 32 05 67 Fax: +45 35 36 53 57 E-mail: awlh@gfy.ku.dk

## IUGG-CCS budget Dec 31, 2007

SEK:		SEK		USD		
	Date	Descr.	item	balance	item	balance
2004	22.09.2004	Deposit USD 1000 cash	7.222,50	7.222,50		
	22.09.2004	22241708324 Payment to G. Jones for IUGG Boulder 1	-3.918,40	3.304,10		
	07.10.2004	Deposit USD 1000 cash	7.210,00	10.514,10		
	07.10.2004	22241819287 Payment to G. Jones for IUGG Boulder 2	-3.756,86	6.757,24		
	07.10.2004	0140540 Psymment from IAHS	21.915,00	28.672,24		
	08.12.2004	Payment for meeting room at La Chateau Frontenac/Quebec 500 CAD	2.998,00	<b>25.674,24</b>		
						SEK balance for 2005
2005	12.03.2005	BMQuebec Expenses at Quebec conf. Centre	-3.816,00	21.858,24		
	14.06.2005	Contribution from IUGG for 2005	37.534,50	59.392,74		
	17.08.2005	Travelreimbursement for Quebec USD500 to M. Lange	-4.137,55	55.255,19		
	19.10.2005	Travel and participation costs IAMAS GA 2005, Beijing for P Jansson	-19.000,00	36.255,19		
	01.11.2005	Contribution from IAMAS for 2005	21.816,72	58.071,91		
	01.11.2005	Travel reimbursement for Paris USD300 to P. Jansson	-2.350,00	<b>55.721,91</b>		
						SEK balance for 2006
2006	16.03.2006	Reimbursements for travel costs G. Jones (Karthus UCCS meeting)	-16.401,56	39.320,35		
	18.03.2006	Travel reimbursement G. Kaser (UCCS Paris bureau meeting)	-4.964,00	34.356,35		
	31.03.2006	Reimbursements for travel costs (T. Ozeki)	-4.572,91	29.783,44		
	17.06.2006	Travel reimbursements P. Jansson (Karthus UCCS meeting)	-2.785,00	26.998,44		
	18.06.2006	Reimbursements for travel costs G. Kaser (IAHS Paris, 2006)	-3.640,00	23.358,44		
	30.07.2006	Hotel costs for Past President at Karthus meeting	-3.200,00	20.158,44		
	28.08.2006	200 USD for 2 UCCS Awards at Cambridge meeting	-1.480,00	18.678,44		
	28.08.2006	Printing of UCCS folder Cambridge	-2.670,00	16.008,44		
	29.08.2006	Contribution from IUGG for 2006	35.980,50	51.988,94		
	01.11.2006	Reimbursement for travel costs G. Kaser & P. Jansson (Geneva UCCS meeting)	-5.637,00	46.351,94		
	14.12.2006	Payment to buro64 for logo design	-9.806,44	36.545,50		
	31.12.2006	Interest	21,00	<b>36.566,50</b>		
						SEK balance for 2007
2007	19.02.2007	Payment for translation of IACS statutes to Frensh, L. Jones (CAD 800)	-5019,24	31547,26		
	13.03.2007	Contribution from IUGG for 2007 (USD 5000)	35332,00	66879,26		
	15.03.2007	Reimbursement for Perugia travel expenses G. Jones CAD 3180)	-19189,03	47690,23		
	11.05.2007	Reimbursement for Perugia travel expenses T.H. Jacka (AUD 5448)	-31202,80	16487,43		
	27.06.2007	Payment for info Booth at Perugia to CIRES (Incl IGS/WGMS parts)	-11678,43	4809,00		
	28.06.2007	Deposit of USD 770 from UCCS USD cash reserve (terminated)	5180,98	<b>9989,98</b>		
						Current SEK balance



PAPER NUMBER	AUTHORS	TITLE	IUGG SESSION	SUB-EDITOR
48A001	Rivera and others	Monitoring ice capped active Volcan Villarrica in southern Chile by means of terrestrial photography combined with automatic weather stations and GPS	JVS 003	Magnus Gudmundsson
48A002	Buchardt and Dahl-Jensen	At what depth is the Eemian layer expected to be found at NEEM ?	JMS 026	Jim White
48A003	Xiao and others	Dome A (Antarctica): a potential site for retrieval of an ice core older than 1 Ma	JMS 026	Dorthe Dahl-Jensen
48A004	Rigozo and others	Does part of the deuterium/hydrogen ratio on Earth come from the sun ?	JMS 026	Dorthe Dahl-Jensen
48A005	Santibanez and others	Glacier mass balance interpreted from biological analysis of firn cores in the Chilean lake district	JMS 026	Dorthe Dahl-Jensen
48A006	Steen-Larsen and Dahl-Jensen	Modelling binge-purge oscillations of the Laurentide Ice Sheet using a plastic ice sheet	JMS 026	Jim White
48A007	Thomas and others	A change in seasonality in Greenland during a Dansgaard-Oeschger warming	JMS 026	Dorthe Dahl-Jensen
48A008	Porter and others	Sediment-moss interactions on a temperate glacier: preliminary observations from Falljokul, Iceland	JHS 001	Michael Hambrey
48A009	Zhang and others	Ice velocity from static GPS observations along the transect from Zhongshan Station to Dome A, East Antarctica	JGS 005	Koni Stefan
48A010	Brown and others	Recent glacier variations at the Aconcagua basin, central Chilean Andes	HW 1011	Hilmar Gudmundsson
48A011	Nitri and others	Assessment of glacial mass balance using ASTER data and comparison with in-situ measurements: Chota Shingri Glacier, India	JMS 027	Claudio Smiraglia
48A012	Pecci and others	The evolution of the high altitude geomorphologic processes and landforms by the GIS aided monitoring and mapping: the study case of Rongbuk Glacier on the Mount Everest northern slope (Tibet, China)	JMS 027	Jo Jacka
48A013	Kotlyakov and others	Space monitoring of surging glaciers of the Pamirs	JMS 027	Claudio Smiraglia
48A014	Fujita	Effect of precipitation seasonality on glacier mass balance	JMS 027	Claudio Smiraglia
48A015	Belò and others	The present quiescent phase of a surge-type glacier: Liligo Glacier (Karakoram, Pakistan)	JMS 027	Claudio Smiraglia
48A016	Mihalcea and others:	Spatial distribution of surface energy balance at debris covered Baltoro Glacier, Karakoram, Pakistan	JMS 027	Jo Jacka
48A017	Salerno and others	Surface variations of Sagarmatha National Park (Nepal) glaciers in the second half of the 20th century by historical maps	JMS 027	Jo Jacka
48A018	Kayastha and Harrison	Changes of the equilibrium line altitude since the Little Ice Age in the Nepalese Himalayas	JMS 027	Claudio Smiraglia
48A019	Brzoska and others	Explicit iterative computation of diffusive vapor field in the 3D snow matrix: some preliminary results for low flux metamorphism	JHS 002	Jo Jacka

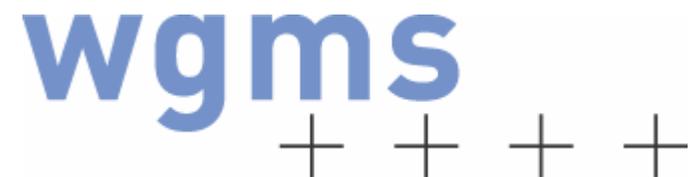
48A020	Ullmann and Vespoli	Extreme intraseasonal anomalies in the Amundsen-Bellingshausen sea ice extent during the austral winter	HW 1011	Hilmar Gudmundsson
48A021	Bednorz	Snow cover depth in eastern Europe in relation to circulation patterns	JMS 028	Thomas Painter
48A022	Moeller and others	Climate sensitivity and mass balance evolution of Gran Campo Nevado Ice Cap, southwest Patagonia	HW1011	Hilmar Gudmundsson
48A023	Guglielmina Diolaiuti and others	The evolution of Lys Glacier (Mt. Rosa group, Italy) over the past 30 years through indirect analysis and field measurements	HW1011	Hilmar Gudmundsson
48A024	Stroeve and others	Arctic Sea Ice Variability Revisited	HW1011	Hilmar Gudmundsson
48A025	Carrasco and others	Secular trend of the equilibrium line altitude in the western side of the southern Andes derived from radiosonde and surface observations	JMS 016	Jo Jacka
48A026	Bell and others	Spatial and temporal variability in the snowpack of a high arctic ice cap: implications for mass change measurements	JGS 005	Koni Stefan
48A027	Meier and Stroeve	Comparison of sea ice extent and ice edge location estimates from passive microwave and enhanced-resolution scatterometer data	JGS 005	Koni Stefan
48A028	Wen and others	Mass budget of the grounded ice in Lambert Glacier-Amery Ice Shelf system	JGS 005	Koni Stefan
48A029	Casassa and others	Glacier mass balance determination in Volcan Mocho, southern Chile, using ground penetration radar	JVS 003	Ben Brock
48A030	G. Kapeller, K. Kleemayr and W. Fellin	Two-phase avalanche simulation in a waterank base on a turbulent dense flow	JMS 029	Bartelt
48A031	M. Pecci and P. d'Aquila	Contribution of GIS technology to the avalanche zoning: the study case of Prati di Trivo (Gran Sasso d'Italia, central Apennine)	JMS 029	Karl Kleemayr
48A032	S. Schneiderbauer, T. Tschachler, W. Hinterberger and Peter Fischer	Environments for operating avalanche warning including a local weather model	JMS 029	Karl Kleemayr
48A033	Adams and others	A bonding process between grains in mechanically disaggregated snow	JHS 002	Jean-Bruno Brzoska
48A034	Bartlett and others	Assessment of techniques for analysing snow crystals in 2 dimensions	JHS 002	Jean-Bruno Brzoska
48A035	Frigo and others	A coupled stress and energy criterion for natural and artificial triggering of dry slab avalanches	JMS 029	Karl Kleemayr
48A036	Sailor and others	Recalculation of an artificially released avalanche based on terrestrial laser scanner data	JMS 029	Karl Kleemayr
48A037	Collins	Impact of glacier recession on runoff from Alpine basins since the Little Ice Age.	HS1003	Jo Jacka
48A038	Boggild and McConnell	Ice lenses and their formation near the ice divide on the southern Greenland ice sheet	JGS 005	Koni Stefan

# World Glacier Monitoring Service

## Interim Report to the UCCS/IACS Bureau

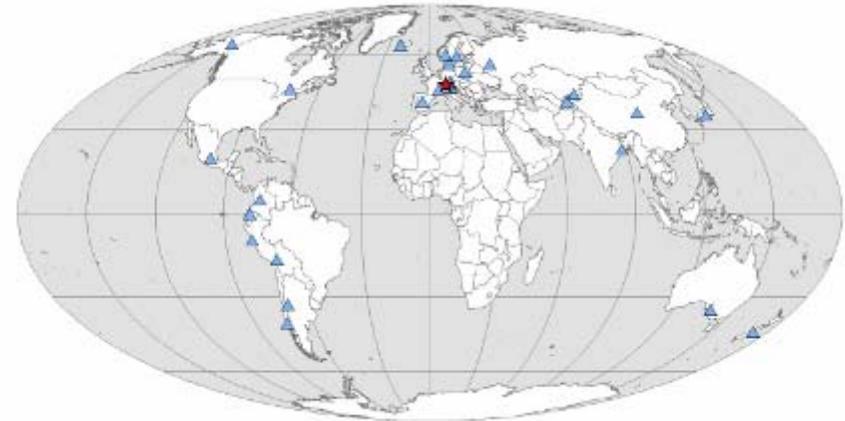
Perugia, 2007

**Michael Zemp**, Wilfried Haeberli, Martin Hoelzle,  
Andi Käab, Frank Paul



## About the World Glacier Monitoring Service (WGMS)

- ❑ Internationally coordinated glacier observation **initiated in 1894** by the International Glacier Commission
- ❑ Combination of former ICSI services (PSFG, TTS/WGI) **WGMS in 1986**
- ❑ Since then WGMS continues to **collect and publish standardised worldwide glacier data**
  - ❑ Glacier changes with time (glacier fluctuations)
  - ❑ Spatial distribution of perennial surface ice (glacier inventories)



- ❑ **WGMS:**
  - ❑ Central service located in Zurich, Switzerland
  - ❑ Network of National Correspondents in 30 countries

**wgms**  
+ + + +

## WGMS products and links to other organisations

- ❑ Fluctuations of Glaciers
  - ❑ FoG I–IX
  - ❑ GMBB 1–9
  - ❑ Assessment reports
  
- ❑ World Glacier Inventory
  - ❑ WGI (1989)
  
- ❑ Special events
  - ❑ drastic changes
  - ❑ glacier-related hazards

wgms  
+ + + +

### IPCC, UNEP, EEA, GTOS, GCOS, ...

=> status reports

=> change assessments

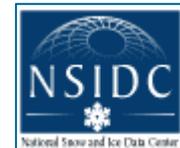
### Global Land Ice Measurements from Space (GLIMS)

=> continues WGI



### National Snow and Ice Data Center (NSIDC)

=> stores WGI & GLIMS data



### Glacier and Permafrost Hazards in Mountains (GAPHAZ)

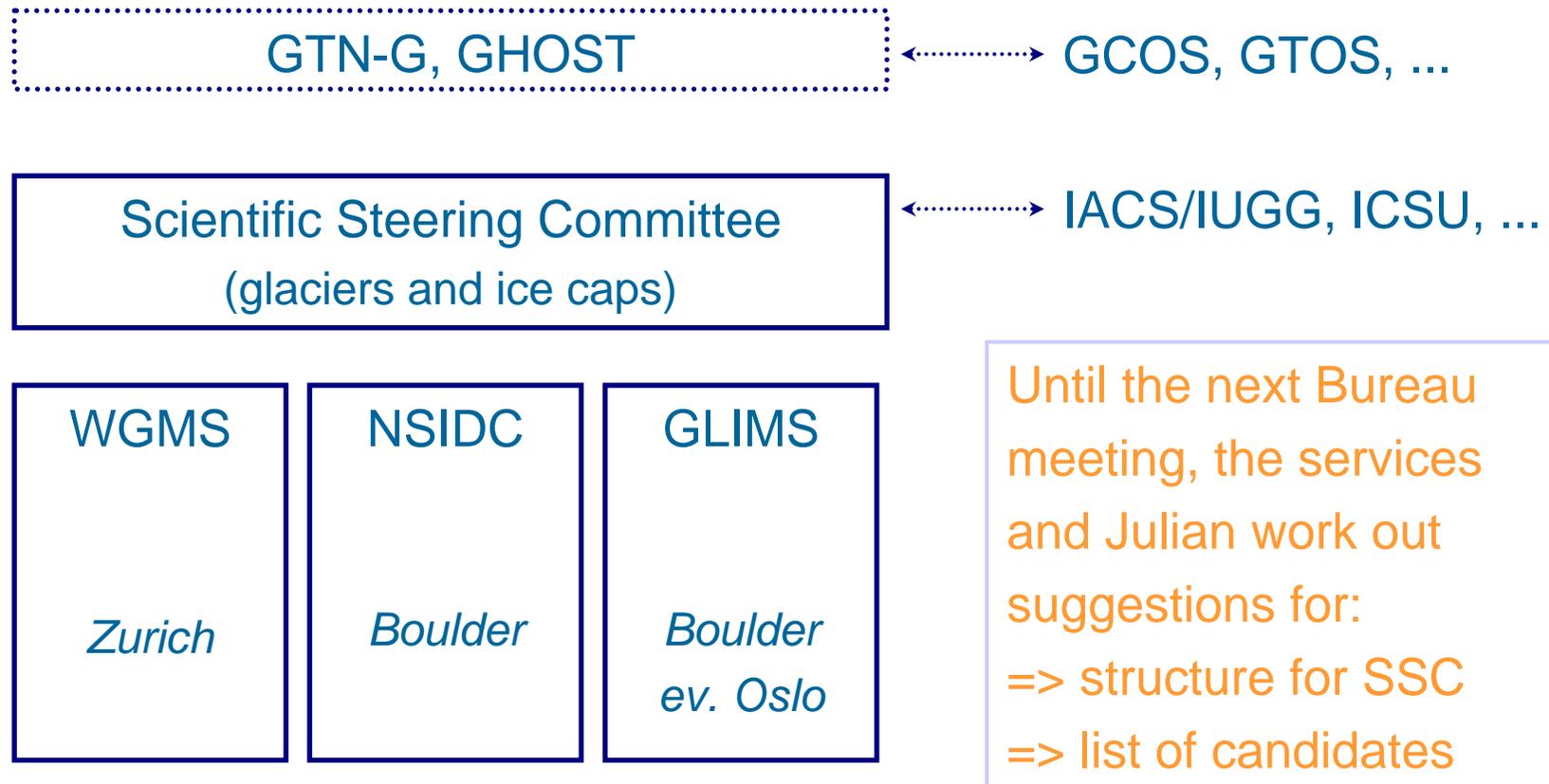
=> compiles hazard data



## WGMS evaluation and subsequent reorganisation

- ❑ WGMS evaluation report finalised by UCCS evaluation committee in Feb. 2007 (self evaluation report, site visit, evaluation report)
- ❑ Joint WGMS-NSIDC-GLIMS abstract about international glacier monitoring presented at IUGG General Assembly, Perugia, and published in CliC's 'Ice and Climate News No. 9'
- ❑ WGMS-NSIDC-GLIMS Officer Meeting on July 11, Perugia (2-5 pm, Rectorate 7)

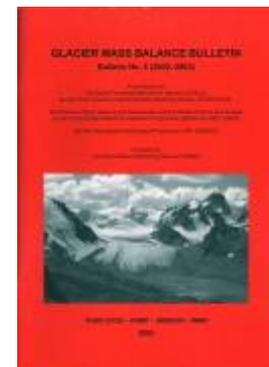
## Vision of a potential future cooperation structure



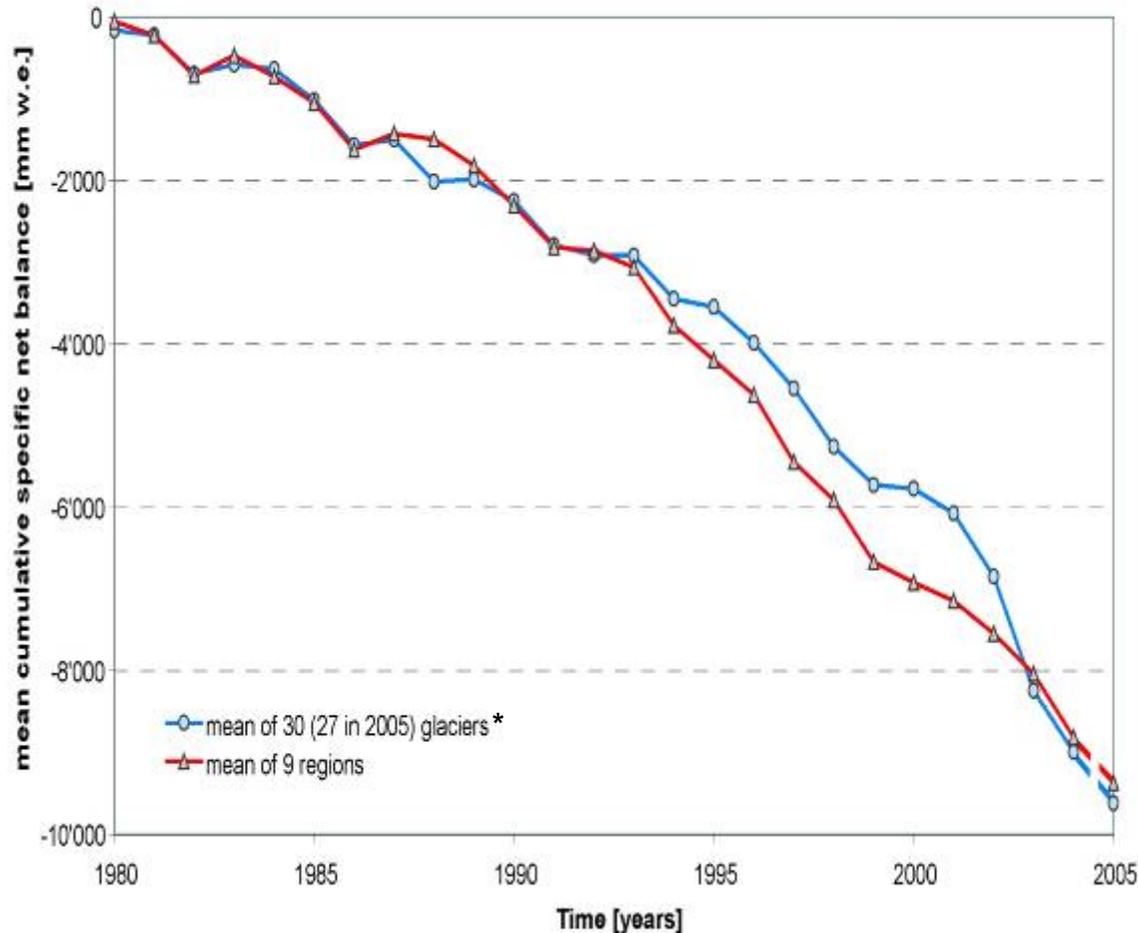
**Build on existing organisations and their strengths, jointly improve weak points!**

## ,Fluctuations of Glaciers‘ & ,Mass Balance Bulletin‘

- ❑ Call for data for observation period 2000-2005 went out in September 2006
- ❑ Processing of the incoming data
- ❑ Products to be expected by first half of 2008:
  - ❑ Fluctuations of Glaciers No. IX (2000-2005)
  - ❑ Glacier Mass Balance Bulletin No. 9 (2004-2005)
  - ❑ Illustrated Mini-Atlas about long-term front variation and mass balance series
  - ❑ Online products (meta-data browser, Google Earth formats, ...)



# First results from the submitted mass balance data



Years	Mean of 30 glaciers* [mm w.e.]
1980-1989	-199
1990-1999	-374
<b>2000-2005</b>	<b>-605</b>
1980-2005	-360
<b>2004</b>	<b>-725</b>
<b>2005</b>	<b>-625</b>

\* Place (CA), South Cascade (US), Austre Broeggerbreen (NO), Midre Lovenbreen (NO), Echaurren Norte (CL), Gulkana (US), Wolverine (US), Engabreen (NO), Alftobreen (NO), Nigardsbreen (NO), Grasubreen (NO), Storbreen (NO), Hellstugubreen (NO), Hardangerjoekulen (NO), Storglaciaeren (SE), Saint Sorlin (FR), Sarennes (FR), Silvretta (CH), Gries (CH), Sonnblickkees (AT), Vernagtferner (AT), Kesselwandferner (AT), Hintereisferner (AT), Careser (IT), No. 125 (CIS), Maliy Aktru (CIS), Leviy Aktru (CIS), Djankuat (CIS), Ts. Tuyuksuyskiy (KZ), Urumqihe S. No. 1 (CN)

## GLIMS & GlobGlacier

- ❑ WGMS staff reviewed the following GLIMS products concerning its compatibility with the glacier definition and classification of WGMS:
  - ❑ 'GLIMS Analysis Tutorial'
  - ❑ 'Illustrated GLIMS Glacier Classification Manual'

=> The revised versions are compliant with the existing standards

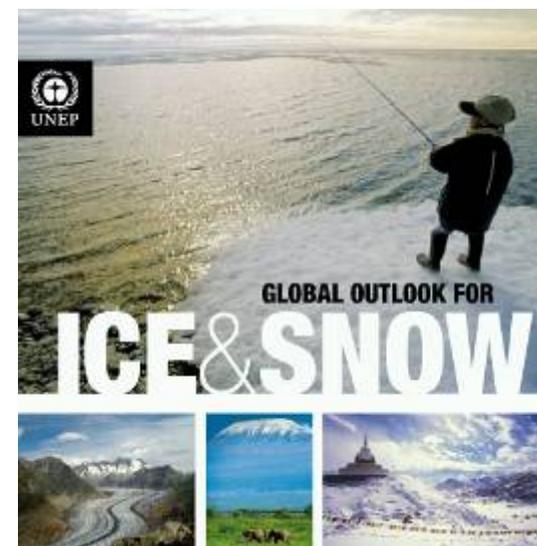
=> Some of the used illustrations are, however, subject of further discussions

- ❑ New ESA project 'GlobGlacier'
  - ❑ 3-year project, start in fall 2008
  - ❑ 950 k Euro
  - ❑ Optical and microwave sensors
  - ❑ Major contribution to GLIMS database
  - ❑ More details: GLIMS workshop, Perugia; Ice and Climate News No. 9



## Activities of WGMS staff members

- ❑ W. Haeberli and M. Hoelzle acted as reviewer and contributing authors to IPCC AR4
- ❑ WGMS staff contributions to:
  - ❑ IGOS Cryosphere Report
  - ❑ GTOS Status Report on Essential Climate Variables
  - ❑ National Climate Monitoring Report of GCOS Switzerland
  - ❑ IPY Data and Information Service
- ❑ WGMS supports the Workshop on Mass Balance Measurements and Modelling in Norway, 2008
- ❑ Several publications about glacier monitoring and changes, e.g., UNEP's Global Outlook for Ice and Snow



## Administration and funding

- ❑ University of Zurich: 25% & overhead
- ❑ 2-year bridging credit from Swiss National Science Foundation
  - ❑ 140 k USD per year; 125%
  - ❑ Start in April 2008
  - ❑ Isabelle Roer (40%), 3 trainees in summer 2008
- ❑ Some project money from international Organisations (UNEP, FAGS, IACS?)
- ❑ Budget needed to run the WGMS: 250 k USD per year
- ❑ WGMS proposal to GEOSS for 1 million USD for 10 years
- ❑ No money from Clinton Foundation and Clinton Global Initiative
- ❑ Proposals in discussion with:
  - ❑ Swiss Federal Office for the Environment (FOEN)
  - ❑ University of Zurich
  - ❑ GCOS Switzerland



FONDS NATIONAL SUISSE  
SCHWEIZERISCHER NATIONALFONDS  
FONDO NAZIONALE SVIZZERO  
SWISS NATIONAL SCIENCE FOUNDATION



# welcome to the world glacier monitoring service

## NEWS

The mass balance data for the years 2004 and 2005 is now available! [click here!](#)

Call-for-data for the observation period 2000-2005! [click here!](#)

FoG VIII (1995-2000) and MBB 8 (2002/2003) are available as hardcopy and pdf for download!  
[click here for FoG!](#)  
[click here for MBB!](#)



...

From jkey@ssec.wisc.edu Fri Jun 8 00:36:51 2007  
Date: Thu, 7 Jun 2007 17:34:27 -0500  
From: Jeff Key <jkey@ssec.wisc.edu>  
To: cryolist@lists.colorado.edu  
Cc: Jeff Key <jkey@ssec.wisc.edu>, Victoria Lytle <vicky@npolar.no>  
Subject: IGOS Cryosphere Theme Report approved

Dear CRYOLIST recipients:

This message is to inform you that the "Integrated Global Observing Strategy (IGOS) Cryosphere Theme Report" was recently approved by the IGOS Partners. The comments by the Partners and theme chairs were unanimously positive.

No fewer than 80 scientists in 17 countries contributed to the report, so this is truly a credit to the community.

The report provides a strong basis for the theme's implementation, which we refer to as "CryOS", the Cryosphere Observing System. It defines the cryosphere and the major applications of cryospheric data, describes our current observational capabilities and requirements for the major domains of the cryosphere (sea ice, frozen ground, ice sheets, etc.), gives recommendations for closing the gaps between capabilities and requirements, reviews the satellite, in situ, and airborne observing systems, describes a data management vision, and provides a comprehensive list of implementation actions. I urge you to read the report and consider how your work can contribute to CryOS. The report is available at <http://igos-cryosphere.org>. It will be published in the next few months.

On behalf of the CryOS core team and co-chairs Mark Drinkwater and Jinro Ukita, I would like to thank all of you who helped write, review, and edit the report.

We encourage you to become part of CryOS as we proceed to the implementation phase.

Sincerely,

Jeff Key

Chair, IGOS Cryosphere Theme

[jkey@ssec.wisc.edu](mailto:jkey@ssec.wisc.edu)

\*The IGOS Cryosphere Theme is a combined initiative of the World Climate Research Programme (WCRP) Climate and Cryosphere (CliC) project and the Scientific Committee on Antarctic Research (SCAR).

## Cross-Association Symposia for Montreal 2009

### **Polar regional climate modelling and global relevancy – IAMAS led**

IAMAS/IAPSO/IASC co-sponsored by ICCL, ICPM, CLIC, SCAR

Conveners: **Annette Rinke (Lead convenor)**, Alfred Wegener Institute, Germany (Annette.Rinke@awi.de), A. Proshutinsky, Döscher, Connolley, Dave Holland (IAPSO/IACS)

*Paragraph description to be provided.*

### **Monsoon Observations, Modeling and Prediction Led by IAMAS**

IAMAS/IAPSO co-sponsored by ICCL, WCRP

Co-conveners: Takehiko SATOMURA and **Guoxiong WU (he will delegate)**  
satomura@kugi.kyoto-u.ac.jp; gxwu@lasg.iap.ac.cn

*Paragraph description to be provided.* Will include: 2009 provides an excellent opportunity for monsoon scientists as it is just after the planned IOP of IMY (International Monsoon Year) and the AMY (Asian/Australian Monsoon Year).

### **The contribution of Greenland and Antarctica to sea level change – past, present and future. Led by IACS**

IAPSO/IAMAS/IACS, cosponsored by ICCL, WCRP

Convener: Eric **RIGNOT (US)**, Kurt Cuffey (Berkeley, USA), Dorthe Dahl Jensen (Denmark),, Thierry Fichefet

Key uncertainties remain regarding the future reaction of climate, ice sheets and the carbon cycle to anthropogenic greenhouse gas forcing. Paleoclimatic reconstructions offer a framework against which climate, ice sheet and carbon cycle models can be tested. This session aims at strengthening the interactions between these various communities.

### **Reconciling Different Perspectives on Climate Variability and Change – Round table meeting, maybe evening**

IAPSO/IAMAS/IACS, cosponsored by ICCL

Convener: Tony Broccoli, broccoli@envsci.rutgers.edu

*Paragraph description to be provided.* Text so far: Specialists in climate variability often interpret the climate record differently from specialists in climate change. It might be interesting to identify one or two aspects of the climate record (e.g., variations in Atlantic hurricane frequencies, changes in the tropical Pacific Ocean) and invite participation from specialists in climate variability and climate change.

### **Interannual and Interdecadal Climate Variability**

IAPSO/IAMAS

Conveners: Mike McPhaden? Igor Mokhov? ChongYin LI? Christian Haas

*Paragraph description to be provided.* Should include air sea interaction on decadal timescales as a subset.

## **Climate Predictability**

IAPSO/IAMAS cosponsored by ICCL

Conveners: **Neil Holbrook** ([holbrook@els.mq.edu.au](mailto:holbrook@els.mq.edu.au)), David Battisti, Antonietta Capotondi and **Chris Reason.**, Jens Christensen

This session covers all aspects of climate predictability from intraseasonal to interdecadal timescales. Of particular interest is predictability of the Madden-Julian Oscillation, El Nino-Southern Oscillation, North Atlantic Oscillation, Indian Ocean Dipole, Benguela Nino, Pacific Decadal Variability and the high latitude annular modes (NAM and SAM). The predictability of short time scale phenomena such as tropical cyclones and extra-tropical storms under various climate scenarios is also of interest. The session theme includes diagnosing potential climate predictability from observations, climate hindcasts and forecasting techniques using statistical and hybrid coupled models as well as climate prediction using physically based deterministic models from simple process models through models of intermediate complexity to sophisticated eddy-resolving general circulation models.

## **Abrupt Changes in the climate system - IACS leads**

Conveners: **Richard Alley.** Hans Renssen? Marotzke. Andy Bush (Alberta)

*Paragraph description to be provided.* Will include: Thermohaline circulation and Climate as a subset

## **Intercomparisons between climatic warm periods in the past and present**

Conveners: Appy Sliujs – Past modern comparison, Valerie Masson Delmotte to suggest convenor

## **Global Ocean, Atmospheric and Cryospheric Observing Systems**

IAPSO/IAMAS/IASC cosponsored by ICCL, GOOS, GCOS, CLIC

Conveners: **Keith Alverson** ([k.alverson@unesco.org](mailto:k.alverson@unesco.org)), + met and cryo people to be determined. Jeff Keys

*Paragraph description to be provided*

## **Techniques for ensuring continuity and homogeneity of climate records**

IAMAS/IAPSO, cosponsored by GCOS

Conveners: Constanza Bornaent ([meteo@iumh.ro](mailto:meteo@iumh.ro)), Peter Stepanek (Czek) ?

## **Extreme Events – IAMAS/IAPSO**

Conveners: Toni Bussalachi? Lisa Alexander? Richard E Thomson (lead convenor)

## **Regional Climate Modeling and Impacts - IAMAS**

Conveners: Philipo Giorgi, Claire Goodess (UEA)?

## **Climate Model Intercomparison – IAMAS led**

Conveners: Curt Covey, Karl Taylor?

## **Tropical cyclones – IAMAS/IAPSO**

### **Ice cores in paleoclimate – IACS (lead), IAMAS**

Coconvenors – Masson-Delmotte, Kumiko Goto-Atsuma, Thomas Stocker

## **Global Carbon Cycle – Past Present and future**

Convenor – Mick Follows

## **Biogeochemistry and Climate**

Conveners: Denise Smythe-Wright (southampton) John Burrows (atmospheric Chemistry), Gerry We, Jerry Melillo

*Paragraph description to be provided.* Will include both ocean and atmospheric chemistry

### **Ocean-ice-atmosphere boundary layers and interactions**

IACS; Convenor van den Broeke, Ian Renfrew, Don Perovich (IAPSO), Rick Thomson

### **High latitude terrestrial processes, hydrology, and interactions with the atmosphere**

– IAMAS led

Con John Pomeroy, Victor Brovkan

### **Multi-scale Arctic hydrology – IACS led**

### **Observations of change in the atmosphere, ocean and cryosphere over the last few hundred years**

Convenor – Matt Lazarra (Univ Wisconsin-Madison)

### **Remote Sensing – use of products in cryospheric, atmospheric and oceanographic investigations**

## **Explanation:**

strong IACS interest/IACS led

significant IACS interest