

**INTERNATIONAL GLACIOLOGICAL SOCIETY**

**INTERNATIONAL SYMPOSIUM ON SNOW AND  
AVALANCHES**

Manali, India  
6–10 April 2009



**CO-SPONSORED BY:**

**Snow and Avalanche Study Establishment (SASE)  
Manali, India**

**International Association of Cryospheric Sciences (IACS)**

**SECOND CIRCULAR**

September 2008

*Registered Charity*

# INTERNATIONAL GLACIOLOGICAL SOCIETY

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## SYMPOSIUM ON SNOW AND AVALANCHES

The International Glaciological Society will hold an International Symposium on Snow and Avalanches in 2009. The symposium will be held in Manali, India 6–10 April in 2009.

## SYMPOSIUM ORGANIZATION

Magnús Már Magnússon (International Glaciological Society).

## LOCAL ORGANIZING COMMITTEE

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## INFORMATION ABOUT THE SYMPOSIUM MAY BE OBTAINED FROM:

International Glaciological Society, Scott Polar Research Institute,  
Lensfield Rd, Cambridge CB2 1ER, UK.

Tel: +[44] (0)1223 355 974

Fax: +[44] (0)1223 336 543

Email: [igsoc@igsoc.org](mailto:igsoc@igsoc.org)

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

Local website: <http://issa2009.in/>

## PARTICIPATION

This circular includes instructions for registration and for arranging accommodation both through the travel agency website. A registration form (available at the symposium website) is also included, though online registration is strongly encouraged. The registration and accompanying payment are due 20 January 2009. There is a surcharge for late registration. The participant's registration fee includes organization costs, a set of abstracts, the icebreaker, coffee breaks and lunch, a copy of the IGS publication, the mid-week excursion and the banquet.

Registration fees	£	€	US\$
Participant (IGS member)	275	350	510
Participant (not IGS member)	325	410	600
Student or retired IGS member	140	177	260
Accompanying person	145/110	185/140	270/205
Late registration surcharge (after 25 February 08)	50	65	95

Symposium study tour: Bookings will be done through the local website. Details will be posted as they become available. Registration refunds will be made according to date of notification. Cancellations made before 25 February 2009 will receive a full refund. Cancellations between 25 February and 20 March 2009 will receive a 50% refund. After 20 March it will not be possible to make any refund.

## **THEME**

Snow and avalanche science has made fundamental contributions to human safety in mountain regions. It has now evolved into an important branch of glaciology. Initially snow science was aimed at understanding avalanche formation and developing avalanche control measures. These remain important topics. However, now an understanding of how snowy environments throughout the world are affected by global climate change is required. The role of snow in hydrological and ecological earth surface processes is therefore a central theme of the symposium.

**TOPICS:** The suggested topics include:

1. Snow, including: snow hydrology, snow ecology, snow metamorphism, snow microstructure, snow and climate change: threat perception; snow in the Himalayans; snow, glacier mapping and global climate change
2. Snow avalanches, including: avalanche forecasting; avalanche dynamics; avalanche control and engineering
3. Snowpack, including: snowpack properties and process modelling; snowpack stability and spatial variability
4. Observations and instrumentation, including: observation networks in snowbound regions; cold region instrumentation and measurement networks; remote sensing applications of snow; glaciers and mountain hazards, global connections between cryospheric regions
5. Mountain meteorology

## **SESSIONS AND POSTERS**

Oral presentations will be held on four full days and one half-day. There will be ample opportunity for poster displays. Poster boards measuring 270 cm wide by 120 cm high will be supplied for the poster presentations. Three A0 portrait poster displays are possible on one board.

## **ABSTRACTS**

### **(1) SUBMISSION OF ABSTRACTS**

Participants who want to contribute to the Symposium should submit an abstract of their proposed presentation. This abstract must contain sufficient detail for its scientific merit and relevance to the symposium theme to be judged by the Editorial Board. A website will be available from 1 November 2008 where authors can upload their abstract and all the relevant contact information. The abstract itself should not exceed 400 words. References and illustrations should not be included.

Those unable to submit their abstract via the internet can submit electronic files on a CD or diskette to the IGS office where a member of staff will upload them onto the website.

### **LAST DATE FOR RECEIPT OF ABSTRACTS: 15 JANUARY 2009**

### **(2) SELECTION OF ABSTRACTS**

Each abstract will be assessed on its scientific quality and relevance to the Symposium theme. Authors whose abstracts are accepted will be invited to make either an oral or poster presentation at the Symposium. First or corresponding authors will be advised by 1 February 2009 of the acceptance or otherwise; other authors will not be informed separately. Authors who have not received notification by that date should contact the IGS office in Cambridge in case their abstract was not received. The abstracts will be compiled into a paper or CD format, and may be published on the Internet.

### **(3) DISTRIBUTION OF ABSTRACTS**

A set of the accepted abstracts will be provided to participants upon registration on 5 April 2009.

## **THEMATIC PUBLICATION**

The Council of the IGS has decided to publish an Annals issue whose theme will be *Snow and Avalanches*. A first call for papers will be in December 2008. Submissions are open to anyone. Deadline for paper submission will be 15 March 2009. All papers should be submitted through the IGS online submission system and will be refereed and edited according to the Society's regular standards before being accepted for publication. Those submitting abstracts to the symposium will be asked to indicate whether they intend to submit a paper for publication in the Annals, so that reviewers may be sought in advance. Papers submitted for consideration in the Annals cannot be submitted to another publication as well.

## **EXCURSIONS** (<http://issa2009.in/images/Excursion.pdf>)

### **MID-WEEK FIELD TRIPS**

#### **NAGGAR**

Situated on the left bank of river Beas, Naggar was the capital of Kullu for c. 1400 years. Nestling on a wooded slope, it commands a splendid and extensive view of the valley. The paintings of the late Nicholas Roerich (who married famous Indian actress Devika Rani) should be seen at the Roerich museum in a white-washed villa set in a jewel-like garden. Naggar Castle, built in the sixteenth century, is a great tourist attraction.

#### **ROERICH ART GALLERY**

The art gallery has been housed in the building where the great artist once lived. He bought the building in 1923 from the Raja Of Mandi. In the lower storey there is an art gallery of 45 paintings, one showing the sunset is considered a masterpiece; two paintings show the Ghepan peaks in Lauhal. The stone idols of Shiva Parvathi, Ganesh, Googa pir, Vishnu, Durga etc. are displayed in the open on the northern end of the courtyard under the tree. The car, a 1928 model once used by Roerich, is also been exhibited.. The upper storey, items in daily use by the Roerich family, have been arranged to depict their way of living. These rooms are usually kept locked, but can be seen through the transparent window/door panels. Mr. Roerich died here on 13th December 1947. The gallery is open from 10:00 am to 5:00 pm.

#### **TIBETAN MONASTERIES**

There are 3 newly constructed colourful monasteries in Manali. The Tibetans living around these monasteries sell a wide range of Tibetan handicrafts and carpets to visitors. Two of these monasteries are located in downtown Manali and one is in Aleo. Aleo is located on the left bank of River Beas in Manali.

BANQUET will be held on Thursday evening, 9 April at Ambassador Resorts.

#### **SYMPOSIUM STUDY TOUR – BEAS KUND TREK**

Beas Kund trek is one of the most popular and beautiful treks in Kullu Valley. Beas Kund is a holy lake where Rishi Vyas took his daily bath. River Beas originates from here. Solang Nalla base camp is 13 km from Manali and 1 hour drive, a popular place for skiing, paragliding etc. Dhundhi camp gives a first glimpse of Mt Hanuman Tibba and Seven Sisters. Beas Kund area might be full of snow at the time of this trek. This is an enjoyable and easy going trek for any age group, walking under shadows of high mountains of Pir Panjal Range. This trek does not require acclimatization to high altitude. Further details will be available on the symposium website.

The pricing per person will depend upon the group size. The average cost per person may be 7,500/- INR for 3 days and 2 nights (10 April afternoon to 12 April evening).

## **ACCOMPANYING PERSONS PROGRAMME**

The accompanying person registration fee (£145 for 18 and over, £110 for under 18) includes the icebreaker, traditional barbeque, the mid-week excursion and the banquet. Short excursions in and around the Manali area will be offered, at additional cost. These include trips to Naggar, Roerich Art Gallery and Tibetan Monasteries. All participants may also like to visit Hadimba Temple, Manu Temple, Manali Town and Hot Water Spring (at Vashisth village).

## **POST-CONFERENCE WORKSHOP (13-15 April 2009)**

There will be a post-conference workshop on Snow Characterization following the IGS symposium. The workshop is jointly planned by SASE, SLF and Boise State University. Drs Martin Schneebeli from SLF Switzerland and HP Marshall from Boise State University, USA, will be the plenary speakers. The venue will be the same as the IGS symposium but in a different hall. Limited seats are available on a first-come basis. All interested can contact Martin Schneebeli at [schneebeli@slf.ch](mailto:schneebeli@slf.ch)

The workshop programme is available on the conference website. <http://issa2009.in/>

## **TRAVEL, ACCOMMODATION AND OTHER LOCAL INFORMATION**

### **Location and weather**

Manali is situated in Pir Panjal Ranges of Western Himalaya. Its climate changes throughout the year. The altitude (6500 ft) gives it a favourable climate, with cool summers and harsh winters. During winter the snow-line comes down, there is snowfall in the region and heavy woollen clothes are required. In the month of April the temperature varies between 5–30°C with occasional convective rainfall.

### **People and society**

The people of Kullu are primarily farmers, but now the population has also scattered into emerging occupations such as tourism, weaving and skilled fields like computer applications. More than 70% of the populations are literate. This includes an equal ratio of men and women. The public sector is a main source of employment. There is a rich tradition of folk arts in Kullu. The excellent temple carvings, vibrant handicrafts, spectacular folk dances and melodious songs show the sensitivity of the people.

### **Manali economy**

Manali's economy is based almost wholly on two things: fruit and tourism. Fruits – pears and apples – were first introduced to Manali by British settlers who realised that the area was perfectly suited for growing fruit. Today, Manali's fruit is among the choicest in north India; there's plenty of it in local markets, and a huge portion finds its way to other parts of India too. Manali is a popular base for treks and excursions into the surrounding areas; and the starting point for a trip to Ladakh. Tourism, hospitality and allied activities, including the production of handicrafts, are among the main economic activities.

### **Manalsu Nala**

To get a more authentic flavour of the area, take a half-hour walk from the Mall across the Manalsu Nala to reach the village of old Manali. Also known as Manaligarh, it has a ruined fort and a cluster of houses built in the Pahari style, with heavy stone roofs and wooden balconies projecting out of the first floor. According to popular belief it is here that Manu the lawmaker lived around the 2nd century BC. His treatise, the 'Manusmriti', is the foundation of Hindu law and of the rigid caste system based on Varna or profession. Considered one of the most orthodox Hindu texts, the Manusmriti continues to be followed by many devout Hindus even today. In the centre of the village is the

Manu Maharishi temple, a relatively new shrine dedicated to Manu. The village itself is an idyllic break from the rush of main Manali, surrounded by terraced maize fields and apple orchards. There are several guesthouses and cafes lining the path to the village.

### **Hidimba Devi Temple**

Hadimba or Dhungiri temple in Manali is one of the most important temples in the region. This four-story wooden temple is located in the middle of a forest called the Dhungiri Van Vihar. Maharaja Bahadur Singh built the present wooden pagoda-like temple in 1553 after earlier structures were burnt down by forest fires. Standing on a stone platform surrounded by old Deodar trees, the three-tiered temple is crowned with pennants, brass bells and a trident. Carvings of animals, plants and folk deities adorn the temple, while hunting trophies hang over its entrance. Inside the shrine is the brass icon of the goddess, surprisingly tiny compared to the huge temple structure and the legendary prowess associated with her. The shrine is within a natural cave formation dominated by huge rock. A set of enlarged footprints on the rocks is believed to be of Hadimba herself. In mid-July the idol from old Manali is brought to this temple for a major festival. As part of the frenzied celebrations, several animals including a buffalo and a goat are sacrificed to the goddess. The blood falling on the stones is channeled to the mouth of goddess Hadimba. Not for the faint-hearted, this ancient ritual draws large crowds.

### **Gadhan Thekchoking Gompa**

This Gompa dominates the Tibetan area around the bottom of the Mall in Manali. Tibetan refugees built the Gompa in the late 1960s. The Gompa is covered with brightly coloured frescoes and a mid-size Buddhist statue and carries a list of the martyrs killed in the occupation of Tibet of 1987–1989. Inside the brightly painted prayer hall is a statue of Shakyamuni (form of Buddha). The monastery is maintained through donations and the sale of carpets woven by the lamas within the temple workshop. A smaller Gompa near the market has a large gold-faced image of Buddha, which is best viewed from its first floor verandah. Monks can be seen printing prayer flags in the open terrace.

### **Mountaineering Institute**

This Institute in Manali provides training facilities for basic and advanced climbing both for Indian nationals and foreigners. It offers other adventurous sports activities like high-altitude trekking, minor mountaineering, rock-climbing, skiing and has lodging and boarding arrangements. Equipment can be hired for trekking purposes.

### **Excursions from Manali**

#### **Rohtang Pass (50 km)**

Rohtang Pass is the highest point, 4,112m, on the Manali-Keylong road, 51km from Manali town. It provides a wide panoramic view of mountains rising far above clouds, which is a sight truly breath-taking.

#### **Arjun Gufa (5 km)**

On the left bank of the Beas, 5km from Manali near the village of Prini, is the 'Arjun Gufa' or the cave of Arjuna one of the heroic brother of Pandhvas, who fought with Kaurav. In here Arjuna practised austerities to get Pashupata Ashtra or weapon from Lord Indra.

#### **Beas Kund (50 km)**

This is the source of river Beas, at the Rohtang Pass. It is easily accessible. The great sage Vyas performed 'Tapa' here during the Mahabharat times. The place is still hallowed by celestial light. Because of this that the river got the present name of Beas.

### **Jagatsukh Temple (6 km)**

This is one of the biggest villages in Kullu district, famous for its Shiva temple built in 'shikhara' style. Nearby is the old and interesting Devi Sharvati temple.

### **Kothi (12 km)**

A pretty little village on the Keylong road at the foot of Rohtang Pass. There are very fine views from Kothi, and the Beas River flows through a very deep and narrow gorge at this point. The well-situated Public Works Department (PWD) Resthouse is a popular place for overnight stays. Close to the rest house is an awe-inspiring gorge where Beas enters a chasm about 61m deep and just few metres broad.

### **Rahalla Falls (16 km)**

At the start of the climb to the Rohtang Pass are the beautiful Rahalla Falls, at an altitude of 2501m.

### **Solang Nullah (14 km)**

14 km northwest of Manali in the Solang Valley, this is Himachal Pradesh's best ski slopes. The Mountaineering and Allied Sports Institute operates a 300m high ski lift and February is the best month to ski over here. State tourism runs a 7-day package for ski courses with accommodation in the Hotel Rohtang Manaslu in Manali. Courses are also offered by the Mountaineering and Allied Sports Institute and the North Face Ski School.

### **Vashisth Hot Sulphur Springs (3 km)**

This small village near Manali is famous for its scenic beauty. The village has a temple dedicated to Lord Rama and Vashisth Muni. The village has some hot water springs, which are said to carry medicinal properties. It is a picturesque little place.

### **Rafting**

The Beas River flowing through Kullu valley is suitable for not only white-water rafting but canoeing and kayaking too. Open between May to September.

### **Skiing**

Near Manali there are some slopes, which have been rated the best for skiing in the world. The Solang Nullah, Patalsu, Kothi, Marhi and Rohtang slopes are very good for skiing in the winter as well as summer.

### **Heli-skiing**

For high mountain thrills perhaps nothing can surpass the magic of heli-skiing. The sport is available in the area around by the Hanuman Tibba, Rohtang Pass, Deo Tibba and Chanderkhani Pass near Manali.

### **Trekking**

The main trekking areas in Himachal are the Dhauladhar and Pir Panjal ranges, easily accessible from Kullu valley. Several treks lead over from Kullu valley to Lahaul and Spiti, Zaskar, Kinnaur and Kangra. Most treks pass through rugged and unspoiled terrain, deep forests and beautiful streams. Many old temples lie along the way.

### **Maps**

### **Getting around**

Manali town can be covered on foot, but for longer excursions and travel out of town, tourist buses and private taxis are available for hire. The Taxi Operators' Union (Ph: 01901-252205, 252450) has a counter near the tourist office. Charges in peak season are about Rs. 1000 for a full day trip around Manali. Motorcycles are available for hire at the

Enfield Club (Ph: 01901–254090) on Vashisht Road. Himachal Tourism (Ph: 01901–253531) runs regular bus tours to destinations around Manali.

### **Tourist Offices**

The Himachal Pradesh Tourist Information Counter is located at The Mall, Ph: 01901–253531, Fax: 01901–52325).

### **What to bring**

Days are pleasant in summer, but nights can get cold. It is advisable to bring light woollens. Winters are chilly with heavy snowfall during the peak winter months. If you are planning to go for hikes or take a shot at one of the adventure sports, keep extra pairs of shoes ready.

### **Shopping**

The Mall is the main shopping area, selling local shawls, rugs, caps and footwear, besides a range of Tibetan handicraft items. The Himachal Handicrafts Emporium and Bhuttico weavers' co-operative are good for local handicrafts. The Tibetan Bazaar and Tibetan Carpet Centre, run by the refugee community, sells Thangkas, rugs, jewellery and prayer wheels, among other things.

### **Banks and Money Changers**

Banking in Himachal Pradesh is not so easy. Banking hours usually are 10 am–2 pm Monday to Friday and 10 am–12 noon on Saturdays. In Manali you will be able to change your money but it may be a tedious process to change substantial amounts at a time. Banks here accept travellers' cheques or currency only in either dollars or pounds sterling. Changing money anywhere but at accredited bureaus is illegal. Save up all exchange receipts (encashment certificates); these are required for visa extensions and other formalities, and when you want to convert from rupees at the end of your trip.

### **Business guide**

The fruit bowl of India, Himachal Pradesh is the place of canned fruits, bottled fruit juice and other products like jams, jellies and pickles. Timber trade and forestry are other lucrative business ventures. People are very cordial and observe an almost village community level protocol while transacting business.

### **Tipping**

It is customary to tip 10% of the bill at restaurants, but you may tip less if service charges have been included in the bill. At hotels tip 10 bucks to the bellhop, the same to the doorman 'Durban'; if the service is particularly good, substantially more to the concierge and housekeeping.

Cab drivers do not expect to be tipped but the opposite is true if you have a hired a cab for a long period. You'll find some of the most friendly and colourful service at tiny nondescript roadside stalls called 'dhabas'. A small tip, even if it is only loose change, will be appreciated tremendously. Coolies (porters) at railway platforms have to be paid; negotiate the payment before you hire one.

### **Wildlife**

The woodlands of Kullu preserve a variety of wildlife. The district has five wildlife sanctuaries of which Manali, Kais, Kanawar, Khokhan are in Kullu Valley and the Great Himalayan National Park is in Sainj valley. These sanctuaries preserve Musk Deer, Common Fox, Leopard, Ibex, Himalayan Tahr, Porcupine, Bear (black and brown), Goral (Nemorhaedus goral), Himalayan Yellow Throated Marten, Langur and Flying Squirrel, and also pheasants like Cheer Pheasant, Monal and Western Tragopan. The Great Himalayan National Park is situated in the Sainj valley of Kullu district. It harbours more

than 300 species of birds and over 30 species of mammals, providing habitat for some of the highly endangered species like western tragopan, snow leopard and musk deer. Manali sanctuary is located 1 km away from the international hill resort Manali. The main species of animals found in the sanctuary are leopard, musk deer, black bear, brown bear, Himalayan ibex. The birds found in the sanctuary are monal, koklas, chakor, tree creepers, snow pigeon, kingfisher etc. Snakes and lizards are also found. These sanctuaries are rich in trees like oak (*quercus incana*), fir (*abies pindrow*), kail, spruce (*pices smithiana*), deodar (*cedrus deodara*), bras (*rhododendron arborium*), maple (*acer pictum*), walnut (*juglans regia*), fig (*ficus spp*), poplar (*populus ciliata*), pine (*pinus roxburghii*), aesculus (*aesculus indica*) etc. The best time to visit these sanctuaries is April–June and September–October. During this period the weather and visibility is suitable for spotting animals and the high reaches are easily accessible.

### **Venue**

The conference venue is Siachen Auditorium inside the SASE campus.

### **Getting to Manali**

Most foreign delegates will be flying into Mumbai or New Delhi.

1. From Mumbai it is possible to fly to Chandigarh, flight time 2:15 hours. It is then possible to drive from Chandigarh to Manali, a journey that may take 8 hours.
2. From New Delhi it is possible to travel (a) by road to Manali, a journey that may take 16 hours or (b) by train to Chandigarh (3:15 hours) and then by road to Manali (8 hours).
3. It is also possible to fly to either Chandigarh (0:35 hours) from New Delhi and travel by road to Manali (8hours), or fly to Bhunter (Kullu) (1:15hours) from New Delhi and onwards by road to Manali (2 hours). The Delhi-Bhunter (Kullu) flight, though regular, depends on the weather conditions.

### **Accommodation information**

A number of luxury and budget hotels are available around the conference venue. Please see the conference web page for detailed information and web-links of hotels in the Manali region. Participants may directly approach the hotels of their choice for necessary accommodation booking. We recommend Ambassador Resorts, Holiday Inn, Hotel Piccadilly and Sterling Holiday Resorts for a comfortable stay. However, for any assistance from organizers please write to us at [info@issa2009.in](mailto:info@issa2009.in)

### **Computer and internet access**

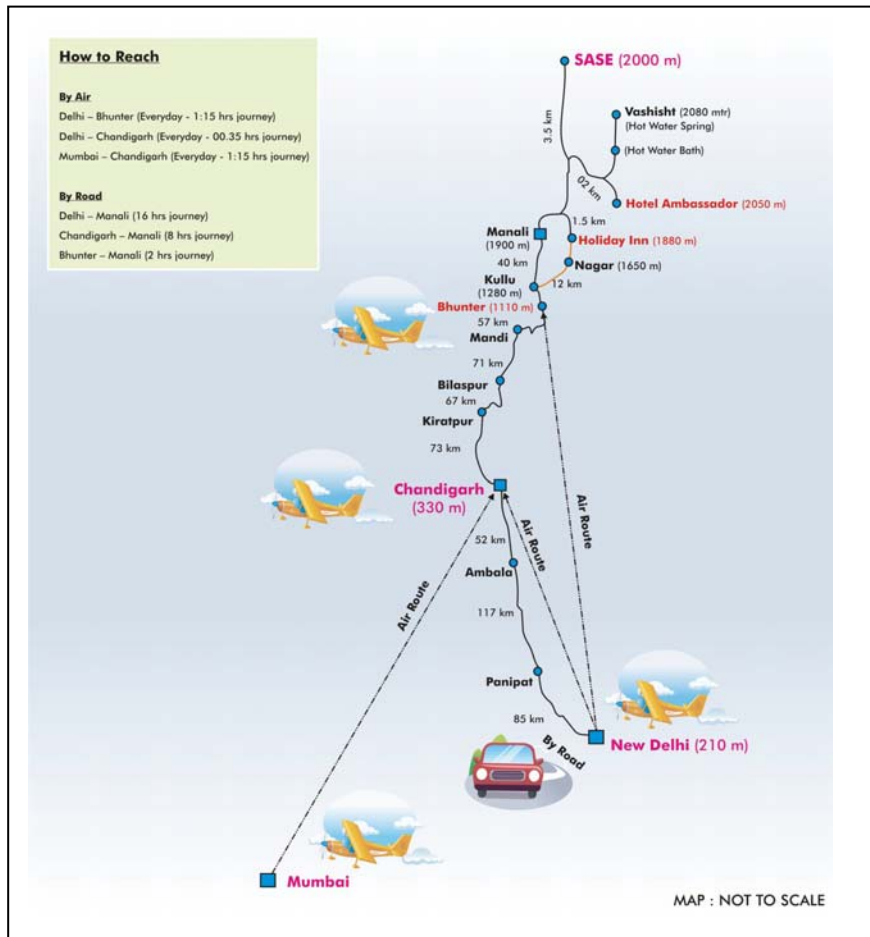
Internet access will be available in the SASE campus. Two terminals for viewing the presentation will also be available in a separate room.

## **REGISTRATION**

Registration will be through the IGS main office. See form below.

## Important dates

Abstracts due	15 January 2009
Notification of acceptance	1 February 2009
Pre-registration deadline	25 February 2009
Papers due	15 March 2009
Deadline for full refund	29 February 2009
Deadline for refund	20 March 2009
Registration	5 April 2009
Conference starts	6 April 2009
Final revised papers	8 June 2009





Payment may also be made by a direct bank transfer to:

Bank of Scotland  
38 St Andrew Square  
Edinburgh  
EH2 2YR, UK.

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Account name: International Glaciological Society.  
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It is usually possible to indicate this on the bank transfer form by ticking a box.  
(Please inquire at your bank).

**If payment made after 25 February 2009, add £50 for each person**

**PLEASE RETURN AS SOON AS POSSIBLE TO:**

Secretary General  
International Glaciological Society  
Scott Polar Research Institute  
Lensfield Road  
Cambridge  
CB2 1ER,  
UK

Tel: +44 (0)1223 355 974      Fax: +44 (0)1223 354 931  
E-mail: [igsoc@igsoc.org](mailto:igsoc@igsoc.org)  
Web: <http://www.igsoc.org>