International Symposium on
Five Decades of Radioglaciology

Stanford University
Stanford, California, USA
8–12 July 2019

Co-sponsored by:
- Department of Geophysics, Stanford University
- School of Earth, Energy, and Environmental Sciences, Stanford University
- The Stanford Woods Institute for the Environment
- NASA
- National Science Foundation

SECOND CIRCULAR
September 2018
http://www.igsoc.org/symposia/2019/stanford
The International Glaciological Society will hold an International Symposium on ‘Five Decades of Radioglaciology’ in 2019. The symposium will be held at Stanford University in Stanford, California, USA on 8 –12 July 2019. The main symposium will take place from Tuesday morning, 9 July, until the afternoon of Friday 12 July. On Monday 8 July there will be a presymposium short-course on ice penetrating radar science and engineering for early-career researchers. Also on Monday 8 July, side meetings will also be scheduled for collaborative radar sounding projects including BedMap3 and the SCAR AntArchitecture project.

THEME

Radio-echo sounding is a powerful geophysical technique for directly characterizing the subsurface conditions of terrestrial and planetary ice masses at the local, regional and global scales. As a result, a wide array of orbital, airborne, towed and in situ instruments, platforms and data analysis approaches for radar sounding have been developed, applied or proposed. Terrestrially, airborne radar-sounding data have been used in physical glaciology to observe ice thickness, basal topography and englacial layers for more than five decades. More recently, radar-sounding data have also been exploited to estimate the extent and configuration of subglacial water, the ice-sheet surface, the geometry of subglacial bedforms, the spatial variation of basal melt, englacial temperature, and the transition between frozen and thawed bed. Planetary radar sounders have been used or are planned to observe the subsurface and near-surface conditions of Mars, Earth’s Moon, comets and the icy moons of Jupiter. These instruments provide critical subsurface context for surface-sensing, particle, and potential-field instruments in planetary exploration payloads. This symposium will discuss advances in radar-sounding systems, mission concepts, signal processing, data analysis, modeling and scientific interpretation.
SUGGESTED TOPICS
We seek papers and presentations that advance the understanding radar sounding and its use in physical glaciology. Key focus areas include (but are not limited to):

1. **Radar systems**: development, performance and platforms
2. **Data**: intercomparison, validation and release
3. **Radar processing**: propagation, inversion and automation
4. **Englacial structure**: layers, deformation and accretion bodies
5. **Attenuation**: near-surface properties, temperature and chemistry
6. **Bed conditions**: topography, roughness, thermal state and hydrology
7. **Interpretation**: comparing observations with modeling and theory
8. **Planetary radioglaciology**: radar investigations of planetary cryospheres

ABSTRACT AND PAPER PUBLICATION
Participants wishing to present a paper (oral or poster) at the Symposium must submit an abstract by 11 March 2019. Abstracts need to be submitted via the IGS website. Accepted abstracts will be posted on the Symposium website.

The Council of the International Glaciological Society will publish a thematic issue of the Annals of Glaciology on topics consistent with the symposium themes. Submissions to this issue will not be contingent on presentation at the Symposium, and material presented at the symposium is not necessarily affirmed as being suitable for consideration for this issue of the Annals. Participants are encouraged, however, to submit manuscripts for this Annals volume. The deadline for submission of Annals papers is 1 August 2019.
REGISTRATION FEES
All fees are in US dollars, $
Early registration until 24 April 2019

- Participant (IGS member): $650
- Participant (not IGS member): $750
- Student or retired (IGS member): $475
- Student or retired (not IGS member): $500
- Accompanying person (21+): $300
- Accompanying person (12–20): $225
- Accompanying person (<12): Free
- Delegate registration after 24 April 2019: add $50
- Delegate registration after 15 May 2019: add further $100

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

The fees include the Icebreaker, the mid-conference excursion, the Banquet and morning/afternoon refreshments Tuesday through Friday. Please register for the symposium through the IGS website. If you cannot do this, contact the IGS office directly at igsoc@igsoc.org. If payment by credit card is not possible, contact the IGS office to arrange for a bank transfer.

Please check whether you will require a visa to enter the USA. If you need an invitation letter, please contact the IGS office at igsoc@igsoc.org. The sooner you do this the more likely it is that your visa will be processed in time.

ACCOMPANYING PERSONS
The accompanying person’s registration fee includes the Icebreaker, the midweek excursion and the Symposium Banquet. It does not include attendance at the presentation sessions.
STUDENT AND EARLY-CAREER SUPPORT
We anticipate being able to provide travel, housing, and registration support for a number of early-career researchers (graduate students, postdocs, recent hires in permanent positions) on a competitive basis. An announcement will be made when the early-career support budget is confirmed, and travel support applications will be posted at that time.

PROGRAM
True to tradition, the symposium will include oral and poster sessions interlaced with ample free time to facilitate the interactions of the participants. Additional activities include an opening Icebreaker, a Banquet dinner and an excursion during the mid-symposium afternoon break.

VENUE
The symposium will be held in the Mackenzie Room of the Stanford Engineering Quad and the poster session will be held on the patio of the Mitchell Earth Sciences Building.

LOCATION
Stanford University is one of the world’s leading research universities and is located in the San Francisco Bay area. Stanford and the adjacent city of Palo Alto are less than an hour from the city San Francisco, less than an hour to beaches in Santa Cruz and Half Moon Bay, less than two hours from the wine regions of Napa and Sonoma, and less than four hours to parks in Yosemite or Lake Tahoe. With June weather averaging highs of 78°F and lows 52°F (26 and 11°C), 0.08 in (0.2 cm) of precipitation and numerous pedestrian and bike paths in along the bay and in the hills, the greater Palo Alto area is ideal for hiking, biking and other outdoor activities. The 8000 acre campus is a few blocks away from the suburban garage where Hewlett and Packard created their audio oscillator, cited as ‘the birthplace of Silicon Valley’ in the national register of historic places. The region is also home to the headquarters of Apple, Google, Facebook, Netflix, Cisco, Adobe,
Intel, Tesla, Uber and numerous other companies and startups pushing the frontiers of scientific and technological innovation.

ACCOMMODATION
A number of rooms in the Stanford Munger Graduate Residence and the Stanford Guest House on the Stanford Campus have been reserved to provide more affordable/convenient accommodation than many local hotels. You must make the actual booking yourself by calling the front desk at +1 650-926-2800 or by booking online at https://ussg.webhotel.microsdc.us/ and quoting Group Code IGS19. To guarantee your room, please provide them with your credit card details at least 90 days prior to arrival. The following on campus options are available for the IGS for arrivals starting 7 July through departures until 13 July:

- **Stanford Guest House**: Small hotel on the campus of the Stanford Linear Accelerator (a 2.5mile/4 km walk or bus ride from the conference). Standard rooms (one Queen bed): ~$165 per night, Deluxe rooms (two Queen beds): ~$205 per night (rates include continental breakfast). Use the Group Code IGS19 by calling (+1)650-926-2800 or online at https://ussg.webhotel.microsdc.us/

- **Munger Graduate Residence**: On-campus apartment accommodation (less than a mile from the conference). All guests have private bathrooms but share common areas (lounge and kitchen) in the apartment with other guests: ~$166.75 per person per night. https://app.certain.com/profile/form/index.cfm?PKformID=0x2971050f9a8
ICEBREAKER
The Icebreaker will be held on Monday, 8 July, 5:00–8:00 pm on the patio of the Mitchell Earth Sciences Building. Refreshments and heavy hors d’oeuvres will be available. Delegates can also use this opportunity to complete their registration and collect their conference bag materials.

BANQUET
The Banquet will be held on Thursday evening on a cruise boat in San Francisco Bay. Bus transportation to and from the dock in San Francisco will be provided.

MID-CONFERENCE EXCURSION
Wednesday afternoon buses will be available to transport delegates to visit the Computer History Museum. This excursion will give delegates a chance to consider the impact that technological advances developed right here in the heart of Silicon Valley have had on our ability to collect and analyze radioglaciological data.

MID-CONFERENCE FUN RUN/WALK
Friday morning at 8:00 am we will give you a chance to wake up early and shake off the midweek banquet with a scenic 6 km run/walk to the ‘Stanford Dish’, a 46m radio telescope built in 1961. A longer 10 km route will give you the opportunity to see more of Stanford’s campus. Access to water at the trail and showers on campus after the run will be provided.
SYMPOSIUM ORGANIZATION
Magnús Már Magnússon (International Glaciological Society)

SCIENCE STEERING AND EDITORIAL COMMITTEE
Dustin Schroeder (Stanford; Chair), Rob Bingham (Edinburgh), Don Blankenship (UTIG), Knut Christiansen (Washington), Olaf Eisen (AWI), Gwen Flowers (SFU), Nanna Karlsson (GEUS), Ala Khazendar (JPL), Jonathan Kingslake (Columbia), Michelle Koutnick (Washington), John Paden (CReSIS), Jeremie Mouginot (Grenoble), Martin Siegert (Imperial)

LOCAL ORGANIZING COMMITTEE
Dustin Schroeder (Chair), Davide Castelletti, Matt Chalker, Winnie Chu, Thomas Jordan, Ros McCambridge, Elisa Mantelli, Liliane Pereira, Matthew Siegfried (all Stanford)

FURTHER INFORMATION
Please register your interest online if you wish to attend the symposium at http://www.igsoc.org/symposia/2019/stanford.

IMPORTANT DATES
Five Decades of Radioglaciology
Opening of online abstract submission: 1 February 2019
Opening of online registration: 1 March 2019
Abstract submission deadline: 11 March 2019
Notification of abstract acceptance: 25 March 2019
Early registration deadline: 24 April 2019
Deadline for full refund: 30 April 2019
Deadline for refund on a sliding scale: 15 May 2019
Late registration surcharge starts: 16 May 2019
Symposium starts: 8 July 2019

Annals of Glaciology volume 61, issue 81
Paper submission deadline: 1 August 2019
Final revised papers deadline: 1 October 2019

The Call for Papers for the Annals of Glaciology is posted on https://www.igsoc.org/annals/call4papers.html. Accepted papers will be published as soon as authors have returned their proofs and all corrections have been made.

Hard copy publication is scheduled for late 2019/early 2020.