SIOS’s Online Conference on "Earth Observation (EO), Remote Sensing (RS) and Geoinformation (GI) applications in Svalbard"

Inviting abstracts from Svalbard science community working on applications based on Earth Observation (EO), Remote Sensing (RS), and Geoinformation (GI)

We are pleased to announce the SIOS’s online conference on "Earth Observation (EO), Remote Sensing (RS) and Geoinformation (GI) applications in Svalbard". This online conference is being organized and coordinated by the SIOS-KC, Remote Sensing Working Group (RSWG), and guest editors of SIOS’s special issue on EO/RS/GI. This online conference is being organized to:

• to promote the PhD students, postdocs, researchers, senior scientists and academicians to contribute actively in the SIOS's special issue on EO/RS/GI.
• to review the state-of-the-art EO/RS/GI applications in Svalbard and;
• to provide social experience to the Svalbard scientific community during the difficult time.

Significance of online conference for the Svalbard scientific community:
This online conference will attract EO/RS/GI based contributions from projects supported by SIOS ACCESS program, relevant studies from SIOS-SESS reports (2019 and 2020, and planned 2021), SIOS-InfraNor, relevant projects supported by Norwegian Space Agency (NoSA) and Research Council of Norway (RCN), applications based on airborne data derived from SIOS-NORCE research aircraft, relevant follow-up studies presented in Svalbard Science Conference 2017 and 2019, related studies from Ny Ålesund Flagship programmes, outcomes of scientific projects under SIOS-InfraNor initiative, EO/RS/GI based projects from Research in Svalbard (RiS) database of Svalbard Science Forum (SSF), upcoming projects such as cryosphere virtual lab (CVL), regional and Svalbard-wide RS activities being conducted at SIOS infrastructures by its member institutes and of course wider international scientific researcher community working in Svalbard.

Timeline of the online conference:
Opening of call: 22th April 2020
Deadline to submit abstracts: 24th May 2020
Decision on submission: will be continuously communicated during the entire submission period
Conference dates: 04-05 June 2020 (2 days)
Online conference platform: Zoom (https://zoom.us/)

Scope of the online conference:
The Svalbard Integrated Arctic Earth Observing System (SIOS) is an international observing system for long-term in situ and remotely sensed measurements in and around Svalbard addressing Earth System Science (ESS) questions. SIOS research infrastructures (RI) are distributed all over Svalbard for collection of long-term in situ measurements. These in situ measurements are useful for various current and future satellite missions for calibration and validation (cal/val) activities. Eventually, integration of in situ and satellite-based measurements would benefit the entire ESS community to address broader scientific questions. Over the past three decades, tremendous developments in EO satellites have made significant contributions to the spatial–spectral–temporal sampling and subsequent extraction of geoinformation (GI) from the Arctic. Svalbard is probably the region in the Arctic with the most in situ measurements; still, there are massive gaps. Such data gaps can be filled using frequent satellite-based acquisitions, new product generation using remote sensing (RS), and integration of in situ data with satellite-based information. This conference will provide a broad platform to various regional and Svalbard-wide studies that are being conducted using EO/RS/GI. For this conference, we seek abstracts focusing on:
- EO/RS/GI techniques relevant for field campaigns, modelling, and long-term monitoring programs;
- Optical (e.g., Sentinel-2-3), Microwave (e.g., scatterometers, SAR) and Lidar (e.g., ICESat) applications in Svalbard;
- Terrestrial, marine, atmospheric, and cryospheric applications of RS/EO/GI in Svalbard and associated waters;
- Remote sensing of the marine cryosphere and its interactions with ocean, land, and atmosphere;
- Ground-, space-, and airborne platform-based studies in Svalbard;
- Integration of remote sensing, in situ and previously published geoinformation to gain new knowledge about Svalbard;
- Cal/val activities for satellite missions that are being conducted in Svalbard, e.g., Pandora installation in Ny Ålesund, cal/val of snow parameters from satellite, cal/val activities using moorings;
- Machine learning, deep learning, neural networks and cloud computing (e.g., Google Earth Engine) based applications in Svalbard;
- Broader review papers on EO/RS/GI driven research activities in Svalbard (e.g., review on monitoring calving events in Svalbard);
- Svalbard wide GI extraction/product generation and operationalization using EO/RS;
- Derivation of geophysical and biophysical parameters using satellites (e.g., sea ice drift and type, chlorophyll concentration, phytoplankton blooms);
- Remote sensing applications in glaciological studies in Svalbard (geodetic mass balance, snow cover and snow properties, surface elevation changes, etc.);
- Remote sensing of sea ice, icebergs, snow/firm/ice, ground ice, snow on sea ice, avalanche activities, permafrost subsidence studies using InSAR;
- Methods for characterizing the terrestrial vegetation, mapping abundance and extent, growing season, primary productivity, and time series analysis;
- Applications of new technologies such as AUVs, robots, drones, mapping using Surface from Motion, terrestrial LiDAR;
- Very high resolution (VHR) satellite remote sensing in Svalbard including applications using airborne imagery and hyperspectral data acquired by SIOS-NORCE research aircraft and drones;
- Relevant research studies supported by the SIOS-ACCESS, SIOS-SESS, and SIOS-InfraNor initiative.

We especially encourage contributors to provide access of data and products generated as a part of your study via the SIOS data management system (SDMS).

Sessions of the online conference:
Submitted abstracts will be categorised into broad sessions during the review phase. Following broad sessions are tentatively proposed:

1. EO/RS/GI applications in Cryosphere environment of Svalbard
2. EO/RS/GI applications in Marine environment of Svalbard
3. EO/RS/GI applications in Terrestrial environment of Svalbard
4. EO/RS/GI applications in Atmosphere environment of Svalbard
5. EO/RS/GI applications using new technologies (drones/airborne imageries, VHR satellite, AUVs)
6. EO/RS/GI applications from SIOS activities: InfraNor, ACCESS programme, SIOS-SESS report

Awards for Early Career Researchers:
Top 5 papers presented by ECRs (Masters, PhD, postdocs, within 7 years after PhD) will be invited to contribute as full papers to the SIOS's special issue in the Remote Sensing Journal. In addition to existing discounts on Article processing charge (APC) provided by the Remote Sensing journal, SIOS will cover the rest of the APC cost for these top 5 papers, making it completely free for authors of these publications. Award committee will be constituted for selecting top-5 presentations.
Existing benefits by the journal: The article processing charges (APC) for the journal is about 2000 CHF per manuscript. Manuscripts from SIOS activities e.g. SIOS-InfraNor, SIOS-SESS, SIOS-ACCESS are eligible to avail **50% discount** on APC for each manuscript. Manuscripts invited by guest editors, manuscripts submitted by authors from SIOS Member institutes (at least one author from SIOS member institute), manuscripts submitted by any PhD student as a first or corresponding author (from SIOS member and non-member institutes) are eligible to avail **30% discount on APC** for each manuscript submission.

In-kind contribution of participating authors and co-authors from SIOS member institutes:
- Lead author of the abstract: 4 days
- Co-author of the abstract: 2 days
- Keynote speaker: 5 days
- Session chair/convenor: 3 days

Session Convenors

Dr. Shridhar D. Jawak  
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**Interests:** high resolution remote sensing applications in polar regions; glacier facies mapping; polar vegetation mapping; Google Earth Engine; snow and ice remote sensing; glaciological image analysis

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**Interests:** glaciology; mass balance and ice dynamics in Svalbard; firn aquifers and snow distribution

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**Interests:** Earth Observation technology; glaciology; cryosphere remote sensing; geoinformatics

Prof. Hiroyuki Enomoto  
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**Interests:** glaciology; climatology; remote sensing engineering

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**Interests:** remote sensing of the cryosphere glacier and ice-sheet changes

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**Interests:** InSAR; glaciers; airborne data; drones; permafrost; Svalbard vegetation and growing season

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**Interests:** remote sensing of polar areas; glaciology

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**Interests:** Satellite cal/val; Earth Observation and remote sensing applications in Svalbard

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**Interests:** Satellite cal/val; Sentinel-5p; Pandora; atmosphere remote sensing applications

**Dr. Bartłomiej Luks**  
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**Website:** https://www.igf.edu.pl/dr-bartlomiej-luks-en.php  
**Interests:** snow cover spatial distribution; snow remote sensing; snow hydrology; glaciology; climatology

**Dr. Roberto Salzano**  
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**Interests:** remote sensing of cold regions

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**Interests:** sea ice remote sensing; SAR; passive microwave radiometers

**Contact details**  
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