

# Svalbard Integrated Arctic Earth Observing System

**A cooperative  
international research infrastructure**

- Building an observing system  
to answer big questions of Earth System Science



24. februar 2021

Shridhar Jawak, Svalbard



# An anchor point to a drifting world!

## SIOS webinar series

### Why?

- Cancelled field campaigns
- Cancelled conferences
- To provide a social experience to the Svalbard research community in challenging times

### 3 Webinars

### 1 Online Conference

### 1 Online training Course



# An anchor point to a drifting world!

## SIOS Webinar #1:

27th March 2020

Shridhar Jawak (SIOS Remote Sensing Officer)

**Welcome and introduction to the webinar**

Agnar Sivertsen (NORCE):

**Airborne remote sensing in Svalbard (with emphasis on recently launched SIOS's opportunity)**

Ann Mari Fjæraa (NILU):

**New Pandora Spectrometer instrument and opportunities for atmospheric Cal/Val in Arctic areas**

Veijo Pohjola (Uppsala University):

**Glaciological & microbiological observations of Lomonosovfonna perennial firn aquifer**

Roberto Salzano (CNR):

**The support of terrestrial photography on cryospheric studies in Svalbard islands**

Jack Kohler (NPI):

**Svalbard glacier mass balance from annual Arctic DEMs 2013-2017**



# An anchor point to a drifting world!

## SIOS Webinar #2:

24th April 2020

Shridhar Jawak (SIOS Remote Sensing Officer)

**Welcome, updates from SIOS-KC and introduction to the webinar**

Richard Ashley Morris (NPI):

**Remote sensing of Svalbard mass balance, 2011-2017**

Hannah Ming Siu Vickers (NORCE):

**A 20-Year MODIS-Based Snow Cover Dataset for Svalbard and Its Link to Phenological Timing and Sea Ice Variability**

Lukasz Stachnik (University of Wroclaw):

**Carbon cycle in a perspective of glacier recession - marine or terrestrial control?**



# SIOS Online Conference

Earth Observation, Remote Sensing and Geoinformation applications in Svalbard

## Quick facts

- More than 350 registered participants
- 37 submitted abstracts
- More than 50 talks
- Presenters from  $\approx$  24 institutions in 12 countries

## Keynotes talks

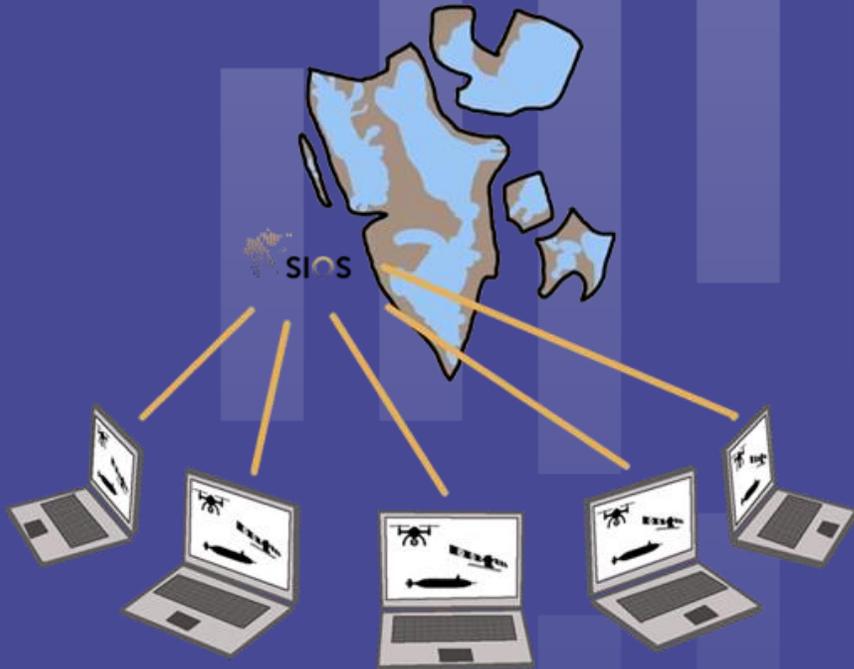
European Space Agency (ESA)  
Arctic Amplification project  
Finnish Meteorological Institute

## Invited talks

MOSAIC's remote sensing activities,  
NORCE,  
Norwegian Space Agency (NoSA)

## Special SIOS sessions

- ACCESS
- SESS
- recently launched airborne campaigns in Svalbard



# SIOS Terrestrial Remote Sensing Training Course

Combining ground based observations with data from drones and satellites

31 August – 04 September 2020

Vegetation map of Adventdalen. Credit: B. Johansen, NORCE

## Overview

- 5 day= 40 hrs
- 14 lectures, 8 hands-on sessions, 1 virtual field excursion, 1 mini-workshop
- 35 participants (17 SIOS members+ 18 Non-SIOS members), 11 teachers
- 150 registered participants for lecture series

## Topics

- close range photogrammetry, drone applications,
- terrestrial vegetation mapping applications,
- thermal remote sensing, and interferometric SAR methods to support terrestrial research applications in Svalbard.



# SIOS Webinar #5:

23 October 2020, Friday: 15:00 - 16:30 (CEST)

## Grand Challenge Initiative (GCI) cusp rocket missions in Svalbard

Jøran Moen (UNIS):

GCI-Cusp history and its relevance to Svalbard studies

Andres Spicher (University of Oslo):

GCI-Cusp: an observing system for the dynamics of the upper polar atmosphere above Svalbard

Douglas Rowland (NASA):

The VISIONS-2 rocket mission: exploring atmospheric escape in the Earth's cusp

Kolbjørn Blix (Andøya Space Centre):

Grand Challenge Initiative - M/LT project



Illustration: Trond Abrahamsen (Andøya Space)



# Updates from SIOS-KC

## PNW 2021 goes online!



### Monday, 11 January

→ 09:00 – 10:30 Welcome and SESS report 2020 release

→ 11:00 – 12:30 Workshop: SESS report – finding connections

### Tuesday, 12 January

→ 09:00 – 09:30 What happened since last time? An update from SIOS-KC to the SIOS community

→ 09:30 – 12:30 Workshop with panel discussions: SIOS activities and services

### Wednesday, 13 January

→ 09:00 – 09:30 Poster session: Projects from the SIOS Research Infrastructure Access Programme

→ 09:30 – 12:00 Workshop: SIOS responses to COVID-19 and the new normal – adapting our strategy for the future

→ 12:00 – 12:30 Virtual mingling

→ 12:30 – 13:30 Virtual Conference Lunch

### Thursday, 14 January

→ 09:00 – 10:00 Open forum: Coordination of logistics

→ 10:30 – 12:30 Strategy session – SIOS 2022–2026

# Updates from SIOS-KC

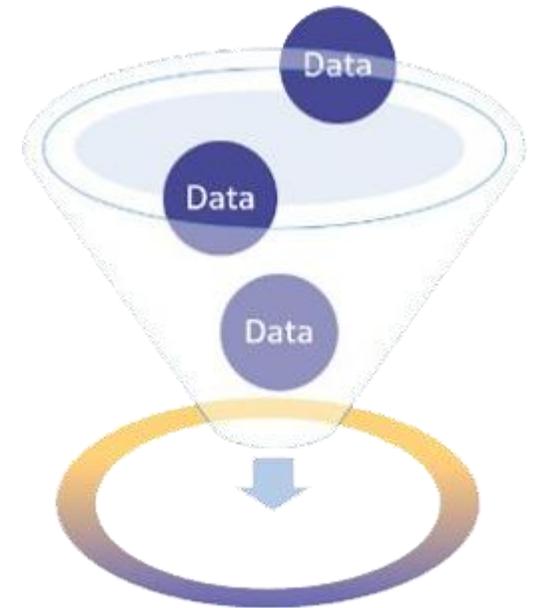
## SIOS Core Data curation call

SIOS supports the transformation of datasets identified during the core data mapping as SIOS Core Data (SCD) candidates to FAIR data.

The call is addressed to SIOS member institutions that commit to SCD and mapped the SIOS Core Data candidates in 2020:

- Proposal submission opens **24 November 2020**
- Deadline to submit a proposal: **13 December 2020 (13:00 CET)**
- Funds available: **1 million NOK**

**A webinar for applicants will be held on 2 December 2020 at 10:00 CET**



# Updates from SIOS-KC

## Multidisciplinary Workshop on snow

### Programme

- Deliverable 1: **'Agenda for the future of snow research in Svalbard'**
  - Document drafted by the task force
  - Potential **focal sites** for snow monitoring in Svalbard
  - **Remote sensing**/Earth observation of snow
  - Monitoring activities and **citizen science/education**
- Deliverable 2: **Technology development**
  - Exchange between researchers and engineers
  - Existing tools and potential innovation

### Date and location

- 1-2 and 4-5 February (3 h /day) - online



# Updates from SIOS-KC

## Announcement of Opportunity (AO) in Airborne Remote Sensing



Image courtesy of NORCE

- RGB camera and hyperspectral imager installed on Dornier aircraft stationed in Longyearbyen
- High resolution georeferenced images

### Available funding

- approximate 25 flight hours using the Dornier aircraft
- approximate 50 flight hours using drones
- First round of flights is closed
- Second round will be open at the end of 2020



Image courtesy of NORCE

# Updates from SIOS-KC

## Join the SIOS Virtual Hangout!

Every Friday at 9:30 Norwegian time



# Updates from SIOS-KC

## SIOS Core Data WORKSHOP #1

5-6 November 2020

The workshop covered following areas:

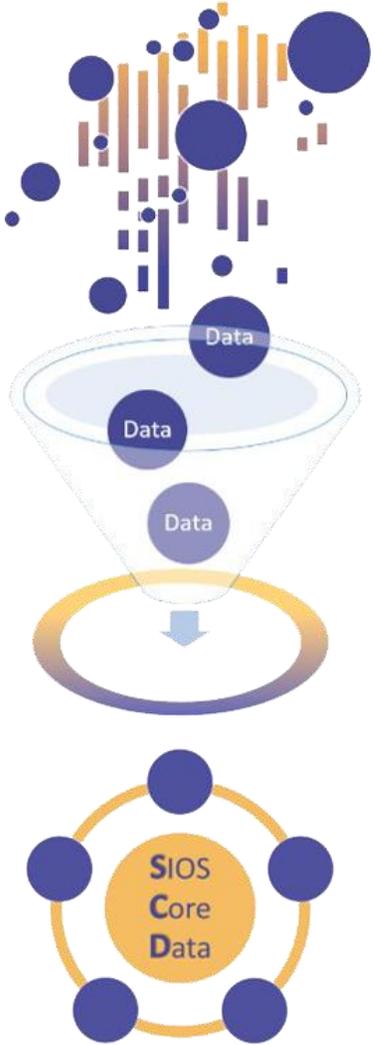
- critical analysis and revision of the SCD list and correction of variable definitions
- addressing the issue of the harmonization of measurements (measurement protocols, calibration) of SCD.
- The workshop will also include training to support transforming SCD-candidates to SCD.

Presentations from the workshop can be found here:

[www.sios-svalbard.org/CoreData](http://www.sios-svalbard.org/CoreData)

## SIOS Core Data WORKSHOP #2

15 January 2020 during the Polar Night Week 2021



# Updates from SIOS-KC

**SIOS responses to COVID-19 and the new normal - adapting our strategy for the future**

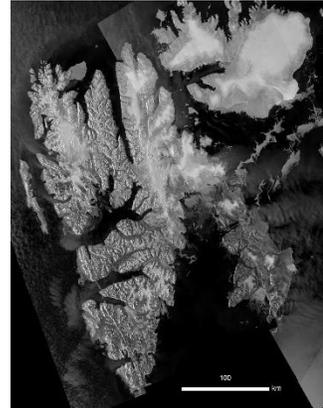
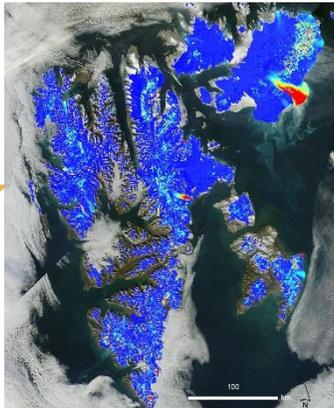
**When?** Polar Night Week 2021 Wednesday,  
13 January, 09:30 - 12:00 CET

**Feedback survey: COVID-19 and impact on Svalbard science community**





## Earth Observation (EO), Remote Sensing (RS), and Geoinformation (GI) Applications in Svalbard



### *Special Issue Editors:*

Dr. Shridhar D. Jawak

Prof. Dr. Andreas Kääh

Dr. Geir Moholdt

Dr. Malgorzata Blaszczyk

Ms. Ann Mari Fjæraa

Dr. Roberto Salzano

Prof. Dr. Veijo Pohjola

Prof. Hiroyuki Enomoto

Dr. Kjell Arild Høgda

Dr. Bo N. Andersen

Dr. Bartłomiej Luks

Dr. Frode Dinessen

### *Special Discount on Article Processing Charge (APC)*

**50% discount** for manuscripts

- from guest editors;
- from SIOS activities, e.g. [InfraNor](#), [SESS report](#), and [SIOS Access Projects](#).

**30% discount** for manuscripts

- invited by guest editors;
- submitted by authors from SIOS member institutes
- submitted by any PhD student as a first or corresponding author

This *Special Issue* will provide a broad platform to various regional and Svalbard-wide studies that are being conducted using EO/RS/GI.

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

# SIOS's special issue in EO/RS/GI applications in Svalbard

- 3 submissions in past 6 months
- 2 published
- 5 Early Career Researchers (ECRs) have been awarded during the SIOS online conference (04-05 June).

Open Access Article

## Does the Intra-Arctic Modification of Long-Range Transported Aerosol Affect the Local Radiative Budget? (A Case Study)

by Konstantina Nakoudi <sup>1,2,\*</sup> Christoph Ritter <sup>1</sup> Christine Böckmann <sup>3</sup> Daniel Kunkel <sup>4</sup> Oliver Eppers <sup>4,5</sup> Vladimir Rozanov <sup>6</sup> Linlu Mei <sup>6</sup> Vasilios Pefanis <sup>6,7</sup> Evelyn Jäkel <sup>8</sup> Andreas Herber <sup>7</sup> Marion Maturilli <sup>1</sup> and Roland Neuber <sup>1</sup>

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<sup>7</sup> Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Am Handelshafen 12, 27570 Bremerhaven, Germany  
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Remote Sens. 2020, 12(13), 2112; <https://doi.org/10.3390/rs12132112>

Received: 25 May 2020 / Revised: 25 June 2020 / Accepted: 29 June 2020 / Published: 1 July 2020

(This article belongs to the Special Issue Earth Observation (EO), Remote Sensing (RS), and Geoinformation (GI) Applications in Svalbard)

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Open Access Article

## A 20-Year MODIS-Based Snow Cover Dataset for Svalbard and Its Link to Phenological Timing and Sea Ice Variability

by Hannah Vickers <sup>\*</sup> Stein Rune Karlsen and Eirik Malnes

NORCE Norwegian Research Centre AS, P.O. Box 6434, 9294 Tromsø, Norway

\* Author to whom correspondence should be addressed.

Remote Sens. 2020, 12(7), 1123; <https://doi.org/10.3390/rs12071123>

Received: 4 March 2020 / Revised: 27 March 2020 / Accepted: 31 March 2020 / Published: 1 April 2020

(This article belongs to the Special Issue Earth Observation (EO), Remote Sensing (RS), and Geoinformation (GI) Applications in Svalbard)

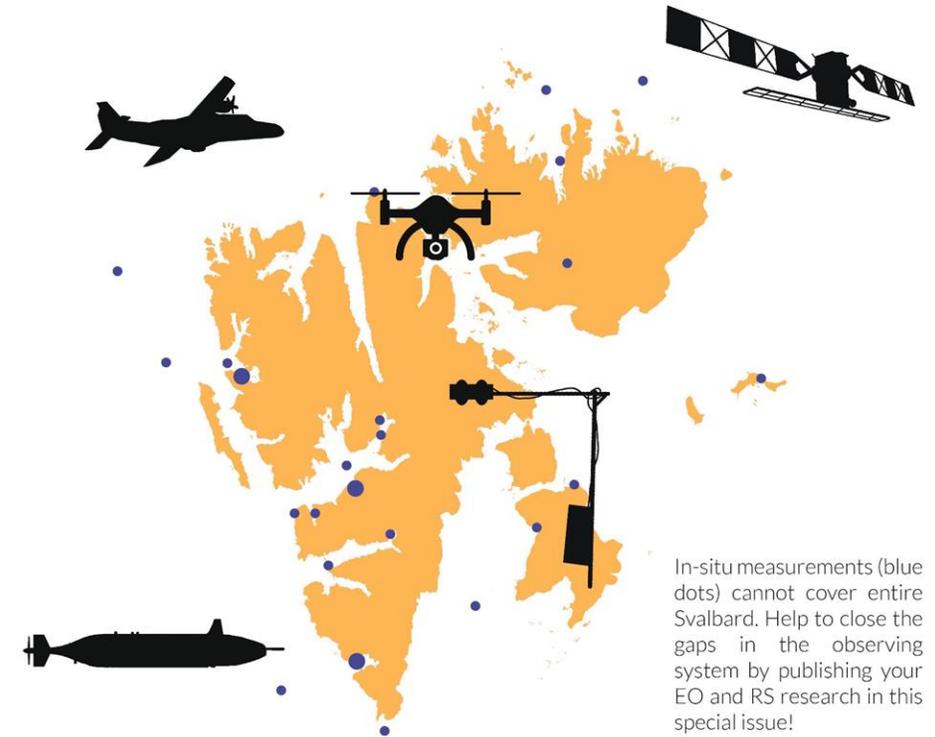
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## SIOS's special issue on Earth Observation (EO), Remote Sensing (RS) and Geoinformation (GI) applications in Svalbard

Open for submission!  
1 March 2020 - 31 December 2021

Up to 50% discount for  
SIOS related manuscripts!



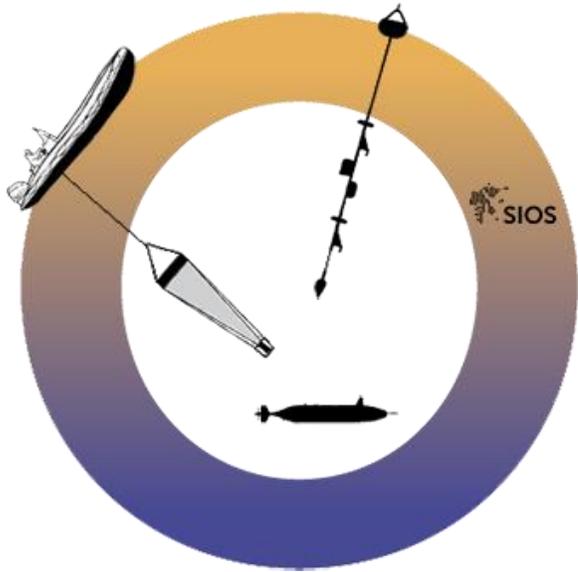
Check our website for details:

[www.sios-svalbard.org/SpecialIssueRemoteSensing](http://www.sios-svalbard.org/SpecialIssueRemoteSensing)



# Updates from SIOS-KC

## SIOS marine research infrastructure workshop



The workshop focused on the following objectives:

- create a network of marine observatory systems within SIOS and increase its international visibility
- improve the interoperability between these systems
- stimulate data sharing and scientific cooperation
- develop joint projects
- optimize logistics relevant for operating the Marine Infrastructure

**Date:** 19th November 2020, 08:45 - 13:00 (CET)

# SIOS Webinar #6:

Marine science in Svalbard - global to local perspective

27 November 2020, Friday: 10:00 - 11:30 CET

**10:00 - 10:10** Shridhar Jawak (SIOS Remote Sensing Officer):  
Welcome and introduction to the webinar

**10:10 - 10:25** Mark Payne (DTU)  
Ocean predictability, observations and links to UN Decade of the Ocean

**10:25 - 10:40** Alejandro Orfila (IMEDEA)  
Observational networks in Europe

**10:40 - 10:55** Anton Korosov (NERSC)  
Sea ice remote sensing

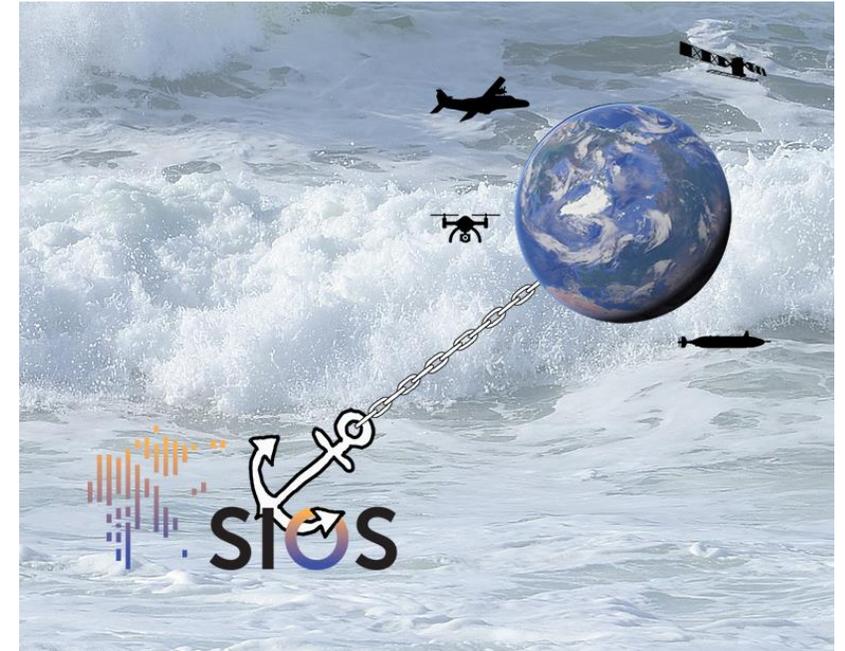
--- 5 min break for leg stretching and refill of tea ---

**11:00 - 11:10** Franco Coren (OGS)  
Information talk about the icebreaker Laura Bassi (characteristics of the ship and tentative logistical plans for 2021)

**11:10 - 11:30** Panel Discussion on the outcomes of the SIOS marine infrastructure network workshop and the next steps for the network

Moderator: Inger Jennings (SIOS Logistics and Access Officer)

Panel: Manuel Bensi, Arild Sundfjord and Agnieszka Beszczyńska-Möller



# Important Information

## **Audience:**

Please, please mute yourself on the zoom during the webinar.

You can unmute yourself during the discussion session only while asking questions!

## **Presenters:**

Please try to finish your presentation within the time designated to you.

\*If you cross your time during the presentation, we may consider to interrupt you to conclude your presentation.

## **How to ask a question?**

Each session will be followed by a discussion session where you can ask you a question.

Alternatively, you can always enter your question in the chatbox and our team would keep a note of it.

**Feedback polls:** We will publish a live poll during the conference.