SIOS's airborne remote sensing campaigns in Svalbard

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Copernicus Relays

SIOS
SVALBARD INTEGRATED ARCTIC EARTH OBSERVING SYSTEM

SIOS – An international research infrastructure for Arctic Earth System

The Observing System

- A cooperating research infrastructure (RI) that produces better estimates of the future environmental and climate change in the Arctic
- Focus on processes and their interactions between different spheres in and around Svalbard
- Systematic observations – stable over time, yet dynamic as new questions from society arise

The Consortium

- 24 institutions from 9 nations with relevant RI in and around Svalbard

The Knowledge Centre

- Coordination, development and optimisation of the distributed RI – owned by the member institutions
- Integration of the observing system
- Data management
- Logistical services
- Utilisation of remote sensing resources
- Communication and outreach
- Fully funded by the Norwegian host through 2021

SIOS offers

- The annual State of Environmental Science in Svalbard (SESS) report
- The SIOS data access point
- Frequent calls for access to research infrastructure
- Training courses on remote sensing and data management

.... and much more

Announcement of Opportunity
in Airborne Remote Sensing

SIOS
SVALBARD INTEGRATED ARCTIC EARTH OBSERVING SYSTEM

SIOS supports scientific projects using hyperspectral data and aerial imagery acquisition by airborne RS platforms i.e. aircraft and UAVs.

More information:
https://sios-svalbard.org/AirborneRS

Credit: NORCE

SIOS's Airborne Remote Sensing Campaigns

Image courtesy of NORCE

Sensors

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

Opportunities

- First call in 2020 resulted in 25 flight hours for 10 projects
- Second call in 2021 attracted 15 projects

Image courtesy of NORCE

Available hours

- approximate 25 flight hours using the Dornier aircraft
- approximate 50 flight hours using drones

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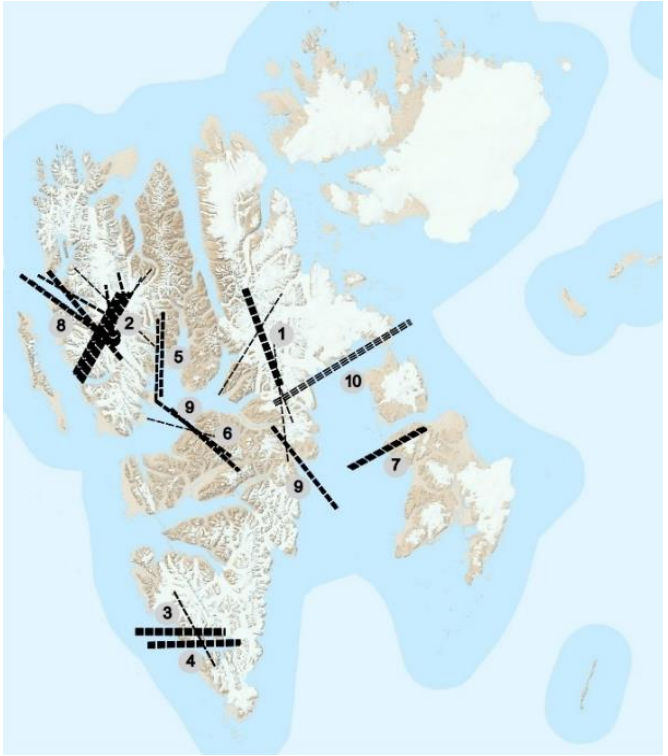
SIOS's Airborne Remote Sensing Campaigns



All flight lines covering an area of approximately 700 sq. km in the period 09.06.2020 – 20.09.2020.

A RGB (460 nm, 550 nm and 640 nm) composition of three hyperspectral lines at the bottom of Kongsvegen glacier

Coastline at Agardhbukta

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SIOS's Airborne Remote Sensing Campaigns

#	Project name/brief description	RiS ID	Location in Svalbard
1	Mapping surface properties on Lomonosovfonna (SurfPro)	3395; 3231	Lomonosovfonna
2	Kongsvegen surge: Digital Elevation Model 2020 (KING_SURGE_DEM2020)	11431	Kongsvegen
3	Airborne Remote Sensing in South of Spitsbergen (current evolution of polar environment) (AirborneSOS)	10511, 11411, 10218, 6823, 11500	Southwestern Spitsbergen
4	Hindcasting and projections of hydro-climatic conditions of Southern Spitsbergen (HyMote)	11198	Southern Spitsbergen
5	The Vanishing White (VANWHITE) - Airborne Remote Sensing campaign Svalbard 2020.	11411	Coraholmen and Flintholmen
6	Automatic system for monitoring vegetation and environmental seasonal changes on Svalbard using hyperspectral data (ASMoVEn).	11063	Adventdalen
7	Long term changes in vegetation and permafrost in Rosenbergdalen (Rosenbergdalen)	11497	Rosenbergdalen
8	Barnacle Goose Ecology: interactions with a changing environment (GOOSE)	6359	Ny-Ålesund and surroundings
9	De-icing of Arctic Coasts: Critical or new opportunities for marine biodiversity and Ecosystem Services?	ACCESS	Adventdalen and Agardhfjorden
10	Icebergs study by Centre for Integrated Remote sensing and Forecasting for Arctic Operations (CIRFA)	10373	Icebergs around Nordaustlandet

Special session in SIOS Online Conference

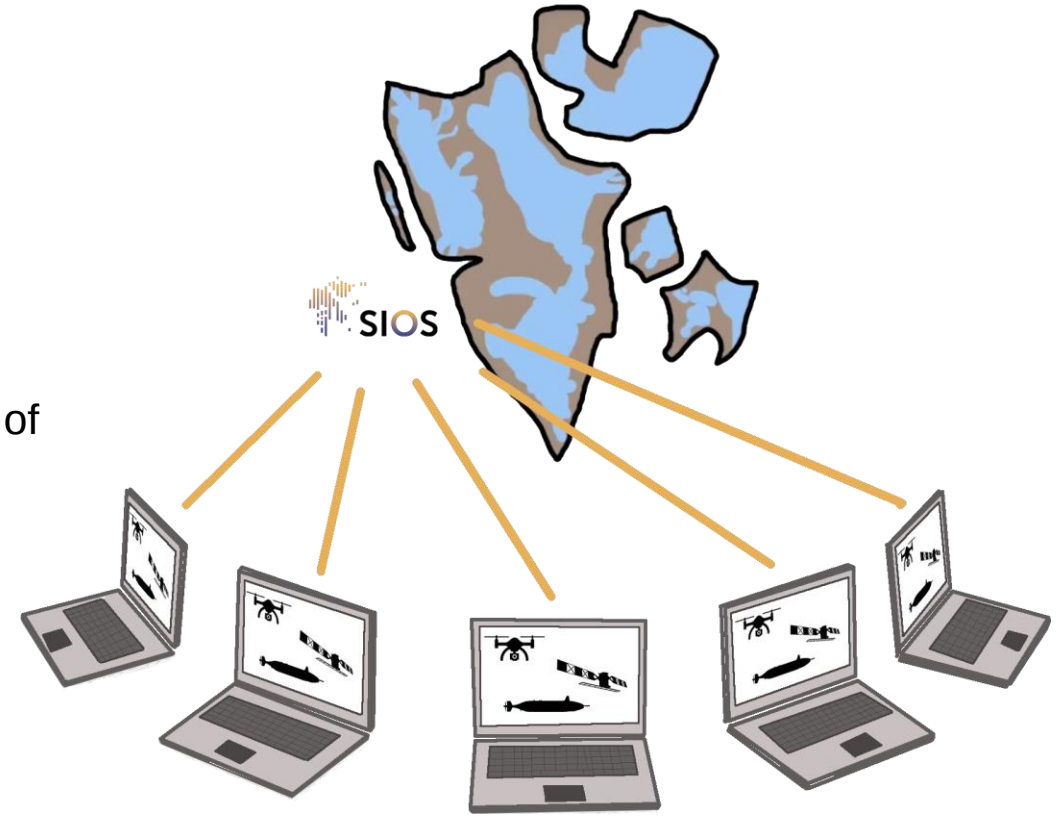
Earth Observation, Remote Sensing and Geoinformation applications in Svalbard

When?

08-10 June 2021

Why?

- to review the state-of-the-art EO/RS/GI applications in Svalbard and;
- to promote the work of PhD students, postdocs, researchers, senior scientists, and academics who are actively contributing to the science of Svalbard.
- to provide social experience to the Svalbard scientific community



Awards for Early Career Researchers:

Top 5 papers presented by ECRs (Masters, PhD, postdocs, within 7 years after PhD)

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More information: https://sios-svalbard.org/RS_OnlineConference2021

www.sios-svalbard.org

Hyperspectral Remote Sensing Training course 2021

SIOS Training course on Hyperspectral Remote Sensing, 06-10 September 2021

Stay tuned for more details!

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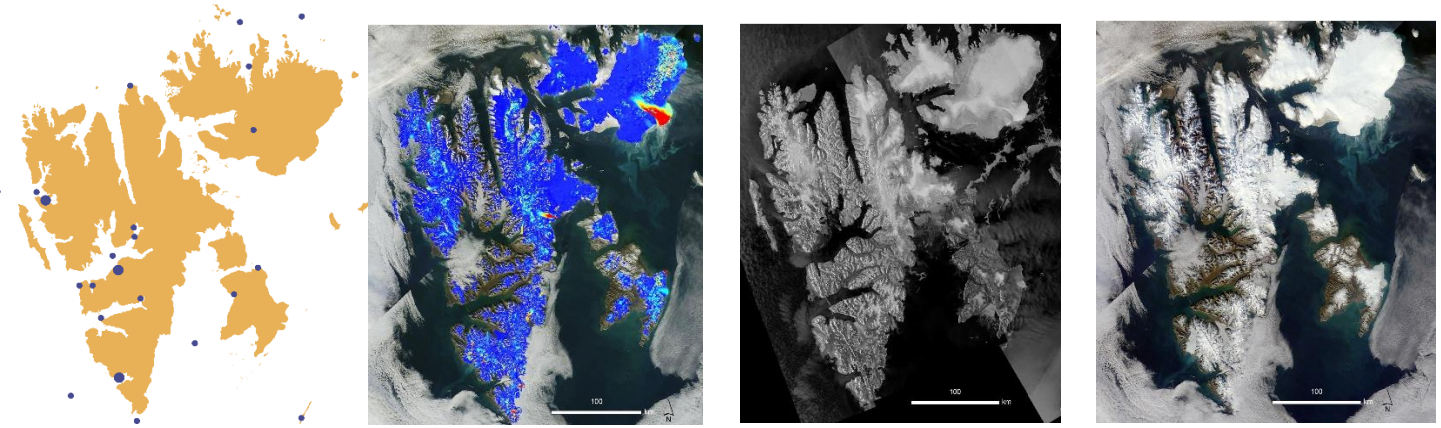
SIOS's Special Issue

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



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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).

SI Website: www.mdpi.com/si/42749 **Contact: shridhar.jawak@sios-svalbard.org** **Timeline: 01 March 2020 - 31 December 2021**

An international partnership of researchers studying the environment and climate in and around Svalbard to

- Develop an efficient observing system
- Share technology, experience and data
- Close knowledge gaps
- Decrease the environmental footprint of science

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