

Co-Founder mit elektrotechnischem Hintergrund gesucht

Der **SnowImager** ist ein gemeinsam von SLF und Davos Instruments entwickeltes Feldmessgerät, das mittels Nahinfrarot-Reflexion physikalische Schneeparameter erfasst. NiviLux macht den SnowImager global verfügbar und entwickelt ihn weiter.

Wir sind ein junges Team und bauen gemeinsam mit erfahrenen Partnern von Davos Instruments AG die Firma **NiviLux GmbH** auf.

Wir suchen eine Person mit **elektrotechnischem Hintergrund**, die die Hardware des SnowImager voranbringt und sich unternehmerisch beteiligt.

Dein Profil:

- Fundierte Kenntnisse und praktische Erfahrung in Elektrotechnik oder Mechatronik
- Programmierkenntnisse (Python) zur Weiterentwicklung der SnowImager-Software
- Du bist begeisterungsfähig und gewillt, dich in ein innovatives Projekt einzubringen

Entwicklung und Tests finden in **Davos** statt. Freude an Forschung, Schnee und Feldarbeit sowie Nähe zu Davos sind wichtig. Unsere Arbeit ist sehr dynamisch und erfordert **Flexibilität**.

Mehr Informationen findest du auf nivilux.ch.

Interesse? Wir freuen uns, dich kennen zu lernen. Schreib uns kurz an info@nivilux.ch oder melde dich telefonisch bei Tobi unter: 079 461 97 68.

Tobi & Adi

SnowImager

The *SnowImager* is a rugged field measurement instrument that uses near-infrared (NIR) imaging to determine physical snow parameters. It enables fast, accurate, and standardized retrieval of two-dimensional specific surface area (SSA) images and a vertically resolved density profile with millimetre-scale resolution.



Image 1: SnowImager in operation



Image 2: SnowImager side view



Image 3: SnowImager in operation

How it works – Data Acquisition

The SnowImager uses near-infrared illumination and cameras inside a light-tight housing to capture the near-infrared reflectance of a snow profile by holding the device directly against it. Two images of the same snow profile are recorded: first an open image, then a second image with a cover plate that places multiple vertical slits of different widths in front of the wall. The device stores the images and metadata for post-processing.

Foldable unit (Image 2):

Unfolded: 440 × 500 × 330 mm;
Folded: 440 × 500 × 110 mm;
Weight: ~6.7 kg.

Non-foldable unit (Images 1 + 3):

440 × 470 × 330 mm;
Weight ~5.0 kg.

Key Features

- Standardized 2-D SSA maps
- Standardized vertical density profiles
- Millimetre-scale resolution
- Clear layer boundaries
- Detection of thin ice crusts
- Field-tested in extreme conditions
- Fast setup and simple operation
- SnowImagerPro software for post-processing

Components



- 1) NIR Illumination
- 2) Upper Camera
- 3) Lower Camera
- 4) Reflectance Targets
- 5) Target Folding Handle
- 6) Unfolding Handle

Developed and supported by:

DAVOS
INSTRUMENTS AG



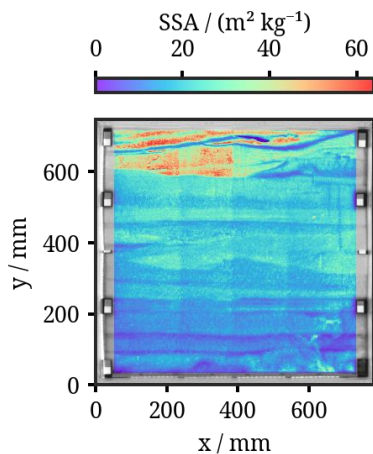
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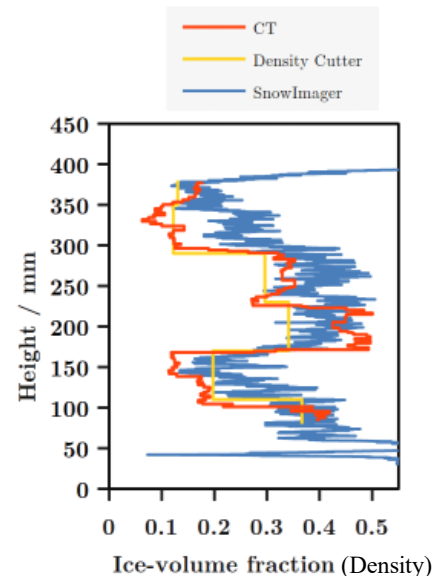
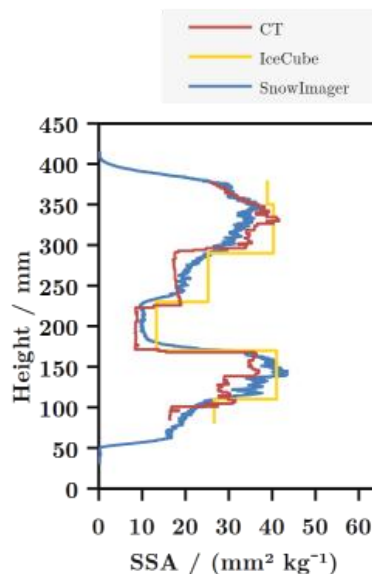
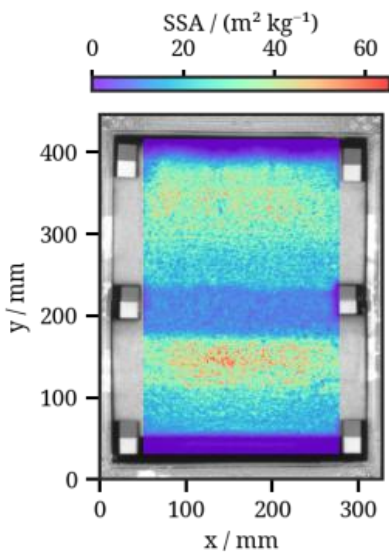
How it works – Data Processing

With SnowImagerPro, the open near-infrared reflectance images are converted into a two-dimensional SSA image and a vertical SSA profile by horizontally averaging at each depth. The slit image is then compared to the open image, using the known SSA to determine snow density. For high-density snow, light penetrates only shallowly, so lateral spreading is limited and the reflectance within the slits remains almost the same as in the open image. For lower-density snow, the penetration depth increases, light spreads laterally, and the reflectance within the slits decreases. From these slit-dependent reflectance patterns and the SSA information, snow density is obtained as a continuous vertical profile representing variations in the ice volume fraction with depth.

Data Products



- High-resolution SSA imaging reveals detailed snow stratigraphy
- Thin ice crusts and subtle layer transitions are clearly resolved
- Vertically averaged SSA and density profiles
- Ice volume fraction and density are directly proportional and both can be derived with SnowImagerPro
- Good agreement between SnowImager, μCT , and IceCube / Density Cutter reference measurements
- The standardized workflow ensures reproducible and comparable measurements across different field sites



For purchase options, field deployments, or collaborative projects, please contact: info@nivilux.ch

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