Report on Norwegian Cal/Val Activities

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SIOS – Svalbard Integrated Arctic Earth Observing System

SIOS will improve the integration of remotely sensed data from different platforms into Svalbard research

The SIOS Remote Sensing service include:

- Data Access
- Specific datasets
- Dedicated processing
- Visualisation
- Support to Cal/Val activities
- Education/outreach

Timeline:

- Preparatory phase: 2010 – 2014
- Implementation phase: 2015 – 2017
- Upgrade phase: 2018 – 2019
- Operational phase: 2020 →
The CEOS Cal/Val Portal runs harvesting jobs on EVDC on a daily basis, controlled by a cron job. A dedicated software is being employed.

**Status:**

Working in close cooperation with the CINDI-2 campaign consortium during the campaign phase Aug-Sep. 2016.

Implemented as a backup/mirror site of the RD (Rapid Delivery) data in NDACC (Network for the Detection of Atmospheric Composition Change)

Implemented to be primary source of data to the ESA S5P Mission Performance Centre.

Group on Calibration and Validation
- Providing access to daily updated ECMWF analyses and forecasts on regular and campaign basis. New tools in Python are under development.
Discovering snow surface hoar from satellite, validation by crowdsourcing

Rune Solberg
Snow surface hoar

- Typical weak snow layer could be formed from buried surface hoar
- Mapping of the extent of surface hoar could be used to warn about avalanche danger
Snow surface temperature, grain size and wetness

Surface Temperature of Snow
STS

Snow Grain Size
SGS

Snow Surface Wetness
SSW

Working Group on Calibration and Validation
Crowdsourcing data Åmot region, 12-14 January 2010
Satellite based snow parameters Åmot region, 12-14 January 2010: Osensjøen (ice and snow-covered lake)

Snow grain size (SGS)

Temperature snow surface (STS)
RegObs in situ observations

- Database and web portal for natural emergency-related observations hosted by NVE
- Crowdsourcing observations include categories for surface observations of wet snow and surface hoar
- NVE screened October 2011 – July 2014 for observations of surface hoar (167 in total)
- NR selected a subset of 22 observations where photos were included and where an event was observed at least at two locations independently giving information on spatial extent
Satellite based snow surface hoar product for avalanche mapping
(Norwegian Computing Centre)
National small satellites in Norway

- NorSat 1 (2016/2017)
  - AIS NG
  - Science
- NorSat 2 (2016/2017)
  - AIS NG
  - VDES
- NorSat 3
  - AIS NG
  - TBD