

# ANavS Snow Monitoring Station

## Product Sheet

### Overview

The ANavS Snow Monitoring Station provides accurate snowpack information based on the Global Navigation Satellite System (GNSS). The station measures Snow Water Equivalent (SWE), snow heights, and liquid water content (LWC).

The snowpack properties are transferred via satellite communications or cellular networks, and access to this information is available via email or web service. The stations are operated autonomously with an integrated solar-power supply and wireless communication and can be set up permanently or temporarily.

### Application

- Meteorological information systems
- Optimized operation of hydro-power plants enabled by accurate predictions
- Monitoring of roof load caused by snow
- Scientific research on snowpack modelling and avalanches



### Maintenance

- No maintenance during winter operation
- Clearance of measurement spot, visual and manual inspection recommended before winter season
- Battery replacement every 3-5 years

### Installation

- Compact Design of all components
- Easy transportation and installation
- Station components can be easily carried by two persons
- Set up time within 2 hours
- Standalone installation or integration in existing mast infrastructure
- No special tools needed



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## KEY FEATURES

- Accurate Determination of SWE, snow height, and LWC
- Cost Efficient
- Save time by avoid manual calculations
- Weather-independent operations
- Outperformance of snow scales, GNSS measurements are independent of bridging effects
- Solar power supply for remote installations
- Efficient power management with low power sleep mode and configurable schedule
- Iridium or cellular wireless communications for remote installations
- Processing of GNS raw measurements within snow monitoring stations
- Remote re-calibration of stations via satellite communication

## Technical Data of Standard Configurations

Power Supply	<ul style="list-style-type: none"> <li>• Internal 12V system with 3 x 20-Watt Solar Panel + 20 Ah Battery External 5 – 20 Volts</li> </ul>
Power Consumption	<ul style="list-style-type: none"> <li>• Peak: (during calculation &amp; communication) &lt; 5 Watt</li> <li>• Standby 0.01 Watt / Sleep 0.001 Watt</li> <li>• Daily consumption for typical measurement cycles (e.g., 1 X SWE per day): 0.25 Ah</li> </ul>
Temperature	<ul style="list-style-type: none"> <li>• -40° to + 40° Celsius</li> </ul>
Measurement Range	<ul style="list-style-type: none"> <li>• Up to 5.000 mm SWE (dry snow)</li> <li>• 0.0 – 10.0 Vol.% LWC</li> </ul>
Measurement Accuracy	<ul style="list-style-type: none"> <li>• SWE &lt; + - 10 mm (good conditions)</li> </ul>
Area of Measurement	<ul style="list-style-type: none"> <li>• Integrative spot: 0.5 – 5 m diameter (depending on snow depth)</li> </ul>
Measurement Cycles	<ul style="list-style-type: none"> <li>• 1 - 4 per day for SWE (typically: 1)</li> <li>• 1 - 4 per day for LWC (typically: 4)</li> </ul>
Data Transmission	<ul style="list-style-type: none"> <li>• Embedded Iridium satellite communication module or GSME/ LTE module, allows wireless transmission of snow parameters from station to snow monitoring facilities</li> <li>• Data accessed via web-service</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>• Mast: 3 m x 0.05 m (typically), can be extended</li> <li>• Core Electronics Unit: 225 x 165 x 55 mm</li> <li>• Box with Power Supply and Electronics: 375 x 270 x 125 mm</li> <li>• Antennas: 38 x 38 x 12 mm</li> <li>• Ground Plate: 160 x 160 x 5 mm</li> </ul>
Packaging	<ul style="list-style-type: none"> <li>• 1200 x 400 x 400 mm (full system)</li> <li>• 25 kg (without battery)</li> </ul>

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## Example Data From 2022

