

Site Requirement for SWE stations

Requirements of the site.

Neutrons can travel for tens of meters while being bounced by molecules in air and soil, before reaching the device and being detected. They therefore carry information from a wide area around the detector. It is therefore recommended to avoid the presence of disturbing elements within at least 20 m from the installation. Elements that could affect the signal in undesired ways are anything that would modify the snow amount in a way unrelated to its natural precipitation.

These includes:

1. elements causing a significant heating and melting of the snow around them, like buildings or other infrastructures but also woods
2. elements where the snow would be moved, removed or artificially added, like roads and ski tracks
3. elements where the snow cannot cumulate, like very steep slopes or ravines
4. elements with their own significant water dynamics, like lakes and rivers

Requirements for installation.

The SWE system includes a detector to be installed on ground, to perform the measurement, and another one to be mounted on a mast, providing the reference signal. The box on the mast will also contain the electronic datalogger providing the management of power supply, data and communication. Datasheet for installation:

Probe on the mast at almost 4m height (it's important that it's high enough to guarantee it will not be submerged by snow during the season)

Probe buried on the soil with just the cover protruding of 1 – 2 cm out of the ground in order to avoid the formation of a pool of water or other material over the device

Distance from the ground probe to the mast between 5 and 10 meters.

Connection cable from mast and ground able to operate a -40°.

Corrugated pipe to protect connection cable from snowpack weight and movements. Operating temperature -40°.

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