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Water resources case

The measurement of water content in snow **for efficient use of water resources**.

partner with iren

What?

The Snow Water Equivalent (SWE) is used to measure the amount of liquid water contained in the snowpack.

Finapp installed a probe at Lake Agnel and Lake Teleccio, in the upper Orco Valley (Piedmont - Italy), reservoirs managed by the IREN Group for the production of hydroelectric energy.

Why?

The purpose of this installation is to provide SWE data that will enable the IREN group to plan hydropower production in more efficient way.

How?

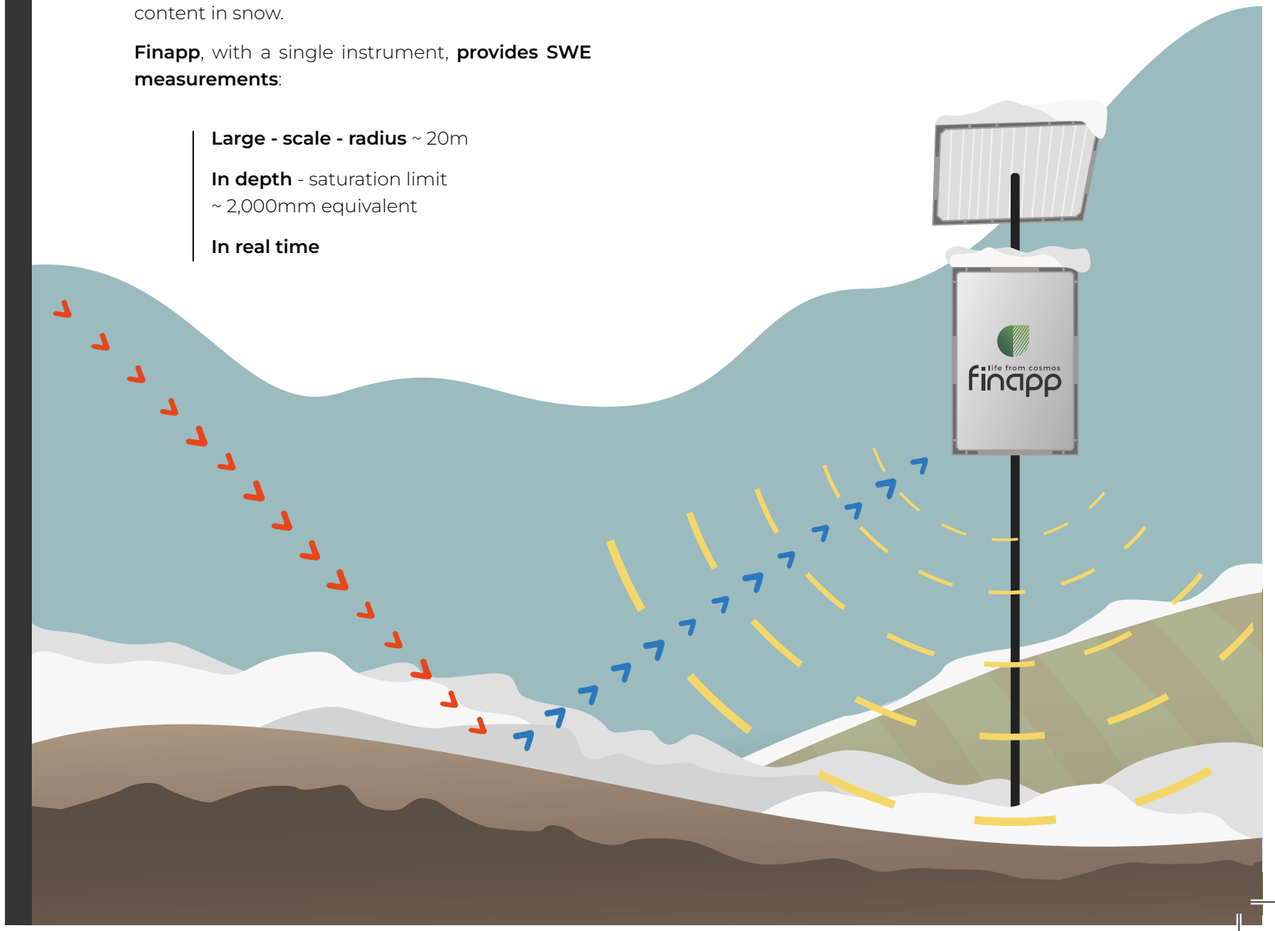
The CRNS method relates the neutron count of cosmic rays hitting the ground, with the water content in snow.

Finapp, with a single instrument, **provides SWE measurements**:

Large - scale - radius ~ 20m

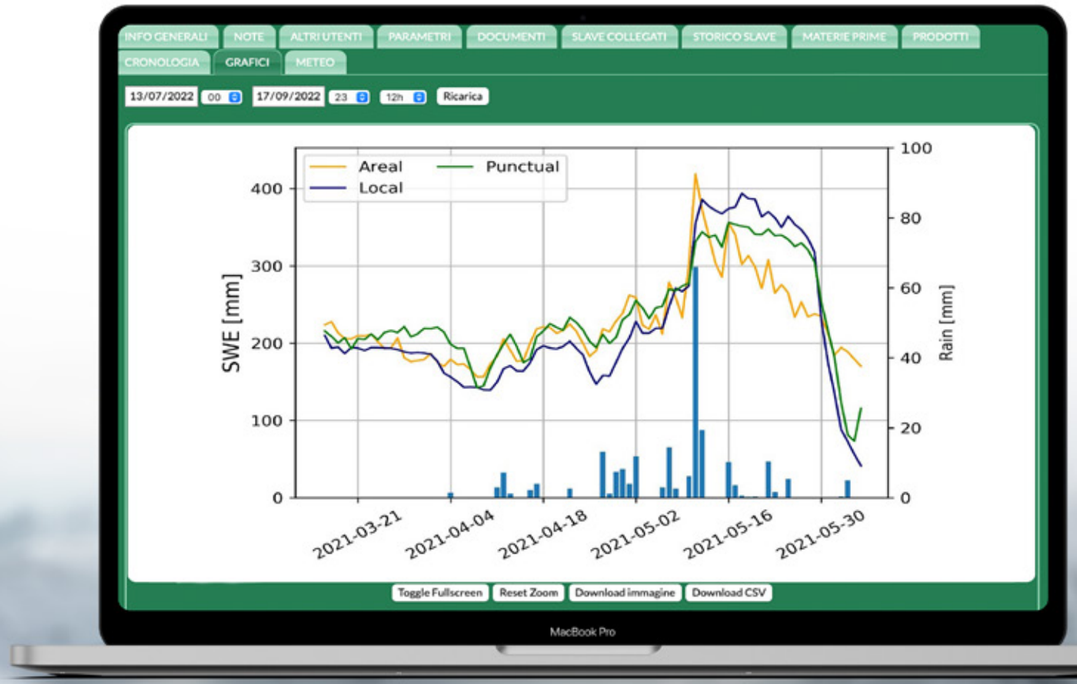
In depth - saturation limit
~ 2,000mm equivalent

In real time



Obtained informations

Finapp overcomes the current limitations in measuring SWE.
Snow pillows provide point scale measurements, which are unrepresentative on a large scale and inaccurate due to bridging phenomena, while manual coring is only possible in easily accessible and are in any case discontinuous in time.



Benefits

The data obtained are fundamental for the preventive regulation of reservoirs and to allow the exploitation of the water resource without the risk of it falling below the minimum level, regulating flow rates even in conditions of extreme drought.

> “...with this technology we take an X-ray of the snow .... knowing the quantity and quality of the snow is useful to know in advance how much water we will have in the reservoirs to use for the production of electricity”
>
> Enrico Pochettino,
> Innovation Director Iren.

Finapp's neutron measurement (CRNS) provides essential advantages for this extreme application:

Off the grid ready - power supply is autonomous

Plug & Play - no calibration required

Easy to install - lightweight (5 kg) and compact (40 cm) probe

Easy to maintain - requires no heating, no fluids, no consumables, no mechanical or moving parts.

Validated over a large area:
it exceeds the limits of punctual snow measurements