

Snow Moisture & Density Measurement System

Introduction

Snow Moisture & Density Measurement System has been designed & developed by CSIR-CSIO for measurement of wetness, moisture and density profiling of snowpack. It is also used to study snowpack properties for snow avalanche forecasting and flood prediction. A fork shaped microwave resonator of stainless-steel material is used as sensor. Resonant frequency & 3dB bandwidth of sensor in snow are measured. These electrical parameters are used to determine the complex dielectric constant of snow. Furthermore, the density (0 – 0.6 g/ccm) & liquid water content of snow (0 – 15 % (Vol)) are calculated using empirical equations. All the computations are performed by microcontroller based electronic unit.



Features & Specifications

- The computed liquid water content and density of snow are displayed on LCD and are logged in NVRAM.
- Stored data can be transferred to PC using RS-232C interface.
- Its measurements are fast and reliable as there is no snow sampling involved in measurement process.
- Sensor prongs are thin enough so that snow does not get compressed.

Applications

- It is used for wetness/moisture and density profiling of snowpack.
- It is also used to study snowpack properties for snow avalanche forecasting and flood prediction.

Status

In-house development under DRDO- SASE sponsored project, deployed in the field.

