

Intercomparison of snowfall measurements using disdrometers in two mountainous environments: Weissfluhjoch (Switzerland) and Formigal -Sarrios (Spain)  
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One of the objectives of the WMO/CIMO Solid Precipitation Intercomparison Experiment (SPICE) is to assess the performance of emerging technologies such as disdrometers for the measurement of solid precipitation. Numerous studies have assessed the performance of disdrometers for liquid precipitation, but the experience of using such instruments for solid precipitation is still limited. Among others, the Spanish site at Formigal and the Swiss site at Weissfluhjoch were built with very similar design (especially the reference measurement setting in a Double Fence Intercomparison Reference (DFIR)). Moreover, the environment of both sites (siting) is similar. This work evaluates the potential use of disdrometers for solid precipitation measurement in a mountainous environment. At each site two LPM Thies disdrometers, one shielded in a DFIR and the other one outside (with or without a Thies wind shield), are intercompared under different weather conditions (wind speed and direction, temperature and snowfall intensity) against the SPICE reference measurement using a weighing gauge (OTT Pluvio2 in a DFIR). This study will present preliminary results from both sites and will give first conclusion on the impact of various external parameters (such as wind and temperature) on the disdrometer snow accumulation measurement in and outside the DFIR, and with and without a Thies shield. Moreover, new lines of research are recommended in order to better understand the instrument and the raw data output.