

Representativeness of Snow Depth Sampling in a Pyrenees Mountain Valley, Spain

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Abstract. Snow depth is the most easily comprehensible and measurable point snowpack property, yet illustrates the greatest spatial variability. Intensive snow depth sampling was conducted across 15 plots in the valley of the Rio Esera of the central Spanish Pyrenees Mountains. Individual plots were situated in an open area or in a forest opening among homogeneous terrain, representing either a flat or continuously sloped area that continued beyond the plot. Each 10 by 10 metre plot was measured at a 1-m grid and this set of 121 data points was taken to represent ground truth. Various sub-sets of all points in different configurations were compared to the ground truth. No single sampling configuration was able to represent the overall average snow depth for all 15 plots. For configurations with few sampling points, outliers can dominate. A strategy for outlier detection and removal is suggested.