

Into The Belly of The Beast (Snow Depth Across Starting Zones Measured With Frequency Modulated Continuous Wave Radar)

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Ultra broad band microwave frequency modulated continuous wave radar (FMCW) was used to estimate snow depth across the starting zones of avalanche paths in Senator Beck basin in the San Juan Mountains of southwestern Colorado, USA. By measuring the travel time of a microwave signal from 2 to 10 GHz we estimated snow depth 20 times per second. The portable device is suspended on a lightweight pole between two skiers and can be taken just about anywhere you can ski. We measured snow depths on various aspects from 3505 m to 4118 m. The data show the snow depth has a high spatial variability across the starting zones. We show that snow depth across a single starting zone ranges from zero to over five meters.