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Comparing snow process models across scales

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The Earth System Model-Snow Model Intercomparison Project (ESM-SnowMIP) is a WCRP/CliC initiative aimed at assessing the current strengths and weaknesses of snow models in coupled Earth System Models, in stand-alone simulations driven with global gridded meteorological data, and in stand-alone simulations driven with local meteorological data from well-instrumented reference sites. Available data allow limited evaluation of gridded simulations over large areas and detailed evaluation of local simulations over small areas. To compare simulations on a 0.5 degree grid and at points in mountainous regions, it is clear that some bias correction or downscaling of the gridded driving data is required. In this presentation, trends in modelled annual snow accumulation and duration over a 30-year period (1980-2010) with bias-corrected global driving data and shorter periods with local driving data will be compared and related to model structure.