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## Point simulation of snow cover in Peñalara Massif (Sierra de Guadarrama, Central Spain)

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The Factorial Snowpack Model (FSM, Essery, 2015) has been applied for the winters ranging from 2008 to 2021 to predict snow height in a location at 1800 m of altitude in Peñalara Massif (Sierra de Guadarrama, Central Spain). Data from an automatic meteorological station is used as input after a thorough validation and completion using different methods. Several configurations of the model have been tested and sensitivity runs regarding long-wave and short-wave radiative flux, air temperature, liquid and solid precipitation rate, surface pressure, relative humidity and wind velocity, have been performed. Comparison of predictions versus automatic and manual in-situ measurements show a coherent evolution of the snow height. A satisfactory degree of precision regarding the beginning and end of the snow cover has been found but also a high sensitivity to radiative flux, mainly long-wave, air temperature and total solid precipitation rates that need further research. Future work will be carried out testing other snowpack models, developing new parametrizations and performing predictions for the whole basin considering side effects and other factors.