



Solar radiation calculation in a mountain region and its relation with other environmental parameters

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Radiation modelling is a key factor when simulating the environmental conditions of any mountain region. Orographic complexity causes high variations of slope, aspect along with shade and reflections that make more complex calculation of the energy balance in mountain regions. Differences in this radiation balance, along with other factors, have influence in other meteorological parameters and contributes to the formation of microclimates and topoclimates. A first approach for radiation modelling is presented for a mountain region in central Spain using a 25 m DTM and radiation models developed by other authors. Sensitivity tests using different resolutions and domains are performed along with validation using measurements. This model will be part of an integrated environmental model for a mountain region where a dense monitoring station is already in operation. The aim of this integrated system will be to perform high spatial and temporal resolution diagnostic fields of the main meteorological and environmental variables in order to feed the numerous scientific programs that are currently under development in this area.