



A solar radiation atlas for the Trentino region in the Alps: preliminary results

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The accurate assessment of the solar radiation available at the Earth's surface is important for a wide range of energy-related applications, as well as in the fields of climatology, ecology, agriculture, forestry, etc. The climatological characterization of solar irradiation is particularly challenging in complex terrain areas, where orographic factors increase its spatial and temporal variability.

In this contribution preliminary results from a solar radiation atlas produced for a small mountainous region in the Italian Alps, the Trentino region, are presented. Trentino benefits from a very dense network of meteorological stations measuring global solar radiation. Indeed, a decadal collection of ground-based observations from the above network forms the dataset for the atlas. After careful validation of the dataset and calculation of the climatological values for each station, data from selected stations are adopted as a basis for evaluating irradiation maps over the whole Trentino territory by means of geostatistical interpolation techniques and of GIS-based clear-sky models. The results obtained will be compared with existing solar resource datasets for the region of interest, including satellite-based radiation data.