

Does snow cover affect PV Monitoring data?

To characterize the impact of different types of snow covers on the measured variables of a PV system, we have analyzed data from two PV systems in Norway with regular snow cover in the winter. The identified signatures in PV monitoring data caused by snow, are assessed by using simulations of shaded modules and transmittance measurements.

Does snow cover affect PV energy generation?

In this paper we describe the effect of different types of snow cover on PV energy generation, and snow related signatures in PV monitoring data are identified. In addition to snow coverage and system configuration, transmittance and nonuniformity of the snow cover influence the total snow losses, increasing the complexity in snow loss modeling.

Do PV panels need a snow cover?

Datasheet performance of the panels is given under assumption of the 25°C STC temperature, so in practice a PV module might even perform better than advertised in the given light conditions in winter. However, there is clearly no net benefit of keeping a snow cover on the panels in order to cool them.

How to detect snow in PV Monitoring?

In PV monitoring, if at all considered, detection of snow is a more common approach than snow loss modeling. In the literature, snow detection methods based on dedicated or external sensors like weight sensors, web cameras and satellite data have been proposed (Aarseth et al., 2018, Andrews et al., 2013, Wirth et al., 2010).

Does a PV system promote or obstruct snow clearing?

This is important for the development of PV in cold climate areas that are prone to snow. We discuss how different system designs can promote or obstruct snow clearing, and we find that for the tested system the snow clearing rate is lower than for the systems the snow sliding/clearing coefficients in the Marion model is based on.

How do snow events affect PV models?

When using empirical or machine learning based methods for PV modeling, snow events in the training data will perturb the correlations between irradiance, temperature and production. These perturbations can increase the uncertainty of the models (Gaard et al., 2020).

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