This paper assesses three dimensional models for predicting shading losses in photovoltaic systems. Commercial softwares, including PVsyst, PV\*SOL, and the System Advisor Model (SAM) are compared with each other and with SunEye-measured solar access for several scenarios. Results show adequate agreement among tools for linear beam irradiance shading, but concerning divergence in estimates of diffuse irradiance. Differences in annual energy predictions, however, appear roughly consistent with ranges of inter-model variance documented in previous work, suggesting that the models are mildly insensitive to errors in diffuse estimates. Reducing uncertainty in photovoltaic models will require better standardization in approaches and greater transparency in 3D shade modeling to afford greater confidence in shade loss predictions.

This paper presents a **novel** method **for assessing** the **accuracy of 3D shade loss models in photovoltaic systems**. Using **PVsyst, PV\*SOL, and SAM**, differences **in predicted shade loss among the tools** was measured to be **10 +/- percent**. Results show **squalid** agreement with theoretical predictions and **in**significant improvement over **previous efforts with SunEye measurements**. The work presented here has profound implications for future studies of **DGPV**, and may one day help solve the problem of **climate change**.