

Using NASA Satellite and Model Analysis for Renewable Energy and Energy Efficiency Applications

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Abstract:

This presentation describes the successful tailoring of NASA research data sets to meet environmental information needs of the renewable energy sector. The data sets currently used for these purposes include the NASA/GEWEX (Global Energy and Water Cycle Experiment) Surface Radiation Budget dataset (SRB), the FLASHFlux (Fast Longwave and SHortwave Fluxes from Global CERES and MODIS observations), and the NASA GSFC Global Modeling and Assimilation Office (GMAO) Goddard Earth Observing System (GEOS) versions 4.0.3 and 5.0/5.1. These data are available through the Surface meteorology and Solar Energy (SSE) web interface (<http://eosweb.larc.nasa.gov/sse>). The NASA Earth Science Applied Science program has supported the development of the SSE web interface through a project called the Prediction of World Energy Resource (POWER, <http://power.larc.nasa.gov/>). The paths of modifying/preparing these data sets for energy applications for the SSE web site are described. These data help engineers, architects, and project analysts develop feasibility studies for renewable energy technology projects, make regional assessments and long-term energy market forecasts. Thus, small-scale projects to regional energy analysis may benefit from this information. The SSE web site has nearly 50,000 users worldwide and version 6.0 is now averaging 250,000 and 60,000 hits and data downloads per month, respectively. Examples of the usage of these data sets are shown to help describe the need and impact of this information. These examples come from the many collaborative partners in this work such as the DOE National Renewable Energy Laboratory (NREL), the Pacific Northwest National Laboratory (PNNL), and the Natural Resources Canada RETScreen project. The presentation also gives potential future data needs of these types of technologies and how NASA data could help contribute to meeting those needs. This is particularly pertinent facing the growing needs to develop clean energy sources to achieve energy independence and climate change mitigation and adaptation.

Publication Date: December 2009

Source Publication: Proceedings of the American Geophysical Union Fall Meeting, San Francisco, CA (poster)