

## Goal of the Workshop

This workshop is designed to teach how solar radiation data are used to assess the performance of solar energy systems.

Experts from around the country will demonstrate how they use solar radiation data. An Excel add-in that calculates incident solar energy on any fixed tilted surface will be provided and demonstrated. Software tools, such as PVWatts that estimates PV system performance, will be demonstrated.

The registration fee is \$125 if received by February 21.



Bonneville Power Administration



Eugene Water & Electric Board



National Energy Technology Laboratory



National Renewable Energy Laboratory



Northwest Power Planning Council



DOE Million Solar Roofs



Solar Energy Association of Oregon



Western SUN

Department of Physics  
1274 - University of Oregon  
Eugene, Oregon 97403 - 1274

University of Oregon Solar Radiation Monitoring Laboratory

University of Oregon  
Solar Radiation  
Monitoring Laboratory

Workshop on the  
Use of Solar Radiation Data

Use of Solar  
Radiation Data



March 21-22, 2002

Time: 8:30 am—4:45 pm

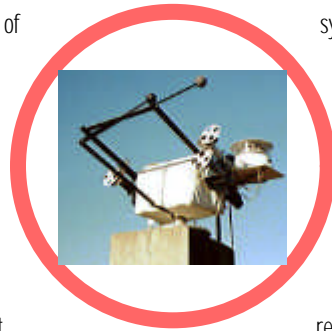
Erb Memorial Union

University of Oregon

Eugene, Oregon

## Workshop – Use of Solar Radiation Data – March 21-22, 2002 – Eugene, Oregon

Knowledge of the solar resource is as important to the proper implementation of solar energy systems as knowledge of stream flow data is important to the design and operation of a hydroelectric system.



Measuring the Solar Resource

The goal of this workshop is to provide a basic understanding of how solar radiation data are used to estimate the performance of solar energy systems. An Excel add-in will be provided and demonstrated that enables one to calculate solar radiation on tilted surfaces

at various orientations. Software tools that produce estimates of system performance, such as PWatts, will be demonstrated. Experts from around the country will share their insights into the use of solar radiation data.

The target audience is utility staff personnel who are interested in estimating the performance of solar energy systems, understanding the variability and reliability of the solar resource, and learning how the solar resource matches the utility load.

### Use of Solar Radiation Data

#### Thursday, March 21

8:30 – 9:00 am Registration at the EMU – Gumwood Room  
 9:00 – 9:15 am Introductions  
 9:15 – 9:45 am BPA's solar programs **Mike Weedall** – BPA  
 9:45 – 10:15 am Introduction to solar radiation data basics  
**Frank Vignola** – UO  
 10:15 – 10:25 am PV systems **Bob Maynard** – Energy Outfitters  
 10:25 – 10:45 am Break/refreshments – question period  
 10:45 – 11:15 am Orientation of solar collectors  
**Craig Christensen** – NREL  
 11:15 – 12:00 am Modeling solar radiation data from Satellite cloud cover data **Richard Perez** – SUNY  
 12:00 – 1:00 pm Lunch  
 1:00 – 1:30 pm Guided tour through UO solar data monitoring web site **Frank Vignola** – UO  
 1:30 – 2:00 pm Using an Excel add-in to calculate solar radiation on tilted surfaces **Peter Harlan** – UO  
 2:00 – 2:30 pm Using PWatt to estimate PV performance  
**Bill Marion** – NREL  
 2:30 – 3:00 pm Break  
 3:00 – 3:15 pm Building Energy Efficiency & Illuminance  
**Dale Northcutt** – UO  
 3:00 – 3:15 pm Solar Radiation and Glazing Optics  
**Chris Gueymard**  
 3:30 – 4:00 pm Renewable Energy Resource Atlas **Angela Shutak and Patrick Moore** – NW SEED

4:00 – 4:30 pm Using Campbell data loggers to measure data  
**Rich Kessler** – UO  
 4:30 – 5:00 pm Tour of Solar Radiation Monitoring Lab  
**Friday, March 22**  
 8:30 – 9:00 am Coffee & donuts  
 9:00 – 9:45 am Load matching with satellite and solar radiation data  
**Richard Perez** – SUNY Albany  
 9:45 – 10:15 am Visualizing solar radiation data  
**Craig Christiansen** – NREL  
 10:15 – 10:45 am Break  
 10:45 – 11:15 am Creating and using sun path charts **Frank Vignola** – UO  
 11:15 – 11:45 am Updating the NSRDB and other NREL activities  
**Dave Renné** – NREL  
 11:45 – 12:00 am Million Solar Roof Activities **Heather Mulligan** – DOE  
 12:00 – 1:00 pm Lunch  
 1:00 – 1:30 pm EWEB's bright way to heat water program  
**Steve Still** – EWEB  
 1:30 – 2:00 pm Solar PVs for schools panel **Joe Savage** – EPUD,  
**Don Spiek** – EWEB; **Tony Koch** – BPA  
 2:00 – 2:30 pm Solar Data Quality Assessment and Custom Data Processing and Display with DOMS **Jim Augustyn**  
 2:30 – 3:00 pm Break  
 3:00 – 3:30 pm Solar activities under Bonneville's Conservation and Renewables Discount Program **Jeff King** – NPPC  
 3:30 – 4:00 pm Performance based solar tax credits  
**Christopher Dymond** – OOE  
 4:00 – 4:15 pm Question and answer period.

## Registration Form

### Use of Solar Radiation Data Workshop

- \$125 by February 21  
 \$150 after February 21  
 Student Reg. Fee \$50

Company \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

Email Address \_\_\_\_\_

Method of Payment  Check Enclosed  Bill Me  
 Make check payable to the University of Oregon

**Contact person: Frank Vignola (541) 346-4745**  
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Further information about the workshop and directions to the University of Oregon campus in Eugene can be found on our web site. For information about Lane County check <http://VisitLaneCounty.org> or call 1-800 547-5445