

## International Energy Agency (IEA), Solar Heating and Cooling Program (SHC), Task 36 on Solar Resource Knowledge Management, User survey is completed

### Description

A survey on users' requirements for solar energy resource data was hosted by EU JRC and advertised on the PVGIS (<http://re.jrc.cec.eu.int/pvgis>), SoDa (<http://www.soda-is.com>), Satel-Light (<http://www.satel-light.com>), Meteotest (<http://www.meteotest.ch>) and GEOSS Energy Community of Practise (<http://www.geoss-ecp.org/>) web sites during June 2006 to February 2007.

Questions were organised in 14 different groups related to affiliation, type of profession, technology, purpose of data use, type of data used, time resolution, timeliness of delivery, synthetic data, site or gridded data, spatial resolution, post processing, quality of existing data, forecast needs and climate change issues.

Approx. 120 answers were collected and 96 valid answers were analysed. They originate from Albania, Belgium, Canada, Croatia, Czech Republik, Djibouti, France, Gambia, Germany, Greece, Iran, Italy, Japan, Luxembourg, Mexico, Morocco, Netherlands, Pakistan, Panama, Portugal, Spain, Switzerland, Thailand, Tunisia, United Kingdom, and the United States with approx. 80% originating from European countries. Answers came from manufacturers, engineering companies, utilities, public research, public and governmental agencies and their technology background is photovoltaics, concentrating photovoltaics, concentrating solar power, solar heating and cooling, chemical systems, water desalination and architecture. Answers could be given from 0 (low) to 5 (high importance).

#### *Purpose of solar radiation data use*

Purpose	Average points	Answer >3
site selection:	2.31	45
feasibility study:	2.97	60
cost assessment:	2.42	46
investment decision:	2.47	52
guarantee/certification/insurance:	0.96	17
system design:	<b>3.1</b>	<b>65</b>
deployment:	0.94	19
plant operation:	1.27	24
grid operation:	0.78	13
plant maintenance:	0.71	11
plant decommissioning:	0.26	1
monitoring:	1.4	24
fault detection:	0.73	12
research/education/promotion:	2.06	39
policy-making:	0.56	8
energy trading:	0.79	13

#### *Geophysical paramters needed*

Type of data	Average points	Answer >3
global horizontal radiation:	3.32	69
direct radiation:	<b>3.66</b>	<b>75</b>
diffuse radiation:	2.83	52
radiation on tilted and tracking surfaces:	2.83	59
daylight (illuminance, luminance):	1.91	35
spectral distribution of irradiance:	1.6	27
ambient temperature:	3.03	59
snow cover:	1.02	16
wind speed / wind direction:	2.33	46
relative humidity / dew point:	1.49	27
atmospheric pressure:	1.17	20

Temporal resolution	Average points	Answer >3
annual averages:	2.69	53
monthly averages:	<b>3.19</b>	<b>67</b>
weekly averages:	1.61	31
daily averages:	2.06	38
hourly averages:	2.39	48
15 minute averages:	1.22	21
5 minute averages:	0.84	14
instantaneous values:	0.77	12

*Temporal resolution needed for solar radiation information*

Timeliness	Average points	Answer >3
very recent (e.g. last hours/days):	1.79	29
recent (e.g. last month / last year):	<b>3.06</b>	<b>64</b>
from older archives:	2.83	60

*Timeliness of data delivery requested*

Type of spatial data	Average points	Answer >3
A single site:	1.65	33
Several sites, but less than 10:	1.95	39
More than 10 sites:	1.6	28
A grid (map) of point values covering a region:	2.16	43
A grid (map) of average values covering a region:	<b>2.62</b>	<b>54</b>

*Spatial resolution and type of data requested for solar radiation information*

Spatial resolution	Average points	Answer >3
Values or time-series averaged over regions:	1.21	19
(approx. 300 km x 300 km, global coverage):	1.03	12
(approx. 100 km x 100 km, global/regional cov.):	1.95	35
(approx. 10 km x 10 km):	<b>2.41</b>	<b>48</b>
5 km x 5 km:	1.97	44
1 km x 1 km:	2.12	42

Are radiation forecasts important to you?	Average points	Answer >3
Nowcasting (up to 6 hours):	0.79	14
Forecast up to 24 hours:	1.1	23
Forecast up to 3 days:	0.8	12
Forecast up to 1 week:	0.87	8
Forecast up to 1 month:	1.12	21
Seasonal forecast (2-6 months):	<b>1.51</b>	<b>25</b>

*Need for forecasting of solar irradiance*

## Relevance to GEO

This activity contributes to EN-07-01 (Management of Energy Sources) as it supports the development of EO services for resource assessment, monitoring and forecast of the solar energy resource.

## Participants

SUNY, USA; Ecole des Mines de Paris, F; EC, JRC Ispra; Suntechnics, D; NREL, USA; ENTPE, F; DLR, D; CIEMAT, E; Meteotest, CH; Univ. Oldenburg, D; Univ. Geneva, CH; Univ. Appl. Sciences Magdeburg, D. Most consortium members are contributing to GEOSS also via the Energy Community of Practise.

## Current Status and Next Steps

The questionnaire is closed, a more detailed analysis is ongoing. Activities will be continued based on stakeholder interviews planned in the EU coordination action MESOR (Management and Exploitation of Solar Resource Knowledge). An extension to more non-European stakeholders is needed.