

Solar Data for Developing Countries

Description

Objectives: providing an early demonstration of the value of globally coordinated Earth observations, supporting GEOSS outcomes in the energy area, supporting the development of Earth observation products and services, encouraging the use of Earth observations for informed energy-policy planning in developing and developed countries

Methods, data, results: Building upon the HelioClim (Ecole des Mines de Paris) and SSE (NASA) databases to offer a compound global service providing access to solar radiation information worldwide. This will be included in a future Open Source Software for creation of Energy Services.

Solar Energy for the Developing Countries

Logos: NASA, MINES PARIS ParisTech, GEO Group on Earth Observations

```
G0 = I0 c [ sin γs exp(-0.864 k0 m0) + T02(T0) F0(γs, T0) ]  
procedure clearsky(G0, I0, gamma, TL, day);  
{  
  double *G0, *I0, *gamma, *TL;  
  double B, D, epsilon;  
  int *day, error;  
  call diffuse(gamma, TL, &D);  
  call direct(gamma, TL, &B);  
  call exponential(day, &epsilon);  
  G0 = I0 * epsilon * (B + D);  
  return(error);  
}
```

Web Application Interface: Includes a world map, input fields for 'Latitude' and 'Longitude', and buttons for 'Calculate Solar Data' and 'Download Data'. A graph on the right shows solar radiation levels over a period of time.

Photographs: Show solar panel installations in a rural, arid environment.

Added Value

GEO facilitates international collaboration, GEO proposes interoperability and architecture standards, GEO allows worldwide coverage, GEO is a simulator to enhance our services. This achievement is a GEOSS proof of concept using high scientific research, based on GEOSS concepts, allowing the Energy Community to built capacities and services on it.

Relevance to GEO

- First relevance for the Energy SBA. Transverse areas: Climate, Oceans, Agriculture. Provide tools for development of Solar energy
- Contribution to the 10-Year Plan: facilitate the exchange and use of existing data/products (2 year targets) for efficient energy management (6 Year Targets), facilitate capacity building in order to bring energy management at the local level to equivalent high (national and regional) levels of efficiency and facilitate the development of renewable energy systems taking advantage of products available through GEOSS (10 Year Targets)
- Energy SBA, Task EN-07-03, support to Task EN-07-01,

Participants

- Ecole des Mines de Paris, NASA, Energy CoP

Current Status and Next Steps

- The long-term continuity of this compound service will be ensured by the strategic activities of Ecole des Mines through the SoDa-Information System.
- Next steps are the extension of this global service to other databases