


SOLAR CALCULATOR ANDRIOD APP

A step to preserve Earth by  **इसरो isro**

What is Solar Calculator ?



- Space Applications Centre, ISRO has developed a Android based solar calculator app and Solar Calculator on Web at the behest of Ministry of New & Renewable Energy, Govt. of India.
- It is useful for calculating solar energy potential and related parameters at any given location (entered Longitude and Latitude value). The solar energy potential of a location is measured in kWh/m² .
- Information is available in form of Table, Charts and Maps.
- It can facilitate users to set up solar photovoltaic cells and thermal power plants at given location.
- This solar potential is calculated using data processed from Indian satellites, Kalpana [2013-2015] and INSAT-3D 2016 onwards.

The Solar calculator APP



Key features -

- A detailed report for any given location can be exported and shared as a .pdf file. The data can be viewed in three ways, as a table, as a graph, and as a map.
- In the map view, the direct satellite imagery is overlaid on the map along with the calculations of solar potential.

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<https://vedas.sac.gov.in> → Downloads → Android Apps
→ Solar Calculator

The Solar calculator

APP – Table View

- Desired latitude & longitude can be obtained by entering the values or through GPS / NaVIC by clicking on **Get Location**. Click on **Calculate** button to get results.
- Table view is showcased here which displays the monthly and yearly insolation, maximum, minimum and average temperatures along with Optimum Tilt Angle for Solar PV.
- It also enumerates parameters like :-
 Annual Energy Production (AEP)
 Capacity Utilization Factor (CUF)
 Global Horizontal Irradiance (GHI)
 Direct Normal Irradiance (DNI)
 Diffused Horizontal Irradiance (DHI)
 Note:-
 AEP, CUF, GHI, DNI, DHI parameters are provided by NIWE, MNRE.



* Solar Insolation has been generated using Indian Satellite data (Kalpana [2009-2015] and INSAT-3D 2016 onwards)

• GHI, DNI, DHI, CUF, AEP have been generated by NIWE (MNRE) using long term satellite and ground data [1999-2014].

The Solar calculator APP – Chart View

- First Chart depicts the insolation and temperature trends throughout the year in simple yet intuitive format.
- Second Chart depicts the Sun Path over the year along with the obstruction observed calculated using DEM (shown with grey colour).
- Third chart showcase the day length over the year.
- The Charts also allows user to interact by zooming in & out and displaying info at the specific month, when selected.



The Solar calculator APP – Map View

- MAP view locates selected longitude and latitude on the map overlaid with Cartosat satellite imagery and Indian Administrative Boundary.
- Different satellite imagery can be overlaid on the map using layer switcher (+ icon on right-side of the map)



The Solar calculator APP – Forecast View

- Forecast View displays the 72 Hours Forecast of Solar insolation at 3 hours of interval from current date in simple yet intuitive format.

