**🧾 🎯 Project Title: SOLAR RADIATION MODELING  
📅 Project Timeline:** January 2021 – March 2021  
📦 GitHub Source Code: <https://github.com/IvanSicaja/2021.01.12_GitHub_Solar-Radiation-Modeling>   
🎥 YouTube Demo: Not available  
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🏷️ My Personal Profiles: ⬇︎  
🎥 Video Portfolio: To be added  
📦 GitHub Profile: <https://github.com/IvanSicaja>  
🔗 LinkedIn: <https://www.linkedin.com/in/ivan-si%C4%8Daja-832682222>  
🎥 YouTube: <https://www.youtube.com/@ivan_sicaja>  
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### 📚🔍 Project description: ⬇︎⬇︎⬇︎

### 💡 App Purpose

To evaluate **solar module profitability** in a given location, long-term monitoring of natural and environmental parameters is required. This project modeled **solar radiation** using **seven different calculation models**, comparing results against **NASA** and **PVGIS** datasets to validate accuracy. The study aimed to provide insight into long-term solar resource availability and support decision-making for solar energy projects.

### 🧠 How It Works

* Collected meteorological and radiation data.
* Applied **seven solar radiation models** for calculation.
* Validated results against **NASA** and **PVGIS** reference datasets.
* Analyzed discrepancies, seasonal variations, and model reliability.
* Documented workflows and results in detailed project paperwork.

### ⚠️ Note

Solar radiation estimation requires at least **10 years of observations** to ensure reliable conclusions. While the models perform well for shorter test periods, long-term validation remains crucial for **profitability analysis** in real-world applications.

### 🔧 Tech Stack

Python, NumPy, Pandas, Matplotlib, Statistical Modeling, NASA Data, PVGIS Data, Data Analysis, Data Visualization.

### 📸 Project Snapshot

Not available.

### 🎥 Video Demonstration

Not available.

### 📣 Hashtags Section

**# #SolarRadiation #EnergyModeling #Python #DataAnalysis #PVGIS #NASA #Sustainability #RenewableEnergy #ScientificModeling #DataVisualization**