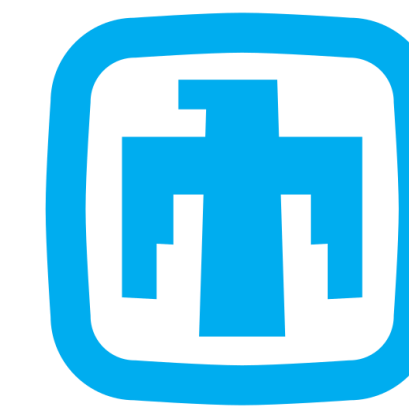


# Free near-real-time irradiance data from NOAA GOES satellite program

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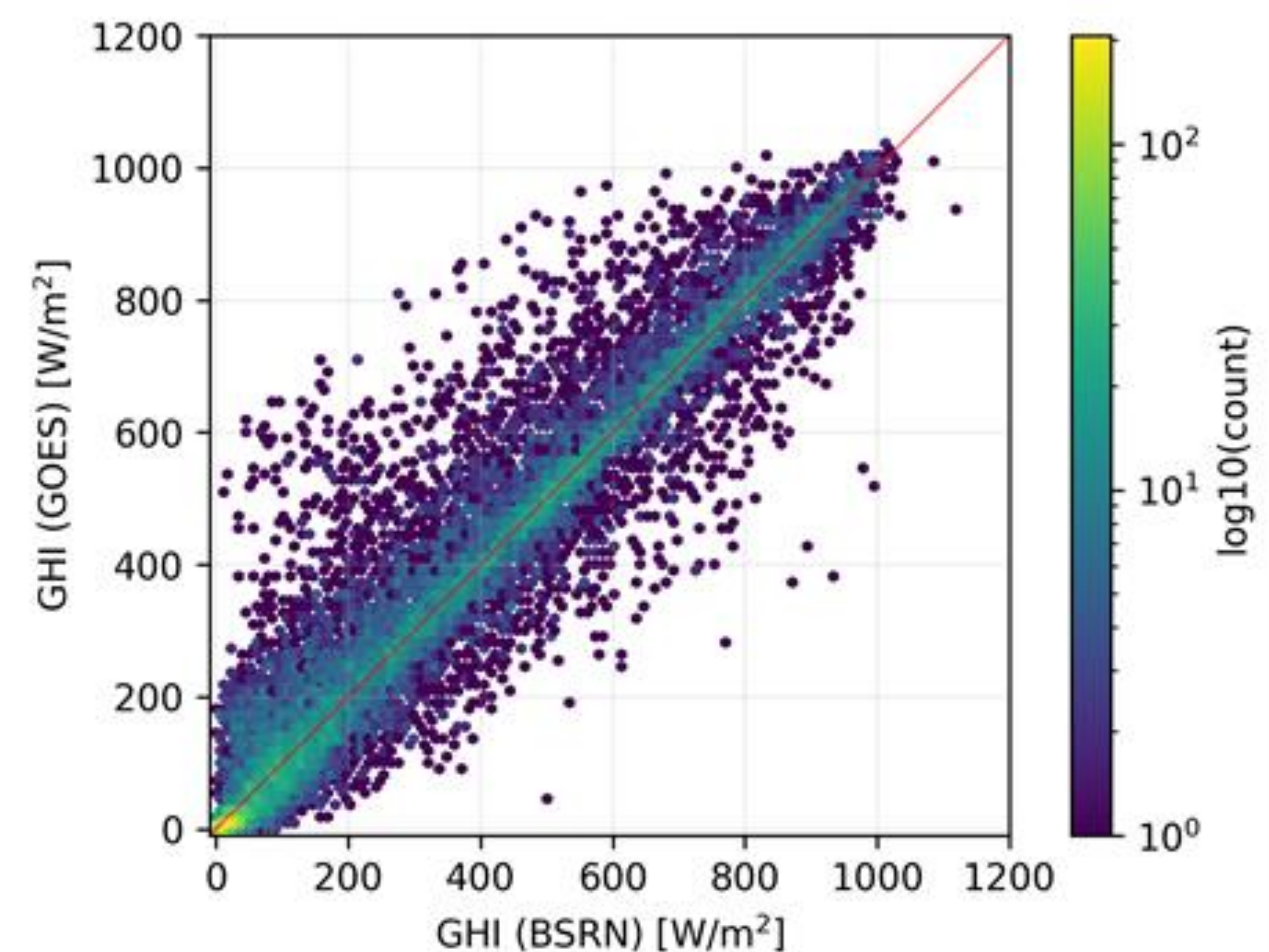
It is **free**, available with approximately **20min of latency**, and has **good resolution** (2-km, 10min) going back 2+ years. **We haven't seen anyone use this data.**

For PV monitoring, the ideal dataset has good **cost**, **accuracy**, and **latency**. This dataset could perform well in all three. An initial comparison with a single BSRN station (Langley) **looks very promising.**

Upcoming for IEEE PVSC: We will compare with more surface observation, as well as NSRDB, NASA POWER and/or ERA5. **Stay tuned!**

Other considerations:

- It has decent resolution (25km, 60min) going back to 2017
- NetCDF files, available vis AWS, cover full satellite field of view for a single timestep, so retrieving timeseries data is a challenge
- Occasional data gaps and corrupted timestamps



## References:

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- [3] "GOES-R series product definition and users' guide (PUG)," NOAA and NASA, September 2025, Version 3.0. [Online]. Available: <https://www.ospo.noaa.gov/resources/documents/PUG/GS%20Series%20416-R-PUG-L2%20Plus-0349%20Vol%205%20v3.0%20final.pdf>

This work was supported by the US Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Solar Energy Technologies Office Award Numbers 52788. Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the US Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. This paper describes objective technical results and analysis. Any subjective views or opinions that might be expressed in the paper do not necessarily represent the views of the US Department of Energy or the US Government.

