Worldwide benchmark of modelled solar irradiance data: Approach

- Comparison to 10 model data sets from 9 public and commercial providers to high quality ground-based reference data
- Expert quality control of global (GHI), direct (DNI) and diffuse (DIF) irradiance measurements from worldwide ground stations
- Selection of 129 ground stations worldwide from 27 different providers
Worldwide benchmark of modelled solar irradiance data: Results

• Users are provided with world maps of the results for overview and regional analysis

• Tables providing a ranking for continents and climate zones are provided as well for a more detailed analysis
Worldwide benchmark of modelled solar irradiance data: Key Takeaways

• Most appropriate modelled data set depends on site and climate or continent of interest

• Modelled errors and deviations between data sets are generally much higher for DNI than for GHI

• Without a stringent quality control procedure, no real validation can be done, with the risk of obtaining invalid results

• A bulk of the reference database was made publicly available including the quality flags (Forstinger et al., 2021 [link](#))