

An International PV Collaborative to Advance Multi-climate and Performance Research

MISSION STATEMENT

To further the science of photovoltaics by fostering an international community of research institutions committed to sharing meteorological and performance data that is of comparable quality and reflects common protocols, standards and designs.

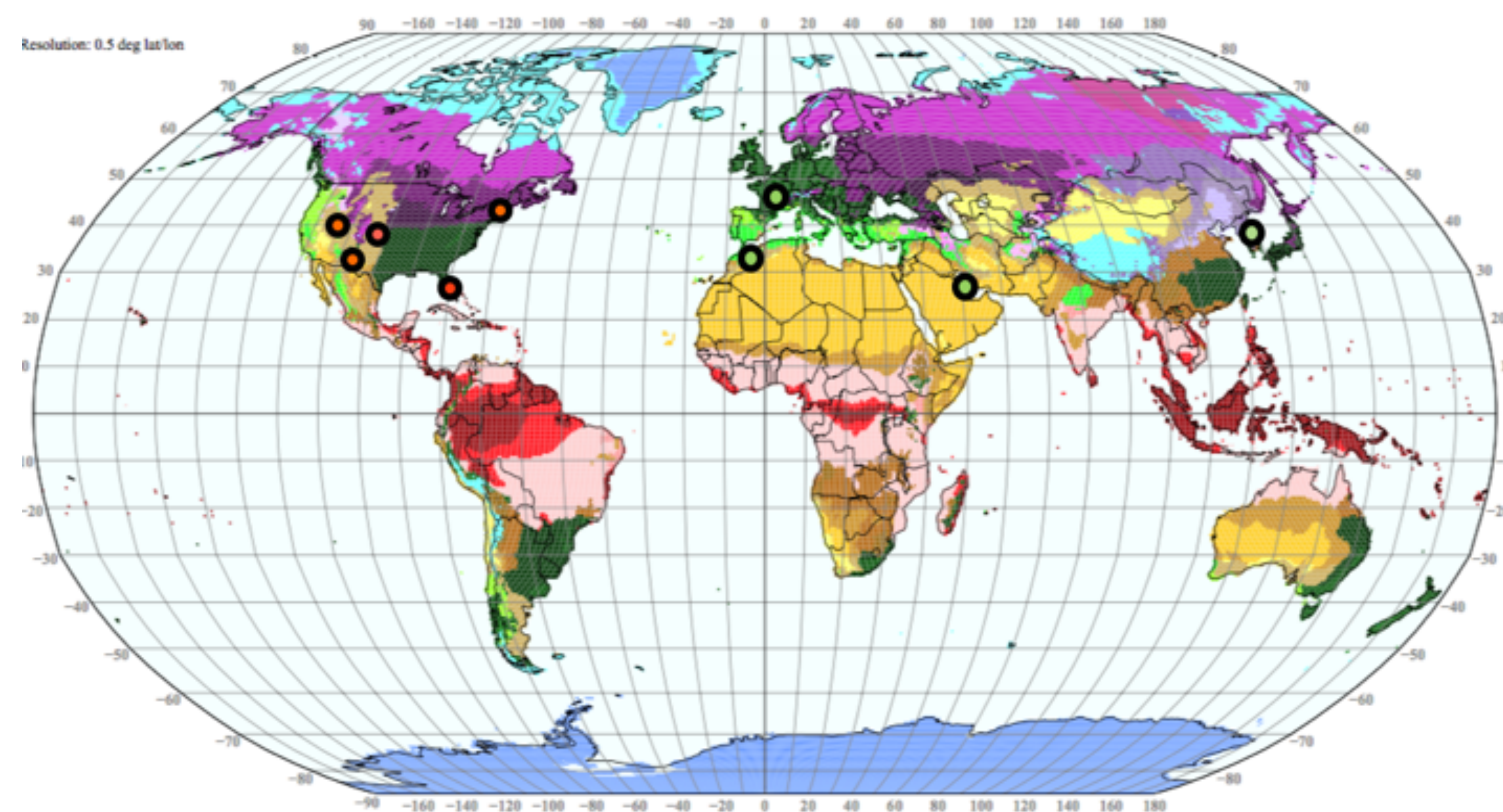


Figure 1 Locations of Founding Institutions of the Global Performance Collaborative

FOUNDING MEMBERS

- Anhalt University of Applied Sciences, Germany
- Fraunhofer Center for Silicon Photovoltaics, Germany
- Institut de Recherche Energie Solaire et Energie Nouvelle, Morocco
- Korea Institute for Energy Research, South Korea
- Qatar Environment and Energy Research Institute, Qatar
- Sandia National Laboratories, United States
- Yeungnam University, South Korea



PROJECT OBJECTIVES

The main objectives of this international collaborative are to:

1. Produce a global repository of quality-equivalent, fielded PV performance data
2. Leverage that data to increase the accuracy and global applicability of performance models and increase accuracy of LCOE projections
3. Form a research community to address persistent and emerging PV performance challenges; exchange technical information
4. Build a global platform for evaluation of advanced technologies
5. Further the development and optimization of PV systems in specific climates

VALUE TO THE PV COMMUNITY

- This Collaborative will generate meteorological and PV performance data of comparable quality from sites that represent the world's major climatic zones and are of greatest interest to the PV community
- The Collaborative's network of field laboratories will make possible multi-institutional, cross-climate research, including degradation, reliability and optimization studies
- Similarly, this network of labs may also be available to industry for the testing and evaluation of new technologies
- The Collaborative is extensible and flexible, able to support new members and support emerging research challenges

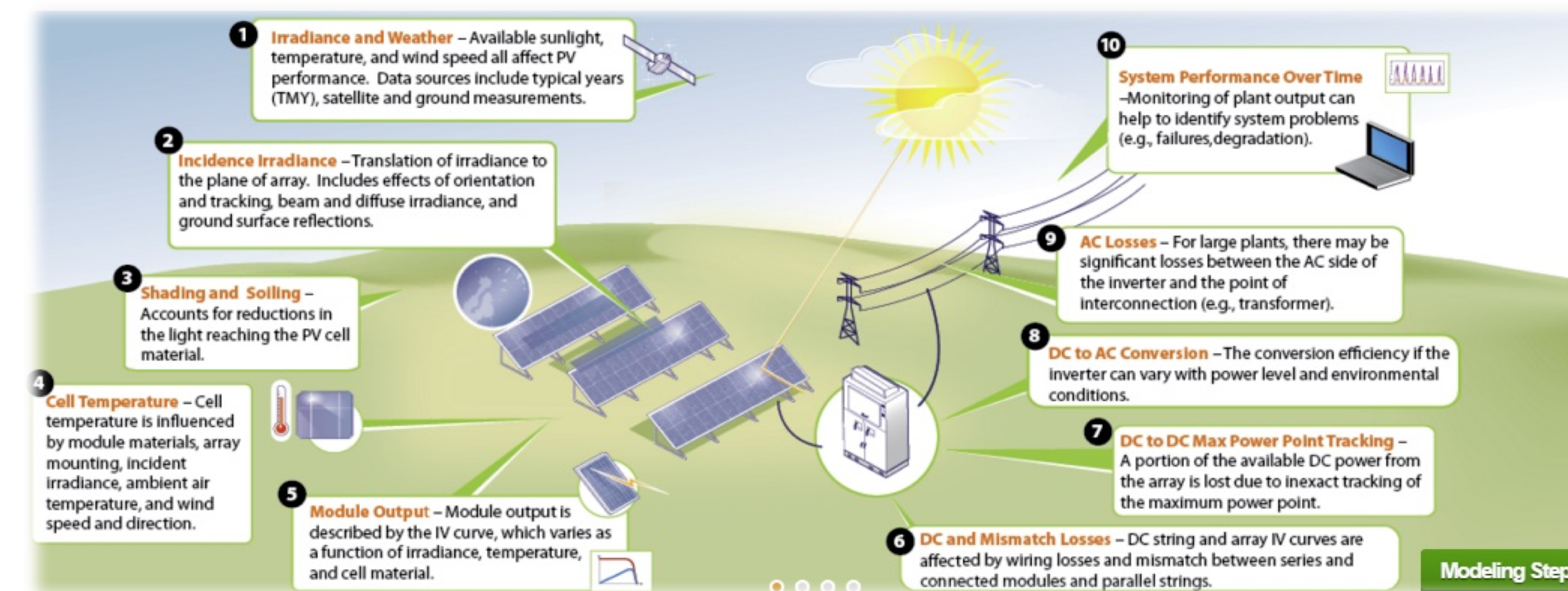


Figure 2. Environmental variables are a major determinant of PV performance

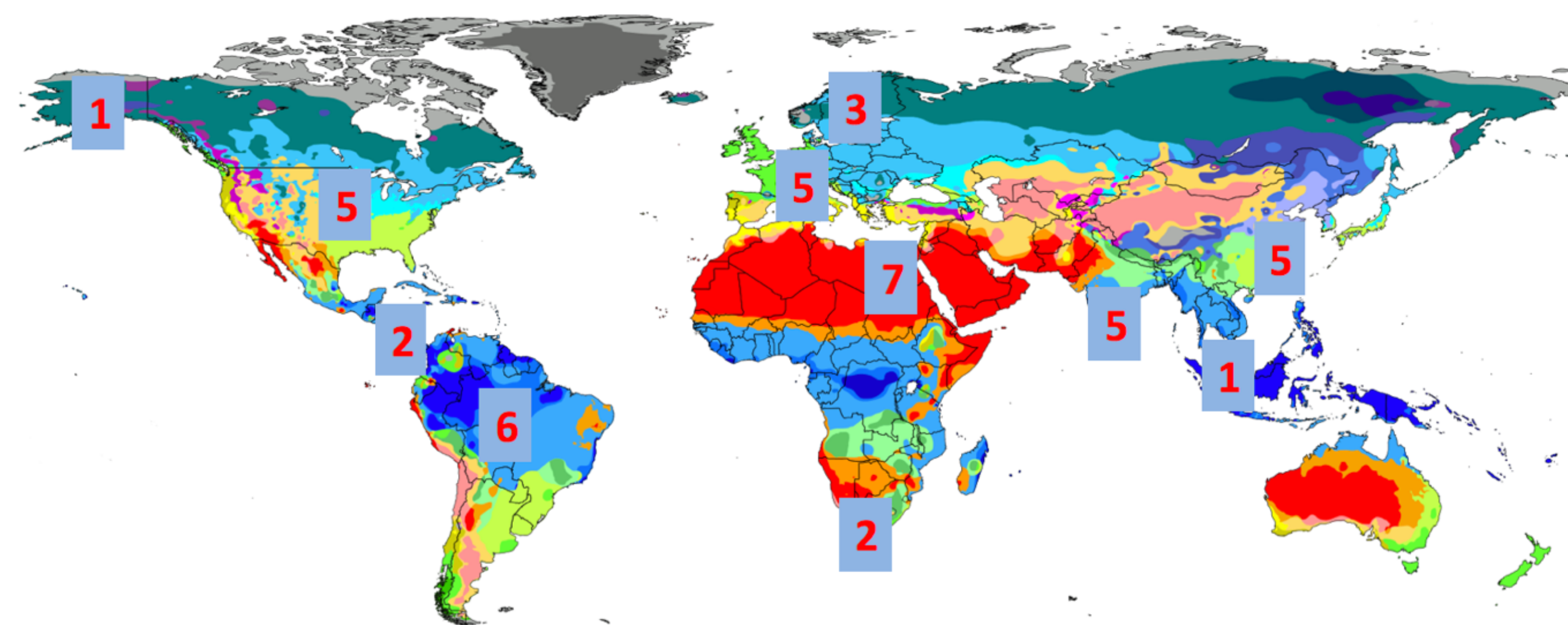
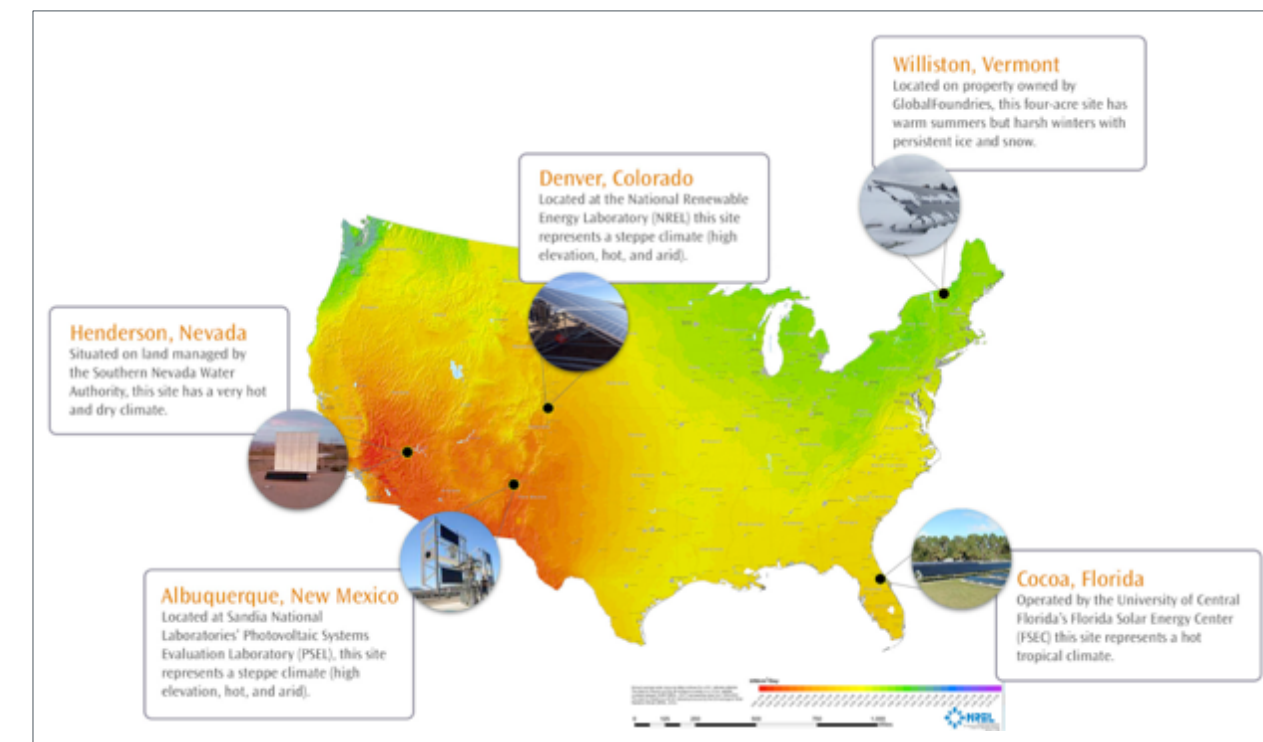


Figure 3. Poll of industry indicating nations/regions of greatest interest

HISTORY

This project is based on the Regional Test Center (RTC) program in the U.S. Managed by Sandia, with support from NREL, the program supports five climatically distinct field sites, each with a similar infrastructure and instrumentation. Collectively, they enable the collection of high-fidelity PV performance data from emerging solar technologies. [see rtc.sandia.gov]



Regional Test Centers
Differentiating PV Quality

COMMON PLATFORM, QUALITY DATA

The aim of the Collaborative is to re-create the RTC program's technical approach and set of best practices to ensure a common research platform that meets high standards for data quality and availability.

The technical approach includes:

- Reference PV system
- Meteorological instrumentation
- Soiling station
- High-frequency, high-resolution DC data-monitoring uploaded to a database every 24 hours
- Sensor cleaning and calibration
- Module characterization protocols



MEETING ANNOUNCEMENT

The Collaborative will hold its next in-person meeting on June 19th in Albuquerque, New Mexico. Please contact Laurie Burnham if you are interested in attending.



FOR MORE INFORMATION, PLEASE CONTACT:

Laurie Burnham
lburnha@sandia.gov
or
Joshua Stein
jsstein@sandia.gov