

The PVLIB Approach to Modeling and Analysis



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July 6, 2021



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Pvlib-python

- Pvlib-python is a collection of python functions that allow one to quickly and easily analyze and model PV systems

Topics covered in tutorial:

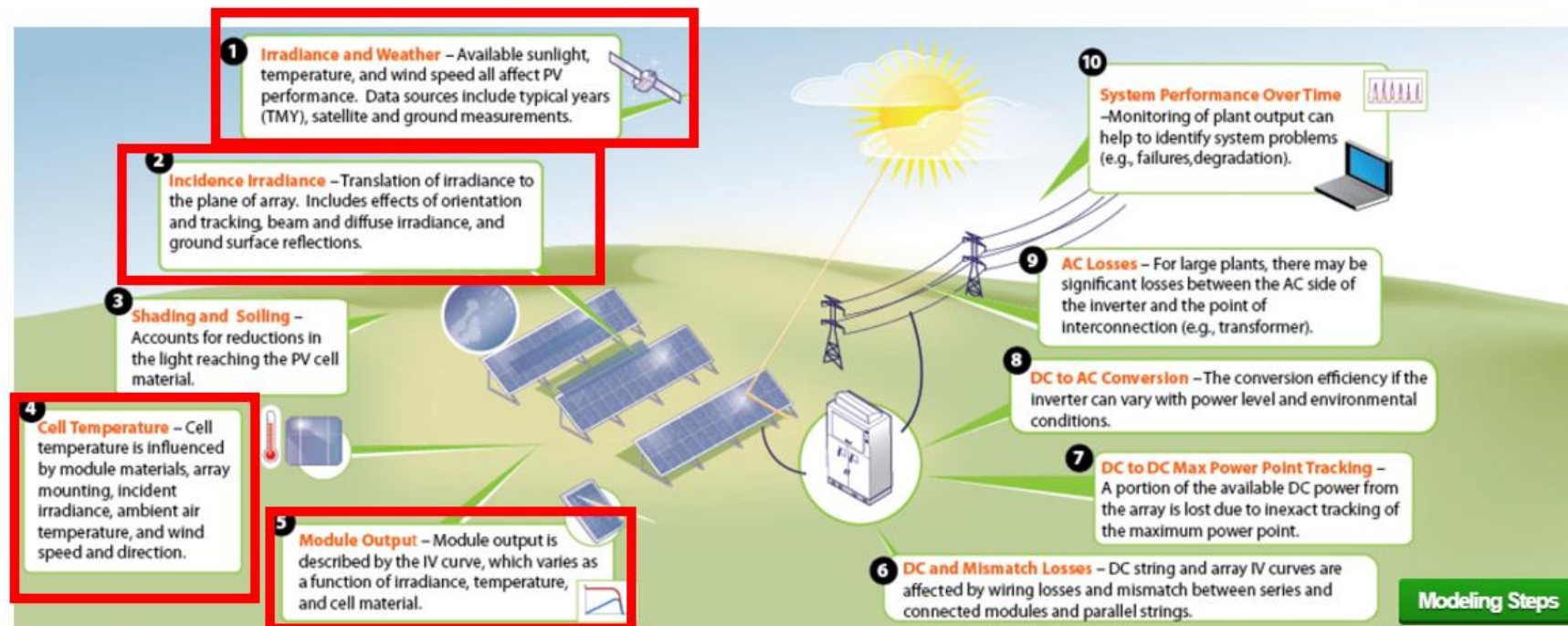


Image from: <https://pvpmc.sandia.gov/>

Learning Objectives

1. Access weather data (TMY3), understand irradiance data, and visualize it monthly.
2. Calculate sun position, plane of array (POA) irradiance, and aggregate irradiance data into average daily insolation by month and year.
3. Calculate module temperature from ambient data.
4. Use POA and module temperature to forecast a module's performance.

Tutorial

Researchers from NREL and DNV-GL recently prepared a tutorial for getting started in pvlib-python. We will use their excellent materials.

Gaining access to the tutorial materials:

- <https://pvsc-python-tutorials.github.io/PVSC48-Python-Tutorial/index.html>

Interactive Run Environment (binder)

- <https://mybinder.org/v2/gh/PVSC-Python-Tutorials/PVSC48-Python-Tutorial/main>

Jupyter Notebooks

- [Tutorial 0 - Overview.ipynb](#)
- [Tutorial 1 - TMY Weather Data.ipynb](#)
- [Tutorial 2 - POA Irradiance.ipynb](#)
- [Tutorial 3 - Module Temperature.ipynb](#)
- [Tutorial 4 - Model a Module's Performance.ipynb](#)
- [Tutorial 5 - Array Power.ipynb](#)

Let's dive in!

Interactive Run Environment (binder)

- <https://mybinder.org/v2/gh/PVSC-Python-Tutorials/PVSC48-Python-Tutorial/main>
- This should allow you to run these notebooks without having to install python and jupyter.
- Even if this does not work, it is still possible to follow along.
- We will not have enough time to make it through all of the tutorials, but they are available for you to work through on your own time.
- Contact me with questions if you get stuck (jsstein@sandia.gov)