August 2023

Maps of solar resource potential in Canada – Data Format

The data used to produce these maps include raster layers in GeoTIFF format. The data stored in these files includes the daily-average insolation on tilted surfaces in units of kW·hr/m² for a given period.

Each layer has 13 bands, which represent the time period, numbered in order: band 1 = Annual, band 2 = January, band 3 = February, ..., band 13 = December.

The period of averaging is the year 1998-2020, inclusive.

The Canada-wide mosaic is formed from the bi-linear blending of 4 datasets representing:

- Eastern Canada (below 58N, east of 115E) for the years 1998-2017
- Western Canada (below 58N, west of 105E) for the years 1998-2017
- Northern Canada (above 58N) for the years 1998-2020
- Southern Canada (below 58N) for the years 2018-2020

All fixed tilt surfaces are south-facing.

The data used to generate the maps are organized by eight layers, representing eight tilted surfaces:

Four fixed tilted surfaces of 0° (horizontal), 30°, 60°, and 90° (vertical) relative to the horizontal plane:

1. Daily average solar irradiance on a 0 degree tilt from horizontal (H+00_S+00)
2. Daily average solar irradiance on a 30 degree tilt from horizontal (H+30_S+00)
3. Daily average solar irradiance on a 60 degree tilt from horizontal (H+60_S+00)
4. Daily average solar irradiance on a 90 degree tilt from horizontal (H+90_S+00)

Three fixed tilted surfaces of 0°, +15°, and -15°, relative to the local latitude:

5. Daily average solar irradiance on a 0 degree tilt from latitude (L+00_S+00)
6. Daily average solar irradiance on a 15 degree tilt from latitude (L+15_S+00)
7. Daily average solar irradiance on a -15 degree tilt from latitude (L-15_S+00)

A two-axis tracking surface that follows the sun throughout the day:

8. Daily average solar irradiance on a two-axis tracking surface (T+00_T+00)