

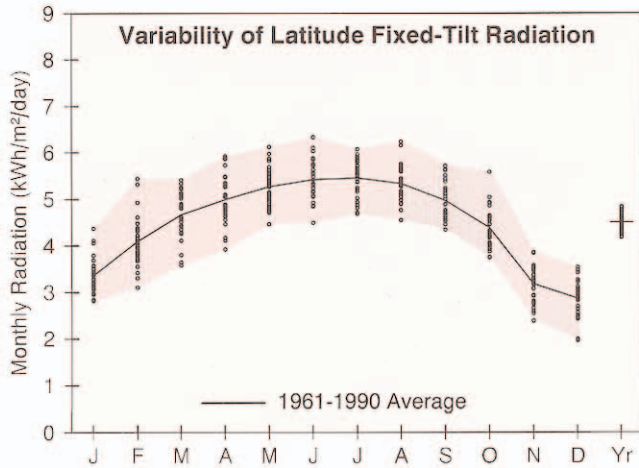
LATITUDE: 41.73° N

LONGITUDE: 71.43° W

ELEVATION: 19 meters

MEAN PRESSURE: 1014 millibars

STATION TYPE: Secondary



Solar Radiation for Flat-Plate Collectors Facing South at a Fixed Tilt (kWh/m²/day), Uncertainty ±11%

Tilt (°)		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
0	Average	1.9	2.7	3.7	4.7	5.6	6.0	5.9	5.2	4.2	3.1	1.9	1.6	3.9
	Min/Max	1.7/2.3	2.3/3.3	3.1/4.1	3.9/5.5	4.7/6.4	5.0/7.0	5.2/6.5	4.6/5.9	3.8/4.8	2.8/3.7	1.7/2.2	1.3/1.8	3.7/4.1
Latitude -15	Average	3.0	3.7	4.5	5.1	5.6	5.9	5.9	5.5	4.9	4.1	2.9	2.5	4.5
	Min/Max	2.5/3.8	2.9/4.9	3.5/5.2	4.1/6.0	4.7/6.5	4.9/6.9	5.1/6.5	4.8/6.4	4.3/5.6	3.5/5.2	2.2/3.4	1.8/3.0	4.2/4.8
Latitude	Average	3.4	4.1	4.7	5.0	5.3	5.4	5.5	5.3	5.0	4.4	3.2	2.9	4.5
	Min/Max	2.8/4.4	3.1/5.4	3.6/5.4	3.9/5.9	4.5/6.1	4.5/6.3	4.7/6.1	4.6/6.2	4.3/5.7	3.7/5.6	2.4/3.8	2.0/3.5	4.2/4.8
Latitude +15	Average	3.6	4.2	4.6	4.6	4.7	4.7	4.8	4.8	4.7	4.4	3.3	3.1	4.3
	Min/Max	3.0/4.7	3.2/5.7	3.4/5.4	3.6/5.5	4.0/5.4	3.9/5.5	4.1/5.3	4.1/5.7	4.1/5.5	3.7/5.7	2.4/4.1	2.0/3.8	4.0/4.6
90	Average	3.4	3.7	3.5	3.0	2.7	2.6	2.7	3.0	3.4	3.6	3.0	2.9	3.1
	Min/Max	2.8/4.5	2.7/5.3	2.6/4.3	2.4/3.6	2.4/3.1	2.3/2.9	2.4/2.9	2.6/3.5	3.0/3.9	3.0/4.7	2.1/3.7	1.9/3.7	2.9/3.4

Solar Radiation for 1-Axis Tracking Flat-Plate Collectors with a North-South Axis (kWh/m²/day), Uncertainty ±11%

Axis Tilt (°)		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
0	Average	2.7	3.8	5.0	6.1	7.0	7.5	7.4	6.7	5.6	4.3	2.7	2.2	5.1
	Min/Max	2.3/3.5	2.9/5.1	3.7/5.9	4.6/7.4	5.5/8.3	5.8/9.0	6.2/8.4	5.6/8.0	4.8/6.5	3.7/5.5	2.0/3.2	1.6/2.8	4.7/5.5
Latitude -15	Average	3.5	4.6	5.6	6.4	7.1	7.5	7.5	7.0	6.2	5.0	3.4	2.9	5.6
	Min/Max	2.9/4.7	3.4/6.3	4.1/6.7	4.8/7.9	5.6/8.5	5.7/9.1	6.2/8.5	5.8/8.4	5.2/7.3	4.3/6.6	2.5/4.2	2.0/3.7	5.1/6.0
Latitude	Average	3.9	4.9	5.8	6.4	6.9	7.2	7.2	6.9	6.2	5.3	3.6	3.2	5.6
	Min/Max	3.2/5.1	3.6/6.7	4.1/6.9	4.7/7.9	5.4/8.3	5.5/8.7	5.9/8.2	5.7/8.2	5.2/7.3	4.4/6.9	2.6/4.5	2.1/4.1	5.2/6.1
Latitude +15	Average	4.1	5.0	5.7	6.1	6.5	6.7	6.7	6.5	6.0	5.3	3.7	3.4	5.5
	Min/Max	3.3/5.4	3.6/6.9	4.0/6.8	4.4/7.6	5.0/7.8	5.1/8.1	5.5/7.7	5.4/7.8	5.0/7.1	4.4/7.0	2.6/4.7	2.2/4.4	5.0/6.0

Solar Radiation for 2-Axis Tracking Flat-Plate Collectors (kWh/m²/day), Uncertainty ±11%

Tracker		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
2-Axis	Average	4.1	5.0	5.8	6.5	7.2	7.7	7.6	7.0	6.2	5.3	3.8	3.5	5.8
	Min/Max	3.4/5.5	3.6/6.9	4.2/6.9	4.8/8.0	5.7/8.6	5.8/9.3	6.3/8.7	5.9/8.4	5.3/7.3	4.5/7.0	2.7/4.7	2.2/4.4	5.3/6.3

Direct Beam Solar Radiation for Concentrating Collectors (kWh/m²/day), Uncertainty ±11%

Tracker		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
1-Axis, E-W Horiz Axis	Average	2.4	2.6	2.7	2.8	3.1	3.4	3.3	3.1	2.9	2.8	2.1	2.0	2.8
	Min/Max	1.7/3.4	1.6/4.0	1.7/3.6	1.7/3.9	1.9/4.0	2.0/4.7	2.2/4.1	2.2/4.2	2.1/3.7	2.1/4.2	1.2/2.9	1.0/2.8	2.5/3.2
1-Axis, N-S Horiz Axis	Average	1.6	2.3	3.0	3.6	4.0	4.4	4.3	3.9	3.4	2.7	1.6	1.3	3.0
	Min/Max	1.2/2.3	1.4/3.5	1.8/4.0	2.1/5.0	2.4/5.3	2.6/6.0	2.9/5.3	2.9/5.4	2.4/4.4	2.1/4.0	0.9/2.2	0.7/1.8	2.6/3.5
1-Axis, N-S Tilt=Latitude	Average	2.6	3.1	3.6	3.8	4.0	4.2	4.1	4.0	3.9	3.5	2.4	2.1	3.4
	Min/Max	1.9/3.7	1.9/4.8	2.1/4.8	2.2/5.4	2.4/5.2	2.4/5.7	2.8/5.1	3.0/5.6	2.8/5.0	2.7/5.2	1.3/3.3	1.1/2.9	3.0/4.0
2-Axis	Average	2.7	3.2	3.6	3.9	4.2	4.5	4.4	4.2	3.9	3.6	2.5	2.3	3.6
	Min/Max	2.0/3.9	1.9/5.0	2.1/4.8	2.3/5.4	2.5/5.5	2.6/6.2	3.0/5.4	3.1/5.7	2.8/5.0	2.7/5.3	1.4/3.5	1.2/3.2	3.1/4.1

Average Climatic Conditions

Element	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
Temperature (°C)	-2.3	-1.3	3.0	8.6	14.1	19.4	22.6	21.8	17.8	12.0	6.7	0.4	10.2
Daily Minimum Temp	-7.2	-6.2	-1.8	3.2	8.5	13.8	17.3	16.6	12.1	6.1	1.6	-4.2	5.0
Daily Maximum Temp	2.6	3.5	7.8	13.9	19.6	24.9	27.8	27.1	23.5	17.8	11.7	5.1	15.4
Record Minimum Temp	-25.0	-21.7	-17.2	-10.0	-1.7	5.0	8.9	4.4	0.6	-6.7	-14.4	-23.3	-25.0
Record Maximum Temp	18.9	22.2	26.7	36.7	34.4	36.1	38.9	40.0	37.8	30.0	25.6	21.1	40.0
HDD, Base 18.3°C	639	549	476	293	137	17	0	4	50	199	350	554	3269
CDD, Base 18.3°C	0	0	0	0	4	49	133	113	35	3	0	0	337
Relative Humidity (%)	64	63	63	61	67	70	71	72	73	70	69	67	68
Wind Speed (m/s)	4.9	5.1	5.4	5.4	4.8	4.4	4.2	4.1	4.2	4.2	4.7	4.8	4.6