

Insolation Levels (Sth America)

Average Insolation (10 year average) kWh/m²/day

Country	State/City	Latitude	Longitud	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Avg
Belize	Belize City	17° 30' N	88° 11' W	3.73	4.59	5.45	5.97	5.75	5.19	5.03	5.16	4.82	4.5	3.99	3.54	4.81
Costa Rica	San Jose	09° 59' N	84° 04' W	6.09	6.74	7.23	6.64	5.26	5	4.94	4.84	4.76	4.63	4.63	5.3	5.51
El Salvador	San Salvador	13° 40' N	89° 10' W	5.58	6.23	6.68	6.52	5.95	5.74	6.22	6.18	5.49	5.61	5.42	5.3	5.91
Guatemala	Guatemala	14° 37' N	90° 31' W	4.93	5.48	5.9	5.81	5.35	4.91	5.27	5.12	4.59	4.68	4.65	4.62	5.11
Honduras	Tegucigalpa	14° 05' N	87° 14' W	4.26	5.08	5.84	5.99	5.54	5.35	5.34	5.47	5.04	4.43	4.15	3.91	5.03
Mexico	Acapulco	16° 50' N	99° 54' W	5.46	6.3	7.17	7.41	7.06	6.16	6.29	6.2	5.45	5.94	5.56	5.19	6.18
Mexico	Cancun	21° 10' N	86° 50' W	4.16	5.14	6.04	6.86	6.79	6.47	6.63	6.65	5.86	5.19	4.51	3.9	5.68
Mexico	Chihuahua	28° 39' N	106° 05' W	3.41	4.34	5.63	6.43	6.88	6.53	5.69	5.3	5.14	4.65	3.89	3.26	5.1
Mexico	Guadalajara	20° 40' N	103° 40' W	4.24	5.18	6.21	6.71	6.89	6	5.23	5.41	5.14	5.11	4.79	4.13	5.42
Mexico	La Paz	24° 09' N	110° 18' W	3.73	4.67	5.75	6.63	7.16	7.07	6.4	6.06	5.52	4.93	4.11	3.51	5.46
Mexico	Mexico City	19° 26' N	99° 08' W	4.34	5.07	5.89	5.95	5.9	5.03	4.76	4.86	4.57	4.73	4.57	4.29	5
Mexico	Monterrey	25° 40' N	100° 23' W	3.33	4.2	5.4	5.71	6.06	5.89	5.59	5.44	4.76	4.49	3.9	3.23	4.83
Mexico	Oaxaca	17° 04' N	96° 43' W	4.36	4.99	5.74	6.08	5.86	5.01	4.92	4.95	4.43	4.63	4.38	4.08	4.95
Mexico	Puerto	20° 39' N	105° 14' W	4.2	5.29	6.39	7.12	7.51	6.96	6.17	5.99	5.32	5.3	4.82	4	5.76
Mexico	Tijuana	32° 32' N	117° 01' W	3.32	4.15	5.23	6.37	6.61	6.43	6.46	6.31	5.4	4.26	3.65	3.08	5.11
Mexico	Veracruz	19° 10' N	96° 07' W	3.55	4.13	4.86	5.35	5.4	5.12	5.15	5.17	4.66	4.45	3.92	3.43	4.6
Nicaragua	Managua	12° 10' N	86° 15' W	5.34	5.89	6.59	6.54	5.83	5.67	5.7	5.69	5.43	5.39	5.15	5.05	5.69
Panama	Panama City	08° 58' N	79° 33' W	5.27	5.92	6.23	5.75	4.78	4.11	4.16	4.15	4.24	3.99	4.23	4.66	4.79
Cuba	Havana	23° 09' N	82° 21' W	4.09	4.97	5.92	7.06	7.15	7.1	6.9	6.86	6.1	5.12	4.26	3.74	5.77
Jamaica	Kingston	17° 58' N	76° 48' W	4.92	5.67	6.45	6.8	6.5	6.82	6.84	6.61	6.23	5.45	4.76	4.58	5.97
Puerto Rico	San Juan	18° 15' N	66° 30' W	4.26	4.9	5.7	6.09	5.89	6.09	6.08	5.78	5.26	4.8	4.36	4.15	5.28
Martinique	Fort de	14° 37' N	61° 05' W	5.35	5.98	6.59	6.94	6.7	6.42	6.49	6.45	6.03	5.87	5.15	5.15	6.09
Dominican	Santiago	18° 29' N	69° 54' W	3.89	4.46	5.24	5.53	5.52	5.48	5.41	5.13	4.8	4.46	4.03	3.78	4.81
Argentina	Buenos Aires	34° 36' S	58° 23' W	6.44	5.67	4.53	3.53	2.74	2.04	2.31	3.27	4.23	5.12	6.36	6.44	4.39
Argentina	Cordoba	31° 24' S	64° 12' W	7.07	6.3	4.9	3.87	3.01	2.65	2.79	3.63	4.76	5.93	6.63	6.96	4.88
Argentina	Rio Gallegos	51° 37' S	69° 13' W	5.47	4.63	3.32	2.02	1.07	0.71	0.81	1.61	2.87	4.26	5.53	5.79	3.17
Bolivia	La Paz	16° 29' S	68° 08' W	5.3	5.57	5.16	5.01	4.78	4.37	4.51	4.96	5.66	5.98	6.15	5.92	5.28
Bolivia	Santa Cruz	17° 47' S	63° 10' W	4.57	4.9	4.57	3.92	3.44	3.25	3.44	4.01	4.45	5	5.21	5.01	4.31
Bolivia	Sucre	19° 02' S	65° 15' W	1.67	2.29	3.47	4.58	5.59	6.37	6.86	5.97	4.51	2.73	1.77	1.46	3.94
Brazil	Belem	01° 27' S	48° 29' W	4.54	4.34	4.26	4.46	4.75	4.99	5.27	5.5	5.85	5.79	5.52	4.96	5.02
Brazil	Belo	19° 55' S	43° 56' W	5.45	5.63	5.34	4.78	4.3	4.09	4.32	4.82	5.05	5.26	5.25	4.98	4.94
Brazil	Brasilia	15° 52' S	47° 56' W	5.21	5.15	5.09	4.99	4.8	4.59	4.86	5.46	5.28	5.23	4.97	4.82	5.04
Brazil	Curitiba	25° 26' S	49° 15' W	5.48	4.88	4.32	3.57	2.95	2.83	2.96	3.47	3.87	4.65	5.44	5.41	4.15
Brazil	Fortaleza	03° 43' S	38° 31' W	5.85	5.44	4.82	4.8	5.11	5.34	5.74	6.34	6.6	6.62	6.5	6.16	5.78
Brazil	Manaus	03° 08' S	60° 01' W	4.15	4.12	4.22	4.34	4.08	4.24	4.55	4.98	5.23	4.93	4.72	4.23	4.48
Brazil	Porto Alegre	30° 02' S	51° 13' W	6.08	5.56	4.54	3.48	2.81	2.27	2.5	3.06	3.89	5.01	5.93	6.5	4.3
Brazil	Recife	08° 05' S	34° 54' W	6.59	6.22	5.95	5.05	4.84	4.61	4.38	5.07	5.78	6.23	6.4	6.48	5.63
Brazil	Rio de	22° 54' S	42° 10' W	5.4	5.34	4.87	4.11	3.43	3.35	3.39	3.83	3.77	4.41	4.97	4.98	4.32
Brazil	Salvador	12° 59' S	38° 30' W	5.89	5.79	5.28	4.59	4.09	3.75	3.83	4.26	4.79	5.32	5.38	5.61	4.88
Brazil	Sao Paulo	23° 33' S	46° 39' W	5.44	5.05	4.75	4.21	3.47	3.36	3.54	4.19	4.25	5.09	5.73	5.38	4.54
Chile	Iquique	20° 13' S	70° 10' W	7.42	7.34	6.19	4.7	3.45	2.78	3.04	3.39	4.53	5.37	6.36	7.4	5.16
Chile	Osorno	40° 35' S	73° 14' W	6.78	6.02	4.34	2.93	1.91	1.43	1.69	2.48	3.5	4.95	6.47	6.98	4.12
Chile	Santiago	33° 27' S	70° 42' W	7.55	6.56	5.13	3.83	2.59	2.22	2.38	3.09	4.08	5.64	6.84	7.82	4.81
Chile	Valparaiso	33° 01' S	71° 38' W	7.55	6.56	5.13	3.83	2.59	2.22	2.38	3.09	4.08	5.64	6.84	7.82	4.81
Columbia	Bogota	04° 36' N	74° 05' W	4.5	4.48	4.67	4.46	4.45	4.63	4.71	4.7	4.8	4.28	4.24	4.32	4.52
Columbia	Cali	03° 27' N	76° 30' W	3.63	3.9	4.09	3.89	3.76	3.71	4.05	3.93	3.89	3.52	3.49	3.44	3.78
Columbia	Cartagena	10° 25' N	75° 32' W	5.74	6.18	6.54	6.3	5.62	5.56	5.66	5.72	5.35	4.72	4.9	5.3	5.63
Columbia	Medellin	06° 14' N	75° 34' W	3.95	4.22	4.38	3.95	4.01	4.36	4.67	4.51	4.37	3.82	3.78	3.86	4.16
Ecuador	Guayaquil	02° 13' S	79° 54' W	6.07	6.01	6.31	6.31	5.83	4.88	4.5	4.5	4.95	4.69	5.29	5.93	5.44
Ecuador	Quito	00° 14' S	78° 30' W	3.57	3.56	3.71	3.71	3.73	3.81	3.85	3.88	3.89	3.79	3.85	3.68	3.75
French	Cayenne	04° 56' N	52° 27' W	3.91	4.34	4.55	4.66	4.04	4.25	4.96	5.4	5.81	5.51	4.91	4.29	4.72
Guyana	Georgetown	06° 50' N	58° 12' W	4.12	4.57	4.98	5.09	4.49	4.32	4.65	4.9	5.15	4.88	4.42	4.01	4.63
Peru	Arequipa	16° 25' S	71° 32' W	4.95	5.26	4.88	4.9	4.8	4.53	4.78	5.16	5.7	5.84	5.96	5.54	5.19
Peru	Cusco	13° 30' S	71° 58' W	4.19	4.43	4.23	3.99	3.74	3.56	4.01	4.29	4.55	4.72	4.67	4.5	4.24
Peru	Lima	12° 03' S	77° 02' W	7.27	7.52	7.25	6.28	4.78	3.34	3.17	3.39	4.33	5.11	6.02	6.85	5.44
Paraguay	Asuncion	25° 20' S	57° 31' W	6.1	5.77	4.98	3.84	3.48	2.76	3.09	3.97	4.49	5.26	6.22	6.26	4.69
Suriname	Paramaribo	05° 49' N	55° 09' W	4.13	4.63	5.07	5.08	4.78	4.78	5.12	5.42	5.87	5.61	4.97	4.47	4.99
Venezuela	Caracas	10° 30' N	66° 54' W	5.14	5.82	6.11	5.94	5.76	5.63	5.77	5.77	5.72	5.56	5.01	4.84	5.59
Venezuela	Maracaibo	10° 39' N	71° 36' W	4.71	5.09	5.42	5.22	5.12	5.28	5.49	5.31	5.2	4.68	4.55	4.51	5.05
Venezuela	Valencia	10° 09' N	68° 00' W	5.75	6.68	7.17	7.28	6.48	5.11	5.92	6.26	6.26	6.13	5.76	5.41	6.18

[Data courtesy of: NASA - Surface meteorology and Solar Energy Data Set](#)

Reference:

Whitlock, C. E., et al., Release 3 NASA Surface Meteorology and Solar Energy Data Set for Renewable Energy Industry Use. Rise & Shine 2000, the 26th Annual Conference of the Solar Energy Society of Canada Inc. and Solar, Oct. 21-24, 2000, Halifax, Nova Scotia, Canada.

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