

# Reference



## Monthly Solar Radiation For U.S. Locations. Volume 10:11

Monthly radiation (in langleys per day) averaged over a 30-year period, 1961-1990 for various U.S. locations. Months shaded in blue have optimal solar radiation for cool-season turf, while months shaded in pink have optimal solar radiation for warm-season turf. Months shaded in yellow have higher than optimal radiation for cool-season turf, but less than optimal radiation for warm-season turf. Data source: The National Solar Radiation Data Base (NSRDB), which contains solar radiation and supplementary meteorological data from 237 sites in the U.S., plus sites in Guam and Puerto Rico. NOTE: data shown is identical to that in the table below, but is expressed in different units of solar radiation.

City	State	LANGLEYS/DAY											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Anchorage	AK	26	86	197	309	395	421	395	300	189	94	34	17
Birmingham	AL	215	283	378	472	515	532	506	481	412	343	240	197
Phoenix	AZ	403	532	670	850	944	979	858	824	738	609	455	378
Sacramento	CA	163	258	395	498	618	678	678	601	489	343	206	146
San Diego	CA	378	464	575	687	661	670	755	721	618	524	421	361
Santa Maria	CA	240	318	421	532	601	635	644	584	481	378	275	232
Boulder	CO	206	283	378	481	532	592	575	515	429	326	223	180
Jacksonville	FL	249	318	403	506	524	515	498	464	395	343	275	232
Miami	FL	300	361	446	515	515	481	498	481	421	378	318	283
Honolulu	HI	335	403	464	506	549	558	567	558	506	429	352	318
Des Moines	IA	172	240	326	421	498	558	558	489	378	275	180	146
Chicago	IL	155	223	300	395	489	541	549	464	361	258	155	129
Worcester	MA	163	240	326	403	472	515	506	446	361	258	163	129
Baltimore	MD	180	249	335	421	481	532	515	455	378	283	189	155
Minneapolis	MN	155	232	326	403	489	541	541	464	352	240	146	120
St. Louis	MO	189	249	335	429	506	549	549	489	395	300	197	155
Jackson	MS	223	300	386	472	524	549	532	498	421	361	258	206
Cape Hatteras	NC	206	283	378	481	549	549	532	481	412	318	240	189
Raleigh	NC	206	275	378	472	515	541	549	472	395	326	232	189
Las Vegas	NV	258	343	464	592	670	721	678	618	532	403	292	240
Albany	NY	155	223	309	403	472	515	524	446	352	240	146	120
Columbus	OH	155	215	300	395	472	515	506	455	369	266	163	129
Oklahoma City	OK	240	300	395	489	532	584	592	532	429	343	249	206
Pittsburgh	PA	146	215	300	395	472	524	506	446	361	258	155	120
Guam	PI	378	412	472	498	489	472	438	421	421	395	378	361
Chatanooga	TN	206	266	352	455	498	524	506	472	386	326	223	180
Memphis	TN	215	275	361	464	524	567	558	515	412	343	232	189
Corpus Christi	TX	309	403	481	541	584	661	687	652	575	421	386	300
Fort Worth	TX	343	438	567	627	678	764	790	721	592	498	378	326
Houston	TX	300	386	464	541	601	652	644	618	549	489	352	283
Lubbock	TX	395	489	609	730	764	807	798	738	618	549	421	361
San Antonio	TX	361	532	541	592	627	721	747	712	609	524	403	335
Richmond	VA	197	258	352	446	498	541	515	464	386	300	215	172
Burlington	VT	137	223	309	395	472	515	524	446	343	223	137	103
Seattle	WA	86	146	240	352	455	498	524	446	326	189	103	69
Cheyenne	WY	189	266	361	455	515	575	575	506	421	309	206	163

Monthly radiation (in watts/meter squared per day) averaged over a 30-year period, 1961-1990 for various U.S. locations. Months shaded in blue have good solar radiation for cool-season turf, while months shaded in pink have good solar radiation for warm-season turf. Months shaded in yellow have higher than optimal radiation for cool-season turf, but less than optimal radiation for warm-season turf. Data source: The National Solar Radiation Data Base (NSRDB), which contains solar radiation and supplementary meteorological data from 237 sites in the U.S., plus sites in Guam and Puerto Rico. NOTE: data shown is identical to that in the table above, but is expressed in different units of solar radiation

City	State	WATTS/METER <sup>2</sup> /DAY											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Anchorage	AK	13	42	96	150	192	204	192	146	92	46	17	8
Birmingham	AL	104	138	183	229	250	258	246	233	200	167	117	96
Phoenix	AZ	196	258	325	413	458	475	417	400	358	296	221	183
Sacramento	CA	79	125	192	242	300	329	329	292	238	167	100	71
San Diego	CA	183	225	279	333	321	325	367	350	300	254	204	175
Santa Maria	CA	117	154	204	258	292	308	313	283	233	183	133	113
Boulder	CO	100	138	183	233	258	288	279	250	208	158	108	88
Jacksonville	FL	121	154	196	246	254	250	242	225	192	167	133	113
Miami	FL	146	175	217	250	250	233	242	233	204	183	154	138
Honolulu	HI	163	196	225	246	267	271	275	271	246	208	171	154
Des Moines	IA	83	117	158	204	242	271	271	238	183	133	88	71
Chicago	IL	75	108	146	192	238	263	267	225	175	125	75	63
Worcester	MA	79	117	158	196	229	250	246	217	175	125	79	63
Baltimore	MD	88	121	163	204	233	258	250	221	183	138	92	75
Minneapolis	MN	75	113	158	196	238	263	263	225	171	117	71	58
St. Louis	MO	92	121	163	208	246	267	267	238	192	146	96	75
Jackson	MS	108	146	188	229	254	267	258	242	204	175	125	100
Cape Hatteras	NC	100	138	183	233	267	267	258	233	200	154	117	92
Raleigh	NC	100	133	183	229	250	263	267	229	192	158	113	92
Las Vegas	NV	125	167	225	288	325	350	329	300	258	196	142	117
Albany	NY	75	108	150	196	229	250	254	217	171	117	71	58
Columbus	OH	75	104	146	192	229	250	246	221	179	129	79	63
Oklahoma City	OK	117	146	192	238	258	283	288	258	208	167	121	100
Pittsburgh	PA	71	104	146	192	229	254	246	217	175	125	75	58
Guam	PI	183	200	229	242	238	229	213	204	204	192	183	175
Chatanooga	TN	100	129	171	221	242	254	246	229	188	158	108	88
Memphis	TN	104	133	175	225	254	275	271	250	200	167	113	92
Corpus Christi	TX	150	196	233	263	283	321	333	317	279	204	188	146
Fort Worth	TX	167	213	275	304	329	371	383	350	288	242	183	158
Houston	TX	146	188	225	263	292	317	313	300	267	238	171	138
Lubbock	TX	192	238	296	354	371	392	388	358	300	267	204	175
San Antonio	TX	175	258	263	288	304	350	363	346	296	254	196	163
Richmond	VA	96	125	171	217	242	263	250	225	188	146	104	83
Burlington	VT	67	108	150	192	229	250	254	217	167	108	67	50
Seattle	WA	42	71	117	171	221	242	254	217	158	92	50	33
Cheyenne	WY	92	129	175	221	250	279	279	246	204	150	100	79