

City:	CASPER													
State:	WY													
WBAN No:	24089													
Lat(N):	42.92													
Long(W):	106.47													
Elev(m):	1612													
Pres(mb):	837													
Stn Type:	Secondary													
SOLAR RADIATION FOR FLAT-PLATE COLLECTORS FACING SOUTH AT A FIXED-TILT (kWh/m2/day), Percentage Uncertainty = 9														
Tilt(deg)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
0	Average	2	2.9	4.1	5.2	6.1	7	7	6.3	4.9	3.4	2.2	1.7	4.4
	Minimum	1.8	2.6	3.6	4.7	5.4	6	6.6	5.4	4.2	2.9	2	1.6	4.1
	Maximum	2.2	3.2	4.5	5.9	6.7	7.6	7.5	6.7	5.6	3.9	2.4	2	4.6
Lat - 15	Average	3.4	4.3	5.2	5.8	6.2	6.8	7	6.8	6	4.8	3.6	3.1	5.2
	Minimum	2.9	3.6	4.4	5.2	5.4	5.8	6.6	5.8	4.9	3.9	3.2	2.7	4.8
	Maximum	4.1	5	5.8	6.7	6.9	7.4	7.4	7.3	6.9	5.7	4	3.8	5.5
Lat	Average	3.9	4.7	5.4	5.7	5.8	6.2	6.5	6.5	6.1	5.2	4.1	3.6	5.3
	Minimum	3.3	3.9	4.6	5.1	5.1	5.4	6.1	5.5	4.9	4.1	3.5	3.1	4.9
	Maximum	4.8	5.6	6.1	6.6	6.5	6.8	6.8	7	7	6.2	4.6	4.5	5.6
Lat + 15	Average	4.3	4.9	5.3	5.3	5.1	5.3	5.6	5.9	5.9	5.3	4.3	3.9	5.1
	Minimum	3.5	4	4.5	4.7	4.5	4.6	5.3	5	4.7	4.2	3.7	3.4	4.7
	Maximum	5.2	5.9	6.1	6.1	5.7	5.8	5.9	6.3	6.8	6.3	4.9	4.9	5.4
90	Average	4.1	4.5	4.3	3.6	3	2.8	3	3.7	4.3	4.5	4	3.8	3.8
	Minimum	3.3	3.6	3.6	3.2	2.7	2.6	2.9	3.1	3.4	3.5	3.5	3.3	3.5
	Maximum	5	5.4	4.9	4.1	3.4	3	3.2	3.9	4.9	5.3	4.6	4.8	4
SOLAR RADIATION FOR 1-AXIS TRACKING FLAT-PLATE COLLECTORS WITH A NORTH-SOUTH AXIS (kWh/m2/day), Percentage Uncertainty = 9														
Axis Tilt		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
0	Average	3.2	4.4	5.9	7.2	8.2	9.5	9.7	9	7.3	5.2	3.5	2.7	6.3
	Minimum	2.6	3.6	4.7	6.2	6.9	7.7	8.9	7.4	5.8	4.1	3	2.4	5.6
	Maximum	3.8	5.3	6.8	8.7	9.5	10.7	10.6	9.9	8.6	6.2	3.9	3.4	6.7
Lat - 15	Average	4.2	5.4	6.7	7.7	8.4	9.6	9.9	9.5	8.1	6.3	4.5	3.8	7
	Minimum	3.5	4.4	5.4	6.6	7.1	7.7	9.1	7.7	6.3	4.9	3.8	3.2	6.2
	Maximum	5.2	6.6	7.8	9.4	9.7	10.8	10.8	10.5	9.7	7.5	5.1	4.7	7.5
Lat	Average	4.6	5.8	6.9	7.6	8.2	9.2	9.5	9.3	8.2	6.6	4.9	4.2	7.1
	Minimum	3.8	4.7	5.5	6.5	6.9	7.4	8.7	7.6	6.4	5.1	4.1	3.6	6.3
	Maximum	5.7	7	8.1	9.3	9.5	10.4	10.4	10.3	9.8	7.9	5.5	5.3	7.6
Lat + 15	Average	4.9	5.9	6.9	7.3	7.7	8.6	9	8.9	8	6.6	5.1	4.4	7
	Minimum	4	4.7	5.4	6.3	6.5	6.9	8.2	7.2	6.2	5.1	4.3	3.8	6.2
	Maximum	6	7.2	8	8.9	8.9	9.7	9.8	9.9	9.6	8	5.8	5.7	7.4
SOLAR RADIATION FOR 2-AXIS TRACKING FLAT-PLATE COLLECTORS (kWh/m2/day), Percentage Uncertainty = 9														
Tracker		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
2-Axis	Average	4.9	5.9	6.9	7.7	8.5	9.8	10.1	9.5	8.2	6.7	5.1	4.5	7.3
	Minimum	4	4.8	5.5	6.6	7.2	7.9	9.2	7.8	6.4	5.2	4.3	3.9	6.5
	Maximum	6.1	7.2	8.1	9.4	9.9	11.1	11	10.6	9.8	8	5.8	5.8	7.8
DIRECT BEAM SOLAR RADIATION FOR CONCENTRATING COLLECTORS (kWh/m2/day), Percentage Uncertainty = 8														
Tracker		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1-X, E-W	Average	3.1	3.4	3.5	3.6	4.1	5.2	5.5	5.1	4.5	3.9	3.1	2.9	4
Hor Axis	Minimum	2.2	2.4	2.4	2.7	2.8	3.5	4.7	3.6	3.1	2.6	2.3	2.2	3.3
	Maximum	4.2	4.5	4.5	5.1	5.1	6.3	6.3	5.9	5.8	5.1	3.7	4.1	4.4
1-X, N-S	Average	2.1	3	3.9	4.7	5.5	6.9	7.3	6.8	5.5	3.8	2.3	1.9	4.5
Hor Axis	Minimum	1.5	2.1	2.6	3.4	3.8	4.6	6.2	4.9	3.7	2.5	1.7	1.4	3.6
	Maximum	2.9	4	5.1	6.6	6.9	8.4	8.4	8	7.1	4.9	2.8	2.7	5
1-X, N-S	Average	3.3	4.1	4.7	5.1	5.4	6.6	7	7	6.3	5	3.5	3.1	5.1
Tilt=Lat	Minimum	2.4	2.9	3.2	3.7	3.8	4.4	6	5	4.2	3.3	2.6	2.3	4.1
	Maximum	4.6	5.5	6.1	7.1	6.8	8	8.1	8.2	8.1	6.4	4.2	4.4	5.7
2-X	Average	3.6	4.2	4.8	5.2	5.8	7.1	7.5	7.2	6.3	5	3.7	3.3	5.3
	Minimum	2.6	3	3.2	3.8	4	4.8	6.4	5.2	4.3	3.4	2.7	2.5	4.3
	Maximum	4.9	5.6	6.1	7.2	7.2	8.6	8.7	8.4	8.1	6.5	4.4	4.8	5.9
AVERAGE CLIMATIC CONDITIONS														
Element		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp.	(deg C)	-5.3	-3.1	0.8	6	11.3	17.1	21.6	20.4	14.3	8	0.6	-4.6	7.3
Daily Min	(deg C)	-11.1	-8.9	-5.7	-1.4	3.3	8.3	12.2	11	5.3	0.1	-5.7	-10.2	-0.2
Daily Max	(deg C)	0.4	2.8	7.3	13.4	19.2	25.9	30.9	29.8	23.2	15.8	6.8	1.1	14.7
Record Lo	(deg C)	-40	-33.9	-29.4	-20	-8.9	-2.2	-1.1	0.6	-8.9	-19.4	-29.4	-40.6	-40.6
Record Hi	(deg C)	15.6	20	23.3	28.3	33.3	38.9	40	38.9	35.6	29.4	21.7	16.1	40
HDD,Base=	18.3C	734	599	543	370	219	77	6	20	139	321	532	709	4268
CDD,Base=	18.3C	0	0	0	0	0	39	106	84	19	0	0	0	247
Rel Hum	percent	64	65	62	58	57	51	44	43	49	54	61	64	56
Wind Spd.	(m/s)	7.6	6.8	6.2	5.6	5.2	4.8	4.6	4.6	4.9	5.4	6.4	6.9	5.7