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FORT COLLINS SOLAR RADIATION DATA

JANUARY 1978 THROUGH
DECEMBER 1979

S. K. COX
T. B. McKEE
PAULINE J. MARTIN

CLIMATOLOGY REPORT 80-1



**DEPARTMENT OF ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO**

FORT COLLINS SOLAR RADIATION DATA

January 1978 - December 1979

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I. INTRODUCTION

Solar radiation data have been collected at the Atmospheric Science Department of Colorado State University since the spring of 1975. The instruments, which are described in Section II, are located on the roof of the three-story Atmospheric Science Building on Colorado State University's Foothills Campus. The latitude and longitude of the facility are $40^{\circ}35'N$ and $105^{\circ}8'W$, respectively, and the elevation of the site is 1609 meters (5279 feet) above sea level. The city of Fort Collins lies to the east of the Atmospheric Science Building, and the Rocky Mountains rise to the west. The western horizon is defined by foothills which rise an average of 4 degrees above the horizontal.

Two and one-half years of data (May 1975 - December 1977) were assembled in a previous report, Climatology Report No. 78-1, which was published in August 1978. Photographs of the site and the instruments were contained in that report and will not be repeated here.

Data collection has continued throughout 1978 and 1979, and the results are presented in the following tables. The format is described briefly in Section III and is identical to what appeared in the previous publication. Standard metric units are augmented by a table of conversion factors on Page .

The ever-growing interest in solar radiation, both as a crucial climatic element and as a direct energy source, has produced an escalating need for high-quality solar data. Data contained in the previous report have been used extensively for purposes ranging from design and planning to education and research in many fields. Data users have included architects and engineers, energy and meteorological consultants, federal, state, and local agencies, extension,

and both the education and research communities at Colorado State University and other Colorado universities. These additional two years of data, together with the earlier measurements and other data collected in Colorado, will bring us closer to having an adequate description of the solar radiation climate of the Front Range area.

II. SOLAR RADIATION MEASUREMENTS

Two instruments record incident solar radiation at the site. Total hemispheric solar irradiance is recorded by an Eppley Precision Pyranometer. Irradiance has the units of energy per unit time per unit area which are equivalent to power per unit area. The total hemispheric solar irradiance is a measure of the total power per unit area incident on a horizontal surface. Radiation is accepted from all angles in the upward hemisphere and for a wavelength range encompassing more than 97% of the solar radiation (i.e. $0.3\ \mu\text{m}$ to $3.0\ \mu\text{m}$). The second instrument, an Eppley Pyrheliometer measures the direct solar component in the same spectral interval. By means of an equatorial mount this instrument is pointed at, and tracks the sun. The instrument has an angular field of view of $5^{\circ}43'30''$. Since the sun subtends an angle of 0.5° , the instrument receives direct radiation from the sun and radiation scattered into a small angular field near the sun. The instruments were calibrated at the National Calibration Facility at NOAA-ERL in Boulder, Colorado and are recalibrated annually. Instrument maintenance consists of visual inspection daily, realignment as needed, and cleaning as needed. The data from both instruments are recorded as instantaneous values digitally on magnetic tape once per minute. The one minute values are then integrated to yield hourly, daily, and monthly values.

III. SOLAR RADIATION DATA

The radiation data are presented in three types of tables. Tables 2-25 contain the hourly total hemispheric irradiance data in megajoules per square meter per hour by month starting in January 1978. Data have been summed across the tables to obtain daily values in megajoules per square meter per day. Hourly and daily values are then summarized for the month by an average and standard deviation at the bottom of the tables. Tables 26-49 contain a similar data set for direct solar irradiance starting in January 1978. Summaries for each data year are given in Tables 50-53.

Missing data are coded with an M and estimated data are noted with and E. Any 0.0 value recorded in the tables is an actual measurement. A daily total is labeled missing if one hour is missing. A monthly average is missing if 8 daily values are missing.

Several useful conversion factors are listed in Table 1.

<u>To convert from</u>	<u>to</u>	<u>Multiply by</u>
British thermal unit (thermochemical)	joule	1.054350×10^3
Btu (thermochemical)/h	watt	2.928751×10^{-1}
Btu (thermochemical)/min	watt	1.757250×10^1
Btu (thermochemical)/s	watt	1.054350×10^3
Btu (thermochemical)/ft ²	joule per meter ²	1.134893×10^4
Btu (thermochemical)/ft ² ·h	watt per meter ²	3.152481×10^0
Btu (thermochemical)/ft ² ·min	watt per meter ²	1.891489×10^2
Btu (thermochemical)/ft ² ·s	watt per meter ²	1.134893×10^4
calorie (thermochemical)	joule	4.184000×10^0
cal (thermochemical)/cm ²	joule per meter ²	4.184000×10^4
cal (thermochemical)/min	watt	6.973333×10^{-2}
cal (thermochemical)/s	watt	4.184000×10^0
cal (thermochemical)/cm ² ·min	watt per meter ²	6.973333×10^2
cal (thermochemical)/cm ² ·s	watt per meter ²	4.184000×10^4
degree Fahrenheit	degree Celsius	$t_{oC} = (t_{oF} - 32)/1.8$
foot	meter	3.048000×10^{-1}
knot (international)	meter per second	5.144444×10^{-1}
langley	joule per meter ²	4.184000×10^4
langley	Btu per foot ²	3.686691×10^0
mile (statute)	meter	1.609300×10^3
millibar	pascal	1.000000×10^2
watt·hour	joule	3.600000×10^3

Table 1. Conversion coefficients.

FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

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INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

FEBRUARY 1978

 ATMOSPHERIC SOLAR IRRADIANCE
 HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)

 FORT COLLINS, COLORADO
 COLORADO STATE UNIVERSITY
 DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	MONS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQM-DAY)
1	0.000	0.000	0.000	.136	.418	.781	1.023	1.121	1.092	1.075	.874	.462	.161	0.000	0.000	0.000	0.000	0.000	7.142
2	0.000	M	M	M	M	M	M	2.126	2.194	2.112	M	1.005	.345	0.000	0.000	0.000	0.000	0.000	M
3	0.000	0.000	0.000	.090	.702	1.337	1.856	.945	.919	.941	1.508	1.114	.383	0.000	0.000	0.000	0.000	0.000	9.795
4	0.000	0.000	0.000	.156	.746	1.342	1.802	2.117	2.155	1.965	1.572	.936	.417	0.000	0.000	0.000	0.000	0.000	13.210
5	0.000	0.000	.006	.150	.540	.985	.998	1.247	1.698	1.530	.643	.229	.062	.009	0.000	0.000	0.000	0.000	8.096
6	0.000	0.000	.007	.029	.134	.255	.766	.729	1.079	.736	.547	.303	.119	.014	0.000	0.000	0.000	0.000	4.718
7	0.000	0.000	.010	.057	.243	.395	.547	.820	.498	.487	.457	.268	.105	.015	0.000	0.000	0.000	0.000	3.903
8	0.000	0.000	.008	.031	.164	.207	.243	.319	.284	.249	.278	.202	.084	.016	0.000	0.000	0.000	0.000	2.086
9	0.000	0.000	.007	.068	.242	.705	.957	.843	.763	.946	.515	.355	.227	.025	0.000	0.000	0.000	0.000	5.652
10	0.000	0.000	.008	.096	.405	.447	M	1.539	1.406	1.698	1.766	.653	.459	.025	0.000	0.000	0.000	0.000	M
11	0.000	0.000	.011	.033	.068	.118	.232	.350	.586	.560	.585	.289	.166	.020	0.000	0.000	0.000	0.000	3.019
12	0.000	0.000	.010	.061	.206	.353	.499	.625	.810	.778	.614	.375	.200	.029	0.000	0.000	0.000	0.000	4.560
13	0.000	0.000	.014	.112	.612	1.251	1.452	2.138	1.913	1.941	1.627	1.154	.408	.034	0.000	0.000	0.000	0.000	12.656
14	0.000	0.000	.005	.134	.472	.823	1.491	1.999	1.852	2.115	1.712	.691	.322	.037	0.000	0.000	0.000	0.000	11.652
15	0.000	0.000	.003	.178	.676	1.136	1.749	2.283	2.284	2.074	1.184	.645	.216	.025	0.000	0.000	0.000	0.000	12.456
16	0.000	0.000	.008	.183	.572	1.039	1.470	1.481	1.310	1.239	1.301	.945	.472	.054	0.000	0.000	0.000	0.000	10.075
17	0.000	0.000	.014	.508	1.312	1.985	2.236	2.447	2.523	2.340	1.915	1.344	.531	.038	0.000	0.000	0.000	0.000	17.192
18	0.000	0.000	.006	.305	.994	1.670	1.890	2.441	2.657	2.353	1.547	.429	.144	.019	0.000	0.000	0.000	0.000	14.454
19	0.000	0.000	.005	.165	1.046	1.662	2.162	2.492	2.451	1.719	1.160	.778	.446	.056	0.000	0.000	0.000	0.000	14.162
20	0.000	0.000	.009	.218	.904	1.677	2.176	2.493	2.681	2.409	1.978	1.413	.702	.049	0.000	0.000	0.000	0.000	16.708
21	0.000	0.000	.007	.341	1.319	1.684	2.159	2.465	2.532	2.305	1.922	1.304	.575	.084	0.000	0.000	0.000	0.000	16.697
22	0.000	0.000	.016	.389	1.017	1.626	2.119	2.409	2.514	2.254	1.847	1.353	.680	.083	0.000	0.000	0.000	0.000	16.307
23	0.000	0.000	.012	.379	1.072	1.705	2.170	2.464	2.532	2.298	1.909	1.358	.459	.072	0.000	0.000	0.000	0.000	16.431
24	0.000	0.000	.018	.552	1.003	1.129	1.039	1.219	.822	1.957	.909	.460	.136	.019	0.000	0.000	0.000	0.000	9.261
25	0.000	0.000	.008	.082	.246	.227	.243	.274	.363	.311	.211	.135	.070	.016	0.000	0.000	0.000	0.000	2.185
26	0.000	0.000	.012	.140	.332	.808	1.756	2.382	2.436	1.892	1.511	.615	.423	.072	0.000	0.000	0.000	0.000	12.378
27	0.000	0.000	.013	.307	M	M	.850	1.024	.510	.414	.264	.282	.135	.035	0.000	0.000	0.000	0.000	M
28	0.000	0.000	.030	.286	1.048	1.491	2.087	.801	.849	1.066	.663	.367	.254	.050	0.000	0.000	0.000	0.000	8.993
AVERAGE VALUES	0.000	0.000	.007	.197	.634	1.033	1.364	1.557	1.561	1.492	1.143	.695	.311	.032	0.000	0.000	0.000	0.000	10.152
STANDARD DEVIATION	0.000	0.000	.006	.144	.381	.569	.688	.792	.832	.727	.601	.420	.188	.025	0.000	0.000	0.000	0.000	4.960

 M MISSING DATA
 E ESTIMATED DATA REFER TO DOCUMENTATION

 INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
 SERIAL NO. 12516 F3

Table 3.

MARCH 1978

HEMISPHERIC SOLAR IRRADIANCE HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)

FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SUM-DAY)	
1	0.000	0.000	.012	.112	.300	.602	.925	1.084	1.078	.982	.649	.474	.239	.113	0.000	0.000	0.000	0.000	6.567	
2	0.000	0.000	.019	.204	.712	1.180	1.877	2.842	2.612	2.036	1.285	.562	.230	.080	0.000	0.000	0.000	0.000	13.641	
3	0.000	0.000	.029	.250	.656	1.508	2.069	1.950	2.574	1.825	1.159	.853	.546	.110	0.000	0.000	0.000	0.000	13.529	
4	0.000	0.000	.070	.833	1.703	2.101	2.437	2.726	2.764	2.577	2.136	1.255	.387	.093	0.000	0.000	0.000	0.000	19.081	
5	0.000	0.000	.026	.480	1.250	1.894	2.296	1.748	2.620	.944	.845	.824	.418	.103	0.000	0.000	0.000	0.000	13.448	
6	0.000	0.000	.044	.272	.750	.928	1.559	1.682	1.572	2.083	1.238	1.389	.283	.077	0.000	0.000	0.000	0.000	11.877	
7	0.000	0.000	.057	.619	1.226	1.919	2.454	2.726	2.756	2.574	2.175	1.588	.887	.174	0.000	0.000	0.000	0.000	19.156	
8	0.000	0.000	.064	.586	1.317	1.991	2.307	2.510	2.642	2.006	2.144	1.452	.850	.178	0.000	0.000	0.000	0.000	18.047	
9	0.000	0.000	.033	.178	.451	1.060	2.261	1.606	1.634	2.582	1.971	1.031	.418	.049	0.000	0.000	0.000	0.000	13.273	
10	0.000	0.000	.034	.267	.537	.873	1.721	2.214	2.614	.783	.400	.187	.189	.122	0.000	0.000	0.000	0.000	9.942	
11	0.000	0.000	.139	.644	1.799	2.169	2.546	2.812	2.839	2.636	2.193	1.595	.937	.178	0.000	0.000	0.000	0.000	20.486	
12	0.000	0.000	.054	.389	1.072	1.810	2.005	1.710	2.073	1.203	.723	.582	.330	.107	0.000	0.000	0.000	0.000	12.060	
13	0.000	0.000	.069	.662	1.528	2.103	2.540	2.210	3.018	1.811	1.266	1.514	.913	.273	0.000	0.000	0.000	0.000	17.907	
14	0.000	0.000	.051	.578	1.271	1.612	2.634	2.396	2.567	2.681	2.607	2.028	1.096	.320	0.000	0.000	0.000	0.000	19.840	
15	0.000	0.000	.061	.436	1.321	2.329	2.738	3.001	2.027	2.772	.853	1.181	.674	.213	0.000	0.000	0.000	0.000	17.605	
16	0.000	0.000	.143	.789	1.548	2.203	2.052	1.611	1.983	2.268	1.378	1.645	1.029	.291	0.000	0.000	0.000	0.000	16.940	
17	0.000	0.000	.144	.798	1.524	2.184	2.645	2.892	2.866	2.773	2.354	1.781	1.159	M	M	M	M	M	M	
18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
19	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
20	M	M	M	M	1.348	2.182	2.709	2.988	3.136	2.509	2.282	1.813	.845	.333	0.000	0.000	0.000	0.000	M	
21	0.000	0.000	.167	.860	1.592	2.216	2.715	2.983	3.010	2.776	2.319	1.707	.915	.192	0.000	0.000	0.000	0.000	21.472	
22	0.000	0.000	.173	.921	1.675	1.891	1.725	2.055	2.656	1.834	1.254	.707	.161	.078	0.000	0.000	0.000	M	15.130	
23	M	M	M	M	M	.422	.435	.499	.624	.554	.480	.448	.339	.107	0.000	0.000	0.000	0.000	M	
24	0.000	.006	.191	.518	.793	1.018	2.378	2.305	1.569	.693	.172	.188	.327	.256	.011	0.000	0.000	0.000	10.425	
25	0.000	.002	.246	.980	1.850	2.145	2.351	3.128	3.155	2.992	2.804	2.135	.660	.205	.008	0.000	0.000	0.000	22.663	
26	0.000	.002	.261	.959	1.693	2.271	2.804	2.446	2.712	2.528	2.401	1.845	1.008	.356	.010	0.000	0.000	0.000	21.295	
27	0.000	.002	.254	.976	1.761	1.987	2.444	2.797	2.590	2.567	2.466	1.846	.991	.294	.006	0.000	0.000	0.000	20.981	
28	0.000	.005	.276	.905	1.604	2.132	2.797	3.064	3.085	2.875	2.443	1.840	1.123	.335	.008	0.000	0.000	0.000	22.491	
29	0.000	.003	.299	1.014	1.743	2.366	2.827	3.097	3.126	2.862	2.428	1.804	1.086	.382	.014	0.000	0.000	0.000	23.050	
30	0.000	.007	.316	1.036	1.769	2.410	2.821	3.078	3.494	1.824	1.954	1.034	.402	.254	.009	0.000	0.000	0.000	20.409	
31	0.000	.005	.109	.984	M	M	1.914	3.194	1.428	1.404	2.458	.969	.837	.365	M	M	M	M	M	
AVERAGE VALUES																				16.853
STANDARD DEVIATION																				4.572

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

APRIL 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	M	M	M	M	M	M	M	M	M	.186	.375	.154	.151	.124	.013	0.000	0.000	0.000	M
2	0.000	.016	.268	.491	.943	1.461	2.746	1.948	1.723	2.540	1.897	1.727	1.024	.350	.008	0.000	0.000	0.000	17.142
3	0.000	.008	.276	1.117	1.885	2.695	2.334	3.370	3.313	1.951	1.401	.813	.278	.201	.018	0.000	0.000	0.000	19.660
4	0.000	.015	.385	1.043	1.650	2.291	2.741	3.089	2.940	2.876	2.396	1.680	.954	.232	.029	0.000	0.000	0.000	22.319
5	0.000	.011	.303	M	1.902	1.348	2.766	3.313	2.811	3.016	2.501	2.094	1.314	.548	.017	0.000	0.000	0.000	M
6	0.000	.014	.338	.790	1.552	2.569	2.991	3.147	3.089	2.705	2.452	1.406	1.013	.368	.016	0.000	0.000	0.000	22.449
7	0.000	.027	.512	1.158	1.841	2.647	2.669	3.315	2.995	3.056	2.575	M	1.035	.239	.039	0.000	0.000	0.000	M
8	0.000	.011	.402	1.370	2.152	2.621	2.934	2.035	2.935	2.932	2.480	1.527	.621	.280	.022	0.000	0.000	0.000	22.323
9	0.000	.005	.038	.075	.134	.173	.439	.573	.441	.389	.345	.200	.460	.228	.034	0.000	0.000	0.000	3.535
10	0.000	.030	.222	.600	.365	.977	1.437	1.957	1.435	1.739	1.717	1.013	.308	.263	.038	0.000	0.000	0.000	12.099
11	0.000	.139	.819	1.341	1.827	2.579	3.260	M	M	M	M	M	M	M	M	M	M	M	M
12	M	M	M	M	2.292	2.733	3.174	3.400	3.407	3.185	2.751	2.090	1.387	.616	.083	0.000	0.000	0.000	M
13	0.000	.062	.449	1.345	2.056	1.370	.954	1.642	3.104	2.076	1.370	.617	.430	.274	.039	0.000	0.000	0.000	15.787
14	0.000	.059	.229	.581	1.136	1.113	1.331	1.639	1.839	1.130	1.397	1.015	1.201	.370	.040	0.000	0.000	0.000	13.082
15	0.000	.013	.073	.182	.224	.326	.837	.474	.627	.777	1.333	1.536	.419	.226	.032	0.000	0.000	0.000	7.078
16	0.000	.011	.071	.296	.384	.297	.467	.926	2.171	1.642	1.028	.509	.162	.687	.038	0.000	0.000	0.000	8.690
17	0.000	.032	.584	1.506	2.261	2.207	3.120	3.555	3.422	2.862	3.065	2.263	1.488	.623	.059	0.000	0.000	0.000	27.047
18	M	M	M	M	1.876	2.595	3.257	3.547	3.598	3.312	2.862	2.258	1.490	.705	.095	0.000	0.000	0.000	M
19	0.000	.093	.660	1.432	2.147	2.768	3.205	3.439	3.427	3.080	2.703	2.025	.730	.166	.026	0.000	0.000	0.000	25.903
20	0.000	.120	.677	1.144	2.073	2.754	3.154	3.446	3.390	2.576	2.583	2.087	1.257	.393	.075	0.000	0.000	0.000	25.730
21	0.000	.032	.334	1.007	2.106	2.754	3.186	3.437	3.281	3.230	1.727	.799	.722	.596	.057	0.000	0.000	0.000	23.268
22	0.000	.126	.738	1.136	1.132	2.351	3.525	3.711	3.669	2.938	2.699	2.209	1.296	.682	.080	0.000	0.000	0.000	26.292
23	0.000	.112	.754	1.450	2.135	2.895	3.271	3.547	3.556	3.305	2.904	2.236	1.424	.644	.071	0.000	0.000	0.000	28.304
24	0.000	.130	.739	1.512	2.251	2.849	3.238	3.464	3.345	2.797	2.660	2.296	1.484	.636	.066	0.000	0.000	0.000	27.466
25	0.000	.110	.729	1.415	1.923	2.119	2.711	3.252	3.168	1.619	1.488	1.170	.747	.515	.127	0.000	0.000	0.000	21.094
26	0.000	.085	.437	1.003	2.037	2.341	2.843	2.895	2.970	2.951	2.497	1.857	1.266	.623	.086	0.000	0.000	0.000	23.894
27	0.000	.139	.742	1.472	2.191	2.787	3.202	3.080	2.093	1.998	2.041	.306	.306	.413	.086	0.000	0.000	0.000	20.856
28	0.000	.180	.843	1.449	1.354	1.864	3.292	1.721	1.082	.910	1.141	.613	.510	.452	.041	0.000	0.000	0.000	15.452
29	0.000	.174	.651	1.317	2.083	3.026	2.992	3.098	2.021	.963	.774	.728	M	M	M	M	M	M	M
30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
AVERAGE VALUES	0.000	.067	.472	1.049	1.640	2.090	2.574	2.704	2.661	2.241	1.970	1.379	.870	.424	.049	0.000	0.000	0.000	M
STANDARD DEVIATION	0.000	.058	.247	.441	.669	.859	.936	.990	.937	.957	.793	.723	.456	.188	.030	0.000	0.000	0.000	M

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 5.

MAY 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. 12-13	13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQM-DAY)
1	M	M	M	M	.222	.245	.343	.344	.532	.509	.695	.288	.198	.076	.034	0.000	0.000	0.000	M
2	0.000	.023	.146	.423	.785	.675	.648	.579	1.206	1.031	.935	.591	.346	.187	.045	0.000	0.000	0.000	7.620
3	0.000	.086	.540	.669	1.505	2.229	2.853	1.819	1.289	1.210	M	M	M	M	M	M	M	M	M
4	M	M	M	M	M	M	M	M	1.148	1.580	.875	1.182	.544	.403	.212	0.000	0.000	0.000	M
5	0.000	.046	.109	.126	.263	.289	.395	.320	.191	.093	.065	M	M	M	M	M	M	M	M
6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
7	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
8	M	M	M	M	M	M	M	M	3.084	3.338	3.059	2.550	1.612	.941	.218	0.000	0.000	0.000	M
9	.006	.291	.994	1.785	2.557	3.151	3.580	3.772	3.759	3.505	3.052	2.429	1.656	.859	.169	.000	0.000	0.000	31.566
10	.006	.233	.624	1.253	1.685	2.638	2.579	3.353	2.846	3.495	2.778	1.954	1.191	.589	.299	.005	0.000	0.000	25.528
11	.009	.086	.406	.996	.879	.533	1.722	1.367	1.448	1.507	1.823	1.647	M	M	M	M	M	M	M
12	M	M	M	M	2.535	3.003	3.329	3.375	3.773	3.478	3.029	2.452	1.712	.955	.247	.001	0.000	0.000	M
13	.006	.308	.994	1.732	2.422	2.962	3.425	3.626	3.574	3.394	2.889	1.826	.614	.679	.299	.001	0.000	0.000	28.751
14	.009	.316	.993	1.728	2.403	2.986	3.390	3.595	3.616	3.392	3.087	2.103	1.737	.962	.164	.002	0.000	0.000	30.484
15	.004	.269	.989	1.711	2.405	2.980	3.391	3.605	3.566	3.324	2.873	2.303	1.610	.907	.253	.001	0.000	0.000	30.192
16	.018	.371	.979	1.728	2.385	2.925	3.312	3.514	3.536	3.280	2.664	2.169	.819	.658	.137	.004	0.000	0.000	28.498
17	.009	.015	.026	.507	.871	.905	.255	.200	.232	.110	M	M	M	M	M	M	M	M	M
18	M	M	M	1.942	2.515	3.104	3.462	3.562	3.125	2.905	2.958	2.394	1.781	.977	.305	.008	0.000	0.000	M
19	.015	.350	1.028	1.766	2.455	3.031	3.424	3.626	3.608	3.403	2.959	2.347	1.623	.882	.237	.006	0.000	0.000	30.757
20	.008	.048	.171	.312	.566	1.291	2.693	3.534	3.205	3.174	2.790	2.094	1.202	.592	.211	.005	0.000	0.000	21.895
21	.021	.186	.496	1.083	1.475	1.725	.576	1.381	1.762	.863	.791	.550	.485	.578	.182	.003	0.000	0.000	12.455
22	.013	.375	.780	1.634	2.155	2.994	3.494	2.919	3.330	2.173	2.531	1.137	.965	.943	.361	.006	0.000	0.000	25.812
23	.019	.371	.845	1.349	1.484	1.482	1.898	2.496	2.642	3.086	2.732	2.362	.890	.531	.293	.007	0.000	0.000	22.526
24	.016	.362	1.028	1.745	2.460	3.025	3.500	2.805	3.011	2.060	2.168	1.367	1.759	1.022	.345	.008	0.000	0.000	26.681
25	.024	.285	.848	1.167	2.228	2.022	2.586	3.494	3.002	3.191	2.257	2.360	1.640	.767	.191	.012	0.000	0.000	26.074
26	.023	.421	.718	1.957	2.507	3.065	3.431	3.647	3.551	2.004	1.415	.397	.829	.719	.157	.022	0.000	0.000	24.863
27	.001	.049	.236	1.206	2.510	2.825	1.471	1.377	2.334	2.240	1.748	1.784	1.046	.310	.194	.017	0.000	0.000	19.347
28	.004	.087	.230	.310	1.211	2.401	1.817	2.589	2.978	2.808	1.864	.522	1.421	.580	.276	.012	0.000	0.000	19.111
29	.013	.382	1.064	1.792	2.479	3.044	3.453	3.769	3.691	3.554	3.277	1.704	.644	.343	.208	.007	0.000	0.000	29.426
30	.013	.381	1.048	1.784	2.484	2.938	3.408	3.621	3.513	2.245	1.253	.529	.164	.208	.099	.013	0.000	0.000	23.701
31	.019	.133	.467	.704	.495	.539	2.207	1.432	2.292	2.486	1.959	1.533	.878	.143	.034	.008	0.000	0.000	15.329
AVERAGE VALUES STANDARD DEVIATION	.011	.228	.657	1.258	1.776	2.185	2.479	2.562	2.615	2.394	2.168	1.638	1.095	.632	.207	.006	0.000	0.000	M
	.008	.141	.357	.592	.824	1.037	1.148	1.246	1.135	1.105	.912	.754	.534	.294	.090	.006	0.000	0.000	M

JUNE 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	.004	.062	.232	.305	.387	.299	.460	.548	1.056	1.073	1.708	.696	.257	.112	.050	.012	0.000	0.000	7.262
2	.016	.111	.238	.412	.686	.898	1.142	1.247	.679	.362	.363	.422	.838	.364	.113	.007	0.000	0.000	7.898
3	.007	.052	.162	.266	.484	.769	1.156	1.325	1.426	.551	1.563	.407	.350	.520	.138	.015	0.000	0.000	9.192
4	.026	.102	.289	1.334	1.410	2.374	1.720	2.650	1.824	2.087	.381	1.234	.288	.144	.102	.021	0.000	0.000	15.993
5	.019	.211	.407	.579	.678	1.094	1.629	1.535	1.059	1.114	2.078	1.747	1.127	.300	.160	.011	0.000	0.000	13.749
6	.029	.410	1.059	1.797	2.522	3.114	3.525	3.790	3.658	3.445	3.111	2.470	1.599	.889	.149	.009	0.000	0.000	31.576
7	.030	.423	.557	1.065	1.814	1.211	2.449	2.443	.944	2.697	1.942	.121	.033	.662	.457	.016	0.000	0.000	16.862
8	.033	.458	1.110	1.814	2.506	3.102	2.641	3.506	3.472	3.391	2.568	2.058	1.694	.836	.346	.034	0.000	0.000	29.571
9	.031	.419	1.104	1.839	2.563	3.174	3.531	3.393	3.441	3.498	2.871	2.051	1.011	.383	.440	.022	0.000	0.000	29.770
10	.010	.100	.207	.474	.964	2.921	2.891	3.119	3.191	1.967	1.348	1.114	1.101	.884	.514	.050	0.000	0.000	20.853
11	.026	.329	1.003	1.466	1.661	3.117	3.233	3.059	3.517	3.391	3.053	2.527	1.832	1.279	.434	.045	0.000	0.000	29.974
12	.031	.424	1.099	1.827	2.510	3.045	3.372	3.671	2.210	2.173	2.778	2.383	1.576	1.071	.412	.026	0.000	0.000	28.608
13	.023	.394	1.099	1.852	2.563	3.081	3.441	3.447	3.508	3.209	2.758	1.581	.993	1.392	.517	.049	0.000	0.000	29.908
14	.027	.436	1.102	1.821	2.464	3.024	3.451	3.651	3.687	2.796	1.931	1.553	1.579	.378	.346	.068	0.000	0.000	28.312
15	.031	.430	1.101	1.810	2.456	3.024	3.496	3.749	3.744	3.540	3.175	2.564	1.856	1.131	.474	.027	0.000	0.000	32.608
16	.031	.445	1.128	1.855	2.525	3.032	3.416	3.618	3.622	3.423	3.072	2.391	1.257	.490	.371	.032	0.000	0.000	30.708
17	.034	.423	1.111	1.838	2.491	3.024	3.406	3.623	3.718	3.436	3.021	2.329	.631	.306	.119	.043	0.000	0.000	29.552
18	.035	.429	1.168	1.767	2.439	2.990	3.404	3.129	3.491	3.471	3.077	2.042	1.473	.925	.450	.034	0.000	0.000	30.346
19	.024	.305	1.090	1.769	2.458	3.030	3.463	2.723	2.558	1.882	1.953	2.053	1.810	1.158	.325	.045	0.000	0.000	26.647
20	.015	.115	.782	1.959	2.534	2.994	3.494	3.624	3.605	3.392	3.014	2.430	1.812	1.059	.362	.035	0.000	0.000	31.226
21	.031	.399	1.036	1.775	2.460	2.818	3.350	3.167	2.376	1.975	1.111	.841	.950	1.078	.538	.046	0.000	0.000	23.950
22	.036	.441	1.103	1.779	2.471	2.974	3.356	3.562	3.476	2.870	2.595	1.176	.750	.470	.100	.014	0.000	0.000	27.172
23	.026	.287	.879	1.702	2.393	2.929	3.329	2.198	2.634	2.355	2.612	1.740	.501	.481	.324	.053	0.000	0.000	24.443
24	.058	.352	1.010	1.414	2.298	2.967	3.543	3.708	3.363	3.380	2.386	2.200	.895	.365	.272	.034	0.000	0.000	28.244
25	.034	.415	1.075	1.786	2.460	3.024	3.409	3.570	3.708	3.526	3.124	2.511	1.899	.744	.463	.040	0.000	0.000	31.768
26	.027	.404	1.075	1.760	2.422	2.985	3.398	3.238	3.618	3.414	3.013	2.330	1.225	.609	.184	.019	0.000	0.000	29.722
27	.023	.388	1.044	1.726	2.251	2.151	2.949	3.101	3.464	2.431	.524	.302	.528	.511	.217	.039	0.000	0.000	21.649
28	.020	.263	.637	1.593	2.124	2.875	3.360	3.538	3.560	3.365	3.013	2.407	1.791	1.046	.399	.018	0.000	0.000	30.010
29	.034	.424	.821	1.311	1.967	1.940	3.264	3.144	1.703	.205	.901	1.454	1.177	.290	.190	.012	0.000	0.000	18.831
30	.022	.094	.196	.568	1.060	1.277	2.331	3.543	2.850	.768	.511	.666	1.395	.965	.446	.038	0.000	0.000	16.731
AVERAGE VALUES	.027	.318	.832	1.442	2.001	2.509	2.920	3.021	2.839	2.506	2.185	1.660	1.141	.695	.314	.030	0.000	0.000	24.439
STANDARD DEVIATION	.010	.140	.359	.551	.720	.864	.852	.849	1.000	1.083	.946	.780	.550	.359	.150	.015	0.000	0.000	7.673

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 7.

JULY 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/CSQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	.028	.185	1.036	1.733	2.314	2.802	2.189	3.165	2.795	2.558	2.452	2.072	.901	1.136	.429	.029	0.000	0.000	25.824
2	.024	.369	1.019	1.720	2.392	2.945	3.360	3.590	3.616	3.470	3.176	1.871	.958	1.150	.498	.049	0.000	0.000	30.206
3	.025	.397	1.055	1.758	2.413	2.940	3.375	3.591	3.425	2.896	2.057	1.824	M	M	M	M	M	M	M
4	M	M	M	M	M	M	3.646	3.736	3.729	3.475	3.103	2.554	1.869	1.128	.436	.035	0.000	0.000	M
5	.013	.370	1.032	1.740	2.400	2.952	3.385	3.607	3.624	3.451	3.156	2.540	1.611	.932	.276	.018	0.000	0.000	31.107
6	.009	.197	.961	1.691	2.355	2.563	.338	M	3.224	3.175	2.538	.404	1.316	.386	.127	.022	0.000	0.000	M
7	.027	.336	.928	1.270	2.147	2.952	3.300	3.522	3.532	3.332	2.991	2.406	1.746	1.076	.409	.032	0.000	0.000	30.006
8	.018	.346	.993	1.723	2.419	2.978	3.352	3.614	3.548	3.054	2.893	2.518	1.907	1.136	.496	.028	0.000	0.000	30.963
9	.018	.081	.053	.167	.408	.544	.424	.412	.475	1.051	1.365	.854	1.157	1.060	.565	.049	0.000	0.000	8.682
10	.014	.254	.755	1.213	2.004	2.406	M	1.675	2.282	1.448	2.119	.700	.091	.249	.492	.041	0.000	0.000	M
11	.016	.189	.861	1.433	1.663	2.647	3.367	3.337	.399	2.816	1.620	.790	1.866	.531	.156	.011	0.000	0.000	21.701
12	.007	.349	1.221	1.649	2.208	.921	1.223	2.579	2.567	2.076	1.809	1.083	.573	.272	.135	.016	0.000	0.000	18.685
13	.006	.093	.166	.546	1.656	2.923	3.288	3.499	3.523	3.306	3.050	2.320	1.685	1.047	.402	.028	0.000	0.000	27.559
14	.010	.304	.936	1.633	2.331	2.901	3.319	3.542	3.304	1.970	1.593	1.001	.736	.601	.239	.031	0.000	0.000	24.452
15	.011	.285	.886	1.565	2.265	2.870	3.258	3.328	2.096	.864	1.970	1.845	.739	.343	.087	.006	0.000	0.000	22.419
16	.006	.266	.912	1.592	2.251	2.816	2.559	2.804	2.636	M	M	M	M	M	M	M	M	M	M
17	M	M	M	M	M	2.206	3.768	3.723	3.031	2.273	2.385	1.517	.178	.393	.067	.008	0.000	0.000	M
18	.008	.093	.357	.646	2.112	2.541	2.977	3.477	2.923	3.419	3.067	1.803	1.546	.690	.224	.019	0.000	0.000	25.901
19	.008	.276	.969	1.600	1.301	2.724	3.257	2.645	1.895	1.005	3.090	.871	.904	.427	.229	.053	0.000	0.000	21.254
20	.023	.145	.159	.417	1.686	2.413	2.092	3.174	.999	3.048	1.483	1.316	1.410	.873	.234	.038	0.000	0.000	19.511
21	.012	.029	.063	.136	.339	.776	1.281	1.648	1.657	1.341	.301	.629	1.407	1.037	.177	.034	0.000	0.000	10.868
22	.017	.294	.799	1.569	2.314	2.808	3.256	3.541	3.584	3.351	2.945	2.386	1.714	1.020	.349	.026	0.000	0.000	29.972
23	.012	.277	.902	1.556	2.295	2.854	3.263	3.515	3.566	3.331	2.943	2.265	1.405	1.120	.411	.017	0.000	0.000	29.732
24	.006	.268	M	M	M	2.942	3.316	3.534	3.576	3.368	2.896	2.471	1.723	.265	.124	.011	0.000	0.000	M
25	.002	.247	.874	1.583	2.243	2.819	3.200	3.306	2.896	1.595	1.020	.564	.449	.080	.099	.013	0.000	0.000	20.990
26	.007	.224	.825	1.520	2.183	2.760	3.190	3.442	3.466	3.269	2.899	2.365	1.692	.965	.329	.009	0.000	0.000	29.142
27	.002	.211	.816	1.532	2.237	2.827	3.257	3.482	3.504	3.309	2.935	2.245	1.613	.967	.341	.008	0.000	0.000	29.285
28	.002	.213	.827	1.517	2.187	2.797	2.221	.377	1.566	.503	.311	1.076	1.389	.445	.165	.006	0.000	0.000	15.601
29	.003	.174	.356	.387	.900	1.364	1.326	1.501	1.202	.519	.542	.239	.724	.652	.288	.006	0.000	0.000	10.181
30	.002	.213	.804	1.484	2.173	2.773	3.212	3.564	3.547	3.327	2.810	2.299	1.681	.670	.246	.019	0.000	0.000	28.826
31	.001	.205	.714	1.507	2.204	1.267	2.545	3.004	3.428	2.925	2.809	2.119	1.098	.743	.320	.012	0.000	0.000	24.901
AVERAGE VALUES	.012	.238	.761	1.317	1.979	2.468	2.751	2.998	2.762	2.517	2.277	1.632	1.244	.738	.287	.023	0.000	0.000	23.658
STANDARD DEVIATION	.008	.093	.323	.519	.576	.714	.943	.933	.997	1.005	.889	.758	.523	.338	.140	.014	0.000	0.000	6.850

AUGUST 1978

HEMISPHERIC SOLAR IRRADIANCE HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)

FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. 12-13	13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)	
1	.008	.275	.808	1.502	2.195	2.760	3.106	3.285	3.265	3.017	2.363	.258	.322	.726	.351	.017	0.000	0.000	24.256	
2	.008	.050	.164	.452	1.306	2.639	2.173	2.571	2.097	1.183	1.714	.904	.621	.303	.037	.003	0.000	0.000	16.225	
3	.006	.045	.186	.251	.277	.471	.594	.393	.417	.427	.552	.396	.225	.130	.051	.010	0.000	0.000	4.429	
4	.008	.149	.439	.649	1.525	2.941	3.260	3.475	3.465	3.276	2.878	2.296	1.617	.893	.248	.007	0.000	0.000	27.167	
5	.001	.170	.762	1.507	2.230	2.827	3.243	3.465	3.468	3.288	2.896	2.269	1.658	.935	.266	.003	0.000	0.000	29.028	
6	.000	.160	.728	1.425	2.080	2.715	3.005	1.401	2.591	.982	2.308	.112	1.227	.591	.070	.009	0.000	0.000	19.404	
7	0.000	.153	.699	1.436	2.134	2.699	3.284	2.805	3.064	3.065	2.821	2.255	1.599	.885	.217	0.000	0.000	0.000	27.115	
8	0.000	.142	.721	1.425	2.107	2.666	3.083	3.136	2.581	3.298	2.279	.254	.025	.049	.042	0.000	0.000	0.000	21.909	
9	0.000	.141	.725	1.430	2.106	2.688	3.123	3.370	3.402	3.200	1.813	1.984	1.485	.718	.169	0.000	0.000	0.000	26.353	
10	0.000	.064	.366	.942	1.003	2.559	3.148	2.525	1.860	.807	2.491	2.140	1.299	.368	.092	0.000	0.000	0.000	19.664	
11	0.000	.125	.671	1.391	2.090	2.721	3.089	2.602	2.202	.989	1.613	1.197	.370	.091	.021	0.000	0.000	0.000	19.171	
12	0.000	.139	.784	1.335	1.955	2.353	2.897	3.107	3.426	2.517	.317	.405	.321	.394	.063	0.000	0.000	0.000	20.013	
13	0.000	.180	.650	1.267	2.037	2.683	3.103	3.193	2.368	2.477	.853	.487	1.026	.602	.151	0.000	0.000	0.000	21.017	
14	0.000	.123	.421	1.126	1.250	1.215	3.089	.895	2.529	2.244	2.199	.853	.668	1.039	.240	0.000	0.000	0.000	17.891	
15	0.000	.104	.707	1.451	2.167	2.769	3.204	M	3.441	3.243	2.825	2.237	1.546	.809	.152	0.000	0.000	0.000	M	
16	0.000	.103	.674	1.402	2.108	2.660	3.140	3.363	3.397	3.236	2.832	2.249	1.541	.809	.154	0.000	0.000	0.000	27.668	
17	0.000	.094	.663	1.389	2.104	2.706	3.136	3.376	3.428	3.253	2.512	1.996	1.200	.320	.050	0.000	0.000	0.000	26.227	
18	0.000	.032	.240	.479	1.070	1.619	.705	.759	1.685	3.168	1.560	.855	1.505	.788	.146	0.000	0.000	0.000	14.612	
19	0.000	.083	.617	1.339	2.065	2.661	3.106	3.331	3.336	3.125	2.055	1.634	.837	.663	.078	0.000	0.000	0.000	24.931	
20	0.000	.126	.573	1.212	1.812	2.544	3.081	3.222	3.364	3.149	2.230	1.891	1.039	.517	.026	0.000	0.000	0.000	24.785	
21	0.000	.125	.688	1.324	2.069	2.172	1.870	3.154	2.530	2.857	1.900	1.100	.600	.515	.064	0.000	0.000	0.000	20.967	
22	0.000	.060	.322	.552	1.626	1.727	1.635	1.815	1.289	2.160	1.574	1.253	1.095	.334	.028	0.000	0.000	0.000	15.471	
23	0.000	.071	.608	1.314	2.019	2.493	3.050	3.236	2.909	1.145	1.612	1.161	.820	.515	.086	0.000	0.000	0.000	21.040	
24	0.000	.035	.472	1.309	2.094	2.514	2.974	3.256	2.815	2.099	1.655	1.593	.788	.184	.055	0.000	0.000	0.000	21.842	
25	0.000	.047	.421	.770	.800	1.191	.843	2.110	2.418	2.118	2.114	1.603	1.191	.581	.044	0.000	0.000	0.000	16.252	
26	0.000	.054	.552	1.270	1.966	2.546	2.111	1.676	1.637	1.425	1.168	1.423	.934	.653	.070	0.000	0.000	0.000	17.484	
27	0.000	.021	.309	1.260	2.071	2.597	3.031	3.242	2.166	1.362	.922	1.175	.278	.148	.072	0.000	0.000	0.000	18.593	
28	0.000	.026	.432	.885	1.142	1.677	3.456	1.382	2.930	2.544	2.498	1.516	1.194	.518	.051	0.000	0.000	0.000	20.251	
29	0.000	.017	.358	1.037	1.880	2.478	2.959	3.043	2.628	1.824	.716	1.565	.432	.015	.010	0.000	0.000	0.000	18.963	
30	0.000	.041	.447	1.225	1.891	2.498	2.913	3.117	3.136	2.978	1.701	1.811	.919	.481	.027	0.000	0.000	0.000	23.184	
31	0.000	.036	.500	1.480	1.870	2.582	2.644	.960	M	M	M	.585	1.197	.451	.005	0.000	0.000	0.000	M	
AVERAGE VALUES																				
STANDARD DEVIATION		.001	.097	.540	1.152	1.776	2.367	2.712	2.576	2.666	2.349	1.899	1.337	.954	.517	.101	.002	0.000	0.000	20.894
		.003	.060	.185	.353	.488	.575	.786	.948	.757	.914	.725	.690	.474	.278	.087	.004	0.000	0.000	5.068

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 9.

SEPTEMBER 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	.017	.478	1.177	1.928	2.494	2.971	M	M	2.447	1.315	1.994	1.197	.503	.015	0.000	0.000	0.000	M
2	0.000	.029	.481	1.155	1.907	2.533	3.024	3.277	3.300	2.950	2.509	1.912	.709	.213	.007	0.000	0.000	0.000	24.005
3	0.000	.017	.312	1.091	1.809	2.491	3.057	3.324	3.240	2.654	1.331	1.702	1.176	.454	.012	0.000	0.000	0.000	22.729
4	0.000	.029	.278	.648	1.725	2.478	3.021	3.306	3.253	2.916	M	M	M	M	M	M	M	M	M
5	M	M	M	1.258	1.861	2.462	3.022	3.314	3.249	2.904	2.456	1.807	1.014	.342	.009	0.000	0.000	0.000	M
6	0.000	.020	.408	1.109	1.846	2.438	2.955	3.239	3.197	2.854	2.401	1.784	1.073	.364	.005	0.000	0.000	0.000	23.693
7	0.000	.024	.447	1.144	1.848	2.441	2.943	3.208	3.220	2.923	2.448	1.770	1.038	.338	0.000	0.000	0.000	0.000	23.792
8	0.000	.015	.408	1.101	1.792	2.397	2.825	3.035	2.962	2.476	1.407	.956	.447	.152	0.000	0.000	0.000	0.000	19.974
9	0.000	.005	.291	.936	1.267	1.539	2.727	2.731	3.062	2.705	2.273	1.704	.837	.151	.003	0.000	0.000	0.000	20.232
10	0.000	.009	.305	.729	1.795	1.973	2.999	.917	1.419	1.551	1.299	1.436	.591	.270	.003	0.000	0.000	0.000	15.298
11	0.000	.007	.314	1.114	1.995	1.757	1.987	2.948	3.110	2.922	2.468	1.838	1.068	.310	0.000	0.000	0.000	0.000	21.837
12	0.000	.011	.403	1.118	1.883	2.603	3.070	3.102	3.030	2.520	2.265	.966	.910	.394	.004	0.000	0.000	0.000	22.277
13	0.000	.011	.407	1.125	1.828	2.398	2.843	2.954	3.058	2.802	1.967	1.604	.464	.256	.001	0.000	0.000	0.000	21.719
14	0.000	.011	.377	1.079	1.781	2.377	2.806	3.010	2.983	2.726	2.288	1.648	.698	.137	0.000	0.000	0.000	0.000	21.921
15	0.000	.006	.352	1.037	1.740	2.313	2.796	2.906	2.903	2.660	2.220	1.598	.757	.100	0.000	0.000	0.000	0.000	21.287
16	0.000	.005	.352	.874	1.758	2.265	2.642	1.367	1.868	1.921	1.399	.647	.385	.150	0.000	0.000	0.000	0.000	15.631
17	0.000	0.000	.108	.577	1.443	1.252	1.418	2.456	.799	.711	1.421	1.241	.885	.110	.000	0.000	0.000	0.000	12.423
18	0.000	0.000	.109	.298	.763	2.371	2.352	2.885	2.444	M	M	M	M	M	M	M	M	M	M
19	0.000	0.000	.085	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
20	M	M	M	.684	1.747	2.018	2.137	.895	1.658	1.074	.794	.600	.517	.239	0.000	0.000	0.000	0.000	M
21	0.000	.003	.310	1.023	1.710	2.323	2.754	2.972	2.940	2.672	2.216	1.601	.872	.164	0.000	0.000	0.000	0.000	21.559
22	0.000	0.000	.297	.997	1.700	2.305	2.706	2.890	2.851	2.588	2.126	1.448	.774	.136	0.000	0.000	0.000	0.000	20.859
23	0.000	0.000	.278	.958	1.644	2.205	2.596	2.778	2.787	2.528	2.088	1.452	.736	.109	0.000	0.000	0.000	0.000	20.159
24	0.000	0.000	.264	.746	1.369	1.615	2.277	1.820	2.252	2.231	1.254	1.097	.713	.117	0.000	0.000	0.000	0.000	15.757
25	0.000	0.000	.251	.917	1.593	2.184	2.599	2.788	2.759	2.515	2.070	1.454	.756	.114	0.000	0.000	0.000	0.000	20.000
26	0.000	0.000	.257	.926	1.610	2.187	2.589	2.812	2.781	2.521	1.993	1.143	.378	.043	0.000	0.000	0.000	0.000	19.240
27	0.000	0.000	.230	.880	1.565	2.142	2.547	2.739	2.726	2.457	1.155	1.400	.596	.048	0.000	0.000	0.000	0.000	18.484
28	0.000	0.000	.294	.923	.816	1.356	1.008	1.417	1.473	1.038	1.146	.631	.304	.046	0.000	0.000	0.000	0.000	10.449
29	0.000	0.000	.208	.853	1.541	2.121	2.514	2.688	2.651	2.382	1.916	1.296	.619	.071	0.000	0.000	0.000	0.000	18.861
30	0.000	0.000	.218	.881	1.582	2.168	2.579	2.766	2.719	2.455	1.997	1.333	.408	.072	0.000	0.000	0.000	0.000	19.179
AVERAGE VALUES	0.000	.008	.304	.943	1.652	2.180	2.609	2.662	2.668	2.397	1.860	1.411	.738	.200	.002	0.000	0.000	0.000	19.640
STANDARD DEVIATION	0.000	.009	.103	.212	.293	.356	.479	.704	.649	.599	.511	.393	.255	.131	.004	0.000	0.000	0.000	3.496

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. SPD. 12-13	13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	.163	.581	1.061	1.205	1.744	2.371	1.968	.871	.568	.369	.312	.032	0.000	0.000	0.000	0.000	11.266
2	0.000	0.000	.156	.844	1.523	1.577	1.914	2.025	2.215	1.282	.953	.352	.191	.043	0.000	0.000	0.000	0.000	13.075
3	0.000	0.000	.081	.828	1.686	2.140	2.563	2.768	2.730	2.438	1.979	1.332	.614	.034	0.000	0.000	0.000	0.000	19.193
4	0.000	0.000	.059	.645	1.525	2.105	2.514	2.672	2.582	2.379	1.901	1.277	.573	.029	0.000	0.000	0.000	0.000	18.261
5	0.000	0.000	.184	.824	1.524	2.113	2.516	2.686	2.627	2.292	1.761	1.265	.554	.020	0.000	0.000	0.000	0.000	18.369
6	0.000	0.000	.174	.830	1.521	2.098	2.475	2.666	2.627	2.364	1.884	1.260	.539	.016	0.000	0.000	0.000	0.000	18.454
7	0.000	0.000	.167	.787	1.450	2.019	2.418	2.633	2.485	2.226	1.142	.804	.440	.021	0.000	0.000	0.000	0.000	16.592
8	0.000	0.000	.144	.750	1.360	2.014	1.664	2.417	1.492	1.301	.873	.497	.276	.028	0.000	0.000	0.000	0.000	12.815
9	0.000	0.000	.142	.740	1.418	1.978	2.364	2.556	2.516	2.106	1.761	1.095	.458	.011	0.000	0.000	0.000	0.000	17.143
10	0.000	0.000	.137	.751	1.424	2.004	2.394	2.592	2.544	2.275	1.797	1.169	.457	.011	0.000	0.000	0.000	0.000	17.554
11	0.000	0.000	.137	.445	1.536	2.043	2.389	2.646	2.632	1.940	1.473	1.098	.407	.007	0.000	0.000	0.000	0.000	16.753
12	0.000	0.000	.131	.711	1.380	1.941	2.320	2.317	2.083	1.954	1.399	.680	.181	.008	0.000	0.000	0.000	0.000	15.104
13	0.000	0.000	.163	.708	1.298	1.821	2.250	2.506	2.476	2.222	1.646	.943	.260	.007	0.000	0.000	0.000	0.000	16.301
14	0.000	0.000	.096	.548	1.248	1.906	2.336	2.540	2.479	2.186	1.716	1.096	.394	.006	0.000	0.000	0.000	0.000	16.550
15	0.000	0.000	.111	.690	1.340	1.903	2.308	2.470	2.414	2.138	1.667	1.043	.355	.003	0.000	0.000	0.000	0.000	16.442
16	0.000	0.000	.103	.678	1.345	1.907	2.297	M	M	1.975	1.329	.945	.236	.004	0.000	0.000	0.000	0.000	M
17	0.000	0.000	.024	.234	.517	1.014	1.172	2.157	2.353	1.755	.545	.272	.243	0.000	0.000	0.000	0.000	0.000	10.285
18	0.000	0.000	.019	.148	.608	.942	1.135	.833	.942	1.997	1.302	.756	.328	.004	0.000	0.000	0.000	0.000	9.013
19	0.000	0.000	.083	.627	1.265	1.816	2.180	2.350	2.286	2.016	1.533	.923	.262	.000	0.000	0.000	0.000	0.000	15.340
20	0.000	0.000	.123	.631	.837	1.037	1.292	1.750	1.951	1.770	.997	.400	.105	0.000	0.000	0.000	0.000	0.000	10.893
21	0.000	0.000	.031	.233	.294	1.001	1.637	1.928	1.687	1.408	.694	.113	.004	0.000	0.000	0.000	0.000	0.000	9.030
22	0.000	0.000	.001	.038	.112	.357	.398	.580	.847	.783	.707	.351	.110	.000	0.000	0.000	0.000	0.000	4.285
23	0.000	0.000	.015	.192	.535	1.542	2.188	2.356	2.302	2.024	1.525	.876	.199	0.000	0.000	0.000	0.000	0.000	13.754
24	0.000	0.000	.052	.546	1.058	1.087	2.003	2.238	1.516	1.107	.580	.250	.025	0.000	0.000	0.000	0.000	0.000	10.462
25	0.000	0.000	.006	.182	.437	.427	.555	1.946	2.264	1.918	.976	.525	.125	0.000	0.000	0.000	0.000	0.000	9.362
26	0.000	0.000	.049	.563	1.233	1.646	1.896	2.072	2.139	1.923	1.478	.850	.157	0.000	0.000	0.000	0.000	0.000	14.006
27	0.000	0.000	.036	.527	1.167	1.704	2.103	2.246	2.159	1.787	1.024	.707	.179	0.000	0.000	0.000	0.000	0.000	13.639
28	0.000	0.000	.037	.512	1.022	1.019	1.360	2.238	2.160	1.881	1.411	.822	.151	0.000	0.000	0.000	0.000	0.000	12.613
29	0.000	0.000	.040	.506	1.133	1.682	2.068	2.229	2.160	1.819	1.404	.807	.135	0.000	0.000	0.000	0.000	0.000	13.983
30	0.000	0.000	.004	.105	M	.636	1.118	1.583	1.487	1.437	.920	.377	.036	0.000	0.000	0.000	0.000	0.000	M
31	0.000	0.000	.030	.439	1.050	1.581	1.949	2.099	2.046	1.771	1.326	.718	.117	0.000	0.000	0.000	0.000	0.000	13.126
AVERAGE VALUES	0.000	0.000	.087	.543	1.130	1.557	1.920	2.216	2.139	1.850	1.299	.774	.272	.009	0.000	0.000	0.000	0.000	13.919
STANDARD DEVIATION	0.000	0.000	.060	.239	.414	.530	.581	.504	.482	.432	.430	.347	.170	.012	0.000	0.000	0.000	0.000	3.563

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 11.

NOVEMBER 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. 12-13	13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (WJ/SQ-M-DAY)	
1	0.000	0.000	.028	.266	.599	1.665	1.390	2.192	2.115	1.447	.953	.504	.070	0.000	0.000	0.000	0.000	0.000	11.229	
2	0.000	0.000	.024	.406	.975	1.587	1.930	2.101	2.055	1.765	1.304	.687	.080	0.000	0.000	0.000	0.000	0.000	12.913	
3	0.000	0.000	.012	.136	.950	1.566	1.915	2.061	2.011	1.485	1.256	.675	.094	0.000	0.000	0.000	0.000	0.000	12.161	
4	0.000	0.000	.025	.454	1.135	1.534	1.635	1.746	1.398	1.309	.907	.300	.082	0.000	0.000	0.000	0.000	0.000	10.525	
5	0.000	0.000	.002	.155	.504	.748	1.186	1.324	1.785	1.696	.586	.125	.011	0.000	0.000	0.000	0.000	0.000	8.121	
6	0.000	0.000	.016	.406	.975	1.546	1.899	2.072	2.028	1.741	1.430	.671	0.000	0.000	0.000	0.000	0.000	0.000	12.785	
7	0.000	0.000	.011	.365	.997	1.391	1.683	1.548	1.792	1.608	1.248	.373	.058	0.000	0.000	0.000	0.000	0.000	11.074	
8	0.000	0.000	0.000	.484	1.000	.870	1.095	1.126	1.504	1.457	.690	.319	.095	0.000	0.000	0.000	0.000	0.000	8.639	
9	0.000	0.000	0.000	.376	.870	1.098	1.152	1.092	1.827	1.812	1.246	.362	.067	0.000	0.000	0.000	0.000	0.000	9.900	
10	0.000	0.000	0.000	.009	.051	.117	.201	.243	.308	.214	M	M	.002	0.000	0.000	0.000	0.000	0.000	M	
11	0.000	0.000	0.000	.043	.285	.709	.698	.858	.397	.297	.257	.073	.002	0.000	0.000	0.000	0.000	0.000	3.619	
12	0.000	0.000	0.000	.143	.350	.707	.658	.749	.829	.586	.341	.415	.037	0.000	0.000	0.000	0.000	0.000	4.814	
13	0.000	0.000	0.000	.326	.941	1.468	1.849	2.004	1.944	1.668	1.212	.631	.038	0.000	0.000	0.000	0.000	0.000	12.081	
14	0.000	0.000	0.000	.016	.076	.112	.145	.211	.283	.224	.175	.105	.017	0.000	0.000	0.000	0.000	0.000	1.363	
15	0.000	0.000	0.000	.372	.867	1.375	1.738	1.915	1.869	1.601	1.131	.538	.031	0.000	0.000	0.000	0.000	0.000	11.437	
16	0.000	0.000	0.000	.273	.854	1.383	1.745	1.898	1.839	1.564	M	.464	.028	0.000	0.000	0.000	0.000	0.000	M	
17	0.000	0.000	0.000	.243	.831	1.343	1.704	1.874	1.840	1.578	1.092	.537	.016	0.000	0.000	0.000	0.000	0.000	11.056	
18	0.000	0.000	0.000	.201	.731	1.340	1.729	1.882	1.819	1.559	1.127	.419	.037	0.000	0.000	0.000	0.000	0.000	10.845	
19	0.000	0.000	0.000	.452	1.214	1.532	1.648	.751	.481	.365	.206	.069	.003	0.000	0.000	0.000	0.000	0.000	6.720	
20	0.000	0.000	0.000	.005	.090	.176	.341	.419	.448	.337	.202	.105	.010	0.000	0.000	0.000	0.000	0.000	2.134	
21	0.000	0.000	0.000	.055	.325	.398	.850	1.276	1.658	1.516	1.001	.426	.030	0.000	0.000	0.000	0.000	0.000	7.536	
22	0.000	0.000	0.000	.047	.263	.734	1.468	1.816	1.764	1.529	.916	.280	.012	0.000	0.000	0.000	0.000	0.000	8.829	
23	0.000	0.000	0.000	.182	.783	1.335	1.591	1.848	1.799	1.578	1.111	.535	.017	0.000	0.000	0.000	0.000	0.000	10.880	
24	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
27	M	M	M	M	M	M	M	M	M	M	M	.230	.013	0.000	0.000	0.000	0.000	0.000	M	
28	0.000	0.000	0.000	.045	.236	.742	.687	.642	.828	1.084	1.064	.474	.013	0.000	0.000	0.000	0.000	0.000	5.815	
29	0.000	0.000	0.000	.127	.669	.987	1.276	1.763	1.579	1.320	.638	.222	.019	0.000	0.000	0.000	0.000	0.000	8.599	
30	0.000	0.000	0.000	.097	.562	1.206	1.506	1.046	1.440	1.622	1.050	.332	.020	0.000	0.000	0.000	0.000	0.000	8.901	
AVERAGE VALUES																				8.832
STANDARD DEVIATION																				3.287

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

DECEMBER 1978

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (FJ/SQ-M-DAY)
1	0.000	0.000	0.000	.092	.546	.724	1.583	1.714	1.262	.627	.195	.059	.002	0.000	0.000	0.000	0.000	0.000	6.803
2	0.000	0.000	0.000	.034	.261	.463	.823	.771	.764	.459	.320	.178	.007	0.000	0.000	0.000	0.000	0.000	4.081
3	0.000	0.000	0.000	.044	.314	.511	.610	.588	.509	.396	.269	.128	.002	0.000	0.000	0.000	0.000	0.000	3.372
4	0.000	0.000	0.000	.121	.472	1.153	1.578	1.745	1.593	1.728	1.033	.586	.025	0.000	0.000	0.000	0.000	0.000	10.034
5	0.000	0.000	0.000	.005	.107	.230	.250	.453	.538	.656	.407	.175	.010	0.000	0.000	0.000	0.000	0.000	2.831
6	0.000	0.000	0.000	.010	.187	.436	.677	.792	.921	.674	.385	.152	.010	0.000	0.000	0.000	0.000	0.000	4.243
7	0.000	0.000	0.000	.081	.446	1.067	1.738	1.932	1.588	1.387	.888	.314	.020	0.000	0.000	0.000	0.000	0.000	9.463
8	0.000	0.000	0.000	.181	.876	1.214	1.575	1.766	1.740	1.500	1.046	.441	.010	0.000	0.000	0.000	0.000	0.000	10.348
9	0.000	0.000	0.000	.143	.760	1.222	1.285	1.776	1.770	1.455	1.024	.433	.005	0.000	0.000	0.000	0.000	0.000	9.874
10	0.000	0.000	0.000	.032	.284	.839	1.672	1.025	1.216	1.238	.858	.327	.011	0.000	0.000	0.000	0.000	0.000	7.501
11	0.000	0.000	0.000	.083	.794	1.310	1.208	1.762	1.581	1.034	.647	.221	.034	0.000	0.000	0.000	0.000	0.000	8.675
12	0.000	0.000	0.000	.072	.452	.417	.595	1.391	1.736	1.459	.991	.424	.003	0.000	0.000	0.000	0.000	0.000	7.540
13	0.000	0.000	0.000	.251	.913	1.450	2.016	1.954	1.766	1.416	.993	.544	.023	0.000	0.000	0.000	0.000	0.000	11.326
14	0.000	0.000	0.000	.069	.555	1.112	1.545	1.726	1.674	1.437	1.011	.449	.006	0.000	0.000	0.000	0.000	0.000	9.583
15	0.000	0.000	0.000	.045	.300	.725	1.419	1.631	1.530	1.411	1.015	.439	.010	0.000	0.000	0.000	0.000	0.000	8.624
16	0.000	0.000	0.000	.070	.555	1.087	1.514	1.716	1.573	1.437	.957	.269	.010	0.000	0.000	0.000	0.000	0.000	9.287
17	0.000	0.000	0.000	.029	.282	.592	.711	.828	.808	.686	.396	.140	.009	0.000	0.000	0.000	0.000	0.000	4.461
18	0.000	0.000	0.000	.092	.639	.611	.762	1.014	.739	.573	.360	.184	.009	0.000	0.000	0.000	0.000	0.000	4.983
19	0.000	0.000	0.000	.011	.506	1.050	1.387	1.559	1.587	1.210	.568	.629	.034	0.000	0.000	0.000	0.000	0.000	8.580
20	0.000	0.000	0.000	.030	.484	1.073	1.491	1.718	1.720	1.500	1.069	.461	.009	0.000	0.000	0.000	0.000	0.000	9.555
21	0.000	0.000	0.000	.064	.497	1.071	1.454	1.700	1.715	1.431	1.169	.549	.021	0.000	0.000	0.000	0.000	0.000	9.671
22	0.000	0.000	0.000	.055	.499	1.040	1.446	1.653	1.652	M	1.156	.602	.011	0.000	0.000	0.000	0.000	0.000	9.142
23	0.000	0.000	0.000	.003	.115	.320	1.157	.870	1.797	1.464	1.058	.301	.008	0.000	0.000	0.000	0.000	0.000	7.091
24	0.000	0.000	0.000	.054	.488	.917	1.312	1.703	1.675	1.469	1.053	.513	.012	0.000	0.000	0.000	0.000	0.000	9.197
25	0.000	0.000	0.000	.052	.337	.257	.362	.417	.510	.554	.395	.269	.016	0.000	0.000	0.000	0.000	0.000	3.169
26	0.000	0.000	0.000	.023	.226	.745	1.377	1.678	1.467	1.416	1.177	.531	.044	0.000	0.000	0.000	0.000	0.000	8.684
27	0.000	0.000	0.000	.090	.716	1.382	1.530	.948	.978	1.207	1.034	.645	M	M	M	M	M	M	M
28	M	M	M	M	M	M	0.000	0.000	0.000	0.000	.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
AVERAGE VALUES	0.000	0.000	0.000	.063	.435	.794	1.103	1.229	1.220	1.028	.716	.332	.012	0.000	0.000	0.000	0.000	0.000	7.077
STANDARD DEVIATION	0.000	0.000	0.000	.056	.243	.411	.572	.625	.594	0.526	.396	.201	.011	0.000	0.000	0.000	0.000	0.000	3.159

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 13.

JANUARY 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	0.000	0.000	0.000	0.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	M
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.449	1.264	.446	.067	0.000	0.000	0.000	3.226
11	0.000	0.000	0.000	.036	.392	.643	.445	.520	1.057	.908	.591	.171	.014	0.000	0.000	0.000	4.778
12	0.000	0.000	0.000	.025	.357	.803	.758	.815	.873	.678	.513	.214	.032	0.000	0.000	0.000	5.071
13	0.000	0.000	0.000	.117	.625	1.317	1.917	1.983	1.931	1.545	.982	.451	.109	0.000	0.000	0.000	10.976
14	0.000	0.000	0.000	.105	.700	1.300	1.617	1.980	1.877	1.245	.632	.506	.095	0.000	0.000	0.000	10.057
15	0.000	0.000	0.000	.049	.538	1.131	1.566	1.818	1.860	1.586	1.033	.528	.068	0.000	0.000	0.000	10.177
16	0.000	0.000	0.000	.047	.272	.485	.824	.864	.710	.643	.566	.644	.108	0.000	0.000	0.000	5.163
17	0.000	0.000	0.000	.063	.526	1.072	1.296	1.364	1.055	1.121	.890	.389	.082	0.000	0.000	0.000	7.858
18	0.000	0.000	0.000	.015	.155	.424	.581	.694	.941	.951	.771	.783	.093	0.000	0.000	0.000	5.408
19	0.000	0.000	0.000	.033	.355	1.205	1.850	1.869	1.895	1.693	1.298	.755	.159	0.000	0.000	0.000	11.111
20	0.000	0.000	0.000	.065	.561	1.132	1.597	1.872	1.905	1.924	1.292	.807	.164	0.000	0.000	0.000	11.319
21	0.000	0.000	0.000	.097	.531	1.120	1.596	1.847	1.985	1.576	.524	.363	.197	0.000	0.000	0.000	9.836
22	0.000	0.000	0.000	.028	.508	1.219	.939	.179	.241	.527	.440	.249	.076	0.000	0.000	0.000	4.408
23	0.000	0.000	0.000	.090	.301	1.372	1.788	1.590	2.051	1.794	1.430	.795	.206	0.000	0.000	0.000	11.417
24	0.000	0.000	0.000	.060	.418	1.006	1.599	1.837	1.910	1.540	1.391	.769	.243	0.000	0.000	0.000	10.775
25	0.000	0.000	0.000	.029	.230	.685	.775	.937	.930	.844	.737	.459	.093	0.000	0.000	0.000	5.719
26	0.000	0.000	0.000	.032	.189	.829	1.667	1.754	1.695	1.384	.806	.774	.155	0.000	0.000	0.000	9.286
27	0.000	0.000	0.000	.071	.643	1.269	1.745	2.039	2.071	1.879	1.468	.823	.207	0.000	0.000	0.000	12.214
28	0.000	0.000	0.000	.091	.615	1.242	1.195	1.601	1.914	1.886	1.417	.597	.177	0.000	0.000	0.000	10.736
29	0.000	0.000	0.000	.025	.337	.745	.827	.986	.934	1.024	1.027	M	.142	0.000	0.000	0.000	M
30	0.000	0.000	0.000	.101	.514	1.298	1.825	2.073	2.173	1.985	1.681	1.028	.297	0.000	0.000	0.000	12.975
31	0.000	0.000	0.000	.152	.713	1.363	1.848	2.134	2.197	1.963	1.658	1.069	.307	0.000	0.000	0.000	13.403
AVERAGE VALUES																	
STANDARD DEVIATION																	
AVERAGE VALUES																	
STANDARD DEVIATION																	
AVERAGE VALUES																	
STANDARD DEVIATION																	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

FEBRUARY 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	0.000	.100	.704	1.277	1.835	2.097	2.417	2.353	1.760	1.052	.306	0.000	0.000	0.000	0.000	0.000	13.902
2	0.000	0.000	0.000	.197	.886	1.132	1.290	1.563	1.719	1.130	1.059	1.143	.319	0.000	0.000	0.000	0.000	0.000	10.439
3	0.000	0.000	0.000	.134	.740	1.359	1.836	2.123	2.198	2.020	1.617	1.029	.324	0.000	0.000	0.000	0.000	0.000	13.380
4	0.000	0.000	0.000	.098	.601	1.368	1.871	2.198	2.227	.916	.555	.903	.391	0.000	0.000	0.000	0.000	0.000	11.129
5	0.000	0.000	0.000	.158	.766	1.389	1.910	2.007	2.212	1.938	1.633	1.054	.168	.003	0.000	0.000	0.000	0.000	13.238
6	0.000	0.000	0.000	.129	.798	1.428	1.850	2.095	1.958	1.715	1.394	.919	.410	.014	0.000	0.000	0.000	0.000	12.710
7	0.000	0.000	.001	.101	.464	.589	.739	1.056	1.621	2.027	1.698	1.137	.415	.007	0.000	0.000	0.000	0.000	9.853
8	0.000	0.000	.000	.124	.754	1.441	1.985	2.138	2.317	2.073	1.706	1.118	.427	.005	0.000	0.000	0.000	0.000	14.087
9	0.000	0.000	.001	.173	.326	.715	1.810	2.444	2.488	1.940	M	M	.389	0.000	0.000	0.000	0.000	0.000	M
10	0.000	0.000	0.000	.137	.206	1.355	1.515	1.980	1.912	.949	.631	.468	.355	.022	0.000	0.000	0.000	0.000	9.530
11	0.000	0.000	0.000	.050	.710	1.251	1.616	2.045	1.960	2.123	1.724	1.216	.484	.016	0.000	0.000	0.000	0.000	13.196
12	0.000	0.000	0.000	.090	.387	.875	.910	2.302	2.386	1.597	.727	.695	.315	.018	M	M	M	M	10.300
13	M	M	M	M	M	.719	.985	2.065	1.834	1.131	1.913	1.157	.479	.012	0.000	0.000	0.000	0.000	M
14	0.000	0.000	.001	.286	.726	1.395	1.237	1.633	2.080	1.478	1.504	1.375	.610	.010	0.000	0.000	0.000	0.000	12.335
15	0.000	0.000	0.000	.076	.387	.856	1.363	2.039	2.176	1.984	1.632	1.014	.260	.015	0.000	0.000	0.000	0.000	11.802
16	0.000	0.000	0.000	.039	.280	.672	.933	1.012	1.155	1.217	.690	.489	.153	.007	0.000	0.000	0.000	0.000	6.646
17	0.000	0.000	0.000	.363	1.157	1.697	2.132	2.410	2.464	2.273	1.879	1.303	.602	.014	0.000	0.000	0.000	0.000	16.293
18	0.000	0.000	.003	.310	.961	1.525	2.016	2.247	2.412	2.068	1.575	.990	.216	.043	0.000	0.000	0.000	0.000	14.367
19	0.000	0.000	.000	.245	.889	1.559	1.950	2.461	2.696	1.867	1.208	.905	.230	.035	0.000	0.000	0.000	0.000	14.046
20	0.000	0.000	0.000	.237	.901	1.623	2.145	2.448	2.507	2.347	1.388	1.444	.688	.054	0.000	0.000	0.000	0.000	15.782
21	0.000	0.000	0.000	.250	.849	.844	.698	1.661	1.439	1.994	1.757	1.290	.379	.042	0.000	0.000	0.000	0.000	11.204
22	0.000	0.000	.007	.222	.585	1.326	2.213	2.486	2.537	1.496	1.042	.497	.097	.002	M	M	M	M	12.507
23	M	M	M	M	M	1.001	1.282	1.135	1.185	1.368	1.127	.987	.427	.046	0.000	0.000	0.000	0.000	M
24	0.000	0.000	.001	.143	1.017	1.752	2.171	2.525	2.473	2.134	2.018	1.442	.695	.068	0.000	0.000	0.000	0.000	16.439
25	0.000	0.000	.006	.348	1.041	1.692	1.806	1.647	1.437	1.280	1.455	.875	.465	.076	0.000	0.000	0.000	0.000	12.131
26	0.000	0.000	.026	.395	.511	.236	1.068	1.684	1.903	1.688	.980	.657	.175	.037	0.000	0.000	0.000	0.000	9.360
27	0.000	0.000	0.000	.059	.211	.375	.538	.830	.891	.653	1.362	1.227	.764	.145	0.000	0.000	0.000	0.000	7.056
28	0.000	0.000	.028	.450	.930	1.704	2.299	1.680	2.570	2.485	1.844	.875	.709	.096	0.000	0.000	0.000	0.000	15.670

AVERAGE VALUES	0.000	0.000	.003	.189	.684	1.184	1.571	1.929	2.042	1.723	1.403	1.010	.402	.028	0.000	0.000	0.000	0.000	12.296
STANDARD DEVIATION	0.000	0.000	.007	.114	.269	.424	.519	.477	.481	.490	.421	.274	.180	.034	0.000	0.000	0.000	0.000	2.620

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 15.

MARCH 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)	
1	0.000	0.000	.010	.236	.962	1.472	1.805	2.572	2.543	2.297	1.498	1.115	.567	.079	0.000	0.000	0.000	0.000	15.156	
2	0.000	0.000	.006	.186	.491	.963	1.135	1.207	1.232	.952	.591	.360	.109	.030	0.000	0.000	0.000	0.000	7.263	
3	0.000	0.000	.027	.498	1.051	1.195	1.966	2.580	2.636	2.541	1.738	.796	.503	.114	0.000	0.000	0.000	0.000	15.646	
4	0.000	0.000	.027	.517	1.252	1.916	2.410	2.702	2.743	2.542	2.140	1.539	.842	.134	0.000	0.000	0.000	0.000	18.765	
5	0.000	0.000	.063	.471	1.028	1.888	2.287	2.614	2.599	2.255	2.115	1.261	.485	.090	0.000	0.000	0.000	0.000	17.157	
6	0.000	0.000	.012	.504	1.097	1.879	1.357	.715	.497	.581	1.472	1.389	.435	.183	0.000	0.000	0.000	0.000	10.122	
7	0.000	0.000	.034	.543	1.233	1.892	2.366	2.621	2.727	2.643	1.366	.726	.464	.060	0.000	0.000	0.000	0.000	16.677	
8	0.000	0.000	.040	.121	.149	.176	.454	.349	.498	.377	.364	.399	.362	.082	0.000	0.000	0.000	0.000	3.371	
9	0.000	0.000	.059	.685	1.692	2.090	2.586	2.874	2.667	2.077	1.674	.901	.693	.071	0.000	0.000	0.000	0.000	18.070	
10	0.000	0.000	.069	.653	1.409	2.063	2.523	2.779	2.812	2.640	2.240	1.651	.941	.199	0.000	0.000	0.000	0.000	19.979	
11	0.000	0.000	.077	.673	1.411	2.036	2.507	2.820	2.839	2.648	2.250	1.657	.947	.212	0.000	0.000	0.000	0.000	20.077	
12	0.000	0.000	.083	.681	1.402	2.067	2.576	2.850	2.841	2.669	2.263	1.650	.977	.248	0.000	0.000	0.000	0.000	20.308	
13	0.000	0.000	.027	.224	.350	.720	1.152	1.980	2.697	2.639	2.221	1.616	.909	.208	0.000	0.000	0.000	0.000	14.743	
14	0.000	0.000	.101	.701	1.455	2.121	2.593	2.864	2.890	2.719	2.289	1.657	.893	.157	0.000	0.000	0.000	0.000	20.439	
15	0.000	0.000	.098	.679	1.404	2.045	2.524	2.798	2.842	2.651	2.230	1.658	.921	.233	0.000	0.000	0.000	0.000	20.085	
16	0.000	0.000	.057	.443	1.089	1.412	1.661	2.598	2.451	2.269	M	M	M	M	M	M	M	M	M	
17	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
19	M	M	M	M	M	M	M	2.083	2.304	1.844	1.198	1.163	M	.042	0.000	0.000	0.000	M	M	
20	0.000	0.000	.047	.180	.423	.746	1.103	1.095	.877	.801	.855	.728	.387	.160	0.000	0.000	0.000	0.000	7.403	
21	0.000	0.000	.069	.232	.505	.899	1.387	2.250	1.542	M	M	.331	.213	.065	0.000	0.000	0.000	0.000	M	
22	0.000	0.000	.088	.269	.429	.759	1.136	1.092	1.519	1.633	1.159	.960	1.375	.371	0.000	0.000	0.000	0.000	10.790	
23	0.000	0.000	.238	.940	1.955	2.127	2.979	3.041	2.163	1.927	.806	.630	.487	.322	0.000	0.000	0.000	0.000	17.615	
24	0.000	.002	.249	.971	1.727	2.390	2.907	3.187	3.135	2.919	2.489	1.887	1.160	.378	.013	0.000	0.000	0.000	23.414	
25	0.000	.005	.254	.952	1.691	2.314	2.789	2.947	3.244	1.788	1.087	.683	.427	.204	.010	0.000	0.000	0.000	18.393	
26	0.000	.012	.096	.332	.591	.852	1.181	1.374	1.417	M	.715	.533	.268	.113	.013	0.000	0.000	0.000	M	
27	0.000	.012	.118	.359	.823	1.077	1.045	2.675	3.108	1.824	.927	.740	.795	.386	.016	0.000	0.000	0.000	13.906	
28	0.000	.010	.223	.870	1.483	2.417	3.102	1.632	1.917	2.188	2.080	1.084	.678	.543	.014	0.000	0.000	0.000	18.240	
29	0.000	.007	.153	.422	.587	.568	.342	.416	1.051	1.213	1.028	.767	.447	.138	.013	0.000	0.000	0.000	7.151	
30	0.000	.009	.343	1.085	1.829	2.456	2.882	1.998	1.515	.627	.259	.877	.377	.145	.016	0.000	0.000	0.000	14.417	
31	0.000	.014	.159	.600	.909	.828	1.612	1.420	.120	.074	.127	.211	.208	.098	.016	0.000	0.000	0.000	6.398	
AVERAGE VALUES																				15.023
STANDARD DEVIATION																				5.388

M E MISSING DATA
ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

APRIL 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. 12-13	STD. 13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQM-DAY)
1	0.000	.016	.239	.639	1.216	2.030	1.905	2.203	1.304	.616	.934	.433	.324	.162	.030	0.000	0.000	0.000	12.052
2	0.000	.025	.637	1.576	2.067	2.587	3.105	2.957	2.593	2.001	.494	.501	.383	.102	.016	0.000	0.000	0.000	19.042
3	0.000	.014	.219	.737	1.263	1.902	2.716	2.781	2.856	1.201	1.435	.645	.827	.644	.028	0.000	0.000	0.000	17.269
4	0.000	.020	.452	1.217	.969	1.350	2.507	1.685	1.783	2.125	2.762	2.026	1.480	.607	M	M	M	M	M
5	M	M	M	M	M	M	3.006	3.284	3.283	2.735	1.987	1.170	1.389	.594	.018	0.000	0.000	0.000	M
6	0.000	.023	.169	.748	1.620	2.600	3.067	3.362	3.130	2.572	2.132	2.148	1.182	.507	.026	0.000	0.000	0.000	23.287
7	0.000	.025	.471	1.122	2.028	2.559	2.891	2.830	3.035	1.356	.840	1.856	1.421	.498	.029	0.000	0.000	0.000	20.961
8	0.000	.039	.523	1.254	2.019	2.609	3.140	3.389	3.396	3.094	2.597	2.028	1.297	.548	.046	0.000	0.000	0.000	25.981
9	0.000	.038	.513	1.346	2.041	2.605	3.101	3.394	3.138	2.793	1.935	1.469	.343	.405	.026	0.000	0.000	0.000	23.148
10	0.000	.014	.051	.167	.333	.398	.350	.365	.454	.406	.951	.364	.194	.038	.019	0.000	0.000	0.000	4.102
11	0.000	.026	.187	.373	.609	.850	1.071	1.407	2.179	1.414	1.256	.956	.498	.179	.042	0.000	0.000	0.000	11.047
12	0.000	.069	.630	1.114	1.755	2.399	2.679	3.213	2.658	2.056	1.827	1.433	1.014	.589	.057	0.000	0.000	0.000	21.494
13	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
17	M	M	M	M	M	M	M	2.969	3.224	3.300	2.543	2.598	1.239	.567	.072	0.000	0.000	0.000	M
18	0.000	.105	.803	.570	1.784	2.665	2.734	3.330	3.357	2.780	2.738	2.144	1.419	.594	.082	0.000	0.000	0.000	25.105
19	0.000	.065	.659	1.358	2.094	2.790	3.242	3.462	2.421	1.618	1.471	.975	.214	.069	.113	0.000	0.000	0.000	20.550
20	0.000	.064	.724	1.397	2.105	2.621	1.859	3.270	2.565	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
22	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
23	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
24	M	M	M	M	M	1.498	2.835	1.818	1.589	1.800	.994	.792	.677	.446	.076	0.000	0.000	0.000	M
25	0.000	.051	.318	1.193	1.081	1.487	1.942	3.402	3.076	3.281	3.201	2.433	1.578	.799	.127	0.000	0.000	0.000	23.968
26	0.000	.140	.724	1.447	2.179	2.816	3.399	3.106	1.941	2.480	1.697	1.870	1.574	.899	.083	0.000	0.000	0.000	24.355
27	0.000	.038	.332	.719	1.795	2.771	2.518	3.364	3.401	3.228	2.776	2.151	1.419	.636	.102	0.000	0.000	0.000	25.251
28	0.000	.069	.419	.541	1.434	2.340	2.388	3.418	3.543	3.290	1.999	1.207	1.112	.399	.117	0.000	0.000	0.000	22.275
29	0.000	.165	.763	1.511	2.235	2.830	3.285	3.532	3.609	2.502	2.636	2.029	.976	.377	.084	0.000	0.000	0.000	26.534
30	0.000	.160	.773	1.521	2.234	2.840	2.934	1.322	1.335	1.671	.899	1.609	1.417	.466	.099	0.000	0.000	0.000	19.278
AVERAGE VALUES																			
STANDARD DEVIATION																			
M																			
M																			

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 17.

MAY 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	.088	.543	.919	1.937	2.772	2.312	1.277	.594	.528	.729	.762	.341	.144	.057	0.000	0.000	0.000	13.004
2	0.000	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
4	M	M	M	M	M	2.972	3.458	3.673	3.609	3.344	2.897	2.248	1.425	.830	.172	0.000	0.000	0.000	M
5	0.000	.100	.874	1.534	2.167	2.922	3.277	3.435	2.574	2.578	2.596	1.009	.742	.509	.114	0.000	0.000	0.000	24.430
6	0.000	.233	.897	1.670	2.365	2.887	3.358	3.521	3.514	2.573	2.457	1.297	1.146	.399	.115	0.000	0.000	0.000	26.432
7	0.000	.096	.229	.612	.544	.275	.263	.446	.470	.860	.231	.187	.197	.122	.042	0.000	0.000	0.000	4.575
8	0.000	.033	.201	.297	.197	.254	.715	.508	.404	.432	.336	.230	.195	.102	.047	0.000	0.000	0.000	3.951
9	.011	.062	.232	.360	.620	.717	.806	.587	.420	.364	.329	.193	.128	.159	.048	.010	0.000	0.000	5.045
10	.010	.114	.460	.962	1.747	3.230	3.059	2.189	1.910	2.921	1.729	1.890	1.048	.668	.294	.007	0.000	0.000	22.239
11	.012	.306	.998	1.723	2.487	3.058	3.269	1.850	1.337	2.344	2.111	.838	.629	.422	.120	.010	0.000	0.000	21.514
12	.010	.283	.947	1.575	2.160	2.321	2.156	2.255	2.513	3.005	2.716	1.534	1.472	.722	.220	.006	0.000	0.000	23.896
13	.010	.292	.971	1.716	2.422	2.936	2.712	1.508	1.822	1.645	2.246	1.925	1.539	.393	.264	.005	0.000	0.000	22.405
14	.012	.294	1.245	1.646	2.229	2.935	3.166	2.998	2.958	3.088	2.720	1.966	.882	.396	.230	.008	0.000	0.000	26.775
15	.017	.351	.906	1.681	2.361	3.122	2.964	3.529	2.914	3.049	1.908	1.217	1.594	.526	.305	.008	0.000	0.000	26.454
16	.014	.311	.951	1.680	2.254	2.672	1.453	1.054	M	1.018	1.566	2.289	1.546	.218	.027	.004	0.000	0.000	M
17	.009	.207	.771	1.497	1.736	2.355	2.849	3.201	1.353	1.998	1.010	1.274	.709	.682	.165	.007	0.000	0.000	19.821
18	.011	.269	.985	1.690	1.330	1.535	1.443	2.024	1.366	1.628	1.569	.922	.700	M	M	M	M	M	M
19	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	3.228	3.389	3.644	3.209	1.161	1.107	1.078	1.578	.559	.118	.009	0.000	0.000	M
22	.018	.290	.736	1.578	2.427	2.730	2.894	1.354	2.959	1.411	.791	1.612	.366	.145	.150	.014	0.000	0.000	19.474
23	.024	.178	.187	.283	.279	.517	.558	.851	.885	2.188	3.117	2.443	1.692	.961	.313	.015	0.000	0.000	14.492
24	.026	.367	1.002	1.692	2.410	2.559	3.708	3.390	2.936	3.211	1.945	.910	1.500	.849	.239	.008	0.000	0.000	26.752
25	.020	.203	.693	1.687	2.464	2.457	2.264	2.759	1.180	.146	.692	1.415	.610	.124	.093	.006	0.000	0.000	16.814
26	.023	.369	1.015	1.732	2.417	2.942	3.517	3.581	3.465	3.486	2.969	2.403	1.718	.995	.337	.017	0.000	0.000	30.986
27	.025	.382	1.051	1.760	2.446	3.110	3.513	3.322	2.947	2.474	2.928	2.219	.994	.776	.123	.012	0.000	0.000	28.091
28	.032	.423	.747	.693	1.385	1.394	2.983	3.097	3.140	3.156	.592	1.278	.554	.781	.197	.021	0.000	0.000	20.473
29	.017	.173	.441	.645	1.513	2.191	1.291	1.761	.932	1.037	.143	.747	1.488	.648	.240	.027	0.000	0.000	13.295
30	.025	.160	.211	.284	.236	.422	1.104	1.247	.926	.469	.168	.161	.437	.216	.029	.017	0.000	0.000	6.112
31	.021	.219	.633	1.087	1.140	1.836	1.788	2.308	3.202	1.148	2.235	1.118	1.583	.778	.331	.025	0.000	0.000	19.452
AVERAGE VALUES	.013	.232	.717	1.240	1.731	2.235	2.380	2.273	2.059	1.899	1.624	1.302	.993	.505	.169	.009	0.000	0.000	M
STANDARD DEVIATION	.010	.110	.319	.557	.798	.995	1.065	1.100	1.114	1.075	1.005	.701	.536	.288	.100	.008	0.000	0.000	M

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

1114

1979

HEATSPREADER SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/CM² SECONDPORT CHARLES COAST GUARD
COASTAL STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCES

DAY	1-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25
1	.032	.125	1.055	1.600	2.501	3.121	3.712	3.634	3.107	2.479	1.607	.945	.709	.646	.744	.024	0.000	0.000	0.000	20.309	
2	.034	.412	1.067	1.825	2.515	3.118	3.515	3.322	3.396	3.515	3.048	2.404	1.761	1.051	.585	.028	0.000	0.000	0.000	31.079	
3	.030	.434	1.071	1.811	2.517	3.205	3.509	3.425	3.499	3.414	3.146	2.355	.858	.612	.433	.025	0.000	0.000	0.000	31.310	
4	.032	.407	1.059	1.659	2.426	3.122	3.519	2.673	3.501	3.358	3.022	2.468	1.725	.780	.716	.032	0.000	0.000	0.000	31.001	
5	.035	.408	1.071	1.816	2.507	3.207	3.414	3.423	3.937	2.301	2.715	2.216	1.213	.940	.257	.028	0.000	0.000	0.000	23.502	
6	.032	.421	1.065	1.627	2.414	3.175	3.499	3.325	2.363	2.445	1.759	.913	.611	.117	.370	.013	0.000	0.000	0.000	25.531	
7	.030	.351	.554	.683	1.536	1.127	1.131	.745	.505	.524	.471	.314	.269	.171	.047	.016	0.000	0.000	0.000	3.096	
8	.020	.057	.119	.193	.511	.541	.345	.334	.552	.531	.573	.301	.241	.187	.069	.015	0.000	0.000	0.000	1.593	
9	.016	.055	.410	.701	1.126	2.335	2.755	2.108	3.312	3.012	2.654	2.665	1.699	.459	.259	.032	0.000	0.000	0.000	23.121	
10	.041	.433	1.117	1.611	2.548	3.237	3.406	3.341	3.142	3.300	3.133	2.539	1.878	1.136	.437	.033	0.000	0.000	0.000	31.719	
11	.043	.437	1.113	1.430	2.717	3.131	3.406	3.279	3.102	3.312	3.133	2.424	1.497	.611	.272	.104	0.000	0.000	0.000	30.729	
12	.100	.498	1.153	1.867	2.529	3.171	3.594	3.625	3.403	3.612	3.250	2.575	1.903	1.144	.512	.102	0.000	0.000	0.000	33.045	
13	.107	.500	1.152	1.862	2.576	3.309	3.553	3.451	2.776	2.913	1.127	1.130	1.623	.775	.409	.110	0.000	0.000	0.000	21.508	
14	.116	.455	.934	1.355	1.992	2.058	1.776	2.416	2.503	2.071	1.351	1.218	.772	.546	.429	.113	0.000	0.000	0.000	20.120	
15	.100	.774	.518	.954	1.321	1.455	3.046	3.174	2.305	2.014	1.511	2.154	1.363	.893	.205	.061	0.000	0.000	0.000	21.412	
16	.104	.489	1.147	1.711	1.037	2.242	1.959	2.573	2.401	2.430	1.741	1.891	1.547	1.180	.297	.117	0.000	0.000	0.000	22.900	
17	.081	.103	.156	.298	1.420	2.358	2.602	2.952	3.157	2.250	1.652	.770	.669	.353	.224	.111	0.000	0.000	0.000	15.911	
18	.061	.129	.252	.470	1.449	1.753	1.824	1.501	.701	2.203	2.704	2.204	1.708	.927	.392	.092	0.000	0.000	0.000	16.745	
19	.055	.224	.635	1.350	2.545	3.477	1.537	1.270	2.303	3.057	3.305	2.724	2.076	1.351	.583	.115	0.000	0.000	0.000	21.419	
20	.111	.516	1.120	1.934	2.579	3.251	3.680	3.505	3.578	3.582	2.340	2.559	1.590	.564	.278	.094	0.000	0.000	0.000	32.034	
21	.070	.192	1.153	1.812	2.474	3.037	3.382	3.476	3.722	3.501	3.121	2.440	.634	.363	.190	.100	0.000	0.000	0.000	30.065	
22	.100	.187	1.146	1.474	2.531	3.087	3.452	3.643	3.423	3.444	2.672	2.267	.560	.407	.4	.4	.4	.4	.4	.4	
23	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	
24	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	
25	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	
26	.4	.4	.4	.4	.4	2.792	2.355	1.097	2.815	2.712	1.935	1.010	1.597	.638	.566	.132	0.000	0.000	0.000	.4	
27	.108	.295	.925	1.702	2.358	2.547	3.368	3.447	2.257	.526	2.105	.644	.4	.4	.4	.4	.4	.4	.4	.4	
28	.4	.4	.4	1.744	2.350	2.895	3.324	3.627	3.196	1.265	2.365	2.606	1.680	.469	.254	.093	0.000	0.000	0.000	.4	
29	.098	.433	1.078	1.747	2.390	2.953	3.334	3.629	3.335	2.547	1.151	1.899	1.097	.959	.527	.101	0.000	0.000	0.000	21.273	
30	.091	.141	1.099	1.650	1.578	1.159	1.369	1.919	2.468	1.945	1.420	1.294	.160	.365	.275	.068	0.000	0.000	0.000	13.258	
AVERAGE	.070	.367	.489	1.471	2.094	2.521	2.797	2.774	2.428	2.573	2.252	1.811	1.213	.705	.327	.072	0.000	0.000	0.000	21.770	
STANDARD DEVIATION	.035	.143	.345	.547	.618	.794	.930	.999	.367	.955	.850	.811	.562	.322	.141	.041	0.000	0.000	0.000	7.390	

4 MISSING DATA
2 ESTIMATED DATA REFER TO OBSERVATION

INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 19.

JULY 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS				MTN. STD. TIME													INTEGRATED			
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES (MJ/SQM-DAY)		
1	.098	.373	1.050	1.339	2.215	2.841	3.370	3.805	1.251	2.987	2.882	1.158	.460	.577	.351	.103	0.000	0.000	24.860		
2	.098	.379	1.088	1.721	1.436	2.059	2.668	1.700	1.506	3.078	2.168	1.492	1.533	.829	.465	.114	0.000	0.000	22.332		
3	.093	.383	1.076	1.603	2.394	2.858	3.372	3.738	3.453	2.850	2.699	1.974	1.770	.544	.118	.079	0.000	0.000	29.003		
4	.083	.139	.510	1.166	2.192	2.984	3.372	3.567	3.686	2.796	2.334	2.213	.806	.541	.227	.142	0.000	0.000	26.758		
5	.083	.242	.603	1.415	2.269	3.051	3.251	3.533	3.178	3.122	2.256	.768	1.382	1.410	.511	.250	0.000	0.000	27.323		
6	.086	.251	.714	1.177	2.155	2.916	3.298	.924	.318	2.008	2.327	1.476	1.226	.231	.109	.140	0.000	0.000	19.355		
7	.089	.426	1.064	1.773	2.470	3.034	3.378	3.645	3.650	3.484	3.099	2.344	1.584	.783	.353	.181	0.000	0.000	31.357		
8	.087	.397	.936	1.826	2.177	2.814	3.373	3.176	3.405	3.459	.931	.704	.499	.475	.556	.097	0.000	0.000	24.911		
9	.085	.395	1.028	1.760	2.333	2.959	3.290	3.582	3.614	3.407	2.971	2.409	1.634	.668	.209	.091	0.000	0.000	30.436		
10	.094	.348	1.228	1.745	2.185	2.050	2.360	3.638	3.702	3.257	2.692	2.630	1.505	M	M	M	M	M	M		
11	M	M	M	M	2.486	2.940	3.365	3.378	2.661	3.500	2.938	1.128	1.093	1.019	.305	.081	0.000	0.000	M		
12	.079	.364	.987	1.675	2.314	2.884	2.934	1.991	2.287	2.635	2.285	1.073	.846	.594	.359	.108	0.000	0.000	23.414		
13	.079	.375	.776	1.719	2.394	2.982	3.397	3.633	3.487	3.229	3.055	2.519	1.887	1.192	.531	.108	0.000	0.000	31.363		
14	.081	.347	.962	1.617	2.232	2.872	3.312	3.549	3.581	3.396	3.042	2.477	1.773	.743	.434	.084	0.000	0.000	30.501		
15	.077	.331	.899	1.714	2.318	2.928	3.346	3.579	3.379	2.732	1.177	1.482	1.176	.830	.472	.120	0.000	0.000	26.558		
16	.085	.216	.903	1.718	2.279	2.843	2.862	3.093	1.603	.230	2.446	2.231	.876	.131	.186	.104	0.000	0.000	21.806		
17	.075	.095	.155	.375	.538	.848	1.863	1.557	1.566	.178	.227	.818	1.452	1.057	.501	.096	0.000	0.000	11.400		
18	.098	.328	.890	1.565	2.234	2.849	3.333	2.745	1.455	1.037	.237	.432	1.188	.983	.331	.088	0.000	0.000	19.792		
19	.075	.341	.947	1.641	2.306	2.869	3.309	3.531	3.684	3.355	1.263	1.005	1.196	.758	.542	.093	0.000	0.000	26.915		
20	.080	.334	.920	1.617	2.267	2.831	3.256	3.554	1.723	1.346	2.434	2.656	1.806	1.082	.244	.084	0.000	0.000	26.233		
21	.076	.205	.811	1.395	2.315	2.668	2.082	2.680	1.204	1.218	.749	1.244	1.206	.754	.202	.079	0.000	0.000	18.888		
22	.086	.256	.411	.533	.782	1.793	3.196	3.572	3.534	3.265	2.050	1.488	1.146	.455	.209	.085	0.000	0.000	22.862		
23	.074	.257	.920	1.370	2.233	2.940	2.992	1.885	1.274	1.233	1.451	1.805	.794	.437	.125	.079	0.000	0.000	19.868		
24	.078	.288	.792	1.607	2.246	2.846	3.150	3.338	1.326	2.196	2.857	2.831	2.864	3.273	2.442	3.083	0.000	0.000	35.216		
25	3.462	3.299	3.300	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
29	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
31	M	M	M	M	1.498	2.150	2.914	2.623	2.960	3.228	.775	.956	1.570	.830	.204	0.000	0.000	0.000	M		
AVERAGE VALUES																				M	
STANDARD DEVIATION																				M	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

AUGUST 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQM-DAY)
1	0.000	.146	.416	1.388	2.060	2.601	2.978	3.268	3.283	3.120	2.446	1.385	.860	.760	.169	0.000	0.000	0.000	24.881
2	M	M	M	M	M	M	3.072	3.257	3.313	3.124	2.639	1.707	2.156	4.905	5.096	5.051	0.000	0.000	M
3	5.043	5.096	5.096	4.886	4.642	3.983	3.543	4.020	M	M	M	2.132	1.529	.873	.224	0.000	0.000	0.000	M
4	0.000	.129	.723	1.421	2.110	2.673	3.094	3.330	3.351	3.132	2.738	2.205	1.555	.855	.206	0.000	0.000	0.000	27.520
5	0.000	.124	.711	1.398	2.073	2.648	3.087	3.325	3.346	3.135	2.743	2.191	1.537	.791	.159	0.000	0.000	0.000	27.267
6	0.000	.114	.682	1.366	2.022	2.544	2.980	3.190	3.195	2.819	1.941	1.698	1.262	.669	.168	0.000	0.000	0.000	24.650
7	0.000	M	M	M	M	M	M	3.153	3.199	3.017	2.560	M	M	M	M	0.000	0.000	0.000	M
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
9	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
10	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
11	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
12	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
13	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
17	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
19	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	M	M	M	M	M	2.070	1.971	.757	.506	.146	0.000	0.000	0.000	M
22	0.000	.163	.710	1.525	2.233	2.829	2.762	2.724	3.131	3.159	2.502	1.217	1.073	.824	.082	0.000	0.000	0.000	24.934
23	0.000	.151	.772	1.503	2.231	2.837	3.287	2.595	3.382	1.830	1.573	.429	.924	.974	.174	0.000	0.000	0.000	22.661
24	0.000	.143	.730	1.089	2.252	2.920	3.258	2.916	.440	1.664	.731	.755	1.485	.598	.072	0.000	0.000	0.000	19.053
25	0.000	.142	.736	1.489	2.191	2.763	3.129	2.069	2.146	1.326	1.537	2.275	1.477	.804	.147	0.000	0.000	0.000	22.229
26	0.000	.139	.730	1.481	2.131	2.738	3.239	2.445	.920	.840	1.895	1.669	1.136	.451	.107	0.000	0.000	0.000	19.920
27	0.000	.143	.558	M	1.902	2.776	3.273	3.555	2.162	2.119	1.632	M	.218	.496	.155	0.000	0.000	0.000	M
28	0.000	.076	.566	1.305	2.111	2.730	3.279	1.610	2.677	1.784	1.849	1.458	.712	.442	.074	0.000	0.000	0.000	20.673
29	0.000	.101	.623	1.392	2.139	2.764	3.243	3.508	3.261	3.205	2.802	2.152	1.141	.520	.078	0.000	0.000	0.000	26.930
30	0.000	.113	.655	1.302	1.676	2.561	2.812	2.647	3.166	2.402	1.510	.233	.235	.205	.074	0.000	0.000	0.000	19.592
31	0.000	.112	.613	1.117	2.012	2.757	3.293	3.658	M	M	M	M	M	M	M	M	M	M	M

AVERAGE VALUES	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
STANDARD DEVIATION	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 21.

SEPTEMBER 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS			MTN. STD. TIME																INTEGRATED			
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES (MJ/SUM-DAY)				
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.000	0.000	0.000	M				
2	0.000	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.000	0.000	0.000	M				
3	0.000	M	M	M	2.184	2.756	3.223	3.440	3.420	3.164	2.711	2.081	1.327	.544	.058	0.000	0.000	0.000	M				
4	0.000	.056	.575	1.346	M	2.707	3.190	3.431	3.411	3.155	1.821	1.691	.816	.402	.077	0.000	0.000	0.000	M				
5	0.000	.080	.576	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
7	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
9	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
10	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
11	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
12	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
13	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
17	M	M	M	M	M	M	M	M	M	M	2.475	1.810	1.042	.285	.025	0.000	0.000	0.000	M				
18	0.000	.043	.407	1.121	1.874	2.500	2.951	3.178	3.170	2.913	2.428	1.771	1.004	.269	.034	0.000	0.000	0.000	23.664				
19	0.000	.044	.417	1.153	1.895	2.535	2.984	3.205	3.182	2.926	2.215	1.093	.482	.178	.027	0.000	0.000	0.000	22.336				
20	0.000	.041	.204	.550	1.611	2.354	2.876	3.081	2.954	2.168	.912	.261	.067	.065	.034	0.000	0.000	0.000	17.176				
21	0.000	.009	.411	.689	.889	1.891	2.911	3.111	3.099	2.836	2.350	1.682	.877	.184	.032	0.000	0.000	0.000	20.971				
22	0.000	0.000	.359	1.071	1.808	2.469	2.933	3.150	3.134	1.131	1.394	.748	1.126	.196	0.000	0.000	0.000	0.000	19.518				
23	0.000	0.000	.417	1.110	1.440	2.375	2.847	2.518	3.012	1.861	1.875	1.326	.532	.159	0.000	0.000	0.000	0.000	19.472				
24	0.000	0.000	.302	1.009	1.747	2.399	2.574	2.729	3.270	2.251	1.545	.284	.250	.132	M	M	M	M	18.492				
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
29	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
AVERAGE VALUES																							
STANDARD DEVIATION																							

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

OCTOBER 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS									MIN.	STD.	TIME								INTEGRATED
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES	
																			(MJ/SQ-M-DAY)	
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
3	M	M	M	M	.493	1.830	2.398	2.578	2.530	2.273	1.839	1.252	.580	.011	0.000	0.000	0.000	0.000	M	
4	0.000	0.000	.182	.827	1.455	1.985	2.417	2.594	2.471	2.203	1.812	1.208	.545	.012	0.000	0.000	0.000	0.000	17.711	
5	0.000	0.000	.095	.718	1.448	1.996	2.342	2.460	2.497	2.244	1.776	1.130	.478	.000	0.000	0.000	0.000	0.000	17.186	
6	0.000	0.000	.161	.771	1.406	1.958	2.328	2.494	2.453	2.191	1.750	1.153	.499	.003	0.000	0.000	0.000	0.000	17.168	
7	0.000	0.000	.274	.827	1.275	1.617	2.596	2.515	2.547	2.164	1.741	1.045	.520	.002	0.000	0.000	0.000	0.000	17.121	
8	0.000	0.000	.144	.738	1.373	1.924	2.314	2.498	2.041	1.157	1.869	1.045	.435	.001	0.000	0.000	0.000	0.000	15.538	
9	0.000	0.000	.010	.094	.197	.290	.404	.684	.902	M	.731	.704	.342	.015	0.000	0.000	0.000	0.000	M	
10	0.000	0.000	.073	.708	1.190	1.879	1.901	2.394	2.312	2.083	1.351	.623	.366	0.000	0.000	0.000	0.000	0.000	14.879	
11	0.000	0.000	.134	.740	1.417	1.342	1.521	2.349	2.287	2.040	1.649	.938	.379	0.000	0.000	0.000	0.000	0.000	14.797	
12	0.000	0.000	.117	.685	1.294	1.817	2.139	2.337	2.330	2.067	1.604	1.021	.378	0.000	0.000	0.000	0.000	0.000	15.789	
13	0.000	0.000	.027	.249	.699	1.800	2.205	2.360	2.303	2.028	1.589	.882	.382	0.000	0.000	0.000	0.000	0.000	14.523	
14	0.000	0.000	.089	.155	.426	.709	1.324	.988	1.958	1.051	.748	.410	.176	0.000	0.000	0.000	0.000	0.000	8.033	
15	0.000	0.000	.100	.674	1.314	1.866	1.650	M	.992	1.439	1.483	.554	.277	0.000	0.000	0.000	0.000	0.000	M	
16	0.000	0.000	.010	.415	1.103	1.529	2.171	1.590	1.530	.957	.848	M	.302	0.000	0.000	0.000	0.000	0.000	M	
17	0.000	0.000	.007	.056	.361	1.016	1.554	1.344	1.180	1.357	.748	.470	.158	0.000	0.000	0.000	0.000	0.000	8.251	
18	0.000	0.000	.007	.207	.622	1.031	1.733	1.112	1.762	1.935	1.304	.355	.177	0.000	0.000	0.000	0.000	0.000	10.245	
19	0.000	0.000	.039	.403	M	1.173	1.016	.926	.714	1.008	1.350	.631	.118	0.000	0.000	0.000	0.000	0.000	M	
20	0.000	0.000	.007	.346	.244	.503	.644	1.609	1.725	1.286	.569	.278	.061	0.000	0.000	0.000	0.000	0.000	7.271	
21	0.000	0.000	0.000	.086	.344	.425	.372	.575	.976	.880	.455	.288	.162	0.000	0.000	0.000	0.000	0.000	4.562	
22	0.000	0.000	.068	.637	1.265	1.782	2.119	2.262	2.195	1.773	1.427	.846	.209	0.000	0.000	0.000	0.000	0.000	14.585	
23	0.000	0.000	.082	.527	.720	.867	1.042	1.185	1.891	1.302	1.160	.482	.085	0.000	0.000	0.000	0.000	0.000	9.342	
24	0.000	0.000	.055	.560	1.081	1.809	2.281	2.189	2.137	1.861	1.405	.833	.186	0.000	0.000	0.000	0.000	0.000	14.396	
25	0.000	0.000	.045	M	1.119	1.651	1.991	2.148	2.086	1.813	1.365	.784	.163	0.000	0.000	0.000	0.000	0.000	M	
26	0.000	0.000	.041	.526	1.129	1.628	1.993	2.133	2.028	1.119	.373	.345	.116	0.000	0.000	0.000	0.000	0.000	11.432	
27	0.000	0.000	0.000	.174	.844	1.629	1.991	2.158	2.098	1.835	1.380	.796	.159	0.000	0.000	0.000	0.000	0.000	13.005	
28	0.000	0.000	.036	.540	1.141	1.232	1.057	1.245	1.162	1.104	.971	.413	.105	0.000	0.000	0.000	0.000	0.000	9.006	
29	0.000	0.000	0.000	0.000	.004	0.000	.091	.147	.117	.264	.339	M	M	M	M	M	M	M	M	
30	M	M	M	M	M	M	.691	.821	.906	M	M	M	M	0.000	0.000	0.000	0.000	0.000	M	
31	0.000	0.000	.030	.514	1.194	1.677	1.857	2.039	2.073	1.959	1.641	.881	.137	0.000	0.000	0.000	0.000	0.000	14.002	
AVERAGE																				M
VALUES																				M
STANDARD																				M
DEVIATION																				M

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 23.

NOVEMBER 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	.018	.377	.967	1.358	1.980	1.933	1.851	.852	.988	.582	.160	0.000	0.000	0.000	11.065
2	0.000	0.000	.017	.465	1.106	1.647	2.002	2.146	2.055	1.749	1.295	.717	.101	0.000	0.000	0.000	13.299
3	0.000	0.000	.008	.141	.446	.950	.696	.882	1.126	1.495	1.258	.528	.085	0.000	0.000	0.000	7.616
4	0.000	0.000	.006	.255	M	1.513	1.874	1.517	1.786	1.096	.349	.124	.011	0.000	0.000	0.000	M
5	0.000	0.000	0.000	.014	.254	.405	.502	.626	.682	.587	.468	.210	.011	0.000	0.000	0.000	3.759
6	0.000	0.000	.010	.675	1.073	1.496	1.923	1.934	1.924	1.482	.927	.404	.076	0.000	0.000	0.000	11.923
7	0.000	0.000	0.000	.132	.415	.630	.929	1.206	1.208	.713	.621	.215	.012	0.000	0.000	0.000	6.083
8	0.000	0.000	0.000	.342	.931	1.423	1.738	1.911	1.721	1.115	1.070	.205	.050	0.000	0.000	0.000	10.506
9	0.000	0.000	0.000	.019	.050	.184	.523	.627	.596	.636	.425	.180	.029	0.000	0.000	0.000	3.269
10	0.000	0.000	0.000	.364	.925	1.396	1.736	1.919	1.874	1.460	.865	.264	.035	0.000	0.000	0.000	10.439
11	0.000	0.000	0.000	.091	.490	.634	.656	.516	.395	.532	.173	.133	.014	0.000	0.000	0.000	3.635
12	0.000	0.000	0.000	.508	1.059	1.431	1.791	1.930	1.871	1.619	1.153	.592	.035	0.000	0.000	0.000	11.989
13	0.000	0.000	0.000	.309	.886	1.384	1.736	1.921	1.864	1.588	1.141	.578	.035	0.000	0.000	0.000	11.443
14	0.000	0.000	0.000	.295	.863	1.371	1.714	1.873	1.816	1.568	1.132	.563	.022	0.000	0.000	0.000	11.218
15	0.000	0.000	0.000	.285	.852	1.360	1.717	1.892	1.813	1.551	1.115	.556	.019	0.000	0.000	0.000	11.161
16	0.000	0.000	0.000	.278	.851	1.354	1.698	1.869	1.806	1.547	1.086	.520	.007	0.000	0.000	0.000	11.015
17	0.000	0.000	0.000	.272	.844	1.346	1.677	1.844	1.811	1.525	1.077	.383	.017	0.000	0.000	0.000	10.796
18	0.000	0.000	0.000	.075	.395	1.121	.920	1.095	1.111	.846	.631	.533	.022	0.000	0.000	0.000	6.747
19	0.000	0.000	0.000	M	.756	1.244	1.697	1.598	1.172	.695	.409	.100	0.000	0.000	0.000	0.000	M
20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
22	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
23	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
24	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
26	M	M	M	M	M	M	M	M	M	.861	.585	.253	.012	0.000	0.000	0.000	M
27	0.000	0.000	0.000	.177	.732	1.247	1.618	1.841	1.763	1.519	1.278	M	M	0.000	0.000	0.000	M
28	0.000	0.000	0.000	.162	.664	1.224	1.599	1.769	1.719	1.539	1.040	.489	.017	0.000	0.000	0.000	10.222
29	0.000	0.000	0.000	.186	.707	1.214	1.583	1.782	1.746	1.481	1.025	.445	0.000	0.000	0.000	0.000	10.170
30	0.000	0.000	0.000	.149	.684	1.200	1.552	1.731	1.684	1.429	1.007	.504	.013	0.000	0.000	0.000	9.954

AVERAGE	0.000	0.000	.003	M	M	1.180	1.472	1.581	1.539	1.229	.880	.395	.034	0.000	0.000	0.000	M
VALUES																	
STANDARD	0.000	0.000	.005	M	M	.373	.488	.493	.472	.400	.331	.185	.038	0.000	0.000	0.000	M
DEVIATION																	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

DECEMBER 1979

HEMISPHERIC SOLAR IRRADIANCE
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS				MTN. STD. TIME										INTEGRATED									
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES (MJ/SQ-M-DAY)					
1	0.000	0.000	0.000	.141	.664	1.160	1.537	1.700	1.640	1.423	.995	.429	0.000	0.000	0.000	0.000	0.000	0.000	9.647					
2	0.000	0.000	0.000	.211	.592	1.025	1.466	1.809	1.281	1.122	.518	.187	.001	0.000	0.000	0.000	0.000	0.000	8.213					
3	0.000	0.000	0.000	.187	.242	.406	.672	1.151	1.239	.801	.634	.209	.004	0.000	0.000	0.000	0.000	0.000	5.545					
4	0.000	0.000	0.000	.029	.218	.549	.623	.890	1.187	.643	.506	.374	0.000	0.000	0.000	0.000	0.000	0.000	5.020					
5	0.000	0.000	0.000	.115	.612	.663	1.415	1.803	1.675	.941	.575	.454	.008	0.000	0.000	0.000	0.000	0.000	8.261					
6	0.000	0.000	0.000	.087	.267	.360	.873	1.429	1.741	1.204	.962	.403	.001	0.000	0.000	0.000	0.000	0.000	7.326					
7	0.000	0.000	0.000	.089	.227	.150	.209	.231	.219	.252	.134	.048	0.000	0.000	0.000	0.000	0.000	0.000	1.559					
8	0.000	0.000	0.000	.038	.277	.843	1.324	1.529	1.434	1.287	.881	.372	0.000	0.000	0.000	0.000	0.000	0.000	7.985					
9	0.000	0.000	0.000	.088	.556	1.033	1.391	1.559	1.542	1.278	.878	.375	0.000	0.000	0.000	0.000	0.000	0.000	8.699					
10	0.000	0.000	0.000	.131	.554	1.211	1.564	1.547	1.229	.985	.876	.413	0.000	0.000	0.000	0.000	0.000	0.000	8.511					
11	0.000	0.000	0.000	.010	.269	.716	.918	1.309	1.234	1.089	.831	.285	.011	0.000	0.000	0.000	0.000	0.000	6.672					
12	0.000	0.000	0.000	.267	.748	1.091	1.468	1.666	1.631	1.382	.957	.418	.002	0.000	0.000	0.000	0.000	0.000	9.628					
13	0.000	0.000	0.000	.069	.470	.939	1.174	1.545	1.593	1.385	.975	.428	.003	0.000	0.000	0.000	0.000	0.000	8.582					
14	0.000	0.000	0.000	.089	.452	.900	1.378	1.563	1.540	1.322	.899	.396	.010	0.000	0.000	0.000	0.000	0.000	8.547					
15	0.000	0.000	0.000	.080	.563	1.264	.510	.369	.844	1.481	.886	.338	.022	0.000	0.000	0.000	0.000	0.000	6.357					
16	0.000	0.000	0.000	.041	.468	.978	1.352	1.537	1.550	1.364	.875	.241	.009	0.000	0.000	0.000	0.000	0.000	8.415					
17	0.000	0.000	0.000	.073	.437	.973	1.353	1.686	1.414	.907	.697	.283	.003	0.000	0.000	0.000	0.000	0.000	7.826					
18	0.000	0.000	0.000	.055	.502	1.007	1.378	1.580	1.574	1.365	.966	.425	0.000	0.000	0.000	0.000	0.000	0.000	8.852					
19	0.000	0.000	0.000	.054	.489	.980	1.366	1.559	1.525	1.318	.930	.409	0.000	0.000	0.000	0.000	0.000	0.000	8.630					
20	0.000	0.000	0.000	.065	.242	.907	1.529	M	1.273	.759	.553	.335	.017	0.000	0.000	0.000	0.000	0.000	M					
21	0.000	0.000	0.000	.046	.473	.987	1.324	1.509	1.476	.982	.528	.242	.020	0.000	0.000	0.000	0.000	0.000	7.567					
22	0.000	0.000	0.000	0.000	.064	.173	.290	.376	.547	.541	.537	.272	.011	0.000	0.000	0.000	0.000	0.000	2.811					
23	0.000	0.000	0.000	.027	.292	.884	1.246	1.457	1.495	1.285	.892	.348	.012	0.000	0.000	0.000	0.000	0.000	7.939					
24	0.000	0.000	0.000	.103	.692	1.058	1.216	1.460	.789	.599	.577	.280	.016	0.000	0.000	0.000	0.000	0.000	6.791					
25	0.000	0.000	0.000	.050	.450	1.098	1.039	1.533	1.524	1.353	.971	.451	.012	0.000	0.000	0.000	0.000	0.000	8.482					
26	0.000	0.000	0.000	.013	.307	.610	.696	1.039	.718	.800	.568	.099	0.000	0.000	0.000	0.000	0.000	0.000	4.849					
27	0.000	0.000	0.000	.005	.082	.157	.579	.559	.645	.714	.385	.116	.011	0.000	0.000	0.000	0.000	0.000	3.252					
28	0.000	0.000	0.000	.007	.200	.474	.760	.675	1.000	1.007	.798	.293	.040	0.000	0.000	0.000	0.000	0.000	5.256					
29	0.000	0.000	0.000	.127	.867	1.282	1.340	1.716	2.291	1.781	1.191	.580	.016	0.000	0.000	0.000	0.000	0.000	11.192					
30	0.000	0.000	0.000	.152	.946	1.559	1.958	1.940	1.678	1.250	.657	.606	.020	0.000	0.000	0.000	0.000	0.000	10.767					
31	0.000	0.000	0.000	.041	.466	1.003	1.396	1.597	1.611	1.422	.430	.638	.064	0.000	0.000	0.000	0.000	0.000	8.667					

AVERAGE	0.000	0.000	0.000	.080	.442	.853	1.140	1.344	1.327	1.098	.744	.347	.010	0.000	0.000	0.000	0.000	0.000	7.397					
VALUES	0.000	0.000	0.000	.063	.214	.349	.417	.466	.424	.339	.233	.137	.014	0.000	0.000	0.000	0.000	0.000	2.242					
STANDARD																								
DEVIATION																								

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

Table 25.

JANUARY 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS				4TH. STD. TIME																	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22				
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
4	M	M	M	M	M	.008	.001	.008	.007	.002	.001	.002	.002	0.000	0.000	0.000	0.000	0.000	M			
5	0.000	0.000	0.000	.002	.001	.007	.011	M	M	M	M	M	M	M	M	M	M	M	M			
6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
7	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
9	M	M	M	M	M	0.000	0.000	0.000	0.000	.001	.651	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M			
10	0.000	0.000	0.000	0.000	0.000	.132	.781	.494	.759	.418	.471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.054			
11	0.000	0.000	0.000	.271	.068	.517	3.162	1.971	1.254	.798	2.015	1.470	0.000	0.000	0.000	0.000	0.000	0.000	11.525			
12	0.000	0.000	0.000	.220	M	.258	1.241	3.056	3.420	3.093	2.945	.506	.175	0.000	0.000	0.000	0.000	0.000	M			
13	0.000	0.000	0.000	.671	2.563	3.158	3.420	3.510	3.452	3.284	3.195	2.749	.517	0.000	0.000	0.000	0.000	0.000	26.519			
14	0.000	0.000	0.000	.127	.475	.785	1.649	.918	.454	1.369	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.775			
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
16	0.000	0.000	0.000	0.000	.295	2.224	2.635	2.539	1.880	2.188	2.139	1.675	.232	0.000	0.000	0.000	0.000	0.000	15.806			
17	0.000	0.000	0.000	.373	M	.017	.947	1.736	.018	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M			
18	0.000	0.000	0.000	0.000	.035	.222	.153	0.000	.127	2.149	2.341	1.477	0.000	0.000	0.000	0.000	0.000	0.000	6.504			
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
20	0.000	0.000	0.000	0.000	.098	.580	.010	.000	.005	.009	.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.703			
21	0.000	0.000	0.000	.734	2.484	3.138	3.383	3.434	3.378	3.220	2.922	2.409	.604	0.000	0.000	0.000	0.000	0.000	25.706			
22	0.000	0.000	0.000	.823	2.620	3.210	3.449	3.508	3.395	3.169	2.445	1.090	.588	0.000	0.000	0.000	0.000	0.000	24.298			
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
24	0.000	0.000	0.000	.413	2.245	2.808	3.461	3.513	3.520	3.505	3.329	2.260	.387	0.000	0.000	0.000	0.000	0.000	25.440			
25	0.000	0.000	0.000	.052	1.016	2.439	.958	.145	.974	1.113	1.528	.068	.058	0.000	0.000	0.000	0.000	0.000	8.351			
26	0.000	0.000	0.000	.031	0.000	0.000	.142	1.245	2.680	.662	1.517	2.346	.284	0.000	0.000	0.000	0.000	0.000	8.907			
27	0.000	0.000	0.000	0.000	.154	.617	2.923	3.092	3.474	3.412	3.269	2.901	1.146	0.000	0.000	0.000	0.000	0.000	20.989			
28	0.000	0.000	0.000	.714	2.165	2.806	3.086	2.897	2.687	2.830	2.202	1.271	.008	0.000	0.000	0.000	0.000	0.000	20.606			
29	0.000	0.000	0.000	0.000	.042	0.000	0.000	0.000	.234	1.625	.317	.131	.199	0.000	0.000	0.000	0.000	0.000	2.548			
30	0.000	0.000	0.000	0.000	0.000	.003	0.000	0.000	.107	.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.181			
31	0.000	0.000	0.000	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	.107	0.000	0.000	0.000	0.000	0.000	M			
AVERAGE VALUES																				M		
STANDARD DEVIATION																				M		

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

FEBRUARY 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	0.000	.019	.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.023
2	0.000	M	M	M	M	M	M	3.571	3.503	3.562	M	3.022	1.400	0.000	0.000	0.000	M
3	0.000	0.000	0.000	.307	.916	1.712	2.515	.068	0.000	.058	1.841	2.844	1.330	0.000	0.000	0.000	11.591
4	0.000	0.000	0.000	1.242	2.753	3.203	3.411	3.532	3.465	3.292	3.026	2.114	1.207	0.000	0.000	0.000	27.245
5	0.000	0.000	0.000	.244	.145	.391	.010	.105	.474	.690	.071	0.000	0.000	0.000	0.000	0.000	2.131
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.002	0.000	0.000	0.000	0.000	0.000	0.000	.002
10	0.000	0.000	0.000	0.000	0.000	0.000	M	.360	.606	1.105	1.662	.125	.563	0.000	0.000	0.000	M
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.001	.463	.544	.324	.366	.141	0.000	0.000	0.000	1.839
13	0.000	0.000	0.000	.353	.887	.811	.012	1.029	.164	.389	1.105	1.024	.409	0.000	0.000	0.000	6.184
14	0.000	0.000	0.000	0.000	0.000	.069	.358	.764	.639	1.194	1.083	.014	0.000	0.000	0.000	0.000	4.121
15	0.000	0.000	0.000	0.000	.035	.394	1.163	1.969	2.077	2.112	.472	.004	0.000	0.000	0.000	0.000	8.226
16	0.000	0.000	0.000	.001	0.000	.001	.014	.000	.010	0.000	.117	.079	.120	0.000	0.000	0.000	.342
17	0.000	0.000	.026	1.599	2.808	3.254	3.467	3.552	3.544	3.447	3.265	2.829	1.517	0.000	0.000	0.000	29.307
18	0.000	0.000	.050	1.889	3.061	3.307	1.983	2.793	3.629	3.547	1.517	0.000	0.000	0.000	0.000	0.000	21.777
19	0.000	0.000	0.000	.305	2.763	2.948	3.553	3.617	2.920	.602	.242	.083	.134	0.000	0.000	0.000	17.168
20	0.000	0.000	.094	.651	2.237	3.232	3.604	3.686	3.699	3.698	3.561	3.263	2.455	.120	0.000	0.000	30.302
21	0.000	0.000	.033	1.981	3.216	3.381	3.572	3.656	3.680	3.608	3.498	2.831	1.738	.177	0.000	0.000	31.371
22	0.000	0.000	.139	1.784	2.467	2.855	3.436	3.402	3.586	3.286	2.989	3.013	2.434	.241	0.000	0.000	29.636
23	0.000	0.000	.093	2.259	3.190	3.502	3.619	3.699	3.692	3.568	3.487	3.118	1.472	.277	0.000	0.000	31.977
24	0.000	0.000	.222	2.159	1.399	.550	.022	.001	.002	1.843	.175	.000	0.000	0.000	0.000	0.000	6.433
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	0.000	0.000	.489	1.639	2.371	1.164	.686	.030	.034	0.000	0.000	0.000	6.412
27	0.000	0.000	.007	.456	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M
28	0.000	0.000	0.000	.004	1.654	1.136	2.402	.034	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	5.229
AVERAGE VALUES																	
VALUES	0.000	0.000	.025	.565	1.059	1.183	1.293	1.341	1.379	1.347	1.079	.884	.534	.029	0.000	0.000	10.853
STANDARD DEVIATION	0.000	0.000	.053	.807	1.285	1.441	1.564	1.598	1.620	1.498	1.333	1.312	.798	.076	0.000	0.000	12.254

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 27.

MARCH 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. 12-13	STD. 13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.005
2	0.000	0.000	0.000	0.000	0.000	0.000	.054	.996	.735	.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.833
3	0.000	0.000	0.000	0.000	0.000	.097	.463	.029	.647	.172	.012	.001	.038	.001	0.000	0.000	0.000	0.000	1.461
4	0.000	0.000	.246	2.144	3.035	3.416	3.597	3.660	3.628	3.566	3.448	2.024	.121	.050	0.000	0.000	0.000	0.000	28.934
5	0.000	0.000	.210	1.798	3.141	3.227	3.171	1.148	2.142	.004	.049	.356	.052	0.000	0.000	0.000	0.000	0.000	15.279
6	0.000	0.000	0.000	.002	.141	.029	.219	.245	.262	1.850	.898	1.444	.114	0.000	0.000	0.000	0.000	0.000	5.203
7	0.000	0.000	.572	2.530	2.689	3.292	3.576	3.622	3.577	3.515	3.392	3.077	2.464	.602	0.000	0.000	0.000	0.000	32.908
8	0.000	0.000	.672	2.573	3.208	3.308	2.563	2.614	2.865	1.909	2.792	2.541	2.460	.699	0.000	0.000	0.000	0.000	28.204
9	0.000	0.000	.076	.007	0.000	.237	1.796	.367	1.375	3.069	2.150	.618	.000	0.000	0.000	0.000	0.000	0.000	9.696
10	0.000	0.000	0.000	0.000	0.000	0.000	.524	.878	1.334	.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.749
11	0.000	0.000	.850	2.677	3.286	3.506	3.594	3.598	3.498	3.413	3.271	2.810	2.234	.120	0.000	0.000	0.000	0.000	32.856
12	0.000	0.000	0.000	.055	.772	1.787	1.459	.864	1.205	.089	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.230
13	0.000	0.000	.156	2.122	2.816	3.029	2.666	2.091	3.120	1.279	.497	1.511	1.446	.541	0.000	0.000	0.000	0.000	21.276
14	0.000	0.000	.059	1.420	2.011	2.025	3.452	2.215	2.768	2.808	3.316	3.362	2.818	1.254	0.000	0.000	0.000	0.000	27.510
15	0.000	0.000	0.000	.086	2.406	3.577	3.789	3.356	1.187	2.754	.163	1.263	1.416	.391	0.000	0.000	0.000	0.000	20.389
16	0.000	0.000	1.132	2.772	3.322	3.312	1.466	.198	.478	.862	.810	2.308	2.833	1.269	0.000	0.000	0.000	0.000	20.762
17	0.000	0.000	1.233	2.839	3.343	3.561	3.487	3.539	3.542	3.694	3.567	3.276	2.882	M	M	M	M	M	M
18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
19	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
20	M	M	M	M	2.316	3.088	3.465	3.479	3.501	2.834	2.591	2.848	2.050	1.459	0.000	0.000	0.000	0.000	M
21	0.000	0.000	1.393	2.857	3.314	3.402	3.616	3.647	3.610	3.506	3.255	2.959	2.076	.545	0.000	0.000	0.000	0.000	34.180
22	0.000	0.000	.563	2.458	3.052	1.440	.590	.800	1.885	.702	.126	.051	.012	.006	0.000	0.000	0.000	M	11.683
23	M	M	M	M	M	.005	.013	.012	.017	.009	.010	.014	.020	.006	0.000	0.000	0.000	0.000	M
24	0.000	.005	.009	.012	.018	.025	1.514	1.006	.229	.024	.008	.016	.070	.008	.004	0.000	0.000	0.000	2.948
25	0.000	.005	1.465	2.894	3.203	2.729	2.573	3.699	3.683	3.632	3.302	2.876	.401	.106	.005	0.000	0.000	0.000	30.573
26	0.000	.011	1.564	2.804	3.048	2.974	2.826	1.743	1.760	2.172	2.155	2.096	1.430	1.140	.009	0.000	0.000	0.000	25.729
27	0.000	.016	1.060	2.368	2.943	1.508	2.252	2.941	2.606	2.963	3.400	3.097	2.236	.951	.004	0.000	0.000	0.000	28.345
28	0.000	.034	1.042	1.916	2.483	2.838	3.456	3.562	3.557	3.493	3.349	3.163	2.745	1.264	.004	0.000	0.000	0.000	32.907
29	0.000	.026	1.526	2.706	3.160	3.384	3.473	3.532	3.506	3.333	3.176	2.852	2.328	1.253	.005	0.000	0.000	0.000	34.260
30	0.000	.055	1.749	2.857	3.279	3.475	3.448	3.197	3.166	1.168	2.092	.685	.012	.223	.004	0.000	0.000	0.000	25.409
31	0.000	.026	.225	2.441	M	M	1.536	2.998	.841	.751	2.436	.365	.550	.292	M	M	M	M	M
AVERAGE VALUES																			
STANDARD DEVIATION																			
0.000 .007 .565 1.642 2.111 2.117 2.229 2.070 2.094 1.849 1.733 1.573 1.131 .435 .001 0.000 0.000 0.000 0.000																			
0.000 .014 .611 1.219 1.366 1.453 1.342 1.413 1.331 1.443 1.475 1.308 1.155 .514 .002 0.000 0.000 0.000 0.000																			

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

APRIL 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	M	M	M	M	M	M	M	M	M	.003	.005	.003	.008	.007	.006	0.000	0.000	0.000	M
2	0.000	.006	.069	.016	.097	.218	2.311	1.070	.812	1.938	1.824	2.277	1.571	.583	.002	0.000	0.000	0.000	12.793
3	0.000	.005	.839	2.949	3.147	3.007	1.637	3.450	3.128	.832	.348	.064	.009	.384	.003	0.000	0.000	0.000	19.802
4	0.000	.106	1.570	2.296	2.288	2.746	2.746	2.861	2.601	2.816	2.626	1.427	1.194	.145	.004	0.000	0.000	0.000	25.426
5	0.000	.029	.770	M	.999	.277	2.692	3.593	2.521	3.400	3.200	3.352	3.072	2.251	.005	0.000	0.000	0.000	M
6	0.000	.003	.273	.353	1.348	2.876	3.398	3.293	3.029	2.669	2.147	.504	1.310	.587	.002	0.000	0.000	0.000	21.790
7	0.000	.226	1.717	1.788	1.943	3.360	2.387	3.536	2.726	3.437	3.253	M	2.218	.445	.023	0.000	0.000	0.000	M
8	0.000	.016	1.288	2.698	3.042	2.934	2.279	.400	1.995	2.997	2.630	1.252	.027	.010	.005	0.000	0.000	0.000	21.572
9	0.000	.002	.002	.004	.004	.005	.004	.009	.010	.004	.006	.006	.015	.007	.005	0.000	0.000	0.000	.084
10	0.000	.013	.250	.221	.006	.009	.177	.307	.058	.376	.664	.479	.009	.095	.084	0.000	0.000	0.000	2.749
11	0.000	.450	1.982	2.876	2.740	3.046	3.428	M	M	M	M	M	M	M	M	M	M	M	M
12	M	M	M	M	3.497	3.575	3.638	3.651	3.614	3.518	3.513	3.272	2.914	2.064	.181	0.000	0.000	0.000	M
13	0.000	.449	1.306	2.892	2.889	.317	.095	.357	2.032	.647	.171	.009	.016	.279	.004	0.000	0.000	0.000	11.461
14	0.000	.044	.006	.178	.417	.106	.087	.269	.657	.540	.526	.703	1.851	.284	.005	0.000	0.000	0.000	5.671
15	0.000	.009	.003	.004	.003	.007	.015	.004	.009	.020	.120	1.305	.395	.258	.006	0.000	0.000	0.000	2.158
16	0.000	.003	.007	.011	.009	.011	.012	.014	1.202	.333	.320	.014	.009	1.666	.029	0.000	0.000	0.000	3.640
17	0.000	.013	1.941	3.179	3.481	2.336	3.360	3.759	3.225	2.230	3.484	3.242	3.088	1.753	.100	0.000	0.000	0.000	35.211
18	M	M	M	M	1.242	2.558	3.596	3.755	3.701	3.703	3.608	3.442	3.135	2.480	.479	0.000	0.000	0.000	M
19	0.000	.679	2.259	2.922	3.195	3.375	3.460	3.501	3.416	2.945	2.845	2.114	.439	.003	.002	0.000	0.000	0.000	31.154
20	0.000	.635	1.652	1.428	2.939	3.362	3.049	3.168	3.135	1.841	2.855	2.917	2.116	.526	.085	0.000	0.000	0.000	29.709
21	0.000	.006	.009	.143	2.534	3.204	3.312	3.374	2.940	2.894	1.111	.119	.473	1.259	.067	0.000	0.000	0.000	21.444
22	0.000	.896	2.424	1.814	.716	2.460	3.777	3.813	3.753	2.848	2.964	3.156	2.376	1.948	.269	0.000	0.000	0.000	33.214
23	0.000	.047	2.493	2.633	2.537	3.035	3.126	3.475	3.638	3.496	3.443	3.253	2.576	1.818	.220	0.000	0.000	0.000	36.389
24	0.000	.923	2.529	3.097	3.373	3.504	3.451	3.472	3.100	2.404	2.776	3.124	2.611	1.483	.010	0.000	0.000	0.000	35.858
25	0.000	.316	1.717	2.031	1.644	.897	1.807	2.486	1.952	.247	.141	.127	.125	.207	.168	0.000	0.000	0.000	13.864
26	0.000	.011	.076	.560	1.811	1.364	1.603	1.249	1.372	1.726	1.807	1.760	1.657	.968	.067	0.000	0.000	0.000	16.031
27	0.000	.528	2.043	2.792	3.137	3.251	3.307	2.636	.708	1.011	1.254	.009	.166	.100	.008	0.000	0.000	0.000	20.950
28	0.000	1.230	2.524	2.571	.789	1.431	2.836	.137	.028	.010	.019	.007	.034	.344	.146	0.000	0.000	0.000	12.105
29	0.000	.598	1.464	1.620	2.098	3.216	2.060	1.477	.597	.329	.048	.089	M	M	M	M	M	M	M
30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
AVERAGE VALUES	0.000	.302	1.200	1.643	1.856	2.017	2.274	2.190	2.073	1.758	1.704	1.408	1.238	.813	.074	0.000	0.000	0.000	M
STANDARD DEVIATION	0.000	.363	.947	1.221	1.233	1.377	1.321	1.510	1.315	1.335	1.367	1.368	1.190	.809	.111	0.000	0.000	0.000	M

MISSING DATA
ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIO METER
SERIAL NO. 11095 E6

Table 29.

MAY 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	M	M	M	M	.010	.014	.008	.018	.013	.013	.018	.013	.008	.007	.005	0.000	0.000	0.000	M
2	0.000	.007	.008	.009	.010	.020	.016	.021	.024	.014	.014	.012	.015	.014	.014	0.000	0.000	0.000	.199
3	0.000	.014	.051	.159	.002	.007	.036	.047	.006	.012	M	M	M	M	M	M	M	M	M
4	M	M	M	M	M	M	M	M	.395	4.248	3.889	3.494	3.313	3.490	3.599	0.000	0.000	0.000	M
5	0.000	.008	.008	.006	.002	.006	.006	.006	.009	.011	.033	M	M	M	M	M	M	M	M
6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
7	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
8	M	M	M	M	M	M	M	M	0.000	2.498	3.231	3.305	2.887	2.730	1.142	0.000	0.000	0.000	M
9	.008	.134	.388	3.110	3.494	3.587	3.670	3.687	3.666	3.586	3.548	3.346	2.952	2.250	.426	.005	0.000	0.000	37.856
10	.022	.261	.038	.237	.273	1.780	1.910	2.553	1.321	2.933	2.114	1.440	1.196	.946	1.049	.011	0.000	0.000	18.083
11	.016	.017	.017	.419	.470	.011	.378	.091	.046	.226	.578	.728	M	M	M	M	M	M	M
12	M	M	M	M	3.510	3.469	3.198	3.053	3.699	3.619	3.583	3.462	3.218	2.766	1.315	.003	0.000	0.000	M
13	.108	1.859	2.892	3.261	3.381	3.482	3.607	3.605	3.247	3.331	3.288	2.220	.360	1.433	1.303	.004	0.000	0.000	37.382
14	.070	1.751	2.800	3.159	3.239	3.407	3.404	3.465	3.439	3.305	3.367	2.101	2.821	2.209	.258	.004	0.000	0.000	38.798
15	.009	1.347	2.678	3.130	3.295	3.394	3.444	3.474	3.416	3.316	3.154	2.979	2.723	2.319	.997	.001	0.000	0.000	39.676
16	.013	1.247	2.276	2.897	3.180	3.299	3.333	3.371	3.409	3.284	2.837	2.643	.590	.325	.051	.007	0.000	0.000	32.811
17	.014	.013	.012	.015	.074	.064	.013	.015	.021	.008	M	M	M	M	M	M	M	M	M
18	M	M	M	3.289	3.401	3.496	3.547	3.267	2.689	1.986	2.844	3.087	2.786	2.426	1.473	.011	0.000	0.000	M
19	.081	1.592	2.719	3.017	3.264	3.403	3.427	3.388	3.392	3.243	3.111	2.917	2.530	1.913	.455	.004	0.000	0.000	38.500
20	.008	.009	.008	.010	.015	.019	.956	2.731	2.165	2.701	2.642	1.909	.785	.170	.246	.004	0.000	0.000	14.380
21	.051	.221	.016	.375	.273	.209	.008	.036	.074	.008	.009	.008	.052	.065	.010	.006	0.000	0.000	1.417
22	.005	.888	1.149	1.777	2.439	3.254	3.343	1.900	2.675	1.368	2.017	.609	.512	1.443	.951	.002	0.000	0.000	24.333
23	.123	1.400	.969	1.191	.533	.117	.180	.848	1.095	2.223	2.649	2.990	1.174	.786	.678	.006	0.000	0.000	16.961
24	.102	1.438	2.445	2.883	3.165	3.332	3.421	2.189	2.217	1.240	1.635	1.155	2.708	2.559	1.576	.008	0.000	0.000	32.072
25	.126	.153	.634	.284	2.027	1.006	1.135	2.312	1.455	2.206	1.194	2.280	2.308	1.445	.326	.003	0.000	0.000	18.898
26	.006	.692	.496	2.346	3.043	3.273	3.327	3.366	2.489	.823	.258	.004	.153	.921	.143	.004	0.000	0.000	21.346
27	.002	.008	.008	.857	2.847	1.927	.228	.285	.519	.407	.278	.703	.438	.009	.013	.005	0.000	0.000	8.534
28	.006	.007	.007	.004	.138	.978	.358	.907	1.729	1.521	1.072	.041	1.220	.421	.328	.006	0.000	0.000	8.743
29	.024	1.510	2.510	2.991	3.188	3.332	3.432	3.397	3.221	3.074	3.242	1.618	.158	.105	.182	.004	0.000	0.000	31.989
30	.002	1.472	2.457	2.841	3.057	2.915	3.053	3.159	2.881	1.137	.072	.020	.002	.005	.007	.007	0.000	0.000	23.084
31	.004	.006	.020	.042	.007	.009	.444	.023	.509	.677	.447	.479	.142	.004	.008	.005	0.000	0.000	2.826
AVERAGE VALUES	.033	.673	1.025	1.533	1.790	1.845	1.847	1.897	1.718	1.828	1.894	1.677	1.402	1.231	.662	.004	0.000	0.000	M
STANDARD DEVIATION	.043	.716	1.181	1.389	1.528	1.567	1.580	1.501	1.418	1.403	1.402	1.298	1.247	1.114	.807	.003	0.000	0.000	M

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIO-METER
SERIAL NO. 11095 EB

1478

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/SQ. METER-HR)

FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	DATE										TIME										INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)	
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22				
1	.004	.002	.004	.003	.007	.007	.017	.014	.020	.023	.094	.011	.003	.006	.006	.003	0.000	0.000	.225			
2	.002	.006	.007	.016	.008	.013	.011	.020	.005	.006	.006	.008	.142	.058	.004	.004	0.000	0.000	.316			
3	.003	.011	.006	.007	.010	.014	.006	.009	.110	.015	.140	.008	.008	.256	.088	.006	0.000	0.000	.699			
4	.051	.050	.009	.505	.239	1.031	.471	1.253	.491	.607	.001	.284	.007	.003	.003	.007	0.000	0.000	5.010			
5	.009	.019	.010	.014	.010	.030	.037	.031	.060	.027	.578	.415	.116	.003	.012	.004	0.000	0.000	1.376			
6	.160	1.318	2.174	2.824	3.150	3.333	3.404	3.488	3.510	3.437	3.317	2.991	2.327	1.844	.040	.007	0.000	0.000	37.323			
7	.066	.973	.193	.505	1.086	.897	2.252	1.783	.159	1.573	1.015	.001	.003	1.225	1.017	.003	0.000	0.000	12.750			
8	.228	1.711	2.596	2.980	3.165	3.223	1.616	2.925	3.078	3.233	2.095	1.784	2.151	1.356	.760	.071	0.000	0.000	32.971			
9	.270	1.412	2.781	3.149	3.327	3.377	3.386	3.387	3.168	3.360	2.798	2.045	.814	.008	1.136	.002	0.000	0.000	34.939			
10	.002	.012	.011	.004	.263	2.792	1.614	1.624	1.572	.430	.088	.056	.270	.908	1.193	.034	0.000	0.000	10.874			
11	.062	.907	1.928	2.122	1.543	3.241	3.011	2.662	3.312	3.266	3.146	3.011	2.723	2.217	1.132	.097	0.000	0.000	34.400			
12	.284	1.891	2.711	3.088	3.268	3.365	3.074	3.015	.744	.606	2.074	2.314	2.064	2.083	1.568	.069	0.000	0.000	32.217			
13	.046	1.468	2.754	3.146	3.290	3.370	3.320	2.824	2.531	2.595	2.419	1.290	.798	2.401	1.557	.092	0.000	0.000	33.900			
14	.254	1.956	2.805	3.153	3.339	3.409	3.465	3.471	3.446	1.792	.622	.632	1.977	.030	.720	.106	0.000	0.000	31.176			
15	.270	1.967	2.829	3.189	3.317	3.440	3.581	3.597	3.570	3.543	3.478	3.207	2.954	2.658	1.928	.149	0.000	0.000	43.676			
16	.357	2.094	2.859	3.184	3.330	3.357	3.407	3.421	3.438	3.361	3.273	2.857	1.693	.694	1.301	.104	0.000	0.000	38.731			
17	.169	1.634	2.597	3.032	3.232	3.291	3.277	3.274	3.317	2.968	2.856	2.569	.075	.020	.169	.116	0.000	0.000	32.617			
18	.225	1.749	2.476	2.685	3.111	3.302	3.376	3.309	3.385	3.324	3.209	1.926	1.548	1.514	1.340	.060	0.000	0.000	36.538			
19	.046	.809	2.510	2.886	3.073	3.226	3.219	1.882	1.415	.957	1.197	1.859	2.641	2.422	.840	.118	0.000	0.000	29.098			
20	.006	.007	.393	2.341	2.696	3.124	3.332	3.313	3.217	3.151	3.134	2.828	2.555	1.974	.760	.027	0.000	0.000	32.857			
21	.191	1.693	2.480	2.904	3.102	2.480	2.530	1.876	.499	.346	.042	.024	.427	1.689	1.401	.061	0.000	0.000	21.745			
22	.282	1.898	2.649	3.001	3.222	3.289	3.245	2.983	2.822	2.021	1.791	.491	.214	.173	.012	.015	0.000	0.000	28.108			
23	.016	.315	1.006	2.496	2.941	3.064	3.139	1.434	1.602	1.526	2.256	1.639	.185	.342	.566	.128	0.000	0.000	22.656			
24	.165	.929	2.092	1.717	2.593	3.154	3.109	3.239	2.562	2.901	1.700	2.138	.335	.085	.661	.023	0.000	0.000	27.404			
25	.227	1.836	2.627	3.052	3.256	3.369	3.387	3.279	3.429	3.434	3.370	3.146	2.997	1.343	1.639	.105	0.000	0.000	40.497			
26	.078	1.332	2.517	2.972	3.166	3.282	3.359	2.471	3.349	3.293	3.171	2.392	.639	.804	.293	.002	0.000	0.000	33.120			
27	.045	1.472	2.503	2.881	2.739	1.440	1.865	2.289	2.380	1.603	.008	.002	.024	.137	.116	.186	0.000	0.000	19.690			
28	.007	.095	.358	1.779	1.606	2.864	3.274	3.204	3.262	3.163	3.142	2.876	2.474	2.091	1.254	.030	0.000	0.000	31.477			
29	.160	1.496	1.400	1.172	1.512	.731	2.458	1.500	.631	.002	.197	.269	.288	.014	.014	.013	0.000	0.000	11.857			
30	.027	.035	.011	.023	.036	.030	.931	3.012	2.209	.023	.019	.034	.497	.934	.691	.078	0.000	0.000	8.649			
AVERAGE VALUES STANDARD DEVIATION	.125	1.053	1.643	2.028	2.188	2.385	2.439	2.353	2.112	1.886	1.708	1.437	1.098	.476	.741	.057	0.000	0.000	24.230			
	.111	.788	1.180	1.254	1.327	1.326	1.245	1.162	1.341	1.384	1.347	1.215	1.092	.917	.605	.052	0.000	0.000	13.557			

M MISSING DATA
E ESTIMATED DATA (REFER TO DOCUMENTATION)

INSTRUMENTATION: EPPLEY LABORATORY BURNAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 ED

Table 31.

JULY 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	MOONS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQM-DAY)
1	.183	.377	2.134	2.946	2.906	2.050	.794	1.945	1.445	1.358	1.938	1.830	.531	2.172	1.425	.015	0.000	0.000	24.049
2	.131	1.591	2.512	2.989	3.235	3.328	3.352	3.357	3.370	3.352	3.187	1.644	.784	1.982	1.767	.179	0.000	0.000	36.759
3	.217	2.008	2.764	3.103	3.253	3.307	3.392	3.376	3.030	2.206	1.465	1.210	M	M	M	M	M	M	M
4	M	M	M	M	M	M	3.624	3.647	3.595	3.460	3.421	3.286	3.070	2.637	1.697	.175	0.000	0.000	M
5	.061	1.730	2.613	3.012	3.203	3.311	3.407	3.417	3.402	3.066	2.613	2.891	1.822	1.097	.078	.002	0.000	0.000	35.723
6	.008	.100	2.066	2.818	3.028	2.415	.002	M	2.474	2.404	2.093	.010	1.686	.022	.008	.009	0.000	0.000	M
7	.101	1.343	2.198	1.200	2.030	3.067	2.229	3.268	3.202	3.072	3.168	2.855	2.569	2.388	1.470	.107	0.000	0.000	35.266
8	.111	1.634	2.681	3.087	3.322	3.372	3.394	3.476	3.351	2.814	2.902	3.149	2.952	2.657	1.849	.143	0.000	0.000	40.893
9	.059	.170	.001	.003	.006	.013	.008	.004	.006	.095	.351	.015	.538	1.302	1.019	.050	0.000	0.000	3.638
10	.021	.188	.541	.617	1.144	1.198	M	.792	1.468	.268	1.056	.018	.003	.021	.910	.085	0.000	0.000	M
11	.041	.254	1.610	1.982	1.196	2.619	2.865	2.630	.006	1.818	.571	.059	2.395	.379	.004	.003	0.000	0.000	18.430
12	.015	1.242	2.270	1.922	1.461	.054	.133	1.267	1.500	1.119	1.116	.527	.245	.085	.353	.087	0.000	0.000	13.397
13	.008	.008	.012	.021	.815	3.086	3.116	3.211	3.191	3.142	3.135	2.622	2.591	2.253	1.410	.067	0.000	0.000	28.689
14	.124	1.656	2.614	3.074	3.253	3.362	3.376	3.382	2.886	.919	.705	.398	.328	.537	.194	.052	0.000	0.000	26.860
15	.052	1.415	2.407	2.860	3.112	3.244	2.731	2.449	.878	.002	.977	1.590	.252	.007	.003	.003	0.000	0.000	21.982
16	.068	1.517	2.526	2.891	3.083	3.202	1.991	1.704	1.668	M	M	M	M	M	M	M	M	M	M
17	M	M	M	M	M	1.654	2.932	2.612	1.706	.809	1.351	.925	.006	.112	.007	.012	0.000	0.000	M
18	.007	.013	.025	.014	1.816	1.448	2.335	3.138	2.290	3.151	3.088	1.477	2.226	.896	.277	.013	0.000	0.000	22.212
19	.024	1.211	2.161	1.695	.203	2.017	2.986	1.750	1.010	.247	3.038	.445	.410	.126	.333	.023	0.000	0.000	17.680
20	.014	.157	.010	.070	.709	1.705	.714	1.622	.351	2.463	.981	.737	1.189	1.069	.435	.006	0.000	0.000	12.232
21	.012	.011	.017	.016	.022	.028	.036	.048	.393	.245	.008	.076	1.223	1.336	.012	.009	0.000	0.000	3.491
22	.081	1.235	1.107	2.809	2.980	2.911	3.012	3.264	3.318	3.277	3.170	2.973	2.706	2.228	1.155	.011	0.000	0.000	36.239
23	.045	1.470	2.569	3.017	3.240	3.375	3.414	3.408	3.421	3.338	3.266	2.869	2.036	2.117	.962	.003	0.000	0.000	38.549
24	.048	1.603	M	M	M	3.444	3.464	3.473	3.476	3.404	3.113	3.046	2.524	.002	.003	.002	0.000	0.000	M
25	.033	1.531	2.582	2.979	3.136	3.251	3.142	2.831	2.138	.709	.172	.017	.053	.009	.010	.010	0.000	0.000	22.603
26	.021	1.071	2.240	2.752	3.034	3.173	3.236	3.298	3.274	3.215	3.123	2.972	2.713	2.175	1.185	.001	0.000	0.000	37.482
27	.006	1.200	2.420	2.923	3.173	3.305	3.380	3.379	3.357	3.281	3.198	2.733	2.427	2.166	1.269	.001	0.000	0.000	38.216
28	.025	1.164	2.338	2.819	3.004	3.131	1.692	.002	.526	.004	.005	.352	1.200	.185	.117	.001	0.000	0.000	16.565
29	.003	.388	.113	.012	.114	.092	.038	.261	.477	.017	.006	.007	.096	.634	.782	.004	0.000	0.000	3.041
30	.008	1.196	2.357	2.871	3.099	3.250	3.322	3.274	3.262	3.086	2.922	2.751	2.711	1.096	.236	.003	0.000	0.000	35.446
31	.004	.880	1.876	2.893	3.120	.716	1.975	2.323	2.604	2.172	2.854	2.328	1.335	1.099	.574	.005	0.000	0.000	26.759
AVERAGE VALUES	.053	.978	1.742	2.050	2.239	2.371	2.370	2.420	2.164	1.950	1.966	1.527	1.470	1.131	.674	.037	0.000	0.000	24.842
STANDARD DEVIATION	.055	.642	1.025	1.232	1.213	1.189	1.289	1.195	1.222	1.310	1.234	1.234	1.066	.948	.630	.054	0.000	0.000	11.925

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

AUGUST 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SUM-DAY)	
1	.018	.950	2.135	2.886	3.129	3.246	2.931	2.667	2.826	2.415	2.040	.010	.014	1.261	1.252	.002	0.000	0.000	27.782	
2	.003	.048	.003	.005	.274	1.333	1.238	1.227	.864	.094	.830	.376	.251	.140	.006	.002	0.000	0.000	6.695	
3	.005	.005	.009	.010	.010	.010	.016	.012	.014	.014	.013	.013	.012	.015	.010	.011	0.000	0.000	.180	
4	.012	.165	.138	.024	.838	3.299	3.453	3.418	3.317	3.294	3.141	2.868	2.542	2.037	.923	.004	0.000	0.000	24.473	
5	.008	1.224	2.607	3.108	3.372	3.488	3.492	3.491	3.481	3.416	3.337	3.071	2.934	2.487	1.221	.006	0.000	0.000	40.741	
6	.007	.969	2.176	2.713	2.872	3.168	2.768	.459	1.690	.094	1.415	0.000	1.149	.544	.007	.002	0.000	0.000	20.033	
7	0.000	.909	2.114	2.761	3.031	3.174	3.253	1.839	2.415	2.958	3.167	3.062	2.881	2.439	1.042	0.000	0.000	0.000	35.047	
8	0.000	.813	2.205	2.751	3.008	3.147	3.202	2.927	2.165	3.125	1.940	.001	.000	.002	.017	0.000	0.000	0.000	25.322	
9	0.000	.445	2.340	2.877	3.093	3.184	3.262	3.347	3.330	3.241	1.269	1.950	2.234	.777	.376	0.000	0.000	0.000	32.175	
10	0.000	.047	.531	1.318	.582	2.743	3.125	1.754	.862	.275	2.051	2.652	2.001	.432	.002	0.000	0.000	0.000	18.376	
11	0.000	.722	1.967	2.624	2.926	2.898	3.044	1.755	1.250	.256	.834	.727	.032	.000	.001	0.000	0.000	0.000	19.057	
12	0.000	.627	1.850	1.757	1.922	1.823	2.279	2.112	3.126	1.911	0.000	.001	.026	.044	0.000	0.000	0.000	0.000	17.476	
13	0.000	.684	1.519	2.064	2.869	2.952	3.063	2.595	1.567	1.797	.372	.015	.833	.265	.165	0.000	0.000	0.000	20.760	
14	0.000	.614	.733	2.130	.499	.889	2.872	.295	1.507	1.334	1.569	.144	.449	2.425	.739	0.000	0.000	0.000	16.700	
15	0.000	1.035	2.635	3.156	3.389	3.526	3.572	M	3.567	3.525	3.414	3.250	3.003	2.472	.795	0.000	0.000	0.000	M	
16	0.000	.900	2.447	3.028	3.275	3.360	3.436	3.438	3.463	3.441	3.324	3.133	2.914	2.442	.752	0.000	0.000	0.000	39.353	
17	0.000	.808	2.445	3.029	3.260	3.433	3.472	3.510	3.534	3.441	2.588	1.909	1.182	.021	0.000	0.000	0.000	0.000	32.632	
18	0.000	.004	.033	.004	.021	.344	.000	.009	.754	3.165	.855	.634	2.831	2.488	.774	0.000	0.000	0.000	11.915	
19	0.000	.703	2.281	2.907	3.192	3.318	3.380	3.386	3.333	3.238	1.929	1.766	1.150	1.863	.278	0.000	0.000	0.000	32.725	
20	0.000	.657	.957	1.372	1.600	2.431	3.069	3.103	3.320	3.332	2.255	2.402	1.548	1.435	.045	0.000	0.000	0.000	27.525	
21	0.000	.309	1.874	2.754	3.028	2.053	1.186	2.437	1.967	2.823	1.564	.565	.104	.413	.000	0.000	0.000	0.000	21.076	
22	0.000	.001	.122	.009	.808	.571	.205	.183	.073	.669	.702	1.100	1.532	.609	.002	0.000	0.000	0.000	6.585	
23	0.000	.660	2.344	2.408	3.177	2.991	3.162	3.319	2.718	.339	1.353	.607	.430	.520	.092	0.000	0.000	0.000	24.619	
24	0.000	.042	1.001	2.554	2.114	2.159	2.857	2.966	1.702	.600	.577	1.352	.521	.011	.001	0.000	0.000	0.000	18.461	
25	0.000	.109	.309	.187	.058	.156	.001	.959	.885	.560	1.495	1.240	1.450	1.629	.136	0.000	0.000	0.000	9.176	
26	0.000	.490	2.191	2.886	3.077	3.002	1.526	.664	.776	.658	.688	1.240	1.627	2.194	.350	0.000	0.000	0.000	21.366	
27	0.000	.056	.152	2.017	2.855	3.326	3.300	2.953	1.290	.556	.134	.788	.006	.010	.152	0.000	0.000	0.000	17.596	
28	0.000	.004	.391	.448	.303	.317	2.751	.319	1.928	2.029	2.543	1.620	1.972	1.355	.097	0.000	0.000	0.000	16.077	
29	0.000	.001	.518	1.902	2.870	3.076	3.077	2.847	2.065	1.159	.332	1.658	.101	0.000	.004	0.000	0.000	0.000	19.608	
30	0.000	.194	1.645	2.577	2.975	3.107	3.171	3.177	3.108	3.079	1.460	1.844	.883	1.578	.068	0.000	0.000	0.000	28.885	
31	0.000	.296	1.889	2.459	2.710	2.889	2.087	.240	M	M	M	0.000	1.296	.883	0.000	0.000	0.000	0.000	M	
AVERAGE VALUES																				
STANDARD DEVIATION		.002	.482	1.399	1.975	2.182	2.433	2.524	2.047	2.094	1.895	1.573	1.290	1.223	1.058	.301	.001	0.000	0.000	21.980
		.004	.391	.943	1.133	1.216	1.143	1.147	1.274	1.115	1.327	1.051	1.102	1.047	.956	.407	.002	0.000	0.000	9.826

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 FB

Table 33.

SEPTEMBER 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	.153	1.799	2.683	3.041	3.178	3.256	M	M	2.548	1.101	2.839	2.582	1.837	.039	0.000	0.000	0.000	M
2	0.000	.221	1.757	2.582	2.925	3.082	3.153	3.221	3.209	3.086	2.923	2.537	.476	.022	0.000	0.000	0.000	0.000	29.125
3	0.000	.063	.465	2.214	2.826	3.016	3.105	3.113	2.970	2.196	.583	1.756	2.179	1.449	0.000	0.000	0.000	0.000	26.355
4	0.000	.211	.523	.762	2.592	3.101	3.219	3.235	3.216	3.129	M	M	M	M	M	M	M	M	M
5	M	M	M	2.700	2.976	3.143	3.245	3.275	3.271	3.186	3.059	2.730	1.980	.975	0.000	0.000	0.000	0.000	M
6	0.000	.228	1.663	2.527	2.946	3.113	3.209	3.219	3.272	3.170	3.017	2.753	2.290	1.308	0.000	0.000	0.000	0.000	32.604
7	0.000	.315	2.002	2.766	3.114	3.269	3.387	3.439	3.451	3.409	3.293	2.906	2.352	1.227	0.000	0.000	0.000	0.000	34.930
8	0.000	.192	1.792	2.638	2.975	3.149	3.237	3.247	3.049	2.170	1.140	.735	.228	.011	0.000	0.000	0.000	0.000	24.504
9	0.000	.046	.659	1.904	1.532	1.244	3.087	2.602	2.816	2.957	2.569	2.609	1.524	.012	0.000	0.000	0.000	0.000	23.562
10	0.000	.063	.400	.732	2.818	2.013	2.487	.215	.305	.518	.390	1.490	.442	.467	0.000	0.000	0.000	0.000	12.340
11	0.000	.004	1.194	2.802	3.023	1.237	1.351	2.904	3.578	3.600	3.468	3.261	2.756	1.359	0.000	0.000	0.000	0.000	30.567
12	0.000	.119	1.989	2.761	3.215	3.456	3.589	3.470	3.182	2.548	2.041	.365	1.645	1.508	0.000	0.000	0.000	0.000	29.888
13	0.000	.219	2.165	2.944	3.268	3.367	3.453	3.313	3.429	3.328	2.309	2.622	.905	.925	0.000	0.000	0.000	0.000	32.247
14	0.000	.157	2.007	2.906	3.233	3.386	3.460	3.470	3.426	3.344	3.193	2.861	1.317	0.000	0.000	0.000	0.000	0.000	32.760
15	0.000	.126	1.862	2.759	3.123	3.254	3.282	3.298	3.293	3.181	3.000	2.657	1.611	.236	0.000	0.000	0.000	0.000	31.664
16	0.000	.175	2.004	2.185	3.241	3.214	3.087	.325	.841	.749	.838	.093	.074	.075	0.000	0.000	0.000	0.000	16.901
17	0.000	0.000	0.000	.112	.510	.268	.567	2.037	.000	.005	1.001	1.331	2.026	.258	0.000	0.000	0.000	0.000	8.114
18	0.000	0.000	.026	0.000	.066	1.385	2.104	3.155	2.040	M	M	M	M	M	M	M	M	M	M
19	0.000	0.000	0.000	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
20	M	M	M	.268	1.272	1.663	1.656	0.000	.386	.054	.142	.012	.634	.853	0.000	0.000	0.000	0.000	M
21	0.000	.073	1.773	2.810	3.271	3.417	3.553	3.596	3.560	3.457	3.317	3.052	2.415	.708	0.000	0.000	0.000	0.000	35.000
22	0.000	0.000	1.689	2.803	3.215	3.406	3.459	3.444	3.385	3.305	3.100	2.723	2.028	.548	0.000	0.000	0.000	0.000	33.105
23	0.000	0.000	1.773	2.790	3.179	3.349	3.407	3.439	3.380	3.262	3.133	2.811	2.110	.482	0.000	0.000	0.000	0.000	33.116
24	0.000	0.000	1.462	1.664	1.643	1.174	1.751	.837	1.865	1.748	.599	1.130	1.267	.078	0.000	0.000	0.000	0.000	15.258
25	0.000	0.000	1.630	2.740	3.116	3.297	3.375	3.394	3.354	3.336	3.215	2.879	2.231	.499	0.000	0.000	0.000	0.000	33.065
26	0.000	0.000	1.716	2.798	3.180	3.355	3.426	3.476	3.460	3.385	3.024	1.371	.315	0.000	0.000	0.000	0.000	0.000	29.506
27	0.000	0.000	1.430	2.623	3.028	3.235	3.345	3.374	3.325	3.117	.599	1.672	1.105	.026	0.000	0.000	0.000	0.000	26.880
28	0.000	0.000	1.449	1.713	.476	.702	.014	.254	.473	.011	.426	.151	.093	.032	0.000	0.000	0.000	0.000	5.794
29	0.000	0.000	1.245	2.513	2.977	3.151	3.220	3.228	3.191	3.066	2.848	2.436	1.736	.237	0.000	0.000	0.000	0.000	29.847
30	0.000	0.000	1.410	2.714	3.200	3.390	3.477	3.481	3.442	3.360	3.182	2.649	1.107	.271	0.000	0.000	0.000	0.000	31.684
AVERAGE VALUES	0.000	.084	1.369	2.167	2.620	2.690	2.861	2.717	2.684	2.544	2.131	2.016	1.460	.571	.001	0.000	0.000	0.000	26.626
STANDARD DEVIATION	0.000	.097	.658	.913	.940	.973	.929	1.181	1.156	1.170	1.185	1.027	.828	.566	.007	0.000	0.000	0.000	8.575

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

OCTOBER 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	.847	.948	.219	.183	.981	1.866	1.318	.222	.054	.006	.219	0.000	0.000	0.000	0.000	0.000	6.865
2	0.000	0.000	.863	2.606	3.064	1.711	1.538	1.637	1.352	.773	.215	.015	.065	.000	0.000	0.000	0.000	0.000	14.339
3	0.000	0.000	.485	2.292	3.230	3.407	3.520	3.552	3.516	3.349	3.265	2.904	2.184	.106	0.000	0.000	0.000	0.000	31.809
4	0.000	0.000	.042	1.434	2.930	3.278	3.397	3.373	3.275	3.330	3.132	2.806	2.042	.040	0.000	0.000	0.000	0.000	29.081
5	0.000	0.000	1.363	2.714	3.165	3.376	3.482	3.493	3.447	3.191	2.783	2.791	1.948	.015	0.000	0.000	0.000	0.000	31.788
6	0.000	0.000	1.294	2.781	3.276	3.447	3.487	3.499	3.491	3.413	3.246	2.911	2.086	.001	0.000	0.000	0.000	0.000	32.933
7	0.000	0.000	1.254	2.679	3.147	3.302	3.361	3.356	2.999	2.650	1.218	1.383	1.493	.001	0.000	0.000	0.000	0.000	26.844
8	0.000	0.000	.853	2.448	2.723	3.193	1.611	1.982	.239	.209	.049	.007	.228	.001	0.000	0.000	0.000	0.000	13.544
9	0.000	0.000	1.031	2.478	2.973	3.205	3.303	3.350	3.263	2.948	3.001	2.409	1.685	0.000	0.000	0.000	0.000	0.000	29.666
10	0.000	0.000	1.117	2.560	3.089	3.368	3.449	3.510	3.487	3.407	3.230	2.941	2.013	0.000	0.000	0.000	0.000	0.000	32.171
11	0.000	0.000	.808	1.184	3.009	3.193	3.320	3.350	3.107	2.063	2.024	2.462	1.450	0.000	0.000	0.000	0.000	0.000	26.000
12	0.000	0.000	1.107	2.270	2.895	3.213	3.312	2.793	2.262	2.455	1.719	.656	.115	0.000	0.000	0.000	0.000	0.000	22.796
13	0.000	0.000	.877	1.988	2.128	2.427	2.810	3.232	3.337	3.291	2.666	1.764	.570	0.000	0.000	0.000	0.000	0.000	25.092
14	0.000	0.000	.242	1.123	2.274	3.191	3.384	3.497	3.465	3.371	3.197	2.798	1.652	0.000	0.000	0.000	0.000	0.000	28.194
15	0.000	0.000	1.019	2.674	3.189	3.374	3.457	3.482	3.446	3.318	3.119	2.722	1.497	0.000	0.000	0.000	0.000	0.000	31.298
16	0.000	0.000	.940	2.631	3.178	3.412	3.474	M	M	2.805	1.728	1.087	.026	0.000	0.000	0.000	0.000	0.000	M
17	0.000	0.000	.002	.000	.008	.489	.322	1.776	2.182	1.614	.000	.022	.363	0.000	0.000	0.000	0.000	0.000	6.778
18	0.000	0.000	0.000	0.000	0.000	.074	.005	0.000	.005	2.219	1.725	1.397	.801	0.000	0.000	0.000	0.000	0.000	6.225
19	0.000	0.000	.788	2.502	3.071	3.274	3.332	3.362	3.296	3.186	2.911	2.454	1.133	0.000	0.000	0.000	0.000	0.000	29.309
20	0.000	0.000	.591	1.723	.562	.185	.343	1.179	1.547	1.571	.514	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.216
21	0.000	0.000	0.000	.030	0.000	.371	.925	1.444	1.253	.768	.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.810
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.004
23	0.000	0.000	0.000	0.000	.001	1.709	3.446	3.576	3.543	3.392	3.073	2.488	.835	0.000	0.000	0.000	0.000	0.000	22.063
24	0.000	0.000	.536	1.786	2.217	.959	1.460	2.031	.602	.133	.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.724
25	0.000	0.000	0.000	0.000	0.000	0.000	.003	2.151	3.218	3.201	1.381	1.189	.552	0.000	0.000	0.000	0.000	0.000	11.695
26	0.000	0.000	.724	2.545	2.667	2.541	2.550	2.754	3.312	3.348	3.191	2.792	.893	0.000	0.000	0.000	0.000	0.000	27.318
27	0.000	0.000	.638	2.522	3.155	3.331	3.481	3.526	3.408	3.017	1.674	1.930	.584	0.000	0.000	0.000	0.000	0.000	27.267
28	0.000	0.000	.641	2.537	2.152	.688	1.755	3.509	3.420	3.332	3.183	2.762	.809	0.000	0.000	0.000	0.000	0.000	24.789
29	0.000	0.000	.650	2.559	3.188	3.434	3.552	3.548	3.502	3.265	3.213	2.819	.762	0.000	0.000	0.000	0.000	0.000	30.490
30	0.000	0.000	.004	0.000	M	0.000	.032	.797	.984	1.040	.453	.014	0.000	0.000	0.000	0.000	0.000	0.000	M
31	0.000	0.000	.336	1.949	2.706	3.051	3.205	3.199	3.160	3.047	2.818	2.269	.477	0.000	0.000	0.000	0.000	0.000	26.217
AVERAGE VALUES	0.000	0.000	.615	1.709	2.141	2.174	2.332	2.628	2.532	2.385	1.897	1.606	.854	.005	0.000	0.000	0.000	0.000	21.287
STANDARD DEVIATION	0.000	0.000	.445	1.054	1.296	1.347	1.363	1.104	1.206	1.185	1.290	1.194	.747	.020	0.000	0.000	0.000	0.000	10.276

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 EB

Table 35.

NOVEMBER 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)

FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	MOON'S 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)	
1	0.000	0.000	.141	.061	.181	2.203	1.169	3.311	3.204	.616	.638	.248	0.000	0.000	0.000	0.000	0.000	0.000	11.773	
2	0.000	0.000	.346	2.050	2.620	3.249	3.384	3.401	3.363	3.171	2.905	2.230	.409	0.000	0.000	0.000	0.000	0.000	27.129	
3	0.000	0.000	.077	.302	2.601	3.264	3.355	3.388	3.076	2.236	2.844	2.275	.380	0.000	0.000	0.000	0.000	0.000	23.798	
4	0.000	0.000	.313	2.247	2.696	2.386	1.907	1.187	.375	.845	1.022	.035	.276	0.000	0.000	0.000	0.000	0.000	13.289	
5	0.000	0.000	0.000	0.000	.069	.323	.625	.853	2.299	2.603	.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.958	
6	0.000	0.000	.253	2.116	2.744	3.204	3.199	3.265	3.299	3.006	2.924	1.870	0.000	0.000	0.000	0.000	0.000	0.000	25.842	
7	0.000	0.000	.189	1.975	2.720	2.322	1.849	.880	2.433	2.775	2.731	.611	.000	0.000	0.000	0.000	0.000	0.000	18.485	
8	0.000	0.000	0.000	.915	1.108	.510	.181	.256	1.265	2.135	.618	.177	.156	0.000	0.000	0.000	0.000	0.000	7.320	
9	0.000	0.000	0.000	.814	.521	.281	.300	.216	2.109	2.624	1.585	.343	.009	0.000	0.000	0.000	0.000	0.000	3.803	
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	0.000	0.000	0.000	0.000	0.000	0.000	M	
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.003	
12	0.000	0.000	0.000	0.000	0.000	.006	0.000	0.000	.139	.021	0.000	.174	0.000	0.000	0.000	0.000	0.000	0.000	.341	
13	0.000	0.000	0.000	2.167	3.097	3.382	3.513	3.563	3.528	3.406	3.235	2.700	.158	0.000	0.000	0.000	0.000	0.000	28.749	
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	0.000	0.000	0.000	1.090	2.474	3.092	3.233	3.319	3.344	3.178	2.802	1.990	.060	0.000	0.000	0.000	0.000	0.000	24.582	
16	0.000	0.000	0.000	1.787	2.717	3.054	3.223	3.227	3.190	3.037	M	1.954	.036	0.000	0.000	0.000	0.000	0.000	M	
17	0.000	0.000	0.000	1.530	2.696	3.131	3.256	3.210	3.259	3.125	2.659	2.161	.011	0.000	0.000	0.000	0.000	0.000	25.037	
18	0.000	0.000	0.000	1.204	2.051	3.184	3.339	3.356	3.290	3.145	2.880	1.216	0.000	0.000	0.000	0.000	0.000	0.000	23.663	
19	0.000	0.000	0.000	1.656	2.576	2.825	2.127	.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.188	
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
21	0.000	0.000	0.000	0.000	0.000	.000	.002	.131	1.735	2.435	1.887	.901	0.000	0.000	0.000	0.000	0.000	0.000	7.091	
22	0.000	0.000	0.000	0.000	0.000	.005	1.722	3.162	3.300	3.342	2.372	1.030	0.000	0.000	0.000	0.000	0.000	0.000	14.933	
23	0.000	0.000	0.000	1.282	2.972	3.389	3.515	3.548	3.523	3.373	3.172	2.334	0.000	0.000	0.000	0.000	0.000	0.000	27.107	
24	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
27	M	M	M	M	M	M	M	M	M	M	M	1.274	0.000	0.000	0.000	0.000	0.000	0.000	M	
28	0.000	0.000	0.000	.077	.001	.473	.463	.055	.227	1.908	2.747	2.014	0.000	0.000	0.000	0.000	0.000	0.000	7.965	
29	0.000	0.000	0.000	1.053	2.146	1.601	1.808	3.371	2.280	2.009	.896	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.164	
30	0.000	0.000	0.000	.466	1.701	2.988	2.848	1.075	2.425	3.073	2.995	.794	0.000	0.000	0.000	0.000	0.000	0.000	18.564	
AVERAGE VALUES																				14.401
STANDARD DEVIATION																				9.718

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

DECEMBER 1978

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	0.000	.149	.958	.964	3.037	3.064	2.126	.181	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.479
2	0.000	0.000	0.000	0.000	0.000	0.000	.171	.150	.268	.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.726
3	0.000	0.000	0.000	.031	.498	2.824	3.381	3.480	3.456	3.325	3.067	2.247	0.000	0.000	0.000	0.000	0.000	0.000	22.810
4	0.000	0.000	0.000	1.297	1.764	2.895	3.314	3.465	2.951	3.043	2.254	2.192	0.000	0.000	0.000	0.000	0.000	0.000	23.180
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	.064	.365	1.143	2.445	1.776	1.626	.983	.302	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.709
8	0.000	0.000	0.000	1.133	2.717	3.274	3.410	3.516	3.504	3.431	3.136	2.124	0.000	0.000	0.000	0.000	0.000	0.000	26.255
9	0.000	0.000	0.000	.882	2.401	1.591	1.474	2.747	3.453	3.344	3.073	2.171	0.000	0.000	0.000	0.000	0.000	0.000	21.142
10	0.000	0.000	0.000	.017	.073	.428	2.401	.217	1.177	.761	1.872	1.288	0.000	0.000	0.000	0.000	0.000	0.000	8.235
11	0.000	0.000	0.000	.839	2.713	2.889	1.753	3.532	3.118	1.221	.600	.224	0.000	0.000	0.000	0.000	0.000	0.000	16.889
12	0.000	0.000	0.000	.319	1.281	.036	.142	2.368	3.442	3.344	3.029	2.168	0.000	0.000	0.000	0.000	0.000	0.000	16.129
13	0.000	0.000	0.000	.091	2.402	3.143	2.801	3.176	3.449	3.214	1.975	1.252	0.000	0.000	0.000	0.000	0.000	0.000	21.503
14	0.000	0.000	0.000	1.003	2.702	3.208	3.406	3.493	3.430	3.332	3.060	2.309	0.000	0.000	0.000	0.000	0.000	0.000	25.943
15	0.000	0.000	0.000	.107	.413	1.707	3.200	3.318	3.398	3.210	3.012	2.159	0.000	0.000	0.000	0.000	0.000	0.000	21.024
16	0.000	0.000	0.000	.995	2.720	3.266	3.467	3.495	3.375	3.196	2.636	.810	0.000	0.000	0.000	0.000	0.000	0.000	23.962
17	0.000	0.000	0.000	0.000	0.000	.008	0.000	0.000	.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.009
18	0.000	0.000	0.000	.731	1.651	.024	.021	.097	.000	.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.525
19	0.000	0.000	0.000	.022	2.255	2.955	3.212	3.281	3.211	1.848	.697	1.641	0.000	0.000	0.000	0.000	0.000	0.000	19.123
20	0.000	0.000	0.000	.254	2.257	3.227	3.501	3.631	3.662	3.564	3.279	2.163	0.000	0.000	0.000	0.000	0.000	0.000	25.543
21	0.000	0.000	0.000	.903	2.521	3.251	3.416	3.525	3.521	2.310	2.314	1.669	0.000	0.000	0.000	0.000	0.000	0.000	23.429
22	0.000	0.000	0.000	.763	2.506	2.997	3.120	3.066	3.013	2.915	2.482	1.830	0.000	0.000	0.000	0.000	0.000	0.000	22.692
23	0.000	0.000	0.000	0.000	0.000	0.000	.467	.066	1.909	3.103	3.030	1.339	0.000	0.000	0.000	0.000	0.000	0.000	9.934
24	0.000	0.000	0.000	.764	2.437	1.547	2.349	3.090	3.069	3.147	3.143	2.546	0.000	0.000	0.000	0.000	0.000	0.000	22.092
25	0.000	0.000	0.000	.614	1.151	0.000	0.000	0.000	0.000	.018	.236	.724	0.000	0.000	0.000	0.000	0.000	0.000	2.743
26	0.000	0.000	0.000	.085	0.000	.599	2.609	2.893	2.094	2.686	2.854	1.251	0.000	0.000	0.000	0.000	0.000	0.000	15.071
27	0.000	0.000	0.000	.336	1.364	2.476	1.902	.044	.035	.712	1.546	2.292	M	M	M	M	M	M	M
28	M	M	M	M	M	M	3.219	2.763	3.431	3.400	3.220	.812	0.000	0.000	0.000	0.000	0.000	0.000	M
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.000	.001	.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.006
30	0.000	0.000	0.000	.041	1.147	2.369	2.791	2.935	2.928	2.771	2.442	1.219	.003	0.000	0.000	0.000	0.000	0.000	18.647
31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
AVERAGE VALUES	0.000	0.000	0.000	.395	1.355	1.615	2.034	2.106	2.188	1.974	1.775	1.214	.000	0.000	0.000	0.000	0.000	0.000	14.600
STANDARD DEVIATION	0.000	0.000	0.000	.424	1.058	1.359	1.392	1.521	1.450	1.428	1.318	.924	.001	0.000	0.000	0.000	0.000	0.000	9.494

M MISSION DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 37.

JANUARY 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SUM-DAY)
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2	M	M	M	M	.916	.498	.608	1.842	.075	.001	0.000	.314	.100	0.000	0.000	0.000	0.000	0.000	M
3	0.000	0.000	0.000	.000	.783	.514	1.847	1.201	.044	.007	0.000	.006	0.000	0.000	0.000	0.000	0.000	0.000	4.403
4	0.000	0.000	0.000	.002	.016	.033	.183	.679	.968	1.630	1.154	.330	0.000	0.000	0.000	0.000	0.000	0.000	4.995
5	0.000	0.000	0.000	.006	.114	1.746	3.053	2.767	3.178	2.948	2.469	1.285	.005	0.000	0.000	0.000	0.000	0.000	17.572
6	0.000	0.000	0.000	0.000	.002	.201	.294	.496	.109	.088	.008	.045	.027	0.000	0.000	0.000	0.000	0.000	1.271
7	0.000	0.000	0.000	.591	2.372	3.144	3.398	3.512	3.538	3.429	3.164	2.655	.304	0.000	0.000	0.000	0.000	0.000	26.106
8	0.000	0.000	0.000	.616	2.595	3.301	3.595	3.618	3.514	3.416	3.135	2.483	.348	0.000	0.000	0.000	0.000	0.000	26.623
9	0.000	0.000	0.000	.519	1.630	1.583	.028	.006	0.000	.171	.021	.144	.045	0.000	0.000	0.000	0.000	0.000	4.147
10	0.000	0.000	0.000	0.000	.044	2.147	2.569	1.714	2.528	2.987	2.298	.705	0.000	0.000	0.000	0.000	0.000	0.000	14.992
11	0.000	0.000	0.000	.021	.431	.010	0.000	0.000	.124	.173	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.794
12	0.000	0.000	0.000	.006	.155	.379	.002	0.000	.010	.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.551
13	0.000	0.000	0.000	.219	1.494	3.097	3.379	3.366	3.307	2.428	1.433	.825	.456	0.000	0.000	0.000	0.000	0.000	20.004
14	0.000	0.000	0.000	.430	1.466	1.911	2.602	2.653	2.230	.776	.118	.203	.008	0.000	0.000	0.000	0.000	0.000	12.398
15	0.000	0.000	0.000	.451	2.470	3.248	3.402	3.478	3.253	2.947	1.782	1.317	.235	0.000	0.000	0.000	0.000	0.000	22.584
16	0.000	0.000	0.000	.217	0.000	.000	.028	.002	.000	0.000	.032	2.261	.551	0.000	0.000	0.000	0.000	0.000	3.091
17	0.000	0.000	0.000	.742	2.433	2.955	1.869	1.108	.122	.818	.465	.117	0.000	0.000	0.000	0.000	0.000	0.000	10.628
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.039	.094	.159	1.385	.001	0.000	0.000	0.000	0.000	0.000	1.678
19	0.000	0.000	0.000	.136	.732	1.124	2.639	3.403	3.369	3.313	3.078	2.439	.617	0.000	0.000	0.000	0.000	0.000	20.849
20	0.000	0.000	0.000	.722	2.638	3.213	3.460	3.542	3.386	3.245	2.216	2.907	.834	0.000	0.000	0.000	0.000	0.000	26.163
21	0.000	0.000	0.000	.753	2.011	2.945	3.253	3.275	3.224	2.450	.393	.017	.423	0.000	0.000	0.000	0.000	0.000	18.743
22	0.000	0.000	0.000	.005	1.390	2.149	.615	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.159
23	0.000	0.000	0.000	.403	.225	2.473	2.544	2.215	3.318	3.400	2.860	2.015	.455	0.000	0.000	0.000	0.000	0.000	19.907
24	0.000	0.000	0.000	.391	1.178	2.077	2.837	3.088	3.153	2.690	2.924	1.601	.493	0.000	0.000	0.000	0.000	0.000	20.431
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.021	0.000	0.000	.003	.034	0.000	0.000	0.000	0.000	0.000	0.000	.058
26	0.000	0.000	0.000	.000	0.000	.839	3.003	2.085	.947	1.158	.393	1.029	.115	0.000	0.000	0.000	0.000	0.000	9.569
27	0.000	0.000	0.000	.726	2.790	3.340	3.519	3.599	3.556	3.470	3.224	2.361	.777	0.000	0.000	0.000	0.000	0.000	27.302
28	0.000	0.000	0.000	.807	2.423	2.944	1.279	1.608	2.601	3.059	2.491	.856	.163	0.000	0.000	0.000	0.000	0.000	18.231
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.023	M	0.000	0.000	0.000	0.000	0.000	0.000	M
30	0.000	0.000	0.000	0.000	.320	2.328	3.184	3.354	3.369	3.316	3.082	2.838	1.270	0.000	0.000	0.000	0.000	0.000	23.062
31	0.000	0.000	0.000	1.149	2.833	3.376	3.549	3.669	3.615	3.419	3.032	2.856	1.244	0.000	0.000	0.000	0.000	0.000	28.762
AVERAGE VALUES	0.000	0.000	0.000	.307	1.115	1.719	1.891	1.877	1.786	1.715	1.333	1.139	.282	0.000	0.000	0.000	0.000	0.000	13.898
STANDARD DEVIATION	0.000	0.000	0.000	.339	1.058	1.288	1.443	1.457	1.576	1.476	1.332	1.070	.367	0.000	0.000	0.000	0.000	0.000	9.817

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 EB

FEBRUARY 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	0.000	.806	2.166	2.915	3.399	3.341	3.244	2.044	2.094	2.413	1.124	0.000	0.000	0.000	23.545
2	0.000	0.000	0.000	.439	1.934	.966	.714	.450	.611	.257	.018	1.882	.915	0.000	0.000	0.000	8.188
3	0.000	0.000	0.000	1.302	2.837	3.303	3.493	3.518	3.548	3.481	3.283	2.937	1.386	0.000	0.000	0.000	29.088
4	0.000	0.000	0.000	.701	1.878	3.193	3.403	3.432	3.207	.776	0.000	1.127	1.265	0.000	0.000	0.000	18.982
5	0.000	0.000	0.000	1.295	2.793	3.324	3.068	2.701	3.446	3.099	3.159	2.672	.017	0.000	0.000	0.000	25.572
6	0.000	0.000	0.000	.228	2.598	2.316	2.434	2.154	2.147	1.778	1.692	1.490	1.074	0.000	0.000	0.000	17.913
7	0.000	0.000	0.000	.022	.255	0.000	0.000	.303	1.108	3.293	3.379	3.082	1.824	0.000	0.000	0.000	13.266
8	0.000	0.000	0.000	.001	1.530	3.063	3.370	2.940	3.003	3.024	3.029	2.764	1.690	0.000	0.000	0.000	24.415
9	0.000	0.000	0.000	.545	.108	.053	2.679	3.238	2.750	2.037	M	M	1.353	0.000	0.000	0.000	M
10	0.000	0.000	0.000	.594	.085	2.830	1.878	2.731	1.775	.078	.019	.092	.422	0.000	0.000	0.000	10.503
11	0.000	0.000	0.000	.003	1.874	2.439	1.956	2.416	2.090	2.778	3.039	2.988	1.735	0.000	0.000	0.000	21.317
12	0.000	0.000	0.000	0.000	.060	.680	.150	2.874	3.049	.899	.000	.217	.306	0.000	M	M	8.235
13	M	M	M	M	M	.029	.545	2.888	2.201	1.133	3.250	2.972	2.025	.000	0.000	0.000	M
14	0.000	0.000	.010	1.811	1.223	2.152	1.484	1.654	2.756	1.894	2.117	2.589	2.133	0.000	0.000	0.000	19.823
15	0.000	0.000	0.000	.012	0.000	.003	.333	1.697	2.045	1.910	1.840	1.379	.080	0.000	0.000	0.000	9.300
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.001	0.000	0.000	0.000	0.000	0.000	0.000	.001
17	0.000	0.000	0.000	.760	2.529	3.442	3.659	3.723	3.723	3.685	3.553	3.294	2.597	0.000	0.000	0.000	30.466
18	0.000	0.000	.090	1.927	2.946	3.097	3.294	3.142	3.235	2.932	2.390	1.378	.103	.006	0.000	0.000	24.540
19	0.000	0.000	0.000	.369	1.646	2.926	3.263	3.275	2.809	1.357	.528	.415	.025	.002	0.000	0.000	16.617
20	0.000	0.000	0.000	1.130	2.705	3.384	3.613	3.697	3.715	3.614	1.797	2.994	2.538	.122	0.000	0.000	29.309
21	0.000	0.000	0.000	.762	1.014	.090	.007	.761	.435	2.144	2.690	2.651	.939	0.000	0.000	0.000	11.493
22	0.000	0.000	.090	.481	.465	1.718	3.606	3.632	3.071	.992	1.023	.138	0.000	0.000	M	M	15.216
23	M	M	M	M	M	0.000	0.000	0.000	0.000	0.000	.200	.627	.202	0.000	0.000	0.000	M
24	0.000	0.000	.000	0.000	.548	1.413	2.485	3.326	3.026	2.545	3.390	3.286	2.283	.191	0.000	0.000	22.494
25	0.000	0.000	.023	.624	1.958	2.646	2.215	.921	.285	.088	.637	.197	.195	.276	0.000	0.000	10.064
26	0.000	0.000	.286	.798	.074	.011	.096	.618	.921	.662	.253	.023	.000	0.000	0.000	0.000	3.743
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.006	.003	.533	.847	1.258	.360	0.000	0.000	3.007
28	0.000	0.000	.127	1.247	1.255	2.295	1.963	.767	2.566	3.224	2.254	.544	1.241	.106	0.000	0.000	17.589
AVERAGE VALUES																	
STANDARD DEVIATION	0.000	0.000	.024	.610	1.326	1.725	1.897	2.150	2.170	1.776	1.710	1.667	1.026	.038	0.000	0.000	16.607
	0.000	0.000	.063	.570	1.064	1.371	1.425	1.327	1.246	1.256	1.313	1.215	.855	.092	0.000	0.000	8.639

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 39.

MARCH 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS		MTN. STD. TIME																		INTEGRATED
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES (MJ/SQ-M-DAY)		
1	0.000	0.000	.075	.039	1.244	1.578	1.258	2.568	2.567	2.413	1.680	.805	.629	.016	0.000	0.000	0.000	0.000	14.873		
2	0.000	0.000	0.000	0.000	.021	.104	.064	.020	.026	.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.241		
3	0.000	0.000	.301	2.030	1.591	.470	1.741	3.056	3.329	3.394	2.328	.466	.718	.360	0.000	0.000	0.000	0.000	19.805		
4	0.000	0.000	.277	2.311	3.082	3.382	3.541	3.626	3.634	3.537	3.472	3.215	2.743	.715	0.000	0.000	0.000	0.000	33.535		
5	0.000	0.000	.447	1.132	2.171	3.318	3.283	3.489	3.316	2.808	3.220	2.132	.320	0.000	0.000	0.000	0.000	0.000	25.635		
6	0.000	0.000	.003	1.940	2.365	2.352	.268	0.000	0.000	0.000	1.394	1.805	.109	.243	0.000	0.000	0.000	0.000	10.478		
7	0.000	0.000	.286	2.326	2.856	3.275	3.344	3.439	3.399	3.009	.653	.043	.212	0.000	0.000	0.000	0.000	0.000	22.840		
8	0.000	0.000	.240	.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.263		
9	0.000	0.000	.246	1.807	3.251	3.376	3.559	3.638	2.601	1.374	.411	.648	1.221	.004	0.000	0.000	0.000	0.000	22.136		
10	0.000	0.000	.858	2.735	3.319	3.530	3.579	3.630	3.628	3.614	3.510	3.324	2.904	1.024	0.000	0.000	0.000	0.000	35.655		
11	0.000	0.000	.988	2.809	3.341	3.467	3.584	3.703	3.686	3.639	3.535	3.327	2.862	1.054	0.000	0.000	0.000	0.000	35.994		
12	0.000	0.000	.925	2.748	3.353	3.591	3.667	3.622	3.510	3.563	3.505	3.151	2.837	1.205	0.000	0.000	0.000	0.000	35.677		
13	0.000	0.000	.005	.004	0.000	.002	.067	.762	2.642	3.218	3.099	2.857	2.386	.809	0.000	0.000	0.000	0.000	15.850		
14	0.000	0.000	.718	2.410	3.082	3.342	3.472	3.499	3.460	3.454	3.276	2.896	2.097	.309	0.000	0.000	0.000	0.000	32.014		
15	0.000	0.000	.490	2.057	2.779	3.119	3.259	3.328	3.334	3.267	3.126	2.878	2.316	.861	0.000	0.000	0.000	0.000	30.814		
16	0.000	0.000	.001	.055	.726	.687	.488	2.195	1.847	1.535	M	M	M	M	M	M	M	M	M		
17	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
19	M	M	M	M	M	M	M	.040	.074	.014	.008	.037	M	.010	0.000	0.000	0.000	M	M		
20	0.000	0.000	.016	.016	.018	.019	.019	.019	.016	.015	.018	.019	.010	.011	0.000	0.000	0.000	0.000	.196		
21	0.000	0.000	.017	.019	.017	.019	.020	.071	.018	M	M	.022	.011	.012	0.000	0.000	0.000	0.000	M		
22	0.000	0.000	.012	.007	.011	.015	.015	.012	.021	.026	.032	.022	2.298	.693	0.000	0.000	0.000	0.000	3.164		
23	0.000	0.000	1.273	2.546	2.731	1.445	1.966	2.623	.938	.584	.037	.024	.063	.087	0.000	0.000	0.000	0.000	14.316		
24	0.000	.018	1.573	2.907	3.351	3.547	3.648	3.540	3.689	3.642	3.543	3.362	2.982	1.620	.015	0.000	0.000	0.000	37.437		
25	0.000	.022	1.522	2.783	3.229	3.433	3.515	3.311	3.358	.955	.553	.142	.028	.019	.014	0.000	0.000	0.000	22.884		
26	0.000	.014	.015	.017	.016	.019	.019	.021	.017	M	.014	.016	.014	.016	.016	0.000	0.000	0.000	M		
27	0.000	.017	.017	.016	.017	.078	.118	1.248	2.646	.834	.023	.022	.647	.576	.017	0.000	0.000	0.000	6.276		
28	0.000	.070	.927	1.923	2.485	3.062	2.975	.551	.989	1.390	1.254	.199	.245	1.724	.013	0.000	0.000	0.000	17.808		
29	0.000	.015	.018	.024	.022	.016	.018	.023	.214	.121	.049	.023	.017	.016	.012	0.000	0.000	0.000	.589		
30	0.000	.020	1.526	2.735	3.276	3.435	2.906	.816	.323	.111	.028	.467	.018	.020	.015	0.000	0.000	0.000	15.698		
31	0.000	.017	.016	.047	.051	.022	.291	.225	.012	.011	.012	.019	.017	.011	.014	0.000	0.000	0.000	.764		
AVERAGE VALUES																				18.198	
STANDARD DEVIATION																				12.486	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

APRIL 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15			15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	.014	.018	.061	.472	.890	.201	.255	.091	.012	.022	.014	.014	.013	.015	0.000	0.000	0.000	2.091
2	0.000	.078	1.868	2.957	3.380	2.976	2.681	1.660	.963	.500	.055	.015	.012	.014	.015	0.000	0.000	0.000	17.174
3	0.000	.011	.016	.091	.190	1.026	1.603	1.466	2.174	.216	.827	.108	.774	1.105	.019	0.000	0.000	0.000	9.625
4	0.000	.174	2.008	2.183	.075	.262	1.094	.401	.523	1.018	2.508	2.058	1.837	.959	M	M	M	M	M
5	M	M	M	M	M	M	3.388	3.399	3.336	2.760	2.009	1.264	2.748	2.104	.015	0.000	0.000	0.000	M
6	0.000	.014	.017	.363	2.106	3.372	3.553	3.447	2.900	1.999	1.369	3.059	2.547	1.663	.015	0.000	0.000	0.000	26.425
7	0.000	.026	1.174	2.316	3.224	3.056	2.785	2.452	2.699	.596	.027	2.359	2.771	1.389	.014	0.000	0.000	0.000	24.886
8	0.000	.239	2.165	3.000	3.350	3.496	3.540	3.538	3.500	3.407	3.174	2.785	2.123	1.216	.032	0.000	0.000	0.000	35.566
9	0.000	.213	1.920	2.934	3.280	3.266	3.338	3.414	2.767	2.696	1.074	.882	.042	.343	.009	0.000	0.000	0.000	26.178
10	0.000	.015	.016	.019	.019	.020	.016	.020	.019	.017	.023	.012	.011	.014	.018	0.000	0.000	0.000	.239
11	0.000	.024	.026	.022	.022	.021	.009	.010	.021	.006	.006	.020	.017	.018	.029	0.000	0.000	0.000	.251
12	0.000	.218	1.071	.839	1.407	1.769	.872	1.648	1.598	.273	.034	.035	1.286	2.142	.233	0.000	0.000	0.000	12.924
13	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
17	M	M	M	M	M	M	M	2.170	2.500	3.041	2.456	2.750	2.577	1.540	.218	0.000	0.000	0.000	M
18	0.000	.423	2.109	.462	2.091	2.884	2.363	3.188	3.406	2.528	3.079	3.058	2.705	1.935	.280	0.000	0.000	0.000	30.514
19	0.000	.159	1.679	2.460	2.889	3.268	3.374	3.361	1.317	.225	.516	.209	.009	.011	.014	0.000	0.000	0.000	19.490
20	0.000	.172	1.582	2.550	2.408	1.815	.627	2.411	1.625	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
22	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
23	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
24	M	M	M	M	M	.284	1.799	.325	.147	.230	.063	.059	.035	.117	.020	0.000	0.000	0.000	M
25	0.000	.015	.346	1.355	.305	.287	1.275	3.047	2.528	2.964	3.258	3.418	3.165	2.549	.605	0.000	0.000	0.000	25.117
26	0.000	.299	1.436	2.093	2.477	2.923	3.061	1.957	.896	1.269	.574	1.179	1.875	1.720	.053	0.000	0.000	0.000	21.810
27	0.000	.014	.019	.025	.999	2.390	1.395	2.697	2.964	3.044	2.880	2.585	2.125	1.093	.070	0.000	0.000	0.000	22.299
28	0.000	.024	.146	.025	.610	1.371	.989	2.258	2.184	2.636	1.220	.545	1.002	.147	.143	0.000	0.000	0.000	13.300
29	0.000	.450	1.745	2.470	2.806	3.026	3.137	3.134	3.066	1.866	2.279	1.904	.628	.090	.093	0.000	0.000	0.000	26.693
30	0.000	.386	1.764	2.511	2.897	3.072	1.850	.176	.507	.382	.139	.839	1.976	.584	.013	0.000	0.000	0.000	17.096

AVERAGE VALUES	M	M	M	M	M	M	M	2.019	1.814	M	M	M	M	M	M	M	M	M	M
STANDARD DEVIATION	M	M	M	M	M	M	M	1.264	1.209	M	M	M	M	M	M	M	M	M	M

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 41.

MAY 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	.024	.357	.433	1.601	2.309	1.471	.048	.017	.013	.019	.019	.018	.015	.011	0.000	0.000	0.000	6.355
2	0.000	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
4	M	M	M	M	M	3.526	3.602	3.620	3.609	3.494	3.314	2.761	1.471	1.584	.574	0.000	0.000	0.000	M
5	0.000	.071	1.730	2.170	2.789	3.308	2.889	1.846	.893	1.216	1.903	.091	.189	.244	.019	0.000	0.000	0.000	19.357
6	0.000	.962	2.360	2.979	3.040	3.318	3.468	3.390	3.130	1.330	1.678	.159	.682	.019	.012	0.000	0.000	0.000	26.527
7	0.000	.016	.019	.022	.019	.013	.018	.019	.016	.024	.014	.018	.016	.016	.020	0.000	0.000	0.000	.250
8	0.000	.017	.021	.018	.018	.018	.022	.018	.015	.018	.016	.017	.018	.016	.019	0.000	0.000	0.000	.250
9	.017	.017	.019	.019	.020	.020	.017	.019	.016	.016	.017	.018	.021	.019	.019	.017	0.000	0.000	.288
10	.018	.018	.051	.254	.227	2.212	1.997	.285	.290	1.153	.347	1.483	.743	.773	1.163	.015	0.000	0.000	11.030
11	.093	1.811	2.862	3.197	3.496	3.547	2.908	.795	.304	1.296	1.384	.092	.019	.051	.050	.013	0.000	0.000	21.918
12	.053	1.256	2.367	2.453	1.896	1.513	.833	.843	1.206	2.275	2.127	1.029	1.708	.917	.218	.012	0.000	0.000	20.704
13	.037	1.256	2.527	2.977	3.258	2.883	1.545	.258	.834	.699	1.520	1.606	1.482	.166	.449	.012	0.000	0.000	21.509
14	.030	.841	1.912	1.362	2.264	3.040	2.662	1.971	1.943	2.483	2.162	1.788	.444	.290	.682	.015	0.000	0.000	23.888
15	.028	.887	1.560	2.705	2.992	3.166	1.970	2.819	2.120	2.121	1.196	.777	2.339	.678	.561	.011	0.000	0.000	25.929
16	.030	.796	1.744	2.305	2.480	2.306	.430	.185	M	.138	.481	2.029	1.440	.006	.008	.006	0.000	0.000	M
17	.012	.014	.593	1.473	1.012	1.639	2.041	2.482	.318	.910	.249	.653	.005	.348	.072	.011	0.000	0.000	11.832
18	.012	.224	1.269	1.935	.557	.492	.309	.782	.249	.453	.647	.076	.125	M	M	M	M	M	M
19	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	1.958	2.086	2.478	1.950	.339	.183	.479	1.334	.323	.009	.009	0.000	0.000	M
22	.014	.051	.088	.477	1.036	1.128	1.778	.692	2.248	.347	.145	1.263	.014	.010	.016	.017	0.000	0.000	9.323
23	.016	.019	.016	.015	.016	.019	.017	.023	.023	.825	2.350	2.663	2.424	1.975	.896	.013	0.000	0.000	11.312
24	.057	1.036	2.067	2.250	2.286	1.744	2.657	2.605	1.922	2.416	1.221	.209	1.439	.933	.240	.010	0.000	0.000	23.113
25	.016	.070	.299	2.392	2.599	1.465	.492	.755	.164	.004	.022	.077	.015	.011	.016	.012	0.000	0.000	8.408
26	.149	1.578	2.353	2.796	3.077	3.085	3.214	3.301	2.956	3.172	3.091	2.866	2.477	1.799	.778	.014	0.000	0.000	36.705
27	.155	1.583	2.493	2.919	3.128	3.256	3.173	2.796	1.663	1.400	2.478	1.954	.705	.737	.034	.013	0.000	0.000	28.486
28	.110	1.015	.543	.031	.282	.101	2.044	2.387	2.308	2.381	.291	.501	.112	.422	.028	.009	0.000	0.000	12.564
29	.018	.016	.093	.023	.314	.548	.024	.212	.018	.020	.004	.108	.918	.147	.011	.014	0.000	0.000	2.490
30	.018	.020	.019	.021	.011	.018	.024	.024	.021	.016	.014	.016	.022	.018	.013	.016	0.000	0.000	.289
31	.018	.024	.027	.151	.181	.435	.262	.669	1.632	.212	1.457	.470	.743	.251	.102	.015	0.000	0.000	6.648
AVERAGE VALUES																			
STANDARD DEVIATION																			
.035 .545 1.096 1.415 1.544 1.743 1.554 1.308 1.149 1.066 1.049 .860 .775 .453 .231 .010 0.000 0.000 M																			
.044 .620 1.049 1.236 1.300 1.303 1.251 1.253 1.134 1.068 1.044 .948 .824 .576 .335 .006 0.000 0.000 M																			

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

JUNE 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)

FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	.025	.689	1.452	2.003	2.785	2.982	3.036	2.799	2.058 1.486 .589	.017	.093	.078	.018	.019	0.000	0.000	20.129
2	.065	.733	1.581	2.218	2.585	2.775	2.995	2.903	2.740 2.374 1.833	1.241	.645	.245	.063	.015	0.000	0.000	25.009
3	.037	.487	1.243	1.842	2.216	2.421	2.702	2.663	2.329 1.961 1.363	.761	.149	.062	.051	.014	0.000	0.000	20.300
4	.030	.403	1.015	1.356	1.873	2.068	2.427	1.326	1.853 1.528 1.188	.693	.264	.064	.028	.012	0.000	0.000	16.127
5	.032	.309	.813	1.311	1.670	1.868	2.195	2.161	1.555 .708 .728	.454	.128	.070	.029	.010	0.000	0.000	14.040
6	.025	.215	.618	1.051	1.338	1.656	1.893	1.739	1.091 .631 .243	.068	.053	.026	.021	.011	0.000	0.000	10.677
7	.020	.082	.034	.023	.181	.023	.024	.023	.019 .015 .013	.015	.016	.019	.015	.019	0.000	0.000	.540
8	.017	.017	.018	.019	.022	.018	.019	.016	.019 .019 .019	.019	.018	.019	.013	.021	0.000	0.000	.294
9	.021	.018	.019	.025	.047	.242	.048	.047	.314 .266 .245	.122	.051	.027	.030	.017	0.000	0.000	1.537
10	.025	.077	.264	.545	.775	1.029	1.378	1.211	.886 .512 .226	.090	.055	.040	.036	.017	0.000	0.000	7.166
11	.021	.067	.138	.306	.550	.751	.919	.685	.549 .323 .146	.086	.074	.055	.043	.034	0.000	0.000	4.749
12	.040	.077	.120	.226	.323	.476	.746	.625	1.882 3.131 3.239	3.101	2.862	2.414	1.720	.122	0.000	0.000	21.104
13	.364	1.974	2.765	3.108	3.300	3.389	3.429	3.433	2.555 2.260 .638	.339	2.184	1.336	1.118	.132	0.000	0.000	32.323
14	.154	.610	.169	.266	.596	.381	.087	.448	.646 .263 .049	.069	.043	.244	.435	.059	0.000	0.000	4.519
15	.134	.090	.066	.147	.110	.089	1.740	1.834	1.234 1.040 .495	1.848	1.260	.831	.035	.032	0.000	0.000	10.988
16	.111	.779	1.291	1.237	.136	.633	.378	.930	.531 .536 .322	.497	.639	.358	.028	.027	0.000	0.000	8.435
17	.031	.037	.037	.039	.399	.702	.801	1.240	1.240 .757 .432	.125	.049	.037	.039	.035	0.000	0.000	5.999
18	.035	.036	.037	.040	.058	.104	.258	.402	.042 .985 2.036	2.060	1.498	.797	.338	.033	0.000	0.000	8.761
19	.039	.039	.100	.622	3.100	3.467	.186	.041	1.294 3.575 3.280	.409	.061	.053	.051	.038	0.000	0.000	16.355
20	.040	.060	1.525	3.207	3.383	3.470	3.499	3.518	3.470 3.398 3.056	3.107	2.045	.309	.190	.071	0.000	0.000	34.348
21	.220	1.485	2.831	3.196	3.371	3.428	3.302	3.137	3.481 3.393 3.301	2.850	.326	.090	.140	.172	0.000	0.000	35.225
22	.333	2.003	2.823	3.153	3.330	3.436	3.488	3.458	3.050 3.206 2.435	2.495	.117	.059	M	M	M	M	M
23	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
24	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
26	M	M	M	M	M	1.956	1.240	.147	1.729 1.290 .962	.059	.832	.395	1.223	.164	0.000	0.000	M
27	.110	.171	1.657	2.642	2.979	2.546	3.070	2.650	1.316 .035 1.231	.463	M	M	M	M	M	M	M
28	M	M	M	2.687	2.948	3.085	3.129	3.088	2.534 .755 2.026	3.019	2.317	.041	.064	.031	0.000	0.000	M
29	.119	1.385	2.384	2.858	3.095	3.229	3.045	2.972	2.849 1.673 .189	1.747	.992	1.408	1.601	.039	0.000	0.000	29.587
30	.076	1.339	2.135	1.322	.486	.089	.101	.317	1.454 .474 .905	.947	.023	.045	.052	.026	0.000	0.000	9.790
AVERAGE VALUES																	
STANDARD DEVIATION																	
M																	
E																	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 43.

JULY 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SUM-DAY)
1	.064	.381	1.465	1.414	2.430	2.588	3.124	2.829	.530	1.865	2.373	.488	.030	.039	.290	.057	0.000	0.000	19.989
2	.097	.881	2.097	1.784	.423	.545	1.615	.899	.360	2.430	1.443	1.173	1.731	.833	.514	.026	0.000	0.000	16.852
3	.157	1.063	2.159	2.333	3.069	2.778	3.156	3.276	2.506	1.607	2.101	1.417	2.104	.331	.026	.032	0.000	0.000	28.136
4	.037	.035	.067	.830	2.077	3.277	3.175	3.187	3.340	1.750	1.637	2.091	.317	.032	.280	.167	0.000	0.000	22.299
5	.030	.038	.112	1.422	2.371	2.927	2.756	2.834	1.949	2.326	1.505	.257	1.223	1.459	.193	.031	0.000	0.000	21.433
6	.034	.108	.368	.986	2.461	3.010	2.586	.118	.035	.758	.999	.424	.635	.028	.077	.237	0.000	0.000	12.863
7	.220	1.838	2.709	3.112	3.314	3.413	3.430	3.467	3.446	3.397	3.336	2.793	2.060	.747	.809	.178	0.000	0.000	38.269
8	.162	1.500	1.668	2.883	2.159	2.964	3.357	2.400	2.837	3.092	.323	.127	.030	.034	1.148	.095	0.000	0.000	24.779
9	.093	1.550	2.565	3.012	2.764	3.239	3.225	3.327	3.403	3.320	3.084	2.599	1.826	.569	.034	.031	0.000	0.000	34.642
10	.109	1.047	2.396	2.165	1.843	.685	1.014	3.185	3.433	2.704	1.927	3.029	1.877	M	M	M	M	M	M
11	M	M	M	M	3.217	3.277	3.328	3.373	2.081	3.225	2.378	.088	.379	1.243	.233	.020	0.000	0.000	M
12	.053	1.204	2.282	2.755	3.047	3.206	3.170	2.596	1.872	2.059	1.638	.162	.128	.374	.274	.027	0.000	0.000	24.847
13	.043	1.420	1.745	2.891	3.180	3.368	3.437	3.477	3.310	3.070	3.323	3.202	3.012	2.607	1.955	.142	0.000	0.000	40.182
14	.054	1.164	2.276	2.634	2.471	3.080	3.205	3.226	3.271	3.211	3.150	2.945	2.458	1.128	1.114	.023	0.000	0.000	35.409
15	.037	1.065	1.732	2.788	2.936	3.258	3.322	3.315	2.918	1.416	.183	.529	1.049	.948	.948	.049	0.000	0.000	26.493
16	.025	.025	.908	2.285	2.818	2.927	2.307	2.607	.663	.011	1.724	1.699	.272	.020	.119	.075	0.000	0.000	18.486
17	.024	.022	.025	.029	.030	.036	.094	.052	.069	.026	.031	.126	1.184	1.331	1.263	.026	0.000	0.000	4.369
18	.062	1.070	1.796	2.315	2.682	2.893	3.056	1.209	.112	.036	.019	.031	.548	1.261	.324	.022	0.000	0.000	17.437
19	.052	1.368	2.448	2.885	3.140	3.210	3.179	3.155	3.085	2.899	.272	.049	.526	.649	1.249	.042	0.000	0.000	28.208
20	.055	1.283	2.303	2.769	2.945	3.047	3.103	3.134	1.009	.304	1.280	2.918	2.692	2.166	.206	.022	0.000	0.000	29.236
21	.032	.222	1.009	1.527	2.902	2.577	.666	1.042	.033	.040	.023	.183	.524	.805	.025	.026	0.000	0.000	11.638
22	.028	.188	.066	.035	.060	.631	2.573	3.366	2.699	2.327	1.430	1.184	.658	.275	.158	.028	0.000	0.000	15.703
23	.028	.684	2.025	1.782	2.265	3.114	2.315	.360	.097	.058	.307	1.066	.272	.227	.020	.026	0.000	0.000	14.645
24	.037	.870	1.446	2.829	3.054	3.088	2.793	2.947	.873	1.556	2.733	1.359	1.930	1.644	.195	.021	0.000	0.000	27.374
25	.031	.966	2.207	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
29	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
31	M	M	M	M	1.016	1.463	2.524	1.802	2.365	3.027	.412	1.000	2.788	2.195	1.096	0.000	0.000	0.000	M
AVERAGE VALUES	.065	.834	1.579	M	2.347	2.584	2.660	2.447	1.852	1.861	1.505	1.238	1.210	.873	.523	.059	0.000	0.000	M
STANDARD DEVIATION	.051	.568	.862	M	.969	1.019	.900	1.139	1.320	1.221	1.112	1.114	.955	.751	.534	.061	0.000	0.000	M

M MISSING DATA
F ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

AUGUST 1979		DIRECT SOLAR COMPONENT HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)											FORT COLLINS COLORADO COLORADO STATE UNIVERSITY DEPARTMENT OF ATMOSPHERIC SCIENCE							
DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15			15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)	
1	0.000	.764	.794	2.651	2.998	3.059	2.844	3.243	3.218	3.151	2.340	1.048	.866	1.421	.478	0.000	0.000	0.000	28.874	
2	M	M	M	M	M	M	3.239	3.236	3.203	3.124	2.933	2.020	3.182	5.771	6.252	6.261	0.000	0.000	M	
3	6.228	6.109	5.921	5.758	5.655	5.048	4.415	5.320	M	M	M	2.922	2.775	2.440	1.284	.010	0.000	0.000	M	
4	.006	1.143	2.443	2.973	3.101	3.339	3.362	3.401	3.397	3.317	3.199	3.060	2.865	2.409	1.155	.004	0.000	0.000	39.173	
5	.005	1.102	2.402	2.863	3.107	3.244	3.330	3.367	3.365	3.289	3.182	3.014	2.762	2.096	.808	.006	0.000	0.000	37.944	
6	.005	.953	2.195	2.712	2.964	3.093	3.131	3.154	3.099	2.461	1.298	1.785	1.645	1.335	.653	.000	0.000	0.000	30.484	
7	0.000	M	M	M	M	M	M	3.119	3.155	3.116	2.999	M	M	M	M	0.000	0.000	0.000	M	
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
9	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
10	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
11	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
12	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
13	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
17	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
19	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
21	M	M	M	M	M	M	M	M	M	M	1.853	2.565	.721	.561	.236	0.000	0.000	0.000	M	
22	0.000	.534	1.652	2.766	3.367	3.557	2.690	1.953	2.853	3.294	2.559	.927	1.212	1.452	.062	0.000	0.000	0.000	28.879	
23	0.000	.525	2.241	2.991	3.316	3.501	3.655	2.367	2.816	1.042	1.030	.092	1.071	2.201	.610	0.000	0.000	0.000	27.459	
24	0.000	.315	1.671	1.067	3.350	3.480	3.618	2.556	.091	1.342	.123	.184	1.861	.827	.056	0.000	0.000	0.000	20.540	
25	0.000	.555	2.153	2.915	3.283	3.514	3.339	1.526	1.525	.842	1.072	2.468	2.820	2.408	.506	0.000	0.000	0.000	28.927	
26	0.000	.536	2.159	2.909	2.792	3.447	3.610	1.809	.166	.135	1.311	1.845	1.506	.792	.171	0.000	0.000	0.000	23.189	
27	0.000	.446	1.011	M	2.856	3.498	3.556	3.370	1.415	1.287	.677	M	.150	.807	.403	0.000	0.000	0.000	M	
28	0.000	.072	1.403	2.537	3.295	3.218	3.152	.360	1.343	.887	1.481	1.436	.321	.419	.057	0.000	0.000	0.000	19.981	
29	0.000	.475	2.288	3.151	3.453	3.581	3.700	3.702	3.266	3.490	3.382	3.173	2.139	1.551	.102	0.000	0.000	0.000	37.454	
30	0.000	.505	2.021	1.930	1.675	2.551	2.125	1.571	2.468	1.584	.618	.045	.058	.056	.117	0.000	0.000	0.000	17.325	
31	0.000	.390	1.779	1.947	2.928	3.496	3.653	3.666	M	M	M	M	M	M	M	M	M	M	M	

AVERAGE	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
VALUES	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
STANDARD	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
DEVIATION	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 45.

SEPTEMBER 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS				MIN. STD. TIME																INTEGRATED			
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES (MJ/SQM-DAY)					
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.000	0.000	0.000	M				
2	0.000	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.000	0.000	0.000	M				
3	0.000	M	M	M	1.629	2.207	2.706	2.986	2.958	2.655	2.147	1.497	.753	0.000	0.000	0.000	0.000	0.000	0.000	M				
4	0.000	0.000	0.000	.779	M	2.179	2.688	2.951	2.930	2.633	1.253	1.153	.239	0.000	0.000	0.000	0.000	0.000	0.000	M				
5	0.000	0.000	0.000	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
7	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
9	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
10	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
11	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
12	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
13	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
17	M	M	M	M	M	M	M	M	M	M	3.662	3.410	2.916	1.175	.037	0.000	0.000	0.000	0.000	M				
18	0.000	.120	1.757	2.855	3.288	3.482	3.599	3.658	3.668	3.633	3.508	3.235	2.639	.906	.042	0.000	0.000	0.000	0.000	36.391				
19	0.000	.147	1.996	3.061	3.493	3.649	3.718	3.733	3.696	3.610	2.747	.886	.202	.056	.038	0.000	0.000	0.000	0.000	31.032				
20	0.000	.042	.193	.733	1.546	2.291	2.683	3.129	2.584	1.032	.078	.040	.027	.042	.043	0.000	0.000	0.000	0.000	14.461				
21	0.000	.043	.552	.469	.330	1.914	3.297	3.428	3.548	3.534	3.413	3.122	2.260	.507	.043	0.000	0.000	0.000	0.000	26.459				
22	0.000	0.000	1.453	2.673	3.190	3.548	3.667	3.589	3.410	.793	1.023	.421	2.240	.274	0.000	0.000	0.000	0.000	0.000	26.282				
23	0.000	0.000	1.273	2.113	1.595	2.920	3.104	2.212	2.911	1.489	1.891	1.526	.468	.090	0.000	0.000	0.000	0.000	0.000	21.592				
24	0.000	0.000	.730	1.833	2.875	3.237	2.795	2.152	3.174	2.134	1.339	.040	.043	.041	M	M	M	M	M	20.392				
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
29	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
AVERAGE VALUES	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
STANDARD DEVIATION	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				

OCTOBER 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS				MTN. STD. TIME																	INTEGRATED
	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	DAILY VALUES (M.J/SQM-DAY)			
1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
3	M	M	M	M	.001	2.497	3.402	3.219	3.424	3.392	3.267	3.014	2.325	.062	0.000	0.000	0.000	0.000	M			
4	0.000	0.000	1.415	2.840	3.114	3.185	3.505	3.548	3.279	3.159	3.212	2.873	2.183	.048	0.000	0.000	0.000	0.000	32.361			
5	0.000	0.000	.405	2.184	3.176	3.285	3.178	2.993	3.390	3.350	3.088	2.620	1.885	.015	0.000	0.000	0.000	0.000	29.569			
6	0.000	0.000	1.225	2.644	3.109	3.302	3.384	3.386	3.378	3.295	3.126	2.774	1.995	0.000	0.000	0.000	0.000	0.000	31.618			
7	0.000	0.000	1.290	1.791	1.511	1.332	2.763	2.157	3.336	3.235	3.153	2.427	2.201	0.000	0.000	0.000	0.000	0.000	25.196			
8	0.000	0.000	1.184	2.627	3.119	3.226	3.255	3.123	1.884	.652	2.236	2.168	1.502	0.000	0.000	0.000	0.000	0.000	24.977			
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	.006	.207	.138	0.000	0.000	0.000	0.000	0.000	M			
10	0.000	0.000	.318	2.052	2.241	2.913	2.129	2.896	2.711	2.868	1.679	.917	.753	0.000	0.000	0.000	0.000	0.000	21.476			
11	0.000	0.000	.957	2.583	2.573	.975	.929	2.739	3.129	3.018	3.115	2.203	1.560	0.000	0.000	0.000	0.000	0.000	23.782			
12	0.000	0.000	1.000	2.507	2.973	3.232	3.254	3.321	3.357	3.260	3.052	2.691	1.690	0.000	0.000	0.000	0.000	0.000	30.336			
13	0.000	0.000	.002	.003	.019	2.870	3.334	3.303	3.252	3.118	2.936	2.083	1.493	0.000	0.000	0.000	0.000	0.000	22.413			
14	0.000	0.000	.242	.141	.003	.019	.378	.059	1.519	.199	.063	0.000	.030	0.000	0.000	0.000	0.000	0.000	2.653			
15	0.000	0.000	.977	2.639	3.125	2.934	1.362	M	.024	.590	2.083	.327	.464	0.000	0.000	0.000	0.000	0.000	M			
16	0.000	0.000	.003	1.186	2.143	1.789	2.827	1.041	.984	.112	.182	M	1.421	0.000	0.000	0.000	0.000	0.000	M			
17	0.000	0.000	.004	.002	.003	.079	.629	.153	.177	.499	.024	0.000	.025	0.000	0.000	0.000	0.000	0.000	1.595			
18	0.000	0.000	0.000	.001	.138	.947	1.676	.343	1.996	2.515	1.403	.067	.119	0.000	0.000	0.000	0.000	0.000	9.204			
19	0.000	0.000	.002	.284	M	.603	.327	.370	.059	.450	1.550	.682	0.000	0.000	0.000	0.000	0.000	0.000	M			
20	0.000	0.000	0.000	.533	0.000	.044	.044	.875	1.809	1.039	.151	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.497			
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.017	.106	.203	.000	0.000	.198	0.000	0.000	0.000	0.000	0.000	.524			
22	0.000	0.000	.873	2.492	2.969	3.319	3.443	3.456	3.408	2.902	2.908	2.466	1.004	0.000	0.000	0.000	0.000	0.000	29.241			
23	0.000	0.000	.568	1.469	.323	.061	.120	.172	2.119	1.200	1.619	.706	0.000	0.000	0.000	0.000	0.000	0.000	8.356			
24	0.000	0.000	.779	2.454	1.754	2.273	3.085	3.399	3.381	3.257	3.030	2.629	.833	0.000	0.000	0.000	0.000	0.000	26.874			
25	0.000	0.000	.633	M	3.083	3.329	3.429	3.405	3.349	3.259	3.036	2.513	.791	0.000	0.000	0.000	0.000	0.000	M			
26	0.000	0.000	.737	2.556	3.161	3.365	3.461	3.487	3.301	1.156	0.000	.245	.250	0.000	0.000	0.000	0.000	0.000	21.721			
27	0.000	0.000	0.000	0.000	1.951	3.333	3.455	3.510	3.473	3.394	3.196	2.742	.812	0.000	0.000	0.000	0.000	0.000	25.865			
28	0.000	0.000	.629	2.480	2.893	.583	.012	.062	.017	.137	.504	.067	0.000	0.000	0.000	0.000	0.000	0.000	7.385			
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	M	M	M	M	M			
30	M	M	M	M	M	M	0.000	0.000	0.000	M	M	M	.063	0.000	0.000	0.000	0.000	0.000	M			
31	0.000	0.000	.593	2.615	3.245	3.208	2.721	2.559	3.290	3.067	3.145	2.943	.663	0.000	0.000	0.000	0.000	0.000	28.049			
AVERAGE VALUES																				M		
STANDARD DEVIATION																				M		

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11045 E6

Table 47.

NOVEMBER 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. 12-13	STD. 13-14	TIME 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	.463	1.279	2.063	1.737	2.843	2.596	2.175	.300	.656	.445	.195	0.000	0.000	0.000	0.000	0.000	14.752
2	0.000	0.000	.450	2.433	3.197	3.482	3.577	3.581	3.511	3.365	3.134	2.653	.535	0.000	0.000	0.000	0.000	0.000	29.917
3	0.000	0.000	.107	.130	.003	.383	0.000	.082	.721	2.307	2.899	1.450	.277	0.000	0.000	0.000	0.000	0.000	8.361
4	0.000	0.000	.093	.354	M	3.245	2.650	.943	1.807	.335	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M
5	0.000	0.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.001
6	0.000	0.000	.075	1.744	2.504	2.910	3.159	2.428	2.708	1.538	.358	0.000	.001	0.000	0.000	0.000	0.000	0.000	17.425
7	0.000	0.000	0.000	.001	0.000	.063	.230	.173	.344	.021	.034	.001	0.000	0.000	0.000	0.000	0.000	0.000	.866
8	0.000	0.000	0.000	1.934	2.835	3.149	3.255	3.336	2.905	1.272	2.339	.308	.014	0.000	0.000	0.000	0.000	0.000	21.347
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.006
10	0.000	0.000	0.000	2.030	2.929	3.144	3.301	3.467	3.483	2.913	1.731	.185	.037	0.000	0.000	0.000	0.000	0.000	23.220
11	0.000	0.000	0.000	0.000	.523	.332	.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.856
12	0.000	0.000	0.000	1.902	3.026	3.364	3.497	3.550	3.517	3.406	3.070	2.562	.163	0.000	0.000	0.000	0.000	0.000	28.056
13	0.000	0.000	0.000	2.140	3.046	3.388	3.522	3.573	3.555	3.426	3.191	2.627	.155	0.000	0.000	0.000	0.000	0.000	28.622
14	0.000	0.000	0.000	2.164	3.082	3.389	3.510	3.546	3.538	3.460	3.252	2.735	.139	0.000	0.000	0.000	0.000	0.000	28.816
15	0.000	0.000	0.000	2.266	3.162	3.486	3.622	3.671	3.561	3.446	3.235	2.663	.105	0.000	0.000	0.000	0.000	0.000	29.217
16	0.000	0.000	0.000	2.178	3.169	3.498	3.612	3.693	3.657	3.491	3.177	2.568	.053	0.000	0.000	0.000	0.000	0.000	29.097
17	0.000	0.000	0.000	2.277	3.227	3.552	3.684	3.707	3.664	3.561	3.253	1.437	0.000	0.000	0.000	0.000	0.000	0.000	28.361
18	0.000	0.000	0.000	.007	.239	2.303	.613	.345	.493	.323	.951	2.440	0.000	0.000	0.000	0.000	0.000	0.000	7.715
19	0.000	0.000	0.000	M	2.809	2.969	3.022	2.498	.844	.077	.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M
20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
21	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
22	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
23	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
24	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
26	M	M	M	M	M	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M
27	0.000	0.000	0.000	0.000	2.339	3.306	3.469	3.474	3.565	3.457	3.200	M	M	0.000	0.000	0.000	0.000	0.000	M
28	0.000	0.000	0.000	1.366	2.562	3.006	3.383	3.459	3.442	3.237	3.044	2.258	0.000	0.000	0.000	0.000	0.000	0.000	25.757
29	0.000	0.000	0.000	1.680	2.980	3.416	3.597	3.660	3.647	3.555	3.247	2.388	0.000	0.000	0.000	0.000	0.000	0.000	28.170
30	0.000	0.000	0.000	1.671	2.993	3.409	3.584	3.631	3.589	3.377	2.876	1.666	0.000	0.000	0.000	0.000	0.000	0.000	26.796

AVERAGE	0.000	0.000	.052	M	M	2.501	2.527	2.409	2.379	1.953	1.819	1.234	.073	0.000	0.000	0.000	0.000	0.000	M
VALUES																			
STANDARD	0.000	0.000	.132	M	M	1.331	1.476	1.534	1.467	1.566	1.451	1.181	.129	0.000	0.000	0.000	0.000	0.000	M
DEVIATION																			

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

DECEMBER 1979

DIRECT SOLAR COMPONENT
HOURLY VALUES, MEGAJOULES/(SQ. METER-HR)FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	HOURS 4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	MTN. STD. TIME 12-13 13-14 14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	INTEGRATED DAILY VALUES (MJ/SQ-M-DAY)
1	0.000	0.000	0.000	1.420	2.874	3.355	3.511	3.579	3.537	3.391	3.122	2.177	0.000	0.000	0.000	0.000	26.966
2	0.000	0.000	0.000	1.316	1.048	1.623	2.790	3.356	.669	.693	0.000	.006	0.000	0.000	0.000	0.000	11.502
3	0.000	0.000	0.000	1.011	.029	.001	.024	.248	.532	.018	.742	0.000	0.000	0.000	0.000	0.000	2.606
4	0.000	0.000	0.000	.208	.000	.326	.216	.509	1.002	.004	.245	.664	0.000	0.000	0.000	0.000	3.175
5	0.000	0.000	0.000	1.135	2.643	1.302	2.287	3.178	3.006	1.877	1.189	2.009	0.000	0.000	0.000	0.000	18.626
6	0.000	0.000	0.000	.317	.307	.003	.488	1.366	2.938	2.341	2.990	2.096	0.000	0.000	0.000	0.000	12.845
7	0.000	0.000	0.000	.551	.114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.665
8	0.000	0.000	0.000	.006	.001	.926	2.722	3.127	2.851	2.999	2.574	1.830	0.000	0.000	0.000	0.000	17.037
9	0.000	0.000	0.000	1.136	2.706	3.177	3.353	3.418	3.383	3.084	2.700	1.917	0.000	0.000	0.000	0.000	24.872
10	0.000	0.000	0.000	1.156	1.066	2.088	2.850	2.763	2.261	1.397	2.321	2.171	0.000	0.000	0.000	0.000	18.073
11	0.000	0.000	0.000	0.000	.004	.034	.038	.667	.687	.489	.753	.087	0.000	0.000	0.000	0.000	2.758
12	0.000	0.000	0.000	1.185	2.888	3.382	3.547	3.629	3.597	3.471	3.174	2.244	0.000	0.000	0.000	0.000	27.116
13	0.000	0.000	0.000	.389	.599	.765	1.216	2.913	3.330	3.369	3.120	2.219	0.000	0.000	0.000	0.000	17.921
14	0.000	0.000	0.000	1.036	1.799	2.576	3.425	3.510	3.501	3.368	2.923	1.833	0.000	0.000	0.000	0.000	23.970
15	0.000	0.000	0.000	1.033	2.761	3.118	.233	.005	1.229	3.288	1.950	.876	0.000	0.000	0.000	0.000	14.493
16	0.000	0.000	0.000	.052	1.298	2.699	3.011	3.107	3.177	2.941	2.331	.767	0.000	0.000	0.000	0.000	19.362
17	0.000	0.000	0.000	.718	1.550	2.825	3.064	3.175	1.533	.299	.715	.439	0.000	0.000	0.000	0.000	14.318
18	0.000	0.000	0.000	1.041	2.783	3.306	3.528	3.611	3.598	3.521	3.243	2.454	0.000	0.000	0.000	0.000	27.085
19	0.000	0.000	0.000	.938	2.693	3.258	3.445	3.558	3.519	3.337	3.094	2.380	0.000	0.000	0.000	0.000	26.224
20	0.000	0.000	0.000	.656	.006	1.264	3.207	M	1.632	.352	.550	.747	0.000	0.000	0.000	0.000	M
21	0.000	0.000	0.000	.770	2.492	3.082	3.295	3.350	3.226	1.832	.722	.173	0.000	0.000	0.000	0.000	18.942
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.002	0.000	.000	.002	0.000	0.000	0.000	0.000	0.000	.004
23	0.000	0.000	0.000	0.000	.024	1.600	2.661	2.957	2.983	2.957	2.620	1.362	0.000	0.000	0.000	0.000	17.165
24	0.000	0.000	0.000	.420	1.792	1.642	1.853	1.893	.634	0.000	.212	.189	0.000	0.000	0.000	0.000	8.635
25	0.000	0.000	0.000	.245	.875	2.063	1.240	3.240	3.261	3.371	3.085	2.449	0.000	0.000	0.000	0.000	19.829
26	0.000	0.000	0.000	.169	1.016	.297	.143	.678	.069	.185	.388	0.000	0.000	0.000	0.000	0.000	2.944
27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.004
29	0.000	0.000	0.000	.427	2.368	3.020	3.320	3.487	3.449	3.352	2.964	2.290	.024	0.000	0.000	0.000	24.701
30	0.000	0.000	0.000	.730	2.578	3.065	3.441	3.548	3.074	2.589	1.242	2.527	.055	0.000	0.000	0.000	22.848
31	0.000	0.000	0.000	.632	2.432	3.080	3.418	3.434	3.494	3.278	.732	2.602	.080	0.000	0.000	0.000	23.181

AVERAGE	0.000	0.000	0.000	.603	1.314	1.738	2.010	2.277	2.135	1.865	1.603	1.242	.005	0.000	0.000	0.000	14.930
VALUES																	
STANDARD	0.000	0.000	0.000	.463	1.146	1.307	1.455	1.448	1.390	1.461	1.256	1.016	.018	0.000	0.000	0.000	9.446
DEVIATION																	

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 49.

1978

 HEMISPHERIC SOLAR IRRADIANCE
 INTEGRATED DAILY VALUES, MEGAJOULES/(SQ. METER-DAY)

 FORT COLLINS COLORADO
 COLORADO STATE UNIVERSITY
 DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	1	2	3	4	5	6	7	8	9	10	11	12
1	M	7.142	6.567	M	M	7.262	25.824	24.258	M	11.266	11.229	6.803
2	M	M	13.641	17.142	7.620	7.898	30.206	16.225	24.005	13.075	12.913	4.061
3	M	9.795	13.529	19.660	M	9.192	M	4.429	22.729	19.193	12.161	3.372
4	M	13.210	19.081	22.319	M	15.993	M	27.167	M	18.261	10.525	10.034
5	M	8.096	13.448	M	M	13.749	31.107	29.028	M	18.369	8.121	2.831
6	M	4.718	11.877	22.449	M	31.576	M	19.404	23.693	18.454	12.785	4.243
7	M	3.903	19.156	M	M	16.862	30.006	27.115	23.792	16.592	11.074	9.463
8	M	2.086	18.047	22.323	M	29.571	30.983	21.909	19.974	12.815	8.639	10.348
9	M	5.652	13.273	3.535	31.566	29.770	8.682	26.353	20.232	17.143	9.900	9.874
10	6.830	M	9.942	12.099	25.528	20.653	M	19.664	15.298	17.554	M	7.501
11	7.877	3.019	20.486	M	M	29.974	21.701	19.171	21.837	16.753	3.619	8.675
12	M	4.560	12.060	M	M	26.608	18.685	20.013	22.277	15.104	4.814	7.540
13	10.341	12.656	17.907	15.787	28.751	29.908	27.559	21.017	21.719	16.301	12.081	11.326
14	6.604	11.652	19.840	13.082	30.484	26.312	24.452	17.891	21.921	16.550	1.363	9.583
15	3.351	12.456	17.605	7.078	30.192	32.608	22.419	M	21.287	16.442	11.437	8.624
16	10.442	10.075	16.940	8.690	28.498	30.708	M	27.668	15.631	M	M	9.287
17	M	17.192	M	27.047	M	29.552	M	26.227	12.423	10.285	11.056	4.481
18	9.480	14.454	M	M	M	30.346	25.901	14.612	M	9.013	10.845	4.983
19	7.060	14.162	M	25.903	30.757	26.647	21.254	24.931	M	15.340	6.720	8.580
20	7.423	16.708	M	25.730	21.895	31.226	19.511	24.785	M	10.893	2.134	9.555
21	11.943	16.697	21.472	23.268	12.455	23.950	10.868	20.967	21.559	9.030	7.536	9.671
22	11.240	16.307	15.130	26.292	25.812	27.172	29.972	15.471	20.859	4.285	8.829	9.142
23	5.327	16.431	M	28.304	22.526	24.443	29.732	21.040	20.159	13.754	10.880	7.091
24	12.001	9.261	10.425	27.466	26.681	28.244	M	21.842	15.757	10.462	M	9.197
25	10.701	2.185	22.663	21.094	26.074	31.788	20.990	16.252	20.000	9.362	M	3.169
26	7.947	12.378	21.295	23.894	24.863	29.722	29.142	17.484	19.240	14.006	M	8.684
27	12.114	M	20.981	20.856	19.347	21.649	29.285	18.593	18.484	13.639	M	M
28	12.721	8.993	22.491	15.452	19.111	30.010	15.601	20.251	10.449	12.613	5.815	M
29	8.151	M	23.050	M	29.426	18.831	10.181	18.963	18.861	13.983	8.599	0.000
30	7.200	M	20.409	M	23.701	16.731	28.826	23.184	19.179	M	8.901	0.000
31	M	M	M	M	15.329	M	24.901	M	M	13.126	M	M
AVERAGE	M	10.152	16.853	M	M	24.439	23.658	20.894	19.640	13.919	8.832	7.077
VALUES	M	4.960	4.572	M	M	7.673	6.850	5.068	3.496	3.563	3.287	3.159
STANDARD												
DEVIATION												

 M MISSING DATA
 E ESTIMATED DATA REFER TO DOCUMENTATION

 INSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
 SERIAL NO. 12516 F3

1978

 DIRECT SOLAR COMPONENT
 INTEGRATED DAILY VALUES, MEGAJOULES/(SQ. METER-DAY)

 FORT COLLINS, COLORADO
 COLORADO STATE UNIVERSITY
 DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	1	2	3	4	5	6	7	8	9	10	11	12
1	M	.023	.005	M	M	.225	24.049	27.782	M	6.665	11.773	10.479
2	M	M	1.833	12.793	.199	.316	36.759	6.695	29.195	14.339	27.129	.726
3	M	11.591	1.461	19.802	M	.099	M	.180	26.355	31.809	23.798	22.810
4	M	27.245	28.934	25.426	M	5.610	M	29.473	M	29.081	13.289	23.180
5	M	2.131	15.299	M	M	1.376	35.723	40.741	M	31.788	6.958	0.000
6	M	0.000	5.203	21.790	M	37.323	M	20.033	32.664	32.933	25.882	0.000
7	M	0.000	32.908	M	M	12.750	35.266	35.047	34.930	26.844	18.485	8.709
8	M	0.000	28.204	21.572	M	32.971	40.893	25.322	24.564	13.544	7.320	25.255
9	M	.002	9.696	.064	37.856	34.939	3.638	32.175	23.562	29.666	8.803	21.142
10	3.054	M	2.749	2.749	18.083	10.874	M	18.376	12.340	32.171	M	8.235
11	11.525	0.000	32.856	M	M	34.400	18.430	19.057	30.567	26.000	.003	16.889
12	M	1.839	6.230	M	M	32.217	13.397	17.476	29.888	22.796	.341	16.129
13	26.519	6.184	21.776	11.461	37.382	33.900	28.689	20.760	32.247	25.092	28.749	21.503
14	5.775	4.121	27.510	5.671	38.798	31.176	26.860	16.700	32.760	28.194	0.000	25.943
15	0.000	6.226	20.389	2.158	39.676	43.676	21.982	M	31.684	31.298	24.582	21.024
16	15.806	.342	20.762	3.640	32.811	38.731	M	39.353	16.901	M	M	23.962
17	M	29.307	M	35.211	M	32.617	M	32.632	8.114	6.778	25.037	.009
18	6.504	21.777	M	M	M	36.538	22.212	11.915	M	6.225	23.663	2.525
19	0.000	17.168	M	31.154	38.560	29.098	17.680	32.725	M	29.309	9.188	19.123
20	.763	30.302	M	29.709	14.380	32.857	12.232	27.525	M	8.216	0.000	25.543
21	25.766	31.371	34.180	21.444	1.417	21.745	3.491	21.076	35.000	4.810	7.091	23.429
22	24.296	29.636	11.683	33.214	24.333	28.108	36.239	6.585	33.105	.004	14.933	22.692
23	0.000	31.977	M	36.389	16.961	22.656	38.549	24.619	33.116	22.063	27.107	9.934
24	25.440	6.433	2.948	35.858	32.072	27.404	M	18.461	15.258	9.724	M	22.092
25	6.351	0.000	30.573	13.864	18.898	40.497	22.603	9.176	33.065	11.695	M	2.743
26	8.907	6.412	25.729	16.031	21.346	33.120	37.482	21.366	29.506	27.318	M	15.071
27	20.989	M	28.345	20.950	8.534	19.690	38.216	17.596	26.880	27.267	M	M
28	20.666	5.229	32.907	12.105	8.743	31.477	16.565	16.077	5.794	24.789	7.965	M
29	2.548	M	34.260	M	31.989	11.657	3.041	19.608	29.847	30.490	15.164	.006
30	.181	M	25.409	M	23.064	8.649	35.446	28.885	31.684	M	18.364	18.647
31	M	M	M	M	2.826	M	26.759	M	M	26.217	M	M
AVERAGE VALUES	M	10.853	19.254	M	M	24.230	24.842	21.980	26.626	21.287	14.401	14.000
STANDARD DEVIATION	M	12.254	12.258	M	M	13.557	11.925	9.826	8.575	10.276	9.718	9.494

 M MISSING DATA
 E ESTIMATED DATA REFER TO DOCUMENTATION

 INSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
 SERIAL NO. 11095 E6

Table 51.

1979

HEMISPHERIC SOLAR IRRADIANCE
INTEGRATED DAILY VALUES, MEGAJOULES/(SQ. METER-DAY)FORT COLLINS, COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCE

DAY	1	2	3	4	5	6	7	8	9	10	11	12
1	M	13.902	15.156	12.052	13.004	26.389	24.860	24.881	M	M	11.065	9.687
2	M	10.439	7.263	19.042	M	31.699	22.332	M	M	M	13.299	8.213
3	0.000	13.380	15.646	17.269	M	30.310	29.003	M	M	M	7.616	5.545
4	.000	11.129	18.765	M	M	30.061	26.758	27.520	M	17.711	M	5.020
5	0.000	13.238	17.157	M	24.430	28.582	27.323	27.267	M	17.186	3.759	8.261
6	0.000	12.710	10.122	23.287	26.432	25.537	19.355	24.650	M	17.168	11.923	7.326
7	0.000	9.853	16.677	20.961	4.575	8.696	31.357	M	M	17.121	6.083	1.559
8	.000	14.087	3.371	25.981	3.951	4.590	24.911	M	M	15.538	10.506	7.985
9	0.000	M	18.070	23.148	5.045	23.127	30.436	M	M	M	3.269	8.699
10	3.226	9.530	19.979	4.102	22.239	31.919	M	M	M	14.879	10.839	8.511
11	4.778	13.196	20.077	11.047	21.514	30.929	M	M	M	14.797	3.635	6.672
12	5.071	10.300	20.308	21.494	23.896	33.045	23.414	M	M	15.789	11.989	9.628
13	10.976	M	14.743	M	22.405	27.588	31.363	M	M	14.523	11.443	8.582
14	10.057	12.335	20.439	M	26.775	20.126	30.501	M	M	8.033	11.218	8.547
15	10.177	11.802	20.085	M	26.454	21.412	26.558	M	M	M	11.161	6.357
16	5.163	6.646	M	M	M	22.966	21.806	M	M	M	11.015	8.415
17	7.858	16.293	M	M	19.821	18.917	11.400	M	M	8.251	10.796	7.820
18	5.408	14.367	M	25.105	M	18.745	19.792	M	23.664	10.245	6.747	8.852
19	11.111	14.046	M	20.550	M	27.419	26.915	M	22.336	M	M	8.630
20	11.319	15.782	7.403	M	M	32.039	26.233	M	17.176	7.271	M	M
21	9.836	11.204	M	M	M	30.085	18.888	M	20.971	4.562	M	7.587
22	4.408	12.507	10.790	M	19.474	M	22.862	24.934	19.518	14.585	M	2.811
23	11.417	M	17.615	M	14.492	M	19.868	22.661	19.472	9.342	M	7.939
24	10.775	16.439	23.414	M	26.752	M	35.216	19.053	18.492	14.396	M	6.791
25	5.719	12.131	18.393	23.968	16.814	M	M	22.229	M	M	M	8.482
26	9.286	9.360	M	24.355	30.986	M	M	19.920	M	11.432	M	4.849
27	12.214	7.056	13.906	25.251	28.091	M	M	M	M	13.065	M	3.252
28	10.736	15.670	18.240	22.275	20.473	M	M	20.673	M	9.006	10.222	5.256
29	M	M	7.151	26.534	13.295	27.273	M	26.930	M	M	10.170	11.192
30	12.975	M	14.417	19.278	6.112	18.258	M	19.592	M	M	9.954	10.767
31	13.403	M	6.398	M	19.452	M	M	M	M	14.002	M	8.667
AVERAGE VALUES	6.640	12.296	15.023	M	M	M	M	M	M	M	M	7.397
STANDARD DEVIATION	4.765	2.620	5.388	M	M	M	M	M	M	M	M	2.242

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATIONINSTRUMENTATION: EPPLEY LABORATORY PRECISION PYRANOMETER (MODEL 2)
SERIAL NO. 12516 F3

1979

DIRECT SOLAR COMPONENT
INTEGRATED DAILY VALUES, MEGAJOULES/(SQ. METER-DAY)

FORT COLLINS COLORADO
COLORADO STATE UNIVERSITY
DEPARTMENT OF ATMOSPHERIC SCIENCES

DAY	1	2	3	4	5	6	7	8	9	10	11	12
1	M	23.545	14.873	2.091	6.355	20.129	19.989	28.874	M	M	14.752	26.966
2	M	8.188	.241	17.174	M	25.009	16.852	M	M	M	29.917	11.502
3	4.403	29.088	19.805	9.625	M	20.300	28.136	M	M	M	8.361	2.606
4	4.995	18.982	33.535	M	M	16.127	22.299	39.173	M	32.361	M	3.175
5	17.572	25.572	25.635	M	19.357	14.040	21.433	37.944	M	29.569	.001	18.626
6	1.271	17.913	10.478	26.425	26.527	10.677	12.863	30.484	M	31.618	17.425	12.845
7	26.106	13.266	22.840	24.886	.250	.540	38.269	M	M	25.196	.866	.665
8	26.623	24.415	.263	35.566	.250	.294	24.779	M	M	24.977	21.347	17.037
9	4.147	M	22.136	26.178	.288	1.537	34.642	M	M	M	.006	24.872
10	14.992	10.503	35.655	.239	11.030	7.166	M	M	M	21.476	23.220	18.073
11	.794	21.317	35.994	.251	21.918	4.749	M	M	M	23.782	.856	2.758
12	.551	8.235	35.677	12.924	20.704	21.104	24.847	M	M	30.336	28.056	27.116
13	20.004	M	15.850	M	21.509	32.323	40.182	M	M	22.413	28.622	17.921
14	12.398	19.823	32.014	M	23.888	4.519	35.409	M	M	2.653	28.816	23.970
15	22.584	9.300	30.814	M	25.929	10.988	26.493	M	M	M	29.217	14.493
16	3.091	.001	M	M	M	8.435	18.486	M	M	M	29.097	19.382
17	10.628	30.966	M	M	11.832	5.999	4.369	M	M	1.595	28.361	14.318
18	1.678	24.540	M	30.514	M	8.761	17.437	M	36.391	9.204	7.715	27.085
19	20.849	16.617	M	19.490	M	16.355	28.208	M	31.032	M	M	26.224
20	26.163	29.309	.196	M	M	34.348	29.236	M	14.461	4.497	M	M
21	18.743	11.493	M	M	M	35.225	11.638	M	26.459	.524	M	18.942
22	4.159	15.216	3.164	M	9.323	M	15.703	28.879	26.282	29.241	M	.004
23	19.907	M	14.316	M	11.312	M	14.645	27.459	21.592	8.356	M	17.165
24	20.431	22.494	37.437	M	23.113	M	27.374	20.540	20.392	26.674	M	8.635
25	.058	10.064	22.884	25.117	8.408	M	M	28.927	M	M	M	19.829
26	9.569	3.743	M	21.810	36.705	M	M	23.189	M	21.721	M	2.944
27	27.362	3.007	6.276	22.299	28.486	M	M	M	M	25.865	M	0.000
28	18.231	17.589	17.808	13.300	12.564	M	M	19.981	M	7.385	25.757	.004
29	M	M	.589	26.693	2.490	29.587	M	37.454	M	M	28.170	24.701
30	23.062	M	15.698	17.096	.289	9.790	M	17.325	M	M	26.796	22.848
31	28.762	M	.764	M	6.648	M	M	M	M	28.049	M	23.181
AVERAGE	VALUES	13.898	16.607	18.198	M	M	M	M	M	M	M	14.930
STANDARD	DEVIATION	9.817	8.639	12.986	M	M	M	M	M	M	M	9.446

M MISSING DATA
E ESTIMATED DATA REFER TO DOCUMENTATION

INSTRUMENTATION: EPPLEY LABORATORY NORMAL INCIDENCE PYRHELIOMETER
SERIAL NO. 11095 E6

Table 53.