TABLE 2.—*Average daily totals and weekly means of solar radiation (direct diffuse) received on a horizontal surface*—Continued

DEPARTURES FROM WEEKLY NORMALS

| Week beginning— | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 1 | −38 | +55 | +8 | +60 | −6 | +46 | +28 | −2 | +21 | -------- | −43 | +4 | −7 | −13 | −12 | +27 | +25 | −25 | -------- |
| Jan. 8 | +58 | +72 | −12 | +62 | +33 | −70 | +27 | −1 | +72 | -------- | +15 | +6 | +79 | +17 | +19 | +61 | +70 | +3 | -------- |
| Jan. 15 | +45 | −6 | −40 | +22 | +49 | +7 | -------- | −10 | +60 | -------- | +47 | −7 | +5 | −17 | +5 | +10 | −6 | +30 | -------- |
| Jan. 22 | −14 | −65 | −47 | −25 | −47 | −63 | -------- | −17 | +19 | -------- | −19 | −53 | +143 | −33 | −30 | +20 | −45 | −37 | -------- |

ACCUMULATED DEPARTURES ON JAN. 28, 1942

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -------- | +357 | +392 | −637 | +833 | +203 | −560 | -------- | −210 | +1,204 | -------- | 0 | −350 | +1,540 | −322 | −126 | +826 | +308 | −203 | -------- |

TABLE 3.—*Pyrheliometric stations*

| Station | Under direction of— | N. latitude | W. longitude | Altitude | Instruments: Receiver | Instruments: Recorder | Remarks |
|---|---|---|---|---|---|---|---|
| | | ° ′ | ° ′ | *Feet* | | | |
| San Juan | U. S. Weather Bureau | 18 28 | 66 06 | 85 | Eppley | Modified potentiometer | Good exposure on narrow peninsula, but some interference from salt spray. Cooperation with Columbia University |
| New Orleans | Tulane University | 29 56 | 90 07 | 100 | do | L. & N. potentiometer | Good exposure; considerable cloudiness. |
| La Jolla | Scripps Institute of Oceanography. | 32 50 | 117 15 | 85 | do | Engelhard | Splendid exposure a few yards inland from Pacific Ocean. Early morning fogs prevail during part of year. |
| Riverside | University of California | 33 58 | 117 28 | 1,051 | do | do | Excellent exposure in midst of citrus fruit region. |
| Albuquerque | U. S. Weather Bureau | 35 05 | 106 30 | 5,314 | do | L. & N. potentiometer | At airport; dust at times. Station has highest elevation of this group. |
| Nashville | do | 36 07 | 86 41 | 602 | do | do | At airport with good exposure, but records vitiated by soft-coal smoke in winter. |
| Fresno | do | 36 43 | 119 49 | 330 | do | do | Good exposure at airport northern edge of city. The San Joaquin Valley has an exceedingly high percentage of sunshine. |
| Washington | do | 38 56 | 77 05 | 397 | do | Bristol potentiometer | Good exposure on second highest point in District of Columbia. 5½ miles northwest of United States Capitol. Some vitiation from city smoke. |
| New York | do | 40 46 | 73 58 | 180 | do | Engelhard | Fair exposure at Central Park Meteorological Observatory. Values vitiated by large city atmospheric contamination. |
| Lincoln | do | 40 50 | 96 45 | 1,225 | do | L. & N. potentiometer | Results very representative of the Great Plains area. Some dust. |
| Newport | Eppley Laboratory | 41 30 | 71 19 | 52 | do | do | Excellent location. |
| Chicago | U. S. Weather Bbreau | 41 47 | 87 25 | 688 | do | Engelhard | Good exposure on roof of Rosenwald Hall, University of Chicago. A great deal of smoke. |
| Blue Hill | Harvard University | 42 13 | 71 07 | 640 | do | Engelhard and L. & N. potentiometer. | Excellent exposure on high ridge 10 miles south of Boston. With northerly component winds, some smoke contamination from Boston. |
| Cambridge | Massachusetts Institute of Technology. | 42 22 | 71 06 | 31 | do | L. & N. potentiometer | Data used in studies of direct utilization of solar radiation for house heating under Cabot Fund. |
| Ithaca | Cornell University | 42 27 | 76 29 | 953 | do | do | Splendid site; data used by School of Agriculture. |
| Twin Falls | U. S. Bureau of Entomology | 42 29 | 114 25 | 4,300 | do | Engelhard | Good exposure on high plateau in rich farming country. Greatest elevation of any station here listed; exceeded only by Albuquerque where observations were recently begun. |
| Madison | U. S. W. B | 43 05 | 89 23 | 974 | do | L. & N. potentiometer | Excellent exposure, North Hall, University of Wisconsin. Rapid growth of city has added to atmospheric vitiation recently. |
| Bismarck | do | 46 47 | 100 48 | 1,664 | do | do | To be opened this Spring. Bismarck is one of the clearest of the northerly United States cities. |
| Friday Harbor | University of Washington | 48 32 | 123 01 | 15 | do | Engelhard | Good exposure 50 miles northwest of Seattle directly on ocean: considerable fog interference. |
| Fairbanks State College. | U. S. W. B | 64 52 | 147 39 | 500 | do | do | Most northerly station of this kind in the world. Very little artificial contamination. |
| | U. S. W. B | 40 48 | 77 52 | 1.280 | do | L. & N. potentiometer | Splendid exposure in farming country. |

## POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JANUARY 1942

[Communicated by Capt. J. F. Hellweg, U. S. Navy (Ret.), Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day, under longitude, latitude, area of spot or group, and spot count, are included assumed longitude of center of the disk, assumed latitude of center of the disk, total area of spots and groups, and total spot count

| Date | Eastern standard time | Mount Wilson group No. | Heliographic: Difference in longitude | Heliographic: Longitude | Heliographic: Latitude | Heliographic: Distance from center of disk | Area of spot or group | Spot count | Plate quality | Observatory |
|---|---|---|---|---|---|---|---|---|---|---|
| *1942* | *h m* | | ° | ° | ° | ° | | | | |
| Jan. 2 | 12 42 | 7351 | −75 | 153 | −11 | 75 | 194 | 3 | F | U. S. Naval. |
| | | 7350 | −53 | 175 | +8 | 54 | 73 | 1 | | |
| | | 7349 | −29 | 199 | −11 | 30 | 12 | 2 | | |
| | | 7349 | −24 | 204 | −8 | 25 | 12 | 2 | | |
| | | 7347 | +68 | 296 | −8 | 68 | 73 | 3 | | |
| | | | | (228) | (−3) | | 364 | 11 | | |

## POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JANUARY 1942—Continued

| Date | Eastern standard time | Mount Wilson group No. | Heliographic: Difference in longitude | Heliographic: Longitude | Heliographic: Latitude | Heliographic: Distance from center of disk | Area of spot or group | Spot count | Plate quality | Observatory |
|---|---|---|---|---|---|---|---|---|---|---|
| *1942* | *h m* | | ° | ° | ° | ° | | | | |
| 3 | 10 27 | 7353 | −78 | 138 | −6 | 78 | 24 | 1 | F | Do. |
| | | 7351 | −64 | 152 | −11 | 64 | 145 | 7 | | |
| | | 7352 | −60 | 156 | −7 | 60 | 24 | 1 | | |
| | | 7350 | −39 | 177 | +8 | 40 | 73 | 1 | | |
| | | 7349 | −15 | 201 | −11 | 17 | 48 | 5 | | |
| | | | | (216) | (−3) | | 314 | 15 | | |
| 4 | 13 5 | 7354 | −70 | 132 | −7 | 70 | 85 | 1 | G | Do. |
| | | 7353 | −67 | 135 | −5 | 67 | 48 | 5 | | |
| | | 7355 | −66 | 136 | −11 | 66 | 12 | 2 | | |
| | | 7351 | −48 | 154 | −11 | 49 | 170 | 6 | | |
| | | 7352 | −43 | 159 | −7 | 43 | 218 | 12 | | |
| | | 7350 | −26 | 176 | +8 | 28 | 73 | 9 | | |
| | | 7349 | +2 | 204 | −11 | 9 | 24 | 6 | | |
| | | | | (202) | (−3) | | 630 | 41 | | |

## POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JANUARY 1942—Continued

| Date | Eastern standard time | Mount Wilson group No. | Heliographic: Difference in longitude | Heliographic: Longitude | Heliographic: Latitude | Heliographic: Distance from center of disk | Area of spot or group | Spot count | Plate quality | Observatory |
|---|---|---|---|---|---|---|---|---|---|---|
| *1939* | *h m* | | ° | ° | ° | ° | | | | |
| 5 | 13 23 | 7356 | −75 | 113 | −13 | 75 | 48 | 4 | G | Do. |
| | | 7354 | −57 | 131 | −7 | 57 | 61 | 1 | | |
| | | 7353 | −52 | 136 | −5 | 52 | 24 | 2 | | |
| | | 7355 | −51 | 137 | −12 | 51 | 61 | 6 | | |
| | | 7351 | −35 | 153 | −11 | 36 | 145 | 13 | | |
| | | 7352 | −30 | 158 | −7 | 30 | 194 | 15 | | |
| | | 7350 | −12 | 176 | +9 | 17 | 48 | 6 | | |
| | | | | (188) | (−4) | | 581 | 47 | | |
| 6 | 11 15 | 7356 | −59 | 117 | −12 | 59 | 73 | 4 | F | Do. |
| | | 7354 | −47 | 129 | −7 | 47 | 73 | 2 | | |
| | | 7355 | −39 | 137 | −12 | 40 | 73 | 5 | | |
| | | 7353 | −38 | 138 | −5 | 38 | 97 | 8 | | |
| | | 7351 | −21 | 155 | −11 | 23 | 245 | 9 | | |
| | | 7352 | −17 | 159 | −8 | 18 | 145 | 8 | | |
| | | | | (176) | (−4) | | 706 | 36 | | |
| 8 | 12 32 | 7356 | −30 | 119 | −11 | 31 | 121 | 12 | G | Mt. Wilson. |
| | | 7356 | −27 | 122 | −7 | 27 | 121 | 13 | | |
| | | 7354 | −17 | 132 | −5 | 17 | 48 | 1 | | |
| | | 7355 | −10 | 139 | −11 | 12 | 242 | 18 | | |
| | | 7353 | −10 | 139 | −5 | 10 | 97 | 8 | | |
| | | 7351 | +8 | 157 | −11 | 11 | 73 | 5 | | |
| | | 7352 | +16 | 165 | −8 | 17 | 48 | 4 | | |
| | | | | (149) | (−4) | | 750 | 61 | | |
| 9 | 11 53 | 7356 | −20 | 117 | −12 | 22 | 145 | 12 | G | U. S. Naval. |
| | | 7356 | −13 | 124 | −9 | 14 | 291 | 18 | | |
| | | 7356 | −10 | 127 | −5 | 10 | 145 | 24 | | |
| | | 7354 | −5 | 132 | −5 | 5 | 36 | 4 | | |
| | | 7355 | +1 | 138 | −11 | 7 | 97 | 12 | | |
| | | 7353 | +7 | 144 | −5 | 8 | 24 | 3 | | |
| | | 7351 | +20 | 157 | −11 | 21 | 48 | 7 | | |
| | | 7357 | +20 | 157 | −7 | 20 | 12 | 1 | | |
| | | 7352 | +28 | 165 | −8 | 28 | 24 | 3 | | |
| | | | | (137) | (−4) | | 822 | 84 | | |
| 10 | 10 37 | 7356 | −7 | 117 | −12 | 11 | 121 | 13 | VG | Do. |
| | | 7356 | −1 | 123 | −9 | 6 | 242 | 24 | | |
| | | 7356 | +4 | 128 | −6 | 4 | 194 | 30 | | |
| | | 7356 | +5 | 129 | −9 | 7 | 24 | 1 | | |
| | | 7354 | +9 | 133 | −6 | 10 | 24 | 1 | | |
| | | 7355 | +15 | 139 | −11 | 17 | 24 | 4 | | |
| | | 7353 | +20 | 144 | −5 | 20 | 24 | 6 | | |
| | | 7351 | +34 | 158 | −11 | 35 | 24 | 3 | | |
| | | 7357 | +36 | 160 | −7 | 37 | 6 | 1 | | |
| | | | | (124) | (−4) | | 683 | 83 | | |
| 11 | 13 31 | 7356 | +10 | 119 | −11 | 12 | 97 | 5 | P | Do. |
| | | 7356 | +17 | 126 | −9 | 18 | 364 | 11 | | |
| | | 7356 | +22 | 131 | −7 | 23 | 194 | 25 | | |
| | | 7355 | +28 | 137 | −11 | 29 | 73 | 4 | | |
| | | | | (109) | (−4) | | 728 | 45 | | |
| 12 | 11 12 | 7356 | +21 | 118 | −11 | 22 | 24 | 4 | VG | Do. |
| | | 7356 | +27 | 124 | −9 | 28 | 339 | 15 | | |
| | | 7356 | +28 | 125 | −5 | 28 | 24 | 9 | | |
| | | 7356 | +34 | 131 | −7 | 34 | 242 | 26 | | |
| | | 7355 | +40 | 137 | −11 | 40 | 48 | 8 | | |
| | | | | (97) | (−4) | | 677 | 62 | | |
| 13 | 11 25 | 7358 | −80 | 4 | +13 | 80 | 291 | 1 | F | Do. |
| | | 7356 | +35 | 119 | −11 | 36 | 73 | 6 | | |
| | | 7356 | +42 | 126 | −9 | 42 | 339 | 17 | | |
| | | 7356 | +49 | 133 | −6 | 49 | 145 | 12 | | |
| | | 7355 | +52 | 136 | −12 | 52 | 24 | 4 | | |
| | | | | (84) | (−4) | | 872 | 40 | | |
| 14 | 10 54 | 7358 | −68 | 3 | +12 | 70 | 339 | 2 | F | U. S. Naval. |
| | | 7356 | +48 | 119 | −12 | 49 | 48 | 3 | | |
| | | 7356 | +54 | 125 | −9 | 54 | 291 | 10 | | |
| | | 7356 | +65 | 136 | −4 | 65 | 121 | 4 | | |
| | | | | (71) | (−4) | | 799 | 19 | | |
| 15 | 11 7 | 7358 | −54 | 4 | +12 | 57 | 339 | 2 | G | Do. |
| | | 7356 | +61 | 119 | −11 | 61 | 24 | 1 | | |
| | | 7356 | +67 | 125 | −9 | 67 | 436 | 5 | | |
| | | 7356 | +79 | 137 | −4 | 79 | 48 | 2 | | |
| | | | | (58) | (−5) | | 847 | 10 | | |

## POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JANUARY 1942—Continued

| Date | Eastern standard time | Mount Wilson group No. | Heliographic: Difference in longitude | Heliographic: Longitude | Heliographic: Latitude | Heliographic: Distance from center of disk | Area of spot or group | Spot count | Plate quality | Observatory |
|---|---|---|---|---|---|---|---|---|---|---|
| | *h m* | | ° | ° | ° | ° | | | | |
| 16 | 11 12 | 7358 | −40 | 5 | +12 | 43 | 315 | 13 | G | Mt. Wilson. |
| | | 7356 | +81 | 126 | −9 | 81 | 291 | 2 | | |
| | | | | (45) | (−5) | | 606 | 15 | | |
| 17 | 10 42 | • | −53 | 339 | −14 | 54 | 12 | 3 | VG | U. S. Naval. |
| | | 7358 | −27 | 5 | +12 | 31 | 327 | 8 | | |
| | | | | (32) | (−5) | | 339 | 11 | | |
| 18 | 12 39 | 7359 | −78 | 300 | +13 | 79 | 97 | 2 | G | Do. |
| | | 7358 | −13 | 5 | +12 | 21 | 242 | 6 | | |
| | | | | (18) | (−5) | | 339 | 8 | | |
| 19 | 11 10 | 7359 | −64 | 301 | +13 | 67 | 97 | 6 | VG | Mt. Wilson. |
| | | 7358 | −1 | 4 | +12 | 17 | 194 | 1 | | |
| | | | | (5) | (−5) | | 291 | 7 | | |
| 20 | 11 11 | 7359 | −51 | 301 | +12 | 53 | 48 | 12 | G | U. S. Naval. |
| | | 7359 | −50 | 302 | +13 | 52 | 97 | 1 | | |
| | | 7358 | +12 | 4 | +12 | 22 | 194 | 5 | | |
| | | | | (352) | (−5) | | 339 | 18 | | |
| 21 | 14 20 | 7359 | −36 | 301 | +12 | 40 | 24 | 6 | G | Do. |
| | | 7359 | −35 | 302 | +13 | 40 | 73 | 1 | | |
| | | 7358 | +26 | 3 | +12 | 30 | 145 | 3 | | |
| | | | | (337) | (−5) | | 242 | 10 | | |
| 22 | 10 56 | 7359 | −23 | 303 | +13 | 30 | 73 | 6 | G | Do. |
| | | • | +35 | 1 | +15 | 40 | 24 | 3 | | |
| | | 7358 | +39 | 5 | +12 | 43 | 97 | 5 | | |
| | | | | (326) | (−5) | | 194 | 14 | | |
| 23 | 11 43 | 7359 | −9 | 303 | +13 | 20 | 61 | 1 | VG | Do. |
| | | 7360 | +17 | 329 | +10 | 23 | 133 | 17 | | |
| | | 7358 | +52 | 4 | +12 | 54 | 73 | 2 | | |
| | | | | (312) | (−5) | | 267 | 20 | | |
| 24 | 10 37 | 7359 | +4 | 304 | +13 | 18 | 48 | 1 | VG | U. S. Naval. |
| | | 7360 | +30 | 330 | +11 | 34 | 170 | 21 | | |
| | | 7358 | +65 | 5 | +12 | 67 | 48 | 1 | | |
| | | | | (300) | (−5) | | 266 | 23 | | |
| 25 | 12 12 | 7359 | +17 | 303 | +14 | 26 | 24 | 3 | VG | Do. |
| | | 7360 | +44 | 330 | +11 | 48 | 145 | 4 | | |
| | | 7358 | +79 | 5 | +12 | 80 | 48 | 1 | | |
| | | | | (286) | (−6) | | 217 | 8 | | |
| 26 | 13 1 | • | −4 | 268 | −4 | 5 | 12 | 3 | G | Mt. Wilson. |
| | | 7360 | +60 | 332 | +12 | 62 | 97 | 2 | | |
| | | | | (272) | (−6) | | 109 | 5 | | |
| 27 | 13 29 | 7360 | +78 | 337 | +13 | 79 | 73 | 1 | P | Do. |
| | | | | (259) | (−6) | | 73 | 1 | | |
| 28 | 11 4 | 7362 | −86 | 161 | −8 | 86 | 48 | 1 | F | Do. |
| | | | | (247) | (−6) | | 48 | 1 | | |
| 29 | 11 16 | 7362 | −72 | 162 | −8 | 72 | 145 | 11 | F | U. S. Naval. |
| | | | | (234) | (−6) | | 145 | 11 | | |
| 30 | 12 37 | 7362 | −59 | 161 | −9 | 59 | 170 | 7 | F | Do. |
| | | 7365 | +39 | 259 | −14 | 40 | 24 | 2 | | |
| | | | | (220) | (−6) | | 194 | 9 | | |
| 31 | 11 52 | 7364 | −79 | 128 | −9 | 79 | 48 | 2 | G | Mt. Wilson. |
| | | 7362 | −45 | 162 | −8 | 45 | 242 | 7 | | |
| | | | | (207) | (−6) | | 290 | 9 | | |

Mean daily area for 29 days=439.

•=Not numbered.
VG=Very good; G=good; F=fair; P=poor.

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