POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard civil time	Heliographic: Diff. long.	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day
1930	h m	°	°	°			
Jan. 14 (Perkins)	16 25	−48.2	270.0	+15.3		465	
		+30.1	348.3	−2.5	211		
		+32.4	350.6	−4.9	146		
		+33.5	351.7	+6.6	1,234		2,056
Jan. 15 (Perkins)	13 19	−58.0	248.8	+13.7	93		
		−46.5	260.3	−14.6		183	
		−34.4	272.4	+14.8		1,048	
		−9.1	297.7	−12.9		93	
		+41.5	348.3	−3.0	546		
		+44.0	350.8	−5.3	217		
		+45.6	352.4	+6.4	1,203		3,383
Jan. 16 (Naval Observatory).	11 20	−80.5	214.5	+11.5	123		
		−56.0	239.0	−10.0	6		
		−46.0	249.0	+14.5		62	
		−31.5	263.5	−13.5		77	
		−22.5	272.5	+15.0		772	
		+0.5	295.5	−12.5		22	
		+25.0	320.0	−17.0		15	
		+41.5	336.5	+18.0		62	
		+44.0	339.0	+11.0		77	
		+55.0	350.0	−3.0		417	
		+58.0	353.0	+6.5	386		2,019
Jan. 17 (Naval Observatory).	11 31	−77.0	204.7	+14.5		154	
		−68.5	213.2	+10.5	93		
		−42.0	239.7	−10.5	6		
		−32.0	249.7	+14.0	46		
		−19.5	262.2	−13.5		77	
		−8.5	273.2	+14.5		694	
		+14.0	295.7	−12.0		40	
		+40.5	322.2	−15.5		46	
		+68.5	350.2	−2.5		324	
		+71.0	352.7	+6.5	370		1,850
Jan. 18 (Mount Wilson)	12 35	−73.0	195.0	+16.0	63		
		−60.0	208.0	+14.0		19	
		−52.0	216.0	+10.0	58		
		−25.0	243.0	−11.0	2		
		−20.0	248.0	+13.0		23	
		−5.0	263.0	−15.0		21	
		+5.0	273.0	+13.0		458	
		+28.0	296.0	−13.0		2	
		+55.0	323.0	−18.0		18	
		+85.0	353.0	−4.0	249		
		+87.0	355.0	−5.0	52		
		+88.0	356.0	+6.0	73		1,038
Jan. 19 (Naval Observatory).	11 40	−51.0	204.3	+14.0		231	
		−6.5	248.8	+13.5	6		
		+6.5	261.8	−13.5		77	
		+19.5	274.8	+14.0		525	839
Jan. 20 (Naval Observatory).	11 29	−37.5	204.7	+14.0		201	
		+6.5	248.7	+13.5	6		
		+12.5	254.7	−15.5	15		
		+33.0	275.2	+14.0		525	
		+84.0	326.2	−14.0	62		809
Jan. 21 (Mount Wilson)	13 15	−80.0	148.1	+12.0		142	
		−35.0	193.1	+15.0		87	
		−23.0	205.1	+14.0		10	
		−14.0	214.1	+10.0	4		
		+20.0	248.1	+13.0	15		
		+27.0	255.1	−15.0		3	
		+45.0	273.1	+13.0		221	482
Jan. 22 (Mount Wilson)	12 30	−70.0	145.4	+12.0		408	
		−22.0	193.4	+15.0		42	
		−10.0	205.4	+14.0		15	
		−1.0	214.4	+11.0	1		
		+34.0	249.4	+14.0	4		
		+62.0	277.4	+13.0		63	533
Jan. 23 (Naval Observatory).	11 31	−54.0	148.7	+12.5		463	
		−3.5	199.2	+12.0		108	
		+74.0	276.7	+12.5		154	725

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard civil time	Heliographic: Diff. long.	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day
1930	h m	°	°	°			
Jan. 24 (Naval Observatory).	11 30	−41.5	148.1	+12.5		370	
		+6.0	195.6	+15.0		77	
		+48.5	238.1	−15.0		12	459
Jan. 25 (Naval Observatory).	11 33	−70.0	106.4	+17.0	31		
		−28.5	147.9	+12.0		293	
		+19.0	195.4	+15.0		62	386
Jan. 26 (Naval Observatory).	11 34	−43.5	119.7	+17.0	12		
		−14.5	148.7	+12.0		247	
		+32.5	195.7	+14.0		77	336
Jan. 27 (Yerkes)	16 44	−29.0	118.3	+17.0	16		
		−26.0	121.3	+17.5	20		
		+1.5	148.8	+12.5		384	420
Jan. 28 (Naval Observatory).	14 3	−74.5	61.0	+7.0	123		
		−15.5	120.0	+16.5		46	
		+13.0	148.5	+12.0		185	354
Jan. 29 (Mount Wilson)	13 35	−62.0	60.7	+8.0	101		
		−26.0	96.7	+7.0		11	
		−4.0	118.7	+17.0		69	
		+26.0	148.7	+11.0		37	
		+45.0	167.7	+4.0	5		223
Jan. 30 (Mount Wilson)	13 45	−81.0	28.4	+21.0	189		
		−47.0	62.4	+7.0	72		
		−12.0	97.4	+7.0		9	
		+11.0	120.4	+17.0		147	
		+40.0	149.4	+11.0		99	
		+61.0	170.4	+5.0		28	544
Jan. 31 (Naval Observatory).	11 58	−61.5	35.7	+19.5		324	
		−34.5	62.7	+6.5	123		
		+21.5	118.7	+17.5		201	
		+53.0	150.2	+11.0		170	
		+73.0	170.2	+5.5		93	911
Mean daily area for January							962

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR JANUARY, 1930 [1]

[Data furnished through the courtesy of Prof. W. Brunner, University of Zurich, Switzerland]

January, 1930	Relative numbers	January, 1930	Relative numbers	January, 1930	Relative numbers
1	37	11	Ec 65	21	d 76
2	d 42	12	bbd 67	22	60
3	55	13	a 91	23	65
4	38	14	89	24	a 49
5	49	15		25	39
6	d 55	16		26	34
7	a 62	17	107	27	Eac 31
8	a 68	18	b 137	28	
9	62	19	97	29	62
10	57	20	63	30	d
				31	62

Mean, 27 days=63.7.

[1] Dependent alone on observations at Zurich and its station at Arosa.
a=Passage of an average-sized group through the central meridian.
b=Passage of a large group through the central meridian.
c=New formation of a large or average-sized center of activity: E, on the eastern part of the sun's disk; W, on the western part; M, in the central zone.
d=Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

By RICHMOND T. ZOCH

Free-air temperatures were below normal at all stations except Due West, where they were above normal. (Table 1.) At most levels the negative departures at Ellendale, Broken Arrow, and Groesbeck were the greatest on record. This is significant in that the surface temperatures at Broken Arrow and Groesbeck show that these stations had the coldest Januarys on record, both stations establishing new absolute minimum temperatures. However, the mean temperature at Ellendale was slightly above the mean temperature of that station for January, 1929. In marked contrast, Due West had the warmest January on record and established a new absolute maximum for that month.

Free-air relative humidities were above normal at all levels at Broken Arrow, Ellendale, and Royal Center but below normal at most levels at Groesbeck and Due West. Vapor pressures were below normal with very few exceptions.

The free-air conditions, i. e., temperature, relative humidity, vapor pressure, and resultant winds over