PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR NOVEMBER 1939

[Dependent alone on observations at Zurich]

Data furnished through the courtesy of Prof. W. Brunner, Eidgen, Sternwarte, Zurich, Switzerland]

November 1939	Relative numbers	November 1939	Relative numbers	November 1939	Relative numbers	November 1939	Relative numbers	November 1939	Relative numbers	November 1939	Relative numbers
1	*a* --	11	*Eac* --	21	*d* 67	9	*Ec* 40	19	*Mc* 75	29	*a* 43
2	*Eac*? --	12	82	22	**a* 65	10	*Mc* 46	20	50	30	43
3	72	13	--	23	62						
4	61	14	*Eac* 98	24	*Ec* 61						
5	*a* 58	15	*a* 87	25	58						
6	62	16	*d* 111	26	---						
7	*a* 66	17	---	27	*Mac* 62						
8	*Ec* 37	18	*b* 103	28	61						

Mean, 24 days=65.4.
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 group developing into a middle-sized or large center of activity; E, on the eastern part of the sun's disk; W, on the western part; M, on the central-circle zone.
d=Entrance of a large or average-sized center of activity on the east limb.
*=Chur.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE in charge]

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During November 982 radiosonde and airplane observations were made in the United States, Alaska, Canal Zone, Hawaii, and the West Indies. Of these, 819 were radiosondes, with 96, 88, 71, and 36 percent reaching 5, 10, 15, and 18 kilometers, respectively. Tables 1 and 1a show these observations, while pressures, temperatures, and resultant winds for 5,000 feet (1.5 kilometers), 3, 4, and 5 kilometers, are shown on charts VIII, IX, X and XI, respectively. Chart XII gives the isentropic data for November; tables 2 and 3 list the winds; and table 4 indicates the tropopauses. Effective November 15, 1939, the hour of all radiosonde observations was advanced to 1 a. m., 75th meridian time.

The mean free-air pressures at 5,000 feet (chart VIII) were lowest over the northeastern United States (Mount Washington, N. H., 840 millibars), the northern Great Lakes region (Sault Ste. Marie, Mich., 845 millibars), and thence northeastward over Canada (Newfoundland, 833 millibars). Pressure was lowest, however, in Alaska (Fairbanks and Juneau, 825 and 832 millibars, respectively). Mean pressures were relatively low along the Pacific coast, but the highest occurred over the central Rocky Mountain region, the South, and the Southeast (Durango, Colo., San Antonio, Tex., and Pensacola, Fla., 855 millibars).

At 3 kilometers (chart IX) the distribution showed a statistical LOW over Sault Ste. Marie, Mich., (699 millibars), and a HIGH over Pensacola, Fla. (714 millibars). Mean pressure continued relatively lower over the Pacific slope, but again the lowest pressure of the month occurred over Alaska (Fairbanks, 678 millibars).

Charts X and XI show the mean pressures at 4 and 5 kilometers, respectively. In the United States the lowest pressure persisted over Sault Ste. Marie, Mich., while the southern high-pressure area became definitely centered over Miami, Fla. Low pressure continued over Alaska, with Fairbanks having the lowest during November (592 and 514 millibars at 4 and 5 kilometers, respectively).

Above 5 kilometers the lowest pressures for the country were located over Sault Ste. Marie, Mich.; the pressures at Buffalo, N. Y., being only slightly higher. However, the lowest pressures noted during the month still persisted over the Alaskan stations, where Fairbanks was consistently lower than Juneau at all levels (decreasing steadily from a difference of 11 millibars less at 6 kilometers to 3 millibars less at 15 kilometers). The highest pressure in all upper levels prevailed at Miami, Fla., although relatively high pressures were found over the Southwest.

In the lower levels November mean free-air pressures were higher than during the preceding month. Maximum differences were noted at the surface, but these decreased slowly with altitude until no differences between the 2 months existed at 1.5 and 2 kilometers over the East and Southeast; at 2.5, 3, and 4 kilometers over the South, Southwest and Pacific States; and from 6 to 11 kilometers over the northern Rocky Mountain region. Above these levels the November pressures were lower than during the preceding month. This situation was particularly outstanding at 8, 9, 10, and 11 kilometers, where, in several instances, the current month was as much as 10 millibars lower. Above these levels the pressure differences decreased with altitude until the November pressure was from 1 to 2 millibars less than during October.

At stations where radiosonde observations have been conducted for a full year a comparison of November pressures with those recorded in the corresponding month of 1938 showed that consistently higher pressures prevailed during the current month at all levels over Omaha, Nebr., and Bismarck, N. Dak., (the latter being compared with Fargo, N. Dak.) But Nashville, Tenn., Okland, Calif., Oklahoma City, Okla., and Sault Ste. Marie, Mich., showed current pressures to be higher at all levels up to 4, 5, 6, and 9 kilometers, respectively, and lower than in 1938 at all levels above. At Washington, D. C., the current year and month showed lower pressures above 2 kilometers.

Mean relative humidity for November was generally high in the lower levels and, in some cases, continued into the upper levels. High humidity at all levels was noted over Sault Ste. Marie, Mich., Washington, D. C., Miami, Fla., Buffalo, N. Y., and Shreveport, La., while relative humidities were lowest over Oakland, Calif., San Diego, Calif., Bismarck, N. Dak., Medford, Oreg., and Oklahoma City, Okla. Juneau, Alaska, recorded the greatest percentage of mean relative humidities at all levels.

In the United States the temperatures at 1.5 kilometers (chart VIII) were lowest over Sault Ste. Marie, Mich., and highest over Miami, Fla., and San Diego, Calif. At this level the temperature over all of the country, except the Great Lakes region and New England, was above freezing (0° C.). However, at Fairbanks and Juneau, Alaska, the lowest temperatures were recorded (−12.6° C. and −4.5° C., respectively). Similar conditions prevailed at 3, 4, and 5 kilometers (charts IX, X, and XI, respectively), with the exception that Miami, Fla., became considerably warmer than San Diego, Calif., and freezing temperatures spread farther over the South.