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(Form 1008—Met'l.)

DEPARTMENT OF AGRICULTURE.

(WEATHER BUREAU.)

VOLUNTARY OBSERVER'S METEOROLOGICAL RECORD, at Salem

County Roanoke, *State* Va, *for* November, *189*1.

Latitude ....° ....', *Longitude* ....° ....', *Height above sea* .... *feet.*

Day of Month.	Temperature. 7 a. m. 8.30 a.m. Dry Bulb.*	2 p. m. Dry Bulb.*	9 p. m. 8.30 p.m. Dry Bulb.*	(7+2+9+9)÷4 Mean.	Max.	Min.	Precipitation. Time of— Beginning.	Ending.	Rainfall.	Melted Snow.	Snowfall.	Wind. 7 a. m. Dir. From.	Force 0-10.	2 p. m. Dir. From.	Force 0-10.	9 p. m. Dir. From.	Force 0-10.	Clouds (Tenths.) 7 a. m. 0-10.	2 p. m. 0-10.	9 p. m. 0-10.	Weather for Day.	Mean Temp. (max. & min.)
1	60.5		56.0	58.2	66.1	47.1																56
2	51.		45.0	48.0	57.1	42.2																50
3	35.7		45.5	40.6	49.4	31.1																40
4	46.3		46.0	46.2	54.3	35.5																45
5	44.		50.0	47.0	52.5	40.0																46
6	47.5		43.5	45.5	54.3	38.2																46
7	40.		50.0	45.0	59.0	31.1																45
8	44.8		56.0	50.4	64.3	35.1																50
9	45.5		59.0	52.3	68.5	38.0																53
10	52.1		60.0	57.6	63.5	51.6	8.30 a.m.	10 p.m.	.98													58
11	54.2		54.0	54.1	65.0	47.3																56
12	48.0		48.0	48.0	58.5	40.0																49
13	42.0		46.5	44.2	56.5	33.0																44
14	39.2		49.0	44.1	60.5	34.4																47
15	46.5		50.0	48.2	56.6	37.5																48
16	41.0		53.1	47.1	59.1	38.2	4.15 p.m.															48
17	33.5		29.3	42.4	56.0	27.5		night	.02													42
18	29.5		27.5	28.5	41.6	18.5																30
19	27.5		36.5	32.0	45.0	18.3																32
20	38.5		31.0	34.8	58.0	28.0																43
21	46.5		50.7	48.6	55.0	38.5	9 a.m.															42
22	54.1		60.0	55.6	62.4	46.1																54
23	57.0		39.0	47.0	62.0	35.2		9 a.m.	1.52													48
24	46.1		48.1	47.1	59.2	37.6																48
25	42.5		46.0	44.3	55.1	37.5																46
26	42.4		45.5	43.9	46.6	39.4	8 a.m.															43
27	45.4		48.0	46.7	55.5	37.8		night	.01													47
28	49.0		47.2	48.1	58.2	40.0																49
29	30.5		30.0	30.3	36.1	24.5	S night	12 m		.12	2.9											30
30	31.0		32.0	31.5	44.0	22.5																33
31																						
Sum.	~~1335.5~~		1382.4	1359.3	*1677 ~~1666.4~~	1071*			2.53	.12	2.9											1368
Mean.	44.5		46.1 ~~1382.4~~	45.3	55.9 ~~55.6~~	35.7			0.084	0.004												45.6

SUMMARY.

Highest temperature 68.5 on 9th

Lowest temperature 18.3 " 19th

Mean temperature (7+2+9+9÷4) ~~45.3~~

Mean temperature (max. and min.÷2) 45.6

Total precipitation 2.65 in

Greatest precipitation in 24 consecutive hours ....

Prevailing direction of wind ....

Dates of thunder storms ....

Dates of hail ....

Dates of frost { *Light* 4th 10th 14th 18th 28th; *Killing* 3rd 7th 8th }

Dates of auroras ....

Dates of halos { *Solar* ....; *Lunar* .... }

Number of days clear ....

Number of days fair ....

Number of days cloudy ....

Number of days .01 inch or more rain or melted snow fell 5

INSTRUMENTS.

Dry thermometer, maker ...., *No.* ....

Max. " " ...., " ....

Min. " " ...., " ....

Kind of rain gauge ....

Height of thermometer above the ground 1200 *feet.*

Height of rain gauge above the ground 3 "

* Sums of nearest whole numbers, as used in printed monthly reports

P. G. Wills

Voluntary Observer.

Examined & corrected.

J. N. Ryker.

INSTRUCTIONS FOR FILLING UP THIS FORM.

On this side of the form there is an opportunity to enter the most important meteorological observations, but if any observer desires to record the barometer reading, wet-bulb, dew-point, and relative humidity, in addition, there will be found appropriate columns on the other side. If an observer has the time to make readings three times each day they should be made at 7 a. m., 2 p. m., and 9 p. m., since it has been found that the mean temperature is best obtained from such records, and besides, the 7 a. m. is very near the coolest part of the day and the 2 p. m. the hottest. If observations can be made but twice each day, the hours should be 9 a. m. and 9 p. m., or 8 a. m. and 8 p. m. If records are made but twice each day, they may be entered in the columns for 7 a. m. and 2 p. m., *care being taken to change the hour at the head of the column.* If self-registering thermometers are used, but one observation a day need be taken. This observation should, however, be taken at or after sunset. The readings of the self-registering maximum and minimum thermometers should invariably be recorded *before* the instruments are set. Measure precipitation as soon as possible after the rain, snow, etc., ceases. In the column for rainfall, enter only the rain as measured in the gauge, though if heavy snow (half rain) falls and is not blown out of the gauge, it may be entered as "rainfall." If snow has been melted, the amount of water should be entered in the column headed "melted snow," and, in addition, the amount of unmelted snow should be entered under "snowfall." Precipitation too small to measure should be entered "trace." If the snow is not melted one tenth of the depth of snow should not be entered in either of the columns.

If observers estimate the force of the wind, it may be best done on the scale 0 to 10, as follows:

0. Calm.
1. Very light breeze.... 2 miles per hour.
2. Gentle breeze.... 4 miles per hour.
3. Fresh breeze .... 12 " "
4. Strong wind .... 20 miles per hour.
5. High wind .... 35 " " "
6. Gale .... 45 " " "
7. Strong gale .... 60 miles per hour.
8. Violent gale .... 75 " " "
9. Hurricane .... 90 " " "

Under "clouds," if the observer desires, there may be entered the kind as well as amount, thus: Cu. indicating cirrus clouds covering $\frac{3}{10}$ of the sky.

Under "weather for day" enter clear, fair, or cloudy, according as the observer would sum up the clouds for the day, thus: if the sum of the clouds at the three observations aggregate nine tenths, or less, the day will be recorded as clear, ten to twenty-one tenths fair, twenty-two to thirty tenths cloudy.

To name a day as rainy there should be at least .01 precipitation.

If observations are made twice each day the mean temperature for the day will be found by adding the two together and dividing by two. The same rule is applied to maximum and minimum temperature. To find the mean temperature of the day from three observations is found as follows:

7 a. m.=50°, 2 p. m.=65°, 9 p. m.=60°, then—
50+65+60+60÷4=58.7 mean for the day.

The mean temperature for the month will be found by adding all the daily means together and dividing by the number of days in the month. Or the means for each observation may be made, then a final mean of these means may be taken. Obviously, these two means should agree. In the columns for "precipitation" enter at the foot of each column only the total amount, and do not divide this by the number of days in the month.

It is optional with the observer whether the summary is filled up or not.

A "light" frost is one which does no damage to vegetation, a "killing" frost is destructive to vegetation and the staple crops.

* The minimum thermometer may be used as a dry bulb, exposed, or ordinary thermometer, by reading the top or right-hand end of the alcohol column.

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