U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

LOCAL CLIMATOLOGICAL DATA

WITH COMPARATIVE DATA

1954

IDAHO FALLS 46 W, IDAHO

NARRATIVE CLIMATOLOGICAL SUMMARY

The National Reactor Testing Station (NRTS) covers about 680 square miles of the upper Snake River Plain. The most important topographic features are the northeast-southwest orientation of the Plain, and the Continental Divide to the north and east. About 90 percent of the time surface winds are either wouthwesterly or northeasterly. The Divide prevents the invasion of many of the cold continental air masses in winter. All air masses that enter the Plain must first cross a mountain barrier, regardless of the direction from which they enter. Because they are subject to lifting, these masses usually precipitate moisture over the mountains, and enter the Plain sufficiently dry to give the region its desert-like characteristics.

Still another important topographic effect is due to the Lemhi Range just west of the NRTS. The winds aloft are mostly westerly, and this places the NRTS in a region of descending air currents. The resulting drying is evidenced as follows:

1) The annual precipitation totals on the NRTS are only about half as much as at other stations on the Plain, such as Pocatello and Idaho Falls.

2) Clear skies frequently are observed over the NRTS when it is cloudy elsewhere over the Plain.

3) The snow line often is observed in winter between the NRTS and Idaho Falls.

4) Even major storms are observed often to arrive sooner at Idaho Falls, (45 miles east) than at the NRTS. They usually remain longer at Idaho Falls, as well, and almost always cause more precipitation there than at the NRTS.

The dryness and the infrequency of low cloudiness permit intense solar heating of the ground during the day, and rapid radiational cooling at night, which results in a very large daily range of temperature. The average range is greatest (about 37° F.) in summer and least (about 23° F.) in winter. Summers are especially pleasant because of the dryness and the cool evenings. The dryness also takes much of the discomfort out of winter cold spells, as do the sunny skies and the absence of strong winds accompanying these spells.

Surface temperature inversions are present for at least a few hours almost every day of the year. The maximum depth attained by the nocturnal inversion is thought to be about 2,000 feet on the average. They are present in the lower 250 feet a little more than half of th time for the year as a whole, although snow cover makes a great difference. With snow cover they frequently persist for several consecutive days.

There is a strong tendency for up-valley flow (southwest wind) during the day and down-valley flow (northeast wind) at night. From diurnal wind direction frequencies it can be seen that the valley wind tendency is most pronounced at the time of maximum temperature, and the mountain wind at the time of minimum. The local effect is sometimes countered and sometimes augmented by the pressure gradient, or the larger scale features of the wind flow pattern. Frequently the local effects dominate the wind flow near the ground in the face of strongly opposing pressure forces.

The heaviest precipitation falls as scattered rain showers during the warmer months, and the rain from a single passing shower may in a matter of minutes exceed considerably the normal total for the month in which it occurs. Yet two or three months may pass in summer without a single shower passing the station. Despite this extreme variability annual totals over the NRTS have not varied greatly from year to year or from place to place. One inch of rainfall in an hour is about the masimum intensity to be expected, and two inches in 24 hours are not likely to be exceeded. Maximum

(Continued on last page)

LATITUDE 43° 32' N
LONGITUDE 112° 57' W
ELEVATION (ground) 4933 feet

METEOROLOGICAL DATA FOR THE CURRENT YEAR

IDAHO FALLS, 46 W, IDA.
CENTRAL FACILITIES
1954

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail: Total	Greatest in 24 hrs.	Date	Relative humidity				Wind: Average hourly speed	Prevailing direction	Maximum Hourly Average: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 inch or more	Thunderstorms &	Heavy fog	Temperatures: Maximum: 90° and above	32° and below	Minimum: 32° and below	Zero and below
JAN.	33.6	13.9	23.8	44	30	- 7	20	1273	0.51	0.40	23	4.0	3.2	23					11.3	SW	38	SW	23						6	1	0		0	14	30	5
FEB.	41.7	17.9	29.8	49	23	7	10#	981	0.87	0.54	12-13	8.2	5.4	12-13					8.0	WSW	34	WSW	28						4	2	0		0	1	27	0
MAR.	42.0	17.4	29.7	55	7	- 2	13	1087	0.55	0.27	9	3.7	1.8	11					10.9	WSW	38	WSW	27						6	1	0		0	4	30	2
APR.	60.0	27.9	44.0	73	17	10	10	621	0.46	0.26	27-28	T	T	30#					12.8	WSW	39	WSW	1						5	0	1		0	0	18	0
MAY	71.2	35.9	53.6	91	19	18	2	352	0.45	0.27	21-22	0.0	0.0						10.0	WSW	37	W	26						5	0	0		1	0	10	0
JUN.	71.8	40.6	56.2	95	23#	26	2	284	2.74	1.73	9-10	T	T	14#					11.4	WSW	35	WSW	16#						8	0	1		4	0	5	0
JUL.	89.3	50.5	69.9	99	13#	33	23	20	0.16	0.10	15	0.0	0.0						9.4	WSW	32	WSW	21						3	0	1		19	0	0	0
AUG.	83.0	44.5	63.8	99	2	28	27	96	0.39	0.21	12	0.0	0.0						9.7	WSW	30	WSW	31						4	0	3		7	0	1	0
SEP.	74.9	34.2	54.6	90	1	18	30	311	0.15	0.12	23	T	T	29					8.1	SW	30	SW	28						2	0	0		1	0	13	0
OCT.	60.7	21.6	41.2	76	7	9	27#	730	0.07	0.05	23	T	T	25#					7.3	SW	44	WSW	11						2	0	0		0	0	27	0
NOV.	50.7	19.4	35.1	63	10	- 2	30	890	0.65	0.51	15-16	0.0	0.0						4.9	SW	24	SW	17						4	0	0		0	2	27	1
DEC.	30.2	3.0	16.6	42	6	-17	27	1492	0.40	0.16	3	2.7	1.0	30-31					4.9	N	37	SW	31						5	1	0		0	17	30	18
Year	59.1	27.1	43.2	99	AUG. 2#	-17	DEC. 27	8137	7.40	1.73	JUN. 9-10	18.6	5.4	FEB. 12-13					9.1	WSW	44	WSW	OCT. 11						54	5	6		32	38	218	26

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal degree days	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Sleet, Hail: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity				Wind: Mean hourly speed	Prevailing direction	Maximum Hourly Average: Speed	Direction	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 inch or more	Thunderstorms &	Heavy fog	Temperatures: Max.: 90° and above	32° and below	Min.: 32° and below	0° and below
(a)	(b)	(b)	(b)	5		5		(b)	(b)	5		5		5		5	5		5						5	5	5	5													
J	27.6	3.8	15.7	49	1953	-26	1951#	1528	0.66	0.96	1950	0.51	1954	0.40	1954	6.1	9.6	1950	3.2	1954					8.4	SW	38	SW	1954						11	3	0		0	20	31	9
F	32.9	8.2	20.6	53	1953	-25	1951	1243	0.57	1.01	1952	0.25	1953	0.54	1954	6.0	8.2	1954	6.5	1950					6.9	WSW	34	WSW	1954#						8	3	0		0	10	28	6
M	41.9	18.0	30.0	66	1953	-10	1952	1085	0.45	0.75	1950	0.40	1953	0.30	1950	5.0	7.5	1950	3.0	1950					8.7	SW	38	WSW	1954						6	3	*		0	8	31	3
A	56.0	29.0	42.5	77	1952	6	1953	675	0.75	0.64	1953	0.03	1952	0.34	1953	0.8	3.1	1953	2.0	1953					8.4	WSW	39	WSW	1954						3	*	1		0	0	21	0
M	67.1	38.0	52.6	91	1954	18	1954	390	1.02	1.78	1953	0.28	1950	0.70	1953	T	T	1953#	T	1953#					9.0	SW	37	W	1954						7	0	1		*	0	11	0
J	75.5	43.6	59.6	95	1954	26	1954	172	0.81	2.74	1954	0.15	1951	1.73	1954	T	T	1954	T	1954					8.9	SW	35	WSW	1954						6	0	2		1	0	3	0
J	88.1	50.3	69.2	99	1954#	33	1954	16	0.44	0.58	1951	0.00	1953	0.18	1951	0.0	0.0		0.0						7.9	SW	32	WSW	1954						3	0	1		13	0	0	0
A	85.7	48.1	66.9	99	1954	28	1954	71	0.64	2.17	1951	0.18	1953	0.72	1950	T	T	1951	T	1951					7.3	SW	30	WSW	1954						5	0	3		7	0	*	0
S	73.4	38.6	56.0	95	1950	18	1954	286	0.36	0.28	1950	0.00	1951	0.12	1954#	T	T	1954	T	1954					6.7	SW	34	SW	1950						2	0	1		2	0	8	0
O	60.5	27.3	43.9	82	1952	9	1954	654	0.68	0.68	1951	0.00	1952	0.35	1953	T	T	1954#	T	1954#					6.2	SW	44	WSW	1954						3	0	1		0	0	23	0
N	42.9	17.0	30.0	63	1954#	-13	1952	1050	0.56	0.65	1954	0.08	1953	0.51	1954	1.6	3.7	1952	1.1	1951					6.0	SW	37	SW	1953						4	1	0		0	4	28	3
D	31.4	9.1	20.3	44	1950	-18	1952	1386	0.75	0.72	1951	0.25	1953	0.30	1950	4.8	7.2	1951	3.0	1950					5.4	SW	37	SW	1954						7	4	0		0	17	31	10
Year	56.9	27.6	42.3	99	AUG. 1954#	-26	JAN. 1951#	8556	7.69	2.74	JUN. 1954	0.00	JUL. 1953#	1.73	JUN. 1954	24.3	9.6	JAN. 1950	6.5	FEB. 1950					7.5	SW	44	WSW	OCT. 1954						65	14	10		23	59	215	31

(a) Length of record, years. (b) Normal values are based on the period 1921-1950, and are means adjusted to represent observations taken at the present standard location.
& Incomplete record (observed between 8:00 a. m. and 5:00 p. m.).

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l.
1950	13.6	21.2	30.6	40.0	48.2	57.2	66.1	64.9	54.9	48.1	32.2	25.5	41.9
1951	13.1	23.2	27.4	43.8	53.5	56.2	68.9	64.8	56.2	41.6	28.5	15.5	41.1
1952	11.8	10.2	20.2	42.8	54.0	59.5	66.3	66.2	58.2	48.0	23.9	18.8	40.0
1953	30.0	26.8	33.4	39.8	45.4	57.0	69.7	65.7	59.1	46.0	35.0	17.6	43.8
1954	23.8	29.8	29.7	44.0	53.6	56.2	69.9	63.8	54.6	41.2	35.1	16.6	43.2
RECORD MEAN													
TEMP	18.5	22.2	28.3	42.1	50.9	57.2	68.2	65.1	56.6	45.0	30.9	18.8	42.0
MAX	28.8	34.5	39.6	57.1	66.6	73.4	87.2	83.9	75.9	62.8	44.7	29.9	57.0
MIN	8.1	10.0	17.0	27.1	35.3	41.1	49.1	46.3	37.3	27.2	17.2	7.7	27.0

TOTAL PRECIPITATION

IDAHO FALLS, 46 W, IDA.
CENTRAL FACILITIES
1954

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1950	.96	.75	.75	.14	.28	.98	.10	1.08	.28	.16	.30	.55	6.33
1951	.76	.58	.60	.30	.56	.15	.58	2.17	.00	.68	.33	.72	7.43
1952	.61	1.01	.41	.03	.80	.91	.38	.29	.12	.00	.37	.67	5.60
1953	.54	.25	.40	.64	1.78	.80	.00	.18	.01	.41	.08	.25	5.34
1954	.51	.87	.55	.46	.45	2.74	.16	.39	.15	.07	.65	.40	7.40
RECORD MEAN	.68	.69	.54	.31	.77	1.12	.24	.82	.11	.26	.35	.52	6.41

MONTHLY AND SEASONAL DEGREE DAYS

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1949-50	–	–	–	–	–	–	1593	1226	1066	750	524	234	–
1950-51	38	48	340	524	959	1225	1617	1170	1169	637	370	274	8371
1951-52	31	76	263	733	1094	1553	1649	1589	1389	666	341	165	9549
1952-53	46	29	208	527	1223	1432	1085	1070	980	756	608	240	8204

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1953-54	0	0	177	589	900	1469	1273	981	1087	621	352	284	7733
1954	20	96	311	730	890	1492							

MONTHLY AND SEASONAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1949-50	–	–	–	–	–	–	9.6	6.5	7.5	0.8	0.0	0.0	–
1950-51	0.0	0.0	0.0	0.0	0.5	5.5	7.6	5.8	5.9	T	0.0	0.0	25.3
1951-52	0.0	T	0.0	0.0	3.0	7.2	6.1	7.5	4.1	T	T	0.0	27.9
1952-53	0.0	0.0	0.0	0.0	3.7	6.0	3.0	2.2	3.8	3.1	T	0.0	21.8

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1953-54	0.0	0.0	0.0	T	0.6	2.4	4.0	8.2	3.7	T	0.0	T	18.9
1954	0.0	0.0	T	T	0.0	2.7							

STATION LOCATION

Location	Occupied from	Occupied to	Airline distance and direction from previous location	North Latitude	West Longitude	Elevation above Sea level: Ground	Elevation above Sea level: Actual barometer elevation (H_a)	Elevation above Ground: Wind instruments	Elevation above Ground: Extreme thermometers	Elevation above Ground: Psychrometer	Elevation above Ground: Telepsychrometer	Elevation above Ground: Tipping bucket rain gage	Elevation above Ground: Weighing rain gage	Elevation above Ground: 8" rain gage	Elevation above Ground: Hygrothermograph	
CENTRAL FACILITIES NATIONAL REACTOR TESTING STATION, ATOMIC ENERGY COMMISSION	1/ 1/50	PRESENT		43° 32'	112° 57'	4933	4939	20 250ø	6	5			5	4	5	ø On Radio tower.

REFERENCE NOTES

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation and snowfall in inches; wind movement in miles per hour; and relative humidity in percent.

Record mean values at the end of the Average Temperature and Total Precipitation tables are long-term means based on the period of record beginning in 1950. Values have not been corrected for changes in instrument location listed in the Station Location table.

Sky cover is expressed in a range of 0 for no clouds or obstructions to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3 tenths; partly cloudy days on 4-7 tenths and cloudy days on 8-10 tenths. Degree days are based on a daily average of 65° F. Sleet and hail were included in snowfall totals, beginning with July 1948.

Heavy fog in the Means and Extremes Table also includes data referred to at various times in the past as "Dense" or "Thick". The upper visibility limit for heavy fog is 1/4 mile.

Below zero temperatures are preceded by a minus sign.

The horizontal lines drawn on the Average Temperature, Total Precipitation, Monthly and Seasonal Degree Days, and Monthly and Seasonal Snowfall tables separate the data according to station location (see Station Location table).

* Less than one half.
\- No record.
\# Also on earlier dates, months, or years.
T Trace, an amount too small to measure.

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NARRATIVE CLIMATOLOGICAL SUMMARY (Continued)

winter snow depth has been extremely variable during the period of record. Conditions have varied from winters having practically no snow at all to the opposite extreme (winter of 1951-52) in which snow reached a depth of one to two feet over all the NRTS, causing near paralysis of construction activities and transportation. Large expenditures were made for snow removal, which was an almost daily task. Blowing or drifting snow is by far the greatest hazard and general nuisance of any weather phenomenon that occurs in the region. most blowing snow is driven by south southwesterly winds.

Destructive winds have not been a problem. Tornadoes have never been reported in the region, although funnel-shaped clouds were sighted on the NRTS twice in the summer of 1954. Structures designed to withstand average winds of 60 mph and peak gusts to 80-85 mph are not likely to be damaged.

Destructive glazes do not occur in this vicinity. Hailstorms occur in summer that are damaging to crops, and four to six thunderstorms per summer month can be expected. Lightning protection is a must for all man-made structures, since the lack of comparable natural targets makes them particularly vulnerable. Fog or low stratus clouds occur occasionally in late fall and winter with a snow cover and a persistent high pressure system, and may last for several consecutive days.

The dust content of the air is very small while the snow cover is on, generally November through March. Dust-favoring winds (gusts of 20 mph or more) occur on the average for 6 hours during 13 windy days per month. Air concentrations have varied from a low of 0.014 mg/m^3 over snow cover to a high of 0.77 mg/m^3 on a day when dust devils were present near the sampling station. Concentrations vary widely from place to place, depending on human activity. Average daytime concentrations during the warmer months run about 0.07 mg/m^3. Visibility is not significantly reduced by dust except briefly and infrequently during dry thunderstorms.

Weathering of concrete and hard surface roads and streets is a very serious problem, mainly due to the large number of freeze-thaw cycles during all but summer months. Precautions must also be taken against adverse effects of excessive cold in winter and extreme dryness in summer when pouring concrete.

NWRC, Asheville, N.C. --- 2/16/55 --- 500