

PRECIPITATION AND EVAPORATION IN NEW MEXICO

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AGRICULTURAL EXPERIMENT STATION

of the

NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS

State College, N. M.

In cooperation with the Weather Bureau of the United States

Department of Agriculture

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PRECIPITATION AND EVAPORATION IN NEW MEXICO

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INTRODUCTION

The average annual precipitation for New Mexico, as a whole, has been determined by the United States Weather Bureau to be 14.43 inches, while the average annual evaporation from a free water surface amounts to several times that quantity. Both the precipitation and the temperatures which occur in the State are very erratic. Despite the fact that nearly the whole area is arid or semiarid, torrential rains, in which there is a precipitation of from 4 to 6 or 7 inches within a few hours, are not unknown. A detailed record of one such downpour, which occurred on the night of August 29 and 30, 1935, at State College, in the south central part of the State, is included in the appendix of this bulletin. In one five-minute period of the time covered by this storm, .64 inch of rain fell, which is more than sometimes falls in this locality during a period of several months.

New Mexico precipitation is often also very local in character. It is not uncommon for a hard shower to occur in a locality, with little or no rain a few hundred yards away. The average annual snowfall varies widely in different parts of the State, ranging from only about 2 inches in the south central portion to many feet toward the summits of the highest mountains. In the mountainous regions of the northern part the snowfall averages somewhat higher than at similar elevations in the southern part. At the same elevations, the average annual precipitation is usually somewhat higher on the east or south sides of mountains than on the west or north sides. While hail occurs occasionally in all sections of the State, it is usually not so very destructive; the areas covered by hailstorms generally being small.

Although the precipitation for the agricultural areas of New Mexico is comparatively low, the facts that the nitrogen content of soils of this part of the country does not become depleted so



*Relief Map of New Mexico,
Giving a General View of the More
Prominent Topographical Features.*

Fig. 1.

(From Bulletin 182 of the New Mexico Agricultural Experiment Station.)

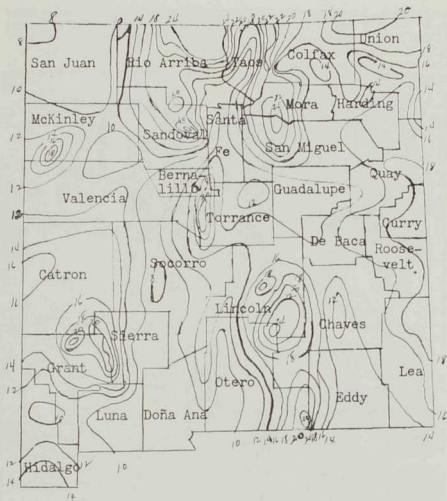


Fig. 2.—Average annual precipitation to close of 1939.

quickly as in the more humid regions, that most of the land is well supplied with potash, and that evaporation, except near the surface, from the majority of the soils is usually slow, are favorable for plant production. As early as 1904, the Carnegie Institution of Washington determined that with the exception of the upper few inches, the soil of Tumamoc Hill, near Tucson, Arizona, dried very slowly. The following excerpts are from Publication No. 50 of that Institution, issued in 1906:

"The surprisingly large amount of water contained in this soil [of Tumamoc Hill] relatively quite near its surface is probably very largely due, paradoxical as it does indeed seem, to the excessively high rate of surface

evaporation. After a number of heavy showers when the soil is quite moist to an indefinite depth, the first few centimeters* lose water much more rapidly by evaporation into the air than it can be supplied by the much slower process of diffusion upward through the soil films from lower-lying layers.

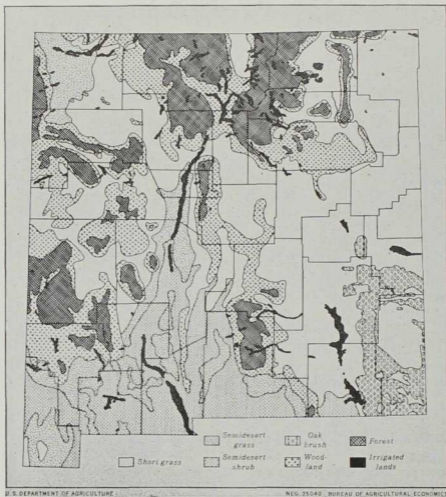


Fig. 3.—Types of natural vegetation, New Mexico.

(From Bulletin 267 of the New Mexico Agricultural Experiment Station.)

The result is that there is soon formed a very perfect mulch of air-dry soil, similar to the 'dust mulch' of the agriculturists. In this condition the rate of water loss from the true evaporating surface, which now lies at some depth within the soil, is governed, not by the power of the free air to va-

*A centimeter is .3937 of an inch, a meter thus being 39.37 inches in length.

porize water, but by the rate of diffusion of water vapor through the nearly air-dry layers which lie above . . .

“. . . from the facts presented in the discussion of the water content of this [Tumamoc Hill] soil it is clear that what water does attain to the depth of half a meter or more is well protected from soil evaporation and will not be likely to escape into the air to any great extent, excepting through the transpiration of plants.

“. . . the evidence is clear that, with the high humidity of the latter region [the region in which the State of Michigan is located] and the accompanying slower rate of evaporation, the soil is subjected to a more rapid drying at relatively great depths than occurs in the arid regions.”

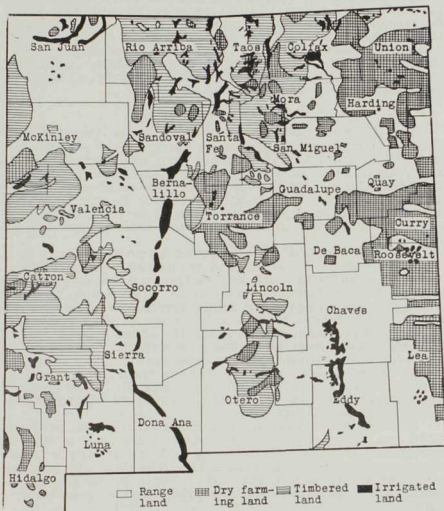


Fig. 4.—Land classification—New Mexico.

(From Bulletin 182 of the New Mexico Agricultural Experiment Station.)

The soil of Tumamoc Hill, referred to above, cracks little on drying. The average annual precipitation at Tucson, Arizona, is 11.28 inches.

Graphs are included in this bulletin for at least one United States Weather Bureau station in every county of New Mexico. These indicate more readily than the figures on which the graphs are based the annual and seasonal precipitations. It will be noted that it is not very unusual for at least three comparatively dry or comparatively wet years to occur consecutively.

The records indicate that the driest areas are in the vicinity of Shiprock, near the northwestern corner of the State, and in the Rio Grande Valley near Albuquerque and State College, where the precipitation, over a long period of years, has averaged only about 8 inches annually. The areas of greatest precipitation are somewhat below the summits of the highest mountains, in northern New Mexico, at altitudes of 10,000 or 11,000 feet above sea level, where the precipitation is thought to average as much as 30 inches a year.

PRECIPITATION RECORDS

The list below includes all stations of the United States Weather Bureau in New Mexico at which, at the close of the year 1938, precipitation records had been kept for a period of nine years or more. In referring to the list it should be borne in mind that the average annual and average seasonal precipitations, in many localities in northeastern New Mexico, especially, were lowered from approximately 5 to 15 percent by the long period of subnormal rainfall which occurred from about 1931 or 1932 to 1938.

Generally speaking, the average annual precipitation in New Mexico at stations for which data are available decreases from east to west; and with few, if any, exceptions increases with altitude. In the dry-farming regions of the eastern side, approximately 73 to 79 percent of the annual precipitation falls between April 1 and September 30, both inclusive; or, in other words, can be considered seasonal precipitation. The actual growing season is much shorter, however, in the high altitudes than in those which are comparatively low; the dates April 1 to September 30 merely having been set arbitrarily as the beginning and ending of the growing season. Throughout this bulletin, for all parts of the State, precipitation which has occurred between these dates is referred to as seasonal.

As explained on page 13, in the graphs shown on pages 13 to 43, the average annual precipitation to the close of 1938 is represented by a solid straight line and the average seasonal precipitation by a broken straight line. The total and seasonal precipitations for each of the years included in the graphs are indicated by the jagged solid and jagged broken lines, respectively.

The list and the graphs, as well as the evaporation stations, are arranged alphabetically.

NORMAL PRECIPITATION BY MONTHS FOR WEATHER BUREAU STATIONS IN NEW MEXICO (Continued)

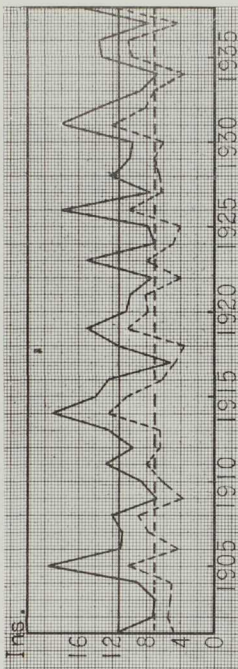
Station	County	Altitude	Length of record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average for annual	Average for seasonal
Deming*	Luna	4331	56	39	53	47	20	27	46	187	169	140	85	44	54	9.11	8.89
Dess Moines	Union	6622	23	39	44	103	139	210	170	272	312	197	122	70	40	17.19	13.00
Doretta	San Miguel	6381	21	60	63	109	97	190	143	286	235	165	101	42	45	15.78	11.58
Dulce	Rao Arriba	6767	33	117	157	159	131	109	90	272	241	205	131	130	137	16.39	10.08
Elephant Butte Dam*	Sierra	4265	30	29	48	48	48	41	57	181	202	114	77	42	63	9.30	6.43
Elida	Roosevelt	4345	26	27	30	62	110	169	208	213	244	207	117	50	46	15.05	11.73
Elizabethtown	Colfax	8465	34	80	152	147	137	123	310	310	329	113	72	70	51	11.53	7.50
Estancia (near)*	Torrance	6300	16	40	49	56	60	128	106	207	269	186	76	48	55	12.50	9.26
Farmington	San Juan	5220	24	50	71	67	55	35	35	119	105	105	80	50	50	8.37	4.69
Fort Bayard	Grant	6152	70	82	102	78	39	42	74	318	336	211	117	76	92	15.67	10.20
Fort Stanton*	Lincoln	6231	39	46	62	66	78	104	151	307	290	215	106	59	54	15.40	11.45
Fort Sumner*	De Baca	4028	36	45	33	83	89	200	194	243	256	164	139	62	77	16.46	10.47
Friones Canyon	Sandoval	4200	13	41	70	76	74	139	194	233	254	153	115	107	107	13.37	10.05
Gage	Luna	4480	49	41	72	62	21	22	52	206	161	141	77	57	82	9.94	6.03
Ranger Station	Lincoln	6698	30	64	68	83	87	118	113	259	215	167	106	52	81	14.13	9.59
Gameroo*	McKinley	6785	12	54	89	69	53	164	55	187	237	145	57	64	54	11.68	7.80
Gavilan	Plo Arriba	7000	14	92	155	127	93	118	115	263	307	234	101	110	108	18.23	11.30
Hachita*	Grant	4504	29	34	64	62	23	19	41	223	246	156	89	62	92	10.81	6.78
Hayden (near)	Union	4500	29	22	33	56	23	214	192	228	252	161	133	35	50	14.99	11.70
Hermans	Luna	4460	24	45	68	40	20	22	59	202	183	113	82	58	81	9.73	5.99
Hillsboro	Sierra	5236	33	54	84	49	32	50	53	268	234	222	96	55	73	12.70	8.59
Hobbs	Lea	3600	19	24	38	62	114	119	258	165	302	241	194	40	65	16.22	11.99
Hood	Catron	5838	22	82	100	120	93	55	69	241	241	165	84	90	32	14.32	8.64
Ranger Station*	Harding	5680	28	22	44	62	107	209	191	229	255	184	161	43	50	15.57	11.75
Hooser Ranch	Eddy	4000	20	51	66	96	51	148	166	175	154	265	102	45	64	13.83	9.59
Hope	Catron	7070	39	84	96	80	65	152	51	237	276	144	102	87	108	14.02	8.45
Horse Springs	Union	4850	19	27	30	67	136	226	223	241	309	138	154	37	56	16.59	10.88
Ione	Gundalpe	4600	13	39	60	53	12	196	218	224	224	150	115	39	49	14.37	10.26
Isidore Springs*	Sandoval	6100	28	77	113	104	113	149	155	310	279	219	159	76	84	16.34	12.21
Jemez Springs	Catron	7400	16	94	97	99	90	70	57	255	326	223	85	55	89	15.40	10.21
Jeppett Station	Catron	7400	16	94	97	99	90	70	57	255	326	223	85	55	89	15.40	10.21
Jornada	Dona Ana	4150	25	35	38	39	20	57	56	175	181	134	89	46	63	9.33	6.23
Ranger Reserve	Sierra	5500	23	83	124	106	53	72	87	317	385	265	138	96	108	18.39	11.79
Kington*	Laguna	5840	28	37	59	54	55	54	86	226	174	160	62	48	69	11.14	7.85
Lake Alice (near)	Colfax	6950	30	53	70	123	186	267	224	297	316	190	154	68	70	20.18	14.80
Lake Avalon	Eddy	3200	25	30	39	51	81	130	126	146	155	200	124	43	56	11.81	8.38
Lake Valley	Sierra	5412	32	60	93	64	43	41	86	272	284	146	96	75	85	15.45	8.72
Las Vegas*	San Miguel	5400	47	44	67	73	109	193	203	345	324	201	107	55	52	17.73	13.75
Lee Ranch	Sandoval	9000	15	68	181	127	98	173	174	409	374	314	139	87	100	22.44	15.42

NORMAL PRECIPITATION BY MONTHS FOR WEATHER BUREAU STATIONS IN NEW MEXICO (Continued)

Station	County	Alli- tude	Length of record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver- age annual	Aver- age seasonal
Selsor Ranch	Sandoval	8500	27	1.29	1.61	1.69	1.44	1.73	1.32	3.80	2.88	2.40	1.44	1.06	1.44	22.20	13.57
Shiprock	San Juan	4950	13	.31	.52	.68	.62	.56	.33	.92	.97	1.36	.52	.50	.49	7.88	4.76
Silver City*	Grant	5937	28	.83	1.42	1.09	.62	.48	.86	3.42	3.09	1.87	1.23	.86	1.31	17.05	10.31
Socorro*	Socorro	4600	34	.48	.50	.64	.76	.67	.68	1.80	1.64	1.43	.99	.46	.64	10.94	6.98
Solano	Harding	5622	30	.23	.48	.91	1.11	2.07	2.06	2.81	2.22	2.03	1.40	.57	.46	16.75	13.00
Springer*	Colfax	5857	34	.27	.41	.55	.99	1.76	1.87	2.62	2.48	1.47	.86	.48	.33	14.09	11.19
State College*	Doña Ana	3909	47	.30	.37	.39	.24	.34	.56	1.64	1.90	1.21	.71	.53	.52	8.61	5.79
Tajique	Torrance	7100	19	.93	1.25	1.33	1.41	2.02	1.51	2.92	2.97	1.95	1.24	.90	1.08	19.51	12.78
Taos*	Taos	6983	38	.68	1.73	.87	1.05	1.40	.98	1.85	1.83	1.26	.96	.60	.49	12.68	8.35
Taos Canyon	Taos	3959	30	1.13	1.31	1.58	1.60	1.83	1.53	3.12	2.71	1.70	1.38	.83	.99	19.11	13.49
Tatum	Lea	3950	20	.36	.52	.69	.76	1.21	2.01	2.40	2.57	2.36	1.18	.48	.54	15.78	12.01
Tierra Amarilla	Rio Arriba	7466	9	1.34	1.47	1.13	.81	1.33	.83	3.08	2.57	2.71	1.01	1.09	1.14	18.56	11.38
Tijeras																	
Ranger Station	Bernalillo	6450	28	.75	.81	.93	1.06	1.39	.94	2.43	2.03	1.52	1.22	.66	.87	14.81	9.37
Tohatchi	McKinley	6800	23	.70	.60	.70	.65	.70	.55	2.20	1.97	1.44	.75	.56	.66	11.13	7.51
Tres Piedras	Taos	8076	39	.94	1.13	1.03	1.07	1.21	1.03	3.04	2.46	1.41	1.41	.77	.91	16.10	9.52
Truchas	Rio Arriba	7935	30	.64	.91	.86	1.13	1.24	1.20	2.53	2.81	1.62	1.35	.71	.80	15.90	10.33
Tucumcari*	Quay	4269	34	.28	.49	.68	1.37	2.34	1.97	2.38	2.86	1.44	1.32	.74	.39	16.95	12.26
Tularosa	Otero	4436	31	.47	.50	.52	.48	.54	.71	1.42	1.63	1.36	.63	.50	.57	9.45	6.16
Valley View	Roosevelt	4380	16	.30	.31	.55	.75	1.63	1.52	2.20	2.16	1.79	1.60	.41	.36	13.50	10.07
Valmora	Mora	6200	21	.36	.55	.80	.97	2.28	2.01	2.96	3.04	1.86	1.02	.49	.35	15.49	13.02
Vaughn	Guadalupe	5930	30	.34	.43	.52	.61	1.58	1.41	2.15	1.81	1.79	1.09	.38	.67	19.55	13.07
White Tail	Otero	7000	25	.99	1.03	1.32	.77	1.71	1.86	4.34	4.46	2.98	1.43	1.02	1.02	22.82	16.20
Winsor's Ranch	San Miguel	8009	44	1.14	1.62	1.69	1.61	1.96	2.04	4.58	3.68	2.92	1.76	1.07	1.08	24.45	16.69

The following graphs show the average annual and average seasonal precipitations, as well as the total and seasonal precipitations for the years indicated:

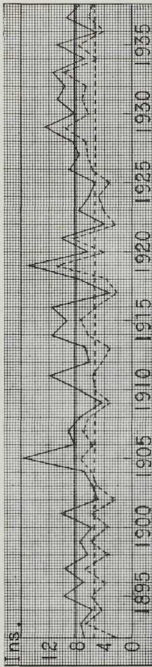
Near ALAMOGORDO, Otero County



Approximate latitude—32° 51'; longitude—105° 57'. Elevation—4,250 feet. Average annual precipitation, 11.36 inches; average seasonal precipitation, 7.12 inches; percent seasonal, 63.
Highest annual precipitation, 19.52 inches; lowest, 5.29 inches.

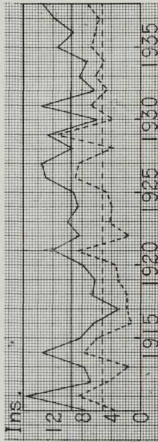
Solid straight line: average annual precipitation for the period covered by the graph.
Broken straight line: average seasonal precipitation for the period covered by the graph.
Jagged solid line: total precipitation for the years indicated.
Jagged broken line: seasonal precipitation for the years indicated.

ALBUQUERQUE, Bernalillo County



Approximate latitude—35° 5'; longitude—106° 38'. Elevation—5,196 feet. Average annual precipitation, 8.23 inches; average seasonal precipitation, 5.50 inches; percent seasonal, 67.
Highest annual precipitation, 15.7 $\frac{1}{2}$ inches; lowest, 3.29 inches.

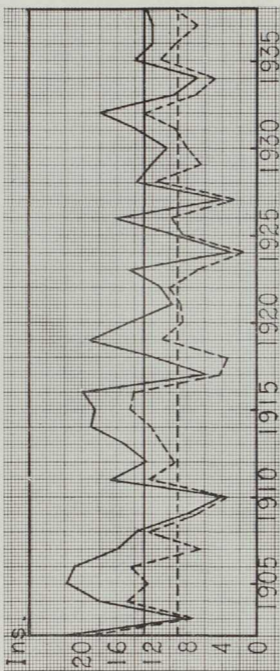
AZTEC, San Juan County



Approximate latitude—36° 48'; longitude—108° 4'. Elevation—5,590 feet. Average annual precipitation, 9.43 inches; average seasonal precipitation, 5.19 inches; percent seasonal, 55.
Highest annual precipitation, 15.62 inches; lowest, 2.90 inches.

For explanation of the above graphs, see bottom of page 13.

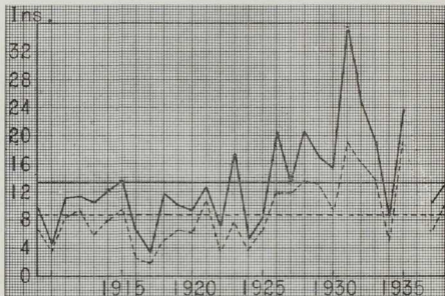
CARLSBAD, Eddy County



Approximate latitude— $32^{\circ} 24'$; longitude— $104^{\circ} 10'$. Elevation—3,120, feet. Average annual precipitation, 12.93 inches; average seasonal precipitation, 9.10 inches; percent seasonal, 70.
 Highest annual precipitation, 22.42 inches; lowest, 2.95 inches.

For explanation of the above graph, see bottom of page 13.

CARRIZOZO, Lincoln County



Approximate latitude— $33^{\circ} 40'$; longitude— $105^{\circ} 52'$. Elevation—5,428 feet. Average annual precipitation, 13.34 inches; average seasonal precipitation, 8.77 inches; percent seasonal, 66.

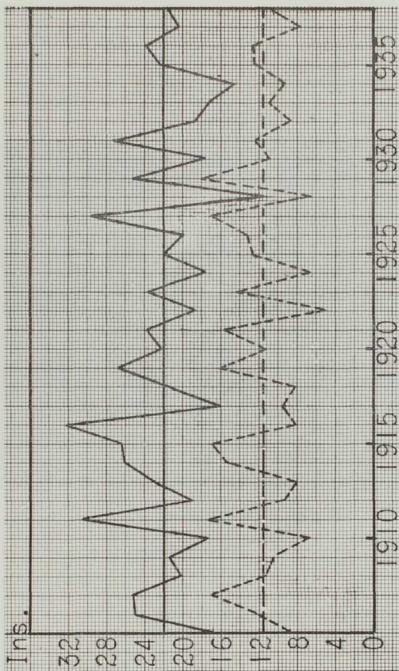
Highest annual precipitation, 35.60 inches; lowest, 3.25 inches.

The precipitation record for Carrizozo has probably been as erratic as at any other Weather Bureau station for which graphs are shown in this bulletin.

No precipitation record for 1936 is available for this station.

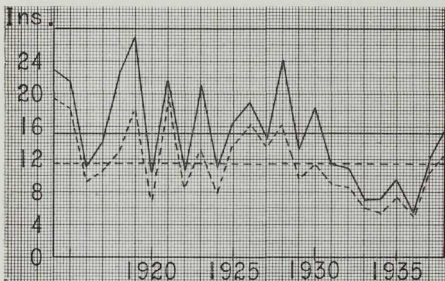
For explanation of the above graph, see bottom of page 13.

CHAMA, Rio Arriba County



Approximate latitude—36° 54'; longitude—106° 35'. Elevation—7,851 feet. Average annual precipitation, 21.93 inches; average seasonal precipitation, 11.54 inches; percent seasonal, 53.
 Highest annual precipitation, 32.34 inches; lowest, 11.32 inches.
 For explanation of the above graph, see bottom of page 13.

CLAYTON, Union County

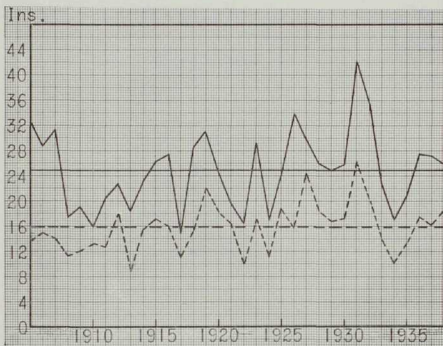


Approximate latitude— $36^{\circ} 23'$; longitude— $103^{\circ} 07'$. Elevation—5,054 feet. Average annual precipitation, 15.16 inches; average seasonal precipitation, 11.53 inches; percent seasonal, 76. Highest annual precipitation, 27.01 inches; lowest, 5.54 inches.

The severe drouth which prevailed in the vicinity of Clayton from 1931 to 1937, both inclusive, lowered materially the average annual and seasonal precipitations for the period covered by this graph. For the 16 years beginning with 1913, the average annual precipitation at this station was 17.50 inches and the average seasonal precipitation was 13.54 inches.

For explanation of the above graph, see bottom of page 13.

CLOUDCROFT, Otero County

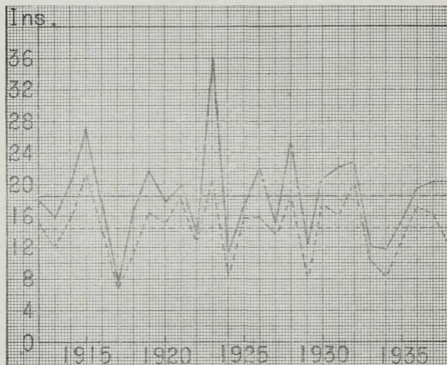


Approximate latitude— $32^{\circ} 57'$; longitude— $105^{\circ} 43'$. Elevation—8,650 feet. Average annual precipitation, 24.88 inches; average seasonal precipitation, 15.78 inches; percent seasonal, 63.

Highest annual precipitation, 42.32 inches; lowest, 15.01 inches.

For explanation of the above graph, see bottom of page 13.

CLOVIS, Curry County

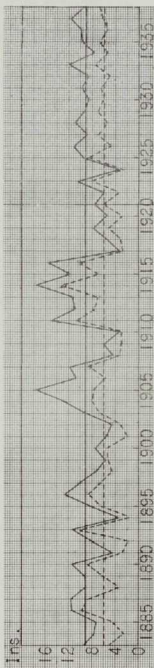


Approximate latitude— $34^{\circ} 24'$; longitude— $103^{\circ} 11'$. Elevation—4,262 feet. Average annual precipitation, 18.49 inches; average seasonal precipitation, 14.41 inches; percent seasonal, 78.

Highest annual precipitation, 36.06 inches; lowest, 7.56 inches.

For explanation of the above graph, see bottom of page 13.

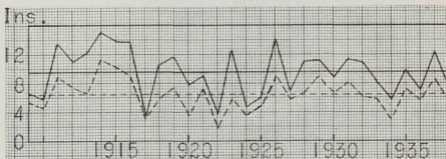
DEMING, Luna County



Approximate latitude— $32^{\circ} 16'$; longitude— $107^{\circ} 45'$. Elevation—4,331 feet. Average annual precipitation, 9.11 inches; average seasonal precipitation, 5.89 inches; percent seasonal, 63.
 Highest annual precipitation, 17.59 inches; lowest, 3.34 inches.
 Since 1917, neither the annual nor the seasonal precipitation at Deming has deviated a great deal from the average.

For explanation of the above graph, see bottom of page 13.

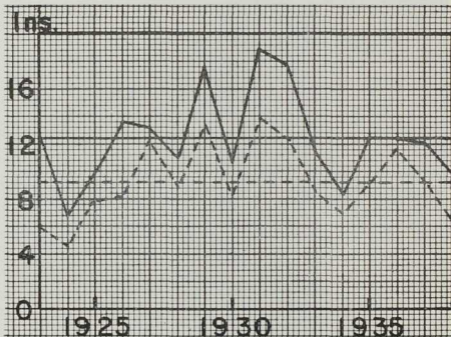
ELEPHANT BUTTE DAM, Sierra County



Approximate altitude—33° 10'; longitude—107° 10'. Elevation—4,265 feet. Average annual precipitation, 9.50 inches; average seasonal precipitation, 6.43 inches; percent seasonal, 68.

Highest annual precipitation, 15.12 inches; lowest, 3.53 inches.

Near ESTANCIA, Torrance County

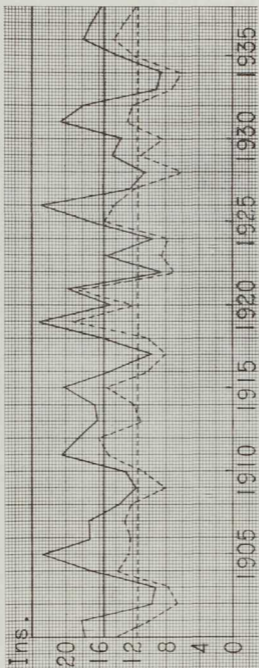


Approximate latitude—34° 53'; longitude—106° 04'. Elevation—6,300 feet. Average annual precipitation, 12.50 inches; average seasonal precipitation, 9.26 inches; percent seasonal, 74.

Highest annual precipitation, 18.91 inches; lowest, 6.89 inches.

For explanation of the above graphs, see bottom of page 13.

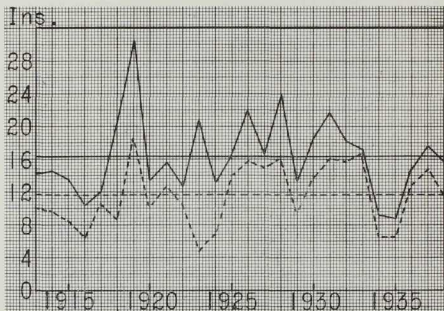
FORT STANTON, Lincoln County



Approximate latitude—33° 30'; longitude—105° 32'. Elevation—6,231 feet. Average annual precipitation, 15.40 inches; average seasonal precipitation, 11.45 inches; percent seasonal, 74. Highest annual precipitation, 23.11 inches; lowest, 8.68 inches.

For explanation of the above graph, see bottom of page 13.

FORT SUMNER, De Baca County

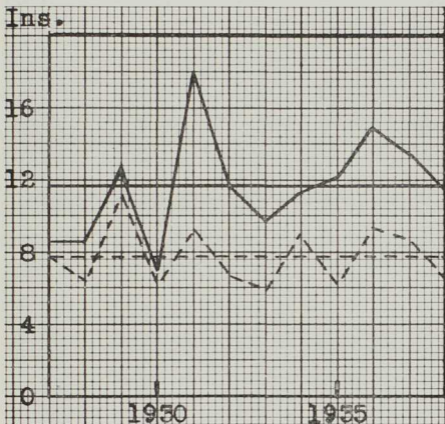


Approximate latitude— $34^{\circ} 28'$; longitude— $104^{\circ} 15'$. Elevation—4,028 feet. Average annual precipitation, 16.36 inches; average seasonal precipitation, 11.67 inches; percent seasonal, 71.

Highest annual precipitation, 30.51 inches; lowest, 8.83 inches.

For explanation of the above graph, see bottom of page 13.

GAMERCO, McKinley County



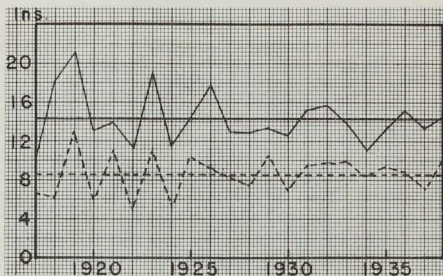
Approximate latitude— $35^{\circ} 36'$; longitude— $108^{\circ} 45'$. Elevation—6,785 feet. Average annual precipitation, 11.68 inches; average seasonal precipitation, 7.80 inches; percent seasonal, 67.

Highest annual precipitation, 17.92 inches; lowest, 7.14 inches.

For explanation of the above graph, see bottom of page 13.

The two graphs on this page are in reverse order,

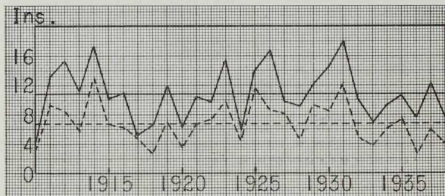
HACHITA, Grant County



Approximate latitude— $31^{\circ} 55'$; longitude— $108^{\circ} 19'$. Elevation—4,504 feet. Average annual precipitation, 10.81 inches; average seasonal precipitation, 6.78 inches; percent seasonal, 63.

Highest annual precipitation, 18.02 inches; lowest, 4.38 inches.

HOOD RANGER STATION, Catron County

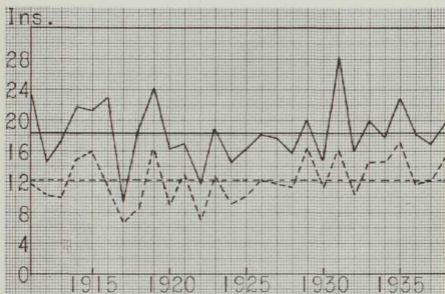


Approximate latitude— $33^{\circ} 40'$; longitude— $108^{\circ} 47'$. Elevation—5,838 feet. Average annual precipitation, 14.32 inches; average seasonal precipitation, 8.64 inches; percent seasonal, 60.

Highest annual precipitation, 21.22 inches; lowest, 10.12 inches.

For explanation of the above graphs, see bottom of page 13.

JEMEZ SPRINGS, Sandoval County

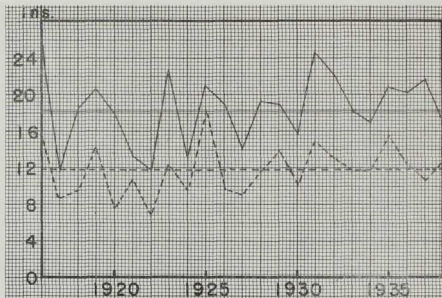


Approximate latitude— $35^{\circ} 47'$; longitude— $106^{\circ} 42'$. Elevation—6,100 feet. Average annual precipitation, 18.34 inches; average seasonal precipitation, 12.21 inches; percent seasonal, 67.

Highest annual precipitation, 28.12 inches; lowest, 9.25 inches.

For explanation of the above graph, see bottom of page 13.

KINGSTON, Sierra County

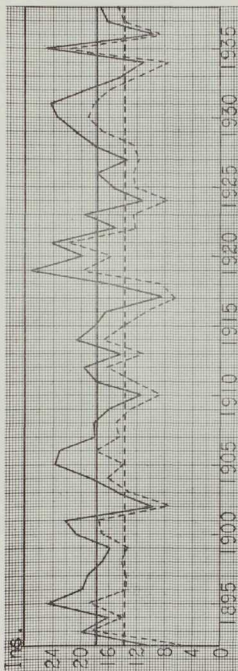


Approximate latitude— $32^{\circ} 50'$; longitude— $107^{\circ} 40'$. Elevation—6,500 feet. Average annual precipitation, 18.39 inches; average seasonal precipitation, 11.79 inches; percent seasonal, 64.

Highest annual precipitation, 24.52 inches; lowest, 11.76 inches.

For explanation of the above graph, see bottom of page 13.

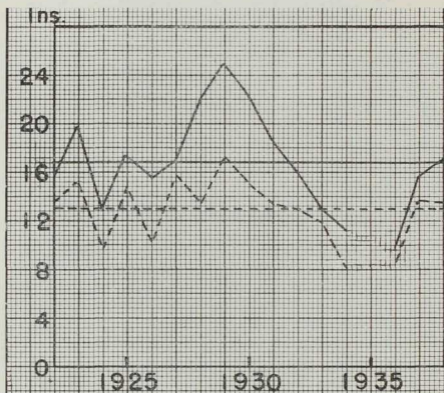
LAS VEGAS, San Miguel County



Approximate latitude— $35^{\circ} 36'$; longitude— $106^{\circ} 14'$. Elevation—0,400 feet. Average annual precipitation, 17.73 inches; average seasonal precipitation, 13.75 inches; percent seasonal, 78.
 Highest annual precipitation, 26.95 inches; lowest, 8.53 inches.

For explanation of the above graph, see bottom of page 13.

LEVY, Mora County



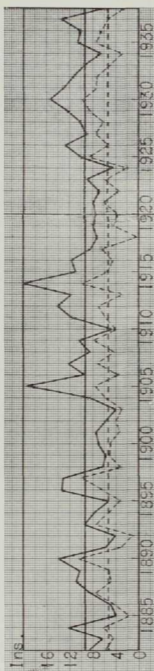
Approximate latitude— $36^{\circ} 06'$; longitude— $104^{\circ} 40'$. Elevation—6,252 feet. Average annual precipitation, 16.85 inches; average seasonal precipitation, 12.96 inches; percent seasonal, 77.

Highest annual precipitation, 24.96 inches; lowest 9.60 inches.

No precipitation record for 1935 is available for this station.

For explanation of the above graph, see bottom of page 13.

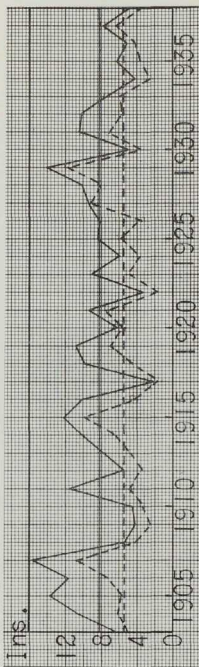
LORDSBURG, Hidalgo County



Approximate latitude— $32^{\circ} 22'$; longitude— $108^{\circ} 42'$. Elevation—4,245 feet. Average annual precipitation, 9.43 inches; average seasonal precipitation, 5.39 inches; percent seasonal, 57.
 Highest annual precipitation, 19.79 inches; lowest, 3.99 inches.

For explanation of the above graph, see bottom of page 13.

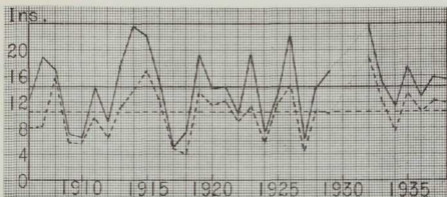
Near LOS LUNAS, Valencia County



Approximate latitude— $34^{\circ} 42'$; longitude— $106^{\circ} 48'$. Elevation—4,900 feet. Average annual precipitation, 8.25 inches; average seasonal precipitation, 5.48 inches; percent seasonal, 66.
 Highest annual precipitation, 15.85 inches; lowest, 2.15 inches.

For explanation of the above graph, see bottom of page 13.

LOVINGTON, Lea County

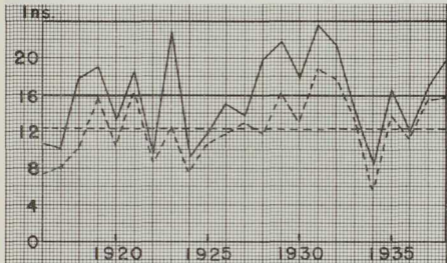


Approximate latitude— $32^{\circ} 56'$; longitude— $103^{\circ} 21'$. Elevation—3,900 feet. Average annual precipitation, 14.33 inches; average seasonal precipitation, 10.44 inches; percent seasonal, 73.

Highest annual precipitation, 23.73 inches; lowest, 5.15 inches.

No precipitation records for 1930 and 1931 are available for this station.

MOSQUERO, Harding County

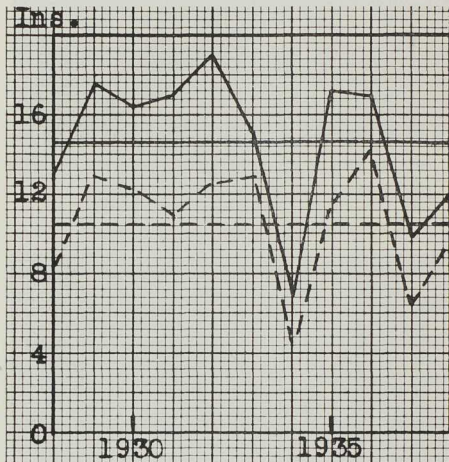


Approximate latitude— $35^{\circ} 46'$; longitude— $103^{\circ} 37'$. Elevation—5,579 feet. Average annual precipitation, 15.92 inches; average seasonal precipitation, 12.34 inches; percent seasonal, 78.

Highest annual precipitation, 23.59 inches; lowest, 8.60 inches.

For explanation of the above graphs, see bottom of page 13.

MOUNTAINAIR, Torrance County

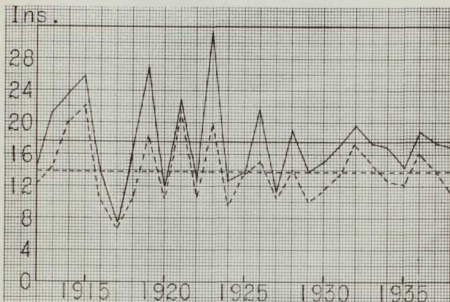


Approximate latitude— $34^{\circ} 31'$; longitude— $106^{\circ} 15'$. Elevation—6,475 feet. Average annual precipitation, 14.65 inches; average seasonal precipitation, 10.50 inches; percent seasonal, 72.

Highest annual precipitation, 19.09 inches; lowest, 6.82 inches.

For explanation of the above graph, see bottom of page 13.

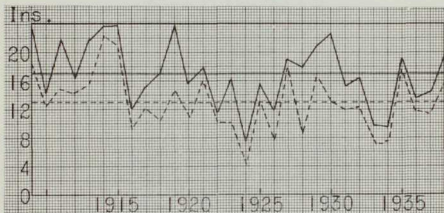
PORTALES, Roosevelt County



Approximate latitude— $34^{\circ} 12'$; longitude— $103^{\circ} 22'$. Elevation—4,004 feet. Average annual precipitation, 17.60 inches; average seasonal precipitation, 13.82 inches; percent seasonal, 79.

Highest annual precipitation, 31.61 inches; lowest, 7.40 inches.

Near RATON, Colfax County

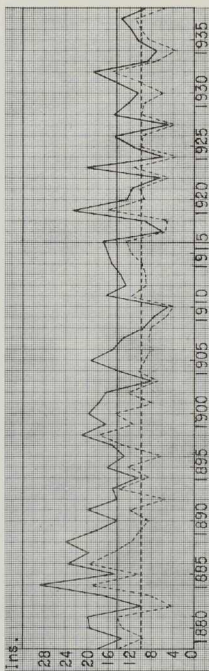


Approximate latitude— $36^{\circ} 54'$; longitude— $104^{\circ} 24'$. Elevation—6,600 feet. Average annual precipitation, 16.93 inches; average seasonal precipitation, 12.94 inches; percent seasonal, 76.

Highest annual precipitation, 23.81 inches; lowest, 7.57 inches.

For explanation of the above graphs, see bottom of page 13.

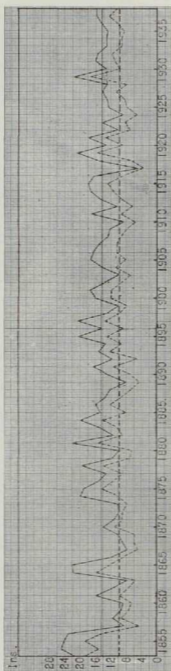
ROSSELL, Chaves County



Approximate latitude—33° 24'; longitude—104° 26'. Elevation—3,602 feet. Average annual precipitation, 14.41 inches; average seasonal precipitation, 9.90 inches; average seasonal, 6.9 inches.
 Highest annual precipitation, 28.73 inches; lowest, 4.83 inches.

For explanation of the above graph, see bottom of page 12.

SANTA FE, Santa Fe County



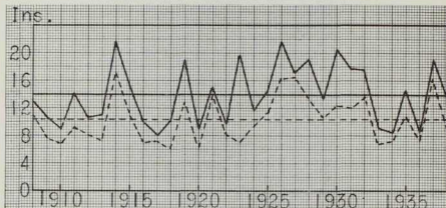
Approximate latitude—35° 41'; longitude—105° 57'. Elevation—7,013 feet. Average annual precipitation, 14.40 inches; average seasonal precipitation, 9.80 inches; percent seasonal, 68.

Highest annual precipitation, 24.80 inches; lowest, 8.03 inches.

Santa Fe has the longest continuous precipitation record in the State.

For explanation of the above graph, see bottom of page 13.

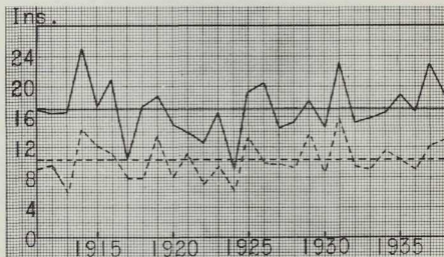
SANTA ROSA, Guadalupe County



Approximate latitude— $34^{\circ} 55'$; longitude— $104^{\circ} 40'$. Elevation—4,624 feet. Average annual precipitation, 13.94 inches; average seasonal precipitation, 10.34 inches; percent seasonal, 74.

Highest annual precipitation, 21.61 inches; lowest, 8.06 inches.

SILVER CITY, Grant County

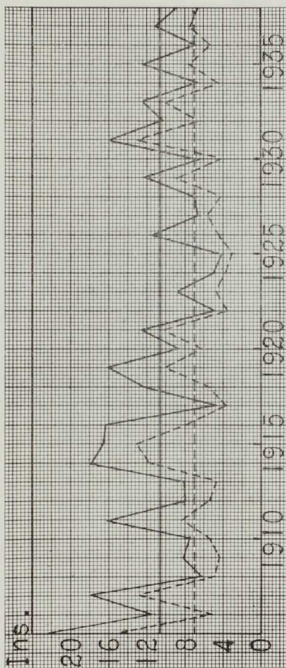


Approximate latitude— $32^{\circ} 46'$; longitude— $108^{\circ} 15'$. Elevation—5,937 feet. Average annual precipitation, 17.05 inches; average seasonal precipitation, 10.31 inches; percent seasonal, 60.

Highest annual precipitation, 24.97 inches; lowest, 9.10 inches.

For explanation of the above graphs, see bottom of page 13.

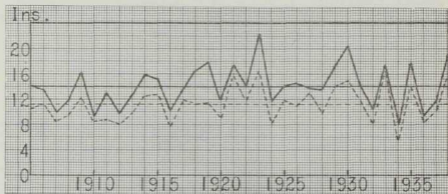
SOCORRO, Socorro County



Approximate latitude—34° 04'; longitude—106° 54'. Elevation—4,600 feet. Average annual precipitation, 10.64 inches; average seasonal precipitation, 6.98 inches; percent seasonal, 66.
 Highest annual precipitation, 22.40 inches; lowest, 4.12 inches.

For explanation of the above graph, see bottom of page 13.

SPRINGER, Colfax County

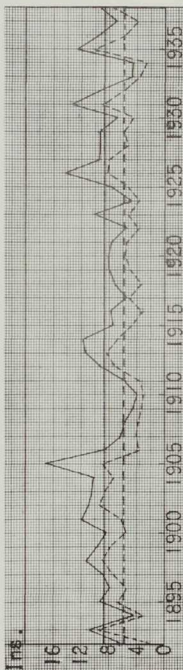


Approximate latitude— $36^{\circ} 23'$; longitude— $104^{\circ} 36'$. Elevation—5,857 feet. Average annual precipitation, 14.09 inches; average seasonal precipitation, 11.19 inches; percent seasonal, 79.

Highest annual precipitation, 22.35 inches; lowest, 8.33 inches.

For explanation of the above graph, see bottom of page 13.

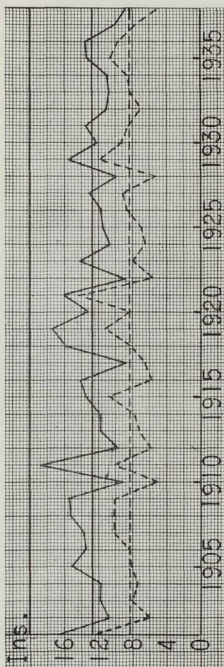
STATE COLLEGE, Doña Ana County



Approximate latitude— $32^{\circ} 15'$; longitude— $106^{\circ} 45'$. Elevation—3,909 feet. Average annual precipitation, 8.61 inches; average seasonal precipitation, 5.79 inches; percent seasonal, 67.
 Highest annual precipitation, 17.09 inches; lowest, 4.02 inches.

For explanation of the above graph, see bottom of page 13.

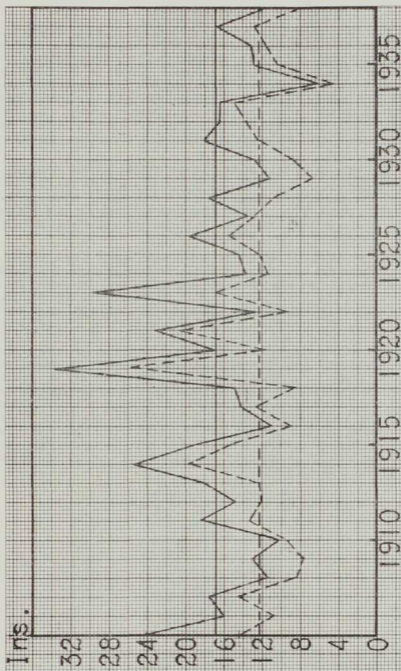
TAOS, Taos County



Approximate latitude—36° 30'; longitude—105° 35'. Elevation—6,983 feet. Average annual precipitation, 12.68 inches; average seasonal precipitation, 8.35 inches; percent seasonal, 66.
 Highest annual precipitation, 18.78 inches; lowest, 8.64 inches.

For explanation of the above graph, see bottom of page 13.

TUCUMCARI, Quay County



Approximate latitude— $35^{\circ} 11'$; longitude— $103^{\circ} 46'$. Elevation—4,200 feet. Average annual precipitation, 16.46 inches; average seasonal precipitation, 12.36 inches; percent seasonal, 75.
 Highest annual precipitation, 33.70 inches; lowest, 6.13 inches.
 For explanation of the above graph, see bottom of page 13.

EVAPORATION DATA

Evaporation from free water surfaces, in inches, at the various stations in New Mexico where such data are recorded is shown in the following tables. In each case, a standard evaporation pan 48 inches in diameter was used, except at Farmington, where the station is equipped with a square floating-type evaporation pan, and at Tucumcari, where the pan is as described on page 49. However, at Florida, Luna County, and at the Jornada Experimental Range Station, Doña Ana County, a floating type was used until October 1938 and the standard pan since that date.

Where extremely low winter temperatures prevail, evaporation data are not recorded during the severe winter months, because of the excessive amount of ice which would form in the evaporation pans. This accounts for lack of data for the winter months at Eagle Nest, El Vado Dam, Tucumcari Field Station, and the Navajo Experiment Station.

These evaporation data are quite significant when considered in connection with New Mexico irrigation storage reservoirs. For example, at the Elephant Butte Dam it will be noted that the record from the evaporation tank shows an average annual loss by evaporation of 99.561 inches. By the application of certain formulas or correction coefficients developed by the Division of Irrigation of the Bureau of Agricultural Engineering of the United States Department of Agriculture, the estimated annual evaporation from the Elephant Butte reservoir, based on the record from the evaporation tank, is approximately 72 inches. The United States Bureau of Reclamation estimates the surface area of the reservoir, at the normal water level, when 1,250,000 acre-feet of water are in the lake, at a little less than 27,000 acres. Therefore, the normal loss of water from that reservoir by evaporation is estimated as 162,000 acre-feet annually, an amount sufficient to irrigate an additional estimated 50,000 acres or more of cropland.

As stated on page 44, the evaporation shown in the following tables is in inches:

CONCHAS DAM, San Miguel County
Approximate latitude—35° 25'; longitude—104° 11'. Elevation—4,265 feet.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1937	5.489	6.014	7.256	11.995	12.165	13.731	13.940	15.239	10.377	7.904	5.141	2.901	112.042
1938	3.773	3.856	10.201	11.246	13.575	11.766	13.664	16.231	7.970	7.124	5.689	3.318	106.433
Average	4.631	4.935	8.728	11.620	12.870	12.748	13.802	15.740	9.174	7.464	5.415	3.110	110.237

The above station is equipped with a standard evaporation pan.

EAGLE NEST, Colfax County
Approximate latitude—36° 33'; longitude—105° 19'. Elevation—8,219 feet.
Average monthly evaporation, 1929 to 1938, inclusive.

April	May	June	July	Aug.	Sept.	Oct.	Nov
5.402	7.737	9.591	8.071	6.842	6.155	4.946	2.979
Total, May to November, 46.321.							

The above station is equipped with a standard evaporation pan.

ELEPHANT BUTTE DAM, Sierra County
 Approximate latitude—33° 10', longitude—107° 10'. Elevation—4,265 feet.

Year	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1916				5,797	15,467	16,874	11,832	9,551	9,107	7,337	4,928	3,246	
1917	2,143	4,135	9,642	12,925	13,498	15,289	13,247	11,868	9,003	8,918	5,122	3,963	109,692
1918	3,179	5,645	8,214	11,321	15,714	15,250	13,544	11,604	10,170	8,778	4,608	2,566	108,536
1919	2,716	4,036	7,203	9,193	12,655	12,617	11,145	11,129	7,873	7,817	3,976	2,734	93,159
1920	1,920	3,312	8,369	10,473	14,165	12,474	13,505	10,661	9,955	8,631	3,656	3,467	101,188
1921	3,556	4,876	8,156	10,983	14,265	13,069	10,242	9,870	9,745	9,408	5,336	3,678	103,184
1922	3,669	5,337	8,019	11,194	14,338	14,086	13,851	12,191	8,369	7,631	3,759	2,749	106,033
1923	3,851	3,314	7,674	11,097	14,480	17,063	12,327	12,097	7,830	7,445	2,765	3,835	99,878
1924	2,548	3,852	7,644	8,755	11,569	14,966	10,737	11,395	10,568	8,650	5,044	2,784	98,512
1925	2,437	4,656	8,237	11,077	11,743	15,383	11,960	10,795	9,288	6,813	4,148	2,509	99,046
1926	1,734	4,901	5,295	6,962	9,859	13,163	10,216	11,005	7,269	5,933	4,152	1,958	84,247
1927	3,090	4,758	7,846	10,220	14,833	13,421	12,375	8,983	7,611	6,010	4,743	2,422	96,912
1928	2,797	2,891	7,707	9,096	9,814	14,483	12,101	9,624	8,216	5,866	2,752	2,184	87,541
1929	3,447	4,192	7,307	11,126	12,009	14,197	9,928	7,981	7,448	4,535	2,506	2,312	86,988
1930	2,515	4,369	6,229	9,750	11,713	12,009	9,580	9,100	8,093	6,366	3,051	1,783	84,558
1931	1,725	2,251	6,747	6,712	10,388	11,560	10,419	8,326	6,539	5,895	3,480	1,965	76,027
1932	2,242	4,078	6,197	9,606	11,208	11,857	9,720	8,990	7,870	4,715	3,639	2,228	82,947
1933	2,337	3,179	7,219	8,287	11,768	9,932	13,105	11,174	9,892	6,547	4,608	3,841	91,859
1934	3,286	5,228	8,574	11,274	14,763	17,480	16,690	14,085	11,398	8,288	4,937	2,698	118,651
1935	3,224	4,175	9,199	12,304	12,576	16,805	15,967	10,850	8,049	8,502	4,855	2,404	108,910
1936	2,988	5,652	9,110	12,095	14,068	17,409	14,486	14,215	9,656	8,014	4,645	3,598	115,946
1937	4,377	4,745	7,822	14,018	15,497	18,770	15,769	14,036	9,860	7,561	5,779	3,005	119,239
1938	3,563	5,715	10,568	13,137	15,598	16,816	12,869	11,165	7,707	8,321	5,790	3,615	117,564
Average	2,879	4,391	7,807	10,323	13,130	14,480	12,497	10,897	8,785	7,244	4,270	2,855	99,561

The above station is equipped with a standard evaporation pan.

EL VADO DAM, Rio Arriba County
 Approximate latitude—36° 37', longitude—108° 47'. Elevation—6,424 feet.

Mean monthly evaporation for period covered by records.
 Averages, May to November, 1936-38.

May	June	July	Aug.	Sept.	Oct.	Nov.
6.616	8.625	8.862	8.441	6.247	4.333	2.046
Total, May to November, 45.200.						

The above station is equipped with a standard evaporation pan.

FARMINGTON, San Juan County
Approximate latitude—36° 43'; longitude—108° 11'. Elevation—5,220 feet.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1935	0.880	1.840	3.750	6.210	7.080	10.030	8.860	6.850	5.150	4.440	2.230	1.180	56.500
1936	1.460	1.580	4.790	6.460	7.980	8.320	6.660	4.740	4.560	2.950	1.760	0.970	52.250
1937	3.370	3.370	7.370	6.610	7.420	5.040	5.210	4.080	3.260	2.600	2.600	1.380	43.680
1938	1.030	0.930	2.940	5.750	6.750	6.030	5.430	5.280	3.450	3.300	1.840	0.950	43.680
Average	1.123	1.450	3.712	6.448	7.105	7.950	6.502	5.520	4.310	3.488	2.108	1.120	50.836

The above station is equipped with a square floating-type evaporation pan.

FLORIDA, Luna County
Approximate latitude—32° 35'; longitude—107° 35'. Elevation—4,596 feet.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1936	5.100	7.230	10.940	12.260	16.050	17.970	15.140	15.300	8.370	8.230	4.690	5.100	129.280
1937	4.960	5.190	13.610	14.600	15.760	20.290	13.900	12.250	11.410	8.200	6.590	6.200	134.960
1938	5.260	5.930	10.870							7.434	5.415		
Average	5.107	6.117	11.897	13.430	15.905	19.130	15.520	13.775	9.865	7.978	5.565	5.650	129.849

Station equipped with floating-type evaporation pan until October 1938; with standard evaporation pan after October 1938.

JORNADA EXPERIMENTAL RANGE, Doña Ana County
Approximate latitude—32° 37'; longitude—106° 44'. Elevation—4,150 feet.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1939	3.210	4.980	7.050	9.550	13.220	14.700	11.520	8.530	7.830	5.860	2.970		
1930	2.045	2.870	7.810	8.100	11.240	12.700	11.040	9.560	9.180	7.130	4.110	1.930	94.280
1931	2.650	4.275	6.770	9.200	12.495	11.960	11.090	9.983	9.370	7.520	4.225	2.145	80.055
1932	2.430	3.675	8.710	9.980	12.360	13.350	12.100	9.690	7.550	6.210	3.910	2.230	88.583
1933	4.100	5.490	8.150	10.550	13.140	13.690	13.060	12.210	10.110	7.320	4.560	3.460	93.895
1934	3.160	3.910	7.970	11.090	11.470	13.410	12.940	9.700	7.180	5.000	2.530		104.860
1935	2.680	4.470	7.480	9.070	11.730	12.340	10.190	10.120	6.640	5.600	3.400	2.260	94.580
1936	2.950	4.000	6.700	10.950	12.130	14.370	12.710	10.970	10.330	5.970	4.190	2.690	95.930
1937	2.895	4.080	7.080	9.820	13.300	14.730	10.330	12.640	7.760	6.990	4.320	2.850	96.705
1938													
Average	2.913	4.172	7.524	9.828	12.343	13.354	11.674	10.287	8.478	6.529	3.984	2.443	93.529

Station equipped with floating-type evaporation pan until October 1938; with standard evaporation pan after October 1938.

NAVAJO EXPERIMENT STATION, McKinley County
Approximate latitude—35° 47'; longitude—108° 30'. Elevation—6,300 feet.

Year	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.
1936						9.291	7.040	6.179	
1937	4.072	10.431	12.573	11.496	11.079	12.664	7.353	6.722	4.413
1938						12.265	11.775	6.633	6.899
Average	4.072	10.122	11.968	12.034	11.682	11.177	7.000	6.433	4.413

The above station is equipped with a standard evaporation pan.

PORTALES, Roosevelt County
Approximate latitude—34° 12'; longitude—103° 22'. Elevation—4,004 feet.
Average monthly evaporation, 1934 to 1938, inclusive.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
2.991	4.399	7.059	9.758	10.675	12.482	12.680	11.826	7.964	6.446	4.712	2.926	93.918

The above station is equipped with a standard evaporation pan.

STATE COLLEGE, Doña Ana County
 Approximate latitude—32° 15'; longitude—106° 45'. Elevation—3,909 feet.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1918	3.887	7.751	9.910	12.281	13.502	12.892	11.477	7.474	6.834	3.616	2.119	2.664	93.856
1919	2.662	4.054	7.464	10.359	11.698	11.638	12.809	9.655	9.045	3.039	3.855	3.018	91.758
1920	3.787	4.665	8.647	11.636	12.270	10.533	9.494	7.743	6.104	4.253	3.350	3.350	92.901
1921	3.511	3.716	8.577	12.669	13.342	12.537	10.912	8.163	5.697	3.382	2.685	2.685	97.562
1922	4.264	3.531	7.118	9.260	12.559	11.375	11.690	9.156	7.194	6.037	2.743	1.240	85.242
1923	2.964	3.531	7.118	9.260	12.559	11.375	11.690	9.156	7.194	6.037	2.743	1.240	84.761
1924	2.714	3.318	8.698	8.591	10.133	9.148	9.148	9.562	8.924	4.183	2.435	2.387	79.260
1925	1.914	4.737	8.081	6.754	8.926	10.620	10.096	9.396	6.788	4.599	3.427	2.139	74.477
1926	3.216	4.394	7.163	9.278	11.736	10.315	10.194	7.866	6.831	5.902	4.368	2.137	83.440
1927	3.027	4.128	8.105	8.995	9.445	11.780	10.823	7.891	6.908	5.017	2.671	2.777	83.440
1928	3.090	4.730	6.675	9.017	9.619	10.793	8.934	7.749	6.951	4.988	2.790	2.631	87.458
1929	2.868	4.416	7.150	7.728	11.199	11.961	9.947	7.484	6.183	4.169	3.836	2.847	82.619
1930	2.286	2.992	7.150	7.728	11.199	11.961	9.947	7.484	6.183	4.169	3.836	2.847	82.619
1931	2.868	4.416	7.150	7.728	11.199	11.961	9.947	7.484	6.183	4.169	3.836	2.847	82.619
1932	2.286	2.992	7.150	7.728	11.199	11.961	9.947	7.484	6.183	4.169	3.836	2.847	82.619
1933	2.652	4.158	8.393	10.280	13.752	12.284	13.642	11.077	9.430	6.183	3.551	2.551	100.530
1934	3.232	4.900	7.825	11.317	12.957	14.338	14.945	12.797	10.426	7.221	4.631	2.622	108.097
1935	3.456	3.952	8.313	11.607	15.097	12.436	12.199	12.426	7.184	4.411	2.622	2.622	102.998
1936	3.172	5.242	10.643	13.318	15.353	12.981	10.078	7.293	5.633	3.653	2.556	2.556	98.794
1937	3.308	4.452	6.469	10.694	13.867	13.729	12.981	7.545	6.519	4.384	2.640	2.640	94.508
1938	3.021	4.596	8.466	10.694	13.867	13.729	12.981	7.545	6.519	4.384	2.640	2.640	94.508
1939	3.674	4.797	8.130	10.672	11.923	13.661	11.030	10.390	9.063	5.974	3.256	2.924	94.894
Average	3.051	4.365	7.602	9.715	11.662	12.386	11.629	10.054	7.961	6.019	3.746	2.616	90.806

The above station is equipped with a standard evaporation pan.

TUCUMCARI FIELD STATION, Quay County
 Approximate latitude—35° 11'; longitude—103° 46'. Elevation—4,200 feet.
 Average monthly evaporation, 1916 to 1938, inclusive.

April	May	June	July	Aug.	Sept.
8.135	9.656	11.018	11.182	9.710	7.388

The above station is equipped with a circular evaporation pan 72 inches in diameter and with a depth of 24 inches. It is buried about 22 inches in the ground.

SUMMARY AND CONCLUSIONS

1. While much the larger part of New Mexico is either arid or semiarid, somewhat below the summits of the tallest mountains the average annual precipitation is probably 30 inches or more. The precipitation is usually higher on the east and south sides of mountains than at similar elevations on the west and north sides. The average annual precipitation for the State as a whole is 14.43 inches.

2. In the dry-farming regions of New Mexico, approximately three-fourths of the annual precipitation usually occurs during the growing season.

3. A large percentage of the rain in the growing season falls as brisk showers. Despite the aridity of the climate, torrential rains occasionally occur.

4. Snowfall in the mountains, especially those of northern New Mexico, furnishes a large percentage of the water which is used for irrigation. This water carries a comparatively small amount of sediment. Except in mountainous regions, little snow falls in the southern part.

5. Hail occurs in all regions of the State, but the area covered by destructive hailstorms is generally very limited.

6. Of the stations for which records are available throughout the entire year, the highest evaporation, 130.670 inches, is at Florida in Luna County, and the lowest, 51.443 inches, is at Farmington, in San Juan County.

APPENDIX

Much of the material on this and following pages is quoted from or adapted from Bulletin No. 238 and Press Bulletin No. 832 of this Experiment Station. The former, entitled "Soil and Rainfall Conservation in New Mexico," was published in 1936; the latter, "Forty-five Year Precipitation Record at State College, N. M.," was issued in mimeographed form in 1937. All of this material, in addition to the graph on page 41, pertains to precipitation at or near State College, New Mexico.

PRECIPITATION RECORDS AT STATE COLLEGE, N. M.

With the exception of three days in January 1906, daily precipitation records have been kept at State College since January 1, 1892. Complete monthly precipitation records for other stations in the Mesilla Valley in Doña Ana County are available for all except fourteen years of the period between January 1, 1851, and January 1, 1892; none of these stations being more than about twenty miles from State College.

The table below shows the dates since January 1, 1892, on which 1.25 inches or more of precipitation have fallen within twenty-four hours:

TABLE 1.—DATES ON WHICH 1.25 INCHES OR MORE OF PRECIPITATION FELL AT STATE COLLEGE, N. M., BETWEEN JANUARY 1, 1892, AND DECEMBER 31, 1939.

The amounts of precipitation are given in inches.

A naught appears opposite years in which there was not as much as 1.25 inches of precipitation in any 24-hour period during the year.

Year	Month and day	Amount	Year	Month and day	Amount
1892		0	1921		0
1893	February 14	1.25	1922		0
	August 7	1.47	1923		0
	September 28	2.02	1924		0
1894		0	1925	August 8	1.32
1895		0	1926	September 27	1.34
1896		0	1927	July 25	1.53
1897		0	1928	October 11	1.38
1898	September 5	1.48	1929		0
1899		0	1930		0
1900		0	1931	July 2	1.26
1901		0		August 3	1.40
1902	August 6	1.79	1932		0
	August 12	2.14	1933		0
1903	June 11	2.43	1934		0
1904	September 29	1.63	1935	August 29, between	
1905	September 4	1.32		11:05 p. m. and	
1906		0		midnight	2.63
1907		0		August 30, between	
1908		0		12 o'clock midnight	
1909		0		and 7:00 a. m.	1.83
1910		0		An additional .03	
1911		0		inch fell between	
1912		0		7:00 a. m. and 5:00	
1913		0		p. m., August 30;	
1914		0		the total for the	
1915		0		24 - hour period	
1916		0		thus being	6.49
1917	August 14	1.50	1936		0
1918		0	1937		0
1919		0	1938	July 20	1.25
1920		0	1939		0

It will be noted from the above table that during the eleven-year period, 1906 to 1916, inclusive, there was no twenty-four-hour period at State College, N. M., during which there was as much as 1.25 inches of precipitation; and that during the nineteen years from 1906 to 1924 there was only one twenty-four-hour period during which the precipitation amounted to this

much or more. However, in 1893 there were three days, one each in three different months, in which the precipitation amounted to at least this much. Although the average annual precipitation at State College is only 8.55 inches, as shown by table 1, 6.49 inches of rain fell within twenty-four hours on August 29 and 30, 1935. The December 1934 number of the "Monthly Weather Review," published by the United States Weather Bureau, states that "Of all the United States, the Southwest, particularly the normally drier portions, has the most erratic rainfall."

At the United States Cotton Field Station located about one-half mile south of the point at which 6.46 inches of rain fell between 11.05 p.m., August 29, and 7:00 a.m., August 30, 1935, between 6.80 and 6.81 inches of rain fell during this period of 7 hours and 55 minutes.

A standard United States Weather Bureau tipping bucket recording machine was in operation at State College during the above-mentioned rain-storm, but the rain fell so rapidly during about ten minutes of the fore part of the downpour that the record made by the machine was not at all distinct for that short interval. Table 2 shows a record of the precipitation, by 5-minute periods, from 11:05 p.m., August 29, to 2:40 a.m., August 30, 1935. After 2:40 a.m., August 30, the rain fell comparatively slowly until the end of the storm.

TABLE 2.—PRECIPITATION, BY 5-MINUTE PERIODS, FROM 11:05 P. M., AUGUST 29, TO 2:40 A. M., AUGUST 30, 1935, AT STATE COLLEGE, N. M.

P. M.	August 29	Inch	A. M.	August 30	Inch
11:05 to	11:10	.05	12:50 to	12:55	.03
11:10 "	11:15	.31	12:55 "	1:00	.13
11:15 "	11:20	.40	1:00 "	1:05	.02
11:20 "	11:25	.40	1:05 "	1:10	.11
11:25 "	11:30	.46	1:10 "	1:15	.08
11:30 "	11:35	.60	1:15 "	1:20	.02
11:35 "	11:40	.31	1:20 "	1:25	.03
11:40 "	11:45	.05	1:25 "	1:30	.02
11:45 "	11:50	.00	1:30 "	1:35	.01
11:50 "	11:55	.00	1:35 "	1:40	.03
11:55 "	12:00	.04	1:40 "	1:45	.08
A. M.	August 30		1:45 "	1:50	.07
12:00 to	12:05	.14	1:50 "	1:55	.09
12:05 "	12:10	.03	1:55 "	2:00	.15
12:10 "	12:15	.09	2:00 "	2:05	.23
12:15 "	12:20	.09	2:05 "	2:10	.20
12:20 "	12:25	.22	2:10 "	2:15	.18
12:25 "	12:30	.32	2:15 "	2:20	.11
12:30 "	12:35	.25	2:20 "	2:25	.15
12:35 "	12:40	.06	2:25 "	2:30	.06
12:40 "	12:45	.05	2:30 "	2:35	.07
12:45 "	12:50	.02	2:35 "	2:40	.10

After going over the tipping-bucket record of the rainfall of this storm and applying standard methods of computation, the United States Weather Bureau furnished the following data:

Greatest amount, in inches, of rain that fell in any consecutive	
5 minutes	.64
10 "	1.06
15 "	1.50
30 "	2.48
60 "	2.77
120 "	4.15

The area of excessive precipitation appears to have been only three or four miles wide and about seven miles long.

The following table shows, for each month, the average number of days on which different amounts of precipitation, up to 1 inch, were recorded at State College, N. M., in the 46 years, 1892 to 1905 and 1907 to 1938*, and the number of days on which 1.10 inch or more were recorded.

Average, Inch	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
.01 or more	2.5	2.7	2.3	1.6	2.0	2.9	7.5	7.9	4.9	3.4	2.3	2.8	42.8
.10 or more	.9	1.2	1.2	.7	.8	1.4	4.4	4.1	2.7	2.1	1.3	1.5	22.3
.20 or more	.4	.6	.7	.3	.5	1.0	2.8	2.6	1.9	1.3	.8	.9	13.8
.30 or more	.2	.3	.5	.2	.3	.7	1.7	2.0	1.4	.8	.6	.5	9.2
.40 or more	.15	.2	.3	.15	.3	.5	1.2	1.5	1.1	.5	.4	.3	6.6
.50 or more	.09	.13	.15	.07	.2	.3	.9	1.0	.8	.4	.3	.2	4.5
.60 or more	.04	.07	.04	.07	.2	.2	.7	.7	.6	.3	.2	.13	3.3
.70 or more	.04	.07	.04	.04	.17	.11	.5	.6	.5	.2	.15	.11	2.5
.80 or more	.02	.02	.02	.04	.04	.04	.4	.4	.3	.13	.09	.09	1.6
.90 or more	.02	.02	.04	.02	.04	.3	.3	.2	.04	.07	.07	.11	1.1
1.00 or more		.02	.02	.02		.02	.11	.2	.2	.04	.02		.7

The number of days on which different amounts occurred

1.10 or more		1	1	1		1	4	9	8	2	1		28
1.20 or more			1		1		3	8	8	1	1		24
1.30 or more						1	1	8	5	1			16
1.40 or more						1	1	7	3				12
1.50 or more						1	1	5	2				9
1.60 or more						1		4	2				7
1.70 or more						1		4	1				6
2.40 or more						1		2					3
3.86 or more								1					1

*One record in January 1906 was incomplete, so that in the table it was necessary to eliminate that year.

As shown by the above table, there were nearly twice as many days in September with an inch or more of rain as in July, but 10 per cent fewer than in August. With the exception of rainy days with less than .10 inch of precipitation, slightly more rainy days in July than in August had less than .20 inch of precipitation. There were fewest rainy days in April and the largest number in August. The largest amount of precipitation on any one day in January during the 47 years was only .86 inch. The average precipitations for the months, in inches, were: January, .30; February, .37; March, .39; April, .24; May, .34; June, .56; July, 1.64; August, 1.80; September, 1.21; October, .71; November, .53; December, .52.

Considering the frequency of days with a total precipitation of at least .01 inch as 100 percent, the frequencies of days with heavier precipitations were as shown in the following table:

Inch	Percent	Inch	Percent
.10 or more	55	.60 or more	8
.20 or more	32	.70 or more	6
.30 or more	21	.80 or more	4
.40 or more	15	.90 or more	3
.50 or more	11	1.00 or more	2

From the above table it will be noted that as much as an inch of rain fell on only 2 percent of the rainy days, but that .9 inch fell on 3 percent of such days, .7 inch on 6 percent of them, and that only about half of the days on which there was more than a trace of rain had a precipitation of as much as a tenth of an inch. The precipitation on one rainy day of approximately every nine amounted to half an inch or more.

PERCENTAGE OF RAINY DAYS AND AMOUNT OF PRECIPITATION PER RAINY DAY, BY WEEKS, FROM JUNE 24 TO OCTOBER 27, DURING THE 47-YEAR PERIOD, 1892 TO 1938, AT STATE COLLEGE, N. M.

Week	Percent- age of days which were rainy	Average amount of precipi- tation per rainy day	Week	Percent- age of days which were rainy	Average amount of precipi- tation per rainy day
		Inch			Inch
June 24 to June 30	16	.16	Aug. 26 to Sept. 1	20	.31
July 1 to July 7	19	.22	Sept. 2 to Sept. 8	19	.26
July 8 to July 14	22	.24	Sept. 9 to Sept. 15	12	.23
July 15 to July 21	28	.24	Sept. 16 to Sept. 22	17	.20
July 22 to July 28	26	.21	Sept. 23 to Sept. 29	15	.34
July 29 to Aug. 4	26	.16	Sept. 30 to Oct. 6	11	.16
Aug. 5 to Aug. 11	31	.25	Oct. 7 to Oct. 13	12	.30
Aug. 12 to Aug. 18	24	.22	Oct. 14 to Oct. 20	9	.19
Aug. 19 to Aug. 25	25	.19	Oct. 21 to Oct. 27	11	.16

There were 59 per cent more rainy days and 79 per cent more precipitation during the weeks beginning September 2 than during the weeks beginning September 9, and there were 42 per cent more rainy days during the weeks beginning September 16 than during those beginning September 9. This indicates that in the vicinity of State College, N. M., there would ordinarily be appreciably less danger of getting hay wet if the cutting was done about September 9 than if cut either September 2 or September 16.

The total precipitation of the weeks beginning September 30 amounted to only 36 percent of the total for the weeks beginning September 23 and to only 49 percent of the total for the weeks beginning October 7. It seems odd that for a period as long as 47 years a week should have had so little rainfall as compared with the precipitations of the weeks immediately preceding and following it.

Among other interesting features revealed by the 47-year daily precipitation record, January 1, 1892, to December 31, 1938, for State College, N. M., may be noted the following:

So far as total rainfall was concerned, the total for the last 15 days of September was only 9 percent less than for the first 15 days of July. There were 20 percent more rainy days during the July 1 to 15 period than in the 15 days in September referred to, however, during the 47 years. In this bulletin all days with .01 inch or more of precipitation are referred to as rainy days, and all dates mentioned are inclusive.

While there were comparatively few rainy days during the week beginning October 7, the rains averaged among the heaviest, when entire weeks are considered.

There were 15 percent more rainy days, and 30 percent more rain, the last week of August than during the first week of September. The great difference in the amount of precipitation is attributable largely to the torrential rain, totaling 6.49 inches, which fell August 29 and 30, 1935.

During the 47 years, 19 percent more rain fell at State College during the weeks beginning September 23, which week is usually not considered as being in the rainy season, than during the weeks beginning July 29, near the middle of the rainy season.

Other odd facts revealed by these data, though they may not be of much significance, are stated in the two short paragraphs which immediately follow:

For this period the precipitation for July 1 and 2 averaged, per day, nearly twice as heavy as the daily average for July 3, 4, 5, and 6.

The precipitation for July 9, 10, and 11 averaged 3 times as much per day as that for July 12, 13, 14, and 15.

During the rainy season at State College, rainy days tend to occur in groups. Especially if mere traces of precipitation are included, it is not so very uncommon in July and August for it to rain every day for six, or even seven, days.

The wettest week, on the average, in the year was August 5 to 11. During this week nearly a third of the days were rainy, the rainy days averaging a quarter of an inch of precipitation each. In the 47-year period, 10 percent of the entire precipitation fell during the weeks beginning August 5.

The erratic nature of the precipitation in this vicinity is illustrated not only by the 6.49 inches of rain which fell at State College August 29 and 30, 1935, after a long period in which the rainfall had been unusually light, but by the fact that during the 20 months between November 19, 1906, and July 18, 1908, the greatest amount of precipitation on any one day was only .49 inch, while in the 24 days between July 5 and July 28, 1927, there were 5 days on each of which more than this amount fell. Four of the 5 days, July 24 to July 28, 1927, had precipitations of .52 inch or more, the average for the 4 days being .90 inch each. The greatest amount of rain that fell on any one day at State College during the 48 years ending December 31, 1939, was the 3.86 inches on August 30, 1935, which was part of the torrential rain referred to above. The longest period without even so much as .01 inch of precipitation was the 95 days between February 22 and May 27, 1925.

The .64 inch of rain which fell in 5 minutes during the evening of August 29, 1935, was more than the total precipitation for the period of almost 9 months between September 28, 1903, and June 26, 1904, and only .02 inch less than the total precipitation between September 18, 1917, and June 4, 1918.

The wettest year of the 47 was 1905, with a total precipitation of 17.09 inches; the driest, 1910, with a total of 4.02. The average annual precipitation at State College for the 48-year period which ended December 31, 1939, was 8.55 inches.

DAILY PRECIPITATION RECORD FOR STATE COLLEGE, N. M.

1892				Month	Day	Inches	Total	Month	Day	Inches	Total
Jan.	17	.03		Aug.	8	.01		Feb.	14	1.25	
	18	.10			18	.02			26	.01	1.26
	30	.54	.67		21	.10		Mar.	10	.015	.015
Feb.	6	.03			23	.11		Apr.		0	0
	13	.10			27	.04		May	12	.74	.74
	25	.12		Sept.	4	.05	.05	June		0	0
	26	.11	.36	Oct.	21	.35		July	8	.36	
Mar.	3	.04			28	.41			14	.06	
	4	.42	.46		29	.04	.80		16	.30	
Apr.	3	.06		Nov.	1	.06			18	.60	
	4	.015			2	.68			19	.18	
	5	.01	.085		4	.73	1.47		20	.12	
May	27	T*	T	Dec.	3	.13			27	.04	
June	24	.01			11	.19			28	.12	
	30	.02	.03		19	.15			29	.26	2.04
July	12	.02			30	.04	.51	Aug.	1	.46	
	23	.08		Total			6.515		2	.30	
	24	.57		*Trace—less than .01 inch.					3	.15	
	25	.04							5	.53	
	29	.42		1893					6	.20	
	30	.20	1.33	Jan.	18	.07	.07		7	1.47	
									16	.09	
									24	.99	4.19

Month	Day	Inches	Total	Month	Day	Inches	Total	Month	Day	Inches	Total	
Sept.	1	.01		May	18	.06		July	1	.09		
	16	.02			20	.03			2	.21		
	17	.12			21	.06			3	.16		
	18	.15			22	.06		4	.25			
	20	.01		23	.14	.35	6	.27				
	21	.03					18	1.08				
	25	.03			June	12	.08		19	.04		
28	2.02	2.39	19	.01			20	.01				
			30	.01		.10	21	.05				
Oct.	1	.03	.03	July	9	.99		22	.17			
Nov.	26	.03	.03		10	.35		28	.14			
	Dec.	21	.02		.02	11	.95		29	.03	2.50	
Total			10.785		12	.03		Aug.	5	.16		
1894					13	.13			7	.18		
Jan.	12	.08	.08		21	.05			12	.04		
	Feb.	6	.02			22	.23			23	.04	
	7	.03	.05		23	.20			27	.05	.47	
Mar.	5	.07			24	.04		Sept.	8	.10		
	17	.09			25	.05			12	.05		
	18	.10	.26	30	.01	3.03	18		.62			
Apr.	6	.01		Aug.	3	.05			19	.31		
	12	.01	.02		4	.03			30	.16	1.24	
May	25	T	T		6	.46		Oct.	2	.06		
	June	15	T		T	10	.01			6	.02	
July	1	.03			11	.01			12	.34		
	8	.17			12	.30			13	.75		
	9	.12			14	.03			22	.86		
	20	.23			19	.37		23	.11	2.14		
	30	.07	.62		23	.11		Nov.	0	0	0	
					24	.04			Dec.	29	T	T
Aug.	2	.74		25	.70	2.19	Total			7.99		
	4	.04		29	.08							
	8	.04		Sept.	19	.01		1897				
	11	.10			24	.03		Jan.	2	.14		
	18	.37			28	.65			19	.05		
22	.10		29		.14		30		.16	.35		
23	.27		30		.13	.96	Feb.	0	0	0		
30	.40	2.06	Oct.	2	.70			Mar.	15	.04		
Sept.	30	.18		.18	28	.05				16	.23	
	Oct.	19		.34		29	.45		1.20	17	.09	
		23	.07		Nov.	12	.09		18	.10	.46	
		27	.06	.47		23	.03		Apr.	26	.23	.23
Nov.	0	0		24		.33	.45	May		19	.69	
	Dec.	5	.01		Dec.	22	.05				20	.04
		14	.54			23	.27		.32	25	.74	
31		.18	.73	Total			9.29	28	.05	1.52		
Total			4.47	1896				June	21	.02		
1895				Jan.	22	.01			26	.03		
Jan.	27	.08	.08		30	.10			27	.02	.07	
	Feb.	13	.15			31	.20	.31	July	1	.28	
	26	.45	.60	Feb.	7	.06		6		.05		
Mar.	17	.01	.01		23	.05	.11	10		.72		
	Apr.	0	0	Mar.	0	0		11		.03		
			Apr.		3	.11	.11	16		.41		
May	25	.10		.10	May	25	.10	.10		21	.11	
	June	20	.02			June	20	.02			23	.24
		27	.33				27	.33		24	.22	
30		.66	1.01	30	.66		1.01	26	.15			
							30	.04	2.25			

Month	Day	Inches	Total
Aug.	3	.13	
	10	.62	
	14	.38	
	19	.03	1.16
Sept.	1	.06	
	3	.05	
	11	.79	
	12	.41	
	14	.26	
	15	.07	
	16	.05	
17	.45	2.14	
Oct.	8	.13	
	9	.22	
	10	.05	
	25	.19	
	29	.14	.73
Nov.	24	T	T
Dec.	2	.03	.03
Total			8.94

1898			
Jan.	11	.03	
	27	.05	
	28	.21	
	29	.09	.38
Feb.	9	.02	.02
Mar.	2	.08	
	10	.13	
	11	.05	.26
Apr.	10	.05	
	11	.03	
	15	.60	
	16	.01	.69
May	9	T	T
	June		
July	7	.25	
	9	.90	
	10	.10	
	23	.27	
	24	.12	
	30	.19	1.83
	Aug.	1	.94
2		.20	
3		.07	
5		.02	
6		.03	
10		.06	
14		.10	
17		.08	
18		.35	
21		.04	
25		.24	
30	.05	2.18	
Aug.	1	.28	
	5	.61	
	8	.51	
	10	.76	
	21	.01	
25	.26	2.43	

Month	Day	Inches	Total
Sept.	1	.18	
	3	.01	
	5	1.48	
	6	.01	
	9	.03	
10	.03	1.74	
Oct.	6	T	T
	Nov.		
Nov.	26	.40	
	27	.03	.43
Dec.	8	.38	
	9	.42	
	11	.08	
	16	.09	
17	.20		
18	.08	1.25	
Total			11.21

1899			
Jan.	12	.05	.05
Feb.	6	.06	
	25	.03	.09
Mar.	27	.19	.19
Apr.	5	.13	.13
May	19	T	T
June	11	.20	
	15	.02	
	24	.31	
	25	.08	
	26	.02	.63
July	7	.14	
	8	.30	
	9	.84	
	10	.84	
	16	.18	
	17	.15	
	18	.99	
	21	.77	
	24	.02	
	25	.31	4.54
Aug.	3	.11	
	5	.41	
	6	.28	
	7	.06	
	8	.30	
9	.63		
24	.02	1.81	
Sept.	8	.74	
	9	.03	.77
Oct.	3	.03	.03
Nov.	19	1.20	1.20
Dec.	7	.03	
	19	.14	
	20	.06	.23
Total			9.67

1900			
Jan.	7	.01	
	9	.32	.33
Feb.	7	.42	.42
Mar.	5	.04	
	14	1.13	
	22	.19	1.36
Apr.	4	.23	
	5	.08	.31
May	31	.88	.88
June	2	.04	
	19	.04	
	28	.04	
	30	.04	.16
July	3	.25	
	4	.50	
	7	.31	
	10	.04	
	14	.01	
22	.09		
25	.32	1.52	
Aug.	7	.01	
	9	.83	
	18	.07	.90
Sept.	2	.85	
	3	.22	
	21	.62	
	23	.09	
	30	.02	1.80
Oct.	1	.20	
	13	.04	
	16	.21	.45
Nov.	18	.12	
	19	.11	.23
Dec.	31	.04	.04
Total			8.40

1901			
Jan.	25	.06	
	26	.04	
	28	.02	
	29	.19	.31
Feb.	7	.16	
	8	.11	
	9	.11	
	10	.11	
	11	.38	
	24	.08	.95
Mar.	8	.28	
	23	.33	.61
Apr.	17	.30	.30
May	T	T	
June	1	.60	
	17	.02	
	25	.44	
	26	.02	1.08

1905			
Month	Day	Inches	Total
Jan.	1	.03	1.01
	9	.22	
	10	.76	
Feb.	4	.11	1.26
	6	.09	
	7	.09	
	12	.01	
	17	.52	
	18	.28	
	23	.06	
Mar.	28	.10	2.03
	2	.47	
	6	.35	
	7	.32	
	8	.19	
	10	.06	
	14	.14	
Apr.	16	.06	1.89
	17	.11	
	31	.33	
	1	.27	
	11	.40	
May	12	.02	.06
	23	1.20	
	7	.05	
June	21	.01	.58
	10	.02	
	12	.16	
July	16	.40	1.83
	19	.39	
	21	.08	
	23	.13	
	25	.31	
	26	.35	
	28	.02	
Aug.	31	.55	1.48
	4	.23	
	6	.04	
	8	.71	
	16	.50	
Sept.	3	.02	3.08
	4	1.32	
	6	1.07	
	8	.22	
	23	.10	
Oct.	25	.35	.83
	1	.24	
	2	.44	
Nov.	21	.14	2.14
	23	.01	
	7	.54	
	8	.94	
Dec.	17	.06	.90
	27	.60	
	10	.35	
Total			17.09

1906			
Month	Day	Inches	Total
Jan.	1	.08	.81
	8*		
	9*		
	10*	.73	
Feb.	4	.10	.68
	10	.05	
	11	.53	
Mar.	13	.13	.13
	4	.05	.50
6	.45		
May	19	.12	.40
	20	.28	
June	27	T	T
	5	.02	2.21
11	.73		
13	.11		
17	.78		
19	.55		
Aug.	26	.02	.45
	2	.04	
	3	.01	
	4	.01	
	5	.07	
Sept.	14	.05	.31
	21	.01	
	27	.26	
	21	.16	
Oct.	22	.03	.24
	23	.08	
	27	.04	
	13	.04	
Nov.	22	.20	1.84
	2	.01	
	3	.42	
	17	.01	
	18	.40	
Dec.	30	1.00	1.04
	2	.35	
	3	.25	
	4	.18	
Total	27	.26	1.04
	Total		
*While the total precipitation for January 8, 9, and 10, 1906, was 73 inch. the amount that fell each of these days was not recorded.			
1907			
Jan.	8	.30	.74
	13	.13	
	15	.18	
	17	.13	
Feb.	T		T

Month	Day	Inches	Total
Mar.	28	.05	.05
Apr.		T	T
May	30	.22	.22
June	17	.20	.58
	20	.38	
July	17	.06	.75
	21	.30	
	28	.39	
Aug.	19	.09	1.42
	20	.10	
	25	.49	
	26	.19	
	27	.15	
	28	.38	
Sept.	29	.02	1.08
	13	.31	
	16	.42	
Oct.	19	.35	.57
	17	.28	
	18	.23	
Nov.	24	.06	.93
	17	.40	
	18	.23	
Dec.	25	.30	0
	0	0	
Total			6.34

1908			
Month	Day	Inches	Total
Jan.	1	.11	.38
	3	.15	
	13	.12	
Feb.	3	.30	.47
	4	.02	
	11	.15	
Mar.	19	.02	.07
	20	.05	
Apr.	2	.09	.27
	3	.09	
	8	.06	
May	18	.03	.23
	22	.01	
June	23	.22	0
	0	0	
July	3	.03	1.99
	7	.20	
	8	.03	
	9	.03	
	14	.01	
	15	.10	
	18	.67	
	19	.12	
	23	.04	
	28	.64	
29	.11		
30	.01		

PRECIPITATION AND EVAPORATION IN NEW MEXICO

Month	Day	Inches	Total
Dec.	2	.05	.30
	5	.08	
	8	.02	
	22	.15	
Total			9.19

Month	Day	Inches	Total
Dec.	15	.90	.92
	16	.02	
Total			11.55

Month	Day	Inches	Total
Dec.	1	.36	3.74
	12	.05	
	19	.82	
	21	.59	
	22	.39	
	23	.22	
	24	.95	
28	.36		
Total			11.85

1913

Jan.	6	.30	.49
	22	.19	
Feb.	7	.37	.80
	10	.09	
	12	.02	
	25	.25	
Mar.	8	.07	.20
	9	.03	
	13	.10	
Apr.	20	.90	1.40
	21	.32	
	22	.18	
May	27	.01	.01
June	2	.01	2.63
	7	.77	
	8	.01	
	9	.36	
	15	.55	
	18	.15	
	19	.05	
	21	.18	
23	.54		
July	15	.50	1.27
	16	.02	
	21	.62	
	30	.13	
Aug.	1	.27	1.33
	4	.07	
	5	.08	
	10	.01	
	11	.57	
	18	.07	
	19	.01	
	27	.07	
	25	.14	
	28	.03	
	31	.10	
Oct.	2	.13	1.70
	3	.12	
	4	.07	
	5	.13	
	10	.53	
	27	.12	
	24	.07	
	25	.34	
	28	.43	
	31	T	
Nov.	16	.46	.80
	17	.07	
	19	.02	
	24	.19	
	25	.06	

1914

Jan.	27	.07	.10
	28	.03	
Feb.	17	.16	.16
Mar.	3	.01	.10
	19	.04	
	30	.05	
Apr.	T	T	T
May	14	.05	.32
	19	.01	
	23	.10	
	30	.04	
	31	.12	
June	1	.58	1.85
	10	.37	
	14	.15	
	17	.66	
	26	.09	
	26	.09	
July	1	.27	2.08
	6	.32	
	7	.49	
	16	.19	
	17	.05	
	18	.06	
	19	.56	
Aug.	9	.04	1.48
	10	.04	
	21	.46	
	23	.03	
	24	.35	
	29	.54	
Sept.	3	.05	.92
	5	.06	
	19	.51	
	15	.05	
	17	.03	
Oct.	19	.22	.54
	20	.03	
	21	.11	
	27	.09	
	24	.01	
Nov.	3	.01	.56
	11	.55	
	23	.07	
	24	.11	
	25	.06	

1915

Jan.	23	.03	.64
	29	.02	
	30	.59	
Feb.	17	.01	.50
	19	.06	
	20	.38	
	25	.14	
	25	.14	
Mar.	2	.75	1.22
	3	.06	
	9	.02	
	11	.16	
Apr.	31	.24	.11
	5	.04	
May	28	.01	0
	29	.06	
	29	.06	
June	T	T	T
July	11	.25	1.24
	15	.06	
	19	.38	
	24	.06	
	25	.49	
Aug.	5	.13	1.32
	6	1.03	
	25	.01	
	27	.04	
	28	.11	
Sept.	4	.31	2.11
	14	.02	
	17	.82	
	19	.43	
	23	.04	
Oct.	24	.28	.01
	29	.21	
	14	.01	
Nov.	6	T	T
Dec.	5	.11	.12
	27	.01	
Total			7.37
1916			
Jan.	18	.01	.25
	20	.24	
Feb.	21	.18	.18
Mar.	22	.15	.67
	31	.52	

Month	Day	Inches	Total
Dec.	18	.22	
	19	.03	.25
Total			8.05

1920			
Jan.	4	.14	
	8	.02	
	10	.05	
	11	.17	
	14	.10	
	21	.01	
	22	.01	
	23	.22	.72

Feb.	5	.33	
	8	.02	
	9	.08	.43

Mar.	10	.02	
	24	.05	.07

Apr.	0		0
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May	8	.06	
	21	.09	
	25	.14	
	27	.29	.58

June	2	.50	
	12	.07	
	26	.05	
	27	.49	
	29	.09	1.20

July	2	.65	
	8	.05	
	10	.02	
	19	.06	
	20	.17	
	21	.04	
	24	.06	1.05

Aug.	5	.95	
	9	.03	
	10	.05	
	11	.16	
	12	.18	
	13	.15	
	14	.10	
	21	.18	
	24	.94	2.74

Sept.	7	.01	
	15	.01	
	16	.06	.08

Oct.	23	.16	
	24	.80	
	25	.01	
	28	.01	
	29	.17	1.15

Nov.	5	.01	.01
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Dec.	0		0
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Total			8.03
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1921			
Month	Day	Inches	Total

Jan.		T	T
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Feb.	27	.08	
	28	.04	.12

Mar.	17	.04	.04
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Apr.	3	.04	.04
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May	14	.08	
	15	.27	
	22	.01	.36

June	4	.33	
	5	.15	
	13	.06	
	26	.02	.56

July	7	.15	
	9	.22	
	13	.015	
	16	.02	
	18	.15	
	19	.21	
	24	.02	
	29	.40	
	30	.04	
	31	.06	1.285

Aug.	3	.06	
	6	.15	
	8	.07	
	11	.06	
	16	.13	
	17	.02	
	18	.06	
	19	.74	
	22	.02	
	23	.02	
	27	.21	
	30	.04	1.58

Sept.	2	.62	
	11	.75	
	16	.12	
	18	.03	
	23	.15	1.67

Oct.	13	.83	
	14	.26	1.09

Nov.	29	.57	.57
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Dec.	6	.15	
	7	.06	
	8	.02	.23

Total			7.545
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1922			
Month	Day	Inches	Total

Jan.	3	.49	
	4	.01	
	20	.06	.56

Feb.	0		0
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Mar.	24	T	T
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Apr.	2	.04	
	3	.12	
	26	.14	.30

Month	Day	Inches	Total
May	31	.38	.38

June	30	.30	.30
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July	2	.15	
	13	.16	
	31	.14	.45

Aug.	7	.25	
	8	.29	
	12	.06	
	13	.02	
	18	.02	
	19	.35	
	20	.02	
	27	.02	1.05

Sept.	4	.09	
	8	.74	
	10	.17	
	19	.03	
	20	.15	
	21	.14	1.32

Oct.	14	.16	
	15	.21	
	30	.11	.48

Nov.	16	.06	
	22	.04	
	28	.12	
	29	.27	.49

Dec.	2	.19	
	3	.06	.25

Total			5.58
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1923			
Month	Day	Inches	Total

Jan.	21	.01	
	30	.13	
	31	.02	.16

Feb.	1	.02	
	4	.16	
	15	.20	
	21	.70	
	22	.07	
	25	.03	
	26	.21	1.29

Mar.	3	.24	
	28	.22	
	29	.29	.75

Apr.	16	.02	
	19	.15	.17

May	0		0
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June	0		0
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July	6	.05	
	7	.02	
	10	.23	
	11	.02	
	13	.16	
	14	.31	
	20	.47	
	21	.05	
	30	.01	1.32

Month	Day	Inches	Total	Month	Day	Inches	Total	Month	Day	Inches	Total
Aug.	5	.02		July	13	.61		Nov		0	0
	6	.04			16	.31		Dec.	30	.06	
	7	.09			18	.34			31	.43	.49
	8	.03			21	.01			Total		7.90
	11	.01			22	.01			1926		
	12	.85			23	.02		Jan.	1	.05	
	13	.01			25	.17			2	.13	
	15	.03			28	.52			5	.18	
	17	.03			29	.29	2.28		21	.04	
	19	.31		Aug.	1	.32			23	.03	
	20	.65			4	.05			24	.01	.49
	21	.01			5	.04		Feb.	1	.04	.04
	23	.06			26	.26	.68	Mar.	3	.12	
	25	.22		Sept.	16	.45	.45		4	.03	
	26	.07							5	.12	
	27	.02		Oct.	6	.23	.23		6	.06	
	29	.51	2.96	Nov.		0	0		24	.20	
Sept.	5	.32		Dec.	9	.15			25	.02	
	22	.40			29	.02	.17		26	.47	
	23	.02	.74		Total		4.83		27	.57	
Oct.	1	.01			1925				29	.36	1.95
	30	.12		Jan.	15	.02	.02	Apr.	14	.08	
	31	.25	.38	Feb.	20	.20			29	.40	
Nov.	1	.62		Mar.	21	.06	.26		30	.07	.55
	7	.01		Apr.		0	0	May	4	.76	
	9	.01		May		0	0		26	.19	
	10	.09		June	28	.32	.32		29	.79	
	11	.47		July					30	.01	1.75
	12	.01		Aug.	24	.04		June	4	.03	
	17	.06			25	.03			17	.04	
	27	.09			30	.03	.10		28	.01	.08
	28	.02	1.38	July	7	.25		July	4	.01	
Dec.	2	.13			10	.25			5	.12	
	3	.16			22	.04			6	.12	
	4	.01			23	.70			11	.03	
	9	.01			25	.03			12	.49	
	10	.06			31	.10	1.37		13	.04	
	11	.14		Aug.	5	.16			23	1.10	
	12	.17			6	.15			25	.04	
	27	.16	.84		7	.44			27	.05	
	Total		16.09		8	1.32			30	.36	2.36
	1924				9	.59		Aug.	7	.04	
Jan.	15	.03			15	.05			15	.06	
	22	.05	.08		17	.40			23	.03	
Feb.	15	.03			25	.02			24	.12	.25
	25	.03	.06		31	.33	3.46	Sept.	2	.08	
Mar.	16	.02		Sept.	2	.02			7	.14	
	19	.36			17	.01			8	.20	
	20	.02			19	.02	.05		13	.01	
	28	.06		Oct.	1	.01			25	.02	
	29	.01	.47		3	.12			26	1.20	
Apr.	6	.01			10	.12			27	1.34	
	9	.15			11	.33			28	.32	3.31
	25	.11			12	.02		Oct.	3	.22	
	26	.09	.36		13	.55			8	.60	
May	1	.02			14	.07			9	.24	
	3	.03	.05		15	.12			13	.24	
June	30	T	T		23	.20			22	.20	
					24	.15			29	.04	
					29	.04	1.73		30	.21	
									31	.04	1.79

Month	Day	Inches	Total
Nov.	1	.20	.20
Dec.	4	.01	
	5	.70	
	6	.31	
	8	.41	
	20	.11	
	24	.04	1.58
Total			14.35

1927			
Month	Day	Inches	Total
Jan.	22	.03	.03
Feb.	3	.04	
	12	.03	
	13	.07	
	17	.13	.27
Mar.	7	.04	
	30	.55	
	31	.05	.64
Apr.		0	0
May		0	0
June	11	.02	
	15	.35	
	28	.05	
	29	.01	
	30	.24	.70
July	5	.56	
	11	.17	
	12	.02	
	25	.52	
	25	1.53	
	27	.65	
	28	.90	
	30	.20	4.55
Aug.	3	.59	
	6	.30	
	7	.08	
	15	.03	
	16	.01	
	17	.01	
18	.18		
19	.01		
20	.02		
31	.03	1.26	
Sept.	7	.30	
	8	.19	
	12	.60	
	13	.21	
	15	.03	
	16	.04	
	18	.22	
19	.05	1.64	
Oct.		0	0
Nov.		0	0
Dec.	11	.04	
	20	.05	
	27	.29	.38
Total			9.47

1928			
Month	Day	Inches	Total
Jan.	16	.03	.03
Feb.	5	.06	
	11	.43	
	12	.08	
	16	.12	.69
Mar.	3	.01	
	16	.05	.06
Apr.	7	.04	
	15	.03	
	15	.02	.09
May	2	.73	
	3	.43	
	9	.02	
	12	.04	
	13	.24	
	24	.11	
	25	.06	
27	.06		
29	.02		
31	.08	1.79	
June	1	.01	.01
July	18	.04	
	19	.92	
	23	.19	
	25	.05	1.20
Aug.	2	.15	
	3	.03	
	3	.02	
	9	.15	
	11	.01	
	14	.14	
	17	.66	
	23	.06	
	24	.18	
	28	.13	
29	.06		
31	.56	2.14	
Sept.	5	.05	
	20	.05	
	22	.01	
	26	.02	.16
Oct.	10	.08	
	11	1.38	
	12	.12	
	29	.01	
	30	.49	2.08
Nov.	4	.30	
	5	.01	
	13	.25	
	14	.02	
	16	.01	
25	.36		
26	.03	.98	
Dec.	6	.05	
	8	.04	
	9	.01	
	11	.04	.14
Total			9.37

1929			
Month	Day	Inches	Total
Jan.	17	.02	.02
Feb.	7	.02	
	8	.03	
	9	.14	.19
Mar.	3	.30	
	17	.19	
	20	.04	
	27	.30	
	28	.01	.84
Apr.	16	.06	.06
May	21	.06	
	23	.75	
	30	.12	.93
June	25	.22	.22
July	9	.05	
	9	.50	
	10	.82	
	17	.07	
	20	.35	
	21	.03	
	25	.02	
	28	.21	
29	.08	2.16	
Aug.	5	.20	
	7	.05	
	8	.01	
	9	.50	
	10	.11	
11	.40		
20	.13		
21	.02		
28	.48	1.94	
Sept.	5	.06	
	17	.04	
	22	.50	
	23	.01	.61
Oct.	16	.17	
	17	.36	
	18	.29	
	25	.04	
	29	.22	
	30	.01	1.09
Nov.	6	.34	
	8	.05	
	9	.24	
	24	.20	
	25	.07	.90
Dec.	20	.25	
	31	.01	.26
Total			9.22

1930			
Month	Day	Inches	Total
Jan.	8	.04	
	20	.08	
	28	.03	.15
Feb.	4	.01	
	24	.01	.02

Month	Day	Inches	Total	Month	Day	Inches	Total	Month	Day	Inches	Total	
Mar.	17	.01	.02	Apr.	17	.02	.88	Mar.	16	.02	.02	
	18	.01			22	.26			23	.12		
Apr.	23	.10	.30	May	16	.04	.06	Apr.	23	.06	.06	
	25	.20			19	.02			27	.13		
May	6	.02	.13	June	5	.04	.42	May	11	.65	.65	
	28	.01			16	.04			June	22		.16
	29	.10			28	.10				24		.02
June	9	.02	.29	July	2	1.26	2.25	July	2	.04	.70	
	11	.10			3	.04			Aug.	5		.01
	15	.17			17	.70				10		.44
July	1	.08	2.07	Aug.	1	.04	1.56	Sept.	24	.59	1.39	
	3	.06			2	.27			Oct.	26		.02
	4	.20			3	1.40				29		.78
	9	.41		4	.55	Nov.	0	0				
	10	.08		9	.91		Dec.	9	.36			
	20	.11		10	.02	13		.25				
	23	.19		20	.05	14	.05					
	25	.26		21	.05	15	.27					
	25	.13		24	.04	16	.03					
	27	.25		1.10	Sept.	4	.11	1.14				
29	.18	6	.15									
Aug.	4	.13	1.10	14	.21	0						
	6	.06		15	.08							
	7	.05		17	.22							
	8	.25		18	.21							
	9	.02		24	.26							
	10	.01		28	.25							
25	.40	.44	Oct.	29	.10	.96						
26	.18			30	.06							
Sept.	2	.62	.62	Nov.	1	.06	.24					
	10	.08			20	.18						
Oct.	12	.07	.44	Dec.	1	.99	1.38					
	18	.07			2	.04						
	22	.04			7	.02						
	23	.04			8	.05						
	26	.10			10	.25						
	28	.04			.44	Total		13.32				
28	.04											
Nov.	15	.06	1.07	1932								
	17	.17		.83	Jan.	4	.06	.25				
	27	.82			5	.04						
Dec.	5	.18	.67	6	.05	.08						
	9	.45		11	.04							
	27	.04		14	.06							
Total			6.88	Feb.	3	.08	.43					
					15	.02						
1931				19	.12	.26						
Jan.	3	.06	.81	20	.38							
10	.26	.14		.18	29	.08						
11	.04		.14		.18							
27	.45	.14		.18								
Feb.	5		.11		1.14	Mar.	0	0				
	7	.11	.25	Apr.			25	.26				
	12	.55					.05	May	31	.05		
	14	.04	15	.02								
	15	.08	19	.12								
	23	.12	20	.38								
26	.06	29	.08									
28	.07	.14	.18									
Mar.	15			.04	.18							
	26	.14										
1933				1933								
Jan.	6	.04	.25	Jan.	6	.04	.25					
	16	.04		16	.04							
	18	.07		18	.07							
	20	.04		20	.04							
Feb.	5	.06	.43	21	.01	.05						
	7	.12		28	.05							
	24	.08		27	.12							
Mar.	0	0	.26	Feb.	5	.06	.43					
	25	.26			7	.12						
Apr.	25	.26	.26	24	.08	.05						
	31	.05		25	.01							
May	31	.05	.05	26	.04	.12						
				27	.12							

Month	Day	Inches	Total
June	13	.75	1.56
	16	.02	
	17	.02	
	18	.20	
	19	.11	
	21	.27	
	22	.16	
24	.03		

July	5	.01	.45
	12	.03	
	17	.11	
	24	.18	
	26	.12	

Aug.	2	.18	1.06
	3	.10	
	10	.03	
	11	.11	
	12	.01	
	17	.07	
	23	.28	
25	.28		

Sept.	2	.01	.24
	9	.03	
	20	.04	
	27	.16	

Oct.	4	.08	.22
	5	.02	
	9	.09	
	14	.03	

Nov.	1	.05	.19
	2	.06	
	29	.05	
	30	.03	

Dec.	0	0	0
Total			4.71

1934

Jan.	2	T	T
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Feb.	28	.25	.25
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Mar.	23	.11	.45
	24	.34	

Apr.	15	.01	.01
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May	8	.01	.20
	9	.01	
	22	.13	
	27	.03	
	29	.02	

June	27	.03	.03
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July	2	.29	1.72
	15	.01	
	21	.03	
	22	.15	
	24	.39	
	27	.85	

Aug.	9	.07	.35
	15	.01	
	21	.18	
	24	.04	
	28	.02	
	29	.03	

Sept.	8	.35	.40
	22	.05	

Oct.	10	.23	.68
	11	.45	

Nov.	12	.02	.22
	16	.04	
	20	.16	

Dec.	13	.20	.31
	28	.11	

Total			4.62
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1935

Jan.	6	.17	.19
	7	.02	

Feb.	6	.07	.29
	7	.04	
	8	.01	
	10	.15	
	25	.02	

Mar.	11	.10	.10
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Apr.	18	.10	.10
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May	3	.01	1.07
	4	.25	
	17	.39	
	26	.42	

June	6	.01	.25
	10	.19	
	28	.05	

July	2	.06	.38
	4	.06	
	5	.02	
	7	.13	
	13	.07	
	18	.01	
	20	.02	
	22	.01	

Aug.	3	.03	7.41
	4	.05	
	6	.04	
	10	.27	
	13	.07	
	17	.01	
	18	.45	
	29	2.63	
	30	3.86	

Sept.	1	.17	.90
	3	.01	
	9	.05	
	23	.06	
	24	.43	
	27	.18	

Oct.	18	.07	.42
	19	.32	
	24	.03	

Nov.	23	.04	.90
	24	.01	
	25	.73	
	26	.12	

Dec.	4	.15	.66
	5	.19	
	19	.06	
	20	.13	
21	.13		

Total			12.67
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1936

Jan.	7	.09	.98
	29	.86	
	30	.03	

Feb.	15	.20	.29
	17	.09	

Mar.	6	.06	.13
	22	.04	
	23	.03	

Apr.	18	.07	.07
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May	3	.10	.70
	22	.11	
	23	.25	
	25	.12	
	26	.06	
30	.06		

June	10	.07	.14
	22	.07	

July	7	.98	1.53
	10	.10	
	11	.21	
	29	.20	
	30	.03	
31	.01		

Aug.	1	.05	1.35
	8	.03	
	9	.02	
	11	.02	
	13	.02	
	17	.04	
	19	.07	
	20	.07	
	21	.03	
	27	.69	
	28	.14	
29	.17		

Sept.	3	.03	2.12
	11	.01	
	19	.04	
	20	.16	
	21	.82	
	24	.48	
	25	.01	
	26	.01	
27	.56		

Oct.	22	.13	.40
	24	.26	
	25	.01	

Nov.	22	.09	1.02
	23	.15	
	27	.14	
	28	.32	
	29	.32	

