

**Climatological Data for December, 1910.  
DISTRICT No. 10, GREAT BASIN.**

ALFRED H. THIESSEN, District Editor.

**GENERAL CLIMATOLOGICAL CONDITIONS.**

The weather during December, 1910, was generally pleasant and unusually warm. During the middle of the month foggy weather was reported at many stations in the Utah and Nevada areas, and during the fore part of the month in the Oregon area. In the Utah area it was the warmest December but one in 20 years, while December, 1909, was the coldest. In Nevada the temperature averaged about 2.5° above normal and 10° higher than during December last year. The precipitation for the month was above normal somewhat, but averaged only about one-half as much as that of December, 1909.

**TEMPERATURE.**

The mean temperature for the district for December was 31.1°, which was about 3° above normal. The highest mean temperatures were recorded in the sheltered valleys of northern Utah and in the southern portions of the Nevada and the Utah areas. The greatest plus departures occurred in the Salt Lake and Utah Lake Valleys of Utah and in the Idaho and Wyoming areas. The minus departures were small and occurred at only a few stations in the extreme western portion of Utah.

The mean temperatures at the various stations ranged from 20° at Cokeville, Wyo., to 39.5° at Battle Mountain, Nev., where the temperature averaged 8.4° above normal, being the greatest plus departure for the month. The greatest minus departure was 2.1° at Frisco, Utah.

As a rule, the first half of the month was warm, the highest temperatures being recorded on various dates from the 1st to the 12th. The highest temperature reported was 74° at Battle Mountain, Nev., on the 2d, and at Iosepa, Utah, on the 8th. After the 15th the temperature fell promptly, and averaged normal or slightly below for the remainder of the month. The lowest temperatures were recorded in the last decade. The lowest was 13° below zero at Scipio, Utah, on the 22d. Only 12 stations out of 71 reported temperatures of zero or below.

**PRECIPITATION.**

The precipitation for the district averaged only slightly above normal. The map of precipitation shows a remarkably even distribution, which is unusual. The largest amounts fell on the western slope of the Wasatch Mountains, in Utah, and in the extreme western portion of Nevada and eastern portion of California. Most stations reported amounts above normal. At those stations reporting amounts below normal the deficiencies were small. In the Idaho, Oregon, Wyoming, and California areas good amounts were measured.

The section director of Utah, in referring to the precipitation of that area, says:

Contrary to the usual rule, the mountain districts did not receive the greatest amount of precipitation; but stations well scattered in all parts of the State are among those receiving heavy precipitation. However, those stations showing least precipitation are fairly well confined to the more level portion of the State and more or less distant from the mountains. The chronological precipitation distribution shows a dry week from the 12th to the 19th, but otherwise no long spells occurred without rain or snow. A general rain fell on the 3d, and general precipitation, mostly rain, fell from the 9th to the 12th. During the last 11 days of the month light scattered snows occurred nearly every day, some stations reporting several inches on the 19th and 21st, just previous to the hardest cold snap of the month.

The section director of Nevada reports:

The number of rainy days was about normal, and the cloudiness was nearly normal in the south portion, but greater than normal elsewhere.

As usual, the precipitation was heaviest on the eastern slope of the Sierra Nevada Mountains. Moderate amounts fell in parts of the west and north portions and in the extreme south. Most of the moisture fell during the first half of the month, and especially on the 2d and 3d, and from the 9th to the 12th.

**SNOW.**

The depth of snow at the higher altitudes on December 31, 1910, was less than it has been for years. Those correspondents who have ventured a prediction say that there will be a scarcity of water for irrigation during the coming season.

In the Utah area the ground was frozen in the higher regions, but the more level portions were bare of snow and unfrozen. Very nearly all correspondents reported amounts in the mountains below the average and below those observed on the last of December, 1909.

In the Nevada area most of the precipitation was in the form of rain. The average depth of snow for the month at the mountain stations was about 6 inches. This is only one-half the amount that fell in November. There was practically no snow on the ground at these stations on December 31, 1910, while the normal depth on that date ranges from 10 to 30 inches.

**GREAT SALT LAKE.**

The Weather Bureau established a gauge at Great Salt Lake in July, 1903, when the lake level was 0.8 foot. The reading on December 31, 1910, was 5.1 feet. During this period the highest reading was 7.1 feet on May 15, 1910, and the lowest, 1.1 below the zero of the gauge in November, 1905. The following table gives the average, highest, and lowest for each year since 1903:

	1903	1904	1905	1906	1907	1908	1909	1910
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Averages.....	0.4	-0.1	0.3	2.5	3.5	4.9	6.0	
Highest.....	0.8	1.5	0.8	1.4	3.8	4.1	5.7	7.1
Lowest.....	-0.8	-0.5	-1.1	-1.0	0.5	3.0	3.4	5.0

**WEATHER BUREAU RECORDS AND THEIR USE.**

W. W. McLAUGHLIN, U. S. Irrigation Engineer, Logan, Utah.

The increasing activity in dry farming and the rapid development of irrigation enterprises in Utah during the past few years have created an extensive demand upon the part of the layman and the investor for information of the precipitation at various points in this State. With a comparatively small number of local observation stations of the Weather Bureau, it is often necessary to use the records obtained in one place as a basis of what may be anticipated at an adjoining place. These records have been used in many instances by persons not familiar with the many conditions influencing precipitation and the results arrived at by the layman have in most cases been erroneous. Several years' investigation of the precipitation records of this intermountain country has indicated to the writer that with our diverse topography and changeable air circulation there are several physical conditions that must be known and constantly kept in mind if it is wished to approximate the precipitation of one place from the records of another.

It is the wish of the writer in this article to impress upon the reader the importance of a proper understanding of this question and point out some of the more important physical features that influence local precipitation. It is not the purpose of this article to point out all the features which influence precipitation but only a few of the more important.

TABLE 1.—Climatological data for December, 1910. District No. 10, Great Basin.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number of rainy days, Number of clear days, Number of partly cloudy days, Number of cloudy days), Prevailing wind direction, and Observers. Rows include stations in Wyoming, Idaho, Utah, Oregon, California, and Nevada.

TABLE 1.—Climatological data for December, 1910. District No. 10—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.			Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.
<i>Nevada—Continued.</i>																			
Jean.....	Clark.....	2,074	2															Salt Lake Route.	
Leetville.....	Churchill.....	4,020	3															U. S. Reclamation Service.	
Lewer's Ranch.....	Washoe.....	5,500	22	37.0	+ 2.6	65	1	12	26	31	4.55	+1.14	7.0	5	10	17	4	Ross Lewers.	
Lovelock.....	Humboldt.....	3,977	7															C. H. Allender.	
McAfee's Ranch.....	Esmeralda.....	4,835	6															C. H. Rodenkirch.	
Millett.....	Nye.....		2	30.4		59	1	- 2	22	43	0.79		0.34	0.0	3	12	7	12	n.
Mina.....	Esmeralda.....	4,600	3	39.1		66	3	14	14†	37	0.70		0.40	7.0	3	9	6	16	s.
Palmetto.....	do.....	6,780	20	43.2	+12.0	68	7†	- 7	31	55	0.53	-0.49	0.28	8.5	5				Fred J. Jones.
Potts.....	Nye.....	6,990	17	28.0	+ 3.1	58	2	- 8	26	41	0.27	-0.24	0.20	6.0	3	6	6	20	s.
Quinn River Ranch.....	Humboldt.....	4,850	8	35.1 <sup>b</sup>		68 <sup>b</sup>	1	13 <sup>b</sup>	1	55 <sup>b</sup>	1.43		0.58	0.0	6	17	3	11	w.
Reno.....	Washoe.....	4,532	39	37.0	+ 3.3	64	1	13	19	39	1.44	-0.23	0.74	3.1	9	7	10	14	w.
Soda Lake.....	Churchill.....	4,534	3	34.2		61	8	13	30	36	0.45		0.30	2.2	3	9	13	9	n.
Tecoma.....	Elko.....	4,812	32	27.2	+ 1.1	58	1	- 8	26	46	0.12	-0.55	0.10	0.0	3	5	7	19	n.
Tonopah.....	Nye.....	6,090	3	34.9		56	1	14	31	21	0.75		0.64	10.8	4	7	18	6	w.
Wabuska.....	Lyon.....	4,347	7																V. H. Bernard.
Wells.....	Elko.....	5,631	38								2.05	+1.02	1.00	6.0	6	10	6	15	s.
Winnemucca.....	Humboldt.....	4,432	31	33.2	+ 2.5	59	1	9	28	39	2.01	+1.02	0.59	3.0	10	9	6	16	ne.
																			U. S. Weather Bureau.

TABLE 2.—Daily precipitation for December, 1910. District No. 10, Great Basin.

Stations.	River basins.	Day of month.																															Total.						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							
<i>Wyoming.</i>																																							
Border	Bear	.06						.02	T.	T.	.17															T.		.02	.03	.02			T.	.08	0.32				
Cokeville	do.		.18	.12	T.				T.	T.	.02	.09	T.													T.						T.	.06	0.49					
Evanston	do.			.09						.37	.24	.54														T.					T.	.11	1.35						
<i>Idaho.</i>																																							
Geneva	Bear			.98								.09																					.01	1.14					
Grace	do.		.40					T.			.11	.44																				T.	.02	1.07					
Oxford	do.																																						
Paris	do.		.50									.25																											
Stone	Deep Creek			.35								.24																					.03	0.62					
Weston	Bear		.32	.20							.18	.31																		.10		.05	1.19						
<i>Utah.</i>																																							
Alpine	Great Salt Lake.	.40							.10		.36	.20																						1.36					
Beaver	Sevier Lake.	.05									.25	.15																					.05	1.72					
Black Rock	do.																																T.	0.23					
Castle Rock	Great Salt Lake.	.10	.05							.30	.35	.31	.04														T.						.03	1.21					
Cedar City	Desert.																																						
Corinne	Great Salt Lake.							.23		1.00	.10																					.05		1.38					
Deseret	Sevier Lake.	.02									.20																							.01	0.53				
Farmington	Great Salt Lake.	.05	.06					T.		.23	.47	.50	.21																					.12	2.24				
Fillmore	Sevier Lake.	.01									.44	.14																						.43	1.70				
Frisco	Desert.											.20																							0.53				
Garrison	do.																																						
Government Creek	do.	.02										.07																						.24	0.53				
Grantsville	Great Salt Lake.																																						
Grouse Creek	Desert.	.20	.11								.44	.28																						T.	1.03				
Heber	Great Salt Lake.	.16	.05	.75							.06	.05									*		.35											.10	1.47				
Henefer	do.	.02	.42							.15	.43	.29	.05																					.40	1.90				
Ibapah (near)	Desert.	.07								.04	.30	.23																							.26	1.74			
Ibex	do.	T.									.04	.23																								0.44			
International	Great Salt Lake.										T.	.28																						.01	0.57				
Iosepa	Desert.										.15	.10																							.05	0.34			
Kanosh	Sevier Lake.										.10	.60																							.31	1.73			
Kelton	Great Salt Lake.	.15									.15	.10																							.10	0.50			
Levan	Sevier Lake.	T.									T.	.45	.09																						.10	1.35			
Logan	Great Salt Lake.	*	.20					.09	.05	.21	.40																								.16	1.45			
Lucin	Desert.	.05	.05						.05	.05	T.																								.20	0.20			
Manti	Sevier Lake.										.43	.10																							.11	0.98			
Marion	Great Salt Lake.	.05	.07				T.		.07	.41	.23	.22																							.10	1.78			
Marysville	Sevier Lake.	.08	.03								.18	.05																								.05	0.91		
Meadowville	Great Salt Lake.	T.	.55						.20		.30	.05																								.15	1.15		
Millford	Sevier Lake.										T.																								.80	1.20			
Millville	Great Salt Lake.	.57							.16	.18	.57																								.05	1.77			
Minersville	Sevier Lake.										.02	.07																								.10	1.41		
Modena	Desert.	T.								.01	.11	.01																									T.	0.35	
Morgan	Great Salt Lake.	.30	.20						1.00	.80	.80	.80																								.60	4.00		
Moroni	Sevier Lake.	.15	.03					T.		.09	.44	.17																								.21	1.20		
Mount Nebo	Great Salt Lake.									.20	.45	.15																								.21	1.15		
Nephi (near)	do.										.15																									.65	0.84		
Oak City	Sevier Lake.																																						
Ogden	Great Salt Lake.	.22	.05						.11	.34	.23	.11																										10	1.16
Panguitch Lake	Sevier Lake.																																						
Park City	Great Salt Lake.	.02	.08																																		.08	0.61	
Parowan	Desert.										.85																										.40	1.79	
Payson	Great Salt Lake.	.05	.04								T.	.08	.17	.48																						.30	1.80		
Pinto	Desert.										.15																										.36	0.71	
Promontory	Great Salt Lake.																																				.10		
Provo	do.		.10								T.	.20	.40	.45																							.10	1.85	
Randolph	do.		.03	.15							.07	.32																											

TABLE 2.—Daily precipitation for December, 1910. District No. 10—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Nevada.</i>																																		
Aurora.....	East Walker																																	1.23
Austin.....	Reese																																	1.42
Battle Mountain.....	Humboldt			.27						.20	.20	.06																					1.03	
Beowawe.....	do.		.32							.48	.50						.12																0.56	
Carlin.....	do.																																0.38	
Carson Dam.....	Carson																																0.65	
Cherry Creek.....	Humboldt			.30	.03						T.	.50										.20								T.	T.	0.27		
Clover Valley.....	do.																																0.62	
Cobre.....	do.			T.						.03	.22	.13																					0.63	
Columbia.....	Desert																	.01	*		.58					.50						0.65		
Dutton.....	Humboldt									.20	.30							.10														.05	0.27	
Elko.....	do.			.07			T.			.03	.09	.07																	T.			.01	0.62	
Ely.....	do.																	.46	.16													.05	0.63	
Eureka.....	do.			.10							.20									*		.15										.05	0.68	
Fallon.....	Carson		.05	.10			T.				.07	.06							*		.25					.02						.01	0.56	
Fernley.....	Truckee																																1.17	
Gardnerville.....	Carson			.01	.36		T.				T.	.60														T.	.20						1.03	
Geyser.....	Humboldt																																0.38	
Glenbrook.....	Truckee			*	.60					.06	*	.45							*		.50						.50				*	.10	0.79	
Golconda.....	Humboldt									.40	.50	.30																					.10	0.93
Halleck.....	do.			.09						.39	.43																					T.	.15	0.79
Jean.....	Desert																																	0.70
Leetville.....	Carson																																	2.09
Lewer's Ranch.....	Truckee		*	2.85								1.00									.30						.40						0.93	
Lovelock.....	Humboldt																																	0.27
McAfee's Ranch.....	Desert																																	1.43
Millett.....	Reese			.30							.15																							1.44
Mina.....	Desert																				.20		.40	.34										3.21
North Fork.....	Humboldt	*	.75						T.	.30	.50																					.04	.50	0.69
Palmetto.....	Desert																					.12	.04	.28	.30	.10		.04	.05					3.03
Paradise Valley.....	Little Humboldt																																	0.45
Potts.....	Reese			T.																														1.14
Quinn River Ranch.....	Humboldt			.22						.06	.29	.36	.58								.02													0.12
Reno.....	Truckee		.20	.55			T.				.42	.08							.05	.08		T.				T.	.02	.03				.01	0.79	
Rose Creek.....	Humboldt		.10	.70			.03			.06	.80	.30	.36								.20											.08	0.94	
Smith.....	West Walker		T.	.26						.06	.05										.20						.08							3.03
Spooner's Ranch.....	Truckee		*	1.76			T.	T.		.06	*	.68									.20							.15			.08	.10	0.45	
Soda Lake.....	Carson		T.	.13																	.30													1.14
Sweetwater.....	East Walker																																	0.12
Tecoma.....	Humboldt									.01	.01	.10										.20	.25	.27	.22	.05		T.			.05	.10	0.79	
Tonopah.....	Desert																																	0.12
Wabuska.....	Walker																					.01		.38	.26								T.	0.79
Wells.....	Humboldt		*	.05							1.00	.80	.20																					2.05
Willow Point.....	Little Humboldt			.18							*	.36								*		.40												0.94
Winnemucca.....	Humboldt		.11	.44			.02		.01	.48	.57	.06								T.		.30										.01	.01	2.01

TABLE 3.—Maximum and minimum temperatures at selected stations, December, 1910. District No. 10, Great Basin.

Table with columns for Wyoming (Border, Evanston, Weston, Idaho) and Utah (Corinne, Deseret, Government Creek, Tropic, Marysvale, Meadowville, Modena, Ogden, Parowan, Provo, Salt Lake City). Rows show dates from 1 to 31 and monthly means (Mns.).

Table for Nevada with columns for Burns, Oreg., Elko, Ely, Eureka, Fallon, Jean, Lovelock, Millett, Mina, Quinn River Ranch, Reno, Tecoma, Tonopah, Winnemucca. Rows show dates from 1 to 31 and monthly means (Mns.).