Climatological Data for November, 1909.

DISTRICT No. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

November was a warm and an unusually wet month, the temperature and precipitation being above normal at practically every station. The noteworthy feature of the weather was the great amount of precipitation which occurred mostly in the form of snow, especially in the mountains.

TEMPERATURE.

The monthly mean temperature for the district as a whole was 38.6°, which was 1.2° above the normal, and ranged from 24.5° at Truckee, Cal., to 45.8° at Lovelock, Nev.

Except in the extreme southern portion of Utah and in the southern third of Nevada, the mean temperatures were above normal at all stations. The greatest excesses of temperature were confined for the most part to the northern portion of the district, although there were notable exceptions in the central portion. The greatest plus departure was 7.8° at Ely, Nev., and the greatest minus departure was 12.0° at Truckee, Cal.

The highest mean temperatures occurred in the Great Salt Lake and Utah Lake valleys and in the extreme western portion of Nevada, where a number of stations reported means of 40° and above. The lowest means of course occurred at the mountain stations, some of which were 33.6° at Kelton, Utah, 31.8° at Quinn River Ranch, Nev., and at Border, Wyo., and 24.5° at Truckee, Cal.

The month began with nearly normal temperature over the entire district. It became colder about the 5th, and this cold spell continued through the first decade. The highest temperature reported was 87° at Spanish Fork, Utah, on the 7th, and most of the other stations reported their highest temperatures during this decade. Temperatures below freezing were experienced daily at many stations, while some stations in protected valleys reported only heavy frosts.

The cold weather of the latter portion of the first decade extended into the second, and the temperature continued to fall until the 16th and 17th, on which dates the lowest temperatures for the month were generally reported. The lowest minimum temperature was 12° below zero at Christmas Lake, Oreg. Other low temperatures were 10° below zero at Elko, Nev., and 11° below at Marysville, Utah, on the 16th. After the 17th it grew warmer over the whole district and at the end of this decade nearly normal temperatures prevailed, and so continued until the middle of the last decade when colder weather set in. The minimum temperature during this last cold period dropped to zero at some stations on the 28th.

PRECIPITATION.

Unusually heavy precipitation occurred practically everywhere, there being only one station reporting a deficiency in moisture. Many stations reported twice and some many times the normal amount. In north-central Utah amounts from 4 to 6 inches were recorded which were from 1 to 3 inches above normal. In the remainder of the district the precipitation was from 0.50 to 2.50 inches above normal. The greatest monthly amount was 6.15 inches at Huntsville, Utah.

Generally fair weather prevailed for the first 5 days in the month, except in Oregon where rain fell on the 1st and 2d at a few stations. On the 5th light rains fell in Oregon, and on the 6th in California and Nevada. After this date there were two well-defined rainy periods, the first extended from the 9th to the 15th and the second from the 19th to the 27th. During the first period moderately heavy precipitation occurred on the 15th in Nevada and on the 15th and 16th in Utah. It was during the latter period, however, that the greatest daily amounts fell. At Eureka, Nev., 2.27 inches were recorded in 24 hours on the 26th.

In Nevada the precipitation was nearly double the normal amount and was the greatest on record with the exception of that in November, 1892. In Utah the mean precipitation was about 0.75 inch above the greatest previous State average, which occurred in 1906.

Snow fell at all points in the district, ranging from 1 to 44 inches. West of Lake Tahoe amounts from 38 to 44 inches were reported. In Utah in the mountains large amounts were also reported ranging from 15 to 29 inches.

MISCELLANEOUS PHENOMENA.

Thunderstorms were reported at Glen Alpine, Cal., on the 24th.

Hail was reported at Mina, Nev., on the 12th.

There was an average of 7 rainy days, 10 clear days, 7 partly cloudy days, and 13 cloudy days for the district, as a whole.

THE IMPORTANCE OF MOUNTAIN CLIMATE IN THE WEST.—THE WEATHER BUREAU AND THE FOREST SERVICE IN COOPERATION.

By E. R. HODSON, Assistant, U. S. Forest Service.

Cooperation is a somewhat recent innovation, at least in some directions, between different branches of the Government Service. It is a scheme whereby different governmental activities are rendered mutually helpful along lines common to two or more branches, thereby subserving the public interest better both as to efficiency and economy. Since it is a procedure strictly in line with modern industrial development it has a practical basis and for this reason and because of its flexibility it bids fair to have a wide field of usefulness. As a feature of governmental administration it would seem to merit further consideration.

This agency was adopted by the Weather Bureau when in July, 1908, a plan of interbureau cooperation was consummated between that Bureau, the Reclamation Service, the Forest Service, the Bureau of Plant Industry and the Water Resources Branch of the Geological Survey; early in 1909 it was further extended to include the Office of Indian Affairs. By this plan the assistance of interested parties is enlisted not only in securing climatic data, but also in advising practical measures for rendering it adaptable to general use. Besides the immediate purpose, to collect data, it should serve to arouse a keener interest in climatology. It should emphasize in particular the wide field of its practical application.

This extension of the Weather Bureau's work is especially opportune since within the last few years an impetus has been given to the desire for climatic data. The demand being largely aroused by its importance in irrigation and by those interested in the development of inland waterways, working through the Inland Waterways Commission, for a comprehensive system of interior water communication. This demand was only intensified when the Inland Waterways Commission and its objects were merged with the broader and more far-reaching movement for the conservation of natural resources.

To meet the demand from all quarters, for more data of a wider range the Weather Bureau has sought to make use of all the different govermental agencies possible, in order that the limited means at its disposal may yield the most results and secure their practical application. Hence the general plan of cooperation which has been inaugurated.

It is the purpose of this article to deal only with a few of the general features of cooperative work planned with the Forest Service.

This part of the work necessarily centers in the West, since with few exceptions the national forests are located there and it is still further localized by being confined to the higher altitudes where conditions permit forests to exist.

There may be noted here the great difference between eastern and western climate in the annual precipitation and the factors which influence its availability. The western United States west of the 100th meridian is commonly considered an arid or a semiarid region on account of its lack of rainfall. Precipitation as rainfall distributed over the whole area does not occur to the same extent it does in the East. A large amount of precipitation, however, does occur during the year but it is restricted for the most part to the mountains and falls during the winter season largely in the form of snow. In order for the snowfall to become available it must first melt and during that process it is subject to temperature and other conditions. Furthermore, before the water can be used agriculturally human agencies are necessary through irrigation. Instead of being automatically and uniformly distributed as in the East the precipitation is periodically and, where used economically, more or less artificially distributed.

It is, therefore, apparent that mountain climate in the West is of far greater importance than it is in the East, where the precipitation is more uniform in character and more equally distributed. It becomes, therefore, important to know the value of mountain snowfall in terms of streamflow, and the influence of climatic, topographic, and other factors on its seasonal distribution.

These two factors then—the variable character of the precipitation and the fact that it is localized in the mountains—make its measurement and the computations of its economic value particularly difficult and expensive. On the other hand great need for just this data has lately arisen. With the advent of forestry and vast irrigation schemes, mountain snowfall and climatic influences on streamflow have a practical bearing and the lack of accurate data on the subject is keenly felt. The mountains are sparsely settled and it is difficult to get observers at points where most needed. It is here that the Forest Service has a decided advantage as it is in a position, through its field force, to give assistance in locating stations and securing reliable observers. Since the cooperative plan has gone into effect this service is being rendered wherever possible.

From a forest standpoint, the relation to climate is twofold: first, the effect of climate upon the forest; second, the reaction of forest cover and the attendant conditions upon climate.

The influence of climatic conditions on the character, growth, reproduction, extension, and general thrift of a forest is marked. Increased information in this direction can hardly fail to be useful as well as have a high value from a scientific standpoint; but the most practical bearing of weather influences is on forest operations, such as methods of cutting, treatment of cutover areas, methods of artificial reproduction and extension of forest areas by planting, seeding, etc. In all phases of nursery work its influence is acutely felt; its annual variation is no small factor in the practical operation of forest nurseries.

As the national forests are at present administered, grazing is important both in itself and in its relation to forestry. The effect, therefore, which annual and seasonal variations of climate within western forest regions, have on the quantity and conditions of the forage is apparent. It has a practical bearing on the stock industry and on the adjustment of this interest in such a way as to best promote and conserve the primary objects for which the national forests were created.

The effect of a forest and forest conditions on climate is a complicated and much disputed question; particularly in its relation to the flow of streams is its value questioned. Many instances, however, show that the efficiency of a forest is most clearly exhibited in its relation to the seasonal distribution of streamflow and it is probable, when the opposite effect is indicated, that the areas considered are too small and that special conditions obscure the real effect. The whole question, however, needs clearing up and in accomplishing this the mountain work of the Weather Bureau promises to render valuable assistance.

The present plan of cooperation is relatively simple. According to its provisions the Forest Service aids by selecting and recommending reliable observers, and sometimes by supplying voluntary observers from its own members. All instruments are furnished by the Weather Bureau which also pays the salary of those observers who receive remuneration. Both observers and stations are subject to approval by the Weather Bureau. At the present time where a salary is paid for this work the amount is merely nominal.

There has been but a short time since this work was initiated, yet it has already been productive of good results; a number of stations have been established under the plan and some data have been accummulated. The value of the data will no doubt increase from year to year as standards are established and comparison becomes possible.

The future of the work is large, since mountain climate has been relatively little studied in detail. In its strictly scientific bearing, it promises to throw much light on general problems of meteorology; but the scientific aspect of the work is by no means without a practical bearing, since it lays the foundation for a more complete understanding of the whole subject. In the strictly practical phase of the work the opportunity is great. The need is urgent, and will necessarily increase as the country is developed. Large reservoirs and other costly engineering works in connection with irrigation projects and power plants will call for definite data as to climate and its effect on the available water supply. Also, with a more thoroughly organized and permanent equipment of the national forests increased facilities will be offered for this cooperative work. At the very beginning the work is promising, and its usefulness has been demonstrated. Greater service can reasonably be expected if sufficient recognition is received.

For the proper encouragement of the work an ample appropriation is necessary in view of the natural difficulties connected with securing data on mountain climate. It should be put on a permanent basis and provided with funds in proportion to its field of usefulness.

In the West mountain climate is the key to the situation, and this fact should be thoroughly appreciated.

The importance of this work would seem to make necessary the creation in the Weather Bureau of a special section devoted exclusively to mountain climate. This section would deal with snowfall measurement and the conditions influencing the melting and becoming available for streamflow, ground water, the loss through evaporation during the winter, and all other points in connection with it.

The water resources section, already established by the Weather Bureau, since it deals with so vital a question in the West, should be liberally supported by Congress. It should be recognized as a permanent feature of this Bureau and be provided with ample funds and corps of field observers. To make the results available, adequate provision for working up the data obtained and for its suitable publication is urgent.

TABLE 1.—*Climatological data for November, 1909. District No. 10, Great Basin.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, 01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Wyoming.																				
Border	Uinta	6,085	7	31.8	+ 2.5	64	3	1	16†	49	2.50	+ 1.52			5	9	3	18	w.	S. W. Condron.
Evanston	do	6,860	13	34.2	+ 2.2	66	3	0	28	43	1.84	+ 1.00	0.85	5.0	5	12	7	11	sw.	Frank Tucker.
Idaho.																				
Geneva	Bear Lake		2								3.46		1.92		7	19	3	8		F. W. Boehme.
Grace	Bannock	5,400	3	36.0		66	4	6	28	40	3.15		0.77	0.8	10	14	6	10	s.	E. A. Ekern.
Oxford	do	4,750	2								6.07		1.90	6.0	9	12	8	10	n.	Edwin Smith.
Paris	Bear Lake	5,946	13	35.4	+ 2.1	70[a]	2	5	16	43[a]	3.83	+ 2.70	0.75	8.5	11	16	3	11	w.	John Norton.
Stone	Oneida	4,520	2	35.6		66	3	− 8	18	53	5.43		1.90		8	17	3	10	s.	Thos. W. Roe.
Weston	do	4,610	12	37.2	+ 0.5	66	5	8	28	43	3.90	+ 2.51	1.37	3.0	9	9	4	17	n.	Wm. T. Chatterton.
Utah.																				
Annabella	Sevier	5,250	4								1.33		0.37	18.0	9					J. W. Fairbanks.
Beaver	Beaver	6,000	6	38.4		68	3†	4	16	35	2.36		1.00	15.0	7	11	13	6	sw.	James Connell.
Black Rock	Millard	4,872	9	40.7		71	3†	7	16	33	2.26		0.66	14.0	7	13	6	11	ne.	A. H. Cassell.
Blacksmiths Fork	Cache	5,500																		U. S. Forest Service.
Card Canyon	do	5,000																		Do.
Castle Rock	Summit	6,244	6								3.63		0.90	13.0	11	6	9	15		David Moore.
Cedar City	Iron	5,750	4																	J. M. Foster.
Corinne	Boxelder	4,240	39	40.0	+ 2.4	75	4	19	16	38	4.65	+ 3.68	1.49	2.0	6	6	20	4		A. C. Murphy.
Coyoto	Garfield		8																	Mrs. E. Clayton.
Deseret	Millard	4,541	15	38.7	+ 1.8	70	2†	6	17	51	0.92	+ 0.48	0.30	2.0	5	11	7	12	s.	S. W. Western.
Enterprise (near)	Washington	4,270	1								2.98		1.92	9.5	6	12	9	9	s.	John Day.
Farmington	Davis	4,267	9	40.4		66	3†	19	17	36	3.07		0.85	4.0	8	15	3	12	n.	Charles Boylin.
Fillmore	Millard	5,100	19	43.4	+ 2.3	82	5	8	16	50	1.61	+ 0.70	0.50		5					J. J. Starley.
Frisco	Beaver	7,318	15	39.4	− 0.3	69	1†	7	16	38	0.89	+ 0.41	0.45		3					E. R. Smyth.
Garland	Boxelder	4,350																		Harry B. Shaw.
Garrison	Millard		6	38.8[c]		71	4	− 1	16	39	1.41		0.58		3	15	5	8	s.	E. M. Smith.
Golden Reef	Beaver	7,000									1.95		0.70	19.5	4					D. W. Woodard.
Government Creek	Tooele	5,277	9	39.8		68	2†	13	16	32	1.39		0.53	4.5	6	6	6	18	s.	Walter James.
Heber	Wasatch	5,606	16	35.7	+ 0.2	70	3	5	16	50	2.86	+ 1.56	1.00	3.5	9	11	5	14	s.	John Crook.
Henefer	Summit	5,301	10	37.0		72	3	8	16	51	4.64		1.50	6.2	12	12	2	16		Wm. Brewer.
Hoyts Canyon	do	7,400									4.48									James Woolstenhulme.
Huntsville	Weber	5,100	14								6.15	+ 4.37	2.04	6.0	10	9	9	12		Lars Petersen.
Ibapah (near)	Tooele	7,500	4																	E. S. Gamwell.
Kanosh	Millard	5,250	1								2.73		1.30		4					Geo. Crane.
Kelton	Boxelder	4,230	31	33.6		65	1†	10	20	42	1.95	+ 1.65	0.55	12.0	7	0	11	19	ne.	F. W. Klock.
Levan	Juab	5,010	19	37.9	+ 1.2	67	3†	7	16	39	1.90	+ 0.98	0.83	4.2	5	12	4	14	sw.	Wm. Brown.
Logan	Cache	4,507	18	37.6	− 0.2	63	4	13	28	28	3.21	+ 2.07	1.00	3.7	9	9	4	17	n.	State Agricultural College
Lucin	Boxelder	4,504	5	35.6		67	2	4	18	52	0.90		0.50		2	10[b]	4[b]	14[b]		C. J. Burke.
Lund	Iron	5,086	1																	M. E. Smith.
Manti	Sanpete	5,575	15	35.6	− 1.8	61	24	9	17	36	1.60	+ 0.69	0.48	3.5	7	11	0	19		J. M. Anderson.
Marion	Summit	6,750	5								3.82		1.23	6.0	10	6	6	18	s.	James Woolstenhulme.
Marysvale	Piute	6,180	10	35.9		71	3	−11	16	53	2.22		0.90	15.9	7	11	6	13	s.	John W. Henry.
Meadowville	Rich	6,200	10	34.4		61	4†	12	16	39	3.50		1.20	T.	4	12	4	14	w.	J. S. Moffat.
Milford	Beaver	4,962	5	36.7		70	3	− 8	16	55	1.34		1.00	13.2	4	3	0	27		C. M. Temple.
Millville	Cache	4,848	14								4.81	+ 3.34	1.34		12					Fred Yeates.
Minersville	Beaver	5,070	12								1.95		0.54	10.0	5					Geo. Roberts.
Modena	Iron	5,479	9	35.6	− 3.4	71	3	− 7	16	47	1.96	+ 1.05	0.80	11.7	9	10	11	9	w.	U. S. Weather Bureau.
Morgan	Morgan	5,080	6																	W. Visick.
Moroni	Sanpete	5,519	1								3.22		1.05	2.5	10	3	25	2	sw.	B. F. Eliason.
Mount Nebo	Utah	4,650	8	40.7		71	24	13	16	35	1.42		0.58	3.5	7	16	4	10	s.	D. C. Walkey.
Mount Pleasant[d]	Sanpete	5,859	17	38.6	+ 0.4	70	2	12	16	42	0.36	− 0.41	0.11	2.0	5					Jane Martin.
Nephi	Juab	6,059	6								1.47		0.46	3.0	7	8	1	21	sw.	A. Madsen.
Nephi (near)	do	6,059									1.53		0.90	2.5	7	12	7	11	n.	S. R. Boswell.
Oak City	Millard	4,900	5	38.4		61	20†	10	16	30	2.21		0.77	5.0	6	12	6	12		Jos. Finlinson.
Ogden (1)	Weber	4,310	8	40.7		66	5	20	27	35	4.17		0.97	1.0	10	13	3	14	nw.	Enoch Farr.
Ogden (2)**	do	4,310	39	44.2	+ 4.9	66	5	20	27	23	3.37	+ 2.21	0.97	T.	10	7	7	16	nw.	W. H. Chevers.
Panguitch	Garfield	6,560	1																	F. C. Syrett.
Panguitch Lake	do	9,000									3.15		2.00	29.0	3	9	9	12	n.	James E. Prince.
Park City	Summit	7,800	12	36.4	+ 1.7	66	4	4	6	44	4.80	+ 2.90	1.00		11	10	7	13		Irvin Evans.
Parowan	Iron	5,970	18			76	2	1	15	49	0.94	+ 0.32	0.36	9.1	6					Scott Matheson.
Payson	Utah	4,637	6								3.42		0.81	11.0	8	9	6	15	sw.	D. L. Coombs.
Pinto	Washington	5,907	12	35.4[b]		70[b]	3†	− 8[b]	15	52	3.50	+ 2.39	1.40		3	15	7	8	n.	John H. Harrison.
Promontory	Boxelder	4,913	38								2.54	+ 2.02	0.80	18.0	9					F. C. Houghton.
Provo	Utah	4,532	17																	James A. Oliver.
Randolph	Rich	6,442	6								2.12		1.30		6	9	7	14	sw.	Wm. Rex.
Richfield	Sevier	5,350	19	38.8	+ 1.5	72	4†	0	16	52	2.03	+ 1.73	0.65	14.0	5	17	0	13	sw.	Joseph J. Jensen.
Richins Summit	Summit	6,500									4.81		1.55	9.0	12					Ernest H. Brewer.
Saltair	Salt Lake	4,220	6	42.1		65	9	24	16†	21	2.14	+ 1.11	0.73	1.0	9					E. J. Bench.
Salt Lake City	do	4,366	35	44.0	+ 3.6	69	5	24	16	26	1.46	+ 0.04	0.40	4.2	7	8	5	17	se.	U. S. Weather Bureau.
Scipio	Millard	5,260	14	38.4	+ 1.7	75	3	− 7	16	58	2.66	+ 1.51	0.81	8.0	8	8	5	17	sw.	Thos. Memmott.
Silver Lake	Salt Lake		1																	N. S. Fetherolf.
Soldier Summit	Utah	7,474	17																	Agent, D. & R. G. Ry.
Spanish Fork Canyon	do			43.5		87	7	17	16	57	2.63		1.00		7	17	3	1		U. S. Reclamation Service
Thistle	do	5,075	17																	Agent, D. & R. G. Ry.
Tooele	Tooele	4,900	13	41.7[a]	+ 1.9	80	3	17	27†	46	2.12	+ 0.59	0.55		9	3	11	16	nw.	E. A. Bonelli.
Utah Lake Pump'g Sta.	do	4,500	4	39.1		67	20	18	15†	39	1.26		0.62	2.5	6	14	7	9		W. A. Knight.
West Canyon	Tooele	7,800									1.70		0.60	7.5	4					Walter James.
Oregon.																				
Ana River	Lake																			Curtis Duvall.
Burns	Harney	4,157	19	37.2	+ 3.1	59	1	5	14	30	2.95	+ 1.47	0.89	1.0	10	10	7	13	w.	J. C. Welcome, jr.
Burns Mill	do																			John P. Sayer.
Cecils Ranch	do																			H. D. Cecil.
Christmas Lake	Lake		1	40.4		66	3	−12	15	44	2.50		0.57	4.5	16	0	7	23	sw.	John C. Green.
Paisley	do	4,500	5	41.2		65	2	11	15	26	2.06		0.59	4.0	14	16	2	12	sw.	E. C. Woodward.
"P" Ranch	Harney																			A. M. Byrd.
Silver Lake	Lake	4,700	14	38.6	+ 1.9	70	3	− 4	15		3.28	+ 2.46	0.85	1.0	10	11	6	13	w.	E. K. Henderson.
California.																				
Truckee	Nevada	5,819	38	24.5	−12.0	46	22	2	16	28	2.76	+ 0.44	1.20	26.5	6	11	6	13	sw.	Agent, So. Pac. Co.
Nevada.																				
Austin	Lander	6,594	21																	J. F. Wiseman.
Battle Mountain	do	4,843	39	39.5	+ 0.8	78	2	5	12†	56						10	10	10	w.	Agent, So. Pac. Co.
Beowawe	Eureka	4,905	39	35.6	− 1.3	85	5	5	11†	67	3.02	+ 2.46	0.90	5.0	7	11	8	11	se.	Do.
Carlin	Elko	5,232	39	36.4	+ 2.9	79	3	− 3	15	65	2.95	+ 2.62	0.60	8.5	13	15	0	15		Do.
Carson Dam	Churchill	4,032	3	42.4		68	1†	9	16	38	0.64		0.41	5.2	3	9	7	14	w.	U. S. Reclamation Service
Cherry Creek	White Pine	6,450	1	38.8		69	3	4	28	68	2.69		1.16	7.8	8	9	13	8	sw.	J. H. Leishman.
Clover Valley	Elko	6,000	10	37.8		68	2	8	16	41	5.75		2.95	5.0	9	9	4	17		J. F. Wiseman.
Cobre	do																			Agent, So. Pac. Co.

TABLE 1.—*Climatological data for November, 1909. District No. 10*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, .01 inch or more.	Sky.			Prevailing wind direction.	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 clear days.	Number of partly cloudy days.	Number of cloudy days.		
Nevada—Cont'd.																				
Columbia	Esmeralda	5,750	3	39.2	.....	69	2†	5	16	37	1.28	.....	0.72	17.0	5	16	8	6	se.	A. Booth.
Dutton	Elko	5,100	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Golconda Cattle Co.
Elko	do	5,342	39	32.6	− 1.2	70	3	−10	16	56	.....	.....	.....	.....	.....	10	6	14	e.	Agent, So. Pac. Co.
Ely	White Pine	6,421	19	41.9	+ 7.8	71	24	6	28	39	1.20	+ 0.35	0.40	4.2	5	21	3	6	w.	G. C. Hunting.
Eureka	Eureka	6,500	7	37.4	.....	69	3	4	16†	38	3.53	.....	2.27	30.0	8	9	5	16	n.	Clay Simms.
Fallon	Churchill	3,965	5	42.4	+ 2.7	70	2	12	16	42	0.71	+ 0.53	0.23	3.7	5	15	4	11	w.	U. S. Reclamation Serv'c.
Fernley	Lyon	4,200	2	42.0	+ 2.5	70	3†	− 1	16	39	1.54	+ 1.17	1.20	11.0	2	10	12	8	w.	Do.
Gardnerville	Douglas	4,830	10	43.4	.....	73	3	17	16	48	3.82	.....	1.60	12.1	5	6	13	11	e.	William Dangberg.
Geyser	Lincoln	.....	5	35.2	.....	61	9	5	30	48	1.05	.....	.....	10.5	5	10	15	5	s.	Mrs. J. F. Wambolt.
Golconda	Humboldt	4,697	31	44.4	+ 3.9	71	2	11	16	43	1.00	+ 0.63	0.40	5.0	5	3	8	19	nw.	Agent, So. Pac. Co.
Halleck	Elko	5,631	17	32.2	.....	71	1	0	23†	47	.....	.....	.....	3.5	4	.....	.....	.....	.....	Do.
Hamilton	White Pine	7,977	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George Allen.
Humboldt	Humboldt	4,236	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent, So. Pac. Co.
Jean	Clark	2,074	2	50.3	.....	83	3	23	17	53	0.67	.....	.....	0.0	.....	24	0	6	sw.	Agent, Salt Lake Route.
Leetville	Churchill	4,020	3	42.6	.....	72	3	9	16	44	0.75	.....	0.65	5.0	2	16	5	9	n.	U. S. Reclamation Serv'c.
Lewers Ranch	Washoe	5,500	22	42.0	+ 1.6	69	3	7	16	36	5.05	+ 1.75	1.95	13.0	9	7	13	10	.....	Ross Lewers.
Lovelock	Humboldt	3,977	17	45.8	+ 3.8	78	8	12	16†	52	0.66	+ 0.46	0.25	.....	8	.....	.....	.....	.....	John S. Case.
McAfees Ranch[c]	Esmeralda	4,835	6	44.8	.....	86	20	16	7	70	0.57	.....	0.35	2.5	2	9	0	21	n.	G. A. McAffee.
Millett	Nye	.....	2	36.2	.....	70	2†	− 6	16	50	1.46	.....	0.40	6.0	6	13	4	13	w.	Fred J. Jones.
Mina	Esmeralda	4,600	3	43.4	.....	72	1†	17	15	42	0.42	.....	0.20	3.0	3	13	5	12	sw.	Agent, So. Pac. Co.
Palmetto	do	6,780	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Isaac McConnell.
Potts	Nye	6,990	17	31.8	− 3.0	65	3	−10	27	42	0.77	+ 0.30	0.30	12.0	5	7	5	18	s.	Miss Mamie Potts.
Quinn River Ranch	Humboldt	4,850	8	39.5[g]	.....	73[e]	2	6[g]	16	37[g]	0.68	.....	0.41	.....	7	.....	.....	.....	sw.	F. M. Payne.
Reno	Washoe	4,532	39	41.1	+ 0.1	72	3	5	16	40	1.30	+ 0.21	1.11	12.3	7	7	13	10	w.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	3	41.5	.....	69	30	6	16	35	0.80	.....	0.40	6.0	4	8	15	7	w.	U. S. Reclamation Serv'c.
Tecoma	Elko	4,812	32	35.6	+ 1.6	65	4	4	15†	45	2.10	+ 1.68	0.10	3.0	4	.....	.....	.....	.....	Agent, So. Pac. Co.
Tonopah	Nye	6,090	3	39.5	.....	66	2	16	27	23	2.39	.....	0.99	23.0	7	12	12	6	se.	U. S. Weather Bureau.
Wabuska	Lyon	4,347	7	41.4	.....	68	23	9	27	47	0.85	.....	0.30	3.0	3	10	17	3	ne.	J. G. Young.
Wells	Elko	5,631	38	36.8	+ 3.2	65	7	0	16†	48	.....	.....	.....	2.0	.....	8	6	16	sw.	Agent, So. Pac. Co.
Winnemucca	Humboldt	4,432	31	40.2	+ 2.7	71	3	12	16	45	1.85	+ 1.11	0.51	5.6	10	5	8	17	sw.	U. S. Weather Bureau.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of fall not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. 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	
Wyoming.																																	
Border	Bear	T.								T.	T.	T.									*	*	1.70	.22	.10		.38	T.			.10		2.50
Evanston	...do									T.	.26	T.			T.						.44	.85			.05		.24						1.84
Idaho.																																	
Geneva	Bear																			1.92	.52	.17	.09	.14			.57				.05		3.46
Grace	...do						T.			.04	.02			T.	T.	T.				.03	.65	.27	.39	.16	.05	.77	.77	T.			T.		3.15
Oxford	...do									.15	.25				.08					.15	1.90		1.60	.28	T.	.68	.98						6.07
Paris	...do										.10				.12	.14				.70	.50	.75	.50	.38	.07	.30	.27						3.83
Stone	Deep Creek						T.			1.16	T.								T.	.26	1.90	.47	.68	.10	.85						.01		5.43
Weston	Bear									.75	.03									05	.54	.45	.13	.08		.50	1.37						3.90
Utah.																																	
Annabella	Sevier	.01									.05	.08	.12	.14	.15	.16											.25	.37					1.33
Beaver	...do									.42	T.	.05		T.	.05	1.00				T.		.04					.60	.20					2.36
Black Rock	...do																																
Blacksmiths Fork	Bear																																
Card Canyon	...do																																
Castle Rock	Weber									.45	.40	.05	.05	.03	.02						.90	1.30	.12	.11				.20					3.63
Cedar City	Desert									.59	.07	.05	T.	T.	.25	.36											.66	.28					2.26
Corinne	Bear						.90			.10			.10								.88		1.18				1.49						4.65
Coyoto	Sevier																																
Deseret	...do									.27					.07	.25						T.					.30				.03		0.92
Enterprise (near)	Desert									*	1.92			.28													*	.78					2.98
Farmington	Great Salt Lake									.25	.45				.02						.70	.85	.30	.20			.30						3.07
Fillmore	Sevier									.29			T.		.20	.50											.30	.42					1.61
Frisco	Desert									.36						.45												08.					0.89
Garland	Bear																																
Garrison	Desert									.50	T.				.58												*	.33					1.41
Golden Reef	...do									.30					.65	.70											.30						1.95
Government Creek	...do										.25			T.	.25	.10					T.	.53			T.	*	.20	.06					1.39
Heber	Jordan									.25	.50				.15	.05					.50	1.00	.06		.15		.20						2.86
Henefer	Weber									T.	.75	.22		T.	.11	.05				T.	1.50	1.13	.11	.08	.07		.45	.10			.07		4.64
Hoyts Canyon	...do																																4.48
Huntsville	...do									.86	.44				.13					1.26	2.04	.16	.66		.11	.28	.21				T.		6.15
Ibapah (near)	Desert																																
Kanosh	Sevier									.41						1.30						.04					.98						2.73
Kelton	Great Salt Lake									T.	T.			*	.30	.20								.20	.25	.55	.15				.30		1.95
Levan	Sevier									.83					.12	.22						.32					.41						1.90
Logan	Bear									.65	.06										.61	.56	.01	.01		1.00	.30				.01		3.21
Lucin	Desert									T.	T.	T.		T.	T.					T.		.40	T.				.50	T.					0.90
Lund	...do																																
Manti	Sevier									.31		.06			.08	.22					T.	.23					.22	.48					1.60
Marion	Weber									.50	.65	.32			T.	T.					.50	1.23	.22	T.	.17		.19				.04		3.82
Marysvale	Sevier									.23	.08	.03	T.	T.	.90	.82						T.					.08	.08					2.22
Meadowville	Bear								*	*	*	.50		T.						T.		1.20			.80		1.00						3.50
Milford	Sevier					.02									1.00	.30												.02					1.34
Millville	Bear									.62	.55	.04								.02	.88	.75	.41	.08	.04	.02	1.34	.06			T.		4.81
Minersville	Sevier									T.	.51	T.				.10	.40										.54	.40					1.95
Modena	Desert									.53	.06	.04	.03	.20	.20	.67	.02										.31	.10					1.96
Morgan	Weber																																
Moroni	Sevier	.04								.38	.48	.03	T.		.08	.10					T.	1.05	.08		T.		.67	.11					3.22
Mount Nebo	Jordan									.58	.18				.02	.08						.26	.06				.12	.18					1.42
Mount Pleasant	Sevier									.10		.05			T.							.03					.11				.07		0.36
Nephi	Jordan									.46	.31				.08	.20						.21					.11	.10					1.47
Nephi (near)	...do									*	.90				.10	.15						.20					*	.18					1.53
Oak City	Sevier																																
Ogden (1)	Weber									.27	.82	.21			.07						.29	.97	.35	.11			.95	.13					4.17
Ogden (2)	...do									.27	.82	.21			.07						.29	.97	.35	.11			.15	.13					3.37
Panguitch	Sevier																																
Panguitch Lake	...do									.50					*	2.00											.65						3.15
Park City	Weber									.70	.40				.25	.32					.20	1.00	.28		.40	.85		.20			.20		4.80
Parowan	Desert									.03			.10		.35	.36												.05	.05				0.94
Payson	Jordan									.70	.40				.15	.48					.03	.81	T.				.70	.15					3.42
Pinto	Desert									1.30					.80												1.40						3.50
Promontory	Great Salt Lake					.30								.13							.04	.03	.03	.04	.40	.60	.30						2.54
Provo	Jordan																																
Randolph	Bear								T.	.22	T.			T.		T.	T.			T.	1.30	.35	.06	T.	T.		.15	.04					2.12
Richfield	Sevier									.15	.55				.15	.65											.53						2.03
Richins Summit	Weber									.78	.25		T.	.12	.03				T.	1.55	1.15	.10	.08	.07	.46	.12			T.		.10		4.81
Saltair	Great Salt Lake									.20	.24	.04			.05							.73	.04	.03			.72	.09			T.		2.14
Salt Lake City	Jordan									.30	.12			T.	.06						.40	.18	.08	T.	T.	T.	.30				.02		1.46
Scipio	Sevier									.38	.81	.07		T.	.21	.52	.19					.22						.26					2.66
Silver Lake	Jordan																																
Spanish Fork Canyon	...do									.66	.31				*	.15					.07	1.00					.24	.20					2.63
Thistle	...do																																
Tooele	Great Salt Lake									.40	.21	.07			.08	.07					T.	.48	.06				.55	.26					2.12
Utah Lake Pump'g Sta.	Jordan									.32	T.			.15							.10	.62			.02		.05						1.26
West Canyon	Desert									*	.35			*	*	.45				*	.60						*	.30					1.70
Oregon.																																	
Ana River	Interior Drainage	.07				.17				.03	T.	.02		.03						.28	.83	.17	.44	.64	.16						.10		2.99
Burns	...do	.02				.15			.36		.20								13	.52		.89	.48	.08	.12								2.95
Burns Mill	...do					.30				.32		.35		T.	T.						.25	.75	.80	.50	.35					.45			4.07
Cecils Ranch	...do																																
Christmas Lake	...do	.07	.01			.21	.03		T.	.03	.01	.09		.13						.10	.45	.09	.57	.48	.12		.04				.10		2.50
Paisley	...do	.02				.20	.01			.01	.01	.02		.11	.13					.25	.36	.59	.14	.19	.02								2.06
"P" Ranch	...do																																
Silver Lake	...do					.20	.30							.05						.20	.85	.15	.62	.66	.15						.10		3.28
California.																																	
Boca	Truckee						.31			.10	.60	.10	.15	.45	.15					.20	.98	1.23	.31	T.	.49	.51	.20				T.		5.78
Bodie	East Walker								1.10	.31	.14	.30	.15	.12	.65						*	.49					.25						3.51
Bridgeport	...do																																
Donner Ice Camp	Truckee																																
Fales Hot Springs	West Walker						.09			.70	.30	.30			.20						.16					1.76	.10						2.31
Hobart Mills	Truckee					*	.30			.55	.60	.01	.06	.07	.60					.33	.70	1.09	.12	.05	.30	.10					.02		5.90
Lundy	East Walker								T.	1.00										*	*	1.50				.90							3.40
Markleeville	Carson						.10			.90	.60	.30	.38	.02	.55					.60	.30				.78	.54	.09				T.		5.16
Shields Ranch	West Walker																																
Silver Creek	Carson						.23			.90	.95	.40	.52	.06	.45					.72	.35				.76	.60	.10				T.		6.04
Tahoe	Truckee						.35			1.30				*	.60					.35	1.52	1.10		1.08		.40					.83		7.53
Truckee	...do						T.			.01	.60	.80		.05	1.20					.10		T.			T.	T.							2.76
Nevada.																																	
Austin	Reese																																
Battle Mountain	Humboldt																																
Beowawe	...do						.20			.65		.50									.13				.52	.12					.90		3.02
Buckskin	Walker						T.			T.	T.	.07	.09	.10	.15						.08					T.							0.49
Carlin	Humboldt						.20		.30	.10	.20	.20	.10						.10	.20	.40	.10				.60	.05				.40		2.95

TABLE 2.—*Daily precipitation for November, 1909. 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	
Nevada—Cont'd.																																	
Carson Dam	Carson						.08					.15		T.	.41											T.							0.64
Cherry Creek	Humboldt									.42	.06			.04	.02						.06	.55				.38	1.16	T.					2.69
Clover Valley	...do						.04			T.	.30				.03					.20	2.95	1.51	.20			.12	.40				T.		5.75
Cobre	...do																																
Columbia	Desert									.26		.08			.03											.72	.19						1.28
Dutton	Humboldt																																
Elko	...do																																
Ely	...do									T.					.10					T.		.30		.20	.20			.40			T.		1.20
Eureka	...do						.09			.35	T.	.25		.02	.20	T.					.15	T.				.10	2.27				.10		3.53
Fallon	Carson						.14			.03	T.	.20	T.		.23											.11					T.		7.10
Fernley	Truckee						T.			T.	T.	.34		T.	1.20					T.													1.54
Gardnerville	Carson					T.				.01	.01		1.60			1.60					T.	.60				T.							3.82
Geyser	Humboldt						*	*	.80														*	.25									1.05
Glenbrook	Truckee							*	.20					*	.80					.60	.25		.30			.50	.20			.50	.20		3.55
Golconda	Humboldt									.20	.10	.20									.10	.40											1.00
Halleck	...do																																
Hamilton	...do																																
Humboldt	...do																																
Jean	Desert																																10.67
Leetville	Carson											.10			.65																		0.75
Lewer's Ranch	Truckee						.20				*	*	1.20	*	1.00					*	1.95					.70					T.		5.05
Lovelock	Humboldt						.15	.12			.01	.02	.01								*	.25			.10								0.66
McAfee's Ranch	Desert											.35															.22						0.57
Millett	Reese									.20				.25	.25						.31	.40									.05		1.46
Mina	Desert									.12		.10			.20											T.							0.42
Mount Rose Ranch	Truckee					.20			T.	T.	T.	.10	.30	.15	1.75					T.	1.05		T.	T.	T.	T.					T.		3.55
Palmetto	Desert																																
Paradise Valley	Little Humboldt																																
Potts	Reese									.05	T.	T.	.02	T.	T.						T.	.15				.25	.30						0.77
Quinn River Ranch	Humboldt						.02			.15		T.		.04							.02	.41	.02			.02							0.68
Reno	Truckee					T.	.01			.01	T.	.09	T.	.54	.57					T.	.05	T.		T.	T.	.03					T.		1.30
Smith	West Walker	T.		T.					.12			.41		.03							.09				T.	T.							0.65
Soda Lake	Carson						.10					.10		.40	.20							T.				T.							0.80
Sweetwater	East Walker											*	.30	.20	.15																		0.65
Tecoma	Humboldt											1.00		1.00												.05	.05						2.10
Tonopah	Desert									.38		.60	.20	02	.20							T.				.63	.36						2.39
Wabuska	Walker						.25					.30	T.	T.	.30											T.							0.85
Wells	Humboldt																																
Willow Point	Little Humboldt																																
Winnemucca	Humboldt					T.	T.			.19	.20	.24		.28	.02					.13	.40	.15	T.	T.	T.	.11	T.				.13		1.85
Yerington	Walker																																

TABLE 3.—*Maximum and minimum temperatures at selected stations, November, 1909. District No. 10, Great Basin.*

Date.	Wyoming.						Utah.																					
	Border.		Evanston.		Weston, Idaho.		Corinne.		Deseret.		Government Creek.		Marysvale.		Modena.		Ogden (1).		Parowan.		Provo.		Salt Lake City.		Burns, Oreg.		Elko, Nev.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	50	25	50	23	55	31	64	28	66	21	62	34	67	17	66	23	57	36	59	25	68	27	60	37	59	39	60	21
2	56	20	61	24	61	30	66	31	70	24	68	37	69	19	68	25	62	39	76	36	74	26	65	42	56	40	69	21
3	64	16	66	24	63	28	73	35	70	23	65	38	71	18	71	24	62	37	75	24	73	25	64	42	54	38	70	20
4	63	14	62	19	64	21	75	38	69	18	68	36	70	19	69	26	63	39	73	32	75	24	64	42	50	42	69	13
5	63	14	61	22	66	27	73	29	69	35	65	41	70	28	64	30	66	31	74	30	71	24	69	50	46	23	67	15
6	50	14	54	18	50	32	72	30	65	35	54	41	67	28	58	26	54	44	74	28	70	23	57	41	50	26	60	36
7	52	18	50	17	49	24	68	35	59	19	51	26	66	23	56	18	54	31	73	24	63	22	56	34	49	31	52	22
8	49	26	60	20	55	25	70	38	64	30	62	33	69	28	63	23	58	35	67	30	70	28	66	40	55	36	56	30
9	56	18	53	36	65	36	59	27	56	35	57	33	68	35	54	33	58	42	60	35	61	41	61	39	50	32	58	29
10	46	24	36	23	44	30	56	29	50	32	58	34	47	27	42	29	42	33	55	30	49	33	45	36	45	15	52	20
11	37	13	36	13	43	25	45	29	48	24	44	16	43	17	38	25	39	31	48	25	51	28	45	33	37	16	35	−1
12	38	6	35	9	43	23	43	26	44	21	38	18	40	18	39	25	41	31	42	23	48	23	43	29	44	22	41	−1
13	31	5	32	5	33	22	40	25	43	20	36	21	40	16	35	22	37	25	40	20	49	25	41	28	40	20	37	−2
14	31	21	27	6	32	25	36	20	38	18	36	21	41	20	32	11	37	30	38	10	48	30	42	29	35	5	37	−7
15	28	4	28	14	34	19	40	22	38	25	33	24	30	12	29	2	36	27	36	1	37	27	37	28	39	9	36	−3
16	34	1	30	10	39	17	42	19	37	9	38	13	20	−11	25	−7	38	24	38	7	32	17	44	24	17	19	34	−10
17	40	1	38	5	42	18	45	23	32	6	40	15	27	−10	27	−2	42	24	39	10	46	15	45	26	40	26	43	−3
18	42	10	44	12	43	21	40	21	38	10	51	20	32	−3	38	5	44	27	40	12	55	19	49	28	46	34	46	−2
19	47	24	46	26	46	32	42	24	40	16	48	37	41	4	47	20	50	30	44	11	50	26	58	32	47	39	48	3
20	46	30	42	34	57	37	45	21	60	32	62	43	61	27	53	32	56	42	48	12	57	45	64	45	48	32	61	32
21	44	32	35	32	46	35	48	20	58	38	52	40	52	36	54	33	45	40	59	13	50	40	51	43	53	40	48	28
22	45	32	43	30	49	37	36	20	59	30	51	34	56	26	59	32	48	40	63	30	53	30	55	40	56	45	52	32
23	47	38	49	38	53	46	52	24	66	34	62	44	64	28	64	34	55	46	61	33	65	36	63	50	54	34	60	36
24	50	35	50	36	59	45	60	42	58	41	55	42	66	27	58	34	55	48	62	29	57	43	58	48	50	30	57	28
25	50	33	50	32	49	37	55	39	63	41	54	43	61	37	56	33	53	43	60	29	59	34	59	43	45	28	60	24
26	42	31	46	34	41	31	48	40	50	35	53	32	52	35	48	31	44	32	61	31	54	30	52	31	40	14	50	21
27	31	16	34	12	36	13	49	25	37	25	33	21	37	25	33	20	33	20	65	21	38	25	35	25	46	24	43	5
28	34	9	35	0	35	8	42	26	40	14	32	14	35	20	34	17	35	23	50	15	40	17	39	26	45	21	41	1
29	36	14	45	8	38	12	44	21	39	17	38	17	42	13	37	19	37	29	45	10	43	18	42	26	44	26	42	7
30	40	19	37	18	33	16	37	25	48	20	40	15	50	20	49	25	37	26	48	21	38	22	40	30	46	20	49	8
31																												
Mns	44.7	18.8	44.5	20.0	47.4	27.0	52.2	27.7	52.5	24.9	50.2	29.4	51.8	20.0	48.9	22.3	47.9	33.5	55.7	22.2	54.8	27.5	52.3	35.7	46.9	27.5	51.1	14.1

Date.	Nevada.																									
	Ely.		Eureka.		Fallon.		Jean.		Lovelock.		Millett.		Mina.		Quinn River Ranch.		Reno.		Tecoma.		Tonopah.		Winnemucca.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	68	38	60	32	68	35	70	27			67	24	72	31	66	45	65	40	58	20	60	41	64	38
2	66	36	61	34	70	30	74	31			70	21	72	30	73	44	72	33	60	22	66	43	69	30
3	66	40	69	34	69	27	83	30			70	20	67	32			72	32	62	22	65	48	71	26
4	69	34	68	33	68	26	80	36			60	11	67	22			68	32	65	20	62	45	66	23
5	63	32	62	34	68	26	71	31			65	20	60	38			61	32	62	18	58	41	65	24
6	65	31	54	33	68	39	81	37			56	39	62	24	59	32	54	31	58	17	52	41	54	26
7	70	40	52	23	56	28	73	43			54	15	65	35	53	18	60	26	60	17	55	40	51	23
8	63	37	52	38	61	28	72	40	78		61	29	63	39	60	23	66	29	54	18	57	40	64	33
9	62	32	50	29	60	42	80	45			53	34	53	29	52	38	48	37	56	22	49	31	48	33
10	61	33	40	21	52	29	59	36			50	26	45	25	48	31	47	32	57	20	38	29	44	32
11	56	19	35	19	42	25	59	31			55	10	41	27	44	24	39	28	52	22	35	22	34	29
12	53	21	31	14	40	29	58	37			55	11	39	23	46	25	41	29	46	17	28	19	40	17
13	48	16	35	12	37	29	60	28			31	12	38	22	33	27	38	27	44	12	29	29	35	26
14	42	16	35	15	33	21	60	30			36	14	44	21	41	21	32	22	42	10	25	18	36	23
15	44	18	33	12	34	16	56	28			32	−1	42	17	41	10	30	8	42	4	28	17	39	15
16	42	7	39	4	36	12	54	33		12	20	−6	50	22	43	6	28	5	42	4	31	18	40	12
17	54	15	51	13	43	19	62	23			33	−1	54	26	50	19	38	11	44	17	46	25	46	24
18	60	22	52	34	51	23	67	26			33	0	56	32	52	19	47	17	42	17	50	35	52	24
19	58	32	54	30	64	32	68	32			52	13	63	37			58	41	47	20	51	40	57	37
20	59	34	59	40	67	51	68	29			62	40	65	48	61	48	61	48	56	24	55	39	57	46
21	60	36	53	39	60	43	68	39			55	43	66	34	52	38	55	46	52	30	52	38	52	43
22	62	31	55	36	68	43	68	37			61	39	68	29	61	41	61	49	56	32	57	41	60	48
23	62	33	62	35	67	42	72	37			66	41	65	38	65	51	60	47	62	28	59	42	61	50
24	71	35	59	38	65	48	73	38			63	43	60	40	63		60	46	60	22	53	41	58	46
25	60	29	52	32	58	41	74	33			52	39	51	31			46	35	56	18	44	30	47	32
26	56	21	46	35	44	31	74	43			41	30	41	29	34		40	24	52	20	32	19	39	23
27	51	32	32	8	43	17	65	28			33	18	59	21	43	12	44	19	46	12	26	16	41	18
28	31	6	34	4	46	19	59	26			41	11	61	24	50	21	51	23	48	10	36	23	46	22
29	39	10	45	10	50	21	57	28			45	20	64	26	46	18	56	23	52	16	45	32	48	25
30	46	20	50	25	59	28	64	28			58	26	60	39	47	26	60	38	54	16	50	40	50	32
31																								
Means	56.9	26.9	49.3	25.5	54.9	30.0	67.6	33.0			51.0	21.4	57.1	29.7	51.3[e]	27.7[e]	51.9	30.3	52.9	18.2	46.5	32.5	51.1	29.3