CLIMATOLOGY OF COSTA RICA.

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TABLE 1.—*Hourly observations at the Observatory, San Jose de Costa Rica, during January, 1902.*

Hours.	Pressure.		Temperature.		Relative humidity.		Rainfall.		
	Observed, 1902.	Normal, 1889-1900.	Observed, 1902.	Normal, 1889-1900.	Observed, 1902.	Normal, 1889-1900.	Observed, 1902.	Normal, 1889-1900.	Duration, 1902.
	660+ *Mm.*	660+ *Mm.*	° *C.*	° *C.*	%	%	*Mm.*	*Mm.*	*Hrs.*
1 a. m	4.52	3.96	16.15	16.36	82	85	0.5	0.1	0.83
2 a. m	4.10	3.55	15.85	16.16	82	85	0.0	0.0	0.00
3 a. m	3.77	3.14	15.61	15.96	83	86	0.1	0.1	0.67
4 a. m	3.63	3.14	15.61	15.80	81	86	0.0	0.2	0.00
5 a. m	3.75	3.27	15.48	15.66	80	86	0.0	0.3	0.00
6 a. m	3.92	3.57	15.40	15.00	82	86	0.0	0.2	0.00
7 a. m	4.23	3.83	15.43	15.09	82	86	0.0	0.4	0.00
8 a. m	4.60	4.31	16.15	16.55	76	81	0.0	0.3	0.00
9 a. m	4.99	4.66	18.37	19.28	69	73	0.0	0.4	0.00
10 a. m	5.13	4.76	20.13	21.15	66	68	0.0	0.0	0.00
11 a. m	5.03	4.56	21.36	22.50	63	64	0.0	0.0	0.00
12 m	4.61	4.17	22.17	23.25	61	62	0.0	0.1	0.00
1 p. m	4.05	3.60	22.95	23.75	59	61	0.2	0.4	0.17
2 p. m	3.45	3.00	22.65	23.81	61	61	0.7	0.2	1.00
3 p. m	3.11	2.56	22.47	23.40	61	63	0.5	0.5	1.00
4 p. m	2.86	2.45	21.47	22.55	65	65	0.1	2.0	0.17
5 p. m	2.96	2.55	19.90	21.28	71	69	0.0	2.9	0.00
6 p. m	3.29	2.78	18.51	19.74	76	75	0.3	0.9	0.83
7 p. m	3.71	3.22	17.61	18.48	79	79	0.3	0.6	0.17
8 p. m	4.12	3.72	17.16	17.92	81	82	1.5	1.1	1.83
9 p. m	4.63	4.09	17.02	17.61	81	82	0.2	0.1	1.17
10 p. m	4.89	4.37	16.86	17.20	81	83	0.0	0.6	0.00
11 p. m	4.89	4.41	16.61	16.88	82	85	0.3	0.4	0.58
Midnight	4.75	4.24	16.42	16.61	81	85	0.5	0.1	1.00
Mean	664.14	663.66	18.18	18.83	74	77	.....	.....	.....
Minimum	661.4	660.04	13.0	9.7	38	.....	.....	.....	.....
Maximum	667.1	668.12	27.3	30.3	95	.....	0.9	.....	.....
Total	.....	.....	.....	.....	.....	.....	5.2	11.8	9.42

REMARKS.—The barometer is 1,169 meters above sea level. Readings are corrected for gravity, temperature, and instrumental error. The dry and wet bulb thermometers are 1.5 meters above ground and corrected for instrumental errors. The hourly readings for pressure, and wet and dry bulb thermometers, are obtained by means of Richard registering instruments, checked by direct observations every three hours from 7 a. m. to 10 p. m. The hourly rainfall is as given by Hottinger's self-register, checked once a day. Under maximum, the greatest hourly rainfall for the month is given. The standard rain gage is 1.5 meters above ground. Since January 1, 1902, observations at San Jose has been made on seventy-fifth meridian time, which is 0 hours, 36 minutes, 13.3 seconds *in advance* of San Jose local time. The normals for pressure, temperature, and relative humidity have been adjusted to this time; the normal for rainfall in Table 1 and the sunshine observations and normal in Table 2 refer to local time.

TABLE 2.

Time.	Sunshine.		Cloudiness.		Temperature of the soil at depth of—				
	Observed, 1902.	Normal, 1889-1900.	Observed, 1902.	Normal, 1889-1900.	0.15 *m.*	0.30 *m.*	0.60 *m.*	1.20 *m.*	3.00 *m.*
	Hours.	*Hours.*	%	%	° *C.*	° *C.*	° *C.*	° *C.*	° *C.*
7 a. m	5.55	8.28	49	39	18.90	19.06	19.58	20.00	20.67
8 a. m	17.47	22.43	.....	.....	.....	.....	.....	.....	.....
9 a. m	18.56	22.55	.....	.....	.....	.....	.....	.....	.....
10 a. m	21.07	20.73	52	44	19.11	19.13	19.65	20.07	.....
11 a. m	18.16	19.74	.....	.....	.....	.....	.....	.....	.....
12 m	15.62	18.42	.....	.....	.....	.....	.....	.....	.....
1 p. m	13.77	17.99	61	53	19.47	19.27	19.68	20.09	.....
2 p. m	16.69	19.74	.....	.....	.....	.....	.....	.....	.....
3 p. m	16.20	19.23	.....	.....	.....	.....	.....	.....	.....
4 p. m	14.09	17.44	62	57	19.74	19.30	19.60	19.99	.....
5 p. m	10.31	12.70	.....	.....	.....	.....	.....	.....	.....
6 p. m	1.99	2.54	.....	.....	.....	.....	.....	.....	.....
7 p. m	.....	.....	64	55	19.69	19.40	19.63	20.01	.....
8 p. m	.....	.....	.....	.....	.....	.....	.....	.....	.....
9 p. m	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 p. m	.....	.....	45	44	19.48	19.36	19.64	20.00	.....
11 p. m	.....	.....	.....	.....	.....	.....	.....	.....	.....
Midnight	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mean	.....	.....	55	49	19.41	19.27	19.64	20.01	20.67
Total	169.48	201.79	.....	.....	.....	.....	.....	.....	.....

TABLE 3.—*Rainfall at stations in Costa Rico, January, 1902.*

Stations.	Height above sea level.	Observed, 1902.		Normals.		
		Amount.	Number of days.	Number of years.	Amount.	Number of days.
		Mm.			*Mm.*	
Sipurio (Talamanca)	60	*	*	1	385	17
Boca Banano	3	450	23	6	308	19
Limon	3	502	21	7	308	18
Swamp Mouth	3	184	20	4	305	18
Zent	20	555	17	9 mo.	.....	.....
Siquirres	60	460	17	3	471	14
Guapiles	300	426	19	2	340	13
Cariblanco (Sarapiqui)	835	1,078	28	4	373	20
San Carlos	161	315	22	4	234	17
Las Lomas	266	*	*	2	521	16
Peralta	332	370	23	4	222	15
Turrialba	620	*	*	7	225	16
Juan Viñas	1,040	308	26	6	211	10
Santiago	1,090	*	*	9 mo.	.....	.....
Paraiso	1,336	110	20	6 mo.	.....	.....
Cachi	.....	77	23	.....	.....	.....
Orosi	1,068	*	*	.....	.....	.....
Las Concavas	.....	64	24	5 mo.	.....	.....
Cartago	1,450	74	27	3	92	14
Tres Rios	1,300	23	7	12	18	4
San Francisco Guad	1,187	10	6	6	20	5
San Jose	1,160	5	6	13	12	3
La Verbena	1,140	3	5	6	35	5
Nuestro Amo	.....	0	0	6	0	0
Alajuela	950	0	0	2	0	0
San Isidro Alajuela	1,346	0	0	9 mo.	.....	.....

* Observations not received.

TABLE 4.—*Observations taken at the stations of Port Limon and Zent, January, 1902.*

Stations.	Pressure.			Temperature.			Relative humidity.
	Minimum.	Maximum.	Mean.	Minimum.	Maximum.	Mean.	
	Inches.	*Inches.*	*Inches.*	°	°	°	%
Port Limon	763.3	768.4	765.71	20.1	30.5	23.54	88
Zent	.....	.....	.....	18.5	32.3	23.85	86

Stations.	Cloudiness.	Sunshine.	Rainfall.		Temperature of soil at depth of—		
			Amount.	Number of days.	0.15 *m.*	0.30 *m.*	0.60 *m.*
	%	*Hours.*	*Mm.*		°	°	°
Port Limon	79	.....	502	21	.....	.....	.....
Zent	80	89.58	555	17	24.10	23.97	24.43

REMARKS.—At Port Limon the hours of direct observation are 8 a. m. and 2 and 8 p. m., San Jose local time; the means for temperature and relative humidity are obtained from two-hourly readings given by a Richard self-registering thermometer.

Notes on the weather.—On the Pacific slope the beginning of the month was exceptionally cold and windy, with occasional showers, but conditions had improved by the 16th. In San Jose the pressure was generally high, especially at the beginning and end of the month. Sunshine was much below the normal, and the coffee crop was somewhat injured by the damp weather. The rainfall was excessive all along the Atlantic slope, causing numerous inundations and landslides along the railroad. In Port Limon no steamer could approach the new wharf during an entire week, and over 60,000 bunches of bananas had to be thrown into the sea.

Notes on earthquakes.—January 5, $10^h\ 2^m$ p. m., slight shock, intensity II, direction NNW-SSE, duration 3 seconds. January 13, $2^h\ 5^m\ 21^s$ p. m., slight shock, intensity II, direction NNE-SSW, duration 12 seconds. January 16, $4^h\ 18^m$ p. m., very slight tremor, direction ENE-WSW, duration (?). January 18, $5^h\ 55^m$ p. m., tremors; $7^h\ 53^m$ a. m., light shock,

intensity II, direction NE-SW, duration 7 seconds. January 20, 3^h 48^m a. m., light shock, intensity II, direction NNE-SSW, duration 7 seconds. January 23, 10^h 41^m p. m., tremors. January 28, 4^h 56^m a. m., several short shocks, direction NNE-SSW, intensity III, duration 12 seconds; January 28, 1^h 1^m p. m., pretty strong shocks, direction NNE-SSW, duration 20 seconds, intensity IV.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

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Science. London. Vol. 15.
Ward, Robert DeCourcy. Rainfall, Commerce, and Politics. [Review of article by H. H. Clayton.] Pp. 110-111.
Ward, Robert DeCourcy. Economic Effects of Last July's Heat and Drought. P. 111.
Ward, Robert DeCourcy. Snow Crystals. [Review of article by Wilson A. Bentley.] P. 111.
Ward, Robert DeCourcy. Weather Tetanus. [Review of circular published by Camden, N. J., Board of Health.] Pp. 111-112.
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Nature. London, Vol. 65.
Rotch, A. Lawrence. Kites and Wireless Telegraphy. P. 198.
Milne, J. What are Seismometers Indicating? Pp. 202-203.
G., C. C. Electric Waves. Pp. 211-212.
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Bauer, L. A. Results of International Magnetic Observations made during the Total Solar Eclipse of May 17-18, 1901. Pp. 246-247.
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