TABLE VII.—*Heights of rivers referred to zeros of gages.*—Continued.

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Cape Fear River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
Fayetteville, N. C	112	38	50.0	17	3.8	14	13.3	46.2
Waccamaw River.								
Conway, S. C	40	7	7.6	17	3.0	6	5.2	4.6
Pedee River.								
Cheraw, S. C	149	27	12.2	6	1.7	29, 30	4.0	10.5
Smiths Mills, S. C	51	16	12.7	9, 10, 21	5.6	30	11.2	7.1
Lynch Creek.								
Effingham, S. C	35	12	10.0	5	4.0	29, 30	5.8	6.0
Black River.								
Kingstree, S. C	45	12	7.5	16	3.2	30	5.5	4.3
Catawba River.								
Mount Holly, S. C	28	15	3.8	5	1.5	25–28, 30	1.9	2.3
Wateree River.								
Camden, S. C	37	24	13.0	6, 7	3.5	27	5.9	9.5
Congaree River.								
Columbia, S. C	52	15	1.0	6	— 1.4	30	0.0	2.4
Santee River.								
St. Stephens, S. C	50	12	8.6	7	— 1.1	30	4.0	9.7
Edisto River.								
Edisto, S. C	75	6	4.6	12–14	1.0	28–30	2.8	3.6
Broad River.								
Carlton, Ga	30	11	3.2	5	1.5	30	1.9	1.7
Savannah River.								
Calhoun Falls, S. C	347	15	4.0	6	1.9	30	2.6	2.1
Augusta, Ga	268	32	11.5	7	4.4	30	6.4	7.1
Oconee River.								
Milledgeville, Ga	147	25	2.7	6	0.4	30	1.2	2.3
Dublin, Ga	79	30	1.1	8	— 1.2	27–30	—0.6	2.3
Ocmulgee River.								
Macon, Ga	203	18	4.7	6	0.1	30	1.2	4.6
Abbeville, Ga	96	11	9.4	1	0.6	30	2.2	8.8
Flint River.								
Woodbury, Ga	227	10	0.8	5	— 0.3	20	0.0	1.1
Albany, Ga	90	20	5.4	1	0.1	28–30	1.2	5.3
Chattahoochee River.								
Oakdale, Ga	305	18	1.8	6	0.0	27–30	0.5	1.8
West Point, Ga	239	20	2.5	6	1.3	20, 21, 27–30	1.7	1.2
Coosa River.								
Rome, Ga	271	30	0.9	1–3, 7	— 0.5	19–29	0.0	1.4
Gadsden, Ala	144	22	0.0	1	— 1.0	29, 30	—0.6	1.0
Lock No. 4, Ala	116	17	0.7	1	— 0.7	30	—0.2	1.4
Wetumpka, Ala	6	45	3.1	1	0.0	22–24	1.1	3.1
Tallapoosa River.								
Milstead, Ala	38	35	2.1	7	0.7	22	1.3	1.4
Alabama River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
Montgomery, Ala	265	35	1.4	1	— 1.4	26	—0.6	2.8
Selma, Ala	212	35	2.9	1	— 1.4	25, 26	—0.2	4.3
Black Warrior River.								
Tuscaloosa, Ala	90	43	4.9	1	4.3	27, 28	4.6	0.6
Tombigbee River.								
Columbus, Miss	303	33	— 2.8	23–30	— 3.5	12–20	—3.2	0.7
Demopolis, Ala	155	35	— 2.3	1	— 3.4	21–24, 30	—3.0	1.1
Sabine River.								
Logansport, La	195	25	2.8	15, 16	0.2	3, 4	1.5	2.6
Orange, Tex	15	7	— 0.2	9–30	— 0.4	1–8	—0.3	0.2
Neches River.								
Rockland, Tex	105	20	0.8	16	— 0.4	1	0.0	1.2
Beaumont, Tex	18	10	2.0	28, 29	0.7	1	1.3	1.3
Trinity River.								
Dallas, Tex	320	25	7.9	17	2.3	1, 2	4.0	5.6
Riverside, Tex	112	40	6.9	11	— 0.6	4, 5	1.8	7.5
Liberty, Tex	20	25	8.3	15	3.6	6–7	5.1	4.7
Brazos River.								
Kopperl, Tex	345	21	3.2	15	— 1.6	3	1.3	4.8
Waco, Tex	285	24	6.4	9	2.8	3, 4	4.1	3.6
Hempstead, Tex	140	40	3.7	9, 13	— 1.7	8	0.9	5.4
Booth, Tex	61	39	3.3	1, 2	1.7	20–22	2.5	1.6
Colorado River.								
Ballinger, Tex	489	21	10.0	23	1.0	18, 19	2.5	9.0
Austin, Tex	214	18	5.5	5	0.7	4	2.7	4.8
Columbus, Tex	98	24	13.0	8	5.8	3, 5, 6	8.9	7.2
Red River of the North.								
Moorhead, Minn.	418	26	8.3	6–9	7.7	1	8.0	0.6
Kootenai River.								
Bonners Ferry, Idaho	123	.....	5.0	1	1.7	30	3.1	3.3
Pend d'Oreille River.								
Newport, Wash	86	.....	0.9	1–4	— 0.6	25–30	1.5	1.5
Snake River.								
Lewiston, Idaho	144	24	2.0	1	1.4	21–23	1.6	0.6
Riparia, Wash	67	.....	2.2	1–6	2.0	25–30	2.1	0.2
Columbia River.								
Wenatchee, Wash	473	40	12.4	1	6.8	30	9.7	5.6
Umatilla, Oreg	270	25	6.0	1	2.1	30	4.7	3.9
The Dalles, Oreg	166	40	8.1	1	4.1	30	6.3	4.0
Willamette River.								
Albany, Oreg	118	20	1.0	1–30	1.0	1–30	1.0	0.0
Salem, Oreg	84	20	0.4	1–6	0.3	7–30	0.3	0.1
Portland, Oreg	12	15	4.2	14	2.0	19, 20	3.2	2.2
Sacramento River.								
Red Bluff, Cal	265	23	5.7	24	0.3	1–20	0.9	5.4
Sacramento, Cal	64	25	12.0	26	8.2	21–23	9.1	3.8

(1) 15 days only. (2) 23 days only.

HAWAIIAN CLIMATOLOGICAL DATA.

By ALEXANDER McC. ASHLEY, Section Director, United States Weather Bureau.

GENERAL SUMMARY FOR SEPTEMBER, 1904.

Following is the summary of meteorological conditions in the Hawaiian Islands during September, 1904:

Approximate percentages of district rainfall as compared with normals: Hawaii, Hilo, 104 per cent; Hamakua, 303 per cent; Kohala, 206 per cent; Kona, 110 per cent; Kau, 280 per cent; Puna, 226 per cent; Maui, variable, from 110 per cent at Pauomalei to 317 per cent at Kula (Erehwon). Oahu: Honolulu district, 61 per cent; Koolau, variable, from 82 per cent at Kahuku to 263 per cent at Waimanalo. Kauai: Lihue, 144 per cent; Kilauea Plantation, 68 per cent; Waiawa, 143 per cent.

United States Weather Bureau, dew-point, 67°; relative humidity, 70 per cent. United States Magnetic Station, dew-point, 68°; relative humidity, 70 per cent. Kohala, dew-point, 69°; relative humidity, 79 per cent.

Hawaii.—Pepeekeo: Partial solar eclipse observed from 8:20 to 10:30 a. m. on the 9th; thunder on the 12th, 13th, and 14th; distant lightning on the 29th; heavy showers on the 12th and 29th; solar halo on the 30th.

The greatest monthly rainfall reported was 13.14 inches at Nahiku, Maui. The greatest 24-hour rainfall was 5.02 inches at Maunawili, Oahu, on the 14th.

Temperature table for September, 1904.

Stations.	Elevation.	Mean max.	Mean min.	Cor. av'ge.	Highest.	Lowest.
	Feet.	°	°	°	°	°
Hilo	50	.....	.....	.....	.....	.....
Pepeekeo	100	81.7	71.2	76.4	84	69
Olaa Mill	210	84.1	61.6	72.8	87	59
Kohala	521	81.9	70.0	76.0	85	68
Waimea	2,730	.....	.....	.....	.....	.....
Volcano House	4,000	75.0	54.9	65.0	80	52
Waiakoa	2,700	.....	.....	.....	.....	.....
Keomuku	10	.....	.....	.....	.....	.....
Kinau Street (Castle)	50	.....	.....	.....	.....	.....
United States Weather Bureau	111	83.7	73.2	78.0	85	70
United States Magnetic Station	50	87.6	70.0	79.0	91	66
Ewa Mill	60	.....	.....	.....	.....	.....
United States Experiment Station	350	87.3	71.6	79.0	89	69
Punahou	47	84.2	71.5	78.0	85	67
Kilauea	342	83.2	68.8	76.0	86	66
Kailua (Huelo)	.....	85.9	64.0	75.0	95	64

Honolulu, Hawaii, latitude, 21° 19′ north, longitude 157° 52′ west; barometer above sea, 38 feet; gravity correction, —.057, applied.

Day.	Pressure.*		Air temperature.				Moisture.				Wind.				Precipitation.		Clouds.					
							8 a. m.		8 p. m.		8 a. m.		8 p. m.				8 a. m.			8 p. m.		
	8 a. m.	8 p. m.	8 a. m.	8 p. m.	Maximum.	Minimum.	Wet.	Relative humidity.	Wet.	Relative humidity.	Direction.	Velocity.	Direction.	Velocity.	8 a. m.	8 p. m.	Amount.	Kind.	Direction.	Amount.	Kind.	Direction.
1	29.93	29.92	79.0	76.1	85	72	70.0	64	69.0	70	se.	7	ne.	12	0.00	0.00	1	Cu.	se.	1	S.-cu.	ne.
2	29.95	29.97	80.2	77.8	84	72	70.9	63	70.1	68	e.	1	e.	3	0.00	0.00	2	Cu.	e.	1	S.-cu.	e.
3	29.98	29.95	79.5	78.3	84	76	70.5	64	69.1	63	e.	12	ne.	8	T.	0.00	6	Cu.	ne.	2	Cu.	e.
4	29.96	29.92	79.8	78.6	85	75	72.2	69	72.6	75	ne.	8	ne.	10	0.00	T.	1	Cu.	ne.	2	Cu.	ne.
5	29.92	29.89	78.8	75.9	81	74	73.7	79	73.4	89	sw.	2	ne.	2	T.	.44	4 3	Ci.-s. S.-cu.	w. ne.	10	N.	?
6	29.90	29.89	79.8	77.6	84	72	70.9	64	70.6	71	e.	3	ne.	2	T.	0.00	2 3	Ci. Cu.	w. ne.	1	S.-cu.	?
7	29.92	29.96	79.8	77.0	82	73	70.3	62	71.0	74	se.	13	e.	5	0.00	0.00	1 1	Ci.-s Cu.	calm. e.	1	S.-cu.	e.
8	30.00	29.99	80.0	78.5	85	75	70.5	62	69.5	64	e.	10	e.	9	T.	0.00	2 1	Ci.-s. Cu.	w. ne.	3	S.-cu.	e.
9	29.97	29.96	79.2	76.0	84	75	70.0	63	70.0	74	ne.	20	e.	5	T.	T.	3	Cu.	ne.	10	N.	?
10	29.98	29.95	80.5	78.2	84	76	69.8	59	69.2	63	e.	11	e.	11	.01	T.	1	Cu.	ne.	1	S.-cu.	e.
11	29.97	29.94	79.6	77.9	84	74	71.0	66	70.5	69	ne.	6	ne.	8	0.00	0.00	3	Cu.	e.	Few.	S.-cu.	calm.
12	29.96	29.94	79.9	77.8	84	75	70.3	62	70.3	69	ne.	10	e.	6	0.00	0.00	2 4	Ci. S.-cu.	w. ne.	8	S.-cu.	e.
13	29.96	29.93	77.7	77.9	82	75	72.0	76	71.2	72	ne.	4	ne.	3	0.00	T.	10	S.-cu.	ne.	10	S.-cu.	ne.
14	29.94	29.90	75.8	75.5	84	72	71.4	80	70.0	76	ne.	4	ne.	6	.10	.05	9	S.-cu.	ne.	1	S.-cu.	ne.
15	29.90	29.93	79.0	78.0	82	70	73.0	75	73.0	79	se.	5	se.	4	0.00	0.00	3	Cu.	e.	8	Cu.	e.
16	29.96	30.01	77.9	78.0	82	71	74.4	85	72.0	75	nw.	3	ne.	2	.66	T.	7	S.-cu.	calm	1	S.-cu.	ne.
17	30.02	30.01	80.0	78.0	84	74	71.9	68	69.0	63	ne.	3	e.	3	0.00	0.00	2	Cu.	ne.	Few.	Cu.	e.
18	29.99	29.99	80.1	77.0	84	74	71.0	64	69.0	67	ne.	12	e.	2	0.00	0.00	1	Cu.	se.	8	Ci.-s.	w.
19	29.97	29.99	80.3	78.5	85	73	71.3	64	70.0	66	e.	10	e.	5	0.00	T.	1	Cu.	e.	5 3	Ci.-s. Ci.-cu.	calm. w.
20	30.01	30.00	79.0	78.0	85	73	70.1	64	69.0	63	se.	12	ne.	8	0.00	0.00	2	Cu.	e.	1	Cu.	e.
21	29.99	29.99	78.0	76.5	83	74	70.8	70	70.0	72	ne.	4	ne.	3	.01	.04	8	N.	ne.	2	Cu.	ne.
22	29.98	29.98	77.8	76.3	85	73	71.8	75	71.0	77	ne.	4	n.	3	T.	T.	2 3	Cu. N.	ne. ne.	6	Cu.	ne.
23	29.97	29.98	80.0	76.1	85	74	71.0	64	69.1	70	ne.	4	se.	3	0.00	T.	1	Cu.	e.	1	Cu.	e.
24	29.98	29.97	78.0	74.5	84	70	70.0	67	69.5	78	ne.	10	ne.	13	0.00	.08	1	Cu.	e.	1 5	Cu. N.	ne. ne.
25	29.94	29.93	78.0	77.0	83	72	71.4	73	68.5	65	ne.	9	e.	5	T.	0.00	2	Cu.	e.	Few.	Cu.	calm.
26	29.92	29.90	78.2	77.5	84	72	70.0	66	70.0	69	w.	4	e.	2	0.00	0.00	1 1	Ci.-s. Cu.	calm. e.	3 1	Ci.-s. Cu.	calm. e.
27	29.88	29.86	79.7	78.1	84	72	71.8	68	72.1	75	ne.	5	n.	3	0.00	T.	2	Cu.	calm.	8	S.-cu.	ne.
28	29.84	29.84	81.4	79.1	83	73	73.5	69	71.2	68	ne.	1	ne.	4	0.00	.01	1	Cu.	e.	5	S.-cu.	ne.
29	29.84	29.84	79.6	78.3	83	73	73.8	76	71.1	70	ne.	1	ne.	4	T.	0.00	9	S.-cu.	w.	4	S.-cu.	ne.
30	29.88	29.86	78.9	77.2	83	73	70.0	64	72.0	78	se.	2	ne.	5	0.00	0.00	9	Ci.-cu.	calm.	2	S.-cu.	ne.
31																						
Mean	29.95	29.94	79.2	77.4	84	73	71.3	68	70.4	71	ne.	6.7	ne.	5.3	0.78	0.62	3.8	Cu.	ne.	3.8	S.-cu.	ne.

Observations are made at 8 a. m. and 8 p. m., local standard time, which is that of 157° 30′ west, and is 5h and 30m slower than 75th meridian time. *Pressure values are reduced to sea level and standard gravity

Rainfall data for September, 1904.

Stations.	Elevation.	Amount.
HAWAII.		
HILO, e. and ne.	*Feet.*	*Inches.*
Waiakea	50	8.49
Hilo (town)	100	7.24
Kaumana	1,050	11.13
Pepeekeo	100	8.32
Hakalau	200	11.37
Honohina	300	12.26
Puuohua	1,050	9.52
Laupahoehoe	500	6.63
Ookala	400	5.40
Puueo	85	6.98
HAMAKUA, ne.		
Kukalau	250	5.62
Paauilo	300	5.05
Paauhau	300	5.08
Honokaa (Mill)	470	8.08
Honokaa (Meinicke)	1,100	5.88
Kukuihaele	700	6.88
Paauhau	1.150	4.72
Paapau		
KOHALA, n.		
Awini Ranch	1,100	
Niulii	200	4.43
Kohala (Mission)	521	3.96
Kohala (Sugar Co.)	270	
Hawi Mill		
Puakea Ranch	600	1.48
Puuhue Ranch	1,847	1.64
Waimea	2,720	4.62
Halawa	450	4.37
KONA, w.		
Huehue	2,000	4.66
Holualoa	1,350	10.76
Kaukahoku Leheula		

Stations.	Elevation.	Amount.
HAWII—*Cont'd.*	*Feet.*	*Inches.*
Kainaliu		
Kealakekua	1,500	10.89
Napoopoo	25	4.80
Hoopuloa	1,650	3.54
Hoopuloa	2,300	10.11
Puuwaawaa Ranch	2,738	8.22
Huehue		
KAU, se.		
Keaa Homesteads	2,000	12.31
Kahuku Ranch		
Honuapo	25	3.66
Naalehu	650	7.12
Hilea	310	4.30
Pahala	850	3.56
Volcano House	4,000	4.06
Kau Station	1,850	10.64
PUNA, e.		
Olaa, Mountain View (Russel)		
Olaa Plantation (Mill)	210	9.15
Olaa (20 miles)		
Kapoho	110	12.49
Pahoa	600	10.65
MAUI.		
Lahaina		
Waiopae Ranch	700	2.11
Kaupo (Mokulau), s	285	2.19
Kipahulu, s	308	4.70
Hana		
Nahiku, ne	900	9.24
Nahiku	1.600	13.14
Haiku, n	700	1.63
Kula (Erehwon), n	4,000	6.68
Kula (Waiakoa), n	2,700	6.78
Puuomalei, n	1,400	3.01

Stations.	Elevation.	Amount.
MAUI—*Cont'd.*	*Feet.*	*Inches.*
Paia	180	1.15
Haleakala Ranch	2,000	1.15
Wailuku, ne	250	1.16
Kailua		8.49
LANAI.		
Keomuku		
OAHU.		
U. S. Weather Bureau	108	1.40
Punahou (W. B.), sw	47	3.01
Kulaokahua (Castle), sw		
Makiki Reservoir		
U. S. Naval Station, sw	6	1.18
Kapiolani Park, sw		
College Hill s	175	3.37
Manoa (Woodlawn Dairy), c	285	4.88
Manoa (Rhodes Gardens)	360	7.37
Insane Asylum	30	0.92
School street (Bishop), sw		
Kamehameha School		
Kalihi-Uka, sw	485	3.88
Nuuanu (W. W. Hall), sw	50	1.37
Nuuanu (Wyllie street)	250	1.93
Nuuanu (Elec. Station), sw	405	2.99
Nuuanu (Luakaha), c	850	6.96
U. S. Experiment Station	350	2.77
Kaliula		
Laniakea (Nahuina)		
Tantalus Heights (Frear)	1,360	5.35
Waimanalo, ne	25	4.08
Maunawili, ne	250	8.94
Kaneohe	100	7.29
Ahuimanu, ne	350	10.35
Kahuku, n	25	1.69
Waialua		

Stations.	Elevation.	Amount.
OAHU—*Cont'd.*	*Feet.*	*Inches.*
Wahiawa	900	
Ewa Plantation, s.	60	
U. S. Magnetic Station	45	0.27
Waipahu	200	0.62
Moanalua	15	1.04
Pacific Heights		
KAUAI.		
Lihue (Kilohana)	400	3.91
Lihue (Grove Farm), e.	200	3.49
Lihue (Molokoa), e.	300	3.30
Lihue (Kukaua), e.	1,000	4.53
Kealia, e.		
Kilauea (Plantation), ne	342	2.87
Hanalei, n.	10	4.00
Waioli		
Haena		
Waiawa	30	1.89
Eleele	150	
Wahiawa (Mountain)	2,000	
McBryde (Residence)	900	2.00
Lawai (Gov. Road)	450	3.67
Lawai, w.	225	1.05
Lawai, e.	800	3.15
Koloa	100	0.87
Lawai Beach		
Wahiawa (New Mill)		
Delayed reports.		
Hoopuloa		
Puueo		
Puuohua		
Halawa		3.60
Olaa Mill		12.96
Nahiku		17.51
Haleakala		2.77

NOTE.—The letters n, s, e, w, and c show the exposure of the station relative to the winds.