12445000 OKANOGAN RIVER NEAR TONASKET, WA

Upper Columbia Basin
Okanogan Subbasin

LOCATION.--Lat 48°37′57″, long 119°27′38″ referenced to North American Datum of 1927, in NW ¼ SE ¼ sec.8, T.36 N., R.27 E., Okanogan County, WA, Hydrologic Unit 17020006, on right bank 1,000 ft upstream from Chewiliken Creek, 5.2 mi south of Tonasket, and at mile 50.8.

DRAINAGE AREA.--7,260 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges which are fair. Diversions upstream from station for irrigation of about 10,700 acres in the United States and 55,000 acres in Canada. Flow affected by regulation of Okanagan and Skaha Lakes and by natural storage in other lakes. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--79 years (water years 1930-2008), 2,924 ft^3/s, 2,118,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft^3/s, June 2, 1972, gage height, 22.54 ft; minimum discharge recorded, 126 ft^3/s, Sept. 5, 1931, gage height, 3.43 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,500 ft^3/s, May 22, gage height, 15.10 ft; minimum daily discharge, 530 ft^3/s, Jan. 26.

12445000 OKANOGAN RIVER NEAR TONASKET, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	779	1,160	819	e1,020	e790	737	619	2,010	16,100	6,380	1,110	1,770
2	876	1,110	840	e980	e780	735	702	2,020	15,700	6,350	1,110	1,690
3	925	1,080	866	e940	e810	737	711	2,000	14,500	6,110	1,080	1,610
4	935	1,040	851	e1,050	e830	707	821	2,040	13,200	5,700	1,050	1,560
5	1,050	1,020	1,160	e1,180	e830	685	921	2,260	12,700	5,590	1,000	1,530
6	1,040	1,090	3,170	e1,130	e855	689	1,020	2,810	11,500	5,190	949	1,520
7	995	1,150	2,670	e1,070	e870	607	1,020	3,580	10,800	4,770	903	1,490
8	964	1,110	2,090	1,030	e890	575	1,010	4,190	9,940	4,370	865	1,460
9	934	1,090	1,550	976	e900	581	1,040	4,330	9,140	3,680	870	1,450
10	1,100	1,120	1,300	912	e920	600	1,040	4,170	8,740	3,440	883	1,420
11	1,170	1,230	1,180	983	e920	598	1,030	4,120	9,010	3,170	953	1,400
12	1,110	1,300	1,450	1,010	e900	612	1,020	4,310	9,750	2,880	903	1,380
13	1,120	1,260	1,400	1,010	e875	621	1,030	4,270	9,730	2,660	915	1,180
14	1,040	1,200	1,410	1,030	e875	641	1,040	4,360	9,880	2,440	955	1,110
15	989	1,180	1,440	e920	e850	649	1,120	4,600	9,720	2,310	918	1,250
16	968	1,100	1,450	e760	e825	660	1,360	5,890	9,340	2,210	804	1,470
17	955	1,110	1,440	e710	e820	645	1,410	8,930	8,840	2,080	707	1,320
18	940	1,180	1,400	e800	e805	640	1,340	12,600	8,720	1,950	670	1,100
19	961	1,200	1,390	901	792	629	1,200	16,000	8,210	1,850	665	904
20	954	1,140	1,460	973	768	626	1,220	18,400	7,530	1,760	728	893
21	945	1,010	e1,430	e860	750	624	1,200	19,900	7,190	1,670	752	1,010
22	980	875	e1,370	e710	732	616	1,130	20,400	7,370	1,570	856	1,190
23	965	790	e1,300	e630	746	609	1,140	18,700	7,520	1,490	1,120	1,200
24	953	729	e1,250	e560	753	598	1,130	16,800	7,230	1,510	1,850	1,110
25	1,290	686	e1,200	e540	761	597	1,130	15,600	6,750	1,570	1,880	1,020
26	1,540	666	e1,220	e530	762	616	1,080	15,200	6,390	1,480	1,810	995
27	1,590	789	e1,180	e580	765	602	1,080	16,100	6,180	1,370	1,730	800
28	1,400	804	e1,150	e640	771	591	1,080	17,300	5,950	1,280	1,610	752
29	1,300	845	e1,170	e640	738	608	1,220	17,600	6,000	1,230	1,460	751
30	1,250	830	e1,080	e700	---	594	1,620	17,400	6,250	1,180	1,490	740
31	1,210	---	e1,020	e770	---	582	---	17,000	---	1,120	1,570	---
Total	33,228	30,894	42,706	26,545	23,683	19,611	32,484	304,890	279,880	90,360	34,166	37,075
Mean	1,072	1,030	1,378	856	817	633	1,083	9,835	9,329	2,915	1,102	1,236
Max	1,590	1,300	3,170	1,180	920	737	1,620	20,400	16,100	6,380	1,880	1,770
Min	779	666	819	530	732	575	619	2,000	5,950	1,120	665	740
Ac-ft	65,910	61,280	84,710	52,650	46,980	38,900	64,430	604,700	555,100	179,200	67,770	73,540

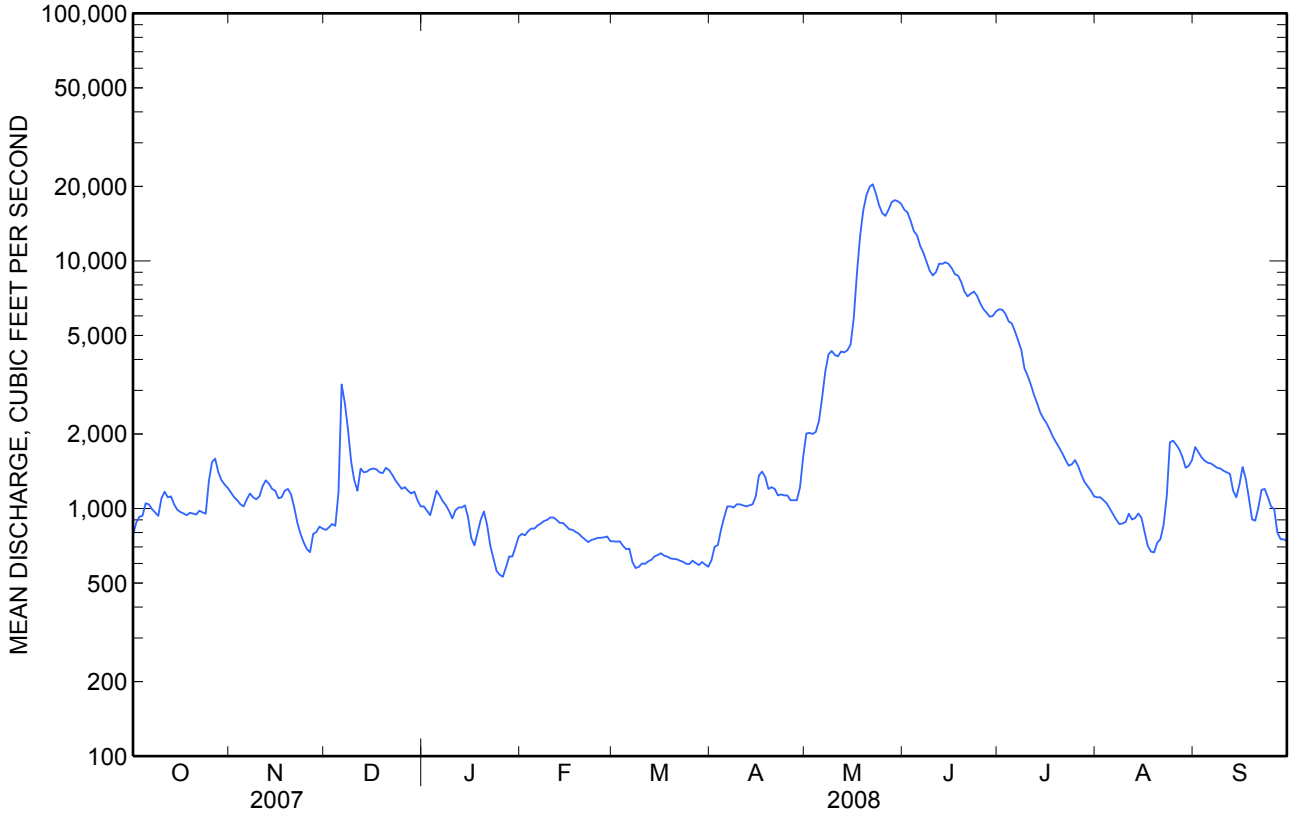
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,198	1,470	1,325	1,191	1,293	1,442	2,766	8,515	9,547	3,634	1,428	1,079
Max	2,849	4,618	4,252	2,919	2,964	4,086	13,220	16,190	27,720	10,210	4,095	3,039
(WY)	(1960)	(1991)	(1996)	(2005)	(1991)	(2007)	(1934)	(1972)	(1972)	(1972)	(1993)	(1948)
Min	403	413	399	360	532	525	770	3,790	2,650	605	231	231
(WY)	(1932)	(1930)	(1930)	(1930)	(1937)	(1931)	(1931)	(1941)	(1992)	(1940)	(1931)	(1940)

12445000 OKANOGAN RIVER NEAR TONASKET, WA—Continued

SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1929 - 2008	
Annual total	1,122,149		955,522			
Annual mean	3,074		2,611		2,924	
Highest annual mean					6,019	1972
Lowest annual mean					1,142	1931
Highest daily mean	13,600	Jun 6	20,400	May 22	44,200	Jun 2, 1972
Lowest daily mean	555	Sep 11	530	Jan 26	132	Sep 5, 1931
Annual seven-day minimum	583	Sep 5	589	Jan 23	146	Aug 31, 1931
Annual runoff (ac-ft)	2,226,000		1,895,000		2,118,000	
10 percent exceeds	7,480		7,420		7,500	
50 percent exceeds	1,430		1,110		1,450	
90 percent exceeds	790		680		649	



12445000 OKANOGAN RIVER NEAR TONASKET, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April 1986 to September 1987, March 2005 to current year.

REVISED RECORDS.--Revised maximum, minimum and mean water temperatures for water year 2007, superseding those published in WRD-US-07 report are given below.

SEPTEMBER 2007			
DAY	**MAX**	**MIN**	**MEAN**
26	17.2	14.9	16.1
27	16.8	15.6	16.2
28	16.3	14.8	15.6
29	14.8	13.4	13.9
30	13.4	12.9	13.1
MONTH	21.8	12.9	17.7

INSTRUMENTATION.--Water temperature recorder since March 2005.

REMARKS.--Records excellent, except Oct. 1-9 , Jan. 19-28, June 16 - July 17, Sept. 22-30 which are good; Oct. 10 - Nov. 20, Dec. 20 - Jan. 18, July 18 - Aug. 12, Sept. 13-21 which are fair, Nov. 21 - Dec. 19, Aug. 13 - Sept. 12, which are poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 27.9°C, July 26, 2006; minimum, 0.0°C, many days during winter months.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum 25.3°C, Aug. 17; minimum, 0.0°C, on several days during December to January.

12445000 OKANOGAN RIVER NEAR TONASKET, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	14.0	12.6	13.3	6.0	4.8	5.5	1.1	0.3	0.6	0.1	0.0	0.1
2	14.2	13.4	13.8	5.6	4.7	5.2	0.3	0.0	0.1	0.1	0.0	0.1
3	13.7	12.5	13.2	6.3	5.0	5.6	1.6	0.1	0.7	0.1	0.0	0.1
4	13.2	12.0	12.7	6.7	5.5	6.1	3.3	1.6	2.5	0.1	0.0	0.1
5	13.2	12.1	12.7	6.4	5.6	6.1	3.1	2.2	2.8	0.1	0.0	0.1
6	12.5	11.2	12.0	6.3	5.6	6.0	2.6	0.3	1.2	0.1	0.0	0.1
7	13.2	11.9	12.5	6.4	6.0	6.2	0.4	0.0	0.2	0.1	0.0	0.1
8	13.2	12.1	12.7	6.7	6.0	6.4	0.0	0.0	0.0	0.1	0.0	0.1
9	13.1	12.0	12.6	7.9	6.6	7.2	0.0	0.0	0.0	0.2	0.0	0.1
10	13.0	12.3	12.7	8.2	7.4	7.7	0.0	0.0	0.0	0.2	0.0	0.1
11	13.0	11.7	12.4	7.4	6.6	7.1	0.0	0.0	0.0	0.3	0.0	0.2
12	13.1	12.3	12.7	6.7	6.1	6.5	0.0	0.0	0.0	0.3	0.1	0.2
13	12.4	11.1	11.8	6.1	5.3	5.7	0.0	0.0	0.0	0.4	0.1	0.2
14	12.2	10.8	11.5	5.3	4.3	4.8	0.0	0.0	0.0	0.3	0.1	0.2
15	12.2	10.7	11.5	4.7	4.1	4.5	0.0	0.0	0.0	0.4	0.2	0.3
16	12.6	11.6	12.0	6.0	4.7	5.4	0.3	0.0	0.1	0.4	0.3	0.3
17	12.1	11.0	11.4	5.8	5.4	5.6	0.4	0.1	0.3	0.4	0.2	0.3
18	11.0	9.7	10.1	5.6	4.8	5.2	0.4	0.2	0.3	0.6	0.2	0.4
19	10.4	9.3	9.9	4.8	3.8	4.3	1.0	0.2	0.6	0.6	0.4	0.4
20	10.1	9.4	9.7	3.8	2.6	3.3	1.4	0.8	1.1	0.5	0.3	0.4
21	9.4	8.3	8.5	2.6	1.5	2.0	0.8	0.0	0.2	0.5	0.3	0.4
22	9.1	8.1	8.6	1.5	0.7	1.1	0.1	0.0	0.1	0.6	0.4	0.5
23	10.3	8.7	9.4	1.0	0.3	0.5	0.1	0.0	0.1	0.6	0.4	0.5
24	10.3	9.5	10	1.2	0.6	0.9	0.6	0.1	0.4	0.6	0.4	0.5
25	10.1	8.7	9.3	1.5	1.2	1.3	0.5	0.0	0.2	0.7	0.5	0.6
26	8.7	7.7	8.3	1.5	1.2	1.4	0.1	0.0	0.0	0.7	0.5	0.6
27	7.8	6.8	7.3	1.5	1.0	1.2	0.1	0.0	0.1	0.6	0.5	0.6
28	7.4	6.8	7.1	1.0	0.2	0.4	0.1	0.0	0.0	0.8	0.5	0.6
29	7.0	6.5	6.8	1.3	0.2	0.7	0.1	0.0	0.0	0.8	0.7	0.7
30	6.8	5.9	6.4	1.4	1.0	1.2	0.1	0.0	0.1	0.8	0.6	0.7
31	6.2	5.6	5.9	---	---	---	0.1	0.0	0.1	0.8	0.6	0.7
Month	14.2	5.6	10.6	8.2	0.2	4.2	3.3	0.0	0.4	0.8	0.0	0.3

12445000 OKANOGAN RIVER NEAR TONASKET, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	0.9	0.7	0.8	7.2	6.3	6.8	8.5	6.5	7.6	13.3	11.8	12.6
2	0.9	0.7	0.8	6.8	5.6	6.3	9.9	7.5	8.6	13.1	11.5	12.4
3	0.9	0.7	0.8	7.3	6.1	6.6	10.0	8.2	9.2	14.1	12.3	13.2
4	0.9	0.8	0.8	7.6	6.0	6.8	9.8	8.6	9.2	15.3	13.1	14.2
5	1.0	0.8	0.9	7.1	5.7	6.5	10.4	8.0	9.2	15.7	14.7	15.2
6	1.0	0.2	0.9	7.3	5.8	6.6	11.5	9.5	10.4	15.7	14.6	15.3
7	1.1	0.8	0.9	7.7	6.3	7.1	10.7	9.1	9.9	15.4	13.8	14.3
8	1.0	0.8	0.9	9.0	7.4	8.2	10.2	8.8	9.6	13.8	11.6	12.3
9	1.0	0.8	0.9	8.5	7.8	8.2	11.2	8.4	9.8	11.9	9.7	11.0
10	1.1	0.8	0.9	8.4	8.0	8.2	11.9	9.5	10.7	11.7	10.9	11.4
11	1.0	0.8	0.9	9.5	7.9	8.6	12.6	10.1	11.4	11.8	10.6	11.2
12	1.1	0.8	1.0	9.1	7.5	8.4	14.0	10.9	12.4	11.9	10.2	11.1
13	1.2	0.8	1.0	8.3	7.3	7.8	14.6	12.1	13.4	12.1	10.8	11.5
14	1.2	0.8	1.0	8.7	7.8	8.2	14.2	12.7	13.4	12.1	11.1	11.6
15	1.1	0.8	0.9	9.5	7.9	8.7	12.7	10.6	11.5	13.4	10.9	12.1
16	1.3	0.8	1.0	9.4	8.0	8.8	12.4	9.9	11.2	15.3	12.8	14.0
17	1.3	0.8	1.0	9.5	8.0	8.8	13.3	11.0	12.0	14.3	12.4	13.4
18	1.3	0.8	1.0	9.6	8.1	8.9	13.3	11.5	12.2	12.4	10.8	11.5
19	1.3	0.8	1.0	9.0	7.9	8.5	11.5	9.8	10.7	11.3	9.9	10.6
20	1.4	0.9	1.0	9.1	7.6	8.4	10.0	8.8	9.4	10.0	9.0	9.4
21	1.5	1.0	1.2	10.0	8.5	9.2	11.1	8.7	9.8	9.2	8.0	8.8
22	2.3	1.4	1.9	9.6	8.2	9.0	11.0	8.8	9.9	10.4	8.8	9.4
23	3.5	2.0	2.7	8.8	8.0	8.4	10.1	9.0	9.7	11.5	10.4	11.0
24	4.3	2.9	3.6	8.6	7.0	7.9	10.2	8.6	9.4	11.3	10.6	11.0
25	5.4	4.0	4.7	8.9	7.1	8.0	12.2	9.1	10.6	12.1	11.3	11.8
26	5.7	5.1	5.4	8.4	7.7	8.0	13.5	10.5	12.0	12.3	11.1	11.8
27	6.2	5.0	5.6	8.4	7.0	7.7	14.1	11.9	12.9	11.1	10.2	10.7
28	7.4	5.9	6.7	7.2	6.1	6.6	15.2	12.4	13.8	11.4	10.2	11.0
29	7.2	6.3	6.8	7.1	5.6	6.3	15.0	13.6	14.3	12.2	11.3	11.6
30	---	---	---	8.2	6.1	7.2	13.8	12.7	13.2	12.6	12.1	12.3
31	---	---	---	8.0	7.0	7.6	---	---	---	12.7	12.1	12.4
Month	7.4	0.2	2.0	10.0	5.6	7.8	15.2	6.5	10.9	15.7	8.0	11.9

12445000 OKANOGAN RIVER NEAR TONASKET, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	13.3	12.5	13.0	21.4	19.5	20.3	21.4	19.4	20.4	18.1	16.2	17.1
2	12.5	11.0	11.9	20.1	18.3	19.2	21.9	19.0	20.4	17.6	16.3	17.0
3	11.7	10.9	11.3	20.2	18.3	19.2	22.2	19.1	20.6	18.1	16.4	17.2
4	12.2	11.2	11.9	20.1	18.8	19.4	23.1	19.8	21.4	18.6	16.6	17.5
5	12.7	10.8	11.9	19.8	18.5	19.2	24.0	20.4	22.2	18.7	17.0	17.8
6	11.0	10.4	10.7	20.2	18.5	19.3	24.5	21.7	23.2	18.9	16.8	17.8
7	12.0	10.4	11.2	20.3	18.8	19.6	25.1	22.3	23.8	19.0	17.0	18.0
8	13.2	11.4	12.2	20.8	19.2	20.0	24.8	22.4	23.2	18.9	16.7	17.7
9	13.3	11.4	12.3	20.9	19.6	20.3	23.1	21.1	22.1	18.6	16.6	17.5
10	12.6	11.6	12.1	20.9	20.0	20.5	22.2	20.3	21.4	18.4	16.1	17.2
11	13.2	11.1	12.2	20.2	18.9	19.6	22.9	20.0	21.5	18.6	16.3	17.5
12	14.2	12.3	13.3	19.7	18.6	19.1	22.6	20.2	21.5	19.1	16.8	17.9
13	15.4	13.2	14.2	20.7	18.9	19.7	23.9	20.6	22.0	18.5	16.4	17.5
14	16.0	14.2	15.1	21.5	19.7	20.6	23.9	20.7	22.3	17.7	15.6	16.7
15	15.7	14.4	15.1	22.1	20.1	21.0	24.7	21.6	23.2	18.0	15.7	16.9
16	15.6	14.4	15.0	22.6	20.7	21.6	25.2	22.5	23.9	18.8	16.5	17.6
17	15.9	14.4	15.1	22.4	20.6	21.5	25.3	23.4	24.4	18.8	17.1	18.0
18	14.9	14.0	14.5	22.6	20.6	21.6	24.8	23.5	24.1	18.6	16.7	17.7
19	14.1	13.3	13.8	22.6	20.7	21.7	24.3	22.2	23.2	18.9	17.2	18.1
20	14.8	12.8	13.8	23.0	20.5	21.7	22.2	20.6	21.2	18.6	17.8	18.2
21	15.3	13.9	14.6	23.6	21.1	22.3	20.6	19.2	19.8	18.0	17.3	17.6
22	15.6	14.1	14.9	24.4	22.2	23.1	20.1	18.3	19.3	17.4	15.6	16.3
23	15.3	14.2	14.8	23.4	21.9	22.7	20.6	18.3	19.5	15.6	14.0	15.0
24	15.7	14.1	15.0	22.8	20.5	21.7	20.3	18.9	19.6	15.4	14.4	15.0
25	15.9	14.5	15.3	23.2	21.3	22.2	20.0	18.9	19.4	15.5	14.3	14.9
26	16.7	14.6	15.7	23.5	21.5	22.4	19.4	17.9	18.6	15.2	14.0	14.7
27	17.2	15.2	16.3	24.1	22.1	23.0	20.0	17.9	18.8	14.7	13.9	14.4
28	18.6	16.0	17.2	22.9	21.1	22.1	19.5	18.5	18.9	14.8	13.4	14.2
29	20.2	17.7	18.8	22.1	20.7	21.2	20.8	18.4	19.5	15.0	13.6	14.3
30	20.9	19.1	20.0	22.2	19.3	20.7	20.0	18.2	19.2	15.3	13.9	14.6
31	---	---	---	21.6	19.8	20.7	18.4	16.7	17.6	---	---	---
Month	20.9	10.4	14.1	24.4	18.3	20.9	25.3	16.7	21.2	19.1	13.4	16.7

	Max	Min	Mean
Year	25.3	0.0	10.1