Water-Data Report 2013

06089000 SUN RIVER NEAR VAUGHN, MT

Upper Missouri Basin
Sun Subbasin

LOCATION.--Lat 47°31'33", long 111°30'40" referenced to North American Datum of 1983, in SE ¼ SW ¼ SW ¼ sec.32, T.21 N., R.2 E., Cascade County, MT, Hydrologic Unit 10030104, on right bank 2.3 mi downstream from Muddy Creek, 2.8 mi southeast of Vaughn, and at river mile 15.0.

DRAINAGE AREA.--1774 mi^2, revised.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1934 to current year. Monthly discharge for some months published in Water Supply Paper (WSP) 1309. Gage heights and discharge measurements only from July to October 1897 published as "near Great Falls."

REVISED RECORDS.--WSP 786: 1934. WSP 1729: Drainage area. WDR MT-03-1: Drainage area. WDR MT-2013: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,340 ft, referenced to the National Geodetic Vertical Datum of 1929. July 11 to Oct. 30, 1897, nonrecording gage at site 0.6 mi downstream at different elevation. Apr. 19 to Aug. 3, 1934, non-recording gage 1.4 mi downstream at different elevation. Aug. 4, 1934 to Oct. 15, 2002, water-stage recorder 1.4 mi downstream at different elevation.

REMARKS.--Records are good except for estimated daily discharges and July 3-16, which are poor. Flow is regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs. Diversion for irrigation of about 110,000 acres occurs upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1964 exceeded the stage of the June 1908 flood by about 3 ft and is the highest since 1908, from information by local residents.

Suggested citation: U.S. Geological Survey, 2014, Water-resources data for the United States, Water Year 2013: U.S. Geological Survey Water-Data Report WDR-US-2013, site 06089000, accessed at http://wdr.water.usgs.gov/wy2013/pdfs/06089000.2013.pdf

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	431	334	319	e200	e250	256	194	193	1,800	761	583	501
2	421	334	316	e200	e300	261	195	188	1,550	621	742	448
3	431	329	308	e220	e350	265	190	178	1,690	619	790	394
4	506	335	301	e280	e350	233	186	192	2,340	703	727	353
5	487	332	298	e320	e350	e200	170	206	2,270	734	690	325
6	447	330	295	e300	e330	e210	167	219	1,930	844	682	308
7	435	326	281	e330	e300	e220	173	210	2,060	817	645	328
8	431	340	e250	e350	e280	225	180	201	2,380	792	632	372
9	438	e300	e220	e400	e250	221	183	199	2,580	805	563	406
10	408	e250	e200	e250	e220	220	183	226	2,520	736	568	394
11	395	e200	e250	e200	e200	218	182	634	1,990	577	592	379
12	403	e250	e300	e170	e200	208	182	1,240	1,460	508	687	370
13	401	e300	e270	e200	e220	213	179	1,340	1,430	542	655	350
14	387	e330	e250	e250	e250	223	179	1,050	1,560	459	640	336
15	384	e350	e250	e300	e230	220	179	790	1,360	519	659	329
16	377	e330	e260	e330	e260	216	182	809	977	468	623	330
17	366	362	e280	e350	314	212	186	852	939	482	590	307
18	366	375	e300	e320	289	203	196	808	762	553	546	303
19	362	359	e270	e350	e260	201	206	607	759	516	599	299
20	357	357	e250	e300	e240	204	199	633	1,640	472	572	299
21	351	371	e280	e250	e210	204	208	560	1,590	465	547	284
22	357	351	e300	e250	e230	205	214	472	1,410	592	532	290
23	359	321	e250	e280	263	195	196	483	1,180	576	557	285
24	359	335	e200	e320	251	195	191	621	1,110	532	531	288
25	351	329	e170	e350	e220	200	202	820	1,030	532	514	301
26	346	310	e150	e350	e210	201	191	1,030	921	535	610	337
27	349	e300	e150	e320	e220	199	187	1,120	885	529	534	484
28	350	330	e170	e280	241	198	192	1,020	834	504	511	454
29	351	335	e200	e220	---	198	195	1,050	751	525	504	394
30	341	323	e220	e200	---	196	184	1,240	688	597	477	374
31	334	---	e200	e220	---	197	---	1,560	---	616	458	---
Total	12,081	9,728	7,758	8,660	7,288	6,617	5,651	20,751	44,396	18,531	18,560	10,622
Mean	390	324	250	279	260	213	188	669	1,480	598	599	354
Max	506	375	319	400	350	265	214	1,560	2,580	844	790	501
Min	334	200	150	170	200	195	167	178	688	459	458	284
Ac-ft	23,960	19,300	15,390	17,180	14,460	13,120	11,210	41,160	88,060	36,760	36,810	21,070

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	377	334	296	255	264	314	470	1,524	2,483	772	558	439
Max	779	908	896	656	601	868	3,000	4,333	8,014	2,508	1,025	1,040
(WY)	(1952)	(1990)	(1996)	(1986)	(1986)	(1969)	(1934)	(1976)	(1964)	(1975)	(1975)	(1993)
Min	143	149	114	66.5	82.4	133	93.3	87.1	280	265	250	164
(WY)	(1937)	(1937)	(1936)	(1937)	(1936)	(1941)	(1941)	(1941)	(1941)	(1939)	(1940)	(1936)

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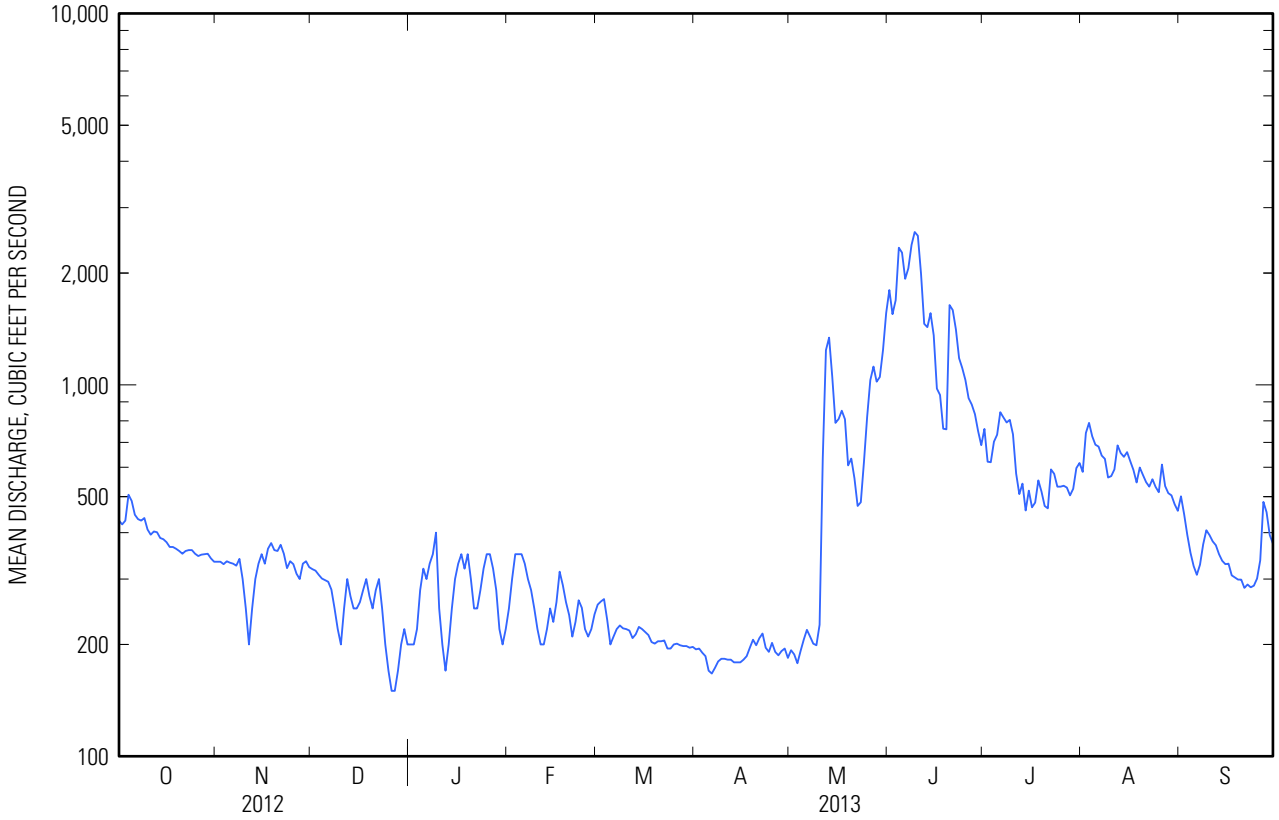
SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1934 - 2013	
Annual total	209,023		170,643			
Annual mean	571		468		669	
Highest annual mean					1,307	1943
Lowest annual mean					210	1941
Highest daily mean	6,060	Jun 7	2,580	Jun 9	37,000	Jun 10, 1964
Lowest daily mean	150	Dec 26	150	Dec 26	23	May 26, 1941
Annual seven-day minimum	180	Dec 24	177	Apr 5	38	May 21, 1941
Maximum peak flow			2,670	Jun 9	[a]53,500	Jun 9, 1964
Maximum peak stage			3.79	Jun 9	[b]23.40	Jun 9, 1964
Instantaneous low flow					[c]20	Apr 24, 1944
Annual runoff (ac-ft)	414,600		338,500		484,500	
10 percent exceeds	1,180		838		1,340	
50 percent exceeds	362		332		356	
90 percent exceeds	278		196		180	

[a]42,200 ft³/s in main channel plus 11,300 ft³/s in bypass channel.
[b]From floodmark.
[c]Gage height, 0.52 ft, result of irrigation, site and datum then in use.