

Water-Data Report 2013

08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM

Rio Grande-Elephant Butte Basin
Rio Grande-Albuquerque Subbasin

LOCATION.--Lat 33°40'44.7", long 106°59'49.2" referenced to North American Datum of 1983, Socorro County, NM, Hydrologic Unit 13020203, in Pedro Armendaris Grant No. 33, 0.3 miles downstream from southern pier of the Atchison, Topeka, and Santa Fe Railway Co. bridge, on right bank 1.4 mi downstream from former site of San Marcial, 18.5 mi southwest of San Antonio, and at mile 1,425.2.

DRAINAGE AREA.--27,700 mi² of which 2,940 mi² probably is noncontributing, from the closed basin in San Luis Valley, Colorado.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1964 to current year. Records collected at this site January 1895 to September 1964 represent total flow of the river and were published as "Rio Grande at San Marcial" (station 08358500). Records of daily discharge for floodway only, April 1950 to September 1964, are available in files of District office.

GAGE.--Water-stage recorder with satellite telemetry. Datum of gage is 4,455.19 ft above NGVD of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Floodway is one of two channels (station 08358300) carrying flow in valley cross section. Prior to 1950, all flow was in floodway channel. Combined monthly discharge in acre-feet is given at end of each table for the year's 1965 to 2004. Diversion for irrigation of about 775,000 acres upstream from station (includes about 13,800 acre-ft diverted from conveyance channel).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge since Jan. 1895, about 50,000 ft³/s, Oct. 11, 1904; no flow at times.

08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM—Continued

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	20	24	e768	327	368	307	75	45	25	18	347	21
2	20	e16	e768	311	366	228	84	41	25	20	263	20
3	21	21	e771	306	358	180	68	41	26	19	384	20
4	19	34	e768	256	358	138	50	41	26	19	228	21
5	18	40	e749	237	350	119	46	47	25	19	301	21
6	16	31	e749	224	375	122	46	52	25	19	244	21
7	17	41	e764	213	418	123	47	46	26	19	161	22
8	18	49	e782	198	394	117	53	49	26	21	308	23
9	17	56	e784	183	540	98	43	51	25	22	201	23
10	15	66	e795	172	460	79	43	53	25	20	268	86
11	15	83	e795	154	386	82	50	62	25	26	231	1,420
12	18	106	e784	186	374	76	50	58	25	24	364	217
13	20	112	e813	239	384	101	53	58	24	33	374	740
14	19	119	e823	253	361	110	51	53	23	22	270	1,750
15	20	114	e736	261	338	131	53	51	24	33	222	2,210
16	19	115	708	241	331	76	52	58	24	124	136	2,520
17	20	115	716	261	334	51	53	53	24	128	63	2,870
18	18	134	724	285	332	44	54	55	24	112	33	3,600
19	19	147	676	305	322	48	54	79	24	75	25	4,540
20	22	203	678	268	326	77	54	60	24	22	24	e1,760
21	22	267	894	262	331	74	55	53	23	24	25	e1,100
22	25	286	938	273	324	69	57	49	23	23	22	e1,720
23	23	337	907	279	321	90	58	48	24	30	23	e809
24	24	503	754	258	313	75	53	39	22	111	22	719
25	24	641	562	258	320	81	52	38	20	331	22	1,190
26	23	e639	542	261	322	79	45	36	20	198	23	951
27	25	e642	562	277	328	82	39	37	20	778	78	864
28	26	e679	490	281	307	85	36	35	18	413	22	347
29	26	e760	550	316	---	87	41	33	18	1,030	20	371
30	23	e766	549	375	---	88	45	26	19	1,210	21	262
31	25	---	387	366	---	85	---	25	---	609	20	---
Total	637	7,146	22,286	8,086	10,041	3,202	1,560	1,472	702	5,552	4,745	30,238
Mean	20.5	238	719	261	359	103	52.0	47.5	23.4	179	153	1,008
Max	26	766	938	375	540	307	84	79	26	1,210	384	4,540
Min	15	16	387	154	307	44	36	25	18	18	20	20
Ac-ft	1,260	14,170	44,200	16,040	19,920	6,350	3,090	2,920	1,390	11,010	9,410	59,980

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2013, BY WATER YEAR (WY)

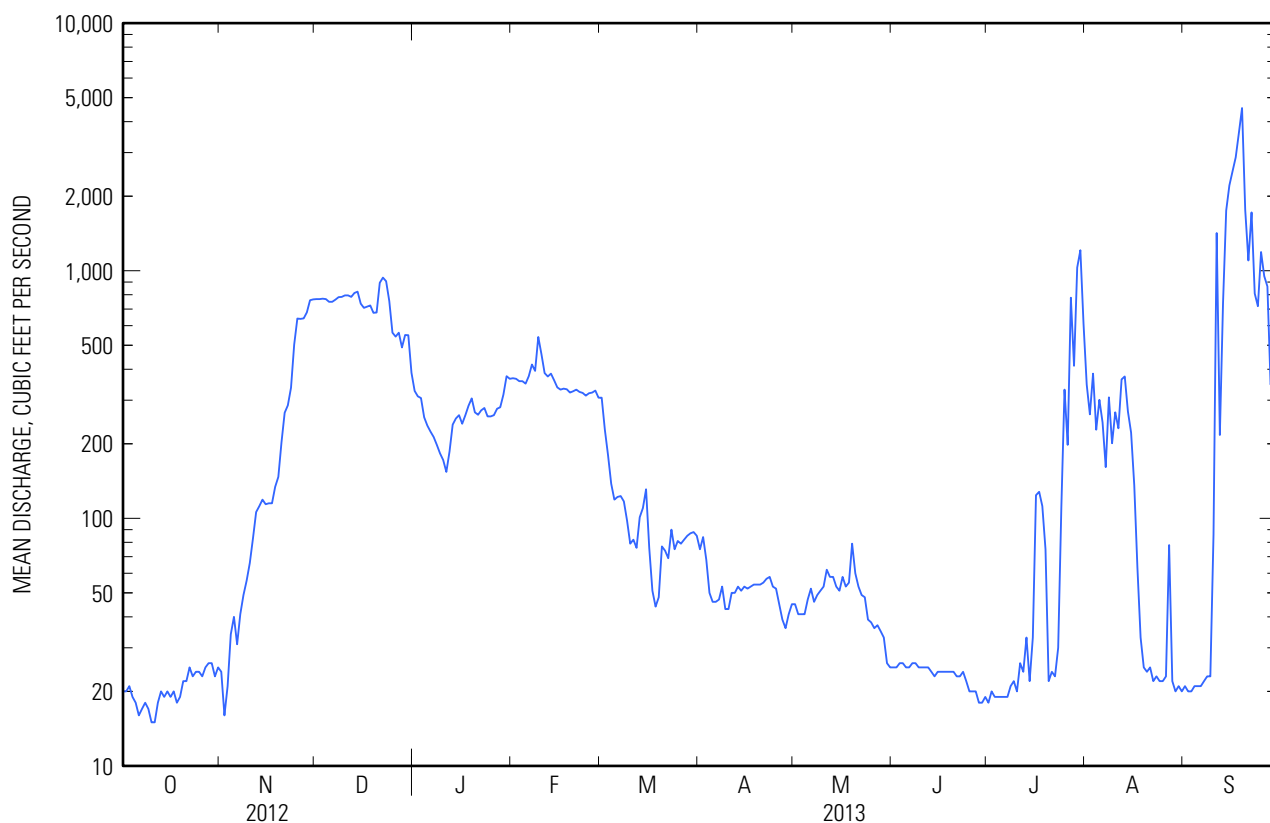
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	210	530	558	528	612	584	923	1,748	1,479	653	449	277
Max	1,511	2,065	1,812	2,050	3,110	2,518	4,764	5,323	5,338	4,655	2,657	1,340
(WY)	(1998)	(1987)	(1987)	(1986)	(1986)	(1986)	(1985)	(1980)	(1979)	(1979)	(2006)	(1988)
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00
(WY)	(1965)	(1964)	(1964)	(1964)	(1964)	(1964)	(1964)	(1964)	(1964)	(1969)	(1964)	(1970)

08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM—Continued

SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1964 - 2013	
Annual total	104,188		95,667			
Annual mean	285		262		712	
Highest annual mean					2,086	1987
Lowest annual mean					1.18	1971
Highest daily mean	1,860	Apr 5	4,540	Sep 19	8,110	May 5, 1985
Lowest daily mean	14	Sep 6	15	Oct 10	0.00	Oct 1, 1963
Annual seven-day minimum	17	Oct 5	17	Oct 5	0.00	Oct 9, 1963
Maximum peak flow			5,550	Sep 19	^a 50,000 Oct 11, 1904	
Maximum peak stage			19.82	Sep 16		
Instantaneous low flow			4.2	Nov 2	0.00	Jun 27, 1964
Annual runoff (ac-ft)	206,700		189,800		516,000	
10 percent exceeds	726		749		2,050	
50 percent exceeds	152		78		322	
90 percent exceeds	22		20		0.00	

^a Maximum peak flow of 50,000 ft³/s on October 11, 1904, prior to creation of the Rio Grande Conveyance channel.



08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1905-07, 1946 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: July 1946 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler

REMARKS.--Records of chemical analysis and sediment discharge for years prior to 1946 have been published in Water Bulletins of International Boundary and Water Commission.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 135,000 mg/L, July 23, 1977; minimum daily mean, no flow on many days.

SEDIMENT LOAD: Maximum daily, 1,200,000 tons, Sept. 21, 1982; minimum daily, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 61,600 mg/L, Sept. 14; minimum daily mean, 102 mg/L, June. 23.

SEDIMENT LOAD: Maximum daily 328,000 tons, Sept. 15; minimum daily, 6.1 tons, June. 24.

08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean concen- tration (mg/L)	Sediment discharge (tons/ day)	Mean concen- tration (mg/L)	Sediment discharge (tons/ day)	Mean concen- tration (mg/L)	Sediment discharge (tons/ day)	Mean concen- tration (mg/L)	Sediment discharge (tons/ day)	Mean concen- tration (mg/L)	Sediment discharge (tons/ day)	Mean concen- tration (mg/L)	Sediment discharge (tons/ day)
	October		November		December		January		February		March	
1	228	12	243	16	e4,090	e8,490	1,040	919	1,380	1,370	968	804
2	228	12	245	e11	e4,130	e8,560	980	841	1,340	1,320	590	373
3	220	12	2,210	115	e4,110	e8,560	967	775	1,230	1,190	459	224
4	228	12	1,990	176	e4,060	e8,420	964	684	1,270	1,230	423	158
5	209	10	1,380	146	e3,790	e7,670	962	613	1,240	1,180	371	119
6	203	8.6	2,410	204	e3,680	e7,450	959	579	1,260	1,270	350	115
7	207	9.6	3,470	390	e3,850	e7,930	957	545	1,400	1,570	356	118
8	202	10	3,300	439	e3,930	e8,290	940	503	1,340	1,430	422	133
9	170	7.6	3,080	468	e3,990	e8,450	785	386	2,070	3,150	372	99
10	173	7.0	3,440	614	e4,060	e8,720	695	322	e2,050	e2,570	345	74
11	184	7.7	3,270	729	e4,070	e8,750	665	276	e1,600	e1,670	344	76
12	224	11	3,190	917	e4,060	e8,590	791	399	e1,470	e1,490	319	66
13	228	12	3,130	945	e4,110	e9,020	861	552	e1,380	e1,430	360	98
14	187	9.8	2,710	865	e4,080	e9,070	905	618	e1,290	e1,260	386	115
15	152	8.4	2,440	751	e3,670	e7,310	949	668	e1,200	e1,100	409	145
16	130	6.6	2,570	801	3,050	5,860	993	653	e1,160	e1,040	303	64
17	198	11	2,630	817	2,960	5,730	1,040	731	e1,130	e1,020	278	39
18	314	16	3,390	1,230	3,060	5,990	1,080	833	e1,100	e988	256	30
19	459	23	3,840	1,530	1,960	3,580	1,130	926	e1,080	e934	263	34
20	613	36	4,850	2,670	1,940	3,560	1,160	843	e1,050	e922	328	68
21	493	29	4,930	3,550	2,810	6,790	1,140	807	e1,020	e912	284	57
22	415	28	4,250	3,280	2,830	7,170	1,100	809	1,030	905	245	46
23	318	20	4,090	3,730	2,790	6,820	1,060	798	1,090	946	282	69
24	289	19	4,980	6,790	2,670	5,460	1,020	708	1,010	858	223	46
25	288	19	5,230	9,060	2,180	3,320	997	694	1,020	878	196	43
26	275	17	5,040	e8,700	3,240	4,730	1,050	741	1,030	894	199	42
27	300	20	4,620	e8,010	2,640	4,020	1,160	867	1,030	917	185	41
28	374	26	4,100	e7,510	1,690	2,240	1,180	898	1,030	857	172	39
29	337	24	e4,010	e8,230	1,440	2,130	1,330	1,140	---	---	158	37
30	287	18	e4,050	e8,390	1,300	1,940	1,480	1,500	---	---	157	37
31	271	18	---	---	1,150	1,200	1,390	1,370	---	---	163	37
Total	---	480.3	---	81,084	---	195,820	---	22,998	---	35,301	---	3,446

08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	April		May		June		July		August		September	
1	167	34	230	28	169	12	137	6.8	15,200	14,400	391	22
2	181	41	211	24	166	11	135	7.1	9,760	6,980	333	18
3	158	29	192	21	163	11	134	6.9	22,800	25,600	296	16
4	155	21	202	22	159	11	132	6.8	14,300	8,750	288	16
5	156	19	221	28	155	11	131	6.9	19,400	15,400	276	16
6	145	18	250	35	157	10	129	6.7	21,700	14,300	250	14
7	153	20	240	30	148	10	128	6.6	34,300	14,800	253	15
8	202	29	247	33	155	11	139	8.0	54,200	45,400	265	16
9	161	19	266	37	183	12	137	8.0	42,900	23,100	263	16
10	142	17	262	37	180	12	157	8.5	51,400	44,900	2,560	5,420
11	152	20	301	50	156	10	1,090	79	60,800	38,700	46,600	190,000
12	155	21	254	40	156	10	1,130	74	29,500	28,600	44,300	25,700
13	160	23	252	39	165	11	3,540	346	31,700	33,300	52,300	123,000
14	163	23	246	35	159	10	2,120	130	35,100	25,600	61,600	299,000
15	169	24	260	36	146	9.4	17,000	1,520	22,100	13,800	55,100	328,000
16	171	24	301	47	125	8.2	60,500	21,200	15,300	5,600	32,000	217,000
17	164	23	285	41	127	8.4	57,600	20,300	14,200	2,530	19,400	149,000
18	156	23	295	44	123	8.0	49,700	15,700	6,540	590	13,100	127,000
19	153	22	371	78	126	8.0	57,200	11,900	1,060	73	12,100	149,000
20	200	29	288	47	124	7.9	26,300	1,800	691	46	11,800	e56,400
21	192	29	249	36	117	7.4	5,240	334	537	36	10,100	e30,200
22	191	29	264	35	105	6.5	1,930	122	451	27	7,710	e35,700
23	192	30	280	36	102	6.5	8,160	852	359	22	8,130	22,100
24	193	28	231	24	104	6.1	36,800	10,800	314	19	7,100	13,800
25	179	25	214	22	129	7.1	40,700	44,500	338	20	9,670	33,600
26	168	21	195	19	144	7.7	59,000	31,900	350	21	11,900	30,200
27	147	16	200	20	143	7.6	52,700	124,000	29,100	6,840	18,800	43,300
28	159	16	191	18	141	6.8	32,200	36,500	14,700	927	15,400	14,600
29	198	22	174	15	140	6.9	28,400	78,500	2,300	122	7,760	7,900
30	215	26	154	11	138	7.1	24,300	80,000	681	39	5,250	3,680
31	---	---	178	12	---	---	19,500	32,300	484	26	---	---
Total	---	721	---	1,000	---	271.6	---	512,929.3	---	370,568	---	1,904,749

**Total
suspended
sediment
discharge
(tons)**

Year 3,129,368.2