

05133500 RAINY RIVER AT MANITOU RAPIDS, MN
(International Gaging Station)

LOCATION.--Lat 48°38'04", long 93°54'47", in NW¹/₄SE¹/₄ sec. 36, T.160 N., R.26 W., Koochiching County, Hydrologic Unit 09030004, on left bank at Manitou Rapids, 4 mi west of Indus.

DRAINAGE AREA.--19,400 mi² (approximately).

PERIOD OF RECORD.--July 1928 to current year. Monthly discharge only for some periods, published in WSP 1308. October 1911 to October 1924 (gage heights only) at site near Birchdale in files of U.S. Army Corps of Engineers. Published as "near Birchdale" 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,062.48 ft above sea level (NGVD of 1929). Prior to Nov. 10, 1934, nonrecording gage at site near Birchdale, 7 mi. downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation caused by power plants at International Falls. Some regulation at Rainy and Namakan Lakes affects low and medium flows.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5,200	5,590	e5,000	e6,100	e6,100	e4,750	8,070	5,830	5,710	9,340	4,230	4,160
2	5,210	5,550	e5,000	e5,950	e5,950	e4,750	7,910	5,690	5,980	8,940	4,890	3,890
3	5,210	5,550	e4,950	e6,050	e5,850	e4,700	6,610	5,580	6,220	8,450	5,300	3,890
4	5,190	5,600	e4,950	e6,200	e5,750	e4,700	5,770	5,460	6,220	7,930	5,440	4,120
5	5,270	5,520	e4,900	e6,350	e5,700	e4,700	5,470	5,320	6,070	7,560	5,510	4,030
6	5,250	5,520	e4,900	e6,400	e5,700	e4,750	5,370	5,170	5,850	7,090	5,460	3,930
7	5,340	5,520	e4,900	e6,400	e5,700	e4,900	5,210	5,120	5,630	6,660	5,240	3,880
8	5,380	5,560	e4,850	e6,350	e5,650	e5,050	5,100	5,090	5,530	6,390	5,030	3,830
9	5,490	5,620	e4,850	e6,300	e5,450	e5,000	5,070	5,020	5,580	6,070	4,840	3,730
10	5,560	5,590	e4,800	e6,300	e5,250	e5,050	5,100	4,970	5,800	5,800	4,680	3,620
11	5,550	5,590	e4,800	e6,250	e5,300	e5,000	5,380	4,930	6,010	5,640	4,520	3,480
12	5,540	5,490	e4,800	e6,200	e5,450	e5,000	5,720	5,130	6,190	5,600	4,350	3,450
13	5,580	5,300	e4,800	e6,200	e5,550	e5,000	5,960	5,160	6,290	5,790	4,250	3,520
14	5,590	e5,200	e4,800	e6,200	e5,600	e5,000	6,200	5,210	6,440	5,880	4,190	3,580
15	5,650	e5,100	e4,800	e6,150	e5,550	e5,000	6,270	5,290	6,500	6,030	4,050	3,620
16	5,850	e5,050	e4,800	e6,100	e5,500	e5,000	6,060	5,260	6,350	e5,900	4,000	3,780
17	5,870	e5,050	e4,750	e6,000	e5,450	e5,000	5,720	5,200	6,060	5,730	3,910	4,080
18	5,790	e5,300	e4,800	e6,000	e5,350	e5,050	5,690	5,130	5,810	5,690	3,820	4,130
19	5,740	e5,400	e4,900	e5,950	e5,250	e5,100	6,840	5,030	5,690	5,540	3,770	4,050
20	5,690	e5,350	e5,100	e5,900	e5,200	e5,200	6,930	5,040	5,350	5,310	3,740	4,010
21	5,640	e5,250	e5,500	e5,850	e5,100	e5,400	6,470	5,140	5,060	5,090	3,770	3,920
22	5,590	e5,200	e5,900	e5,800	e5,000	e5,900	6,530	5,710	4,690	4,960	3,780	3,940
23	5,580	e5,150	e5,900	e5,800	e4,850	e6,700	7,020	6,190	4,430	4,970	3,770	4,160
24	5,590	e5,150	e6,100	e5,800	e4,750	e7,100	7,360	6,420	4,280	4,870	3,760	4,310
25	5,560	e5,150	e6,200	e5,800	e4,750	e7,600	7,330	6,610	4,580	4,670	3,820	4,570
26	5,530	e5,150	e6,200	e5,800	e4,750	e8,000	7,020	6,520	5,040	4,480	3,800	4,470
27	5,540	e5,100	e6,200	e5,800	e4,750	e8,000	6,680	6,270	6,610	4,360	3,840	4,370
28	5,570	e5,100	e6,200	e6,000	e4,750	8,110	6,390	6,020	7,800	4,200	3,860	4,310
29	5,550	e5,050	e6,200	e6,150	---	7,820	6,260	5,870	8,520	4,130	3,910	4,170
30	5,560	e5,050	e6,200	e6,200	---	7,700	6,020	5,680	9,160	4,130	3,940	4,090
31	5,560	---	e6,200	e6,150	---	7,670	---	5,630	---	4,090	3,950	---
TOTAL	171,220	159,800	164,250	188,500	150,000	178,700	187,530	170,690	179,450	181,290	133,420	119,090
MEAN	5,523	5,327	5,298	6,081	5,357	5,765	6,251	5,506	5,982	5,848	4,304	3,970
MAX	5,870	5,620	6,200	6,400	6,100	8,110	8,070	6,610	9,160	9,340	5,510	4,570
MIN	5,190	5,050	4,750	5,800	4,750	4,700	5,070	4,930	4,280	4,090	3,740	3,450
AC-FT	339,600	317,000	325,800	373,900	297,500	354,500	372,000	338,600	355,900	359,600	264,600	236,200
CFSM	0.28	0.27	0.27	0.31	0.28	0.30	0.32	0.28	0.31	0.30	0.22	0.20
IN.	0.33	0.31	0.31	0.36	0.29	0.34	0.36	0.33	0.34	0.35	0.26	0.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

MEAN	11,810	11,420	10,210	9,153	8,696	8,911	15,460	19,550	20,140	16,800	11,590	11,030
MAX	42,410	37,280	27,790	18,430	17,240	16,640	38,100	52,880	49,480	47,970	33,700	30,620
(WY)	(1942)	(1972)	(1972)	(1972)	(1969)	(1945)	(1966)	(1950)	(1950)	(1950)	(1944)	(1988)
MIN	4,728	3,796	3,190	2,900	3,129	2,926	4,378	4,106	3,676	3,483	3,422	3,746
(WY)	(1981)	(1977)	(1930)	(1931)	(1931)	(1931)	(1977)	(1977)	(1980)	(1980)	(1980)	(1998)

05133500 RAINY RIVER AT MANITOU RAPIDS, MN—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	4,808,570		1,983,940			
ANNUAL MEAN	13,170		5,435		12,910	
HIGHEST ANNUAL MEAN					23,260 1950	
LOWEST ANNUAL MEAN					4,470 1931	
HIGHEST DAILY MEAN	63,100	Jun 26	9,340	Jul 1	71,300	May 11, 1950
LOWEST DAILY MEAN	4,750	Dec 17	3,450	Sep 12	928	Dec 26, 1929
ANNUAL SEVEN-DAY MINIMUM	4,790	Dec 11	3,570	Sep 9	1,500	Dec 24, 1929
MAXIMUM PEAK FLOW			a9,380	Jun 30	71,600	May 12, 1950
MAXIMUM PEAK STAGE			b5.58	Mar 24	21.04	May 12, 1950
ANNUAL RUNOFF (AC-FT)	9,538,000		3,935,000		9,354,000	
ANNUAL RUNOFF (CFSM)	0.68		0.28		0.67	
ANNUAL RUNOFF (INCHES)	9.22		3.80		9.04	
10 PERCENT EXCEEDS	38,000		6,430		25,500	
50 PERCENT EXCEEDS	8,810		5,450		10,300	
90 PERCENT EXCEEDS	5,210		4,090		5,000	

a Gage height, 4.89 ft
 b Backwater from ice.
 c Estimated.

