Annual Peak-Flow Frequency Analysis
For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:

05107500 Roseau River at Ross, Minn.

Peak-flow information:

Number of systematic peak flows in record	80	
Systematic period begins	1929	
Systematic period ends	2011	
Length of systematic record	83	
Years without information	3	
Number of historical peak flows in record	2	1919, 1927
Length of historical period	93	
Historical period begins	1919	
Historical period ends	2011	
Historical period based on		Correlation with streamgage 05112000

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.507
Standard error of generalized skew	0.426
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.2140	0.3109	-0.413

Outlier criteria and number of peak flows exceeding:

Low	199.5	0
High	2850.0	18

Expected moments algorithm (EMA) Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.2122	0.3101	-0.442

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	193	74.6	300
0.9900	246	112.0	362
0.9500	464	297.0	603
0.9000	635	458.0	792
0.8000	912	721.0	1,100
0.6667	1,250	1,040.0	1,480
0.5000	1,720	1,450.0	2,010
0.4292	1,940	1,650.0	2,270
0.2000	3,000	2,580.0	3,520
0.1000	3,910	3,340.0	4,720
0.0400	5,070	4,230.0	6,500
0.0200	5,940	4,800.0	8,010
0.0100	6,790	5,270.0	9,660
0.0050	7,630	5,660.0	11,500
0.0020	8,730	6,090.0	14,200

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

H Historic, outside of systematic record

Water year	Peak flow	Peak-flow code	Water year	Peak flow	Peak-flow code
1919	5,250	H	1962	2,120	−−
			1963	1,550	−−
1927	2,850	H	1964	1,770	−−
			1965	3,780	−−
1929	953	−−	1966	4,670	−−
1930	1,460	−−	1967	2,860	−−
1931	653	−−	1968	2,370	−−
1932	1,550	−−	1969	3,500	−−
1933	912	−−	1970	3,440	−−
1934	332	−−	1971	1,520	−−
1935	637	−−	1972	1,860	−−
1936	1,280	−−	1973	893	−−
1937	1,600	−−	1974	3,550	−−
1938	2,290	−−	1975	3,280	−−
1939	203	−−	1976	1,230	−−
1940	730	−−	1977	267	−−
1941	2,230	−−	1978	2,560	−−
1942	2,400	−−	1979	4,570	−−
1943	1,910	−−	1980	1,220	−−
1944	1,390	−−	1981	821	−−
1945	1,800	−−	1982	1,850	−−
1946	1,550	−−	1983	1,310	−−
1947	2,400	−−	1984	1,260	−−
1948	3,220	−−	1985	2,010	−−
1949	1,730	−−	1986	2,800	−−
1950	6,560	−−	1987	1,290	−−
1951	2,580	−−	1988	882	−−
1952	760	−−	1989	1,560	−−
1953	640	−−	1990	310	−−
1954	1,140	−−	1991	1,240	−−
1955	980	−−	Gap in systematic record		
1956	2,150	−−	1995	998	−−
1957	1,600	−−	1996	4,530	−−
1958	786	−−	1997	4,670	−−
1959	1,530	−−	1998	1,650	−−
1960	1,560	−−	1999	2,730	−−
1961	570	−−	2000	1,620	−−

Water year	Peak flow	Peak-flow code
2001	2,640	−−
2002	10,500	−−
2003	714	−−
2004	4,300	−−
2005	2,480	−−
2006	3,300	−−
2007	1,300	−−
2008	1,180	−−
2009	3,460	−−
2010	1,820	−−
2011	3,380	−−