Annual Peak-Flow Frequency Analysis

For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:
> 05246000 Crow Wing River at Pillager, Minn.

Peak-flow information:

Number of systematic peak flows in record	27
Systematic period begins	1910
Systematic period ends	1950
Length of systematic record	41
Years without information	14
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.115
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
3.6211	0.2851	-0.473

Outlier criteria and number of peak flows exceeding:

Low	799.7	0
High	21846.2	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.6211	0.2851	-0.274

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	651	358	965
0.9900	796	462	1,140
0.9500	1,350	900	1,800
0.9000	1,770	1,260	2,280
0.8000	2,430	1,840	3,030
0.6667	3,230	2,550	3,980
0.5000	4,310	3,480	5,340
0.4292	4,840	3,930	6,050
0.2000	7,310	5,860	9,710
0.1000	9,490	7,420	13,300
0.0400	12,400	9,370	18,400
0.0200	14,600	10,800	22,600
0.0100	16,800	12,200	27,100
0.0050	19,200	13,600	31,800
0.0020	22,300	15,500	38,500

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

Water year	Peak flow	Peak-flow code
1910	4,580	−−
1911	1,070	−−
1912	6,920	−−
Gap in systematic record		
1927	3,390	−−
1928	4,270	−−
1929	4,620	−−
1930	3,170	−−
1931	1,350	−−
1932	2,020	−−
1933	1,960	−−
1934	1,790	−−
1935	1,840	−−
1936	1,800	−−
1937	3,320	−−
1938	5,780	−−
1939	6,350	−−
1940	6,530	−−
1941	6,370	−−
1942	7,110	−−
1943	10,400	−−
1944	6,080	−−
1945	7,620	−−
1946	9,480	−−
1947	8,560	−−
1948	4,790	−−
1949	3,520	−−
1950	10,900	−−