

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05245100 Long Prairie River at Long Prairie, Minn.

Peak-flow information:

Number of systematic peak flows in record	40
Systematic period begins	1972
Systematic period ends	2011
Length of systematic record	40
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.08
Standard error of generalized skew	0.4266
Low-outlier method	Single Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.9276	0.2622	0.055

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	258

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.9275	0.2626	-0.011

Annual frequency curve at selected exceedance probabilities:

[WIE, Weighted independent estimate; --, not computed]

Exceedance probability	Peak estimate	Lower-95 level	Upper 95 level	WIE estimate	Lower-95 WIE level	Upper 95 WIE level
0.9950	177	74.0	257	--	--	--
0.9900	206	98.4	288	--	--	--
0.9500	312	200.0	402	--	--	--
0.9000	390	278.0	488	--	--	--
0.8000	509	394.0	626	--	--	--
0.6667	653	524.0	797	--	--	--
0.5000	847	692.0	1,040	830	688	1,000
0.4292	944	773.0	1,160	--	--	--
0.2000	1,410	1,150.0	1,810	1,370	1,120	1,690
0.1000	1,840	1,470.0	2,550	1,780	1,400	2,270
0.0400	2,430	1,880.0	3,870	2,340	1,740	3,140
0.0200	2,920	2,180.0	5,220	2,760	1,960	3,880
0.0100	3,440	2,470.0	6,950	3,210	2,170	4,740
0.0050	3,990	2,760.0	9,150	--	--	--
0.0020	4,790	3,120.0	13,000	4,300	2,590	7,120

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1972	3,270	--	1992	721	--
1973	924	--	1993	550	--
1974	828	--	1994	955	--
1975	1,200	--	1995	1,040	--
1976	605	--	1996	1,120	--
1977	118	*	1997	1,580	--
1978	928	--	1998	640	--
1979	1,850	--	1999	1,130	--
1980	816	--	2000	506	--
1981	258	--	2001	2,900	--
1982	1,260	--	2002	788	--
1983	525	--	2003	2,570	--
1984	640	--	2004	355	--
1985	1,060	--	2005	710	--
1986	1,570	--	2006	997	--
1987	593	--	2007	860	--
1988	345	--	2008	659	--
1989	712	--	2009	1,650	--
1990	460	--	2010	1,350	--
1991	432	--	2011	965	--