

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05292704 North Fork Yellow Bank River near Odessa, Minn.

Peak-flow information:

Number of systematic peak flows in record	12
Systematic period begins	1991
Systematic period ends	2011
Length of systematic record	21
Years without information	9
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.31
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
3.2736	0.2694	0.914

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	936

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
3.2667	0.2818	-0.056	

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	336	48.7	620	--	--	--
0.9900	398	70.0	698	--	--	--
0.9500	629	200.0	995	--	--	--
0.9000	802	338.0	1,220	--	--	--
0.8000	1,070	572.0	1,590	--	--	--
0.6667	1,400	854.0	2,070	--	--	--
0.5000	1,860	1,220.0	2,810	1,720	1,310	2,260
0.4292	2,090	1,390.0	3,220	--	--	--
0.2000	3,200	2,160.0	5,760	2,990	2,230	4,030
0.1000	4,230	2,800.0	9,350	4,010	2,870	5,600
0.0400	5,680	3,610.0	17,400	5,520	3,720	8,190
0.0200	6,870	4,200.0	27,800	6,840	4,370	10,700
0.0100	8,140	4,770.0	41,200	8,330	5,070	13,700
0.0050	9,500	5,320.0	57,200	--	--	--
0.0020	11,400	6,010.0	86,900	12,400	6,660	23,200

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

Water	Peak	Peak-flow
year	flow	code
1991	1,240	--
1992	2,020	--
1993	1,480	--
1994	2,580	--
1995	2,420	--
1996	1,400	--
1997	4,670	--
1998	936	--
1999	1,750	--
2000	60	*
2001	6,840	--
2002	1,410	--
2003	150	*
2004	40	*
2005	1,100	--
2006	600	*
2007	2,500	--
2008	5,060	--
2009	1,070	--
2010	3,630	--
2011	2,650	--