

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05102490 Red River of the North at Pembina, N. Dak.

Peak-flow information:

Number of systematic peak flows in record	27
Systematic period begins	1985
Systematic period ends	2011
Length of systematic record	27
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	STATION SKEW
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
4.5197	0.3308	-0.665	

Outlier criteria and number of peak flows exceeding:

Low	4857.1	0
High	225483.2	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
4.5197	0.3308	-0.665

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	2,910	1,350	4,810
0.9900	3,920	1,970	6,170
0.9500	8,330	5,100	11,700
0.9000	12,000	8,020	16,100
0.8000	18,100	13,100	23,300
0.6667	25,700	19,600	32,700
0.5000	36,000	28,200	46,400
0.4292	41,000	32,200	53,400
0.2000	63,600	49,200	88,400
0.1000	81,900	61,900	120,000
0.0400	104,000	76,400	160,000
0.0200	119,000	86,200	190,000
0.0100	134,000	95,000	219,000
0.0050	147,000	103,000	247,000
0.0020	163,000	113,000	282,000

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1985	18,100	--
1986	34,300	--
1987	37,000	--
1988	15,700	--
1989	38,400	--
1990	5,470	--
1991	5,690	--
1992	15,800	--
1993	31,900	--
1994	26,900	--
1995	42,000	--
1996	66,400	--
1997	141,000	--
1998	28,000	--
1999	58,000	--
2000	31,000	--
2001	56,000	--
2002	35,500	--
2003	14,200	--
2004	45,000	--
2005	38,000	--
2006	71,000	--
2007	34,500	--
2008	18,000	--
2009	87,200	--
2010	61,000	--
2011	82,400	--