

U. S. GEOLOGICAL SURVEY  
 ANNUAL PEAK FLOW FREQUENCY ANALYSIS  
 Following Bulletin 17-B Guidelines  
 Program peakfq  
 (Version 4.0, December, 2000)

Station - 05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI  
 2002 MAR 15 14:48:42

I N P U T   D A T A   S U M M A R Y

Number of peaks in record	=	95
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	94
Historic peaks in analysis	=	1
Years of historic record	=	112
Generalized skew	=	-0.350
Standard error of generalized skew	=	0.550
Skew option	=	WEIGHTED
Gage base discharge	=	0.0
User supplied high outlier threshold	=	54900.0
User supplied low outlier criterion	=	--
Plotting position parameter	=	0.00

\*\*\*\*\* NOTICE -- Preliminary machine computations. \*\*\*\*\*  
 \*\*\*\*\* User responsible for assessment and interpretation. \*\*\*\*\*

WCF134I-NO SYSTEMATIC PEAKS WERE BELOW GAGE BASE.		0.0
WCF195I-NO LOW OUTLIERS WERE DETECTED BELOW CRITERION.		4854.0
*WCF161I-USER HIGH OUTLIER CRITERION REPLACES 17B.	54900.0	92924.3
WCF165I-HIGH OUTLIERS AND HISTORIC PEAKS ABOVE HHBASE.	0 1	54900.0

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 2002 MAR 15 14:48:42

ANNUAL FREQUENCY CURVE PARAMETERS -- LOG-PEARSON TYPE III

	FLOOD BASE		LOGARITHMIC		
	DISCHARGE	EXCEEDANCE PROBABILITY	MEAN	STANDARD DEVIATION	SKEW
SYSTEMATIC RECORD	0.0	1.0000	4.3271	0.2140	-0.588
BULL.17B ESTIMATE	0.0	1.0000	4.3308	0.2164	-0.509

ANNUAL FREQUENCY CURVE -- DISCHARGES AT SELECTED EXCEEDANCE PROBABILITIES

ANNUAL EXCEEDANCE PROBABILITY	BULL.17B ESTIMATE	SYSTEMATIC RECORD	'EXPECTED PROBABILITY' ESTIMATE	95-PCT CONFIDENCE LIMITS FOR BULL. 17B ESTIMATES	
				LOWER	UPPER
0.9950	4689.0	4563.0	4456.0	3737.0	5625.0
0.9900	5602.0	5488.0	5390.0	4565.0	6608.0
0.9500	8840.0	8774.0	8693.0	7602.0	10010.0
0.9000	11080.0	11040.0	10960.0	9755.0	12340.0
0.8000	14320.0	14320.0	14260.0	12910.0	15710.0
0.5000	22340.0	22280.0	22340.0	20530.0	24340.0
0.2000	32820.0	32400.0	32930.0	29890.0	36500.0
0.1000	39230.0	38400.0	39470.0	35360.0	44310.0
0.0400	46680.0	45200.0	47160.0	41550.0	53660.0
0.0200	51780.0	49740.0	52470.0	45720.0	60200.0
0.0100	56520.0	53870.0	57460.0	49540.0	66360.0
0.0050	60970.0	57670.0	62170.0	53090.0	72210.0
0.0020	66450.0	62240.0	68060.0	57420.0	79500.0
0.6667	17923.8	( 1.50-year flood )			
0.4292	24418.2	( 2.33-year flood )			

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I N P U T   D A T A   L I S T I N G

WATER YEAR	DISCHARGE	CODES	WATER YEAR	DISCHARGE	CODES
-1950	54900.0	H	1954	44400.0	
1902	12900.0		1955	22000.0	
1903	20200.0		1956	31600.0	
1904	23600.0		1957	25800.0	
1905	18700.0		1958	28200.0	
1910	9870.0		1959	14500.0	
1911	7500.0		1960	16700.0	
1912	33500.0		1961	27500.0	
1913	8980.0		1962	30100.0	
1914	15300.0		1963	10500.0	
1915	15100.0		1964	27700.0	
1916	35100.0		1965	45700.0	
1917	17700.0		1966	35600.0	
1918	10100.0		1967	33600.0	
1919	14900.0		1968	19700.0	
1920	35800.0		1969	41600.0	
1921	11500.0		1970	20000.0	
1922	18600.0		1971	34400.0	
1923	8880.0		1972	43700.0	
1924	9800.0		1973	25100.0	
1925	5860.0		1974	26000.0	
1926	6140.0		1975	34200.0	
1927	27600.0		1976	35600.0	
1928	21800.0		1977	15600.0	
1929	16900.0		1978	26700.0	
1930	17500.0		1979	34400.0	
1931	16600.0		1980	13400.0	
1932	18500.0		1981	25600.0	
1933	7060.0		1982	30600.0	
1934	12100.0		1983	23700.0	
1935	26400.0		1984	35400.0	
1936	31000.0		1985	27600.0	
1937	12500.0		1986	37000.0	
1938	30000.0		1987	9530.0	
1939	24800.0		1988	11600.0	
1940	14300.0		1989	18100.0	
1941	29600.0		1990	15900.0	
1942	18600.0		1991	25300.0	
1943	28500.0		1992	22600.0	
1944	37100.0		1993	20700.0	
1945	44600.0		1994	21300.0	
1946	35500.0		1995	31200.0	
1947	18400.0		1996	35900.0	
1948	18500.0		1997	41500.0	
1949	23800.0		1998	17800.0	
1951	33700.0		1999	14800.0	
1952	43000.0		2000	13300.0	
1953	32600.0				

Explanation of peak discharge qualification codes

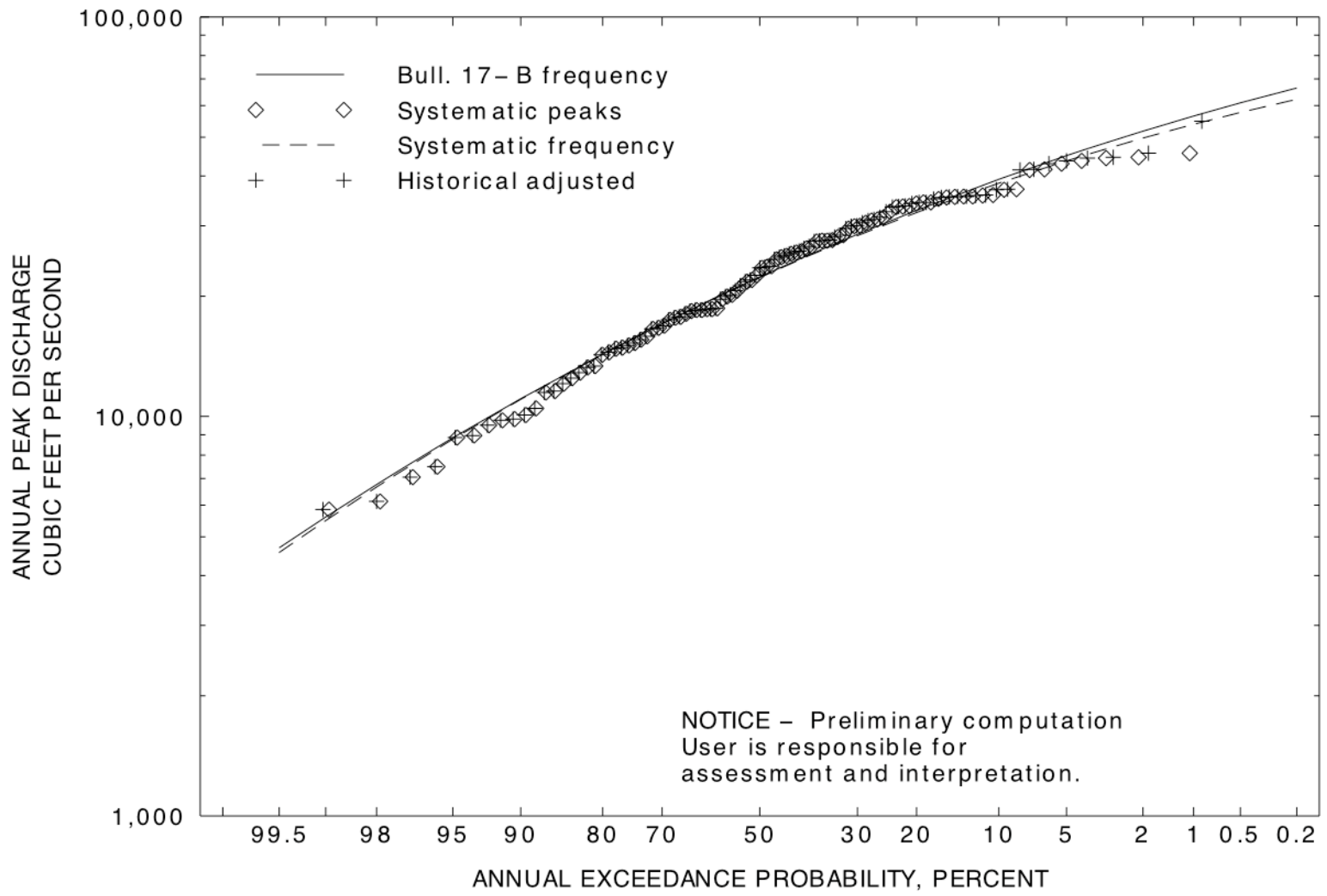
PEAKFQ	WATSTORE	
CODE	CODE	DEFINITION
D	3	Dam failure, non-recurrent flow anomaly
G	8	Discharge greater than stated value
X	3+8	Both of the above
L	4	Discharge less than stated value
K	6 OR C	Known effect of regulation or urbanization
H	7	Historic peak

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2002 MAR 15 14:48:42

EMPIRICAL FREQUENCY CURVES -- WEIBULL PLOTTING POSITIONS

WATER YEAR	RANKED DISCHARGE	SYSTEMATIC RECORD	BULL.17B ESTIMATE
-1950	54900.0	--	0.0088
1965	45700.0	0.0105	0.0185
1945	44600.0	0.0211	0.0289
1954	44400.0	0.0316	0.0394
1972	43700.0	0.0421	0.0498
1952	43000.0	0.0526	0.0603
1969	41600.0	0.0632	0.0707
1997	41500.0	0.0737	0.0812
1944	37100.0	0.0842	0.0916
1986	37000.0	0.0947	0.1021
1996	35900.0	0.1053	0.1125
1920	35800.0	0.1158	0.1230
1966	35600.0	0.1263	0.1334
1976	35600.0	0.1368	0.1439
1946	35500.0	0.1474	0.1543
1984	35400.0	0.1579	0.1648
1916	35100.0	0.1684	0.1752
1971	34400.0	0.1789	0.1857
1979	34400.0	0.1895	0.1961
1975	34200.0	0.2000	0.2066
1951	33700.0	0.2105	0.2170
1967	33600.0	0.2211	0.2275
1912	33500.0	0.2316	0.2379
1953	32600.0	0.2421	0.2484
1956	31600.0	0.2526	0.2588
1995	31200.0	0.2632	0.2693
1936	31000.0	0.2737	0.2797
1982	30600.0	0.2842	0.2902
1962	30100.0	0.2947	0.3006
1938	30000.0	0.3053	0.3111
1941	29600.0	0.3158	0.3215
1943	28500.0	0.3263	0.3320
1958	28200.0	0.3368	0.3424
1964	27700.0	0.3474	0.3529
1927	27600.0	0.3579	0.3633
1985	27600.0	0.3684	0.3738
1961	27500.0	0.3789	0.3842
1978	26700.0	0.3895	0.3947
1935	26400.0	0.4000	0.4051
1974	26000.0	0.4105	0.4156
1957	25800.0	0.4211	0.4260
1981	25600.0	0.4316	0.4365
1991	25300.0	0.4421	0.4469
1973	25100.0	0.4526	0.4574
1939	24800.0	0.4632	0.4678
1949	23800.0	0.4737	0.4783
1983	23700.0	0.4842	0.4887
1904	23600.0	0.4947	0.4992

1992	22600.0	0.5053	0.5096
1955	22000.0	0.5158	0.5201
1928	21800.0	0.5263	0.5305
1994	21300.0	0.5368	0.5410
1993	20700.0	0.5474	0.5514
1903	20200.0	0.5579	0.5619
1970	20000.0	0.5684	0.5723
1968	19700.0	0.5789	0.5828
1905	18700.0	0.5895	0.5932
1922	18600.0	0.6000	0.6037
1942	18600.0	0.6105	0.6141
1932	18500.0	0.6211	0.6246
1948	18500.0	0.6316	0.6350
1947	18400.0	0.6421	0.6455
1989	18100.0	0.6526	0.6559
1998	17800.0	0.6632	0.6664
1917	17700.0	0.6737	0.6768
1930	17500.0	0.6842	0.6873
1929	16900.0	0.6947	0.6977
1960	16700.0	0.7053	0.7082
1931	16600.0	0.7158	0.7186
1990	15900.0	0.7263	0.7291
1977	15600.0	0.7368	0.7395
1914	15300.0	0.7474	0.7500
1915	15100.0	0.7579	0.7605
1919	14900.0	0.7684	0.7709
1999	14800.0	0.7789	0.7814
1959	14500.0	0.7895	0.7918
1940	14300.0	0.8000	0.8023
1980	13400.0	0.8105	0.8127
2000	13300.0	0.8211	0.8232
1902	12900.0	0.8316	0.8336
1937	12500.0	0.8421	0.8441
1934	12100.0	0.8526	0.8545
1988	11600.0	0.8632	0.8650
1921	11500.0	0.8737	0.8754
1963	10500.0	0.8842	0.8859
1918	10100.0	0.8947	0.8963
1910	9870.0	0.9053	0.9068
1924	9800.0	0.9158	0.9172
1987	9530.0	0.9263	0.9277
1913	8980.0	0.9368	0.9381
1923	8880.0	0.9474	0.9486
1911	7500.0	0.9579	0.9590
1933	7060.0	0.9684	0.9695
1926	6140.0	0.9789	0.9799
1925	5860.0	0.9895	0.9904



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