

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

Station - 04078500 EMBARRASS RIVER NEAR EMBARRASS, WI  
2002 MAR 13 09:02:35

I N P U T   D A T A   S U M M A R Y

Number of peaks in record	=	73
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	73
Historic peaks in analysis	=	0
Years of historic record	=	0
Generalized skew	=	-0.263
Standard error of generalized skew	=	0.550
Skew option	=	WEIGHTED
Gage base discharge	=	0.0
User supplied high outlier threshold	=	--
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.	589.3
WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE.	9100.7

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ANNUAL FREQUENCY CURVE PARAMETERS -- LOG-PEARSON TYPE III

	FLOOD BASE		LOGARITHMIC		
	DISCHARGE	EXCEEDANCE PROBABILITY	MEAN	STANDARD DEVIATION	SKEW
SYSTEMATIC RECORD	0.0	1.0000	3.3647	0.2044	0.017
BULL.17B ESTIMATE	0.0	1.0000	3.3647	0.2044	-0.038

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	677.6	694.0	648.9	544.8	803.9
0.9900	764.7	779.3	739.2	625.5	896.2
0.9500	1062.0	1070.0	1045.0	908.0	1207.0
0.9000	1265.0	1268.0	1252.0	1104.0	1416.0
0.8000	1560.0	1558.0	1552.0	1391.0	1723.0
0.5000	2323.0	2313.0	2323.0	2120.0	2545.0
0.2000	3444.0	3440.0	3461.0	3118.0	3862.0
0.1000	4225.0	4236.0	4266.0	3774.0	4839.0
0.0400	5246.0	5293.0	5339.0	4603.0	6169.0
0.0200	6030.0	6113.0	6178.0	5223.0	7222.0
0.0100	6831.0	6961.0	7053.0	5845.0	8322.0
0.0050	7655.0	7841.0	7970.0	6474.0	9475.0
0.0020	8782.0	9059.0	9259.0	7321.0	11090.0
0.6667	1895.7	( 1.50-year flood )			
0.4292	2525.9	( 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
1920	2800.0		1957	1310.0	
1921	3600.0		1958	1160.0	
1922	6920.0		1959	2320.0	
1923	3970.0		1960	4890.0	
1924	2570.0		1961	3690.0	
1925	1290.0		1962	1560.0	
1926	1650.0		1963	2020.0	
1927	1590.0		1964	940.0	
1928	2930.0		1965	7080.0	
1929	3480.0		1966	1660.0	
1930	890.0		1967	3760.0	
1931	800.0		1968	1670.0	
1932	1510.0		1969	4640.0	
1933	1570.0		1970	2290.0	
1934	2310.0		1971	2940.0	
1935	1810.0		1972	3160.0	
1936	1610.0		1973	4000.0	
1937	1740.0		1974	2710.0	
1938	3130.0		1975	1720.0	
1939	3970.0		1976	2820.0	
1940	2310.0		1977	1210.0	
1941	2030.0		1978	2830.0	
1942	2310.0		1979	2590.0	
1943	4560.0		1980	3150.0	
1944	2460.0		1981	2410.0	
1945	2760.0		1982	2040.0	
1946	2920.0		1983	2270.0	
1947	2390.0		1984	2350.0	
1948	1580.0		1985	2900.0	
1949	1390.0		1994	3600.0	
1950	1490.0		1995	1320.0	
1951	3070.0		1996	4830.0	
1952	4170.0		1997	2730.0	
1953	3970.0		1998	2000.0	
1954	1120.0		1999	1250.0	
1955	1340.0		2000	1650.0	
1956	3000.0				

Explanation of peak discharge qualification codes

PEAKFQ	WATSTORE	DEFINITION
CODE	CODE	
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

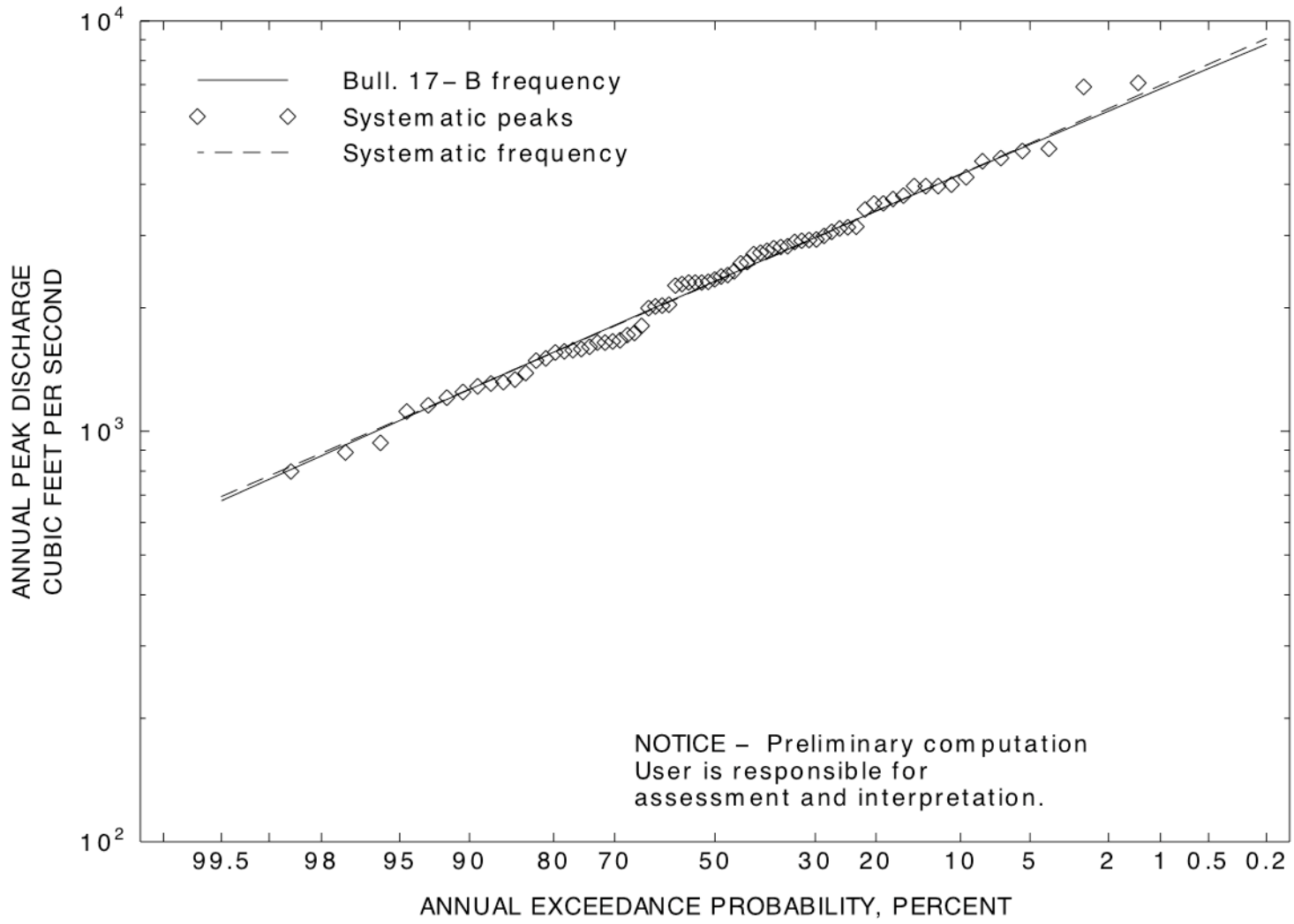
K 6 OR C Known effect of regulation or urbanization  
H 7 Historic peak

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EMPIRICAL FREQUENCY CURVES -- WEIBULL PLOTTING POSITIONS

WATER YEAR	RANKED DISCHARGE	SYSTEMATIC RECORD	BULL.17B ESTIMATE
1965	7080.0	0.0135	0.0135
1922	6920.0	0.0270	0.0270
1960	4890.0	0.0405	0.0405
1996	4830.0	0.0541	0.0541
1969	4640.0	0.0676	0.0676
1943	4560.0	0.0811	0.0811
1952	4170.0	0.0946	0.0946
1973	4000.0	0.1081	0.1081
1923	3970.0	0.1216	0.1216
1939	3970.0	0.1351	0.1351
1953	3970.0	0.1486	0.1486
1967	3760.0	0.1622	0.1622
1961	3690.0	0.1757	0.1757
1921	3600.0	0.1892	0.1892
1994	3600.0	0.2027	0.2027
1929	3480.0	0.2162	0.2162
1972	3160.0	0.2297	0.2297
1980	3150.0	0.2432	0.2432
1938	3130.0	0.2568	0.2568
1951	3070.0	0.2703	0.2703
1956	3000.0	0.2838	0.2838
1971	2940.0	0.2973	0.2973
1928	2930.0	0.3108	0.3108
1946	2920.0	0.3243	0.3243
1985	2900.0	0.3378	0.3378
1978	2830.0	0.3514	0.3514
1976	2820.0	0.3649	0.3649
1920	2800.0	0.3784	0.3784
1945	2760.0	0.3919	0.3919
1997	2730.0	0.4054	0.4054
1974	2710.0	0.4189	0.4189
1979	2590.0	0.4324	0.4324
1924	2570.0	0.4459	0.4459
1944	2460.0	0.4595	0.4595
1981	2410.0	0.4730	0.4730
1947	2390.0	0.4865	0.4865
1984	2350.0	0.5000	0.5000
1959	2320.0	0.5135	0.5135
1934	2310.0	0.5270	0.5270
1940	2310.0	0.5405	0.5405
1942	2310.0	0.5541	0.5541
1970	2290.0	0.5676	0.5676
1983	2270.0	0.5811	0.5811
1982	2040.0	0.5946	0.5946
1941	2030.0	0.6081	0.6081
1963	2020.0	0.6216	0.6216
1998	2000.0	0.6351	0.6351
1935	1810.0	0.6486	0.6486

1937	1740.0	0.6622	0.6622
1975	1720.0	0.6757	0.6757
1968	1670.0	0.6892	0.6892
1966	1660.0	0.7027	0.7027
1926	1650.0	0.7162	0.7162
2000	1650.0	0.7297	0.7297
1936	1610.0	0.7432	0.7432
1927	1590.0	0.7568	0.7568
1948	1580.0	0.7703	0.7703
1933	1570.0	0.7838	0.7838
1962	1560.0	0.7973	0.7973
1932	1510.0	0.8108	0.8108
1950	1490.0	0.8243	0.8243
1949	1390.0	0.8378	0.8378
1955	1340.0	0.8514	0.8514
1995	1320.0	0.8649	0.8649
1957	1310.0	0.8784	0.8784
1925	1290.0	0.8919	0.8919
1999	1250.0	0.9054	0.9054
1977	1210.0	0.9189	0.9189
1958	1160.0	0.9324	0.9324
1954	1120.0	0.9459	0.9459
1964	940.0	0.9595	0.9595
1930	890.0	0.9730	0.9730
1931	800.0	0.9865	0.9865



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