

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05302970 Outlet Creek tributary near Starbuck, Minn.

Peak-flow information:

| | |
|---|------|
| Number of systematic peak flows in record | 24 |
| Systematic period begins | 1962 |
| Systematic period ends | 1985 |
| Length of systematic record | 24 |
| Years without information | 0 |
| Number of historical peak flows in record | 0 |

Frequency analysis options:

| | |
|------------------------------------|-------------------------------|
| Method | Bulletin 17B |
| Skew option | Weighted |
| Generalized skew | -0.154 |
| Standard error of generalized skew | 0.426 |
| Low-outlier method | Bulletin 17B Grubbs-Beck test |

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

| | Mean | Standard deviation | Skewness |
|--|--------|--------------------|----------|
| | 0.9811 | 0.3942 | -0.405 |

Outlier criteria and number of peak flows exceeding:

| | | |
|------|------|---|
| Low | 1.0 | 0 |
| High | 89.9 | 0 |

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | | |
|--------|-----------|----------|--|
| Mean | deviation | Skewness | |
| 0.9811 | 0.3942 | -0.261 | |

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 | 0.7 | 0.3 | 1.3 | -- | -- | -- |
| 0.9900 | 1.0 | 0.4 | 1.6 | -- | -- | -- |
| 0.9500 | 2.0 | 1.1 | 3.0 | -- | -- | -- |
| 0.9000 | 2.9 | 1.8 | 4.2 | -- | -- | -- |
| 0.8000 | 4.5 | 3.0 | 6.2 | -- | -- | -- |
| 0.6667 | 6.7 | 4.7 | 9.1 | -- | -- | -- |
| 0.5000 | 10.0 | 7.3 | 13.7 | 9.52 | 6.72 | 13.5 |
| 0.4292 | 11.7 | 8.6 | 16.3 | -- | -- | -- |
| 0.2000 | 20.7 | 15.0 | 31.6 | 19.90 | 14.00 | 28.4 |
| 0.1000 | 29.8 | 20.8 | 49.1 | 28.70 | 19.50 | 42.2 |
| 0.0400 | 43.1 | 28.7 | 78.0 | 41.90 | 26.90 | 65.4 |
| 0.0200 | 54.2 | 35.0 | 104.0 | 53.40 | 32.40 | 88.0 |
| 0.0100 | 66.3 | 41.5 | 135.0 | 66.30 | 38.10 | 115.0 |
| 0.0050 | 79.4 | 48.3 | 170.0 | -- | -- | -- |
| 0.0020 | 98.1 | 57.6 | 223.0 | 102.00 | 51.10 | 202.0 |

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

| Water | Peak | Peak-flow |
|-------|------|-----------|
| year | flow | code |
| 1962 | 59.0 | -- |
| 1963 | 2.0 | -- |
| 1964 | 3.3 | -- |
| 1965 | 17.0 | -- |
| 1966 | 7.3 | -- |
| 1967 | 4.6 | -- |
| 1968 | 2.0 | -- |
| 1969 | 13.0 | -- |
| 1970 | 19.0 | -- |
| 1971 | 12.0 | -- |
| 1972 | 19.0 | -- |
| 1973 | 9.0 | -- |
| 1974 | 1.7 | -- |
| 1975 | 22.0 | -- |
| 1976 | 10.0 | -- |
| 1977 | 2.9 | -- |
| 1978 | 9.0 | -- |
| 1979 | 13.0 | -- |
| 1980 | 13.0 | -- |
| 1981 | 32.0 | -- |
| 1982 | 12.0 | -- |
| 1983 | 15.0 | -- |
| 1984 | 20.0 | -- |
| 1985 | 8.2 | -- |