

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05316850 Meadow Creek tributary near Marshall, Minn.

Peak-flow information:

| | |
|---|------|
| Number of systematic peak flows in record | 12 |
| Systematic period begins | 1961 |
| Systematic period ends | 1972 |
| Length of systematic record | 12 |
| Years without information | 0 |
| Number of historical peak flows in record | 0 |

Frequency analysis options:

| | |
|------------------------------------|-------------------------------|
| Method | Bulletin 17B |
| Skew option | Weighted |
| Generalized skew | -0.229 |
| 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:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 1.2067 | 0.6181 | -0.397 |

Outlier criteria and number of peak flows exceeding:

| | | |
|------|-------|---|
| Low | 0.8 | 0 |
| High | 335.6 | 0 |

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 1.2067 | 0.6181 | -0.279 |

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 | 0.3 | 0.0 | 0.9 | -- | -- | -- |
| 0.9900 | 0.4 | 0.1 | 1.3 | -- | -- | -- |
| 0.9500 | 1.4 | 0.3 | 3.3 | -- | -- | -- |
| 0.9000 | 2.5 | 0.7 | 5.4 | -- | -- | -- |
| 0.8000 | 5.0 | 1.8 | 10.0 | -- | -- | -- |
| 0.6667 | 9.2 | 4.0 | 18.2 | -- | -- | -- |
| 0.5000 | 17.2 | 8.4 | 35.7 | 18.1 | 9.82 | 33.5 |
| 0.4292 | 22.1 | 11.1 | 48.1 | -- | -- | -- |
| 0.2000 | 54.1 | 26.9 | 153.0 | 48.6 | 26.90 | 87.7 |
| 0.1000 | 95.1 | 44.3 | 336.0 | 76.8 | 41.60 | 142.0 |
| 0.0400 | 169.0 | 71.8 | 768.0 | 120.0 | 62.00 | 233.0 |
| 0.0200 | 241.0 | 95.9 | 1,300.0 | 159.0 | 77.50 | 326.0 |
| 0.0100 | 329.0 | 123.0 | 2,050.0 | 202.0 | 94.30 | 433.0 |
| 0.0050 | 434.0 | 153.0 | 3,090.0 | -- | -- | -- |
| 0.0020 | 601.0 | 198.0 | 5,030.0 | 323.0 | 132.00 | 791.0 |

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

| Water | Peak | Peak-flow |
|-------|-------|-----------|
| year | flow | code |
| 1961 | 5.0 | -- |
| 1962 | 1.4 | -- |
| 1963 | 17.0 | -- |
| 1964 | 24.0 | -- |
| 1965 | 22.0 | -- |
| 1966 | 8.6 | -- |
| 1967 | 76.0 | -- |
| 1968 | 1.8 | -- |
| 1969 | 90.0 | -- |
| 1970 | 14.0 | -- |
| 1971 | 112.0 | -- |
| 1972 | 29.0 | -- |