

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05093000 South Branch Two Rivers at Pelan, Minn.

Peak-flow information:

| | |
|---|------|
| Number of systematic peak flows in record | 13 |
| Systematic period begins | 1929 |
| Systematic period ends | 1956 |
| Length of systematic record | 28 |
| Years without information | 15 |
| Number of historical peak flows in record | 0 |

Frequency analysis options:

| | |
|------------------------------------|-------------------------------|
| Method | Bulletin 17B |
| Skew option | Weighted |
| Generalized skew | -0.506 |
| 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 |
| 2.5883 | 0.5040 | -0.249 |

Outlier criteria and number of peak flows exceeding:

| | | |
|------|--------|---|
| Low | 31.1 | 0 |
| High | 4837.1 | 0 |

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 2.5883 | 0.5040 | -0.425 |

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 | 12.3 | 1.9 | 32.9 | -- | -- | -- |
| 0.9900 | 18.3 | 3.4 | 44.8 | -- | -- | -- |
| 0.9500 | 50.5 | 15.0 | 101.0 | -- | -- | -- |
| 0.9000 | 83.9 | 30.8 | 155.0 | -- | -- | -- |
| 0.8000 | 151.0 | 68.6 | 260.0 | -- | -- | -- |
| 0.6667 | 252.0 | 133.0 | 429.0 | -- | -- | -- |
| 0.5000 | 421.0 | 242.0 | 746.0 | 617 | 400 | 954 |
| 0.4292 | 515.0 | 301.0 | 947.0 | -- | -- | -- |
| 0.2000 | 1,050.0 | 604.0 | 2,330.0 | 1,380 | 887 | 2,130 |
| 0.1000 | 1,610.0 | 886.0 | 4,210.0 | 2,020 | 1,260 | 3,240 |
| 0.0400 | 2,470.0 | 1,270.0 | 7,680.0 | 2,930 | 1,710 | 5,030 |
| 0.0200 | 3,200.0 | 1,580.0 | 11,100.0 | 3,670 | 2,030 | 6,630 |
| 0.0100 | 4,000.0 | 1,890.0 | 15,300.0 | 4,460 | 2,340 | 8,480 |
| 0.0050 | 4,860.0 | 2,210.0 | 20,300.0 | -- | -- | -- |
| 0.0020 | 6,070.0 | 2,640.0 | 28,100.0 | 6,340 | 2,950 | 13,600 |

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

| Water | Peak | Peak-flow |
|--------------------------|-------|-----------|
| year | flow | code |
| 1929 | 718 | -- |
| 1930 | 1,810 | -- |
| 1931 | 77 | -- |
| 1932 | 1,140 | -- |
| 1933 | 242 | -- |
| 1934 | 46 | -- |
| 1935 | 242 | -- |
| 1936 | 178 | -- |
| 1937 | 506 | -- |
| 1938 | 285 | -- |
| Gap in systematic record | | |
| 1954 | 266 | -- |
| 1955 | 1,040 | -- |
| 1956 | 2,040 | -- |