

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05383850 South Fork Bear Creek near Grand Meadow, 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 | -0.267 |
| 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 |
| 2.8592 | 0.4018 | 0.418 |

Outlier criteria and number of peak flows exceeding:

| | | |
|------|--------|---|
| Low | 73.8 | 0 |
| High | 7084.6 | 1 |

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 2.8592 | 0.4018 | 0.025 |

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 | 68.2 | 29.6 | 117 | -- | -- | -- |
| 0.9900 | 85.5 | 39.6 | 141 | -- | -- | -- |
| 0.9500 | 159.0 | 87.2 | 240 | -- | -- | -- |
| 0.9000 | 222.0 | 132.0 | 320 | -- | -- | -- |
| 0.8000 | 332.0 | 216.0 | 461 | -- | -- | -- |
| 0.6667 | 484.0 | 337.0 | 661 | -- | -- | -- |
| 0.5000 | 720.0 | 523.0 | 992 | 687 | 489 | 965 |
| 0.4292 | 850.0 | 621.0 | 1,180 | -- | -- | -- |
| 0.2000 | 1,570.0 | 1,130.0 | 2,410 | 1,370 | 975 | 1,920 |
| 0.1000 | 2,370.0 | 1,640.0 | 3,980 | 1,890 | 1,330 | 2,680 |
| 0.0400 | 3,680.0 | 2,400.0 | 6,910 | 2,610 | 1,800 | 3,790 |
| 0.0200 | 4,890.0 | 3,060.0 | 9,930 | 3,220 | 2,150 | 4,820 |
| 0.0100 | 6,330.0 | 3,800.0 | 13,800 | 3,950 | 2,500 | 6,220 |
| 0.0050 | 8,010.0 | 4,630.0 | 18,700 | -- | -- | -- |
| 0.0020 | 10,700.0 | 5,880.0 | 27,100 | 5,890 | 3,320 | 10,500 |

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

| Water | Peak | Peak-flow |
|-------|-------|-----------|
| year | flow | code |
| 1962 | 3,730 | -- |
| 1963 | 290 | -- |
| 1964 | 206 | -- |
| 1965 | 1,020 | -- |
| 1966 | 785 | -- |
| 1967 | 485 | -- |
| 1968 | 520 | -- |
| 1969 | 1,140 | -- |
| 1970 | 128 | -- |
| 1971 | 570 | -- |
| 1972 | 618 | -- |
| 1973 | 800 | -- |
| 1974 | 780 | -- |
| 1975 | 1,030 | -- |
| 1976 | 600 | -- |
| 1977 | 130 | -- |
| 1978 | 8,500 | -- |
| 1979 | 1,100 | -- |
| 1980 | 840 | -- |
| 1981 | 1,750 | -- |
| 1982 | 970 | -- |
| 1983 | 1,070 | -- |
| 1984 | 700 | -- |
| 1985 | 360 | -- |