

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05278700 Otter Creek near Lester Prairie, Minn.

Peak-flow information:

| | |
|---|------|
| Number of systematic peak flows in record | 29 |
| Systematic period begins | 1961 |
| Systematic period ends | 1989 |
| Length of systematic record | 29 |
| Years without information | 0 |
| Number of historical peak flows in record | 0 |

Frequency analysis options:

| | |
|------------------------------------|----------------------------------|
| Method | Expected moments algorithm (EMA) |
| Skew option | Weighted |
| Generalized skew | -0.15 |
| Standard error of generalized skew | 0.4266 |
| Low-outlier method | Single Grubbs-Beck test |

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 2.0396 | 0.3643 | -0.089 |

Low-outlier information:

| | |
|------------------------|----|
| Number of low outliers | 1 |
| Low-outlier threshold | 33 |

Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 2.0394 | 0.3646 | -0.123 |

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 | 11.4 | 2.05 | 21.0 | -- | -- | -- |
| 0.9900 | 14.4 | 3.39 | 24.8 | -- | -- | -- |
| 0.9500 | 26.7 | 11.40 | 40.6 | -- | -- | -- |
| 0.9000 | 37.0 | 19.70 | 53.7 | -- | -- | -- |
| 0.8000 | 54.3 | 34.20 | 76.3 | -- | -- | -- |
| 0.6667 | 77.4 | 53.10 | 107.0 | -- | -- | -- |
| 0.5000 | 111.0 | 79.60 | 154.0 | 113 | 83.6 | 152 |
| 0.4292 | 129.0 | 93.10 | 181.0 | -- | -- | -- |
| 0.2000 | 223.0 | 161.00 | 335.0 | 228 | 166.0 | 312 |
| 0.1000 | 317.0 | 224.00 | 536.0 | 327 | 230.0 | 465 |
| 0.0400 | 459.0 | 310.00 | 950.0 | 479 | 316.0 | 726 |
| 0.0200 | 581.0 | 375.00 | 1,430.0 | 612 | 382.0 | 980 |
| 0.0100 | 715.0 | 439.00 | 2,100.0 | 764 | 452.0 | 1,290 |
| 0.0050 | 864.0 | 502.00 | 3,050.0 | -- | -- | -- |
| 0.0020 | 1,080.0 | 582.00 | 4,870.0 | 1,180 | 611.0 | 2,280 |

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

| Water | Peak | Peak-flow |
|-------|------|-----------|
| year | flow | code |
| 1961 | 46 | -- |
| 1962 | 348 | -- |
| 1963 | 89 | -- |
| 1964 | 33 | -- |
| 1965 | 525 | -- |
| 1966 | 106 | -- |
| 1967 | 195 | -- |
| 1968 | 82 | -- |
| 1969 | 365 | -- |
| 1970 | 43 | -- |
| 1971 | 170 | -- |
| 1972 | 244 | -- |
| 1973 | 156 | -- |
| 1974 | 63 | -- |
| 1975 | 169 | -- |
| 1976 | 65 | -- |
| 1977 | 35 | -- |
| 1978 | 210 | -- |
| 1979 | 245 | -- |
| 1980 | 51 | -- |
| 1981 | 52 | -- |
| 1982 | 230 | -- |
| 1983 | 105 | -- |
| 1984 | 125 | -- |
| 1985 | 270 | -- |
| 1986 | 200 | -- |
| 1987 | 10 | * |
| 1988 | 36 | -- |
| 1989 | 77 | -- |