

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05316690 Spring Creek tributary near Sleepy Eye, Minn.

Peak-flow information:

| | |
|---|------|
| Number of systematic peak flows in record | 25 |
| Systematic period begins | 1966 |
| Systematic period ends | 1990 |
| Length of systematic record | 25 |
| 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 | -0.14 |
| 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 |
| 1.5525 | 0.4107 | -0.790 |

Low-outlier information:

| | |
|------------------------|---|
| Number of low outliers | 1 |
| Low-outlier threshold | 7 |

Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 1.5548 | 0.4042 | -0.383 |

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 | 2.34 | 0.19 | 5.22 | -- | -- | -- |
| 0.9900 | 3.18 | 0.35 | 6.51 | -- | -- | -- |
| 0.9500 | 7.06 | 1.80 | 12.10 | -- | -- | -- |
| 0.9000 | 10.50 | 4.01 | 16.90 | -- | -- | -- |
| 0.8000 | 16.80 | 8.71 | 25.40 | -- | -- | -- |
| 0.6667 | 25.30 | 15.40 | 37.20 | -- | -- | -- |
| 0.5000 | 38.10 | 25.10 | 55.50 | 39.5 | 27.9 | 56 |
| 0.4292 | 44.80 | 30.00 | 65.60 | -- | -- | -- |
| 0.2000 | 79.50 | 54.60 | 124.00 | 83.8 | 59.4 | 118 |
| 0.1000 | 113.00 | 77.10 | 196.00 | 122.0 | 83.8 | 176 |
| 0.0400 | 161.00 | 106.00 | 336.00 | 179.0 | 117.0 | 275 |
| 0.0200 | 199.00 | 126.00 | 487.00 | 228.0 | 141.0 | 368 |
| 0.0100 | 240.00 | 145.00 | 688.00 | 284.0 | 167.0 | 484 |
| 0.0050 | 282.00 | 161.00 | 952.00 | -- | -- | -- |
| 0.0020 | 341.00 | 180.00 | 1,430.00 | 434.0 | 223.0 | 844 |

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 |
| 1966 | 40.0 | -- |
| 1967 | 62.0 | -- |
| 1968 | 20.0 | -- |
| 1969 | 117.0 | -- |
| 1970 | 21.0 | -- |
| 1971 | 64.0 | -- |
| 1972 | 40.0 | -- |
| 1973 | 7.5 | -- |
| 1974 | 15.0 | -- |
| 1975 | 49.0 | -- |
| 1976 | 15.0 | -- |
| 1977 | 74.0 | -- |
| 1978 | 28.0 | -- |
| 1979 | 130.0 | -- |
| 1980 | 59.0 | -- |
| 1981 | 16.0 | -- |
| 1982 | 90.0 | -- |
| 1983 | 100.0 | -- |
| 1984 | 78.0 | -- |
| 1985 | 41.0 | -- |
| 1986 | 60.0 | -- |
| 1987 | 3.0 | * |
| 1988 | 7.0 | -- |
| 1989 | 25.0 | -- |
| 1990 | 87.0 | -- |