

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05061200 Whiskey Creek at Barnesville, Minn.

Peak-flow information:

| | |
|-------------------------------------------|------|
| Number of systematic peak flows in record | 51 |
| Systematic period begins | 1961 |
| Systematic period ends | 2011 |
| Length of systematic record | 51 |
| Years without information | 0 |
| Number of historical peak flows in record | 0 |

Frequency analysis options:

| | |
|------------------------------------|-------------------------------|
| Method | Bulletin 17B |
| Skew option | Weighted |
| Generalized skew | -0.275 |
| 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 |
| 2.2222 | 0.3149 | -0.157 |

Outlier criteria and number of peak flows exceeding:

| | | |
|------|--------|---|
| Low | 22.3 | 0 |
| High | 1247.4 | 0 |

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

| | Standard | |
|--------|-----------|----------|
| Mean | deviation | Skewness |
| 2.2222 | 0.3149 | -0.202 |

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 | 22.5 | 14.5 | 31.0 | -- | -- | -- |
| 0.9900 | 27.8 | 18.7 | 37.4 | -- | -- | -- |
| 0.9500 | 48.6 | 35.9 | 61.5 | -- | -- | -- |
| 0.9000 | 64.9 | 50.1 | 79.8 | -- | -- | -- |
| 0.8000 | 91.3 | 73.7 | 110.0 | -- | -- | -- |
| 0.6667 | 125.0 | 104.0 | 147.0 | -- | -- | -- |
| 0.5000 | 171.0 | 144.0 | 203.0 | 183 | 151 | 223 |
| 0.4292 | 194.0 | 164.0 | 232.0 | -- | -- | -- |
| 0.2000 | 309.0 | 258.0 | 383.0 | 344 | 280 | 422 |
| 0.1000 | 415.0 | 339.0 | 536.0 | 476 | 377 | 599 |
| 0.0400 | 564.0 | 447.0 | 761.0 | 675 | 510 | 895 |
| 0.0200 | 683.0 | 530.0 | 952.0 | 854 | 616 | 1,180 |
| 0.0100 | 809.0 | 616.0 | 1,160.0 | 1,060 | 730 | 1,540 |
| 0.0050 | 941.0 | 704.0 | 1,380.0 | -- | -- | -- |
| 0.0020 | 1,130.0 | 825.0 | 1,710.0 | 1,660 | 1,020 | 2,690 |

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

| Water | Peak | Peak-flow | Water | Peak | Peak-flow |
|-------|------|-----------|-------|------|-----------|
| year | flow | code | year | flow | code |
| 1961 | 40 | -- | 1987 | 79 | -- |
| 1962 | 292 | -- | 1988 | 74 | -- |
| 1963 | 236 | -- | 1989 | 142 | -- |
| 1964 | 117 | -- | 1990 | 118 | -- |
| 1965 | 175 | -- | 1991 | 112 | -- |
| 1966 | 260 | -- | 1992 | 56 | -- |
| 1967 | 159 | -- | 1993 | 410 | -- |
| 1968 | 164 | -- | 1994 | 120 | -- |
| 1969 | 570 | -- | 1995 | 260 | -- |
| 1970 | 73 | -- | 1996 | 245 | -- |
| 1971 | 119 | -- | 1997 | 340 | -- |
| 1972 | 170 | -- | 1998 | 358 | -- |
| 1973 | 33 | -- | 1999 | 129 | -- |
| 1974 | 105 | -- | 2000 | 62 | -- |
| 1975 | 610 | -- | 2001 | 258 | -- |
| 1976 | 82 | -- | 2002 | 180 | -- |
| 1977 | 117 | -- | 2003 | 122 | -- |
| 1978 | 348 | -- | 2004 | 309 | -- |
| 1979 | 161 | -- | 2005 | 206 | -- |
| 1980 | 118 | -- | 2006 | 262 | -- |
| 1981 | 67 | -- | 2007 | 182 | -- |
| 1982 | 38 | -- | 2008 | 140 | -- |
| 1983 | 175 | -- | 2009 | 520 | -- |
| 1984 | 153 | -- | 2010 | 460 | -- |
| 1985 | 660 | -- | 2011 | 440 | -- |
| 1986 | 232 | -- | | | |