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Fluvial Processes

3/3/2015

**Onion Creek at U.S. Highway 183, Austin, Texas**



<< Frequency Curve >>

Onion Creek-US Hwy 183, Austin, TX-FLOW-ANNUAL PEAK

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| Computed Expected | Percent | Confidence Limits |

| Curve Probability | Chance | 0.05 0.95 |

| FLOW, CFS | Exceedance | FLOW, CFS |

|-------------------------|-------------|-------------------------|

| 613,734.6 820,832.8 | 0.2 | 1,707,515.5 290,196.3 |

| 381,029.0 474,856.5 | 0.5 | 969,211.3 191,446.6 |

| 257,168.0 305,528.2 | 1.0 | 608,419.8 135,654.4 |

| 167,397.0 190,551.7 | 2.0 | 366,605.7 92,939.4 |

| 87,948.7 95,383.4 | 5.0 | 172,446.0 52,453.2 |

| 49,666.3 52,265.9 | 10.0 | 88,940.6 31,329.2 |

| 24,875.9 25,544.5 | 20.0 | 40,504.8 16,549.4 |

| 6,637.7 6,637.7 | 50.0 | 9,725.1 4,530.0 |

| 1,774.8 1,728.6 | 80.0 | 2,667.9 1,089.9 |

| 891.4 847.3 | 90.0 | 1,412.9 497.9 |

| 505.0 465.9 | 95.0 | 846.2 257.8 |

| 174.1 146.8 | 99.0 | 329.5 73.8 |

|-------------------------|-------------|-------------------------|



Minimum Value: 0.0

Maximum Value: 93,200.0

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| Percent of | FLOW - Maximum |

| Time Exceeded | CFS |

|---------------|---------------|

| 99.0 | --- |

| 95.0 | --- |

| 90.0 | --- |

| 80.0 | 0.0 |

| 50.0 | 5.0 |

| 25.0 | 27.0 |

| 15.0 | 90.0 |

| 10.0 | 184.0 |

| 5.0 | 399.0 |

| 2.0 | 1,170.0 |

| 1.0 | 2,747.2 |

| 0.1 | 18,249.1 |

|  |  |
| --- | --- |
|  |  |

The “Bulletin 17B Plot for Onion Creek” describes the probability for the recurrence of flood frequency at varying flow rates (cfs) plotted against time. This graph can be used to describe shared recurrence times over a historical period.

The “Duration Analysis Plot for Onion Creek” describes the historical data of varying maximum flow rates and how often they occurred, described in percentage of time exceeded.

Flood Recurrence at 2 years: 10,000 cfs

Flood Recurrence at 10 years: 85,000 cfs

Flood Recurrence at 20 years: 100,000 cfs

Flood Recurrence at 50 years: 180,000 cfs

Flood Recurrence at 100 years: Not applicable, last value is at approximately 80 year return period

Flow Duration Curve 10th: N/A

Flow Duration Curve 90th: N/A

Flow Duration Curve 75th: >0.1 cfs

Flow Duration Curve 50th: 5.0 cfs

Flow Duration Curve 25th: 27.0 cfs

Flow Duration Curve 10th: 184.0 cfs

USGS 08159000 Onion Creek near U.S. Highway 183 in northwest Austin, Texas. The area consists of thin mollisol soils with karst topography. The climate is arid, sub-tropical with seasonal rain patterns and moisture is received through convectional patterns from the Gulf of Mexico. The period of analysis for this study was from October 1, 1976 to September 30, 2014.

References

1) USGS 08159000 Onion Ck at US Hwy 183, Austin, TX, <https://www.usgs.gov> (last accessed 3/3/2015)

2) http://www.hec.usace.army.mil/software/hec-ssp/