

CE 3354 Engineering Hydrology Exercise Set 4

Exercises

1. Use the Oklahoma data you prepared in ES-3 and analyze using the Bulletin 17C procedure (using the PeakFQ software tool - use station skew option).

If starting from just the data in ES3 you will have to carefully build an input file – the **Beargrass-B17C.txt**¹ file is the correct format.

2. Locate USGS Station 08144800 Brady Creek near Eden, TX. and analyze the historical peaks using the Bulletin 17C procedures (using the PeakFQ software tool use station skew option). Determine the median discharge predicted for this station by PeakFQ. Also determine the discharge per square mile of contributing drainage area.
3. Use the NOAA Precipitation Frequency Data Server to prepare Intensity-Duration-Frequency curves for Eden, Texas (Concho County). The desired ARI are 2-yr, 10-yr, 50-yr, and 100-yr (4 curves).
4. Use the NOAA Precipitation Frequency Data Server and the SCS Rainfall Distributions to prepare a 50-yr, 24-hour hyetograph for Eden, Texas.
5. Use the NOAA Precipitation Frequency Data Server and the Texas Hyetograph Tool (TxHYETO-2015.xlsx) to prepare a 50-yr, 24-hour hyetograph for Eden, Texas.

Save these 50-yr, 24-hour hyetograph for Eden, Texas.; you will reuse them as inputs for the Hardin Branch project.

¹This file is located in same directory as this document

Oklahoma Data in PeakFQ format (minor editing may still be needed)

* WCF2.DATA 1/9/89 -- BULLETIN 17 EXAMPLES

*---+---1---+---2---+---3---+---4---+---5---+---6---+---7---+---8

Z

USGS

* STATIONID	LAT DDMMSSDDMMSS	LON DDMMSSDDMMSS	AREA 1234567123456712345678	ELEV 12345678
H 12345678	3527470973329		645.55	1202.01
N 12345678	OKLAHOMA	FROM ES3		
Y 12345678	20.0			
2 12345678				
3 12345678	19230101	200000		
3 12345678	19240101	42000		
3 12345678	19250101	11300		
3 12345678	19260101	32400		
3 12345678	19270101	108000		
3 12345678	19280101	73000		
3 12345678	19290101	76500		
3 12345678	19300101	47800		
3 12345678	19310101	28200		
3 12345678	19320101	33700		
3 12345678	19330101	25700		
3 12345678	19340101	11700		
3 12345678	19350101	77800		
3 12345678	19360101	26600		
3 12345678	19370101	47500		
3 12345678	19380101	75600		
3 12345678	19390101	19200		
3 12345678	19400101	27800		
3 12345678	19410101	51000		
3 12345678	19420101	94000		
3 12345678	19430101	97200		
3 12345678	19440101	179000		
3 12345678	19450101	124000		
3 12345678	19460101	110000		
3 12345678	19470101	114000		
3 12345678	19480101	70200		
3 12345678	19490101	70700		

3	12345678	19500101	92800
3	12345678	19510101	135000
3	12345678	19520101	25800
3	12345678	19530101	17500
3	12345678	19540101	18700
3	12345678	19550101	36300
3	12345678	19560101	49200
3	12345678	19570101	120000
3	12345678	19580101	56800
3	12345678	19590101	54800
3	12345678	19600101	158000
3	12345678	19610101	165000
3	12345678	19620101	103000
3	12345678	19630101	19700
3	12345678	19640101	21100
3	12345678	19650101	171000
3	12345678	19660101	10400
3	12345678	19670101	42000
3	12345678	19680101	52800
3	12345678	19690101	77000
3	12345678	19700101	101000
3	12345678	19710101	17100

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Station 08144800 in PeakFQ format (minor editing may still be needed)

Z08144800	USGS		
H08144800	3111030995027004848095SW12090110101	101	2000.99
N08144800	Brady Ck nr Eden, TX		
Y08144800			
308144800	19611009	2786	3.18
308144800	19630505	3.006	1.45
308144800	19631001	0.006	
308144800	19650518	57.06	2.24
308144800	19660428	51106	7.08
308144800	19670817	45606	6.72
308144800	19680310	11.06	1.78
308144800	19690911	9466	4.37
308144800	19700515	12.06	1.83
308144800	19710530	10206	4.04

308144800	19720615	3756	3.00
308144800	19730603	4106	3.07
308144800	19731012	33206	6.16
308144800	19750511	2446	3.07
308144800	19760711	4736	3.51
308144800	19770624	37206	6.45
308144800	19780528	38.06	1.84
308144800	19790809	10.06	1.51
308144800	19800909	13506	4.58
308144800	19810516	48.06	2.03
308144800	19820505	1776	2.71
308144800	19830606	1356	2.55
308144800	19840812	3336	3.14
308144800	19841231	60.06	2.08