Flood Frequency Analysis

Published

The Powells Creek catchment is located in the Inner Western Suburbs of Sydney and drains stormwater runoff from an urban area into Homebush Bay. A stream gauge operated on this stormwater channel in the period 1958 to 2005. The catchment area upstream of the gauging station is 2.4km^2 while the total catchment area of Powells Creek is 8.4km^2. An AMS has been extracted from the continuous data series and is available at **Powells Creek AMS.xlsx (https://canvas.uts.edu.au/courses/30708/files/6357134/download?wrap=1)** **(https://canvas.uts.edu.au/courses/30708/files/6357134/download?download_frd=1)** .

Part 1

1. Using this data, undertake a flood frequency analysis to estimate the flood flows associated with events having AEPs of 1%, 2%, 5%, and 10%.
2. Determine the confidence limits for these estimated flows.
3. Comment on the likely accuracy of these estimates.

Part 2

1. Assume the full period of record was not available and only 11 years of record is available. Determine the expected design quantiles for the following periods
   a) 1960 to 1970
   b) 1970 to 1980
   c) 1980 to 1990
2. Discuss differences in the estimates. Include in your discussion of the differences, how the flood events included in each of the samples differ and the significance of these differences.

Assignment 1 Presentation

The report is to be written as a memo from an employee to a manager outlining the basis of the study, the methods of analysis used and will develop some conclusions and a recommendation. Hence the report will include an introduction, the main body, and some conclusions The report itself is not to exceed 10 typed pages with a 12 point font and single line spacing - pages in excess of this will not be marked. Excessive diagrams will be considered as additional written pages.

Assignment 1 - Additional Information

To complete this assignment, you will need to use "*Flike*". Following is a Beta Version of Flike to enable you to complete the assignment (we are attempting to load Tuflow-Flike onto the University system so you can use it online). Some guidance on the use of Flike follows also.

betaFlike.zip (https://canvas.uts.edu.au/courses/30708/files/6357160/download?wrap=1) ⬇ **(https://canvas.uts.edu.au/courses/30708/files/6357160/download?download_frd=1)**

Flike.pdf (https://canvas.uts.edu.au/courses/30708/files/6357178/download?wrap=1) ⬇ **(https://canvas.uts.edu.au/courses/30708/files/6357178/download?download_frd=1)**

Also, here is a copy of the extracted AMS for Powells Creek.

Powells Creek AMS.xlsx (https://canvas.uts.edu.au/courses/30708/files/6357134/download?wrap=1) ⬇ **(https://canvas.uts.edu.au/courses/30708/files/6357134/download?download_frd=1)**

Assignment 1 Rubric

Assignment 1 will be marked using this rubric - **ASSIGNMENT 1 RUBIC.pdf (https://canvas.uts.edu.au/courses/30708/files/6357177/download?wrap=1)** ⬇ **(https://canvas.uts.edu.au/courses/30708/files/6357177/download?download_frd=1)**

Points	20
Submitting	a file upload
Allowed Attempts	2

Due	For	Available from	Until
Mar 10	Everyone	-	-