

Water and Environmental Engineering Research Topics 2025

Supervisor(s)	Degree	Preliminary title of research project	Brief description of project	Scholarship per year
Prof JA du Plessis	MEng (R)	Evaluation of the performance of a newly developed distribution (IPZA) using short record lengths	Evaluate the newly developed distribution for annual flood peaks, using short record lengths	
Prof JA du Plessis	MEng (R)	Evaluate the performance of the IPZA distribution for the estimate of AEP>50%	Extensive analysis was done on the performance of the IPZA distribution to estimate flood peaks for AEP < 50%, but the performance for flood peaks with an AEP<50% need further evaluation	
Prof JA du Plessis	MEng(R)	Quantify the difference between the use of AMS vs PDS in flood estimations	Investigate the difference in the estimation of flood peaks using an annual maximum series vs that of a partial duration series.	
Prof JA du Plessis	MEng(R)	Investigate the impact of the Z-set plotting positions on the selection of a representative distribution	The newly developed Z-set plotting position will result in extreme events being represented on a more realistic base. This will impact the selection of appropriate distributions. Evaluate the impact thereof on the design flood estimation for a wide range of probability of occurrences and catchment size.	
Prof JA du Plessis	MEng(R)	Investigate the difference in surity of supply of a water supply system between daily and monthly runoff modelling	It is expected that the difference between the use of daily data vs the use of monthly data might have a significant impact on the available yield from specifically smaller water supply systems. Use a number of case studies to test this.	
Prof JA du Plessis	MEng(R)	Investigate the long term impact of veldfires on runoff and peak flows.	Veldfires significantly change the characteristics of a catchment and the associated rainfall/runoff response. Use two test sites to quantify these impacts.	