

Supplementary

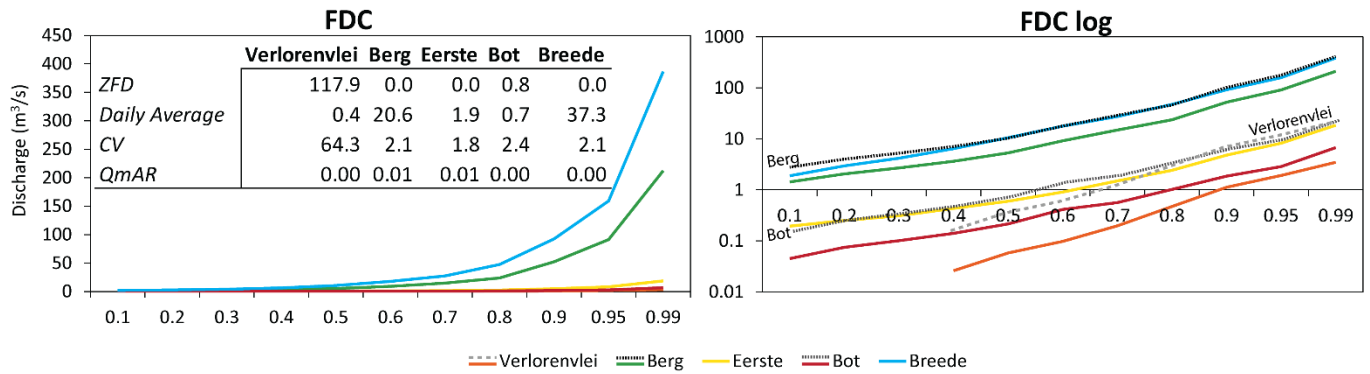


Figure S1. (a) Flow duration curve and (b) log flow duration curve of measured streamflow data in each study catchment with statistics of Zero flow days (ZFD), daily average flow (m^3/s), coefficient of variation and daily average flow in relation to sub-basin area (QmAR).

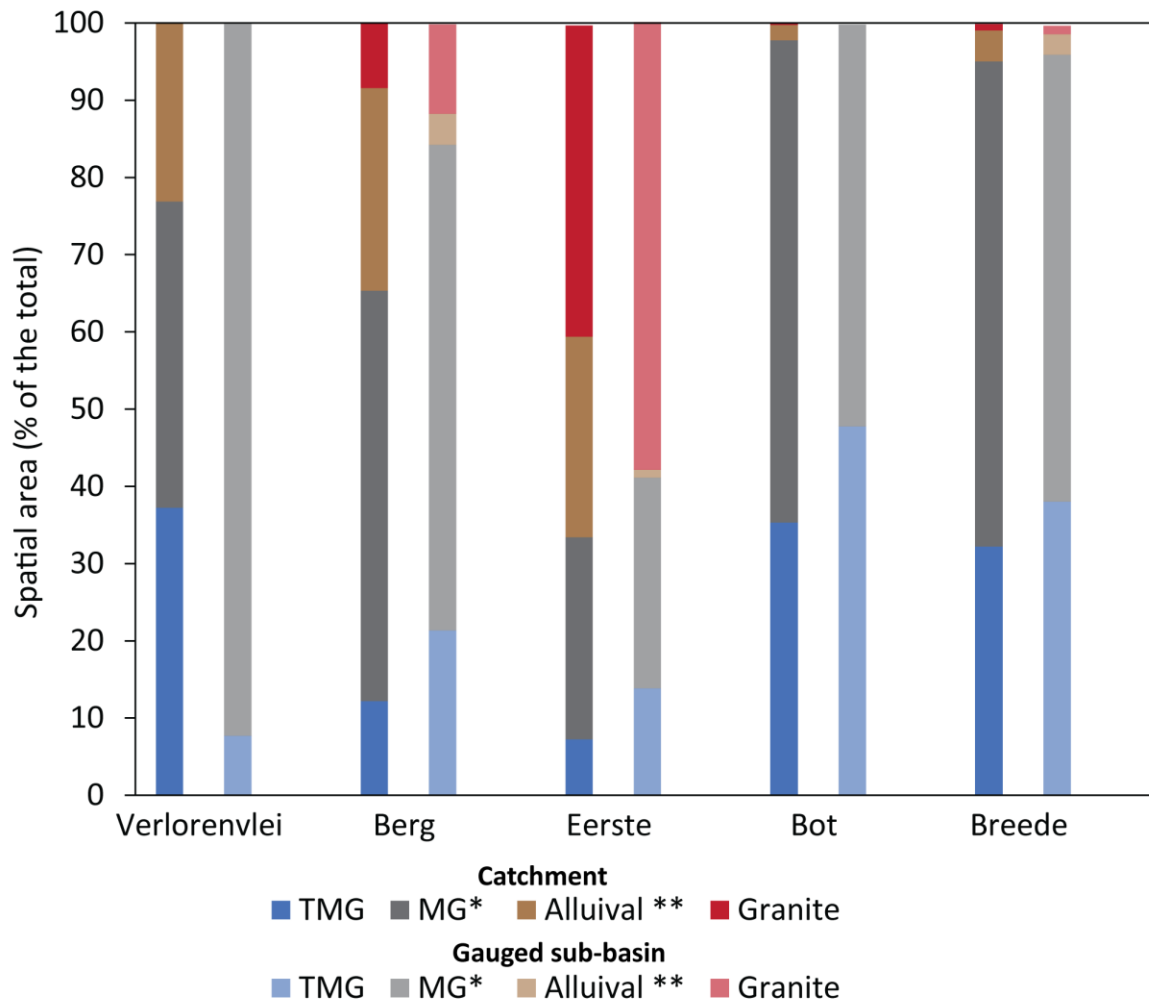


Figure S2. Total area of the Table Mountain Group (TMG), Malmesbury Shale (MG), Alluvial sediments and Cape Granite Suite for each catchment and the gauged sub-basin (transparent colours) where the MG shales group include other shales such as the Witteberg, Eccia, Dwyka, Bokkeveld and Uitenhage and the alluvium include quaternary sediments and unclassified units.

Table S1. The total gauged area (streamflow) of each of the study catchments with the percentage of the catchment area.

Catchment name	Area	% Total
Verlorenvlei	663	36
Berg	3064	40
Eerste	328	53
Bot	252	29
Breede	9849	79

Table S1. A list of the parameters and the parameter ranges used in the Monte -Carlo Analysis which was used to generate the sensitivity analysis to understand the relative importance of different parameters for each catchment's simulated streamflow.

Name of parameter	MCA Range									
	Upper bounds					Lower bounds				
	Verlorenvlei	Berg	Eerste	Bot	Breede	Verlorenvlei	Berg	Eerste	Bot	Breede
AC_Adaptation	1.65	1.49	1.38	1.62	1.48	1.35	1.22	1.13	1.37	1.21
FC_Adaptation	1.64	1.57	1.64	1.65	0.77	1.35	1.28	1.34	1.35	0.63
gwRG1Fact	0.02	11.89	0.07	0.26	5.32	0.01	9.73	0.06	0.24	4.36
gwRG1RG2dist	1.10	0.69	0.63	1.06	0.79	0.90	0.57	0.51	0.94	0.65
gwRG2Fact	3.40	0.01	10.95	4.94	0.02	2.78	0.01	8.96	2.94	0.02
soilConcRD1	2.75	1.63	2.73	2.75	1.57	2.25	1.34	2.23	2.25	1.28
soilConcRD2	4.35	5.31	4.22	5.37	1.95	3.56	4.35	3.45	4.61	1.59
soilDiffMPSLPS	5.36	9.23	1.27	9.66	3.92	4.39	7.55	1.04	9.43	3.21
soilDistMPSLPS	9.01	6.24	0.31	3.32	4.80	7.37	5.11	0.26	3.26	3.93
soilLinRed	0.19	0.98	0.70	0.07	0.91	0.16	0.80	0.57	0.01	0.75
soilMaxInfSummer	125.28	130.58	171.74	215.45	162.50	102.50	106.84	140.51	184.23	132.95
soilMaxinfWinter	169.57	216.63	61.09	100.41	219.47	138.74	177.24	49.98	89.30	179.57
soilMaxPerc	25.33	14.97	29.26	22.64	21.71	20.72	12.25	23.94	17.32	17.76
soilOutLPS	3.19	7.62	1.41	8.70	2.93	2.61	6.23	1.15	8.45	2.40
flowrouteTA	3.30	11.60	10.45	3.06	10.57	2.70	9.49	8.55	1.16	8.65

Table S3. Total area of the Table Mountain Group (TMG), Malmesbury Shale (MG), Alluvial sediments and Cape Granite Suite for each catchment and the gauged sub-basin (transparent colours) where the MG shales group include other shales such as the Witteberg, Eccra, Dwyka, Bokkeveld and Uitenhage and the alluvium include quaternary sediments and unclassified units.

Catchment name	Total area (%)			
	TMG	MG*	Alluival **	Granite
Verlorenvlei	37	40	23	
Gauged	8	92		
Berg	12	53	26	8
Gauged	21	63	0	12
Eerste	7	26	26	40
Gauged	14	27	0	58
Bot	35	62	1	0
Gauged	48	51		
Breede	32	63	3	1
Gauged	37	58	3	1