

ASSESSMENT OF SEASONAL AND ANNUAL RAINFALL TRENDS AND VARIABILITY IN SOUTH AFRICA

PART II (APPENDICES)

by

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Introduction

South Africa is a Semi-arid country with a variable topography and climate varying from wet and sub-humid along the eastern coastal area to semi-desert in the dry north-western region. Due to the high spatiotemporal variability of rainfall, the country with an approximate average annual rainfall of 450 mm/year is water-stressed. This has attracted a lot of interest from the academia, water resources management, agriculture amongst other stakeholders in the economy in trying to understand rainfall trends and variability. As a result, several researchers have focused their studies to investigating rainfall trends from the observed records and indices derived from the same for South Africa. Most of these studies have been done using GCMs and parametric methods. This research upon identifying gap in application of non-parametric methods in trend detection and the advantage thereof, applies the method, observing trends and the rate of change thereof.

This document (Appendices) is an annexure to the main document, thesis on the '*Assessment of Seasonal and Annual Rainfall Trends and Variability in South Africa*' which should be read in tandem. The structure of this document has four parts as outlined:

Appendix A: Data quality analysis tables.

Appendix B: Homogeneity analysis and climatic zones tables.

Appendix C: Rainfall characteristics tables.

Appendix D: Trend analysis tables and figures.

Appendix A: Data Quality Analysis Tables

Table A1: List of Stations whose data was obtained from SAWS.

No	Station Name	Lat (Deg)	Long (Deg)	period	Years	% Missing
1	Humansdorp	-34.03	24.77	1900-2014	115	4.62
2	Lottering-Bos	-33.95	23.78	1900-2019	120	1.35
3	Witelsbos-Bos	-33.98	24.12	1900-2019	120	0.70
4	Van Stadens-Rsv	-33.85	25.22	1911-2015	105	23.59
5	Steytlerville-Mag	-33.33	24.33	1900-2019	120	0.62
6	Alicedale-Mun	-33.32	26.08	1900-2008	109	3.13
7	Grahamstown-Tnk	-33.3	26.53	1900-2019	120	1.52
8	Klipfontein	-32.55	24.72	1900-2019	120	0.89
9	Hogsback-Bos	-32.58	26.93	1900-2019	120	0.58
10	Amatola State Forest	-32.67	27.28	1900-2019	120	3.27
11	Kei Road-Pol	-32.7	27.55	1900-2008	109	3.64
12	Winterhoek	-32.22	24.47	1900-2019	120	3.20
13	Roodebloem	-32.18	24.57	1900-2019	120	0.16
14	Bloemhof	-32.03	24.67	1900-2019	120	1.70
15	Katberg-Bos	-32.48	26.68	1900-2012	113	1.23
16	Exwell Park	-32.2	27.12	1900-2019	120	0.78
17	Kentani-Bos	-32.5	28.32	1900-2019	120	0.44
18	Cwebe Nature Reserve	-32.2	28.93	1900-2019	120	1.94
19	Middelpos	-31.9	20.23	1900-2019	120	23.43
20	Tafelberg Hall	-31.63	25.2	1900-2019	120	2.54
21	Sterkstroom	-31.55	26.55	1900-2019	120	0.75
22	Engcobo Prison	-31.67	28.0	1900-2019	120	3.38
23	Xhora Prison	-31.97	28.67	1900-2019	120	3.54
24	Silaka Nature Reserve	-31.62	29.52	1923-2019	97	4.58
25	Richmond C/K-Tnk	-31.42	23.95	1900-2019	120	0.77
26	Ellesmere	-30.67	26.32	1900-2013	114	1.35
27	Burgersdorp-Pol	-31.0	26.33	1900-2019	120	1.38
28	Petrusville-Pol	-30.08	24.67	1900-2019	120	4.87
29	Philippolis-Pol	-30.27	25.27	1905-2017	113	3.67
30	Bethulie-Mun	-30.5	25.97	1900-2010	110	44.18
31	Zastron-Tnk	-30.3	27.08	1905-2019	115	3.32
32	Hopetown-Tnk	-29.62	24.08	1909-2019	111	8.18
33	Lillydale	-30.0	25.95	1906-2010	104	1.71
34	Richmond S.A. P	-29.87	30.27	1916-2016	101	5.98
35	Durban-Botanical Gardens	-29.85	31	1900-2019	120	7.01
36	Steinkopf	-29.25	17.73	1900-2019	120	1.74

No	Station Name	Lat (Deg)	Long (Deg)	period	Years	% Missing
37	Nuwejaarskraal	-29.37	23.12	1901-2019	119	0.65
38	Maselspoort Dam	-29.03	26.42	1905-2019	115	0.65
39	Thornlea	-28.63	21.52	1900-2019	120	1.27
40	Griquatown-Tnk	-28.85	23.25	1900-2019	120	10.64
41	Barkly West-Tnk	-28.53	24.53	1900-2019	120	12.90
42	Boetsap-Pol	-27.97	24.45	1900-2019	120	1.98
43	Odendaalsrus	-27.87	26.68	1906-2019	114	2.44
44	Bothaville-Mun	-27.55	26.62	1905-2019	115	6.07
45	Beerlaagte	-26.82	28.43	1904-2012	109	6.93
46	Balfour	-26.65	28.58	1904-201	107	2.64
47	De Emigratie	-26.77	30.12	1907-2012	105	1.36
48	Morokweng	-26.12	23.78	1911-2010	100	2.98
49	Ottoshoop-Pol	-25.75	25.97	1904-2012	109	1.58
50	Swartruggens-Pol	-25.63	26.68	1906-2019	113	9.04
51	Dwarsfontein	-26.0	27.07	1911-2019	109	1.15
52	Premier Mine - Cullinan	-25.67	28.52	1904-2008	105	1.18
53	Bronkhorstspuit - Mun	-25.8	28.73	1907-201	113	3.69
54	Machadodorp	-25.67	30.25	1904-2019	116	2.50
55	Naboomspruit - Pol	-24.52	28.72	1904-2019	116	3.19
56	Haenertsburg	-23.93	29.93	1904-2019	116	4.55
57	Elim-Hosp	-23.17	30.05	1904-2019	116	11.98
58	Klein Australie	-23.05	30.22	1904-2019	116	9.97
59	Cape Point	-34.35	18.5	1900-2019	120	1.19
60	Laingsburg-Mun	-33.18	20.85	1901-2014	115	4.76
61	Prince Albert - Tnk	-33.22	22.03	1900-2019	120	0.21
62	Plettenbergbaai - Pol	-34.05	23.37	1900-2011	112	2.92
63	Montagu	-33.78	20.12	1900-2019	120	14.64
64	Touwsrivier	-33.33	20.03	1900-2015	116	Inconsistent
65	Worcester	-33.65	19.43	1900-2009	110	1.44
66	Grabouw	-34.15	19.03	1903-2019	117	5.06
67	Tulbagh	-33.28	19.13	1900-2019	120	0.93
68	Piketberg-Sapd	-32.9	18.75	1900-2019	120	0.46
69	Darling - The Towers	-33.38	18.37	1900-2013	114	0.62
70	Cape Town Astron Obs	-33.93	18.48	1900-2019	120	3.38

Table A2: List of Selected Stations for homogeneity analysis.

No	Station Name	Lat (Deg)	Long (Deg)	Period	Years	% Data Available
1	Humansdorp	-34.03	24.77	1900-2014	115	95.38
2	Lottering-Bos	-33.95	23.78	1900-2019	120	98.65
3	Witelsbos-Bos	-33.98	24.12	1900-2019	120	99.29
4	Steytlerville-Mag	-33.33	24.33	1900-2019	120	99.37
5	Alicedale-Mun	-33.32	26.08	1900-2008	109	96.86
6	Grahamstown-Tnk	-33.3	26.53	1900-2019	120	98.47
7	Klipfontein	-32.55	24.72	1900-2019	120	99.11
8	Hogsback-Bos	-32.58	26.93	1900-2019	120	99.42
9	Amatola State Forest	-32.67	27.28	1900-2019	120	96.72
10	Kei Road-Pol	-32.7	27.55	1900-2008	109	96.35
11	Winterhoek	-32.22	24.47	1900-2019	120	96.79
12	Roodebloem	-32.18	24.57	1900-2019	120	99.83
13	Bloemhof	-32.03	24.67	1900-2019	120	98.29
14	Katberg-Bos	-32.48	26.68	1900-2012	113	98.76
15	Exwell Park	-32.2	27.12	1900-2019	120	99.21
16	Kentani-Bos	-32.5	28.32	1900-2019	120	99.55
17	Cwebe Nature Reserve	-32.2	28.93	1900-2019	120	98.05
18	Tafelberg Hall	-31.63	25.2	1900-2019	120	97.45
19	Sterkstroom	-31.55	26.55	1900-2019	120	99.24
20	Engcobo Prison	-31.67	28.0	1900-2019	120	96.61
21	Xhora Prison	-31.97	28.67	1900-2019	120	96.45
22	Silaka Nature Reserve	-31.62	29.52	1923-2019	97	95.41
23	Richmond C/K-Tnk	-31.42	23.95	1900-2019	120	99.22
24	Ellesmere	-30.67	26.32	1900-2013	114	98.64
25	Burgersdorp-Pol	-31.0	26.33	1900-2019	120	98.61
26	Petrusville-Pol	-30.08	24.67	1900-2019	120	95.13
27	Philippolis-Pol	-30.27	25.27	1905-2017	113	96.33
28	Zastron-Tnk	-30.3	27.08	1905-2019	115	96.67
29	Hopetown-Tnk	-29.62	24.08	1909-2019	111	91.81
30	Lillydale	-30.0	25.95	1906-2010	104	98.29
31	Richmond S.A. P	-29.87	30.27	1916-2016	101	94.01
32	Durban-Botanical Gardens	-29.85	31.0	1900-2019	120	92.99
33	Steinkopf	-29.25	17.73	1900-2019	120	98.26
34	Nuwejaarskraal	-29.37	23.12	1901-2019	119	99.34
35	Maselspoort Dam	-29.03	26.42	1905-2019	115	99.34
36	Thornlea	-28.63	21.52	1900-2019	120	98.72
37	Boetsap-Pol	-27.97	24.45	1900-2019	120	98.01
38	Odendaalsrus	-27.87	26.68	1906-2019	114	97.55
39	Bothaville-Mun	-27.55	26.62	1905-2019	115	93.92

No	Station Name	Lat (Deg)	Long (Deg)	Period	Years	% Data Available
40	Beerlaagte	-26.82	28.43	1904-2012	109	93.07
41	Balfour	-26.65	28.58	1904-201	107	97.36
42	De Emigratie	-26.77	30.12	1907-2012	105	98.64
43	Morokweng	-26.12	23.78	1911-2010	100	97.02
44	Ottoshoop-Pol	-25.75	25.97	1904-2012	109	98.41
45	Swartruggens-Pol	-25.63	26.68	1906-2019	113	90.96
46	Dwarsfontein	-26.0	27.07	1911-2019	109	98.85
47	Premier Mine-Cullinan	-25.67	28.52	1904-2008	105	98.81
48	Bronkhorstspuit-Mun	-25.8	28.73	1907-201	113	96.31
49	Machadodorp	-25.67	30.25	1904-2019	116	97.49
50	Naboomspruit-Pol	-24.52	28.72	1904-2019	116	96.80
51	Haenertsburg	-23.93	29.93	1904-2019	116	95.46
52	Klein Australie	-23.05	30.22	1904-2019	116	90.02
53	Cape Point	-34.35	18.5	1900-2019	120	98.80
54	Laingsburg-Mun	-33.18	20.85	1901-2014	115	95.24
55	Prince Albert-Tnk	-33.22	22.03	1900-2019	120	99.79
56	Plettenbergbaai-Pol	-34.05	23.37	1900-2011	112	97.07
57	Worcester	-33.65	19.43	1900-2009	110	98.56
58	Grabouw	-34.15	19.03	1903-2019	117	94.93
59	Tulbagh	-33.28	19.13	1900-2019	120	99.07
60	Piketberg -Sapd	-32.9	18.75	1900-2019	120	99.54
61	Darling - The Towers	-33.38	18.37	1900-2013	114	99.37
62	Cape Town Astron Obs	-33.93	18.48	1900-2019	120	96.61

Appendix B: Homogeneity Analysis and Climatic Zones Tables

Table B1: Homogeneity analysis results.

No	Station Name	Pettit Test	SNHT	Buishand Range	Von Neumann	Classification
1	Humansdorp	0.165	0.559	0.258	0.455	Useful
2	Lottering-Bos	0.037	0.014	0.009	0.028	Suspect
3	Witelsbos-Bos	0.048	0.027	0.008	0.393	Suspect
4	Steytlerville-Mag	0.735	0.310	0.109	0.097	Useful
5	Alicedale-Mun	0.319	0.010	0.089	0.230	Useful
6	Grahamstown-Tnk	0.978	0.025	0.482	0.083	Useful
7	Klipfontein	0.526	0.320	0.115	0.206	Useful
8	Hogsback-Bos	0.026	0.017	0.040	0.035	Suspect
9	Amatola State Forest	0.349	0.083	0.809	0.334	Useful
10	Kei Road-Pol	0.043	0.067	0.019	0.010	Suspect
11	Winterhoek	0.531	0.070	0.374	0.181	Useful
12	Roodebloem	0.001	0.002	0.000	0.035	Suspect
13	Bloemhof	0.474	0.281	0.087	0.105	Useful
14	Katberg-Bos	0.043	0.028	0.029	0.106	Suspect
15	Exwell Park	0.606	0.861	0.502	0.664	Useful
16	Kentani-Bos	0.460	0.001	0.163	0.001	Doubtful
17	Cwebe Nature Reserve	0.533	0.042	0.262	0.013	Doubtful
18	Tafelberg Hall	0.028	0.036	0.006	0.114	Suspect
19	Sterkstroom	0.962	0.139	0.658	0.359	Useful
20	Engcobo Prison	0.702	0.135	0.727	0.238	Useful
21	Xhora Prison	0.901	0.365	0.472	0.168	Useful
22	Silaka Nature Reserve	0.000	0.000	0.000	0.000	suspect
23	Richmond C/K-Tnk	0.800	0.096	0.709	0.560	Useful
24	Ellesmere	0.338	0.229	0.120	0.985	Useful
25	Burgersdorp-Pol	0.156	0.001	0.071	0.085	Doubtful
26	Petrusville-Pol	0.424	0.347	0.269	0.787	Useful
27	Philippolis-Pol	0.398	0.016	0.276	0.294	Useful
28	Zastron-Tnk	0.011	0.000	0.006	0.058	Suspect
29	Hopetown-Tnk	0.074	0.098	0.022	0.022	Doubtful
30	Lillydale	0.368	0.204	0.062	0.387	Useful
31	Richmond S. A. P	0.293	0.001	0.471	0.000	Doubtful
32	Durban Botanical Gardens	0.152	0.152	0.253	0.063	Useful
33	Steinkopf	0.170	0.080	0.912	0.070	Useful
34	Nuwejaarskraal	0.003	0.058	0.010	0.151	Doubtful
35	Maselspoort Dam	0.851	0.451	0.273	0.260	Useful
36	Boetsap-Pol	0.996	0.260	0.748	0.078	Useful
37	Odendaalsrus	0.646	0.041	0.332	0.172	Useful

No	Station Name	Pettit Test	SNHT	Buishand Range	Von Neumann	Classification
38	Bothaville-Mun	0.219	0.334	0.231	0.325	Useful
39	Beerlaagte	0.619	0.785	0.447	0.525	Useful
40	Balfour	0.606	0.260	0.627	0.250	Useful
41	De Emigratie	0.524	0.322	0.634	0.441	Useful
42	Morokweng	0.404	0.114	0.311	0.040	Useful
43	Ottoshoop-Pol	0.455	0.151	0.239	0.026	Useful
44	Swartruggens-Pol	0.047	0.133	0.043	0.052	Doubtful
45	Dwarsfontein	0.004	0.017	0.007	0.071	Suspect
46	Premier Mine-Cullinan	0.179	0.295	0.151	0.496	Useful
47	Bronkhorstspuit-Mun	0.149	0.777	0.829	0.720	Useful
48	Machadodorp	0.661	0.589	0.775	0.036	Useful
49	Naboomspruit-Pol	0.463	0.099	0.565	0.131	Useful
50	Haenertsburg	0.365	0.330	0.165	0.218	Useful
51	Cape Point	0.013	0.046	0.003	0.000	Suspect
52	Laingsburg-Mun	0.000	0.001	0.000	0.229	Suspect
53	Prince Albert-Tnk	0.573	0.508	0.250	0.182	Useful
54	Plettenbergbaai-Pol	0.219	0.273	0.085	0.174	Useful
55	Worcester	0.088	0.000	0.012	0.000	Suspect
56	Grabouw	0.001	0.003	0.000	0.001	Suspect
57	Tulbagh	0.406	0.287	0.200	0.009	Useful
58	Piketberg-Sapd	0.007	0.001	0.006	0.001	Suspect
59	Darling-The Towers	0.162	0.227	0.108	0.007	Useful
60	Cape Town Astron Obs	0.003	0.046	0.003	0.000	Suspect
61	Thornlea	0.938	0.500	0.433	0.031	Useful
62	Klein Australie	0.057	0.371	0.136	0.040	Useful

Table B 2: characterisation of climatic zones (SAWS) of South Africa.

Climatic Zone	Station Name	Station Number	Rainfall regime	Water Management Area (WMA)	Period	Average climatic record (years)
South Coast	Humansdorp	1	All Year	Mzimvubu-Tsitsikamma	1900-2014	115
	Steytlerville-Mag	2	All Year	Mzimvubu-Tsitsikamma	1900-2019	
	Alicedale-Mun	3	All Year	Mzimvubu-Tsitsikamma	1900-2008	
	Grahamstown-Tnk	4	All Year	Mzimvubu-Tsitsikamma	1900-2019	
	Plettenbergbaai-Pol	42	All Year	Breede-Gouritz	1900-2011	
Southern Interior	Prince Albert-Tnk	41	All Year	Breede-Gouritz	1900-2019	120
	Klipfontein	5	Summer	Mzimvubu-Tsitsikamma	1900-2019	
	Amatola State Forest	6	Summer	Mzimvubu-Tsitsikamma	1900-2019	
	Winterhoek	7	Summer	Mzimvubu-Tsitsikamma	1900-2019	
	Bloemhof	8	Summer	Mzimvubu-Tsitsikamma	1900-2019	

Climatic Zone	Station Name	Station Number	Rainfall regime	Water Management Area (WMA)	Period	Average climatic record (years)
Southern Interior	Exwell Park	9	Summer	Mzimvubu-Tsitsikamma	1900-2019	120
	Kentani - Bos	10	All Year	Mzimvubu-Tsitsikamma	1900-2019	
	Cwebe Nature Reserve	11	Summer	Mzimvubu-Tsitsikamma	1900-2019	
	Sterkstroom	12	Summer	Mzimvubu-Tsitsikamma	1900-2019	
	Engcobo Prison	13	Summer	Mzimvubu-Tsitsikamma	1900-2019	
	Xhora Prison	14	Summer	Mzimvubu-Tsitsikamma	1900-2019	
Western Interior	Thornlea	45	Summer	Orange	1900-2019	116
	Richmond C/K-Tnk	15	Summer	Orange	1900-2019	
	Ellesmere	16	Summer	Orange	1900-2013	
	Burgersdorp-Pol	17	Summer	Orange	1900-2019	
	Petrusville-Pol	18	Summer	Orange	1900-2019	
	Philippolis-Pol	19	Summer	Orange	1905-2017	
	Hopetown-Tnk	20	Summer	Orange	1909-2019	
	Lillydale	21	Summer	Orange	1906-2010	
	Nuwejaarskraal	25	Summer	Orange	1901-2019	
North-Western Cape	Steinkopf	24	Winter	Orange	1900-2019	120
KwaZulu -Natal	Richmond S.A. P	22	Summer	Pongola-Uzimkulu	1916-2016	111
	Durban Botanical Gardens	23	Summer	Pongola-Uzimkulu	1900-2019	
Central Interior	Maselspoort Dam	26	Summer	Orange	1905-2019	112
	Boetsap-Pol	27	Summer	Vaal	1900-2019	
	Odendaalsrus	28	Summer	Vaal	1906-2019	
	Bothaville-Mun	29	Summer	Vaal	1905-2019	
	Beerlaagte	30	Summer	Pongola-Uzimkulu	1904-2012	
	Balfour	31	Summer	Pongola-Uzimkulu	1904-2010	
	Morokweng	33	Summer	Vaal	1911-2010	
	Ottoshoop-Pol	34	Summer	Limpopo	1904-2012	
	Swartruggens-Pol	35	Summer	Limpopo	1906-2019	
	Premier Mine-Cullinan	36	Summer	Limpopo	1904-2008	
	Bronkhorstspuit-Mun	37	Summer	Limpopo	1907-2019	
	Naboomspruit-Pol	39	Summer	Limpopo	1904-2019	
North Eastern Interior	De Emigratie	32	Summer	Pongola-Uzimkulu	1907-2019	114
	Machadodorp	38	Summer	Pongola-Uzimkulu	1904-2019	
	Haenertsburg	40	Summer	Limpopo	1904-2019	
	Klein Australie	46	Summer	Limpopo	1904-2019	

Climatic Zone	Station Name	Station Number	Rainfall regime	Water Management Area (WMA)	Period	Average climatic record (years)
South-Western Cape	Tulbagh	43	Winter	Breede-Gouritz	1900-2019	117
	Darling-The Towers	44	Winter	Breede-Gouritz	1900-2013	

Appendix C: Rainfall Characteristics Tables

Table C1: Annual rainfall characteristics over 40-year periods from 1900-2019 for South Africa.

No	Station Name	Lat (Deg)	Long (Deg)	period	Years	Rmin	Rmax	Rm	CV (%)	Cs	Ck
1	Humansdorp	-34.03	24.77	1900-1939	40	462	956	697	16.81	0.01	-0.56
				1940-1979	40	415	1013	689	20.07	-0.11	-0.29
				1980-2014	35	402	1095	641	28.22	1.00	0.21
2	Steytlerville-Mag	-33.33	24.33	1900-1939	40	90	431	236	34.30	0.35	0.02
				1940-1979	40	114	560	236	36.70	1.40	3.57
				1980-2019	40	98	537	260	40.30	0.78	0.26
3	Alicedale-Mun	-33.32	26.08	1900-1939	40	88	840	417	34.46	0.40	0.88
				1940-1979	40	223	735	432	28.29	0.49	-0.40
				1980-2008	29	294	690	455	26.70	0.37	-1.09
4	Grahamstown-Tnk	-33.3	26.53	1900-1939	40	396	1105	692	22.16	0.19	0.05
				1940-1979	40	421	1089	660	24.83	0.46	-0.31
				1980-2019	40	268	1188	679	31.36	0.46	0.15
5	Klipfontein	-32.55	24.72	1900-1939	40	87	436	257	32.22	0.40	-0.18
				1940-1979	40	103	593	256	39.34	1.41	2.42
				1980-2019	40	125	433	273	32.25	0.20	-0.85
6	Amatola State Forest	-32.67	27.28	1900-1939	40	649	1791	1052	22.45	1.02	1.95
				1940-1979	40	703	1451	1042	18.65	0.28	-0.68
				1980-2019	40	552	1619	996	26.72	0.36	-0.23
7	Winterhoek	-32.22	24.47	1900-1939	40	195	633	397	25.79	0.23	-0.19
				1940-1979	40	183	654	352	34.85	0.60	-0.28
				1980-2019	40	153	655	367	33.99	0.42	-0.54
8	Bloemhof	-32.03	24.67	1900-1939	40	127	464	298	28.79	-0.25	-0.63
				1940-1979	40	173	661	334	33.55	1.13	1.31
				1980-2019	40	158	571	341	31.64	0.44	-0.36
9	Exwell Park	-32.2	27.12	1900-1939	40	217	627	429	23.75	-0.03	-0.29
				1940-1979	40	238	798	435	29.08	0.57	0.61
				1980-2019	40	206	709	436	23.95	0.41	0.65
10	Kentani - Bos	-32.5	28.32	1900-1939	40	440	432	979	26.44	-0.32	-0.71
				1940-1979	40	581	1855	1021	23.82	1.22	2.92
				1980-2019	40	557	1734	968	24.16	0.70	1.60
11	Cwebe Nature Reserve	-32.2	28.93	1900-1939	40	701	1618	1058	20.96	0.36	-0.17
				1940-1979	40	669	1721	1150	20.15	0.46	0.08
				1980-2019	40	589	1723	1073	24.01	0.35	-0.12
12	Sterkstroom	-31.55	26.55	1900-1939	40	2250	647	456	23.14	-0.19	-0.91
				1940-1979	40	195	840	484	26.78	0.65	0.80
				1980-2019	40	227	917	460	33.30	0.93	0.98

No	Station Name	Lat (Deg)	Long (Deg)	period	Years	Rmin	Rmax	Rm	CV (%)	Cs	Ck
13	Engcobo Prison	-31.67	28.0	1900-1939	40	326	1230	803	22.35	-0.47	0.96
				1940-1979	40	397	1298	777	24.28	0.71	0.51
				1980-2019	40	96	1325	763	32.48	0.12	0.51
14	Xhora Prison	-31.97	28.67	1900-1939	40	429	1092	713	20.57	0.35	0.34
				1940-1979	40	430	1425	750	26.38	1.21	2.48
				1980-2019	40	258	1337	718	32.47	0.44	0.30
15	Richmond C/K-Tnk	-31.42	23.95	1900-1939	40	114	533	317	36.65	-0.10	-0.97
				1940-1979	40	123	619	319	37.60	1.12	0.80
				1980-2019	40	115	620	323	35.47	0.68	0.50
16	Ellesmere	-30.67	26.32	1900-1939	40	189	750	431	30.18	0.54	0.24
				1940-1979	40	246	963	512	31.52	0.86	1.09
				1980-2013	34	246	911	490	34.17	0.73	-0.02
17	Burgersdorp-Pol	-31.0	26.33	1900-1939	40	131	755	444	32.74	0.21	-0.23
				1940-1979	40	187	939	433	35.51	1.56	3.20
				1980-2019	40	92	871	422	41.70	0.34	-0.05
18	Petrusville-Pol	-30.08	24.67	1900-1939	40	142	693	350	36.27	0.38	-0.09
				1940-1979	40	145	887	371	38.43	1.45	3.18
				1980-2019	40	171	709	321	39.63	1.30	1.77
19	Philippolis-Pol	-30.27	25.27	1905-1939	35	132	617	366	35.03	0.21	-0.68
				1940-1979	40	102	828	397	40.41	0.73	1.03
				1980-2017	38	90	666	352	42.83	0.49	-0.48
20	Hopetown-Tnk	-29.62	24.08	1909-1939	31	113	514	290	35.69	0.21	-0.84
				1940-1979	40	63	701	288	45.81	0.87	1.47
				1980-2019	40	108	566	307	36.14	0.65	0.25
21	Lillydale	-30	25.95	1906-1939	34	179	657	402	30.31	0.23	-0.62
				1940-1979	40	140	896	424	35.91	1.01	2.13
				1980-2010	31	215	966	448	36.25	1.35	2.32
22	Richmond S.A. P	-29.87	30.27	1916-1939	24	722	1818	1118	25.14	0.94	0.55
				1940-1979	40	679	1701	1035	17.64	1.23	3.98
				1980-2016	37	218	1860	1126	31.46	-0.17	0.47
23	Durban Botanical Gardens	-29.85	31.0	1900-1939	40	0	1667	950	33.19	-0.91	3.06
				1940-1979	40	628	1380	1018	19.37	-0.04	-0.96
				1980-2019	40	447	1424	935	28.27	-0.15	-0.87
24	Steinkopf	-29.25	17.73	1900-1939	40	49	278	131	41.64	0.69	0.26
				1940-1979	40	23	313	141	48.30	0.22	-0.57
				1980-2019	40	7	290	147	44.32	0.04	-0.36
25	Nuwejaarskraal	-29.37	23.12	1901-1939	39	112	445	254	33.39	0.42	-0.16
				1940-1979	40	86	591	228	51.37	1.31	1.84
				1980-2019	40	61	418	202	45.23	0.52	-0.62

No	Station Name	Lat (Deg)	Long (Deg)	period	Years	Rmin	Rmax	Rm	CV (%)	Cs	Ck
26	Maselspoort Dam	-29.03	26.42	1905-1939	35	291	670	499	21.71	-0.20	-1.14
				1940-1979	40	366	1168	571	27.95	1.77	4.15
				1980-2019	40	255	1684	572	44.78	2.32	8.15
27	Boetsap-Pol	-27.97	24.45	1900-1939	40	166	773	444	34.95	0.20	-0.59
				1940-1979	40	240	955	442	37.20	0.89	0.71
				1980-2019	40	87	746	416	38.81	0.42	-0.42
28	Odendaalsrus	-27.87	26.68	1906-1939	34	146	839	467	36.39	0.34	-0.14
				1940-1979	40	303	920	524	24.96	0.50	0.90
				1980-2019	40	164	775	494	31.02	-0.03	-0.40
29	Bothaville-Mun	-27.55	26.62	1905-1939	35	205	970	520	33.40	1.01	0.99
				1940-1979	40	265	968	579	23.75	0.26	1.08
				1980-2019	40	200	1100	585	35.17	0.49	-0.14
30	Beerlaagte	-26.82	28.43	1904-1939	36	256	1095	618	30.47	0.71	0.64
				1940-1979	40	398	886	625	21.97	0.03	-1.11
				1980-2012	33	385	110	647	27.80	0.82	0.63
31	Balfour	-26.65	28.58	1904-1939	36	479	1155	705	27.44	0.92	-0.24
				1939-1979	40	375	1070	690	23.96	0.44	-0.18
				1980-2010	31	301	1021	668	28.35	-0.03	-0.54
32	De Emigratie	-26.77	30.12	1907-1939	33	421	1157	736	23.97	0.58	0.05
				1940-1979	40	487	1022	721	15.97	0.34	-0.15
				1980-2012	33	335	1268	715	26.33	0.74	1.74
33	Morokweng	-26.12	23.78	1911-1939	29	112	542	284	34.82	0.39	0.24
				1940-1979	40	192	701	370	32.88	0.81	0.39
				1980-2010	31	93	588	280	48.38	0.83	0.38
34	Ottoshoop-Pol	-25.75	25.97	1904-1939	36	324	895	539	26.14	0.62	0.14
				1940-1979	40	232	997	553	30.11	0.72	0.53
				1980-2012	33	241	889	563	29.85	0.00	-0.89
35	Swartruggens-Pol	-25.63	26.68	1906-1939	34	317	1010	541	29.31	0.97	0.92
				1940-1979	40	191	1010	642	29.74	-0.11	-0.09
				1980-2019	40	264	915	583	28.17	-0.05	-0.71
36	Premier Mine-Cullinan	-25.67	28.52	1904-1939	36	351	1091	660	29.63	0.32	-0.77
				1940-1979	40	476	1168	706	21.30	1.03	1.25
				1980-2008	29	269	1068	715	26.40	-0.28	-0.11
37	Bronkhorstspruit - Mun	-25.8	28.73	1907-1939	33	314	1106	662	29.08	0.36	-0.17
				1940-1979	40	256	970	657	22.89	0.08	0.66
				1980-2010	31	295	1038	664	26.03	0.24	-0.36
38	Machadodorp	-25.67	30.25	1904-1939	36	409	1165	797	21.28	-0.45	0.17
				1940-1979	40	72	1114	757	25.25	-1.09	3.19
				1980-2019	40	498	1136	785	19.36	0.35	-0.24

No	Station Name	Lat (Deg)	Long (Deg)	period	Years	Rmin	Rmax	Rm	CV (%)	Cs	Ck
39	Naboomspruit-Pol	-24.52	28.72	1904-1939	36	178	867	587	24.75	-0.54	0.74
				1940-1979	40	346	933	629	21.99	-0.07	0.01
				1980-2019	40	149	1026	612	31.55	0.16	-0.04
40	Haenertsburg	-23.93	29.93	1904-1939	36	388	1694	947	34.75	0.24	-0.60
				1940-1979	40	277	1489	815	33.14	0.44	0.11
				1980-2019	40	344	1722	801	35.93	1.04	2.23
41	Prince Albert-Tnk	-33.22	22.03	1900-1939	40	57	353	166	43.44	0.51	0.06
				1940-1979	40	58	327	164	38.15	0.75	0.22
				1980-2019	40	43	347	183	36.90	0.45	0.21
42	Plettenbergbaai-Pol	-34.05	23.37	1900-1939	40	358	995	622	25.00	0.48	-0.12
				1940-1979	40	377	1030	661	20.93	0.24	0.14
				1980-2011	32	391	1188	689	28.00	0.81	0.32
43	Tulbagh	-33.28	19.13	1900-1939	40	306	720	466	21.75	0.51	-0.21
				1940-1979	40	265	765	485	28.10	0.33	-0.84
				1980-2019	40	277	817	522	23.36	0.10	-0.15
44	Darling-The Towers	-33.38	18.37	1900-1939	40	311	728	452	22.57	0.83	0.12
				1940-1979	40	326	746	492	24.28	0.43	-0.70
				1980-2013	34	309	711	518	17.27	-0.09	-0.05
45	Thornlea	-28.63	21.52	1900-1939	40	19	460	182	49.31	0.72	1.04
				1940-1979	40	49	568	216	51.64	1.14	1.98
				1980-2019	40	38	343	179	47.10	0.32	-0.56
46	Klein Australie	-23.05	30.22	1904-1939	36	506	2035	1286	30.34	0.17	-0.71
				1940-1979	40	487	2146	487	34.89	0.55	0.44
				1980-2019	40	502	3248	1157	41.95	2.03	7.94

Table C2: Mean monthly rainfall for South Africa for the period 1900-2019.

No	Station Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Humansdorp	45	47	56	59	57	52	55	65	63	72	61	47
2	Steytlerville-Mag	23	29	37	24	15	9	10	12	16	21	24	24
3	Alicedale-Mun	34	43	54	35	34	22	24	24	36	43	48	38
4	Grahamstown-Tnk	75	51	42	35	34	41	58	77	78	62	53	71
5	Klipfontein	27	34	38	24	17	9	9	12	16	22	27	27
6	Amatola State Forest	120	126	120	72	47	38	36	49	73	108	123	117
7	Winterhoek	34	47	50	32	22	15	18	21	24	34	37	38
8	Bloemhof	37	48	50	28	20	11	13	15	15	25	31	33
9	Exwell Park	63	70	66	34	15	9	9	11	21	36	45	55
10	Kentani-Bos	119	111	120	76	42	29	34	38	78	112	117	113
11	Cwebe Nature Reserve	124	108	136	104	53	35	47	45	92	112	123	115
12	Sterkstroom	66	78	66	35	21	12	10	14	23	36	48	59

No	Station Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
13	Engcobo Prison	106	107	110	51	27	15	19	22	48	72	96	109
14	Xhora Prison	88	83	91	56	30	21	25	25	54	76	93	84
15	Richmond C/K-Tnk	36	48	55	36	23	12	10	11	14	20	25	31
16	Ellesmere	66	76	70	46	25	12	10	14	22	34	47	55
17	Burgersdorp-Pol	57	68	68	39	21	13	11	14	22	33	40	48
18	Petrusville-Pol	42	55	59	39	19	8	8	11	14	26	30	36
19	Philippolis-Pol	46	62	64	38	22	8	8	11	16	27	34	37
20	Hopetown-Tnk	39	48	51	32	15	7	6	8	9	20	29	30
21	Lillydale	57	69	61	41	22	11	9	14	19	31	44	48
22	Richmond S.A. P	162	136	139	66	36	20	25	36	64	109	138	157
23	Durban Botanical Gardens	121	113	115	75	51	32	33	38	62	99	113	116
24	Steinkopf	4	5	8	12	18	25	22	20	10	7	5	5
25	Nuwejaarskraal	30	44	45	26	12	4	4	4	5	13	18	23
26	Maselspoort Dam	88	87	79	50	21	10	9	12	19	45	66	65
27	Boetsap-Pol	80	72	76	39	14	6	4	7	11	25	40	57
28	Odendaalsrus	76	70	70	41	19	8	7	9	16	47	69	65
29	Bothaville-Mun	94	84	75	45	19	7	6	9	16	55	72	82
30	Beerlaagte	112	82	68	36	16	6	6	9	21	66	99	106
31	Balfour	118	94	74	39	19	7	7	9	22	75	110	115
32	De Emigratie	126	86	75	40	17	8	9	11	27	84	118	123
33	Morokweng	56	50	55	30	11	6	3	3	8	21	30	44
34	Ottoshoop-Pol	100	85	82	41	15	6	3	4	14	41	67	92
35	Swartruggens-Pol	112	91	80	47	16	8	5	6	16	42	77	93
36	Premier Mine-Cullinan	125	92	84	42	20	7	6	7	16	68	110	117
37	Bronkhorstspuit-Mun	127	91	78	40	16	7	5	7	17	67	105	101
38	Machadodorp	136	107	81	47	16	7	8	8	28	77	125	144
39	Naboomspruit-Pol	115	96	69	39	11	6	4	4	13	46	95	114
40	Haenertsburg	171	144	112	48	22	10	13	10	21	58	108	135
41	Prince Albert-Tnk	14	18	25	18	16	13	10	10	9	11	16	12
42	Plettenbergbaai-Pol	41	44	50	51	63	51	55	68	62	63	60	47
43	Tulbagh	12	12	18	39	64	86	75	71	44	34	22	14
44	Darling-The Towers	11	11	15	35	66	85	79	74	48	29	21	12
45	Thornlea	28	33	40	24	12	4	3	3	3	10	15	18
46	Klein Australie	249	221	164	63	29	20	22	17	33	69	120	180
Mean Monthly rainfall (mm)		79	73	70	43	26	18	18	21	30	50	65	71
Coefficient of variation (CV %)		63.4	53.5	46.2	38.5	57.5	102.0	102.9	97.3	75.8	58.1	58.7	61.6
Skewness (Cs)		0.9	1.1	0.7	1.4	1.5	2.4	1.8	1.6	1.2	0.7	0.3	0.5
Kurtosis (Ck)		1.4	3.0	0.8	3.2	1.1	5.9	2.5	1.6	0.4	-0.4	-1.3	-0.7

Table C3: Mean seasonal rainfall characteristics of South Africa for the period 1900-2019.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Summer	Autumn	Winter	Spring
1	Humansdorp	-34.03	24.77	152	139	171	172	196
2	Steytlerville-Mag	-33.33	24.33	419	76	76	31	61
3	Alicedale-Mun	-33.32	26.08	276	115	122	70	126
4	Grahamstown-Tnk	-33.3	26.53	539	197	112	176	192
5	Klipfontein	-32.55	24.72	673	88	78	31	65
6	Amatola State Forest	-32.67	27.28	884	364	239	123	304
7	Winterhoek	-32.22	24.47	876	119	104	54	95
8	Bloemhof	-32.03	24.67	1,091	117	98	39	70
9	Exwell Park	-32.2	27.12	914	188	115	28	102
10	Kentani-Bos	-32.5	28.32	488	342	239	101	307
11	Cwebe Nature Reserve	-32.2	28.93	61	347	294	126	327
12	Sterkstroom	-31.55	26.55	1,343	203	121	36	106
13	Engcobo Prison	-31.67	28	975	322	188	55	216
14	Xhora Prison	-31.97	28.67	671	255	177	71	224
15	Richmond C/K-Tnk	-31.42	23.95	1,433	115	113	34	58
16	Ellesmere	-30.67	26.32	1,387	196	142	36	103
17	Burgersdorp-Pol	-31	26.33	1,387	173	128	37	95
18	Petrusville-Pol	-30.08	24.67	1,212	133	117	27	71
19	Philippolis-Pol	-30.27	25.27	1,372	144	124	27	77
20	Hopetown-Tnk	-29.62	24.08	1,661	118	99	21	58
21	Lillydale	-30	25.95	1,098	174	123	33	94
22	Richmond S.A. P	-29.87	30.27	1,509	455	241	81	311
23	Durban Botanical Gardens	-29.85	31	91	350	241	103	274
24	Steinkopf	-29.25	17.73	91	14	38	66	22
25	Nuwejaarskraal	-29.37	23.12	884	97	83	12	36
26	Maselspoort Dam	-29.03	26.42	1,372	240	150	30	129
27	Boetsap-Pol	-27.97	24.45	1,189	210	130	17	76
28	Odendaalsrus	-27.87	26.68	1,341	211	130	24	132
29	Bothaville-Mun	-27.55	26.62	1,280	260	139	22	143
30	Beerlaagte	-26.82	28.43	1,615	301	121	21	186
31	Balfour	-26.65	28.58	1,555	327	132	24	207
32	De Emigratie	-26.77	30.12	1,676	336	131	28	229
33	Morokweng	-26.12	23.78	1,126	150	96	11	60
34	Ottoshoop-Pol	-25.75	25.97	1,433	277	139	13	122
35	Swartruggens-Pol	-25.63	26.68	1,311	296	142	18	135
36	Premier Mine-Cullinan	-25.67	28.52	1,375	333	146	20	194
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	320	134	19	189
38	Machadodorp	-25.67	30.25	1,609	383	143	23	229
39	Naboomspruit-Pol	-24.52	28.72	1,113	324	119	14	154

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Summer	Autumn	Winter	Spring
40	Haenertsburg	-23.93	29.93	1,402	450	182	33	186
41	Prince Albert-Tnk	-33.22	22.03	686	43	59	33	36
42	Plettenbergbaai-Pol	-34.05	23.37	73	132	164	173	185
43	Tulbagh	-33.28	19.13	155	38	121	232	101
44	Darling -The Towers	-33.38	18.37	229	34	116	238	97
45	Thornlea	-28.63	21.52	884	78	75	10	28
46	Klein Australie	-23.05	30.22	702	650	256	60	222

Appendix D: Trend Analysis Tables and Figures

Table D1: Results for daily Mann-Kendall Trend test.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall		Seasonal Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.000	0.000	0.785	0.000	0.000	0.000
2	Steytlerville-Mag	-33.33	24.33	419	0.000	0.000	0.952	0.000	0.001	0.000
3	Alicedale-Mun	-33.32	26.08	276	0.185	0.000	0.986	0.000	0.486	0.000
4	Grahamstown-Tnk	-33.3	26.53	539	0.000	0.000	0.892	0.000	0.000	0.000
5	Klipfontein	-32.55	24.72	673	0.233	0.000	0.989	0.000	0.320	0.000
6	Amatola State Forest	-32.67	27.28	884	0.000	0.000	0.726	0.000	0.000	0.000
7	Winterhoek	-32.22	24.47	876	0.000	0.000	0.863	0.000	0.000	0.000
8	Bloemhof	-32.03	24.67	1,091	0.001	0.000	0.966	0.000	0.016	0.000
9	Exwell Park	-32.2	27.12	914	0.998	0.000	1.000	0.000	0.827	0.000
10	Kentani-Bos	-32.5	28.32	488	0.000	0.000	0.900	0.000	0.000	0.000
11	Cwebe Nature Reserve	-32.2	28.93	61	0.000	0.000	0.836	0.000	0.000	0.000
12	Sterkstroom	-31.55	26.55	1,343	0.000	0.000	0.957	0.000	0.011	0.000
13	Engcobo Prison	-31.67	28.0	975	0.006	0.000	0.964	0.000	0.212	0.000
14	Xhora Prison	-31.97	28.67	671	0.000	0.000	0.939	0.000	0.006	0.000
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.012	0.000	0.976	0.000	0.135	0.000
16	Ellesmere	-30.67	26.32	1,387	0.041	0.000	0.977	0.000	0.218	0.000
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.000	0.000	0.931	0.000	0.000	0.000
18	Petrusville-Pol	-30.08	24.67	1,212	0.149	0.000	0.986	0.000	0.000	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.000	0.000	0.949	0.000	0.000	0.000
20	Hopetown-Tnk	-29.62	24.08	1,661	0.000	0.000	0.900	0.000	0.000	0.000
21	Lillydale	-30.0	25.95	1,098	0.980	0.000	1.000	0.000	0.000	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.000	0.000	0.875	0.000	0.000	0.000
23	Durban Botanical Gardens	-29.85	31.0	91	0.000	0.000	0.932	0.000	0.018	0.000
24	Steinkopf	-29.25	17.73	91	0.000	0.000	0.923	0.000	0.000	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.000	0.000	0.892	0.000	0.000	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.000	0.000	0.924	0.000	0.001	0.000
27	Boetsap-Pol	-27.97	24.45	1,189	0.000	0.000	0.926	0.000	0.000	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.149	0.000	0.985	0.000	0.000	0.000
29	Bothaville-Mun	-27.55	26.62	1,280	0.000	0.000	0.946	0.000	0.000	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.000	0.000	0.950	0.000	0.000	0.000
31	Balfour	-26.65	28.58	1,555	0.000	0.000	0.85	0.000	0.000	0.000
32	De Emigratie	-26.77	30.12	1,676	0.386	0.000	0.988	0.000	0.639	0.000
33	Morokweng	-26.12	23.78	1,126	0.000	0.000	0.881	0.000	0.000	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.000	0.000	0.930	0.000	0.000	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.000	0.000	0.848	0.000	0.000	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall		Seasonal Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope	P	Sen' Slope
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.000	0.000	0.937	0.000	0.000	0.000
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.000	0.000	0.850	0.000	0.000	0.000
38	Machadodorp	-25.67	30.25	1,609	0.000	0.000	0.726	0.000	0.000	0.000
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.000	0.000	0.954	0.000	0.000	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.129	0.000	0.981	0.000	0.000	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.000	0.000	0.882	0.000	0.000	0.000
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.544	0.000	0.933	0.000	0.791	0.000
43	Tulbagh	-33.28	19.13	155	0.000	0.000	0.938	0.000	0.000	0.000
44	Darling-The Towers	-33.38	18.37	229	0.571	0.000	0.993	0.000	0.684	0.000
45	Thornlea	-28.63	21.52	884	0.031	0.000	0.989	0.000	0.000	0.000
46	Klein Australie	-23.05	30.22	702	0.000	0.000	0.869	0.000	0.000	0.000

Table D2: January Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.750	-0.024	0.795	-0.024
2	Steytlerville-Mag	-33.33	24.33	419	0.003	0.144	0.003	0.144
3	Alicedale-Mun	-33.32	26.08	276	0.235	0.086	0.217	0.086
4	Grahamstown-Tnk	-33.3	26.53	539	0.034	-0.228	0.010	-0.228
5	Klipfontein	-32.55	24.72	673	0.045	0.102	0.046	0.102
6	Amatola State Forest	-32.67	27.28	884	0.495	0.115	0.446	0.115
7	Winterhoek	-32.22	24.47	876	0.422	0.046	0.423	0.046
8	Bloemhof	-32.03	24.67	1,091	0.002	0.223	0.002	0.223
9	Exwell Park	-32.2	27.12	914	0.926	0.008	0.928	0.008
10	Kentani-Bos	-32.5	28.32	488	0.281	0.152	0.358	0.152
11	Cwebe Nature Reserve	-32.2	28.93	61	0.936	0.006	0.944	0.006
12	Sterkstroom	-31.55	26.55	1,343	0.166	0.146	0.167	0.146
13	Engcobo Prison	-31.67	28.0	975	0.518	-0.108	0.519	-0.108
14	Xhora Prison	-31.97	28.67	671	0.384	-0.980	0.484	0.098
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.014	0.173	0.001	0.173
16	Ellesmere	-30.67	26.32	1,387	0.320	0.114	0.019	0.114
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.569	-0.056	0.362	-0.056
18	Petrusville-Pol	-30.08	24.67	1,212	0.749	-0.020	0.682	-0.020
19	Philippolis-Pol	-30.27	25.27	1,372	0.446	-0.068	1.000	-0.068
20	Hopetown-Tnk	-29.62	24.08	1,661	0.395	0.008	0.466	0.078
21	Lillydale	-30.0	25.95	1,098	0.222	0.146	0.125	0.146
22	Richmond S.A. P	-29.87	30.27	1,509	0.435	0.218	0.303	0.218

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
23	Durban Botanical Gardens	-29.85	31.0	91	0.648	0.083	0.650	0.083
24	Steinkopf	-29.25	17.73	91	0.204	0.000	0.175	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.870	0.000	0.872	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.620	0.068	0.564	0.068
27	Boetsap-Pol	-27.97	24.45	1,189	0.468	0.125	0.498	0.125
28	Odendaalsrus	-27.87	26.68	1,341	0.713	-0.049	0.715	-0.049
29	Bothaville-Mun	-27.55	26.62	1,280	0.124	0.227	0.146	0.227
30	Beerlaagte	-26.82	28.43	1,615	0.042	0.350	0.043	0.350
31	Balfour	-26.65	28.58	1,555	0.445	0.142	0.446	0.142
32	De Emigratie	-26.77	30.12	1,676	0.933	0.023	0.935	0.023
33	Morokweng	-26.12	23.78	1,126	0.745	0.027	0.761	0.027
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.02	0.384	0.002	0.384
35	Swartruggens-Pol	-25.63	26.68	1,311	0.056	0.333	0.056	0.333
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.792	-0.052	0.795	-0.050
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.314	0.160	0.190	0.160
38	Machadodorp	-25.67	30.25	1,609	0.507	-0.113	0.433	-0.113
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.334	-0.189	0.201	-0.189
40	Haenertsburg	-23.93	29.93	1,402	0.215	-0.304	0.124	-0.304
41	Prince Albert-Tnk	-33.22	22.03	686	0.250	0.000	0.132	0.000
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.531	0.053	0.533	0.053
43	Tulbagh	-33.28	19.13	155	0.201	-0.006	0.021	-0.006
44	Darling-The Towers	-33.38	18.37	229	0.727	0.000	0.526	0.000
45	Thornlea	-28.63	21.52	884	0.085	0.005	0.055	0.005
46	Klein Australie	-23.05	30.22	702	0.346	-0.406	0.131	-0.406

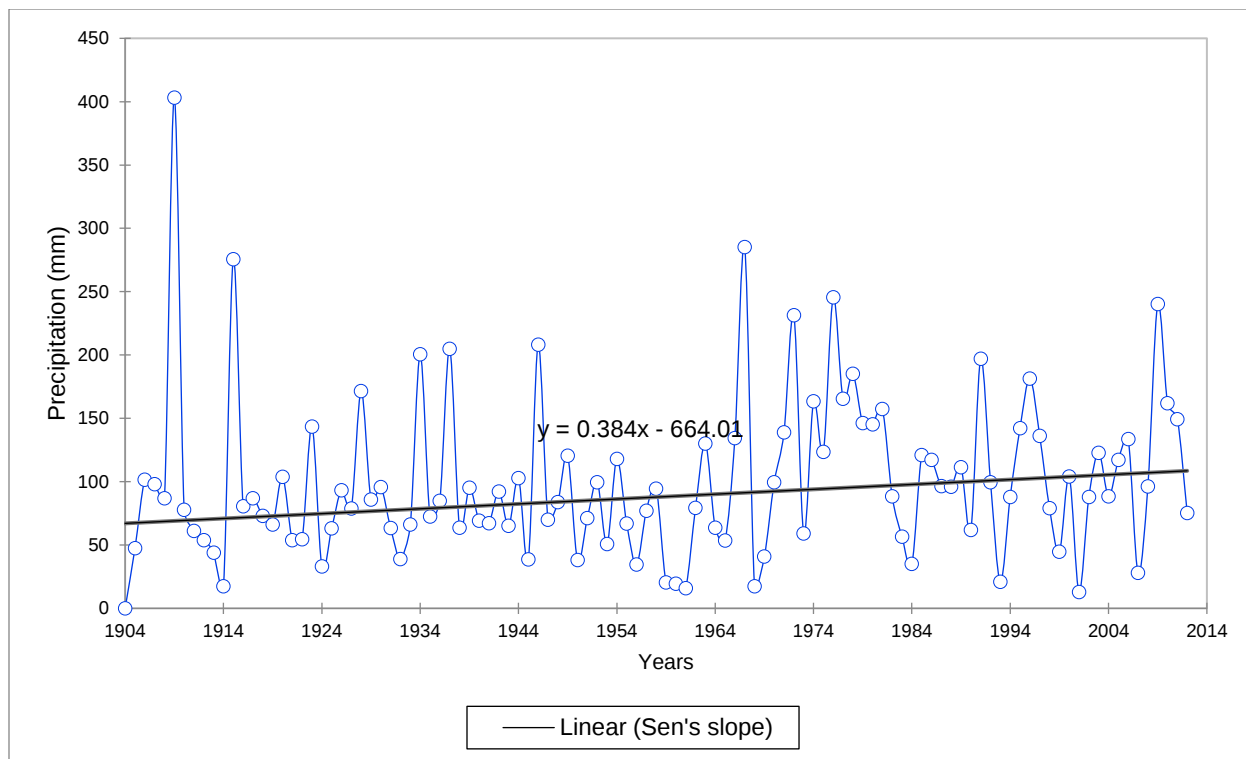


Figure D-1: January trend plot for Ottoshop-Pol station.

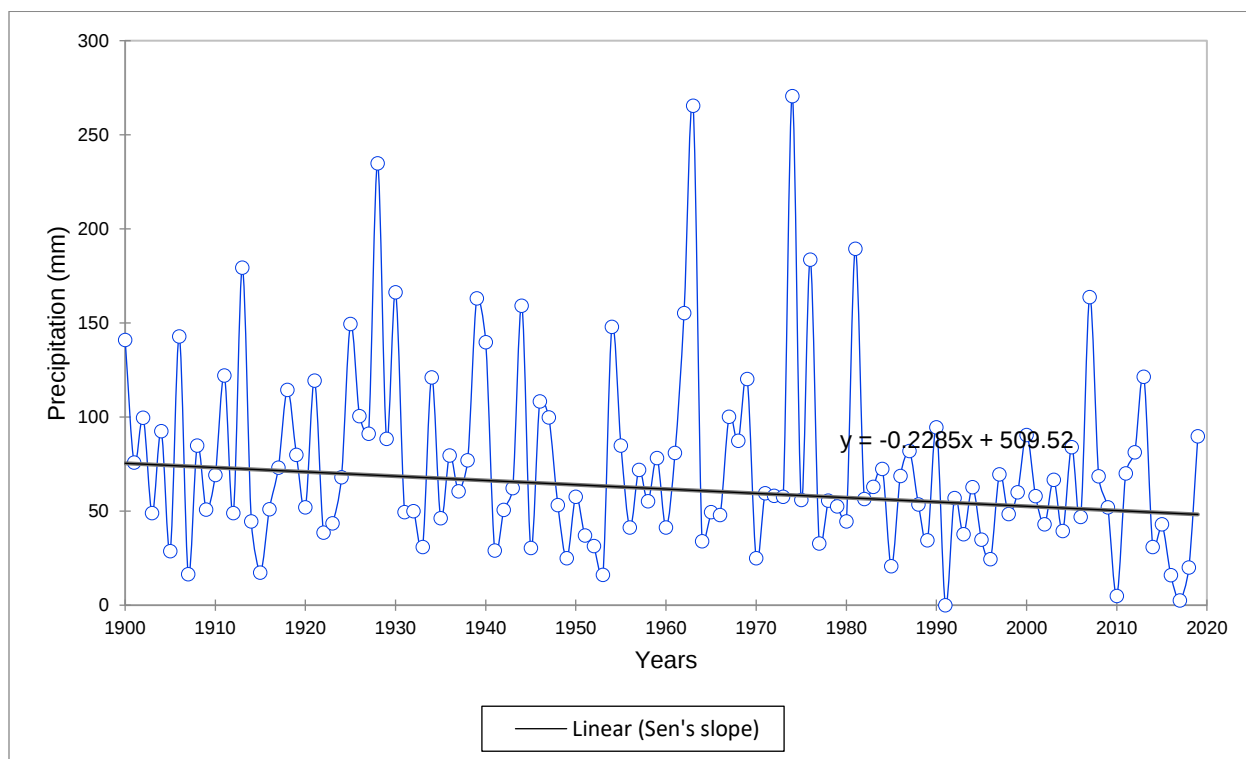


Figure D-2: January trend plot for Grahamstown-TNK station.

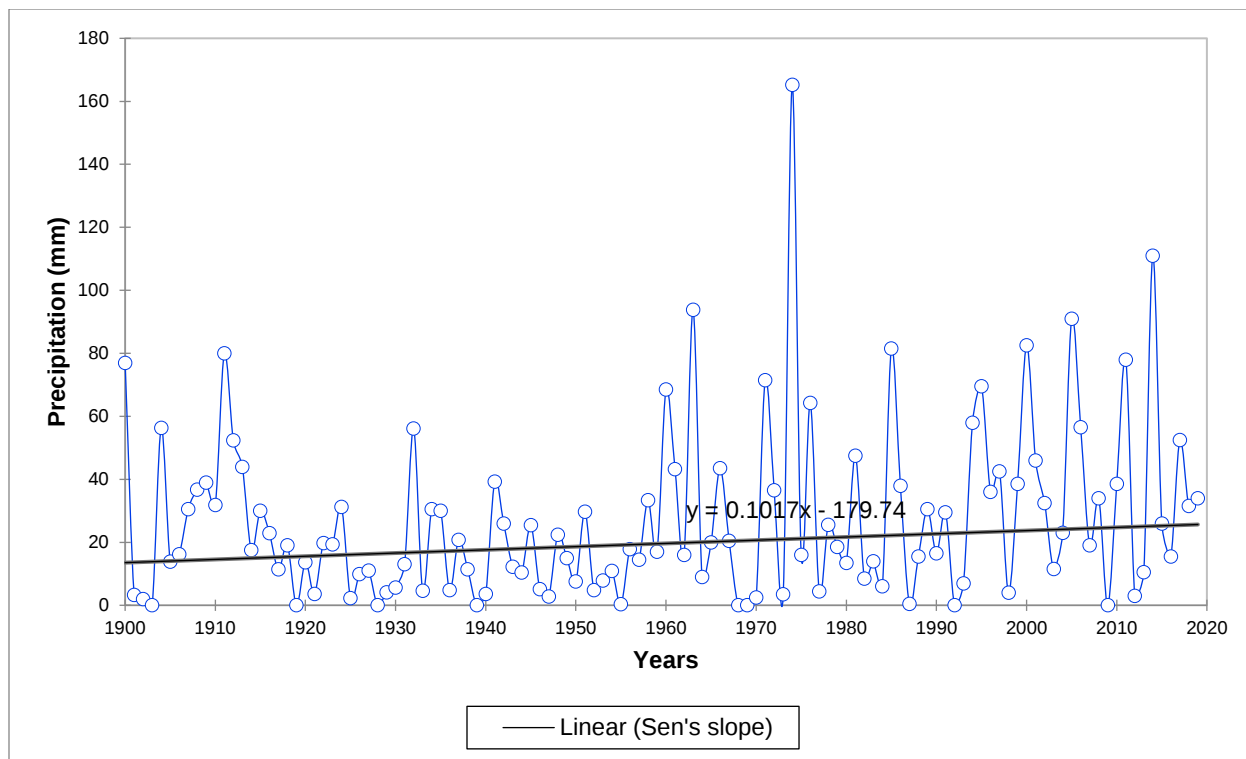


Figure D-3: January trend plot for Klipfontein station.

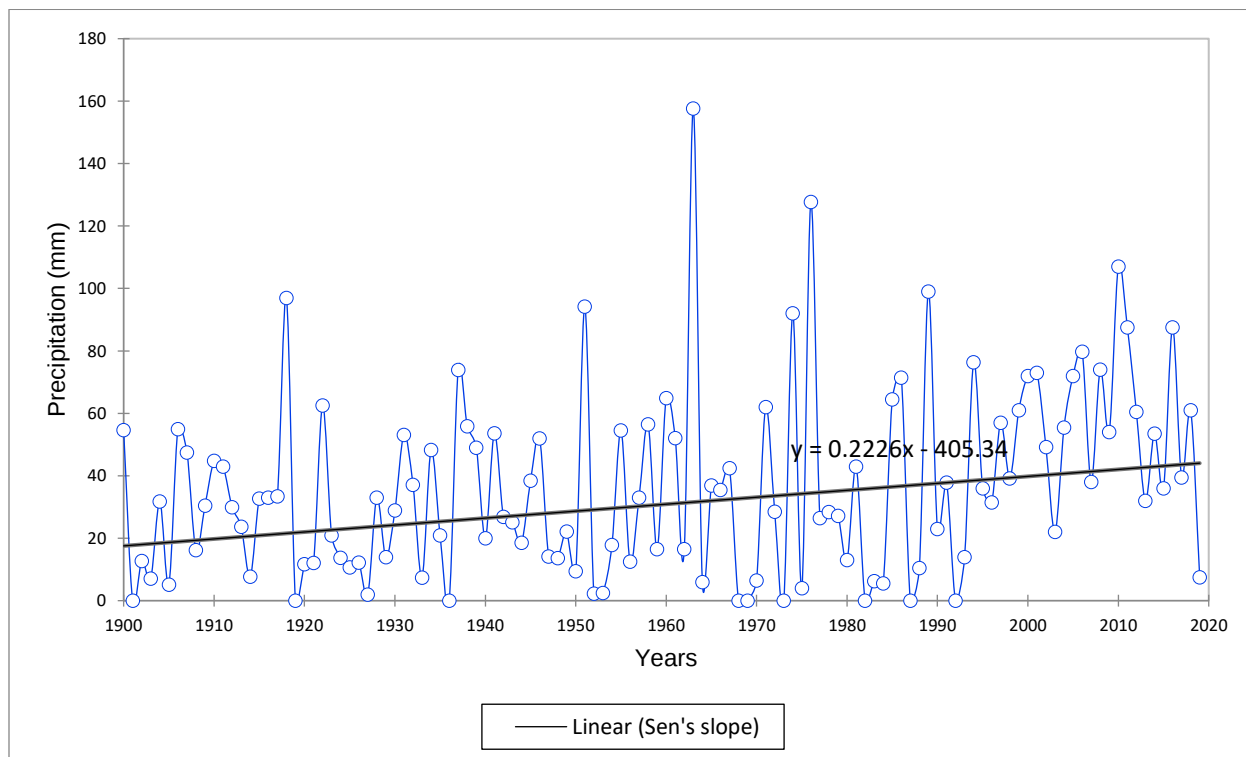


Figure D-4: January trend plot for Bloemhof station.

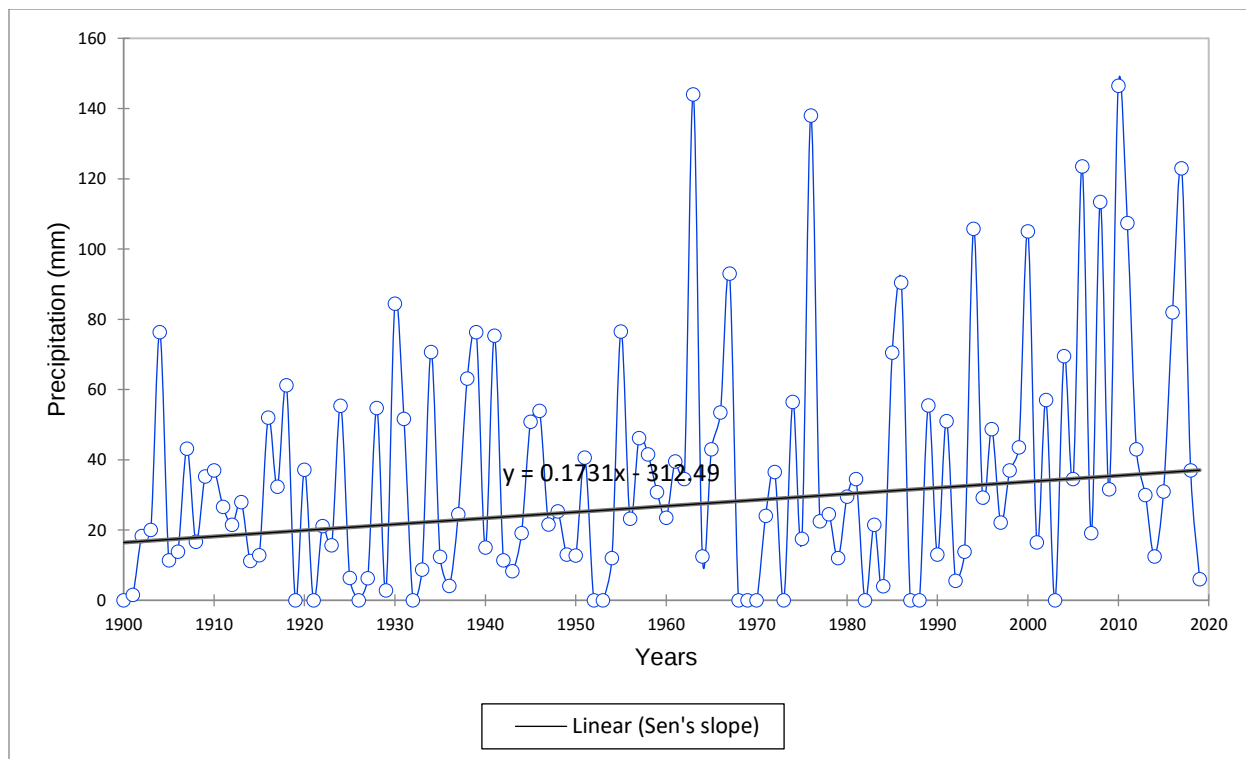


Figure D-5: January trend plot for Richmond C K TNK station.

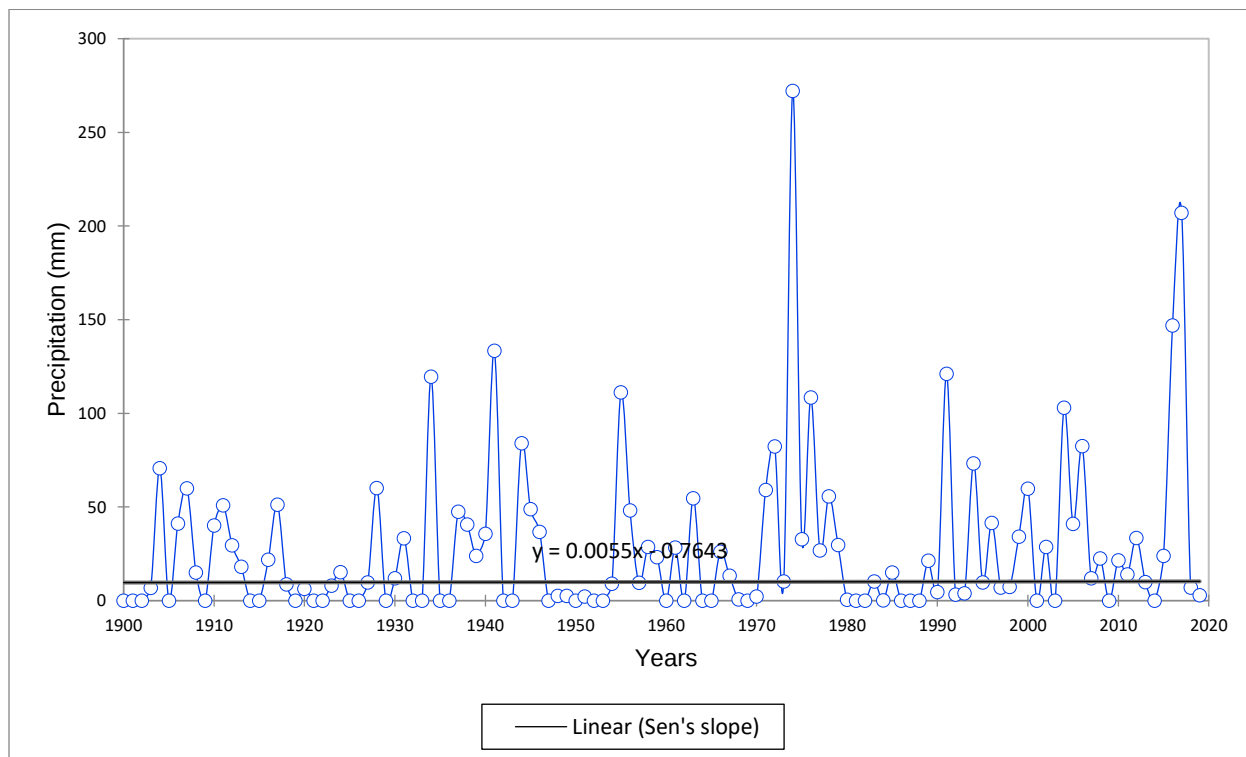


Figure D-6: January trend plot for Thrornlea station.

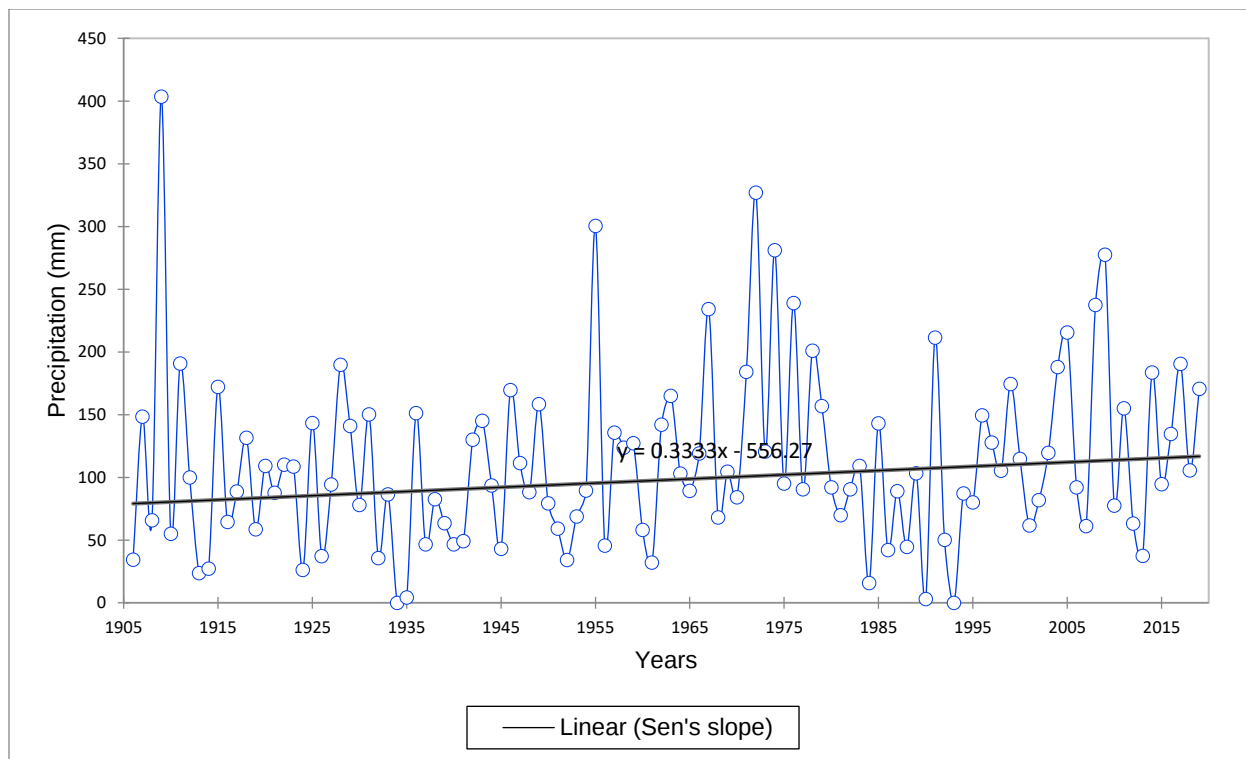


Figure D-7: January trend plot for Swaruggens-POL station.

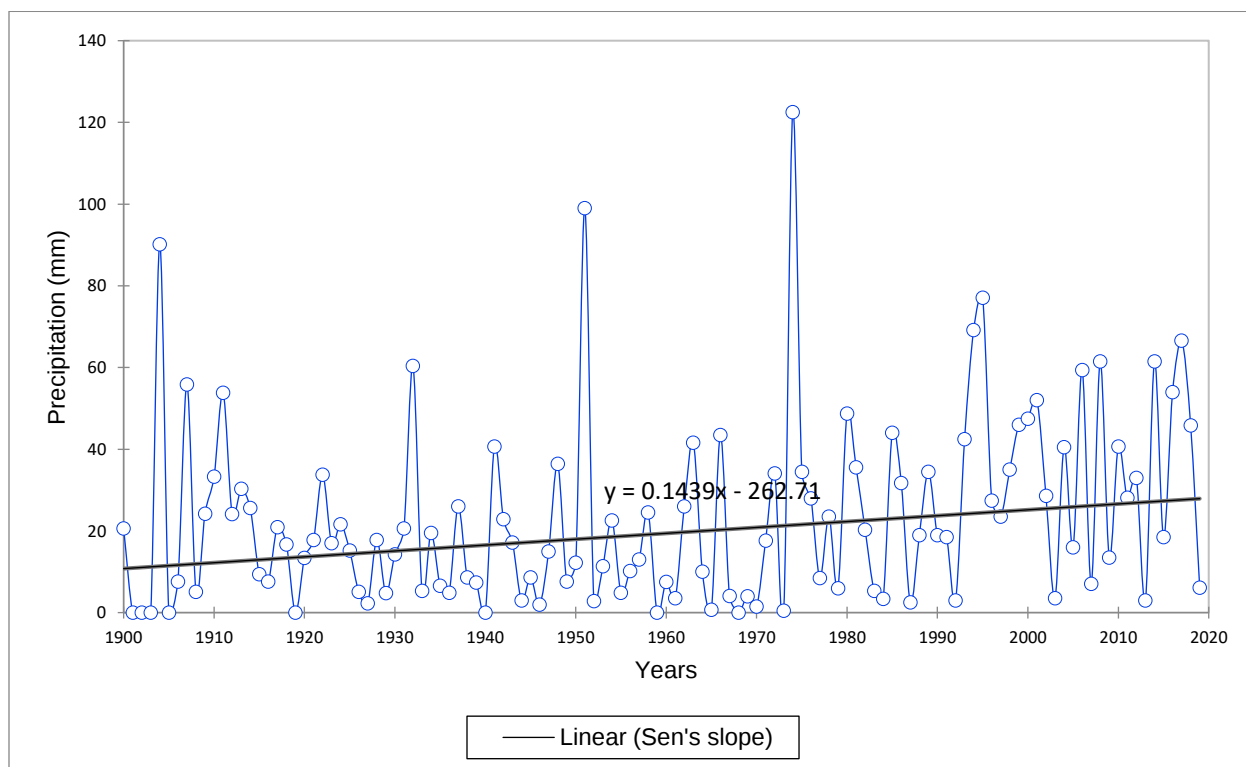


Figure D-8: January trend plot for Steytleville-Mag station.

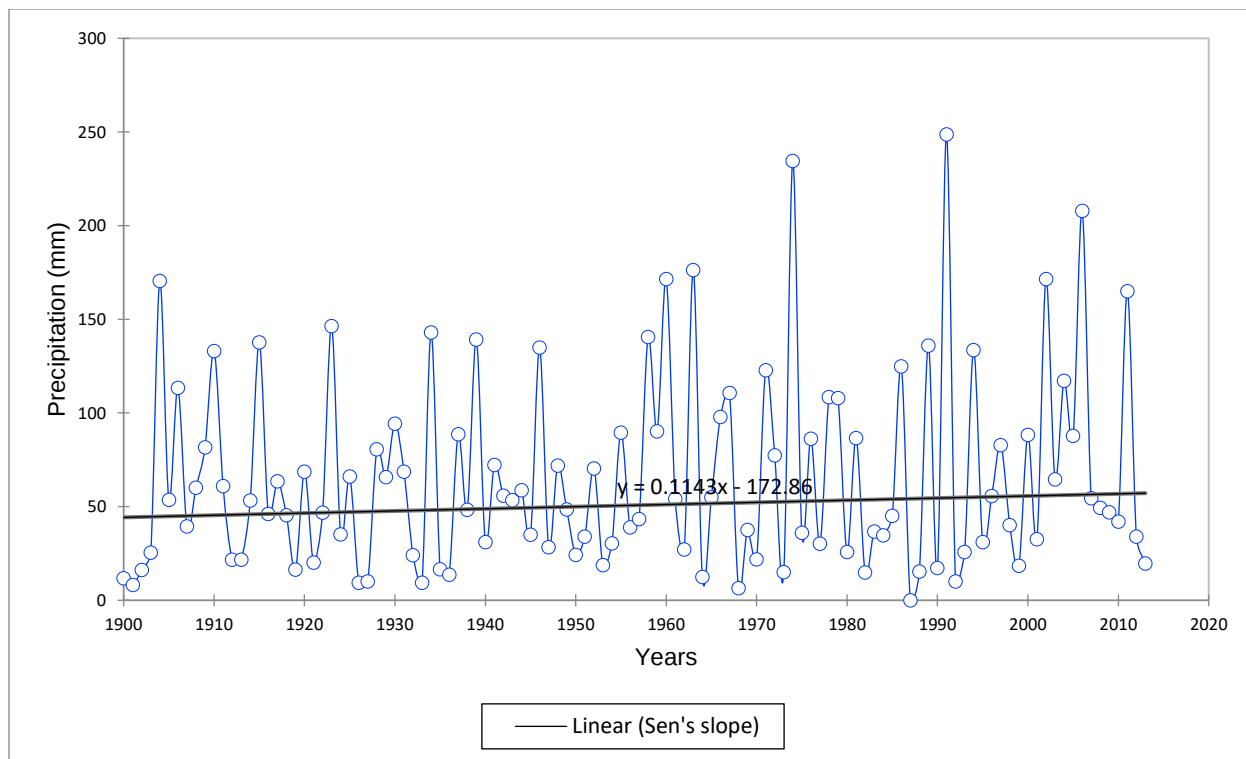


Figure D-9: January trend plot for Ellesmere station.

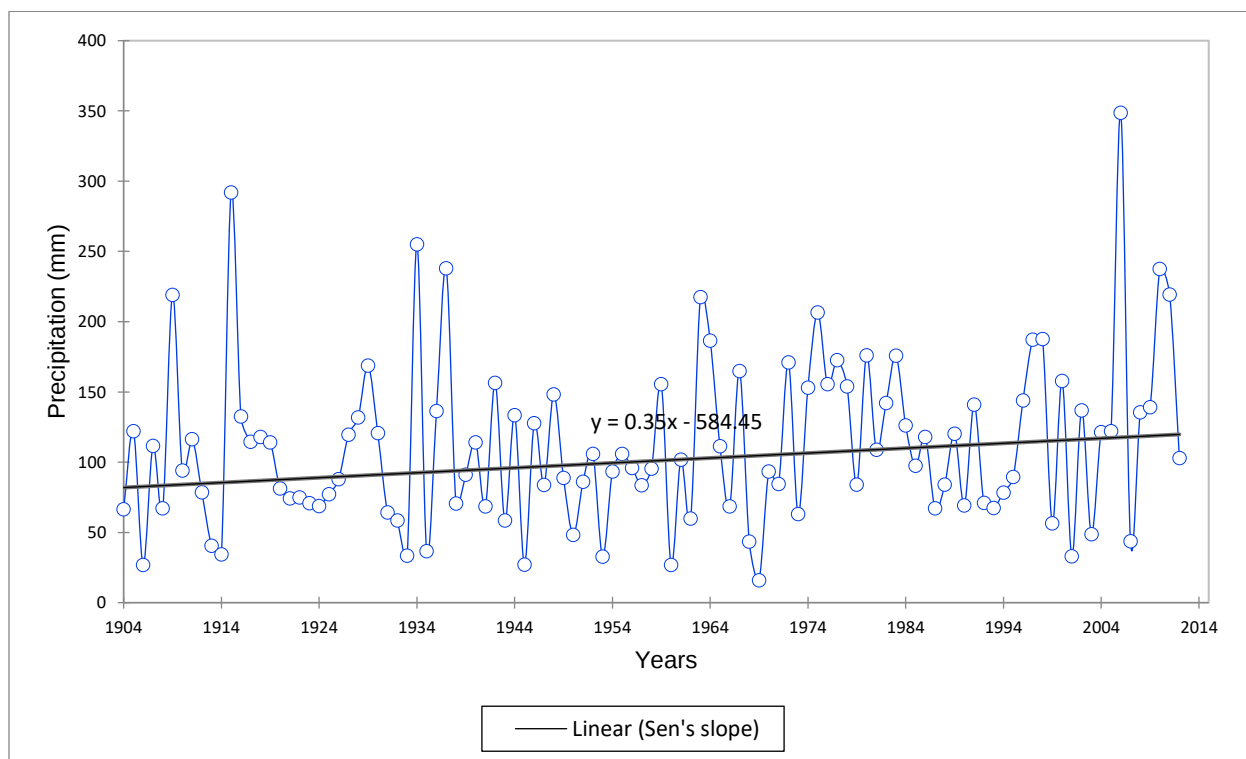


Figure D-10: January trend plot for Beerlaagte station.

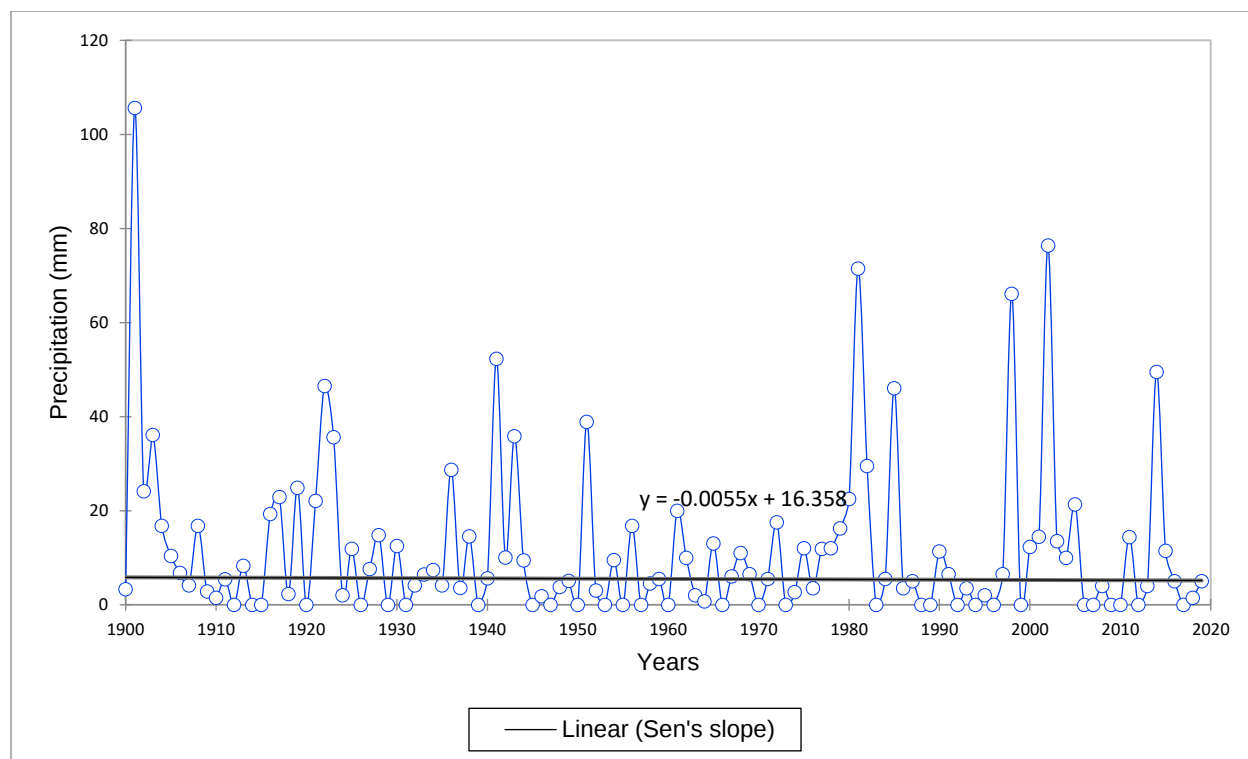


Figure D-11: January trend plot for Tulbagh station.

Table D3: February Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	February			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.803	-0.017	0.751	-0.017
2	Steytlerville-Mag	-33.33	24.33	419	0.221	0.067	0.169	0.067
3	Alicedale-Mun	-33.32	26.08	276	0.654	0.035	0.656	0.035
4	Grahamstown-Tnk	-33.3	26.53	539	0.863	0.018	0.881	0.018
5	Klipfontein	-32.55	24.72	673	0.564	0.027	0.566	0.027
6	Amatola State Forest	-32.67	27.28	884	0.751	-0.044	0.636	-0.044
7	Winterhoek	-32.22	24.47	876	0.537	-0.048	0.539	-0.048
8	Bloemhof	-32.03	24.67	1,091	0.430	0.064	0.431	0.064
9	Exwell Park	-32.2	27.12	914	0.164	0.157	0.164	0.157
10	Kentani-Bos	-32.5	28.32	488	0.662	0.062	0.690	0.062
11	Cwebe Nature Reserve	-32.2	28.93	61	0.071	-0.262	0.065	-0.262
12	Sterkstroom	-31.55	26.55	1,343	0.686	-0.050	0.742	-0.050
13	Engcobo Prison	-31.67	28	975	0.201	-0.190	0.214	-0.190
14	Xhora Prison	-31.97	28.67	671	0.356	-0.106	0.196	-0.107
15	Richmond C/K -Tnk	-31.42	23.95	1,433	0.982	0.000	0.992	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					p	Sen' Slope	p	Sen' Slope
16	Ellesmere	-30.67	26.32	1,387	0.906	-0.014	0.908	-0.014
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.858	0.026	0.875	0.025
18	Petrusville-Pol	-30.08	24.67	1,212	0.191	0.133	0.091	0.133
19	Philippolis-Pol	-30.27	25.27	1,372	0.409	0.095	0.194	0.095
20	Hopetown-Tnk	-29.62	24.08	1,661	0.601	0.061	0.545	0.061
21	Lillydale	-30	25.95	1,098	0.181	0.208	0.182	0.208
22	Richmond S.A. P	-29.87	30.27	1,509	0.034	-0.446	0.034	-0.446
23	Durban Botanical Gardens	-29.85	31.0	91	0.253	-0.172	0.083	-0.172
24	Steinkopf	-29.25	17.73	91	0.136	0.000	0.200	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.353	-0.066	0.274	-0.066
26	Maselspoort Dam	-29.03	26.42	1,372	0.309	0.142	0.001	0.142
27	Boetsap-Pol	-27.97	24.45	1,189	0.248	-0.170	0.106	-0.170
28	Odendaalsrus	-27.87	26.68	1,341	0.473	-0.098	0.315	-0.098
29	Bothaville-Mun	-27.55	26.62	1,280	0.371	-0.110	0.364	-0.110
30	Beerlaagte	-26.82	28.43	1,615	0.777	-0.036	0.661	-0.036
31	Balfour	-26.65	28.58	1,555	0.136	-0.255	0.123	-0.255
32	De Emigratie	-26.77	30.12	1,676	0.922	-0.018	0.924	-0.018
33	Morokweng	-26.12	23.78	1,126	0.057	-0.244	0.058	-0.244
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.509	-0.109	0.412	-0.109
35	Swartruggens-Pol	-25.63	26.68	1,311	0.875	-0.022	0.859	-0.022
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.949	-0.007	0.951	-0.007
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.141	-0.247	0.141	-0.247
38	Machadodorp	-25.67	30.25	1,609	0.866	-0.024	0.868	-0.024
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.828	-0.031	0.836	-0.031
40	Haenertsburg	-23.93	29.93	1,402	0.260	-0.254	0.240	-0.254
41	Prince Albert-Tnk	-33.22	22.03	686	0.457	-0.007	0.508	-0.007
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.304	-0.083	0.241	-0.083
43	Tulbagh	-33.28	19.13	155	0.675	0.000	0.701	0.000
44	Darling-The Towers	-33.38	18.37	229	0.373	0.010	0.480	0.010
45	Thornlea	-28.63	21.52	884	0.766	0.007	0.678	0.007
46	Klein Australie	-23.05	30.22	702	0.613	-0.207	0.551	-0.207

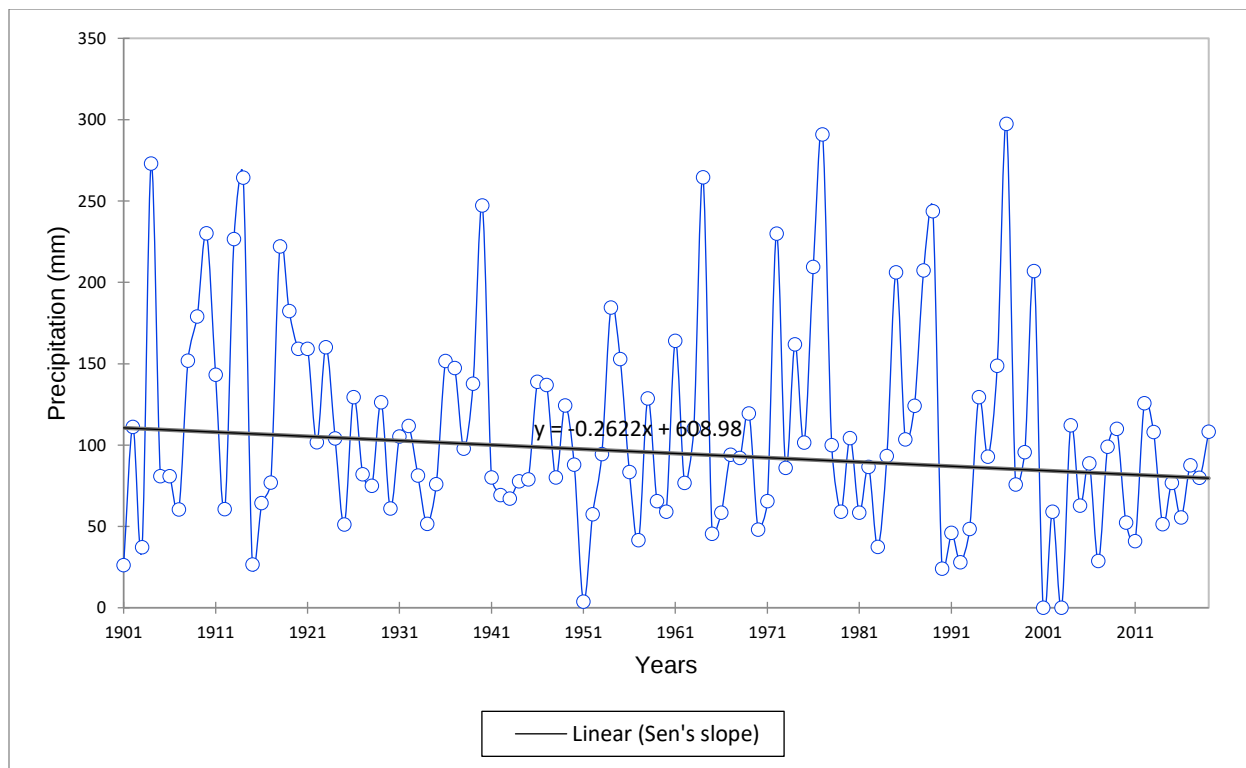


Figure D-12: February trend plot for Cwebe Nature Reserve station.

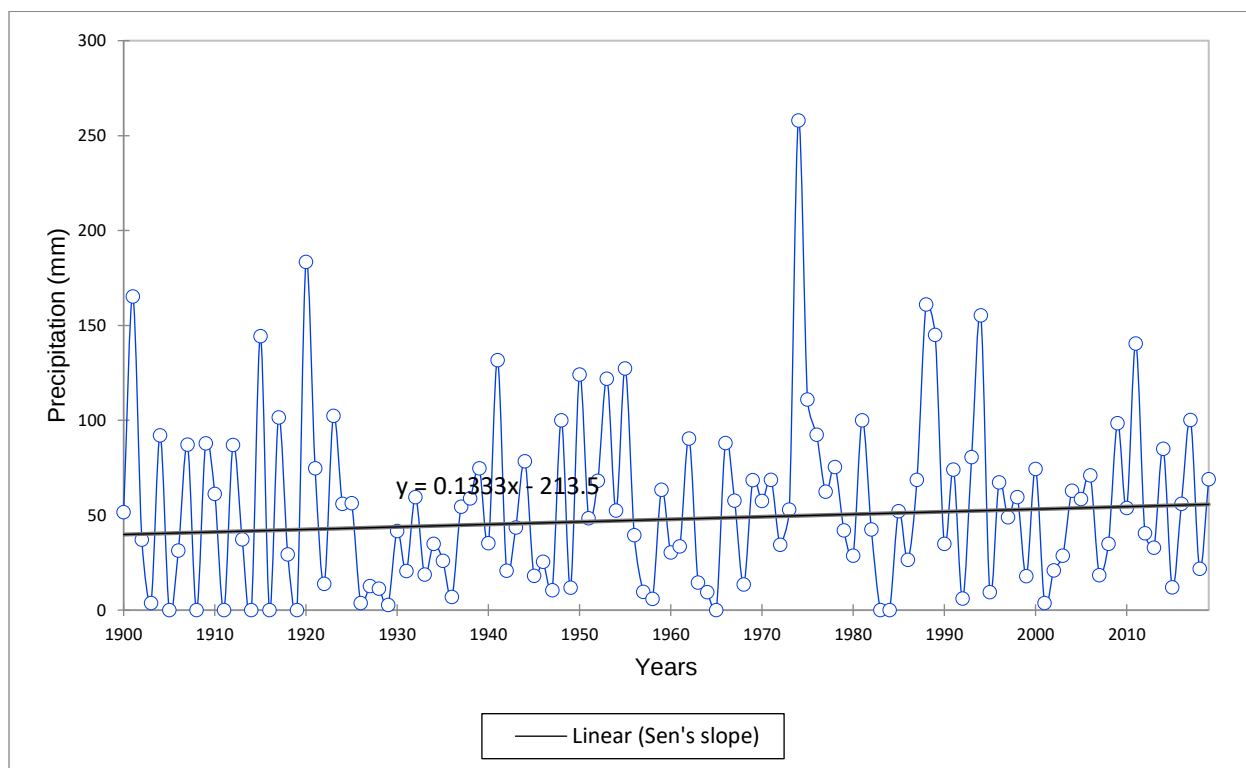


Figure D-13: February trend plot for Petrusville-POL station.

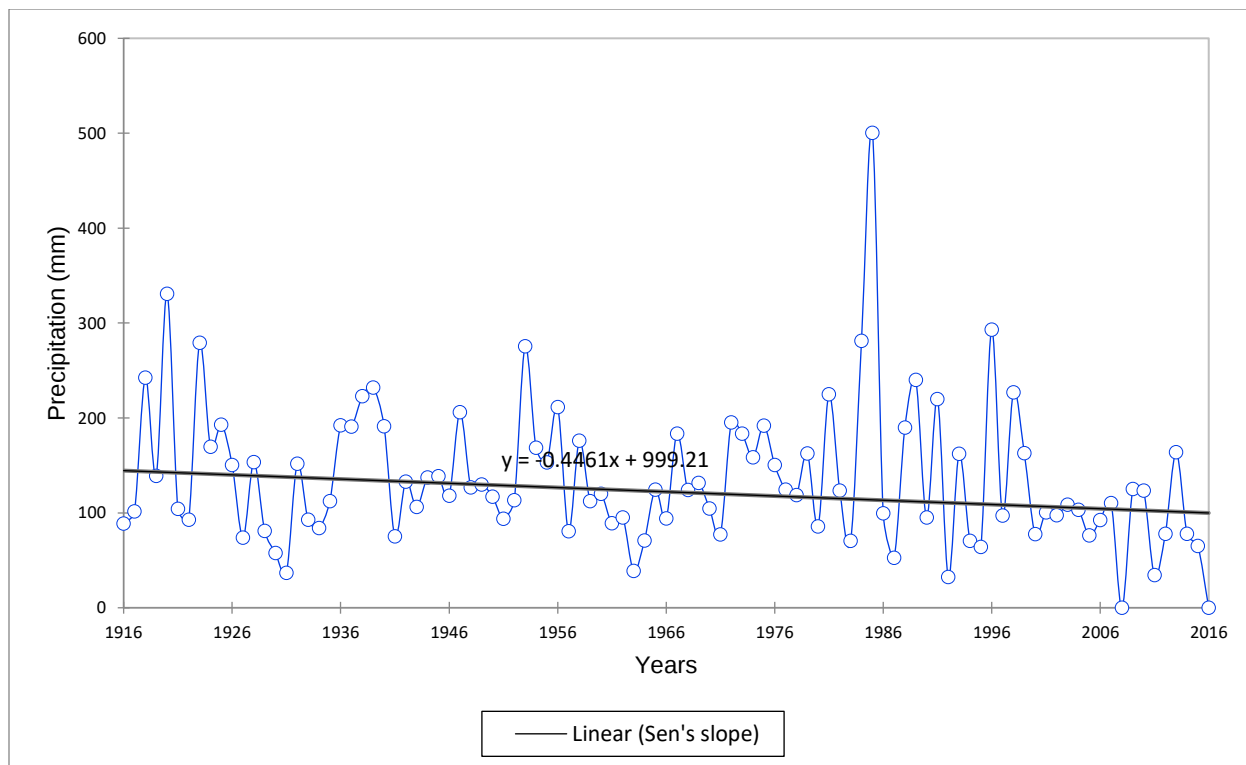


Figure D-14: February trend plot for Richmond SAP station.

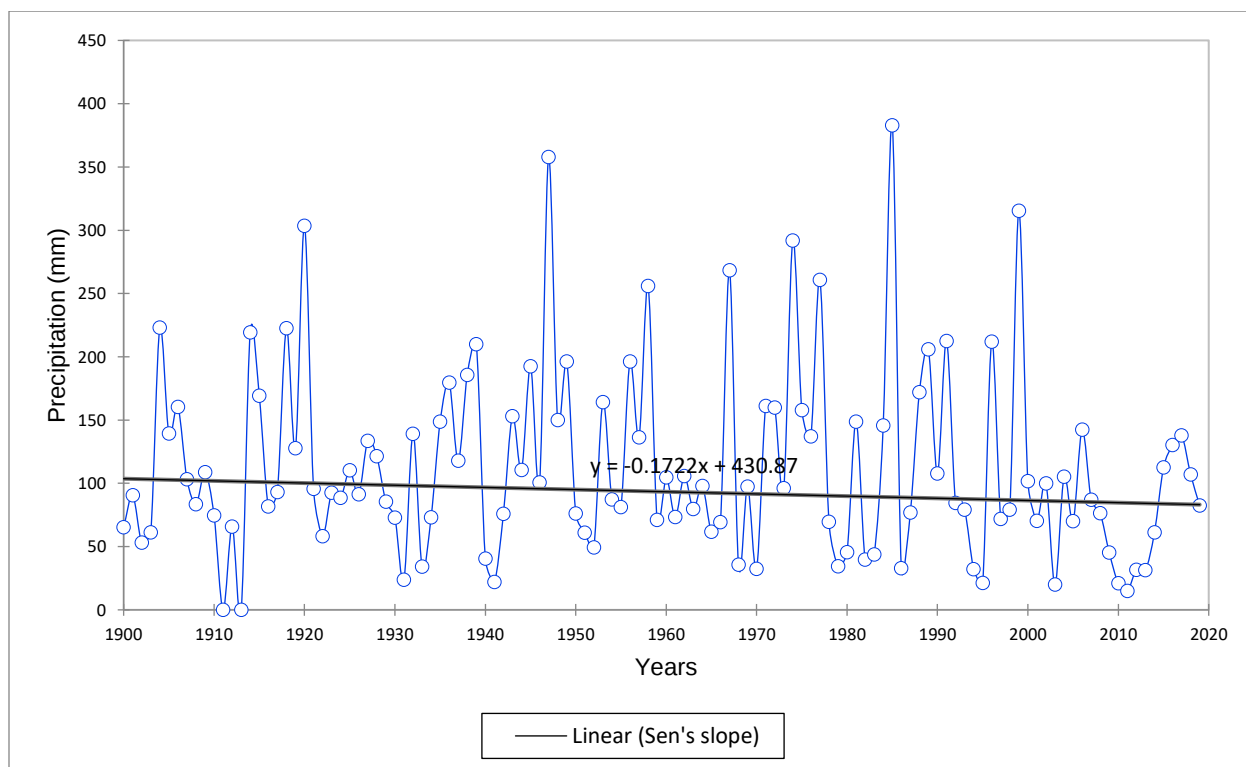


Figure D-15: February trend plot for Durban Botanical Gardens station.

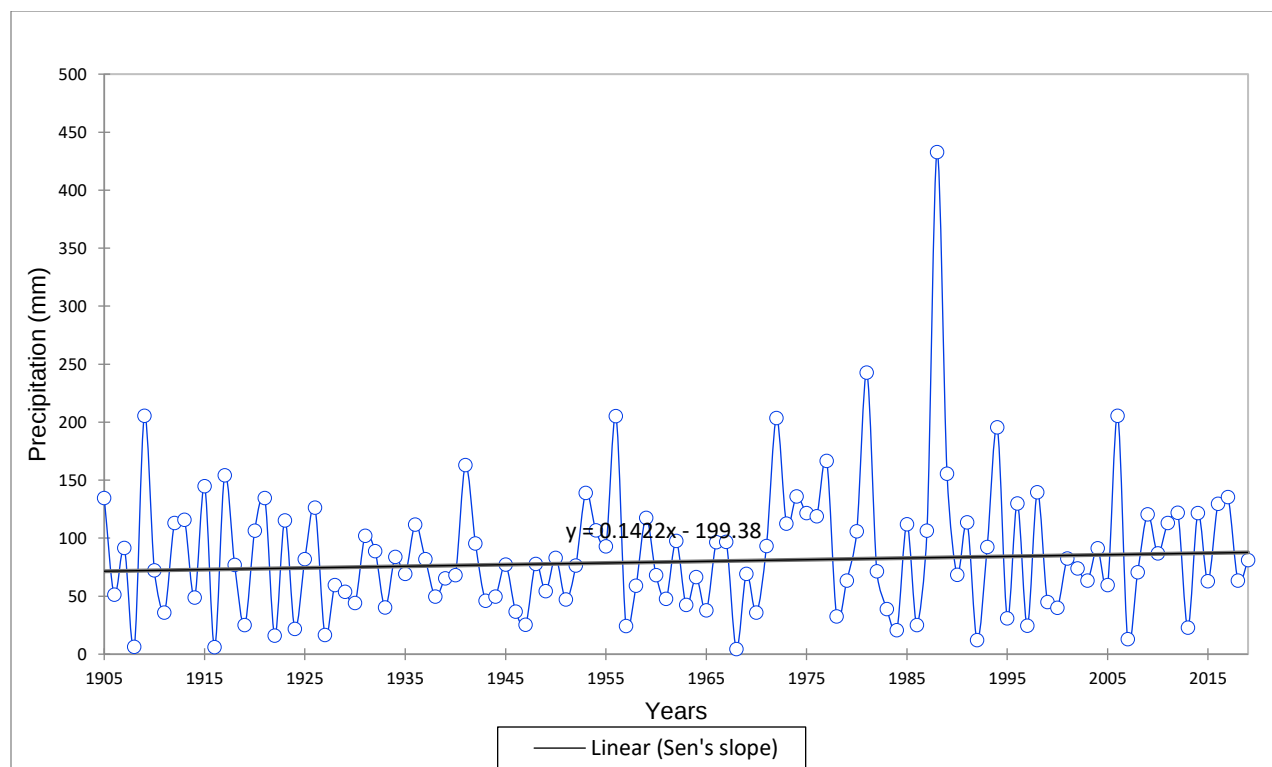


Figure D-16: February trend plot for Maselspoort Dam station.

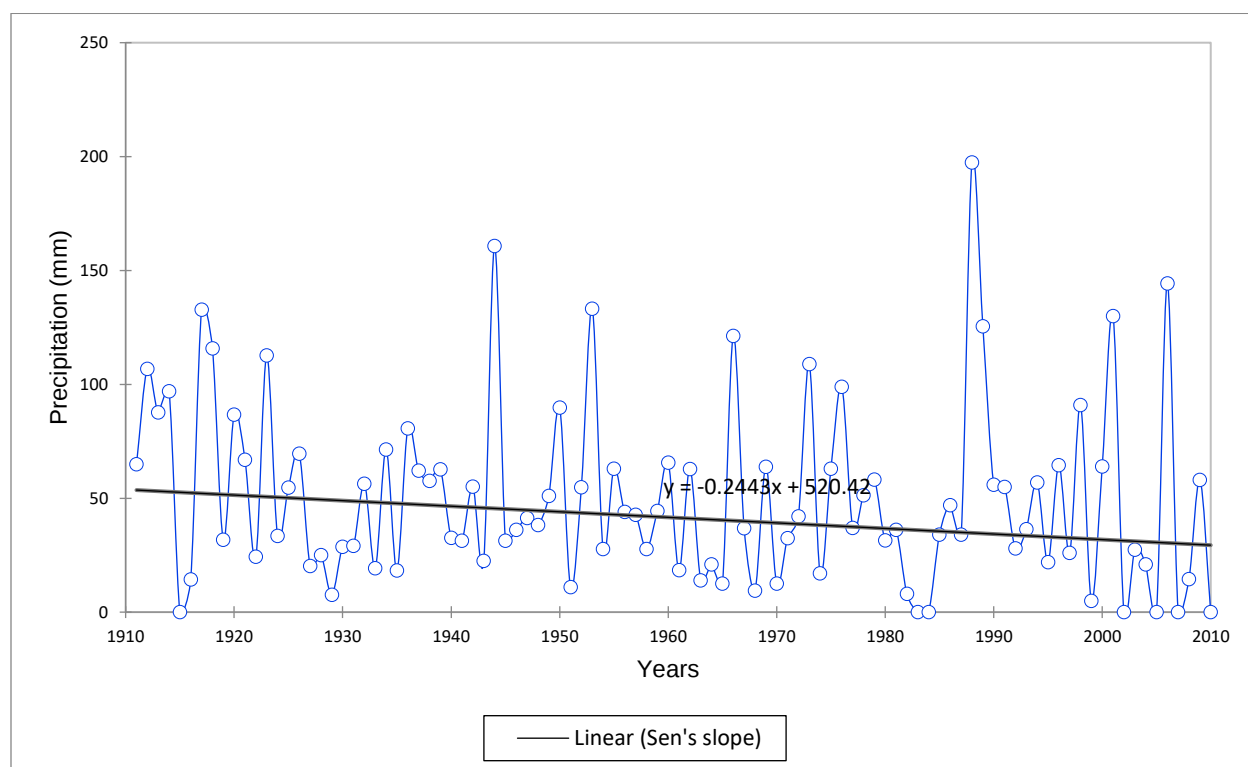


Figure D-17: February trend plot for Morokweng station.

Table D4: March Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	March			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.142	-0.132	0.143	-0.132
2	Steytlerville-Mag	-33.33	24.33	419	0.489	-0.047	0.490	-0.047
3	Alicedale-Mun	-33.32	26.08	276	0.470	-0.023	0.468	-0.023
4	Grahamstown-Tnk	-33.3	26.53	539	0.034	-0.130	0.034	-0.130
5	Klipfontein	-32.55	24.72	673	0.904	-0.007	0.891	-0.007
6	Amatola State Forest	-32.67	27.28	884	0.003	-0.422	0.013	-0.422
7	Winterhoek	-32.22	24.47	876	0.485	-0.064	0.486	-0.064
8	Bloemhof	-32.03	24.67	1,091	0.836	0.016	0.838	0.016
9	Exwell Park	-32.2	27.12	914	0.700	-0.039	0.628	-0.039
10	Kentani-Bos	-32.5	28.32	488	0.305	-0.169	0.306	-0.169
11	Cwebe Nature Reserve	-32.2	28.93	61	0.901	-0.021	0.903	-0.021
12	Sterkstroom	-31.55	26.55	1,343	0.220	-0.117	0.221	-0.117
13	Engcobo Prison	-31.67	28.0	975	0.029	-0.339	0.004	-0.339
14	Xhora Prison	-31.97	28.67	671	0.017	-0.326	0.027	-0.326
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.039	-0.211	0.810	0.013
16	Ellesmere	-30.67	26.32	1,387	0.776	-0.023	0.697	-0.023
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.136	-0.170	0.136	-0.170
18	Petrusville-Pol	-30.08	24.67	1,212	0.032	-0.226	0.003	-0.226
19	Philippolis-Pol	-30.27	25.27	1,372	0.301	0.115	0.302	-0.115
20	Hopetown-Tnk	-29.62	24.08	1,661	0.268	-0.122	0.345	-0.122
21	Lillydale	-30.0	25.95	1,098	0.229	0.159	0.111	0.159
22	Richmond S.A. P	-29.87	30.27	1,509	0.039	-0.211	0.810	0.013
23	Durban Botanical Gardens	-29.85	31.0	91	0.220	-0.215	0.117	-0.215
24	Steinkopf	-29.25	17.73	91	0.505	0.000	0.534	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.003	-0.250	0.003	-0.250
26	Maselspoort Dam	-29.03	26.42	1,372	0.103	-0.214	0.028*	-0.214
27	Boetsap-Pol	-27.97	24.45	1,189	0.191	-0.196	0.113	-0.196
28	Odendaalsrus	-27.87	26.68	1,341	0.301	-0.135	0.254	-0.135
29	Bothaville - Mun	-27.55	26.62	1,280	0.084	-0.217	0.099	-0.217
30	Beerlaagte	-26.82	28.43	1,615	0.838	-0.025	0.840	-0.025
31	Balfour	-26.65	28.58	1,555	0.057	-0.249	0.016	-0.249
32	De Emigratie	-26.77	30.12	1,676	0.660	-0.063	-0.621	-0.063
33	Morokweng	-26.12	23.78	1,126	0.276	-0.159	0.267	-0.159
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.771	0.051	0.773	0.051
35	Swartruggens-Pol	-25.63	26.68	1,311	0.748	0.053	0.750	0.053
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.725	0.065	0.709	0.065

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.504	0.111	0.506	0.111
38	Machadodorp	-25.67	30.25	1,609	0.766	-0.039	0.395	-0.039
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.654	-0.050	0.655	-0.050
40	Haenertsburg	-23.93	29.93	1,402	0.01	-0.410	0.000	0.410
41	Prince Albert-Tnk	-33.22	22.03	686	0.577	-0.019	0.542	-0.019
42	Plettenbergbaai - Pol	-34.05	23.37	73	0.518	0.055	0.431	0.055
43	Tulbagh	-33.28	19.13	155	0.763	0.005	0.748	0.005
44	Darling-The Towers	-33.38	18.37	229	0.938	0.000	0.924	0.000
45	Thornlea	-28.63	21.52	884	0.084	-0.132	0.085	-0.132
46	Klein Australie	-23.05	30.22	702	0.024	-0.555	0.013	-0.555

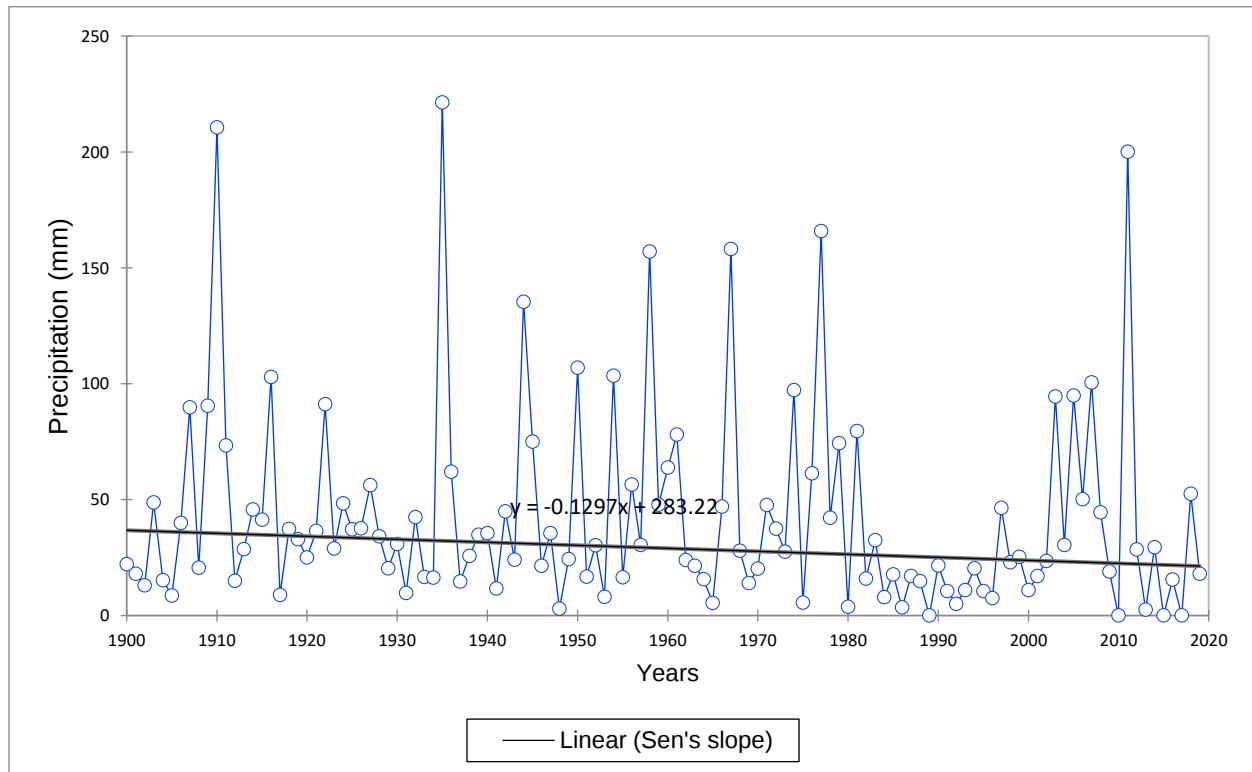


Figure D-18: March trend plot for Grahamstown-TNK station.

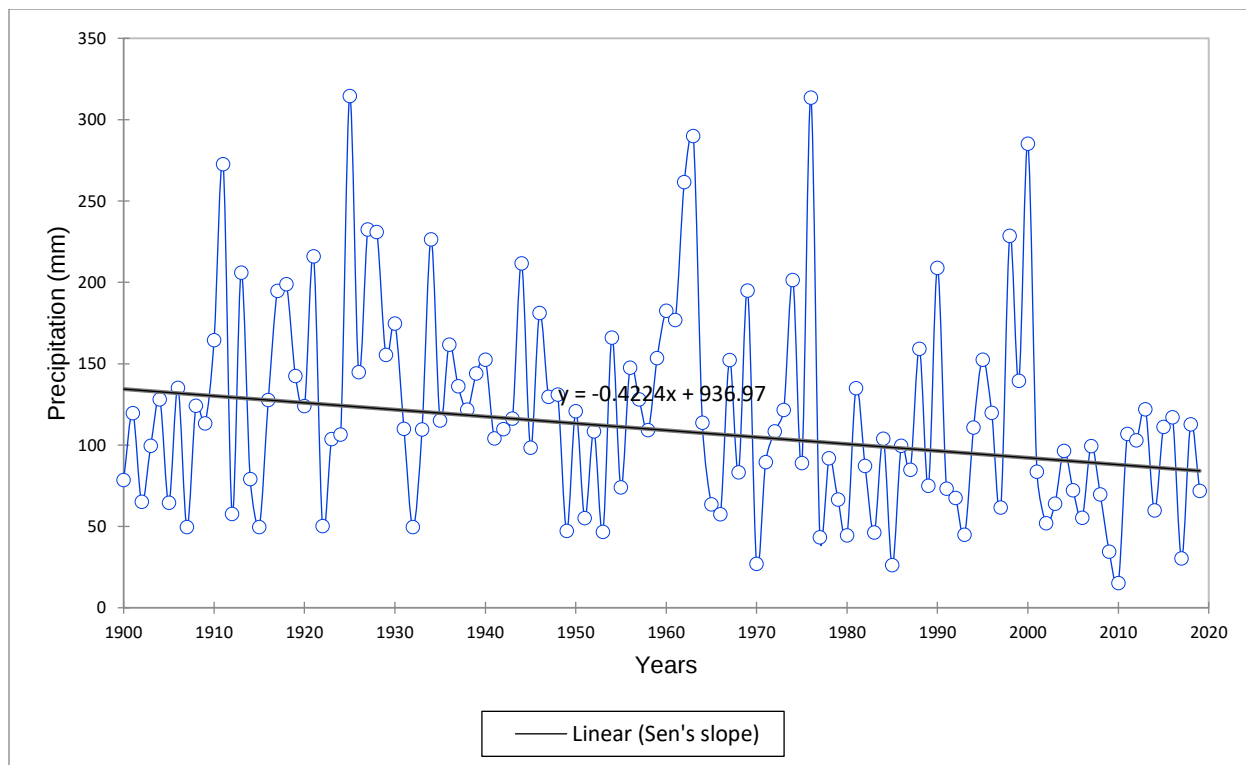


Figure D-19: March trend plot for Amatola State Forest station.

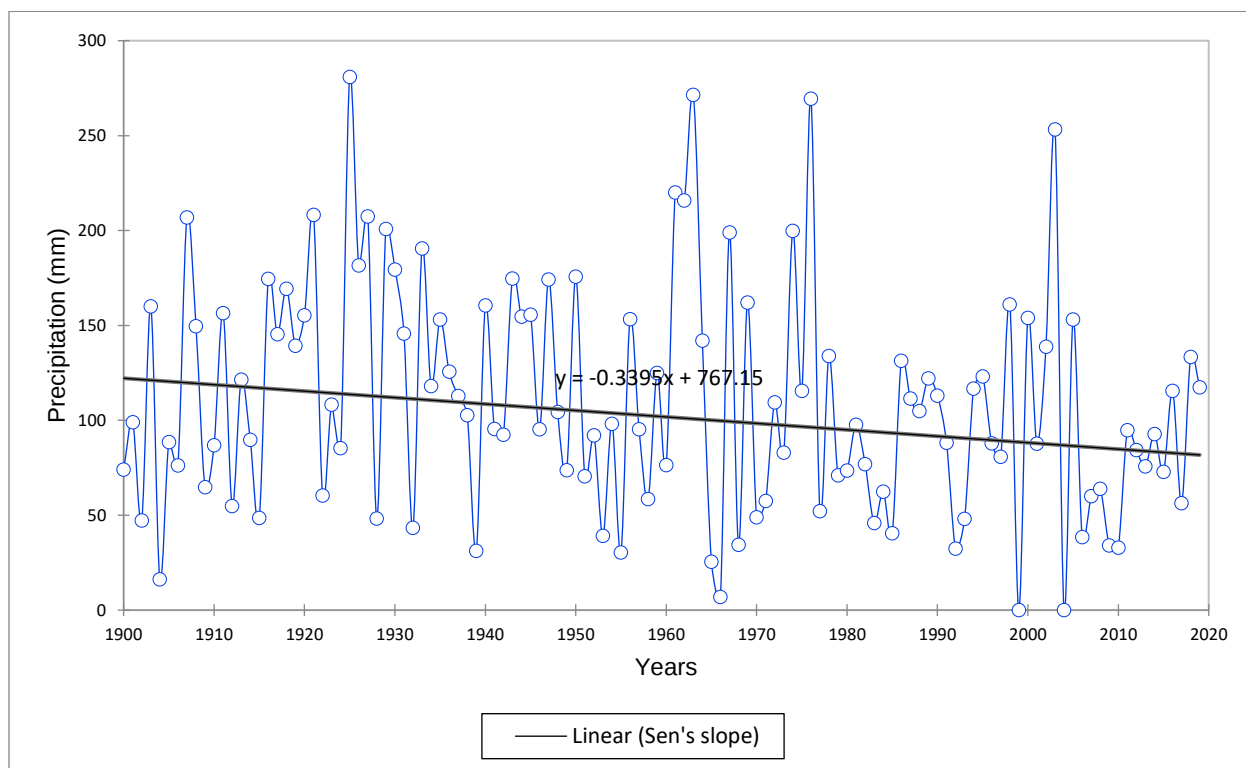


Figure D-20: March trend plot for Engcobo Prison station.

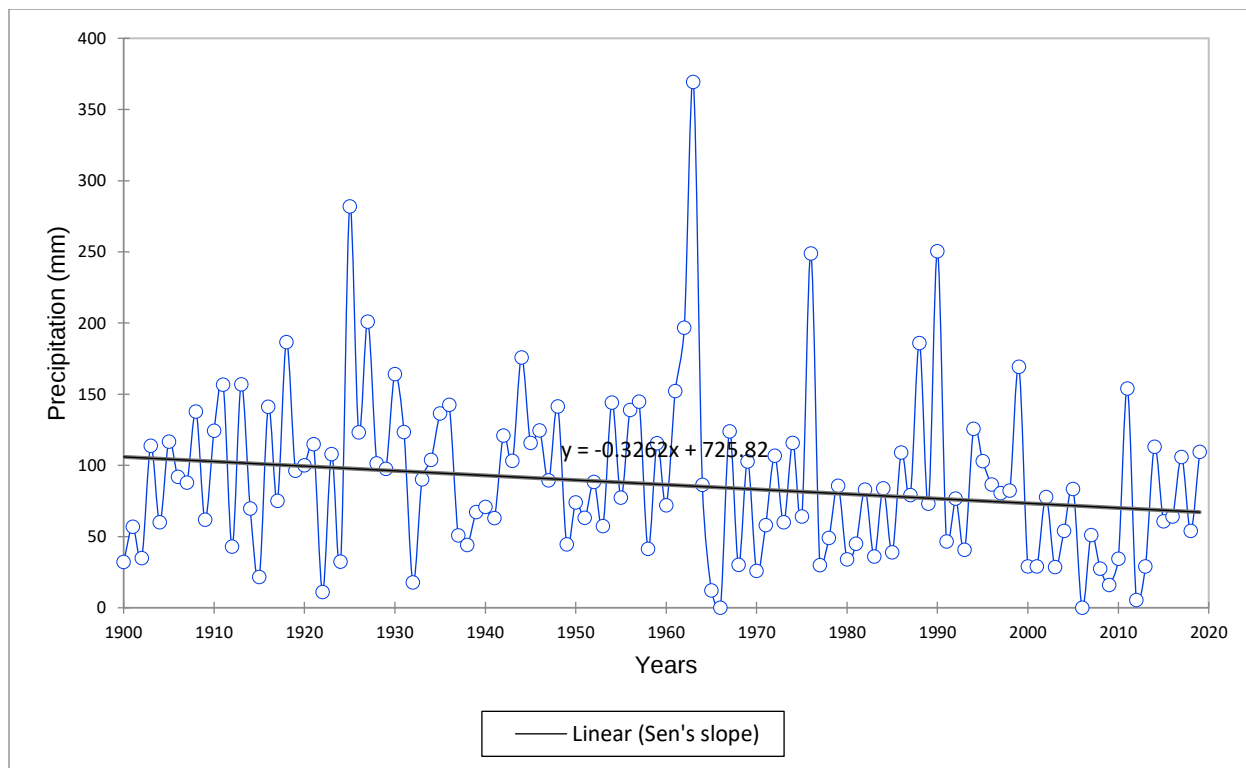


Figure D-21: March trend plot for Xhora prison station.

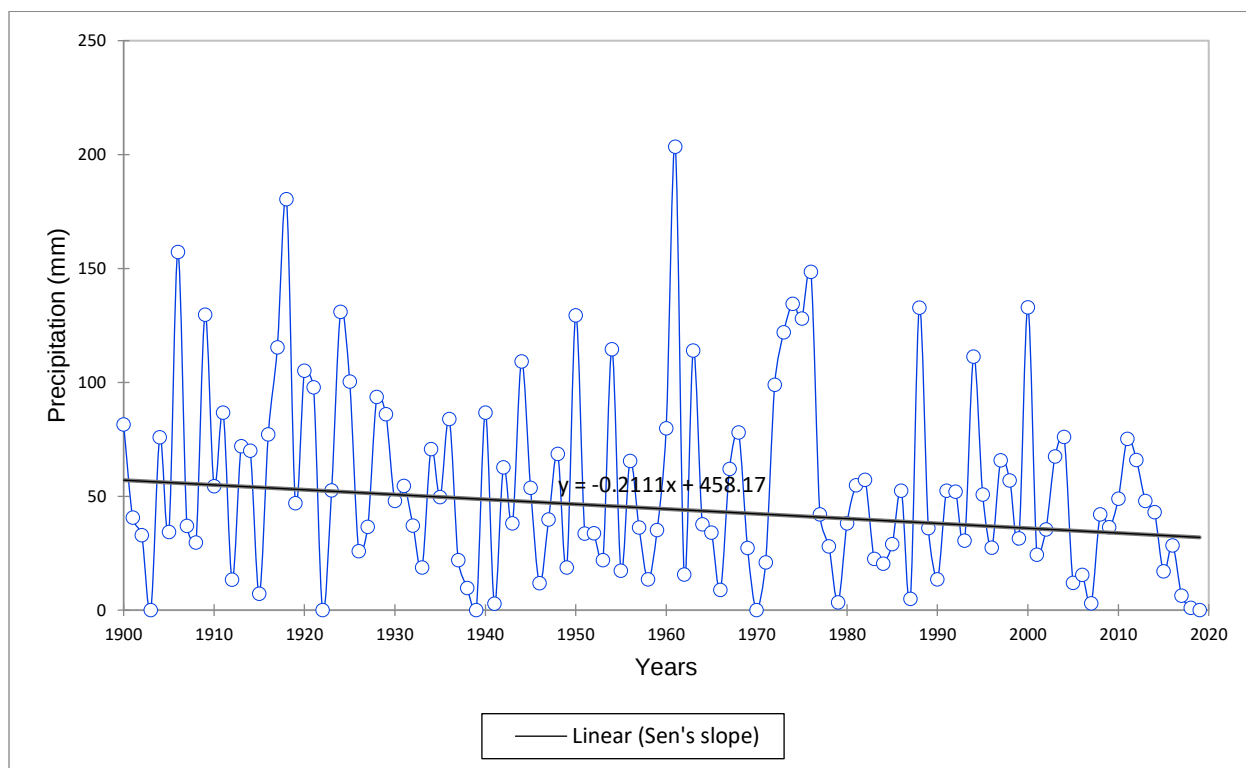


Figure D-22: March trend plot for Richmond C K TNK station.

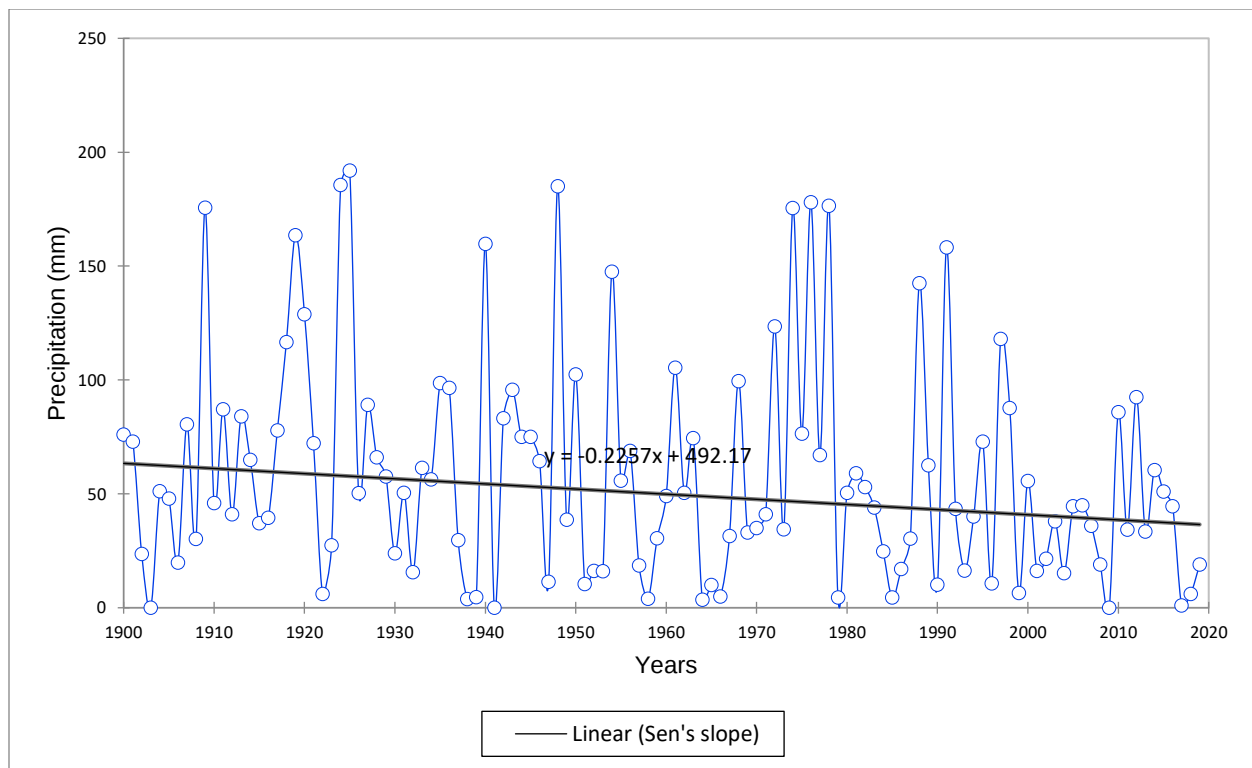


Figure D-23: March trend plot for Petrusville-Pol station.

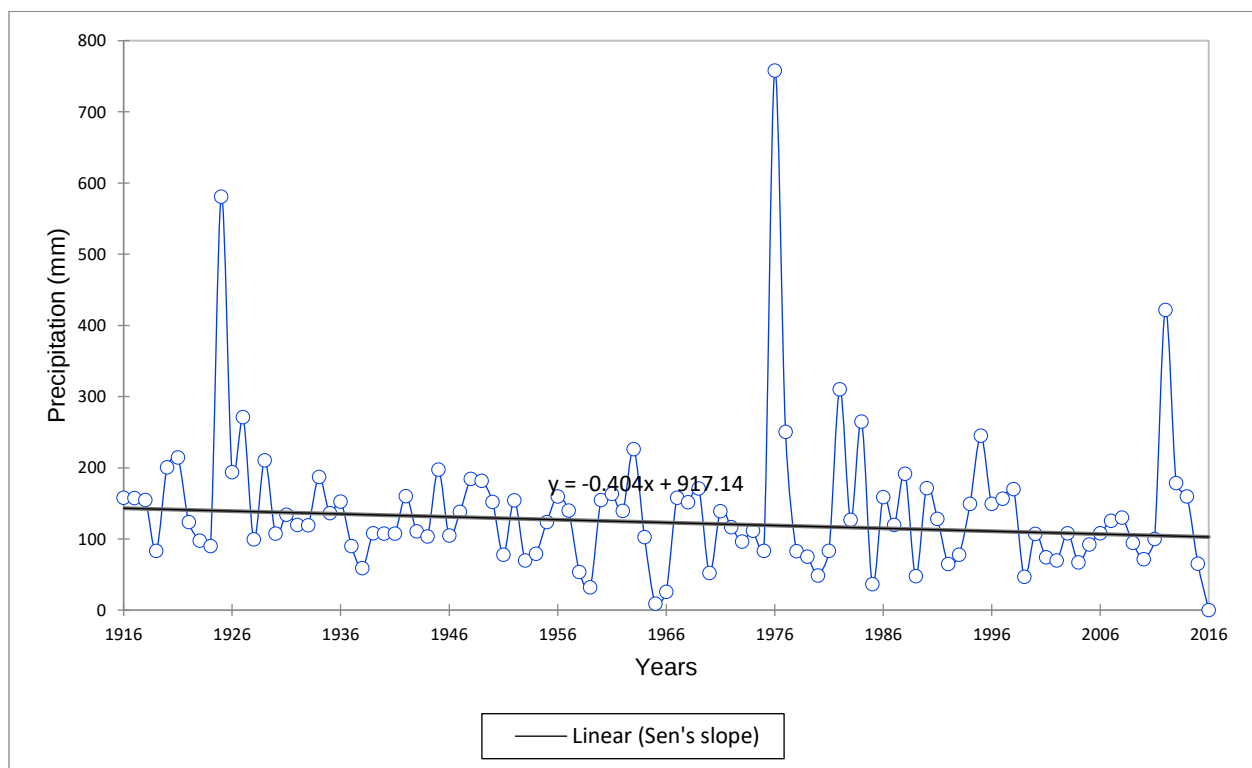


Figure D-24: March trend plot for Richmond SAP station.

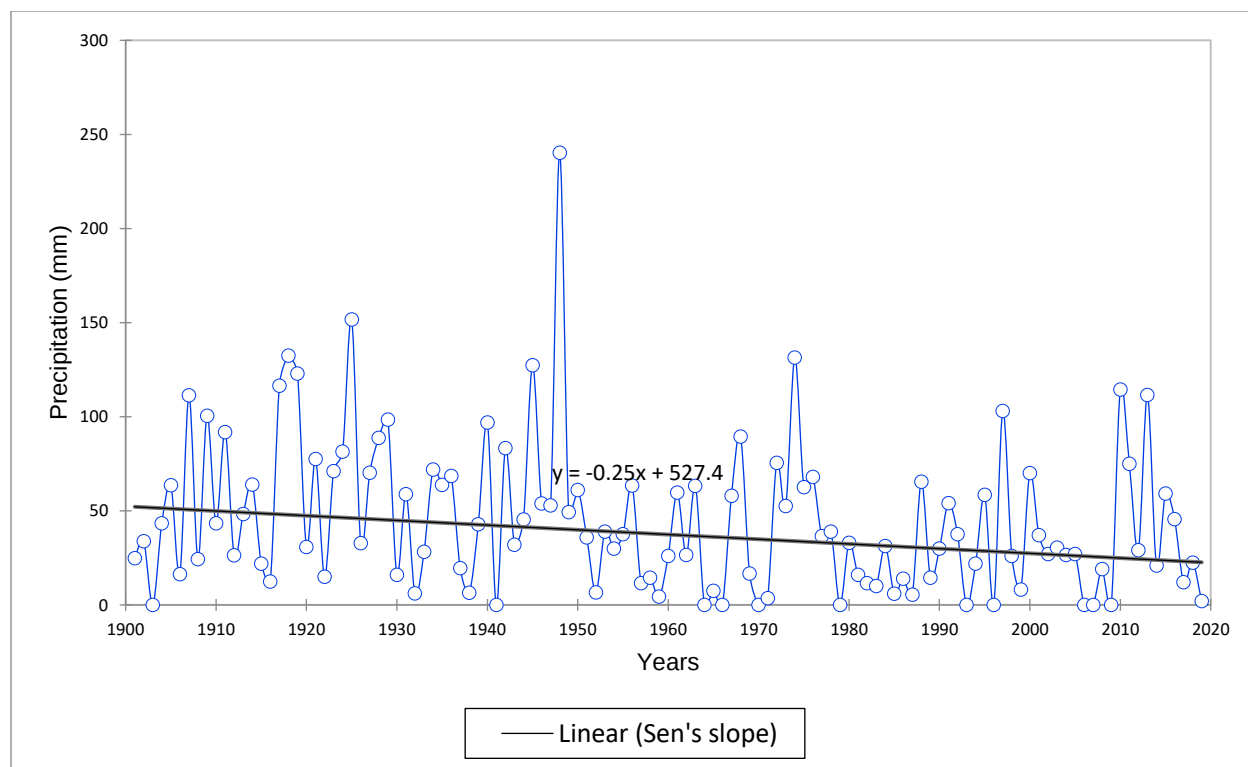


Figure D-25: March trend plot for Nuwejaarskraal station.

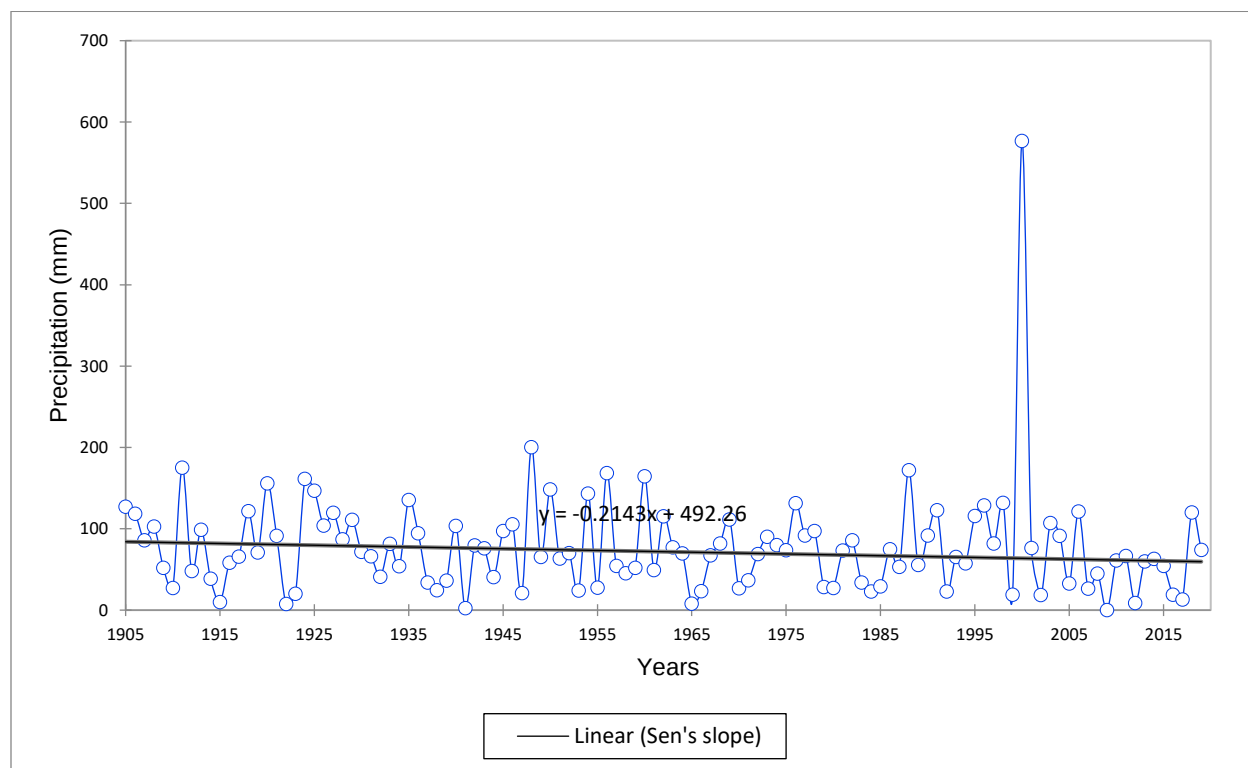


Figure D-26: March trend plot for Maselpoort Dam station.

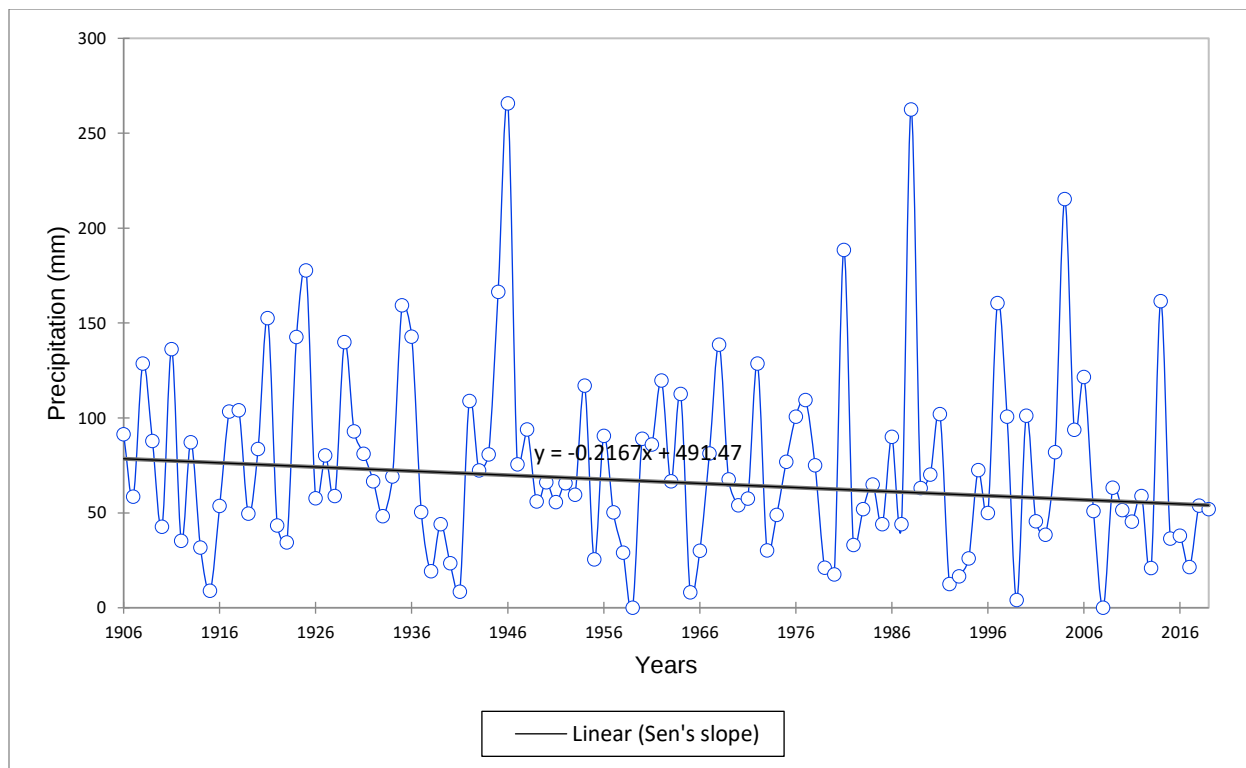


Figure D-27: March trend plot for Bothaville-Mun station.

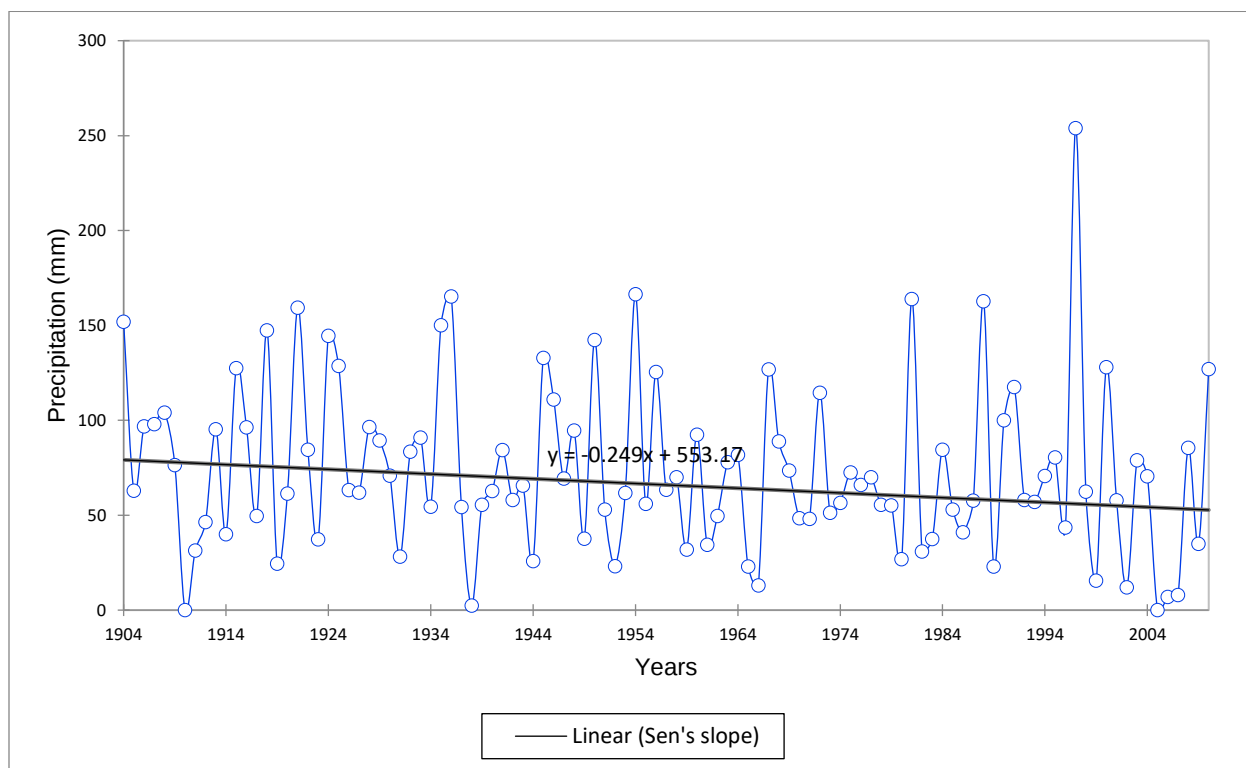


Figure D-28: March trend plot for Balfour station.

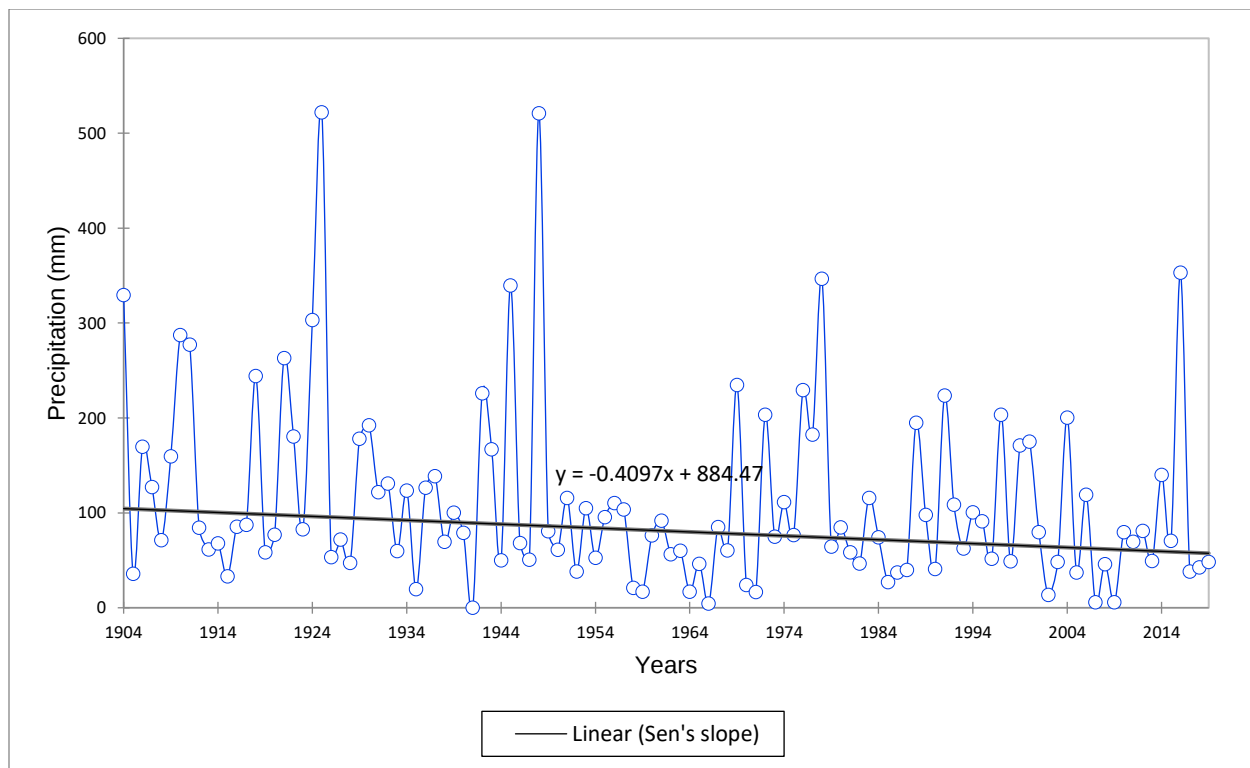


Figure D-29: March trend plot for Haenerstburg station.

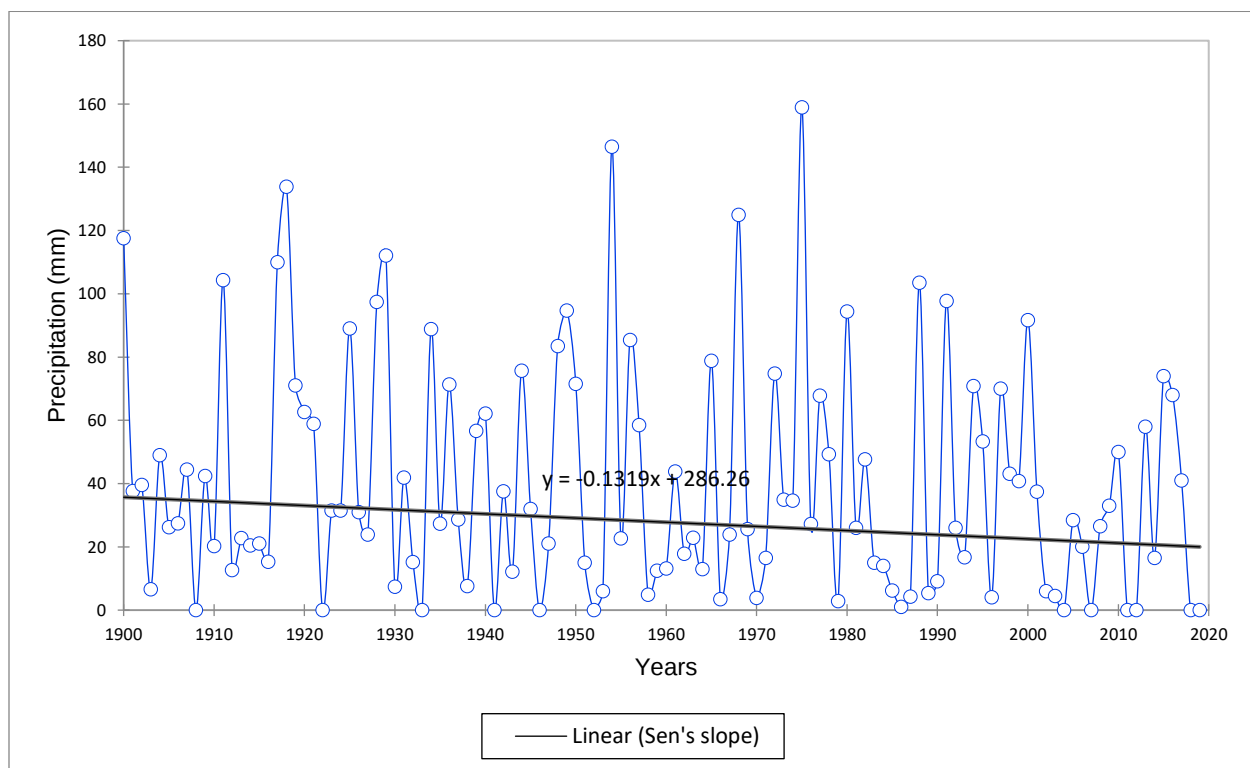


Figure D-30: March trend plot for Thornlea station.

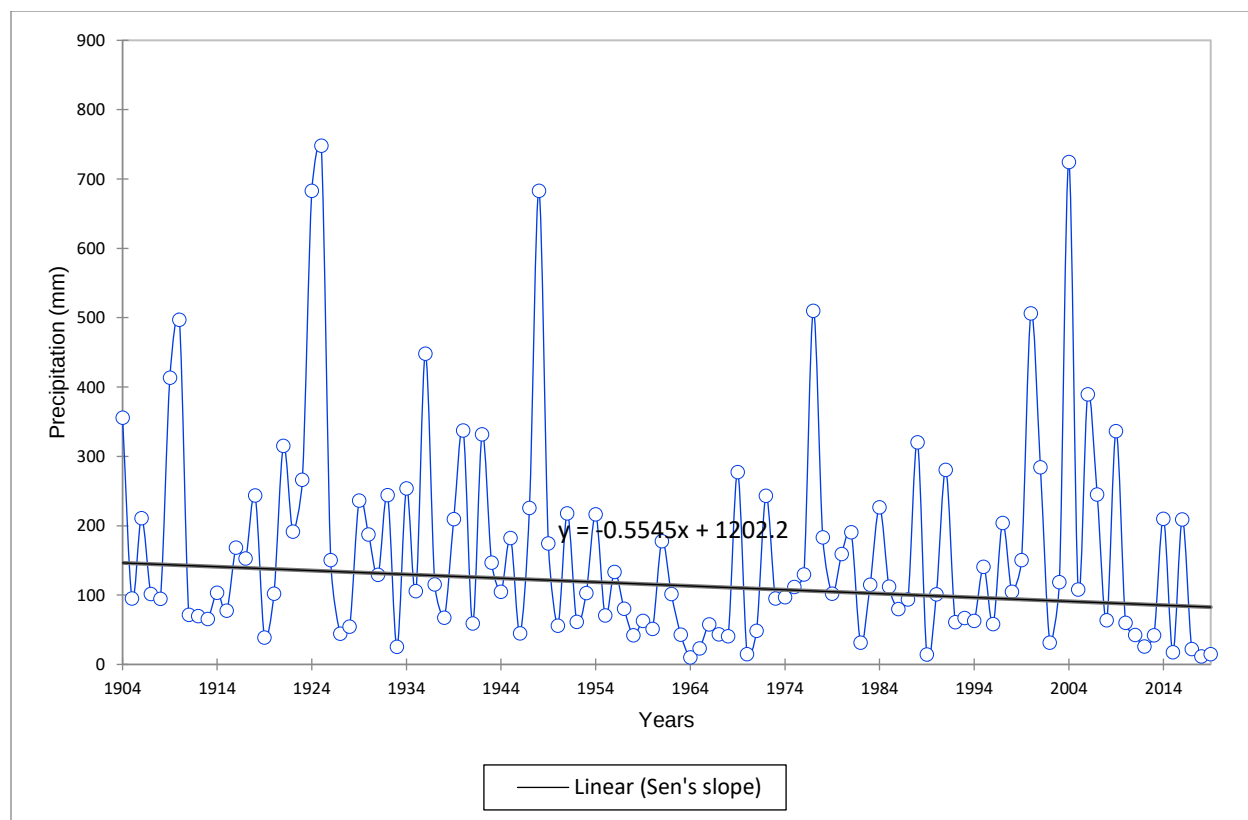


Figure D-31: March trend plot for Klein Australie station.

Table D5: April Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long Deg)	Elevation (m)	April			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.439	0.080	0.136	0.080
2	Steytlerville-Mag	-33.33	24.33	419	0.405	0.035	0.331	0.035
3	Alicedale-Mun	-33.32	26.08	276	0.577	0.040	0.579	0.040
4	Grahamstown-Tnk	-33.3	26.53	539	0.488	-0.041	0.489	-0.041
5	Klipfontein	-32.55	24.72	673	0.971	0.000	0.965	0.000
6	Amatola State Forest	-32.67	27.28	884	0.613	0.052	0.677	0.052
7	Winterhoek	-32.22	24.47	876	0.555	-0.032	0.557	-0.032
8	Bloemhof	-32.03	24.67	1,091	0.516	0.032	0.483	0.032
9	Exwell Park	-32.2	27.12	914	0.534	0.031	0.520	0.031
10	Kentani-Bos	-32.5	28.32	488	0.211	0.144	0.199	0.144
11	Cwebe Nature Reserve	-32.2	28.93	61	0.042	0.313	0.019	0.313
12	Sterkstroom	-31.55	26.55	1,343	0.555	0.032	0.649	0.032
13	Engcobo Prison	-31.67	28	975	0.227	0.109	0.002	0.109

No	Station Name	Lat (Deg)	Long Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
14	Xhora Prison	-31.97	28.67	671	0.094	0.150	0.051	0.150
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.740	-0.039	0.669	-0.039
16	Ellesmere	-30.67	26.32	1,387	0.136	0.124	0.137	0.124
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.910	-0.006	0.918	-0.006
18	Petrusville-Pol	-30.08	24.67	1,212	0.929	-0.003	0.945	-0.003
19	Philippolis-Pol	-30.27	25.27	1,372	0.789	-0.020	0.781	-0.020
20	Hopetown-Tnk	-29.62	24.08	1,661	0.661	0.029	0.701	0.029
21	Lillydale	-30.0	25.95	1,098	0.816	0.013	0.745	0.013
22	Richmond S.A. P	-29.87	30.27	1,509	0.740	-0.039	0.669	-0.039
23	Durban Botanical Gardens	-29.85	31.0	91	0.588	-0.067	0.589	-0.067
24	Steinkopf	-29.25	17.73	91	0.571	0.000	0.511	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.155	-0.062	0.135	-0.062
26	Maselspoort Dam	-29.03	26.42	1,372	0.421	0.081	0.269	0.081
27	Boetsap-Pol	-27.97	24.45	1,189	0.810	-0.012	0.812	-0.012
28	Odendaalsrus	-27.87	26.68	1,341	0.225	0.097	0.226	0.097
29	Bothaville-Mun	-27.55	26.62	1,280	0.446	0.060	0.340	0.060
30	Beerlaagte	-26.82	28.43	1,615	0.450	0.055	0.428	0.055
31	Balfour	-26.65	28.58	1,555	0.751	-0.022	0.753	-0.022
32	De Emigratie	-26.77	30.12	1,676	0.963	0.000	0.966	0.000
33	Morokweng	-26.12	23.78	1,126	0.474	-0.030	0.475	-0.030
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.867	0.000	0.874	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.452	0.065	0.537	0.065
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.636	0.038	0.753	0.038
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.588	0.035	0.560	0.035
38	Machadodorp	-25.67	30.25	1,609	0.903	-0.008	0.905	-0.008
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.343	0.055	0.408	0.055
40	Haenertsburg	-23.93	29.93	1,402	0.903	0.000	0.905	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.640	-0.007	0.687	-0.007
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.323	0.075	0.324	0.075
43	Tulbagh	-33.28	19.13	155	0.122	0.106	0.096	0.106
44	Darling-The Towers	-33.38	18.37	229	0.810	0.013	0.808	0.013
45	Thornlea	-28.63	21.52	884	0.447	-0.018	0.251	-0.018
46	Klein Australie	-23.05	30.22	702	0.650	0.050	0.654	0.050

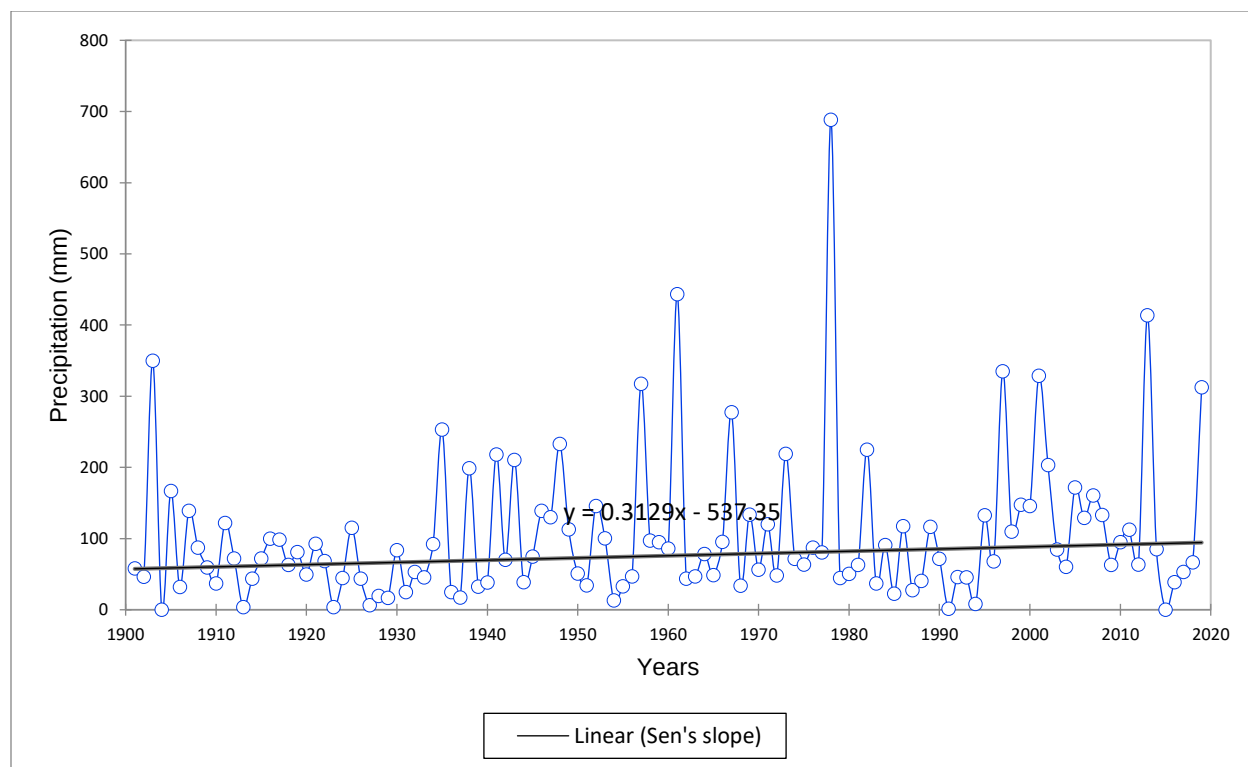


Figure D-32: April trend plot for Cwebe Nature Reserve station

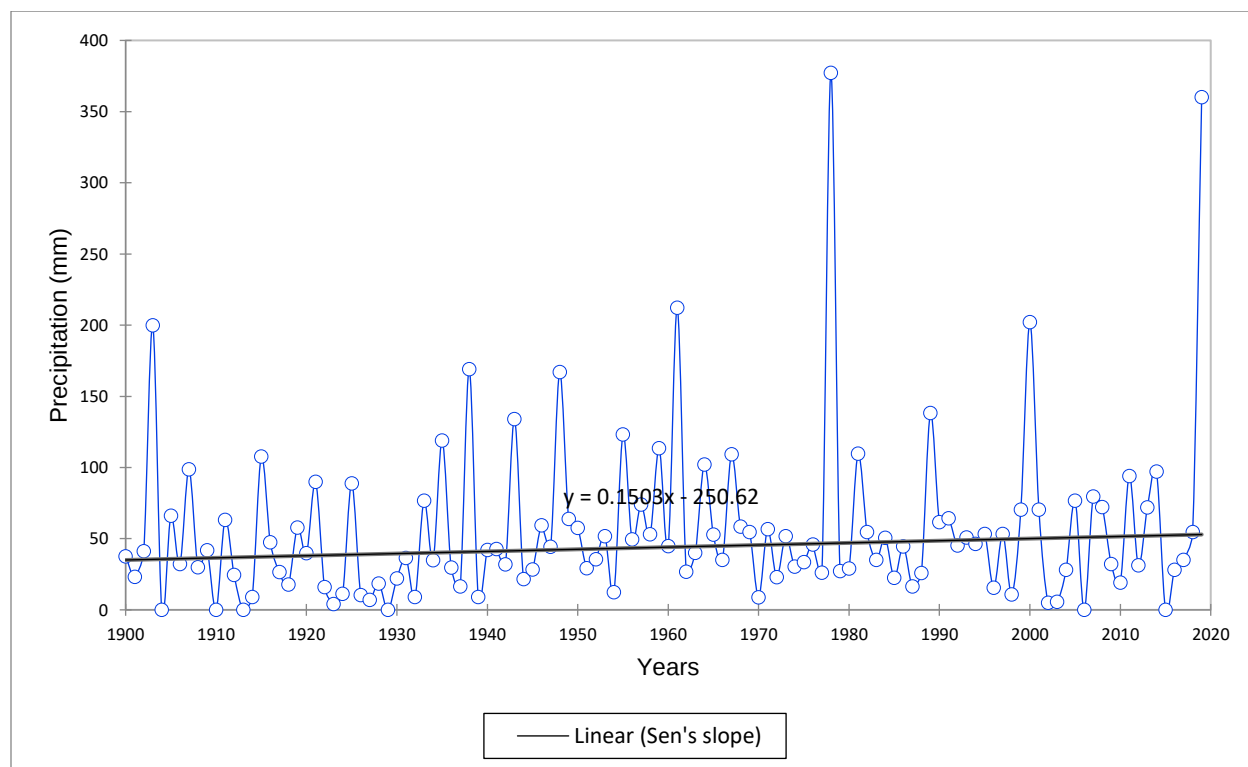


Figure D-33: April trend plot for Xhora Prison station.

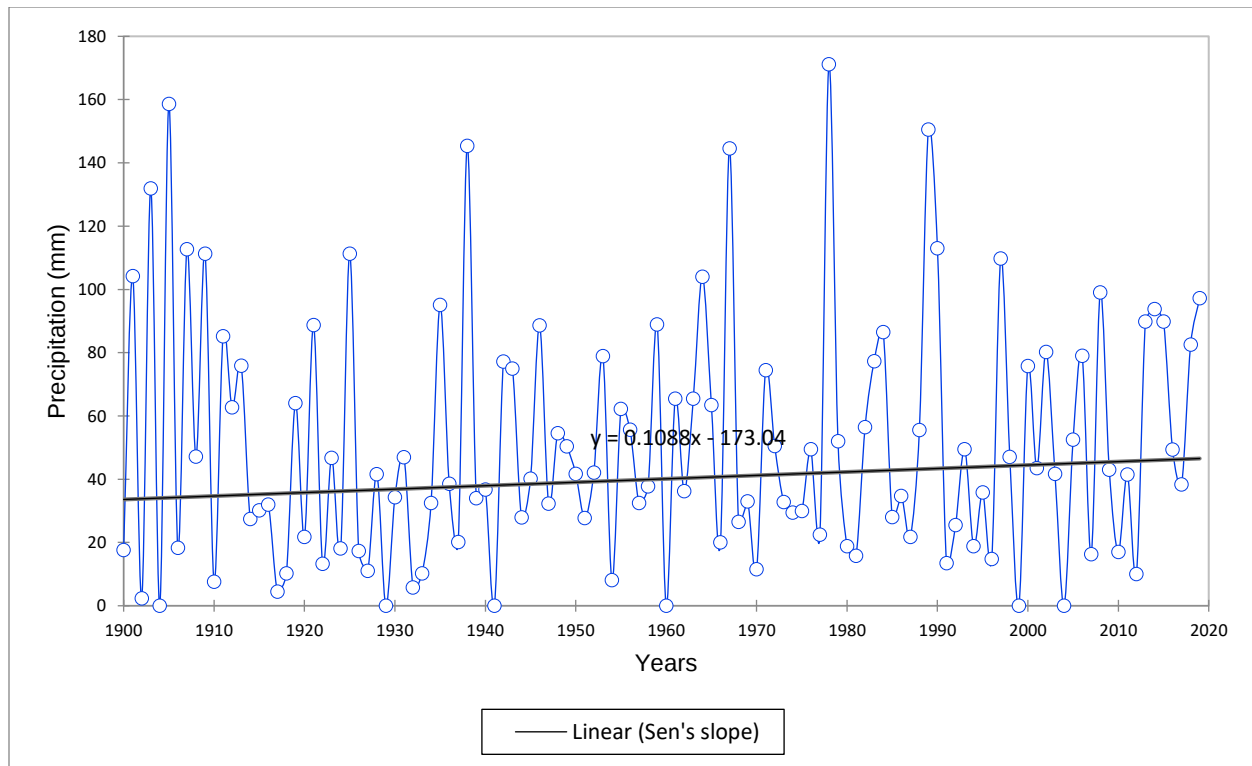


Figure D-34: April trend plot for Engcobo Prison station.

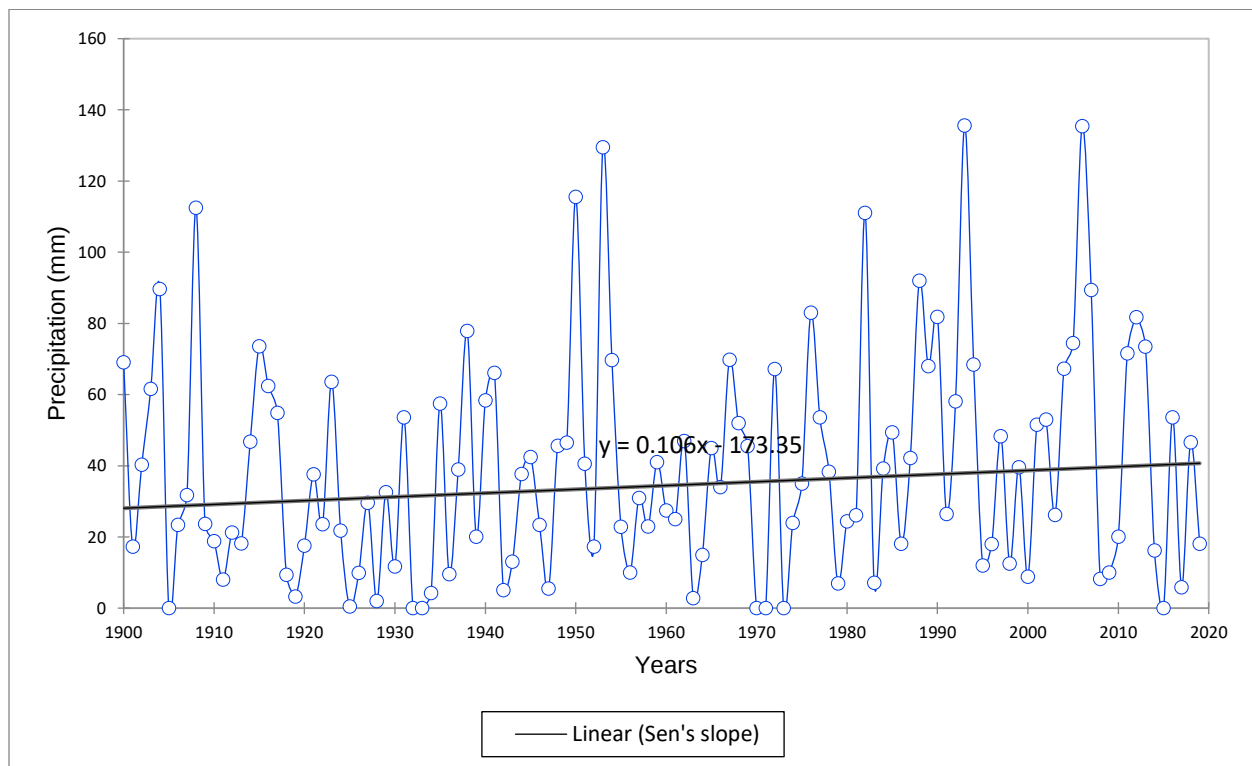


Figure D-35: April trend plot for Tulbagh station.

Table D6: May Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	May			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.084	-0.166	0.056	-0.166
2	Steytlerville-Mag	-33.33	24.33	419	0.283	-0.013	0.197	-0.013
3	Alicedale-Mun	-33.32	26.08	276	0.493	-0.032	0.494	-0.032
4	Grahamstown-Tnk	-33.3	26.53	539	0.322	0.048	0.234	0.048
5	Klipfontein	-32.55	24.72	673	0.677	0.000	0.678	0.000
6	Amatola State Forest	-32.67	27.28	884	0.010	-0.193	0.02	-0.193
7	Winterhoek	-32.22	24.47	876	0.074	-0.055	0.074	-0.055
8	Bloemhof	-32.03	24.67	1,091	0.266	-0.028	0.267	-0.028
9	Exwell Park	-32.2	27.12	914	0.170	-0.025	0.809	0.000
10	Kentani-Bos	-32.5	28.32	488	0.054	-0.122	1.000	-0.122
11	Cwebe Nature Reserve	-32.2	28.93	61	0.066	-0.155	0.078	-0.155
12	Sterkstroom	-31.55	26.55	1,343	0.300	-0.030	0.246	-0.030
13	Engcobo Prison	-31.67	28.0	975	0.148	-0.049	0.148	-0.049
14	Xhora Prison	-31.97	28.67	671	0.311	-0.040	0.139	-0.040
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.200	-0.045	0.227	-0.045
16	Ellesmere	-30.67	26.32	1,387	0.652	-0.006	0.602	-0.006
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.038	-0.065	0.009	-0.065
18	Petrusville-Pol	-30.08	24.67	1,212	0.834	0.000	0.812	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.245	-0.004	0.179	-0.004
20	Hopetown-Tnk	-29.62	24.08	1,661	0.337	0.000	0.280	0.000
21	Lillydale	-30.0	25.95	1,098	0.360	0.000	0.350	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.951	0.000	0.953	0.000
23	Durban Botanical Gardens	-29.85	31.0	91	0.988	0.000	1.000	0.000
24	Steinkopf	-29.25	17.73	91	0.196	-0.025	0.165	-0.025
25	Nuwejaarskraal	-29.37	23.12	884	0.032	-0.006	0.032	-0.006
26	Maselspoort Dam	-29.03	26.42	1,372	0.674	-0.007	0.621	-0.007
27	Boetsap-Pol	-27.97	24.45	1,189	0.093	0.000	0.094	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.952	0.000	0.948	0.000
29	Bothaville-Mun	-27.55	26.62	1,280	0.620	0.000	0.558	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.924	0.000	0.926	0.000
31	Balfour	-26.65	28.58	1,555	0.450	0.000	0.488	0.000
32	De Emigratie	-26.77	30.12	1,676	0.220	-0.016	0.231	-0.016
33	Morokweng	-26.12	23.78	1,126	0.075	0.000	0.165	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.425	0.000	0.463	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.175	0.000	0.245	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.802	0.000	0.790	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.934	0.000	0.935	0.000
38	Machadodorp	-25.67	30.25	1,609	0.171	-0.021	0.162	-0.021
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.061	0.000	0.049	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.629	0.000	0.634	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.917	0.000	0.902	0.000
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.761	0.035	0.705	0.035
43	Tulbagh	-33.28	19.13	155	0.791	-0.030	0.804	-0.030
44	Darling-The Towers	-33.38	18.37	229	0.797	-0.028	0.803	-0.028
45	Thornlea	-28.63	21.52	884	0.571	0.000	0.607	0.000
46	Klein Australie	-23.05	30.22	702	0.302	-0.035	0.355	-0.035

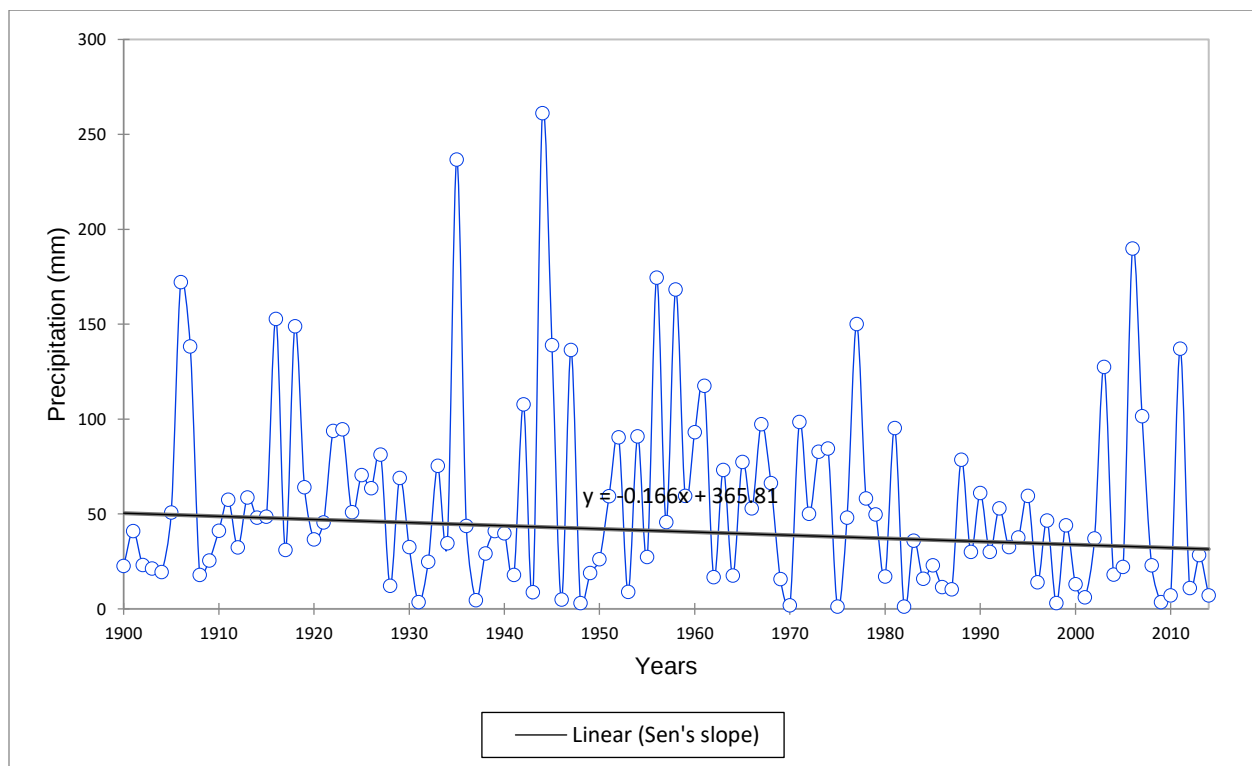


Figure D-36: May trend plot for Humansdorp station.

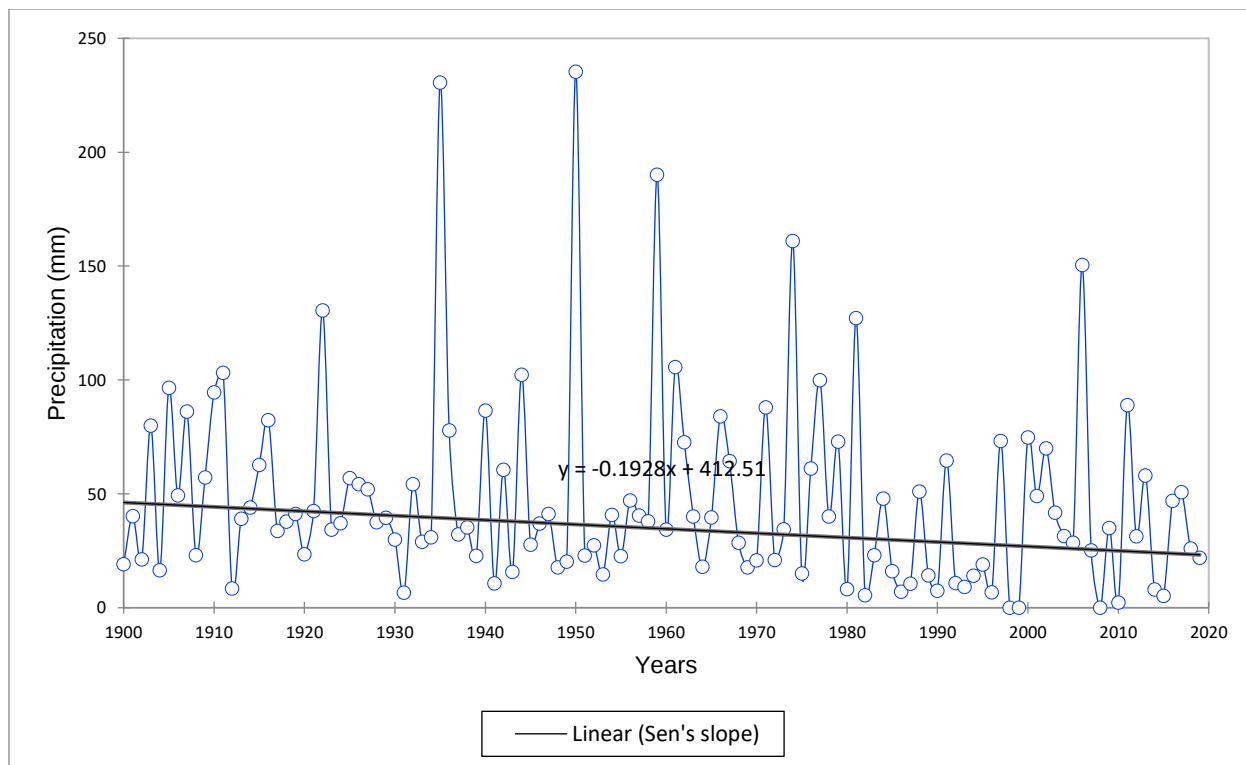


Figure D-37: May trend plot for Amatola State Forest station.

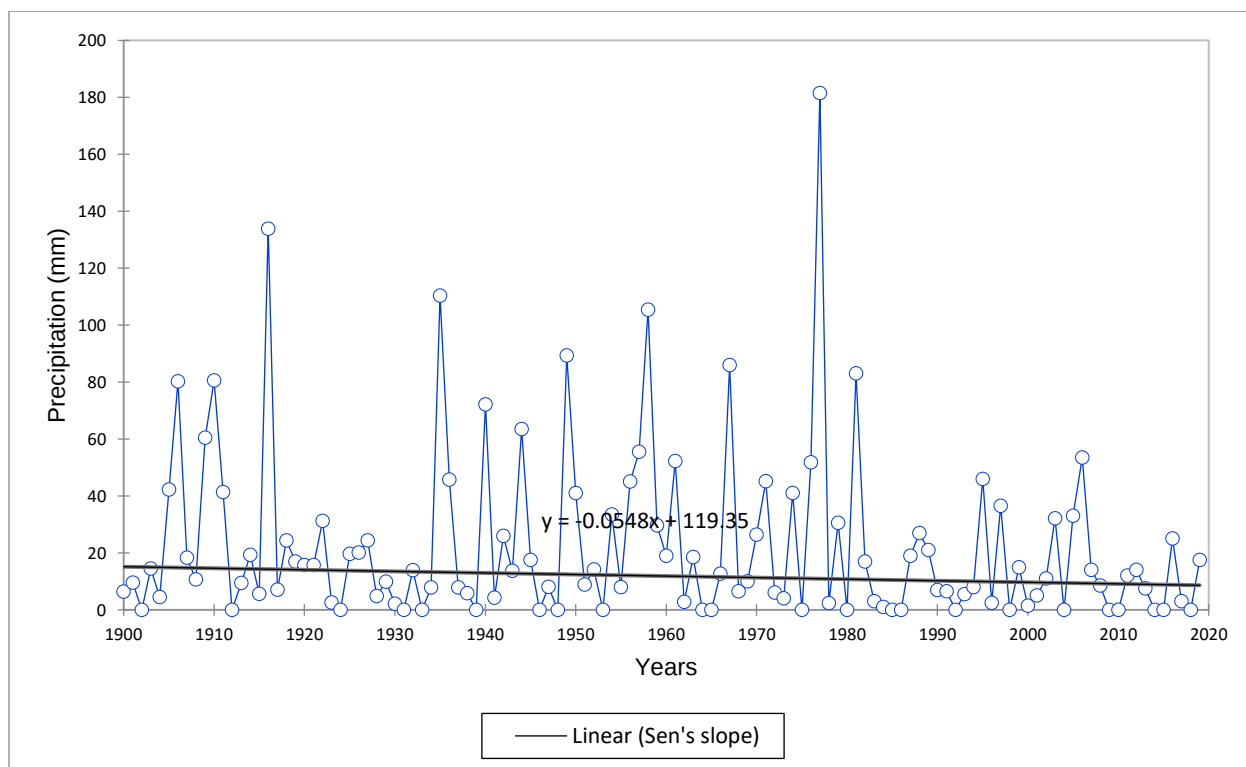


Figure D-38: May trend plot for Winterhoek station.

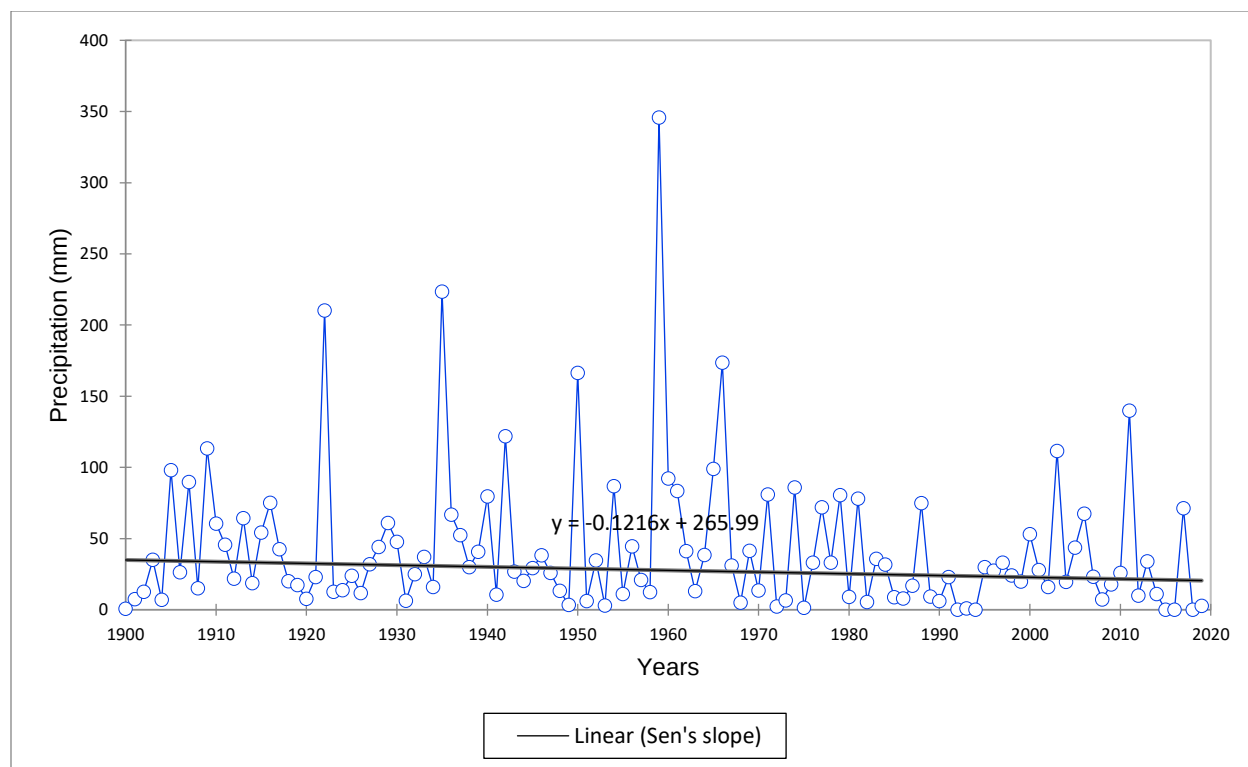


Figure D-39: May trend plot for Kentani-Bos station.

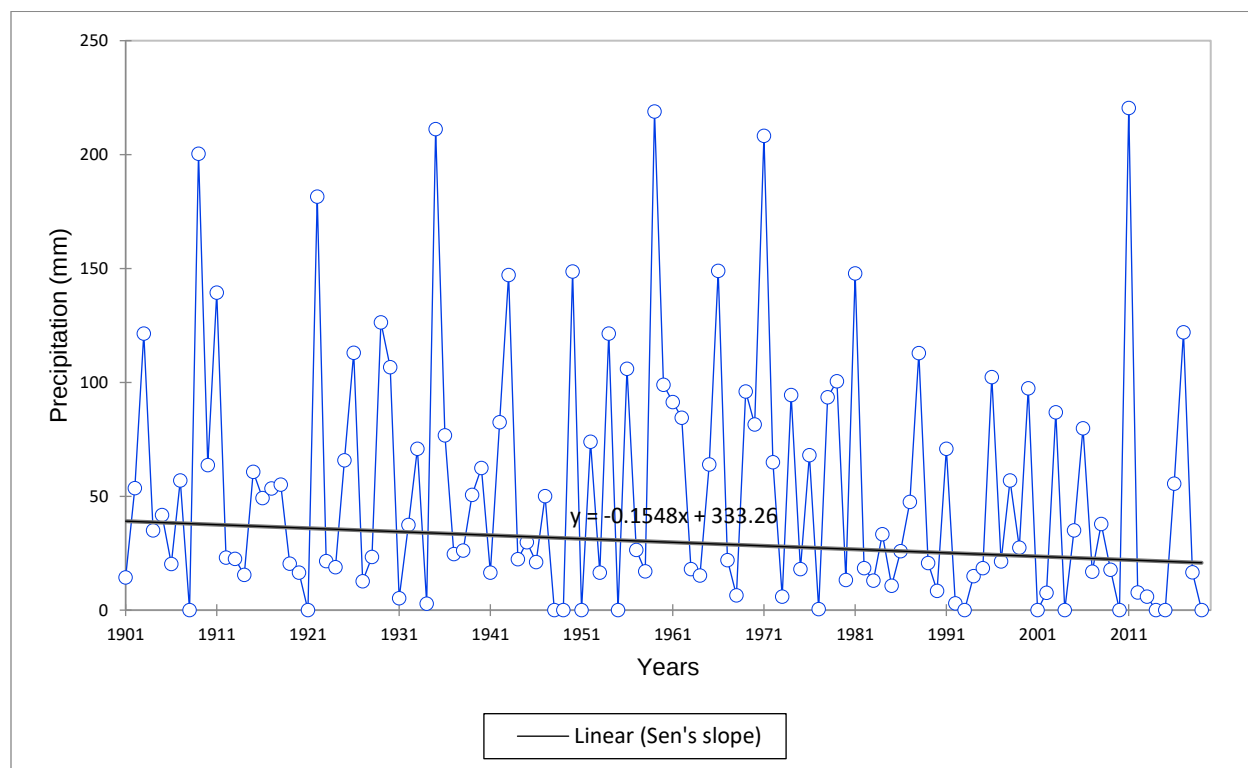


Figure D-40: May trend plot for Cwebe Nature Reserve station.

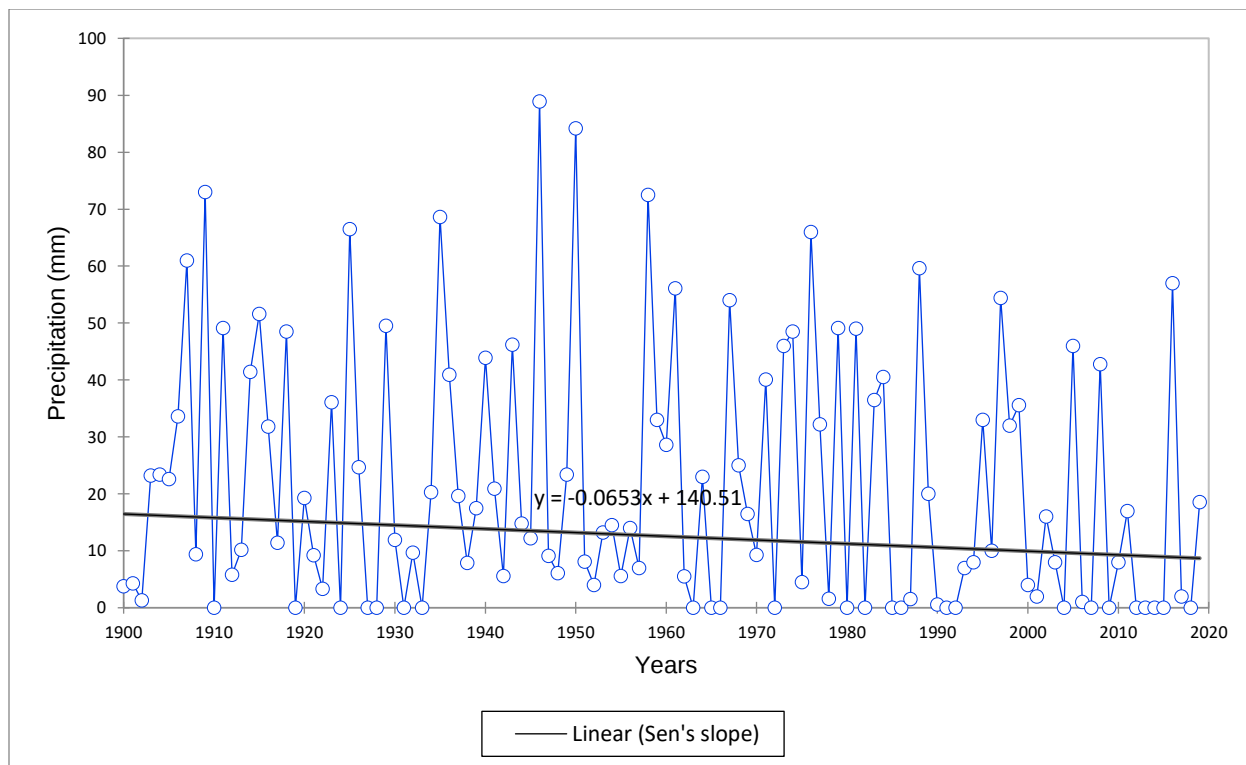


Figure D-41: May trend plot for Burgensdorp-Pol station.

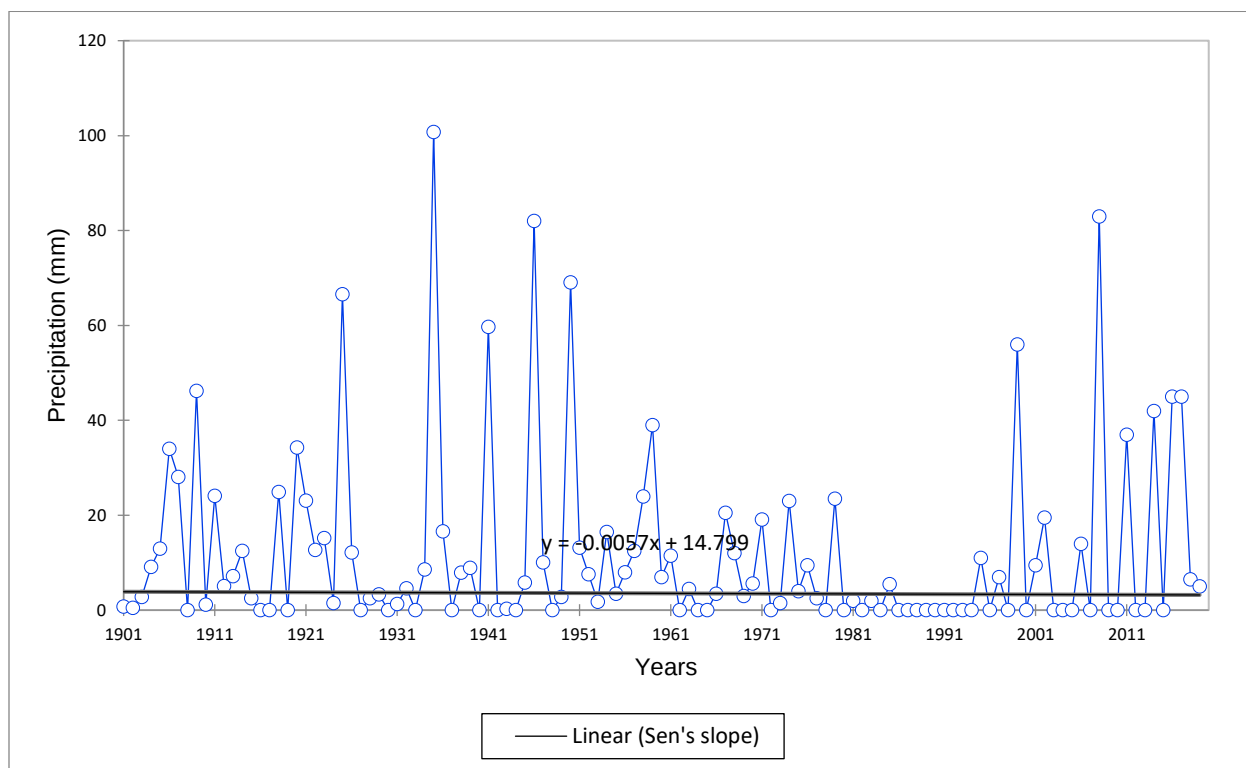


Figure D-42: May trend plot for Nuwejaarskraal station.

Table D7: June Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	June			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.289	-0.096	0.252	-0.096
2	Steytlerville-Mag	-33.33	24.33	419	0.480	-0.030	0.483	-0.003
3	Alicedale-Mun	-33.32	26.08	276	0.235	-0.043	0.236	-0.043
4	Grahamstown-Tnk	-33.3	26.53	539	0.698	0.027	0.655	0.027
5	Klipfontein	-32.55	24.72	673	0.397	0.000	0.398	0.000
6	Amatola State Forest	-32.67	27.28	884	0.059	-0.116	0.059	-0.116
7	Winterhoek	-32.22	24.47	876	0.062	-0.036	0.073	-0.036
8	Bloemhof	-32.03	24.67	1,091	0.292	-0.014	0.217	-0.014
9	Exwell Park	-32.2	27.12	914	0.809	0.000	0.795	0.000
10	Kentani-Bos	-32.5	28.32	488	0.152	-0.038	0.019	-0.038
11	Cwebe Nature Reserve	-32.2	28.93	61	0.133	-0.072	0.114	-0.072
12	Sterkstroom	-31.55	26.55	1,343	0.469	0.000	0.401	0.000
13	Engcobo Prison	-31.67	28.0	975	0.166	-0.003	0.073	-0.003
14	Xhora Prison	-31.97	28.67	671	0.076	-0.023	0.002	-0.023
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.368	0.000	0.369	0.000
16	Ellesmere	-30.67	26.32	1,387	0.410	0.007	0.450	0.007
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.780	0.000	0.743	0.000
18	Petrusville-Pol	-30.08	24.67	1,212	0.633	0.000	0.634	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.909	0.000	0.896	0.000
20	Hopetown-Tnk	-29.62	24.08	1,661	0.562	0.000	0.564	0.000
21	Lillydale	-30.0	25.95	1,098	0.129	0.000	0.213	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.640	0.000	0.602	0.000
23	Durban Botanical Gardens	-29.85	31.0	91	0.928	0.000	0.905	0.000
24	Steinkopf	-29.25	17.73	91	0.645	-0.011	0.606	-0.011
25	Nuwejaarskraal	-29.37	23.12	884	0.023	0.000	0.045	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.590	0.000	0.592	0.000
27	Boetsap-Pol	-27.97	24.45	1,189	0.564	0.000	0.566	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.412	0.000	0.454	0.000
29	Bothaville-Mun	-27.55	26.62	1,280	0.275	0.000	0.276	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.078	0.000	0.121	0.000
31	Balfour	-26.65	28.58	1,555	0.802	0.000	0.804	0.000
32	De Emigratie	-26.77	30.12	1,676	0.318	0.000	0.330	0.000
33	Morokweng	-26.12	23.78	1,126	0.830	0.000	0.884	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.950	0.000	0.953	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.379	0.000	0.441	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.595	0.000	0.597	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					p	Sen' Slope	p	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.876	0.000	0.891	0.000
38	Machadodorp	-25.67	30.25	1,609	0.094	0.000	0.120	0.000
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.414	0.000	0.416	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.914	0.000	0.924	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.406	-0.019	0.222	-0.019
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.850	0.014	0.852	0.014
43	Tulbagh	-33.28	19.13	155	0.554	0.090	0.566	0.090
44	Darling-The Towers	-33.38	18.37	229	0.338	0.129	0.376	0.129
45	Thornlea	-28.63	21.52	884	0.866	0.000	0.841	0.000
46	Klein Australie	-23.05	30.22	702	0.599	0.000	0.624	0.000

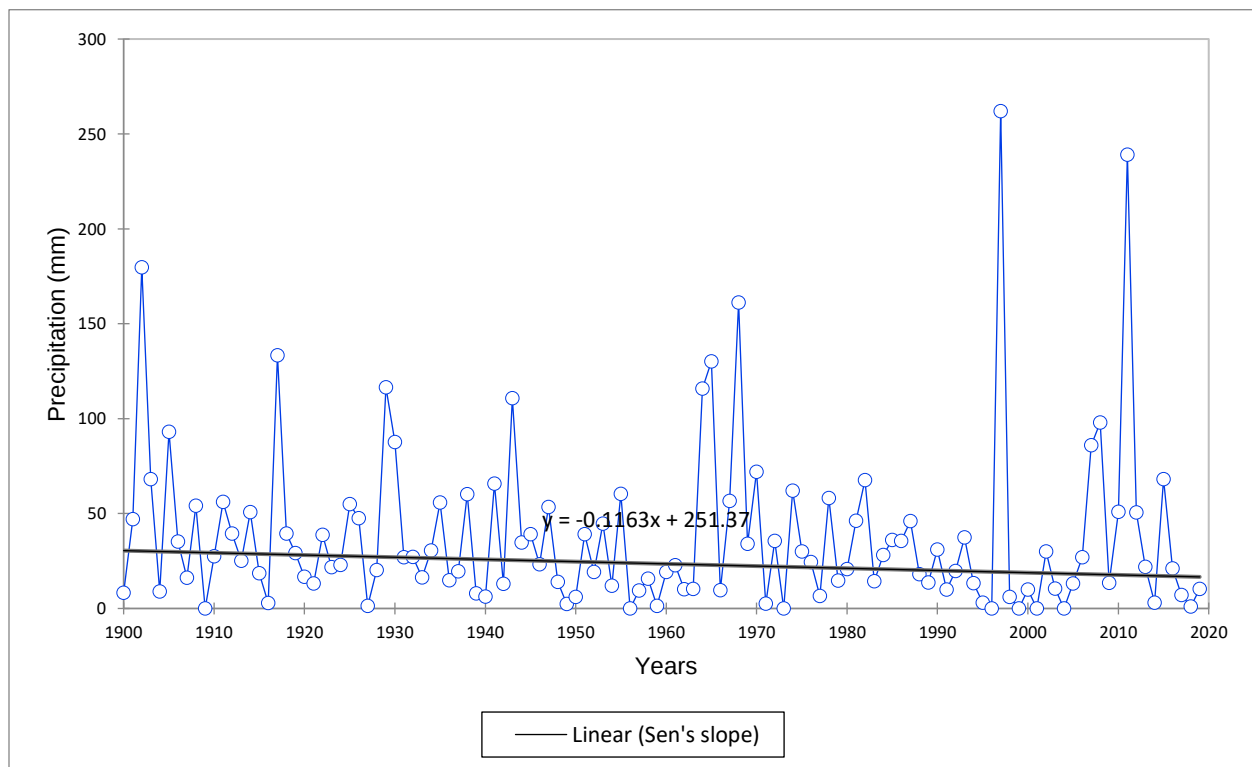


Figure D-43: June trend plot for Amatola State Forest station.

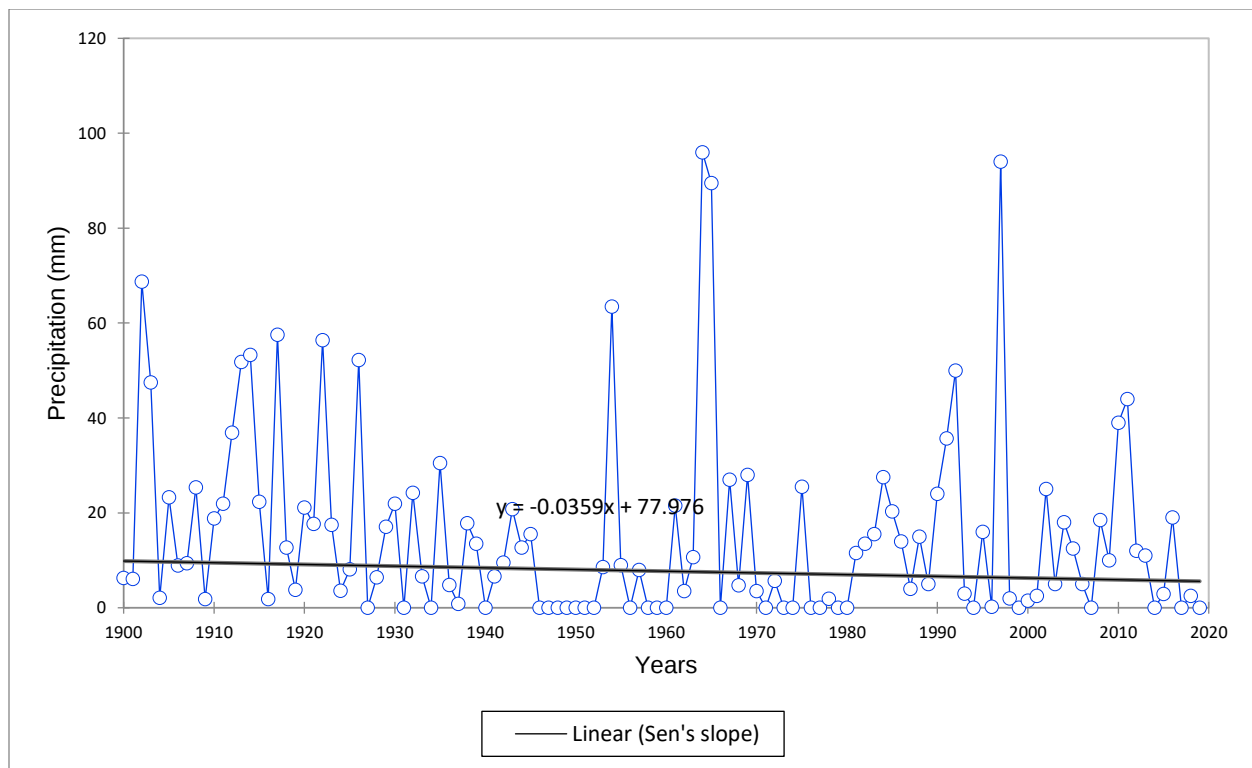


Figure D-44: June trend plot for Winterhoek station.

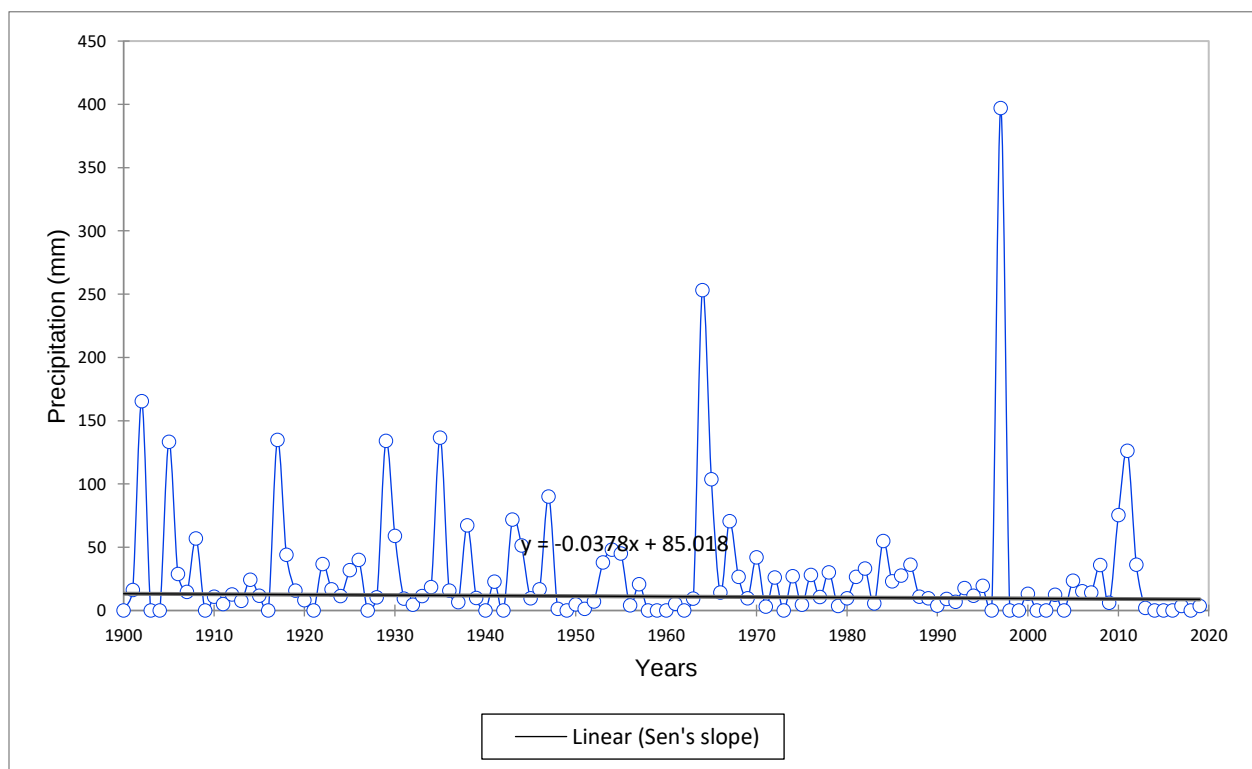


Figure D-45: June trend plot for Kentani-Bos station.

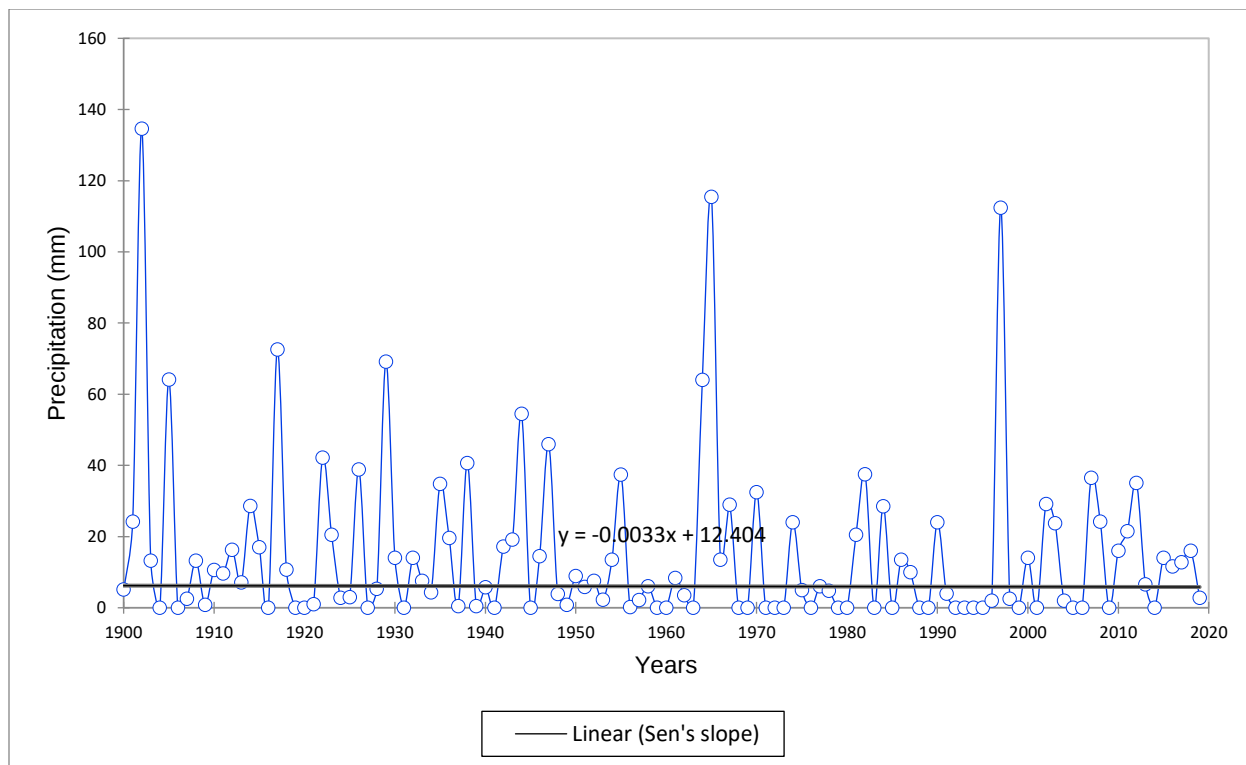


Figure D-46: June trend plot for Engcobo Prison station.

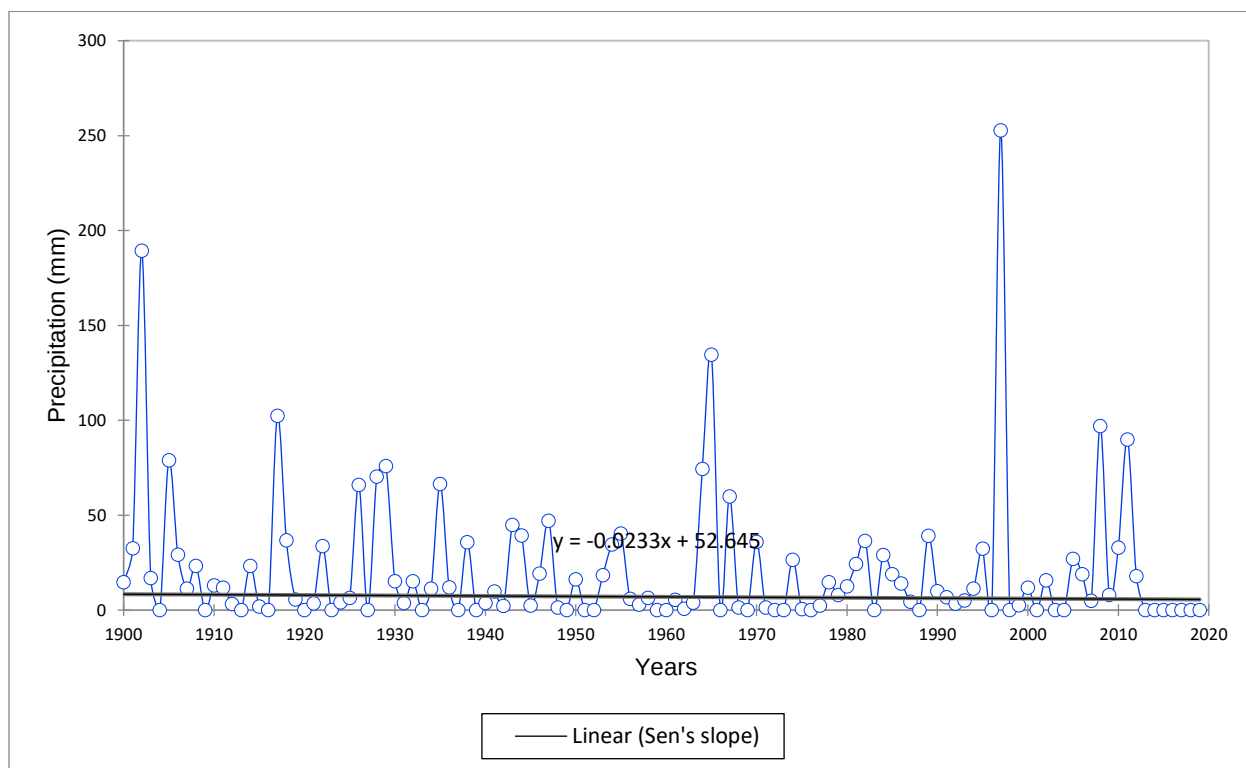


Figure D-47: June trend plot for Xhora Prison station.

Table D8: July Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	July			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.794	-0.030	0.796	-0.030
2	Steytlerville-Mag	-33.33	24.33	419	0.558	0.000	0.513	0.000
3	Alicedale-Mun	-33.32	26.08	276	0.624	0.008	0.626	0.008
4	Grahamstown-Tnk	-33.3	26.53	539	0.814	-0.022	0.746	-0.022
5	Klipfontein	-32.55	24.72	673	0.762	0.000	0.771	0.000
6	Amatola State Forest	-32.67	27.28	884	0.868	-0.007	0.767	-0.007
7	Winterhoek	-32.22	24.47	876	0.236	-0.006	0.045	-0.006
8	Bloemhof	-32.03	24.67	1,091	0.609	0.000	0.611	0.000
9	Exwell Park	-32.2	27.12	914	0.494	0.000	0.496	0.000
10	Kentani-Bos	-32.5	28.32	488	0.193	0.046	0.122	0.046
11	Cwebe Nature Reserve	-32.2	28.93	61	0.502	0.027	0.499	0.027
12	Sterkstroom	-31.55	26.55	1,343	0.850	0.000	0.859	0.000
13	Engcobo Prison	-31.67	28.0	975	0.803	0.000	0.805	0.000
14	Xhora Prison	-31.97	28.67	671	0.149	0.017	0.149	0.017
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.930	0.000	0.917	0.000
16	Ellesmere	-30.67	26.32	1,387	0.580	0.000	0.249	0.000
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.297	0.000	0.232	0.000
18	Petrusville-Pol	-30.08	24.67	1,212	0.894	0.000	0.896	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.202	0.000	0.098	0.000
20	Hopetown-Tnk	-29.62	24.08	1,661	0.191	0.000	0.156	0.000
21	Lillydale	-30.0	25.95	1,098	0.288	0.000	0.289	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.617	0.000	0.619	0.000
23	Durban Botanical Gardens	-29.85	31.0	91	0.260	0.039	0.316	0.039
24	Steinkopf	-29.25	17.73	91	0.395	0.030	0.333	0.030
25	Nuwejaarskraal	-29.37	23.12	884	0.032	0.000	0.032	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.091	0.000	0.075	0.000
27	Boetsap-Pol	-27.97	24.45	1,189	0.072	0.000	0.030	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.361	0.000	0.228	0.000
29	Bothaville-Mun	-27.55	26.62	1,280	0.383	0.000	0.313	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.725	0.000	0.728	0.000
31	Balfour	-26.65	28.58	1,555	0.007	0.000	0.007	0.000
32	De Emigratie	-26.77	30.12	1,676	0.290	0.000	0.292	0.000
33	Morokweng	-26.12	23.78	1,126	0.010	0.000	0.067	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.225	0.000	0.227	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.031	0.000	0.062	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.204	0.000	0.127	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.010	0.000	0.040	0.000
38	Machadodorp	-25.67	30.25	1,609	0.180	0.000	0.180	0.000
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.938	0.000	0.926	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.526	0.000	0.456	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.926	0.000	0.933	0.000
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.293	0.105	0.374	0.105
43	Tulbagh	-33.28	19.13	155	0.186	0.158	0.127	0.158
44	Darling-The Towers	-33.38	18.37	229	0.283	0.123	0.378	0.123
45	Thornlea	-28.63	21.52	884	0.326	0.000	0.327	0.000
46	Klein Australie	-23.05	30.22	702	0.760	0.000	0.742	0.000

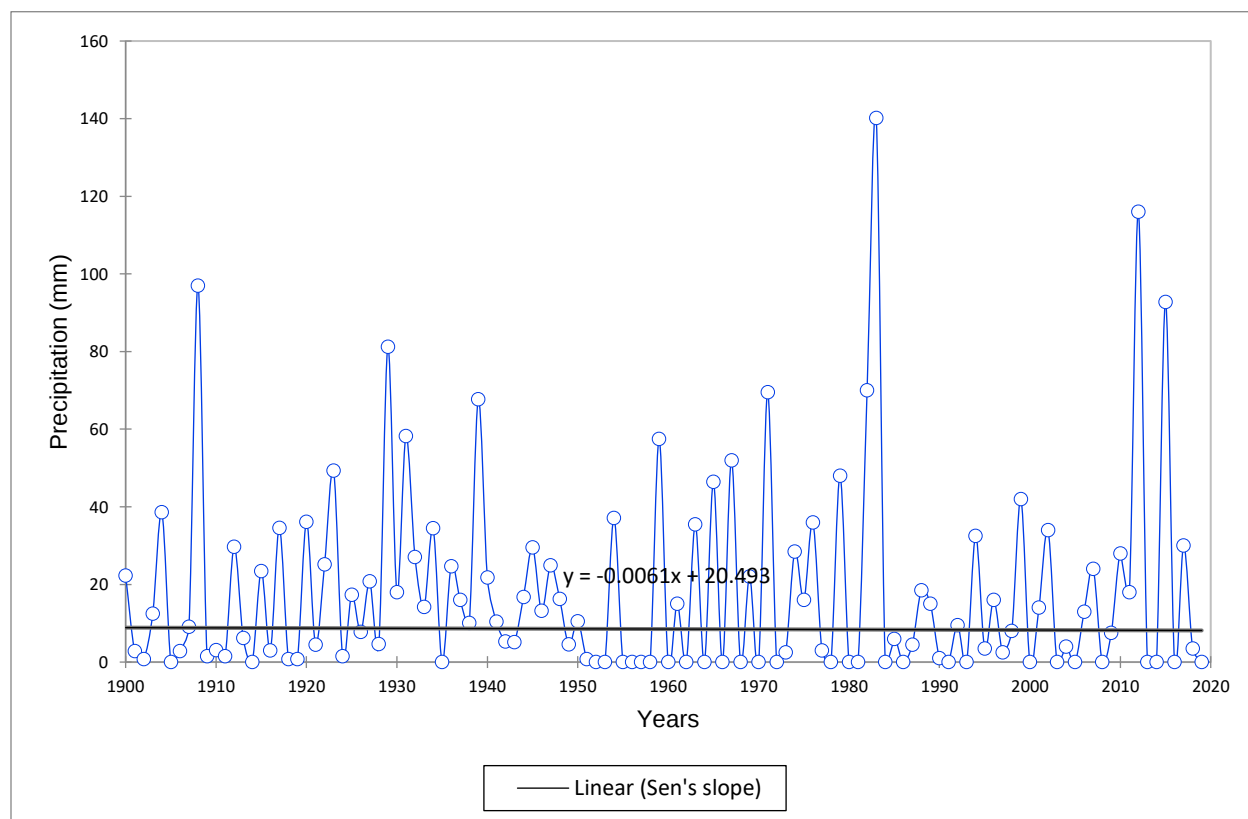


Figure D-48: July trend plot for Winterhoek station.

Table D9: August Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	August			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.500	-0.065	0.502	-0.065
2	Steytlerville-Mag	-33.33	24.33	419	0.390	0.006	0.391	0.006
3	Alicedale-Mun	-33.32	26.08	276	0.408	0.026	0.389	0.026
4	Grahamstown-Tnk	-33.3	26.53	539	0.673	-0.050	0.703	-0.050
5	Klipfontein	-32.55	24.72	673	0.982	0.000	0.942	0.000
6	Amatola State Forest	-32.67	27.28	884	0.349	0.072	0.416	0.072
7	Winterhoek	-32.22	24.47	876	0.931	0.000	0.925	0.000
8	Bloemhof	-32.03	24.67	1,091	0.639	0.000	0.397	0.000
9	Exwell Park	-32.2	27.12	914	0.548	0.000	0.473	0.000
10	Kentani-Bos	-32.5	28.32	488	0.033	0.132	0.014	0.132
11	Cwebe Nature Reserve	-32.2	28.93	61	0.659	0.038	0.734	0.038
12	Sterkstroom	-31.55	26.55	1,343	0.544	0.000	0.182	0.000
13	Engcobo Prison	-31.67	28	975	0.414	0.000	0.275	0.000
14	Xhora Prison	-31.97	28.67	671	0.333	0.026	0.391	0.026
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.421	0.000	0.544	0.000
16	Ellesmere	-30.67	26.32	1,387	0.522	0.000	0.438	0.000
17	Burgersdorp-Pol	-31	26.33	1,387	0.157	0.000	0.002	0.000
18	Petrusville-Pol	-30.08	24.67	1,212	0.659	0.000	0.553	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.370	0.000	0.271	0.000
20	Hopetown-Tnk	-29.62	24.08	1,661	0.203	0.000	0.001	0.000
21	Lillydale	-30	25.95	1,098	0.933	0.000	0.995	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.886	0.000	0.867	0.000
23	Durban Botanical Gardens	-29.85	31	91	0.327	0.064	0.328	0.064
24	Steinkopf	-29.25	17.73	91	0.570	-0.015	0.572	-0.015
25	Nuwejaarskraal	-29.37	23.12	884	0.080	0.000	0.016	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.306	0.000	0.307	0.000
27	Boetsap-Pol	-27.97	24.45	1,189	0.090	0.000	0.034	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.642	0.000	0.674	0.000
29	Bothaville-Mun	-27.55	26.62	1,280	0.118	0.000	0.118	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.276	0.000	0.277	0.000
31	Balfour	-26.65	28.58	1,555	0.568	0.000	0.498	0.000
32	De Emigratie	-26.77	30.12	1,676	0.168	0.000	0.064	0.000
33	Morokweng	-26.12	23.78	1,126	0.002	0.000	0.006	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.285	0.000	0.311	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.171	0.000	0.171	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.344	0.000	0.301	0.000
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.166	0.000	0.035	0.000
38	Machadodorp	-25.67	30.25	1,609	0.968	0.000	0.970	0.000
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.932	0.000	0.921	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.537	0.000	0.546	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.491	0.007	0.563	0.007
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.250	0.119	0.299	0.119
43	Tulbagh	-33.28	19.13	155	0.558	0.065	0.560	0.065
44	Darling-The Towers	-33.38	18.37	229	0.266	0.101	0.145	0.101
45	Thornlea	-28.63	21.52	884	0.582	0.000	0.660	0.000
46	Klein Australie	-23.05	30.22	702	0.686	0.000	0.688	0.000

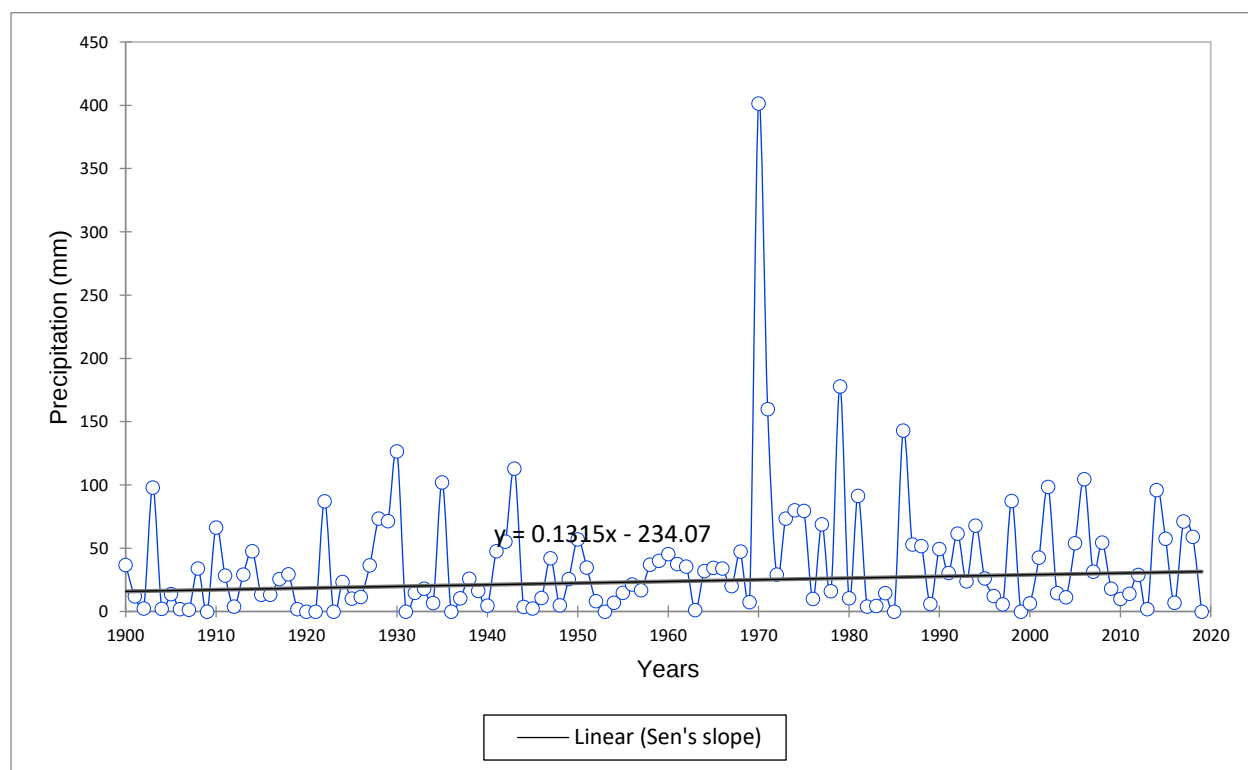


Figure D-49: August trend plot for Kentani-Bos station.

Table D10: September Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	September			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.001	-0.370	0.000	-0.370
2	Steytlerville-Mag	-33.33	24.33	419	0.225	-0.014	0.266	-0.014
3	Alicedale-Mun	-33.32	26.08	276	0.568	-0.040	0.526	-0.040
4	Grahamstown-Tnk	-33.3	26.53	539	0.296	0.131	0.297	0.131
5	Klipfontein	-32.55	24.72	673	0.843	0.000	0.814	0.000
6	Amatola State Forest	-32.67	27.28	884	0.047	-0.223	1.000	-0.223
7	Winterhoek	-32.22	24.47	876	0.029	-0.054	0.029	-0.054
8	Bloemhof	-32.03	24.67	1,091	0.101	-0.027	1.000	-0.027
9	Exwell Park	-32.2	27.12	914	0.985	0.000	0.987	0.000
10	Kentani-Bos	-32.5	28.32	488	0.378	-0.109	0.044	-0.109
11	Cwebe Nature Reserve	-32.2	28.93	61	0.601	-0.080	0.496	-0.080
12	Sterkstroom	-31.55	26.55	1,343	0.172	-0.036	0.181	-0.036
13	Engcobo Prison	-31.67	28.0	975	0.268	-0.081	0.269	-0.081
14	Xhora Prison	-31.97	28.67	671	0.652	-0.045	0.607	-0.045
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.218	0.000	0.211	0.000
16	Ellesmere	-30.67	26.32	1,387	0.635	0.000	0.637	0.000
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.218	0.000	0.267	0.000
18	Petrusville -Pol	-30.08	24.67	1,212	0.101	0.000	0.073	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.429	0.000	0.369	0.000
20	Hopetown-Tnk	-29.62	24.08	1,661	0.814	0.000	0.853	0.000
21	Lillydale	-30.0	25.95	1,098	0.619	0.000	0.566	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.681	0.044	0.683	0.044
23	Durban Botanical Gardens	-29.85	31.0	91	0.442	-0.077	0.443	-0.077
24	Steinkopf	-29.25	17.73	91	0.126	-0.013	0.071	-0.013
25	Nuwejaarskraal	-29.37	23.12	884	0.006	0.000	0.006	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.021	-0.050	0.042	-0.050
27	Boetsap-Pol	-27.97	24.45	1,189	0.827	0.000	0.851	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.10	-0.002	0.102	-0.002
29	Bothaville-Mun	-27.55	26.62	1,280	0.828	0.000	0.830	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.833	0.000	0.835	0.000
31	Balfour	-26.65	28.58	1,555	0.287	-0.011	0.288	-0.011
32	De Emigratie	-26.77	30.12	1,676	0.225	-0.065	0.197	-0.065
33	Morokweng	-26.12	23.78	1,126	0.190	0.000	0.031	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.119	0.000	0.107	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.068	0.000	0.042	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.889	0.000	0.888	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.07	-0.016	0.046	-0.016
38	Machadodorp	-25.67	30.25	1,609	0.230	-0.049	0.202	-0.049
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.843	0.000	0.845	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.590	0.000	0.592	0.000
41	Prince Albert-Tnk	-33.22	22.03	686	0.001	-0.019	0.002*	-0.019
42	Plettenbergbaai - Pol	-34.05	23.37	73	0.225	-0.124	1.000	-0.124
43	Tulbagh	-33.28	19.13	155	0.585	-0.034	0.478	-0.034
44	Darling-The Towers	-33.38	18.37	229	0.719	0.020	0.685	0.000
45	Thornlea	-28.63	21.52	884	0.297	0.000	0.320	0.000
46	Klein Australie	-23.05	30.22	702	0.850	0.007	0.832	0.007

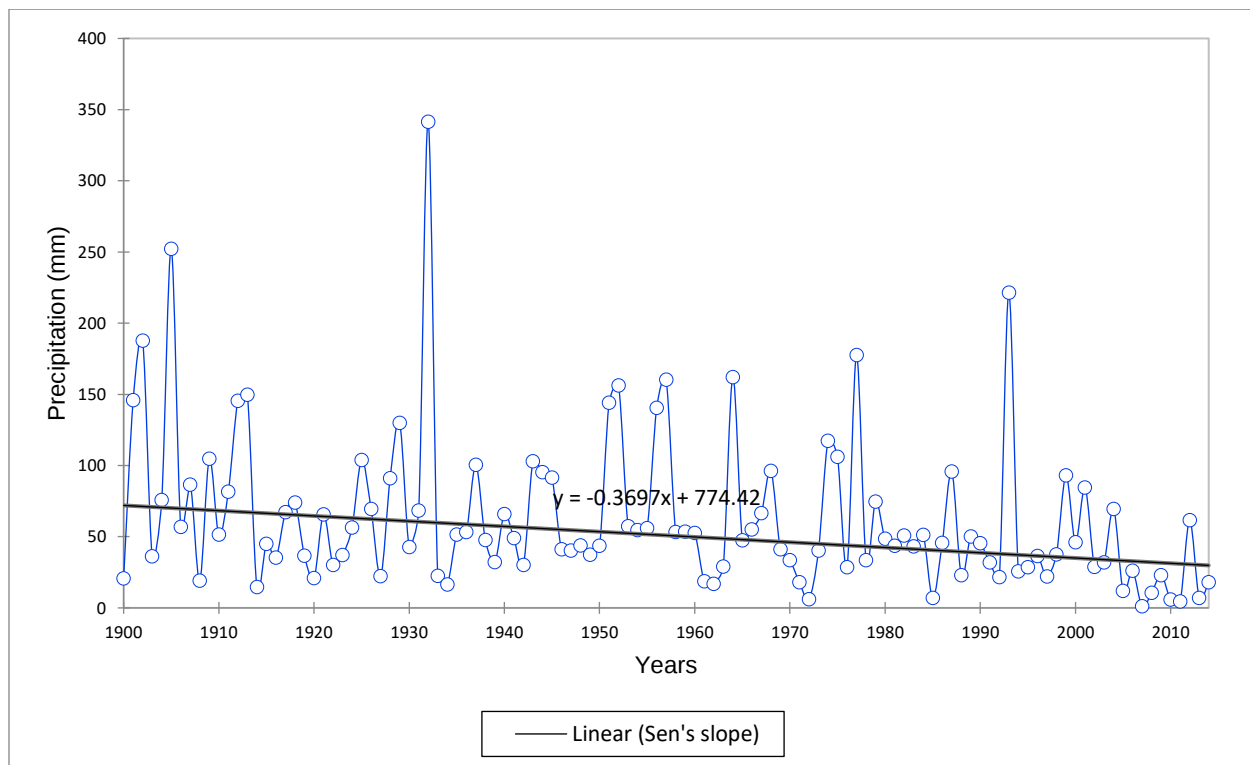


Figure D-50: September trend plot for Humansdorp station.

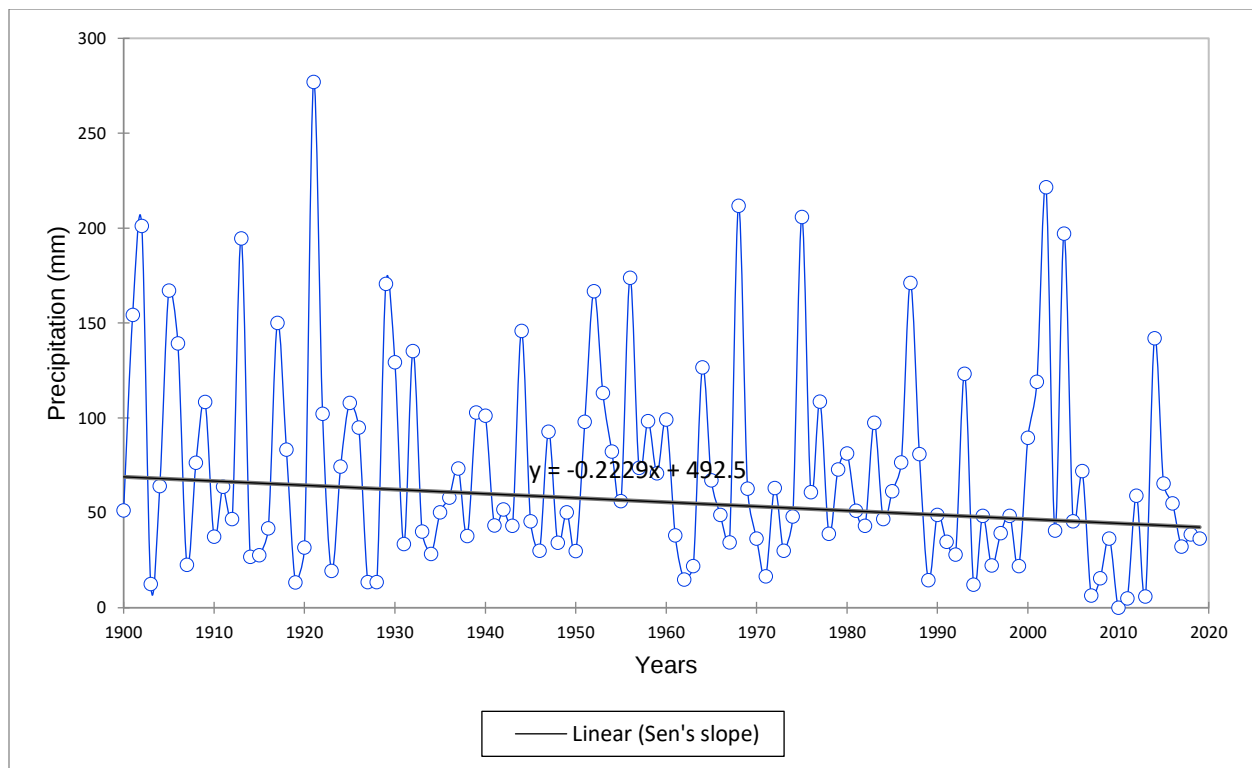


Figure D-51: September trend plot for Amatola State Forest station.

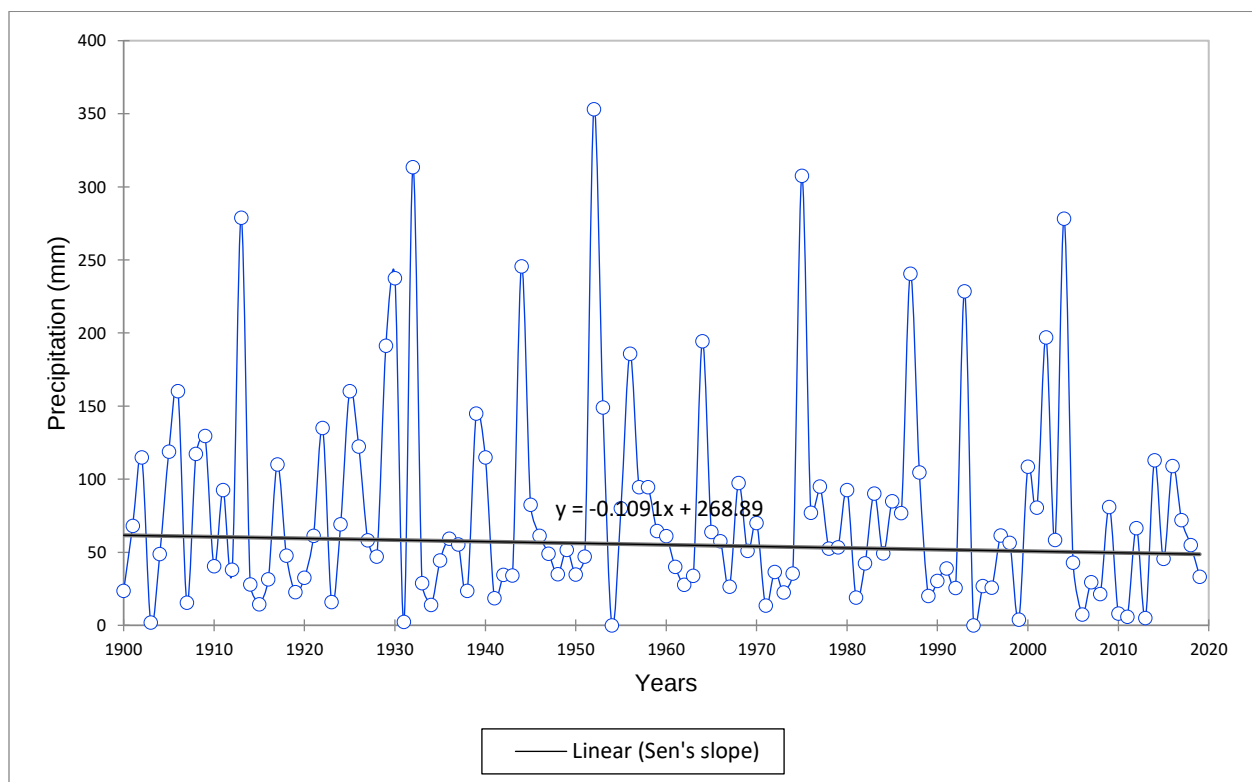


Figure D-52: September trend plot for Kentani-Bos station.

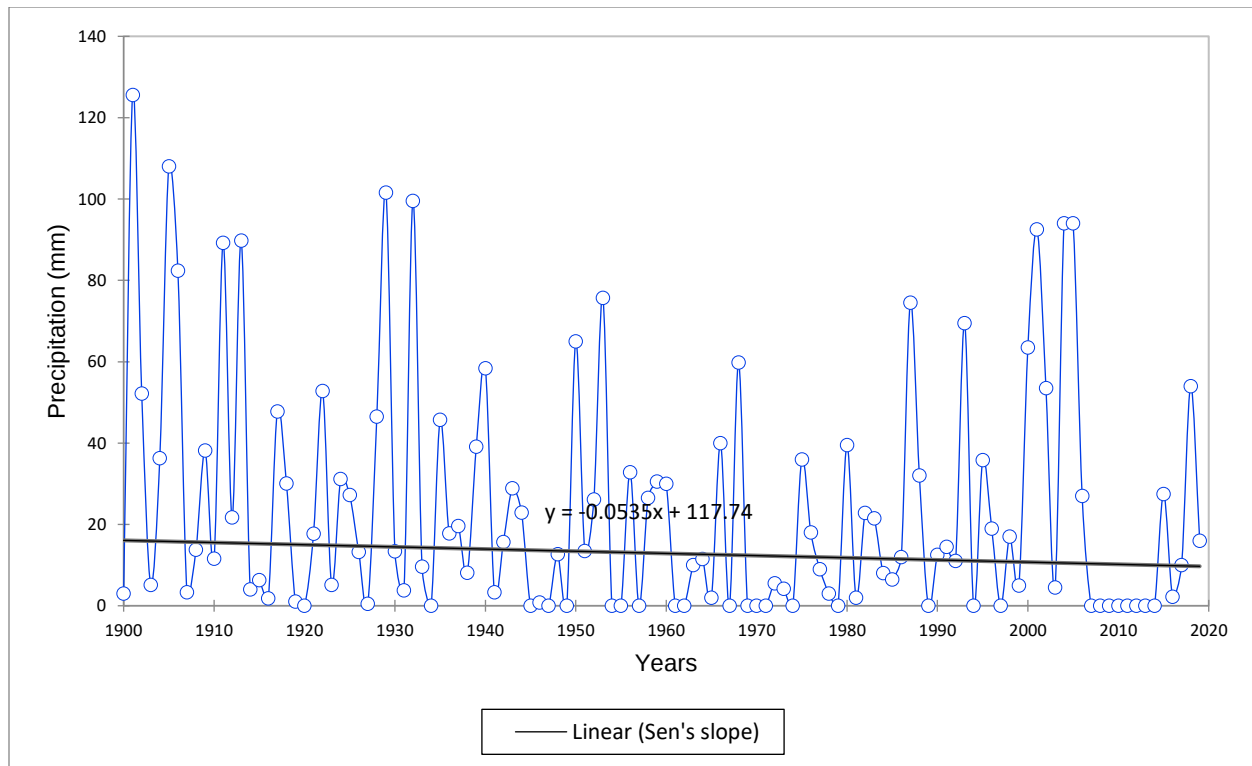


Figure D-53: September trend plot for Winterhoek station.

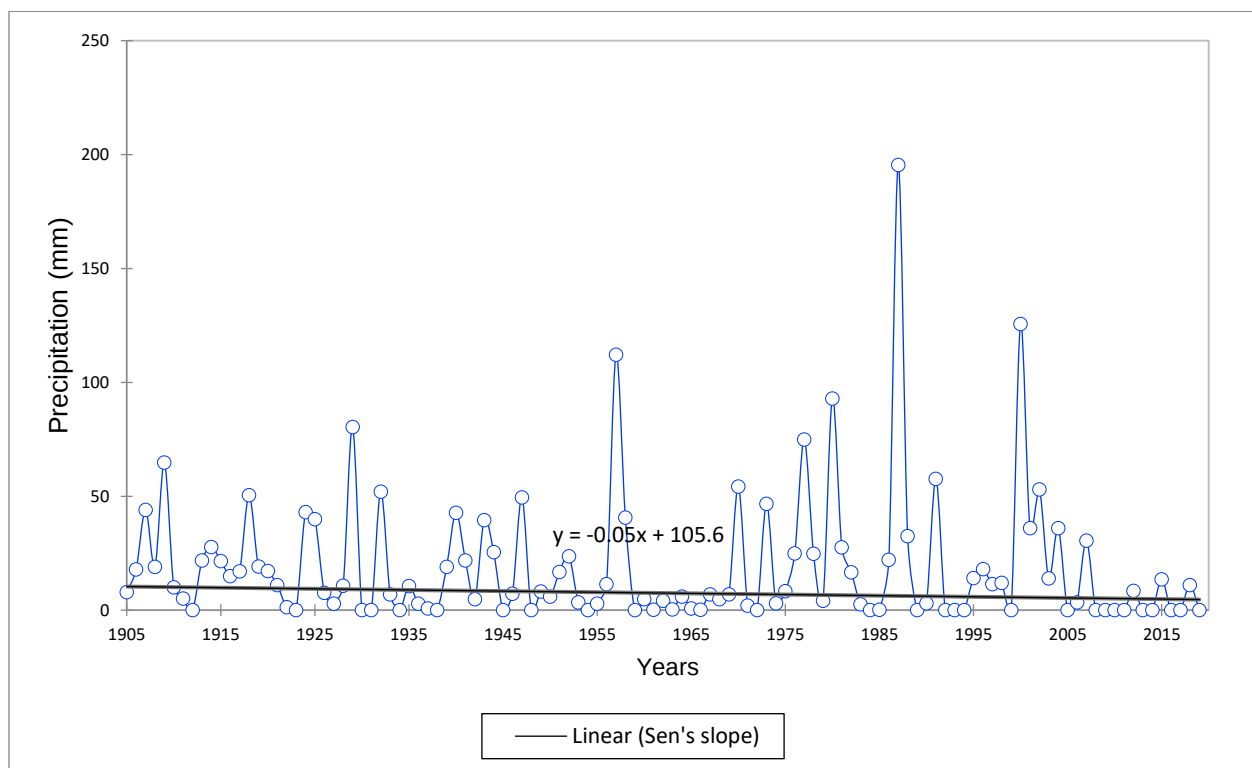


Figure D-54: September trend plot for Maselpoort Dam station.

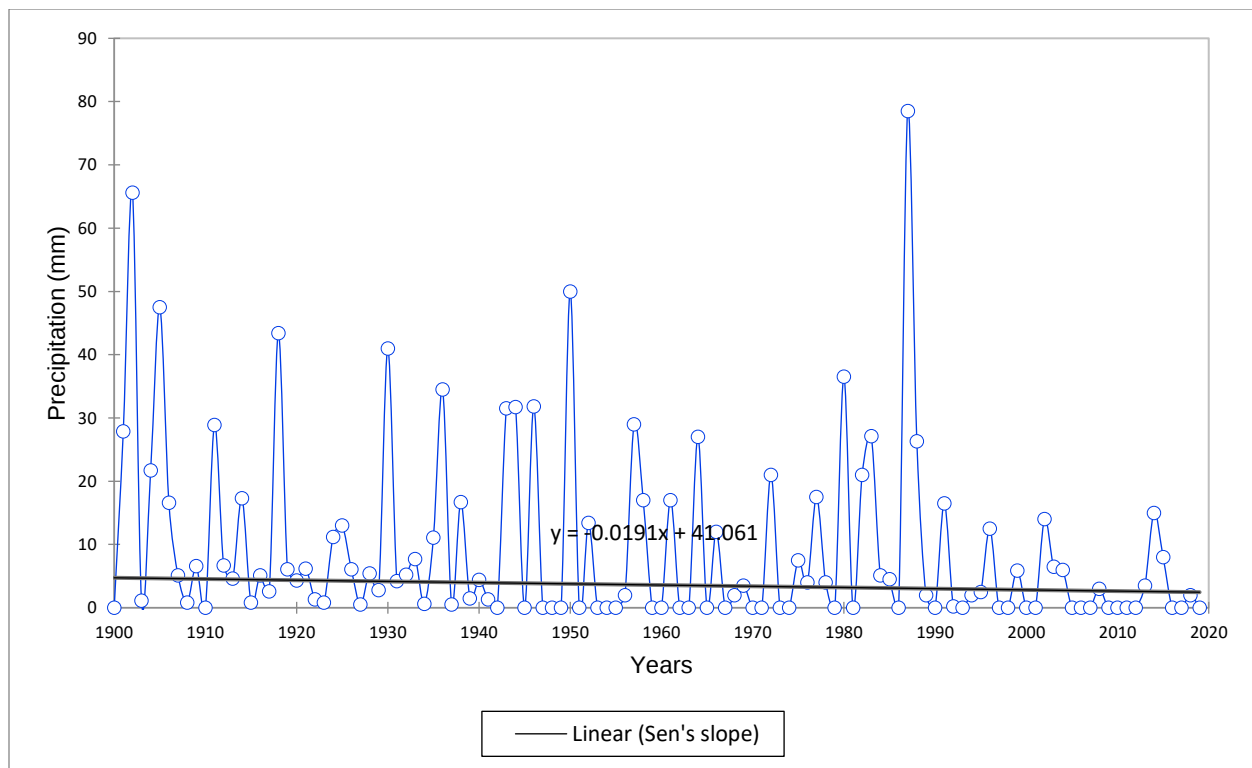


Figure D-55: September trend plot for Prince Albert TNK station.

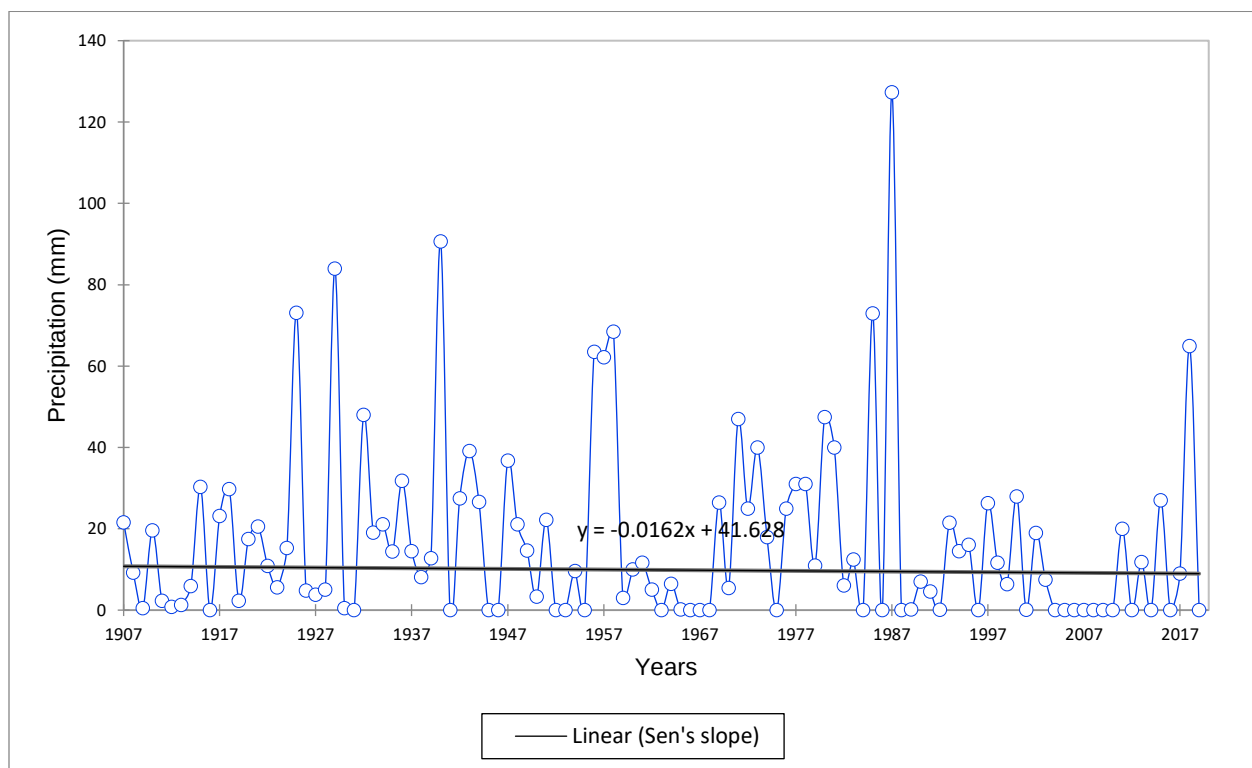


Figure D-56: September trend plot for Bronkhorstspuit-Mun station.

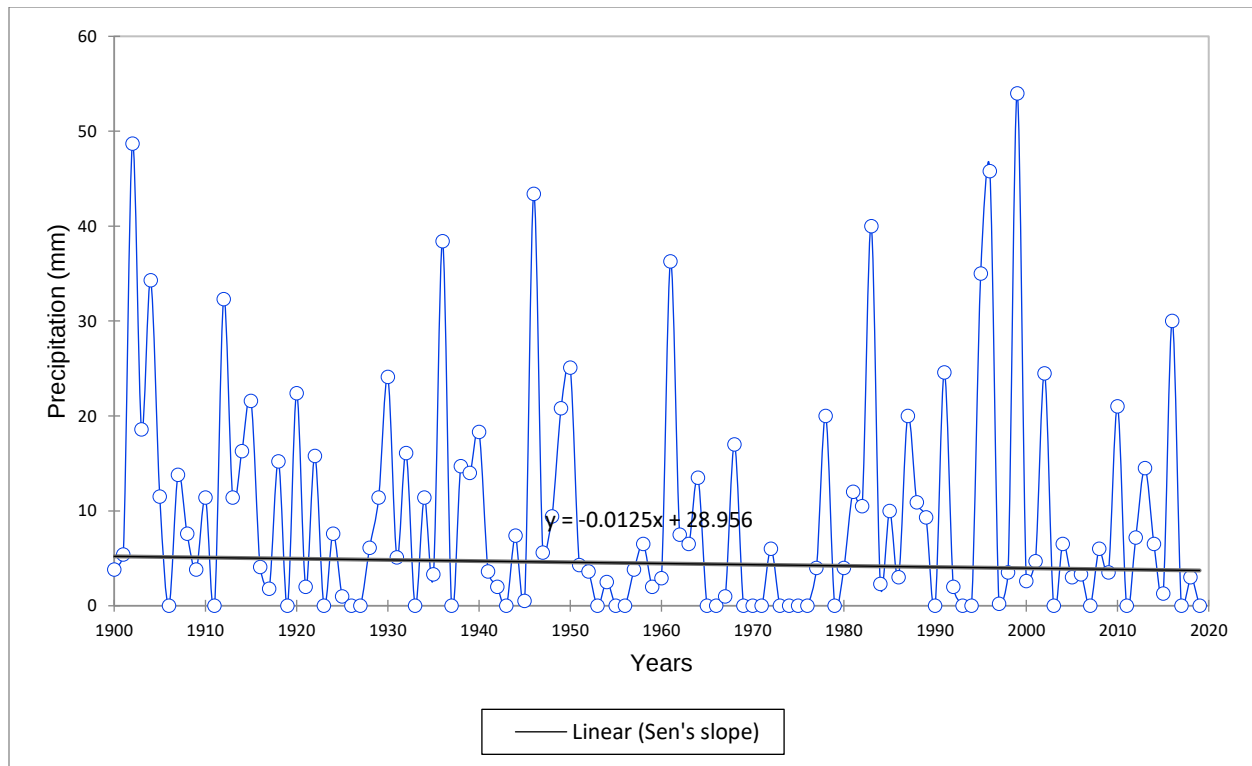


Figure D-57: September trend plot for Steinkopf station.

Table D11: October Mann-Kendall trend test results

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	October			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.134	-0.187	0.121	-0.187
2	Steytlerville-Mag	-33.33	24.33	419	0.583	0.018	0.585	0.018
3	Alicedale-Mun	-33.32	26.08	276	0.996	0.000	0.998	0.000
4	Grahamstown-Tnk	-33.3	26.53	539	0.358	-0.086	0.404	-0.086
5	Klipfontein	-32.55	24.72	673	0.556	0.012	0.565	0.012
6	Amatola State Forest	-32.67	27.28	884	0.256	-0.179	0.177	-0.179
7	Winterhoek	-32.22	24.47	876	0.392	-0.050	0.393	-0.050
8	Bloemhof	-32.03	24.67	1,091	0.879	-0.002	0.886	-0.002
9	Exwell Park	-32.2	27.12	914	0.791	0.017	0.792	0.017
10	Kentani-Bos	-32.5	28.32	488	0.984	0.006	0.979	0.006
11	Cwebe Nature Reserve	-32.2	28.93	61	0.676	0.074	0.678	0.074
12	Sterkstroom	-31.55	26.55	1,343	0.534	0.036	0.561	0.036
13	Engcobo Prison	-31.67	28.0	975	0.662	0.053	0.702	0.053
14	Xhora Prison	-31.97	28.67	671	0.522	0.070	0.463	0.070

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
15	Richmond C/K - Tnk	-31.42	23.95	1,433	0.071	-0.071	0.072	-0.070
16	Ellesmere	-30.67	26.32	1,387	0.980	0.000	0.974	0.000
17	Burgersdorp-Pol	-31	26.33	1,387	0.161	-0.067	0.081	-0.067
18	Petrusville-Pol	-30.08	24.67	1,212	0.823	0.000	0.794	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.223	-0.127	0.045	-0.027
20	Hopetown-Tnk	-29.62	24.08	1,661	0.290	0.027	0.278	0.027
21	Lillydale	-30	25.95	1,098	1.000	0.000	1.000	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.132	0.224	0.095	0.224
23	Durban Botanical Gardens	-29.85	31	91	0.085	0.243	0.086	0.243
24	Steinkopf	-29.25	17.73	91	0.331	0.000	0.279	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.189	-0.015	0.097	-0.015
26	Maselspoort Dam	-29.03	26.42	1,372	0.676	0.043	0.654	0.043
27	Boetsap-Pol	-27.97	24.45	1,189	0.840	0.000	0.835	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.763	-0.025	0.633	-0.025
29	Bothaville-Mun	-27.55	26.62	1,280	0.699	0.039	0.701	0.039
30	Beerlaagte	-26.82	28.43	1,615	0.388	0.112	0.477	0.112
31	Balfour	-26.65	28.58	1,555	0.115	0.209	0.174	0.209
32	De Emigratie	-26.77	30.12	1,676	0.920	0.012	0.920	0.012
33	Morokweng	-26.12	23.78	1,126	0.969	0.000	0.969	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.115	0.147	0.124	0.147
35	Swartruggens-Pol	-25.63	26.68	1,311	0.335	0.080	0.405	0.080
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.116	0.192	0.049	0.192
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.217	0.138	0.130	0.138
38	Machadodorp	-25.67	30.25	1,609	0.163	0.152	0.021	0.152
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.014	0.226	0.014	0.226
40	Haenertsburg	-23.93	29.93	1,402	0.620	0.051	0.430	0.051
41	Prince Albert-Tnk	-33.22	22.03	686	0.138	-0.021	0.087	-0.021
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.872	0.013	0.877	0.013
43	Tulbagh	-33.28	19.13	155	0.132	-0.086	0.133	-0.086
44	Darling-The Towers	-33.38	18.37	229	0.283	-0.053	0.285	-0.053
45	Thornlea	-28.63	21.52	884	0.899	0.000	0.902	0.000
46	Klein Australie	-23.05	30.22	702	0.086	-0.213	0.002	-0.231

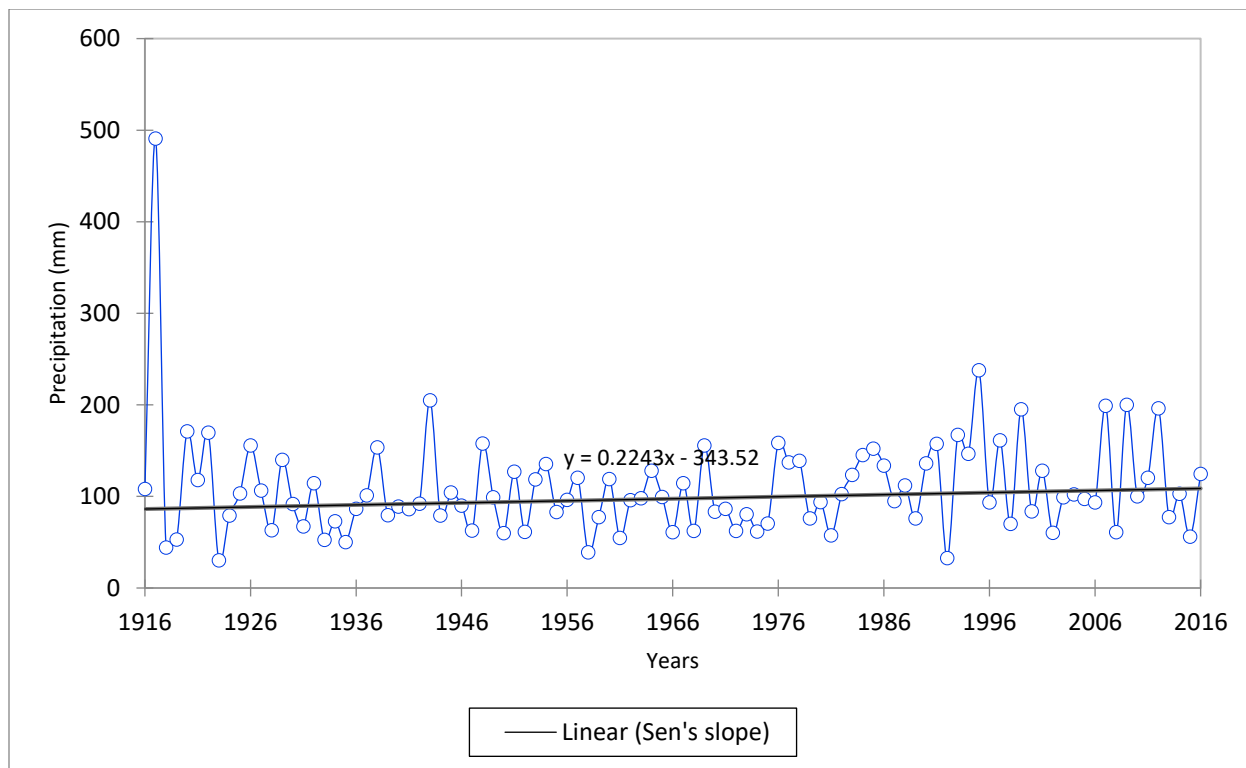


Figure D-58: October trend plot for Richmond SAP station.

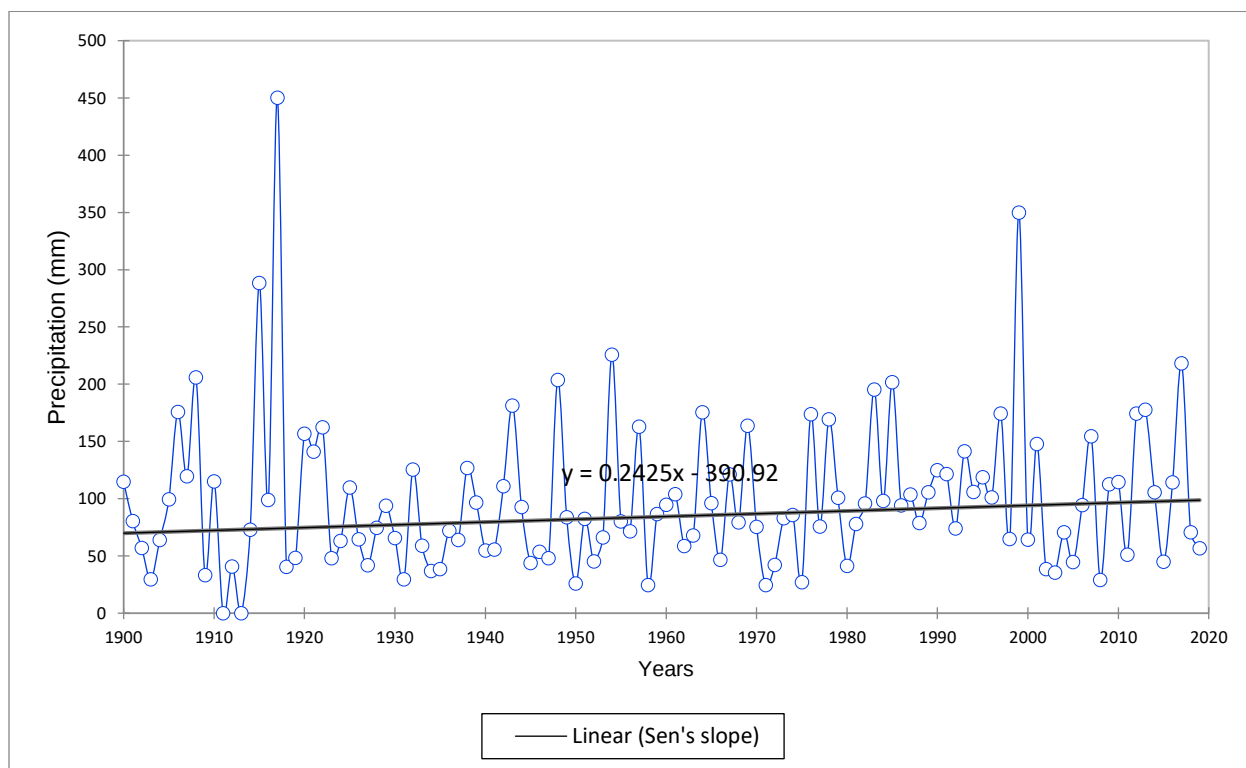


Figure D-59: October trend plot for Durban Botanical Gardens station.

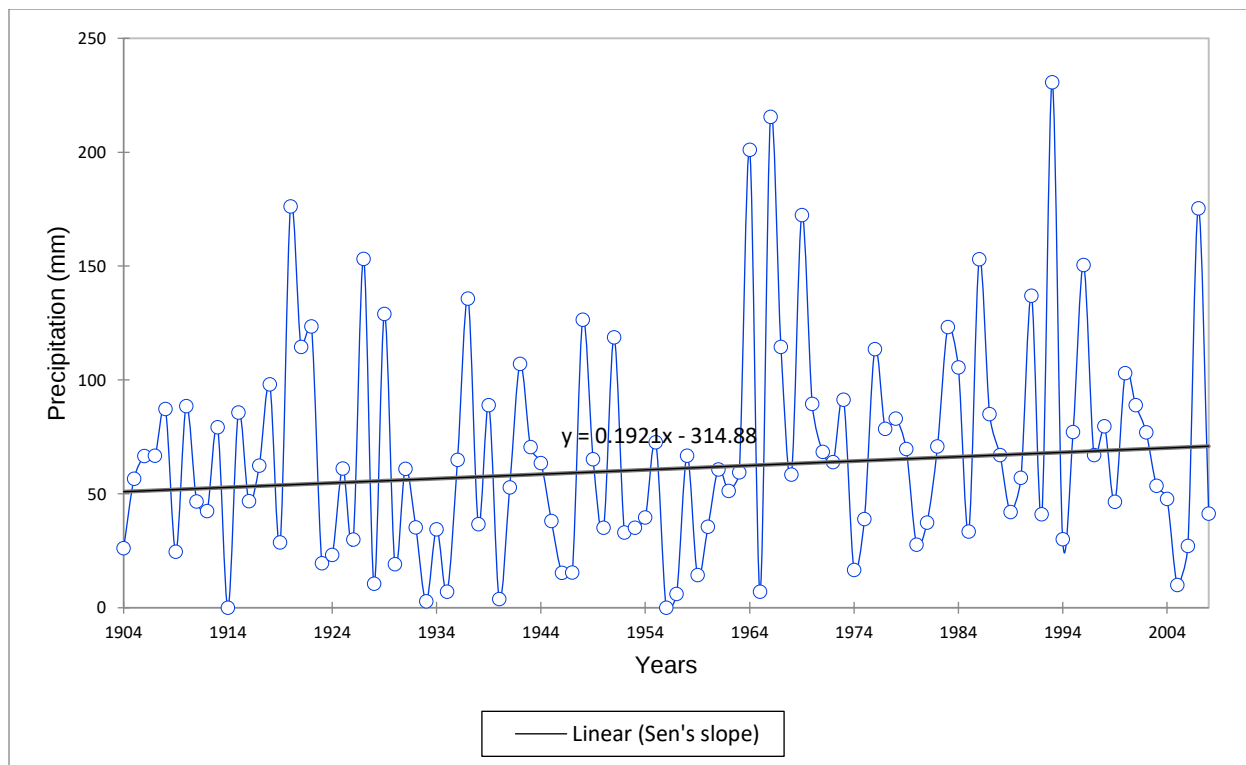


Figure D-60: October trend plot for Premier Mine-Cullinan station.

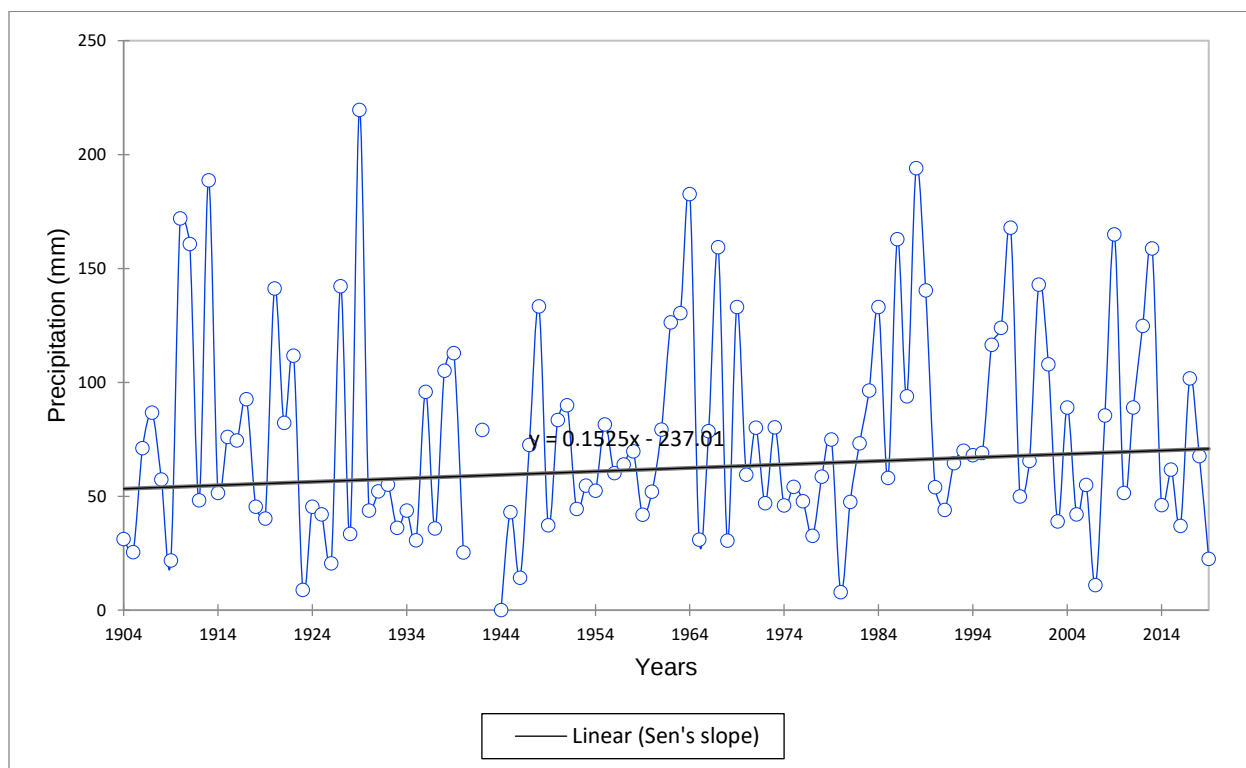


Figure D-61: October trend plot for Machadodorp station.

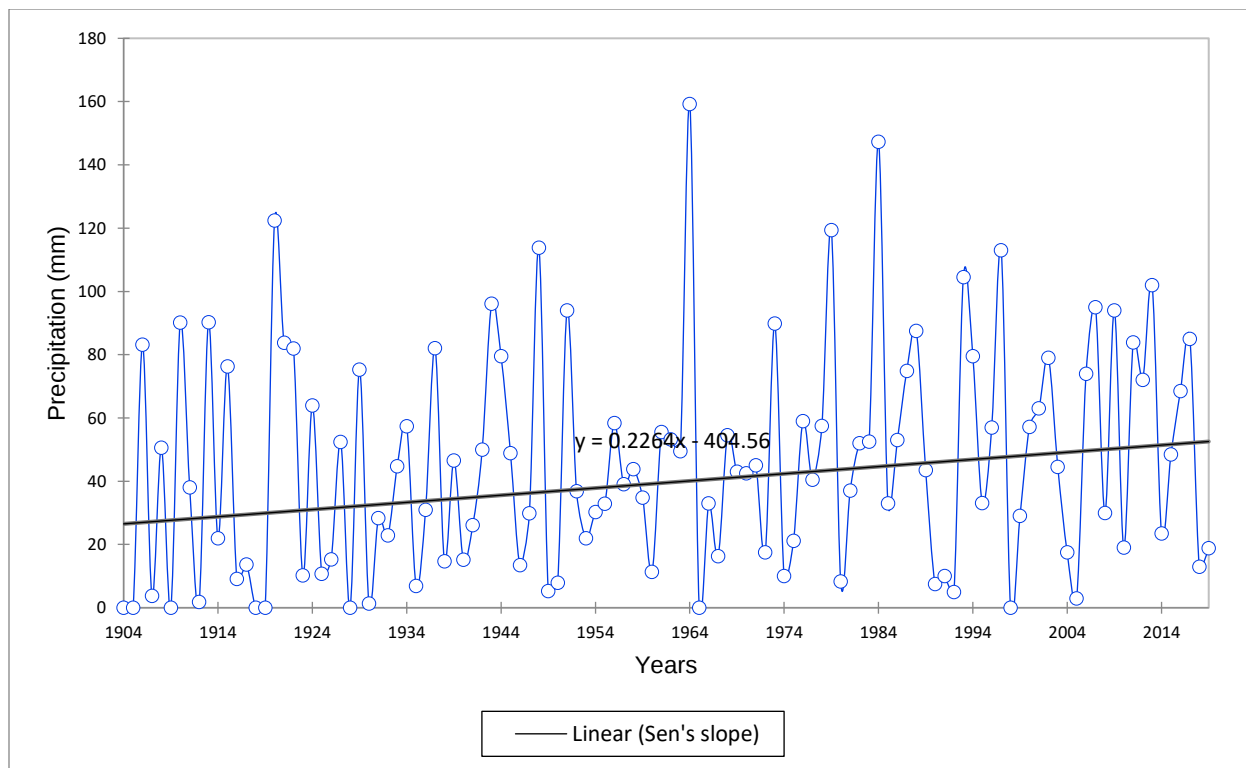


Figure D-62: October trend plot for Naboomspruit station.

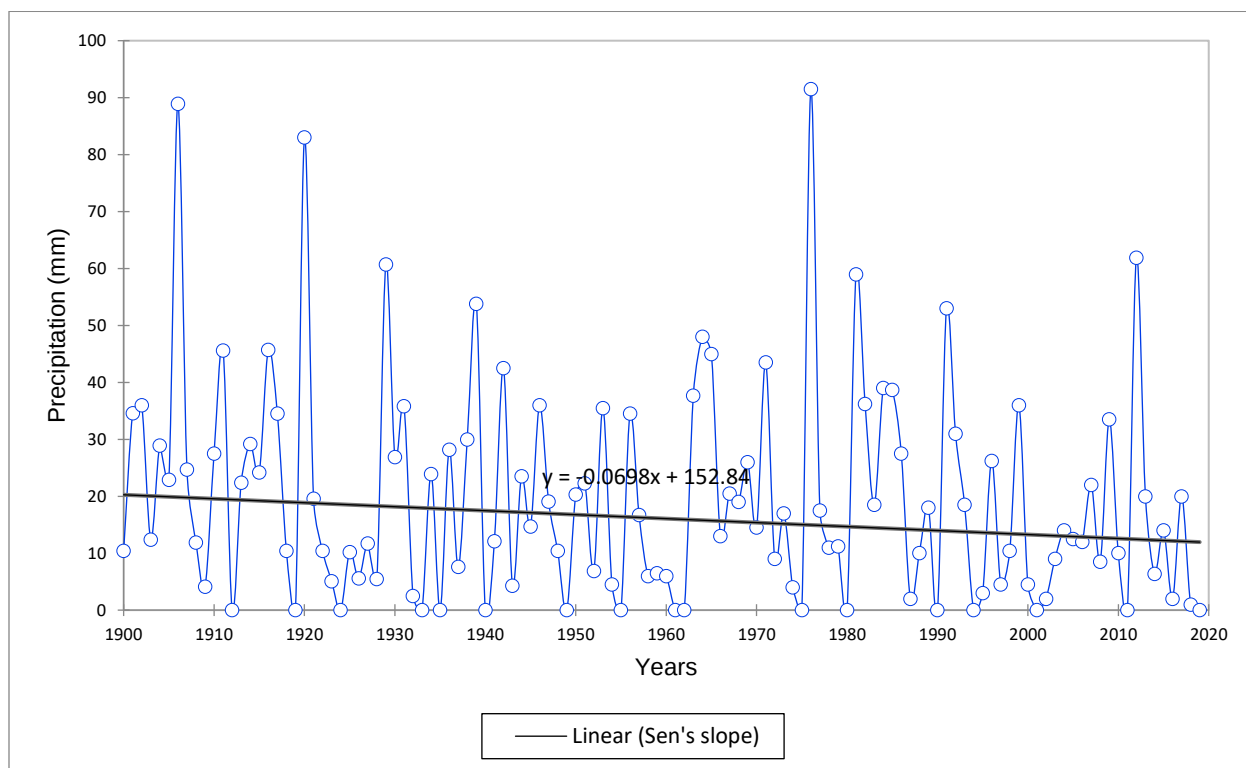


Figure D-63: October trend plot for Richmond CK-TNK station.

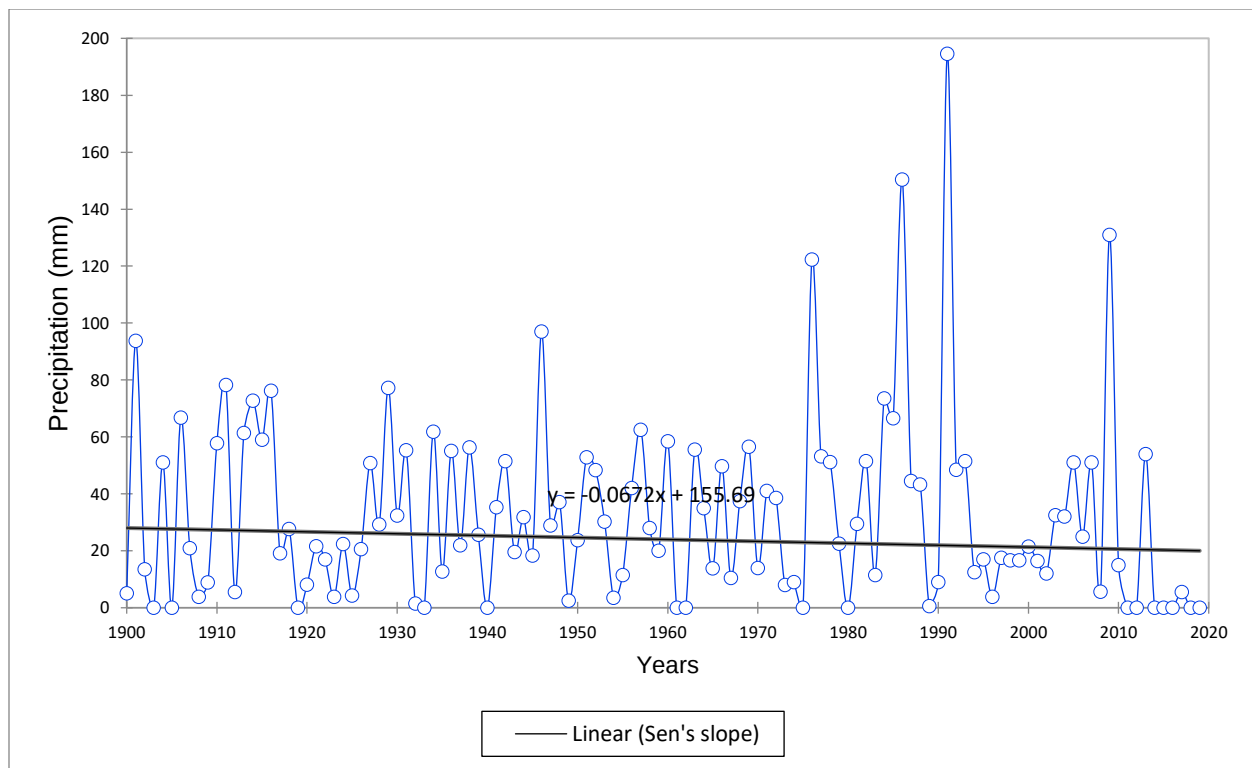


Figure D-64: October trend plot for Burgerdorp-POL station.

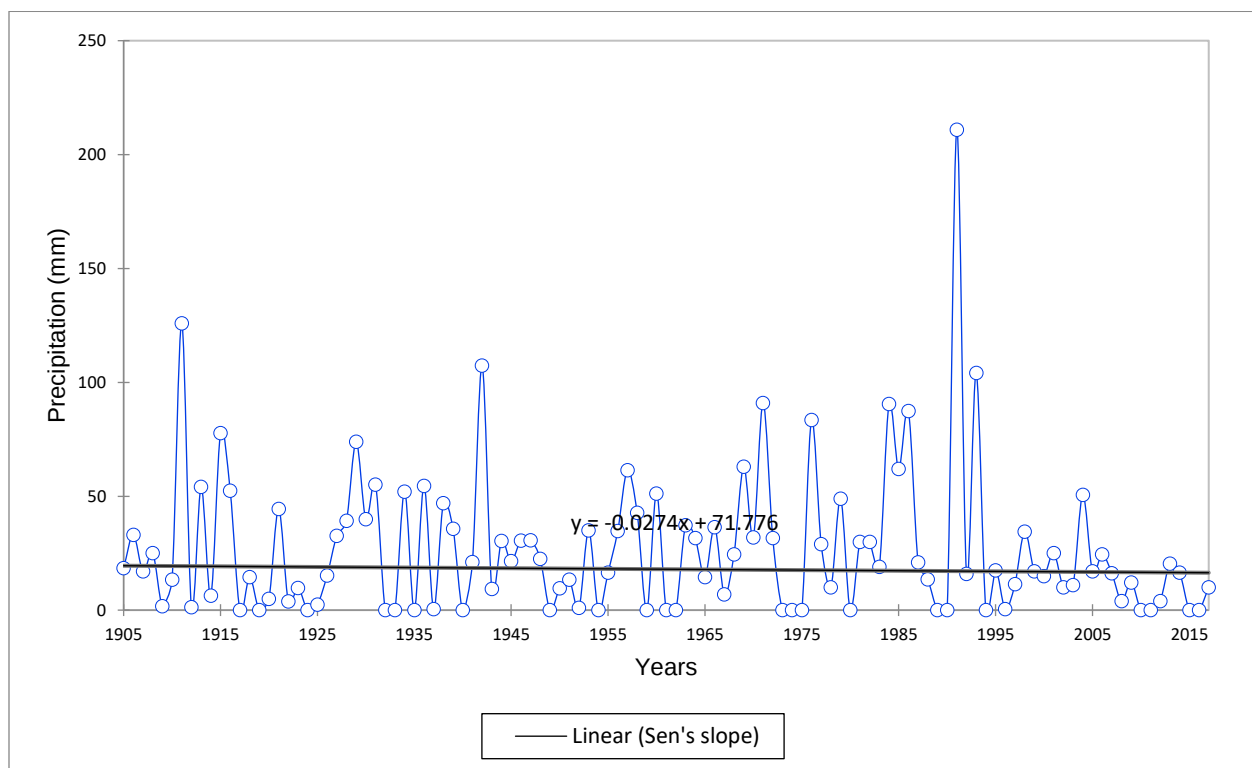


Figure D-65: October trend plot for Philippolis-POL station.

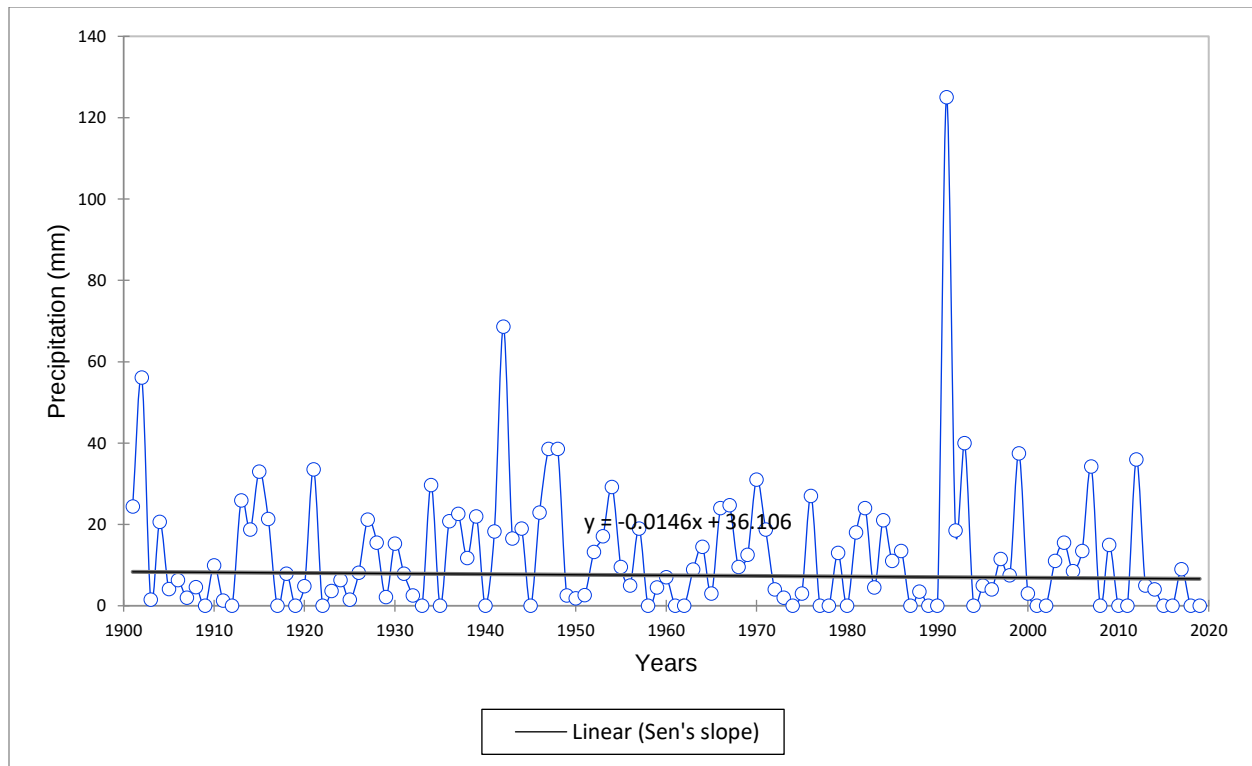


Figure D-66: October trend plot for Nuwejaarskraal station.

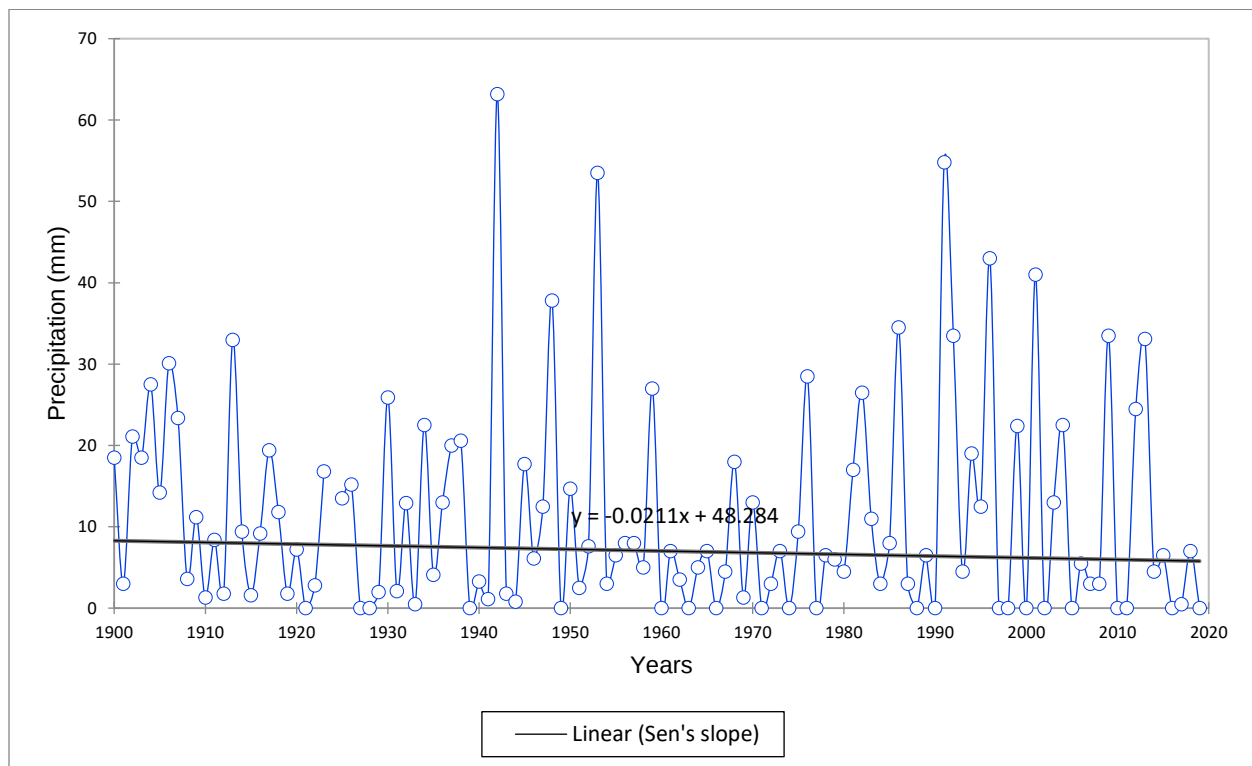


Figure D-67: October trend plot for Prince Albert TNK station.

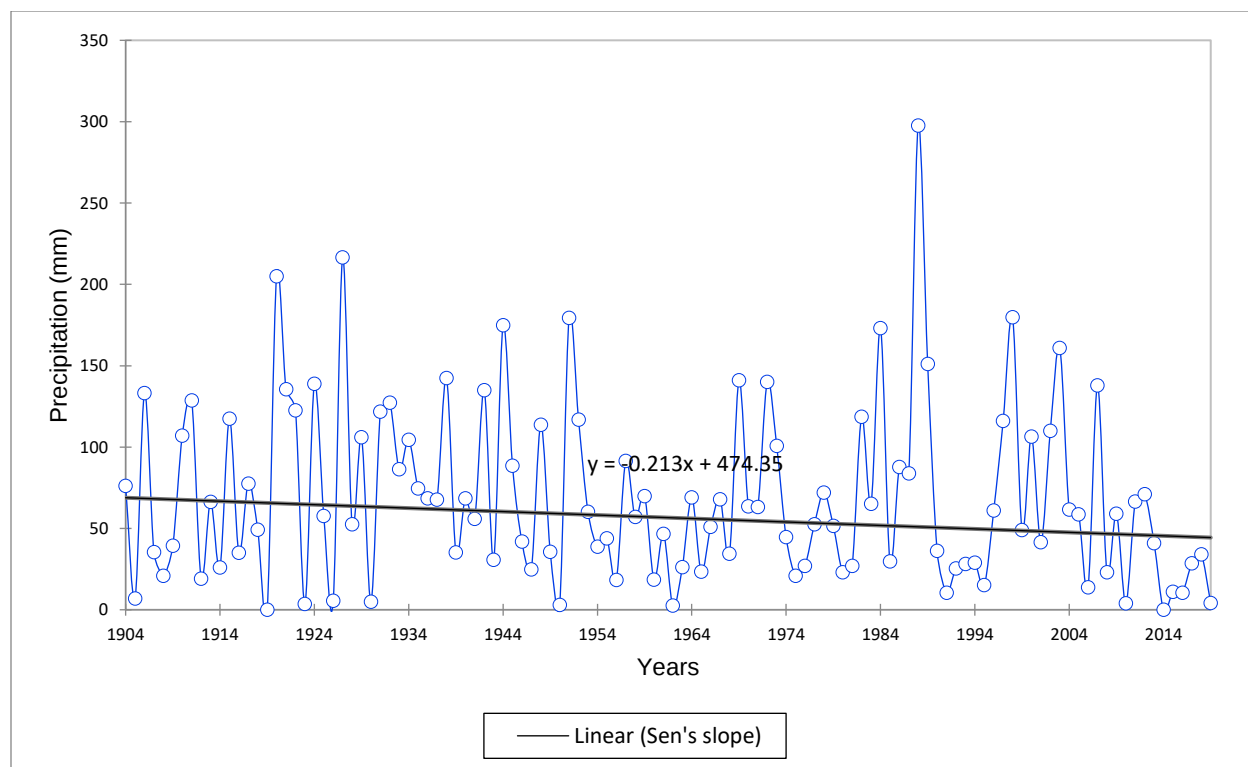


Figure D-68: October trend plot for Klein Australie station.

Table D12: November Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	November			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.813	-0.020	0.751	-0.020
2	Steytlerville-Mag	-33.33	24.33	419	0.150	0.054	0.151	0.054
3	Alicedale-Mun	-33.32	26.08	276	0.190	0.130	0.191	0.130
4	Grahamstown-Tnk	-33.3	26.53	539	0.320	-0.076	0.334	-0.076
5	Klipfontein	-32.55	24.72	673	0.287	0.051	0.169	0.051
6	Amatola State Forest	-32.67	27.28	884	0.172	0.242	0.173	0.242
7	Winterhoek	-32.22	24.47	876	0.828	-0.010	0.849	-0.010
8	Bloemhof	-32.03	24.67	1,091	0.499	0.038	0.416	0.038
9	Exwell Park	-32.2	27.12	914	0.904	0.008	0.906	0.008
10	Kentani-Bos	-32.5	28.32	488	0.368	0.154	0.369	0.154
11	Cwebe Nature Reserve	-32.2	28.93	61	0.205	0.247	0.206	0.247
12	Sterkstroom	-31.55	26.55	1,343	0.996	0.000	0.997	0.000
13	Engcobo Prison	-31.67	28.0	975	0.03	0.281	0.006	0.281
14	Xhora Prison	-31.97	28.67	671	0.109	0.251	0.084	0.251
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.919	0.000	0.933	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
16	Ellesmere	-30.67	26.32	1,387	0.264	0.103	0.103	0.103
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.500	-0.043	0.631	-0.043
18	Petrusville-Pol	-30.08	24.67	1,212	0.382	-0.047	0.383	-0.047
19	Philippolis-Pol	-30.27	25.27	1,372	0.072	-0.108	0.021	-0.108
20	Hopetown-Tnk	-29.62	24.08	1,661	0.347	-0.058	0.219	-0.058
21	Lillydale	-30.0	25.95	1,098	0.923	0.000	0.911	0.000
22	Richmond S.A. P	-29.87	30.27	1,509	0.785	0.052	0.787	0.052
23	Durban Botanical Gardens	-29.85	31.0	91	0.220	-0.198	0.271	-0.198
24	Steinkopf	-29.25	17.73	91	0.114	0.000	0.165	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.529	-0.005	0.474	-0.005
26	Maselspoort Dam	-29.03	26.42	1,372	0.902	0.017	0.894	0.017
27	Boetsap-Pol	-27.97	24.45	1,189	0.952	0.000	0.956	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.501	0.070	0.502	0.070
29	Bothaville-Mun	-27.55	26.62	1,280	0.432	0.093	0.453	0.093
30	Beerlaagte	-26.82	28.43	1,615	0.651	-0.066	0.572	-0.066
31	Balfour	-26.65	28.58	1,555	0.294	-0.152	0.295	-0.152
32	De Emigratie	-26.77	30.12	1,676	0.242	-0.211	0.183	-0.211
33	Morokweng	-26.12	23.78	1,126	0.531	0.044	0.533	0.044
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.873	-0.018	0.894	-0.018
35	Swartruggens-Pol	-25.63	26.68	1,311	0.843	-0.021	0.866	-0.021
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.187	0.262	0.013	0.262
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.106	-0.261	0.051	-0.261
38	Machadodorp	-25.67	30.25	1,609	0.930	-0.105	0.920	-0.015
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.680	0.076	0.682	0.076
40	Haenertsburg	-23.93	29.93	1,402	0.047	0.321	0.001	0.321
41	Prince Albert-Tnk	-33.22	22.03	686	0.751	0.000	0.300	0.000
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.113	0.174	0.011	0.174
43	Tulbagh	-33.28	19.13	155	0.911	0.000	0.926	0.000
44	Darling-The Towers	-33.38	18.37	229	0.926	0.000	0.936	0.000
45	Thornlea	-28.63	21.52	884	0.526	0.000	0.596	0.000
46	Klein Australie	-23.05	30.22	702	0.914	-0.016	0.926	-0.016

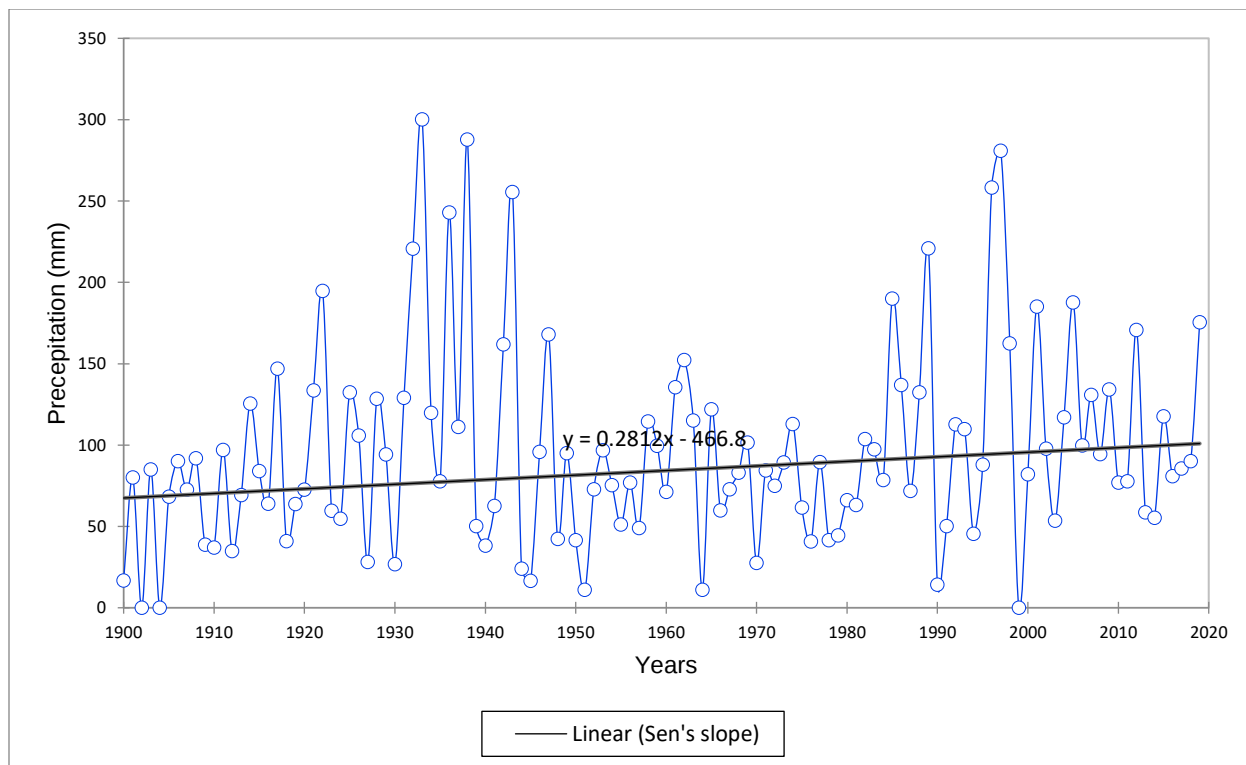


Figure D-69: November trend plot for Engcobo Prison station.

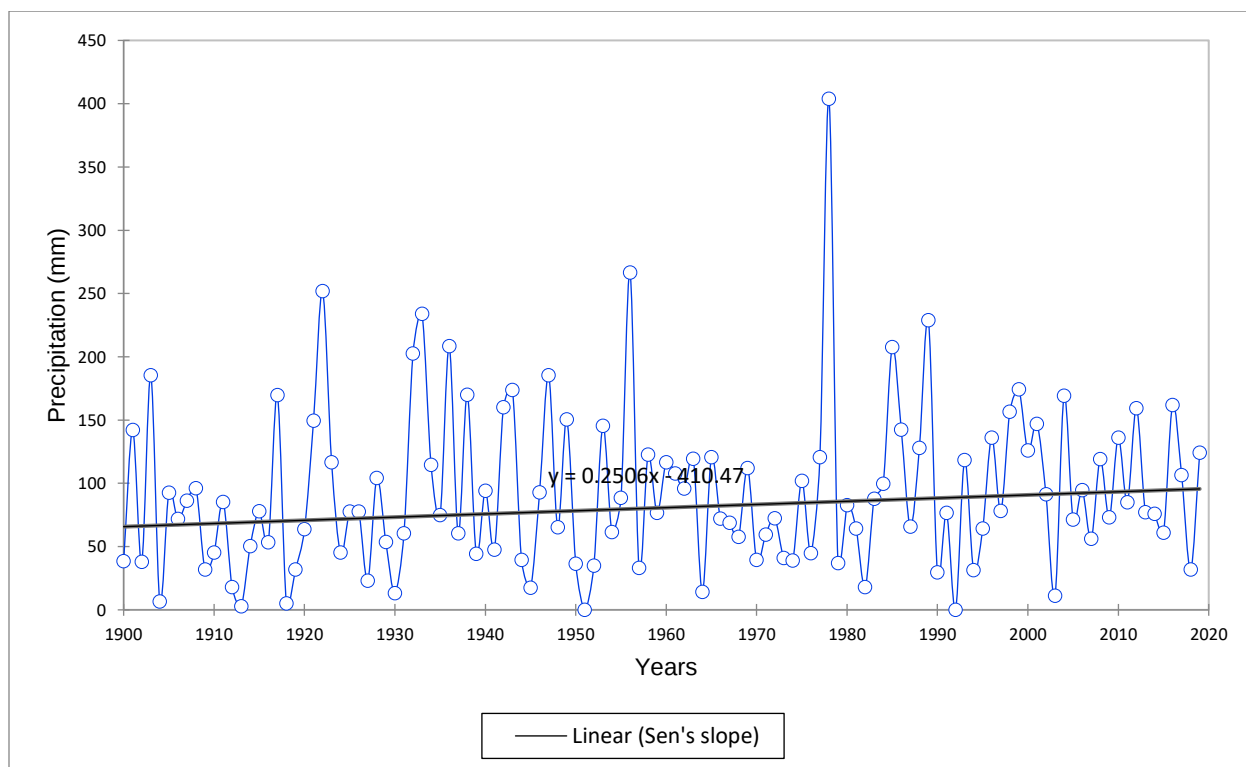


Figure D-70: November trend plot for Xhora Prison station.

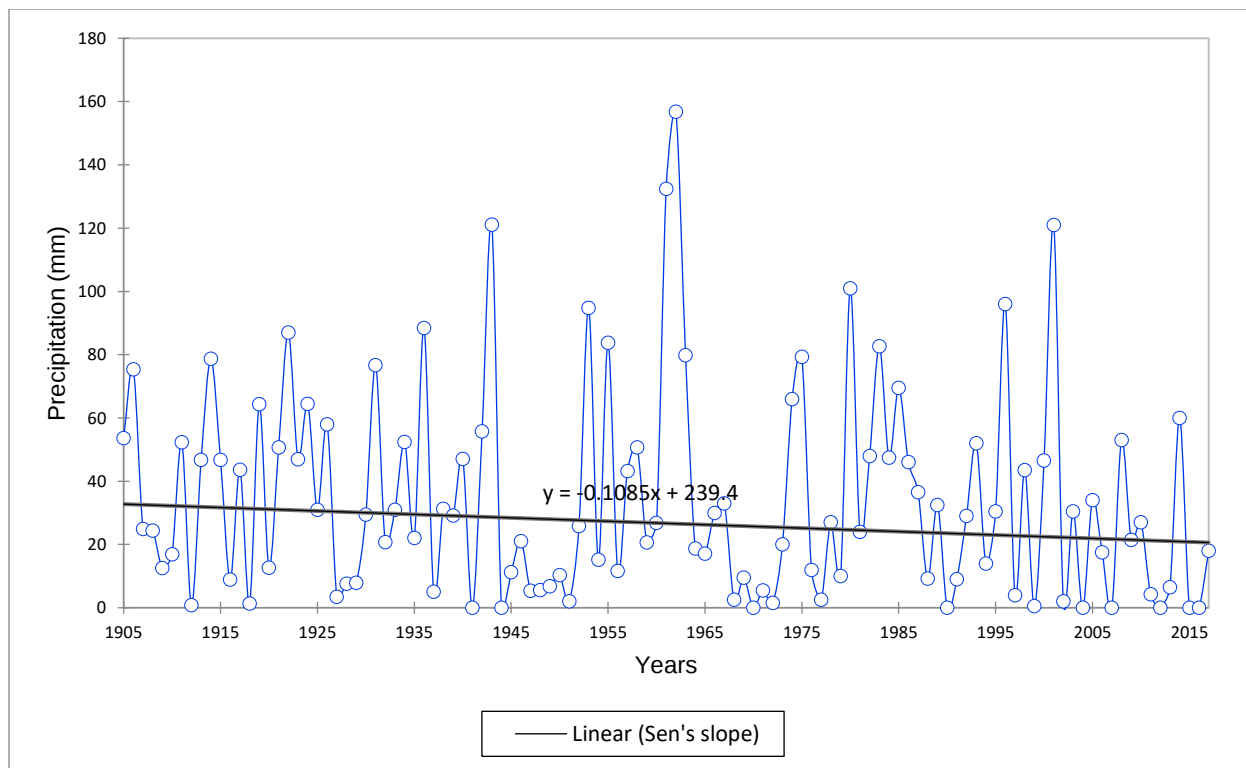


Figure D-71: November trend plot for Philippolis-POL station.

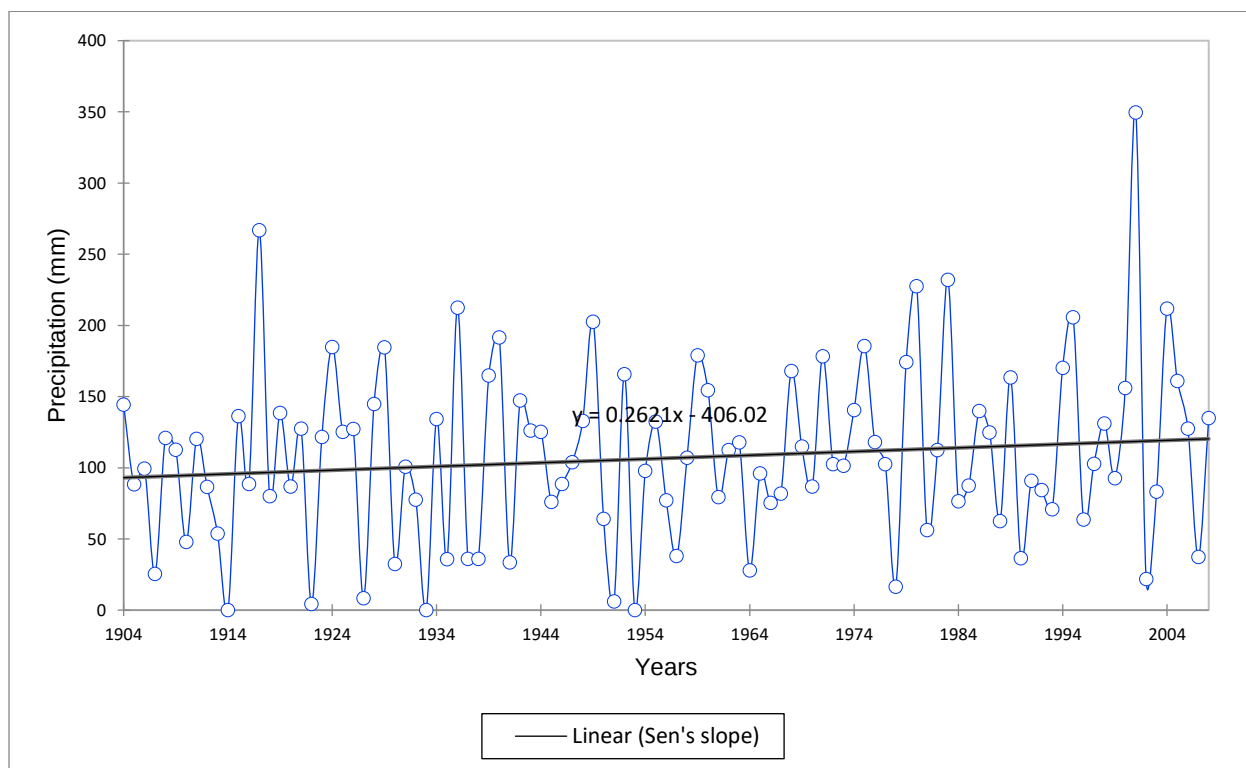


Figure D-72: November trend plot for Premier Mine-Cullinan station.

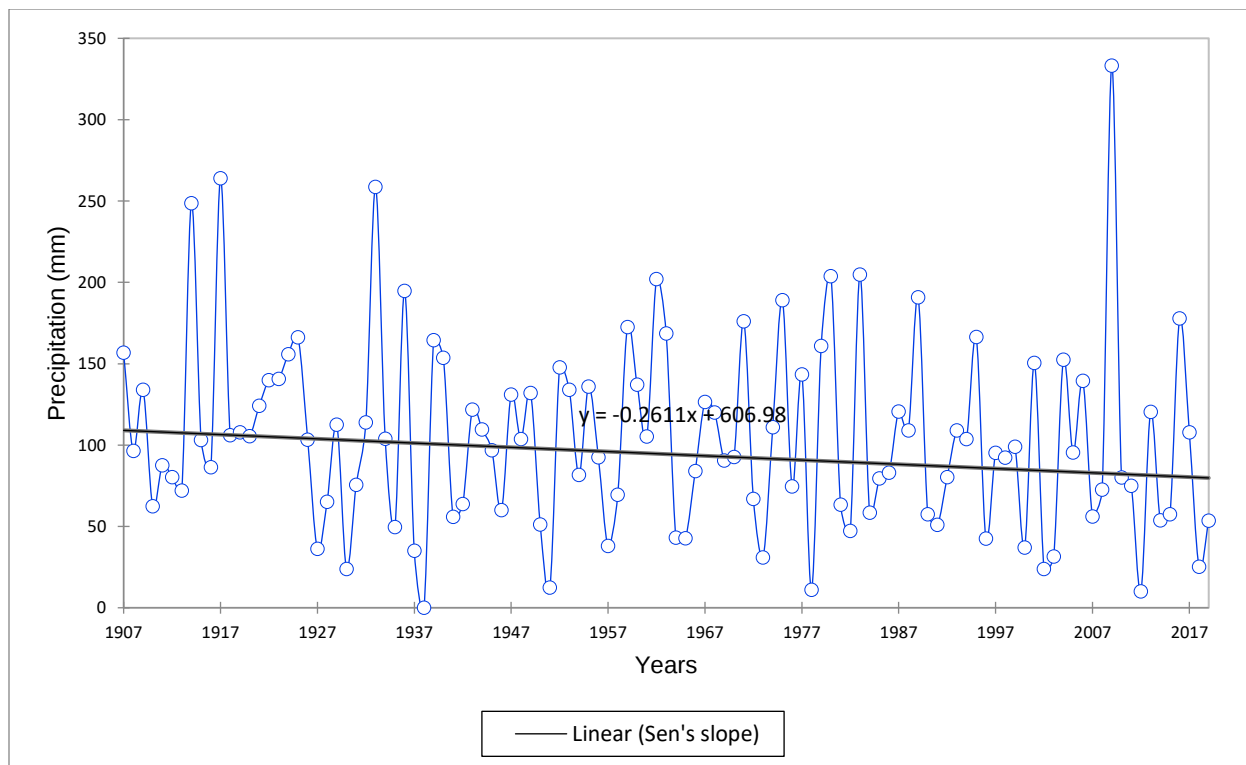


Figure D-73: November trend plot for Bronkhorstspuit-Mun station.

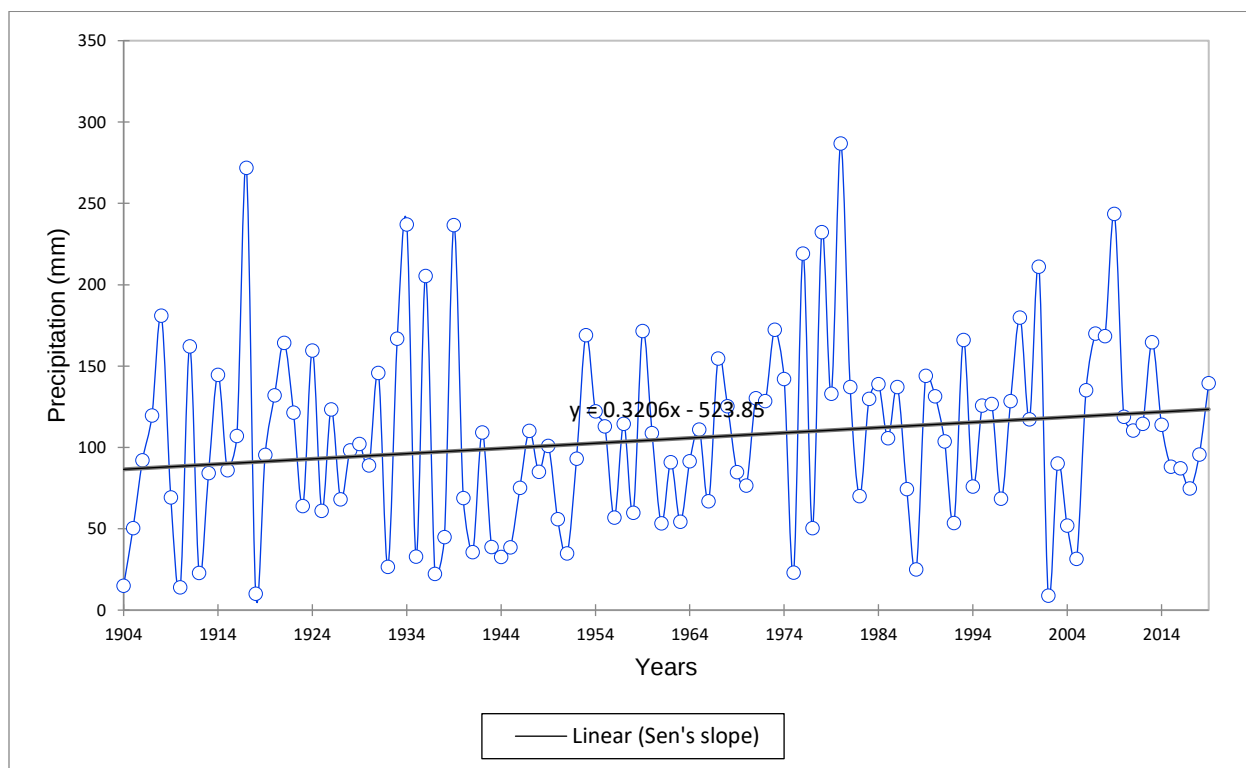


Figure D-74: November trend plot for Haenerstburg station.

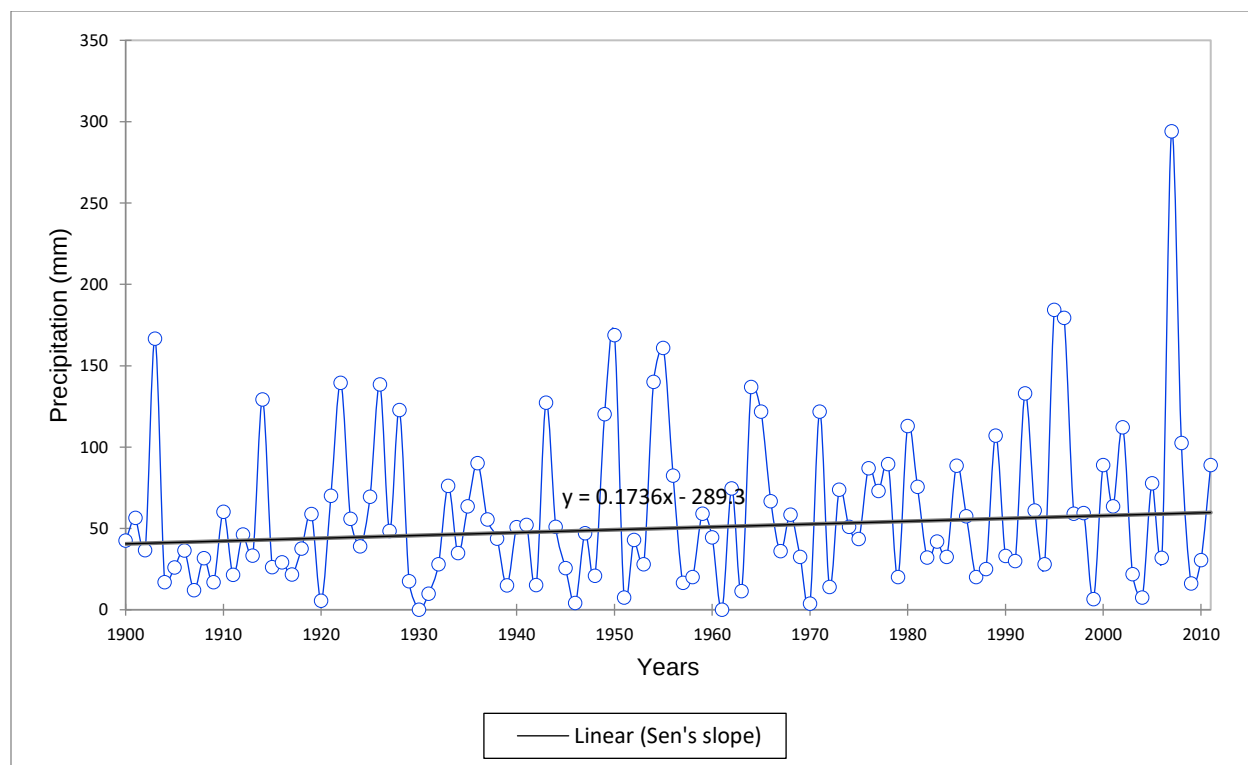


Figure D-75: November trend plot for Plattenbergbaai-POL station.

Table D13: December Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	December			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.055	-0.159	0.018	-0.159
2	Steytlerville-Mag	-33.33	24.33	419	0.924	0.000	0.937	0.000
3	Alicedale-Mun	-33.32	26.08	276	0.838	0.005	0.803	0.005
4	Grahamstown-Tnk	-33.3	26.53	539	0.765	-0.035	0.702	-0.035
5	Klipfontein	-32.55	24.72	673	0.906	0.000	0.913	0.000
6	Amatola State Forest	-32.67	27.28	884	0.973	-0.005	0.975	-0.005
7	Winterhoek	-32.22	24.47	876	0.770	-0.009	0.707	-0.009
8	Bloemhof	-32.03	24.67	1,091	0.09	0.107	0.067	0.107
9	Exwell Park	-32.2	27.12	914	0.919	-0.008	0.920	-0.008
10	Kentani-Bos	-32.5	28.32	488	0.792	-0.041	0.729	-0.041
11	Cwebe Nature Reserve	-32.2	28.93	61	0.978	-0.030	0.980	-0.003
12	Sterkstroom	-31.55	26.55	1,343	0.056	-0.200	0.063	-0.200
13	Engcobo Prison	-31.67	28.0	975	0.946	0.016	0.914	0.016
14	Xhora Prison	-31.97	28.67	671	0.780	-0.037	0.788	-0.037

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.06	0.106	0.043	0.106
16	Ellesmere	-30.67	26.32	1,387	0.166	0.153	0.061	0.153
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.525	-0.054	0.422	-0.054
18	Petrusville-Pol	-30.08	24.67	1,212	0.656	0.015	0.564	0.015
19	Philippolis-Pol	-30.27	25.27	1,372	0.441	-0.043	0.152	-0.043
20	Hopetown-Tnk	-29.62	24.08	1,661	0.08	0.112	0.001	0.112
21	Lillydale	-30.0	25.95	1,098	0.174	0.137	0.127	0.137
22	Richmond S.A. P	-29.87	30.27	1,509	0.379	-0.234	0.400	-0.234
23	Durban Botanical Gardens	-29.85	31.0	91	0.345	-0.152	0.243	-0.152
24	Steinkopf	-29.25	17.73	91	0.773	0.000	0.657	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.773	0.000	0.765	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.232	0.141	0.148	0.141
27	Boetsap-Pol	-27.97	24.45	1,189	0.390	-0.108	0.401	-0.108
28	Odendaalsrus	-27.87	26.68	1,341	0.019	0.313	0.003	0.313
29	Bothaville-Mun	-27.55	26.62	1,280	0.338	0.128	0.293	0.128
30	Beerlaagte	-26.82	28.43	1,615	0.163	0.232	0.164	0.232
31	Balfour	-26.65	28.58	1,555	0.561	0.113	0.590	0.113
32	De Emigratie	-26.77	30.12	1,676	0.557	0.107	0.576	0.107
33	Morokweng	-26.12	23.78	1,126	0.281	0.107	0.189	0.107
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.556	0.086	0.495	0.086
35	Swartruggens-Pol	-25.63	26.68	1,311	0.572	0.078	0.539	0.078
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.499	0.108	0.282	0.108
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.320	-0.149	0.369	-0.149
38	Machadodorp	-25.67	30.25	1,609	0.229	0.222	0.230	0.222
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.147	0.241	0.148	0.241
40	Haenertsburg	-23.93	29.93	1,402	0.755	-0.053	0.694	-0.053
41	Prince Albert-Tnk	-33.22	22.03	686	0.810	0.000	0.778	0.000
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.584	0.043	0.585	0.043
43	Tulbagh	-33.28	19.13	155	0.066	0.020	0.048	0.020
44	Darling-The Towers	-33.38	18.37	229	0.212	0.028	0.219	0.028
45	Thornlea	-28.63	21.52	884	0.222	0.009	0.265	0.009
46	Klein Australie	-23.05	30.22	702	0.975	0.007	0.970	0.007

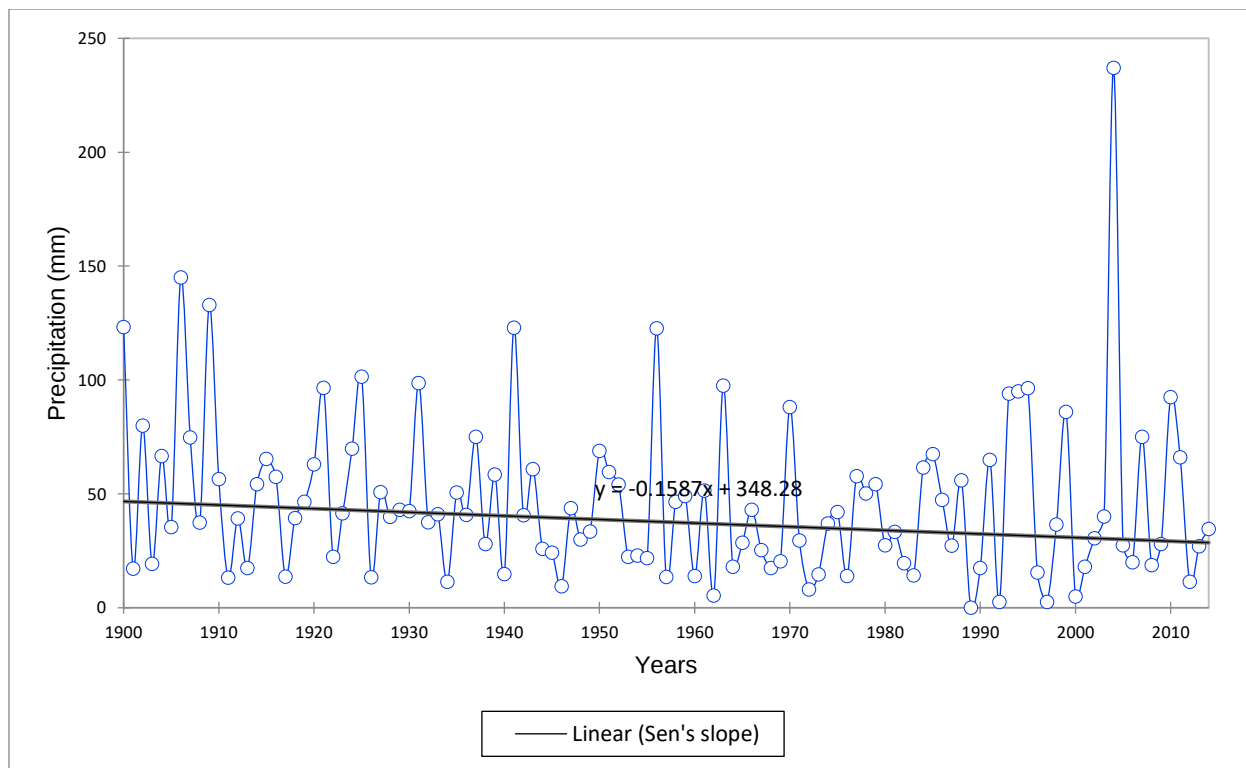


Figure D-76: December trend plot for Humansdorp station.

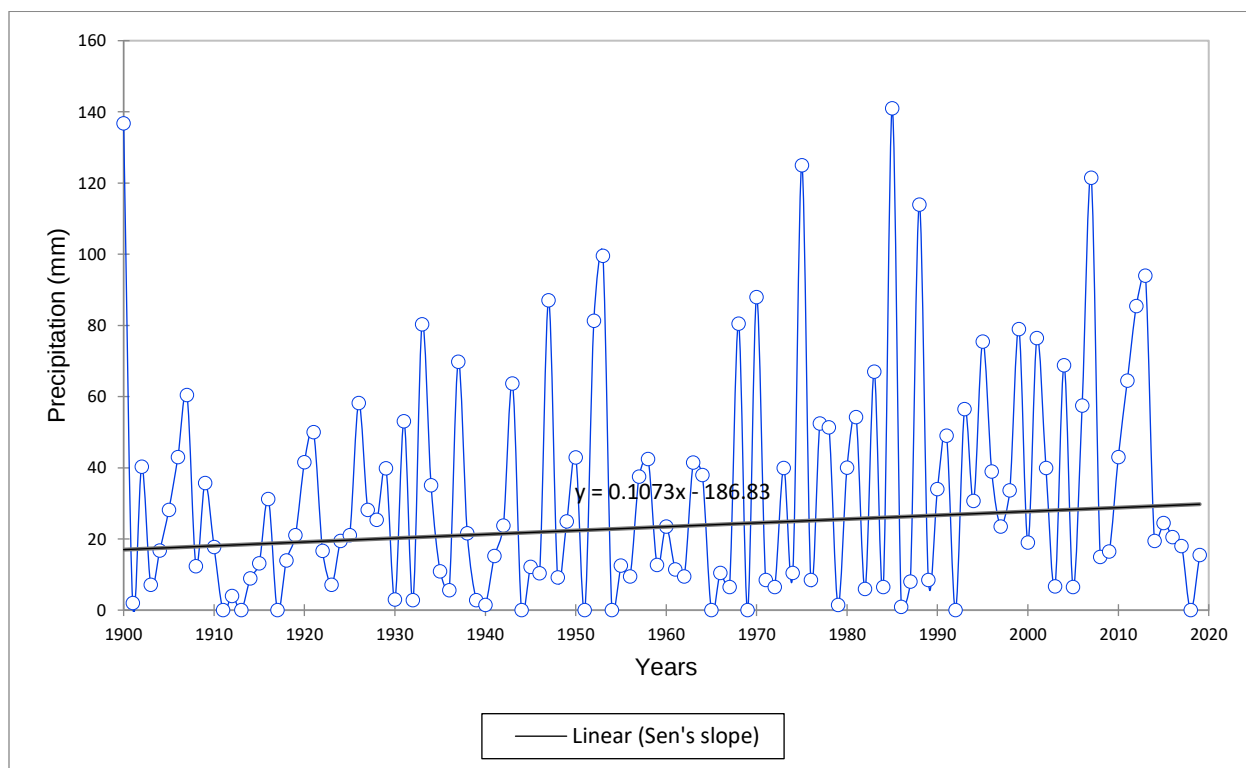


Figure D-77: December trend plot for Bloemhof station.

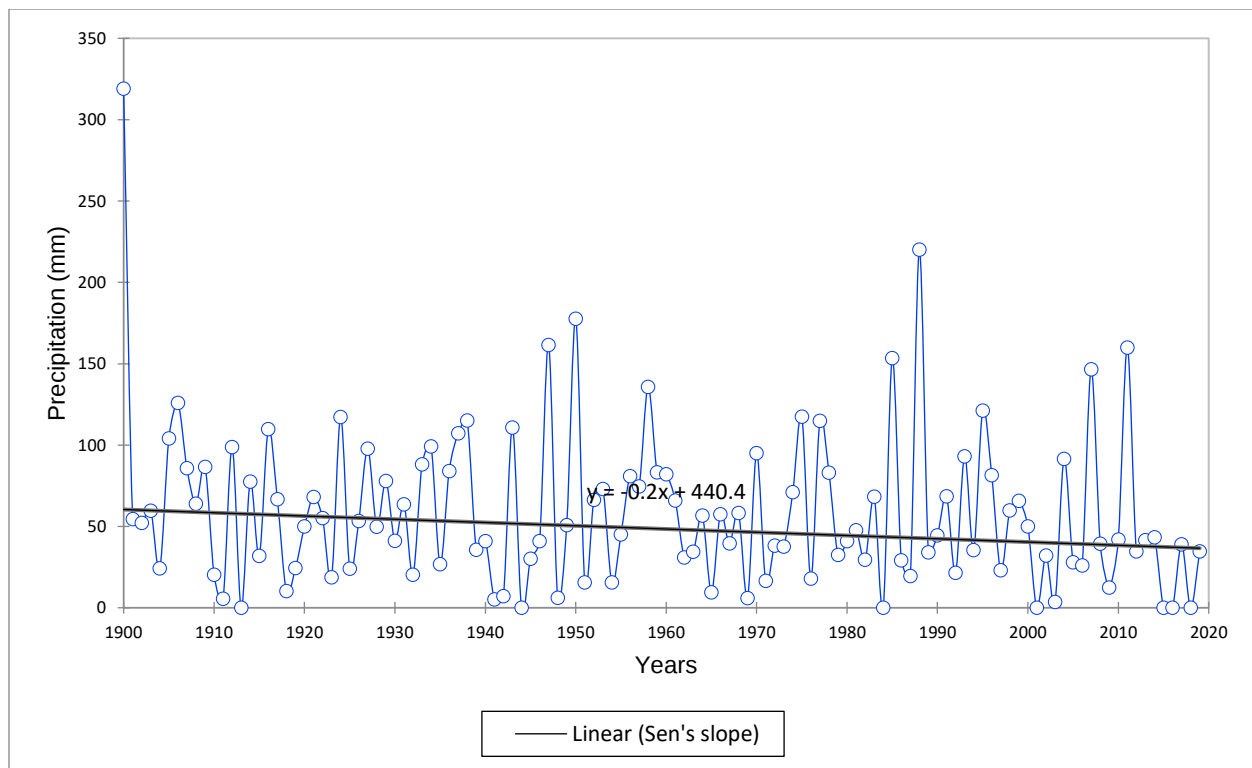


Figure D-78: December trend plot for Sterkstroom station.

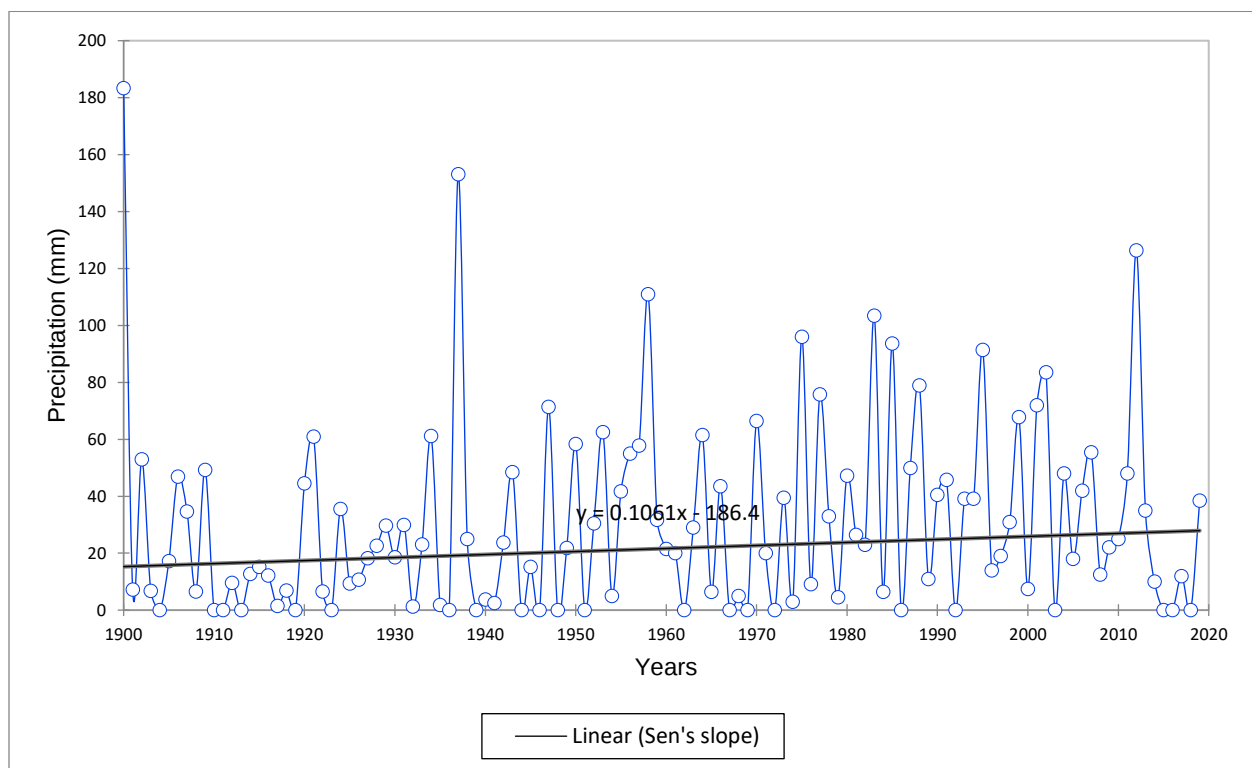


Figure D-79: December trend plot for Richmond CK TNK station.

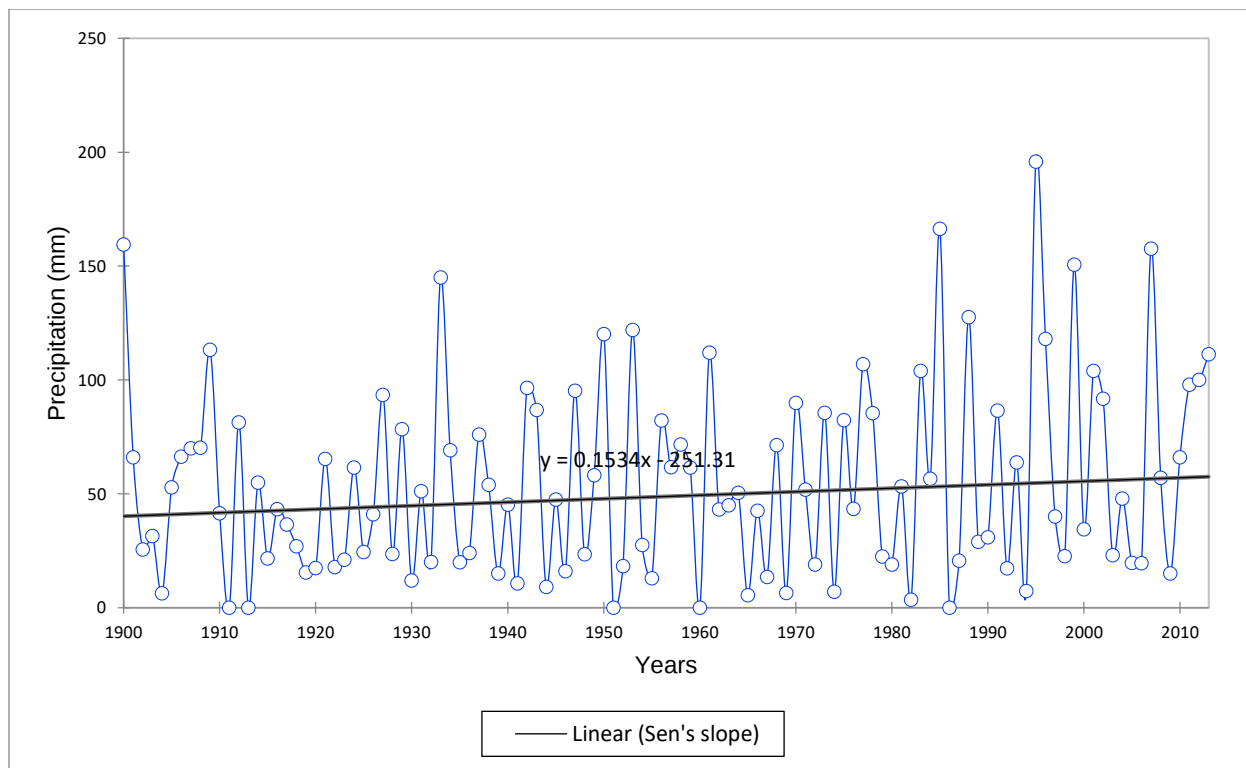


Figure D-80: December trend plot for Ellesmere station.

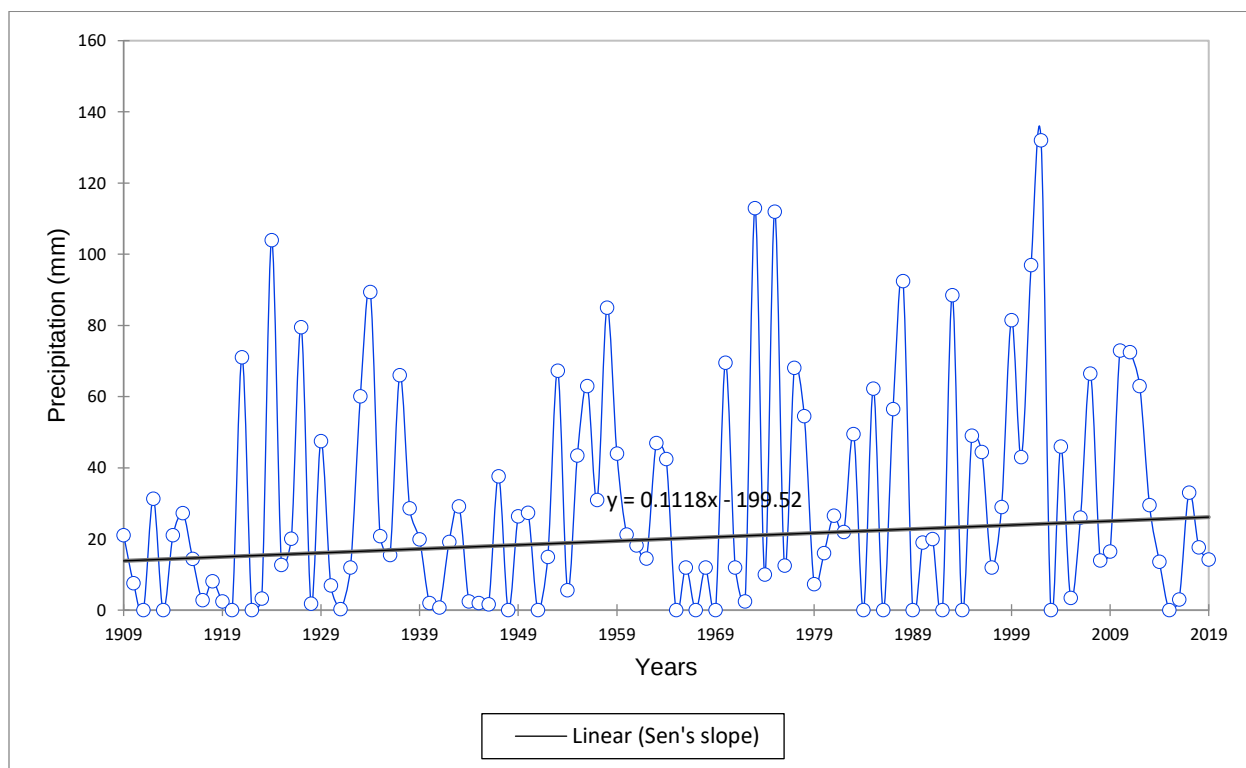


Figure D-81: December trend plot for Hopetown-TNK station.

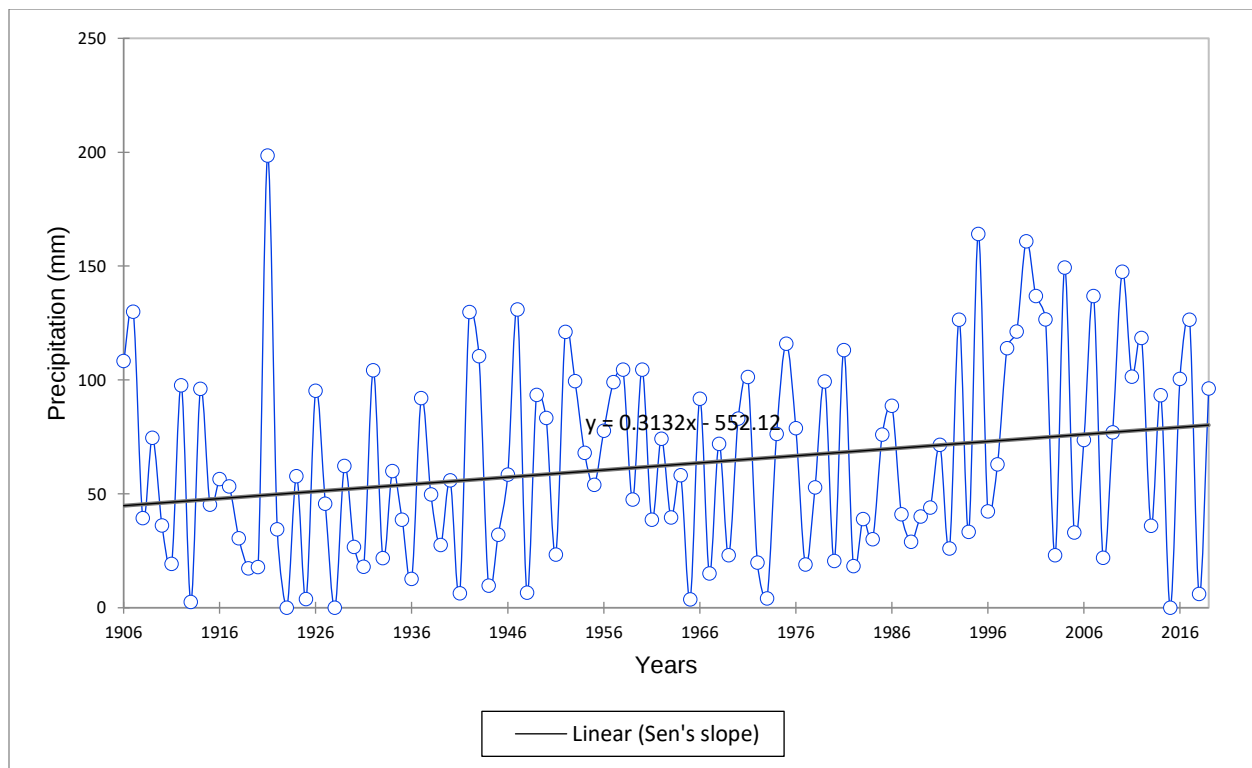


Figure D-82: December trend plot for Odendaalsrus station.

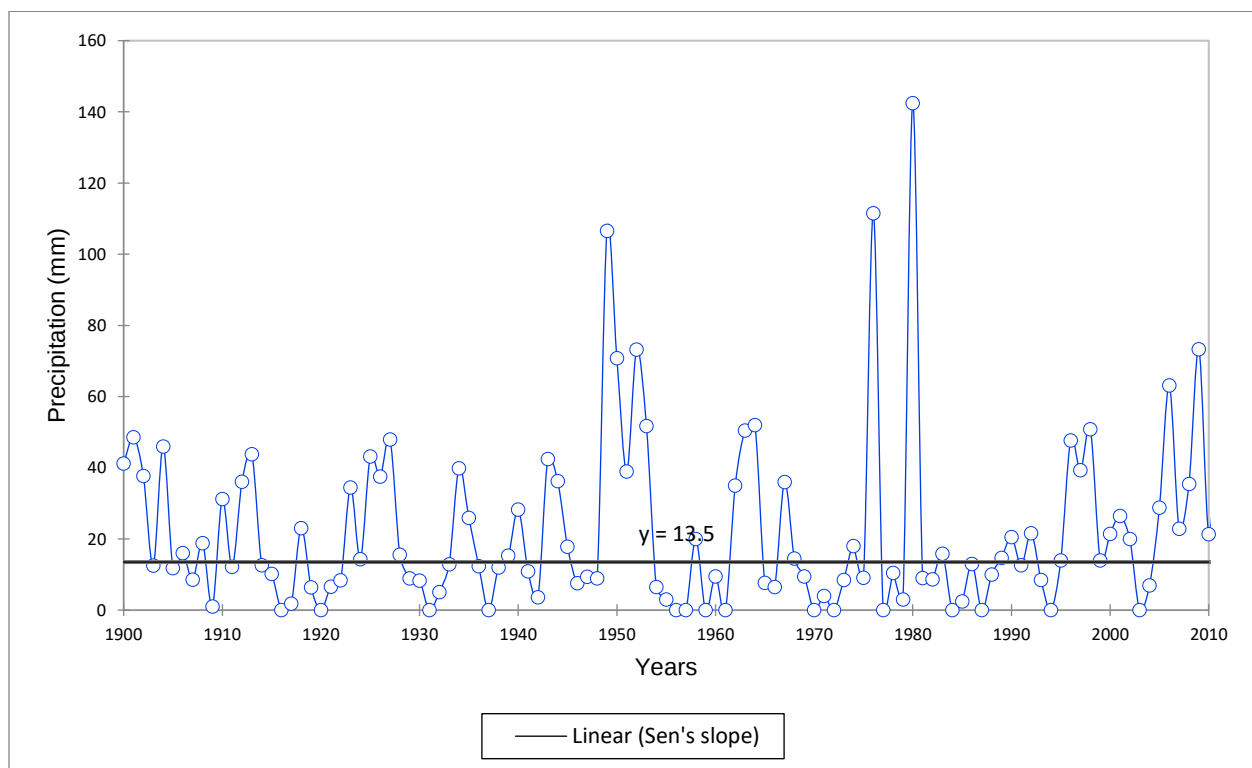


Figure D-83: December trend plot for Tulbagh station.

Table D14: Summer Mann-Kendall trend test Results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Summer			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.304	-0.161	0.244	-0.161
2	Steytlerville-Mag	-33.33	24.33	419	0.065	0.207	0.065	0.207
3	Alicedale-Mun	-33.32	26.08	276	0.142	0.229	0.189	0.229
4	Grahamstown-Tnk	-33.3	26.53	539	0.122	-0.335	0.122	0.335
5	Klipfontein	-32.55	24.72	673	0.302	0.126	0.255	0.126
6	Amatola State Forest	-32.67	27.28	884	0.468	0.230	0.474	0.230
7	Winterhoek	-32.22	24.47	876	0.557	0.109	0.540	0.109
8	Bloemhof	-32.03	24.67	1,091	0.030	0.435	0.030	0.435
9	Exwell Park	-32.2	27.12	914	0.419	0.166	0.361	0.166
10	Kentani-Bos	-32.5	28.32	488	0.653	0.142	0.655	0.142
11	Cwebe Nature Reserve	-32.2	28.93	61	0.591	-0.185	0.593	-0.185
12	Sterkstroom	-31.55	26.55	1,343	0.441	-0.188	0.442	-0.188
13	Engcobo Prison	-31.67	28.0	975	0.348	-0.286	0.205	-0.286
14	Xhora Prison	-31.97	28.67	671	0.202	-0.289	0.057	-0.289
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.034	0.353	0.012	0.353
16	Ellesmere	-30.67	26.32	1,387	0.146	0.327	0.087	0.327
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.897	-0.019	0.914	-0.019
18	Petrusville-Pol	-30.08	24.67	1,212	0.580	0.096	0.361	0.096
19	Philippolis-Pol	-30.27	25.27	1,372	0.929	0.030	0.918	0.030
20	Hopetown-Tnk	-29.62	24.08	1,661	0.085	0.346	0.003	0.346
21	Lillydale	-30.0	25.95	1,098	0.041	0.535	0.0001	0.535
22	Richmond S.A. P	-29.87	30.27	1,509	0.664	-0.253	0.650	-0.253
23	Durban Botanical Gardens	-29.85	31.0	91	0.258	-0.336	0.233	-0.336
24	Steinkopf	-29.25	17.73	91	0.142	-0.020	0.095	-0.020
25	Nuwejaarskraal	-29.37	23.12	884	0.869	0.024	0.860	0.024
26	Maselspoort Dam	-29.03	26.42	1,372	0.108	0.430	0.077	0.430
27	Boetsap-Pol	-27.97	24.45	1,189	0.525	-0.167	0.247	-0.167
28	Odendaalsrus	-27.87	26.68	1,341	0.565	0.170	0.473	0.170
29	Bothaville-Mun	-27.55	26.62	1,280	0.199	0.427	0.166	0.427
30	Beerlaagte	-26.82	28.43	1,615	0.095	0.541	0.114	0.541
31	Balfour	-26.65	28.58	1,555	0.882	0.053	0.873	0.053
32	De Emigratie	-26.77	30.12	1,676	0.991	0.002	0.992	0.002
33	Morokweng	-26.12	23.78	1,126	0.812	0.069	0.689	0.069
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.171	0.437	0.056	0.437
35	Swartruggens-Pol	-25.63	26.68	1,311	0.034	0.691	0.034	0.691
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.778	0.100	0.780	0.100

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.643	-0.124	0.644	-0.124
38	Machadodorp	-25.67	30.25	1,609	0.651	0.151	0.563	0.151
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.647	0.171	0.649	0.171
40	Haenertsburg	-23.93	29.93	1,402	0.277	-0.608	0.0508	-0.608
41	Prince Albert-Tnk	-33.22	22.03	686	0.564	0.043	0.000	0.043
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.693	-0.077	0.745	-0.077
43	Tulbagh	-33.28	19.13	155	0.305	0.058	0.206	0.058
44	Darling-The Towers	-33.38	18.37	229	0.212	0.072	0.162	0.072
45	Thornlea	-28.63	21.52	884	0.650	0.252	0.000	0.252
46	Klein Australie	-23.05	30.22	702	0.749	-0.309	0.798	0.309

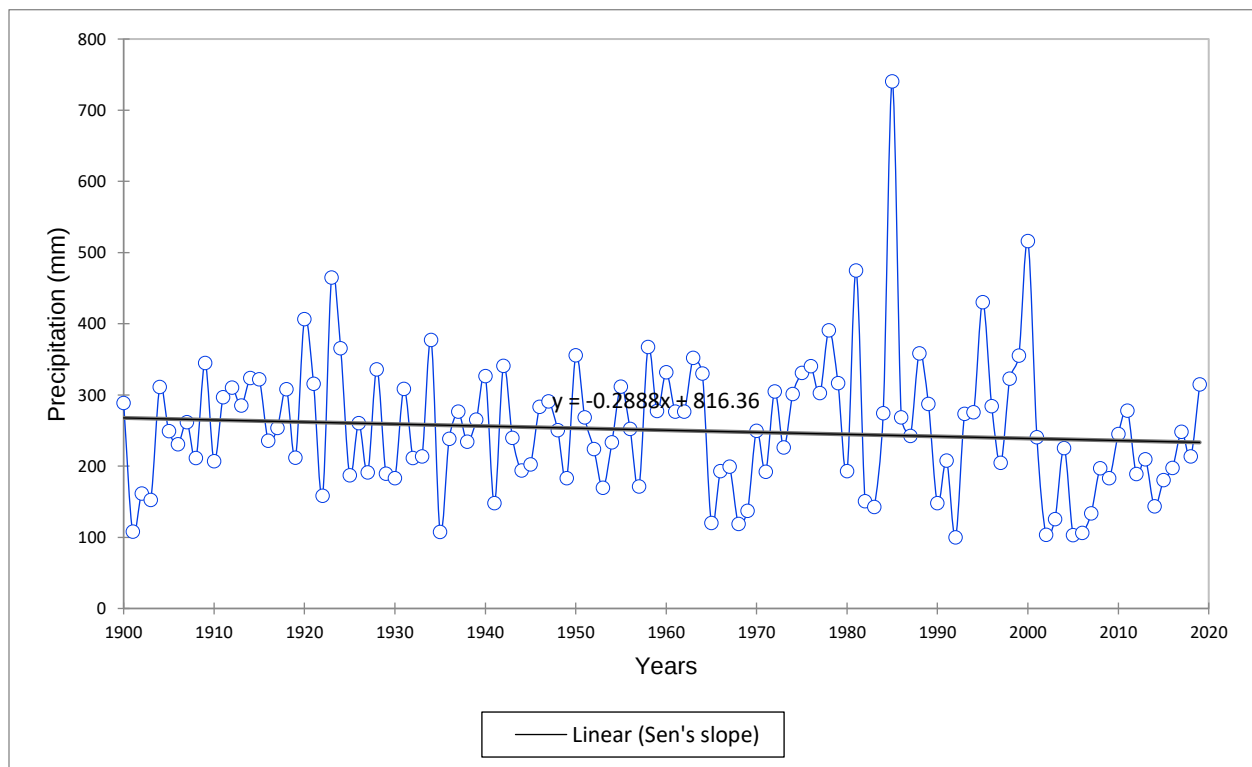


Figure D-84: Summer trend plot for Xhora Prison Station.

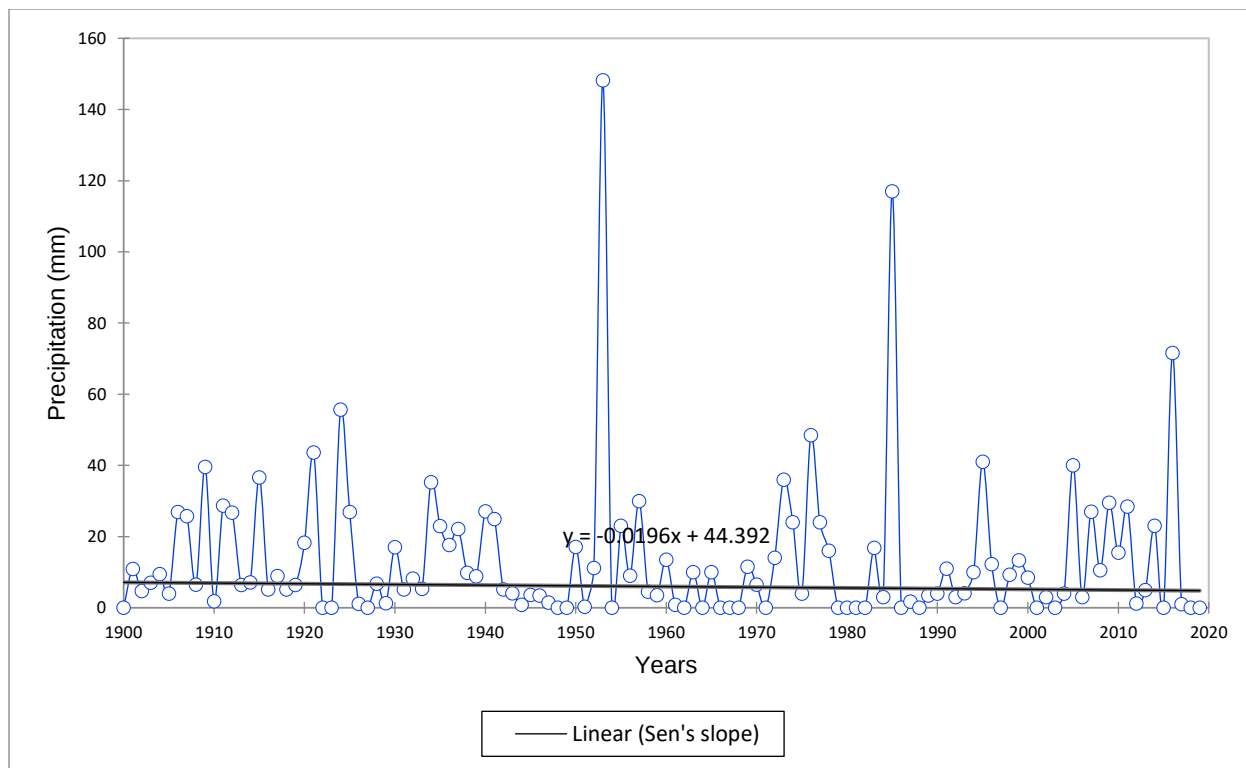


Figure D-85: Summer trend plot for Steinkopf station.

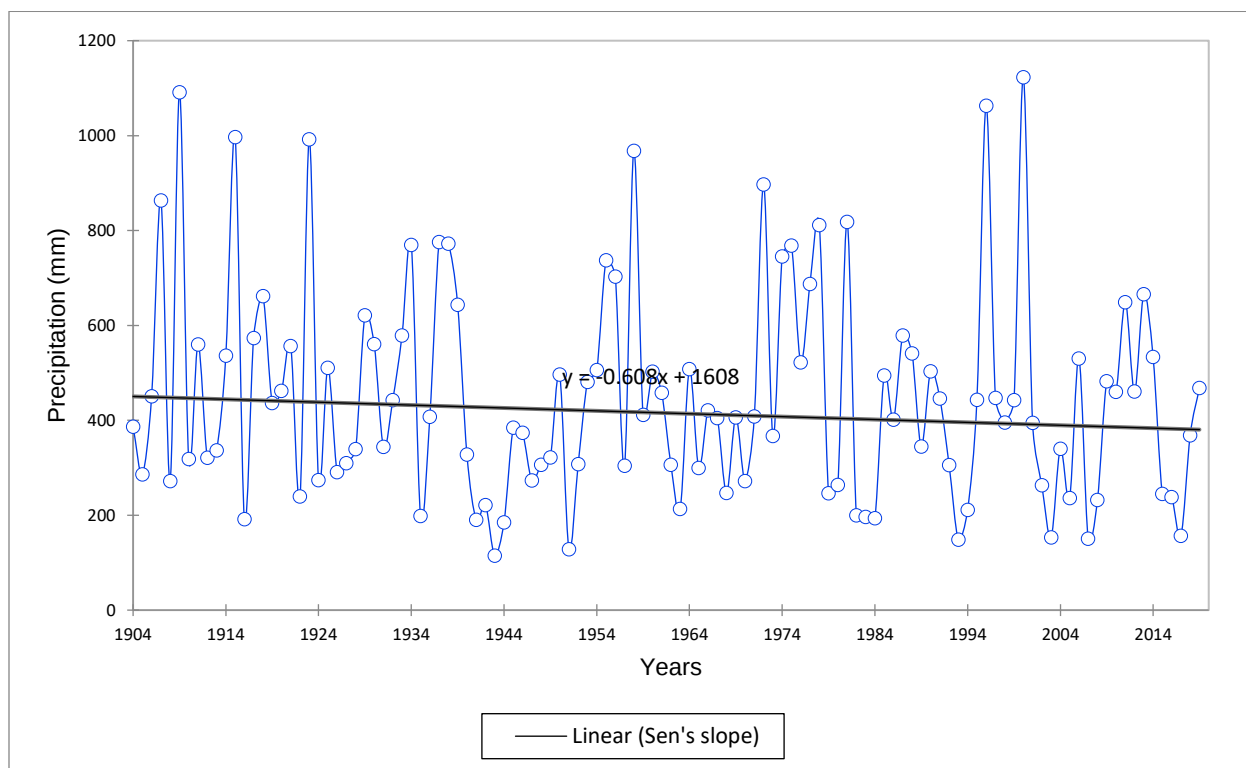


Figure D-86: Summer trend plot for Haeners burg station.

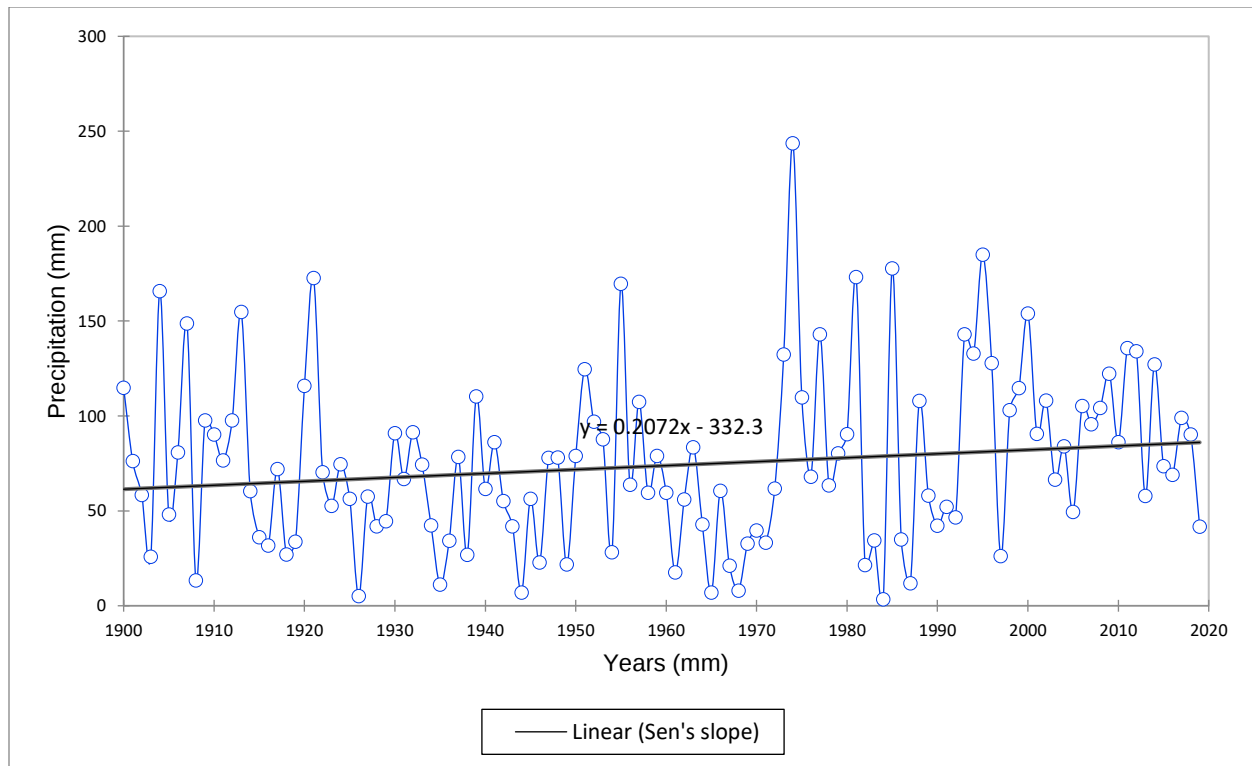


Figure D-87: Summer trend plot for Steytlerville-Mag station.

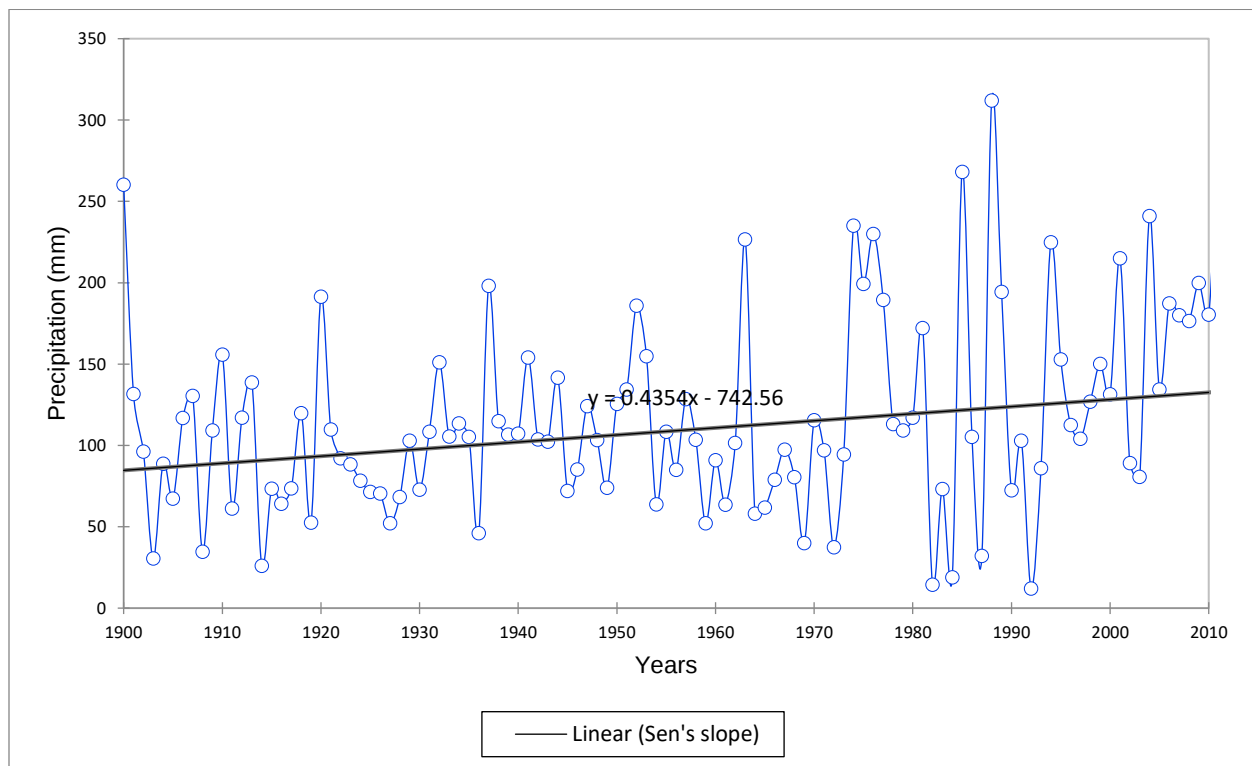


Figure D-88: Summer trend plot for Bloemhof station.

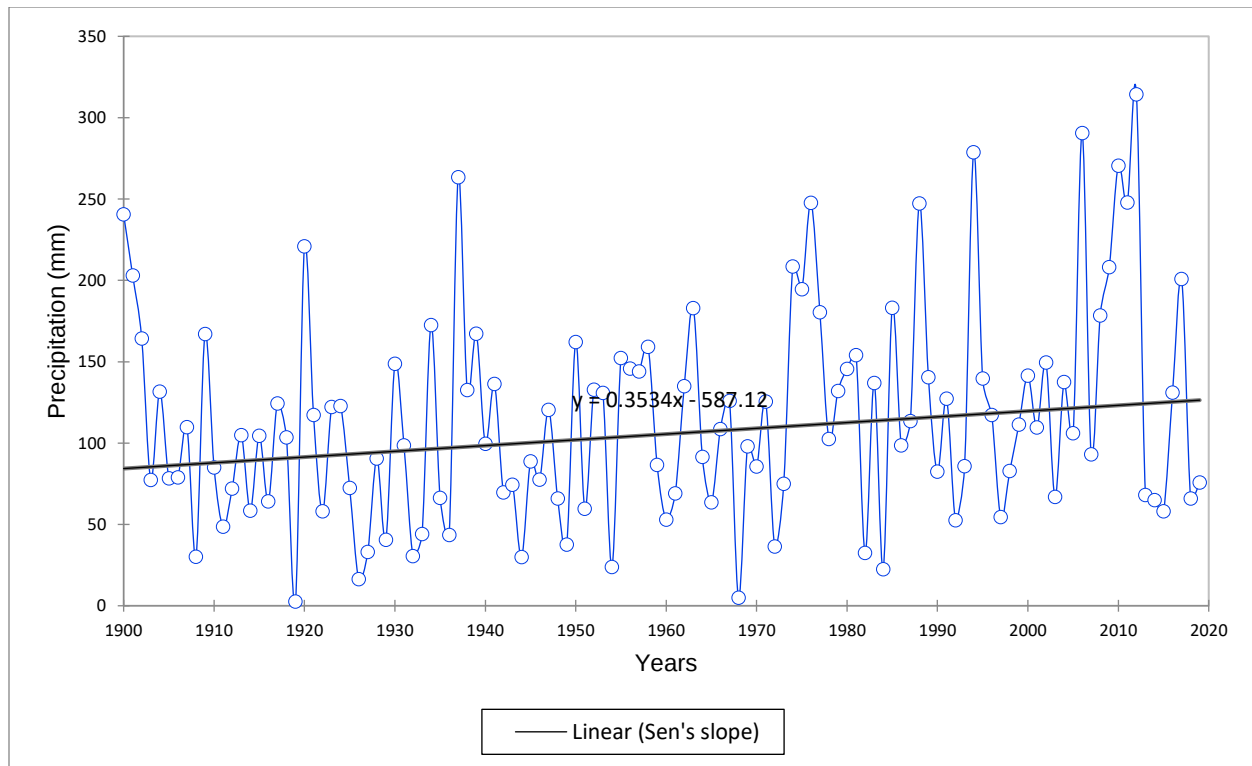


Figure D-89: Summer trend plot for Richmond CK-TNK station.

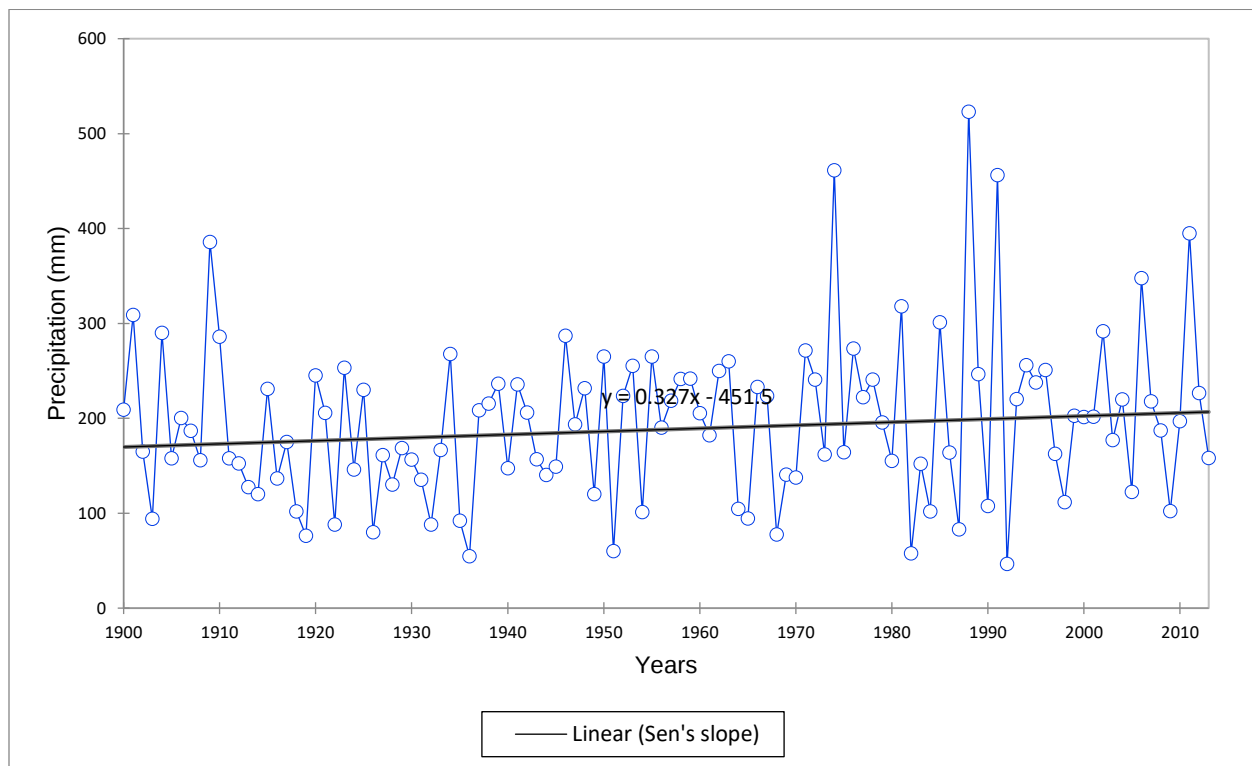


Figure D-90: Summer trend plot for Ellesmere station.

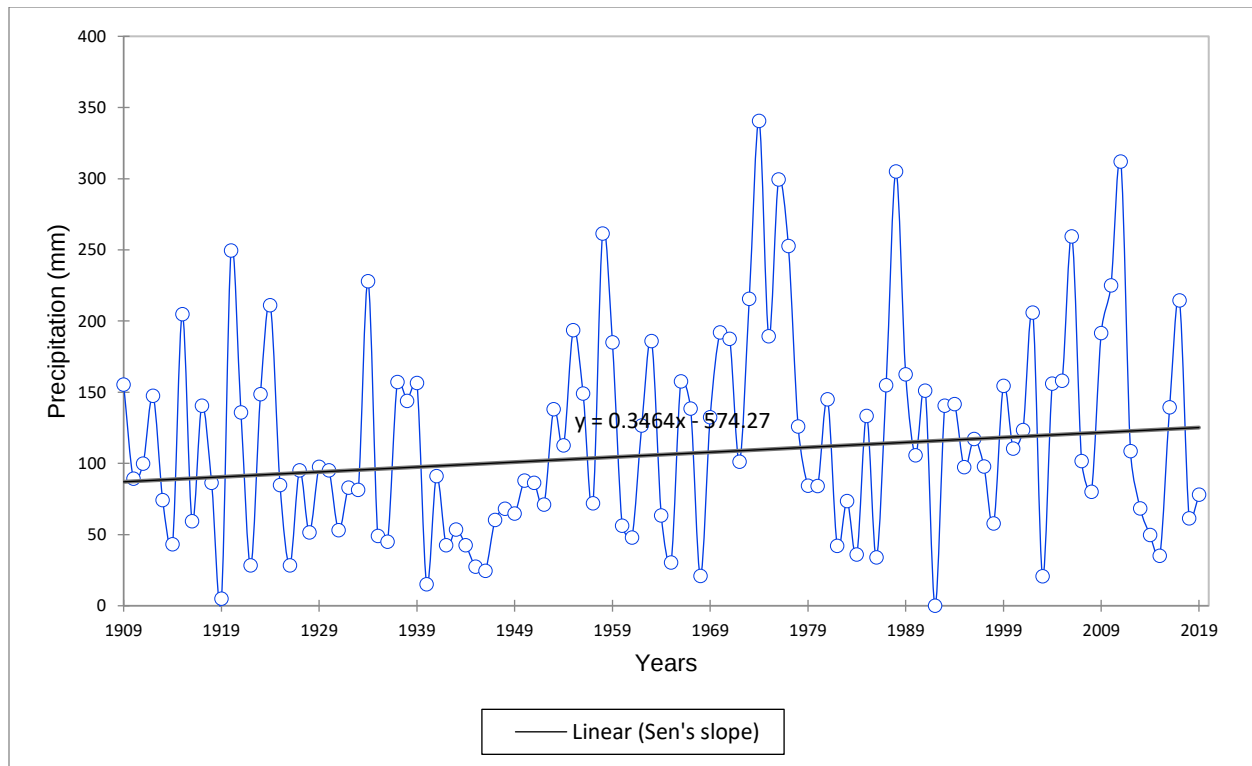


Figure D-91: Summer trend plot for Hopetown-TNK station.

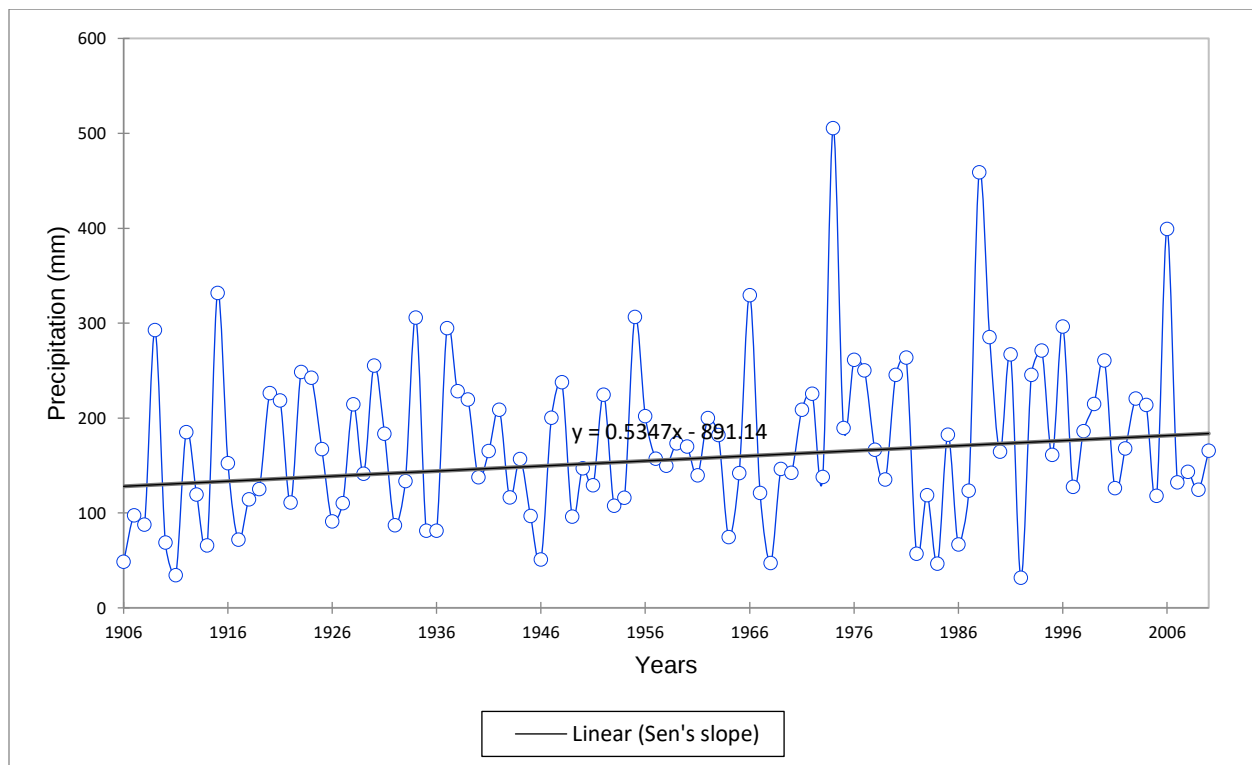


Figure D-92: Summer trend plot for Lillydale station.

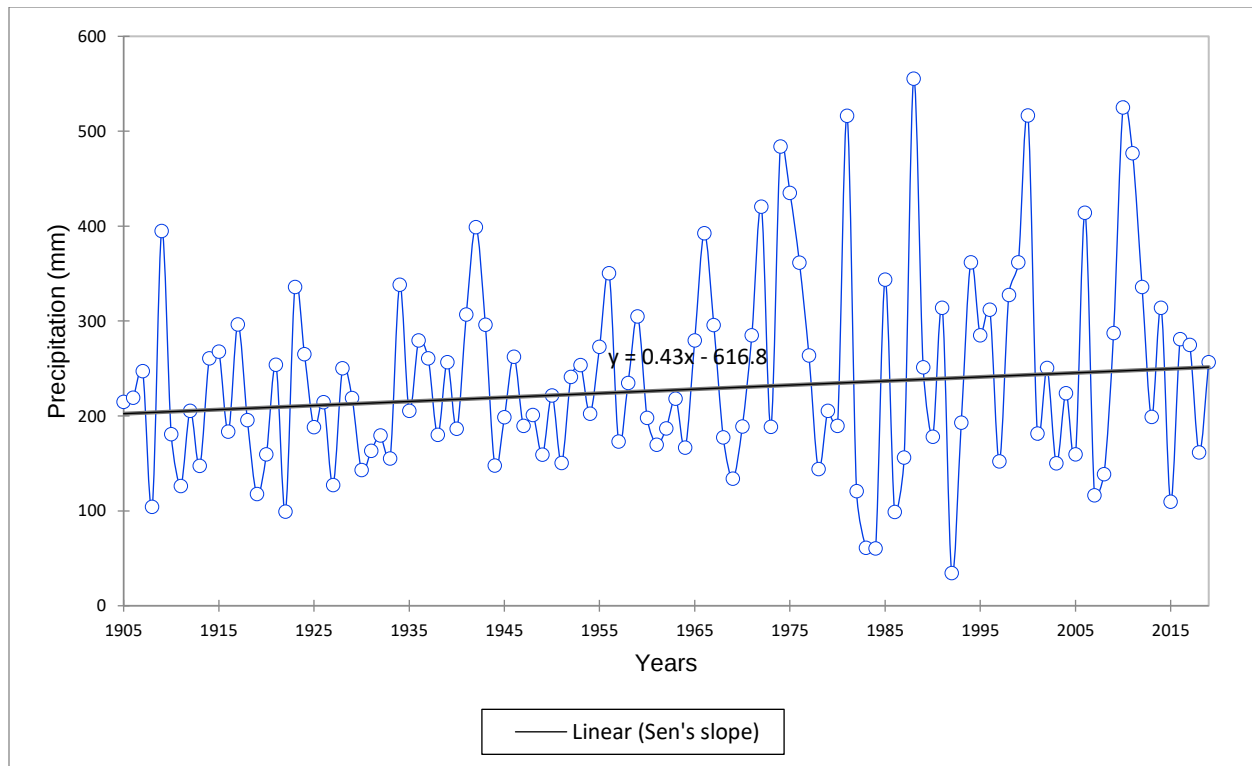


Figure D-93: Summer trend plot for Maselpoort Dam station.

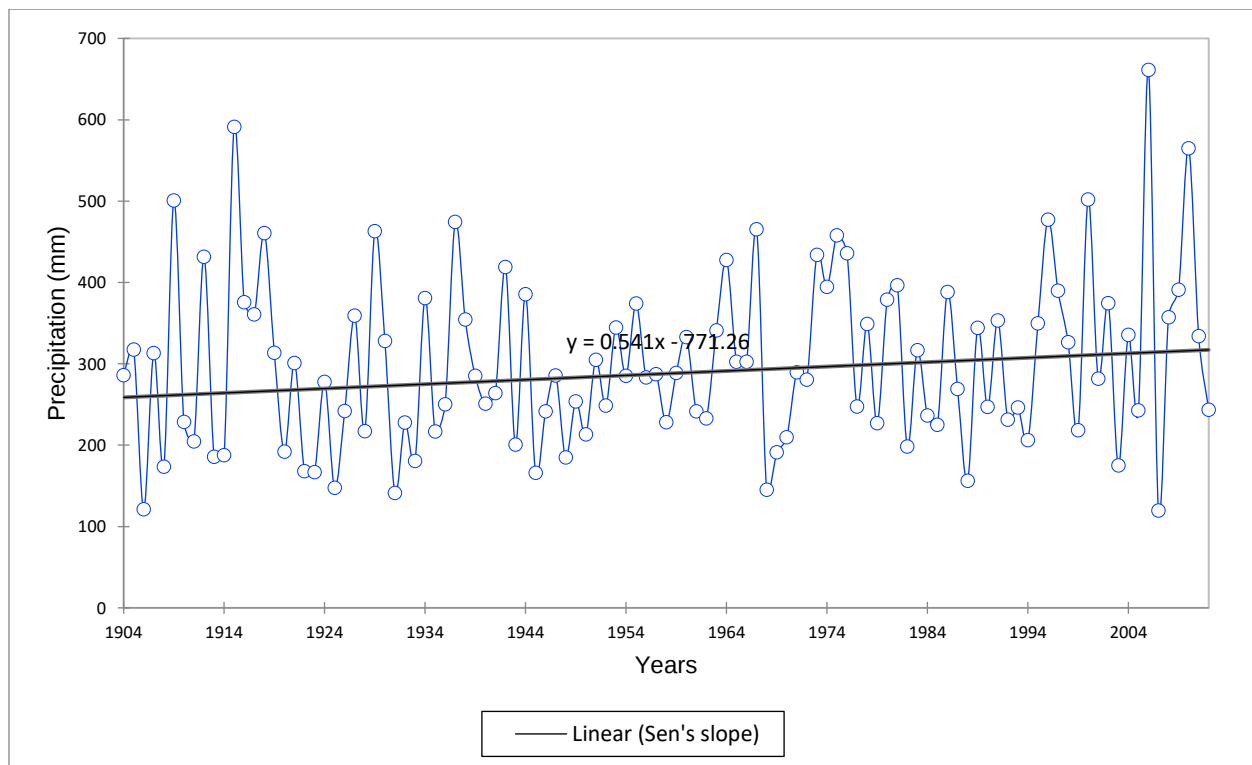


Figure D-94: Summer trend plot for Beerlaagte station.

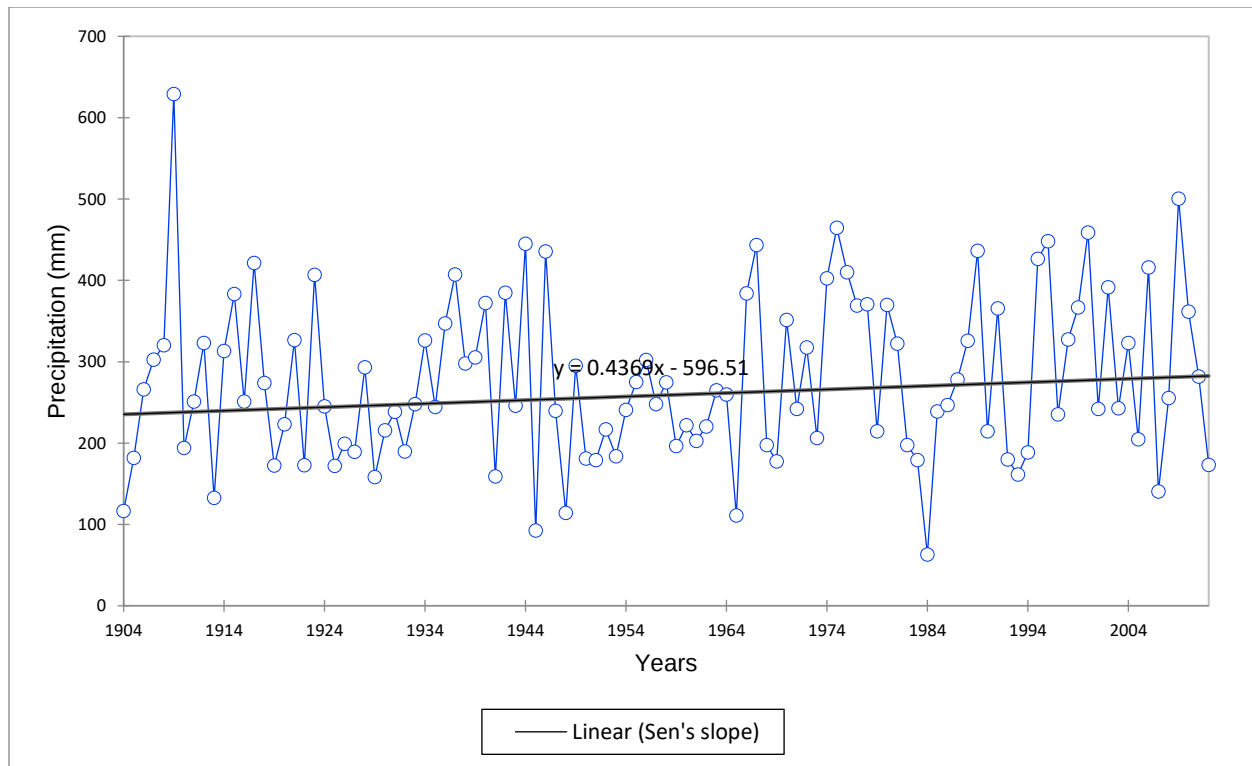


Figure D-95: Summer trend plot for Ottoshop-POL station.

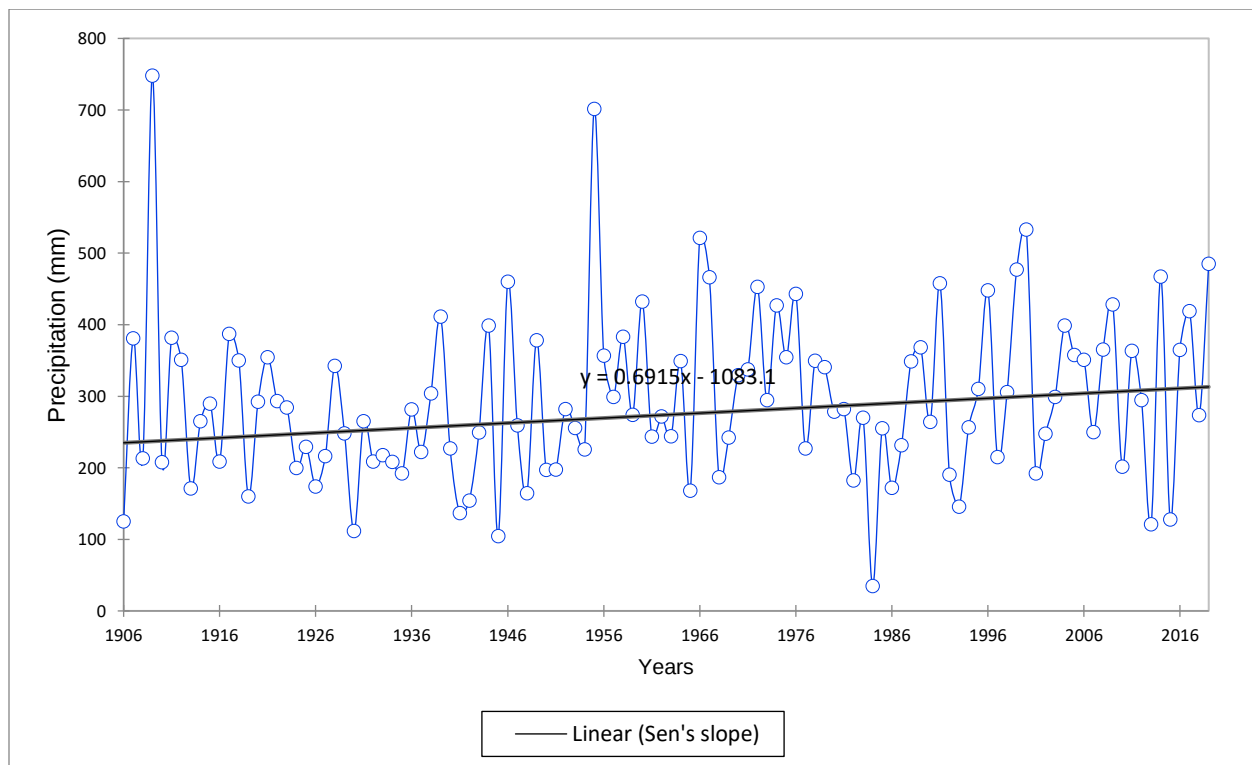


Figure D-96: Summer trend plot for Swarttruggens-POL station.

Table D15: Summer Mann-Kendall trend test results (1900-1939).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Summer (1900-1939)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.002	-2.219	0.003	-2.219
2	Steytlerville-Mag	-33.33	24.33	419	0.160	-0.872	0.066	-0.872
3	Alicedale-Mun	-33.32	26.08	276	0.07	1.168	0.071	1.168
4	Grahamstown-Tnk	-33.3	26.53	539	0.917	-0.092	0.916	-0.092
5	Klipfontein	-32.55	24.72	673	0.051	-1.163	0.051	-1.163
6	Amatola State Forest	-32.67	27.28	884	0.555	0.935	0.552	0.935
7	Winterhoek	-32.22	24.47	876	0.602	-0.359	0.600	-0.359
8	Bloemhof	-32.03	24.67	1,091	0.935	0.121	0.911	0.121
9	Exwell Park	-32.2	27.12	914	0.025	-1.663	0.048	-1.663
10	Kentani-Bos	-32.5	28.32	488	0.096	3.486	0.096	3.486
11	Cwebe Nature Reserve	-32.2	28.93	61	0.400	1.562	0.397	1.562
12	Sterkstroom	-31.55	26.55	1,343	0.270	-1.134	0.268	-1.134
13	Engcobo Prison	-31.67	28	975	0.619	0.769	0.621	0.769
14	Xhora Prison	-31.97	28.67	671	0.755	0.385	0.800	0.385
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.480	-0.717	0.416	-0.717
16	Ellesmere	-30.67	26.32	1,387	0.197	-1.355	0.196	-1.355
17	Burgersdorp-Pol	-31	26.33	1,387	0.260	-1.411	0.217	-1.411
18	Petrusville-Pol	-30.08	24.67	1,212	0.991	-0.016	1.000	-0.016
19	Philippolis-Pol	-30.27	25.27	1,372	0.673	0.892	0.635	0.892
20	Hopetown-Tnk	-29.62	24.08	1,661	0.866	-0.270	0.865	-0.270
21	Lillydale	-30	25.95	1,098	0.065	2.922	0.066	2.922
22	Richmond S.A. P	-29.87	30.27	1,509	0.642	-1.864	0.637	-1.864
23	Durban Botanical Gardens	-29.85	31	91	0.268	1.260	0.379	1.260
24	Steinkopf	-29.25	17.73	91	0.624	0.044	0.552	0.044
25	Nuwejaarskraal	-29.37	23.12	884	0.848	-0.181	0.834	-0.181
26	Maselspoort Dam	-29.03	26.42	1,372	0.673	0.486	0.513	0.486
27	Boetsap-Pol	-27.97	24.45	1,189	0.407	1.747	0.402	1.747
28	Odendaalsrus	-27.87	26.68	1,341	0.814	0.400	0.751	0.400
29	Bothaville-Mun	-27.55	26.62	1,280	0.444	1.314	0.441	1.314
30	Beerlaagte	-26.82	28.43	1,615	0.946	0.276	0.946	0.276
31	Balfour	-26.65	28.58	1,555	0.617	-0.594	0.434	-0.594
32	De Emigratie	-26.77	30.12	1,676	0.988	-0.108	0.978	-0.108
33	Morokweng	-26.12	23.78	1,126	0.540	0.855	0.536	0.855
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.561	1.088	0.558	1.088

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
35	Swartruggens-Pol	-25.63	26.68	1,311	0.480	-1.143	0.477	-1.143
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.903	0.258	0.902	0.258
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.466	-1.782	0.476	-1.782
38	Machadodorp	-25.67	30.25	1,609	0.162	2.872	0.161	2.872
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.490	1.368	0.487	1.368
40	Haenertsburg	-23.93	29.93	1,402	0.272	3.512	0.270	3.512
41	Prince Albert-Tnk	-33.22	22.03	686	0.507	-0.207	0.269	-0.207
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.003	-2.340	0.003	-2.340
43	Tulbagh	-33.28	19.13	155	0.954	0.010	0.963	0.010
44	Darling-The Towers	-33.38	18.37	229	0.703	0.110	0.701	0.110
45	Thornlea	-28.63	21.52	884	0.545	0.358	0.337	0.358
46	Klein Australie	-23.05	30.22	702	0.118	6.607	0.117	6.607

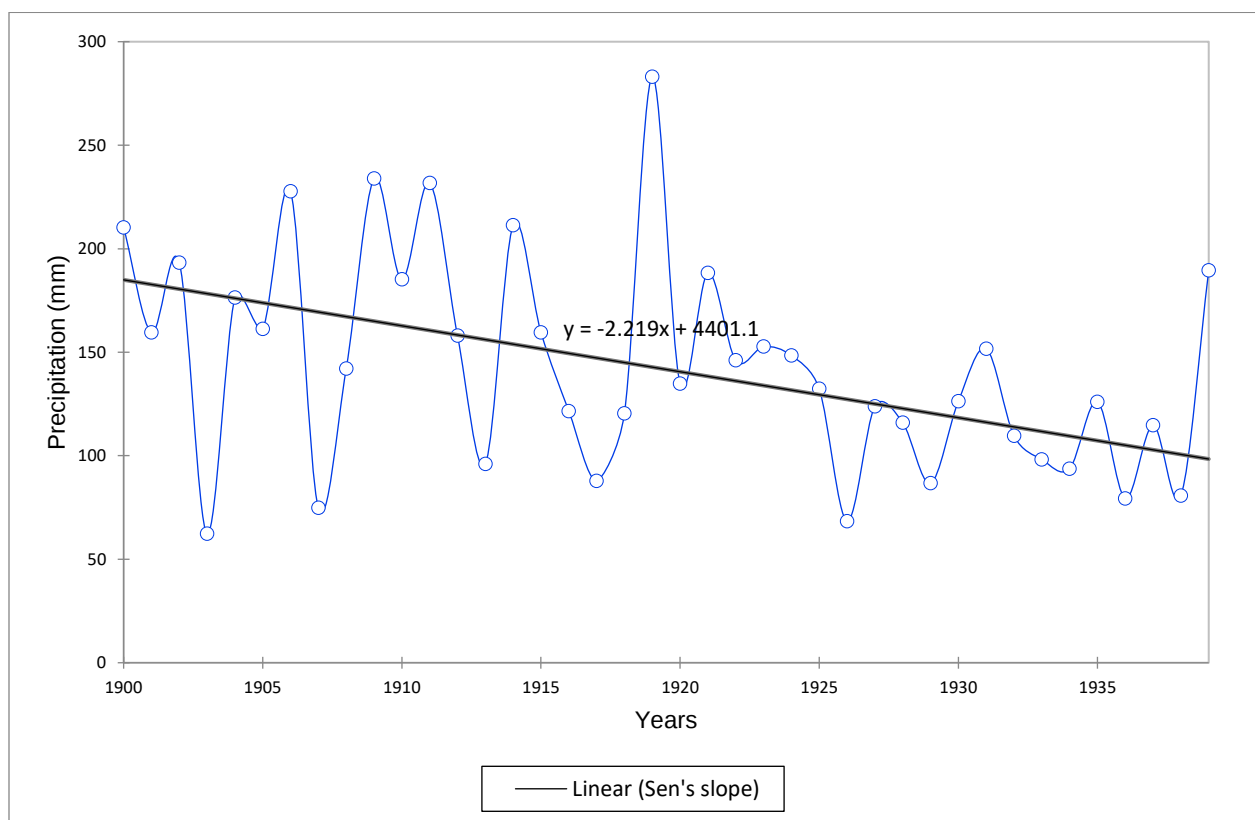


Figure D-97: Summer trend plot for Humansdorp station (1900-1939).

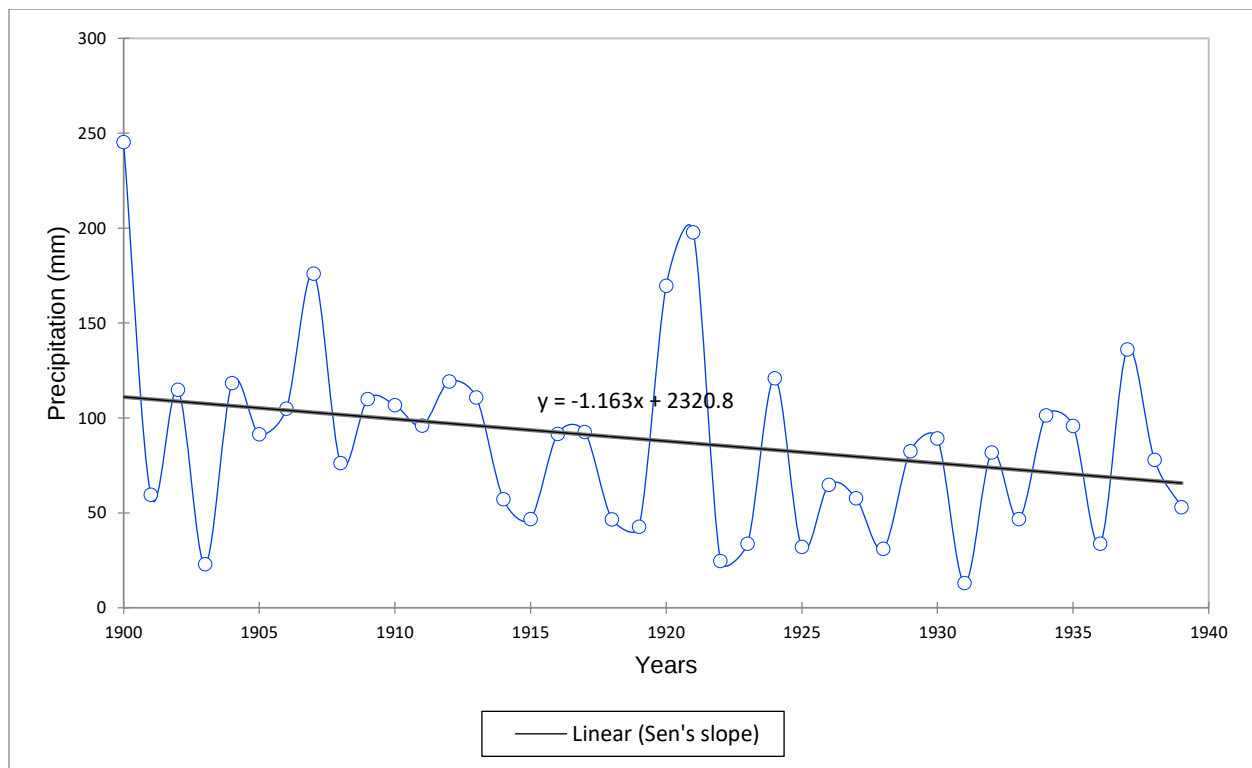


Figure D-98: Summer trend plot for Klipfontein station (1900-1939).

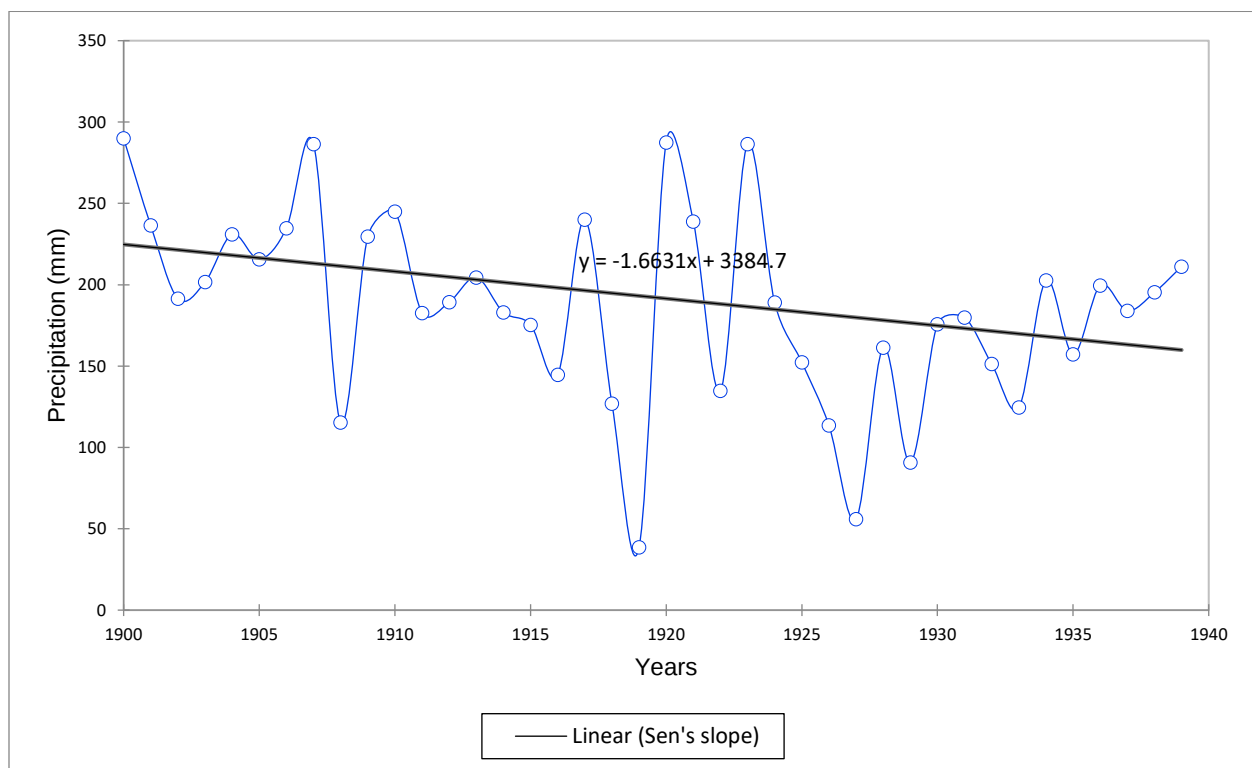


Figure D-99: Summer trend plot for Exwell park station (1900-1939).

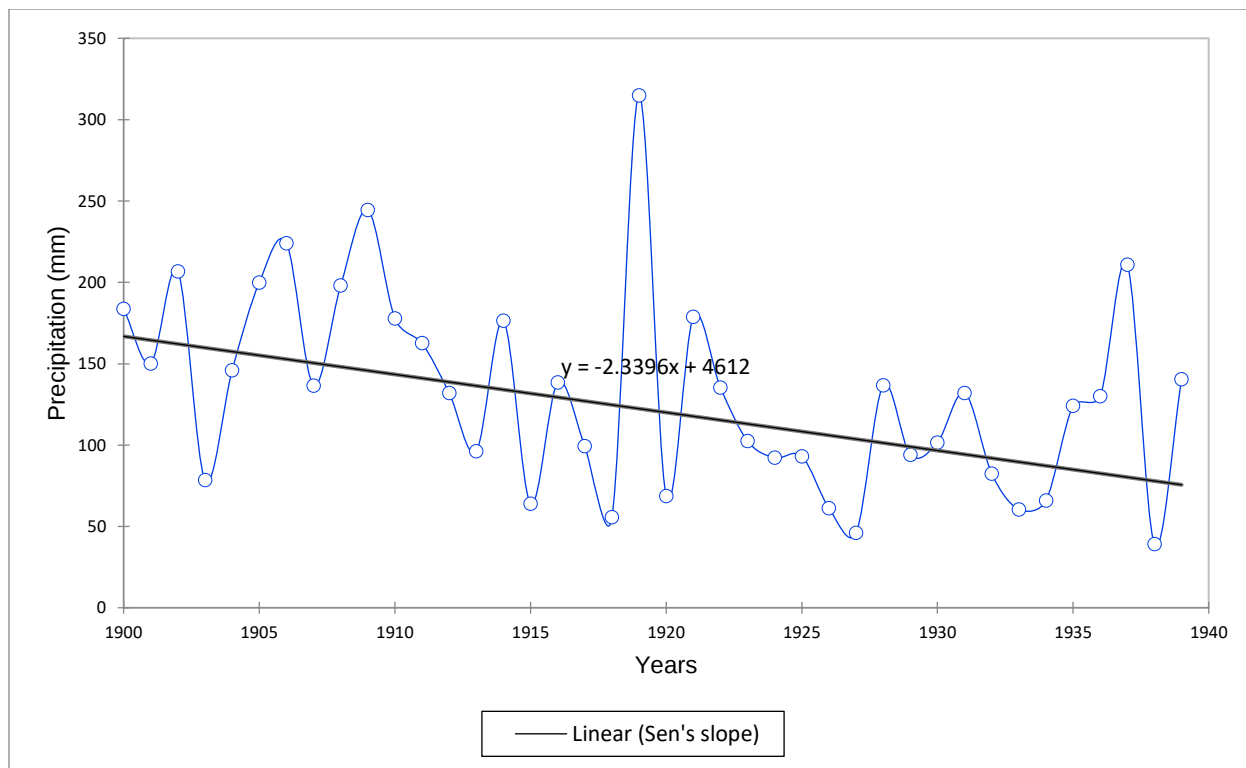


Figure D-100: Summer trend plot for Plattenbergbaai-Pol station (1900-1939).

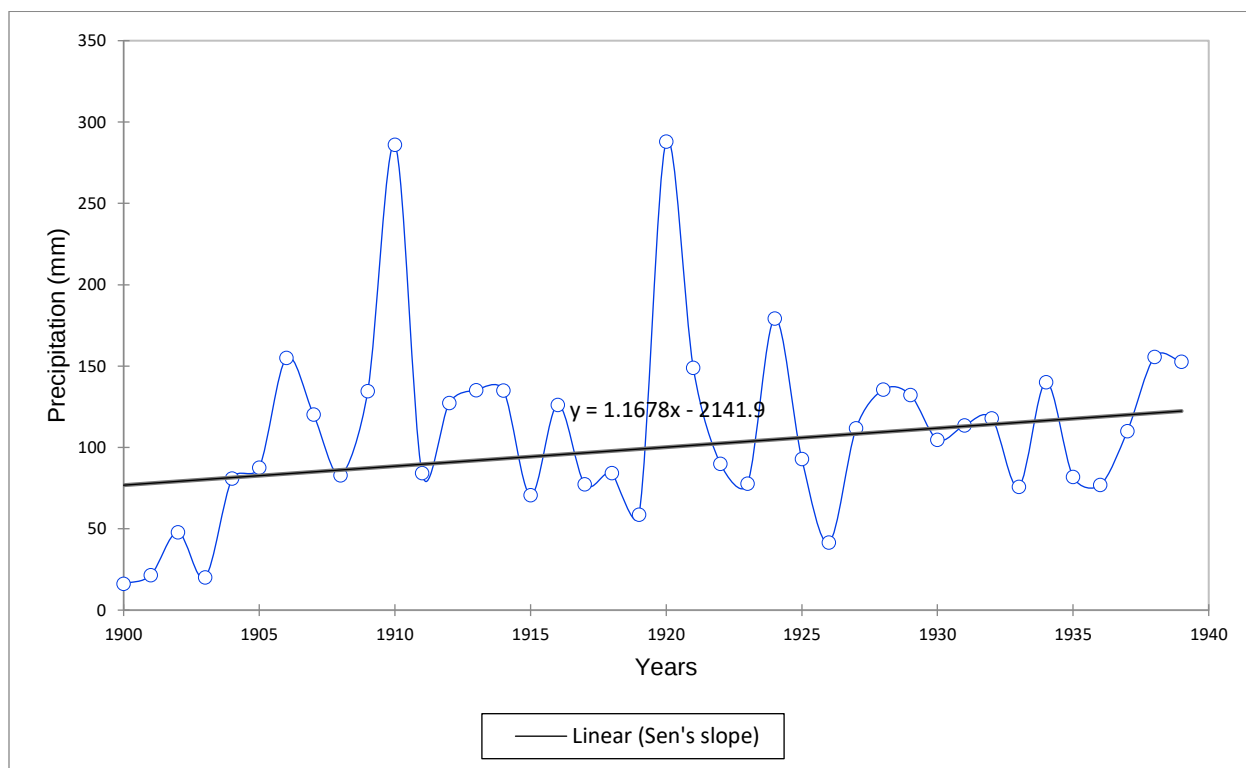


Figure D-101: Summer trend plot for Alicedale-Mun station (1900-1939).

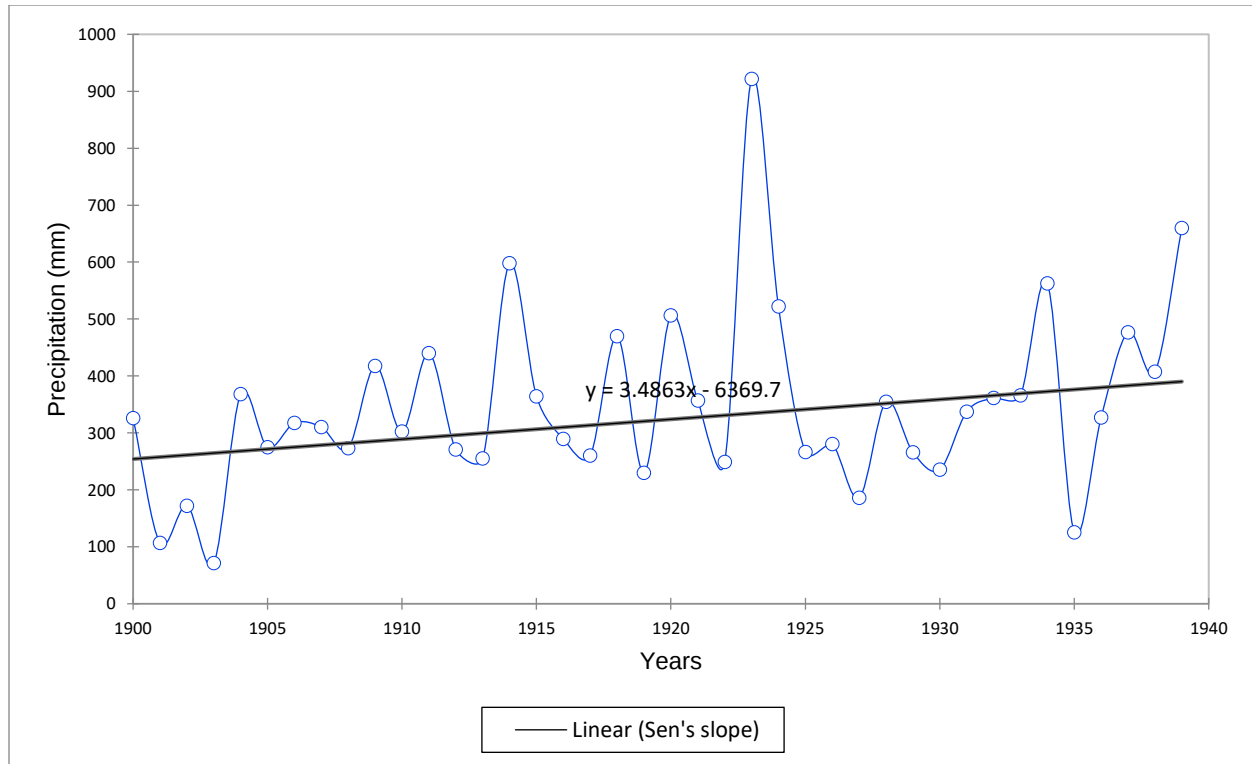


Figure D-102: Summer trend plot for Kentani-Bos station (1900-1939).

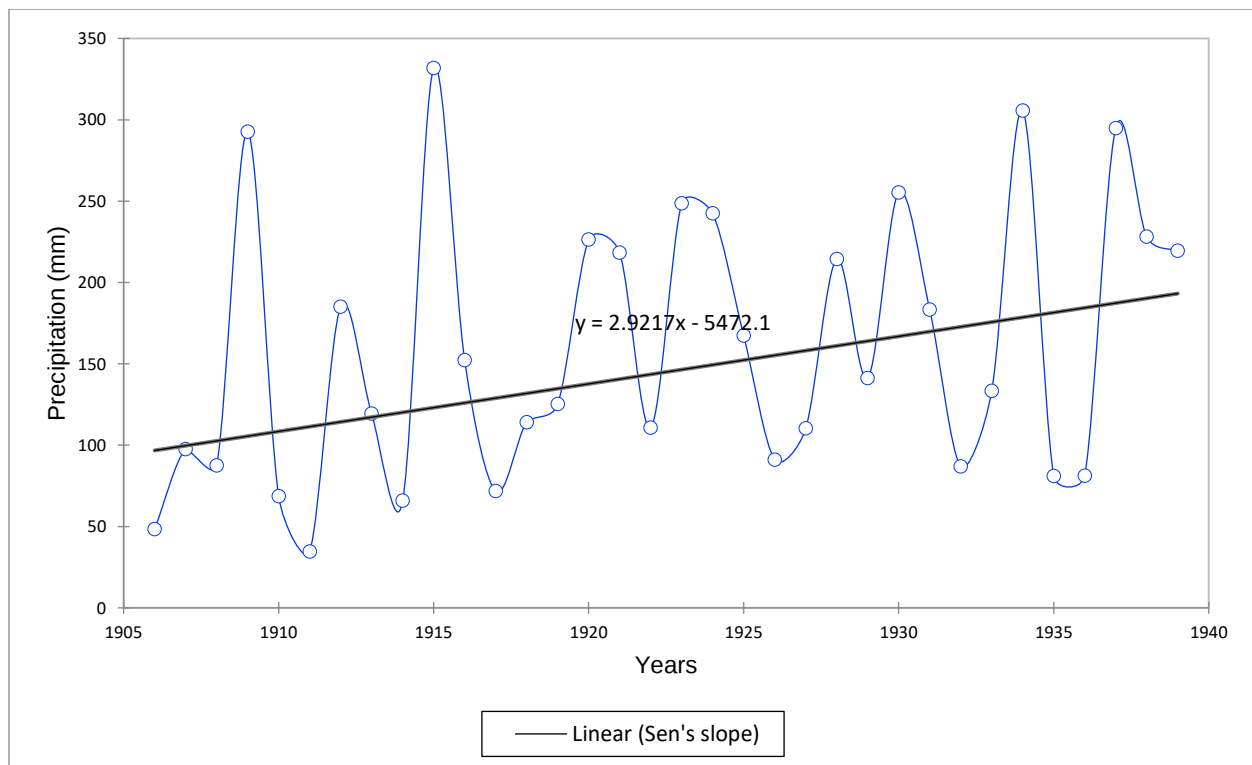


Figure D-103: Summer trend plot for Lillydale station (1900-1939).

Table D16: Summer Mann-Kendall trend test results (1940-1979).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Summer (1940-1979)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.524	-0.457	0.522	-0.457
2	Steytlerville-Mag	-33.33	24.33	419	0.389	0.300	0.234	0.300
3	Alicedale-Mun	-33.32	26.08	276	0.241	0.845	0.239	0.845
4	Grahamstown-Tnk	-33.3	26.53	539	0.600	0.929	0.608	0.929
5	Klipfontein	-32.55	24.72	673	0.075	0.989	0.077	0.989
6	Amatola State Forest	-32.67	27.28	884	0.703	0.754	0.701	0.754
7	Winterhoek	-32.22	24.47	876	0.720	0.316	0.200	0.316
8	Bloemhof	-32.03	24.67	1,091	0.880	-0.122	0.880	-0.122
9	Exwell Park	-32.2	27.12	914	0.025	2.047	0.006	2.047
10	Kentani-Bos	-32.5	28.32	488	0.509	-0.822	0.507	-0.822
11	Cwebe Nature Reserve	-32.2	28.93	61	0.991	0.104	0.991	0.104
12	Sterkstroom	-31.55	26.55	1,343	0.720	0.408	0.718	0.408
13	Engcobo Prison	-31.67	28.0	975	0.789	-0.322	0.742	-0.322
14	Xhora Prison	-31.97	28.67	671	0.313	1.415	0.166	1.415
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.121	1.441	0.122	1.441
16	Ellesmere	-30.67	26.32	1,387	0.449	0.667	0.456	0.667
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.003	2.774	0.003	2.774
18	Petrusville-Pol	-30.08	24.67	1,212	0.140	1.369	0.139	1.369
19	Philippolis-Pol	-30.27	25.27	1,372	0.189	1.204	0.188	1.204
20	Hopetown-Tnk	-29.62	24.08	1,661	0.001	4.331	0.001	4.331
21	Lillydale	-30.0	25.95	1,098	0.167	1.181	0.166	1.181
22	Richmond S.A. P	-29.87	30.27	1,509	0.755	0.493	0.753	0.493
23	Durban Botanical Gardens	-29.85	31.0	91	0.826	0.439	0.825	0.439
24	Steinkopf	-29.25	17.73	91	0.851	0.000	0.755	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.524	-0.400	0.617	-0.400
26	Maselspoort Dam	-29.03	26.42	1,372	0.466	0.925	0.463	0.925
27	Boetsap-Pol	-27.97	24.45	1,189	0.753	-0.351	0.702	-0.351
28	Odendaalsrus	-27.87	26.68	1,341	0.616	0.701	0.521	0.701
29	Bothaville-Mun	-27.55	26.62	1,280	0.539	0.918	0.537	0.918
30	Beerlaagte	-26.82	28.43	1,615	0.110	1.864	0.000	1.864
31	Balfour	-26.65	28.58	1,555	0.031	3.187	0.055	3.187
32	De Emigratie	-26.77	30.12	1,676	0.808	-0.339	0.807	-0.339
33	Morokweng	-26.12	23.78	1,126	0.122	1.577	0.121	1.577
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.153	2.333	0.152	2.333
35	Swartruggens-Pol	-25.63	26.68	1,311	0.022	3.726	0.023	3.726

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.862	-0.266	0.861	-0.266
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.480	-1.316	0.538	-1.316
38	Machadodorp	-25.67	30.25	1,609	0.755	0.464	0.665	0.464
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.772	0.692	0.731	0.692
40	Haenertsburg	-23.93	29.93	1,402	0.006	7.683	0.000	7.683
41	Prince Albert-Tnk	-33.22	22.03	686	0.658	0.209	0.623	0.209
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.339	0.487	0.345	0.487
43	Tulbagh	-33.28	19.13	155	0.834	0.136	0.817	0.136
44	Darling-The Towers	-33.38	18.37	229	0.105	0.482	0.108	0.482
45	Thornlea	-28.63	21.52	884	0.602	0.569	0.541	0.569
46	Klein Australie	-23.05	30.22	702	0.880	0.824	0.909	0.824

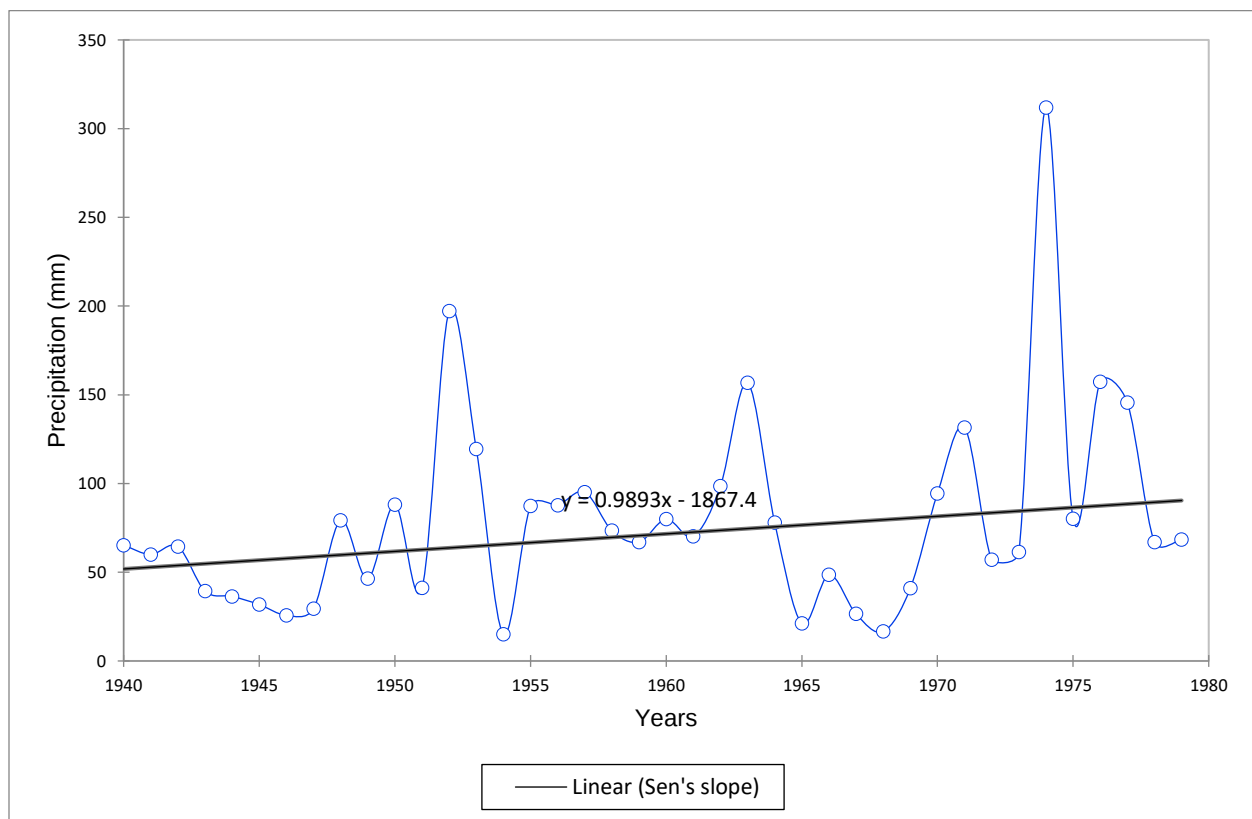


Figure D-104: Summer trend plot for Klipfontein station (1940-1979).

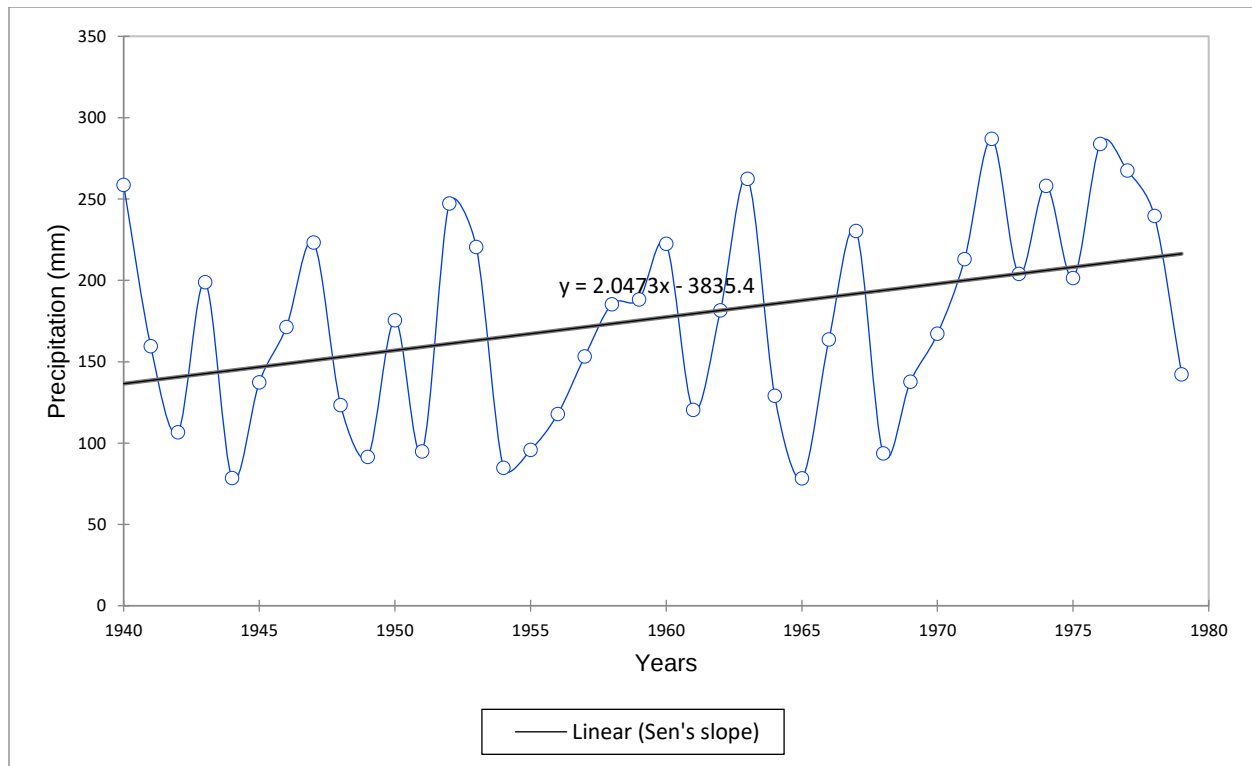


Figure D-105: Summer trend plot for Exwell Park station (1940-1979).

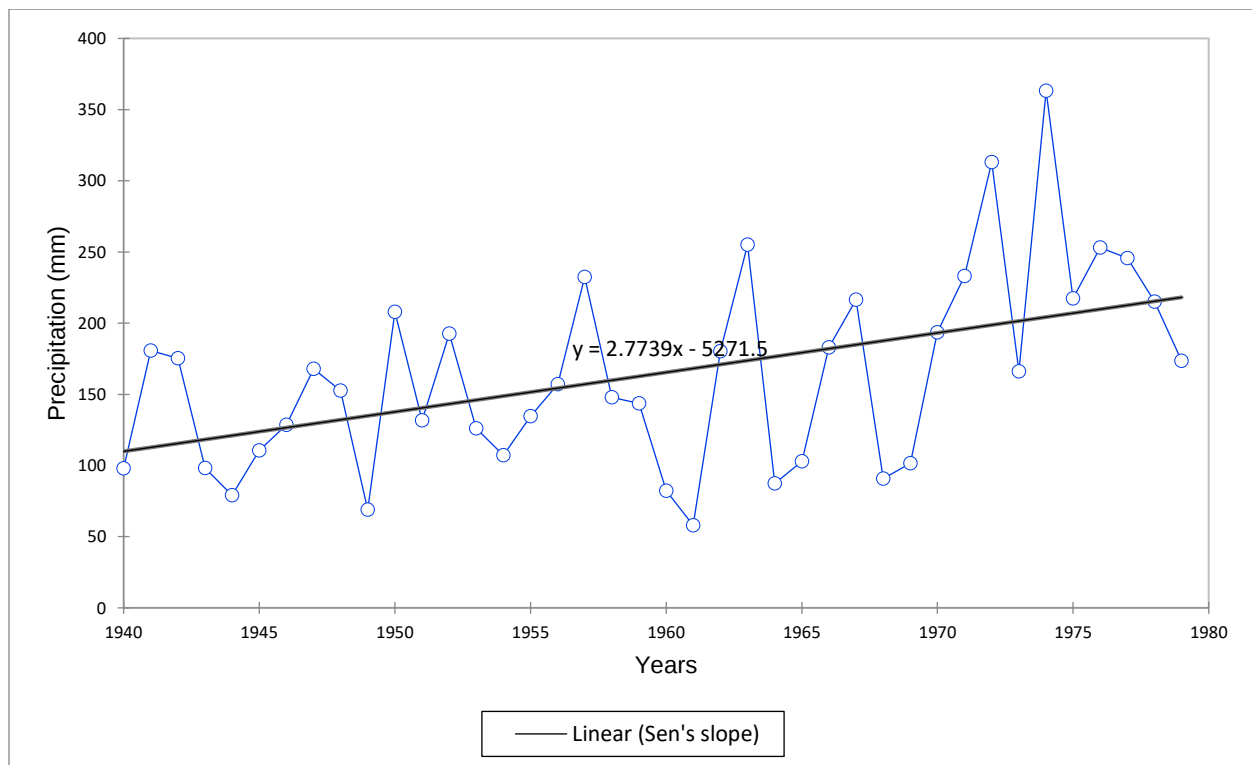


Figure D-106: Summer trend plot for Burgersdorp-Pol station (1940-1979).

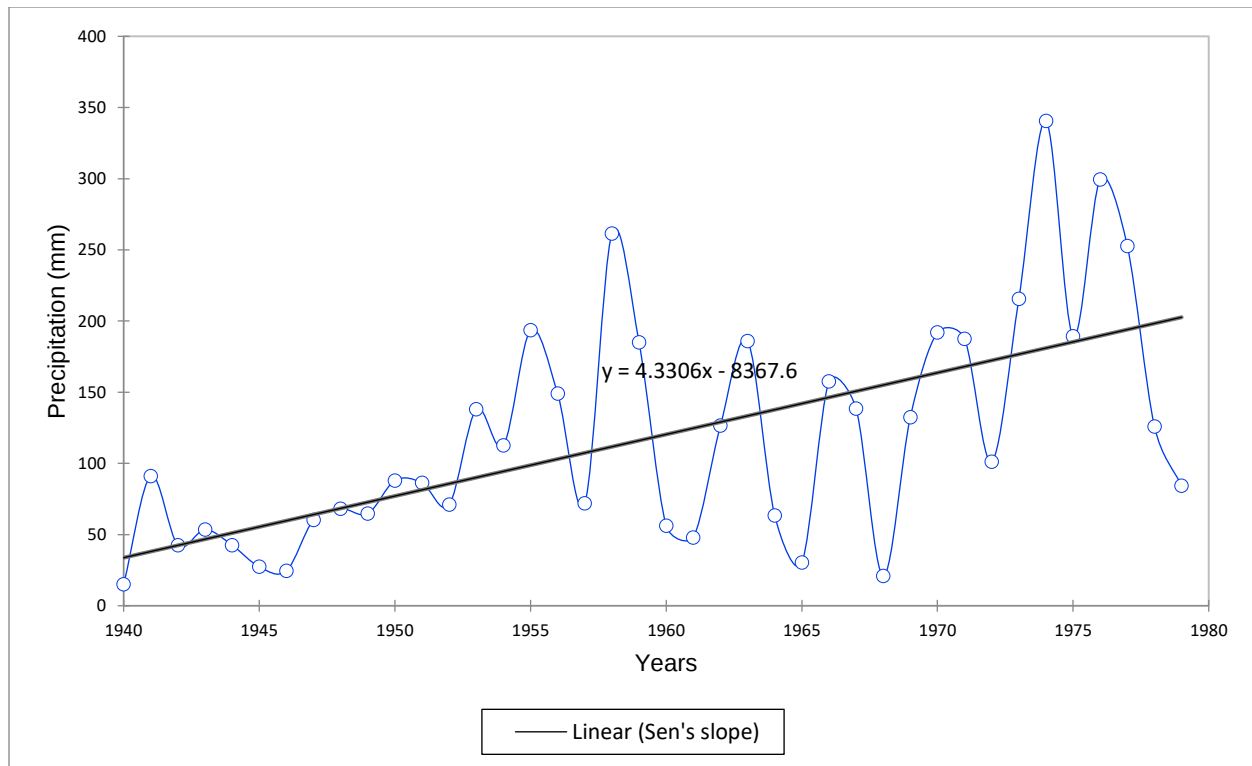


Figure D-107: Summer trend plot for Hopetown-TNK station (1940-1979).

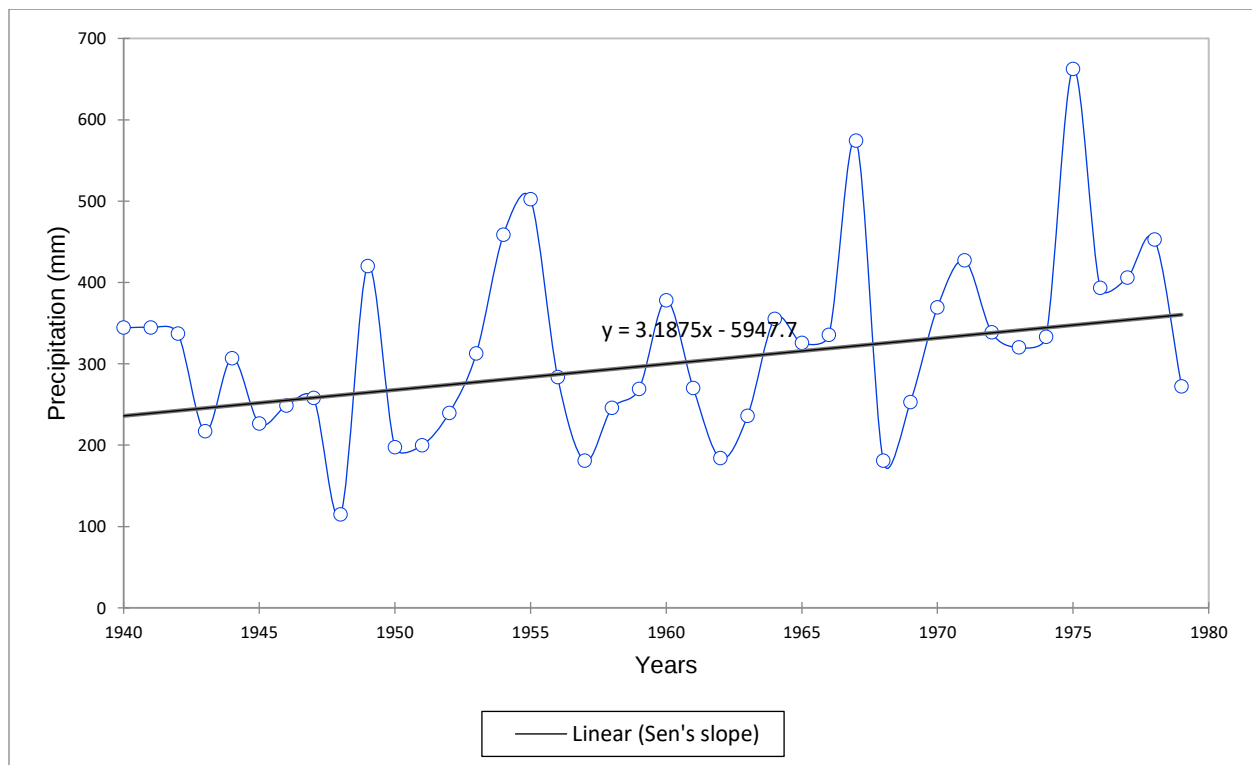


Figure D-108: Summer trend plot for Balfour station (1940-1979).

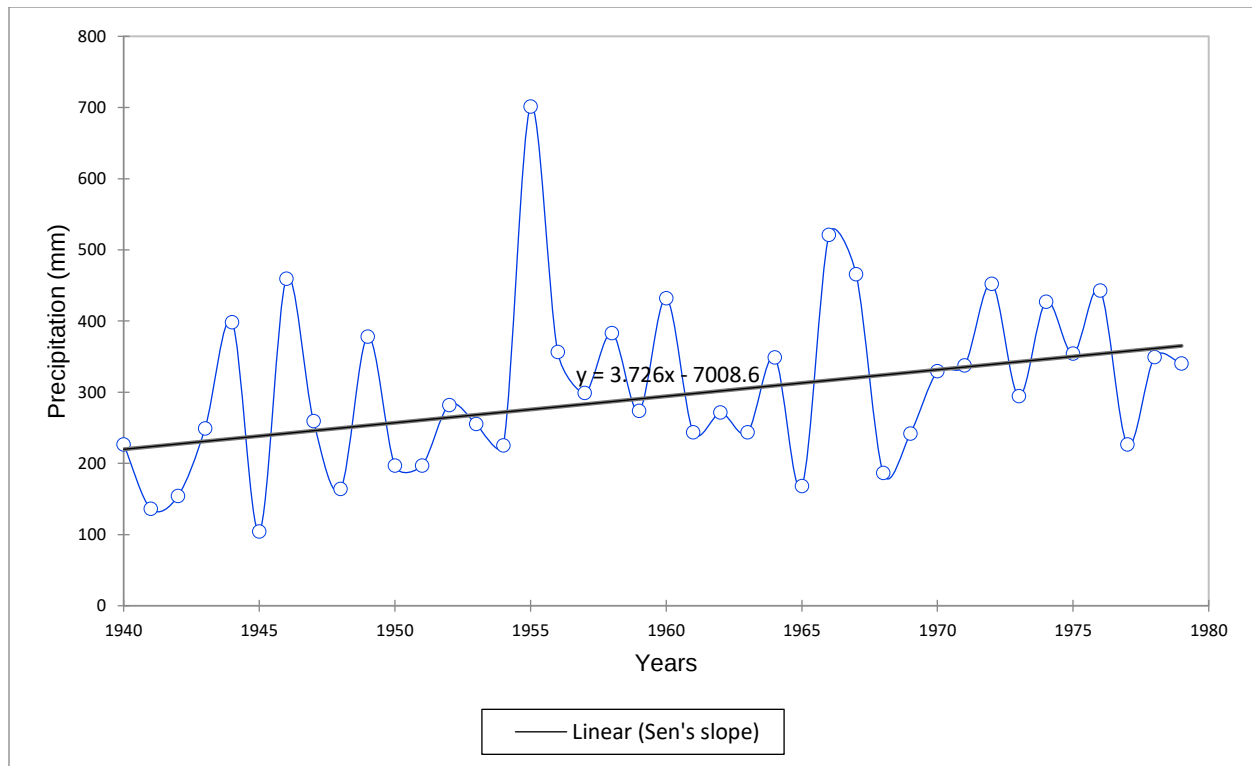


Figure D-109: Summer trend plot for Swarttruggens-Pol station (1940-1979).

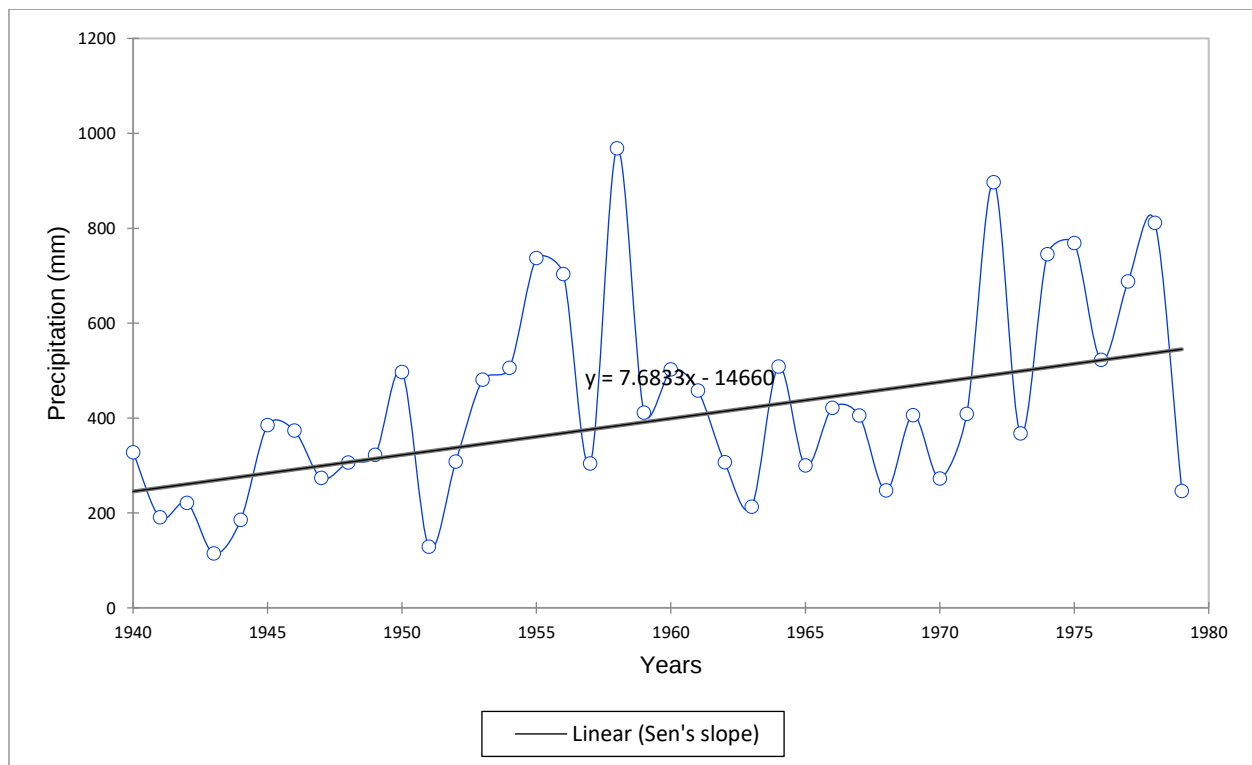


Figure D-110: Summer trend plot for Haernerstburg station (1940-1979).

Table D17: Summer Mann-Kendall trend test results (1980-2019).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Summer (1980-2019)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.535	0.582	0.535	0.582
2	Steytlerville-Mag	-33.33	24.33	419	0.438	0.680	0.435	0.680
3	Alicedale-Mun	-33.32	26.08	276	0.198	1.828	0.004	1.828
4	Grahamstown-Tnk	-33.3	26.53	539	0.174	-1.515	0.088	-1.515
5	Klipfontein	-32.55	24.72	673	0.545	0.445	0.552	0.445
6	Amatola State Forest	-32.67	27.28	884	0.826	0.604	0.825	0.604
7	Winterhoek	-32.22	24.47	876	0.649	0.307	0.658	0.307
8	Bloemhof	-32.03	24.67	1,091	0.159	1.521	0.162	1.521
9	Exwell Park	-32.2	27.12	914	0.737	0.465	0.735	0.465
10	Kentani-Bos	-32.5	28.32	488	0.772	0.603	0.771	0.603
11	Cwebe Nature Reserve	-32.2	28.93	61	0.060	-3.463	0.060	-3.463
12	Sterkstroom	-31.55	26.55	1,343	0.586	0.742	0.584	0.742
13	Engcobo Prison	-31.67	28.0	975	0.899	-0.430	0.779	-0.430
14	Xhora Prison	-31.97	28.67	671	0.289	-1.624	0.291	-1.624
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.790	0.309	0.789	0.309
16	Ellesmere	-30.67	26.32	1,387	0.638	0.983	0.635	0.983
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.442	-1.138	0.449	-1.138
18	Petrusville-Pol	-30.08	24.67	1,212	0.509	0.677	0.507	0.677
19	Philippolis-Pol	-30.27	25.27	1,372	0.421	-0.968	0.428	-0.968
20	Hopetown-Tnk	-29.62	24.08	1,661	0.586	0.564	0.584	0.564
21	Lillydale	-30.0	25.95	1,098	0.946	0.200	0.946	0.200
22	Richmond S.A. P	-29.87	30.27	1,509	0.061	-6.703	0.061	-6.703
23	Durban Botanical Gardens	-29.85	31.0	91	0.027	-3.081	0.028	-3.081
24	Steinkopf	-29.25	17.73	91	0.278	0.050	0.184	0.050
25	Nuwejaarskraal	-29.37	23.12	884	0.022	1.651	0.023	1.651
26	Maselspoort Dam	-29.03	26.42	1,372	0.442	1.521	0.449	1.521
27	Boetsap-Pol	-27.97	24.45	1,189	0.424	0.903	0.322	0.903
28	Odendaalsrus	-27.87	26.68	1,341	0.466	0.864	0.463	0.864
29	Bothaville-Mun	-27.55	26.62	1,280	0.251	2.123	0.249	2.123
30	Beerlaagte	-26.82	28.43	1,615	0.433	1.362	0.255	1.362
31	Balfour	-26.65	28.58	1,555	0.659	-0.714	0.661	-0.714
32	De Emigratie	-26.77	30.12	1,676	0.212	2.816	0.209	2.816
33	Morokweng	-26.12	23.78	1,126	0.973	-0.178	0.965	-0.178
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.364	2.079	0.361	2.079
35	Swartruggens-Pol	-25.63	26.68	1,311	0.057	3.242	0.058	3.242

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.096	-4.794	0.086	-4.794
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.385	-1.361	0.238	-1.361
38	Machadodorp	-25.67	30.25	1,609	0.790	0.627	0.647	0.627
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.935	0.312	0.935	0.312
40	Haenertsburg	-23.93	29.93	1,402	0.972	0.184	0.965	0.184
41	Prince Albert-Tnk	-33.22	22.03	686	0.477	0.330	0.058	0.330
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.935	-0.102	0.925	-0.102
43	Tulbagh	-33.28	19.13	155	0.128	-0.613	0.127	-0.613
44	Darling-The Towers	-33.38	18.37	229	0.007	-1.027	0.000	-1.027
45	Thornlea	-28.63	21.52	884	0.075	1.588	0.138	1.588
46	Klein Australie	-23.05	30.22	702	0.043	8.195	0.044	8.195

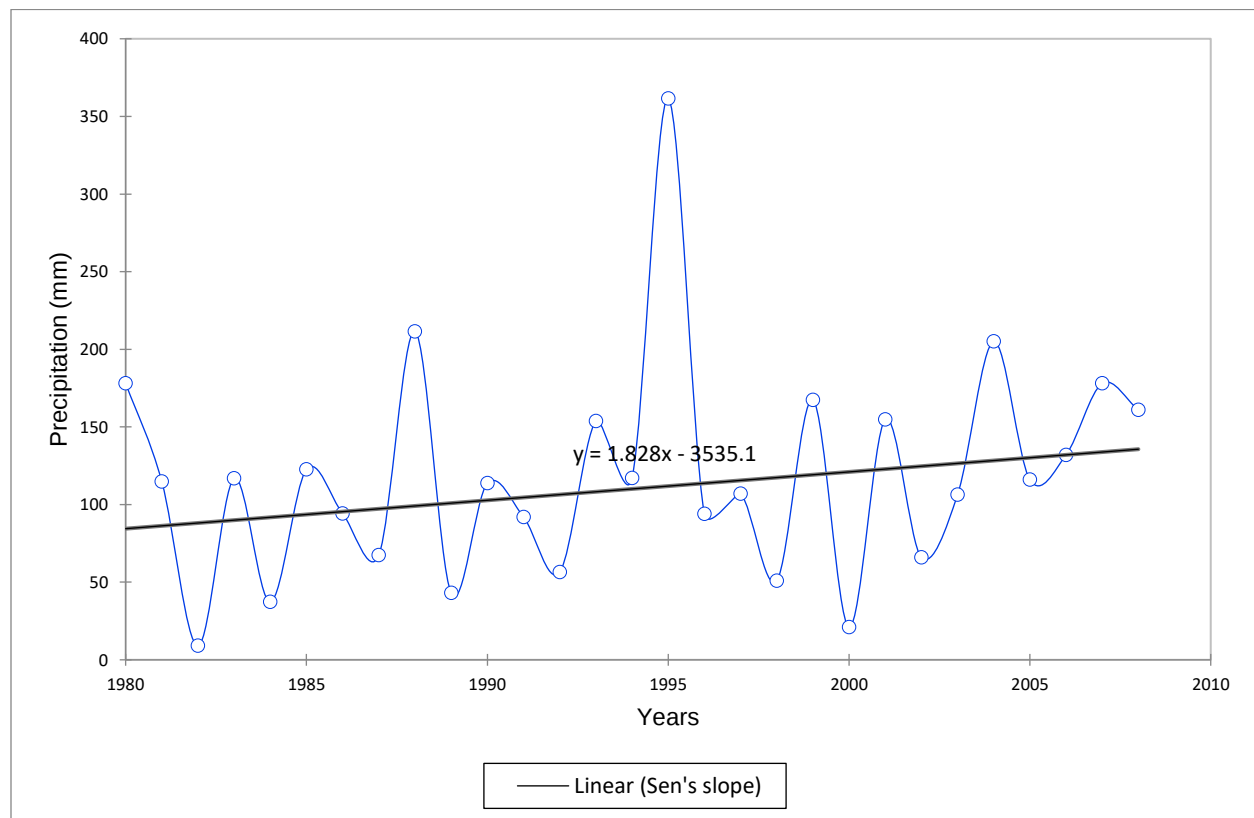


Figure D-111: Summer trend plot for Alicedale-Mun station (1980-2019).

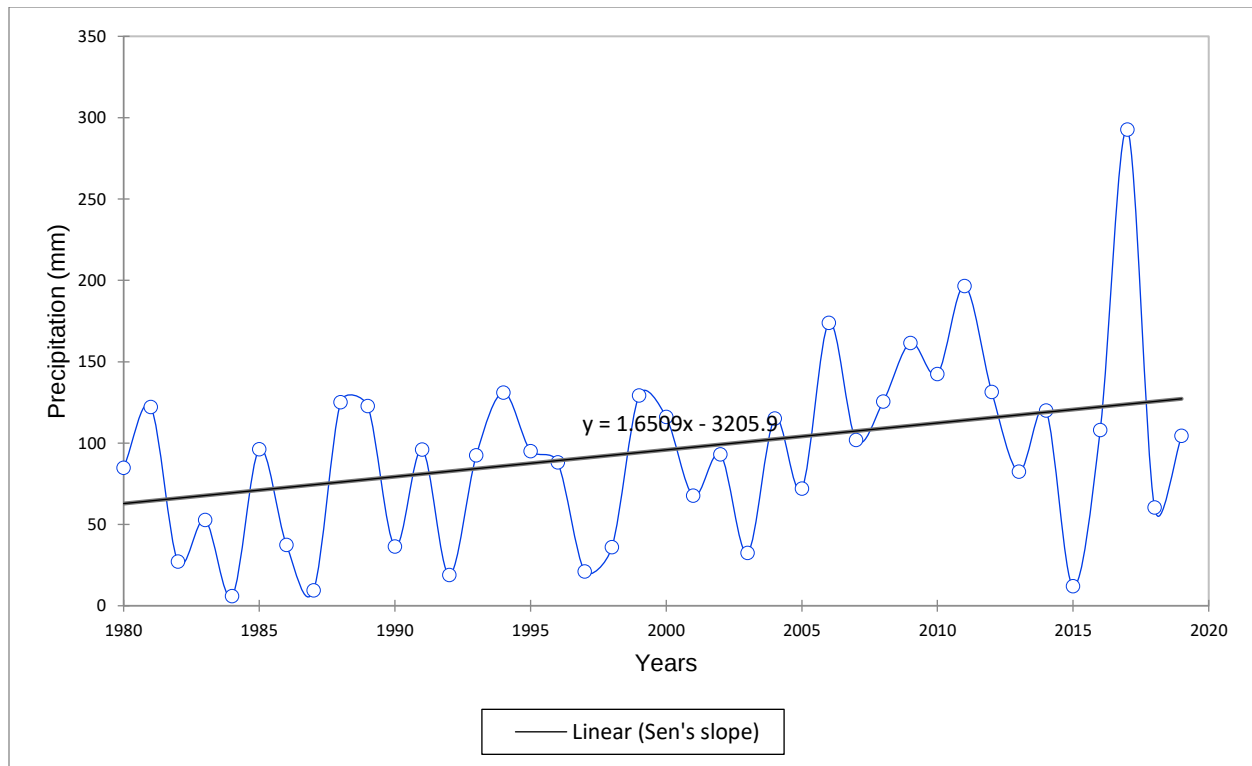


Figure D- 112: Summer trend plot for Nuwejaarskraal station (1980-2019).

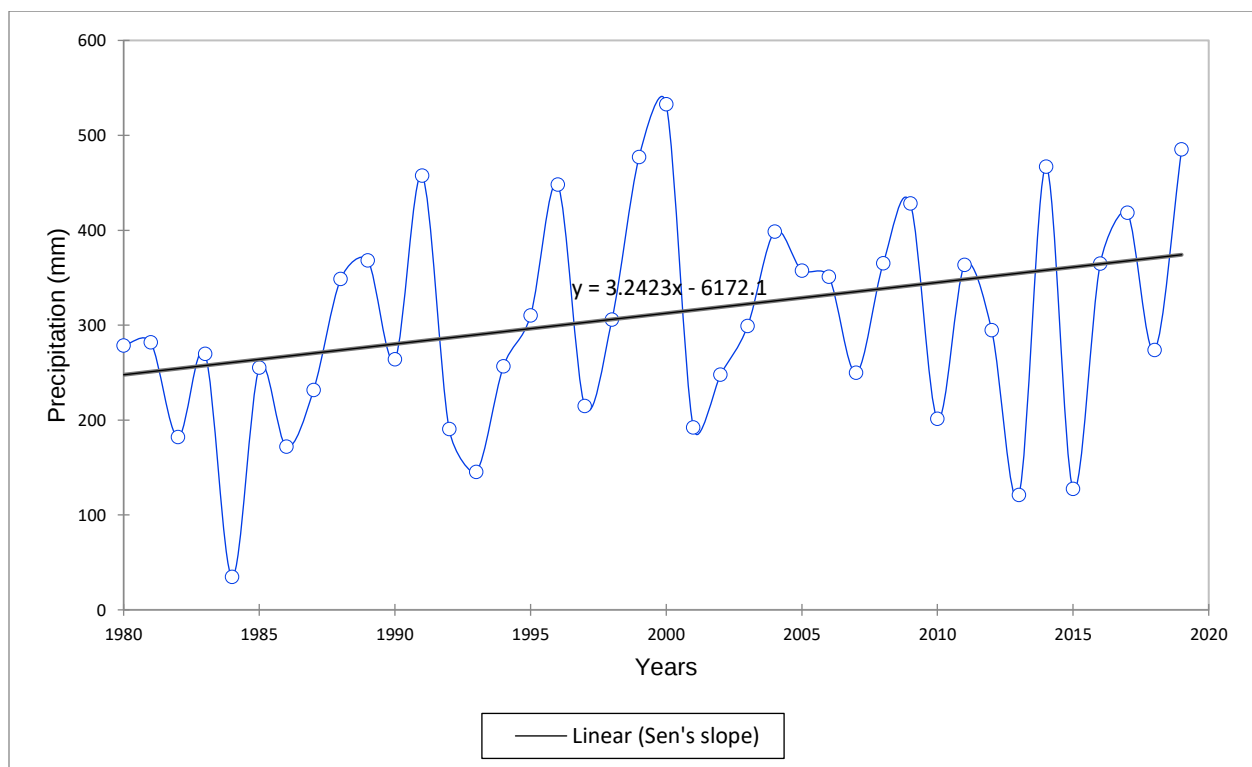


Figure D-113: Summer trend plot for Swarttruggens-Pol station (1980-2019).

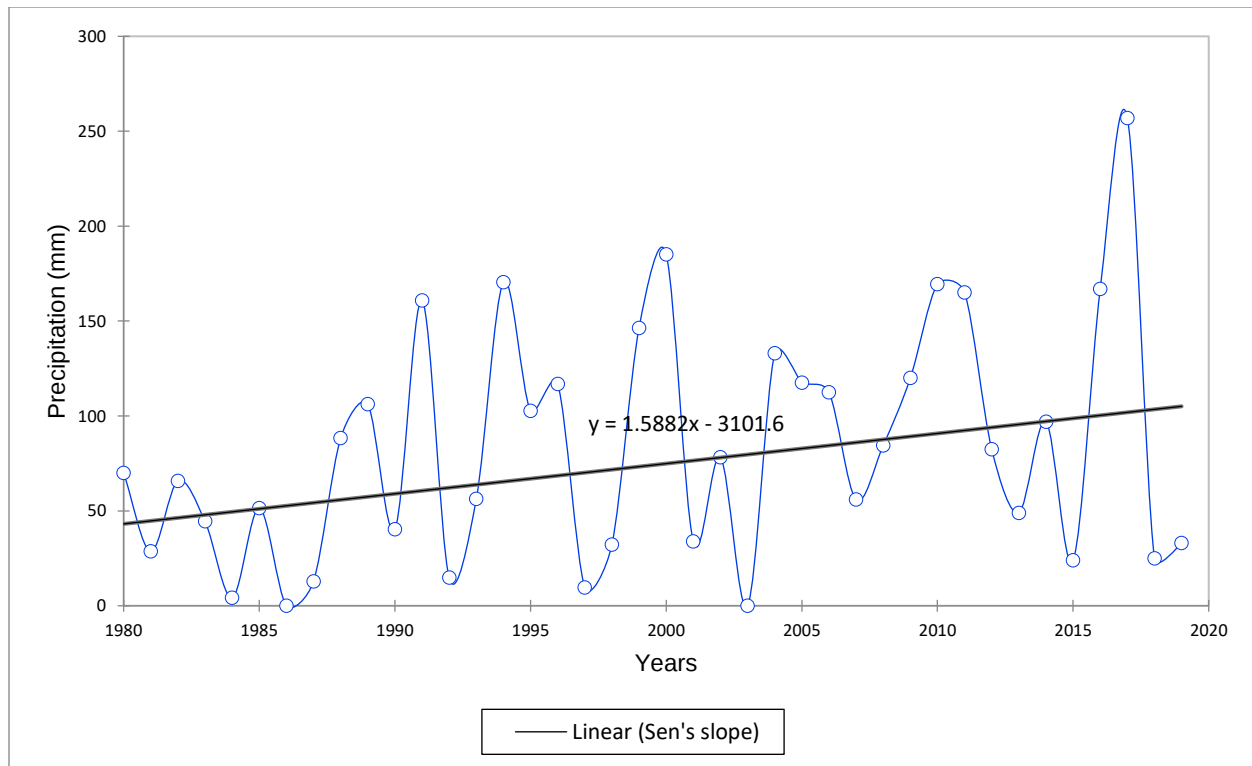


Figure D-114: Summer trend plot for Thornlea station (1980-2019).

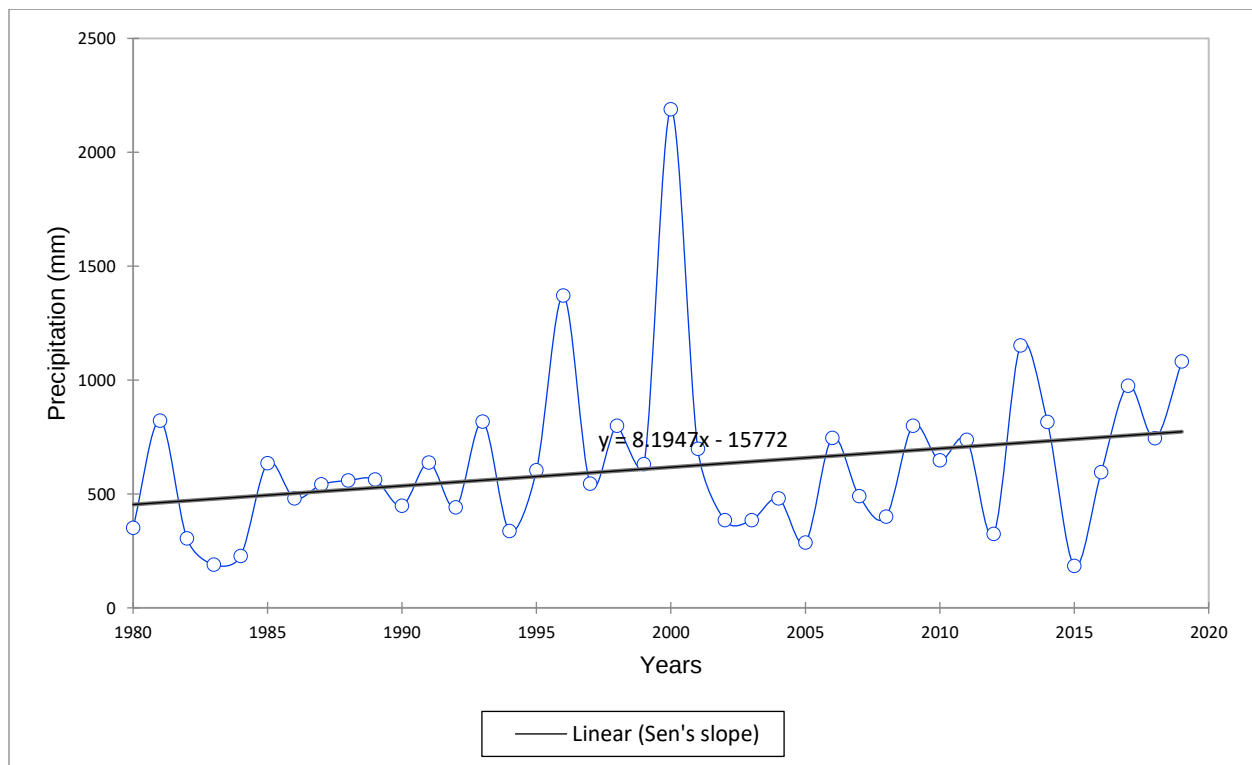


Figure D-115: Summer trend plot for Klein Australia station (1980-2019).

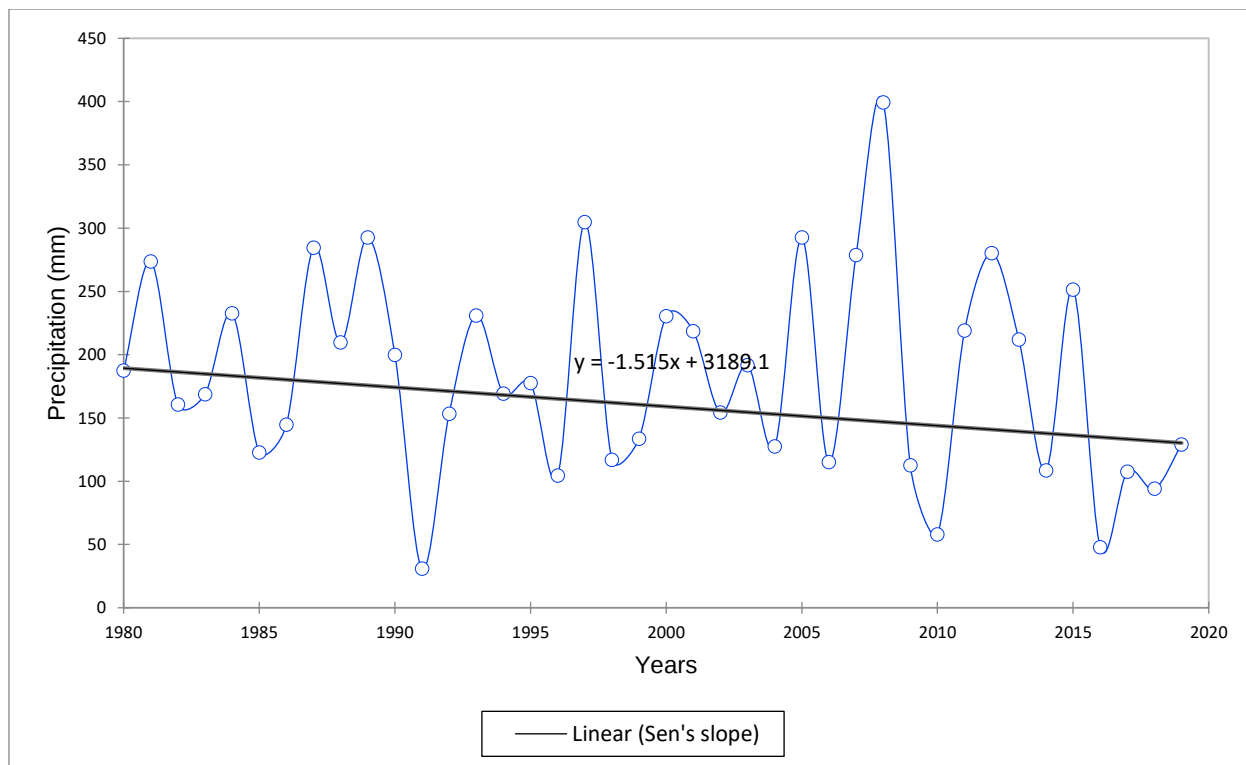


Figure D-116: Summer trend plot for Grahamstown-TNK station (1980-2019).

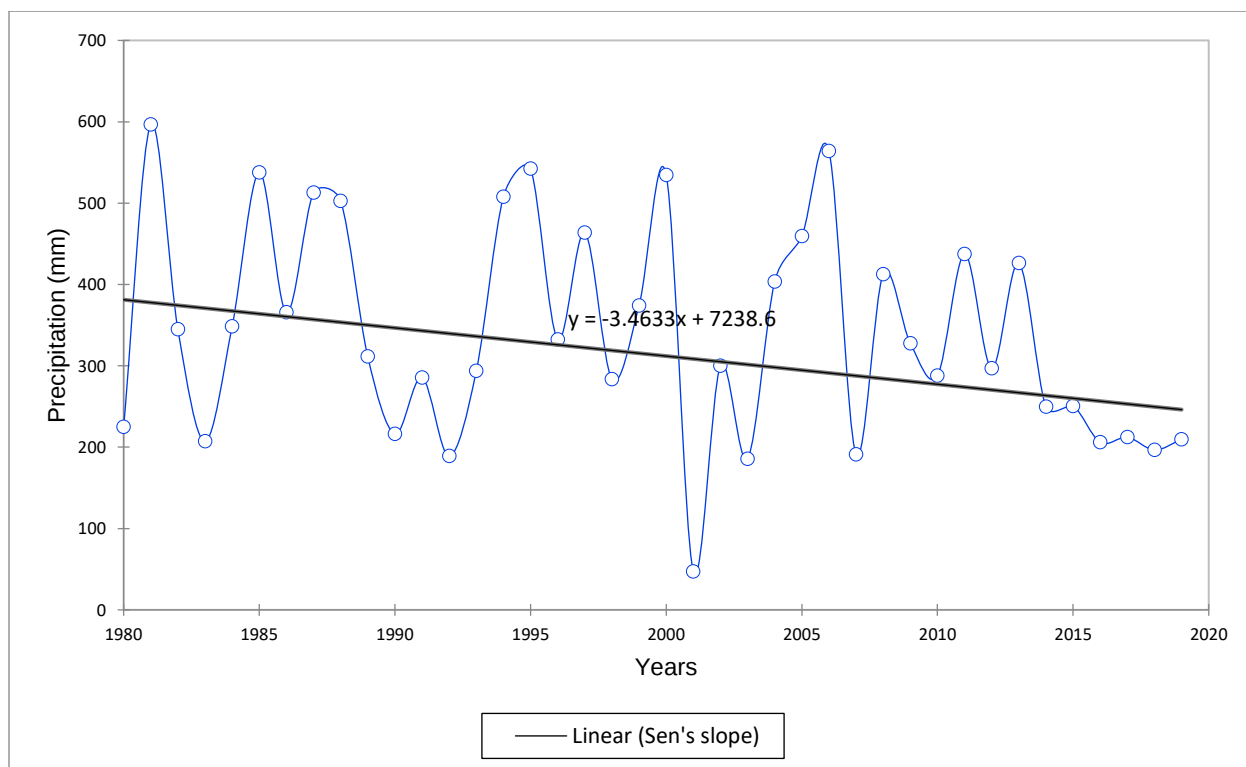


Figure D-117: Summer trend plot for Cwebe Nature Reserve station (1980-2019).

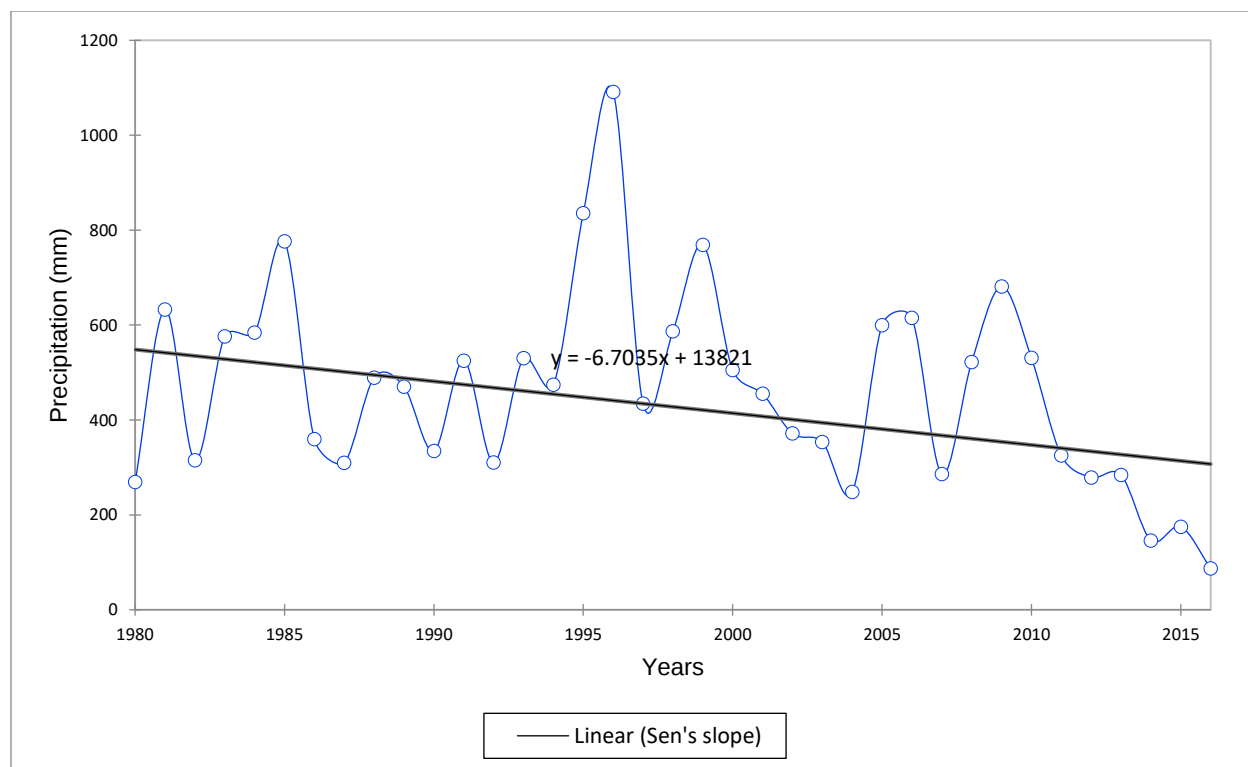


Figure D-118: Summer trend plot for Richmond Sap station (1980-2016).

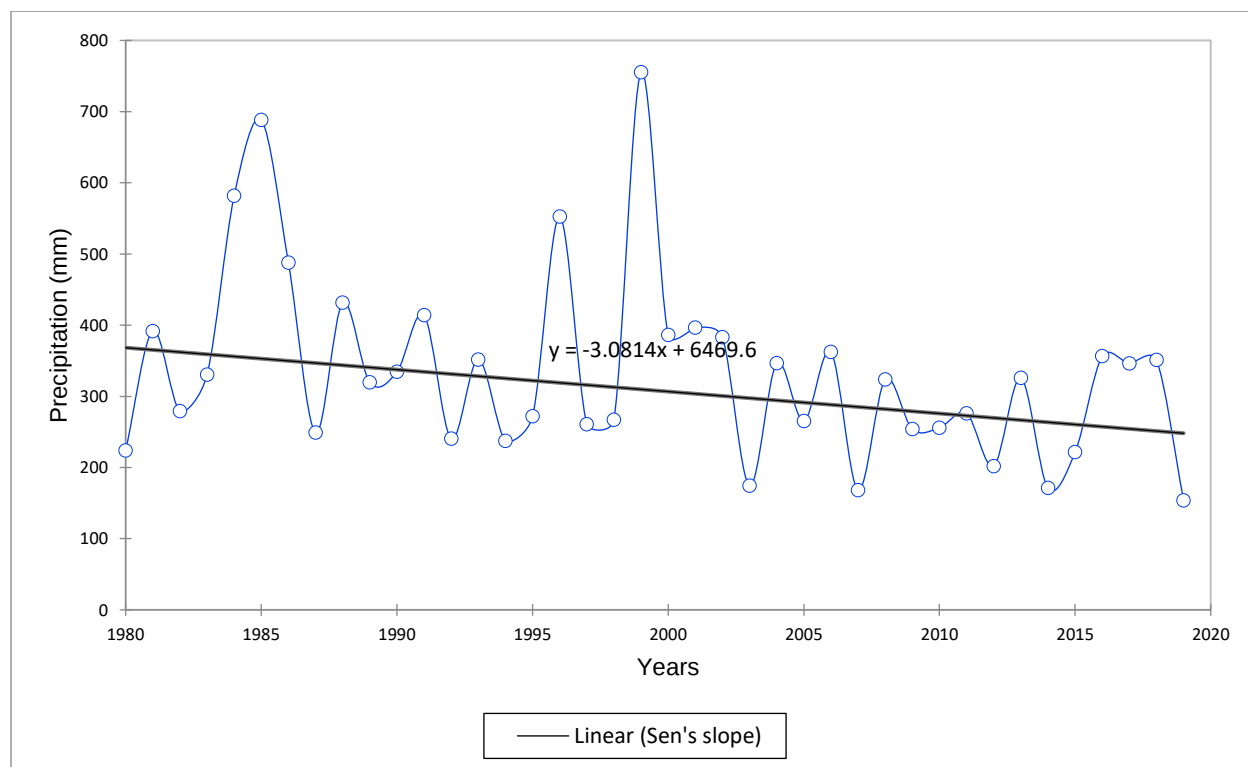


Figure D-119: Summer trend plot for Durban Botanical Gardens (1980-2019).

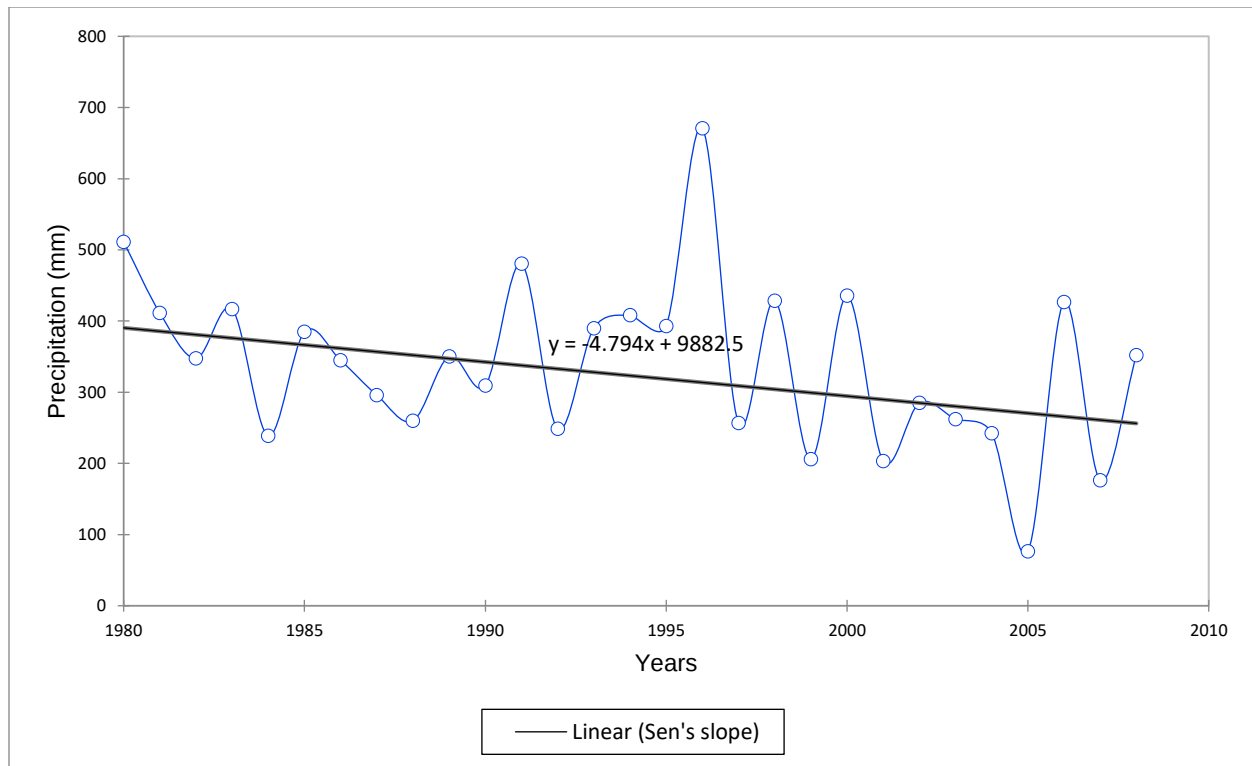


Figure D-120: Summer trend plot for Premier Mine-Cullinan station (1980-2008).

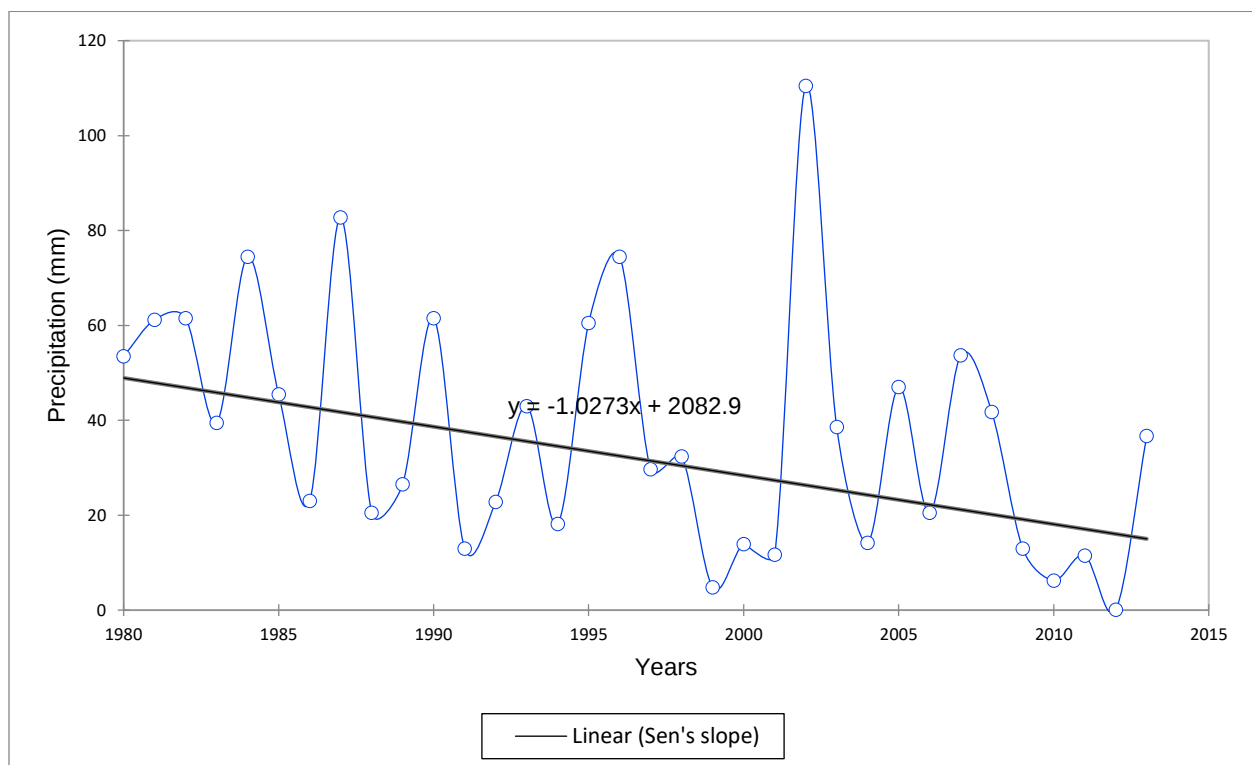


Figure D-121: Summer trend plot for Darling-Towers station (1980-2013).

Table D18: Autumn Mann-Kendall trend test Results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Autumn			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.265	-0.241	0.266	-0.241
2	Steytlerville-Mag	-33.33	24.33	419	0.327	-0.099	0.175	-0.099
3	Alicedale-Mun	-33.32	26.08	276	0.734	0.075	0.736	0.075
4	Grahamstown-Tnk	-33.3	26.53	539	0.307	-0.141	0.291	-0.141
5	Klipfontein	-32.55	24.72	673	0.814	-0.026	0.815	-0.026
6	Amatola State Forest	-32.67	27.28	884	0.028	-0.540	0.029	-0.540
7	Winterhoek	-32.22	24.47	876	0.162	-0.208	0.159	-0.208
8	Bloemhof	-32.03	24.67	1,091	0.833	0.026	0.557	0.026
9	Exwell Park	-32.2	27.12	914	0.528	-0.077	0.493	-0.077
10	Kentani-Bos	-32.5	28.32	488	0.695	-0.121	0.648	-0.121
11	Cwebe Nature Reserve	-32.2	28.93	61	0.388	0.311	0.388	0.311
12	Sterkstroom	-31.55	26.55	1,343	0.355	-0.136	0.333	0.136
13	Engcobo Prison	-31.67	28.0	975	0.143	-0.342	0.087	-0.342
14	Xhora Prison	-31.97	28.67	671	0.164	-0.298	0.164	-0.298
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.133	-0.242	0.134	-0.242
16	Ellesmere	-30.67	26.32	1,387	0.401	0.162	0.402	0.162
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.277	-0.178	0.363	-0.178
18	Petrusville-Pol	-30.08	24.67	1,212	0.203	-0.208	0.143	-0.208
19	Philippolis-Pol	-30.27	25.27	1,372	0.348	-0.182	0.350	-0.182
20	Hopetown-Tnk	-29.62	24.08	1,661	0.825	-0.034	0.827	-0.034
21	Lillydale	-30.0	25.95	1,098	0.510	0.126	0.437	0.126
22	Richmond S.A. P	-29.87	30.27	1,509	0.172	-0.440	0.158	-0.440
23	Durban Botanical Gardens	-29.85	31.0	91	0.236	-0.388	0.006	-0.388
24	Steinkopf	-29.25	17.73	91	0.986	0.000	0.985	0.000
25	Nuwejaarskraal	-29.37	23.12	884	0.042	-0.272	0.056	-0.272
26	Maselspoort Dam	-29.03	26.42	1,372	0.334	-0.171	0.382	-0.171
27	Boetsap-Pol	-27.97	24.45	1,189	0.349	-0.220	0.253	-0.220
28	Odendaalsrus	-27.87	26.68	1,341	0.748	0.065	0.750	0.065
29	Bothaville-Mun	-27.55	26.62	1,280	-0.646	-0.091	0.298	-0.091
30	Beerlaagte	-26.82	28.43	1,615	0.822	-0.044	0.836	-0.044
31	Balfour	-26.65	28.58	1,555	0.059	-0.360	0.04	-0.360
32	De Emigratie	-26.77	30.12	1,676	0.346	-0.200	0.311	-0.200
33	Morokweng	-26.12	23.78	1,126	0.361	-0.173	0.362	-0.173
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.645	0.104	0.575	0.104
35	Swartruggens-Pol	-25.63	26.68	1,311	0.335	0.233	0.336	0.233
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.521	0.195	0.522	0.195

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.410	0.167	0.487	0.167
38	Machadodorp	-25.67	30.25	1,609	0.411	-0.133	0.396	-0.133
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.715	-0.067	0.717	-0.067
40	Haenertsburg	-23.93	29.93	1,402	0.198	-0.375	0.198	-0.375
41	Prince Albert-Tnk	-33.22	22.03	686	0.658	0.040	0.660	0.040
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.407	0.152	0.073	0.152
43	Tulbagh	-33.28	19.13	155	0.389	0.147	0.288	0.147
44	Darling-The Towers	-33.38	18.37	229	0.930	0.010	0.942	0.010
45	Thornlea	-28.63	21.52	884	0.262	-0.142	0.237	-0.142
46	Klein Australie	-23.05	30.22	702	0.105	-0.561	0.049	-0.561

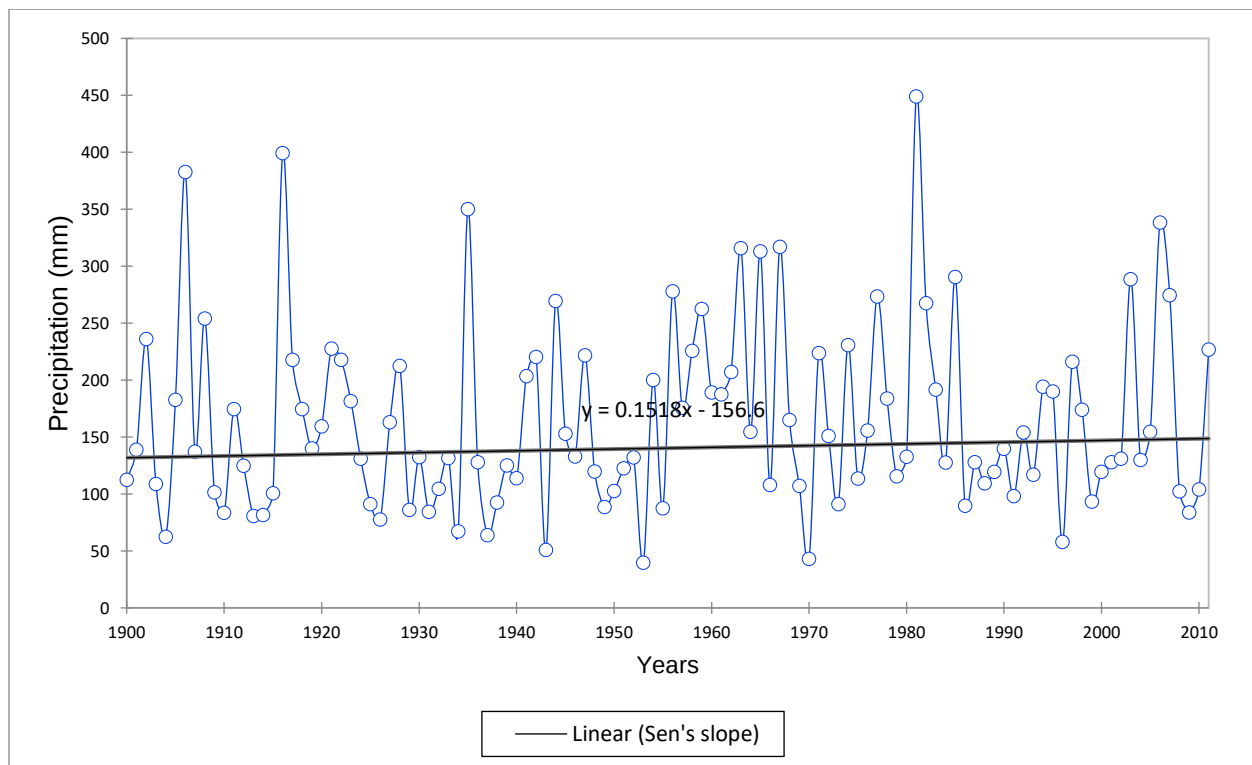


Figure D-122: Autumn trend plot for Plattenbergbaai-POL station.

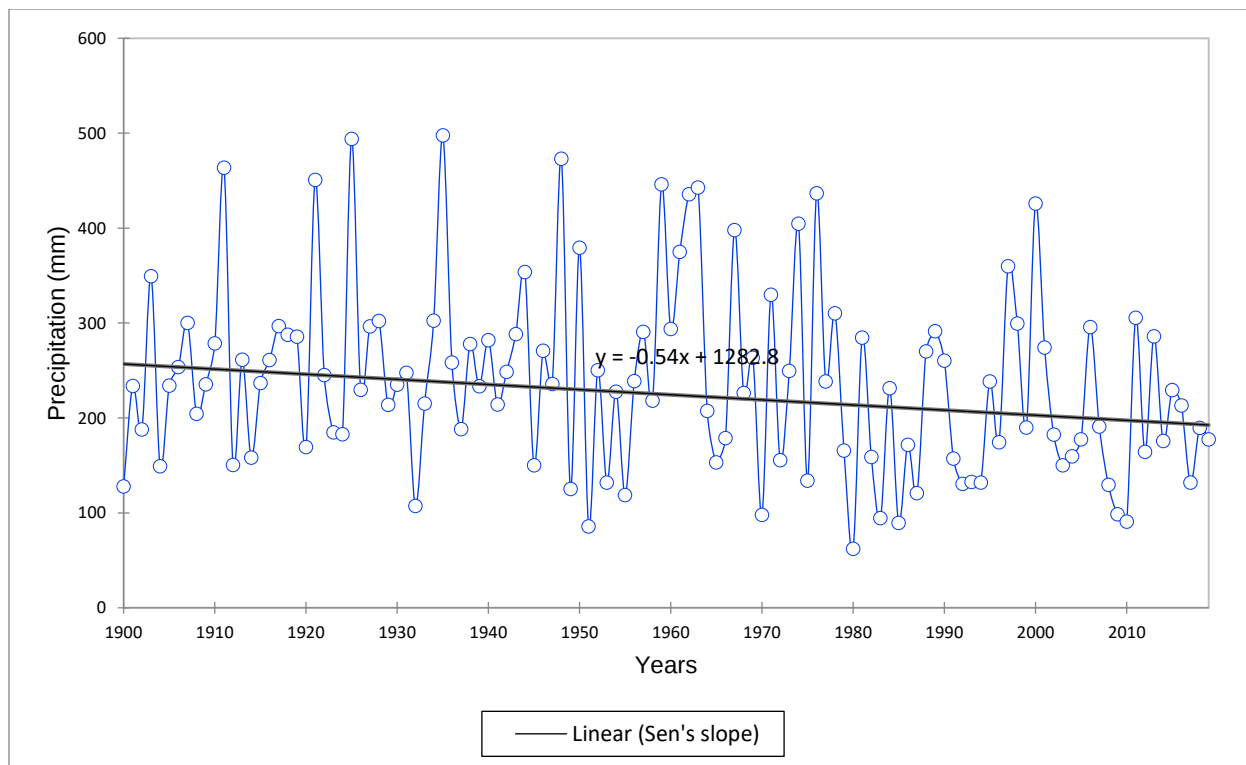


Figure D-123: Autumn trend plot for Amatola State Forest station.

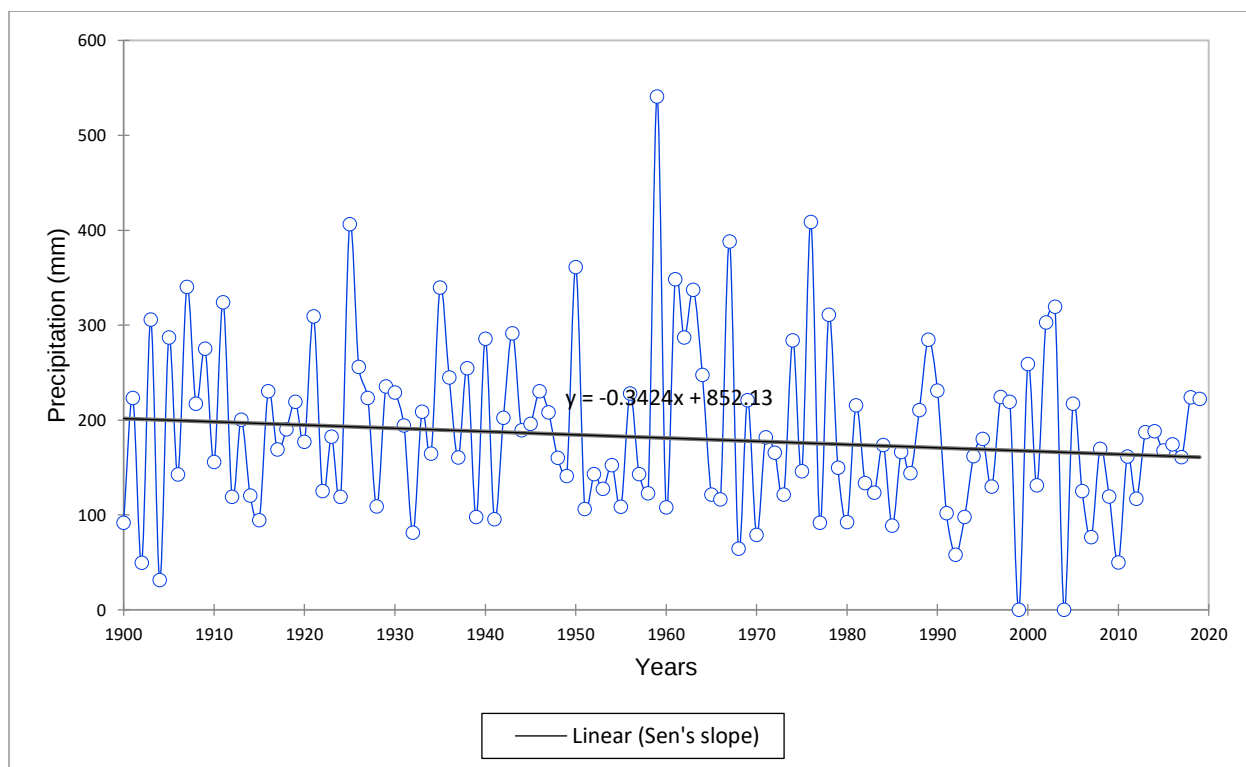


Figure D-124: Autumn trend plot for Engcobo Prison station.

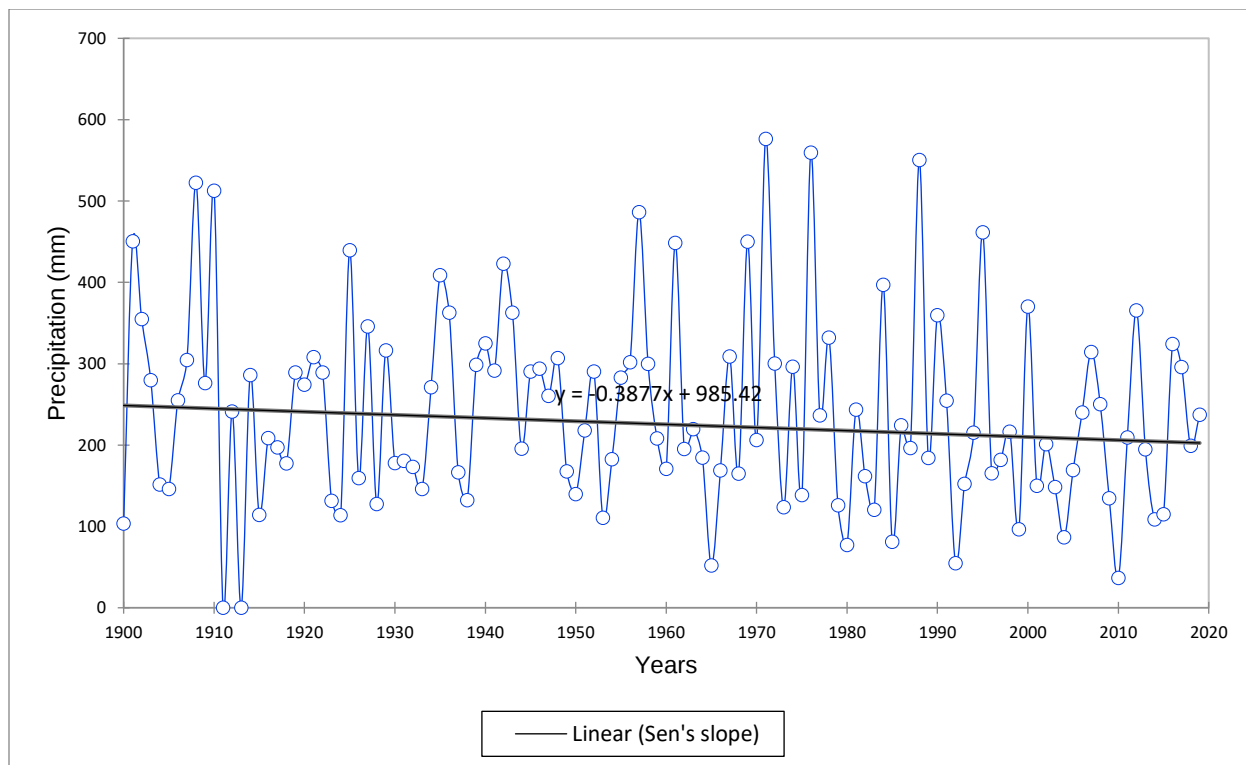


Figure D-125: Autumn trend plot for Durban Botanical Gardens station.

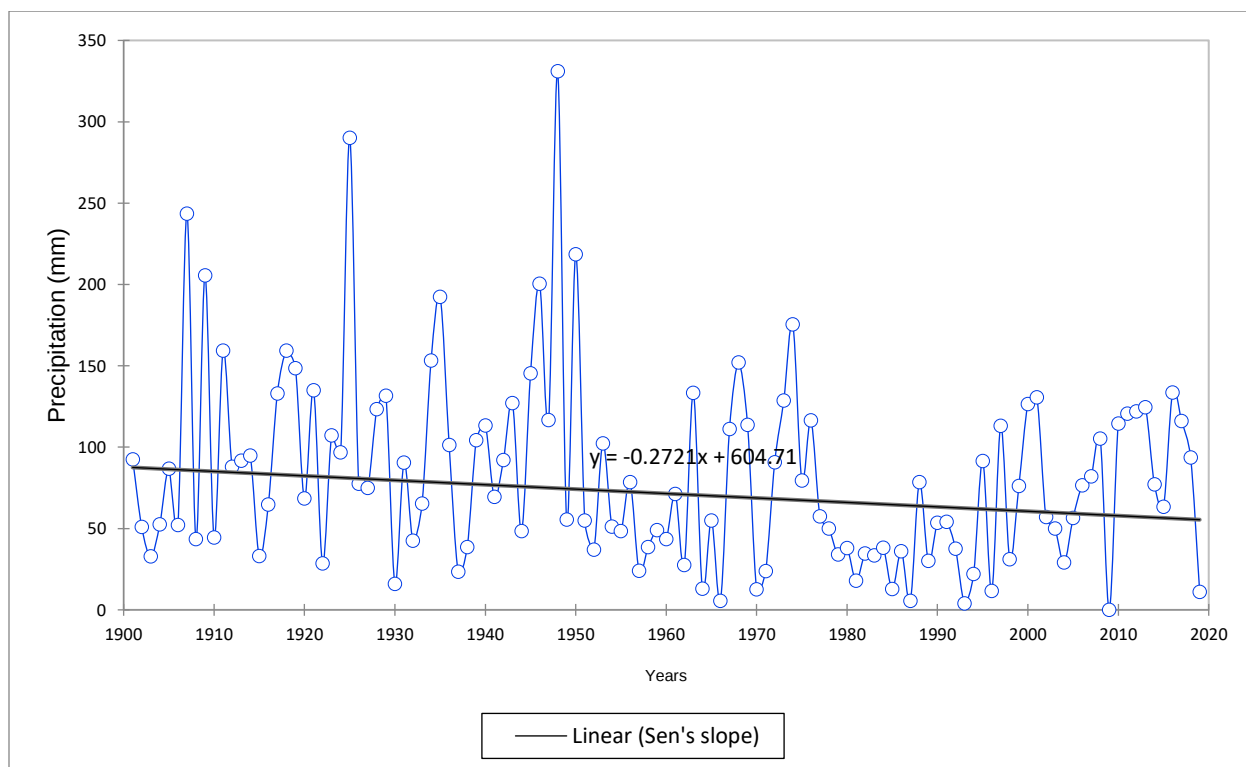


Figure D-126: Autumn trend plot for Nuwejaarskraal station.

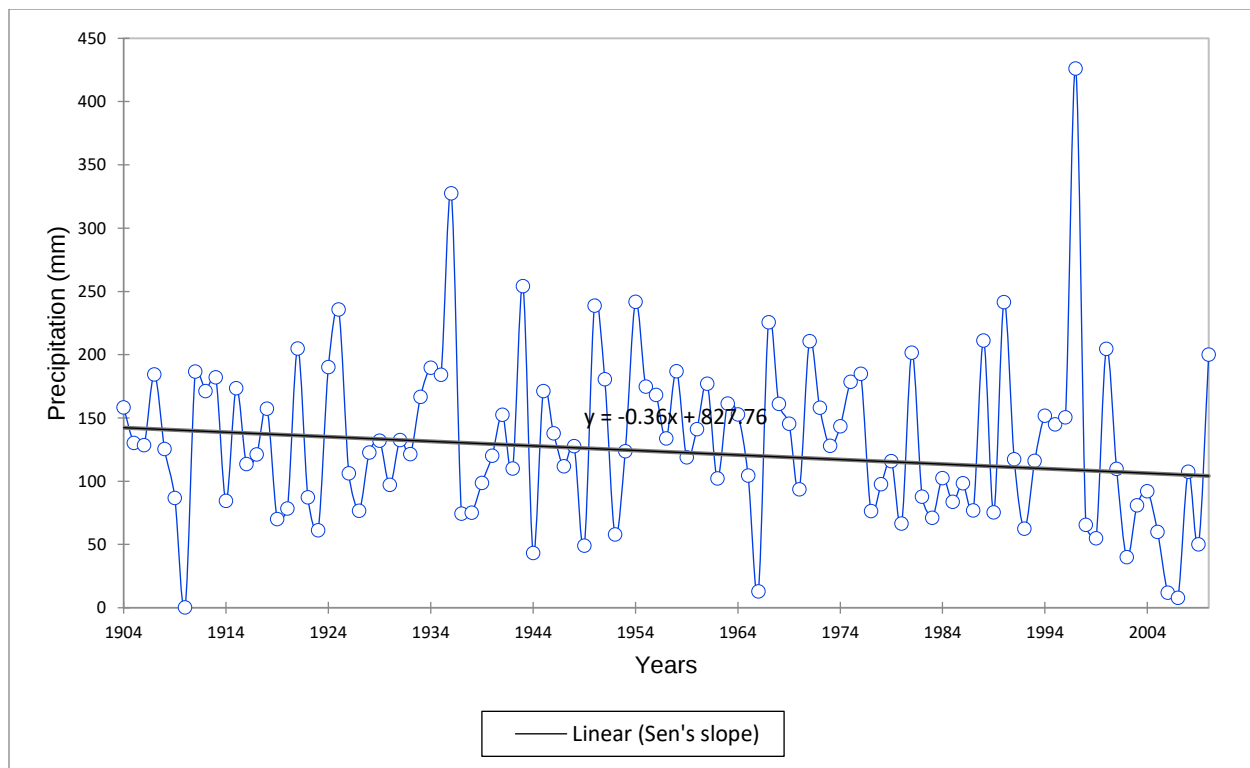


Figure D-127: Autumn trend plot for Balfour station.

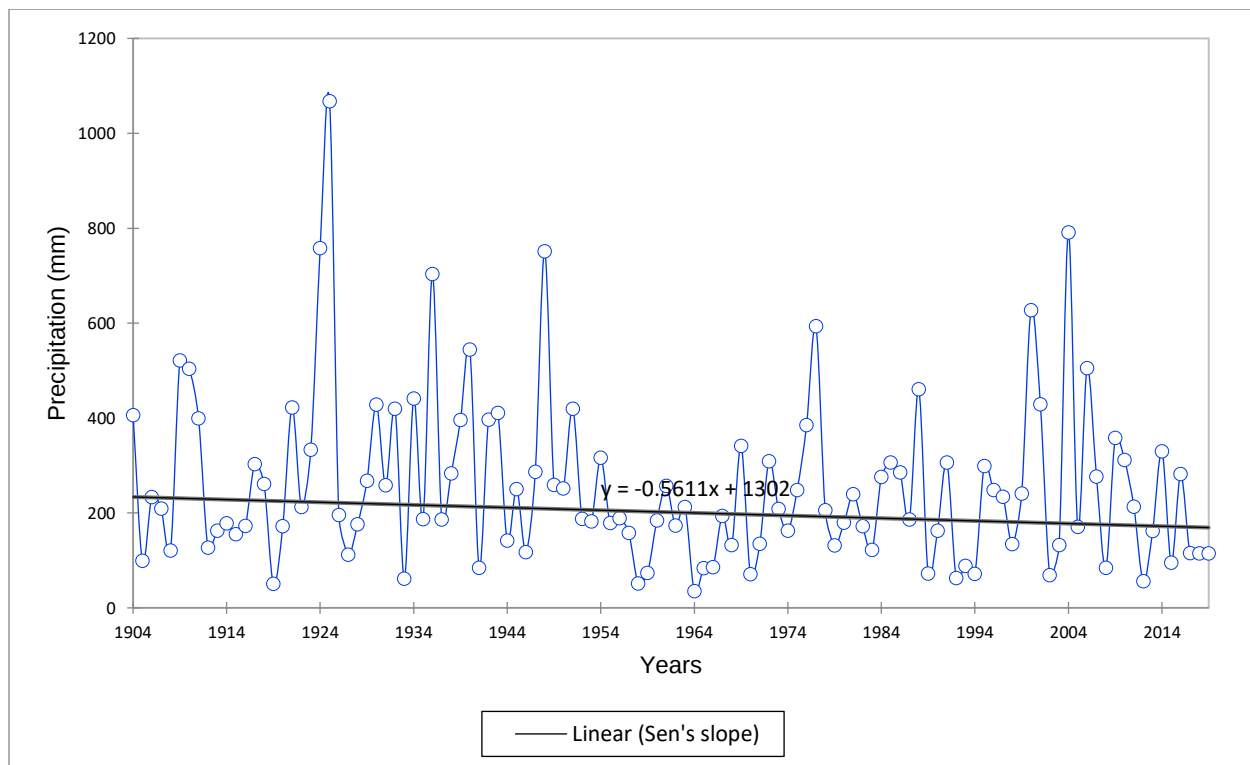


Figure D-128: Autumn trend plot for Klein Australia station.

Table D19: Autumn Mann-Kendall trend test results (1900-1939).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Autumn (1900-1939)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.666	-0.382	0.675	-0.382
2	Steytlerville-Mag	-33.33	24.33	419	0.291	-0.618	0.289	-0.618
3	Alicedale-Mun	-33.32	26.08	276	0.360	0.744	0.357	0.744
4	Grahamstown-Tnk	-33.3	26.53	539	0.755	0.135	0.525	0.135
5	Klipfontein	-32.55	24.72	673	0.524	-0.333	0.522	-0.333
6	Amatola State Forest	-32.67	27.28	884	0.324	0.932	0.194	0.932
7	Winterhoek	-32.22	24.47	876	0.452	-0.464	0.400	-0.464
8	Bloemhof	-32.03	24.67	1,091	0.843	-0.112	0.876	-0.112
9	Exwell Park	-32.2	27.12	914	0.899	-0.171	0.898	-0.171
10	Kentani-Bos	-32.5	28.32	488	0.160	2.121	0.159	2.121
11	Cwebe Nature Reserve	-32.2	28.93	61	0.373	1.576	0.435	1.576
12	Sterkstroom	-31.55	26.55	1,343	0.385	-0.720	0.382	-0.720
13	Engcobo Prison	-31.67	28.0	975	0.703	0.560	1.000	0.560
14	Xhora Prison	-31.97	28.67	671	0.942	-0.075	0.935	-0.075
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.322	-1.307	0.251	-1.307
16	Ellesmere	-30.67	26.32	1,387	0.935	-0.104	0.878	-0.104
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.345	-0.688	0.351	-0.688
18	Petrusville-Pol	-30.08	24.67	1,212	0.861	-0.251	0.870	-0.251
19	Philippolis-Pol	-30.27	25.27	1,372	0.800	-0.360	0.798	-0.360
20	Hopetown-Tnk	-29.62	24.08	1,661	0.224	-1.601	0.221	-1.601
21	Lillydale	-30.0	25.95	1,098	0.238	0.644	0.076	0.644
22	Richmond S.A. P	-29.87	30.27	1,509	0.175	-2.951	0.031	-2.951
23	Durban Botanical Gardens	-29.85	31.0	91	0.816	-0.308	0.716	-0.308
24	Steinkopf	-29.25	17.73	91	0.056	-0.458	0.058	-0.458
25	Nuwejaarskraal	-29.37	23.12	884	0.773	0.291	0.658	0.291
26	Maselspoort Dam	-29.03	26.42	1,372	0.352	-0.580	0.349	-0.580
27	Boetsap-Pol	-27.97	24.45	1,189	0.359	1.811	0.355	1.811
28	Odendaalsrus	-27.87	26.68	1,341	0.289	-1.236	0.286	-1.236
29	Bothaville-Mun	-27.55	26.62	1,280	0.837	0.406	0.864	0.406
30	Beerlaagte	-26.82	28.43	1,615	0.695	0.476	0.693	0.476
31	Balfour	-26.65	28.58	1,555	0.882	-0.146	0.881	-0.146
32	De Emigratie	-26.77	30.12	1,676	0.963	0.190	0.963	0.190
33	Morokweng	-26.12	23.78	1,126	0.752	-0.704	0.750	-0.704
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.968	0.038	0.967	0.038
35	Swartruggens-Pol	-25.63	26.68	1,311	0.953	0.127	0.953	0.127

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.094	1.614	0.094	1.614
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.489	-0.902	0.486	-0.902
38	Machadodorp	-25.67	30.25	1,609	0.320	0.808	0.240	0.808
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.406	0.867	0.414	0.867
40	Haenertsburg	-23.93	29.93	1,402	0.756	0.591	0.756	0.591
41	Prince Albert-Tnk	-33.22	22.03	686	0.180	-0.675	0.184	-0.675
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.174	-0.907	0.173	-0.907
43	Tulbagh	-33.28	19.13	155	0.152	-1.191	0.048	-1.191
44	Darling-The Towers	-33.38	18.37	229	0.251	-0.602	0.138	-0.602
45	Thornlea	-28.63	21.52	884	0.539	0.510	0.537	0.510
46	Klein Australie	-23.05	30.22	702	0.238	2.427	0.236	2.427

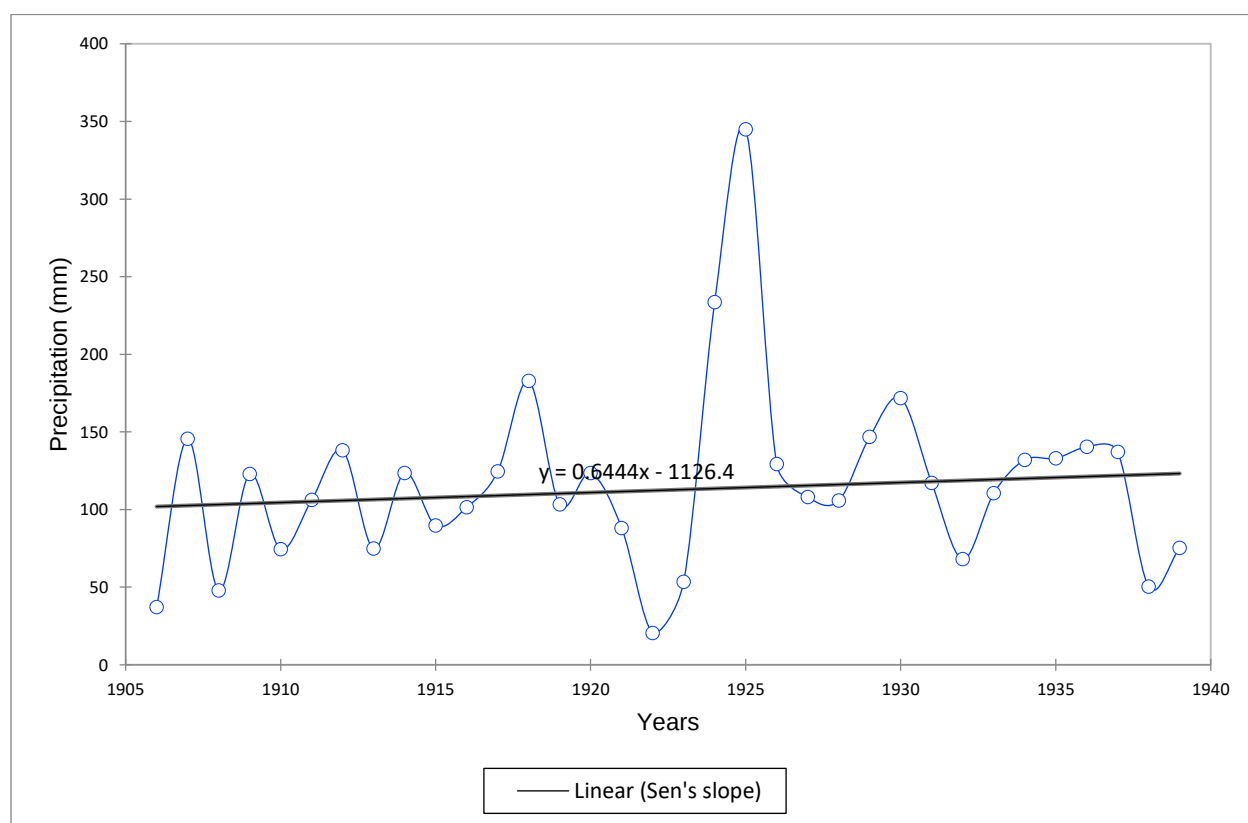


Figure D-129: Autumn trend plot for Lillydale station (1900-1939).

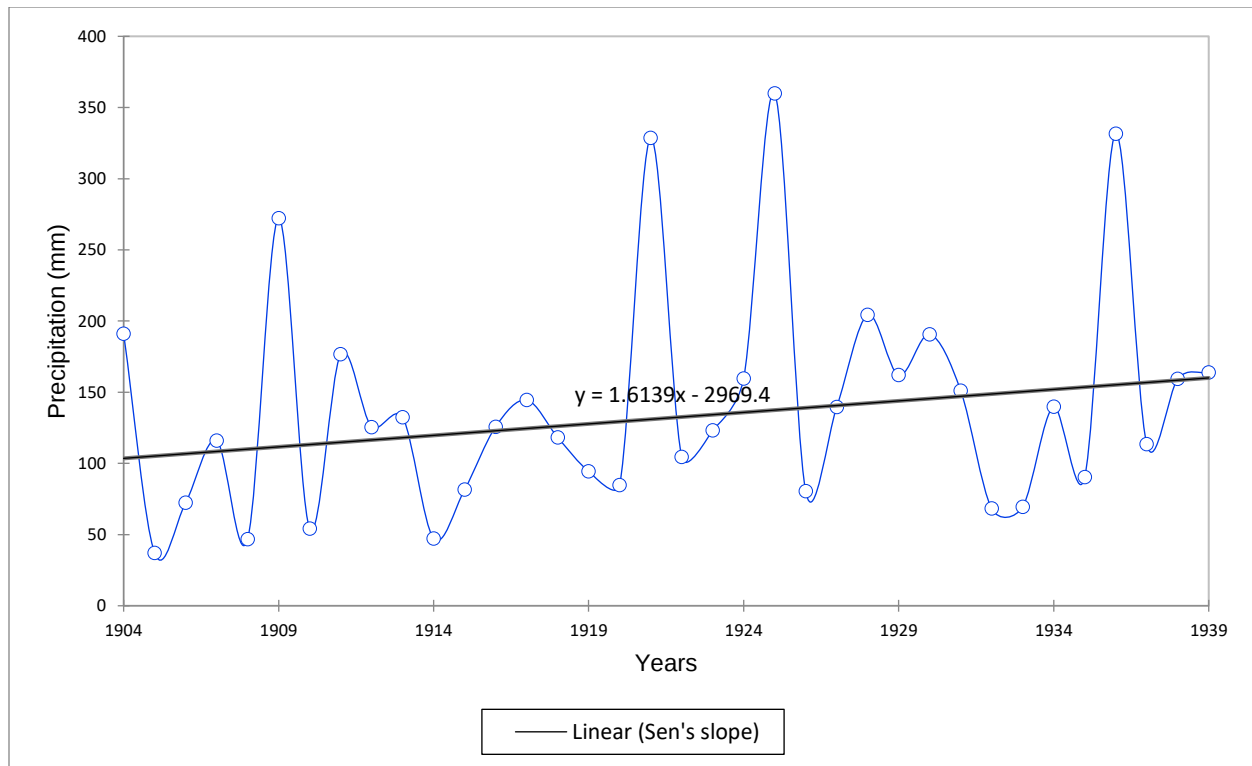


Figure D-130: Autumn trend plot for Premier Mine-Cullinan station (1904-1939).

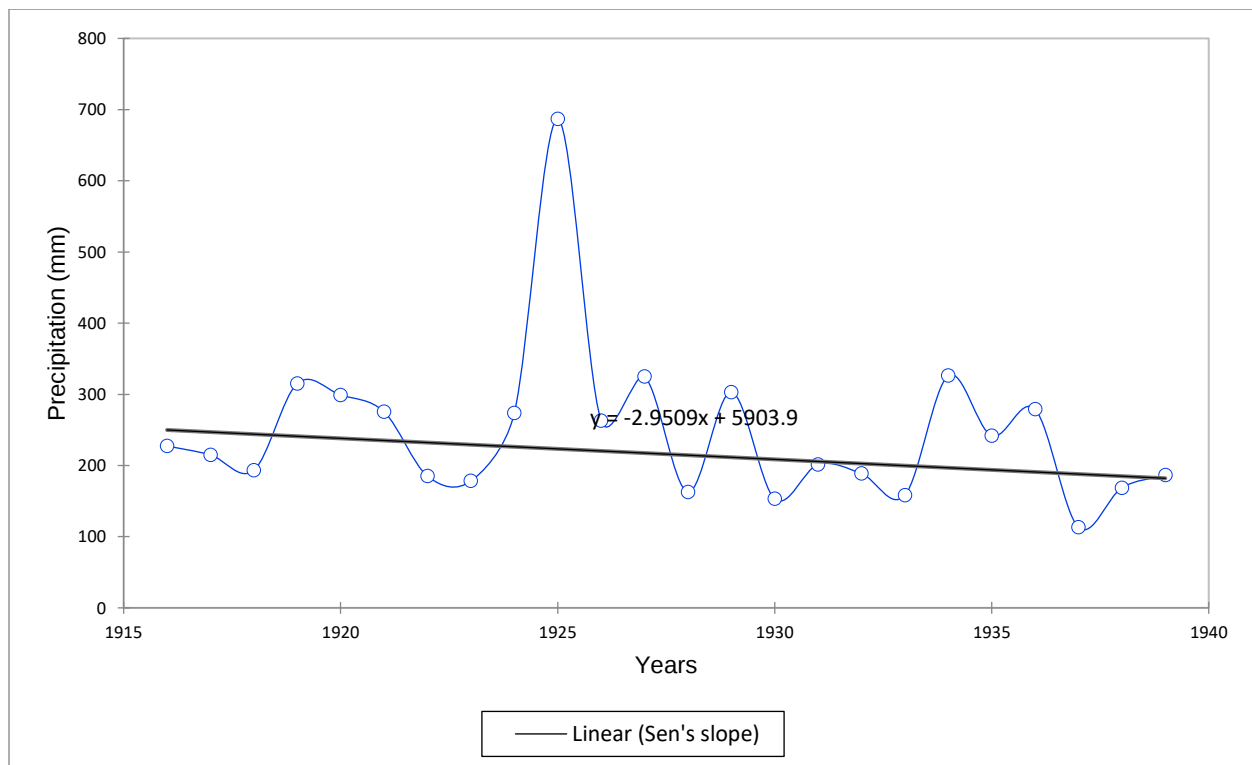


Figure D-131: Autumn trend plot for Richmond SAP station (1916-1939).

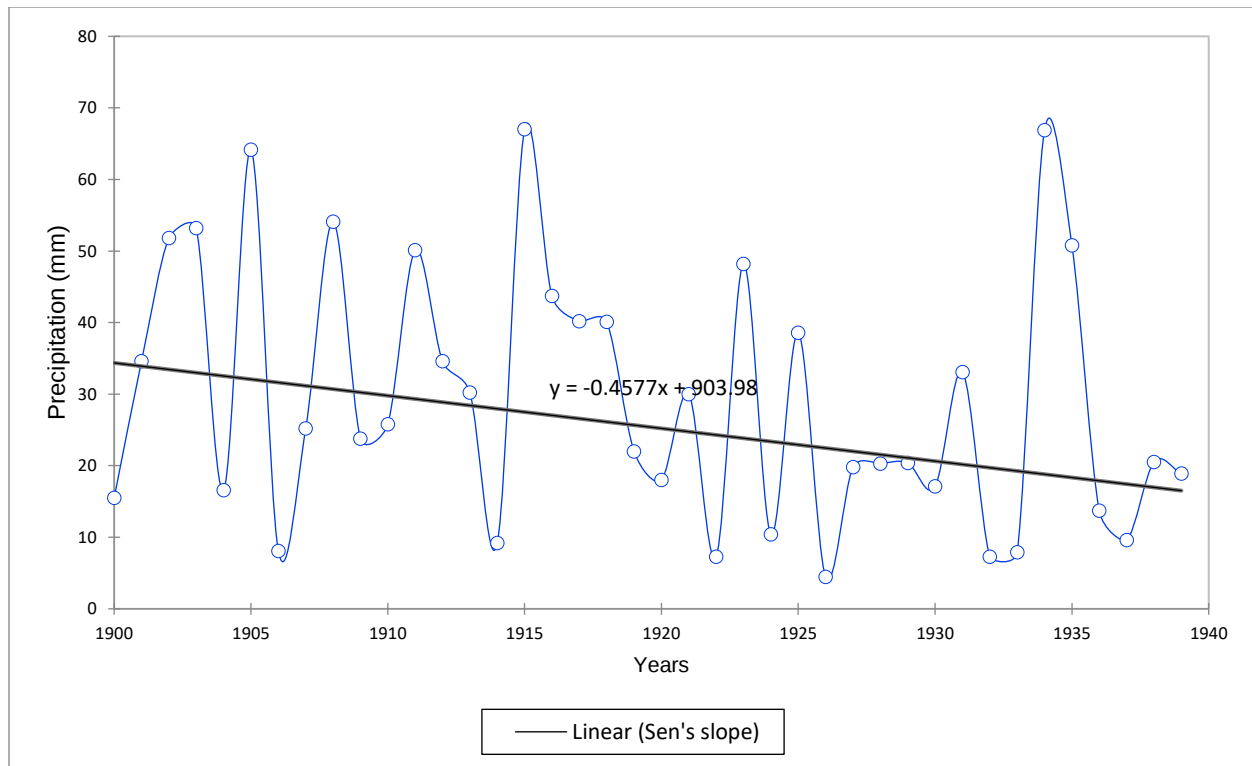


Figure D-132: Autumn trend plot for Steinkopf station (1900-1939).

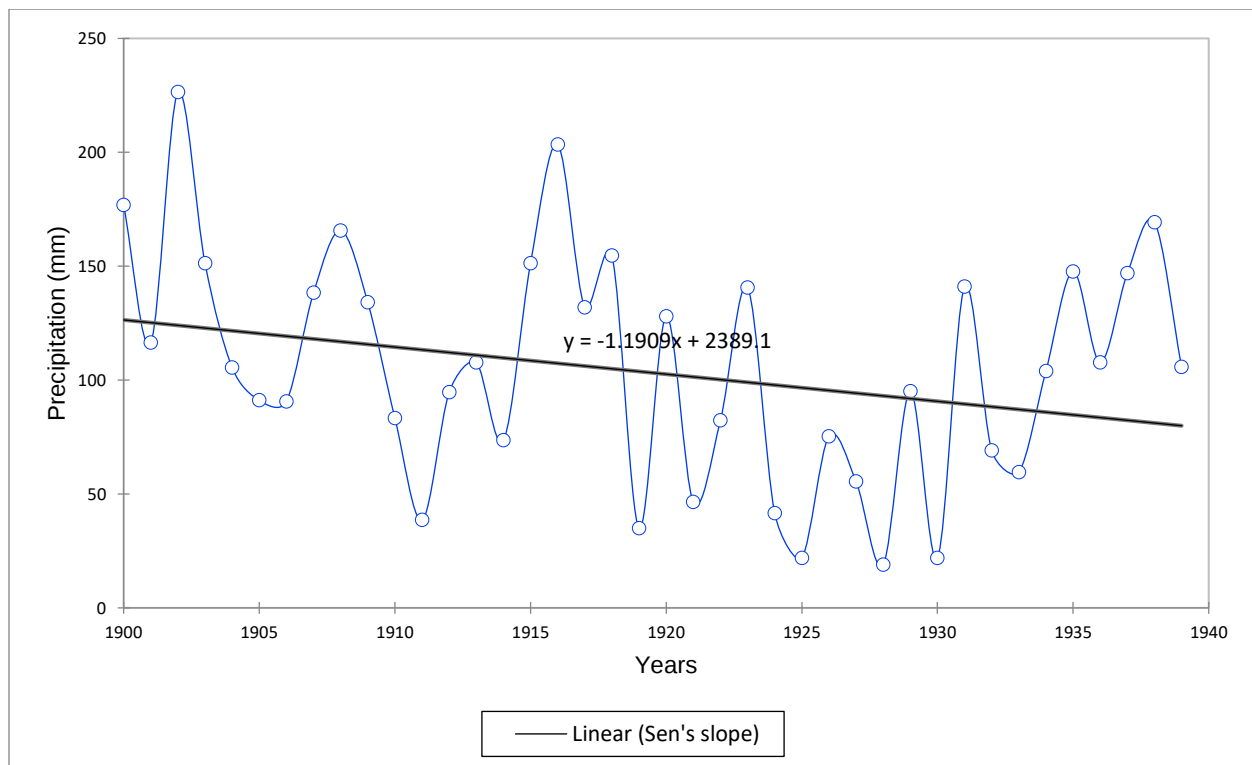


Figure D-133: Autumn trend plot for Tulbagh station (1900-1939).

Table D20: Autumn Mann-Kendall trend test results (1940-1979).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Autumn (1940-1979)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.385	1.189	0.382	1.189
2	Steytlerville-Mag	-33.33	24.33	419	0.701	0.333	0.589	0.333
3	Alicedale-Mun	-33.32	26.08	276	0.333	1.030	0.131	1.030
4	Grahamstown-Tnk	-33.3	26.53	539	0.087	1.316	0.087	1.316
5	Klipfontein	-32.55	24.72	673	0.189	0.926	0.188	0.926
6	Amatola State Forest	-32.67	27.28	884	0.862	0.213	0.891	0.213
7	Winterhoek	-32.22	24.47	876	0.524	0.472	0.383	0.472
8	Bloemhof	-32.03	24.67	1,091	0.360	0.808	0.275	0.808
9	Exwell Park	-32.2	27.12	914	0.954	-0.061	0.963	-0.061
10	Kentani-Bos	-32.5	28.32	488	0.480	-1.348	0.513	-1.348
11	Cwebe Nature Reserve	-32.2	28.93	61	0.917	0.273	0.888	0.273
12	Sterkstroom	-31.55	26.55	1,343	0.826	-0.166	0.797	-0.166
13	Engcobo Prison	-31.67	28.0	975	0.650	-0.544	0.478	-0.544
14	Xhora Prison	-31.97	28.67	671	0.398	-0.973	0.498	-0.973
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.650	0.460	0.508	0.460
16	Ellesmere	-30.67	26.32	1,387	0.954	0.056	0.925	0.056
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.552	0.481	0.472	0.481
18	Petrusville-Pol	-30.08	24.67	1,212	0.917	0.050	0.877	0.050
19	Philippolis-Pol	-30.27	25.27	1,372	0.720	0.425	0.698	0.425
20	Hopetown-Tnk	-29.62	24.08	1,661	0.002	1.796	0.002	1.796
21	Lillydale	-30.0	25.95	1,098	0.153	1.918	0.152	1.918
22	Richmond S.A. P	-29.87	30.27	1,509	0.880	-0.240	0.880	-0.240
23	Durban Botanical Gardens	-29.85	31.0	91	0.411	-1.307	0.317	-1.307
24	Steinkopf	-29.25	17.73	91	0.015	-0.971	0.016	-0.971
25	Nuwejaarskraal	-29.37	23.12	884	0.174	-1.091	0.173	-1.091
26	Maselspoort Dam	-29.03	26.42	1,372	0.701	-0.456	0.709	-0.456
27	Boetsap-Pol	-27.97	24.45	1,189	0.720	0.463	0.718	0.463
28	Odendaalsrus	-27.87	26.68	1,341	0.524	-0.769	0.522	-0.769
29	Bothaville-Mun	-27.55	26.62	1,280	0.602	-0.452	0.540	-0.452
30	Beerlaagte	-26.82	28.43	1,615	0.991	-0.024	1.000	-0.024
31	Balfour	-26.65	28.58	1,555	0.880	-0.243	0.880	-0.243
32	De Emigratie	-26.77	30.12	1,676	0.438	-0.717	0.435	-0.717
33	Morokweng	-26.12	23.78	1,126	0.507	0.469	0.514	0.469
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.826	0.288	0.831	0.288
35	Swartruggens-Pol	-25.63	26.68	1,311	0.075	2.434	0.075	2.434

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.167	1.411	0.054	1.411
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.652	0.307	0.601	0.307
38	Machadodorp	-25.67	30.25	1,609	0.663	0.633	0.497	0.633
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.360	-0.547	0.357	-0.547
40	Haenertsburg	-23.93	29.93	1,402	0.316	1.611	0.311	1.611
41	Prince Albert-Tnk	-33.22	22.03	686	0.616	0.229	1.000	0.229
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.555	0.602	0.463	0.602
43	Tulbagh	-33.28	19.13	155	0.348	-0.627	0.345	-0.627
44	Darling-The Towers	-33.38	18.37	229	0.031	-1.519	0.031	-1.519
45	Thornlea	-28.63	21.52	884	0.281	0.848	0.279	0.848
46	Klein Australie	-23.05	30.22	702	0.260	-2.090	0.258	-2.090

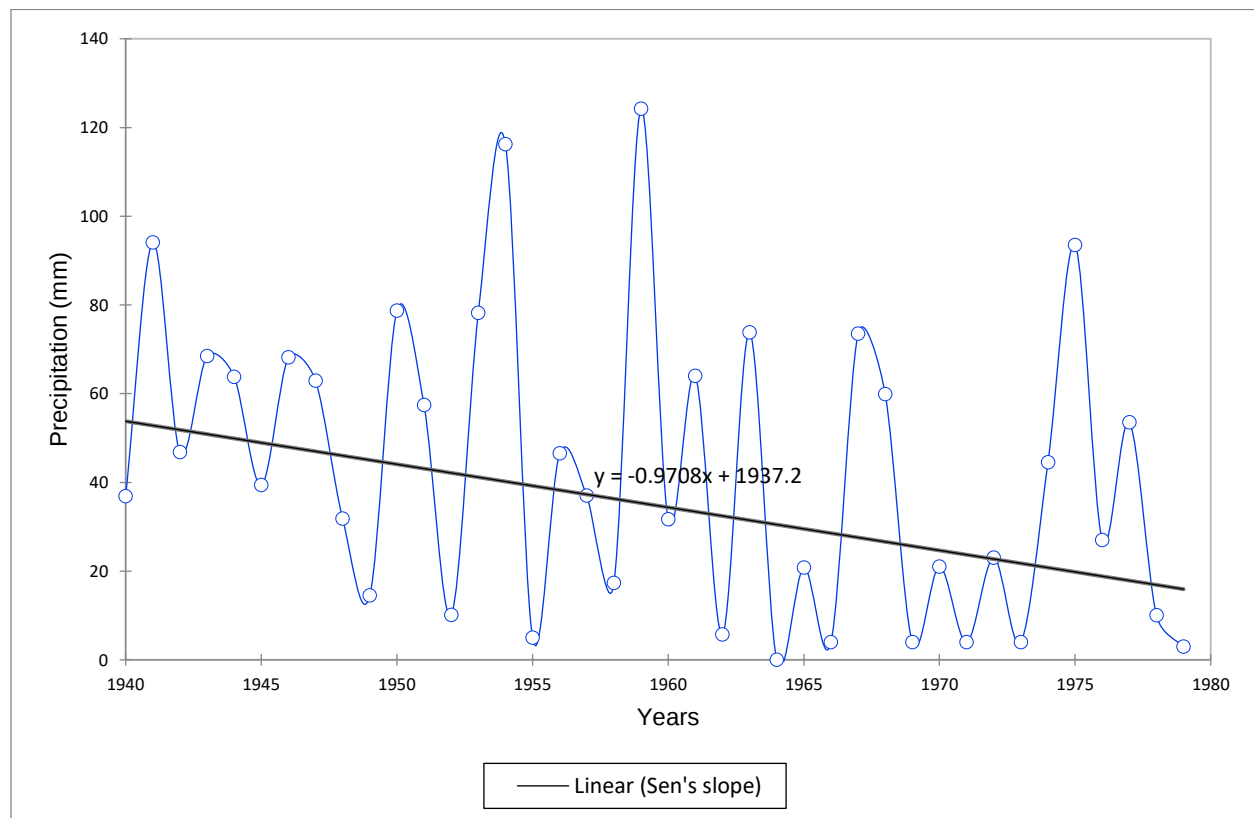


Figure D-134: Autumn trend plot for Steinkopf (1940-1979).

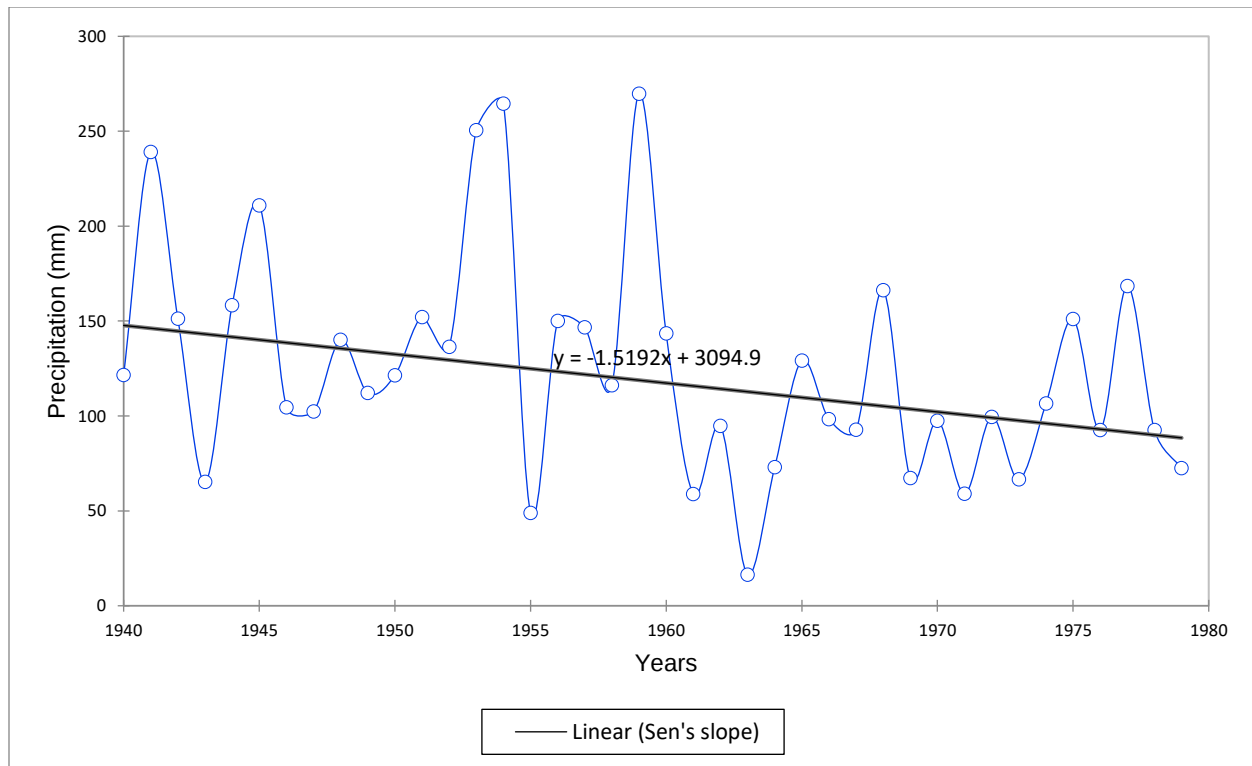


Figure D-135: Autumn trend plot for Darling-Towers (1940-1979).

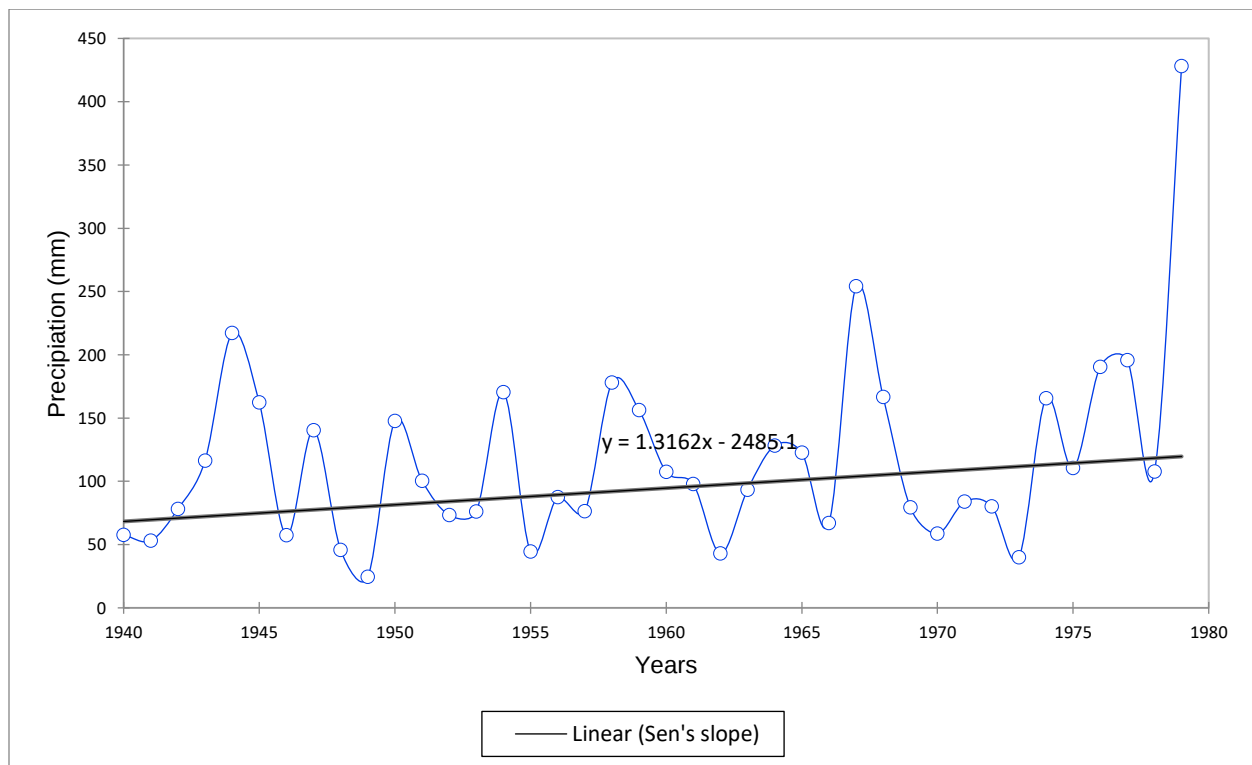


Figure D-136: Autumn trend plot for Grahamstown-TNK station (1940-1979).

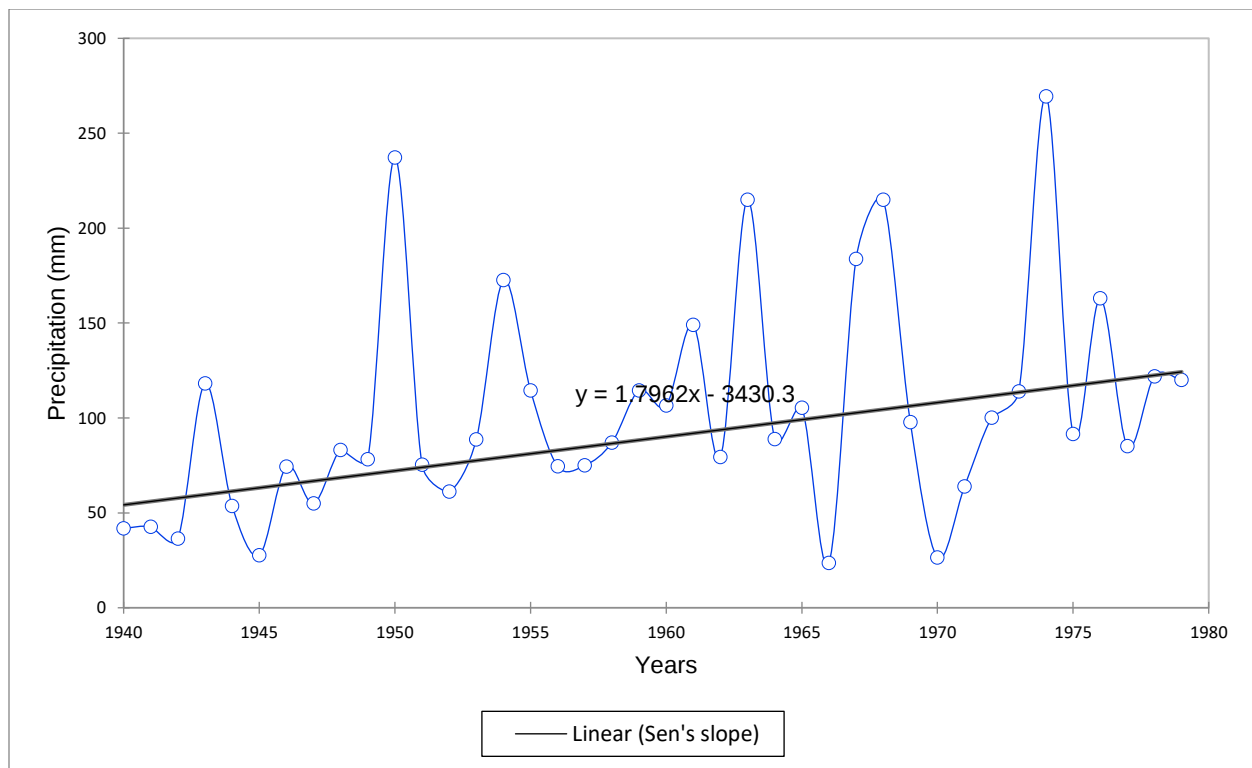


Figure D-137: Autumn trend plot for Hopetown-TNK station (1940-1979).

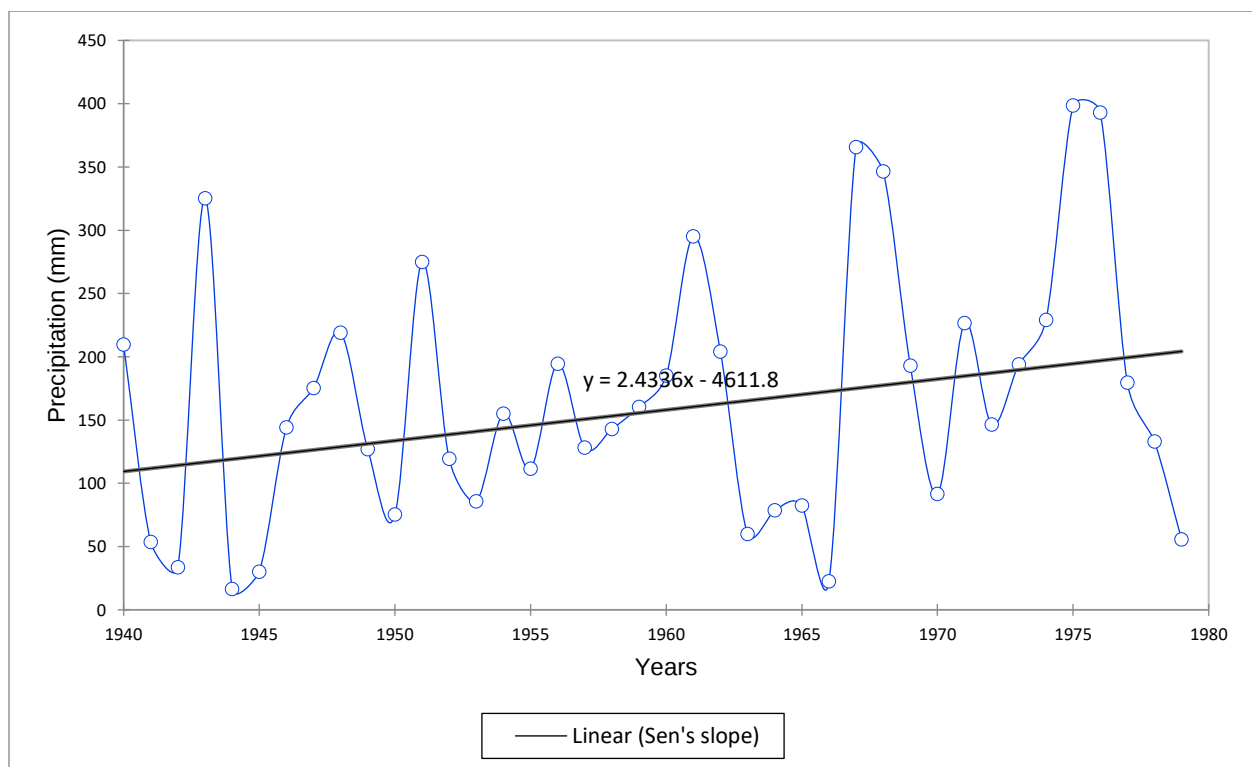


Figure D-138: Autumn trend plot for Swartruggens-Pol station (1940-1979).

Table D21: Autumn Mann-Kendall trend test results (1980-2019).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Autumn (1980-2019)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.693	0.400	0.691	0.400
2	Steytlerville - Mag	-33.33	24.33	419	0.600	0.311	0.438	0.311
3	Alicedale-Mun	-33.32	26.08	276	0.223	2.585	0.230	2.585
4	Grahamstown - Tnk	-33.3	26.53	539	0.398	0.656	0.351	0.656
5	Klipfontein	-32.55	24.72	673	0.278	0.614	0.352	0.614
6	Amatola State Forest	-32.67	27.28	884	0.411	0.689	0.410	0.689
7	Winterhoek	-32.22	24.47	876	0.652	0.290	0.650	0.290
8	Bloemhof	-32.03	24.67	1,091	0.174	0.867	0.173	0.867
9	Exwell Park	-32.2	27.12	914	0.174	0.834	0.051	0.834
10	Kentani-Bos	-32.5	28.32	488	0.685	0.586	0.683	0.586
11	Cwebe Nature Reserve	-32.2	28.93	61	0.291	1.904	0.137	1.904
12	Sterkstroom	-31.55	26.55	1,343	0.808	-0.163	0.807	-0.163
13	Engcobo Prison	-31.67	28.0	975	0.449	0.724	0.225	0.724
14	Xhora Prison	-31.97	28.67	671	0.600	-0.618	0.608	-0.618
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.370	-0.538	0.282	-0.538
16	Ellesmere	-30.67	26.32	1,387	0.289	1.489	0.286	1.489
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.043	-1.531	0.111	-1.531
18	Petrusville-Pol	-30.08	24.67	1,212	0.360	0.465	0.357	0.465
19	Philippolis-Pol	-30.27	25.27	1,372	0.765	0.194	0.763	0.194
20	Hopetown-Tnk	-29.62	24.08	1,661	0.395	0.508	0.220	0.508
21	Lillydale	-30.0	25.95	1,098	0.500	0.862	0.032	0.862
22	Richmond S.A. P	-29.87	30.27	1,509	0.524	-1.293	0.522	-1.293
23	Durban Botanical Gardens	-29.85	31.0	91	0.862	0.357	0.847	0.357
24	Steinkopf	-29.25	17.73	91	0.395	-0.361	0.402	-0.361
25	Nuwejaarskraal	-29.37	23.12	884	0.001	2.132	0.001	2.132
26	Maselspoort Dam	-29.03	26.42	1,372	0.789	0.274	0.798	0.274
27	Boetsap-Pol	-27.97	24.45	1,189	0.360	0.759	0.357	0.759
28	Odendaalsrus	-27.87	26.68	1,341	0.862	-0.229	0.861	-0.229
29	Bothaville-Mun	-27.55	26.62	1,280	0.844	-0.147	0.843	-0.147
30	Beerlaagte	-26.82	28.43	1,615	0.086	1.391	0.085	1.391
31	Balfour	-26.65	28.58	1,555	0.237	-1.111	0.234	-1.111
32	De Emigratie	-26.77	30.12	1,676	0.142	1.481	0.141	1.481
33	Morokweng	-26.12	23.78	1,126	0.196	-1.717	0.202	-1.717
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.013	3.954	0.013	3.954

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
35	Swartruggens-Pol	-25.63	26.68	1,311	0.230	1.410	0.174	1.410
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.752	-0.536	0.750	-0.536
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.954	0.087	0.954	0.087
38	Machadodorp	-25.67	30.25	1,609	0.537	0.287	0.545	0.287
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.560	0.616	0.568	0.616
40	Haenertsburg	-23.93	29.93	1,402	0.755	0.493	0.753	0.493
41	Prince Albert-Tnk	-33.22	22.03	686	0.385	-0.573	0.309	-0.573
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.736	-0.550	0.733	-0.550
43	Tulbagh	-33.28	19.13	155	0.230	-1.236	0.235	-1.236
44	Darling-The Towers	-33.38	18.37	229	0.299	-0.863	0.191	-0.863
45	Thornlea	-28.63	21.52	884	0.650	0.193	0.658	0.193
46	Klein Australie	-23.05	30.22	702	0.633	-0.718	0.573	-0.718

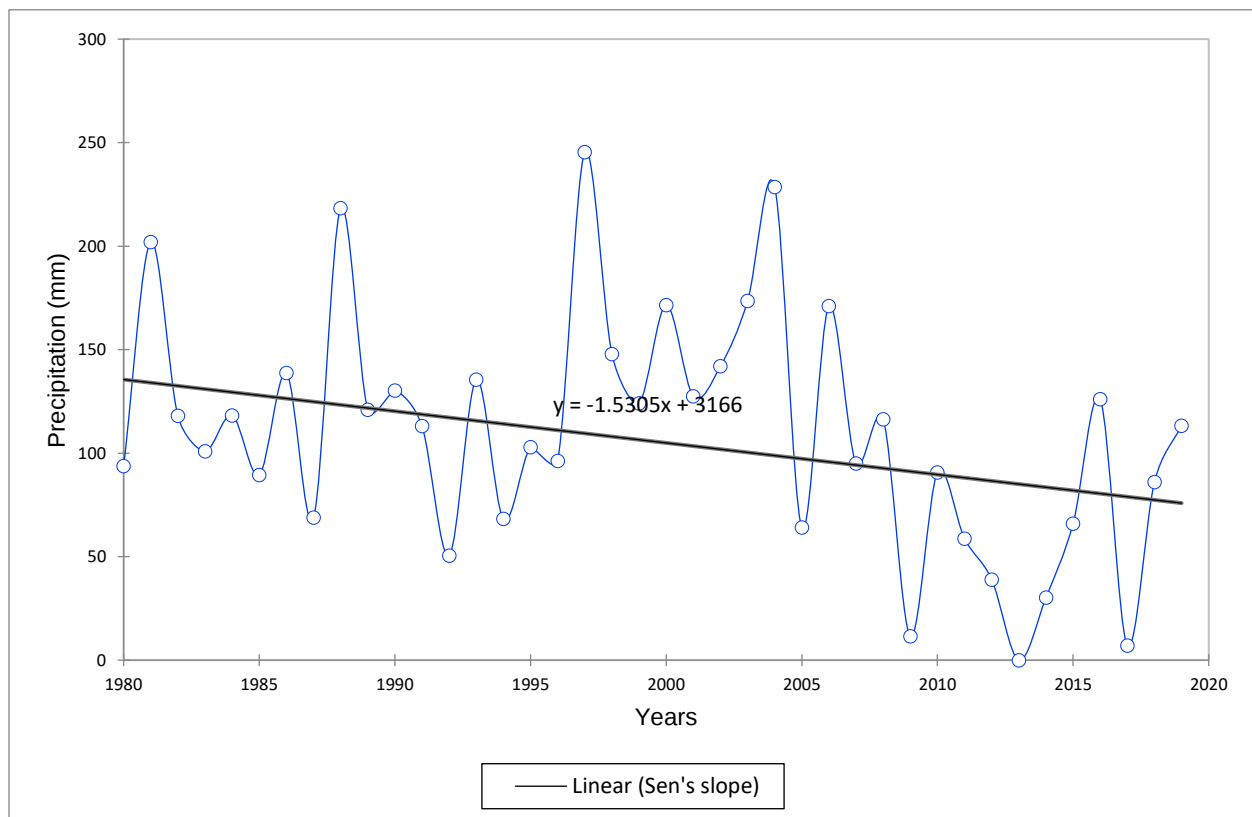


Figure D-139: Autumn trend plot for Burgersdorp-Pol station (1980-2019).

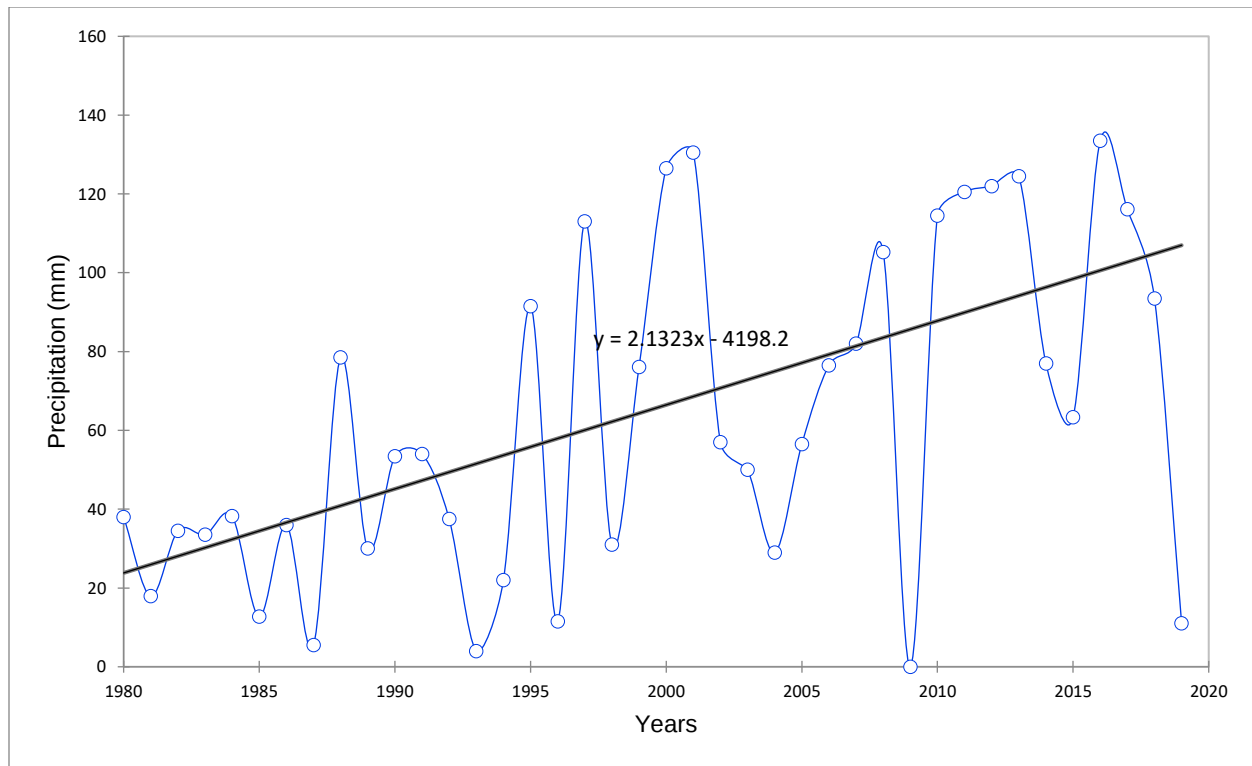


Figure D-140: Autumn trend plot for Nuwejaarskraal (1980-2019).

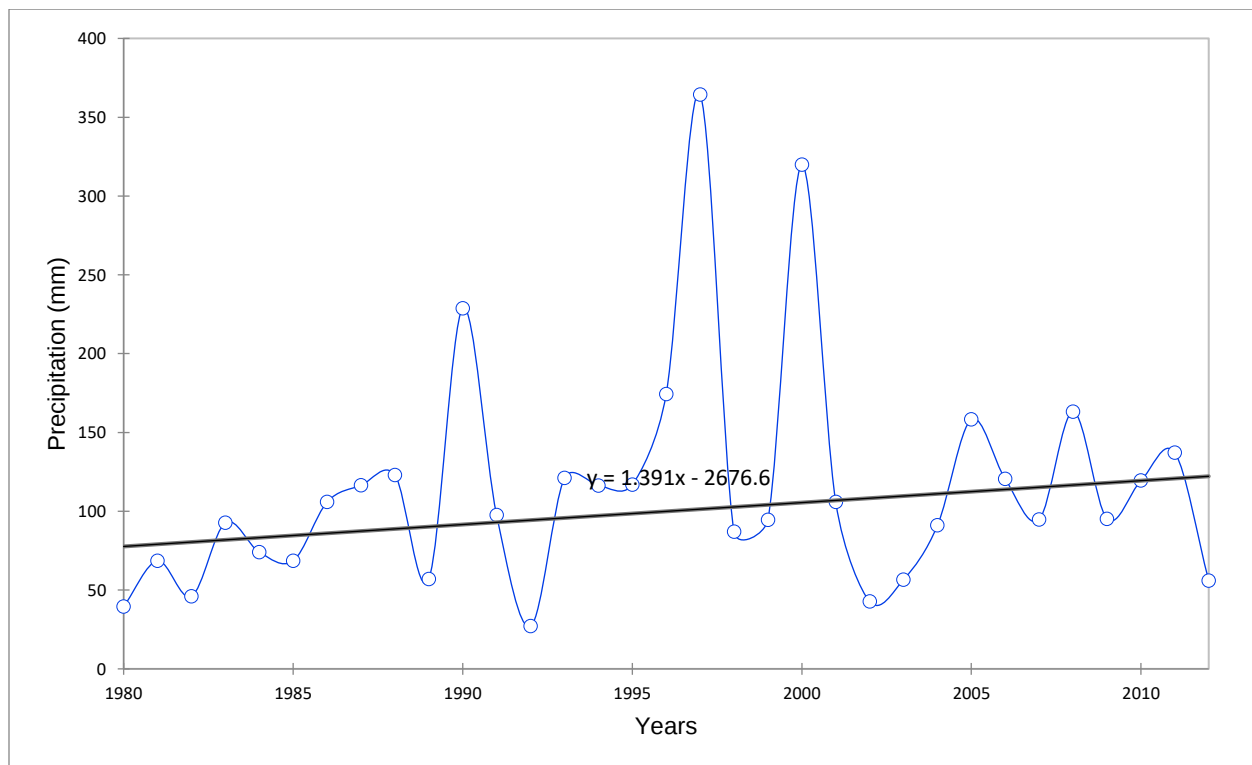


Figure D-141: Autumn trend plot for Beerlaagate station (1980-2012).

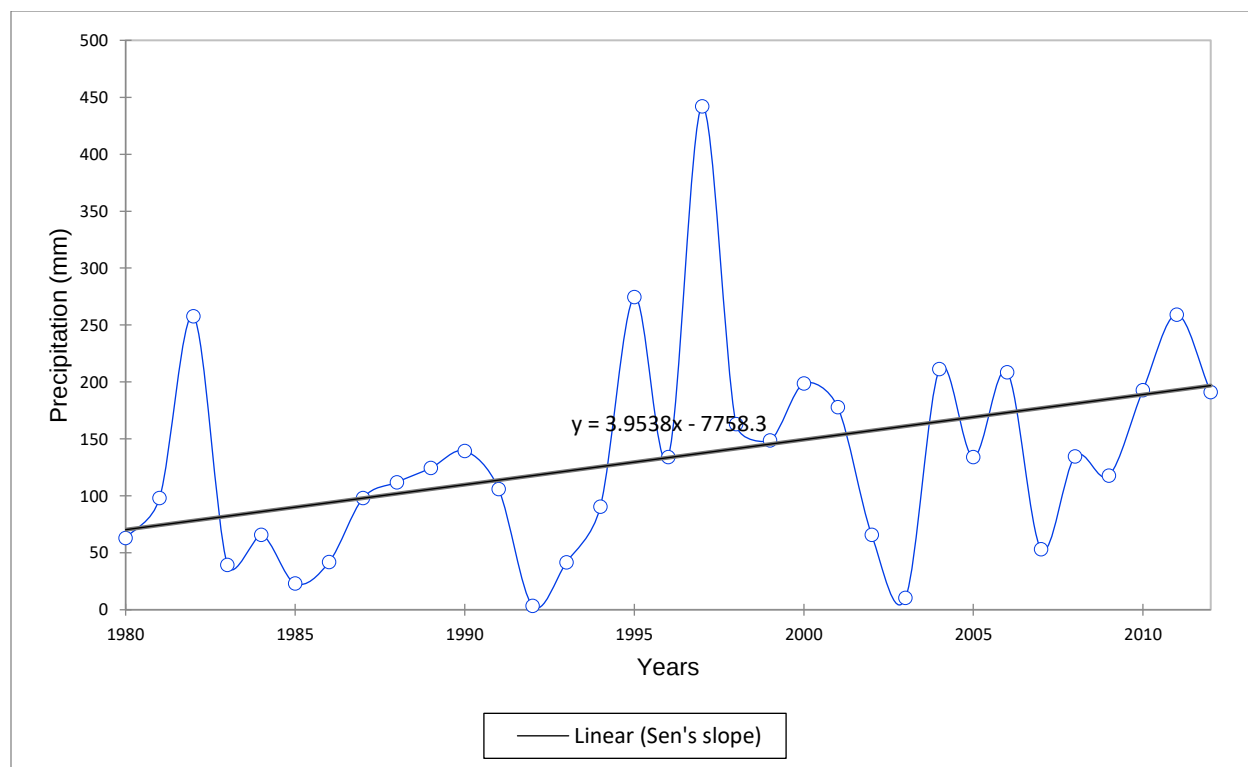


Figure D-142: Autumn trend plot for Ottoshoop-Pol (1980-2019).

Table D22: Winter Mann-Kendall trend test Results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Winter			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.572	-0.116	0.573	-0.116
2	Steytlerville-Mag	-33.33	24.33	419	0.995	0.000	0.995	0.000
3	Alicedale-Mun	-33.32	26.08	276	0.732	0.045	0.626	0.045
4	Grahamstown-Tnk	-33.3	26.53	539	0.489	0.129	0.490	0.129
5	Klipfontein	-32.55	24.72	673	0.387	-0.048	0.164	-0.048
6	Amatola State Forest	-32.67	27.28	884	0.799	-0.035	0.801	-0.035
7	Winterhoek	-32.22	24.47	876	0.421	-0.072	0.349	-0.072
8	Bloemhof	-32.03	24.67	1,091	0.351	0.055	0.352	0.055
9	Exwell Park	-32.2	27.12	914	0.535	0.023	0.554	0.023
10	Kentani-Bos	-32.5	28.32	488	0.101	0.236	0.008	0.236
11	Cwebe Nature Reserve	-32.2	28.93	61	0.615	0.104	0.584	0.104
12	Sterkstroom	-31.55	26.55	1,343	0.708	-0.024	0.603	-0.024
13	Engcobo Prison	-31.67	28.0	975	0.634	0.041	0.635	0.041
14	Xhora Prison	-31.97	28.67	671	0.453	0.074	0.312	0.074
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.707	0.024	0.729	0.024

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
16	Ellesmere	-30.67	26.32	1,387	0.350	0.053	0.317	0.053
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.500	-0.044	0.538	-0.044
18	Petrusville-Pol	-30.08	24.67	1,212	0.960	0.000	0.965	0.000
19	Philippolis-Pol	-30.27	25.27	1,372	0.882	0.000	0.902	0.000
20	Hopetown-Tnk	-29.62	24.08	1,661	0.721	0.006	0.723	0.006
21	Lillydale	-30.0	25.95	1,098	0.368	0.049	0.444	0.049
22	Richmond S.A. P	-29.87	30.27	1,509	0.963	0.010	0.945	0.010
23	Durban Botanical Gardens	-29.85	31.0	91	0.348	0.164	0.421	0.164
24	Steinkopf	-29.25	17.73	91	0.854	0.018	0.836	0.018
25	Nuwejaarskraal	-29.37	23.12	884	0.009	-0.033	0.009	-0.033
26	Maselspoort Dam	-29.03	26.42	1,372	0.923	0.000	0.925	0.000
27	Boetsap-Pol	-27.97	24.45	1,189	0.221	0.000	0.326	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.808	0.000	0.810	0.000
29	Bothaville-Mun	-27.55	26.62	1,280	0.729	0.000	0.761	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.333	0.004	0.285	0.004
31	Balfour	-26.65	28.58	1,555	0.707	0.000	0.740	0.000
32	De Emigratie	-26.77	30.12	1,676	0.954	0.000	0.956	0.000
33	Morokweng	-26.12	23.78	1,126	0.022	0.000	0.022	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.458	0.000	0.432	0.000
35	Swartruggens-Pol	-25.63	26.68	1,311	0.226	0.000	0.242	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.02	-0.027	0.073	-0.027
37	Bronkhorstspruit-Mun	-25.8	28.73	1,427	0.043	-0.033	0.003*	-0.033
38	Machadodorp	-25.67	30.25	1,609	0.199	-0.048	0.119	-0.048
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.483	0.000	0.441	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.776	-0.009	0.646	-0.009
41	Prince Albert-Tnk	-33.22	22.03	686	0.712	0.015	0.713	0.015
42	Plettenbergbaai - Pol	-34.05	23.37	73	0.236	0.211	0.279	0.211
43	Tulbagh	-33.28	19.13	155	0.208	0.304	0.202	0.304
44	Darling-The Towers	-33.38	18.37	229	0.085	0.391	0.027	0.391
45	Thornlea	-28.63	21.52	884	0.431	0.000	0.399	0.000
46	Klein Australie	-23.05	30.22	702	0.710	0.039	0.711	0.039

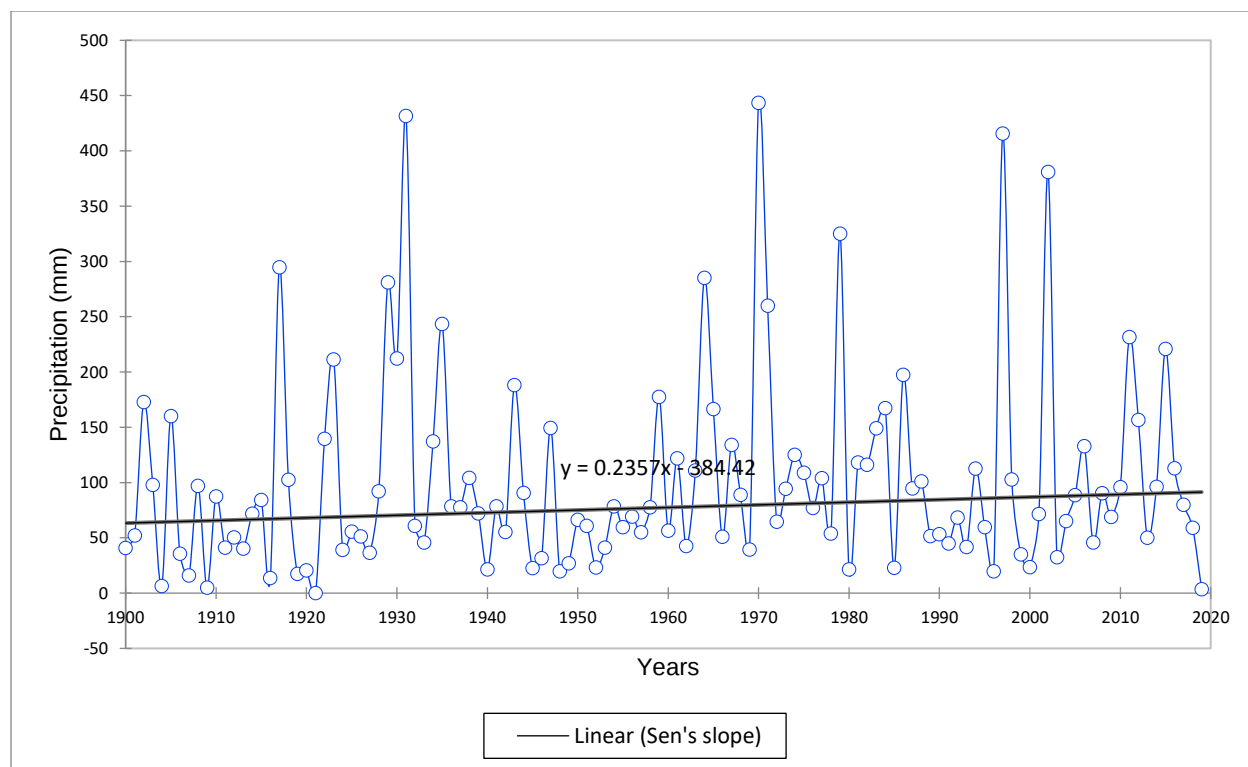


Figure D-143: Winter trend plot for Kentani-Bos station.

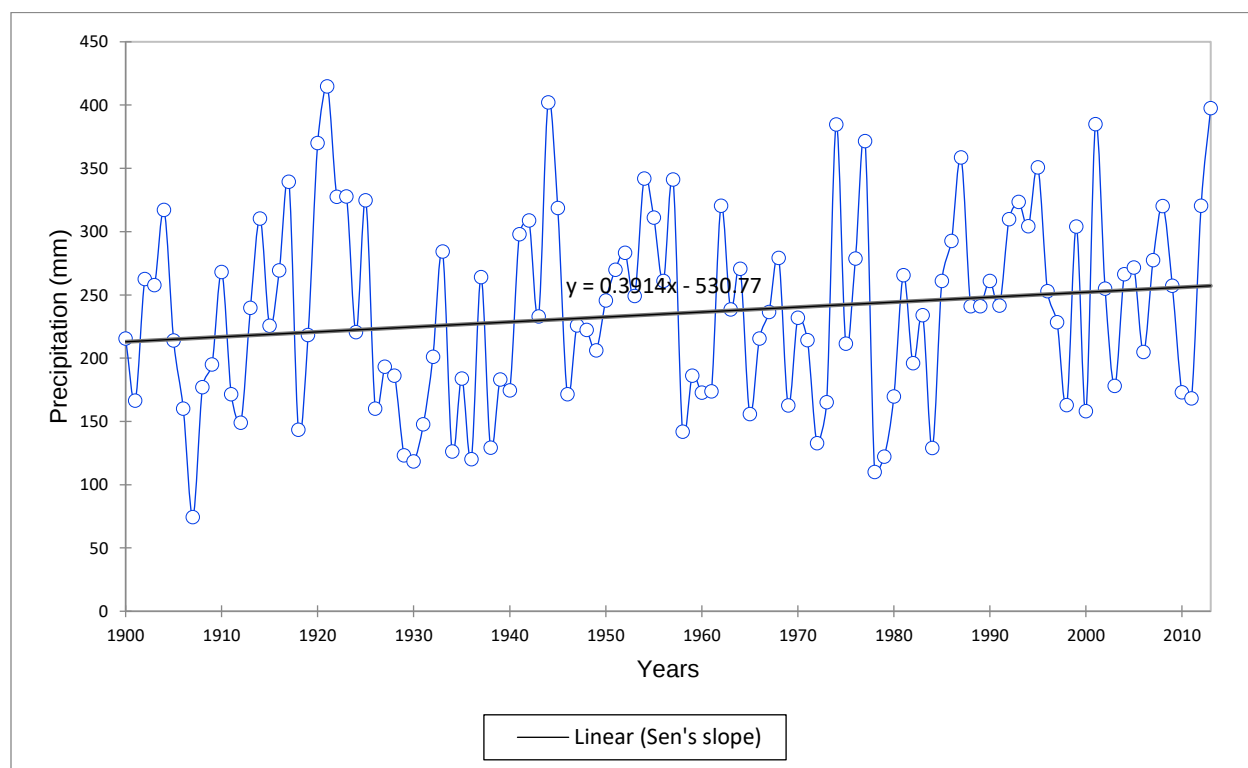


Figure D-144: Winter plot for Darling-Towers station.

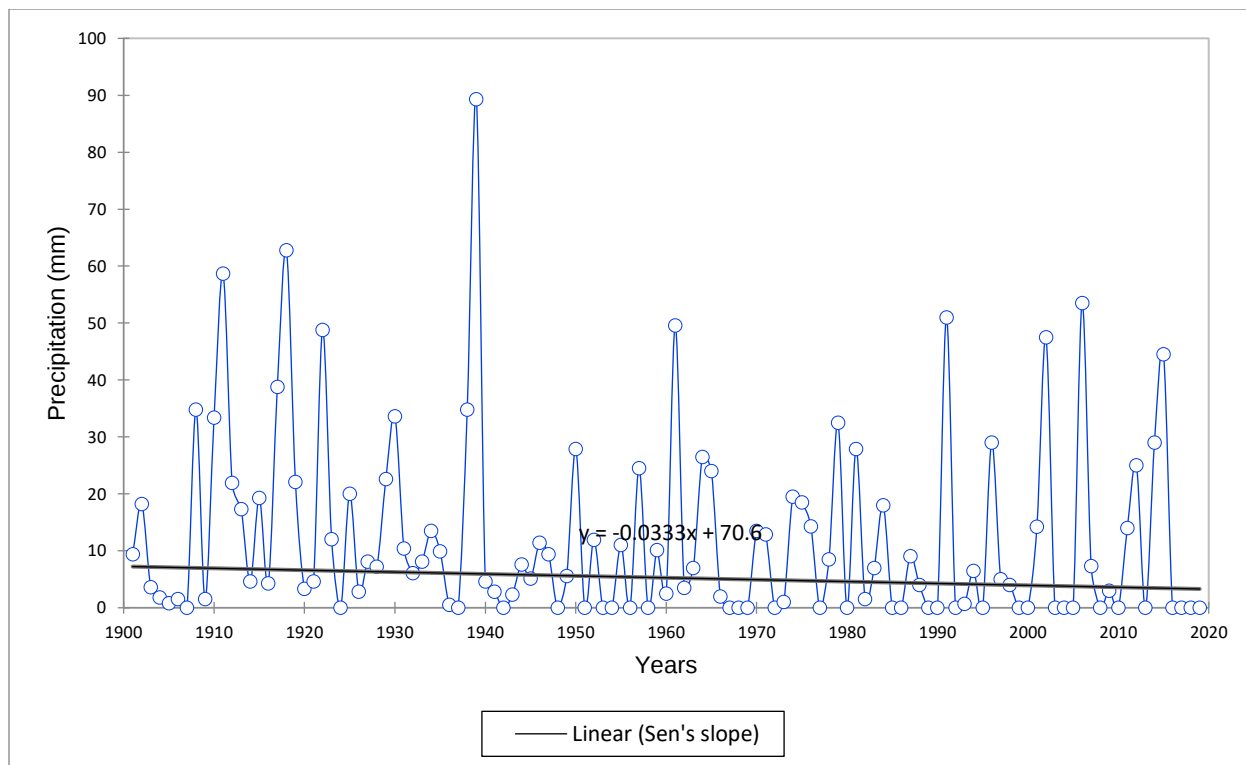


Figure D-145: Winter trend plot for Nuwejaarskraal station.

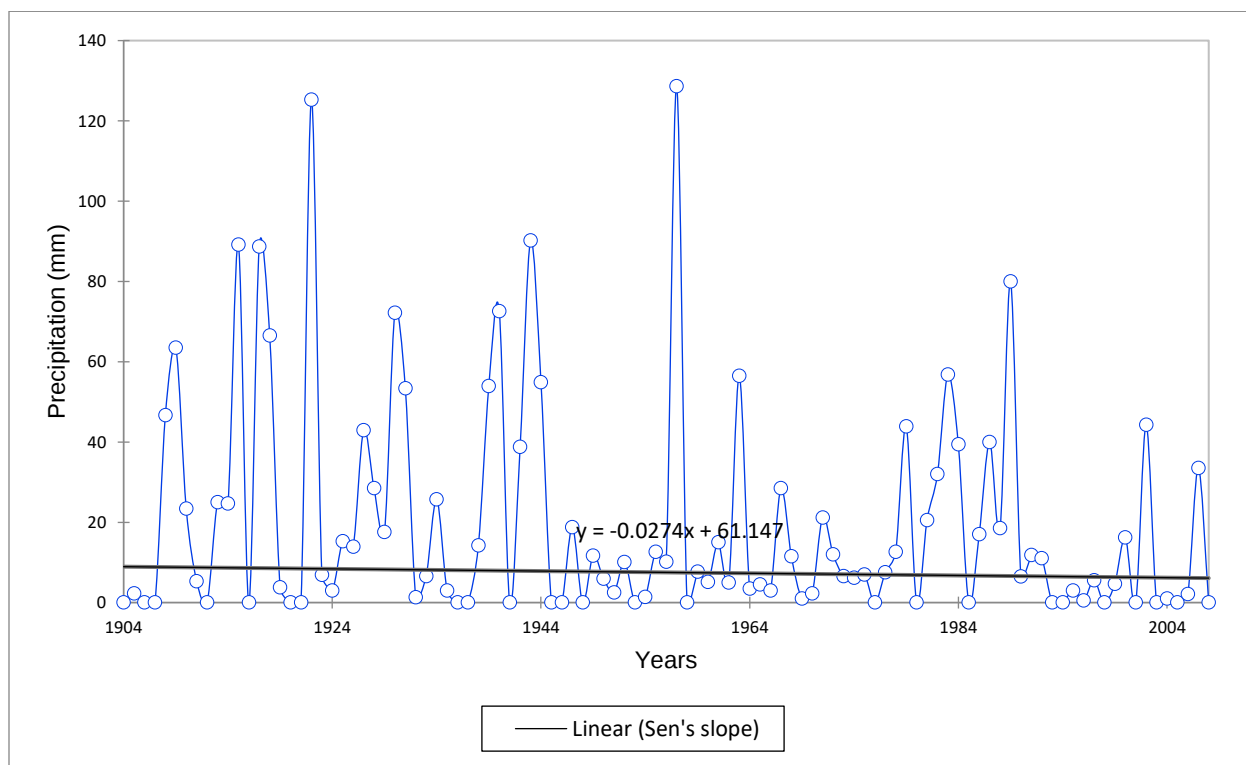


Figure D-146: Winter trend plot for Premier Mine-Cullinan station.

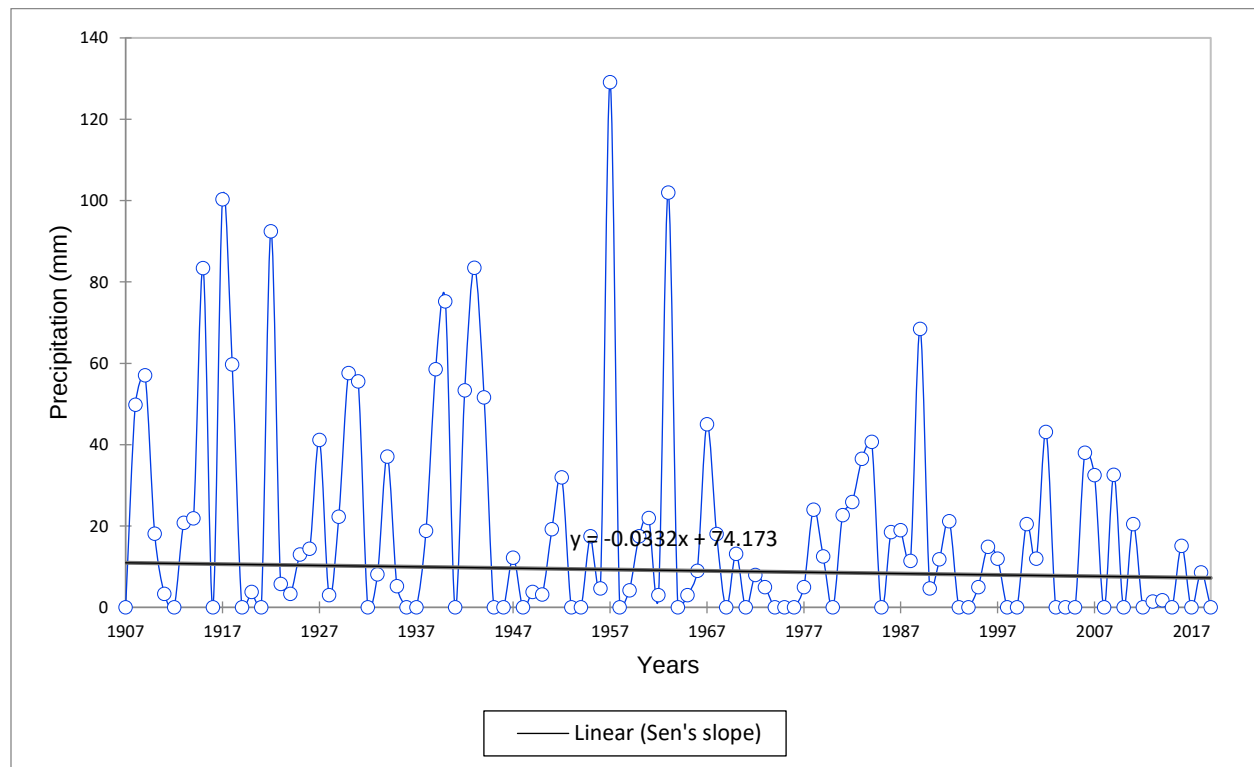


Figure D-147: Winter trend plot for Bronkhorspruit-Mun station.

Table D23: Winter Mann-Kendall trend test results (1900-1939).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Winter (1900-1939)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.438	0.045	0.435	0.045
2	Steytlerville-Mag	-33.33	24.33	419	0.127	0.475	0.041	0.475
3	Alicedale-Mun	-33.32	26.08	276	0.054	1.044	0.055	1.044
4	Grahamstown-Tnk	-33.3	26.53	539	0.790	-0.339	0.789	-0.339
5	Klipfontein	-32.55	24.72	673	0.641	-0.230	0.562	-0.230
6	Amatola State Forest	-32.67	27.28	884	0.480	0.468	0.477	0.468
7	Winterhoek	-32.22	24.47	876	0.917	0.058	0.916	0.058
8	Bloemhof	-32.03	24.67	1,091	0.214	0.416	0.074	0.416
9	Exwell Park	-32.2	27.12	914	0.700	0.100	0.708	0.100
10	Kentani-Bos	-32.5	28.32	488	0.079	1.424	0.110	1.424
11	Cwebe Nature Reserve	-32.2	28.93	61	0.373	1.190	0.336	1.190
12	Sterkstroom	-31.55	26.55	1,343	0.744	-0.110	0.753	-0.110
13	Engcobo Prison	-31.67	28	975	0.167	0.710	0.166	0.710

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
14	Xhora Prison	-31.97	28.67	671	0.421	0.478	0.476	0.478
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.807	0.102	0.816	0.102
16	Ellesmere	-30.67	26.32	1,387	0.395	0.207	0.402	0.207
17	Burgersdorp-Pol	-31	26.33	1,387	0.633	0.216	0.641	0.216
18	Petrusville-Pol	-30.08	24.67	1,212	0.641	0.075	0.649	0.075
19	Philippolis-Pol	-30.27	25.27	1,372	0.570	0.133	0.580	0.133
20	Hopetown-Tnk	-29.62	24.08	1,661	0.865	-0.022	0.822	-0.022
21	Lillydale	-30	25.95	1,098	0.224	0.604	0.230	0.604
22	Richmond S.A. P	-29.87	30.27	1,509	0.941	0.379	0.902	0.379
23	Durban Botanical Gardens	-29.85	31	91	0.507	0.774	0.514	0.774
24	Steinkopf	-29.25	17.73	91	0.772	-0.200	0.771	-0.200
25	Nuwejaarskraal	-29.37	23.12	884	0.483	0.121	0.490	0.121
26	Maselspoort Dam	-29.03	26.42	1,372	0.514	-0.135	0.523	-0.135
27	Boetsap-Pol	-27.97	24.45	1,189	0.363	-0.306	0.363	-0.306
28	Odendaalsrus	-27.87	26.68	1,341	0.549	0.017	0.559	0.017
29	Bothaville-Mun	-27.55	26.62	1,280	0.857	0.000	0.844	0.000
30	Beerlaagte	-26.82	28.43	1,615	0.710	0.000	0.592	0.000
31	Balfour	-26.65	28.58	1,555	0.130	0.368	0.133	0.368
32	De Emigratie	-26.77	30.12	1,676	0.321	0.334	1.000	0.334
33	Morokweng	-26.12	23.78	1,126	0.049	-0.182	0.051	-0.182
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.126	-0.014	0.02	-0.014
35	Swartruggens-Pol	-25.63	26.68	1,311	0.221	-0.118	0.227	-0.118
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.518	0.048	0.527	0.048
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.950	0.000	0.946	0.000
38	Machadodorp	-25.67	30.25	1,609	0.134	0.367	0.046	0.367
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.683	0.000	0.693	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.236	0.465	0.000	0.465
41	Prince Albert-Tnk	-33.22	22.03	686	0.395	-0.224	0.402	-0.224
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.336	-0.695	0.394	-0.695
43	Tulbagh	-33.28	19.13	155	0.221	-1.288	0.331	-1.288
44	Darling-The Towers	-33.38	18.37	229	0.251	-1.344	0.207	-1.344
45	Thornlea	-28.63	21.52	884	0.869	0.000	0.878	0.000
46	Klein Australie	-23.05	30.22	702	0.125	0.957	0.124	0.957

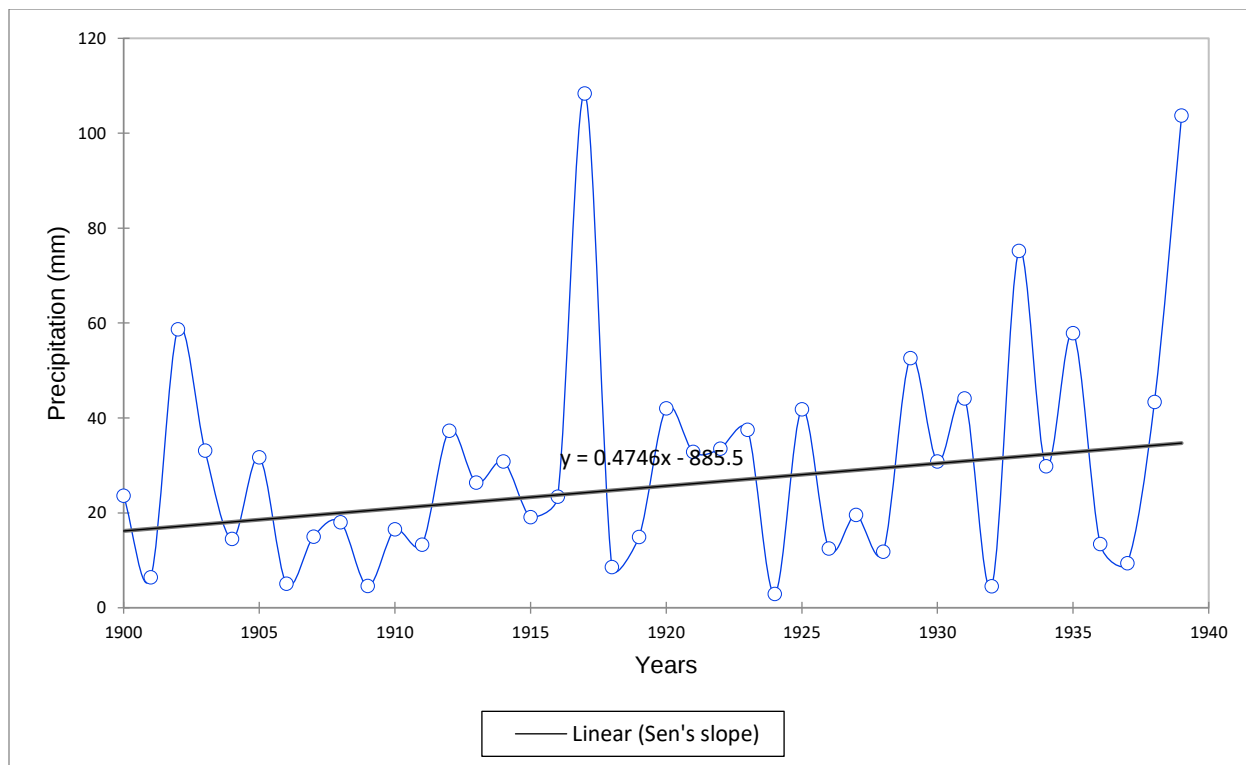


Figure D-148: Winter trend plot for Steytleville-Mag station (1900-1939).

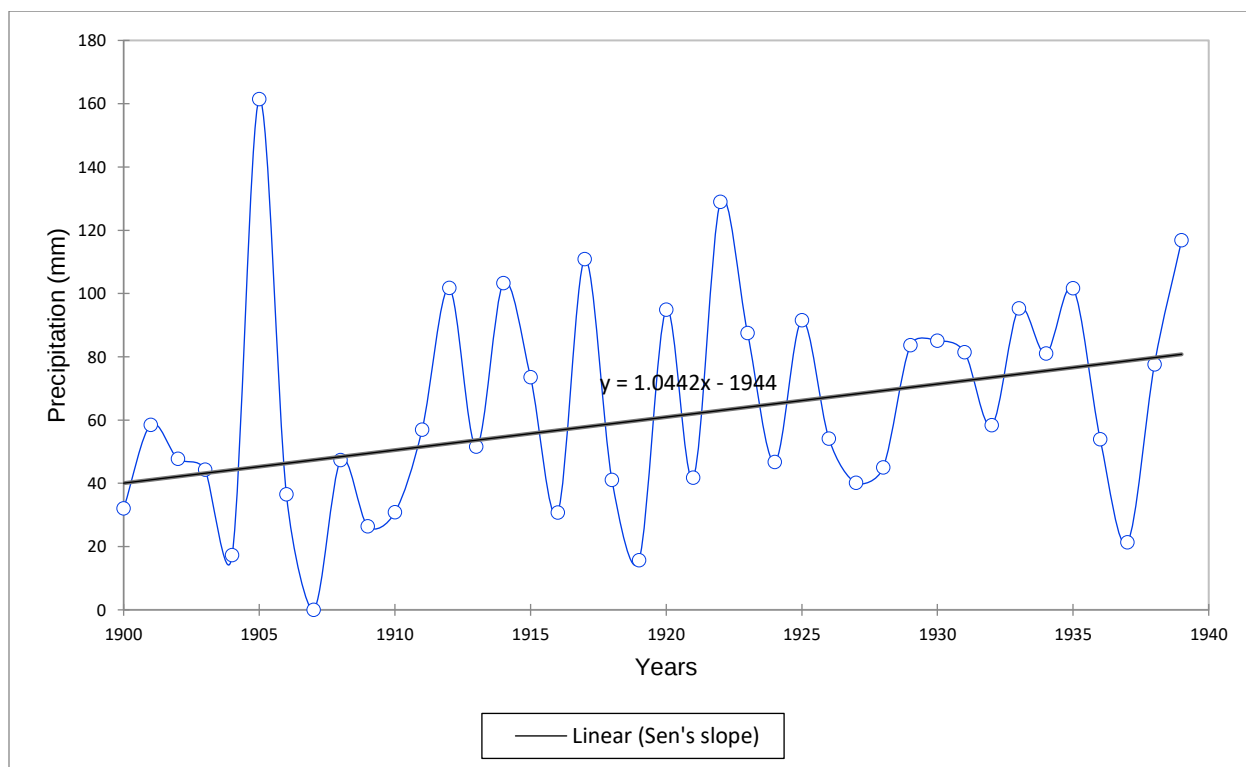


Figure D-149: Winter trend plot for Alicedale-Mun station (1900-1939).

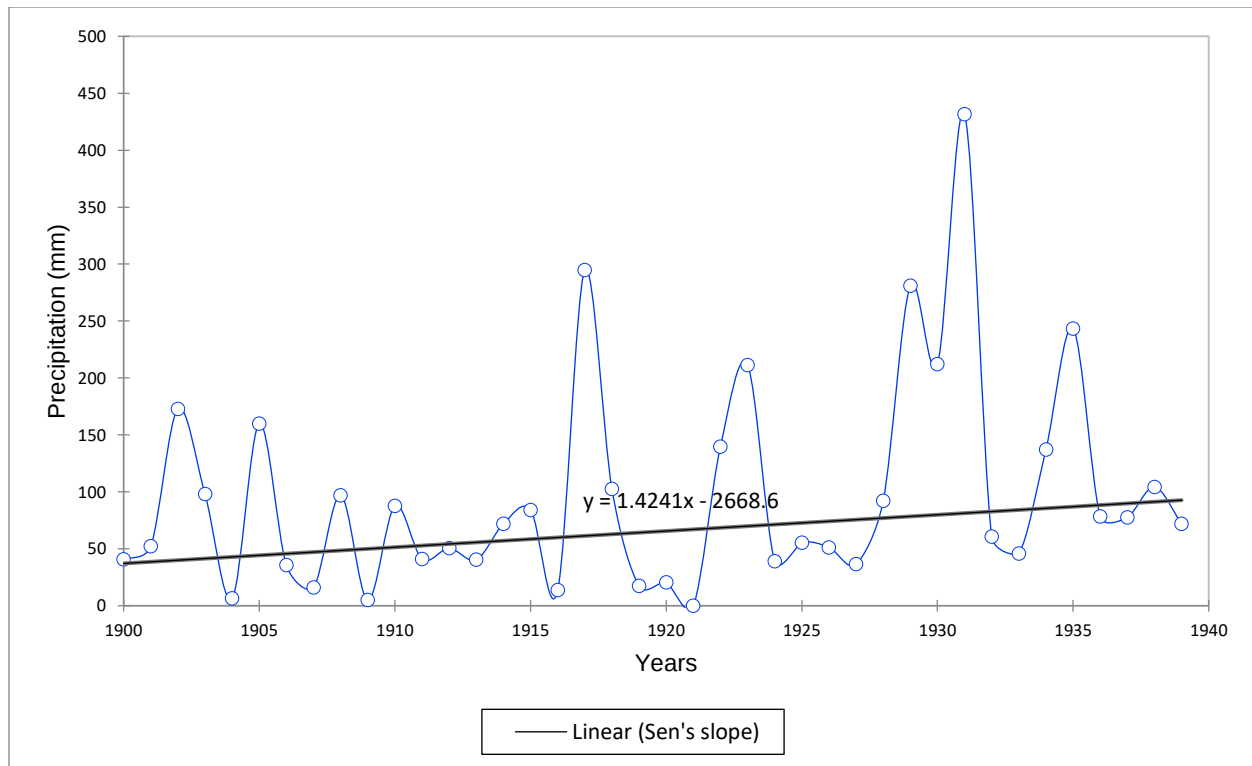


Figure D-150: Winter trend plot for Kentani-Bos station (1900-1939).

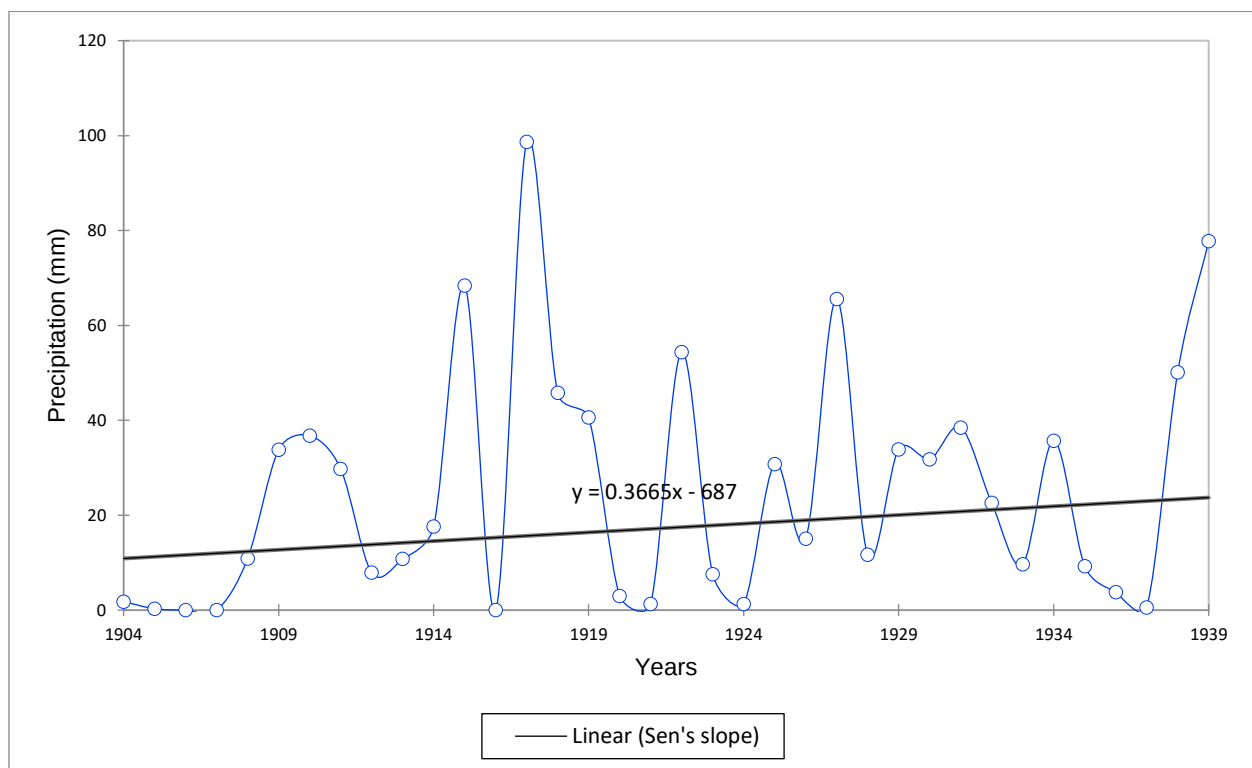


Figure D-151: Winter trend plot for Machadodorp station (1900-1939).

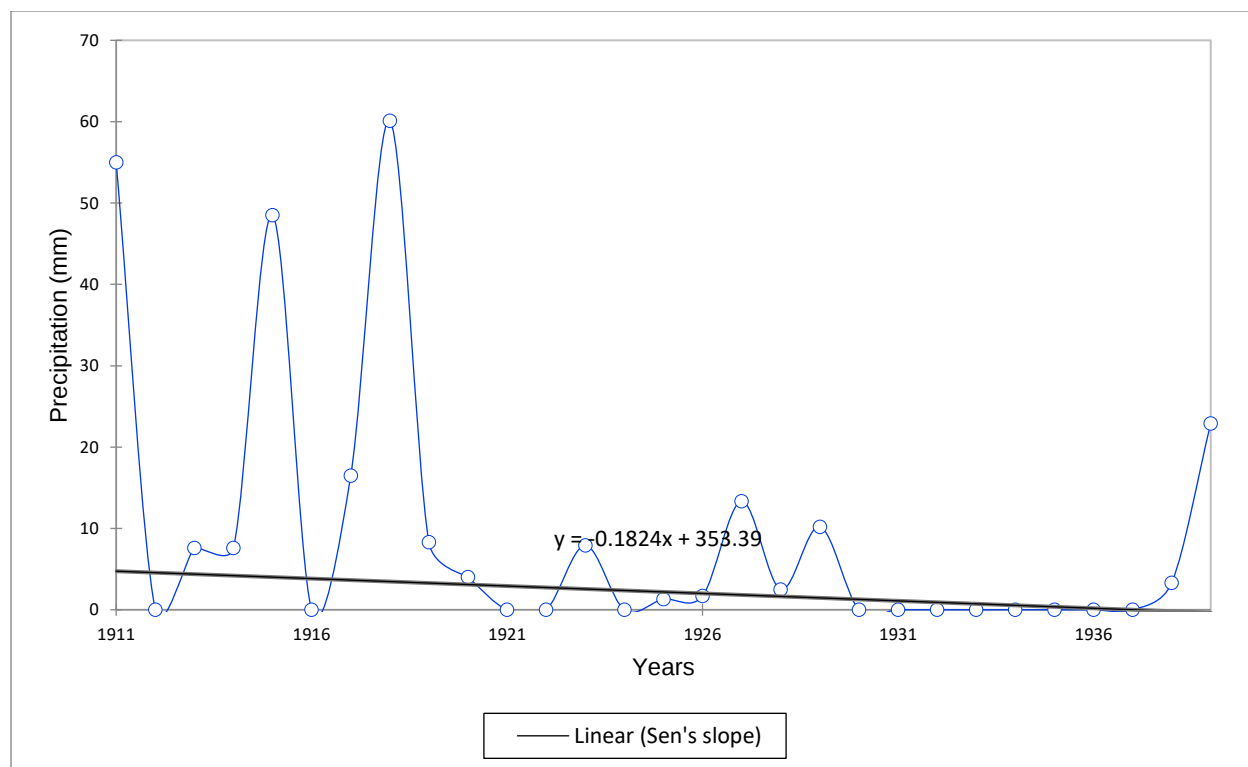


Figure D-152: Winter trend plot for Morokweng station (1900-1939).

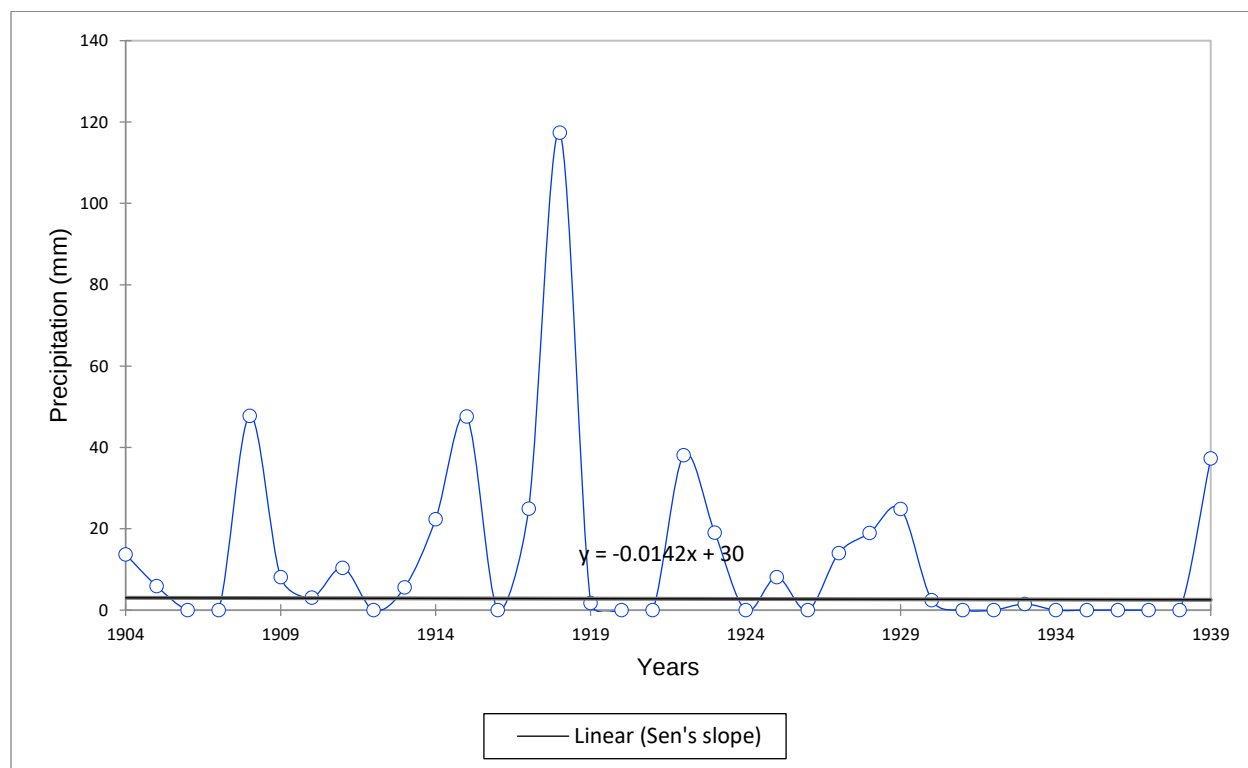


Figure D-153: Winter trend plot for Ottoshoop-Pol station (1900-1939).

Table D24: Winter Mann-Kendall trend test results (1940-1979).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Winter (1940-1979)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.935	0.007	0.935	0.007
2	Steytlerville - Mag	-33.33	24.33	419	0.442	-0.194	0.449	-0.194
3	Alicedale-Mun	-33.32	26.08	276	0.011	1.144	0.012	1.144
4	Grahamstown-Tnk	-33.3	26.53	539	0.010*	2.163	0.011*	2.163
5	Klipfontein	-32.55	24.72	673	0.153	0.365	0.152	0.365
6	Amatola State Forest	-32.67	27.28	884	0.037	1.408	0.038	1.408
7	Winterhoek	-32.22	24.47	876	0.077	0.847	0.038	0.847
8	Bloemhof	-32.03	24.67	1,091	0.483	0.079	0.485	0.079
9	Exwell Park	-32.2	27.12	914	0.120	0.500	0.123	0.500
10	Kentani-Bos	-32.5	28.32	488	0.01	1.859	0.011	1.859
11	Cwebe Nature Reserve	-32.2	28.93	61	0.032	2.304	0.026	2.304
12	Sterkstroom	-31.55	26.55	1,343	0.339	0.281	0.230	0.281
13	Engcobo Prison	-31.67	28.0	975	0.389	0.425	0.395	0.425
14	Xhora Prison	-31.97	28.67	671	0.061	0.820	0.062	0.820
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.235	0.404	0.239	0.404
16	Ellesmere	-30.67	26.32	1,387	0.258	0.214	0.263	0.214
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.159	0.475	0.162	0.475
18	Petrusville-Pol	-30.08	24.67	1,212	0.158	0.342	0.083	0.342
19	Philippolis-Pol	-30.27	25.27	1,372	0.401	0.169	0.408	0.169
20	Hopetown-Tnk	-29.62	24.08	1,661	0.172	0.168	0.176	0.168
21	Lillydale	-30.0	25.95	1,098	0.475	0.238	0.483	0.238
22	Richmond S.A. P	-29.87	30.27	1,509	0.281	0.602	0.279	0.602
23	Durban Botanical Gardens	-29.85	31.0	91	0.204	1.205	0.208	1.205
24	Steinkopf	-29.25	17.73	91	0.258	-0.537	0.263	-0.537
25	Nuwejaarskraal	-29.37	23.12	884	0.287	0.062	0.293	0.062
26	Maselspoort Dam	-29.03	26.42	1,372	0.789	0.100	0.798	0.100
27	Boetsap-Pol	-27.97	24.45	1,189	0.093	-0.241	0.096	-0.241
28	Odendaalsrus	-27.87	26.68	1,341	0.675	-0.067	0.683	-0.067
29	Bothaville-Mun	-27.55	26.62	1,280	0.249	-0.271	0.253	-0.271
30	Beerlaagte	-26.82	28.43	1,615	0.704	0.000	0.713	0.000
31	Balfour	-26.65	28.58	1,555	1.000	0.000	1.000	0.000
32	De Emigratie	-26.77	30.12	1,676	0.935	0.000	0.944	0.000
33	Morokweng	-26.12	23.78	1,126	0.893	0.000	0.903	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.871	0.000	0.881	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
35	Swartruggens-Pol	-25.63	26.68	1,311	0.610	0.000	0.618	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.953	0.000	0.963	0.000
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.386	0.000	0.393	0.000
38	Machadodorp	-25.67	30.25	1,609	0.782	-0.057	0.792	-0.057
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.245	-0.075	0.250	-0.075
40	Haenertsburg	-23.93	29.93	1,402	0.806	0.059	0.816	0.059
41	Prince Albert-Tnk	-33.22	22.03	686	0.944	0.009	0.948	0.009
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.223	1.200	0.221	1.200
43	Tulbagh	-33.28	19.13	155	0.411	-0.927	0.168	-0.927
44	Darling-The Towers	-33.38	18.37	229	0.096	-1.932	0.004	-1.932
45	Thornlea	-28.63	21.52	884	0.442	0.000	0.471	0.000
46	Klein Australie	-23.05	30.22	702	0.003	-1.675	0.003	-1.675

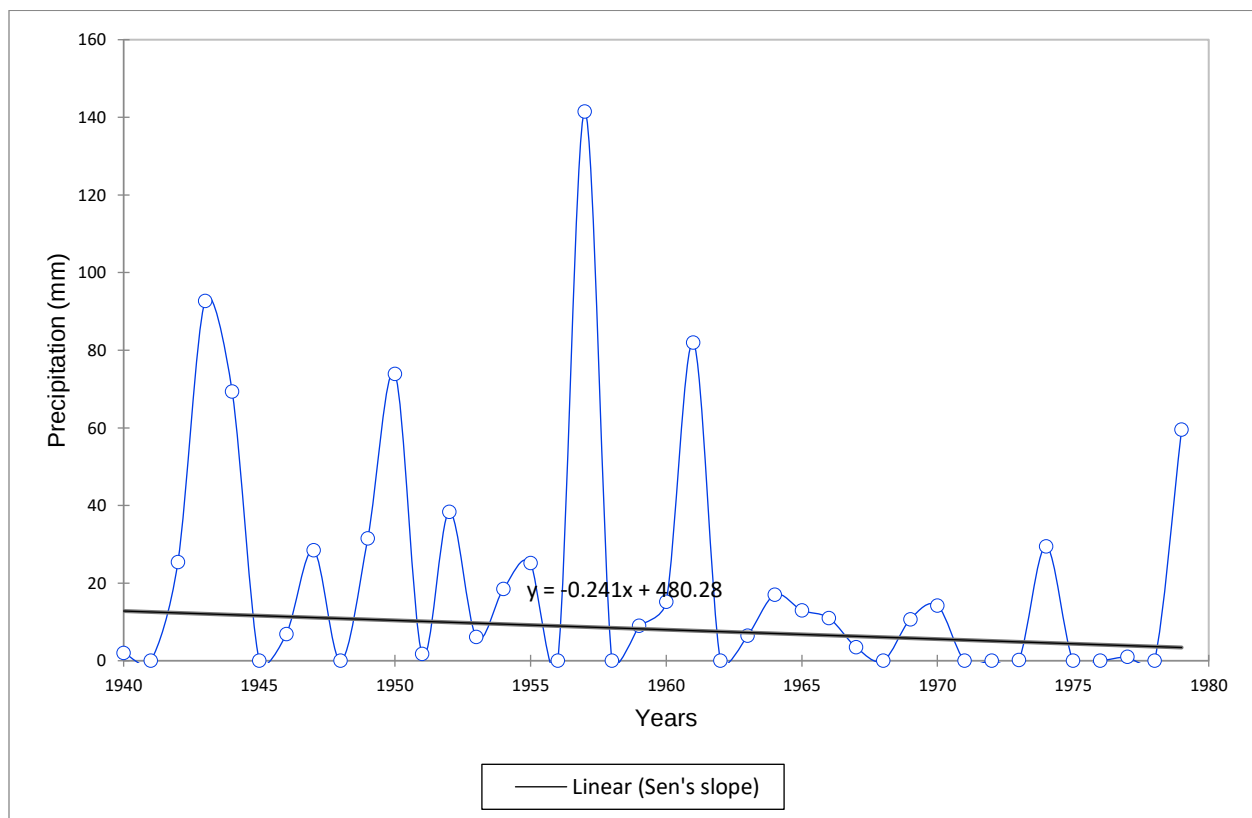


Figure D-154: Winter trend plot for Boetsap-Pol station (1940-1979).

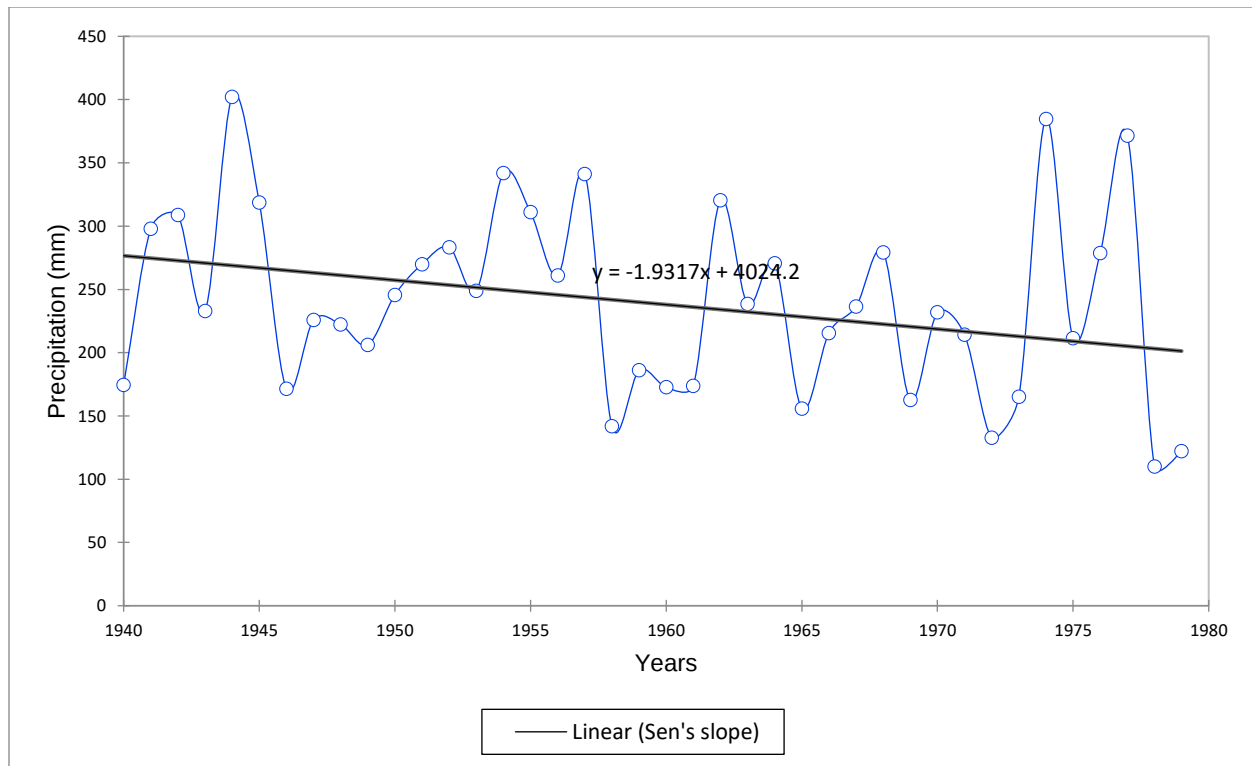


Figure D-155: Winter trend plot for Darling-Towers station (1940-1979).

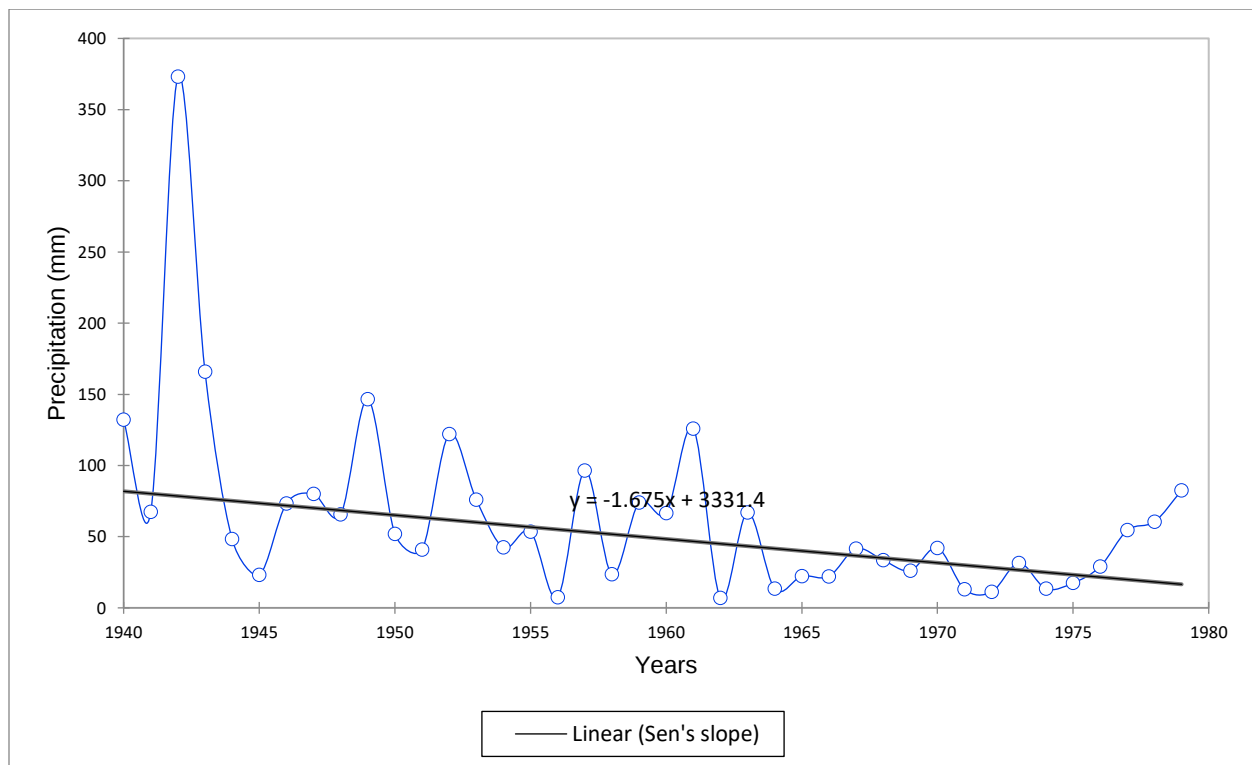


Figure D-156: Winter trend plot for Klein Australie station (1940-1979).

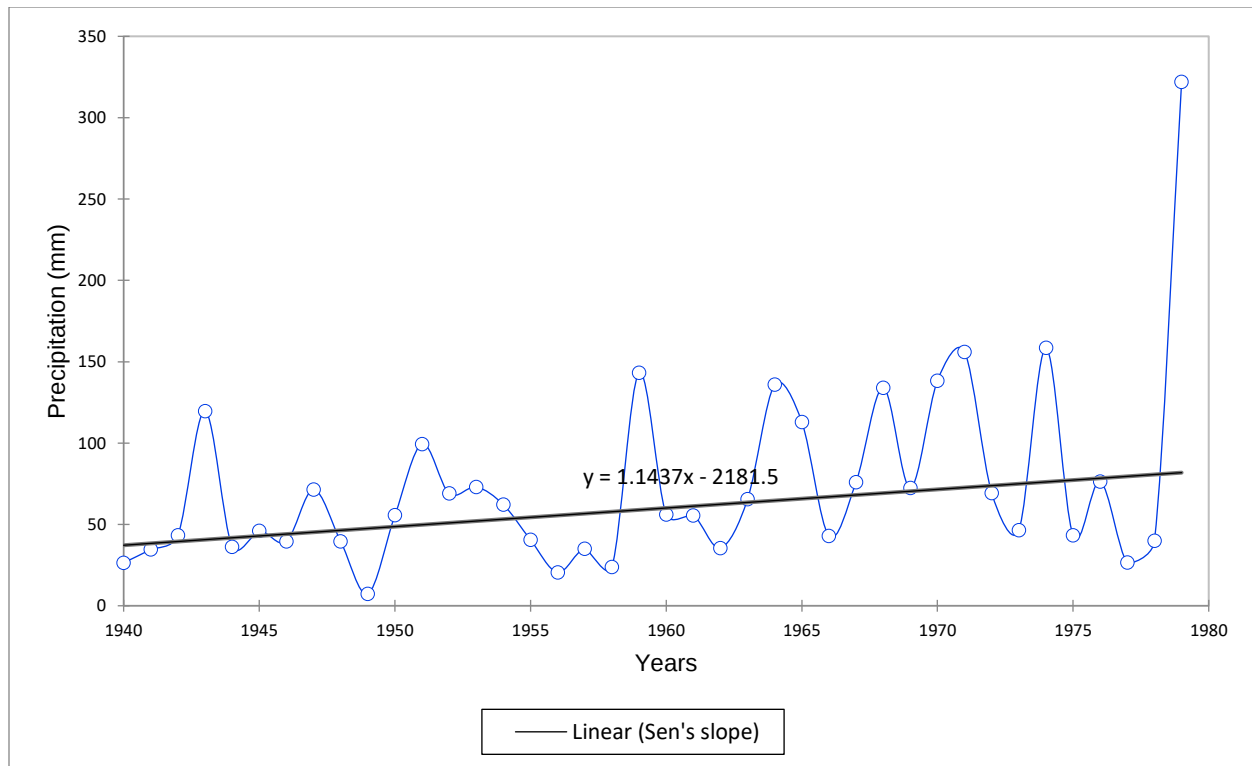


Figure D-157: Winter trend plot for Alicedale-Mun (1940-1979).

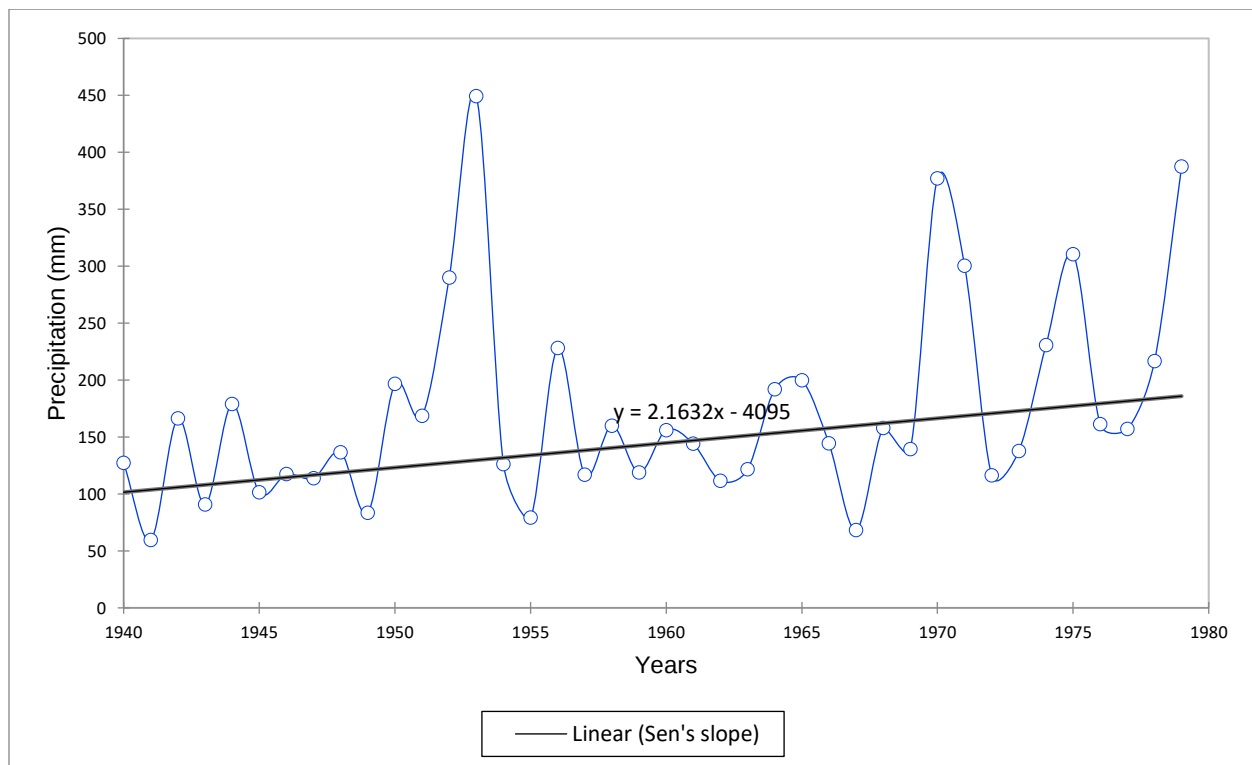


Figure D-158: Winter trend plot for Grahamstown-TNK station (1940-1979).

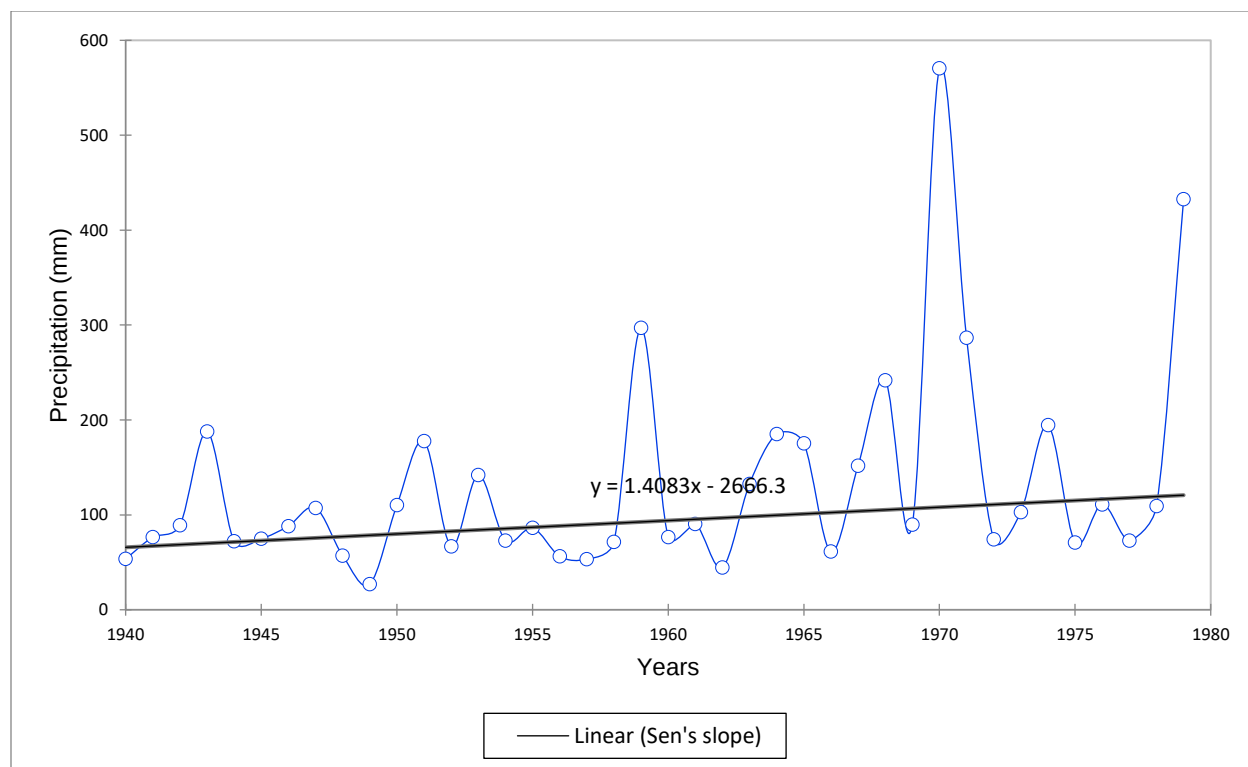


Figure D-159: Winter trend plot for Amatola State Forest station (1940-1979).

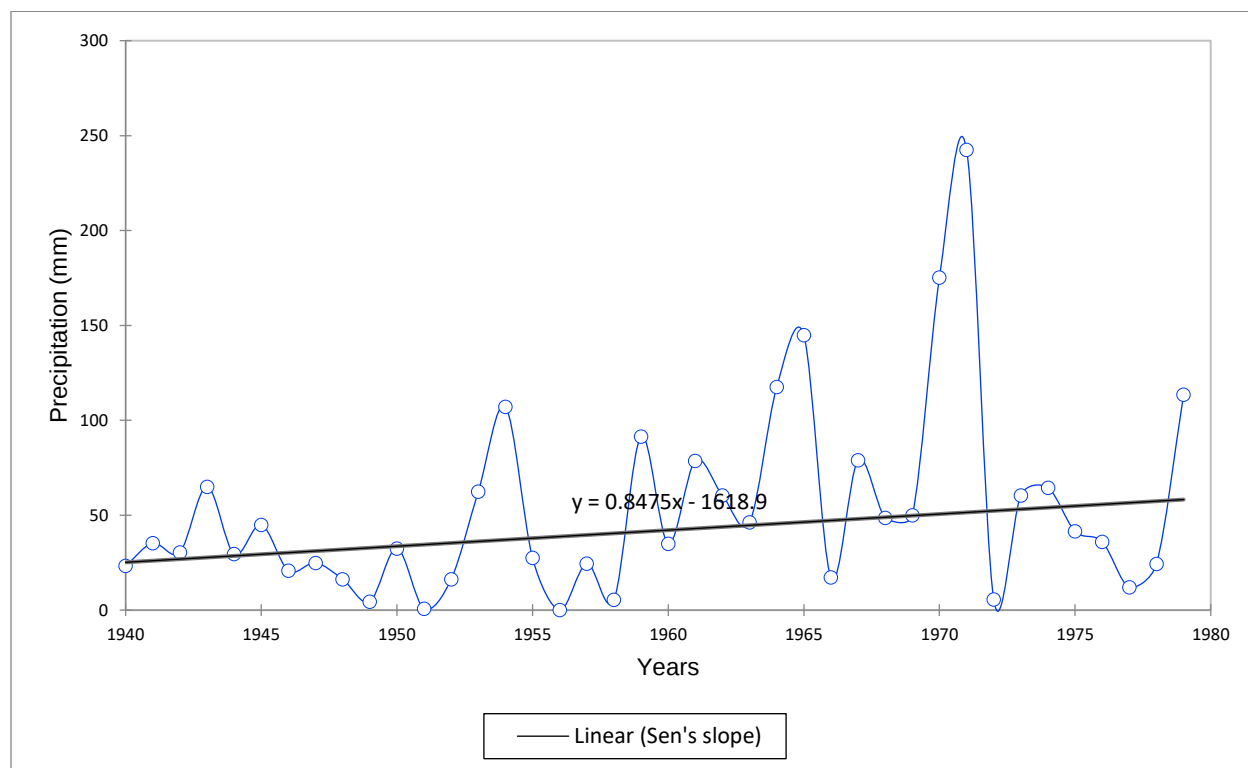


Figure D-160: Winter trend plot for Winterhoek station (1940-1979).

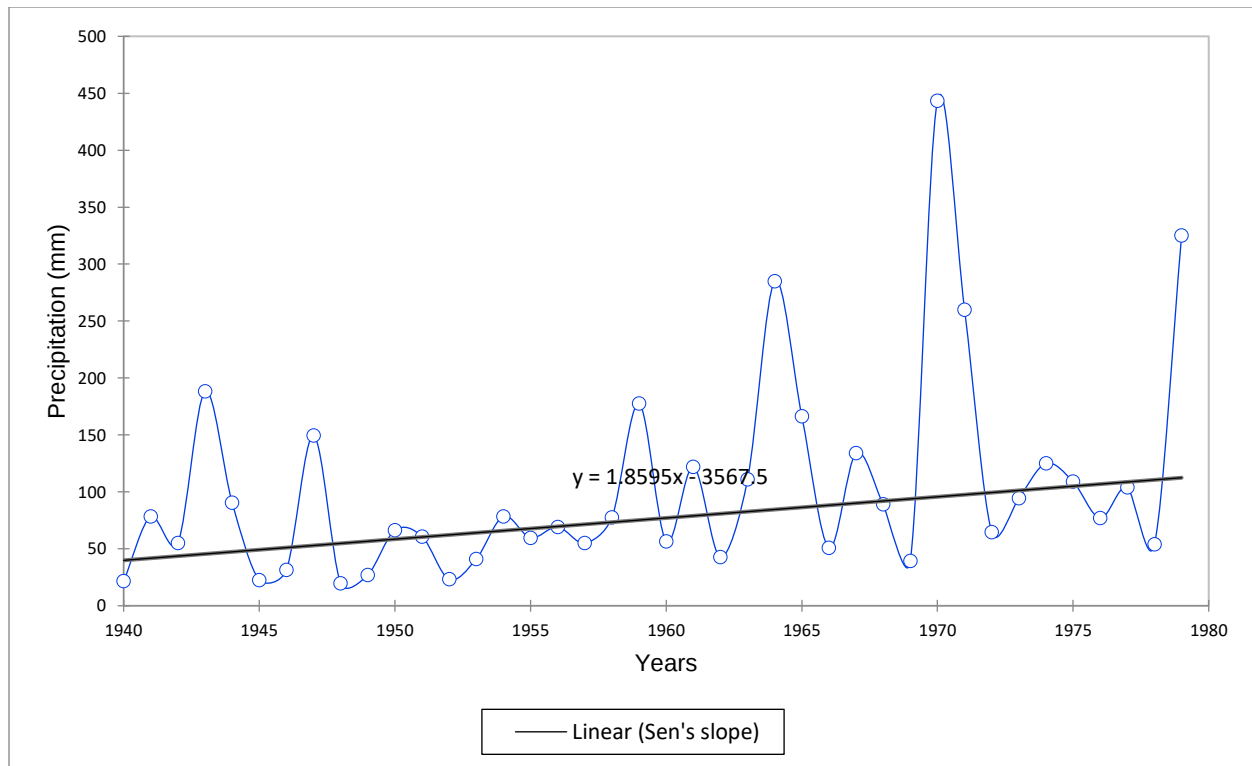


Figure D-161: Winter trend plot for Kentani-Bos station (1940-1979).

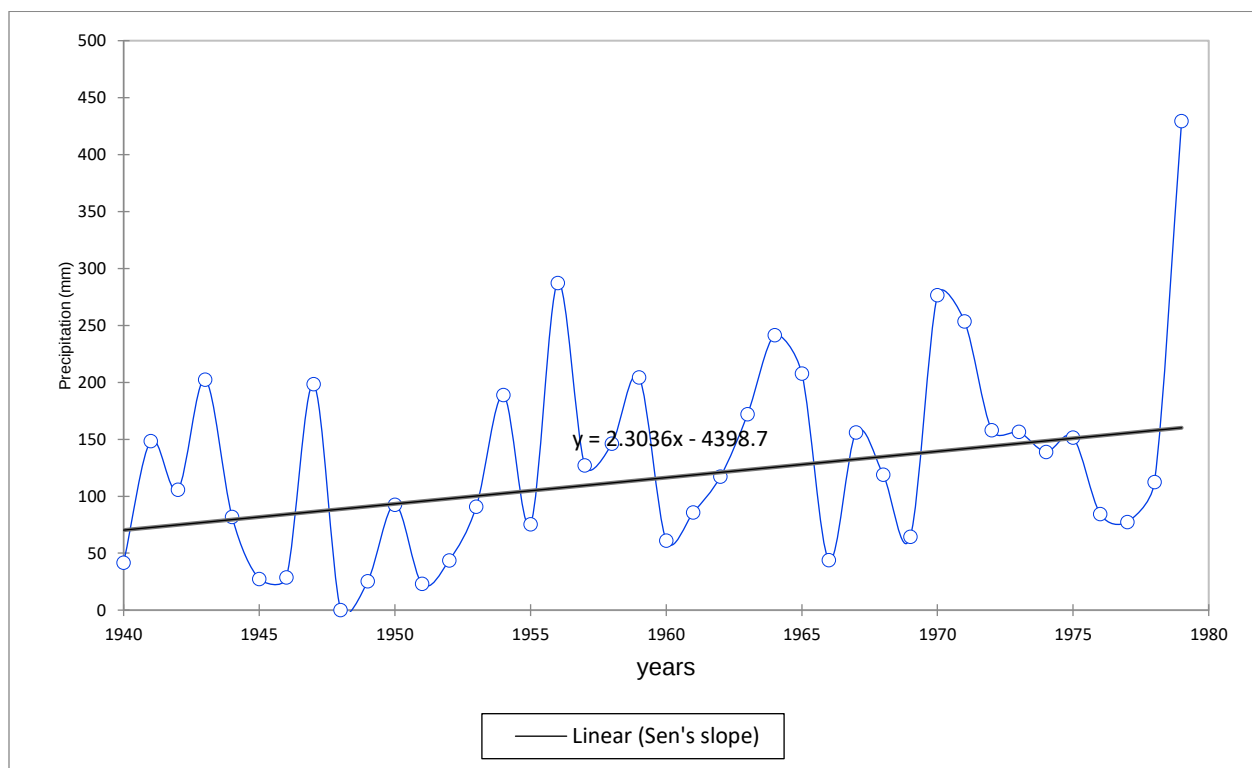


Figure D-162: Winter trend plot for Cwebe Nature Reserve (1940-1979).

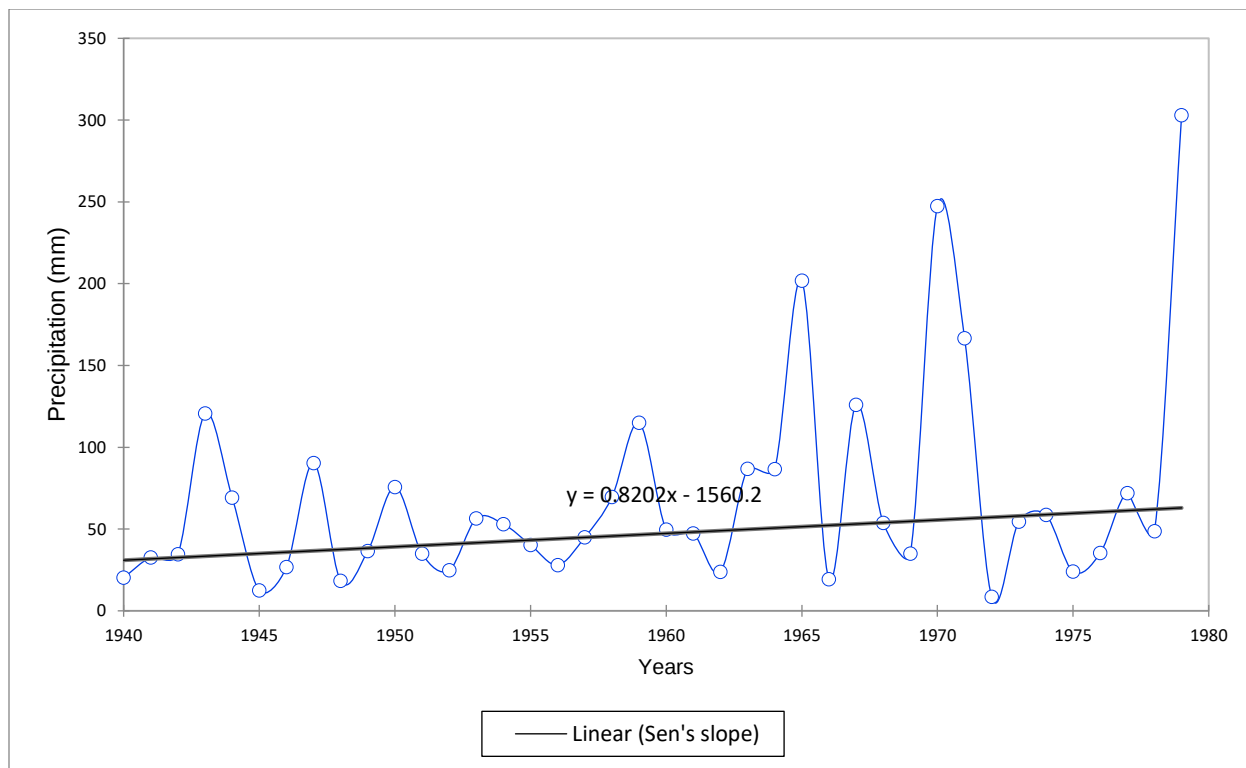


Figure D-163: Winter trend plot for Xhora Prison station (1940-1979).

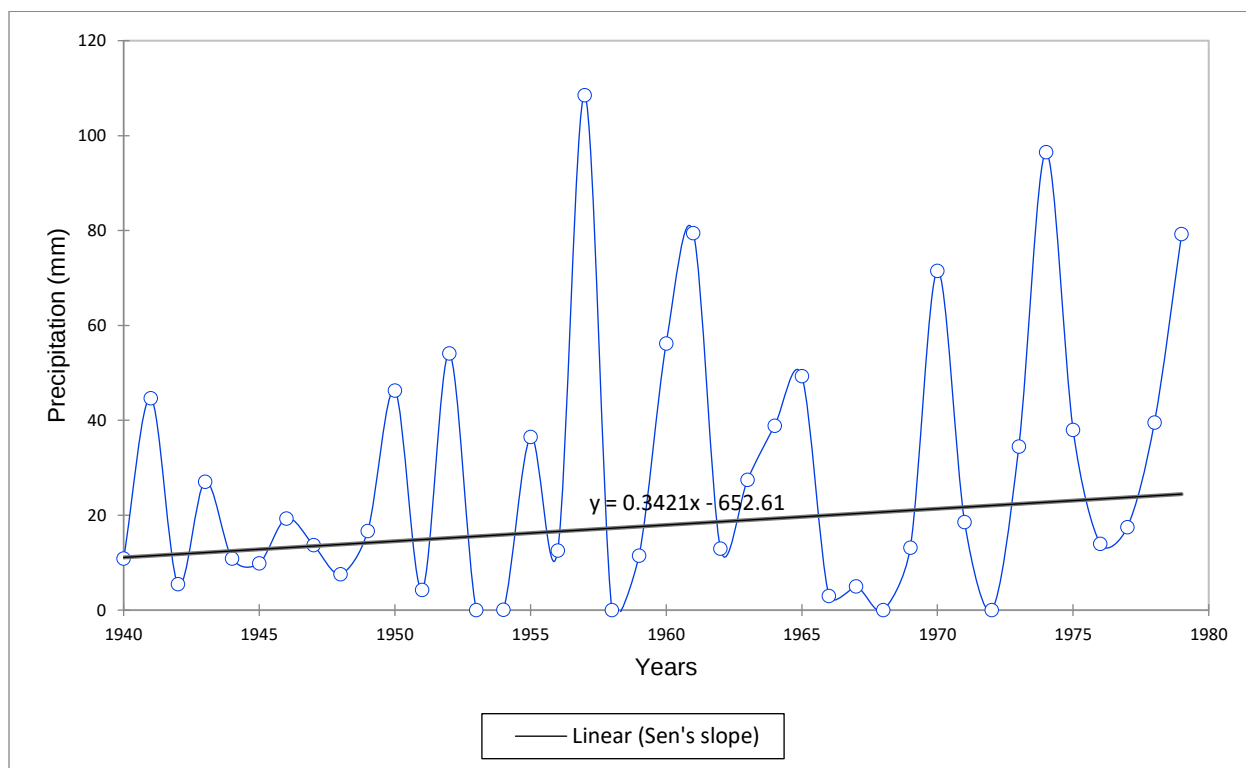


Figure D-164: Winter trend plot for Petrusville-POL station (1940-1979).

Table D25: Winter Mann-Kendall trend test results (1980-2019).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Winter (1980-2019)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.504	-0.785	0.327	-0.785
2	Steytlerville-Mag	-33.33	24.33	419	0.452	0.191	0.449	0.191
3	Alicedale-Mun	-33.32	26.08	276	0.599	-0.638	0.505	-0.638
4	Grahamstown-Tnk	-33.3	26.53	539	0.360	-1.128	0.427	-1.128
5	Klipfontein	-32.55	24.72	673	0.249	-0.276	0.253	-0.276
6	Amatola State Forest	-32.67	27.28	884	0.916	-0.171	0.852	-0.171
7	Winterhoek	-32.22	24.47	876	0.963	0.026	0.972	0.026
8	Bloemhof	-32.03	24.67	1,091	0.916	-0.049	0.907	-0.049
9	Exwell Park	-32.2	27.12	914	0.852	0.056	0.861	0.056
10	Kentani-Bos	-32.5	28.32	488	0.917	0.046	0.916	0.046
11	Cwebe Nature Reserve	-32.2	28.93	61	0.720	-0.563	0.718	-0.563
12	Sterkstroom	-31.55	26.55	1,343	0.204	-0.369	0.204	-0.369
13	Engcobo Prison	-31.67	28	975	0.592	0.225	0.574	0.225
14	Xhora Prison	-31.97	28.67	671	0.452	-0.505	0.449	-0.505
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.009	-0.804	0.009	-0.804
16	Ellesmere	-30.67	26.32	1,387	0.165	-0.827	0.163	-0.827
17	Burgersdorp-Pol	-31	26.33	1,387	0.001	-1.138	0.003	-1.138
18	Petrusville-Pol	-30.08	24.67	1,212	0.115	-0.300	0.118	-0.300
19	Philippolis-Pol	-30.27	25.27	1,372	0.056	-0.520	0.000	-0.520
20	Hopetown-Tnk	-29.62	24.08	1,661	0.267	-0.219	0.184	-0.219
21	Lillydale	-30	25.95	1,098	0.012	-1.586	0.039	-1.586
22	Richmond S.A. P	-29.87	30.27	1,509	0.475	-0.793	0.295	-0.793
23	Durban Botanical Gardens	-29.85	31	91	0.106	-1.500	0.105	-1.500
24	Steinkopf	-29.25	17.73	91	0.333	-0.548	0.339	-0.548
25	Nuwejaarskraal	-29.37	23.12	884	0.683	0.000	0.549	0.000
26	Maselspoort Dam	-29.03	26.42	1,372	0.223	-0.306	0.179	-0.306
27	Boetsap-Pol	-27.97	24.45	1,189	0.408	0.000	0.496	0.000
28	Odendaalsrus	-27.87	26.68	1,341	0.406	-0.100	0.521	-0.100
29	Bothaville-Mun	-27.55	26.62	1,280	0.167	-0.235	0.253	-0.235
30	Beerlaagte	-26.82	28.43	1,615	0.233	-0.337	0.239	-0.337
31	Balfour	-26.65	28.58	1,555	0.631	0.000	0.643	0.000
32	De Emigratie	-26.77	30.12	1,676	0.890	-0.024	0.889	-0.024
33	Morokweng	-26.12	23.78	1,126	0.046	0.000	0.048	0.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.741	0.000	0.754	0.000

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
35	Swartruggens-Pol	-25.63	26.68	1,311	0.398	0.000	0.494	0.000
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.036	-0.691	0.038	-0.691
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.063	-0.215	0.138	-0.215
38	Machadodorp	-25.67	30.25	1,609	0.374	-0.125	0.166	-0.125
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.755	0.000	0.764	0.000
40	Haenertsburg	-23.93	29.93	1,402	0.089	-0.542	0.091	-0.542
41	Prince Albert-Tnk	-33.22	22.03	686	0.208	-0.437	0.212	-0.437
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.961	0.045	0.974	0.045
43	Tulbagh	-33.28	19.13	155	0.02	2.837	0.001	2.837
44	Darling-The Towers	-33.38	18.37	229	0.292	1.104	0.233	1.104
45	Thornlea	-28.63	21.52	884	0.017	-0.181	0.000	-0.181
46	Klein Australie	-23.05	30.22	702	0.101	-0.873	0.100	-0.873

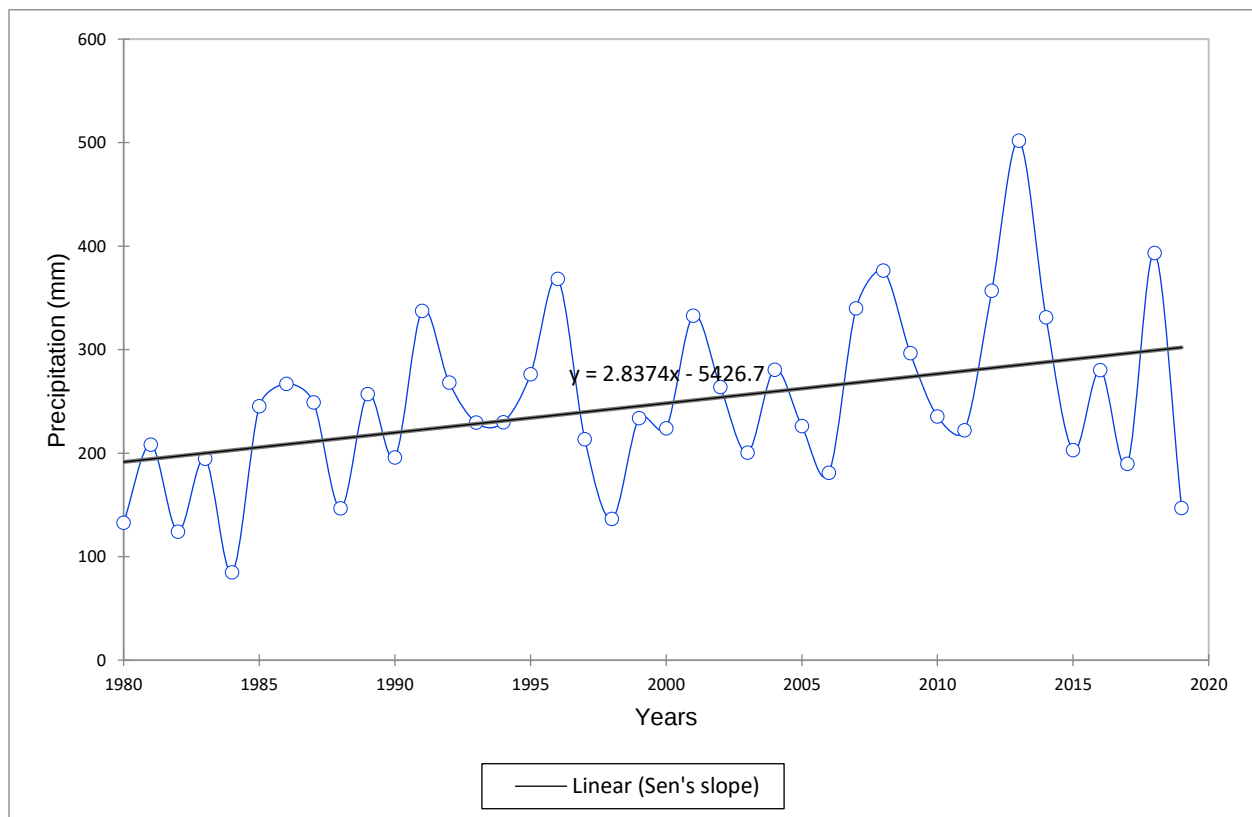


Figure D-165: Winter trend plot for Tulbagh station (1980-2019).

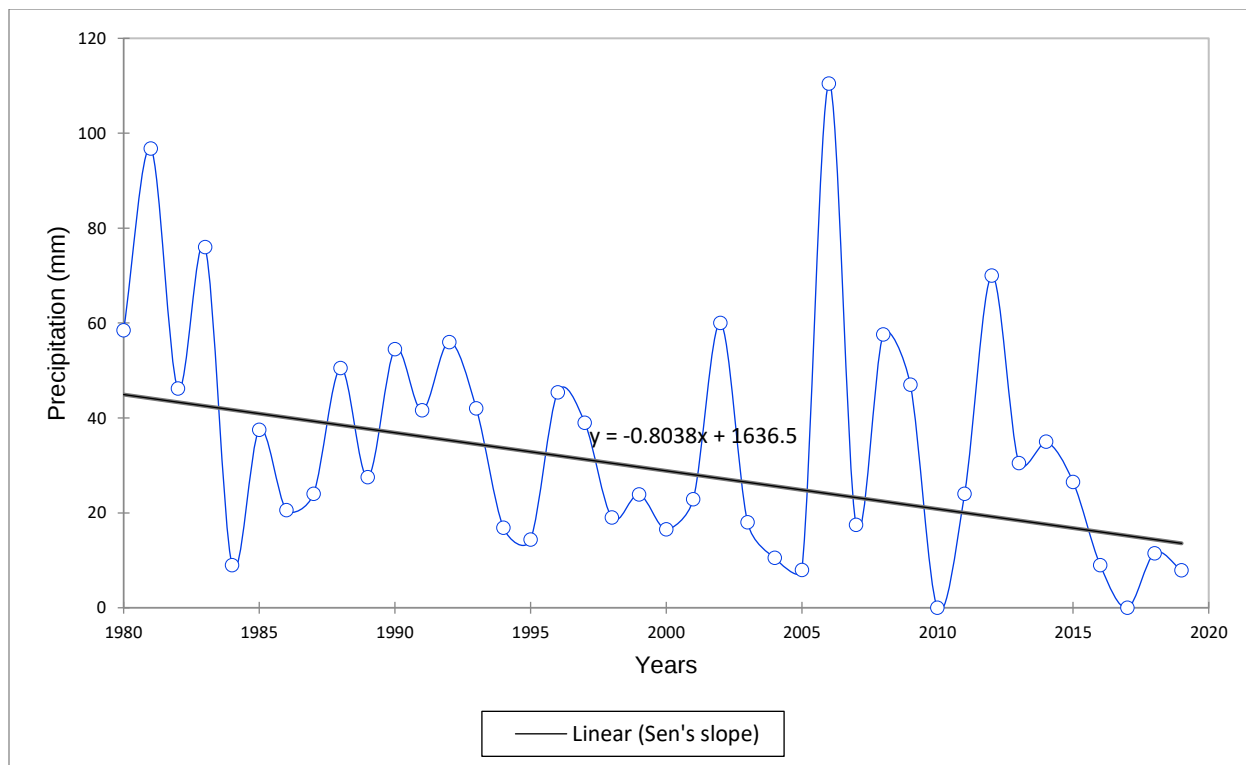


Figure D-166: Winter trend plot for Richmond C/K TNK station (1980-2019).

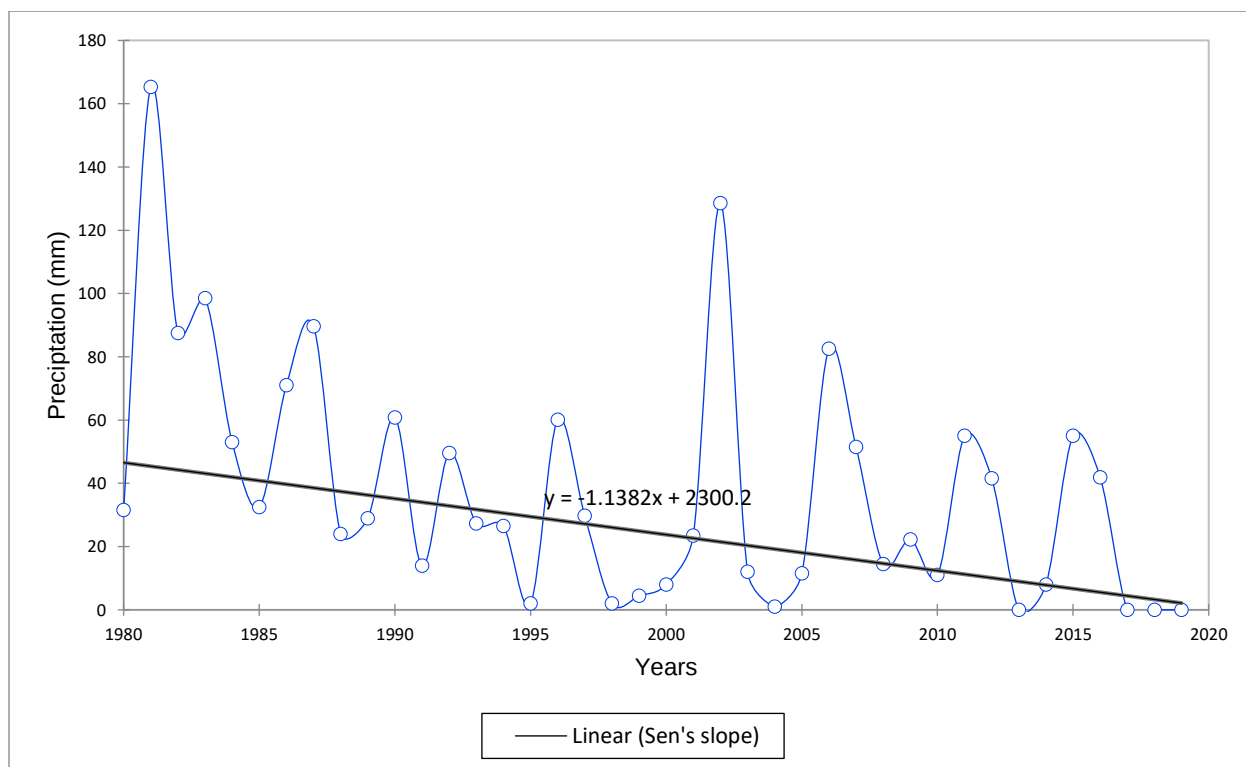


Figure D-167: Winter trend plot for Burgersdorp-Pol (1980-2019).

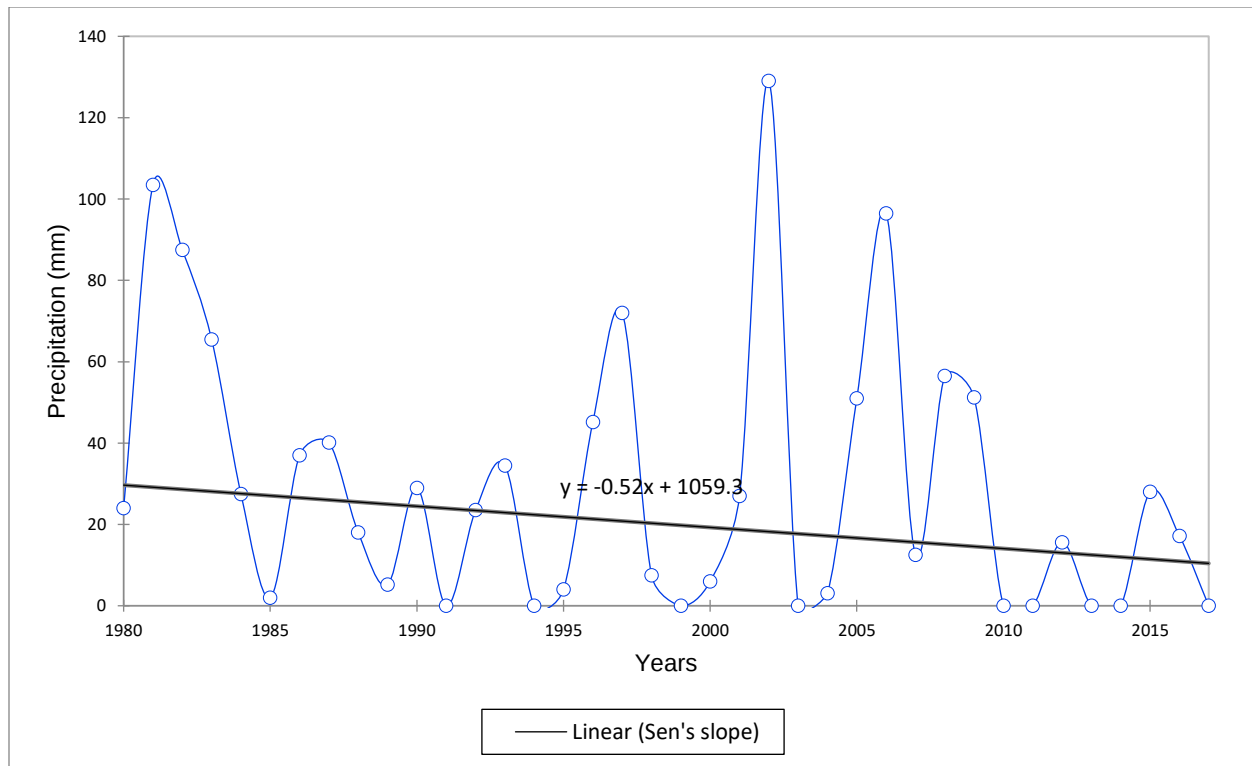


Figure D-168: Winter trend plot for Philippolis-Pol station (1980-2017).

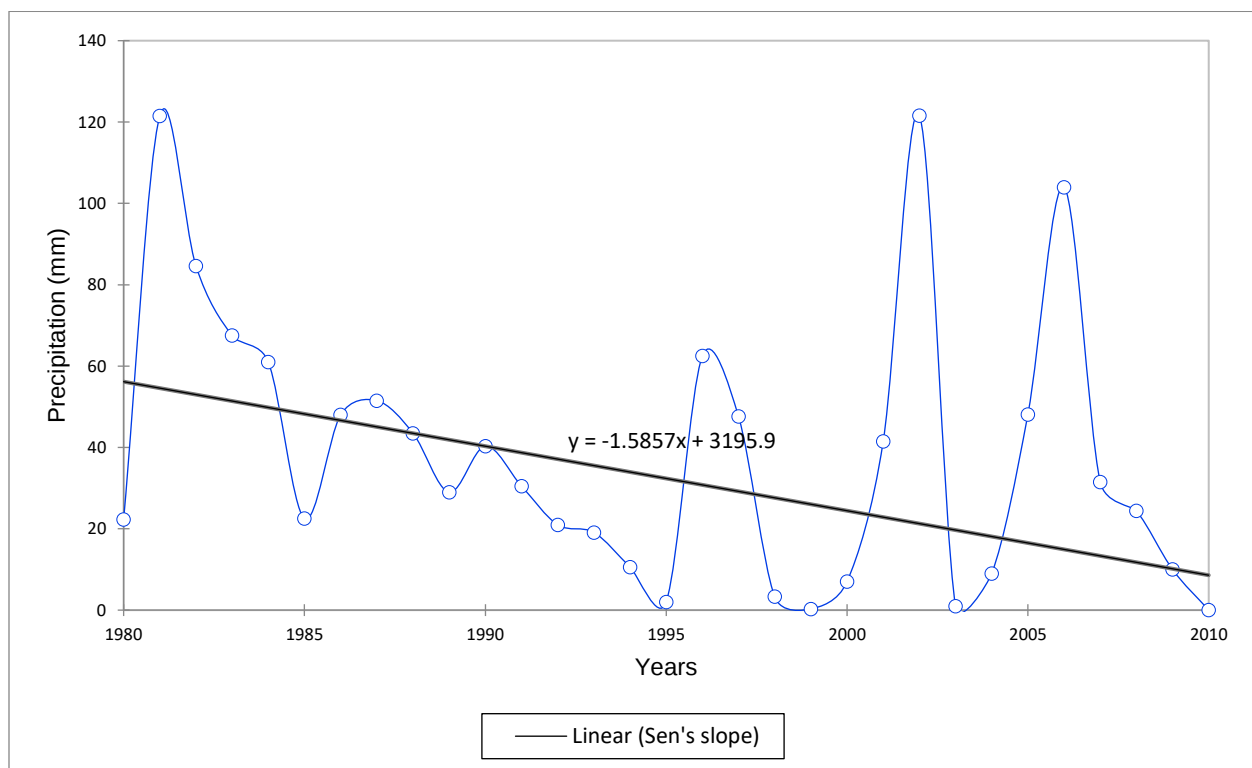


Figure D-169: Winter trend plot for Lillydale station (1980-2010).

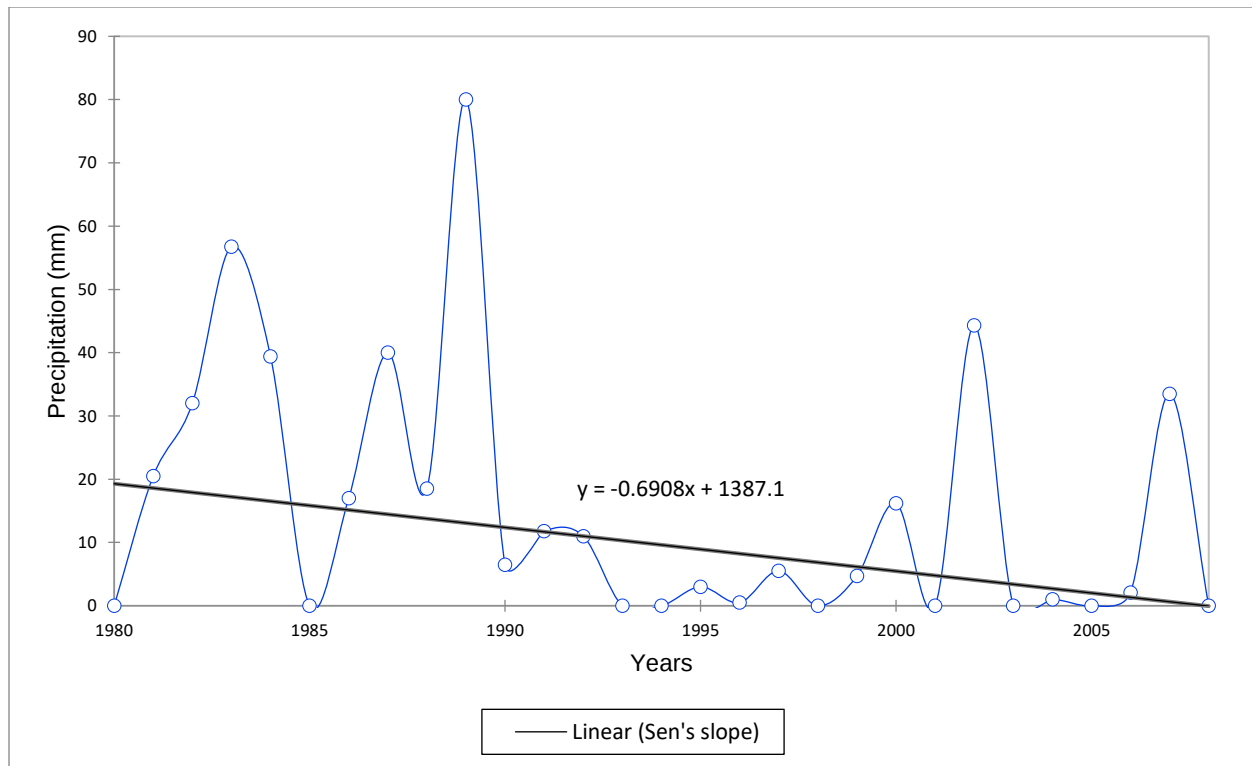


Figure D-170: Winter trend plot for Premier Mine-Cullinan station (1980-2008).

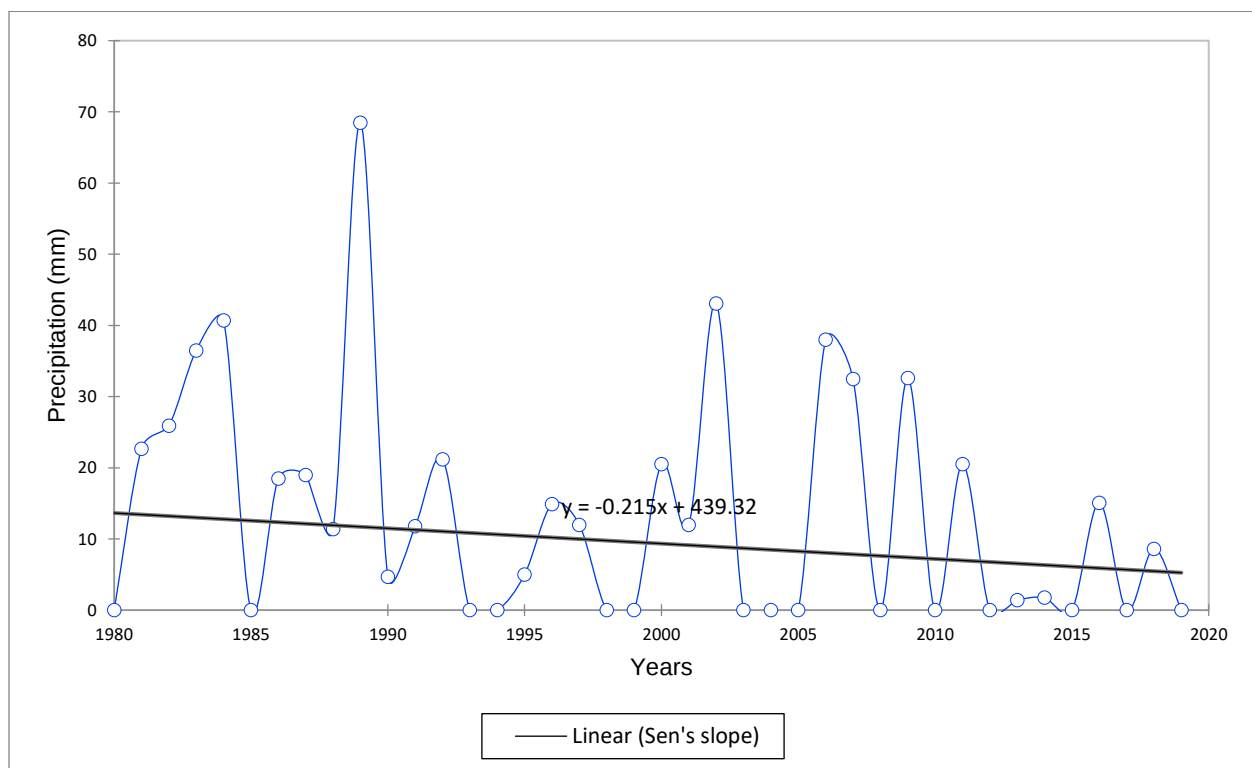


Figure D-171: Winter trend plot for Bronkhorstspuit-Mun station (1980-2019).

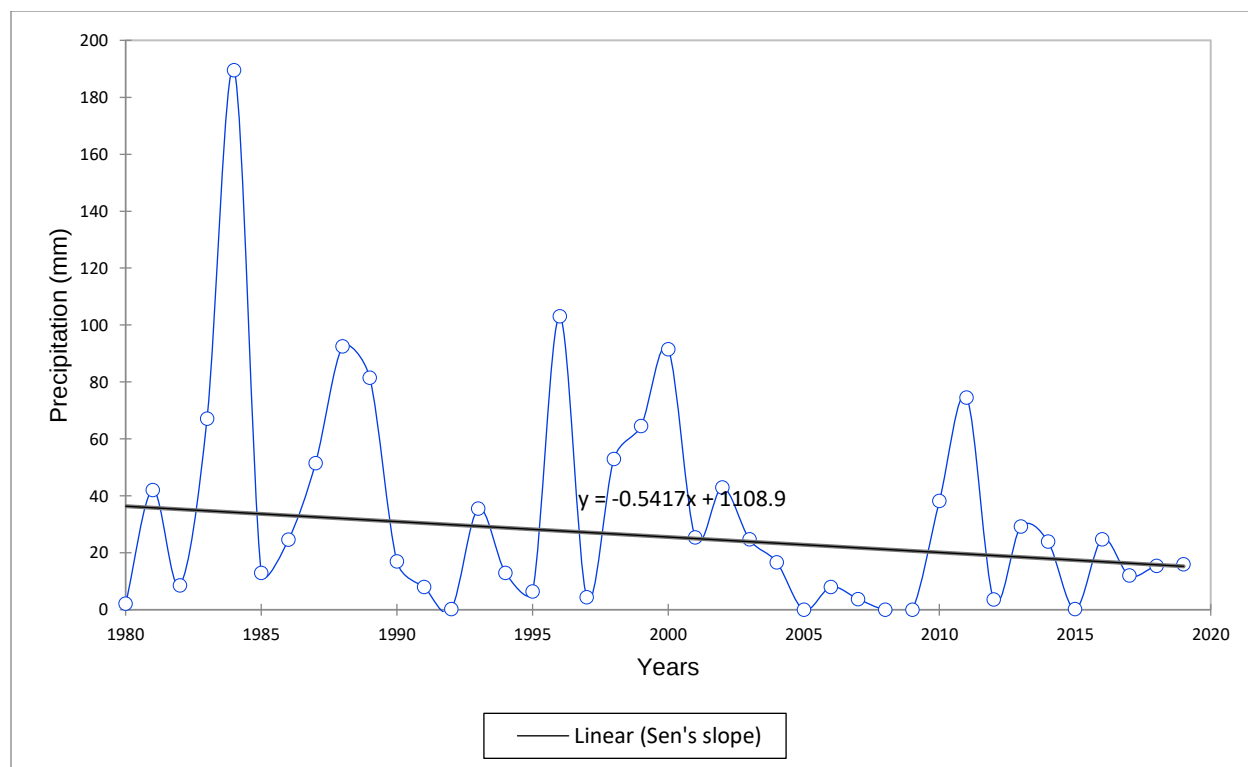


Figure D-172: Winter trend plot for Haenerstburg station (1980-2019).

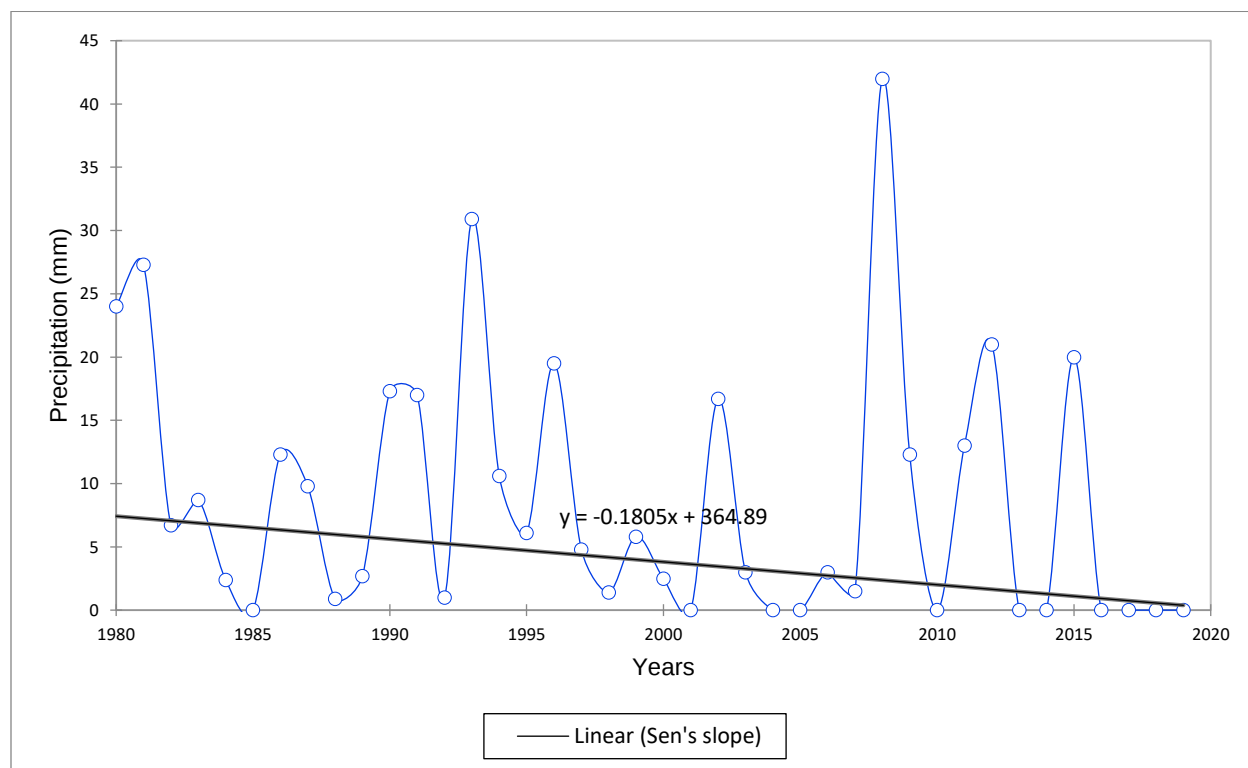


Figure D-173: Winter trend plot for Thornlea station (1980-2019).

Table D26: Spring Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Spring			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.002	-0.688	0.003	-0.688
2	Steytlerville-Mag	-33.33	24.33	419	0.720	0.035	0.722	0.035
3	Alicedale-Mun	-33.32	26.08	276	0.649	0.088	0.605	0.088
4	Grahamstown-Tnk	-33.3	26.53	539	0.558	-0.134	0.560	-0.134
5	Klipfontein	-32.55	24.72	673	0.238	-0.103	0.270	0.103
6	Amatola State Forest	-32.67	27.28	884	0.536	-0.176	0.362	-0.176
7	Winterhoek	-32.22	24.47	876	0.248	-0.144	0.167	-0.144
8	Bloemhof	-32.03	24.67	1,091	0.879	0.018	0.881	0.018
9	Exwell Park	-32.2	27.12	914	0.647	-0.071	0.664	-0.071
10	Kentani-Bos	-32.5	28.32	488	0.942	0.031	0.944	0.031
11	Cwebe Nature Reserve	-32.2	28.93	61	0.491	0.258	0.504	0.258
12	Sterkstroom	-31.55	26.55	1,343	0.996	0.000	0.998	0.000
13	Engcobo Prison	-31.67	28	975	0.311	0.250	0.228	0.250
14	Xhora Prison	-31.97	28.67	671	0.443	0.211	0.445	0.211
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.178	-0.131	0.081	-0.131
16	Ellesmere	-30.67	26.32	1,387	0.582	0.100	0.514	0.100
17	Burgersdorp-Pol	-31	26.33	1,387	0.133	-0.250	0.249	-0.250
18	Petrusville-Pol	-30.08	24.67	1,212	0.151	-0.169	0.216	-0.169
19	Philippolis-Pol	-30.27	25.27	1,372	0.216	-0.179	0.241	-0.179
20	Hopetown-Tnk	-29.62	24.08	1,661	0.712	0.039	0.679	0.039
21	Lillydale	-30	25.95	1,098	0.740	0.062	0.742	0.062
22	Richmond S.A. P	-29.87	30.27	1,509	0.201	0.525	0.202	0.525
23	Durban Botanical Gardens	-29.85	31	91	0.635	-0.190	0.416	-0.190
24	Steinkopf	-29.25	17.73	91	0.302	-0.039	0.290	-0.039
25	Nuwejaarskraal	-29.37	23.12	884	0.054	0.122	0.036	0.122
26	Maselspoort Dam	-29.03	26.42	1,372	0.386	0.150	0.387	0.150
27	Boetsap-Pol	-27.97	24.45	1,189	0.920	-0.020	0.935	-0.020
28	Odendaalsrus	-27.87	26.68	1,341	0.990	0.003	0.992	0.003
29	Bothaville-Mun	-27.55	26.62	1,280	0.169	0.291	0.139	0.291
30	Beerlaagte	-26.82	28.43	1,615	0.902	0.038	0.904	0.038
31	Balfour	-26.65	28.58	1,555	0.874	-0.038	0.876	-0.038
32	De Emigratie	-26.77	30.12	1,676	0.541	-0.172	0.543	-0.172
33	Morokweng	-26.12	23.78	1,126	0.582	0.089	0.584	0.089
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.804	0.040	0.812	0.040
35	Swartruggens-Pol	-25.63	26.68	1,311	0.938	0.013	0.939	0.013
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.019	0.600	0.005	0.600
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.466	-0.159	0.390	-0.159

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
38	Machadodorp	-25.67	30.25	1,609	0.864	0.044	0.770	0.044
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.267	0.238	0.161	0.238
40	Haenertsburg	-23.93	29.93	1,402	0.138	0.358	0.139	0.358
41	Prince Albert-Tnk	-33.22	22.03	686	0.304	-0.065	0.305	-0.065
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.744	0.058	0.585	0.058
43	Tulbagh	-33.28	19.13	155	0.489	-0.066	0.508	-0.066
44	Darling-The Towers	-33.38	18.37	229	0.550	0.065	0.550	0.065
45	Thornlea	-28.63	21.52	884	0.676	0.016	0.751	0.016
46	Klein Australie	-23.05	30.22	702	0.464	-0.224	0.512	-0.224

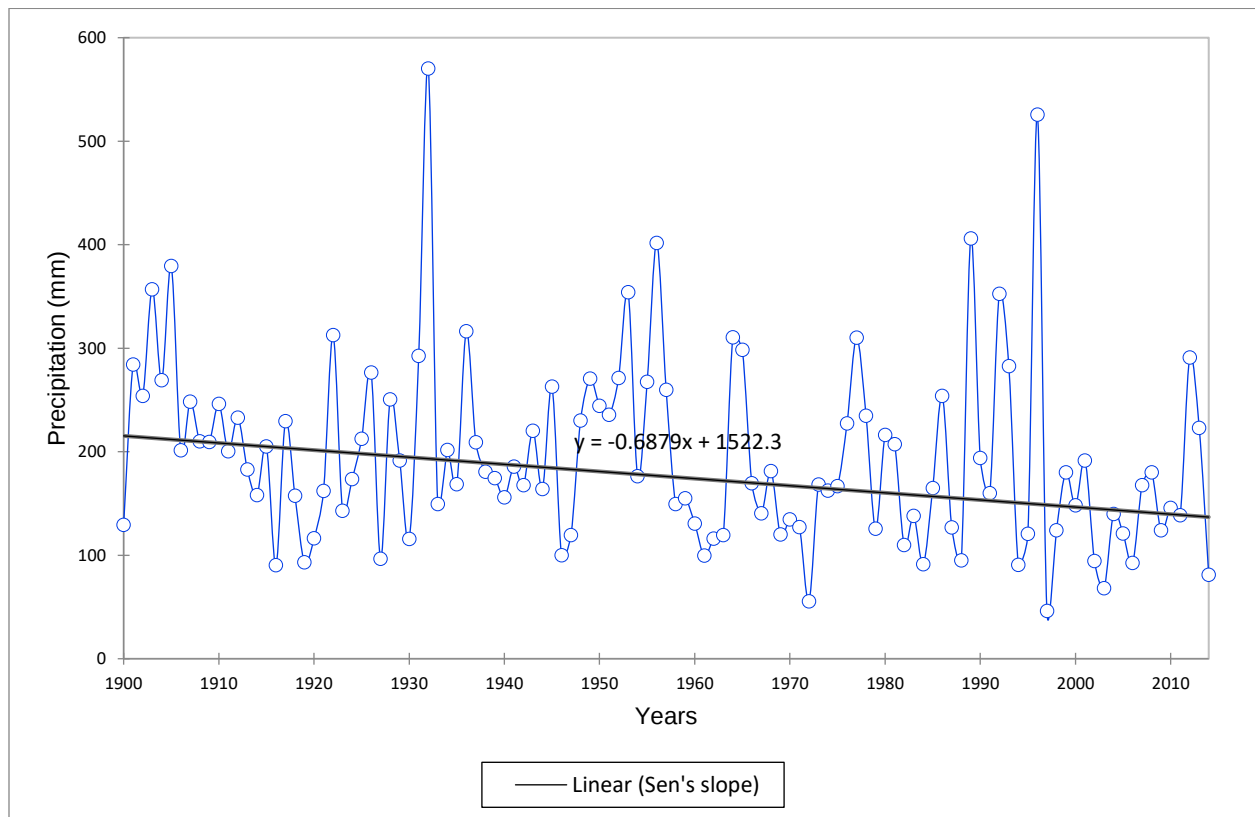


Figure D-174: Spring trend plot for Humansdorp station.

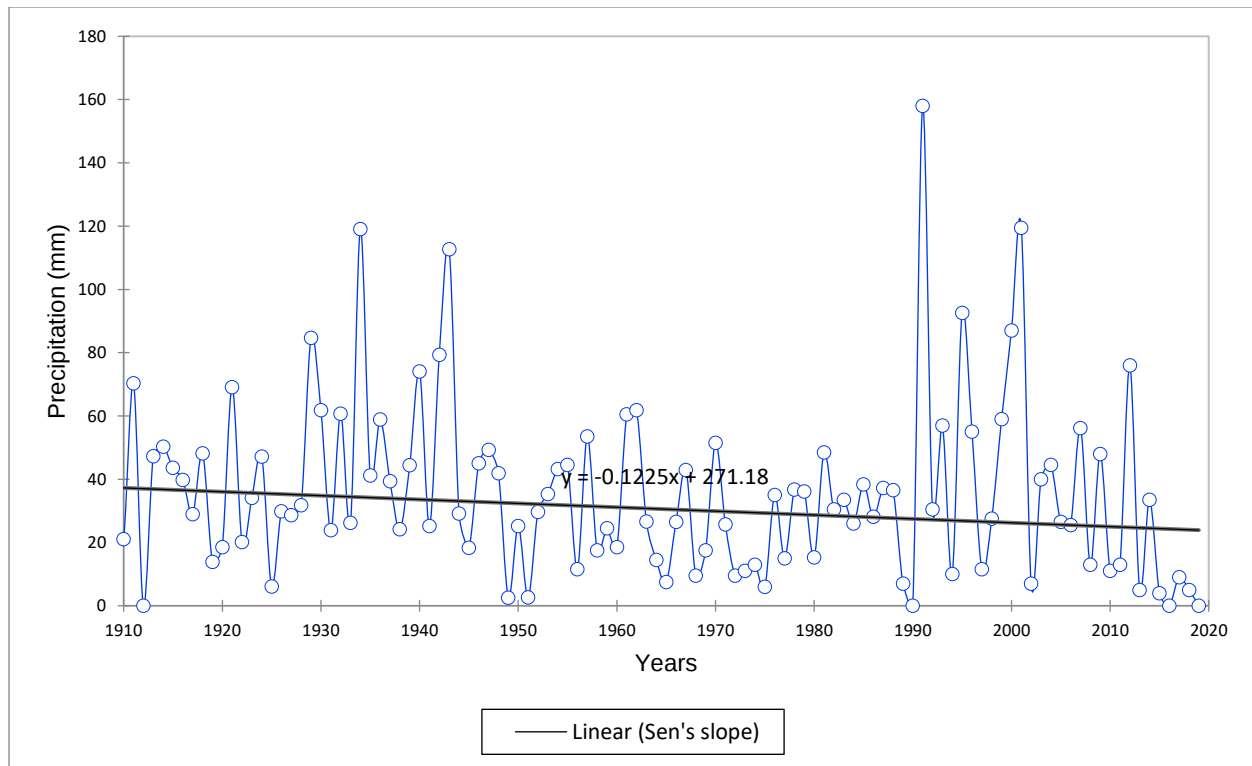


Figure D-175: Spring trend plot for Nuwejaarskraal station.

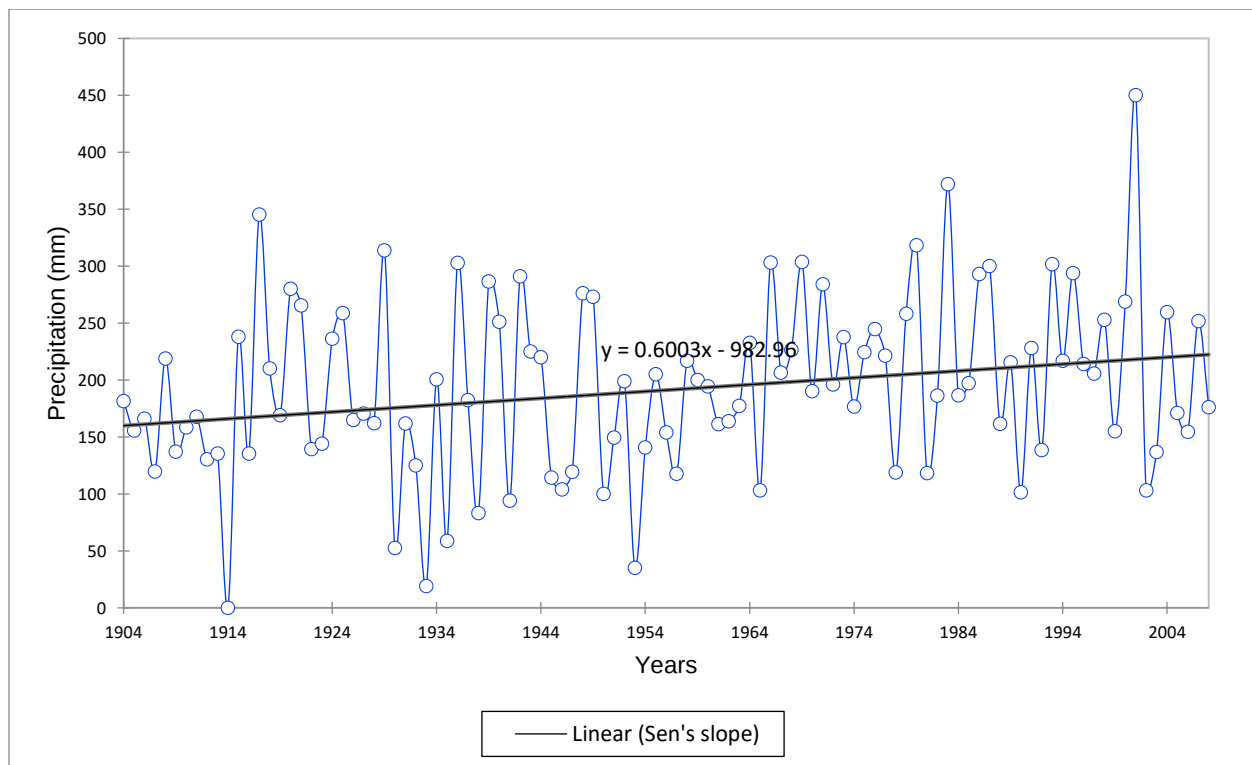


Figure D-176: Spring trend plot for Premier Mine-Cullinan station.

Table D27: Spring Mann-Kendall trend test results (1900-1939).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Spring (1900-1939)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.197	-1.396	0.196	-1.396
2	Steytlerville-Mag	-33.33	24.33	419	0.424	0.403	0.421	0.403
3	Alicedale-Mun	-33.32	26.08	276	0.106	1.170	0.01	1.170
4	Grahamstown-Tnk	-33.3	26.53	539	0.790	0.461	0.683	0.461
5	Klipfontein	-32.55	24.72	673	0.212	-0.632	0.042	-0.632
6	Amatola State Forest	-32.67	27.28	884	0.555	1.177	0.535	1.177
7	Winterhoek	-32.22	24.47	876	0.954	-0.064	0.954	-0.064
8	Bloemhof	-32.03	24.67	1,091	0.160	0.829	0.121	0.829
9	Exwell Park	-32.2	27.12	914	0.041	1.738	0.001	1.738
10	Kentani-Bos	-32.5	28.32	488	0.028	3.892	0.028	3.892
11	Cwebe Nature Reserve	-32.2	28.93	61	0.471	-1.643	0.468	-1.643
12	Sterkstroom	-31.55	26.55	1,343	0.789	-0.181	0.637	-0.181
13	Engcobo Prison	-31.67	28.0	975	0.046	3.632	0.027	3.632
14	Xhora Prison	-31.97	28.67	671	0.808	0.333	0.785	0.333
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.602	0.304	0.350	0.304
16	Ellesmere	-30.67	26.32	1,387	0.206	0.900	0.204	0.900
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.480	0.616	0.357	0.616
18	Petrusville-Pol	-30.08	24.67	1,212	0.438	0.750	0.222	0.750
19	Philippolis-Pol	-30.27	25.27	1,372	0.978	0.036	0.955	0.036
20	Hopetown-Tnk	-29.62	24.08	1,661	0.155	1.267	0.093	1.267
21	Lillydale	-30.0	25.95	1,098	0.110	1.626	0.01	1.626
22	Richmond S.A. P	-29.87	30.27	1,509	0.290	-4.071	0.193	-4.071
23	Durban Botanical Gardens	-29.85	31.0	91	0.204	-2.163	0.208	-2.163
24	Steinkopf	-29.25	17.73	91	0.007	-0.535	0.031	-0.535
25	Nuwejaarskraal	-29.37	23.12	884	0.333	0.400	0.339	0.400
26	Maselspoort Dam	-29.03	26.42	1,372	0.910	0.066	0.910	0.066
27	Boetsap-Pol	-27.97	24.45	1,189	0.237	1.800	0.000	1.800
28	Odendaalsrus	-27.87	26.68	1,341	0.860	0.219	0.859	0.219
29	Bothaville-Mun	-27.55	26.62	1,280	0.930	0.090	0.900	0.090
30	Beerlaagte	-26.82	28.43	1,615	0.715	-0.358	0.755	-0.358
31	Balfour	-26.65	28.58	1,555	0.525	-0.742	0.581	-0.742
32	De Emigratie	-26.77	30.12	1,676	0.075	-3.574	0.023	-3.574
33	Morokweng	-26.12	23.78	1,126	0.809	-0.117	0.723	-0.117
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.989	0.044	0.989	0.044

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
35	Swartruggens-Pol	-25.63	26.68	1,311	0.977	0.083	0.966	0.083
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.713	0.349	0.723	0.349
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.524	-1.208	0.394	-1.208
38	Machadodorp	-25.67	30.25	1,609	0.861	-0.227	0.852	-0.227
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.715	0.484	0.677	0.484
40	Haenertsburg	-23.93	29.93	1,402	0.525	1.449	0.206	1.449
41	Prince Albert-Tnk	-33.22	22.03	686	0.537	-0.200	0.493	-0.200
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.197	-1.136	0.196	-1.136
43	Tulbagh	-33.28	19.13	155	0.083	-0.939	0.083	-0.939
44	Darling-The Towers	-33.38	18.37	229	0.509	-0.357	0.507	-0.357
45	Thornlea	-28.63	21.52	884	0.004	0.841	0.004	0.841
46	Klein Australie	-23.05	30.22	702	0.139	3.302	0.138	3.302

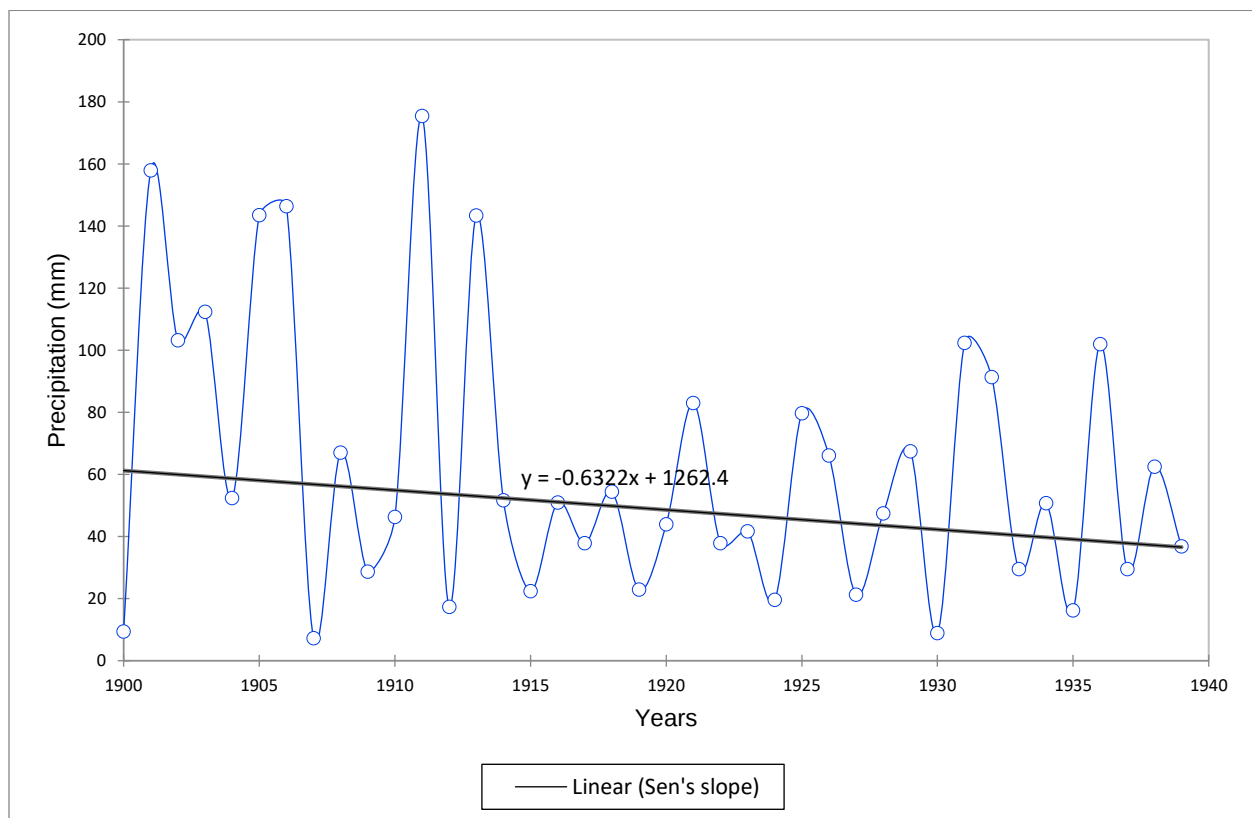


Figure D-177: Spring trend plot for Klipfontein station (1900-1939).

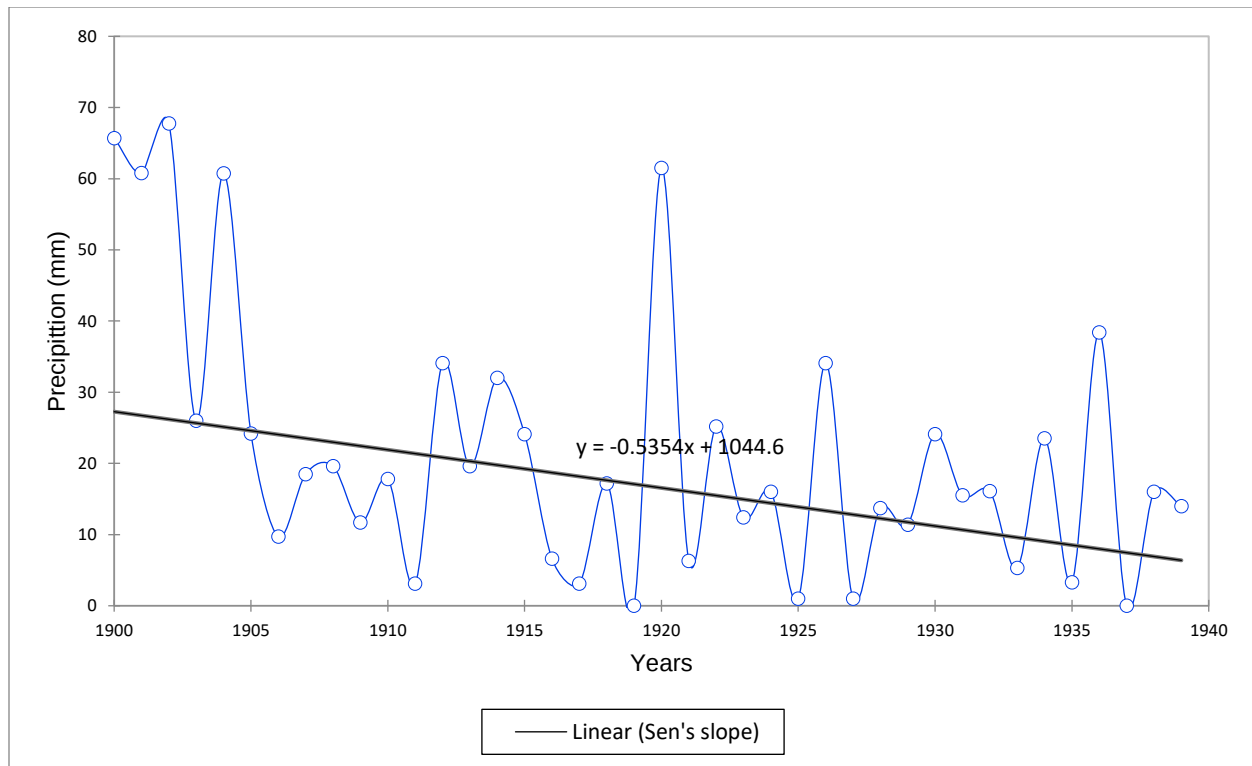


Figure D-178: Spring trend plot for Steinkopf station (1900-1939).

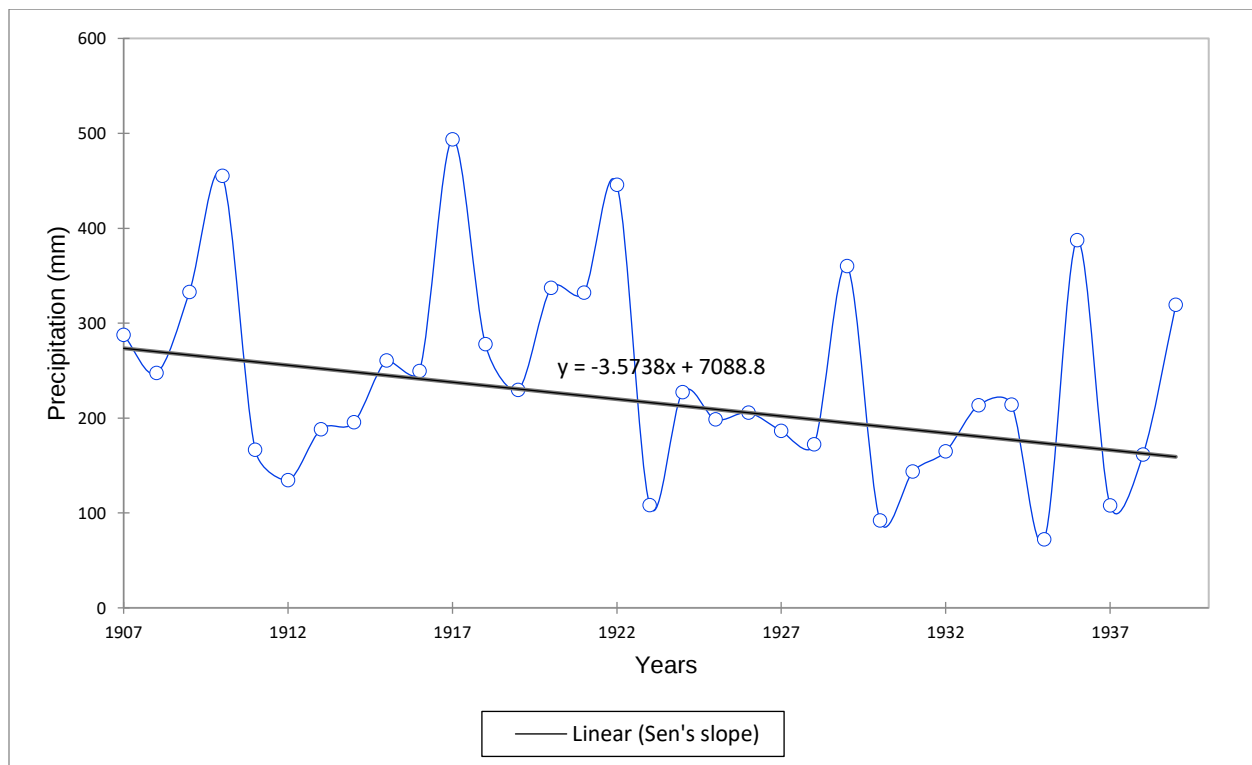


Figure D-179: Spring trend plot for De Emigratie station (1900-1939).

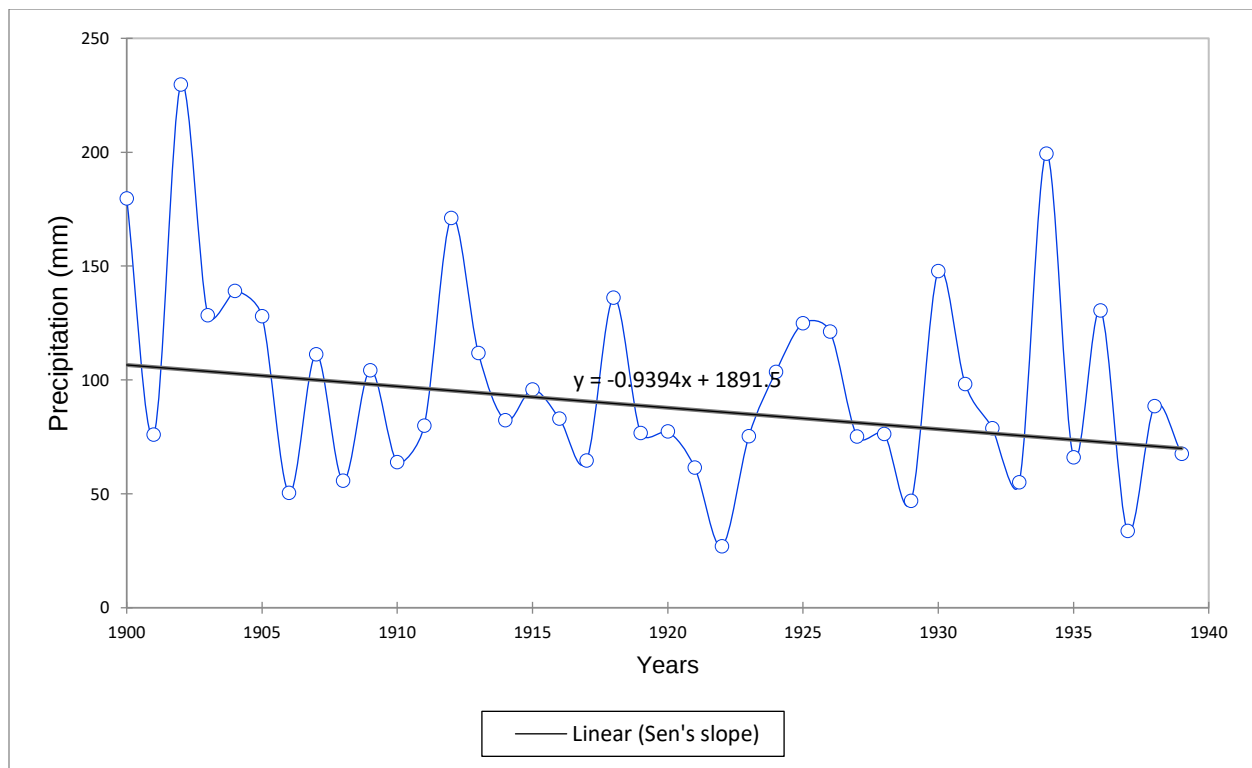


Figure D-180: Spring trend plot for Tulbagh station (1900-1939).

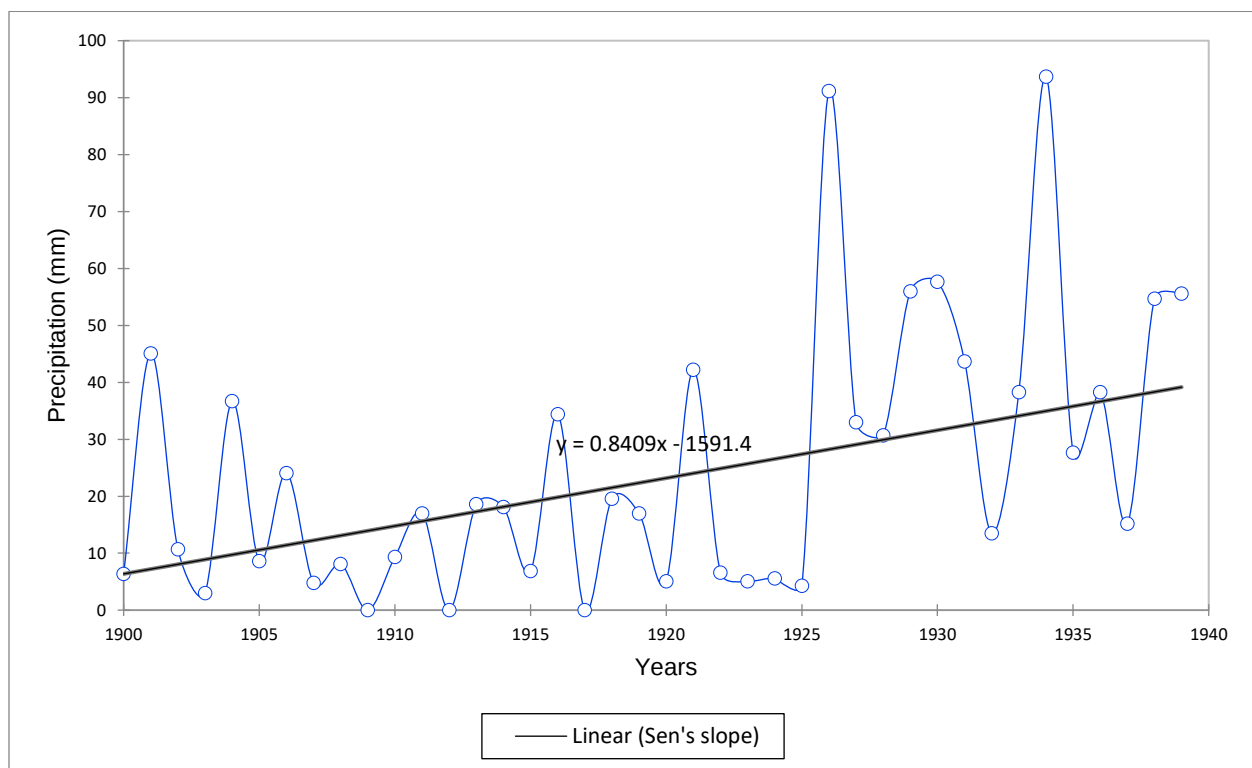


Figure D-181: Spring trend plot for Thornlea station (1900-1939).

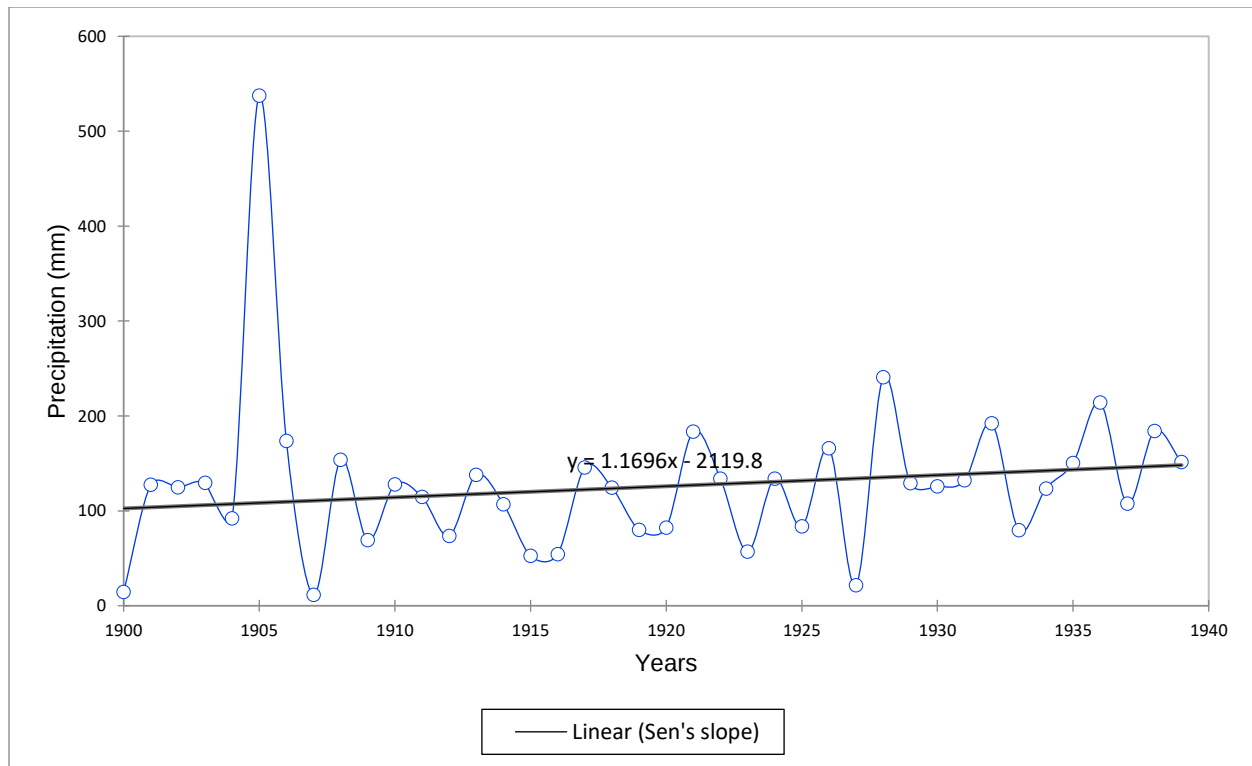


Figure D-182: Spring trend plot for Alicedale-Mun station (1900-1939).

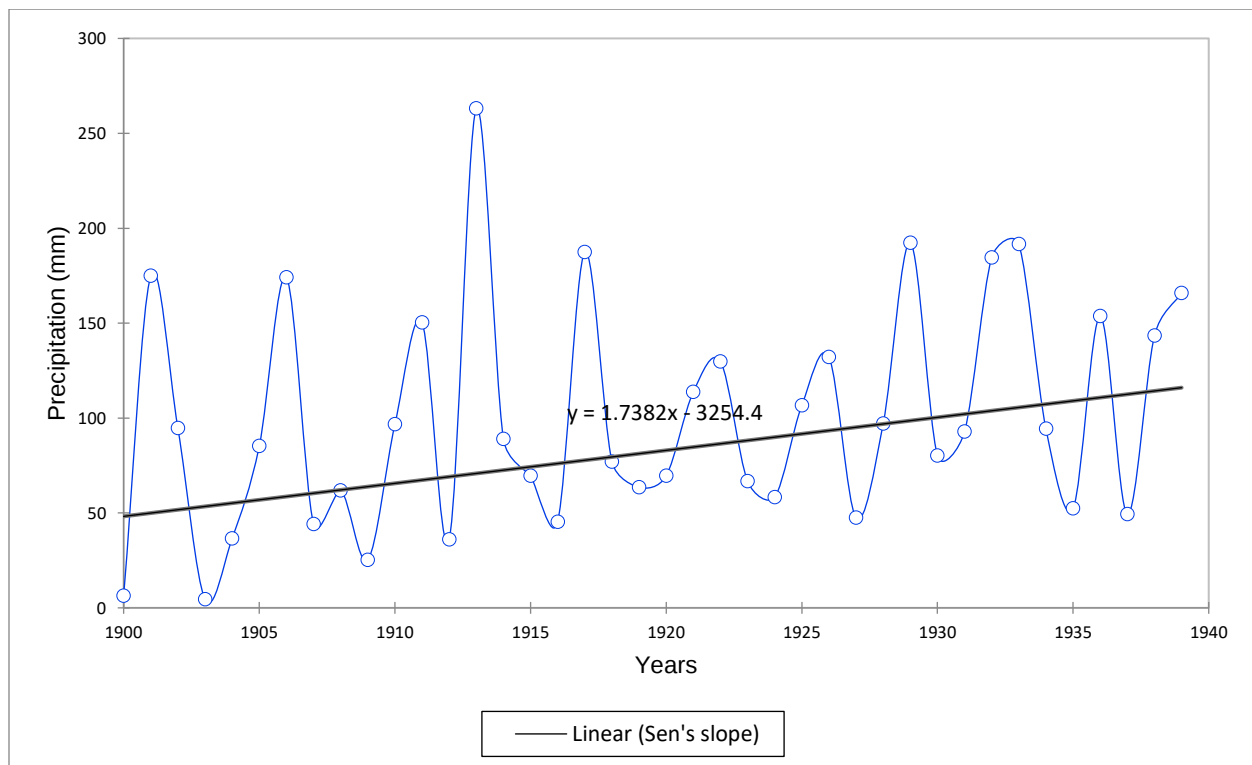


Figure D-183: Spring trend plot for Exwell Park (1900-1939).

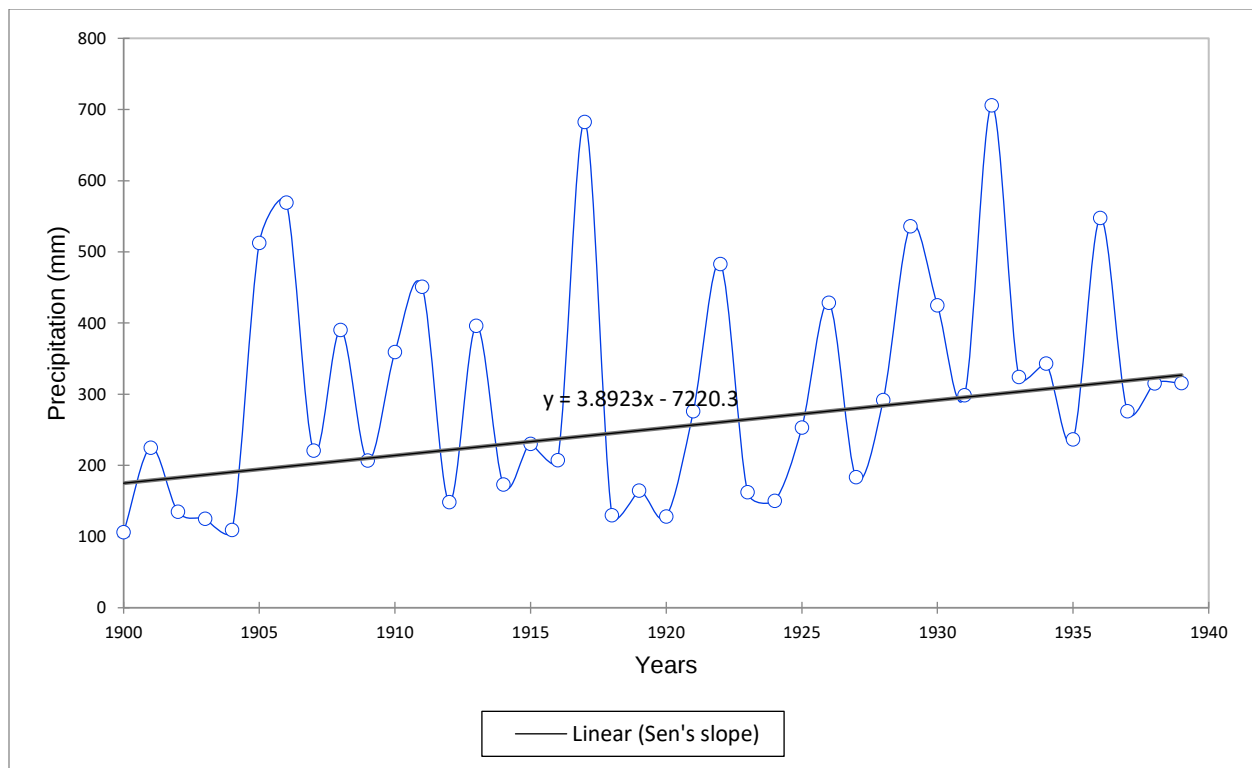


Figure D-184: Spring trend plot for Kentani-Bos station (1900-1939).

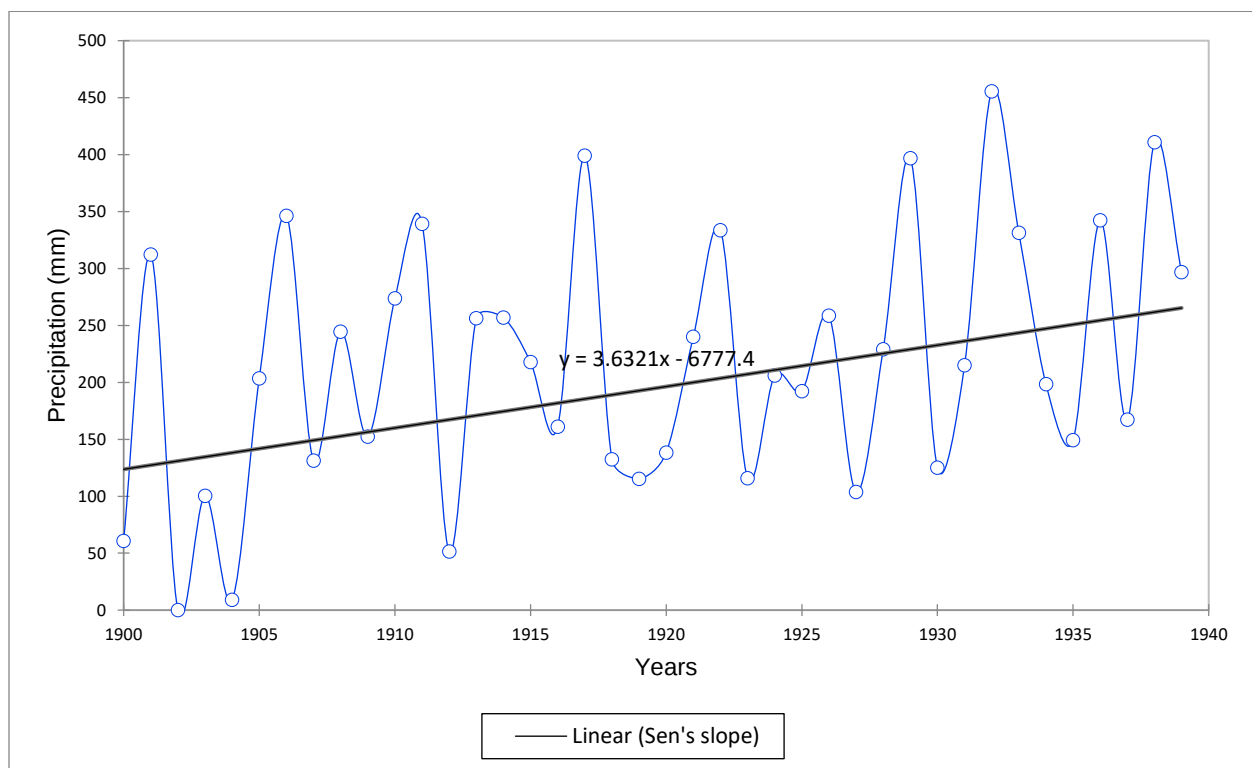


Figure D-185: Spring trend plot for Engcobo Prison (1900-1939).

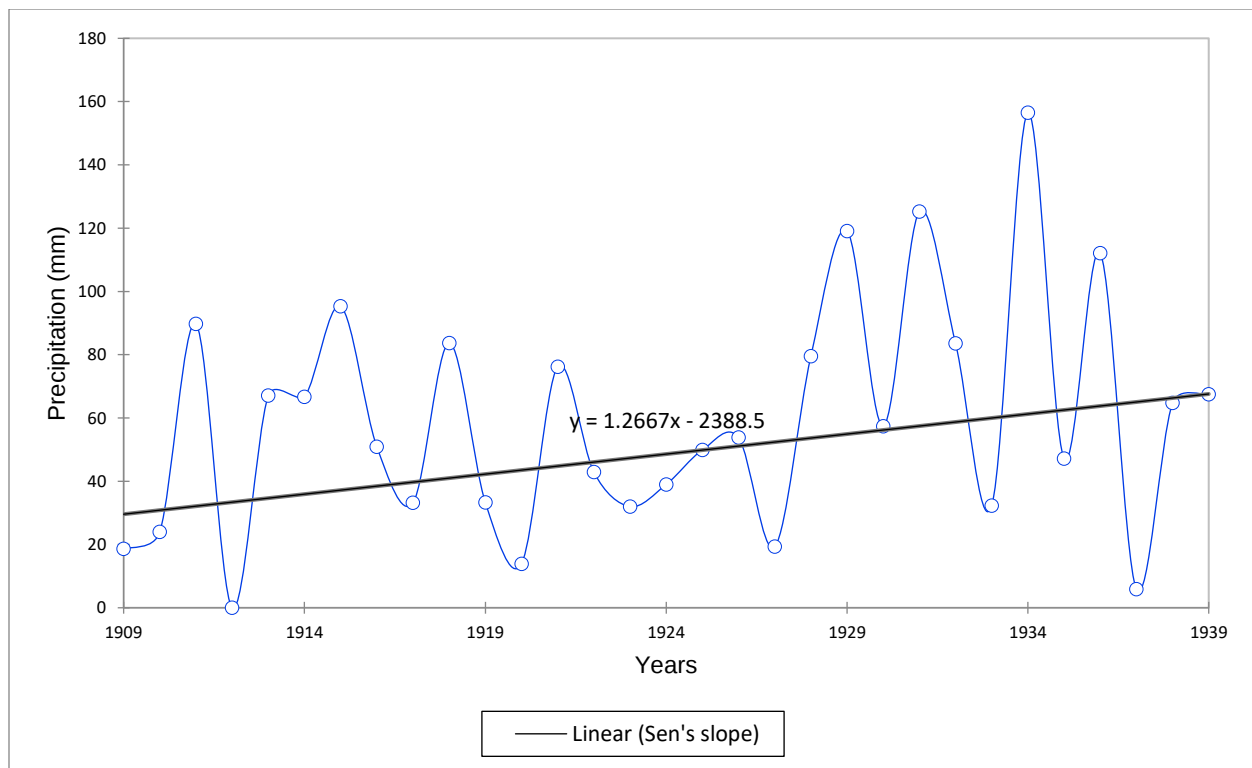


Figure D-186: Spring trend plot for Hopetown-TNK station (1909-1939).

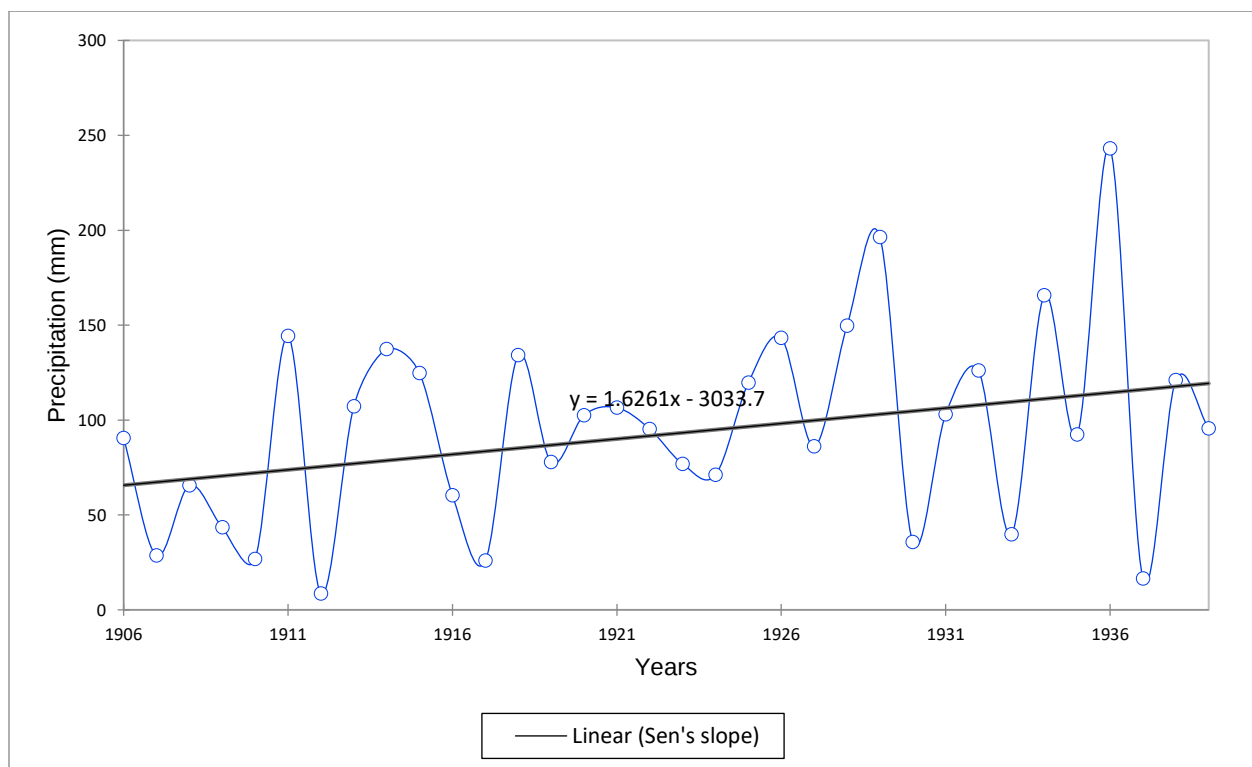


Figure D-187: Spring trend plot for Lillydale station (1906-1939).

Table D28: Spring Mann-Kendall trend test results (1940-1979).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Spring (1940-1979)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.424	-0.758	0.546	-0.758
2	Steytlerville-Mag	-33.33	24.33	419	0.899	-0.095	0.895	-0.095
3	Alicedale-Mun	-33.32	26.08	276	0.459	0.292	0.332	0.292
4	Grahamstown-Tnk	-33.3	26.53	539	0.522	0.896	0.529	0.896
5	Klipfontein	-32.55	24.72	673	0.180	-0.673	1.000	-0.673
6	Amatola State Forest	-32.67	27.28	884	0.552	-0.768	0.560	-0.768
7	Winterhoek	-32.22	24.47	876	0.395	-0.518	0.527	-0.518
8	Bloemhof	-32.03	24.67	1,091	0.127	-0.840	0.130	-0.840
9	Exwell Park	-32.2	27.12	914	0.197	-0.885	0.111	-0.885
10	Kentani-Bos	-32.5	28.32	488	0.197	-1.746	0.196	-1.746
11	Cwebe Nature Reserve	-32.2	28.93	61	0.270	1.516	0.268	1.516
12	Sterkstroom	-31.55	26.55	1,343	0.116	-1.096	0.039	-1.096
13	Engcobo Prison	-31.67	28.0	975	0.635	-0.489	0.453	-0.489
14	Xhora Prison	-31.97	28.67	671	0.281	-1.396	0.279	-1.396
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.701	-0.174	0.709	-0.174
16	Ellesmere	-30.67	26.32	1,387	0.524	-0.440	0.522	-0.440
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.972	0.040	0.976	0.040
18	Petrusville-Pol	-30.08	24.67	1,212	0.852	-0.118	0.861	-0.118
19	Philippolis-Pol	-30.27	25.27	1,372	0.898	0.065	0.894	0.065
20	Hopetown-Tnk	-29.62	24.08	1,661	0.184	0.479	0.188	0.479
21	Lillydale	-30.0	25.95	1,098	0.880	0.143	0.861	0.143
22	Richmond S.A. P	-29.87	30.27	1,509	0.991	0.021	0.989	0.021
23	Durban Botanical Gardens	-29.85	31.0	91	0.372	-0.980	0.370	-0.980
24	Steinkopf	-29.25	17.73	91	0.006	-0.610	0.001	-0.610
25	Nuwejaarskraal	-29.37	23.12	884	0.049	-0.574	0.05	-0.574
26	Maselspoort Dam	-29.03	26.42	1,372	0.619	-0.314	0.348	-0.314
27	Boetsap-Pol	-27.97	24.45	1,189	0.652	-0.240	0.572	-0.240
28	Odendaalsrus	-27.87	26.68	1,341	0.232	1.043	0.230	1.043
29	Bothaville-Mun	-27.55	26.62	1,280	0.167	1.249	0.204	1.249
30	Beerlaagte	-26.82	28.43	1,615	0.230	1.364	0.165	1.364
31	Balfour	-26.65	28.58	1,555	0.010	3.032	0.002	3.032
32	De Emigratie	-26.77	30.12	1,676	0.064	1.371	0.066	1.371
33	Morokweng	-26.12	23.78	1,126	0.880	-0.099	0.880	-0.099
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.619	0.365	0.616	0.365

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
35	Swartruggens-Pol	-25.63	26.68	1,311	0.385	0.766	0.382	0.766
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.101	1.832	0.100	1.832
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.107	1.403	0.107	1.403
38	Machadodorp	-25.67	30.25	1,609	0.119	1.479	0.122	1.479
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.360	0.716	0.357	0.716
40	Haenertsburg	-23.93	29.93	1,402	0.001	3.195	0.001	3.195
41	Prince Albert-Tnk	-33.22	22.03	686	0.073	-0.500	0.075	-0.500
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.972	-0.029	0.968	-0.029
43	Tulbagh	-33.28	19.13	155	0.134	-1.043	0.031	-1.043
44	Darling-The Towers	-33.38	18.37	229	0.196	-0.736	0.200	-0.736
45	Thornlea	-28.63	21.52	884	0.499	0.307	0.100	0.307
46	Klein Australie	-23.05	30.22	702	0.539	-0.730	0.537	-0.730

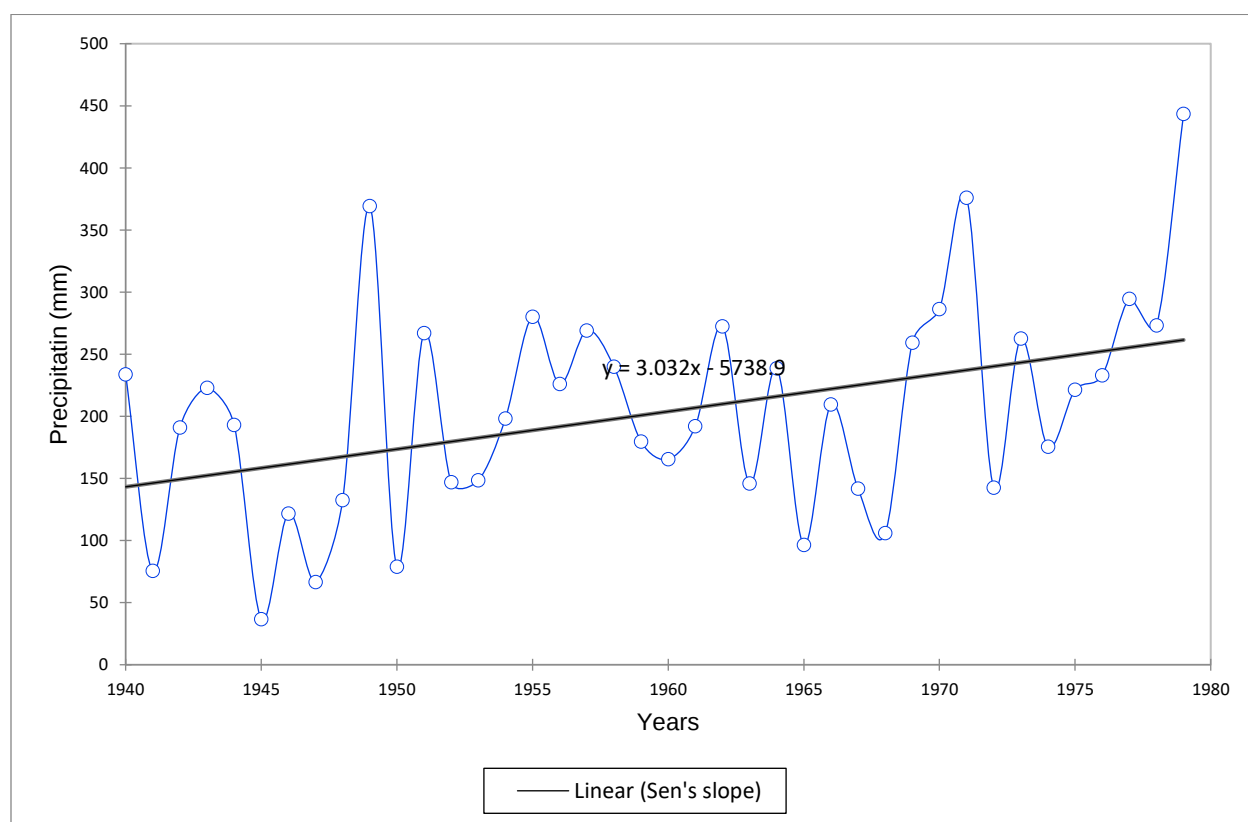


Figure D-188: Spring trend plot for Balfour station (1940-1979).

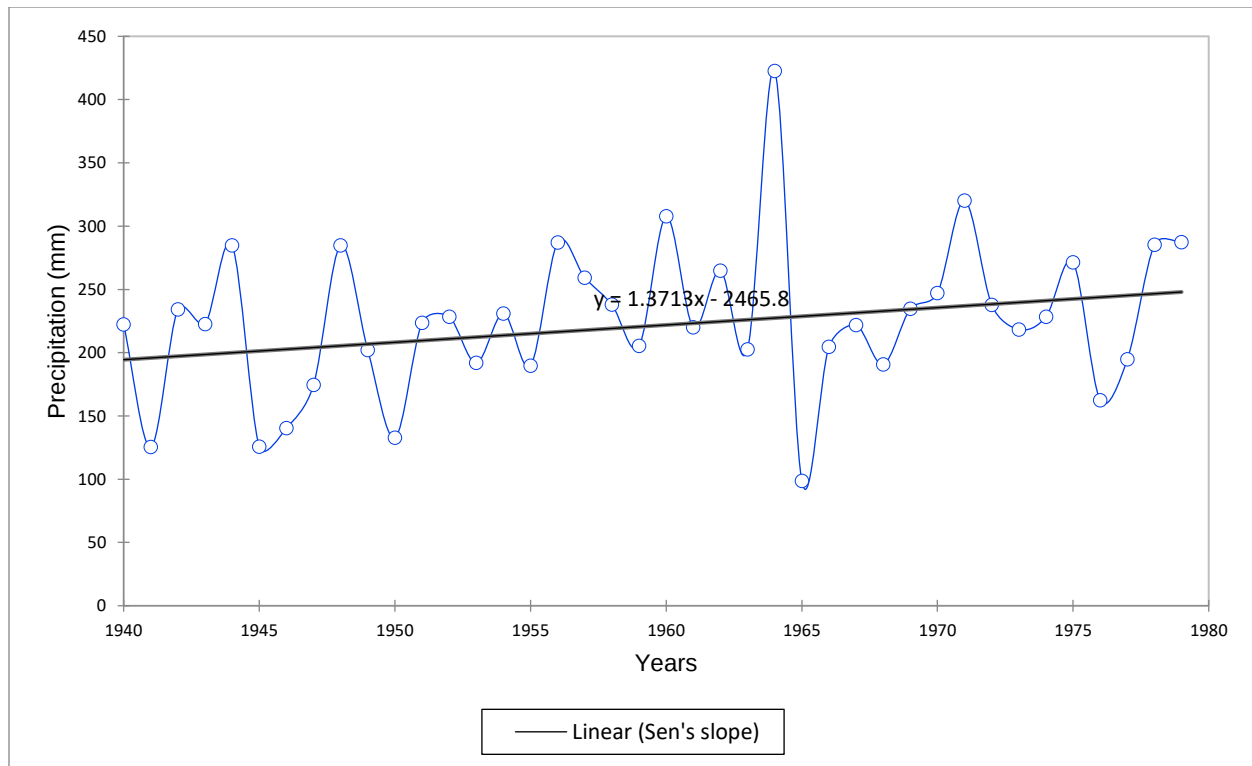


Figure D-189: Spring trend plot for De Emigratie station (1940-1979).

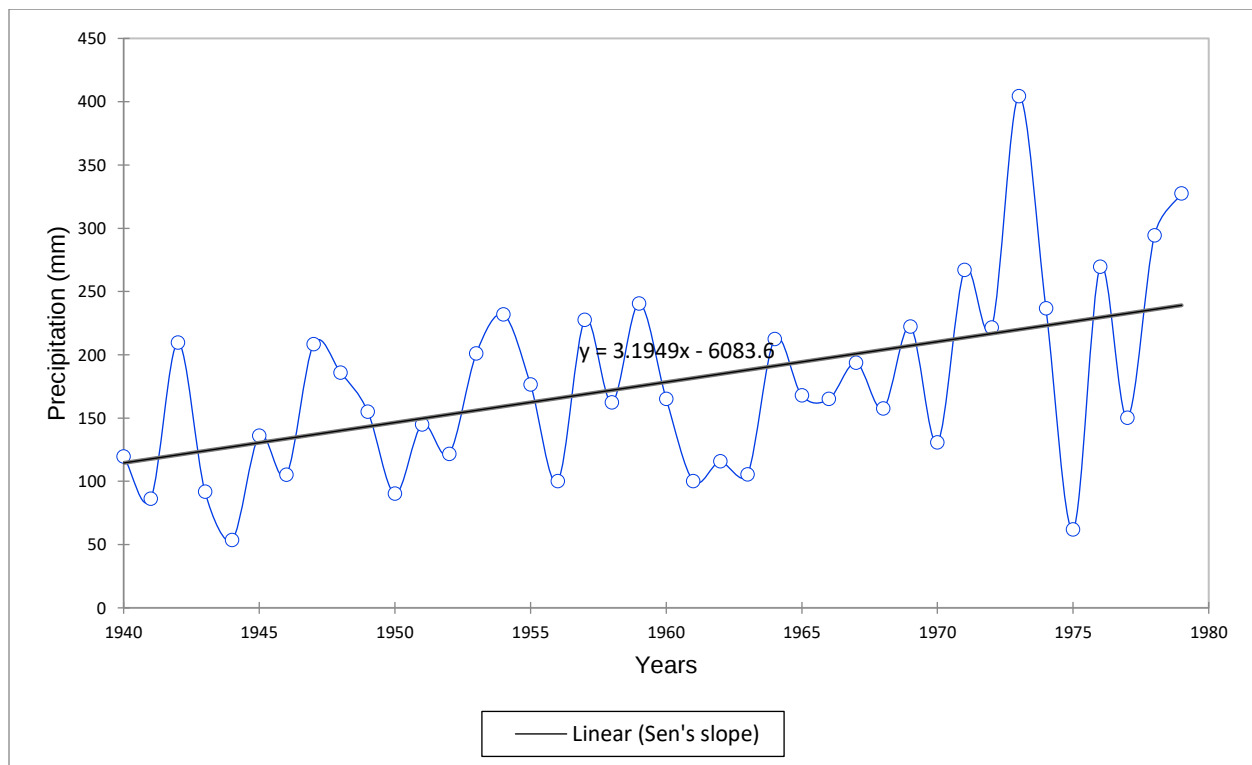


Figure D-190: Spring trend plot Haenerstsburg station (1940-1979).

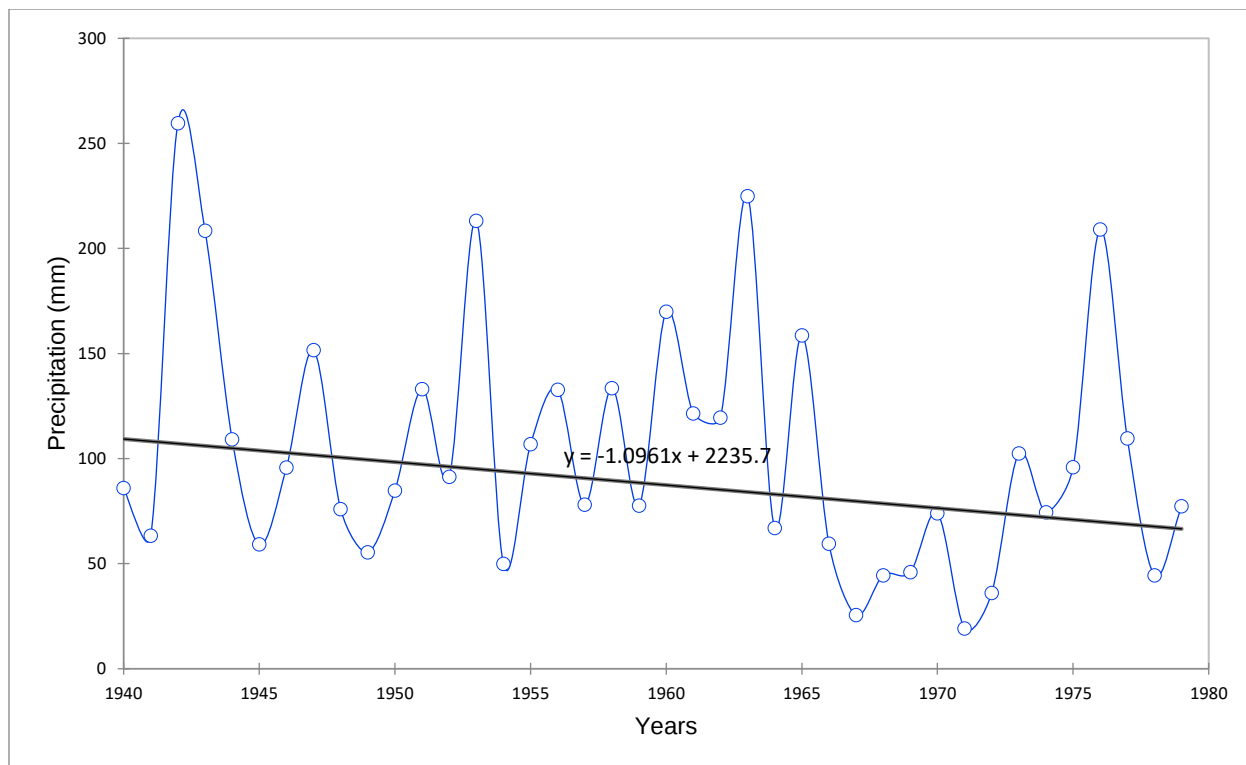


Figure D-191: Spring trend plot for Sterkstroom station (1940-1979).

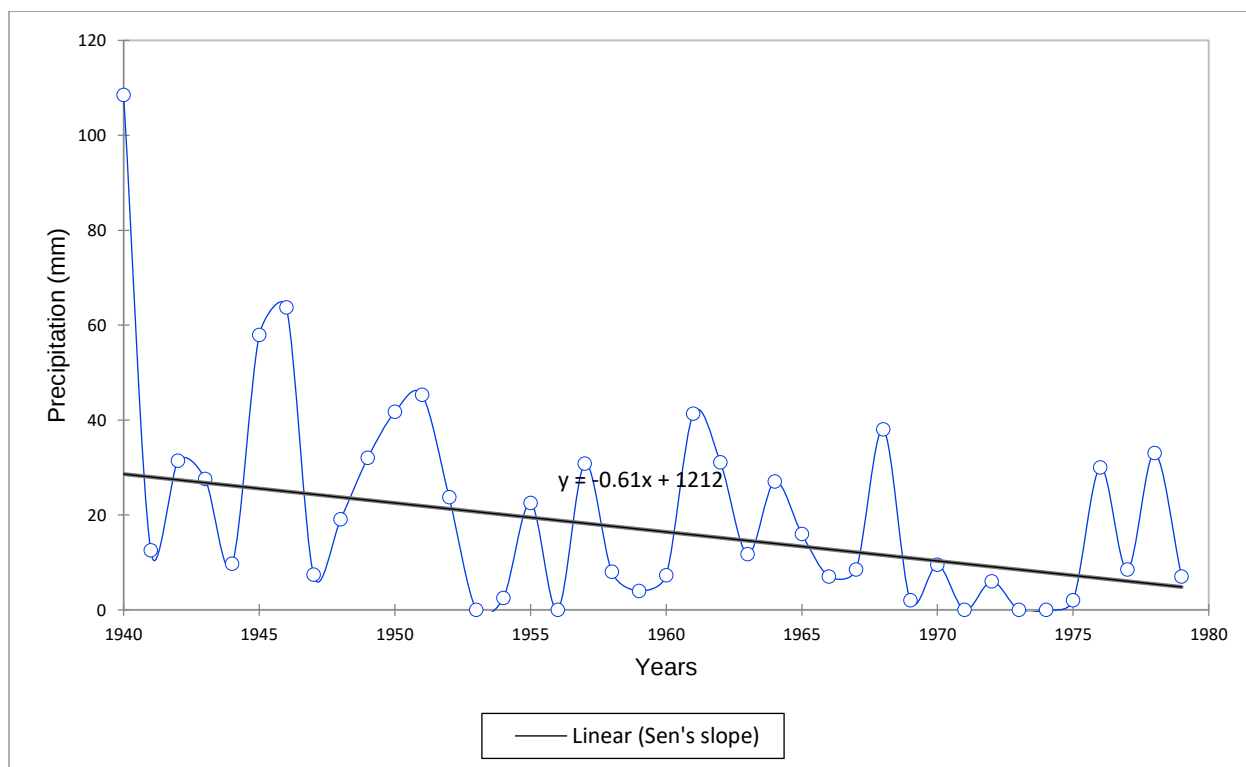


Figure D-192: Spring trend plot for Steinkopf (1940-1979).

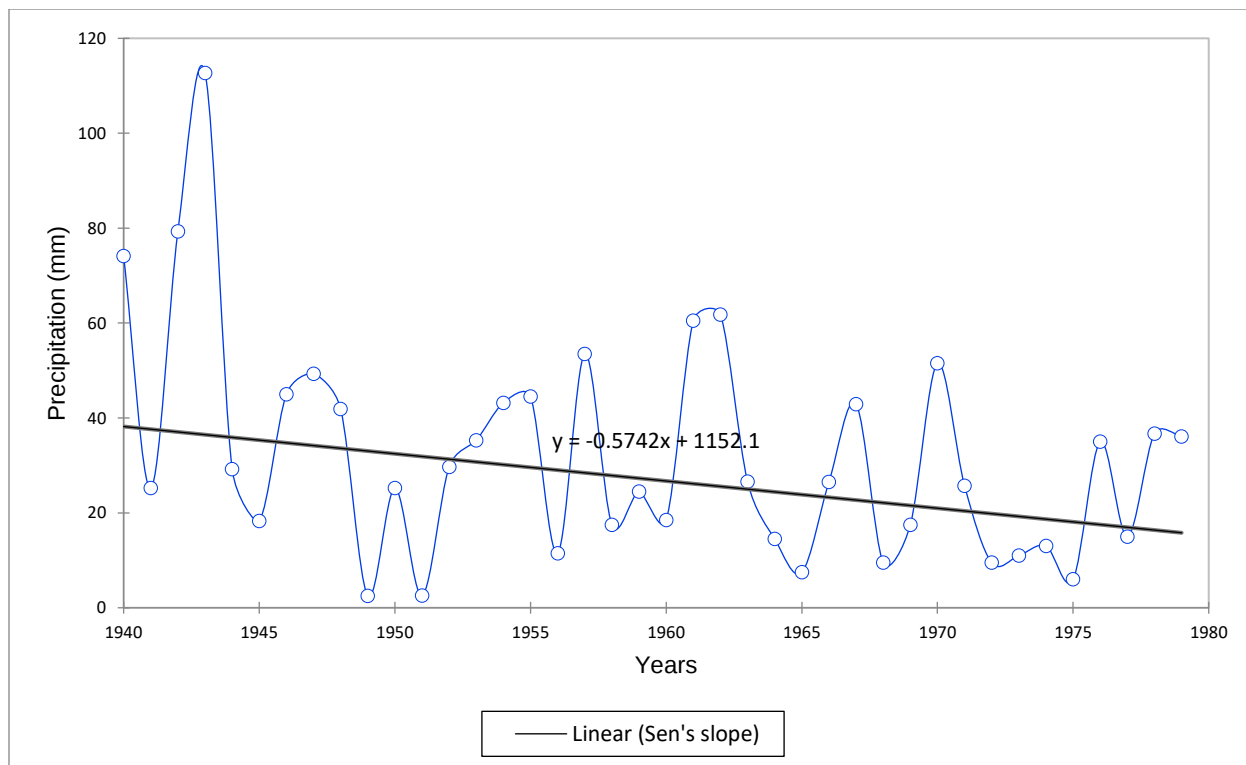


Figure D-193: Spring trend plot for Nuwejaarskraal station (1940-1979).

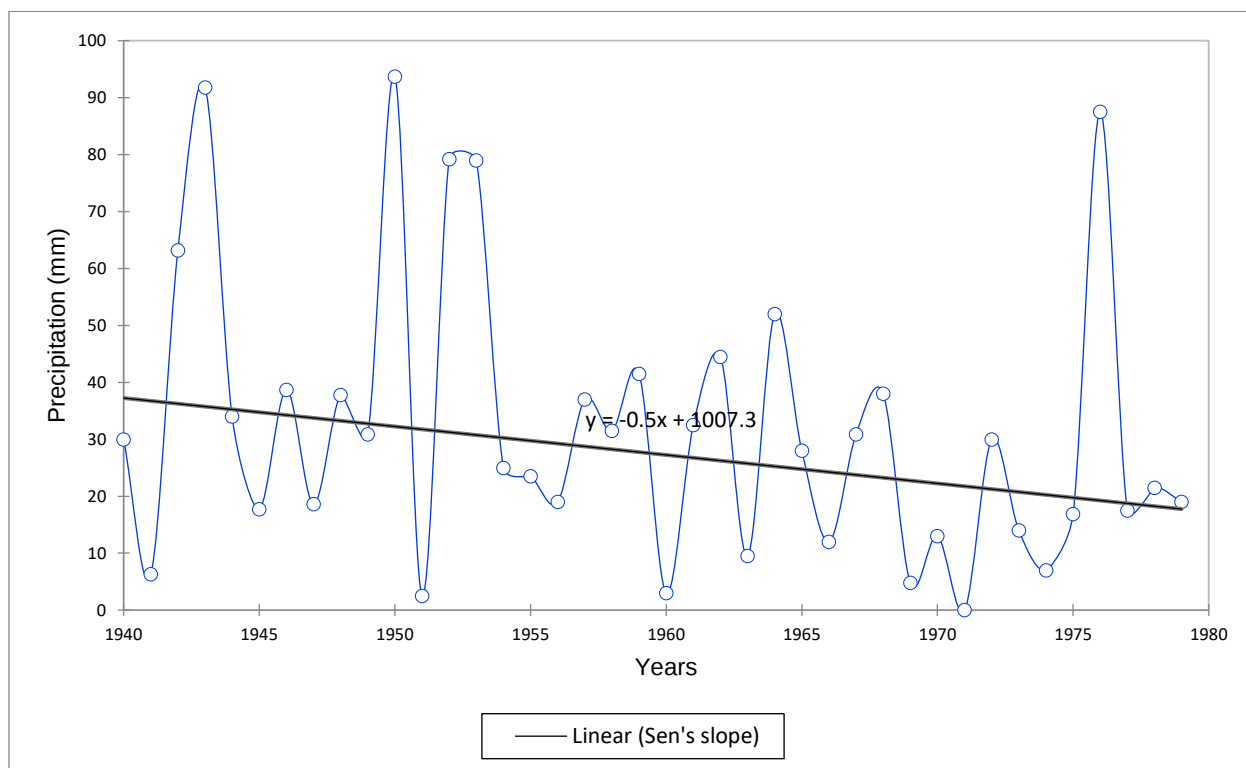


Figure D-194: Spring trend plot for Prince Albert-TNK (1940-1979).

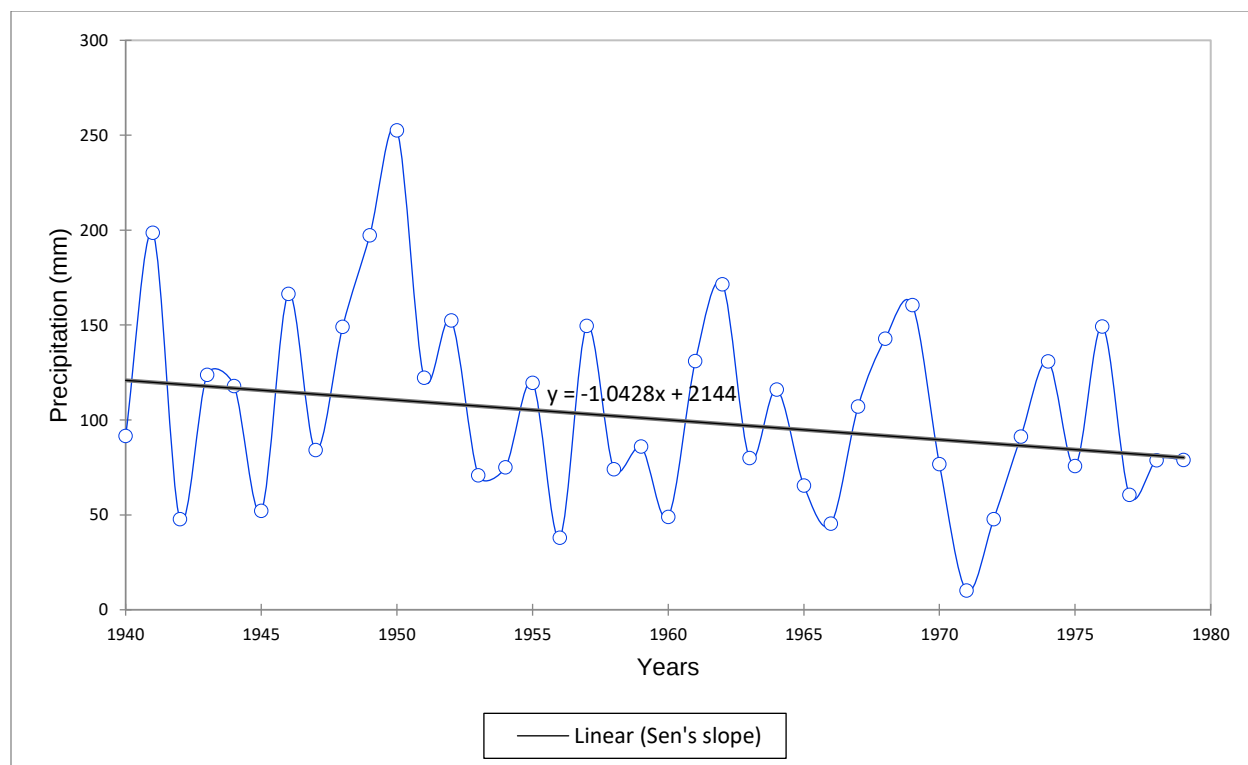


Figure D-195: Spring trend plot for Tulbagh station (1940-1979).

Table D29: Spring Mann-Kendall trend results (1980-2019).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Spring (1980-2019)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.504	-0.785	0.504	-0.785
2	Steytlerville-Mag	-33.33	24.33	419	0.270	-0.506	0.268	-0.506
3	Alicedale-Mun	-33.32	26.08	276	0.459	0.292	0.332	0.292
4	Grahamstown-Tnk	-33.3	26.53	539	0.067	-2.692	0.069	-2.692
5	Klipfontein	-32.55	24.72	673	0.212	-0.618	0.011	-0.618
6	Amatola State Forest	-32.67	27.28	884	0.111	-2.513	0.110	-2.513
7	Winterhoek	-32.22	24.47	876	0.019	-1.451	0.019	-1.451
8	Bloemhof	-32.03	24.67	1,091	0.067	-0.912	0.069	-0.912
9	Exwell Park	-32.2	27.12	914	0.004	-2.303	0.004	-2.303
10	Kentani-Bos	-32.5	28.32	488	0.395	-1.729	0.402	-1.729
11	Cwebe Nature Reserve	-32.2	28.93	61	0.360	-1.893	0.357	-1.893
12	Sterkstroom	-31.55	26.55	1,343	0.005	-2.619	0.000	-2.619
13	Engcobo Prison	-31.67	28.0	975	0.385	-1.251	0.382	-1.251
14	Xhora Prison	-31.97	28.67	671	0.972	-0.063	0.975	-0.063

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.000	-1.828	0.000	-1.828
16	Ellesmere	-30.67	26.32	1,387	0.293	-1.282	0.286	-1.282
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.000	-3.111	0.000	-3.111
18	Petrusville-Pol	-30.08	24.67	1,212	0.000	-2.218	0.000	-2.218
19	Philippolis-Pol	-30.27	25.27	1,372	0.002	-2.700	0.003	-2.700
20	Hopetown-Tnk	-29.62	24.08	1,661	0.003	-1.868	0.001	-1.868
21	Lillydale	-30.0	25.95	1,098	0.280	-1.828	0.277	-1.828
22	Richmond S.A. P	-29.87	30.27	1,509	0.280	-1.841	0.288	-1.841
23	Durban Botanical Gardens	-29.85	31.0	91	0.067	-2.843	0.000	-2.843
24	Steinkopf	-29.25	17.73	91	0.110	-0.365	0.113	-0.365
25	Nuwejaarskraal	-29.37	23.12	884	0.043	-0.618	0.064	-0.618
26	Maselspoort Dam	-29.03	26.42	1,372	0.159	-1.463	0.048	-1.463
27	Boetsap-Pol	-27.97	24.45	1,189	0.025	-1.803	0.026	-1.803
28	Odendaalsrus	-27.87	26.68	1,341	0.000	-4.271	0.000	-4.271
29	Bothaville-Mun	-27.55	26.62	1,280	0.009	-3.328	0.000	-3.328
30	Beerlaagte	-26.82	28.43	1,615	0.345	-1.623	0.348	-1.623
31	Balfour	-26.65	28.58	1,555	0.061	-3.150	0.062	-3.150
32	De Emigratie	-26.77	30.12	1,676	0.433	-0.917	0.429	-0.917
33	Morokweng	-26.12	23.78	1,126	0.190	-1.000	0.195	-1.000
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.549	-0.696	0.546	-0.696
35	Swartruggens-Pol	-25.63	26.68	1,311	0.281	-1.317	0.248	-1.317
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.515	-1.421	0.511	-1.421
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.182	-1.423	0.180	-1.423
38	Machadodorp	-25.67	30.25	1,609	0.411	-0.758	0.022	-0.758
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.944	-0.038	0.954	-0.038
40	Haenertsburg	-23.93	29.93	1,402	0.223	-0.932	0.001	-0.932
41	Prince Albert-Tnk	-33.22	22.03	686	0.01	-0.891	0.000	-0.891
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.067	-2.676	0.081	-2.676
43	Tulbagh	-33.28	19.13	155	0.843	-0.125	0.852	-0.125
44	Darling-The Towers	-33.38	18.37	229	0.075	1.024	0.017	1.024
45	Thornlea	-28.63	21.52	884	0.003	-0.896	0.000	-0.896
46	Klein Australie	-23.05	30.22	702	0.029	-3.588	0.006	-3.588

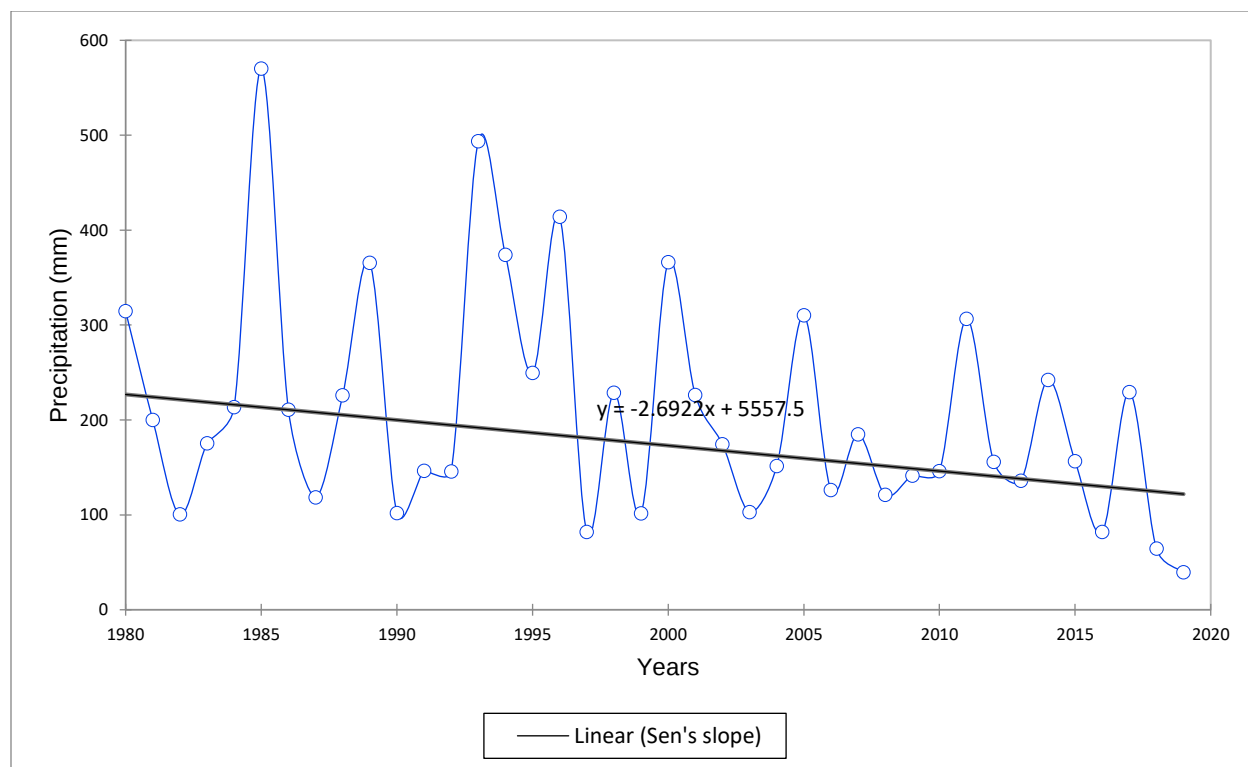


Figure D-196: Spring trend plot for Grahamstown-TNK station (1980-2019).

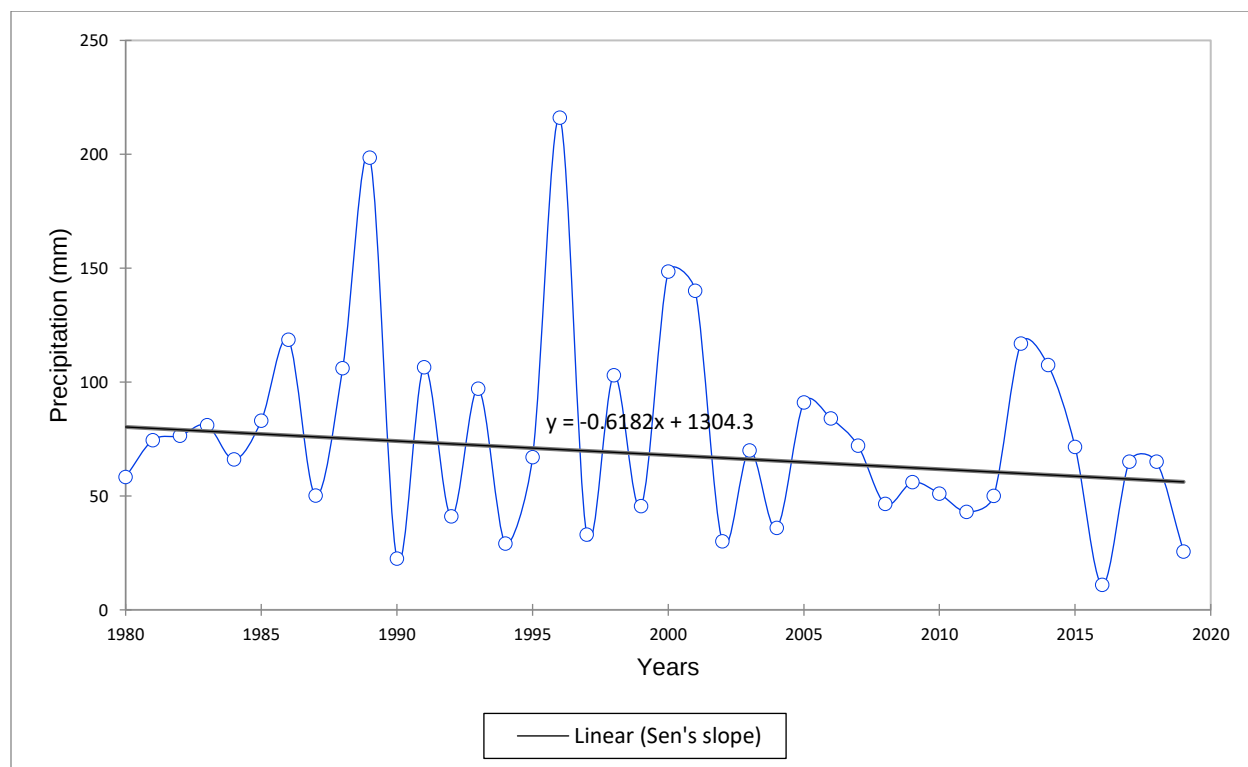


Figure D-197: Spring trend plot for Klipfontein station (1980-2019).

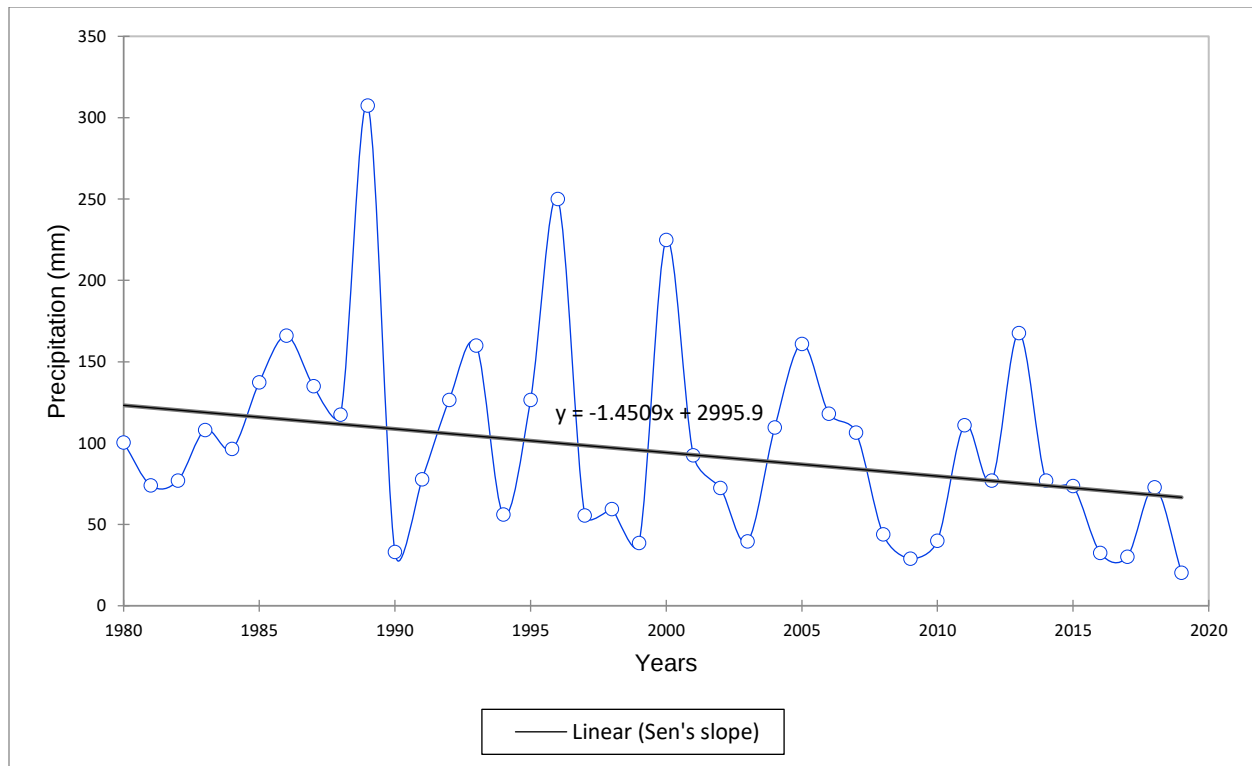


Figure D-198: Spring trend plot for Winterhoek station (1980-2019).

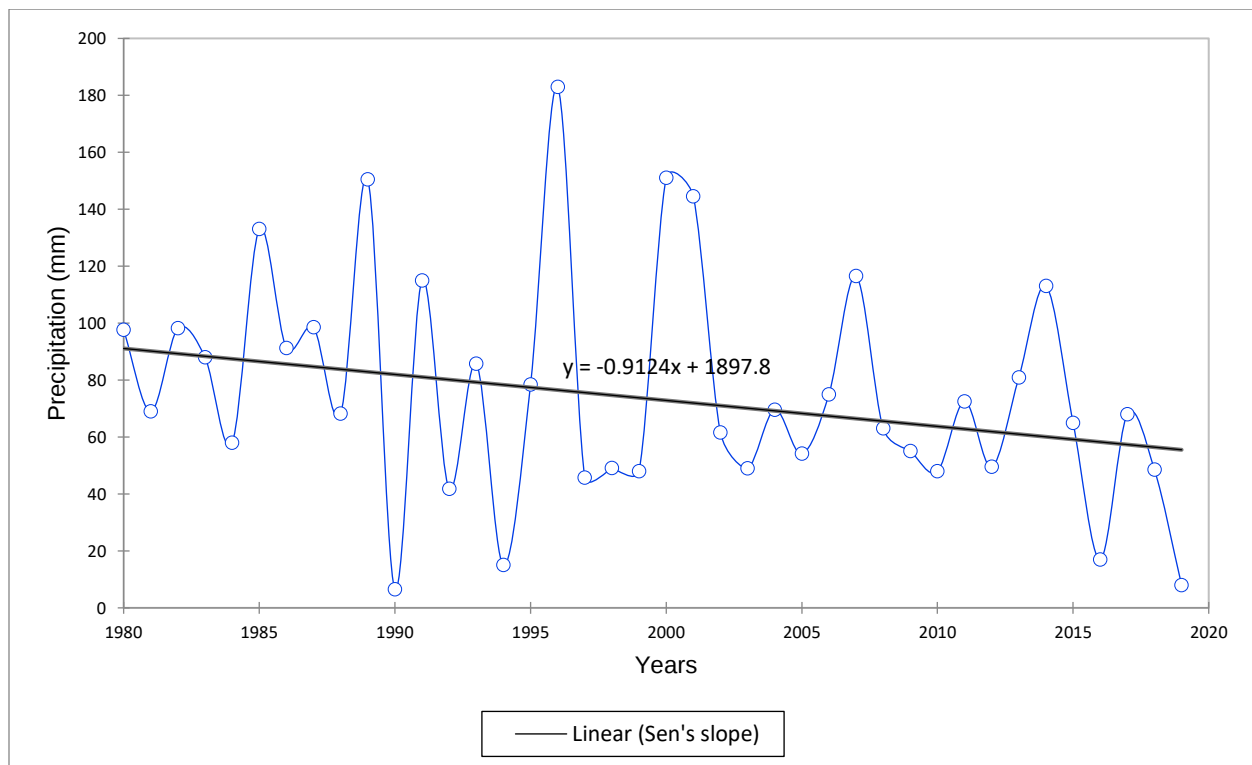


Figure D-199: Spring trend plot for Bloemhof station (1980-2019).

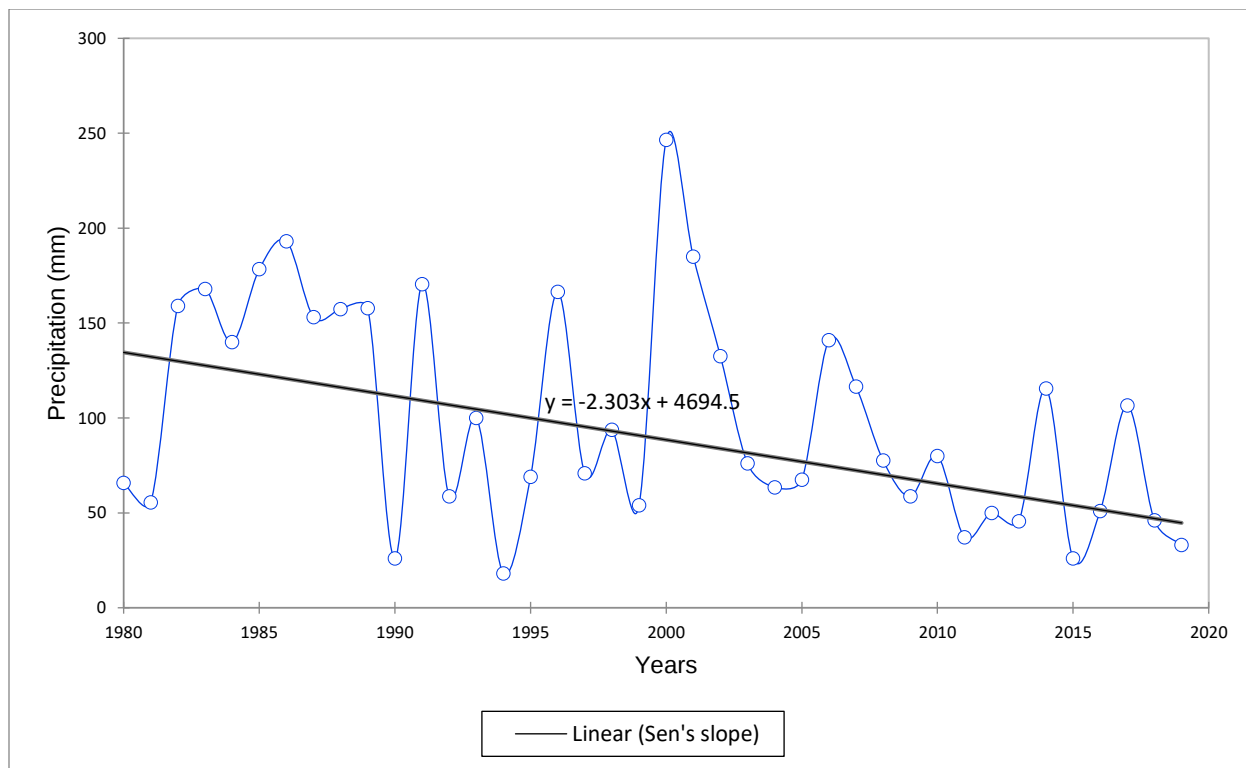


Figure D-200: Spring trend plot for Exwell Park station (1980-1979).

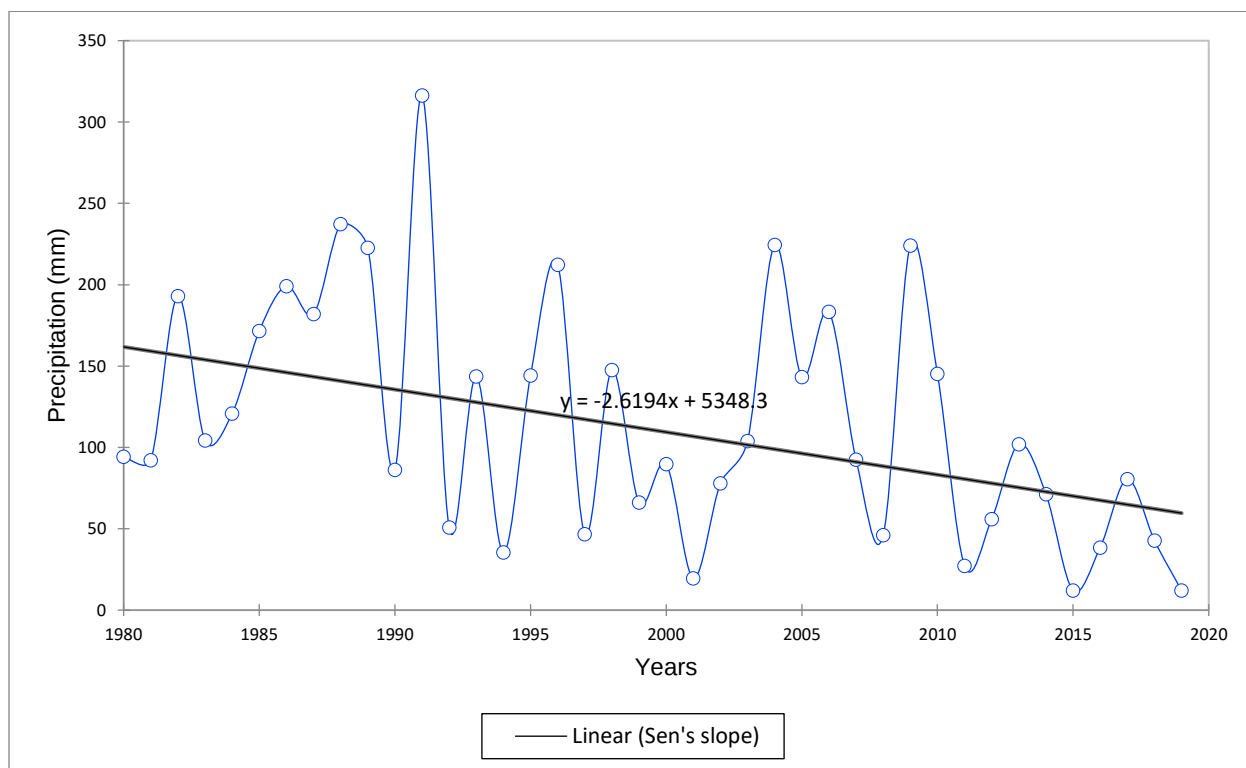


Figure D-201: Spring trend plot for Sterkstroom station (1980-2019).

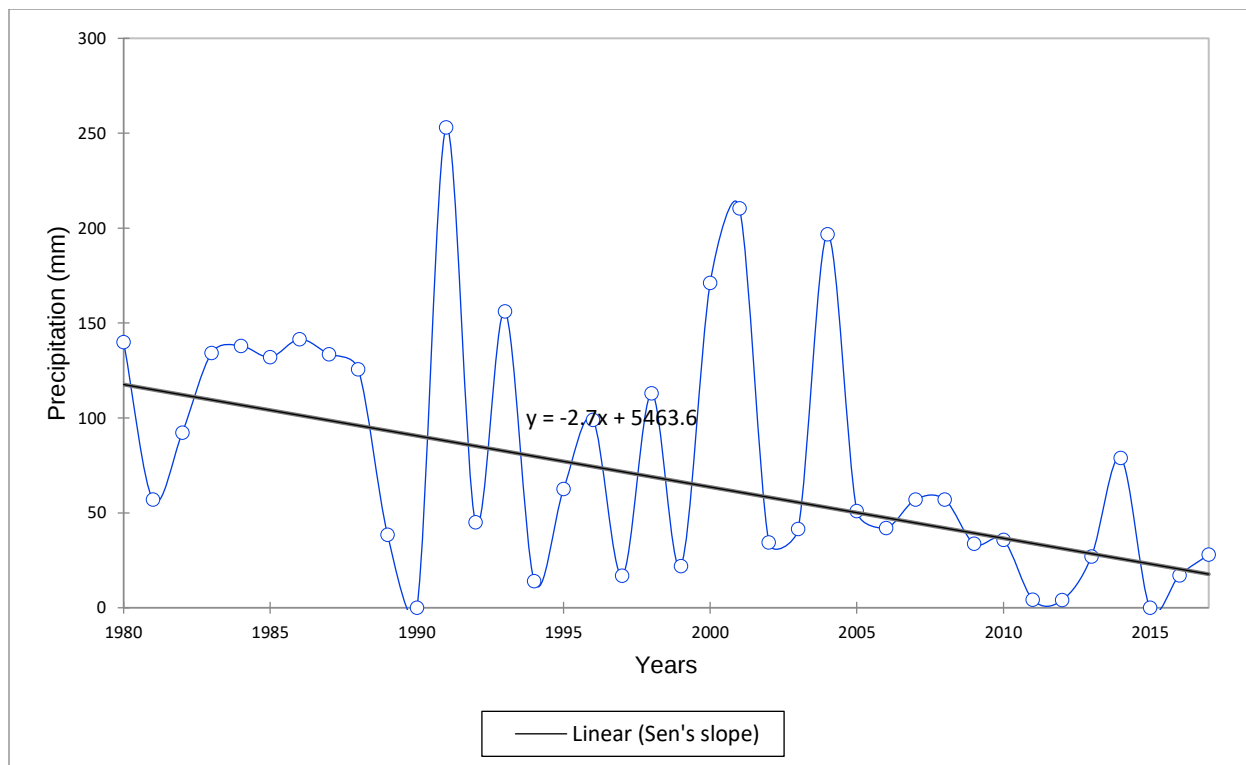


Figure D-202: Spring trend plot for Philippolis-Pol (1980-2017).

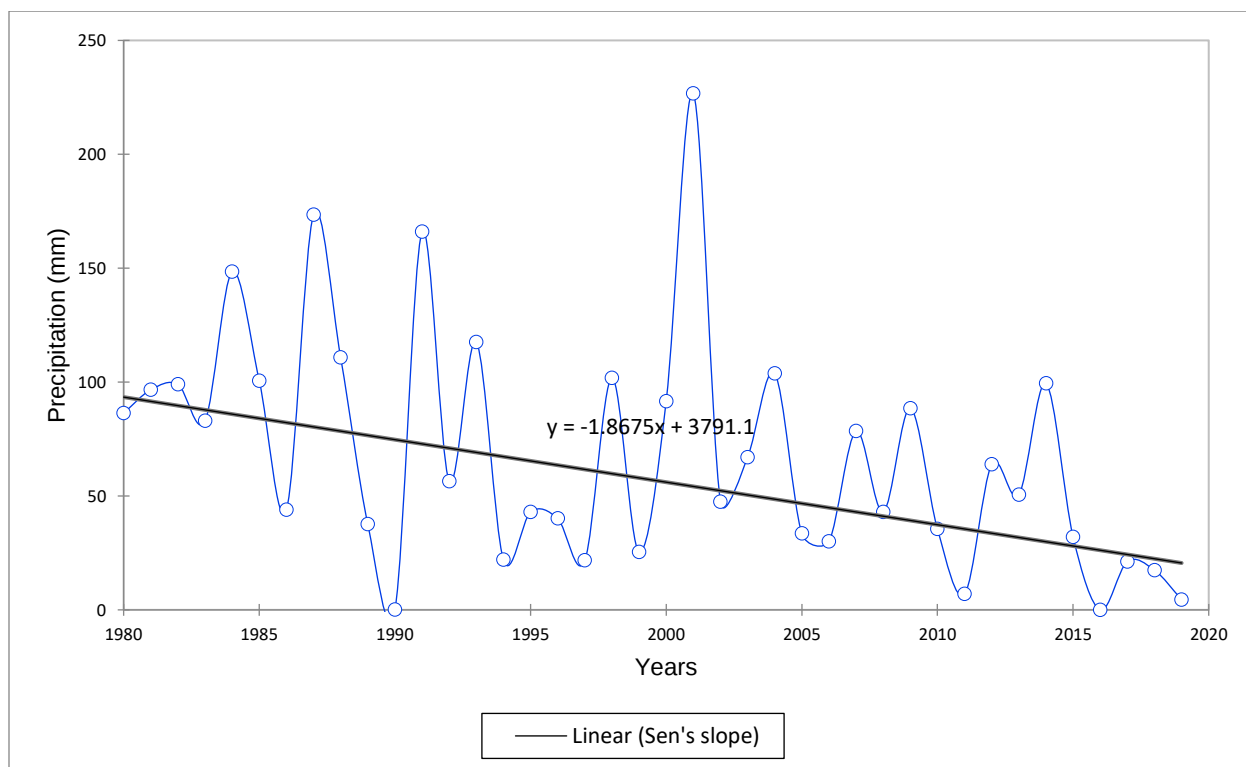


Figure D-203: Spring trend plot for Hopetown-TNK station (1980-2019).

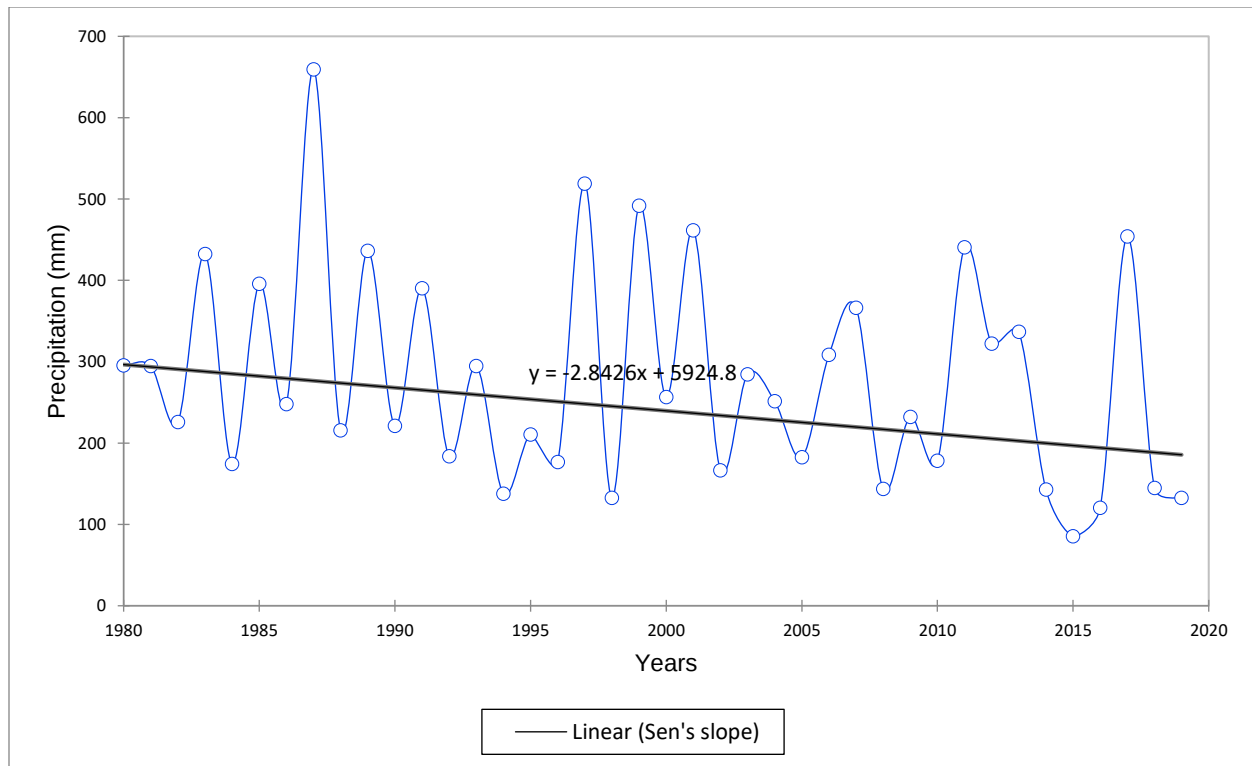


Figure D-204: Spring trend plot for Durban Botanical Gardens (1980-2019).

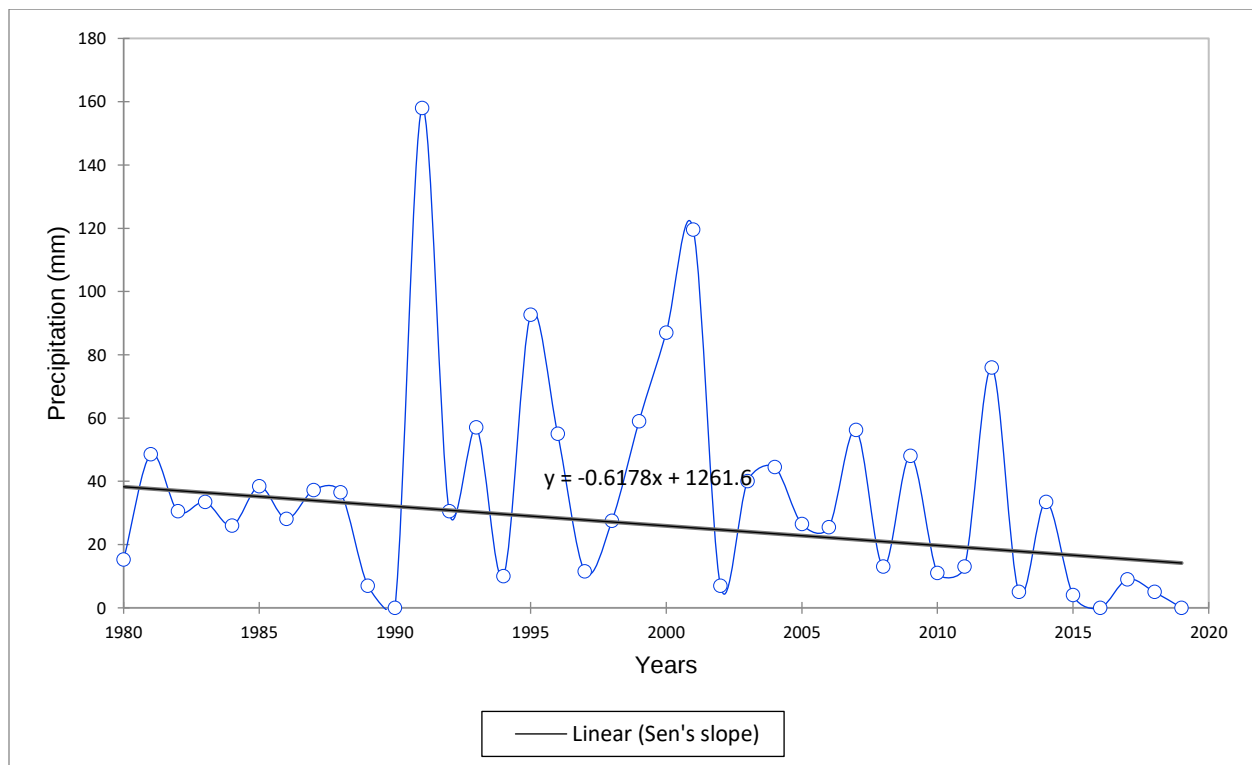


Figure D-205: Spring trend plot for Nuwejaarskraal station (1980-2019).

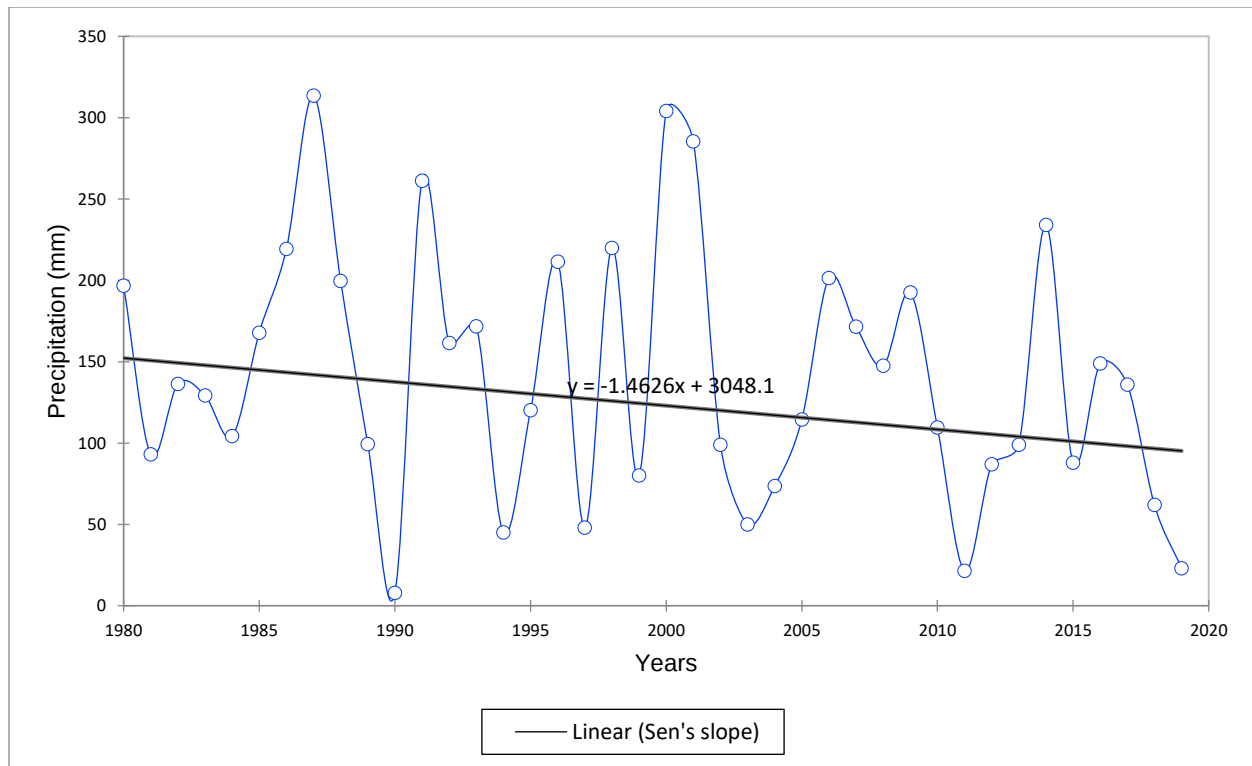


Figure D-206: Spring trend plot for Maselspoort Dam (1980-2019).

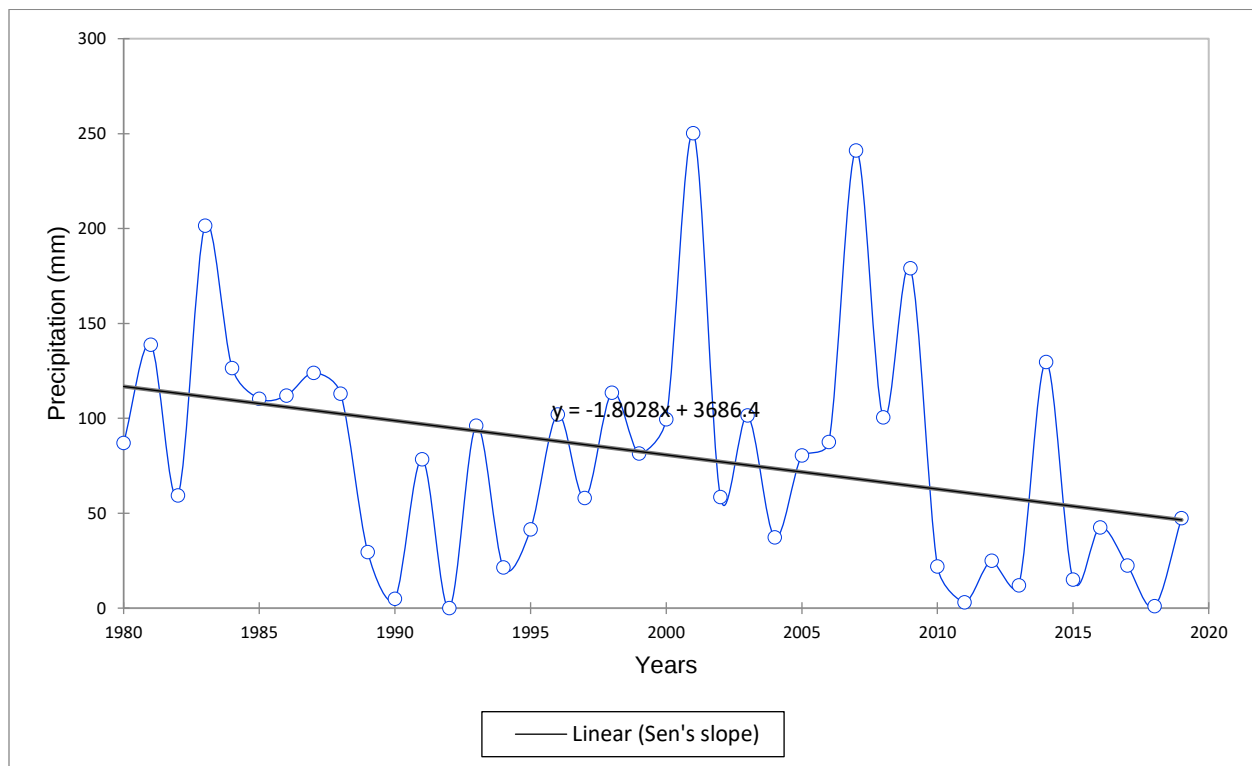


Figure D-207: Spring trend plot for Boetsap-Pol station (1980-2019).

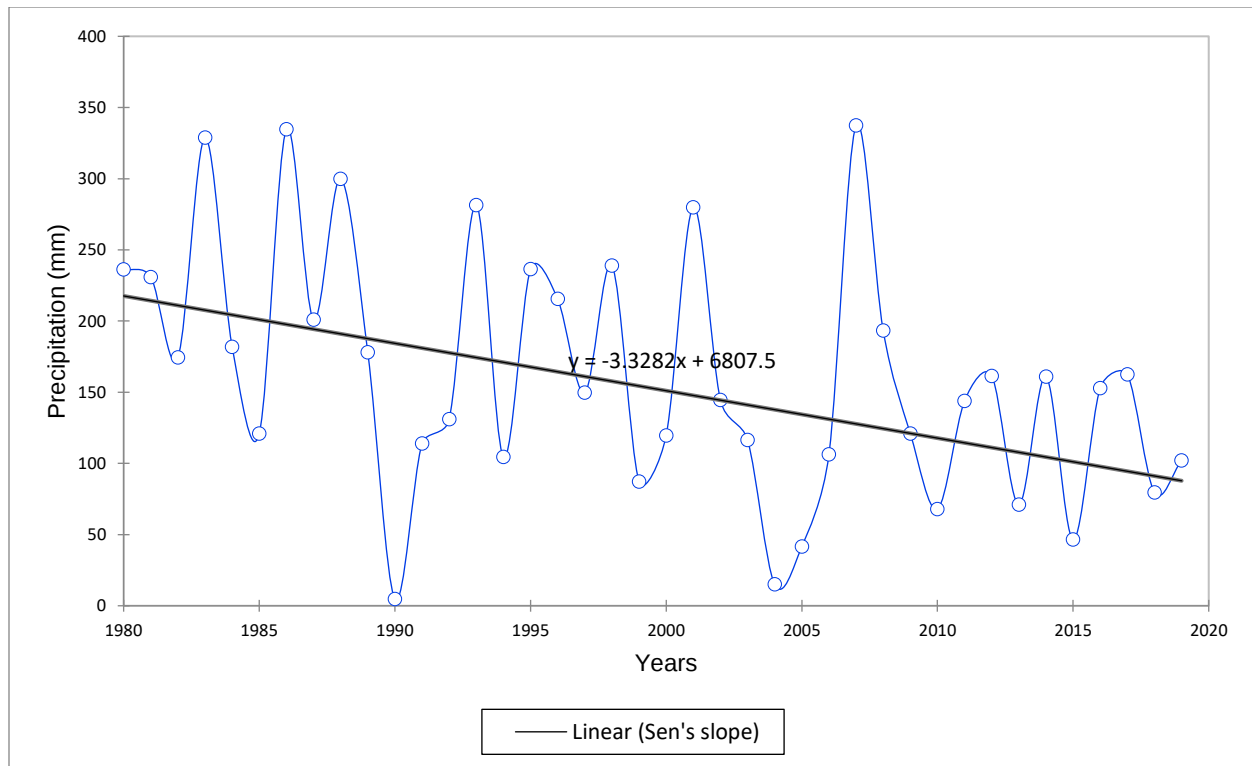


Figure D-208: Spring trend plot for Bothaville-Mun station (1980-2019).

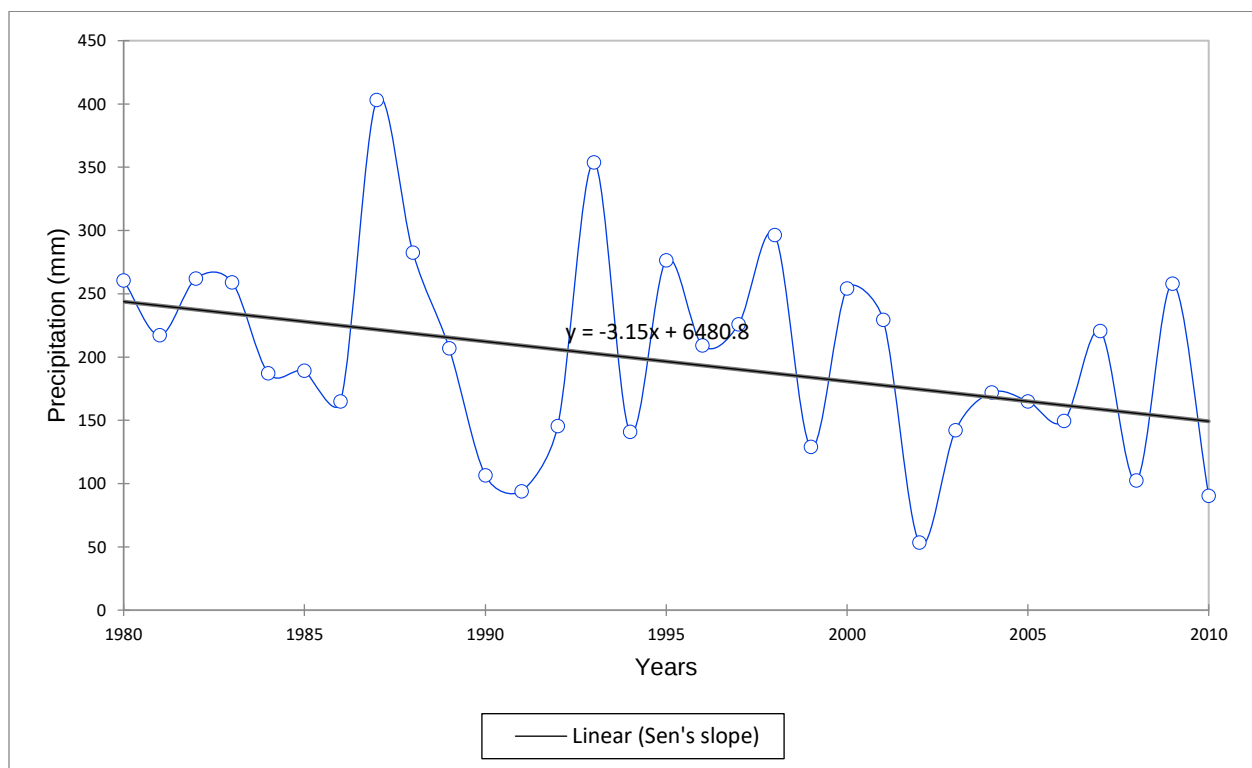


Figure D-209: Spring trend plot for Balfour station (1980-2019).

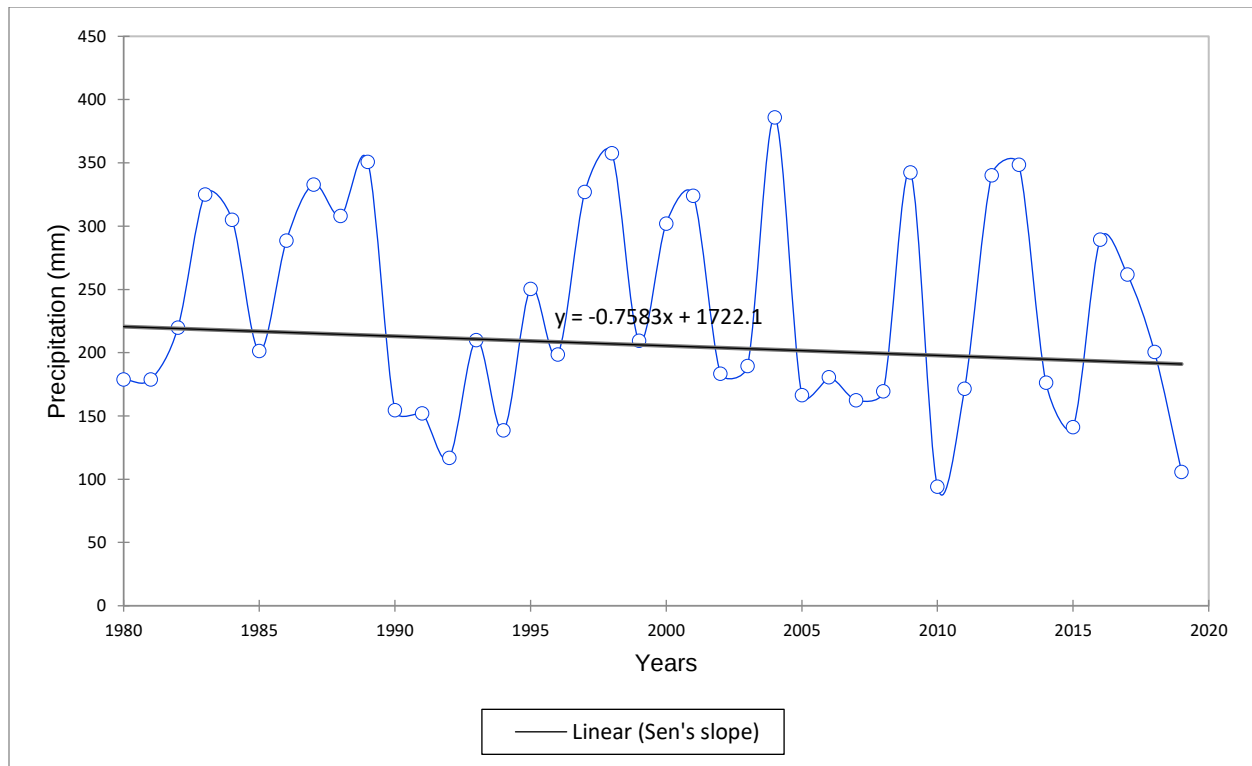


Figure D-210: Spring trend plot for Machadodorp station (1980-2019).

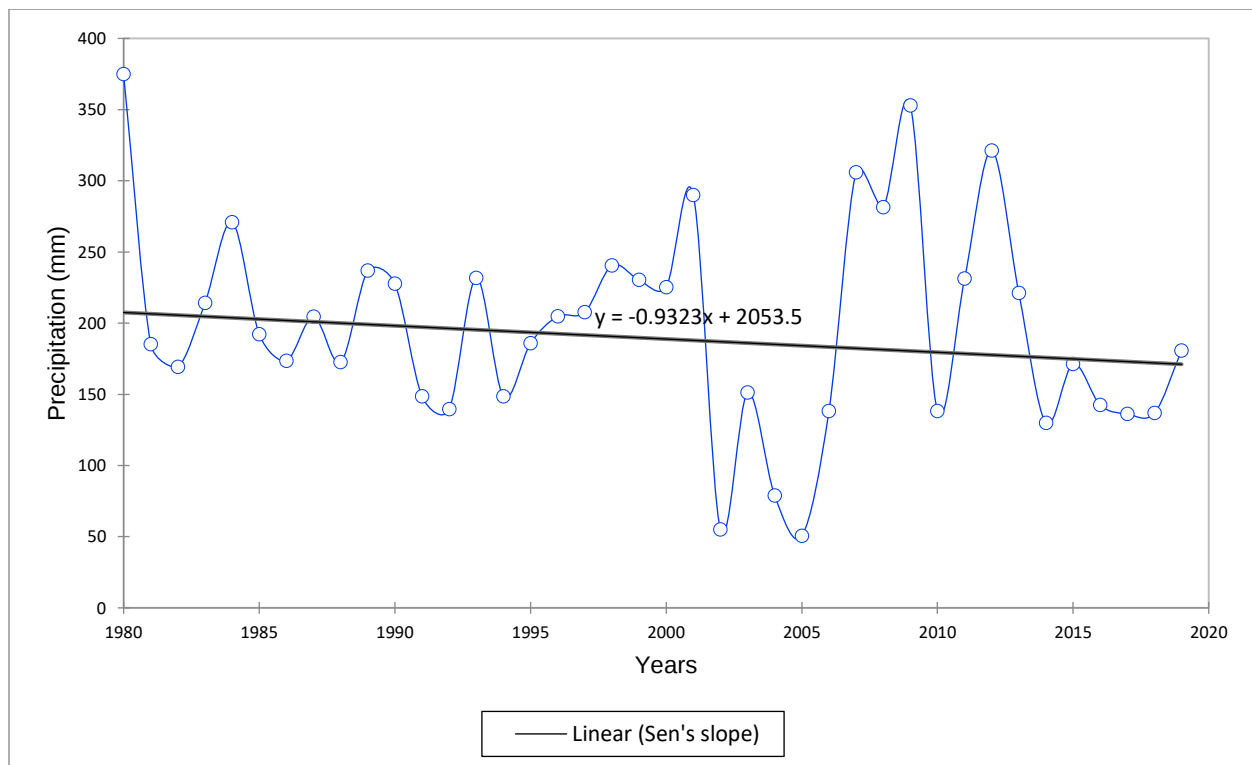


Figure D-211: Spring trend plot for Haenertsburg station (1980-2019).

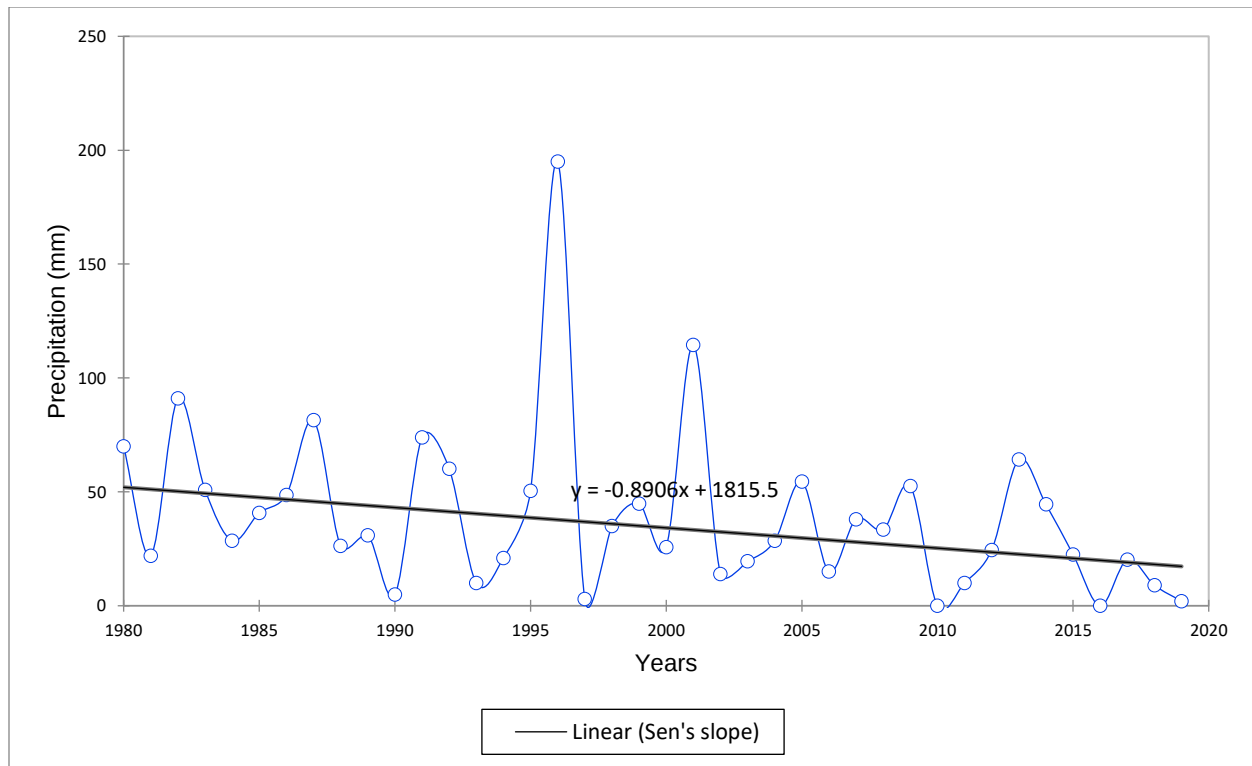


Figure D-212: Spring trend plot for Prince Albert TNK station (1980-2019).

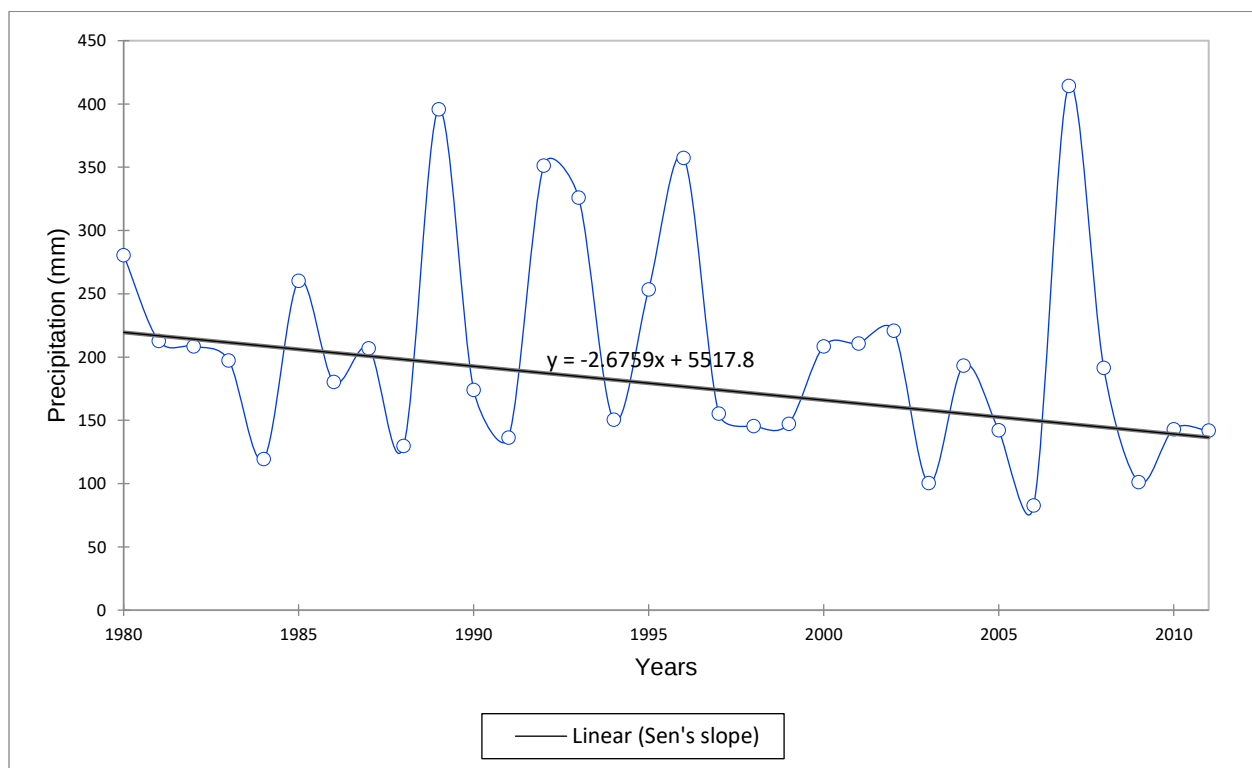


Figure D-213: Spring trend plot for Plettenbergbaai-Pol station (1980-2019).

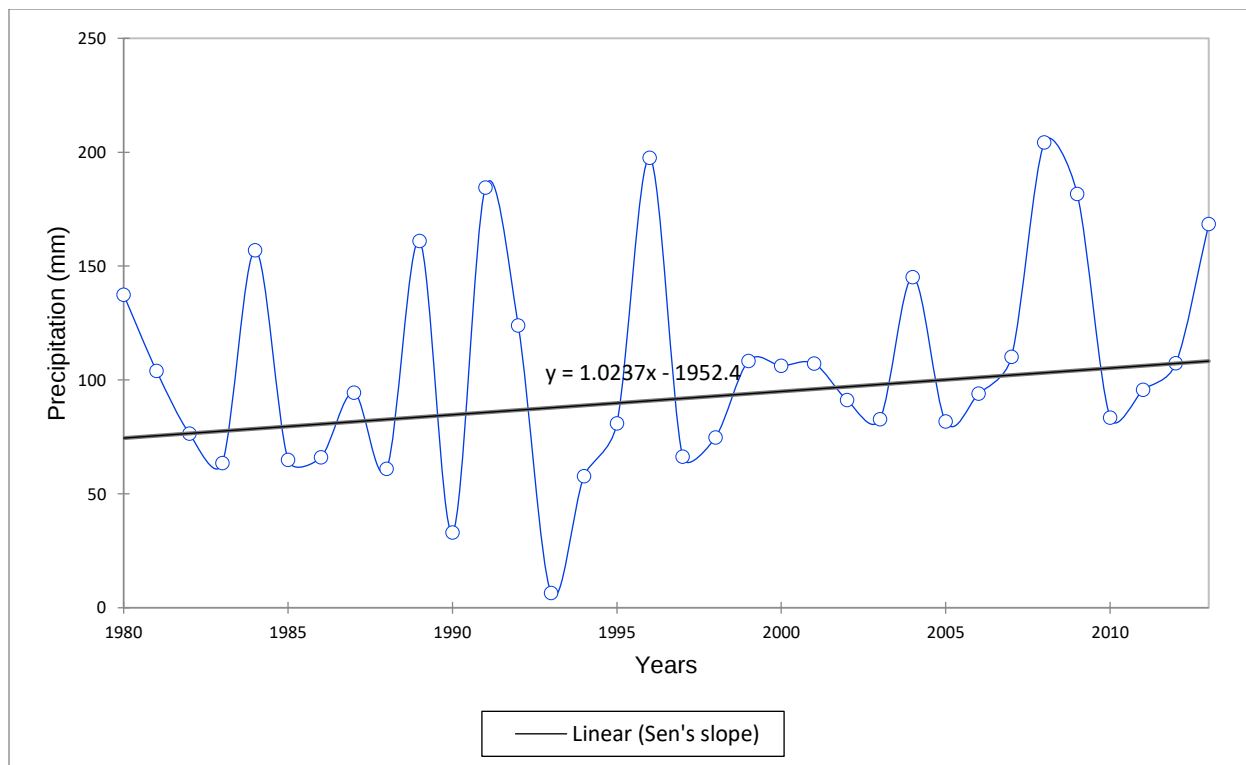


Figure D-214: Spring trend plot for Darling-Towers station (1980-2013).

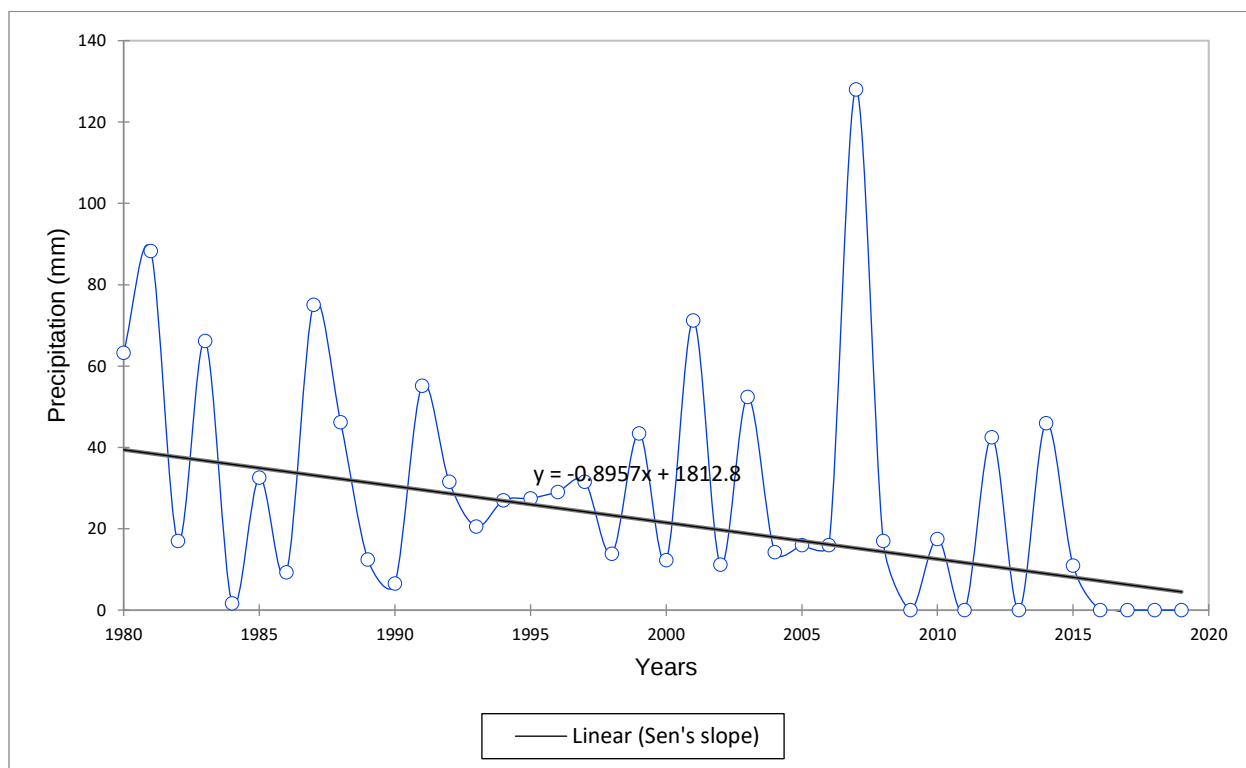


Figure D-215: Spring trend plot for Thornlea station (1980-2019).

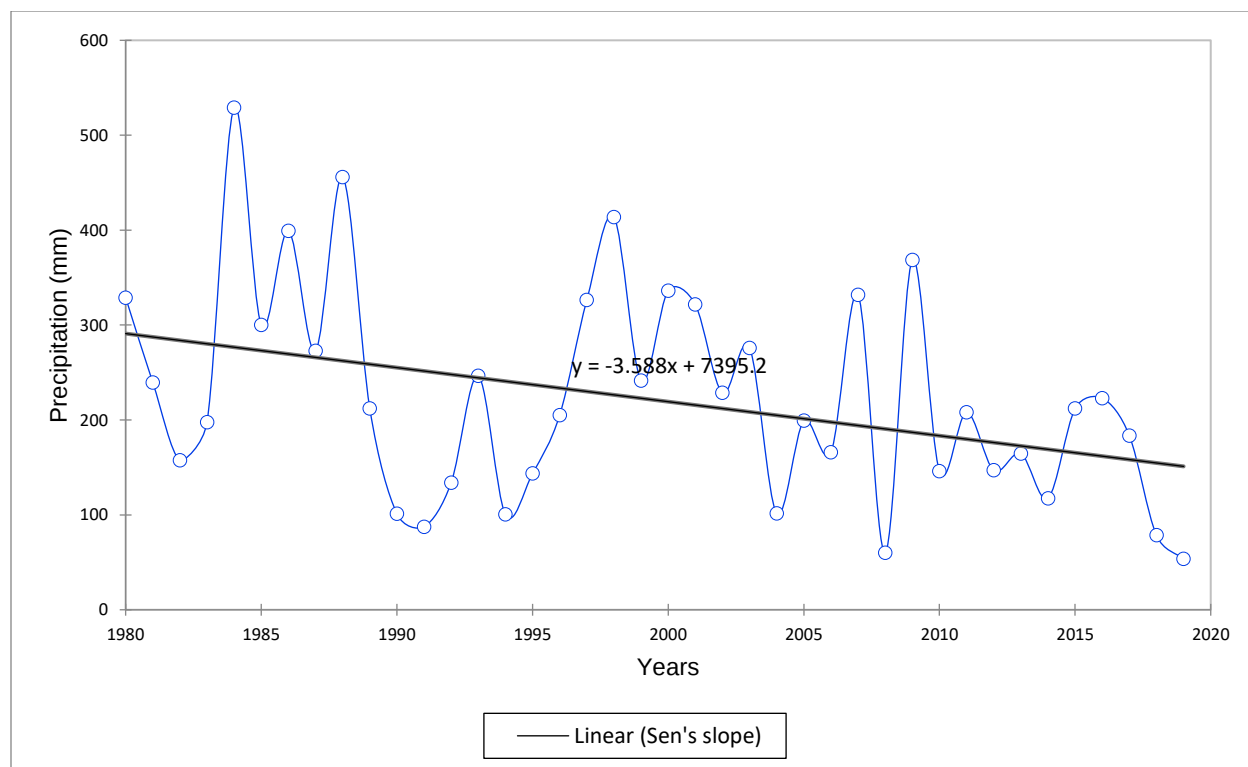


Figure D-216: Spring trend plot for Klein Australie station (1980-2019).

Table D30: Annual Mann-Kendall trend test results.

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Annual			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.023	-1.020	0.023	-1.020
2	Steytlerville-Mag	-33.33	24.33	419	0.505	0.173	0.436	0.173
3	Alicedale-Mun	-33.32	26.08	276	0.045	0.885	1.000	0.885
4	Grahamstown-Tnk	-33.3	26.53	539	0.785	-0.101	0.787	-0.101
5	Klipfontein	-32.55	24.72	673	0.647	0.091	0.648	0.091
6	Amatola State Forest	-32.67	27.28	884	0.717	-0.208	0.718	-0.208
7	Winterhoek	-32.22	24.47	876	0.182	-0.449	0.247	-0.449
8	Bloemhof	-32.03	24.67	1,091	0.098	0.409	0.036	0.409
9	Exwell Park	-32.2	27.12	914	0.761	0.093	0.804	0.093
10	Kentani-Bos	-32.5	28.32	488	0.917	-0.059	0.914	-0.059
11	Cwebe Nature Reserve	-32.2	28.93	61	0.428	0.508	0.429	0.508
12	Sterkstroom	-31.55	26.55	1,343	0.322	-0.345	0.323	-0.345
13	Engcobo Prison	-31.67	28.0	975	0.399	-0.455	0.282	-0.455
14	Xhora Prison	-31.97	28.67	671	0.895	-0.055	0.902	-0.055
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.627	-0.168	0.599	-0.168

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
16	Ellesmere	-30.67	26.32	1,387	0.136	0.638	0.048	0.638
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.233	-0.460	0.330	-0.460
18	Petrusville-Pol	-30.08	24.67	1,212	0.156	-0.484	0.156	-0.484
19	Philippolis-Pol	-30.27	25.27	1,372	0.393	-0.369	0.395	-0.369
20	Hopetown-Tnk	-29.62	24.08	1,661	0.219	0.422	0.297	0.422
21	Lillydale	-30.0	25.95	1,098	0.078	0.757	0.134	0.757
22	Richmond S.A. P	-29.87	30.27	1,509	0.635	0.423	0.637	0.423
23	Durban Botanical Gardens	-29.85	31.0	91	0.456	-0.528	0.457	-0.528
24	Steinkopf	-29.25	17.73	91	1.000	-0.001	1.000	-0.001
25	Nuwejaarskraal	-29.37	23.12	884	0.039	-0.524	0.057	-0.524
26	Maselspoort Dam	-29.03	26.42	1,372	0.500	0.289	0.522	0.289
27	Boetsap-Pol	-27.97	24.45	1,189	0.625	-0.260	0.564	-0.260
28	Odendaalsrus	-27.87	26.68	1,341	0.704	0.176	0.706	0.176
29	Bothaville-Mun	-27.55	26.62	1,280	0.088	0.929	0.088	0.909
30	Beerlaagte	-26.82	28.43	1,615	0.300	0.550	0.281	0.550
31	Balfour	-26.65	28.58	1,555	0.891	0.083	0.873	0.083
32	De Emigratie	-26.77	30.12	1,676	0.708	-0.208	0.671	-0.208
33	Morokweng	-26.12	23.78	1,126	0.739	-0.101	0.741	-0.101
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.196	0.652	0.127	0.127
35	Swartruggens-Pol	-25.63	26.68	1,311	0.110	0.773	0.111	0.773
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.073	1.079	0.029	1.079
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.966	-0.025	0.968	-0.025
38	Machadodorp	-25.67	30.25	1,609	0.845	-0.091	0.810	-0.091
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.573	0.286	0.481	0.286
40	Haenertsburg	-23.93	29.93	1,402	0.175	-1.183	0.007	-1.183
41	Prince Albert-Tnk	-33.22	22.03	686	0.602	0.092	0.568	0.092
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.273	0.531	0.274	0.531
43	Tulbagh	-33.28	19.13	155	0.211	0.476	0.287	0.476
44	Darling-The Towers	-33.38	18.37	229	0.064	0.620	0.027	0.620
45	Thornlea	-28.63	21.52	884	0.486	0.181	0.488	0.181
46	Klein Australie	-23.05	30.22	702	0.256	-1.323	0.315	-1.323

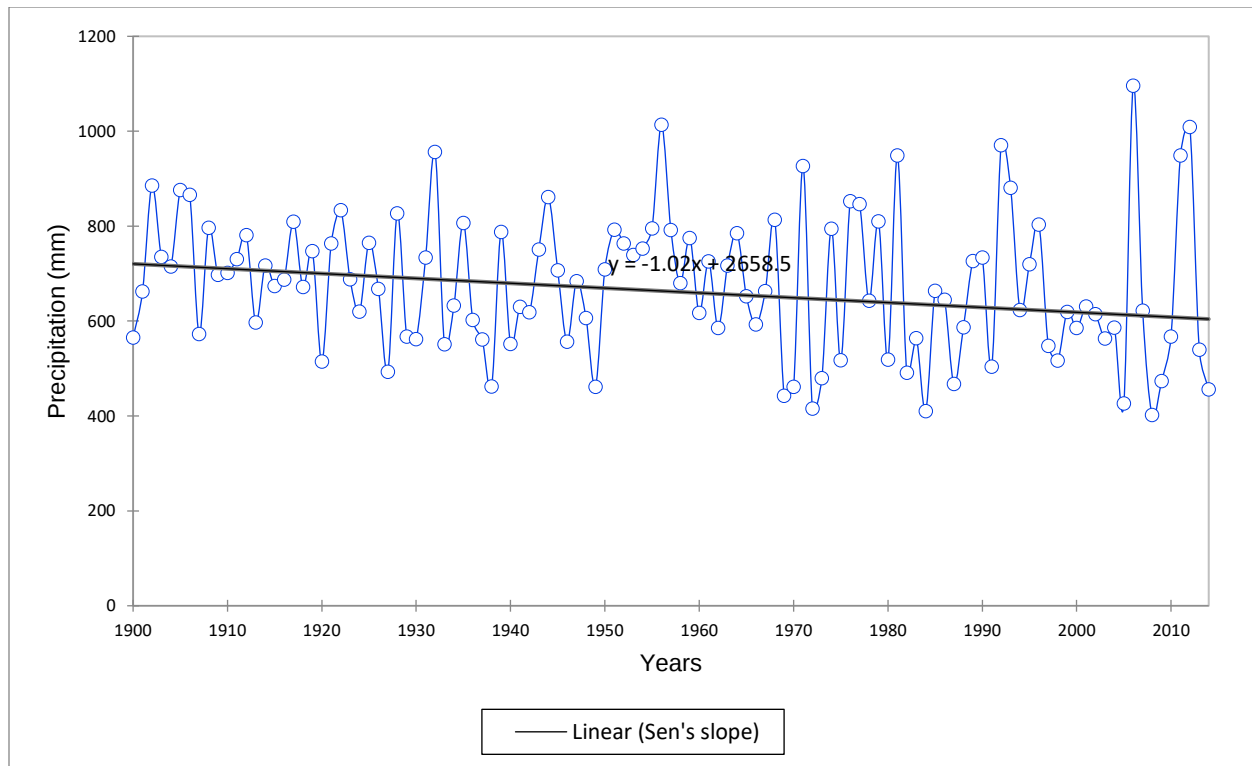


Figure D-217: Annual trend plot for Humansdorp station.

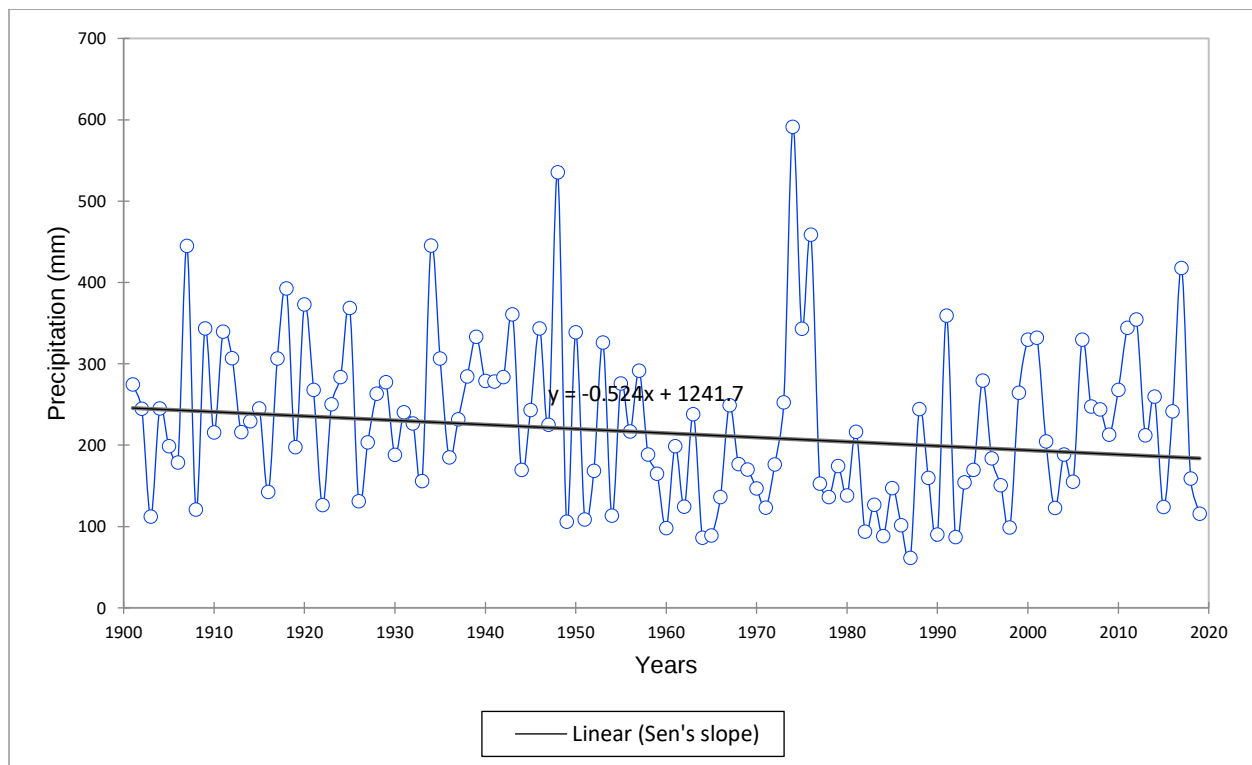


Figure D-218: Annual trend plot for Nuwejaarskraal station.

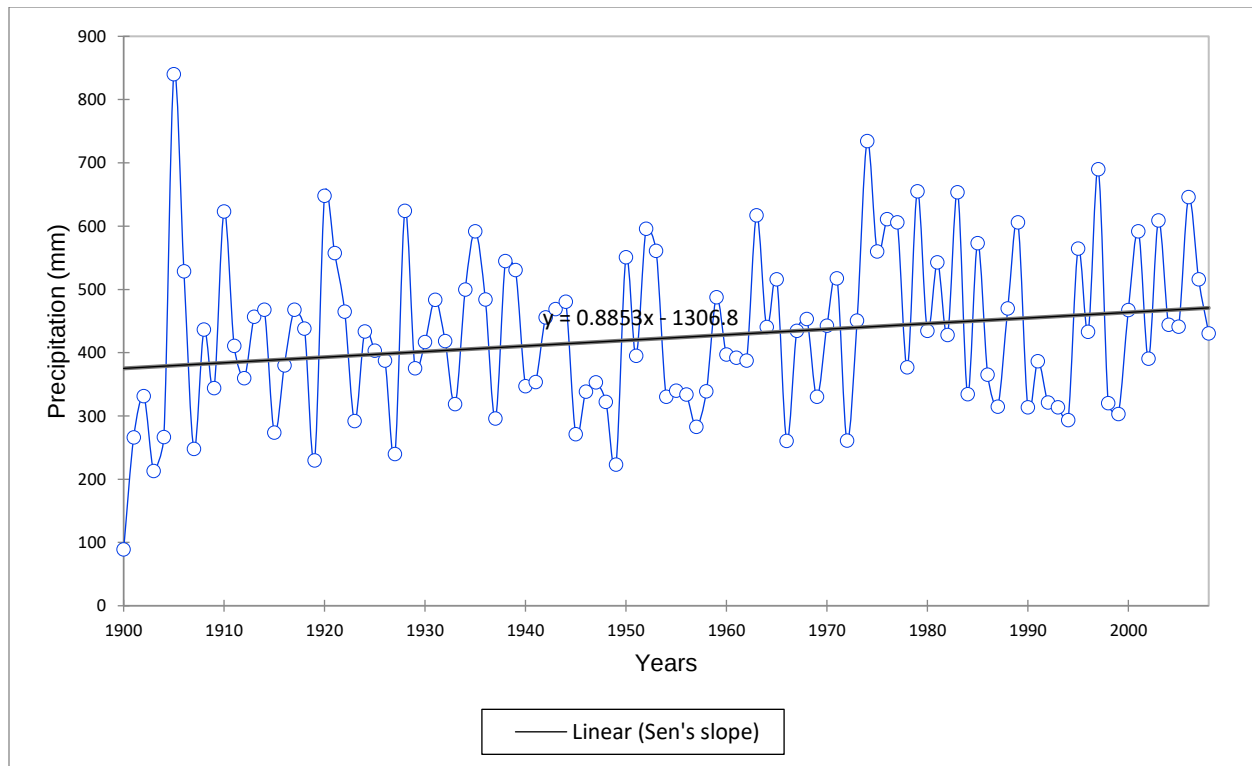


Figure D-219: Annual trend plot for Alicedale-Mun station.

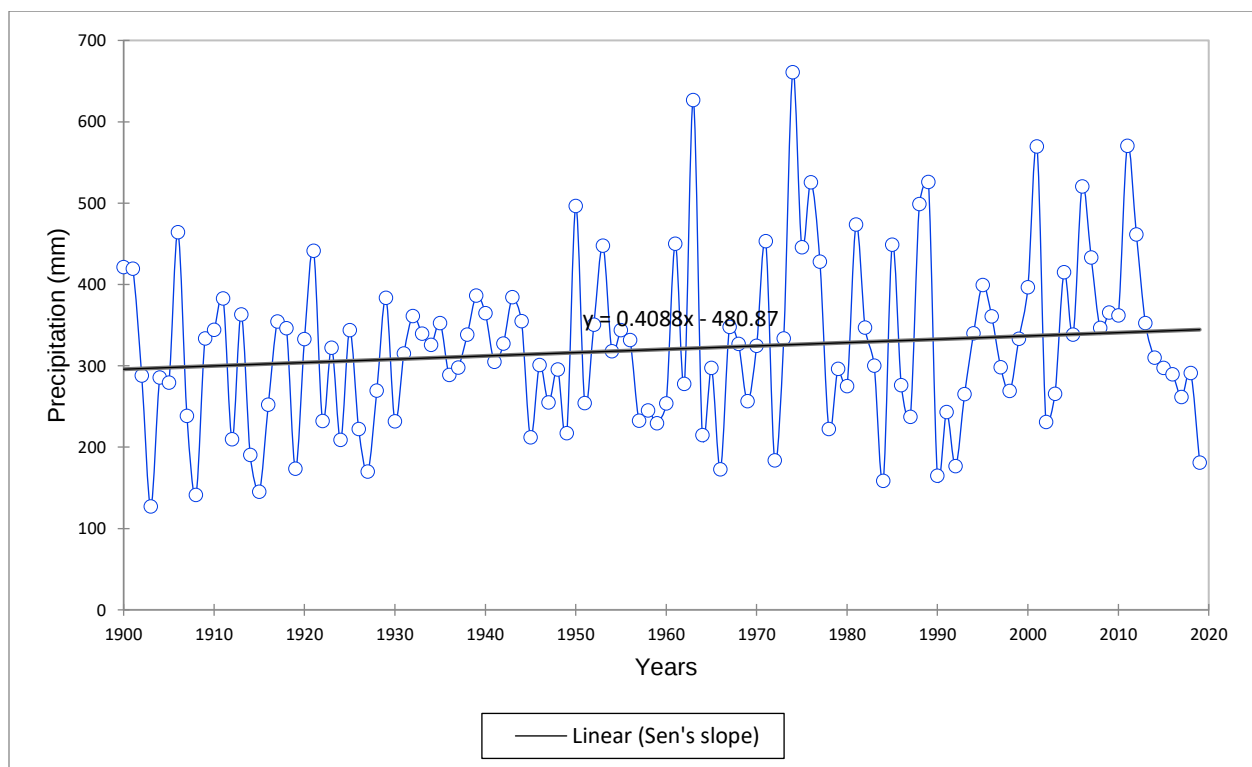


Figure D-220: Annual trend plot for Bloemhof station.

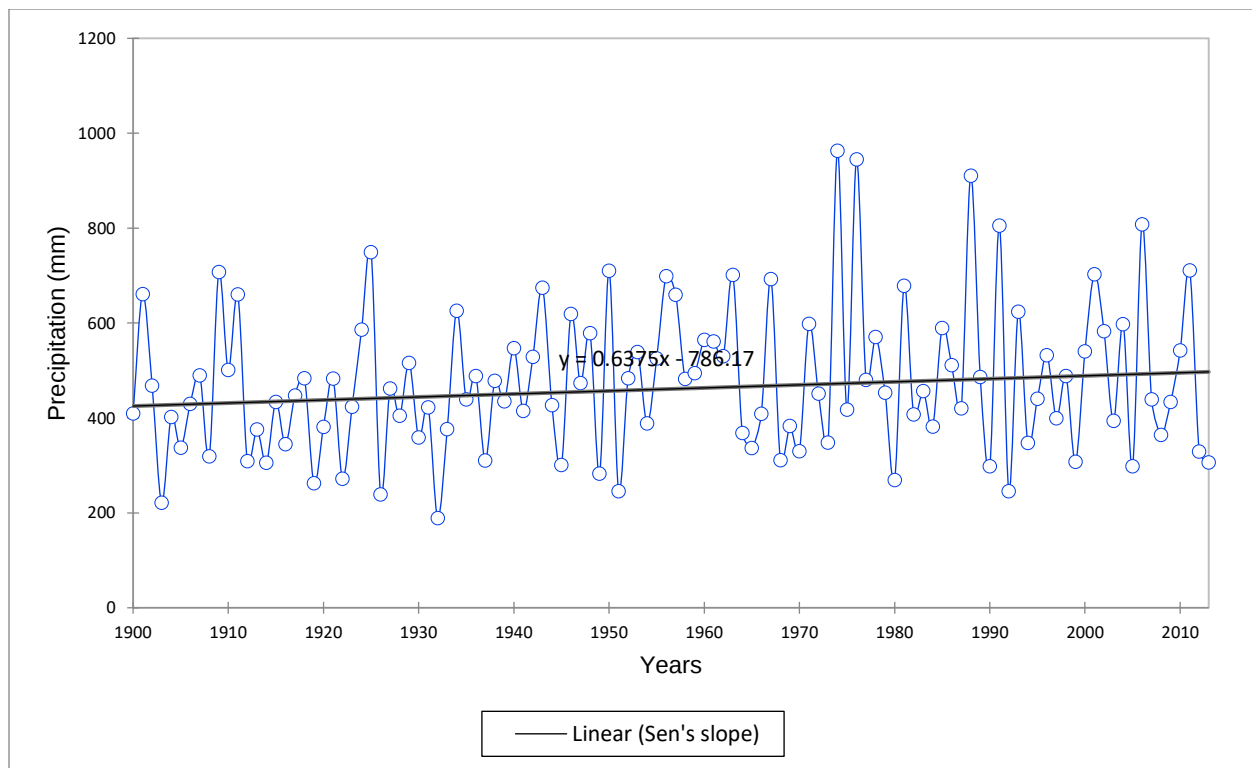


Figure D-221: Annual trend plot for Ellesmere station.

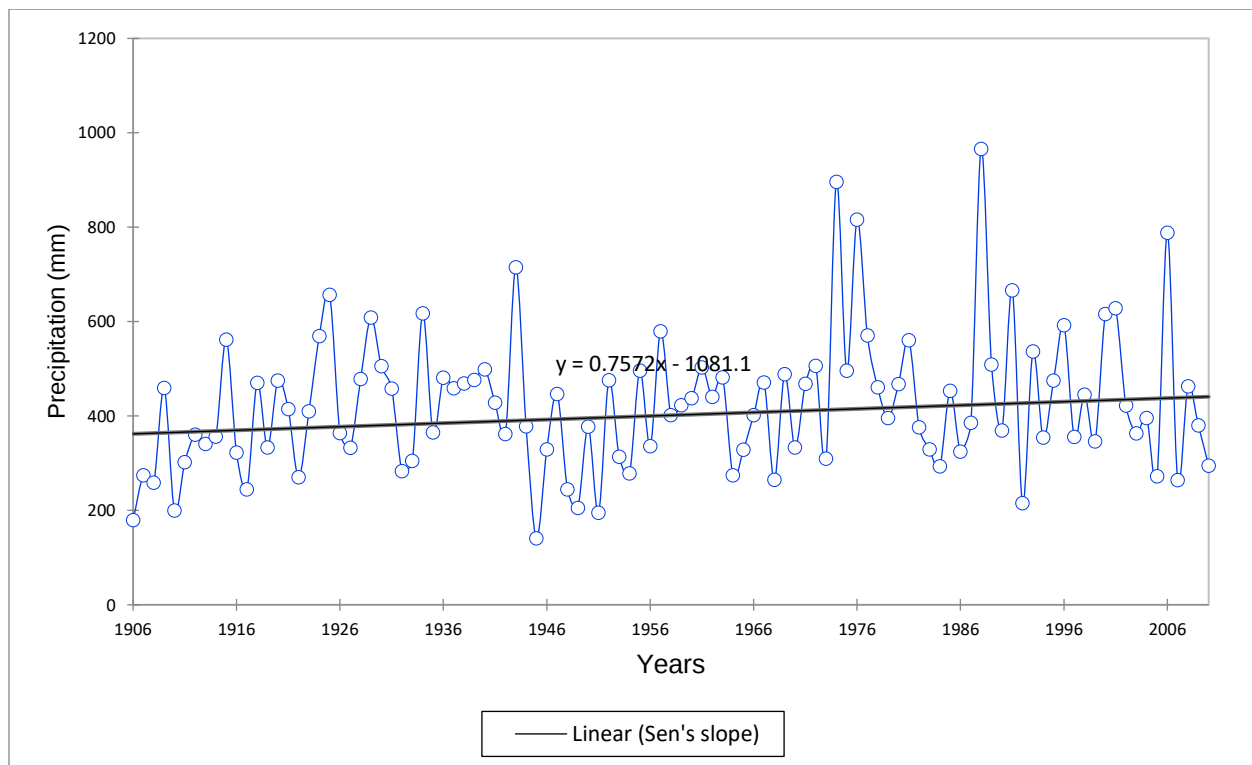


Figure D-222: Annual trend plot for Lillydale station.

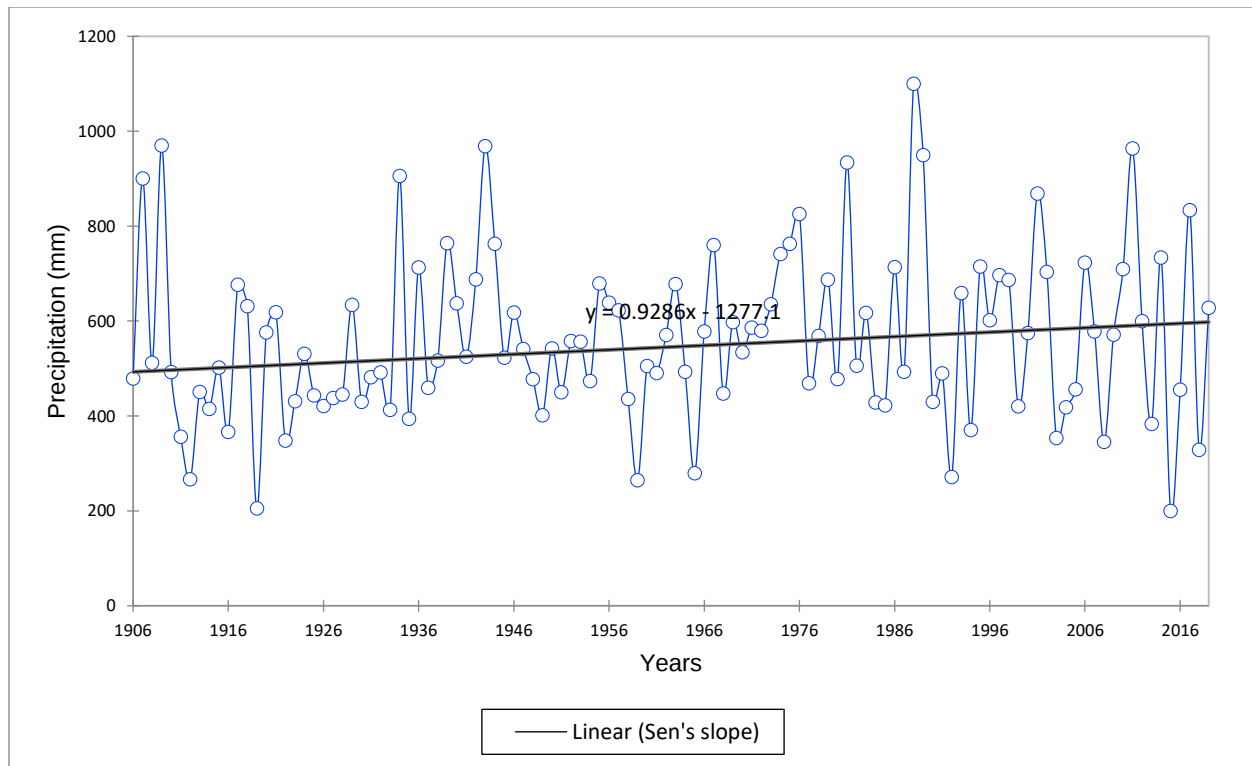


Figure D-223: Annual trend plot for Bothaville Mun station.

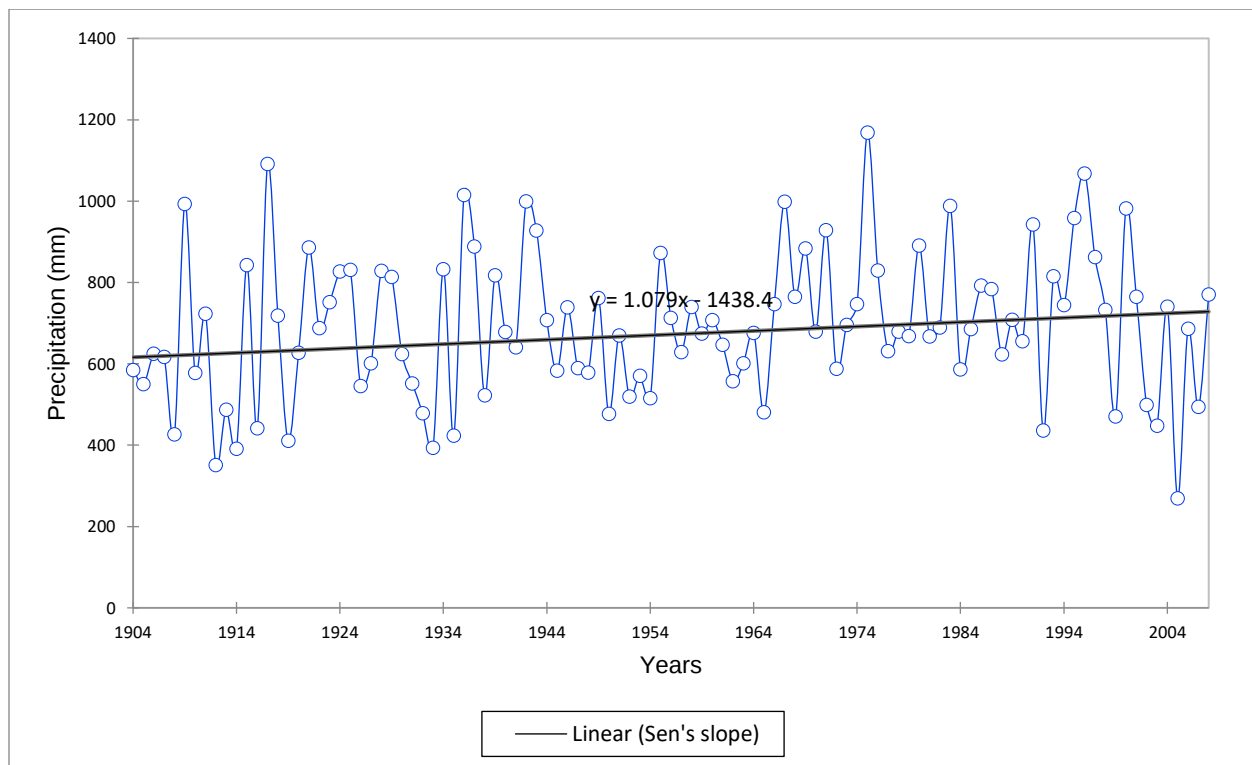


Figure D-224: Annual trend plot for premier Mine-Cullinan station.

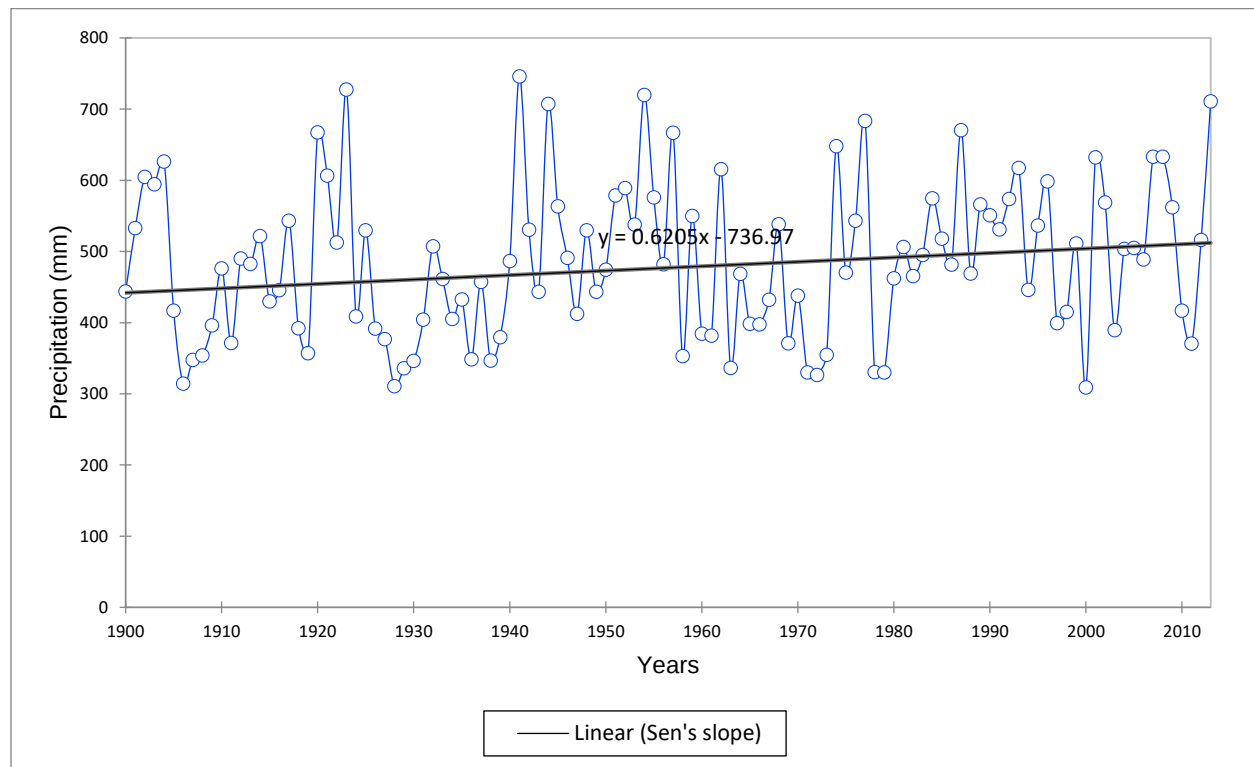


Figure D-225: Annual trend plot for Darling Towers station.

Table D31: Annual Mann-Kendall trend test results for the period (1900-1939).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Annual (1900-1939)			
					Mann-Kendall		Modified Mann-Kendall	
					p	Sen' Slope	p	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.111	-0.285	0.000	-0.285
2	Steytlerville-Mag	-33.33	24.33	419	0.477	-0.712	0.484	-0.712
3	Alicedale-Mun	-33.32	26.08	276	0.032	3.775	0.079	3.775
4	Grahamstown-Tnk	-33.3	26.53	539	0.899	-0.204	0.898	-0.204
5	Klipfontein	-32.55	24.72	673	0.012	-2.749	0.041	-2.749
6	Amatola State Forest	-32.67	27.28	884	0.051	5.226	0.052	5.226
7	Winterhoek	-32.22	24.47	876	0.385	-1.253	0.188	-1.253
8	Bloemhof	-32.03	24.67	1,091	0.703	0.526	0.701	0.526
9	Exwell Park	-32.2	27.12	914	0.772	0.513	0.771	0.513
10	Kentani-Bos	-32.5	28.32	488	0.001	13.369	0.001	13.369
11	Cwebe Nature Reserve	-32.2	28.93	61	0.258	3.830	0.001	3.830
12	Sterkstroom	-31.55	26.55	1,343	0.057	-3.003	0.058	-3.003
13	Engcobo Prison	-31.67	28.0	975	0.034	5.945	0.035	5.945

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
14	Xhora Prison	-31.97	28.67	671	0.360	1.901	0.357	1.901
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.260	-1.753	0.146	-1.753
16	Ellesmere	-30.67	26.32	1,387	0.972	0.059	0.972	0.059
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.494	-1.273	0.492	-1.273
18	Petrusville-Pol	-30.08	24.67	1,212	0.935	0.249	0.935	0.249
19	Philippolis-Pol	-30.27	25.27	1,372	0.978	-0.102	0.977	-0.102
20	Hopetown-Tnk	-29.62	24.08	1,661	1.000	-0.023	1.000	-0.023
21	Lillydale	-30.0	25.95	1,098	0.002	6.174	0.000	6.174
22	Richmond S.A. P	-29.87	30.27	1,509	0.07	-16.649	0.07	-16.649
23	Durban Botanical Gardens	-29.85	31.0	91	0.666	-1.058	0.567	-1.058
24	Steinkopf	-29.25	17.73	91	0.071	-1.425	0.071	-1.425
25	Nuwejaarskraal	-29.37	23.12	884	0.580	0.718	0.529	0.718
26	Maselspoort Dam	-29.03	26.42	1,372	0.822	-0.604	0.820	-0.604
27	Boetsap-Pol	-27.97	24.45	1,189	0.104	6.448	0.016	6.448
28	Odendaalsrus	-27.87	26.68	1,341	0.837	-0.663	0.836	-0.663
29	Bothaville-Mun	-27.55	26.62	1,280	0.681	1.453	0.678	1.453
30	Beerlaagte	-26.82	28.43	1,615	0.989	-0.081	0.989	-0.081
31	Balfour	-26.65	28.58	1,555	0.925	-0.224	0.924	-0.224
32	De Emigratie	-26.77	30.12	1,676	0.489	-1.938	0.486	-1.938
33	Morokweng	-26.12	23.78	1,126	0.468	-1.606	0.464	-1.606
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.925	0.510	0.924	0.510
35	Swartruggens-Pol	-25.63	26.68	1,311	0.617	-1.361	0.614	-1.361
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.364	3.748	0.377	3.748
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.591	-2.302	0.588	-2.302
38	Machadodorp	-25.67	30.25	1,609	0.217	3.989	0.215	3.989
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.525	1.907	0.522	1.907
40	Haenertsburg	-23.93	29.93	1,402	0.441	4.759	0.438	4.759
41	Prince Albert-Tnk	-33.22	22.03	686	0.167	-1.269	0.166	-1.269
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.013	-5.313	0.014	-5.318
43	Tulbagh	-33.28	19.13	155	0.019	-2.883	0.033	-2.883
44	Darling-The Towers	-33.38	18.37	229	0.116	-2.117	0.229	-2.117
45	Thornlea	-28.63	21.52	884	0.06	0.051	0.061	0.051
46	Klein Australie	-23.05	30.22	702	0.018	14.491	0.018	14.491

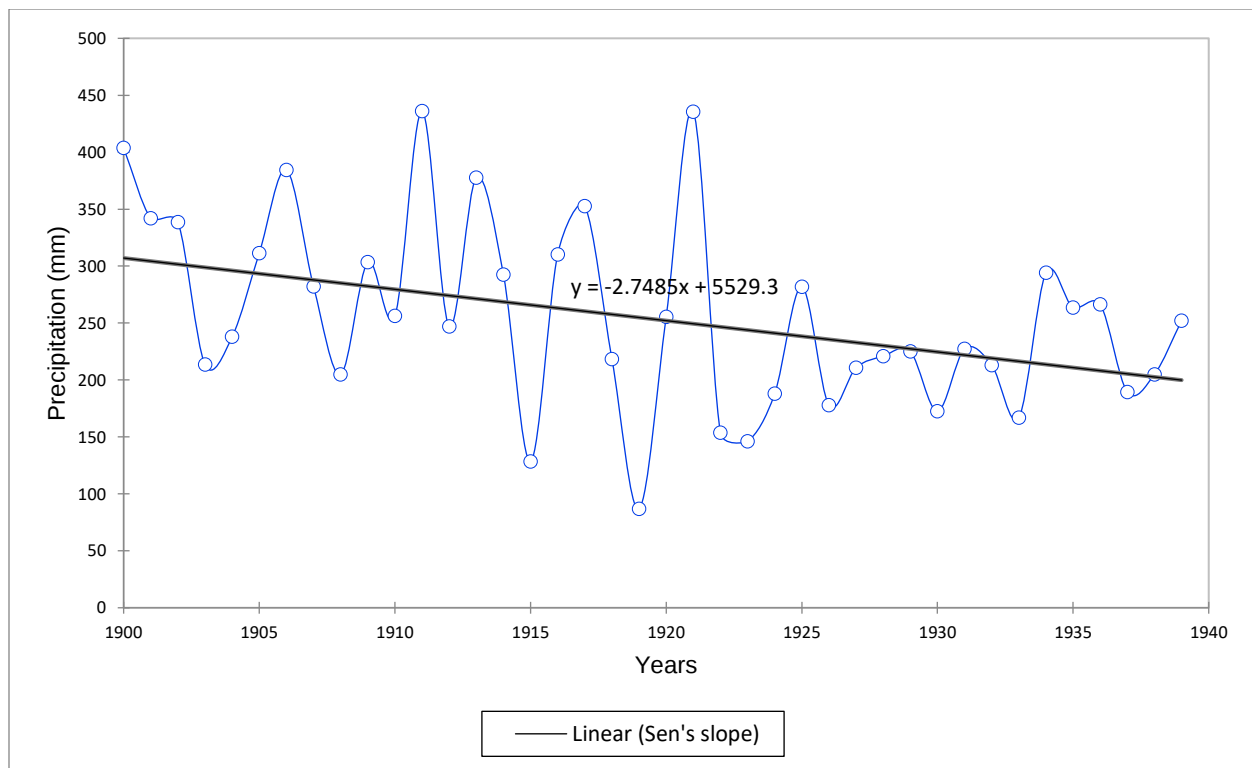


Figure D-226: 1900-1939 Annual trend plot for Klipfontein station.

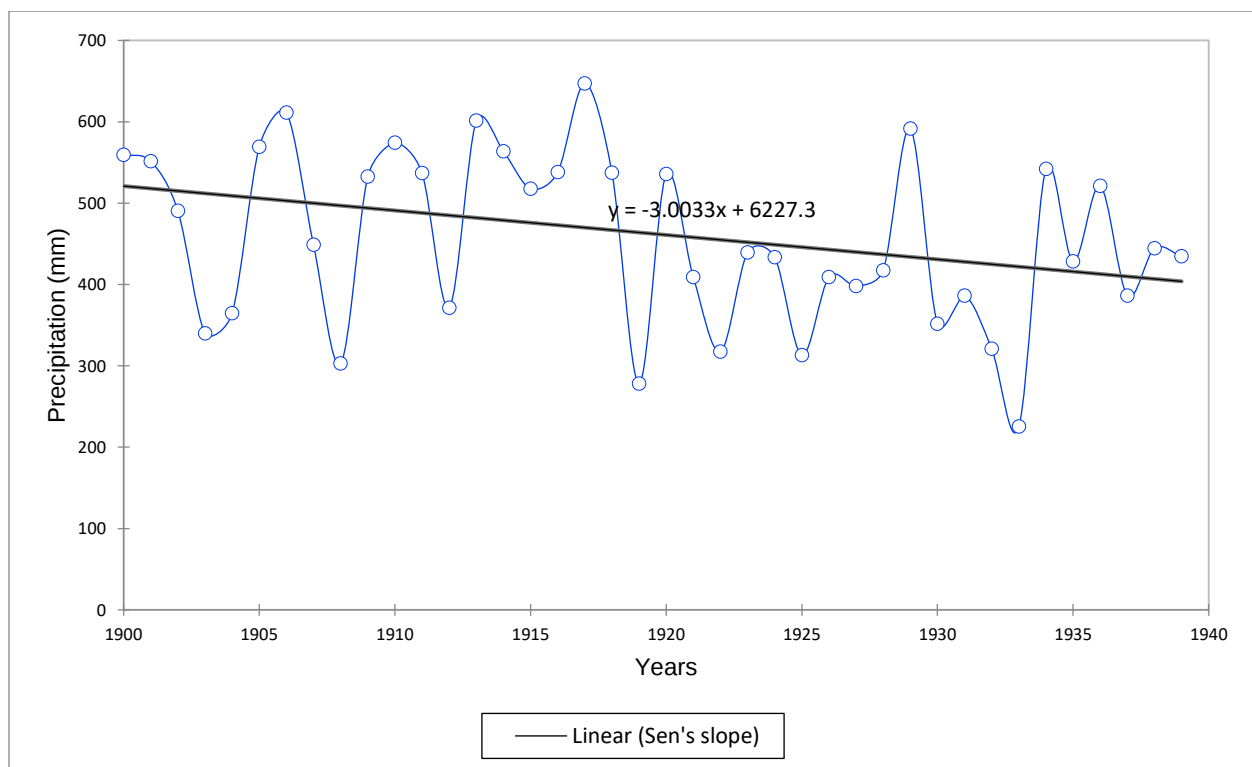


Figure D-227: 1900-1939 Annual trend plot for Sterkstroom station.

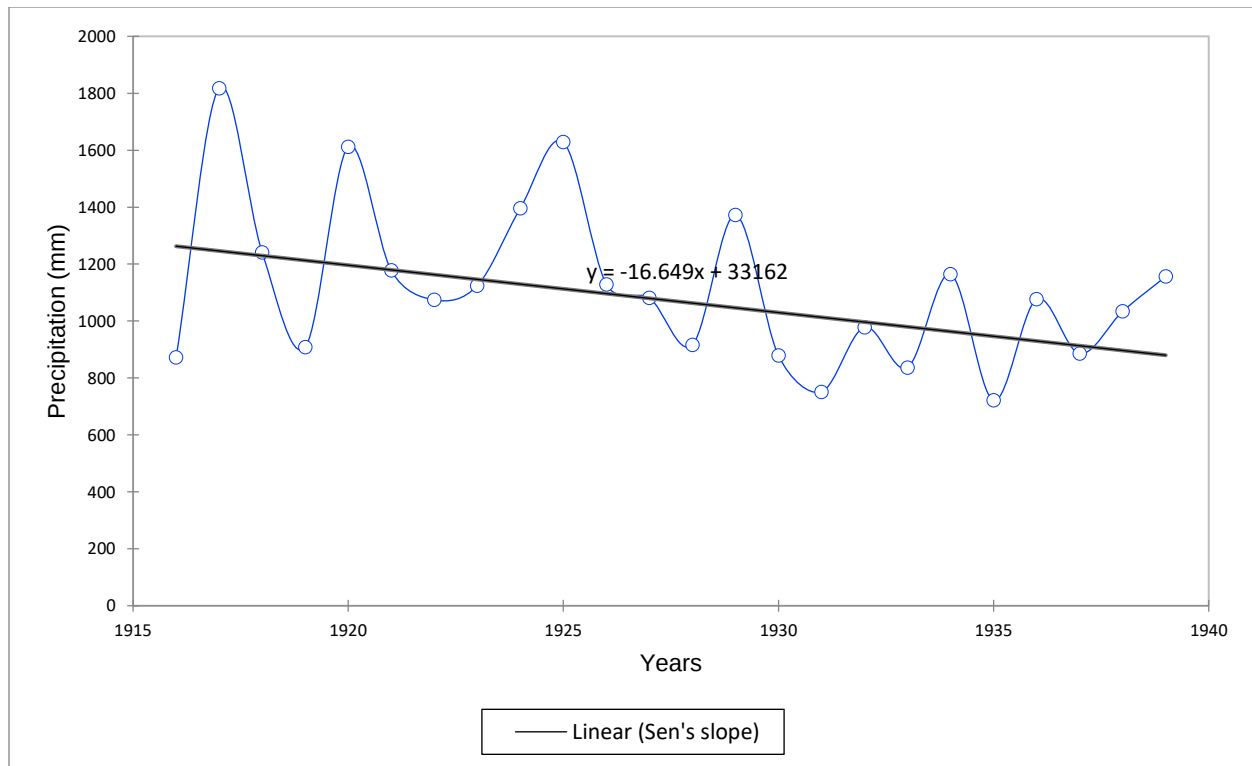


Figure D-228: 1916-1939 Annual trend plot for Richmond Sap station.

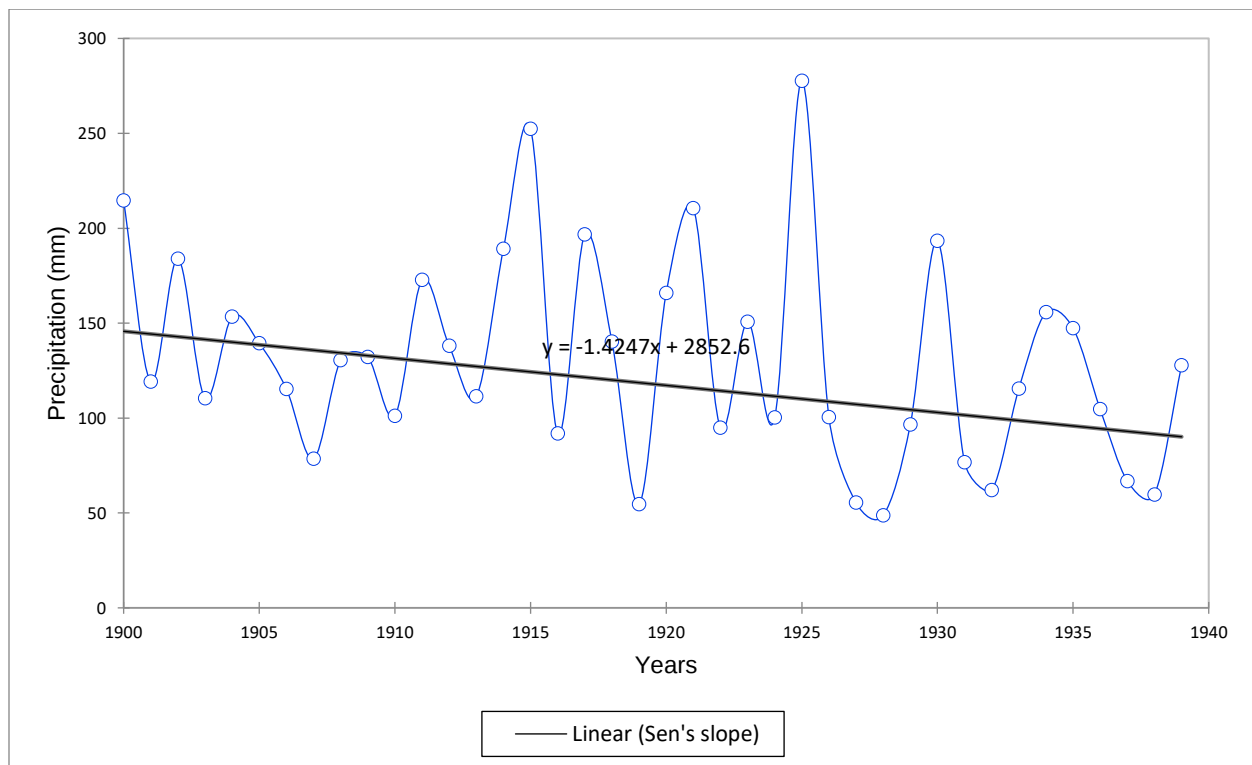


Figure D-229: 1900-1939 Annual trend plot for Steinkopf station.

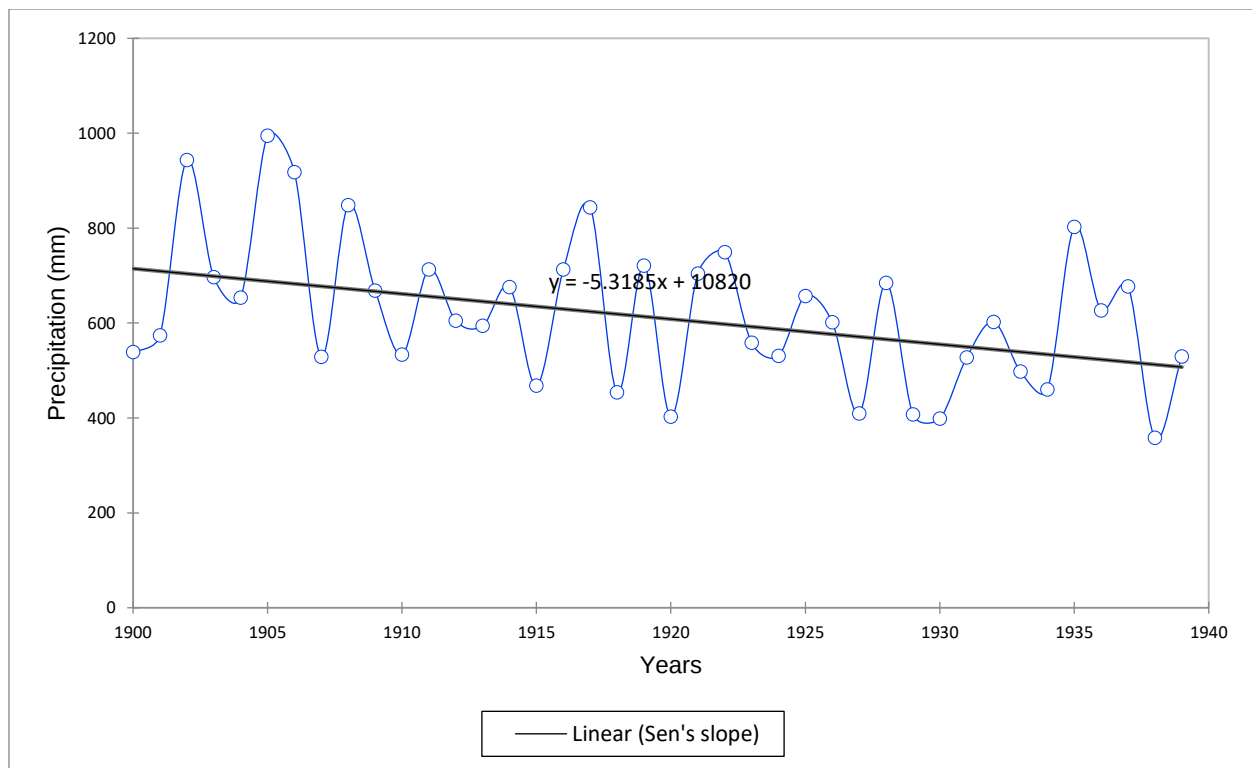


Figure D-230: 1900-1939 Annual trend plot for Plattenbergbaai-Pol station.

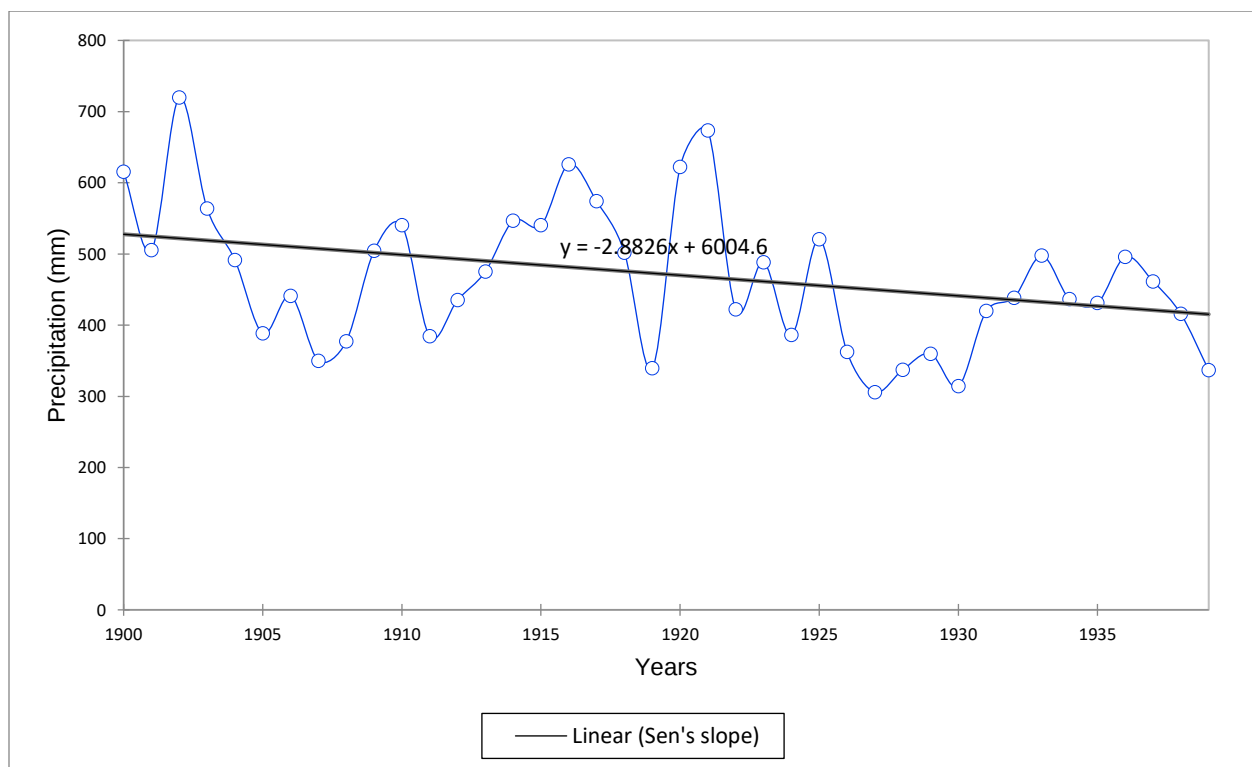


Figure D-231: 1900-1939 Annual trend plot for Tulbagh station.

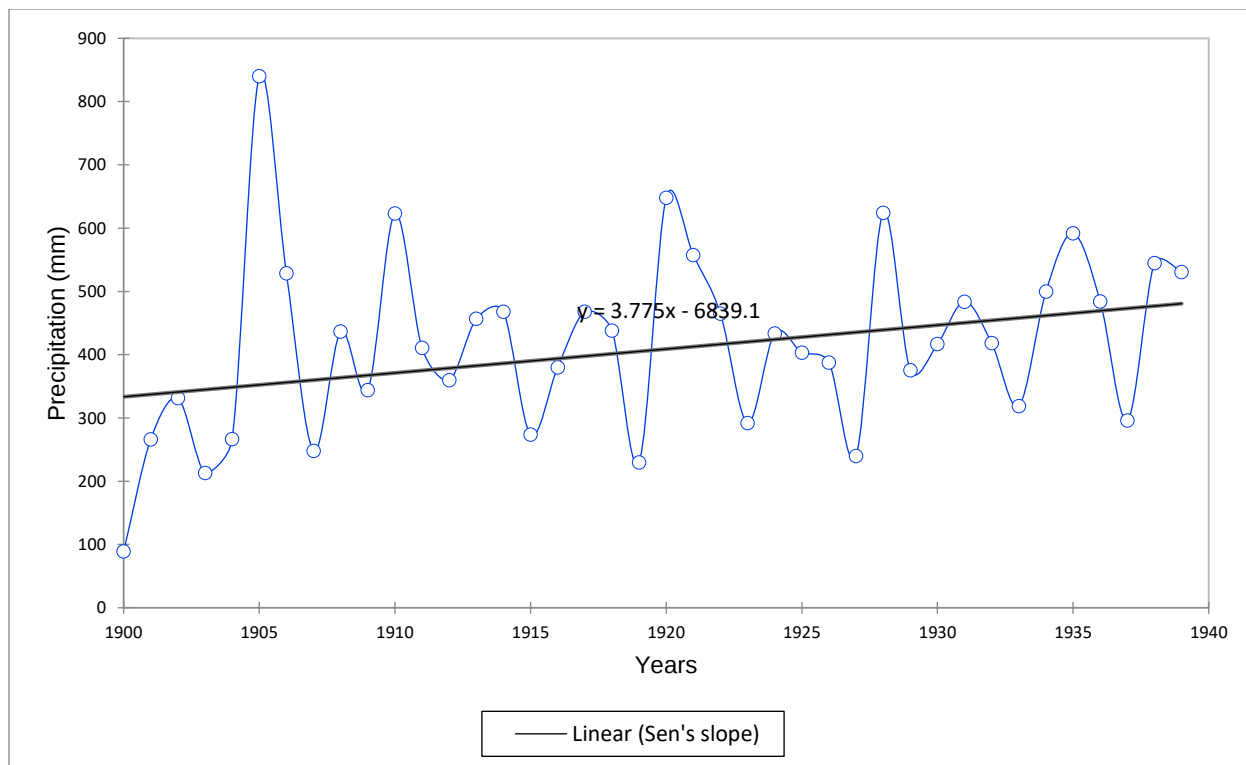


Figure D-232: 1900-1939 Annual trend plot for Alicedale-Mun station.

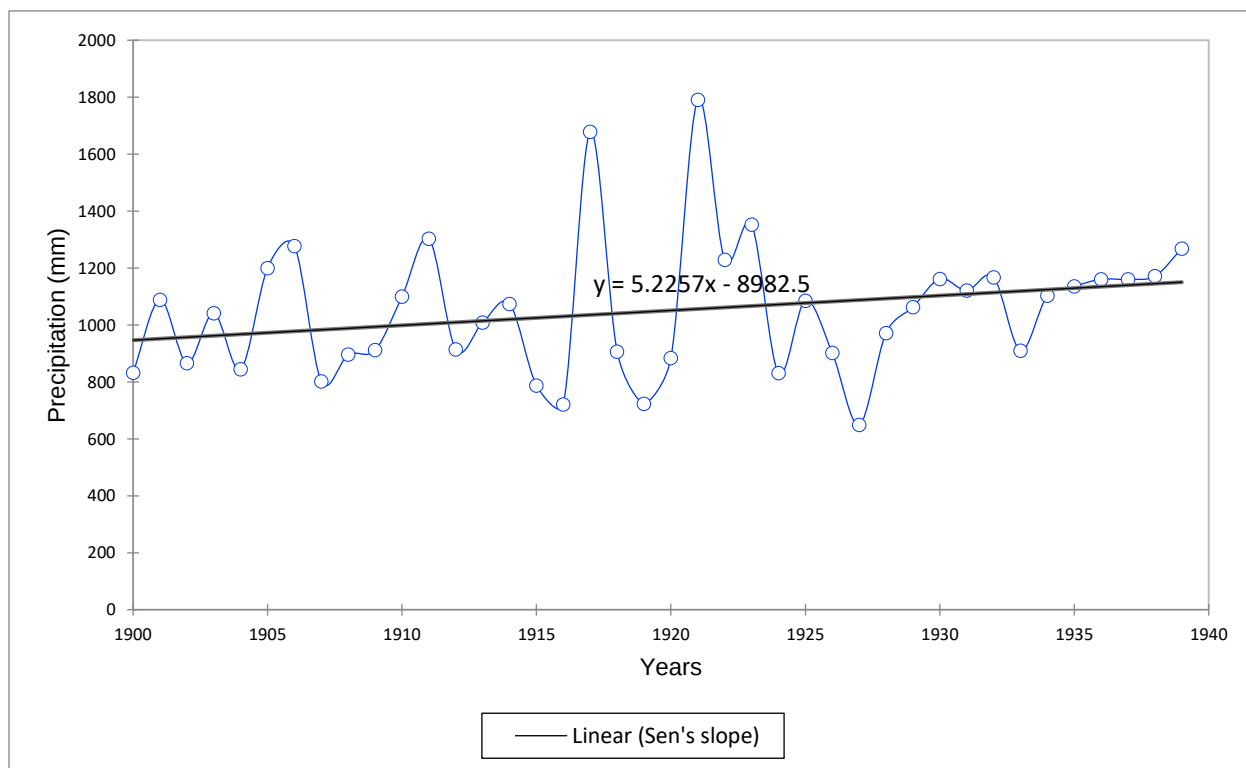


Figure D-233: 1900-1939 Annual trend plot for Amatola State Forest station.

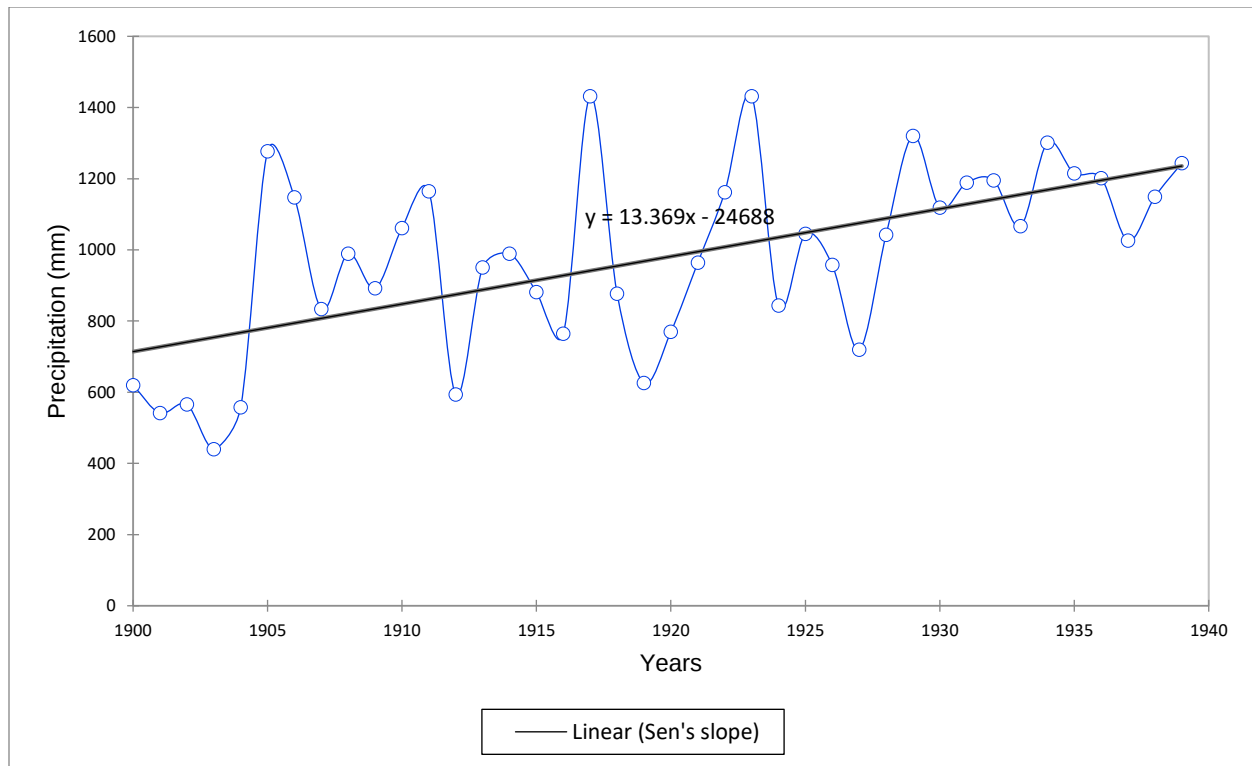


Figure D-234: 1900-1939 Annual trend plot for Kentani-Bos station.

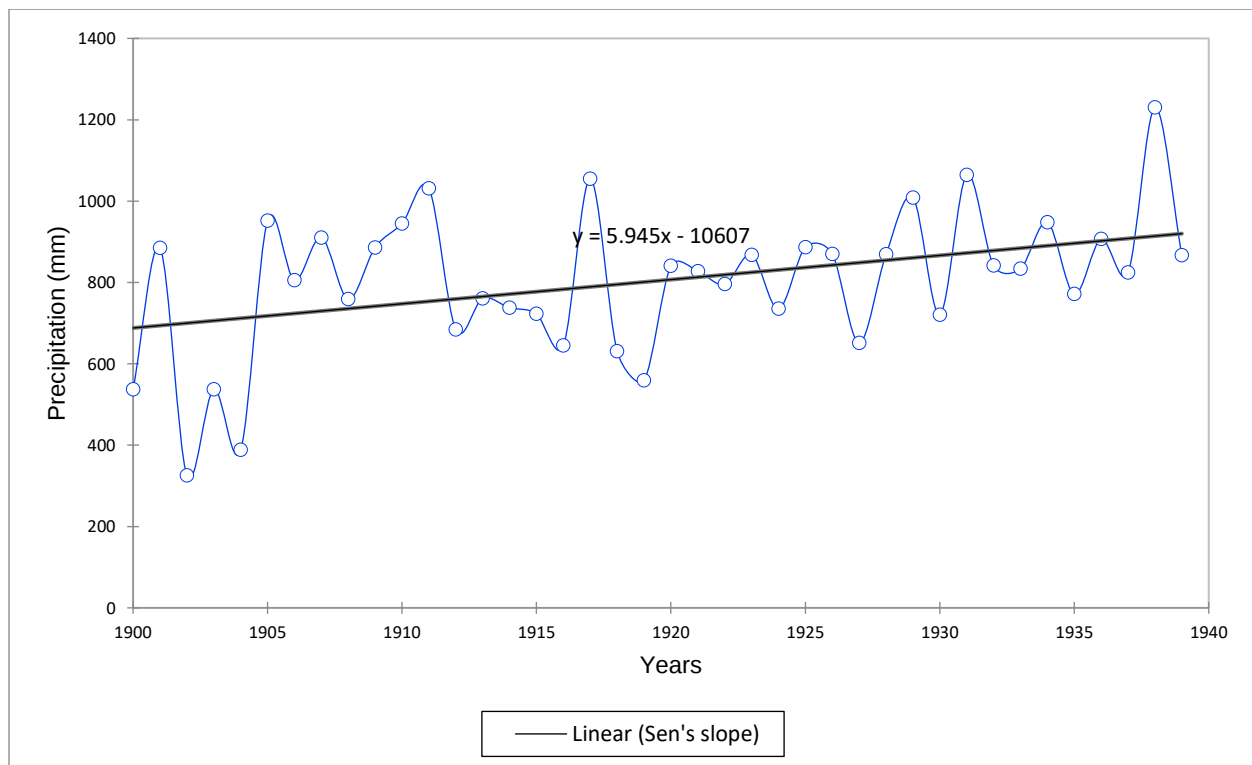


Figure D-235: 1900-1939 Annual trend plot for Engcobo Prison station.

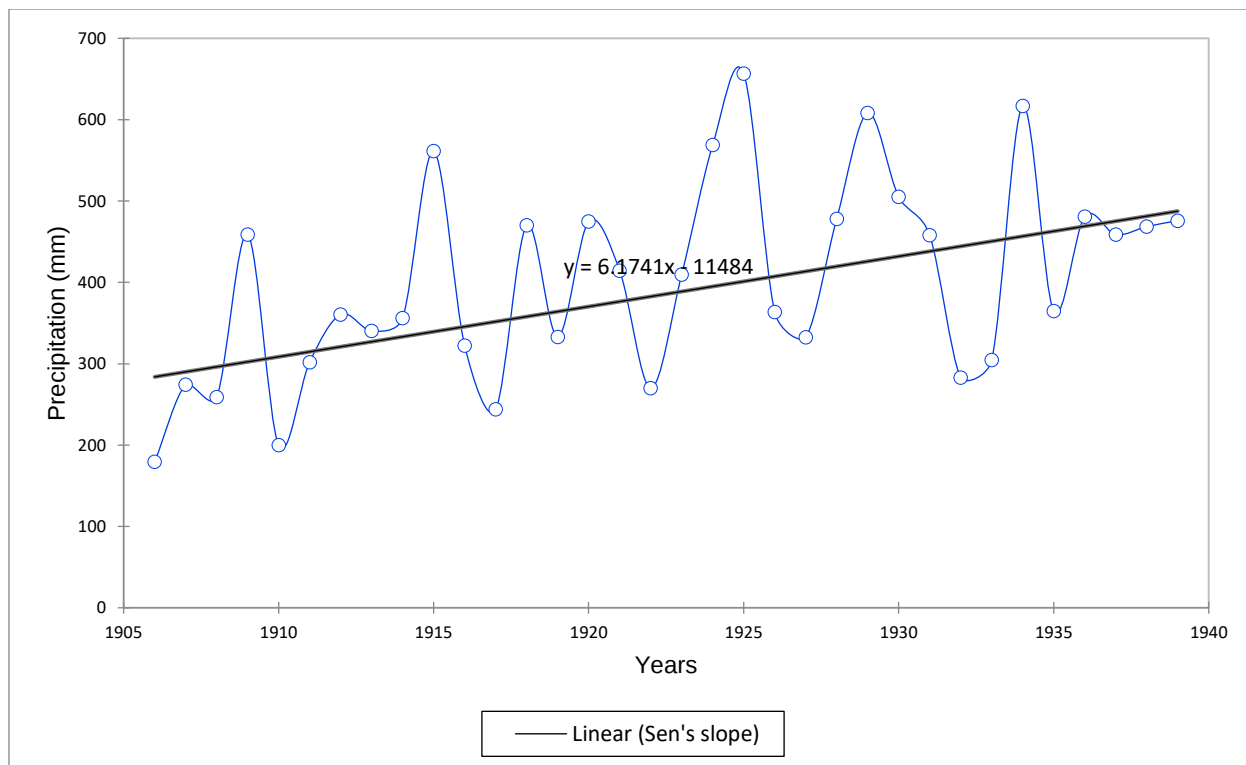


Figure D-236: 1906-1939 Annual trend plot for Lillydale station.

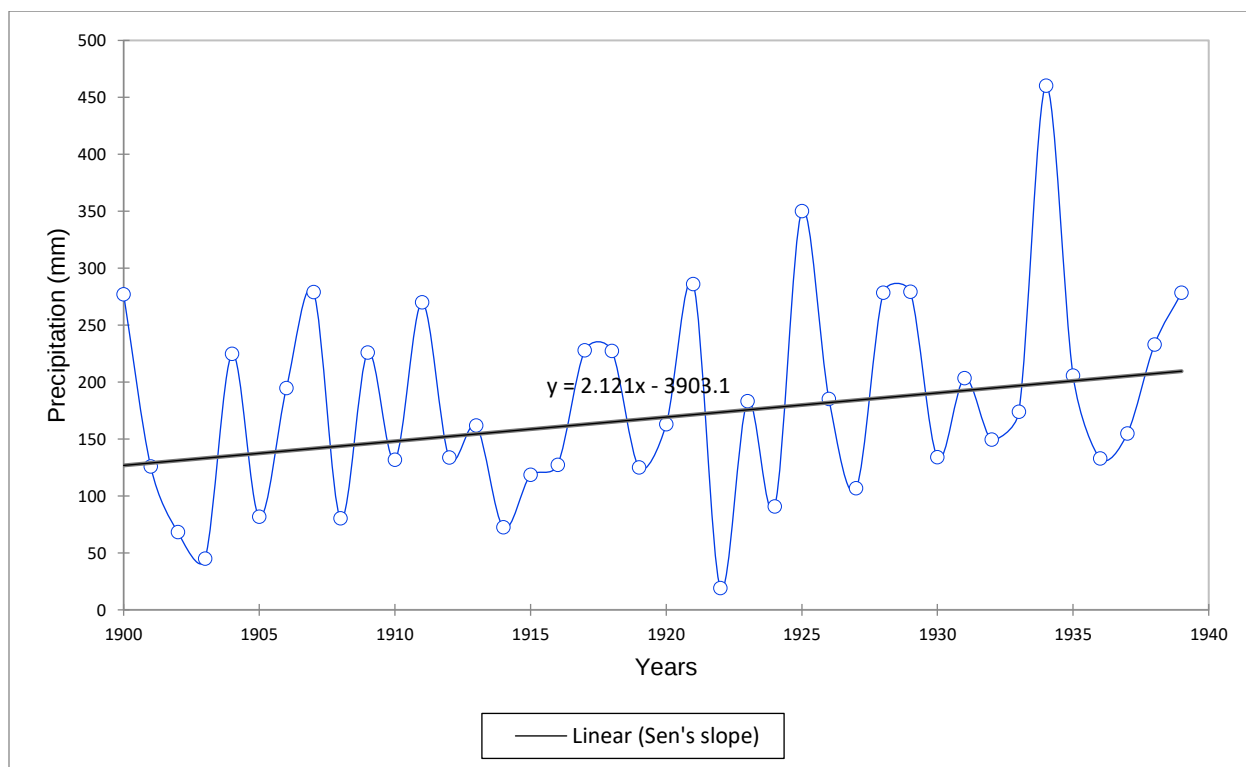


Figure D-237: 1900-1939 Annual trend plot for Thornlea station.

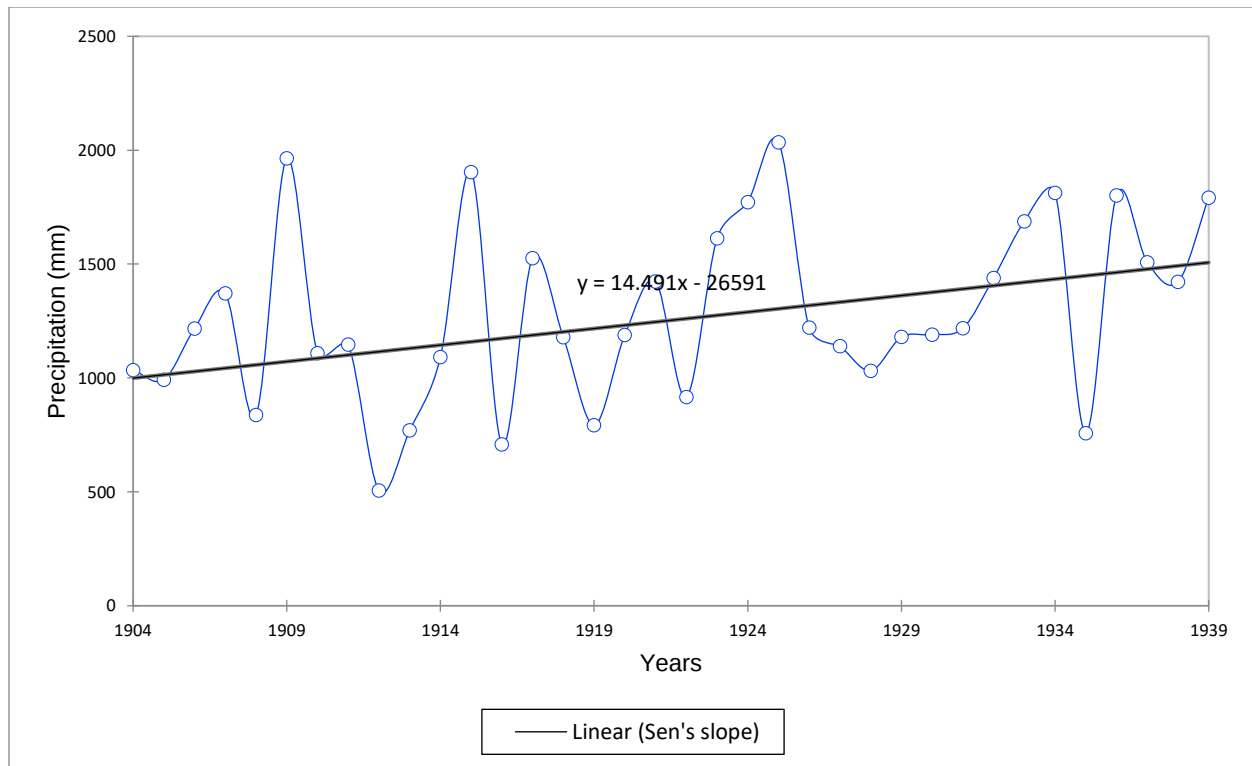


Figure D-238: 1900-1939 Annual trend plot for Klein Australie station.

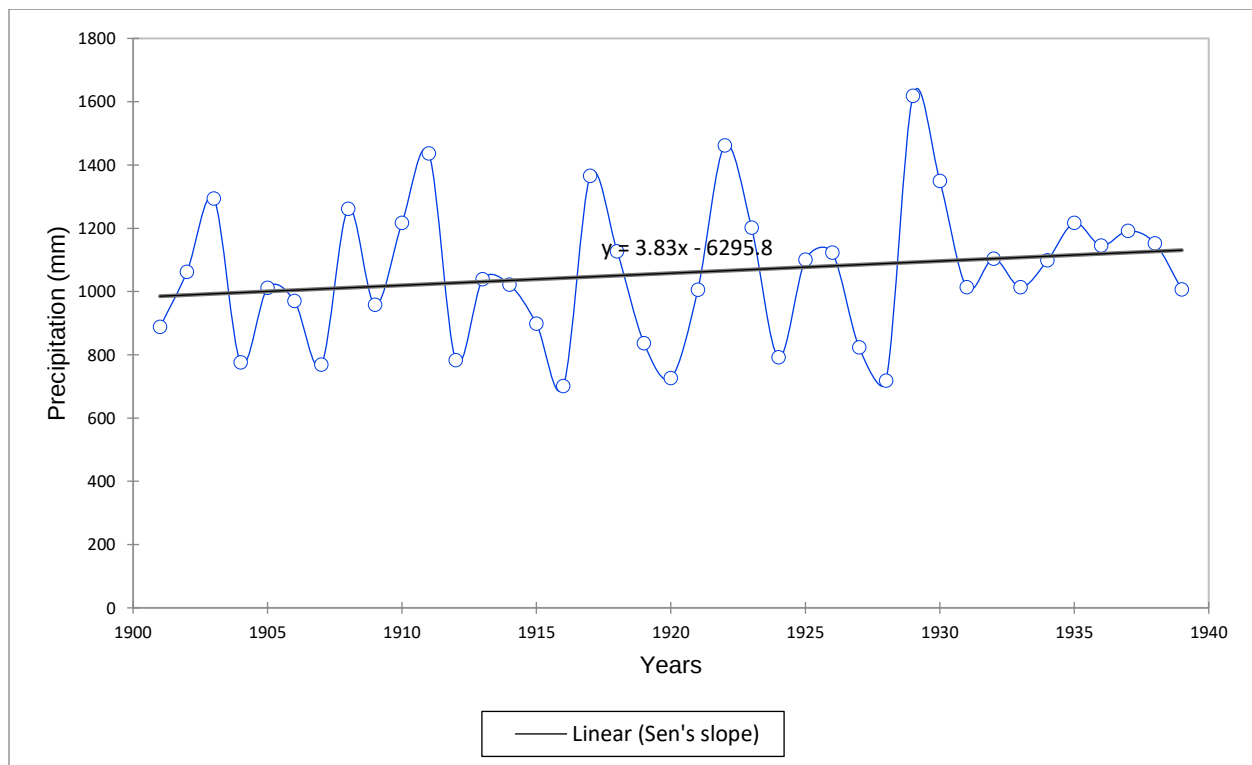


Figure D-239: 1900-1939 Annual trend plot for Cwebe Nature Reserves station.

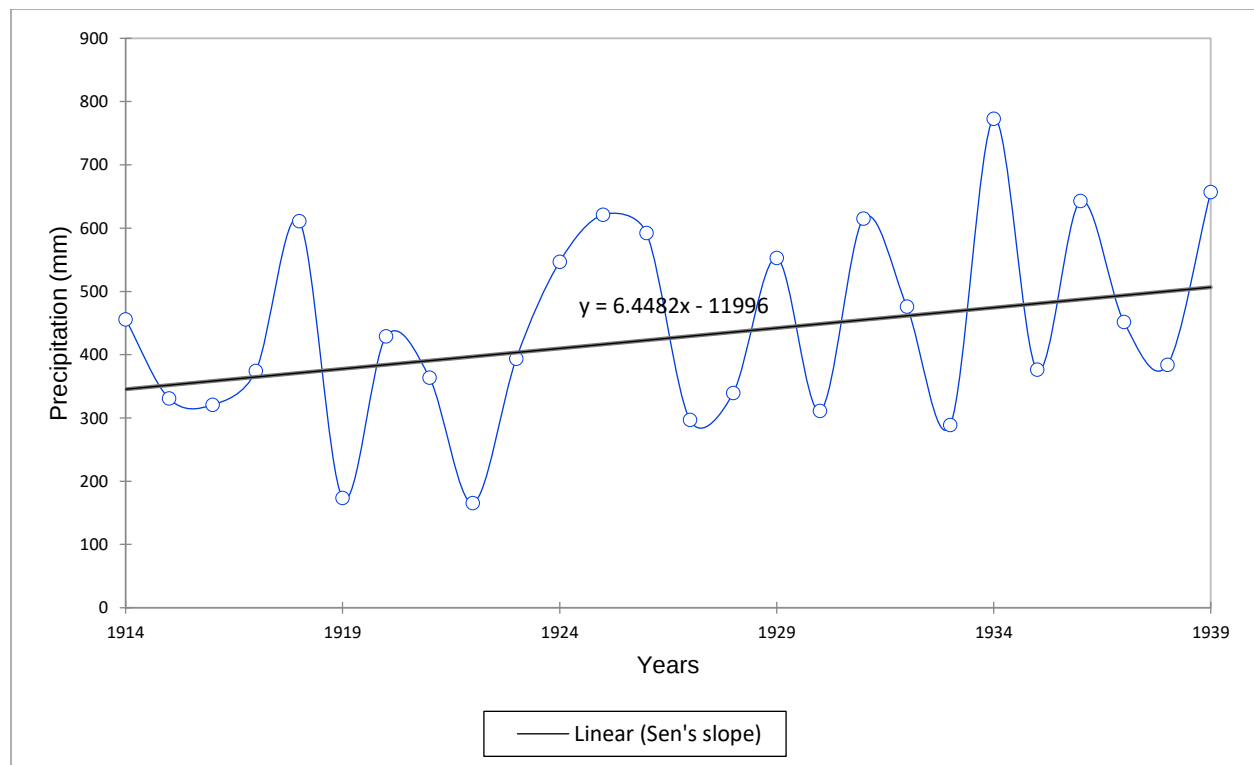


Figure D-240: 1914-1939 Annual trend plot for Boetsap-Pol station.

Table D32: Annual Mann-Kendall trend test results for the period (1940-1979).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Annual (1940-1979)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.669	1.221	0.666	1.221
2	Steytlerville-Mag	-33.33	24.33	419	0.494	1.013	0.492	1.013
3	Alicedale-Mun	-33.32	26.08	276	0.021	4.32	0.022	4.32
4	Grahamstown-Tnk	-33.3	26.53	539	0.002	6.792	0.003	6.792
5	Klipfontein	-32.55	24.72	673	0.146	1.699	0.158	1.699
6	Amatola State Forest	-32.67	27.28	884	0.140	4.080	0.139	4.080
7	Winterhoek	-32.22	24.47	876	0.281	1.853	0.279	1.853
8	Bloemhof	-32.03	24.67	1,091	0.772	0.324	0.771	0.324
9	Exwell Park	-32.2	27.12	914	0.324	1.610	0.322	1.610
10	Kentani-Bos	-32.5	28.32	488	0.635	-1.409	0.633	-1.409
11	Cwebe Nature Reserve	-32.2	28.93	61	0.005	9.169	0.002	9.169
12	Sterkstroom	-31.55	26.55	1,343	0.972	-0.084	0.972	-0.084
13	Engcobo Prison	-31.67	28.0	975	0.772	1.082	0.771	1.082
14	Xhora Prison	-31.97	28.67	671	0.972	-0.135	0.965	-0.135

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.576	0.839	0.584	0.839
16	Ellesmere	-30.67	26.32	1,387	0.991	0.080	0.991	0.080
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.075	3.276	0.075	3.276
18	Petrusville-Pol	-30.08	24.67	1,212	0.524	1.225	0.619	1.225
19	Philippolis-Pol	-30.27	25.27	1,372	0.411	1.396	0.408	1.396
20	Hopetown-Tnk	-29.62	24.08	1,661	0.000	6.375	0.001	6.375
21	Lillydale	-30.0	25.95	1,098	0.060	3.889	0.061	3.889
22	Richmond S.A. P	-29.87	30.27	1,509	0.251	2.779	0.249	2.779
23	Durban Botanical Gardens	-29.85	31.0	91	0.571	1.907	0.519	1.907
24	Steinkopf	-29.25	17.73	91	0.013	-2.231	0.014	-2.231
25	Nuwejaarskraal	-29.37	23.12	884	0.160	-2.308	0.159	-2.308
26	Maselspoort Dam	-29.03	26.42	1,372	0.619	1.093	0.616	1.093
27	Boetsap-Pol	-27.97	24.45	1,189	0.808	-0.626	0.807	-0.626
28	Odendaalsrus	-27.87	26.68	1,341	0.972	0.083	0.972	0.083
29	Bothaville-Mun	-27.55	26.62	1,280	0.452	1.661	0.449	1.661
30	Beerlaagte	-26.82	28.43	1,615	0.146	2.905	0.145	2.905
31	Balfour	-26.65	28.58	1,555	0.01	6.599	0.011	6.599
32	De Emigratie	-26.77	30.12	1,676	0.899	0.048	0.898	0.048
33	Morokweng	-26.12	23.78	1,126	0.232	1.905	0.230	1.905
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.111	3.484	0.110	3.484
35	Swartruggens-Pol	-25.63	26.68	1,311	0.041	5.782	0.041	5.782
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.270	1.809	0.268	1.809
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.755	0.564	0.779	0.564
38	Machadodorp	-25.67	30.25	1,609	0.755	0.977	0.753	0.977
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.602	0.980	0.541	0.980
40	Haenertsburg	-23.93	29.93	1,402	0.008	11.130	0.032	11.130
41	Prince Albert-Tnk	-33.22	22.03	686	0.798	-0.325	0.789	-0.325
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.197	2.577	0.196	2.577
43	Tulbagh	-33.28	19.13	155	0.128	-3.488	0.127	-3.488
44	Darling-The Towers	-33.38	18.37	229	0.01	-4.060	0.011	-4.600
45	Thornlea	-28.63	21.52	884	0.182	0.028	0.180	0.028
46	Klein Australie	-23.05	30.22	702	0.174	-8.033	0.249	-8.033

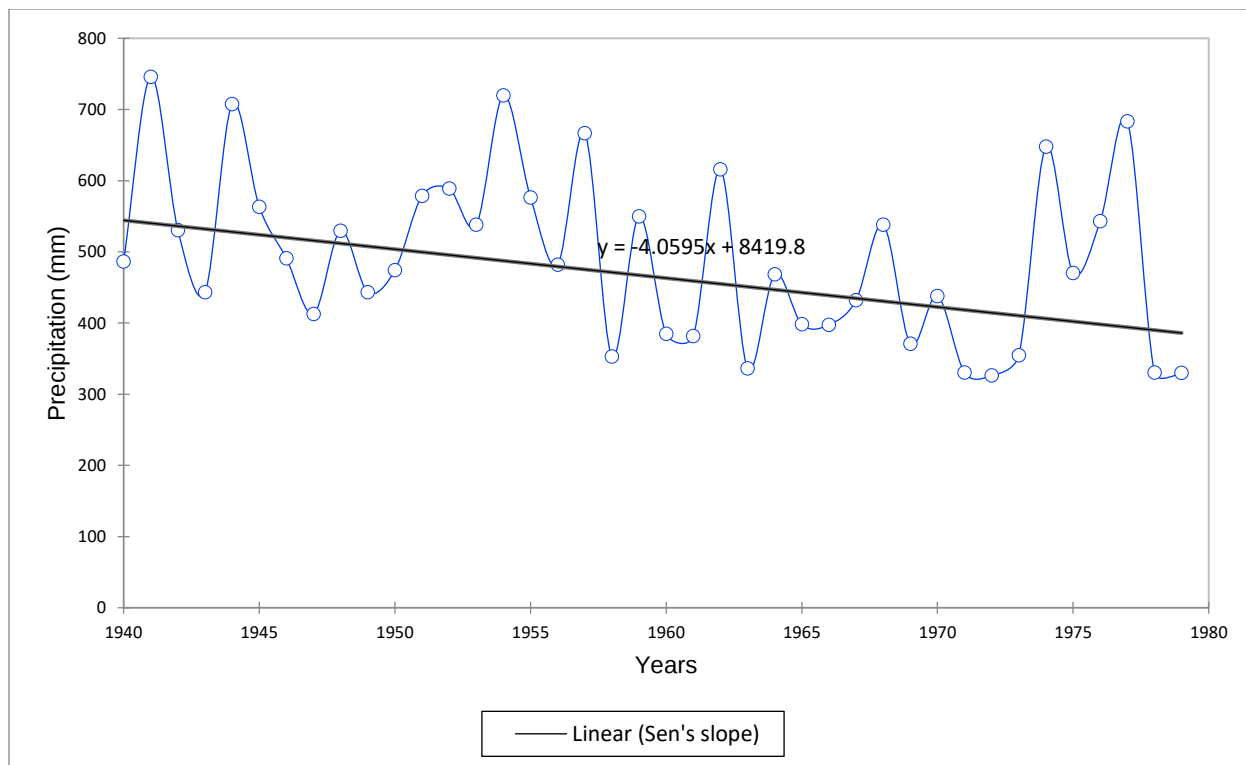


Figure D-241: 1940-1979 Annual trend plot for Darling Towers stations.

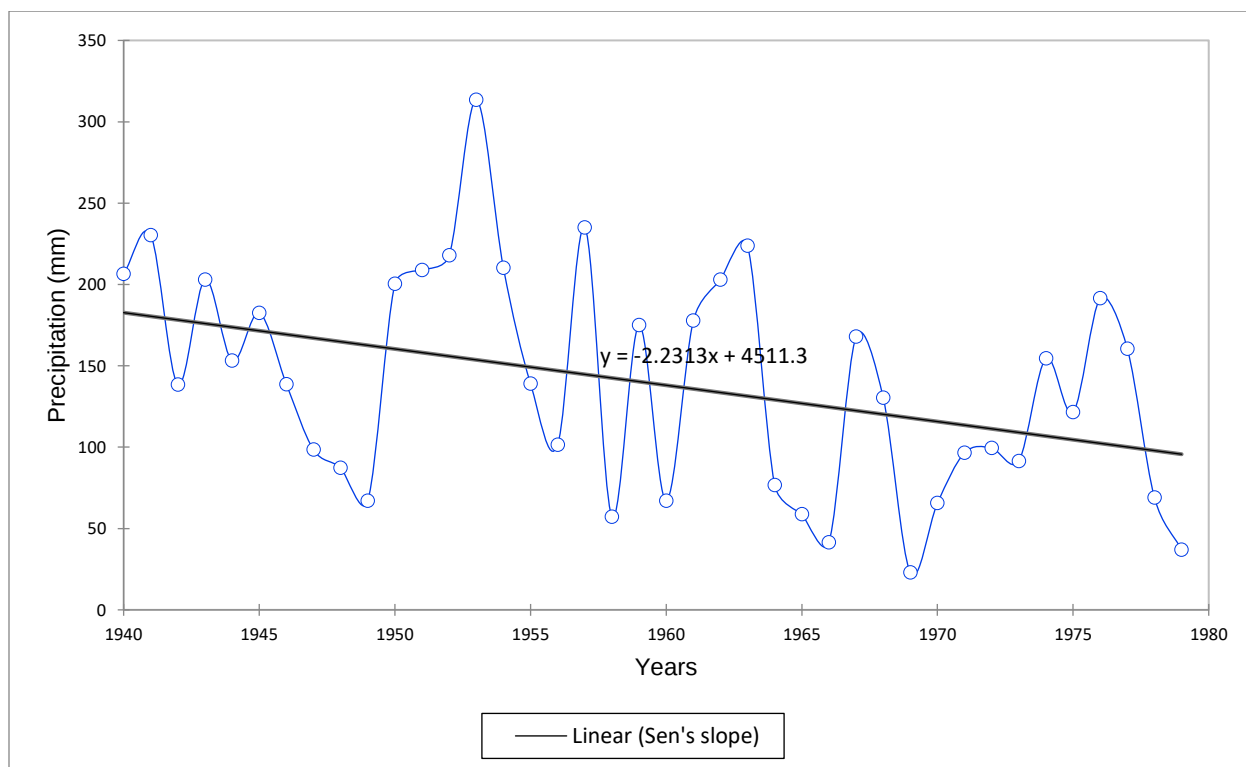


Figure D-242: 1940-1979 Annual trend plot for Steinkopf station.

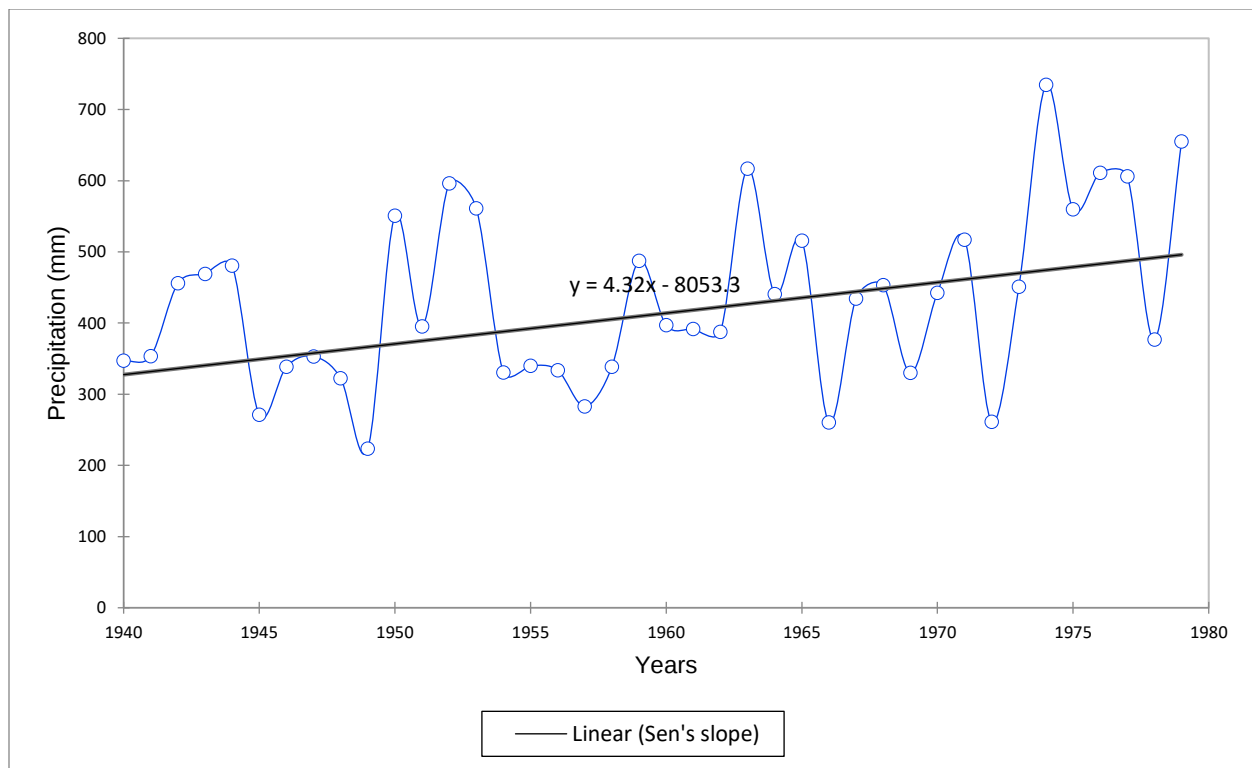


Figure D-243: 1940-1979 Annual trend plot for Alicedale-Mun station.

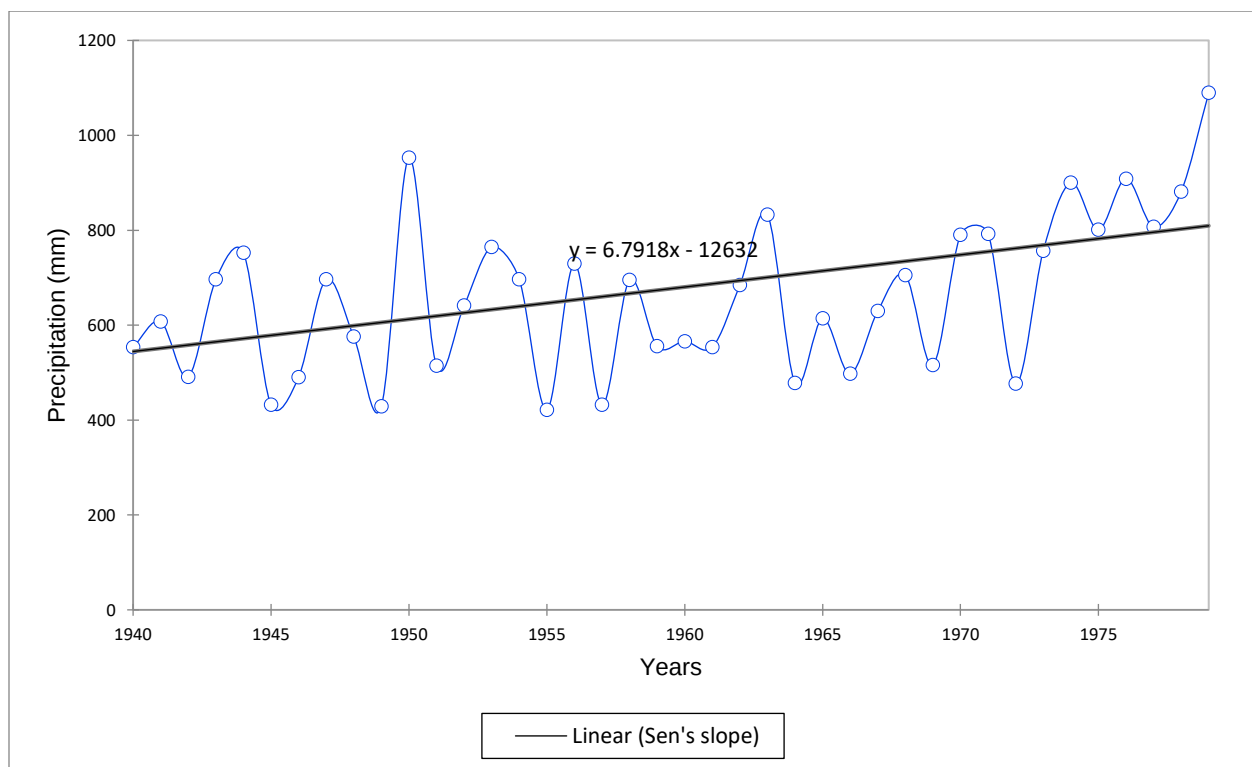


Figure D-244: 1940-1979 Annual trend plot for Grahamstown-TNK station.

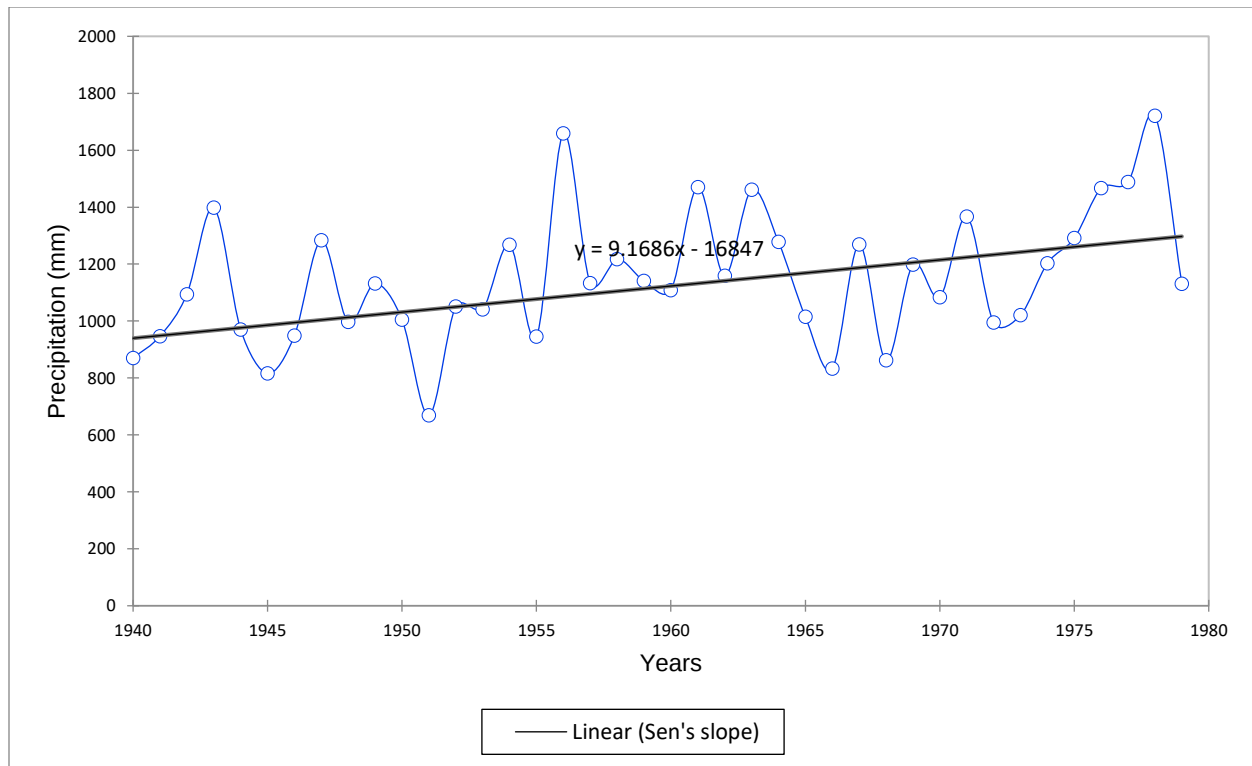


Figure D-245: 1940-1979 Annual trend plot for Cwebe Nature Reserve station.

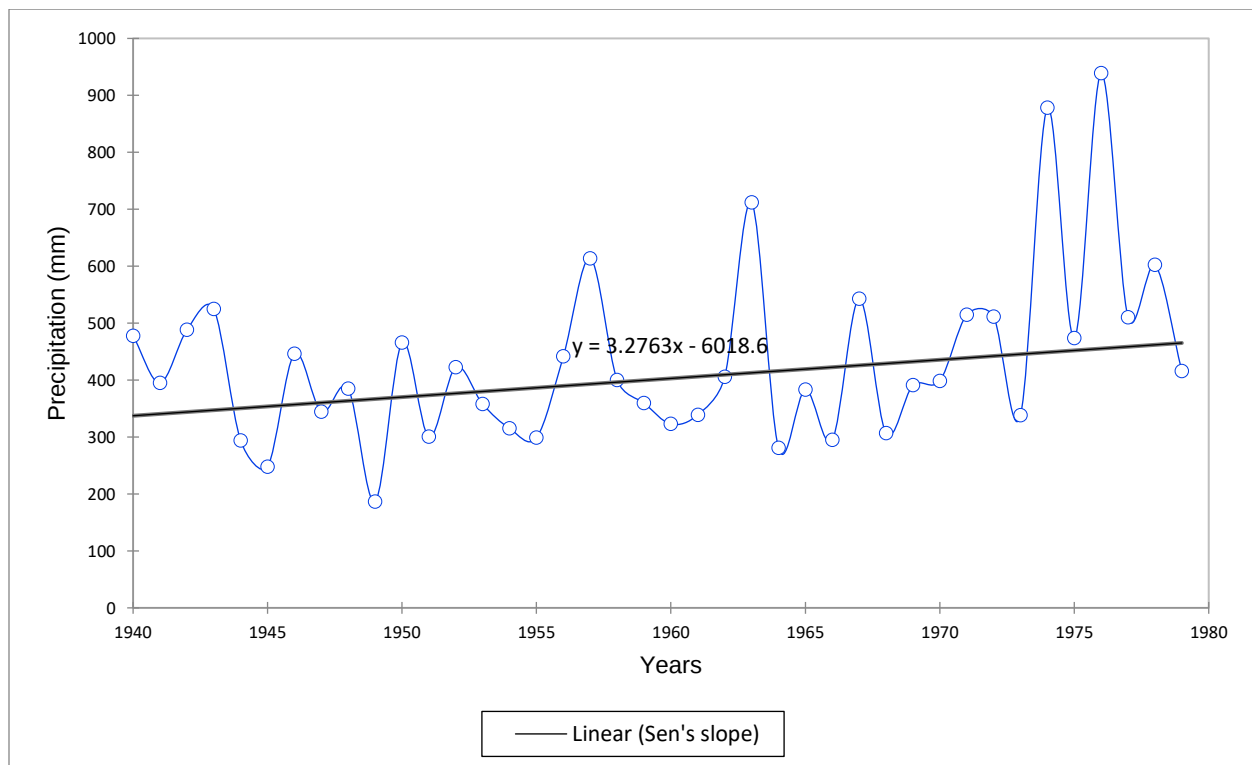


Figure D-246: 1940-1979 Annual trend plot for Burgersdorp-Pol station.

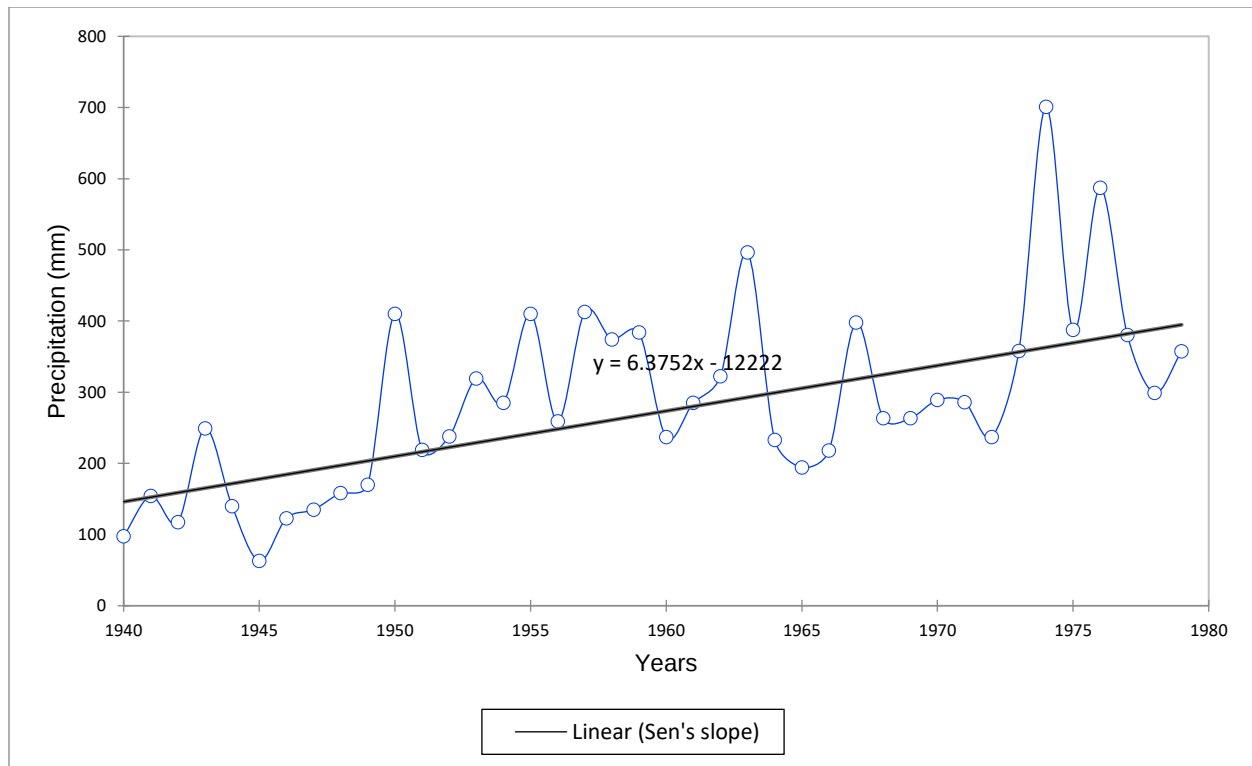


Figure D-247: 1940-1979 Annual trend plot for Hopetown-TNK station.

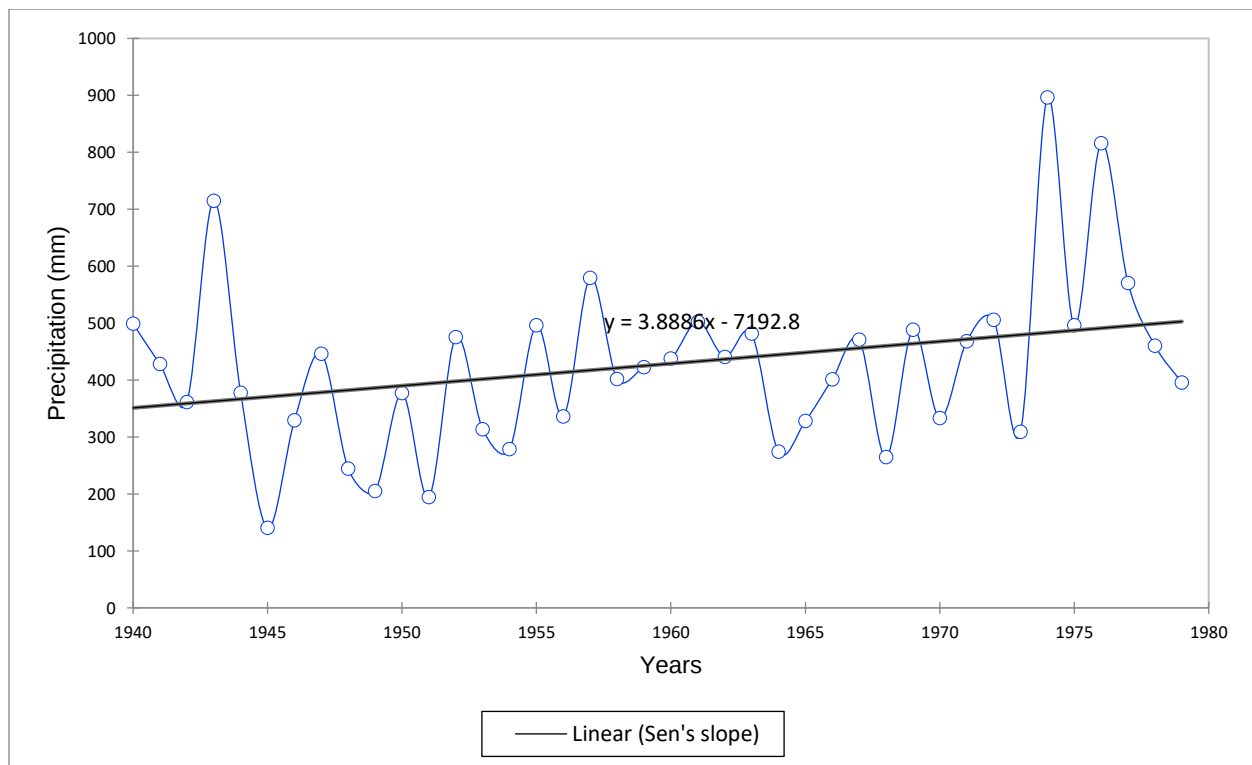


Figure D-248: 1940-1979 Annual trend plot for Lillydale station.

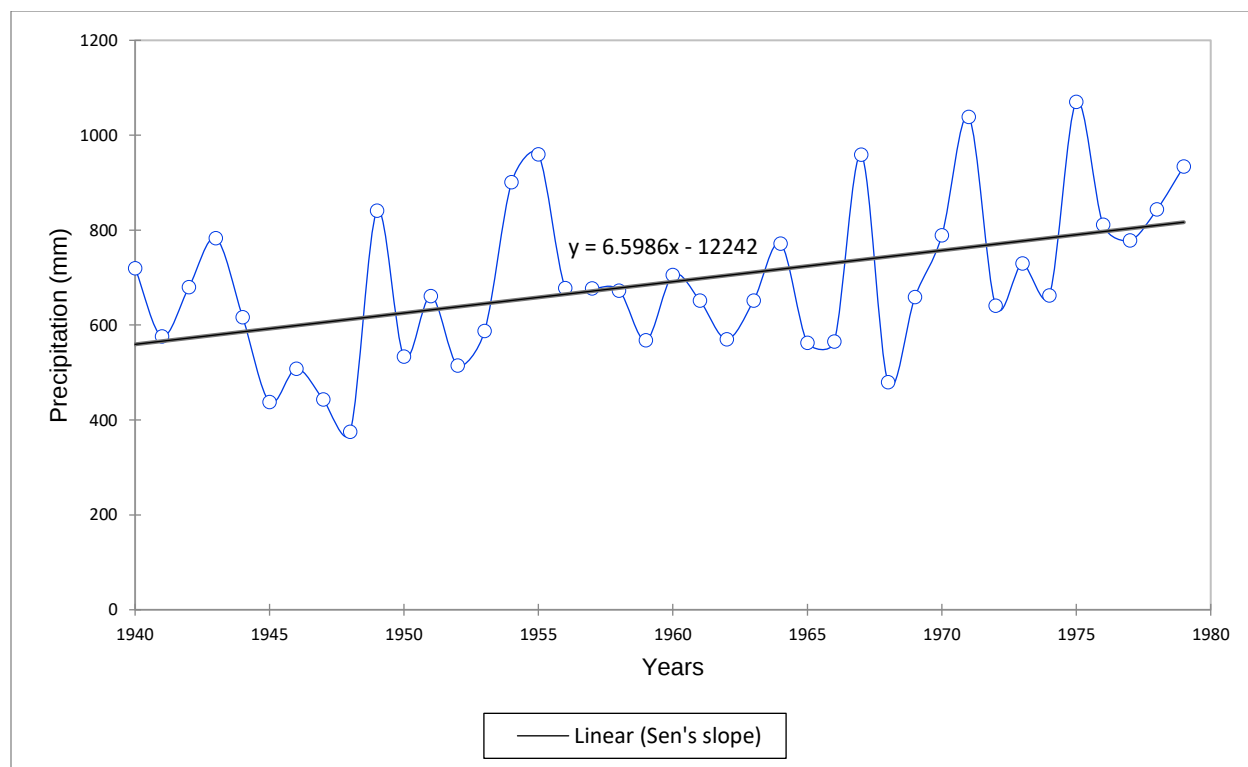


Figure D-249: 1940-1979 Annual trend plot for Balfour station.

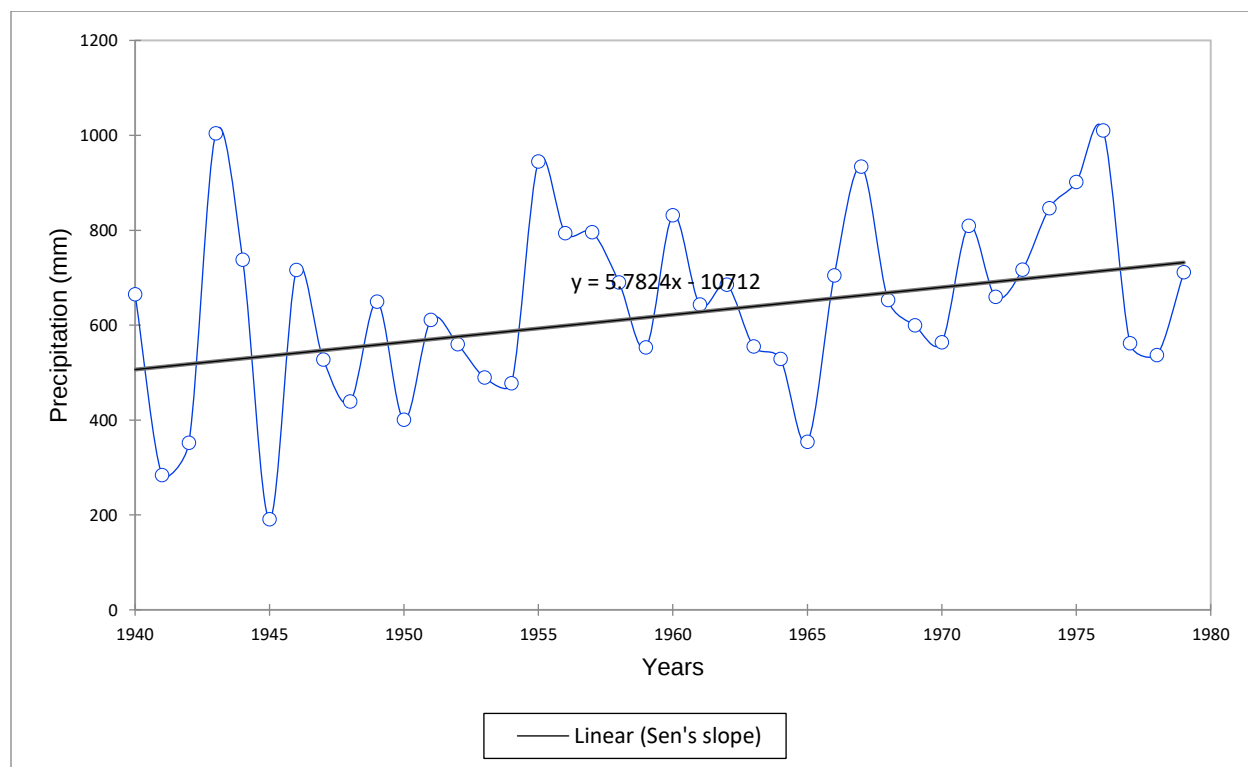


Figure D-250: 1940-1979 Annual trend plot for Swartruggens-Pol.

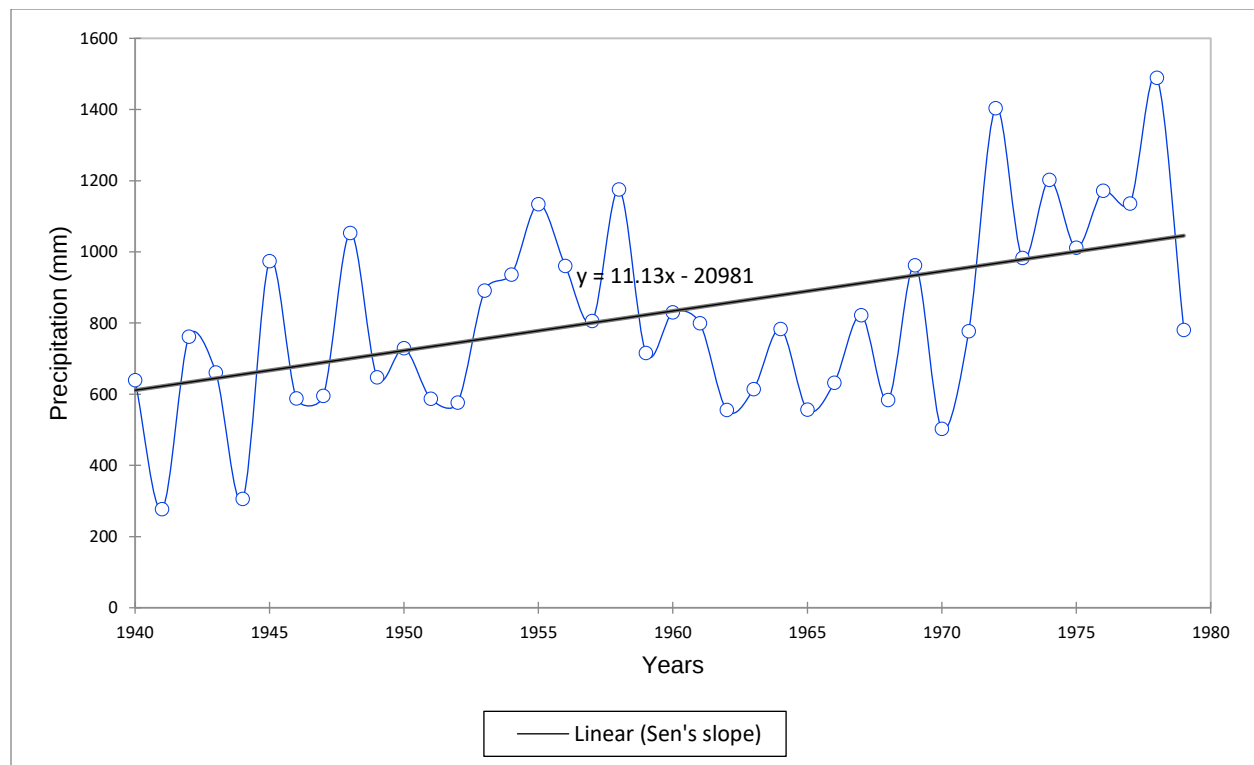


Figure D-251: 1940-1979 Annual trend plot for Haenerstburg station.

Table D33: Annual Mann-Kendall trend test results for the period (1980-2019).

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Annual (1980-2019)			
					Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
1	Humansdorp	-34.03	24.77	152	0.735	0.963	0.733	0.963
2	Steytlerville-Mag	-33.33	24.33	419	0.790	0.473	0.789	0.473
3	Alicedale-Mun	-33.32	26.08	276	0.642	1.205	0.688	1.205
4	Grahamstown-Tnk	-33.3	26.53	539	0.111	-4.620	0.11	-4.620
5	Klipfontein	-32.55	24.72	673	0.826	-0.136	0.825	-0.136
6	Amatola State Forest	-32.67	27.28	884	0.602	-1.872	0.600	-1.872
7	Winterhoek	-32.22	24.47	876	0.438	-1.757	0.435	-1.757
8	Bloemhof	-32.03	24.67	1,091	0.755	0.504	0.753	0.504
9	Exwell Park	-32.2	27.12	914	0.862	-0.369	0.813	-0.369
10	Kentani-Bos	-32.5	28.32	488	0.772	-1.695	0.771	-1.695
11	Cwebe Nature Reserve	-32.2	28.93	61	0.324	-3.498	0.322	-3.498
12	Sterkstroom	-31.55	26.55	1,343	0.174	-3.199	0.173	-3.199
13	Engcobo Prison	-31.67	28	975	0.826	0.655	0.781	0.655
14	Xhora Prison	-31.97	28.67	671	0.313	-3.883	0.311	-3.883

No	Station Name	Lat (Deg)	Long (Deg)	Elevation (m)	Mann-Kendall		Modified Mann-Kendall	
					P	Sen' Slope	P	Sen' Slope
15	Richmond C/K-Tnk	-31.42	23.95	1,433	0.083	-2.724	0.083	-2.724
16	Ellesmere	-30.67	26.32	1,387	0.977	-0.089	0.950	-0.089
17	Burgersdorp-Pol	-31.0	26.33	1,387	0.001	-8.397	0.001	-8.397
18	Petrusville-Pol	-30.08	24.67	1,212	0.291	-1.697	0.293	-0.697
19	Philippolis-Pol	-30.27	25.27	1,372	0.023	-4.146	0.024	-4.416
20	Hopetown-Tnk	-29.62	24.08	1,661	0.586	-0.771	0.584	-0.771
21	Lillydale	-30.0	25.95	1,098	0.637	-1.528	0.634	-1.528
22	Richmond S.A. P	-29.87	30.27	1,509	0.114	-9.366	0.004	-9.366
23	Durban Botanical Gardens	-29.85	31.0	91	0.012	-9.635	0.002	-9.635
24	Steinkopf	-29.25	17.73	91	0.197	-1.146	0.297	-1.146
25	Nuwejaarskraal	-29.37	23.12	884	0.006	3.471	0.006	3.471
26	Maselspoort Dam	-29.03	26.42	1,372	0.826	-0.697	0.825	0.697
27	Boetsap-Pol	-27.97	24.45	1,189	0.685	1.009	0.683	1.009
28	Odendaalsrus	-27.87	26.68	1,341	0.091	-3.778	0.091	-3.778
29	Bothaville-Mun	-27.55	26.62	1,280	0.991	0.197	1.000	0.197
30	Beerlaagte	-26.82	28.43	1,615	0.747	1.327	0.745	1.327
31	Balfour	-26.65	28.58	1,555	0.176	-5.969	0.174	-5.969
32	De Emigratie	-26.77	30.12	1,676	0.348	2.291	0.345	2.291
33	Morokweng	-26.12	23.78	1,126	0.544	-1.491	0.541	-1.491
34	Ottoshoop-Pol	-25.75	25.97	1,433	0.223	3.904	0.221	3.904
35	Swartruggens-Pol	-25.63	26.68	1,311	0.438	2.156	0.397	2.156
36	Premier Mine-Cullinan	-25.67	28.52	1,375	0.342	-5.458	0.339	-5.458
37	Bronkhorstspuit-Mun	-25.8	28.73	1,427	0.398	-2.686	0.395	-2.686
38	Machadodorp	-25.67	30.25	1,609	0.972	0.211	0.946	0.211
39	Naboomspruit-Pol	-24.52	28.72	1,113	0.652	0.951	0.650	0.951
40	Haenertsburg	-23.93	29.93	1,402	0.669	-1.045	0.628	-1.045
41	Prince Albert-Tnk	-33.22	22.03	686	0.146	-1.313	0.145	-1.313
42	Plettenbergbaai-Pol	-34.05	23.37	73	0.810	-1.305	0.808	-1.305
43	Tulbagh	-33.28	19.13	155	0.385	1.695	0.302	1.659
44	Darling-The Towers	-33.38	18.37	229	0.746	0.583	0.772	0.583
45	Thornlea	-28.63	21.52	884	0.466	0.024	0.463	0.024
46	Klein Australie	-23.05	30.22	702	0.571	2.897	0.464	2.897

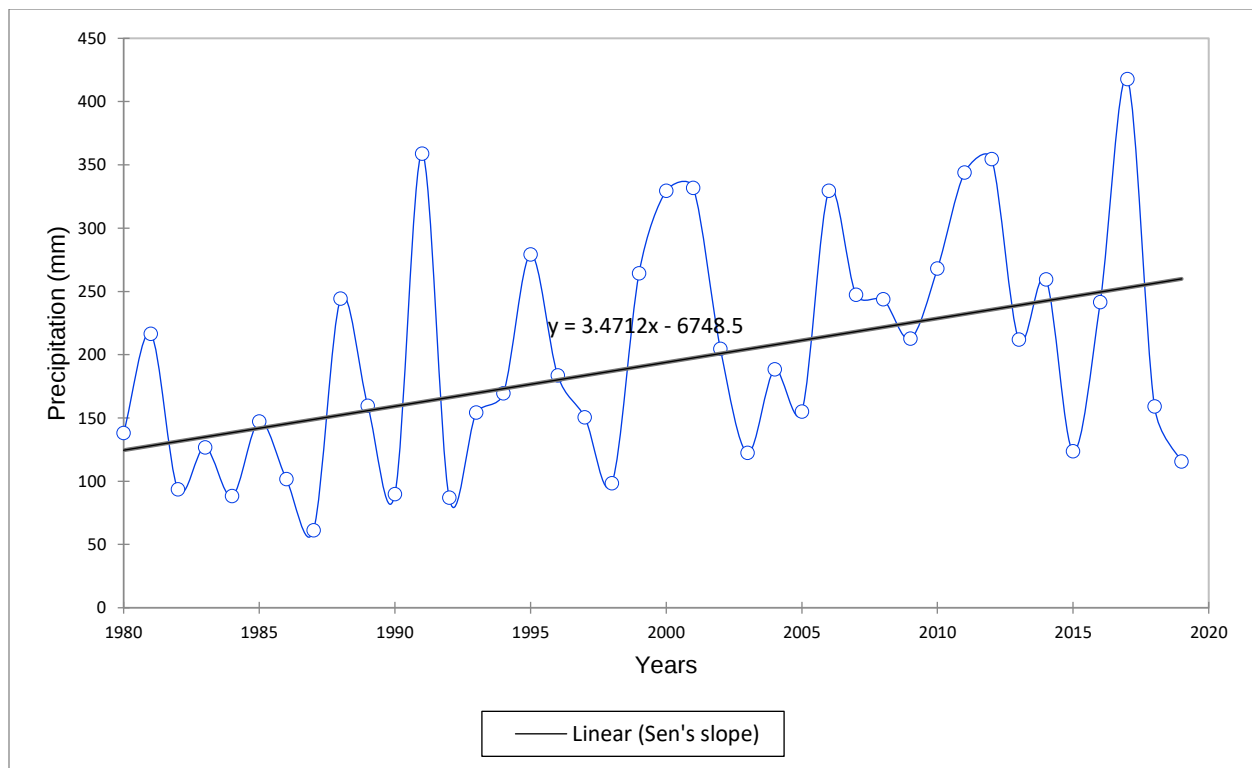


Figure D-252: 1980-2019 Annual trend plot for Nuwejaarskraal station.

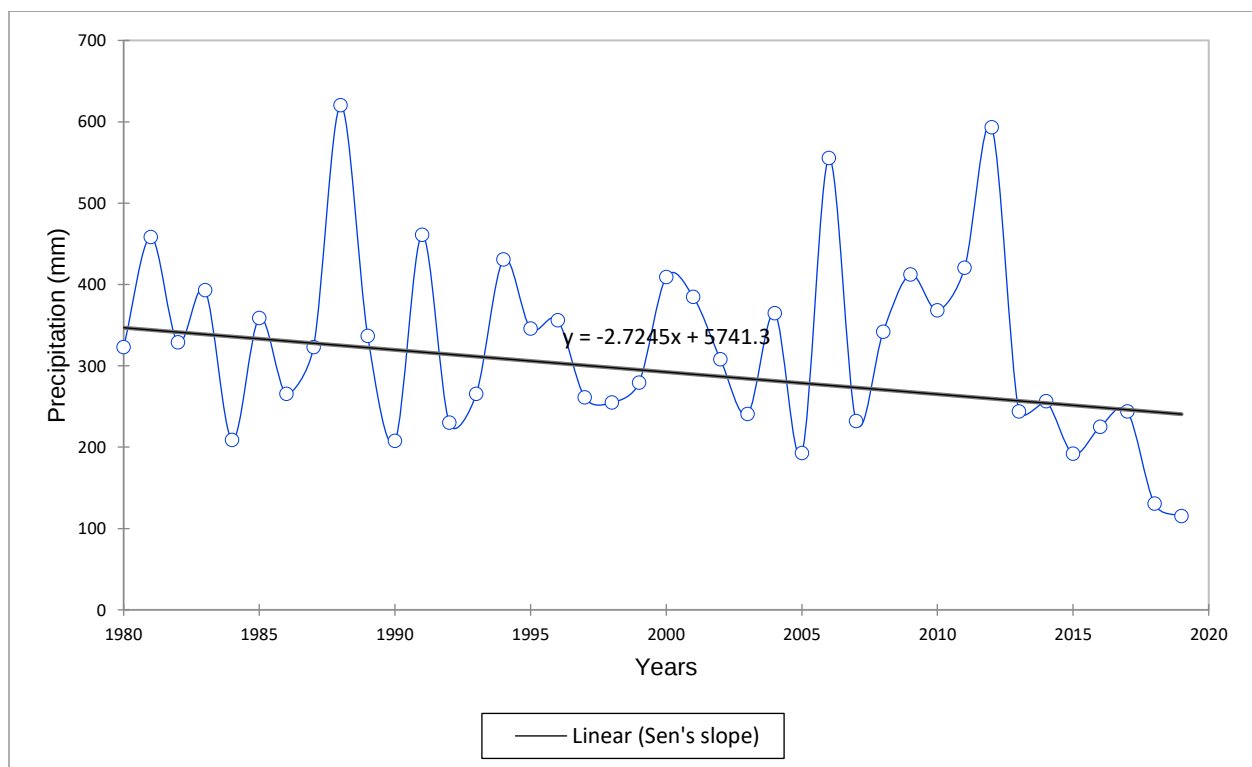


Figure D-253: 1980-2019 Annual trend plot for Richmond C K TNK station.

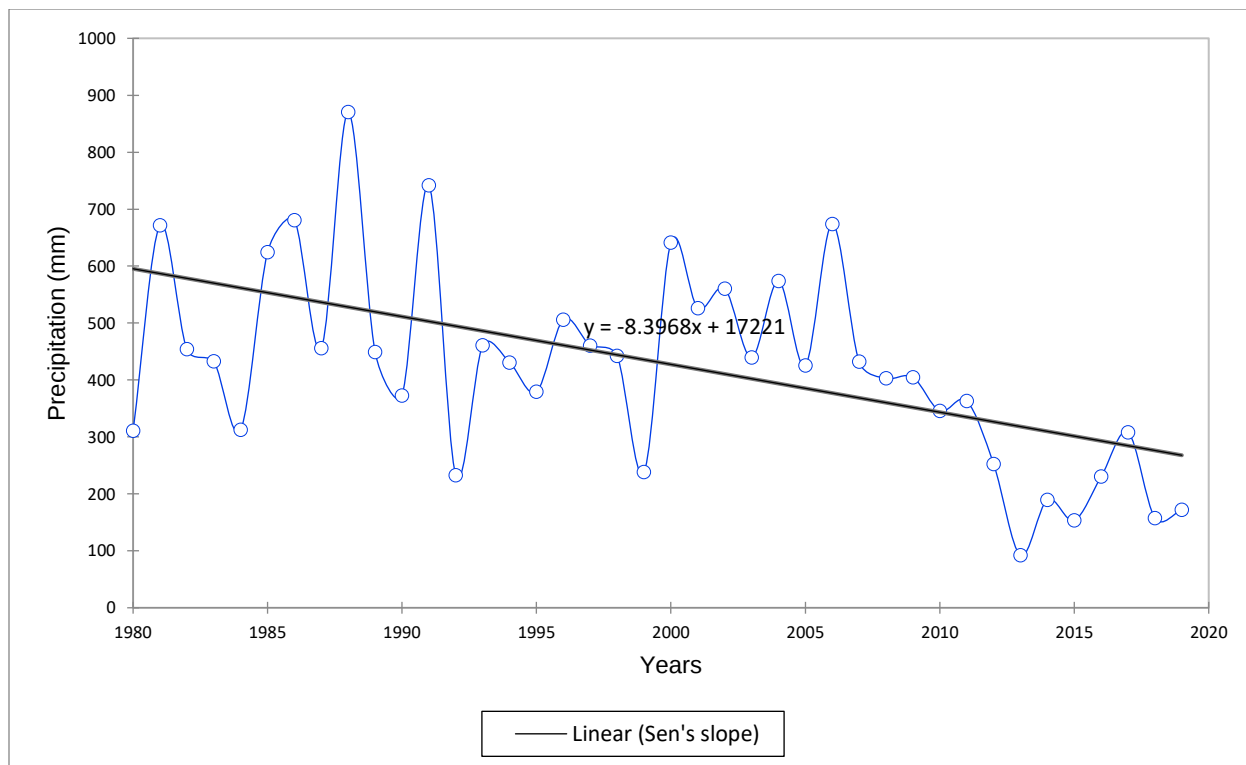


Figure D-254: 1980-2019 Annual trend plot for Burgersdorp-Pol station.

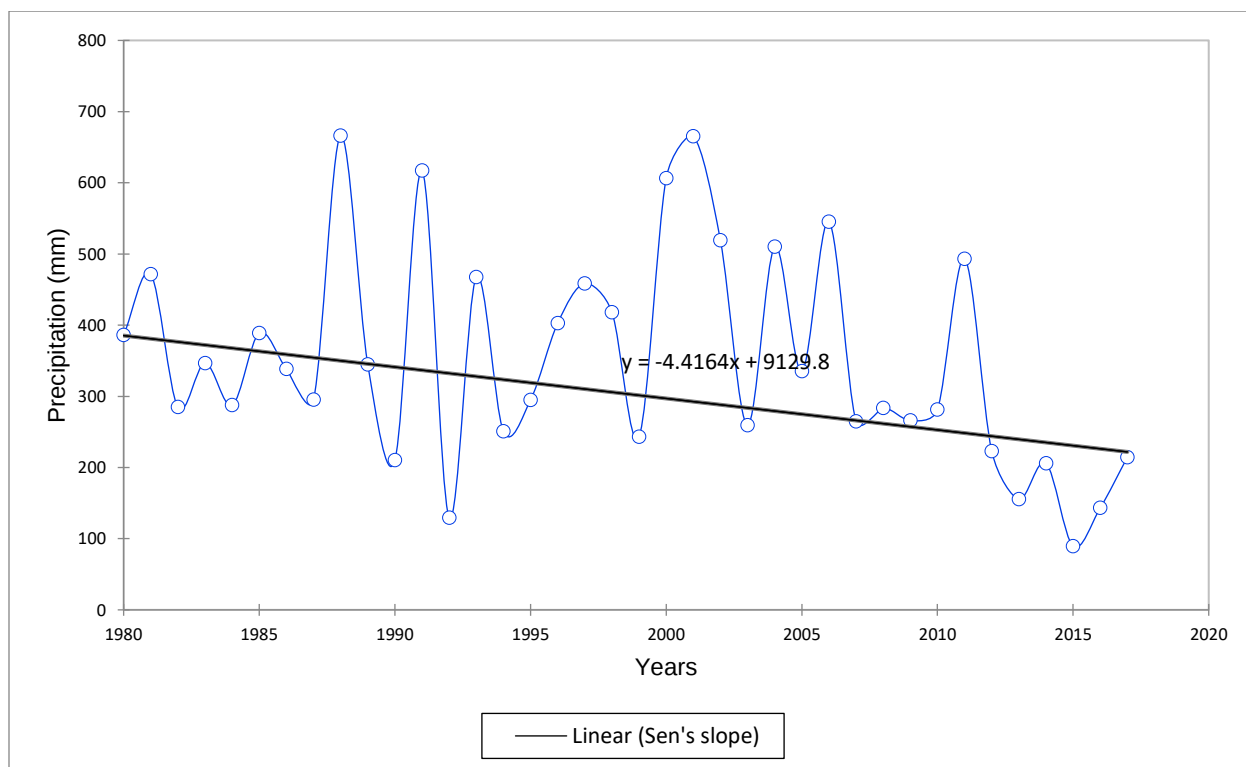


Figure D-255: 1980-2019 Annual trend plot for Philippolis-Pol station.

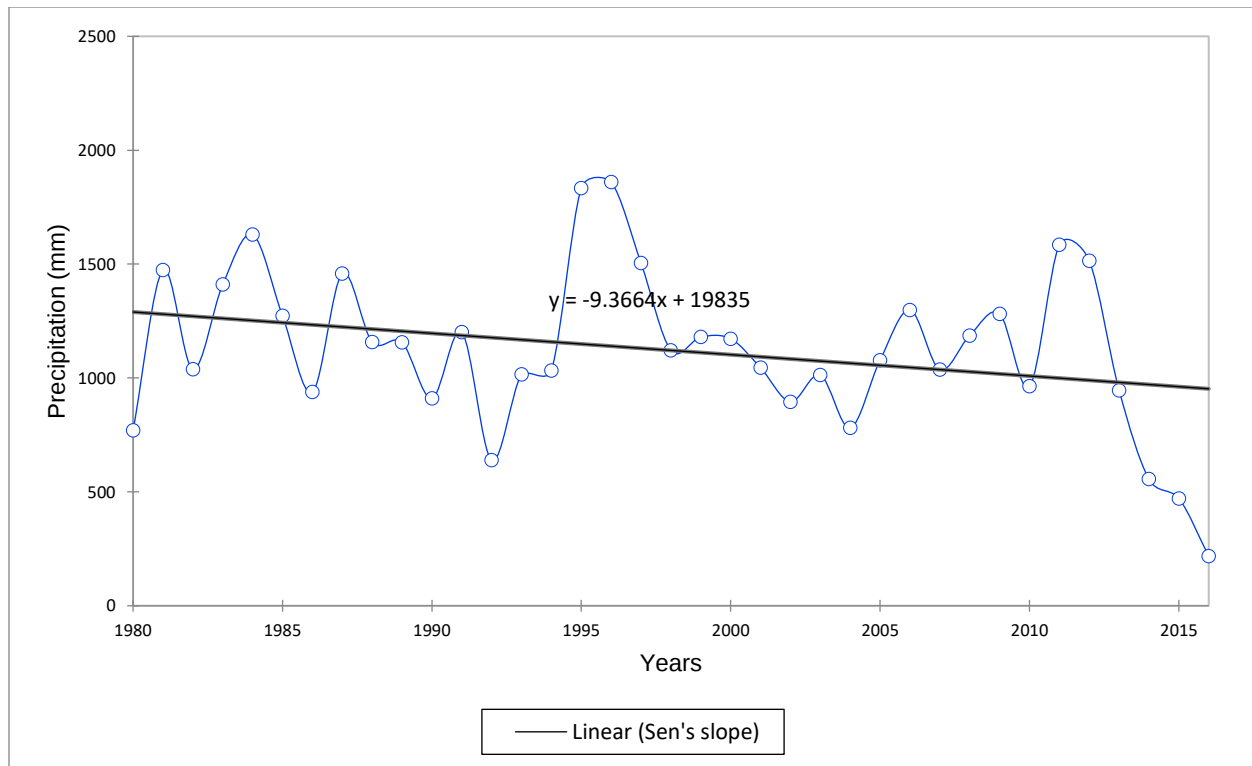


Figure D-256: 1980-2016 Annual trend plot for Richmond SAP station.

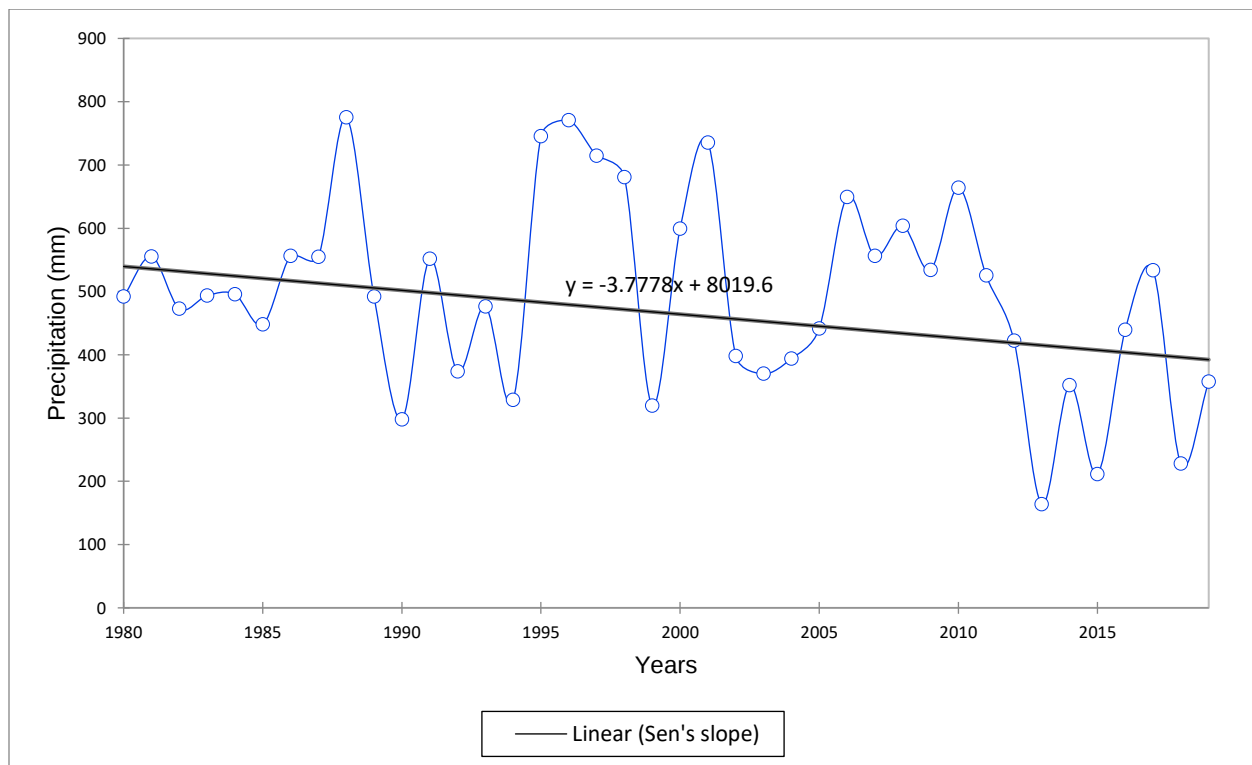


Figure D-257: 1980-2019 Annual trend plot for Odendaalsrus station.