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Hydrological data interpolation using entropy

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APPENDIX C

Table C.1 Entropy calculations and statistics at the target gauge 0228495 (19.7 % missing annual total rainfall) using the base gauge 0228458

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.722	0.2876	47.667	0.1056	0.0097	1.041	0.998
	McL1 BP (sigmoid hidden layer)	1.705	0.2847	48.354	0.1045	0.0291	1.103	0.994
	GenerBP (sigmoid hidden layer), lr = 0.35, s = 2	1.719	0.2871	47.679	0.1029	0.0174	1.039	0.997
	QBP (hyperbolic tangent hidden layer), acc = 0.025, lr = 0.25, Weight Cond	1.397	0.2333	67.007	0.168	-0.0306	1.179	1.006
	GoldSBP(sigmoid hidden layer), lr = 0.25	1.707	0.2851	48.236	0.1038	0.0279	1.032	0.0994
	VLR (sigmoid hidden layer)	1.647	0.2750	50.595	0.116	0.0503	1.049	0.990
EM Techniques	Standard EM	1.714	0.2862	48.591	0.1042	-0.0171	1.100	1.0012
	MEM1-2 (u = 0.95, lr = 0.001)	1.714	0.2862	48.591	0.1042	-0.0171	1.100	1.0012
	MEM3, u = 0.95, lr = 0.001	1.715	0.2864	48.561	0.1042	-0.0171	1.066	1.003
	ECM1-2	1.714	0.2862	48.591	0.1042	-0.0171	1.100	1.0012
	ECME1-2 (k = 2)	1.714	0.2862	48.591	0.1042	-0.0171	1.100	1.0012

Table C.2 Entropy calculations and statistics at the target gauge 0228495 (30.3 % missing annual total rainfall)
using the base gauge 0228458

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.523	0.2543	45.306	0.105	0.0176	1.0282	0.9947
	GenerBP (sigmoid hidden layer), s=5	1.546	0.2582	44.621	0.104	0.00230	1.0423	0.9993
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	1.400	0.2338	53.70	0.1367	-0.0232	1.180	1.0068
	GoldSBP (sigmoid hidden layer), lr = 0.25	1.536	0.2565	45.118	0.1064	0.01047	1.025	0.9968
	VLR (sigmoid hidden layer)	1.535	0.2563	45.722	0.1098	-0.0284	1.065	1.0083
EM Techniques	Standard EM	1.541	0.2573	45.24	0.1063	-0.0209	1.066	1.0061
	MEM1	1.541	0.2573	45.24	0.1063	-0.0209	1.066	1.0061
	ECM1-2	1.541	0.2573	45.24	0.1063	-0.0209	1.066	1.0061
	ECME1-2 (k = 2), 3	1.541	0.2573	45.24	0.1063	-0.0209	1.066	1.0061

Table C.3 Entropy calculations and statistics at the target gauge 0228458 (19.7 % missing annual total rainfall) using the base gauge 0228495

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.754	0.2929	44.91	0.109	-0.0147	1.048	1.003
	McL1BP (sigmoid hidden layer)	1.737	0.2901	45.680	0.112	-0.032	1.052	1.006
	GenerBP (sigmoid hidden layer), lr = 0.35, s = 2	1.736	0.2899	45.089	0.114	-0.0215	1.050	1.004
	QBP (hyperbolic tangent hidden layer), acc = 0.025, lr = 0.25, Weight Cond	1.529	0.2553	54.591	0.157	-0.0121	1.135	1.002
	GoldSBP (sigmoid hidden layer), lr = 0.25	1.735	0.2897	45.51	0.112	-0.029	1.052	1.006
	VLR (sigmoid hidden layer)	1.746	0.296	44.42	0.112	0.0016	1.041	1.000
EM Techniques	Standard EM	1.737	0.2901	44.428	0.116	-0.0028	1.040	0.999
	MEM1 (u = 0.95)	1.737	0.2901	44.428	0.116	-0.0028	1.040	0.999
	MEM2, u = 0.95, lr = 0.001	1.736	0.2001	44.44	0.116	0.0053	1.04	0.999
	MEM3, u = 0.95, lr = 0.001	1.738	0.2902	44.423	0.116	-0.0028	1.040	0.999
	ECM1-2	1.737	0.2901	44.428	0.116	-0.0028	1.040	0.999
	ECME1-2 (k = 2), 3	1.737	0.2901	44.428	0.116	-0.0028	1.040	0.999

Table C.4 Entropy calculations and statistics at the target gauge 0228458 (30.3 % missing annual total rainfall) using the base gauge 0228495

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.525	0.2547	43.923	0.1228	-0.0102	1.0864	1.0030
	GenerBP (sigmoid hidden layer), s = 5	1.518	0.2535	43.577	0.1265	0.00224	1.0865	0.9993
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	1.405	0.2346	48.898	0.1483	0.00855	1.1624	0.9975
	GoldSBP (sigmoid hidden layer), lr = 0.25	1.523	0.2543	43.731	0.1240	-0.0042	1.085	1.001
	VLR (sigmoid hidden layer)	1.519	0.2537	43.552	0.1254	0.0130	1.0776	0.9961
EM Techniques	Standard EM	1.518	0.2535	43.311	0.1256	0.01284	1.0710	0.9962
	MEM1	1.518	0.2535	43.311	0.1256	0.01284	1.0710	0.9962
	ECM1-2	1.518	0.2535	43.311	0.1256	0.01284	1.0710	0.9962
	ECME1, Option 2, k = 2, Option 3	1.518	0.2535	43.311	0.1256	0.01284	1.0710	0.9962

Table C.5 Entropy calculations and statistics at the target gauge 0228495 (7.6 % missing annual total rainfall) using the base gauge 0228170

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	2.852	0.4762	23.00	0.0621	0.0309	0.9959	1.002
	McL1BP (sigmoid hidden layer)	3.139	0.5242	16.808	0.0543	-0.0089	0.9989	1.0006
	GenerBP (sigmoid hidden layer), s = 5	2.945	0.4918	20.810	0.0633	0.0214	0.99667	0.9985
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	3.047	0.5088	18.660	0.0601	0.0226	0.9999	0.9998
	GoldSBP (sigmoid hidden layer), lr = 0.25	2.885	0.4818	22.251	0.0652	0.0279	0.9962	0.9980
	VLR (sigmoid hidden layer)	2.788	0.4656	23.000	0.0723	-0.0449	0.9923	1.003
EM Techniques	Standard EM	2.974	0.4967	19.998	0.0622	0.0138	0.9965	0.9990
	MEM1	2.974	0.4967	19.998	0.0622	0.0138	0.9965	0.9990
	MEM,2 (u = 0.89, lr = 0.001), 3	2.973	0.4965	20.027	0.0623	0.0138	0.9964	0.9990
	ECM1-2	2.974	0.4967	19.998	0.0622	0.0138	0.9965	0.9990
	ECME1-2 (k = 2)	2.974	0.4967	19.998	0.0622	0.0138	0.9965	0.9990

Table C.6 Entropy calculations and statistics at the target gauge 0228495 (13.6 % missing annual total rainfall) using the base gauge 0228170

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	2.386	0.3985	29.687	0.0805	0.0033	1.0386	0.9995
	McL1BP (sigmoid hidden layer)	2.234	0.3731	33.832	0.0846	-0.0305	1.0569	1.0043
	GenerBP (sigmoid hidden layer), s = 5	2.407	0.4020	28.423	0.0798	0.0019	1.038	0.9997
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	1.765	0.2948	57.62	0.1200	-0.0426	1.10406	1.0059
	GoldSBP(sigmoid hidden layer), lr = 0.25	2.393	0.3996	29.383	0.0802	0.00173	1.039	0.9998
	VLR (sigmoid hidden layer)	2.408	0.4021	28.490	0.0794	0.00642	1.00682	1.0015
EM Techniques	Standard EM	2.433	0.4063	27.964	0.0781	0.00745	1.0378	1.001
	MEM1-2	2.433	0.4063	27.964	0.0781	0.00745	1.0378	1.001
	MEM3	2.435	0.4066	27.896	0.0780	-0.0073	1.0376	1.0010
	ECM1-2	2.433	0.4063	27.964	0.0781	0.00745	1.0378	1.001
	ECME1-2 (k = 2), 3	2.433	0.4063	27.964	0.0781	0.00745	1.0378	1.001

Table C.7 Entropy calculations and statistics at the target gauge 0228495 (19.7 % missing annual total rainfall) using the base gauge 0228170

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.967	0.3285	37.362	0.104	-0.005	1.098	0.999
	McL1BP (sigmoid hidden layer)	1.966	0.3283	38.0719	0.103	-0.0081	1.102	1.002
	GenerBP (sigmoid hidden layer), lr = 0.35, s = 2	1.957	0.3268	37.701	0.104	-0.0036	1.110	1.000
	BP (hyperbolic tangent hidden layer)	1.950	0.3257	37.566	0.106	0.00545	1.100	0.999
	QBP (hyperbolic tangent hidden layer), acc = 0.025, lr = 0.25, Weight Cond	1.60		54.302	0.135	-0.0162	1.164	1.003
	GoldSBP (sigmoid hidden layer), lr = 0.25	1.964	0.3280	38.001	0.103	-0.0076	1.102	1.001
	VLR (sigmoid hidden layer)	1.987	0.3318	37.66	0.0999	-0.0137	1.010	1.003
EM Techniques	Standard EM	1.970	0.3290	37.22	0.1025	-0.0062	1.0998	1.0012
	MEM1 (u = 0.95)	1.970	0.3290	37.22	0.1025	-0.0062	1.0998	1.0012
	MEM2 (u = 0.95, lr = 0.001)	1.968	0.3287	37.10	0.1031	-0.0036	1.099	1.001
	MEM3, u = 0.95, lr = 0.001	1.972	0.3293	37.129	0.1023	-0.0062	1.00993	1.001
	ECM1-2	1.970	0.3290	37.22	0.1025	-0.0062	1.0998	1.0012
	ECME1-2 (k = 2)	1.970	0.3290	37.22	0.1025	-0.0062	1.0998	1.0012

Table C.8 Entropy calculations and statistics at the target gauge 0228495 (30.3 % missing annual total rainfall) using the base gauge 0228170

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.787	0.2984	34.99	0.0987	0.0152	1.0968	0.995
	GenerBP (sigmoid hidden layer), s=5	1.790	0.2989	34.577	0.1265	0.00224	1.1002	0.9948
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	1.611	0.2690	42.922	0.1079	0.00913	1.1633	0.997
	GoldSBP (sigmoid hidden layer), lr = 0.25	1.783	0.2977	35.038	0.0992	0.0176	1.0967	0.9947
	VLR (sigmoid hidden layer)	1.803	0.3010	34.431	0.0967	0.0117	1.096	0.996
EM Techniques	Standard EM	1.803	0.3010	34.27	0.0961	0.0139	1.0997	0.995
	MEM1	1.803	0.3010	34.27	0.0961	0.0139	1.0997	0.995
	ECM1-2	1.803	0.3010	34.27	0.0961	0.0139	1.0997	0.995
	ECME1-2 (k = 2), 3	1.803	0.3010	34.27	0.0961	0.0139	1.0997	0.995

Table C.9 Entropy calculations and statistics at the target gauge 0228170 (7.6 % missing annual total rainfall) using the base gauge 0228495

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	2.811	0.4684	21.407	0.0697	0.0191	1.0081	0.9986
	McL1BP (sigmoid hidden layer)	2.663	0.4447	25.8511	0.0815	-0.0204	1.0099	1.0014
	GenerBP (sigmoid hidden layer), s=5	2.808	0.4689	22.011	0.0687	-0.0077	1.0079	1.001
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	2.734	0.4566	23.538	0.0739	-0.0005	1.0099	1.000
	GoldSBP (sigmoid hidden layer), lr = 0.25	2.825	0.4718	21.336	0.0689	0.0051	1.008	0.9996
	VLR (sigmoid hidden layer)	2.800	0.4676	21.806	0.0709	0.0083	1.009	0.9994
EM Techniques	Standard EM	2.794	0.4666	22.404	0.0691	-0.0106	1.008	1.0007
	MEM	2.794	0.4666	22.404	0.0691	-0.0106	1.008	1.0007
	MEM2 (u = 0.89, lr = 0.001), 3	2.795	0.4668	22.384	0.0691	-0.0106	1.008	1.0007
	ECM1-2	2.794	0.4666	22.404	0.0691	-0.0106	1.008	1.0007
	ECME1-2 (k = 2), 3	2.794	0.4666	22.404	0.0691	-0.0106	1.008	1.0007

Table C.10 Entropy calculations and statistics at the target gauge 0228170 (13.6 % missing annual total rainfall) using the base gauge 0228495

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	2.602	0.4345	21.036	0.0624	-0.0120	1.0048	1.0017
	McL1BP (sigmoid hidden layer)	2.389	0.3990	26.556	0.0809	-0.0067	1.0042	1.000
	GenerBP (sigmoid hidden layer), s = 5	2.604	0.4349	20.876	0.0644	-0.0093	1.001	1.001
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	2.039	0.3405	41.301	0.1126	-0.0467	1.0728	1.0064
	GoldSBP (sigmoid hidden layer), lr = 0.25	2.608	0.4355	20.520	0.0651	-0.000	1.0006	1.0001
	VLR (sigmoid hidden layer)	2.607	0.4354	20.705	0.0643	-0.0106	1.0068	1.0015
EM Techniques	Standard EM	2.602	0.4345	20.53	0.0655	0.0011	1.0011	0.9998
	MEM1-3	2.602	0.4345	20.53	0.0655	0.0011	1.0011	0.9998
	MEM2 (u = 0.89, lr = 0.001)	2.606	0.4345	20.93	0.0624	-0.0096	1.004	1.0014
	ECM1-2	2.602	0.4345	20.53	0.0655	0.0011	1.0011	0.9998
	ECME1-2 (k = 2), 3	2.602	0.4345	20.53	0.0655	0.0011	1.0011	0.9998

Table C.11 Entropy calculations and statistics at the target gauge 0228170 (19.7 % missing annual total rainfall) using the base gauge 0228495

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	2.229	0.3722	26.198	0.0853	0.0070	0.960	0.999
	McL1BP (sigmoid hidden layer)	2.232	0.3727	27.556	0.0807	0.0231	0.955	0.995
	GenerBP (sigmoid hidden layer), lr = 0.35, s = 2	2.280	0.3808	25.88	0.0781	0.0086	0.961	0.998
	BP (hyperbolic tangent hidden layer)	2.106	0.3517	29.461	0.107	-0.0029	0.941	1.000
	QBP (hyperbolic tangent hidden layer), acc = 0.025, lr = 0.25, Weight Cond	2.330	0.3891	24.939	0.0625	-0.0178	1.042	1.003
	GoldSBP (sigmoid hidden layer), lr = 0.25	2.253	0.3763	26.959	0.0789	0.0190	0.957	0.996
	VLR (sigmoid hidden layer)	2.282	0.3811	26.095	0.0742	0.0220	0.964	0.996
EM Techniques	Standard EM	2.316	0.3868	24.513	0.0753	-0.0032	0.970	1.000
	MEM1 (u = 0.95)	2.316	0.3868	24.513	0.0753	-0.0032	0.970	1.000
	MEM-2, u = 0.95, lr = 0.001	2.319	0.3873	24.560	0.0746	-0.0006	0.970	1.000
	MEM3, u = 0.95, lr = 0.01	2.314	0.3864	24.59	0.0756	-0.0031	0.970	1.000
	ECM1-2	2.316	0.3868	24.513	0.0753	-0.0032	0.970	1.000
	ECME1-2 (k = 2), 3	2.316	0.3868	24.513	0.0753	-0.0032	0.970	1.000

Table C.12 Entropy calculations and statistics at the target gauge 0228170 (30.3 % missing annual total rainfall) using the base gauge 0228495

	Description	T (napiers)	DIT	RMSEp (mm)	RMEp	EV	Ratio Variance	Ratio Mean
ANN Techniques	BP (sigmoid hidden layer)	1.969	0.3288	26.122	0.0851	-0.00136	0.9751	1.000
	GenerBP (sigmoid hidden layer), s = 5	1.956	0.3267	26.472	0.0860	-0.01581	0.9836	1.0047
	QBP (sigmoid hidden layer), acc = 0.015, lr = 0.85, Weight Cond	1.931	0.3235	27.394	0.0793	-0.0288	1.0556	1.0086
	GoldSBP(sigmoid hidden layer), lr = 0.25	1.968	0.3287	26.051	0.0856	-0.00679	0.97817	1.0020
	VLR (sigmoid hidden layer)	1.951	0.3258	26.460	0.088	-0.0261	0.990	1.007
EM Techniques	Standard EM	1.945	0.3248	26.797	0.0861	-0.0242	0.990	1.007
	MEM1	1.945	0.3248	26.797	0.0861	-0.0242	0.990	1.007
	ECM1-2	1.945	0.3248	26.797	0.0861	-0.0242	0.990	1.007
	ECME1- 2 (k = 2), 3	1.945	0.3248	26.797	0.0861	-0.0242	0.990	1.007

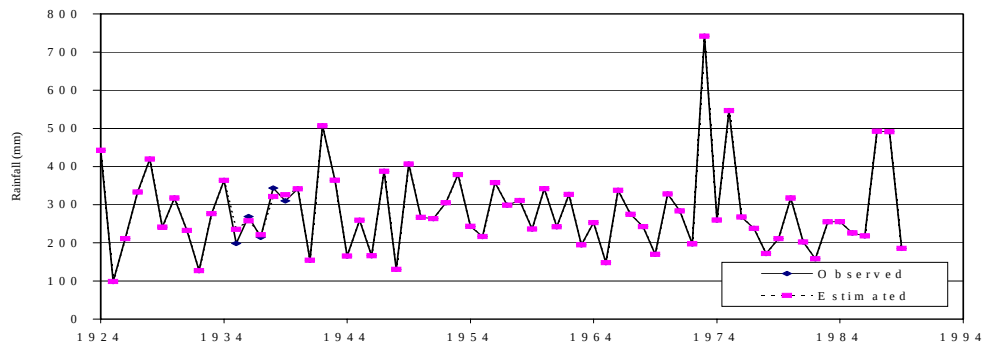


Figure C.1a Annual total rainfall at 0228170 (7.6 % missing from 1935) using standard BP with base gauge 0228495

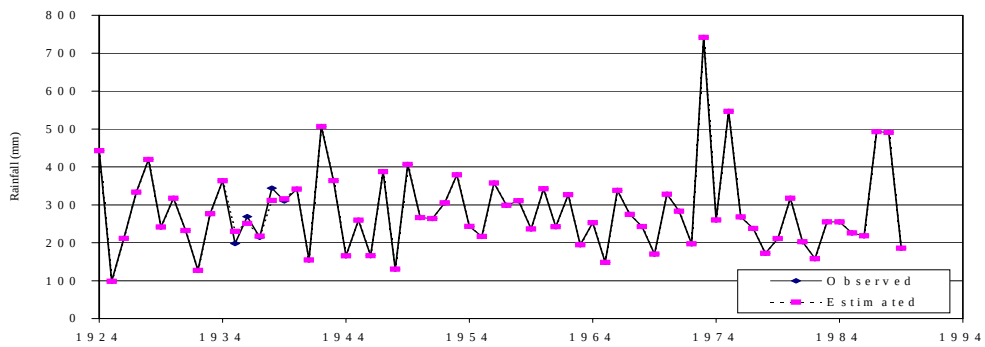


Figure C.1b Annual total rainfall at 0228170 (7.6 % missing from 1935) using McL1BP with base gauge 0228495

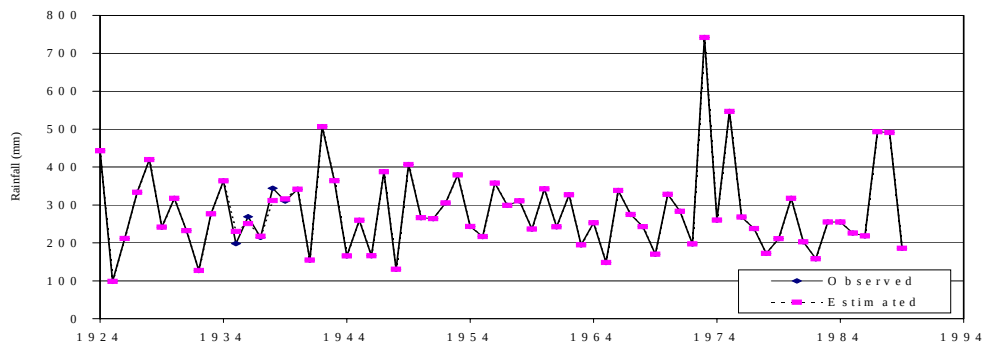


Figure C.1c Annual rainfall at 0228170 (7.6 % missing from 1935) using GenerBP with base gauge 0228495

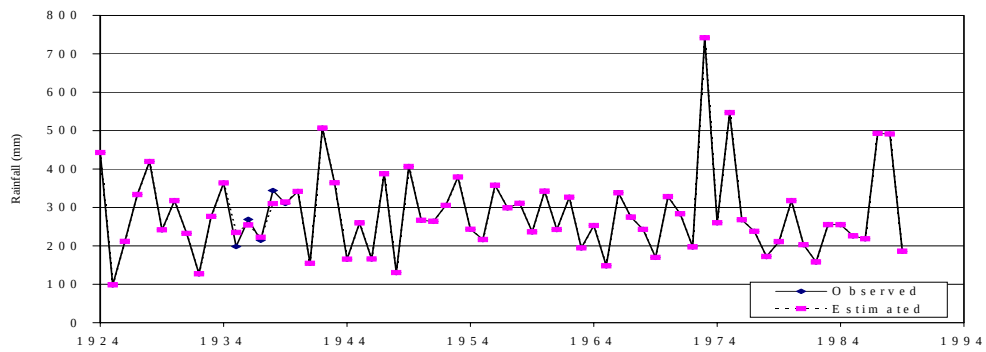


Figure C.1d Annual rainfall at 0228170 (7.6 % missing from 1935) using QBP with base gauge 0228495

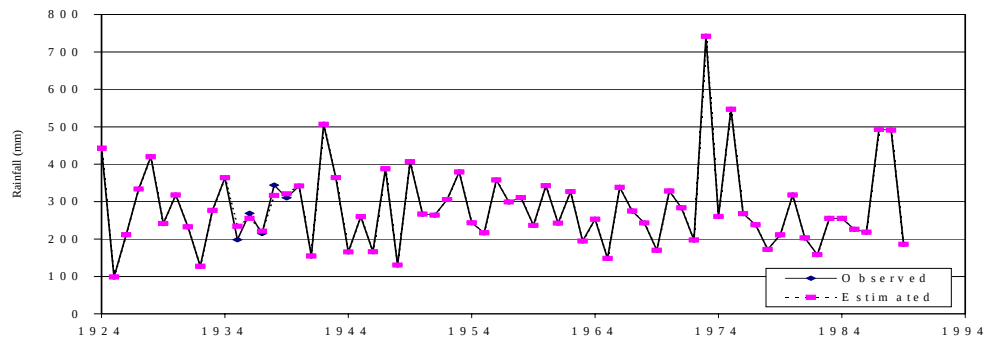


Figure C.1e Annual total rainfall at 0228170 (7.6 % missing from 1935) using GoldSBP with base gauge 0228170

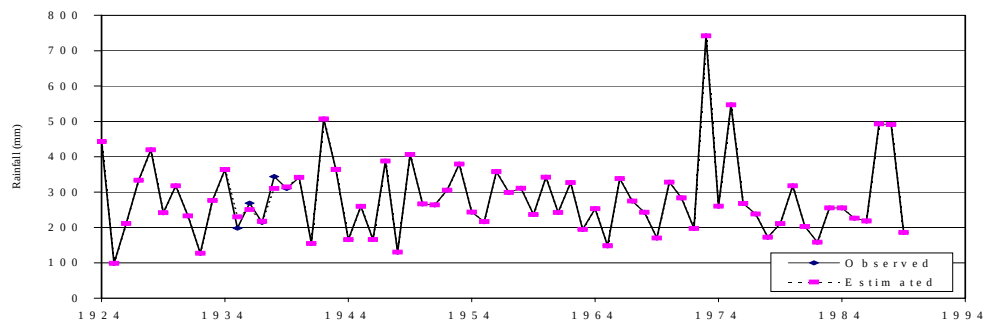


Figure C.1f Annual total rainfall at 0228170 (7.6 % missing from 1935) using VLR with base gauge 0228495

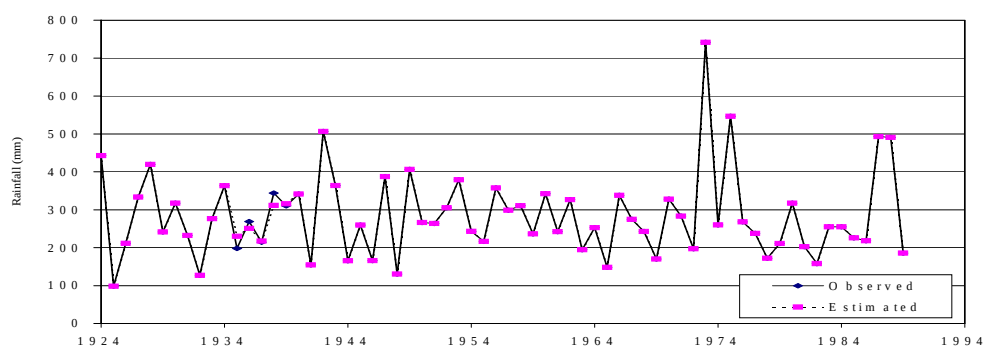


Figure C.1g Annual total rainfall at 0228170 (7.6 % missing from 1935) using standard EM with base gauge 0228495

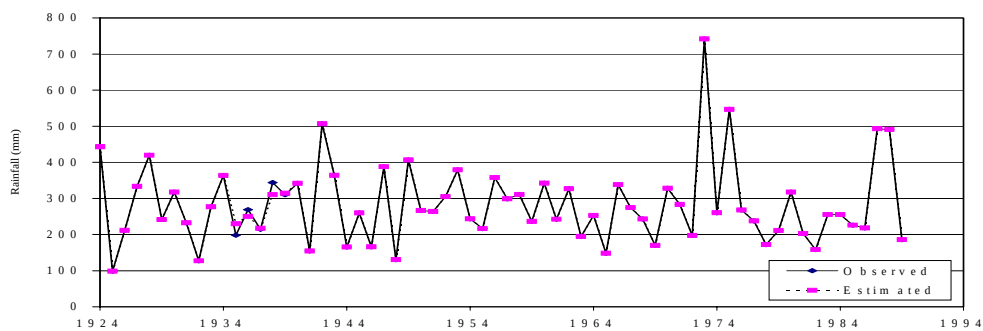


Figure C.1h Annual total rainfall at 0228170 (7.6 % missing from 1935) using ECM1-2 with base gauge 0228495

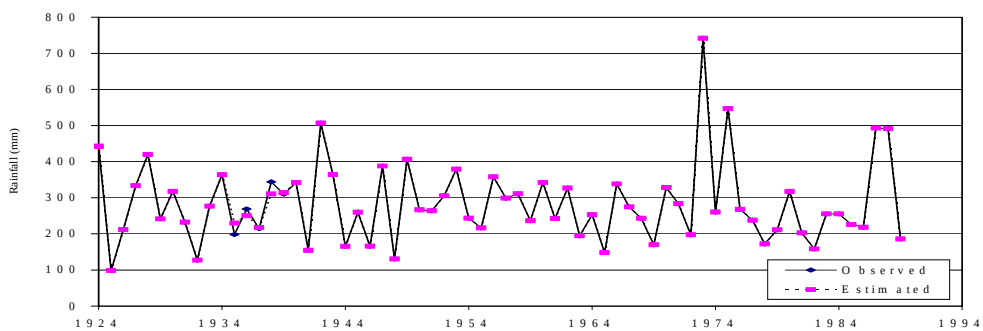


Figure C.1i Annual total rainfall at 0228170 (7.6 % missing from 1935) using MEM1 with base gauge 0228495

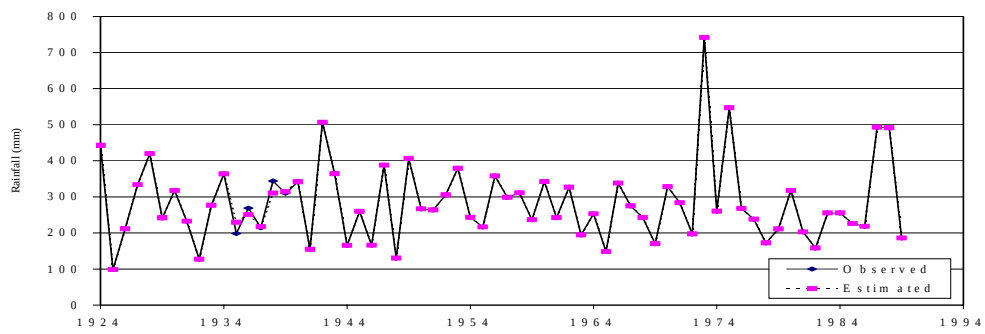


Figure C.1j Annual total rainfall at 0228170 (7.6 % missing from 1935) using MEM2-3 with base gauge 0228495

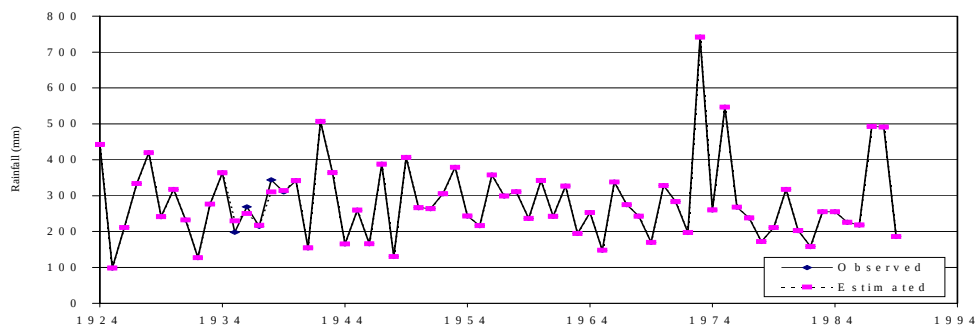


Figure C.1k Annual total rainfall at 0228170 (7.6 % missing from 1935) using ECME1-2-3 with base gauge 0228495

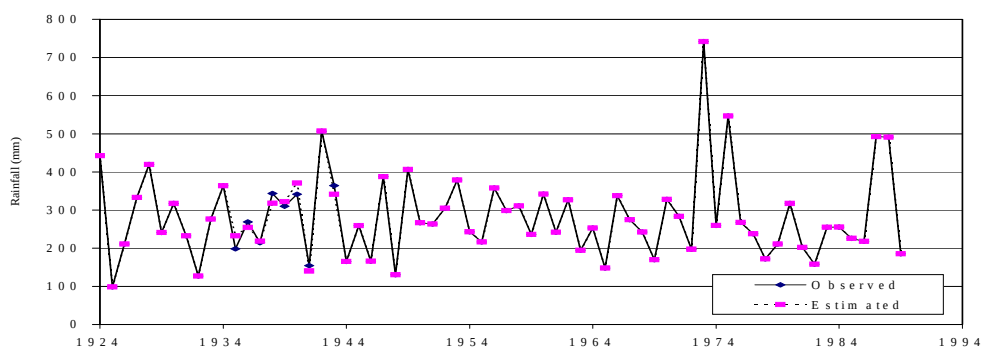


Figure C.2a Annual total rainfall at 0228170 (13.6 % missing from 1935) using standard BP with base gauge 0228495

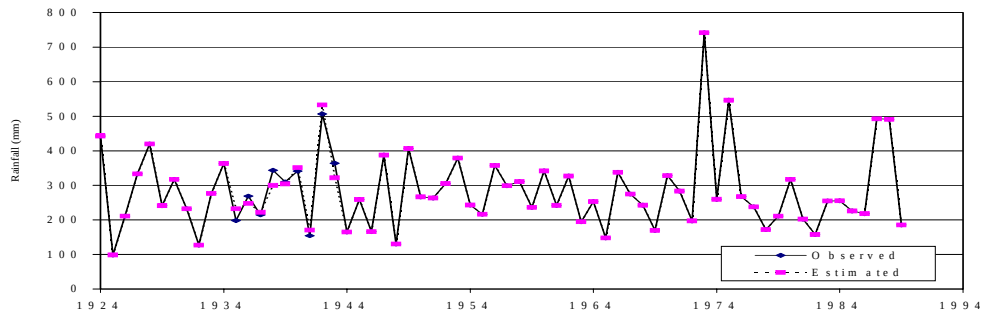


Figure C.2b Annual rainfall at 0228170 (13.6 % missing from 1935) using McL1BP with base gauge 0228495

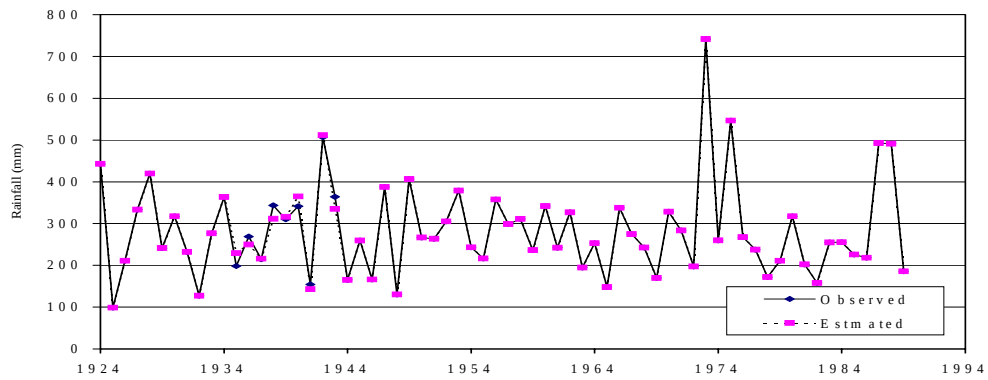


Figure C.2c Annual total rainfall at 0228170 (13.6 % missing from 1935) using GenerBP with base gauge 0228495

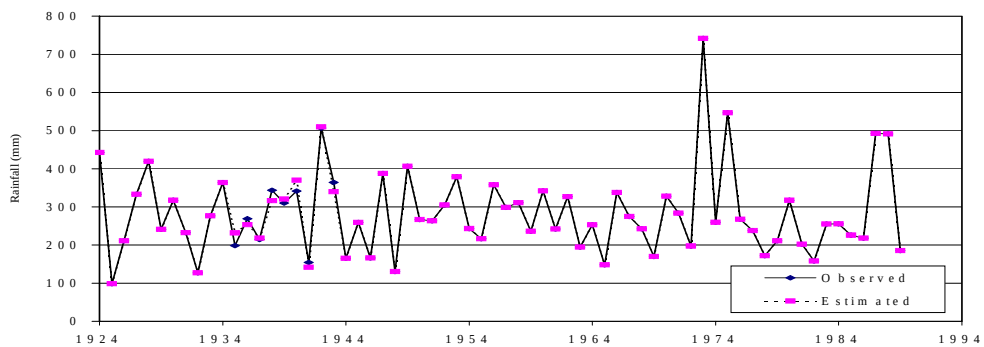


Figure C.2d Annual total rainfall at 0228170 (13.6 % missing from 1935) using GoldSBP with base gauge 0228495

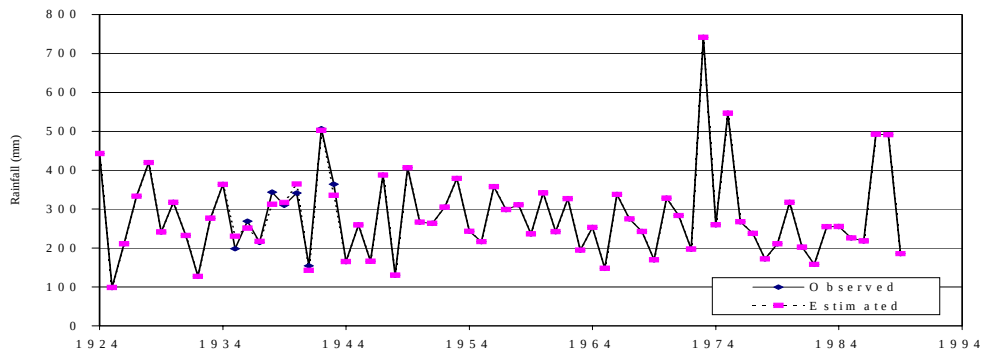


Figure C.2e Annual total rainfall at 0228170 (13.6 % missing from 1935) using VLRBP with base gauge 0228495

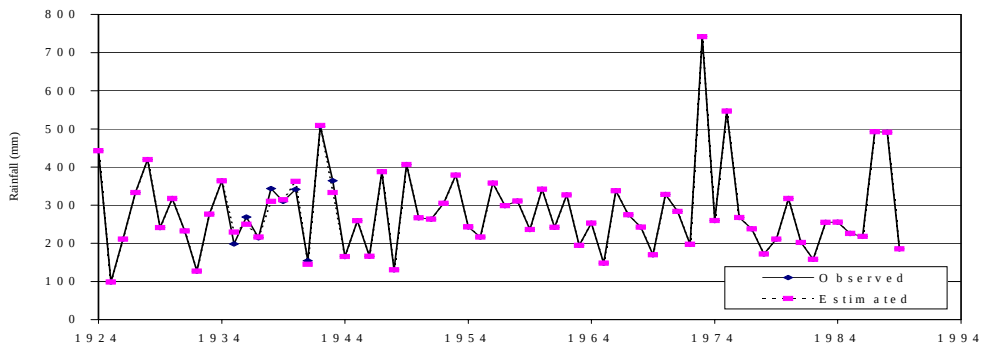


Figure C.2f Annual total rainfall at 0228170 (13.6 % missing from 1935) using EM with base gauge 0228495

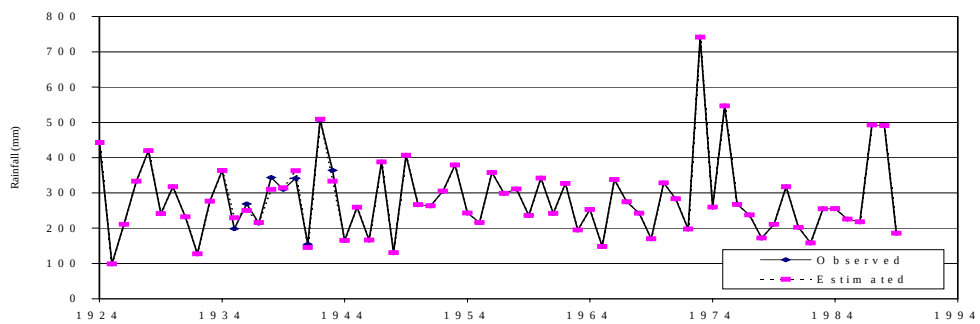


Figure C.2g Annual total rainfall at 0228170 (13.6 % missing from 1935) using MEM1-3 with base gauge 0228495

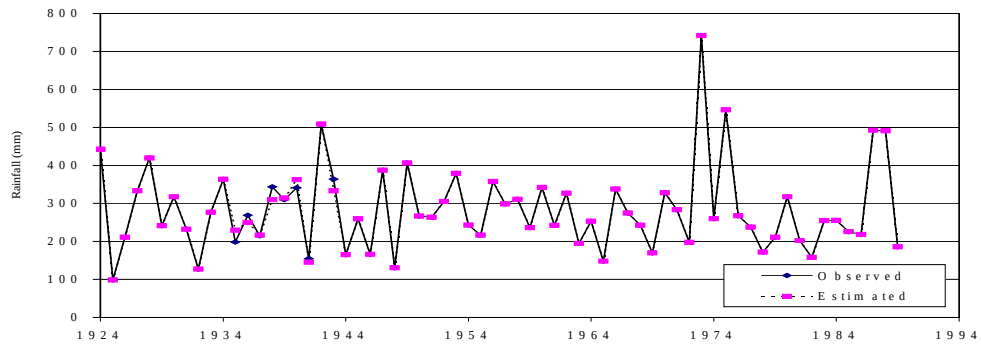


Figure C.2h Annual total rainfall at 0228170 (13.6 % missing from 1935) using MEM2 with base gauge 0228495

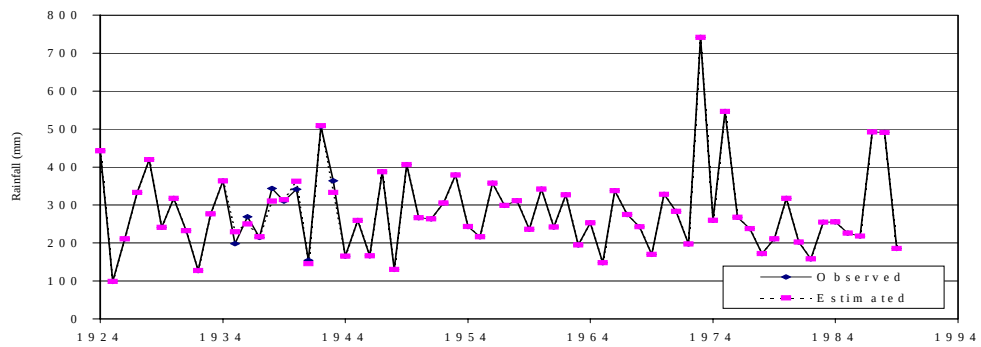


Figure C.2i Annual total rainfall at 0228170 (13.6 % missing from 1935) using ECM1-2 with base gauge

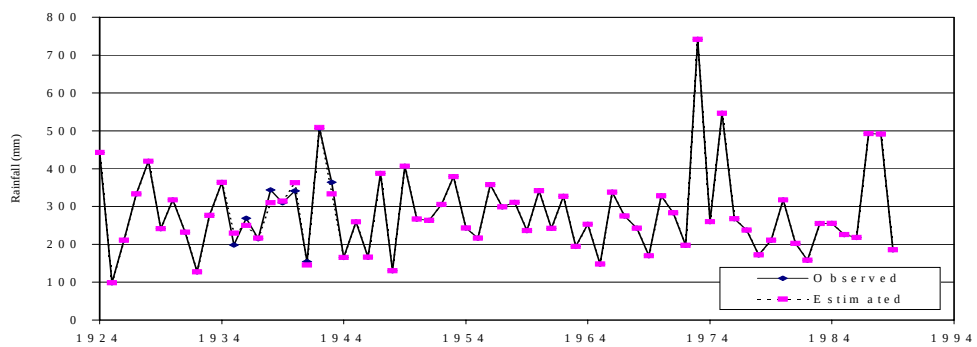


Figure C.2j Annual total rainfall at 0228170 (13.6 % missing from 1935) using ECME1-2-3 with base gauge 0228495

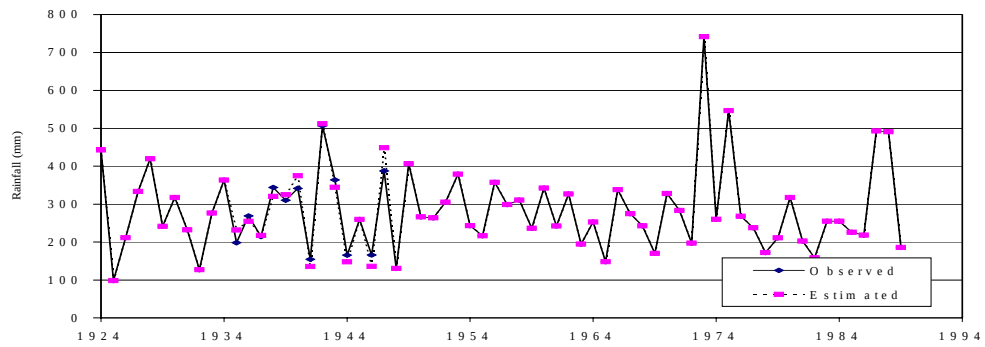


Figure C.3a Annual rainfall at 0228170 (19.7 % missing from 1935) using standard BP with base gauge 0228495

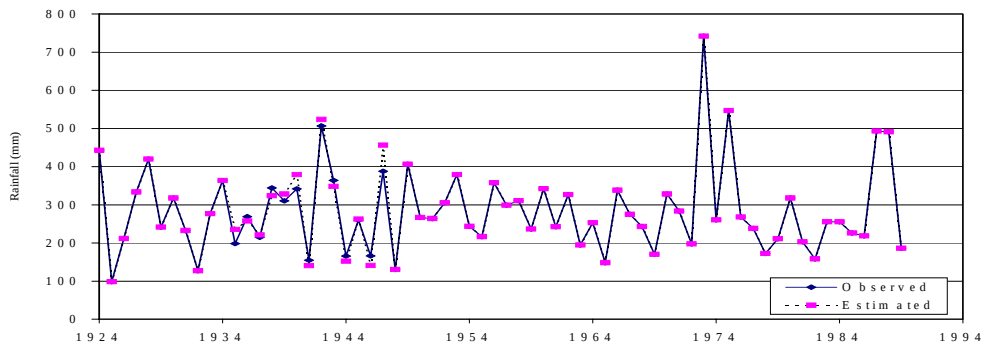


Figure C.3b Annual total rainfall at 0228170 (19.7 % missing from 1935) using McL1BP with base gauge 0228495

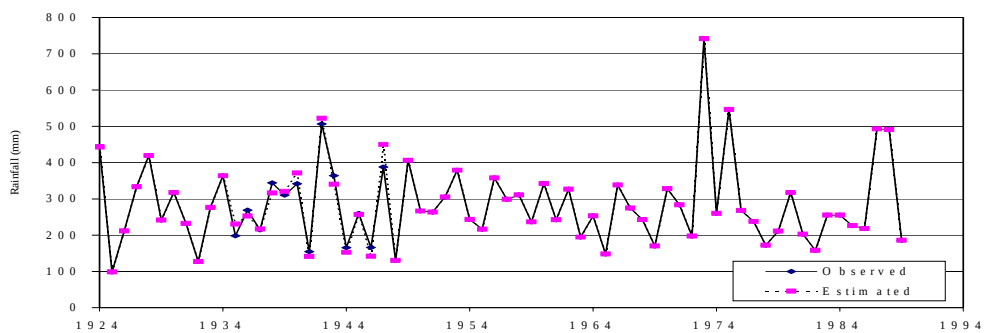


Figure C.3c Annual total rainfall at 0228170 (19.7 % missing from 1935) using GenerBP ($s = 5$) with base gauge 0228495

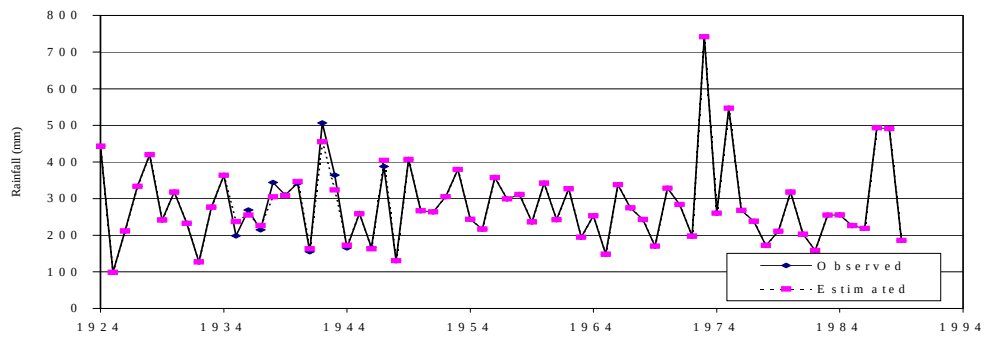


Figure C.3d Annual total rainfall at 0228170 (19.7 % missing from 1935) using QBP (acc = 0.15, lr = 0.85, Weight cond)

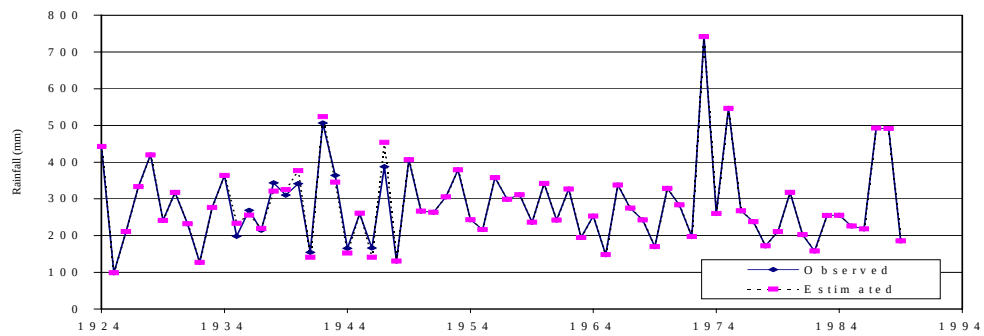


Figure C.3e Annual total rainfall at 0228170 (19.7 % missing from 1935) using GoldSBP with base gauge 0228495

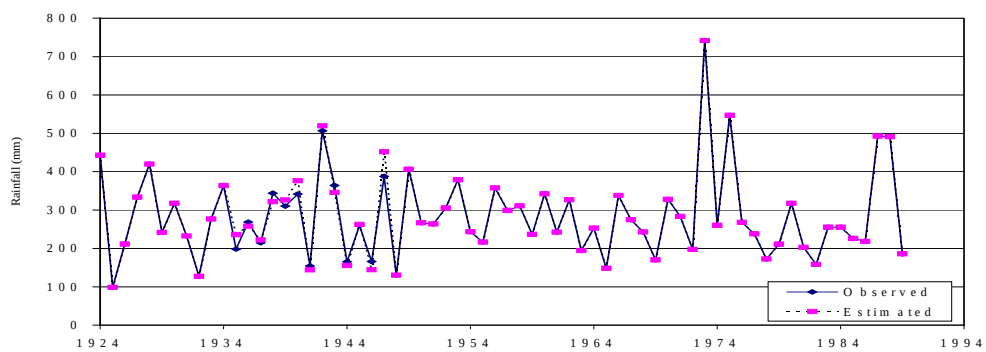


Figure C.3f Annual total rainfall at 0228170 (19.7 % missing from 1935) using VLRBP with base gauge 0228495

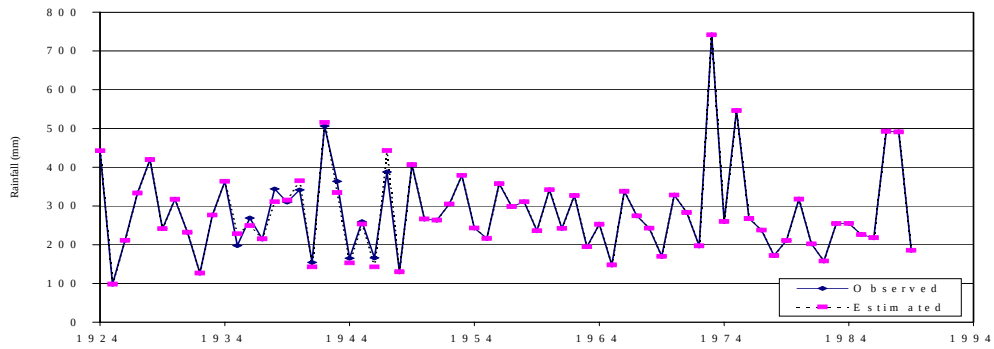


Figure C.3g Annual total rainfall at 0228170 (19.7 % missing from 1935) using standard EM with base gauge

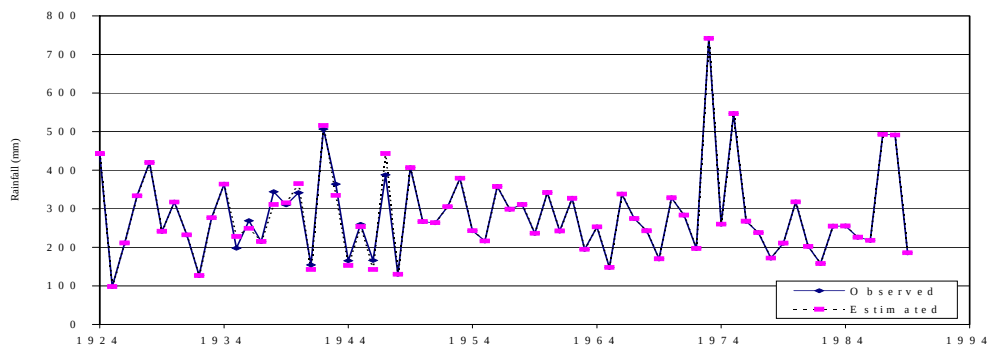


Figure C.3h Annual total rainfall at 0228170 (19.7 % missing from 1935) using ECM1-2 with base gauge 0228495

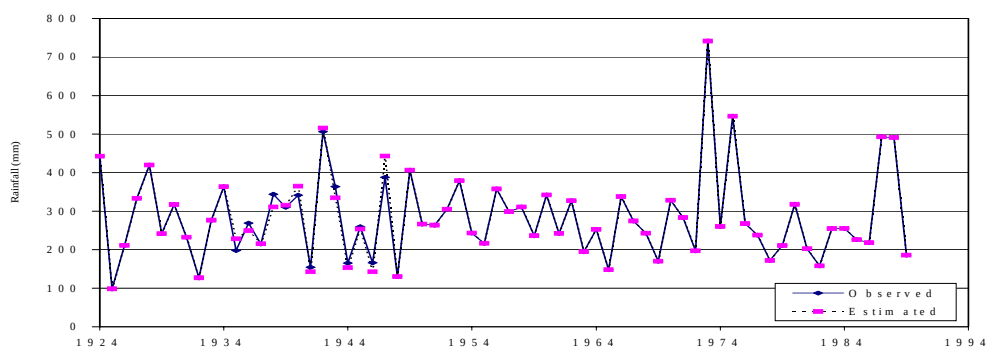


Figure C.3i Annual total rainfall at 0228170 (19.7 % missing from 1935) using MEM1 with base gauge 0228495

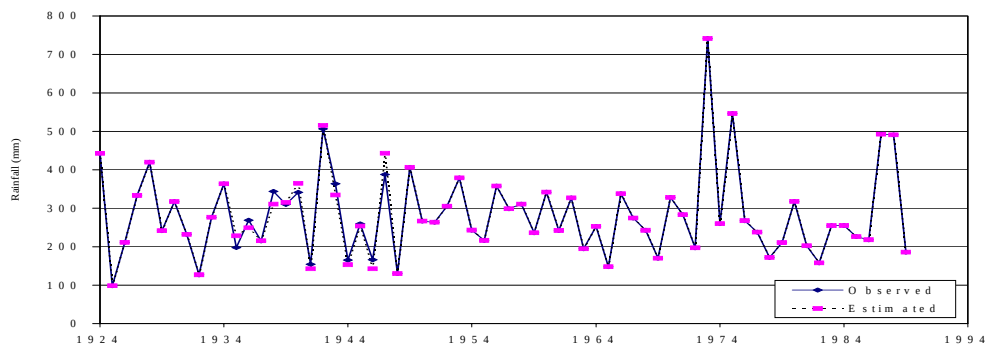


Figure C.3j Annual total rainfall at 0228170 (19.7 % missing from 1935) using MEM2-3 with base gauge 0228495

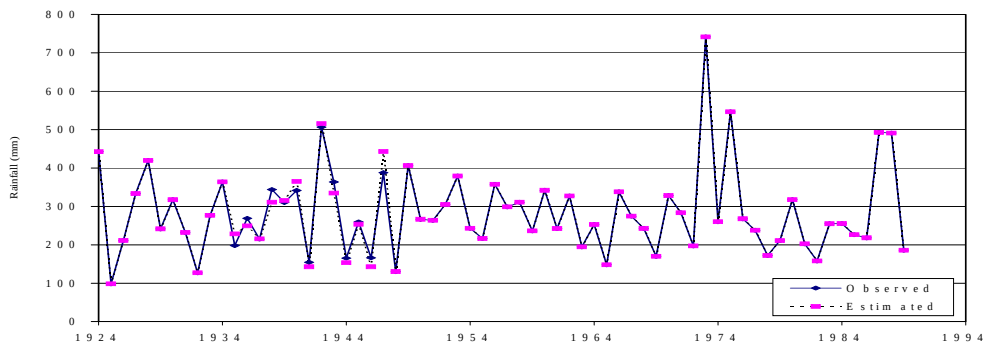


Figure C.3k Annual total rainfall at 0228170 (19.7 % missing from 1935) using ECME1-2-3 with base gauge 0228495

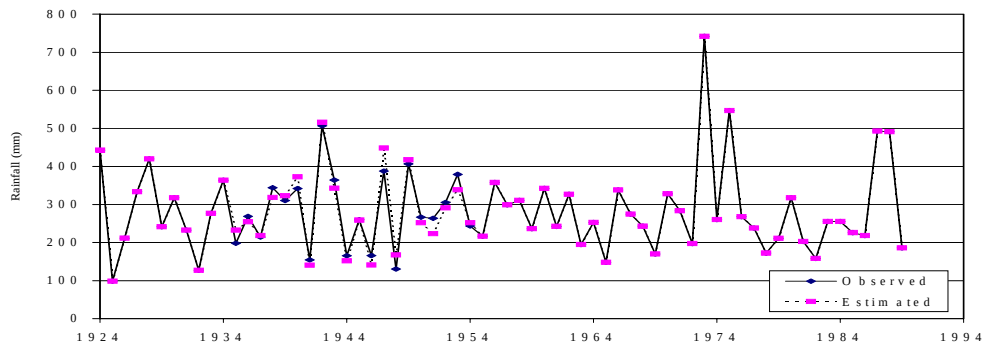


Figure C.4a Annual total rainfall at 0228170 (30.3 % missing from 1935) using standard BP with base gauge 0228495

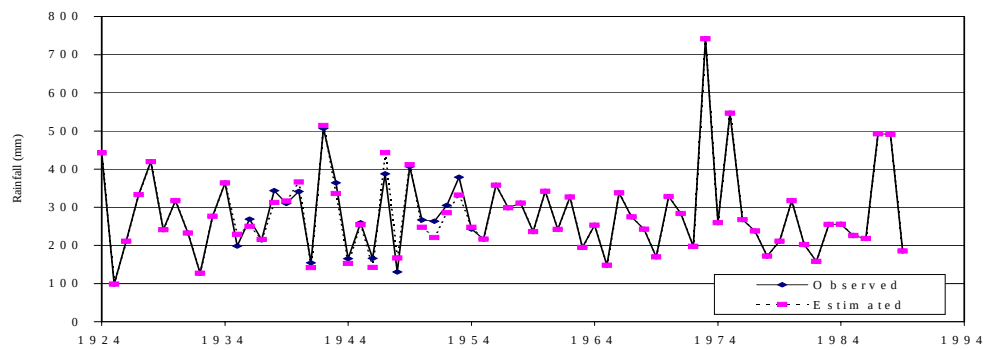


Figure C.4b Annual total rainfall at 0228170 (30.3 % missing from 1935) using GenerBP ($s = 5$, $lr = 0.25$) with base gauge 0228495

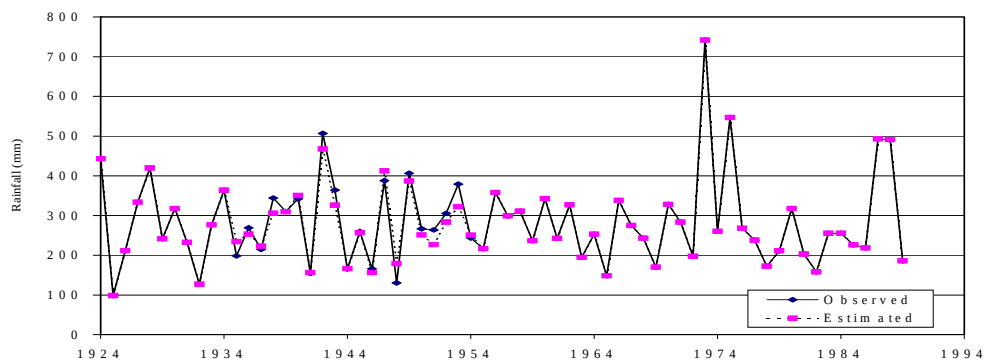


Figure C.4c Annual total rainfall at 0228170 (30.3 % missing from 1935) using QBP ($acc = 0.015$, $lr = 0.25$) with base gauge 0228495

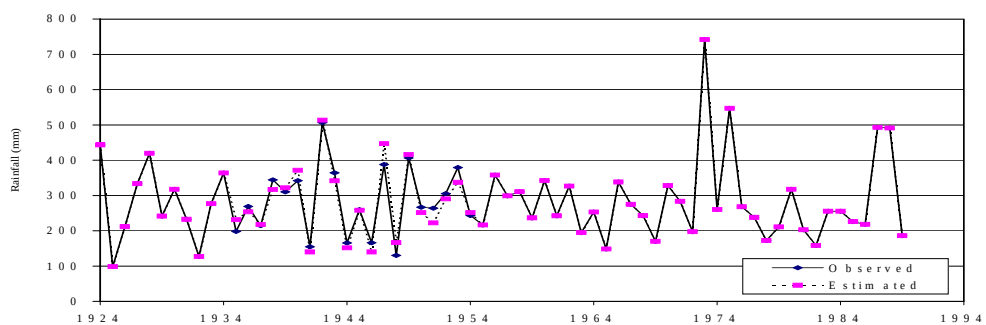


Figure C.4d Annual total rainfall at 0228170 (30.3 % missing from 1935) using GoldSBP with base gauge 0228495

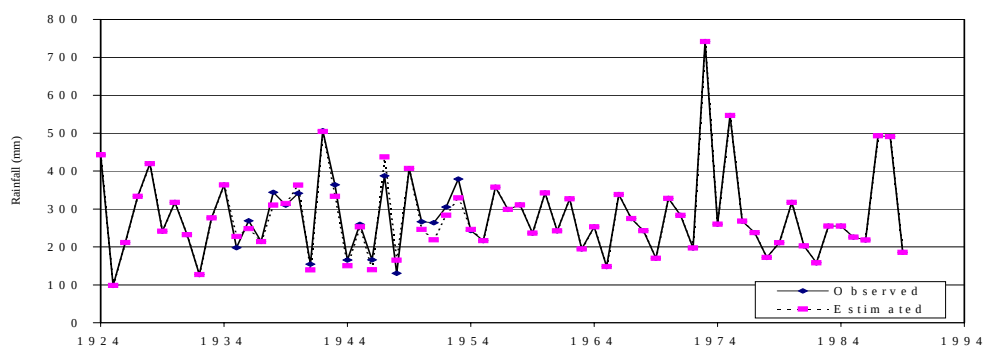


Figure C.4e Annual total rainfall at 0228170 (30.3 % missing from 1935) using VLRBP with base gauge 0228495

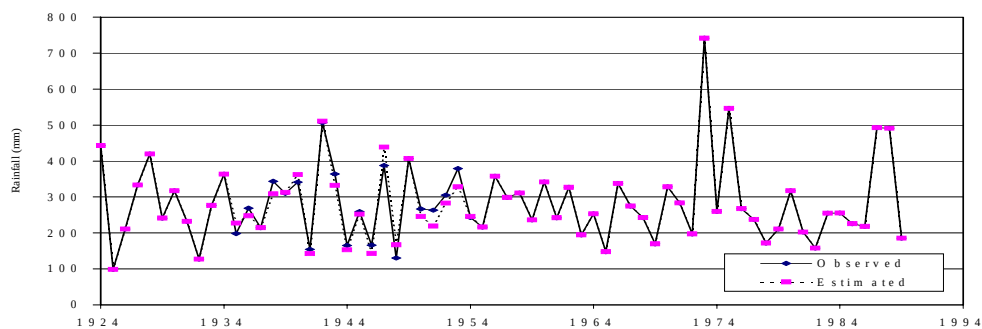


Figure C.4f Annual total rainfall at 0228170 (30.3 % missing from 1935) using standard EM with base gauge 0228495

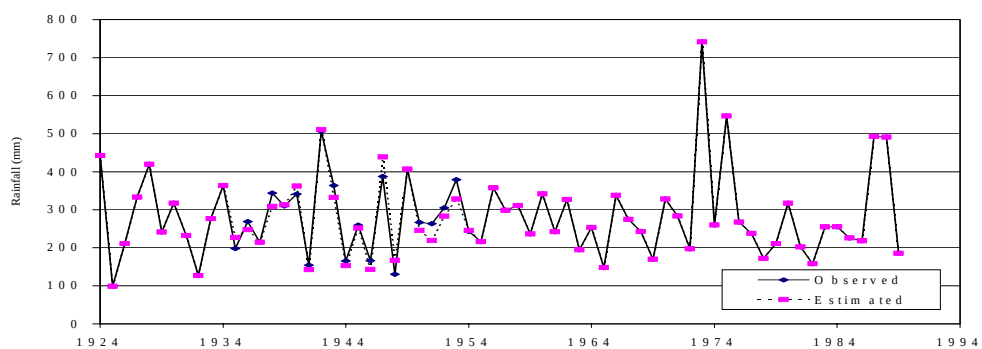


Figure C.4g Annual total rainfall at 0228170 (30.3 % missing from 1935) using ECM1-2 with base gauge 0228495

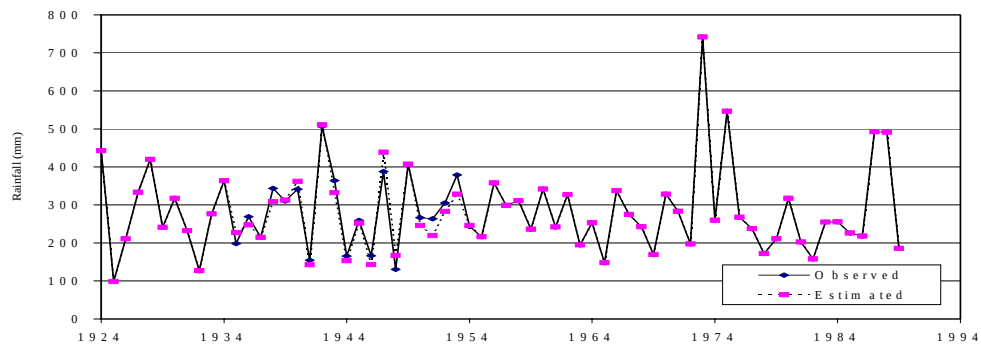


Figure C.4h Annual total rainfall at 0228170 (30.3 % missing from 1935) using ECME1-2-3 with base gauge 0228495

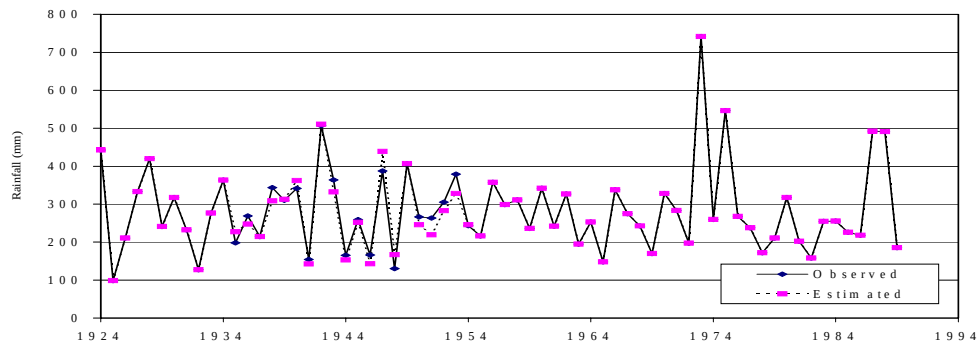


Figure C.4i Annual total rainfall at 0228170 (30.3 % missing from 1935) using MEM1 with base gauge 0228495

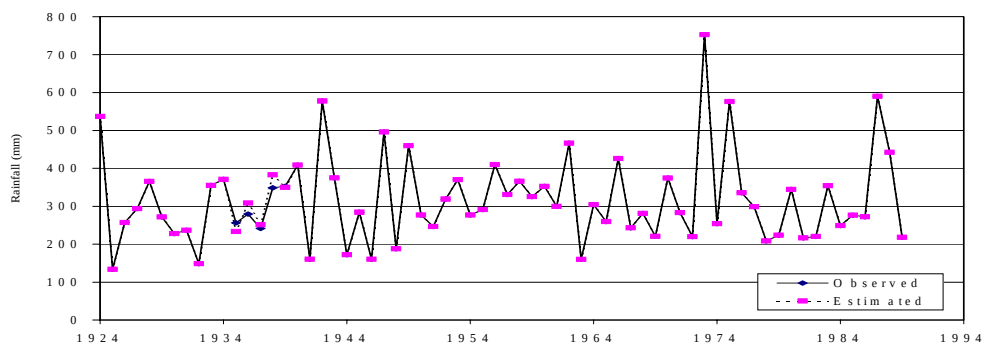


Figure C.5a Annual total rainfall at 0228495 (7.6 % missing from 1935) using standard BP with base gauge 0228170

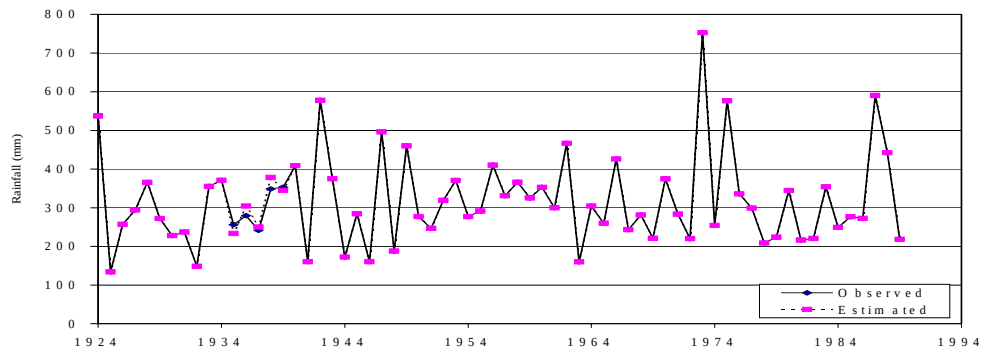


Figure C.5b Annual rainfall at 0228495 (7.6 % missing from 1935) using GenerBP with base gauge 0228170.

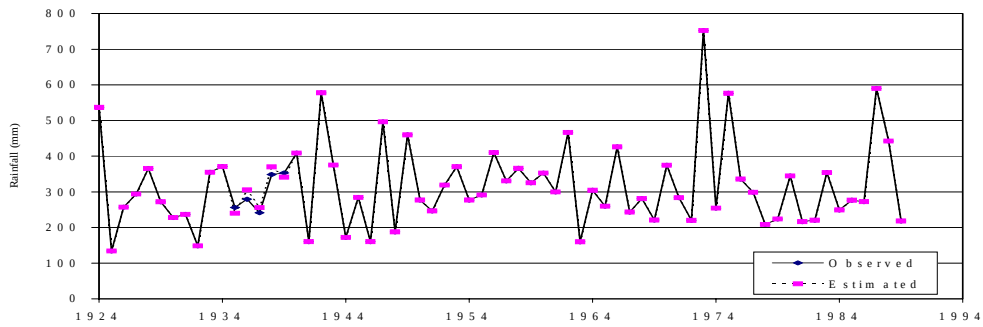


Figure C.5c Annual total rainfall at 0228495 (7.6 % missing from 1935) using QBP with base gauge 0228170

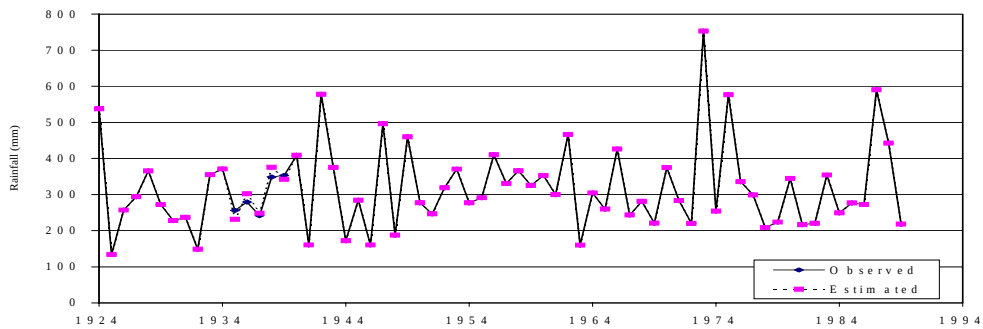


Figure C.5d Annual total rainfall at 0228495 (7.6 % missing from 1935) using GoldSBP with base gauge 0228170

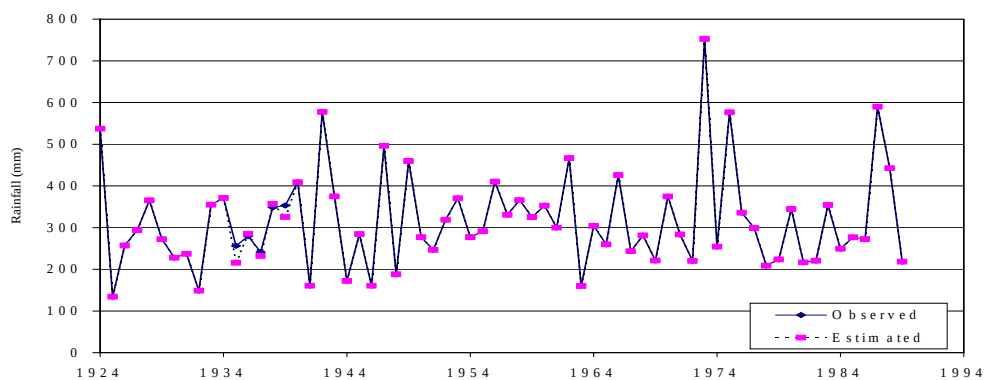


Figure C.5e Annual total rainfall at 0228495 (7.6 % missing from 1935) using VLRBP with base gauge 0228170

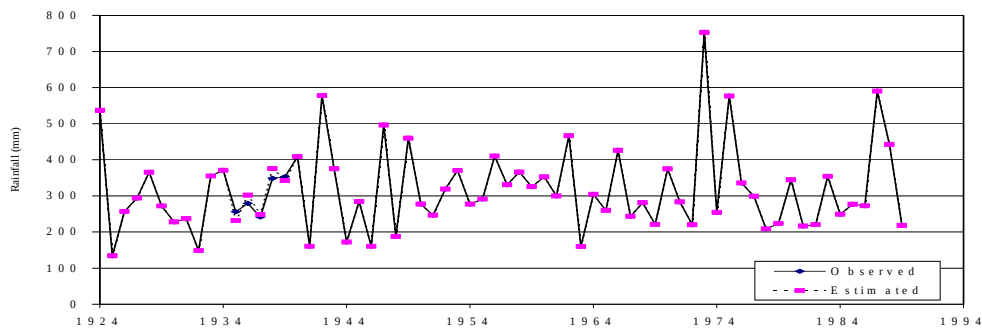


Figure C.5f Annual total rainfall at 0228495 (7.6 % missing from 1935) using Standard EM with base gauge 0228170

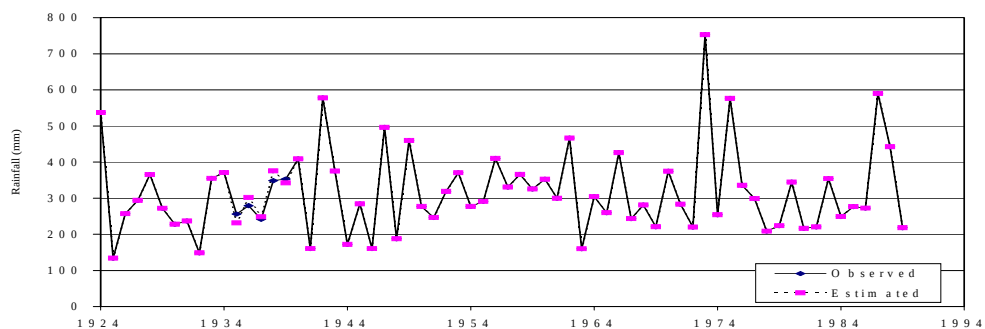


Figure C.5g Annual total rainfall at 0228495 (7.6 % missing from 1935) using ECM1-2 with base gauge 0228170

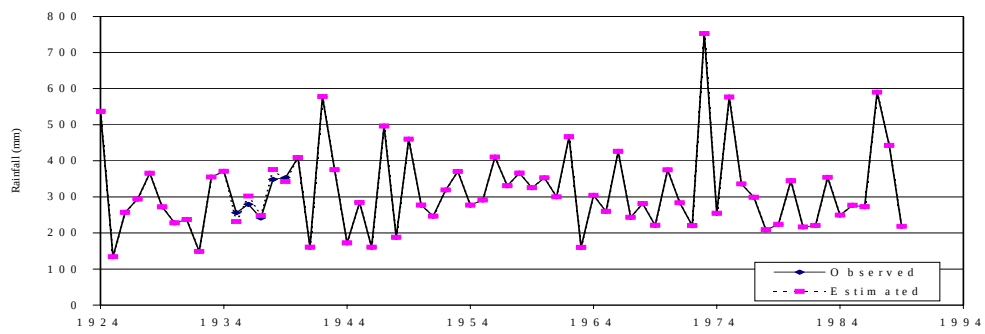


Figure C.5h Annual total rainfall at 0228495 (7.6 % missing from 1935) using MEM1 with base gauge 0228170

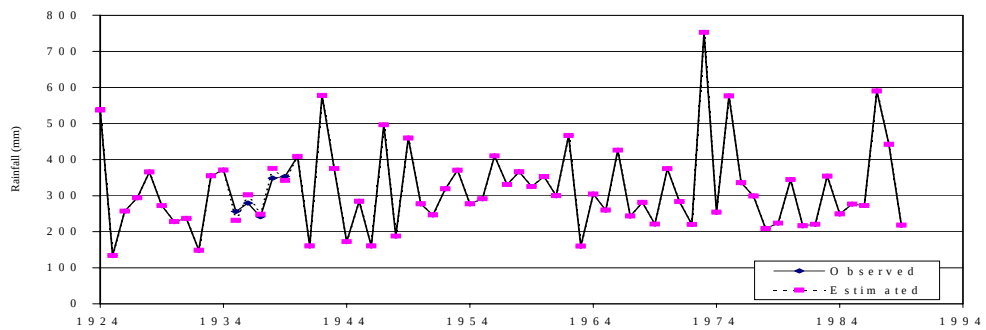


Figure C.5i Annual total rainfall at 0228495 (7.6 % missing from 1935) using MEM2-3 with base gauge 0228

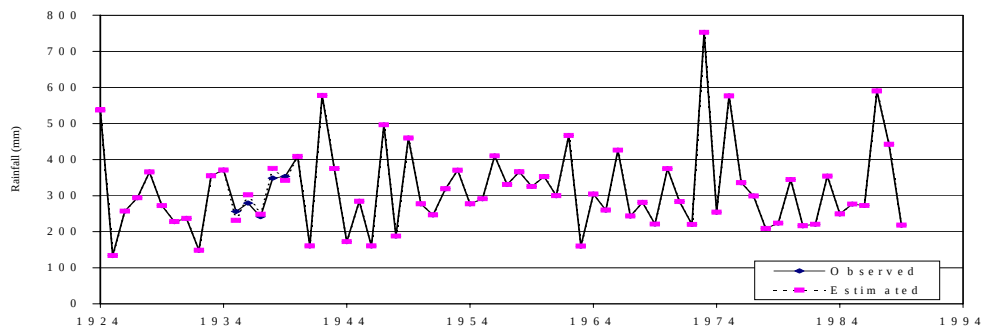


Figure C.5j Annual total rainfall at 0228495 (7.6 % missing from 1935) using ECME1-2-3 with base gauge 0228170

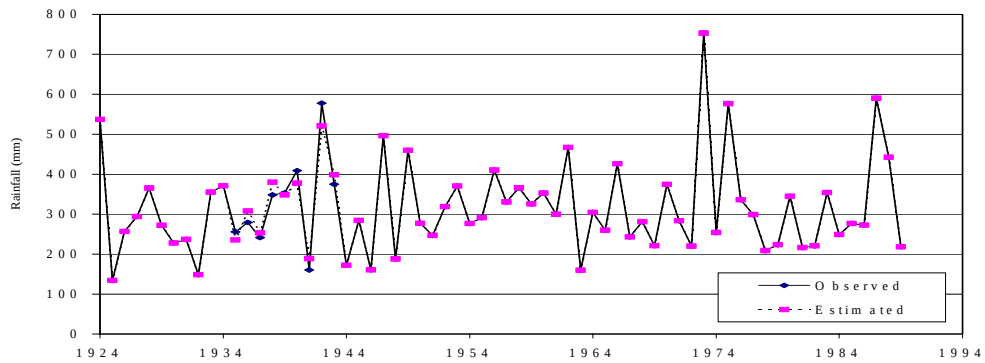


Figure C.6a Annual total rainfall at 0228495 (13.6 % missing from 1935) using standard BP with base gauge 0228170

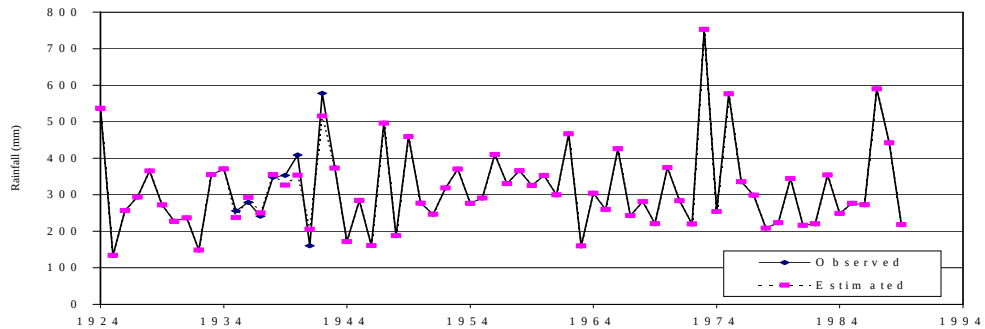


Figure C.6b Annual total rainfall at 0228495 (13.6 % missing from 1935) using McL1BP with base gauge 0228170

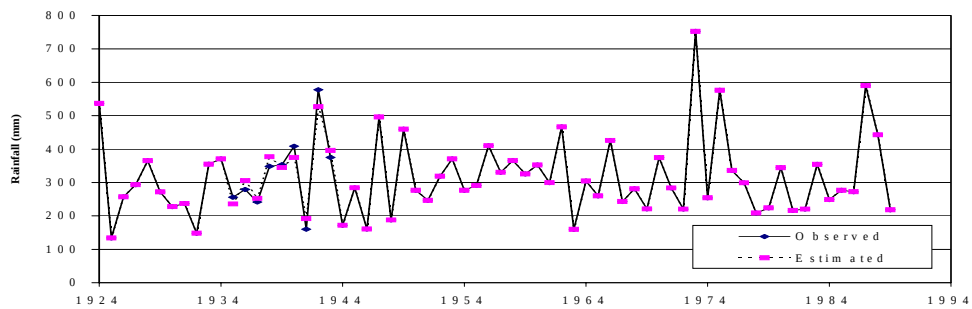


Figure C.6c Annual total rainfall at 0228495 (13.6 % missing from 1935) using GenerBP with base gauge 0228170

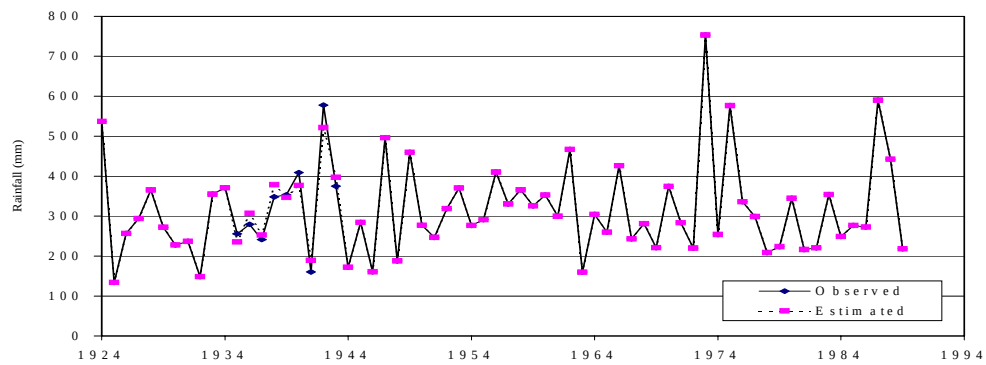


Figure C.6d Annual total rainfall at 0228495 (13.6 % missing from 1935) using GoldSBP with base 0228170

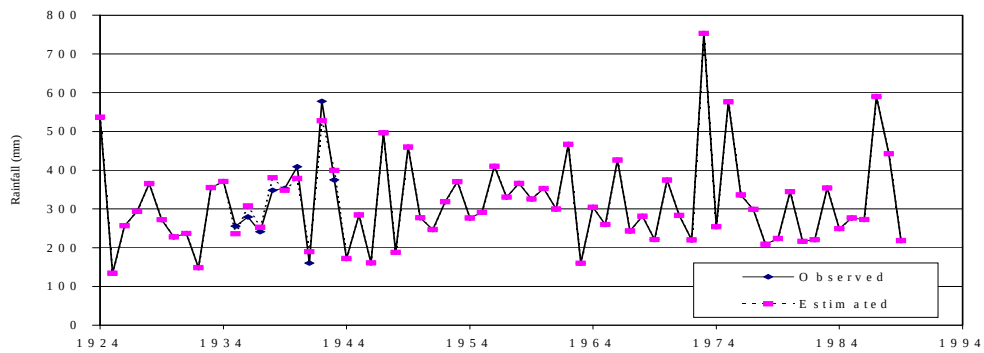


Figure C.6e Annual total rainfall at 0228495 (13.6 % missing from 1935) using VLR BP with base gauge 0228170

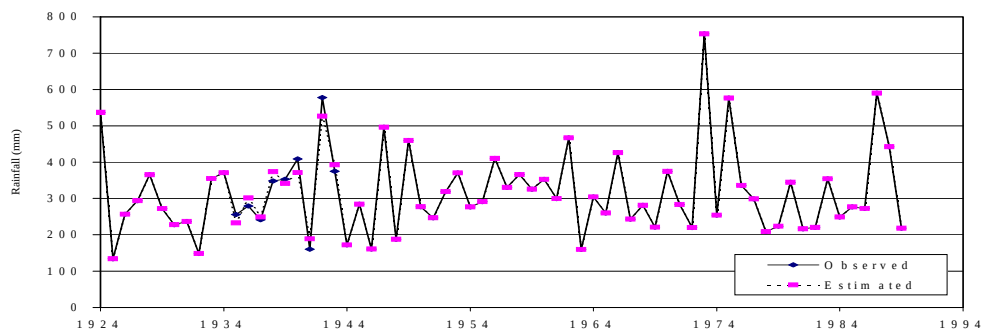


Figure C.6f Annual total rainfall at 0228495 (13.6 % missing from 1935) using standard EM with base gauge 0228170

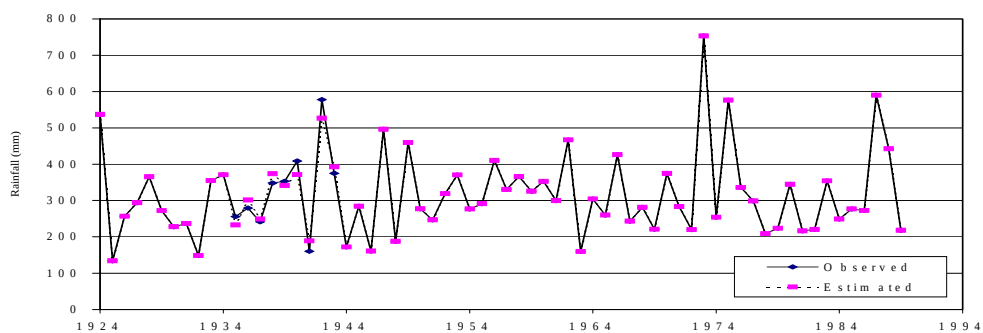


Figure C.6g Annual total rainfall at 0228495 (13.6 % missing from 1935) using MEM1-2 with base gauge 0228170

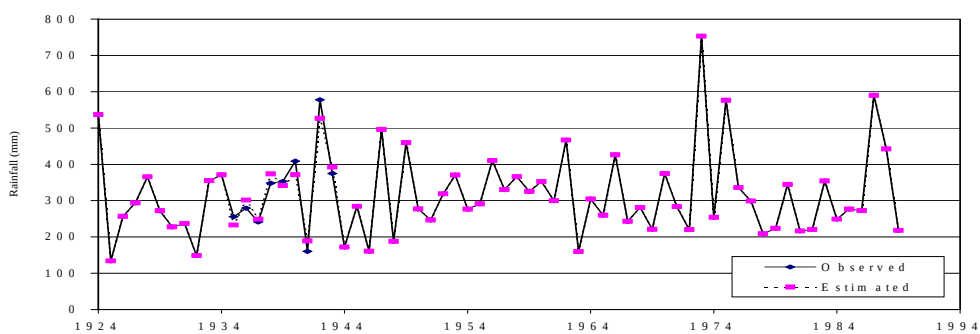


Figure C.6h Annual total rainfall at 0228495 (13.6 % missing from 1935) using MEM3 with base gauge 0228170

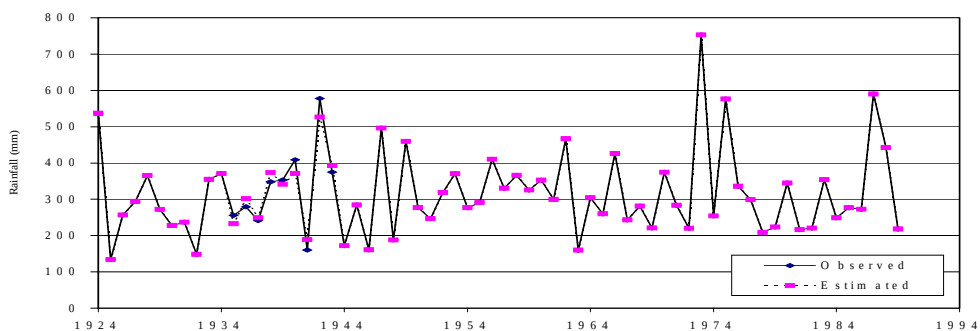


Figure C.6i Annual total rainfall at 0228495 (13.6 % missing from 1935) using ECM1-2 with base gauge 0228170

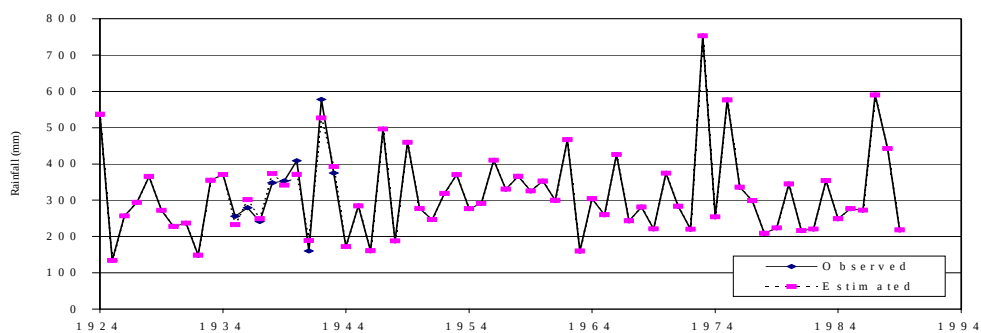


Figure C.6j Annual rainfall at 0228495 (13.6 % missing from 1935) using ECME1-2-3 with base gauge 0228170

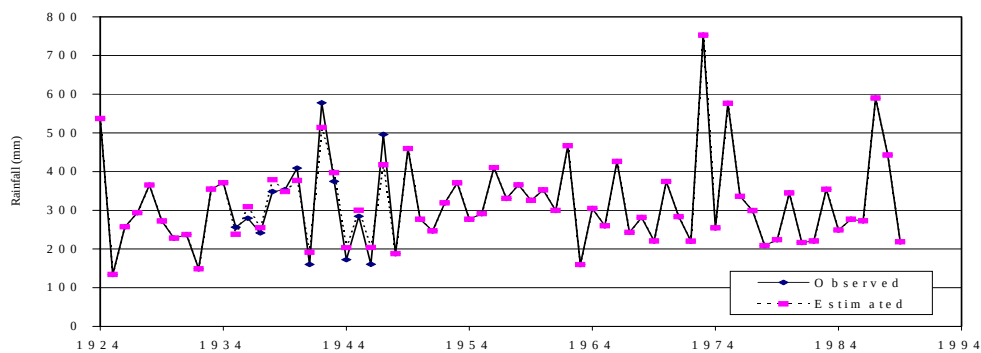


Figure C.7a Annual total rainfall at 0228495 (19.7 % missing from 1935) using standard BP with base gauge 0228170

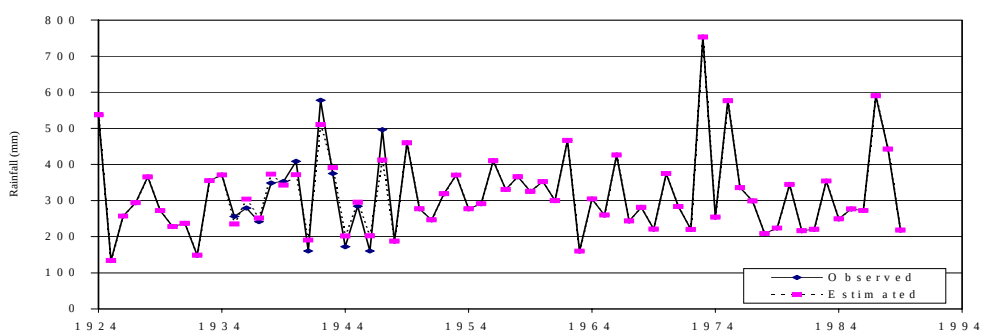


Figure C.7b Annual total rainfall at 0228495 (19.7 % missing from 1935) using McL1BP with base gauge 0228495

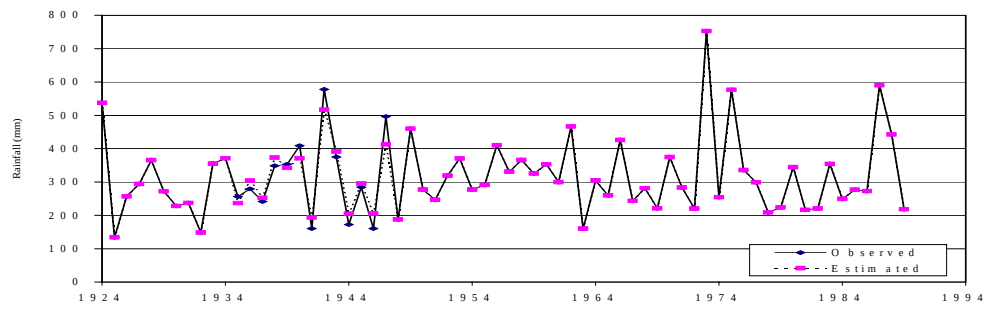


Figure C.7c Annual total rainfall at 0228495 (19.7 % missing from 1935) using GenerBP ($s = 5$) with base gauge 0228170

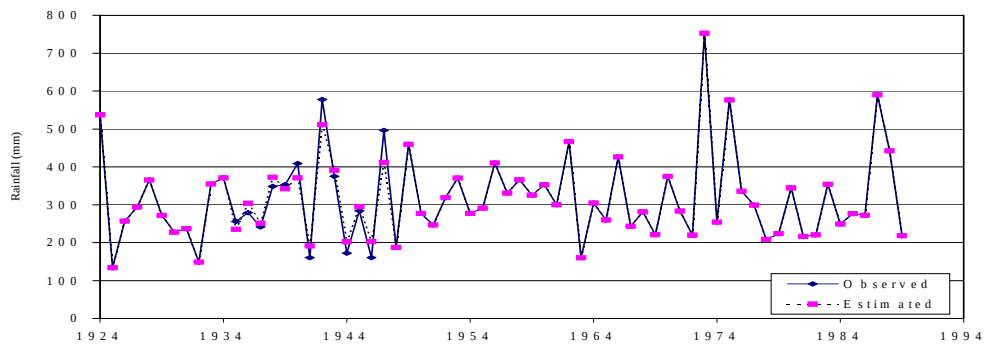


Figure C.7d Annual total rainfall at 0228495 (19.7 % missing from 1935) using GoldSBP with base gauge 0228170

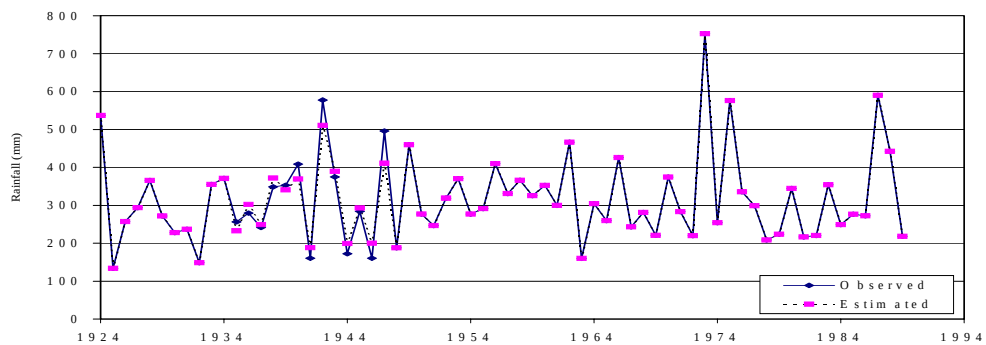


Figure C.7e Annual total rainfall at 0228495 (19.7 % missing from 1935) using VLRBP with base gauge 0228170

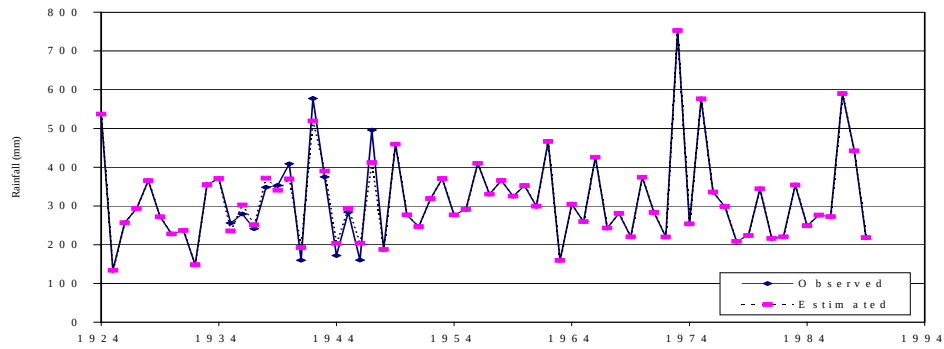


Figure C.7f Annual total rainfall at 0228495 (19.7 % missing from 1935) using standard EM with base gauge 0228170

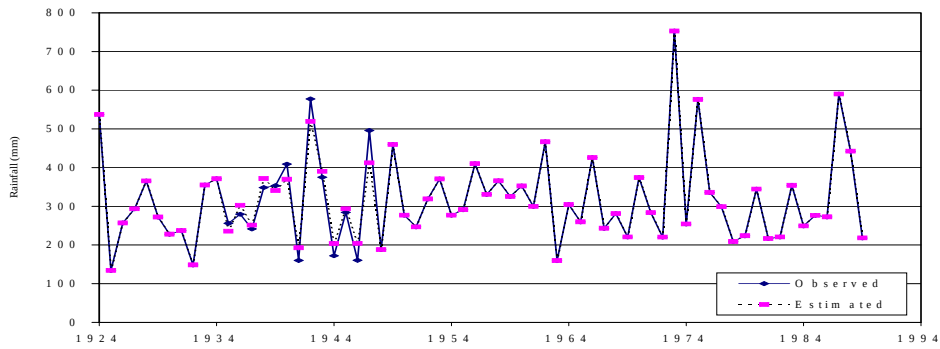


Figure C.7g Annual total rainfall at 0228495 (19.7 % missing from 1935) using ECM1-2 with base gauge 0228170

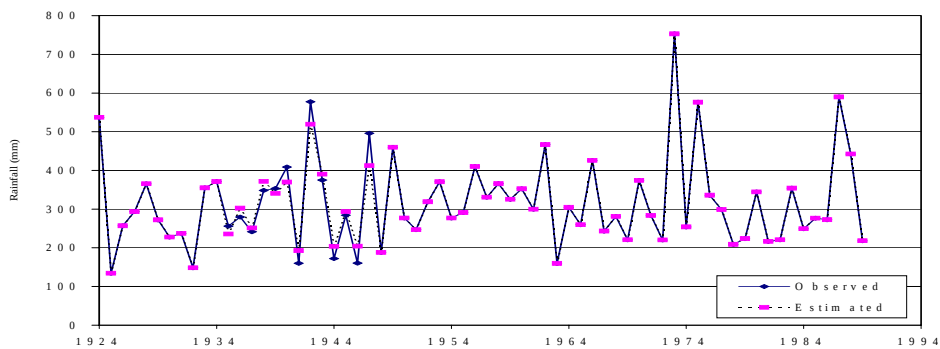


Figure C.7h Annual total rainfall at 0228495 (19.7 % missing from 1935) using MEM2 with base gauge 0228170

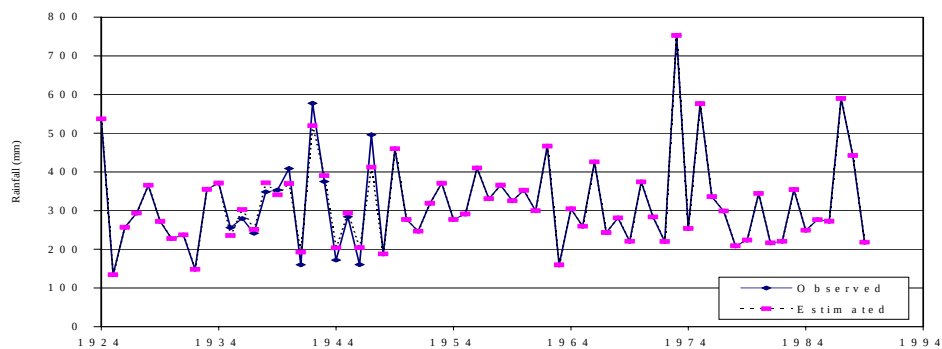


Figure C.7i Annual total rainfall at 0228495 (19.7 % missing from 1935) using MEM1-3 with base gauge 0228170

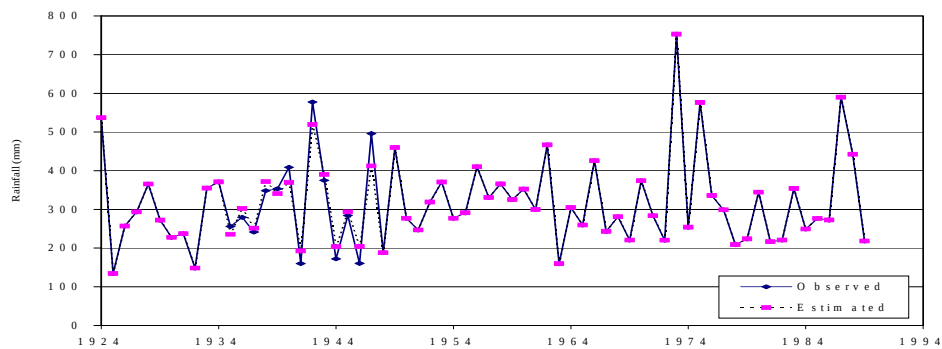


Figure C.7j Annual total rainfall at 0228495 (19.7 % missing from 1935) using ECME1-2-3 with base gauge 0228170

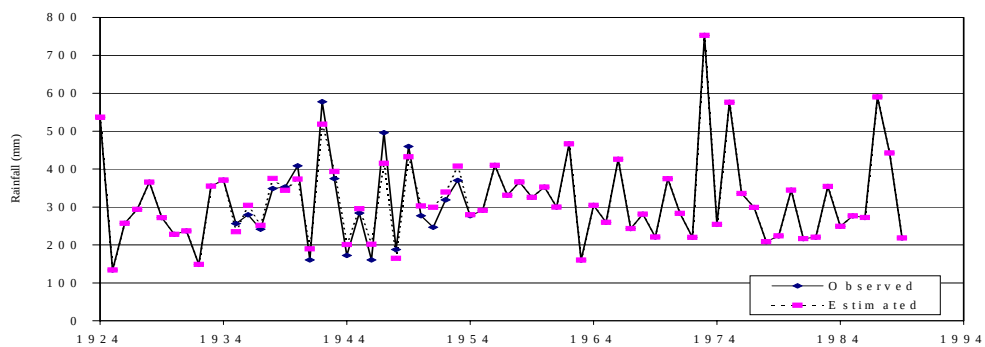


Figure C.8a Annual total rainfall at 0228495 (30.3 % missing from 1935) using VLR with base gauge 0228170

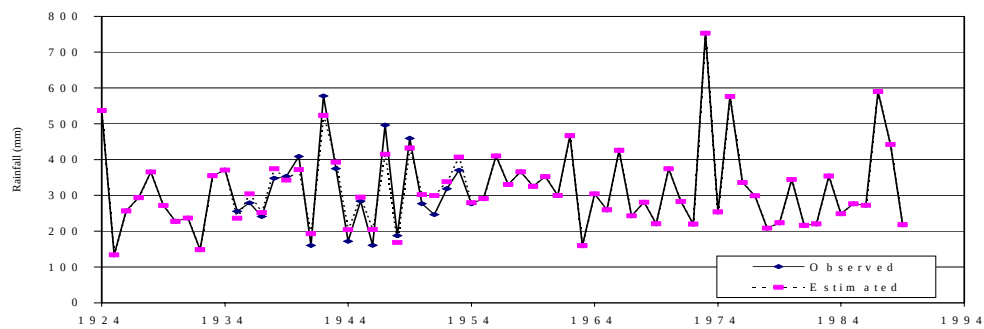


Figure C.8b Annual total rainfall at 0228495 (30.3 % missing from 1935) using standard EM with base gauge 0228170

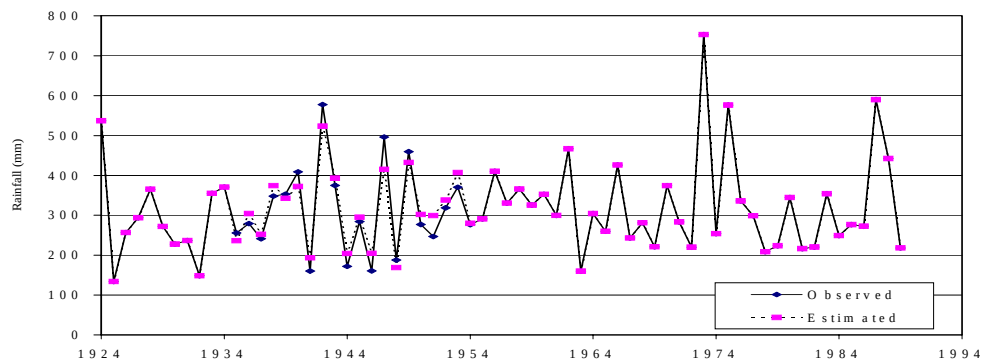


Figure C.8c Annual total rainfall at 0228495 (30.3 % missing from 1935) using ECM1-2 with based gauge 0228170

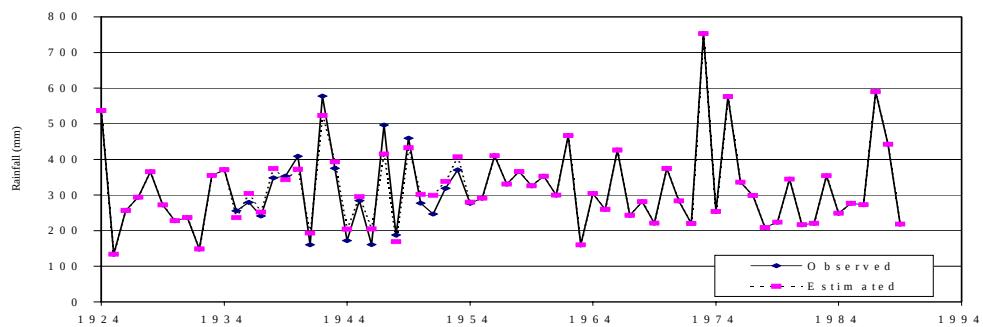


Figure C.8d Annual total rainfall at 0228495 (30.3 % missing from 1935) using ECME1-2-3 with based gauge 0228170

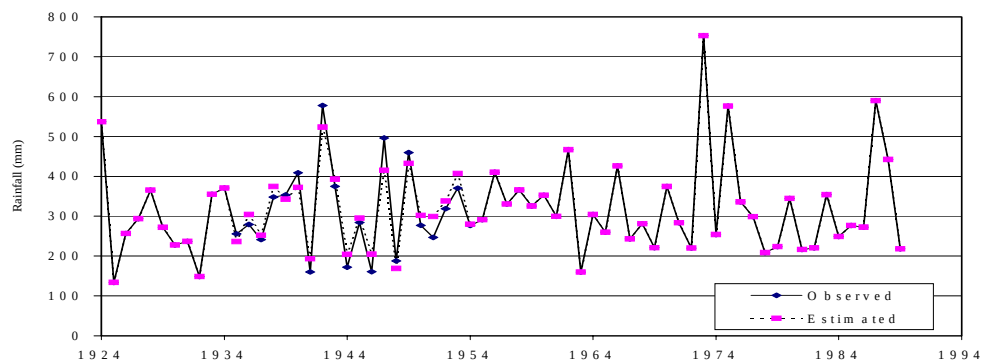
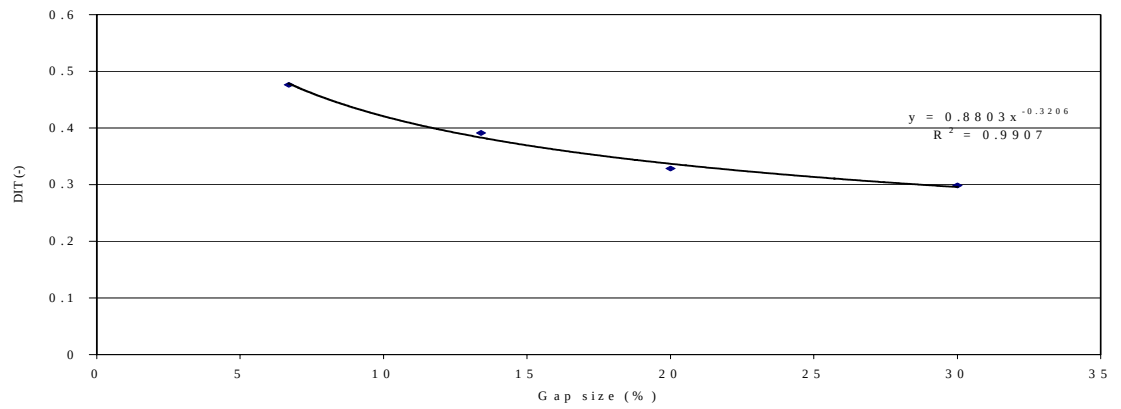
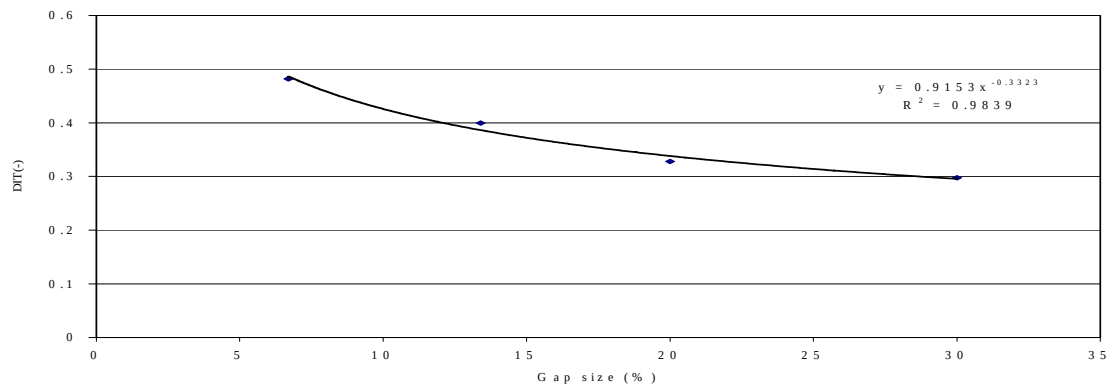


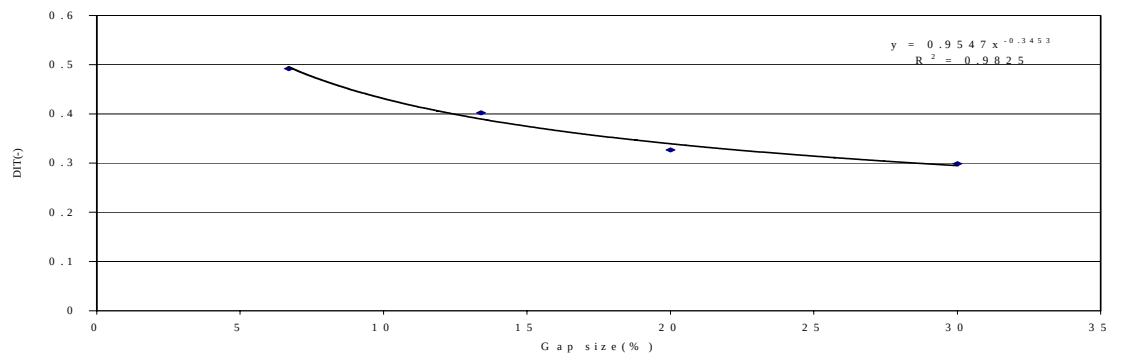
Figure C.8e Annual total rainfall at 0228495 (30.3 % missing from 1935) using MEM1 with based gauge 0228170



(a)

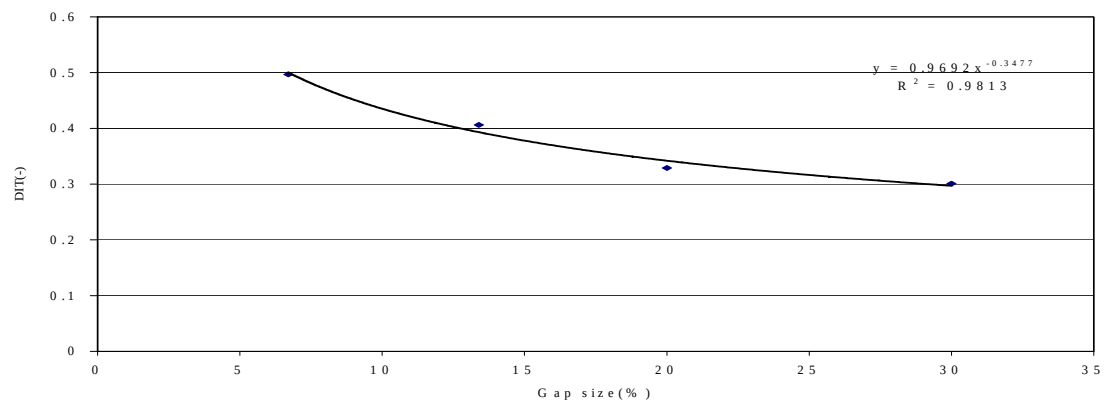


(b)



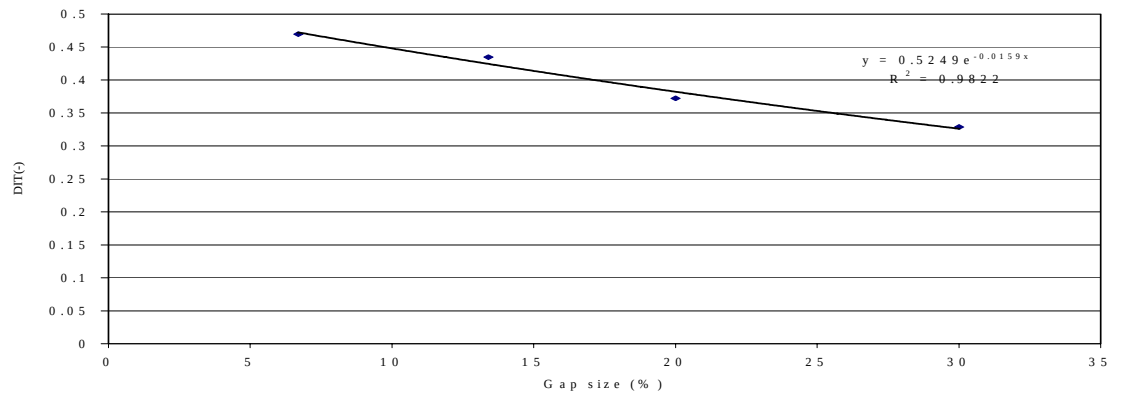
(c)

Figures C.9 (a-c) DIT versus gap size for annual total rainfall at 0228495 (base station 0228170): (a) BP, (b) GoldSBP, (c) GenerBP

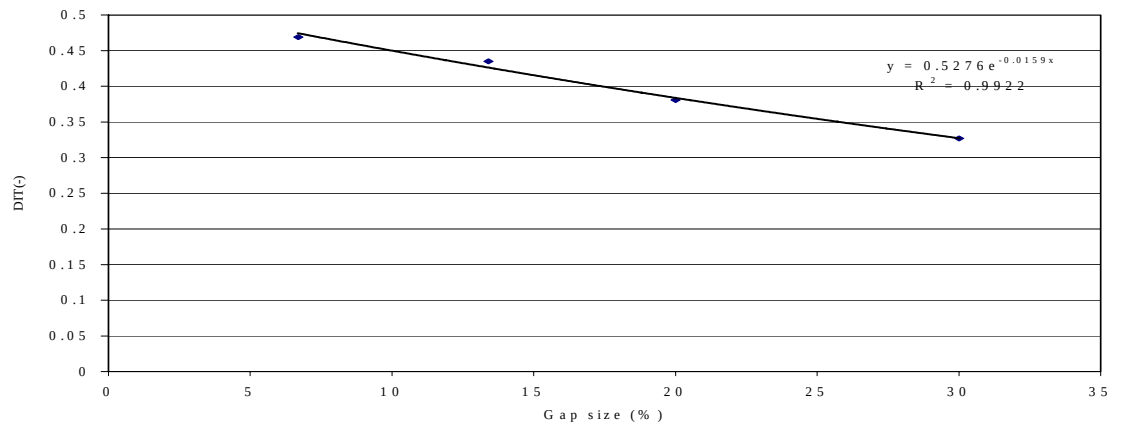


(d)

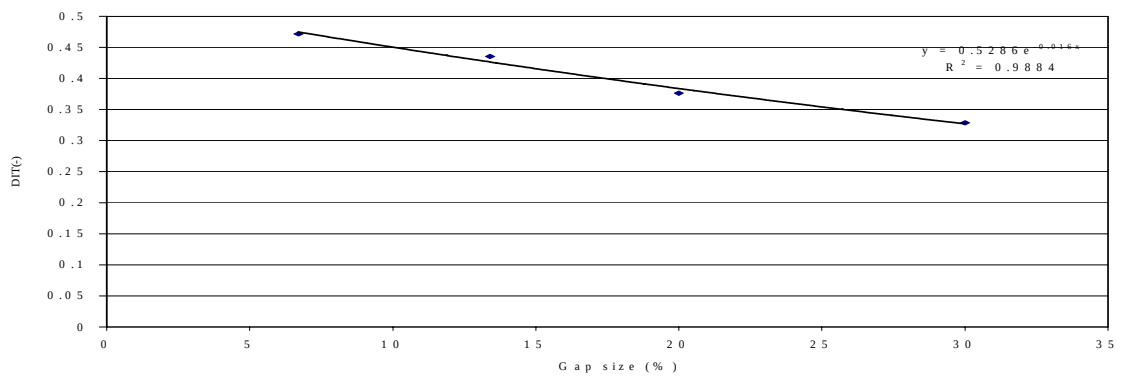
Figure C.9d DIT versus gap size for annual total rainfall at 0228495
(base station 0228170): (b) Standard EM



(a)



(b)



(c)

Figures C.10 (a-c) DIT versus gap size for annual total rainfall at 0228170 (base station 0228495): (a) BP, (b) GoldSBP, (c) GenerBP

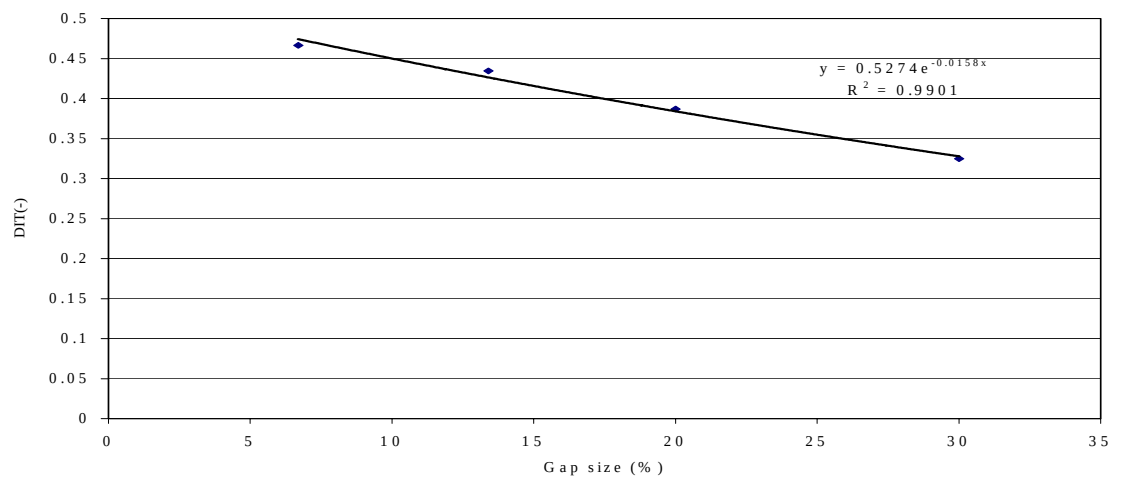


Figure C.10d DIT versus gap size for annual total rainfall at 0228170
(base station 0228495): (d) standard EM