Supplementary Material:
Adaptive Parameter Estimation of the Generalized Extreme Value Distribution by Using Artificial Neural Network Approach

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1 Correlation Analysis

Table S 1: Attribute types, notation, and predictor variables.

Attribute type	Attribute	Notation
GEVD attributes	Location parameter estimate	μ or mu (x_1)
	Scale parameter estimate	σ or sigma (x_2)
	Shape parameter estimate	ξ or xi (x_3)
Geographical coordinates	Latitude	LAT (x_4)
	Longitude	LON (x_5)
Meteorological Variables	Maximum Rainfall	max_rain (x_6)
	Average Rainfall	average_rain (x_7)
	Cumulative Rainfall	sum_rain (x_8)
	Average Minimum Rainfall	min_average_rain (x_9)
	Maximum Windspeed	max_wind (x_{10})
	Average Windspeed	average_wind (x_{11})
	Maximum Temperature	max_temp (x_{12})
	Minimum Temperature	min_temp (x_{13})
	Average Temperature	average_temp (x_{14})
	Average Relative humidity	average_RH (x_{15})
	Maximum Relative humidity	max_RH (x_{16})
Satellite Images	Normalized Difference Vegetation Index	NDVI (x_{17})
Hydrological variables	Maximum Runoff	max_runoff (x_{18})
	Average Runoff	average_runoff (x_{19})

Note: The parameters μ, σ and ξ in this table are deterministic and represent the location, scale, and shape parameters of the GEVD, respectively.

Table S 2: Pearson correlation coefficient between 19 variables in attribute types with the GEVD attributes, Geograpical coordinates, Satellite Images and Hydrological variables.

	x_1	x_2	x_3	x_4	x_5	x_{17}	x_{18}	x_{19}
x_1	1.00	**0.68**	**-0.46**	**0.39**	-0.02	**0.45**	0.04	0.01
x_2	**0.68**	1.00	-0.10	**0.57**	-0.17	**0.36**	-0.14	-0.16
x_3	**-0.46**	-0.10	1.00	0.07	-0.15	0.23	-0.06	-0.03
x_4	**0.39**	**0.57**	0.07	1.00	-0.14	**0.41**	-0.20	**-0.38**
x_5	-0.02	-0.17	-0.15	-0.14	1.00	-0.20	**0.70**	**0.53**
x_6	0.02	0.18	-0.07	**0.48**	0.10	**-0.45**	-0.27	**-0.48**
x_7	**0.36**	**0.51**	0.07	**0.92**	-0.29	**0.65**	-0.17	-0.32
x_8	**0.36**	**0.51**	0.07	**0.92**	-0.29	**0.65**	-0.17	-0.32
x_9	**0.48**	0.08	-0.17	0.24	0.09	0.18	0.10	-0.05
x_{10}	0.08	0.08	-0.11	0.23	**0.66**	**-0.39**	0.27	0.12
x_{11}	-0.34	-0.33	-0.12	-0.33	0.03	-0.04	0.09	-0.05
x_{12}	-0.16	-0.34	-0.11	**-0.63**	0.27	**-0.57**	0.12	0.26
x_{13}	0.21	0.33	0.09	**0.57**	**-0.76**	0.27	**-0.56**	**-0.51**
x_{14}	0.29	0.34	0.07	**0.58**	-0.15	-0.05	-0.27	-0.34
x_{15}	0.34	**0.42**	0.04	**0.67**	-0.01	**0.55**	0.14	0.04
x_{16}	0.20	0.09	0.03	0.07	**0.41**	-0.12	0.25	0.33
x_{17}	0.25	0.28	0.12	**0.41**	-0.20	1.00	0.13	0.09
x_{18}	0.04	-0.14	-0.06	-0.20	**0.70**	0.13	1.00	**0.77**
x_{19}	0.01	-0.16	-0.03	**-0.38**	**0.53**	0.09	**0.77**	1.00

Note: Significant Pearson correlation coefficient for each variables in **bold**.

Table S 3: Pearson correlation coefficient between 19 variables in attribute types with Meteorological variables.

	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}
x_1	0.02	0.36	**0.36**	**0.48**	0.08	-0.34	-0.16	0.23	0.29	0.34	0.20
x_2	0.18	**0.51**	**0.51**	0.08	0.08	-0.33	-0.34	0.33	0.34	**0.42**	0.09
x_3	-0.29	0.07	0.07	-0.17	-0.11	-0.12	-0.21	0.09	0.07	0.04	0.03
x_4	**0.48**	**0.92**	**0.92**	0.24	0.23	-0.33	**-0.63**	**0.57**	**0.58**	**0.67**	0.07
x_5	0.10	-0.29	-0.29	0.09	**0.66**	0.03	0.27	**-0.76**	-0.15	-0.01	**0.41**
x_6	1.00	0.29	0.29	0.01	**0.66**	0.09	-0.27	0.14	**0.41**	0.21	-0.06
x_7	0.29	1.00	1.00	0.21	0.02	-0.17	**-0.79**	**0.65**	**0.41**	**0.75**	-0.09
x_8	0.29	1.00	1.00	0.21	0.02	-0.17	**-0.79**	**0.65**	**0.41**	**0.75**	-0.09
x_9	0.01	0.21	0.21	1.00	0.15	-0.30	-0.08	0.03	0.29	0.27	0.29
x_{10}	**0.66**	0.02	0.02	0.15	1.00	-0.14	0.05	**-0.47**	**0.41**	0.37	**0.53**
x_{11}	0.09	-0.17	-0.17	-0.30	-0.14	1.00	-0.21	-0.21	**-0.70**	-0.19	**-0.77**
x_{12}	-0.27	**-0.79**	**-0.79**	-0.08	0.05	-0.21	1.00	**-0.50**	0.06	**-0.60**	0.33
x_{13}	0.14	**0.65**	**0.65**	0.03	**-0.47**	-0.21	**-0.50**	1.00	0.29	0.18	-0.29
x_{14}	**0.41**	**0.41**	**0.41**	0.29	**0.41**	**-0.70**	0.06	0.29	1.00	**0.43**	**0.54**
x_{15}	0.21	**0.75**	**0.75**	0.27	0.37	-0.19	**-0.60**	0.18	**0.43**	1.00	0.20
x_{16}	-0.06	-0.09	-0.09	0.29	**0.53**	**-0.77**	0.33	-0.29	**0.54**	0.20	1.00
x_{17}	-0.45	**0.65**	**0.65**	0.18	**-0.39**	-0.04	**-0.57**	0.27	-0.05	**0.55**	-0.12
x_{18}	-0.27	-0.17	-0.17	0.10	0.27	0.09	0.12	**-0.56**	-0.27	0.14	0.25
x_{19}	**-0.48**	-0.32	-0.32	-0.05	0.12	-0.05	0.26	**-0.51**	-0.34	0.04	0.33

Note: Significant Pearson correlation coefficient for each variables in **bold**.

2 Best Model for each stations

Table S 4: Parameter estimation procedures with the number of suitable stations.

Station	Model	μ	σ	ξ	NSE	Station	Model	μ	σ	ξ	NSE
353005	GEVD08	NS	S	NS	0.96	387401	GEVD07	NS	S	S	0.71
353011	GEVD07	NS	S	S	0.98	388001	GEVD06	NS	NS	S	0.98
353013	GEVD07	NS	S	S	0.99	388002	GEVD04	S	S	NS	0.97
354003	GEVD04	S	S	NS	0.97	388003	GEVD02	S	NS	S	0.97
354007	GEVD02	S	NS	S	0.99	388005	GEVD01	S	S	S	0.99
354019	GEVD05	NS	NS	NS	0.97	388006	GEVD02	S	NS	S	0.87
354021	GEVD07	NS	S	S	0.98	388007	GEVD03	S	NS	NS	0.94
354022	GEVD02	S	NS	S	0.93	388008	GEVD07	NS	S	S	0.96
354024	GEVD08	NS	S	NS	0.91	388009	GEVD07	NS	S	S	0.98
354025	GEVD08	NS	S	NS	0.95	388011	GEVD02	S	NS	S	0.99
360001	GEVD02	S	NS	S	0.94	388012	GEVD03	S	NS	NS	0.98
360002	GEVD08	NS	S	NS	0.97	388013	GEVD01	S	S	S	0.97
360003	GEVD01	S	S	S	0.99	388014	GEVD08	NS	S	NS	0.99
360005	GEVD05	NS	NS	NS	0.94	388401	GEVD08	NS	S	NS	0.98
360006	GEVD01	S	S	S	0.98	403001	GEVD06	NS	NS	S	0.96
360007	GEVD06	NS	NS	S	0.86	403002	GEVD02	S	NS	S	0.98
379043	GEVD02	S	NS	S	0.92	403003	GEVD01	S	S	S	0.99
381001	GEVD06	NS	NS	S	0.77	403004	GEVD08	NS	S	NS	0.89
381003	GEVD03	S	NS	NS	0.94	403005	GEVD02	S	NS	S	0.60
381004	GEVD03	S	NS	NS	0.98	403006	GEVD07	NS	S	S	0.95
381005	GEVD07	NS	S	S	0.92	403007	GEVD05	NS	NS	NS	0.86
381006	GEVD03	S	NS	NS	0.75	403009	GEVD03	S	NS	NS	0.98
381007	GEVD08	NS	S	NS	0.99	403010	GEVD08	NS	S	NS	0.99
381008	GEVD03	S	NS	NS	0.99	403011	GEVD07	NS	S	S	0.99
381010	GEVD07	NS	S	S	0.97	403012	GEVD06	NS	NS	S	0.99
381011	GEVD06	NS	NS	S	0.98	403016	GEVD01	S	S	S	0.97
381012	GEVD05	NS	NS	NS	0.61	403017	GEVD08	NS	S	NS	0.98
381014	GEVD02	S	NS	S	0.97	403019	GEVD01	S	S	S	0.98
381015	GEVD04	S	S	NS	0.98	403201	GEVD08	NS	S	NS	0.96
381016	GEVD08	NS	S	NS	0.99	405001	GEVD01	S	S	S	0.99
381017	GEVD08	NS	S	NS	0.99	405003	GEVD03	S	NS	NS	0.98
381022	GEVD06	NS	NS	S	0.97	405005	GEVD05	NS	NS	NS	0.94
381023	GEVD07	NS	S	S	0.98	405006	GEVD08	NS	S	NS	0.60
381024	GEVD07	NS	S	S	0.97	405007	GEVD05	NS	NS	NS	0.95
381025	GEVD02	S	NS	S	0.96	405008	GEVD03	S	NS	NS	0.98
381026	GEVD05	NS	NS	NS	0.62	405011	GEVD03	S	NS	NS	0.95
381027	GEVD04	S	S	NS	0.99	405017	GEVD08	NS	S	NS	0.99
381028	GEVD02	S	NS	S	0.98	405201	GEVD07	NS	S	S	0.96
381201	GEVD08	NS	S	NS	0.87	405301	GEVD04	S	S	NS	0.97
381202	GEVD07	NS	S	S	0.85	406001	GEVD06	NS	NS	S	0.97
381301	GEVD04	S	S	NS	0.79	406002	GEVD01	S	S	S	0.99
387001	GEVD02	S	NS	S	0.97	406003	GEVD03	S	NS	NS	0.99
387006	GEVD07	NS	S	S	0.98	406007	GEVD01	S	S	S	0.98
387011	GEVD02	S	NS	S	0.99	406008	GEVD04	S	S	NS	0.99
387013	GEVD06	NS	NS	S	0.98	407008	GEVD02	S	NS	S	0.96
387014	GEVD06	NS	NS	S	0.95	431027	GEVD06	NS	NS	S	0.98

Note: S is stationary process and **NS** is a non-stationary process from the ANN model.

2.1 Structure of ANN01 for parameter μ

The model can be seen more clearly in Eq.1 and Table 5 , where we present the structure of ANN01 model.

$$\mu = \Big[\sum_{j=1}^{1} \Big(\sum_{i=2}^{19} (w_{ij} y_i) + b_j \Big) v_j \Big] \varphi, \tag{1}$$

Table S 5: ANN model structure of ANN01 (18-1-1)

Input variables	w_{ij}	b_j	v_j	φ
sigma	1.60			
xi	2.53			
LAT	2.46			
LON	1.91			
max_rain	3.15			
average_rain	-0.46			
sum_rain	1.67			
min_average_rain	2.26			
max_wind	2.78	2.39	-1.04	1.50
average_wind	2.52			
max_temp	1.64			
min_temp	1.80			
average_temp	1.12			
average_RH	1.07			
max_RH	2.44			
NDVI	2.59			
runoff_max	2.19			
average_runoff	2.55			

2.2 Structure of ANN10 for parameter σ

The model can be seen more clearly in Eq.2 and Table 6, where we present the structure of ANN10 model.

$$\sigma = \Big[((w_{1,1}x_1 + w_{3,1}x_3 + w_{4,1}x_4 + w_{5,1}x_5 + w_{6,1}x_6 + w_{7,1}x_7 \\ + w_{8,1}x_8 + w_{9,1}x_9 + w_{10,1}x_{10}) + b_1)v_1\Big]\varphi, \tag{2}$$

Table S 6: ANN model structure of ANN10 (9-1-1)

Input variables	w_{ij}	b_j	v_j	φ
mu	2.93			
xi	-0.68			
LON	1.51			
LAT	-1.15			
max_rain	0.31	0.003	0.10	0.69
average_rain	0.32			
sum_rain	0.34			
max_wind	-0.08			
average_wind	-1.20			

2.3 Structure of ANN19 for parameter ξ

The model can be seen more clearly in Eq.3 and Table 7, where we present the structure of ANN19 model.

$$\xi = \Big[\sum_{j=1}^{6}((w_{1j}x_1 + w_{2j}x_2 + w_{4j}x_4 + w_{5j}x_5 + w_{6j}x_6 + w_{7j}x_7 \\ + w_{8j}x_8 + w_{9j}x_9 + w_{10j}x_{10})) + b_j)v_j\Big]\varphi, \tag{3}$$

Table S 7: ANN model structure of ANN19 (9-6-1)

Input variables	w_{i1}	w_{i2}	w_{i3}	w_{i4}	w_{i5}	w_{i6}	b_j	v_j	φ
mu	-2.47	0.46	-6.78	12.00	-10.61	1.43			
sigma	-1.97	-0.24	-2.06	-0.83	15.25	-1.45	0.83,	0.76,	
LON	1.15	-1.96	-0.70	-2.92	-2.60	-1.32	0.20,	-1.69,	
LAT	-0.42	-1.94	1.72	-5.43	-6.94	-1.94	-0.13,	0.84,	-0.43
max_rain	4.94	1.39	2.54	-7.25	35.27	-1.09	2.48,	0.67,	
average_rain	-1.98	-0.05	1.36	2.56	-3.71	-4.82	2.61,	0.68,	
sum_rain	0.15	-0.44	0.43	1.90	-4.37	-5.70	-0.50	1.001	
max_wind	-0.81	1.05	-0.20	-0.27	-7.70	4.52			
average_wind	3.38	1.90	0.16	0.98	-1.37	1.03			

3 Parameter Estimation

Table S 8: Parameter estimates and standard error (SE) for the maximum monthly rainfall(mm.)

Station	$\hat{\mu}$(SE)	$\hat{\sigma}$(SE)	$\hat{\xi}$(SE)	ID	$\hat{\mu}$(SE)	$\hat{\sigma}$(SE)	$\hat{\xi}$(SE)
353005	22.76(1.89)	17.87(1.43)	0.20(0.07)	387013	20.73(1.89)	17.42(1.51)	0.16(0.10)
353011	30.29(2.57)	24.48(2.06)	0.19(0.08)	387014	28.59(2.04)	22.43(1.64)	0.14(0.09)
353013	29.06(2.17)	21.17(1.57)	0.01(0.07)	387401	23.48(2.72)	21.17(2.14)	0.24(0.07)
354003	30.24(2.35)	22.33(1.75)	-0.06(0.08)	388001	23.93(2.38)	19.64(1.81)	0.12(0.09)
354007	26.37(2.36)	20.18(1.79)	0.06(0.10)	388002	31.07(2.79)	24.33(2.10)	0.15(0.08)
354019	32.07(2.62)	23.69(1.9)	-0.26(0.10)	388003	25.78(2.36)	20.53(1.84)	0.14(0.08)
354021	29.83(2.66)	21.79(1.99)	-0.02(0.10)	388005	33.46(2.79)	23.2(2.16)	0.08(0.10)
354022	20.17(1.95)	17.36(1.6)	0.10(0.11)	388006	27.51(2.25)	21.36(1.86)	0.18(0.10)
354024	28.94(2.2)	21.38(1.62)	-0.04(0.07)	388007	26.86(2.04)	20.7(1.61)	0.03(0.09)
354025	27.03(2.4)	21.52(1.78)	0.04(0.08)	388008	26.75(2.79)	20.49(2.21)	0.16(0.11)
360001	27.89(2.17)	20.1(1.69)	0.11(0.08)	388009	29.49(2.59)	23.27(2.15)	0.19(0.1)
360002	31.63(2.12)	21.2(1.56)	-0.05(0.08)	388011	28.67(2.53)	21.78(1.94)	0.02(0.11)
360003	26.6(2.24)	19.28(1.63)	-0.03(0.08)	388012	31.71(2.44)	22.74(1.78)	-0.04(0.09)
360005	27.05(2.14)	20.81(1.57)	-0.03(0.07)	388013	24.66(1.91)	19.75(1.45)	0.17(0.07)
360006	24.39(2.35)	19.7(1.78)	0.08(0.09)	388014	26.88(2.24)	20.68(1.72)	0.13(0.08)
360007	26.36(1.93)	18.88(1.55)	0.09(0.08)	388401	27.2(2.77)	22.65(2.19)	0.13(0.11)
379043	19.75(2.01)	16.68(1.53)	0.17(0.10)	403001	22.94(1.96)	18.53(1.46)	0.11(0.07)
381001	26.79(2.09)	22.11(1.65)	0.19(0.07)	403002	23.31(2.02)	18.49(1.59)	0.13(0.09)
381003	27.07(2.09)	20.00(1.58)	0.07(0.09)	403003	21.76(1.73)	14.19(1.31)	0.04(0.10)
381004	26.55(2.21)	20.77(1.68)	-0.02(0.09)	403004	26.49(2.35)	20.14(1.86)	-0.02(0.09)
381005	27.21(2.08)	20.70(1.49)	0.08(0.06)	403005	24.3(2.02)	19.39(1.64)	0.21(0.08)
381006	25.48(2.18)	21.29(1.68)	0.21(0.07)	403006	24.37(1.77)	17.4(1.27)	0.01(0.07)
381007	26.8(2.26)	18.84(1.70)	0.05(0.09)	403007	23.66(2)	17.82(1.59)	0.08(0.08)
381008	25.08(2.09)	19.44(1.59)	0.01(0.10)	403009	31.79(2.25)	21.97(1.62)	-0.21(0.07)
381010	28.83(2.17)	20.38(1.58)	-0.15(0.08)	403010	26.38(2.28)	20.06(1.73)	0.15(0.08)
381011	26.75(2.27)	19.65(1.7)	0.08(0.08)	403011	21.37(2.12)	17.64(1.73)	0.23(0.10)
381012	28.9(2.28)	21.35(1.9)	0.02(0.09)	403012	24.89(2.1)	18.48(1.61)	0.01(0.10)
381014	25.59(2.24)	20.67(1.82)	0.12(0.1)	403016	25.84(1.91)	17.92(1.36)	-0.02(0.07)
381015	23.93(2.33)	18.92(1.77)	0.06(0.1)	403017	23.7(2.32)	19.4(1.83)	0.13(0.10)
381016	24.48(2.38)	20.07(1.8)	0.03(0.1)	403019	29.74(1.98)	20.85(1.57)	0.04(0.09)
381017	23.79(2.13)	18.72(1.59)	0.02(0.09)	403201	23.17(2.32)	20.17(1.71)	0.12(0.07)
381022	26.43(2.46)	20.68(1.83)	0.04(0.08)	405001	30.21(2.58)	23.17(1.97)	0.05(0.10)
381023	26.34(2.31)	21.23(1.71)	0.08(0.08)	405003	31.73(2.55)	22.64(1.87)	0.03(0.08)
381024	26.54(2.22)	20.88(1.67)	0.16(0.08)	405005	29.37(3.09)	23.06(2.64)	0.18(0.15)
381025	25.65(2.02)	19.43(1.5)	0.09(0.07)	405006	33.3(2.81)	25.04(2.12)	-0.07(0.06)
381026	27.06(2.29)	21.36(1.85)	0.21(0.07)	405007	31.8(2.63)	23.45(1.93)	-0.06(0.08)
381027	26.84(2.17)	21.04(1.71)	0.14(0.09)	405008	31.35(2.93)	23.5(2.22)	-0.04(0.10)
381028	27.61(2.13)	20.91(1.66)	0.05(0.09)	405011	29.39(2.68)	22.09(2.09)	0.03(0.10)
381201	23.64(2.38)	20.05(1.76)	0.06(0.07)	405017	30.66(2.88)	22.75(2.16)	0.1(0.09)
381202	25.13(2.54)	21.2(1.88)	0.03(0.07)	405201	25.51(2.93)	22.78(2.45)	0.25(0.13)
381301	34.69(3.15)	26.59(2.53)	0.22(0.09)	405301	25.7(2.62)	23.92(2.02)	0.18(0.08)
387001	31.75(2.82)	22.63(2.08)	0.02(0.08)	406001	24.97(2.48)	21.45(1.92)	0.19(0.09)
387006	30.02(2.69)	21.84(2.09)	0.001(0.12)	406002	29.95(2.88)	25.48(2.25)	0.10(0.10)
387011	30.84(2.82)	22.3(2.12)	0.09(0.09)	406003	26.56(2.85)	23.16(2.25)	0.17(0.11)

4 Return Level Estimation

Table S 9: Estimated return level for 2, 5, 10, 20, 50 and 100 years return period for the maximum monthly rainfall(mm.).

Station	2-year	5-year	10-year	20-year	50-year	100-year
353005	29.55	54.03	73.57	95.29	128.49	157.76
353011	39.59	72.83	99.16	128.24	172.35	210.97
353013	36.82	60.74	76.54	91.66	111.18	125.77
354003	38.33	62.20	77.08	90.71	107.45	119.37
354007	33.85	57.96	74.79	91.62	114.44	132.34
354019	40.36	61.51	72.45	81.13	90.20	95.69
354021	37.79	62.05	77.82	92.73	111.73	125.75
354022	26.65	48.26	63.97	80.18	102.97	121.48
354024	36.71	60.04	74.90	88.74	106.05	118.61
354025	34.98	60.25	77.59	94.69	117.53	135.19
360001	35.41	60.77	79.47	98.98	126.75	149.59
360002	39.33	62.16	76.52	89.74	106.11	117.84
360003	33.63	54.92	68.65	81.55	97.86	109.81
360005	34.63	57.53	72.23	86.02	103.39	116.07
360006	31.71	55.72	72.81	90.17	114.12	133.23
360007	33.40	56.66	73.42	90.58	114.50	133.77
379043	26.06	48.23	65.42	84.10	111.91	135.82
381001	35.17	65.02	88.52	114.35	153.34	187.30
381003	34.49	58.59	75.55	92.62	115.94	134.37
381004	34.15	57.35	72.50	86.85	105.20	118.78
381005	34.91	60.23	78.33	96.75	122.26	142.68
381006	33.60	63.03	86.75	113.31	154.24	190.62
381007	33.77	56.11	71.59	86.97	107.68	123.83
381008	32.22	54.46	69.33	83.70	102.46	116.63
381010	36.10	56.29	67.94	77.98	89.50	97.17
381011	34.05	57.95	74.93	92.15	115.86	134.76
381012	36.74	61.31	77.83	93.87	114.92	130.90
381014	33.34	59.67	79.26	99.84	129.37	153.84
381015	30.94	53.55	69.33	85.11	106.51	123.30
381016	31.88	55.23	71.10	86.65	107.23	123.02
381017	30.68	52.40	67.11	81.48	100.47	114.99
381022	34.07	58.49	75.35	92.04	114.45	131.86
381023	34.24	60.27	78.93	97.96	124.36	145.55
381024	34.43	62.05	83.39	106.48	140.73	170.06
381025	32.88	56.74	73.84	91.31	115.57	135.06
381026	35.20	64.65	88.33	114.79	155.46	191.53
381027	34.75	61.86	82.25	103.87	135.19	161.41
381028	35.35	60.27	77.62	94.93	118.34	136.67
381201	31.07	55.05	71.80	88.56	111.30	129.15
381202	32.94	57.61	74.38	90.80	112.54	129.22
381301	44.84	81.96	112.17	146.25	199.22	246.69
387001	40.08	66.20	83.82	100.96	123.51	140.68
387006	38.03	62.80	79.21	94.96	115.35	130.64
387011	39.14	66.54	86.20	106.28	134.20	156.63
387013	27.31	50.26	67.90	86.94	115.06	139.05
387014	37.02	65.92	87.65	110.69	144.06	172.00

Table S 10: Estimated return level for 2, 5, 10, 20, 50 and 100 years return period for the maximum monthly rainfall(mm.).

Station	2-year	5-year	10-year	20-year	50-year	100-year
387401	31.59	61.63	86.47	114.83	159.53	200.15
388001	31.29	56.19	74.63	93.94	121.52	144.30
388002	40.24	71.96	96.11	121.96	159.80	191.81
388003	33.51	60.15	80.35	101.88	133.27	159.72
388005	42.10	70.56	90.96	111.79	140.69	163.89
388006	35.60	64.28	86.76	111.36	148.33	180.39
388007	34.48	58.56	74.92	90.94	112.16	128.42
388008	34.49	61.55	82.40	104.95	138.32	166.86
388009	38.33	70.00	95.14	122.95	165.21	202.27
388011	36.68	61.88	78.92	95.53	117.43	134.14
388012	39.98	64.81	80.63	95.36	113.80	127.17
388013	32.13	58.45	78.91	101.18	134.40	163.03
388014	34.63	61.00	80.64	101.29	130.95	155.56
388401	35.71	64.82	86.67	109.80	143.24	171.17
403001	29.88	53.21	70.36	88.23	113.60	134.41
403002	30.25	53.90	71.57	90.19	117.00	139.31
403003	27.00	43.78	55.36	66.85	82.27	94.26
403004	33.84	56.20	70.71	84.40	101.80	114.60
403005	31.68	58.37	79.79	103.68	140.35	172.82
403006	30.75	50.56	63.74	76.43	92.92	105.33
403007	30.28	52.00	67.47	83.19	104.88	122.20
403009	39.54	60.13	71.35	80.60	90.70	97.10
403010	33.94	60.05	79.90	101.11	132.13	158.33
403011	28.12	52.99	73.42	96.64	133.03	165.92
403012	31.67	52.76	66.82	80.37	98.02	111.33
403016	32.39	52.38	65.41	77.76	93.52	105.17
403017	30.98	55.84	74.43	94.07	122.37	145.95
403019	37.44	62.08	79.10	95.98	118.65	136.27
403201	30.72	56.20	75.01	94.64	122.62	145.65
405001	38.78	66.40	85.62	104.80	130.74	151.05
405003	40.07	66.43	84.36	101.93	125.23	143.10
405005	38.10	68.98	93.11	119.47	158.98	193.16
405006	42.36	68.95	85.43	100.45	118.80	131.79
405007	40.31	65.53	81.37	95.94	113.95	126.84
405008	39.91	65.64	82.08	97.43	116.70	130.70
405011	37.53	63.34	80.95	98.25	121.24	138.93
405017	39.14	67.41	87.92	109.07	138.74	162.82
405201	34.25	66.88	94.11	125.44	175.24	220.85
405301	34.75	66.74	91.70	118.94	159.71	194.93
406001	33.11	62.30	85.47	111.09	150.04	184.19
406002	39.46	71.16	94.21	118.00	151.44	178.61
406003	35.32	66.03	89.80	115.57	153.86	186.72
406007	48.80	80.43	101.83	122.71	150.26	171.29
406008	31.68	60.07	84.32	112.75	158.92	202.08
407008	42.47	72.08	93.40	115.25	145.70	170.25
431027	32.90	57.91	75.66	93.64	118.36	138.03