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LAMPIRAN

Lampiran 1. Data Curah Hujan dan GCM Tahun 2008-2022

No	Waktu	Y	X_1	X_2	...	X_{63}	X_{64}
1	Jan-2008	697.50	5.27	8.67	...	9.76	10.60
2	Feb-2008	785.00	5.57	6.61	...	8.71	10.67
3	Mar-2008	557.50	4.22	6.41	...	7.48	9.54
4	Apr-2008	313.00	2.63	5.82	...	6.87	8.21
5	May-2008	136.00	1.55	3.47	...	7.97	6.96
6	Jun-2008	102.50	1.05	2.16	...	8.90	7.64
7	Jul-2008	26.50	0.69	1.36	...	8.20	8.46
8	Aug-2008	22.00	0.65	1.22	...	6.47	8.23
9	Sep-2008	10.50	0.94	1.41	...	5.85	6.77
10	Oct-2008	265.00	2.15	1.98	...	6.86	6.64
11	Nov-2008	779.50	4.41	4.05	...	8.46	7.15
12	Dec-2008	797.00	6.22	6.45	...	12.44	10.14
⋮	⋮	⋮	⋮	⋮	⋱	⋮	⋮
85	Jan-2015	1002.00	4.96	7.36	...	10.93	11.12
86	Feb-2015	519.00	4.95	6.72	...	9.40	10.97
87	Mar-2015	553.00	4.48	6.17	...	7.73	9.21
88	Apr-2015	249.00	3.27	5.29	...	6.56	7.71
89	May-2015	141.00	1.72	3.84	...	7.56	6.84
90	Jun-2015	71.50	1.08	2.01	...	9.10	7.25
100	Jul-2015	0.00	0.72	1.32	...	8.03	8.33
101	Aug-2015	0.00	0.67	1.28	...	6.39	7.24
102	Sep-2015	0.00	0.95	1.35	...	5.63	6.60
⋮	⋮	⋮	⋮	⋮	⋱	⋮	⋮
168	Jan-2022	743.33	4.80	7.10	...	10.42	11.81
169	Feb-2022	694.67	5.50	5.95	...	9.70	11.22
170	Mar-2022	388.00	3.75	7.00	...	7.84	9.81
171	Apr-2022	101.67	2.65	5.49	...	7.53	7.95
172	May-2022	374.33	1.61	3.26	...	7.42	7.11
173	Jun-2022	228.67	1.03	2.04	...	7.79	7.25
174	Jul-2022	87.67	0.64	1.33	...	7.59	7.45
175	Aug-2022	42.33	0.84	1.03	...	6.12	7.16
176	Sep-2022	148.00	1.53	1.41	...	5.48	5.98
8	Oct-2022	524.33	2.18	2.25	...	6.49	6.77
9	Nov-2022	563.00	3.63	3.81	...	8.90	7.24
0	Dec-2022	649.00	4.98	5.85	...	10.60	10.15

Lampiran 2. Ilustrasi estimasi parameter regresi kuantil spline dengan analisis komponen utama menggunakan algoritma simpleks

Contoh data penelitian dengan 2 komponen utama dengan 1 titik knot

Y	W_1	$(W_1-(-10.20))_+$	W_2	$(W_2-(-0.30))_+$
697.50	-11.97	0.00	-0.28	0.02
785.00	-9.14	1.06	-0.79	0.00
557.50	-5.15	5.05	0.31	0.61
313.00	0.24	10.44	4.27	4.57
136.00	4.49	14.69	3.47	3.77

Misalkan sebuah persamaan kuantil dengan $\tau = 0.25$ dan persamaan penduganya adalah

$$\hat{y}_i(\tau) = \hat{\beta}_0(\tau) + \hat{\beta}_1(\tau)W_1 + \hat{\beta}_2(\tau)(W_1 - K_1)_+ + \hat{\beta}_3(\tau)W_2 + \hat{\beta}_4(\tau)(W_2 - K_2)_+$$

Minimalkan :

$$\tau \sum_{i=1}^{5} |\varepsilon_i(\tau)| = 0.25\varepsilon_{11}(\tau) + 0.25\varepsilon_{12}(\tau) + 0.25\varepsilon_{13}(\tau) + 0.25\varepsilon_{14}(\tau) + 0.25\varepsilon_{15}(\tau)$$

$$(1-\tau) \sum_{i=1}^{5} |\varepsilon_i(\tau)| = 0.75\varepsilon_{21}(\tau) + 0.75\varepsilon_{22}(\tau) + 0.75\varepsilon_{23}(\tau) + 0.75\varepsilon_{24}(\tau) + 0.75\varepsilon_{25}(\tau)$$

Dengan kendala sebagai berikut :

$$\hat{\beta}_0 - 11.97\hat{\beta}_1 + 0.00\hat{\beta}_2 - 0.28\hat{\beta}_3 + 0.02\hat{\beta}_4 + \varepsilon_{11} - \varepsilon_{21} = 697.50$$
$$\hat{\beta}_0 - 9.14\hat{\beta}_1 + 1.06\hat{\beta}_2 - 0.79\hat{\beta}_3 + 0.00\hat{\beta}_4 + \varepsilon_{12} - \varepsilon_{22} = 785.00$$
$$\hat{\beta}_0 - 5.15\hat{\beta}_1 + 5.05\hat{\beta}_2 + 0.31\hat{\beta}_3 + 0.61\hat{\beta}_4 + \varepsilon_{13} - \varepsilon_{32} = 557.50$$
$$\hat{\beta}_0 + 0.24\hat{\beta}_1 + 10.44\hat{\beta}_2 + 4.27\hat{\beta}_3 + 4.57\hat{\beta}_4 + \varepsilon_{14} - \varepsilon_{42} = 313.00$$
$$\hat{\beta}_0 + 4.49\hat{\beta}_1 + 14.69\hat{\beta}_2 + 3.47\hat{\beta}_3 + 3.77\hat{\beta}_4 + \varepsilon_{15} - \varepsilon_{52} = 136.00$$
$$\varepsilon_i \geq 0$$

Misalkan :

$\hat{\beta}_0 = x_0$	$\varepsilon_{11} = q_1$	$\varepsilon_{21} = r_1$
$\hat{\beta}_1 = x_1$	$\varepsilon_{12} = q_2$	$\varepsilon_{22} = r_2$
$\hat{\beta}_2 = x_2$	$\varepsilon_{13} = q_3$	$\varepsilon_{23} = r_3$
	$\varepsilon_{14} = q_4$	$\varepsilon_{24} = r_4$
	$\varepsilon_{15} = q_5$	$\varepsilon_{25} = r_5$

Selanjutnya persamaan fungsi tujuan dan kendala dimasukkan ke dalam tabel simpleks awal.

Tabel Simpleks Awal

d_j			0	0	0	0	0	0.25	0.25	0.25	0.25	0.25	0.75	0.75	0.75	0.75	0.75	rasio
c_b	v_b	w_b	x_0	x_1	x_2	x_3	x_4	q_1	q_2	q_3	q_4	q_5	r_1	r_2	r_3	r_4	r_5	
0.25	q_1	697.50	1	-11.97	0.00	-0.28	0.02	1	0	0	0	0	-1	0	0	0	0	∞
0.25	q_2	785.00	1	-9.14	1.06	-0.79	0.00	0	1	0	0	0	0	-1	0	0	0	740.56
0.25	q_3	557.50	1	-5.15	5.05	0.31	0.61	0	0	1	0	0	0	0	-1	0	0	110.39
0.25	q_4	313.00	1	0.24	10.44	4.27	4.57	0	0	0	1	0	0	0	0	-1	0	29.98
0.25	q_5	136.00	1	4.49	14.69	3.47	3.77	0	0	0	0	1	0	0	0	0	-1	9.25
z_j		622.25	1.25	-5.38	7.81	1.74	2.24	0.25	0.25	0.25	0.25	0.25	-0.25	-0.25	-0.25	-0.25	-0.25	
$d_j - z_j$			-1.25	5.38	-7.81	-1.74	-2.24	0	0	0	0	0	1	1	1	1	1	

Pada tabel simpleks awal dapat dilihat bahwa nilai $d_j - z_j$ terkecil adalah -7.81 yang berada pada kolom x_2 maka kolom kuncinya adalah x_2 dan rasio terkecil dari x_2 adalah 9.25 maka baris kuncinya adalah q_5. Dengan demikian x_2 mengganti q_5 di variabel dasar.

$$Baris\ kunci\ baru = \frac{1}{pivot}(baris\ kunci\ lama)$$

$$= \frac{1}{14.69}(136.00 \quad 1 \quad 4.49 \quad 14.69 \quad 3.47 \quad 3.77 \quad 0 \quad 0 \quad 0 \quad 0 \quad 1 \quad 0 \quad 0 \quad 0 \quad 0 \quad -1)$$

$$= 9.25 \quad 0.06 \quad 0.30 \quad 1 \quad 0.23 \quad 0.25 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0.06 \quad 0 \quad 0 \quad 0 \quad 0 \quad -0.06$$

$$Baris\ 1\ baru = baris\ 1\ lama - 0.00(baris\ kunci\ baru)$$

$$= \begin{array}{cccccccccccccccc} 697.50 & 1 & -11.97 & 0.00 & -0.28 & 0.02 & 1 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 697.50 & 1 & -11.97 & 0.00 & -0.28 & 0.02 & 1 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \end{array} -$$

$$Baris\ 2\ baru = baris\ 2\ lama - 1.06(baris\ kunci\ baru)$$

$$= \begin{array}{cccccccccccccccc} 785.00 & 1 & -9.14 & 1.06 & -0.79 & 0.00 & 0 & 1 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 \\ 9.81 & 0.07 & 0.32 & 1.06 & 0.25 & 0.27 & 0 & 0 & 0 & 0 & 0.07 & 0 & 0 & 0 & 0 & -0.07 \\ \hline 775.18 & 0.92 & -9.46 & 0.00 & -1.04 & -0.2 & 0 & 1 & 0 & 0 & -0.07 & 0 & -1 & 0 & 0 & 0.07 \end{array} -$$

$$Baris\ 3\ baru = baris\ 3\ lama - 5.05(baris\ kunci\ baru)$$

$$= \begin{array}{cccccccccccccccc} 557.50 & 1 & -5.15 & 5.05 & 0.31 & 0.61 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & -1 & 0 & 0 \\ 46.75 & 0.34 & 1.54 & 5.05 & 1.19 & 1.29 & 0 & 0 & 0 & 0 & 0.34 & 0 & 0 & 0 & 0 & -0.34 \\ \hline 510.74 & 0.65 & -6.69 & 0.00 & -0.8 & -0.6 & 0 & 0 & 1 & 0 & -0.3 & 0 & 0 & -1 & 0 & 0.34 \end{array} -$$

$$Baris\ 4\ baru = baris\ 4\ lama - 10.44(baris\ kunci\ baru)$$

$$= \begin{array}{cccccccccccccccc} 313.00 & 1 & 0.24 & 10.44 & 4.27 & 4.57 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & -1 & 0 \\ 96.65 & 0.71 & 3.19 & 10.44 & 2.46 & 2.67 & 0 & 0 & 0 & 0 & 0.71 & 0 & 0 & 0 & 0 & -0.71 \\ \hline 216.34 & 0.28 & -2.95 & 0.00 & 1.80 & 1.89 & 0 & 0 & 0 & 1 & -0.71 & 0 & 0 & 0 & -1 & 0.71 \end{array} -$$

Dengan demikian diperoleh tabel simpleks yang baru berikut

Tabel Simpleks Kedua

d_j			0	0	0	0	0	0.25	0.25	0.25	0.25	0.25	0.75	0.75	0.75	0.75	0.75	rasio
c_b	v_b	w_b	x_0	x_1	x_2	x_3	x_4	q_1	q_2	q_3	q_4	q_5	r_1	r_2	r_3	r_4	r_5	
0.25	q_1	697.50	1	-11.97	0.00	-0.28	0.02	1	0	0	0	0	-1	0	0	0	0	697.50
0.25	q_2	775.18	0.92	-9.46	0.00	-1.04	-0.27	0	1	0	0	-0.07	0	-1	0	0	0.07	842.58
0.25	q_3	510.74	0.65	-6.69	0.00	-0.8	-0.6	0	0	1	0	-0.34	0	0	-1	0	0.34	785.75
0.25	q_4	216.34	0.28	-2.95	0.00	1.80	1.89	0	0	0	1	-0.71	0	0	0	-1	0.71	772.64
0	x_2	9.25	0.06	0.30	1.00	0.23	0.25	0	0	0	0	0.06	0	0	0	0	-0.06	154.16
z_j		549.94	0.71	-7.76	0	-0.08	0.26	0.25	0.25	0.25	0.25	-0.28	-0.25	-0.25	-0.25	-0.25	0.28	
$d_j - z_j$			-0.71	7.76	0	0.08	-0.26	0	0	0	0	0.53	1	1	1	1	0.47	

Pada tabel simpleks kedua dapat dilihat bahwa nilai $d_j - z_j$ terkecil adalah -0.71 yang berada pada kolom x_0 maka kolom kuncinya adalah x_0 dan rasio terkecil dari x_0 adalah 154.16 maka baris kuncinya adalah x_2. Dengan demikian x_0 mengganti x_2 di variabel dasar.

Iterasi algoritma simpleks dilakukan sampai nilai $d_j - z_j$ tidak ada lagi yang bernilai negatif dan diperoleh hasil estimasi parameter $\hat{\beta}(\tau)$.

Lampiran 3. Nilai Koefisien Determinasi

j	R_j^2	j	R_j^2	j	R_j^2
1	99.89%	23	96.85%	45	99.87%
2	99.93%	24	96.66%	46	99.55%
3	99.91%	25	99.96%	47	99.26%
4	99.90%	26	99.97%	48	99.19%
5	99.81%	27	99.95%	49	99.96%
6	99.24%	28	99.93%	50	99.97%
7	99.24%	29	99.87%	51	99.95%
8	99.26%	30	99.25%	52	99.97%
9	99.95%	31	97.16%	53	99.86%
10	99.97%	32	98.82%	54	99.40%
11	99.94%	33	99.96%	55	99.39%
12	99.94%	34	99.97%	56	99.47%
13	99.90%	35	99.95%	57	99.94%
14	99.48%	36	99.94%	58	99.96%
15	99.18%	37	99.88%	59	99.95%
16	99.02%	38	99.51%	60	99.95%
17	99.95%	39	99.32%	61	99.77%
18	99.97%	40	99.50%	62	99.15%
19	99.92%	41	99.96%	63	99.03%
20	99.94%	42	99.98%	64	99.31%
21	99.70%	43	99.96%		
22	96.43%	44	99.95%		

Lampiran 4. Nilai Varians Kovarians antar Variabel

No	s_1	s_2	s_3	s_4	s_5	...	s_{63}	s_{64}
s_1	3.54	4.36	4.53	4.78	3.12	...	2.14	2.07
s_2	4.36	5.63	6.02	6.50	4.25	...	2.93	3.08
s_3	4.53	6.02	6.61	7.26	4.72	...	3.28	3.61
s_4	4.78	6.50	7.26	8.55	5.97	...	3.85	4.47
s_5	3.12	4.25	4.72	5.97	4.76	...	2.61	3.09
s_6	1.81	2.48	2.82	3.24	2.31	...	1.02	1.45
s_7	0.98	1.63	2.05	2.40	1.43	...	0.55	1.26
s_8	-1.44	-1.13	-0.73	-0.08	0.09	...	-0.19	0.79
s_9	3.67	4.64	4.92	5.29	3.42	...	2.46	2.52
s_{10}	4.59	6.01	6.49	7.08	4.61	...	3.25	3.50
s_{11}	5.17	6.85	7.51	8.32	5.49	...	3.79	4.17
s_{12}	5.37	7.19	7.92	9.27	6.50	...	4.33	4.82
s_{13}	3.67	4.78	5.19	6.14	4.60	...	2.84	3.05
s_{14}	2.14	2.76	3.03	3.32	2.29	...	1.17	1.38
s_{15}	0.86	1.14	1.29	1.28	0.68	...	0.01	0.31
s_{16}	-1.45	-1.63	-1.61	-1.53	-0.97	...	-0.97	-0.59
s_{17}	3.96	5.16	5.59	6.08	3.86	...	2.93	3.15
s_{18}	4.95	6.57	7.18	7.91	5.11	...	3.70	4.10
s_{19}	5.57	7.46	8.22	9.19	6.06	...	4.22	4.74
s_{20}	5.20	6.98	7.66	8.99	6.32	...	4.29	4.75
⋮	⋮	⋮	⋮	⋮	⋮	⋱	⋮	⋮
s_{51}	6.18	8.05	8.69	9.66	6.50	...	4.29	4.63
s_{52}	5.86	7.41	7.83	8.78	6.21	...	3.91	3.88
s_{53}	3.52	4.20	4.26	4.72	3.53	...	2.44	1.99
s_{54}	2.26	2.72	2.79	3.11	2.28	...	2.07	1.72
s_{55}	1.87	2.55	2.84	3.41	2.45	...	2.20	2.28
s_{56}	0.95	1.60	1.99	2.65	1.91	...	1.78	2.25
s_{57}	5.00	7.26	8.46	9.61	5.80	...	4.87	6.00
s_{58}	6.25	8.59	9.63	10.70	6.60	...	5.25	6.05
s_{59}	6.55	8.49	9.14	10.08	6.70	...	4.45	4.74
s_{60}	6.00	7.43	7.75	8.56	6.09	...	3.62	3.43
s_{61}	3.68	4.45	4.56	5.07	3.74	...	2.43	2.11
	2.35	2.99	3.17	3.64	2.60	...	2.26	2.10
	2.14	2.93	3.28	3.85	2.61	...	2.59	2.66
	2.07	3.08	3.61	4.47	3.09	...	2.66	3.25

Lampiran 5. Nilai *Mahalanobis Distances*

No	MD	No	MD	No	MD	No	MD	No	MD
1	92.50	33	28.24	64	67.52	95	40.56	126	70.10
2	107.79	34	44.23	65	70.93	96	60.73	127	47.10
3	82.80	35	56.30	66	53.82	97	86.51	128	25.17
4	76.28	36	66.85	67	47.45	98	104.73	129	47.16
5	80.94	37	87.91	68	28.95	99	88.77	130	49.36
6	62.50	38	111.01	69	51.50	100	94.16	131	51.09
7	46.58	39	89.70	70	38.35	101	85.81	132	75.17
8	39.64	40	86.36	71	42.83	102	57.90	133	94.36
9	39.13	41	80.18	72	79.01	103	49.38	134	93.93
10	25.60	42	53.72	73	94.83	104	34.50	135	80.01
11	57.65	43	48.18	74	76.31	105	27.10	136	76.04
12	74.17	44	41.37	75	98.32	106	33.93	137	76.82
13	97.59	45	44.64	76	72.26	107	53.85	138	61.97
14	81.85	46	49.82	77	66.16	108	69.22	139	41.86
15	76.31	47	27.88	78	52.01	109	88.18	140	34.96
16	69.55	48	73.40	79	43.77	110	95.64	141	41.36
17	66.37	49	89.05	80	29.67	111	74.72	142	43.19
18	67.47	50	87.59	81	35.18	112	86.31	143	47.02
19	59.73	51	85.80	82	35.45	113	72.32	144	89.59
20	38.01	52	88.63	83	62.90	114	52.26	145	83.52
21	25.32	53	84.51	84	69.26	115	42.44	146	96.67
22	36.86	54	68.90	85	100.60	116	39.44	147	58.25
23	36.68	55	47.74	86	83.89	117	51.99	148	96.18
24	76.66	56	34.74	87	83.71	118	39.17	149	80.47
25	83.10	57	45.79	88	67.82	119	65.61	150	68.55
26	113.10	58	40.75	89	85.73	120	52.40	151	48.81
27	65.20	59	49.38	90	70.78	121	85.95	152	35.71
28	82.84	60	55.81	91	62.16	122	86.93	153	44.39
29	77.17	61	90.75	92	31.12	123	72.83	154	51.23
30	63.41	62	81.52	93	38.43	124	88.08	155	38.56
31	46.69	63	67.06	94	33.08	125	59.24	156	74.94
32	24.73								

Lampiran 6. Standarisasi Variabel Prediktor

No	Z_1	Z_2	Z_3	Z_4	Z_5	...	Z_{63}	Z_{64}
1	0.75	1.12	1.16	1.57	1.49	...	1.03	1.23
2	2.07	1.95	1.74	1.36	0.83	...	1.09	1.27
3	1.24	1.09	1.18	1.11	0.62	...	0.43	0.64
4	1.40	1.00	0.78	0.65	0.88	...	-0.33	-0.10
5	0.69	0.76	0.66	0.53	0.78	...	-0.71	-0.79
6	-0.16	-0.24	-0.19	-0.16	0.11	...	-0.02	-0.42
7	-0.73	-0.79	-0.83	-0.75	-0.29	...	0.55	0.04
8	-1.00	-1.12	-1.17	-1.14	-0.98	...	0.12	-0.09
9	-1.19	-1.18	-1.20	-1.16	-1.24	...	-0.95	-0.89
10	-1.21	-1.11	-1.00	-1.12	-1.43	...	-1.34	-0.97
11	-1.05	-0.86	-0.63	-0.60	-0.44	...	-0.72	-0.68
12	-0.41	0.01	0.34	0.93	1.59	...	0.28	0.97
⋮	⋮	⋮	⋮	⋮	⋮	⋱	⋮	⋮
85	0.90	0.98	0.92	1.48	1.61	...	1.15	1.52
86	1.24	1.40	1.54	1.33	0.94	...	1.82	1.44
87	1.08	1.13	1.26	0.98	0.43	...	0.86	0.46
88	1.08	0.90	0.85	0.61	0.47	...	-0.17	-0.37
89	0.83	0.53	0.36	0.48	0.92	...	-0.90	-0.86
90	0.18	-0.08	-0.16	-0.24	0.02	...	-0.28	-0.63
91	-0.64	-0.85	-0.83	-0.78	-0.49	...	0.68	-0.03
92	-0.98	-1.14	-1.17	-1.13	-1.10	...	0.01	-0.64
93	-1.17	-1.16	-1.12	-1.22	-1.22	...	-1.00	-0.99
⋮	⋮	⋮	⋮	⋮	⋮	⋱	⋮	⋮
145	0.55	0.86	1.12	1.75	1.75	...	1.66	2.15
146	1.48	1.90	1.99	1.23	0.68	...	1.24	1.13
147	1.40	1.05	0.96	0.80	0.45	...	1.30	0.79
148	1.35	0.98	0.84	0.59	0.32	...	0.11	-0.34
149	1.24	1.05	0.60	0.47	0.69	...	-0.39	-0.87
150	-0.18	-0.39	-0.47	-0.24	0.38	...	-0.13	-0.66
151	-0.71	-0.89	-1.03	-1.01	-0.82	...	0.28	-0.26
152	-1.09	-1.14	-1.22	-1.34	-1.33	...	-0.51	-1.07
153	-1.16	-1.21	-1.21	-1.29	-1.35	...	-0.42	-0.65
	-1.17	-1.09	-1.02	-1.09	-1.46	...	-1.50	-0.87
	-1.07	-0.82	-0.56	-0.43	-0.45	...	-0.73	-0.27
	-0.36	-0.08	0.25	0.72	1.27	...	0.22	1.17

Lampiran 7. Skor Komponen Utama

i	w_{i1}	w_{i2}	i	w_{i1}	w_{i2}
1	-12.01	-0.28	98	-9.08	-1.27
2	-9.17	-0.80	99	-5.38	0.02
3	-5.18	0.30	100	0.61	3.38
4	0.23	4.28	101	5.40	2.76
5	4.49	3.48	102	6.61	-0.63
6	5.14	0.24	103	7.06	-2.15
7	6.01	-1.65	104	7.56	-2.05
8	6.63	-2.59	105	7.68	-1.11
9	8.27	-1.33	106	5.21	-1.58
10	4.64	-1.55	107	-2.06	0.60
⋮	⋮	⋮	⋮	⋮	⋮
31	6.11	-1.57	121	-12.16	-1.66
32	7.05	-1.68	122	-9.10	-1.52
33	8.04	-1.15	123	-4.66	0.96
34	4.54	-1.07	124	0.87	3.57
35	-2.03	0.64	125	4.52	3.14
36	-10.31	-0.04	126	5.53	0.16
37	-12.62	-1.35	127	5.88	-1.73
⋮	⋮	⋮	⋮	⋮	⋮
61	-13.51	-3.26	141	7.82	-1.44
62	-9.23	-1.25	142	4.47	-1.19
63	-4.94	0.51	143	-2.30	0.37
64	1.22	4.14	144	-10.17	0.67
65	5.17	1.99	145	-12.87	-0.85
66	6.60	0.27	146	-9.00	-0.86
67	6.79	-2.01	147	-5.56	0.93
⋮	⋮	⋮	⋮	⋮	⋮
91	6.46	-1.77	150	6.64	0.15
92	6.96	-1.81	151	6.77	-2.04
93	8.16	-1.65	152	7.37	-1.21
94	4.85	-1.34	153	8.17	-1.84
95	-2.77	0.51	154	4.62	-1.48
96	-10.64	-0.34	155	-2.70	0.15
97	-13.01	-0.20	156	-11.26	-0.30

Lampiran 8. *Output* dari Estimasi Parameter Regresi Kuantil *Spline* dengan AKU untuk Satu Titik Knot Menggunakan *R-Studio*

```
Call: rq(formula = Y ~ X1 + w11 + X2 + w12, tau = c(0.25,
0.5, 0.75), data = data1)

tau: [1] 0.25

Coefficients:
            coefficients lower bd   upper bd
(Intercept) -264.13884   -929.18181  318.32729
X1           -68.03347   -156.06897  -14.41431
w11           45.77392    -10.73863  141.63351
X2            18.63987     -1.94954   42.12873
w12          -14.62593    -48.89145   13.06027

Call: rq(formula = Y ~ X1 + w11 + X2 + w12, tau = c(0.25,
0.5, 0.75), data = data1)

tau: [1] 0.5

Coefficients:
            coefficients lower bd    upper bd
(Intercept)  -518.89145  -1642.18506   505.51310
X1           -105.53353   -218.97780   -22.99578
w11            76.37654    -18.98422   185.71629
X2             10.91355      6.48488    31.43651
w12            -6.79106    -31.17734    -1.68331

Call: rq(formula = Y ~ X1 + w11 + X2 + w12, tau = c(0.25,
0.5, 0.75), data = data1)

tau: [1] 0.75

Coefficients:
            coefficients lower bd    upper bd
(Intercept) -1232.82024  -2038.77759   600.96058
             -195.72186   -271.82731   -18.62112
              158.30975    -19.19950   235.68764
               30.77280      2.37160    62.75493
              -33.87997    -80.78091     5.81545
```

Lampiran 9. *Output* dari Estimasi Parameter Regresi Kuantil *Spline* dengan AKU untuk Dua Titik Knot Menggunakan *R-Studio*

```
Call: rq(formula = Y ~ X1 + w11 + w21 + X2 + w12 + w22, tau
= c(0.25, 0.5, 0.75), data = data1)

tau: [1] 0.25

Coefficients:
            coefficients lower bd   upper bd
(Intercept)  -45.13435   -181.34645  403.25791
X1           -52.39942    -97.02608  -19.26527
w11           34.00760    -14.62195   46.70867
w21           -0.49185    -15.63263   39.87568
X2            24.64597    -35.97017  114.33113
w12           -9.92040   -104.81497   52.69865
w22           -5.10221    -39.63186   32.70111

Call: rq(formula = Y ~ X1 + w11 + w21 + X2 + w12 + w22, tau
= c(0.25, 0.5, 0.75), data = data1)

tau: [1] 0.5

Coefficients:
            coefficients lower bd   upper bd
(Intercept) -203.91080   -342.32328  187.51740
X1           -80.16014   -108.72631  -46.99449
w11           71.11492     12.04742  120.81292
w21          -23.36150    -56.11122    9.62309
X2            14.89800    -25.45799  122.15715
w12            5.96380   -156.90636   86.58855
w22          -24.40413    -57.65594   29.46334

Call: rq(formula = Y ~ X1 + w11 + w21 + X2 + w12 + w22, tau
= c(0.25,  0.5, 0.75), data = data1)

tau: [1] 0.75
```

Lanjutan Lampiran 9. *Output* dari Estimasi Parameter Regresi Kuantil *Spline* dengan AKU untuk Dua Titik Knot Menggunakan *R-Studio*

```
Coefficients:
            coefficients lower bd   upper bd
(Intercept)  182.61161   -418.83338  350.37733
X1           -90.71895   -138.47458  -62.45274
w11           82.65464     40.59451  162.65335
w21          -45.01797   -100.01760  -15.68017
X2           164.56852     44.77252  216.82607
w12         -170.81573   -273.41854  -34.04594
w22           -9.92216    -88.67039   25.35685
```

Lampiran 10. *Output* dari Estimasi Parameter Regresi Kuantil *Spline* dengan AKU untuk Tiga Titik Knot Menggunakan *R-Studio*

```
Call: rq(formula = Y ~ X1 + w11 + w21 + w31 + X2 + w12 +
w22 + w32, tau = c(0.25, 0.5, 0.75), data = data1)

tau: [1] 0.25

Coefficients:
            coefficients   lower bd       upper bd
(Intercept)  -1.544026e+02  -5.833465e+02  1.797693e+308
X1           -5.309772e+01  -8.073963e+01  -9.224690e+00
w11           3.169194e+01  -5.780030e+01   8.055126e+01
w21          -6.691380e+00  -4.185856e+01   8.578165e+01
w31           2.054437e+01  -7.506240e+00   3.131268e+01
X2           -2.371813e+01  -2.254730e+02  1.797693e+308
w12           4.064182e+01 -1.797693e+308   2.461550e+02
w22           3.640050e+00  -7.469827e+01   7.259963e+01
w32          -1.086050e+01  -7.292699e+01   9.288799e+01

Call: rq(formula = Y ~ X1 + w11 + w21 + w31 + X2 + w12 +
w22 + w32, tau = c(0.25, 0.5, 0.75), data = data1)

tau: [1] 0.5

Coefficients:
            coefficients lower bd   upper bd
(Intercept) -305.05049   -576.69053  579.06362
X1          -100.35775   -146.44230  -54.14835
w11           92.72364     45.92552  150.58497
w21          -20.17037    -43.27047   26.33095
w31           -2.78218    -32.87048   10.81109
X2            55.01998   -187.98236  342.52941
w12          -45.81590   -334.19996   54.57911
w22          -14.28490    -73.85987   25.18635
w32           12.85037    -38.64746  126.34903

'q(formula = Y ~ X1 + w11 + w21 + w31 + X2 + w12 +
/32, tau = c(0.25, 0.5, 0.75), data = data1)

.] 0.75
```

Lanjutan Lampiran 10. *Output* dari Estimasi Parameter Regresi Kuantil *Spline* dengan AKU untuk Tiga Titik Knot Menggunakan *R-Studio*

```
Coefficients:
            coefficients   lower bd       upper bd
(Intercept)  -4.357767e+02 -1.797693e+308   1.792389e+02
X1           -1.709461e+02  -1.968196e+02  -2.169050e+01
w11           2.120592e+02  -2.339394e+01   2.753649e+02
w21          -6.869212e+01  -1.053564e+02   7.753930e+00
w31          -3.583420e+01  -5.323102e+01  -8.120470e+00
X2            2.472135e+02 -1.797693e+308   4.498996e+02
w12          -2.582498e+02  -4.840387e+02  1.797693e+308
w22           2.363380e+01  -5.966453e+01   1.206827e+02
w32          -5.777633e+01  -1.795390e+02   7.680141e+01
```

Lampiran 11. Curah Hujan Aktual dan Curah Hujan Dugaan 2021-2022

Waktu	Aktual	Dugaan
Jan-2021	887.67	926.74
Feb-2021	551.33	512.11
Mar-2021	567.67	379.98
Apr-2021	275.00	266.22
Mei-2021	135.00	134.10
Jun-2021	94.67	67.32
Jul-2021	120.00	46.13
Agu-2021	113.00	19.86
Sep-2021	101.33	0.54
Okt-2021	355.33	113.74
Nov-2021	475.33	339.27
Des-2021	714.00	665.18
Jan-2022	743.33	805.02
Feb-2022	694.67	500.42
Mar-2022	388.00	415.87
Apr-2022	101.67	246.78
Mei-2022	374.33	104.63
Jun-2022	228.67	75.22
Jul-2022	87.67	42.20
Agu-2022	42.33	12.16
Sep-2022	148.00	1.09
Okt-2022	524.33	109.09
Nov-2022	563.00	327.46
Des-2022	649.00	558.25

Lampiran 12. Daftar Riwayat Hidup

CURRICULUM VITAE

A. Data Pribadi

1.	Nama	: Andi Sri Yulianti
2.	Tempat, Tanggal Lahir	: Watampone, 31 Juli 2000
3.	Alamat	: Jl. Mangenre, Kel. Biru, Kec. Tanete Riattang, Kab. Bone, Sulawesi Selatan
4.	Kewarganegaraan	: Indonesia
5.	Nomor HP	: +6282397022322
6.	Email	: andisriyuliantii@gmail.com
7.	Bidang/ Ketertarikan	: Pemodelan Statistika

B. Riwayat Pendidikan

1. Tamat SMA tahun 2018 di SMA Negeri 1 Bone
2. Sarjana (S1) tahun 2022 di Universitas Hasanuddin, Departemen Statistika, Program Studi Statistika
3. Magister (S2) tahun 2024 di Universitas Hasanuddin, Departemen Statistika, Program Studi Magister Statistika

C. Pekerjaan dan Riwayat Pekerjaan

-

D. Karya Ilmiah

Sahriman, S., & Yulianti, A. S. (2023). Statistical Downscaling Model with Principal Component Regression and Latent Root Regression to Forecast Rainfall in Pangkep Regency. *BAREKENG: Jurnal Ilmu Matematika dan Terapan*, *17*(1), 0401-0410.