

DAFTAR PUSTAKA

- Aldrian, E., & Dwi Susanto, R. (2003). Identification of three dominant rainfall regions within Indonesia and their relationship to sea surface temperature. *International Journal of Climatology*, 23(12), 1435–1452.
- Allan, R. J. 2000. *El Niño and the Southern Oscillation: multiscale variability and global and regional impacts*. Cambridge University Press.. 3-55.
- Badan Pusat Statistik (BPS) Provinsi Maluku. 2014. Maluku Dalam Angka. BPS Maluku, Ambon.
- Febriani, Yeza., 2013., Aplikasi transformasi fourier untuk menentukan periode curah hujan (studi kasus: periode curah hujan di Kabupaten Seram Bagian Barat, Provinsi Maluku). *Jurnal Matematika Integratif ISSN, 1412, 6184*.
- Gilantz, M. H. 2001. *Currents of change: impacts of El Niño and La Niña on climate and society*. Cambridge University Press.
- Halide, H. 2009. Esensi Prediksi. Makassar : Pustaka Pena Press Makassar. 206pp.
- Heidke, P., 1926: Berechnung des Erfolges und der Gute der Windstarkevorhersagen in Sturmwarnungsdienst. *Geogr. Ann.*, Stockh., 8, 310-349.

- Kumar, V. V., Ravinesh C. D. dan Ramachandran, V., 2006, Total Rain Accumulation And Rain-Rate Analysis For Small Tropical Pasific Island : A Case Study Of Suva, Fiji, Journal of Atmospheric Science Letter, 7, 53-58.
- Laimeheriwa, S. 2012. Jurnal Budidaya Pertanian, Perubahan iklim dan dampaknya terhadap perubahan musim tanam di wilayah Maluku dengan pola hujan moonson, 10 (2) : 75-84.
- Mulyana, E. (2002). Pengaruh Dipole Mode Terhadap Curah Hujan di Indonesia. Jurnal Sains & Teknologi Modifikasi Cuaca, 39-43.
- NOAA (National Oceanic and Atmospheric Administration), 2018, Lanina Theme Page, http://www.pmel.noaa.gov/tao/el_nino/nina_normal.html, diakses November 2018.
- Philander, S.G. (1989). El Nino, La Niña and the Southern Oscillation, San Diego: Academic Press.
- Pranomor, G.H. 2008. Akurasi Metode Idw Dan Kriging Untuk Interpolasi Sebaran Sedimen Tersuspensi Di Maros, Sulawesi Selatan. Forum Geografi, 22: 11. 45-158.
- Safitri, S., 2015. EL NINO, LA NINA DAN DAMPAKNYA TERHADAP KEHIDUPAN DI INDONESIA. Jurnal Criksetra, 4(8): 1-4
- Sekaran, Uma dan Bougie, R., 2010, Research Methods for Business: A SkillBuilding Approach, John Wiley and sons, inc. : London.

- Tjasyono.B.,2004. Badan Meteorologi Klimatologi dan Geofisika : Jakarta
- Walpole. 1982. Pengantar Statistika edisi ke-3. Jakarta (ID): PT Gramedia Putaka Utama.
- Wilks D. S. 2006. Statistical Methods in the Atmospheric Sciences 2nd Ed. Elsevier. USA. 649pp.
- Yuggotomo, M. E., & Ihwan, A.2014. Pengaruh fenomena El Niño Southern Oscillation dan Dipole Mode terhadap curah hujan di Kabupaten Ketapang. *Positron*, 4(2).

LAMPIRAN

Lampiran 1 Tabel *Indonesia Climate Change Sectoral Roadmap*

Region	Mean Rainfall												Standard Deviation											
	Month (January to December)												Month (January to December)											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Java-Bali	🌧	🌧	🌧	🌧	☀	🌧	☀	☀	🌧	☀	🌧	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀
Sumatra	🌧	🌧	🌧	🌧	☀	☀	🌧	🌧	🌧	🌧	☀	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀
Sulawesi	🌧	🌧	🌧	🌧	☀	🌧	☀	🌧	☀	🌧	☀	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀
Kalimantan	🌧	🌧	🌧	🌧	☀	☀	🌧	🌧	🌧	🌧	☀	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀
Maluku	☀	🌧	🌧	☀	☀	🌧	🌧	🌧	☀	🌧	☀	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀
Nusa Tenggara	🌧	🌧	🌧	☀	☀	☀	☀	☀	🌧	🌧	☀	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀
Papua	🌧	🌧	🌧	🌧	☀	🌧	☀	🌧	🌧	☀	🌧	🌧	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀	☀

↗ : mainly increasing , ↘ : mainly decreasing , ✱ : ↗ and ↘ are almost evenly distributed,

○ : mainly unchanged , ✱ : mainly increasing (standard deviation), ✱ : most area increasing,

✱ : most area decreasing, ○ : unchanged or changes are not significant

Hasil Verifikasi

Stasiun Curah Hujan	Rata-Rata Curah Hujan											
	Bulan (Januari - Desember)											
	J	F	M	A	M	J	J	A	S	O	N	D
Aru Kepulauan Aru	*	^	∇	^	∇	∇	∇	*	*	*	∇	∇
Pattimura Ambon	*	*	*	∇	∇	∇	∇	∇	∇	*	*	*
Namrole Buru Selatan	*	*	*	*	∇	∇	∇	*	∇	*	*	*
Dumatubun Maluku Tenggara	^	^	∇	*	∇	∇	*	*	*	∇	*	∇
Olilit Maluku Tenggara Barat	∇	^	∇	^	∇	∇	∇	*	*	∇	*	∇
Dobo Kepulauan Aru	*	^	∇	∇	∇	*	*	∇	*	*	*	*
Buru Selatan	*	*	*	∇	∇	∇	∇	∇	∇	∇	*	∇
Maluku Barat Daya	∇	^	∇	^	∇	*	∇	*	*	∇	*	∇
Maluku Tengah	*	*	*	*	∇	∇	∇	∇	*	*	*	*
Seram Bagian Timur	*	^	∇	∇	∇	*	∇	*	*	*	*	*
Ambon	*	*	*	*	∇	∇	∇	∇	∇	*	*	*
Buli Halmahera Timur	*	*	*	*	∇	∇	∇	∇	∇	∇	*	∇
Emalamo, Sanana	*	*	*	∇	∇	∇	∇	*	*	*	*	∇
Gamar Malamo	∇	*	*	*	*	∇	∇	∇	∇	∇	*	∇
Pulau Morotai	∇	∇	*	∇	*	∇	∇	∇	∇	∇	∇	∇
Pulau Taliabu	*	*	*	∇	∇	∇	∇	∇	*	*	*	*
Sofifi	*	*	*	∇	∇	∇	∇	∇	∇	∇	*	∇
Halmahera Barat	*	*	*	*	∇	∇	∇	∇	*	∇	*	∇
Halmahera Utara	∇	*	*	*	*	∇	∇	∇	∇	*	∇	∇
Ternate	*	*	*	∇	∇	∇	∇	∇	∇	∇	*	∇

Keterangan:

^ : Curah hujan meningkat

∇ : Curah hujan menurun

* : ^ dan ∇ hampir terdistribusi secara merata

Lampiran 2 Script Matlab

1. Script HSS

```
function [ hss ] = HeidkeSS ( ctable )
% The function compute Heidke skill score for deterministic
forecast of
% multi category events from a contingency table
% input: ctable = contingency table matrix C where C(i,j) is number
of
% events where forecast category was i and observed category was
j.
% output: hss = Heidke skill score
if size (ctable, 1) ~= size(ctable, 2)
    error('A contingency table has to be a square matrix!');
end
ctable = ctable./sum(ctable(:));
h1 = trace(ctable);
po = sum(ctable, 1);
pf = sum(ctable, 2);
h2 = sum(po.*pf');
hss = (h1-h2)/(1-h2);
end
% contingency tabel or confusion matrix rainfall
C=[0 2 2;0 4 1;0 0 3]
% 0 2 2
% 0 4 1
% 0 0 3
Heid=HeidkeSS(C) %Heidke SS
```

2. Script Korelasi

Clear

```
load AnomaliCH.txt
y=AnomaliCH(:,1);year=1981:2021;year=year';
SON=AnomaliCH(:,2);%

prod=SON;

opol = 2; %2
[p,s,mu] = polyfit(year,prod,opol);
f_y = polyval(p,year,[],mu); %fitting pakai polinomial orde-2

dt_prod = prod - f_y;
plot(year,prod,'o',year,f_y)
legend('Observasi','Polinomial orde 2','Location','NorthWest')
ylabel('Curah Hujan musiman SON [mm]')
xlabel('Tahun')
text(1960,590,'Y= -17.7424 X^2 + 15.1813 X + 661.6132')
exit
```

```
load Korelasi.txt
x = Korelasi(:,1);
y = Korelasi(:,2);
% menghitung koefisien korelasi dari x dan y
R = corr(x,y)
[r p]=corrcoef(x,y
```

Lampiran 3 Data Penelitian

1. Data Curah Hujan pada HSS dari tahun 1981-2007 dan 2010-2020 pada bulan Januari - Desember

Tahun	Bulan	Rata-Rata Curah Hujan Bulan Januari-Desember (mm)					
		Kepulauan Aru	Pattimura Ambon	Namrole Buru Selatan	Dumatubun Maluku Tenggara	Olilit Maluku Tenggara Barat	Dobo Kepulauan Aru
1981-2007	J	191.37	127.49	130.55	393.12	332.98	220.20
	F	296.37	148.51	133.07	381.58	307.91	237.96
	M	252.15	171.88	138.20	377.69	288.29	237.57
	A	295.36	190.91	149.41	286.57	272.34	240.97
	M	243.29	207.50	349.57	230.28	250.08	228.13
	J	149.77	288.02	469.20	129.09	130.10	205.42
	J	67.53	372.54	448.33	71.68	106.75	85.21
	A	99.54	227.44	236.88	47.50	20.12	58.59
	S	17.23	154.16	181.26	43.71	21.20	69.83
	O	42.38	86.65	99.92	78.45	78.05	90.18
	N	162.58	101.90	93.41	146.97	116.21	127.78
	D	226.21	159.36	122.52	369.41	377.63	226.20
	J	204.52	152.03	157.24	379.93	371.51	231.86
2010-2021	F	272.17	133.06	130.43	348.66	241.56	205.18
	M	286.53	193.32	165.99	417.31	306.33	281.65
	A	263.41	243.92	193.14	282.75	252.07	272.69
	M	319.26	338.98	522.52	245.43	337.99	285.13
	J	197.17	372.57	617.57	172.48	199.39	217.46
	J	87.45	473.47	649.71	78.32	129.65	132.02
	A	93.11	278.15	273.33	47.53	19.39	76.00
	S	25.90	220.16	264.87	45.90	24.93	78.07
	O	47.18	109.11	136.39	94.27	102.55	104.02
	N	178.72	116.34	109.35	145.52	104.84	134.41
	D	256.56	181.79	129.85	384.39	393.76	240.62

Tahun	Bulan	Rata-Rata Curah Hujan Bulan Januari-Desember (mm)						
		Buru Selatan	Maluku Barat Daya	Maluku Tengah	Seram Bagian Timur	Ambon	Buli Halmahera Timur	Emalamo Sanana
1981-2007	J	165.26	146.13	172.05	220.20	108.82	218.17	176.55
	F	194.38	228.86	228.94	237.96	104.60	206.54	144.63
	M	187.58	122.88	223.59	237.57	128.32	191.38	197.10
	A	215.55	141.16	243.42	240.97	212.53	230.33	184.27
	M	273.80	92.42	328.25	228.13	432.98	264.29	205.47
	J	230.70	69.16	383.62	205.42	479.83	274.91	309.98
	J	160.41	19.02	368.38	85.21	574.22	223.58	180.17
	A	108.36	14.87	209.05	58.59	371.23	151.49	172.98
	S	124.25	12.82	218.17	69.83	251.85	117.05	114.96
	O	152.93	12.96	144.07	90.18	145.73	157.57	57.68
	N	195.44	77.13	158.21	127.78	76.41	176.85	86.54
	D	195.46	164.24	257.70	226.20	115.02	193.66	159.57
	J	179.31	181.00	180.91	231.86	122.87	248.57	205.45
2010-2021	F	164.21	202.92	204.36	205.18	90.39	184.07	144.09
	M	176.72	130.57	264.98	281.65	145.01	179.70	216.95
	A	253.96	131.01	295.15	272.69	261.31	253.12	240.88
	M	305.73	112.52	519.73	285.13	661.99	307.69	291.12
	J	292.63	73.37	474.26	217.46	645.79	345.42	455.95
	J	217.45	29.68	528.44	132.02	690.88	314.09	321.68
	A	151.04	12.45	303.88	76.00	449.84	218.25	217.61
	S	159.11	10.92	272.30	78.07	357.99	160.02	163.84
	O	201.08	18.69	164.72	104.02	178.41	204.11	74.60
	N	211.49	71.84	169.79	134.41	87.92	216.03	107.51
	D	269.15	192.51	290.70	240.62	129.17	262.27	221.96

Tahun	Bulan	Rata-Rata Curah Hujan Bulan Januari-Desember (mm)						
		Gamar Malamo Halmahera Utara	Pulau Morotai	Pulau Taliabu	Sofifi	Halmahera Barat	Halmahera Utara	Ternate
1981-2007	J	158.36	248.11	98.22	213.13	178.79	191.46	163.84
	F	196.88	226.97	107.06	208.65	193.82	161.79	198.88
	M	206.36	220.46	153.99	179.17	192.81	175.61	189.88
	A	212.06	275.99	176.79	199.61	233.35	221.70	202.51
	M	269.88	273.41	102.91	301.28	366.50	235.82	264.00
	J	243.56	254.67	264.20	217.18	281.77	219.81	259.73
	J	169.04	204.89	171.32	212.63	186.72	201.24	204.82
	A	147.39	161.19	128.85	113.70	114.48	163.00	123.73
	S	132.30	147.43	123.17	116.33	167.51	113.28	127.63
	O	114.52	110.91	67.41	158.68	193.20	125.97	123.74
	N	155.29	149.71	86.80	164.70	180.90	147.09	133.73
	D	139.01	94.06	111.63	162.38	216.40	167.85	130.87
2010-2021	J	190.94	301.67	117.83	233.66	199.88	217.32	156.46
	F	181.16	204.35	103.72	183.76	164.55	144.34	180.49
	M	198.15	211.90	165.81	165.85	174.89	160.43	167.73
	A	208.95	249.85	216.27	242.67	264.24	223.53	241.66
	M	263.40	256.39	139.88	384.34	404.66	236.48	316.90
	J	287.69	299.41	296.34	281.25	363.54	269.11	354.09
	J	209.14	248.03	257.52	276.45	254.11	258.73	258.45
	A	193.21	209.20	175.99	162.12	155.23	206.42	187.83
	S	158.30	173.14	143.72	159.30	198.27	142.28	169.31
	O	142.53	135.15	87.95	214.75	230.93	144.86	175.68
	N	174.28	173.71	106.51	195.73	195.97	176.78	159.18
	D	192.60	152.42	134.54	232.43	286.88	220.70	181.85

2. Data Rata – Rata Curah Hujan 3 bulanan (September, Oktober, November)

1981 – 2021 pada korelasi

Tahun	Rata-Rata Curah Hujan Bulan September, Oktober, dan November (mm)					
	Kepulauan Aru	Pattimura Ambon	Namrole Buru Selatan	Dumatubun Maluku Tenggara	Olilit Maluku Tenggara Barat	Dobo Kepulauan Aru
1981	113.44	177.78	208.56	134.64	81.25	110.53
1982	14.96	68.30	52.56	27.58	17.13	46.19
1983	50.75	150.98	100.23	74.12	90.94	94.19
1984	69.45	220.76	185.73	77.49	53.87	124.45
1985	101.94	123.32	139.06	105.87	98.66	94.51
1986	138.86	108.64	99.78	215.57	126.16	144.96
1987	42.48	57.87	47.77	36.64	28.65	55.07
1988	108.42	171.50	242.82	151.38	111.65	195.36
1989	73.68	118.44	138.52	100.83	90.72	113.58
1990	33.31	96.47	93.18	57.08	21.97	52.08
1991	31.78	72.93	66.30	36.42	33.48	49.83
1992	39.94	162.50	217.60	76.17	44.40	115.71
1993	45.08	74.47	61.06	50.24	49.85	52.62
1994	27.61	81.20	71.58	41.06	38.01	50.85
1995	94.88	117.41	157.72	98.87	75.12	122.69
1996	118.60	154.13	137.94	153.54	111.99	158.25
1997	19.08	33.89	28.32	29.33	28.80	22.95
1998	130.20	113.09	166.50	121.47	138.01	114.07
1999	180.62	171.69	198.64	177.39	153.66	164.59
2000	141.69	146.29	249.24	173.78	167.60	149.65
2001	105.87	176.45	277.16	121.46	91.27	134.75
2002	36.69	44.77	33.46	50.41	21.37	44.82
2003	51.89	58.59	41.54	47.74	42.90	59.20
2004	45.18	77.77	91.27	45.53	40.65	54.95
2005	79.89	109.22	110.34	94.62	91.56	87.13
2006	24.91	48.86	47.18	26.43	13.79	42.86
2007	78.49	147.07	107.26	96.49	75.65	134.25
2008	113.16	190.27	229.49	137.59	161.50	158.24
2009	52.10	81.33	67.15	56.35	28.26	70.24
2010	164.30	228.02	366.73	192.80	307.31	198.21
2011	54.20	154.40	191.71	90.20	56.09	91.18
2012	80.59	120.75	111.13	73.58	33.32	91.20
2013	131.76	157.66	135.22	130.19	111.07	117.37
2014	54.85	75.22	62.33	47.21	22.86	57.66
2015	38.27	45.43	37.70	42.33	22.32	47.24
2016	79.00	194.29	198.89	140.78	76.60	135.22

2017	149.39	196.08	229.09	131.45	111.55	121.63
2018	70.36	112.56	128.20	73.26	48.01	77.41
2019	28.54	67.66	77.28	35.98	18.30	53.48
2020	72.00	281.82	333.96	89.76	44.41	169.91
2021	117.179	292.55	292.55	180.94	94.26	200.26

Tahun	Rata-Rata Curah Hujan Bulan September, Oktober, dan November (mm)						
	Buru Selatan	Maluku Barat Daya	Maluku Tengah	Seram Bagian Timur	Ambon	Buli Halmahera Timur	Emalamo Sanana
1981	203.92	48.61	249.11	110.53	266.72	213.06	116.92
1982	41.54	13.26	89.80	46.19	103.00	62.71	32.86
1983	159.76	28.68	228.02	94.19	207.17	175.63	32.86
1984	172.68	25.39	282.43	124.45	285.27	173.89	145.72
1985	161.42	33.83	173.31	94.51	203.10	162.76	81.88
1986	170.43	50.17	187.48	144.96	156.04	153.47	81.97
1987	100.13	25.76	91.12	55.07	73.85	91.94	42.94
1988	181.06	80.01	275.90	195.36	252.99	189.19	155.94
1989	175.07	20.07	212.66	113.58	153.51	176.96	126.92
1990	147.76	27.22	123.96	52.08	130.35	146.20	86.50
1991	43.88	20.90	107.98	49.83	104.46	54.22	53.17
1992	248.05	40.42	253.74	115.71	205.23	197.95	94.81
1993	145.38	32.33	120.69	52.62	88.08	122.36	45.46
1994	77.62	18.62	129.10	50.85	112.80	79.95	60.41
1995	230.59	30.73	223.71	122.69	176.00	246.54	120.07
1996	205.95	35.08	253.75	158.25	191.35	197.61	100.24
1997	123.32	19.06	48.53	22.95	26.73	96.98	40.06
1998	238.19	61.05	167.18	114.07	134.77	202.34	160.18
1999	199.07	54.11	243.07	164.59	280.52	168.05	110.26
2000	259.75	43.37	218.04	149.65	233.67	209.03	145.20
2001	203.29	59.99	247.26	134.75	241.73	181.63	153.40
2002	64.46	23.02	67.09	44.82	47.24	63.21	28.50
2003	128.52	26.04	88.01	59.20	78.73	134.63	36.25
2004	71.32	22.26	130.92	54.95	107.50	100.70	40.35
2005	199.98	48.15	172.68	87.13	144.39	178.15	91.86
2006	71.73	14.04	78.87	42.86	68.44	75.01	45.27
2007	228.74	24.10	219.62	134.25	192.17	208.99	102.59
2008	312.06	49.02	300.22	158.24	296.38	303.92	163.54
2009	153.20	23.42	137.39	70.24	117.53	143.23	82.90
2010	255.88	67.39	306.28	198.21	295.91	217.15	201.76
2011	208.46	31.44	205.77	91.18	225.39	274.09	157.70
2012	162.33	12.88	172.88	91.20	143.44	147.12	93.92
2013	197.72	43.80	229.20	117.37	221.87	191.83	116.04
2014	115.83	10.99	104.05	57.66	103.24	126.38	54.30
2015	75.40	10.15	59.29	47.24	52.91	85.56	27.82
2016	259.03	44.72	268.91	135.22	266.23	271.10	132.64
2017	245.12	79.64	252.93	121.63	271.21	227.43	122.75
2018	175.72	39.47	175.38	77.41	163.43	173.17	108.57
2019	110.19	10.53	98.20	53.48	95.84	113.88	44.92
2020	290.48	20.95	352.08	169.91	449.70	299.56	208.07

2021	268.73	67.95	398.31	200.26	401.30	273.10	230.32
------	--------	-------	--------	--------	--------	--------	--------

Tahun	Rata-Rata Curah Hujan Bulann September, Oktober, dan November (mm)						
	Gamar Malamo Halmahera Utara	Pulau Morotai	Pulau Taliabu	Sofifi	Halmahera Barat	Halmahera Utara	Ternate
1981	173.43	137.81	141.13	219.48	239.07	164.28	204.00
1982	38.44	13.61	26.90	45.62	64.77	49.24	32.00
1983	170.55	186.12	86.52	154.23	189.60	162.72	152.92
1984	143.22	72.77	145.41	175.60	198.88	130.41	162.17
1985	139.63	110.46	100.10	169.15	171.93	137.16	125.39
1986	152.38	208.06	101.22	165.21	199.81	132.90	132.19
1987	80.47	121.53	46.45	91.75	135.27	78.31	79.70
1988	159.88	246.77	140.03	172.32	209.82	182.05	155.12
1989	168.25	137.23	115.14	155.76	203.66	163.45	158.52
1990	126.51	199.75	89.54	139.70	171.81	106.42	116.79
1991	43.72	22.34	51.89	43.80	48.38	45.63	41.93
1992	179.79	103.28	94.54	200.20	272.73	177.14	196.54
1993	107.54	107.31	60.30	111.48	164.93	104.44	95.17
1994	72.12	127.82	59.88	72.53	90.83	68.86	50.03
1995	215.01	347.75	105.86	230.74	264.86	201.47	220.78
1996	158.96	178.25	93.65	183.02	237.42	150.21	181.16
1997	88.35	165.90	46.79	115.38	147.65	85.80	59.18
1998	236.97	347.82	129.23	192.90	267.37	197.91	151.86
1999	144.61	136.76	120.38	176.91	201.45	142.42	152.14
2000	197.94	167.41	119.23	225.97	300.55	201.07	203.03
2001	186.40	235.36	181.18	182.87	244.38	169.13	167.95
2002	60.10	113.37	39.82	61.52	76.10	58.59	39.66
2003	99.34	56.92	55.67	123.88	145.88	106.26	100.03
2004	77.92	28.54	66.55	87.21	84.75	79.63	70.24
2005	155.12	205.42	97.78	174.92	202.92	148.75	159.95
2006	68.41	78.63	51.39	65.17	96.19	72.83	71.35
2007	173.96	185.28	129.82	219.99	243.59	159.99	186.05
2008	269.04	390.90	146.08	286.57	352.89	284.63	235.73
2009	115.46	201.49	77.59	134.88	160.90	105.76	114.15
2010	186.68	212.17	205.00	244.88	270.81	164.12	242.59
2011	195.84	139.00	143.05	262.12	241.86	194.66	229.29
2012	129.76	196.49	91.08	145.56	166.20	129.97	131.12
2013	192.55	217.98	83.38	198.57	206.59	188.57	189.72
2014	92.02	134.58	43.75	100.04	127.00	103.23	71.66
2015	55.14	110.46	37.58	78.75	78.54	66.39	47.44
2016	215.69	283.18	165.51	258.71	281.86	202.62	227.60
2017	201.05	186.03	150.05	238.11	268.75	179.81	212.69
2018	122.34	117.75	83.24	179.61	199.38	132.70	133.30
2019	68.38	28.22	50.10	108.63	140.46	77.59	102.30

2020	282.60	284.94	187.25	274.19	310.84	261.36	260.92
2021	252.08	260.87	229.36	246.82	299.22	251.46	231.87

3. Data Rata-Rata 3 bulanan Enso Nino 3.4 (September, Oktober, November)

Tahun	Bulan	Nino 3.4
1981	September - November	-0.12
1982	September - November	1.82
1983	September - November	-0.89
1984	September - November	-0.79
1985	September - November	-0.55
1986	September - November	0.84
1987	September - November	1.39
1988	September - November	-1.87
1989	September - November	-0.36
1990	September - November	0.11
1991	September - November	0.76
1992	September - November	-0.21
1993	September - November	0.30
1994	September - November	0.81
1995	September - November	-0.69
1996	September - November	-0.31
1997	September - November	2.27
1998	September - November	-1.08
1999	September - November	-1.09
2000	September - November	-0.56
2001	September - November	-0.27
2002	September - November	1.13
2003	September - November	0.33
2004	September - November	0.67
2005	September - November	-0.22
2006	September - November	0.79
2007	September - November	-1.34
2008	September - November	-0.32
2009	September - November	1.04
2010	September - November	-1.59
2011	September - November	-0.93
2012	September - November	0.33
2013	September - November	-0.12
2014	September - November	0.58
2015	September - November	2.26
2016	September - November	-0.61
2017	September - November	-0.64

2018	September - November	0.71
2019	September - November	0.47
2020	September - November	-0.95
2021	September - November	-0.72