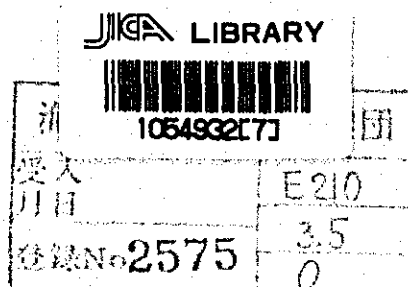


REPUBLIC OF INDONESIA

REPORT  
ON  
BRANTAS RIVER BASIN DEVELOPMENT

(DATA BOOK)



PREPARED FOR  
OVERSEAS TECHNICAL COOPERATION AGENCY  
GOVERNMENT OF JAPAN

BY  
NIPPON KOEI CO., LTD.  
Consulting Engineers

TOKYO, JAPAN

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国際協力事業団	
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DATA BOOK  
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1. Population Estimate in Brantas River Basin

Administrative Districts	Administrative Area (km <sup>2</sup> ) (A)	Area in Brantas River Basin		Population in Administrative Area		Population in Brantas River Basin			Population Dencity in Brantas River Basin		Population Increase Ratio	Average Annual Increase Ratio
		Ratio (%) (B)	Area (km <sup>2</sup> ) (C)=(A)x(B)	(1961) (D)	(1971) (E)	Ratio (%) (F)	(1961) (G)=(D)x(F)	(1971) (H)=(E)x(F)	(1961) (1971) (G)/(C)	(1971) (H)/(C)	in 1961-1971 (H)/(G)	in 1961-1971 (%)
<u>Urban</u>												
1. Surabaya	274	70	192	1,164,829	1,567,176	90	1,048,346	1,410,458	5,465	7,352	1.345	3.01
2. Modjokerto	7	100	7	51,732	59,967	100	51,732	59,967	7,135	8,271	1.159	1.49
3. Kediri	63	100	63	158,918	180,423	100	158,918	180,423	2,507	2,846	1.135	1.27
4. Blitar	16	100	16	62,972	67,782	100	62,972	67,782	3,863	4,158	1.076	0.74
5. Malang	69	100	69	341,452	414,886	100	341,452	414,886	4,946	6,010	1.225	1.97
Sub-total/Mean			347				1,663,420	2,133,516	4,794	6,147	1.281	2.52
<u>Rural</u>												
6. Surabaya	1,137	18	205	509,118	607,172	20	101,824	121,434	498	593	1.193	1.73
7. Sidoardjo	592	100	592	541,492	667,649	100	541,051	667,649	915	1,129	1.234	2.12
8. Modjokerto	836	91	761	494,492	595,226	85	420,318	505,942	503	605	1.204	1.87
9. Djongban	1,160	100	1,160	686,362	811,681	100	686,362	811,681	592	700	1.183	1.70
10. Madiun	1,034	17	176	509,428	533,012	10	50,943	53,301	290	332	1.144	1.35
11. Kediri	963	100	963	918,036	1,081,915	100	918,106	1,081,915	953	1,123	1.179	1.66
12. Ponorogo	1,311	1	13	699,865	737,760	0	-	-	-	-	-	-
13. Ngandjuk	1,183	100	1,183	675,906	774,734	100	675,906	774,734	572	655	1.146	1.37
14. Blitar	1,668	91	1,518	839,952	950,276	95	797,954	902,762	526	595	1.131	1.24
15. Tulungagung	1,055	93	981	679,349	759,325	93	631,582	721,334	604	736	1.125	1.19
16. Trenggalek	1,205	75	904	438,357	521,425	75	328,768	391,069	461	548	1.188	1.74
17. Malang	3,407	30	1,022	1,474,166	1,754,561	35	1,352,990	1,491,326	433	515	1.190	1.76
18. Pasuruan	1,315	20	263	729,367	868,762	30	218,810	260,629	332	391	1.191	1.76
Sub-total/Mean			11,424				6,721,690	7,293,561	585	687	1.174	1.61
Total			11,341				8,386,110	10,027,077	708	847	1.196	1.81

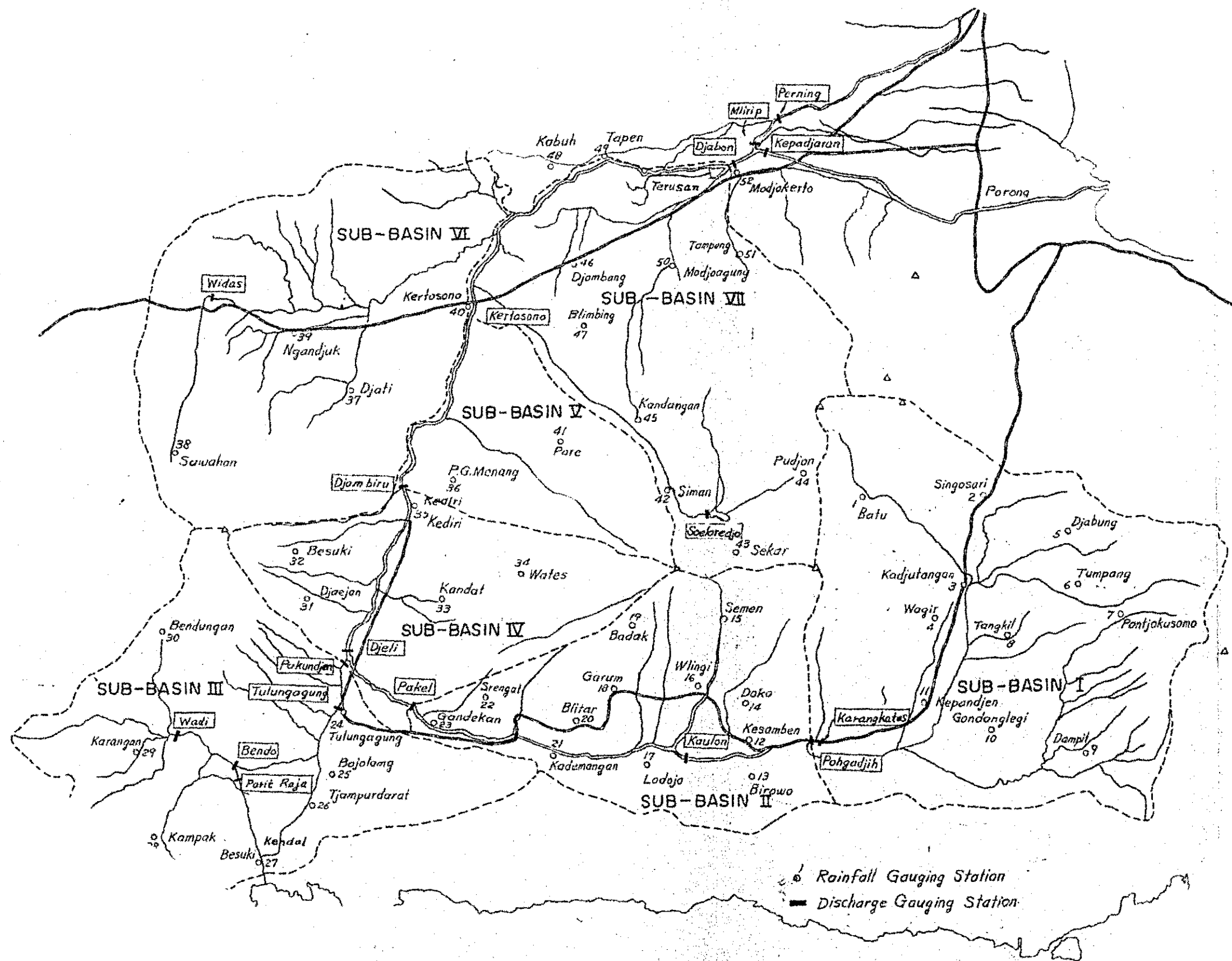
Data Source: (A) & (D): "Djawa Timur dalam Angka 1970"  
Sensus dan Statistik Propinsi Djawa Timur.  
"Almanak INDONESIA 1963"  
Biro Pusat Statistik, Djakarta.

(E): "Rentjana Penggunaan Tanah Hilir Daerah Aliran Kali Brantas.-  
Inspeksi Landuse Djawa Timur, Malang

(E): Sensus Penduduk Sep. 25, 1971  
Sensus Dan Statistik Propinsi Djawa Timur  
Figures except East Java are based on rough estimate of  
Population Census Sept., 1971 by B.P.S. Djakarta.

## 2. Monthly Rainfall at 52 Rain Gauges

The compiled herein is the monthly rainfall of 52 raingauges calculated from the records during the 1951-1970 period. The location map of 52 gauges is as shown in Fig.2-1.



Location Map of Gauge

# Rainfall Gauging Station

	Station number	Name of place	Elevation (m)	Interrupted period during 1951-1970 period
1	8	Batu	877	1961
2	51	Singosari	480	
3	52	Kadjutangan	465	
4	55	Wagir	400	
5	83	Djabung	550	
6	84	Tumpang	600	
7	85	Pontjokusomo	860	
8	58	Tangkil	397	1961, 1967
9	86	Dampit	510	1961
10	64a	Gondanglegi	558	
11	52	Kepandjen	335	
12	167	Kesamben	205	
13	168	Birowo	175	
14	165	Doko	328	
15	153	Semen	500	1951 ~ 1953
16	164	Wlingi	320	
17	144	Lodojo	132	1952
18	136	Garum	245	
19	-	Badak	560	1951
20	137	Blitar	170	
21	141	Kademangan	122	
22	120	Srengat	128	
23	-	Gandekan	100	
24	34	Tulungagung	90	
25	45	Bojolanngu	86	
26	46a	Tjampurdarat	88	
27	46	Besuki	87	
28	50	Kampak	120	
29	41	Karangan	112	
30	27a	Bendungan	690	1951 ~ 1953
31	24	Djaejan	425	
32	21	Besuki	630	
33	78	Kondat	120	
34	107	Wates	225	
35	19	Kediri	62	1969 ~ 1970
36	76	P.G Menang	182	
37	13	Djati	67	
38	16	Sawahen	570	
39	145	Ngandjuk	60	
40	64	Kertosono	66	
41	91	Pare	158	
42	97	Siman	350	
43	3	Sekar	700	
44	5	Pudjon	1200	
45	95	Kandangan	33	1951 ~ 1955, 1957
46	32	Djombang	40	
47	41	Blimbing	70	1966
48	20	Kabuh	28	
49	26	Tapen	50	
50	67	Modjoagung	37	1951 ~ 1955, 1957
51	116	Tampung	70	1951
52	95	Modjokerto	25	

(Unit: mm)

## \*\*\* NO. 1 BATU

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	193.	258.	268.	366.	147.	74.	42.	15.	0.	45.	78.	282.	1768.
1951	379.	268.	188.	15.	9.	84.	29.	4.	0.	0.	13.	275.	1284.
1952	296.	319.	433.	97.	39.	0.	0.	5.	3.	02.	499.	489.	2262.
1953	227.	210.	159.	161.	183.	11.	20.	0.	0.	0.	107.	355.	1433.
1954	284.	229.	201.	210.	70.	44.	11.	67.	34.	128.	481.	343.	2202.
1955	207.	204.	210.	76.	109.	62.	218.	19.	21.	60.	320.	288.	1794.
1956	286.	232.	161.	97.	38.	80.	46.	37.	7.	114.	170.	246.	1510.
1957	250.	291.	490.	104.	49.	2.	137.	24.	10.	25.	66.	321.	1768.
1958	189.	245.	306.	300.	39.	81.	68.	41.	34.	26.	105.	506.	1947.
1959	397.	316.	238.	107.	118.	53.	0.	0.	0.	87.	167.	417.	1905.
1960	454.	259.	301.	145.	157.	68.	2.	4.	4.	55.	152.	268.	1908.
1961	395.	255.	206.	185.	114.	0.	0.	0.	0.	0.	119.	398.	1672.
1962	548.	446.	167.	186.	17.	30.	10.	56.	0.	27.	212.	380.	2073.
1963	486.	257.	292.	175.	0.	0.	0.	0.	11.	19.	13.	255.	1488.
1964	28.	77.	300.	19.	152.	67.	0.	21.	72.	275.	296.	159.	1436.
1965	371.	264.	207.	136.	32.	11.	0.	0.	0.	16.	31.	190.	1258.
1966	358.	287.	315.	118.	92.	0.	0.	0.	0.	80.	150.	220.	1582.
1967	329.	200.	136.	119.	4.	0.	0.	0.	3.	53.	114.	496.	1454.
1968	190.	246.	243.	85.	215.	157.	186.	35.	13.	64.	234.	247.	1908.
1969	250.	296.	339.	37.	58.	10.	3.	0.	9.	76.	131.	311.	1567.
1970	258.	268.	366.	147.	74.	42.	15.	0.	45.	78.	282.	173.	1744.
												MEAN	1710.

## \*\*\* NO. 2 SINGOSAH

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	107.	147.	110.	275.	168.	106.	90.	0.	0.	0.	0.	35.	1238.
1951	429.	269.	137.	58.	203.	103.	66.	114.	0.	14.	146.	304.	1873.
1952	117.	357.	169.	42.	145.	28.	0.	33.	66.	62.	513.	266.	2020.
1953	131.	164.	161.	148.	184.	19.	59.	0.	0.	54.	101.	327.	1555.
1954	496.	234.	264.	254.	279.	94.	26.	129.	91.	65.	280.	258.	2350.
1955	251.	264.	193.	70.	54.	173.	229.	30.	102.	213.	456.	233.	2257.
1956	265.	194.	175.	163.	65.	108.	10.	140.	36.	67.	291.	316.	1872.
1957	544.	429.	564.	124.	51.	60.	230.	22.	0.	0.	233.	375.	2468.
1958	261.	292.	238.	202.	33.	116.	43.	53.	21.	76.	213.	551.	2109.
1959	472.	247.	246.	146.	271.	127.	8.	5.	0.	77.	170.	525.	2194.
1960	369.	464.	390.	314.	151.	92.	96.	11.	29.	132.	433.	327.	2727.
1961	412.	260.	217.	238.	142.	0.	0.	0.	0.	0.	154.	433.	1876.
1962	553.	416.	187.	250.	116.	126.	52.	117.	8.	79.	337.	933.	3271.
1963	267.	215.	201.	19.	14.	14.	0.	0.	13.	0.	52.	245.	1100.
1964	114.	114.	282.	131.	96.	23.	5.	47.	21.	218.	146.	77.	1279.
1965	164.	144.	215.	39.	22.	0.	0.	0.	1.	28.	29.	354.	1048.
1966	191.	224.	358.	138.	64.	33.	0.	0.	0.	0.	129.	254.	1543.
1967	139.	135.	138.	180.	0.	0.	0.	0.	0.	0.	169.	293.	1083.
1968	260.	264.	227.	139.	111.	103.	14.	117.	53.	118.	221.	238.	1946.
1969	291.	168.	367.	54.	129.	5.	0.	0.	0.	34.	176.	165.	1409.
1970	147.	110.	275.	168.	106.	90.	0.	0.	0.	0.	35.	265.	1196.
												MEAN	1859.

## \*\*\* NO. 3 KAJUTANAN

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	252.	147.	105.	240.	168.	64.	53.	41.	0.	43.	82.	108.	1243.
1951	485.	320.	152.	84.	98.	176.	14.	25.	8.	107.	89.	529.	2093.
1952	512.	317.	724.	40.	104.	28.	0.	8.	22.	143.	486.	266.	2650.
1953	272.	234.	256.	273.	172.	2.	71.	0.	0.	2.	141.	364.	1787.
1954	447.	430.	171.	251.	241.	102.	8.	94.	39.	120.	417.	396.	2716.
1955	427.	183.	212.	59.	95.	171.	112.	31.	26.	66.	284.	216.	1912.
1956	244.	263.	170.	60.	22.	75.	66.	51.	0.	205.	337.	343.	1776.
1957	169.	168.	525.	127.	63.	4.	130.	30.	10.	4.	90.	411.	1731.
1958	329.	255.	190.	251.	105.	114.	91.	70.	70.	7.	111.	318.	1911.
1959	420.	243.	265.	80.	245.	53.	8.	6.	0.	104.	224.	419.	2067.
1960	197.	581.	194.	193.	69.	106.	47.	0.	6.	46.	290.	57.	1786.
1961	437.	315.	243.	175.	131.	0.	0.	0.	0.	0.	155.	411.	1857.
1962	493.	264.	280.	262.	0.	33.	14.	117.	12.	76.	117.	627.	2515.
1963	383.	377.	217.	65.	0.	3.	0.	0.	0.	0.	38.	309.	1392.
1964	127.	170.	286.	238.	125.	85.	0.	27.	47.	347.	284.	220.	1956.
1965	192.	212.	248.	238.	58.	0.	0.	0.	0.	2.	146.	383.	1479.
1966	305.	309.	351.	142.	99.	57.	0.	10.	2.	115.	149.	240.	1779.
1967	293.	271.	254.	201.	59.	0.	0.	0.	0.	6.	290.	412.	1786.
1968	201.	309.	416.	110.	117.	223.	239.	22.	47.	16.	138.	214.	2072.
1969	328.	351.	474.	68.	23.	21.	9.	0.	7.	34.	190.	294.	1759.
1970	147.	105.	240.	168.	64.	53.	41.	0.	43.	82.	108.	119.	1110.
												MEAN	1907.



\*\*\* NO. 4 WAGIR \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	118.	99.	378.	271.	243.	105.	40.	0.	0.	25.	56.	311.	1706.
1951	373.	201.	185.	65.	47.	119.	0.	14.	6.	0.	15.	404.	1549.
1952	560.	317.	612.	110.	78.	0.	0.	56.	17.	100.	424.	317.	2577.
1953	170.	187.	403.	341.	100.	0.	91.	0.	0.	0.	131.	511.	1934.
1954	481.	476.	268.	328.	209.	34.	30.	106.	0.	105.	508.	518.	3131.
1955	351.	192.	271.	239.	136.	185.	319.	0.	94.	146.	323.	230.	2486.
1956	250.	302.	198.	150.	45.	106.	105.	37.	0.	131.	254.	342.	1950.
1957	280.	278.	481.	162.	73.	0.	70.	21.	12.	0.	99.	358.	1843.
1958	246.	347.	195.	238.	148.	44.	188.	38.	24.	27.	57.	418.	1966.
1959	350.	381.	286.	169.	232.	19.	0.	0.	0.	40.	243.	298.	1958.
1960	140.	320.	295.	177.	52.	72.	69.	0.	0.	46.	199.	178.	1548.
1961	405.	286.	232.	239.	147.	0.	0.	0.	0.	0.	132.	439.	1880.
1962	570.	139.	378.	165.	50.	53.	18.	0.	0.	54.	233.	504.	2204.
1963	287.	277.	486.	120.	0.	0.	0.	0.	0.	0.	73.	429.	1672.
1964	165.	192.	290.	174.	82.	57.	0.	0.	12.	266.	190.	188.	1616.
1965	156.	260.	208.	150.	69.	0.	0.	0.	0.	0.	135.	547.	1525.
1966	295.	444.	334.	78.	91.	0.	0.	0.	0.	144.	84.	348.	1825.
1967	222.	486.	87.	27.	0.	0.	0.	0.	0.	0.	388.	992.	1752.
1968	443.	299.	296.	295.	265.	274.	142.	22.	11.	31.	49.	347.	2315.
1969	305.	324.	472.	153.	15.	20.	0.	0.	0.	15.	124.	370.	1782.
1970	99.	375.	271.	243.	105.	40.	0.	0.	25.	56.	311.	297.	1885.

MEAN 1970.

\*\*\* NO. 5 BUJONG \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	421.	400.	214.	248.	212.	123.	41.	17.	0.	41.	71.	298.	2086.
1951	173.	149.	104.	16.	103.	122.	8.	34.	24.	17.	101.	483.	1364.
1952	210.	200.	633.	71.	103.	14.	0.	24.	32.	0.	581.	114.	1915.
1953	107.	214.	234.	167.	209.	0.	143.	0.	0.	0.	247.	1850.	1850.
1954	404.	349.	189.	297.	201.	81.	42.	105.	54.	171.	416.	256.	2668.
1955	275.	252.	150.	179.	113.	147.	224.	70.	102.	54.	499.	231.	2337.
1956	423.	222.	30.	74.	34.	216.	142.	174.	0.	40.	182.	268.	1758.
1957	192.	267.	525.	110.	73.	34.	131.	17.	0.	63.	221.	345.	2013.
1958	270.	253.	427.	124.	141.	48.	71.	39.	41.	24.	47.	453.	1900.
1959	295.	170.	184.	46.	424.	94.	36.	0.	0.	50.	292.	390.	1984.
1960	146.	405.	286.	216.	203.	58.	41.	0.	0.	49.	292.	234.	1930.
1961	433.	264.	177.	263.	123.	0.	0.	0.	0.	0.	135.	362.	1698.
1962	397.	244.	202.	239.	23.	40.	39.	150.	0.	55.	342.	509.	2284.
1963	415.	419.	159.	174.	13.	7.	0.	0.	0.	4.	61.	452.	1708.
1964	229.	102.	165.	104.	105.	0.	0.	0.	56.	375.	105.	202.	1720.
1965	217.	176.	256.	98.	9.	0.	0.	0.	0.	0.	53.	511.	1320.
1966	220.	445.	300.	141.	115.	68.	0.	0.	0.	51.	93.	204.	1869.
1967	249.	220.	213.	107.	38.	0.	0.	0.	0.	6.	82.	373.	1288.
1968	356.	225.	404.	115.	252.	248.	298.	37.	0.	98.	146.	399.	2564.
1969	311.	327.	517.	134.	75.	4.	7.	0.	0.	88.	195.	332.	1990.
1970	330.	214.	248.	212.	123.	41.	17.	0.	41.	71.	298.	252.	1917.

MEAN 1904.

\*\*\* NO. 6 TUMPANG \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	357.	378.	195.	309.	266.	145.	41.	32.	0.	54.	74.	300.	2131.
1951	443.	337.	70.	37.	40.	0.	29.	10.	36.	44.	110.	398.	1637.
1952	494.	494.	440.	31.	138.	0.	0.	11.	12.	140.	525.	391.	2576.
1953	280.	259.	424.	337.	331.	0.	132.	0.	0.	0.	93.	283.	2139.
1954	400.	356.	267.	186.	175.	78.	12.	29.	39.	57.	455.	430.	2686.
1955	240.	429.	223.	288.	157.	91.	243.	0.	148.	132.	368.	512.	2921.
1956	350.	299.	68.	56.	20.	119.	142.	108.	41.	131.	243.	341.	1938.
1957	365.	414.	306.	175.	97.	8.	152.	38.	0.	0.	88.	513.	2156.
1958	246.	355.	414.	277.	237.	53.	46.	48.	0.	23.	102.	487.	2374.
1959	268.	128.	381.	44.	255.	77.	4.	2.	0.	113.	199.	583.	2058.
1960	205.	539.	420.	237.	360.	70.	16.	1.	13.	75.	284.	271.	2571.
1961	473.	294.	225.	250.	146.	0.	0.	0.	0.	0.	173.	468.	2020.
1962	598.	199.	364.	203.	148.	26.	30.	35.	0.	46.	261.	412.	2322.
1963	479.	384.	228.	61.	34.	9.	0.	0.	2.	46.	27.	401.	1586.
1964	289.	191.	205.	147.	93.	112.	0.	14.	5.	443.	188.	290.	1977.
1965	217.	194.	158.	156.	66.	0.	0.	0.	0.	0.	173.	373.	1337.
1966	273.	476.	382.	188.	128.	41.	0.	33.	0.	154.	279.	384.	2635.
1967	485.	411.	223.	161.	89.	0.	0.	0.	0.	8.	122.	604.	2105.
1968	481.	274.	448.	105.	266.	380.	205.	14.	20.	42.	208.	242.	2675.
1969	434.	467.	520.	200.	46.	51.	0.	8.	37.	85.	95.	198.	2162.
1970	378.	195.	309.	266.	125.	41.	32.	0.	54.	74.	300.	269.	2048.

MEAN 2195.

\*\*\* NO. 7 PG. TJOKUSUNG \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	432.	409.	401.	336.	187.	111.	92.	14.	0.	22.	65.	253.	2322.
1951	508.	405.	143.	87.	22.	27.	41.	4.	12.	0.	102.	437.	1846.
1952	740.	451.	411.	34.	55.	0.	0.	7.	5.	167.	517.	224.	2576.
1953	301.	168.	280.	318.	151.	0.	54.	0.	0.	0.	138.	304.	1892.
1954	589.	209.	238.	201.	148.	75.	81.	95.	50.	115.	427.	405.	2698.
1955	202.	489.	338.	255.	170.	89.	329.	69.	105.	120.	352.	220.	2704.
1956	168.	297.	212.	75.	72.	87.	78.	85.	59.	73.	193.	414.	2013.
1957	411.	488.	314.	183.	86.	28.	146.	25.	0.	0.	118.	523.	2322.
1958	285.	410.	352.	280.	64.	74.	85.	52.	54.	9.	110.	541.	2365.
1959	175.	201.	363.	149.	125.	19.	7.	0.	0.	40.	110.	612.	2001.
1960	287.	301.	325.	306.	316.	44.	16.	0.	0.	77.	164.	351.	2196.
1961	402.	330.	317.	222.	100.	0.	0.	0.	0.	0.	237.	338.	1946.
1962	589.	264.	310.	244.	74.	24.	27.	29.	0.	50.	378.	453.	2473.
1963	1094.	425.	194.	78.	59.	2.	0.	0.	0.	0.	33.	392.	2256.
1964	194.	200.	234.	112.	37.	110.	0.	0.	0.	434.	187.	310.	1918.
1965	221.	337.	251.	124.	93.	0.	0.	0.	0.	0.	141.	430.	1584.
1966	182.	389.	385.	164.	80.	70.	0.	0.	0.	112.	267.	511.	2339.
1967	204.	355.	197.	80.	47.	0.	0.	0.	0.	8.	69.	154.	1118.
1968	325.	323.	384.	190.	242.	202.	178.	10.	0.	24.	189.	395.	2538.
1969	493.	396.	720.	179.	54.	37.	0.	0.	0.	75.	103.	286.	2349.
1970	409.	401.	356.	187.	111.	92.	14.	0.	22.	65.	253.	251.	2141.
											MEAN		2153.

\*\*\* NO. 8 TA SKIL \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	410.	442.	267.	389.	157.	104.	53.	22.	0.	103.	58.	319.	2018.
1951	457.	419.	350.	33.	77.	241.	5.	20.	0.	28.	142.	690.	2538.
1952	551.	751.	653.	116.	169.	0.	0.	2.	48.	177.	675.	456.	3553.
1953	285.	269.	253.	301.	241.	14.	71.	0.	23.	0.	149.	463.	2073.
1954	525.	459.	228.	406.	324.	79.	143.	98.	79.	255.	646.	612.	3850.
1955	430.	301.	257.	360.	125.	112.	381.	108.	57.	223.	470.	231.	3147.
1956	176.	127.	162.	169.	141.	102.	117.	122.	30.	100.	129.	199.	1754.
1957	473.	271.	528.	80.	145.	0.	210.	25.	5.	35.	77.	282.	2184.
1958	392.	324.	292.	291.	143.	54.	94.	62.	34.	92.	153.	414.	2353.
1959	337.	341.	500.	131.	210.	81.	23.	0.	54.	26.	203.	558.	2506.
1960	194.	337.	380.	323.	169.	78.	23.	0.	8.	59.	397.	252.	2222.
1961	482.	347.	257.	225.	178.	0.	0.	0.	0.	0.	66.	377.	1927.
1962	525.	212.	328.	422.	89.	22.	15.	41.	0.	174.	123.	545.	2497.
1963	197.	359.	443.	288.	45.	77.	0.	0.	0.	0.	44.	362.	2006.
1964	150.	154.	463.	28.	115.	281.	0.	0.	11.	493.	278.	364.	2537.
1965	277.	159.	273.	223.	124.	0.	0.	0.	18.	0.	204.	393.	1834.
1966	208.	334.	150.	101.	118.	0.	0.	2.	5.	85.	276.	337.	1676.
1967	314.	526.	346.	84.	0.	0.	0.	0.	0.	2.	46.	324.	1646.
1968	297.	103.	123.	180.	306.	267.	190.	123.	8.	111.	436.	312.	2683.
1969	420.	247.	558.	227.	26.	40.	21.	0.	46.	78.	197.	339.	2199.
1970	489.	282.	389.	157.	103.	23.	22.	0.	103.	58.	319.	292.	2320.
											MEAN		2375.

\*\*\* NO. 9 DAKIT \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	410.	404.	252.	161.	142.	284.	50.	181.	0.	58.	79.	161.	1756.
1951	464.	524.	116.	56.	227.	372.	73.	408.	4.	0.	26.	674.	3244.
1952	578.	537.	380.	61.	119.	57.	0.	35.	59.	303.	404.	824.	3889.
1953	271.	271.	278.	334.	427.	0.	28.	4.	0.	25.	67.	178.	1881.
1954	84.	729.	783.	1120.	370.	401.	176.	55.	14.	126.	389.	317.	4790.
1955	164.	210.	233.	192.	103.	219.	507.	197.	25.	356.	405.	339.	2940.
1956	320.	189.	53.	88.	52.	248.	180.	31.	5.	71.	175.	268.	1750.
1957	110.	272.	372.	33.	41.	1.	328.	31.	5.	6.	71.	286.	1750.
1958	111.	25.	320.	78.	222.	190.	111.	114.	76.	156.	85.	491.	1960.
1959	235.	275.	360.	84.	168.	68.	60.	0.	0.	7.	98.	560.	1875.
1960	335.	189.	239.	203.	163.	118.	46.	8.	14.	79.	213.	230.	1837.
1961	471.	285.	221.	277.	172.	0.	0.	0.	0.	0.	133.	396.	1956.
1962	326.	223.	520.	365.	0.	35.	0.	0.	0.	71.	240.	417.	2194.
1963	174.	235.	439.	100.	0.	0.	0.	0.	0.	0.	15.	194.	1157.
1964	134.	205.	358.	822.	197.	182.	0.	0.	0.	364.	136.	154.	2553.
1965	107.	305.	69.	138.	54.	0.	0.	0.	0.	0.	110.	263.	1246.
1966	256.	316.	300.	200.	24.	126.	0.	0.	20.	80.	340.	383.	2053.
1967	392.	213.	74.	85.	42.	0.	0.	0.	0.	153.	65.	512.	1588.
1968	285.	204.	302.	396.	310.	223.	258.	55.	6.	177.	281.	541.	3088.
1969	281.	122.	313.	194.	02.	42.	10.	0.	0.	54.	59.	293.	1480.
1970	403.	252.	161.	142.	284.	50.	181.	0.	53.	79.	161.	271.	2037.
											MEAN		2257.

\*\*\* NO.10 GONDANGLEGI \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	659.	426.	456.	465.	278.	98.	47.	0.	44.	148.	362.	2913.
1951	248.	301.	164.	114.	95.	97.	46.	22.	23.	0.	60.	282.	1452.
1952	250.	406.	255.	24.	25.	14.	0.	80.	3.	04.	388.	306.	1815.
1953	130.	131.	217.	146.	224.	30.	35.	2.	0.	10.	120.	254.	1326.
1954	297.	213.	270.	148.	267.	98.	6.	89.	105.	105.	366.	447.	2469.
1955	290.	402.	176.	112.	145.	213.	339.	34.	33.	201.	347.	303.	2855.
1956	248.	127.	126.	17.	97.	198.	179.	110.	25.	77.	155.	365.	1724.
1957	329.	276.	476.	115.	38.	2.	335.	17.	0.	29.	48.	302.	1967.
1958	265.	205.	329.	400.	175.	109.	165.	12.	48.	86.	130.	497.	2430.
1959	263.	515.	341.	181.	239.	109.	35.	0.	0.	0.	153.	690.	2476.
1960	300.	174.	330.	214.	240.	00.	3.	6.	0.	25.	122.	209.	1709.
1961	368.	267.	235.	237.	142.	0.	0.	0.	0.	0.	148.	450.	1847.
1962	174.	184.	197.	105.	111.	21.	17.	32.	0.	115.	138.	554.	1931.
1963	291.	398.	268.	99.	0.	0.	0.	0.	0.	0.	17.	221.	1294.
1964	120.	176.	587.	234.	111.	25.	4.	0.	111.	449.	214.	256.	2322.
1965	123.	279.	207.	129.	39.	0.	25.	0.	2.	0.	213.	271.	1488.
1966	392.	268.	248.	297.	27.	0.	0.	0.	2.	144.	244.	609.	2231.
1967	113.	235.	171.	105.	4.	0.	0.	0.	0.	54.	142.	462.	1689.
1968	181.	159.	580.	111.	499.	408.	261.	159.	19.	213.	340.	609.	3930.
1969	487.	222.	696.	164.	111.	31.	0.	0.	0.	55.	174.	307.	2553.
1970	659.	426.	456.	456.	278.	98.	47.	0.	44.	148.	362.	440.	5363.

MEAN 2144.

\*\*\* NO.11 KAPANJUA \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	375.	221.	92.	75.	102.	36.	15.	0.	0.	79.	179.	1184.
1951	254.	324.	149.	122.	13.	112.	24.	7.	19.	0.	28.	237.	1287.
1952	219.	214.	358.	79.	40.	5.	0.	34.	15.	198.	428.	205.	1802.
1953	21.	171.	203.	189.	310.	0.	38.	4.	7.	0.	104.	343.	1645.
1954	120.	222.	157.	192.	245.	74.	12.	131.	46.	264.	548.	553.	2790.
1955	307.	336.	281.	135.	200.	109.	487.	122.	32.	111.	361.	363.	2887.
1956	307.	211.	110.	73.	101.	99.	256.	144.	5.	106.	153.	622.	2305.
1957	220.	221.	526.	45.	42.	4.	454.	10.	0.	5.	156.	368.	2108.
1958	237.	354.	293.	251.	151.	108.	93.	22.	14.	94.	194.	469.	2324.
1959	254.	387.	418.	160.	284.	145.	0.	0.	77.	18.	190.	555.	2468.
1960	264.	154.	536.	160.	230.	72.	59.	13.	3.	20.	457.	393.	2288.
1961	428.	281.	210.	269.	131.	0.	0.	0.	0.	0.	167.	506.	1999.
1962	150.	225.	227.	435.	85.	04.	35.	19.	0.	140.	205.	537.	2322.
1963	242.	222.	480.	122.	0.	0.	0.	0.	0.	0.	65.	241.	1402.
1964	110.	141.	468.	120.	37.	120.	0.	12.	54.	467.	188.	328.	2049.
1965	481.	317.	220.	106.	51.	0.	0.	0.	7.	0.	469.	214.	1857.
1966	332.	324.	351.	112.	16.	45.	0.	7.	0.	78.	131.	524.	2120.
1967	113.	242.	146.	173.	0.	0.	0.	0.	0.	15.	140.	354.	1380.
1968	495.	137.	419.	200.	332.	233.	157.	22.	55.	114.	314.	342.	2721.
1969	341.	117.	372.	172.	42.	124.	0.	0.	0.	32.	30.	333.	1561.
1970	375.	221.	92.	95.	102.	36.	15.	0.	0.	79.	179.	329.	1523.

MEAN 2042.

\*\*\* NO.12 KESAMPUN \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	600.	270.	269.	195.	164.	57.	20.	0.	94.	106.	271.	2036.
1951	214.	644.	142.	155.	26.	97.	5.	1.	14.	37.	12.	581.	1784.
1952	437.	457.	449.	209.	80.	3.	1.	13.	6.	190.	319.	531.	2605.
1953	173.	287.	244.	232.	279.	11.	31.	2.	0.	10.	172.	280.	1727.
1954	156.	303.	224.	269.	257.	24.	18.	221.	90.	149.	613.	673.	3399.
1955	262.	359.	238.	398.	263.	115.	366.	186.	182.	150.	750.	328.	3597.
1956	241.	155.	105.	58.	146.	78.	218.	174.	65.	40.	140.	470.	1890.
1957	156.	344.	310.	104.	24.	2.	410.	12.	0.	0.	177.	459.	2039.
1958	190.	344.	318.	160.	143.	104.	57.	28.	11.	112.	333.	431.	2251.
1959	324.	233.	472.	100.	258.	71.	4.	0.	29.	7.	214.	496.	2208.
1960	250.	189.	395.	310.	302.	116.	30.	5.	13.	25.	299.	203.	2143.
1961	430.	182.	110.	222.	135.	0.	0.	0.	0.	0.	116.	442.	1617.
1962	134.	280.	202.	212.	48.	74.	4.	17.	0.	114.	98.	514.	1902.
1963	395.	204.	389.	57.	0.	4.	0.	0.	0.	15.	188.	174.	1426.
1964	204.	195.	347.	164.	226.	29.	0.	55.	84.	451.	200.	70.	2015.
1965	466.	255.	190.	129.	79.	0.	0.	0.	0.	0.	183.	131.	1433.
1966	231.	412.	499.	234.	46.	58.	0.	7.	5.	171.	364.	746.	2773.
1967	450.	151.	317.	229.	30.	0.	0.	0.	0.	9.	141.	466.	1853.
1968	162.	279.	454.	336.	355.	217.	146.	53.	17.	190.	314.	462.	3181.
1969	383.	208.	310.	175.	41.	53.	1.	12.	41.	105.	80.	305.	1714.
1970	600.	270.	269.	195.	164.	57.	20.	0.	94.	106.	271.	561.	2407.

MEAN 2198.

\*\*\* NO. 13 BIRMO

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	257.	336.	217.	173.	208.	234.	72.	45.	0.	16.	86.	260.	1904.
1951	106.	451.	218.	46.	3.	84.	10.	0.	7.	0.	18.	254.	1259.
1952	402.	339.	309.	80.	124.	0.	1.	22.	13.	100.	336.	244.	1970.
1953	141.	246.	221.	110.	313.	9.	6.	0.	0.	8.	77.	132.	1263.
1954	568.	212.	167.	283.	277.	40.	23.	78.	40.	59.	433.	617.	2797.
1955	221.	277.	173.	276.	163.	202.	339.	120.	83.	201.	772.	280.	3107.
1956	283.	103.	144.	83.	140.	92.	168.	134.	32.	51.	142.	365.	1787.
1957	296.	306.	207.	75.	29.	13.	296.	35.	0.	0.	77.	278.	1612.
1958	92.	306.	153.	98.	134.	39.	58.	41.	7.	30.	171.	338.	1467.
1959	453.	154.	340.	56.	62.	66.	13.	0.	16.	0.	120.	408.	1710.
1960	232.	190.	274.	172.	191.	26.	23.	6.	69.	0.	110.	333.	1626.
1961	168.	313.	213.	193.	90.	0.	0.	0.	0.	0.	23.	254.	1454.
1962	307.	253.	213.	75.	108.	18.	0.	14.	0.	43.	64.	517.	1641.
1963	127.	101.	414.	66.	10.	0.	0.	0.	0.	5.	6.	271.	1200.
1964	187.	148.	406.	217.	49.	36.	0.	20.	44.	509.	338.	66.	2100.
1965	537.	282.	533.	121.	14.	14.	0.	0.	0.	0.	174.	256.	1931.
1966	120.	370.	450.	132.	13.	68.	0.	2.	0.	13.	307.	805.	2510.
1967	424.	280.	302.	132.	15.	0.	0.	0.	0.	12.	94.	427.	1686.
1968	494.	273.	278.	264.	271.	192.	190.	5.	30.	105.	192.	528.	2837.
1969	209.	181.	201.	210.	35.	48.	0.	0.	17.	47.	119.	227.	1294.
1970	136.	217.	173.	208.	234.	72.	45.	0.	16.	86.	260.	329.	1976.
											MEAN		1861.

\*\*\* NO. 14 BONO

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	435.	203.	270.	267.	295.	68.	23.	0.	107.	138.	366.	2182.
1951	509.	245.	160.	119.	22.	107.	4.	27.	23.	31.	42.	531.	1541.
1952	466.	467.	617.	98.	245.	0.	3.	61.	22.	218.	534.	533.	3635.
1953	125.	292.	479.	365.	352.	0.	72.	4.	0.	10.	316.	519.	2494.
1954	443.	304.	289.	226.	303.	93.	26.	242.	109.	140.	913.	628.	3765.
1955	310.	311.	354.	386.	172.	121.	508.	262.	92.	172.	694.	351.	3763.
1956	315.	265.	146.	218.	227.	122.	277.	274.	57.	251.	311.	516.	3009.
1957	320.	263.	388.	26.	104.	12.	410.	33.	36.	0.	227.	231.	2047.
1958	335.	283.	344.	198.	34.	72.	272.	65.	35.	174.	309.	552.	2653.
1959	433.	342.	381.	184.	409.	75.	26.	11.	124.	76.	343.	461.	2857.
1960	316.	335.	338.	272.	216.	93.	40.	26.	10.	132.	468.	247.	2690.
1961	463.	298.	244.	123.	213.	0.	0.	0.	0.	0.	216.	506.	2283.
1962	496.	291.	285.	452.	68.	46.	48.	15.	0.	149.	329.	765.	2941.
1963	304.	232.	508.	236.	11.	4.	0.	0.	0.	26.	164.	372.	1847.
1964	202.	349.	412.	342.	234.	123.	0.	14.	78.	513.	215.	278.	2620.
1965	372.	267.	199.	113.	172.	0.	0.	0.	0.	5.	168.	413.	1674.
1966	593.	449.	420.	405.	98.	155.	0.	5.	4.	140.	288.	674.	2955.
1967	383.	321.	226.	196.	68.	0.	0.	0.	0.	38.	170.	537.	1990.
1968	401.	344.	668.	261.	306.	307.	301.	93.	27.	173.	395.	507.	3605.
1969	403.	243.	413.	372.	76.	45.	0.	12.	47.	67.	332.	456.	2477.
1970	495.	293.	270.	267.	255.	08.	23.	0.	107.	138.	366.	492.	2684.
											MEAN		2685.

\*\*\* NO. 15 SPANEN

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	553.	114.	291.	394.	176.	198.	0.	0.	53.	205.	245.	2253.
1951	184.	511.	217.	212.	63.	149.	66.	21.	42.	24.	72.	821.	2584.
1952	504.	715.	512.	82.	235.	22.	8.	21.	93.	175.	540.	821.	3939.
1953	226.	314.	602.	174.	435.	17.	96.	8.	0.	0.	605.	709.	3156.
1954	77.	546.	490.	257.	345.	163.	34.	201.	115.	288.	604.	763.	4483.
1955	489.	445.	374.	414.	217.	340.	575.	132.	182.	354.	945.	571.	5139.
1956	443.	344.	99.	278.	117.	289.	370.	184.	139.	480.	562.	492.	3797.
1957	302.	421.	727.	257.	161.	0.	211.	0.	0.	23.	263.	384.	2745.
1958	328.	421.	374.	460.	164.	81.	247.	89.	83.	200.	520.	608.	3639.
1959	453.	367.	451.	139.	362.	12.	22.	0.	51.	144.	211.	679.	2911.
1960	591.	300.	458.	456.	319.	124.	26.	38.	11.	0.	778.	290.	3490.
1961	367.	249.	67.	362.	138.	0.	0.	0.	0.	17.	415.	401.	2016.
1962	600.	175.	277.	500.	357.	9.	0.	0.	0.	36.	176.	456.	2586.
1963	127.	80.	328.	413.	0.	0.	0.	0.	0.	15.	138.	683.	1777.
1964	123.	431.	301.	412.	291.	37.	0.	0.	304.	952.	219.	284.	3254.
1965	332.	226.	56.	43.	232.	15.	0.	0.	0.	0.	121.	288.	1307.
1966	460.	368.	574.	574.	74.	0.	0.	33.	0.	128.	306.	295.	2812.
1967	311.	320.	192.	250.	0.	0.	0.	0.	0.	108.	367.	384.	1892.
1968	214.	81.	363.	320.	189.	193.	272.	42.	142.	264.	486.	422.	2988.
1969	502.	257.	539.	117.	0.	21.	0.	0.	16.	36.	169.	611.	2268.
1970	553.	115.	291.	394.	176.	198.	0.	0.	83.	205.	245.	9.	2272.
											MEAN		2953.

*** NO. 16 WLJNGT ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	217.	311.	216.	176.	207.	219.	89.	30.	0.	181.	106.	410.	2162.
1951	268.	424.	175.	187.	52.	127.	66.	20.	49.	23.	77.	579.	2042.
1952	482.	611.	412.	72.	194.	18.	8.	20.	108.	167.	576.	579.	3247.
1953	297.	242.	541.	256.	327.	3.	31.	2.	5.	18.	224.	397.	2343.
1954	326.	257.	236.	278.	217.	72.	41.	155.	194.	124.	703.	649.	3252.
1955	202.	312.	202.	358.	134.	208.	323.	175.	237.	188.	725.	320.	3384.
1956	310.	126.	148.	181.	166.	181.	209.	201.	63.	257.	313.	445.	2595.
1957	191.	248.	404.	88.	100.	7.	423.	39.	0.	16.	197.	363.	2076.
1958	201.	248.	269.	340.	56.	59.	241.	35.	23.	127.	282.	440.	2321.
1959	473.	428.	411.	170.	472.	128.	33.	0.	60.	82.	273.	404.	2934.
1960	379.	227.	228.	569.	295.	113.	16.	28.	4.	66.	402.	214.	2539.
1961	284.	224.	331.	252.	107.	0.	0.	0.	0.	26.	211.	506.	1941.
1962	480.	270.	329.	272.	56.	74.	48.	9.	0.	99.	369.	568.	2574.
1963	281.	284.	343.	225.	23.	0.	0.	0.	0.	21.	114.	243.	1534.
1964	311.	182.	381.	358.	132.	147.	0.	0.	45.	575.	161.	293.	2393.
1965	398.	460.	207.	205.	144.	24.	2.	0.	0.	21.	302.	283.	2041.
1966	297.	525.	682.	163.	58.	131.	0.	17.	0.	64.	452.	774.	3363.
1967	441.	201.	270.	147.	60.	0.	0.	0.	0.	26.	152.	434.	1726.
1968	342.	202.	254.	253.	196.	275.	301.	18.	111.	229.	307.	387.	2950.
1969	407.	123.	256.	137.	75.	38.	12.	57.	59.	243.	323.	241.	1951.
1970	311.	216.	176.	207.	219.	89.	30.	0.	101.	106.	410.	457.	2402.

MEAN 2480.

*** NO. 17 LHOJJO ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	364.	381.	309.	183.	137.	34.	39.	0.	65.	0.	184.	1691.
1951	158.	282.	122.	12.	16.	93.	20.	0.	13.	6.	17.	438.	1167.
1952	390.	774.	259.	97.	112.	16.	9.	3.	0.	171.	421.	431.	2683.
1953	101.	216.	277.	50.	226.	8.	4.	1.	0.	3.	119.	191.	1196.
1954	232.	210.	104.	257.	168.	79.	6.	64.	17.	12.	330.	255.	1734.
1955	365.	259.	414.	143.	249.	212.	239.	95.	33.	178.	722.	495.	3404.
1956	364.	234.	123.	174.	213.	46.	176.	136.	5.	90.	102.	479.	2305.
1957	238.	418.	246.	76.	24.	5.	317.	24.	10.	24.	159.	253.	1780.
1958	203.	438.	243.	116.	42.	34.	68.	26.	22.	43.	135.	386.	1778.
1959	429.	179.	376.	116.	102.	88.	4.	1.	107.	12.	81.	452.	1942.
1960	295.	267.	216.	68.	534.	56.	51.	15.	3.	50.	271.	255.	2081.
1961	313.	284.	210.	114.	117.	0.	0.	0.	0.	0.	55.	385.	1468.
1962	430.	342.	264.	175.	69.	35.	1.	0.	0.	34.	92.	534.	2004.
1963	686.	351.	491.	186.	4.	3.	0.	0.	0.	6.	22.	246.	1995.
1964	84.	261.	321.	159.	148.	76.	0.	2.	38.	474.	111.	295.	1895.
1965	263.	424.	221.	68.	26.	2.	0.	0.	0.	0.	150.	185.	1339.
1966	228.	465.	334.	141.	53.	70.	0.	2.	22.	60.	258.	580.	2183.
1967	405.	247.	156.	71.	10.	0.	0.	0.	0.	0.	9.	257.	1155.
1968	147.	124.	290.	47.	260.	222.	67.	0.	0.	130.	246.	372.	1937.
1969	256.	728.	340.	279.	151.	0.	0.	0.	0.	173.	203.	233.	1864.
1970	369.	381.	309.	183.	137.	34.	39.	0.	65.	0.	184.	399.	2100.

MEAN 1901.

*** NO. 18 GARUM ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	435.	253.	255.	224.	346.	57.	2.	0.	74.	146.	169.	1951.
1951	33.	601.	220.	41.	146.	144.	38.	38.	70.	36.	67.	576.	1910.
1952	557.	556.	496.	101.	91.	10.	1.	100.	80.	114.	358.	576.	2990.
1953	181.	329.	332.	247.	412.	10.	9.	2.	0.	14.	182.	321.	2041.
1954	362.	145.	336.	330.	181.	21.	5.	99.	61.	121.	668.	387.	2716.
1955	162.	243.	160.	152.	154.	118.	217.	131.	120.	183.	528.	378.	2544.
1956	254.	144.	109.	159.	141.	182.	143.	110.	78.	95.	226.	453.	2094.
1957	305.	720.	307.	135.	64.	0.	379.	84.	0.	0.	158.	258.	1910.
1958	288.	220.	289.	234.	80.	82.	164.	35.	58.	115.	333.	304.	2182.
1959	297.	423.	346.	69.	229.	185.	21.	0.	5.	8.	192.	388.	2163.
1960	290.	261.	279.	161.	595.	97.	58.	31.	0.	90.	291.	201.	2354.
1961	225.	154.	257.	305.	147.	2.	34.	0.	0.	0.	74.	607.	1809.
1962	276.	267.	431.	263.	32.	91.	2.	40.	7.	199.	139.	730.	2477.
1963	472.	116.	109.	201.	0.	1.	0.	0.	0.	5.	49.	164.	1117.
1964	185.	137.	417.	237.	129.	87.	0.	19.	33.	428.	125.	197.	1994.
1965	311.	323.	254.	146.	87.	11.	0.	0.	0.	4.	168.	247.	1551.
1966	392.	425.	438.	425.	70.	150.	0.	9.	1.	79.	302.	564.	2815.
1967	372.	282.	223.	259.	26.	0.	0.	0.	1.	20.	49.	259.	1491.
1968	419.	506.	757.	555.	355.	346.	235.	11.	10.	42.	97.	269.	3602.
1969	261.	191.	235.	203.	7.	26.	4.	0.	13.	54.	135.	442.	1571.
1970	435.	253.	255.	224.	346.	27.	2.	0.	74.	146.	169.	284.	2245.

MEAN 2179.

*** NO.19 BADAUK ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	623.	407.	533.	410.	290.	183.	60.	0.	95.	204.	562.	3357.
1951	426.	596.	274.	62.	177.	175.	23.	11.	38.	17.	56.	544.	2399.
1952	726.	661.	618.	192.	111.	12.	1.	19.	16.	54.	170.	544.	3084.
1953	209.	329.	604.	208.	363.	15.	51.	2.	0.	0.	435.	432.	2644.
1954	510.	338.	184.	172.	290.	60.	0.	128.	229.	327.	942.	600.	3780.
1955	325.	221.	262.	435.	136.	281.	326.	233.	221.	747.	597.	465.	4252.
1956	374.	277.	134.	133.	303.	305.	135.	208.	39.	214.	553.	522.	3199.
1957	397.	329.	631.	729.	135.	23.	238.	61.	20.	22.	137.	524.	3266.
1958	456.	329.	322.	320.	171.	99.	187.	269.	108.	439.	357.	559.	3616.
1959	378.	540.	634.	433.	306.	249.	123.	0.	47.	106.	232.	444.	3477.
1960	428.	194.	368.	165.	412.	43.	0.	74.	0.	87.	718.	232.	3125.
1961	292.	247.	528.	295.	77.	0.	0.	0.	0.	66.	241.	630.	2376.
1962	388.	264.	755.	408.	297.	99.	46.	83.	0.	159.	457.	677.	3733.
1963	420.	455.	271.	259.	96.	0.	0.	0.	0.	52.	466.	416.	2435.
1964	351.	374.	462.	345.	369.	195.	0.	113.	211.	748.	243.	231.	3642.
1965	472.	416.	295.	165.	179.	5.	0.	0.	0.	36.	259.	652.	2676.
1966	389.	497.	520.	437.	39.	149.	11.	9.	41.	287.	206.	345.	2930.
1967	311.	274.	220.	523.	143.	0.	0.	0.	1.	6.	509.	508.	2495.
1968	123.	246.	414.	322.	356.	324.	543.	99.	19.	456.	476.	463.	3788.
1969	153.	233.	663.	173.	83.	29.	6.	13.	28.	147.	547.	283.	2758.
1970	423.	407.	533.	410.	290.	183.	60.	0.	95.	204.	562.	382.	3749.
												MEAN	3171.

*** NO.20 BEA JOCEPIT ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	364.	181.	348.	394.	180.	0.	0.	0.	39.	76.	251.	1867.
1951	133.	310.	132.	50.	169.	245.	84.	0.	22.	6.	5.	370.	1506.
1952	447.	817.	301.	123.	173.	18.	12.	3.	0.	217.	448.	413.	2960.
1953	129.	234.	309.	107.	362.	28.	8.	3.	0.	9.	126.	292.	1607.
1954	380.	168.	210.	297.	175.	17.	3.	86.	57.	74.	465.	379.	2394.
1955	163.	219.	163.	262.	171.	100.	234.	117.	108.	159.	457.	291.	2444.
1956	279.	140.	129.	100.	68.	103.	159.	113.	84.	96.	92.	412.	1801.
1957	247.	253.	275.	137.	30.	0.	317.	33.	0.	4.	157.	221.	1671.
1958	197.	257.	340.	239.	102.	20.	104.	9.	21.	49.	203.	297.	1859.
1959	302.	276.	345.	92.	172.	151.	16.	0.	22.	5.	140.	382.	1903.
1960	447.	232.	302.	162.	432.	77.	85.	10.	0.	113.	238.	155.	2248.
1961	269.	256.	270.	170.	60.	6.	12.	0.	0.	5.	48.	435.	1531.
1962	426.	199.	237.	224.	49.	88.	13.	21.	0.	141.	226.	291.	1915.
1963	311.	271.	255.	220.	0.	1.	0.	0.	0.	5.	5.	155.	1223.
1964	131.	182.	318.	215.	264.	100.	0.	4.	45.	499.	135.	163.	1996.
1965	176.	387.	184.	91.	41.	0.	0.	0.	0.	0.	150.	175.	1397.
1966	258.	361.	417.	396.	50.	51.	0.	4.	6.	81.	403.	505.	2562.
1967	335.	377.	271.	129.	33.	0.	0.	0.	0.	26.	34.	193.	1398.
1968	535.	254.	306.	298.	171.	112.	155.	0.	58.	106.	224.	381.	2400.
1969	210.	165.	126.	244.	72.	31.	0.	0.	53.	24.	125.	277.	1328.
1970	164.	181.	388.	394.	180.	0.	0.	0.	39.	76.	251.	296.	2169.
												MEAN	1916.

*** NO.21 KAUHMANGAN ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	359.	264.	320.	264.	110.	0.	15.	0.	39.	63.	259.	1703.
1951	148.	392.	226.	13.	46.	99.	7.	0.	150.	0.	16.	373.	1470.
1952	321.	798.	257.	110.	121.	206.	10.	2.	0.	156.	324.	375.	2494.
1953	206.	200.	404.	208.	219.	6.	0.	0.	0.	1.	68.	133.	1449.
1954	354.	236.	210.	389.	164.	27.	17.	56.	0.	16.	259.	326.	2056.
1955	229.	223.	266.	365.	168.	212.	178.	20.	45.	164.	410.	285.	2585.
1956	286.	182.	127.	100.	39.	29.	171.	97.	9.	73.	110.	348.	1567.
1957	174.	271.	306.	33.	32.	40.	312.	25.	0.	9.	134.	308.	1629.
1958	114.	231.	302.	157.	132.	29.	44.	11.	29.	37.	64.	379.	1521.
1959	147.	274.	345.	111.	136.	62.	32.	0.	0.	0.	114.	585.	1959.
1960	244.	397.	171.	96.	346.	38.	9.	5.	0.	96.	171.	266.	1836.
1961	229.	160.	153.	171.	125.	0.	0.	0.	0.	0.	15.	260.	1113.
1962	155.	368.	233.	384.	155.	44.	4.	31.	0.	156.	118.	390.	2038.
1963	445.	218.	288.	100.	2.	0.	0.	0.	0.	0.	78.	105.	1286.
1964	74.	160.	271.	192.	97.	0.	0.	0.	68.	492.	154.	453.	1961.
1965	277.	541.	314.	159.	17.	0.	0.	0.	0.	0.	28.	181.	1517.
1966	231.	307.	535.	94.	0.	75.	0.	0.	0.	17.	277.	393.	1929.
1967	369.	251.	313.	146.	80.	0.	0.	0.	0.	0.	25.	528.	1712.
1968	351.	228.	377.	218.	286.	127.	49.	0.	0.	69.	215.	331.	2251.
1969	137.	171.	279.	264.	57.	41.	0.	0.	0.	0.	92.	280.	1321.
1970	264.	264.	320.	264.	110.	0.	13.	0.	39.	63.	259.	229.	1847.
												MEAN	1774.

\*\*\* NO. 22. SRENGAT \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	146.	292.	383.	308.	405.	246.	10.	0.	0.	34.	51.	329.	2199.
1951	270.	474.	263.	133.	53.	144.	74.	0.	2.	42.	50.	900.	2014.
1952	311.	563.	556.	132.	213.	18.	10.	0.	0.	172.	528.	900.	3003.
1953	158.	435.	424.	101.	190.	7.	3.	1.	0.	3.	91.	165.	1573.
1954	478.	338.	288.	152.	354.	42.	2.	63.	22.	78.	370.	194.	2361.
1955	338.	189.	197.	137.	145.	135.	178.	96.	116.	73.	345.	333.	2282.
1956	167.	261.	173.	88.	101.	178.	206.	228.	54.	56.	118.	364.	1934.
1957	142.	367.	343.	78.	11.	9.	190.	34.	0.	2.	167.	384.	1727.
1958	268.	367.	277.	104.	85.	24.	100.	4.	15.	18.	52.	309.	1627.
1959	195.	250.	402.	79.	123.	99.	13.	0.	0.	13.	267.	458.	2099.
1960	361.	212.	255.	95.	311.	66.	61.	3.	0.	18.	192.	221.	1795.
1961	281.	168.	245.	157.	77.	0.	0.	0.	0.	0.	64.	731.	1191.
1962	495.	211.	218.	261.	75.	59.	40.	0.	0.	141.	69.	325.	1890.
1963	466.	171.	248.	106.	57.	57.	0.	3.	0.	0.	10.	44.	1159.
1964	211.	149.	332.	84.	121.	47.	0.	0.	77.	318.	72.	131.	1542.
1965	232.	345.	187.	62.	57.	0.	0.	0.	0.	0.	84.	187.	1154.
1966	296.	259.	380.	253.	0.	0.	0.	0.	0.	0.	241.	918.	1940.
1967	424.	481.	285.	175.	0.	0.	0.	0.	0.	0.	17.	120.	1502.
1968	294.	311.	298.	167.	314.	150.	286.	13.	9.	105.	145.	408.	2500.
1969	197.	203.	228.	143.	147.	14.	0.	1.	13.	27.	89.	163.	1622.
1970	292.	363.	303.	405.	246.	10.	0.	0.	34.	51.	329.	247.	2309.

MEAN 1861.

\*\*\* NO. 23. GANJEK \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	110.	470.	355.	435.	645.	205.	2.	1.	0.	28.	30.	225.	2433.
1951	95.	107.	64.	74.	37.	34.	19.	0.	0.	0.	19.	204.	658.
1952	279.	237.	266.	67.	69.	0.	0.	0.	0.	79.	215.	206.	1418.
1953	71.	234.	320.	219.	64.	0.	0.	0.	0.	0.	64.	171.	1163.
1954	250.	264.	145.	167.	254.	20.	2.	68.	6.	22.	332.	235.	1783.
1955	142.	160.	171.	209.	42.	117.	159.	36.	28.	62.	311.	159.	1809.
1956	127.	194.	156.	72.	28.	60.	146.	153.	10.	29.	144.	255.	1376.
1957	188.	278.	424.	9.	5.	2.	224.	20.	0.	0.	82.	327.	1559.
1958	188.	278.	246.	234.	77.	20.	71.	16.	3.	22.	48.	359.	1567.
1959	421.	16.	351.	61.	164.	98.	0.	0.	0.	720.	249.	347.	2477.
1960	194.	220.	412.	143.	353.	12.	41.	14.	2.	16.	193.	125.	1925.
1961	216.	214.	165.	156.	149.	0.	0.	0.	0.	0.	6.	264.	1170.
1962	423.	405.	193.	322.	139.	73.	22.	0.	0.	141.	170.	253.	2121.
1963	164.	250.	291.	64.	9.	41.	0.	0.	0.	0.	4.	125.	1192.
1964	201.	234.	495.	163.	5.	65.	0.	0.	55.	613.	113.	258.	2242.
1965	753.	293.	183.	270.	196.	0.	0.	0.	0.	10.	55.	359.	2119.
1966	878.	470.	450.	280.	60.	5.	0.	0.	0.	72.	180.	1045.	3470.
1967	245.	455.	605.	385.	0.	0.	0.	0.	0.	0.	6.	420.	2666.
1968	680.	550.	1225.	445.	735.	360.	150.	3.	0.	175.	330.	1165.	6018.
1969	580.	425.	280.	420.	116.	75.	0.	0.	0.	20.	280.	175.	2771.
1970	470.	355.	435.	495.	205.	2.	0.	0.	26.	30.	225.	709.	2652.

MEAN 2107.

\*\*\* NO. 24. TULUNGKABUNG \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	110.	419.	135.	244.	262.	61.	60.	4.	0.	28.	9.	226.	1438.
1951	106.	257.	110.	49.	28.	229.	32.	0.	1.	0.	39.	198.	1044.
1952	260.	369.	497.	106.	192.	34.	2.	0.	5.	109.	271.	155.	2020.
1953	116.	337.	331.	108.	72.	0.	4.	3.	0.	0.	44.	139.	1187.
1954	358.	226.	158.	242.	366.	8.	0.	43.	9.	91.	248.	247.	2023.
1955	173.	131.	212.	279.	64.	142.	246.	35.	33.	193.	208.	252.	2164.
1956	198.	151.	117.	135.	64.	91.	155.	103.	0.	40.	82.	264.	1400.
1957	130.	255.	213.	54.	0.	0.	356.	59.	0.	0.	98.	211.	1376.
1958	187.	266.	311.	198.	100.	14.	67.	9.	7.	21.	46.	261.	1477.
1959	619.	287.	288.	53.	143.	133.	29.	0.	0.	0.	82.	350.	1884.
1960	303.	164.	342.	100.	328.	4.	12.	3.	5.	14.	253.	85.	1610.
1961	274.	152.	89.	164.	136.	0.	0.	0.	0.	0.	8.	213.	1037.
1962	440.	368.	265.	263.	85.	27.	17.	0.	2.	141.	170.	316.	2094.
1963	469.	278.	379.	29.	9.	27.	0.	0.	0.	3.	9.	76.	1279.
1964	53.	725.	688.	68.	165.	65.	0.	0.	105.	366.	114.	97.	2468.
1965	358.	158.	149.	63.	47.	0.	0.	0.	0.	0.	7.	158.	970.
1966	321.	747.	271.	212.	29.	0.	0.	0.	0.	19.	119.	314.	1527.
1967	286.	293.	162.	178.	4.	0.	0.	0.	0.	25.	4.	148.	1100.
1968	190.	130.	304.	209.	349.	236.	142.	21.	0.	47.	105.	347.	2080.
1969	240.	248.	163.	189.	83.	14.	0.	0.	0.	99.	52.	253.	1321.
1970	419.	135.	244.	262.	61.	60.	4.	0.	28.	9.	226.	133.	1581.

MEAN 1582.

\*\*\* NO. 25 BOJOLANGU \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	189.	173.	262.	211.	205.	20.	0.	0.	13.	34.	111.	1208.
1951	139.	332.	106.	45.	0.	0.	0.	0.	33.	0.	24.	157.	836.
1952	290.	304.	279.	44.	167.	0.	0.	0.	0.	58.	312.	81.	1535.
1953	65.	124.	152.	57.	95.	8.	8.	0.	0.	46.	58.	162.	775.
1954	219.	297.	148.	118.	303.	37.	18.	55.	7.	43.	282.	381.	2108.
1955	132.	111.	228.	150.	101.	90.	200.	26.	32.	150.	200.	207.	1633.
1956	162.	272.	134.	35.	62.	41.	167.	138.	17.	55.	118.	295.	1491.
1957	85.	345.	355.	32.	20.	0.	388.	37.	5.	0.	75.	306.	1668.
1958	222.	356.	314.	177.	41.	17.	5.	10.	3.	65.	151.	400.	1781.
1959	441.	165.	253.	136.	67.	118.	5.	0.	0.	0.	86.	212.	1483.
1960	245.	176.	207.	103.	320.	24.	11.	6.	6.	44.	146.	104.	1392.
1961	264.	182.	134.	200.	138.	0.	0.	0.	0.	0.	9.	223.	1170.
1962	404.	202.	134.	178.	53.	44.	12.	15.	0.	56.	140.	358.	1598.
1963	415.	380.	315.	44.	11.	9.	0.	0.	0.	0.	4.	93.	1268.
1964	167.	139.	315.	101.	121.	33.	0.	32.	141.	511.	121.	100.	1785.
1965	432.	134.	194.	101.	24.	0.	0.	0.	0.	0.	25.	128.	1038.
1966	437.	320.	355.	151.	44.	11.	0.	0.	0.	49.	194.	369.	1934.
1967	219.	251.	84.	42.	0.	0.	0.	0.	0.	0.	30.	97.	723.
1968	221.	150.	157.	78.	299.	148.	132.	0.	27.	2.	92.	212.	1518.
1969	85.	160.	77.	102.	25.	0.	0.	0.	0.	25.	41.	154.	729.
1970	164.	171.	262.	211.	265.	40.	0.	0.	13.	54.	111.	248.	1468.
MEAN													1395.

\*\*\* NO. 26 TJAWH INPARAT \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	224.	212.	216.	69.	219.	147.	35.	0.	0.	36.	0.	100.	1258.
1951	134.	336.	119.	48.	36.	352.	4.	13.	76.	0.	36.	220.	1168.
1952	202.	150.	330.	22.	153.	4.	1.	0.	58.	124.	367.	109.	1581.
1953	114.	241.	210.	99.	83.	14.	0.	0.	0.	0.	33.	136.	963.
1954	270.	162.	137.	203.	210.	0.	34.	63.	29.	30.	235.	207.	1643.
1955	110.	127.	175.	171.	98.	218.	410.	4.	17.	205.	244.	161.	2004.
1956	110.	280.	08.	36.	42.	45.	152.	101.	10.	44.	106.	206.	1200.
1957	50.	170.	238.	17.	0.	0.	502.	6.	0.	0.	79.	273.	1535.
1958	161.	269.	330.	37.	144.	53.	88.	28.	0.	54.	171.	268.	1602.
1959	54.	227.	318.	89.	57.	158.	75.	4.	14.	18.	79.	218.	1495.
1960	128.	249.	164.	151.	250.	05.	30.	4.	27.	29.	167.	153.	1637.
1961	133.	232.	158.	133.	55.	0.	0.	0.	0.	0.	11.	183.	1005.
1962	191.	233.	158.	267.	96.	06.	12.	17.	0.	64.	110.	351.	1730.
1963	267.	323.	378.	147.	0.	19.	0.	0.	0.	0.	5.	131.	1373.
1964	125.	124.	420.	56.	116.	67.	6.	40.	143.	737.	185.	68.	2085.
1965	283.	153.	271.	57.	16.	3.	0.	0.	0.	8.	71.	117.	979.
1966	265.	243.	257.	107.	100.	77.	0.	4.	20.	19.	148.	393.	1843.
1967	122.	190.	83.	167.	0.	0.	0.	0.	0.	0.	65.	130.	977.
1968	215.	169.	125.	167.	424.	121.	74.	0.	60.	32.	42.	86.	1755.
1969	107.	184.	166.	77.	24.	16.	0.	0.	0.	2.	108.	94.	703.
1970	112.	210.	60.	219.	147.	35.	0.	0.	36.	0.	100.	238.	1272.
MEAN													1428.

\*\*\* NO. 27 SEPURUK \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	124.	110.	141.	151.	329.	266.	74.	15.	0.	58.	21.	200.	1540.
1951	192.	241.	114.	75.	68.	299.	42.	54.	119.	14.	22.	211.	1454.
1952	529.	223.	246.	61.	136.	8.	15.	6.	247.	527.	576.	190.	2784.
1953	94.	231.	184.	170.	201.	0.	7.	24.	6.	36.	141.	153.	1247.
1954	442.	266.	275.	180.	317.	108.	57.	184.	76.	75.	308.	170.	2438.
1955	227.	149.	132.	295.	301.	326.	953.	227.	151.	618.	349.	160.	3868.
1956	194.	343.	67.	44.	85.	68.	312.	35.	57.	152.	107.	307.	1766.
1957	76.	373.	106.	79.	0.	16.	796.	12.	7.	26.	76.	118.	1745.
1958	138.	431.	176.	298.	100.	164.	59.	93.	23.	124.	135.	165.	1909.
1959	135.	145.	341.	179.	219.	200.	119.	3.	20.	77.	118.	176.	2262.
1960	158.	211.	117.	145.	366.	62.	28.	57.	21.	89.	269.	184.	2155.
1961	261.	327.	189.	130.	175.	0.	0.	0.	0.	0.	7.	65.	1109.
1962	162.	213.	264.	454.	72.	42.	18.	16.	0.	138.	372.	462.	2413.
1963	333.	224.	318.	62.	0.	37.	0.	0.	0.	0.	4.	268.	1820.
1964	82.	60.	291.	163.	238.	45.	20.	97.	249.	1029.	117.	64.	2455.
1965	334.	125.	224.	62.	34.	0.	0.	0.	33.	52.	192.	158.	1215.
1966	264.	247.	277.	203.	68.	28.	0.	3.	92.	157.	165.	193.	1737.
1967	283.	202.	73.	80.	0.	0.	0.	2.	0.	14.	114.	238.	1026.
1968	161.	101.	128.	100.	399.	395.	437.	60.	153.	185.	215.	313.	2727.
1969	108.	158.	275.	189.	24.	25.	0.	0.	38.	22.	341.	110.	1289.
1970	110.	141.	151.	329.	266.	74.	15.	0.	58.	21.	260.	339.	1764.
MEAN													1959.



\*\*\* NO. 28 KAMPAK \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	262.	347.	253.	478.	397.	221.	56.	0.	138.	77.	347.	2566.
1951	248.	428.	284.	206.	0.	40.	63.	42.	147.	42.	17.	210.	1735.
1952	481.	209.	195.	80.	70.	40.	13.	21.	104.	232.	278.	250.	1981.
1953	92.	323.	449.	259.	370.	19.	9.	28.	11.	11.	170.	90.	1827.
1954	328.	222.	154.	197.	456.	178.	111.	230.	94.	155.	385.	302.	2807.
1955	208.	152.	219.	200.	127.	350.	1046.	129.	195.	147.	398.	156.	3438.
1956	276.	369.	156.	67.	126.	91.	259.	175.	35.	114.	141.	268.	2047.
1957	149.	343.	428.	132.	23.	23.	648.	22.	0.	3.	31.	213.	2065.
1958	134.	321.	444.	144.	221.	187.	132.	249.	31.	254.	143.	355.	2815.
1959	374.	165.	437.	135.	359.	275.	262.	4.	33.	40.	131.	374.	2639.
1960	441.	420.	449.	174.	397.	63.	71.	50.	44.	91.	127.	200.	2521.
1961	318.	272.	157.	275.	261.	5.	5.	0.	1.	1.	32.	240.	1978.
1962	387.	365.	292.	328.	64.	334.	71.	97.	3.	155.	181.	403.	2688.
1963	527.	233.	322.	366.	13.	109.	0.	0.	0.	54.	10.	157.	1798.
1964	164.	100.	605.	255.	390.	102.	34.	131.	112.	590.	160.	81.	2955.
1965	487.	207.	280.	79.	77.	11.	38.	0.	30.	16.	167.	213.	1610.
1966	597.	311.	353.	344.	141.	25.	0.	12.	111.	229.	280.	352.	2585.
1967	410.	248.	234.	198.	11.	12.	0.	0.	0.	0.	150.	140.	1407.
1968	281.	178.	214.	264.	323.	103.	560.	180.	193.	191.	338.	349.	3358.
1969	407.	274.	203.	473.	42.	44.	51.	37.	0.	50.	165.	144.	1991.
1970	282.	347.	253.	478.	397.	221.	56.	0.	134.	77.	347.	408.	2984.

MEAN 2340.

\*\*\* NO. 29 DUTI KAHANGAN \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	344.	344.	217.	263.	205.	61.	30.	4.	102.	43.	159.	1888.
1951	235.	242.	162.	79.	22.	102.	10.	34.	114.	0.	14.	252.	1353.
1952	384.	178.	296.	47.	10.	6.	3.	5.	0.	224.	361.	133.	1709.
1953	134.	267.	334.	197.	198.	29.	0.	14.	0.	6.	85.	222.	1464.
1954	191.	212.	100.	105.	221.	131.	34.	114.	5.	43.	324.	279.	2030.
1955	145.	61.	249.	100.	92.	74.	517.	87.	04.	191.	254.	81.	1935.
1956	119.	244.	199.	67.	153.	25.	215.	55.	26.	49.	64.	398.	1659.
1957	145.	435.	299.	82.	30.	0.	344.	47.	0.	0.	102.	256.	1790.
1958	600.	297.	297.	99.	49.	121.	126.	124.	0.	163.	154.	315.	1961.
1959	441.	297.	311.	136.	246.	216.	124.	3.	37.	34.	73.	357.	2175.
1960	107.	243.	253.	229.	306.	48.	22.	11.	16.	06.	168.	147.	1851.
1961	210.	245.	178.	165.	125.	0.	0.	0.	0.	0.	25.	72.	1020.
1962	264.	112.	233.	314.	65.	154.	32.	45.	0.	94.	55.	364.	1950.
1963	414.	107.	250.	109.	1.	26.	0.	0.	0.	25.	4.	128.	1217.
1964	132.	113.	313.	272.	274.	114.	19.	28.	151.	159.	97.	111.	1808.
1965	33.	212.	307.	27.	43.	0.	0.	0.	0.	13.	67.	182.	1084.
1966	255.	45.	268.	351.	76.	43.	0.	0.	31.	146.	200.	463.	2138.
1967	140.	127.	141.	81.	12.	0.	0.	0.	0.	2.	77.	297.	1283.
1968	240.	270.	453.	251.	390.	188.	326.	128.	86.	137.	130.	299.	2891.
1969	270.	275.	354.	259.	67.	23.	35.	4.	26.	30.	66.	175.	1531.
1970	184.	344.	217.	263.	265.	61.	30.	4.	102.	43.	159.	405.	2303.

MEAN 1758.

\*\*\* NO. 30 KEMERUKAN \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	514.	502.	217.	322.	447.	42.	1.	0.	128.	108.	459.	2733.
1951	127.	274.	253.	185.	23.	109.	74.	200.	45.	28.	30.	441.	2309.
1952	135.	145.	314.	132.	0.	0.	23.	26.	168.	278.	756.	245.	2472.
1953	165.	214.	379.	242.	305.	25.	4.	21.	0.	12.	322.	470.	2379.
1954	172.	303.	226.	339.	342.	237.	81.	170.	113.	104.	889.	267.	3503.
1955	528.	330.	220.	482.	256.	316.	519.	338.	274.	229.	374.	134.	4000.
1956	442.	168.	127.	493.	346.	295.	359.	150.	80.	209.	261.	403.	3233.
1957	442.	277.	355.	337.	104.	47.	731.	60.	0.	15.	238.	565.	3041.
1958	274.	142.	532.	438.	214.	219.	184.	176.	31.	196.	370.	1003.	3979.
1959	454.	381.	734.	277.	428.	211.	317.	4.	122.	134.	346.	513.	4024.
1960	441.	412.	376.	176.	366.	259.	88.	68.	38.	145.	592.	196.	3347.
1961	476.	164.	315.	274.	180.	0.	13.	0.	0.	0.	171.	334.	1927.
1962	475.	249.	455.	445.	203.	215.	221.	150.	0.	235.	295.	389.	3232.
1963	325.	255.	461.	143.	40.	0.	0.	0.	0.	52.	90.	305.	1891.
1964	240.	324.	451.	569.	352.	187.	0.	27.	179.	455.	138.	279.	3201.
1965	375.	239.	195.	160.	24.	0.	0.	0.	0.	0.	175.	457.	1655.
1966	432.	328.	341.	429.	56.	0.	0.	0.	0.	56.	425.	535.	2508.
1967	386.	181.	243.	178.	0.	0.	0.	0.	0.	20.	143.	552.	1743.
1968	479.	301.	806.	236.	362.	99.	559.	74.	81.	196.	299.	45.	3644.
1969	452.	244.	519.	272.	0.	10.	0.	48.	0.	0.	245.	204.	2014.
1970	515.	302.	217.	322.	447.	42.	0.	0.	128.	108.	459.	344.	3087.

MEAN 2870.

\*\*\* NO. 31 DJARJAN \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	459.	369.	370.	346.	288.	160.	61.	0.	98.	71.	408.	2620.
1951	419.	324.	288.	179.	23.	358.	61.	198.	53.	24.	28.	554.	2309.
1952	429.	251.	357.	127.	0.	0.	19.	20.	198.	238.	704.	308.	2629.
1953	488.	277.	431.	326.	448.	18.	2.	27.	0.	0.	168.	468.	2831.
1954	482.	419.	453.	507.	339.	215.	67.	96.	59.	165.	681.	302.	3785.
1955	514.	253.	487.	408.	324.	417.	719.	96.	77.	457.	196.	258.	4206.
1956	331.	227.	300.	161.	443.	155.	241.	228.	44.	253.	432.	508.	3323.
1957	429.	229.	931.	274.	225.	46.	519.	47.	2.	55.	256.	835.	4047.
1958	457.	466.	449.	468.	262.	29.	164.	168.	44.	248.	334.	981.	4100.
1959	484.	453.	467.	102.	550.	131.	106.	0.	60.	52.	322.	758.	3485.
1960	439.	281.	423.	244.	468.	72.	5.	0.	17.	75.	421.	317.	2722.
1961	280.	272.	383.	212.	146.	0.	0.	0.	0.	41.	70.	365.	1769.
1962	509.	361.	574.	373.	104.	83.	75.	14.	3.	208.	218.	612.	3134.
1963	481.	621.	429.	415.	33.	42.	0.	0.	0.	0.	16.	114.	2160.
1964	233.	280.	408.	280.	494.	192.	13.	7.	392.	831.	367.	285.	3760.
1965	494.	434.	229.	207.	53.	11.	5.	0.	0.	7.	233.	512.	2089.
1966	685.	312.	676.	434.	152.	0.	0.	11.	23.	286.	283.	745.	3576.
1967	518.	414.	293.	246.	12.	0.	0.	0.	2.	17.	92.	443.	1827.
1968	215.	119.	417.	197.	329.	100.	361.	213.	2.	109.	375.	372.	2803.
1969	514.	249.	174.	263.	0.	93.	0.	0.	47.	37.	101.	519.	2001.
1970	459.	369.	370.	346.	288.	160.	61.	0.	98.	71.	408.	351.	2981.
MEAN													2977.

\*\*\* NO. 12 BUKIT \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	459.	369.	370.	346.	288.	160.	61.	0.	98.	71.	408.	2620.
1951	459.	324.	288.	179.	23.	358.	61.	198.	53.	24.	28.	554.	2309.
1952	429.	251.	357.	127.	0.	0.	19.	20.	198.	238.	704.	308.	2629.
1953	488.	277.	431.	326.	448.	18.	2.	27.	0.	0.	168.	468.	2831.
1954	482.	419.	453.	507.	339.	215.	67.	96.	59.	165.	681.	302.	3785.
1955	514.	253.	487.	408.	324.	417.	719.	96.	77.	457.	196.	258.	4206.
1956	331.	227.	300.	161.	443.	155.	241.	228.	44.	253.	432.	508.	3323.
1957	429.	229.	931.	274.	225.	46.	519.	47.	2.	55.	256.	835.	4047.
1958	457.	466.	449.	468.	262.	29.	164.	168.	44.	248.	334.	981.	4100.
1959	484.	453.	467.	102.	550.	131.	106.	0.	60.	52.	322.	758.	3485.
1960	439.	281.	423.	244.	468.	72.	5.	0.	17.	75.	421.	317.	2722.
1961	280.	272.	383.	212.	146.	0.	0.	0.	0.	41.	70.	365.	1769.
1962	509.	361.	574.	373.	104.	83.	75.	14.	3.	208.	218.	612.	3134.
1963	481.	621.	429.	415.	33.	42.	0.	0.	0.	0.	16.	114.	2160.
1964	233.	280.	408.	280.	494.	192.	13.	7.	392.	831.	367.	285.	3760.
1965	494.	434.	229.	207.	53.	11.	5.	0.	0.	7.	233.	512.	2089.
1966	685.	312.	676.	434.	152.	0.	0.	11.	23.	286.	283.	745.	3576.
1967	518.	414.	293.	246.	12.	0.	0.	0.	2.	17.	92.	443.	1827.
1968	215.	119.	417.	197.	329.	100.	361.	213.	2.	109.	375.	372.	2803.
1969	514.	249.	174.	263.	0.	93.	0.	0.	47.	37.	101.	519.	2001.
1970	459.	369.	370.	346.	288.	160.	61.	0.	98.	71.	408.	351.	2981.
MEAN													3317.

\*\*\* NO. 33 KANDAT \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	459.	369.	370.	346.	288.	160.	61.	0.	98.	71.	408.	2620.
1951	459.	324.	288.	179.	23.	358.	61.	198.	53.	24.	28.	554.	2309.
1952	429.	251.	357.	127.	0.	0.	19.	20.	198.	238.	704.	308.	2629.
1953	488.	277.	431.	326.	448.	18.	2.	27.	0.	0.	168.	468.	2831.
1954	482.	419.	453.	507.	339.	215.	67.	96.	59.	165.	681.	302.	3785.
1955	514.	253.	487.	408.	324.	417.	719.	96.	77.	457.	196.	258.	4206.
1956	331.	227.	300.	161.	443.	155.	241.	228.	44.	253.	432.	508.	3323.
1957	429.	229.	931.	274.	225.	46.	519.	47.	2.	55.	256.	835.	4047.
1958	457.	466.	449.	468.	262.	29.	164.	168.	44.	248.	334.	981.	4100.
1959	484.	453.	467.	102.	550.	131.	106.	0.	60.	52.	322.	758.	3485.
1960	439.	281.	423.	244.	468.	72.	5.	0.	17.	75.	421.	317.	2722.
1961	280.	272.	383.	212.	146.	0.	0.	0.	0.	41.	70.	365.	1769.
1962	509.	361.	574.	373.	104.	83.	75.	14.	3.	208.	218.	612.	3134.
1963	481.	621.	429.	415.	33.	42.	0.	0.	0.	0.	16.	114.	2160.
1964	233.	280.	408.	280.	494.	192.	13.	7.	392.	831.	367.	285.	3760.
1965	494.	434.	229.	207.	53.	11.	5.	0.	0.	7.	233.	512.	2089.
1966	685.	312.	676.	434.	152.	0.	0.	11.	23.	286.	283.	745.	3576.
1967	518.	414.	293.	246.	12.	0.	0.	0.	2.	17.	92.	443.	1827.
1968	215.	119.	417.	197.	329.	100.	361.	213.	2.	109.	375.	372.	2803.
1969	514.	249.	174.	263.	0.	93.	0.	0.	47.	37.	101.	519.	2001.
1970	459.	369.	370.	346.	288.	160.	61.	0.	98.	71.	408.	351.	2981.
MEAN													1792.

\*\*\* NO. 34 WATES \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	174.	342.	264.	425.	203.	244.	31.	14.	0.	27.	45.	228.	1997.
1951	348.	281.	386.	87.	75.	249.	14.	4.	5.	40.	82.	278.	1849.
1952	226.	388.	487.	102.	160.	12.	0.	31.	41.	246.	245.	156.	2134.
1953	326.	249.	409.	241.	187.	3.	50.	0.	1.	0.	177.	188.	1830.
1954	378.	450.	299.	304.	276.	141.	10.	89.	39.	82.	418.	298.	2782.
1955	225.	163.	259.	394.	144.	169.	228.	146.	132.	149.	350.	310.	2839.
1956	112.	323.	210.	163.	226.	107.	136.	106.	18.	56.	226.	334.	2097.
1957	226.	147.	487.	240.	200.	5.	222.	49.	0.	31.	90.	138.	2034.
1958	207.	382.	445.	371.	161.	92.	169.	0.	22.	46.	175.	281.	2361.
1959	345.	436.	465.	298.	294.	97.	79.	0.	63.	46.	123.	336.	2584.
1960	291.	344.	200.	210.	337.	41.	39.	34.	0.	33.	251.	134.	1918.
1961	164.	300.	481.	185.	74.	5.	0.	0.	0.	38.	96.	340.	1743.
1962	278.	134.	327.	440.	147.	31.	26.	18.	13.	63.	155.	296.	1943.
1963	330.	304.	361.	99.	71.	35.	0.	0.	0.	38.	85.	184.	1499.
1964	135.	155.	391.	125.	392.	120.	0.	28.	43.	232.	86.	178.	1859.
1965	257.	203.	210.	235.	102.	3.	15.	0.	0.	0.	112.	212.	1349.
1966	217.	334.	448.	343.	121.	27.	0.	0.	16.	220.	32.	256.	2014.
1967	592.	227.	32.	387.	17.	0.	0.	0.	0.	0.	28.	295.	1578.
1968	414.	230.	579.	235.	179.	204.	140.	35.	53.	192.	171.	292.	2724.
1969	124.	112.	476.	369.	0.	26.	8.	0.	28.	60.	125.	190.	1518.
1970	342.	264.	425.	203.	244.	31.	14.	0.	27.	45.	228.	311.	2134.

MEAN 2031.

\*\*\* NO. 35 AIR-TIME \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	342.	170.	350.	235.	43.	19.	0.	0.	0.	18.	190.	1447.
1951	280.	434.	138.	117.	20.	141.	120.	0.	3.	74.	27.	271.	1585.
1952	441.	339.	492.	144.	104.	0.	1.	35.	24.	80.	261.	246.	2190.
1953	105.	288.	364.	263.	169.	13.	8.	0.	2.	0.	41.	414.	1833.
1954	257.	456.	219.	266.	100.	32.	9.	138.	34.	22.	285.	284.	2132.
1955	115.	147.	300.	220.	116.	133.	215.	25.	47.	54.	382.	216.	2291.
1956	114.	222.	106.	147.	248.	69.	187.	129.	22.	37.	110.	261.	1826.
1957	324.	272.	474.	190.	199.	4.	136.	94.	0.	0.	65.	226.	1964.
1958	178.	305.	170.	363.	115.	35.	19.	9.	0.	32.	120.	381.	1727.
1959	424.	214.	385.	242.	218.	148.	65.	0.	10.	12.	73.	427.	2218.
1960	415.	531.	444.	172.	273.	0.	0.	0.	0.	0.	168.	120.	2130.
1961	192.	143.	309.	242.	166.	7.	0.	0.	0.	0.	110.	185.	1414.
1962	432.	143.	274.	222.	36.	6.	2.	0.	0.	5.	131.	218.	1522.
1963	444.	375.	378.	141.	8.	0.	0.	0.	0.	0.	15.	206.	1567.
1964	222.	144.	368.	195.	136.	5.	0.	0.	40.	255.	172.	209.	1696.
1965	204.	217.	224.	87.	76.	15.	0.	0.	0.	0.	3.	88.	994.
1966	225.	456.	398.	126.	13.	0.	0.	0.	0.	13.	166.	290.	1687.
1967	235.	278.	87.	167.	0.	0.	0.	0.	0.	0.	40.	285.	1222.
1968	184.	337.	278.	272.	203.	208.	144.	2.	4.	24.	100.	78.	1896.
1969	538.	344.	210.	323.	0.	10.	13.	0.	0.	25.	165.	165.	1763.
1970	372.	193.	374.	230.	83.	19.	0.	0.	0.	18.	190.	355.	1840.

MEAN 1775.

\*\*\* NO. 36 P.O. MEAS. \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	350.	178.	392.	258.	198.	9.	10.	0.	38.	141.	268.	1832.
1951	271.	360.	230.	64.	67.	444.	52.	0.	73.	55.	87.	369.	2063.
1952	281.	237.	498.	149.	128.	11.	6.	8.	3.	71.	211.	315.	1913.
1953	187.	175.	293.	143.	165.	1.	9.	0.	3.	0.	110.	235.	1322.
1954	322.	271.	117.	268.	215.	30.	77.	91.	49.	106.	501.	315.	2362.
1955	281.	154.	535.	251.	218.	92.	200.	44.	54.	100.	158.	240.	2310.
1956	217.	264.	39.	37.	199.	119.	84.	108.	54.	67.	143.	355.	1686.
1957	332.	172.	517.	152.	140.	42.	148.	90.	0.	6.	37.	197.	1833.
1958	147.	236.	229.	218.	42.	142.	142.	135.	0.	131.	50.	485.	1957.
1959	401.	245.	401.	316.	176.	112.	32.	0.	30.	7.	43.	513.	2276.
1960	228.	378.	431.	260.	328.	65.	37.	37.	8.	4.	152.	298.	2294.
1961	284.	277.	238.	227.	154.	19.	0.	0.	0.	9.	79.	249.	1536.
1962	383.	150.	357.	258.	22.	4.	47.	23.	0.	15.	255.	240.	1754.
1963	205.	352.	416.	193.	62.	0.	0.	0.	0.	23.	16.	368.	1726.
1964	119.	104.	332.	179.	218.	45.	0.	15.	29.	207.	214.	258.	1800.
1965	219.	173.	198.	164.	68.	31.	25.	0.	0.	22.	35.	315.	1255.
1966	267.	309.	479.	283.	69.	17.	0.	0.	15.	0.	60.	400.	1899.
1967	447.	422.	239.	237.	55.	0.	0.	0.	0.	44.	58.	347.	1849.
1968	208.	354.	343.	163.	92.	133.	246.	17.	35.	56.	290.	224.	2191.
1969	475.	218.	222.	362.	0.	101.	15.	0.	0.	31.	173.	176.	1685.
1970	350.	178.	392.	258.	198.	9.	10.	0.	38.	141.	268.	398.	2240.

MEAN 1890.

... NO. 37 DJATI

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	426.	355.	340.	108.	154.	8.	0.	0.	16.	0.	90.	1487.
1951	286.	226.	98.	8.	5.	106.	15.	0.	5.	12.	10.	157.	928.
1952	168.	257.	435.	98.	72.	0.	0.	2.	0.	58.	211.	330.	1631.
1953	220.	290.	144.	260.	143.	6.	7.	0.	0.	0.	58.	382.	1516.
1954	309.	222.	159.	240.	113.	40.	15.	88.	5.	36.	288.	301.	1818.
1955	204.	187.	279.	188.	241.	129.	95.	4.	6.	119.	131.	135.	1713.
1956	216.	257.	140.	91.	130.	178.	50.	37.	6.	102.	138.	303.	1643.
1957	322.	217.	250.	109.	47.	0.	72.	48.	0.	0.	14.	118.	1197.
1958	90.	234.	428.	295.	120.	7.	53.	39.	0.	50.	60.	276.	1652.
1959	320.	361.	260.	279.	178.	48.	2.	0.	0.	4.	96.	263.	1829.
1960	347.	210.	247.	217.	121.	5.	21.	0.	1.	20.	182.	179.	1559.
1961	158.	151.	129.	214.	106.	0.	2.	0.	0.	0.	5.	227.	1031.
1962	377.	303.	184.	163.	12.	14.	0.	4.	0.	17.	221.	230.	1529.
1963	145.	278.	178.	132.	19.	4.	0.	0.	0.	0.	20.	125.	901.
1964	100.	229.	375.	99.	56.	92.	29.	0.	36.	60.	138.	351.	1640.
1965	205.	124.	85.	61.	2.	0.	0.	0.	0.	0.	50.	194.	721.
1966	265.	261.	272.	98.	42.	4.	0.	0.	0.	68.	150.	410.	1510.
1967	330.	188.	193.	171.	0.	0.	0.	0.	0.	0.	20.	222.	1124.
1968	134.	217.	596.	250.	139.	75.	138.	19.	0.	0.	166.	268.	1988.
1969	161.	332.	218.	296.	24.	37.	0.	0.	0.	12.	13.	187.	1300.
1970	426.	355.	340.	108.	154.	8.	0.	0.	16.	0.	90.	209.	1706.
												MEAN	1447.

... NO. 38 SAMAHAN

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	204.	263.	406.	381.	427.	316.	41.	0.	0.	42.	5.	220.	2445.
1951	465.	331.	254.	219.	15.	58.	32.	4.	28.	0.	5.	411.	1822.
1952	279.	345.	424.	43.	150.	0.	0.	0.	2.	99.	305.	423.	2070.
1953	278.	391.	297.	361.	321.	18.	15.	0.	0.	0.	77.	328.	2084.
1954	474.	298.	302.	222.	323.	66.	47.	45.	0.	37.	383.	166.	2363.
1955	419.	312.	500.	102.	249.	106.	188.	20.	5.	37.	119.	299.	2616.
1956	281.	329.	195.	103.	85.	384.	77.	65.	0.	107.	131.	364.	2121.
1957	360.	344.	517.	203.	41.	9.	111.	36.	0.	0.	75.	339.	2035.
1958	342.	585.	570.	334.	301.	11.	88.	31.	7.	65.	143.	636.	3133.
1959	408.	479.	341.	201.	171.	108.	69.	0.	0.	3.	85.	456.	2621.
1960	648.	604.	452.	366.	311.	3.	26.	0.	10.	4.	228.	302.	2954.
1961	320.	241.	314.	371.	201.	20.	0.	0.	0.	0.	24.	159.	1659.
1962	427.	578.	361.	405.	192.	8.	6.	25.	0.	25.	217.	597.	3041.
1963	644.	512.	448.	207.	14.	23.	0.	0.	0.	0.	26.	212.	2086.
1964	215.	289.	492.	476.	103.	73.	0.	0.	35.	510.	391.	179.	2564.
1965	344.	219.	297.	121.	6.	0.	0.	0.	0.	0.	95.	304.	1386.
1966	561.	345.	534.	333.	42.	63.	0.	0.	0.	59.	62.	487.	2486.
1967	527.	606.	256.	270.	43.	0.	0.	0.	0.	0.	49.	354.	2105.
1968	365.	217.	729.	306.	405.	252.	176.	7.	0.	0.	288.	256.	3001.
1969	770.	459.	425.	478.	35.	5.	0.	0.	0.	0.	44.	238.	2452.
1970	283.	460.	381.	427.	316.	41.	0.	0.	42.	5.	220.	307.	2488.
												MEAN	2354.

... NO. 39 NGANDJUK

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	206.	221.	542.	228.	108.	9.	0.	0.	0.	7.	173.	1484.
1951	325.	337.	111.	71.	12.	95.	8.	4.	0.	4.	36.	230.	1233.
1952	266.	362.	433.	71.	101.	5.	0.	9.	3.	105.	198.	371.	1834.
1953	118.	371.	187.	322.	222.	6.	26.	0.	0.	0.	98.	244.	1801.
1954	273.	293.	270.	149.	133.	113.	56.	69.	9.	62.	306.	298.	2048.
1955	207.	223.	251.	236.	227.	85.	185.	23.	18.	140.	129.	168.	1889.
1956	223.	223.	185.	17.	114.	102.	50.	34.	6.	98.	122.	238.	1414.
1957	369.	203.	225.	57.	53.	0.	110.	55.	0.	0.	42.	249.	1363.
1958	159.	264.	402.	365.	217.	17.	48.	39.	14.	95.	61.	318.	2019.
1959	415.	669.	253.	237.	430.	23.	19.	0.	0.	0.	141.	323.	2510.
1960	231.	224.	387.	275.	158.	3.	21.	0.	3.	15.	236.	116.	1669.
1961	161.	373.	145.	297.	121.	0.	5.	0.	0.	0.	47.	347.	1496.
1962	357.	232.	268.	175.	14.	34.	0.	10.	0.	5.	240.	166.	1501.
1963	140.	333.	324.	239.	133.	0.	0.	0.	0.	0.	22.	273.	1434.
1964	131.	181.	426.	118.	147.	107.	0.	0.	32.	102.	142.	239.	1625.
1965	109.	42.	87.	135.	21.	0.	0.	0.	0.	0.	54.	216.	684.
1966	175.	281.	177.	90.	24.	71.	0.	0.	0.	69.	97.	362.	1346.
1967	281.	319.	232.	294.	12.	0.	0.	0.	0.	0.	56.	389.	1583.
1968	100.	125.	445.	185.	193.	92.	155.	22.	4.	0.	192.	130.	1863.
1969	275.	279.	181.	133.	15.	0.	0.	0.	0.	52.	60.	250.	1245.
1970	206.	221.	542.	228.	108.	9.	0.	0.	0.	7.	173.	176.	1670.
												MEAN	1600.

\*\*\* NO. 40 KENTUSONO \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	223.	371.	413.	266.	174.	58.	32.	27.	0.	30.	29.	110.	1673.
1951	290.	307.	137.	51.	4.	59.	53.	11.	3.	10.	7.	727.	1659.
1952	237.	334.	484.	138.	91.	3.	0.	61.	75.	56.	171.	215.	1863.
1953	411.	293.	195.	195.	211.	0.	65.	0.	0.	0.	70.	347.	1787.
1954	311.	208.	77.	177.	141.	57.	106.	114.	4.	155.	207.	413.	1970.
1955	345.	362.	405.	357.	105.	111.	121.	68.	0.	56.	208.	183.	2321.
1956	252.	276.	235.	59.	119.	208.	134.	59.	0.	98.	223.	293.	1951.
1957	235.	242.	384.	22.	80.	0.	91.	65.	4.	1.	66.	426.	1621.
1958	117.	327.	408.	261.	250.	32.	35.	42.	40.	49.	78.	321.	1960.
1959	498.	409.	202.	179.	149.	14.	63.	0.	0.	39.	84.	390.	2023.
1960	325.	306.	505.	366.	247.	31.	0.	20.	0.	26.	81.	52.	1959.
1961	277.	338.	129.	211.	266.	17.	2.	0.	0.	0.	124.	79.	1378.
1962	287.	211.	104.	421.	23.	242.	33.	28.	0.	17.	190.	316.	1847.
1963	87.	334.	448.	251.	35.	5.	0.	0.	0.	1.	21.	250.	1432.
1964	161.	178.	582.	128.	232.	83.	15.	0.	7.	159.	41.	170.	1756.
1965	252.	248.	200.	81.	25.	23.	1.	0.	0.	0.	86.	287.	1203.
1966	174.	367.	320.	167.	58.	10.	0.	0.	0.	154.	111.	250.	1611.
1967	274.	274.	134.	100.	2.	0.	0.	0.	4.	5.	55.	315.	1163.
1968	181.	321.	371.	110.	117.	149.	122.	22.	66.	39.	51.	188.	1738.
1969	294.	262.	378.	109.	32.	0.	13.	0.	0.	14.	84.	189.	1410.
1970	171.	413.	206.	174.	58.	52.	27.	0.	30.	29.	110.	239.	1689.

\*\*\* NO. 41 PANG \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	110.	278.	201.	164.	174.	30.	17.	13.	0.	17.	38.	308.	1430.
1951	246.	433.	186.	36.	22.	221.	18.	59.	24.	47.	282.	1610.	
1952	270.	283.	219.	73.	120.	35.	0.	32.	52.	191.	323.	490.	2047.
1953	230.	264.	308.	367.	263.	3.	43.	0.	8.	1.	99.	260.	1866.
1954	486.	335.	75.	275.	215.	46.	27.	110.	23.	122.	371.	232.	2317.
1955	200.	167.	524.	504.	127.	206.	353.	5.	61.	72.	302.	215.	2594.
1956	183.	316.	118.	114.	191.	104.	60.	200.	7.	102.	124.	233.	1752.
1957	310.	273.	426.	221.	73.	1.	65.	74.	34.	32.	119.	150.	1777.
1958	157.	206.	258.	293.	157.	108.	137.	38.	18.	95.	123.	441.	2151.
1959	402.	282.	307.	85.	332.	92.	75.	9.	9.	15.	98.	430.	2136.
1960	315.	553.	452.	103.	431.	51.	36.	51.	75.	32.	236.	189.	2526.
1961	294.	143.	173.	124.	130.	25.	0.	0.	0.	79.	150.	400.	1517.
1962	755.	247.	170.	357.	13.	40.	15.	30.	7.	92.	128.	171.	2034.
1963	298.	450.	422.	173.	4.	40.	0.	0.	0.	47.	6.	150.	1570.
1964	169.	121.	471.	149.	111.	81.	7.	15.	29.	249.	133.	113.	1637.
1965	265.	278.	173.	58.	141.	0.	0.	0.	20.	33.	33.	220.	1241.
1966	166.	556.	292.	100.	102.	75.	0.	0.	0.	58.	99.	360.	1808.
1967	104.	420.	114.	155.	8.	0.	0.	0.	2.	10.	96.	273.	1382.
1968	200.	507.	317.	201.	134.	100.	186.	14.	172.	12.	199.	207.	2313.
1969	236.	267.	328.	191.	49.	1.	37.	0.	0.	88.	41.	165.	1403.
1970	278.	201.	364.	174.	30.	17.	13.	0.	17.	38.	308.	211.	1651.

MEAN 1867.

\*\*\* NO. 42 SIMAN \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	267.	242.	339.	249.	95.	88.	88.	19.	48.	146.	335.	273.	2129.
1951	271.	474.	203.	39.	23.	204.	19.	17.	61.	27.	56.	297.	1741.
1952	297.	310.	238.	78.	127.	37.	0.	38.	54.	173.	386.	517.	2253.
1953	253.	261.	336.	415.	278.	3.	45.	0.	7.	1.	118.	274.	2014.
1954	620.	341.	191.	281.	244.	54.	19.	19.	39.	210.	405.	287.	2710.
1955	300.	189.	251.	152.	104.	127.	355.	8.	20.	95.	355.	339.	2295.
1956	290.	390.	94.	156.	144.	181.	63.	155.	88.	111.	184.	235.	2071.
1957	190.	274.	593.	181.	125.	12.	77.	34.	2.	33.	122.	212.	1855.
1958	201.	278.	314.	216.	130.	163.	137.	26.	21.	165.	78.	375.	2104.
1959	610.	425.	494.	120.	304.	104.	71.	0.	64.	11.	136.	478.	2417.
1960	338.	425.	268.	255.	206.	32.	87.	6.	31.	38.	251.	126.	2063.
1961	327.	157.	188.	134.	137.	27.	0.	0.	0.	91.	179.	422.	1662.
1962	483.	454.	153.	494.	28.	88.	45.	24.	7.	73.	125.	285.	2259.
1963	408.	488.	248.	111.	88.	25.	0.	0.	0.	8.	20.	308.	1904.
1964	199.	191.	551.	89.	193.	56.	49.	39.	28.	466.	170.	179.	2210.
1965	309.	181.	316.	84.	26.	0.	0.	0.	0.	19.	139.	232.	1306.
1966	242.	247.	583.	93.	209.	66.	0.	0.	7.	167.	123.	303.	2010.
1967	446.	503.	137.	248.	37.	0.	0.	0.	16.	18.	90.	92.	1547.
1968	249.	503.	453.	176.	239.	84.	212.	64.	1.	105.	166.	278.	2528.
1969	183.	250.	359.	123.	47.	7.	12.	0.	0.	50.	100.	163.	1294.
1970	346.	207.	301.	124.	209.	24.	18.	4.	24.	9.	94.	208.	1568.

MEAN 2011.

\*\*\* NO. 43 SHAAR \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	10.	386.	525.	427.	189.	187.	86.	7.	0.	30.	109.	351.	2287.
1951	153.	476.	305.	117.	11.	100.	94.	0.	21.	22.	216.	429.	2144.
1952	156.	469.	414.	122.	50.	0.	0.	26.	4.	115.	341.	348.	2445.
1953	330.	300.	423.	291.	351.	10.	21.	0.	17.	0.	312.	280.	2595.
1954	606.	295.	398.	349.	163.	61.	16.	74.	73.	128.	338.	526.	3087.
1955	865.	342.	397.	284.	130.	111.	227.	33.	93.	132.	446.	341.	3111.
1956	426.	440.	304.	217.	124.	113.	66.	144.	14.	100.	364.	397.	2983.
1957	544.	544.	948.	152.	206.	2.	153.	16.	15.	42.	245.	543.	3014.
1958	192.	313.	444.	126.	273.	118.	167.	38.	12.	183.	160.	518.	2946.
1959	498.	452.	434.	305.	324.	95.	74.	25.	10.	55.	227.	750.	3448.
1960	571.	610.	286.	455.	262.	23.	26.	40.	0.	15.	364.	296.	2968.
1961	769.	249.	252.	227.	155.	7.	2.	0.	27.	50.	281.	349.	2401.
1962	773.	564.	386.	443.	38.	151.	45.	51.	8.	88.	227.	489.	3463.
1963	713.	371.	446.	81.	28.	7.	0.	0.	0.	135.	96.	335.	2204.
1964	214.	268.	397.	291.	249.	94.	30.	17.	45.	331.	216.	229.	2385.
1965	461.	328.	429.	162.	28.	18.	2.	0.	0.	19.	85.	232.	1764.
1966	75.	465.	675.	125.	155.	33.	21.	5.	0.	88.	350.	385.	2777.
1967	734.	644.	252.	221.	158.	0.	0.	0.	0.	6.	170.	610.	2759.
1968	192.	417.	398.	210.	210.	19.	183.	30.	19.	49.	329.	382.	2940.
1969	446.	364.	353.	194.	42.	11.	7.	0.	0.	111.	252.	187.	1859.
1970	308.	525.	427.	489.	187.	86.	7.	0.	30.	109.	351.	389.	2686.
												MEAN	2700.

\*\*\* NO. 44 PUDJUH \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	213.	244.	241.	199.	51.	103.	69.	34.	79.	124.	300.	373.	2110.
1951	298.	322.	171.	48.	21.	82.	67.	22.	124.	35.	50.	314.	1628.
1952	496.	524.	254.	114.	114.	13.	0.	29.	54.	96.	425.	355.	2433.
1953	572.	257.	210.	131.	133.	13.	26.	0.	2.	17.	111.	466.	1588.
1954	556.	242.	268.	270.	145.	24.	51.	111.	46.	165.	516.	303.	2747.
1955	526.	376.	342.	184.	131.	125.	273.	43.	6.	176.	344.	240.	2486.
1956	308.	464.	156.	124.	131.	146.	49.	65.	84.	176.	163.	250.	2040.
1957	221.	453.	466.	137.	76.	5.	227.	16.	2.	0.	160.	314.	2077.
1958	200.	257.	296.	174.	56.	47.	151.	39.	4.	39.	108.	492.	1843.
1959	453.	316.	245.	248.	129.	21.	44.	7.	2.	45.	210.	272.	2030.
1960	554.	356.	342.	238.	229.	88.	4.	3.	2.	59.	292.	270.	2479.
1961	452.	271.	240.	169.	101.	21.	16.	0.	16.	23.	159.	318.	1786.
1962	453.	549.	232.	402.	53.	54.	56.	83.	21.	114.	264.	469.	3000.
1963	213.	47.	349.	94.	8.	2.	0.	0.	0.	105.	65.	214.	2007.
1964	113.	243.	420.	179.	259.	111.	8.	52.	158.	415.	231.	201.	2490.
1965	31.	314.	275.	127.	72.	20.	3.	0.	0.	14.	49.	348.	1653.
1966	205.	413.	315.	109.	118.	45.	10.	22.	0.	143.	320.	240.	1932.
1967	412.	242.	234.	109.	6.	0.	0.	0.	0.	15.	151.	464.	1653.
1968	479.	429.	354.	162.	177.	143.	223.	64.	39.	121.	303.	364.	2778.
1969	294.	144.	173.	91.	39.	19.	15.	0.	22.	76.	165.	240.	1336.
1970	245.	465.	429.	157.	164.	31.	37.	2.	48.	122.	415.	226.	2331.
												MEAN	2113.

\*\*\* NO. 45 KAMPANGAN \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	191.	148.	263.	220.	59.	129.	0.	44.	0.	19.	15.	113.	1193.
1951	251.	441.	184.	40.	22.	247.	16.	7.	46.	22.	59.	297.	1632.
1952	275.	288.	218.	79.	120.	35.	0.	34.	41.	139.	407.	517.	2151.
1953	234.	264.	305.	421.	263.	3.	37.	0.	5.	1.	125.	274.	1932.
1954	495.	341.	18.	126.	193.	82.	4.	105.	65.	139.	401.	337.	2186.
1955	277.	240.	137.	40.	87.	194.	238.	23.	30.	75.	346.	302.	1989.
1956	330.	232.	140.	84.	105.	264.	90.	49.	18.	101.	113.	424.	1947.
1957	121.	321.	414.	85.	38.	0.	151.	95.	33.	10.	127.	259.	1894.
1958	222.	295.	224.	343.	26.	140.	45.	84.	16.	76.	59.	512.	2022.
1959	410.	256.	304.	92.	332.	91.	65.	10.	7.	14.	123.	440.	2176.
1960	227.	487.	272.	137.	205.	53.	5.	1.	11.	5.	111.	36.	1556.
1961	503.	146.	171.	136.	130.	25.	16.	0.	0.	73.	189.	422.	1611.
1962	428.	410.	158.	274.	30.	104.	8.	53.	26.	61.	244.	289.	2105.
1963	218.	306.	243.	36.	18.	38.	0.	9.	0.	34.	25.	207.	1125.
1964	200.	211.	402.	115.	24.	59.	2.	15.	42.	363.	111.	128.	1672.
1965	241.	190.	238.	57.	50.	0.	28.	28.	0.	11.	34.	324.	1201.
1966	107.	242.	433.	45.	20.	77.	0.	0.	0.	448.	124.	277.	1773.
1967	307.	476.	155.	250.	0.	0.	0.	0.	0.	27.	4.	125.	1384.
1968	213.	513.	445.	153.	19.	81.	168.	15.	18.	47.	130.	271.	2073.
1969	206.	545.	338.	61.	16.	0.	0.	0.	0.	7.	105.	169.	1447.
1970	140.	264.	220.	59.	129.	01.	44.	0.	19.	15.	113.	248.	1250.
												MEAN	1756.

\*\*\* NO. 46 DJOMBANG \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	178.	210.	445.	185.	18.	0.	5.	0.	0.	0.	101.	1180.
1951	572.	358.	181.	81.	7.	44.	63.	47.	30.	12.	60.	593.	2048.
1952	302.	280.	478.	114.	91.	3.	0.	27.	19.	55.	357.	292.	2115.
1953	425.	229.	125.	236.	253.	0.	135.	0.	0.	0.	82.	346.	1831.
1954	310.	260.	117.	211.	135.	49.	30.	51.	0.	177.	251.	370.	1981.
1955	151.	301.	339.	180.	136.	22.	167.	18.	5.	92.	138.	336.	2075.
1956	201.	345.	177.	110.	103.	119.	34.	55.	78.	32.	111.	179.	1544.
1957	201.	223.	319.	64.	18.	4.	105.	38.	0.	0.	76.	330.	1380.
1958	220.	309.	411.	180.	166.	59.	90.	26.	0.	61.	3.	295.	1820.
1959	418.	404.	281.	93.	241.	49.	28.	0.	0.	35.	100.	358.	1997.
1960	305.	319.	274.	195.	208.	2.	14.	0.	0.	8.	185.	90.	1580.
1961	199.	372.	117.	80.	77.	15.	0.	5.	0.	0.	37.	67.	960.
1962	405.	277.	284.	449.	12.	73.	67.	4.	0.	104.	119.	368.	2157.
1963	142.	303.	538.	149.	76.	0.	0.	0.	0.	31.	13.	241.	1493.
1964	193.	244.	450.	81.	84.	154.	47.	12.	100.	158.	149.	138.	1810.
1965	204.	343.	125.	132.	10.	0.	0.	0.	0.	0.	5.	348.	1217.
1966	275.	459.	308.	89.	20.	38.	0.	0.	0.	131.	262.	318.	1920.
1967	222.	309.	110.	165.	18.	0.	0.	0.	0.	5.	10.	366.	1245.
1968	269.	320.	317.	144.	158.	126.	244.	52.	29.	21.	161.	148.	1989.
1969	271.	421.	334.	34.	50.	25.	0.	0.	0.	0.	23.	135.	1293.
1970	176.	210.	445.	165.	18.	0.	5.	0.	0.	0.	101.	181.	1321.

MEAN 1689.

\*\*\* NO. 47 BLIMBING \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	381.	251.	282.	110.	69.	7.	67.	0.	48.	25.	69.	1290.
1951	-10.	341.	222.	89.	4.	119.	0.	61.	18.	8.	53.	552.	1459.
1952	136.	369.	494.	41.	118.	13.	2.	40.	6.	73.	354.	429.	2274.
1953	402.	372.	118.	312.	272.	0.	55.	0.	0.	0.	47.	253.	1741.
1954	324.	132.	104.	143.	129.	35.	26.	18.	0.	26.	295.	242.	1480.
1955	203.	255.	306.	150.	58.	91.	374.	11.	6.	61.	172.	192.	1970.
1956	294.	254.	121.	40.	168.	176.	10.	20.	23.	64.	106.	179.	1463.
1957	101.	276.	265.	115.	68.	0.	114.	41.	0.	15.	100.	229.	1543.
1958	206.	232.	271.	204.	56.	33.	56.	36.	17.	50.	24.	220.	1464.
1959	284.	293.	193.	93.	271.	16.	42.	0.	0.	31.	70.	583.	1768.
1960	404.	334.	375.	170.	229.	13.	17.	12.	2.	31.	72.	151.	1816.
1961	278.	273.	79.	201.	154.	14.	8.	0.	0.	3.	52.	239.	1339.
1962	451.	175.	184.	438.	0.	80.	9.	53.	0.	17.	94.	224.	1725.
1963	290.	367.	400.	115.	86.	10.	0.	0.	0.	5.	14.	221.	1512.
1964	89.	163.	328.	155.	151.	111.	10.	28.	28.	129.	119.	176.	1437.
1965	147.	180.	59.	43.	21.	34.	0.	0.	0.	0.	22.	214.	720.
1966	256.	364.	225.	91.	35.	17.	35.	0.	0.	206.	60.	347.	1640.
1967	269.	435.	148.	170.	12.	0.	0.	0.	5.	10.	33.	164.	1754.
1968	213.	431.	225.	118.	250.	160.	251.	44.	12.	29.	220.	124.	2023.
1969	194.	323.	474.	115.	10.	0.	7.	0.	0.	0.	20.	119.	1267.
1970	181.	251.	282.	110.	69.	7.	67.	0.	48.	25.	69.	380.	1689.

MEAN 1604.

\*\*\* NO. 48 KAHIM \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	520.	269.	427.	131.	75.	0.	0.	0.	0.	117.	214.	1743.
1951	271.	296.	228.	52.	28.	114.	11.	44.	15.	47.	47.	269.	1422.
1952	141.	263.	395.	85.	132.	11.	24.	0.	4.	65.	424.	394.	2158.
1953	184.	162.	241.	408.	179.	0.	194.	0.	0.	0.	235.	403.	2006.
1954	299.	457.	372.	359.	240.	198.	78.	30.	0.	166.	369.	502.	3090.
1955	497.	194.	526.	222.	63.	36.	240.	45.	0.	99.	284.	247.	2469.
1956	117.	287.	188.	140.	96.	274.	30.	143.	50.	171.	445.	525.	2466.
1957	416.	285.	645.	98.	58.	24.	118.	37.	10.	0.	286.	372.	2549.
1958	394.	405.	633.	270.	158.	65.	198.	68.	0.	51.	73.	515.	2830.
1959	463.	631.	588.	224.	329.	105.	42.	0.	19.	0.	88.	417.	2965.
1960	160.	527.	496.	350.	0.	0.	0.	0.	0.	0.	190.	335.	2258.
1961	319.	238.	290.	152.	114.	11.	0.	0.	0.	0.	65.	279.	1468.
1962	492.	385.	359.	417.	67.	67.	28.	41.	0.	26.	165.	293.	2340.
1963	224.	321.	410.	242.	47.	19.	0.	0.	0.	0.	8.	415.	1886.
1964	352.	216.	482.	122.	157.	120.	103.	0.	4.	332.	293.	124.	2305.
1965	205.	209.	251.	189.	2.	48.	0.	0.	0.	0.	35.	328.	1267.
1966	530.	456.	404.	110.	47.	55.	0.	0.	0.	152.	106.	88.	1948.
1967	354.	198.	172.	262.	0.	0.	0.	0.	0.	3.	36.	404.	1429.
1968	274.	428.	565.	268.	321.	298.	197.	0.	0.	0.	295.	161.	2807.
1969	338.	313.	429.	54.	178.	0.	0.	0.	0.	0.	55.	356.	1723.
1970	520.	269.	427.	131.	75.	0.	0.	0.	0.	117.	214.	163.	1916.

MEAN 2155.

*** NO. 49 TAPEN ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	-10.	382.	507.	481.	105.	46.	6.	15.	0.	0.	0.	213.	1749.
1951	285.	406.	161.	116.	7.	98.	9.	90.	4.	16.	6.	321.	1519.
1952	360.	333.	346.	46.	41.	8.	10.	22.	4.	107.	269.	321.	1867.
1953	356.	352.	50.	244.	173.	0.	63.	0.	0.	0.	169.	248.	1635.
1954	283.	304.	712.	734.	117.	100.	56.	43.	0.	74.	252.	326.	2031.
1955	218.	287.	416.	250.	117.	120.	239.	30.	2.	119.	249.	406.	2153.
1956	192.	302.	143.	104.	69.	245.	2.	24.	54.	68.	299.	314.	1816.
1957	391.	242.	553.	95.	42.	144.	85.	47.	4.	0.	203.	432.	2218.
1958	372.	512.	269.	223.	104.	76.	91.	28.	0.	118.	30.	489.	2312.
1959	302.	306.	430.	147.	214.	82.	18.	0.	0.	20.	143.	313.	1975.
1960	273.	302.	247.	224.	0.	0.	0.	0.	0.	0.	174.	287.	1507.
1961	176.	190.	61.	135.	56.	0.	0.	0.	0.	0.	80.	191.	909.
1962	479.	285.	343.	531.	17.	67.	22.	10.	0.	35.	189.	278.	1997.
1963	193.	199.	324.	165.	33.	66.	0.	0.	0.	0.	208.	208.	1169.
1964	319.	12.	377.	32.	192.	74.	55.	0.	0.	287.	318.	155.	1826.
1965	422.	206.	254.	123.	14.	0.	0.	0.	0.	0.	1.	429.	1466.
1966	262.	302.	261.	109.	71.	0.	0.	0.	0.	209.	97.	189.	1582.
1967	450.	300.	137.	132.	5.	0.	0.	0.	0.	0.	140.	444.	1658.
1968	248.	296.	409.	114.	257.	140.	209.	109.	110.	124.	304.	191.	2492.
1969	342.	443.	234.	10.	84.	92.	0.	0.	0.	8.	99.	259.	1531.
1970	187.	507.	481.	105.	46.	6.	15.	0.	0.	0.	213.	381.	2136.
MEAN													1791.

*** NO. 50 MOLJUAGUNG ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	166.	300.	215.	347.	46.	106.	0.	35.	0.	3.	0.	117.	1335.
1951	610.	353.	274.	87.	0.	0.	0.	0.	0.	0.	56.	606.	1986.
1952	332.	341.	610.	40.	79.	19.	1.	43.	7.	107.	371.	472.	2462.
1953	397.	344.	131.	305.	149.	0.	35.	0.	0.	0.	49.	278.	1689.
1954	383.	115.	147.	178.	97.	49.	21.	90.	15.	103.	226.	165.	1592.
1955	350.	309.	372.	251.	99.	38.	150.	30.	45.	72.	241.	263.	2220.
1956	251.	267.	138.	88.	21.	144.	12.	46.	68.	142.	118.	261.	1551.
1957	260.	262.	416.	116.	29.	23.	29.	44.	0.	0.	81.	282.	1542.
1958	324.	175.	286.	110.	50.	80.	47.	1.	17.	64.	29.	413.	1616.
1959	512.	477.	215.	111.	122.	12.	28.	0.	10.	11.	61.	439.	1998.
1960	265.	341.	288.	197.	145.	3.	0.	0.	51.	0.	223.	110.	1623.
1961	281.	492.	297.	128.	61.	18.	0.	0.	16.	23.	76.	191.	1583.
1962	178.	504.	333.	264.	12.	95.	0.	25.	0.	42.	108.	352.	2117.
1963	327.	507.	611.	105.	52.	0.	0.	0.	0.	0.	5.	274.	1958.
1964	260.	174.	451.	95.	123.	23.	14.	0.	24.	181.	323.	193.	1861.
1965	403.	349.	214.	145.	71.	0.	0.	0.	0.	0.	67.	227.	1476.
1966	158.	344.	424.	94.	59.	72.	0.	0.	0.	45.	145.	313.	1652.
1967	434.	374.	214.	175.	8.	0.	0.	0.	0.	0.	75.	406.	1690.
1968	210.	697.	341.	243.	78.	109.	134.	100.	6.	98.	12.	148.	2176.
1969	384.	400.	170.	64.	69.	0.	0.	0.	0.	6.	35.	121.	1269.
1970	300.	215.	347.	46.	106.	0.	35.	0.	3.	0.	117.	168.	1337.
MEAN													1770.

*** NO. 51 TAMPUNG ***													
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	279.	658.	559.	486.	195.	202.	7.	54.	0.	13.	24.	95.	2472.
1951	610.	375.	198.	30.	15.	0.	0.	0.	0.	10.	20.	146.	1404.
1952	266.	278.	445.	44.	63.	0.	0.	16.	0.	70.	355.	321.	1858.
1953	289.	195.	160.	361.	141.	11.	41.	15.	0.	0.	15.	346.	1574.
1954	369.	268.	274.	253.	290.	123.	41.	38.	18.	149.	281.	227.	2331.
1955	467.	267.	351.	272.	105.	128.	289.	15.	0.	66.	252.	228.	2440.
1956	242.	352.	292.	26.	50.	226.	12.	30.	33.	136.	174.	381.	1954.
1957	219.	250.	355.	82.	3.	4.	99.	60.	0.	16.	187.	428.	1682.
1958	314.	381.	275.	107.	94.	38.	64.	6.	0.	35.	209.	312.	1835.
1959	388.	448.	154.	226.	171.	23.	30.	0.	0.	4.	81.	317.	1842.
1960	272.	513.	452.	382.	204.	0.	36.	0.	0.	3.	107.	268.	2239.
1961	486.	392.	279.	200.	60.	0.	0.	0.	0.	8.	53.	228.	1706.
1962	126.	369.	190.	290.	67.	28.	78.	0.	0.	46.	110.	376.	1970.
1963	349.	392.	315.	99.	14.	0.	0.	0.	0.	0.	6.	249.	1424.
1964	398.	108.	240.	109.	44.	85.	0.	0.	0.	240.	259.	113.	1597.
1965	510.	193.	145.	173.	43.	0.	0.	0.	0.	0.	39.	326.	1420.
1966	530.	466.	441.	123.	60.	8.	2.	0.	10.	180.	91.	977.	2438.
1967	933.	751.	406.	338.	0.	0.	0.	0.	0.	0.	15.	296.	2789.
1968	291.	616.	487.	122.	289.	153.	216.	87.	25.	24.	92.	288.	2676.
1969	404.	409.	195.	86.	40.	0.	0.	0.	0.	0.	67.	278.	1499.
1970	658.	559.	386.	195.	202.	7.	54.	0.	13.	24.	95.	231.	2424.
MEAN													1952.



\*\*\* NO. 52 MODJOKERTO \*\*\*

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1950	352.	339.	443.	481.	107.	765.	0.	20.	0.	0.	0.	200.	2177.
1951	287.	382.	153.	29.	18.	0.	0.	0.	0.	12.	15.	146.	1052.
1952	295.	204.	142.	137.	69.	12.	0.	8.	0.	50.	295.	741.	1959.
1953	408.	371.	225.	273.	93.	24.	67.	8.	0.	0.	98.	277.	1844.
1954	441.	214.	220.	188.	105.	53.	0.	42.	4.	64.	126.	242.	1699.
1955	152.	287.	381.	222.	109.	84.	139.	19.	0.	38.	299.	335.	2045.
1956	157.	235.	115.	84.	23.	183.	11.	37.	2.	34.	114.	329.	1324.
1957	280.	363.	413.	124.	32.	12.	51.	26.	14.	38.	110.	369.	1840.
1958	425.	426.	326.	162.	181.	20.	104.	12.	5.	130.	38.	541.	2350.
1959	644.	340.	444.	745.	241.	51.	67.	0.	13.	56.	30.	408.	2537.
1960	249.	344.	434.	213.	238.	7.	39.	0.	42.	43.	117.	297.	2018.
1961	174.	297.	225.	219.	88.	0.	0.	0.	0.	8.	12.	254.	1277.
1962	297.	361.	204.	152.	20.	15.	20.	0.	3.	18.	47.	368.	1505.
1963	214.	387.	548.	109.	17.	0.	0.	0.	0.	0.	4.	367.	1646.
1964	468.	252.	381.	40.	114.	87.	0.	0.	11.	451.	204.	158.	2066.
1965	461.	314.	319.	173.	0.	0.	5.	0.	0.	0.	0.	182.	1463.
1966	613.	643.	987.	320.	82.	12.	4.	0.	0.	21.	26.	113.	2421.
1967	225.	257.	187.	0.	0.	0.	0.	0.	0.	0.	131.	199.	999.
1968	229.	406.	258.	152.	199.	135.	132.	25.	6.	13.	153.	210.	1969.
1969	232.	289.	100.	61.	38.	0.	0.	0.	0.	0.	10.	183.	913.
1970	139.	443.	481.	107.	235.	0.	20.	0.	0.	0.	200.	198.	2023.
												MEAN	1748.

### 3. Basin-Mean Monthly Rainfall

The compiled herein is the basin-mean monthly rainfall during 1951-1970 period calculated by the Tiessen Method for the catchment area of ten gauges and for sub-basins-II to VII. The gauges are Karangates, Pohgadjih, Kaulon, Pakel, Tulungagung, Pakenjen, Djeli, Djombiru, Kertosono and Djabon. The sub-basins are as shown in Fig. 2-1.

(Unit: mm)

## BASIN MEAN RAINFALL AT KARANKATEE DAM SITE

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	382.3	395.0	180.3	65.2	80.9	138.2	34.4	70.1	12.6	12.4	77.9	428.6	1857.7
1952	440.7	402.9	426.8	64.0	84.9	13.5	0.	25.7	91.7	143.0	479.8	374.0	2547.0
1953	247.9	205.8	252.1	243.6	231.0	8.1	50.5	1.1	2.3	8.9	128.6	323.6	1709.5
1954	400.9	348.1	296.5	351.1	229.8	142.5	50.7	96.5	49.8	148.5	447.4	424.4	2992.2
1955	275.5	299.4	240.5	202.4	135.9	138.7	327.4	75.2	65.2	171.7	387.9	282.6	2602.4
1956	304.8	221.3	138.1	91.9	78.0	116.0	130.1	108.3	22.7	100.1	194.8	341.8	1847.9
1957	309.3	318.9	447.0	116.2	70.9	12.6	222.8	23.7	3.6	13.0	110.3	370.3	2018.9
1958	242.7	272.9	311.7	241.5	125.0	94.4	98.4	51.5	43.7	60.5	120.6	479.7	2142.6
1959	325.5	297.0	329.8	120.2	230.4	72.2	19.4	0.9	11.3	43.5	169.9	518.7	2138.8
1960	281.1	310.1	323.1	228.2	199.2	76.6	30.9	5.6	7.2	60.5	251.2	263.6	2040.3
1961	421.0	289.0	235.2	231.0	135.2	0.3	0.3	0.	0.3	0.4	149.4	406.0	1868.1
1962	494.7	277.0	289.5	268.6	61.2	40.3	21.2	44.8	1.5	81.7	239.1	513.2	2333.1
1963	444.3	319.4	319.3	121.8	12.7	8.0	0.	0.	2.3	8.6	38.2	301.9	1574.5
1964	174.7	164.8	340.6	214.7	111.8	102.6	0.9	10.5	37.6	381.5	208.7	226.4	1975.0
1965	286.5	273.6	208.1	134.8	57.0	1.9	2.3	0.	2.2	5.4	151.2	340.0	1465.8
1966	321.6	347.0	321.4	172.1	70.7	43.8	0.0	3.2	3.2	104.4	211.4	397.1	1996.2
1967	305.8	278.7	173.4	133.1	23.8	0.	0.	0.	0.4	35.2	135.7	404.1	1490.2
1968	316.2	241.7	361.5	214.3	269.6	243.4	144.2	54.9	18.7	97.9	241.1	378.2	2632.0
1969	369.4	265.0	486.1	166.5	59.0	36.0	4.0	0.1	7.6	58.3	123.8	296.0	1872.1
1970	359.3	262.4	264.7	192.4	154.3	60.4	40.7	0.	38.4	75.4	244.2	273.4	2010.6
MEAN	335.2	290.5	267.5	178.7	121.1	67.5	62.2	28.6	21.1	60.4	205.6	367.2	2055.6

## BASIN MEAN RAINFALL AT PUNGAJAH

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	373.2	388.3	180.4	68.8	76.5	136.3	32.8	65.9	13.1	12.2	74.4	423.3	1825.2
1952	435.6	400.5	429.5	66.0	86.2	12.7	0.1	26.9	89.9	146.4	478.1	370.1	2539.0
1953	243.0	205.3	250.0	244.6	235.7	7.5	50.3	1.2	2.4	8.7	134.0	329.9	1724.8
1954	399.5	344.3	290.2	341.7	231.8	137.5	50.9	101.7	50.6	153.6	461.9	435.2	3001.9
1955	279.1	300.4	244.6	204.1	139.5	138.2	337.7	80.5	64.9	169.0	394.0	287.0	2639.2
1956	307.0	222.3	137.6	94.1	84.3	116.2	138.2	112.6	22.2	103.6	193.9	357.2	1891.5
1957	305.4	313.5	449.2	113.8	70.3	12.5	235.2	23.7	4.2	12.3	114.6	367.4	2022.1
1958	244.3	277.0	310.7	240.9	124.5	95.0	102.4	50.4	42.1	64.0	127.4	481.0	2129.7
1959	325.0	307.3	334.5	123.0	211.3	73.9	10.6	1.0	16.2	43.0	165.0	517.2	2131.0
1960	281.3	304.0	331.4	226.9	199.6	76.8	15.4	6.2	7.0	60.0	263.8	267.8	2060.4
1961	422.4	287.8	234.5	235.3	136.8	0.3	0.2	0.	0.2	0.4	151.3	412.6	1881.8
1962	489.2	274.0	247.5	278.2	62.2	41.6	22.2	42.6	1.4	82.7	239.2	519.3	2343.4
1963	331.7	314.1	331.4	123.9	12.0	7.5	0.	0.	2.1	6.7	42.4	301.7	1978.5
1964	172.2	165.4	346.9	213.0	110.5	103.3	0.6	10.7	39.2	386.9	207.9	231.1	1988.8
1965	295.4	275.2	208.5	133.3	58.9	1.7	2.0	0.	2.3	5.1	164.6	337.6	1484.9
1966	321.2	349.6	325.6	181.6	69.1	45.7	0.2	3.4	3.1	104.5	208.9	408.3	2021.2
1967	307.1	279.3	172.9	135.3	23.9	0.	0.	0.	0.3	34.1	138.8	406.6	1498.3
1968	320.7	240.1	369.7	215.7	272.6	245.7	194.6	54.0	20.3	99.7	245.8	379.3	2658.2
1969	368.4	258.6	479.5	170.8	58.2	39.7	4.0	0.4	8.0	57.1	124.6	301.4	1870.4
1970	360.9	279.2	281.0	190.4	154.3	59.4	36.6	0.	38.2	76.7	244.6	280.5	2008.8
MEAN	334.2	289.1	299.1	180.1	120.9	67.6	60.7	29.1	21.2	61.5	208.8	370.7	2065.9

## BASIN MEAN RAINFALL AT KAULON

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	349.6	394.7	164.5	76.7	68.1	131.1	30.5	56.9	14.5	13.6	67.9	438.1	1801.2
1952	445.2	420.6	432.6	74.2	97.6	11.5	0.3	27.1	78.7	145.8	469.0	387.9	2590.2
1953	230.6	215.0	272.0	240.2	249.7	7.6	50.9	1.5	2.1	8.9	150.1	333.4	1765.0
1954	420.2	339.6	284.8	329.1	239.4	126.3	47.2	112.9	56.2	150.4	487.7	468.3	3064.1
1955	281.2	307.0	248.3	227.4	148.8	145.6	349.5	95.1	75.1	173.7	452.5	297.7	2801.9
1956	307.4	220.7	136.3	101.7	96.1	118.6	153.6	124.3	28.6	112.9	203.6	372.0	1975.5
1957	300.1	314.8	434.6	110.9	69.8	11.7	252.7	23.7	4.9	11.1	123.5	361.9	2019.7
1958	239.7	283.8	305.7	235.0	122.4	91.1	108.8	50.2	39.5	73.2	153.8	477.0	2180.2
1959	339.6	296.0	345.2	122.1	219.7	72.5	18.6	1.3	22.1	41.0	181.7	511.6	2172.9
1960	296.2	294.9	332.8	236.3	208.7	77.7	34.4	7.8	10.3	57.2	277.2	267.5	2101.0
1961	420.2	283.1	226.1	268.3	137.1	0.3	0.2	0.	0.2	0.9	151.9	410.1	1868.4
1962	477.0	274.0	280.5	277.0	70.0	41.6	21.3	37.9	1.2	86.2	227.7	527.2	2321.6
1963	414.5	291.4	345.0	129.6	11.2	6.6	0.	0.	1.3	8.1	53.6	304.9	1566.7
1964	174.0	172.8	351.4	221.0	120.0	97.9	0.7	12.8	48.2	414.9	213.8	220.4	2047.7
1965	318.2	275.9	219.8	130.3	64.0	2.6	2.0	0.	1.9	4.7	165.9	326.1	1511.4
1966	320.4	359.8	350.3	199.0	66.7	51.1	0.4	4.3	3.0	104.1	226.4	451.6	2137.4
1967	323.7	277.4	187.1	143.4	26.0	0.	0.	0.	0.3	33.5	142.2	415.2	1548.8
1968	329.4	244.2	378.6	226.3	275.6	245.2	198.3	52.4	23.9	110.7	237.0	395.2	2736.8
1969	365.3	251.8	455.8	179.4	56.4	40.2	3.5	1.7	11.8	60.4	132.7	309.4	1868.4
1970	378.0	269.9	274.8	198.5	163.1	63.2	36.6	0.	44.1	83.2	252.2	290.3	2053.9
MEAN	336.5	289.4	301.3	184.8	125.5	67.1	65.7	30.5	23.4	64.8	219.5	378.0	2108.7

# BASIN MEAN RAINFALL AT PAKEL

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	480.9	401.6	175.6	76.3	70.8	131.9	34.3	46.1	22.2	14.7	64.4	451.0	1970.8
1952	451.2	477.2	428.2	81.7	108.9	12.4	2.0	25.6	66.9	146.7	457.7	416.1	2674.6
1953	221.5	231.6	310.4	225.2	262.1	8.3	47.0	1.6	1.9	8.0	168.5	330.2	1816.1
1954	421.1	326.8	279.9	315.9	237.6	111.5	41.0	110.5	61.0	144.0	462.3	460.9	2972.5
1955	266.9	300.9	252.5	239.9	153.3	157.2	332.8	99.0	85.8	188.1	481.3	318.0	2895.7
1956	314.5	223.9	136.9	114.0	105.5	126.6	161.4	131.4	34.4	125.0	216.0	383.7	2073.8
1957	290.8	317.9	429.2	125.5	70.7	10.7	260.5	26.7	4.7	11.7	135.0	357.6	2041.0
1958	243.3	291.2	306.1	237.2	119.2	83.5	115.4	51.1	40.0	87.7	171.4	462.5	2209.1
1959	353.8	303.3	349.6	128.7	223.0	81.6	21.5	1.3	24.6	48.5	182.4	507.2	2236.0
1960	324.3	292.3	322.1	238.3	292.4	76.2	35.1	11.8	8.5	57.7	299.0	259.5	2177.2
1961	393.4	268.6	229.6	235.3	131.4	0.4	1.4	0.5	0.5	4.0	148.4	410.1	1824.1
1962	464.1	276.0	292.1	291.8	85.3	46.8	20.7	94.3	1.5	93.2	219.9	517.6	2443.9
1963	415.6	280.2	335.2	146.3	13.2	7.0	0.5	0.5	1.4	10.4	64.3	294.4	1568.0
1964	169.6	165.9	351.5	227.1	135.3	44.5	0.4	13.4	60.0	441.2	199.7	229.8	2108.9
1965	324.5	300.3	220.7	132.6	71.2	3.7	1.0	0.5	1.5	5.5	160.5	312.3	1534.4
1966	324.5	369.5	382.7	225.7	62.7	57.1	0.7	5.3	4.1	98.8	243.8	462.8	2247.7
1967	342.3	287.5	280.7	159.2	30.8	0.5	0.5	0.5	0.5	30.9	140.8	401.1	1593.6
1968	321.7	249.4	346.3	239.5	274.8	239.8	209.5	45.1	27.6	122.3	261.5	396.4	2767.8
1969	355.0	243.2	427.3	197.5	60.0	36.8	3.3	2.9	13.5	65.6	149.3	309.7	1864.1
1970	363.0	274.4	246.9	225.2	173.0	64.5	31.4	0.5	50.0	87.6	261.1	288.2	2125.8
MEAN	344.1	295.1	305.6	193.3	132.1	67.5	65.6	30.3	25.5	64.6	224.4	378.5	2151.8

# BASIN MEAN RAINFALL AT TOLONGADING

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	210.7	300.3	171.6	103.8	26.0	160.0	31.0	62.2	80.5	11.6	24.0	264.6	1446.3
1952	364.9	236.4	294.3	73.2	79.7	10.8	0.0	10.3	86.2	213.2	418.2	188.0	1983.2
1953	153.8	246.6	367.3	190.7	203.8	15.8	4.7	15.1	2.3	12.5	126.8	214.0	1493.4
1954	343.8	246.4	190.7	219.4	300.5	116.0	47.3	124.8	43.8	82.1	402.0	270.2	2387.5
1955	254.4	154.9	220.0	231.3	143.4	144.8	516.0	117.1	105.7	257.4	299.2	158.4	2675.2
1956	196.0	261.6	135.1	125.6	136.3	92.5	28.3	114.4	32.5	102.9	136.1	322.1	1883.3
1957	181.7	355.1	354.3	108.7	32.6	11.7	498.5	33.7	1.4	7.0	106.4	307.4	1970.0
1958	199.2	327.7	344.8	228.9	124.6	117.9	104.4	106.8	13.8	135.0	170.6	423.7	2302.9
1959	424.3	246.4	347.2	147.4	231.6	185.4	134.5	2.7	35.8	110.0	146.8	357.2	2419.3
1960	359.5	291.6	314.8	204.7	335.0	71.9	39.4	28.6	21.8	71.4	246.6	167.9	2153.2
1961	284.0	226.6	146.0	195.6	154.7	1.1	2.0	0.5	0.1	1.2	41.2	196.2	1289.2
1962	363.7	301.7	264.1	328.2	101.1	139.0	50.6	49.2	0.6	127.4	171.1	374.5	2277.5
1963	464.8	255.8	343.3	188.9	12.0	33.0	0.5	0.5	0.5	20.7	21.0	163.0	1502.5
1964	159.4	191.6	470.0	240.6	237.3	100.5	11.0	49.4	181.9	525.5	143.6	144.8	2407.5
1965	378.7	212.1	243.1	101.0	57.5	2.0	5.7	0.5	6.3	11.7	99.3	231.5	1390.9
1966	376.7	315.9	324.4	261.2	76.2	33.2	0.5	2.5	33.3	112.8	231.6	463.4	2256.7
1967	381.0	270.9	107.9	155.9	6.7	1.6	0.5	0.2	0.5	10.3	83.4	278.9	1887.3
1968	292.0	245.0	430.0	233.5	394.7	241.1	314.7	74.8	80.7	125.7	199.4	377.2	3014.7
1969	290.4	231.6	243.0	311.4	43.1	26.5	14.6	12.5	10.3	26.1	150.8	177.6	1578.1
1970	364.0	305.9	214.6	334.6	274.1	69.7	17.5	1.8	77.0	46.6	244.0	327.8	2267.6
MEAN	300.6	261.3	282.3	200.2	148.5	81.2	103.2	40.3	40.8	100.6	173.1	270.4	2002.8

# BASIN MEAN RAINFALL AT PAKUMJEN

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	221.1	300.7	177.3	107.1	26.3	174.2	32.0	69.0	76.4	12.0	25.1	282.0	1503.2
1952	365.6	242.4	305.6	77.6	79.2	11.1	0.5	10.9	90.3	211.3	433.8	197.5	2034.3
1953	172.2	249.6	316.1	190.6	215.4	15.8	5.0	15.7	2.1	11.4	126.2	228.0	1557.1
1954	353.7	258.4	207.2	237.9	308.1	118.7	47.0	121.2	43.9	88.5	415.1	272.1	2469.8
1955	275.5	160.3	237.3	243.4	192.3	207.2	241.1	113.1	101.4	267.4	290.3	169.7	2759.0
1956	204.2	257.0	144.4	128.3	192.3	97.5	226.5	121.7	32.5	110.3	153.1	331.4	1959.2
1957	209.4	344.1	367.6	117.5	43.1	14.1	495.8	35.7	1.5	9.9	115.4	336.6	2091.2
1958	217.3	338.0	357.0	243.7	133.4	109.4	107.4	107.9	15.6	139.0	176.8	452.0	2398.0
1959	431.0	262.6	400.1	143.3	248.1	180.4	130.0	2.5	36.6	102.5	154.7	385.1	2476.9
1960	366.0	288.1	325.0	205.7	339.2	69.7	36.6	26.4	21.1	70.0	258.5	176.5	2183.0
1961	283.1	226.9	195.1	197.0	154.7	1.2	2.4	0.5	0.1	3.6	42.5	207.7	1314.3
1962	376.2	311.5	243.4	328.3	100.2	133.2	56.5	45.3	0.7	132.9	173.9	387.1	2329.2
1963	467.5	278.1	352.4	197.5	13.7	33.2	0.5	0.5	0.5	19.3	20.7	157.4	1539.8
1964	163.5	216.7	427.9	238.2	251.2	103.0	11.2	47.2	194.5	542.5	160.8	151.9	2508.6
1965	379.2	224.7	239.0	108.0	57.3	2.4	9.6	0.5	7.5	11.0	103.4	246.2	1384.3
1966	384.6	313.0	346.7	288.0	79.1	34.0	0.5	2.4	31.6	118.8	230.5	475.9	2307.3
1967	375.4	281.5	262.3	162.3	6.9	1.4	0.5	0.2	0.1	11.1	81.5	284.1	1406.8
1968	283.7	235.6	425.9	230.6	388.6	233.2	312.0	80.6	73.2	121.7	206.8	376.7	2971.8
1969	302.8	235.8	274.8	304.5	41.0	29.9	13.3	11.3	12.0	28.9	144.5	201.6	1600.4
1970	345.4	304.6	245.0	332.2	267.9	74.3	19.5	1.6	76.3	46.7	254.0	326.8	2294.8
MEAN	308.9	266.5	291.6	204.5	152.8	82.2	102.7	40.7	40.9	102.9	178.4	282.3	2054.4

# basin mean rainfall at DUELI

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	349.7	368.6	173.3	68.2	57.3	145.7	33.4	52.7	37.8	13.5	50.6	400.4	1771.2
1952	425.3	405.6	393.1	80.1	101.6	12.2	4.1	20.7	73.9	166.4	449.0	352.3	2484.3
1953	204.6	237.0	311.9	216.2	246.8	10.6	34.4	6.0	1.8	8.8	157.2	300.4	1735.7
1954	398.4	307.3	257.0	290.1	260.8	113.9	42.3	114.0	55.6	127.4	469.0	403.7	2839.5
1955	283.5	257.0	246.3	241.7	152.5	173.9	398.0	103.4	90.9	213.2	425.2	274.3	2859.9
1956	279.5	229.5	137.3	119.0	118.0	118.4	184.3	128.5	34.1	122.1	197.6	367.5	2036.4
1957	262.9	323.2	410.7	122.7	61.0	11.6	332.8	29.6	8.6	11.0	128.3	348.8	2046.2
1958	234.2	306.3	371.0	241.0	122.1	90.6	113.4	68.2	33.1	103.3	175.1	458.6	2267.2
1959	375.9	289.5	371.6	130.1	230.2	111.6	50.8	1.4	28.4	67.8	173.4	468.8	2307.5
1960	338.8	285.2	324.8	226.5	274.7	74.4	15.2	16.2	12.4	60.9	288.4	232.6	2175.9
1961	354.8	254.5	218.6	224.3	138.5	0.5	1.5	0.	0.	3.4	116.0	347.8	1657.3
1962	434.9	283.8	287.6	300.1	92.7	71.6	30.7	36.6	1.0	104.7	204.6	474.4	2323.4
1963	424.9	275.4	338.9	164.5	13.1	15.2	0.	0.	1.0	11.4	50.5	254.0	1549.4
1964	164.9	199.4	376.1	229.3	170.4	96.0	3.7	23.2	103.0	475.9	187.5	205.5	2234.9
1965	341.3	275.2	221.8	124.2	68.8	3.2	2.6	0.	3.3	6.8	142.0	290.8	1480.2
1966	345.6	350.1	371.0	248.9	66.5	48.0	0.2	4.6	12.4	104.2	237.2	468.8	2256.4
1967	349.3	283.2	200.7	161.4	21.8	0.4	0.	0.1	0.2	26.0	122.4	362.0	1528.0
1968	307.0	241.0	292.5	237.2	311.7	238.3	237.2	55.0	42.2	123.4	244.4	392.2	2731.1
1969	340.2	241.2	381.7	231.0	54.2	34.7	6.2	5.4	12.8	53.8	146.6	280.4	1788.2
1970	373.6	278.5	272.7	261.4	200.6	68.3	27.6	0.5	58.3	75.0	256.8	294.9	2168.0
MEAN	329.5	284.6	295.6	196.9	138.4	72.0	77.1	33.3	30.3	93.9	211.2	348.8	2111.8

# basin mean rainfall at DJONGURU

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	346.3	363.4	187.0	90.9	56.5	155.6	34.0	50.8	35.6	16.0	49.6	399.3	1787.6
1952	415.5	402.3	399.4	64.6	104.8	12.5	4.3	21.3	71.8	166.7	433.5	347.6	2464.3
1953	214.5	243.6	327.1	216.1	247.5	10.6	33.7	6.4	3.6	7.6	155.0	297.3	1763.0
1954	399.4	320.8	256.8	288.0	262.4	113.4	38.4	115.0	50.7	127.6	471.3	385.8	2438.1
1955	294.6	245.8	266.4	249.4	153.7	177.4	380.4	106.0	93.6	217.9	408.3	282.4	2874.9
1956	269.8	238.1	142.7	124.1	136.1	128.1	180.1	132.0	35.6	119.5	207.0	364.9	2076.0
1957	274.5	309.0	434.5	139.7	71.4	13.1	323.2	33.4	3.6	13.7	128.8	348.5	2093.6
1958	242.6	320.2	328.3	251.3	129.8	87.4	114.0	72.8	33.0	109.1	177.5	459.7	2326.5
1959	381.6	301.4	384.3	143.1	235.1	112.2	59.8	1.4	30.0	67.3	172.7	469.2	2358.3
1960	349.4	289.6	336.8	225.2	289.3	69.7	35.2	17.2	11.5	54.2	244.0	231.3	2207.4
1961	332.2	250.5	237.7	222.6	135.4	2.3	1.7	0.	0.	6.7	113.4	344.9	1647.2
1962	426.6	283.2	303.2	306.7	97.2	73.6	31.4	33.4	1.3	104.3	201.6	461.9	2325.2
1963	422.7	281.1	347.6	168.6	19.7	15.9	0.	0.	0.9	11.6	56.6	241.7	1566.6
1964	176.8	207.2	379.7	223.7	192.5	94.8	3.3	27.4	109.6	466.4	189.9	203.1	2271.4
1965	336.1	276.2	220.5	134.5	71.7	3.4	3.9	0.	2.8	6.5	135.9	289.7	1481.2
1966	340.4	352.4	379.7	257.7	65.4	46.5	0.3	4.2	12.3	106.4	221.2	458.0	2244.6
1967	354.9	264.1	196.1	176.3	21.6	0.4	0.	0.	0.3	26.1	116.2	351.5	1527.5
1968	309.5	247.9	418.6	236.1	307.2	234.1	253.4	24.9	38.4	127.5	245.3	394.4	2848.1
1969	344.0	247.6	381.9	244.7	40.5	34.5	6.1	4.8	13.6	54.0	148.9	283.1	1813.0
1970	383.7	276.5	293.4	272.6	204.3	67.7	25.9	0.4	57.2	73.3	262.1	304.2	2221.3
MEAN	330.6	287.0	310.7	202.8	142.7	72.7	76.0	34.1	30.6	94.3	209.4	345.9	2136.9

# basin mean rainfall at KERTOSONO

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	342.3	371.0	191.7	68.2	57.7	167.1	36.2	47.1	38.0	17.4	53.5	395.7	1806.3
1952	408.4	401.0	397.1	88.0	106.4	13.2	4.1	21.9	67.9	164.3	428.6	351.8	2452.7
1953	219.2	246.9	330.4	224.1	249.1	10.2	33.4	5.8	3.4	7.2	152.1	295.4	1777.7
1954	410.6	319.8	252.8	269.4	258.4	107.5	38.3	110.8	56.0	129.3	469.2	381.8	2824.1
1955	296.1	243.5	268.0	248.1	153.8	172.0	370.3	100.0	89.5	208.9	398.4	283.8	2842.6
1956	271.4	252.2	142.7	123.7	139.6	130.3	170.2	132.0	37.1	116.4	203.4	361.9	2081.9
1957	278.9	309.8	442.8	142.9	77.1	13.5	308.8	35.7	3.9	14.3	128.5	343.0	2099.2
1958	241.7	317.8	329.0	250.8	129.9	91.6	116.7	71.9	30.6	111.0	168.4	458.7	2318.3
1959	396.5	308.3	389.4	151.0	236.3	112.6	60.2	1.8	30.3	62.4	169.1	473.8	2393.7
1960	351.9	307.7	337.4	229.3	241.1	67.3	36.8	17.6	11.9	56.2	287.5	229.5	2224.2
1961	338.2	251.0	239.8	218.9	136.1	4.0	1.9	0.	0.6	10.6	115.7	346.6	1663.3
1962	436.9	292.6	302.8	319.1	90.0	74.6	33.4	33.8	1.9	102.5	203.0	451.2	2341.8
1963	432.7	296.4	351.6	164.6	23.4	15.7	0.	0.	0.7	14.7	54.9	245.3	1600.0
1964	176.7	208.0	388.4	218.9	194.5	94.4	3.2	27.6	102.4	454.7	189.8	204.0	2265.1
1965	336.1	275.5	228.2	135.0	69.1	4.2	4.4	0.1	2.6	7.6	131.9	290.2	1484.9
1966	334.8	355.0	393.7	249.4	71.2	46.8	0.6	3.9	12.0	108.4	218.4	452.5	2246.9
1967	369.6	304.3	198.0	181.7	25.1	0.3	0.	0.	0.7	25.2	111.2	347.6	1562.7
1968	309.6	268.6	419.8	235.1	296.4	226.4	233.4	23.6	37.2	122.5	244.5	386.5	2833.7
1969	341.5	252.3	374.8	244.3	46.5	32.6	6.7	4.4	13.1	54.2	149.7	272.5	1794.6
1970	380.9	278.7	303.4	266.4	203.7	63.1	25.3	0.5	54.6	72.8	260.5	308.7	2218.4
MEAN	333.8	293.0	314.1	203.4	143.0	72.4	74.7	33.4	29.8	93.0	206.9	344.0	2141.6

# BASIN MEAN RAINFALL AT DJAHON

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	336.1	362.2	186.2	81.2	42.3	146.3	32.4	37.5	33.2	17.2	47.5	380.1	1702.2
1952	363.4	367.7	387.7	86.6	102.7	12.4	3.4	22.6	53.4	139.3	388.6	363.9	2291.7
1953	244.8	259.0	293.0	251.3	235.2	9.1	38.9	4.7	3.6	5.0	131.9	301.6	1777.8
1954	400.5	304.9	226.4	265.1	228.1	95.6	38.9	99.2	42.7	121.1	414.3	352.3	2591.1
1955	300.1	245.8	302.5	241.9	150.1	156.3	325.2	74.4	65.0	108.1	339.0	264.5	2432.9
1956	257.6	265.8	151.5	111.0	129.9	151.4	132.4	112.8	31.7	111.3	192.3	340.9	1988.6
1957	292.6	298.8	426.8	133.3	70.7	12.6	240.7	41.4	5.6	13.1	119.9	326.5	1982.2
1958	239.4	322.8	341.1	254.8	138.6	79.1	105.5	61.4	24.5	99.5	140.9	440.3	2247.9
1959	406.3	343.0	358.6	161.7	239.6	94.9	50.4	2.2	22.1	47.7	145.5	448.1	2326.1
1960	347.8	340.5	352.6	236.3	265.4	51.3	30.2	15.5	13.0	43.4	249.7	214.7	2160.4
1961	317.2	252.4	221.1	212.1	134.6	6.5	2.3	0.1	0.9	13.3	105.3	311.9	1577.7
1962	445.5	306.8	276.7	318.5	72.2	74.5	29.8	30.4	2.6	82.7	191.6	402.5	2233.8
1963	382.0	316.4	361.6	181.6	27.6	14.7	0.	0.	0.5	15.6	43.2	238.3	1561.0
1964	192.0	203.8	348.3	194.9	171.2	91.3	9.2	22.9	83.1	380.6	189.7	195.2	2162.2
1965	317.1	255.2	214.5	126.4	58.8	5.6	4.0	0.8	2.5	7.0	102.0	280.8	1374.7
1966	318.0	380.9	379.3	210.0	66.2	44.4	1.0	2.9	8.3	113.1	184.4	409.1	2098.8
1967	380.0	325.9	193.6	182.8	20.5	0.2	0.	0.	0.6	18.8	92.9	331.1	1546.6
1968	281.5	300.3	421.0	218.3	258.6	198.6	212.0	45.8	37.6	90.2	221.2	328.5	2613.6
1969	331.6	244.7	348.1	214.9	45.5	24.5	6.8	2.9	8.8	44.0	120.4	248.7	1680.9
1970	365.5	297.5	322.2	232.1	176.3	47.5	20.1	0.4	42.3	57.0	231.9	287.4	2083.2
MEAN	326.0	300.7	308.2	194.7	131.7	65.8	64.6	26.9	24.1	79.4	182.6	325.3	2030.2

# BASIN MEAN RAINFALL AT SUB-BASIN II (POHGAJIN-PAKEL)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	478.6	418.6	195.2	102.2	51.8	113.0	35.6	10.3	36.1	20.5	48.6	494.9	2005.1
1952	473.1	579.4	429.1	108.0	146.3	10.7	4.6	23.6	31.4	138.8	413.1	491.6	2849.4
1953	178.1	285.1	408.9	193.4	291.7	8.0	30.1	2.2	1.1	6.5	230.6	330.3	1966.0
1954	460.7	301.6	260.6	257.9	255.5	61.0	17.8	126.6	78.2	127.3	546.7	467.9	2961.8
1955	313.6	301.2	268.9	296.2	171.3	191.4	321.8	129.7	119.8	218.2	631.8	368.2	3332.1
1956	319.1	266.5	138.9	148.8	143.9	147.7	203.1	169.5	54.0	162.5	257.3	421.1	2402.4
1957	260.7	333.5	404.9	142.0	71.0	7.4	298.5	31.6	5.7	10.3	169.6	348.0	2083.2
1958	244.6	320.9	292.4	229.4	106.9	61.0	141.2	53.2	34.5	129.5	243.5	434.5	2291.6
1959	417.6	298.3	405.6	141.3	240.5	92.0	20.1	2.1	36.7	98.5	207.5	481.5	2447.9
1960	403.1	273.7	314.5	260.7	341.2	72.9	32.2	22.1	11.3	46.1	363.8	243.8	2385.4
1961	344.5	232.6	217.5	234.6	125.8	0.6	3.0	0.	1.3	10.4	145.4	395.8	1711.9
1962	431.3	296.5	298.4	322.3	130.3	95.5	19.5	18.7	2.0	105.2	182.7	514.9	2377.3
1963	397.8	219.7	346.4	179.0	17.1	9.2	0.	0.	0.	19.1	104.1	280.4	1572.8
1964	171.9	228.5	373.2	249.2	168.1	77.7	1.6	19.2	100.9	548.3	184.2	225.3	2347.8
1965	399.0	336.0	242.0	139.6	103.2	7.8	0.3	0.	0.	6.4	148.3	279.2	1661.8
1966	363.1	413.7	484.0	300.4	53.1	72.6	1.8	9.0	5.5	89.8	295.4	589.1	2677.5
1967	460.0	307.2	267.8	216.5	39.3	0.	0.	0.	0.1	21.8	145.6	398.9	1835.2
1968	341.6	287.0	463.5	298.8	307.9	243.1	226.1	30.6	38.4	168.8	296.0	470.2	3172.6
1969	356.9	229.3	336.7	274.4	66.8	33.0	2.3	7.5	20.7	82.4	204.9	317.1	1934.4
1970	429.3	281.0	301.0	303.1	211.7	74.9	20.0	0.	71.2	106.1	294.9	297.8	2391.6
MEAN	361.0	309.0	322.6	219.9	152.2	67.0	69.2	32.6	32.5	105.8	255.7	392.5	2320.4

# BASIN MEAN RAINFALL AT SUB-BASIN IV (PAKEL-DJOMHJWU)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	329.2	335.8	260.1	105.3	65.4	208.8	40.9	40.7	23.8	28.8	44.8	393.1	1876.7
1952	362.6	384.2	432.9	108.7	122.2	13.9	5.6	25.0	60.7	108.4	351.6	322.7	2358.2
1953	267.5	279.1	407.9	216.3	251.5	10.8	29.8	8.7	13.1	0.9	143.3	280.4	1909.3
1954	405.1	392.1	267.9	276.4	274.2	111.0	17.7	120.3	63.0	128.8	484.4	290.3	2831.7
1955	353.9	186.1	310.5	293.3	159.6	196.0	340.3	119.9	107.7	242.6	318.1	325.4	2953.4
1956	218.1	283.9	171.9	151.8	229.8	179.7	150.0	150.4	43.9	105.3	257.0	351.6	2301.4
1957	337.1	233.9	560.9	230.2	129.7	21.2	272.9	54.0	3.7	28.0	131.9	347.2	2350.7
1958	287.5	394.8	367.8	306.7	170.3	70.5	124.6	95.6	32.9	139.6	190.0	465.9	2644.2
1959	413.2	365.1	451.7	212.7	261.7	115.1	91.6	1.1	38.5	64.5	169.3	471.3	2655.8
1960	405.1	313.9	400.8	217.8	340.8	44.8	33.0	22.6	6.5	44.1	320.5	224.6	2475.3
1961	212.3	229.6	353.6	213.6	118.6	12.1	2.3	0.	0.	23.1	99.6	330.3	1595.3
1962	383.9	279.6	387.8	342.0	120.5	84.5	37.4	16.2	3.1	102.3	186.0	393.9	2337.2
1963	411.6	309.1	393.9	190.1	55.0	19.6	0.	0.	0.	12.7	90.5	175.8	1658.3
1964	221.1	248.4	399.3	193.7	309.5	88.4	1.3	49.6	144.5	415.0	202.7	190.6	2464.1
1965	308.8	281.6	214.1	189.6	87.3	4.6	9.8	0.	0.	5.1	103.6	284.9	1489.4
1966	312.7	365.3	426.2	303.9	59.6	34.1	1.1	2.0	12.0	119.1	136.1	411.9	2184.0
1967	385.6	289.4	172.2	255.8	20.8	0.	0.	0.	0.3	26.8	80.2	296.1	1527.2
1968	320.1	285.5	521.6	236.4	282.9	212.0	214.8	51.4	18.5	147.9	246.9	409.5	2941.5
1969	364.3	284.3	343.1	317.8	24.8	33.6	5.8	1.3	17.8	54.9	161.5	297.6	1946.8
1970	437.2	267.4	403.7	331.8	224.3	63.8	16.6	0.	51.1	64.2	290.6	354.3	2505.0
MEAN	336.8	300.5	364.4	234.4	165.4	76.2	70.1	37.9	32.1	96.1	200.4	330.9	2245.3

# HASIN MEAN RAINFALL AT SUH-HASIN V (DUMBURO-KERTOSONO)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	299.6	423.9	233.5	86.7	35.7	264.4	48.8	6.9	52.2	34.5	92.4	363.0	1919.4
1952	312.0	330.9	379.3	110.8	111.4	18.2	1.8	25.2	27.3	121.4	348.3	395.2	2181.8
1953	260.2	261.5	361.3	287.5	248.8	3.9	34.4	0.	6.7	0.6	148.9	272.6	1886.2
1954	499.8	310.1	199.1	281.0	208.4	44.1	35.9	63.3	46.6	149.5	414.5	342.0	2594.3
1955	337.0	209.9	383.3	225.4	145.6	114.9	269.8	32.2	49.9	117.1	298.8	298.0	2476.9
1956	277.0	384.4	126.1	124.6	162.5	144.1	73.0	131.4	49.0	100.0	199.0	300.9	2072.0
1957	304.6	287.7	532.3	175.0	137.9	17.4	122.8	51.7	5.2	23.1	114.8	272.5	2044.6
1958	221.8	277.9	314.0	243.7	131.5	131.9	137.9	64.0	12.5	143.5	89.5	428.8	2197.0
1959	521.0	300.3	425.0	218.8	263.3	100.6	57.9	4.9	34.8	22.2	120.3	519.5	2448.6
1960	378.9	442.5	320.0	276.4	274.1	39.1	40.2	24.4	10.5	22.0	238.1	210.2	2296.4
1961	374.8	235.7	223.7	182.8	140.8	17.4	0.7	0.3	4.9	48.0	152.6	328.8	1710.7
1962	507.3	341.9	277.8	432.3	33.3	68.4	43.0	29.5	4.7	80.1	186.5	312.4	2297.2
1963	476.8	404.7	368.9	136.7	81.0	11.1	0.	0.	0.	39.8	39.3	310.5	1846.6
1964	170.4	202.7	435.3	161.3	205.9	70.1	24.7	25.3	40.1	324.2	186.0	208.5	2057.5
1965	300.7	224.9	273.0	129.7	49.4	13.5	8.0	0.	1.0	18.3	81.0	263.8	1367.3
1966	288.2	345.4	519.5	166.0	129.3	33.2	4.7	1.3	7.6	97.6	151.6	347.6	2092.0
1967	487.6	461.0	181.8	230.7	59.6	0.	0.	0.	5.6	22.5	79.6	301.7	1830.1
1968	263.1	419.9	390.5	203.6	178.2	141.6	218.8	39.4	28.5	75.9	236.8	265.1	2459.2
1969	314.2	273.2	319.2	217.8	30.0	10.5	12.4	0.2	3.0	54.7	148.0	172.1	1555.3
1970	349.9	261.5	369.8	188.5	178.2	30.4	14.1	1.4	28.8	70.9	216.1	305.5	2011.3
MEAN	347.3	323.2	331.9	203.0	139.2	63.8	57.7	25.1	21.1	77.0	177.1	310.8	2077.2

# HASIN MEAN RAINFALL AT SUH-HASIN VI (WIDAS RIVER HASIN)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	377.0	338.0	155.8	85.1	15.0	127.4	21.1	16.9	19.5	12.5	27.6	277.6	1424.1
1952	267.5	306.6	383.8	75.8	103.4	9.1	1.4	14.1	17.1	107.6	277.0	395.5	1928.9
1953	281.0	327.0	224.5	325.5	233.0	9.2	26.7	2.5	2.0	0.5	89.4	303.5	1824.8
1954	358.2	303.8	223.4	220.0	180.9	81.3	40.3	83.1	13.3	78.6	338.7	272.4	2194.0
1955	268.2	219.6	368.0	250.2	208.8	144.2	229.4	20.1	23.6	115.0	180.0	200.8	2222.9
1956	223.5	275.6	161.1	77.8	128.8	180.1	64.9	80.4	12.2	101.9	149.0	283.0	1738.3
1957	362.5	246.6	360.0	133.8	60.0	14.3	116.8	55.8	6.6	7.9	71.8	245.3	1679.2
1958	208.5	146.3	405.4	333.4	145.4	43.0	79.6	43.6	11.1	92.6	100.7	406.9	2267.0
1959	403.7	508.3	312.7	214.1	300.6	66.3	42.1	2.0	6.4	7.6	114.3	383.5	2361.6
1960	361.6	361.3	387.2	250.8	224.2	14.5	24.2	11.5	17.2	20.0	228.6	198.3	2099.4
1961	214.4	253.7	141.4	255.4	137.4	8.6	2.4	0.	14.2	60.1	289.2	1417.3	1417.3
1962	488.9	319.4	263.0	254.7	42.6	46.0	7.9	14.5	1.2	33.1	205.3	268.8	1945.8
1963	281.4	353.3	349.7	196.6	57.0	10.7	0.	0.	0.	5.0	20.4	203.4	1481.1
1964	190.0	201.0	428.4	182.0	131.5	88.9	10.3	14.8	54.7	205.3	212.1	225.5	1844.5
1965	231.0	153.6	153.6	113.3	40.8	0.6	1.4	0.	3.3	5.6	51.4	241.6	996.2
1966	258.8	328.4	296.2	144.0	49.1	52.7	0.	0.	1.0	69.5	108.5	390.1	1696.3
1967	354.5	361.5	197.1	229.2	12.9	0.	0.	0.	0.3	4.0	58.7	326.3	1544.9
1968	202.6	249.1	493.1	220.3	213.3	127.8	164.3	21.6	38.6	18.4	210.0	208.1	2162.6
1969	344.8	339.5	269.1	235.2	28.5	13.0	6.7	0.	0.3	36.8	53.9	227.0	1554.4
1970	307.9	306.5	437.1	219.2	136.8	18.5	3.8	0.	14.8	12.0	199.5	256.2	1914.1
MEAN	296.7	305.0	302.5	206.7	125.2	52.8	42.0	19.0	12.1	47.3	137.8	280.1	1821.3

# HASIN MEAN RAINFALL AT SUH-HASIN VII (KERTOSONO-UJAHON)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
1951	324.5	351.3	174.0	85.4	15.0	118.3	24.1	21.1	27.5	17.0	33.1	345.1	1521.4
1952	278.3	304.7	354.5	80.6	97.5	13.3	2.2	24.3	26.3	97.7	321.1	398.6	1999.1
1953	288.0	271.9	215.3	307.7	210.4	6.6	52.8	2.6	2.3	0.8	88.9	309.5	1758.8
1954	398.1	276.0	176.4	228.7	179.4	68.0	34.9	65.6	10.2	115.0	310.6	281.9	2148.8
1955	299.2	238.0	363.2	219.4	154.3	121.3	230.3	22.0	16.3	85.4	232.8	239.6	2207.8
1956	224.8	297.6	152.0	96.6	110.4	172.8	54.6	83.9	31.0	96.9	167.3	285.7	1793.6
1957	292.9	266.3	419.8	125.6	59.6	14.7	101.4	47.9	7.2	12.8	106.0	279.0	1733.2
1958	267.9	331.2	353.9	238.5	144.1	66.2	91.4	35.7	11.4	61.8	82.8	394.5	2071.4
1959	430.1	391.1	322.8	165.0	226.8	67.7	49.4	1.8	13.2	18.0	96.1	397.1	2181.1
1960	341.9	400.0	359.0	238.7	210.9	19.7	26.3	10.0	17.9	21.2	178.7	186.5	2010.8
1961	268.0	237.9	184.4	179.2	124.3	13.4	1.9	0.4	0.9	24.7	84.0	245.6	1364.7
1962	400.2	340.7	219.5	335.3	37.3	70.4	27.0	21.3	3.2	49.8	150.9	309.1	2024.7
1963	317.1	368.0	349.6	146.9	36.6	12.9	0.	0.	0.	12.7	16.6	225.3	1505.7
1964	227.0	189.2	421.8	136.6	128.9	81.8	23.1	16.9	43.9	263.9	197.4	171.7	1902.2
1965	292.3	225.4	198.3	106.1	36.3	6.5	2.2	1.0	2.2	6.6	51.6	260.4	1189.3
1966	291.9	362.3	376.6	135.3	72.9	38.3	2.4	0.6	2.0	118.4	119.0	320.1	1839.8
1967	409.1	377.8	172.5	179.9	11.8	0.	0.	0.	2.6	7.3	53.8	265.4	1480.2
1968	231.4	382.9	418.3	181.9	196.7	141.6	177.4	37.4	36.5	38.3	173.1	218.9	2234.4
1969	299.4	335.7	300.0	153.3	44.6	11.1	7.3	0.	0.7	21.4	59.2	193.4	1426.1
1970	344.4	316.8	348.4	159.2	129.8	15.5	18.8	0.5	18.4	21.2	160.4	242.6	1775.5
MEAN	312.7	313.2	295.3	174.0	110.5	54.0	46.8	19.6	14.0	55.6	134.2	278.5	1808.3

#### 4. Monthly Mean Discharge at 13 Discharge Gauges

The compiled herein are the monthly mean discharge calculated based on the original data at 18 gauges during 1951-1970 period. The gauges are Karangates, Pohgadjih, Kaulon, Pakel, Djeli, Djombiru, Kertosono and Djabon on the Brantas River, Wadi, Bendo, Parit Raja, Tulungagung and Pakendjen on the Ngrowo River, Soeloredjo on the Konto River, Widas on the Widas River, Mlirip and Perning on the Surabaya River and Kepadjaran on the Porong River. The location map of the gauges is as shown in Fig. 2-1.



(Unit: m/sec)

## (1) Discharge at Karangates Dam Site

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	123.1	153.1	66.1	47.2	40.1	44.5	32.4	27.0	25.3	18.5	20.6	63.7	661.6	55.1
1952	79.7	117.1	143.0	65.6	44.4	31.2	21.7	21.6	19.3	29.8	78.1	62.0	713.8	59.5
1953	62.0	58.8	56.1	65.9	80.6	46.8	36.5	21.7	17.9	17.2	28.8	47.6	539.9	45.0
1954	83.0	66.1	65.6	67.6	80.7	55.0	29.7	41.2	23.7	27.0	90.5	127.7	751.8	63.1
1955	98.9	114.1	90.6	83.6	84.8	86.2	124.3	78.8	62.7	77.6	129.3	121.8	1152.7	96.1
1956	137.4	109.0	82.5	59.0	61.2	73.7	66.8	61.7	35.6	41.8	58.0	102.4	889.1	74.1
1957	73.8	116.2	168.7	88.1	70.4	42.6	73.1	44.3	28.6	22.9	27.7	73.5	829.9	69.2
1958	55.6	78.6	101.7	99.5	66.6	63.8	47.1	46.0	27.8	31.4	33.2	84.2	735.7	61.3
1959	84.3	121.4	119.4	88.0	83.0	63.8	49.6	35.0	27.9	26.0	43.4	113.3	855.1	71.3
1960	80.9	80.0	95.4	96.4	98.4	68.7	61.1	51.5	47.1	43.3	60.5	51.2	834.5	69.5
1961	107.4	71.2	52.0	56.0	58.1	45.3	43.5	38.5	30.8	30.8	41.2	67.4	637.2	53.1
1962	84.4	73.1	69.4	74.7	49.1	50.4	42.1	42.1	31.6	39.6	54.6	95.3	706.4	58.9
1963	84.6	100.9	110.7	80.3	56.6	52.2	43.4	47.3	43.0	39.1	42.4	65.9	768.4	64.0
1964	54.4	53.1	78.1	59.6	48.7	42.0	42.7	40.7	41.6	74.4	58.0	59.0	652.3	54.4
1965	93.9	110.8	87.7	77.2	65.1	57.0	54.5	44.0	38.6	38.5	40.2	77.8	785.3	65.4
1966	98.5	100.5	94.0	75.8	65.7	66.4	49.7	35.9	36.6	43.4	58.2	89.5	774.8	64.6
1967	146.0	130.1	87.3	79.8	56.6	53.3	48.1	44.1	39.5	39.4	44.4	115.5	884.1	73.7
1968	139.7	143.3	73.3	82.5	141.1	112.1	127.2	93.5	47.9	67.1	47.2	107.5	1182.4	98.5
1969	153.4	156.6	198.6	188.4	94.0	71.6	55.0	45.3	38.3	32.9	35.9	65.1	1135.1	94.6
1970	72.1	88.9	106.7	80.8	70.9	52.0	43.5	31.8	32.3	35.4	47.3	66.7	728.4	60.7
TOTAL	1873.3	2042.9	1946.9	1616.0	1416.1	1178.6	1094.0	892.0	690.1	776.1	1040.1	1657.1	16224.2	67.6
MEAN	93.7	102.1	97.3	80.8	70.8	58.9	54.7	44.6	34.8	38.8	52.0	82.6		

## (2) Discharge at Pohgadjih

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	135.9	167.8	85.3	61.0	51.9	57.3	37.3	30.6	27.7	21.4	22.3	66.9	765.4	63.8
1952	105.7	140.6	153.4	75.2	52.3	38.4	27.4	25.2	22.9	34.1	89.0	74.1	838.4	69.8
1953	71.6	69.2	73.5	77.9	93.9	51.1	41.7	27.0	23.1	21.4	35.3	56.6	642.3	53.5
1954	97.1	94.5	78.9	81.5	89.7	68.9	44.9	46.5	32.1	39.3	118.7	161.2	953.3	79.4
1955	118.7	128.3	104.5	100.4	97.0	95.3	132.9	90.2	73.3	82.3	151.3	130.2	1304.4	108.7
1956	151.0	127.4	94.0	96.8	83.0	85.6	80.7	67.8	51.3	51.8	58.4	99.3	1042.3	86.9
1957	88.1	121.4	173.6	106.4	82.0	52.3	94.5	60.5	42.2	36.7	44.0	77.6	977.3	81.4
1958	69.6	83.4	102.7	108.7	81.5	77.1	70.7	57.6	45.1	50.9	53.2	118.2	918.3	76.5
1959	108.7	128.7	126.8	89.1	92.1	75.5	55.2	46.1	46.2	39.4	51.6	115.2	972.6	81.0
1960	96.6	103.6	121.7	114.5	122.2	79.3	70.3	56.5	50.5	46.5	70.6	60.1	992.4	82.7
1961	122.7	86.6	67.1	73.6	74.3	52.7	52.7	47.7	41.2	34.2	44.2	-1.0	696.0	63.3
1962	104.6	90.9	87.8	93.9	68.5	60.0	44.5	48.7	36.0	42.1	63.1	114.7	859.5	71.6
1963	104.3	90.9	87.8	93.9	68.5	60.0	44.5	48.1	36.0	42.1	63.1	114.7	858.9	71.6
1964	58.8	62.0	93.6	77.5	74.5	62.5	47.5	42.5	46.2	107.7	89.8	80.7	843.3	70.3
1965	114.3	129.3	106.5	93.4	70.3	61.2	52.9	47.3	40.4	39.8	44.9	86.1	886.4	73.9
1966	88.2	124.0	135.5	117.3	91.3	74.2	55.6	46.5	43.0	52.5	71.0	132.7	1027.0	85.6
1967	162.1	139.2	103.1	99.6	67.4	58.2	51.0	46.2	42.1	41.8	48.7	125.2	984.6	82.0
1968	146.0	243.3	110.2	111.8	175.7	157.9	155.0	100.3	66.8	88.2	92.5	144.6	1592.9	132.7
1969	164.9	163.0	207.2	193.9	101.0	81.0	60.0	49.1	45.5	38.3	48.7	67.3	1210.9	101.7
1970	91.9	107.4	120.6	94.4	93.0	61.8	50.4	37.5	38.4	42.5	59.4	83.9	881.2	73.4
TOTAL	2200.5	2394.7	2233.8	1955.8	1740.1	1410.3	1278.5	1022.2	850.0	951.6	1319.8	1909.4	19226.6	80.6
MEAN	110.0	119.7	111.7	97.8	86.5	70.5	63.9	51.1	42.5	47.6	66.0	100.5		

## (3) Discharge at Kaulon

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	166.9	175.2	125.9	99.3	87.0	91.3	62.3	53.2	46.0	42.3	39.1	90.8	1077.3	89.8
1952	155.3	193.4	169.3	109.6	84.5	62.7	54.3	45.0	39.4	53.4	128.7	110.1	1205.7	100.5
1953	108.4	103.2	123.6	111.5	141.4	75.8	78.1	48.8	45.2	40.7	54.8	81.2	1012.7	84.4
1954	154.8	157.2	125.2	118.4	131.2	115.1	78.1	72.0	60.3	61.8	155.0	198.6	1427.7	119.0
1955	122.8	141.2	108.7	126.3	118.7	120.7	152.6	125.5	89.7	98.1	161.5	101.3	1467.1	122.3
1956	166.9	143.9	119.7	93.1	99.0	99.1	95.9	80.8	61.5	63.3	80.6	114.0	1217.8	101.5
1957	115.5	141.8	189.3	123.4	92.7	70.3	143.4	83.7	51.7	45.9	51.8	109.4	1218.9	101.6
1958	91.2	121.3	137.5	138.3	107.9	83.8	92.7	61.8	46.2	64.6	74.8	164.6	1191.7	99.3
1959	146.7	132.0	148.5	112.8	108.3	90.5	66.3	46.2	44.2	38.0	51.2	158.6	1143.3	95.3
1960	135.0	118.2	140.8	141.0	141.9	92.3	83.1	52.7	42.5	38.8	82.6	85.7	1154.6	96.2
1961	142.5	121.6	93.5	107.8	99.1	70.8	52.5	40.4	33.8	32.7	54.9	82.6	932.4	77.7
1962	130.2	123.8	111.9	118.9	88.4	71.8	61.4	67.9	60.6	58.0	93.2	114.8	1100.9	91.7
1963	122.2	121.8	143.0	149.5	90.0	87.3	63.5	54.4	52.9	57.7	61.9	102.5	1106.7	92.2
1964	104.8	117.7	150.4	121.9	144.5	124.5	87.1	74.3	72.5	172.0	144.3	118.7	1431.7	119.3
1965	156.1	154.5	117.3	105.0	57.3	56.7	46.6	38.9	34.0	31.9	39.9	71.7	909.9	75.8
1966	79.1	141.4	171.5	118.1	102.6	89.7	72.6	71.3	43.5	67.7	92.6	167.8	1213.0	101.9
1967	146.2	123.7	134.7	158.1	105.0	91.4	77.5	47.6	37.4	52.0	96.6	137.7	1208.8	100.7
1968	192.1	112.3	118.9	108.5	129.1	93.6	-1.0	-1.0	54.6	66.8	86.9	121.4	1077.2	107.7
1969	144.3	100.3	184.3	184.2	121.1	128.6	59.5	48.5	59.2	57.1	63.8	93.5	1239.4	103.3
1970	131.3	126.0	148.4	165.7	117.3	110.1	103.2	74.4	90.0	75.8	108.0	158.2	1408.4	117.4
TOTAL	2708.3	2670.7	2757.4	2507.4	2167.0	1821.1	1517.7	1186.4	1065.2	1219.5	1722.2	2383.2	23746.1	99.8
MEAN	135.4	133.5	137.9	125.4	108.3	91.1	80.9	62.4	53.3	61.0	86.1	119.7		

## (4) Discharge at Pakel

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	212.4	296.0	194.6	155.1	117.1	127.9	90.3	69.6	96.7	49.8	47.5	140.8	1560.8	130.1
1952	193.3	236.9	303.2	180.5	110.1	100.0	68.3	37.7	27.3	52.0	197.6	157.7	1703.4	142.0
1953	146.0	156.6	173.1	182.6	227.5	104.6	79.6	56.5	50.3	42.0	59.4	90.9	1369.1	114.1
1954	132.1	179.6	181.4	215.7	223.8	156.0	104.9	98.0	72.9	73.0	179.3	287.7	1904.4	158.7
1955	226.9	230.6	210.1	242.3	209.5	194.4	220.9	168.3	129.0	94.3	210.7	184.6	2329.6	194.1
1956	216.7	198.6	164.8	138.7	153.8	173.6	160.8	142.3	100.4	111.0	123.3	186.8	1870.8	155.9
1957	177.7	252.0	241.4	186.7	158.8	94.0	162.4	96.5	60.9	42.3	55.3	119.9	1647.9	137.3
1958	101.6	181.4	213.2	217.3	151.5	122.2	141.9	94.6	61.4	69.7	98.5	224.7	1677.7	139.8
1959	226.1	229.7	260.9	145.5	186.2	133.5	79.1	58.4	51.2	45.8	65.2	191.6	1673.2	139.4
1960	170.3	220.8	245.4	200.7	233.2	123.8	108.3	72.5	56.5	54.4	117.3	98.7	1703.9	142.0
1961	194.1	156.8	136.0	156.5	137.5	81.6	60.3	45.5	38.4	36.4	50.9	102.1	1196.2	99.7
1962	202.5	174.6	176.0	214.8	155.3	98.7	77.8	64.6	48.8	45.4	98.2	212.8	1569.9	130.8
1963	232.1	213.5	254.3	170.8	94.1	68.8	63.2	53.5	44.4	40.2	44.1	75.7	1354.7	112.9
1964	68.7	96.0	165.1	162.7	195.5	159.2	62.0	58.4	64.1	117.8	111.0	127.3	1387.8	115.6
1965	214.4	221.5	196.6	169.0	84.5	73.4	63.0	57.1	42.9	39.3	64.9	121.6	1348.2	112.3
1966	134.9	169.4	210.2	183.0	133.9	84.2	67.2	62.1	51.2	65.7	91.0	132.5	1385.3	115.4
1967	229.8	178.1	176.2	195.8	111.6	72.0	43.3	47.1	46.0	44.6	61.9	160.1	1366.4	113.9
1968	166.6	161.1	174.3	170.0	232.6	238.6	208.1	111.3	98.6	124.7	176.8	212.3	2077.0	178.1
1969	217.2	182.0	281.0	221.0	117.7	115.5	70.0	71.8	62.5	62.0	108.7	148.0	1663.4	138.6
1970	187.2	177.5	220.3	195.3	147.7	114.3	75.4	53.4	60.4	73.2	132.0	156.3	1599.0	133.2
TOTAL	3654.6	3912.7	4184.1	3704.0	3182.1	2436.3	2023.5	1519.2	1255.9	1290.8	2093.6	3132.1	32388.9	135.0
MEAN	182.7	195.6	209.2	185.2	159.1	121.8	101.2	76.0	62.8	64.5	104.7	156.6		

## (5) Discharge at Djeli

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	301.0	365.7	277.9	171.0	117.7	189.4	114.4	80.6	76.7	56.6	59.2	178.5	1989.3	165.8
1952	331.0	449.2	504.9	241.9	141.0	102.8	72.4	65.3	59.3	84.1	142.2	268.5	2662.4	222.5
1953	190.0	251.0	229.9	225.3	271.4	115.8	90.8	57.6	45.4	39.2	61.8	117.0	1695.2	141.3
1954	216.9	240.6	199.5	224.3	306.5	195.6	121.9	108.7	85.1	74.8	353.8	401.4	2529.1	210.8
1955	307.5	320.3	239.6	362.0	285.2	249.0	447.0	292.8	193.7	218.0	473.8	277.6	3666.5	305.5
1956	372.7	286.6	243.0	181.3	211.4	215.9	212.6	177.2	114.8	126.0	153.9	348.4	2643.8	220.3
1957	255.8	338.0	376.0	284.6	184.0	102.6	343.8	137.7	76.1	57.2	66.7	130.1	2352.4	196.0
1958	146.4	266.1	314.0	296.3	195.5	145.5	188.8	180.8	77.1	109.1	147.9	293.5	2301.0	191.7
1959	450.8	433.9	448.8	264.5	297.5	220.1	170.1	63.1	68.7	54.4	95.1	306.5	2823.5	235.3
1960	303.0	293.3	356.6	267.9	344.0	183.4	134.3	88.1	65.2	57.2	158.3	145.9	2397.4	199.8
1961	294.6	240.1	202.8	206.7	192.3	92.1	59.3	51.6	40.7	41.8	62.5	126.7	1611.2	134.3
1962	286.8	258.8	242.0	328.7	209.4	106.0	80.5	76.4	50.4	60.5	192.0	350.6	2253.0	187.7
1963	432.4	349.0	522.5	321.0	159.8	85.0	68.1	54.4	45.6	46.4	55.0	112.0	2231.2	185.9
1964	102.5	122.8	297.3	302.2	-1.0	157.6	64.3	55.4	84.6	366.8	207.1	156.8	1917.4	174.3
1965	285.6	357.1	269.1	204.2	113.8	81.8	61.0	53.0	49.7	49.7	65.7	-1.0	1590.9	144.4
1966	171.8	235.0	343.5	344.2	174.9	126.2	72.0	68.2	55.4	60.1	100.7	257.3	2072.3	172.7
1967	244.5	-1.0	186.6	191.0	134.4	86.8	61.8	54.5	44.6	43.3	65.0	157.8	1270.7	115.5
1968	209.9	188.2	286.3	260.2	306.0	302.0	295.0	179.3	112.1	162.8	179.6	501.9	2785.9	232.2
1969	255.6	242.6	351.4	279.0	182.1	143.0	84.0	67.2	58.3	67.2	104.9	155.5	1990.8	165.9
1970	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0
TOTAL	5159.6	5238.3	5923.9	4956.3	3807.5	2908.5	2705.3	1861.9	1403.5	1745.4	2945.2	4086.0	42791.4	190.2
MEAN	271.6	291.0	311.8	260.9	211.5	153.1	144.4	98.0	73.9	94.5	155.0	227.0		

## (6) Discharge at Djombiru

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	290.1	334.6	229.1	129.6	103.2	155.7	96.9	73.9	60.4	43.9	39.9	153.2	1709.9	142.5
1952	267.2	366.5	419.0	203.5	129.2	96.1	41.2	49.7	48.1	73.4	281.3	246.9	2210.4	184.2
1953	171.4	213.9	262.4	211.4	336.0	119.3	82.2	52.9	41.8	35.4	58.5	120.6	1705.8	142.1
1954	257.9	257.4	225.1	236.0	291.8	178.6	117.3	116.7	81.6	76.0	335.0	436.3	2610.6	217.5
1955	279.3	287.6	210.2	266.5	221.2	218.0	322.8	250.2	149.7	169.4	393.9	214.4	2967.1	247.3
1956	253.8	235.3	189.8	151.5	156.6	170.6	180.0	152.0	93.1	117.9	132.8	252.2	2093.6	174.5
1957	197.2	262.6	452.9	248.5	167.1	100.1	292.3	123.1	77.6	65.5	73.5	184.5	2268.9	189.1
1958	152.3	248.5	267.7	280.9	190.6	147.7	170.7	123.4	75.6	114.0	159.2	280.0	2210.6	184.2
1959	343.9	318.7	374.7	228.5	283.4	225.6	153.6	96.3	96.2	81.5	128.9	289.8	2621.1	218.4
1960	281.1	312.2	322.9	293.3	394.5	201.7	152.9	105.7	89.8	85.0	185.0	168.7	2592.8	216.1
1961	280.8	237.1	208.3	224.9	201.3	109.7	90.6	75.5	70.1	77.7	73.3	137.6	1786.9	148.9
1962	261.1	248.7	247.6	280.5	195.0	131.0	114.4	91.2	71.8	86.6	158.3	354.7	2240.0	186.7
1963	346.1	351.2	459.7	307.1	190.3	128.2	100.0	82.0	74.8	72.5	84.4	130.9	2287.2	190.6
1964	119.2	142.4	235.6	230.8	230.3	189.7	94.6	78.9	100.8	306.0	179.1	160.9	2086.3	172.2
1965	278.4	368.0	269.3	195.3	130.9	108.8	95.0	94.5	79.2	69.8	97.0	176.6	1962.8	163.6
1966	207.5	301.6	339.2	313.0	188.5	153.3	110.5	103.7	81.1	114.3	167.6	330.5	2410.8	200.9
1967	328.1	283.1	218.2	227.6	106.1	74.1	72.9	79.2	72.4	77.3	96.1	209.4	1844.5	153.7
1968	232.5	235.3	396.5	284.4	363.5	319.7	370.0	212.9	141.1	186.5	234.1	355.6	3335.7	278.0
1969	325.4	294.7	384.4	390.0	184.1	175.3	114.8	108.1	111.4	113.2	152.4	217.5	2571.3	214.3
1970	273.7	299.1	343.1	319.9	302.4	222.7	140.7	120.0	129.5	133.1	216.8	290.2	2791.2	232.6
TOTAL	5147.0	5618.5	6053.7	5023.5	4376.0	3226.8	2931.3	2169.9	1744.1	2099.0	3247.1	4701.5	46288.4	192.9
MEAN	257.3	280.9	302.7	251.2	218.3	161.3	146.6	108.5	87.2	104.9	162.4	235.1		

## (7) Discharge at Kertosono

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	393.9	424.8	289.5	148.6	109.9	157.1	106.1	74.7	51.3	36.9	35.8	136.5	1895.1	157.9
1952	284.4	447.1	510.6	231.1	134.5	117.7	48.9	27.9	34.1	57.7	295.5	223.5	2413.2	201.1
1953	209.6	263.2	319.3	272.0	377.0	116.6	85.6	52.9	36.1	32.8	53.9	102.4	1921.1	160.1
1954	269.8	286.5	227.1	226.6	244.4	193.2	125.9	125.9	69.8	61.9	337.3	479.4	2702.8	225.2
1955	384.4	345.7	295.3	304.9	267.1	241.5	390.2	270.4	177.0	186.0	424.9	258.8	3496.2	291.3
1956	325.0	311.6	236.0	163.1	185.4	217.9	234.2	184.4	114.7	129.6	162.6	330.8	2597.3	216.4
1957	292.1	301.1	487.4	308.1	225.8	117.5	338.3	191.8	93.3	67.7	87.0	250.6	2720.7	226.7
1958	160.0	294.5	302.6	293.7	210.6	124.7	148.9	122.5	82.7	120.3	160.0	294.3	2345.4	195.4
1959	447.0	385.5	455.5	323.7	392.0	350.9	227.5	137.7	96.6	65.5	91.7	297.0	3268.8	272.4
1960	363.0	713.5	352.4	243.9	395.3	210.4	199.3	117.6	84.8	70.3	200.8	168.1	2669.4	222.4
1961	292.4	269.5	269.1	261.5	212.7	130.1	108.6	82.0	60.8	57.4	58.8	132.1	1930.5	160.9
1962	292.3	301.1	289.2	376.9	288.8	152.1	111.6	69.4	50.5	61.3	168.0	359.9	2521.1	210.1
1963	444.5	425.8	500.6	341.8	281.8	122.8	130.5	89.4	67.2	77.4	82.2	136.6	2596.8	216.4
1964	181.0	213.5	414.5	350.6	309.4	299.0	140.6	105.0	121.4	364.4	301.4	387.2	3208.4	267.4
1965	552.4	693.4	473.8	362.0	184.2	167.5	125.5	102.0	96.1	85.0	143.4	274.9	3260.2	271.7
1966	315.9	441.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	757.1	378.5
1967	353.1	279.1	248.4	300.7	163.7	130.7	100.1	108.4	112.6	110.0	164.3	378.5	2457.6	204.8
1968	356.0	398.6	718.7	544.7	591.0	503.6	574.7	437.3	180.4	242.6	271.3	524.8	5345.7	445.5
1969	612.2	534.1	573.8	676.7	244.0	214.8	159.9	126.8	125.0	122.6	187.8	294.1	3869.8	322.5
1970	328.8	394.0	444.7	461.0	435.2	362.4	212.2	147.1	141.6	141.5	208.1	283.3	3560.9	296.7
TOTAL	6697.8	7223.8	7416.5	6241.6	5227.8	3900.3	3349.3	2573.8	1794.2	2104.8	3435.4	5812.8	55438.4	241.5
MEAN	334.9	361.2	370.3	312.1	261.4	195.1	167.5	128.7	89.7	105.2	171.8	290.6		

## (8) Discharge at Djubon

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	494.1	683.6	474.8	157.9	117.1	212.4	101.9	67.1	49.0	36.6	32.4	226.6	2654.1	221.2
1952	505.7	654.9	776.0	366.0	153.0	119.0	55.3	40.0	39.6	57.4	425.4	463.2	4655.7	304.6
1953	370.3	395.4	456.4	498.0	600.6	137.1	100.4	45.3	35.2	31.8	54.5	194.5	2987.3	248.9
1954	507.4	496.4	400.9	365.0	434.0	232.0	100.0	121.8	65.6	69.2	502.4	774.7	4079.1	339.9
1955	531.9	453.4	514.4	532.4	354.9	318.1	270.8	347.0	176.2	193.7	604.2	333.7	5055.9	421.3
1956	524.0	505.4	389.3	147.9	144.9	341.0	210.8	164.0	87.1	105.1	139.7	413.6	3183.7	265.3
1957	345.3	446.2	846.1	351.1	186.2	88.8	359.0	139.6	52.9	38.4	51.9	302.9	3328.9	277.4
1958	233.0	591.0	569.1	547.2	327.1	141.7	201.3	110.9	51.5	81.4	129.5	392.1	3425.9	285.5
1959	792.3	715.3	647.2	391.8	423.4	288.3	135.6	56.0	45.1	38.3	69.4	436.3	4056.8	338.1
1960	536.2	297.7	645.2	460.0	545.4	150.3	132.1	60.7	41.0	38.0	151.7	173.9	3232.6	260.4
1961	418.3	447.3	372.1	296.3	246.7	87.3	50.0	37.8	31.3	25.4	37.1	109.0	2108.8	175.7
1962	474.8	499.0	384.7	543.8	306.4	128.3	90.4	56.9	32.7	40.8	147.5	377.8	3087.6	257.3
1963	507.1	727.4	841.8	444.8	166.2	101.3	56.3	44.2	33.0	30.4	33.4	122.9	3251.8	271.0
1964	129.8	143.4	473.1	278.6	224.4	240.1	62.1	41.2	44.0	375.9	212.1	155.2	2419.9	201.7
1965	393.4	479.8	352.1	197.7	75.0	70.4	44.6	32.6	27.0	23.5	33.7	156.8	1886.1	157.2
1966	268.0	525.6	585.3	411.6	168.4	105.2	54.9	33.8	25.8	45.6	72.1	304.5	2595.8	216.3
1967	460.0	420.6	372.5	361.4	144.9	59.5	40.9	32.7	27.5	22.6	26.4	164.0	2154.7	179.6
1968	219.6	404.5	580.0	476.9	473.0	336.0	380.3	196.6	90.9	103.1	168.5	410.2	3846.5	320.5
1969	385.9	480.7	474.3	442.1	132.8	123.9	50.3	35.7	29.7	33.2	53.5	105.4	2390.5	199.2
1970	275.0	449.0	302.9	374.8	321.2	145.5	42.1	36.6	42.0	40.3	141.2	163.8	2375.0	197.9
TOTAL	8477.4	10056.0	10435.2	7896.2	5643.1	3428.9	2702.9	1700.5	1071.9	1429.5	3087.1	5782.0	61776.7	257.4
MEAN	423.9	502.8	521.8	394.8	282.2	171.4	135.1	85.0	53.6	71.5	154.4	289.1		

## (9) Discharge at Wadi

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	15.0	22.6	13.3	4.4	2.3	14.5	2.9	3.2	4.2	1.6	0.7	6.3	91.0	7.6
1952	19.8	15.2	23.7	9.2	4.7	2.4	0.9	0.4	0.6	2.0	22.1	12.9	116.9	9.7
1953	7.6	17.7	17.1	10.9	18.4	5.3	2.5	0.5	0.5	0.4	2.0	6.7	90.1	7.5
1954	21.6	19.2	10.7	12.4	17.3	16.2	7.9	12.5	2.7	1.7	35.8	32.4	190.4	15.9
1955	17.4	16.1	11.7	22.3	16.7	20.8	66.2	23.4	20.4	30.6	34.8	14.3	295.4	24.6
1956	25.8	25.0	12.5	12.0	20.3	19.3	31.3	14.4	7.6	12.5	10.6	36.4	227.4	18.9
1957	16.7	33.9	54.6	23.2	9.4	2.2	40.2	14.1	2.0	0.6	2.2	17.2	216.3	18.0
1958	10.2	15.2	19.8	24.9	13.1	7.5	32.0	20.0	4.6	15.6	21.5	31.8	216.2	18.0
1959	48.0	30.3	50.6	19.0	30.6	19.5	19.0	1.6	0.7	2.2	7.1	33.9	264.4	22.0
1960	30.7	36.3	37.6	25.3	55.5	11.2	14.3	9.0	8.3	7.3	8.4	8.1	252.0	21.0
1961	20.5	17.8	15.6	21.4	14.6	3.9	13.8	21.9	18.9	26.5	28.2	6.5	209.4	17.4
1962	2.7	0.8	0.2	0.1	2.4	2.8	2.4	2.6	0.2	0.5	10.6	22.9	48.2	4.0
1963	47.3	36.6	40.5	25.7	3.8	0.7	0.3	0.1	-1.0	-1.0	-1.0	-1.0	155.0	19.4
1964	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0
1965	20.2	33.4	12.2	5.1	1.8	0.7	0.3	0.1	-1.0	-1.0	-1.0	21.3	95.1	10.6
1966	22.5	-1.0	26.7	26.4	-1.0	3.6	2.1	-1.0	2.1	22.0	-1.0	-1.0	105.4	15.1
1967	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0
1968	5.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	5.5	5.5
1969	-1.0	-1.0	36.9	26.1	6.1	1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	72.1	18.0
1970	19.6	-1.0	24.8	39.5	41.2	21.4	-1.0	2.9	2.9	-1.0	-1.0	-1.0	152.3	21.8
TOTAL	351.5	319.9	408.7	308.8	260.7	153.0	237.2	126.7	79.7	126.8	183.4	250.7	2803.1	15.6
MEAN	20.7	22.8	24.0	18.7	16.3	9.0	15.6	8.4	5.4	9.8	15.3	19.3		

## (10) Discharge at Bendo

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1952	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1953	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1954	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1955	23.8	18.6	14.3	25.2	18.1	23.5	76.7	28.6	22.3	30.6	36.5	16.8	334.2	27.8
1956	28.1	26.4	15.9	15.4	22.2	19.6	32.6	15.5	8.8	14.4	11.3	39.9	248.1	20.7
1957	17.3	36.5	50.9	24.4	10.7	2.7	44.2	14.9	2.6	0.7	2.4	18.7	232.0	19.3
1958	11.6	16.3	22.5	26.5	15.6	8.8	37.5	21.7	5.1	18.0	23.0	33.5	237.9	19.8
1959	50.7	33.0	52.9	37.5	31.0	21.1	19.8	2.0	1.3	2.4	8.6	37.0	297.3	24.8
1960	32.8	39.0	42.4	35.3	62.7	9.9	15.5	21.0	0.8	4.6	13.2	9.5	292.7	24.4
1961	22.2	20.4	20.1	28.5	19.4	7.5	6.1	1.8	0.5	0.2	0.3	0.3	127.3	10.6
1962	17.9	27.4	23.0	30.7	32.1	9.9	4.9	3.8	0.4	3.6	16.5	11.3	181.5	15.1
1963	65.0	41.3	68.9	37.5	6.2	1.9	0.4	0.2	0.1	-1.0	-1.0	-1.0	221.5	24.6
1964	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1965	-1.0	-1.0	-1.0	9.0	1.8	0.1	0.3	0.1	-1.0	-1.0	-1.0	17.7	25.0	4.2
1966	18.4	-1.0	20.3	20.3	-1.0	1.8	1.3	-1.0	-1.0	18.2	-1.0	-1.0	80.3	13.4
1967	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1968	2.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	2.3	2.3
1969	-1.0	-1.0	29.4	40.9	10.9	1.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	82.5	20.6
1970	28.0	-1.0	37.7	51.5	58.9	28.7	-1.0	6.9	6.9	-1.0	-1.0	-1.0	216.6	30.9
TOTAL	318.1	258.9	404.3	376.7	289.6	134.8	239.1	116.5	54.8	90.7	111.8	183.9	2579.2	20.0
MEAN	25.5	20.8	33.7	29.0	24.1	10.4	21.7	10.6	5.5	10.1	14.0	20.4		

## (11) Discharge at Parit Raja

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1966	11.9	31.9	44.0	43.2	11.5	3.5	-	-	-	-	-	-	148.0	24.7
1967	-	-	-	-	-	-	-	-	-	-	-	3.7	3.7	3.7
1968	11.3	23.8	44.0	32.5	64.7	47.9	67.3	20.7	6.9	15.1	-	36.6	370.8	33.7
1969	26.7	37.2	48.7	5.8	3.9	17.5	-	-	-	-	2.3	7.1	149.2	18.7
TOTAL	49.9	92.9	136.7	83.5	80.1	68.9	67.3	20.7	6.9	15.1	2.3	47.4	671.7	
MEAN	16.6	31.0	45.6	27.8	26.7	23.0	67.3	20.7	6.9	15.1	2.3	15.8		25.8

## (12) Discharge at Tulungagung

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	65.2	83.6	83.6	21.4	10.0	53.3	19.9	11.7	9.5	4.4	2.6	27.2	392.4	32.7
1952	92.3	117.4	93.3	43.5	14.9	10.5	1.9	1.2	1.7	15.9	82.7	68.9	544.2	45.3
1953	31.5	63.7	44.9	48.7	73.8	16.4	4.5	1.8	0.9	0.4	4.4	14.7	325.7	27.1
1954	41.5	48.8	38.1	41.9	57.6	43.6	19.3	25.3	11.4	6.1	53.9	66.6	454.1	37.8
1955	49.0	38.1	30.5	46.6	34.8	33.4	80.3	66.0	32.9	38.7	77.6	27.6	555.5	46.3
1956	44.9	54.3	30.3	14.1	21.6	22.0	58.0	21.8	8.5	12.7	10.6	45.9	324.2	27.0
1957	21.9	49.1	71.6	40.2	8.1	2.7	41.7	24.1	3.3	1.2	0.9	19.9	284.7	23.7
1958	14.1	44.0	58.4	53.3	27.0	20.6	34.3	25.1	6.2	16.7	32.4	47.2	381.3	31.8
1959	78.4	71.0	75.9	34.2	52.6	51.1	28.4	5.3	2.7	1.9	7.6	40.5	449.8	37.5
1960	62.8	66.9	69.0	40.2	88.9	31.0	17.6	26.8	8.5	6.1	15.3	10.7	448.8	37.0
1961	40.4	41.3	44.4	42.9	35.1	5.8	2.2	1.2	0.5	0.4	0.5	4.7	219.4	18.3
1962	26.0	53.5	32.2	103.0	25.8	11.5	9.0	5.1	0.7	-1.0	27.4	44.4	318.6	29.0
1963	56.5	55.8	62.5	36.2	3.7	1.8	0.5	0.4	0.3	0.2	0.1	-1.0	218.0	19.8
1964	7.5	6.2	35.6	21.0	35.8	21.9	2.0	0.6	7.2	40.9	18.6	13.1	210.4	17.5
1965	37.5	-1.0	29.7	15.4	3.1	1.6	0.7	0.3	-1.0	-1.0	0.5	8.4	97.2	10.8
1966	18.2	-1.0	23.1	17.2	-1.0	2.0	0.8	0.5	0.9	2.9	9.7	33.4	108.7	10.9
1967	17.8	-1.0	11.2	16.3	5.4	0.9	0.6	0.5	0.4	0.3	1.6	8.2	63.2	5.7
1968	9.3	9.1	20.2	28.9	26.3	22.5	34.4	12.5	3.6	15.4	16.3	16.7	215.2	17.9
1969	21.4	10.0	14.5	25.7	4.5	3.0	1.1	0.6	0.7	0.7	6.0	9.3	97.5	8.1
1970	15.1	24.4	17.5	19.5	22.4	15.7	4.2	1.1	2.2	4.5	22.2	24.3	173.2	14.4
TOTAL	751.3	817.2	906.5	710.2	551.4	371.3	341.4	231.9	104.1	109.0	390.9	531.7	5876.9	25.3
MEAN	37.6	48.1	45.3	35.5	29.0	18.6	17.1	11.6	5.5	9.4	19.5	28.0		

## (13) Discharge at Pakundjen

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	59.9	84.8	57.3	36.4	18.6	47.8	22.9	24.3	20.2	10.5	6.3	41.0	433.0	36.1
1952	86.9	122.6	92.0	54.1	25.0	16.7	2.8	3.8	5.3	13.2	93.3	81.1	602.5	50.2
1953	48.9	81.5	65.3	55.1	74.2	33.3	10.1	6.9	5.6	5.4	6.7	18.9	439.9	36.7
1954	42.2	40.4	42.9	46.8	64.1	58.3	30.3	23.0	14.0	8.1	67.6	90.6	528.3	44.0
1955	71.3	57.6	48.3	77.4	54.9	55.7	173.9	76.3	50.2	59.8	130.7	46.8	902.9	75.2
1956	64.8	78.3	53.4	30.3	44.4	41.5	59.8	45.5	17.0	29.6	29.4	90.2	584.2	48.7
1957	55.8	84.1	117.8	69.8	19.2	9.3	125.6	38.2	12.5	8.5	11.1	41.5	593.4	49.4
1958	42.1	32.3	12.4	29.4	47.9	-1.0	34.3	72.9	79.2	79.0	37.7	27.4	494.6	41.0
1959	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.	0.
1960	90.8	89.4	103.2	59.7	108.5	42.7	24.6	5.2	1.8	1.6	21.9	16.8	566.4	47.2
1961	63.6	52.7	59.7	55.7	43.2	9.9	5.7	4.3	4.5	4.4	4.5	12.6	321.0	26.7
1962	42.9	55.7	48.9	63.9	42.7	23.3	12.0	12.2	5.2	15.8	39.8	68.2	433.6	36.1
1963	92.4	75.7	110.3	61.7	10.6	7.4	4.7	3.9	4.1	3.8	4.7	5.0	385.2	32.1
1964	5.7	3.7	17.1	84.3	27.6	23.5	10.3	23.9	58.9	37.8	46.9	29.9	372.6	31.0
1965	68.5	163.4	49.5	26.1	8.9	5.2	0.4	2.7	2.6	2.7	4.0	-1.0	337.6	30.7
1966	49.5	-1.0	63.7	67.0	-1.0	13.5	0.7	3.2	4.4	13.8	23.3	56.0	301.1	30.1
1967	40.9	7.5	24.8	27.4	15.4	5.3	0.7	3.7	3.1	2.3	3.7	13.5	151.3	12.6
1968	24.3	25.7	56.0	44.9	61.0	50.0	84.0	35.2	10.0	37.2	34.8	60.9	528.4	44.0
1969	51.6	37.2	54.4	54.9	14.2	13.9	56.4	5.6	4.5	6.8	17.6	27.6	344.7	28.7
1970	39.6	47.4	37.6	48.0	43.6	29.5	10.0	8.2	12.4	19.5	39.4	33.0	371.7	31.0
TOTAL	1039.9	1140.0	1145.2	992.0	724.0	486.8	697.2	399.0	318.5	360.5	626.5	761.9	8692.4	58.8
MEAN	54.7	63.3	60.3	52.3	40.2	27.0	36.7	21.0	16.8	19.0	33.0	42.3		

## (14) Discharge at Soeloredjo Dam Site

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	12.3	16.6	12.6	9.8	6.8	8.0	0.4	4.4	5.1	4.7	6.3	10.9	103.9	8.7
1952	13.7	17.2	14.0	11.5	9.1	7.3	2.2	4.3	4.4	5.3	13.2	13.3	119.1	9.9
1953	11.6	13.9	15.9	12.9	11.5	7.7	6.5	4.6	4.6	3.3	7.2	11.5	111.2	9.3
1954	17.8	14.8	14.0	14.9	12.3	7.8	6.5	6.9	5.8	6.9	13.2	14.3	135.0	11.2
1955	14.3	16.3	15.9	13.5	10.5	9.4	11.2	7.0	5.9	7.3	13.2	11.6	136.1	11.3
1956	13.1	18.1	13.8	11.1	9.6	10.0	6.0	6.6	5.9	7.5	9.7	11.5	123.5	10.3
1957	9.8	15.5	27.5	14.2	11.0	8.8	10.3	8.3	6.8	5.9	10.0	11.9	146.3	12.2
1958	8.0	11.7	11.4	12.1	9.6	8.3	8.3	6.6	5.2	5.0	8.2	10.4	104.2	8.7
1959	22.1	27.6	25.6	14.0	11.7	9.6	6.5	6.9	5.4	4.7	5.7	12.3	149.1	12.4
1960	19.9	33.1	19.2	20.6	15.5	9.1	9.0	7.8	6.6	6.3	7.9	7.3	162.3	13.5
1961	13.9	10.5	11.0	7.8	10.3	8.3	7.3	6.5	5.5	5.2	5.7	5.8	98.6	8.2
1962	16.6	23.7	12.9	15.7	10.7	9.3	9.3	9.2	7.0	7.7	10.3	13.6	146.2	12.2
1963	27.4	25.0	17.8	13.6	10.6	9.4	9.1	7.6	6.7	6.6	6.6	7.9	148.3	12.4
1964	8.0	7.5	9.4	9.5	8.8	6.6	4.7	3.9	4.2	13.0	5.3	9.1	87.0	7.2
1965	15.7	14.9	18.3	10.0	7.5	6.8	6.0	5.2	3.6	3.1	3.3	6.0	100.4	8.4
1966	6.5	9.4	13.0	8.3	6.1	6.2	5.0	4.6	4.2	4.4	5.7	7.6	81.0	6.7
1967	14.4	17.2	9.3	7.7	6.5	4.8	4.3	3.8	4.3	4.4	4.6	18.9	100.4	8.4
1968	14.0	23.4	22.4	15.9	14.3	11.1	10.7	7.2	5.9	6.2	11.0	12.4	154.5	12.9
1969	12.4	13.6	12.8	10.7	7.4	6.0	5.0	3.9	3.7	4.9	7.7	8.7	96.8	8.1
1970	11.5	16.5	10.1	12.2	10.9	8.8	6.7	4.5	5.0	5.7	11.4	11.3	120.6	10.0
TOTAL	282.8	341.4	314.3	246.0	200.9	163.3	140.8	119.8	105.8	119.0	170.7	213.3	2424.5	10.1
MEAN	14.1	17.1	15.7	12.3	10.0	8.2	7.3	6.0	5.3	5.9	8.5	10.7		

## (15) Discharge at Widas

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1962	-	-	-	-	-	-	-	-	-	-	1.8	3.2	5.0	2.1
1963	7.4	6.5	9.3	6.1	1.8	1.2	0.7	0.6	0.6	0.5	0.5	2.7	37.9	3.2
1964	4.5	2.3	3.1	3.1	1.3	0.6	0.4	0.3	0.3	1.7	2.0	1.7	21.3	1.8
1965	6.0	7.6	2.2	2.0	0.5	0.4	0.3	0.5	0.2	0.3	-	-	20.0	2.0
TOTAL	17.9	16.4	14.6	11.2	3.6	2.2	1.4	1.4	1.1	2.5	4.3	7.6	84.2	
MEAN	6.0	5.5	4.9	3.7	1.2	0.7	0.5	0.5	0.4	0.8	1.4	2.5		2.3

## (16) Discharge at Mlirip

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	83.9	128.8	89.4	78.9	43.9	66.2	30.3	6.8	2.7	1.1	0.4	53.3	585.7	48.8
1952	97.2	122.2	111.7	63.6	25.7	28.3	4.6	2.7	3.4	14.9	42.1	51.6	568.0	47.3
1953	58.6	62.8	65.7	83.7	108.4	47.8	24.2	1.5	0.9	1.0	7.4	29.2	491.2	40.9
1954	79.6	81.7	79.5	74.1	68.2	43.2	28.2	31.3	8.1	7.3	83.9	123.0	708.1	59.0
1955	97.8	89.0	82.3	84.9	69.2	47.0	71.0	35.9	0.6	0.5	68.3	10.8	662.3	55.2
1956	86.6	67.9	65.6	34.1	34.8	64.4	20.9	34.4	32.0	1.8	12.7	59.5	500.7	41.7
1957	52.4	92.7	148.5	84.3	47.9	15.2	61.2	38.7	0.7	0.5	4.4	41.8	588.3	49.0
1958	30.2	79.4	99.9	110.4	83.2	35.0	3.0	1.0	1.0	0.7	0.6	46.4	490.8	40.9
1959	133.0	196.8	145.2	102.5	88.1	65.6	22.5	0.8	0.5	0.5	3.1	86.8	845.4	70.4
1960	109.9	114.1	130.9	114.4	124.8	63.1	21.2	0.8	0.5	0.4	7.9	12.0	700.0	58.3
1961	48.7	87.4	74.3	89.9	45.0	15.1	0.6	0.6	0.4	0.3	0.4	2.4	360.1	30.0
1962	92.2	113.5	72.1	79.9	48.1	22.8	10.7	0.9	0.7	3.9	18.3	40.1	503.2	41.9
1963	105.2	128.4	149.1	90.3	38.3	30.6	13.5	7.4	6.3	5.5	6.3	14.4	595.3	49.6
1964	12.7	12.8	86.6	36.5	16.3	47.0	20.7	9.3	9.5	87.4	51.0	23.1	413.1	34.4
1965	41.3	69.5	36.0	26.2	12.5	12.3	5.5	4.7	3.5	2.7	2.8	26.9	245.9	20.5
1966	26.3	63.4	74.9	33.8	17.7	13.9	19.4	1.6	2.1	4.5	13.1	38.8	309.5	24.8
1967	62.4	55.6	35.2	49.2	21.2	6.2	2.4	1.8	1.8	3.8	3.5	31.2	274.3	22.9
1968	39.6	56.0	65.8	80.2	40.0	24.4	38.5	20.4	9.2	16.9	12.6	42.3	445.8	37.2
1969	45.0	40.5	46.5	38.0	14.9	17.2	2.8	2.7	2.4	7.0	4.4	10.9	227.3	18.9
1970	34.2	65.8	57.7	29.8	27.9	19.4	2.5	0.5	-1.0	-1.0	-1.0	-1.0	237.8	29.7
TOTAL	1316.8	1725.3	1719.1	1389.7	976.1	664.7	409.7	203.8	86.3	155.7	343.2	744.5	9752.9	41.3
MEAN	65.8	86.2	86.0	69.5	48.8	34.2	20.5	10.2	4.5	8.2	18.1	39.2		

## (17) Discharge at Peming

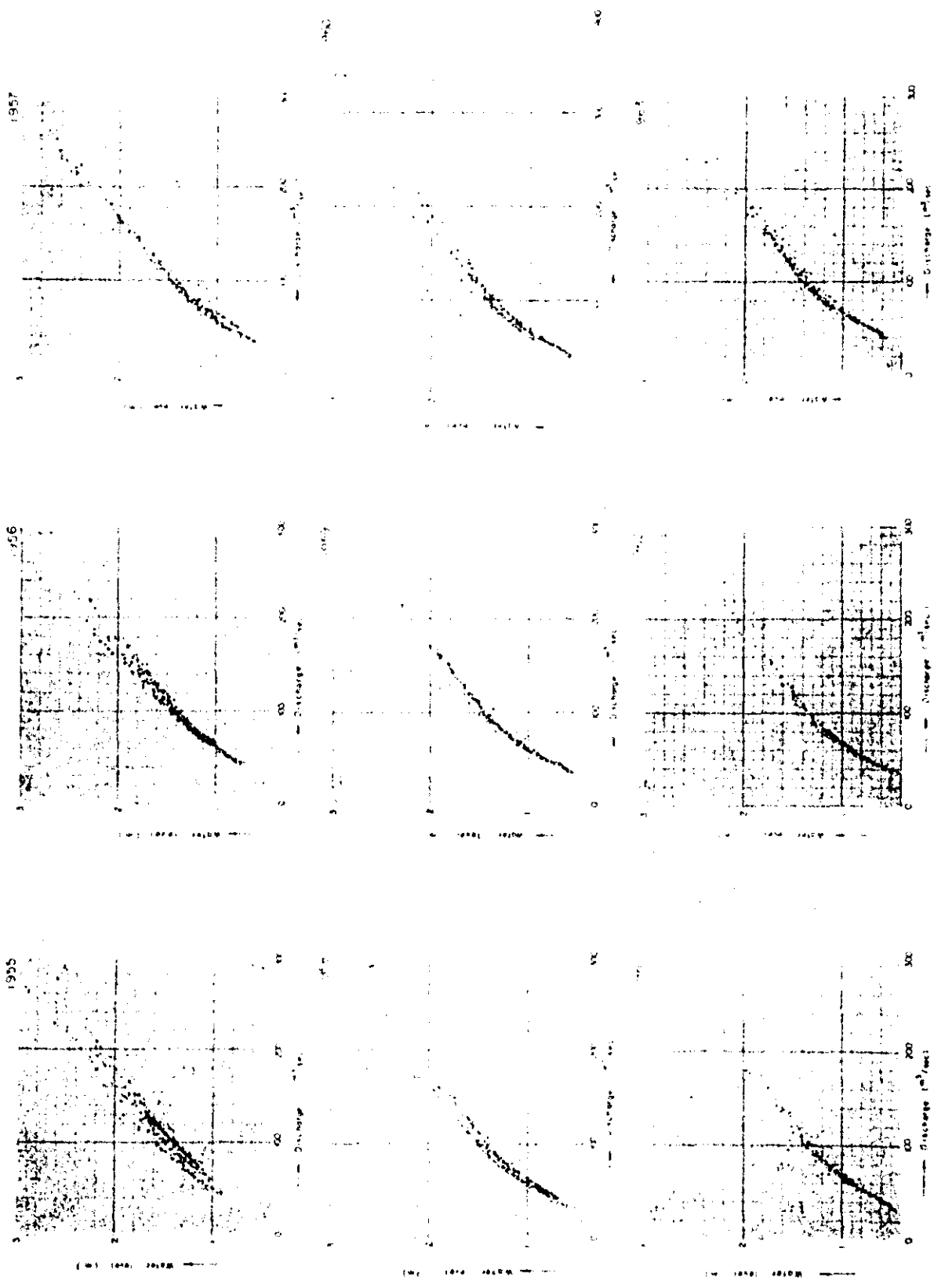
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	143.0	190.0	128.0	94.9	55.5	87.9	39.1	12.1	5.5	3.0	2.1	77.2	838.3	69.9
1952	150.0	184.0	223.0	87.5	48.2	40.2	9.2	3.4	5.1	17.5	99.2	108.0	971.6	81.0
1953	93.2	98.9	106.0	126.0	159.0	56.9	33.2	3.8	1.4	1.5	11.3	62.9	754.1	62.8
1954	179.0	172.0	127.0	133.0	128.0	96.1	4.9	44.4	15.0	12.9	112.0	185.0	1209.3	100.8
1955	141.0	145.0	135.0	125.0	103.0	61.7	100.0	65.9	3.5	4.2	97.8	30.9	1039.0	86.6
1956	111.0	145.0	108.0	73.6	80.9	96.9	164.0	44.9	13.5	51.4	29.9	85.3	1004.4	83.7
1957	110.0	144.0	-1.0	117.0	60.9	26.3	70.8	52.3	4.1	2.6	12.0	81.1	689.1	67.6
1958	75.8	151.0	139.5	148.6	96.2	44.4	16.9	5.7	3.8	4.2	2.6	86.9	775.6	64.6
1959	215.6	214.4	208.8	126.8	128.4	91.9	30.3	9.1	7.3	6.7	25.4	124.5	1192.2	99.3
1960	155.3	178.2	192.6	178.6	145.7	80.3	33.8	7.0	5.9	5.0	20.8	33.2	1076.4	89.7
1961	83.9	133.1	98.7	87.2	60.5	22.6	5.9	4.3	3.8	2.4	5.4	38.6	547.6	45.6
1962	146.5	152.8	102.5	121.5	74.9	31.6	18.4	6.4	3.7	6.5	28.3	76.6	771.7	64.3
1963	141.1	169.2	219.8	120.6	52.6	31.5	17.2	10.1	9.3	7.4	8.7	38.9	826.8	68.9
1964	43.2	46.1	130.2	66.5	42.2	95.2	31.2	14.0	14.0	119.7	73.2	37.3	683.1	56.8
1965	62.9	127.0	74.1	48.2	23.9	23.9	9.9	9.1	0.7	5.6	7.5	44.9	444.3	37.0
1966	40.8	106.0	130.2	59.2	38.5	29.0	4.4	2.3	0.6	10.4	26.5	70.0	526.3	43.9
1967	102.7	99.9	63.1	61.4	36.7	18.0	11.2	7.4	4.6	5.4	5.7	76.5	513.2	42.8
1968	75.2	103.5	113.9	90.3	74.2	44.7	67.0	39.4	23.2	41.1	31.8	68.4	793.5	66.1
1969	90.7	82.5	78.8	64.8	31.2	36.6	9.6	0.5	5.5	6.4	10.3	29.4	452.3	37.7
1970	61.0	112.8	136.1	50.0	42.5	30.3	10.9	10.2	-1.0	-1.0	-1.0	-1.0	429.8	35.7
TOTAL	2235.9	2756.0	2445.3	1995.7	1519.2	1036.0	712.3	352.3	139.1	314.7	616.5	1375.6	15538.6	66.1
MEAN	111.8	137.8	140.8	99.8	76.0	51.8	35.6	17.6	7.3	16.6	32.4	72.4		

## (18) Discharge at Kepadjaran

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	MEAN
1951	347.3	479.5	319.5	36.2	10.9	81.8	11.7	5.5	1.1	0.6	0.5	112.7	1407.3	117.3
1952	349.5	470.5	606.6	244.3	70.3	33.1	0.7	0.4	0.4	10.6	328.8	350.0	2465.2	205.4
1953	237.8	257.2	372.6	404.8	512.5	34.4	27.0	1.7	1.5	0.8	4.9	103.0	1908.2	159.0
1954	361.5	345.3	262.2	283.3	308.9	128.7	21.5	46.5	5.5	7.6	357.6	516.1	2642.7	220.2
1955	381.5	390.0	371.4	595.7	207.2	210.2	441.0	266.4	120.5	104.4	484.0	259.7	3462.0	305.2
1956	397.6	383.5	276.9	58.9	86.0	213.4	117.4	68.3	25.7	51.4	66.2	294.0	1989.3	165.8
1957	220.8	390.9	657.9	152.7	76.4	10.5	232.1	37.6	1.7	0.7	2.5	191.4	1978.2	164.8
1958	130.6	457.1	404.2	413.4	196.6	51.6	132.0	44.2	1.5	26.6	75.2	281.4	2214.4	184.5
1959	598.4	499.5	457.8	139.7	275.6	156.7	41.7	0.9	0.6	0.5	24.7	287.5	2483.6	207.0
1960	361.5	409.0	444.7	326.5	353.6	17.9	39.8	1.7	0.8	0.8	86.7	93.3	2136.3	178.0
1961	300.4	292.4	174.2	174.2	133.7	7.6	0.7	0.5	0.5	0.3	0.7	28.2	1113.3	92.8
1962	317.0	313.5	253.7	389.9	175.2	33.6	14.1	4.9	0.6	4.2	75.2	261.5	1834.4	152.9
1963	394.4	502.7	599.9	325.2	60.7	18.3	6.4	0.2	0.3	0.3	0.3	69.4	1978.1	164.8
1964	57.6	100.1	374.3	169.9	139.9	124.1	0.7	0.3	0.5	213.9	107.5	72.8	1317.6	109.8
1965	286.8	341.3	238.1	189.7	10.6	23.9	1.1	0.6	0.5	0.5	0.6	74.1	1167.8	97.3
1966	165.8	397.4	438.4	306.7	79.1	20.5	1.0	0.4	0.4	4.3	14.0	200.2	1628.2	135.7
1967	329.9	289.4	267.9	277.4	74.8	3.2	0.3	0.3	0.3	0.3	0.3	72.9	1317.2	109.8
1968	114.6	291.9	451.9	412.7	364.7	256.2	271.0	114.9	23.9	35.6	95.5	299.7	2733.2	227.8
1969	273.4	368.6	352.7	372.8	58.3	46.5	0.5	6.6	0.4	0.5	47.1	30.7	1556.1	129.8
1970	172.4	312.7	400.2	268.0	267.3	59.5	9.0	0.4	-1.0	-1.0	-1.0	-1.0	1459.5	122.4
TOTAL	5798.8	7292.5	7585.1	5331.2	3430.3	1531.7	1371.3	602.3	186.7	493.9	1772.3	3598.6	38994.7	462.2
MEAN	289.9	364.6	379.3	266.6	171.5	76.6	68.0	30.1	9.8	26.0	93.3	189.4		

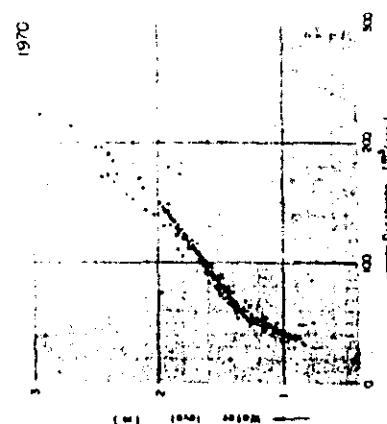
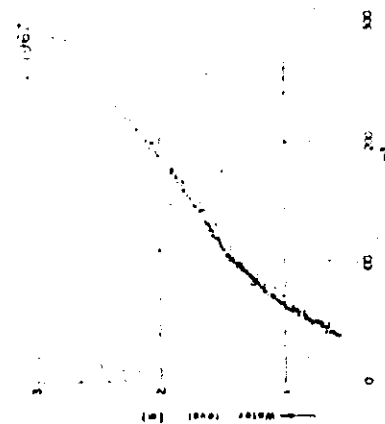
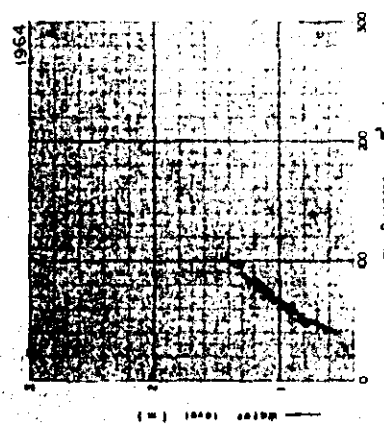
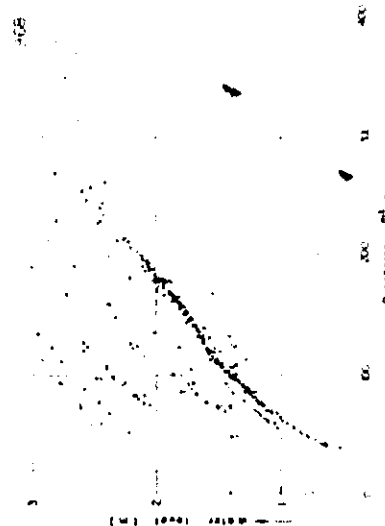
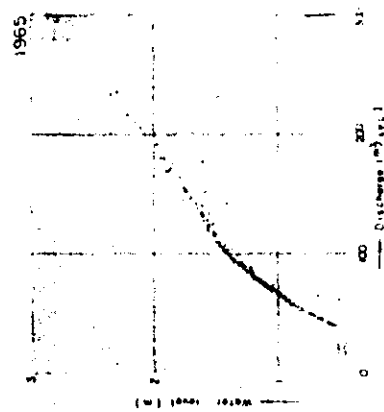
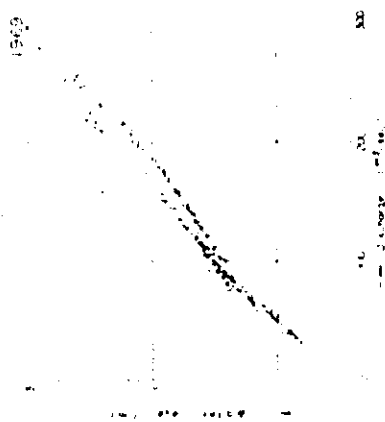
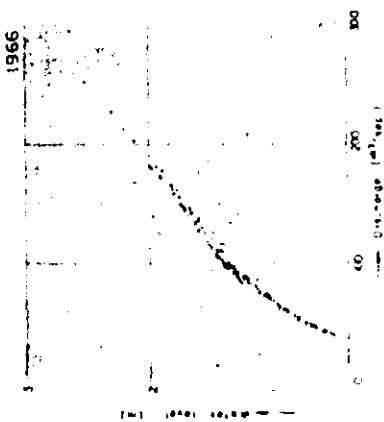
#### 5. Correlation of Daily Water Level and Discharge

The presented herein is the relationship between the water level and the discharge at seven discharge gauges obtained from the records during the 1951 - 1970 period. The gauges are Pohgadjih, Kaulon, Pakel, Djeli, Djombiru, Kertosono and Djahon.

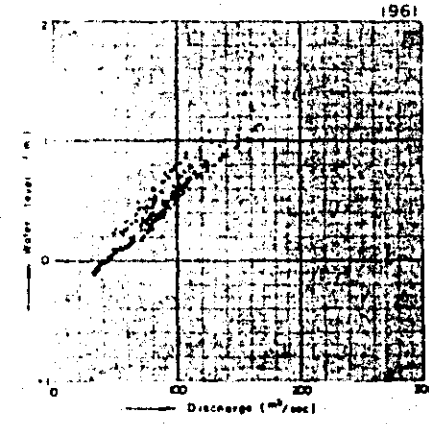
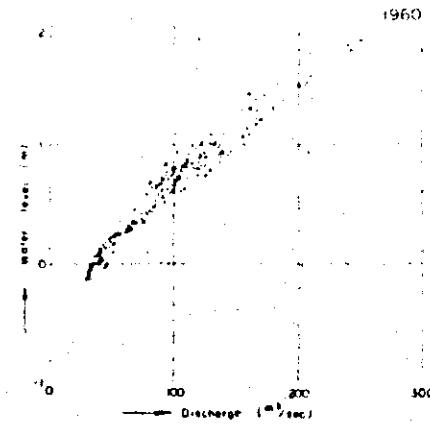
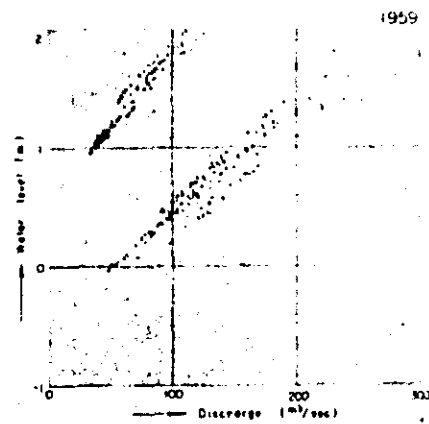
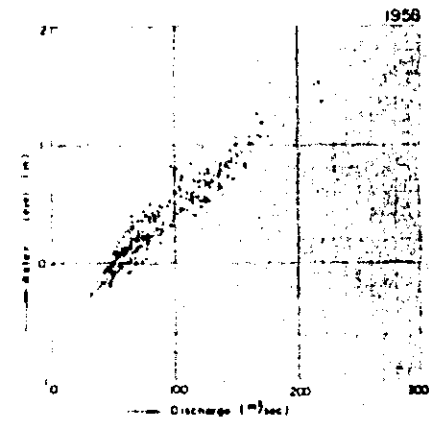
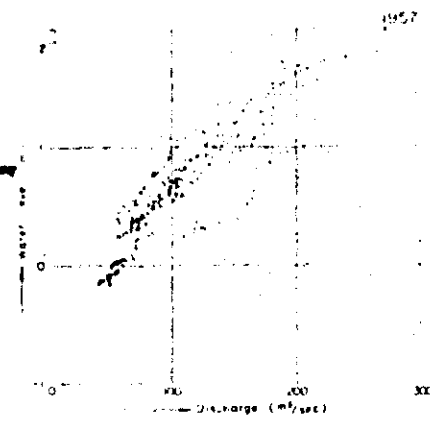
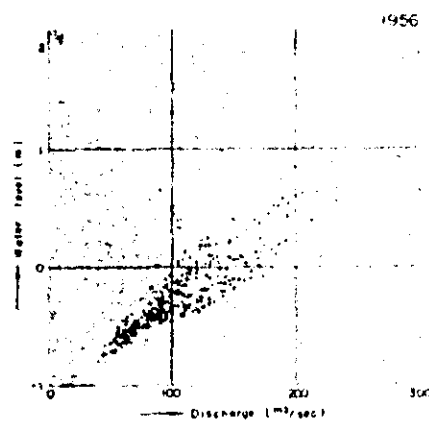
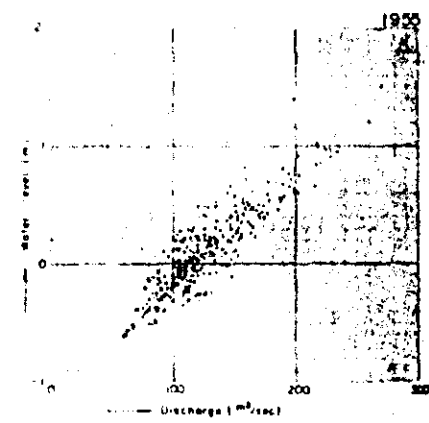
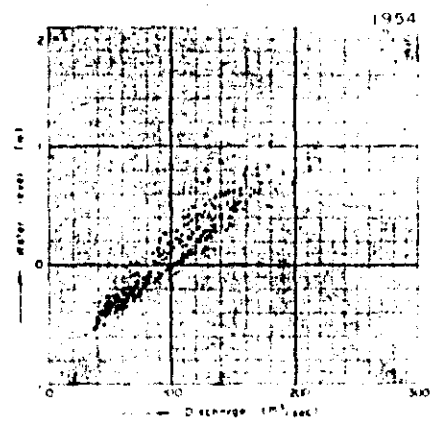
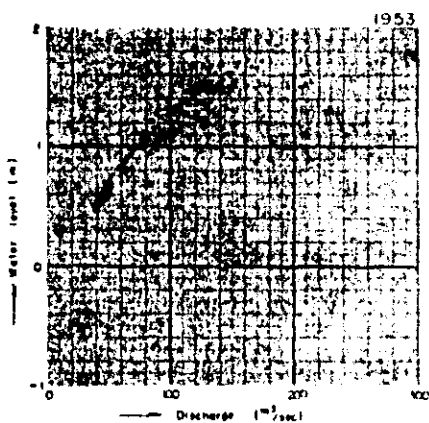
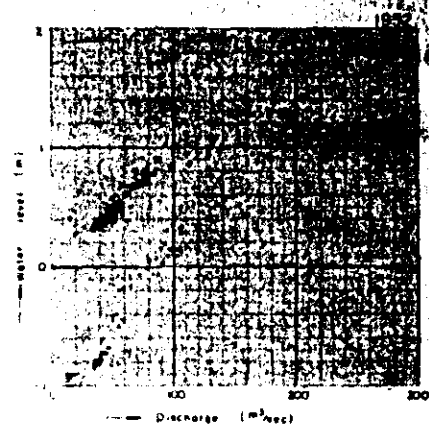
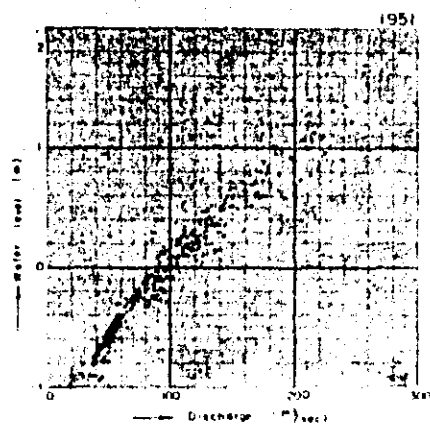
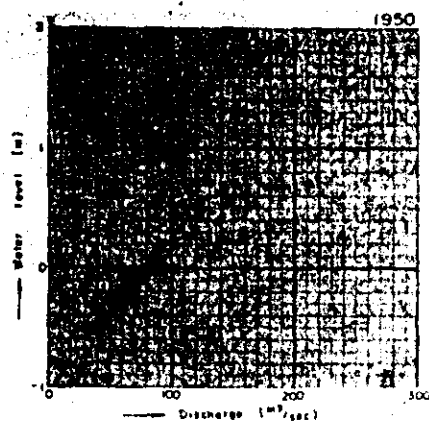


Pohredivh Gauging Station (1)

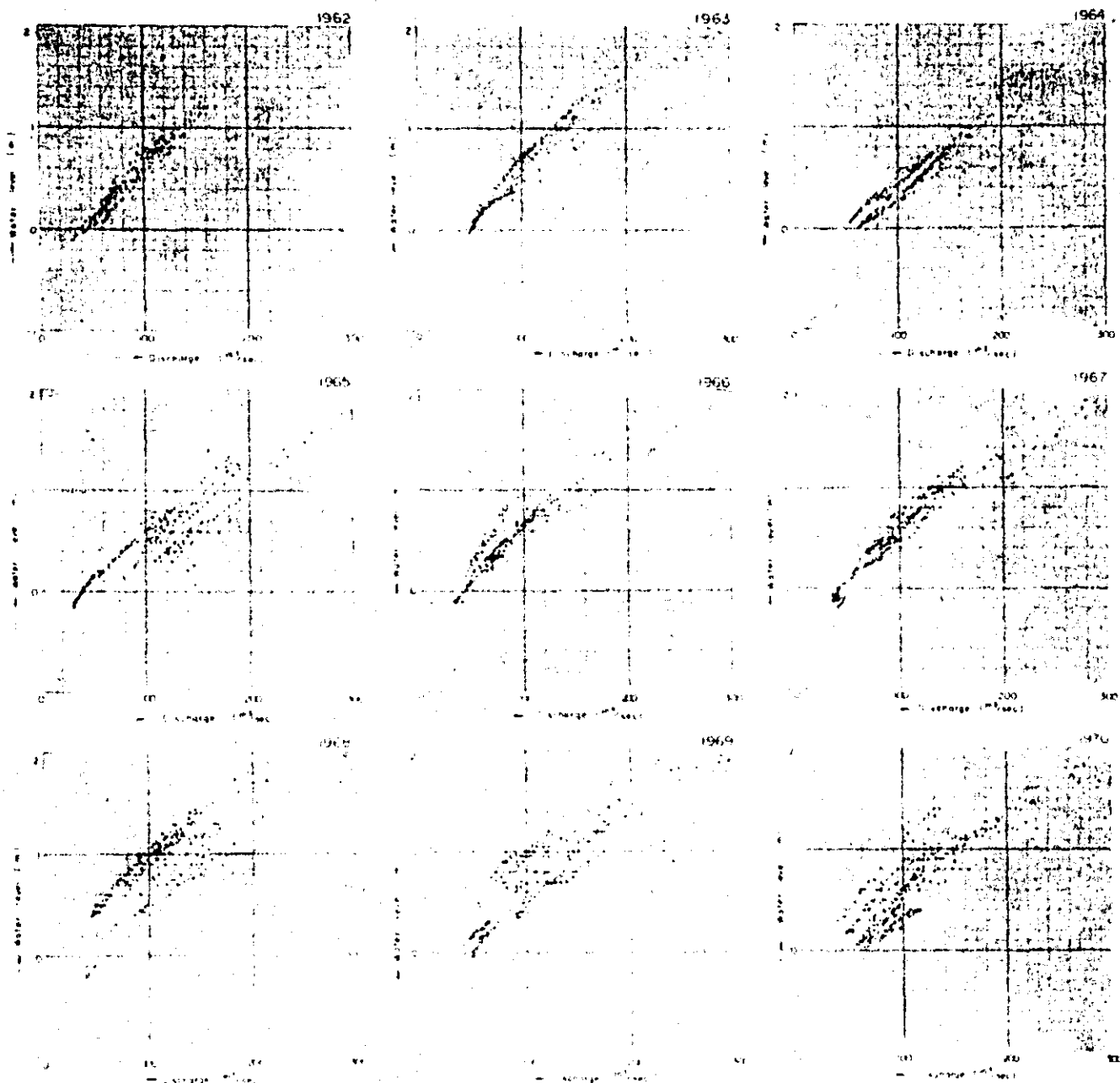




Pohradjib Gauging Station (2)



Kaúlön Gauging Station (1)

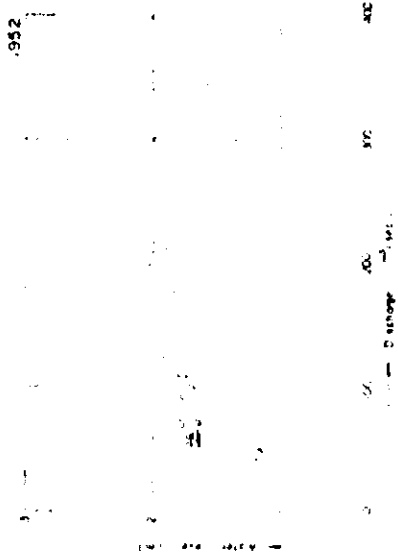
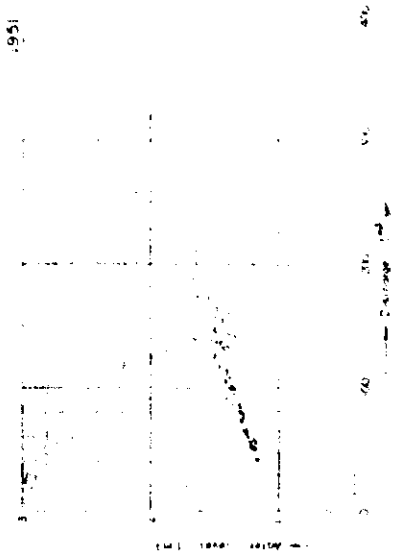
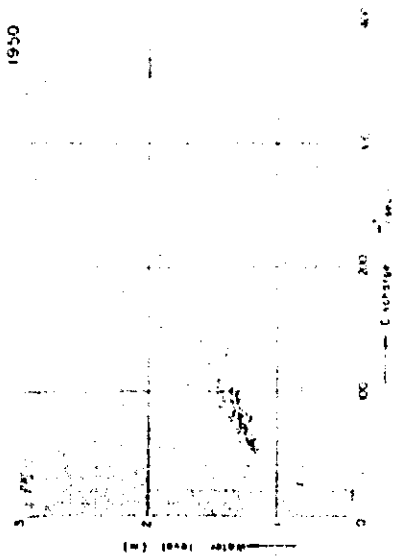


Kaulon Gauging Station (2)

1950

1951

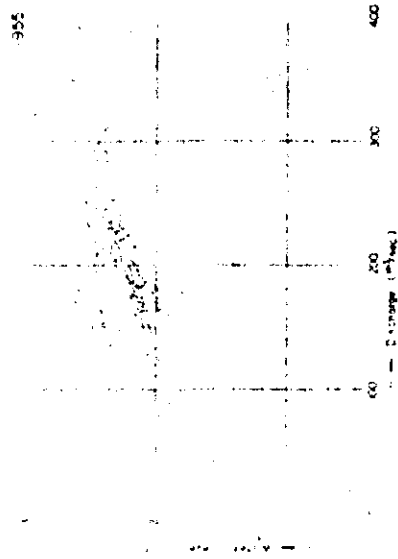
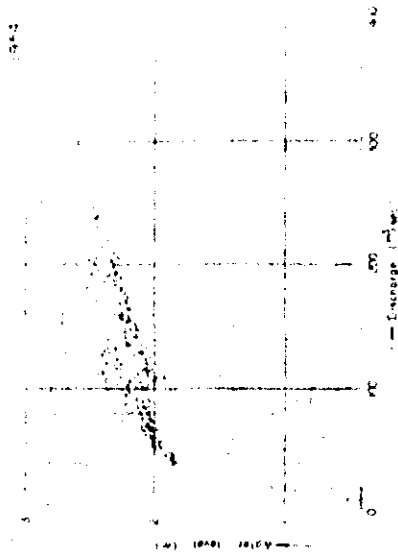
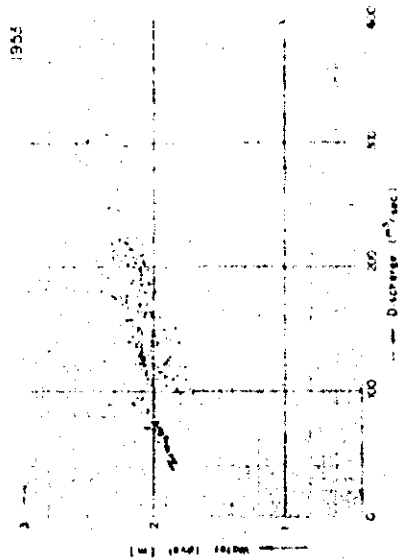
1952



1953

1954

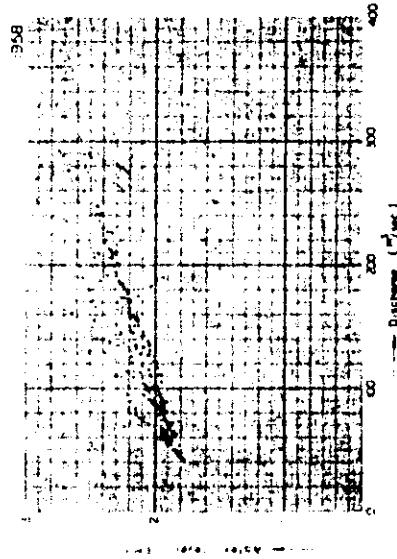
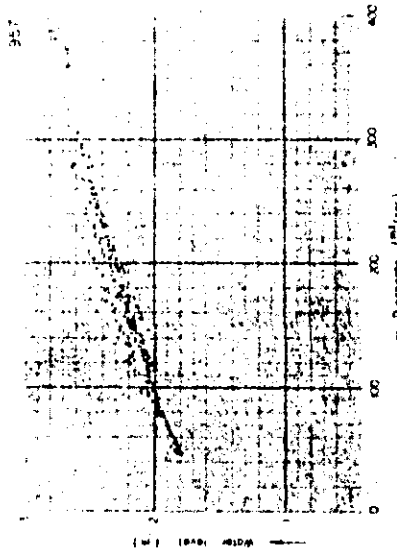
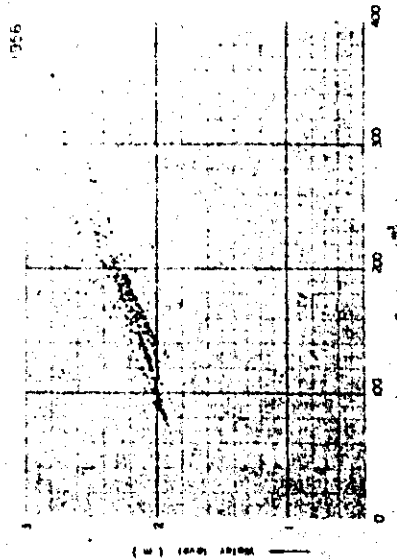
1955



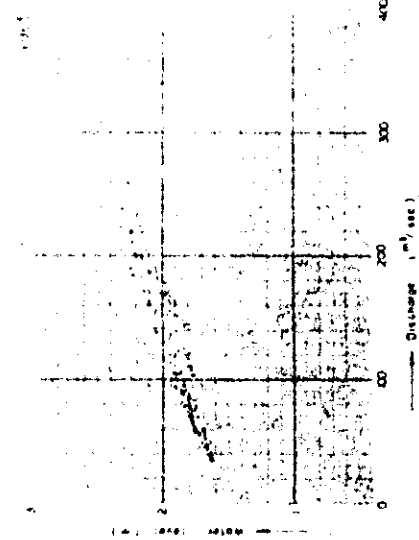
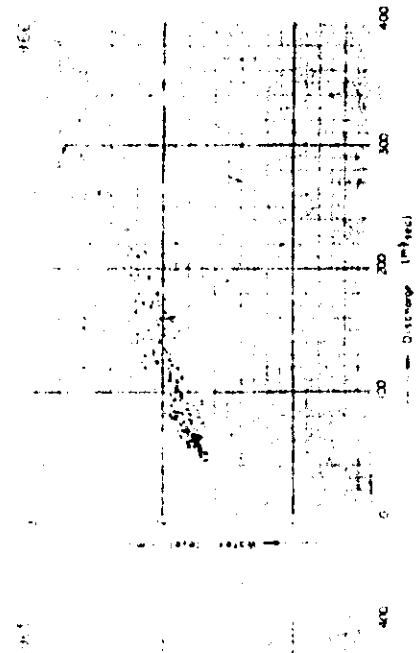
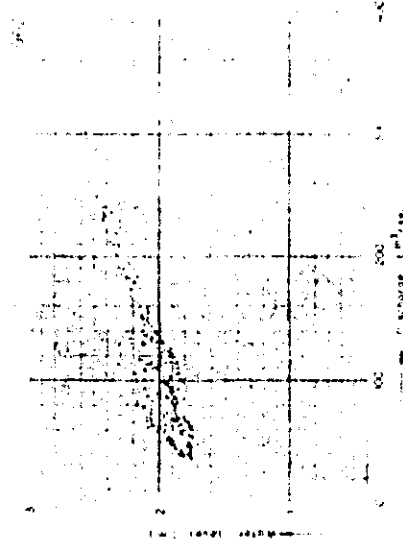
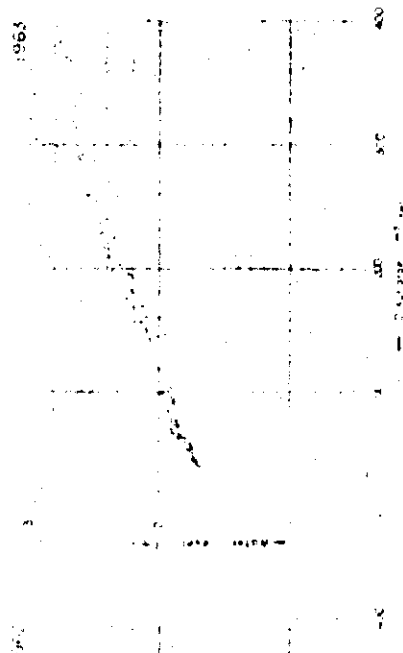
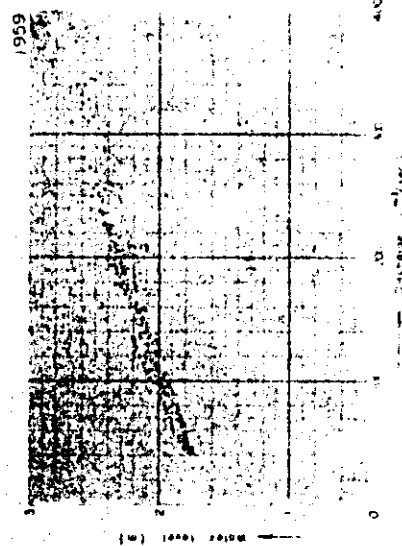
1956

1957

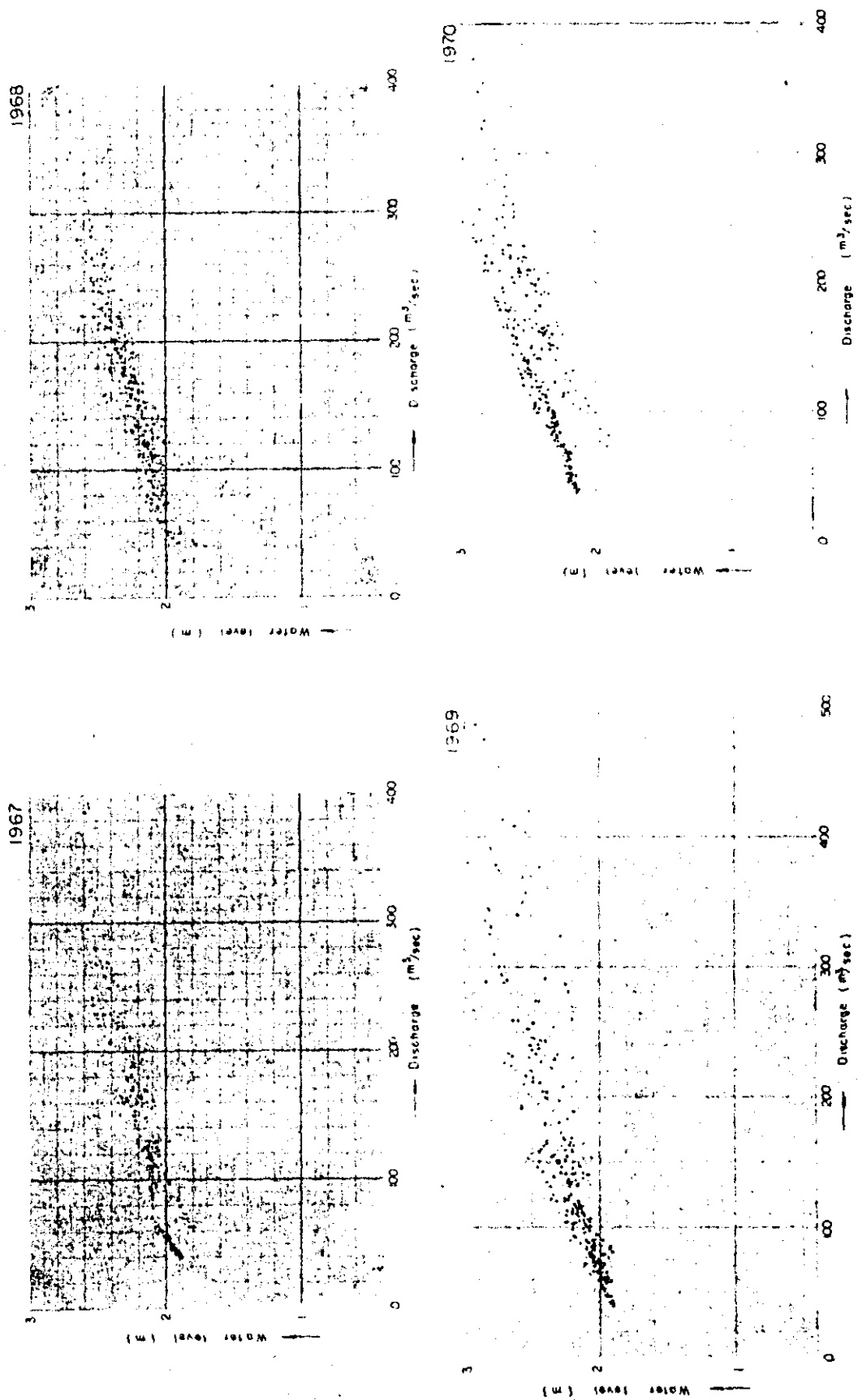
1958



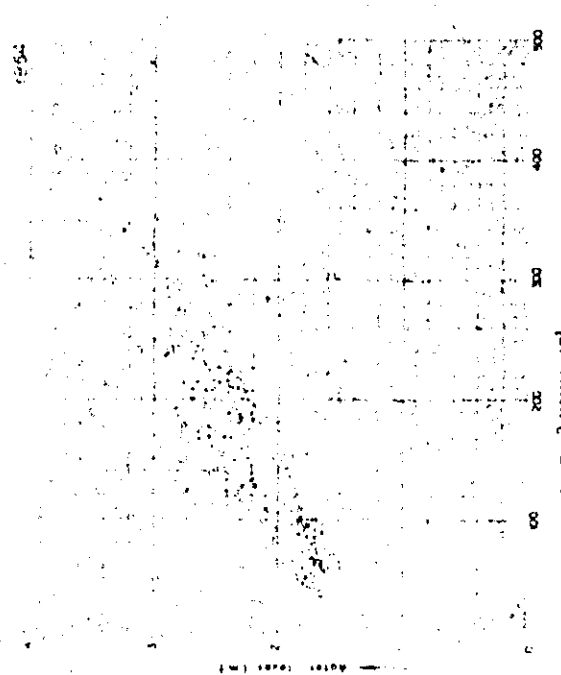
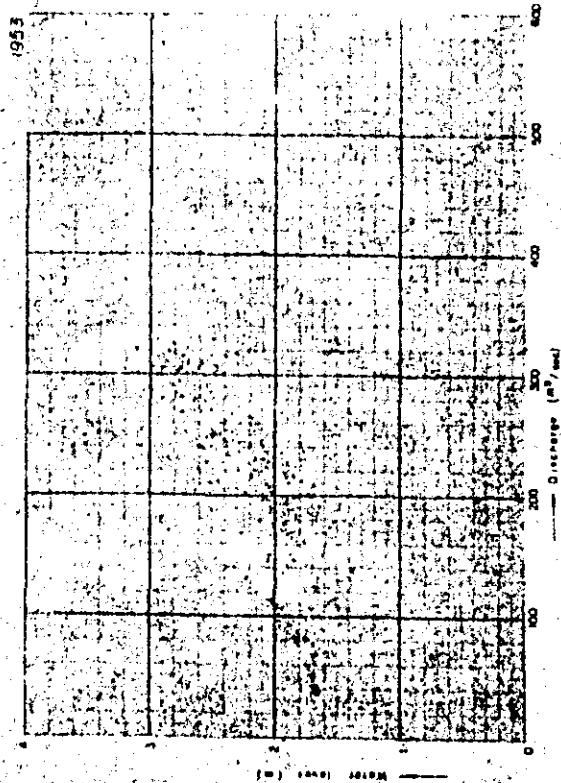
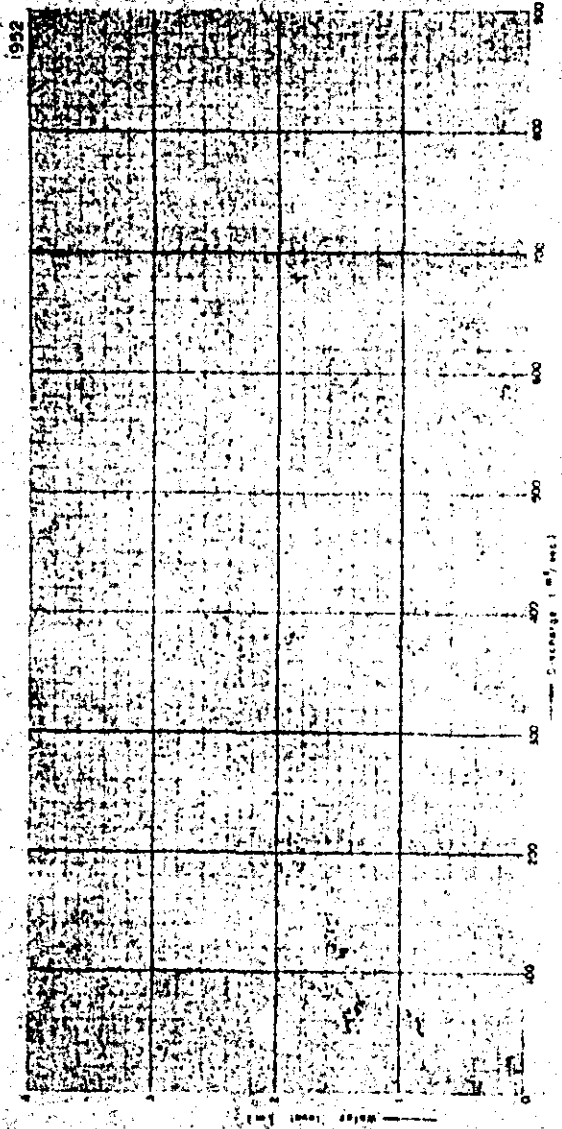
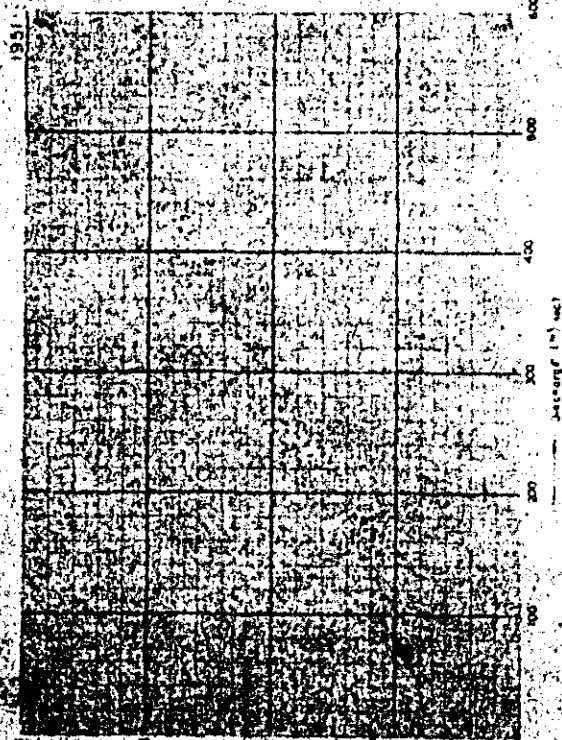
Pakel Gauging Station (1)



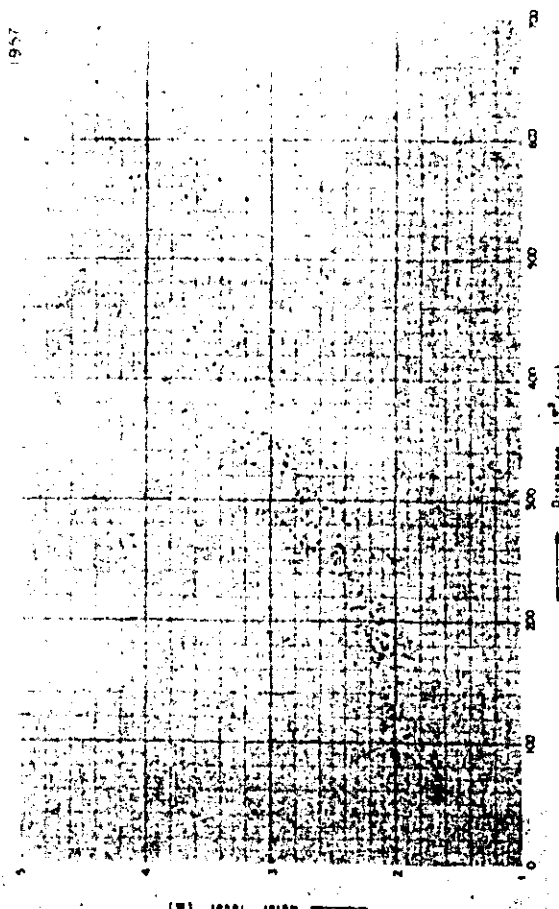
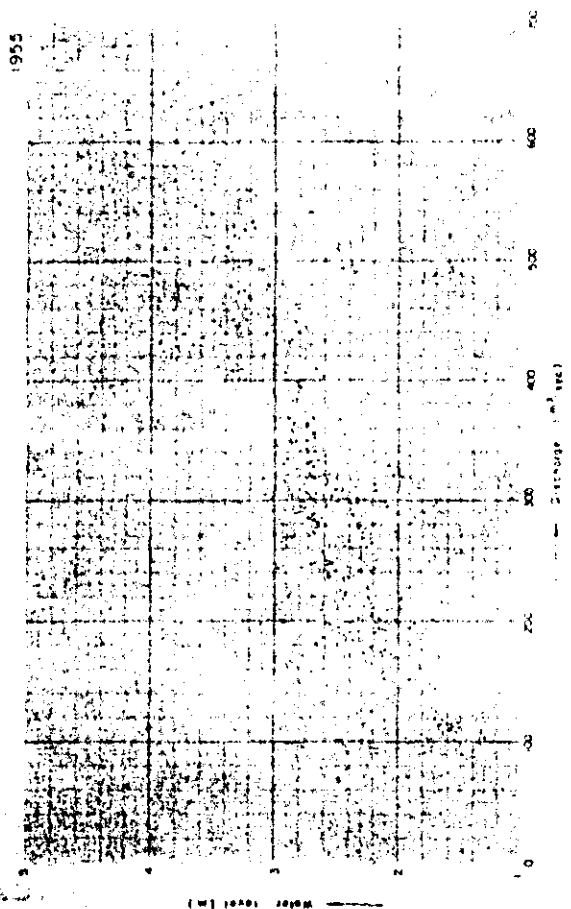
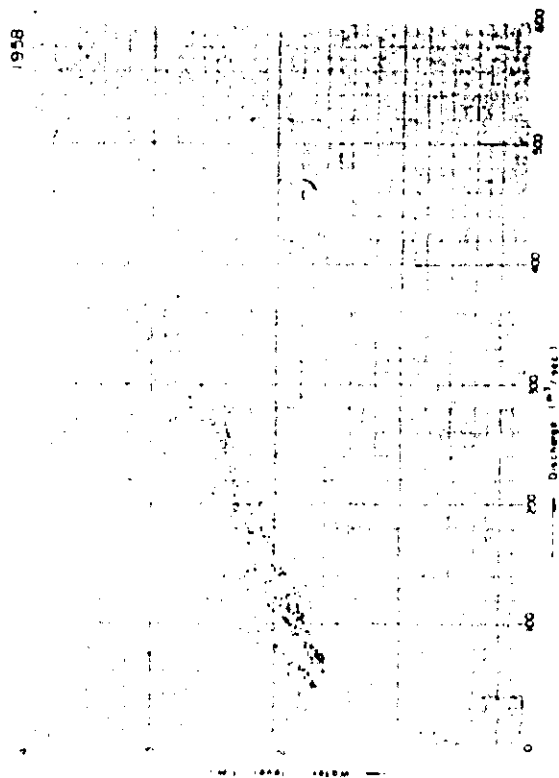
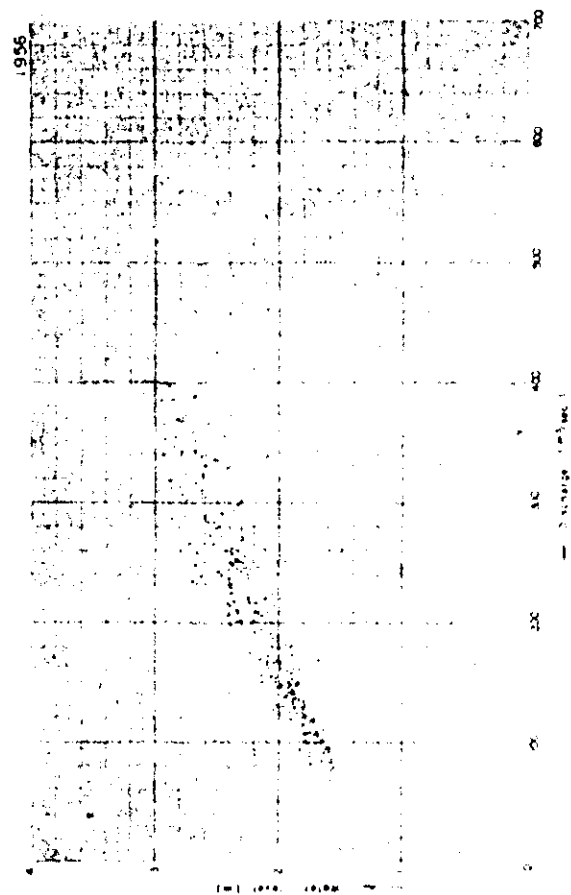
Pakel Gauging Station (2)



Pakel Gauging Station (3)

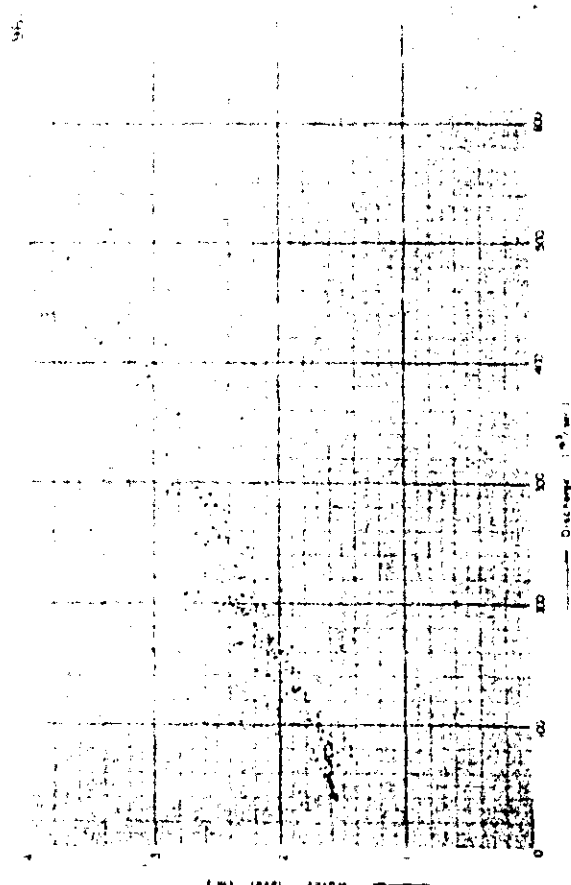
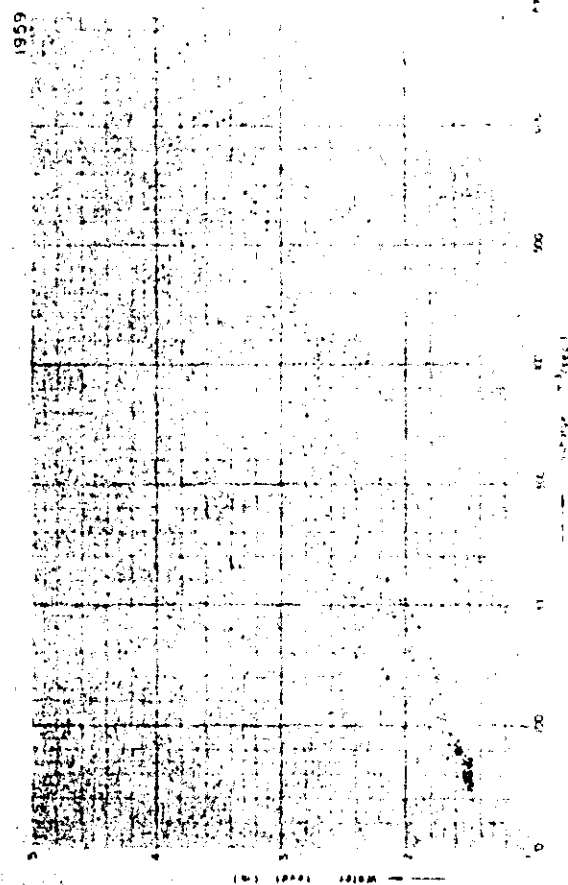
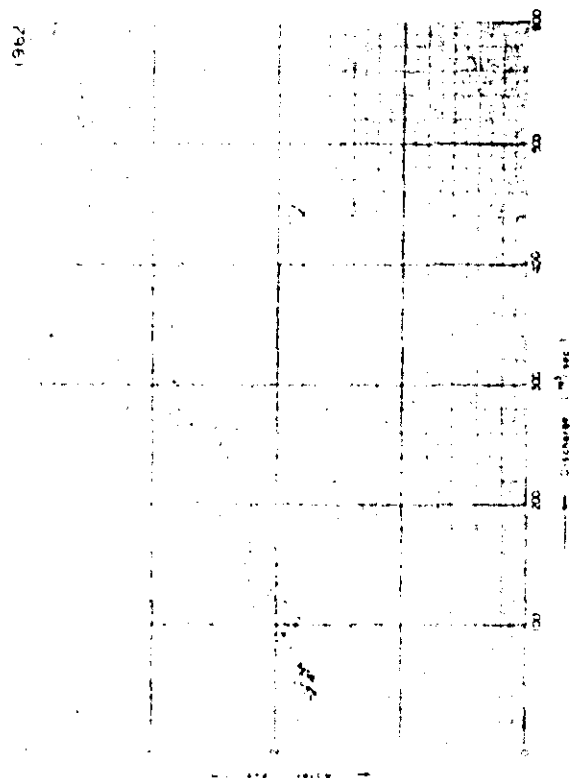
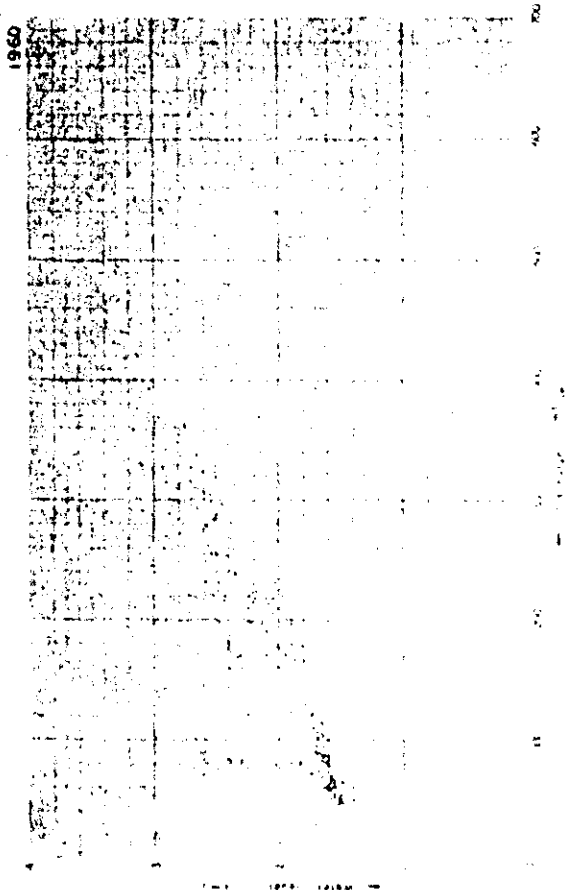


Djeli Gauging Station (1)

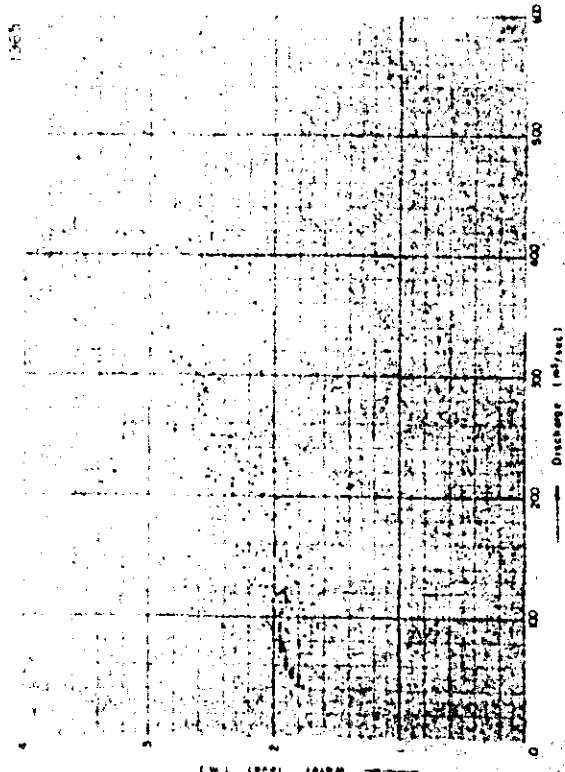
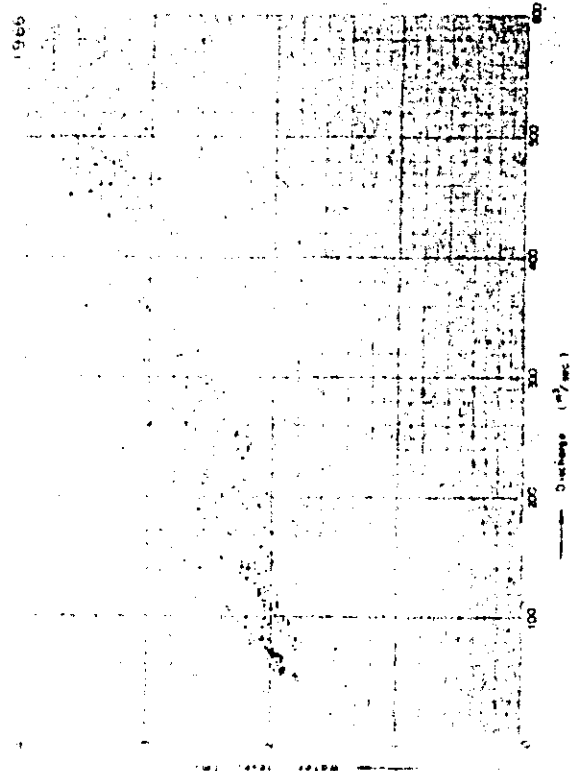
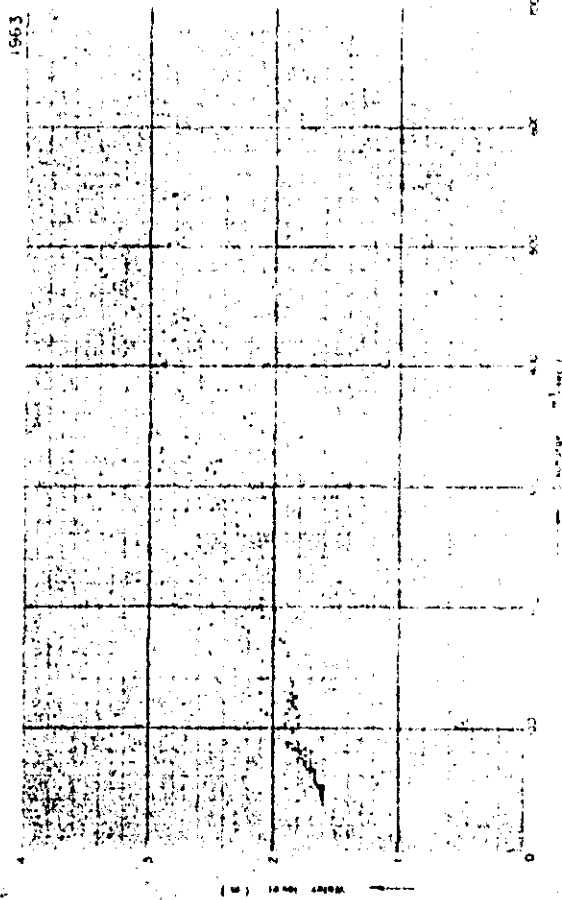
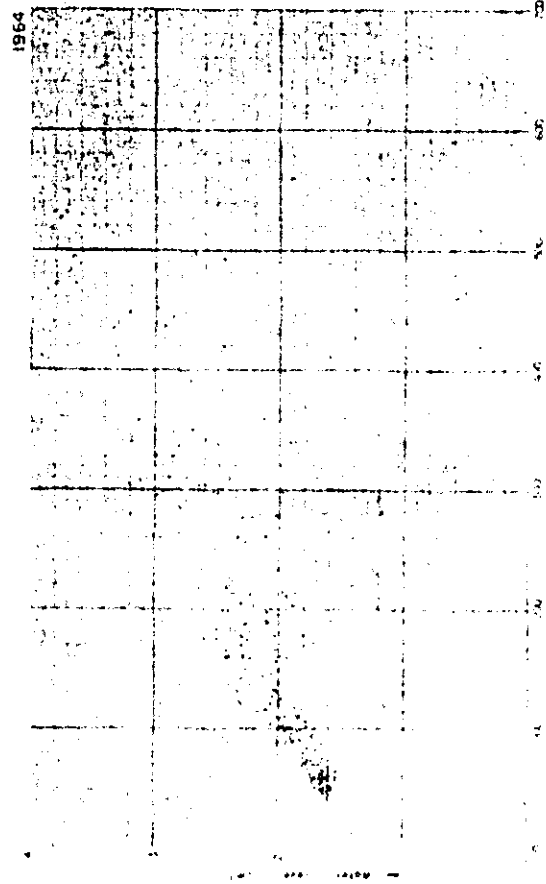


Djeli Gauging Station (2)

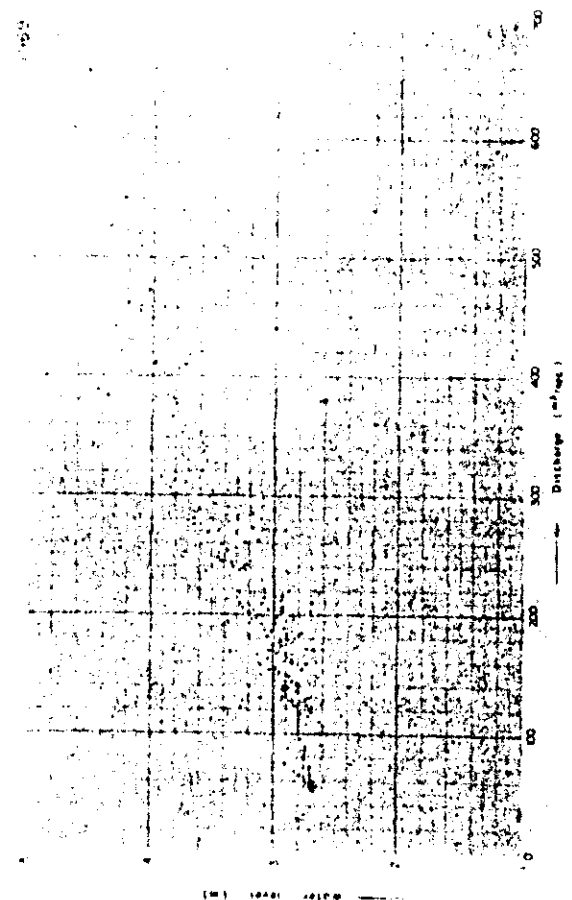
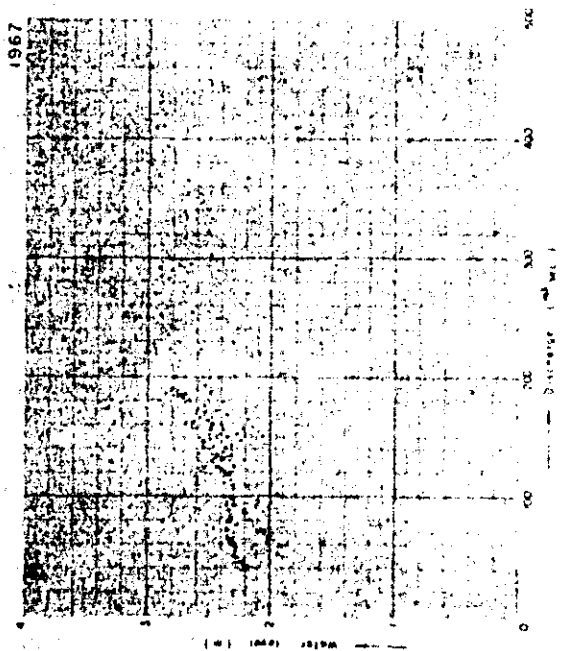
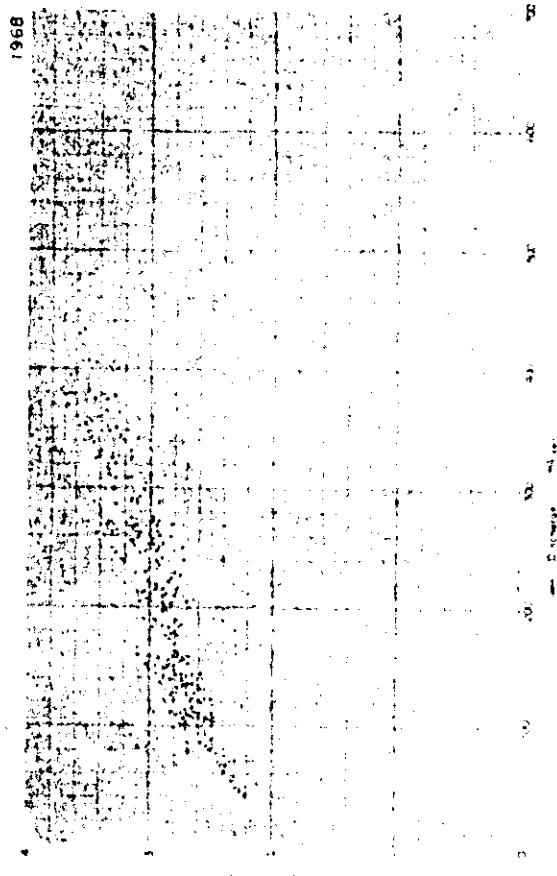




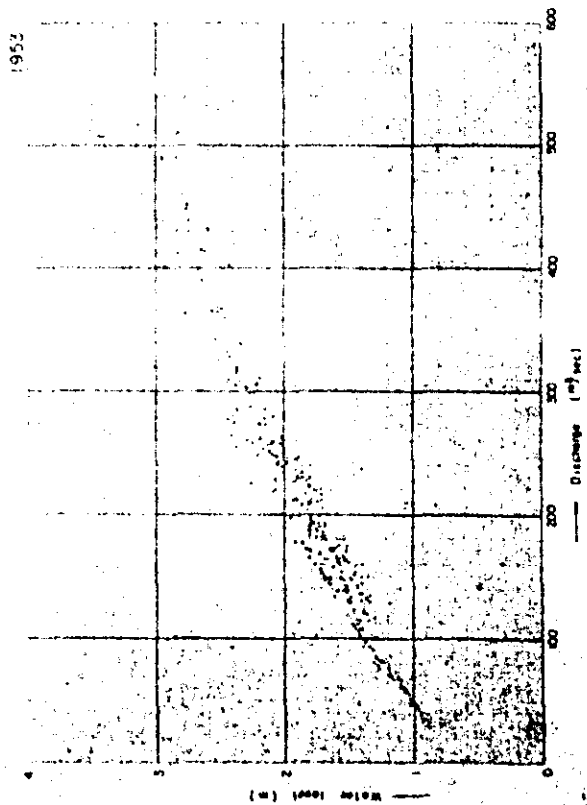
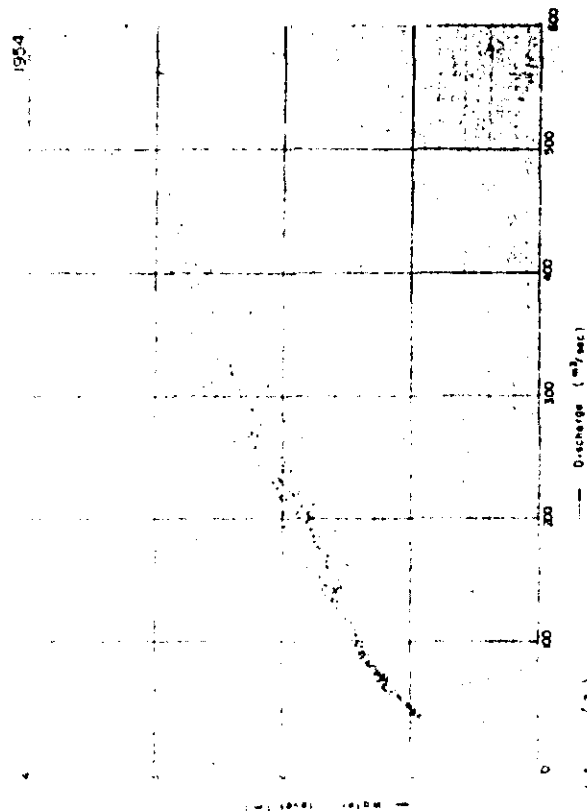
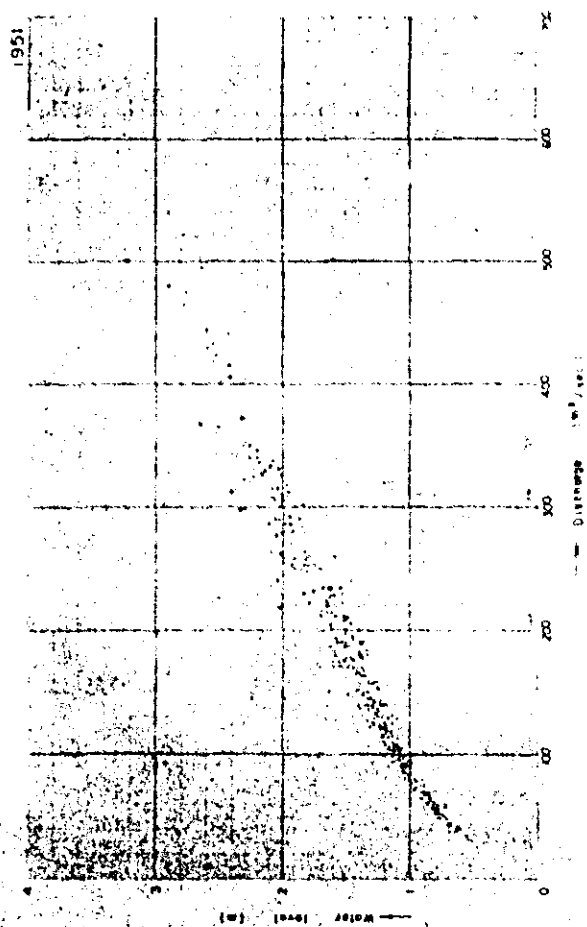
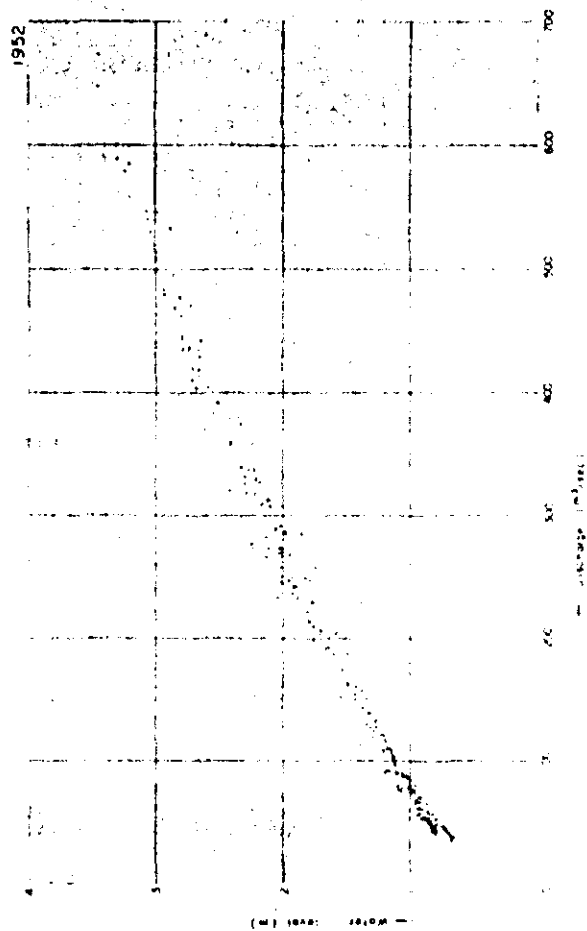
Djeli Gauging Station (3)



Diali Gauging Station (4)

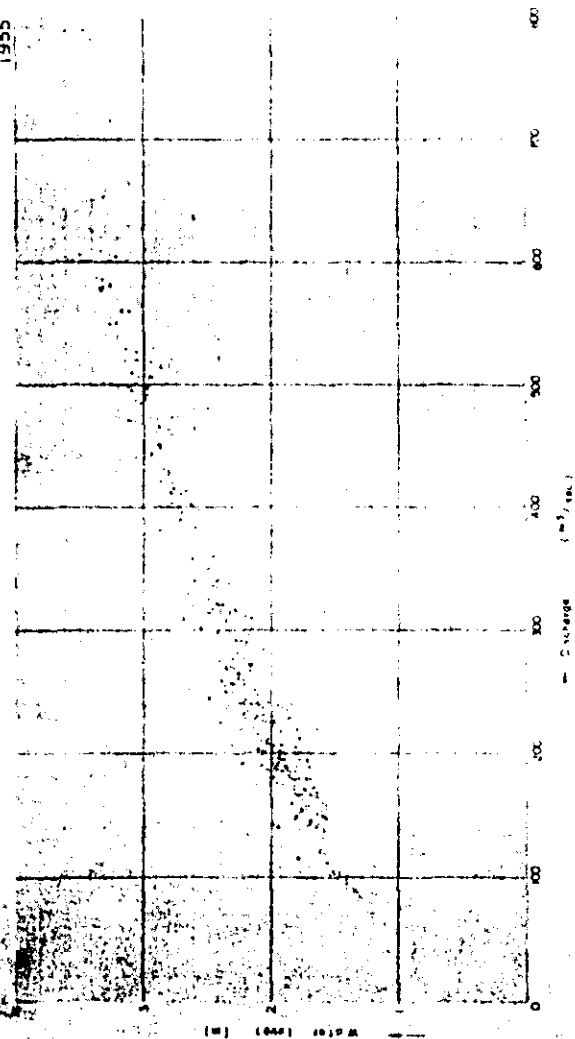


Dielu Gauging Station (5)

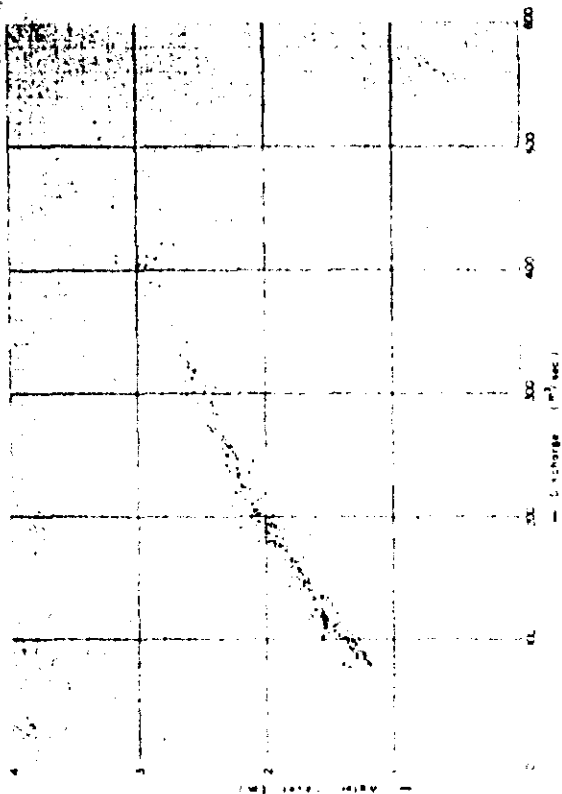


Djombiru Gauging Station (1)

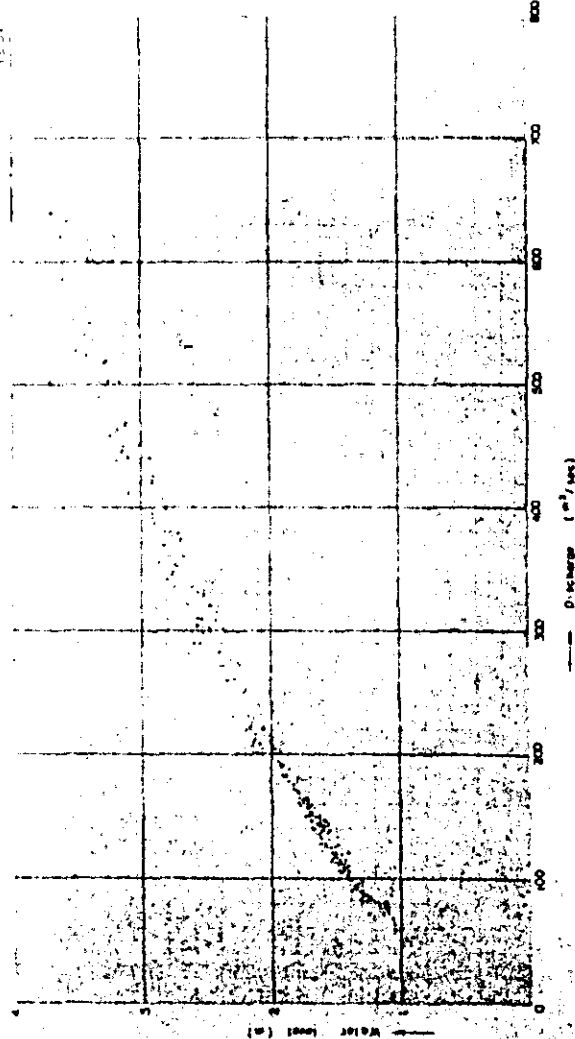
1955



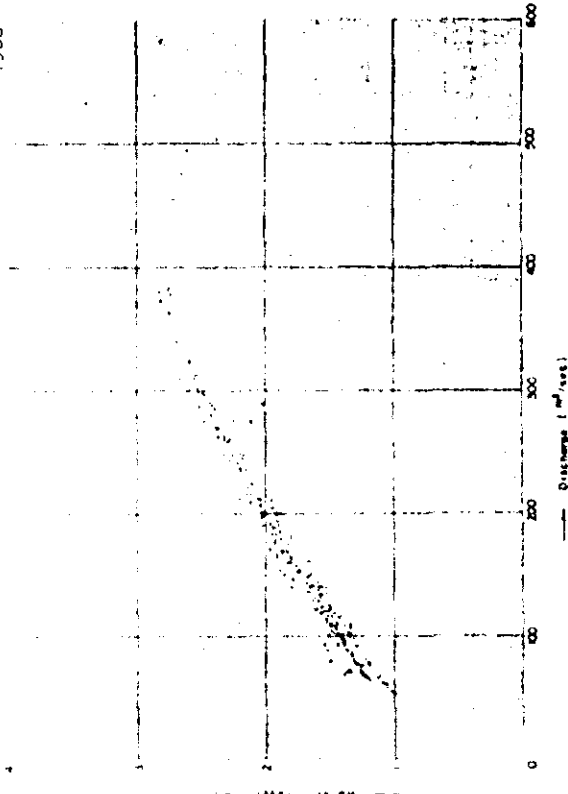
1956



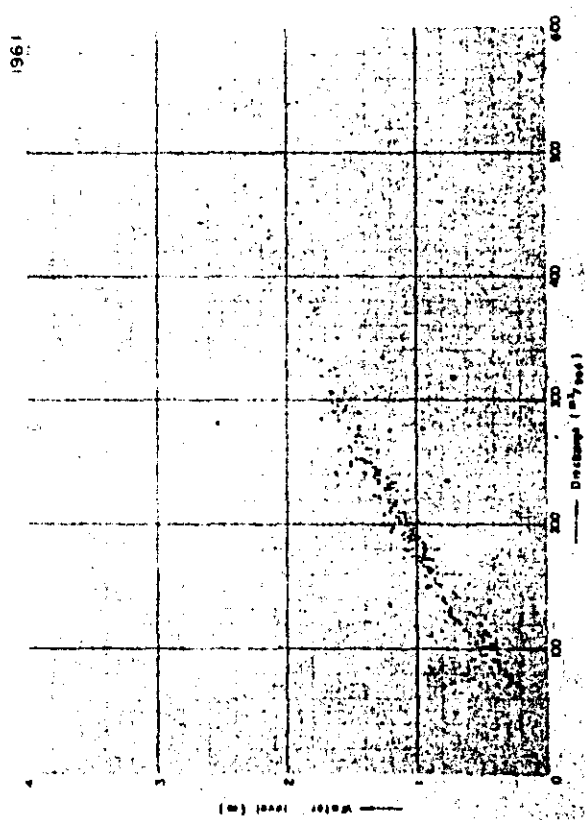
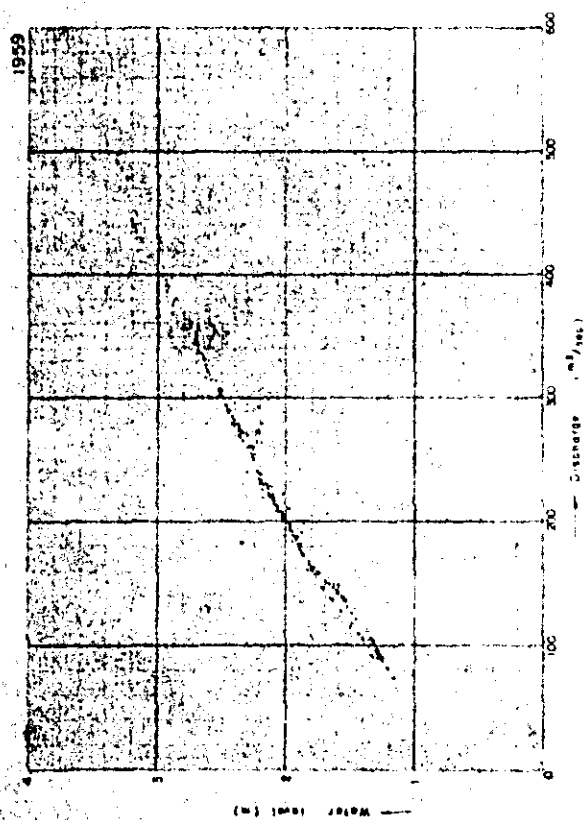
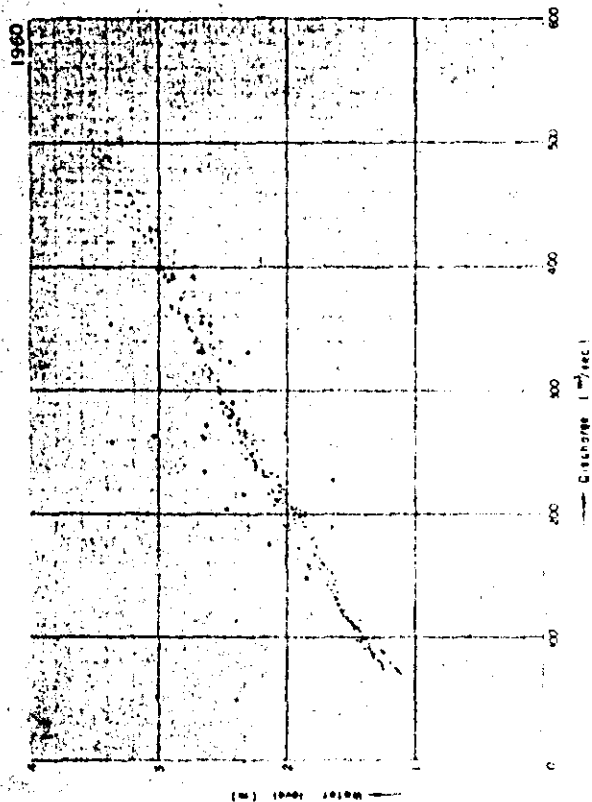
1957



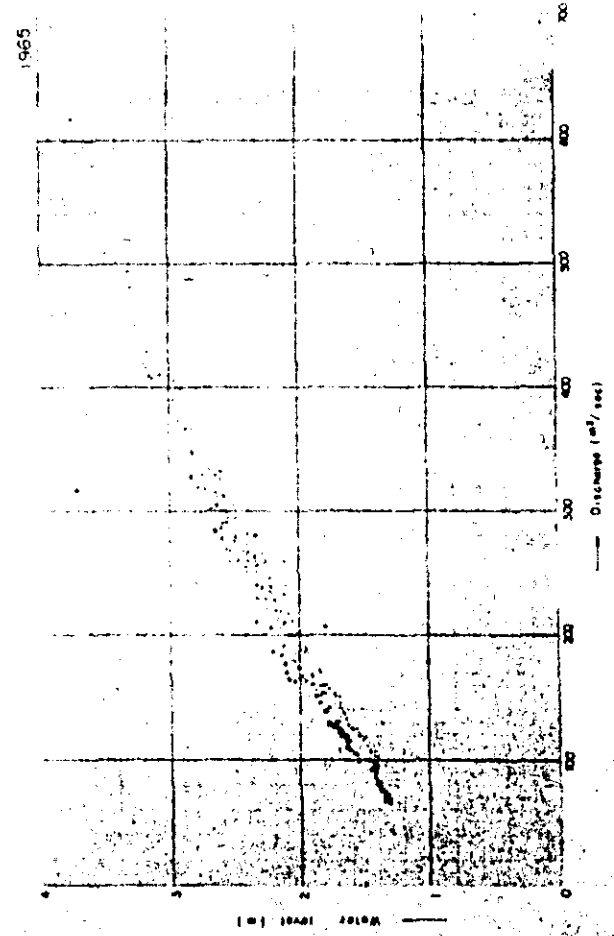
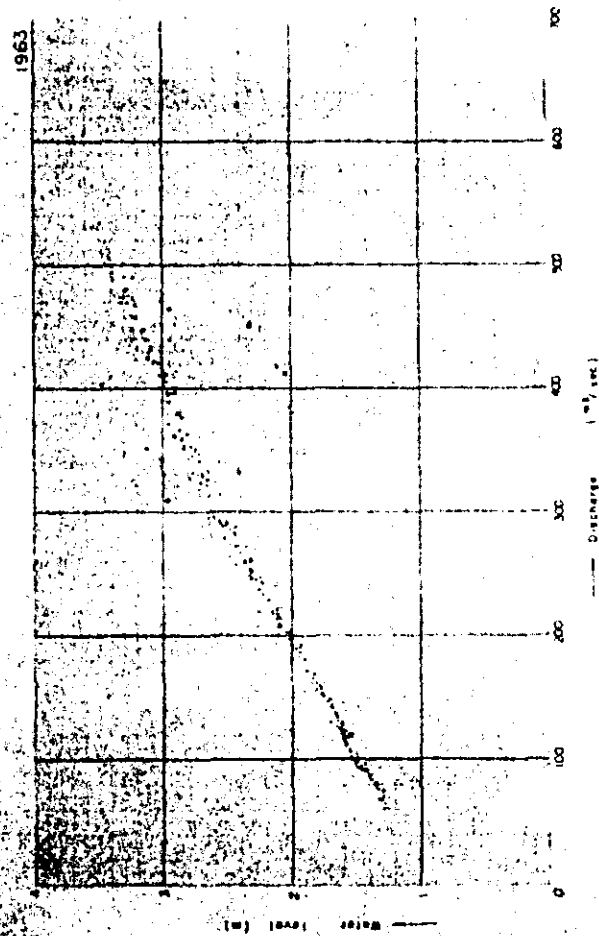
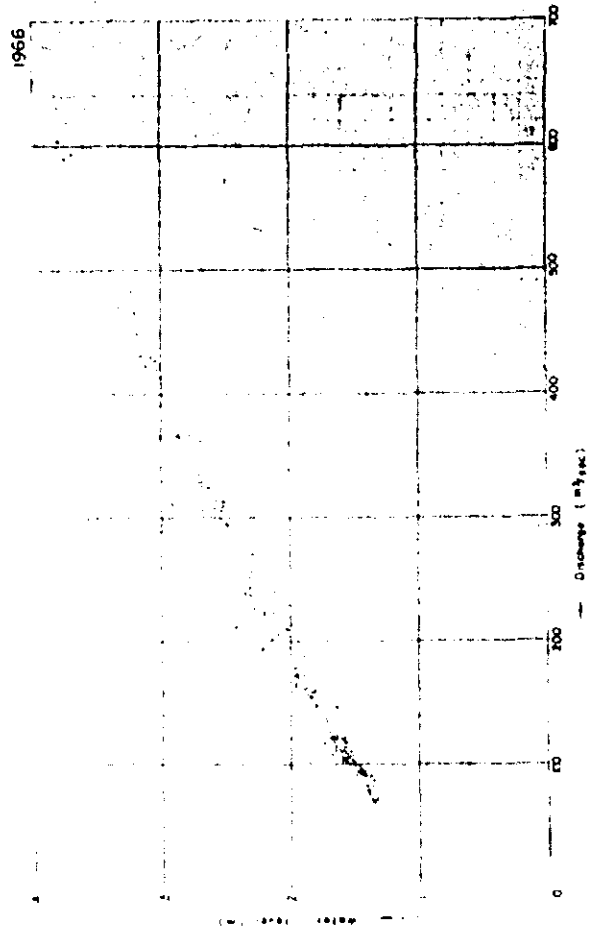
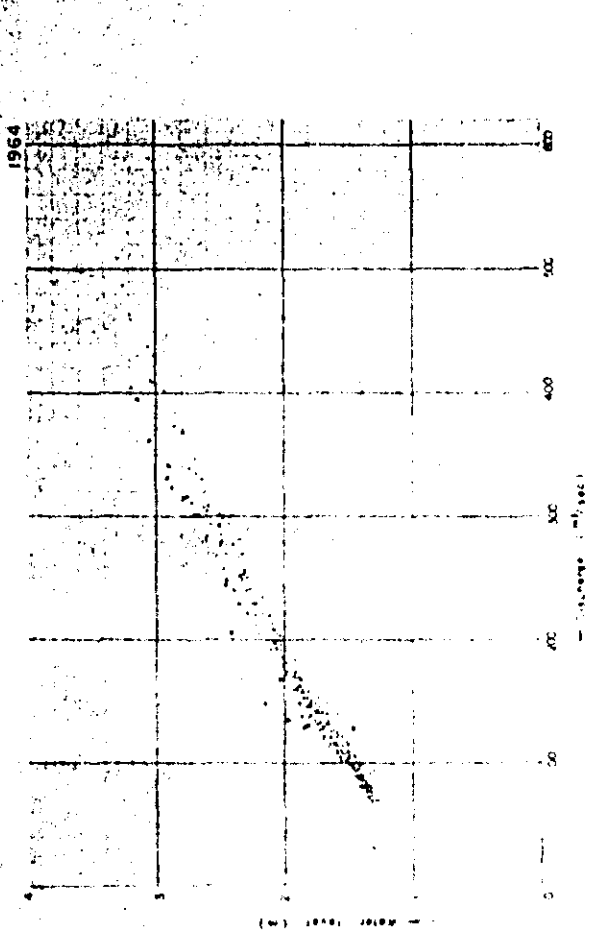
1958



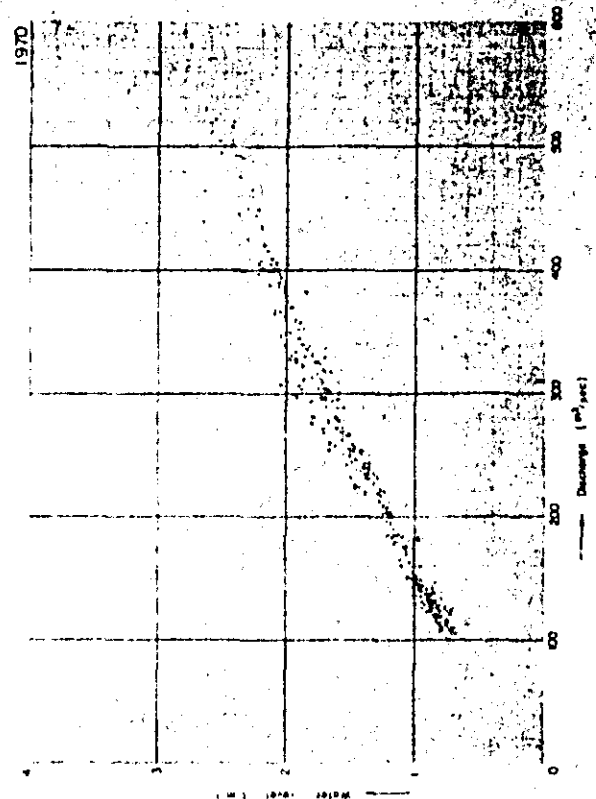
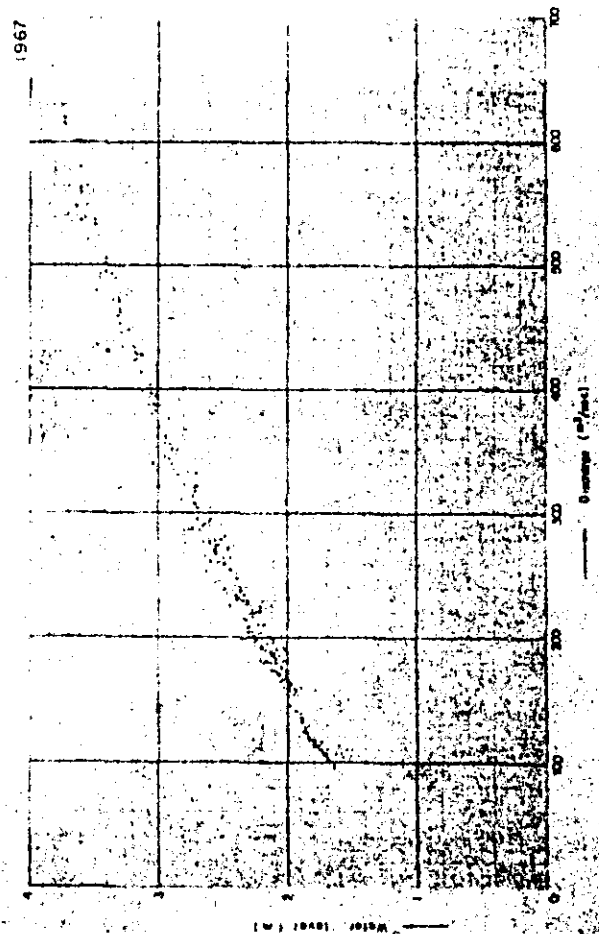
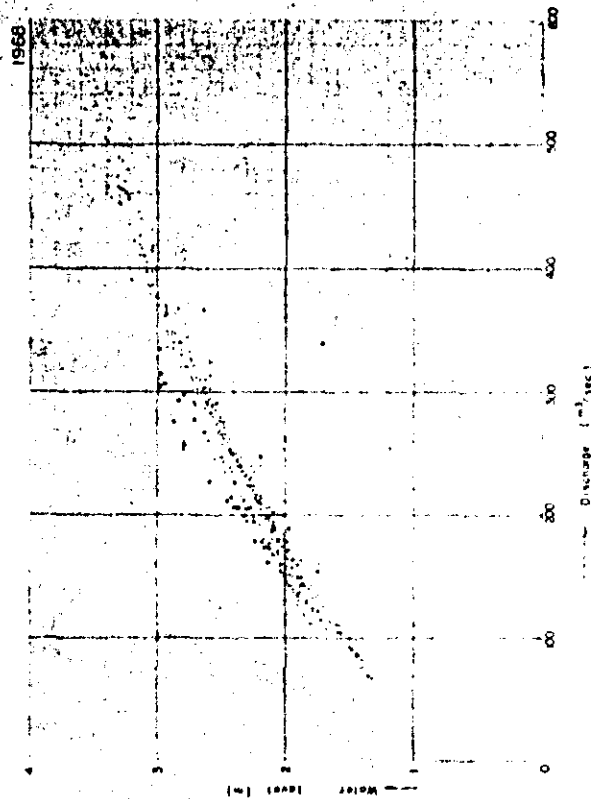
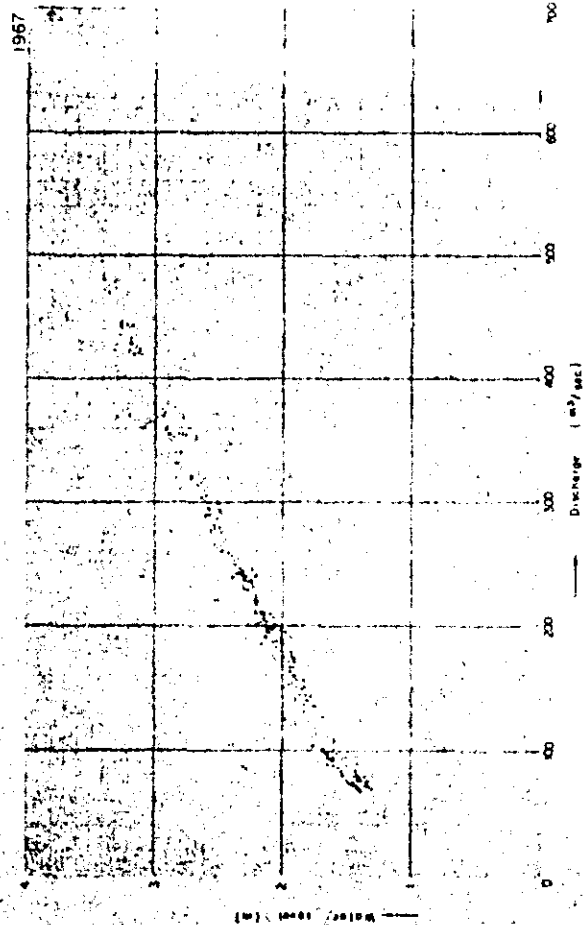
Djombiru Gauging Station (2)



Djombiru Gauging Station (3)

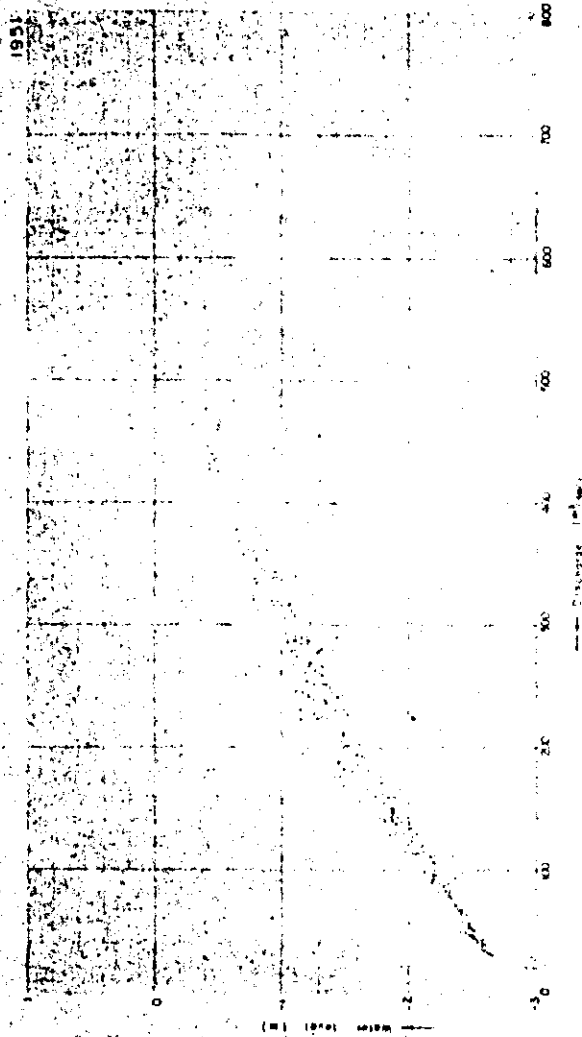
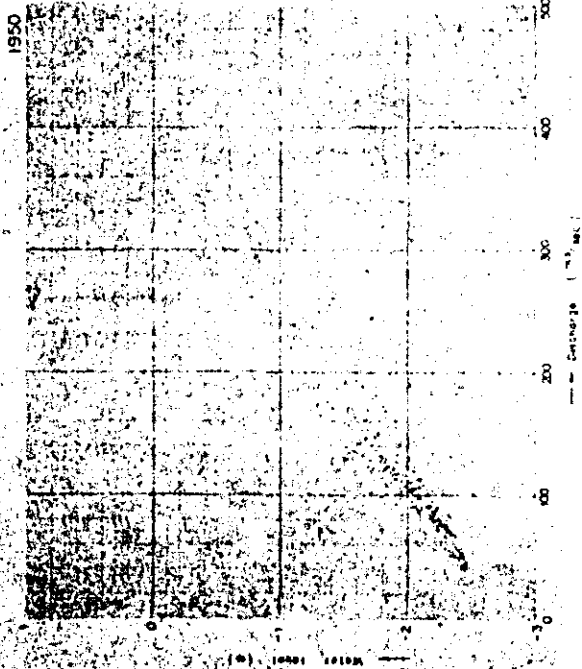


Djombiru Gauging Station (4)

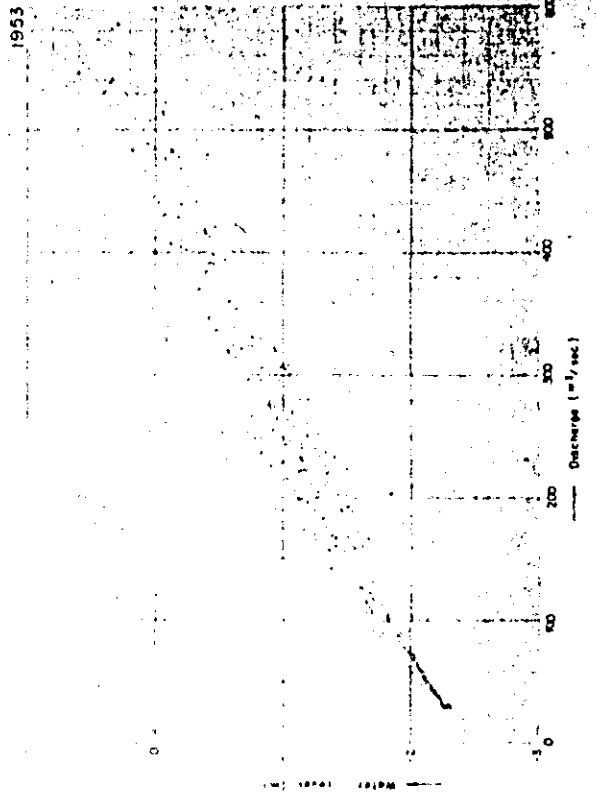


Djombiru Gauging Station (5)

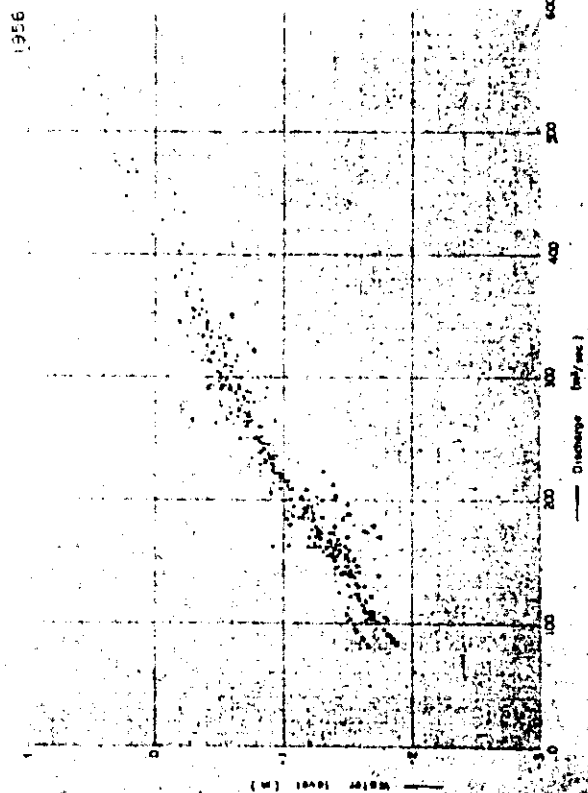
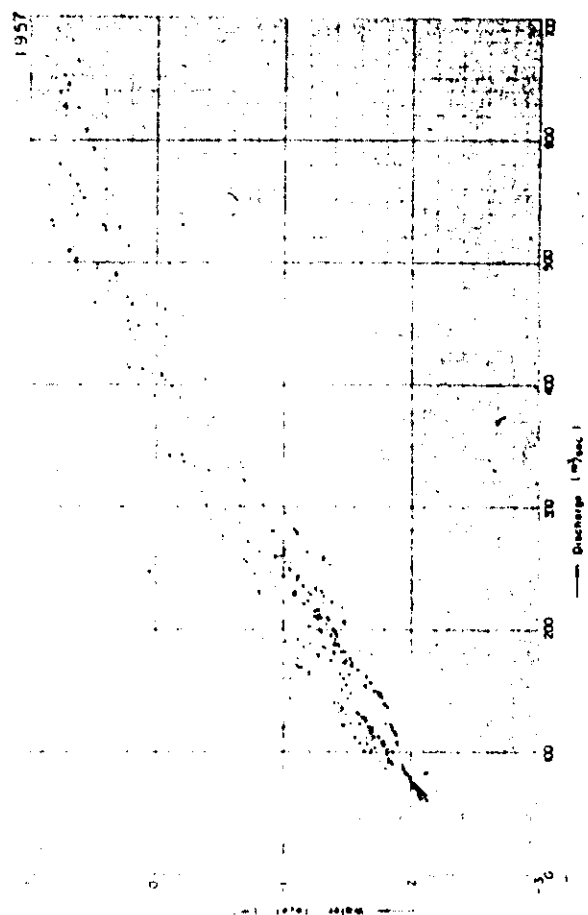
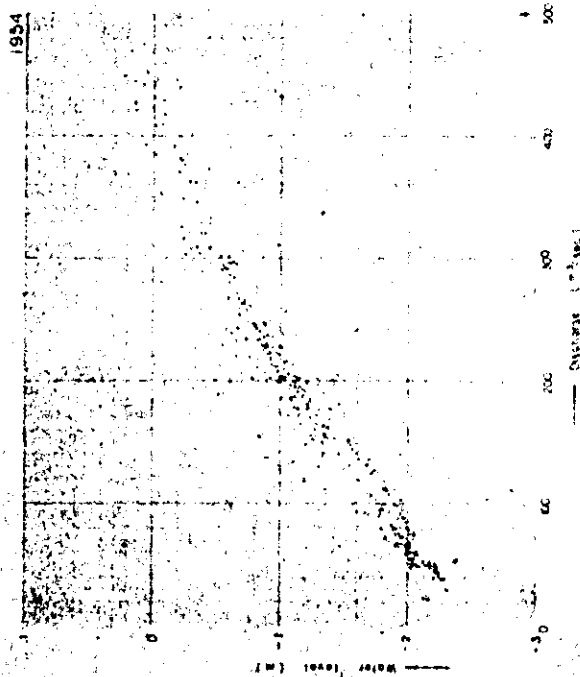
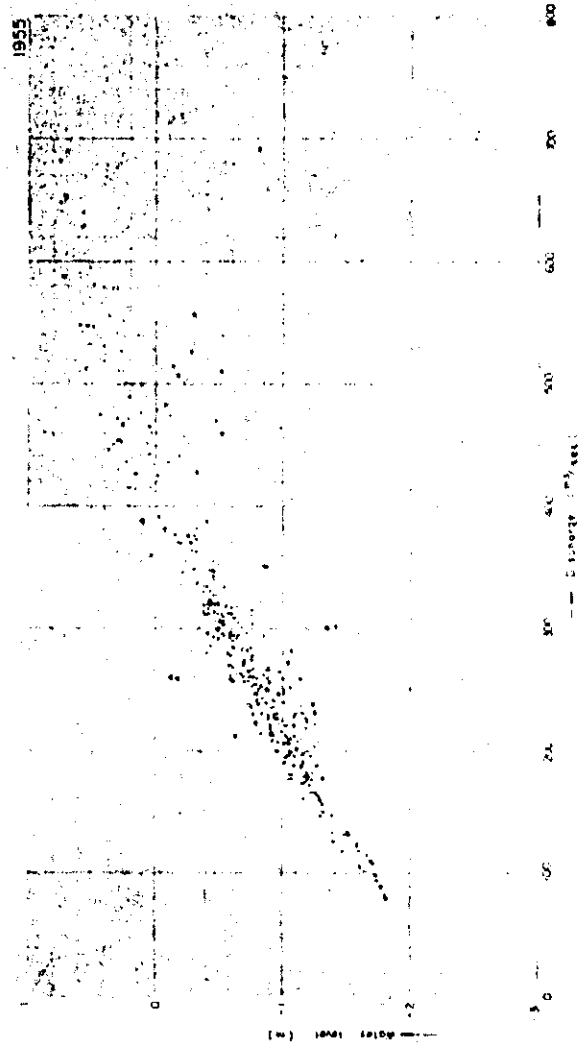




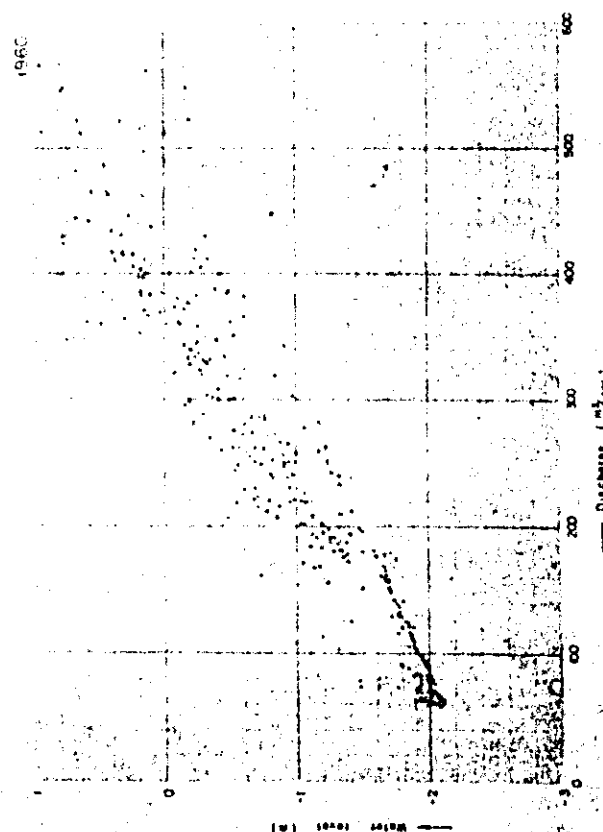
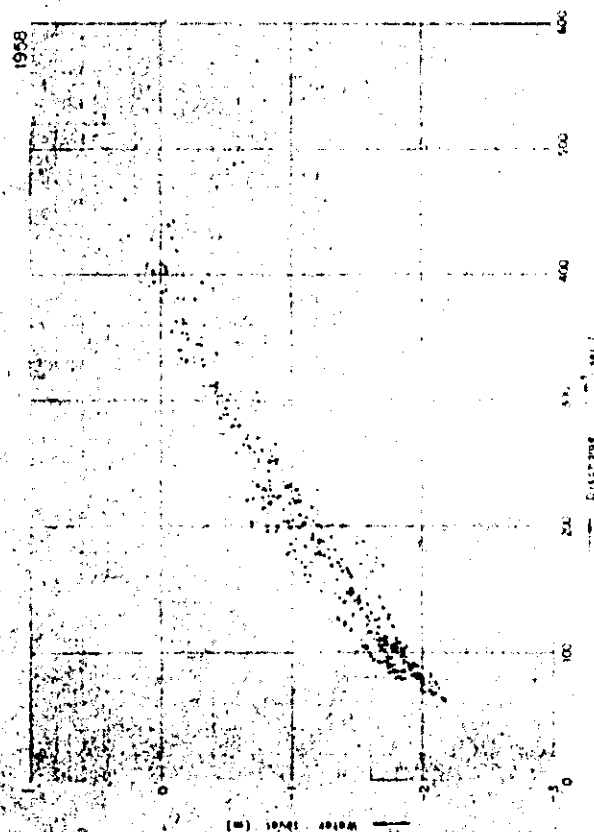
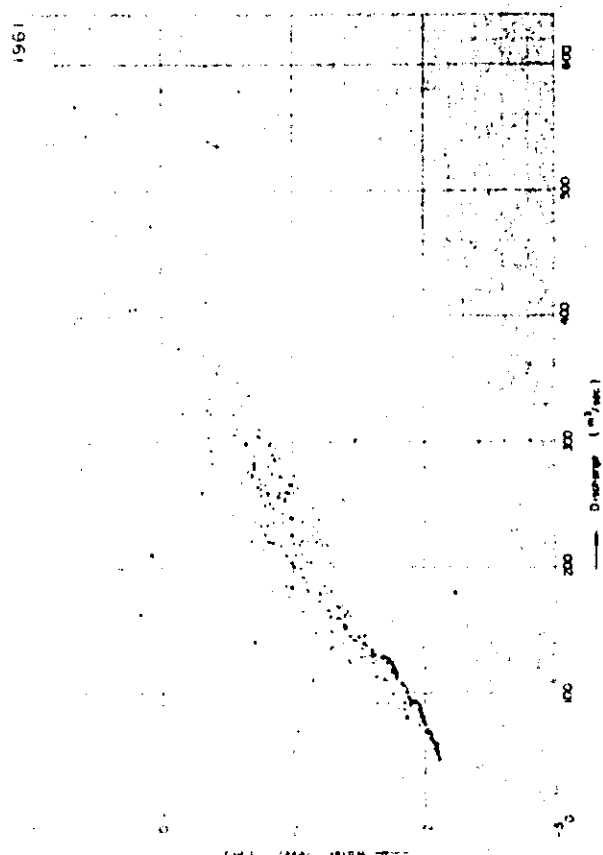
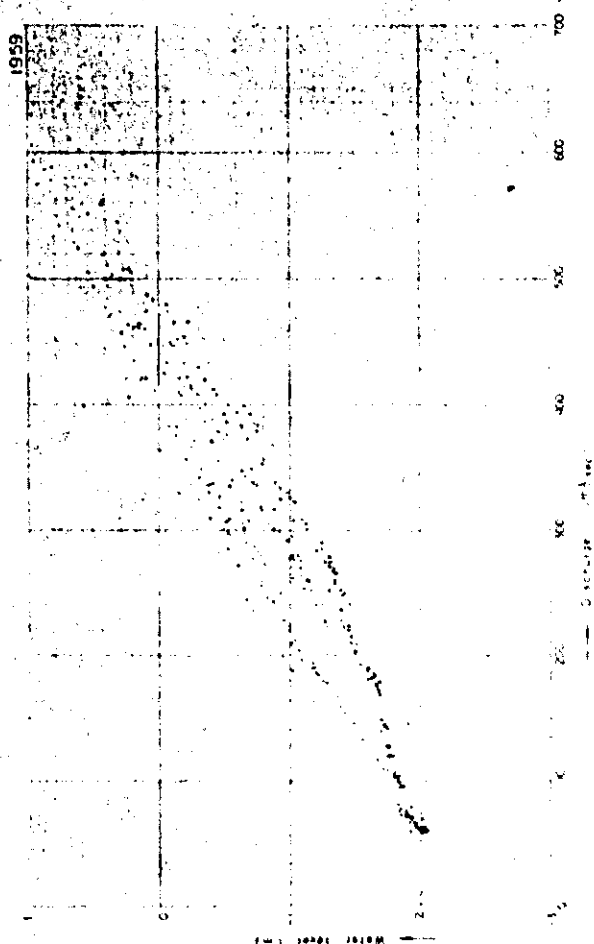
1952



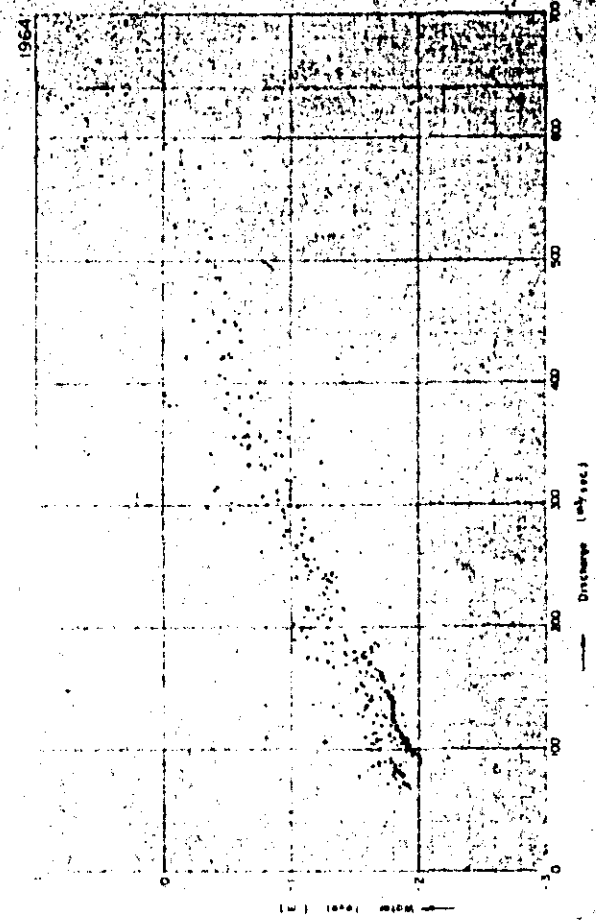
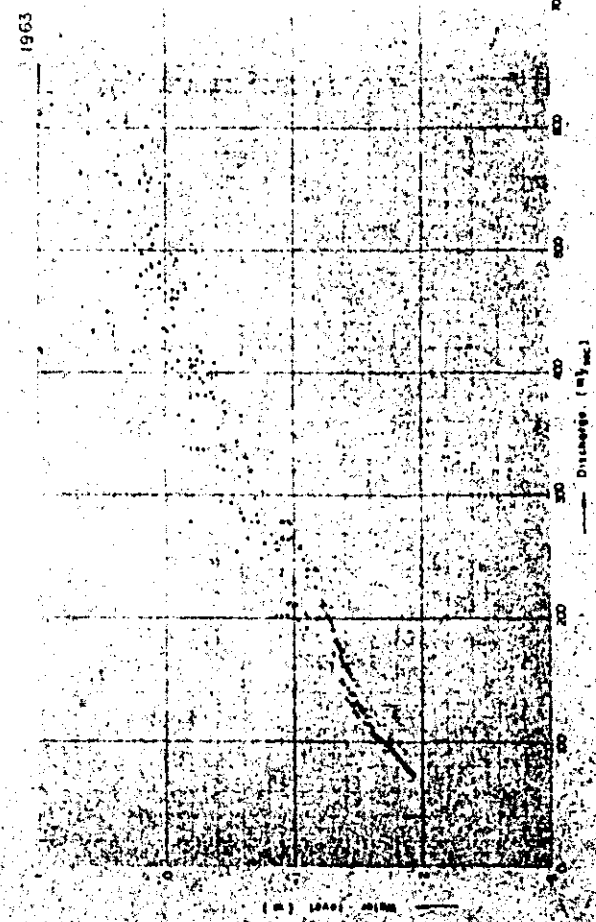
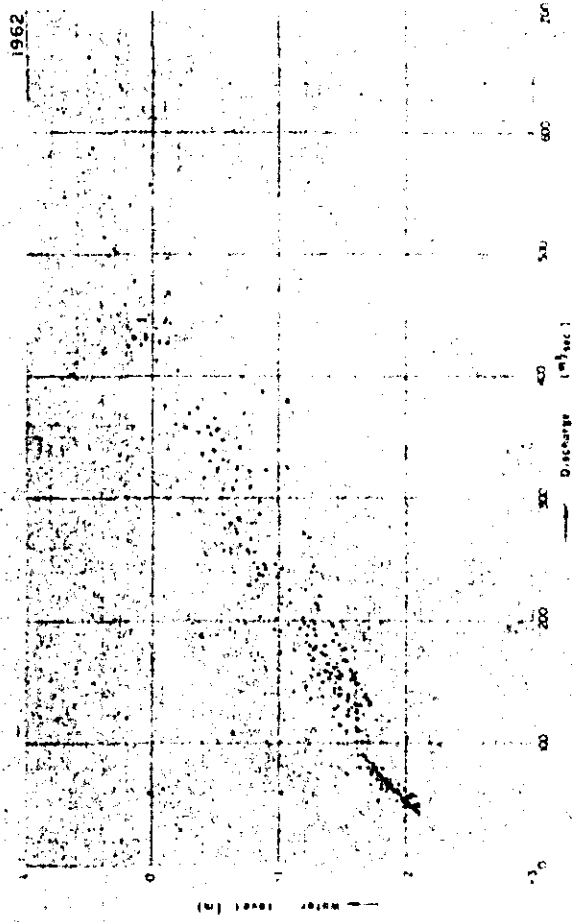
Kertosono Gauging Station (1)



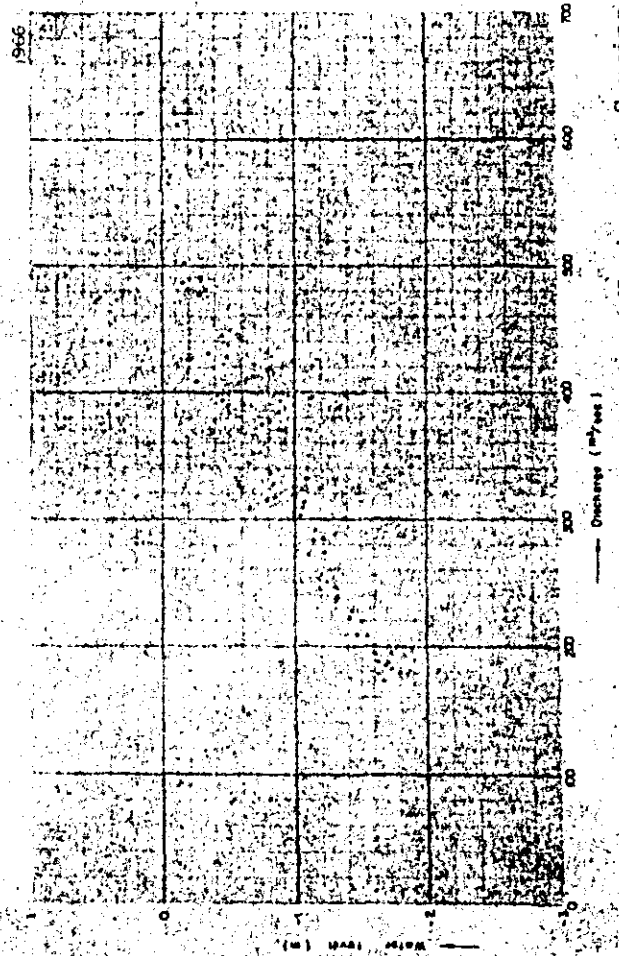
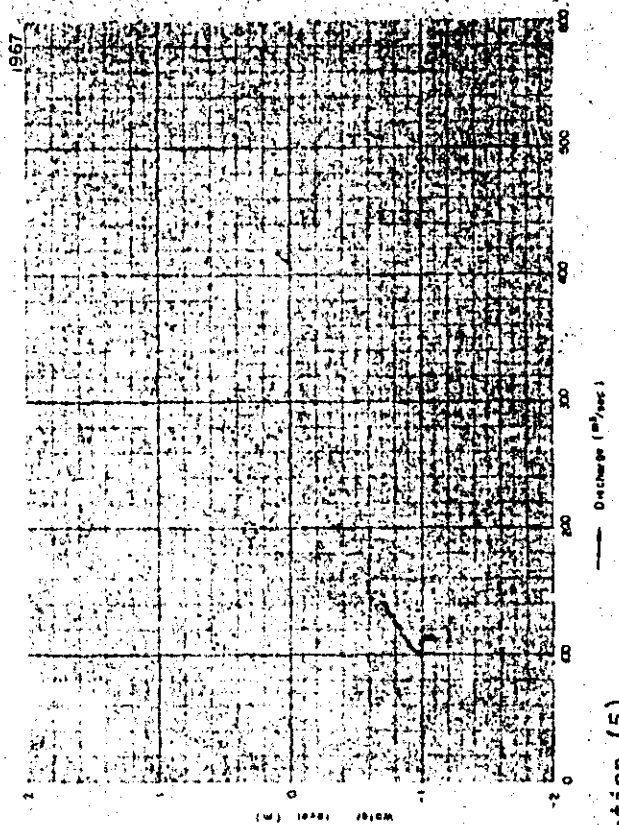
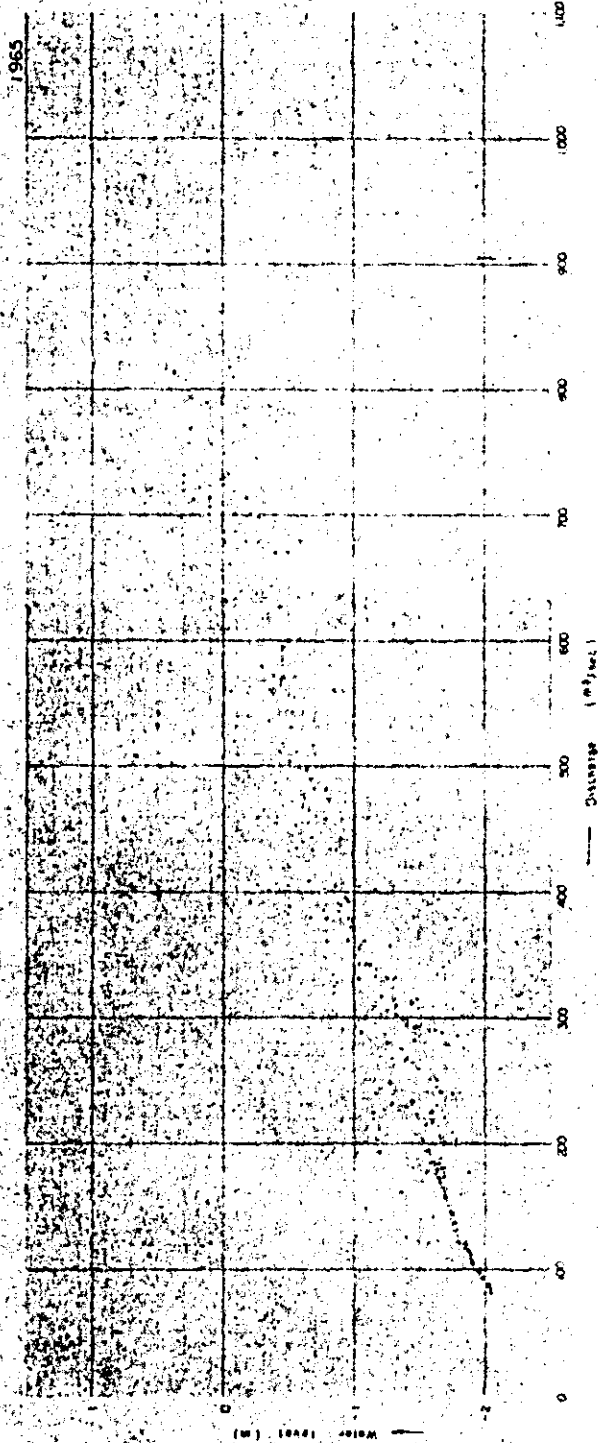
Kartosono Gauging Station (2)



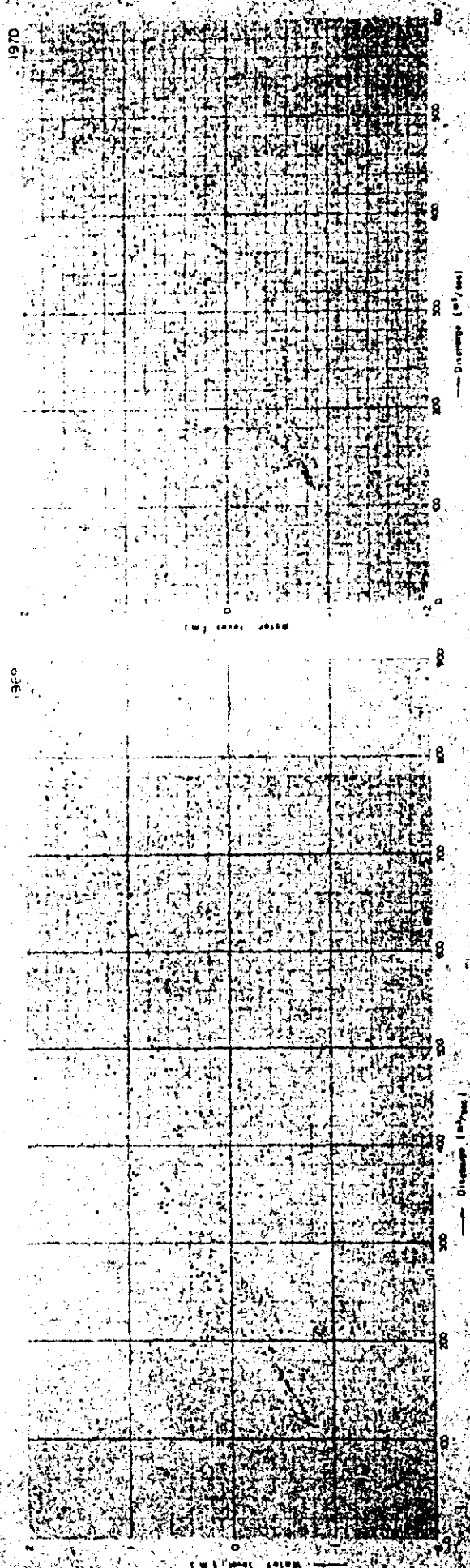
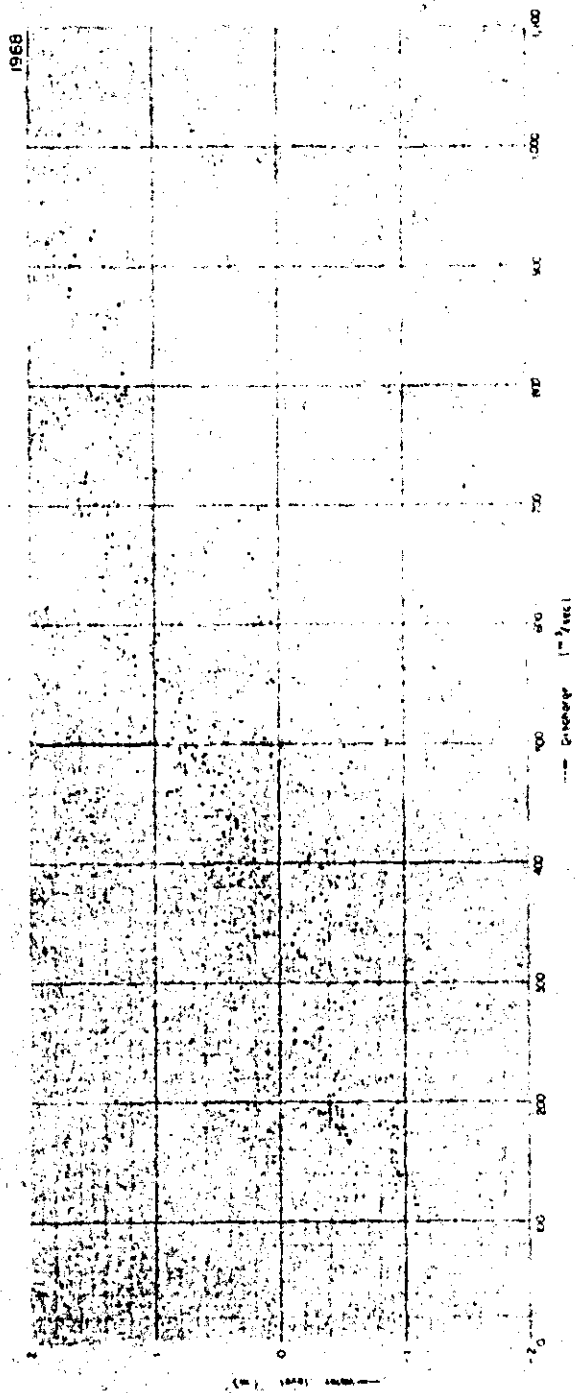
Kertosono Gauging Station (3)



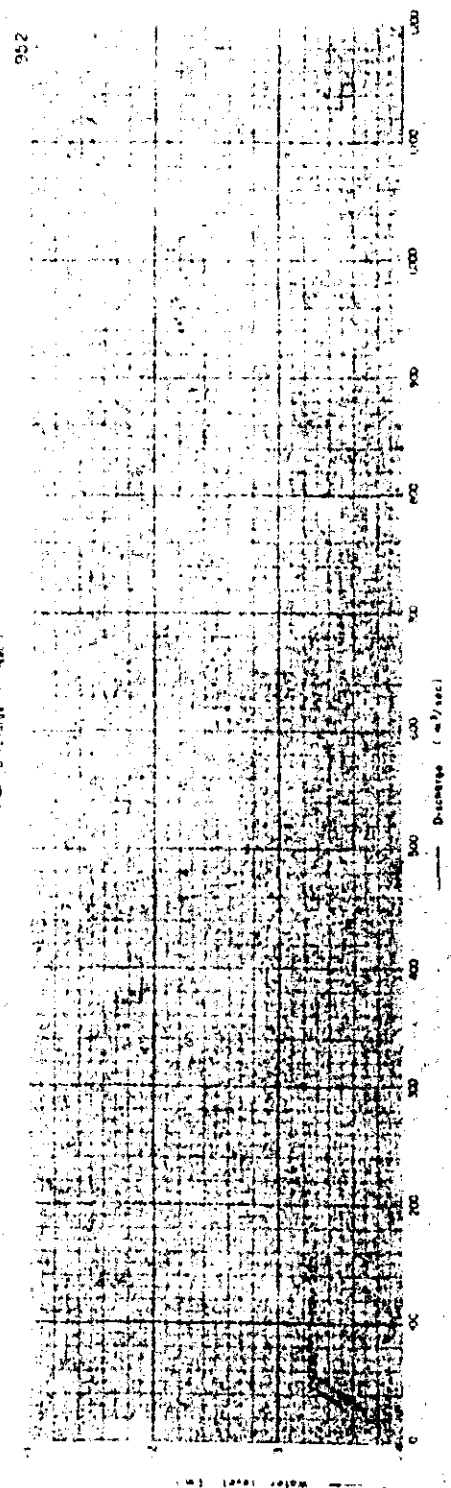
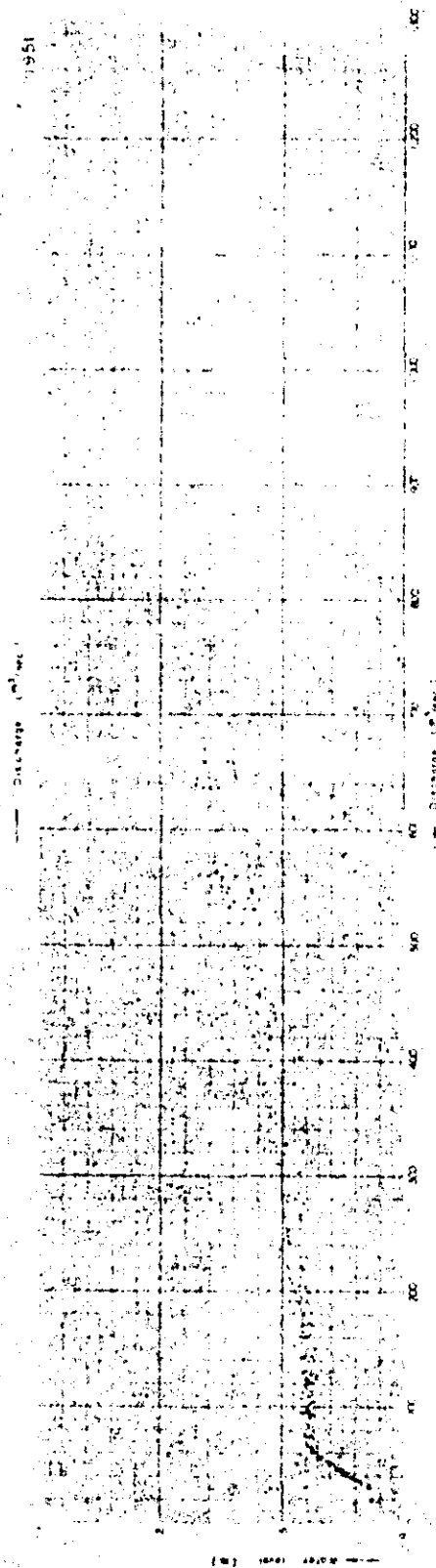
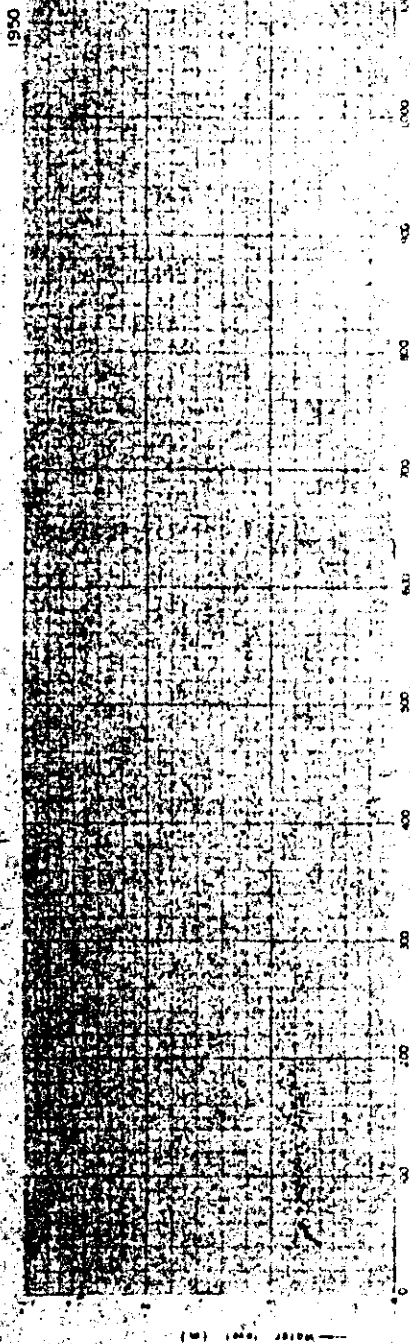
Kertosono Gauging Station (4)



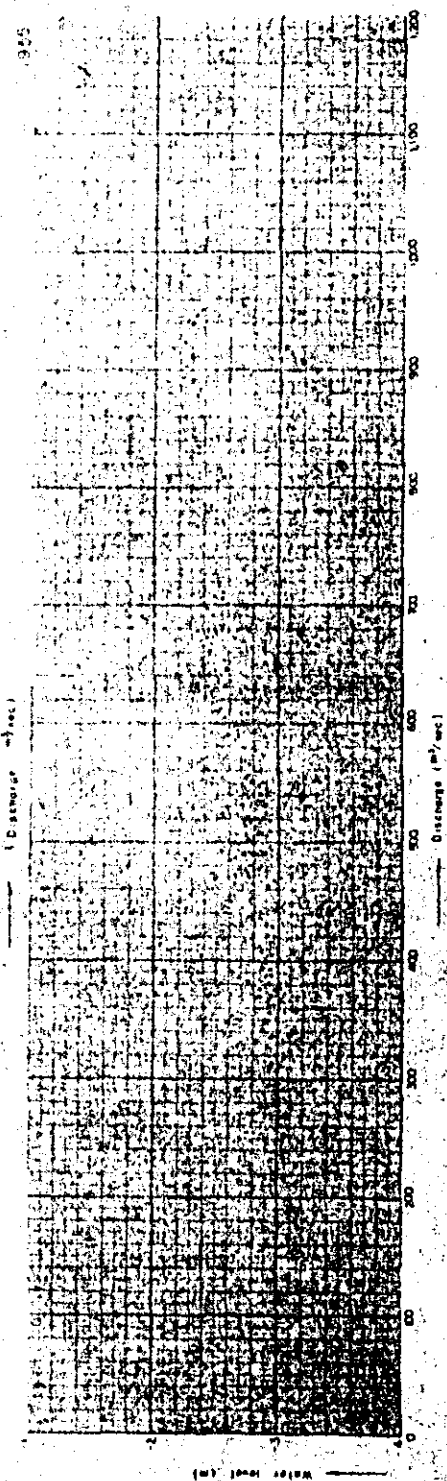
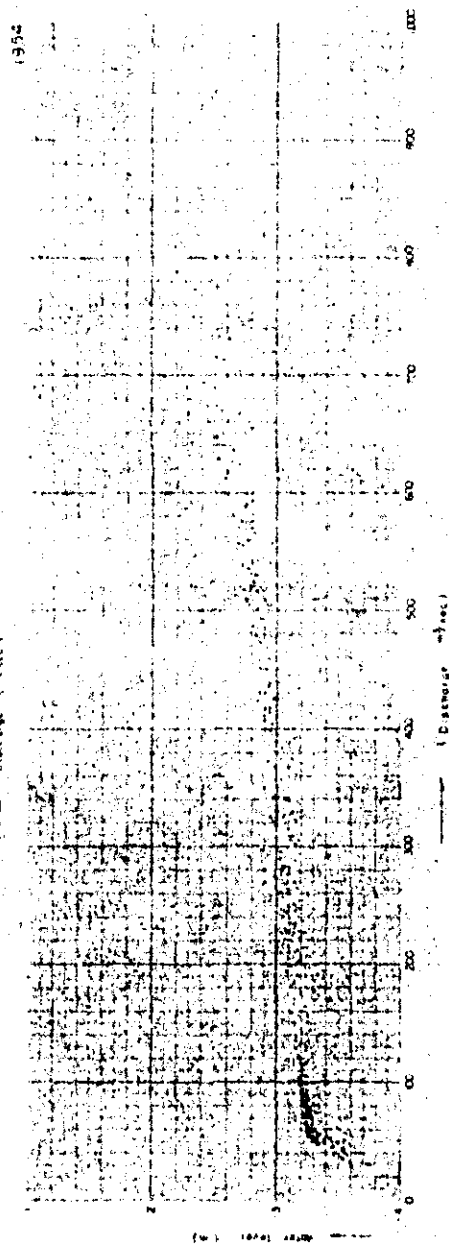
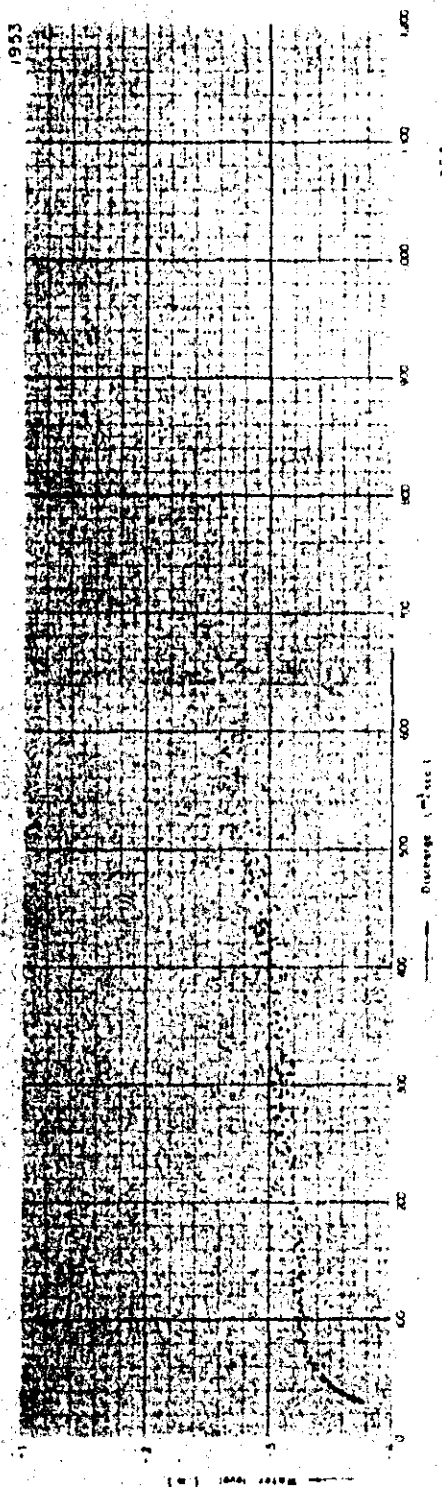
Kertosono Gauging Station (5)



Kertosono Gauging Station (6)



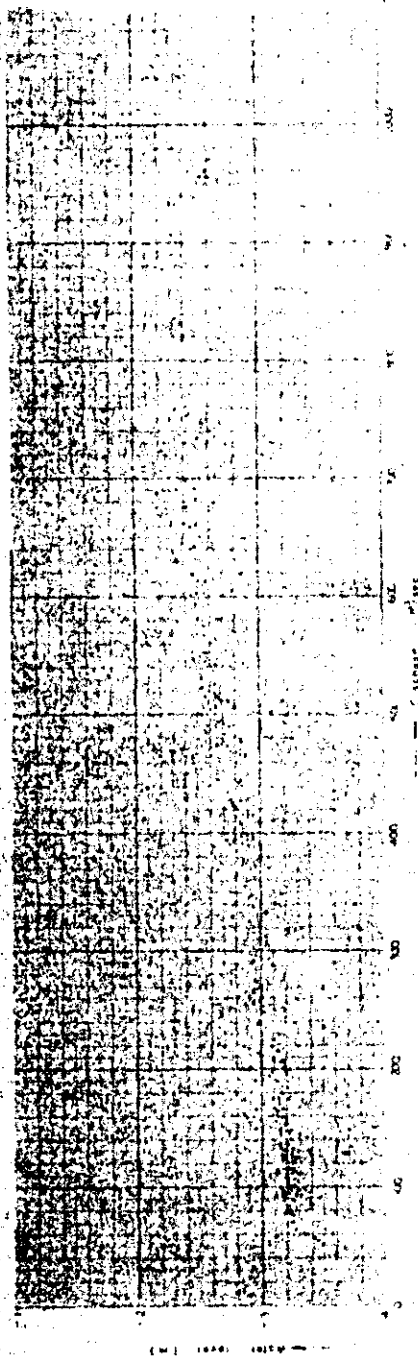
Djalon Gauging Station (1)



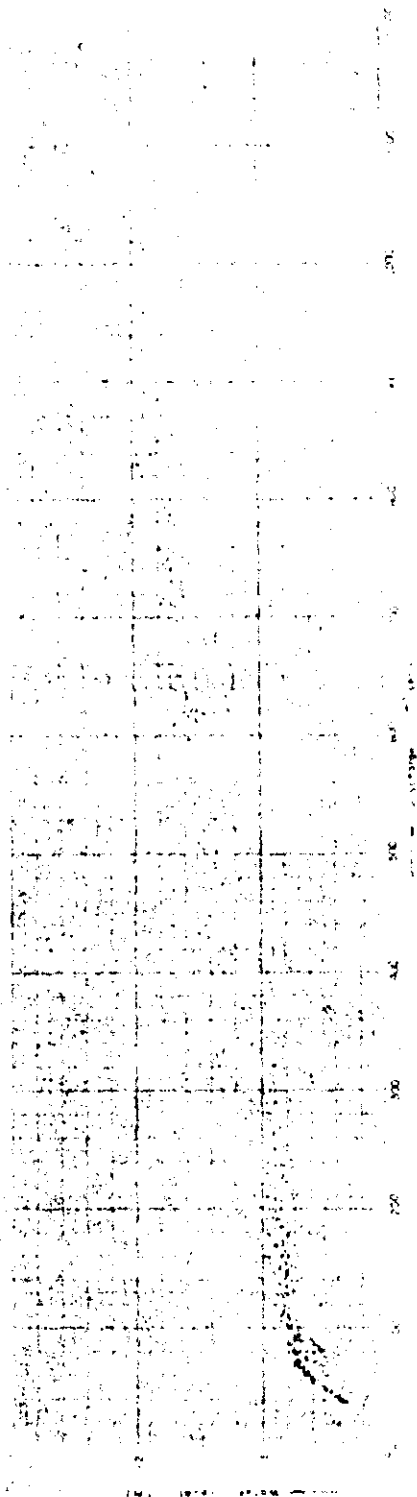
Dabon Gauging Station (2)



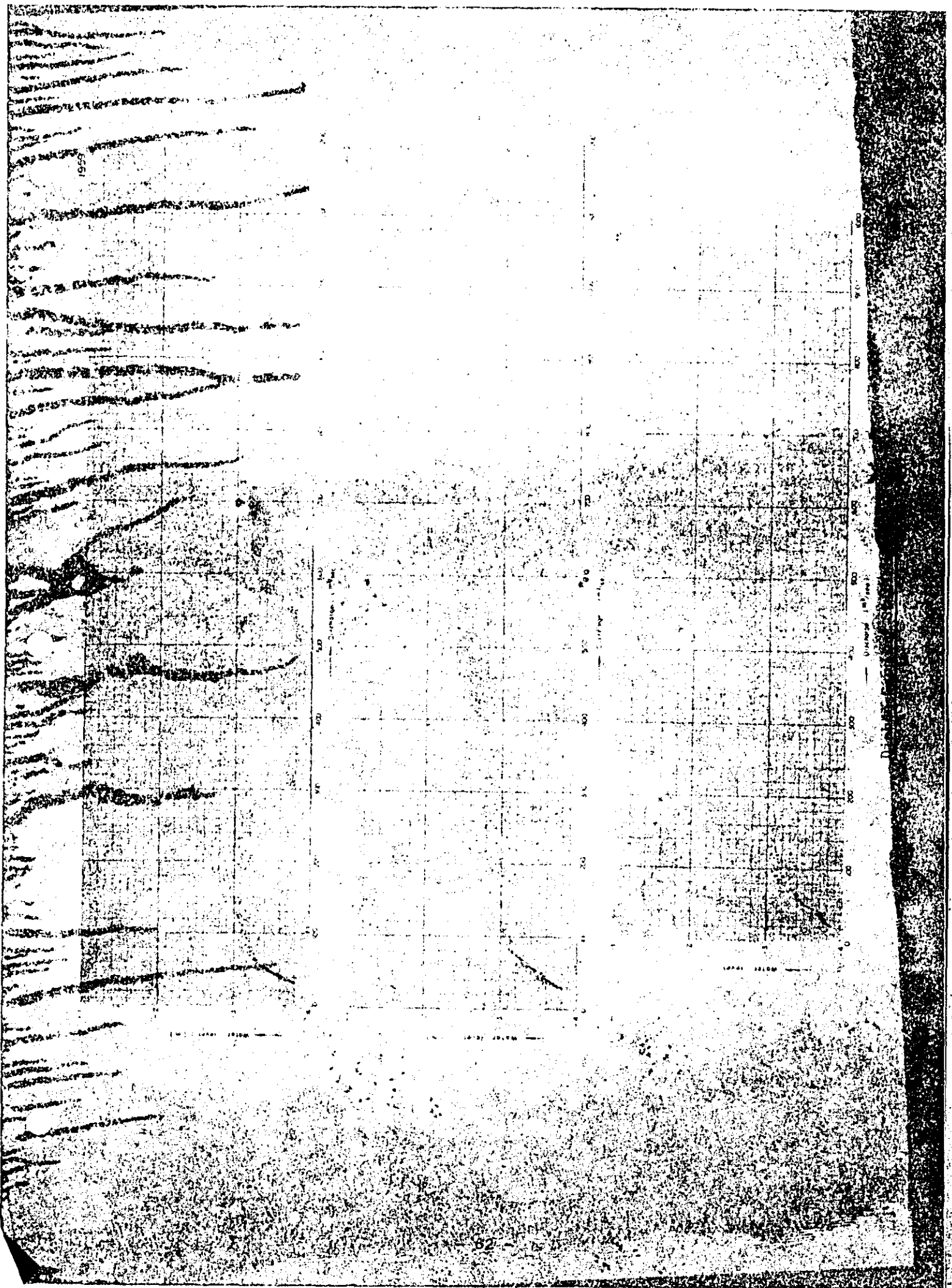
1956



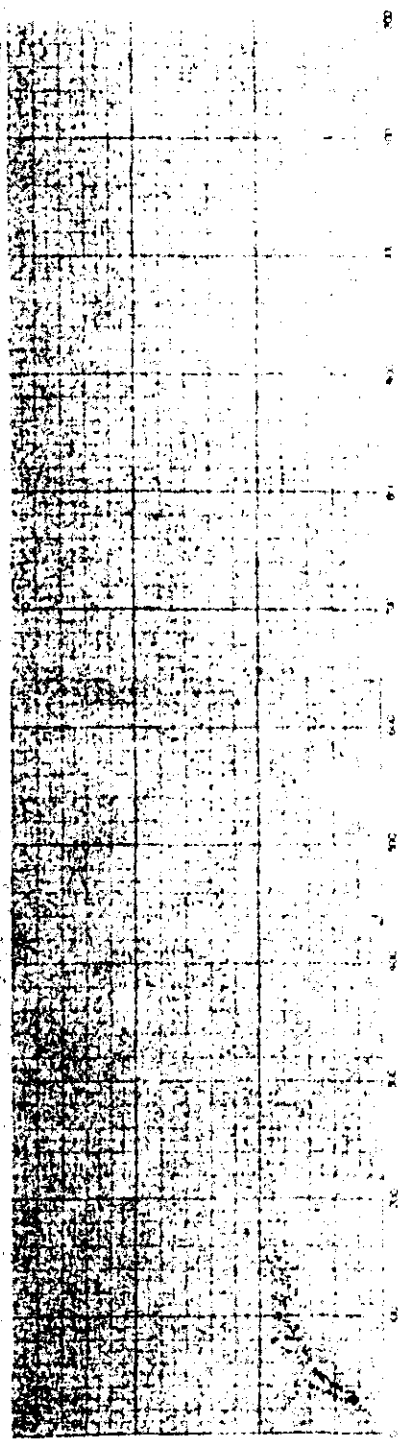
1957



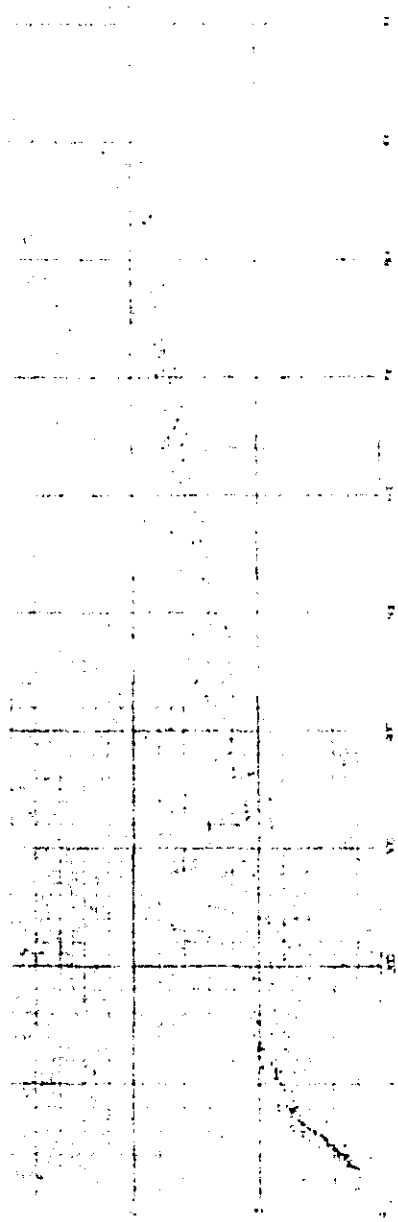
Diabon Gauging Station (3)



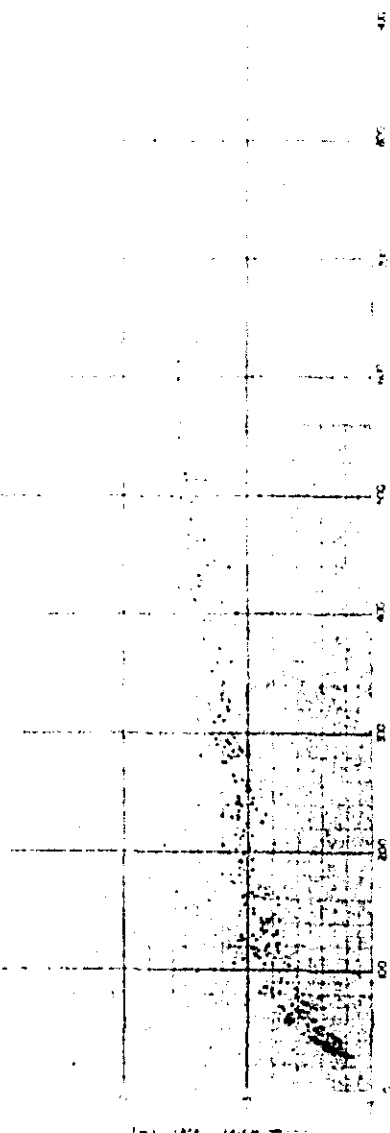
1962



1961



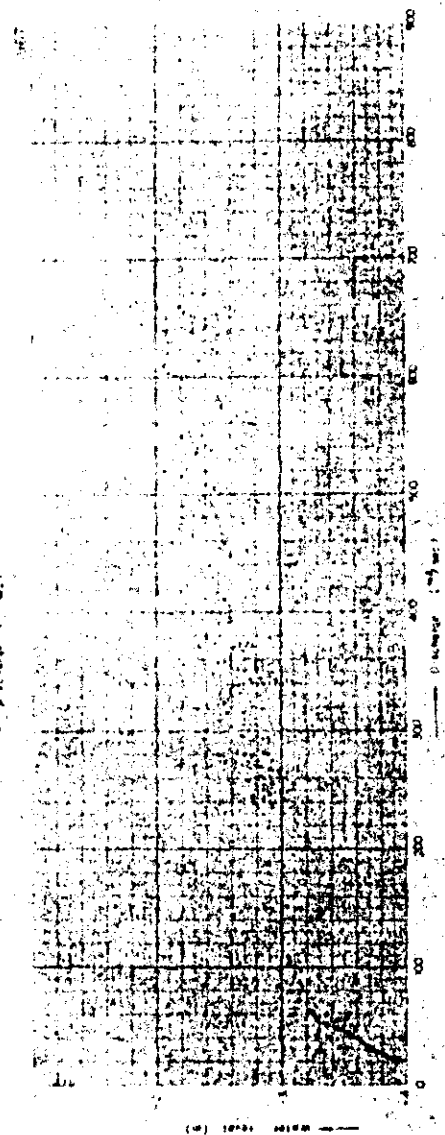
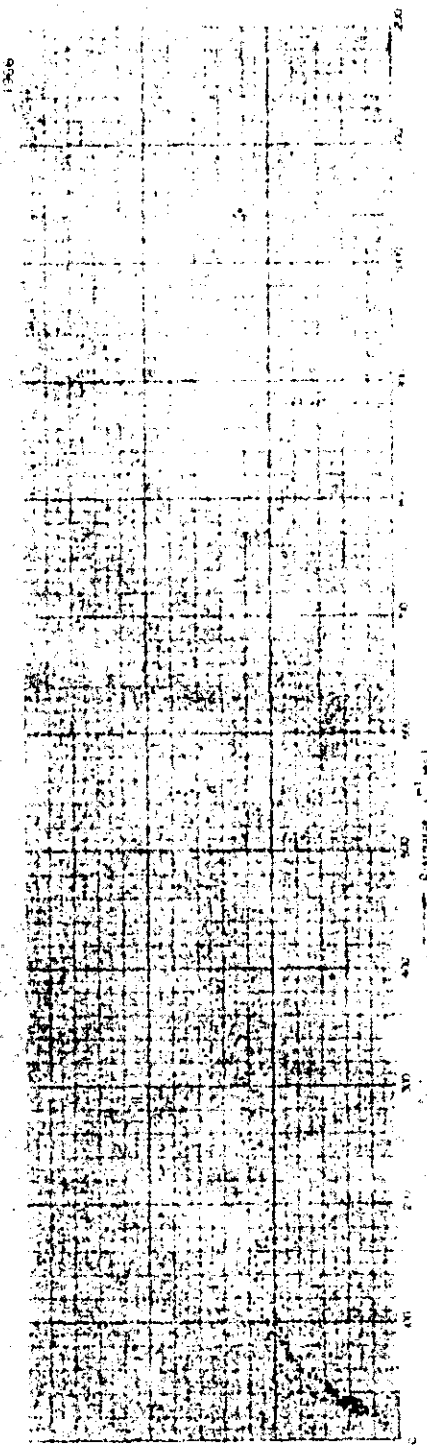
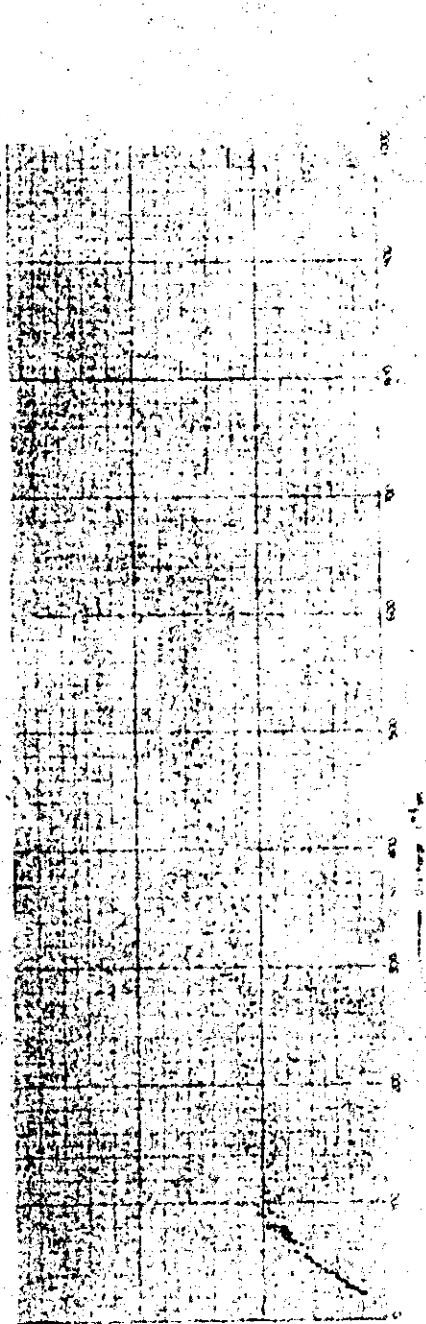
1960



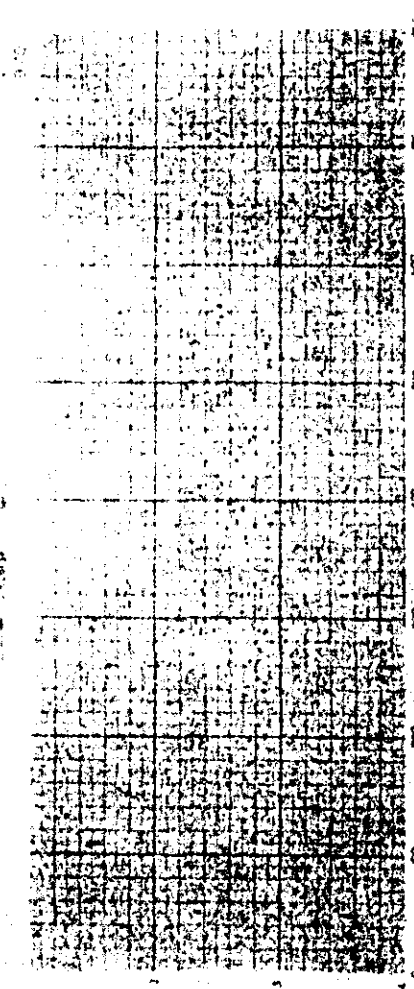
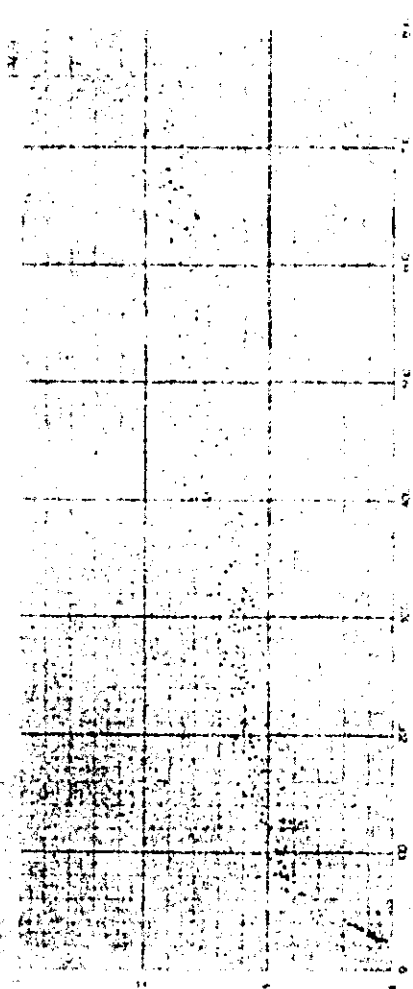
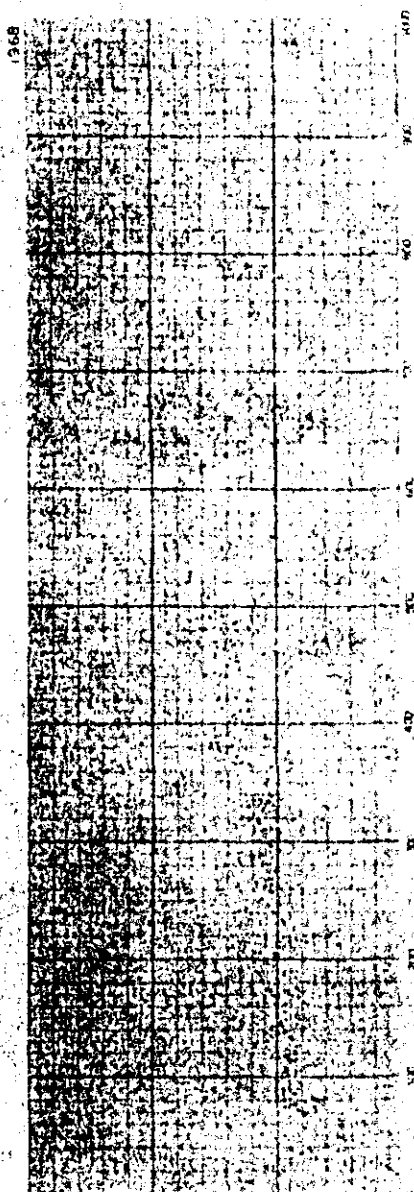
1959

Diabon Gauging Station (5)

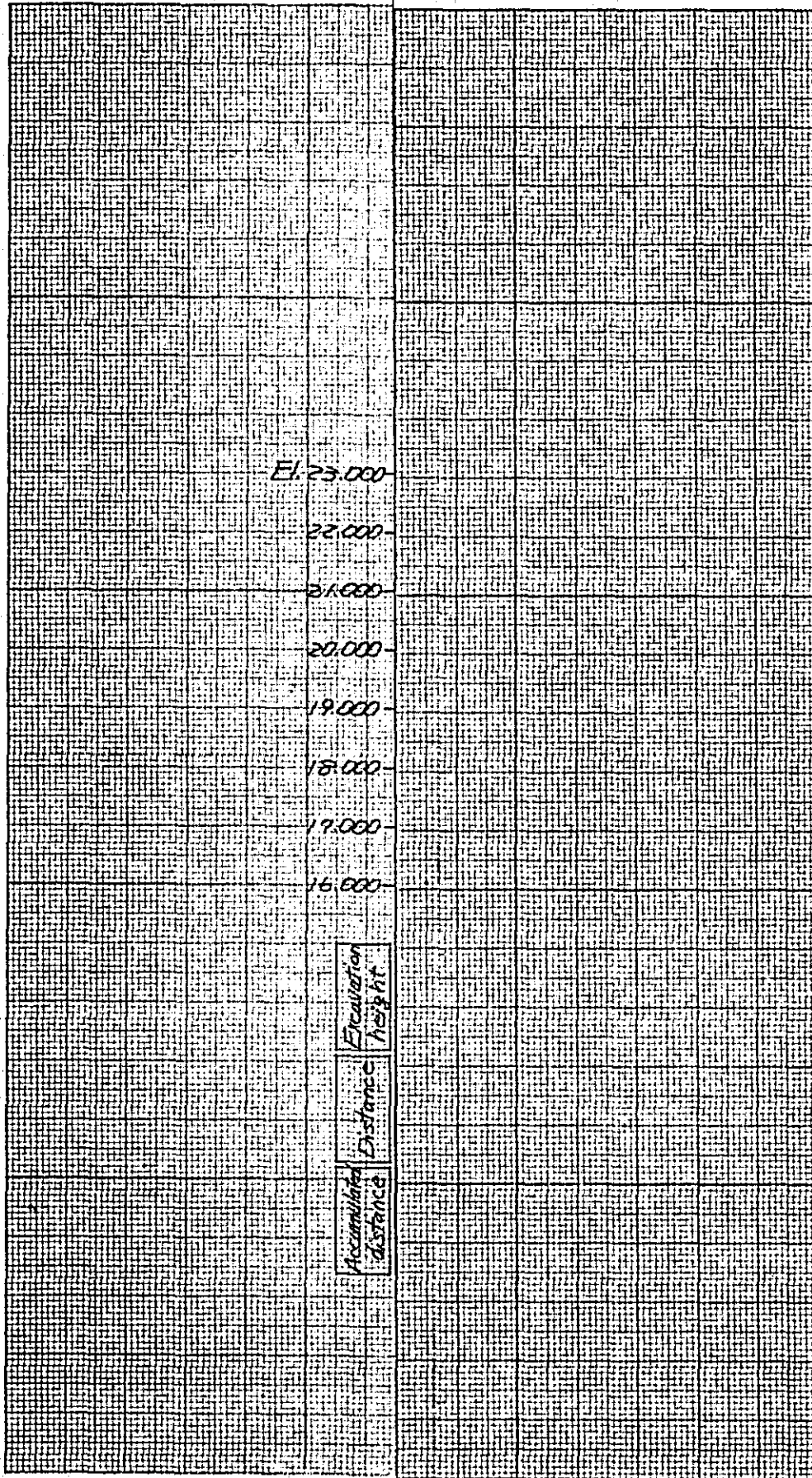
1965



Diabon Gauging Station (6)



Diabon Gauging Station (7)



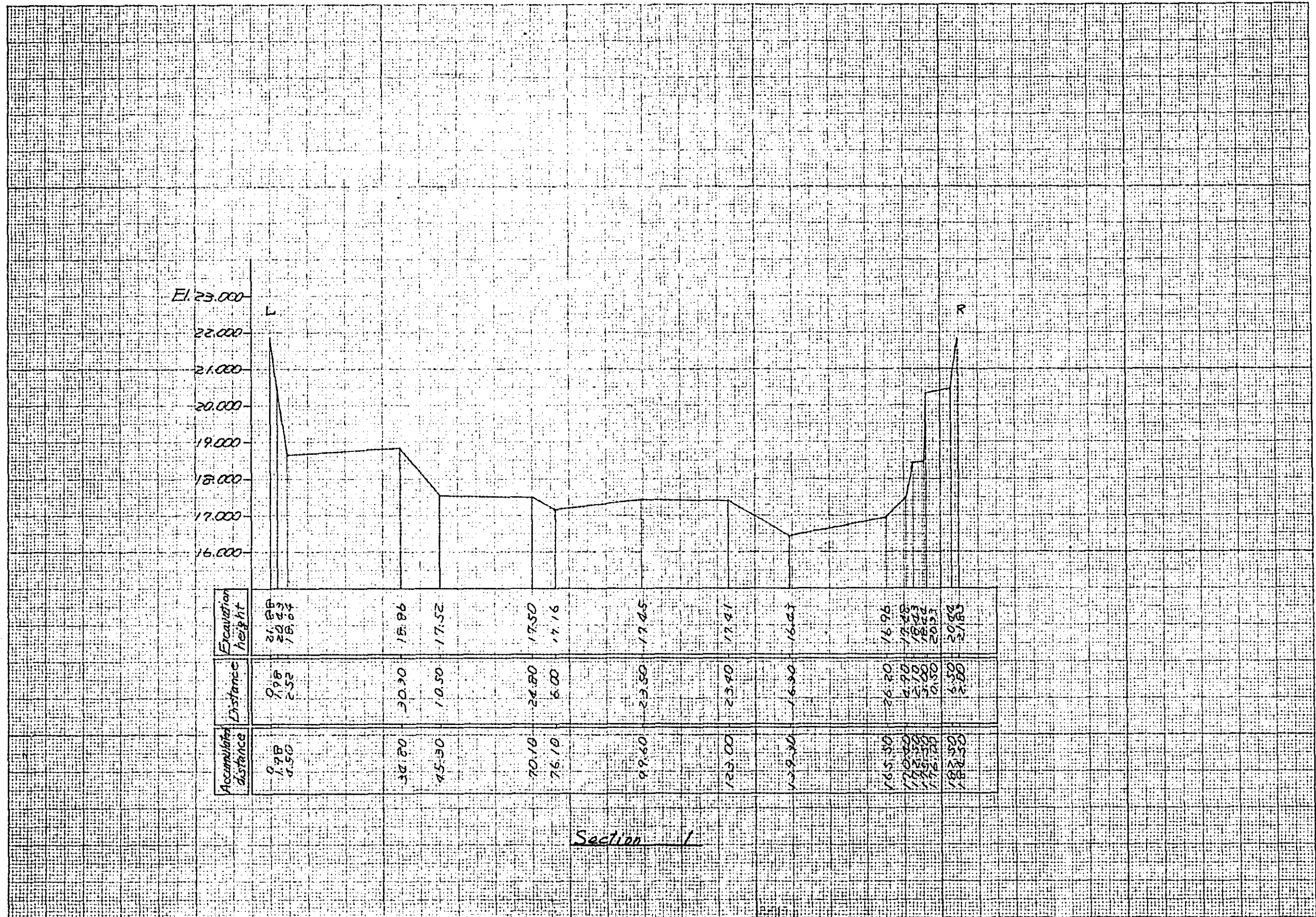
JIS-A3 - 250x350%

W - H B

#### 6. River Cross Section of Brantas River

The compiled herein are the river cross sections surveyed in 1971 by the Government in an interval of five kilometers on the Brantas River stretch between the mouth of the Ngrowo River and Terusan gauge. The location of the river cross section is shown in Fig 6-29 in chapter 6, Technical Studies Report.





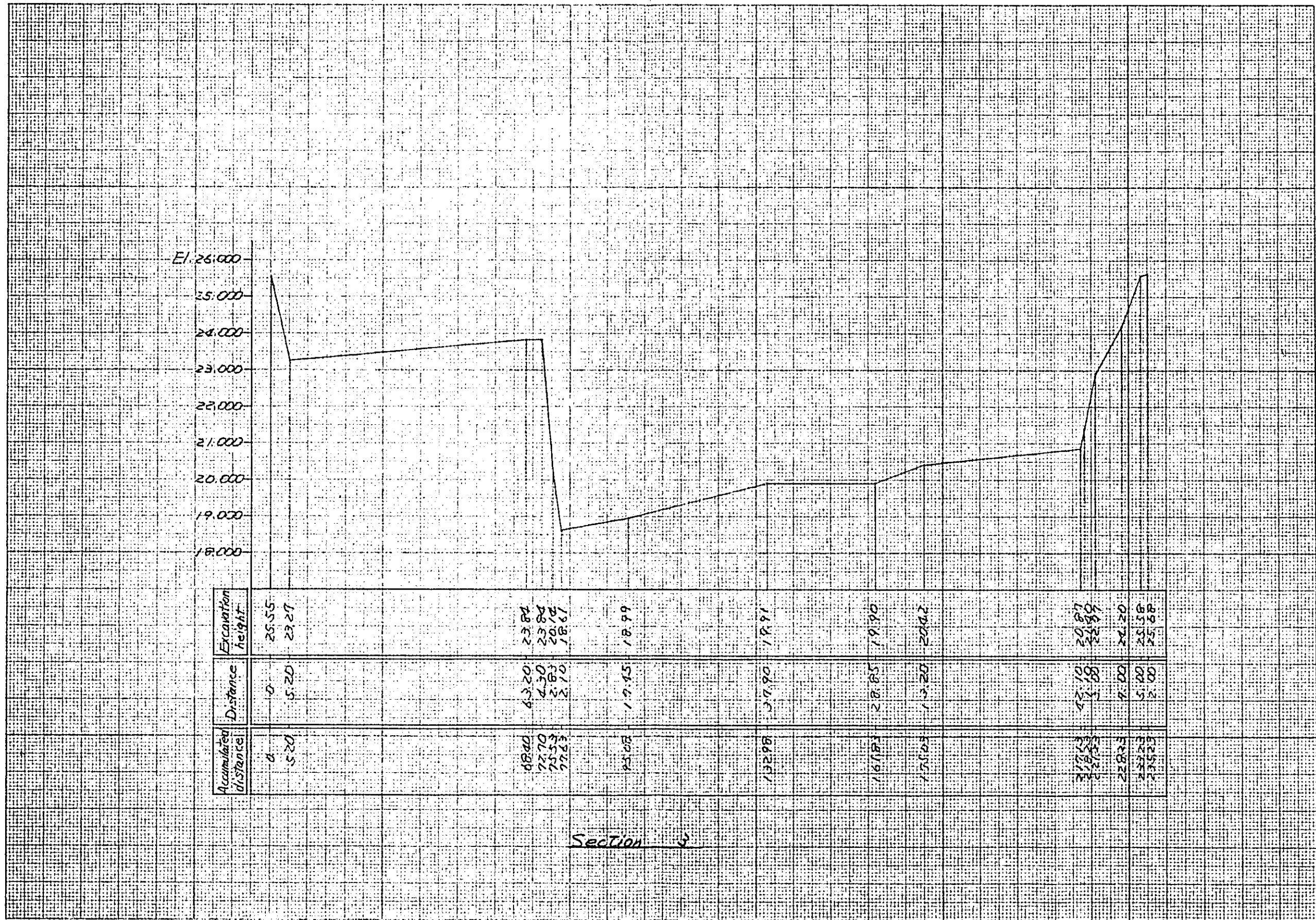
215-A3- 250x250%



El. 24.000-  
23.000-  
22.000-  
21.000-  
20.000-  
19.000-  
18.000-  
17.000-  
16.000-  
15.000-

Accumulated distance	Distance	Excavation height
0.00	0.00	23.30
1.85	1.85	21.79
3.70	1.85	18.59
5.55	1.85	16.82
7.40	1.85	14.90
9.25	1.85	17.81
11.10	1.85	18.01
12.95	1.85	18.21
14.80	1.85	18.64
16.65	1.85	18.59
18.50	1.85	20.02
20.35	1.85	20.02
22.20	1.85	21.53
24.05	1.85	21.53
25.90	1.85	23.30
27.75	1.85	23.30
29.60	1.85	23.30
31.45	1.85	23.30

Section 2



72-43

El. 28.000  
27.000  
26.000  
25.000  
24.000  
23.000  
22.000  
21.000

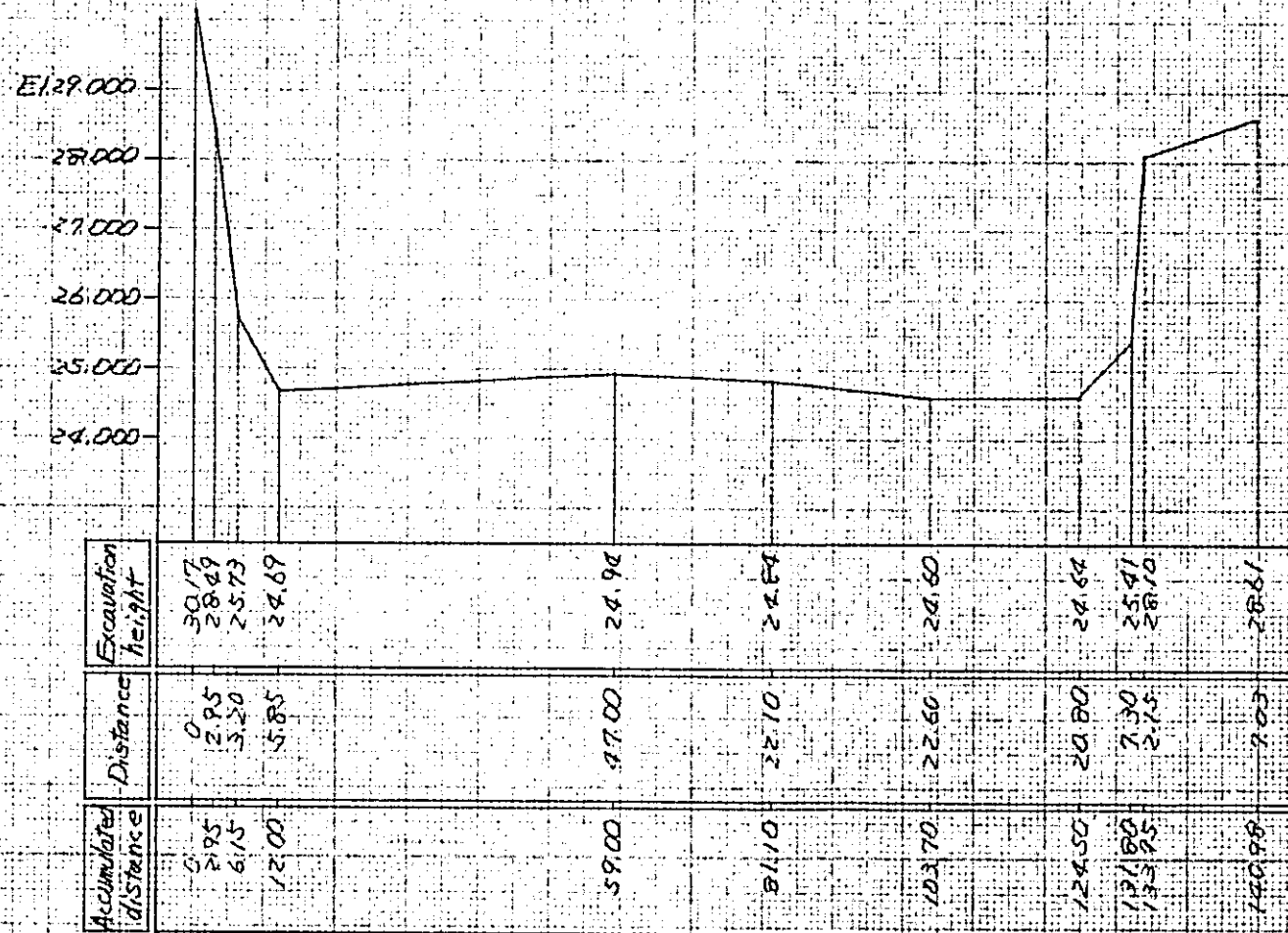
Accumulated distance	Distance	Excavation height
0	0	28.08
9.14	9.14	25.99
31.40	22.26	26.25
33.30	1.88	23.19
35.15	1.85	23.22
72.00	36.85	23.35
88.50	16.50	23.32
180.00	91.50	24.94
260.00	80.00	22.88
269.90	9.90	23.22
277.90	17.00	22.58
294.85	16.95	22.50
317.90	22.95	22.16
339.90	22.00	21.95
345.00	5.10	23.00
350.20	5.20	23.88
351.00	0.80	23.77
353.00	2.00	27.81

Section 4



72 4

JIS A3-250x250



Section 5

74  
22

JIS-A3 250X150

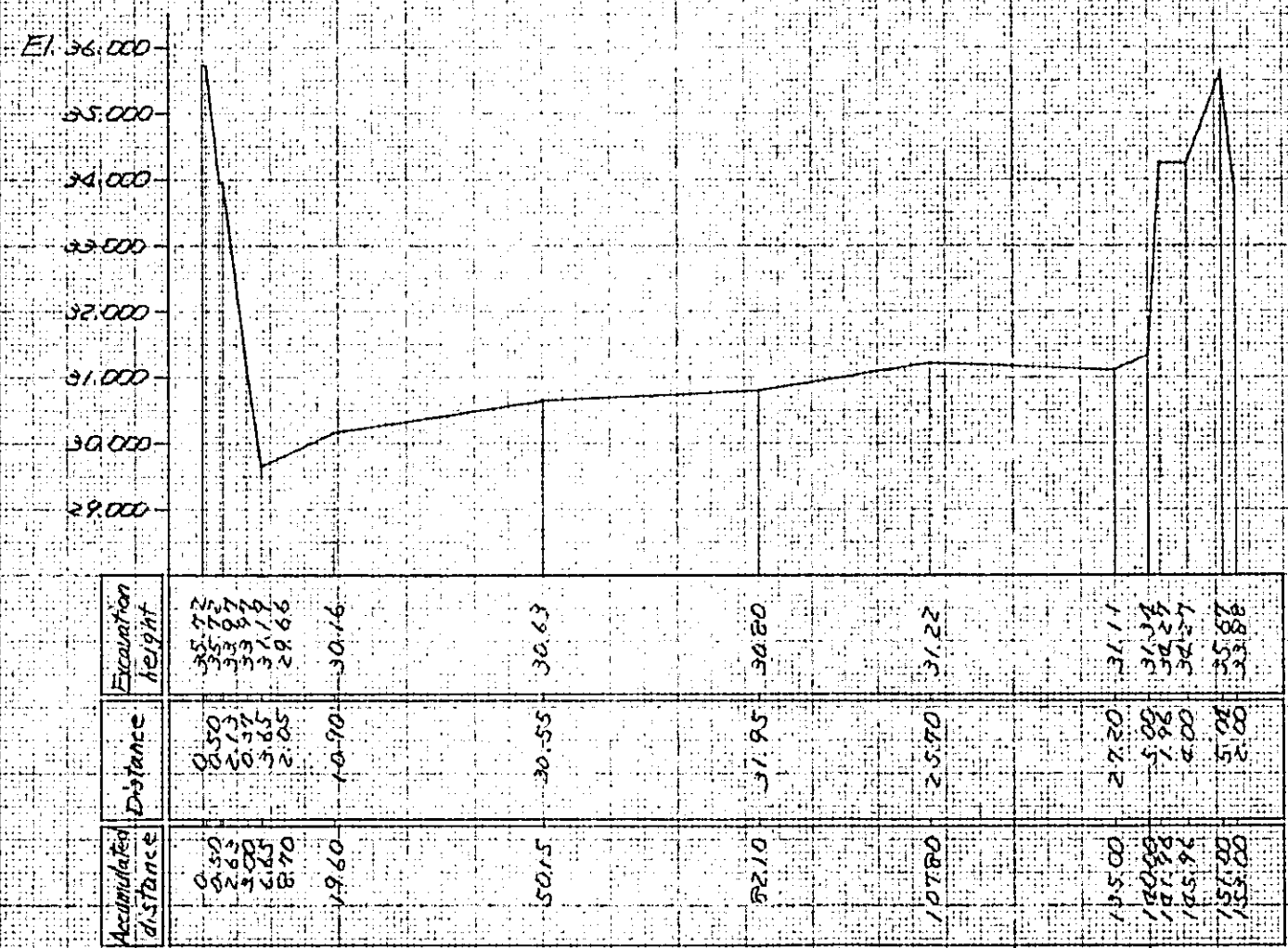
El. 32.000  
31.000  
30.000  
29.000  
28.000  
27.000  
26.000

Accumulated distance	Distance	Excavation height
0.20	0.20	32.23
3.20	3.00	30.37
5.60	2.40	27.51
10.74	5.14	26.74
37.20	26.46	26.94
70.10	32.90	26.60
87.00	16.90	27.65
98.10	11.10	27.79
133.80	35.70	27.56
141.80	8.00	27.51
144.85	3.05	30.76
147.50	2.65	32.10
151.00	3.50	32.06

Section 6



75  
63



Section 7

#91

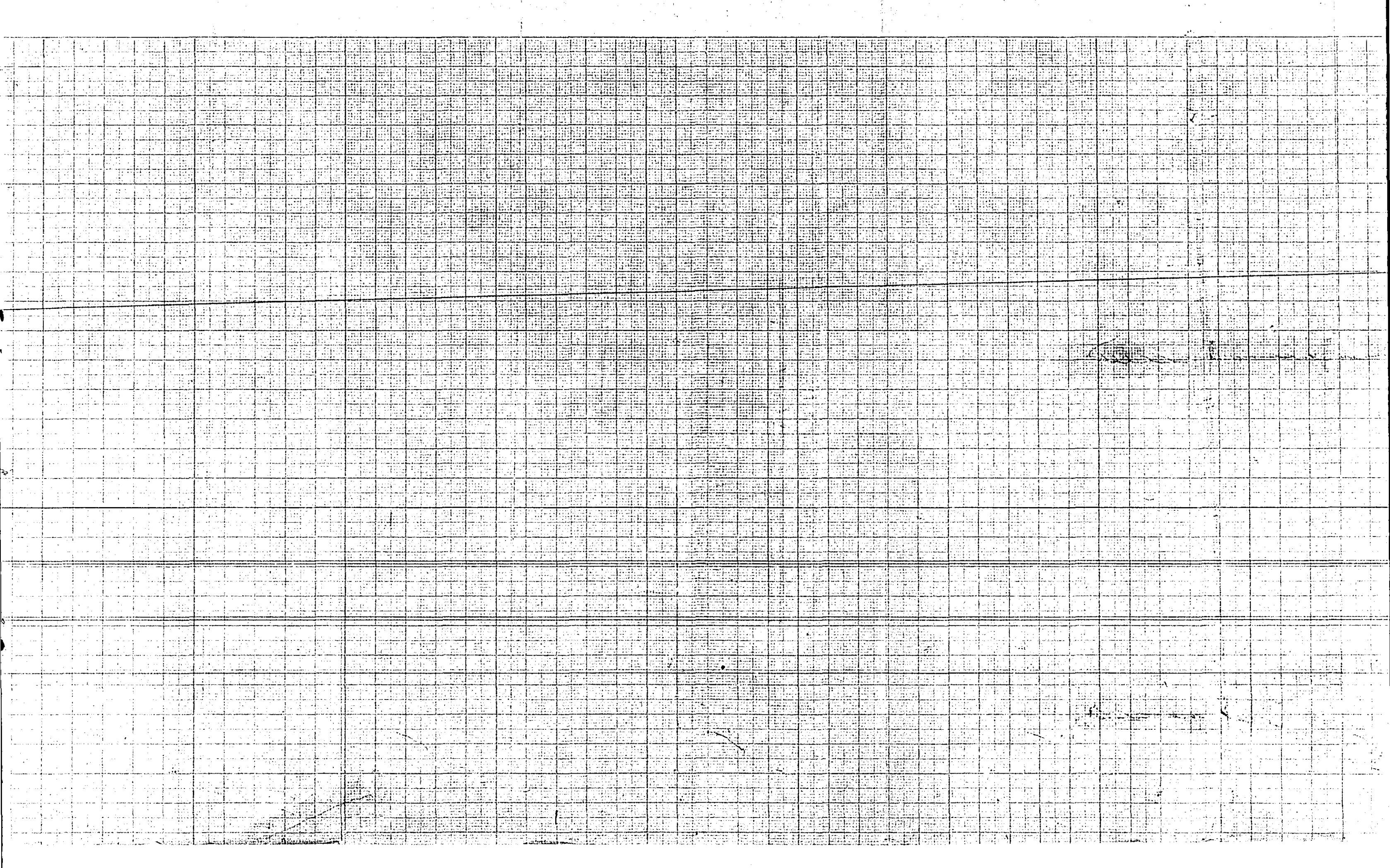
El. 39.000  
38.000  
37.000  
36.000  
35.000  
34.000  
33.000  
32.000  
31.000

Accumulated distance	Distance	Excavation height
0.00 3.83	0.00 2.00	36.03 38.33 37.83
25.81	20.16	31.98
45.91	19.10	32.59
77.71	32.80	32.87
85.71	8.00	32.92
92.91	7.21	33.29
98.81	5.90	33.44
102.41	3.61	35.74
110.91	8.50	36.02
120.01	13.09	36.53

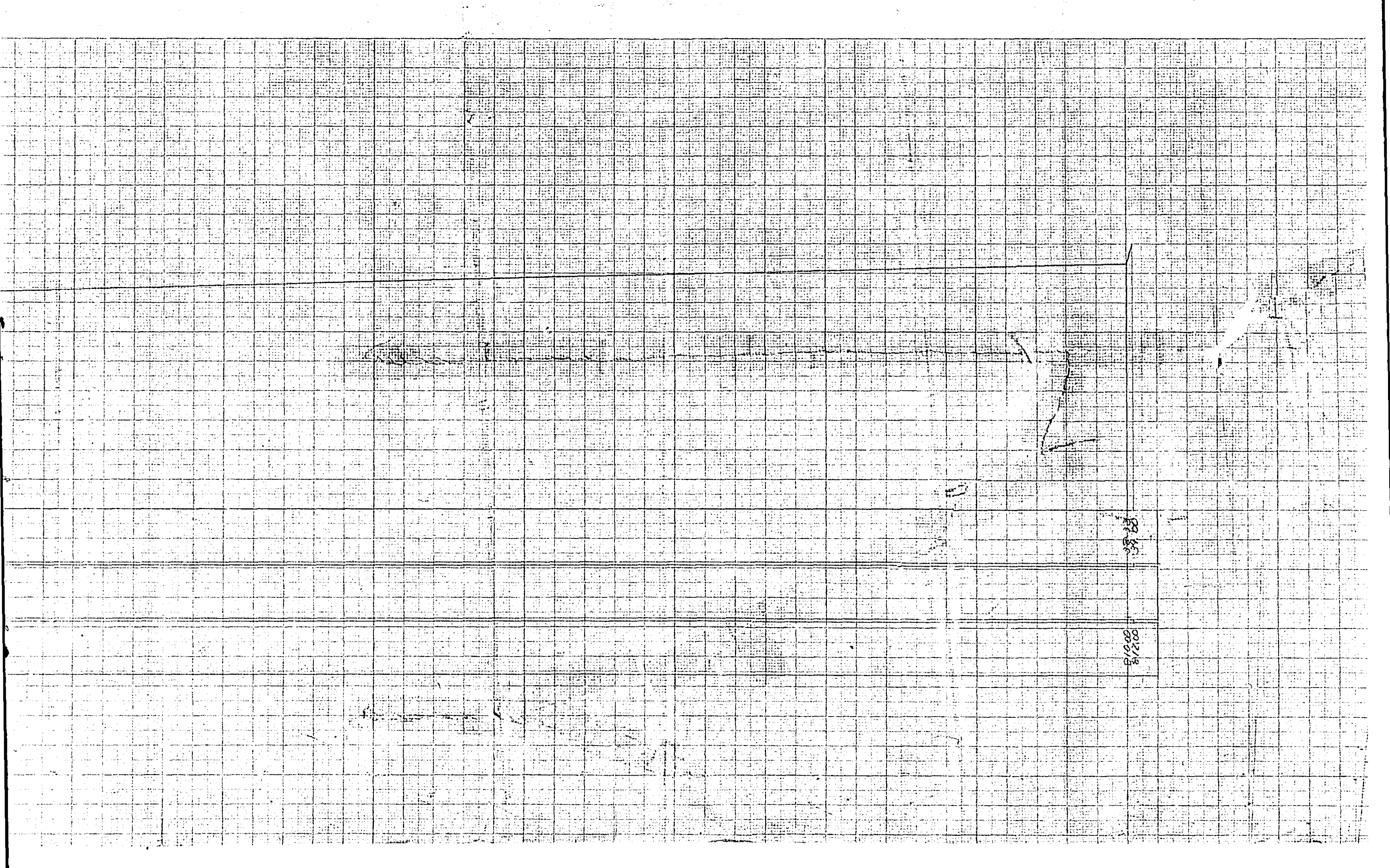
Section 8











El. 41.000  
39.000  
38.000  
37.000  
36.000  
35.000

Accumulated distance	Distance	Excavation height
0	0	39.98
3.60	3.60	39.47
7.10	3.50	38.11
10.60	3.50	38.22
39.00	28.40	35.00
70.00	31.00	36.29
98.00	28.00	35.99
106.00	8.00	36.11
110.00	4.00	39.15
118.00	8.00	39.01
120.00	2.00	39.01
125.00	5.00	38.63

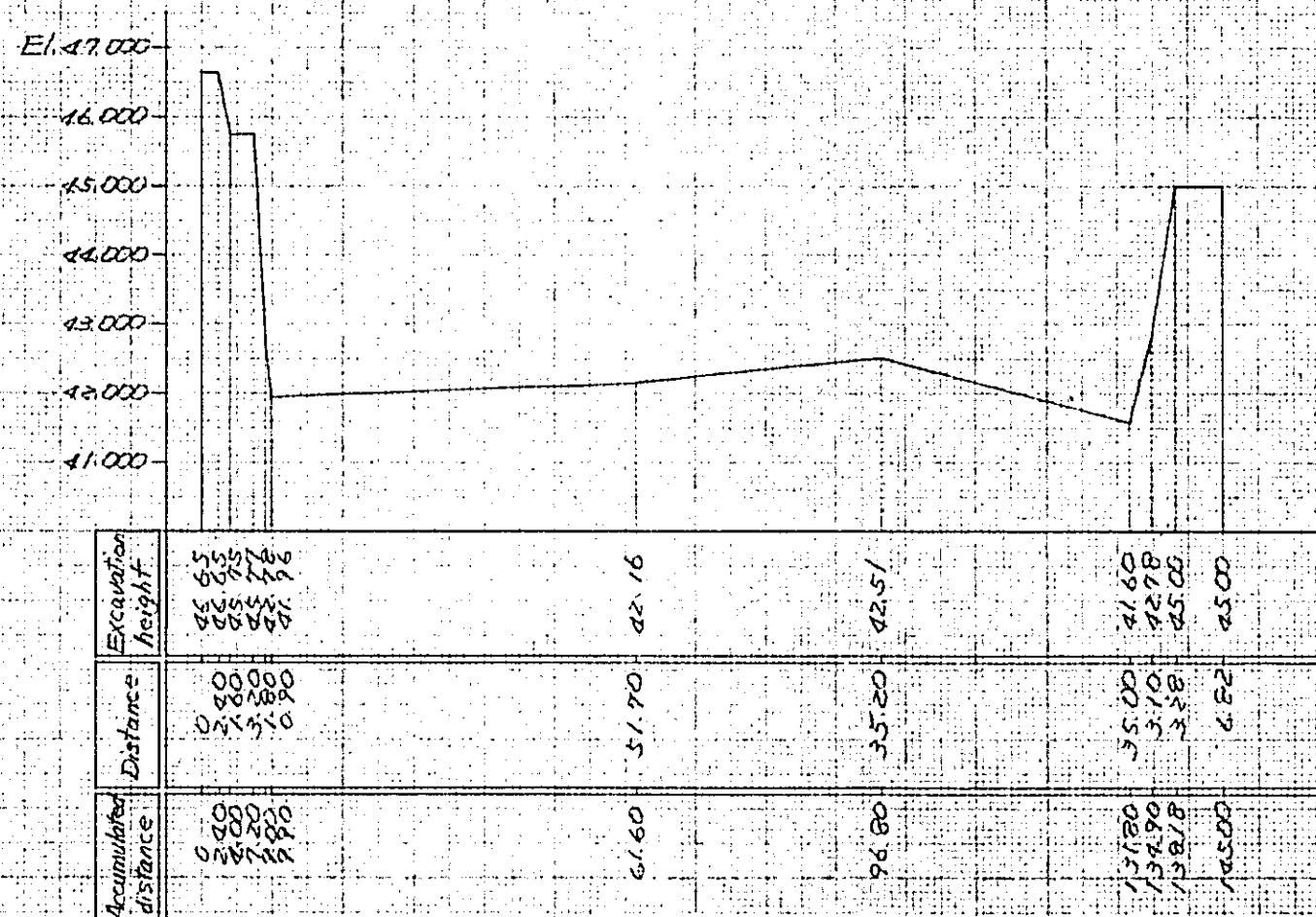
Section 9



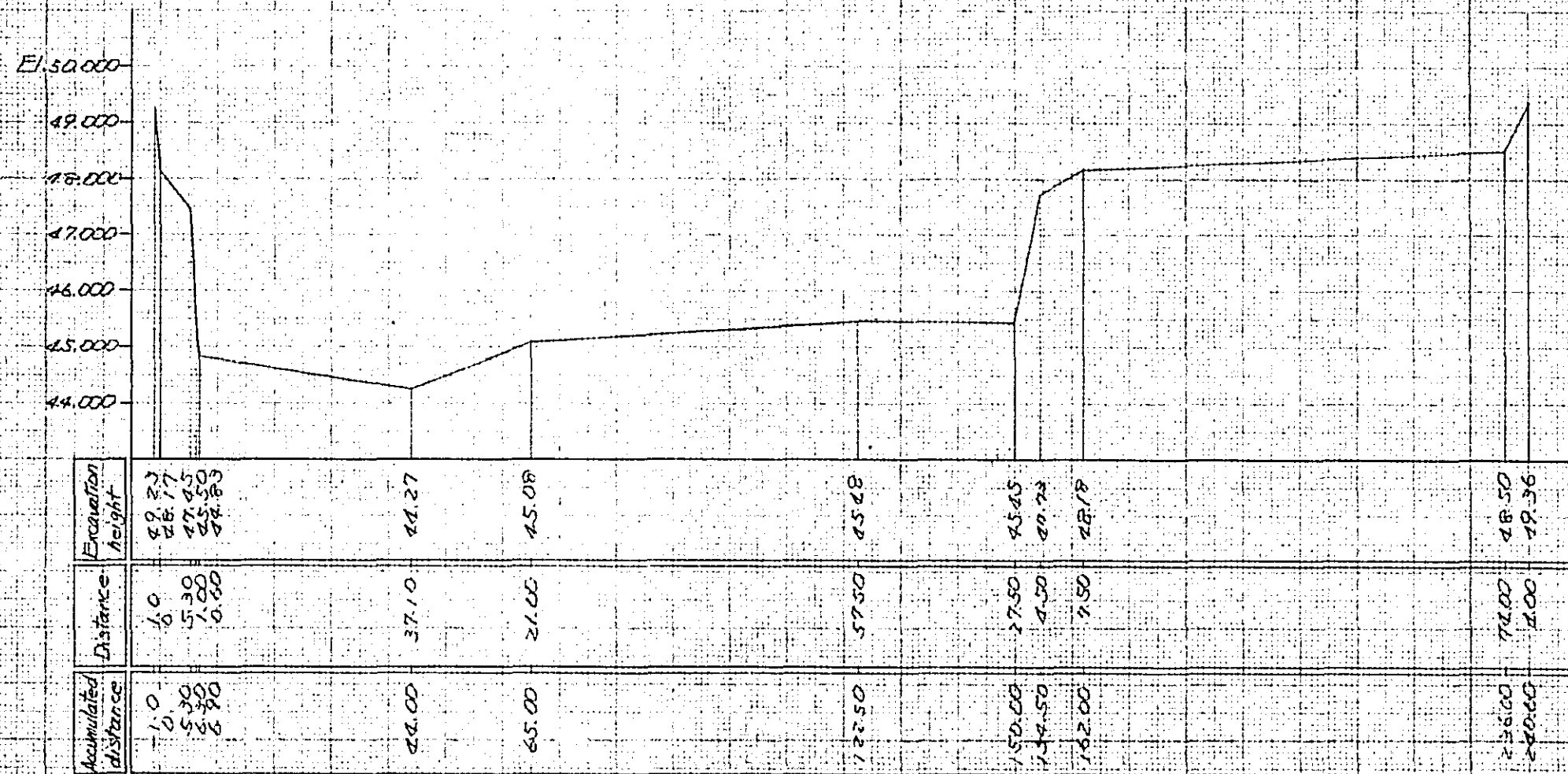
El. 45.000  
 44.000  
 43.000  
 42.000  
 41.000  
 40.000  
 39.000  
 38.000

Accumulated distance	Distance	Excavation height
0.00	0.00	38.15
3.00	3.00	38.15
5.00	2.00	38.15
7.00	2.00	38.15
8.65	1.65	38.05
17.60	8.95	38.74
53.90	36.30	38.40
58.75	4.85	39.17
83.00	24.25	39.28
85.90	2.90	39.65
86.45	0.55	39.63
115.00	28.55	39.43
119.00	4.00	43.32

Section 10

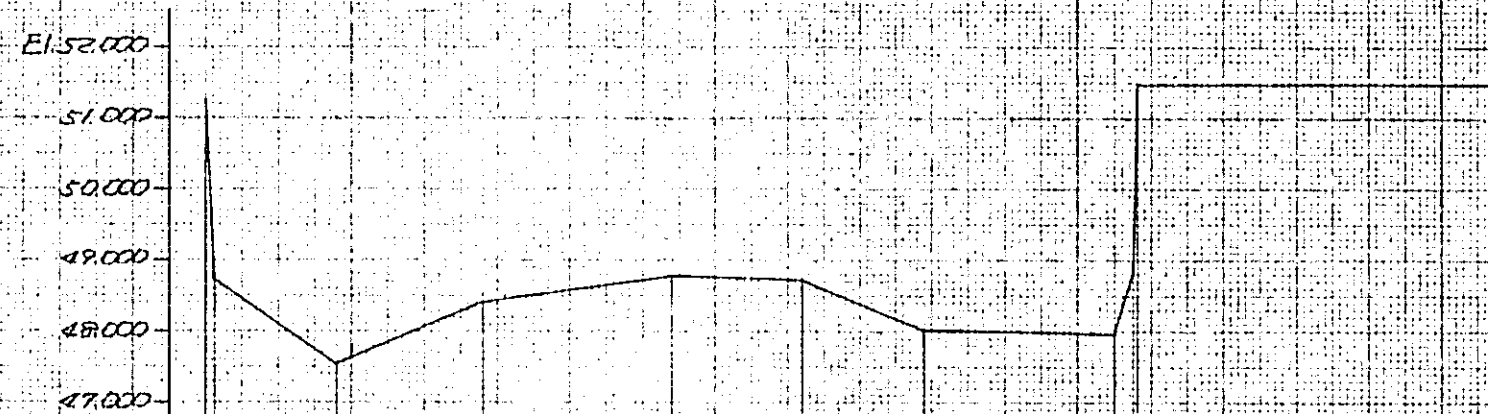


Section 11



Section 12





Accumulated distance	Distance	Excavation height
9.30	9.30	51.25 48.35
18.00	6.70	47.57
38.00	20.00	48.42
64.00	26.00	48.79
82.00	18.00	48.73
99.00	17.00	48.03
125.00	26.00	47.97
135.00	10.00	48.57
178.60	43.60	51.48
178.60	0	51.85

Section 13

El. 59.000  
 58.000  
 57.000  
 56.000  
 55.000  
 54.000  
 53.000  
 52.000  
 51.000  
 50.000

Accumulated distance	Distance	Excavation height
0	0	55.98
0.50	0.50	52.78
3.50	3.00	51.90
		51.61
25.00	21.50	51.85
35.50	10.50	51.22
67.50	32.00	50.44
96.50	29.00	50.70
106.50	26.00	50.65
108.50	2.00	51.88
109.50	1.00	51.85
110.50	1.00	51.85
111.50	1.00	51.85
112.50	1.00	51.85

Section 14

El. 58.000  
 57.000  
 56.000  
 55.000  
 54.000  
 53.000  
 52.000

Accumulated distance	Distance	Excavation height
15.00	2.00	58.00
18.00	3.00	57.00
21.00	3.00	56.50
24.00	3.00	56.20
27.00	3.00	55.50
30.00	3.00	54.00
33.00	3.00	53.00
36.00	3.00	52.80
39.00	3.00	52.50
42.00	3.00	52.30
45.00	3.00	52.25
48.00	3.00	52.25
51.00	3.00	52.25
54.00	3.00	52.25
57.00	3.00	52.25
60.00	3.00	52.25
63.00	3.00	52.25
66.00	3.00	52.25
69.00	3.00	52.25
72.00	3.00	52.25
75.00	3.00	52.25
78.00	3.00	52.25
81.00	3.00	52.25
84.00	3.00	52.25
87.00	3.00	52.25
90.00	3.00	52.25
93.00	3.00	52.25
96.00	3.00	52.25
99.00	3.00	52.25
102.00	3.00	52.25
105.00	3.00	52.25
108.00	3.00	52.25
111.00	3.00	52.25
114.00	3.00	52.25
117.00	3.00	52.25
120.00	3.00	52.25
123.00	3.00	52.25
126.00	3.00	52.25
129.00	3.00	52.25
132.00	3.00	52.25
135.00	3.00	52.25
138.00	3.00	52.25
141.00	3.00	52.25
144.00	3.00	52.25
147.00	3.00	52.25
150.00	3.00	52.25

Section 15



Elevations  
62.000  
61.000  
60.000  
59.000  
58.000  
57.000  
56.000  
55.000

Excavation  
height

Distance

Accumulated  
distance

1.0  
3.40  
6.80  
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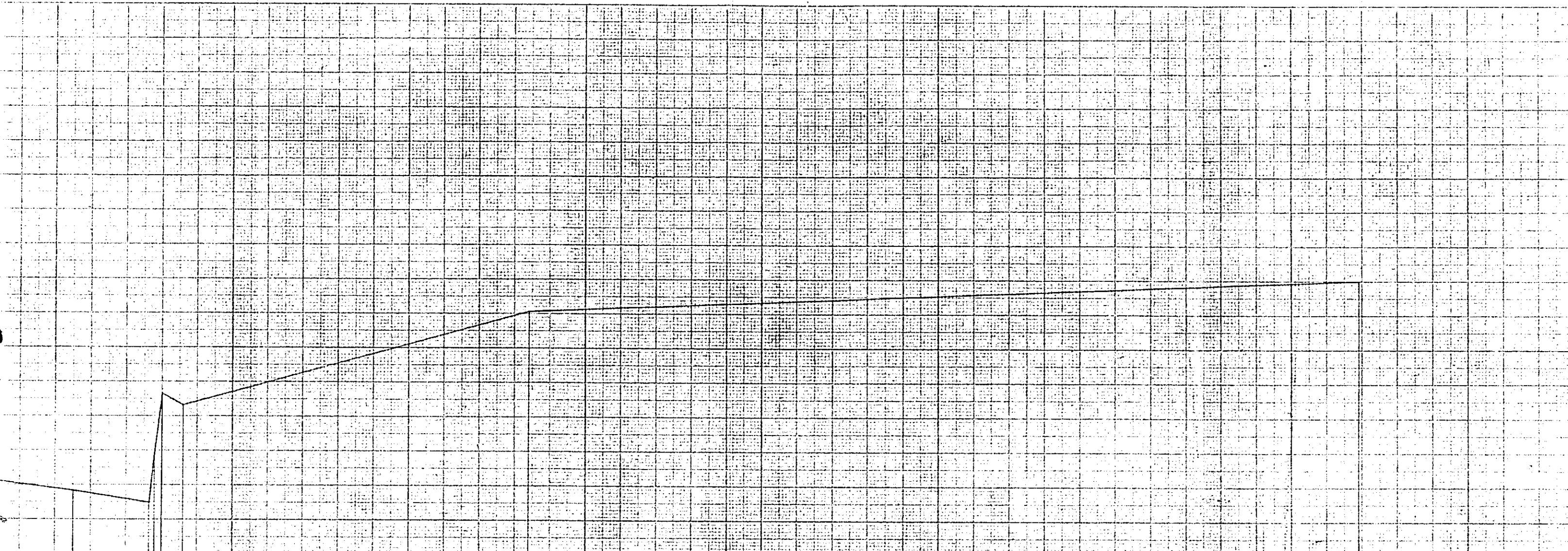
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Section 16

24-122



58.50  
55.50  
22.50  
25.00

58.50  
55.50  
22.50  
25.00

58.50  
55.50  
22.50  
25.00

Section 16

90.19  
00.86  
00.2.00  
20.2.12

00.2.1  
00.5.3  
23.00  
00.6.20



62.58

El. 65.000  
64.000  
63.000  
62.000  
61.000  
60.000  
59.000  
58.000

Accumulated distance	Distance	height
0.		62.63
5.	5.	58.56
10.	5.	58.56
15.	5.	58.13
20.	5.	58.45
25.	5.	58.83
30.	5.	59.10
35.	5.	60.10
40.	5.	60.15
45.	5.	60.20
50.	5.	60.50
55.	5.	60.50
60.	5.	60.55
65.	5.	60.55
70.	5.	60.60
75.	5.	60.50
80.	5.	60.60
85.	5.	60.50
90.	5.	60.60
95.	5.	60.75
100.	5.	60.50
105.	5.	60.65
110.	5.	61.00
115.	5.	60.80
120.	5.	61.30
125.	5.	61.27
130.	5.	61.25
135.	5.	61.25
140.	5.	61.20
145.	5.	61.20
150.	5.	61.20
155.	5.	61.40
160.	5.	61.80
165.	5.	62.90
170.	5.	63.63

Section 17

7-193

61.6700  
65.200  
65.200  
61.600  
63.000  
62.700  
61.200

Accumulated Distance	Distance Between	Elevation Height
102.00	5.00	65.66
97.00	5.00	65.50

0	0	65.50
3.0	3.0	65.51
5.0	2.00	65.50
7.50	2.50	65.50

Section 18

10.10	63.66	62.66
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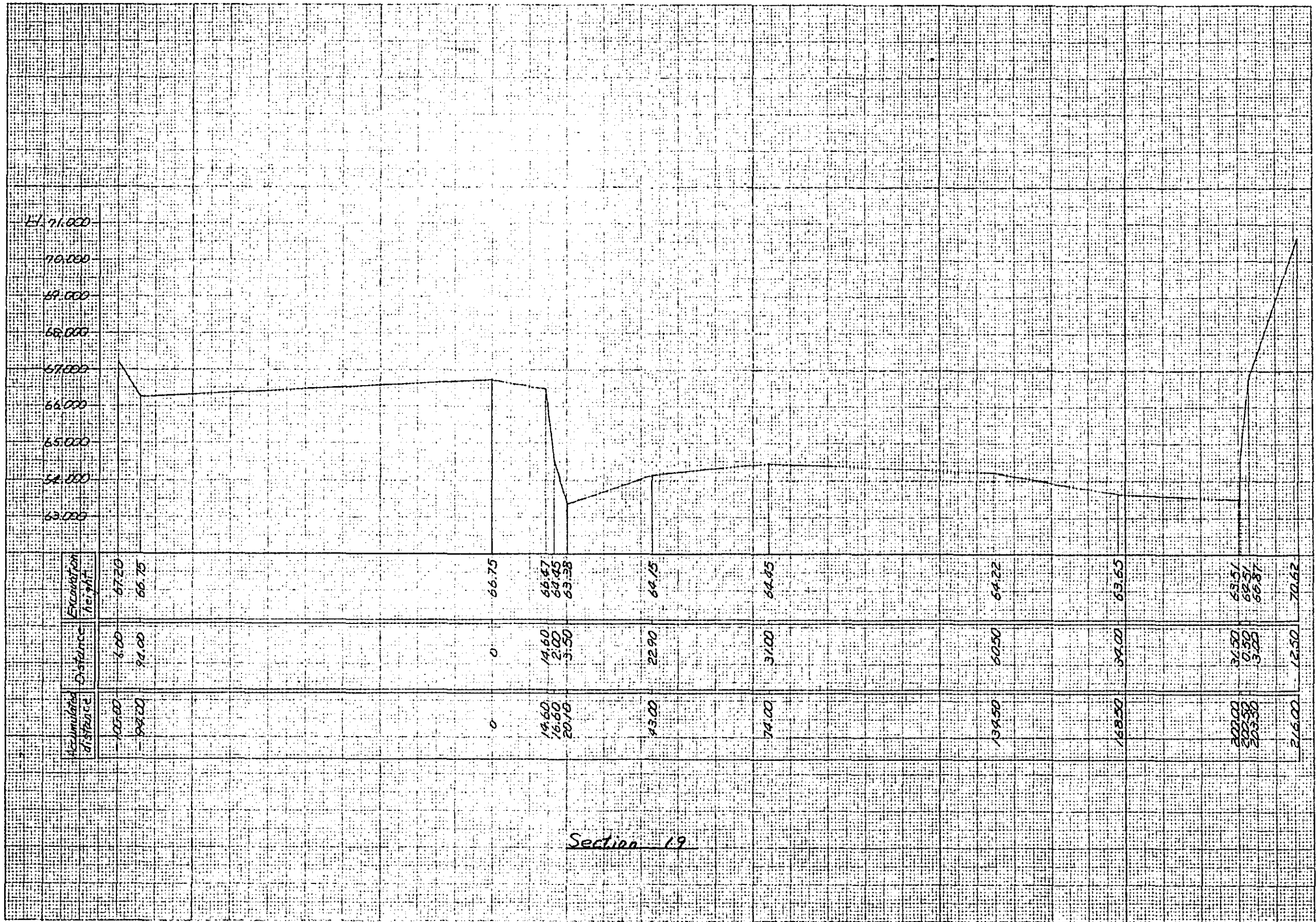
88.50	88.50	62.60
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160.00	71.50	61.00
162.00	5.20	62.00
168.00	5.80	65.55
173.00	5.00	65.30
178.00	5.00	65.00

193.00	19.00	67.91
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5-17 L8



Section 1.9

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5-17 L8

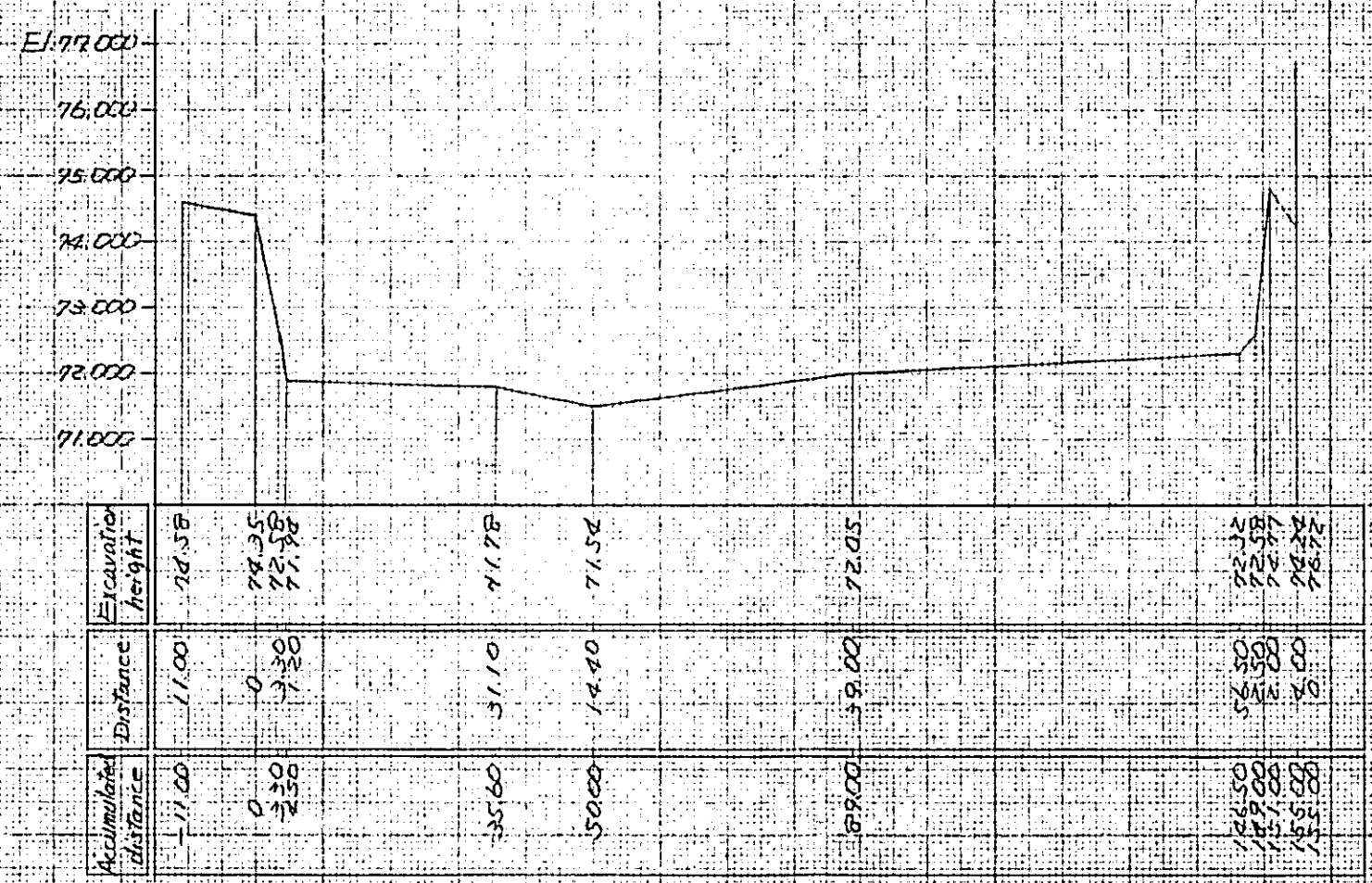
El. 7500  
7400  
7300  
7200  
7100  
7000  
6900  
6800

Accumulated Distance	Distance	Elevation Height
190.00	190.00	71.82
0	0	70.94
8.00	8.00	69.13
44.50	36.50	68.63
83.00	38.50	68.53
106.50	23.50	69.11
132.00	25.50	69.27
136.50	4.50	69.95
138.50	2.00	70.52
151.50	13.00	70.94
151.50	0.00	70.26

Section 20

90168

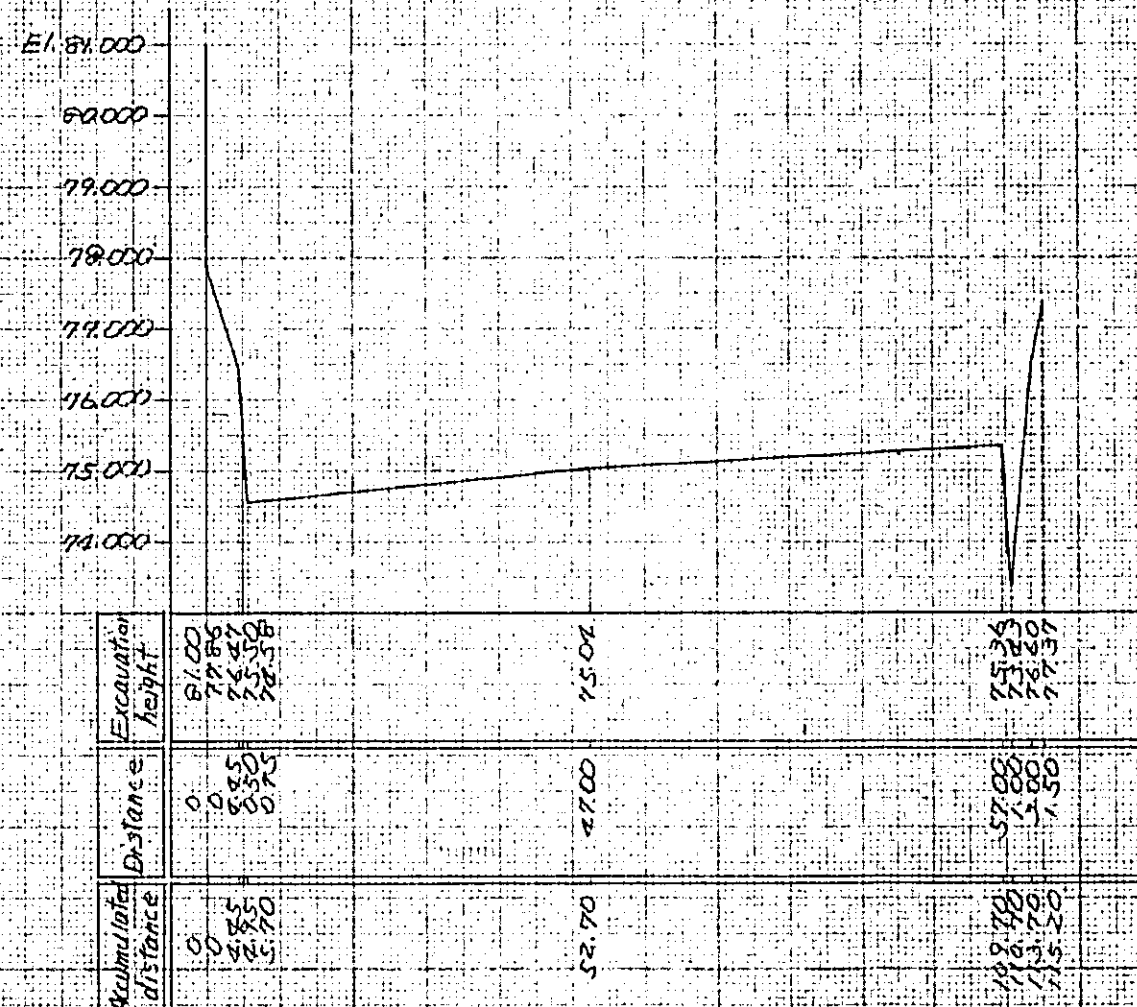
JIS-A3-250x350%



Section 21



821 06



Section 22



EA 67.000

66.000

65.000

64.000

63.000

62.000

Excavation  
height

85.01

Distance

162.50

Accumulated  
distance

-1122.50

84.75  
84.28  
83.90

0.00  
0.00  
0.00

0.00  
0.00  
0.00

71.28

00.45

05.65

11.28

00.25

05.50

26.28

00.00

05.25

52.28

05.11

05.50

24.28

05.09

05.51

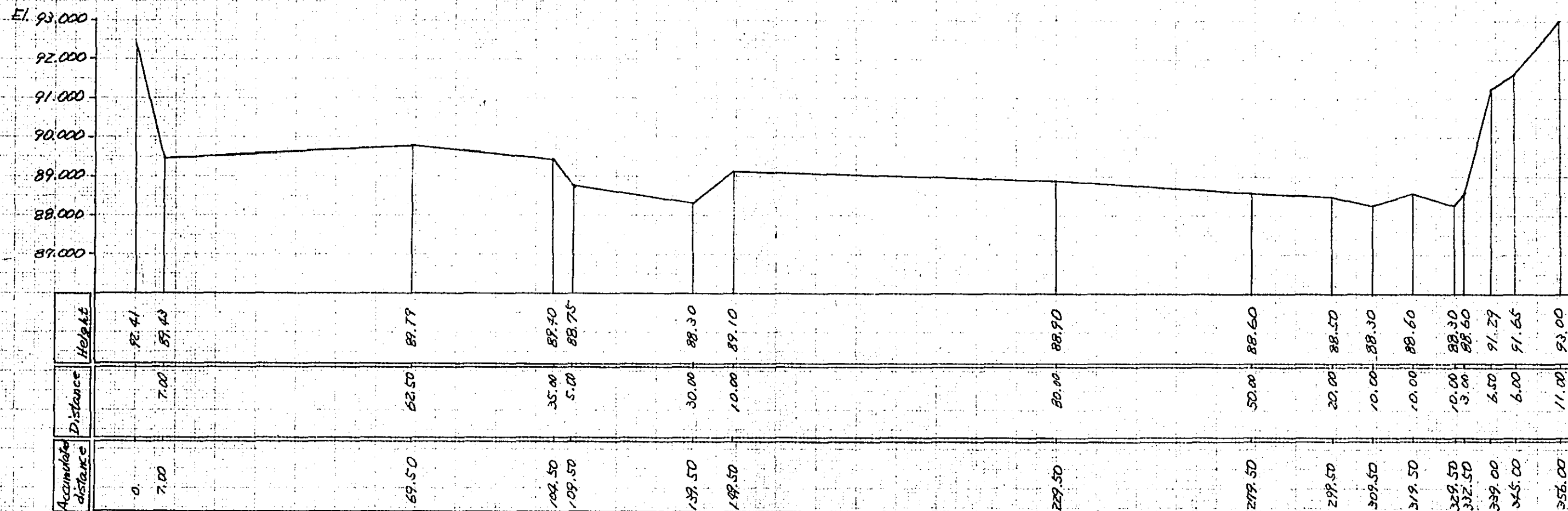
62.98

09.21

09.91

Section 23

72  
40



Section 24

## 7. Stage-Discharge Curve of Each River Cross Sections

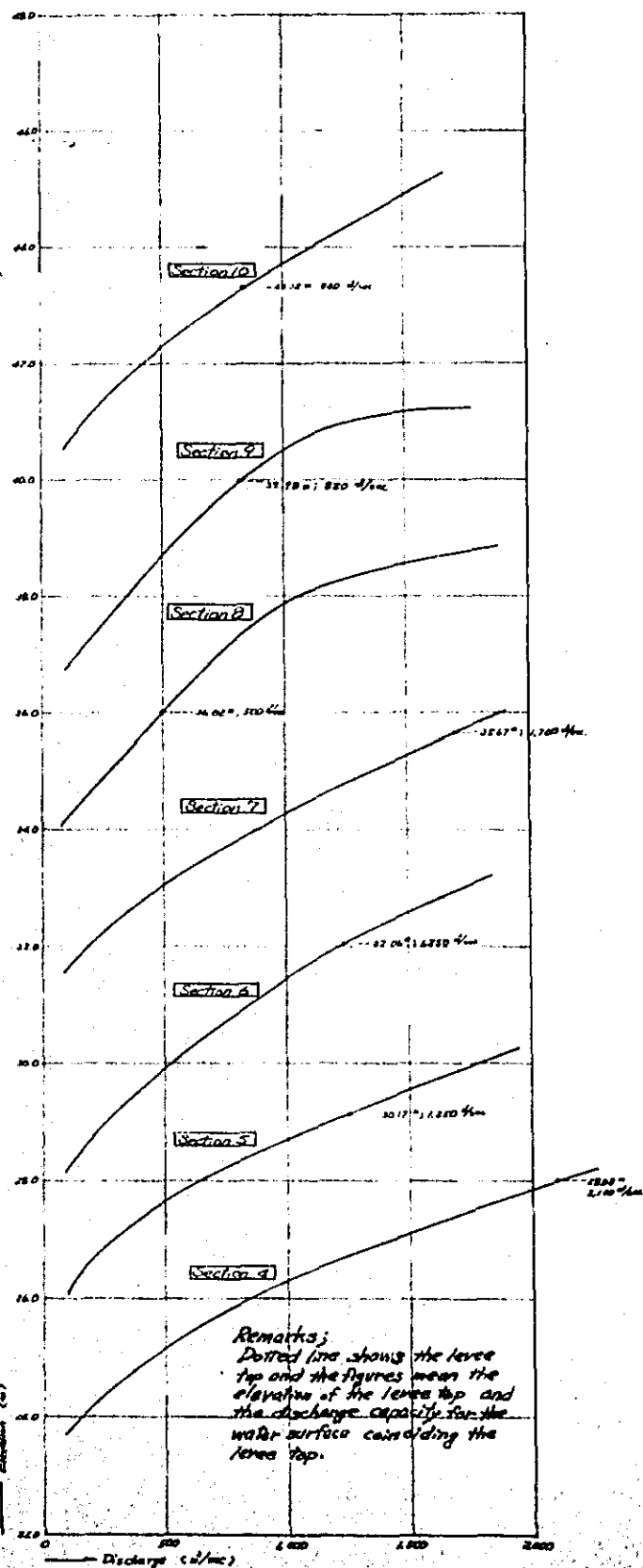
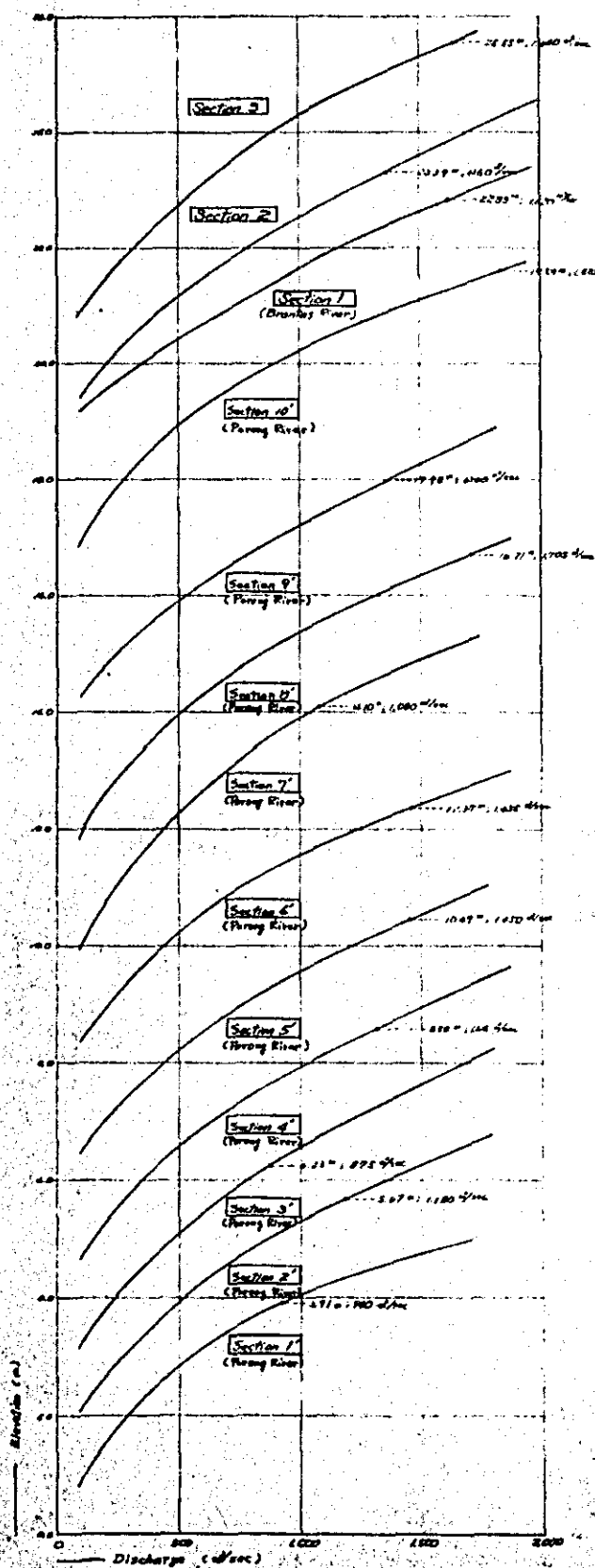
The compiled herein are stage-discharge curve showing the relation between the water level and the discharge in each river cross section as mentioned before. The stage-discharge curve is calculated by using the formula as follows.

$$-i + \frac{dH}{dx} + \frac{1.49^2}{2g} \times \frac{d}{dx} \left( \frac{1}{A^2} \right) + \frac{Q^2 n^2}{A^2 R^{4/3}} = 0$$

where:  $i$  ; Slope of water surface  
 $H$  ; Water depth (m)  
 $x$  ; River length between the estuary and the assigned cross section (m)  
 $Q$  ; Discharge ( $m^3/sec$ )  
 $A$  ; Flow area for assigned discharge ( $m^2$ )  
 $R$  ; Hydraulic mean depth (m)  
 $n$  ; Coefficient of roughness

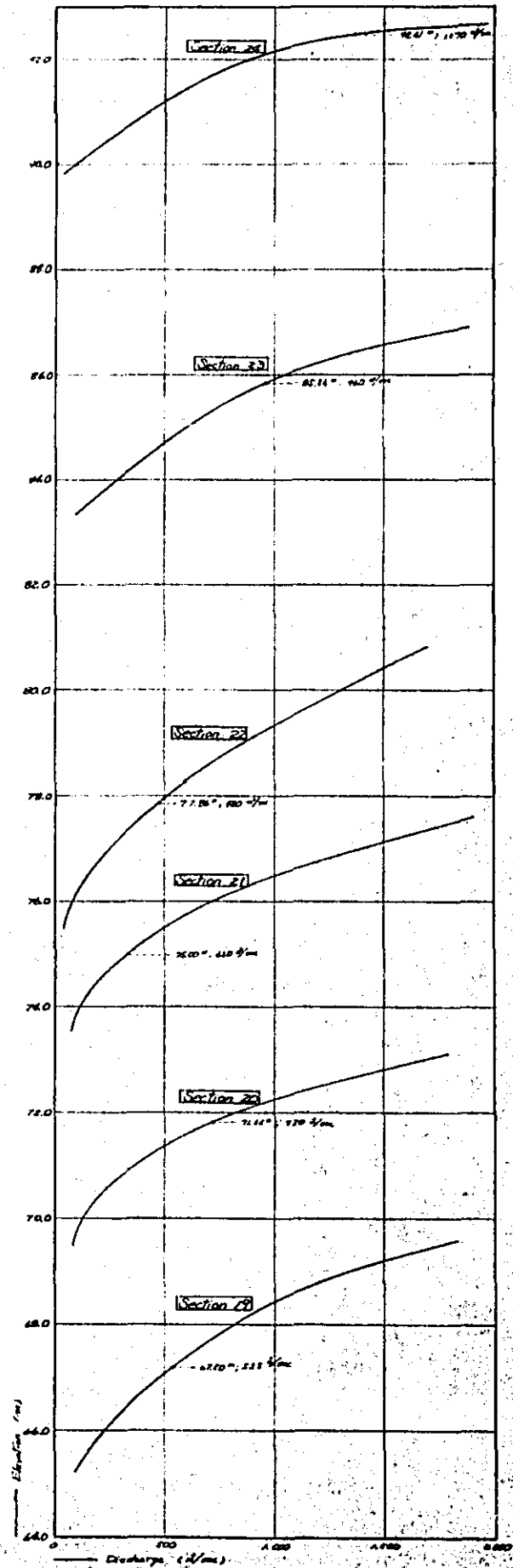
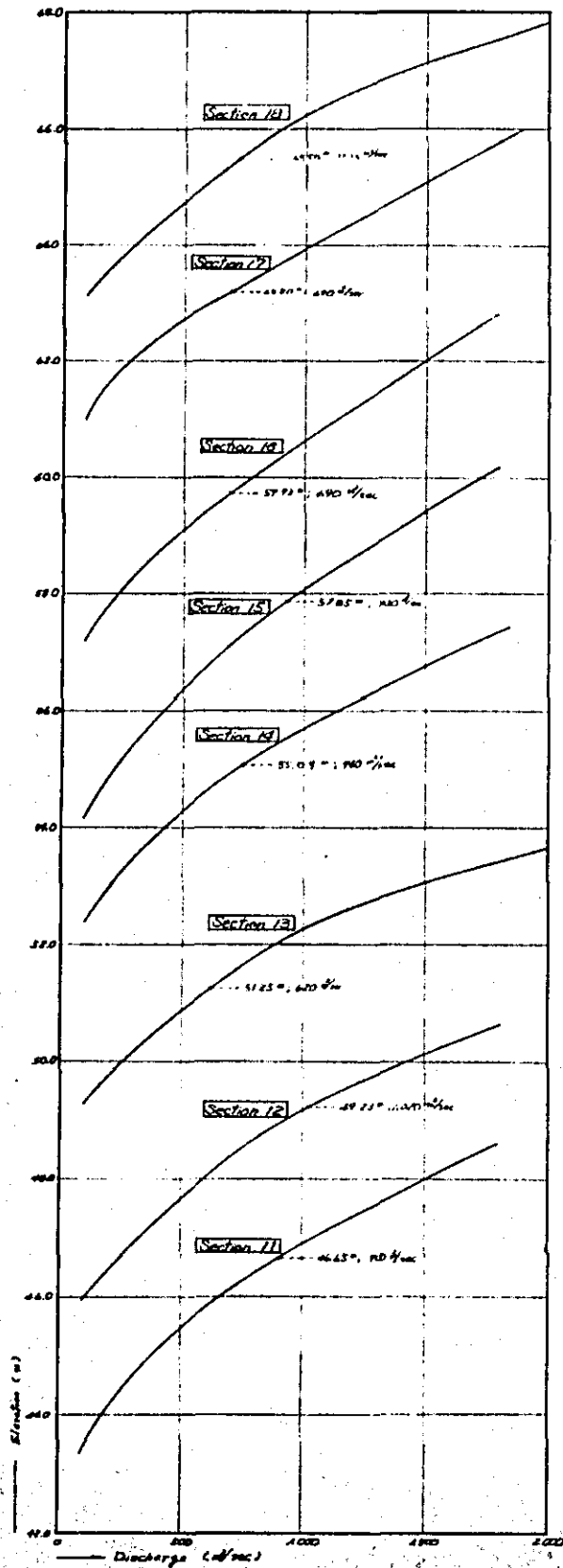
The discharges used are 100,500, 1,000 and 1500 cubic meters per second respectively. The coefficient of roughness used is 0.025 in the Porong River and that in the Brantas River is as follows.

Section 1 - Section 9	$n = 0.030$
Section 10 - Section 16	$n = 0.032$
Section 17 - Section 24	$n = 0.035$



Remarks:  
Dotted line shows the levee top and the figures mean the elevation of the levee top and the discharge capacity for the water surface coinciding the levee top.

Relationship between Water Level and Discharge



Relationship between Water Level and Discharge

## 8. Explanation of Damage Degree

### 8-1 Damage Degree of Upland Crop

The damage degree of upland crops such as maize, sweet potato and soybean is obtained from the following relation.

$$\text{Damage degree} = P \times D \times F$$

in which P; Rate of upland crop area to total cultivation area (%)

D; Damage degree classified by inundation period (%)

F; Flood frequency in each month (%)

According to the data prepared by the Government, the rate of the upland crop area to the total cultivated area is as follow.

Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Rate (%)	56.4	55.7	41.2	17.0	6.6	6.0	6.4	10.4

Source; Data at Section in Kediri

As the data on the damage degree classified by inundated period is not available, the following data used in Japan is applied in this study.

Inundated period	1 - 2	3 - 4	5 - 7	Over 7
Damage rate <sup>(day)</sup> (%)	30	80	100	100

According to the flood discharge data at Pakel gauge site, the flood frequency in each month is as follow.

Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
Flood frequency (%)	3	3	23	18	20	14	12	7	100

Based on the data mentioned in the above, the relation between the damage degree of the upland crop and the inundation period is estimated as shown in Table 8-1.

Table 8-1 Damage Degree of Upland Crop  
( % )

Month	Duration (day)	1 - 2	3 - 4	5 - 7	Over 7
Oct.		0.51	1.35	1.69	1.69
Nov.		0.5	1.34	1.67	1.67
Dec.		2.84	7.58	9.48	9.48
Jan.		0.92	2.45	3.06	3.06
Feb.		0.4	1.06	1.32	1.32
Mar.		0.25	0.67	0.84	0.84
Apr.		0.23	0.62	0.77	0.77
May		0.22	0.58	0.73	0.73
Total		5.87	15.65	19.56	19.56

The result of the above is illustrated in Fig.8-1

#### 8-2 Damage Degree of Wet Monsoon Paddy

Damage degree of the wet monsoon paddy in the probable inundation area is estimated in the following relation.

$$\text{Damage degree} = P \times D \times F (\%)$$

in which P; Rate of wet monsoon paddy area to the total cultivated area (%)

D; Damage degree classified by growing stage of paddy and inundation period (%)

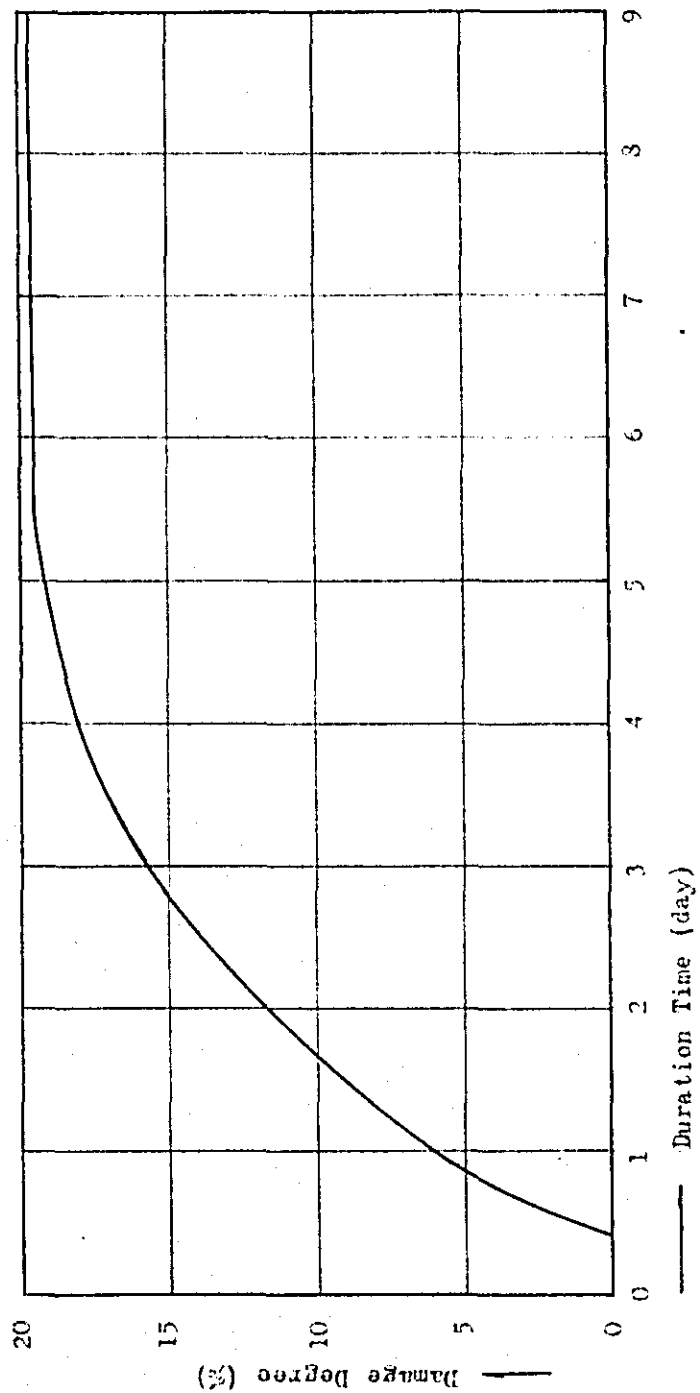
F; Flood frequency in each month (%)

According to the data prepared by the Government, the rate of the wet monsoon paddy area to the total cultivated area is as follows.

Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Rate (%)	0.1	4.4	16.6	53	74.5	78.8	78	62

Source; Data at Section in Kediri

Fig. 8-1 Damage Degree for Upland Crop





Based on the above data, the cropping pattern of the wet monsoon paddy is presented as shown in Fig.8-2.

Since the data on the damage degree classified by growing stage of paddy and inundation period is not available, the following data used in Japan is applied in this study.

Damage Rate Classified by Growing Stage  
of Paddy and Inundation Period.

Growing stage	Growing period	Height of paddy (cm)	Inundation depth (cm)	Damage degree classified by inundation period				
				0-0.5	1-2	3-4	5-7	Over 7 days
					%	%	%	%
Bootling	1st	25	over 25		10	20	30	35
	2nd	40	40		"	"	"	"
	3rd	60	60		"	"	"	"
Tillering	4th 2/3	90	Over 90	50	70	80	85	100
			below 90		20	50	85	100
Heading	1/3	100	Over 100		30	80	90	100
	5th 1/2	100	Over 100		30	80	90	100
Riping	1/2	100	over 100		5	20	20	30

The flood frequency in each month used in this study is the same as mentioned before.

Based on the data mentioned in the above, the relation between the damage degree of the wet monsoon paddy, the inundation period and the inundation depth is calculated in Table 8-2 and the result of which is illustrated in Fig 8-3.

Fig. 8-2 Cropping Pattern of Wet Monsoon Paddy

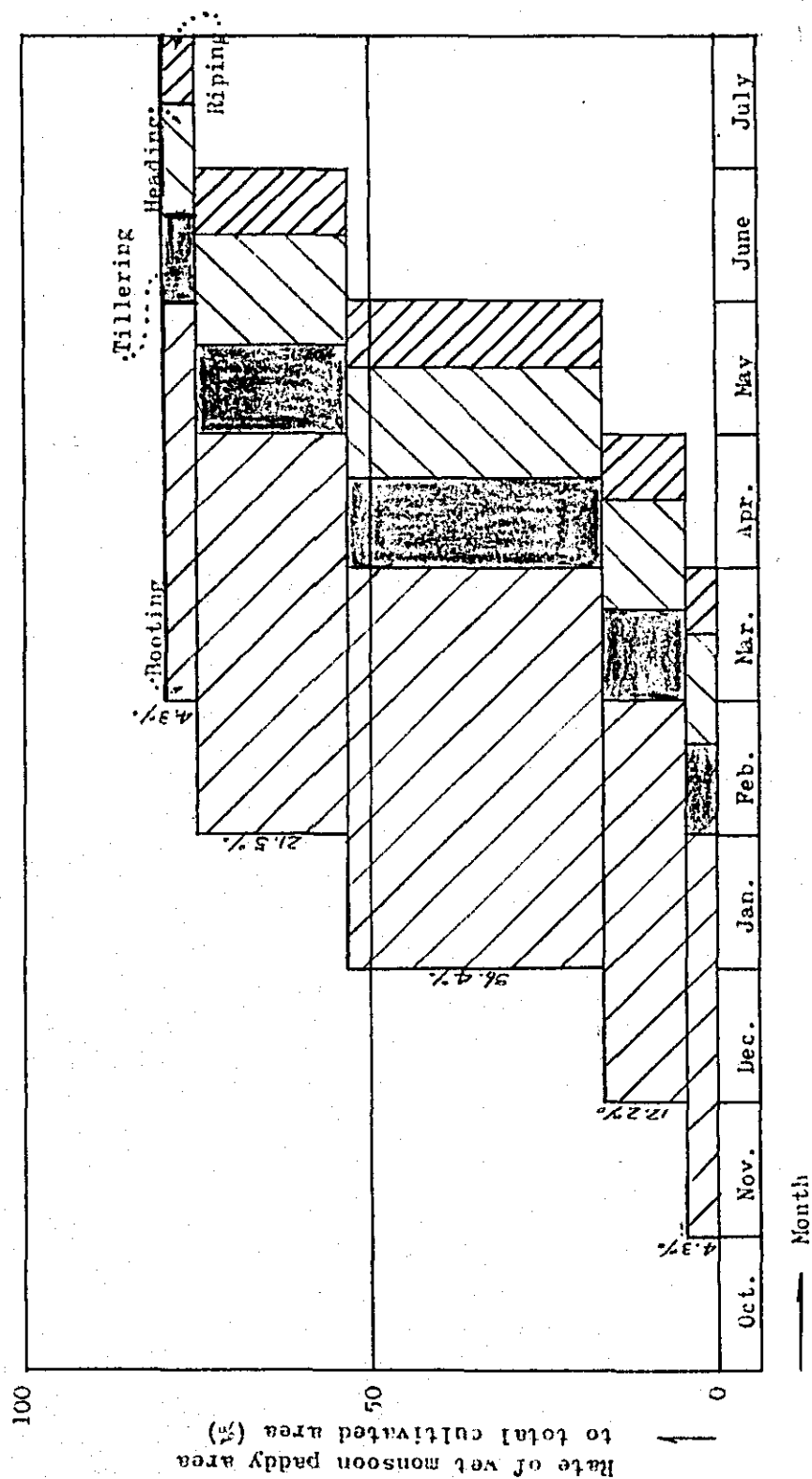


Table 8-2 Damage Degree of Wet Monsoon Paddy

(1) Water depth; less than 0.5 m						
Month	Duration (day)	1 - 2	3 - 4	5 - 7	Over 7	Over 15
Nov.		0.014	0.027	0.041	0.047	0.135
Dec.		0.382	0.764	1.145	1.336	3.918
Jan.		0.873	1.746	2.619	2.992	8.730
Feb.		1.158	2.316	3.474	4.053	11.580
Mar.		0.361	0.722	1.084	1.265	3.612
Apr.		0.052	0.103	0.155	0.181	0.516
May						
Total		2.84	5.678	8.518	9.874	28.491

(2) Water depth; less than 1.0 m						
Month	Duration (day)	1 - 2	3 - 4	5 - 7	Over 7	Over 15
Nov.		0.014	0.027	0.041	0.047	0.135
Dec.		0.382	0.764	1.145	1.336	3.918
Jan.		0.954	1.908	2.862	3.339	9.540
Feb.		1.520	3.100	4.710	5.500	14.900
Mar.		1.100	2.310	3.570	4.178	11.033
Apr.		0.937	2.166	3.541	4.155	8.916
May		0.230	0.561	0.941	1.106	4.354
Total		5.14	10.836	16.810	19.662	52.796

(3) Water depth; Over 1.0 m					
Month	Duration (day)	1 - 2	3 - 4	5 - 7	Over 7
Nov.		0.014	0.027	0.041	0.047
Dec.		0.382	0.764	1.145	1.336
Jan.		0.954	1.908	2.862	3.339
Feb.		1.910	3.520	4.980	5.800
Mar.		1.953	3.542	4.493	5.189
Apr.		3.087	4.934	6.382	6.559
May		1.328	2.538	2.924	3.267
Total		9.627	17.233	22.826	25.537

Fig. 8-3 Relation between Flood Duration and Damage Degree  
for Wet Monsoon Paddy

