

**MINISTRY OF INTERIOR
PROVINCIAL WATERWORKS AUTHORITY
DEVELOPMENT PLAN AND FEASIBILITY STUDY
ON
PROVINCIAL WATER SUPPLY PROJECTS
IN
THE KINGDOM OF THAILAND**

**FINAL REPORT
FOR
PHUKET
APPENDICES I**

MARCH 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

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国際協力事業団

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APPENDIX A-1-1

Meteorological Data

1 Meteorological Data

Table A1-1-1 : Monthly Rainfall at Phuket

Code; RM 4501

Station; Amphur Muang, Phuket

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	12.3	45.2	46.6	208.6	398.1	137.0	395.7	214.3	579.7	417.6	137.0	27.0	2619.1
1952	3.0	87.4	108.2	145.7	358.3	214.6	164.2	277.8	72.6	717.3	257.4	63.5	2470.0
1953	128.9	53.3	44.6	131.6	443.5	206.2	453.3	112.5	362.1	343.8	218.3	38.9	2537.0
1954	36.3	9.2	78.6	172.1	268.3	382.0	568.6	399.0	389.9	285.6	177.1	16.4	2783.1
1955	16.4	4.1	22.3	161.6	189.0	284.4	90.3	192.1	168.0	445.3	337.1	72.3	1982.9
1956	55.2	11.9	56.8	195.2	224.8	417.1	250.7	367.1	487.9	312.1	90.1	112.5	2581.4
1957	10.3	2.6	69.4	30.8	287.4	173.4	557.9	330.5	358.2	227.9	133.8	29.7	2211.9
1958	33.2	0.0	20.7	47.7	271.6	240.6	58.2	221.1	258.5	557.3	206.2	15.0	1930.1
1959	2.7	0.0	142.7	239.4	101.6	278.3	459.5	425.8	223.1	260.9	140.6	89.3	2363.9
1960	34.4	67.1	44.5	107.7	376.0	228.6	358.5	303.1	458.5	145.0	273.9	81.6	2478.9
1961	62.2	7.6	12.8	209.8	375.2	203.1	165.8	132.8	231.3	257.0	93.8	77.4	1828.8
1962	2.9	17.8	74.8	83.6	153.2	376.8	301.6	264.0	409.0	219.6	191.1	26.6	2121.0
1963	7.6	0.0	2.3	10.2	136.9	176.3	173.9	143.1	479.5	401.0	297.8	101.5	1930.1
1964	105.9	32.6	1.4	55.0	667.3	94.8	132.9	246.7	481.7	239.1	311.7	63.9	2433.0
1965	81.0	40.4	45.5	127.6	295.6	177.9	209.1	469.9	436.7	138.1	168.8	78.9	2269.5
1966	26.4	10.8	53.8	93.7	463.6	317.6	377.2	242.1	308.7	442.9	139.2	67.1	2543.1
1967	136.7	1.4	43.8	78.4	288.4	274.0	115.2	312.9	209.0	714.6	93.4	11.2	2279.0
1968	14.4	0.0	0.0	134.6	400.2	341.0	343.0	400.7	498.3	188.3	92.8	118.1	2531.4
1969	67.4	17.2	31.0	17.7	305.8	534.3	284.3	283.9	398.5	290.8	255.0	3.7	2489.6
1970	32.3	1.6	129.6	211.2	240.2	183.9	470.1	218.6	354.3	342.3	115.3	78.8	2378.2
1971	22.0	172.7	196.8	3.4	545.7	478.5	203.3	546.4	-1.0	500.1	116.4	44.1	2829.4
1972	0.0	2.3	4.8	188.1	235.1	213.5	231.6	135.4	434.6	139.0	107.9	126.9	1819.2
1973	3.2	21.2	73.0	106.7	307.0	371.4	453.7	293.1	482.0	203.7	233.3	80.7	2629.0
1974	0.0	3.0	45.1	155.7	282.8	421.4	423.3	250.2	439.4	506.7	197.9	61.9	2787.4
1975	91.4	15.0	62.3	228.3	384.5	490.7	136.3	100.2	508.0	415.6	190.6	24.9	2647.8
1976	0.0	2.4	56.5	127.6	461.7	267.9	348.3	263.3	415.5	188.7	105.2	22.7	2259.8
1977	15.4	40.2	0.0	24.8	206.0	247.0	157.2	344.6	454.7	376.8	118.7	8.5	1993.9
1978	24.0	0.0	19.3	117.4	226.5	301.1	429.8	213.2	242.7	86.5	82.4	31.4	1774.3
1979	2.4	1.3	0.2	149.0	155.4	265.7	452.2	112.2	247.8	151.7	56.7	42.0	1636.6
1980	2.2	43.8	132.9	62.7	221.5	375.3	349.3	486.1	336.1	293.6	172.4	129.6	2605.5
1981	1.3	1.0	25.8	146.7	288.8	147.0	164.6	148.7	288.1	166.3	278.6	35.3	1692.2
1982	2.8	49.7	29.9	115.8	303.2	87.4	639.5	130.9	183.7	273.6	211.4	36.5	2064.4
1983	14.8	0.0	29.9	43.3	221.2	256.1	293.8	508.3	603.1	366.1	127.1	18.7	2481.9
1984	34.0	1.4	67.7	382.8	203.2	469.7	411.4	86.5	331.5	281.5	68.3	230.0	2568.3
1985	35.7	56.8	103.0	219.2	498.8	196.0	172.7	212.7	430.5	416.1	75.6	80.2	2497.3
1986	28.7	11.7	3.9	247.4	453.5	185.0	303.5	416.7	881.0	330.3	268.7	19.6	3150.0
1987	10.7	0.0	18.2	37.9	371.0	138.5	76.4	655.9	367.7	326.6	501.2	104.1	2608.2

Source : Meteorological Department

Table A1-1-2 : Monthly Rainfall at Phuket Airport

Code; RM 4503

Station; Amphur Muang, Phuket

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1952	9.8	84.3	171.6	139.9	590.5	354.1	165.7	246.7	109.5	595.1	258.5	28.1	2753.8
1953	136.5	85.5	16.3	129.4	508.7	223.7	508.1	216.8	503.2	339.2	382.0	21.6	3071.0
1954	101.4	22.6	103.7	315.2	173.4	468.8	504.5	623.6	272.4	432.4	179.0	38.9	3235.9
1955	14.6	6.7	0.6	298.3	365.3	343.7	160.0	127.0	262.9	439.3	380.0	53.9	2453.1
1956	60.2	5.5	89.3	110.6	317.6	250.5	288.7	247.1	583.5	373.5	121.9	15.1	2463.5
1957	59.9	0.0	89.2	125.7	422.6	203.9	516.1	365.3	527.6	277.5	319.8	60.9	2968.5
1958	43.4	5.2	13.5	111.9	301.9	273.3	91.6	328.1	242.0	379.4	225.9	31.0	2047.2
1959	0.8	20.5	183.8	215.2	351.9	285.9	535.6	322.7	402.3	339.9	186.8	158.2	3003.6
1960	39.5	66.9	6.0	35.6	473.0	261.3	266.1	337.2	522.3	130.1	315.8	78.5	2532.3
1961	93.4	6.4	49.3	269.6	327.3	274.0	203.4	145.5	308.5	347.3	119.2	102.6	2246.5
1962	30.0	1.2	74.4	163.2	380.6	345.8	249.6	218.2	330.9	479.0	165.0	39.1	2477.0
1963	1.5	0.8	5.7	1.4	308.5	333.6	145.1	249.1	492.3	416.7	328.5	91.7	2374.9
1964	71.2	72.2	4.3	90.2	641.3	157.0	329.2	311.2	652.7	249.8	251.8	84.8	2915.7
1965	9.1	43.7	90.4	98.6	295.7	189.1	149.6	664.3	439.8	228.5	131.1	121.2	2461.1
1966	132.4	45.1	100.0	107.1	515.6	421.6	427.3	379.6	335.2	449.1	80.2	120.8	3114.0
1967	92.5	11.2	24.6	89.0	316.2	330.6	120.0	328.9	193.2	448.1	107.6	35.5	2097.3
1968	11.9	0.0	0.0	261.0	378.9	275.4	299.1	256.1	418.2	351.9	65.5	113.3	2431.3
1969	108.6	27.0	72.7	73.3	442.6	487.6	201.2	168.6	446.9	368.5	163.8	17.5	2578.3
1970	15.6	0.0	103.3	226.3	482.9	180.9	482.9	286.0	355.9	297.7	160.8	103.3	2695.6
1971	21.8	213.0	107.6	88.4	532.5	314.0	175.9	430.9	462.7	642.0	108.4	61.5	3158.7
1972	5.9	9.8	140.9	157.7	245.3	189.6	219.7	80.8	444.1	278.0	132.3	136.9	2041.0
1973	72.2	0.5	157.6	244.0	239.6	387.7	442.6	288.7	720.0	316.8	322.2	116.6	3309.5
1974	0.3	21.5	190.7	170.9	254.1	238.6	453.3	198.9	595.4	550.3	371.8	44.7	3090.5
1975	144.4	56.2	49.6	227.1	332.5	670.5	142.5	113.2	341.2	641.2	167.4	119.5	3005.3
1976	5.6	2.0	57.6	146.5	323.4	220.9	362.0	257.4	305.4	212.8	191.7	62.2	2147.5
1977	54.5	61.4	0.1	34.1	265.1	156.6	192.6	208.3	492.8	366.7	226.2	23.1	2081.5
1978	59.6	1.6	56.5	209.0	299.2	394.7	451.7	169.8	392.4	222.9	90.5	16.3	2364.2
1979	16.0	5.5	2.9	159.4	172.8	380.1	438.1	182.9	373.8	238.7	181.7	38.2	2190.1
1980	32.6	20.6	17.4	91.4	226.0	436.9	390.8	535.6	315.6	247.6	115.7	125.9	2556.1
1981	11.7	7.3	31.3	176.4	295.5	142.7	194.0	146.4	162.9	176.9	353.8	30.8	1729.7
1982	5.6	12.3	119.9	270.8	365.9	132.4	558.5	143.2	181.8	371.7	150.2	43.4	2355.7
1983	19.6	0.0	26.0	178.9	234.7	319.6	360.4	394.0	553.9	293.7	183.3	47.9	2612.0
1984	66.0	47.6	61.4	239.0	148.2	360.2	255.2	71.2	381.7	171.2	146.3	130.5	2078.5
1985	21.2	23.7	79.2	206.4	472.1	270.1	121.9	199.6	318.4	476.6	102.7	79.6	2371.5
1986	66.5	6.9	51.5	272.7	360.0	227.5	221.2	398.4	659.4	327.3	201.1	26.2	2818.7
1987	19.7	0.0	8.2	61.1	293.2	127.0	74.1	624.2	395.7	335.7	435.5	83.0	2459.4

Source : Meteorological Department

Table A1-1-3 : Monthly Rainfall at Bang Wad Reservoir

Code : RM -

Station : Bang Wad Reservoir

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1983	15.5	-	69.0	22.0	234.8	318.2	315.2	502.9	709.5	380.4	99.7	19.0	2686.2
1984	21.1	6.4	38.8	321.9	260.4	507.3	363.5	87.3	364.1	347.1	180.5	300.9	2799.3
1985	14.4	81.1	126.9	156.4	455.5	203.1	172.4	232.3	389.6	454.6	180.3	71.7	2538.3
1986	30.9	6.8	-	147.8	460.2	143.6	289.5	466.5	906.7	419.6	467.3	29.5	3368.4
1987	9.8	-	18.0	37.6	363.3	126.0	58.2	776.0	401.7	230.9	506.4	133.0	2660.9

Source : RID

Table A1-1-4 : Meteorological Data at Phuket

Items	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
<u>Temperature (C.degree)</u>													
Mean	27.9	28.8	29.4	29.5	28.5	28.2	27.8	27.9	27.3	27.4	27.6	27.6	28.2
Mean Max.	31.9	32.8	33.4	33.3	31.9	31.4	31.0	31.1	30.6	30.8	30.8	31.0	31.7
Mean Min.	23.2	23.7	24.2	24.6	24.5	24.4	24.1	24.3	23.8	23.7	23.8	23.6	24.0
Ext. Max.	34.2	36.0	36.6	37.8	35.5	34.3	34.6	34.4	33.8	34.4	34.0	34.2	37.8
Ext. Min.	17.4	18.6	20.0	20.0	21.0	21.0	19.9	20.4	21.1	20.5	20.3	18.4	17.4
<u>Relative Humidity (%)</u>													
Mean	69.5	68.2	69.1	73.3	79.8	79.2	79.7	78.6	81.4	81.4	78.5	73.9	76.1
Mean Max.	86.1	85.6	87.4	90.4	93.3	91.6	92.3	91.0	93.1	93.8	91.5	88.0	90.4
Mean Min.	55.0	53.0	53.8	58.2	66.4	67.1	67.4	66.4	69.0	68.0	65.4	61.0	62.6
Ext. Min.	33.0	33.0	31.0	28.0	37.0	45.0	47.0	40.0	48.0	43.0	39.0	37.0	28.0
<u>Evaporation (mm.)</u>													
Mean - Pan	163.4	156.5	171.9	160.4	134.7	144.0	147.5	158.1	140.1	124.3	118.6	140.8	1760.3
<u>Rainfall (mm.)</u>													
Mean	31.0	20.7	52.5	123.8	304.6	286.9	304.2	273.1	379.0	303.4	158.2	64.3	2301.7
Mean Rainy Days	4.3	2.7	5.1	11.1	20.8	19.2	20.1	19.1	22.6	21.5	15.5	8.8	170.8
Greatest in 24 hr.	70.8	47.8	68.2	89.8	142.9	129.2	145.9	118.5	145.0	141.2	126.9	73.4	145.9
Day / Year	7/67	12/60	24/59	25/84	2/68	25/62	13/66	14/83	6/64	3/67	2/58	15/84	13/66

Source : Meteorological Department

Remark : Evaporation 1981-1985

APPENDIX A-2-1 |

Hydrological Data |

Hydrological Data

Table A2-1-1 : Monthly Flow Records at Huai Ao Yan

River : Huai Ao Yan

Location : Phuket

Station : 97

Drainage Area : 2 sq m

Year	Streamflow in (MCM)												Annual
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1974	-	-	-	0.295	0.233	0.337	0.222	0.492	0.067	0.019	-	-	1.665
1975	-	-	-	-	-	-	-	-	-	-	-	-	0.000
1976	-	-	0.155	0.214	0.187	0.259	0.107	0.104	0.080	0.053	0.017	-	1.176
1977	-	0.019	0.039	0.115	0.169	0.311	0.185	0.140	0.062	0.045	0.008	-	1.093
1978	-	0.027	0.078	0.214	0.080	0.104	0.080	0.052	0.027	-	-	-	0.662
1979	-	-	0.026	0.295	0.054	0.026	0.054	0.026	-	-	-	-	0.481
1980	-	-	0.104	0.161	0.321	0.285	0.375	0.259	0.107	-	-	-	1.612
1981	-	-	0.130	0.054	0.027	0.130	0.080	0.389	0.054	-	-	-	0.864
1982	-	0.027	0.181	0.482	0.054	0.052	0.054	0.078	-	-	-	-	0.928

APPENDIX A-2-2 |

Runoff Analysis |

(1) Rainfall Synthesis

The daily rainfall data for the six gauging stations, collected from the Meteorological Department, RID and NEA within and around the vicinity of the study area, contain many missing data. To generate such missing data, correlation study was done on the basis of monthly rainfall using the overlapping observation periods of the stations.

The coefficients of correlation and equations of linear regression employed to synthesize the missing rainfall data in the object stations were determined statistically by means of the method of least square on a monthly basis among stations.

The highest correlation was taken to complement the missing rainfall data and generation of daily rainfall was done following the procedures shown below;

a) Equation of linear regression obtained through the correlation study is expressed as:

$$Y = aX + b$$

where X: Monthly rainfall at the key station which keeps perfect daily record of rainfall during period under consideration

Y: Expected monthly rainfall at the object station which involves missing data

a,b: Coefficient and constant

Applying the ratio of the monthly amount of rainfall between stations X and Y, showing the highest correlation, the daily rainfall at the object station was generated by the following equation;

$$Y = (Y,X) *x$$

where X: Daily rainfall actually measured at the key station

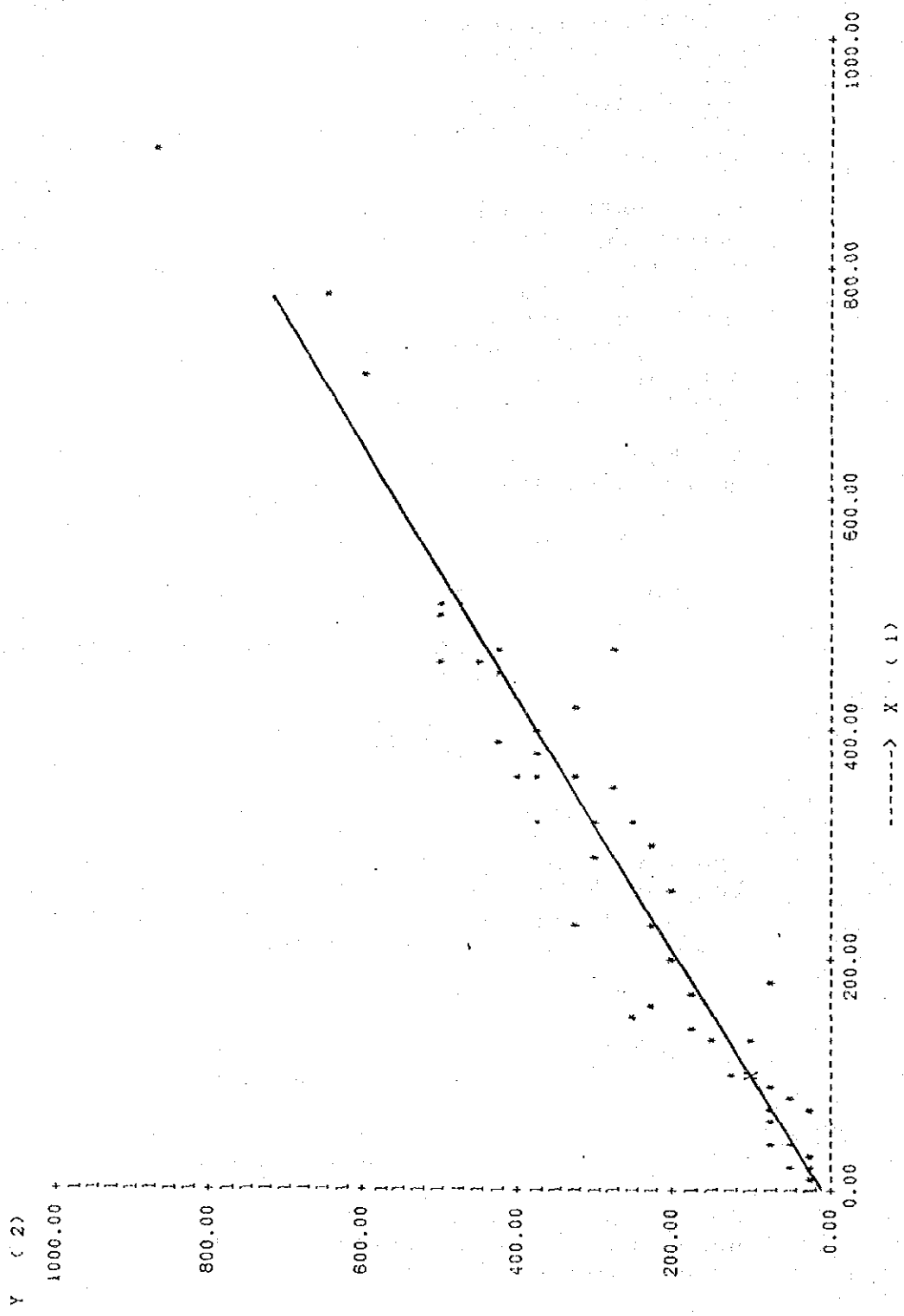
Y: Synthetic daily rainfall at the object station

Shown below are the regression equations developed and used in the interpolation of daily rainfall in the different stations.

***** THE REGRESSION LINE OF CO-RELATION OF RAINFALL BETWEEN PHUKET CITY AND BANGWAD *****

1983--1987

$Y = 0.904 X + 10.611$ (MM)
 $X = 1.038 Y + 4.203$ (MM)
 $R = 0.969$



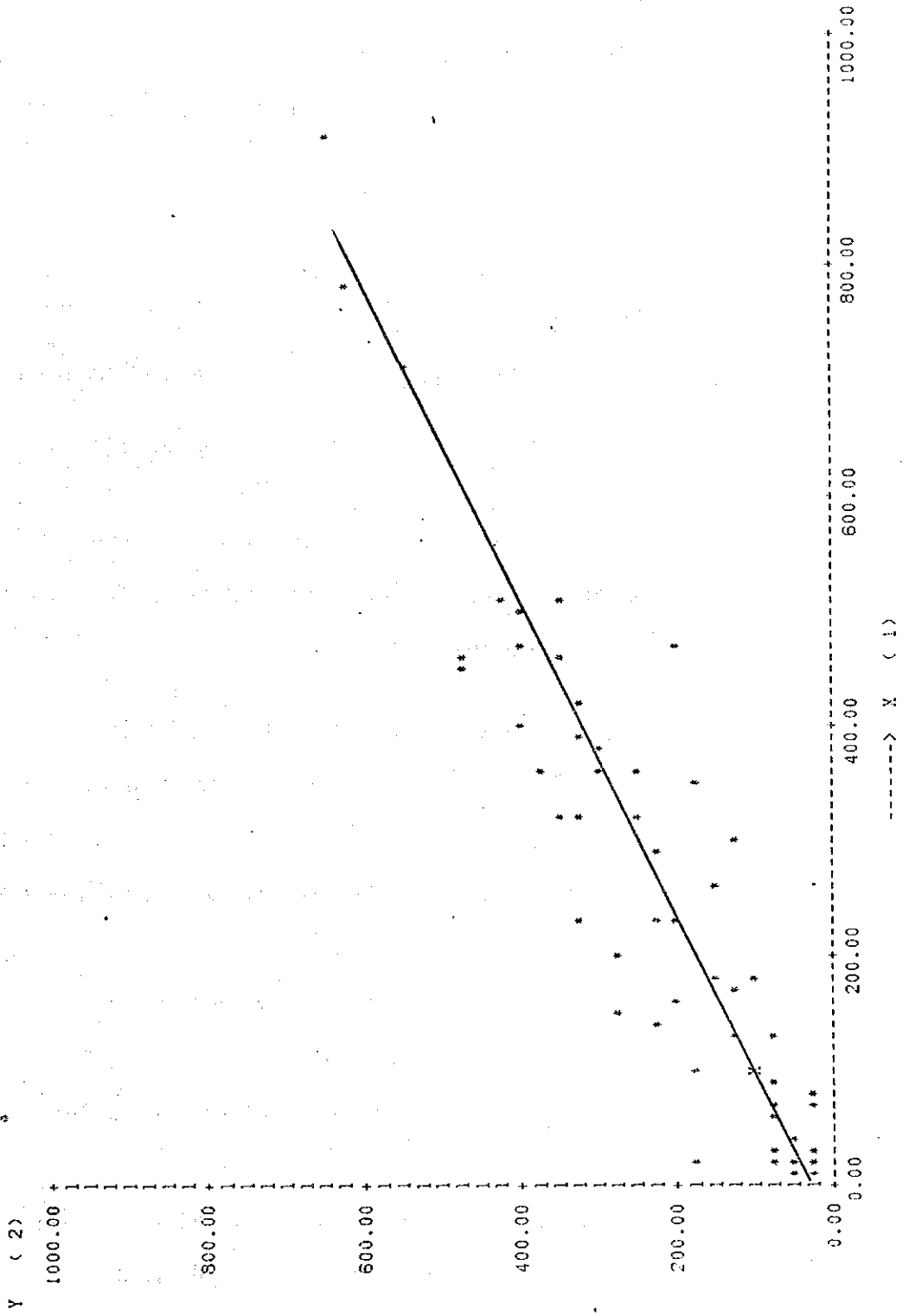
***** THE REGRESSION LINE OF CO-RELATION OF RAINFALL BETWEEN PHUKET AIRPORT AND BANGWAD *****

1983--1987

$$Y = 0.729 X + 35.927$$

$$X = 1.172 Y - 5.980$$

$$R = 0.924$$

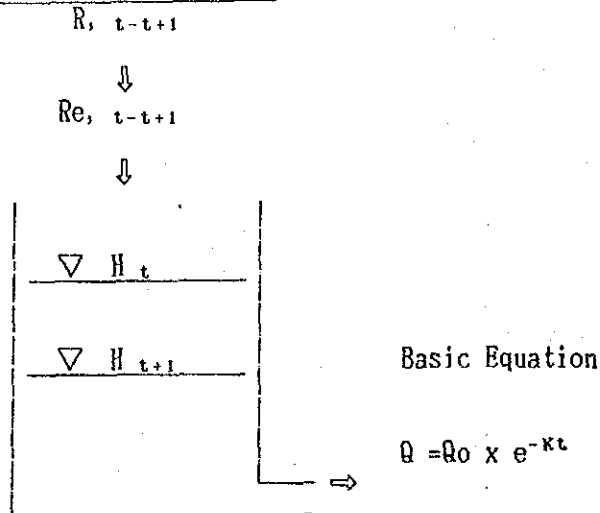


(2) Runoff Analysis by Tank Model

(1) Tank Model

(a) General

Water Balance in the Tank



The water balance in the tank is given by the following differential equation :

$$H_{t+1} = H_t + (Re_{t-t+1} - (Q_t + Q_{t+1})/2) dt$$

where: H_{t+1} = water stage in the tank at $t = t+1$

H_t = -do- at $t = t$

Re_{t-t+1} = effective rain poured into tank during time t and $t+1$

Q_t = outflow from tank at $t = t$

Q_{t+1} = -do- at $t = t+1$

dt = time interval for calculation

Giving that $dt = 1.0$ day, $Q_t = KH_t$ and $Q_{t+1} = KH_{t+1}$, then :

$$H_{t+1} = H_t + Re_{t-t+1} - KH_{t+1}/2$$

$$H_{t+1} = (1-K/2)/(1+K/2)H_t + 1/(1+K/2)Re_{t-t+1}$$

$$= aH_t + bRe_{t-t+1}$$

RUNOFF ANALYSIS BY TANK MODEL (DAILY BASE)

- LOCATION : PHUKET
- POINT ANALYSED : X - 9 7
- CA : PHUKET CITY
- CA : 2.000 (km)

· DIMENSION OF TANK

		UPPER HOLE	MIDDLE HOLE	LOWER HOLE	PENETRATION	EVAPORATION
TANK 1	COEFFI	0.100000	0.030000	0.001000	0.005000	1.000
	HEIGHT	90.0	70.0	10.0		
TANK 2	COEFFI	0.003000	0.001000	0.000500	0.000200	0.0
	HEIGHT	20.0	10.0	0.0		
TANK 3	COEFFI	0.002000	0.001000	0.000500	0.000100	0.0
	HEIGHT	10.0	5.0	0.0		
TANK 4	COEFFI	0.0	0.0	0.0	0.0	0.0
	HEIGHT	0.0	0.0	0.0		

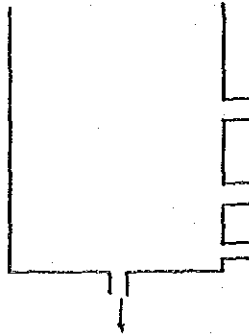
【 MONTHLY EVAPORATION 】

(mm/D)

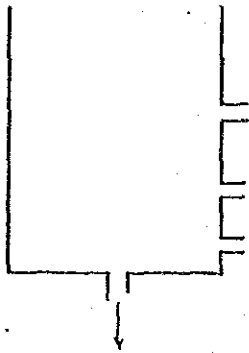
	1	2	3	4	5	6	7	8	9	10	11	12
RATE .	3.70	3.90	3.90	3.70	3.00	3.40	3.30	3.60	3.30	2.80	2.80	3.20

DIMENSION OF TANK

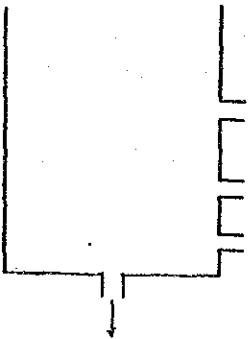
TANK 1



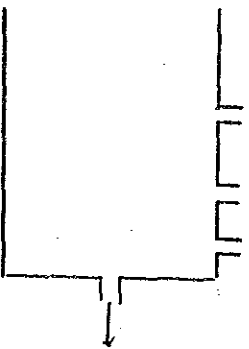
TANK 2



TANK 3



TANK 4

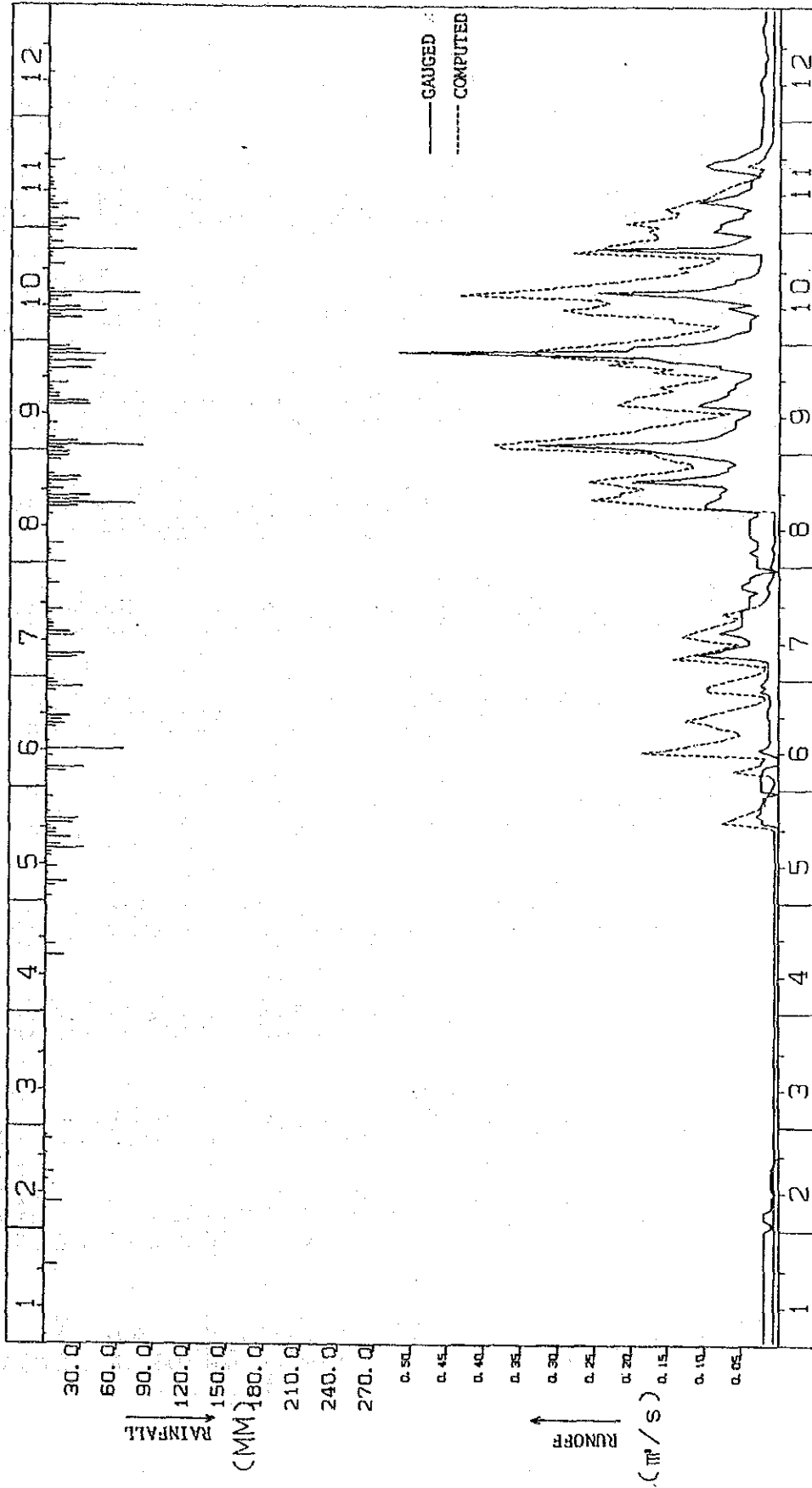


RUNOFF ANALYSIS BY TANK MODEL

(1977)

RAINFALL STATION : PHUKET CITY

COEFFICIENT = 0.7286



GAUGING STATION : X-97 (CA = 2.00 km)

< DAILY RAINFALL > PHUKET CITY
(1977) PHUKET CITY

UNIT = (mm/D)

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	13.0	0.0	15.7	0.0
2	0.0	0.0	0.0	0.0	4.5	0.9	0.0	1.0	78.2	0.0	6.8	0.0
3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	2.4	23.9	0.0	24.6	1.6
4	0.3	0.6	0.0	0.0	0.0	0.0	0.0	2.3	5.8	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	7.5	15.4	3.0	0.4	0.0	0.0	0.8	0.0
AVERAGE	< 1.9 >	< 0.6 >	< 0.0 >	< 0.0 >	< 12.0 >	< 16.3 >	< 3.0 >	< 20.4 >	< 121.0 >	< 0.0 >	< 45.9 >	< 1.6 >
	< 0.4 >	< 0.1 >	< 0.0 >	< 0.0 >	< 2.4 >	< 3.3 >	< 0.6 >	< 4.1 >	< 24.2 >	< 0.0 >	< 9.2 >	< 0.3 >
6	0.0	1.3	0.0	0.0	16.6	30.1	24.5	12.1	0.4	1.8	7.5	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	30.7	0.0	0.0	27.2	15.3	0.0
8	0.1	13.9	0.0	0.0	1.3	0.0	0.0	0.0	6.7	9.6	3.1	0.0
9	0.0	0.0	0.0	0.0	0.0	4.4	2.2	0.0	1.0	47.7	4.7	0.0
10	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	25.9	0.0	1.2
AVERAGE	< 0.1 >	< 15.3 >	< 0.0 >	< 0.0 >	< 26.1 >	< 34.6 >	< 57.4 >	< 12.1 >	< 8.1 >	< 112.2 >	< 30.6 >	< 1.2 >
	< 0.0 >	< 3.1 >	< 0.0 >	< 0.0 >	< 5.2 >	< 6.9 >	< 11.5 >	< 2.4 >	< 1.6 >	< 22.4 >	< 6.1 >	< 0.2 >
11	0.0	0.0	0.0	0.0	1.1	62.9	1.0	0.0	0.0	1.8	4.9	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	7.7	3.1	0.0
13	0.1	0.0	0.0	0.0	4.4	2.4	18.1	0.0	34.6	18.2	3.4	4.0
14	0.0	2.9	0.0	0.0	4.5	0.0	4.3	3.6	32.8	75.3	2.1	0.0
15	0.0	0.0	0.0	0.0	30.5	0.0	4.2	0.0	8.9	4.5	0.0	0.0
AVERAGE	< 0.1 >	< 2.9 >	< 0.0 >	< 0.0 >	< 40.5 >	< 65.3 >	< 48.8 >	< 3.6 >	< 76.3 >	< 107.5 >	< 13.4 >	< 4.0 >
	< 0.0 >	< 0.6 >	< 0.0 >	< 0.0 >	< 8.1 >	< 13.1 >	< 9.8 >	< 0.7 >	< 15.3 >	< 21.5 >	< 2.7 >	< 0.8 >
16	0.0	7.2	0.0	14.3	10.9	0.0	2.7	24.2	8.7	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	7.1	0.2	71.9	3.6	1.5	4.3	0.9
18	0.0	0.0	0.0	0.0	19.1	14.2	3.9	24.8	3.1	0.0	0.0	0.0
19	0.1	0.0	0.0	8.0	7.5	12.1	11.9	34.5	15.5	0.4	12.6	0.0
20	0.0	0.0	0.0	0.0	8.1	18.4	0.0	2.7	0.0	0.0	0.0	0.0
AVERAGE	< 0.1 >	< 7.2 >	< 0.0 >	< 22.3 >	< 45.5 >	< 51.7 >	< 18.6 >	< 18.1 >	< 31.0 >	< 1.9 >	< 16.9 >	< 0.9 >
	< 0.0 >	< 1.4 >	< 0.0 >	< 4.5 >	< 9.1 >	< 10.3 >	< 3.7 >	< 31.6 >	< 6.2 >	< 0.4 >	< 3.4 >	< 0.2 >
21	0.0	1.8	0.0	0.0	2.9	1.2	0.0	12.5	0.0	0.0	0.0	0.0
22	10.6	0.0	0.0	0.0	21.2	3.8	0.9	3.1	2.5	12.6	0.0	0.0
23	0.8	0.0	0.0	0.0	25.7	0.0	0.1	23.9	35.5	0.0	0.0	0.0
24	0.3	0.0	0.0	0.0	1.4	0.0	0.0	26.5	2.3	0.0	0.0	0.0
25	0.0	6.3	0.0	0.0	3.1	0.0	0.0	4.9	38.9	3.1	0.0	0.0
AVERAGE	< 11.7 >	< 8.1 >	< 0.0 >	< 0.0 >	< 54.4 >	< 4.9 >	< 1.0 >	< 71.0 >	< 79.2 >	< 18.0 >	< 0.0 >	< 0.0 >
	< 2.3 >	< 1.6 >	< 0.0 >	< 0.0 >	< 10.9 >	< 1.0 >	< 0.2 >	< 14.2 >	< 15.8 >	< 3.6 >	< 0.0 >	< 0.0 >
26	0.0	2.1	0.0	0.0	0.7	0.0	9.4	0.0	3.1	72.9	0.0	0.0
27	0.0	0.0	0.0	0.0	1.3	6.9	2.9	0.0	47.7	1.8	0.0	0.0
28	0.0	0.0	0.0	0.0	29.1	0.0	0.4	0.0	26.1	11.1	0.0	0.0
29	0.0	0.0	0.0	0.0	4.8	8.3	0.0	10.2	16.7	2.9	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	5.1	0.0	17.1	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	0.0	0.0	0.0	0.0
AVERAGE	< 0.0 >	< 2.1 >	< 0.0 >	< 0.0 >	< 6.8 >	< 49.6 >	< 12.7 >	< 44.8 >	< 93.7 >	< 99.4 >	< 0.0 >	< 0.0 >
	< 0.0 >	< 0.7 >	< 0.0 >	< 0.0 >	< 1.1 >	< 9.9 >	< 2.1 >	< 7.5 >	< 18.7 >	< 16.6 >	< 0.0 >	< 0.0 >
GRAND TOTAL	13.9	36.2	0.0	22.3	185.4	222.3	141.5	310.1	409.2	339.1	106.8	7.6
AVERAGE	0.4	1.3	0.0	0.7	6.0	7.4	4.6	10.0	13.6	10.9	3.6	0.2
MAX	10.6	13.9	0.0	14.3	30.5	62.9	30.7	71.9	78.2	75.3	24.6	4.0
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GAUGED
DAILY RUNOFF > PHUKET
(1977) X-97

UNIT = (CUM/D)

1 JAN 2 FEB 3 MAR 4 APR 5 MAY 6 JUN 7 JUL 8 AUG 9 SEP 10 OCT 11 NOV 12 DEC

1	0.020	0.020	0.001	0.001	0.001	0.024	0.018	0.030	0.150	0.120	0.090	0.024
2	0.020	0.010	0.001	0.001	0.001	0.024	0.015	0.030	0.200	0.090	0.080	0.024
3	0.020	0.010	0.001	0.001	0.001	0.024	0.015	0.030	0.330	0.070	0.080	0.024
4	0.020	0.020	0.001	0.001	0.001	0.024	0.015	0.030	0.130	0.060	0.070	0.024
5	0.020	0.020	0.001	0.001	0.001	0.024	0.015	0.040	0.100	0.040	0.050	0.024
	(0.100)	(0.080)	(0.005)	(0.005)	(0.005)	(0.120)	(0.078)	(0.160)	(0.910)	(0.380)	(0.370)	(0.120)
AVERAGE	< 0.020 >	< 0.016 >	< 0.001 >	< 0.001 >	< 0.001 >	< 0.024 >	< 0.016 >	< 0.032 >	< 0.182 >	< 0.076 >	< 0.074 >	< 0.034 >
6	0.020	0.020	0.001	0.001	0.001	0.021	0.015	0.030	0.080	0.040	0.050	0.024
7	0.020	0.010	0.001	0.001	0.001	0.021	0.027	0.030	0.070	0.040	0.040	0.024
8	0.020	0.010	0.001	0.001	0.001	0.0	0.110	0.030	0.060	0.040	0.060	0.024
9	0.020	0.010	0.001	0.001	0.001	0.0	0.080	0.040	0.060	0.030	0.110	0.027
10	0.020	0.010	0.001	0.001	0.001	0.0	0.060	0.040	0.060	0.050	0.080	0.027
	(0.100)	(0.060)	(0.005)	(0.005)	(0.005)	(0.042)	(0.292)	(0.170)	(0.330)	(0.200)	(0.340)	(0.126)
AVERAGE	< 0.020 >	< 0.012 >	< 0.001 >	< 0.001 >	< 0.001 >	< 0.008 >	< 0.058 >	< 0.034 >	< 0.066 >	< 0.040 >	< 0.068 >	< 0.025 >
11	0.020	0.005	0.001	0.001	0.001	0.015	0.040	0.040	0.050	0.070	0.060	0.027
12	0.020	0.010	0.001	0.001	0.001	0.027	0.040	0.040	0.040	0.040	0.050	0.027
13	0.020	0.010	0.001	0.001	0.001	0.015	0.050	0.040	0.040	0.040	0.040	0.024
14	0.020	0.010	0.001	0.001	0.001	0.012	0.080	0.040	0.110	0.130	0.040	0.021
15	0.020	0.010	0.001	0.001	0.001	0.012	0.060	0.030	0.100	0.250	0.040	0.021
	(0.100)	(0.045)	(0.005)	(0.005)	(0.005)	(0.081)	(0.270)	(0.190)	(0.340)	(0.570)	(0.230)	(0.120)
AVERAGE	< 0.020 >	< 0.009 >	< 0.001 >	< 0.001 >	< 0.001 >	< 0.016 >	< 0.054 >	< 0.038 >	< 0.068 >	< 0.114 >	< 0.046 >	< 0.024 >
16	0.020	0.010	0.001	0.001	0.001	0.012	0.050	0.030	0.080	0.110	0.030	0.021
17	0.020	0.010	0.001	0.001	0.001	0.012	0.050	0.100	0.070	0.060	0.040	0.021
18	0.020	0.010	0.001	0.001	0.001	0.012	0.050	0.100	0.070	0.060	0.090	0.018
19	0.020	0.005	0.001	0.001	0.001	0.012	0.050	0.090	0.060	0.060	0.100	0.018
20	0.020	0.005	0.001	0.001	0.001	0.012	0.050	0.080	0.060	0.040	0.090	0.021
	(0.100)	(0.040)	(0.005)	(0.005)	(0.005)	(0.060)	(0.250)	(0.400)	(0.340)	(0.350)	(0.350)	(0.099)
AVERAGE	< 0.020 >	< 0.008 >	< 0.001 >	< 0.001 >	< 0.001 >	< 0.012 >	< 0.050 >	< 0.080 >	< 0.068 >	< 0.070 >	< 0.070 >	< 0.020 >
21	0.020	0.0	0.001	0.001	0.001	0.015	0.040	0.080	0.050	0.030	0.060	0.021
22	0.020	0.0	0.001	0.001	0.001	0.015	0.040	0.070	0.040	0.030	0.050	0.021
23	0.020	0.0	0.001	0.001	0.024	0.015	0.040	0.080	0.040	0.027	0.040	0.021
24	0.020	0.0	0.001	0.001	0.021	0.012	0.040	0.200	0.080	0.027	0.030	0.021
25	0.020	0.0	0.001	0.001	0.030	0.012	0.030	0.130	0.080	0.027	0.027	0.024
	(0.100)	(0.0)	(0.005)	(0.005)	(0.077)	(0.059)	(0.190)	(0.560)	(0.290)	(0.141)	(0.207)	(0.108)
AVERAGE	< 0.020 >	< 0.0 >	< 0.001 >	< 0.001 >	< 0.015 >	< 0.014 >	< 0.038 >	< 0.112 >	< 0.058 >	< 0.028 >	< 0.041 >	< 0.022 >
26	0.020	0.0	0.001	0.001	0.024	0.012	0.050	0.090	0.150	0.027	0.027	0.024
27	0.020	0.0	0.001	0.001	0.024	0.012	0.050	0.070	0.180	0.250	0.027	0.024
28	0.020	0.0	0.001	0.001	0.024	0.024	0.040	0.070	0.630	0.080	0.027	0.021
29	0.020	0.0	0.001	0.001	0.021	0.018	0.040	0.060	0.210	0.060	0.027	0.021
30	0.020	0.0	0.001	0.001	0.024	0.012	0.030	0.070	0.200	0.060	0.024	0.021
31	0.020	0.0	0.001	0.001	0.001	0.012	0.030	0.110	0.020	0.040	0.024	0.021
	(0.120)	(0.0)	(0.006)	(0.005)	(0.115)	(0.090)	(0.211)	(0.470)	(1.370)	(0.507)	(0.132)	(0.132)
AVERAGE	< 0.020 >	< 0.0 >	< 0.001 >	< 0.001 >	< 0.019 >	< 0.018 >	< 0.035 >	< 0.078 >	< 0.274 >	< 0.084 >	< 0.026 >	< 0.022 >
GRAND TOTAL	0.620	0.225	0.031	0.030	0.212	0.462	1.291	1.950	3.580	2.148	1.629	0.705
AVERAGE	27.	10.	1.	1.	9.	20.	56.	84.	155.	93.	70.	30.
MAX	0.020	0.008	0.001	0.001	0.007	0.015	0.042	0.063	0.119	0.069	0.054	0.023
MIN	0.020	0.0	0.001	0.001	0.030	0.027	0.110	0.200	0.630	0.250	0.110	0.027
	0.020	0.0	0.001	0.001	0.001	0.0	0.001	0.030	0.040	0.027	0.024	0.018

COMPUTED
DAILY RUNOFF > PHUKET
(1977) X-97

UNIT = (CUM/D)

1 JAN 2 FEB 3 MAR 4 APR 5 MAY 6 JUN 7 JUL 8 AUG 9 SEP 10 OCT 11 NOV 12 DEC

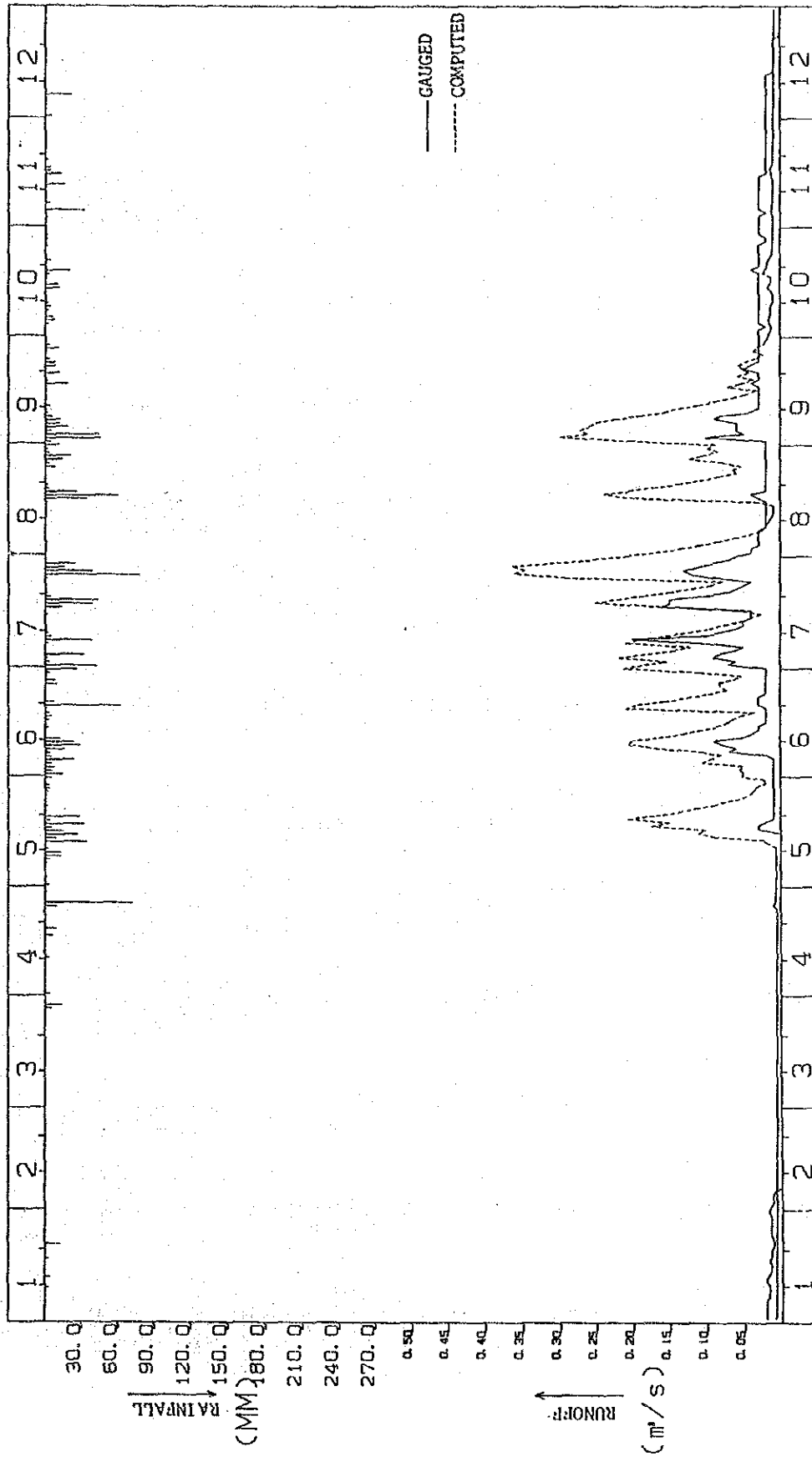
1	0.008	0.007	0.006	0.005	0.005	0.010	0.066	0.012	0.174	0.229	0.178	0.011
2	0.007	0.007	0.006	0.005	0.005	0.008	0.046	0.010	0.377	0.189	0.166	0.010
3	0.007	0.007	0.006	0.005	0.005	0.006	0.029	0.008	0.388	0.155	0.210	0.010
4	0.007	0.007	0.006	0.005	0.005	0.006	0.019	0.007	0.342	0.125	0.173	0.010
5	0.007	0.007	0.006	0.005	0.005	0.011	0.018	0.007	0.286	0.099	0.143	0.010
	(0.037)	(0.033)	(0.030)	(0.027)	(0.024)	(0.041)	(0.178)	(0.044)	(1.567)	(0.798)	(0.870)	(0.052)
AVERAGE	< 0.007 >	< 0.007 >	< 0.006 >	< 0.005 >	< 0.005 >	< 0.008 >	< 0.036 >	< 0.009 >	< 0.313 >	< 0.160 >	< 0.174 >	< 0.010 >
6	0.007	0.007	0.006	0.005	0.005	0.060	0.072	0.010	0.238	0.083	0.138	0.010
7	0.007	0.007	0.006	0.005	0.005	0.041	0.144	0.007	0.195	0.145	0.157	0.010
8	0.007	0.007	0.006	0.005	0.005	0.024	0.114	0.007	0.179	0.146	0.137	0.010
9	0.007	0.007	0.006	0.005	0.005	0.023	0.095	0.007	0.147	0.262	0.124	0.010
10	0.007	0.007	0.006	0.005	0.005	0.018	0.071	0.007	0.117	0.297	0.099	0.010
	(0.037)	(0.033)	(0.030)	(0.026)	(0.024)	(0.165)	(0.496)	(0.039)	(0.875)	(0.933)	(0.654)	(0.049)
AVERAGE	< 0.007 >	< 0.007 >	< 0.006 >	< 0.005 >	< 0.005 >	< 0.033 >	< 0.099 >	< 0.008 >	< 0.175 >	< 0.187 >	< 0.131 >	< 0.010 >
11	0.007	0.006	0.006	0.005	0.005	0.186	0.054	0.007	0.090	0.253	0.091	0.010
12	0.007	0.006	0.006	0.005	0.005	0.150	0.100	0.007	0.068	0.234	0.080	0.009
13	0.007	0.006	0.006	0.005	0.005	0.126	0.131	0.007	0.153	0.248	0.071	0.009
14	0.007	0.006	0.006	0.005	0.005	0.098	0.116	0.007	0.222	0.434	0.059	0.009
15	0.007	0.006	0.006	0.005	0.005	0.074	0.102	0.007	0.208	0.380	0.043	0.009
	(0.036)	(0.032)	(0.029)	(0.026)	(0.024)	(0.634)	(0.503)	(0.033)	(0.742)	(1.550)	(0.344)	(0.047)
AVERAGE	< 0.007 >	< 0.006 >	< 0.006 >	< 0.005 >	< 0.005 >	< 0.127 >	< 0.101 >	< 0.007 >	< 0.148 >	< 0.310 >	< 0.069 >	< 0.009 >
16	0.007	0.006	0.006	0.005	0.006	0.053	0.086	0.007	0.196	0.320	0.028	0.009
17	0.007	0.006	0.006	0.005	0.005	0.056	0.064	0.007	0.170	0.273	0.029	0.009
18	0.007	0.006	0.006	0.005	0.006	0.081	0.057	0.190	0.146	0.237	0.023	0.009
19	0.007	0.006	0.006	0.005	0.006	0.095	0.075	0.257	0.163	0.189	0.043	0.009
20	0.007	0.006	0.006	0.005	0.006	0.127	0.054	0.007	0.131	0.155	0.029	0.009
	(0.035)	(0.032)	(0.029)	(0.026)	(0.029)	(0.411)	(0.335)	(0.819)	(0.806)	(1.163)	(0.153)	(0.045)
AVERAGE	< 0.007 >	< 0.006 >	< 0.006 >	< 0.005 >	< 0.006 >	< 0.082 >	< 0.067 >	< 0.164 >	< 0.161 >	< 0.233 >	< 0.031 >	< 0.009 >
21	0.007	0.006	0.006	0.005	0.006	0.102	0.036	0.216	0.103	0.125	0.023	0.009
22	0.007	0.006	0.006	0.005	0.018	0.089	0.023	0.185	0.086	0.138	0.021	0.009
23	0.007	0.006	0.006	0.005	0.076	0.066	0.019	0.221	0.172	0.110	0.018	0.009
24	0.007	0.006	0.006	0.005	0.061	0.046	0.015	0.260	0.145	0.094	0.015	0.009
25	0.007	0.006	0.006	0.005	0.052	0.029	0.013	0.228	0.233	0.082	0.013	0.009
	(0.035)	(0.031)	(0.028)	(0.025)	(0.213)	(0.331)	(0.106)	(1.110)	(0.739)	(0.549)	(0.090)	(0.044)
AVERAGE	< 0.007 >	< 0.006 >	< 0.006 >	< 0.005 >	< 0.043 >	< 0.066 >	< 0.021 >	< 0.222 >	< 0.148 >	< 0.110 >	< 0.018 >	< 0.009 >
26	0.007	0.006	0.006	0.005	0.037	0.019	0.016	0.186	0.201	0.283	0.011	0.009
27	0.007	0.006	0.006	0.005	0.027	0.021	0.015	0.149	0.308	0.242	0.011	0.009
28	0.007	0.006	0.006	0.005	0.019	0.096	0.013	0.118	0.335	0.234	0.011	0.009
29	0.007	0.006	0.006	0.005	0.019	0.097	0.010	0.121	0.330	0.202	0.011	0.009
30	0.007	0.006	0.006	0.005	0.016	0.088	0.007	0.145	0.275	0.166	0.011	0.009
31	0.007	0.006	0.006	0.005	0.013	0.077	0.007	0.167	0.275	0.168	0.011	0.009
	(0.041)	(0.018)	(0.033)	(0.025)	(0.151)	(0.321)	(0.069)	(0.887)	(1.449)	(1.296)	(0.054)	(0.052)
AVERAGE	< 0.007 >	< 0.006 >	< 0.006 >	< 0.005 >	< 0.022 >	< 0.064 >	< 0.011 >	< 0.148 >	< 0.290 >	< 0.216 >	< 0.011 >	< 0.009 >
GRAND TOTAL	0.221	0.179	0.179	0.155	0.446	1.903	1.687	2.932	6.178	6.289	2.164	0.291
AVERAGE	10.	8.	8.	7.	19.	82.	73.	127.	267.	272.	93.	13.
MAX	0.007	0.006	0.006	0.005	0.014	0.063	0.054	0.095	0.206	0.203	0.072	0.009
MIN	0.008	0.007	0.006	0.005	0.076	0.186	0.144	0.260	0.388	0.434	0.210	0.011
	0.007	0.006	0.006	0.005	0.005	0.006	0.007	0.007	0.068	0.082	0.011	0.009

RUNOFF ANALYSIS BY TANK MODEL

(1978)

RAINFALL STATION: PHUKET CITY

COEFFICIENT = 0.7001



GAUGING STATION: X-97 (CA = 2.00 km)

< DAILY RAINFALL > PHUKET CITY
(1978) PHUKET CITY

UNIT = (mm/D)

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.0	0.0	0.0	4.1	2.8	14.3	41.9	0.0	4.4	0.0	0.0	4.9
2	0.0	0.0	0.0	0.0	0.0	5.4	3.1	0.0	45.4	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	1.1	7.3	1.9	0.2	44.1	0.0	1.0	0.0
4	0.0	0.0	0.0	0.0	0.0	5.2	31.6	1.4	4.7	2.2	0.0	0.0
5	(0.0) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(4.1) < 0.8 >	(3.9) < 0.8 >	(55.4) < 11.1 >	(78.6) < 15.7 >	(1.6) < 0.3 >	(116.9) < 23.4 >	(9.8) < 2.0 >	(32.8) < 6.6 >	(4.9) < 1.0 >
AVERAGE	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	11.2	5.6	0.0	1.0
6	0.0	0.0	0.0	0.0	1.3	3.1	2.2	0.0	11.7	0.0	3.4	21.0
7	0.0	0.0	0.0	0.0	3.7	15.3	38.1	0.0	5.8	2.2	0.0	0.0
8	0.0	0.0	0.0	0.0	12.3	28.4	4.4	0.0	1.9	4.1	0.0	0.0
9	2.7	0.0	0.0	0.0	12.2	23.5	1.7	0.0	1.0	1.7	0.0	0.4
10	(2.7) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(29.5) < 5.9 >	(75.1) < 15.0 >	(46.4) < 9.3 >	(0.0) < 0.0 >	(31.7) < 6.3 >	(13.6) < 2.7 >	(3.4) < 0.7 >	(22.4) < 4.5 >
AVERAGE	0.0	0.0	0.0	2.7	2.2	12.0	0.0	0.4	3.7	0.0	0.0	0.5
11	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.5	0.0	15.1	0.0
12	4.0	0.0	0.0	0.0	33.7	0.0	0.5	0.0	0.7	0.9	0.0	0.0
13	0.0	0.0	0.0	1.0	9.1	2.4	0.0	1.1	0.0	10.9	0.0	0.4
14	0.0	0.0	0.0	0.0	25.6	0.4	1.8	0.9	0.8	10.4	12.4	0.0
15	(4.0) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(3.9) < 0.8 >	(70.6) < 14.1 >	(16.8) < 3.0 >	(2.3) < 0.5 >	(2.4) < 0.5 >	(5.8) < 1.2 >	(22.2) < 4.4 >	(27.5) < 5.5 >	(1.0) < 0.2 >
AVERAGE	0.0	0.0	0.0	0.6	14.1	2.7	0.0	33.8	0.0	0.0	4.4	0.0
16	0.0	0.0	0.0	5.6	14.1	2.7	0.0	59.9	17.6	1.1	4.0	0.0
17	2.7	0.0	0.0	0.2	5.2	4.7	13.4	25.9	1.2	2.7	0.0	0.0
18	0.0	0.0	0.0	0.2	31.4	2.9	38.5	2.8	1.2	19.6	1.9	0.0
19	0.0	0.0	0.0	8.5	3.4	0.0	42.9	2.8	0.0	23.8	0.0	0.0
20	0.0	0.0	0.0	0.0	28.2	62.4	4.5	1.9	11.6	0.4	0.0	0.0
(2.7) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(14.2) < 2.8 >	(82.3) < 16.5 >	(72.6) < 14.5 >	(99.4) < 19.9 >	(124.4) < 24.9 >	(30.4) < 6.1 >	(23.8) < 4.8 >	(10.3) < 2.1 >	(0.0) < 0.0 >	(0.0) < 0.0 >
AVERAGE	0.0	0.0	0.0	0.0	0.0	7.1	1.2	0.0	0.9	0.0	0.0	0.0
21	11.3	0.0	0.0	0.0	0.0	0.1	0.3	0.3	7.8	3.5	0.0	0.0
22	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	7.5	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	3.2	0.0	0.0	0.0
24	0.0	0.0	0.0	10.0	0.7	0.0	1.9	7.7	0.0	0.0	0.0	0.0
25	(11.3) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(10.0) < 2.0 >	(3.0) < 0.6 >	(7.2) < 1.4 >	(3.8) < 0.8 >	(8.0) < 1.6 >	(19.4) < 3.9 >	(3.5) < 0.7 >	(0.0) < 0.0 >	(0.0) < 0.0 >
AVERAGE	0.0	0.0	0.0	71.8	0.0	9.4	78.0	3.1	0.4	1.9	0.0	0.0
26	0.0	0.0	0.0	0.4	2.3	7.6	38.9	14.3	10.4	0.0	0.0	0.0
27	0.1	0.0	4.7	0.0	3.7	0.7	15.4	21.1	5.2	1.5	0.0	0.0
28	0.0*****	0.0*****	12.7	1.3	3.1	3.2	24.0	3.5	0.2	1.4	0.0	0.0
29	0.8*****	0.0*****	0.0*****	0.0*****	5.4*****	24.8	0.0	11.7*****	0.0*****	0.0*****	0.0*****	0.0*****
30	0.0*****	0.0*****	0.0*****	0.0*****	0.0*****	0.0*****	0.0*****	11.7*****	0.0*****	0.0*****	0.0*****	0.0*****
31	(0.9) < 0.0 >	(0.0) < 0.0 >	(17.4) < 2.9 >	(73.4) < 14.7 >	(14.5) < 2.4 >	(45.8) < 9.2 >	(156.3) < 26.1 >	(55.4) < 14.2 >	(4.9) < 0.8 >	(0.0) < 0.0 >	(0.0) < 0.0 >	(0.0) < 0.0 >
AVERAGE	0.0	0.0	17.4	105.7	203.8	271.0	386.8	191.9	218.4	77.8	74.2	28.3
GRAND TOTAL	0.7	0.0	0.6	3.5	6.6	9.0	12.5	6.2	7.5	2.5	2.5	0.9
AVERAGE	11.3	0.0	12.7	71.8	33.7	62.4	78.0	59.9	45.4	19.6	31.9	21.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MIN												

UNIT = (CU/WD)

< DAILY RUNOFF > PHUKET
(1978) X-97

1 JAN 2 FEB 3 MAR 4 APR 5 MAY 6 JUN 7 JUL 8 AUG 9 SEP 10 OCT 11 NOV 12 DEC

1	0.021	0.018	0.001	0.0	0.0	0.010	0.020	0.060	0.020	0.030	0.030	0.020
2	0.021	0.015	0.001	0.0	0.0	0.010	0.070	0.040	0.020	0.030	0.030	0.020
3	0.021	0.012	0.001	0.0	0.0	0.010	0.090	0.040	0.100	0.030	0.030	0.020
4	0.021	0.012	0.001	0.0	0.0	0.010	0.090	0.030	0.050	0.030	0.030	0.020
5	0.021	0.012	0.001	0.0	0.0	0.010	0.080	0.030	0.060	0.030	0.030	0.020
AVERAGE	< 0.105 >	< 0.069 >	< 0.005 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.320 >	< 0.200 >	< 0.250 >	< 0.140 >	< 0.140 >	< 0.100 >
6	0.021	0.009	0.001	0.0	0.0	0.010	0.060	0.030	0.060	0.030	0.030	0.020
7	0.021	0.0	0.001	0.0	0.0	0.020	0.050	0.030	0.060	0.030	0.030	0.020
8	0.018	0.0	0.001	0.0	0.0	0.030	0.100	0.030	0.090	0.030	0.030	0.020
9	0.018	0.0	0.001	0.0	0.0	0.060	0.200	0.020	0.080	0.030	0.030	0.020
10	0.018	0.0	0.001	0.0	0.0	0.080	0.100	0.020	0.040	0.030	0.030	0.020
AVERAGE	< 0.096 >	< 0.009 >	< 0.005 >	< 0.0 >	< 0.0 >	< 0.240 >	< 0.510 >	< 0.130 >	< 0.330 >	< 0.150 >	< 0.150 >	< 0.100 >
11	0.018	0.0	0.001	0.0	0.0	0.090	0.080	0.020	0.030	0.030	0.030	0.020
12	0.021	0.0	0.001	0.0	0.0	0.030	0.060	0.020	0.030	0.030	0.030	0.020
13	0.021	0.0	0.001	0.0	0.0	0.040	0.050	0.020	0.030	0.030	0.030	0.020
14	0.018	0.0	0.001	0.0	0.0	0.030	0.050	0.020	0.030	0.030	0.030	0.020
15	0.015	0.0	0.001	0.0	0.0	0.030	0.040	0.020	0.030	0.030	0.030	0.010
AVERAGE	< 0.093 >	< 0.0 >	< 0.005 >	< 0.0 >	< 0.0 >	< 0.240 >	< 0.280 >	< 0.100 >	< 0.150 >	< 0.150 >	< 0.150 >	< 0.080 >
16	0.015	0.0	0.001	0.0	0.0	0.020	0.040	0.020	0.030	0.030	0.020	0.010
17	0.015	0.0	0.001	0.0	0.030	0.020	0.040	0.030	0.030	0.030	0.020	0.010
18	0.018	0.0	0.001	0.0	0.030	0.020	0.160	0.040	0.040	0.030	0.020	0.010
19	0.015	0.0	0.001	0.0	0.020	0.020	0.150	0.020	0.030	0.030	0.020	0.010
20	0.015	0.0	0.001	0.0	0.010	0.020	0.150	0.020	0.030	0.040	0.020	0.010
AVERAGE	< 0.078 >	< 0.0 >	< 0.005 >	< 0.0 >	< 0.090 >	< 0.100 >	< 0.540 >	< 0.130 >	< 0.160 >	< 0.160 >	< 0.100 >	< 0.050 >
21	0.015	0.0	0.001	0.0	0.010	0.030	0.100	0.020	0.030	0.030	0.020	0.010
22	0.012	0.0	0.001	0.0	0.010	0.030	0.070	0.020	0.050	0.030	0.020	0.010
23	0.012	0.001	0.001	0.0	0.010	0.030	0.060	0.020	0.040	0.030	0.020	0.010
24	0.012	0.001	0.001	0.0	0.010	0.020	0.050	0.020	0.030	0.030	0.020	0.0
25	0.015	0.001	0.001	0.0	0.010	0.020	0.040	0.020	0.030	0.030	0.020	0.0
AVERAGE	< 0.066 >	< 0.003 >	< 0.005 >	< 0.0 >	< 0.030 >	< 0.130 >	< 0.320 >	< 0.100 >	< 0.180 >	< 0.150 >	< 0.100 >	< 0.030 >
26	0.015	0.001	0.001	0.0	0.010	0.020	0.090	0.020	0.030	0.030	0.020	0.0
27	0.015	0.001	0.001	0.0	0.010	0.020	0.120	0.020	0.030	0.030	0.020	0.0
28	0.015	0.001	0.001	0.0	0.010	0.020	0.130	0.020	0.030	0.020	0.020	0.0
29	0.015	0.001	0.001	0.0	0.010	0.020	0.110	0.020	0.030	0.020	0.020	0.0
30	0.015	0.001	0.001	0.0	0.010	0.020	0.090	0.020	0.030	0.030	0.020	0.0
31	0.015	0.001	0.001	0.0	0.010	0.020	0.070	0.020	0.030	0.030	0.020	0.0
AVERAGE	< 0.093 >	< 0.003 >	< 0.005 >	< 0.0 >	< 0.050 >	< 0.100 >	< 0.610 >	< 0.120 >	< 0.150 >	< 0.160 >	< 0.100 >	< 0.0 >
GRAND TOTAL	0.531	0.084	0.031	0.0	0.200	0.860	2.580	0.780	1.220	0.910	0.740	0.360
AVERAGE	23.	4.	1.	0.	9.	37.	111.	34.	53.	39.	32.	16.
MAX	0.017	0.003	0.001	0.0	0.006	0.029	0.083	0.025	0.041	0.029	0.025	0.012
MIN	0.021	0.018	0.001	0.0	0.030	0.090	0.200	0.060	0.100	0.040	0.030	0.020
	0.012	0.0	0.001	0.0	0.0	0.010	0.020	0.020	0.020	0.020	0.020	0.0

(m/s)
(mm)
(m/s)
(m/s)
(m/s)

UNIT = (CUM/D)

< DAILY RUNOFF > PHUKET
(1978) X-97

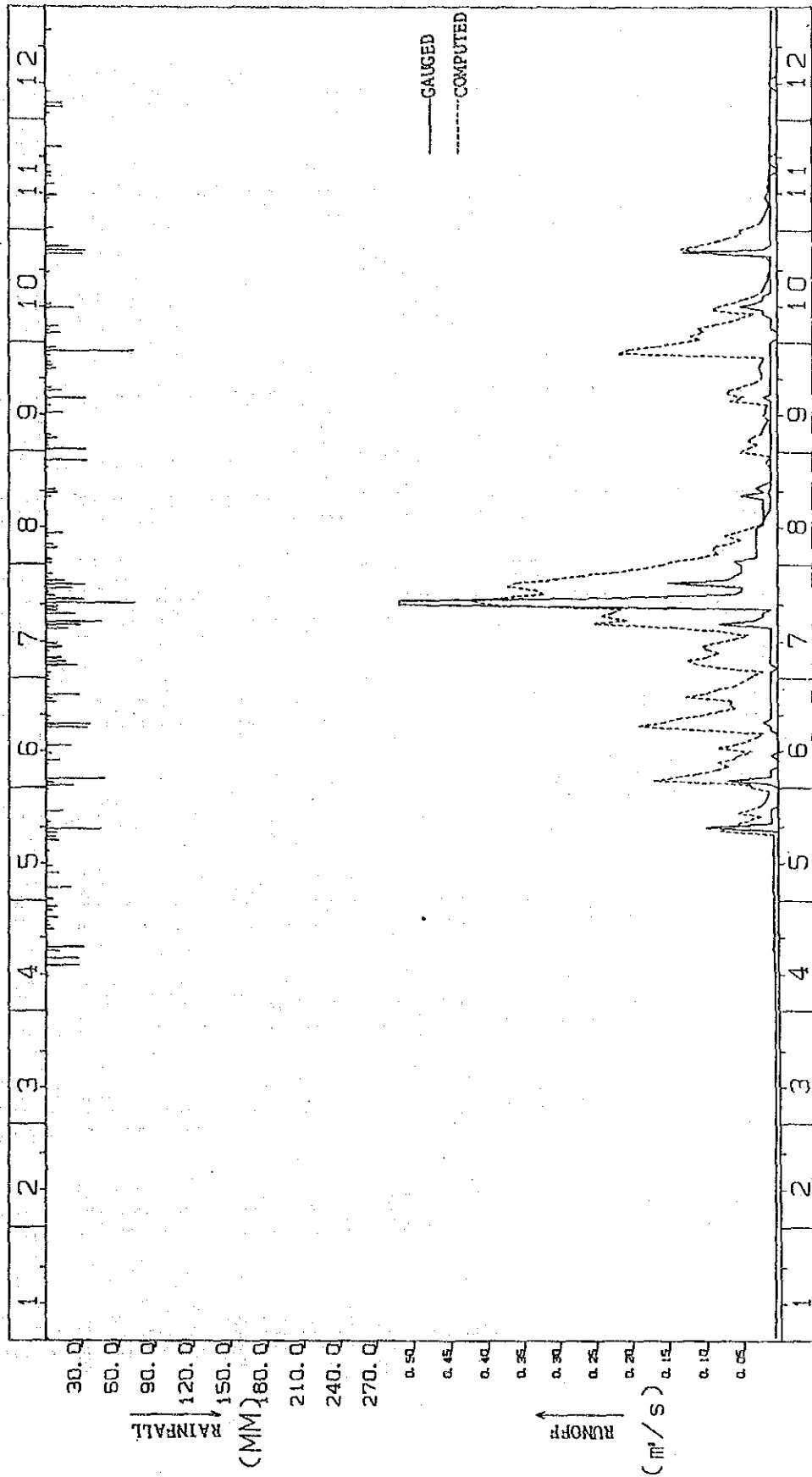
	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC	
1	0.009	0.007	0.007	0.006	0.006	0.052	0.212	0.207	0.087	0.018	0.010	0.010	
2	0.009	0.007	0.007	0.006	0.006	0.050	0.183	0.168	0.203	0.015	0.010	0.009	
3	0.008	0.007	0.007	0.006	0.006	0.055	0.153	0.135	0.299	0.013	0.010	0.009	
4	0.008	0.007	0.007	0.006	0.006	0.053	0.218	0.110	0.263	0.012	0.010	0.009	
5	0.008	0.007	0.007	0.006	0.006	0.103	0.178	0.084	0.272	0.015	0.013	0.009	
AVERAGE	< 0.042 >	< 0.037 >	< 0.033 >	< 0.029 >	< 0.032 >	< 0.315 >	< 0.945 >	< 0.703 >	< 1.125 >	< 0.072 >	< 0.054 >	< 0.047 >	
6	0.008	0.007	0.006	0.006	0.006	0.095	0.144	0.061	0.259	0.017	0.011	0.009	
7	0.008	0.007	0.006	0.006	0.006	0.080	0.121	0.042	0.250	0.014	0.011	0.009	
8	0.008	0.007	0.006	0.006	0.006	0.105	0.209	0.025	0.223	0.013	0.011	0.009	
9	0.008	0.007	0.006	0.006	0.006	0.166	0.184	0.021	0.189	0.014	0.010	0.009	
10	0.008	0.007	0.006	0.006	0.006	0.204	0.154	0.018	0.156	0.013	0.010	0.009	
AVERAGE	< 0.042 >	< 0.036 >	< 0.032 >	< 0.028 >	< 0.031 >	< 0.651 >	< 0.812 >	< 0.167 >	< 1.077 >	< 0.070 >	< 0.053 >	< 0.046 >	
11	0.008	0.007	0.006	0.006	0.006	0.292	0.123	0.015	0.136	0.011	0.010	0.009	
12	0.008	0.007	0.006	0.006	0.006	0.164	0.096	0.012	0.109	0.011	0.011	0.009	
13	0.008	0.007	0.006	0.006	0.018	0.131	0.074	0.010	0.086	0.011	0.010	0.009	
14	0.008	0.007	0.006	0.005	0.024	0.110	0.054	0.010	0.065	0.012	0.010	0.009	
15	0.008	0.007	0.006	0.005	0.089	0.085	0.042	0.010	0.048	0.017	0.013	0.009	
AVERAGE	< 0.041 >	< 0.036 >	< 0.031 >	< 0.028 >	< 0.144 >	< 0.692 >	< 0.388 >	< 0.056 >	< 0.445 >	< 0.061 >	< 0.054 >	< 0.044 >	
16	0.008	0.007	0.006	0.005	0.110	0.071	0.026	0.032	0.032	0.014	0.013	0.009	
17	0.008	0.007	0.006	0.005	0.101	0.065	0.053	0.198	0.071	0.013	0.014	0.009	
18	0.008	0.007	0.006	0.005	0.173	0.054	0.152	0.239	0.055	0.012	0.011	0.008	
19	0.008	0.007	0.006	0.005	0.150	0.036	0.251	0.204	0.037	0.024	0.011	0.008	
20	0.008	0.007	0.006	0.005	0.206	0.210	0.021	0.171	0.057	0.022	0.010	0.008	
AVERAGE	< 0.040 >	< 0.035 >	< 0.031 >	< 0.027 >	< 0.741 >	< 0.437 >	< 0.703 >	< 0.843 >	< 0.252 >	< 0.085 >	< 0.059 >	< 0.042 >	
21	0.008	0.007	0.006	0.005	0.148	0.087	0.141	0.169	0.050	0.017	0.012	0.008	
22	0.008	0.007	0.006	0.005	0.168	0.192	0.184	0.137	0.042	0.019	0.010	0.008	
23	0.008	0.007	0.006	0.005	0.136	0.156	0.150	0.108	0.050	0.019	0.010	0.008	
24	0.008	0.007	0.006	0.005	0.113	0.124	0.119	0.082	0.056	0.016	0.010	0.008	
25	0.008	0.007	0.006	0.005	0.090	0.096	0.094	0.060	0.048	0.014	0.010	0.008	
AVERAGE	< 0.039 >	< 0.034 >	< 0.030 >	< 0.026 >	< 0.577 >	< 0.641 >	< 0.623 >	< 0.451 >	< 0.229 >	< 0.079 >	< 0.051 >	< 0.042 >	
26	0.008	0.007	0.006	0.010	0.051	0.081	0.293	0.054	0.024	0.011	0.010	0.008	
27	0.008	0.007	0.006	0.007	0.042	0.082	0.361	0.079	0.037	0.011	0.010	0.008	
28	0.008	0.007	0.006	0.007	0.038	0.062	0.348	0.121	0.032	0.011	0.010	0.008	
29	0.008	0.007	0.006	0.006	0.032	0.053	0.364	0.104	0.023	0.011	0.010	0.008	
30	0.008	0.007	0.006	0.006	0.021	0.111	0.304	0.084	0.020	0.010	0.010	0.008	
31	0.008	0.007	0.006	0.006	0.022	0.252	0.252	0.097	0.020	0.010	0.010	0.008	
AVERAGE	< 0.046 >	< 0.020 >	< 0.035 >	< 0.036 >	< 0.205 >	< 0.389 >	< 1.921 >	< 0.540 >	< 0.136 >	< 0.063 >	< 0.049 >	< 0.049 >	
GRAND TOTAL	0.249	0.198	0.193	0.174	1.730	3.124	5.392	2.760	3.264	0.429	0.320	0.270	18.103
AVERAGE	11.	9.	8.	8.	75.	135.	233.	119.	141.	19.	14.	12.	782.
MAX	0.008	0.007	0.006	0.006	0.056	0.104	0.174	0.089	0.109	0.014	0.011	0.009	0.050
MIN	0.009	0.007	0.007	0.010	0.206	0.210	0.364	0.239	0.299	0.024	0.014	0.010	0.008

RUNOFF ANALYSIS BY TANK MODEL

(1979)

COEFFICIENT = 0.4783

RAINFALL STATION : PHUKET CITY



GAUGING STATION : X-97 (CA = 2.00 KM)

UNIT = (mm/D)

< DAILY RAINFALL > PHUKET CITY
(1979) PHUKET CITY

1 JAN 2 FEB 3 MAR 4 APR 5 MAY 6 JUN 7 JUL 8 AUG 9 SEP 10 OCT 11 NOV 12 DEC

1	1.6	0.0	0.0	0.7	5.1	21.6	1.7	4.4	32.4	0.0	5.6	0.0
2	0.0	0.0	0.2	0.0	0.0	6.2	3.0	4.1	2.2	0.0	0.0	3.1
3	0.0	0.0	0.0	0.0	0.4	48.1	0.0	0.0	1.5	11.4	0.0	0.0
4	0.0	0.0	0.0	0.0	20.2	0.4	25.5	0.0	8.7	2.7	0.0	13.7
5	0.0	0.0	0.0	0.0	0.0	0.8	16.6	9.5	3.4	9.9	0.0	13.2
AVERAGE	< 1.6 >	< 0.0 >	< 0.2 >	< 0.7 >	< 25.8 >	< 77.1 >	< 46.7 >	< 18.1 >	< 48.0 >	< 24.6 >	< 5.6 >	< 50.1 >
6	0.0	0.0	0.0	0.0	5.2	15.4	9.3	3.6	9.6	4.9	1.1	6.0
7	0.0	0.0	0.0	0.0	0.0	0.0	12.4	6.1	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.9	2.3	0.6	0.5	1.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	10.1	11.2	2.6	2.2	1.0	0.0	1.9	3.3
10	0.0	0.0	0.0	0.0	0.0	0.2	12.5	13.2	0.0	0.0	3.1	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 1.6 >	< 4.2 >	< 4.3 >	< 9.4 >	< 1.2 >	< 0.0 >	< 22.5 >	< 8.6 >	< 0.0 >
11	0.0	0.0	0.0	0.0	15.2	18.1	37.5	23.3	2.0	22.5	13.6	3.3
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.3 >	< 3.0 >	< 3.6 >	< 7.5 >	< 4.7 >	< 0.4 >	< 4.5 >	< 2.7 >	< 0.7 >
12	0.0	0.0	0.0	1.0	0.0	0.0	0.9	0.3	13.3	4.9	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	20.2	0.0	0.0	0.6	0.0	0.0	0.0
14	0.0	0.0	0.0	26.8	0.0	0.0	0.0	0.0	4.1	0.0	6.5	0.0
15	0.0	0.0	0.0	0.5	2.8	0.0	17.9	1.0	0.0	0.0	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 26.7 >	< 0.5 >	< 0.8 >	< 27.8 >	< 1.1 >	< 31.9 >	< 0.0 >	< 4.0 >	< 0.0 >
16	0.0	1.2	0.0	0.0	3.3	21.0	46.6	2.3	49.9	4.9	10.5	0.0
AVERAGE	< 0.0 >	< 0.2 >	< 0.0 >	< 11.0 >	< 0.7 >	< 4.2 >	< 9.3 >	< 0.5 >	< 10.0 >	< 1.0 >	< 2.1 >	< 0.0 >
17	0.0	0.0	0.0	0.3	0.9	1.4	45.5	0.0	0.0	0.0	3.8	0.0
18	0.0	0.0	0.0	11.2	10.7	33.7	0.0	0.0	13.0	0.0	0.0	0.0
19	0.0	0.0	0.0	30.3	8.3	35.8	23.9	0.2	5.0	0.0	3.3	0.0
20	0.0	0.0	0.0	1.3	9.0	1.7	9.4	4.1	0.0	0.0	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 44.5 >	< 3.4 >	< 3.4 >	< 9.8 >	< 9.4 >	< 0.3 >	< 3.1 >	< 0.2 >	< 0.0 >
21	0.0	1.2	0.0	0.0	73.4	76.1	88.6	13.8	18.4	3.1	7.3	0.0
AVERAGE	< 0.0 >	< 0.2 >	< 0.0 >	< 8.6 >	< 14.7 >	< 15.2 >	< 17.7 >	< 2.8 >	< 3.7 >	< 0.6 >	< 1.5 >	< 0.0 >
22	0.0	0.0	0.0	0.0	1.1	0.0	72.4	7.5	1.0	0.0	0.9	0.0
23	0.0	0.0	0.0	0.0	3.7	0.0	30.1	0.0	1.9	0.0	0.0	0.0
24	0.5	0.0	0.0	6.8	0.0	0.0	7.7	0.0	7.7	0.2	12.5	0.0
25	0.0	0.0	0.0	3.0	0.0	8.5	1.9	0.0	5.5	0.0	0.0	0.0
AVERAGE	< 0.5 >	< 0.0 >	< 0.0 >	< 11.2 >	< 19.1 >	< 13.9 >	< 133.0 >	< 7.5 >	< 20.2 >	< 29.9 >	< 13.6 >	< 4.2 >
26	0.0	0.0	0.0	0.0	3.8	2.8	26.6	1.5	4.0	6.0	2.7	0.8
27	0.0	0.0	0.0	9.4	0.0	27.0	31.9	0.0	0.0	32.0	0.6	0.2
28	0.0	0.0	0.0	0.0	0.0	0.0	15.1	2.1	4.1	18.1	0.0	0.0
29	0.0	0.0	0.0	4.7	0.0	2.7	2.1	0.0	71.9	0.0	0.0	0.0
30	0.0	0.0	0.0	8.3	0.5	0.0	5.4	33.9	8.5	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.8	3.1	0.0	0.0	0.0	1.4	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 1.6 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >
GRAND TOTAL	2.2	1.2	0.2	134.1	139.9	239.1	407.0	101.0	223.0	136.5	51.0	37.8
AVERAGE	0.1	0.0	0.0	4.5	4.5	8.0	13.1	3.3	7.4	4.4	1.7	1.2
MAX	1.6	1.2	0.2	30.3	44.5	48.1	72.4	33.9	71.9	32.0	12.5	13.7
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

< DAILY RUNOFF > PHUKET
 (1979) X-97

UNIT = (CUM/D)

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.050	0.010	0.010	0.010	0.0
2	0.0	0.0	0.0	0.0	0.0	0.010	0.010	0.060	0.010	0.0	0.010	0.0
3	0.0	0.0	0.0	0.0	0.0	0.070	0.010	0.030	0.010	0.0	0.010	0.0
4	0.0	0.0	0.0	0.0	0.0	0.010	0.0	0.030	0.010	0.0	0.010	0.0
5	0.0	0.0	0.0	0.0	0.0	0.010	0.010	0.030	0.010	0.0	0.010	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.100 >	< 0.040 >	< 0.200 >	< 0.050 >	< 0.020 >	< 0.050 >	< 0.0 >
6	0.0	0.0	0.0	0.0	0.0	0.010	0.010	0.030	0.010	0.010	0.010	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.030	0.010	0.010	0.010	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.030	0.010	0.010	0.010	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.030	0.010	0.020	0.010	0.0
10	0.0	0.0	0.0	0.0	0.0	0.010	0.010	0.030	0.010	0.020	0.010	0.010
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.020 >	< 0.050 >	< 0.150 >	< 0.050 >	< 0.070 >	< 0.050 >	< 0.010 >
11	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.030	0.010	0.050	0.010	0.010
12	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.030	0.010	0.010
13	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.020	0.010	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.020	0.010	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.010	0.010	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.110 >	< 0.050 >	< 0.130 >	< 0.050 >	< 0.020 >
16	0.0	0.0	0.0	0.0	0.0	0.0	0.080	0.020	0.020	0.010	0.010	0.0
17	0.0	0.0	0.0	0.0	0.0	0.010	0.030	0.020	0.010	0.010	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.020	0.010	0.010	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.020	0.020	0.020	0.010	0.010	0.010	0.0
20	0.0	0.0	0.0	0.0	0.0	0.010	0.010	0.050	0.010	0.010	0.010	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.160 >	< 0.130 >	< 0.060 >	< 0.050 >	< 0.030 >	< 0.0 >
21	0.0	0.0	0.0	0.0	0.100	0.010	1.640	0.020	0.010	0.010	0.010	0.0
22	0.0	0.0	0.0	0.0	0.010	0.010	0.660	0.030	0.010	0.010	0.0	0.0
23	0.0	0.0	0.0	0.0	0.010	0.010	0.240	0.020	0.010	0.010	0.0	0.0
24	0.0	0.0	0.0	0.0	0.010	0.010	0.060	0.010	0.010	0.010	0.0	0.0
25	0.0	0.0	0.0	0.0	0.010	0.010	0.050	0.010	0.010	0.010	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.140 >	< 0.050 >	< 0.650 >	< 0.090 >	< 0.050 >	< 0.050 >	< 0.010 >	< 0.0 >
26	0.0	0.0	0.0	0.0	0.010	0.010	0.050	0.010	0.010	0.130	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.010	0.150	0.010	0.010	0.020	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.010	0.070	0.010	0.010	0.010	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.010	0.060	0.010	0.010	0.010	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.010	0.050	0.010	0.010	0.010	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.050	0.010	0.010	0.010	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.010 >	< 0.050 >	< 0.430 >	< 0.060 >	< 0.050 >	< 0.190 >	< 0.0 >	< 0.0 >
GRAND TOTAL	0.0	0.0	0.0	0.0	0.150	0.270	3.380	0.740	0.310	0.510	0.190	0.030
AVERAGE	0.0	0.0	0.0	0.0	6.	12.	146.	32.	13.	22.	8.	1.
MAX	0.0	0.0	0.0	0.0	0.005	0.009	0.109	0.024	0.010	0.016	0.006	0.001
MIN	0.0	0.0	0.0	0.0	0.100	0.070	1.640	0.060	0.020	0.130	0.010	0.010

5.580 (m/s)
 241. (mm)
 0.015 (m/s)
 (m/s)

< DAILY RUNOFF > PHUKET
(1979) X-97

UNIT = (CUM/D)

1 JAN 2 FEB 3 MAR 4 APR 5 MAY 6 JUN 7 JUL 8 AUG 9 SEP 10 OCT 11 NOV 12 DEC

1 0.008 0.007 0.006 0.005 0.006 0.037 0.039 0.160 0.051 0.134 0.052 0.009
 2 0.008 0.007 0.006 0.005 0.006 0.040 0.032 0.140 0.040 0.108 0.036 0.009
 3 0.008 0.007 0.006 0.005 0.006 0.169 0.021 0.028 0.028 0.024 0.024 0.009
 4 0.008 0.007 0.006 0.005 0.007 0.137 0.082 0.084 0.041 0.103 0.021 0.010
 5 0.008 0.007 0.006 0.005 0.007 0.110 0.110 0.090 0.036 0.110 0.019 0.010
 (0.040) (0.034) (0.030) (0.026) (0.033) (0.493) (0.285) (0.583) (0.196) (0.152) (0.048)
 < 0.008 > < 0.007 > < 0.006 > < 0.005 > < 0.007 > < 0.059 > < 0.057 > < 0.117 > < 0.039 > < 0.115 > < 0.030 > < 0.010 >
 AVERAGE

6 0.008 0.007 0.006 0.005 0.006 0.084 0.123 0.085 0.023 0.087 0.016 0.010
 7 0.008 0.007 0.006 0.005 0.006 0.069 0.098 0.064 0.021 0.066 0.014 0.010
 8 0.008 0.007 0.006 0.005 0.007 0.083 0.082 0.051 0.018 0.049 0.012 0.010
 9 0.008 0.007 0.006 0.005 0.007 0.062 0.098 0.073 0.015 0.034 0.012 0.009
 10 0.008 0.007 0.006 0.005 0.007 0.056 0.103 0.056 0.013 0.089 0.016 0.009
 (0.039) (0.034) (0.030) (0.026) (0.033) (0.334) (0.503) (0.324) (0.090) (0.324) (0.070) (0.048)
 < 0.008 > < 0.007 > < 0.006 > < 0.005 > < 0.007 > < 0.071 > < 0.101 > < 0.066 > < 0.018 > < 0.065 > < 0.014 > < 0.010 >
 AVERAGE

11 0.008 0.007 0.006 0.005 0.007 0.037 0.081 0.038 0.019 0.083 0.014 0.009
 12 0.008 0.007 0.006 0.005 0.006 0.083 0.060 0.023 0.017 0.063 0.011 0.009
 13 0.008 0.007 0.006 0.005 0.006 0.061 0.041 0.020 0.017 0.046 0.013 0.009
 14 0.008 0.007 0.006 0.005 0.006 0.042 0.080 0.017 0.014 0.031 0.011 0.009
 15 0.007 0.007 0.006 0.006 0.006 0.028 0.143 0.015 0.066 0.023 0.012 0.009
 (0.038) (0.033) (0.029) (0.027) (0.032) (0.269) (0.405) (0.114) (0.133) (0.266) (0.061) (0.045)
 < 0.008 > < 0.007 > < 0.006 > < 0.005 > < 0.006 > < 0.050 > < 0.081 > < 0.023 > < 0.049 > < 0.012 > < 0.009 >
 AVERAGE

16 0.007 0.006 0.006 0.006 0.006 0.021 0.251 0.012 0.047 0.020 0.012 0.009
 17 0.007 0.006 0.006 0.006 0.006 0.106 0.207 0.010 0.070 0.018 0.010 0.009
 18 0.007 0.006 0.006 0.008 0.007 0.190 0.241 0.009 0.066 0.015 0.010 0.009
 19 0.007 0.006 0.006 0.006 0.007 0.158 0.226 0.026 0.009 0.047 0.013 0.008
 20 0.007 0.006 0.006 0.006 0.080 0.137 0.215 0.010 0.031 0.012 0.010 0.008
 (0.037) (0.032) (0.028) (0.027) (0.106) (0.612) (1.141) (0.051) (0.260) (0.078) (0.053) (0.043)
 < 0.007 > < 0.006 > < 0.006 > < 0.007 > < 0.021 > < 0.122 > < 0.141 > < 0.051 > < 0.260 > < 0.016 > < 0.011 > < 0.009 >
 AVERAGE

21 0.007 0.006 0.006 0.006 0.063 0.107 0.395 0.013 0.023 0.010 0.010 0.008
 22 0.007 0.006 0.006 0.006 0.056 0.082 0.422 0.021 0.021 0.010 0.010 0.008
 23 0.007 0.006 0.006 0.006 0.039 0.060 0.378 0.009 0.024 0.010 0.010 0.008
 24 0.007 0.006 0.006 0.006 0.024 0.067 0.322 0.009 0.026 0.010 0.010 0.008
 25 0.007 0.006 0.006 0.006 0.054 0.064 0.332 0.009 0.025 0.022 0.010 0.008
 (0.036) (0.031) (0.028) (0.031) (0.235) (0.380) (1.850) (0.051) (0.118) (0.062) (0.050) (0.041)
 < 0.007 > < 0.006 > < 0.006 > < 0.006 > < 0.047 > < 0.076 > < 0.370 > < 0.010 > < 0.024 > < 0.012 > < 0.010 > < 0.008 >
 AVERAGE

26 0.007 0.006 0.005 0.006 0.037 0.126 0.373 0.009 0.021 0.101 0.010 0.008
 27 0.007 0.006 0.005 0.006 0.023 0.098 0.358 0.009 0.021 0.133 0.010 0.008
 28 0.007 0.006 0.005 0.006 0.019 0.082 0.305 0.009 0.216 0.107 0.010 0.008
 29 0.007 ***** 0.016 0.061 0.270 0.202 0.084 0.016 0.202 0.084 0.010 0.008
 30 0.007 ***** 0.014 0.051 0.223 0.164 0.068 0.016 0.164 0.068 0.010 0.008
 0.007 ***** 0.012 ***** 0.183 0.010 ***** 0.050 *****
 (0.042) (0.019) (0.033) (0.032) (0.121) (0.419) (1.712) (0.065) (0.624) (0.543) (0.048)
 < 0.007 > < 0.006 > < 0.005 > < 0.006 > < 0.020 > < 0.064 > < 0.285 > < 0.011 > < 0.125 > < 0.091 > < 0.010 > < 0.008 >
 AVERAGE

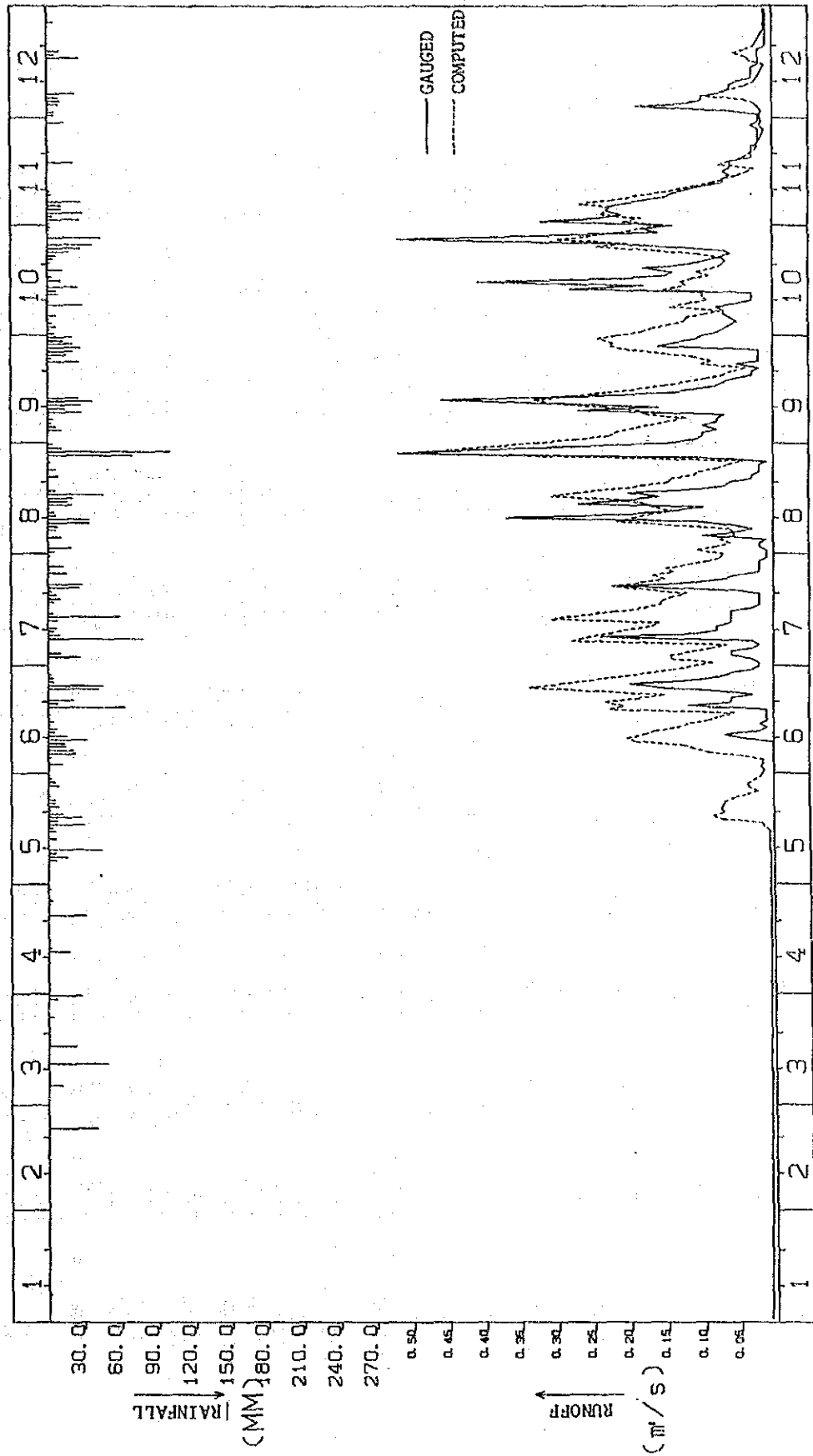
0.231 0.183 0.178 0.175 0.560 2.507 5.895 1.193 1.422 1.828 0.435 0.273 14.880 (m³/s)
 10. 8. 8. 8. 24. 108. 255. 52. 61. 79. 19. 12. 643. (mm)
 0.007 0.007 0.006 0.006 0.018 0.084 0.190 0.038 0.047 0.059 0.015 0.009 0.041 (m³/s)
 0.008 0.007 0.006 0.008 0.080 0.190 0.422 0.160 0.216 0.134 0.052 0.010 0.041 (m³/s)
 0.007 0.006 0.005 0.005 0.006 0.021 0.621 0.009 0.013 0.010 0.010 0.008 0.008 (m³/s)

RUNOFF ANALYSIS BY TANK MODEL

(1980)

RAINFALL STATION : PHUKET CITY

COEFFICIENT = 0.6479



GAUGING STATION : X-97 (CA = 2.00 km)

UNIT = (mm/d)

< DAILY RAINFALL > PHUKET CITY
(1980) PHUKET CITY

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	5.0	1.9	5.3
2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	18.7	0.0	1.3	26.2	5.9
3	0.0	0.0	0.0	0.0	0.0	11.1	25.6	0.4	0.0	6.6	4.1	1.5
4	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.4	11.2	3.2	28.9	9.0
5	0.0	0.0	0.0	0.0	0.0	2.9	0.3	11.1	6.7	1.6	11.2	10.9
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 13.9 >	< 36.4 >	< 36.1 >	< 17.8 >	< 17.7 >	< 72.3 >	< 32.7 >
6	0.0	0.0	11.2	0.0	0.0	22.1	0.0	0.3	2.8	7.6	11.2	9.6
7	0.0	0.0	0.0	0.0	6.4	20.5	0.0	6.7	4.0	0.0	26.9	23.3
8	2.0	0.0	0.0	0.0	15.7	14.4	76.5	8.2	1.3	0.0	0.2	0.9
9	0.0	0.0	0.0	1.3	5.8	13.3	9.3	33.7	27.1	28.4	2.9	0.0
10	0.0	0.0	0.0	0.0	43.1	31.1	4.4	33.5	14.1	1.3	1.8	0.0
AVERAGE	< 2.0 >	< 0.0 >	< 11.2 >	< 1.3 >	< 71.1 >	< 101.5 >	< 90.2 >	< 82.3 >	< 49.2 >	< 37.3 >	< 42.9 >	< 33.8 >
11	0.0	0.0	0.0	0.2	0.7	15.6	7.1	6.3	27.3	0.0	0.0	0.0
12	0.0	0.0	48.3	16.7	0.0	5.2	0.0	4.7	36.9	8.9	0.6	0.0
13	0.0	0.0	0.0	1.9	6.0	6.7	8.1	0.5	25.2	7.2	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	1.2	58.6	19.0	0.4	24.5	0.0	0.0
15	0.0	0.0	0.0	0.0	5.8	4.0	4.0	15.7	0.0	0.0	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 48.3 >	< 18.8 >	< 12.6 >	< 32.7 >	< 77.8 >	< 46.2 >	< 89.7 >	< 40.6 >	< 0.6 >	< 0.0 >
16	0.0	0.0	0.0	0.0	3.3	0.6	0.0	20.1	0.0	10.3	0.7	0.3
17	0.0	0.0	22.8	0.0	28.9	1.9	0.0	46.0	0.0	3.5	0.6	26.3
18	0.0	0.0	0.2	0.0	7.6	0.2	4.4	6.1	0.0	0.0	21.0	6.1
19	0.0	0.0	0.0	0.0	26.6	62.2	9.7	0.0	0.0	12.3	0.0	10.5
20	0.0	0.0	0.0	0.0	11.4	8.1	6.5	0.0	0.3	0.8	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 22.9 >	< 0.0 >	< 77.9 >	< 73.0 >	< 20.6 >	< 72.2 >	< 0.3 >	< 27.0 >	< 22.3 >	< 43.2 >
21	0.0	0.0	0.0	0.0	1.7	20.6	2.9	0.3	0.7	2.1	1.9	0.7
22	0.0	0.0	0.0	30.6	7.9	0.0	25.1	8.6	0.0	4.2	0.0	0.0
23	0.0	39.4	0.0	0.0	5.1	0.0	27.9	0.0	25.9	7.2	0.0	0.0
24	0.0	0.0	0.0	0.0	5.8	40.9	0.0	6.3	3.3	17.5	1.5	0.0
25	0.0	0.0	4.0	1.1	1.2	44.9	1.5	0.0	15.3	26.5	0.0	0.0
AVERAGE	< 0.0 >	< 39.4 >	< 4.0 >	< 31.7 >	< 21.8 >	< 106.4 >	< 57.4 >	< 15.2 >	< 45.3 >	< 57.5 >	< 3.4 >	< 0.7 >
26	0.0	0.0	0.0	2.7	0.0	4.6	15.3	1.8	20.8	36.3	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	3.5	1.8	0.0	26.5	0.0	0.0	5.1
28	0.0	0.0	0.0	0.0	8.3	2.0	12.9	68.4	20.4	43.1	0.0	0.0
29	0.0	0.0	0.0	1.9	5.5	0.2	0.0	99.4	12.3	0.0	13.6	0.0
30	0.0	0.0	6.7	0.0	2.2	0.0	0.0	11.7	20.1	1.6	0.0	1.1
31	0.0	0.0	26.5	0.0	0.0	0.0	2.0	4.1	0.0	3.1	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 33.1 >	< 4.6 >	< 15.9 >	< 10.3 >	< 31.9 >	< 185.5 >	< 100.2 >	< 84.1 >	< 13.6 >	< 6.2 >
GRAND TOTAL	2.0	39.4	119.6	56.4	199.3	337.8	314.4	437.5	302.5	264.2	155.2	116.6
AVERAGE	0.1	1.4	3.9	1.9	6.4	11.3	10.1	14.1	10.1	8.5	5.2	3.8
MAX	2.0	39.4	48.3	30.6	43.1	62.2	76.5	99.4	36.9	43.1	28.9	26.3
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

UNIT = (CUM/D)

< DAILY RUNOFF > PHUKET
(1980) X-97

1 JAN 2 FEB 3 MAR 4 APR 5 MAY 6 JUN 7 JUL 8 AUG 9 SEP 10 OCT 11 NOV 12 DEC

1	0.0	0.0	0.0	0.0	0.0	0.0	0.020	0.010	0.150	0.100	0.080	0.140	0.020
2	0.0	0.0	0.0	0.0	0.0	0.0	0.020	0.010	0.110	0.080	0.080	0.320	0.020
3	0.0	0.0	0.0	0.0	0.0	0.0	0.030	0.020	0.100	0.070	0.070	0.240	0.070
4	0.0	0.0	0.0	0.0	0.0	0.0	0.060	0.020	0.100	0.060	0.060	0.210	0.190
5	0.0	0.0	0.0	0.0	0.0	0.0	0.060	0.010	0.080	0.050	0.050	0.230	0.120
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.190 >	< 0.070 >	< 0.540 >	< 0.360 >	< 1.140 >	< 0.420 >	< 0.084 >
6	0.0	0.0	0.0	0.0	0.0	0.0	0.030	0.100	0.100	0.060	0.230	0.100	0.100
7	0.0	0.0	0.0	0.0	0.0	0.0	0.020	0.050	0.080	0.070	0.210	0.100	0.100
8	0.0	0.0	0.0	0.0	0.0	0.0	0.030	0.030	0.080	0.070	0.180	0.070	0.060
9	0.0	0.0	0.0	0.0	0.0	0.0	0.240	0.060	0.070	0.080	0.150	0.060	0.060
10	0.0	0.0	0.0	0.0	0.0	0.0	0.110	0.110	0.270	0.050	0.140	0.060	0.060
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.430 >	< 0.350 >	< 0.600 >	< 0.330 >	< 0.910 >	< 0.390 >	< 0.078 >
11	0.0	0.0	0.0	0.0	0.0	0.050	0.080	0.370	0.160	0.030	0.120	0.050	0.050
12	0.0	0.0	0.0	0.0	0.0	0.070	0.080	0.200	0.300	0.030	0.100	0.030	0.030
13	0.0	0.0	0.0	0.0	0.0	0.020	0.060	0.140	0.460	0.030	0.070	0.030	0.030
14	0.0	0.0	0.0	0.0	0.0	0.010	0.060	0.100	0.240	0.280	0.070	0.030	0.030
15	0.0	0.0	0.0	0.0	0.0	0.020	0.060	0.270	0.140	0.180	0.060	0.030	0.170
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.034 >	< 0.340 >	< 1.080 >	< 1.300 >	< 0.550 >	< 0.420 >	< 0.170 >	< 0.034 >
16	0.0	0.0	0.0	0.0	0.0	0.010	0.060	0.200	0.110	0.410	0.070	0.020	0.020
17	0.0	0.0	0.0	0.0	0.0	0.010	0.030	0.160	0.080	0.310	0.060	0.020	0.020
18	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.200	0.070	0.150	0.060	0.020	0.020
19	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.110	0.050	0.140	0.060	0.020	0.020
20	0.0	0.0	0.0	0.0	0.0	0.120	0.020	0.070	0.030	0.180	0.030	0.030	0.030
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.160 >	< 0.150 >	< 0.740 >	< 0.340 >	< 1.090 >	< 0.280 >	< 0.100 >	< 0.020 >
21	0.0	0.0	0.0	0.0	0.0	0.060	0.020	0.060	0.030	0.120	0.030	0.010	0.010
22	0.0	0.0	0.0	0.0	0.0	0.060	0.060	0.030	0.020	0.100	0.030	0.010	0.010
23	0.0	0.0	0.0	0.0	0.0	0.030	0.210	0.030	0.050	0.080	0.030	0.010	0.010
24	0.0	0.0	0.0	0.0	0.0	0.070	0.110	0.020	0.020	0.060	0.020	0.010	0.010
25	0.0	0.0	0.0	0.0	0.0	0.160	0.070	0.020	0.020	0.070	0.020	0.010	0.010
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.380 >	< 0.470 >	< 0.160 >	< 0.140 >	< 0.430 >	< 0.130 >	< 0.050 >	< 0.010 >
26	0.0	0.0	0.0	0.0	0.0	0.200	0.050	0.030	0.020	0.140	0.020	0.010	0.010
27	0.0	0.0	0.0	0.0	0.0	0.110	0.020	0.010	0.020	0.230	0.020	0.010	0.010
28	0.0	0.0	0.0	0.0	0.0	0.080	0.020	0.100	0.160	0.560	0.020	0.010	0.010
29	0.0	0.0	0.0	0.0	0.0	0.060	0.020	0.530	0.140	0.320	0.030	0.010	0.010
30	0.0	0.0	0.0	0.0	0.0	0.030	0.020	0.410	0.110	0.160	0.020	0.010	0.010
31	0.0	0.0	0.0	0.0	0.0	0.480	0.010	0.280	0.180	0.180	0.010	0.010	0.010
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.480 >	< 0.140 >	< 1.350 >	< 0.450 >	< 1.590 >	< 0.110 >	< 0.060 >	< 0.010 >
GRAND TOTAL	0.0	0.0	0.0	0.0	0.0	1.190	1.720	3.750	3.370	4.350	2.990	1.190	18.560
AVERAGE	0.0	0.0	0.0	0.0	0.0	51.	74.	162.	146.	188.	129.	51.	802.
MAX	0.0	0.0	0.0	0.0	0.0	0.040	0.055	0.121	0.112	0.140	0.100	0.038	0.051
MIN	0.0	0.0	0.0	0.0	0.0	0.200	0.240	0.530	0.460	0.560	0.320	0.190	0.010

(m/s) 18.560
(mm) 802.
(m/s) 51.
(m/s) 0.051
(m/s) 0.190
(m/s) 0.010

< DAILY RUNOFF > PHUKET
(1980) X-97

UNIT = (CM/D)

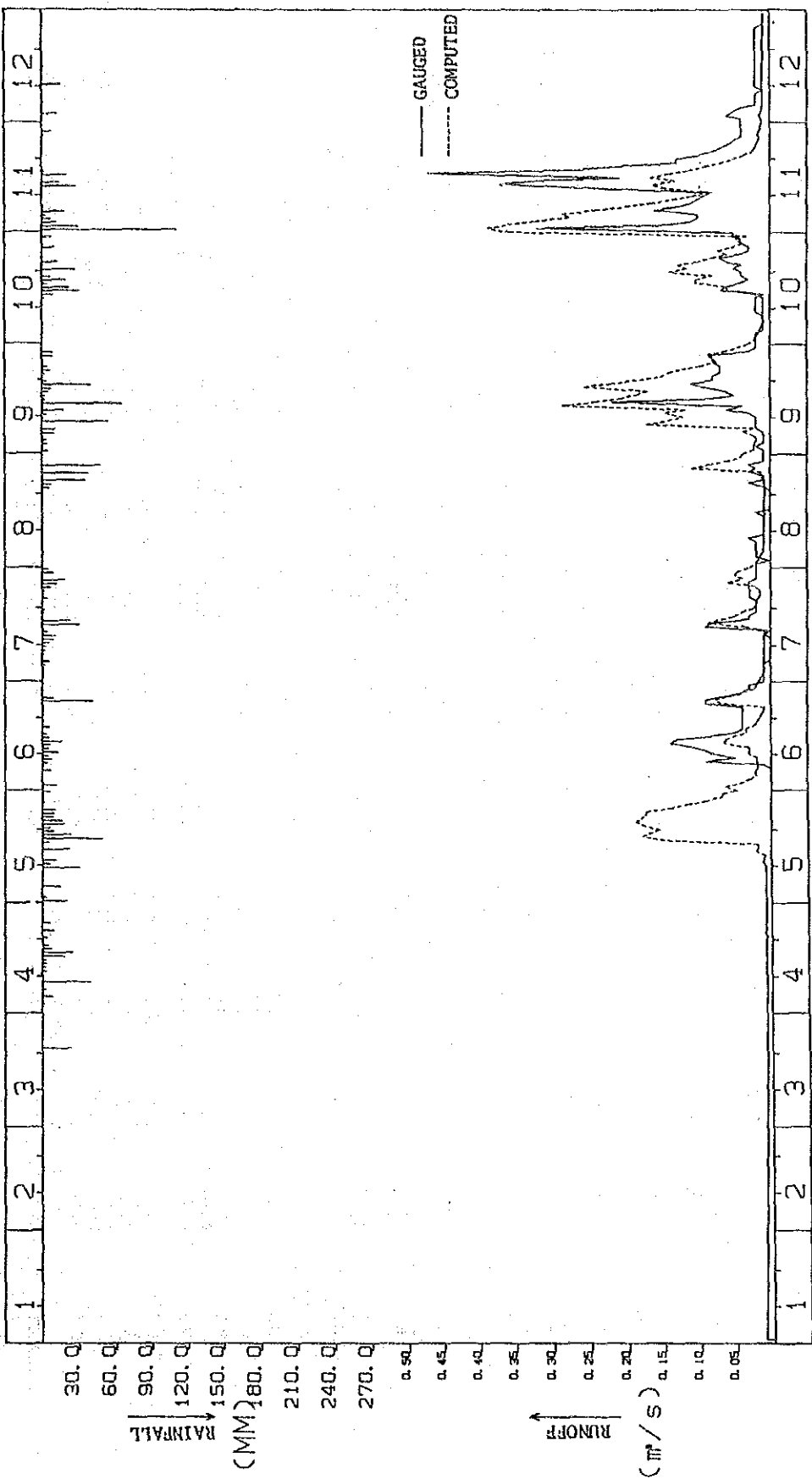
	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.008	0.007	0.006	0.006	0.005	0.017	0.112	0.071	0.328	0.216	0.156	0.017
2	0.008	0.007	0.006	0.006	0.005	0.013	0.087	0.107	0.273	0.182	0.206	0.018
3	0.008	0.007	0.006	0.006	0.005	0.018	0.142	0.083	0.226	0.169	0.182	0.017
4	0.008	0.007	0.006	0.006	0.005	0.015	0.144	0.062	0.219	0.147	0.237	0.020
5	0.008	0.007	0.006	0.006	0.005	0.014	0.115	0.076	0.199	0.119	0.230	0.025
	(0.039)	(0.034)	(0.030)	(0.029)	(0.035)	(0.078)	(0.600)	(0.398)	(1.245)	(0.839)	(1.010)	(0.097)
<	0.008	0.007	0.006	0.006	0.005	0.016	0.120	0.080	0.249	0.168	0.202	0.019
AVERAGE												
6	0.008	0.007	0.006	0.006	0.005	0.047	0.089	0.055	0.171	0.122	0.224	0.037
7	0.008	0.007	0.006	0.005	0.005	0.092	0.066	0.057	0.149	0.097	0.267	0.094
8	0.008	0.007	0.006	0.005	0.005	0.112	0.279	0.063	0.123	0.075	0.223	0.074
9	0.008	0.007	0.006	0.005	0.005	0.127	0.259	0.145	0.178	0.143	0.193	0.054
10	0.008	0.007	0.006	0.005	0.006	0.193	0.227	0.216	0.187	0.119	0.164	0.037
	(0.038)	(0.033)	(0.030)	(0.027)	(0.026)	(0.571)	(0.920)	(0.536)	(0.808)	(0.555)	(1.071)	(0.297)
<	0.008	0.007	0.006	0.005	0.005	0.114	0.184	0.107	0.162	0.111	0.214	0.059
AVERAGE												
11	0.008	0.007	0.006	0.005	0.006	0.203	0.207	0.195	0.234	0.094	0.133	0.026
12	0.008	0.007	0.007	0.005	0.006	0.181	0.169	0.171	0.304	0.100	0.109	0.023
13	0.008	0.007	0.007	0.005	0.006	0.165	0.160	0.139	0.329	0.100	0.086	0.020
14	0.007	0.006	0.006	0.005	0.006	0.136	0.306	0.166	0.276	0.152	0.066	0.017
15	0.007	0.006	0.006	0.005	0.006	0.119	0.266	0.180	0.228	0.123	0.049	0.014
	(0.038)	(0.033)	(0.032)	(0.027)	(0.030)	(0.804)	(1.108)	(0.851)	(1.372)	(0.569)	(0.442)	(0.098)
<	0.008	0.007	0.006	0.005	0.006	0.161	0.222	0.170	0.274	0.114	0.088	0.020
AVERAGE												
16	0.007	0.006	0.006	0.005	0.006	0.094	0.220	0.205	0.187	0.129	0.036	0.012
17	0.007	0.006	0.006	0.005	0.014	0.076	0.180	0.306	0.152	0.114	0.026	0.032
18	0.007	0.006	0.007	0.005	0.017	0.055	0.158	0.272	0.121	0.090	0.076	0.037
19	0.007	0.006	0.006	0.005	0.072	0.226	0.156	0.224	0.095	0.107	0.058	0.054
20	0.007	0.006	0.006	0.005	0.088	0.209	0.144	0.182	0.073	0.086	0.041	0.037
	(0.037)	(0.032)	(0.032)	(0.026)	(0.194)	(0.660)	(0.857)	(1.189)	(0.627)	(0.527)	(0.237)	(0.172)
<	0.007	0.006	0.006	0.005	0.039	0.152	0.171	0.238	0.125	0.105	0.047	0.034
AVERAGE												
21	0.007	0.006	0.006	0.005	0.071	0.232	0.123	0.147	0.055	0.073	0.033	0.026
22	0.007	0.006	0.006	0.006	0.076	0.190	0.172	0.142	0.037	0.067	0.025	0.023
23	0.007	0.007	0.006	0.005	0.071	0.153	0.223	0.112	0.101	0.071	0.022	0.020
24	0.007	0.007	0.006	0.005	0.070	0.246	0.183	0.105	0.087	0.106	0.021	0.017
25	0.007	0.007	0.006	0.005	0.054	0.338	0.152	0.080	0.112	0.164	0.018	0.014
	(0.036)	(0.033)	(0.030)	(0.027)	(0.342)	(1.159)	(0.853)	(0.586)	(0.393)	(0.481)	(0.119)	(0.100)
<	0.007	0.007	0.006	0.005	0.068	0.232	0.171	0.117	0.079	0.096	0.024	0.020
AVERAGE												
26	0.007	0.007	0.006	0.005	0.037	0.295	0.168	0.063	0.150	0.243	0.016	0.012
27	0.007	0.006	0.006	0.005	0.022	0.255	0.140	0.044	0.200	0.202	0.013	0.015
28	0.007	0.006	0.006	0.005	0.035	0.216	0.150	0.234	0.225	0.297	0.012	0.012
29	0.007	0.006	0.006	0.005	0.037	0.176	0.119	0.493	0.222	0.248	0.018	0.012
30	0.007	0.006	0.006	0.005	0.029	0.142	0.093	0.450	0.242	0.211	0.016	0.012
31	0.007	0.006	0.006	0.005	0.020	0.142	0.076	0.391	0.242	0.183	0.016	0.012
	(0.042)	(0.025)	(0.035)	(0.026)	(0.180)	(1.083)	(0.745)	(1.675)	(1.039)	(1.385)	(0.075)	(0.072)
<	0.007	0.006	0.006	0.005	0.030	0.217	0.124	0.279	0.208	0.231	0.015	0.012
AVERAGE												
GRAND TOTAL	0.230	0.190	0.189	0.161	0.799	4.355	5.083	5.236	5.483	4.355	2.955	0.836
AVERAGE	10.	8.	8.	7.	35.	188.	220.	226.	237.	188.	128.	36.
MAX	0.007	0.007	0.006	0.005	0.068	0.145	0.164	0.169	0.183	0.140	0.099	0.027
MIN	0.007	0.007	0.007	0.006	0.088	0.338	0.306	0.493	0.329	0.297	0.267	0.094
	0.007	0.006	0.006	0.005	0.005	0.013	0.066	0.044	0.037	0.067	0.012	0.012

(m/s)
(mm)
(m/s)
(m/s)
(m/s)

RUNOFF ANALYSIS BY TANK MODEL

(1981)
 COEFFICIENT = 0.5497

RAINFALL STATION : PHUKET CITY



GAUGING STATION : X-97 (CA = 2.00kmf)

UNIT = (mm/D)

< DAILY RAINFALL > PHUKET CITY
(1981) PHUKET CITY

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.0	0.0	0.0	0.1	18.9	0.4	0.0	0.0	4.0	0.1	111.4	1.0
2	0.0	0.0	0.0	0.1	2.8	10.6	0.0	0.0	0.1	0.1	28.7	0.8
3	0.0	0.4	0.0	1.3	0.0	0.0	0.0	0.0	4.0	0.0	11.2	12.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.0	0.0	6.7	0.0
5	0.0	0.0	0.0	7.8	14.2	11.0	2.1	0.1	0.0	0.0	2.5	0.0
AVERAGE	< 0.0 >	< 0.1 >	< 0.0 >	< 1.9 >	< 7.2 >	< 2.2 >	< 2.1 >	< 0.6 >	< 11.1 >	< 0.2 >	< 160.6 >	< 13.8 >
6	0.0	0.0	0.0	0.0	0.0	6.1	5.2	0.0	9.4	0.0	18.0	1.0
7	0.1	0.0	0.0	2.4	0.0	0.1	0.0	0.0	10.1	0.0	0.8	0.0
8	1.0	0.0	0.0	0.1	0.0	3.5	0.4	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	37.8	0.0	6.7	1.9	0.1	54.0	0.0	0.0	0.0
10	0.2	0.0	0.0	0.1	29.2	4.0	2.1	0.0	1.1	0.0	0.0	0.1
AVERAGE	< 1.3 >	< 0.0 >	< 0.0 >	< 40.4 >	< 29.2 >	< 20.4 >	< 9.5 >	< 0.1 >	< 74.5 >	< 0.0 >	< 18.8 >	< 1.1 >
11	0.0	0.4	0.0	0.1	5.9	12.0	4.9	0.0	3.0	1.5	0.0	15.7
12	0.0	0.0	0.0	3.1	10.4	4.4	8.5	0.0	16.7	0.0	0.0	0.0
13	0.0	0.0	0.0	2.9	0.0	5.6	10.0	0.0	1.0	1.7	27.1	0.1
14	0.0	0.0	0.0	3.1	0.0	15.4	3.7	0.0	64.4	9.0	14.4	0.0
15	0.0	0.0	0.0	0.0	21.5	5.5	0.5	0.0	1.6	29.8	0.5	0.0
AVERAGE	< 0.0 >	< 0.4 >	< 0.0 >	< 12.0 >	< 37.9 >	< 42.8 >	< 27.6 >	< 0.0 >	< 86.8 >	< 42.0 >	< 42.0 >	< 15.7 >
16	0.0	0.0	0.0	17.5	0.0	3.1	29.9	0.0	3.9	21.3	19.6	1.3
17	0.0	0.0	0.0	23.9	5.4	0.0	22.1	0.0	5.0	4.1	1.6	0.0
18	0.0	0.0	0.0	6.8	47.9	5.2	0.4	0.0	7.0	18.9	0.1	0.0
19	0.0	0.0	0.0	4.0	22.4	0.0	0.9	0.0	39.3	7.0	0.0	0.0
20	0.0	0.1	0.0	0.1	8.5	0.0	2.0	0.0	3.0	0.0	0.1	0.0
AVERAGE	< 0.0 >	< 0.1 >	< 0.0 >	< 52.4 >	< 84.1 >	< 8.3 >	< 55.3 >	< 0.0 >	< 57.2 >	< 51.4 >	< 21.4 >	< 1.3 >
21	0.0	0.0	0.0	3.3	5.8	0.0	0.1	0.0	0.1	26.5	0.1	0.0
22	0.0	0.0	22.7	0.1	16.7	0.0	0.0	5.7	2.0	1.0	0.1	0.0
23	0.0	0.0	0.0	8.9	15.3	0.0	3.4	6.8	6.3	11.9	0.0	0.0
24	0.0	0.0	0.0	0.0	8.8	0.0	0.2	34.4	3.8	0.0	0.0	0.0
25	0.0	0.0	0.0	5.9	9.2	40.9	1.2	0.0	0.3	0.1	0.1	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 22.7 >	< 18.3 >	< 55.9 >	< 40.9 >	< 4.9 >	< 46.9 >	< 12.4 >	< 39.5 >	< 0.2 >	< 0.0 >
26	0.0	0.0	0.0	0.0	10.4	8.9	6.5	37.4	0.4	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.1	0.1	11.5	1.2	8.4	9.4	0.8	0.0
28	0.0	0.0	0.0	0.0	1.2	0.0	17.9	47.5	8.7	0.1	7.0	0.0
29	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.3	0.3	0.0
30	0.0	0.0	0.0	0.2	0.1	0.0	8.5	0.1	0.1	7.2	0.1	0.0
31	0.0	0.0	0.5	0.0	5.3	0.0	4.3	0.0	0.0	0.0	0.0	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.5 >	< 0.2 >	< 17.2 >	< 9.0 >	< 48.8 >	< 86.5 >	< 17.6 >	< 16.9 >	< 8.2 >	< 0.0 >
GRAND TOTAL	1.3	1.0	23.2	132.5	260.2	132.5	148.2	134.1	259.6	150.0	251.2	31.9
AVERAGE	0.0	0.0	0.7	4.4	8.4	4.4	4.8	4.3	8.7	4.8	8.4	1.0
MAX	1.0	0.4	22.7	37.8	47.9	40.9	29.9	47.5	64.4	29.8	111.4	15.7
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

UNIT = (CUM/D)

< DAILY RUNOFF > PHUKET
(1981) X-97

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.010	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.020	0.050	0.040
2	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.020	0.320	0.040
3	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.002	0.020	0.020	0.140	0.060
4	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.020	0.110	0.050
5	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.010	0.100	0.040
AVERAGE	< 0.010 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.010 >	< 0.020 >	< 0.010 >	< 0.020 >	< 0.120 >	< 0.040 >
6	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.020	0.010	0.010	0.100	0.020
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.020	0.010	0.010	0.160	0.020
8	0.0	0.0	0.0	0.0	0.0	0.010	0.0	0.020	0.020	0.010	0.130	0.020
9	0.0	0.0	0.0	0.0	0.0	0.090	0.0	0.020	0.020	0.010	0.110	0.020
10	0.0	0.0	0.0	0.0	0.0	0.050	0.0	0.010	0.020	0.020	0.100	0.010
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.010 >	< 0.010 >	< 0.020 >	< 0.020 >	< 0.100 >	< 0.020 >
11	0.0	0.0	0.0	0.0	0.0	0.080	0.0	0.010	0.020	0.020	0.090	0.020
12	0.0	0.0	0.0	0.0	0.0	0.090	0.0	0.010	0.030	0.020	0.080	0.020
13	0.0	0.0	0.0	0.0	0.0	0.110	0.0	0.010	0.060	0.020	0.240	0.020
14	0.0	0.0	0.0	0.0	0.0	0.140	0.010	0.010	0.040	0.020	0.370	0.020
15	0.0	0.0	0.0	0.0	0.0	0.130	0.0	0.010	0.220	0.010	0.320	0.020
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.110 >	< 0.010 >	< 0.010 >	< 0.070 >	< 0.020 >	< 0.220 >	< 0.020 >
16	0.0	0.0	0.0	0.0	0.0	0.080	0.090	0.020	0.080	0.060	0.210	0.020
17	0.0	0.0	0.0	0.0	0.0	0.050	0.080	0.0	0.050	0.060	0.470	0.020
18	0.0	0.0	0.0	0.0	0.0	0.040	0.030	0.0	0.060	0.040	0.270	0.020
19	0.0	0.0	0.0	0.0	0.0	0.040	0.030	0.0	0.090	0.030	0.210	0.020
20	0.0	0.0	0.0	0.0	0.0	0.040	0.020	0.0	0.110	0.040	0.130	0.020
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.020 >	< 0.020 >	< 0.090 >	< 0.030 >	< 0.230 >	< 0.100 >
21	0.0	0.0	0.0	0.0	0.0	0.040	0.020	0.0	0.080	0.040	0.130	0.020
22	0.0	0.0	0.0	0.0	0.0	0.040	0.020	0.0	0.080	0.050	0.100	0.020
23	0.0	0.0	0.0	0.0	0.0	0.040	0.020	0.010	0.070	0.040	0.080	0.020
24	0.0	0.0	0.0	0.0	0.0	0.040	0.030	0.030	0.070	0.060	0.070	0.020
25	0.0	0.0	0.0	0.0	0.0	0.090	0.030	0.010	0.070	0.070	0.060	0.020
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.020 >	< 0.010 >	< 0.070 >	< 0.060 >	< 0.060 >	< 0.020 >
26	0.0	0.0	0.0	0.0	0.0	0.090	0.030	0.010	0.080	0.040	0.050	0.020
27	0.0	0.0	0.0	0.0	0.0	0.060	0.030	0.030	0.080	0.030	0.040	0.020
28	0.0	0.0	0.0	0.0	0.0	0.040	0.030	0.020	0.080	0.030	0.040	0.010
29	0.0	0.0	0.0	0.0	0.0	0.030	0.020	0.030	0.030	0.040	0.040	0.010
30	0.0	0.0	0.0	0.0	0.0	0.030	0.020	0.010	0.020	0.040	0.040	0.010
31	0.0	0.0	0.0	0.0	0.0	0.030	0.020	0.010	0.020	0.040	0.040	0.010
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.050 >	< 0.020 >	< 0.010 >	< 0.030 >	< 0.040 >	< 0.040 >	< 0.010 >
GRAND TOTAL	0.010	0.0	0.0	0.0	0.0	1.450	0.590	0.412	1.560	0.960	4.360	10.042
AVERAGE	0.0	0.0	0.0	0.0	0.0	63.	25.	18.	67.	41.	188.	30.
MAX	0.010	0.0	0.0	0.0	0.0	0.048	0.019	0.013	0.052	0.031	0.145	0.023
MIN	0.0	0.0	0.0	0.0	0.0	0.140	0.090	0.030	0.220	0.070	0.470	0.060

DAILY RUNOFF > PHUKET
(1981) X-97

UNIT = (CUM/D)

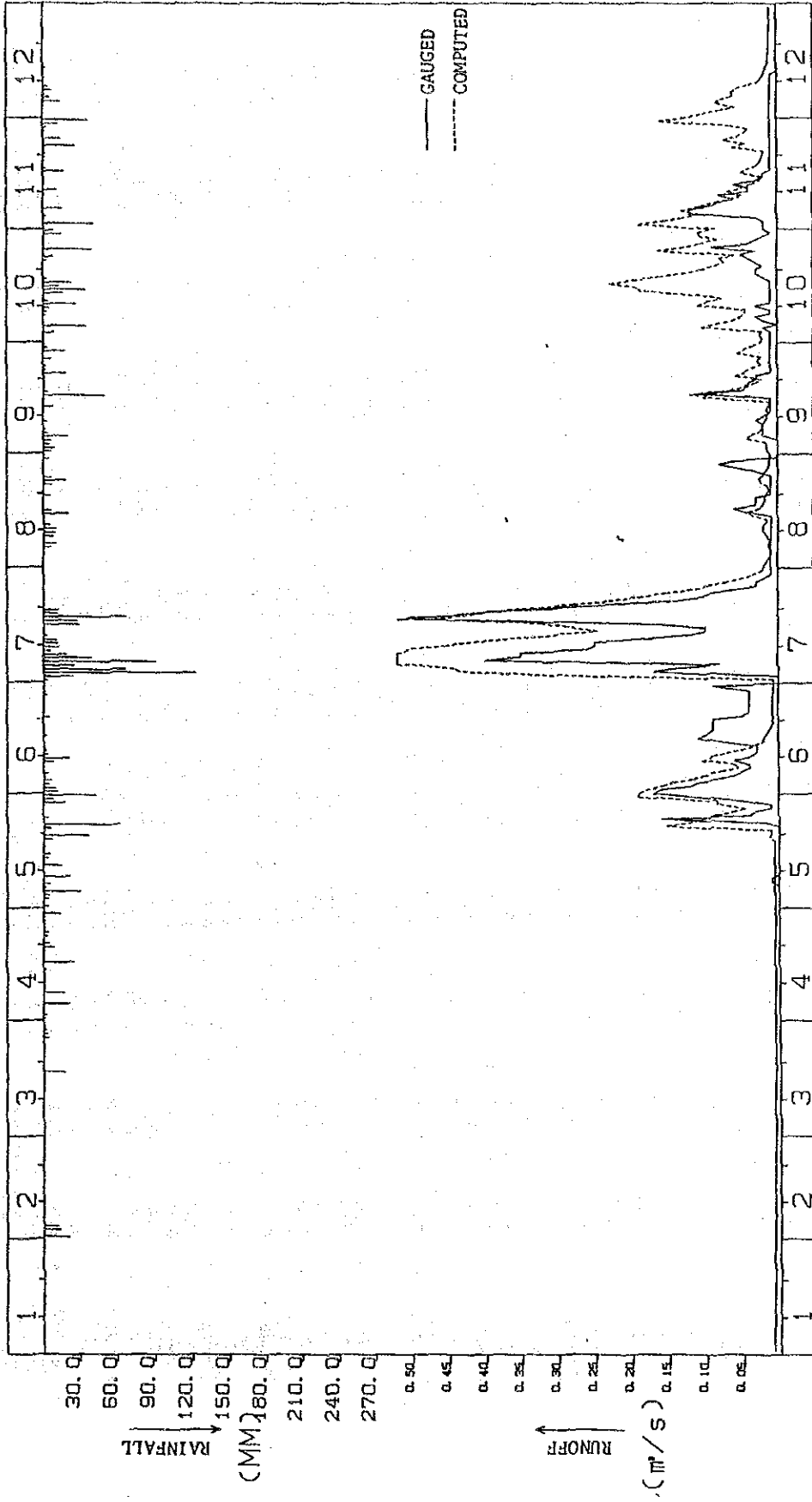
	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	1 0 OCT	1 1 NOV	1 2 DEC	
1	0.012	0.009	0.008	0.007	0.008	0.048	0.017	0.029	0.038	0.031	0.357	0.011	
2	0.011	0.009	0.008	0.007	0.008	0.063	0.014	0.021	0.023	0.023	0.387	0.011	
3	0.011	0.009	0.008	0.007	0.008	0.044	0.011	0.018	0.023	0.020	0.359	0.014	
4	0.011	0.009	0.008	0.007	0.007	0.027	0.009	0.015	0.022	0.017	0.323	0.012	
5	0.011	0.009	0.008	0.007	0.008	0.021	0.009	0.012	0.019	0.015	0.278	0.011	
AVERAGE	< 0.011>	< 0.009>	< 0.008>	< 0.007>	< 0.008>	< 0.041>	< 0.035>	< 0.038>	< 0.020>	< 0.025>	< 1.703>	< 0.053>	
6	0.011	0.009	0.008	0.007	0.008	0.022	0.009	0.009	0.023	0.012	0.286	0.011	
7	0.011	0.009	0.008	0.007	0.008	0.019	0.009	0.009	0.037	0.010	0.241	0.011	
8	0.011	0.009	0.008	0.007	0.007	0.018	0.009	0.009	0.023	0.010	0.200	0.011	
9	0.011	0.009	0.008	0.007	0.007	0.020	0.009	0.009	0.172	0.010	0.164	0.010	
10	0.010	0.009	0.008	0.007	0.008	0.020	0.009	0.009	0.142	0.010	0.133	0.010	
AVERAGE	< 0.054>	< 0.045>	< 0.040>	< 0.036>	< 0.038>	< 0.099>	< 0.045>	< 0.046>	< 0.397>	< 0.052>	< 1.025>	< 0.053>	
11	0.010	0.009	0.008	0.007	0.008	0.032	0.009	0.009	0.121	0.010	0.107	0.011	
12	0.010	0.009	0.008	0.007	0.012	0.030	0.009	0.009	0.145	0.010	0.084	0.011	
13	0.010	0.009	0.008	0.007	0.010	0.033	0.010	0.009	0.118	0.010	0.146	0.011	
14	0.010	0.009	0.008	0.007	0.008	0.064	0.010	0.009	0.288	0.010	0.161	0.010	
15	0.010	0.009	0.008	0.007	0.020	0.062	0.009	0.008	0.243	0.022	0.133	0.010	
AVERAGE	< 0.051>	< 0.044>	< 0.039>	< 0.036>	< 0.050>	< 0.221>	< 0.046>	< 0.043>	< 0.916>	< 0.060>	< 0.630>	< 0.052>	
16	0.010	0.009	0.008	0.007	0.018	0.052	0.035	0.008	0.209	0.038	0.166	0.010	
17	0.010	0.009	0.008	0.008	0.019	0.034	0.087	0.008	0.185	0.062	0.139	0.010	
18	0.010	0.009	0.008	0.008	0.139	0.035	0.066	0.008	0.171	0.103	0.112	0.010	
19	0.010	0.009	0.008	0.008	0.179	0.022	0.050	0.008	0.257	0.101	0.089	0.010	
20	0.010	0.009	0.008	0.008	0.171	0.019	0.039	0.008	0.221	0.079	0.088	0.010	
AVERAGE	< 0.050>	< 0.043>	< 0.038>	< 0.039>	< 0.525>	< 0.163>	< 0.277>	< 0.008>	< 1.044>	< 0.413>	< 0.574>	< 0.050>	
21	0.010	0.009	0.007	0.008	0.156	0.016	0.024	0.008	0.181	0.140	0.051	0.010	
22	0.010	0.008	0.008	0.008	0.176	0.013	0.020	0.008	0.152	0.116	0.036	0.010	
23	0.010	0.008	0.008	0.008	0.189	0.010	0.020	0.008	0.141	0.127	0.025	0.010	
24	0.010	0.008	0.007	0.008	0.181	0.009	0.017	0.009	0.123	0.101	0.022	0.009	
25	0.010	0.008	0.007	0.008	0.175	0.069	0.015	0.008	0.097	0.079	0.019	0.009	
AVERAGE	< 0.049>	< 0.042>	< 0.038>	< 0.039>	< 0.877>	< 0.117>	< 0.095>	< 0.040>	< 0.694>	< 0.564>	< 0.152>	< 0.047>	
26	0.010	0.008	0.007	0.008	0.173	0.076	0.017	0.015	0.075	0.060	0.016	0.009	
27	0.010	0.008	0.007	0.008	0.140	0.055	0.022	0.012	0.080	0.072	0.015	0.009	
28	0.009	0.008	0.007	0.008	0.116	0.037	0.058	0.108	0.085	0.017	0.017	0.009	
29	0.009	0.008	0.007	0.007	0.091	0.023	0.040	0.083	0.064	0.038	0.015	0.009	
30	0.009	0.008	0.007	0.007	0.069	0.020	0.050	0.061	0.045	0.046	0.012	0.009	
31	0.009	0.008	0.007	0.007	0.069	0.020	0.046	0.061	0.045	0.046	0.012	0.009	
AVERAGE	< 0.057>	< 0.025>	< 0.044>	< 0.038>	< 0.656>	< 0.212>	< 0.232>	< 0.321>	< 0.349>	< 0.302>	< 0.073>	< 0.054>	
GRAND TOTAL	0.316	0.246	0.239	0.223	2.193	1.015	0.754	0.586	3.524	1.496	4.159	0.314	15.063
AVERAGE	14.	11.	10.	10.	95.	44.	33.	25.	152.	65.	180.	14.	651.
MAX	0.010	0.009	0.008	0.007	0.071	0.034	0.024	0.019	0.117	0.048	0.139	0.010	0.041
MIN	0.012	0.009	0.008	0.008	0.189	0.076	0.087	0.108	0.288	0.140	0.387	0.014	
	0.009	0.008	0.007	0.007	0.007	0.009	0.009	0.008	0.019	0.010	0.012	0.009	

RUNOFF ANALYSIS BY TANK MODEL

(1982)

COEFFICIENT = 0.7594

RAINFALL STATION : PHUKET CITY



GAUGING STATION : X-97 (CA = 2.00 km)

< DAILY RAINFALL > PHUKET CITY
(1982) PHUKET CITY

UNIT = (mm/D)

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.0	20.4	0.0	1.4	3.4	11.2	2.5	0.0	6.0	0.0	0.1	0.0
2	0.0	0.0	0.0	2.8	0.1	9.3	23.6	0.0	8.9	0.0	40.9	0.1
3	0.0	13.1	0.0	0.0	4.1	121.8	0.0	0.0	4.5	8.8	0.0	0.0
4	0.0	11.2	0.0	0.0	3.9	6.0	65.9	0.4	5.9	0.1	2.2	0.0
5	0.0	0.0	0.0	21.1	30.3	1.0	25.3	0.1	19.9	34.2	0.2	14.4
AVERAGE	< 0.0 >	< 44.7 >	< 0.0 >	< 25.3 >	< 40.7 >	< 31.7 >	< 239.0 >	< 0.4 >	< 45.3 >	< 43.1 >	< 43.3 >	< 14.5 >
6	0.0	0.0	0.0	0.0	1.7	4.1	90.1	6.0	3.4	0.6	15.6	4.8
7	0.0	0.0	0.0	0.0	5.4	0.1	39.3	9.7	1.2	0.0	0.0	1.3
8	0.0	0.0	0.0	16.5	0.0	0.0	18.6	0.0	0.0	1.6	0.5	6.5
9	0.0	0.0	0.1	0.1	21.2	7.4	5.6	7.6	3.1	2.9	0.0	3.7
10	0.0	0.0	0.0	0.0	0.4	20.5	12.9	9.1	0.0	4.6	0.9	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.2 >	< 16.6 >	< 28.7 >	< 32.1 >	< 166.5 >	< 33.1 >	< 7.7 >	< 9.7 >	< 17.0 >	< 16.2 >
11	0.0	0.0	0.1	0.0	0.0	3.3	11.2	9.7	0.0	26.5	11.2	0.0
12	0.0	0.0	0.0	0.0	14.9	1.6	10.3	5.1	0.9	3.6	0.0	0.0
13	0.0	0.0	0.0	0.0	0.5	0.0	2.6	0.0	8.0	0.6	0.0	0.0
14	0.9	0.0	0.0	1.9	3.7	0.0	0.0	0.0	0.1	16.1	0.0	2.2
15	0.1	0.1	0.0	0.1	4.9	0.0	0.0	21.0	0.4	33.8	0.0	0.0
AVERAGE	< 1.0 >	< 0.1 >	< 0.1 >	< 2.0 >	< 24.1 >	< 4.9 >	< 24.1 >	< 35.8 >	< 9.4 >	< 80.6 >	< 11.2 >	< 2.2 >
16	1.0	0.0	0.0	24.7	0.1	2.1	28.4	6.5	49.2	13.0	16.9	0.0
17	0.0	0.0	0.0	0.0	0.9	0.0	27.6	0.0	3.1	23.2	2.5	0.0
18	0.0	0.0	17.2	0.0	0.1	0.0	66.4	0.0	0.0	2.6	0.0	0.0
19	0.0	0.0	0.0	1.1	6.0	0.0	11.3	0.0	0.1	0.1	0.7	0.0
20	0.0	0.0	0.0	8.3	35.8	0.2	12.1	5.8	0.1	0.0	1.5	0.0
AVERAGE	< 1.0 >	< 0.0 >	< 17.2 >	< 34.1 >	< 69.9 >	< 2.2 >	< 145.9 >	< 12.3 >	< 52.5 >	< 38.9 >	< 21.7 >	< 0.0 >
21	0.0	0.0	0.0	4.2	0.2	4.8	0.0	0.0	0.0	0.0	1.6	0.0
22	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	18.4	0.5	0.9	0.0
23	0.0	0.0	0.0	2.6	60.7	0.0	0.0	6.5	1.6	3.3	25.3	0.0
24	0.0	0.0	0.0	3.6	0.5	0.0	0.0	17.9	2.1	8.1	0.0	0.0
25	0.0	0.0	0.0	0.0	3.0	0.0	0.0	6.1	0.0	0.0	14.3	0.0
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 10.4 >	< 69.1 >	< 4.8 >	< 0.0 >	< 30.5 >	< 22.1 >	< 12.0 >	< 42.1 >	< 0.0 >
26	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	6.5	39.5	0.0	0.0
27	0.0	0.0	4.3	1.3	0.0	2.3	0.0	0.0	0.0	0.0	1.4	0.0
28	0.0	0.0	2.7	0.8	0.5	0.6	0.0	0.0	17.9	0.1	3.7	0.0
29	0.6	0.0	2.3	13.4	17.5	0.0	0.0	0.0	3.3	0.0	12.8	0.0
30	0.0	0.0	0.4	0.4	7.6	0.0	0.1	4.5	0.9	14.5	37.1	0.0
31	0.0	0.0	0.1	0.1	42.0	0.0	0.1	1.2	0.0	8.1	0.0	0.0
AVERAGE	< 0.6 >	< 0.0 >	< 9.8 >	< 16.0 >	< 67.0 >	< 3.0 >	< 0.2 >	< 5.7 >	< 28.6 >	< 62.2 >	< 55.0 >	< 0.0 >
GRAND TOTAL	2.6	44.8	27.2	104.4	273.2	78.7	575.7	117.9	165.6	246.5	190.3	32.9
AVERAGE	0.1	1.6	0.9	3.5	8.8	2.6	18.6	3.8	5.5	8.0	6.3	1.1
MAX	1.0	20.4	17.2	24.7	60.7	20.5	121.8	21.0	49.2	39.5	40.9	14.4

UNIT = (CUM/D)

< DAILY RUNOFF > PHUKET
(1982.) X-97

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC	
1	0.0	0.0	0.0	0.0	0.0	0.170	0.0	0.010	0.0	0.010	0.020	0.010	
2	0.0	0.0	0.0	0.0	0.0	0.160	0.0	0.010	0.0	0.010	0.020	0.010	
3	0.0	0.0	0.0	0.0	0.0	0.120	0.0	0.010	0.0	0.010	0.020	0.010	
4	0.0	0.0	0.0	0.0	0.0	0.110	0.170	0.010	0.0	0.010	0.030	0.010	
5	0.0	0.0	0.0	0.0	0.0	0.080	0.140	0.010	0.0	0.020	0.120	0.010	
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.640 >	< 0.310 >	< 0.050 >	< 0.0 >	< 0.060 >	< 0.210 >	< 0.050 >	
6	0.0	0.0	0.0	0.0	0.0	0.060	0.080	0.010	0.020	0.0	0.120	0.010	
7	0.0	0.0	0.0	0.0	0.0	0.050	0.400	0.010	0.020	0.020	0.090	0.010	
8	0.0	0.0	0.0	0.0	0.010	0.040	0.350	0.010	0.020	0.030	0.080	0.010	
9	0.0	0.0	0.0	0.0	0.010	0.040	0.350	0.010	0.020	0.010	0.060	0.010	
10	0.0	0.0	0.0	0.0	0.0	0.060	0.260	0.010	0.030	0.010	0.080	0.010	
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.020 >	< 0.250 >	< 1.440 >	< 0.050 >	< 0.110 >	< 0.070 >	< 0.450 >	< 0.050 >	
11	0.0	0.0	0.0	0.0	0.0	0.040	0.250	0.010	0.020	0.030	0.040	0.010	
12	0.0	0.0	0.0	0.0	0.0	0.030	0.250	0.010	0.010	0.010	0.040	0.010	
13	0.0	0.0	0.0	0.0	0.0	0.030	0.170	0.010	0.010	0.010	0.060	0.010	
14	0.0	0.0	0.0	0.0	0.0	0.030	0.120	0.010	0.010	0.010	0.030	0.0	
15	0.0	0.0	0.0	0.0	0.0	0.080	0.100	0.010	0.010	0.010	0.020	0.0	
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.210 >	< 0.890 >	< 0.050 >	< 0.060 >	< 0.070 >	< 0.190 >	< 0.030 >	
16	0.0	0.0	0.0	0.0	0.0	0.110	0.100	0.040	0.010	0.010	0.020	0.0	
17	0.0	0.0	0.0	0.0	0.0	0.100	0.210	0.060	0.120	0.010	0.310	0.0	
18	0.0	0.0	0.0	0.0	0.0	0.090	0.770	0.030	0.050	0.010	0.010	0.0	
19	0.0	0.0	0.0	0.0	0.0	0.090	0.450	0.030	0.030	0.020	0.010	0.0	
20	0.0	0.0	0.0	0.0	0.0	0.090	0.400	0.030	0.040	0.030	0.010	0.0	
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.480 >	< 1.930 >	< 0.190 >	< 0.260 >	< 0.080 >	< 0.060 >	< 0.0 >	
21	0.0	0.0	0.0	0.0	0.0	0.090	0.300	0.010	0.030	0.030	0.010	0.0	
22	0.0	0.0	0.0	0.0	0.0	0.050	0.230	0.010	0.030	0.020	0.010	0.0	
23	0.0	0.0	0.0	0.0	0.0	0.040	0.140	0.010	0.010	0.030	0.010	0.0	
24	0.0	0.0	0.0	0.0	0.020	0.040	0.110	0.010	0.010	0.040	0.010	0.0	
25	0.0	0.0	0.0	0.0	0.160	0.040	0.090	0.010	0.010	0.050	0.010	0.0	
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.180 >	< 0.260 >	< 0.870 >	< 0.050 >	< 0.090 >	< 0.170 >	< 0.050 >	< 0.0 >	
26	0.0	0.0	0.0	0.0	0.040	0.040	0.060	0.010	0.010	0.030	0.010	0.0	
27	0.0	0.0	0.0	0.0	0.030	0.040	0.030	0.030	0.010	0.090	0.010	0.0	
28	0.0	0.0	0.0	0.0	0.010	0.040	0.030	0.050	0.010	0.040	0.010	0.0	
29	0.0	*****	0.0	0.0	0.010	0.040	0.020	0.080	0.010	0.030	0.010	0.0	
30	0.0	*****	0.0	0.0	0.050	0.090	0.010	0.060	0.020	0.020	0.010	0.0	
31	0.0	*****	0.0	*****	0.110	0.090	0.010	0.0	*****	0.010	*****	0.0	
AVERAGE	< 0.0 >	< 0.0 >	< 0.0 >	< 0.0 >	< 0.250 >	< 0.250 >	< 0.160 >	< 0.230 >	< 0.050 >	< 0.220 >	< 0.050 >	< 0.0 >	
GRAND TOTAL	0.0	0.0	0.0	0.0	0.450	2.090	5.620	0.620	0.570	0.670	0.990	0.130	(m/s)
AVERAGE	0.0	0.0	0.0	0.0	19.	90.	242.	27.	25.	29.	43.	6.	(mm)
MAX	0.0	0.0	0.0	0.0	0.015	0.070	0.181	0.020	0.019	0.022	0.033	0.004	(m/s)
MIN	0.0	0.0	0.0	0.0	0.160	0.170	0.770	0.080	0.120	0.090	0.120	0.010	(m/s)

< DAILY RUNOFF > PHUKET
(1982) X-97

UNIT = (CUM/D)

	1 JAN	2 FEB	3 MAR	4 APR	5 MAY	6 JUN	7 JUL	8 AUG	9 SEP	10 OCT	11 NOV	12 DEC
1	0.009	0.008	0.007	0.006	0.005	0.189	0.007	0.020	0.011	0.023	0.086	0.129
2	0.009	0.008	0.007	0.006	0.005	0.180	0.007	0.016	0.015	0.020	0.189	0.102
3	0.009	0.008	0.007	0.006	0.005	0.157	0.007	0.013	0.015	0.024	0.155	0.078
4	0.009	0.008	0.007	0.006	0.005	0.144	0.437	0.011	0.017	0.021	0.132	0.058
5	0.009	0.008	0.007	0.006	0.006	0.116	0.444	0.009	0.041	0.104	0.106	0.084
	< 0.044 >	< 0.039 >	< 0.034 >	< 0.030 >	< 0.027 >	< 0.786 >	< 1.182 >	< 0.069 >	< 0.099 >	< 0.193 >	< 0.669 >	< 0.451 >
	< 0.009 >	< 0.008 >	< 0.007 >	< 0.006 >	< 0.005 >	< 0.157 >	< 0.236 >	< 0.014 >	< 0.020 >	< 0.039 >	< 0.134 >	< 0.090 >
AVERAGE												
6	0.009	0.008	0.007	0.006	0.006	0.102	0.648	0.009	0.036	0.083	0.150	0.077
7	0.009	0.008	0.007	0.006	0.006	0.078	0.668	0.013	0.024	0.063	0.104	0.061
8	0.009	0.008	0.007	0.006	0.006	0.056	0.623	0.011	0.021	0.051	0.083	0.063
9	0.008	0.007	0.007	0.006	0.006	0.060	0.545	0.013	0.020	0.044	0.063	0.056
10	0.008	0.007	0.007	0.006	0.006	0.104	0.500	0.017	0.017	0.044	0.049	0.038
	< 0.043 >	< 0.038 >	< 0.033 >	< 0.030 >	< 0.029 >	< 0.401 >	< 2.982 >	< 0.063 >	< 0.118 >	< 0.286 >	< 0.430 >	< 0.295 >
	< 0.009 >	< 0.008 >	< 0.007 >	< 0.006 >	< 0.006 >	< 0.080 >	< 0.596 >	< 0.013 >	< 0.024 >	< 0.057 >	< 0.086 >	< 0.059 >
AVERAGE												
11	0.008	0.007	0.007	0.006	0.006	0.089	0.455	0.021	0.014	0.109	0.068	0.025
12	0.008	0.007	0.006	0.006	0.006	0.071	0.414	0.021	0.012	0.097	0.050	0.022
13	0.008	0.007	0.006	0.006	0.006	0.051	0.356	0.018	0.015	0.077	0.035	0.019
14	0.008	0.007	0.006	0.006	0.006	0.033	0.297	0.015	0.012	0.107	0.024	0.018
15	0.008	0.007	0.006	0.006	0.006	0.021	0.246	0.035	0.010	0.186	0.021	0.015
	< 0.042 >	< 0.037 >	< 0.032 >	< 0.028 >	< 0.031 >	< 0.264 >	< 1.769 >	< 0.109 >	< 0.063 >	< 0.576 >	< 0.199 >	< 0.098 >
	< 0.008 >	< 0.007 >	< 0.006 >	< 0.006 >	< 0.006 >	< 0.053 >	< 0.354 >	< 0.022 >	< 0.013 >	< 0.115 >	< 0.040 >	< 0.020 >
AVERAGE												
16	0.008	0.007	0.006	0.006	0.006	0.019	0.289	0.039	0.101	0.192	0.050	0.012
17	0.008	0.007	0.006	0.006	0.006	0.016	0.323	0.024	0.087	0.228	0.042	0.011
18	0.008	0.007	0.006	0.006	0.006	0.013	0.471	0.020	0.065	0.196	0.028	0.011
19	0.008	0.007	0.006	0.006	0.006	0.010	0.431	0.017	0.046	0.141	0.023	0.011
20	0.008	0.007	0.006	0.006	0.013	0.008	0.399	0.018	0.030	0.131	0.022	0.011
	< 0.041 >	< 0.036 >	< 0.032 >	< 0.029 >	< 0.037 >	< 0.066 >	< 1.912 >	< 0.118 >	< 0.329 >	< 0.907 >	< 0.165 >	< 0.055 >
	< 0.008 >	< 0.007 >	< 0.006 >	< 0.006 >	< 0.007 >	< 0.013 >	< 0.382 >	< 0.024 >	< 0.066 >	< 0.181 >	< 0.033 >	< 0.011 >
AVERAGE												
21	0.008	0.007	0.006	0.006	0.011	0.008	0.334	0.015	0.022	0.104	0.020	0.011
22	0.008	0.007	0.006	0.006	0.011	0.008	0.279	0.012	0.059	0.083	0.018	0.010
23	0.008	0.007	0.006	0.006	0.153	0.007	0.230	0.013	0.045	0.073	0.062	0.010
24	0.008	0.007	0.006	0.005	0.124	0.007	0.189	0.023	0.035	0.079	0.045	0.010
25	0.008	0.007	0.006	0.005	0.107	0.007	0.153	0.026	0.023	0.060	0.074	0.010
	< 0.040 >	< 0.035 >	< 0.031 >	< 0.028 >	< 0.406 >	< 0.038 >	< 1.185 >	< 0.089 >	< 0.185 >	< 0.400 >	< 0.218 >	< 0.052 >
	< 0.008 >	< 0.007 >	< 0.006 >	< 0.006 >	< 0.081 >	< 0.008 >	< 0.237 >	< 0.018 >	< 0.037 >	< 0.080 >	< 0.044 >	< 0.010 >
AVERAGE												
26	0.008	0.007	0.006	0.005	0.083	0.007	0.122	0.021	0.027	0.143	0.055	0.010
27	0.008	0.007	0.006	0.005	0.062	0.007	0.095	0.018	0.022	0.132	0.044	0.010
28	0.008	0.007	0.006	0.005	0.046	0.007	0.072	0.014	0.054	0.106	0.040	0.010
29	0.008	0.007	0.006	0.005	0.083	0.007	0.052	0.011	0.047	0.083	0.065	0.010
30	0.008	0.007	0.006	0.005	0.085	0.007	0.035	0.012	0.033	0.107	0.160	0.010
31	0.008	0.007	0.006	0.006	0.191	0.007	0.023	0.010	0.033	0.107	0.160	0.010
	< 0.047 >	< 0.021 >	< 0.036 >	< 0.027 >	< 0.550 >	< 0.035 >	< 0.400 >	< 0.086 >	< 0.183 >	< 0.701 >	< 0.364 >	< 0.059 >
	< 0.008 >	< 0.007 >	< 0.006 >	< 0.005 >	< 0.092 >	< 0.007 >	< 0.067 >	< 0.044 >	< 0.037 >	< 0.117 >	< 0.073 >	< 0.010 >
AVERAGE												
GRAND TOTAL	0.255	0.205	0.198	0.171	1.080	1.590	9.430	0.535	0.977	3.064	2.045	1.009
AVERAGE	11.	9.	9.	7.	47.	69.	407.	23.	42.	132.	88.	44.
MAX	0.008	0.007	0.006	0.006	0.035	0.053	0.304	0.017	0.033	0.099	0.068	0.033
MIN	0.008	0.008	0.007	0.006	0.191	0.189	0.668	0.039	0.101	0.228	0.189	0.129
	0.008	0.007	0.006	0.005	0.005	0.007	0.007	0.009	0.010	0.020	0.018	0.009

(3) Evaluation of Runoff Analysis

The outcome of runoff analysis by tank model using the daily discharge at X-97 and the daily rainfall at Phuket city is not realistic and is not applicable for reservoir operation because the relational coefficient of X-97 discharge and Phuket city rainfall is relatively low.

Therefore, the computed runoff can not be simulated by tank model.

(4) Evaluation of Runoff Coefficient

Runoff simulation is made by using the runoff estimation chart prepared by the RID project.

In order to adjust to the actual runoff coefficient the following evaluation is made ;

a) Runoff Adopted by RID's Planning for the Bangwad Reservoir

Year	Annual Rainfall (mm)	Area Rainfall (MCM)	Runoff (MCM)	Runoff Coefficient
Very Dry	1,839	9.011	2.974	0.32
Normal	2,294	11.240	4.392	0.38
Very Wet	2,904	14.225	5.514	0.40

Note ; Catchment Area = 4.9 km

b) RID Gauging Station X-97

Year	Annual Rainfall (mm)	Area Rainfall (MCM)	Runoff (MCM)	Runoff Coefficient
1974	2,508	5.016	1.665	0.33
1976	2,033	4.066	1.176	0.29
1977	1,794	3.588	1.093	0.30
1978	1,596	3.192	0.662	0.21
1979	1,472	2.944	0.481	0.16
1980	2,344	4.688	1.612	0.34
1981	1,520	3.044	0.864	0.28
1982	2,233	4.466	0.928	0.21
1983	2,344	4.688	0.964	0.21

Note ; Catchment Area = 2.0 km

c) Runoff BY the Estimation Chart

Since the runoff coefficient is 0.36 in normal year as the same as the above-mentioned figure, the runoff by the line E in the estimation chart is considered to be applicable for runoff analysis.

Year	Annual Rainfall(mm)	Area Rainfall(MCM)	Runoff(mm)	Runoff Coefficient
1968	2,678	13.122	5.006	0.38
1969	2,635	12.912	4.870	0.38
1970	2,519	12.343	3.734	0.30
1971	2,987	14.636	7.103	0.49
1972	1,939	9.501	2.304	0.24
1973	2,779	13.617	4.943	0.36
1974	2,944	14.426	5.859	0.41
1975	2,799	13.715	5.445	0.40
1976	2,396	11.740	3.991	0.34
1977	2,120	10.388	3.406	0.33
1978	1,892	9.271	2.454	0.26
1979	1,749	8.570	2.243	0.26
1980	2,755	13.500	4.550	0.34
1981	1,807	8.854	1.829	0.21
1982	2,193	10.746	3.956	0.37
1983	2,627	12.872	5.711	0.44
1984	2,716	13.308	4.705	0.35
1985	2,643	12.951	4.448	0.34
1986	3,320	16.268	9.207	0.57
1987	2,758	13.514	6.491	0.48
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Ave.				0.36

Data Source : Project Planning Section, RID

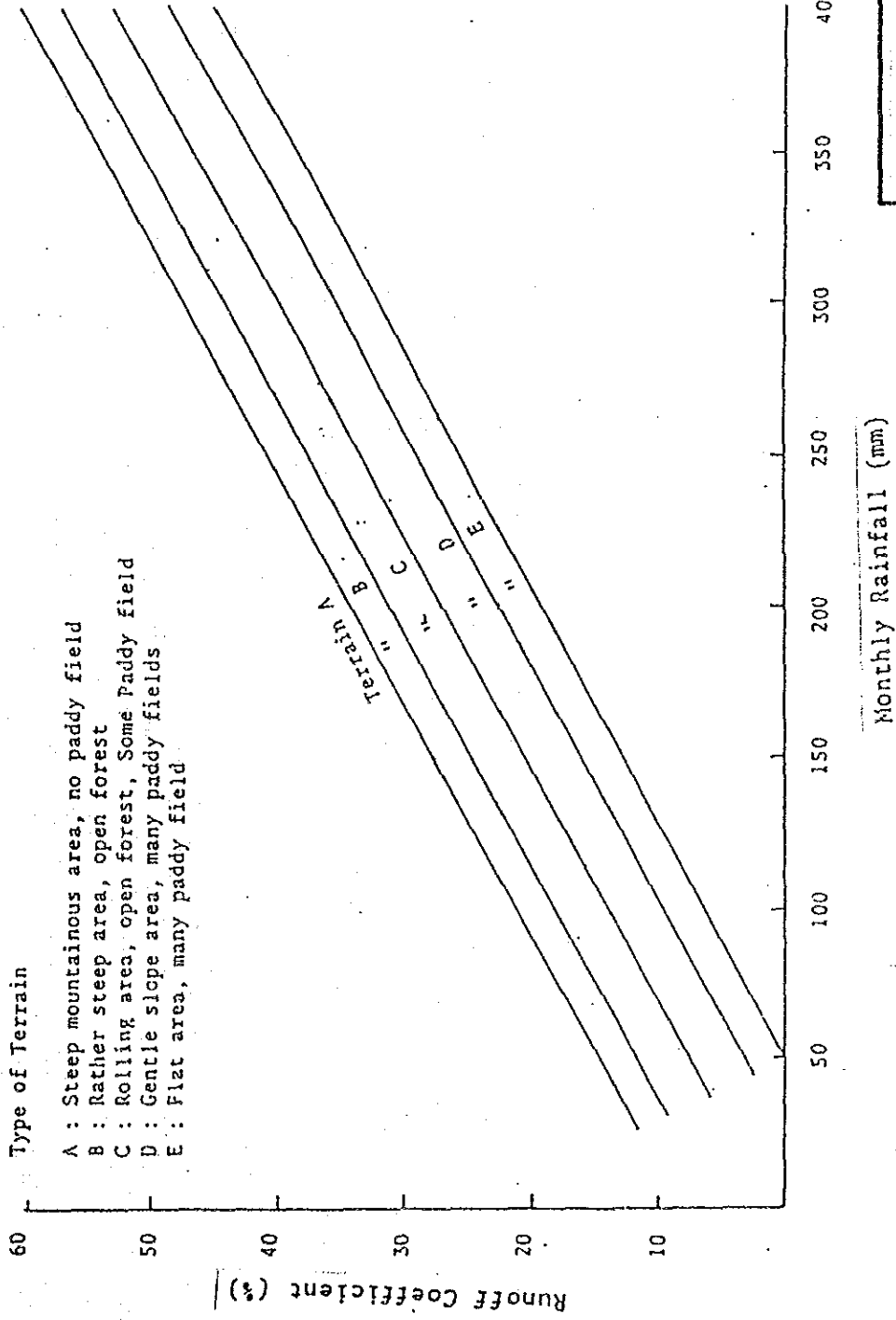


Figure A2-2-1
Runoff Estimation Chart

