

Table 1.6.2 Evaporation Records

(1/3)

Monthly Evaporation (mm)

Station: Cañete Longitude: W 76° 21'
Latitude: S 13° 04'
Altitude: 150

Source: ELECTROPERU, El Platanal Hydroelectric Power Plant Feasibility Study, 1987

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1936	-	-	-	-	-	-	56.5	73.9	86.3	102.9	110.1	100.5	-
1937	85.7	75.6	92.8	102.3	81.4	67.4	64.4	97.4	84.0	111.4	114.9	139.9	1,117.2
1938	107.7	100.8	111.9	90.2	77.9	51.3	69.3	72.1	87.6	124.8	123.4	136.5	1,153.5
1939	89.8	94.8	125.6	108.6	88.7	75.1	97.7	96.7	110.4	166.0	154.1	151.2	1,358.7
1940	115.8	126.8	124.5	84.6	90.8	79.2	108.3	88.5	138.6	-	-	-	-
1941	-	-	-	-	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	-	-
1944	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	-	-
1946	-	-	-	-	-	-	37.3	43.6	70.7	76.5	83.1	89.0	-
1947	95.6	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	-	-	-	-	-	-	-	-	-	-	142.0	188.8	-
1950	178.5	171.8	205.1	177.0	140.5	61.9	75.3	76.2	91.1	121.4	141.4	162.1	1,602.3
1951	193.9	190.0	186.5	169.7	117.0	104.9	95.0	105.4	103.8	107.0	123.3	154.9	1,651.4
1952	164.5	193.2	204.9	183.1	149.6	52.1	49.0	85.7	91.0	107.5	117.9	160.2	1,558.7
1953	178.4	185.8	187.9	166.3	102.5	84.4	60.6	114.6	89.2	115.1	96.8	112.7	1,494.3
1954	160.5	163.9	186.6	159.0	65.2	39.6	38.7	38.9	67.1	101.8	114.6	106.7	1,242.6
1955	156.6	145.2	160.4	141.7	85.0	37.4	42.2	54.8	61.6	93.3	121.2	156.9	1,256.3
1956	172.2	137.0	165.9	135.2	74.4	42.2	49.7	57.3	87.2	96.2	107.4	173.8	1,298.5
1957	163.7	115.7	136.0	128.2	107.1	55.5	59.5	70.2	49.3	97.0	123.2	118.0	1,223.4
1958	-	145.0	149.0	150.0	91.0	37.0	54.0	54.0	51.0	100.0	93.0	124.0	-
1959	148.0	122.0	133.0	122.0	80.0	47.0	35.0	33.0	92.0	97.0	111.0	122.0	1,142.0
1960	131.0	145.0	149.0	136.0	116.0	66.0	51.0	51.0	58.0	57.0	82.0	120.0	1,162.0
1961	171.0	141.0	152.0	117.0	94.0	57.0	32.0	38.0	67.0	93.0	122.0	151.0	1,235.0
1962	128.0	132.0	128.0	121.0	90.0	49.0	50.0	22.0	38.0	96.0	114.0	135.0	1,103.0
1963	120.0	90.0	75.0	70.0	54.0	36.0	33.0	44.0	45.0	87.0	94.0	105.0	853.0
1964	129.0	114.0	125.0	119.0	73.0	40.0	29.0	27.0	79.0	82.0	116.0	130.0	1,063.0
1965	144.0	121.0	129.0	102.0	64.0	69.0	45.0	64.0	48.0	68.0	89.0	106.0	1,049.0
1966	141.0	142.0	146.0	122.0	85.0	49.0	51.0	43.0	66.0	82.0	79.0	136.0	1,142.0
1967	115.0	114.0	130.0	112.0	80.0	40.0	31.0	42.0	52.0	88.0	82.0	106.0	992.0
1968	129.0	125.0	132.0	117.0	63.0	56.0	44.0	46.0	66.0	73.0	78.0	122.0	1,051.0
1969	128.0	122.0	139.0	109.0	92.0	52.1	66.1	58.0	71.0	93.0	93.0	112.0	1,135.2
1970	125.0	135.0	134.0	107.0	-	-	-	66.0	64.0	105.0	120.0	160.0	-
1971	157.0	148.0	134.0	143.0	39.0	12.0	26.0	11.0	41.0	71.0	117.0	118.0	1,017.0
1972	-	-	-	-	-	-	-	-	-	-	-	-	-
1973	87.0	117.0	83.0	184.0	147.0	-	-	-	-	-	-	-	-
Max.	193.9	193.2	205.1	184.0	149.6	104.9	108.3	114.6	138.6	166.0	154.1	188.8	1,651.4
Mean	137.6	133.8	141.7	128.8	90.3	54.4	53.7	59.8	73.4	96.8	109.4	132.1	1,213.1
Min.	85.7	75.6	75.0	70.0	39.0	12.0	26.0	11.0	38.0	57.0	78.0	89.0	853.0
N	27	27	27	27	26	25	27	28	28	27	28	28	23

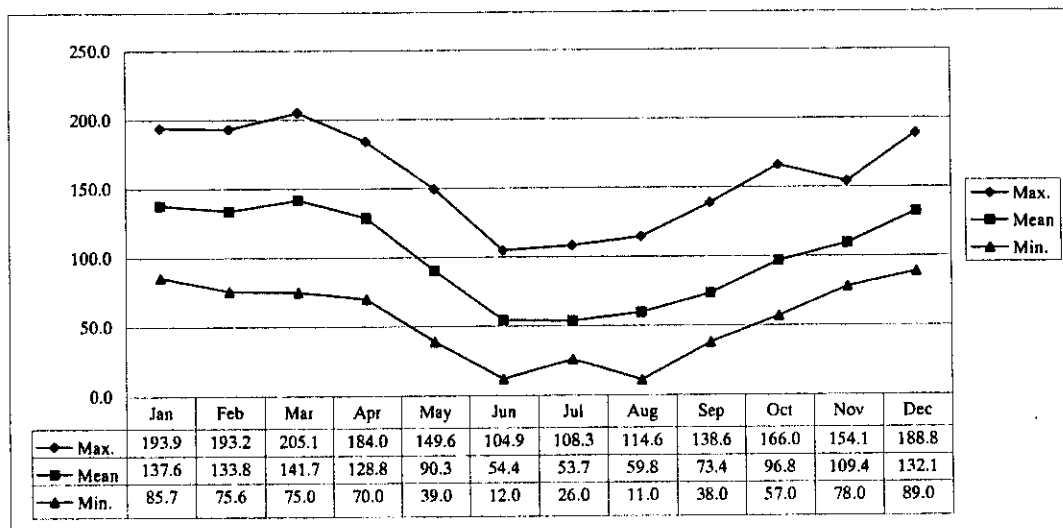


Table 1.6.2 Evaporation Records

(2/3)

Monthly Evaporation (mm)

Station: Pacaran

Longitude: W 76° 03'

Latitude: S 12° 52'

Altitude: 700

Source: ELECTROPERU, El Platanal Hydroelectric Power Plant Feasibility Study, 1987

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1964	70.9	159.9	-	-	-	-	-	70.7	95.2	102.1	124.1	154.1	-
1965	140.0	127.0	90.1	106.6	-	-	-	-	-	84.4	84.0	74.5	-
1966	83.5	81.1	87.6	85.2	99.2	66.4	61.2	72.8	84.8	103.4	113.5	131.5	1,070.2
1967	105.6	84.5	128.6	136.6	102.8	72.7	70.7	95.9	102.7	116.3	133.8	122.2	1,272.4
1968	124.5	143.8	152.1	122.2	100.8	62.3	95.5	85.4	127.2	119.5	-	-	-
1969	-	111.8	129.8	119.0	98.4	69.1	83.9	111.0	116.3	126.9	118.2	114.1	-
1970	104.2	80.2	146.7	120.0	103.7	82.3	89.3	122.2	110.6	142.6	137.5	136.1	1,375.4
1971	145.2	134.6	133.6	133.3	92.2	83.9	66.8	79.5	110.5	125.2	117.1	115.9	1,337.8
1972	132.6	118.5	133.6	115.6	101.2	93.5	92.2	105.9	110.9	141.2	104.6	129.5	1,379.3
1973	119.4	110.6	153.1	134.1	153.4	118.9	112.2	135.9	145.8	189.5	188.4	184.4	1,745.7
1974	177.3	152.0	181.0	159.7	114.2	84.1	87.0	101.2	115.6	127.4	118.2	132.8	1,550.5
1975	157.4	133.0	143.3	107.3	83.7	64.1	66.9	89.0	87.9	109.3	121.8	134.1	1,297.8
1976	125.5	126.1	138.7	94.6	79.5	60.3	79.8	80.7	95.3	110.8	116.0	150.5	1,257.8
1977	116.3	159.4	183.4	156.6	133.9	98.5	66.8	80.3	82.4	80.7	99.3	116.5	1,374.1
1978	123.7	101.1	127.2	111.8	93.3	71.3	-	58.7	-	-	-	-	-
1979	96.4	97.1	131.8	102.7	86.1	-	-	-	-	-	-	-	-
1980	-	-	-	73.2	-	-	-	-	-	-	-	-	-
Max.	177.3	159.9	183.4	159.7	153.4	118.9	112.2	135.9	145.8	189.5	188.4	184.4	1,745.7
Mean	121.5	120.0	137.4	117.4	103.0	79.0	81.0	92.1	106.6	120.0	121.3	130.5	1,366.1
Min.	70.9	80.2	87.6	73.2	79.5	60.3	61.2	58.7	82.4	80.7	84.0	74.5	1,070.2
N	15	16	15	16	14	13	12	14	13	14	13	13	10

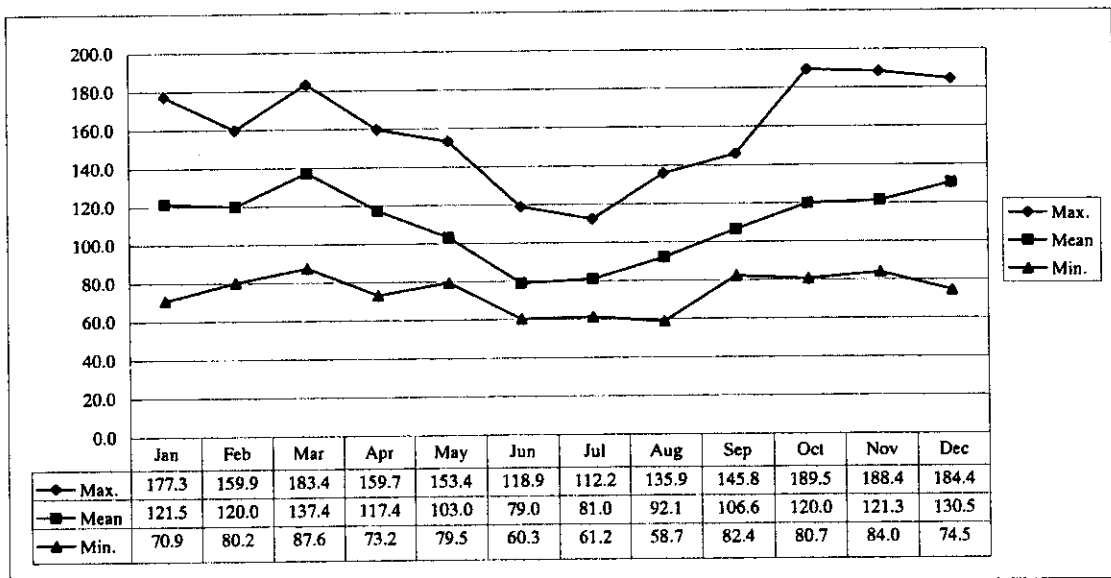


Table 1.6.2 Evaporation Records

(3/3)

Monthly Evaporation (mm)

Station: Yauyos

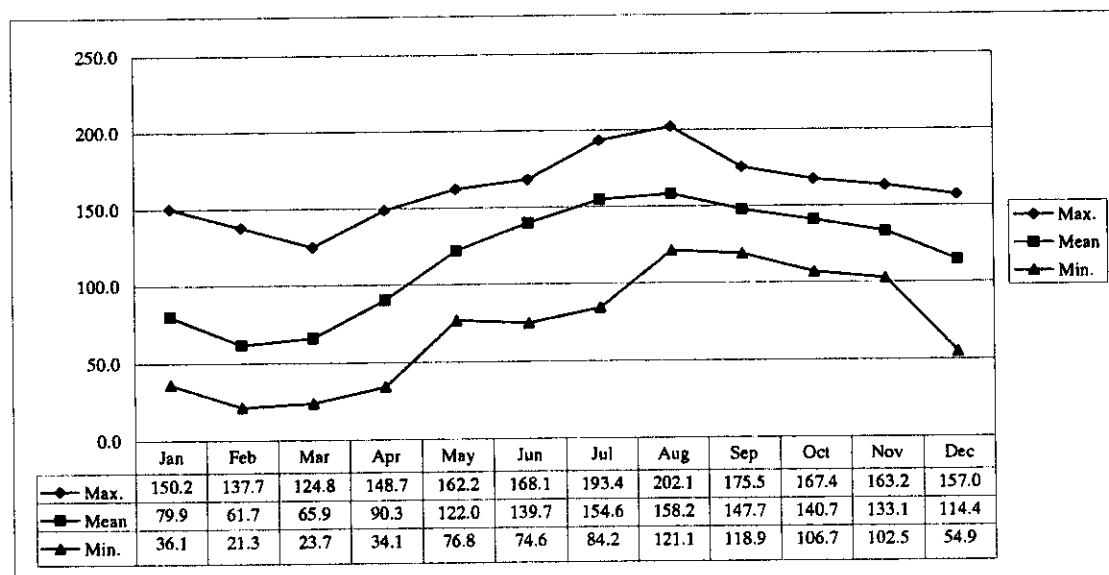
Longitude: W 75° 55'

Latitude: S 12° 27'

Altitude: 2,850

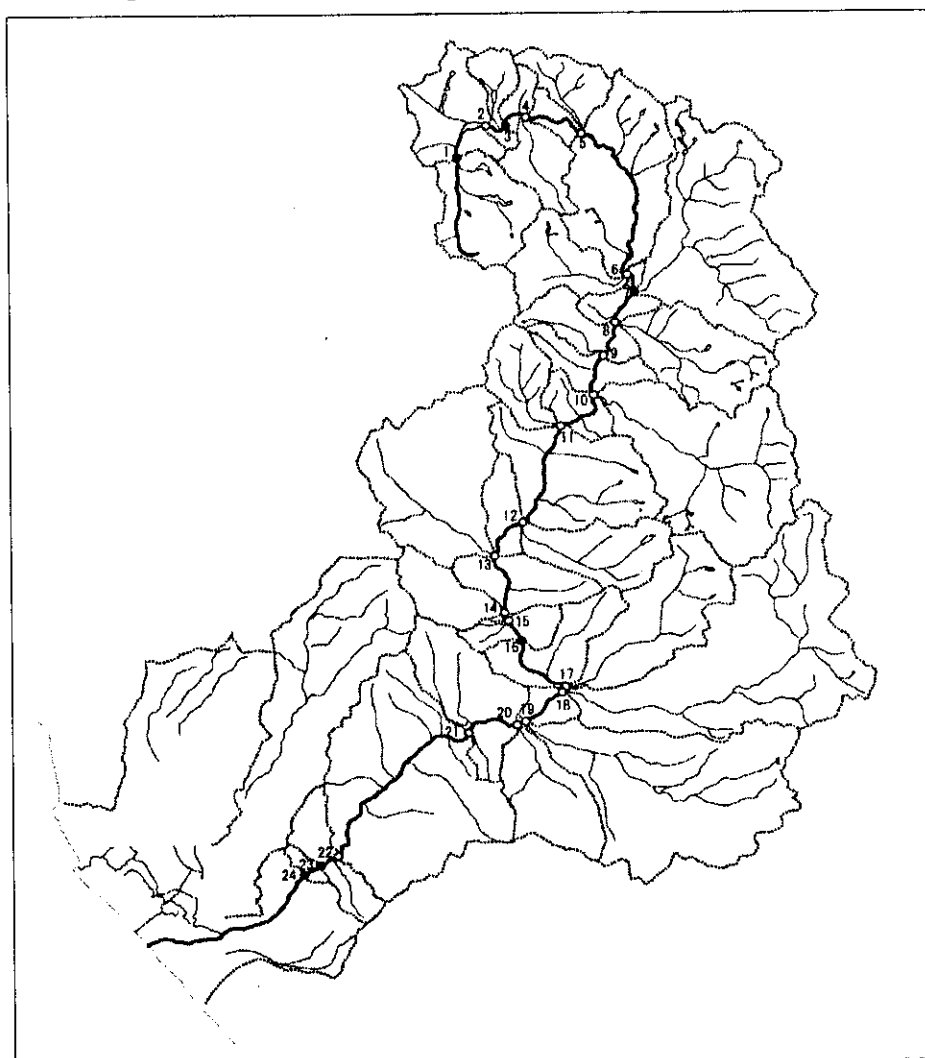
Source: ELECTROPERU, El Platanal Hydroelectric Power Plant Feasibility Study, 1987

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1965	75.5	49.9	48.7	60.9	95.5	121.3	127.1	121.1	118.9	167.4	159.9	119.4	1,265.6
1966	81.8	65.9	63.0	85.4	129.9	157.2	193.4	201.4	173.6	106.7	124.5	79.6	1,462.4
1967	36.8	21.3	32.4	73.8	112.4	154.1	183.0	202.1	175.5	134.5	163.2	152.1	1,441.2
1968	-	-	-	-	-	-	-	-	-	-	-	-	-
1969	-	-	-	-	-	-	-	-	-	-	-	-	-
1970	36.1	58.7	68.3	78.6	104.0	135.4	162.4	177.6	154.7	122.9	139.6	116.2	1,354.5
1971	70.7	48.2	33.6	58.1	138.4	168.1	185.7	177.1	147.1	150.4	116.9	73.7	1,368.0
1972	42.6	23.5	23.7	34.1	76.8	94.1	84.2	147.4	149.5	132.0	-	105.0	-
1973	75.3	59.0	42.3	56.9	80.0	74.6	125.8	147.6	134.5	120.7	102.5	54.9	1,074.1
1974	57.5	59.1	33.7	82.3	126.4	150.0	155.1	135.9	140.1	151.7	117.8	102.5	1,312.1
1975	95.4	66.2	73.9	79.2	104.9	142.0	161.8	152.6	156.5	150.9	139.5	112.0	1,434.9
1976	57.2	28.7	33.5	112.1	142.6	140.8	148.6	142.3	136.6	156.9	145.1	127.1	1,371.5
1977	82.5	55.6	98.4	106.0	113.8	163.3	161.5	163.9	155.5	160.9	111.7	136.0	1,509.1
1978	104.7	78.5	120.6	126.5	154.8	145.4	155.4	160.5	143.8	136.7	137.4	145.4	1,609.7
1979	136.9	111.0	124.8	145.8	151.6	151.8	163.6	152.0	146.2	156.4	158.5	157.0	1,755.6
1980	150.2	137.7	112.0	148.7	162.2	158.4	164.8	152.3	148.4	125.3	122.3	112.1	1,694.4
1981	95.8	61.9	79.3	106.3	136.6	139.7	146.2	138.7	134.6	137.3	124.6	123.3	1,424.3
Max.	150.2	137.7	124.8	148.7	162.2	168.1	193.4	202.1	175.5	167.4	163.2	157.0	1,755.6
Mean	79.9	61.7	65.9	90.3	122.0	139.7	154.6	158.2	147.7	140.7	133.1	114.4	1,434.1
Min.	36.1	21.3	23.7	34.1	76.8	74.6	84.2	121.1	118.9	106.7	102.5	54.9	1,074.1
N	15	15	15	15	15	15	15	15	15	15	14	15	14



FIGURES

Figure 1.1.1 Major Catchment in Cañete River Basin



No.	Point	Remarks	Distance from river mouth (km)	1:100,000 map Elevation (m. msl)	Cumulative Area (km ²)	Sub-basin Area (km ²)	Major Tributaries
1	Tanta Station	Tanta Station	210.5	4,273	172	172	
2	Potential dam site (Paucarcocha)	Potential dam site (Paucarcocha)	202.7	4,208	303	131	
3	Agua Calientes Station	Agua Calientes Station	198.8	4,166	352	49	
4	Before Quebrada Chunararan		195.0	4,075	375	24	
4	After Quebrada Chunararan		195.0	4,075	449	73	Quebrada Chunararan
5	Before Quebrada Estancia		186.3	3,915	476	27	
5	After Quebrada Estancia		186.3	3,915	543	67	Quebrada Estancia
6	Before Quebrada Miraflores		157.5	3,213	816	273	
6	After Quebrada Miraflores		157.5	3,213	923	107	Quebrada Miraflores
7	Before Rio Alis	Tinco de Alis Station	154.5	3,100	930	7	
7	After Rio Alis		154.5	3,100	1,365	435	Rio Alis
8	Before Rio Larao		148.0	2,925	1,400	35	
8	After Rio Larao		148.0	2,925	1,579	179	Rio Larao
9	Potential dam site (Morro de Arica)	Potential dam site (Morro de Arica)	142.0	2,800	1,653	74	
10	Before Rio Huanan		135.0	2,625	1,719	66	
10	After Rio Huanan		135.0	2,625	2,133	414	Rio Huanan
11	Before Rio Yauyos		126.5	2,344	2,185	52	
11	After Rio Yauyos		126.5	2,344	2,273	86	Rio Yauyos
12	Before Quebrada Pampas		110.0	1,931	2,519	246	
12	After Quebrada Pampas	Potential dam site (Auco)	110.0	1,931	2,652	133	Quebrada Pampas
13	Before Quebrada Aucamoi		102.5	1,704	2,708	56	
13	After Quebrada Aucamoi	Potential dam site (Calechota)	102.5	1,704	3,027	319	Quebrada Aucamoi
14	Before Quebrada Cajalay		93.5	1,564	3,127	100	
14	After Quebrada Cajalay		93.5	1,564	3,211	64	Quebrada Cajalay
15	Potential dam site (Capillucas)	Potential dam site (Capillucas)	92.0	1,533	3,213	2	
16	Chavin Station	Chavin Station	88.0	1,428	3,285	52	
17	Before Quebrada Tupe		77.0	1,150	3,391	126	
17	After Quebrada Tupe		77.0	1,150	3,635	244	Quebrada Tupe
18	Before Rio Caca		76.0	1,095	3,636	1	
18	After Rio Caca		76.0	1,095	4,292	656	Rio Caca
19	Before Rio Huangascar		66.3	988	4,325	33	
19	After Rio Huangascar		66.3	988	4,879	554	Rio Huangascar
20	Before Quebrada Una Huatana		68.0	967	4,881	2	
20	After Quebrada Una Huatana		68.0	967	5,046	165	Quebrada Una Huatana
21	Proposed intake (Zuniga)	Proposed intake (Zuniga)	59.0	789	5,237	191	
22	Proposed intake (Soca)	Proposed intake (Soca)	30.2	345	5,604	567	
23	Soca Station	Soca Station	27.5	316	5,890	86	
24	Toma Imperial	Toma Imperial	25.0	290	5,900	10	

Figure 1.1.2 Longitudinal Profile of Cañete River

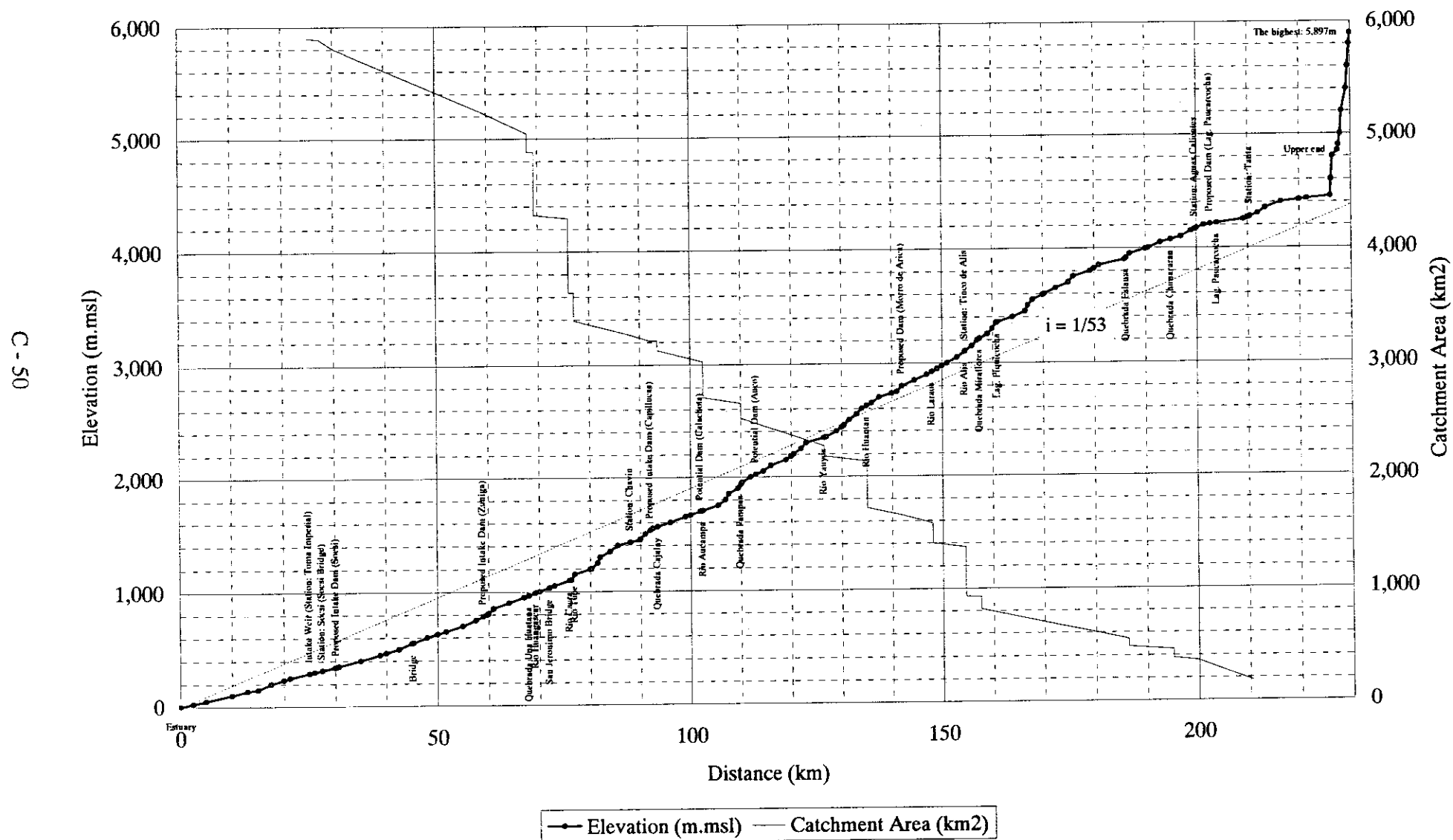
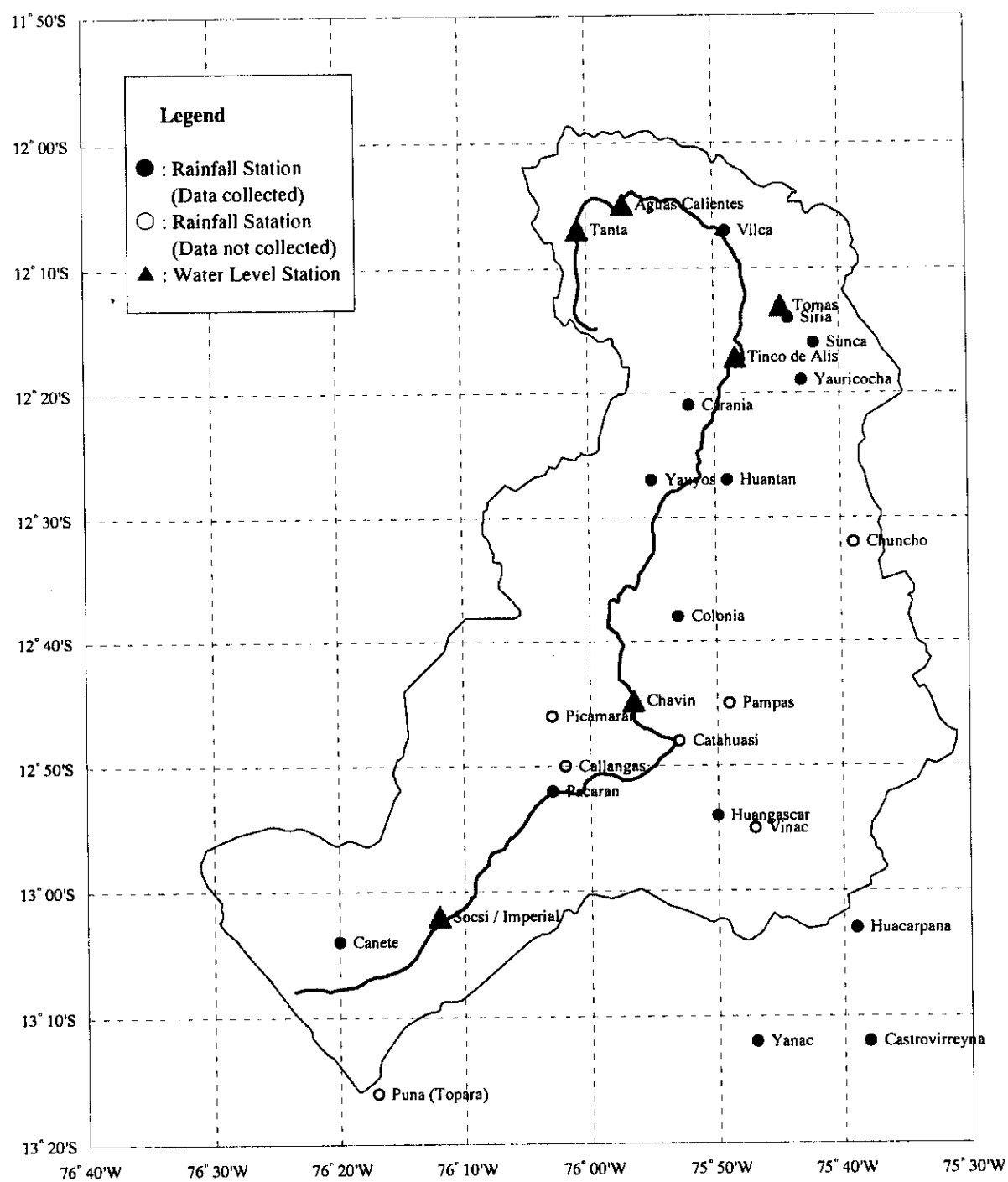


Figure 1.1.3 Location of Meteorological and Hydrological Station



The map is a detailed topographic representation of a mountainous region in Peru. It includes a grid system with letters A through J along the top and numbers 1 through 10 along the right side. Two specific areas are highlighted with thick black outlines and labeled: 'Infiltration Flow No. 1' in the upper central part and 'Infiltration Flow No. 2' in the lower right. The map shows numerous contour lines indicating elevation, with peaks reaching up to 5000 meters. Several rivers and streams are depicted, including the Rio Tarma and Rio Tarma. Various place names are scattered throughout, such as Tanta, Yragader, Uchuchaylla, and others. The map also shows a network of roads and trails.



Figure 1.2.1 Monthly Rainfall Correlation

(1/6)

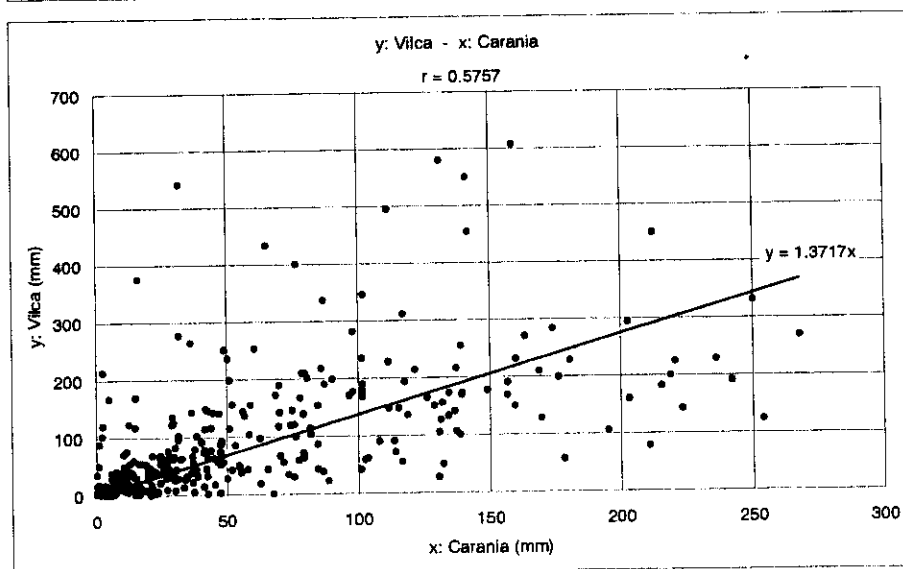
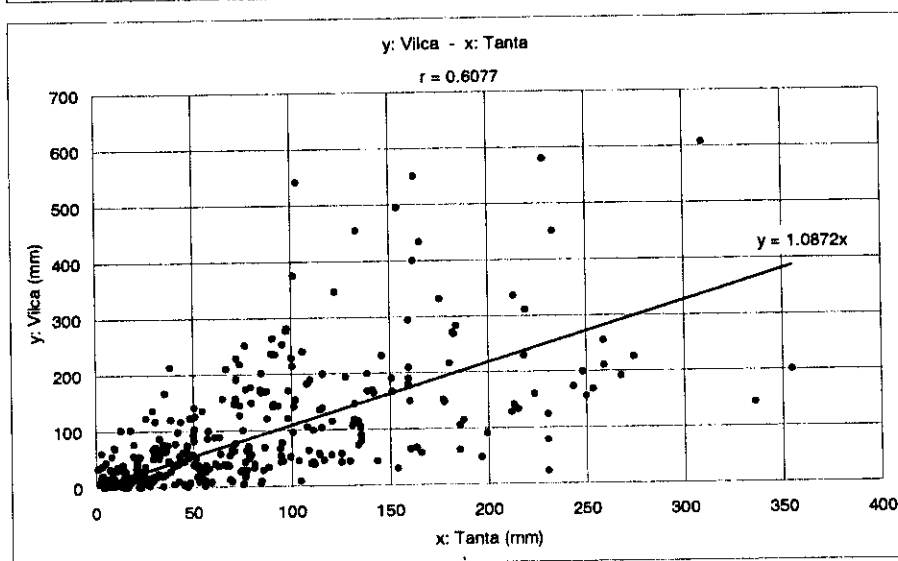
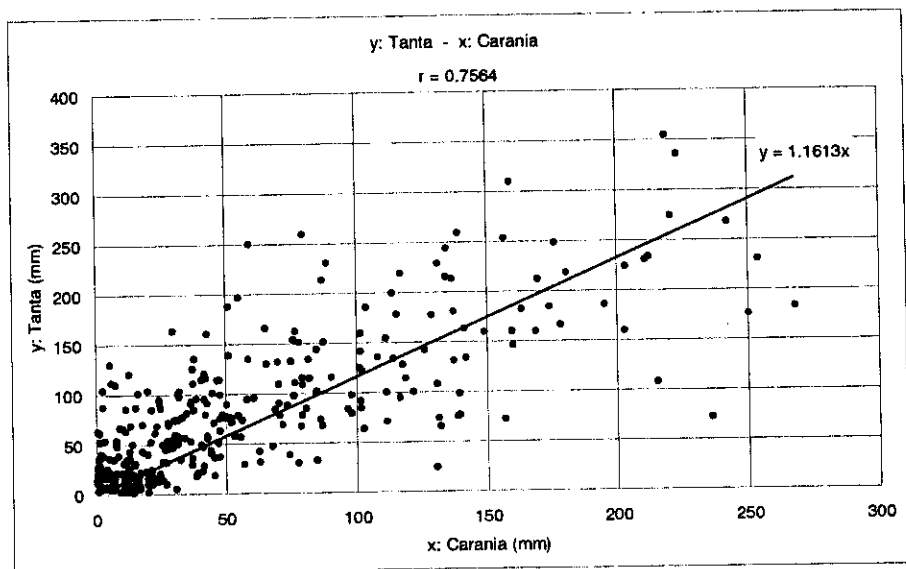


Figure 1.2.1 Monthly Rainfall Correlation

(2/6)

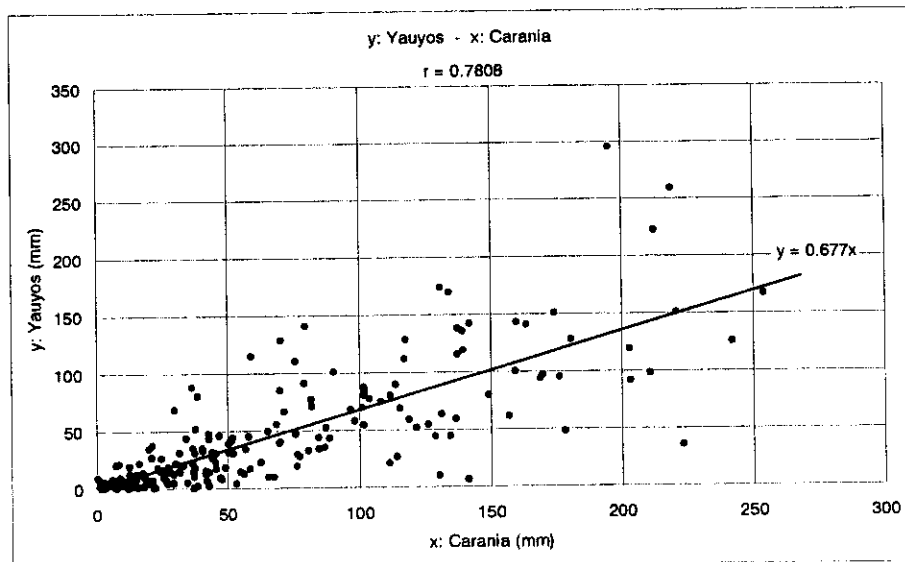
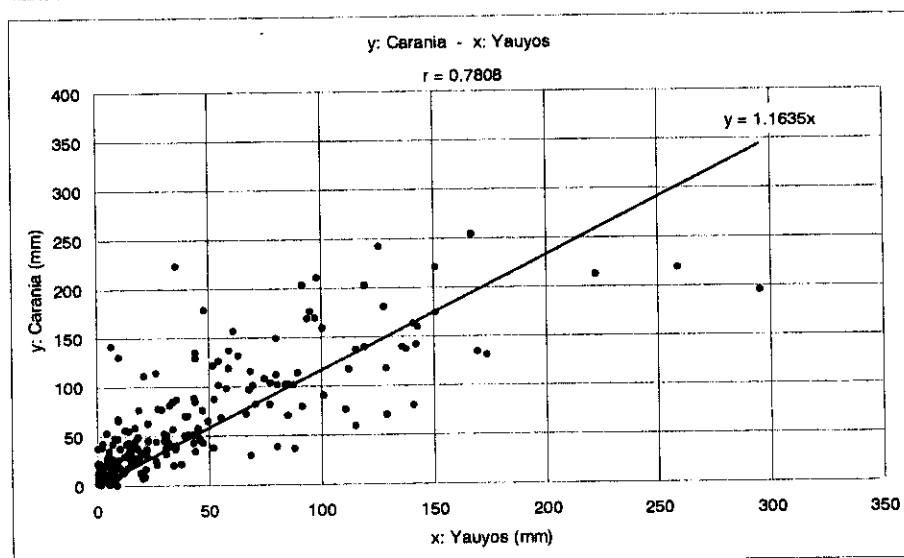
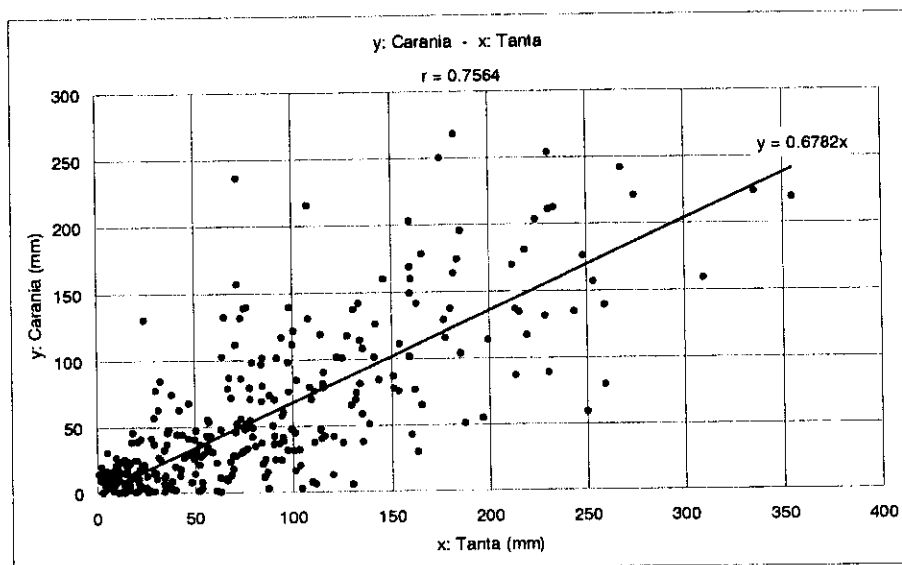


Figure 1.2.1 Monthly Rainfall Correlation

(3/6)

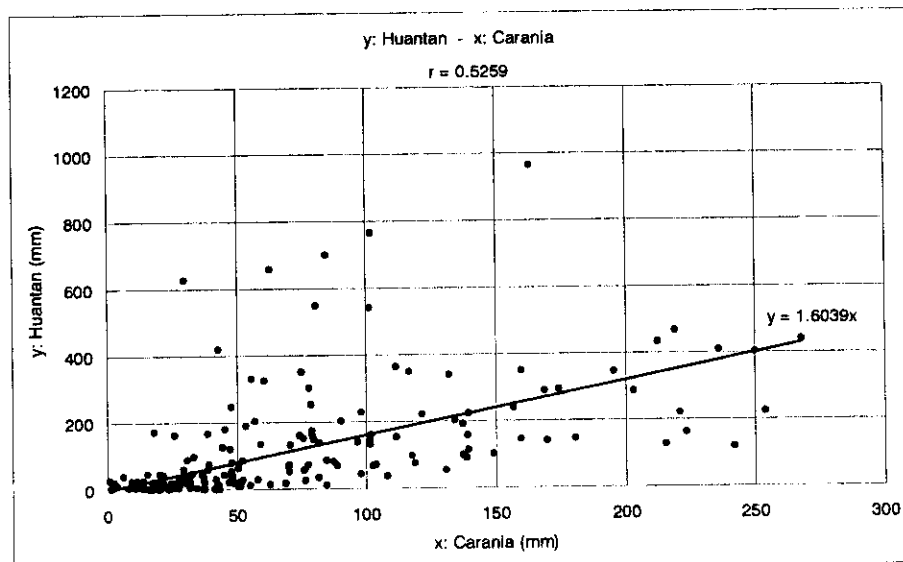
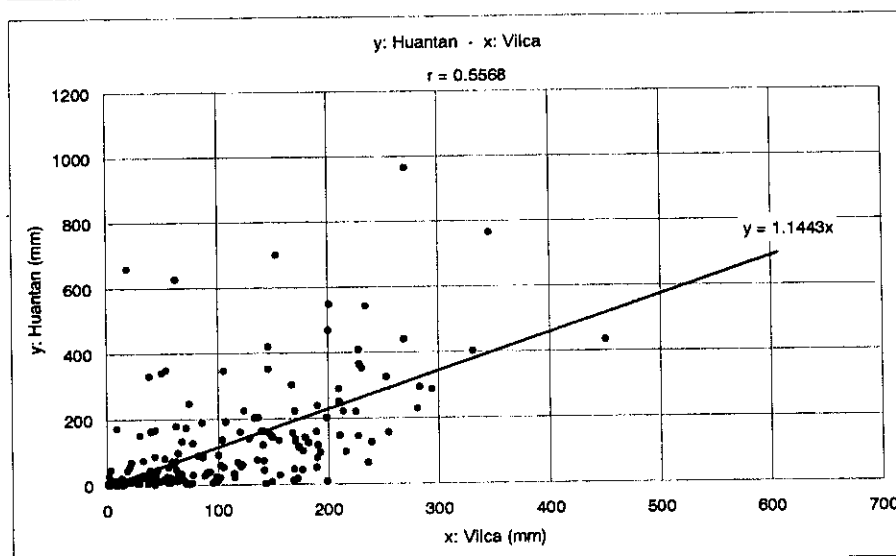
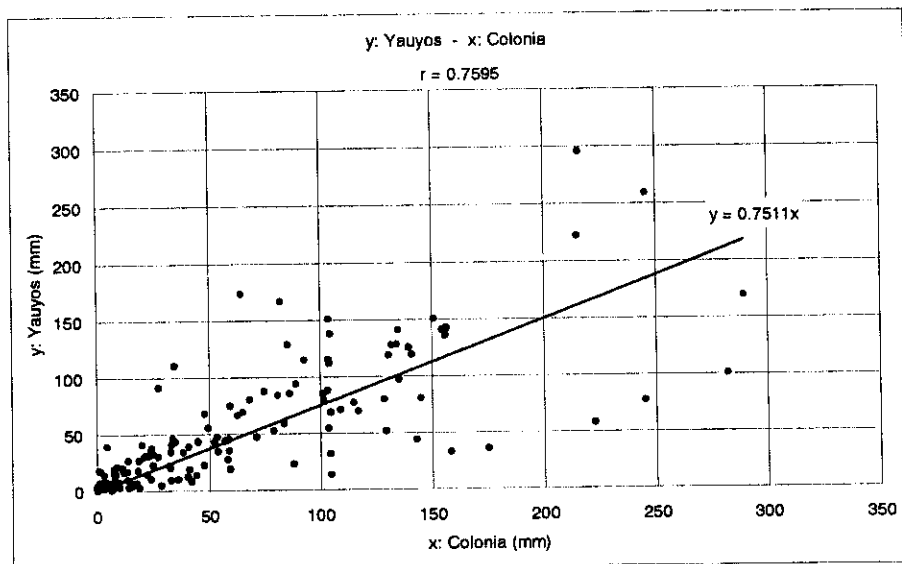


Figure 1.2.1 Monthly Rainfall Correlation

(4/6)

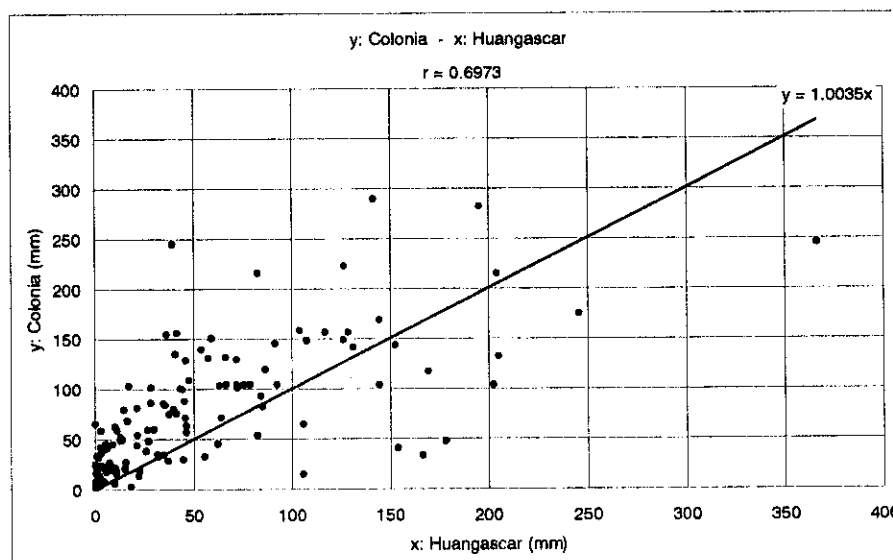
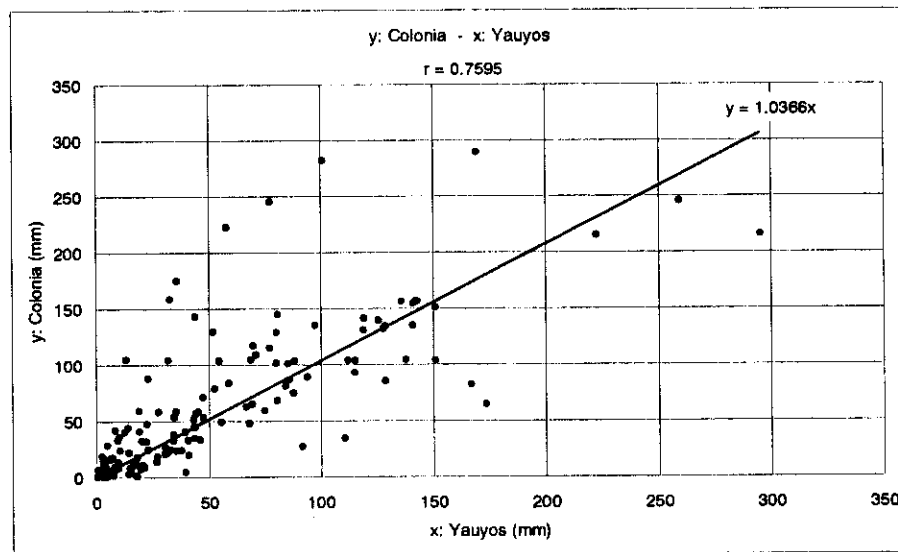
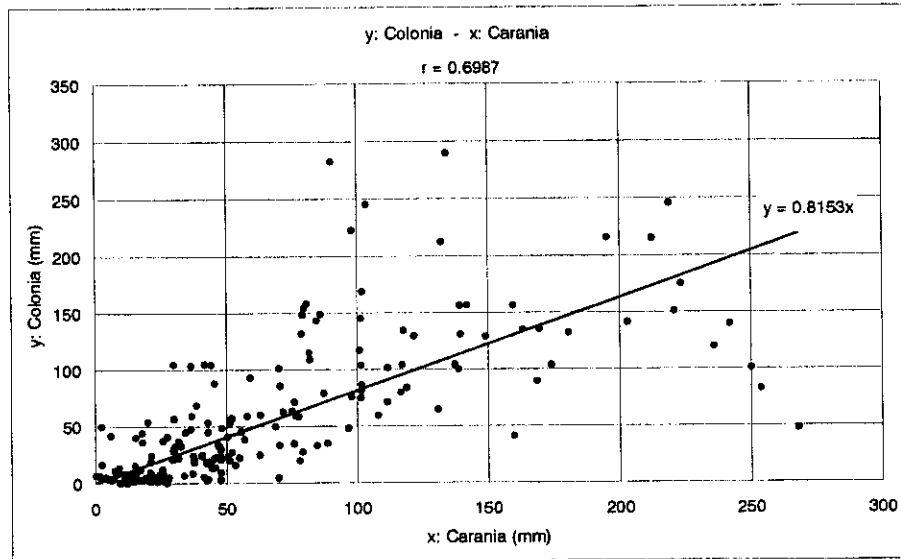


Figure 1.2.1 Monthly Rainfall Correlation

(5/6)

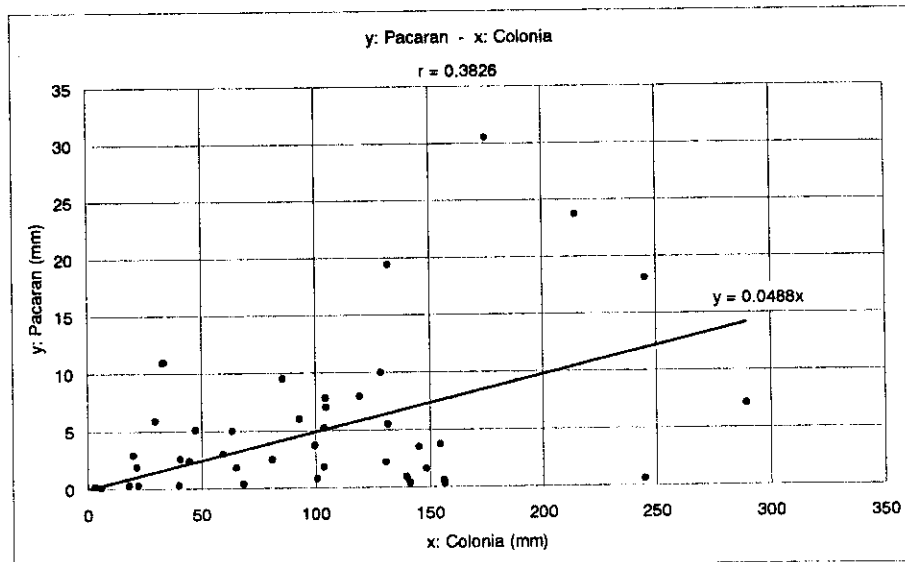
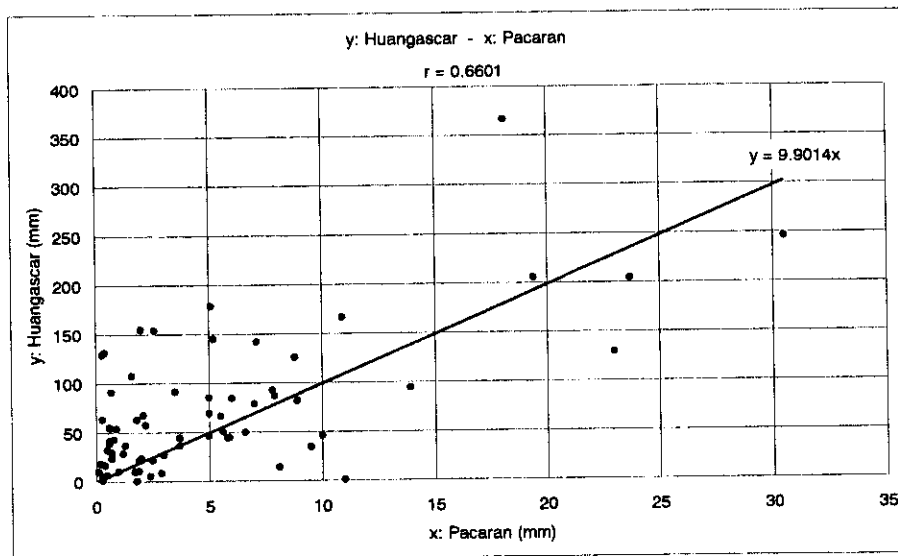
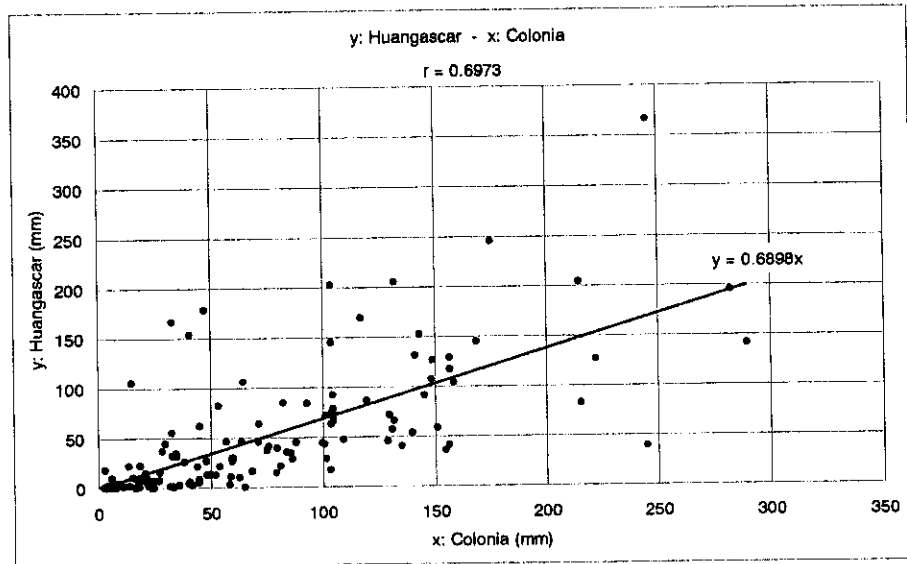


Figure 1.2.1 Monthly Rainfall Correlation

(6/6)

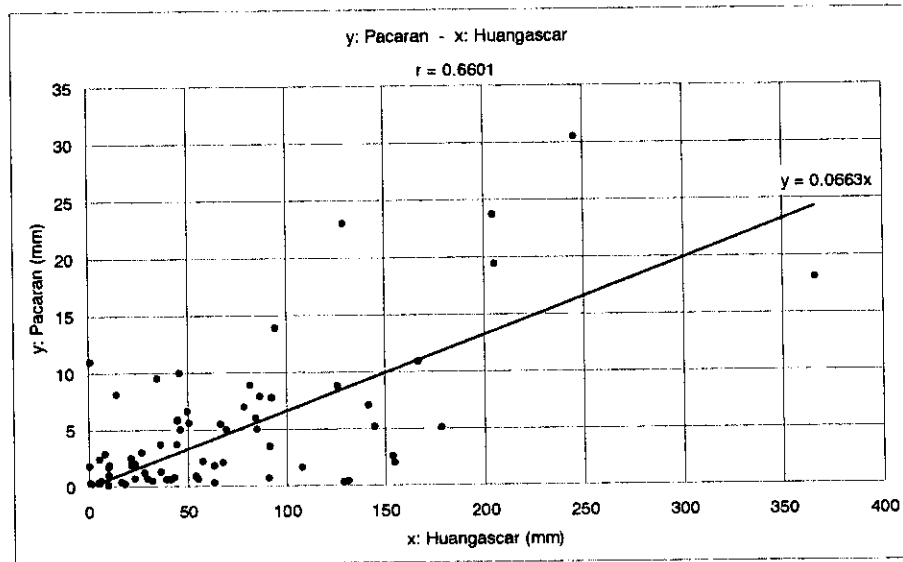


Figure 1.2.2 Results of Rainfall Probability Analysis

(1/4)

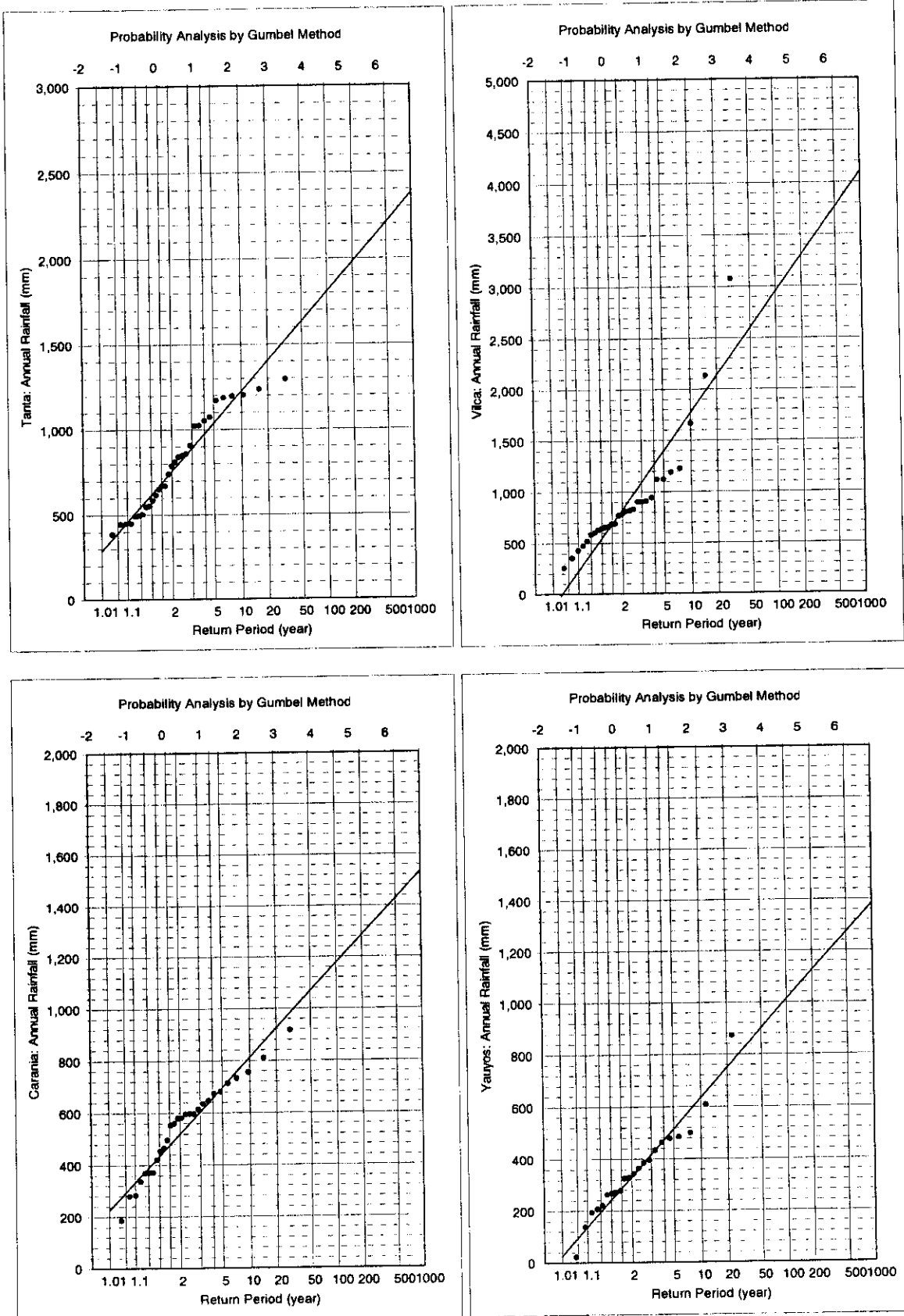


Figure 1.2.2 Results of Rainfall Probability Analysis

(2/4)

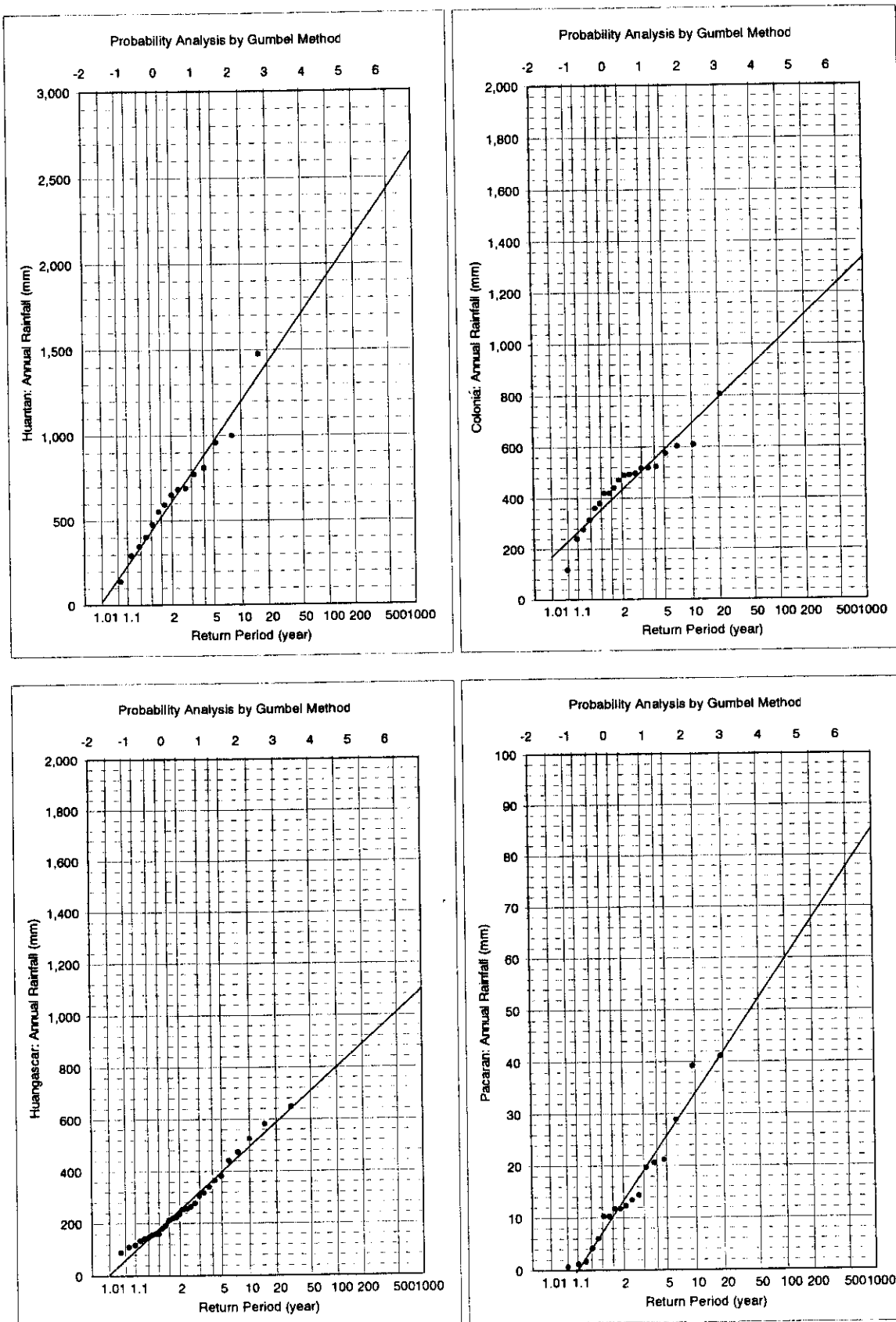


Figure 1.2.2 Results of Rainfall Probability Analysis

(3/4)

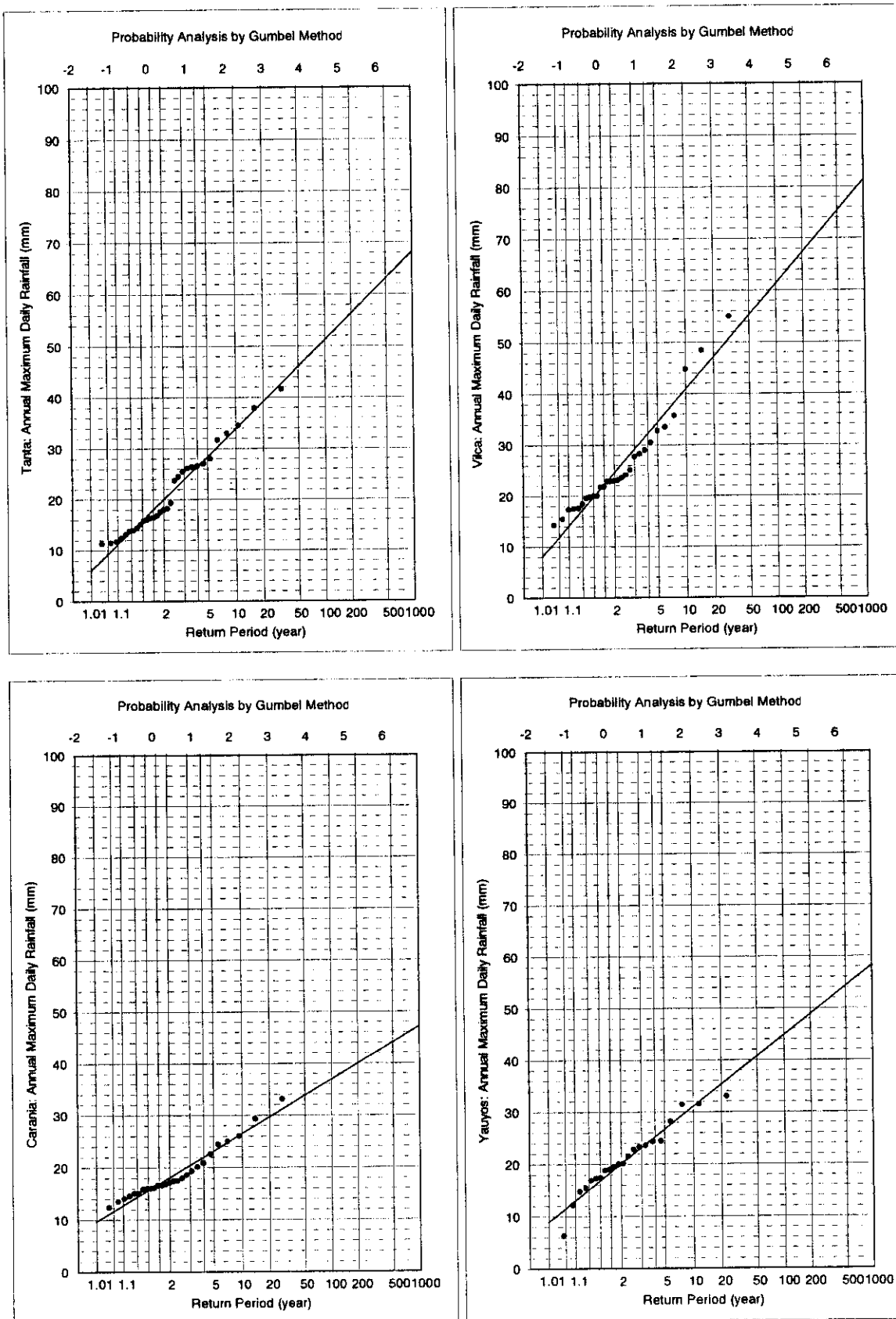


Figure 1.2.2 Results of Rainfall Probability Analysis

(4/4)

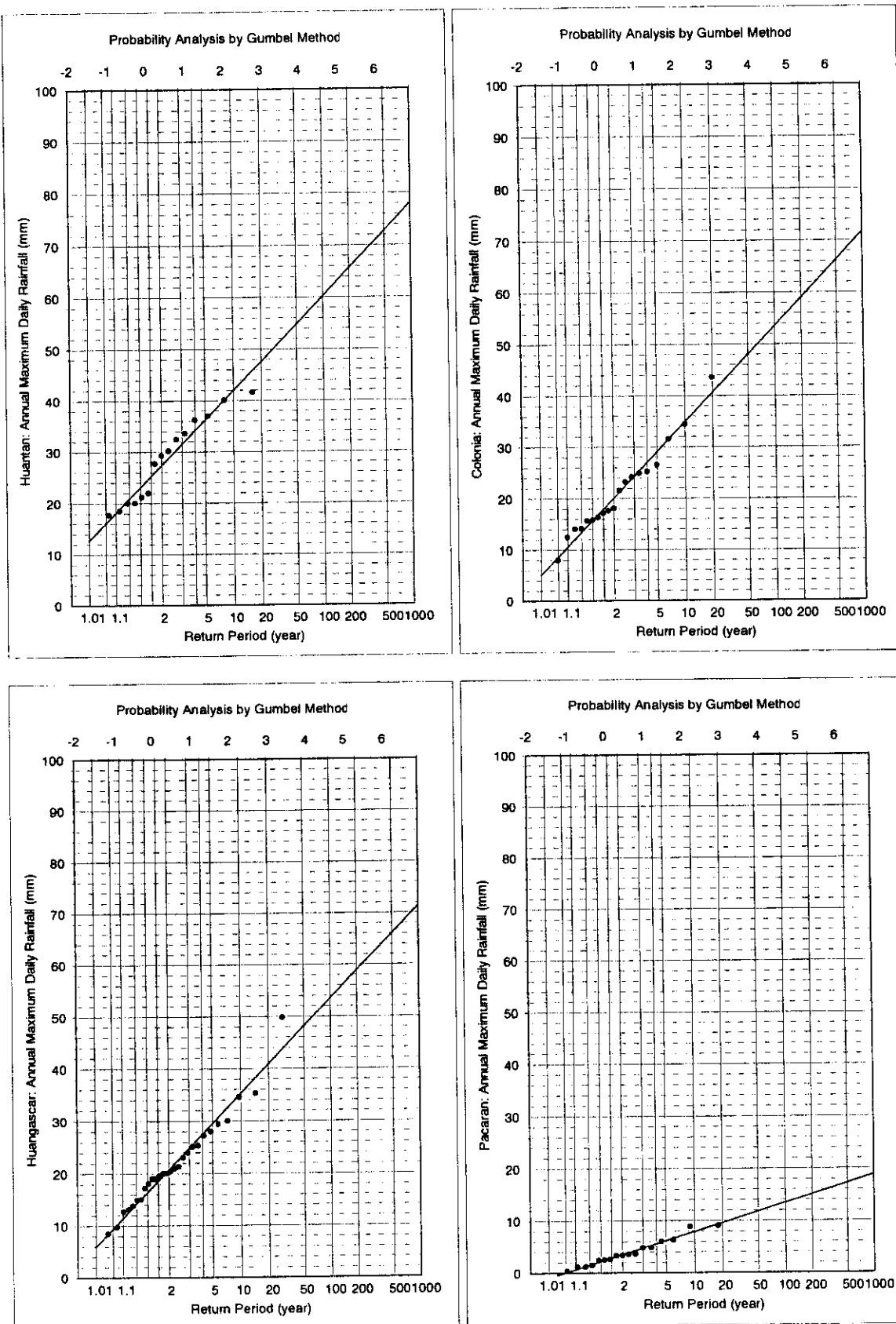
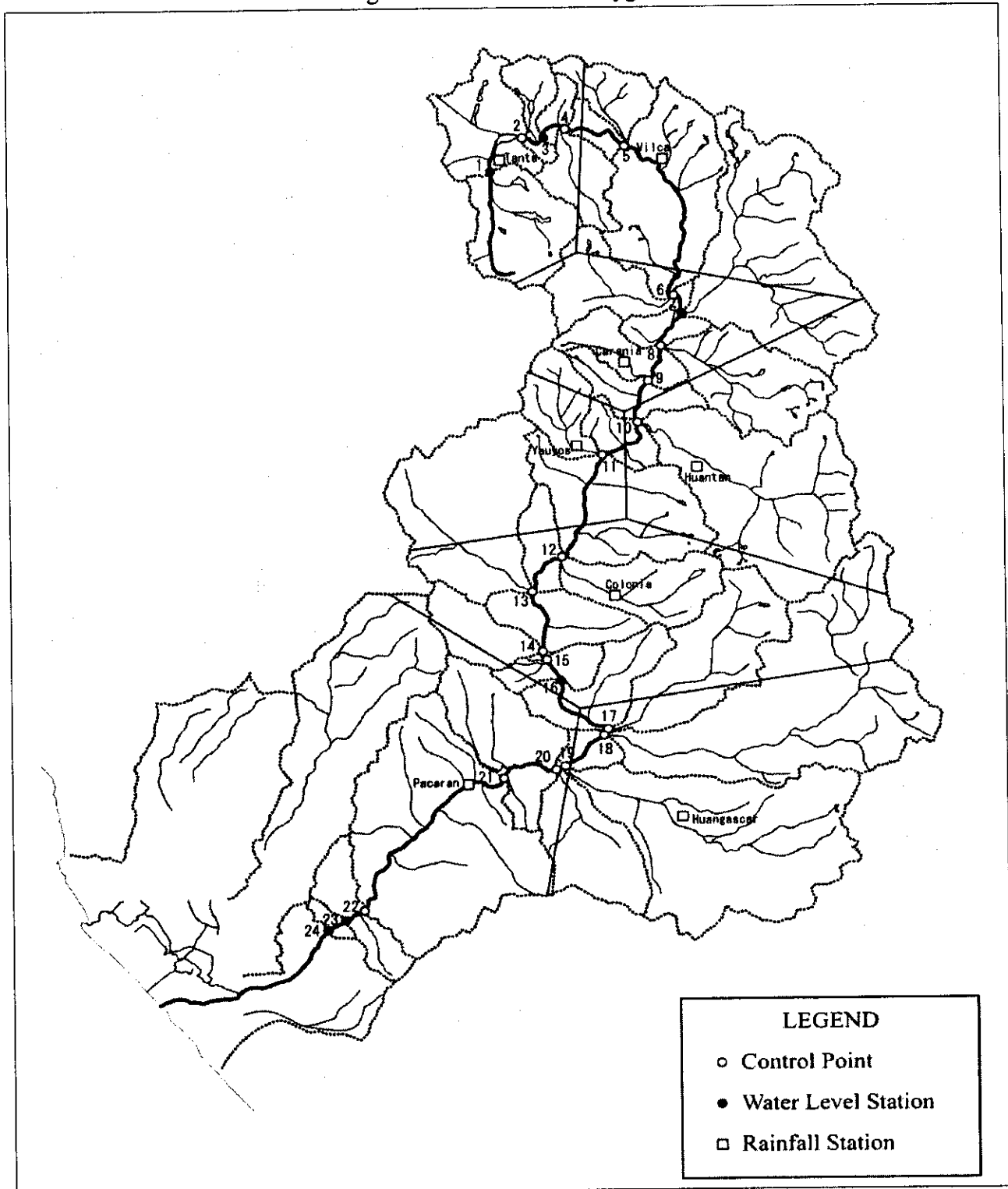


Figure 1.2.3 Thiessen Polygon



No.	Station	Catchment Area(km ²)	Effective Area(%)							
			Pacaran	Huangascar	Colonia	Tanta	Vilca	Huanteran	Yauyos	Carania
1	Tanta	172	-	-	-	96.9%	0.6%	-	-	2.5%
3	Aguas Calientes	352	-	-	-	98.5%	0.3%	-	-	1.2%
7	Tinco de Alis	930	-	-	-	46.6%	40.6%	-	-	12.8%
16	Chavin	3265	0.6%	-	18.2%	13.3%	20.0%	20.1%	13.9%	14.0%
23	Socsi	5890	15.7%	20.7%	17.9%	7.4%	11.1%	11.8%	7.7%	7.7%
24	Imperial	5900	15.8%	20.7%	17.9%	7.3%	11.0%	11.8%	7.7%	7.7%

Figure 1.3.1 Daily Discharge Correlation

(1/5)

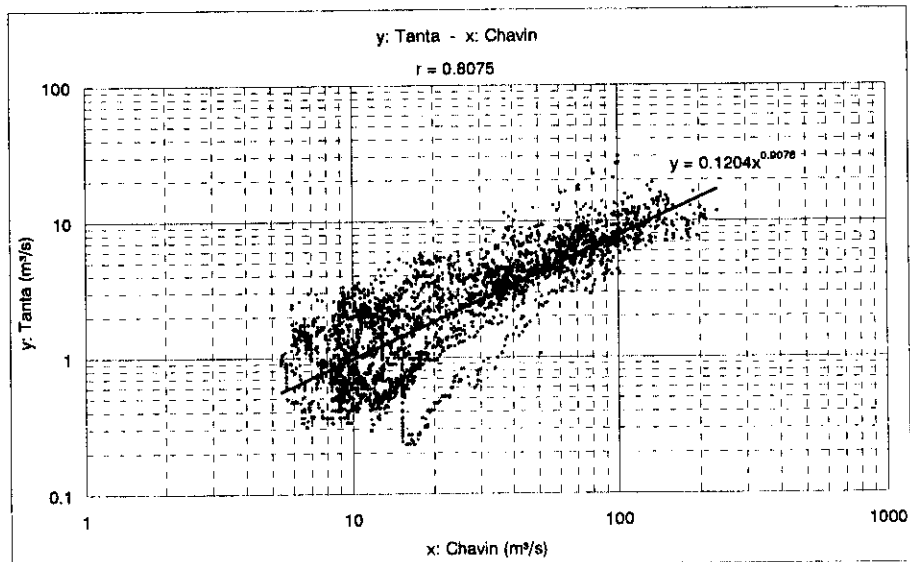
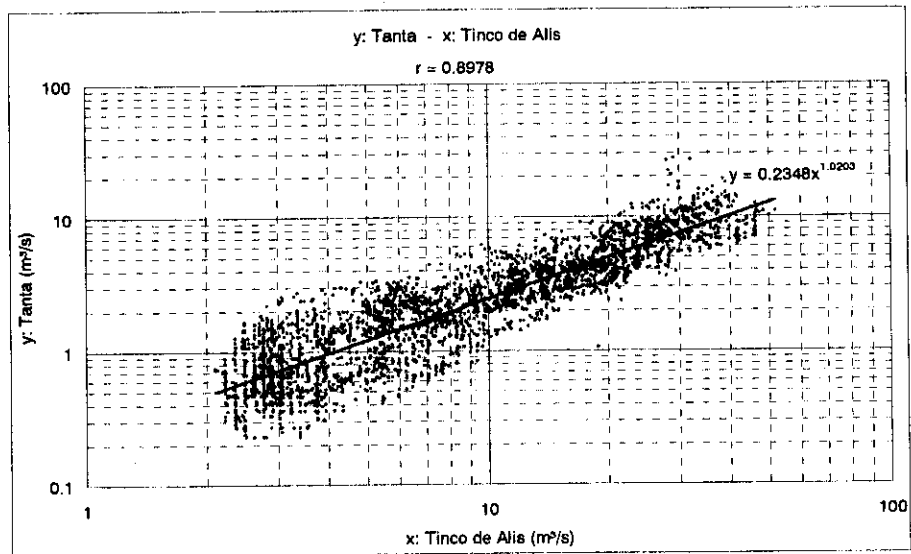
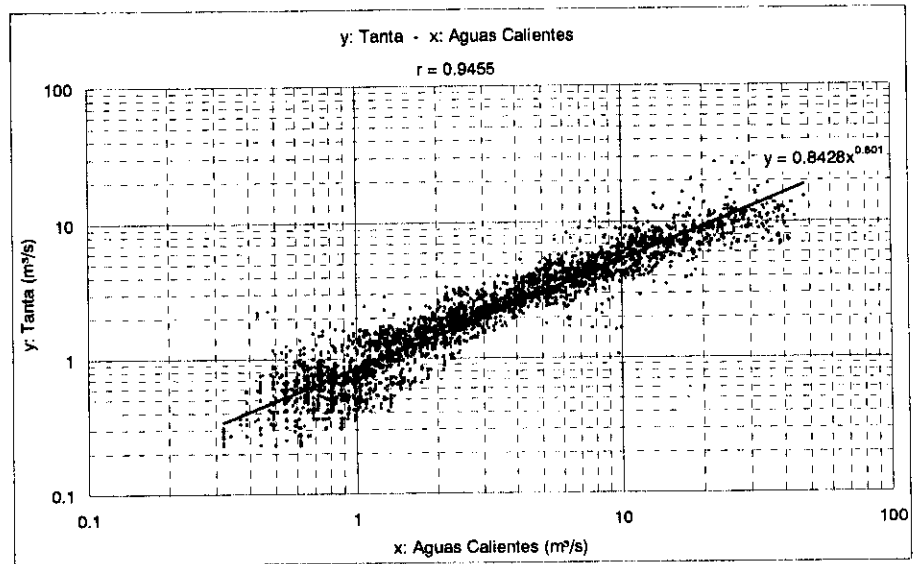


Figure 1.3.1 Daily Discharge Correlation

(2/5)

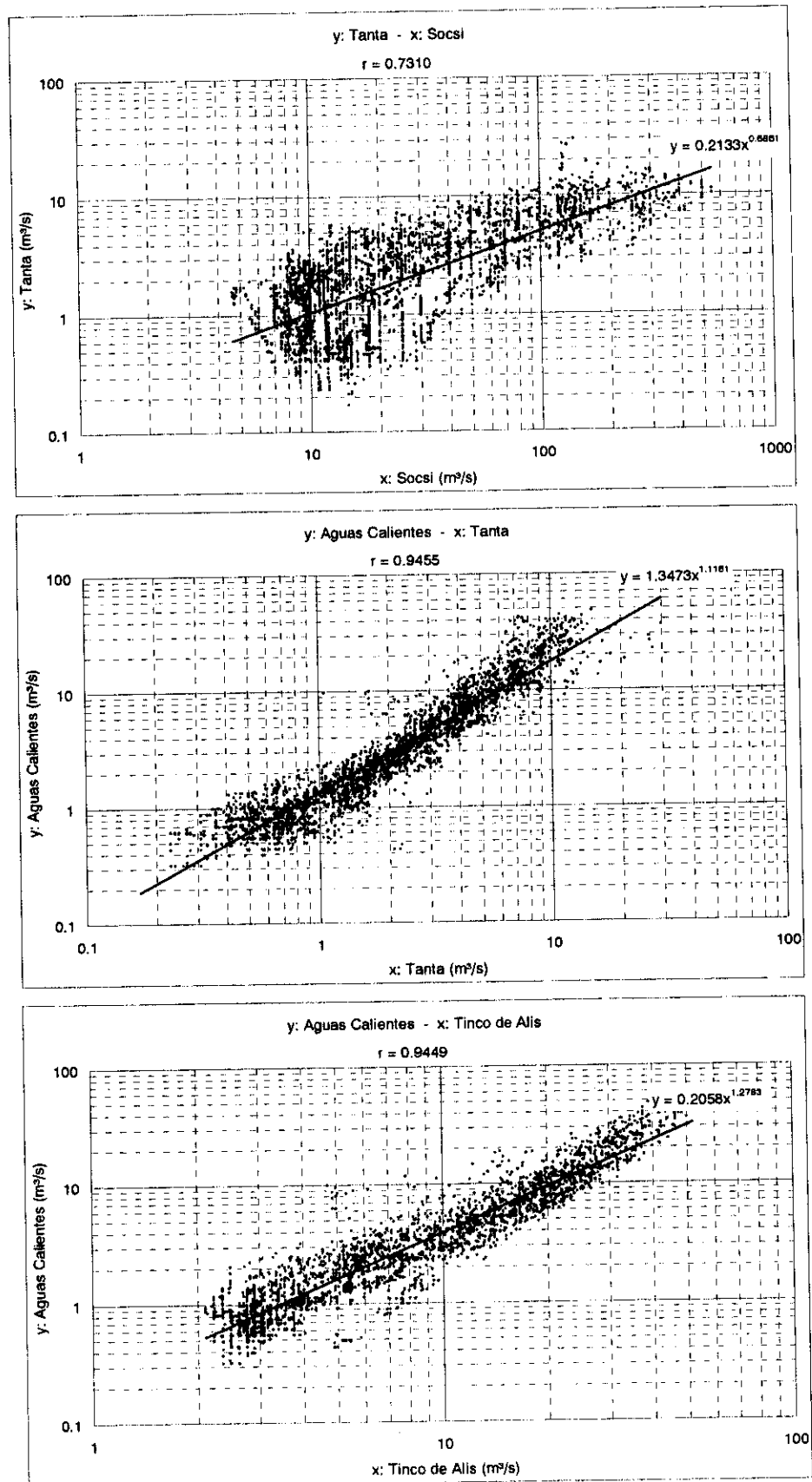


Figure 1.3.1 Daily Discharge Correlation

(3/5)

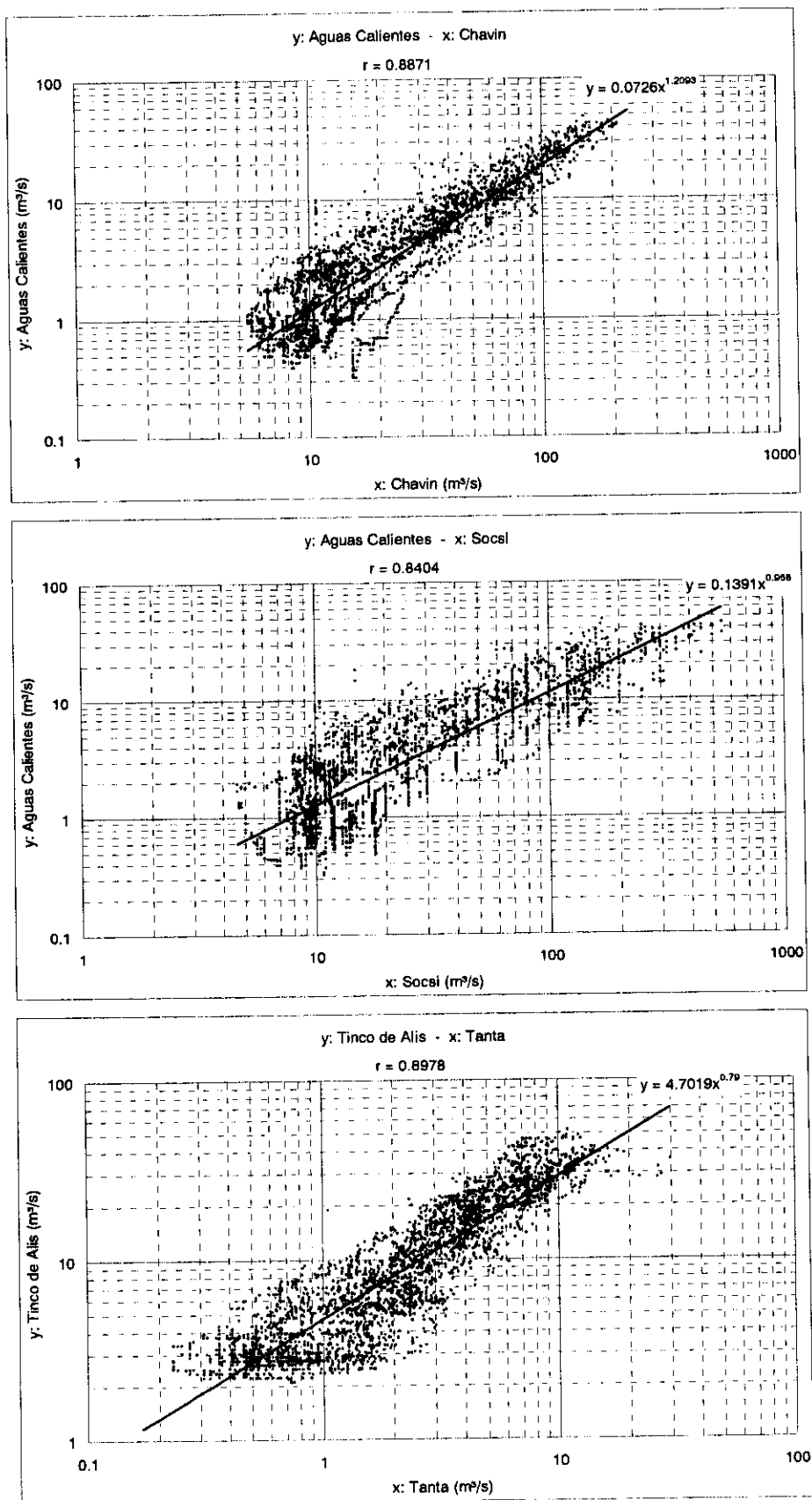


Figure 1.3.1 Daily Discharge Correlation

(4/5)

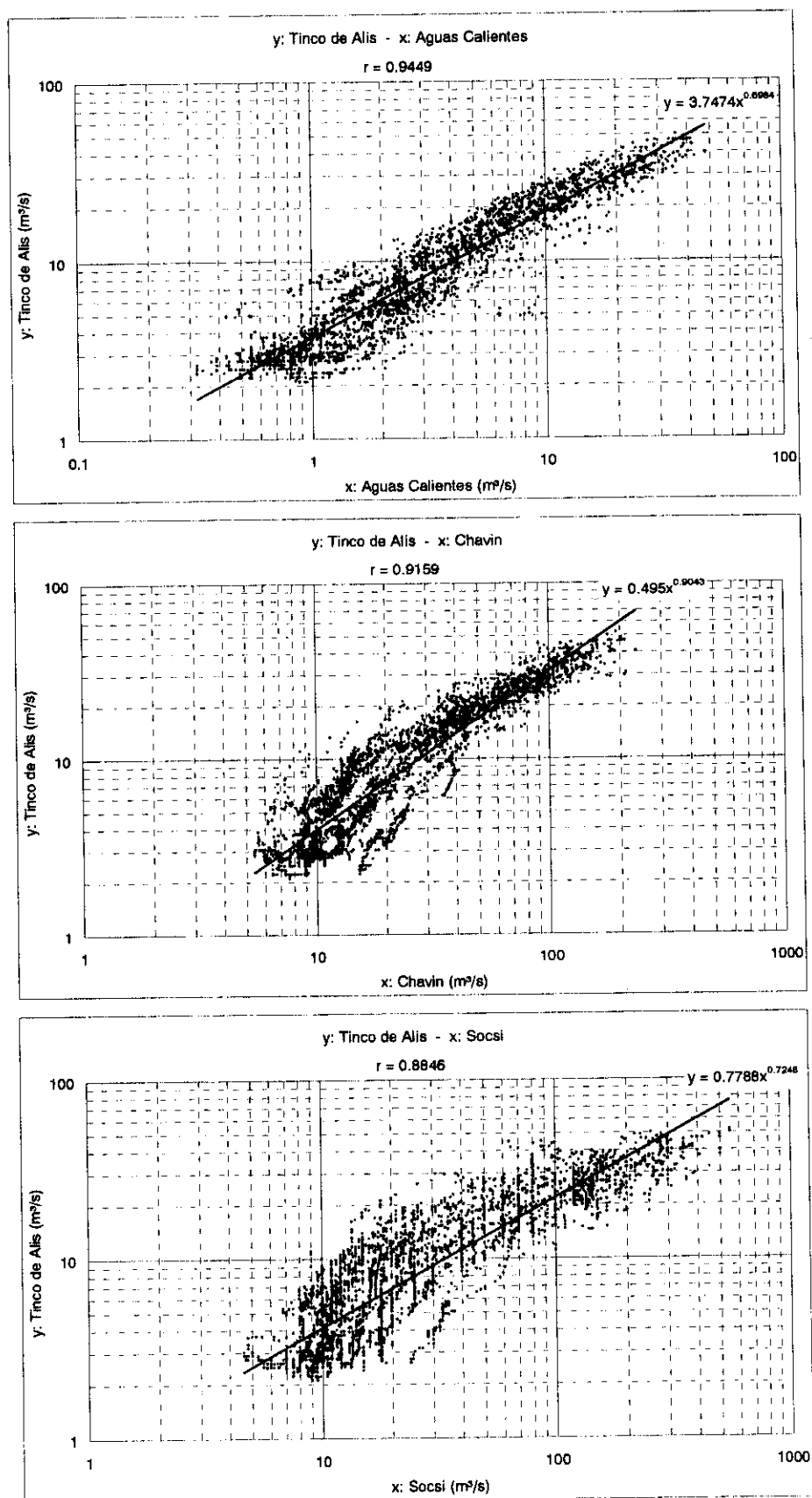


Figure 1.3.1 Daily Discharge Correlation

(5/5)

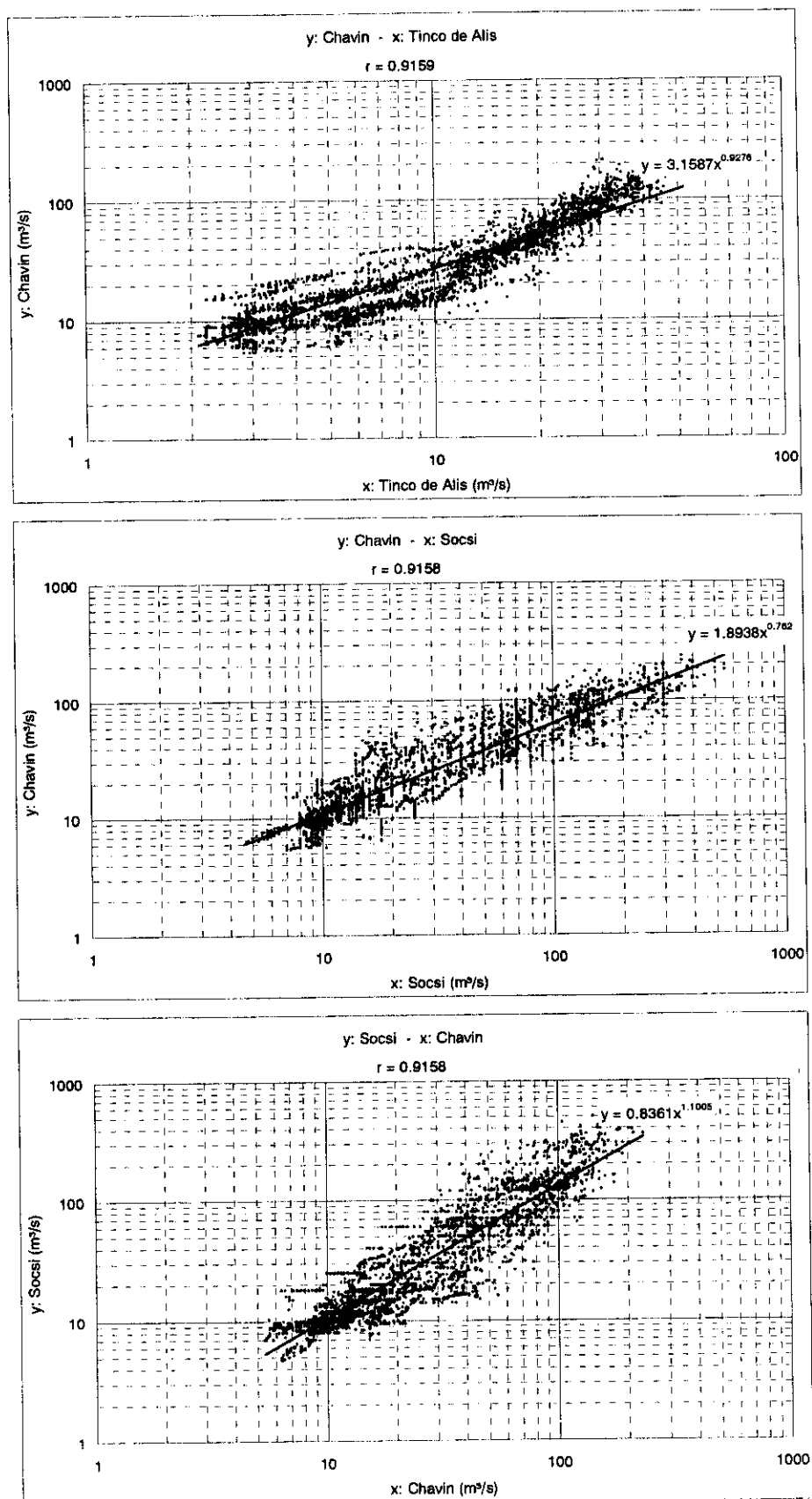
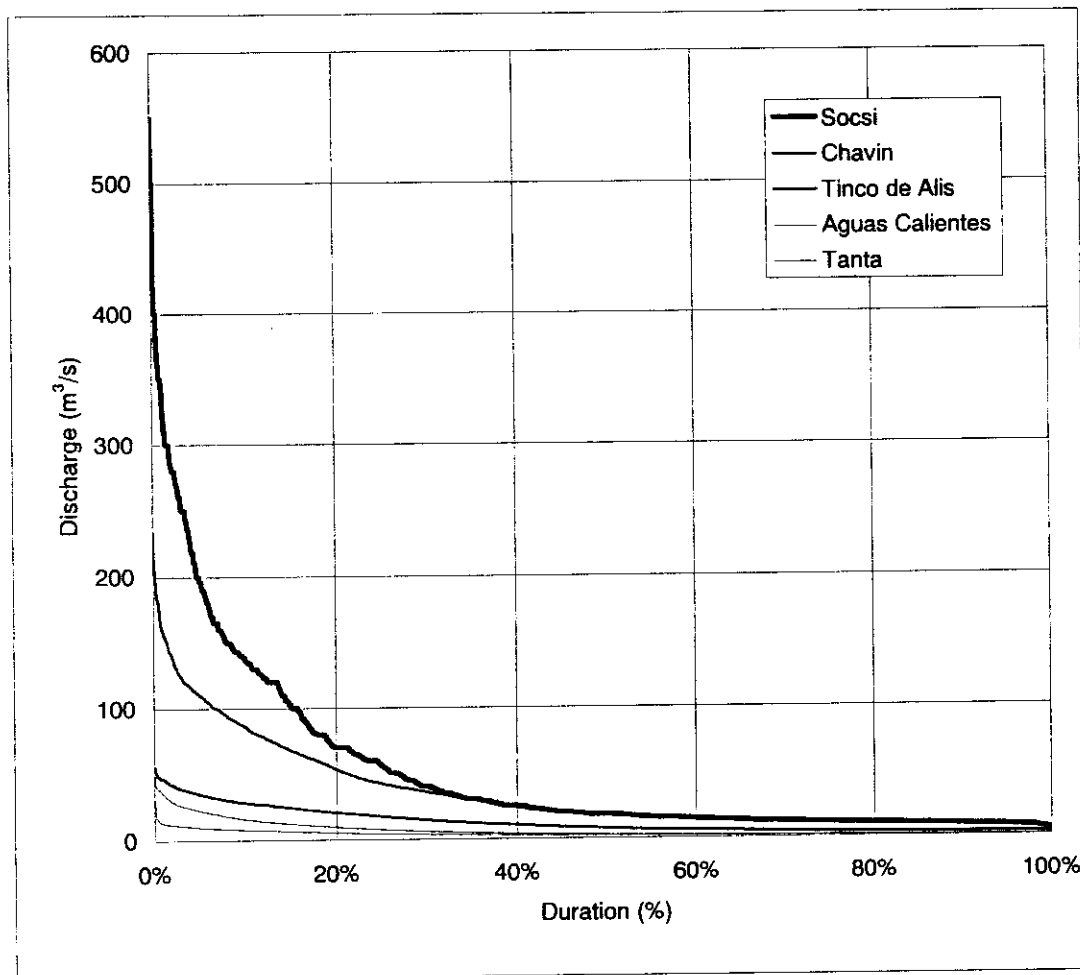


Figure 1.3.2 Flow Duration Curve at the Gauging Stations in the Cañete River Basin



Duration (%)	Discharge (m^3/s)				
	Socsi	Chavin	Tinco de Alis	Aguas Calientes	Tanta
0.02%	550.0	233.8	55.5	47.8	29.9
5%	200.0	110.7	34.7	22.3	9.5
10%	138.0	86.7	28.1	15.6	7.6
15%	103.0	68.0	24.3	12.0	6.5
20%	70.0	53.1	20.4	9.4	5.1
25%	56.0	42.2	17.2	7.4	4.3
30%	40.0	35.4	14.4	5.7	3.7
35%	30.0	29.4	12.0	4.7	3.0
40%	24.5	23.7	10.3	3.8	2.6
45%	20.0	20.0	8.7	3.1	2.3
50%	18.0	17.6	7.4	2.6	2.0
55%	15.5	15.7	6.3	2.2	1.7
60%	14.0	14.5	5.5	1.8	1.4
65%	13.0	13.0	5.0	1.5	1.2
70%	11.7	12.2	4.3	1.3	1.1
75%	11.0	10.8	3.7	1.1	0.9
80%	10.0	9.9	3.2	1.0	0.8
85%	9.5	9.1	2.9	0.8	0.7
90%	8.8	8.5	2.8	0.7	0.6
95%	7.8	7.5	2.5	0.6	0.5
100%	4.6	5.4	1.2	0.2	0.2

Figure 1.3.3 Results of Tank Model (1/5)
Tanta Model

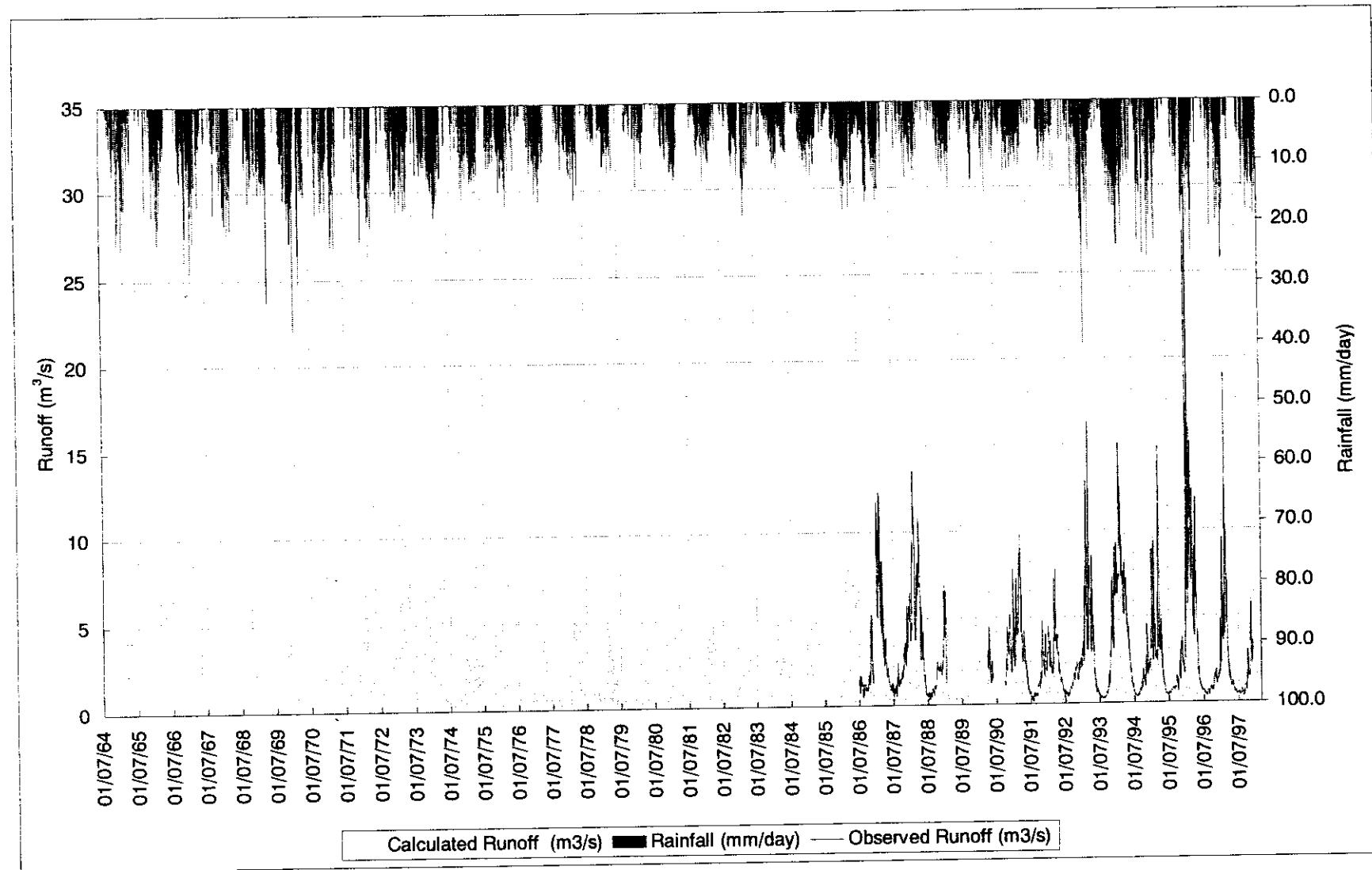


Figure 1.3.3 Results of Tank Model (2/5)
Aguas Clientes Model

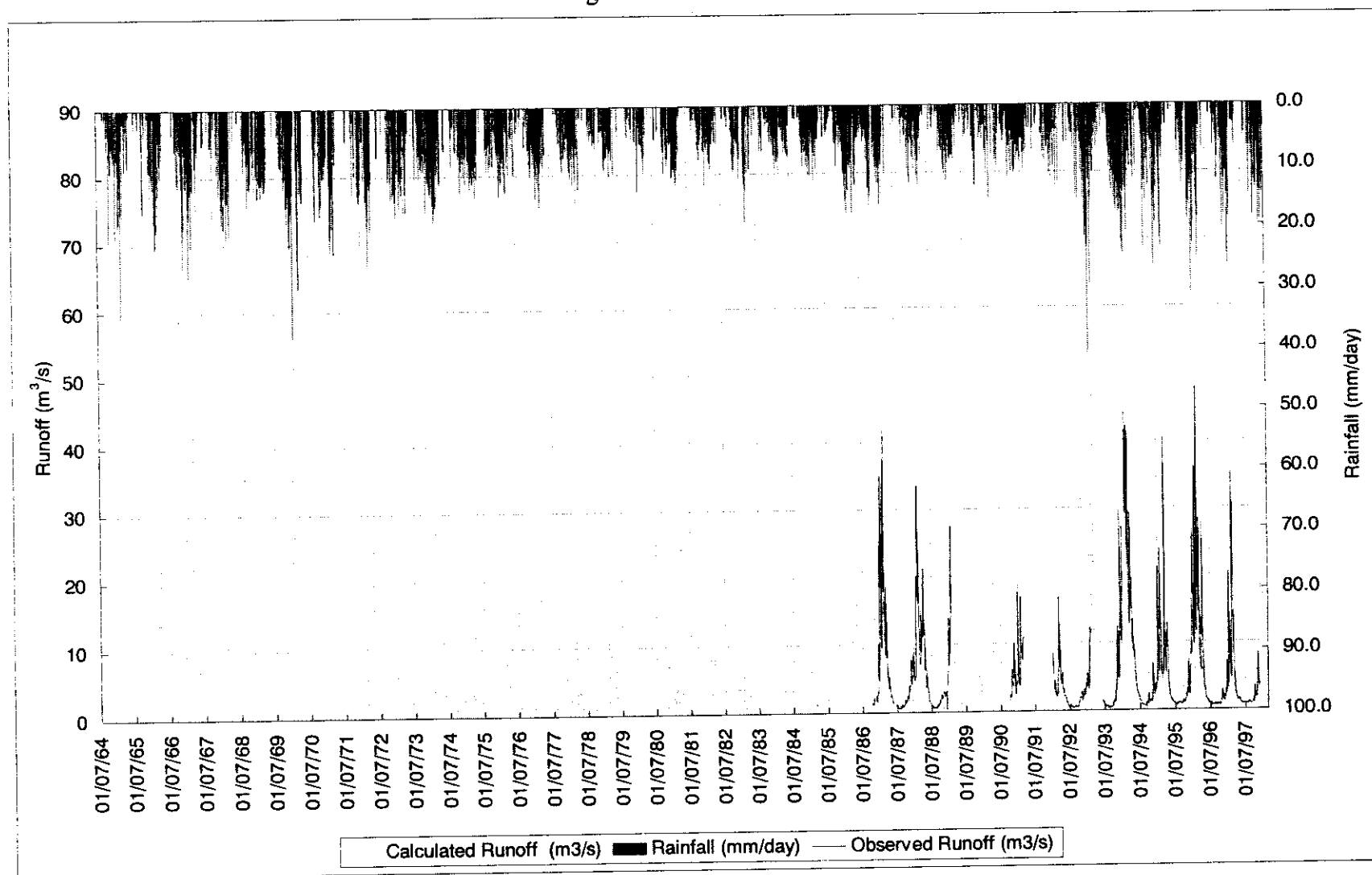


Figure 1.3.3 Results of Tank Model (3/5)

Tinco de Alis Model

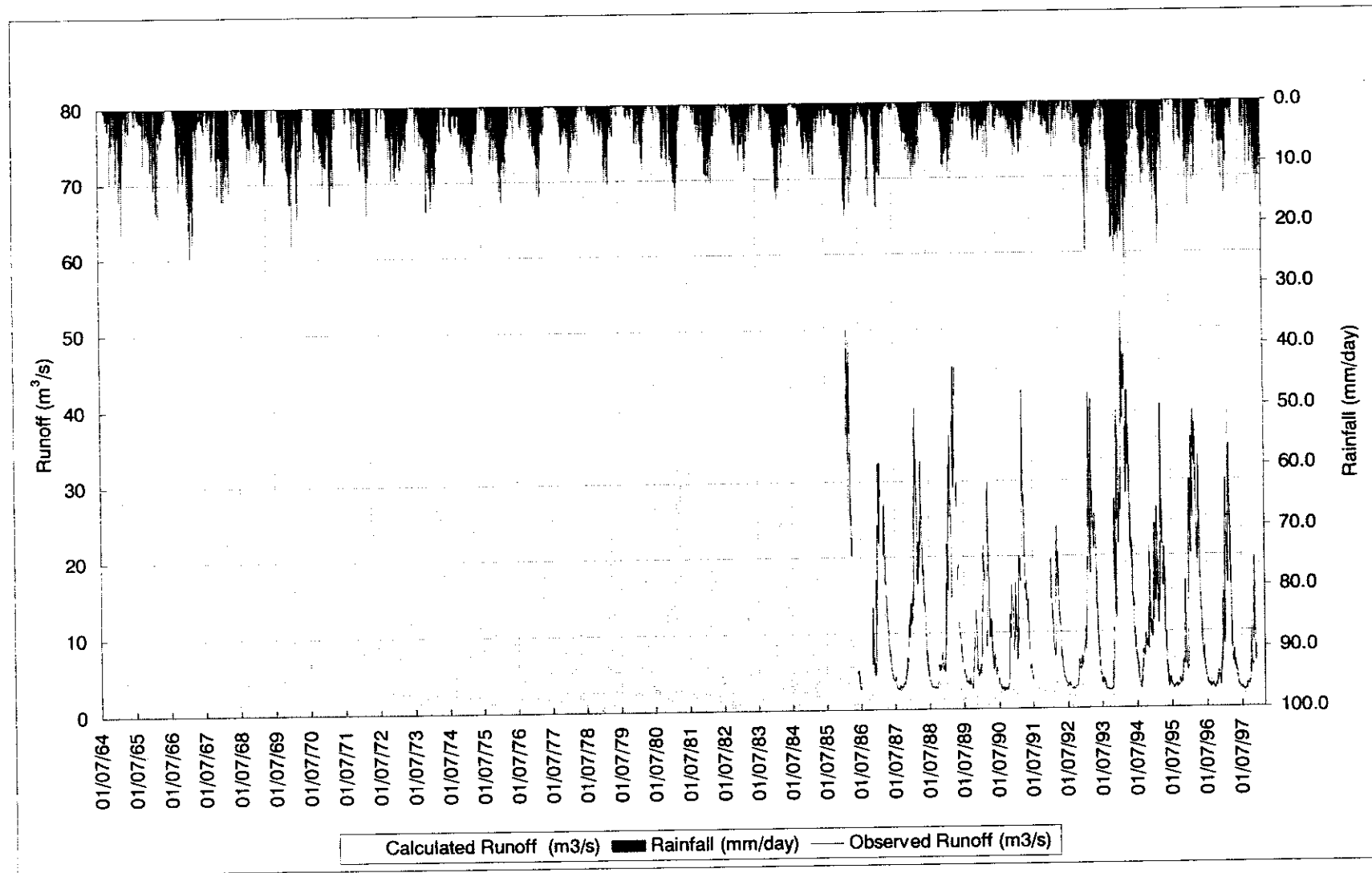


Figure 1.3.3 Results of Tank Model (4/5)
Chavin Model

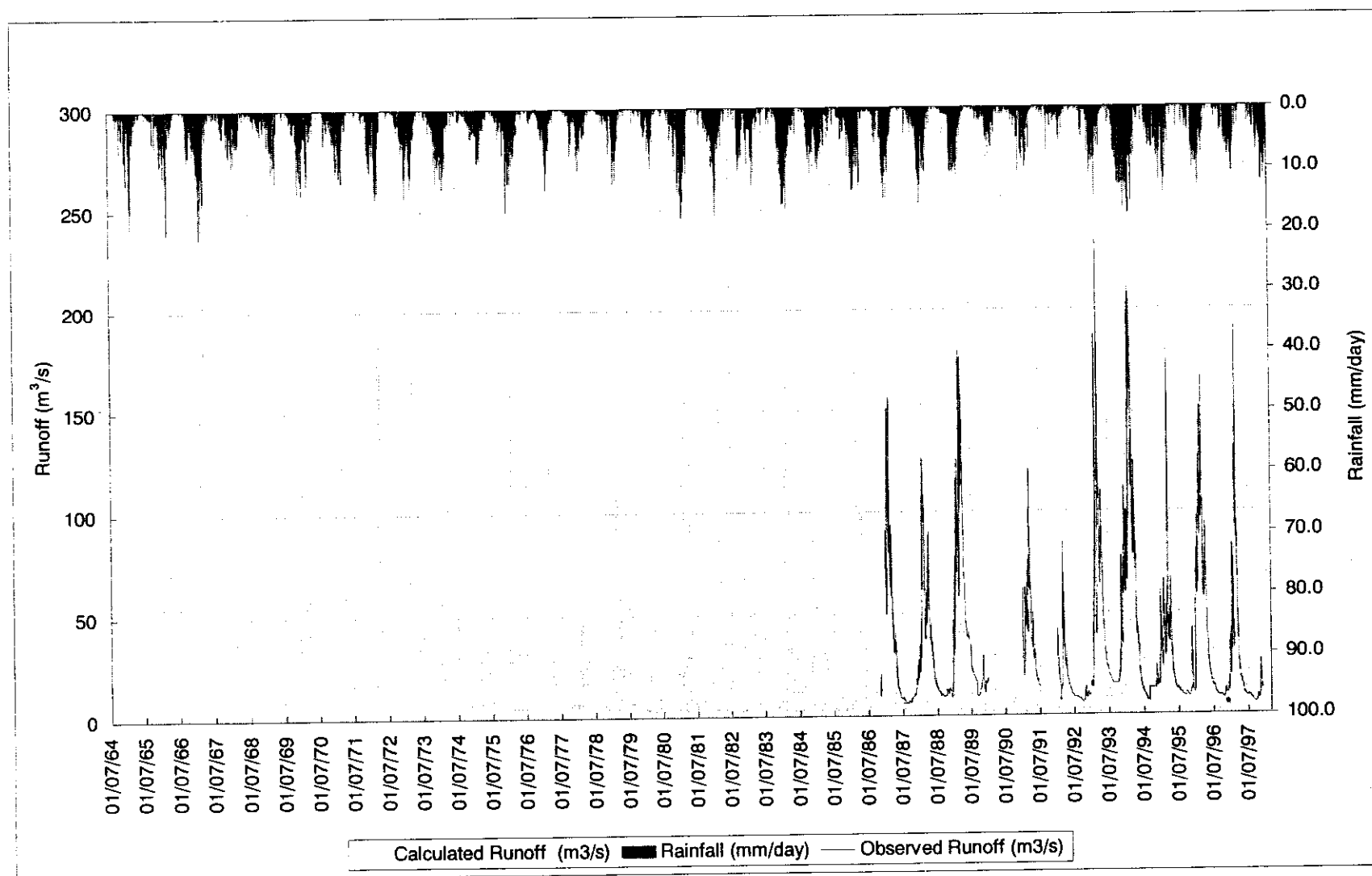


Figure 1.3.3 Results of Tank Model (5/5)
Socsi Model

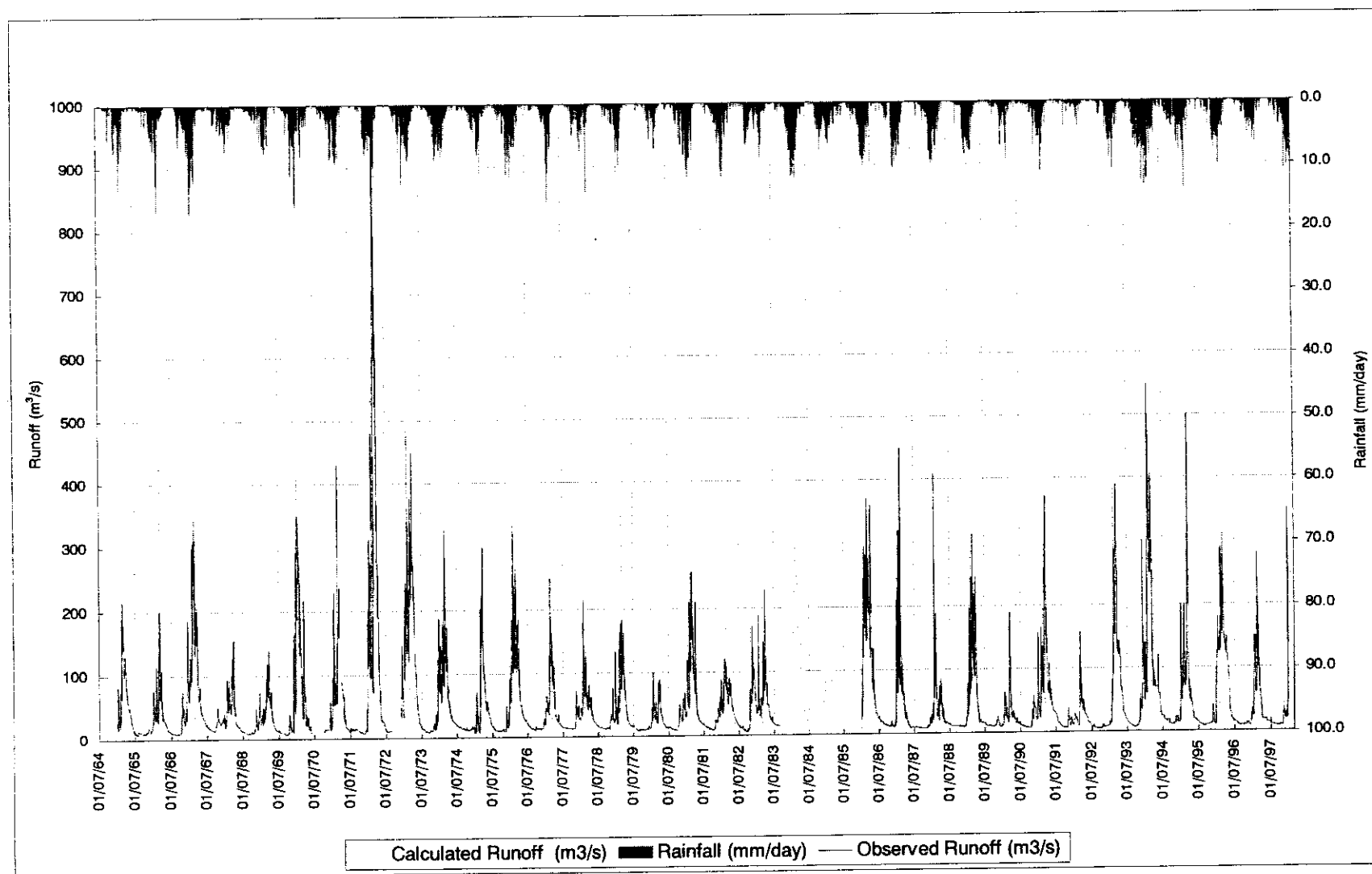


Figure 1.4.1 Relationship between Probable Daily Discharge and Peak Discharge

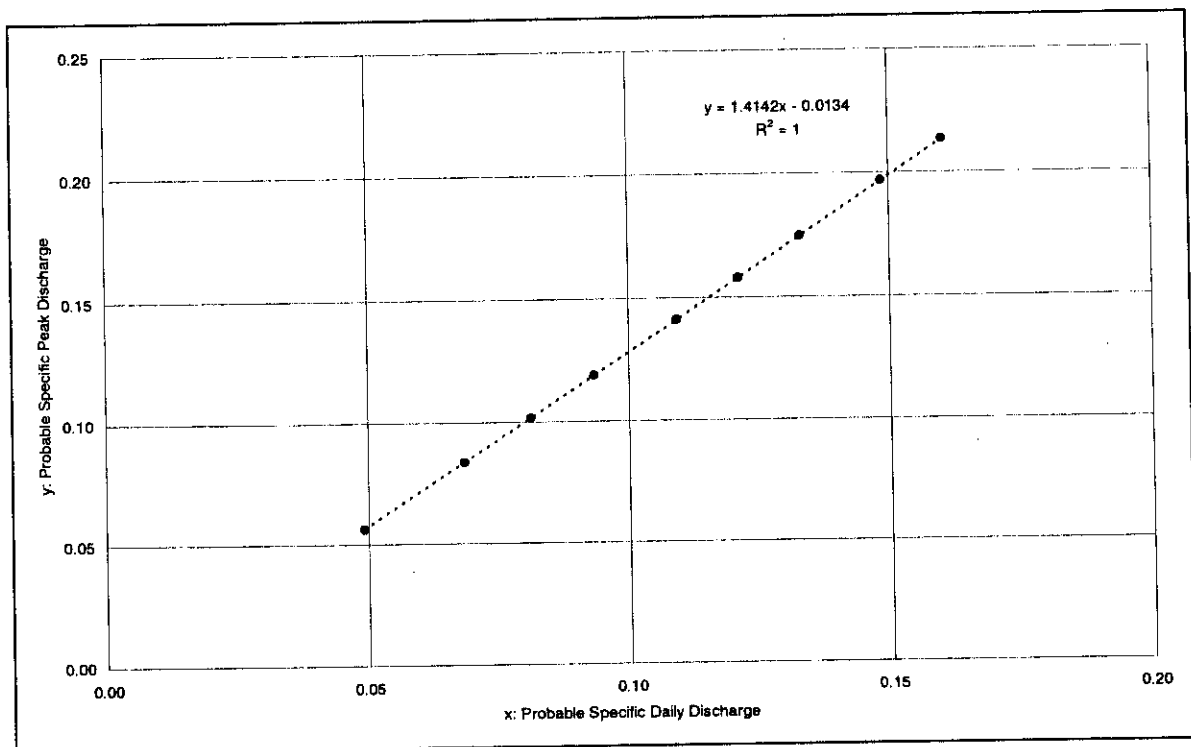


Figure 1.4.2 Probable Specific Daily Discharge

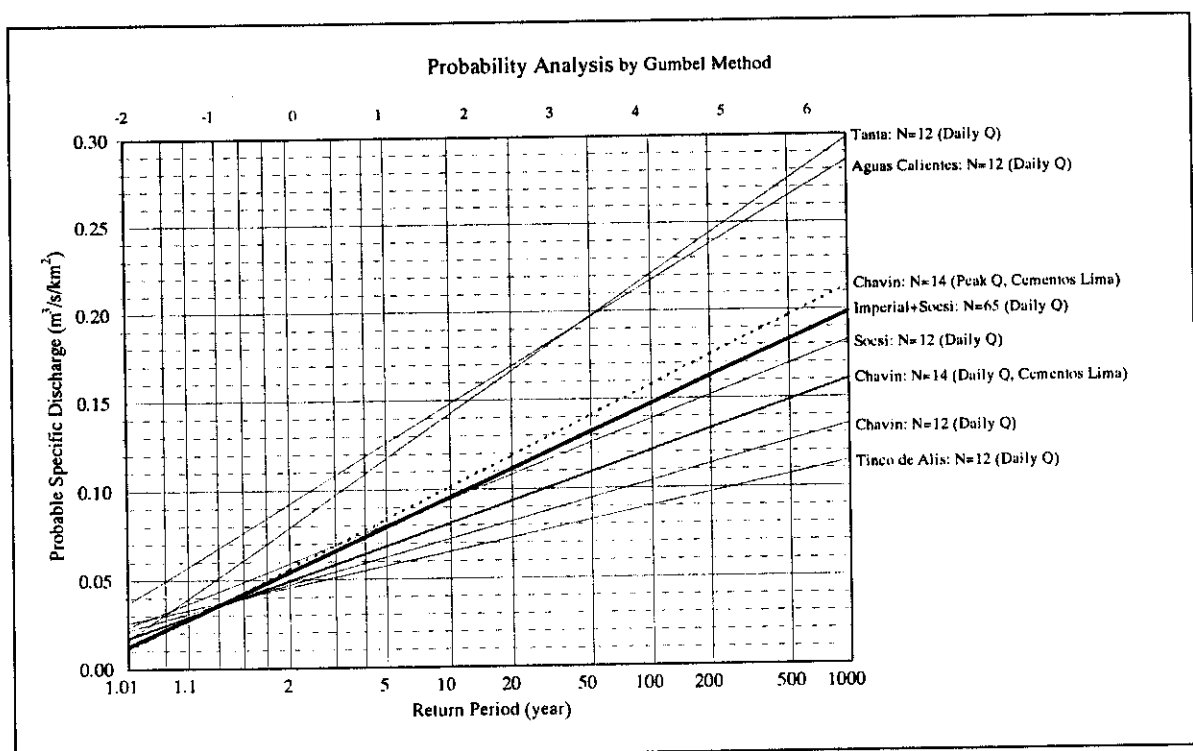
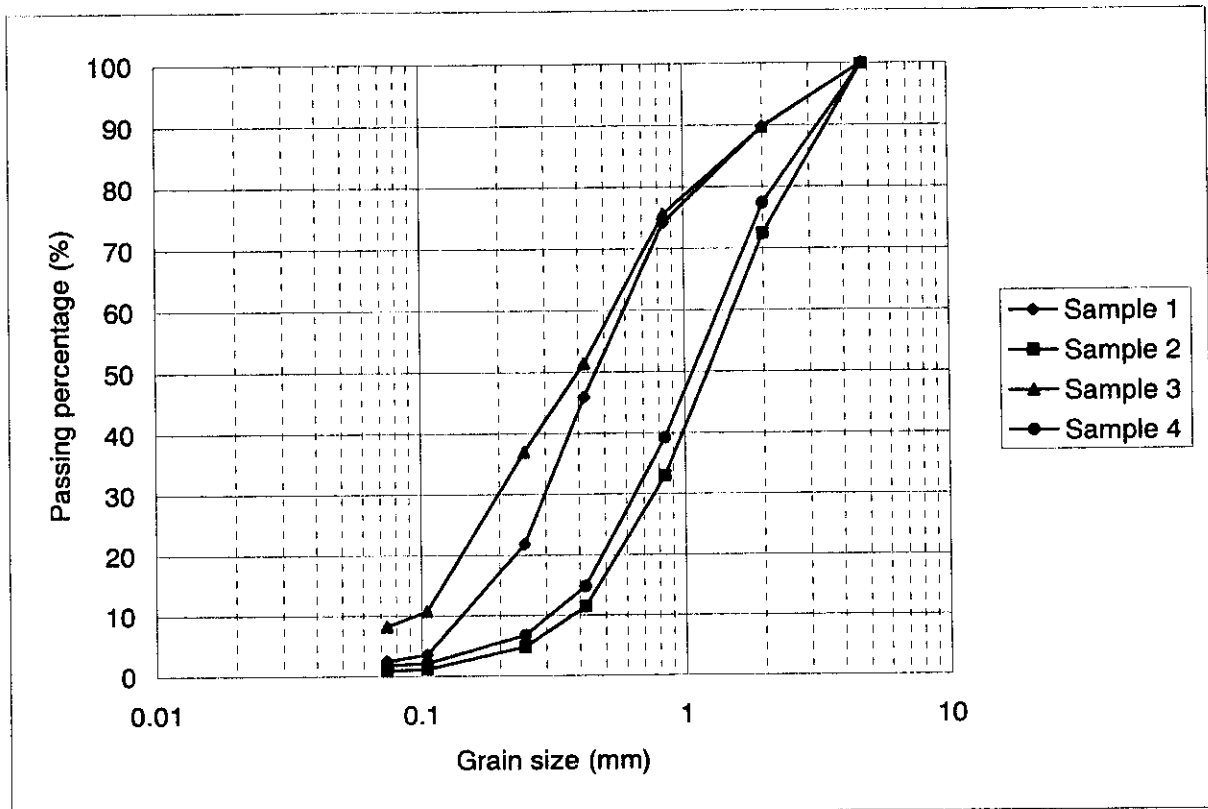


Figure 1.6.1 Grading Curve of Riverbed Materials



Passing percentage (%)

Sample No.	Number of screen						
	No.4 (4.760 mm)	No.10 (2.000 mm)	No.20 (0.840 mm)	No.40 (0.420 mm)	No.60 (0.250 mm)	No.140 (0.105 mm)	No.200 (0.074 mm)
1	100.00	89.75	74.21	45.95	21.81	3.54	2.52
2	100.00	72.45	32.99	11.44	4.80	1.13	0.88
3	100.00	89.70	75.62	51.41	37.00	10.71	8.24
4	100.00	77.38	39.21	14.76	6.69	2.14	1.76

Note) Sample 1: at "Puente Chavin", from the left bank

Sample 2: about 1 km upstream from "Puente Chavin", from "river edge"

Sample 3: at Central Platanal, from the sand beach

Sample 4: at Central Platanal, from "river edge"

Source: ELECTROPERU, El Platanal Hydroelectric Power Plant Feasibility Study, 1987