AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON (JICA)
MINISTERIO DE AGRICULTURA Y GANADERIA
REPUBLICA DE EL SALVADOR

EL ESTUDIO DE CONTROL INTEGRAL DE CRECIDAS EN EL RIO GRANDE DE SAN MIGUEL EN LA REPUBLICA DE EL SALVADOR

LIBRO DE DATOS

SEPTIEMBRE DE 1997

PACIFIC CONSULTANTS INTERNATIONAL, TOKYO
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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON (JICA)
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CONTROL INTEGRAL DE CRECIDAS
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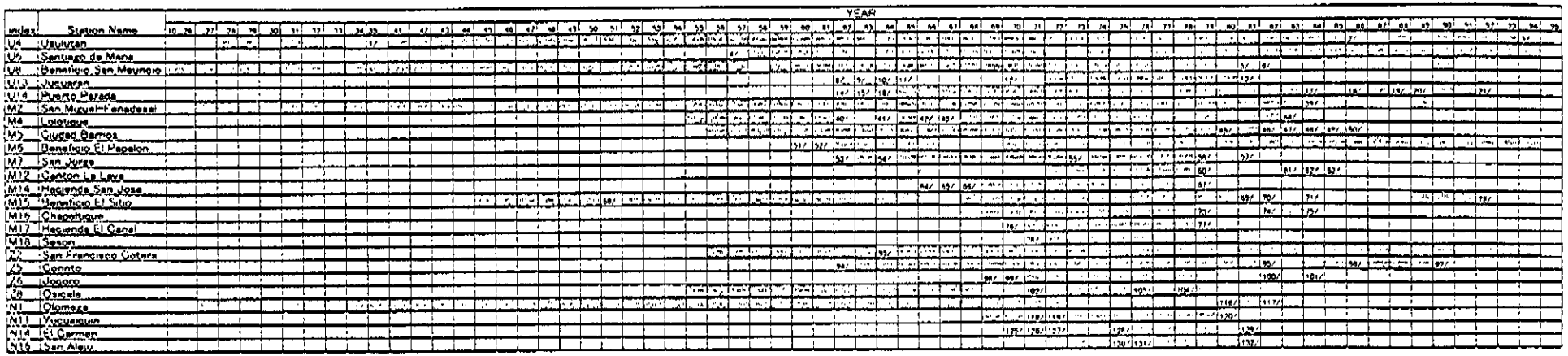
PACIFIC CONSULTANTS INTERNATIONAL, TOKYO
NIKKEN CONSULTANTS INC., TOKYO
PASCO INTERNATIONAL INC., TOKYO

LISTA DEL LIBRO DATOS

LIBRO DE DATOS
1: METEOROLOGÍA/HYDROLOGÍA

Libro de Datos 1
Lista de Cuadros y Figuras: Meteorología/Hydrología

Cuadro 1.1 REGISTROS DISPONIBLES DE PRECIPITACION DIARIA EN Y ALREDEDOR DEL AREA DE ESTUDIO



1.T.1

1/ Uncertain Apr. and May
2/ Until Sep. , uncertain Aug.
3/ Until Mar.
4/ From May, uncertain.May
5/ Only from Jan. to Apr.,Nov. and Dec.
6/ Lack of Oct.
8/ From Jun. to Dec., uncertain Jun. and Jul.
9/ Lack of Mar,Apr.,Jul.,Nov. and Dec.
10/ From Jun. to Dec.
11/ Only Apr. and May , uncertain May
12/ Only Dec.
13/ Lack of Jul.
14/ Only Oct. and Dec.
15/ Lack of Dec.
16/ From Sep.
17/ Lack of Mar.
18/ Lack of Jul.
19/ Lack of Jan. and Jun.
20/ Lack of May
21/ Lack of Oct.
39/ Uncertain May, lack from Jun. to Dec.
40/ Lack of Nov.
41/ Lack from Apr. to Jun.
42/ Lack from Jun. to Nov.
43/ Lack from Jan. to May, uncertain Jun.
44/ Lack of May,Oct. and Nov.
45/ Lack of Aug.,Sep.,Nov. and Dec.
46/ Lack of Jun. and from Sep. to Dec.
47/ Lack of Aug. and Sep.
48/ Lack from Sep. to Dec.
49/ Only from Apr. to Jul.
50/ Lack from Sep. to Dec.
51/ Only Nov. and Dec.
52/ Lack of Mar. and from Jun. to Nov.
53/ Lack from Jan. to May
54/ Uncertain Nov.
55/ Lack of Sep.,Oct. and Dec.
56/ Only from May to Aug.
57/ Only from Feb. to Aug.
60/ Lack from Sep. to Dec.
61/ Only from Aug. to Nov.
62/ Only from May to Oct.
63/ Only from Apr. to Nov.
64/ Only Sep. and Oct.
65/ Only from Jul to Oct.
66/ From Jun.
67/ Until Jul.
68/ Uncertain from May to Aug.
69/ Lack of Oct. and Nov.
70/ Lack from Aug. to Oct.
71/ Lack of Jul.
72/ Until Sep.
73/ Lack of Nov. and Dec.
74/ From sep.
75/ Lack of Dec.
76/ Lack from Jan.-Abr.,Nov.-Dec., uncertain May
77/ Lack from Oct. to Dec.
78/ From Feb.
93/ Uncertain Jul.
94/ Only Nov. and Dec.
95/ Lack of Nov. and Dec.
96/ Lack of Apr. and from Jun. to Aug.
97/ Until Jun.
98/ Lack of Abr.
99/ Lack from May to Aug.
100/ Only from Jul. to Sep.
101/ Lack from Jan.-Mar., uncertain May
102/ Lack of Mar.
103/ Lack of Sep. and Nov.
104/ Lack from Apr. to Jun. and Aug.
116/ Lack of May and Jul., uncertain Jun.
117/ Lack of Sep.
118/ Lack of May
119/ Lack of Mar.,Aug. and Sep.
120/ Lack of Sep.
125/ Lack from Jan.-May,Jul.,Aug., and Dec.
126/ Lack from Jan.-Mar., uncertain Jun.
127/ Lack of Mar.
128/ Lack from Sep. to Nov.
129/ Lack of Sep.
130/ Uncertain Jun.
131/ Lack from Jul. to Dec.
132/ Only from Apr.-Aug. and Oct.

Cuadro 1.2 REGISTROS DISPONIBLES DE PRECIPITACION POR HORA EN Y ALREDEDOR DEL AREA DE ESTUDIO

index	Station Name	YEAR																																							
		1957	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
U6	Santiago de Maria	1/																							2/															
U13	Jucuaran																																		3/				
M6	Beneficio El Papalon														6/										7/	8/														
M14	Hacienda San Jose										17/		18/		19/	20/	21/	14/																						
M18	Sesori																		22/	23/	24/	25/	26/																	
Z2	San Francisco Gotera						30/	31/	32/		33/																34/													
Z5	Corinto												36/			37/																								

1/ From Jun.
2/ Lack from May to Aug.
3/ Strength until the first 45 min.
6/ From Nov.
7/ Lack of Sep. and Oct.
8/ Until May
14/ From Sep.
17/ From Sep.
18/ Lack from Jan. to Aug.
19/ From Apr.
20/ Lack from Jan. to Apr.
21/ From May
22/ Lack from Jan. to Jun.
23/ Lack of Apr. and May
24/ Lack of May,Jul. and Aug.
25/ Not available from Feb. to May
26/ Lack of Jul.
30/ From Mar.
31/ Incomplete Nov.
32/ From Jul., incomplete Jul.
33/ Incomplete Sep. and Oct.
34/ Until Sep.
36/ From Sep., incomplete Sep.
37/ Lack from Jan. to Jun.

Cuadro 1.3 REGISTROS DISPONIBLES DE ESTACIONES LIMNIMETRICAS EN EL AREA DE ESTUDIO

No	Code	Station Name	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
1	48-01-01	San Miguel at Moscoso		HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	DC	DC	C	DC	DC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	D
2	48-01-02	San Miguel at Vado Marin		-	DC	C	DC	DC	C	DC	DC	C	DC	DC	C	DC	DC	DC	DC	DC	DC	DC	DC	HDC	HDC
3	48-01-03	San Miguel at La Canoa(El Delirio)		-	-	-	-	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC
4	48-01-04	San Miguel at Las Conchas		-	-	-	-	-	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC
5	48-01-05	San Miguel at Villerias		-	-	-	-	-	-	-	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HC
6	48-02-01	San Esteban at La Reforma		-	-	-	-	-	-	-	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC
7	48-03-01	Lake Olomega at Puerto Viejo		-	-	-	-	-	-	-	-	C	C	C	C	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HD
8	48-04-01	Taisihuat at Hato Nuevo		-	-	-	-	-	-	-	-	-	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC	HDC		

No	Code	Station Name	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	1996
1	48-01-01	San Miguel at Moscoso	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	48-01-02	San Miguel at Vado Marin	HDC	HDC	-	-	-	-	-	-	-	-	-	-	-	HDC	HDC	HDC	HDC
3	48-01-03	San Miguel at La Canoa(El Delirio	HDC	HDC	HDC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	48-01-04	San Miguel at Las Conchas	HDC	HDC	HDC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	48-01-05	San Miguel at Villerias	HC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HDC	HDC
6	48-02-01	San Esteban at La Reforma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	48-03-01	Lake Olomega at Puerto Viejo	HD	HD	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	48-04-01	Taisihuat at Hato Nuevo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

H:Hourly Data D:Daily Data C:Chart

1.T.3

Cuadro 1.4 EVAPORACION EN EL AREA DE ESTUDIO

STATION:SESORI (unit:mm)

Year	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1971	144	211	279	262	183	162	157	156	160	140	122	175	2149
1972	207	227	254	233	186	148	190	156	163	149	136	174	2224
1973	228	230	265	230	156	165	166	158	134	114	148	175	2168
1974	206	225	238	243	189	142	166	183	138	140	157	192	2220
1975	216	221	243	273	191	159	172	153	116	133	118	177	2172
1976	217	250	288	237	211	137	176	185	164	152	185	201	2402
1977	230	227	283	242	184	140	196	178	156	158	144	171	2310
1978	221	215	261	223	203	180	181	177	150	137	164	176	2288
1979	208	233	272	245	169	134	171	156	108	134	160	179	2168
1980	191	233	284	234	176	152	174	178	147	127	136	178	2210
1981	194	107	N	N	N	N	N	N	N	N	N	N	N
Avera	206	216	267	242	185	152	175	168	143	138	147	180	2219

STATION:SAN FRANCISCO GOTERA (unit:mm)

Year	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1968	N	N	N	N	N	N	N	N	N	68.3	130.3	148.5	N
1969	169	191	201	196	161	150	159	N	N	160	122	172	N
1970	164	207	196	240	223	215	176	143	139	149	116	143	2111
1971	163	141	200	174	161	160	128	164	279	156	118	150	1994
1972	134	127	192	219	187	192	217	180	148	161	155	157	2068
1973	137	151	184	264	201	149	225	232	136	122	128	151	2079
1974	172	178	227	226	212	155	175	188	131	161	182	199	2205
1975	221	209	241	211	190	129	170	149	132	142	129	186	2108
1976	218	217	252	231	221	128	192	203	188	157	193	226	2426
1977	253	238	285	258	201	165	206	191	184	193	156	189	2519
1978	225	213	247	227	186	174	189	173	183	167	184	191	2358
1979	229	232	283	251	192	181	170	187	150	159	153	178	2365
1980	187	226	237	238	204	178	188	177	133	131	149	209	2257
1981	172	228	251	248	165	129	170	164	157	164	149	164	2161
1982	199	188	215	73	96	164	195	222	118	132	177	173	1953
1983	162	174	204	200	231	174	185	198	146	147	147	168	2135
1984	169	N	188	171	175	178	176	157	158	N	166	186	N
1985	191	196	217	215	198	193	198	154	159	167	154	177	2220
Avera	186	195	225	214	188	166	183	180	159	149	150	176	2172

STATION:EL PAPALON (unit:mm)

Year	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	N	N	N	N	N	392	251	333	167	186	59	N	N
1974	N	N	N	N	N	N	N	N	137	127	149	189	N
1975	223	214	253	270	201	170	N	171	133	141	120	170	N
1976	204	236	286	236	211	134	200	199	166	150	132	192	2346
1977	223	227	291	261	198	148	205	190	172	178	172	195	2461
1978	244	242	267	232	214	191	205	197	152	169	154	175	2441
1979	215	239	262	246	189	168	187	191	124	156	131	171	2279
1980	199	235	265	243	199	199	179	167	157	148	136	194	2320
1981	202	217	N	N	N	N	N	N	N	N	N	N	N
Avera	216	230	271	248	202	200	204	207	151	157	132	184	2401

Cuadro 1.5 DESCARGAS MENSUALES EN EL AREA DE ESTUDIO(1/2)

MONTHLY DISCHARGE AT VILLERIAS

Unit:m3/s

YEAR	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	Average
1970	NA	NA	NA	NA	12.4	36.0	28.7	36.3	65.9	55.7	10.0	5.1	31.3
1971	3.4	2.5	2.2	2.2	6.5	18.6	7.7	50.7	43.5	58.3	9.5	4.3	17.5
1972	3.0	2.1	1.6	2.7	9.7	17.3	6.2	7.1	17.6	30.1	6.5	2.9	8.9
1973	2.2	1.7	1.8	2.9	10.2	58.9	22.3	35.3	74.5	88.1	12.7	5.8	26.4
1974	3.7	2.2	1.9	2.2	4.3	11.5	7.8	7.4	46.1	27.9	4.0	2.2	10.1
1975	1.7	1.5	1.3	1.4	9.9	7.3	12.7	29.8	69.8	43.2	23.7	4.0	17.2
1976	4.4	2.6	1.9	4.8	5.1	NA	13.3	6.4	15.5	17.5	3.7	2.1	7.0
1977	1.5	1.3	1.2	1.1	5.4	22.2	2.5	9.4	12.6	7.0	5.0	2.4	6.0
1978	1.4	1.2	1.1	1.6	NA	NA	21.2	22.6	69.7	40.9	5.6	2.8	16.8
1979	2.1	1.7	1.7	1.7	NA	NA	NA	NA	NA	NA	NA	NA	1.8

MONTHLY DISCHARGE AT MOSCOSO

Unit:m3/s

YEAR	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	Average
1964	NA	NA	NA	NA	7.8	31.5	79.1	NA	NA	NA	12.1	9.3	27.9
1965	8.7	6.1	5.6	6.1	12.6	23.2	17.3	22.8	71.8	31.6	11.9	8.0	18.8
1966	5.8	4.6	3.5	7.9	22.7	62.0	56.3	37.2	49.4	47.9	15.2	11.2	27.0
1967	9.3	7.8	8.6	9.8	8.0	24.4	14.0	13.5	38.5	44.2	10.1	7.6	16.3
1968	6.2	5.1	3.8	4.3	10.3	29.5	20.9	14.6	45.8	40.4	14.8	8.6	17.0
1969	6.8	4.9	4.2	4.8	12.4	35.1	30.3	66.4	181.0	81.2	22.1	7.0	38.0
1970	5.1	4.0	3.0	3.0	15.7	43.0	37.4	49.0	86.0	73.6	13.1	7.5	28.4
1971	4.5	3.5	3.0	2.7	8.8	23.7	10.5	60.7	58.3	71.1	10.7	5.0	21.9
1972	3.5	2.5	2.0	3.6	14.2	22.3	8.3	8.5	20.9	41.6	8.0	3.4	11.6
1973	2.8	2.1	2.0	2.9	15.3	63.4	28.7	42.9	87.8	110.0	19.0	6.2	31.9
1974	4.1	2.9	2.3	2.4	6.4	15.0	11.2	10.3	55.9	38.2	5.0	3.2	13.1
1975	2.4	1.7	1.3	1.3	11.2	6.9	13.8	33.7	88.1	55.4	28.2	4.2	20.7
1976	3.1	2.4	2.0	4.1	7.4	NA	16.6	8.4	20.1	20.5	4.0	2.9	8.3
1977	2.3	2.2	2.2	2.2	5.9	30.0	3.2	12.1	18.3	9.1	5.8	2.5	8.0
1978	2.1	1.9	1.7	2.2	6.0	8.1	25.4	25.5	69.0	44.3	7.8	3.5	16.5
1979	1.9	1.7	1.4	4.5	5.0	25.5	31.3	28.6	58.5	50.1	14.5	4.9	19.0
1980	3.4	2.7	2.6	2.4	18.1	58.1	18.3	40.8	56.4	63.3	11.9	5.7	23.6
1981	4.4	2.9	2.7	2.5	NA	NA	NA	NA	NA	NA	NA	NA	3.1

Cuadro 1.5 DESCARGAS MENSUALES EN EL AREA DE ESTUDIO(2/2)

MONTHLY DISCHARGE AT VADO MARIN

Unit:m3/s

YEAR	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	Average
1959	NA	NA	NA	NA	11.2	13.3	13.4	17.9	30.5	44.7	12.9	4.7	18.6
1960	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1961	8.1	7.7	9.4	12.6	13.5	18.1	45.8	9.6	79.8	133.1	32.8	9.1	31.6
1962	7.3	8.5	14.5	14.9	15.1	36.5	36.7	16.2	73.1	103.6	30.4	8.7	30.5
1963	7.9	7.5	7.0	6.7	8.6	17.0	34.3	18.2	98.2	61.6	57.0	11.4	27.9
1964	8.4	7.8	7.1	6.9	8.2	14.5	57.0	50.8	93.7	52.0	12.2	9.2	27.3
1965	7.5	6.7	5.5	4.5	8.5	23.1	14.0	20.8	94.4	72.5	10.9	7.2	23.0
1966	6.6	6.6	4.4	5.5	16.6	90.2	111.9	54.1	74.6	74.8	18.0	8.9	39.3
1967	6.8	5.7	4.2	5.6	4.8	17.9	14.6	10.5	27.9	50.3	8.6	5.8	13.6
1968	4.3	3.6	3.3	3.2	7.4	37.9	21.7	11.5	63.3	73.5	19.5	8.7	21.5
1969	5.9	4.5	4.2	3.8	13.0	37.8	49.5	76.5	159.0	122.0	49.8	16.2	45.2
1970	9.7	7.5	5.7	5.2	12.0	43.9	36.5	66.5	80.7	132.0	30.0	13.9	37.0
1971	9.8	7.4	6.2	5.3	9.4	26.4	12.5	51.3	87.1	86.1	26.1	13.0	28.4
1972	8.6	6.4	4.8	6.2	19.0	28.7	13.2	13.5	24.8	56.7	19.5	10.7	17.7
1973	7.1	6.0	6.7	7.5	12.5	58.8	30.3	40.9	110.0	140.0	45.0	15.7	40.0
1974	9.4	7.0	5.7	4.4	9.1	21.6	18.4	14.1	87.7	63.8	16.0	8.4	22.1
1975	6.1	6.0	4.9	3.0	8.5	15.5	15.9	40.5	92.9	72.1	42.3	13.6	26.8
1976	7.9	4.9	3.8	4.5	11.4	96.3	33.2	16.5	27.8	36.7	12.1	6.1	21.8
1977	4.4	4.6	4.7	4.0	9.8	28.7	7.3	15.1	19.6	14.7	9.2	5.4	10.6
1978	3.8	3.4	3.2	3.9	7.5	12.4	29.9	27.6	84.5	58.0	14.1	6.8	21.2
1979	4.7	4.8	3.1	6.6	9.9	38.2	48.8	38.6	103.5	84.0	31.0	10.8	32.0
1980	6.3	5.8	7.2	9.6	22.3	100.7	41.5	71.0	77.9	119.2	25.5	10.0	41.4
1981	6.7	6.5	9.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5

MONTHLY DISCHARGE AT LAS CONCHAS

Unit:m3/s

YEAR	MONTH 1	2	3	4	5	6	7	8	9	10	11	12	Average
1969	NA	NA	NA	NA	16.1	40.5	58.3	64.6	218.0	128.0	55.3	22.0	75.4
1970	*15.2*	*8.7*	*6.6*	*6.1*	16.3	53.0	46.8	82.3	91.9	135.0	35.5	18.4	43.0
1971	13.5	10.8	9.3	8.7	14.1	35.5	19.1	60.1	91.5	95.0	31.3	16.6	33.8
1972	12.0	9.5	8.1	9.6	23.0	34.2	16.7	17.4	28.9	62.5	21.8	13.1	21.4
1973	10.1	8.1	7.2	8.0	16.4	70.4	37.8	50.2	133.0	168.0	48.2	17.7	47.9
1974	12.0	9.5	8.1	8.9	13.7	24.6	23.6	15.5	*106.0*	*76.6*	23.0	12.8	27.9
1975	9.4	7.0	6.7	6.1	10.6	17.6	18.1	46.4	107.4	83.2	56.5	18.4	32.3
1976	11.1	8.7	7.1	8.8	14.6	99.1	36.0	18.7	34.4	44.3	16.9	10.5	25.8
1977	8.0	7.0	6.3	6.8	12.9	41.6	12.1	23.6	26.1	20.0	13.5	8.2	15.5
1978	6.3	5.7	5.7	6.4	9.7	17.0	34.9	34.6	116.0	68.4	20.2	12.4	28.1
1979	9.1	5.8	5.1	7.9	13.1	48.5	88.8	52.4	183.6	118.5	39.8	16.9	49.1
1980	11.7	8.4	6.8	6.4	21.0	200.0	53.2	92.1	114.9	235.7	288.9	NA	94.5
1981	NA	NA	9.7	9.2	NA	NA	NA	NA	NA	NA	NA	NA	9.4

Cuadro 1.6 NIVEL DEL AGUA MENSUAL EN PUERTO VIEJO (LAKE OLOMEGA)

Unit:MSL

YEAR	MONTH												Average
	1	2	3	4	5	6	7	8	9	10	11	12	
1970	NA	NA	NA	NA	64.55	64.71	64.96	65.50	65.75	66.18	65.72	65.37	65.3
1971	65.10	64.88	64.71	64.58	64.53	64.79	64.80	64.92	65.47	65.80	65.62	65.27	65.0
1972	64.96	64.74	64.55	64.44	64.60	64.97	64.84	64.77	64.81	65.45	65.45	65.12	64.9
1973	64.84	64.61	64.45	64.31	64.28	64.64	64.88	64.90	65.76	66.18	65.79	65.33	65.0
1974	65.02	64.80	64.62	64.47	64.31	64.44	64.73	64.59	65.33	65.90	65.41	65.07	64.9
1975	64.79	64.62	64.47	64.32	64.19	64.32	64.41	64.52	65.15	65.71	65.45	65.11	64.8
1976	64.84	64.65	64.47	64.31	64.29	65.30	65.54	65.18	65.08	65.12	64.94	64.74	64.9
1977	64.58	64.41	64.22	64.08	64.00	64.23	64.20	64.18	64.20	64.31	64.24	64.19	64.2
1978	64.05	63.90	63.73	63.50	63.39	63.62	63.72	63.92	64.90	65.34	65.13	64.87	64.2
1979	64.65	64.49	64.29	64.13	64.11	64.55	NA	NA	65.32	65.73	65.48	65.20	64.8
1980	64.95	64.75	64.55	NA	NA	NA	NA	65.92	65.89	66.02	65.61	65.44	65.4
1981	65.30	65.14	64.99	NA	65.06	NA	NA	65.79	NA	65.99	65.91	65.75	65.5
1982	65.62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.6

Cuadro 1.7 COEFICIENTE DE THIESSEN EN CADA SUBCUENCA PARA ESTACION PLUVIOMETRICA, INUNDACION 1975

Subbasin	Area(Km2)	Santiago de Maria	Usulutan	Beneficio Mauricio	San Francisco Gotera	Jucuro	Ozatlan	El Papalon	Beneficio El Sitio	San Miguel	Yucuaiquin	Olocuega	San Alejo	Corinto	Jucuaran	Hda. El Canal	Puerto Parada	Hda. San Jose	Canton de Lava	Sesori	Chalpeti que	Lolotique	Ciudad Barrios	Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1	113	0.00	0.00	0.00	0.65	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
2	154	0.00	0.00	0.00	0.39	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
3	128	0.00	0.00	0.00	0.72	0.01	0.11	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06	1.00
4	58	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.74	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
5	121	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.14	1.00
6	227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.51	0.24	0.15	1.00
7	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
8	85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.27	1.00
9	54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	1.00
10	97	0.00	0.00	0.00	0.00	0.12	0.00	0.09	0.14	0.09	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
11	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
12	137	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.00
13	207	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.73	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
14	219	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.02	0.02	0.08	0.11	0.00	0.00	0.00	0.00	0.21	0.11	0.00	0.00	0.00	0.00	1.00
15	263	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.17	0.00	0.35	0.34	0.00	0.00	0.00	1.00
16	138	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.62	0.00	0.00	0.10	0.00	0.00	0.16	1.00
17	200	0.22	0.51	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.06	1.00
18	9	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	1.00
TOTAL	2247	0.25	0.59	0.19	1.80	1.01	0.43	1.13	3.60	1.65	0.59	0.81	0.37	0.00	0.21	0.79	0.99	0.55	0.60	0.06	1.34	0.72	0.35	16.00

Cuadro 1.8 COEFICIENTE DE THIESSEN EN CADA SUBCUENCA PARA ESTACION PLUVIOMETRICA, INUNDACION 1980

Subbasin	Area(Km2)	San Francisco Gotera	Yucuaiquin	El Papalon	Beneficio El Sitio	San Alejo	Uluazapa	Sesori	Ciudad Barrios	Lolotique	Jucuaran	H. El Canal	C. La Lava	Usulutan	Puerto Parada	Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1	113	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	1.00
2	154	0.72	0.27	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
3	128	0.73	0.00	0.00	0.09	0.00	0.05	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	1.00
4	58	0.00	0.01	0.00	0.52	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
5	121	0.23	0.00	0.00	0.28	0.00	0.00	0.00	0.43	0.05	0.00	0.00	0.00	0.00	0.00	1.00
6	227	0.00	0.00	0.00	0.11	0.00	0.00	0.15	0.22	0.51	0.00	0.00	0.00	0.00	0.00	1.00
7	24	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
8	85	0.00	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.03	0.00	0.00	1.00
9	54	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	1.00
10	97	0.00	0.34	0.00	0.09	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
11	13	0.00	0.00	0.25	0.73	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
12	137	0.00	0.00	0.65	0.22	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	1.00
13	207	0.00	0.00	0.23	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	1.00
14	219	0.00	0.00	0.50	0.00	0.06	0.17	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	1.00
15	263	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.17	0.55	0.00	0.00	1.00
16	138	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.15	0.06	0.62	0.11	0.05	0.00	1.00
17	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.80	0.02	1.00
18	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.99	1.00
TOTAL	2247	2.65	0.62	1.63	4.74	0.82	1.39	0.15	0.82	1.15	0.34	0.79	1.02	0.86	1.01	18.00

Cuadro 1.9 COEFICIENTE DE THIESSEN EN CADA SUBCUENCA PARA ESTACION PLUVIOMETRICA, INUNDACION 1982

		San Francisco Gotera	Jocoro	El Papalon	Canton La Lava	Puerto Parada	Santiago de Maria	Lolotique	Chapeltique	
Subbasin	Area(km^2)	1	2	3	4	5	6	7	8	Total
1	113	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.00
2	154	0.40	0.60	0.00	0.00	0.00	0.00	0.00	0.00	1.00
3	128	0.86	0.06	0.00	0.00	0.00	0.00	0.00	0.08	1.00
4	58	0.04	0.49	0.34	0.00	0.00	0.00	0.00	0.13	1.00
5	121	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.96	1.00
6	227	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.75	1.00
7	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
8	85	0.00	0.00	0.21	0.05	0.00	0.00	0.63	0.11	1.00
9	54	0.00	0.00	0.79	0.17	0.00	0.00	0.04	0.00	1.00
10	97	0.00	0.58	0.42	0.00	0.00	0.00	0.00	0.00	1.00
11	13	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
12	137	0.00	0.00	0.92	0.08	0.00	0.00	0.00	0.00	1.00
13	207	0.00	0.00	0.99	0.01	0.00	0.00	0.00	0.00	1.00
14	219	0.00	0.00	0.74	0.26	0.00	0.00	0.00	0.00	1.00
15	263	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
16	138	0.00	0.00	0.00	0.66	0.16	0.01	0.16	0.00	1.00
17	200	0.00	0.00	0.00	0.05	0.28	0.62	0.05	0.00	1.00
18	9	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Total	2247	2.32	1.75	5.41	2.29	1.45	0.63	1.13	3.03	18.00

Cuadro 1.10 COEFICIENTE DE THIESSEN EN CADA SUBCUENCA PARA ESTACION PLUVIOMETRICA, INUNDACION 1988

		San Francisco Gotera	Beneficio El Sitio	El Papalon	Santiago de Maria	Usulutan	Puerto Parada	
Subbasin	Area(Km2)	1	2	3	4	5	6	Total
1	113	1.00	0.00	0.00	0.00	0.00	0.00	1.00
2	154	1.00	0.00	0.00	0.00	0.00	0.00	1.00
3	128	1.00	0.00	0.00	0.00	0.00	0.00	1.00
4	58	0.39	0.00	0.61	0.00	0.00	0.00	1.00
5	121	0.99	0.00	0.01	0.00	0.00	0.00	1.00
6	227	0.56	0.00	0.13	0.32	0.00	0.00	1.00
7	24	0.10	0.00	0.90	0.00	0.00	0.00	1.00
8	85	0.00	0.00	0.84	0.16	0.00	0.00	1.00
9	54	0.00	0.00	1.00	0.00	0.00	0.00	1.00
10	97	0.19	0.00	0.81	0.00	0.00	0.00	1.00
11	13	0.00	0.00	1.00	0.00	0.00	0.00	1.00
12	137	0.00	0.00	1.00	0.00	0.00	0.00	1.00
13	207	0.00	0.00	1.00	0.00	0.00	0.00	1.00
14	219	0.00	0.00	1.00	0.00	0.00	0.00	1.00
15	263	0.00	0.00	0.75	0.03	0.00	0.22	1.00
16	138	0.00	0.00	0.03	0.35	0.00	0.62	1.00
17	200	0.00	0.00	0.00	0.69	0.00	0.31	1.00
18	9	0.00	0.00	0.00	0.00	0.00	1.00	1.00
TOTAL	2247	5.23	0.00	9.08	1.54	0.00	2.15	18.00

Cuadro 1.11 COEFICIENTE DE THIESSEN EN CADA SUBCUENCA PARA ESTACION PLUVIOMETRICA, INUNDACION 1992

		San Francisco Gotera	Canton Barrios	El Papalon	Usulutan	Santiago de Maria	Puerto Parada	
Subbasin	Area(km^2)	2	1	3	5	6	4	Total
1	113	0.97	0.03	0.00	0.00	0.00	0.00	1.00
2	154	1.00	0.00	0.00	0.00	0.00	0.00	1.00
3	128	0.87	0.13	0.00	0.00	0.00	0.00	1.00
4	58	0.40	0.00	0.60	0.00	0.00	0.00	1.00
5	121	0.49	0.50	0.01	0.00	0.00	0.00	1.00
6	227	0.03	0.66	0.11	0.00	0.20	0.00	1.00
7	24	0.13	0.00	0.87	0.00	0.00	0.00	1.00
8	85	0.00	0.00	0.85	0.00	0.15	0.00	1.00
9	54	0.00	0.00	1.00	0.00	0.00	0.00	1.00
10	97	0.19	0.00	0.81	0.00	0.00	0.00	1.00
11	13	0.00	0.00	1.00	0.00	0.00	0.00	1.00
12	137	0.00	0.00	1.00	0.00	0.00	0.00	1.00
13	207	0.00	0.00	1.00	0.00	0.00	0.00	1.00
14	219	0.00	0.00	1.00	0.00	0.00	0.00	1.00
15	263	0.00	0.00	0.67	0.25	0.00	0.08	1.00
16	138	0.00	0.00	0.03	0.59	0.20	0.18	1.00
17	200	0.00	0.00	0.00	0.56	0.42	0.03	1.00
18	9	0.00	0.00	0.00	0.03	0.00	0.97	1.00
Total	2247	4.07	1.33	8.95	1.42	0.97	1.26	18.00

Cuadro 1.12 COEFICIENTE DE THIESSEN EN CADA SUBCUENCA PARA ESTACION PLUVIOMETRICA, INUNDACION 1995

		San Francisco Gotera	Corinto	Osicala	Chapeltique	Sesori	Ciudad Barrios	El Papalon	Yucuaiquin	Beneficio El Sitio	San Miguel Fenadesal	Santiago de Maria	San Jorge	Lolotique	Puerto Parada	Jucuaran	San Alejo	
Subbasin	Area(Km2)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
1	113	0.67	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
2	154	0.70	0.03	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
3	128	0.72	0.00	0.09	0.07	0.00	0.07	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
4	58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
5	121	0.03	0.00	0.00	0.76	0.00	0.16	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
6	227	0.00	0.00	0.00	0.67	0.06	0.15	0.00	0.00	0.04	0.00	0.02	0.06	0.00	0.00	0.00	0.00	1.00
7	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
8	85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.10	0.23	0.00	0.00	0.00	0.00	1.00
9	54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.15	0.00	0.06	0.00	0.00	0.00	0.00	1.00
10	97	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.66	0.17	0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.00
11	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
12	137	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.43	0.00	0.01	0.00	0.00	0.00	0.00	1.00
13	207	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	1.00
14	219	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.02	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.11	1.00
15	263	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.33	0.03	0.00	0.56	0.00	0.04	0.00	0.00	1.00
16	138	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.28	0.00	0.00	1.00
17	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.59	0.00	0.16	0.00	0.00	1.00
18	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
TOTAL	2247	2.12	0.03	0.43	1.50	0.06	0.38	1.69	1.18	3.88	1.77	0.37	2.25	0.00	1.47	0.00	0.88	18.00

Cuadro 1.13 PRECIPITACION DIARIA REGISTRADA DURANTE SEPT 14-20, 1982

		S1	S2	S3	S4	S5	S6	S7	S8		
Month	Day	S.Francisco .Gotera	Jocoro	El Papalon	Cto. La Lava	Pto. Parada	Santiago de Maria	Lolotique	Chapeltique	Basin averaged(S 1-S8)	Basin averaged(S1,3,6)
9	14	6.6	9.7	13.8	3.4	0.3	14.8	58.2	0.0	10.6	11.8
9	15	4.3	15.5	20.8	25.5	26.2	22.9	8.6	14.3	17.4	16.3
9	16	20.2	16.0	31.0	38.9	18.9	12.8	18.7	25.5	25.9	24.3
9	17	7.3	17.5	0.8	4.0	30.2	8.1	1.6	0.3	6.2	4.1
9	18	11.3	34.0	37.0	13.2	20.1	22.2	78.0	26.2	29.3	26.5
9	19	105.0	33.6	175.4	153.6	170.3	155.3	170.0	127.5	140.3	150.4
9	20	49.8	58.5	29.9	20.0	66.1	113.6	20.0	70.1	46.0	51.9
Total	0	204.5	184.8	308.7	258.6	332.1	349.7	355.1	263.9	275.6	285.3 =Rm

Basin averaged 7 days rainfall for 10 years return period Rd= 271.7

Rd/Rm= 0.95 (Multiplier)

Cuadro 1.14 PRECIPITACION DIARIA REDUCIDA POR EL MULTIPLICADOR, 1982

		S1	S2	S3	S4	S5	S6	S7	S8		
		S.Francisco .Gotera	Jocoro	El Papalon	Cto. La Lava	Pto. Parada	Santiago de Maria	Lolotique	Chapeltique	Basin averaged(S 1-S8)	Basin averaged(S1,3,6)
9	14	6.3	9.2	13.1	3.2	0.3	14.1	55.4	0.0	10.1	11.3
9	15	4.1	14.8	19.8	24.3	25.0	21.8	8.2	13.6	16.6	15.5
9	16	19.2	15.2	29.5	37.0	18.0	12.2	17.8	24.3	24.6	23.1
9	17	7.0	16.7	0.8	3.8	28.8	7.7	1.5	0.3	6.0	3.9
9	18	10.8	32.4	35.2	12.6	19.1	21.1	74.3	25.0	27.9	25.2
9	19	100.0	32.0	167.1	146.3	162.2	147.9	161.9	121.4	133.6	143.3
9	20	47.4	55.7	28.5	19.0	63.0	108.2	19.0	66.8	43.8	49.4
Total		194.8	176.0	294.0	246.3	316.3	333.1	338.2	251.3	262.5	271.7

Cuadro 1.15 PRECIPITACION DIARIA REGISTRADA DURANTE SEPT 24-30, 1992

		S1	S2	S3	S4	S5	S6		
Month	Day	Z2:San Francisco Gotera	M5:Ciudad Barrios	M6:El Papalon	U4:Usulutan	U6:Santiago de Maria	U14:Puerto Parada	Basin Averaged(S1-S6)	Basin Averaged(S1,3,5)
9	24	27.6	3.0	0.0	46.0	11.3	39.4	13.5	10.4
9	25	39.9	60.0	54.8	0.0	37.3	49.1	46.1	47.0
9	26	12.7	25.0	58.4	33.0	42.5	28.3	40.6	41.7
9	27	65	76.0	51.0	9.0	37.7	26.2	50.2	52.7
9	28	95.8	48.5	56.4	93.0	22.0	62.0	66.2	61.6
9	29	0.8	9.5	114.4	15.5	104.1	0.0	64.6	78.4
9	30	0	0.0	5.2	0.0	28.1	42.0	7.0	8.0
Total	0	241.8	222.0	340.2	196.5	283.0	247.0	288.3	299.8
									=Rm

Basin averaged 7 days rainfall for 10 years return period Rd= 271.7

Rd/Rm= 0.91 (Multiplier)

Cuadro 1.16 PRECIPITACION DIARIA REDUCIDA POR EL MULTIPLICADOR, 1992

		S1	S2	S3	S4	S5	S6		
		Z2:San Francisco Gotera	M5:Ciudad Barrios	M6:El Papalon	U4:Usulutan	U6:Santiago de Maria	U14:Puerto Parada	Basin Averaged	Basin Averaged
9	14	25.0	2.7	0.0	41.7	10.2	35.7	12.2	9.5
9	15	36.2	54.4	49.7	0.0	33.8	44.5	41.8	42.6
9	16	11.5	22.7	52.9	29.9	38.5	25.7	36.8	37.8
9	17	58.9	68.9	46.2	8.2	34.2	23.7	45.5	47.7
9	18	86.8	44.0	51.1	84.3	19.9	56.2	60.0	55.9
9	19	0.7	8.6	103.7	14.0	94.4	0.0	58.5	71.0
9	20	0.0	0.0	4.7	0.0	25.5	38.1	6.4	7.3
Total		219.2	201.2	308.4	178.1	256.5	223.9	261.3	271.7

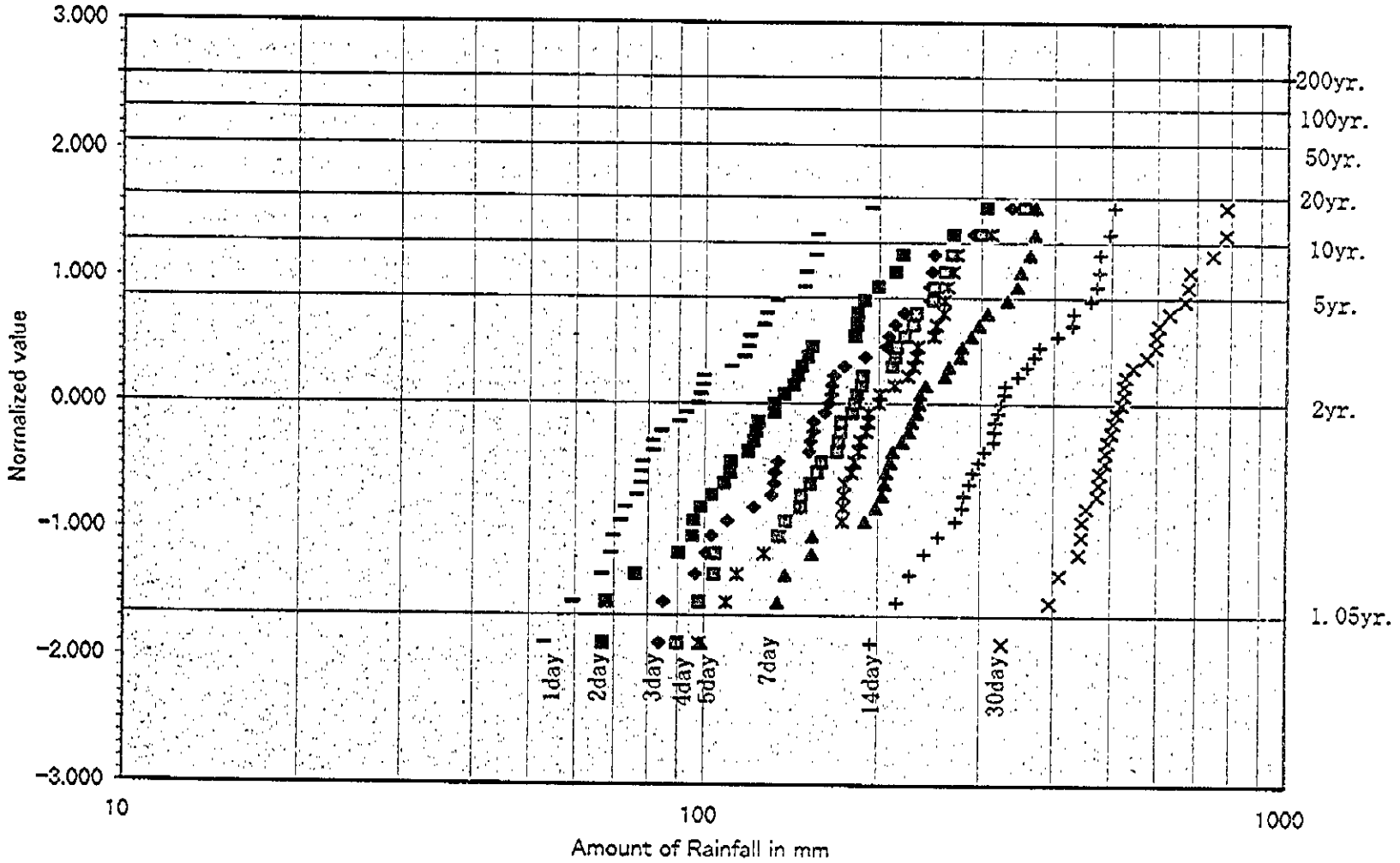


Figura 1.1 REGISTRO-CUADRO NORMAL DE PRECIPITACION EN SANTIAGO DE MARIA

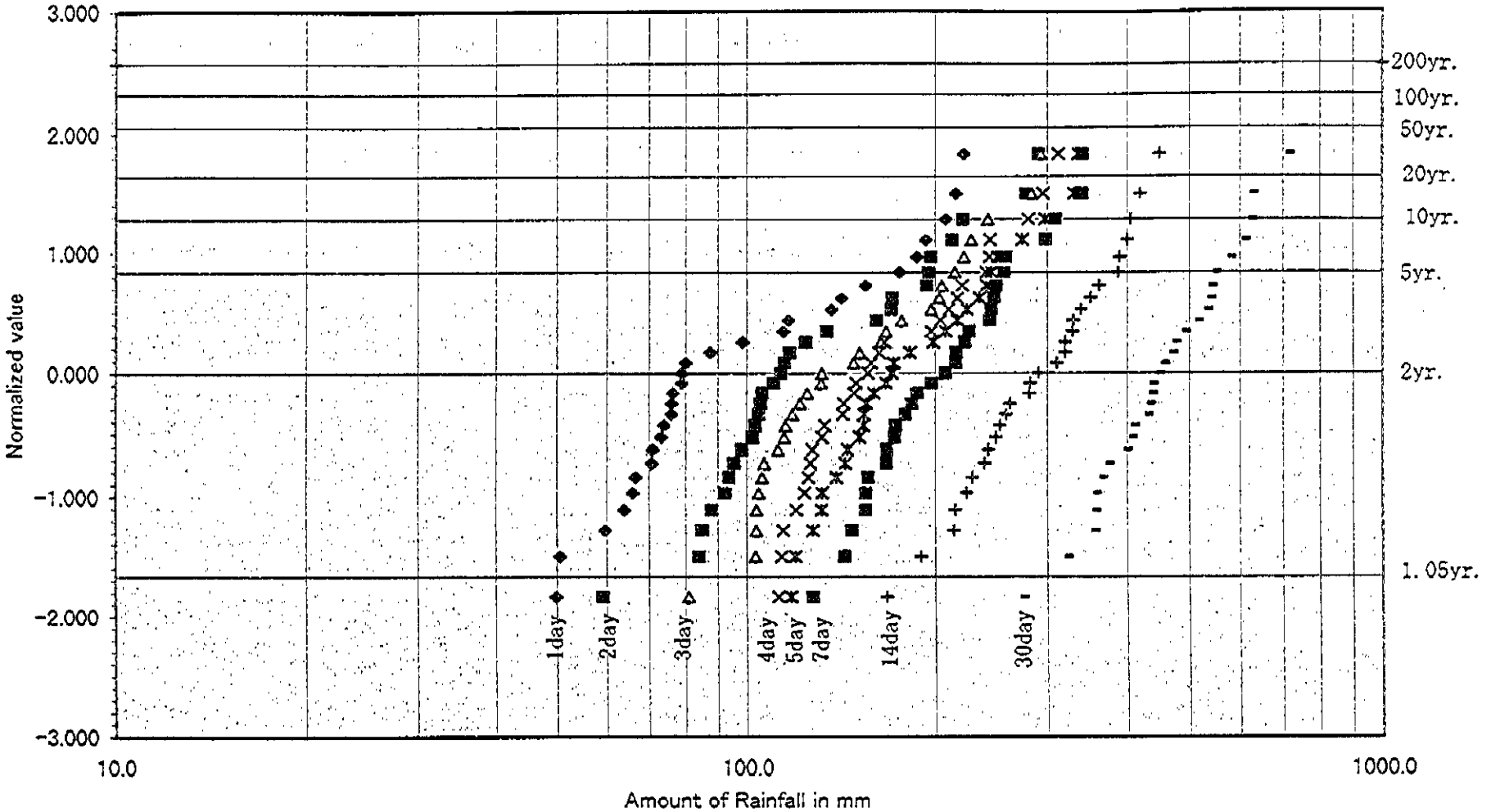


Figura 1.2 REGISTRO-CUADRO NORMAL DE PRECIPITACION EN EL PAPALON

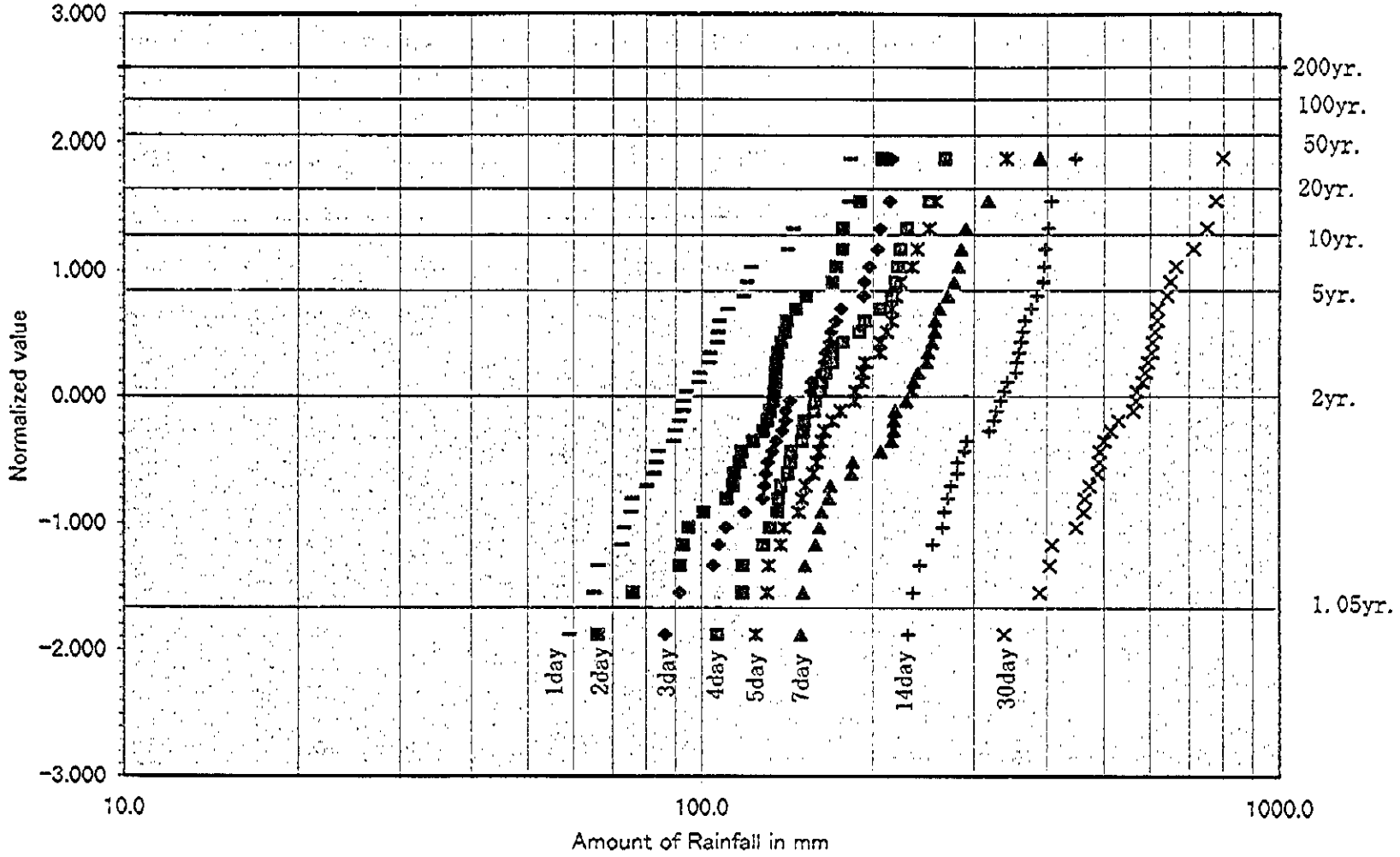


Figura 1.3 REGISTRO-CUADRO NORMAL DE PRECIPITACION EN SAN FRANCISCO GOTERA

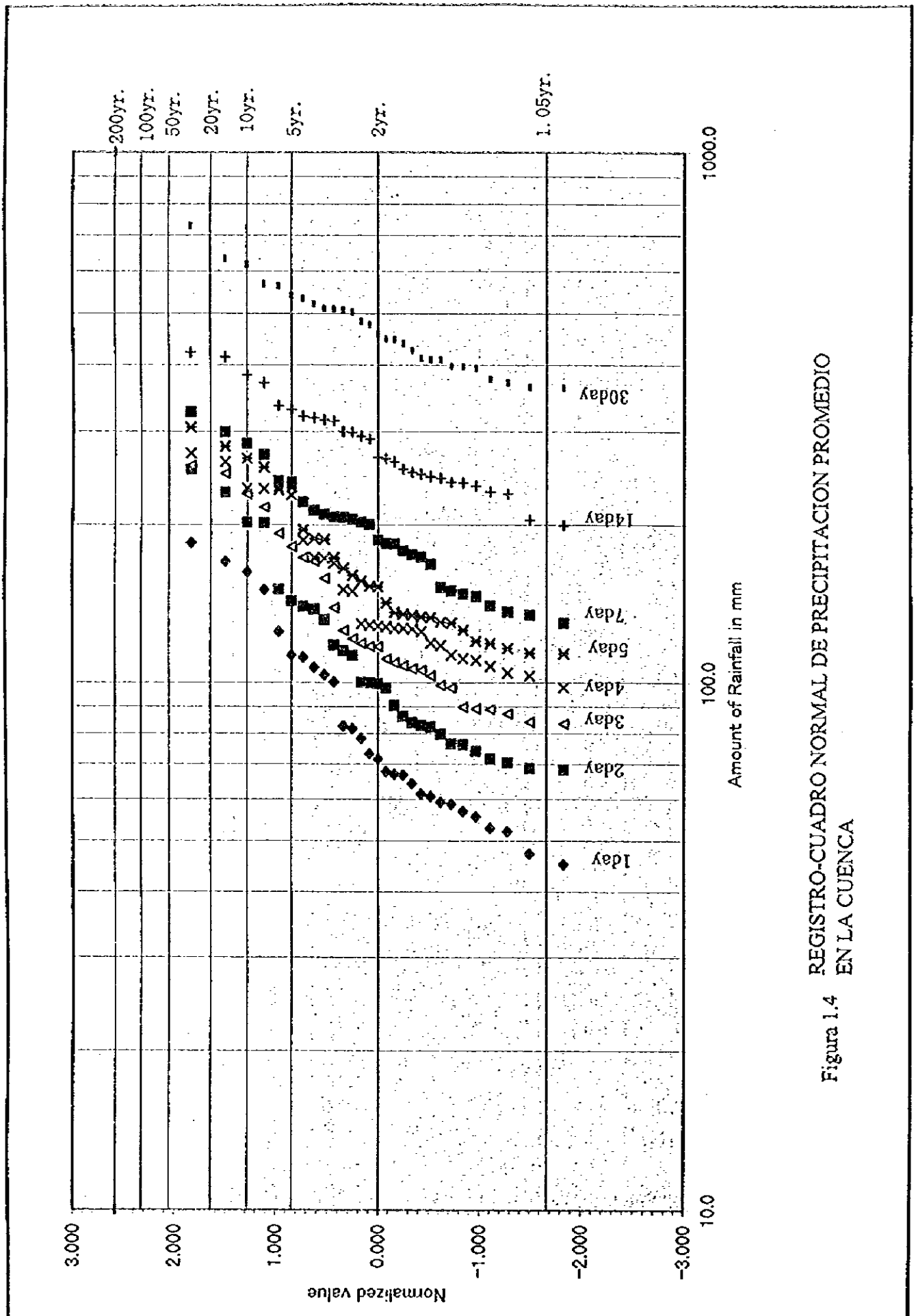


Figura 1.4 REGISTRO-CUADRO NORMAL DE PRECIPITACION PROMEDIO EN LA CUENCA

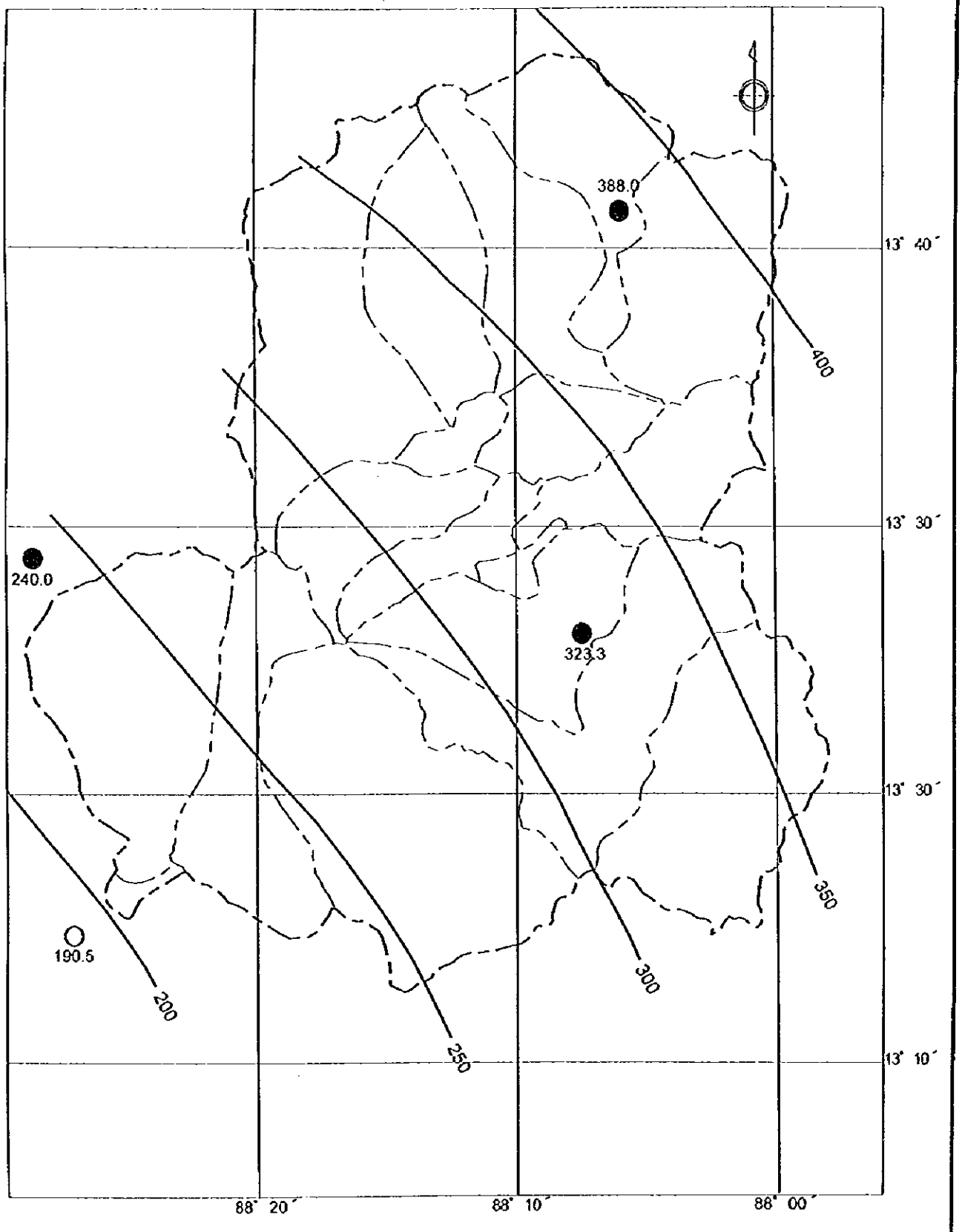


Figura 1.5 LINEAS ISOHIETAS DE LA CANTIDAD DE PRECIPITACION DURANTE SEPT 10-16, 1988

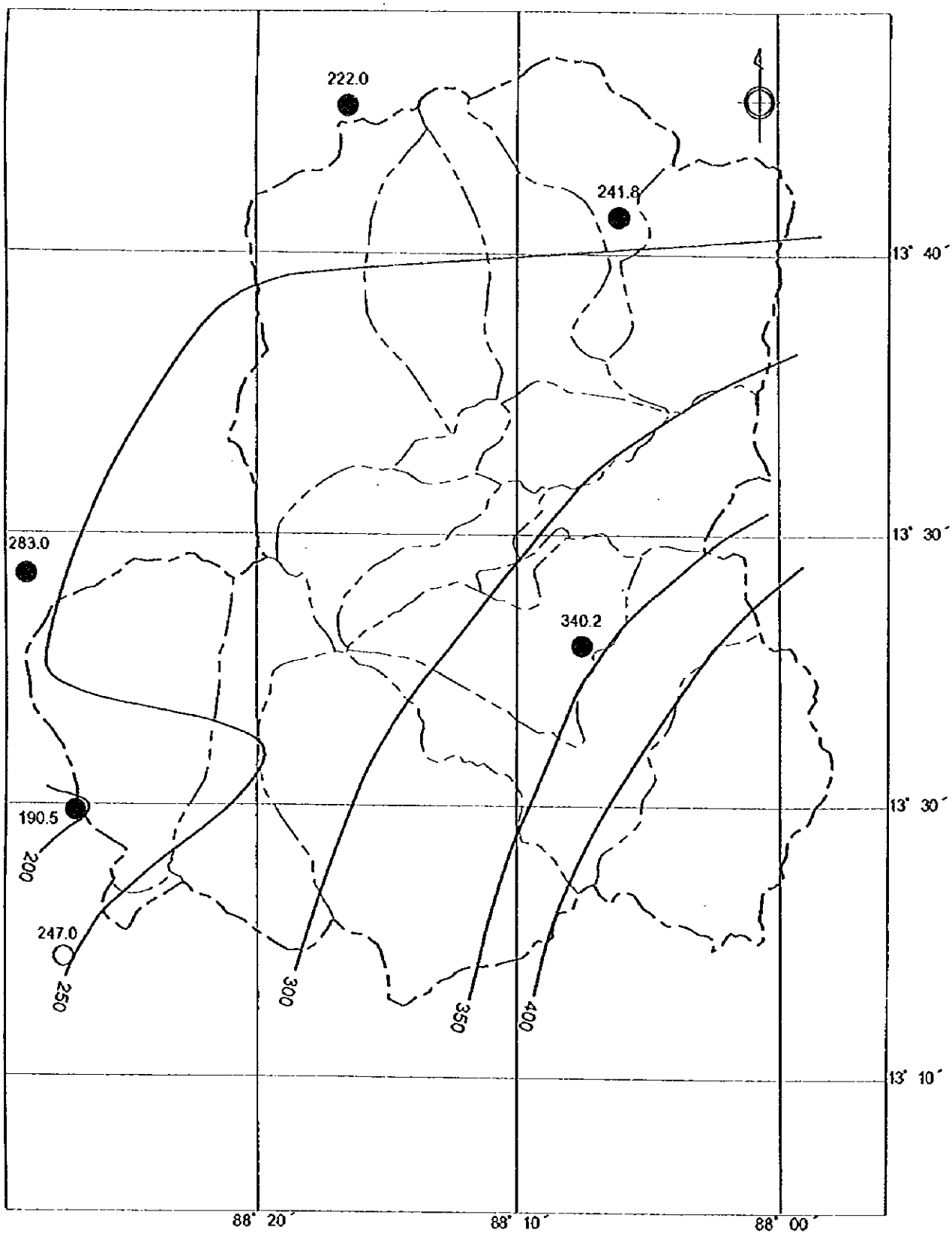


Figura 1.6 LINEAS ISOHIETAS DE LA CANTIDAD DE PRECIPITACION DURANTE SEPT 24-30, 1992

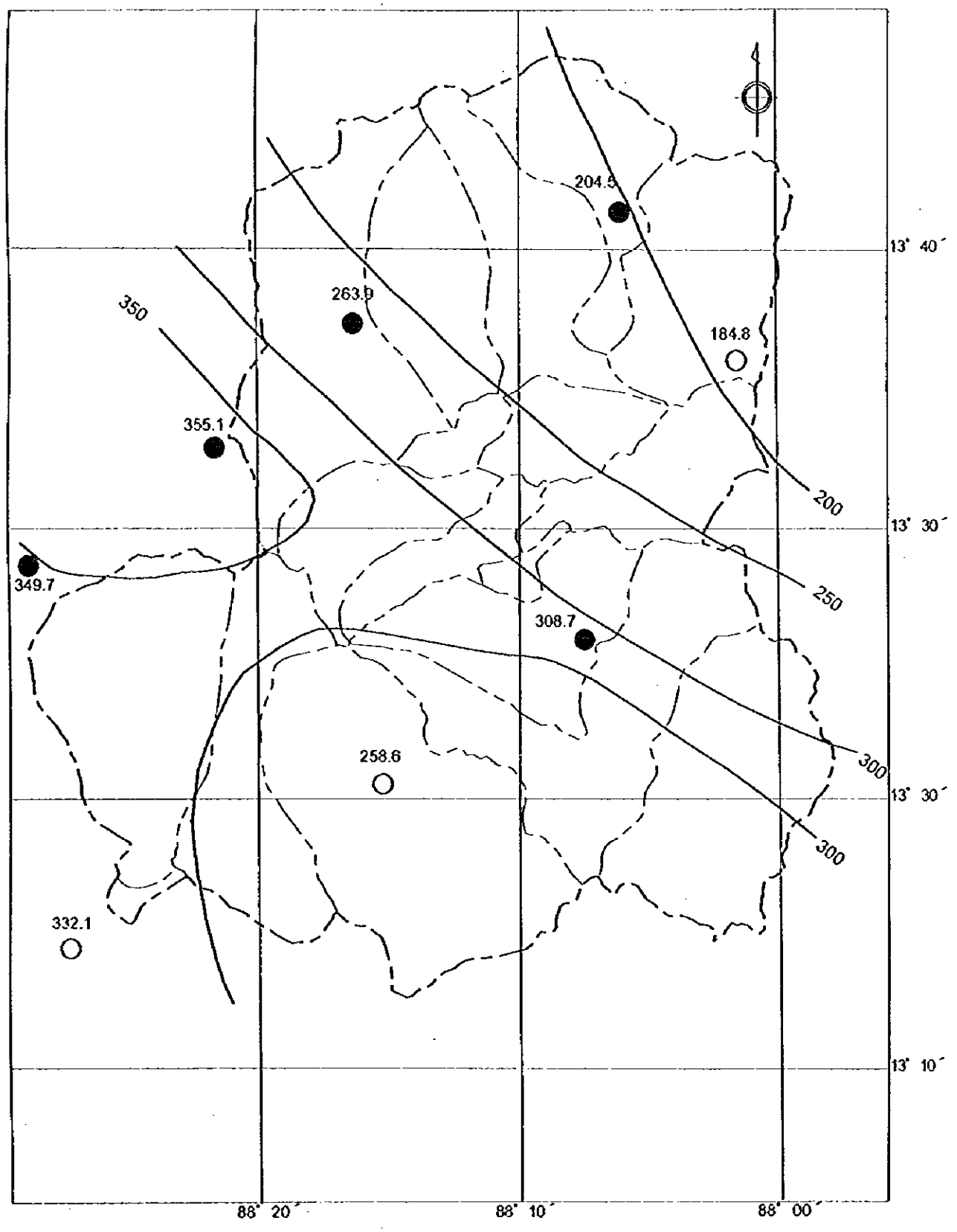


Figura 1.7 LINEAS ISOHIETAS DE LA CANTIDAD DE PRECIPITACION DURANTE SEPT 14-20, 1982

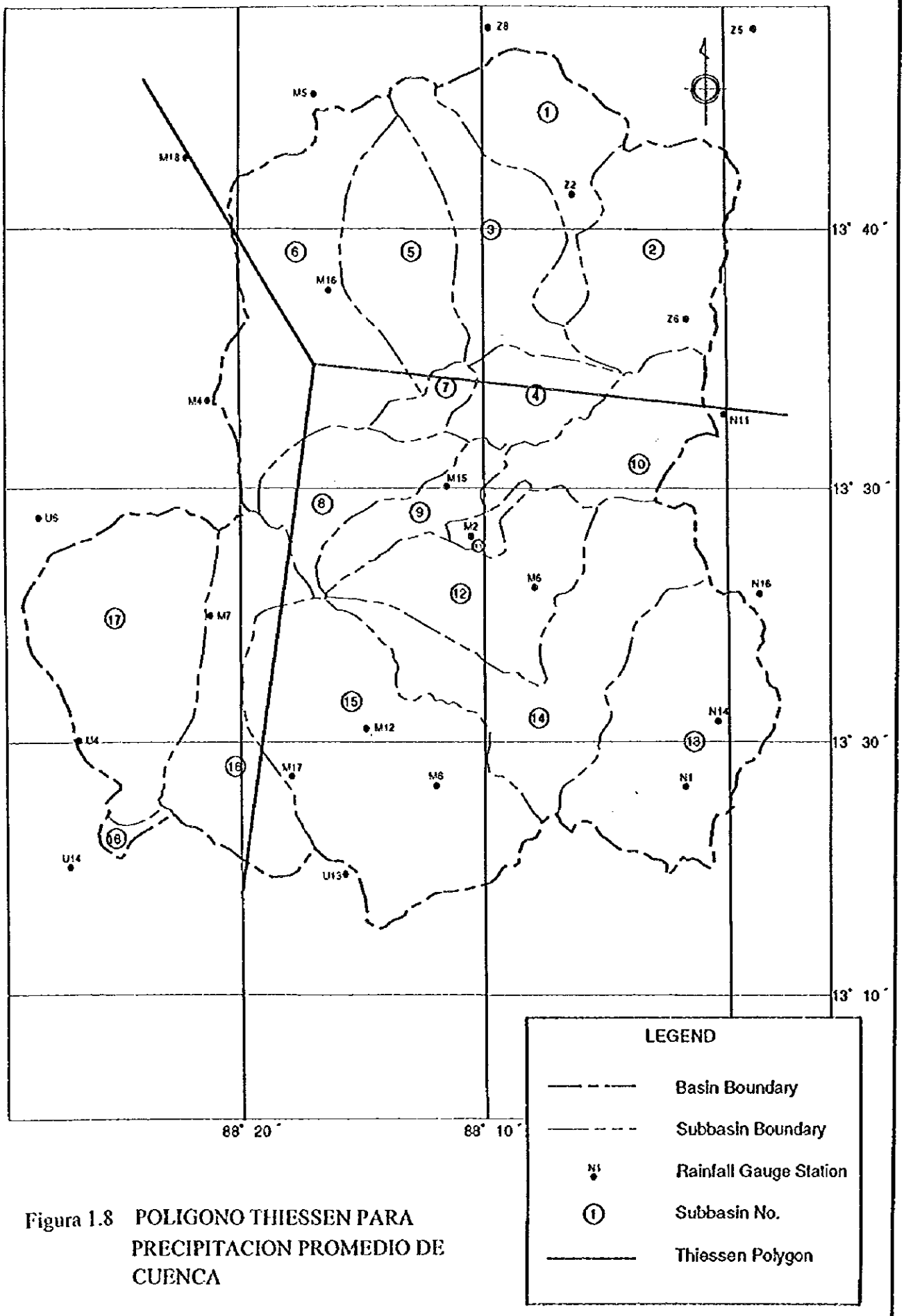


Figura 1.8 POLIGONO THIESSEN PARA PRECIPITACION PROMEDIO DE CUENCA

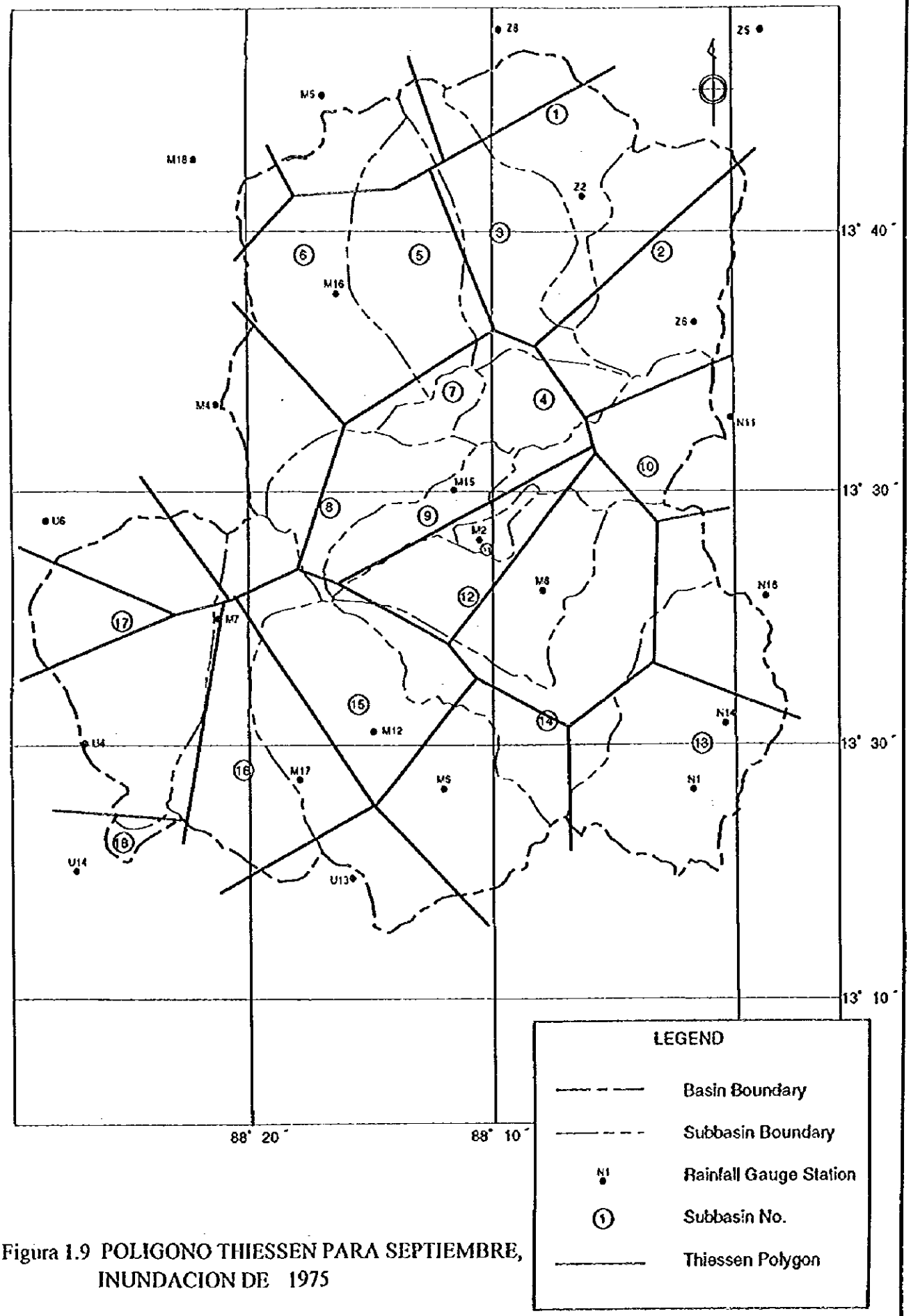


Figura 1.9 POLIGONO THIESSEN PARA SEPTIEMBRE, INUNDACION DE 1975

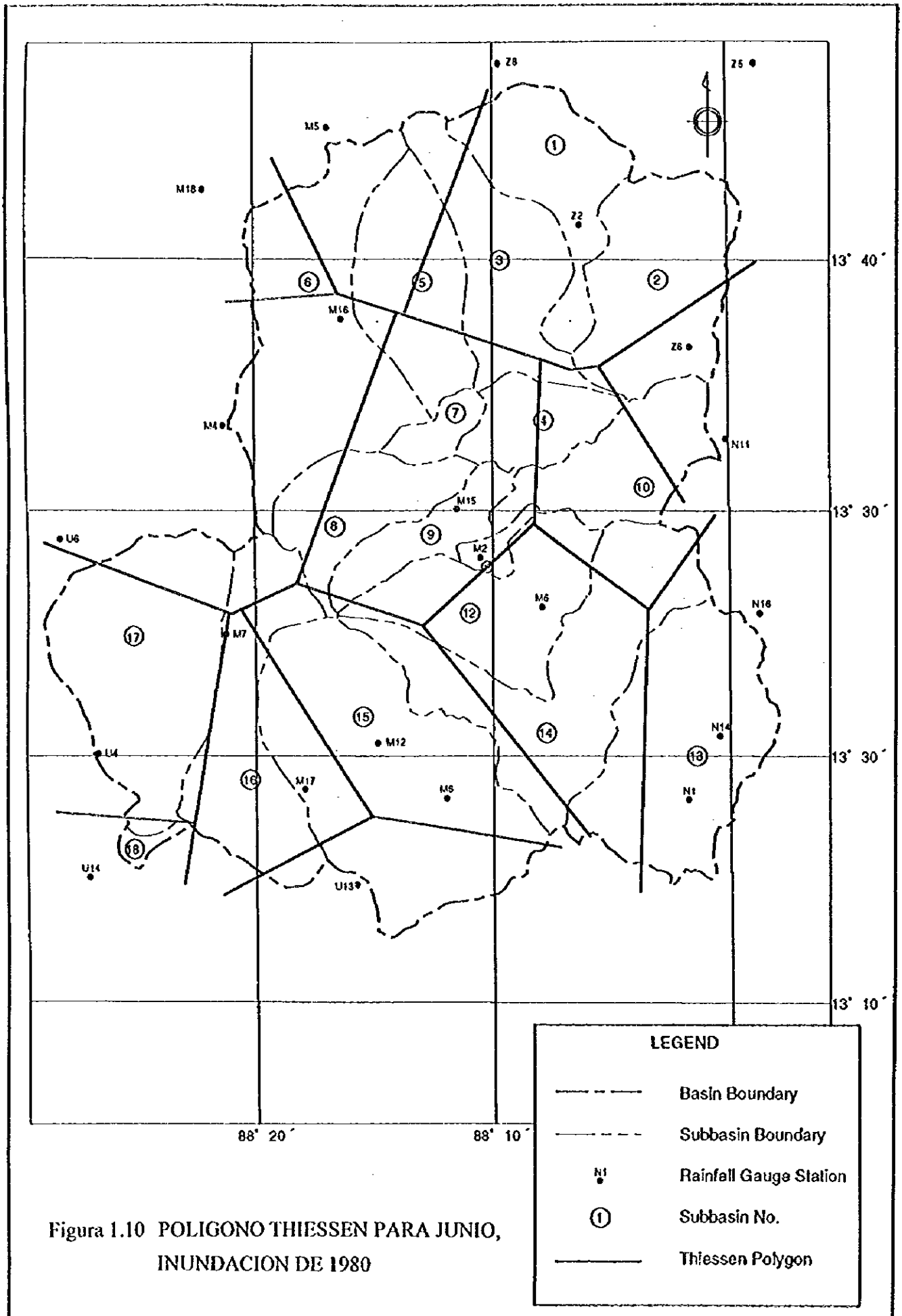


Figura 1.10 POLIGONO THIESSEN PARA JUNIO, INUNDACION DE 1980

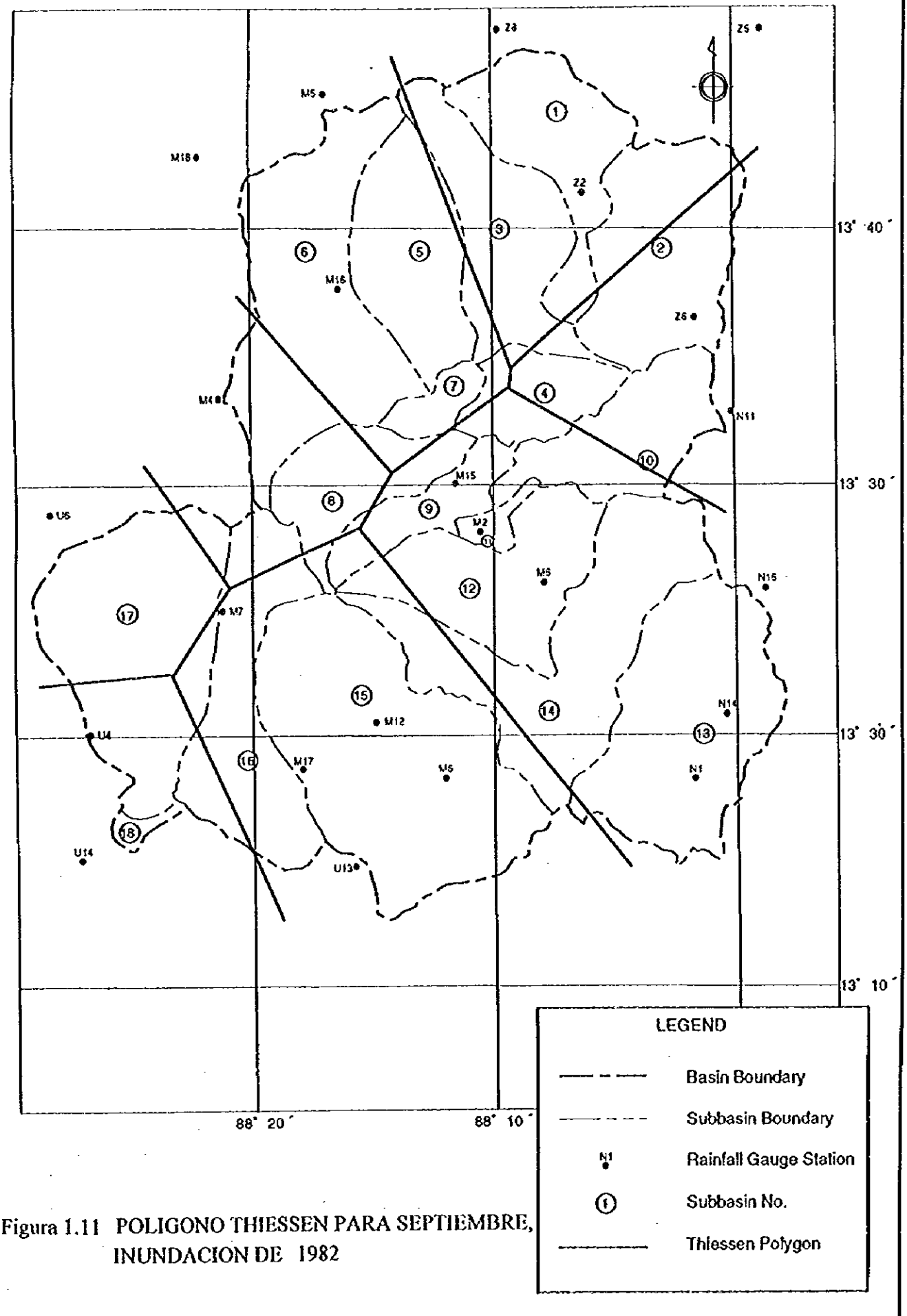


Figura 1.11 POLIGONO THIESSEN PARA SEPTIEMBRE, INUNDACION DE 1982

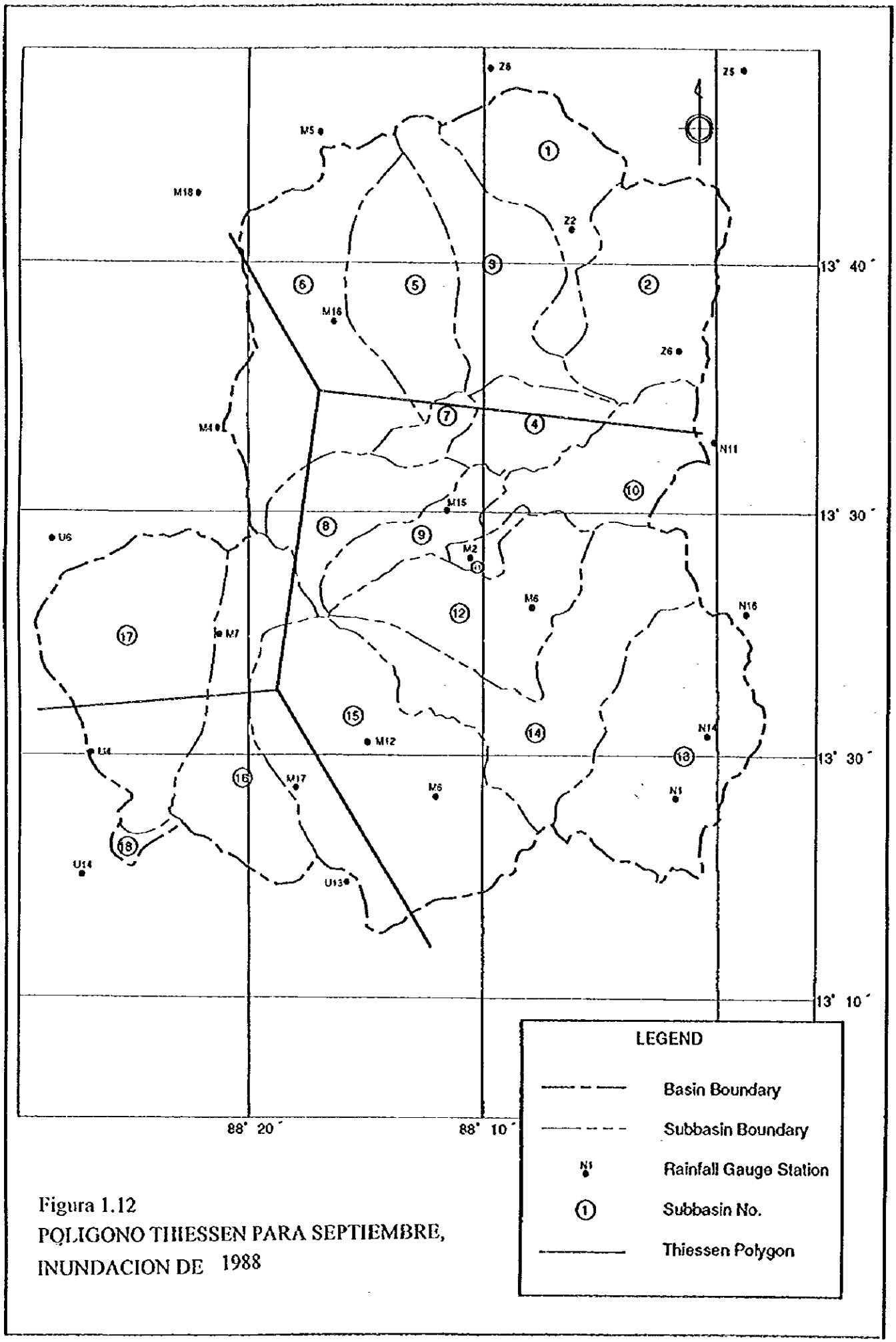


Figura 1.12
POLIGONO THIESSEN PARA SEPTIEMBRE, INUNDACION DE 1988

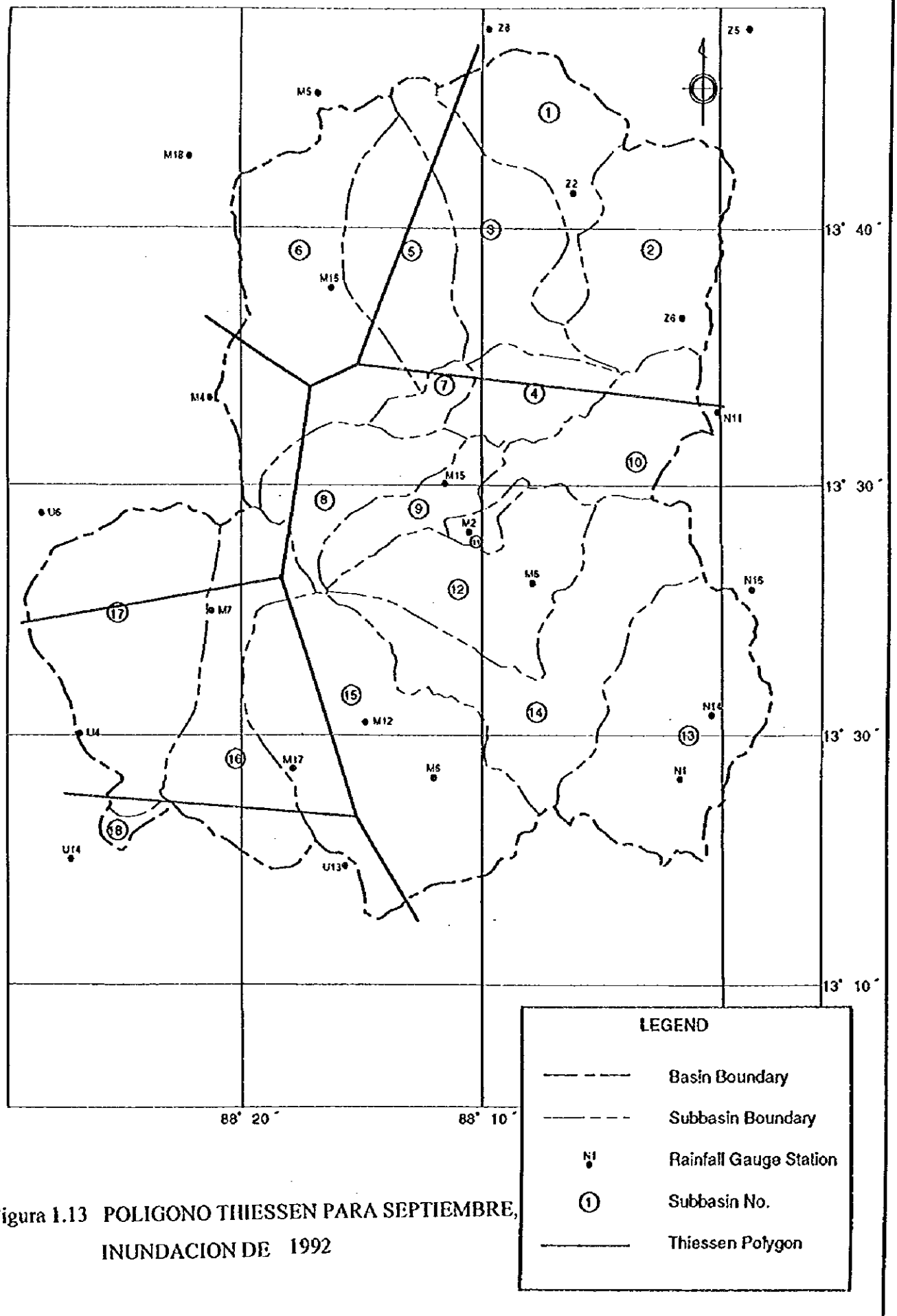


Figura 1.13 POLIGONO THIESSEN PARA SEPTIEMBRE, INUNDACION DE 1992

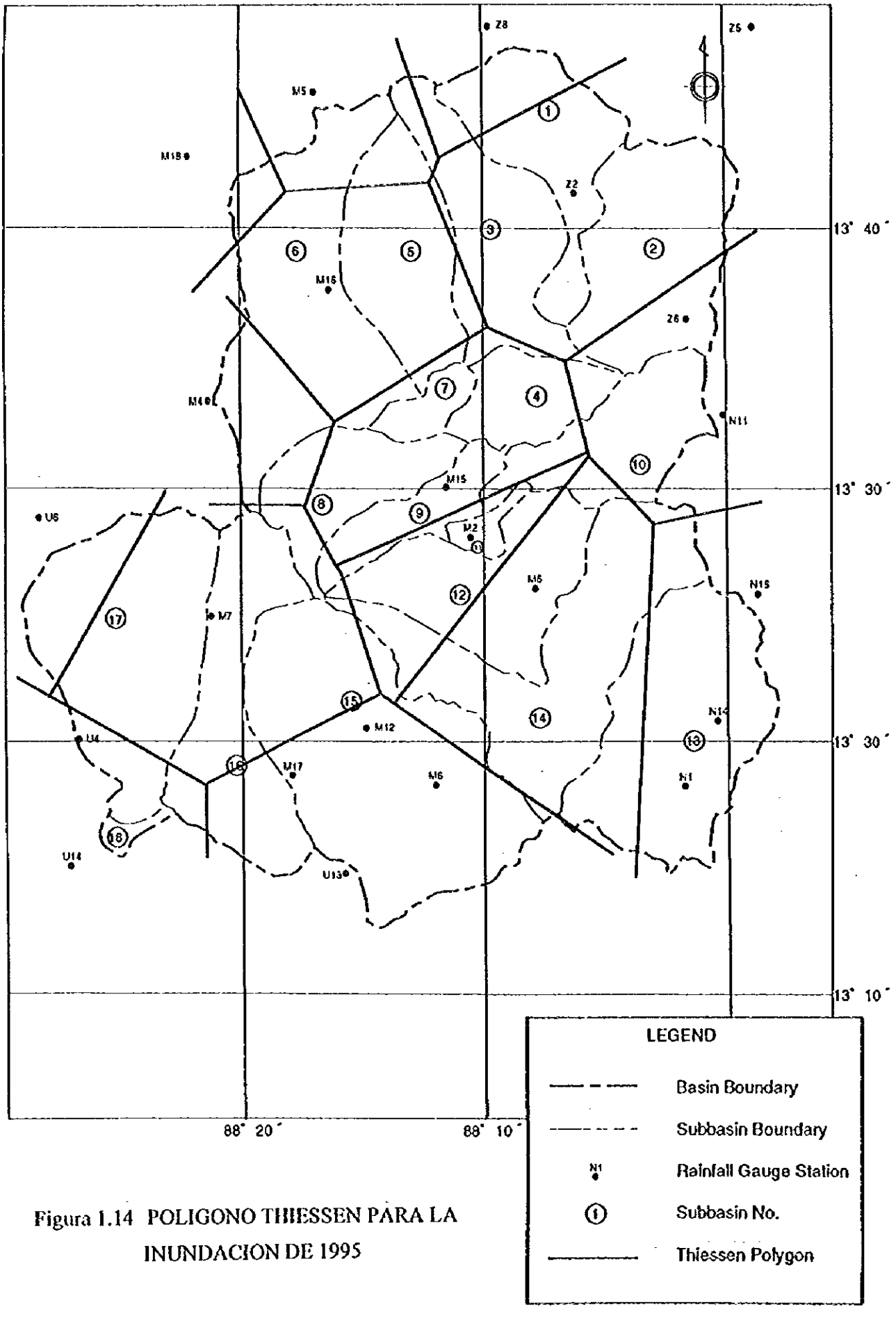


Figura 1.14 POLIGONO THIESSEN PARA LA INUNDACION DE 1995

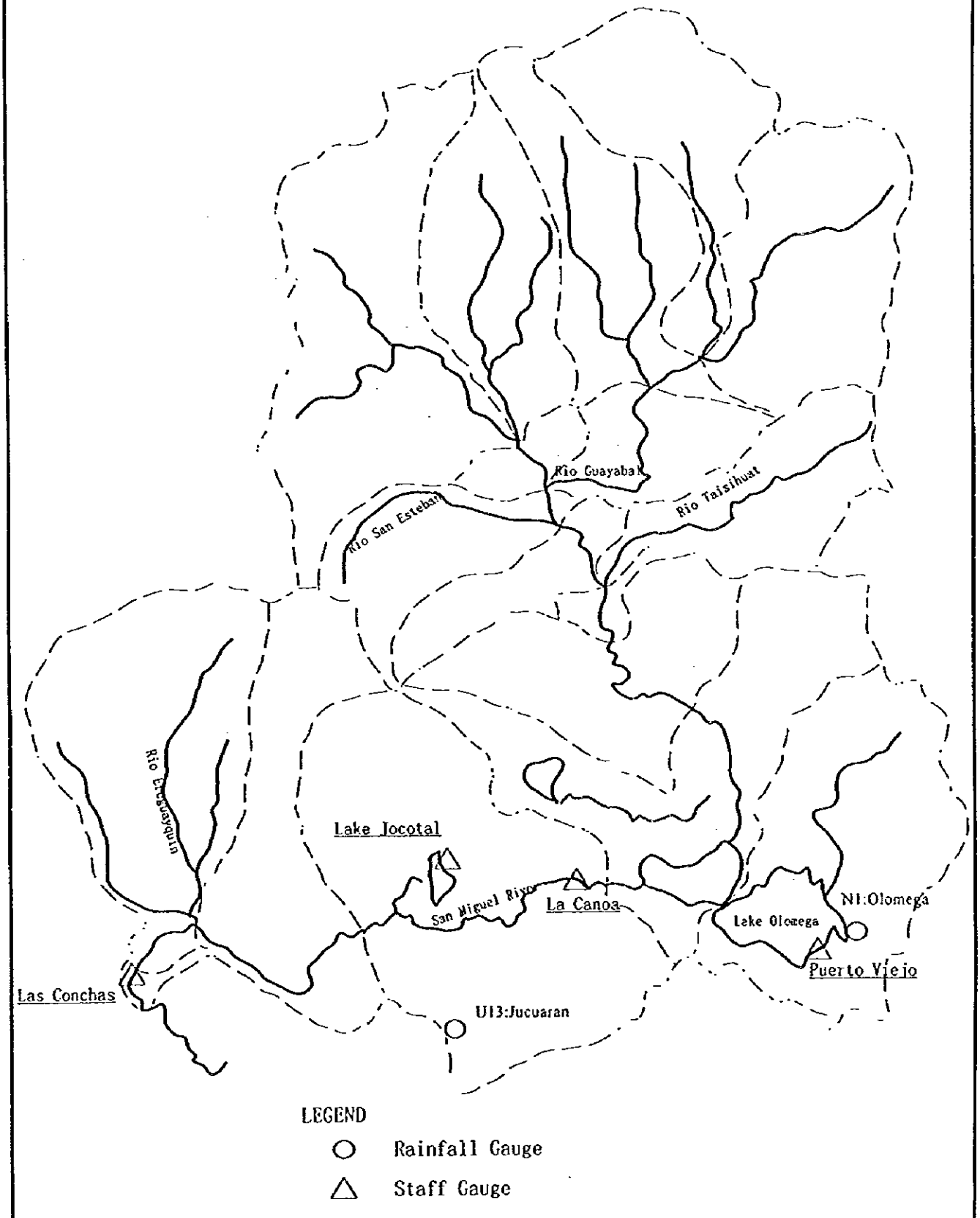
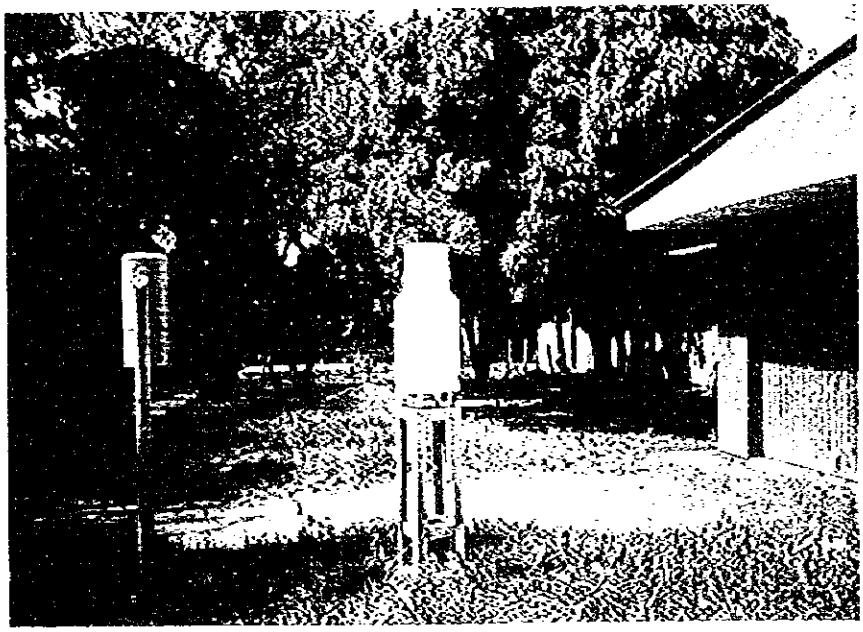
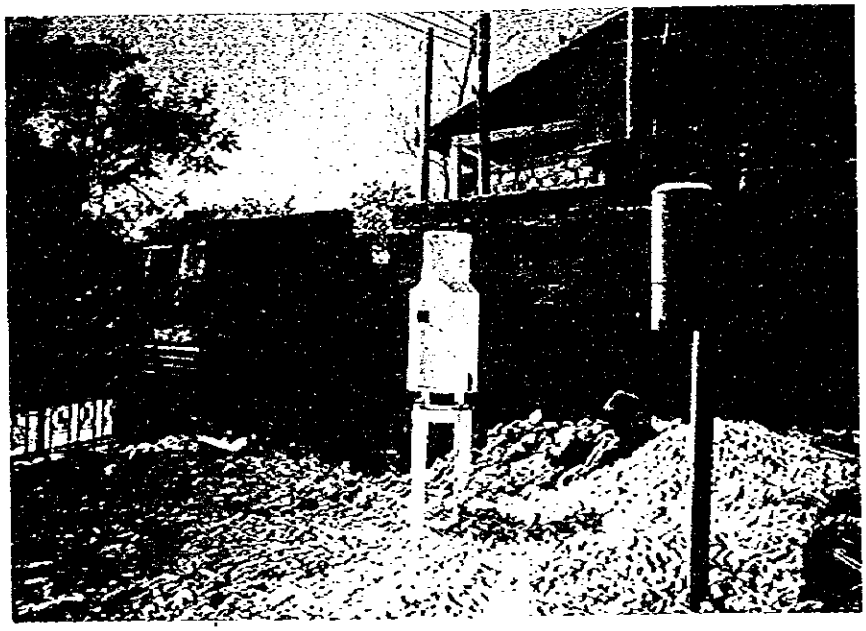


Figura 1.15 UBICACION DE LOS PLUVIOMETROS Y ESCALAS HIDROMETRICAS RECIEN INSTALADOS



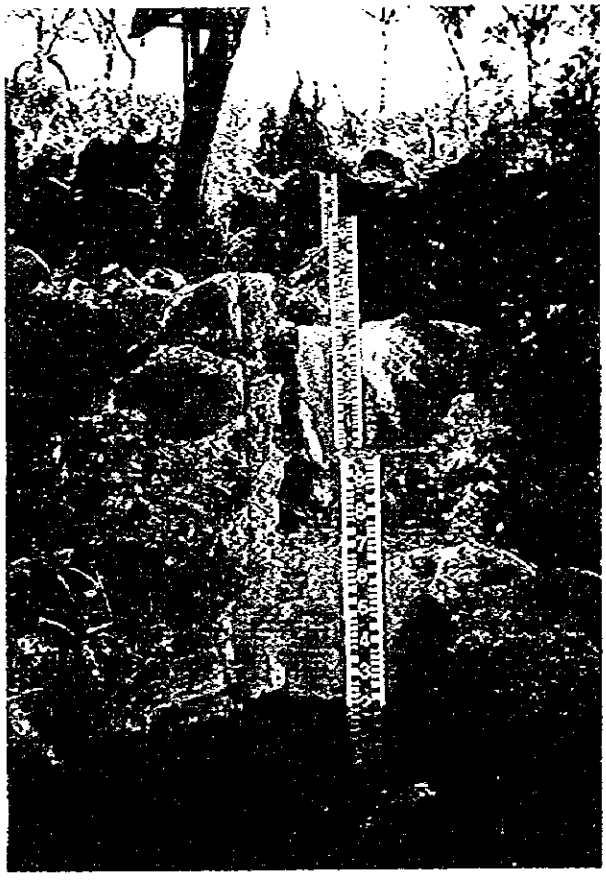
Rainfall Gauge at Jucuaran



Rainfall Gauge at Olomega

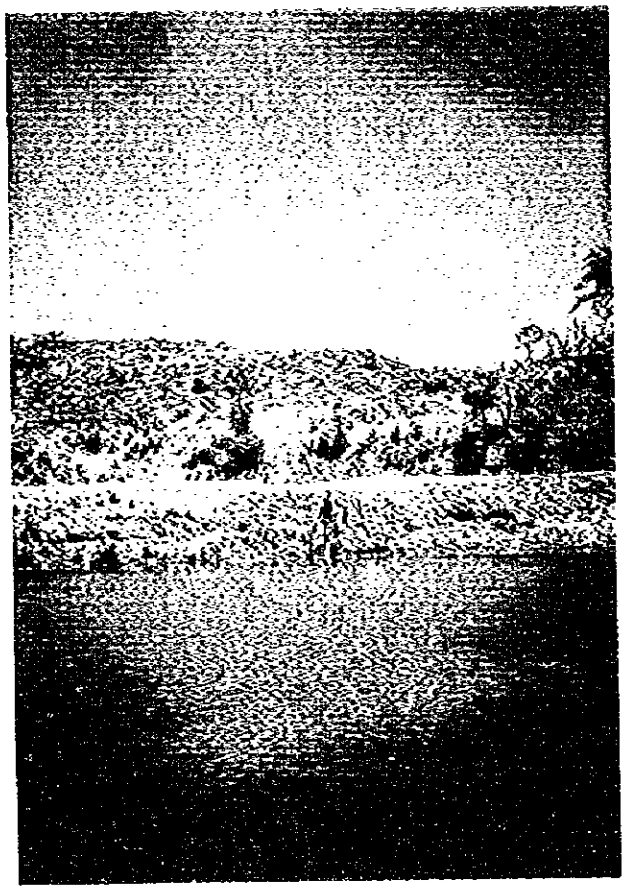
Figura 1.16 DIBUJOS DE LOS PLUVIOMETROS INSTALADOS

Staff Gauge at Puerto Viejo
(Lake Olomega)



Staff Gauge at La Canoa

Figura 1.17 DIBUJOS DE LAS ESCALAS HIDROMETRICAS INSTALADAS (1/2)



Staff Gauge at Lake Jocotal

Staff Gauge at Las Conchas

Figura 1.18 DIBUJOS DE LAS ESCALAS HIDROMETRICAS INSTALADAS (2/2)

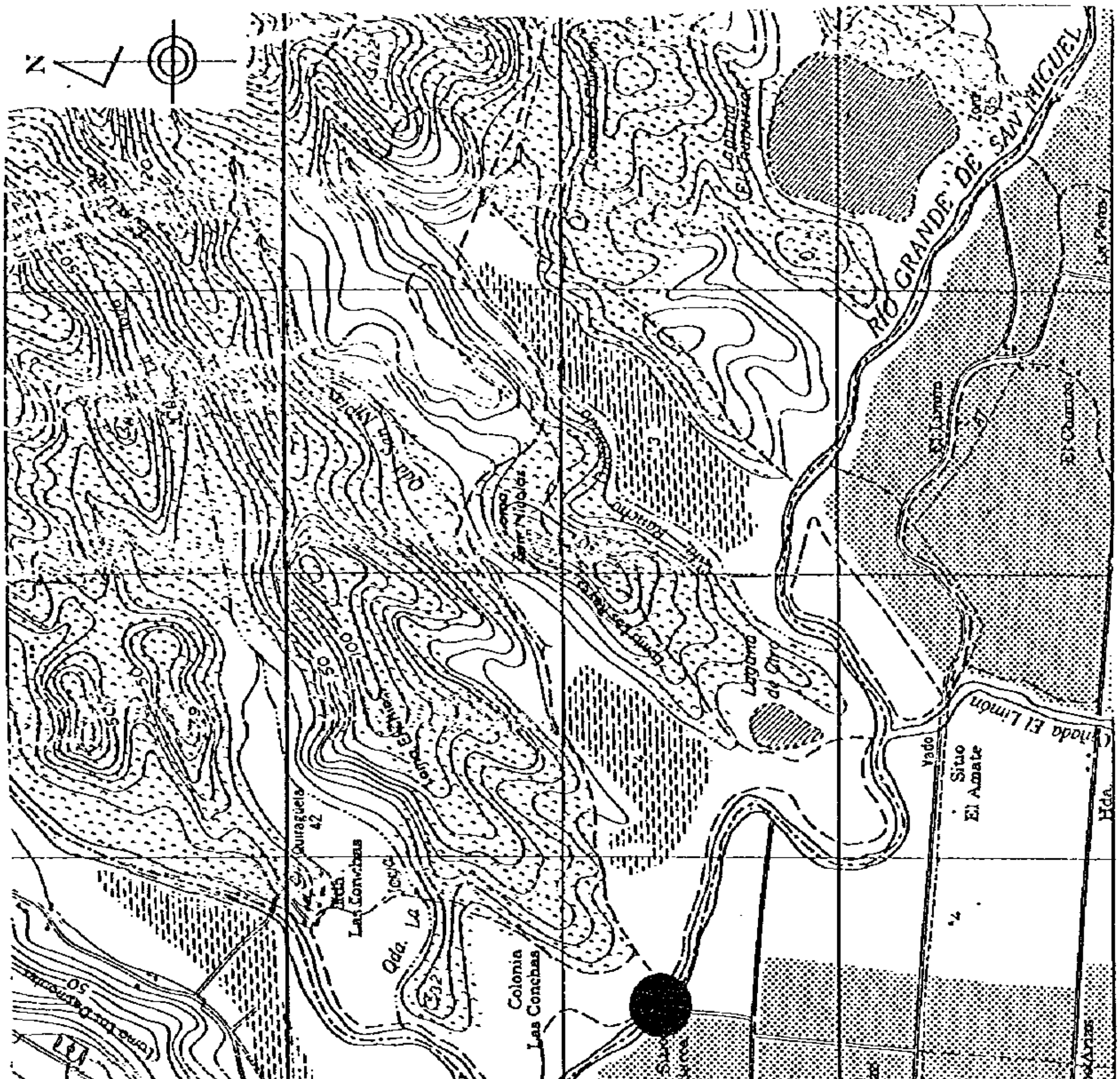


Figura 1.19 UBICACION DE LA ESCALA HIDROMETRICA EN LAS CONCHAS

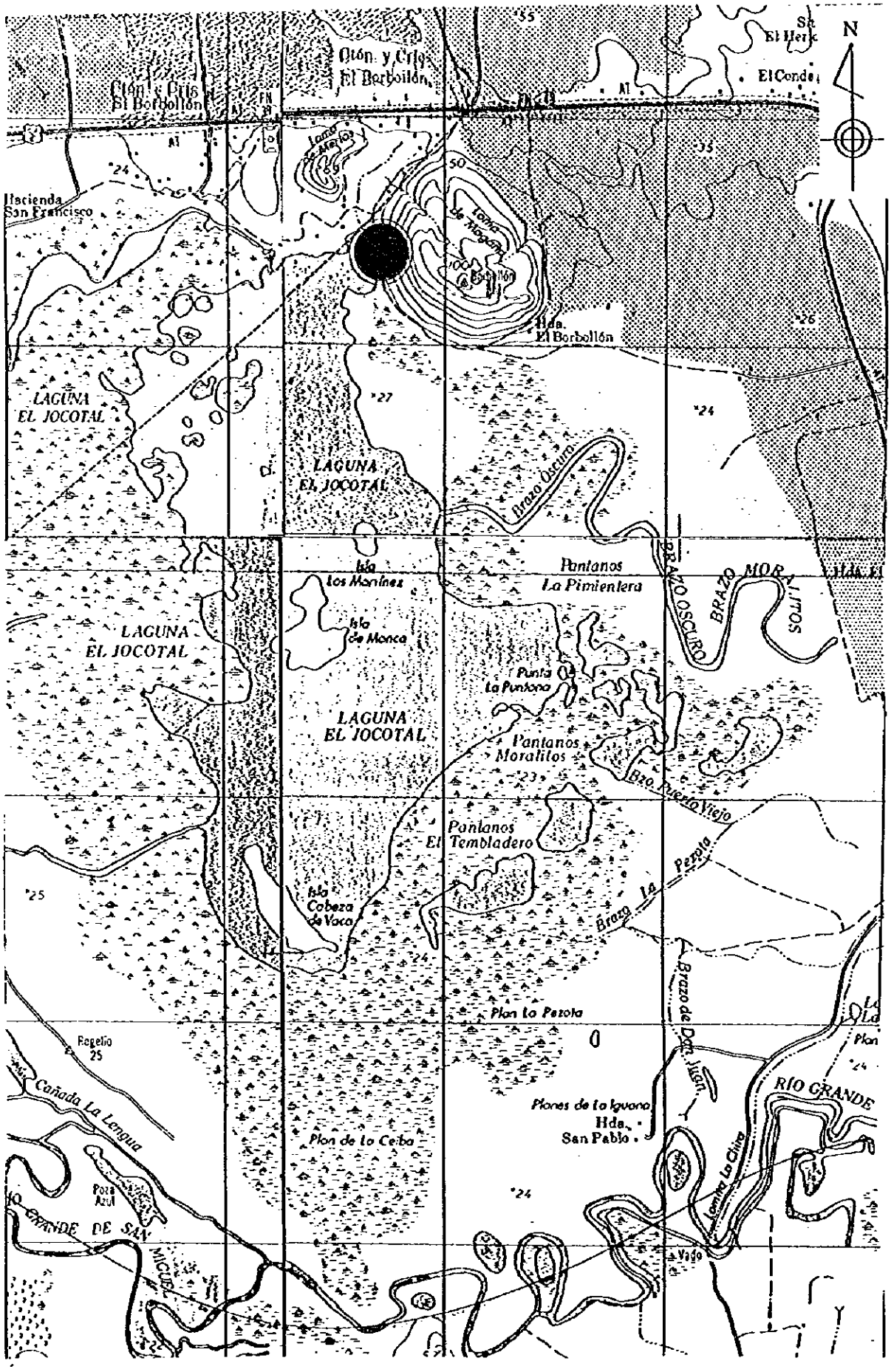


Figura 1.20 UBICACION DE LA ESCALA HIDROMÉTRICA EN LA LAGUNA EL JOCOTAL

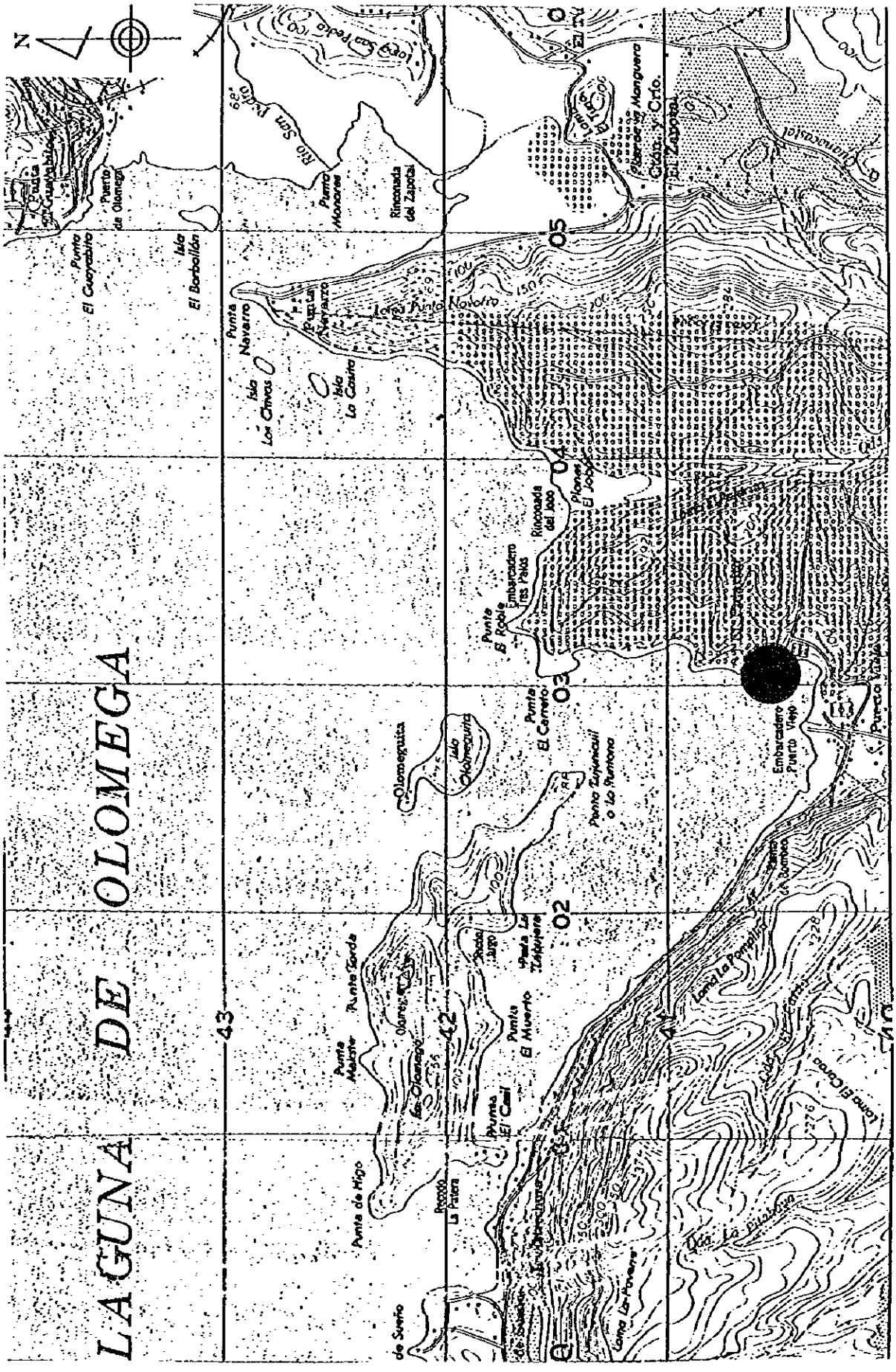


Figura 1.21 UBICACION DE LA ESCALA HIDROMPETRICA EN PUERTO VIEJO

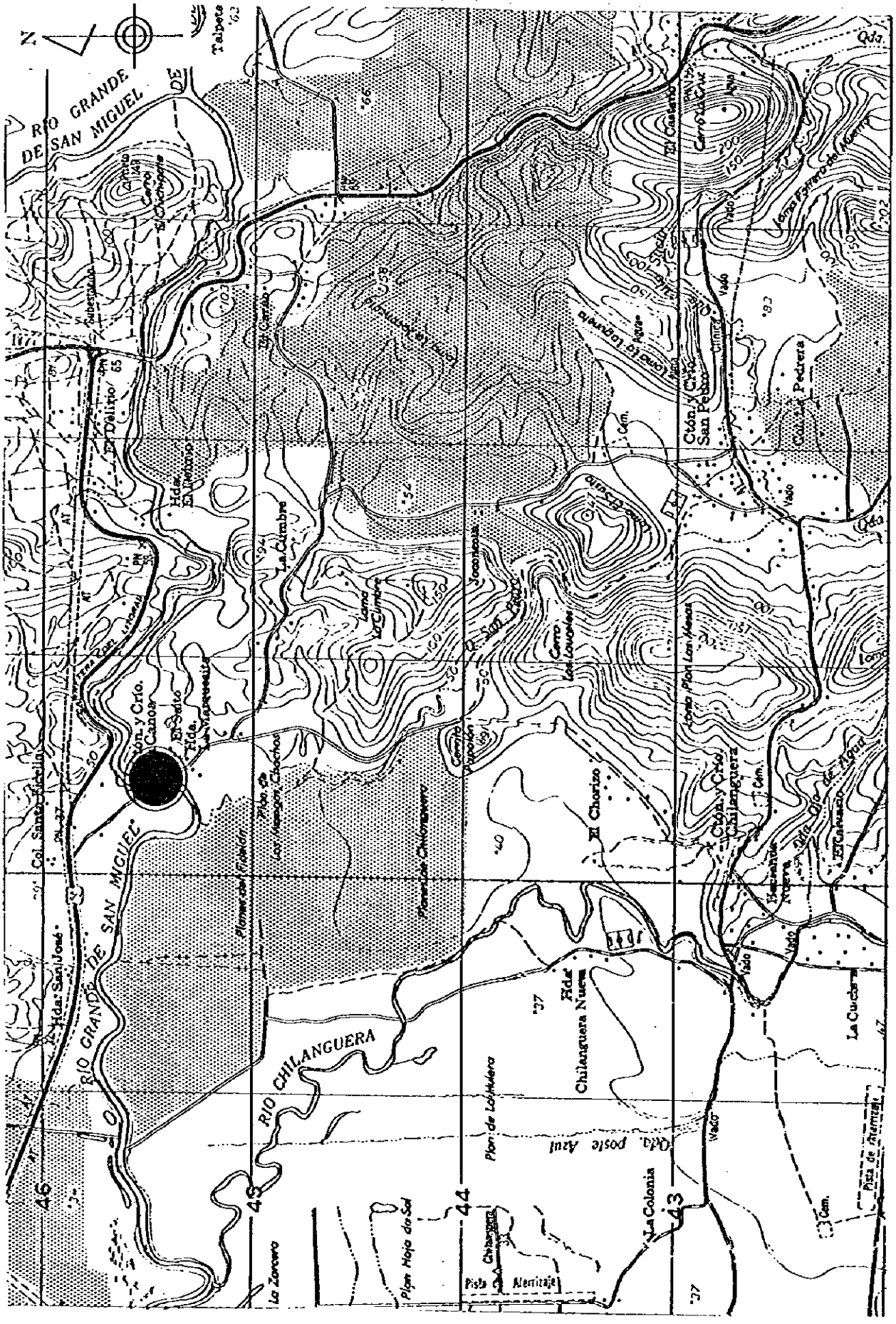


Figura 1.22 UBICACION DE LA ESCALA HIDROMETRICA EN LA CANOA