

Monthly Rainfall around the Blaven Plateau

MONTHLY RAINFALL

SELABAM	Unit : mm												
	Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1972	0	45	15	108	31	756	468	567	239	41	26	7	2,302
1973	5	0	15	40	79	232	373	505	159	25	8	0	1,441
1974	0	4	4	119	288	418	119	559	131	83	32	0	1,757
1975	0	8	91	2	128	626	218	652	75	19	20	0	1,839
1976	0	0	2	99	281	90	539	181	116	16	1	0	1,325
1977	0	0	32	10	47	40	277	642	153	0	1	0	1,202
1978	4	4	73	65	241	668	284	879	279	33	1	0	2,527
1979							398	678	233	7	0	0	1,304
1980	0	0	2	42	225	217	302	130	327	48	12	0	1,304
1981							418	702	141	244	3	0	1,698
1982	0	0	40	131	152	298	259	414	393	2	9	0	1,936
1983	0	0	0	2	661	584	131	214	164	181	0	0	2,763
1984	0	0	0	19	425	265	279	1,088	511	176	4	0	2,080
1985	0	0	3	66	181	509	387	443	370	119	4	0	2,185
1986	0	0	0	17	401	340	414	718	121	133	32	9	1,767
1987	0	0	44	97	59	227	573	525	174	60	8	0	1,108
1988	0	0	0	0	173	328	121	131	117	238	0	0	1,392
1989	0	0	27	268	269	39	160	468	143	14	7	0	2,395
1990	0	0	32	88	169	526	578	589	240	96	78	0	3,031
1991	0	0	15	0	167	560	652	1,011	464	159	0	4	3,031
Ave.	0	3	22	65	224	390	347	555	227	85	13	1	1,892
Max.	5	45	91	268	661	756	652	1,088	511	244	78	9	3,031
Min.	0	0	0	0	31	39	119	130	75	0	0	0	1,108

Unit : mm

PAKSE

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1972	0	68	23	134	36	742	478	397	261	87	28	14	2,267
1973	0	0	32	22	191	299	281	492	142	31	8	1	1,500
1974	4	0	37	95	336	478	189	720	160	152	77	2	2,249
1975	9	9	53	43	259	386	338	679	264	35	9	3	2,086
1976	0	0	2	146	195	262	414	360	282	66	26	0	1,752
1977	0	0	83	18	119	186	378	609	606	60	5	0	2,065
1978	22	0	54	119	256	410	425	923	350	80	15	0	2,655
1979	10	0	0	245	300	905	303	787	387	2	0	0	2,938
1980	0	0	50	108	220	291	205	259	293	61	35	2	1,525
1981	0	5	1	76	308	470	360	523	112	302	14	0	2,171
1982	0	0	0	66	113	514	323	310	418	67	10	2	1,823
1983	0	0	2	17	208	837	169	405	198	67	6	0	1,909
1984	0	1	47	81	198	347	341	1,037	372	153	53	0	2,631
1985	5	13	7	174	224	548	311	505	241	52	33	0	2,112
1986	0	0	1	43	334	268	502	813	242	210	26	7	2,445
1987	0	0	14	59	139	430	663	552	167	60	28	0	2,112
1988	0	43	3	50	275	412	202	335	75	279	3	0	1,676
1989	3	0	21	125	380	232	360	416	315	41	5	0	1,896
1990	0	16	48	38	143	364	433	307	215	124	20		1,707
1991	0	0	1	15	61	296	340	559	336	149	9	1	1,765
Ave.	3	8	24	84	215	434	351	549	272	104	20	2	2,064
Max.	22	68	83	245	380	905	663	1,037	606	302	77	14	2,938
Min.	0	0	0	15	36	186	169	259	75	2	0	0	1,500

**M. CHAMPASSACK**

Unit : mm

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1979	0	0	11	88	177	584	300	706	689	228	0	0	
1980	0	0	0	41	177	389	493	531	448	134	17	0	2,287
1981	0	0	60	101	247	370	406	471	382	84	13	0	2,133
1982	0	0	14	95	64	634	227	400	311	271	10	0	2,026
1983	0	0	30	144	163	238	428	826	90	343	0	0	2,261
1984	0	8	11	75	333	358	529	510	227	53	0	0	2,106
1985	0	0	0	132	510	472	938	664	319	196	0	0	3,230
1986													
1987													
1988						728	533	504	189	463	0	0	
1989	0	0	79	129	154	317	270	586	253	73	0	0	1,861
1990	0	0	15	37	193	569	513						
1991	0	0	0	19	152	437	894	884	776	339	0	11	3,511
Ave.	0	1	22	86	211	495	503	607	368	218	4	1	2,427
Max.	0	8	79	144	510	839	938	884	776	463	17	11	3,511
Min.	0	0	0	19	64	238	227	400	90	53	0	0	1,861

PATHOUMPHONE

Unit : mm

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1965	0	0	0	176	332	507	476	437	259	22	0	5	2,213
1966	0	2	53	47	258	251	803	222	26	108	13	68	1,851
1967	8	0	0	126	28	167	248	336	204	8	23	0	1,149
1968	0	0	4	170	287	28	355	710	344	0	0	0	1,898
1969	0	0	4	45	162	208	125	125	60	3	0	0	1,431
1970	0	0	87	180	256	302	167	275	83	82	0	0	1,431
1971	0	54	0	3	125	221	203	142	165	48	0	0	961
1979				206	247	998	332	622	341	42	0	0	2,788
1980	0	0	10	69	220	302	464	521	323	129	71	0	2,108
1981	0	0	0	52	215	712	359	579	144	201	95	0	2,357
1982	0	0	1	86	156	768	445	336	436	58	0	0	2,285
1983	0	3	0	25	149	253	308	429	355	218	36	0	1,776
1984	0	0	0	24	188	446	460	1,121	528	237	9	0	3,013
1985							231	594	173	95	0	0	
1986	0	0	0	56	296	291	893	890	348				
1990	4	4	8	82	204	581	388	543	219	313	19		2,364
1991	0	0	0	49	191	470	979	860	520	243	3	15	3,329
Ave.	1	4	11	87	207	407	444	514	266	113	17	6	2,109
Max.	8	54	87	206	332	998	979	1,121	528	313	95	68	3,329
Min.	0	0	0	3	28	28	167	125	26	0	0	0	961

**SOUKHOUMA**

Unit : mm

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1979	0	0	8	25	335	363	371	240	361	11	15	0	1,426
1980	0	0	0	26	160	229	328	821	351	68	91	0	3,275
1981	0	0	0	116	337	632	658	493	312	309	13	0	2,322
1982	0	0	0	244	240	546	298	315	421	68	55	3	1,633
1983	0	0	0	3	103	412	276	788	218	249	51	0	2,448
1984	0	0	0	109	182	327	358	361	350	285	85	0	1,806
1985	0	7	4	254	127	371	366	669	233	126	139	0	3,143
1986	0	0	13	51	640	483	705	692	317	104	69	0	2,260
1987	0	0	34	79	125	474	289	356	393	325	0	0	1,851
1988	0	0	0	76	261	455	239	234	141	107	5	0	1,176
1989	0	0	0	6	69	254	240	411	260	198	0	0	1,176
1990	0	0	49	0	185	290	385	545	543	161	44	0	2,134
1991	0	0	0	0	352	296	470	494	325	325	139	3	3,275
Ave.	0	1	9	76	240	395	383	821	543	11	44	0	2,134
Max.	0	7	49	254	640	632	705	821	543	325	139	3	3,275
Min.	0	0	0	0	69	229	239	234	141	11	0	0	1,176

Monthly

DAILY PRECIPITATION IN MILLIMETRES, CALENDAR YEAR 19\_\_

Unit : mm

DAYS	JAN 1	FEB 2	MAR 3	APR 4	MAY 5	JUNE 6	JULY 7	AUG 8	SEPT 9	OCT 10	NOV 11	DEC 12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
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21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
TOTAL												
ANNUAL TOTAL												

1988

1989

1990

1988

89

90

1988

89

90

1988 XEKONG

ALTOPEU

SARAVANE

Daily Gauge Height Records of Houay Makchanh (Nikhon34)

(1983-84, 86, 89-90, Jan.1991 - Dec.1991)

Houay MAKCHANH.

Mean.

GAUGE HEIGHT IN METRES, HYDROLOGIC YEAR 1983.....  
HAUTEURS A L'ECHELLE EN METRES (ANNEE HYDROLOGIQUE 1983.....)

DAYS JOURS	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII		
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.		
1									0.79	0.69	0.74	0.93	0.66	0.54
2									0.77	0.68	0.74	0.87	0.67	0.54
3									0.74	0.68	0.73	0.89	0.65	0.54
4									0.71	0.76	0.71	0.94	0.64	0.54
5									0.69	0.75	0.70	0.99	0.63	0.53
6									0.71	0.75	0.70	0.91	0.62	0.53
7									0.74	0.76	0.69	0.86	0.61	0.53
8									0.74	0.76	0.67	0.87	0.60	0.53
9									0.85	0.77	0.76	0.81	0.59	0.53
10									0.8	0.77	0.70	0.82	0.59	0.52
11									0.68	0.77	0.70	0.81	0.59	0.52
12									0.65	0.77	0.70	0.77	0.58	0.52
13									0.69	0.80	0.69	0.82	0.59	0.52
14									0.62	0.86	0.68	0.87	0.58	0.52
15									0.62	0.91	0.70	0.87	0.58	0.52
16									0.63	0.90	0.71	0.81	0.58	0.52
17									0.68	0.80	0.72	0.78	0.58	0.52
18									0.79	0.87	0.78	0.77	0.58	0.52
19									0.73	0.80	0.67	0.77	0.57	0.52
20									0.73	0.78	0.72	0.70	0.57	0.50
21									0.73	0.77	0.75	0.77	0.57	0.50
22									0.74	0.75	0.71	0.75	0.56	0.50
23									0.73	0.74	0.71	0.72	0.56	0.50
24									0.72	0.70	0.74	0.70	0.56	0.50
25									0.72	0.75	0.77	0.67	0.56	0.50
26									0.69	0.80	0.80	0.67	0.56	0.49
27									0.68	0.82	0.82	0.68	0.55	0.49
28									0.68	0.80	0.88	0.68	0.55	0.49
29									0.67	0.77	0.97	0.67	0.55	0.49
30									0.70	0.76	0.98	0.68	0.54	0.49
31									0.71	0.75	X	0.66	X	0.48

Max/Date

Min/Date

0.81/19    0.96/13    0.98/30    0.99/X    0.67/2    0.54/3  
0.52/14    0.68/3    0.64/19    0.65/25    0.54/30    0.48/31

# Houay MARCHANH

mean

GAUGE HEIGHT IN METRES, HYDROLOGIC YEAR 1984...  
HAUTEURS A L'ECHELLE EN METRES (ANNEE HYDROLOGIQUE 1984....)

DAYS JOURS	APR. AVR.	MAY MAY	JUN JUN	JUL JUL	AUG AUG	SEPT SEPT	OCT OCT	NOV NOV	DEC DEC	JAN JAN	FEB FEB	MAR MAR
1	0.48	0.47	0.40	0.49	0.66	0.59	0.80	0.89	1.13	0.75	0.70	0.61
2	0.48	0.47	0.40	0.48	0.64	0.58	0.77	1.09	1.22	0.72	0.70	0.60
3	0.48	0.47	0.40	0.51	0.62	0.58	0.76	0.99	1.14	0.72	0.70	0.60
4	0.47	0.47	0.40	0.48	0.62	0.58	0.78	0.92	1.06	0.71	0.66	0.59
5	0.47	0.47	0.40	0.47	0.62	0.57	0.76	0.89	0.97	0.82	0.66	0.57
6	0.46	0.47	0.40	0.47	0.62	0.57	0.76	0.88	1.21	0.71	0.65	0.59
7	0.46	0.47	0.40	0.47	0.61	0.57	0.76	0.82	1.1	0.71	0.66	0.59
8	0.46	0.47	0.40	0.47	0.60	0.56	0.69	0.80	1.01	0.88	0.69	0.59
9	0.46	0.40	0.40	0.47	0.60	0.56	0.69	0.80	1.24	0.72	0.71	0.59
10	0.46	0.40	0.40	0.47	0.68	0.56	0.69	0.79	1.02	0.88	0.69	0.59
11	0.46	0.40	0.40	0.47	0.67	0.56	0.69	0.80	1.04	0.90	0.68	0.58
12	0.46	0.40	0.40	0.45	0.65	0.61	0.67	0.81	0.92	0.90	0.68	0.58
13	0.46	0.40	0.40	0.43	0.64	0.61	0.66	0.80	0.92	0.90	0.67	0.56
14	0.46	0.40	0.40	0.46	0.63	0.60	0.65	0.89	0.99	0.90	0.70	0.56
15	0.46	0.40	0.40	0.45	0.62	0.60	0.65	0.89	0.91	0.88	0.73	0.56
16	0.46	0.40	0.43	0.54	0.61	0.60	0.65	1.10	0.91	0.88	0.71	0.55
17	0.46	0.40	0.46	0.54	0.61	0.59	0.69	1.18	0.88	0.88	0.70	0.55
18	0.46	0.40	0.46	0.57	0.60	0.59	0.67	1.18	0.89	0.82	0.70	0.55
19	0.45	0.40	0.40	0.62	0.60	0.59	0.66	1.10	0.89	0.80	0.69	0.55
20	0.44	0.40	0.43	0.68	0.59	0.60	0.65	1.00	0.85	0.79	0.69	0.55
21	0.43	0.40	0.40	0.69	0.60	0.69	0.65	0.96	0.84	0.76	0.69	0.55
22	0.43	0.40	0.43	0.67	0.59	0.69	0.60	0.94	0.82	0.75	0.69	0.55
23	0.43	0.40	0.47	0.69	0.59	0.68	0.64	0.89	0.82	0.74	0.66	0.55
24	0.43	0.40	0.47	0.68	0.60	0.74	0.67	0.86	0.80	0.74	0.65	0.55
25	0.42	0.41	0.43	0.68	0.60	0.80	0.60	0.84	0.79	0.73	0.64	0.55
26	0.42	0.40	0.42	0.69	0.60	0.79	0.60	0.84	0.78	0.72	0.67	0.55
27	0.42	0.40	0.39	0.68	0.65	0.86	0.61	0.90	0.76	0.69	0.67	0.55
28	0.42	0.40	0.38	0.66	0.64	0.85	0.65	0.87	0.77	0.69	0.67	0.54
29	0.42	0.40	0.38	0.66	0.60	0.80	0.67	0.85	0.76	0.69	0.62	0.53
30	0.41	X	0.39	0.65	0.63	0.80	0.67	0.90	0.76	0.72	0.61	0.53
31	0.41	X	0.40	X	0.60	X	0.78	0.95	X	0.72	X	0.53

MAX DATE 0.48 0.47 0.40 0.69 0.68 0.86 0.80 1.22 1.27 0.93 0.73 0.69  
 MIN DATE 0.41 0.40 0.38 0.43 0.59 0.56 0.60 0.79 0.76 0.69 0.61 0.53



Houay MAKCHANH.

*mean*

GAUGE HEIGHT IN METRES, HYDROLOGIC YEAR 1986...  
HAUTEURS A L'ECHELLE EN METRES (ANNEE HYDROLOGIQUE 1986...)

DAYS JOURS	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>	12 <sup>th</sup>	13 <sup>th</sup>	14 <sup>th</sup>	15 <sup>th</sup>	16 <sup>th</sup>	17 <sup>th</sup>	18 <sup>th</sup>	19 <sup>th</sup>	20 <sup>th</sup>	21 <sup>st</sup>	22 <sup>nd</sup>	23 <sup>rd</sup>	24 <sup>th</sup>	25 <sup>th</sup>	26 <sup>th</sup>	27 <sup>th</sup>	28 <sup>th</sup>	29 <sup>th</sup>	30 <sup>th</sup>	31 <sup>st</sup>
1					0.39	0.62	0.57	0.63	0.82	0.67	0.73	0.55																			
2					0.39	0.60	0.57	0.64	0.80	0.68	0.77	0.54																			
3					0.39	0.60	0.57	0.64	0.80	0.66	0.65	0.81																			
4					0.39	0.60	0.57	0.65	0.77	0.65	0.66	0.84																			
5					0.39	0.59	0.58	0.65	0.84	0.65	0.66	0.81																			
6					0.39	0.60	0.58	0.70	0.84	0.60	0.60	0.84																			
7					0.45	0.8	0.8	0.69	0.95	0.64	0.65	0.81																			
8					0.47	0.58	0.58	0.69	0.95	0.63	0.64	0.81																			
9					0.49	0.50	0.56	0.69	0.96	0.63	0.60	0.84																			
10					0.53	0.56	0.56	0.69	0.82	0.63	0.60	0.83																			
11					0.65	0.8	0.56	0.76	0.80	0.63	0.58	0.83																			
12					0.68	0.56	0.56	0.87	0.80	0.63	0.58	0.82																			
13					0.67	0.56	0.60	0.81	0.76	0.63	0.58	0.82																			
14					0.67	0.56	0.60	0.93	0.76	0.63	0.58	0.82																			
15					0.67	0.58	0.59	1.11	0.70	0.64	0.58	0.81																			
16					0.67	0.60	0.60	0.96	0.72	0.64	0.58	0.81																			
17					0.67	0.60	0.60	0.88	0.71	0.64	0.58	0.81																			
18					0.67	0.59	0.60	0.86	0.69	0.64	0.58	0.80																			
19					0.66	0.57	0.80	0.85	0.68	0.64	0.57	0.80																			
20					0.66	0.57	0.81	0.85	0.68	0.64	0.56	0.84																			
21					0.62	0.56	0.90	0.84	0.68	0.64	0.56	0.84																			
22					0.62	0.56	0.90	0.83	0.68	0.73	0.56	0.84																			
23					0.62	0.63	0.84	0.82	0.66	0.77	0.56	0.84																			
24					0.63	0.66	0.77	0.76	0.66	0.78	0.56	0.84																			
25					0.70	0.66	0.76	0.76	0.66	0.70	0.56	0.84																			
26					0.67	0.66	0.70	0.76	0.64	0.70	0.56	0.84																			
27					0.70	0.66	0.69	0.76	0.63	0.71	0.55	0.84																			
28					0.69	0.65	0.69	0.76	0.63	0.71	0.55	0.84																			
29					0.70	0.60	0.62	0.80	0.63	0.76	0.55	0.84																			
30					0.66	0.60	0.67	0.59	0.66	0.75	0.55	0.84																			
31					0.63	X	0.68	0.58	X	0.73	X	0.84																			

MAX/DATE  
MIN/DATE

# Heuar Mekhonh

mean

GAUGE HEIGHT IN METRES, HYDROLOGIC YEAR 198...<sup>89</sup>  
HAUTEURS A L'ECHELLE EN METRES (ANNEE HYDROLOGIQUE 198....)

DAYS JOURS	APR. AVR.	MAY M	JUN J	JUL J	AUG A	SEP S	OCT. O	NOV N	DEC D	JAN J	FEB F	MAR M
1	0.41	0.36	0.31	0.33	0.50	0.69		0.68	0.69	0.64	0.52	0.44
2	0.41	0.36	0.30	0.33	0.55	0.72		0.67	0.75	0.64	0.52	0.43
3	0.41	0.36	0.30	0.34	0.59	0.70		0.68	0.72	0.64	0.52	0.43
4	0.40	0.36	0.30	0.34	0.59	0.68		0.69	0.72	0.64	0.51	0.42
5	0.40	0.36	0.30	0.34	0.57	0.67		0.72	0.71	0.65	0.51	0.42
6	0.40	0.36	0.30	0.35	0.58	0.66		0.71	0.70	0.64	0.51	0.42
7	0.40	0.35	0.30	0.35	0.57	0.66		0.75	0.70	0.63	0.50	0.42
8	0.40	0.35	0.29	0.36	0.57	0.66		0.70	0.70	0.63	0.50	0.42
9	0.40	0.35	0.29	0.36	0.57	0.62		0.72	0.71	0.63	0.50	0.41
10	0.39	0.35	0.29	0.36	0.50	0.61		0.73	0.71	0.63	0.49	0.41
11	0.39	0.35	0.29	0.36	0.49	0.61		0.75	0.74	0.62	0.49	0.41
12	0.39	0.35	0.28	0.37	0.49	0.61		1.01	0.71	0.62	0.48	0.41
13	0.39	0.34	0.28	0.36	0.48	0.62		0.98	0.71	0.62	0.48	0.41
14	0.39	0.34	0.28	0.35	0.45	0.63		0.89	0.70	0.60	0.48	0.40
15	0.39	0.34	0.28	0.35	0.40	0.62		0.86	0.70	0.60	0.48	0.40
16	0.38	0.34	0.28	0.35	0.39	0.62		0.79	0.69	0.59	0.47	0.40
17	0.38	0.34	0.27	0.34	0.39	0.61		0.75	0.69	0.59	0.47	0.39
18	0.38	0.33	0.30	0.34	0.39	0.60		0.74	0.69	0.58	0.47	0.39
19	0.38	0.33	0.31	0.35	0.51	0.59		0.70	0.68	0.58	0.47	0.39
20	0.38	0.33	0.32	0.36	0.50	0.58		0.75	0.68	0.57	0.46	0.39
21	0.38	0.33	0.33	0.37	0.50	0.57		0.76	0.68	0.57	0.46	0.38
22	0.38	0.33	0.34	0.41	0.50	0.57		0.71	0.67	0.56	0.46	0.38
23	0.38	0.33	0.35	0.42	0.49	0.57		0.70	0.66	0.56	0.46	0.38
24	0.38	0.32	0.36	0.42	0.58	0.56		0.70	0.66	0.55	0.46	0.38
25	0.37	0.32	0.36	0.43	0.64	0.55		0.69	0.65	0.55	0.46	0.37
26	0.37	0.31	0.35	0.44	0.72	0.54		0.69	0.65	0.54	0.45	0.37
27	0.37	0.31	0.35	0.45	0.74	0.54		0.69	0.65	0.54	0.45	0.37
28	0.37	0.31	0.35	0.50	0.71	0.54		0.69	0.64	0.54	0.45	0.37
29	0.37	x	0.35	0.55	0.69	0.53		0.69	0.64	0.54	0.45	0.36
30	0.37	y	0.34	0.52	0.68	0.53		0.69	0.64	0.53	0.44	0.36
31	0.37	v	0.34	0.5	0.67	x		0.69	x	0.53	y	0.36

max

0.41 0.36 0.36 0.55 0.75 0.72 0.66 0.64 0.65 0.52 0.44

min

0.37 0.31 0.27 0.33 0.39 0.53 1.02 0.76 0.53 0.44 0.36

# Houay MacCHANH.

Mean.

GAUGE HEIGHT IN METRES, HYDROLOGIC YEAR 198.....90  
HAUTEURS A L'ECHELLE EN METRES (ANNEE HYDROLOGIQUE 198.....)

DAYS JOURS	APR. IV.	MAY V.	JUNE VI.	JULY VII.	AUG. VIII.	SEPT. IX.	OCT. X.	NOV. XI.	DEC. XII.	JAN. XIII.	FEB. XIV.	MAR. XV.
1	0.36	0.31	0.27	0.40	0.32	0.40	0.63		0.83	0.69	0.61	0.49
2	0.36	0.31	0.27	0.38	0.32	0.40	0.62		0.82	0.69	0.60	0.49
3	0.36	0.31	0.28	0.38	0.31	0.41	0.62		0.75	0.70	0.60	0.49
4	0.35	0.31	0.28	0.36	0.32	0.42	0.60		0.73	0.73	0.60	0.48
5	0.35	0.31	0.29	0.32	0.32	0.43	0.60		0.76	0.74	0.59	0.48
6	0.35	0.31	0.29	0.32	0.33	0.43	0.59		0.75	0.76	0.57	0.48
7	0.34	0.31	0.29	0.31	0.33	0.44	0.59		0.74	0.78	0.57	0.48
8	0.34	0.30	0.30	0.31	0.32	0.44	0.58		0.73	0.78	0.57	0.48
9	0.34	0.30	0.30	0.31	0.32	0.45	0.57		0.72	0.76	0.56	0.47
10	0.34	0.30	0.30	0.31	0.33	0.45	0.56		0.73	0.73	0.56	0.47
11	0.34	0.30	0.31	0.30	0.34	0.45	0.57		0.72	0.72	0.55	0.47
12	0.34	0.30	0.31	0.30	0.36	0.46	0.57		0.71	0.72	0.55	0.46
13	0.33	0.30	0.31	0.30	0.38	0.47	0.52		0.70	0.73	0.55	0.46
14	0.33	0.29	0.30	0.30	0.38	0.47	0.52		0.69	0.72	0.54	0.45
15	0.33	0.29	0.30	0.30	0.38	0.47	0.52		0.68	0.72	0.54	0.45
16	0.33	0.29	0.30	0.31	0.36	0.47	0.52		0.72	0.71	0.54	0.45
17	0.33	0.29	0.31	0.30	0.36	0.48	0.51		0.66	0.72	0.53	0.45
18	0.33	0.29	0.30	0.30	0.40	0.48	0.51		0.66	0.73	0.53	0.45
19	0.33	0.29	0.30	0.31	0.39	0.48	0.51		0.70	0.75	0.53	0.45
20	0.33	0.29	0.29	0.32	0.38	0.49	0.50		0.72	0.74	0.53	0.44
21	0.32	0.29	0.28	0.32	0.37	0.51	0.50		0.73	0.73	0.52	0.44
22	0.32	0.29	0.28	0.33	0.37	0.53	0.50		0.73	0.71	0.52	0.44
23	0.32	0.29	0.28	0.31	0.37	0.54	0.52		0.74	0.70	0.52	0.44
24	0.32	0.28	0.27	0.31	0.38	0.59	0.53		0.73	0.68	0.52	0.43
25	0.32	0.28	0.27	0.31	0.39	0.62	0.52		0.72	0.66	0.51	0.43
26	0.32	0.28	0.28	0.30	0.40	0.62	0.52		0.71	0.65	0.51	0.43
27	0.32	0.28	0.28	0.30	0.40	0.62	0.52		0.69	0.62	0.51	0.42
28	0.31	0.28	0.29	0.31	0.40	0.61	0.51		0.69	0.61	0.51	0.41
29	0.31	x	0.33	0.32	0.39	0.60	0.51		0.69	0.61	0.51	0.41
30	0.31	x	0.34	0.32	0.39	0.60	0.51		0.70	0.61	0.50	0.41
31	0.31	x	0.36	x	0.39	x	0.51		x	0.61	0.50	0.41

Max.

0.36 0.31 0.28 0.42 0.40 0.63 0.63

0.83 0.78 0.61 0.49

Min.

0.31 0.28 0.27 0.30 0.30 0.40 0.50

0.66 0.61 0.51 0.41

# Daily Water Level at Huay Makchanh. (Jan, 91)

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສົມດິດພາບ ເອກະລາດ ເອກະພາບ ແລະ ສິ່ວຄົມນິຍົມ.

ແຂວງຈຳປາສັກ

ພະແນກກະສິກຳ, ຈຸນລະປະທານ

ແລະ ສະໜັກອຸປະກອນກະສິກຳ

ຂະແໜງວັດແທກນ້ຳ ວັດທະຍາ

ໄຫລະລຽມ : 260ກ.

== ໃບລາຍງານລະດັບນ້ຳປະຈຳວັນ(ມ/ຊຕ) ==

ສະຖານີວັດແທກລະດັບນ້ຳ ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ ວັດທະຍາ ວັດ. ຕຳບົນ ມ. 11/91

ເມືອງ : ..... 1/11/91 .....  
 ວັນທີ : ..... 1/11/91 .....

ວັນທີ Days	Morning			ສະເລ່ຍ mean	ວັນທີ days	Afternoon		
	ເວລາຕອນເຊົ້າ ( ຕົ້ນ )	ເວລາຕອນແລງ ( ຕົ້ນ )	ສະເລ່ຍ ໃນມື້			ເວລາຕອນເຊົ້າ ( ຕົ້ນ )	ເວລາຕອນແລງ ( ຕົ້ນ )	ສະເລ່ຍ ໃນມື້
1	041	041	041	1	1	038	038	038
2	041	041	041	2	2	038	038	038
3	041	041	041	3	3	038	038	038
4	041	041	041	4	4			
5	040	040	040	5	5	381	381	381
6	040	040	040	6	6	037	037	037
7	040	040	040	7	7	037	037	037
8	040	040	040	8	8	037	037	037
9	040	040	040	9	9	037	037	037
10	039	039	039	10	10	037	037	037
11	403	403	403	11	11	036	036	036
12	039	039	039	12	12	036	036	036
13	039	039	039	13	13	036	036	036
14	039	039	039	14	14	036	036	036
15	039	039	039	15	15	035	035	035
16	038	038	038	16	16	035	035	035
17	038	038	038	17	17	399	399	399
18	038	038	038	18	18	1186	1186	1186
19				19	19	038	038	038

- ລະດັບນ້ຳຕໍ່າສຸດປະຈຳວັນ... 035..... Daily Min.
- ວັນທີ..... 30/11/91..... date
- ລະດັບນ້ຳສູງສຸດປະຈຳວັນ... 041..... Daily Max.
- ວັນທີ..... 1/11/91..... date.

ຫົວໜ້າຂະແໜງວັດແທກນ້ຳ ວັດທະຍາ,      ຜູ້ຮັກສາສະຖານ.

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈຳປາສັກ  
ພະແນກກະສິກຳ, ຈີນລະປະທານ  
 ແລະ ສະຫະກອນກະເສດ  
ຂະແໜງອຸຕຸນິຍົມ ວິທະຍາ  
 ໂທລະສັບ : ໘໒໑໗.

== ໃບລາຍງານລະດັບນ້ຳປະຈຳວັນ (ມ/ຈຸດ) ==

ສະຖານີວັດແທກລະດັບນ້ຳປະຈຳວັນ ສະຖານີ ຕີ້ມ (2) / ຈຸດທີ 1  
 ເມືອງ : ..... ຈຳປາສັກ ..... Feb. 91

ວັນທີ	ເອກະລາດ ໂມງ			ວັນທີ	ເອກະລາດ ກ		
	( ຕຳ )	( ແລງ )	ສະເລັດ ໂມງ		ໂມງ ( ຕຳ )	ໂມງ ( ແລງ )	ສະເລັດ ໂມງ
໑1	035	035	035	໑໑ ໒8	032	032	032
໒2	035	035	035	໑໑ ໒9	032	032	032
໓3	035	035	035	໒໐ ໒໐	031	031	031
໔4	035	035	035				
໕5	034	034	034	ລວມທັງ	322	322	322
໖6	034	034	034	໒໐ 21	031	031	031
໗7	034	034	034	໒໐ 22	031	031	031
໘8	034	034	034	໒໐ 23	031	031	031
໙9	034	034	034	໒໐ 24	031	031	031
໑໐10	033	033	033	໒໐ 25	031	031	031
ຄວມ	343	343	343	໒໐ 26	031	031	031
໑໑11	033	033	033	໒໐ 27	031	031	031
໑໒12	033	033	033	໒໐ 28	031	031	031
໑໓13	033	033	033	໒໐ 29			
໑໔14	032	032	032	໓໐ 30			
໑໕15	032	032	032	໓໐ 31			
໑໖16	032	032	032	ລວມທັງ	248	248	248
໑໗17	032	032	032	ລວມທັງ	913	913	913
				ສະເລັດ	033	033	033

- ລະດັບນ້ຳຕ່ຳສຸດປະຈຳວັນ. 031  
 - ວັນທີ. 20.12.91  
 - ລະດັບນ້ຳສູງສຸດປະຈຳວັນ. 035  
 - ວັນທີ. 11.2.91

ຫົວໜ້າຂະແໜງອຸຕຸນິຍົມວິທະຍາ, ຜູ້ຮັກສາສະຖານີ.

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈຳປາສັກ

ພະແນກກະສິກໍາ, ສາມາດປະສານ

ແຈ້ງ ສະໜັບສະໜູນກະເສດ

ຂະແໜງກະສິກໍາ ດິນແດນ

ໂທລະສັບ : ໑໒໑໗.

== ໃບຮາບງານລະດັບປະຈຳວັນ(ເມ/ຊຕ) ==

ສະຖານີດັດແໜ້ນລະດັບປະຈຳວັນ(ເມ/ຊຕ) ຕື້ອມ 8. / ໑໙໗1

ເມື່ອນ : ... 31/7/91 ..... Mar, 91

ວັນທີ	ເອກະລາດໂມງ	ເອກະລາດໂມງ	ສະເລ່ຍໃນນັ້ນ	ວັນທີ	ເອກະລາດ	ເອກະລາດ	ສະເລ່ຍໃນນັ້ນ
	( ຊົ່ວໂມງ )	( ຊົ່ວໂມງ )			( ຊົ່ວໂມງ )	( ຊົ່ວໂມງ )	
໑	031	031	031	໑໑	031	031	031
໒	031	031	031	໑໒	030	030	030
໓	031	035	033	໑໓	030	030	030
໔	034	034	034				
໕	033	033	033	໑໔	308	308	308
໖	033	032	032	໑໕	030	030	030
໗	032	032	032	໑໖	030	030	030
໘	032	032	032	໑໗	030	030	030
໙	032	032	032	໑໘	030	030	030
໑໐	031	031	031	໑໙	030	030	030
ສະເລ່ຍ	320	323	321	໒໐	029	029	029
໑໑	031	031	031	໒໑	029	029	029
໑໒	031	031	031	໒໒	029	029	029
໑໓	031	031	031	໒໓	029	029	029
໑໔	031	031	031	໒໔	029	029	029
໑໕	031	031	031	໒໕	029	029	029
໑໖	031	031	031	໒໖	324	324	324
໑໗	031	031	031	໒໗	952	955	953
				໒໘	031	031	031

- ລະດັບນ້ຳຕົ້ມປະຈຳວັນ... 0.29
- ວັນທີ... 26/7/91
- ລະດັບນ້ຳຕົ້ມປະຈຳວັນ... 0.31
- ວັນທີ... 31/7/91

ຫົວໜ້າຂະແໜງກະສິກໍາ ມົນຕະບາ, ຫົວໜ້າສະຖານີ

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈຳປາສັກ

ພະແນກກະສິກຳ, ອຸນະປະຕານ

ແລະ ສະໜັກຄຸນນະເສດ

ອະແຫງງອຸດະຍາ ໐໐໒ຍາ

ໂທລະສັບ : ໑໒໑໗.

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== ໃບລາຍງານລະດັບປະຈຳວັນ(ມ/ຈຸຕ) ==

ສະຖານີອັດຕະໂນມັດປະຈຳວັນ(ມ/ຈຸຕ) ເດືອນ ເມ. 19໙໑

ເມືອງ : ..... ຈຳປາສັກ .....

Apr, 91

ວັນທີ	ເວລາເວລາກໂມງ			ວັນທີ	ເວລາເວລາກໂມງ		
	(ເຊົ້າ)	(ແລງ)	(ສະເລ່ຍ)		(ເຊົ້າ)	(ແລງ)	(ສະເລ່ຍ)
໑	029	025	029	໑໑	035	034	034
໒	029	029	029	໑໓	033	033	033
໓	029	029	029	໑໔	033	033	033
໔	029	029	029				
໕	030	030	030	໑໖	324	323	323
໖	031	031	031	໑໗	032	032	032
໗	031	031	031	໑໘	032	032	032
໘	031	032	031	໑໙	032	032	032
໙	031	031	031	໒໐	032	032	032
໑໐	031	031	031	໒໑	032	032	032
໑໑	301	302	301	໒໒	031	031	031
໑໒	031	031	031	໒໓	031	030	030
໑໓	032	032	032	໒໔	030	030	030
໑໔	032	032	032	໒໕	030	030	030
໑໕	032	032	032	໒໖	034	033	032
໑໖	032	032	032	໒໗			
໑໗	032	032	032	໒໘	316	320	318
				໒໙	941	945	942
				໓໐	031	032	031

- ລະດັບນ້ຳຕົ້ມປະຈຳວັນ... 029.....
- ຕົ້ນນ້ຳ..... 1/4/91.....
- ລະດັບນ້ຳສູງສຸດປະຈຳວັນ... 039.....
- ວັນທີ..... 20/4/91.....

ຫົວໜ້າອະແຫງງອຸດະຍາ: ..... ສູນກາສາສະຖານີ:

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈຳປາສັກ

ພະແນກກະສິກຳ, ຊຸມລະປະທານ

ແລະ ສະຫະກອນກະເສດ

ຂະແໜງອຸດົມໄຊ ວັດທະນາ

ໄທລະສັບ : ໑໒໑໗.

ໃບລາຍງານລະດັບປະຈຳວັນ (ສ/ຊຕ)

ສະຖານີວັດແທກລະດັບນ້ຳຂອງຂອງແຂວງຈຳປາສັກ, ຕຸລາ 1971

ເມື່ອງ : 2/10/71

May, 91

ວັນທີ	ເວລາຕອກໃນງ	ເວລາຕອກໃນງ	ສະເລັງໃນນ້ຳ	ວັນທີ	ເວລາຕອກ ກ	ເວລາຕອກ ກ	ສະເລັງໃນນ້ຳ
	( ຕົ້ນ )	( ຕອກ )			ໃນງ ( ຕົ້ນ )	ໃນງ ( ຕອກ )	
໑	037	036	036	໑໑	062	063	062
໒	036	035	035	໑໓	063	065	064
໓	033	032	032	໑໖	065	070	068
໔	033	033	033				
໕	032	032	032	໑໗	180	193	186
໖	033	033	033	໑໘	062	065	065
໗	034	034	034	໒໐	065	064	064
໘	032	032	032	໒໑	060	059	059
໙	033	033	033	໒໔	059	058	058
໑໐	034	035	034	໒໕	057	056	056
໑໑	337	335	334	໒໖	055	055	055
໑໒	033	033	033	໒໗	054	054	054
໑໓	032	032	032	໒໘	053	053	053
໑໔	032	033	032	໒໙	052	052	052
໑໕	033	033	033	໓໐	052	052	052
໑໖	051	051	051	໓໑	051	051	051
໑໗	052	052	052	໓໒	624	619	619
໑໘	052	058	057	໓໓	1441	1447	1439
				ສະເລັງ	046	047	046

- ລະດັບນ້ຳຕົ້ນປະຈຳວັນ... 032
- ຄືນນີ້... 2/10/71
- ລະດັບນ້ຳສູງສຸດປະຈຳວັນ... 039
- ວັນທີ... 29/5/71

ຫົວໜ້າຂະແໜງອຸດົມໄຊວັດທະນາ, ຜູ້ຮັກສາສະຖານີ,



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈຳປາສັກ  
ພະແນກກະສິກໍາ, ຈຸນລະປະທານ  
ແລະ ສະໜັງສືພັດທະນາ  
ຂະແໜງກວດກາພື້ນ ວັດທະນາ  
ໂທລະສັບ : ໑໒໑໗.

== ໃບຮ່າງງານລະດັບພື້ນຖານ (ນ/ຊຕ) ==

ສະຖານີວັດແທກລະດັບນ້ຳ ຊຳບວນ ຈຳປາສັກ ວ.ປ.ເດືອນ 6 / 1991

ເມື່ອ : 20.6.91

Jun, 91

ວັນທີ	ເວລາເວລາກາງໃນວັນ			ວັນທີ	ເວລາເວລາກາງໃນວັນ		
	ເວລາ	ເວລາ	ສະເລັດໄນ		ເວລາ	ເວລາ	ສະເລັດໄນ
1	051	051	051	2	055	054	054
2	050	050	050	3	055	055	055
3	049	049	049	4	055	056	055
4	049	049	049				
5	048	048	048	5	538	538	537
6	049	049	049	6	056	057	056
7	049	050	049	7	058	058	058
8	050	051	050	8	062	063	062
9	051	051	051	9	064	065	064
10	050	050	050	10	065	064	064
11	496	498	496	11	063	062	062
12	052	052	052	12	062	062	062
13	052	052	052	13	061	061	061
14	053	053	053	14	060	060	060
15	053	053	053	15	060	060	060
16	054	054	054	16			
17	054	054	054	17	611	612	609
18	055	055	055	18	1645	1648	1642
				ສະເລັດ	055	055	055

- ລະດັບນ້ຳປະຈຳວັນ... 0.49...  
- ມື້ທີ... 31.6.91...  
- ລະດັບນ້ຳສູງສຸດປະຈຳວັນ... 0.65...  
- ວັນທີ... 20.6.91...

ຫົວໜ້າຂະແໜງວັດແທກລະດັບນ້ຳວັດທະນາ, ຜູ້ຮັກສາສະຖານີ,

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈຳປາສັກ

ທະແຫນອງລຳກ້າ, ອຸບົນປະທານ

ແລະ ສະໜອງກອບກະເສດ

ຂະແໜງກະສິກຳ ອຸບົນປະທານ

ໄດ້ເຮັດວຽກ : 06/09/91

ໃບສາມງວດມວນນ້ຳປະຈຳວັນ (ຊນ/ຊດ)

ສະຖານທີ່: ທະແຫນອງລຳກ້າ, ອຸບົນປະທານ, ວ.ຈຳປາສັກ, ປ.ຈຳປາສັກ

ວັນທີ: 06/09/91

Jul, 91

ວັນທີ	ໄດ້ເຮັດວຽກໃນວັນ (ຊນ)	ໄດ້ເຮັດວຽກໃນວັນ (ຊດ)	ສັດ	ໄດ້ເຮັດວຽກໃນວັນ (ຊນ)	ໄດ້ເຮັດວຽກໃນວັນ (ຊດ)	ສັດ	ໄດ້ເຮັດວຽກໃນວັນ (ຊນ)	ໄດ້ເຮັດວຽກໃນວັນ (ຊດ)
໑	062	062	062	066	066	066		
໒	063	064	063	066	066	066		
໓	063	063	063	066	075	071		
໔	062	062	062					
໕	062	062	062	712	721	714		
໖	061	061	061	099	116	108		
໗	062	062	062	114	112	113		
໘	063	063	063	090	090	090		
໙	063	064	063	096	095	095		
໑໐	066	066	066	092	090	091		
ລວມ	627	629	627	091	096	094		
໑໑	070	071	070	090	090	090		
໑໒	076	077	076	090	087	089		
໑໓	078	079	078	086	086	086		
໑໔	079	079	079	083	082	082		
໑໕	073	072	072	082	082	082		
໑໖	070	069	069	1013	1026	1026		
໑໗	068	067	067	2352	2376	2361		
				076	077	076		

- ສະຖານທີ່: ທະແຫນອງລຳກ້າ, ອຸບົນປະທານ, ວ.ຈຳປາສັກ, ປ.ຈຳປາສັກ 06.1.....
- ວັນທີ: ..... 06.17.91.....
- ສະຖານທີ່: ທະແຫນອງລຳກ້າ, ອຸບົນປະທານ, ວ.ຈຳປາສັກ, ປ.ຈຳປາສັກ 116.....
- ວັນທີ: ..... 06.17.91.....

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ທະແຫນອງລຳກ້າ, ອຸບົນປະທານ



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ຄວາມລຽບ ຄວາມສວຍ ແລະ ສັນຕິພົບພົມ

ແຂວງຈໍາປາສັກ  
 ບະແນນອຸດອນກໍາ ຈຳພະປະທານ  
 ຕະຫຼອດ ສະໜອງອຸດອນກໍາ  
 ອຸປະພັນວຽກງານ ບໍລິຫານ  
 ໂທລະສັບ : ໓໒໑໙

ໃບຄຸນນະກຳລາຍຮັບປະຈຳປີ (ບ.ຮັບ)

ສະຖານີລາຍຮັບອຸດອນກໍາ ຈຳພະປະທານ ຕົ້ນ. 9. 1989  
 ຕົ້ນ. 11/9/91

ວັນທີ	ເວລາເລີ່ມຕົ້ນ	ເວລາສິ້ນສຸດ	ເວລາສິ້ນສຸດໃນເດືອນ	ວັນທີ	ເວລາເລີ່ມຕົ້ນ	ເວລາສິ້ນສຸດ	ເວລາສິ້ນສຸດໃນເດືອນ
໑	084	080	082	໑	074	073	073
໒	077	077	077	໑	073	071	072
໓	079	090	079	໑	070	070	070
໔	083	085	084				
໕	089	090	089	໑	793	788	783
໖	089	089	089	໑	069	069	069
໗	083	082	085	໑	070	072	071
໘	086	085	085	໑	071	071	071
໙	085	085	085	໑	071	070	070
10	087	090	089	໑	070	070	070
11	844	850	846	໑	070	070	070
12	092	086	089	໑	070	070	070
13	086	086	085	໑	071	070	070
14	083	082	082	໑	070	070	070
15	082	081	081	໑	075	080	076
16	080	079	079	໑			
17	078	076	077	໑	707		
18	075	074	074	໑	2340		
					078		

ອຸດອນກໍາ ຈຳພະປະທານ 089  
 ວັນທີ 9/9/91  
 ອຸດອນກໍາ ຈຳພະປະທານ 092  
 ວັນທີ 11/9/91

ຫົວໜ້າອຸດອນກໍາ ຈຳພະປະທານ, ຜູ້ຄຸມຄຸນຄ່າ

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ບຸລາຕິມລາດ

ສັນຕິພາບ ຕອກລາດ ຕອກສາຍ ແລະ ສິ່ງຄົມນິຍົມ.

ແຫຼ່ງຈຳນວນ  
 ມະຫາກະຊວງ ກຸມຄຸມປະທານ  
 ທີ່: ສະຫະລາດມະເລັດ  
 ຂະໜາງວຽກ: ກຸມຄຸມ  
 ໄລຍະເວລາ: 24 ຄ.ກ.

ໃບຢັ້ງຢືນລະດັບປະຈຳຄັ້ງ (ຊດ) Oct. 91  
 ສະຖານີວິທະຍາສາດ ທີ່: ສະຖານີວິທະຍາສາດ ທີ່: ສະຖານີວິທະຍາສາດ  
 ເມີດ: 1/10/91 (707)

ວັນທີ	ໂຮງມະຫາວິທະຍາໄລ	ໂຮງມະຫາວິທະຍາໄລ	ໂຮງມະຫາວິທະຍາໄລ	ໂຮງມະຫາວິທະຍາໄລ	ໂຮງມະຫາວິທະຍາໄລ	ໂຮງມະຫາວິທະຍາໄລ	ໂຮງມະຫາວິທະຍາໄລ
	( ຊດ )	( ຊດ )	( ຊດ )	( ຊດ )	( ຊດ )	( ຊດ )	( ຊດ )
0	081	095	088		071	070	070
1	107	103	103		070	070	070
2	096	095	096		070	069	069
3	095	095	095				
4	093	087	090		742	735	735
5	087	087	087		069	068	068
6	083	086	085		067	066	066
7	086	085	085		066	065	065
8	083	082	082		065	065	065
9	080	079	079		064	064	064
10	881	894	890		064	064	064
11	078	078	078		063	063	063
12	078	077	077		063	063	063
13	077	076	076		062	062	062
14	076	075	075		061	061	061
15	075	075	075		061	061	061
16	075	074	074		705	702	702
17	072	071	071		7228	7221	7228
					075	075	075

... 271 ...  
 ... 30/10/91 ...  
 ... 193 ...  
 ... 2/10/91 ...

1/10/91

ຫົວໜ້າສະໜອງການບັນທຶກ, ຫົວໜ້າສະຖານີ

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ

ແຂວງຈຳປາສັກ  
ພະແນກກະສິກຳ, ຈຸນລະປະທານ  
ແລະ ສະຫະກອນກະເສດ  
ອະແຫງອຸດົມຍຸນ ວັທະຍາ  
ໂທລະສັບ : ໑໒໑໗.

== ໃບລາຍງານລະດັບນັກປະຈຳວັນ(ນ/ຊຕ) == NOV, 91  
ສະຖານີວັດແທກລະດັບນັກປະຈຳວັນ(ນ/ຊຕ) ວັດອນ 11.10.1971  
ເມືອງ : ..... ຈຳປາສັກ..... (ພຽງ)

ວັນທີ	ເວລາເລີ່ມ	ເວລາສິ້ນ	ສະເລັດໃນນາທີ	ວັນທີ	ເວລາເລີ່ມ	ເວລາສິ້ນ	ສະເລັດໃນນາທີ
	( ເຊົ້າ )	( ແລງ )			ໂມງ ( ເຊົ້າ )	ໂມງ ( ແລງ )	ນາທີ
໑	໐໒໐	໐໒໐	໐໒໐	໑	໐໕໓	໐໕໓	໐໕໓
໒	໐໒໐	໐໒໐	໐໒໐	໒	໐໕໒	໐໕໒	໐໕໒
໓	໐໒໐	໐໒໐	໐໒໐	໓	໐໕໒	໐໕໒	໐໕໒
໔	໐໕໑	໐໕໑	໐໕໑				
໕	໐໕໑	໐໕໑	໐໕໑	໔	໑໕໓	໑໕໑	໑໕໑
໖	໐໕໑	໐໕໑	໐໕໑	໕	໐໕໑	໐໕໑	໐໕໑
໗	໐໕໑	໐໕໑	໐໕໑	໖	໐໕໑	໐໕໑	໐໕໑
໘	໐໕໑	໐໕໑	໐໕໑	໗	໐໕໐	໐໕໐	໐໕໐
໙	໐໕໑	໐໕໑	໐໕໑	໘	໐໕໐	໐໕໐	໐໕໐
໑໐	໐໕໑	໐໕໑	໐໕໑	໙	໐໔໑	໐໔໑	໐໔໑
໑໑	໑໕໑	໑໕໑	໑໕໑	໑໐	໐໔໑	໐໔໑	໐໔໑
໑໒	໐໕໒	໐໕໒	໐໕໒	໑໑	໐໔໑	໐໔໑	໐໔໑
໑໓	໐໕໒	໐໕໒	໐໕໒	໑໒	໐໔໘	໐໔໘	໐໔໘
໑໔	໐໕໒	໐໕໒	໐໕໒	໑໓	໐໔໘	໐໔໘	໐໔໘
໑໕	໐໕໒	໐໕໒	໐໕໒	໑໔	໐໔໘	໐໔໘	໐໔໘
໑໖	໐໕໒	໐໕໒	໐໕໒	໑໕			
໑໗	໐໕໒	໐໕໒	໐໕໒	໑໖	໑໕໓	໑໕໓	໑໕໓
໑໘	໐໕໓	໐໕໓	໐໕໓	໑໗	໑໕໓	໑໕໓	໑໕໓
໑໙				໑໘	໑໕໓	໑໕໓	໑໕໓
໒໐				໑໙	໑໕໓	໑໕໓	໑໕໓
໒໑				໒໐	໑໕໓	໑໕໓	໑໕໓
໒໒				໒໑	໑໕໓	໑໕໓	໑໕໓
໒໓				໒໒	໑໕໓	໑໕໓	໑໕໓
໒໔				໒໓	໑໕໓	໑໕໓	໑໕໓
໒໕				໒໔	໑໕໓	໑໕໓	໑໕໓
໒໖				໒໕	໑໕໓	໑໕໓	໑໕໓
໒໗				໒໖	໑໕໓	໑໕໓	໑໕໓
໒໘				໒໗	໑໕໓	໑໕໓	໑໕໓
໒໙				໒໘	໑໕໓	໑໕໓	໑໕໓
໓໐				໒໙	໑໕໓	໑໕໓	໑໕໓
໓໑				໓໐	໑໕໓	໑໕໓	໑໕໓
໓໒				໓໑	໑໕໓	໑໕໓	໑໕໓
໓໓				໓໒	໑໕໓	໑໕໓	໑໕໓
໓໔				໓໓	໑໕໓	໑໕໓	໑໕໓
໓໕				໓໔	໑໕໓	໑໕໓	໑໕໓
໓໖				໓໕	໑໕໓	໑໕໓	໑໕໓
໓໗				໓໖	໑໕໓	໑໕໓	໑໕໓
໓໘				໓໗	໑໕໓	໑໕໓	໑໕໓
໓໙				໓໘	໑໕໓	໑໕໓	໑໕໓
໔໐				໓໙	໑໕໓	໑໕໓	໑໕໓
໔໑				໔໐	໑໕໓	໑໕໓	໑໕໓
໔໒				໔໑	໑໕໓	໑໕໓	໑໕໓
໔໓				໔໒	໑໕໓	໑໕໓	໑໕໓
໔໔				໔໓	໑໕໓	໑໕໓	໑໕໓
໔໕				໔໔	໑໕໓	໑໕໓	໑໕໓
໔໖				໔໕	໑໕໓	໑໕໓	໑໕໓
໔໗				໔໖	໑໕໓	໑໕໓	໑໕໓
໔໘				໔໗	໑໕໓	໑໕໓	໑໕໓
໔໙				໔໘	໑໕໓	໑໕໓	໑໕໓
໕໐				໔໙	໑໕໓	໑໕໓	໑໕໓

- ລະດັບນັກປະຈຳວັນ... ໑໕໓.....  
- ວັນທີ..... 28.11.1991.....  
- ລະດັບນັກສູງສຸດປະຈຳວັນ... ໐໕໓.....  
- ວັນທີ..... 11/11/91.....

ພົ ເລີ່ມ

ຫົວໜ້າຂະແໜງອຸດົມຍຸນວັທະຍາ, ຜູ້ກຳສະຖານີ,

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ເອກະພາບ ແລະ ສັງຄົມນິຍົມ.

ແຂວງຈໍາປາສັກ  
ນະຄອນຫຼວງຈໍາປາສັກ, ຈຸນລະປະທານ  
 ແລະ ສະຫະກອນກະເສດ  
ຂະແໜງວັດທະນະທຳ ດົນຕີຍາ  
 ໂທລະສັບ : ໘໒໑໗.

=====  
 == ໃບລາຍງານລະດັບນ້ຳປະຈຳວັນ(ເມ/ຊຕ) == Dec, 91  
 ສະຖານີວັດແທກລະດັບນ້ຳປະຈຳວັນ (12/໑໙໙1)  
 ເມືອງ : ...../12/91.....

ວັນທີ	ເວລາກາງໃນວັນ			ວັນທີ	ເວລາກາງໃນວັນ		
	(ເຮົາ)	(ແລງ)	(ສູງ)		(ເຮົາ)	(ແລງ)	(ສູງ)
໑	໐48	໐48	໐48	໑9	໐45	໐45	໐45
໒	໐48	໐48	໐48	໒໐	໐44	໐44	໐44
໓	໐48	໐48	໐48	໒1	໐44	໐44	໐44
໔	໐48	໐48	໐48				
໕	໐47	໐47	໐47	໒໓	໐49	໐49	໐49
໖	໐47	໐47	໐47	໒໔	໐49	໐49	໐49
໗	໐47	໐47	໐47	໒໕	໐49	໐49	໐49
໘	໐47	໐47	໐47	໒໖	໐49	໐49	໐49
໙	໐46	໐46	໐46	໒໖	໐49	໐49	໐49
໑໐	໐46	໐46	໐46	໒໖	໐49	໐49	໐49
໑໑	472	472	472	໒໖	໐43	໐43	໐43
໑໒	໐46	໐46	໐46	໒໗	໐43	໐43	໐43
໑໓	໐45	໐45	໐45	໒8	໐43	໐43	໐43
໑໔	໐45	໐45	໐45	໒໙	໐42	໐42	໐42
໑໕	໐45	໐45	໐45	໓໐	໐42	໐42	໐42
໑໖	໐45	໐45	໐45	໓໑	໐42	໐42	໐42
໑໗	໐45	໐45	໐45	ສວມ	474	474	474
				ສວມ	1395	1395	1395
				ສະເລ່ຍ	໐45	໐45	໐45

- ລະດັບນ້ຳຕໍ່ສູງປະຈຳວັນ... ໐4.2...
- ວັນທີ... 25/12/91...
- ລະດັບນ້ຳສູງສຸດປະຈຳວັນ... ໐4.8...
- ວັນທີ... 1/12/91.....

ຫົວໜ້າຂະແໜງວັດທະນະທຳ, ພັກສາສະຖານີ,





**A3.5 Data and Result of the Runoff Analysis for the Xe Katam Project**

**A3.5.1 Discharge Record for TANK MODEL Analysis**

**Daily Discharge Record at Xe Set Project Site (1985-86, 89-90)**

Unit : m<sup>3</sup>/s-d

YEAR	1985											
Date	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1	6.78	4.45	4.45	3.03	10.32	9.92	29.20	20.20	23.80	22.00	12.31	7.40
2	6.46	4.21	4.73	3.03	9.53	9.92	28.00	19.60	26.20	23.80	12.31	7.40
3	6.46	4.21	4.21	2.83	7.40	9.53	28.00	20.80	25.60	21.40	12.31	7.40
4	6.46	4.21	4.45	2.83	7.09	9.13	28.00	20.80	28.60	19.00	11.51	7.09
5	6.15	4.21	4.45	2.62	6.78	12.31	26.80	21.40	25.60	17.80	11.51	7.09
6	6.15	4.21	4.45	2.62	6.46	9.53	28.00	20.20	26.80	17.20	11.11	7.09
7	5.84	3.97	4.21	2.83	9.92	9.78	28.60	19.60	26.20	17.20	11.11	7.09
8	5.84	3.97	3.97	3.03	11.11	8.44	46.00	20.80	23.20	19.00	11.11	7.09
9	5.84	3.97	3.72	3.24	9.53	8.09	47.70	29.80	38.50	20.80	11.11	6.78
10	5.56	3.72	3.48	3.48	8.78	8.09	28.00	27.40	27.40	16.40	10.72	6.78
11	5.28	3.72	3.48	3.24	8.44	8.09	42.30	26.80	27.40	16.60	10.32	6.46
12	5.28	3.72	3.21	3.03	8.78	7.75	28.00	32.50	28.00	16.60	10.72	6.46
13	5.01	4.21	3.03	3.24	9.53	11.11	23.80	38.50	28.60	16.60	10.32	6.46
14	5.01	3.97	3.03	3.03	8.44	11.51	20.80	40.00	29.80	16.60	11.11	6.46
15	5.01	3.97	2.83	2.83	9.53	11.91	16.60	38.50	28.00	23.20	10.32	6.15
16	5.01	3.72	2.83	2.83	10.32	14.28	25.00	38.50	34.00	26.80	9.53	6.15
17	5.01	3.72	2.83	2.83	10.32	50.25	25.20	37.80	30.40	20.20	9.43	6.15
18	5.01	3.48	2.83	2.83	9.53	88.25	31.30	32.50	30.40	21.40	9.43	6.15
19	5.01	3.48	2.83	3.72	10.72	163.50	30.40	30.40	34.70	18.40	8.78	5.84
20	5.01	3.72	2.83	4.45	10.72	81.00	25.00	31.80	30.40	17.20	8.78	5.84
21	4.73	3.24	2.83	5.28	9.92	63.00	23.80	31.00	23.60	16.60	8.78	5.84
22	4.73	3.24	2.83	6.46	9.53	61.30	23.20	34.70	31.00	17.20	8.78	5.56
23	4.73	3.24	2.62	6.46	5.56	46.00	23.20	38.50	33.50	16.00	8.44	5.56
24	4.73	3.24	2.62	6.46	6.46	40.75	22.00	28.60	27.40	15.50	8.44	5.56
25	5.28	3.24	2.83	4.73	6.46	37.75	20.80	26.80	24.40	14.90	8.09	5.28
26	5.84	3.48	2.83	6.46	9.92	32.50	20.80	25.60	25.20	14.90	8.09	5.28
27	5.01	3.48	2.83	6.46	9.92	31.75	20.80	25.00	25.00	14.90	8.09	5.01
28	5.01	3.48	2.83	7.09	9.13	31.00	20.80	30.40	23.80	14.90	8.44	5.28
29	4.73		3.03	5.28	11.11	31.00	19.60	29.20	23.20	14.30	7.75	5.01
30	4.73		3.03	5.56	9.92	31.00	20.80	26.80	22.00	13.70	7.40	5.28
31	4.45		3.03		9.53		20.80	25.60		13.70		5.01
TOTAL	166.15	105.48	103.16	121.81	280.71	948.44	823.30	890.10	832.70	554.80	296.15	192.00
AVE.	5.36	3.77	3.33	4.06	9.06	31.61	26.56	28.71	27.76	17.90	9.87	6.19
MAX.	6.78	4.45	4.73	7.09	11.11	163.50	47.70	40.00	38.50	26.80	12.31	7.40
MIN.	4.45	3.24	2.62	2.62	5.56	7.75	16.60	19.60	22.00	13.70	7.40	5.01
DAYS	31	28	31	30	31	30	31	31	30	31	30	31
ANNUAL TOTAL			5314.8									
ANNUAL AVERAGE			14.56									
ANNUAL MAX.			163.50									
ANNUAL MIN.			2.62									
ANNUAL DAYS			365									

Unit : m<sup>3</sup>/s-d

Year	1986											
Date	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1	5.01	3.97	2.21	2.42	3.97	11.11	11.91	16.00	37.00	23.20	26.20	9.92
2	4.73	3.97	2.42	2.21	3.97	10.32	11.91	13.70	32.50	25.00	25.00	9.53
3	4.73	3.97	2.42	2.62	4.73	9.92	12.31	13.70	29.20	20.80	24.40	9.53
4	4.73	3.97	2.42	2.04	4.45	8.53	12.31	13.70	31.00	19.00	23.00	9.53
5	4.73	3.97	2.42	2.04	5.28	9.53	11.91	14.90	34.70	19.00	22.00	9.13
6	4.73	3.97	2.42	1.87	5.01	9.13	11.91	20.20	37.00	18.40	21.40	9.13
7	4.73	3.72	2.42	1.87	6.15	9.53	11.91	16.00	44.50	17.20	20.80	9.13
8	4.45	3.72	2.42	1.87	6.15	9.13	11.91	16.60	45.20	16.60	19.60	9.13
9	4.45	3.72	2.42	2.04	6.46	8.73	11.91	22.00	41.50	16.00	19.00	8.78
10	4.21	3.43	2.21	3.24	7.09	8.44	11.91	26.20	41.50	14.90	18.41	8.14
11	4.21	3.03	2.62	2.83	7.40	8.78	11.91	34.00	38.50	14.90	17.82	8.09
12	4.21	2.83	2.42	2.21	7.75	10.72	11.11	37.80	37.80	14.90	18.41	8.09
13	4.21	2.83	2.21	2.42	8.44	13.69	9.13	38.50	45.20	14.90	17.32	8.09
14	4.21	2.83	2.21	2.62	8.78	12.70	8.78	54.50	40.00	20.80	17.23	7.40
15	4.21	2.83	2.21	2.83	8.78	10.72	11.51	128.00	35.50	18.40	17.32	7.40
16	3.97	2.83	2.04	2.83	9.92	11.51	13.10	58.30	28.60	17.20	16.05	7.40
17	3.97	2.83	2.04	3.03	11.11	11.91	15.45	43.00	28.60	16.00	14.37	7.40
18	3.97	2.83	2.62	3.48	10.32	11.91	16.54	39.30	28.00	17.20	14.28	6.78
19	3.97	2.83	2.62	3.97	16.05	11.91	19.60	37.00	28.20	17.80	14.28	6.46
20	3.97	2.83	2.83	4.21	19.00	12.70	19.60	34.00	25.60	14.90	13.59	6.15
21	3.97	2.83	3.72	5.01	13.10	13.69	12.31	30.40	22.00	14.30	13.10	5.84
22	3.97	2.83	3.03	5.56	11.91	11.11	11.91	32.50	22.00	54.50	12.70	5.56
23	3.97	2.83	2.62	5.28	11.91	10.32	12.31	31.80	22.00	26.80	13.40	5.23
24	3.97	2.83	2.62	5.01	13.69	12.31	13.59	29.20	21.40	26.80	11.91	5.01
25	3.97	2.83	3.03	5.46	13.10	12.70	13.59	34.00	22.60	26.80	11.51	5.91
26	3.97	2.83	3.03	6.46	12.31	13.40	14.23	32.50	23.20	26.80	10.32	5.56
27	3.97	2.62	2.62	5.84	11.91	13.63	14.28	29.20	22.00	26.80	9.92	5.84
28	3.97	2.42	2.62	5.01	9.92	14.23	17.28	37.80	21.40	27.40	9.92	5.84
29	3.97		2.42	4.45	10.72	14.23	16.64	35.50	22.00	29.20	9.92	5.84
30	3.97		2.42	3.72	11.11	12.70	16.05	45.20	23.20	28.60	9.92	5.84
31	3.97		2.42		11.11		16.64	38.50		26.80		5.56
TOTAL	131.07	88.93	78.15	104.45	291.60	339.24	415.46	1054.00	931.90	671.90	493.10	227.24
AVE.	4.23	3.18	2.52	3.48	9.41	11.31	13.40	34.00	31.06	21.67	16.44	7.33
MAX.	5.01	3.97	3.72	6.46	19.00	14.23	19.60	128.00	45.20	54.50	26.20	9.92
MIN.	3.97	2.42	2.04	1.87	3.97	8.44	8.78	13.70	21.40	14.30	9.92	5.01
DAYS	31	28	31	30	31	30	31	31	30	31	30	31
ANNUAL TOTAL			4827.0									
ANNUAL AVERAGE			13.22									
ANNUAL MAX.			128.00									
ANNUAL MIN.			1.87									
ANNUAL DAYS			365									

Unit : m<sup>3</sup>/s-d

YEAR	1989											
Date	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1					4.44	26.44		22.42	24.68	24.10		
2					4.44	26.44	13.96	20.26	50.00	22.97		
3	4.44	3.46	2.40	2.59	6.43	20.26		31.40	39.58	21.87	10.63	6.75
4					4.44	17.71		51.00	35.38	30.12		
5					19.74	20.26		68.00	43.00	31.40		
6					9.12	20.26		51.00	100.00			
7					5.83	17.71	14.86	32.05	88.50			
8	3.94	2.80	2.02	2.02	13.96	17.71		31.40	75.04	19.74	10.24	6.43
9					6.43	15.78		31.40	38.16			
10					11.42	68.50		28.87	74.08			
11					29.49	25.84		62.95	38.16	18.21		
12					6.13	25.26	13.09	75.04	34.04	17.71		
13	4.44	2.80	2.02	2.02	22.97	22.42		51.00	38.16	46.30	9.86	5.54
14					13.96	21.33		43.00	50.00	24.10		
15					7.07	18.71		28.87	31.40	19.74		
16								34.04				
17								32.05				
18	3.94	2.59	2.20	3.23	9.12	15.32	13.52	60.30	33.37	17.71	8.41	5.26
19								65.65				
20								31.04				
21							28.87	43.00				
22	3.70	2.40	2.20	3.94	8.41	16.73	13.09	28.87	28.87	13.09	7.39	4.98
23							185.00	35.38				
24							67.00	28.87				
25							46.00	28.87				
26					7.39	20.79	37.00					
27					5.83	14.86	35.00	24.68	26.44	11.02	7.39	4.71
28	3.46	2.40	1.84	4.98	123.00	18.71	28.87					
29					20.26	18.71	28.87					
30					18.21	13.96	31.40					
31	3.46	2.40	1.84	4.98	22.97	13.96	28.87	32.71	25.26	10.24	7.07	4.44
<hr/>												
TOTAL	27.38	18.85	14.52	23.76	381.06	497.67	585.40	1074.12	874.12	328.32	60.99	38.11
AVE.	3.91	2.69	2.07	3.39	16.57	21.64	39.03	39.78	46.01	21.89	8.71	5.44
MAX.	4.44	3.46	2.40	4.98	123.00	68.50	185.00	75.04	100.00	46.30	10.63	6.75
MIN.	3.46	2.40	1.84	2.02	4.44	13.96	13.09	20.26	24.68	10.24	7.07	4.44
DAYS	31	28	31	30	31	30	31	31	30	31	30	31
<hr/>												
ANNUAL TOTAL			3924.30									
ANNUAL AVERAGE			17.59									
ANNUAL MAX.			185.00									
ANNUAL MIN.			1.84									
ANNUAL DAYS			365									

Unit : m<sup>3</sup>/s-d

YEAR	1990											
Date	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1	4.19	2.59	1.51	3.46		3.01	5.54	20.26	17.71	28.87	36.00	13.96
2												
3										80.00		
4			1.84	1.68		5.83		17.22		43.00		
5						3.23						
6												
7												
8									22.42			
9	3.70		4.71					17.71		34.71	22.97	
10			3.46					13.52				
11		1.68	3.23				6.13	11.02				13.09
12			1.84									
13						5.83	8.76			29.49		
14	3.46						9.12					
15							13.09			34.71	15.78	
16				3.70			15.32					
17						8.76	42.00			29.49		
18			1.51				15.32					
19						15.32						
20									43.00		13.52	
21						8.76				36.00		
22	2.80	1.51				5.83		43.00				
23						9.12		20.26				
24						12.24						
25						7.39			29.49			
26			3.23			5.83		15.32				
27				3.23								
28							17.71	22.97				
29												
30								17.71			13.96	
31												

TOTAL	14.15	5.78	21.33	12.07	0.00	91.15	132.99	198.99	112.62	316.27	102.23	27.05
AVE.	3.54	1.93	2.67	3.02		7.60	14.78	19.90	28.16	39.53	20.45	13.53
MAX.	4.19	2.59	4.71	3.70		15.32	42.00	43.00	43.00	80.00	36.00	13.96
MIN.	2.80	1.51	1.51	1.68		3.01	5.54	11.02	17.71	28.87	13.52	13.09
DAYS	31	28	31	30	31	30	31	31	30	31	30	31

ANNUAL TOTAL	1034.63
ANNUAL AVERAGE	14.10
ANNUAL MAX.	80.00
ANNUAL MIN.	1.51
ANNUAL DAYS	365

Daily Rainfall Record at Nonghin Station (1980-1990)

Unit : mm

DAY#	1980																																									
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12						
1	0.0	0.0	1.0	0.0	0.0	58.0	0.0	29.4	2.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
2	0.0	0.0	0.0	8.6	0.0	3.1	4.8	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
3	0.0	0.0	0.0	0.8	2.0	8.8	16.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
4	0.0	0.0	0.0	25.0	12.2	0.0	14.9	0.0	57.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
5	0.0	0.0	0.0	7.2	6.3	0.0	12.4	0.0	11.9	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	0.0	0.0	0.0	4.2	18.0	0.0	2.8	12.9	3.3	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	11.0	1.8	29.0	14.8	0.0	1.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8	0.0	0.0	0.0	6.8	0.0	34.5	0.1	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	0.0	0.0	0.0	0.0	37.8	27.6	0.4	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	0.0	0.0	0.0	0.0	0.0	15.4	0.2	7.0	15.1	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	0.0	0.0	0.0	7.2	48.2	0.6	0.3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13	0.0	0.0	0.0	0.0	46.0	1.0	0.1	10.6	10.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15	0.0	0.0	0.0	0.0	18.2	47.8	0.0	21.2	20.2	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
16	0.0	0.0	0.0	48.6	134.8	1.4	10.1	26.1	42.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17	0.0	0.0	0.0	0.0	59.0	16.2	0.0	0.0	5.4	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18	0.0	0.0	0.0	4.0	0.0	7.0	10.4	0.0	35.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
19	0.0	0.0	0.0	0.0	82.4	6.5	10.4	13.4	6.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
20	0.0	0.0	0.0	31.6	0.0	6.8	13.4	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
22	0.4	27.2	8.6	0.0	0.0	39.2	57.6	15.4	41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
23	0.0	0.0	0.0	0.0	0.0	4.0	49.9	12.4	5.1	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24	0.0	0.0	0.0	0.0	0.0	18.4	1.5	3.2	0.0	41.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25	0.0	0.0	0.0	0.0	0.0	3.0	0.2	95.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
26	0.2	0.0	0.0	36.0	0.0	73.4	4.4	3.9	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27	0.0	0.0	0.0	0.0	0.0	11.3	10.8	10.1	20.0	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
28	0.0	0.0	0.0	0.0	31.4	24.8	0.1	11.8	4.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
29	0.0	0.0	0.0	0.0	4.0	10.8	18.0	36.0	30.8	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
30	0.0	0.0	0.0	0.0	0.0	0.1	1.1	14.5	27.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	0.6	34.0	113.6	148.2	502.1	450.7	322.5	372.9	370.4	178.5	23.7	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
AVERAGE	0.0	1.2	3.7	4.9	16.2	15.0	10.4	12.0	12.3	5.8	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM	0.4	27.2	34.2	48.6	134.8	73.4	67.8	95.6	57.3	41.4	9.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																									

1981

NONWINDING PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	0.0	0.0	4.8	40.2	49.6	32.2	61.2	15.6	0.0
2	0.0	0.0	16.1	15.6	0.0	40.9	4.9	5.7	0.0	4.2	0.6	0.0
3	0.0	0.0	5.2	51.3	34.2	1.2	20.5	46.4	0.0	15.5	0.0	0.0
4	0.0	0.0	0.0	29.2	2.1	1.3	83.1	48.6	0.0	9.7	17.0	0.0
5	0.0	0.0	12.9	6.0	6.0	12.5	19.7	28.7	0.0	16.8	0.0	0.0
6	0.0	0.0	0.0	25.0	23.0	21.4	5.2	25.9	0.0	0.5	1.0	0.0
7	0.0	0.0	0.0	0.0	32.2	33.6	0.4	81.2	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	33.4	10.8	92.4	35.1	51.2	0.0	0.0
9	0.0	0.0	36.0	0.0	4.8	20.7	44.5	33.9	3.0	0.6	0.0	0.0
10	0.0	0.0	13.6	0.0	0.0	65.3	0.2	2.5	29.0	5.8	0.0	0.7
11	0.0	0.0	11.8	2.6	6.4	40.0	5.2	1.8	14.5	0.0	0.0	0.0
12	0.0	0.0	23.5	4.2	0.0	40.3	15.9	13.2	0.0	0.0	0.0	0.0
13	0.0	0.0	47.4	6.3	19.4	73.5	24.8	34.4	0.0	6.2	3.0	0.0
14	0.0	0.0	1.5	0.0	16.4	36.7	39.3	12.7	0.0	10.5	0.0	0.0
15	0.0	0.0	0.0	0.0	33.6	30.2	0.4	3.9	0.0	15.8	1.8	0.0
16	0.0	0.0	0.0	0.0	0.0	20.2	1.2	34.5	0.0	34.1	2.0	0.0
17	0.0	0.0	0.0	0.0	0.0	27.9	2.3	25.4	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	34.4	31.5	6.3	40.9	18.1	0.0	0.0	0.0
19	0.0	0.0	0.0	30.5	60.2	14.9	12.0	33.6	0.0	6.0	0.0	0.0
20	0.0	5.2	0.0	18.7	10.2	25.9	58.9	6.5	10.6	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	34.4	60.1	15.5	0.0	0.0	3.6	0.0	0.0
22	0.0	0.0	0.0	0.0	57.5	30.7	11.9	2.6	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	6.2	6.2	9.6	0.9	12.7	0.0	3.8	0.0
24	0.0	4.4	0.0	13.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0
25	0.0	6.0	4.0	15.9	15.5	0.0	0.0	25.1	0.0	0.0	0.0	0.0
26	0.0	85.2	3.7	0.0	16.5	0.0	2.0	12.9	0.0	0.0	0.0	0.0
27	0.0	46.6	0.4	0.0	0.0	11.8	15.7	0.0	14.6	0.0	0.0	0.0
28	5.8	22.0	0.0	14.6	0.0	6.4	1.3	12.8	14.8	0.0	0.0	0.0
29	2.3	0.0	0.0	30.9	0.5	0.5	5.7	10.3	3.5	0.0	0.0	0.0
30	0.0	0.0	0.0	21.9	0.0	0.0	0.6	13.5	5.2	3.5	0.0	0.0
31	0.0	0.0	4.2	0.0	0.0	0.0	0.5	5.7	0.0	0.0	0.0	0.0
TOTAL	8.1	169.4	178.3	285.7	407.3	691.9	463.7	705.6	193.3	243.2	49.8	0.7
AVERAGE	0.3	6.1	5.8	9.5	13.1	23.1	15.0	22.8	6.4	7.8	1.7	0.0
MAXIMUM	5.8	85.2	47.4	51.3	60.2	73.5	83.1	92.4	35.1	61.2	17.0	0.7
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNUAL

TOTAL	3397.0
AVERAGE	9.3
MAXIMUM	92.4
MINIMUM	0.0

1982

NONSHINE PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	16.1	4.6	0.0	0.0	4.8	0.0	71.0	9.8	0.0	43.2
2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	43.2	5.4	0.0	0.0
3	0.0	0.0	6.8	7.9	46.1	4.7	7.3	12.8	6.6	2.6	0.0	0.0
4	0.0	0.0	0.0	16.2	0.0	0.0	110.0	4.6	11.4	0.0	0.0	0.0
5	0.0	0.0	17.2	2.5	0.0	17.4	30.5	30.2	21.8	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	7.6	5.0	108.7	0.0	11.2	0.0
7	0.0	0.0	26.1	0.0	0.0	5.9	0.0	17.8	8.2	0.0	40.0	0.0
8	0.0	0.0	0.0	18.9	0.0	3.3	20.8	17.8	16.8	0.0	21.5	0.0
9	0.0	0.0	30.2	0.0	0.0	17.5	1.5	14.4	2.5	0.0	0.0	0.0
10	0.0	0.0	5.4	0.0	0.0	25.8	0.0	53.2	26.2	10.2	18.5	0.0
11	0.0	0.0	0.0	15.8	0.0	3.0	4.4	12.5	2.2	2.9	0.0	0.0
12	0.0	0.0	0.0	38.2	1.2	2.6	0.0	36.8	19.2	5.0	8.4	0.0
13	0.0	0.0	0.0	25.0	0.0	8.7	3.3	1.0	0.0	0.0	33.2	0.0
14	0.0	0.0	0.0	7.8	0.0	3.3	76.2	2.3	0.0	0.0	5.8	0.0
15	0.0	0.0	0.0	0.0	0.0	2.4	3.2	8.1	0.0	0.0	48.8	0.0
16	0.0	0.0	0.0	0.0	15.3	3.4	50.4	15.1	0.0	0.0	22.5	0.0
17	0.0	0.0	0.0	0.0	8.5	3.2	4.5	15.0	18.4	0.0	14.4	0.0
18	0.0	0.0	0.0	54.2	3.7	3.0	37.9	15.7	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	9.3	4.6	21.2	3.2	22.8	0.0	13.1	10.4	0.0
20	0.0	0.0	0.0	0.4	3.8	0.4	15.3	60.4	0.0	7.2	0.0	0.0
21	1.7	0.0	0.0	0.4	63.5	0.0	17.6	17.8	12.6	0.0	13.1	0.0
22	0.0	2.1	0.0	0.0	0.0	6.8	0.0	9.3	2.4	0.0	0.0	0.0
23	0.0	30.1	0.0	5.1	0.0	6.2	2.2	10.5	11.5	11.4	0.0	0.0
24	0.0	5.9	0.0	10.6	0.0	20.8	39.5	4.2	9.2	10.2	18.3	0.0
25	0.0	0.0	0.0	0.0	8.9	33.9	16.2	3.7	1.3	2.1	20.6	0.0
26	0.0	0.0	20.4	0.0	0.0	60.5	87.2	0.0	2.9	8.2	0.0	0.0
27	0.0	2.7	5.5	1.2	0.0	29.5	36.5	3.7	0.0	5.1	15.8	0.0
28	0.0	0.0	0.0	0.0	49.8	68.8	14.1	13.7	54.2	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	15.5	3.1	26.4	5.7	0.0	19.8	0.0
30	0.0	0.0	5.2	0.0	0.0	9.4	16.3	6.4	23.2	0.0	0.0	0.0
31	0.0	0.0	4.0	0.0	0.0	7.6	7.6	2.4	0.0	0.0	0.0	0.0
TOTAL	0.0	42.5	144.4	218.1	205.4	377.2	622.9	442.6	480.2	93.2	322.3	43.2
AVERAGE	0.0	1.5	4.7	7.3	6.6	12.6	20.1	14.3	16.0	3.0	10.7	1.4
MAXIMUM	0.0	30.1	30.2	54.2	63.5	68.8	110.0	60.4	108.7	13.1	48.8	43.2
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNUAL

TOTAL	2992.0	8.2	110.0	0.0
AVERAGE				
MAXIMUM				
MINIMUM				

NONSHINE PRECIPITATION

DAY	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	0.0	2.8	0.0	7.4	19.0	29.1	31.1	2.3	0.0
2	9.3	0.0	0.0	23.4	4.2	0.0	0.0	65.0	0.0	29.1	0.0	0.0
3	0.0	0.0	0.0	0.0	105.8	0.0	0.0	8.9	11.8	26.1	0.0	0.0
4	0.0	0.0	0.0	0.0	1.0	0.0	0.0	21.6	0.0	10.3	9.1	0.0
5	0.0	0.0	0.0	0.0	56.7	0.0	4.2	0.0	0.0	4.1	2.8	0.0
6	0.0	0.0	0.0	0.0	3.8	17.8	6.4	0.0	72.6	6.4	0.0	0.0
7	0.0	0.0	0.0	0.0	66.5	23.2	12.4	0.0	12.2	12.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	51.8	3.4	17.8	0.0	18.0	0.0	0.0
9	0.0	0.0	0.0	0.0	16.8	0.0	0.0	0.0	0.0	10.6	0.0	0.0
10	0.0	0.0	38.2	0.0	95.5	0.0	0.0	0.0	0.0	0.0	0.0	5.3
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2	0.0	4.5	0.0	1.2
12	0.0	0.0	0.0	0.0	0.0	49.8	7.8	0.0	0.0	1.6	20.3	0.3
13	0.0	0.0	0.0	0.0	0.0	79.7	0.0	5.2	0.0	56.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	18.8	0.0	55.2	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	6.0	1.2	0.0	0.0	59.6	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	10.4	50.1	2.1	19.8	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	7.0	1.8	0.0	27.3	17.0	3.0	0.0	0.0	0.0
18	0.0	0.0	12.4	0.0	0.0	2.2	42.3	4.5	5.8	18.4	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	6.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	37.8	1.3	23.6	30.2	0.0	0.0
21	0.0	0.0	0.0	12.4	0.0	0.0	27.2	8.4	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	16.4	0.0	0.0	8.9	5.2	2.4	0.0	8.1	0.0
23	0.0	0.0	0.0	0.0	0.0	14.8	1.1	64.2	1.1	0.0	2.4	0.0
24	0.0	0.0	0.0	0.0	0.0	17.2	1.4	18.6	33.8	0.0	0.0	1.5
25	0.0	0.0	0.0	66.8	0.0	178.0	2.5	15.2	44.8	18.3	0.0	0.0
26	0.0	0.0	0.0	55.1	0.0	116.3	5.1	7.3	14.6	14.8	0.0	0.0
27	0.0	0.0	0.0	0.0	45.0	14.2	2.2	3.1	43.2	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	50.7	8.5	0.0	0.0
29	0.0	0.0	0.0	9.1	9.7	0.0	0.0	0.0	39.5	0.0	0.0	0.0
30	0.0	0.0	0.0	35.2	11.2	0.0	0.0	22.2	26.4	0.0	0.0	0.0
31	0.0	0.0	19.3	0.0	3.4	0.0	2.3	4.8	0.0	9.3	0.0	0.0
TOTAL	9.3	0.0	69.9	262.0	480.6	585.9	219.5	442.5	420.6	309.8	34.0	8.3
AVERAGE	0.3	0.0	2.3	8.1	15.5	19.5	7.1	14.3	14.0	10.0	1.1	0.3
MAXIMUM	9.3	0.0	38.2	66.8	105.8	178.0	42.3	65.0	72.6	56.0	10.3	5.3
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNUAL  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 2822.4 7.7 178.0 0.0



1984

NONHGHNE PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	10.5	1.9	6.9	3.4	66.6	99.5	6.3	0.0	0.0
2	0.0	0.0	5.2	8.2	3.2	0.0	0.0	75.8	64.5	9.0	2.1	0.0
3	0.0	0.0	0.0	3.4	29.1	25.0	10.3	15.5	3.3	2.4	15.3	0.0
4	0.0	0.0	0.0	0.0	0.0	6.3	5.9	7.0	13.5	12.5	0.0	0.0
5	0.0	2.3	0.0	0.0	0.0	0.0	0.0	13.5	0.0	45.9	0.0	0.0
6	0.0	0.0	0.0	27.5	0.0	14.6	2.3	5.2	82.5	26.5	0.0	0.0
7	0.0	0.0	10.9	35.2	0.0	7.1	2.4	4.3	2.2	41.2	3.4	0.0
8	0.0	0.0	23.8	17.3	0.0	23.9	22.0	14.0	1.9	9.9	54.3	0.0
9	0.0	0.0	2.2	17.3	0.0	6.0	2.0	9.1	27.3	5.0	3.8	0.0
10	0.0	0.0	0.0	12.8	24.3	4.5	0.0	26.1	16.9	29.8	13.3	0.0
11	0.0	12.3	0.0	0.0	24.6	30.0	3.0	31.2	68.4	5.2	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	23.9	23.0	27.3	16.1	0.2	33.1	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	41.3	62.8	44.2	0.0
14	0.0	26.9	0.0	0.0	0.0	4.8	0.0	83.9	15.8	8.9	35.1	0.0
15	0.0	10.1	111.0	0.0	0.0	3.2	0.0	50.9	7.0	22.4	0.0	0.0
16	0.0	2.3	22.1	0.0	0.0	10.4	0.0	63.3	4.8	11.1	0.0	0.0
17	0.0	0.0	2.8	13.2	0.0	6.2	25.6	105.3	4.0	6.1	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	15.4	22.4	72.2	1.0	3.2	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	25.6	0.0	0.0	24.3	0.0	0.0	0.0
20	0.0	2.6	2.0	17.9	0.0	14.3	0.0	8.7	3.2	2.3	0.0	0.0
21	0.0	31.8	3.4	0.0	5.6	28.0	0.0	32.9	9.9	0.0	0.0	0.0
22	0.0	0.0	1.9	0.0	0.0	52.3	0.0	1.0	3.2	0.0	0.0	0.0
23	9.2	0.0	0.0	0.0	33.9	13.5	6.0	0.0	8.6	0.0	0.0	0.0
24	0.0	0.0	0.0	38.3	12.2	7.4	0.0	4.9	15.8	0.0	0.0	0.0
25	0.0	0.0	3.4	0.0	4.3	53.9	0.0	0.0	0.3	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	12.1	0.0	0.0	69.3	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	11.8	30.8	5.0	5.8	0.0	0.0	0.0	0.0
28	3.2	0.0	0.0	0.0	5.0	25.3	16.2	5.0	4.3	0.0	0.0	0.0
29	0.0	0.0	6.2	30.3	0.0	38.8	13.2	28.6	10.0	4.2	0.0	0.0
30	0.0	0.0	0.0	10.5	0.0	5.4	31.0	59.9	8.1	42.9	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	50.2	30.7	0.0	0.0	0.0	0.0
TOTAL	12.4	68.3	194.9	242.4	168.0	469.1	293.9	926.0	557.7	357.8	204.6	0.0
AVERAGE	0.4	3.0	6.3	8.1	5.4	15.6	9.5	29.9	18.6	11.5	6.8	0.0
MAXIMUM	9.2	31.8	111.0	38.3	33.9	53.9	81.0	105.3	99.5	62.8	54.3	0.0
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\* ANNUAL \*\*\*\*\*  
 \*\*\*\*\* TOTAL AVERAGE MAXIMUM MINIMUM \*\*\*\*\*  
 \*\*\*\*\* 315.1 9.6 111.0 0.0 \*\*\*\*\*

1985

NONGHINE PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	0.0	0.0	10.8	7.9	2.2	10.7	0.4	0.0	0.0
2	0.0	0.0	22.9	0.0	0.0	0.0	7.1	7.8	52.3	10.0	0.0	0.0
3	0.0	0.0	12.6	15.9	0.0	0.0	26.6	11.4	0.0	1.0	0.0	0.0
4	0.0	0.0	7.3	16.9	0.0	1.1	11.7	47.6	4.2	0.0	0.0	0.0
5	0.0	0.0	3.2	134.0	5.1	0.3	12.6	2.6	38.3	0.0	0.2	0.0
6	0.0	0.0	0.0	4.1	10.8	2.2	5.2	1.4	30.0	0.0	0.0	22.3
7	0.0	0.0	0.0	18.2	0.0	0.0	56.6	17.6	3.1	0.0	15.4	0.0
8	0.0	1.5	0.0	3.9	0.0	2.7	83.0	72.1	0.0	10.3	1.5	1.2
9	0.0	0.0	0.0	19.9	37.3	0.0	24.8	2.3	38.3	51.7	10.4	0.0
10	0.0	0.0	0.0	16.1	15.6	0.0	71.0	15.2	25.4	0.9	0.0	0.0
11	0.0	16.3	0.0	0.2	2.0	6.1	1.6	71.8	36.2	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	37.2	5.8	6.6	19.8	2.4	0.5	2.6	0.0
13	0.0	25.5	0.0	0.0	0.0	41.1	7.8	46.9	21.0	3.0	25.2	0.0
14	0.0	20.9	0.0	0.0	11.1	37.6	0.0	38.0	2.3	0.4	26.6	0.0
15	0.0	0.0	0.0	13.2	0.7	28.6	0.0	3.4	4.2	2.3	0.0	0.0
16	0.0	0.0	0.0	42.0	15.9	18.1	67.6	15.0	8.9	43.2	0.0	0.0
17	0.0	0.0	0.0	5.1	27.7	113.0	3.7	4.2	14.2	8.4	0.0	0.0
18	0.0	0.0	0.0	9.8	0.0	48.7	19.6	1.7	11.0	16.5	0.0	0.0
19	0.0	0.0	0.0	35.2	21.0	109.1	6.4	11.3	9.5	0.0	0.0	0.0
20	0.0	1.2	0.0	21.2	2.0	20.1	0.0	21.2	9.5	0.0	1.1	0.0
21	0.0	62.0	0.0	9.0	21.7	31.4	10.8	0.6	2.4	2.5	0.0	0.0
22	0.0	22.0	0.0	12.0	3.1	18.8	11.5	39.4	0.0	0.2	0.0	0.0
23	0.0	41.3	1.2	6.1	6.0	7.3	23.5	15.1	0.0	0.0	0.0	0.0
24	0.0	10.9	0.0	40.0	0.2	9.3	0.0	12.5	0.0	2.5	0.0	0.0
25	3.1	0.0	0.0	70.1	11.7	3.8	0.0	21.1	0.4	2.8	0.0	0.0
26	4.7	0.0	0.0	12.1	6.9	5.3	4.6	9.2	0.0	0.0	0.2	0.0
27	12.0	21.7	0.0	3.8	0.0	27.6	3.6	28.7	0.0	3.5	1.2	0.0
28	10.0	6.3	0.0	38.2	0.0	8.1	17.2	58.6	0.0	20.4	29.8	0.0
29	0.0	0.0	15.3	5.7	0.0	21.2	7.2	3.6	0.0	0.0	0.0	0.0
30	0.0	0.0	4.9	0.0	2.9	4.6	0.0	3.9	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.1	0.0	13.4	1.6	0.0	0.0	0.0	0.0
TOTAL	29.8	229.6	67.4	543.7	239.0	602.7	511.6	607.8	315.3	181.1	114.2	23.5
AVERAGE	1.0	8.2	2.2	18.1	7.7	20.1	16.5	19.6	10.5	5.8	3.8	0.8
MAXIMUM	12.0	62.0	22.9	134.0	37.3	113.0	83.0	72.1	52.3	51.7	29.8	22.3
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0

ANNUAL  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 3465.7 9.5 134.0 0.0

1986

NONCHINE PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	30.2	29.0	0.0	1.2	0.0	1.0	26.3	0.0	0.2
2	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	13.4	6.3	0.0	7.9
3	0.0	0.0	0.0	0.0	9.6	0.0	16.9	9.4	12.8	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	2.7	0.5	41.1	53.3	0.8	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	41.5	2.0	3.1	47.2	23.1	0.0	0.0	13.2
6	0.0	0.0	0.0	0.0	30.4	9.0	7.4	31.2	83.9	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.5	5.2	0.0	23.3	4.3	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	3.9	0.0	17.8	15.6	17.6	0.0	0.0	1.0
9	0.0	0.0	0.0	0.0	41.1	0.0	2.3	73.4	16.6	3.2	0.0	0.0
10	0.0	0.0	0.0	57.9	17.8	7.2	5.2	21.0	20.6	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	28.6	10.6	13.8	7.2	19.3	0.0	0.7	0.0
12	0.0	0.0	0.0	15.1	0.8	16.8	63.4	26.5	11.7	0.8	11.4	0.0
13	0.0	0.0	0.0	11.4	0.5	16.1	3.6	67.3	30.8	0.0	2.7	0.0
14	0.0	0.0	0.0	3.6	0.3	21.5	10.0	56.4	0.0	6.5	9.2	0.0
15	0.0	0.0	0.0	0.9	0.0	32.4	31.0	25.2	0.0	21.3	0.0	0.0
16	0.0	0.0	0.0	1.5	8.2	0.8	1.4	41.8	0.0	1.2	0.0	0.0
17	0.0	0.0	0.0	0.0	18.6	0.5	13.4	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	29.6	0.0	4.6	3.5	0.0	10.8	0.0	0.0
19	0.0	0.0	0.0	20.5	33.9	0.8	117.6	2.0	3.6	0.5	0.0	0.0
20	0.0	16.8	0.0	0.0	30.8	1.2	75.3	6.9	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	16.2	3.9	0.0	5.3	4.2	0.0	0.0	0.0	0.0
22	0.0	0.0	10.2	25.5	10.4	5.3	15.5	4.4	0.0	75.0	0.0	0.0
23	0.0	0.0	13.2	6.2	5.9	70.6	0.0	3.7	0.0	28.7	0.0	0.0
24	0.0	0.0	0.0	0.0	51.8	25.7	0.0	36.8	0.0	0.0	0.0	0.0
25	0.0	0.0	1.1	79.5	17.6	5.6	3.0	5.5	16.2	0.0	0.0	0.0
26	0.0	0.0	85.2	7.5	4.8	9.9	3.7	21.8	52.2	6.1	0.0	0.0
27	0.0	0.0	0.0	0.0	33.8	8.3	4.8	26.5	52.2	22.4	0.0	0.0
28	0.0	0.0	0.0	16.1	0.0	2.3	4.8	110.1	5.1	5.0	0.0	0.0
29	0.0	0.0	0.0	0.0	6.3	0.0	2.3	1.6	23.2	6.2	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.6	8.8	3.4	0.0	0.0
31	0.0	0.0	0.0	0.0	2.8	0.0	0.0	3.5	0.0	0.0	0.0	0.0
TOTAL	0.0	16.8	130.2	274.1	489.0	252.3	471.3	731.9	417.0	221.7	26.0	22.3
AVERAGE	0.0	0.6	4.2	9.1	15.1	8.4	15.2	23.6	13.9	7.2	0.8	0.7
MAXIMUM	0.0	16.8	85.2	79.5	51.8	70.6	117.6	110.1	83.9	75.0	11.4	13.2
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\*  
 ANNUAL  
 \*\*\*\*\*  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 \*\*\*\*\*  
 3030.6 8.3 117.6 0.0  
 \*\*\*\*\*

MONTHLY PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	0.0	1.6	0.0	23.2	0.0	1.7	0.0	0.4	0.0
2	0.0	0.0	19.8	4.8	13.9	2.4	26.3	0.0	4.4	6.2	0.0	0.0
3	0.0	0.0	0.0	0.4	14.2	20.5	83.3	6.8	20.8	44.2	1.4	0.0
4	0.0	0.0	0.0	0.0	1.4	4.2	21.3	24.3	2.7	16.0	0.0	0.0
5	0.0	0.0	21.6	0.0	1.8	3.5	24.8	3.0	4.6	16.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	22.1	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	6.5	3.0	16.6	17.4	1.4	0.0	0.0
8	0.0	0.0	0.0	5.2	0.0	0.0	10.1	12.1	1.1	6.8	0.0	0.0
9	0.0	0.0	0.0	16.0	0.0	32.6	5.3	29.3	9.3	8.8	0.4	0.0
10	0.0	0.0	0.0	13.2	0.0	10.8	6.6	4.0	7.6	17.8	0.0	0.0
11	0.0	0.0	17.8	0.0	11.8	0.0	1.6	0.0	27.8	11.4	0.0	0.0
12	0.0	0.0	0.8	0.0	25.5	4.2	26.6	11.7	0.6	15.6	14.7	0.0
13	0.0	0.0	0.0	0.0	1.2	25.9	17.5	0.0	0.0	24.5	0.0	0.0
14	0.0	0.0	0.0	42.8	0.0	2.0	132.6	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	30.0	0.0	0.0	29.4	0.4	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	7.8	4.6	67.9	0.0	1.5	0.0	0.0
17	0.0	0.0	0.0	13.8	0.0	3.4	3.5	22.2	0.0	22.2	0.0	0.0
18	0.0	0.0	2.6	0.0	30.6	39.0	5.7	38.8	0.0	0.0	0.8	0.0
19	0.0	0.0	0.0	15.0	0.0	14.7	11.7	3.2	0.0	0.0	24.3	0.0
20	0.0	0.0	0.0	0.0	0.0	12.8	3.8	105.1	0.0	5.5	0.3	0.0
21	0.0	0.0	0.0	0.0	0.0	32.9	1.1	123.8	27.5	0.0	0.9	0.0
22	0.0	0.0	0.0	0.0	34.0	0.0	3.1	42.1	30.7	0.0	0.0	0.0
23	0.0	0.0	0.0	0.2	0.4	0.0	3.2	18.4	40.9	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.6	0.0	8.2	20.4	2.2	4.8	0.0
25	0.0	1.0	5.5	40.4	0.0	0.0	0.0	0.0	2.5	0.0	3.2	0.0
26	0.0	4.8	12.4	13.2	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0
27	0.0	0.0	15.6	5.0	0.0	0.0	0.0	8.5	20.7	0.0	3.4	0.0
28	0.0	0.0	0.0	1.2	1.2	1.3	11.7	19.8	0.0	21.5	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	3.2	10.7	22.8	12.8	2.5	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	14.7	0.0	0.0
31	0.0	0.0	3.5	0.0	0.0	21.3	0.0	0.0	0.0	22.8	0.0	0.0
TOTAL	0.0	5.8	99.6	200.0	139.6	228.3	517.2	591.0	276.9	261.6	57.0	0.0
AVERAGE	0.0	0.2	3.2	6.7	4.5	7.6	16.7	19.1	9.2	8.4	1.9	0.0
MAXIMUM	0.0	4.8	21.6	42.8	36.0	39.0	132.6	123.8	40.9	44.2	24.3	0.0
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNUAL  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 2377.0 6.5 132.6 0.0

1988

NONHGHNE PRECIPITATION

#DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	2.4	0.0	0.0	26.9	8.2	50.9	0.0	0.0	0.0	0.0
2	0.0	0.0	5.6	12.2	0.0	30.3	14.6	46.8	0.0	0.0	0.0	0.0
3	0.0	0.0	3.8	0.0	0.0	33.8	9.2	0.0	0.0	3.5	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	2.2	23.6	0.0	0.0	35.8	0.0	9.7
5	0.0	0.0	0.0	0.0	0.0	35.0	3.7	4.0	2.2	0.0	7.5	5.4
6	0.0	0.0	0.0	0.0	0.0	7.4	3.0	18.8	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	31.1	0.0	1.3	0.0	0.0	17.8	45.5	0.0	0.0
8	1.4	2.7	0.0	0.0	0.0	0.0	2.2	6.0	13.2	2.4	0.0	0.0
9	0.0	0.0	0.0	0.0	3.2	0.0	0.0	16.4	33.4	20.6	0.0	0.0
10	0.0	1.2	0.0	0.0	0.0	0.0	4.5	26.0	17.0	5.7	0.0	0.0
11	0.0	0.0	0.0	6.1	0.0	8.0	15.0	0.0	0.0	15.7	0.0	0.0
12	0.0	0.0	0.0	32.1	0.0	8.8	2.6	27.4	3.8	16.7	0.0	0.0
13	0.0	0.0	0.0	5.9	97.8	35.8	0.0	75.4	1.6	16.1	0.0	0.0
14	0.0	0.0	0.0	16.3	29.2	4.7	21.6	4.2	0.0	10.1	0.0	0.0
15	0.0	0.2	20.5	75.4	48.6	7.5	13.7	6.3	0.0	25.2	0.0	0.0
16	0.0	0.0	11.1	0.0	6.4	21.6	11.5	3.8	0.0	16.2	0.0	0.0
17	0.0	0.0	0.0	0.0	9.7	10.5	23.5	11.3	13.7	20.4	0.0	0.0
18	0.0	0.0	0.0	0.0	32.6	1.7	0.0	0.0	9.2	11.5	0.0	0.0
19	0.0	0.0	31.0	14.4	6.4	7.1	5.7	1.8	10.1	5.5	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	5.6	62.2	3.1	0.0	10.4	0.0	0.0
21	0.0	0.0	0.0	0.4	0.0	1.4	9.7	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	7.8	2.3	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	13.0	32.2	1.2	3.8	30.8	5.7	0.0	0.0	0.0
24	0.0	3.5	0.0	37.8	0.0	1.6	0.0	19.0	20.4	10.8	10.8	0.0
25	0.0	24.5	0.0	6.0	0.0	0.6	0.0	9.1	5.3	0.0	0.0	0.0
26	0.0	0.0	37.8	0.0	0.0	0.0	11.0	0.0	0.0	35.8	0.0	0.0
27	0.0	0.0	0.0	0.0	2.2	0.0	22.4	22.8	10.3	0.0	0.0	0.0
28	0.0	0.0	0.0	1.4	10.2	2.4	5.2	0.0	15.4	0.0	0.0	0.0
29	0.0	18.2	0.0	57.4	4.0	16.2	17.5	1.2	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	20.4	8.6	0.0	9.9	1.7	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	84.0	0.0	25.8	0.0	0.0	0.0	0.0	0.0
TOTAL	1.4	62.0	112.2	329.9	373.1	271.6	328.7	396.3	179.1	305.7	18.3	15.1
AVERAGE	0.0	2.1	3.6	11.0	12.0	9.1	10.6	12.8	6.0	9.9	0.6	0.5
MAXIMUM	1.4	24.5	37.8	75.4	97.8	35.8	62.2	75.4	33.4	45.5	10.8	9.7
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\*  
 ANNUAL  
 \*\*\*\*\*  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 2393.4 6.5 97.8 0.0  
 \*\*\*\*\*

NONSHINE PRECIPITATION 1989

DAY#	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	0.0	0.0	17.0	39.4	0.0	2.6	58.4	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	11.0	0.0	2.8	5.8	0.0	0.0	0.0
3	0.0	0.0	1.5	0.0	4.3	0.0	21.2	5.6	0.4	12.6	12.0	0.0
4	0.0	0.0	1.6	0.0	2.3	0.0	0.0	45.6	5.8	2.1	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	28.8	50.2	7.4	0.0	25.4	0.0
6	0.0	0.0	0.0	0.0	5.6	0.0	2.2	7.0	63.1	0.0	0.0	0.0
7	0.0	0.0	0.0	7.2	3.4	0.0	0.6	4.6	2.3	0.0	0.0	0.0
8	0.0	0.0	0.0	15.8	0.0	14.0	2.4	2.4	3.0	0.0	0.0	0.0
9	0.0	0.0	0.0	1.6	22.0	2.0	10.4	16.8	24.7	0.0	0.0	0.0
10	0.0	0.0	0.0	1.8	2.5	75.2	0.0	12.9	29.0	0.8	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	22.4	22.6	31.8	1.2	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	10.0	42.6	103.6	0.0	25.1	0.0	0.0
13	0.0	0.0	0.0	21.8	0.0	0.0	15.1	10.6	4.2	3.3	0.0	0.0
14	0.0	0.0	0.0	48.6	11.0	0.0	7.0	0.0	5.8	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	3.0	0.0	6.6	0.0	4.0	0.0	0.0	0.0
16	0.0	0.0	0.0	8.8	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0
17	0.0	0.0	27.3	0.0	2.0	1.0	0.0	0.0	9.0	0.0	0.0	0.0
18	6.9	0.0	6.2	0.0	4.8	1.2	6.0	6.4	4.8	27.1	0.0	0.0
19	0.0	0.0	0.0	0.0	3.0	0.0	21.4	19.6	10.6	2.2	0.0	0.0
20	0.0	0.0	0.0	68.2	0.0	0.0	21.0	16.2	13.0	0.0	0.0	0.0
21	0.0	0.0	1.4	0.0	0.0	1.0	6.3	2.6	5.4	0.0	0.0	0.2
22	0.0	0.0	10.1	0.0	0.0	0.0	8.1	3.8	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	4.1	4.2	1.2	153.4	5.2	0.8	0.0	0.0	0.0
24	0.0	0.0	0.0	1.8	21.6	0.0	15.2	8.2	1.4	0.0	0.0	0.0
25	0.0	0.0	6.7	0.0	74.0	7.4	3.9	6.6	8.7	14.5	0.0	0.0
26	0.0	0.0	39.5	23.5	22.0	4.9	8.3	11.2	16.8	1.0	0.0	0.0
27	0.0	0.0	7.4	0.0	17.4	4.9	5.7	7.0	0.0	12.2	27.8	0.0
28	0.0	0.0	0.0	58.4	0.0	2.8	2.4	24.6	0.0	0.0	1.2	0.0
29	0.0	0.0	9.3	20.5	3.3	0.0	10.4	16.7	0.0	0.0	0.0	0.0
30	0.0	0.0	3.4	0.0	6.8	0.0	19.3	0.0	28.8	0.0	0.0	0.0
31	0.0	0.0	22.3	0.0	23.8	0.0	17.8	5.7	0.0	0.0	0.0	0.0
TOTAL	6.9	0.0	136.7	282.1	254.0	198.4	459.7	430.3	323.6	100.9	66.4	0.2
AVERAGE	0.2	0.0	4.4	9.4	8.2	6.6	14.8	13.9	10.8	3.3	2.2	0.0
MAXIMUM	6.9	6.0	39.5	68.2	74.0	75.2	153.4	103.6	63.1	27.1	27.8	0.2
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNUAL  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 2258.2 6.2 153.4 0.0

1990

MONTHLY PRECIPITATION

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	0.0	0.0	7.2	0.0	0.0	1.8	7.1	16.6	0.0	1.8	0.0	0.0
2	0.0	0.0	63.8	0.0	22.4	2.6	21.7	0.0	12.8	1.3	0.5	0.0
3	0.0	0.0	1.7	0.0	21.6	4.5	4.2	16.4	1.2	48.7	0.0	0.0
4	0.0	0.0	0.0	0.0	2.9	0.0	0.0	32.2	41.2	15.3	0.0	0.0
5	0.0	0.0	0.0	0.0	11.5	0.0	0.0	19.6	29.6	10.6	0.0	0.0
6	0.0	0.0	0.0	0.0	5.2	0.0	0.0	7.6	0.0	29.8	0.0	0.0
7	0.0	0.0	3.0	0.0	50.4	0.0	0.0	0.0	1.3	31.8	0.0	0.0
8	0.0	0.0	1.1	0.0	0.0	0.0	21.0	2.7	16.9	10.8	37.8	0.0
9	0.0	0.0	9.5	0.0	0.0	0.0	1.0	0.0	42.5	0.0	2.0	0.0
10	2.6	0.0	10.5	0.0	0.0	38.2	6.5	0.0	23.6	0.0	1.5	0.0
11	0.0	0.0	18.5	0.0	0.0	3.1	0.0	0.0	2.0	0.0	2.1	0.0
12	0.0	0.0	1.0	2.4	0.0	7.2	2.5	2.2	6.7	0.0	0.0	0.0
13	0.0	0.0	0.0	11.8	40.2	3.8	12.8	7.0	1.0	0.0	0.0	0.0
14	0.0	26.8	0.0	27.8	0.0	36.8	0.0	0.0	0.0	30.7	0.0	0.0
15	0.0	0.0	1.8	0.0	0.0	9.8	0.9	0.0	1.2	26.4	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	21.8	0.0	3.5	0.6	1.0	0.0	0.0
17	0.0	0.0	0.0	0.0	14.2	18.6	0.0	0.0	0.6	0.0	0.0	0.0
18	0.0	0.0	3.2	0.0	9.3	12.3	0.0	0.6	1.0	4.4	0.0	0.0
19	0.0	0.4	0.0	1.6	3.6	3.0	32.8	9.3	53.3	39.8	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	20.6	0.0	36.7	25.9	0.3	0.4	0.0
21	0.0	0.0	0.0	12.6	4.7	15.6	5.1	8.0	5.0	4.2	0.0	0.0
22	0.0	0.0	0.8	0.0	4.1	8.0	35.9	2.8	11.6	0.0	0.0	0.0
23	0.0	0.0	0.9	0.0	21.8	21.3	5.8	0.0	31.2	1.0	0.0	0.0
24	0.0	0.0	0.0	0.8	27.6	35.1	1.0	1.7	5.8	3.8	0.0	0.0
25	0.0	0.0	1.5	4.2	17.6	20.1	2.2	59.9	1.2	0.0	0.0	0.0
26	0.0	0.0	15.8	32.8	13.2	24.7	6.8	25.7	3.4	0.0	0.0	0.0
27	0.0	0.0	38.1	0.0	0.0	8.5	0.0	5.4	6.0	0.0	0.0	0.0
28	0.0	0.0	108.5	0.0	0.0	18.6	6.8	7.4	3.8	0.0	0.0	0.0
29	0.0	0.0	40.2	0.0	5.8	1.0	16.5	104.1	39.8	0.0	0.0	0.0
30	0.0	0.0	2.5	0.0	2.3	2.2	9.4	44.8	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	3.3	0.0	5.6	11.9	0.0	5.6	0.0	0.0
TOTAL	2.6	27.2	324.9	94.0	231.7	339.2	205.9	425.7	377.1	267.3	44.3	0.0
AVERAGE	0.1	1.0	10.5	3.1	9.1	11.3	6.6	13.7	12.6	8.6	1.5	0.0
MAXIMUM	2.6	26.8	108.5	32.8	50.4	38.2	35.9	104.1	53.3	48.7	37.8	0.0
MINIMUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANNUAL  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 2389.9 6.5 108.5 0.0

A3.5.3 Results of Discharge Estimation

Estimated Daily Discharge at Xe Katam Intake Site (1980-1990)

		1980											
		XE KATAM						CALCULATED					
*DAY*		1	2	3	4	5	6	7	8	9	10	11	12
1	3.30	1.52	0.86	0.79	0.74	14.14	13.72	16.22	17.41	18.10	9.85	4.17	
2	3.22	1.47	0.86	0.78	0.74	11.71	13.23	14.35	17.36	16.26	9.50	4.14	
3	3.14	1.42	0.87	0.78	0.73	10.89	14.11	13.21	16.16	15.33	9.27	4.10	
4	3.07	1.36	0.87	0.78	0.73	9.45	14.70	12.64	22.82	14.67	8.94	4.07	
5	3.01	1.31	0.87	0.78	0.73	8.96	14.78	12.07	21.45	14.03	8.61	4.04	
6	2.95	1.26	0.86	0.78	0.73	8.48	13.51	12.15	19.42	14.06	8.29	4.01	
7	2.89	1.21	0.86	0.77	0.73	10.16	14.24	11.43	17.71	13.31	7.98	3.97	
8	2.83	1.16	0.85	0.77	0.73	13.17	12.70	10.94	16.48	12.88	7.69	3.94	
9	2.77	1.11	0.85	0.77	0.73	10.96	12.05	10.46	15.76	13.29	7.40	3.91	
10	2.71	1.06	0.85	0.77	1.88	13.04	11.49	10.13	15.05	12.37	7.13	3.87	
11	2.65	1.01	0.84	0.77	0.73	12.95	10.94	9.93	15.33	14.68	6.87	3.84	
12	2.59	0.96	0.84	0.77	4.32	10.94	10.42	10.32	14.27	12.97	6.62	3.78	
13	2.54	0.92	0.84	0.76	8.19	9.98	9.93	10.72	14.36	12.15	6.38	3.73	
14	2.48	0.92	0.83	0.76	4.97	9.48	9.46	9.70	13.51	11.74	6.15	3.68	
15	2.43	0.92	0.83	0.76	5.43	14.18	9.02	11.60	14.93	11.37	5.93	3.62	
16	2.37	0.92	0.83	1.66	61.11	11.90	8.76	13.82	19.28	11.03	5.72	3.57	
17	2.31	0.92	0.82	0.75	44.84	12.40	8.40	11.90	17.46	10.66	5.57	3.52	
18	2.26	0.92	0.82	0.75	15.16	11.53	8.40	15.16	20.40	10.28	5.42	3.46	
19	2.21	0.92	0.82	0.75	40.36	10.85	8.89	11.48	18.63	10.12	5.26	3.41	
20	2.15	0.92	0.81	0.75	17.63	10.39	9.67	10.35	16.96	9.80	5.10	3.36	
21	2.09	0.91	0.81	0.75	14.68	9.75	21.30	12.69	17.70	9.45	4.94	3.31	
22	2.04	0.91	0.81	0.75	13.07	13.58	36.69	13.27	21.65	9.10	4.78	3.25	
23	1.99	0.91	0.81	0.75	12.35	11.93	37.79	13.37	19.65	8.89	4.63	3.20	
24	1.93	0.90	0.81	0.75	11.65	12.82	19.78	12.22	17.53	13.45	4.47	3.15	
25	1.88	0.90	0.81	0.75	10.97	11.38	17.30	42.26	16.17	11.38	4.35	3.10	
26	1.83	0.90	0.81	0.74	10.32	24.76	16.13	19.48	15.51	10.16	4.22	3.05	
27	1.78	0.89	0.80	0.74	9.71	17.83	16.14	18.33	16.67	12.27	4.29	3.00	
28	1.73	0.89	0.80	0.74	10.93	18.58	14.64	17.85	15.87	11.41	4.26	2.95	
29	1.67	0.89	0.80	0.74	9.57	17.36	15.90	20.94	18.64	11.50	4.23	2.90	
30	1.62	0.89	0.79	0.74	8.96	15.09	14.44	20.32	20.34	10.89	4.20	2.85	
31	1.57	0.89	0.79	0.74	8.47	13.63	13.63	19.09	19.09	10.24	4.20	2.80	
TOTAL	74.01	30.31	25.76	23.70	331.89	378.64	452.16	443.82	524.33	377.84	188.15	109.75	
AVERAGE	2.39	1.05	0.83	0.79	10.71	12.62	14.59	14.32	17.48	12.19	6.27	3.54	
MAXIMUM	3.30	1.52	0.86	1.66	61.11	24.76	37.79	42.26	22.82	18.10	9.85	4.17	
MINIMUM	1.57	0.89	0.79	0.74	0.73	8.48	8.40	9.70	13.51	8.89	4.20	2.80	
ANNUAL													
TOTAL AVERAGE MAXIMUM MINIMUM													
2960.36 8.09 61.11 0.73													



1981

XE KATAM CALCULATED

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	2.75	1.29	2.71	0.87	3.62	10.32	23.84	22.10	25.83	20.07	9.73	5.22
2	2.70	1.25	2.63	0.82	3.12	14.21	22.04	20.32	23.36	17.72	9.33	5.18
3	2.64	1.20	2.46	4.02	6.26	12.14	22.90	24.78	21.54	17.80	9.07	5.14
4	2.59	1.16	2.26	5.33	4.68	10.71	48.85	34.61	20.61	17.16	9.62	5.09
5	2.55	1.11	2.02	3.46	4.18	11.20	29.43	28.33	19.76	17.75	8.98	5.05
6	2.50	1.07	1.83	4.97	6.23	12.77	26.68	28.50	18.95	15.96	8.72	5.01
7	2.45	1.02	1.61	3.00	9.09	15.65	24.10	60.56	18.19	14.93	8.47	4.96
8	2.40	0.98	2.88	2.85	6.87	17.84	23.62	82.42	21.06	20.85	8.22	4.92
9	2.35	0.93	1.38	2.66	6.06	17.89	27.86	51.21	19.43	18.11	7.97	4.86
10	2.30	0.89	1.43	2.46	5.56	34.69	24.81	33.74	21.87	17.10	7.73	4.80
11	2.25	0.84	1.41	2.26	5.37	31.38	23.31	30.87	21.67	15.63	7.49	4.74
12	2.20	0.83	2.38	2.07	5.10	31.62	23.64	30.29	19.57	15.08	7.27	4.67
13	2.15	0.83	6.83	1.91	6.00	55.41	25.03	32.70	18.13	14.66	7.05	4.61
14	2.11	0.83	3.93	1.77	6.98	39.22	27.92	31.39	17.47	14.73	6.85	4.55
15	2.06	0.83	3.00	1.61	10.17	30.64	24.84	29.19	16.80	15.72	6.66	4.49
16	2.01	0.83	2.79	1.46	7.98	29.27	22.75	31.74	16.15	18.97	6.47	4.42
17	1.96	0.82	2.56	1.31	6.65	29.71	21.30	32.32	15.53	16.89	6.31	4.36
18	1.92	0.82	2.32	1.15	10.23	30.64	20.67	34.93	14.12	15.09	6.14	4.30
19	1.87	0.82	2.07	1.79	19.90	29.12	20.85	35.91	15.00	14.73	5.96	4.24
20	1.82	0.82	1.84	2.84	14.42	29.61	27.13	33.01	15.23	14.19	5.80	4.18
21	1.78	0.82	1.63	1.79	16.69	42.40	26.03	30.05	14.41	13.69	5.65	4.12
22	1.73	0.81	1.42	1.70	30.41	34.57	24.88	28.17	13.91	13.19	5.60	4.06
23	1.68	0.81	1.22	1.58	17.32	30.89	23.79	26.57	14.11	12.71	5.56	4.00
24	1.64	0.81	1.03	1.45	14.86	27.77	23.06	25.43	13.40	12.25	5.52	3.95
25	1.59	0.80	0.85	1.87	15.25	25.40	21.08	26.84	12.95	11.81	5.48	3.89
26	1.55	0.78	0.85	1.59	15.67	24.14	19.95	26.50	12.51	11.40	5.43	3.83
27	1.50	0.79	0.85	1.50	13.69	23.54	20.64	24.37	12.88	11.00	5.39	3.77
28	1.46	0.79	0.86	1.52	12.76	22.56	19.17	24.49	13.85	10.61	5.35	3.71
29	1.42	0.86	0.86	1.42	12.11	21.40	18.40	24.11	13.00	10.25	5.31	3.66
30	1.38	0.87	0.87	1.55	11.49	20.37	17.68	24.17	12.63	9.90	5.26	3.60
31	1.34	0.87	0.87	1.08	10.89	16.93	16.93	23.05	12.00	9.59	5.26	3.54
TOTAL	62.05	40.34	60.16	71.57	319.61	767.08	742.80	992.69	515.92	459.14	208.39	136.92
AVERAGE	2.02	1.44	1.94	2.39	10.31	25.57	23.95	32.02	17.20	14.81	6.95	4.42
MAXIMUM	2.75	1.29	2.71	4.02	6.26	12.14	48.85	60.56	25.83	20.85	9.73	5.22
MINIMUM	1.34	0.80	0.85	0.87	3.12	10.32	16.93	20.32	12.51	9.59	5.26	3.54

\*\*\*\*\* ANNUAL \*\*\*\*\*  
 \*\*\*\*\*  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 4377.07 11.99 82.42 0.80  
 \*\*\*\*\*

1982

XE KATAM CALCULATED

DAY#	1	2	3	4	5	6	7	8	9	10	11	12
1	3.48	1.84	0.96	0.89	0.86	2.77	14.52	21.54	31.34	19.65	7.56	16.28
2	3.43	1.79	0.96	0.89	0.86	2.59	12.98	20.28	26.34	18.41	7.32	13.84
3	3.37	1.74	0.95	0.88	0.85	2.41	12.62	20.22	26.25	17.11	7.09	12.26
4	3.32	1.69	0.95	0.88	0.85	2.25	11.07	19.28	25.06	16.23	6.87	11.79
5	3.26	1.63	0.95	0.88	0.85	2.36	30.22	22.00	25.69	15.58	6.66	11.33
6	3.20	1.58	0.95	0.88	0.85	2.23	21.42	20.42	20.57	14.96	6.51	10.88
7	3.15	1.53	0.94	0.88	0.85	2.13	18.70	21.05	21.77	14.36	10.66	10.44
8	3.09	1.48	0.94	0.87	0.84	2.02	19.65	21.33	20.77	13.79	11.62	10.03
9	3.04	1.43	1.08	0.87	0.86	2.87	17.66	21.21	28.00	13.25	9.54	9.63
10	2.98	1.38	0.94	0.87	0.86	5.27	16.04	26.53	29.28	12.88	10.72	9.24
11	2.93	1.33	0.94	0.87	0.86	3.97	15.40	24.85	28.84	12.49	9.08	8.88
12	2.87	1.28	0.94	2.50	0.86	3.32	14.66	27.23	27.37	12.16	9.11	8.53
13	2.82	1.23	0.94	2.92	0.86	3.38	13.98	24.11	25.00	11.73	12.58	8.20
14	2.77	1.18	0.94	1.37	0.86	3.30	26.22	22.09	23.34	11.31	11.39	7.89
15	2.71	1.13	0.93	0.87	0.86	3.13	19.65	21.38	22.33	10.91	16.62	7.59
16	2.66	1.08	0.93	0.87	0.86	2.97	25.17	21.74	21.33	10.52	16.97	7.30
17	2.60	1.03	0.93	0.87	0.86	2.82	21.36	21.91	21.82	10.15	16.35	7.02
18	2.55	0.99	0.93	4.70	0.86	2.67	24.14	22.09	20.18	9.80	14.07	6.76
19	2.50	0.97	0.92	3.46	0.85	4.12	21.47	23.18	19.36	9.65	13.93	6.51
20	2.45	0.97	0.92	2.09	0.85	3.09	21.31	34.34	18.53	9.58	12.68	6.27
21	2.40	0.97	0.92	1.96	0.85	2.95	21.52	27.59	18.38	9.21	13.03	6.03
22	2.34	0.97	0.91	1.81	0.84	2.89	19.24	25.74	17.50	9.03	12.16	5.82
23	2.29	0.97	0.91	1.64	0.84	2.88	17.84	24.65	17.73	8.96	11.69	5.60
24	2.24	0.97	0.91	1.49	0.84	4.60	21.91	22.97	17.62	9.36	12.39	5.40
25	2.19	0.97	0.90	1.38	0.84	8.01	21.62	21.61	16.43	8.91	13.84	5.20
26	2.14	0.96	0.90	1.25	0.83	19.82	51.48	20.28	15.92	8.88	12.07	5.01
27	2.09	0.96	0.90	1.11	0.83	14.74	38.37	19.49	15.31	8.80	12.99	4.83
28	2.04	0.96	0.90	0.97	0.83	39.12	27.83	19.76	21.23	8.55	11.64	4.75
29	1.99	0.96	0.90	0.86	0.82	17.86	25.09	21.87	19.39	8.30	13.08	4.72
30	1.94	0.96	0.89	0.86	0.82	16.12	24.97	20.61	20.61	8.05	11.57	4.68
31	1.89	0.96	0.89	0.86	0.82	2.94	23.64	19.12	19.12	7.80	11.57	4.65
TOTAL	82.73	35.01	28.87	42.64	57.13	189.68	711.75	700.55	741.29	360.47	341.79	247.36
AVERAGE	2.67	1.25	0.93	1.42	1.84	6.29	22.96	22.60	24.71	11.63	11.39	7.98
MAXIMUM	3.48	1.84	1.08	4.70	6.49	39.12	51.48	34.34	70.57	19.65	16.97	16.28
MINIMUM	1.89	0.96	0.89	0.86	0.85	2.02	12.62	19.12	15.31	7.80	6.51	4.65

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 ANNUAL  
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 TOTAL AVERAGE MAXIMUM MINIMUM  
 3538.27 9.69 70.57 0.85  
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1983

XE KATAM CALCULATED

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	4.62	3.04	1.50	0.94	3.00	7.62	18.96	11.83	19.13	27.18	12.70	5.09
2	4.58	2.98	1.45	0.94	2.83	7.24	18.06	20.85	17.01	27.82	12.23	5.05
3	4.54	2.92	1.40	0.94	29.75	6.86	17.17	17.56	17.12	28.08	11.77	5.02
4	4.51	2.87	1.35	0.94	9.69	6.50	16.32	18.19	15.54	26.24	11.46	4.98
5	4.47	2.81	1.30	0.94	14.80	6.15	15.52	19.82	14.85	24.12	11.08	4.94
6	4.44	2.76	1.25	0.93	11.45	6.03	14.90	14.16	25.05	22.87	10.69	4.90
7	4.40	2.70	1.20	0.93	22.41	7.99	15.03	13.40	21.71	22.55	10.31	4.86
8	4.37	2.64	1.15	0.92	13.62	13.51	14.11	14.39	19.08	23.23	9.94	4.83
9	4.33	2.58	1.11	0.92	13.30	10.56	13.51	12.99	17.24	22.57	9.58	4.79
10	4.30	2.53	1.06	0.92	43.05	8.62	12.89	12.49	16.19	20.55	9.24	4.75
11	4.25	2.47	1.05	0.92	17.91	7.96	12.29	12.96	15.51	19.67	8.91	4.71
12	4.19	2.42	1.02	0.92	14.90	13.22	11.83	11.99	14.84	18.89	8.67	4.67
13	4.13	2.36	0.99	0.91	13.26	39.06	11.51	11.67	14.20	24.93	8.41	4.63
14	4.07	2.31	0.98	0.91	12.55	18.86	10.81	18.19	13.60	21.92	8.14	4.59
15	4.01	2.25	0.98	0.91	11.86	15.62	10.33	34.35	13.02	19.80	7.88	4.55
16	3.95	2.20	0.98	0.90	16.05	13.72	11.18	19.35	12.47	18.55	7.63	4.49
17	3.89	2.14	0.98	0.90	13.53	12.46	13.69	19.38	11.96	17.76	7.38	4.43
18	3.83	2.08	0.98	0.90	11.84	11.87	17.70	17.78	11.57	18.44	7.14	4.37
19	3.77	2.03	0.98	0.90	11.22	11.28	14.94	16.61	11.28	16.95	6.91	4.31
20	3.72	1.98	0.98	0.89	10.62	10.72	18.36	15.33	13.36	19.75	6.68	4.25
21	3.66	1.92	0.98	0.89	10.03	10.18	19.54	15.30	11.82	17.67	6.47	4.20
22	3.60	1.87	0.98	0.89	9.48	9.66	18.07	14.75	11.23	16.38	6.27	4.14
23	3.54	1.82	0.97	0.89	8.94	9.37	16.05	22.50	10.87	15.73	6.11	4.08
24	3.48	1.76	0.97	0.89	8.43	10.44	14.66	21.93	14.19	15.08	5.95	4.02
25	3.43	1.71	0.97	0.89	7.95	95.85	13.98	21.28	18.63	15.75	5.79	3.96
26	3.37	1.65	0.96	0.83	7.50	101.65	13.53	19.06	17.88	16.36	5.62	3.91
27	3.32	1.60	0.96	0.83	10.73	36.69	13.03	18.29	21.55	14.74	5.46	3.85
28	3.26	1.55	0.96	0.83	9.22	24.42	12.46	16.72	34.07	14.70	5.30	3.80
29	3.21	1.50	0.95	0.83	8.87	21.59	11.91	16.05	32.63	13.93	5.17	3.74
30	3.15	1.45	0.95	0.83	8.86	19.68	11.38	17.51	26.25	13.29	5.13	3.69
31	3.09	1.40	0.95	0.83	8.00	10.88	10.88	16.51	13.09	13.09	5.13	3.63
TOTAL	121.48	83.94	33.29	46.55	395.65	575.38	444.60	529.99	513.85	608.79	244.02	137.23
AVERAGE	3.92	2.28	1.07	0.92	12.76	19.18	14.24	17.10	17.13	19.64	8.13	4.43
MAXIMUM	4.62	3.04	1.50	0.94	43.05	101.65	19.54	34.35	34.07	28.08	12.70	5.09
MINIMUM	3.09	1.55	0.95	0.89	2.83	6.03	10.33	11.67	10.87	13.09	5.13	3.63

ANNUAL

TOTAL	3716.57
AVERAGE	10.18
MAXIMUM	101.65
MINIMUM	0.89

1984

XE KATAM CALCULATED

*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	3.57	1.98	0.99	0.96	1.62	2.65	17.07	48.69	82.48	20.58	15.07	10.05
2	3.52	1.94	0.99	0.96	1.54	2.52	15.30	61.10	74.57	20.55	14.60	9.71
3	3.46	1.89	0.99	0.96	3.79	4.05	15.38	26.31	39.31	19.28	15.05	9.39
4	3.41	1.84	0.99	0.96	2.25	3.57	14.73	23.83	37.49	19.59	14.10	9.08
5	3.35	1.79	0.99	0.96	2.14	3.06	13.75	23.07	34.24	24.47	13.62	8.78
6	3.30	1.74	0.99	0.96	2.02	3.69	13.15	21.40	55.75	25.39	13.16	8.49
7	3.24	1.69	0.99	3.04	1.89	3.55	12.56	20.03	37.83	28.27	12.70	8.21
8	3.19	1.64	0.99	2.71	1.76	3.84	14.04	20.30	34.75	26.23	18.40	7.95
9	3.13	1.59	0.98	2.99	1.62	3.63	12.75	19.73	35.92	24.23	16.30	7.70
10	3.08	1.55	0.98	2.75	2.34	3.60	11.87	21.62	35.21	26.26	16.25	7.45
11	3.03	1.50	0.98	1.92	4.52	6.56	11.40	23.69	51.26	24.34	14.43	7.22
12	2.97	1.46	0.98	1.80	2.81	8.23	13.19	24.74	38.78	22.27	17.72	7.00
13	2.92	1.42	0.98	1.95	2.58	6.29	11.64	23.10	41.83	29.40	21.71	6.78
14	2.87	1.38	0.97	1.49	2.44	5.64	10.92	50.04	38.80	27.17	23.57	6.57
15	2.81	1.36	13.57	1.32	2.30	5.33	10.41	48.76	36.22	27.58	20.32	6.37
16	2.76	1.33	7.42	1.16	2.15	5.54	9.93	57.35	33.96	26.38	18.10	6.31
17	2.71	1.31	4.22	1.01	2.01	5.35	11.85	90.79	32.05	24.84	16.91	6.26
18	2.66	1.27	3.09	0.97	1.86	6.50	13.48	80.74	30.12	23.27	16.27	6.21
19	2.60	1.23	2.88	0.98	1.73	8.79	11.65	37.27	31.55	21.93	15.64	6.16
20	2.55	1.19	2.64	0.98	1.59	9.01	10.43	34.83	29.55	21.11	15.05	6.11
21	2.50	1.15	2.39	0.99	1.46	11.20	10.02	36.37	28.87	20.26	14.48	6.06
22	2.45	1.14	2.16	0.99	1.37	17.30	9.57	33.01	27.27	19.44	13.93	6.01
23	2.40	1.12	1.93	1.00	3.68	14.94	9.25	30.34	26.68	18.67	13.41	5.96
24	2.36	1.09	1.71	2.66	3.78	13.41	8.85	28.88	27.08	17.93	12.92	5.91
25	2.31	1.05	1.48	1.17	2.90	18.92	8.46	27.32	25.07	17.23	12.45	5.86
26	2.27	1.02	1.28	1.12	3.43	15.64	8.08	34.93	23.87	16.56	12.00	5.81
27	2.22	0.99	1.08	1.04	3.85	17.75	7.78	31.78	22.86	15.93	11.57	5.76
28	2.17	0.99	0.96	1.03	3.29	18.54	8.72	29.52	21.98	15.33	11.16	5.71
29	2.13	0.99	0.96	2.22	3.14	21.34	9.46	31.08	21.58	14.77	10.78	5.64
30	2.08	0.96	0.96	2.11	2.98	18.87	30.63	42.83	21.26	18.82	10.41	5.57
31	2.03	0.96	0.96	2.82	2.82	34.74	34.74	36.82	21.26	16.56	10.41	5.49
TOTAL	86.95	40.64	63.48	44.86	77.66	269.43	401.06	1120.27	1078.19	674.44	452.08	215.58
AVERAGE	2.78	1.40	2.05	1.50	2.51	8.98	12.94	36.14	35.94	21.76	15.07	6.95
MAXIMUM	3.57	1.98	13.57	3.04	4.52	21.34	34.74	90.79	82.48	29.40	23.57	10.05
MINIMUM	2.03	0.99	0.96	0.96	1.37	2.52	7.78	19.73	21.26	14.77	10.41	5.49

ANNUAL

TOTAL	4523.74
AVERAGE	12.36
MAXIMUM	90.79
MINIMUM	0.96

1985

XE KATAM CALCULATED

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	5.42	3.40	3.21	1.88	12.22	7.99	20.86	17.61	24.68	14.39	9.48	6.34
2	5.35	3.34	3.24	1.85	11.62	7.67	20.11	17.43	30.14	14.01	9.19	6.17
3	5.27	3.28	3.33	1.81	11.04	7.35	22.18	17.71	26.89	13.55	8.91	6.00
4	5.20	3.22	3.26	1.79	10.48	7.04	21.57	22.89	25.16	13.10	8.64	5.82
5	5.13	3.16	3.15	1.74	9.95	6.74	21.26	20.50	28.58	12.66	8.38	5.65
6	5.06	3.10	3.01	1.76	9.62	6.45	19.98	18.69	29.93	12.24	8.14	5.95
7	4.99	3.04	2.86	1.71	9.18	6.19	26.16	19.62	27.27	11.83	8.08	5.67
8	4.91	2.98	2.70	1.72	8.75	5.93	60.07	35.90	24.94	11.58	7.90	5.55
9	4.84	2.92	2.53	1.79	8.32	5.70	34.29	33.87	28.49	11.33	7.92	5.42
10	4.77	2.86	2.38	1.74	7.90	5.47	58.61	23.48	29.27	15.01	7.74	5.29
11	4.71	2.80	2.37	1.70	7.48	5.24	30.80	42.69	31.42	13.31	7.56	5.26
12	4.64	2.76	2.36	1.66	7.07	5.11	28.58	29.03	28.41	12.67	7.36	5.22
13	4.56	2.71	2.35	1.63	6.66	4.98	27.13	28.87	28.87	12.31	9.02	5.19
14	4.50	2.68	2.34	1.60	6.25	4.85	24.90	37.70	26.59	11.92	11.30	5.15
15	4.43	2.67	2.34	1.57	5.84	4.72	23.51	29.54	25.15	11.54	9.40	5.11
16	4.36	2.64	2.33	1.54	5.43	4.59	31.03	28.85	24.63	15.88	8.62	5.07
17	4.30	2.60	2.31	1.51	5.02	4.46	27.94	26.84	24.86	14.92	8.38	5.04
18	4.23	2.56	2.30	1.48	4.61	4.33	27.99	24.97	24.49	15.48	8.14	5.00
19	4.16	2.51	2.29	1.45	4.20	4.20	26.21	24.81	22.68	13.68	7.90	4.96
20	4.09	2.46	2.28	1.42	3.79	4.07	23.99	25.93	22.50	12.85	7.67	4.93
21	4.03	2.43	2.26	1.39	3.38	3.94	23.75	23.80	21.25	12.47	7.44	4.89
22	3.96	2.41	2.25	1.36	2.97	3.81	23.54	27.57	20.44	12.06	7.22	4.85
23	3.90	2.38	2.20	1.33	2.56	3.68	24.96	26.93	19.65	11.67	7.00	4.81
24	3.83	2.35	2.16	1.30	2.15	3.55	22.66	26.15	18.86	11.28	6.80	4.78
25	3.77	2.32	2.12	1.27	1.74	3.42	23.07	26.78	18.12	10.92	6.60	4.74
26	3.71	2.29	2.08	1.24	1.33	3.29	21.02	26.15	17.42	10.59	6.41	4.69
27	3.65	2.26	2.04	1.21	0.92	3.16	19.56	27.43	16.75	10.26	6.22	4.63
28	3.60	2.23	2.00	1.18	0.51	3.03	20.41	38.82	16.11	11.49	7.86	4.57
29	3.56	2.20	1.96	1.15	0.10	2.90	19.75	29.13	15.51	10.35	6.64	4.51
30	3.51	2.17	1.94	1.12	0.00	2.77	18.50	26.91	14.94	10.06	6.50	4.45
31	3.45	2.14	1.91	1.09	0.00	2.64	18.81	24.96	14.94	9.77	6.22	4.40
TOTAL	135.89	92.72	75.86	308.15	338.03	610.40	810.22	829.95	744.02	391.22	238.42	160.11
AVERAGE	4.38	3.31	2.45	10.27	10.90	20.35	26.14	26.77	23.80	12.62	7.95	5.16
MAXIMUM	5.42	6.92	3.53	47.40	14.07	82.83	60.07	42.69	31.42	17.39	11.30	6.34
MINIMUM	3.45	2.46	1.91	1.79	8.17	5.11	18.50	17.43	14.94	9.77	6.22	4.40

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 ANNUAL  
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 TOTAL | AVERAGE | MAXIMUM | MINIMUM |  
 \*\*\*\*\*  
 4704.99 | 12.89 | 82.83 | 1.79  
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XE KATAM CALCULATED

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	4.34	2.64	1.26	1.18	4.36	11.18	9.76	14.56	24.80	24.31	13.15	5.66
2	4.28	2.59	1.25	1.18	3.27	10.61	9.31	13.90	24.97	22.62	12.67	5.62
3	4.22	2.54	1.25	1.18	3.30	10.07	9.83	13.66	24.86	20.54	12.21	5.58
4	4.17	2.49	1.25	1.18	3.12	9.55	14.40	19.63	23.01	19.40	11.76	5.53
5	4.11	2.43	1.25	1.18	7.11	9.06	12.56	26.72	24.63	18.61	11.34	5.49
6	4.05	2.38	1.25	1.18	9.11	8.69	11.95	24.22	49.17	17.85	10.93	5.45
7	3.99	2.33	1.25	1.18	6.65	8.39	10.53	26.14	29.34	17.13	10.55	5.41
8	3.94	2.28	1.25	1.18	5.50	8.00	11.96	23.26	28.83	16.44	10.18	5.37
9	3.88	2.22	1.25	1.18	4.57	7.62	11.86	45.87	28.38	15.79	9.82	5.33
10	3.82	2.17	1.25	1.18	10.03	7.29	10.44	28.40	28.59	15.18	9.49	5.28
11	3.77	2.12	1.24	1.18	11.82	7.25	11.31	25.96	28.61	14.60	9.17	5.24
12	3.71	2.07	1.24	1.18	9.45	8.49	19.48	28.99	27.59	14.05	8.91	5.20
13	3.66	2.01	1.23	1.18	7.95	9.32	16.19	45.54	29.48	13.52	8.66	5.16
14	3.60	1.96	1.23	1.18	7.55	10.76	15.42	52.52	26.60	13.03	8.56	5.12
15	3.54	1.91	1.23	1.18	7.15	13.43	17.89	34.52	24.47	14.33	8.34	5.07
16	3.49	1.86	1.22	1.18	6.80	11.15	15.69	40.80	23.17	12.97	8.11	5.01
17	3.44	1.81	1.22	1.18	7.76	9.58	15.84	31.37	22.17	12.54	7.88	4.94
18	3.38	1.76	1.22	1.18	10.43	9.03	14.76	28.99	21.22	12.47	7.65	4.88
19	3.33	1.71	1.21	1.17	13.08	8.62	59.85	26.96	20.34	12.03	7.42	4.82
20	3.27	1.65	1.21	1.17	14.80	8.22	65.20	25.99	19.49	11.64	7.20	4.76
21	3.22	1.62	1.20	1.17	12.55	7.83	26.45	24.72	18.68	11.25	6.99	4.70
22	3.17	1.58	1.20	1.16	11.98	7.46	25.40	23.67	17.91	20.18	6.78	4.64
23	3.11	1.54	1.20	1.16	11.01	15.73	22.61	22.76	17.17	20.59	6.59	4.58
24	3.06	1.49	1.19	1.17	16.72	16.21	20.57	26.19	16.48	17.54	6.39	4.52
25	3.01	1.44	1.19	1.17	16.25	14.09	19.44	24.43	16.61	15.52	6.21	4.46
26	2.96	1.40	1.19	1.17	14.35	13.35	18.70	25.38	22.57	14.64	6.03	4.40
27	2.90	1.35	1.19	1.17	17.09	12.67	18.00	26.71	33.33	16.52	5.86	4.34
28	2.85	1.30	1.19	1.17	14.50	11.38	17.35	73.58	23.61	15.46	5.78	4.28
29	2.80	1.25	1.19	1.17	13.56	10.74	16.65	31.68	24.28	14.88	5.74	4.22
30	2.75	1.19	1.19	1.17	12.33	10.24	15.98	28.72	22.99	14.14	5.70	4.17
31	2.70	1.19	1.19	1.17	11.77	15.25	15.25	26.72	22.99	13.65	5.70	4.10
TOTAL	108.52	54.65	42.44	57.68	511.27	306.01	579.63	908.36	743.25	493.43	256.07	153.33
AVERAGE	3.50	1.95	1.37	1.92	10.04	10.20	18.70	29.30	24.78	15.92	8.54	4.95
MAXIMUM	4.34	2.64	5.55	8.21	17.09	16.21	65.20	73.58	49.17	24.31	13.15	5.66
MINIMUM	2.70	1.30	1.19	1.17	3.12	7.25	9.31	13.46	16.48	11.25	5.70	4.10

ANNUAL

TOTAL	4014.64
AVERAGE	11.00
MAXIMUM	73.58
MINIMUM	1.17

1987

XE KATAM CALCULATED

#DAYS	1	2	3	4	5	6	7	8	9	10	11	12
1	4.05	2.37	1.26	1.16	1.12	1.10	4.55	11.31	20.26	14.18	11.01	4.59
2	3.99	2.32	1.26	1.16	1.12	1.10	7.04	10.54	19.44	13.73	10.21	4.56
3	3.93	2.26	1.26	1.16	1.12	1.10	32.26	10.25	20.63	18.45	9.85	4.53
4	3.88	2.21	1.25	1.15	1.11	1.10	14.95	12.80	19.16	18.28	9.50	4.50
5	3.82	2.16	1.25	1.15	1.11	1.10	15.42	11.53	18.27	18.30	9.15	4.47
6	3.76	2.11	1.25	1.15	1.11	1.10	15.35	10.34	19.95	16.18	8.82	4.44
7	3.71	2.05	1.25	1.14	1.11	1.10	13.22	11.56	20.47	14.86	8.50	4.41
8	3.65	2.00	1.24	1.14	1.11	1.10	12.79	11.89	18.57	14.57	8.19	4.38
9	3.59	1.95	1.24	1.14	1.11	1.10	11.85	14.56	18.31	14.56	7.89	4.34
10	3.53	1.90	1.24	1.14	1.11	2.14	11.34	13.08	17.81	15.75	7.61	4.31
11	3.48	1.85	1.23	1.13	1.11	1.09	10.51	11.53	20.19	15.72	7.34	4.28
12	3.42	1.80	1.23	1.13	1.11	1.09	12.87	12.03	18.14	16.28	7.30	4.25
13	3.37	1.75	1.23	1.13	1.11	3.03	13.53	10.87	16.56	17.96	7.10	4.22
14	3.31	1.70	1.22	1.37	1.11	1.80	72.19	10.43	15.90	15.84	6.89	4.19
15	3.26	1.64	1.22	2.64	1.11	1.63	35.97	9.96	15.21	14.44	6.67	4.15
16	3.21	1.59	1.22	1.12	1.11	1.63	21.58	17.66	14.55	13.93	6.46	4.12
17	3.15	1.54	1.21	1.12	1.11	1.56	19.34	18.01	13.92	15.49	6.25	4.08
18	3.09	1.49	1.21	1.12	1.10	5.52	18.06	20.72	13.32	13.88	6.05	4.03
19	3.04	1.44	1.20	1.12	1.11	5.64	17.92	18.03	12.75	13.25	7.08	3.97
20	2.99	1.39	1.20	1.12	1.11	5.65	16.65	60.48	12.21	12.87	6.25	3.92
21	2.94	1.34	1.20	1.12	1.11	8.60	15.53	99.09	14.06	12.37	6.10	3.87
22	2.88	1.29	1.19	1.12	1.10	6.36	14.86	58.10	16.77	11.88	5.92	3.82
23	2.83	1.26	1.19	1.12	1.10	5.06	14.21	31.72	20.29	11.42	5.75	3.76
24	2.78	1.26	1.19	1.12	1.10	4.80	13.50	29.16	20.22	10.97	5.57	3.71
25	2.73	1.26	1.18	1.38	1.10	4.54	12.83	26.23	17.92	10.56	5.42	3.66
26	2.68	1.26	1.18	1.43	1.10	4.28	12.19	24.04	16.19	10.16	5.28	3.61
27	2.62	1.26	1.18	1.12	1.10	4.03	11.58	23.46	17.63	9.77	5.13	3.55
28	2.57	1.26	1.17	1.12	1.10	3.79	11.23	24.44	15.80	10.78	4.99	3.50
29	2.52	1.26	1.17	1.12	1.10	3.56	11.58	25.46	16.23	9.84	4.85	3.45
30	2.47	1.26	1.17	1.12	1.10	3.36	11.12	23.00	14.75	10.87	4.71	3.40
31	2.42	1.26	1.17	1.12	1.10	1.10	12.94	21.15	12.74	12.74	4.71	3.35
TOTAL	99.67	47.71	37.66	36.76	37.40	90.68	518.96	693.65	515.48	429.90	211.84	125.42
AVERAGE	3.22	1.70	1.21	1.23	1.21	3.02	16.74	22.38	17.18	13.87	7.06	4.05
MAXIMUM	4.05	2.37	1.26	2.64	2.64	8.60	72.19	99.09	20.63	18.45	11.01	4.59
MINIMUM	2.42	1.26	1.17	1.12	1.10	1.09	4.55	9.96	12.21	9.77	4.71	3.35

ANNUAL  
TOTAL AVERAGE MAXIMUM MINIMUM  
2845.11 7.79 99.09 1.09

1988

XE KATAM CALCULATED

DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	3.30	1.81	1.12	1.03	5.29	16.91	7.35	20.28	12.79	8.82	10.25	4.16
2	3.25	1.77	1.11	1.03	4.33	17.92	8.38	20.98	12.24	8.49	9.83	4.13
3	3.20	1.72	1.11	1.03	4.07	19.45	7.39	20.81	11.72	8.17	9.44	4.10
4	3.15	1.67	1.11	1.03	3.82	16.45	9.63	18.18	11.23	11.69	9.06	4.07
5	3.10	1.62	1.10	1.02	3.58	19.01	8.68	16.88	10.76	9.89	8.70	4.04
6	3.05	1.57	1.10	1.02	3.34	17.18	7.95	17.97	10.32	8.89	8.39	4.01
7	3.00	1.53	1.10	1.02	3.11	15.09	7.61	16.12	11.01	14.11	8.08	3.98
8	2.95	1.48	1.10	1.02	2.89	13.76	7.32	15.57	11.67	12.20	7.78	3.95
9	2.90	1.44	1.09	1.02	2.68	13.07	7.02	16.54	15.00	13.49	7.48	3.92
10	2.85	1.40	1.09	1.02	2.48	12.41	6.77	18.27	15.26	12.45	7.21	3.89
11	2.80	1.36	1.09	1.01	2.29	11.85	7.56	16.21	13.24	13.17	6.94	3.86
12	2.75	1.31	1.08	1.20	2.11	11.48	6.88	18.53	12.37	13.60	6.68	3.82
13	2.71	1.27	1.08	1.01	2.02	15.09	6.67	59.67	11.64	14.18	6.43	3.77
14	2.65	1.23	1.07	1.01	12.47	13.50	8.41	22.63	11.21	13.85	6.20	3.72
15	2.61	1.18	1.07	8.37	20.93	12.79	9.07	20.85	10.76	15.76	5.97	3.67
16	2.56	1.14	1.07	4.67	12.75	14.24	9.33	19.27	10.33	15.99	5.76	3.61
17	2.51	1.14	1.07	2.53	11.50	13.79	11.27	19.14	10.49	16.85	5.55	3.56
18	2.46	1.14	1.06	2.39	13.92	12.26	9.54	17.41	10.73	16.34	5.35	3.51
19	2.42	1.14	1.06	2.30	12.18	11.88	9.14	16.62	11.03	15.19	5.16	3.46
20	2.37	1.14	1.06	2.16	10.14	11.37	16.75	15.98	10.06	15.09	4.98	3.42
21	2.32	1.13	1.06	2.00	9.57	10.91	15.18	15.26	9.71	13.60	4.81	3.37
22	2.27	1.13	1.06	1.83	9.07	10.39	14.04	14.60	9.35	13.02	4.64	3.32
23	2.23	1.13	1.05	1.65	11.25	9.89	12.78	17.25	9.09	12.53	4.48	3.27
24	2.18	1.13	1.05	4.62	9.30	9.43	11.38	18.02	10.66	12.27	4.36	3.22
25	2.13	1.13	1.05	3.20	8.69	8.98	10.91	17.27	10.11	11.80	4.33	3.17
26	2.09	1.13	1.05	2.52	8.24	8.56	11.02	15.50	9.26	15.29	4.30	3.12
27	2.04	1.12	1.04	2.36	7.81	8.15	13.06	17.37	9.61	13.30	4.27	3.07
28	1.99	1.12	1.04	2.19	7.51	7.76	12.17	15.54	10.77	12.06	4.25	3.02
29	1.95	1.12	1.04	7.47	7.20	8.03	13.28	14.48	9.50	11.60	4.22	2.97
30	1.90	1.12	1.04	7.67	7.02	7.46	13.07	13.96	9.15	11.13	4.19	2.93
31	1.86	1.12	1.04	24.73	24.73	24.73	15.17	13.36	10.68	10.68	2.88	2.88
TOTAL	79.55	38.20	33.26	72.50	26.49	379.06	314.78	570.52	331.07	395.56	189.09	110.99
AVERAGE	2.57	1.32	1.07	2.42	8.53	12.64	10.15	18.40	11.04	12.76	6.30	3.58
MAXIMUM	3.30	1.81	1.12	8.37	24.73	19.45	16.75	39.67	15.26	16.85	10.25	4.16
MINIMUM	1.86	1.12	1.04	1.01	2.11	7.46	6.67	13.36	9.09	8.17	4.19	2.88

\*\*\*\*\* ANNUAL \*\*\*\*\*  
 \*\*\*\*\* TOTAL AVERAGE MAXIMUM MINIMUM \*\*\*\*\*  
 \*\*\*\*\* 2779.07 7.59 39.67 1.01 \*\*\*\*\*



XE KATAM CALCULATED

1989

*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	2.83	1.43	1.01	0.91	4.78	11.86	3.99	15.51	22.15	12.55	6.06	3.79
2	2.78	1.39	1.00	0.91	3.65	10.83	3.79	14.36	19.91	11.69	5.85	3.77
3	2.73	1.35	1.00	0.91	3.43	8.74	4.61	13.85	17.70	12.12	5.78	3.74
4	2.69	1.30	1.00	0.90	3.21	7.79	5.48	18.97	16.86	11.35	5.63	3.71
5	2.64	1.26	0.99	0.90	2.99	7.38	6.75	26.46	16.42	10.95	7.52	3.68
6	2.59	1.21	0.99	0.90	2.77	6.98	5.51	20.69	23.80	10.53	6.14	3.66
7	2.54	1.17	0.99	0.90	2.57	6.60	4.79	18.79	20.85	10.12	5.97	3.63
8	2.50	1.12	0.98	0.89	2.38	6.41	4.65	17.15	18.97	9.73	5.79	3.60
9	2.45	1.08	0.98	0.89	2.82	6.13	4.78	17.93	20.65	9.35	5.61	3.57
10	2.40	1.06	0.97	0.89	2.44	16.83	4.56	17.92	22.49	9.00	5.43	3.54
11	2.36	1.06	0.97	0.89	2.31	14.73	6.40	20.53	20.05	8.66	5.25	3.51
12	2.31	1.06	0.97	0.89	2.16	13.23	11.06	63.05	18.16	10.22	5.07	3.46
13	2.26	1.06	0.96	0.88	2.00	10.96	10.83	26.73	17.30	9.31	4.90	3.41
14	2.22	1.06	0.96	0.88	1.85	9.84	9.78	23.38	16.79	8.74	4.74	3.36
15	2.17	1.06	0.96	0.88	1.74	9.15	9.11	21.03	16.15	8.44	4.57	3.31
16	2.12	1.05	0.95	0.88	1.63	8.67	7.79	19.33	15.56	8.15	4.42	3.27
17	2.08	1.05	0.95	0.88	1.52	8.21	7.47	18.46	15.33	7.86	4.27	3.22
18	2.03	1.05	0.95	0.88	1.40	7.78	7.26	17.74	14.79	7.77	4.25	3.17
19	1.99	1.05	0.94	0.88	1.31	7.36	9.05	18.94	15.12	8.66	4.12	3.12
20	1.95	1.04	0.94	0.88	1.21	6.97	10.60	19.44	16.33	8.12	4.09	3.07
21	1.91	1.04	0.94	0.88	1.11	6.59	9.79	17.88	15.44	7.85	4.06	3.03
22	1.87	1.04	0.93	1.42	1.01	6.24	9.54	16.87	14.10	7.58	4.04	2.98
23	1.82	1.03	0.93	1.32	1.01	5.90	79.40	16.24	13.60	7.32	4.01	2.93
24	1.78	1.03	0.93	1.20	1.61	5.59	27.40	16.09	13.07	7.06	3.98	2.88
25	1.74	1.02	0.92	1.07	13.79	5.29	19.05	15.67	12.76	7.14	3.95	2.84
26	1.70	1.02	0.92	1.09	10.24	5.03	17.76	15.92	14.35	6.92	3.92	2.79
27	1.65	1.02	0.92	1.04	9.85	4.84	16.53	15.46	12.88	7.32	4.49	2.75
28	1.61	1.01	0.92	6.59	7.43	4.62	15.17	17.53	12.25	6.89	3.87	2.70
29	1.56	1.01	0.92	6.61	6.27	4.41	15.23	17.94	11.77	6.69	3.85	2.65
30	1.52	1.01	0.91	4.05	6.06	4.20	16.45	15.98	14.25	6.47	3.82	2.60
31	1.48	1.01	0.91	0.88	8.09	17.12	15.34	15.34	14.25	6.26	3.82	2.56
TOTAL	66.28	31.12	29.61	51.30	114.64	238.76	380.17	611.18	499.85	272.82	145.35	100.30
AVERAGE	2.14	1.11	0.96	1.71	3.70	7.96	12.26	19.72	16.66	8.80	4.85	3.64
MAXIMUM	2.83	1.43	1.01	0.91	4.78	11.86	6.75	26.46	23.80	12.55	6.14	3.79
MINIMUM	1.48	1.01	0.91	0.88	1.01	4.20	3.79	13.85	11.77	6.26	3.82	2.56

\*\*\*\*\*  
 | ANNUAL |  
 |\*\*\*\*\*  
 | TOTAL | AVERAGE | MAXIMUM | MINIMUM |  
 |\*\*\*\*\*  
 | 2541.38 | 6.96 | 79.40 | 0.88 |  
 |\*\*\*\*\*

XE KATAM CALCULATED

1990

#DAY#	1	2	3	4	5	6	7	8	9	10	11	12
1	2.51	1.16	0.88	4.57	0.90	3.60	10.92	10.04	19.66	16.04	9.78	4.39
2	2.47	1.11	2.62	4.24	0.90	3.41	12.81	8.66	19.38	15.15	9.41	4.36
3	2.42	1.07	0.88	3.90	1.67	3.22	11.75	11.33	17.57	20.43	9.05	4.33
4	2.38	1.03	0.86	3.56	0.91	3.06	10.57	13.15	21.77	19.93	8.70	4.29
5	2.33	0.98	0.88	3.24	0.91	2.89	10.08	13.75	23.26	19.04	8.37	4.26
6	2.29	0.94	0.87	2.92	0.91	2.72	9.58	12.78	20.36	21.14	8.06	4.23
7	2.24	0.93	0.87	2.62	0.91	2.55	9.11	11.13	18.50	23.04	7.75	4.19
8	2.19	0.93	0.87	2.34	3.19	2.39	10.25	10.32	19.27	21.65	10.58	4.16
9	2.15	0.93	0.87	2.07	2.12	2.23	9.08	9.89	23.33	19.25	9.02	4.13
10	2.10	0.93	0.87	1.82	2.01	5.18	8.98	9.44	23.75	17.51	8.30	4.09
11	2.06	0.93	0.87	1.57	1.86	3.91	8.51	9.01	21.19	16.79	8.03	4.05
12	2.02	0.93	0.87	1.35	1.74	3.66	8.18	8.59	20.03	16.04	7.76	4.02
13	1.97	0.93	0.87	1.14	4.61	3.39	8.61	8.35	18.36	15.32	7.49	3.96
14	1.93	0.93	0.86	1.38	2.74	7.29	7.91	8.01	17.35	17.58	7.22	3.90
15	1.89	0.93	0.86	1.20	2.46	6.72	7.59	7.66	16.57	19.35	6.96	3.85
16	1.84	0.93	0.86	1.10	2.32	8.14	7.24	7.35	15.80	17.18	6.71	3.79
17	1.80	0.92	0.86	0.97	2.34	8.88	6.90	7.05	15.07	15.49	6.47	3.74
18	1.76	0.92	0.85	0.86	2.43	8.70	6.58	6.74	14.57	14.97	6.24	3.68
19	1.71	0.92	0.85	0.86	2.37	7.40	9.45	6.65	20.71	19.15	6.02	3.63
20	1.67	0.91	0.85	0.87	2.25	8.98	7.89	10.82	21.55	16.85	5.81	3.57
21	1.62	0.91	0.84	0.87	2.11	9.49	7.53	10.09	19.46	15.77	5.60	3.51
22	1.58	0.91	0.84	0.88	1.99	8.89	11.58	8.98	18.97	14.72	5.41	3.46
23	1.54	0.90	0.84	0.88	3.32	10.38	10.64	8.00	21.38	14.13	5.22	3.41
24	1.50	0.90	0.84	0.88	5.83	13.47	9.08	7.75	19.67	13.60	5.04	3.35
25	1.45	0.89	0.83	0.89	6.43	13.81	8.34	14.86	17.85	13.04	4.86	3.30
26	1.41	0.89	0.83	1.43	6.44	14.89	8.33	15.82	16.79	12.50	4.70	3.25
27	1.37	0.89	1.12	0.89	4.77	13.60	7.94	13.99	16.29	11.99	4.54	3.19
28	1.33	0.88	29.11	0.89	4.38	14.19	7.78	13.12	15.61	11.50	4.48	3.14
29	1.29	0.88	14.09	0.90	4.23	12.26	9.08	51.22	19.87	11.03	4.45	3.08
30	1.24	0.88	7.37	0.90	4.01	11.10	9.18	39.87	17.53	10.58	4.42	3.03
31	1.20	0.88	4.87	0.89	3.80	11.10	8.76	22.59	17.53	10.16	4.42	2.98
TOTAL	57.25	26.43	80.67	51.99	91.64	220.42	280.03	395.65	571.47	500.92	206.45	116.32
AVERAGE	1.85	0.94	2.60	1.73	2.96	7.35	9.03	12.76	19.05	16.16	6.88	3.75
MAXIMUM	2.51	1.16	29.11	4.57	6.44	14.89	12.81	51.22	23.75	23.04	10.58	4.39
MINIMUM	1.20	0.88	0.83	0.86	0.90	2.23	6.58	6.65	14.57	10.16	4.42	2.98
***** ANNUAL *****												
TOTAL AVERAGE MAXIMUM MINIMUM												
2599.24 7.12 51.22 0.83												

Some observations in chpt 3 - Meteorology and Hydrology  
of the interim Report July 91

- ① Precipitation: estimation areal rainfall from point measurement and rainfall variation with altitude h.
- ② Temperature: in addition, Temperature at ATTAPU compare with 2 periods 1900-1900 and 1990.  
Potential Evapotranspiration (Penman) in 1990 ATT.  
at Pakse 1983, monthly mean temp were completed in table 3.3/2  
Exceptional temp. were observed during 82/83  
ENSO event.
- ③ Temperature Regimes: ~~AT~~ AT PAKSE (Th) and (T) at Paksong
- ④ Evaporation, Evapotranspiration Potential PET at Pakse 1560mm/year and at Paksong 1192mm/year
- ⑤ 'PET' at Xiangkhouang Plain of Jarres computed with 4 methods (to compare). Piche reading are not <sup>use</sup>
- ⑥ Assessment of Length of the main wet Period at NIKHOM 34 and AT PAKSONG TOWN (relation between P and PET)
- ⑦ AT PAKSE in the plain The LWP is shorter than in the Plateau and the availability of moisture is also smaller.
- ⑧ Summarizing table of the surface wind in 1986 at NIKHOM 34 and at PAKSONG (more clear for utilization for general purpose)
- ⑨ Surface wind rose 1986 in Dec, the NE prevailing wind direction and mean velocity of about 7.0 m/s produced late rainfall for the dry season.

9a and 9b wind rose for the period of 1983-87 AT PAKSONG and 1961-1980 AT PAKSE respectively.

⑩ Removal calculation from Water Balance 1986 data at NK34

⑪ calculations of peak Flood Discharges at Project sites (for information only)

Vientiane 22 July 91  
D. Chiny

## ① Precipitations

Some observations on the estimation of the areal rainfall from points rainfall.

In general, the average areal rainfall inputs to the area (catchment) are normally estimated from observation made of a number of gauging stations over the basin by using one or several methods of computation. For example, for flood forecast purpose, the standard error in areal average rainfall is given as  $e = C_v / \sqrt{n}$ , where  $C_v = \left[ \frac{\int_A (x-p)^2 dA}{AP} \right]^{1/2}$

and  $x$  = the point rainfall for a given duration,  $P$  = the areal rainfall for the same duration,  $p$  = the average areal rainfall of that duration, and  $A$  = the area with  $n$  gauging stations distributed at random. (See Relative errors of rain gauge networks after Ishizaki, 1979) i.e. the minimum of number of stations  $n = 10 - 100$ . Another logical approach to design of forecast rain gauge network after Sugawara (1981) by using a statistical evaluation of spatial and temporal distribution of sampled showers in temperate and tropical climates, ex: in temperate zones five rain gauges are sufficient (Japan) to provide a representative sample of the rainfall for forecast purposes, but in tropical zones this number is 15 (3 times more) being independent of the size of the basin.

In case of the Bolaven Plateau especially in the project area only one or two stations (not exactly located in the catchment area)

Although a trend of decrease in rainfall amount is seen from the west to the east (Paksong km 42 to Nakhom 34), uncertainties still exist in the areas surrounding the peaks of 1500m and 1700m altitude, located in the ridge of the limit of the catchment where the exposure to the south west air flow will receive more rainfall than that observed in 1200m --

Solution: From Fogel-Duckstein model: (Small mountainous watershed data based on 1 single rain gauge) mainly on the variation of rainfall with altitude  $h$  by using regression equation of daily rainfall with altitude.

The study by Fogel and Duckstein of thunderstorms in the Tucson area (ARIZONA) shows rainfall amounts at storm centers to be distributed as Type I extremal (Gumbel) and thunderstorm rainfall given there is precipitation somewhere on the watershed from a thunderstorm, to be distributed exponentially. Example in the Santa Catalina Mountains adjacent to Tucson, gives the following regression equation of daily rainfall with altitude  $h$  (feet)

$$R(h) = 0.065675 + 0.00001791(h - 2500)$$

Assuming that the difference in rainfall with altitude is due to a difference frequency of storms and assuming unit likelihood of storm at 2500 feet (760m), the relative likelihood of a storm at altitude  $h$  is

$$L(h) = [1 + 0.0002727(h - 2500)]$$

This equation is obtained by dividing  $R(h)$  above by 0.065675; the relative likelihood of a storm at 3500 ft is 1.27. This means a storm at 3500 feet (1067m) is 1.27 times as likely as a storm at 2500 feet. The different height is 307 m.

In the Bolaven Plateau with a different of 307 m (5000 feet = 3936 feet = 1064 feet or 324m) is it possible or why not to consider the relative likelihood of storm of 1.27 at 1500 m altitude.

Example: Max Daily Rainfall 29/August '90 from Type-choon Becky

At Paksong 42 = 307.5 mm

Paksong Town = 202.4 mm

Atong Luu = 104.1 mm → at 1500 m = 133 mm at least

Nikhon 34 = 75.1 mm → at 1700 m ≈ 150 mm

① Temperature at ATTARU STATION (14°48'N/106°50'E, EL:106m)

AVERAGE FROM 1900-1910

	Jan	Feb	Mar	Apr	May	Jun	Jly	Aug	Sept	Oct	Nov	Dec	ANN
Mean t°c	24.6	25.6	28.6	29.5	28.3	27.2	26.8	26.9	26.7	27.1	25.5	24.8	26.8
mean Maxi	32.2	33.2	35.9	35.8	33.5	31.2	30.5	30.7	30.6	31.9	31.2	30.8	
mean Mini	16.9	17.9	21.4	23.1	23.5	23.2	22.8	23.0	22.7	21.9	19.8	18.3	
<u>Absolute</u>													
Axi	39.6	38.8	41.3	40.4	41.2	35.9	34.8	34.8	36.7	37.8	35.0	38.7	
Mini	9.8	10.5	14.5	18.5	20.2	14.5	20.0	19.8	20.0	18.2	13.7	10.5	

1990

mean t°c	26.2	27.7	29.4	30.6	28.8	27.5	27.5	27.4	28.0	27.4	25.9	24.5	27.6
mean Maxi	34.1	34.9	36.3	36.0	34.2	31.0	31.6	31.5	32.4	32.6	31.7	32.2	
mean Mini	18.3	20.5	22.5	24.4	24.3	24.0	23.4	23.3	23.6	22.3	20.1	16.8	
<u>Absolute</u>													
MAXi	36.5	37.0	38.0	40.0	39.0	33.7	33.5	35.0	34.8	35.2	34.7	34.8	
Mini	14.8	15.5	20.5	22.0	22.1	22.8	21.0	21.2	21.5	19.6	16.6	14.1	

Note: Due to the global climatic change (environment chan all kind of air temperature recorded in 1990<sup>30</sup>) was higher than that observed from 1900-1910.

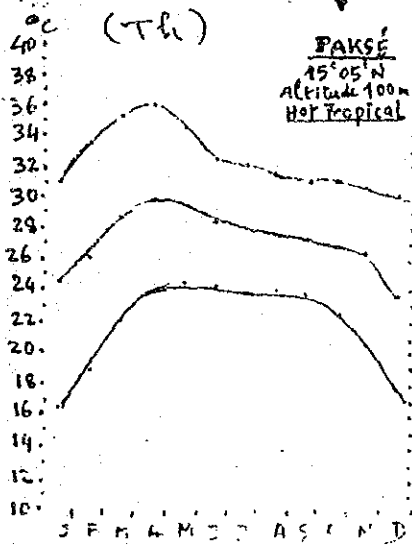
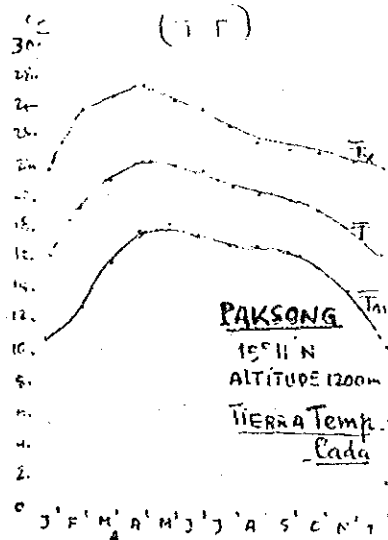
② Potential Evapotranspiration (PET from Penman's) 1990 monthly mean and annual total

	Jan	Feb	Mar	Apr	May	Jun	Jly	Aug	Sept	Oct	Nov	Dec	ANNUAL
PET (mm)	117.8	137.4	145.0	155.7	140.7	123.0	131.4	130.8	124.2	123.6	105.0	106.6	1541.2
Piche													890.44

### ③ TEMPERATURE REGIMES (FAO 1986)

#### The Tropical Temperature regime:

The mean minimum temperature of the coldest month varies between 13°C and 18°C, while the mean minimum t° of the warmest month is higher than 20°C



#### The Tierra Templada regime

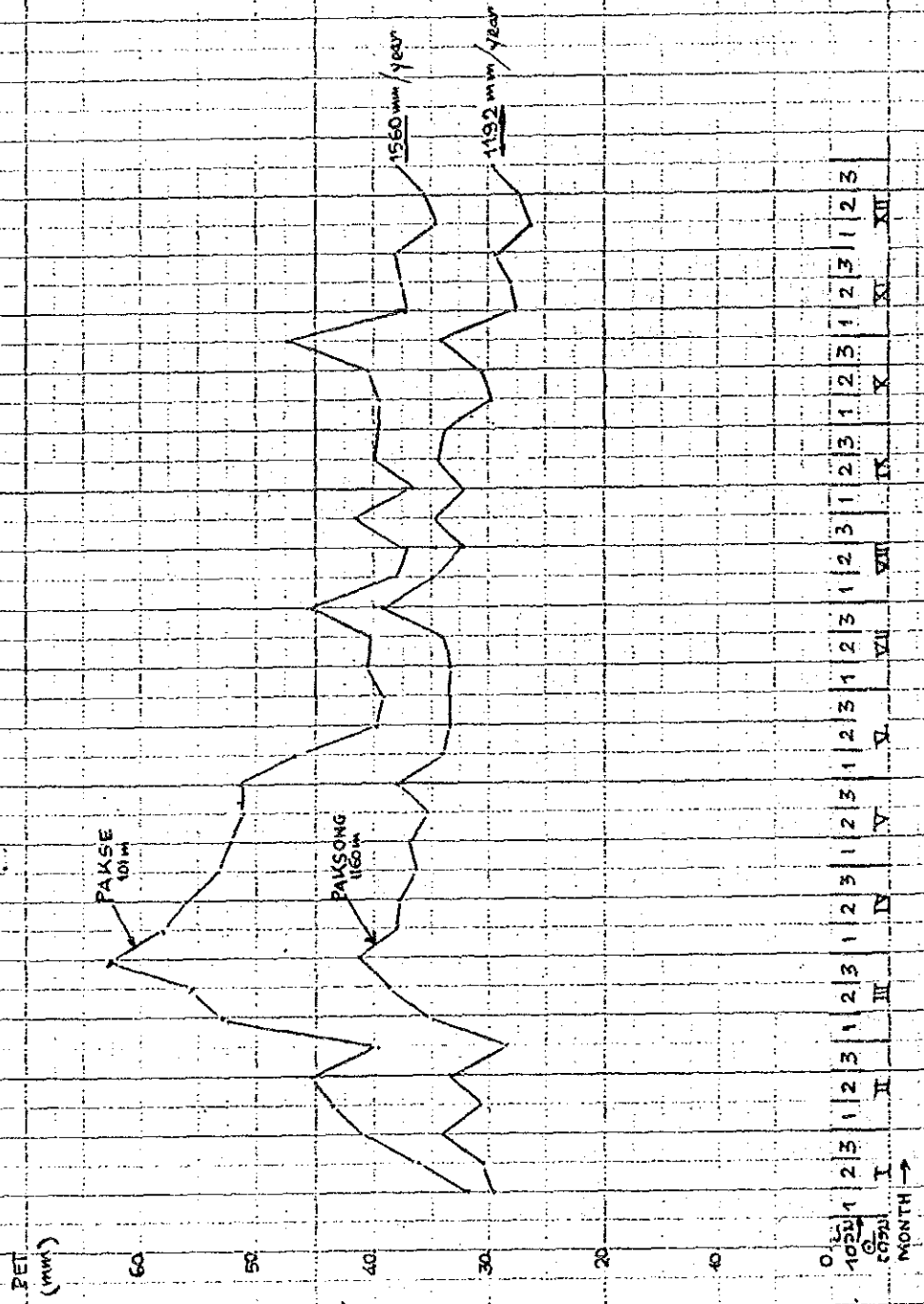
The mean minimum temperature of all months is less than 20°C, while no frost risk occurs, Exceptionally once in several years.  
(in the Bolaven Plateau)  
-2°C Jan 1983

#### \* The Tierra Fria regime

has in general mean minimum t° of the coldest months 8~13°C a certain frost risk is present. Summers are relatively hot but the mean maxi t° of the warmest month remains below 33°C  
(in the North LAOS with alt > 1500m)

④ EVAPOTRANSPIRATION POTENTIELLE (PENMAN)

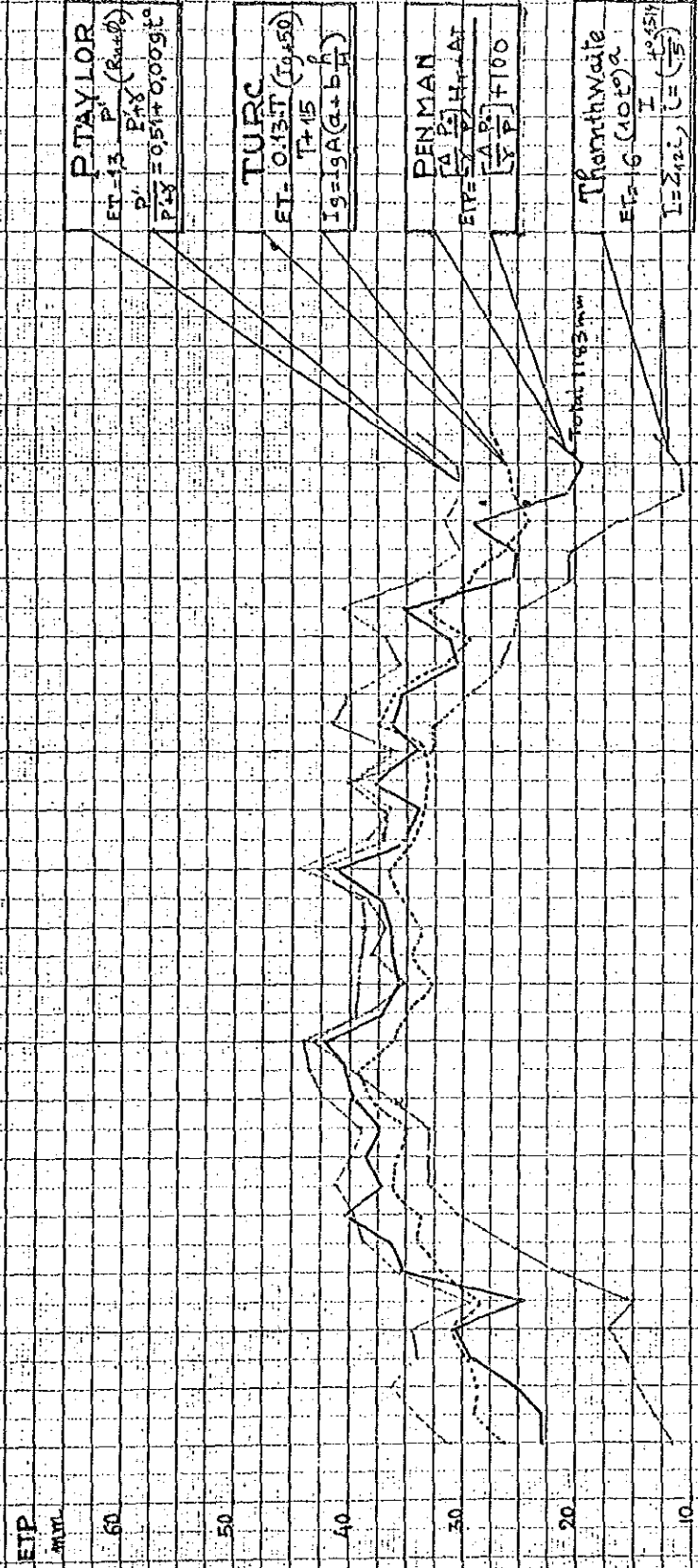
TOTAL DECADAIRES  
 PAKSE 1961-1985  
 PAKSONG 1983-1990





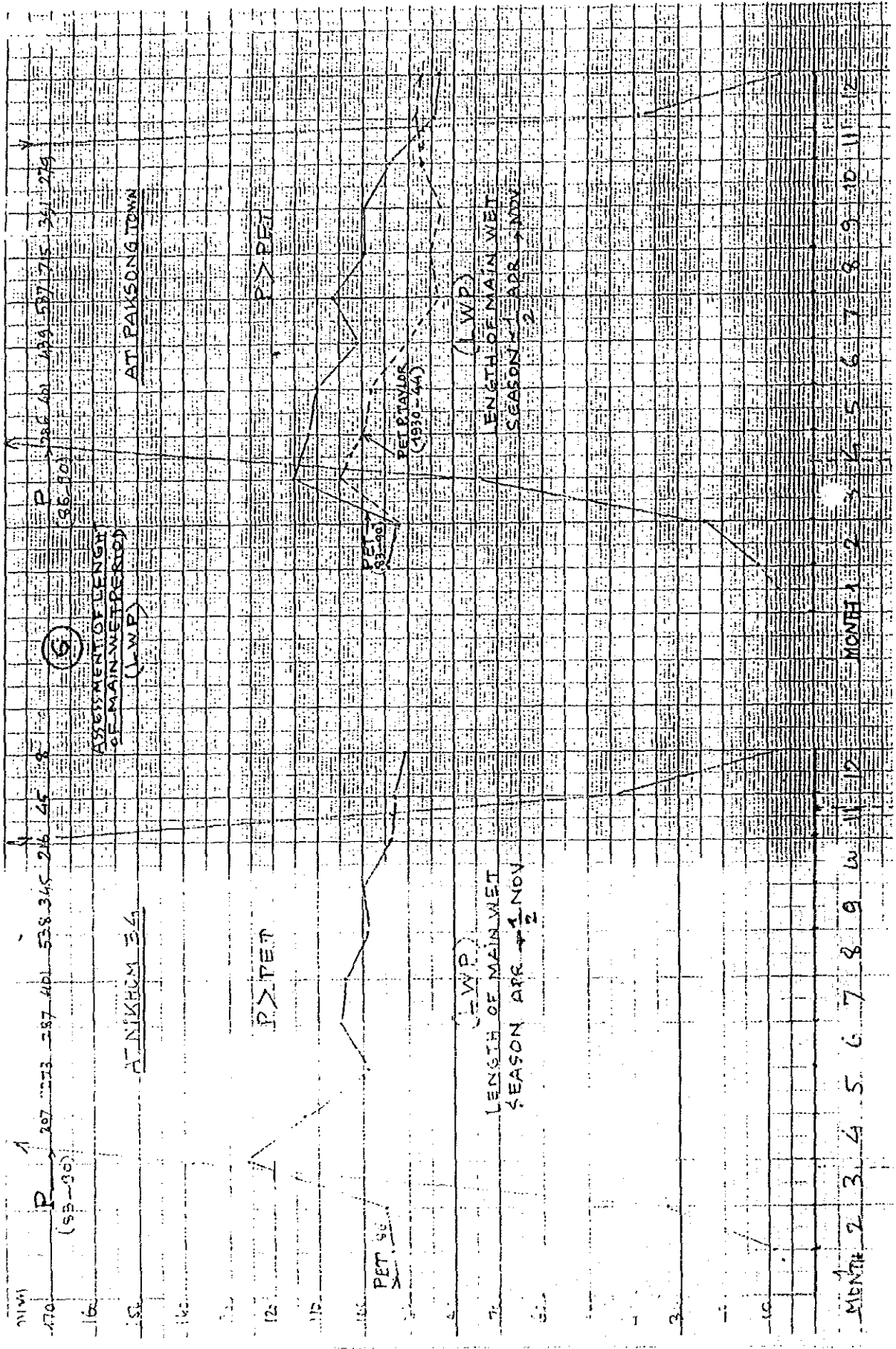
ឧបទ្រព្យ ភ្នំបាញ់ : ការសម្រេចសីមាពលកម្ម ប្រយុទ្ធនៃ (10 ឆ្នាំ)

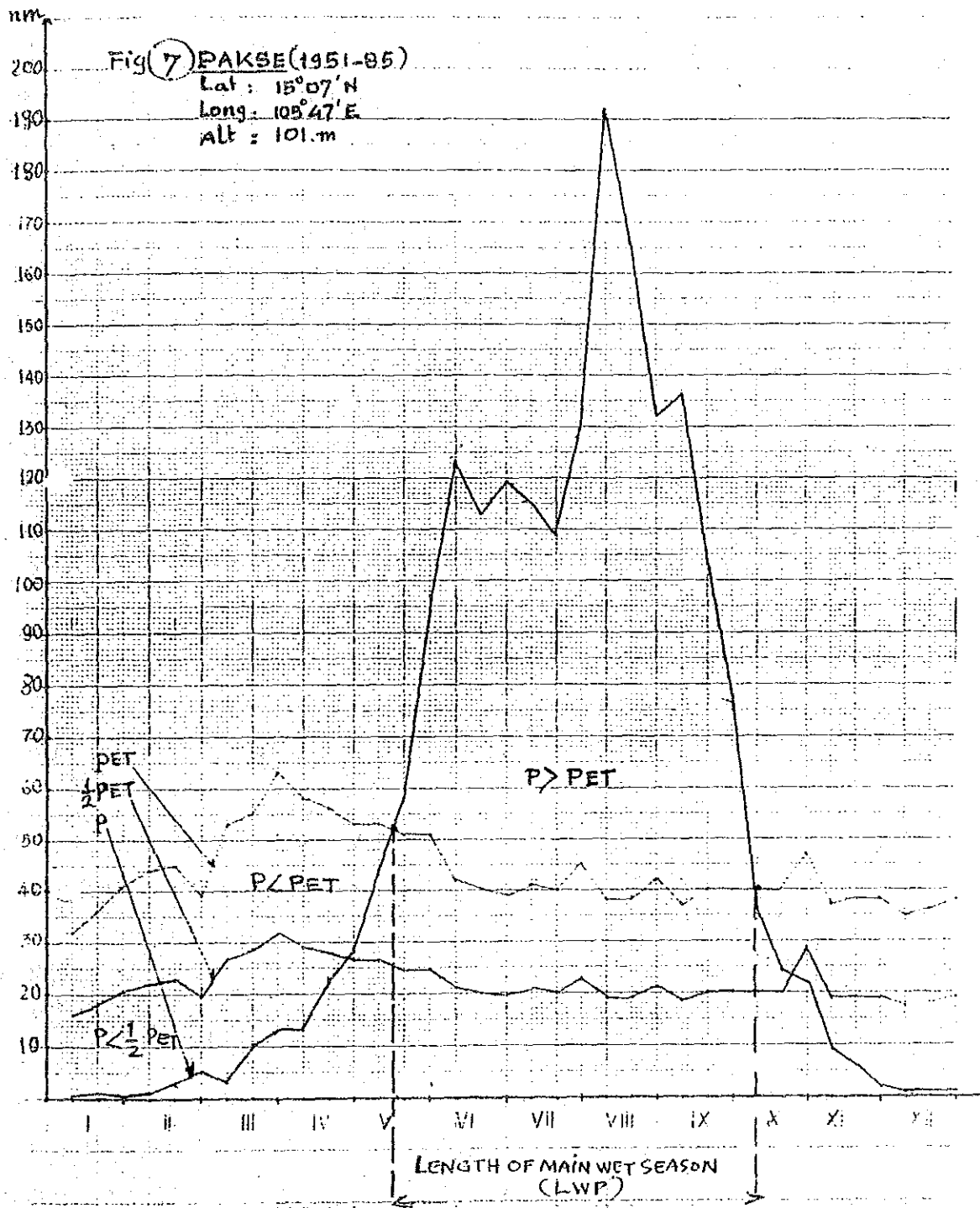
(ស៊េរី : 1951-60, 1976-1987)  
 XIENGHOUANG (PJ) EVAPOTRANSPIRATION POTENTIELLE ETP  
 (1050 m)



1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3												
I			II			III			IV			V			VI			VII			VIII			IX			X			XI			XII		

10 ឆ្នាំ 29 ថ្ងៃ ០១ ខែ ០១ ឆ្នាំ  
 DECADE OF MONTH





⑧ 1986 Surface wind at NIKHOM 34 (Bolaven Plateau)

	calm	N		NE		E		SE		S		SW		W		NW	
	%	%	U	%	U	%	U	%	U	%	U	%	U	%	U	%	U
JAN	7.86	17	3.4	22	3.6	13	3.6	8	2.8	7	2.3	7	3.5	6	1.5	20	1.8
Feb	7.86	12	2.4	7	2.9	13	2.4	9	2.1	16	2.4	27	2.2	13	1.7	10	1.6
Mar	16.13	11	2.9	5	3.6	7	2.4	12	1.9	24	2.1	21	1.9	11	1.3	14	0.9
Apr	14.0	9	2.7	11	1.4	7	2.2	8	1.7	17	2.6	10	1.3	11	1.6	2.9	1.7
May	9.03	0	0.0	-	-	-	-	4	1.8	14	5.0	40	4.8	26	4.3	15	2.4
Jun	12.66	3	1.5	-	-	1	2.0	1	4.0	3	3.7	36	4.3	42	4.2	8	4.2
Jul	9.0	6	1.4	-	-	3	2.0	1	4.0	6	4.5	22	4.0	53	5.4	8	4.9
Aug	13.97	8	3.4	-	-	2	1.7	1	2.0	3	3.2	17	4.5	40	4.9	31	4.4
Sept	11.33	6	2.4	8	4.2	10	4.2	15	3.5	6	2.6	10	5.5	16	4.1	30	5.0
Oct	16.13	15	6.0	15	5.3	19	5.4	5	3.3	12	4.8	10	5.2	5	5.0	25	5.1
Nov	15.33	22	5.8	35	5.9	16	6.4	6	5.2	1	1.0	-	-	4	3.0	18	5.4
Dec	7.09	14	5.8	31	6.9	15	7.4	12	6.0	3	4.8	5	5.3	-	-	18	6.4

1986 AT PAKSONG KM 42

	calm	N		NE		E		SE		S		SW		W		NW	
	%	%	U	%	U	%	U	%	U	%	U	%	U	%	U	%	U
Jan	6.45	20	1.7	8	1.7	26	1.4	21	2.3	5	2.1	14	1.8	9	1.7	6	2.2
Feb	1.43	2	1.0	7	2.7	10	1.5	13	1.2	18	2.4	33	3.3	19	3.6	10	5.8
Mar	8.39	0.7	2.0	4	2.7	13	3.3	12	1.6	3	5.7	20	1.8	31	10.4	17	-
Apr	3.33	1	1.0	2	1.3	4	1.7	2	1.3	2	2.1	14	2.7	8	1.7	4	1.2
May	6.90	0.7	1.0	-	-	3	1.4	11	2.4	3	3.1	31	4.2	11	7.3	2	7.6
Jun	9.34	-	-	-	-	-	-	1	1.5	4	1.8	5	1.7	6	1.9	-	-
Jul	20.00	0.7	2.4	-	-	-	-	4	1.2	1	1.3	16	3.3	19	10.4	1.8	2.4
Aug	23.87	3	1.3	0.7	1.0	-	-	1	1.0	11	1.2	5	3.3	17	20.4	1.7	1.0
Sept	12.67	6	1.3	3	1.5	7	1.3	2	1.7	1	2.1	2	1.5	9	1.3	6	1.5
Oct	7.10	5	5.3	7	2.7	2	2.5	1	1.3	1	1.8	3	1.6	6	2.5	2.8	2.0
Nov	2.67	4	2.4	13	3.1	3	2.4	1	1.2	6	1.6	1	1.3	4	1.3	4	1.2
Dec	17.42	1	1.0	7	4.6	2	5.6	2	2.1	5	2.0	2	2.6	2	7	1.8	3

% = percentage of wind direction (frequency)  
 U = wind velocity in m/s (monthly mean value of each direction)

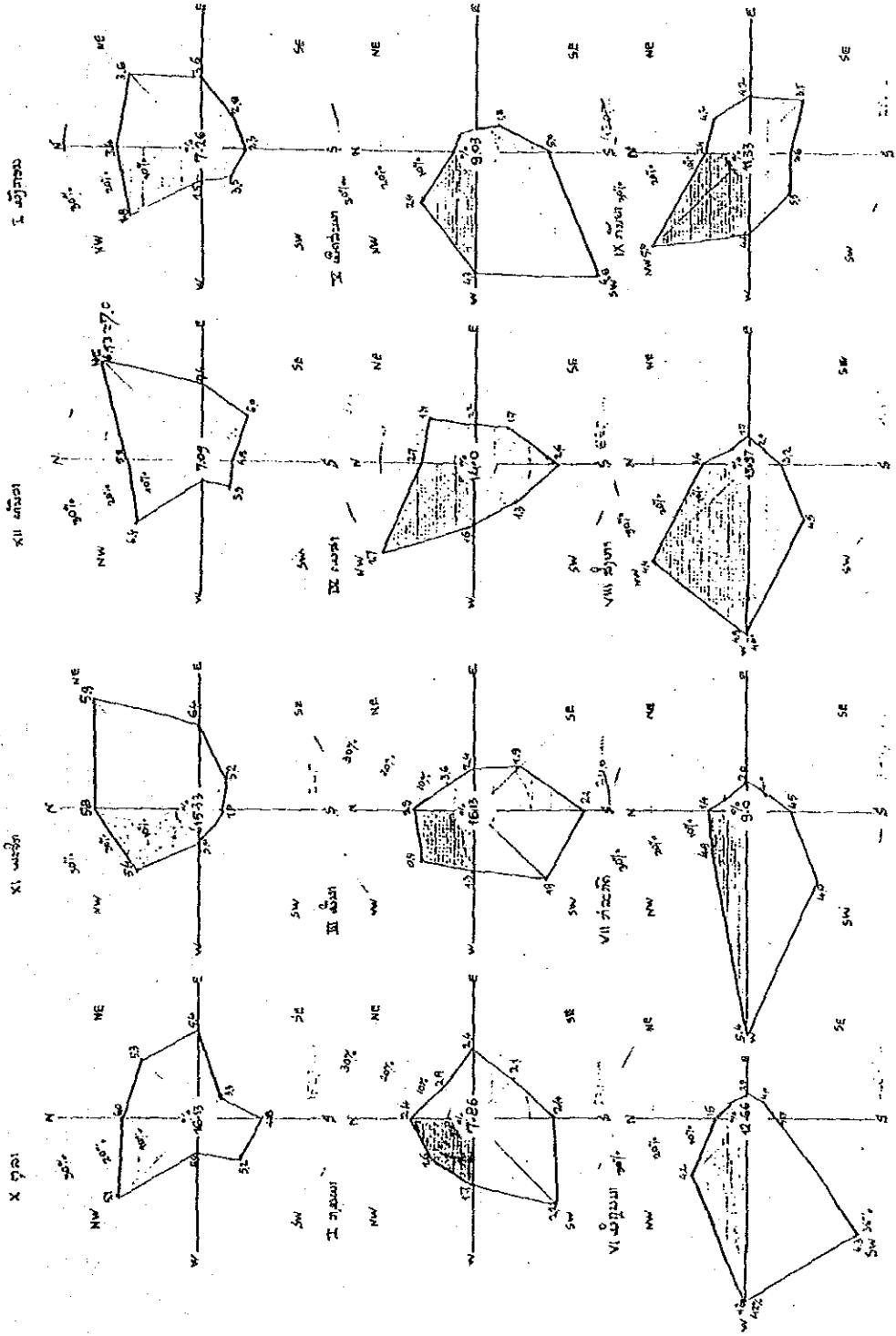
9

వెంట్ ఆసుల్ ప్ల 66 (VENT AUSL)

పిల్లమ గిరి: 200 NK 34

FERME D'ETAT PL. DE BOLAVEN 1150 M

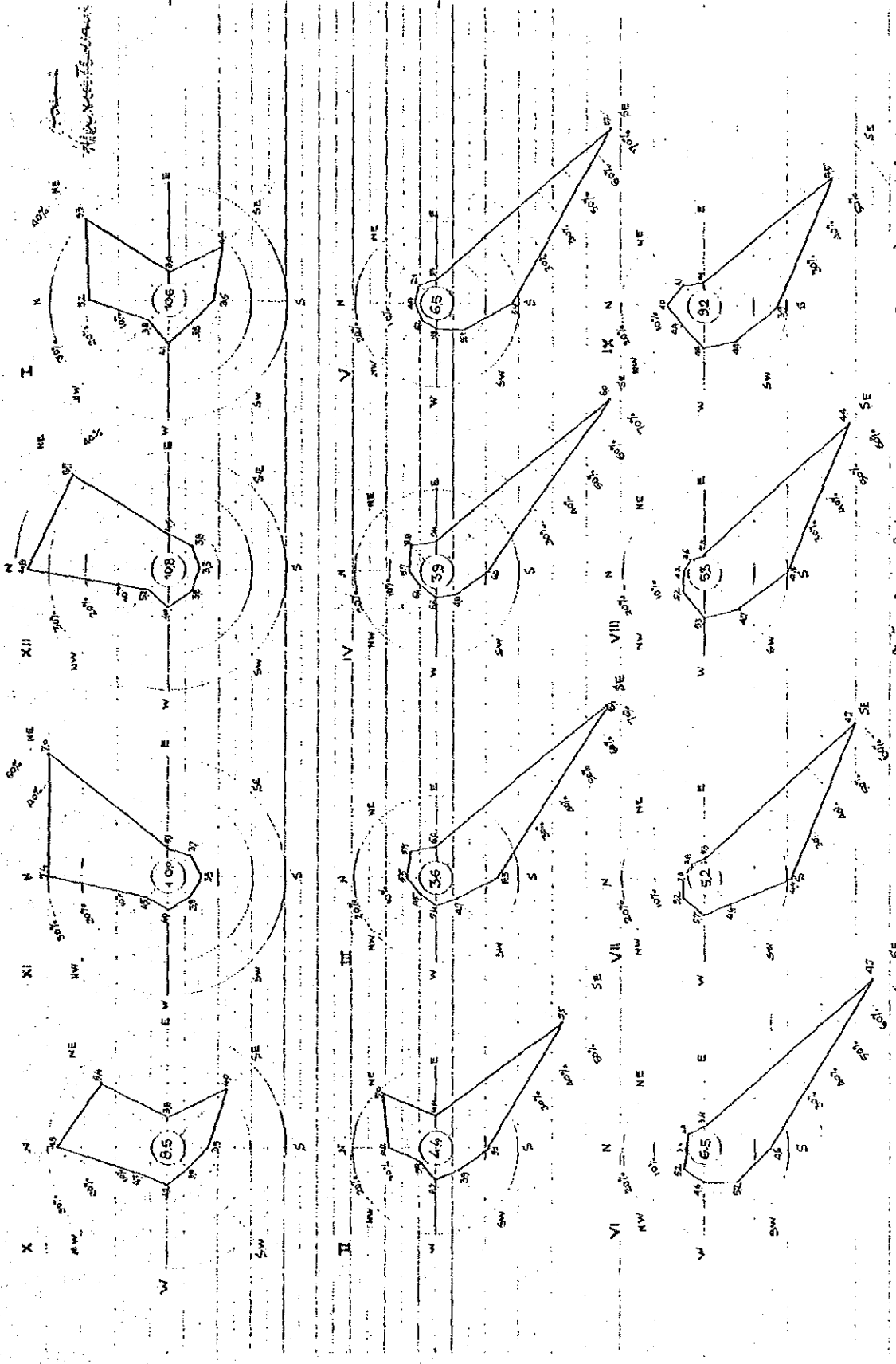
1 స్కేల్ = 10% 29100 ప్లంట్ మరియు వైరియం వైరియం ప్లంట్ = 10/2





9 (b) **ಪ್ರತಿವರ್ಷ : ಸುತ್ತಲಿನ ವಾಯು ವೇಗ, 8.00 ಗಂಟೆಗೆ, ಸರಾಸರಿ ವಾಯು ವೇಗ (1961-1980)**

**PAUSE : SURFACE WIND ROSE, 8 DIRECTIONS, V.M/S (30-YEAR AVERAGE)**



Legend: (85) wind speed in m/s in central circle  
Frequency of directions (circles)

ಪ್ರತಿವರ್ಷ ವಾಯು ವೇಗ : 8.00 ಗಂಟೆಗೆ  
ಸರಾಸರಿ ವಾಯು ವೇಗ (1961-1980)

19

Run-off calculation from Water balance

1986 data at NIKHOM 34. (unit = mm),  $Q = m^3/s$

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	ANN.
P mm	0	33	24	67	431	241	444	650	243	280	23	31	2467
PET	94	95	126	113	99	105	104	99	100	94	93	91	1213
(Penman) P - PET	-94	-62	-102	-46	+332	+136	+340	+551	+143	+186	-70	-60	
Reserve	0	0	0	0	100	100	100	100	100	100	0	0	
Deficiency	-94	-62	-102	-46								-70	-60
Surplus					+332	+136	+340	+551	+143	+186			
Run off					116	184	238	445	347	164.5	93	46.5	1634.5
Q at A784 (Table 2.9)	9.62	5.76	3.20	4.19	24.13	25.94	47.00	73.15	63.54	41.57	22.94	13.24	28.03
Mo. $\frac{Q}{A}$ / $\frac{P}{A}$ %	12.27	7.35	4.08	5.34	30.78	33.09	59.95	93.30	81.04	53.04	29.26	16.87	
Q calculated					33.95	55.00	69.67	130.4	105.48	48.3	28.12	13.75	
at %					65	65	65	65	70	70			
Q at %					22.06	35.75	45.3	84.8	73.5	43.5	28.12	13.75	

The basic principle.

To assess the loss of water from the soil, Thornthwaite takes the difference between potential Evapotranspiration PET and actual evapotranspiration when there is sufficient water available for vegetation (that is the case of the Bolaven plateau from May - ...)

Assuming that the reserve  $RS = 100$  mm. If the precipitation  $P$  is in excess of the needs of PET or water need, the actual evapotranspiration is equal to the PET and any excess water remains in Reserve up to 100 mm, the remainder (water surplus) going to underground run off, half of it during the month and the other half during subsequent months.

In the example of computation we assume that the surface run off is approximately 65% of the total run off from May - August and more higher from September - October for 1986 year. That is an assumption and result, can be compared with the other methods - - -



## (11) calculations of peak Flood Discharges at Projectsites

Two methods are used

- (1) - the SCS method
- (2) - the D. Sakolovsky method:

(1) At REKATAM Project Damsite (SCS method)

Catchment Area:  $290 \text{ km}^2$

H, the difference elevation between the farthest point and Damsite being  $1700\text{m} - 450\text{m} = 1250\text{m}$

Length of the river approx.  $45 \text{ km}$

$$L = 45000 \text{ m} \times 3.28 = 147600 \text{ feet}$$

$$S = 0.02777 \text{ (7.4\%)}$$

For computation of maximum peak flow from a daily rainfall of  $200 \text{ mm}$  reasonably accepted as  $T_r = 10$  year period, and giving intensity in 4 hours  $i = 50 \text{ mm/h}$ , uniformly over the catchment (hourly rainfall at Paksong town for

$T_r = 10 \text{ y}$  is about  $65 \text{ mm/h}$  computed from the period 1966-1970)

Estimation of direct run off or  $P_e$  on the basis of

$$P_e = \frac{(P - 0.2S)^2}{P + 0.8S}$$

and the curve number:

$$CN = 60$$

The time of concentration  $T_c$  is estimate from the Kirpich's formula or from the kinematic wave and SCS average velocity formula. for Kirpich's formula:  $T_c = 0.0078 L^{0.77} S^{-0.385}$

$$T_c = 0.0078 \times 9554.2477 \times 3.973534 = 296.1202 \text{ minutes} = (5 \text{ H})$$

consider 1h unit hydrograph,

$$t_r = 1 \text{ h}; t_p \approx 0.6 T_c = 0.6 \times 5 = (3 \text{ H})$$

$$T_p = \frac{t_r}{2} + t_p = 0.5 + 3 = 3.5 \text{ h}$$

$$\text{and } t_b = 2.67 \times 3.5 = 9.4 \text{ h}$$

for  $A = 290 \text{ km}^2$

$$q_p = \frac{2.08 \cdot A}{T_p} = \frac{2.08 \cdot 290}{3.5} = 172 \text{ m}^3/\text{s} \cdot \text{cm}$$

This means that each  $1 \text{ cm}$  of excess rainfall,  $P_e$  (direct runoff) will produce  $172 \text{ m}^3/\text{s}$  from this catchment.

The peak discharge  $Q_p$ , from each hr,  $P_e$ , increment is

$$Q_{p,t} = q_p \times P_{e,t}$$

For  $CN = 60$

$P = 200 \text{ mm/day}$  and  $50 \text{ mm/h}$  in 4 hours.

time h	cumul. Rain $P = \text{mm}$	cumulative Run-off $P_e$	$P_e(t)$ cm	Peak disch $Q_p \text{ m}^3/\text{s}$
0	0	0	0	0
1	50	3	0.3	57.6
2	100	20	1.7	292.4
3	150	50	3	516
4	200	86	3.6	619.2

## 2/ XENAMNOY at BAN LATSASIN.

$$CA = 537 \text{ km}^2 \quad \text{Altitude} = 720 \text{ m}$$

$$H = 1000 - 720 = 280 \text{ m}$$

$$L = 40 \text{ km} \quad (40000 \times 3.28 = 131200 \text{ feet})$$

$$S = 0.007$$

$$T_c = 0.0078 \cdot 131200^{0.77} \cdot 0.007^{-0.385} = 0.0078 \cdot 8725.8763 \cdot 0.755 = 459.7577 \text{ minutes} = 7.66 \text{ h}$$

$$\text{for } t_r = 1 \text{ h}, \quad t_p = 0.6 T_c = 0.6 \cdot 7.66 = 4.596 = 4.6 \text{ h}$$

$$T_p = \frac{t_r}{2} + t_p = 0.5 + 4.6 = 5.1 \text{ h}, \quad t_b = 2.67 \cdot 5.1 = 13.6 \text{ h}$$

$$A = 537 \text{ km}^2$$

$$q_p = \frac{2.08 \cdot 537}{5.1} = 219 \text{ m}^3/\text{s} \cdot \text{cm}$$

for the same  $CN = 60$

$P_e(t)$	$Q_p$
0	0
0.3	$0.3 \times 219 = 65.7 \text{ m}^3/\text{s}$
1.7	$1.7 \times 219 = 372.3 \text{ m}^3/\text{s}$
3	$3 \times 219 = 657.0 \text{ m}^3/\text{s}$
3.6	$3.6 \times 219 = 788.4 \text{ m}^3/\text{s}$