APPENDIX B

MONTHLY OBSERVED EVAPORATION AND CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS SOUTHERN SAN JOAQUIN VALLEY 1977 – 1991

TABLE B-1

NORMAL YEAR MONTHLY EVAPORATION AND EVAPOTRANSPIRATION
FOR SEVERAL CROPS SOUTHERN SAN JOAQUIN VALLEY
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum[4]	Grain Sorghum[5]	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop				
Jan	1.35	1.25	0.96	1.03		0.81		0.97			0.60	
Feb	2.23	2.06	1.69	1.70		1.30		1.68			1.75	
Mar	4.13	3.79	3.16	3.13		2.33	1.68	3.32			3.95	
Apr	5.94	5.46	4.62	4.51	0.32	3.32	3.25	5.05			5.59	0.35
May	8.32	7.66	6.48	6.32	1.74	4.61	5.38	7.64	0.92		5.48	2.47
Jun	9.29	8.54	7.25	7.06	5.60	4.88	6.62	8.72	2.83	0.45	0.37	5.02
Jul	10.03	9.23	7.81	7.62	9.73	5.23	7.52	9.47	8.70	2.73		6.49
Aug	8.58	7.89	6.70	6.51	8.43	4.46	6.42	7.97	7.16	7.55		5.66
Sep	6.43	5.92	4.99	4.89	4.75	3.34	4.60	5.71	3.51	5.29		3.99
Oct	4.35	4.02	3.31	3.31	1.02	2.42	2.65	3.57		1.68		1.73
Nov	2.19	2.01	1.61	1.67		1.24	0.92	1.65				0.40
Dec	1.02	0.95	0.75	0.79		0.60		0.73			0.14	
Total[6]	63.86	58.78	49.33	48.54	31.59	34.54	39.04	56.48	23.12	17.70	17.88	26.11

[1]Evaporation from National Weather Service pans located in large, well-managed, irrigated pastures. Average of several locations and several years.
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover and no moisture stress. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass. ET of low-growing grass at 100-percent ground cover and no moisture stress.
[4]Grain sorghum (milo) planted in early May.
[5]Grain sorghum (milo) planted in mid-June following winter-planted small grains.
[6]Growing-season totals.

TABLE B-2

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1977
(inches)

Month	Evaporation[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum		Vineyard
							Clean Cultivation	With Cover Crop	Planted May 1	Planted June 15	
Jan	0.81	0.75	0.61	0.63		0.46		0.61			
Feb	2.62	2.41	1.97	2.02		1.59		1.98			
Mar	4.05	3.73	3.06	3.03		2.27	1.60	3.19			
Apr	7.66	7.05	5.87	5.73	0.40	4.23	4.15	6.55			0.44
May	6.96	6.40	5.53	5.38	1.60	3.90	4.62	6.52	0.84		2.32
Jun	9.06	8.34	7.05	6.87	5.59	4.74	6.40	8.50	3.00	0.43	4.92
Jul	8.58	7.89	6.69	6.72	8.67	4.60	6.60	8.32	7.87	3.66	5.71
Aug	7.59	6.98	5.90	5.74	7.38	3.92	5.65	7.00	5.95	6.82	4.96
Sep	5.90	5.43	4.62	4.52	4.28	3.11	4.21	5.24	2.08	4.58	3.64
Oct	4.01	3.69	3.05	3.08	0.86	2.25	2.43	3.28		1.01	1.55
Nov	1.80	1.66	1.31	1.38		1.03	0.70	1.38			0.32
Dec	1.77	1.63	1.26	1.27		0.94		1.15			
Total	60.81	55.96	46.92	46.37	28.78	33.04	36.36	53.72	19.74	16.50	23.86
Percent of Normal	95.2	95.2	95.1	95.5	91.1	95.7	93.1	95.1	85.4	93.2	91.4

[1]Observed evaporation at Wasco 8SW agroclimatic station.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.

TABLE B-3

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1978
(inches)

Month	Evaporation[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Cultivation	With Cover Crop			
Jan	1.05	0.97	0.75	0.76		0.58		0.70		0.30	
Feb	1.17	1.08	0.94	0.94		0.71		0.93		0.98	
Mar	2.60	2.39	1.96	1.94		1.44	1.10	2.07		2.47	
Apr	4.24	3.90	3.30	3.19	0.13	2.35	2.32	3.67		3.93	0.68
May	7.52	6.92	5.82	5.71	1.27	4.18	4.80	6.87		4.79	3.39
Jun	8.62	7.93	6.60	6.55	4.46	4.49	6.20	8.11		0.10	5.26
Jul	8.82	8.11	6.46	6.88	8.53	4.71	6.74	8.54	1.33		6.00
Aug	8.13	7.48	5.83	6.08	8.01	4.18	6.21	7.50	5.50		5.29
Sep	5.13	4.72	3.84	3.80	3.87	2.58	3.51	4.38	4.38		3.01
Oct	3.94	3.62	2.86	2.98	1.15	2.22	2.31	3.19	2.52		1.44
Nov	1.87	1.72	1.37	1.45		1.04	0.68	1.41	0.09		0.31
Dec	0.86	0.79	0.64	0.65		0.47		0.59		0.13	
Total	53.95	49.63	40.37	40.93	27.42	28.95	33.87	47.96	13.82	12.70	25.38
Percent of Normal	84.5	84.5	81.8	84.3	86.8	83.8	86.8	84.9	88.8[4]	71.0	97.2

[1]Observed evaporation at Wasco 8SW agroclimatic station.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.
[4]Normal growing season adjusted to correspond to 1978 growing season.

TABLE B-4

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1979
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.48	1.36	1.09	1.12		0.89		1.07		0.68	
Feb	1.97	1.81	1.48	1.49		1.20		1.49		1.60	
Mar	3.59	3.30	2.76	2.73		1.98	1.19	2.79		3.31	
Apr	5.96	5.48	4.63	4.55	0.36	3.39	3.28	5.26		5.63	0.40
May	8.82	8.11	6.88	6.71	2.03	4.91	5.83	8.20	1.12	5.44	2.91
Jun	8.64	7.95	6.79	6.65	5.77	4.59	6.28	8.23	3.17		4.86
Jul	8.66	7.97	6.74	6.54	8.41	4.44	6.40	8.03	7.57		5.51
Aug	8.18	7.53	6.31	6.16	7.92	4.23	6.10	7.55	6.65		5.36
Sep	6.15	5.66	4.75	4.66	4.30	3.15	4.30	5.37	3.53		3.74
Oct	4.28	3.94	3.18	3.27	0.72	2.45	2.62	3.56			1.60
Nov	2.19	2.01	1.63	1.73		1.20	0.77	1.65			0.35
Dec	1.78	1.64	1.26	1.37		1.02		1.25		0.29	
Total	61.70	56.76	47.50	46.98	29.51	33.45	36.77	54.45	22.04	16.79[4]	24.73
Percent of Normal	96.6	96.6	96.3	96.8	93.4	96.8	94.2	96.4	95.3	93.9	94.7

[1]Observed evaporation at Wasco 8SW agroclimatic station.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.
[4]Growing season total includes 0.13 inch ET from December 1978, excludes 0.29 inch ET for December 1979.

TABLE B-5

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1980
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	0.97	0.89	0.70	0.74		0.56		0.67		0.46	
Feb	1.85	1.70	1.41	1.42		1.08	0.04	1.42		1.55	
Mar	3.52	3.24	2.70	2.64		1.95	1.60	2.83		3.36	0.18
Apr	5.30	4.88	4.14	4.06	0.40	3.00	3.02	4.69		4.98	1.25
May	7.52	6.92	5.86	5.61	1.81	4.13	4.94	6.92	1.02	4.07	3.93
Jun	8.45	7.77	6.59	6.43	4.81	4.39	6.10	7.94	3.43		5.40
Jul	8.97	8.25	7.00	6.55	8.40	4.48	6.49	8.16	7.73		5.70
Aug	8.08	7.43	6.30	6.06	7.87	4.13	5.96	7.33	6.50		5.04
Sep	6.33	5.82	4.89	4.82	4.78	3.33	4.44	5.57	3.41		2.67
Oct	4.95	4.55	3.73	3.84	1.34	2.84	2.97	4.10			1.05
Nov	2.83	2.60	2.07	2.14		1.54	0.82	2.08			0.13
Dec	1.04	0.96	0.74	0.78		0.56		0.71		0.20	
Total	59.81	55.01	46.13	45.09	29.41	31.99	36.38	52.42	22.09	14.71[4]	25.35
Percent of Normal	93.7	93.6	93.5	92.9	93.1	92.6	93.2	92.8	95.5	82.3	97.1

[1]Observed evaporation at Wasco 8SW agroclimatic station.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.
[4]Growing season total includes 0.29 inch ET from December 1979 and excludes 0.20 inch ET from December 1980.

TABLE B-6

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1981
(inches)

Month	Evaporation[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Cultivation	With Cover Crop			
Jan	1.92	1.77	1.40	1.46		1.16		1.40		0.98	
Feb	2.14	1.97	1.62	1.63		1.25		1.62		1.81	
Mar	3.34	3.07	2.56	2.51		1.88	1.36	2.71		3.22	0.17
Apr	5.71	5.25	4.45	4.34	0.28	3.21	3.12	5.02		5.27	1.51
May	8.46	7.78	6.60	6.81	1.76	4.94	5.73	8.26		4.85	4.70
Jun	11.00	10.12	8.55	8.33	6.55	5.73	7.79	10.31	0.78		7.05
Jul	10.46	9.63	8.18	7.97	10.20	5.48	7.86	9.89	4.29		6.93
Aug	9.23	8.49	7.21	7.01	9.07	4.82	6.93	8.46	8.30		5.77
Sep	8.22	7.56	6.36	5.90	5.88	4.07	5.59	6.78	6.14		3.30
Oct	4.73	4.35	3.53	3.55	1.01	2.64	2.84	3.77	1.14		0.89
Nov	2.52	2.32	1.84	1.88		1.44	0.84	1.87			
Dec	1.25	1.15	0.87	1.00		0.73		0.88		0.25	
Total[4]	68.98	63.46	53.17	52.39	34.75	37.35	42.06	60.97	20.65	16.33[5]	30.32
Percent of Normal	108.0	108.0	107.8	107.9	110.0	108.1	107.7	107.9	116.7	91.3	116.1

[1]Observed evaporation at Bakersfield 10NW agroclimatic station.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.
[4]Growing season totals.
[5]Growing season total includes 0.20 inch ET from December 1980 and excludes 0.25 inch ET from December 1981.

TABLE B-7

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1982
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.33	1.24	0.96	1.01		0.82		0.96		0.58	
Feb	2.19	2.01	1.65	1.66		1.26		1.64		1.69	
Mar	2.80	2.57	2.14	2.09		1.54	1.11	2.21		2.64	
Apr	5.27	4.86	4.11	3.97	0.25	2.91	2.91	4.52		4.87	0.79
May	8.88	8.17	6.91	6.73	1.81	4.94	5.73	8.13		5.85	3.92
Jun	8.13	7.47	6.34	6.18	4.88	4.26	5.78	7.64		0.30	4.93
Jul	9.78	8.99	7.63	7.43	9.40	5.10	7.34	9.24	1.33		6.45
Aug	8.70	8.02	6.80	6.69	8.75	4.60	6.63	8.19	5.77		5.80
Sep	6.08	5.57	4.68	4.51	4.69	3.08	4.26	5.28	5.31		3.15
Oct	4.29	3.94	3.23	3.27	1.50	2.38	2.61	3.53	2.55		1.04
Nov	1.41	1.30	1.01	1.10		0.80	0.55	1.09			0.05
Dec	1.14	1.04	0.79	0.84		0.64		0.77		0.10	
Total[4]	60.00	55.18	46.25	45.48	31.28	32.33	36.92	53.20	14.96	16.18[5]	26.13
Percent of Normal	93.9	93.9	93.8	93.7	99.0	93.6	94.6	94.2	84.5	90.5	100.1

[1]Observed evaporation at Bakersfield 10NW agroclimatic station.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.
[4]Growing season totals.
[5]Growing season total includes 0.25 inch ET from December 1981 and excludes 0.10 inch ET from December 1982.

TABLE B-8

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1983
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.16	1.07	0.83	0.89		0.68		0.86		0.38	
Feb	2.01	1.79	1.49	1.48		1.12		1.47		1.20	
Mar	3.18	2.98	2.47	2.46		1.83	1.33	2.63		2.90	0.08
Apr	5.52	5.13	4.28	4.24	0.16	3.12	3.06	4.83		5.40	1.07
May	8.54	7.79	6.66	6.43	1.87	4.70	5.51	7.78		5.36	4.28
Jun	10.10	9.29	7.88	7.61	6.29	5.27	7.15	9.40	0.24	0.20	6.34
Jul	9.79	9.00	7.65	7.45	9.49	5.08	7.38	9.26	1.84		6.49
Aug	8.51	7.84	6.64	6.46	8.40	4.43	6.36	7.90	6.83		5.50
Sep	6.79	6.33	5.27	5.20	5.33	3.57	4.86	6.06	5.97		3.32
Oct	4.48	4.07	3.32	3.38	1.28	2.48	2.63	3.60	2.27		1.00
Nov	2.06	1.81	1.49	1.51		1.15	0.74	1.47			0.04
Dec	1.15	1.10	0.81	0.90		0.65		0.83		0.23	
Total[4]	63.29	58.20	48.79	48.01	32.82	34.08	39.02	56.09	17.15	15.54[5]	28.12
Percent of Normal	99.1	99.0	98.9	98.9	103.9	98.7	99.9	99.3	96.9	86.9	107.7

[1]Observed evaporation at Bakersfield 10NW agroclimatic station. Located in Section 18D, T28S, R27E, MDB&M.
[2]Potential ET of alfalfa. Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass.
[4]Growing season total includes 0.10 inch ET from December 1982 and excludes 0.23 inch ET from December 1983.
[5]Growing season total includes 0.10 inch ET from December 1982 and excludes 0.23 inch ET from December 1983.

TABLE B-9

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1984
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.36	1.24	0.98	1.04		0.82		0.98		0.71	
Feb	2.74	2.53	2.06	2.09		1.58		2.06		2.21	
Mar	4.66	4.31	3.58	3.55	0.03	2.62	2.08	3.77		4.49	0.15
Apr	6.13	5.61	4.75	4.62	0.84	3.42	3.42	5.32		5.66	1.44
May	9.09	8.35	7.10	6.92	3.34	5.03	5.95	8.38		5.61	4.61
Jun	9.85	8.69	7.38	7.18	7.32	4.92	6.80	8.88	0.07		6.01
Jul	10.82	9.97	8.44	8.25	10.67	5.62	8.14	10.28	1.61		7.15
Aug	9.35	8.60	7.29	7.02	8.30	4.81	6.94	8.54	6.73		6.01
Sep	8.07	7.21	6.03	5.95	4.03	4.11	5.54	6.90	6.90		3.40
Oct	4.47	4.12	3.35	3.42	0.20	2.51	2.65	3.64	2.50		0.96
Nov	2.53	2.33	1.82	1.86		1.40	0.93	1.83			0.20
Dec	1.39	1.27	0.97	1.07		0.78		0.99		0.22	
Total[4]	70.46[5]	64.23	53.75	52.97	34.73	37.62	42.45	61.57	17.81	18.91[6]	29.93
Percent of Normal	110.3	109.3	109.0	109.1	109.9	108.9	108.7	109.0	100.6	105.8	114.6

[1]Observed evaporation at Bakersfield 10NW agroclimatic station. Located in Section 18D, T28S, R27E, MDB&M.

[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moistue stress (Jensen-Haise alfalfa reference crop). Estimated as 0.92 x pan evaporation.

[3]Potential ET of grass. ET of large expanse of low-growing grass at 100-percent ground cover with no moisture stress (Penman grass reference crop). Estimates based upon 1984 observed evaporation and crop coefficients from Table 2, Department of Water Resources, San Joaquin District report, "Crop Water Use," September 1980.

[4]Growing season totals.

[5]Reported evaporation (Ep) adjusted for ET calculation on June 21 and September 27 due to conditions resulting in elevated Ep.

[6]Growing season total includes 0.23 inch ET from December 1983 and excludes 0.22 inch ET from December 1984.

TABLE B-10

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1985
(inches)

Month	Evaporation[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Grain Sorghum	Small Grains	Vineyard
							Clean Cultivation	With Cover Crop			
Jan	0.96	0.88	0.69	0.73		0.58		0.68		0.41	
Feb	2.62	2.41	1.97	1.99		1.52		1.98		1.99	
Mar	4.09	3.75	3.13	3.11		2.32	1.49	3.33		3.92	0.05
Apr	6.72	6.19	5.24	5.11	0.48	3.75	3.63	5.89		6.37	1.16
May	8.68	7.98	6.78	6.71	2.06	4.85	5.58	8.10		6.24	4.13
Jun	9.83	9.03	7.65	7.32	6.68	5.06	6.83	9.08	0.36	0.63	6.00
Jul	10.15[4]	9.32	7.92	7.72	10.03	5.27	7.59	9.58	2.24		6.72
Aug	9.13[4]	8.44	7.14	6.92	8.76	4.73	6.85	8.41	7.90		5.96
Sep	6.55	6.03	5.08	5.16	4.47	3.57	4.87	5.89	5.76		3.30
Oct	4.96	4.55	3.75	3.63	0.77	2.69	3.02	3.90	2.34		1.22
Nov	2.08	1.92	1.52	1.61		1.18	0.97	1.58			0.14
Dec	0.77	0.71	0.55	0.60		0.38		0.50		0.09	
Total[5]	66.54	61.21	51.42	50.61	33.25	35.90	40.83	58.92	18.60	19.78[6]	28.68
Percent of Normal	104.2	104.1	104.2	104.2	105.3	103.9	104.6	104.3	105.1	110.6	109.8

[1]Observed evaporation, Class "A" pan at Bakersfield 10NW agroclimatic station. Located in Section 18D, T28S, R27E, MDB&M (irrigated pasture).
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100 percent ground cover and no moisture stress (Jensen-Haise alfalfa reference crop). Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass. ET of large expanse of low-growing grass at 100 percent ground cover and no moisture stress (Penman grass reference crop). Estimates based upon 1985 observed evaporation and crop coefficients from Table 2, Department of Water Resources San Joaquin District Report, "Crop Water Use," September 1980.
[4]Observed evaporation as adjusted to compensate for non-standard pasture conditions (see text).
[5]Growing season totals.
[6]Growing season total includes 0.22 inch ET from December 1984 and excludes 0.09 inch ET from December 1985.

TABLE B-11

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1986
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Dry Beans	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.70	1.51	1.19	1.25		0.98		1.18		0.70	
Feb	2.20	2.04	1.66	1.65		1.26	0.04	1.64		1.64	
Mar	3.68	3.38	2.81	2.78		2.07	1.72	2.99		3.50	0.41
Apr	6.30	5.80	4.91	4.79	0.51	3.53	3.57	5.55		5.96	2.59
May	9.29	8.53	7.26	7.02	2.33	5.10	6.12	8.56	1.63	6.05	5.47
Jun	10.63	9.66	8.19	7.99	7.32	5.47	7.59	9.86	8.73		6.91
Jul	10.79	9.93	8.43	8.24	10.73	5.64	8.14	10.25	9.42		7.15
Aug	9.69	8.91	7.56	7.40	9.38	5.07	7.31	9.01	3.10		5.46
Sep	6.81	6.26	5.27	5.18	4.57	3.58	4.77	5.98			2.09
Oct	4.92	4.52	3.73	3.73	0.71	2.76	2.87	3.98			0.99
Nov	2.69	2.48	1.97	2.04		1.51	0.88	2.00			0.31
Dec	1.07	0.98	0.75	0.82		0.61		0.75		0.18	
Total[4]	69.77	64.00	53.73	52.89	35.55	37.58	43.01	61.75	22.88	17.94[5]	31.38
Percent of Normal	109.3	108.9	108.9	109.0	110.9	108.8	109.4	109.3	110.5	101.9	110.4

[1]Observed evaporation from Class "A" Pan at Bakersfield 10NW agroclimatic station. Located in Section 18D, T28S, R27E, MDB&M (irrigated pasture).
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moisture stress (Jensen-Haise Alfalfa Reference Crop). Estimates as 0.92 x Pan Evaporation.
[3]Potential ET of grass. ET of a large expanse of low growing grass at 100-percent ground cover with no moisture stress Penman Grass Reference Crop). Estimates based upon 1986 observed evaporation and crop coefficients from Table 2, Department of Water Resources, San Joaquin District report, "Crop Water Use, A Guide for Scheduling Irrigations in the Southern San Joaquin Valley, 1977-79," September 1980.
[4]Growing season totals.
[5]Growing season total includes 0.09 inch from December 1985 and excludes 0.18 inch from December 1986.

TABLE B-12

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1987
(inches)

Month	Evaporation[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Dry Beans	Small Grains	Vineyard
							Clean Cultivation	With Cover Crop			
Jan	1.48	1.36	1.07	1.15		0.91		1.08		0.65	
Feb	2.37	2.19	1.78	1.81		1.40		1.79		1.82	
Mar	4.41[4]	4.06	3.38	3.36		2.50	2.05	3.51		4.19	0.12
Apr	7.34[4]	6.75	5.75	5.59	0.57	4.10	4.15	6.34		6.93	1.36
May	9.14	8.41	7.13	6.95	1.90	5.08	6.02	8.37	2.85	6.38	4.39
Jun	10.26	9.44	8.01	7.80	6.17	5.37	7.44	9.64	9.14	0.63	6.42
Jul	9.72	8.94	7.55	7.40	9.33	5.07	7.30	9.17	7.72		6.40
Aug	9.70[4]	9.16	7.78	7.58	9.65	5.18	7.48	9.28	1.53		6.48
Sep	7.23[4]	6.39	5.39	5.28	4.65	3.63	5.37	6.16			3.26
Oct	4.92[4]	4.54	3.71	3.73	0.13	2.75	3.02	4.05			1.19
Nov	1.96	1.81	1.45	1.49		1.10	0.59	1.47			0.25
Dec	1.91	1.76	1.34	1.45		1.07		1.35		0.24	
Total[5]	70.44	64.81	54.34	53.59	32.40	38.16	43.42	62.21	21.24	20.78[6]	29.87
Percent of Normal	110.3	110.3	110.2	110.4	106.9	110.5	109.9	110.1	103.0	113.9	107.9

[1]Observed evaporation Class "A" pan at Bakersfield 10NW agroclimatic station (irrigated pasture).
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover and no moisture stress (Jensen-Haise alfalfa reference crop). Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass. ET of large expanse of low-growing grass at 100-percent ground cover and no moisture stress (Penman grass reference crop).
[4]Observed evaporation (Ep) adjusted to compensate for non-standard pasture conditions.
[5]Growing season totals.
[6]Growing season total includes 0.18 inch ET from December 1986 and excludes 0.24 from December 1987.

TABLE B-13

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1988
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Dry Beans	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.50	1.37	1.09	1.13		0.91		1.09		0.56	
Feb	3.07	2.81	2.31	2.33		1.79		2.29		2.20	
Mar	5.31	4.89	4.09	4.03		2.99	2.27	4.28		4.99	0.14
Apr	5.77	5.31	4.48	4.39	0.49	3.22	3.15	5.00		5.52	1.15
May	8.28	7.62	6.46	6.29	1.61	4.59	5.38	7.62	0.92	3.67	4.17
Jun	9.40	8.64	7.32	7.13	5.75	4.91	6.71	8.83	7.23		5.94
Jul	11.13	10.23	8.69	8.46	10.70	5.79	8.35	10.51	9.81		7.34
Aug	8.85	8.14	6.90	6.72	8.67	4.60	6.64	8.21	3.51		5.71
Sep	6.90	6.35	5.35	5.25	4.95	3.61	4.89	6.10			3.18
Oct	4.70	4.32	3.57	3.58	0.46	2.62	2.83	3.84			1.06
Nov	2.34	2.16	1.72	1.77		1.31	0.99	1.76			0.35
Dec	1.32	1.20	0.94	1.01		0.75		0.94		0.18	
Total[4]	68.57[5]	63.04	52.92	52.09	32.63	37.09	41.21	60.47	21.47	17.18[6]	29.04
Percent of Normal	107.4	107.2	107.3	107.5	105.8	107.5	105.9	107.0	105.1	108.6	104.6

[1]Observed evaporation from Class "A" pan at Bakersfield 10NW agroclimatic station. Located in Section 18D, T28S, R27E, MDB&M (irrgated pasture).

[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moisture stress (Jensen-Haise alfalfa reference crop). Estimated as 0.92 x pan evaporation.

[3]Potential ET of grass. ET of large expanse of low-growing grass at 100-percent ground cover with no moisture stress (Penman grass reference crop). Estimates based upon 1986 observed evaporation and crop coefficients from Table 2, Department of Water Resources, San Joaquin District report, "Crop Water Use, A Guide for Scheduling in the Southern San Joaquin."

[4]Growing season totals.

[5]Evaporation adjusted for various weeks to compensate for non-standard pasture conditions in the months of February and March, May through November.

[6]Growing season total includes 0.18 inch ET from December 1987 and excludes 0.18 inch ET from December 1988.

TABLE B-14

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1989
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Dry Beans	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.35	1.24	0.99	1.04		0.81		0.98		0.55	
Feb	2.49	2.29	1.87	1.90		1.48		1.87		1.72	
Mar	4.24	3.90	3.26	3.23		2.39	1.76	3.41		3.99	0.13
Apr	6.87	6.31	5.34	5.22	0.61	3.84	3.79	5.97		6.54	1.46
May	8.30	7.63	6.47	6.31	2.03	4.59	5.42	7.64	1.01	5.97	4.21
Jun	9.53	8.78	7.45	7.26	6.20	5.00	6.85	8.97	7.53	0.18	6.05
Jul	9.93	9.12	7.72	7.53	9.69	5.14	7.44	9.35	8.68		6.55
Aug	9.01	8.29	7.03	6.83	8.65	4.68	6.75	8.36	3.47		5.94
Sep	6.21	5.71	4.81	4.72	3.99	3.27	4.41	5.48			3.54
Oct	4.82	4.44	3.64	3.66	0.35	2.70	2.85	3.92			1.46
Nov	2.43	2.24	1.79	1.84		1.35	0.86	1.81			0.28
Dec	1.24	1.14	0.87	0.93		0.69		0.87		0.18	
Total[4]	66.42	61.09	51.24	50.47	31.52	35.94	40.13	58.63	20.69	19.12[5]	29.62
Percent of Normal	104.0	104.0	103.9	103.9	101.2	104.2	102.8	103.8	99.8	106.3	101.7

[1]Adjusted evaporation from Class "A" Pan at Bakersfield 10NW Agroclimatic Station (irrigated pasture).
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moisture stress (Jensen-Haise Alfalfa Reference Crop). Estimates as 0.92 x Pan Evaporation.
[3]Potential ET of grass. ET of a large expanse of low-growing grass at 100-percent ground cover with no moisture stress (Penman Grass Reference Crop).
[4]Growing season totals.
[5]Growing season total includes 0.18 inch from December 1988 and excludes 0.18 inch from December 1989.

TABLE B-15

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1990
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Dry Beans	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.53	1.40	1.10	1.17		0.92		1.10		0.58	
Feb	2.21	2.01	1.66	1.67		1.28		1.66		1.60	
Mar	4.33	3.98	3.35	3.30		2.45	1.60	3.53		4.12	0.15
Apr	5.93	5.45	4.61	4.50	0.54	3.33	3.17	5.18		5.65	1.38
May	7.84	7.21	6.11	5.96	1.85	4.35	4.93	7.21	0.93	5.87	3.92
Jun	8.91	8.18	6.94	6.76	5.73	4.64	6.22	8.36	7.13		5.63
Jul	10.08	9.29	7.88	7.67	9.91	5.24	7.56	9.53	8.83		6.65
Aug	8.05	7.42	6.28	6.12	7.67	4.19	6.04	7.46	2.92		5.16
Sep	6.51	5.99	5.04	4.95	4.06	3.42	4.72	5.73			2.87
Oct	4.84	4.45	3.66	3.67	0.41	2.71	3.03	3.94			1.06
Nov	2.42	2.22	1.75	1.85		1.35	0.98	1.81			0.31
Dec	1.22	1.12	0.86	0.93		0.70		0.73		0.13	
Total[4]	63.87	58.72	49.24	48.55	30.17	34.58	38.25	56.24	19.81	18.00[5]	27.13
Percent of Normal	100.0	99.9	99.8	100.5	97.5	100.8	99.5	100.1	96.1	100.5	97.6

[1]Observed evaporation from Class "A" pan: 1/1/90 – 5/3/90, Bakersfield 10NW; 5/4/90 – 12/31/90, average of Bakersfield 12S and Lamont 2NW.
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moisture stress (Jensen-Haise alfalfa reference crop). Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass. ET of large expanse of low-growing grass at 100-percent ground cover with no moisture stress (Penman grass reference crop). [4]Growing season totals.
[5]Growing season total includes 0.18 inch ET from December 1989 and excludes 0.13 inch ET from December 1990.

TABLE B-16

MONTHLY OBSERVED EVAPORATION AND
CALCULATED EVAPOTRANSPIRATION FOR SEVERAL CROPS
SOUTHERN SAN JOAQUIN VALLEY
1991
(inches)

Month	Evapo-ration[1]	ETP[2]	PET[3]	Alfalfa (Hay)	Cotton	Citrus	Deciduous Orchard		Dry Beans	Small Grains	Vineyard
							Clean Culti-vation	With Cover Crop			
Jan	1.42	1.31	1.05	1.08		0.85		1.05		0.50	
Feb	2.47	2.27	1.85	1.88		1.44		1.85		1.65	
Mar	3.75	3.46	2.89	2.86		2.11	1.73	3.06		3.46	
Apr	5.90	5.43	4.60	4.50	0.38	3.31	3.32	5.18		5.67	0.71
May	8.91	7.53	6.40	6.23	1.56	4.51	5.39	7.56	1.28	6.51	3.09
Jun	9.21	8.50	7.23	7.03	4.00	4.83	6.66	8.71	7.55	1.97	4.86
Jul	9.99	9.18	7.78	7.62	9.05	5.20	7.49	9.42	8.67		6.43
Aug	8.36	7.67	6.52	6.35	8.21	4.33	6.25	7.72	2.79		5.50
Sep	7.18	6.60	5.54	5.45	5.24	3.78	5.00	6.28			4.13
Oct	4.69	4.32	3.54	3.56	0.26	2.62	2.78	3.79			1.40
Nov	2.36	2.12	1.69	1.75		1.28	0.69	1.69			0.24
Dec	1.45	1.36	1.05	1.13		0.86		1.05		0.25	
Total[4]	64.97	59.75	50.14	49.44	28.70	35.12	39.31	57.36	20.29	19.89[5]	26.36
Percent of Normal	101.7	101.7	101.6	101.9	102.4	102.5	100.6	101.9	98.0	99.0	101.6

[1]Observed evaporation from Class "A" pan: 1/1/90 – 5/3/90, Bakersfield 10NW; 5/4/90 – 12/31/90, average of Bakersfield 12S and Lamont 2NW.
[2]Potential ET of alfalfa. ET of vigorously growing alfalfa at 100-percent ground cover with no moisture stress (Jensen-Haise alfalfa reference crop). Estimated as 0.92 x pan evaporation.
[3]Potential ET of grass. ET of large expanse of low-growing grass at 100-percent ground cover with no moisture stress (Penman grass reference crop).
[4]Growing season totals.
[5]Growing season total includes 0.13 inch ET from December 1990 and excludes 0.25 inch ET from December 1991.