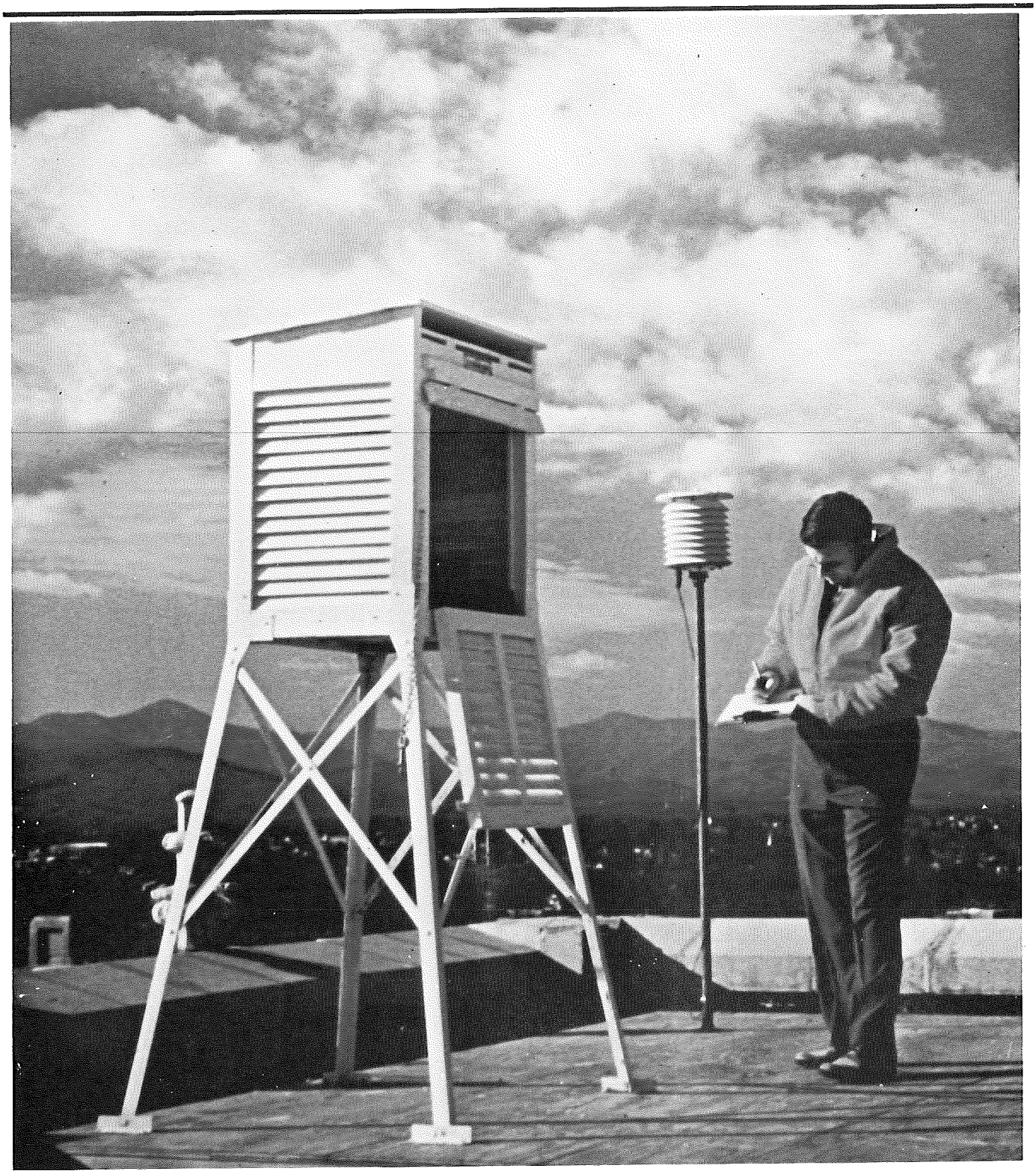
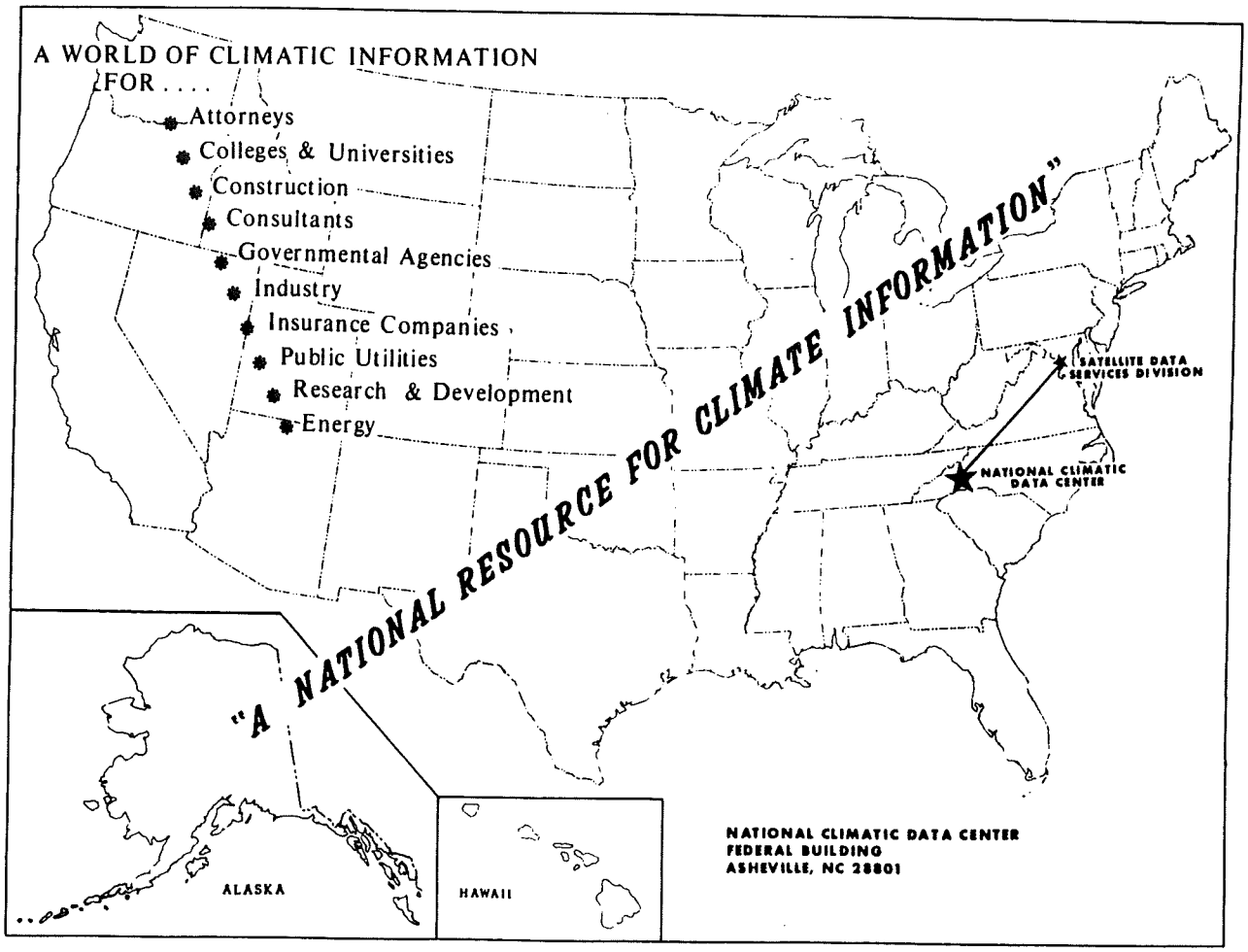
ENVIRONMENTAL INFORMATION SUMMARIES C-11

COOPERATIVE OBSERVERS CLIMATOLOGICAL OBSERVATIONS





noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE / NATIONAL CLIMATIC DATA CENTER ASHEVILLE, N.C.

The Cooperative Observers Climatological Network was created in 1890. The program is currently administered by the National Weather Service, a line office of the National Oceanic and Atmospheric Administration, an agency within the Department of Commerce. One of the responsibilities of the National Weather Service is to take meteorological observations which are used to record the climate conditions of the United States. The National Weather Service relies heavily on a vast network of cooperative weather observer volunteers to achieve this objective.

The National Weather Service determines where weather observations are needed and furnishes standard meteorological instruments to individuals who volunteer their time to take and record daily observations of the weather. Today there are about 8000 volunteer observing stations located in the United States and its territories. In addition to the thousands of cooperative observation stations operated by individuals, many are maintained by institutions and commercial firms (universities, utility companies, etc.). All cooperative observers submit a monthly report summarizing daily weather observations. Their contribution to the climate record of the United States is invaluable.

The majority of cooperative observers use a standard form (B-91) to manually record daily maximum and minimum temperatures and/or precipitation. Some cooperative stations also record daily river stages, evaporation, soil temperatures, and wind speed and direction. Each station's completed monthly observation form is mailed to the National Climatic Data Center in Asheville, North Carolina. The National Climatic Data Center transcribes the 8000 monthly handwritten paper (B-91) forms into a digitall format. The Center quality controls, processes, publishes, and archives this data. For an explanation of entries on form B-91, please refer to the National Climatic Data Center decoding sheet entitled "Entries on Form B-91".

Table 1: Example of Cooperative Weather Record (Form B-91)

WS FORM B-91 (7-89) — NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE, NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

STATION: S A M P L E
MONTH: 19__
STATE:
COUNTY:
RIVER: —
TIME (local) OF OBSERVATION RIVER: — | TEMP.: 24M | PRECIPITATION: 24M
STANDARD TIME IN USE: E
TYPE OF RIVER GAGE: —
ELEVATION OF RIVER GAGE ZERO: — Ft.
FLOOD STAGE: — Ft.
NORMAL POOL STAGE: — Ft.

Date	Temp. Max.	Temp. Min.	Temp. at Obsn (24)	Precip. 24-hr amount	Snow 24-hr amount	Snow at Ob.	Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	River Stage	Remarks
1	40	18	23	0.00	0.0	3								MAR. 4, 1200-1800: ENE Winds gusting 50-60 MPH.
2	49	21	35	0.00	0.0	2								MAR. 4, 1400-2400: Flooding of Streams + creeks
3	47	33	38	0.00	0.0	1								MAR. 5, 0430-0805: Hvy Fog.
4	41	32	38	2.67	T	T		X				X		MAR. 5: AM Min. at 33° @ 1135. PM Max of 35° @ 1500
5	38	31	31	0.24	0.4	T	X	X						MAR. 8, 1500-1530: Lgt. Thundershower.
6	39	28	39	0.06	0.6	T								MAR. 11: AM Min. Temp of 30° @ 0507.
7	50	24	35	0.00	0.0	T								MAR. 13: Temp dropped from 33° @ 0001 to 25° @
8	55	29	36	0.09	0.0	T				X				1504, rose to 31° @ 1902 then dropped to 18° @
9	45	34	35	0.00	0.0	0								2400. Barometric Pressure @
10	36	25	32	0.06	0.2	T		X						2100 was 28.45". Thunder @
11	37	29	29	T	T	0								1304. ENE Winds gusted to 50-
12	41	30	33	0.00	0.0	0								60 MPH from 1200-1330. Peak
13	33	18	18	2.51	15.2	15		X		X		X		gust 65 MPH @ 1305. The 15.2"
14	23	13	13	0.07	0.9	15								Snow included 1.5" of sleet
15	29	1	13	0.00	0.0	14								that fell between 1200 + 1445
16	43	8	39	T	0.0	12								MAR. 14: AM Min. at 14° @ 0728.
17	46	22	22	1.44	0.9	8	X							Drifting Snow Continued as
18	28	11	14	0.00	0.0	8								N-W winds gusted to 40 all day.
19	31	7	23	0.00	0.0	7								Mar. 17: AM Min of 37° @ 0304
20	40	21	32	0.01	T	6		X						0745-1430: Fog in Varying degrees
21	46	30	31	0.28	0.8	5		X						+ with rapid changes in density
22	48	27	34	0.00	0.0	4								Mar. 23, 1700-2000: Lgt-Mod. FOG.
23	41	29	36	0.86	0.0	2	X							Mar. 24, 0030-0930: Lgt-Mod-Hvy FOG.
24	46	36	37	0.59	0.0	1	X							0300-1200: Minor flooding of Streams
25	48	30	30	0.00	0.0	T								Mar. 25: AM Min. at 36° @ 0438.
26	61	28	36	0.00	0.0	T	X							Mar. 26, 0330-0550: Dense FOG.
27	56	32	48	0.07	0.0	0	X							Mar. 27 0400-0705: Dense FOG.
28	55	48	51	0.18	0.0	0	X							Mar. 28, 2000-2400: Dense FOG.
29	54	49	50	0.54	0.0	0	X							Mar. 29 0000-0730: Dense FOG.
30	59	43	43	T	0.0	0								Mar. 30: AM Min. at 47° @ 0438.
31	65	37	45	0.08	0.0	0								
Sum				9.75	19.0									

OBSERVER: Joe Steiner
SUPERVISING OFFICE: RFC Harrisburg
STATION INDEX NO.: 36 1591 3

Note: All data shown in this example may not be available for all stations.

Processing observational data involves a thorough quality control of weather measurements using meteorologically accepted principles. Quality control specialists apply a series of error checks to the observed data. These checks look for disagreement between various elements such as snowfall reported with no meltwater equivalent reported for the same period, or inconsistencies in reported temperatures. Temperatures are examined by comparing each cooperative station to climatologically similar neighboring stations. The quality control specialist may edit the data; however, the originally observed values are not deleted. The edited values appear along with the original observed values in the final quality controlled data set.

Products Available at the National Climatic Data Center

* Copies of original observation forms in either paper copy or microfiche.

* Climatological Data: A monthly and annual publication with individual volumes issued for most states. Some states and United States territories with a small number of observation sites are grouped together under the same volume. These are: 1) New England 2) Maryland and Delaware 3) Hawaii and Pacific Islands 4) Puerto Rico and the Virgin Islands.

* Department of Commerce Certification: Upon request, copies of the B-91 form (or equivalent) and Climatological Data publications can be certified for legal proceedings under a Department of Commerce certification. (Please refer to Environmental Information Summaries C-1, "Weather Records in Private Litigation" for more details.)

* Climatological Data is also available in digital form on magnetic tape or diskette. (TD3200)

Monthly editions of Climatological Data contain station daily maximum and minimum temperatures and precipitation. Some stations provide daily snowfall, snow depth, evaporation, and soil temperature data. Each edition also contains monthly summaries for heating and cooling degree days (65 degree F base). The July issue contains a recap of monthly heating degree days and snow data for the preceding July through June monthly data. (The examples, below and on pages 3 and 4 are tables excerpted from the Climatological Data monthly publication.)

MONTHLY SUMMARIZED STATION AND DIVISIONAL DATA — MINNESOTA MARCH 1993

STATION	TEMPERATURE (°F)												PRECIPITATION (IN)								
										NO. OF DAYS							SNOW, SLEET			NO. OF DAYS	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEGREE DAYS	COOLING DEGREE DAYS	MAX 90 OR ABOVE	MIN 32 OR BELOW	MIN 0 OR BELOW	TOTAL	DEPARTURE FROM NORMAL	GREATEST DAY	DATE	TOTAL	MAX. DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
MINNESOTA																							
NORTHWEST 01																							
ADA																							
AGASSIZ REFUGE	34.9	14.0	24.9	1.6	57	30	-15	13	1238	0	0	13	29	6	.28	-.52	.10	10	3.7	16	2+	1	0	0
ARGYLE 4 E	34.4	12.5	23.5	2.0	54	28	-14	18	1284	0	0	11	30	7	.29	-.68	.24	10	2.4	7	1	1	0	0
CROOKSTON NW EXP STN	31.4	12.2	21.8	-.8	52	30+	-20	13	1332	0	0	12	30	8	.33		.15	10	7.0	7	19+	2	0	0
FOSSTON 1 E	32.5	10.4	21.5	-1.6	60	29	-28	14+	1348	0	0	16	29	9	.19		.19	31	4.0	10	1	1	0	0
GEORGETOWN 1 E	34.4	14.8	24.6	-1.9	56	28+	-17	13	1244	0	0	12	27	7	.84	-.12	.36	10	6.5	7	10	3	0	0
HALLOCK	M	M	M																M					
ITASCA UNIV OF MINNESO	36.4	9.5	23.0	-.1	62	30	-24	13	1297	0	0	13	31	11	.83	-.61			M 7.0	15	1	2	0	0
KARLSTAD	M	M	M																M					
MAHNOMEN 1 W	35.8	14.4	25.1	.0	60	29	-22	11	1230	0	0	13	29	7	.46	-.71			M 5.0	10	19+	0	0	0
MOORHEAD	34.8	16.6	25.7		56	27	-14	13	1210	0	0	12	26	5	.97		.55	10	5.5	10	12+	2	1	0
OKLEE	32.6	10.8	21.7	-2.2	58	30+	-22	13	1336	0	0	14	30	9	.45		.22	10	3.0	M		3	0	0
RED LAKE FALLS	35.0	16.3	25.7	1.0	56	27	-18	17+	1217	0	0	9	26	6	.34	-.58	.15	9	5.4	13	13+	1	0	0
ROSEAU 1 E	32.3	10.7	21.5	2.1	58	29	-21	13	1343	0	0	12	30	10	.29	-.41	.22	15	3.9	17	1	1	0	0
TAMARAC WILDLIFE REF	36.7	14.6	25.7		59	29	-23	13	1213	0	0	13	29	6	.49		.32	10	5.5	M		1	0	0
THIEF RIVER FALLS 2	M	M	M																M					
WARROAD	33.2	12.5	22.9	3.0	59	29	-15	17	1302	0	0	13	28	10	.15	-.66	.10	16	M 1.5	M		1	0	0
--DIVISIONAL DATA------->			23.7	.0											.44	-.52			4.3					
NORTH CENTRAL 02																								
BAUDETTE	39.4	14.5	27.0	3.9	59	28	-12	13	1174	0	0	10	28	7	.04	-.76	.03	7	.5	M		0	0	0
BEMIDJI	36.0	12.2	24.1	1.9	62	30	-20	17	1265	0	0	13	28	8	.88	-.02	.39	31	5.0	11	17+	3	0	0
BIG FALLS	41.2	M	M		65	29	-17	13				11	16	3	.46				M			1	0	0
BLACKDUCK	36.5	12.7	24.6		61	30	-18	13	1245	0	0	13	26	8	.12		.08	10	1.4	13	1	0	0	0
CASS LAKE	37.1	12.4	24.8	1.7	61	30	-23	13	1243	0	0	12	27	10	.79	-.39	.30	31+	4.6	M		3	0	0
DEEP PORTAGE	37.4	13.8	25.6		61	30	-20	13	1214	0	0	13	29	6	.35		.33	10	4.3	17	2+	1	0	0
GRAND RAPIDS FORESTRY	40.0	14.5	27.3	2.3	62	30	-16	13	1162	0	0	10	27	8	.95	-.36	.36	31	4.7	15	1	4	0	0
GULL LAKE DAM	35.4	12.3	23.9	-1.0	58	30	-17	13	1270	0	0	13	31	7	1.10	-.42	.46	31	7.8	16	19+	3	0	0
INTERNL FALLS WSO ARPT	36.9	14.0	25.5	3.4	60	29+	-19	14	1221	0	0	12	31	7	.32	-.74	.06	19	6.8	9	21+	0	0	0
KELLIHER	35.6	13.4	24.5	1.6	61	29	-16	17+	1249	0	0	12	26	9	.29	-.83	.11	31+	M .3	14	5	2	0	0
LEECH LAKE DAM	40.8	14.5	27.7	.8	63	29	-18	13	1149	0	0	11	30	6	1.11	-.02	.53	31	M 4.0	M		3	1	0
MARCELL 5 NE	36.4	11.3	23.9	2.0	59	30+	-19	14+	1273	0	0	12	31	8	.82	-.38	.32	31	6.3	14	2+	4	0	0
PARK RAPIDS 2 S	38.0	13.0	25.5	-.9	61	29	-27	13	1219	0	0	11	29	7	.67	-.55	.28	30	5.1	11	11+	3	0	0
POKEGAMA DAM	M	M	M		64	30	-12	17				07	13	4	.80	-.51	.34	31	M 2.7	10	1	3	0	0
RED LAKE INDIAN AGENCY	38.2	14.1	26.2	3.8	64	29	-12	11	1198	0	0	11	28	6	.10		.10	31	M 1.1	14	1	1	0	0
REMER NO 2	M	14.4M	M		63	30	-18	17				07	22	4	1.05		.51	31	M 4.0	12	2+	3	1	0
THORHULT 1 S	37.6	14.6	26.1	3.0	61	28	-20	13	1199	0	0	10	28	6	.00		.00	31+	1.0	13	1	0	0	0
WALKER AH GWAH CHING	36.1	16.2	26.2	-.2	58	29+	-13	13	1199	0	0	14	26	7	.45		.32	9	M 6.1	10	16+	1	0	0
WASKISH 4 NE	37.4	12.6	25.0	1.0	64	29	-20	13	1233	0	0	12	29	9	.11		.05	7	M 2.3	11	7	0	0	0
WINNIBIGOSHISH DAM	M	M	M												.88	-.44	.33	31	3.0	16	12+	4	0	0
--DIVISIONAL DATA------->			25.5	.9											.72	-.43			4.3					

Table 3: Daily Temperature Extremes Data (most stations)

DAILY TEMPERATURES (°F)

ALABAMA
FEBRUARY 1993

STATION	OB. TIME	MAX/MIN	DAY OF MONTH 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
HALEYVILLE 2 ENE	07	MAX	59	55	56	57	57	58	61	60	64	67	55	52	46	40	48	52	44	33	31	37	58	72	50	51	42	48	38	46				51.3
		MIN	23	28	32	30	34	36	37	30	30	31	49	45	38	29	29	35	30	17	15	17	33	33	26	24	25	37	32	27				30.4
		OBS	36									44										27												
HAMILTON 3 S	07	MAX	62	60	61	62	63	62	66	68	70	74	65	56	48	45	52	56	51	36	34	41	62	76	55	51	45	52	44	49				55.9
		MIN	16	25	21	21	22	22	28	25	25	26	46	43	41	25	25	34	32	20	12	12	35	30	20	20	20	36	29	24				26.3
		OBS											30																					
JASPER	06	MAX	62	58	58	58	60	60	65	66	67	70	60	55	52	45	53	56	51	39	35	40	60	76	55	53	48	52	44	47				55.2
		MIN	20	30	26	25	26	28	40	30	30	30	47	43	42	27	27	37	33	28	15	15	35	34	24	24	24	36	30	26				29.7
		OBS											30																					
THORSBY EXPERIMENT STN	07	MAX	61	62	61	58	62	64	57	52	68	69	57	56	49	52	57	57	59	45	40	43	58	68	59	57	48	54	47	50				56.1
		OBS																							70									
		MIN	34	33	29	30	32	35	43	32	37	36	49	47	41	30	30	39	30	30	19	19	40	38	32	30	30	40	30	30				33.8
TUSCALOOSA FAA AIRPORT	10	MAX	65	65	59	64	63	58	68	71	73	61	63	63	50	56	60	56	44	40	42	62	76	59	57	50	57	49	53	55				58.5
		MIN	32	32	27	29	29	45	37	32	31	51	54	46	36	31	37	37	32	25	20	39	53	36	27	31	43	34	33	31				39.4
VERNON 2 N	07	MAX	62	60	58	58	63	60	64	69	68	70	63	56	47	47	53	57	51	39	35	40	62	77	53	53	45	53	42	48				55.3
		MIN	17	25	23	23	23	27	35	26	27	28	50	41	41	25	26	39	32	22	13	18	35	30	20	21	22	41	29	23				27.9
WINFIELD 2 SW	07	MAX	61	60	60	58	63	61	66	66	69	71	61	57	45	41	53	58	51	38	36	40	62	75	55	53	46	53	44	50				55.6
		MIN	22	28	23	24	24	25	36	28	27	27	47	42	39	24	28	39	30	20	12	15	33	31	20	21	22	37	27	25				27.6

Table 4: Daily Precipitation Data (all stations)

DAILY PRECIPITATION (INCHES)

ALABAMA
FEBRUARY 1993

STATION	TOTAL	DAY OF MONTH 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
PIEDMONT PLATEAU 05																																
ALEXANDER CITY	4.33								1.02			.32	.05	.03			.42					.12	.06				.72					
ASHLAND 3 ENE	4.00								.55			.42	.77				1.02				.01	.32	.05				.45					
AUBURN AGRICULTURAL FARM	3.95							.11	.91			.10	1.04				.95	.03			.01	.06	.36				.47	.01				
CAMP HILL 2 NW	4.18							T	.92			.05	.03	T			.96	T			T	.06	.69				.63	T				
DADEVILLE 2	4.07								.98			.79					1.12						1.91				.67					
HEFLIN	3.84								.17			.15	.58	.02			.93				.52	.23	.12				.32					
HIGHTOWER	4.90								2.00				.88				.81					.40	.45				.36					
OPELIKA	M .98			.33	T			-	T				.11	T			-				T	.31				.16	.04	.33				
NEWPORT	3.79						.02		.80			.05	.78	T			1.05	.02			T	.05	.05				.57					
PRAIRIE 06																																
DEMOPOLIS LOCK AND DAM	3.63						.03	.17				.32	.65	T			1.98	.03				.02	.20				.31	T				
GAINESVILLE LOCK	4.93						.02	.05				.60	.60				3.08	.03				.07	.09				.30	.03				
GREENSBORO	6.12						.09					.58	.36				1.76					.63			.12	.22						
JONES BLUFF LOCK & DAM	5.72							.18	.78			.19	1.09				1.88	.04				.69	.13				.38					
LIVINGSTON 2 SW	2.99						T	.34				T	.03			T	1.23					.21					.38					
MARION 7 NE	4.91						.01	.01				.54	.72				2.24					.13	.97				.32					
MARION JUNCTION 2 NE	2.99						.01	.06			.01	.50	.09	.02			1.19	.02				.18	.10				.21					
MILLSTEAD	4.68						.07	.32	.79			.14	1.58				.86	.01				.18	.19				.54					
MONTGOMERY WSO AMP	M 4.45						.09	1.23				.91	.21	T			.92			T	T	.88	.36			.65	T					
NOANDVILLE	3.59											.98	.33				2.20					.17	.14				.20					
PERRYVILLE	3.75							.15				.50	.86				1.27					.10	.62				.25					

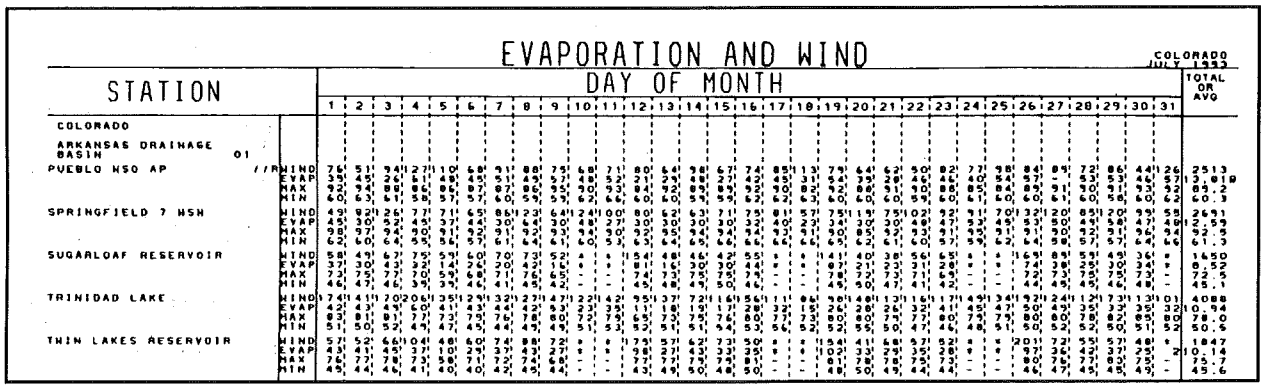
Table 5: Daily Snowfall and Snow Depth Data (some stations)

SNOWFALL AND SNOW ON GROUND (INCHES)

NEW YORK
FEBRUARY 1993

STATION		DAY OF MONTH 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
CLARYVILLE	SNOWFALL	1.0	T		T	T	T							4.0	1.0		1.0	6.5	5	T			4.5		.8							
	SN ON GND	6	6	-	4	4	3	3	3	3	3	3	3	7	7	6	5	11	9	9	9	8	12	11	12	11	11	11	10			
COBLESKILL 2 ESE	SNOWFALL	T			T		T							5.0	1.1		T	4.0	T				3.5	2.0	T	T						
	SN ON GND	3	3	3	3	3	3	3	3	3	3	3	3	8	8	8	7	11	11	10	9	9	14	16	16	13	12	12	12			
COOPERSTOWN	SNOWFALL	2.8			1.9		.3		.2					5.6	3.8	T	.2	10.7	T				6.8	1.7	1.5	.3						
	SN ON GND	11	11	10	10	9	8	8	7	6	6	5	5	10	12	11	10	18	16	16	16	16	21	19	19	19	18	18	17			
CORTLAND	SNOWFALL	4.0	T		3.0				T		T			6.0	4.0	T	4.0	7.0	3.0	T			4.0	2.0	1.0	1.0						
	SN ON GND	8	8	6	7	7	5	5	5	4	4	4	4	10	13	9	11	16	16	15	14	13	14	15	15	15	15	15	14			
DELHI 2 SE	SNOWFALL	1.0	T		1.0			T					5.0	4.0			.8	9.0	4	T			4.0	3	1.0	.2						
	SN ON GND	3	3	3	3	2	2	2	2	2	1			5	9	7	7	12	11	11	11	11	14	12	13	13	12	12	12			
EAST JEWETT	SNOWFALL	1.0			1.0								8.0	2.0				9.0					7.0		2.0							
	SN ON GND	2	-	-	2	-	-	-	-	-	-	-	9	8	-	-	3	-	-	-	-	-	12	-	13	-	-	-	12			
ESPERANCE 2 N	SNOWFALL	-											6.5	2.0			.5	-					6.0	3.0	1.5							
	SN ON GND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
FISHS EDDY	SNOWFALL	T	T		T	T	T	T	3	.6	.4			6.1	1.3	T	1.3	5.8	2	4	T	T	3.0	T	T				T			

Table 6: Daily Evaporation Data (selected stations)

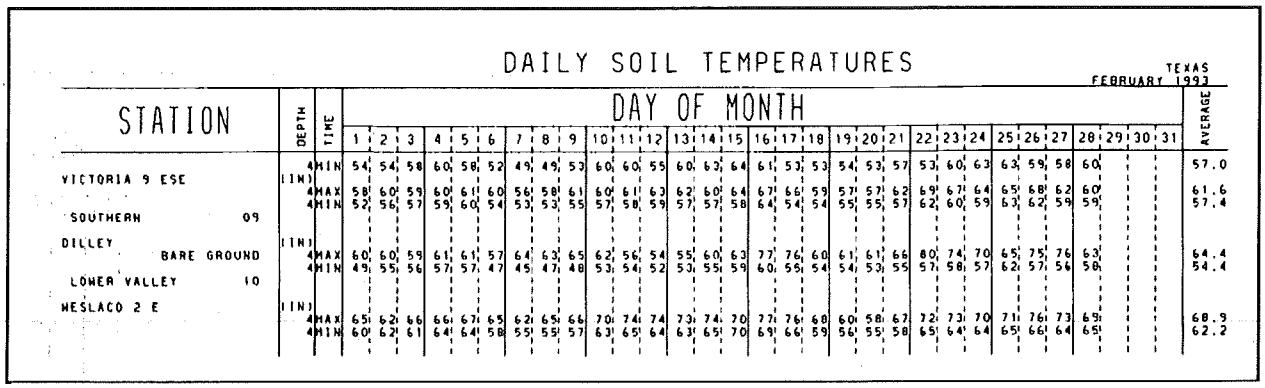


EVAPORATION AND WIND

COLORADO
JULY 1993

STATION		DAY OF MONTH 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL OR AVG
COLORADO																																	
ARKANSAS DRAINAGE BASIN	01																																
PUEBLO NSO AP	//R	WIND	76	51	94	27	110	68	91	88	75	68	71	80	64	98	67	74	85	113	79	64	62	50	82	77	98	84	89	72	86	44	2513
		EVAP	35	45	26	61	48	45	51	49	57	48	52	21	29	48	27	42	45	31	54	39	28	46	46	40	54	57	-	53	53	46	13.818
		MAX	93	94	88	95	85	87	87	95	95	90	94	80	90	89	89	93	90	88	94	80	91	90	88	85	84	89	91	90	91	93	88.2
		MIN	60	63	61	58	57	57	60	59	59	62	64	60	60	59	59	57	60	60	60	60	59	60	61	60	60	61	60	58	60	62	60.3
SPRINGFIELD 7 NSW		WIND	49	92	26	77	71	65	86	123	64	124	100	80	62	63	71	75	81	57	75	119	75	102	92	91	70	132	120	85	120	99	58	2691
		EVAP	45	30	52	45	37	44	30	64	30	48	27	30	30	30	30	32	40	22	34	30	30	48	47	53	45	53	50	43	58	47	48	12.59
		MAX	98	97	94	90	91	92	91	94	93	90	90	93	95	94	94	94	92	94	90	85	97	93	97	95	93	94	90	92	97	96	94	92.5
		MIN	62	60	64	55	56	57	61	64	60	53	63	64	65	66	66	66	66	64	65	61	60	57	59	63	64	59	57	57	64	66	61.3
SUGARLOAF RESERVOIR		WIND	58	49	67	75	59	60	70	73	52	4	4	81	46	30	30	44	46	42	55	4	4	141	40	38	56	65	4	4	165	85	53	49	36	4	1650
		EVAP	37	30	43	32	14	26	20	42	16	*	*	11	16	30	30	44	*	*	*	67	21	23	31	20	*	*	*	74	38	25	30	34	*	852
		MAX	72	75	77	70	59	68	71	78	65	-	-	74	78	79	79	74	-	-	-	78	79	77	77	71	64	-	-	72	73	75	75	73	-	725
		MIN	46	47	46	39	39	43	41	42	-	-	-	48	48	49	50	48	-	-	-	48	50	49	49	48	48	-	-	48	47	48	48	49	-	481
TRINIDAD LAKE		WIND	174	111	70	206	135	125	132	127	147	122	142	95	137	72	116	156	111	86	160	148	133	116	171	145	141	92	124	123	133	130	101	4088
		EVAP	42	43	49	60	41	43	44	42	53	23	35	11	18	19	17	28	32	15	26	28	26	32	41	45	47	50	43	35	33	36	32	10.94
		MAX	83	80	81	77	73	79	76	78	80	77	79	65	77	79	76	80	77	73	80	80	79	77	80	79	77	80	80	78	82	85	80	78.0
		MIN	51	50	51	49	46	47	49	51	51	53	53	52	51	51	52	50	50	56	52	52	55	50	48	51	50	52	52	51	51	52	50.6
THIN LAKES RESERVOIR		WIND	57	52	66	104	48	60	74	84	72	4	4	71	57	62	73	57	62	54	118	141	68	97	52	4	4	201	72	52	53	48	4	1847
		EVAP	49	41	45	37	10	29	37	49	27	*	*	98	27	43	33	35	*	*	*	103	33	29	35	28	*	*	*	91	36	42	37	25	*	10.14
		MAX	76	72	78	73	58	71	75	74	68	-	-	77	77	79	79	81	-	-	-	81	78	78	75	73	-	-	-	80	76	77	80	75	-	75.7
		MIN	45	44	46	41	40	40	42	45	44	-	-	45	49	50	48	50	-	-	-	48	50	49	44	44	-	-	-	46	47	49	48	49	-	45.6

Table 7: Daily Soil Temperature Data (selected stations)

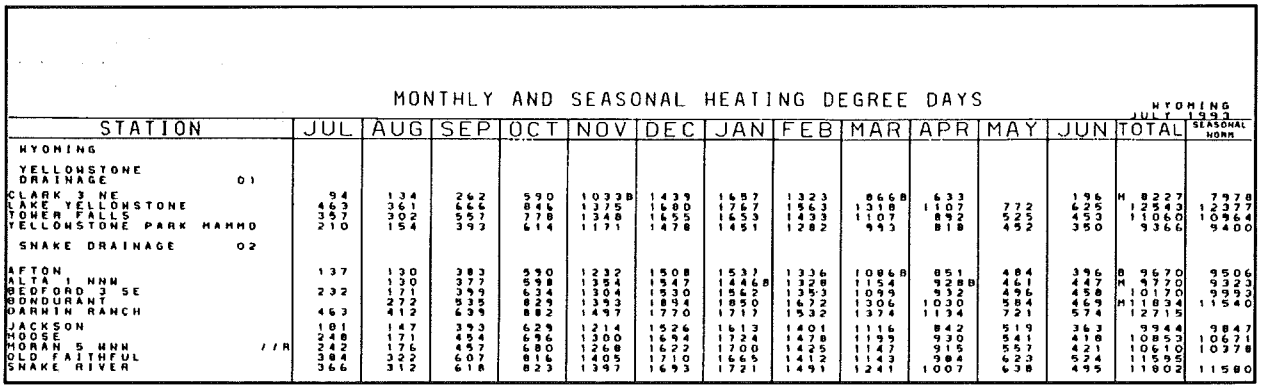


DAILY SOIL TEMPERATURES

TEXAS
FEBRUARY 1993

STATION	DEPTH	TIME	DAY OF MONTH 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
VICTORIA 9 ESE		4MIN	54	54	58	60	58	52	49	49	53	60	60	55	60	63	64	61	53	53	54	53	57	53	60	63	63	59	58	60				57.0
	[1IN]	4MAX	58	60	59	60	61	60	56	58	61	60	61	63	62	60	64	67	66	59	57	57	62	69	67	64	65	68	62	60				61.6
		4MIN	52	56	57	59	60	54	53	53	55	57	58	59	57	57	58	64	54	54	55	55	57	62	60	59	63	62	59	59				57.4
SOUTHERN	09																																	
DILLEY	[1IN]																																	
BARE GROUND		4MAX	60	60	59	61	61	57	64	63	65	62	56	54	55	60	63	77	76	60	61	61	66	80	74	70	65	75	76	63				64.4
		4MIN	49	55	56	57	57	47	45	47	48	53	54	52	53	55	59	60	56	54	54	53	55	57	58	57	62	57	56	58				54.4
LOWER VALLEY	10																																	
WESLACO 2 E	[1IN]																																	
		4MAX	65	62	66	66	67	65	62	65	66	70	74	74	73	74	70	77	76	68	60	58	67	72	73	70	71	76	73	69				68.9
		4MIN	60	62	61	64	64	58	55	55	57	63	65	64	63	65	70	69	66	59	56	55	58	65	64	64	65	66	64	65				62.2

Table 8: Monthly/Seasonal Heating Degree Days (most stations/July issue)

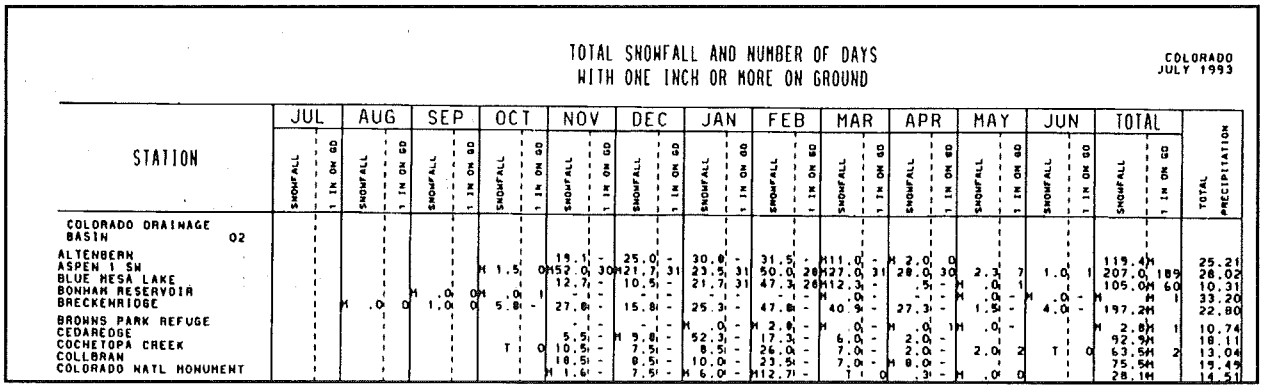


MONTHLY AND SEASONAL HEATING DEGREE DAYS

WYOMING
JULY 1993

STATION	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	SEASONAL NORM
WYOMING														
YELLOWSTONE DRAINAGE	01													
CLARK 3 NE	94	134	262	590	1033B	1439	1657	1323	866B	633		196	M 8227	7978
LAKE YELLOWSTONE	463	361	666	846	1375	1680	1767	1563	1318	1107	772	625	12543	12377
TOWER FALLS	357	302	557	778	1348	1655	1653	1433	1107	892	525	453	11060	10964
YELLOWSTONE PARK MAMMO	210	154	393	614	1171	1478	1451	1282	993	818	452	350	9366	9400
SNAKE DRAINAGE	02													
AFTON	137	130	383	590	1232	1508	1532	1336	1086B	851	484	396	B 9670	9506
ALTA 1 NNW		170	377	598	1354	1547	1646B	1328	1154	928B	461	447	M 9770	9323
BEDFORD 3 SE	232	171	399	634	1304	1530	1562	1353	1099	932	496	458	10170	9993
BONDURANT	272	235	529	829	1393	1894	1850	1632	1306	1030	584	469	M 11834	11540
DARWIN RANCH	463	412	639	882	1497	1770	1717	1532	1374	1134	721	574	12715	
JACKSON	101	147	393	629	1214	1526	1613	1401	1116	842	519	363	9944	9847
MOOSE	248	171	454	696	1300	1698	1724	1428	1139	930	541	418	10853	10671
MORAN 5 WNW	242	176	457	680	1268	1622	1700	1425	1147	915	557	421	10610	10378
OLD FAITHFUL	384	322	607	816	1405	1710	1665	1412	1143	984	623	524	11595	
SNAKE RIVER	366	312	618	823	1397	1693	1721	1491	1241	1007	638	495	11802	11580

Table 9: Monthly/Seasonal Snowfall Data (some stations/July issue)



TOTAL SNOWFALL AND NUMBER OF DAYS WITH ONE INCH OR MORE ON GROUND

COLORADO
JULY 1993

STATION	JUL SNOWFALL	JUL 1 IN ON GD	AUG SNOWFALL	AUG 1 IN ON GD	SEP SNOWFALL	SEP 1 IN ON GD	OCT SNOWFALL	OCT 1 IN ON GD	NOV SNOWFALL	NOV 1 IN ON GD	DEC SNOWFALL	DEC 1 IN ON GD	JAN SNOWFALL	JAN 1 IN ON GD	FEB SNOWFALL	FEB 1 IN ON GD	MAR SNOWFALL	MAR 1 IN ON GD	APR SNOWFALL	APR 1 IN ON GD	MAY SNOWFALL	MAY 1 IN ON GD	JUN SNOWFALL	JUN 1 IN ON GD	TOTAL SNOWFALL	TOTAL 1 IN ON GD	TOTAL PRECIPITATION
COLORADO DRAINAGE BASIN	02																										
ALTENBERN									19.1	-	25.0	-	30.0	-	31.5	-	M11.0	-	M 2.0	0					119.4M		25.21
ASPEN 1 SW							M 1.5	0	M52.0	30	M21.7	31	23.5	31	50.0	28	M27.0	31	28.0	30	2.3	7	1.0	1	207.0	189	28.02
BLUE MESA LAKE									12.7	-	10.5	-	21.7	31	47.3	28	M12.3	-	.5	-	M .0	1			105.0M	60	10.31
BONHAM RESERVOIR					M .0	1	M .0	1	-	-	-	-	-	-	-	-	-	-	-	-	M .0	-	M .0	-	M	1	33.20
BRECKENRIDGE		M .0	0	M 1.0	0	0	5.8	-	27.8	-	15.8	-	25.3	-	47.8	-	40.9	-	27.3	-	1.5	-	4.0	-	197.2M		22.80
BROWNS PARK REFUGE									-	-	-	-	M .0	-	M 2.8	-	M .0	1	M .0	1	M .0	-			M 2.8	1	10.74
CEDAREDGE									5.5	-	M 9.8	-	52.3	-	17.3	-	6.0	-	2.0	-					92.9M		18.11
COCHETOPA CREEK							T	0	10.5	-	7.5	-	8.5	-	26.0	-	7.0	-	2.0	-	2.0	2	T	0	63.5M	2	13.04
COLLBRAN									18.5	-	8.5	-	10.0	-	23.5	-	7.0	-	M 8.0	-					75.5M		19.49
COLORADO NATL MONUMENT									M 1.6	-	7.5	-	M 6.0	-	M12.7	-	T	0	.5	-	M .0	0			28.1M		14.51

The Climatological Data Annual issue contains monthly and annual averages of temperature, total precipitation, temperature extremes, freeze data, soil temperatures, evaporation, and a recap of monthly cooling degree days. (The tables below and on the following page are excerpts from the Climatological Data Annual publication.)

Table 10: Monthly Average Temperatures/Departures (most stations)

AVERAGE TEMPERATURES AND DEPARTURES FROM NORMAL (°F) — CALIFORNIA 1992

STATION	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		ANNUAL	
	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE	TEMPERATURE	DEPARTURE
NEEDLES FCWOS	52.9	1.0	60.1	3.0	62.8	.8	74.4	4.5	82.6	3.3	89.1	-.3	94.3	-1.6	95.2	1.8	89.4	2.6	77.2	2.7	58.9	-1.9	49.2	-3.6	73.8	1.0
PALMDALE	43.3	-2.1	51.3	2.2	53.2	.9	64.5	6.7	72.1	6.7	74.3	.5	79.6	-1.8	82.9	3.0	76.7	2.5	67.1	3.1	50.4	-2.0	41.9	-3.8	63.1	1.3
PALM SPRINGS	58.3	3.2	62.2	2.6	63.8	.7	76.5	7.3	82.0	5.6	86.8	2.3	91.7	.0	93.0	2.9	88.9	4.2	78.3	3.3	63.0	.0	52.6	-3.1	74.8	2.4
PARKER RESERVOIR	53.4	.2	61.2	3.0	63.3	.0	75.9	4.8	83.5	3.7	89.1	-.3	93.6	-2.0	93.3	-.5	90.0	1.5	77.9	.9	59.5	-3.3	50.2	-4.2	74.2	.3
PEARBLOSSOM	44.7		50.1		51.7		62.6		70.2		72.8		78.0		82.1		76.1		66.2		51.5		42.8		62.4	
RANDSBURG	44.9	.2	49.6	1.0	51.1	-.6	63.2	4.8	71.8	4.7	74.2	-2.5	80.0	-3.8	83.3	1.6	76.9	1.4	66.9	1.7	50.4	-2.4	40.6	-5.2	62.7	.1
THERMAL FAA AIRPORT	54.5	.4	61.6	2.8	63.5	.0	74.4	4.0	79.7	1.8	83.0	-2.1	89.5	-2.4	88.9	-1.5	82.7	-2.4	74.1	-.3	58.2	-3.8	49.5	-5.1	71.7	-.7
TRONA	45.9	.6	55.8	4.7	60.1	3.7	71.6	7.9	81.0	8.4	84.9	3.1	M		92.9	5.8	85.6	5.8	75.1	6.7	56.9	2.6	45.5	.3	M	
TWENTYNINE PALMS	48.5	-.5	55.2	1.6	58.0	.3	69.4	4.7	77.1	4.0	M82.8	.5	87.2	-1.5	88.3	1.6	82.6	2.3	71.4	2.0	54.7	-2.1	M44.9	-4.6	M68.3	.7
VICTORVILLE PUMP PLANT	42.7	-1.1	50.2	2.7	52.0	1.1	62.0	5.5	68.7	4.7	71.1	-1.3	76.2	-3.4	79.6	1.3	74.5	2.0	65.2	2.6	49.6	-1.6	41.1	-3.2	61.1	.8
WILDROSE RANGER STN	41.8		46.6		48.8		61.2		69.2		72.6		77.6		80.2		73.8		63.8		47.1		37.2		60.0	
--DIVISIONAL DATA-------->	47.1	.9	54.3	3.9	56.4	2.1	67.8	7.2	75.3	6.7	78.9	1.1	84.0	-.5	86.3	3.5	80.4	3.5	70.2	3.7	53.8	-.5	44.4	-2.7	66.6	2.4

Table 11: Total Precipitation/Departures (most stations)

TOTAL PRECIPITATION AND DEPARTURES FROM NORMAL (INCHES) — CALIFORNIA 1992

STATION	JUL		AUG		SEP		OCT		NOV		DEC		ANNUAL	
	PRECIP.	DEPARTURE	PRECIP.	DEPARTURE	PRECIP.	DEPARTURE	PRECIP.	DEPARTURE	PRECIP	DEPARTURE	PRECIP.	DEPARTURE	PRECIP.	DEPARTURE
CALIFORNIA														
NORTH COAST DRAINAGE 01														
ANGWIN PAC UNION COL	.00	-.06	.00	-.18	.00	-.54	4.45	2.04	.40	-4.59	12.09	4.13	39.63	-1.49
BIG BAR RANGER STATION	.02	-.09T	.00	-.45	.05	-.63M	3.39		2.59	-2.93M	9.03	M		
BRIDGEVILLE 4 NNW	.29		.00		.11		4.59		5.74	M	18.98	M	59.68	
CALISTOGA	.00	-.08	.00	-.17	.01	-.45	3.44	1.29	.43	-4.19	13.44	6.48	37.76	.23
CALLAHAN	.32	-.03	.06	-.38	.50	-.06	2.80	1.22	1.13	-1.83	4.15	-.05	21.03	-.61
CECILVILLE 1 SE	.81		.00		.71		3.37		2.06		9.35		30.37	
CLOVERDALE			T .00	-.21	.01	-.59	3.46	.94	.69	-5.08	13.77	5.52		
COPCO NO 1 DAM	.88		.01		.41		1.56		1.65		4.05		15.65	
COVELO	.00	-.06	.03	-.40	.00	-.58	3.86	1.51	1.78	-3.67	16.57	8.45	42.79	.43
CRESCENT CITY 1 N	.49	.16	.27	-.65	1.03	-.93M	3.47		M 3.57		20.89	9.89M	62.60	
CRESCENT CITY 7 ENE	.50		.00		.66		3.94		8.45		20.37		70.50	
EUREKA WSO CITY //R	.25	.15	.01	-.36	.33	-.57	2.08	-.63	2.21	-3.69	9.33	3.11	29.26	-9.25

Table 12: Temperature Extremes and Freeze Data (most stations)

TEMPERATURE EXTREMES AND FREEZE DATA (°F) — CALIFORNIA 1992

STATION	HIGHEST	DATE	LOWEST	DATE	LAST SPRING MINIMUM OF 16° OR BELOW		20° OR BELOW		24° OR BELOW		28° OR BELOW		32° OR BELOW		FIRST FALL MINIMUM OF 32° OR BELOW		28° OR BELOW		24° OR BELOW		20° OR BELOW		16° OR BELOW		NUMBER OF DAYS BETWEEN DATES 16°F OR BELOW	20°F OR BELOW	24°F OR BELOW	28°F OR BELOW	32°F OR BELOW
					DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.	DATE	TEMP.					
OXNARD	90	10/24	39	12/20	NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE						
PALOMAR MOUNTAIN OBSER	89	8/20	19	12/19	NONE		NONE		NONE		2/16	28	3/31	32	11/21	31	12/ 2	27	12/19	19	12/19	19	NONE					290	235
PASADENA	102	9/23	34	12/20	NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE						
POMONA CAL POLY	99	9/21	29	12/19	NONE		NONE		NONE		NONE		1/15	30	12/13	32	NONE		NONE		NONE		NONE						333
RAMONA FIRE DEPT			29	12/22	NONE		NONE		NONE		NONE		1/22	32	12/13	30	NONE		NONE		NONE		NONE						326
REDLANDS	107	8/17	30	12/21	NONE		NONE		NONE		NONE		NONE		12/20	30	NONE		NONE		NONE		NONE						
RIVERSIDE FIRE STN 3			30	12/20	NONE		NONE		NONE		NONE		NONE		12/20	30	NONE		NONE		NONE		NONE						
RIVERSIDE CITRUS EXP S	107	8/17	31	12/20	NONE		NONE		NONE		NONE		NONE		12/20	31	NONE		NONE		NONE		NONE						
SAN BERNARDINO CO HOSP	104	8/19	31	12/20	NONE		NONE		NONE		NONE		NONE		12/20	31	NONE		NONE		NONE		NONE						
SANDBERG WSMO R	97	8/18	26	12/18	NONE		NONE		NONE		1/11	27	2/16	32	12/ 4	32	12/18	26	NONE		NONE		NONE					342	292
SAN DIEGO WSO AIRPORT R	91	9/23	38	12/20	NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE						
SAN GABRIEL FIRE DEPT	104	8/17	32	12/20	NONE		NONE		NONE		NONE		NONE		12/19	32	NONE		NONE		NONE		NONE						
SAN JACINTO RANGER STN			27	12/22	NONE		NONE		NONE		1/18	28	1/23	32	MSG		12/14	27	NONE		NONE		NONE					331	
SAN PASQUAL ANIMAL PAR	107	9/29	25	12/20	NONE		NONE		NONE		NONE		1/28	32	11/13	32	12/19	28	NONE		NONE		NONE						290
SANTA ANA FIRE STN	99	9/23	36	12/20	NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE		NONE						
SANTA BARBARA					NONE		NONE		NONE		NONE		NONE		MSG		MSG		MSG		M60		MSG						
SANTA BARBARA FAA ARPT	106	7/19	32	12/19	NONE		NONE		NONE		NONE		1/12	32	12/19	32	NONE		NONE		NONE		NONE						342
SANTA MARIA WSO ARPT R	95	9/25	28	12/19	NONE		NONE		NONE		NONE		1/23	31	11/30	32	12/19	28	NONE		NONE		NONE						312

Table 13: Monthly/Seasonal Cooling Degree Days (most stations)

MONTHLY AND SEASONAL COOLING DEGREE DAYS
BASE=65 DEGREES FAHRENHEIT

CALIFORNIA 1992

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	SEASONAL NORM
CALIFORNIA														
NORTH COAST DRAINAGE 01														
ANGWIN PAC UNION COL	0	0	0	5	63	60	115	236	143	72	0	0	694	711
BIG BAR RANGER STATION	-	-	-	-	-	-	B 304	-	-	-	-	-	-	960
CALISTOGA	0	0	0	24	110	128	238	311	149	68	1	0	1029	
CALLAHAN	0	0	0	0	16	62	115	145	14	0	0	0	352	334
CECILVILLE 1 SE	0	0	0	6	69	179	254	315	90	4	0	0	917	461
CLOVERDALE	-	-	-	-	-	-	-	485	285	135	4	0	-	857
COVELO	0	0	0	5	81	187	235	282	93	15	0	0	868	634
CRESCENT CITY 1 N	0	0	0	0	0	0	0	0	0	6	0	0	6	5
EUREKA WSO CITY //R	0	0	0	0	0	0	2	0	3	2	0	0	7	
FORT BRAGG 5 N	0	0	0	0	0	0	3	0	2	2	0	0	7	
FORT JONES RANGER STN	-	-	E 0	E 0	E -	55	-	E 128	E 1	-	-	E -		357
FORT ROSS	0	0	E 0	E 0	E 0	1	0	0	2	3	0	0	E 6	
GRATON	0	0	0	3	18	15	66	90	50	33	0	0	275	277
GRIZZLY CREEK STATE PA	0	0	0	1	5	12	23	22	1	0	0	0	64	
HAPPY CAMP RANGER STN	-	-	E 0	E 4	E 91	182	240	296	89	E 3	-	E -	-	739
HEALDSBURG	0	0	0	19	84	51	160	204	138	42	5	0	703	840
KENTFIELD	0	0	0	12	56	45	171	164	128	74	4	0	654	442
KLAMATH	0	-	0	0	0	1	0	1	0	1	0	0	-	
LAVA BEDS NAT MONUMENT	0	0	0	0	40	76	130	232	27	2	0	E 0	E 507	312

Table 14: Monthly/Annual Evaporation Data (selected stations)

TOTAL EVAPORATION AND WIND MOVEMENT

CALIFORNIA 1992

STATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
TAHOE CITY	WIND	-	-	-	-	B 591	469	401	-	392	351	-	-	-
	EVAP	-	-	-	-	B 4.29	3.85	4.51	4.25	2.86	B 1.85	-	-	-
	MAX TEMP	-	-	-	-	M 91.8	90.2	95.5	92.0	82.2	M 71.4	-	-	M -
	MIN TEMP	-	-	-	-	M 44.4	M 66.0	69.0	68.7	62.3	M 55.1	-	-	M -
SAN JOAQUIN DRAINAGE 05														
FRIANT GOVERNMENT CAMP	WIND	787	1678	1216	1110	1502	1697	1510	1352	1065	1047	751	1577	15292
	EVAP	.87	2.58	3.37	5.79	9.88	11.77	11.98	12.52	8.53	5.76	B 1.85	B 1.87	876.77
	MAX TEMP	46.0	60.7	68.4	78.2	86.7	87.3	89.6	89.8	83.8	74.4	60.4	49.0	72.9
	MIN TEMP	37.6	45.8	49.8	52.4	60.7	60.7	64.3	63.3	58.8	54.6	44.8	37.1	52.5
LODI	WIND	-	1207	807	1177	1685	1500	-	1102	928	716	640	996	-
	EVAP	-	B 2.48	B 2.87	6.17	10.03	7.57	-	9.58	6.88	B 4.09	1.82	1.26	-
	MAX TEMP	-	65.1	71.9	84.8	M 90.0	M 91.4	-	92.7	88.5	78.3	60.6	51.2	M -
	MIN TEMP	-	48.9	50.2	53.9	M 58.5	M 59.7	-	62.4	59.0	56.3	43.7	39.3	M -
LOS BANOS DET RESV	WIND	2226	3013	3937	4325	5874	5807	4856	4347	-	-	2402	2596	-
	EVAP	1.13	2.41	4.22	5.78	15.40	15.04	15.34	17.01	11.82	7.87	4.37	B 2.16	806.55
	MAX TEMP	49.1	62.6	69.5	80.2	87.7	82.7	90.9	M 90.5	84.5	76.6	62.5	M 51.6	M 74.0
	MIN TEMP	38.4	45.6	45.7	51.8	58.5	57.2	61.4	M 62.2	57.5	54.4	43.9	M 38.5	M 51.6

Table 15: Monthly/Annual Soil Temperature Data (selected stations)

SOIL TEMPERATURES

CALIFORNIA 1992

STATION	DEPTH	TIME	JAN AVERAGE	JAN EXTREMES	FEB AVERAGE	FEB EXTREMES	MAR AVERAGE	MAR EXTREMES	APR AVERAGE	APR EXTREMES	MAY AVERAGE	MAY EXTREMES	JUN AVERAGE	JUN EXTREMES	JUL AVERAGE	JUL EXTREMES	AUG AVERAGE	AUG EXTREMES	SEP AVERAGE	SEP EXTREMES	OCT AVERAGE	OCT EXTREMES	NOV AVERAGE	NOV EXTREMES	DEC AVERAGE	DEC EXTREMES	ANNUAL AVERAGE	ANNUAL EXTREMES
CALIFORNIA SACRAMENTO DRAINAGE 02																												
DAVIS 2 WSW EXP FARM	R(IN)																											
	4	MAX	46.4	50	53.4	60	59.7	66	70.7	79	81.7	87	85.1	89	89.2	93	90.6	95	83.9	89	76.0	84	60.2	68	48.5	55	70.5	95
	4	MAX		42		47		57		66		76		78		80		86		80		65		52		44		42
	4	MIN	45.1	49	50.9	56	56.5	62	65.5	73	76.5	80	80.1	83	83.5	87	85.6	89	79.7	82	72.6	80	56.1	65	46.9	53	66.6	89
	4	MIN		42		46		54		60		72		75		75		81		77		62		49		43		6
	8	MAX	45.7	49	50.8	56	56.8	62	66.2	73	77.3	81	81.4	84	84.4	88	92.9	99	-	82	74.8	80	60.4	67	48.4	55	-	99
	8	MAX		42		45		55		61		71		77		77		85		80		66		54		44		42
	8	MIN	44.8	48	49.6	55	55.8	60	64.9	72	75.8	80	79.9	82	83.1	86	90.2	99	-	80	73.0	79	59.2	66	47.4	53	-	99
	8	MIN		42		48		54		59		71		76		76		84		78		65		53		43		42
	20	8AM	48.2	51	51.7	56	57.4	61	65.7	72	76.1	80	80.5	82	83.4	87	86.4	89	81.1	83	74.8	80	61.9	69	50.9	57	68.2	89
	20	8AM		46		47		56		61		72		77		76		84		80		68		56		46		46

For detailed information on the availability, and cost of climatological data products and services call or write the: National Climatic Data Center, Federal Building , 151 Patton Avenue, Room 120, Asheville, North Carolina. 28801-5001; Phone number (704) 271-4800, TDD (704) 271-4010, Fax (704) 271-4876.

USCOMM-NOAA-ASHEVILLE, NC - SEP 1994 - 5,000

"RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS" ENTRIES ON WS FORM B-91 (7-89) AND PRECEDING FORMS

STATION (Climatological) (If river Station, if different) | MONTH | 19____

STATE | COUNTY | RIVER

TIME (local) OF OBSERVATION RIVER | TEMP. | PRECIPITATION | STANDARD TIME IN USE

TYPE OF RIVER GAGE | ELEVATION OF RIVER GAGE ZERO Ft. | FLOOD STAGE Ft. | NORMAL POOL STAGE Ft.

WS FORM B-91 (7-89)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (inc. and hundredths)	Snow, ice pellets, (inc. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (inc.)	Draw a straight line (——) through hours precipitation was observed, and a waved line (∿∿∿) through hours precipitation probably occurred unobserved A.M. NOON P.M.	WEATHER (Calendar Day) Mark 'X' for all types occurring each day Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds.	Time of observation if different from above	RIVER STAGE CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc..)
1	80	65	71	1.03							X		X					HEAVY THUNDERSTORM 5:15-6:00 PM
2	68	42	50	0	0	0												RAIN SHOWERS & OF STN IN AFTNOON
3	44	28	32	T	T	0		X										SNOW FLURRIES/MORNING FOG
4	30	18	26	.53	2.1	2												HEAVY SNOW NOON - 3:10 PM
5	15	-3	8	.15	1.5	3												

The majority of cooperative observers use a standard (B-91) or previously numbered (E-15, etc) form to manually record daily maximum and minimum temperatures and/or precipitation. Some cooperative stations also record daily river stages, evaporation, soil temperatures, and wind speed and direction. While the Form B-91 is designed to be self explanatory, the following comments are presented to assist in clarification.

GENERAL: Maximum and Minimum temperature and precipitation values are for the full twenty-four (24) hours ending at the observation times usually listed in the WS Form B-91 heading. Continuous surveillance of weather conditions is not expected or required at cooperative stations and the absence of entries on the WS Form B-91 is not an unusual occurrence. "M" indicates missing data.

TEMPERATURE: Recorded in whole degrees Fahrenheit. Below zero readings are preceded by a minus (-) sign. Temperature "AT OBSN." is the actual air temperature at the observation time.

PRECIPITATION: "Rain, melted snow, etc." are reported in inches and hundredths (xx.xx);"snow, ice pellets" are reported in inches and tenths (xx.x); "snow, ice pellets, hail, ice on ground" are reported in whole inches (xx.). A "T" (Trace) entered for rain and snow indicates precipitation did occur but the amount was too small to measure; when "T" is in the on ground column, the amount is less than one-half inch (< 1/2"). A zero (0) is usually entered when no precipitation occurs, however, blanks may also indicate no precipitation.

REMARKS: Used to report weather conditions other than those listed, add information on an observed weather element, document times of storms and the severity of damage inflicted, etc. These remarks are often the only source of information about unusual weather and can provide insight not available elsewhere.

If further clarification is required, contact the:

National Climatic Data Center
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001

Phone: (704) 271-4800
(704) CLIMATE
Fax: (704) 271-4876

For a more complete interpretation of the data, the services of a private consulting meteorologist may be required. Addresses in your area for these consultants can be obtained from:

The American Meteorological Society
45 Beacon Street
Boston, MA 02108

NCDC-9/94