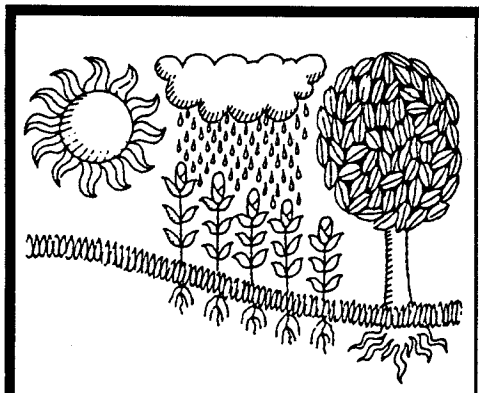

WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration, National Weather Service

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service and World Agricultural Outlook Board

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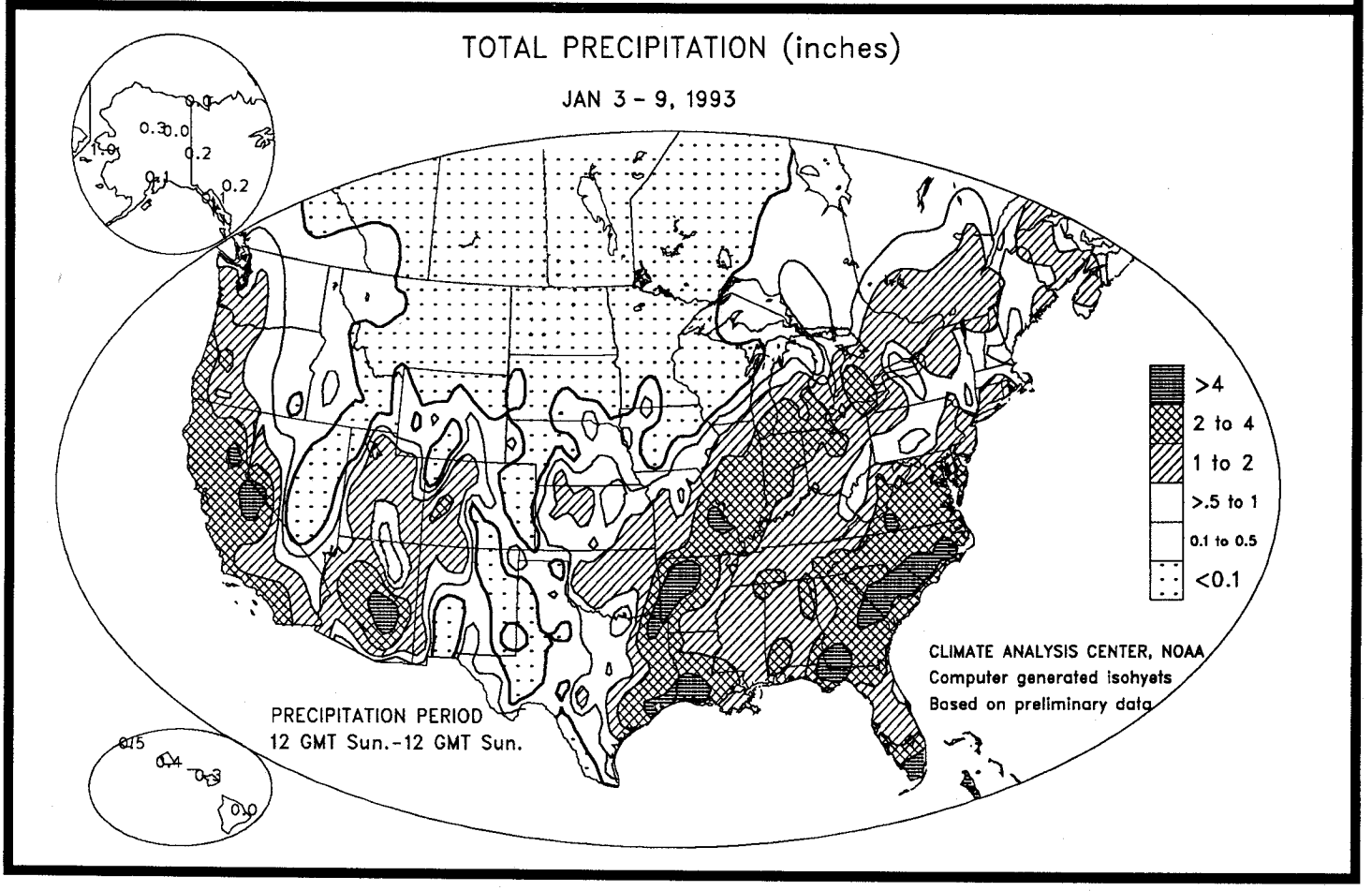


HIGHLIGHTS

January 3 - 9, 1993

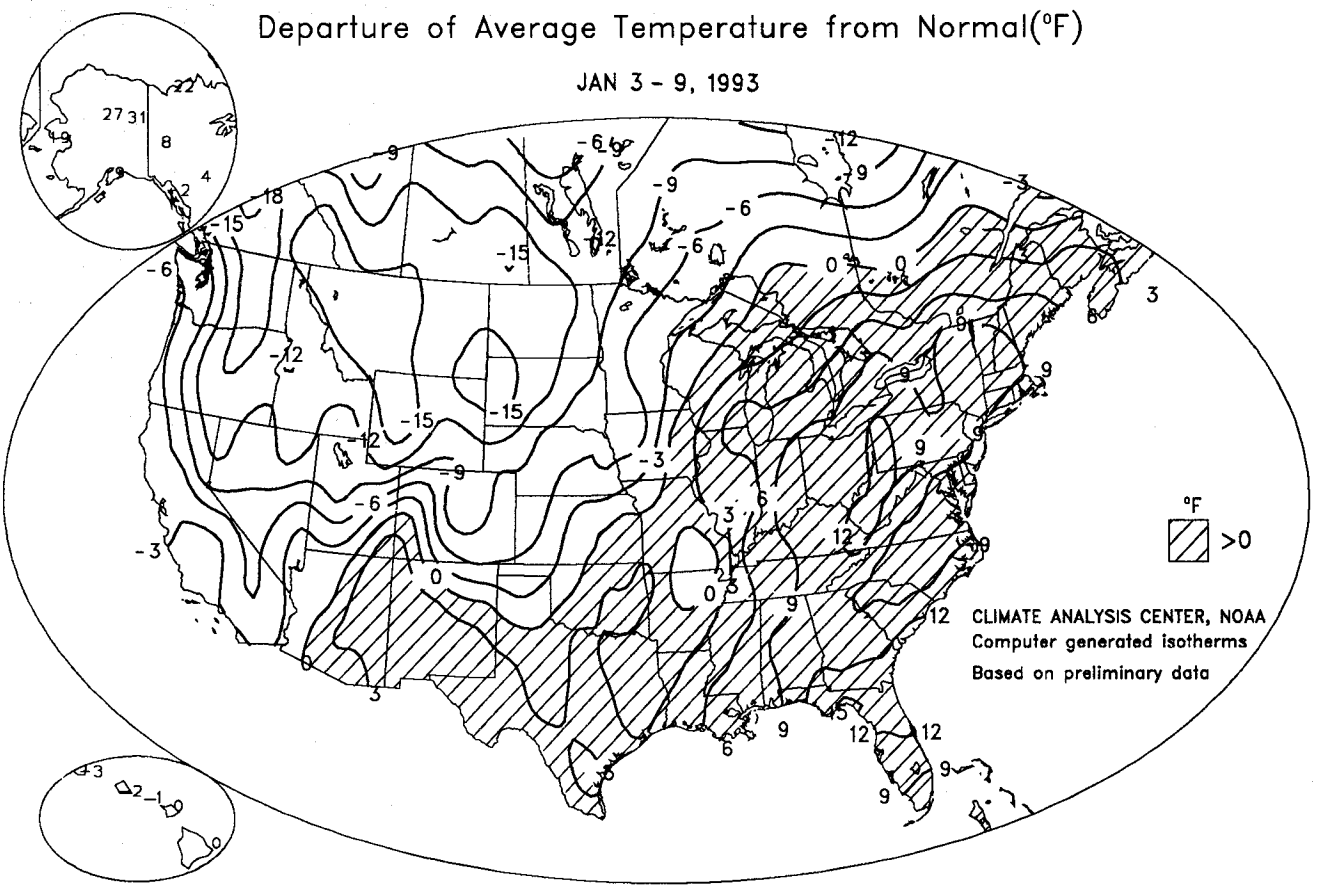
The **Sierra Nevada** mountains wrung out up to 5 feet of snow from surges of subtropical energy, and heavy rain plagued the **Southwest**, as well as areas from the **Gulf coast** northeastward. Bitterly cold air retained its grasp on the **northern Plains**, but relative warmth covered **interior Alaska**, with weekly temperatures up to 31°F above normal. Early in the week, heavy rain fell along a cold front from **eastern Texas** to **southern Michigan**, causing flash flooding, while cold air spilled into the **West**. Rainfall locally topped 5 inches in the **Ozarks of Arkansas**. Warm air ahead of the front supplied 4 dozen daily record highs to the **Eastern States**. Temperatures bested 80°F as far north as **Beaufort, SC**. But in the **West**, a respite between storms allowed temperatures to fall to -24°F in **Ely, NV**, and to 21°F in **southern California's** deserts at **Barstow-Daggett** and **Thermal**. By midweek, rain

(Continued to back cover)

Annual Weather Review

Contents **Page**

Highlights & Total Precipitation Map 1
Temperature Departure & Extreme Minimum Temperature Maps 2
Snow Cover Map 3
National Weather Data for Selected Cities 4
Weekly Heating Degree Day Table 7
December Weather in Historical Perspective ... 8
1992 Weather Review and Crop Progress 9
Mt. Pinatubo and Global Cooling 15
National Agricultural Summary 16
State Summaries of Weather and Agriculture ... 17
International Weather and Crop Summary 21
Subscription and Mailing Permit Information .. 24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JAN 3 - 9, 1993
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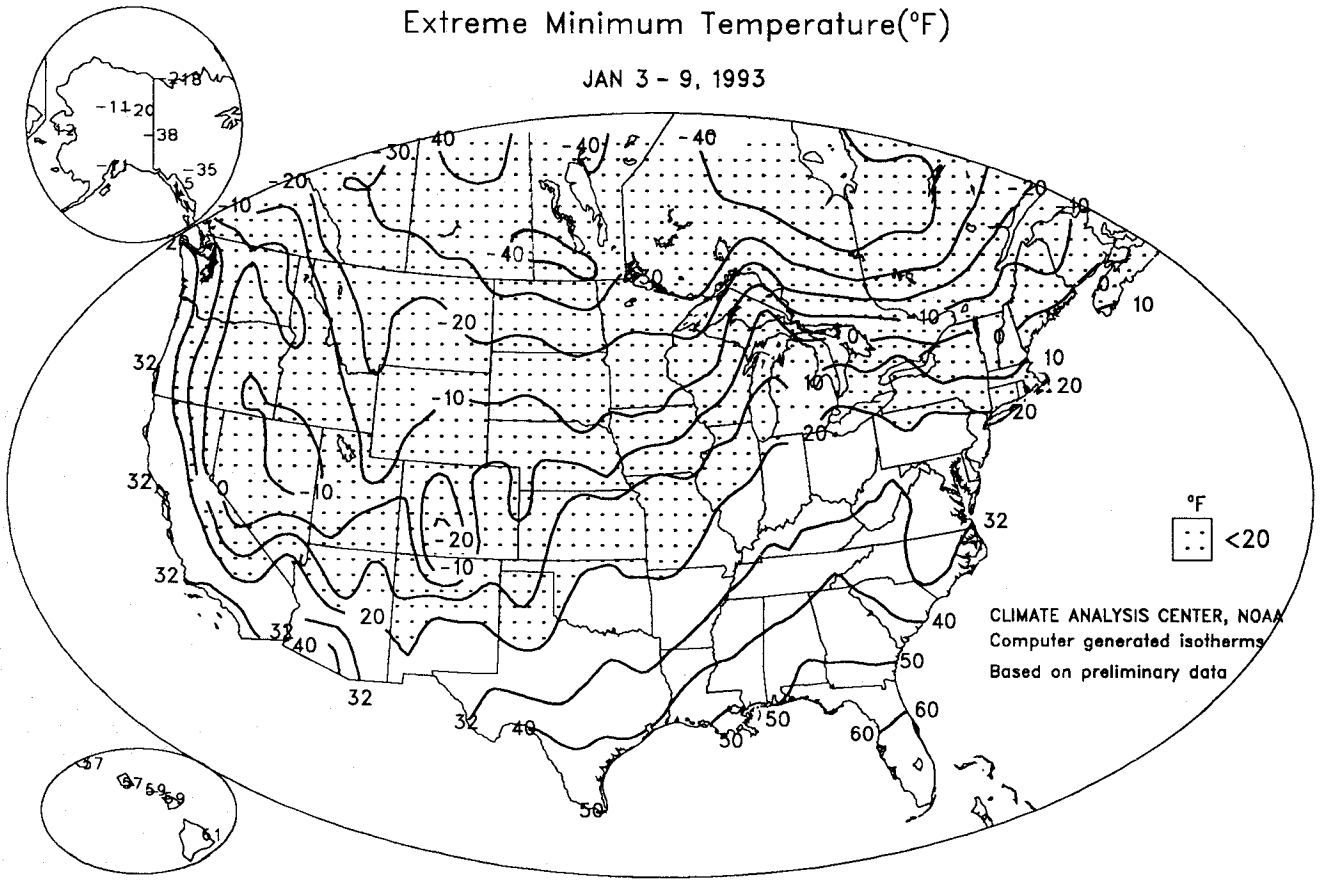
Computer generated isotherms
Based on preliminary data


Extreme Minimum Temperature(°F)
JAN 3 - 9, 1993
°F
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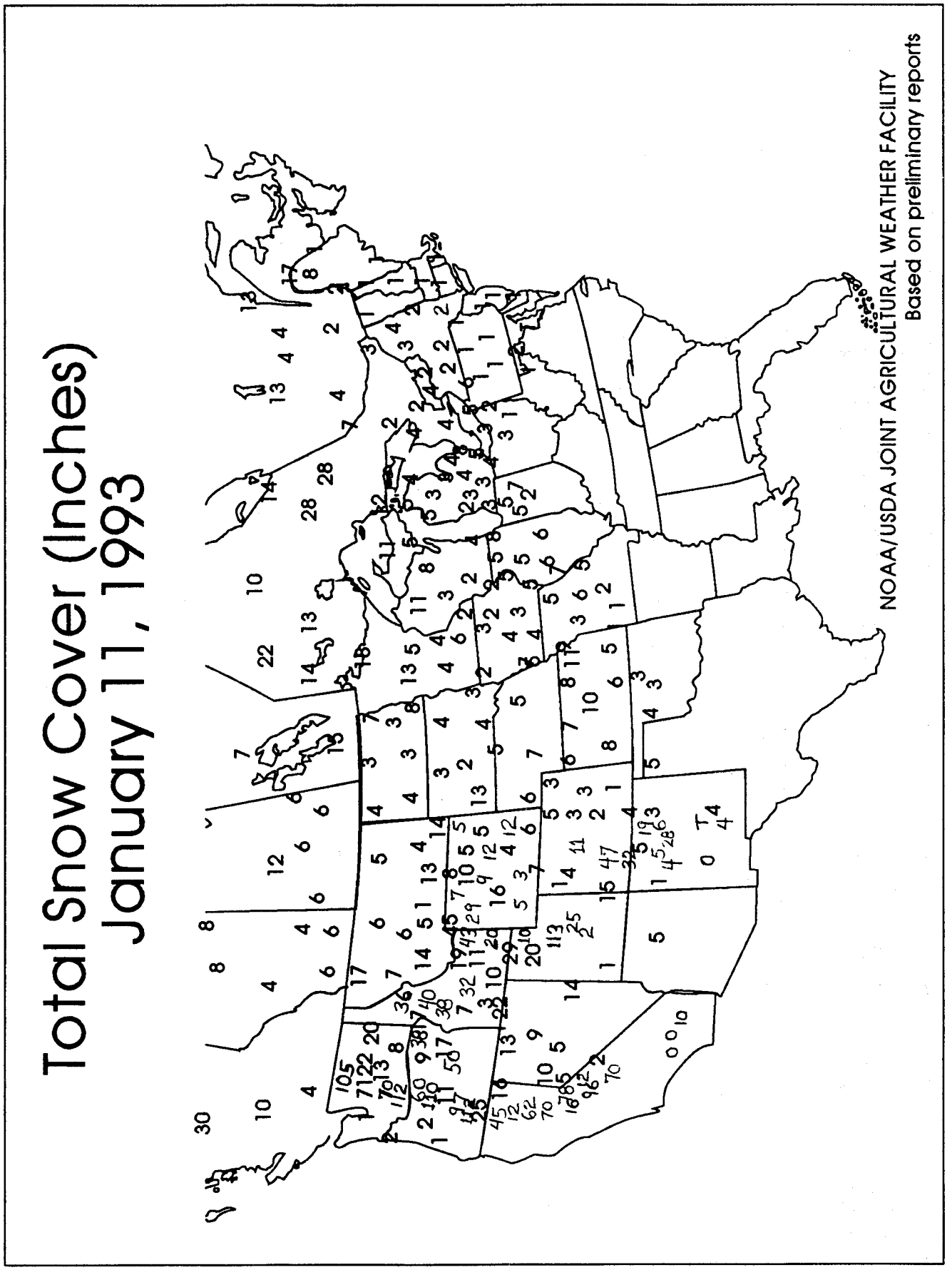
Computer generated isotherms
Based on preliminary data


Total Snow Cover (Inches)
January 11, 1993
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary reports

National Weather Data for Selected Cities

Weather Data for the Week Ending January 9, 1993

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	57	47	68	41	52	9	.9	-.3	.5	6.2	95	.9	58	96	76	0	0	4	1
MOBILE	62	53	71	47	57	6	1.1	.0	.9	6.4	94	1.1	79	98	81	0	0	4	1
MONTGOMERY	63	52	71	50	57	10	1.3	.3	.9	9.0	149	1.3	102	94	77	0	0	5	1
AK ANCHORAGE	31	12	40	-3	22	10	.1	-.1	.1	1.1	81	.4	150	94	62	0	7	2	0
BARROW	21	3	28	-13	12	25	.2	.1	.1	.4	205	.2	229	91	80	0	7	6	0
FAIRBANKS	25	9	33	-17	17	30	1.0	.8	.3	2.5	272	1.2	683	94	82	0	7	5	0
JUNEAU	27	12	33	5	20	-2	.2	-.7	.1	6.4	111	.6	56	96	71	0	7	2	0
KODIAK	38	26	43	16	32	3	T	-1.3	T	4.9	68	T	2	91	60	0	5	2	0
NOME	29	20	33	13	25	19	1.0	.8	.6	2.3	271	1.0	426	99	89	0	7	5	1
AZ PHOENIX	62	48	66	39	55	3	2.1	2.0	1.2	5.2	503	2.1	973	87	49	0	0	4	2
PRESCOTT	45	29	48	14	37	-1	1.8	1.6	.8	3.9	275	1.9	603	91	62	0	5	5	2
TUCSON	60	43	67	31	52	1	2.4	2.2	1.4	5.9	493	2.4	956	96	52	0	1	5	2
YUMA	60	47	67	37	54	-2	.9	.8	.6	3.8	870	.9	809	67	39	0	0	3	1
AR FORT SMITH	48	33	66	23	41	3	2.3	1.9	1.2	7.8	231	2.3	405	98	72	0	3	4	2
LITTLE ROCK	47	33	66	27	40	0	1.8	.9	1.4	6.3	118	1.8	157	90	75	0	3	4	1
CA BAKERSFIELD	53	39	63	29	46	-1	.7	.5	.5	2.9	322	1.1	424	98	67	0	3	3	1
EUREKA	49	40	55	32	44	-3	2.4	.8	.8	12.1	146	2.8	133	92	72	0	1	7	2
FRESNO	52	37	61	26	44	0	1.2	.8	.6	4.6	213	1.9	340	94	62	0	3	4	1
LOS ANGELES	60	48	62	41	54	-2	4.3	3.6	2.2	8.9	366	4.7	589	81	47	0	0	4	2
REDDING	44	34	50	27	39	-7	2.0	.0	.9	12.6	132	2.2	90	95	65	0	2	5	2
SACRAMENTO	48	35	54	25	42	-3	1.9	1.0	1.1	7.4	183	2.4	210	97	74	0	3	3	2
SAN DIEGO	61	50	63	39	55	-1	2.5	2.0	1.2	5.2	268	2.7	454	85	52	0	0	4	2
SAN FRANCISCO	51	39	56	33	45	-3	3.6	2.5	1.8	10.9	222	4.9	361	95	61	0	0	5	2
CO DENVER	30	7	43	1	19	-11	.2	.1	.1	.9	139	.2	171	91	51	0	7	3	0
GRAND JUNCTION	34	20	40	9	27	2	.7	.5	.3	1.0	137	.7	378	94	60	0	7	4	0
PUEBLO	32	10	50	1	21	-8	.3	.2	.2	.8	208	.3	429	95	55	0	7	2	0
CT BRIDGEPORT	45	32	60	22	39	8	1.2	.4	1.1	5.4	115	1.2	115	87	57	0	3	3	1
HARTFORD	44	28	63	15	36	10	.5	-.3	.5	4.9	93	.5	48	85	49	0	5	2	0
DC WASHINGTON	51	37	65	31	44	8	2.1	1.4	1.0	4.9	124	2.1	248	90	61	0	1	4	2
FL APALACHICOLA	71	62	80	58	66	13	3.3	2.5	2.9	4.9	107	3.3	319	--	--	0	0	3	1
DAYTONA BEACH	79	66	84	60	72	14	1.0	.5	.6	1.4	50	1.0	148	99	68	0	0	3	1
JACKSONVILLE	75	61	81	54	68	14	1.7	1.1	1.2	2.5	76	1.9	234	99	73	0	0	3	1
KEY WEST	82	73	85	67	77	7	3.0	2.6	2.6	3.1	142	3.0	650	94	75	0	0	6	1
MIAMI	81	70	84	68	76	8	2.7	2.2	1.6	6.2	257	4.3	753	96	73	0	0	6	1
ORLANDO	79	65	85	62	72	12	1.1	.6	.8	2.0	81	1.1	202	98	65	0	0	4	1
TALLAHASSEE	73	62	82	56	67	16	5.8	4.7	3.5	7.2	121	5.8	428	95	76	0	0	5	2
TAMPA	78	65	81	62	72	12	1.2	.8	1.0	2.2	81	1.2	211	98	72	0	0	3	1
WEST PALM BEACH	81	69	86	66	75	10	3.3	2.7	1.4	6.9	231	5.0	681	99	72	0	0	6	3
GA ATLANTA	58	46	65	43	52	10	1.3	.2	.5	7.7	136	1.3	93	96	74	0	0	4	0
AUGUSTA	64	51	75	44	58	13	4.0	3.1	1.9	6.2	144	4.0	360	95	76	0	0	6	2
MACON	63	52	68	47	57	11	3.9	2.9	2.3	7.0	132	3.9	311	95	77	0	0	5	2
SAVANNAH	69	56	80	47	63	14	2.7	2.0	1.1	4.2	115	2.7	306	99	79	0	0	4	3
HI HILO	81	63	84	61	72	1	T	-2.1	T	17.8	115	.8	30	88	55	0	0	0	0
HONOLULU	79	63	82	57	71	-2	.5	-.4	.4	7.0	153	.5	40	89	53	0	0	2	0
KAHULUI	80	63	84	59	72	0	.4	-.6	.4	3.3	85	.9	75	87	49	0	0	1	0
LIHUE	76	60	78	57	68	-4	.5	-1.0	.3	22.7	310	.5	28	87	55	0	0	2	0
ID BOISE	27	15	32	11	21	-8	.4	.1	.3	1.3	74	.5	94	91	66	0	7	3	0
LEWISTON	26	16	32	9	21	-11	.1	-.3	.1	.8	44	.4	86	89	62	0	7	1	0
POCATELLO	20	3	27	-7	12	-12	.3	.1	.2	2.3	180	.4	134	88	61	0	7	3	0
IL CHICAGO	33	23	47	14	28	7	1.8	1.4	1.2	4.4	150	1.9	334	96	77	0	6	5	1
MOLINE	32	18	47	10	25	5	.7	.3	.3	4.8	199	.9	165	94	75	0	6	4	0
PEORIA	35	21	53	17	28	6	2.0	1.6	1.3	5.2	207	2.2	429	95	77	0	7	4	2
QUINCY	34	20	52	12	27	3	1.4	1.1	.7	3.8	176	1.8	412	94	82	0	6	4	1
ROCKFORD	30	20	42	6	25	6	1.1	.8	.7	4.5	194	1.2	257	95	80	0	6	4	1
SPRINGFIELD	37	24	59	20	31	6	2.5	2.2	1.5	5.0	191	2.6	526	97	82	0	6	4	2
IN EVANSVILLE	44	35	61	31	39	8	1.5	.8	1.4	3.2	74	1.5	168	90	68	0	3	3	1
FORT WAYNE	39	29	55	22	34	10	3.1	2.6	1.8	5.8	188	3.1	491	93	73	0	5	5	2
INDIANAPOLIS	41	30	57	24	36	9	1.5	.8	1.1	3.4	91	1.5	189	93	71	0	4	4	1
SOUTH BEND	37	26	56	20	32	8	2.1	1.5	1.6	6.2	168	2.2	282	92	72	0	5	5	1
IA DES MOINES	25	11	44	3	18	-1	.4	.2	.3	2.4	184	.4	157	93	76	0	7	4	0
SIOUX CITY	20	4	33	-3	12	-4	.2	.0	.1	1.0	104	.2	89	95	74	0	7	3	0
WATERLOO	23	10	38	-1	16	2	T	-.2	T	1.6	120	T	16	96	81	0	7	1	0
KS CONCORDIA	28	17	41	14	22	-3	.2	.1	.1	1.5	177	.2	111	95	73	0	7	4	0
DODGE CITY	31	21	42	13	26	-4	.8	.7	.5	1.7	258	.8	550	97	81	0	7	5	0
GOODLAND	27	9	48	-2	18	-9	.2	.1	.2	.3	62	.2	136	93	62	0	7	1	0
TOPEKA	32	22	52	15	27	1	.3	.1	.2	2.6	168	.6	211	98	79	0	7	4	0
WICHITA	35	22	51	10	28	-2	.3	.1	.1	1.6	136	.4	210	95	72	0	7	3	0
KY BOWLING GREEN	48	37	65	30	42	8	1.0	-.1	.8	4.0	68	1.0	73	97	74	0	1	3	1
LEXINGTON	49	37	67	29	43	11	.9	.1	.8	2.7	56	.9	83	94	71	0	3	3	1
LOUISVILLE	49	37	68	32	43	10	1.1	.3	.9	2.7	60	1.1	106	90	67	0	1	4	1
LA BATON ROUGE	63	53	78	47	58	7	1.9	.8	1.7	6.6	103	1.9	137	100	85	0	0	3	1
LAKE CHARLES	61	49	76	43	55	5	3.3	2.2	2.5	7.2	110	3.3	232	99	86	0	0	4	1
NEW ORLEANS	66	56	78	51	61	8	1.8	.6	.9	7.4	111	1.8	122	97	79	0	0	4	2
SHREVEPORT	54	41	74	33	48	2	2.0	1.0	.8	8.1	158	2.3	188	96	76	0	0	4	2

Based on 1951-80 normals.

Weather Data for the Week Ending January 9, 1993

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
ME CARIBOU	22	2	37	-14	12	1	.8	.2	.6	2.4	61	.8	107	90	68	0	7	5	1
PORTLAND	40	21	60	5	30	8	.4	-.5	.4	2.6	46	.4	38	88	58	0	6	3	0
MD BALTIMORE	50	36	66	29	43	10	1.8	1.1	.8	6.4	149	1.8	192	98	69	0	2	4	2
SALISBURY	52	36	67	24	44	9	3.1	2.3	1.6	8.6	180	3.1	301	98	71	0	1	4	3
MA BOSTON	46	31	62	16	39	9	.7	-.3	.7	8.9	158	.7	55	78	50	0	2	2	1
CHATHAM	43	33	52	22	38	6	.4	-.6	.4	7.4	118	.4	33	88	69	0	2	2	0
MI ALPENA	29	19	41	6	24	4	.6	.1	.5	1.8	73	.6	108	94	76	0	7	3	0
DETROIT	39	27	56	21	33	9	2.0	1.6	1.6	4.4	143	2.1	343	88	63	0	6	4	1
FLINT	35	24	54	18	30	7	.9	.5	.7	3.0	121	1.0	194	91	72	0	6	6	1
GRAND RAPIDS	34	24	50	14	29	6	2.7	2.2	2.2	6.1	191	2.9	440	95	74	0	7	6	1
HOUGHTON LAKE	28	17	40	2	22	4	.9	.5	.4	2.9	123	.9	194	94	74	0	7	4	0
LANSING	36	22	54	11	29	8	1.5	1.1	1.1	3.7	124	1.6	280	95	71	0	6	5	1
MARQUETTE	20	7	31	-3	13	1	.3	-.2	.1	2.8	92	.3	53	89	76	0	7	4	0
MUSKEGON	33	25	47	15	29	5	1.2	.6	1.0	4.0	120	1.3	176	92	73	0	7	2	1
SAULT ST. MARIE	22	10	34	-3	16	2	.4	-.1	.2	4.0	124	.5	78	90	61	0	7	5	0
MN ALEXANDRIA	10	-8	26	-14	1	-5	T	-.2	T	1.1	109	.2	80	87	70	0	7	1	0
DULUTH	14	-4	28	-19	5	-3	.1	-.2	.0	1.3	78	.1	14	84	63	0	7	2	0
INT'L FALLS	5	-20	24	-34	-8	-8	.1	-.2	.0	1.8	152	.1	31	85	72	0	7	2	0
MINNEAPOLIS	16	1	33	-9	9	-3	T	-.2	T	1.1	100	T	16	88	63	0	7	1	0
ROCHESTER	15	0	33	-9	7	-3	.2	.0	.1	1.5	132	.2	68	92	77	0	7	3	0
MS GREENWOOD	54	43	72	38	48	5	1.2	.0	.7	6.8	98	1.2	76	94	76	0	0	3	1
JACKSON	57	46	72	40	52	6	.9	-.3	.6	5.3	76	.9	61	97	78	0	0	2	1
MERIDIAN	58	48	69	43	53	8	1.8	.6	1.1	7.8	107	1.8	117	95	75	0	0	4	2
MO CAPE GIRARDEAU	43	31	62	26	37	--	3.1	2.4	2.5	4.9	106	3.1	342	93	77	0	4	3	1
COLUMBIA	38	23	58	15	30	2	1.6	1.2	.7	4.5	177	1.8	343	97	76	0	6	5	1
KANSAS CITY	31	21	49	14	26	-2	1.0	.7	.7	5.1	277	1.3	334	95	75	0	7	4	1
SAINT LOUIS	39	27	61	21	33	4	2.2	1.8	1.3	5.9	219	2.2	429	96	75	0	6	3	2
SPRINGFIELD	42	27	62	17	35	3	1.6	1.3	.9	5.9	194	1.7	317	93	72	0	5	3	2
MT BILLINGS	16	-1	25	-7	8	-14	.1	-.1	.0	.6	58	.1	32	75	53	0	7	3	0
GLASGOW	3	-15	11	-24	-6	-15	.1	.0	.1	.3	72	.1	64	85	72	0	7	2	0
GREAT FALLS	12	-9	24	-20	1	-18	.3	.1	.2	.8	74	.5	168	84	63	0	7	4	0
HAVRE	6	-12	14	-25	-3	-15	T	-.1	T	.5	75	T	0	72	56	0	7	0	0
HELENA	8	-9	19	-20	-1	-19	.1	-.1	.1	.8	98	.2	100	83	61	0	7	3	0
KALISPELL	15	-9	22	-20	3	-16	.8	.4	.6	3.0	146	1.0	204	85	63	0	7	2	1
MILES CITY	9	-7	19	-19	1	-13	.1	-.1	.0	.5	62	.1	56	87	68	0	7	3	0
MISSOULA	13	-3	22	-13	5	-16	T	-.3	T	1.1	68	.3	74	84	59	0	7	1	0
NE GRAND ISLAND	23	9	31	2	16	-5	.4	.3	.2	1.2	155	.4	264	94	67	0	7	2	0
LINCOLN	22	4	33	-8	13	-7	.2	.1	.1	1.1	138	.3	144	93	72	0	7	7	0
NORFOLK	22	4	32	-6	13	-5	.5	.4	.3	1.4	192	.5	357	90	69	0	7	4	0
NORTH PLATTE	25	5	33	0	15	-7	.5	.5	.3	.9	172	.5	482	91	59	0	7	2	0
OMAHA	22	8	33	1	15	-6	.3	.1	.2	1.3	139	.3	143	82	64	0	7	5	0
SCOTTSBLUFF	22	4	29	-2	13	-11	.4	.3	.2	1.0	165	.4	264	90	65	0	7	3	0
VALENTINE	23	1	35	-4	12	-7	.2	.1	.1	.3	71	.2	229	86	56	0	7	2	0
NV ELY	30	6	38	-24	18	-6	.4	.2	.2	1.6	165	.7	310	88	59	0	7	4	0
LAS VEGAS	49	36	58	26	42	-1	.4	.3	.3	2.1	491	.4	315	78	45	0	3	3	0
RENO	32	10	39	-3	21	-10	.5	.2	.3	2.7	169	.8	214	93	54	0	7	4	0
WINNEMUCCA	28	12	36	-5	20	-9	1.0	.8	.4	2.0	185	1.0	404	89	65	0	7	3	0
NH CONCORD	41	19	59	2	30	9	.3	-.4	.3	2.5	59	.3	33	91	53	0	7	2	0
NJ ATLANTIC CITY	51	32	67	19	42	9	1.6	.8	.6	5.6	121	1.6	159	96	64	0	4	3	2
NM ALBUQUERQUE	49	29	57	19	39	5	.3	.2	.2	1.5	248	.3	254	83	37	0	5	2	0
CLOVIS	51	25	67	16	38	1	.1	.0	.1	.5	74	.3	214	93	47	0	6	1	0
ROSWELL	55	32	69	26	43	5	.1	.0	.0	.7	157	.2	164	90	42	0	4	3	0
NY ALBANY	41	23	58	8	32	10	.4	-.2	.2	3.4	92	.4	53	87	62	0	6	3	0
BINGHAMTON	37	23	54	11	30	8	.6	.0	.3	3.5	97	.6	73	90	67	0	7	3	0
BUFFALO	42	29	62	15	36	11	1.7	1.0	1.0	5.5	128	1.7	185	89	60	0	6	4	1
NEW YORK	48	34	64	26	41	9	1.3	.6	1.3	6.8	148	1.3	141	87	57	0	2	2	1
ROCHESTER	41	28	61	16	35	10	.6	.1	.3	3.7	112	.7	101	93	67	0	6	4	0
SYRACUSE	42	24	62	8	33	9	.9	.3	.3	3.5	89	1.0	124	89	60	0	6	5	0
NC ASHEVILLE	52	42	59	37	47	10	1.6	.9	1.1	5.3	129	1.6	173	95	75	0	0	4	1
CHARLOTTE	55	45	70	36	50	9	2.2	1.4	.7	5.1	112	2.2	206	89	67	0	0	6	2
GREENSBORO	52	39	66	32	46	8	1.9	1.1	.9	4.4	100	1.9	188	91	68	0	1	5	1
HATTERAS	63	51	71	44	57	11	2.8	1.7	.9	8.5	146	2.8	200	96	75	0	0	5	2
NEW BERN	62	47	77	34	54	10	3.6	2.8	.9	6.7	138	3.6	317	98	73	0	0	5	4
RALEIGH	55	41	71	29	48	8	2.5	1.7	1.1	4.9	119	2.5	245	99	75	0	1	6	2
WILMINGTON	65	49	79	35	58	12	3.7	2.9	1.1	8.2	182	3.7	351	97	74	0	0	5	3
ND BISMARCK	5	-15	11	-20	-5	-12	T	-.1	T	.5	76	T	7	83	67	0	7	1	0
FARGO	4	-13	26	-24	-5	-10	.1	-.1	.0	.6	81	.1	50	84	70	0	7	2	0
GRAND FORKS	1	-16	18	-29	-8	-10	T	-.2	T	.7	87	T	0	86	70	0	7	0	0
WILLISTON	4	-16	8	-30	-6	-14	T	-.1	T	.5	72	T	7	86	71	0	7	1	0
OH AKRON-CANTON	43	31	60	24	37	11	1.3	.7	.9	3.5	102	1.3	165	94	68	0	6	5	1
CINCINNATI	46	35	64	28	40	11	1.4	.7	1.3	2.8	71	1.4	154	95	67	0	4	4	1
CLEVELAND	44	32	61	24	38	11	2.0	1.4	1.0	6.3	181	2.0	271	93	62	0	4	4	2
COLUMBUS	46	34	61	26	40	12	1.5	.8	1.3	2.8	82	1.5	179	95	68	0	4	4	1
DAYTON	43	31	59	24	37	10	1.8	1.2	1.6	3.4	104	1.8	229	96	70	0	4	4	1

Based on 1951-80 normals.

Weather Data for the Week Ending January 9, 1993

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTRME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
TOLEDO	41	29	56	22	35	11	1.1	.7	.8	4.8	147	1.2	183	92	68	0	5	3	1
YOUNGSTOWN	43	31	60	23	37	12	1.2	.5	.6	4.7	132	1.2	148	92	64	0	6	3	2
OK OKLAHOMA CITY	47	30	57	22	39	3	.8	.6	.6	4.1	281	1.0	346	97	71	0	4	3	1
TULSA	44	29	57	20	37	2	1.0	.7	.8	6.3	288	1.1	261	97	72	0	4	3	1
OR ASTORIA	39	29	47	19	34	-7	1.3	-1.3	.6	7.3	49	1.3	39	89	62	0	5	3	1
BURNS	23	2	25	-10	12	-14	.3	-.1	.1	1.7	82	.5	104	91	71	0	7	3	0
MEDFORD	43	33	48	30	38	1	.7	-.2	.2	4.2	93	.7	69	99	71	0	4	5	0
PENDLETON	23	11	39	4	17	-15	.5	.1	.3	1.4	66	.7	130	95	77	0	7	6	0
PORTLAND	37	29	42	23	33	-6	.3	-1.2	.2	5.3	64	.3	17	82	55	0	5	2	0
SALEM	37	28	44	22	33	-6	1.3	-.4	.5	9.1	98	1.3	58	86	61	0	5	5	0
PA ALLENTOWN	46	30	63	22	38	10	.7	-.1	.6	4.0	85	.7	73	88	55	0	4	3	1
ERIE	44	33	62	20	39	13	1.6	1.0	1.1	4.9	123	1.6	206	90	58	0	4	4	1
HARRISBURG	45	35	64	30	40	10	T	-.7	T	2.0	49	T	0	87	58	0	2	0	0
PHILADELPHIA	50	36	65	28	43	11	1.1	.3	.9	5.7	130	1.1	111	85	54	0	2	3	1
PITTSBURGH	48	34	67	26	41	13	.6	-.1	.3	3.4	100	.6	69	92	64	0	3	3	0
SCRANTON	43	29	61	22	36	10	.7	.2	.7	3.6	115	.7	110	88	58	0	5	4	1
RI PROVIDENCE	46	30	60	15	38	9	.8	-.2	.7	7.6	134	.8	61	87	54	0	4	2	1
SC CHARLESTON	68	54	79	41	61	13	2.5	1.7	.9	4.0	97	2.5	255	99	78	0	0	6	2
COLUMBIA	60	49	73	38	55	10	4.6	3.7	1.8	7.9	165	4.6	370	97	77	0	0	6	3
FLORENCE	63	49	77	35	56	11	4.7	4.0	1.4	8.5	211	4.7	469	92	73	0	0	6	4
GREENVILLE	54	45	69	39	49	8	2.9	2.0	1.3	8.0	151	2.9	237	94	69	0	0	5	2
SD ABERDEEN	6	-14	13	-21	-4	-13	.2	.1	.2	.4	68	.2	164	89	70	0	7	3	0
HURON	15	-6	20	-11	4	-7	T	-.1	T	.3	54	T	9	85	64	0	7	1	0
RAPID CITY	15	-3	23	-11	6	-15	.5	.4	.3	1.1	198	.5	455	90	68	0	7	3	0
SIOUX FALLS	15	-4	30	-12	5	-8	T	-.1	T	.8	100	T	7	88	67	0	7	1	0
TN CHATTANOOGA	56	45	63	40	50	12	1.3	.1	.5	6.9	103	1.3	85	98	76	0	0	4	1
KNOXVILLE	55	42	70	40	49	11	1.6	.5	.7	8.3	139	1.6	115	98	75	0	0	5	1
MEMPHIS	50	39	69	34	44	5	1.4	.3	.9	4.9	78	1.4	102	93	77	0	0	4	1
NASHVILLE	49	40	64	33	45	8	1.1	.1	.8	4.0	67	1.1	81	92	71	0	0	4	1
TX ABILENE	55	36	67	27	46	2	.2	-.1	.1	1.2	108	.2	82	95	64	0	3	4	0
AMARILLO	44	22	60	8	33	-2	.1	.0	.1	.7	117	.3	229	99	63	0	7	2	0
AUSTIN	61	44	76	38	53	4	.9	.5	.6	4.2	172	.9	209	94	63	0	0	5	1
BEAUMONT	61	49	76	40	55	3	4.9	3.9	3.5	11.3	185	4.9	397	98	85	0	0	4	3
BROWNSVILLE	75	56	83	49	65	5	.1	-.2	.1	1.0	66	.1	28	98	68	0	0	2	0
CORPUS CHRISTI	67	51	78	45	59	3	.3	-.1	.2	1.3	81	.4	82	97	68	0	0	2	0
DEL RIO	61	46	74	42	53	3	.3	.2	.2	.7	104	.3	214	80	51	0	0	4	0
EL PASO	59	44	64	31	51	8	.3	.2	.2	1.9	396	.5	473	83	44	0	1	2	0
FORT WORTH	54	40	66	32	47	3	.5	.1	.4	4.8	214	.5	100	96	71	0	1	6	0
GALVESTON	62	51	70	42	57	3	4.1	3.4	2.2	8.0	176	4.1	440	97	81	0	0	4	2
HOUSTON	62	47	77	37	55	2	2.4	1.6	1.4	5.9	122	2.4	234	97	74	0	0	5	2
LUBBOCK	50	31	69	18	41	2	.1	.0	.1	2.0	428	.6	573	97	56	0	4	3	0
MIDLAND	57	36	70	27	46	3	.1	.0	.1	.7	133	.1	82	99	53	0	2	2	0
SAN ANGELO	58	38	73	27	48	3	.2	.1	.1	1.0	129	.3	156	93	58	0	2	3	0
SAN ANTONIO	62	44	79	37	53	3	.4	.1	.1	2.6	151	.5	120	96	60	0	0	5	0
VICTORIA	66	49	74	40	58	5	2.2	1.8	1.5	4.3	160	2.2	413	97	67	0	0	4	1
WACO	58	40	69	34	49	3	.8	.4	.4	4.1	175	.8	169	98	72	0	0	6	0
WICHITA FALLS	54	36	65	26	45	5	.4	.2	.2	2.6	177	.4	139	96	63	0	3	3	0
UT CEDAR CITY	36	17	41	-4	27	-3	.5	.4	.4	1.7	202	.6	344	93	58	0	6	3	0
SALT LAKE CITY	26	11	33	-4	19	-9	1.6	1.3	.5	2.8	162	1.7	444	96	69	0	7	5	1
VT BURLINGTON	37	19	55	-1	28	10	.5	.0	.4	1.4	48	.5	81	90	63	0	6	4	0
VA NORFOLK	54	41	71	29	48	7	3.0	2.1	1.5	6.1	145	3.0	280	96	74	0	1	5	2
RICHMOND	52	38	70	27	45	8	2.9	2.2	1.3	5.7	131	2.9	302	96	68	0	1	4	2
ROANOKE	52	37	64	33	45	9	2.4	1.8	1.2	5.0	135	2.4	295	92	61	0	0	5	1
WA QUILLAYUTE	37	26	42	21	32	-7	.5	-3.0	.4	10.3	47	.5	11	90	59	0	6	2	0
SEATTLE-TACOMA	37	28	40	22	33	-6	.2	-1.2	.1	4.2	52	.2	11	81	51	0	6	3	0
SPOKANE	21	5	27	-4	13	-13	.6	.0	.4	2.8	85	.6	80	91	70	0	7	5	0
YAKIMA	25	6	29	-6	15	-13	.1	-.2	.1	2.4	142	.1	28	88	62	0	7	3	0
WV BECKLEY	51	36	65	32	43	13	.6	-.2	.3	4.5	109	.6	58	95	64	0	2	4	0
CHARLESTON	52	39	74	33	46	12	.5	-.4	.2	4.0	92	.5	44	87	62	0	0	3	0
HUNTINGTON	51	38	71	32	45	11	.6	-.2	.4	3.4	83	.6	57	91	68	0	1	3	0
PARKERSBURG	50	35	71	28	43	11	.6	-.1	.4	2.6	72	.6	66	91	57	0	3	4	0
WI GREEN BAY	24	14	36	2	19	4	.1	-.2	.1	2.4	138	.2	41	88	68	0	7	2	0
LACROSSE	21	9	36	-5	15	0	.1	-.2	.1	1.7	124	.1	36	87	66	0	7	2	0
MADISON	28	18	41	6	23	7	.3	.0	.2	2.8	148	.4	100	86	70	0	6	2	0
MILWAUKEE	31	21	43	12	27	7	.9	.5	.7	3.5	136	1.0	192	93	73	0	6	5	1
WAUSAU	20	5	34	-12	12	1	.2	.0	.2	2.1	135	.3	103	92	71	0	7	2	0
WY CASPER	21	4	28	-3	13	-10	.4	.3	.2	1.5	233	.6	436	81	59	0	7	3	0
CHEYENNE	25	9	35	-2	17	-9	.3	.2	.2	.8	166	.3	282	85	47	0	7	4	0
LANDER	13	-6	20	-11	4	-16	.4	.3	.2	1.4	215	.6	421	90	63	0	7	3	0
SHERIDAN	15	-4	22	-13	5	-14	.2	.0	.1	1.5	156	.2	100	88	59	0	7	2	0

Based on 1951-80 normals.

HEATING DEGREE DAYS (Base 65° F)
January 3 - 9, 1993

(Cumulative totals and departures from normal are for the period July 1, 1992 - January 9, 1993)

STATES AND STATIONS	WEEKLY TOTAL	WEEKLY DEPARTURE	CUMULATIVE TOTAL	CUMULATIVE DEPARTURE	CUMULATIVE DEP fm 91-92
AL BIRMINGHAM	89	-65	1232	-98	19
MOBILE	57	-48	666	-117	-166
MONTGOMERY	52	-75	927	-128	-116
AK ANCHORAGE	302	-69	5230	-66	397
BARROW	370	-180	9108	-248	-400
FAIRBANKS	333	-220	7012	-114	229
JUNEAU	316	12	4205	-139	321
KODIAK	227	-6	4174	5	228
NOME	280	-136	6893	267	844
AZ FLAGSTAFF	251	-8	3143	-33	253
PHOENIX	67	-26	544	-115	82
PRESCOTT	195	-8	1991	-134	42
TUCSON	92	-8	775	11	89
WINSLOW	195	-43	2527	275	159
YUMA	78	8	475	9	161
AR FORT SMITH	169	-25	1537	-61	79
LITTLE ROCK	174	-1	1460	4	124
CA BAKERSFIELD	130	4	1006	5	08
EUREKA	145	19	1868	-322	-61
FRESNO	143	-3	1117	-126	44
LOS ANGELES	78	12	444	-146	69
REDDING	173	31	1214	20	121
SACRAMENTO	163	16	1197	-39	127
SAN DIEGO	74	11	419	-60	79
SAN FRANCISCO	140	21	1021	-357	-15
STOCKTON	161	14	1158	-63	53
CO DENVER	323	73	2959	297	200
GRAND JCT.	263	-22	2682	26	-34
PUEBLO	306	56	2952	455	283
CT BRIDGEPORT	183	-62	2191	4	184
HARTFORD	201	-76	2695	24	295
DE WILMINGTON	157	-77	1985	-130	128
DC WASHINGTON	145	-61	1789	16	198
FL APALACHICOLA	0	-85	370	-237	-229
DAYTONA BEACH	0	-56	205	-159	-71
FORT MYERS	0	-32	52	-120	-34
JACKSONVILLE	4	-87	458	-179	-124
KEY WEST	0	-7	3	-29	00
MIAMI	0	-14	13	-51	-7
ORLANDO	0	-46	150	-114	-49
TALLAHASSEE	2	-96	518	-238	-215
TAMPA	0	-49	145	-156	-82
W. PALM BEACH	0	-17	36	-51	-17
GA ATLANTA	87	-74	1263	-112	93
AUGUSTA	54	-86	1047	-139	-48
MACON	53	-74	1014	-39	22
SAVANNAH	26	-91	690	-201	-39
ID BOISE	303	51	2897	228	305
LEWISTON	306	72	2604	65	291
POCATELLO	371	78	3497	273	302
IL CHICAGO	256	-47	2892	140	155
MOLINE	278	-40	2936	104	184
PEORIA	255	-49	2689	-39	68
QUINCY	265	-23	2664	134	175
ROCKFORD	280	-46	3137	104	193
SPRINGFIELD	239	-41	2372	-91	-7
IN EVANSVILLE	177	-61	1947	-163	-23
FORT WAYNE	215	-73	2636	-85	96
INDIANAPOLIS	206	-64	2372	-101	125
SOUTH BEND	231	-59	2713	-4	102
IA DES MOINES	324	1	3009	149	111
DUBUQUE	309	-35	3469	239	253
SIOUX CITY	368	27	3304	216	169
WATERLOO	339	-15	3362	35	94
KS CONCORDIA	297	18	2768	292	342
DODGE CITY	271	21	2759	500	445
GOODLAND	324	58	3185	452	518
TOPEKA	263	-9	2456	67	206
WICHITA	255	7	2251	106	176
KY BOWLING GREEN	158	-58	1882	-60	92
LEXINGTON	153	-78	2027	-93	71
LOUISVILLE	154	-70	1816	-183	59
LA BATON ROUGE	53	-49	646	-129	-66
LAKE CHARLES	68	-26	629	-91	-56
NEW ORLEANS	36	-57	512	-160	-184
SHREVEPORT	120	-13	1063	18	76
ME CARIBOU	367	-11	4156	-102	82
PORTLAND	240	-61	3096	-96	162
MD BALTIMORE	153	-71	1921	-102	07
SALISBURY	145	-64	1817	-55	109
MA BOSTON	180	-65	2388	93	259
CHATHAM	187	-44	2297	-36	246
MI ALPENA	287	-39	3639	84	272
DETROIT	220	-67	2684	-129	145
FLINT	246	-56	2954	-36	96
GRAND RAPIDS	250	-46	2995	47	110
HOUGHTON LAKE	297	-32	3569	6	222
LANSING	251	-47	3095	117	143
MARQUETTE	360	-7	4439	280	259
MUSKEGON	250	-37	2963	66	168
SAULT ST MARIE	342	-13	4143	177	397
MN ALEXANDRIA	447	33	4245	204	273
DULUTH	420	11	4573	194	169
INT'L FALLS	503	50	4992	211	392
MINNEAPOLIS	394	20	3680	154	30
ROCHESTER	403	27	3919	278	123
SAINT CLOUD	424	21	4185	202	192
MS GREENWOOD	114	-36	1110	-159	05
JACKSON	92	-41	991	-107	-27
MERIDIAN	81	-55	971	-188	-65
MO CAPE GIRARDEAU	193	-38	1967	-22	168
COLUMBIA	241	-21	2383	86	156
KANSAS CITY	269	-4	2468	137	122
SAINT LOUIS	223	-28	2077	-110	128
SPRINGFIELD	212	-22	2064	-11	121
MT BILLINGS	400	89	3516	305	542
GLASGOW	494	100	4212	222	574
GREAT FALLS	444	119	3971	514	834
HAVRE	472	94	4267	338	717
HELENA	456	125	4076	320	456
KALISPELL	429	108	4166	230	504
MILES CITY	444	89	3711	146	490
MISSOULA	419	110	3942	264	525
NE GRAND ISLAND	341	29	3184	264	381
LINCOLN	359	42	3020	182	318
NORFOLK	362	29	3268	123	237
NORTH PLATTE	351	44	3382	245	461
OMAHA	351	38	2987	235	162
SCOTTSBLUFF	362	74	3517	477	569
VALENTINE	372	48	3602	324	374
NV ELY	326	39	3475	42	224
LAS VEGAS	157	7	1226	17	117
RENO	308	70	2526	-253	324
WINNEMUCCA	315	61	3056	98	390
NH CONCORD	245	-70	3302	41	319
NJ ATLANTIC CITY	160	-71	2124	17	153
NM ALBUQUERQUE	181	-36	2091	17	117
CLOVIS	187	-9	1934	61	-97
ROSWELL	150	-18	1557	14	-124
NY ALBANY	227	-78	2960	-16	202
BINGHAMTON	242	-62	3278	151	482
BUFFALO	204	-82	2797	-28	167
NEW YORK	165	-66	1957	-49	264
ROCHESTER	212	-72	2955	160	229
SYRACUSE	221	-69	2902	66	226
NC ASHEVILLE	122	-74	1871	-78	118
CAPE HATTERAS	54	-82	798	-238	-12
CHARLOTTE	104	-69	1378	-142	161
GREENSBORO	135	-56	1747	5	238
NEW BERN	75	-79	1032	-226	-2
RALEIGH-DURHAM	118	-57	1504	-80	128
WILMINGTON	58	-75	967	-114	-37
ND BISMARCK	483	77	4404	341	575
FARGO	483	61	4429	291	423
GRAND FORKS	503	67	4641	245	426
WILLISTON	495	88	4579	408	725
OH AKRON-CANTON	193	-83	2672	12	176
CLEVELAND	189	-82	2521	-74	177
COLUMBUS	175	-88	2318	-163	85
CINCINNATI	171	-79	2254	-50	124
DAYTON	193	-72	2445	-22	96
TOLEDO	209	-83	2651	-186	121
YOUNGSTOWN	194	-88	2767	-32	218
OK OKLAHOMA CITY	181	-22	1710	27	107
TULSA	196	-14	1804	117	279
OR ASTORIA	213	45	2455	133	233
BURNS	366	93	3843	634	707
MEDFORD	189	-8	1924	-271	87
PENDLETON	335	106	2672	221	365
PORTLAND	223	38	2003	-95	275
SALEM	225	43	2058	-152	198
PA ALLENTOWN	186	-76	2477	-31	244
ERIE	1q3	-95	2431	-334	102
HARRISBURG	171	-74	2278	-30	188
PHILADELPHIA	151	-83	1880	-217	91
PITTSBURGH	167	-97	2452	-136	146
SCRANTON	199	-77	2588	-149	80
RI PROVIDENCE	187	-68	2382	-73	270
SC CHARLESTON	31	-90	757	-207	-35
COLUMBIA	72	-69	1151	-59	30
FLORENCE	66	-74	1034	-119	16
GREENVILLE	108	-60	1558	80	215
SD ABERDEEN	479	84	4144	328	531
HURON	422	47	3852	248	445
RAPID CITY	411	103	3653	431	573
SIOUX FALLS	417	50	3722	212	268
TN CHATTANOOGA	100	-82	1513	-134	39
KNOXVILLE	112	-77	1672	-11	66
MEMPHIS	144	-32	1382	-78	69
NASHVILLE	138	-57	1595	-105	31
TX ABILENE	133	-21	1155	-75	-154
AMARILLO	223	14	2188	262	127
AUSTIN	86	-26	731	-77	-9
BEAUMONT	67	-30	613	-62	-30
BROWNSVILLE	11	-37	204	-61	-69
CORPUS CHRISTI	46	-22	362	-71	-36
DEL RIO	81	-23	650	-100	02
EL PASO	94	-58	1268	-71	23
FORT WORTH	123	-17	1032	-12	-30
GALVESTON	55	-22	445	-71	-42
HOUSTON	73	-22	644	-63	-49
LUBBOCK	168	-14	1583	-45	-106
MIDLAND-ODESSA	129	-21	1255	-14	-171
SAN ANGELO	118	-21	1044	-61	-138
SAN ANTONIO	84	-21	676	-75	-23
VICTORIA	52	-34	496	-73	-31
WACO	110	-23	939	-23	12
WICHITA FALLS	140	-35	1323	-71	-38
UT BLANDING	251	-18	2645	-118	145
CEDAR CITY	267	15	2777	108	162
SALT LAKE CITY	323	64	2830	188	273
VT BURLINGTON	257	-76	3233	-165	79
VA LYNCHBURG	143	-66	1813	-112	102
NORFOLK	118	-56	1325	-112	69
RICHMOND	139	-57	1682	-76	176
ROANOKE	142	-62	1923	-15	228
WA COLVILLE	365	78	3637	244	515
QUILLAYUTE	231	49	2706	-3	259
SEATTLE-TACOMA	225	43	2183	-131	286
SPOKANE	365	86	3452	248	534
YAKIMA	347	84	3127	256	556
WV BECKLEY	150	-94	----	---	---
CHARLESTON	134	-90	1969	-132	122
HUNTINGTON	141	-83	1957	-137	71
PARKERSBURG	154	-80	2128	-48	45
WI GREEN BAY	321	-32	3566	56	193
LA CROSSE	350	-4	3423	119	35
MADISON	292	-50	3312	-39	117
MILWAUKEE	269	-51	3000	-81	203
WAUSAU	367	-7	3939	179	140
WY CASPER	366	65	3398	-5	119
CHEYENNE	333	60	3395	193	243
LANDER	428	107	3794	196	132
SHERIDAN	415	95	3906	375	539

Based on 1951-80 normals.

December Weather in Historical Perspective

For the Nation as a whole, December 1992 was the 29th coolest December since records began in 1895. The national average temperature of 32.0°F was a little more than 1°F below normal (fig. 1). The national normalized precipitation index achieved its 26th highest ranking in December (fig. 2), boosted by wet conditions in the West and Southwest regions.

A steady flow of polar air kept the Northwestern United States cold during the month. The Southwest, West, Northwest, and West North Central regions experienced a 20th coldest, or colder, December (table 1). Elsewhere, near-normal temperatures prevailed, except in the Northeast, which had warmer-than-normal conditions.

Heavy precipitation arrived in the West region (California and Nevada) during December, providing the 15th wettest December on record (fig. 3). Between September 1 and December 31, 1992, precipitation in California was 106 percent of normal, largely due to rain and snow during the second and fourth weeks of December. Elsewhere, December precipitation was significantly above normal in the Southwest (th wettest) and East North Central (19th wettest) regions, but below normal nowhere.

Figure 1

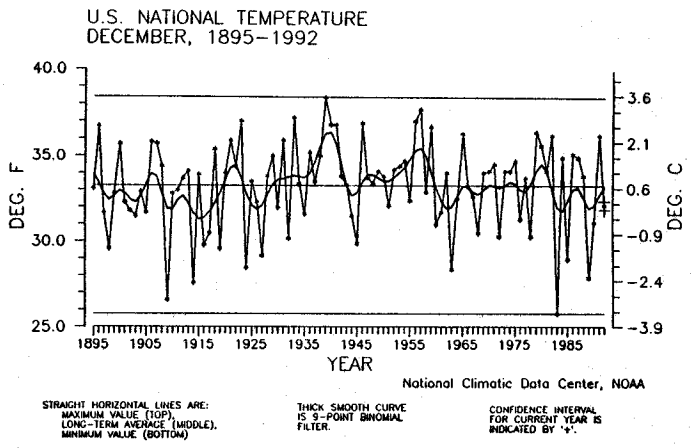


TABLE 1. TEMPERATURE AND PRECIPITATION RANKINGS FOR DECEMBER 1992, BASED ON THE PERIOD 1895-1992. 1 = DRIEST/COLDEST, 98 = WETTEST/HOTTEST.

REGION	PRECIPITATION	TEMPERATURE
NORTHEAST	58	70
EAST NORTH CENTRAL	80	61
CENTRAL	49	56
SOUTHEAST	52	61
WEST NORTH CENTRAL	46	16
SOUTH	68	55
SOUTHWEST	91	19
NORTHWEST	47	15
WEST	84	18
NATIONAL	73	29

Figure 2

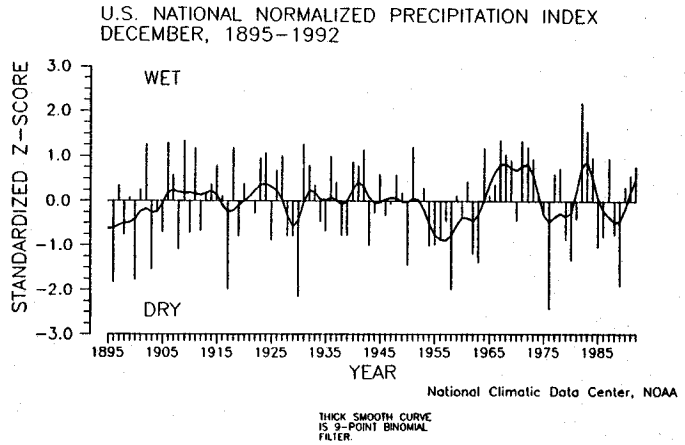
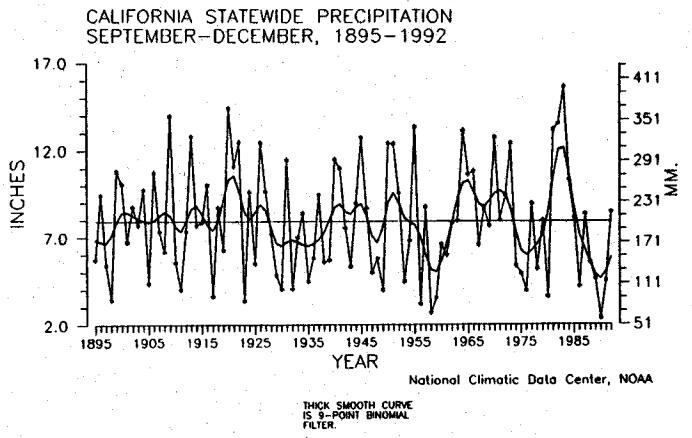


Figure 3



1992 Weather Review

The coolest summer in 77 years followed the mildest winter this century. Moderate temperatures and plentiful moisture favored crops, but the low summer temperatures slowed crop development. Heavy rain and snow during December eased the long-term drought in the Pacific States, though California reservoirs remained at their lowest levels since 1977. Hurricane Andrew became the costliest storm to ever strike the U.S. mainland when it slammed into southern Florida on August 24.

Winter (December 1991 - February 1992)

Temperatures for the winter season averaged above normal over more than 90 percent of the conterminous United States. Readings averaged up to 14 degrees F above normal in eastern Montana, and at least 3 degrees F above normal over most of the country east of the Rockies.

California endured low water supplies for the sixth consecutive year, though heavy rain and snow in February, like the previous year's "March Miracle" storms, significantly relieved short-term dry conditions and even caused mud slides and floods in the south. The season's cumulative precipitation was above normal in some southern areas, but not enough precipitation collected in the watersheds to offset the dryness of the previous years.

Long-term drought also affected Oregon, Washington, and Idaho. Rain and snow totals were less than 50 percent of normal across the Pacific Northwest during both winter and spring, reducing water supplies and increasing fire danger. Additionally, mild winter temperatures contributed to low snowpack in the mountains.

Texans suffered through the opposite extreme. From December 1991 through March 1992, an almost unrelenting series of storms crossed the Lone Star State. With records going back to the end of the last century, this was the wettest winter by far in Texas, as the Statewide December-February total of 15 inches was three times the normal.

Spring (March - May)

Spring was cool along the eastern seaboard. Washington, DC, had the coolest May in 25 years. During May 5-8, a remarkable snowstorm for this time of year struck the southern Appalachians. Mount Pisgah (elevation 5,749 feet), NC, recorded 60 inches of snow. Unusual cold in late May set records in the Central and Eastern States. Chicago's 32 degrees F on May 26 was the latest freeze on record by 11 days.

Warmth persisted out West. Reno, NV, measured its warmest May on record, averaging 10.3 degrees F above normal. Eugene, OR, tied its record for warmth and broke it for dryness, with a monthly total of only 0.14 inches. In June, a blocking high pressure ridge kept cool air and clouds away, resulting in more record warmth. Portland tied a June record on the 22nd with a reading of 100 degrees F. Spokane's 101 degrees F on the 23rd set an all-time June record.

Dry, cool weather hindered spring crop growth from the central Corn Belt to the Southeast, with rainfall less than 75 percent of normal. Precipitation was less than 50 percent of normal in northwestern Illinois.

There were a number of notable hailstorms this year, two of which struck central Florida in March. The worst of the two caused $60 million in damage to the Orlando area on March 25. This was reported to be Orlando's costliest weather disaster.

Summer (June - August)

Frequent incursions of cool air into the eastern two-thirds of the country dramatically increased the number of severe weather outbreaks. During June, there were 399 tornadoes across the Nation, the largest total ever reported for any month of the year. A 2-day total of 123 tornadoes on June 15-16 was second only to the record total of 148 during the "Super-Outbreak" of April 3-4, 1974. The unofficial national total at the end of the year was a record 1,381.

July was cool and wet for much of the United States. Nationally, this was the coolest July since 1950 and the wettest since 1958. With temperatures averaging 6 degrees below normal, the western Great Lakes region experienced the coolest July this century.

Midwestern crops received abundant moisture during crucial reproductive phases in July, erasing spring dryness. Crops also benefited from below-normal temperatures except in the northern and western Corn Belt, where coolness seriously hindered development.

Marquette, MI, reported its first freezing temperature on August 13. Only the western third of the country remained warm in August, as a stream of Canadian air masses enabled almost 400 daily record low temperatures to be set across the country. Additionally, over two dozen monthly extreme and average low temperature records were established this month. Nationally, this was the coolest August since 1927.

For the 3-month summer season, this was the coolest summer since 1915 and the wettest since 1927. Mean temperatures were 4 to 7 degrees F below normal throughout the North-Central region. Michigan experienced its coolest summer since at least 1895. Temperatures rarely topped 90 degrees in the northern half of the Nation east of the Rockies this season, with Minneapolis, MN, reaching 90 degrees on only 3 days, compared with a normal of 14 days. In contrast, the Pacific States averaged around 2 degrees above normal this summer. Sacramento, CA, set a record with 90 degree heat on 39 consecutive days between July 13 and August 20.

In August, Hurricane Andrew headlined the weather news. After striking the Bahamas on August 23, Andrew continued westward, smashing into southern Florida during the early morning hours of August 24. The hurricane's maximum sustained winds were officially estimated at 145 mph with gusts to at least 175 mph, but estimates varied since no official instruments survived while the storm was inland. With the eye moving directly over it, southern Dade County suffered catastrophic damage. After exiting the Florida peninsula, Andrew crossed the Gulf of Mexico and made landfall in south-central Louisiana with 120 mph winds during the pre-dawn hours of August 26.

The storm caused 15 deaths in Dade County and 8 in Louisiana. Structural damage was enormous in Florida, with 25,000 homes destroyed and 101,000 more damaged. By any measure, this was the most expensive storm to ever strike the United States. Florida damage estimates started at $20 billion, with Louisiana estimates near $1 billion.

Andrew was the first of two major hurricanes this year. A rare Hawaiian hurricane struck the island of Kauai on September 11 with sustained winds to 140 mph. Iniki, which caused four deaths and an estimated $1.6 billion in damages to insured property, was the strongest hurricane to affect Hawaii since the National Weather Service opened offices there during World War II.

Autumn (September - November)

Summer ended abruptly in Alaska this year. Bitter cold and snow arrived during the second week of September. Fairbanks had its coldest September on record, its average temperature (31.7 degrees) more than 6 degrees colder than the previous mark set in 1908. More than 2 feet of snow fell (another September record), and the mercury failed to top 40 degrees during the last 20 days of the month.

The first major storm of the season struck the Pacific coast on October 29, bringing several inches of rain to northern California and up to 30 inches of snow to the mountains near Lake Tahoe. Heavy rains also struck coastal Oregon and Washington during the last 2 weeks of October, bringing hope that the 6-year drought plaguing much of the Pacific region would be broken. Unfortunately, November precipitation was well below normal, especially in California.

From the Rockies eastward, November was a stormy month. Several vigorous frontal systems brought heavy snow and severe thunderstorms to large parts of the country. The precipitation ushered in a good start to the snow season in Utah and Colorado and relieved dry conditions in the Plains States, so there were some benefits to the spate of nasty weather. One of the storm systems, however, triggered a severe weather outbreak across the Southern States and Ohio Valley on November 21-23. Numerous violent tornadoes struck nine States during this period, claiming 25 deaths and injuring as many as 400 people.

The storm systems crossing the Corn Belt did little to advance the corn harvest in November. The crop was already behind because of the cool summer, and the lack of dry days this month left the harvest further behind. In Michigan, only 25 percent of the harvest had been completed by the close of November. This contrasts with 100 percent harvested at this time 1 year ago. Nevertheless, national corn and soybean yields attained record levels this year, thanks to the lack of sustained heat or dryness during the summer.

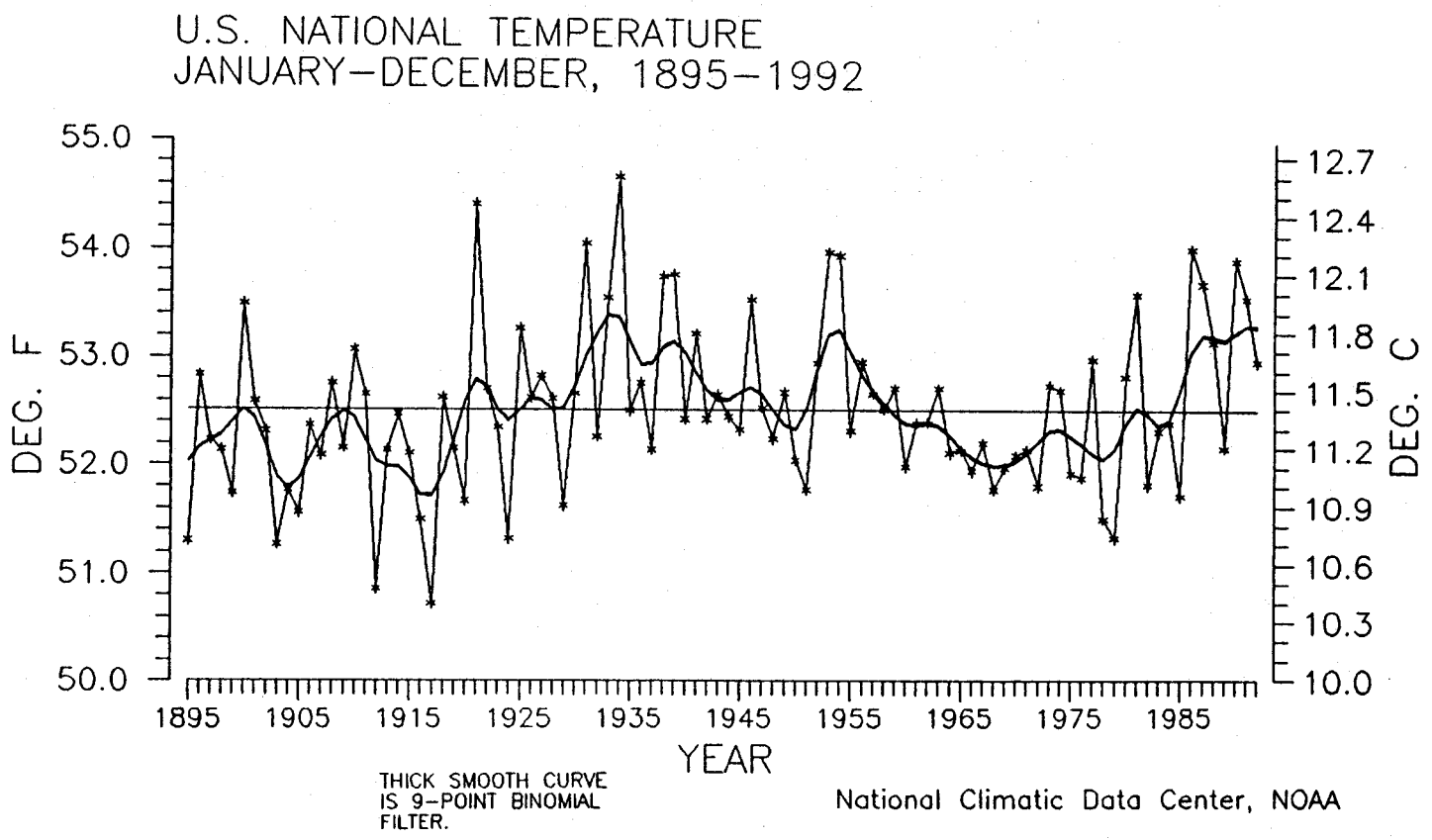
December 1992

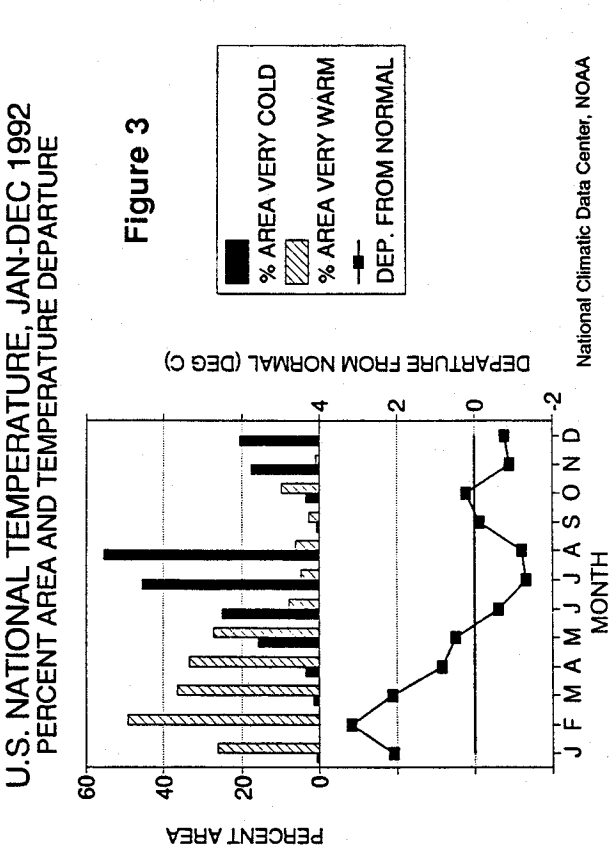
The last month of the year will be remembered for cold in the West, snowstorms in the Pacific States, and a ferocious storm in the Northeast. Pacific storms piled up foot after foot of snow in the California Sierra Nevada, with depths of 6 feet in some areas by early January 1993. Mountain snowpack, so critical for future water supplies, rose to more than 120 percent of normal. More than 16 inches of rain fell during the month in some parts of California. Snowfall records fell in Oregon and Washington. The 39 inches of snow that fell at Klamath Falls, OR, was not only a record for December, but also a record for the most snow ever in 1 month. In the East, that epic "nor'easter" that lashed the coast from Delaware to Massachusetts during December 10-13 left 1 to 3 feet of snow in the mountains of Virginia, West Virginia, western Pennsylvania, southern New York, and the higher terrain of Connecticut and Massachusetts. Winds gusted to 90 mph along the south Jersey coast.

Summary

Preliminary data indicate that annual temperature averaged across the contiguous United States was above the long-term mean (fig. 1), ranking 1992 as the 21st warmest year on record. The West was warm and the East had near or below-normal temperatures (fig. 2). The western region had the fourth warmest year on record and the Northwest had the second warmest year (Table 1). California, Idaho, Oregon, and Washington all experienced the third warmest year since records began in 1895 (Table 2). There was a sharp contrast in U.S. temperatures between the first half and the second half of the year (fig. 3). Indeed, January-June 1992 was the fifth warmest such period on record and July-December 1992 was the fifth coldest such period on record. Precipitation was above normal for much of the country (figs. 4-5), with totals as much as 150 percent of normal in Texas, Oklahoma, Kansas, and in the Southwest. This was the fifth wettest year on record for Arizona (Table 3). Thanks largely to plentiful precipitation in February, March, and December, California's Statewide total was normal (on a calendar year basis) following 5 years of below-normal precipitation (fig. 6).

Figure 1




U.S. NATIONAL TEMPERATURE, JAN-DEC 1992
PERCENT AREA AND TEMPERATURE DEPARTURE
Figure 3
% AREA VERY COLD
% AREA VERY WARM
DEP. FROM NORMAL
PERCENT AREA
DEPARTURE FROM NORMAL (DEG C)
J F M A M J J A S O N D
MONTH
National Climatic Data Center, NOAA

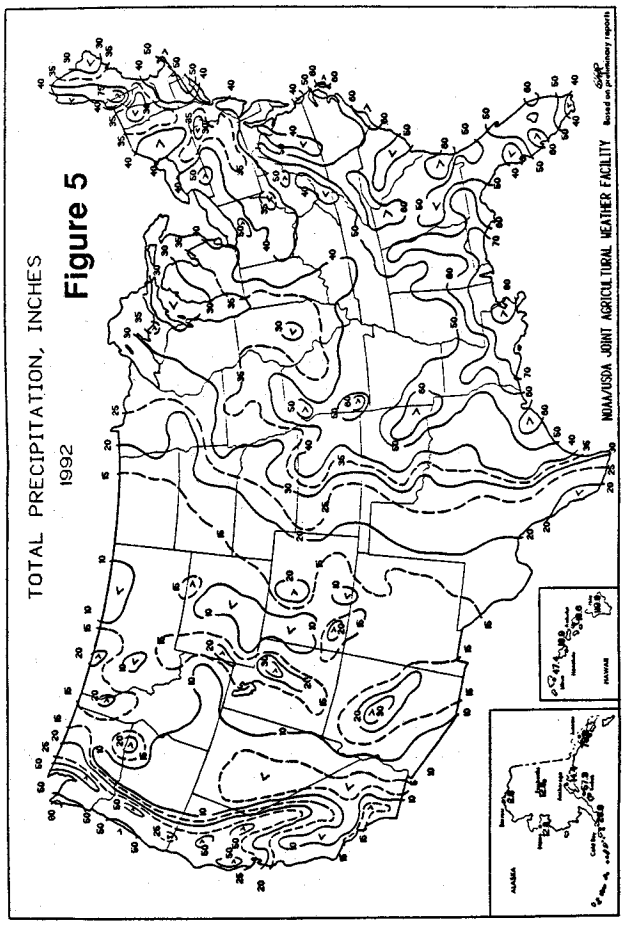
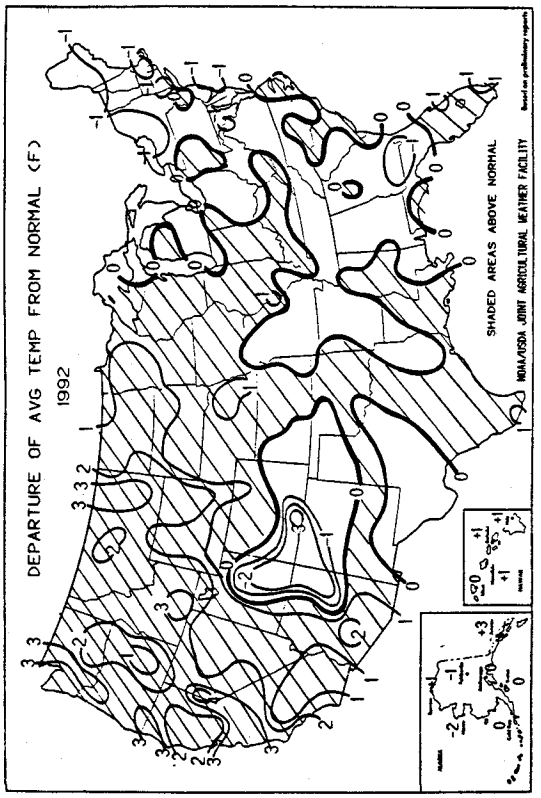
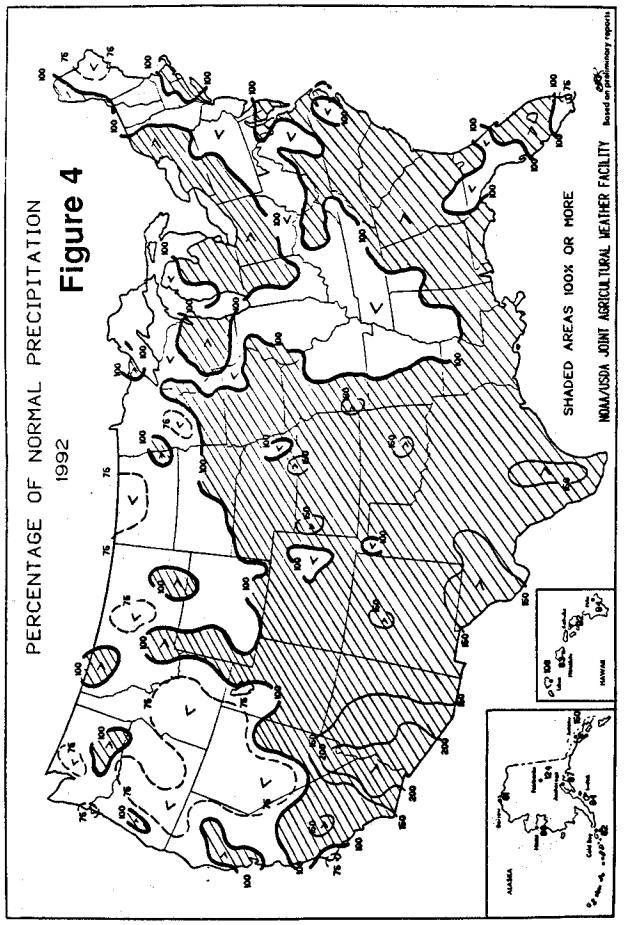

TOTAL PRECIPITATION, INCHES
1992
Figure 5
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY

Figure 2


DEPARTURE OF AVG TEMP FROM NORMAL (F)
1992
SHADED AREAS ABOVE NORMAL
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY


PERCENTAGE OF NORMAL PRECIPITATION
1992
Figure 4
SHADED AREAS 100% OR MORE
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY

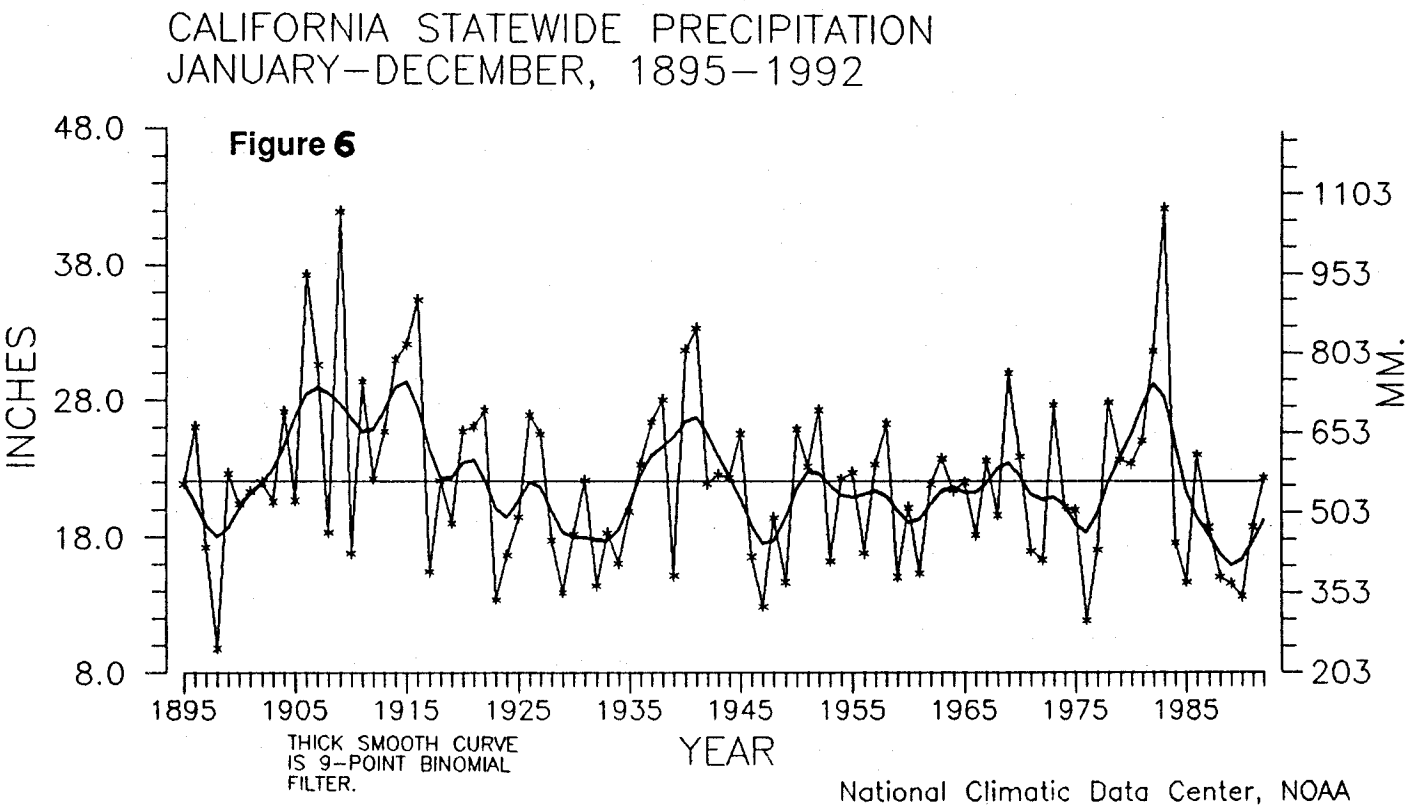


TABLE 1. TEMPERATURE AND PRECIPITATION RANKINGS FOR JAN-DEC 1992, BASED ON THE PERIOD 1895-1992. 1 = DRIEST/COLDEST, 98 = WETTEST/HOTTEST.

REGION	PRECIPITATION	TEMPERATURE
NATIONAL	76	78
NORTHEAST	51	21
EAST NORTH CENTRAL	63	55
CENTRAL	44	43
SOUTHEAST	82	24
WEST NORTH CENTRAL	49	83
SOUTH	84	32
SOUTHWEST	83	72
NORTHWEST	11	97
WEST	49	95

TABLE 3. PRECIPITATION RANKINGS FOR JAN-DEC 1992, BASED ON THE PERIOD 1895 TO 1992. 1 = DRIEST, 98 = WETTEST.

STATE	RANK	STATE	RANK	STATE	RANK	STATE	RANK
AL	86	IA	76	NE	78	RI	79
AZ	94	KS	89	NV	43	SC	83
AR	41	KY	25	NH	15	SD	77
CA	57	LA	81	NJ	39	TN	37
CO	49	ME	11	NM	79	TX	86
CT	62	MD	44	NY	82	UT	47
DE	30	MA	65	NC	73	VT	23
FL	72	MI	77	ND	14	VA	51
GA	90	MN	51	OH	65	WA	21
ID	11	MS	70	OK	88	WV	30
IL	44	MO	52	OR	11	WI	51
IN	64	MT	33	PA	70	WY	35

TABLE 2. TEMPERATURE RANKINGS FOR JAN-DEC 1992, BASED ON THE PERIOD 1895 TO 1992. 1 = COLDEST, 98 = WARMEST.

STATE	RANK	STATE	RANK	STATE	RANK	STATE	RANK
AL	17	IA	59	NE	60	RI	30
AZ	77	KS	53	NV	92	SC	20
AR	30	KY	40	NH	41	SD	70
CA	96	LA	27	NJ	41	TN	27
CO	62	ME	16	NM	28	TX	34
CT	35	MD	44	NY	23	UT	88
DE	31	MA	13	NC	34	VT	21
FL	47	MI	26	ND	85	VA	42
GA	19	MN	69	OH	41	WA	96
ID	96	MS	21	OK	47	WV	28
IL	53	MO	46	OR	96	WI	54
IN	47	MT	91	PA	27	WY	88

Crop Progress 1992

The 1992 **winter wheat** crop came through a mild winter with less than adequate snow cover. The late-winter warm weather allowed the crop to come out of dormancy earlier than normal. This allowed the crop to take advantage of late-winter and early-spring rains, but also left the crop vulnerable to a late frost. By the second week in March, a cold snap caught the crop in the Midwest. By late March, producers in the Midwest were concerned about thin stands caused by the March and earlier freezes. However, crop conditions nation-wide still remained favorable until May, when lack of soil moisture diminished crop prospects. This stress prompted the crop to start heading earlier than normal. Harvest started in early June and ended in September. However, rains through the period slowed harvest progress so that harvest ran behind last year's pace and the 5-year average. Late August saw the beginning of sowing of the 1993 crop. The fall weather was generally favorable, and seeding progressed on schedule. By the year's end, the crop was in generally good condition.

Planting of the 1992 **spring wheat** crop started in the Northwest in March, with other areas starting during April. Planting progressed with no unusual delays and was completed by the end of May. Spring rains helped the new crop off to a fast start. Cool weather throughout the summer helped delay crop maturity. Although harvest commenced in late July, slow maturing grain and showers combined to slow the harvest to a pace that was behind last year and the average. Harvest of this year's crop finally ended in late September.

Corn planting started in February in the Southern States. Planting progress advanced northward in March and April, but came to a halt in late April as a series of storms moved across the Nation. Good weather the first half of May allowed a flurry of activity which allowed producers to finish planting the crop ahead of normal. Cool temperatures and dry weather caused crop condition to decline in late May and early June. Late June saw freeze damage in the Great Lakes and eastern Corn Belt regions. Timely rains from late June through August relieved moisture concerns for the crop. However, cool temperatures throughout the summer caused the crop to mature much slower than normal, so that by September frost became a real threat to the crop, especially in the Corn Belt. Harvest of the crop began in August in the South, but progress was interrupted by rain. September saw harvest advance slowly northward, as an immature crop discouraged most producers from starting. The beginning of October saw the first of a series of frosts spread southward. By the end of the month, all of the Corn Belt had received frost. The frost killed some of the plants before maturity which resulted in a slowing of the dry-down process. By the end of October, harvest was approximately a month behind normal in the major producing States of the Corn Belt and finished in the South. November saw more precipitation, mild temperatures, and lots of clouds, which turned the fields into mud. Despite the mud and the high moisture content of the grain, the harvest continued. By mid-December, harvest was near completion in all States except in the Great Lakes region, Ohio, and Pennsylvania. By the end of the year, significant acreage was left for harvesting in these areas.

The favorable spring weather allowed **soybean** producers to get a fast start on planting the 1992 crop. By the end of June, planting was completed in the northern producing States. However, second-crop soybean planting in the South was delayed by wet weather and harvest of earlier crops. July saw the second-crop of soybeans completly planted. Cool weather in the northern production areas delayed their crop progress throughout the summer. Favorable conditions in the South allowed their crop to advance ahead of normal. Progress of the northern crop finally matched the southern crop development and reached the normal pace in September, after experiencing near-freezing temperatures and declining sunlight. Harvest started in late August in southern Texas, and advanced northward during September. The frost in October caused minor damage to the crop. Harvest progressed during October and advanced rapidly to conclusion in the northern production areas, aided by generally favorable conditions the second part of the month. Harvest of the second-crop continued through November and into December. Progress was delayed, especially in the Southeast by rainfall and muddy fields. The harvest of the second-crop was virtually completed by the end of December.

By late February, the first of the 1992 **sorghum** crop was planted in southern Texas. Planting progress continued northward during March but did not hit full stride into April. Planting progress was ahead of normal throughout April and May. Planting delays caused by rain and additional acreage planted in Texas on failed cotton acres occurred in June. July saw the end of seeding as additional failed cotton acres were planted to sorghum in Texas, and the final fields were planted in the southern plains and Rockies. The crop matured earlier than normal in the South, while cool weather in the Plains caused the crop to mature late. Harvest started along the Rio Grande in July. Harvest advanced into northern Texas and into the Mississippi Delta in August, although progress was hampered by rain. Further north, the cool weather kept the crop behind normal. In September, the harvest gained momentum in the South, but crop development continued to lag in the plains. More favorable conditions in October helped the crop in the plains to advance to maturity. Harvest ended in the Delta regions in October, and started in the Plains. Producers in the Plains found harvest slowgoing as high grain moisture content and wet fields were a problem. While most other States finished harvest in November, clouds, rain, snow, and muddy conditions in Kansas combined to ensure that there was still acreage to be harvested at the end of the year.

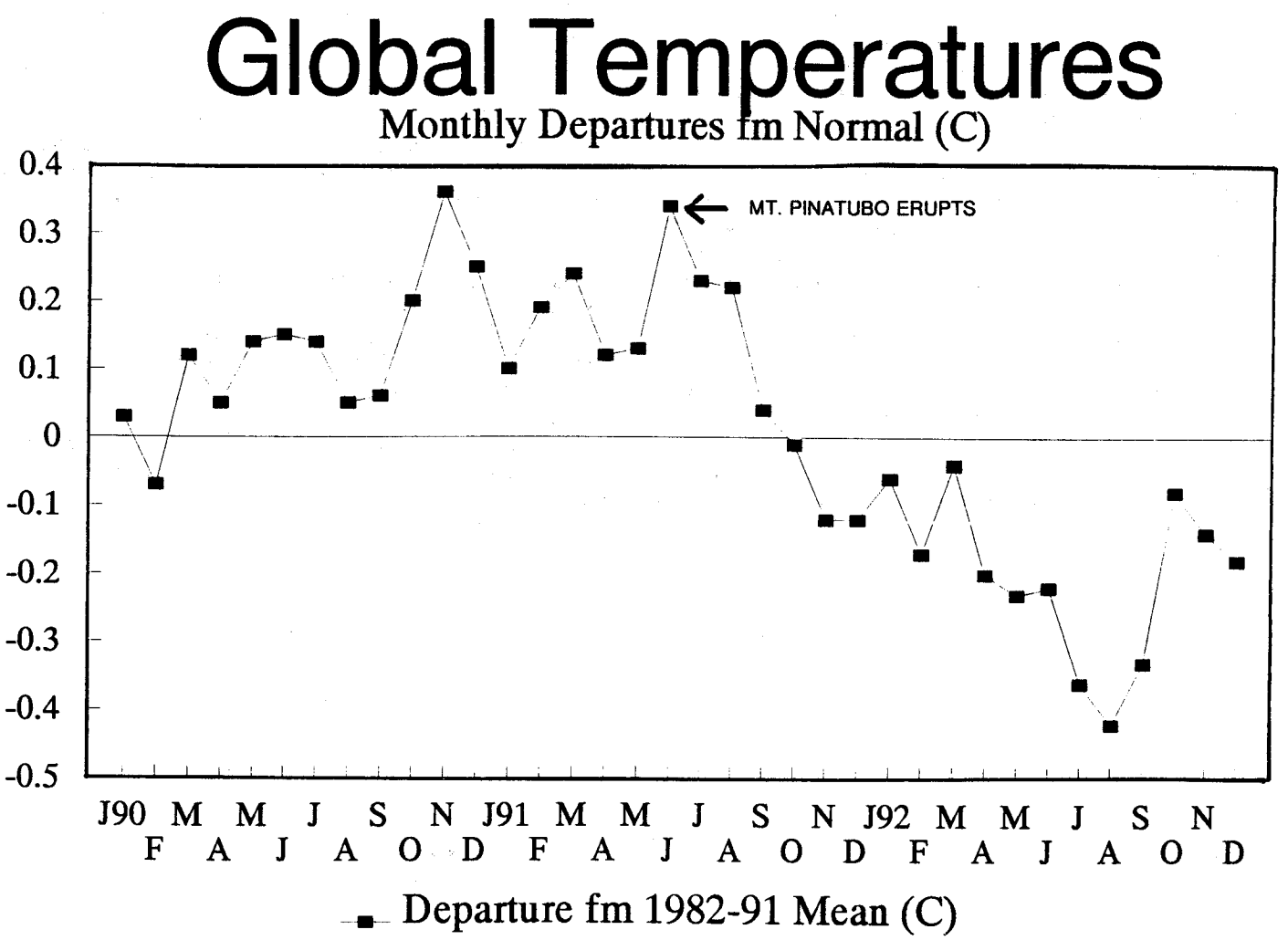
Planting of the 1992 **cotton** crop started in southern Texas in February. Although, hampered by rain at times, seeding got off to a fast start and was ahead of last year's pace and average by the beginning of June. Hail, high winds, and excessive moisture during the month damaged some fields in the Texas plains and caused producers to shift some of the failed acreage to sorghum. Excessive moisture in July hurt the crop in Texas, Oklahoma, and Arizona, and generally delayed progress. Cool, wet weather in the South further delayed crop progress, while warm temperatures improved conditions in the West. Harvest began in Texas in late July and slowly moved northward. Cool and wet weather through September and the first half of October kept harvest progress behind normal in the Southeast. In the West, favorable conditions allowed harvest to advance ahead of normal during the same time period. By late October, good weather across the cotton producing areas allowed harvest progress to equal last year and the average. A November frost in north Texas aided the harvest. By the end of the year, harvest progress was at a normal pace.

Mt. Pinatubo and Global Cooling

In last year's annual issue (*Weekly Weather and Crop Bulletin*, January 14, 1992), we posed the question: "Can a volcano offset a global warming trend?" We surmised that the cooling impact from the June 1991 eruption of the Philippine volcano would persist through the new year and lower the global average temperature by as much as 1 degree F (0.6 degrees C). One year later, we have the answer to our question, and it is "yes." Satellite measurements of global temperatures (source: John Christy, University of Alabama, and Roy Spencer, NASA Marshall Space Flight Center) show that 1992 was the second coldest year since these measurements began in 1979, with readings starting to drop during the summer of 1991 and reaching their lowest levels (in terms of anomalies) during July, August, and September 1992. It is unclear if the initial cooling in 1991 is related to the eruption, which may have been the largest this century, but most climatologists believe the cooling during late 1991 and 1992 can be ascribed to the scattering of solar energy back to space by the huge volume of stratospheric particles resulting from Pinatubo. Other factors affect large-scale temperature anomalies and, in this case, the existence of an El Niño event (more properly termed the "warm phase of the El Niño-Southern Oscillation) during the last half of 1991 and the first months of 1992 may have offset some of the cooling impact of the volcano.

As for 1993, the impact from Pinatubo should be wearing off. Temperatures have already risen somewhat from earlier levels, though they remain slightly below the 10-year mean. Additionally, satellite data show the layer of particles in the stratosphere has thinned, so less solar energy should be bounced back to space.

Douglas Le Comte
Managing Editor



MSU satellite data
Data fm. J Christy, Univ. of AL and R. Spencer, NASA Marshall Space Flight Center

National Agricultural Summary

January 4 - 10, 1993

HIGHLIGHTS: Bitter cold weather continued to dominate the northern Great Plains for the week, while well-above-normal temperatures occurred in the East. Precipitation fell in the Ohio Valley the early part of the week, and most of the week across the Pacific coast, the Southwest, and the Southeast. The precipitation in the West temporarily eased their water problems. Fieldwork continued to be delayed by wet fields in the South and Southeast.

SMALL GRAINS: Winter wheat remained in generally good condition across the Nation. However, excessive moisture in Arkansas and California hurt stands. The condition of the wheat in Texas continued to be less favorable than last year. Mite and greenbug infestations were reported in some Texas fields. Snow cover was mostly adequate in the Great Plains. Completion of the final small grain plantings in the Southeast continued to be delayed by the wet weather. Fertilizers were spread on small grain fields where weather permitted.

COTTON: Cotton harvest advanced slowly across the south as weather conditions allowed. In Texas, 97 percent (%) of the crop was harvested, compared with 94% last year and the 5-year average of 99%. The remaining cotton in Texas had lost weight and quality due to the wet conditions. Fieldwork in Arizona and California was again delayed by rain.

OTHER FIELD CROPS: Wet weather severely limited harvest progress of corn in Michigan, sorghum in Kansas, and soybeans in the Southeast. Tobacco seedbed preparation was active in the Southeast where weather permitted. However, in Georgia seedbed preparation was well behind normal due to wet weather. Onions in the Rio Grande Valley and Trans-Pecos regions of Texas had progressed well. Weed control measures were applied as weather permitted. In Georgia, onion seedbed preparation was behind normal due to the wet conditions. Rain interrupted the winter potato harvest in California.

FRUIT AND NUTS: Adequate moisture along the east coast and some irrigation left the Florida citrus crop in very good condition. Orange and tangelo harvests were active in all areas, while the tangerine harvest was winding down. The citrus harvest was hampered by wet weather in California and in central and western Arizona. Lemon, grapefruit, and tangerine harvests advanced in California. Little to no cold weather damage was observed from the previous month's freeze. The pecan harvest continued in Arizona, Georgia, and Texas, with frequent rain delays. Harvest in the Trans-Pecos region of Texas neared completion. In the High Plains of Texas, some trees were damaged by ice storms.

VEGETABLES: Rain hindered harvest last week over the major vegetable areas of Florida, California, and Arizona. In Texas, wet conditions delayed plantings, especially in the eastern region. Tomatoes, peppers, cucumbers, cabbage, and celery harvests advanced in Florida. In California, broccoli and cauliflower harvests moved to the westside and desert areas. Celery harvest advanced in the Coachella Valley of California, and neared completion in the Santa Maria area. Spinach was planted in the Modesto area.

PASTURES AND LIVESTOCK: Livestock remained in generally good condition across the Nation. However, in the Midwest, the cold, damp weather caused increased foot and respiratory problems. The bitter cold weather in the northern Plains has forced producers to increase supplemental feeding. Feed supplies remained adequate. Producers kept livestock off of wet pastures in the South. Rain and snow in the West have improved stock water supplies. Early lambing and calving began in the West.

State Summaries of Weather and Agriculture

These summaries provide brief descriptions of crop and weather conditions important on a national scale. More detailed data are available in Weather and Crop Bulletins published each Monday by NASS State Statistical Offices in cooperation with the National Weather Service.

ALABAMA: Rainfall 1.07 to 2.51 in. north; 1.11 to 2.56 in. central; 1.10 to 3.50 in. south. Temperatures 4 to 11° above north; 5 to 11° above normal central; 6 to 13° above normal south. Lows 34 to 44° north; 38 to 47° central; 43 to 50° south. Highs 62 to 66° north; 64 to 68° central; 68 to 74° south.

Primary activities: Harvesting timber; marketing cattle; maintaining farm records, equipment; land use planning, management, repairing machinery, fences; general care of livestock, poultry, catfish.

ARIZONA: Precipitation statewide most all week. Flash flood warnings central, southern areas; minimal damage to agriculture. Temperatures 3° below normal to 7° above normal. Extremes -3°; 53°, higher elevations: 22°; 68°, deserts.

Cotton stalk shredding, plowdown near halted by rain, wet fields. Alfalfa mostly good; harvest continued light, all areas. Small grains planted 82%, 83% 1992, 86% avg.; stands established 67%, 69% 1992, 68% avg. Vegetable, fruit harvest also slowed by wet conditions. Broccoli, cabbage, lettuce, bok choy, cilantro, kale, parsley, napa, spinach available western, central areas. Also available west: Cauliflower, escarole, endive. Leeks, beets, dill, kohlrabi, radishes, rapini, mixed greens, turnips available, central. Citrus harvest continued central, western areas. Pecans, chilies, harvested east.

ARKANSAS: Temperatures near normal, heavy rain statewide early in week. Extremes 19°; 69°. Rainfall 1.13 to 5.27 in.

Soil moisture supplies adequate to surplus. Wheat good, needs sunshine, dry weather. Fields planted early are well tillered, good stands. Late planted fields thinner, not as well tillered. Many rice producers have pulled up levees, allowing the rain to flood fields to control red rice. Livestock good. Producers were feeding hay. Pastures good.

CALIFORNIA: Series of systems moved through the State. Moisture fed from tropics met cold polar air from Gulf of Alaska, producing snow, especially northern mountains. Copious rainfall recorded lower elevations. Southern areas experienced significant flooding.

General rains halted fieldwork most areas. Few harvested cotton fields left, plowdown for pink bollworm control. Small grains, winter forages excellent progress southern counties; growth slowed cold temperatures elsewhere. Some frost damage possible, northern wheat; possible reseeding necessary low lying areas, excessive moisture. Ground preparation, seeding stopped until soils dry. Corn grain harvested southern counties. Small grains, alfalfa sprayed broadleaf weeds. Some established alfalfa plowed under, new fields seeded, as conditions allowed. Pruning, winter cultural activities tree, vine crops continued, weather permitting. Some application fungicide, dormant spray where not prohibitively wet. Apples Fresno area packed out of cold storage. Pace citrus, avocado harvests slowed considerably rainy weather. Coachella Valley lemon crop nearly picked, other picking continued slowly. Palo Verde area lemons, grapefruit, tangerines picked. Little cold weather damage observed; growers protected crops. Citrus export orders increasing. Good quality Blood oranges picked. Broccoli movement fairly light, variable quality Salinas-Watsonville, Santa Maria areas. Cauliflower volume light, variable quality central coast. Rain, wet fields slowed field activities. Broccoli, cauliflower harvests continued Westside, desert areas. Celery harvest towards completion Santa Maria, light movement, generally good quality. Cabbage picked for fresh, freezer markets Westside area, Palo Verde Valley, Riverside district. Celery continued Coachella Valley. Strawberry nursery, commercial nursery harvest/grading well under way Merced area. Spinach planted Modesto area. Iceberg lettuce shipped from Palo Verde Valley, leaf, Romaine lettuce trucked from Coachella Valley. Fall potato movement from storage Tulelake-Butte Valley slowed-heavy snow. San Jacinto district potato harvest stopped-rain. Other crops being harvested include: Radishes, beets, green onions, spinach, turnips, various oriental vegetables. Rangeland, pasture conditions good to fair. Growth, development slowed cold temperatures. Stock ponds continued to fill. Supplemental feeding most areas. Livestock movement slow to moderate. Calving, lambing active. Sheep grazed alfalfa, weed fields.

COLORADO: Mostly sunny, cold statewide on the 4th; these conditions continued through the 5th. Moisture moving into the State from the southwest prompted snow warnings, advisories for the mountains, especially the southwestern, Sangre De Cristo mountains. Periodic storms continued to affect the southern sections of the State the rest of the period, 2 to 4 feet of snow fell in the southern mountains. Moisture at lower level reporting stations ranged up to 2.19 in. at Durango; around three quarters of an inch of moisture was reported in the western valleys. Moisture decreased sharply east of the Divide, where amounts were mostly less than a tenth of an inch, with no locations reporting as much as a half an inch. The cloudy conditions west of the Divide helped temperatures in that area to remain mostly within a couple of degrees of normal while in the San Luis Valley, east temperatures mostly between 3 to 6° below normal.

Care, feeding of livestock was the major activity this week.

FLORIDA: Temperatures 10 to 15° above normal. Highs; low to mid 80s Peninsula. Highs reaching near 80° Georgia border. Highs extreme western Panhandle near 70°. Lows near 50° western Panhandle, 50s remainder north, 60s Peninsula. Nearly all State received over 1.00 in. rain, several areas reporting 2.00 to 4.00 in. Eastern Panhandle, western Big Bend area, 5.00 to 10.00 in. common. Rain reported 3 to 6 days.

Soil moisture adequate to surplus Panhandle, short to surplus Peninsula. Flooding from heavy rain in scattered areas. Sugarcane harvest, planting active. Tobacco plant beds being sown. All citrus very good. Moisture adequate east coast. Low volume irrigation many areas. No new growth. Early, mid orange harvest active all areas. East coast moving grapefruit to both fresh, process markets. Tangerine harvest slowing. Tangelo movement active all areas. Caretakers cutting cover crops, unbanking young trees. Rain slowed, interrupted field work, harvesting all areas last week. Rainfall 1.00 to 2.00 in. central, 3.00 to 5.00 in. south. Soil moisture adequate to excessive all major vegetable growing areas. Volume leaders: Tomatoes, peppers, cucumbers, cabbage, celery. Also available: Snap beans, carrots, chinese cabbage, sweet corn, eggplant, escarole, iceberg lettuce, specialty lettuces, radishes, squash, strawberries, cherry tomatoes. State's pastures fair to good. Pasture 30% fair, 55% good, 15% excellent. Moisture levels short to adequate. State's cattle herds fair to good.

GEORGIA: Warm, wet week. Temperatures 7 to 12° above normal north, 10 to 15° above normal southeast. Warmest daily temperatures low 60s mountains, upper 70s extreme south. Lows middle 30s northeast mountains, lower 40s central, middle 40s south. Rain 4 to 7 days. Rainfall 1.00 to 3.00 in.; local areas over 4.00 in.

Soil moisture surplus statewide. Field operations limited due to wet conditions. Some pecans, cotton and soybeans remain to be harvested. Hay being fed to livestock. Farmers holding cattle off small grain fields, boggy permanent pastures. Onion transplanting, tobacco bed preparation well behind normal. Onions fair, tobacco plants good. Small grain plantings almost complete. Fertilizer being applied to earlier planted small grains when possible, fair to good. Pastures fair, livestock good.

HAWAII: A deep-low pressure system brought adverse weather across State. A squall line moving down island chain brought high winds, heavy rains midweek. Record low temperatures recorded in Honolulu on 5th, 6th. Gale-force winds, snow, icy conditions high elevations Maui, Hawaii islands. On Hawaii island, windstorm forced highway closures, damaged homes. Temperatures high 50s to mid 80s. Rainfall none to 6.80 in.

Field operations delayed by inclement weather. Orchard, flower, macadamia nut crops suffered damage from wind, rain Hawaii island. High winds left banana orchards with leaf stripping, toppled trees. Overall damage papaya orchards light.

IDAHO: Temperatures 17° below normal at Aberdeen to 6° below normal at Boise. Precipitation across the State 0.01 in. Idaho Falls to 0.90 in. Moscow.

Soil moisture varied across State. Adequate amount southwest, southeast, north; short amount south central. Activities: Plowing snow off roads, marketing crops, repairing farm machinery, attending commodity meetings, workshops. Hay, roughage supplies adequate. Livestock activities: Marketing cattle, cattle on winter hay, calving beginning in some areas of State, lambing activity continuing across the State. Livestock good; however, snow causing some difficulty in feeding.

ILLINOIS: Low pressure produced a snowstorm 10th over central, northern portions of the State, leaving 5 to 8 in. accumulation. Highs mid 20s to low 40s, while average lows ranged from the teens to low 30s. Precipitation 0.70 to 3.00 in. central, southern areas 0.15 to 1.40 in. north. This was wetter than normal in all areas except portions of north.

INDIANA: Temperatures 0 to 7° above normal. Highs mostly in the 30s with lows mainly in the 20s. The mercury hit the 60s early in the week in the south, dipped into the teens across the north late in the week thanks to snowcover. Precipitation 0.50 in. to around 2.00 in. One to 2.00 in. common. Snowfall over the weekend 2 in. central areas to 5 or 7 in. parts of the north.

The majority of the State reported considerable wet areas. Standing water is still a problem in several fields. Reports on the wheat crop are good to excellent. Livestock feedlots are wet, muddy, causing some difficulties with foot, respiratory problems. Activities: Hauling grain, tending to livestock, stripping tobacco, putting machinery into storage, preparing for 1993 contracts.

IOWA: Temperatures 9° below normal northwest to 3° above normal east. Extremes -15° Sheldon (northwest) 8th.; 47° Fairfield, Keosaqua (southeast) 4th. Precipitation trace north; up to 0.48 in. southeast at Donnellson; State average 0.17 in. (normal 0.20 in.). Snowcover 1 northeast to 7 in southwest.

Corn harvest 96% complete. Mud, ice, snow limiting utilization of stalks, stubble for grazing. Widely fluctuating temperatures causing respiratory problems in livestock, some losses. Cattle losses, 13% below avg., 80% avg., 7% above avg. Hog losses 10% below avg., 84% avg., 6% above avg.

KANSAS: Temperatures 5° below normal to 2° above normal over State. Moderate precipitation received all districts.

Light precipitation in the form of rain or freezing rain was received over the State early in the week. A major snowstorm moved across the State late in the week dumping 10 to 12 in. most areas. Weather conditions the past week generally stopped all harvest progress. Stockmen busy tending livestock. With the cold weather, snow, instances of livestock sickness have increased. Generally, livestock feed, care requirements have increased.

KENTUCKY: Low clouds prevailed. Temperatures around 40°, 8 to 10° above normal. Rainfall around 0.50 in. east to around 1.00 in. west.

Soil moisture mostly adequate. Soils generally unfrozen. Burley price slipping with increased amounts going to government pool. Belt sales 86% production estimates. Some burley markets closing, major markets remain open. Season for agricultural commodity meetings. Livestock mostly satisfactory condition with ample feed supplies. Damp weather causing some respiratory problems.

LOUISIANA: Temperatures 2.6 to 8.7° above normal. Extremes 33°; 82°. Rainfall 1.42 in. northeast to 3.84. south central.

Sugarcane harvesting virtually wrapped up. Crawfishing, caring for livestock. Topdressing pastures. Repair, maintenance of farm equipment.

MARYLAND & DELAWARE: MARYLAND: Precipitation 1.22 in. Temperature 42.0°, normal 32.8°. Extremes 18°; 66°.

Warmer temperatures, precipitation favoring cattle, small grain condition. Hay supplies adequate. North, west received snow during weekend. Cutting firewood, feeding hay, caring for livestock.

DELAWARE: Precipitation 1.47 in. Temperature 42.0°, normal 34.0°. Extremes 22°; 66°.

Hay supplies adequate. Pastures, livestock mostly excellent condition. Small grains good condition.

MICHIGAN: Extremes -3°; 56°. Precipitation none to 2.00 in. across State.

Corn remained at 75% harvested. Mostly cloudy skies, cool temperatures prevailed last week. Precipitation fell as rain early in the week, snow the latter part of the week. Feed supplies are adequate to short, livestock good. Major activities: Spreading lime, manure, pruning, cleaning, fixing barns, getting ready for taxes, waiting for cold, dry conditions to return to continue harvest.

MINNESOTA: Temperature departures 14° below normal in the northwest to 4° below normal in the southeast. Extremes -36°; 39°. Precipitation was light averaging none to 0.09 in., 0.12 to 0.21 in. below normal. Greatest weekly total 0.16 in. Snowfall less than 1 in. with snow depths averaging 15 to 18 in. northeast, north central regions, 1 to 9 in. elsewhere. Temperatures were bitterly cold with -30° readings common across much of the northern one-third of the State. Temperature extreme maximum northwest corner 16°. At least one subzero temperature was recorded at all locations in the State.

MISSISSIPPI: Temperatures 49°, 6.2 above normal. Extremes 25°; 76°. Entire State received near normal rainfall, average 1.35 in., 0.17 in. above normal. Soil temperatures 51°.

Days suitable for fieldwork 0.8, 2.5 1992, 1.5 avg. Soil moisture 17% adequate, 50% surplus, 33% excessive. Wheat 14% poor, 57% fair, 29% good. Hay supply 83% adequate, 17% surplus. Feed Grain 80% adequate, 20% surplus. Livestock 10% poor, 24% fair, 66% good. Activities: Feeding livestock.

MISSOURI: Temperatures slightly above normal, up to 7° above normal southeast. Precipitation over 1.00 in., heaviest amounts south central, southeast where several counties received 2.00 to 4.00 in. Heavy snow on 11th across central, northern districts, up to 10 in. some west central counties.

Farm activities mostly limited to care of livestock. Barnyard work requiring extra effort since snow.

MONTANA: Precipitation above normal west, normal to below normal east. Temperatures well below normal; 12 to 20° below normal.

Winter wheat enjoys good snowcover protection. Grazing has become more difficult to closed with more than 90% of livestock receiving supplemental feed.

NEBRASKA: Temperatures 7 to 12° below normal across the State. Heavy amounts of snow occurred the latter half of the week with amounts heaviest in the southwest to southeast with amounts over 12 in.

Producer activities included records keeping, livestock care, equipment maintenance, routine chores.

NEVADA: Cold, wet weather pattern continued during week. Moist southwesterly flow dropped several feet of new snow in the Sierra, up to 1 foot in northern areas during middle to latter part of week. Some urban flooding reported in southern areas. Temperatures 5 to 10° below seasonal normals.

Livestock feeding made difficult by deep snow some areas. Major farm/ranch activities: Care, feeding of livestock, chopping ice for livestock water, general maintenance, working on income tax.

NEW ENGLAND: Precipitation 0.49 to 1.52 in. Connecticut, 0.44 to 1.25 in. Maine, 0.26 to 0.96 in. elsewhere. Temperatures mid teens to mid 30s north, low to high 30s south. Maximum temperatures 40° to low 60s. Minimum temperatures -18 to 5° north, 4 to 19° south.

Activities: Tending livestock, cutting firewood, making repairs.

NEW JERSEY: Temperatures much above normal, 35° north, 39° south, 41° coastal. Extremes 12°; 67°. Precipitation below normal; 0.92 in. north, 1.26 in. south, 1.89 in coastal. Heaviest 24 hour total 0.90 in. on 10th, 11th. Heaviest 24 hour snowfall 1 in. on 10th, 11th. Depth of snow on ground 11th, 1 to 2 in. over most of State except extreme south.

Farmers caring for livestock, tending to other winter chores.

NEW MEXICO: Two winter storms affected the State. Highest precipitation close to 2.50 in. southwest. Cold air dominated the eastern plains while relatively warm air prevailed in the west. Temperatures in the northeast were as much as 9° below normal, while the west was generally 4 to 8° above normal.

The wet weather slowed most farm, ranch activities for the week.

NEW YORK: Precipitation, temperatures above normal with wide swings in temperature. Nearly all areas received more than 0.50 in. of liquid equivalent with some areas receiving over an inch. Most precipitation fell as rain on 4th, 5th. Also during the week frozen or freezing precipitation fell. Temperatures 3 to 6° above normal. Week began cold, by 4th, 5th temperatures soared into 50s, 60s. Cooling trend rest of week, still above normal. By 9th, temperatures had dropped to well below normal due to cold front moving through region. Extremes -14°; 66°.

Milder weather made outside activities more tolerable. Major activities: Caring for livestock, spreading manure, attending meetings, grading, packing crops, orchard maintenance, repairing, readying machinery.

NORTH CAROLINA: Temperatures 8 to 12° above normal. Largest departure in eastern areas. Precipitation 5.71 in. at Elizabethtown to 0.32 in. at Rich Mountain.

Crop condition: Winter wheat 3% poor, 36% fair, 59% good, 3% excellent. Oats 4% poor, 30% fair, 64% good, 2% excellent. Barley 26% fair, 72% good, 2% excellent. Rye 2% poor, 25% fair, 71% good, 2% excellent. Pasture 11% poor, 32% fair, 67% good. Hay, roughage supplies 2% short, 90% adequate, 8% surplus. Feed grain supplies 2% short, 90% adequate, 8% surplus. Activities: Harvesting soybeans, cotton, preparing tobacco plant beds, tending livestock, equipment repairs, soil sampling, general farm maintenance.

NORTH DAKOTA: Temperatures 13° below normal in the southwest to 8° below normal in the southeast. Extremes -35° in the northeast; 26° southeast, east central. Precipitation 0.01 in. north central to 0.05 in. southwest, southeast.

Snowcover was sufficient to protect winter wheat, rye, alfalfa. Some corn, sunflower remained in the field, may be harvested in the spring. Livestock good condition despite cold temperatures. Supplemental feed supplies were adequate. Grain marketing was slow due to cold.

OHIO: Wet weather continued to bombard the State. Parts of the northwest experienced flooding. Precipitation was primarily in the form of snow in the north, while rain, freezing rain occurred over the remainder of the State. State continued to experience above normal temperatures. Towards the weekend the warmer temperatures gave way to more seasonable temperatures. High temperatures 5 to 8° above normal. Some areas in the south reached near 70°. Low temperatures mid 20s to mid 30s which was at least 10° above normal.

OKLAHOMA: Temperatures 7° below normal Panhandle to normal southeast. Precipitation 0.34 in. Panhandle to 1.06 in. north central.

Little cotton harvesting done over the past week due to precipitation over most of the State. Prices for feeder steers, heifers $1.00 to $4.00 per cwt. higher.

OREGON: Temperatures below normal, statewide; greatest departures were east of Cascades, 10 to 15° below normal. Extreme low: -16° Enterprise. Abundant snowfall, statewide. Snowfall amounts: 3 in. Willamette Valley, coast, 16 in. Baker City, 36 in. Lakeview.

Soil moisture mostly adequate to surplus west, adequate east. Wheat snowcover adequate, Columbia Basin. Fruit, nut orchard winter activities continue, Willamette Valley. Irrigation supplies back to normal, Medford district. Freeze damage to caneberries slight to none, Willamette Valley. Livestock good. Snows continue to improve future stockwater supplies, some frozen stockwater problems, early calving, lambing beginning, pastures, ranges dormant, supplemental feeding; statewide.

PENNSYLVANIA: Unseasonably warm week with near normal precipitation. Temperature 40°, 13° above normal. Extremes 11°; 68°. Precipitation 0.65 in., 0.02 in. below normal.

Activities: Hauling manure; maintaining machinery; fixing fence; caring for livestock.

PUERTO RICO: No weather data available.

SOUTH CAROLINA: Temperatures 10° above normal. Rainfall 3.40 in. statewide.

Farm activities: Wet soil prevented tobacco bed seeding; some cotton, soybeans not harvested due to wet ground; livestock fair to good.

SOUTH DAKOTA: Temperatures 10 to 20° below normal in the west, central, while in the east temperatures 5 to 10° below normal. Extremes -21°; 37°. Precipitation was widespread, light throughout the week. Most amounts were less than a quarter inch.

Topsoil moisture 14% short, 79% adequate, 7% surplus. Subsoil moisture 36% short, 57% adequate, 7% surplus. Rye 9% fair, 87% good, 4% excellent. Winter wheat 3% fair, 80% good, 17% excellent. In most areas the snowcover is adequate for the winter grains. Some areas are still harvesting corn. Livestock 94% good, 6% excellent. Due to the snowcover, below normal temperatures producers were forced to start feeding more, earlier than normal. Some areas are reporting short water supplies.

TENNESSEE: Weak northerly winds at the surface combined with southerly winds aloft to provide nearly an entire week of cloudy, rainy weather, moderate temperatures. Temperatures above normal for the entire state with the east experiencing the most above-normal readings. Highs were generally near normal, however lows were much above normal. Rainfall averaged over an inch statewide with the east, west averaging nearly 1.50 in.

Wheat mostly good. Activities mostly consist of livestock care, winter chores, general farm maintenance.

TEXAS: General west, southwest flow allowed weather disturbances to pass across State. Large moisture supply Eastern half combined disturbances produced some significant rainfall. Lighter amounts reported west, precipitation there in the form of rain, snow, sleet, freezing rain. Temperatures fluctuated, general pattern consisted warmer weather first part, followed strong cold air weekend. Average temperatures near normal most locations. Exception was the High, Low Plains where periodic Canadian air kept temperatures 5° below normal. Precipitation above normal East, South Central, Upper Coast. Amounts near, above normal Central Texas, near, below normal West Texas.

Crops: Cotton harvest continued Plains, Cross Timbers as conditions allowed. Remaining unharvested cotton lost weight, quality with unfavorable conditions; 97% harvested, 94% 1991, 99% avg. Small grain growth occurring slowly Plains. More sunshine needed since moisture levels have improved. Several wheat fields Cross Timbers, Blacklands suffered greenbug, mite infestations. Blacklands, some aerial spraying took place to eliminate problem. Grazing small grain fields limited. Statewide wheat condition 66% normal compared 81% last year.

Commercial Vegetables: Rio Grande Valley, onions progressed well. Land preparation spring planting underway. East Texas, wet conditions prevented most harvest, land preparation activities, however, some land preparation spring planting began. Trans-Pecos, onions progressing well. Some weed control continued as weather permitted. Pecan harvest continued several areas, frequent delays from rain. Harvest Trans-Pecos nearing completion. High Plains, some trees damaged by ice storms.

Range and Livestock: Condition cattle most areas improved with warmer temperatures, many herds showing signs increased stress with return cold, damp weather. Producers continued supplemental feeding all areas, several areas hay supplies short. Winter pastures improved with recent warmer temperatures, wet conditions prevented heavy grazing. Native pastures South Texas, Rio Grande Valley showing signs of new growth. Livestock conditions remained fair to good.

UTAH: No weather data available.

Major farm activities: Feeding, taxes, snow removal, manure hauling.

VIRGINIA: Temperatures above normal beginning, below normal weekend. Extremes 17°; 72°. Precipitation above normal. Most areas received 1.20 to 2.00 in. The greatest amount was 2.46 in. recorded at Philpot Dam.

Days suitable for fieldwork 2.0. Topsoil moisture 38% adequate, 62% surplus. Scouting for aphids in small grains. Winter grains, grazing crops 9% poor, 39% fair, 52% good. Forage from pastures, grazing crops dairy cattle 7%, beef cattle 23%, sheep 24%. Reconditioning or repairing tillage, planting equipment, tax preparation. Wet weather hampered the completion of soybean, cotton harvesting. Marketing dark-fired, burley tobacco.

WASHINGTON: Temperatures 5° below normal to 13° below normal west; 12° below normal to 20° below normal east. Precipitation 0.18 to 0.91 in. west; none to 0.81 in. east.

Days suitable for fieldwork 4.0. Soil moisture 19% short, 79% adequate, 2% surplus. Hay, other roughage 21% short, 64% adequate, 15% surplus. Range, pasture 57% very poor, 25% poor, 18% fair. Winter wheat dryland 30% fair, 70% good; irrigated 100% good. Barley dryland 45% fair, 55% good; irrigated 100% good. Frigid weather restricted or hampered most farm activity. Little snow cover, sunny days, and cold nights west of Cascades have raised concerns of winter damage to fruit, cranberry crops. Crops in major fruit, grain regions appear unharmed. Livestock is on winter feed, early lambing, calfing has been difficult with the bitter cold.

WEST VIRGINIA: Temperature 43°. Extremes 23°; 74°. Precipitation 0.60 in.

Hay feed supplies adequate. Other feed supplies adequate. Cattle good. Sheep good. Farm activities: General maintenance, feeding livestock, bookkeeping.

WISCONSIN: Temperature 13°. Extremes -28°; 42°; Most areas received up to 2 in. of snow in far eastern areas with parts of Manitowoc, Kewaunee counties (near the lake) receiving around a foot of snow on the 9th. Some cities near Lake Superior also received between 2 and 5 in. on the same day. The southern, eastern districts had additional accumulations on the 9th. On the 10th, the eastern part of the state had up to 6 in.

Statewide average frost depths for mid-January 8.7 in., 3.5 in. 1992, 11.1 in. 31-year avg. Snow accumulations 2.8 in., 2.9 in. 1992, 8.3 in. avg. Data on snow, frost depths relate to January 8, 1993.

WYOMING: It was a very cold week across State. Temperatures 10 to 20° below normal. The coldest spots were the northern, western regions where the average temperatures around 15° below normal. Precipitation was near normal for most of the State. Northwest corner 0.20 to 0.40 in. below normal while the southwest, south central 0.10 to 0.40 in. above normal.

1993 Winter wheat fair to good, snowcover adequate in most areas. Livestock mostly good. Cold weather increasing feed requirements. Some stress due to wind, cold temperatures. Supplemental feeding continuing. Farm, ranch activities include: Feeding, caring for livestock, preparation for calving, lambing, tax season.

International Weather and Crop Summary
HIGHLIGHTS

January 3 - 9, 1993

FSU-WESTERN: A gradual warming trend improved overwintering conditions for dormant winter grains but diminished protective snow cover in the west.

EUROPE: Milder temperatures diminished cold stress on dormant winter crops.

NORTHWESTERN AFRICA: Wet weather continued to benefit winter grains in eastern Algeria and Tunisia. Light, scattered showers brought only temporary relief to drought-stressed crops in Morocco.

SOUTH AFRICA: Dry, warm weather stressed vegetative corn across the west.

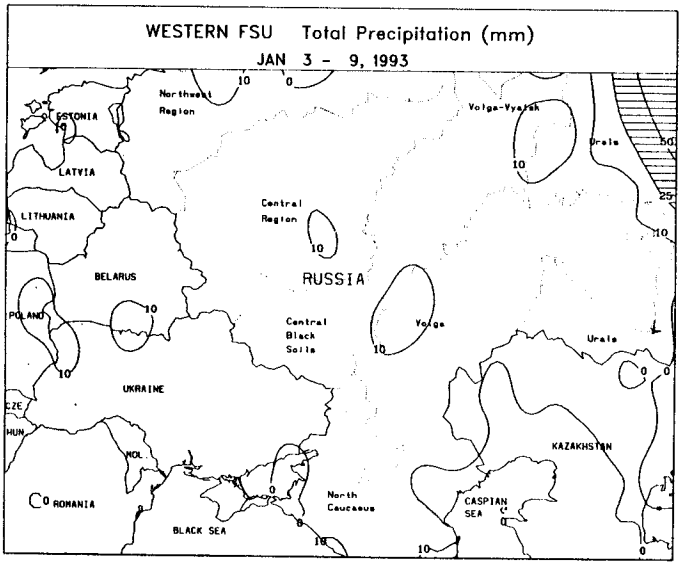
SOUTH ASIA: Showers boosted reservoir levels in the northeast for winter grains and oilseeds.

SOUTHEAST ASIA: Showers benefited Java's rice, but rain tapered off over Malaysia's oil palm.

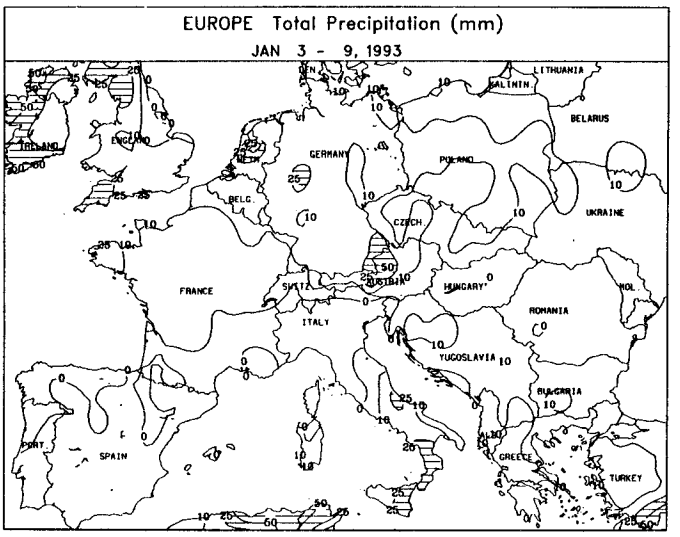
EASTERN ASIA: Rain increased reservoir levels across central and southern China.

AUSTRALIA: Dry weather favored maturing winter grains and harvesting across southern Australia.

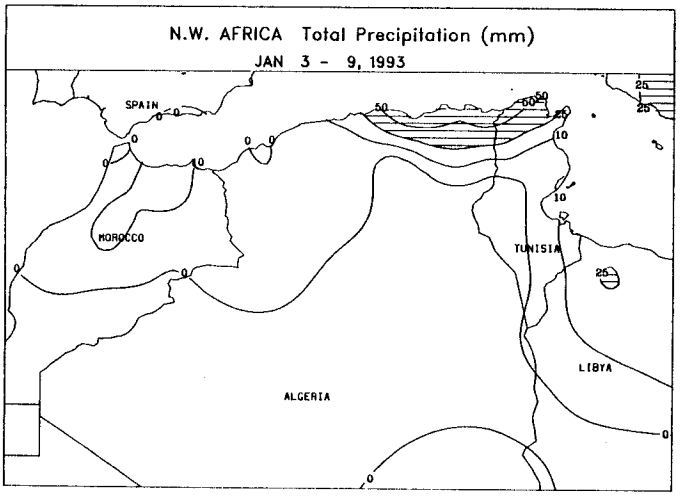
SOUTH AMERICA: Rain benefited vegetative soybeans across southern Brazil.



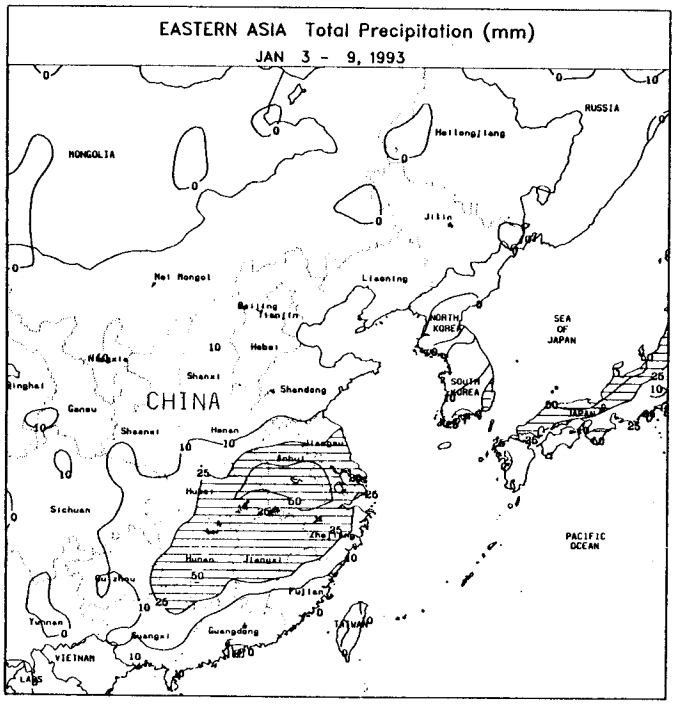
FSU-WESTERN: Early-week bitter cold was followed by gradual warming, especially in western winter grain areas. By week's end, maximum temperatures in the Baltic States, Belarus, and western Ukraine ranged from 1 to 4 degrees Celsius (C), melting protective snow cover. Maximum temperatures over remaining areas also increased, but remained below freezing (-1 to -8 degrees C). Although widespread precipitation covered the region, precipitation amounts continued light (2-11 mm). Snow cover diminished in the Baltic States, western Belarus, and parts of southwestern Ukraine, leaving winter grains vulnerable to potential freeze damage. Weekly average temperatures were 2-6 degrees C above normal in the north and 3-6 degrees C below normal in the south.



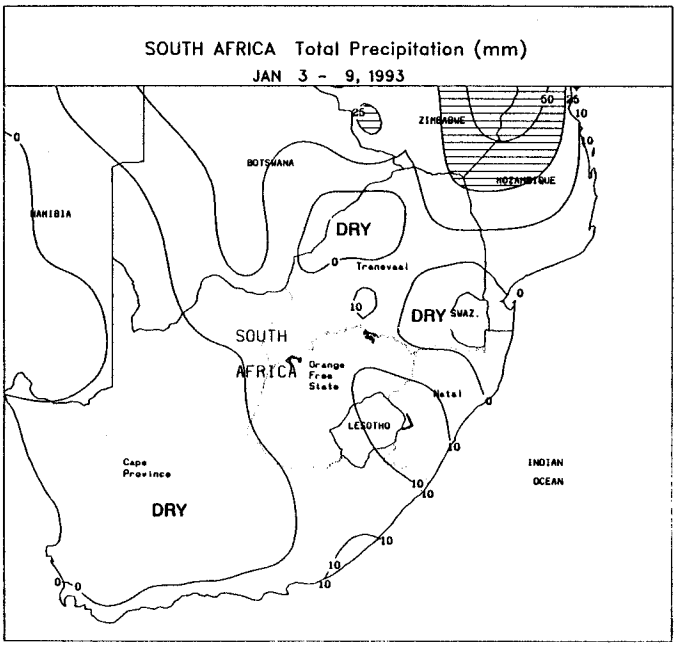
EUROPE: Temperatures moderated over the region, with minimum temperatures at week's end in the 5-10 degrees C range in France and remaining around the freezing level in Poland. Unseasonably cold weather, with temperatures averaging 3-9 degrees C below normal, was confined to east-central and southeastern Europe. Adequate snow cover provided a protective blanket for winter grains in the east, while the threat of winterkill diminished in the northeast. Mostly light precipitation (10 mm or less) fell throughout Europe, except for isolated heavier moisture (10-25 mm) from the United Kingdom to Germany and in southern Italy. Unfavorable dryness persisted in Spain, hampering growth of winter crops.



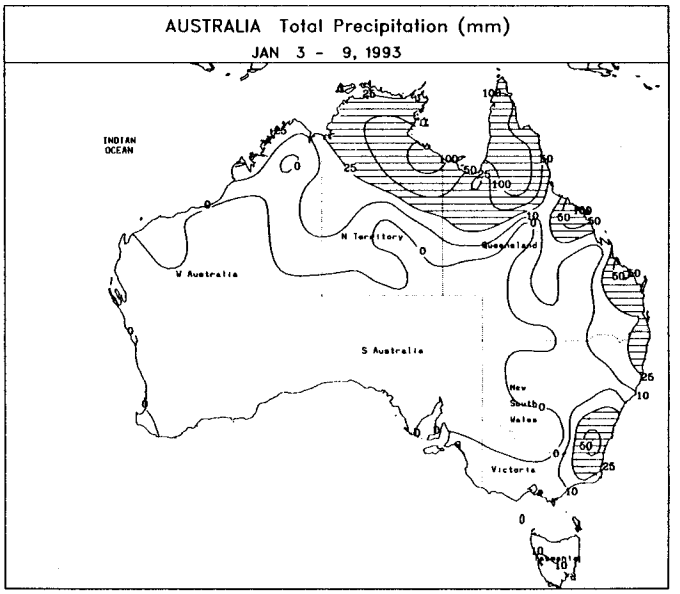
NORTHWESTERN AFRICA: Wet weather (25-50 mm, with local amounts in excess of 75 mm) continued over northernmost winter grain areas in eastern Algeria and Tunisia. While the rain was mostly beneficial for winter grains in the vegetative state, some localized flooding may have occurred. Southernmost winter grain areas in eastern Algeria and Tunisia received lesser amounts of rain (10-25 mm). In Morocco and western Algeria, light, scattered precipitation (2-14 mm) brought only temporary relief to drought-stressed winter grains. Since October, cumulative precipitation has been well below normal, and less than last year when drought adversely affected winter grain planting and establishment.



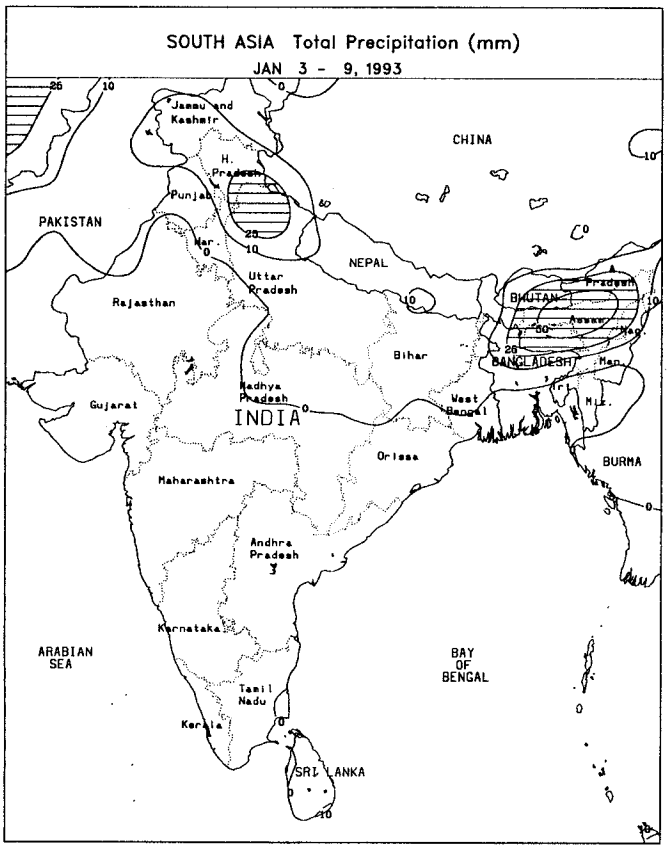
EASTERN ASIA: Moderate soaking rain (20-74 mm) spread across central and southern China, replenishing reservoirs. The rain also favored semi-dormant wheat in the southern North China Plain (Anhui and Jiangsu). Further north, winter wheat remained dormant.



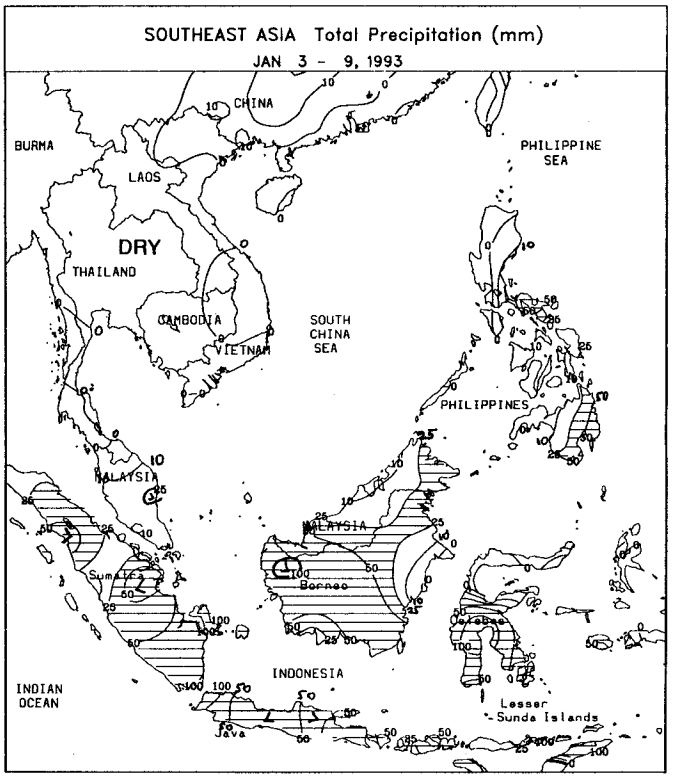
SOUTH AFRICA: Dry, warmer-than-normal weather covered primary corn areas of Orange Free State and Transvaal, reducing moisture for vegetative to reproductive crops. Temperatures reached the mid to upper 30's C over crop areas in the west, hardest hit by last year's drought. Rain and a return to seasonably milder temperatures are critical the next few weeks as corn, growing with limited subsoil moisture reserves, enters the reproductive phase. In Natal, dry, warm conditions also persisted over coastal sugarcane regions, with rainfall totaling 10 mm or less.



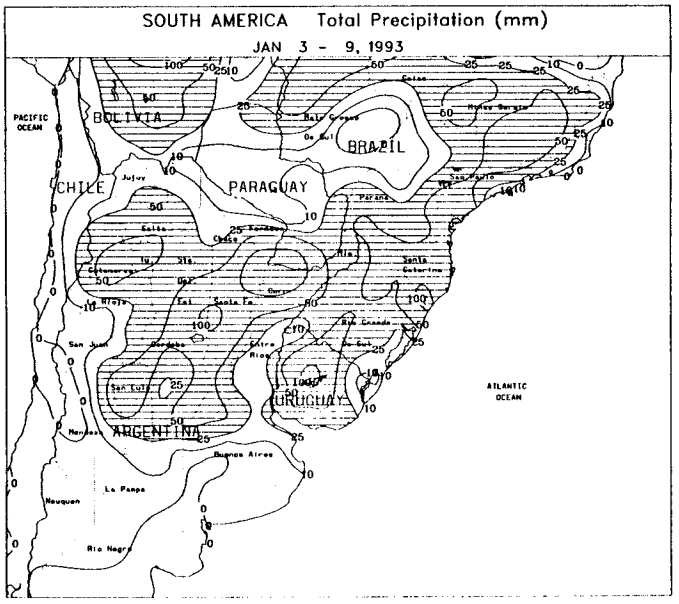
AUSTRALIA: Dry weather across most of the western and southern wheat areas favored wheat maturation and harvesting. The dryness was especially welcomed in South Australia and New South Wales after unusually heavy December rains reduced wheat quality. While temperatures averaged 2-4 degrees C below normal across the southern wheat areas, maximum temperatures in the upper 20's to lower 30's C aided drydown of winter wheat. The northeastern Queensland sugarcane region benefited from widespread moderate showers (25-40 mm) and isolated heavier showers (greater than 100 mm). The monsoon over northern Australia has been fairly active so far this season. Light to moderate rain (5-16 mm) aided vegetative sorghum and cotton across southern Queensland and northern New South Wales.



SOUTH ASIA: Scattered showers across northern winter wheat and oilseed areas boosted local irrigation reserves. Rainfall was heaviest (10-74 mm) from northern West Bengal to eastern Assam, while further west, only isolated locations received more than 10 mm. Dry weather over central and southern India favored harvests and winter crop growth.



SOUTHEAST ASIA: Rainfall tapered off over primary oil palm areas of Malaysia, with all peninsular locations receiving 25 mm or less. The unseasonable dryness extended northward through peninsular Thailand. Rainfall was also lighter than recent weeks over Indonesia, but Java's rice areas received 25-100 mm or more. In the Philippines, scattered showers (10-50 mm or more) improved local conditions in the east for fall planted crops.



SOUTH AMERICA: In southern Brazil, late-week moderate rain (31-66 mm) aided vegetative soybeans across most of Parana, western Santa Catarina, and Rio Grande do Sul. However, only light rain (less than 10 mm) fell in the northern quarter of Parana and southern Mato Grosso do Sul, where more rain is still needed. Temperatures moderated with maximum temperatures in the lower 30's C, compared with the mid to upper 30's C during the previous week. Temperatures still averaged 2-3 degrees C above normal. In Argentina, moderate to heavy rain (25-110 mm) spread across Cordoba and northern Buenos Aires into Chaco, keeping soil moisture levels abundant with some local flooding. Soybean and corn yield prospects look favorable to excellent due to the abundant rain so far this season. Light rain (1-10 mm) caused only minor winter wheat harvesting delays in La Pampa and southern Buenos Aires. Heavy rain (67-178 mm) fell across southern Paraguay, causing local flooding. Temperatures averaged near normal across Argentina.

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(Continued from front cover)
exited the **east coast** as the first of several storms punched into **California**. At **Sierra Ski Ranch, CA**, along U.S. Route 50, weekly snowfall was 56 inches on the heels of last week's 98-inch total. Farther south, near **Yosemite National Park, Mammoth Mountain** received 59 inches of new snow through January 9. The water content of the new **Sierra** snowfall locally reached 5 inches. In **southern California**, torrential rains caused considerable flash flooding. Especially intense rains fell on January 7, as **Big Bear Lake, Mt. Laguna, Mt. Palomar**, and **Julian** all recorded about 5 inches. Also on Thursday, catastrophic flooding occurred in and around **Tijuana, Mexico**, just across the border from **San Diego, CA**. Four-day storm totals (ending at 4:00 p.m. Pacific Standard Time on January 9) reached 10.29 inches at **Big Bear Lake**, 10.83 inches on **Mt. Laguna**, 14.08 inches atop **Mt. Palomar**, and 11.92 inches in **Julian**. Late in the week, heavy rain spread into **Arizona** and across the **Southern States**, while heavy snow occurred from the **central Rockies** to the **Midwest**. Weekly rainfall topped 2 inches in **Phoenix** and **Tucson, AZ**, and neared 6 inches in **Tallahassee, FL**. Numerous rivers and washes overflowed in the **Southwest**. Snowfalls included up to 3 feet in **northern Utah**, 19 inches in **McCook, NE**, 11 inches in **Kansas City, MO**, and 7 inches in **Ft. Wayne, IN**. At week's end, a surge of cold air dropped temperatures below 0°F as far south as **Goodland, KS**, and to -44°F in **Roseau, MN**.

Next week's *Weekly Weather and Crop Bulletin* will not be published until Thursday, January 21, 1993, due to the observance of Martin Luther King Day on Monday and Inauguration Day (observed in the Washington, DC, area only) on Wednesday. Mailings will commence on Friday, 2 days later than usual.

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