

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

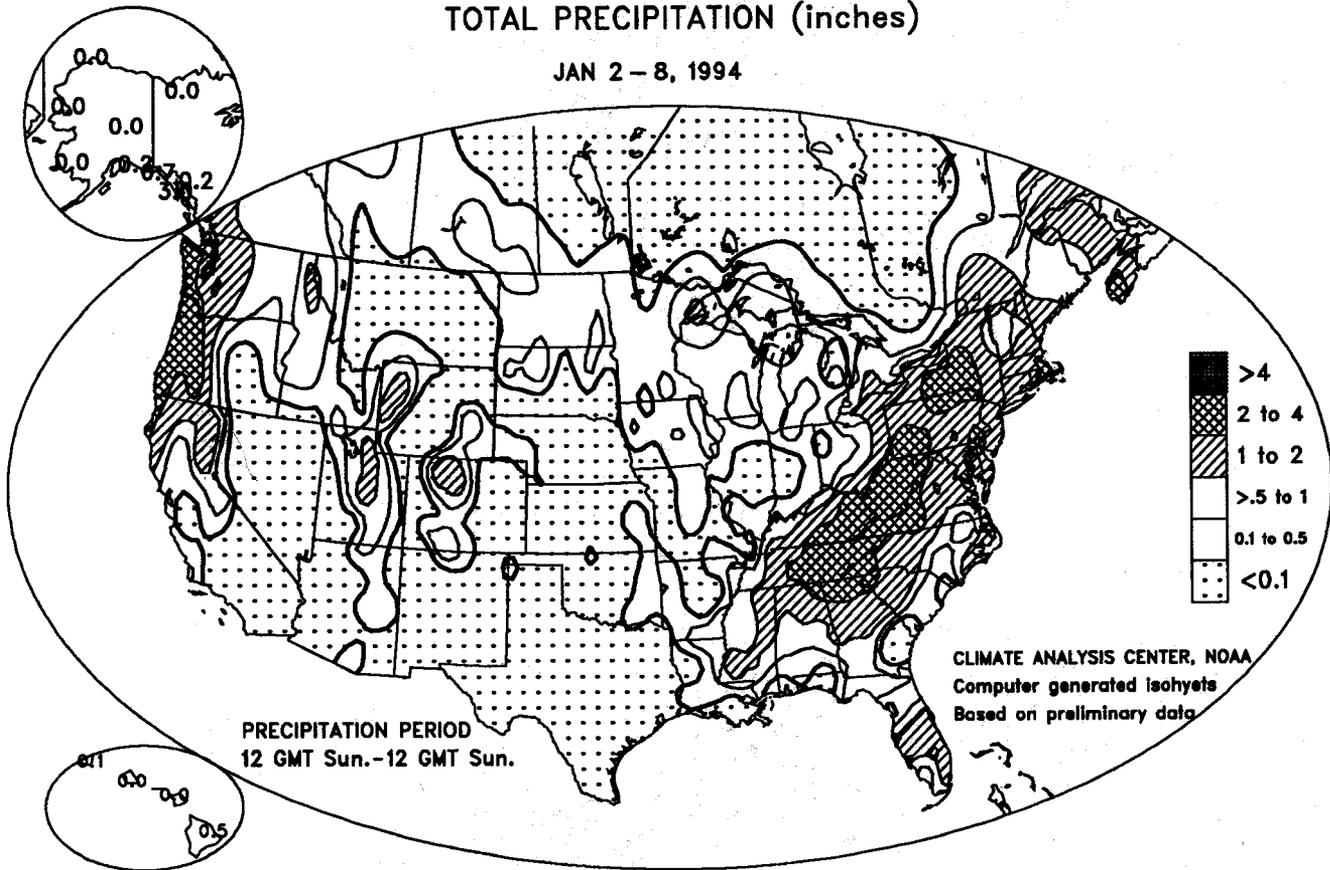
Volume 81, No. 2

Washington, D.C.

January 11, 1994

TOTAL PRECIPITATION (inches)

JAN 2 - 8, 1994



CLIMATE ANALYSIS CENTER, NOAA
Computer generated isohyets
Based on preliminary data

PRECIPITATION PERIOD
12 GMT Sun.-12 GMT Sun.

HIGHLIGHTS

January 2 - 8, 1994

A pair of significant winter storms carved a stormy swath across the Northwest and into the Eastern States. Both storms proved especially disruptive to outdoor activities in the Nation's northeastern quadrant, where bitterly cold surface air combined with moisture and relative warmth aloft to generate snow and ice. The first storm developed across the Gulf Coast States on Monday before turning northward and tracking into Virginia by Tuesday morning. Extremely heavy snow, reaching intensities of up to 10 inches in 2 hours, spread out of eastern Kentucky through West Virginia, western Pennsylvania, and central New York. Storm-total snowfall included 15.5 inches in Charleston, WV, 17.9 inches in Elkins, WV, 14.5 inches in Pittsburgh, PA, and 18.0 inches in Syracuse, NY. Waynesburg, PA reported 28 inches. East of the Appalachians, a pesky

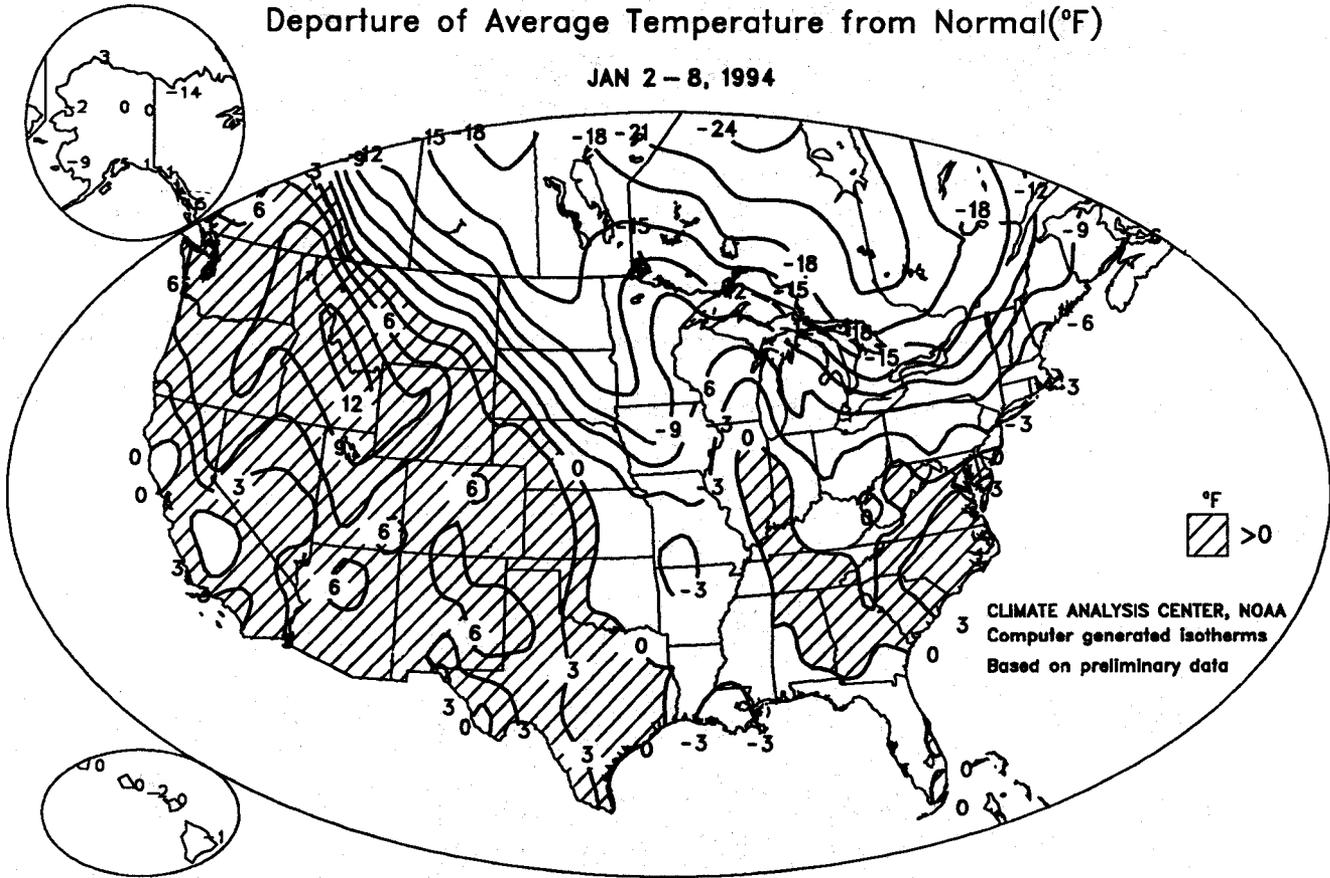
(Continued to p. 19)

Annual Weather Review

Contents	Page
Highlights & Total Precipitation Map	1
Temperature Departure & Extreme Minimum Temperature Maps	2
National Weather Data for Selected Cities	3
Weekly Heating Degree Day Table	6
December Weather and Crop Summary	7
December Precipitation & Temperature Maps	8
December Data for Selected Cities	10
December Heating Degree Day Table	11
December Weather in Historical Perspective	12
1993 Weather Review	13
Global Temperatures--Cooling Abates	18
National Agricultural Summary	19
State Summaries of Weather and Agriculture	20
International Weather and Crop Summary	24
Subscription and Mailing Permit Information & Snow Cover Map	28

Departure of Average Temperature from Normal(°F)

JAN 2 - 8, 1994

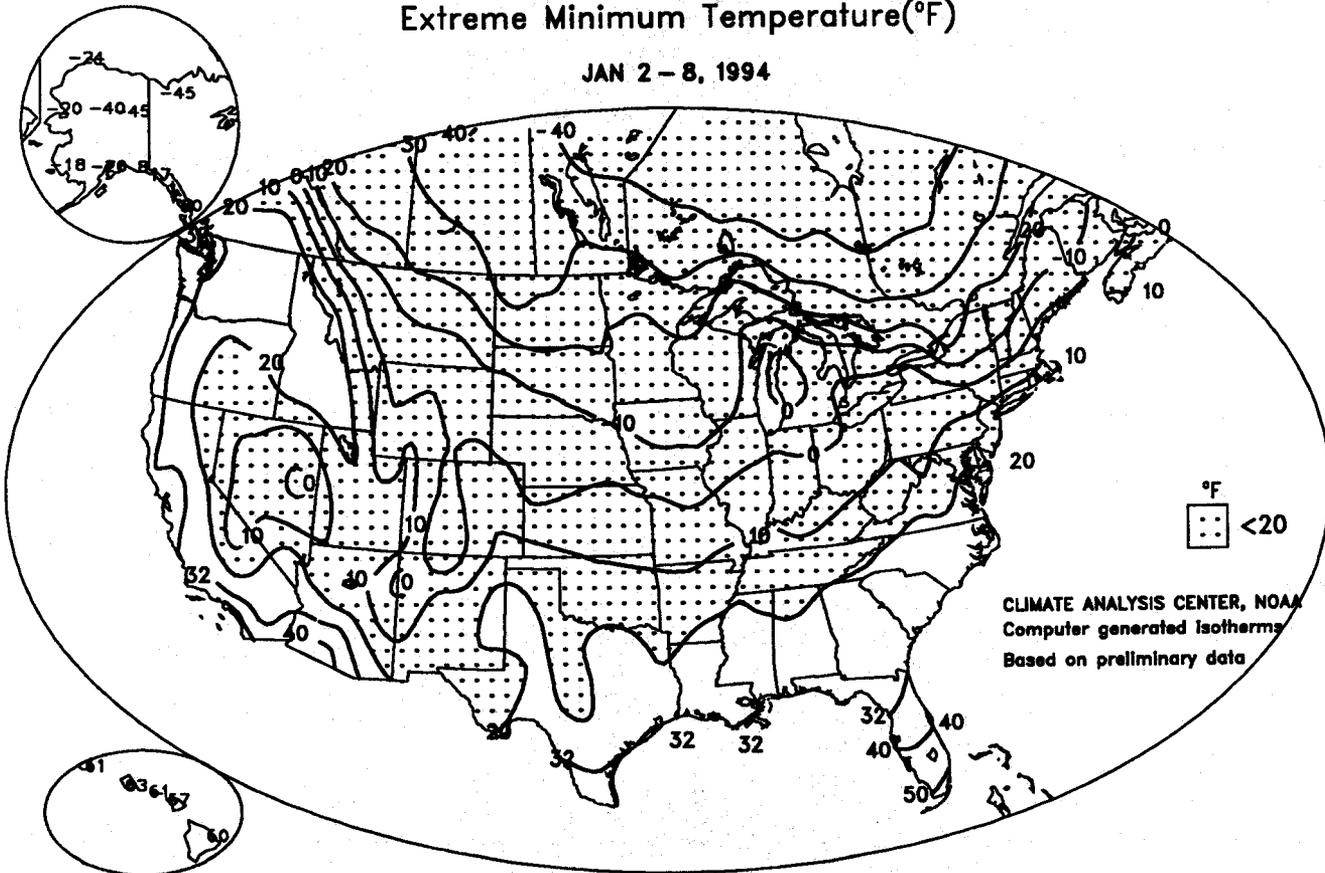


°F
▨ >0

CLIMATE ANALYSIS CENTER, NOAA
Computer generated isotherms
Based on preliminary data

Extreme Minimum Temperature(°F)

JAN 2 - 8, 1994



°F
▨ <20

CLIMATE ANALYSIS CENTER, NOAA
Computer generated isotherms
Based on preliminary data

National Weather Data for Selected Cities

Weather Data for the Week Ending January 8, 1994

STATES AND STATIONS	TEMPERATURE °F							PRECIPITATION							RELATIVE HUMIDITY PERCENT	NUMBER OF DAYS				
	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	MINIMUM	TEMP. °F		PRECIP.
															90 AND ABOVE			32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	49	34	63	21	42	0	.9	-1.3	.9	5.2	80	1.2	87	89	86	0	3	3	1	0
MOBILE	58	38	75	28	48	1	.1	-1.0	.1	3.9	59	.2	15	83	84	0	2	2	0	0
MONTGOMERY	55	37	75	28	46	1	.6	-.6	.4	5.3	82	.2	48	83	84	0	2	3	0	0
AK ANCHORAGE	22	13	26	-10	17	3	.9	.1	.3	.6	43	.3	123	83	63	0	0	0	0	0
BARROW	-3	-14	3	-24	-9	4	.4	.0	.4	.4	80	.0	0	79	72	0	2	2	0	0
FAIRBANKS	-4	-21	6	-37	-13	4	.4	.0	.4	.4	44	.0	0	75	78	0	0	0	0	0
JUNEAU	28	18	33	10	23	-1	1.1	.0	.4	7.1	127	1.2	100	60	62	0	0	0	0	0
KODIAK	37	28	43	15	33	3	.4	-.4	.2	12.0	136	1.2	59	83	61	0	6	3	0	0
WOME	5	-10	12	-21	-2	-10	.4	-.2	.2	1.9	178	.0	5	83	72	0	7	0	0	0
AZ PHOENIX	70	44	78	38	57	4	.0	-.2	.0	.2	2	.0	5	84	17	0	0	0	0	0
PRESCOTT	58	26	67	12	42	4	.0	-.4	.0	.0	0	.0	0	54	17	0	0	0	0	0
TUCSON	72	38	84	29	55	5	.0	-.2	.0	.1	23	.0	0	60	17	0	0	0	0	0
YUMA	72	50	78	45	61	5	.0	-.1	.0	.1	0	.0	0	46	13	0	0	0	0	0
AR FORT SMITH	46	26	62	16	36	-1	.2	-.3	.0	.0	0	.0	0	31	14	0	0	0	0	0
LITTLE ROCK	45	29	67	17	37	-2	.1	-.7	.0	3.0	85	.2	30	85	50	0	6	2	0	0
CA BAKERSFIELD	51	36	65	28	44	-3	.4	-.2	.4	4.4	80	.1	7	86	51	0	4	4	0	0
EUREKA	58	46	63	38	52	4	1.0	-.4	.4	6.6	77	.0	0	88	27	0	1	1	0	0
FRESNO	51	38	59	30	44	0	.1	-.3	.0	8.4	110	1.3	82	91	54	0	0	0	0	0
LOS ANGELES	51	30	80	46	61	5	.0	-.5	.0	1.1	59	.1	19	96	33	0	2	2	0	0
REDDING	53	36	58	30	45	0	.3	-.1	.0	1.0	44	.0	0	71	19	0	0	0	0	0
SACRAMENTO	50	39	56	32	45	1	.2	-.7	.0	3.8	53	.6	37	97	65	0	2	2	0	0
SAN DIEGO	70	47	76	42	58	1	.0	-.1	.0	1.9	56	.2	17	98	79	0	1	1	0	0
SAN FRANCISCO	55	43	59	38	49	1	.1	-.9	.0	.8	38	.0	0	80	19	0	0	0	0	0
CO DENVER	49	22	59	7	36	6	.4	-.1	.1	2.3	54	.1	7	90	33	0	0	0	0	0
GRAND JUNCTION	42	20	50	14	31	4	.0	-.1	.1	.4	56	.0	15	62	26	0	7	1	0	0
PUEBLO	51	15	64	9	33	4	.4	-.1	.1	.6	69	.0	0	81	39	0	7	7	0	0
CT BRIDGEPORT	31	21	46	14	26	-4	1.9	1.1	.6	6.4	147	1.9	215	83	54	0	7	6	2	0
HARTFORD	27	16	45	7	21	-4	2.5	1.7	.8	6.6	137	2.5	244	89	57	0	7	6	3	0
DC WASHINGTON	40	29	49	19	35	0	1.5	.9	.9	6.0	156	1.6	221	86	56	0	5	5	1	0
FL APALACHICOLA	61	45	68	33	53	0	.2	-.7	.1	4.0	77	1.2	115	95	56	0	0	2	0	0
DAYTONA BEACH	66	45	74	34	56	-2	1.3	.7	1.1	3.2	100	1.4	204	95	54	0	0	2	1	0
JACKSONVILLE	64	41	74	30	52	-3	1.8	-.3	.2	3.2	87	1.3	167	88	47	0	2	3	0	0
KEY WEST	74	64	79	53	69	1	1.6	1.3	.7	4.4	171	2.1	404	90	67	0	0	0	0	0
MIAMI	75	61	82	50	68	0	1.6	1.2	.8	2.3	98	1.8	362	86	56	0	0	0	0	0
ORLANDO	69	49	77	39	59	0	.3	.6	.6	1.6	59	.8	153	95	62	0	0	0	0	0
TALLAHASSEE	62	38	70	25	50	-1	1.4	.4	1.4	5.4	87	2.4	198	87	51	0	2	2	1	0
TAMPA	68	49	75	36	58	0	.8	.4	.7	2.2	82	.9	185	92	58	0	0	0	0	0
WEST PALM BEACH	73	56	83	47	65	-2	1.9	1.4	.9	2.8	96	1.9	323	94	59	0	0	0	0	0
GA ATLANTA	51	34	66	25	42	1	1.5	.5	1.2	4.1	74	1.6	129	91	66	0	3	3	1	0
AUGUSTA	58	32	73	23	45	1	1.0	.8	.8	4.1	93	1.4	138	90	50	0	3	4	1	0
MACON	56	35	71	26	46	0	.9	-.2	.6	3.8	69	.9	79	92	58	0	3	2	1	0
SAVANNAH	62	39	73	30	50	0	.2	-.6	.2	3.3	84	1.1	122	88	48	0	2	1	0	0
HI HILO	79	63	81	60	71	-1	.5	-.9	.3	16.6	113	.5	18	88	65	0	0	0	0	0
HONOLULU	81	66	84	63	73	0	.4	-.9	.3	.3	6	.0	0	78	52	0	0	0	0	0
KAHULUI	81	63	86	57	72	0	.4	-.9	.3	.6	13	.0	0	80	51	0	0	0	0	0
LIHUE	77	65	84	61	71	-1	.1	-.3	.1	2.9	44	.2	11	78	60	0	0	2	0	0
ID BOISE	42	30	47	24	36	8	.8	.5	.5	2.0	117	1.0	274	90	48	0	4	5	1	0
LEWISTON	46	36	56	28	41	1	.1	-.2	.1	1.3	85	.5	154	81	54	0	2	3	0	0
POCATELLO	40	28	51	21	34	12	.2	.0	.2	.9	66	.3	93	87	57	0	6	4	0	0
IL CHICAGO	27	14	33	-6	21	1	.4	-.1	.2	1.4	47	.4	79	85	69	0	7	3	0	0
MOLINE	25	11	35	-7	18	2	.5	-.1	.3	1.6	60	.5	102	84	67	0	7	4	0	0
PEORIA	28	16	36	-4	22	-2	.1	-.3	.1	1.3	44	.1	20	86	70	0	7	2	0	0
QUINCY	27	16	36	-4	21	-3	.1	-.3	.1	1.0	35	.1	19	84	69	0	7	4	0	0
ROCKFORD	25	11	32	-9	18	0	.3	-.1	.1	1.5	61	.3	69	92	72	0	7	4	0	0
SPRINGFIELD	30	19	38	2	24	0	.4	-.4	.4	1.1	35	.0	9	84	66	0	7	0	0	0
IN EVANSVILLE	37	25	50	9	31	-2	.3	-.5	.1	2.9	64	.3	31	88	69	0	5	3	0	0
FORT WAYNE	37	16	34	-2	22	0	.3	-.2	.2	1.8	53	.4	62	90	71	0	7	0	0	0
INDIANAPOLIS	31	21	38	3	26	0	.1	-.5	.1	2.3	58	.1	19	88	68	0	7	5	0	0
SOUTH BEND	24	12	32	-7	18	0	.4	-.3	.3	2.0	49	.5	70	88	69	0	7	4	0	0
IA DES MOINES	20	4	30	-10	12	4	.2	.0	.2	1.1	66	.2	86	86	63	0	0	0	0	0
SIOUX CITY	19	2	29	-8	10	1	.3	-.2	.2	.9	90	.3	200	85	63	0	7	3	0	0
WATERLOO	18	4	27	-12	11	-4	.3	-.1	.3	1.1	68	.3	126	90	68	0	7	2	0	0
KS CONCORDIA	37	13	45	2	25	-1	.4	-.1	.1	1.1	112	.3	12	85	57	0	7	2	0	0
DODGE CITY	47	18	63	6	33	3	.3	-.1	.1	1.0	132	.0	0	82	43	0	7	0	0	0
GOODLAND	46	14	61	-1	30	2	.4	-.1	.1	.8	8	.0	27	84	43	0	7	1	0	0
TOPEKA	33	15	42	2	24	-3	.1	-.1	.1	1.0	61	.1	46	81	62	0	7	0	0	0
WICHITA	40	19	54	7	30	-1	.4	-.2	.4	.4	23	.0	4	80	56	0	7	2	0	0
KY BOWLING GREEN	41	26	54	10	33	0	1.3	.4	1.0	7.7	126	1.4	133	92	69	0	5	3	1	0
LEXINGTON	35	22	46	9	28	-3	1.1	-.4	.5	4.4	92	1.1	138	93	78	0	6	4	0	0
LOUISVILLE	37	25	50	8	31	-1	.4	-.3	.2	3.0	68	.5	58	91	70	0	6	4	0	0
LA BATON ROUGE	57	34	70	25	46	0	.1	-1.0	.1	3.7	54	.4	30	94	56	0	3	1	0	0
LAKE CHARLES	59	38	73	28	49	-4	.1	-1.1	.1	2.6	41	.1	8	90	55	0	2	0	0	0
NEW ORLEANS	60	38	74	27	49	-3	.2	-1.0	.2	3.2	45	.3	21	91	57	0	2	1	0	0
SHREVEPORT	57	33	75	20	45	0	.4	-.1	.1	1.7	28	.2	21	88	46	0	5	1	0	0

Based on 1961-90 normals.

Weather Data for the Week Ending January 8, 1994

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY PERCENT	NUMBER OF DAYS									
	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	TEMP. °F		PRECIP.
													.01 INCH OR MORE								.50 INCH OR MORE	.01 INCH OR MORE	.50 INCH OR MORE
ME CARIBOU	9	-7	35	-17	1	-9	1.0	.4	.5	5.0	129	1.1	150	80	57	0	0	0	7	7	4	0	
ME PORTLAND	23	10	46	1	16	-5	1.5	.7	.7	6.9	125	1.5	154	74	42	0	0	0	7	7	4	2	
MD BALTIMORE	38	27	49	17	32	0	1.6	.9	.8	6.1	146	1.7	207	90	53	0	0	0	7	7	4	2	
MD HALLSBURY	47	30	53	20	39	4	1.1	.3	.3	6.2	133	1.5	153	96	59	0	0	0	7	7	4	0	
MA BOSTON	31	17	49	10	24	-5	2.7	1.9	1.1	9.3	188	2.7	286	90	54	0	0	0	7	7	6	3	
MA CHATHAM	37	25	46	14	31	1	3.2	2.3	1.3	10.9	197	3.2	318	90	64	0	0	0	7	7	6	3	
MI ALPENA	18	4	26	-10	11	-8	.5	.1	.2	1.2	48	.8	166	88	75	0	0	0	7	7	5	0	
MI DETROIT	26	15	34	-1	20	-3	.7	.2	.6	1.5	45	.7	138	85	60	0	0	0	7	7	5	1	
MI FLINT	21	11	26	-1	16	-4	.2	.1	.1	.8	30	.2	59	89	68	0	0	0	7	7	3	0	
MI GRAND RAPIDS	22	13	29	5	17	-5	.4	.1	.2	2.0	58	.5	89	87	72	0	0	0	7	7	6	0	
MI HOUGHTON LAKE	19	7	25	-3	13	-5	.5	.1	.3	1.4	58	.6	145	87	71	0	0	0	7	7	6	0	
MI LANSING	22	12	28	-1	17	-4	.4	.1	.3	1.2	48	.5	114	93	69	0	0	0	7	7	5	0	
MI MARQUETTE	12	-6	17	-15	3	-9	.6	.0	.2	2.2	68	.9	146	83	56	0	0	0	7	7	6	0	
MI MUSKEGON	23	13	28	10	18	-6	.5	.1	.2	1.8	47	.7	96	88	67	0	0	0	7	7	5	0	
MI SAULT ST. MARIE	6	-10	17	-21	-2	-16	.2	.4	.2	3.1	87	.6	80	78	57	0	0	0	7	7	2	0	
MN ALEXANDRIA	4	-13	11	-20	-5	-12	.5	.1	.1	.8	87	.1	56	86	70	0	0	0	7	7	3	0	
MN DULUTH	12	-8	17	-21	2	-4	.5	.2	.3	1.8	114	.6	157	82	62	0	0	0	7	7	4	0	
MN INT'L FALLS	1	-17	8	-28	-8	-9	.2	.1	.1	.6	55	.2	67	79	62	0	0	0	7	7	4	0	
MN MINNEAPOLIS	12	-5	17	-15	4	-9	.4	.1	.3	.9	69	.4	144	80	61	0	0	0	7	7	3	0	
MN ROCHESTER	11	-3	18	-15	4	-8	.2	.2	.3	1.1	91	.4	182	85	74	0	0	0	7	7	4	0	
MS GREENWOOD	51	34	69	21	43	0	.1	-1.1	-1.1	3.4	47	.4	30	91	60	0	0	0	3	1	0	0	
MS JACKSON	50	33	67	23	42	-2	.7	-7.7	.5	4.1	53	1.2	78	91	64	0	0	0	3	2	0	0	
MS MERIDIAN	52	35	68	24	44	-1	.7	-6.6	.6	4.4	59	1.1	77	88	65	0	0	0	2	2	1	0	
MO CAPE GIRARDEAU	38	25	52	10	32	0	.2	-6.6	.1	3.0	56	.2	20	90	63	0	0	0	6	3	0	0	
MO COLUMBIA	30	17	37	0	24	-3	.1	-3.3	-1.1	1.7	54	.1	30	93	76	0	0	0	7	7	2	0	
MO KANSAS CITY	31	16	38	0	23	-2	.2	-2.2	-1.1	1.2	64	.1	28	83	65	0	0	0	7	7	3	0	
MO SAINT LOUIS	33	22	42	6	27	-2	.2	-3.3	-1.1	1.7	48	.2	41	85	67	0	0	0	7	7	3	0	
MO SPRINGFIELD	36	19	45	4	27	-3	.2	-3.3	-1.1	1.8	56	.2	34	89	67	0	0	0	7	7	4	0	
MT BILLINGS	35	16	48	-5	26	3	.2	-2.2	.2	.2	23	.2	16	72	49	0	0	0	7	7	1	0	
MT GLASGOW	13	-7	34	-20	3	-7	.1	.0	.1	.3	67	.2	200	84	68	0	0	0	7	7	3	0	
MT GREAT FALLS	36	14	46	-4	25	5	.1	-1.1	-1.1	.4	38	.1	48	77	55	0	0	0	7	7	2	0	
MT HAVRE	22	0	42	-22	11	-3	.2	-1.1	.2	.2	0	.2	0	87	69	0	0	0	7	7	0	0	
MT HELENA	38	16	49	-6	27	8	.1	-1.1	.0	.2	23	.1	26	76	59	0	0	0	7	7	2	0	
MT KALISPELL	37	23	42	7	30	10	.4	.0	.3	2.3	107	.7	164	90	74	0	0	0	6	5	0	0	
MT MILES CITY	26	7	42	-10	17	1	.1	-1.0	-0.2	.2	29	.1	81	90	69	0	0	0	7	7	2	0	
MT MISSOULA	39	29	45	23	34	12	.1	-2.1	-1.1	.6	38	.2	49	88	65	0	0	0	7	7	2	0	
NE GRAND ISLAND	34	9	43	-3	22	0	.2	-1.1	.2	.4	50	.2	0	84	57	0	0	0	7	7	0	0	
NE LINCOLN	31	10	42	-1	21	-1	.1	-1.1	-1.1	.5	44	.1	31	89	64	0	0	0	7	7	1	0	
NE NORFOLK	25	5	34	-5	15	-4	.1	-1.0	-0.5	.5	54	.1	33	83	64	0	0	0	7	7	2	0	
NE NORTH PLATTE	42	11	54	-5	27	6	.1	.0	.1	.3	54	.1	89	87	53	0	0	0	7	7	1	0	
NE OMAHA	35	21	35	21	28	7	.2	-2.2	.2	.4	36	.2	11	82	62	0	0	0	7	7	1	0	
NE SCOTTSBLUFF	40	14	50	-6	27	2	.2	-1.1	.2	.4	8	.2	169	88	53	0	0	0	7	7	2	0	
NE VALENTINE	30	7	47	-9	19	-3	.5	.1	.2	.5	78	.2	0	86	55	0	0	0	7	7	0	0	
NV ELY	45	11	57	-2	28	4	.1	-1.1	.1	.2	25	.1	42	80	33	0	0	0	7	7	1	0	
NV LAS VEGAS	59	37	67	29	48	4	.0	.0	.0	.2	43	.0	0	74	28	0	0	0	2	0	0	0	
NV RENO	50	26	57	19	38	6	.2	-3.3	.2	.2	13	.2	0	84	18	0	0	0	7	7	0	0	
NV WINDHEUCCA	46	21	56	9	33	3	.2	.0	.1	.5	45	.2	71	82	40	0	0	0	7	7	2	0	
NH CONCORD	23	9	44	-1	16	-3	1.0	.4	.4	4.4	114	1.0	146	91	52	0	0	0	7	7	6	0	
NJ ATLANTIC CITY	41	25	50	15	33	2	1.2	.4	.5	5.7	134	1.5	160	91	58	0	0	0	6	5	1	0	
NM ALBUQUERQUE	54	26	69	17	40	3	.0	-1.1	.0	.2	5	.0	0	54	18	0	0	0	7	7	0	0	
NM CLOVIS	57	28	73	23	43	7	.2	-1.1	.2	.5	75	.2	0	64	20	0	0	0	6	0	0	0	
NM ROSWELL	64	27	80	20	46	7	.0	-1.1	.0	.1	20	.0	0	53	20	0	0	0	6	0	0	0	
NY ALBANY	20	8	40	1	14	-7	1.3	1.0	.5	4.6	129	1.5	234	84	58	0	0	0	7	7	6	2	
NY BINGHAMTON	21	9	34	2	15	-7	1.6	1.0	.7	4.9	134	1.6	242	88	72	0	0	0	7	7	6	2	
NY BUFFALO	23	11	38	7	17	-7	.8	.2	.4	4.6	104	1.0	129	84	63	0	0	0	7	7	6	2	
NY NEW YORK	35	23	47	16	29	-3	1.0	.3	.4	5.4	128	1.0	118	82	56	0	0	0	6	5	5	0	
NY ROCHESTER	22	10	37	2	16	-9	1.3	.8	.9	2.9	88	1.3	224	89	70	0	0	0	7	7	6	0	
NY SYRACUSE	20	5	39	-9	13	-11	1.3	.7	.5	4.5	115	1.3	188	89	69	0	0	0	7	7	6	0	
NC ASHEVILLE	44	28	55	18	36	-1	1.4	.5	.7	5.0	91	1.4	133	90	61	0	0	0	4	3	1	0	
NC CHARLOTTE	54	34	66	28	44	4	1.2	.4	.7	4.6	105	1.3	137	85	45	0	0	0	3	4	1	0	
NC GREENSBORO	50	31	62	24	41	4	1.0	.3	.3	4.5	106	1.2	143	85	47	0	0	0	5	4	0	0	
NC HATTERAS	60	43	67	31	51	6	1.4	.2	.7	5.5	94	1.4	102	88	56	0	0	0	1	4	1	0	
NC NEW BERN	58	37	71	27	47	4	1.2	.3	1.2	2.9	62	1.3	124	94	49	0	0	0	2	1	1	0	
NC RALEIGH	55	34	70	27	44	5	.7	-1.1	.3	5.3	128	1.6	178	91	47	0	0	0	3	5	0	0	
NC WILMINGTON	60	39	72	29	49	5	1.0	-1.1	.8	3.9	73	1.2	98	95	53	0	0	0	2	2	1	0	
ND BISMARCK	6	-14	23	-30	-4	-13	.5	.3	.2	1.3	213	.5	354	90	69	0	0	0	7	7	5	0	
ND FARGO	3	-15	14	-18	-6	-12	.5	.3	.2	1.5	178	.5	253	81	68	0	0	0	7	7	6	0	
ND GRAND FORKS	-1	-16	9	-24	-9	-13	.5	.3	.2	1.0	116	.5	268	84	69	0	0	0	7	7	4	0	
ND WILLISTON	8	-13	22	-32	-2	-11	.6	.5	.3	1.1	151	.7	462	82	69	0	0	0	7	7	6	0	
OH AKRON-CANTON	29	16	34	1	23	-3	.9	.3	.4	3.7	103	.9	152	97	75	0	0	0	7	7	7	0	
OH CINCINNATI	32	21	39	5	27	-2	.6	.0	.2	3.2	82	.6	89	93	76	0	0	0	6	4	0	0	
OH CLEVELAND	29	17	36	1	23	-3	.9	.3	.5	3.1	85	.9	158	91	70	0	0	0	7	7	5	0	
OH COLUMBUS	31	20	36	3	25	1	.6	.1	.2	2.9	80	.7	121	91	73	0	0	0	7	7	4	0	
OH DAYTON	29	18	37	4	24	-3	.3	.2	.1	3.1	88	.3											

Weather Data for the Week Ending January 8, 1994

STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS							
	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	TEMP. °F		PRECIP.	
																			01 INCH OR MORE	50 INCH OR MORE		
TOLEDO	26	14	34	-3	20	.3	.7	.2	.4	2.0	56	.7	131	90	69	0	7	5	0	0		
YOUNGSTOWN	29	15	34	4	22	.3	.7	.2	.4	3.4	95	.8	128	95	75	0	7	5	0	0		
OK OKLAHOMA CITY	49	23	64	14	36	0	.7	.2	.4	1.3	78	.7	14	80	37	0	7	1	0	0		
TULSA	44	23	59	11	33	.6	.1	.3	.1	1.9	72	.1	24	84	48	0	7	1	0	0		
OR ASTORIA	52	43	55	37	48	6	2.7	.3	.8	12.9	97	3.3	121	97	80	0	0	7	2	0		
BURNS	39	25	46	13	32	9	.1	.2	.1	1.0	67	.1	43	86	62	0	7	2	0	0		
MEDFORD	49	36	57	28	42	5	.5	.3	.3	3.0	74	.6	77	97	61	0	2	4	0	0		
PENDLETON	51	37	62	33	44	11	.5	.5	.1	2.2	107	1.3	307	81	49	0	0	4	0	0		
PORTLAND	51	43	54	33	47	8	1.5	.2	.5	7.4	97	2.4	158	94	66	0	0	7	0	0		
SALEM	54	41	59	30	48	9	2.6	1.1	1.1	10.4	123	3.6	214	93	67	0	1	7	2	1		
PA ALLENTOWN	31	20	48	11	26	.6	1.3	.5	.5	6.2	143	1.3	148	87	59	0	7	5	1	0		
ERIE	27	16	36	8	21	8	.7	.9	.3	3.9	92	1.0	158	93	66	0	7	6	0	0		
HARRISBURG	33	24	48	14	28	1	1.2	.2	.6	5.2	130	1.2	162	86	58	0	7	4	4	1		
PHILADELPHIA	38	27	51	18	32	2	1.0	.2	.5	4.8	106	1.2	125	85	55	0	6	5	0	0		
PITTSBURGH	31	19	37	8	25	5	1.5	.5	.8	3.7	101	1.5	219	92	73	0	7	7	1	0		
SCHAFER	28	16	39	7	22	4	1.2	.7	.8	4.3	139	1.2	207	91	61	0	7	5	0	0		
RI PROVIDENCE	30	19	47	11	25	4	2.1	.7	.7	7.9	144	2.1	200	92	59	0	7	6	2	0		
SC CHARLESTON	51	39	72	31	50	2	.3	.3	.3	4.0	99	1.7	193	89	49	0	2	1	0	0		
COLUMBIA	59	34	73	25	46	4	.7	.7	.7	3.5	74	1.1	96	88	48	0	2	4	1	0		
FLORENCE	60	35	73	27	48	4	1.2	.2	.2	3.4	84	1.5	164	90	43	0	2	2	0	0		
GREENSVILLE	51	30	59	25	41	1	1.2	.3	.9	4.1	79	1.2	111	89	53	0	5	3	1	0		
SD BROOKINGS	7	-12	19	-19	-3	-13	.6	.5	.4	1.2	178	.6	394	81	66	0	7	5	0	0		
BURON	13	-7	22	-16	3	-10	.2	.2	.2	.9	164	.2	222	84	69	0	7	4	0	0		
RAPID CITY	34	12	51	-6	23	2	.2	.7	.7	.9	97	.9	22	86	60	0	7	2	0	0		
STOCK FALLS	12	-5	20	-14	4	-10	.2	.0	.0	.5	56	.2	120	85	68	0	7	4	0	0		
TN CHATTANOOGA	47	32	61	20	39	2	1.2	1.1	.8	6.6	102	1.3	103	90	57	0	4	3	1	0		
KNOXVILLE	44	25	59	17	37	1	2.7	1.7	1.8	10.9	192	2.8	251	86	75	0	5	3	2	0		
MEMPHIS	46	32	64	19	39	1	.5	.4	.4	6.2	90	.6	56	86	58	0	3	2	0	0		
NASHVILLE	45	30	61	14	37	1	1.7	.8	1.3	8.4	149	1.8	177	91	64	0	4	4	1	0		
TX ABILENE	59	32	75	20	46	3	.0	.2	.0	.9	70	.0	0	71	23	0	3	0	0	0		
AMARILLO	56	26	74	20	41	6	.7	.1	.0	1.0	176	.7	0	63	21	0	6	0	0	0		
AUSTIN	66	38	79	25	52	3	.0	.4	.0	1.1	50	.0	0	70	27	0	1	2	0	0		
BEAUMONT	63	39	77	28	51	0	.7	.1	.0	2.0	33	.1	7	83	48	0	0	0	0	0		
BROWNSVILLE	73	47	79	39	60	0	.7	.4	.0	2.3	138	.0	0	86	38	0	0	0	0	0		
CORPUS CHRISTI	71	42	85	30	57	2	.0	.3	.0	4.8	292	.0	0	85	36	0	1	1	0	0		
DEL RIO	71	39	81	30	55	6	.0	.2	.0	.2	13	.0	0	72	27	0	0	1	0	0		
EL PASO	63	33	71	20	48	6	.0	.1	.0	.7	100	.0	0	51	15	0	3	0	0	0		
FORT WORTH	57	32	68	23	45	3	.0	.4	.0	2.5	99	.0	0	78	34	0	2	0	0	0		
GALVESTON	63	47	70	36	55	2	.7	.8	.0	2.6	58	.1	14	86	55	0	0	0	0	0		
HOUSTON	66	38	78	28	52	2	.2	.9	.0	2.7	46	.7	2	90	48	0	1	0	0	0		
LUBBOCK	61	30	77	22	45	7	.0	.1	.0	.3	52	.0	0	73	17	0	5	0	0	0		
MIDLAND	66	31	80	20	48	5	.0	.1	.0	.3	56	.0	0	73	16	0	5	0	0	0		
SAN ANGELO	65	32	74	22	49	5	.0	.2	.0	.8	79	.0	0	75	21	0	3	0	0	0		
SAN ANTONIO	69	33	78	21	51	2	.0	.4	.0	.4	23	.0	0	73	23	0	3	0	0	0		
VICTORIA	69	40	78	28	54	2	.0	.8	.0	4.0	105	.7	2	82	27	0	1	0	0	0		
WACO	61	29	72	20	45	0	.0	.4	.0	1.5	65	.0	0	82	37	0	5	0	0	0		
WICHITA FALLS	55	27	74	18	41	2	.7	.3	.0	2.6	138	.7	0	85	37	0	6	0	0	0		
UT CEDAR CITY	51	21	61	10	36	7	.7	.1	.0	.4	41	.0	0	76	23	0	7	0	0	0		
SALT LAKE CITY	43	29	47	24	36	9	.2	.0	.2	1.1	64	.2	74	76	51	0	5	2	0	0		
VT BURLINGTON	12	-4	36	-17	4	-13	1.1	.7	.6	2.7	92	1.1	217	85	61	0	7	5	1	0		
VA NORFOLK	54	36	67	29	45	5	.9	.0	.2	4.5	106	1.2	121	85	52	0	3	4	0	0		
RICHMOND	50	34	62	23	42	6	.7	.0	.3	4.8	116	1.0	120	86	42	0	3	5	0	0		
ROANOKE	40	28	45	18	34	-1	1.3	.7	.8	6.6	181	1.3	196	82	52	0	5	3	2	0		
WA QUILLAYUTE	50	41	52	35	46	6	4.0	.6	1.6	16.9	87	4.0	105	98	90	0	0	7	3	2		
SEATTLE-TACOMA	50	42	54	37	46	7	1.0	.4	.3	5.5	75	1.2	79	94	78	0	0	6	0	0		
SPOKANE	41	32	49	26	36	10	.3	.2	.1	2.9	99	1.2	205	93	77	0	4	4	0	0		
YAKIMA	44	27	56	22	36	7	.2	.1	.1	1.2	70	.2	63	96	71	0	6	4	0	0		
WV BECKLEY	36	24	47	12	30	0	2.2	1.5	.9	6.6	165	2.2	276	93	71	0	7	5	2	0		
CHARLESTON	39	26	49	12	33	0	3.8	3.2	1.6	7.1	170	3.8	491	97	77	0	5	5	3	0		
HUNTINGTON	37	26	46	12	32	1	2.6	1.9	1.1	5.9	135	2.6	321	96	74	0	5	5	3	0		
PARKERSBURG	35	25	39	10	30	-1	2.6	1.8	1.4	4.6	123	2.6	312	94	76	0	6	5	2	0		
WI GREEN BAY	19	4	22	-10	11	-4	.5	.2	.2	1.0	53	.5	164	87	68	0	7	6	0	0		
LACROSSE	17	2	25	-13	9	-5	.7	.2	.0	.0	0	.0	0	83	59	0	7	0	0	0		
MADISON	22	6	28	-10	14	-3	.5	.2	.2	1.0	48	.6	179	86	69	0	7	5	0	0		
MILWAUKEE	27	12	31	-6	19	0	.7	.3	.3	1.4	51	.7	150	86	67	0	7	6	0	0		
WAUSAU	17	-1	22	-15	8	-4	.2	.0	.1	.9	55	.4	132	81	51	0	7	4	0	0		
WY CASPER	39	14	46	-6	27	5	.3	.1	.2	.9	112	.3	156	84	52	0	7	2	0	0		
CHEYENNE	41	17	49	1	29	3	.1	.0	.1	.4	73	.1	70	84	37	0	7	1	0	0		
LANDER	41	17	49	6	29	10	.0	.1	.0	.4	57	.0	0	74	34	0	7	0	0	0		
SHERIDAN	35	15	47	-3	25	5	.2	.1	.1	.7	75	.2	116	88	63	0	7	3	0	0		

Based on 1961-90 normals.

HEATING DEGREE DAYS (Base 65° F) January 2 - 8, 1994

(Cumulative totals and departures from normal are for the period July 1, 1993 - January 8, 1994)

STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE		
	TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP fm 92-93		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP fm 92-93		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP fm 92-93
AL BIRMINGHAM	161	-2	1392	73	174	LA BATON ROUGE	135	25	1003	241	367	TULSA	220	10	1879	213	108
AL HUNTSVILLE	181	-1	1581	92	166	LA LAKE CHARLES	113	10	812	92	191	OR ASTORIA	121	-47	2368	49	-49
AL MOBILE	116	4	940	171	290	LA NEW ORLEANS	112	14	822	153	319	OR EUGENE	130	-45	2193	163	172
AL MONTGOMERY	131	-2	1166	157	249	LA SHREVEPORT	140	0	1185	163	141	OR MEDFORD	156	-40	2053	-73	160
AK ANCHORAGE	332	-19	4395	-745	-795	ME BANGOR	385	57	3362	22	-12	OR NORTH BEND	104	-36	2059	29	105
AK BARROW	507	-32	8277	-972	-756	ME PORTLAND	339	35	3031	-50	-17	OR PENDELTON	147	-82	2459	-33	-159
AK BETHEL	465	59	5286	-759	-702	MD BALTIMORE	227	-2	2059	70	169	OR PORTLAND	125	-57	1885	-150	-86
AK COLD BAY	252	1	4005	-428	-417	MA BOSTON	284	34	2337	89	-14	OR REDMOND	194	-48	3254	187	33
AK FAIRBANKS	535	10	6241	-656	-720	MI ALPENA	379	55	3607	157	19	OR SALEM	119	-63	2013	-175	-10
AK JUNEAU	290	3	3455	-802	-701	MI DETROIT	309	19	2679	-87	35	PA ALLENTOWN	275	11	2498	48	56
AK KING SALMON	357	7	4468	-943	-742	MI FLINT	340	41	3231	309	321	PA BRADFORD	337	22	3450	-15	158
AK KOTzebue	471	11	6391	-649	-816	MI GRAND RAPIDS	331	35	3139	174	190	PA ERIE	303	35	2682	212	297
AK McGrath	510	-8	6019	-1010	-727	MI LANSING	333	30	3192	180	143	PA PHILADELPHIA	229	-8	1823	-225	-27
AK Nome	466	61	5836	-593	-1009	MI MUSKOGEE	328	41	3046	195	128	PA PITTSBURGH	276	8	2526	-14	109
AK ST PAUL ISLAND	236	-23	4438	-511	-616	MI TRAVERSE CITY	347	39	3202	32	-72	PA SCRANTON	299	23	2764	113	214
AK YAKUTAT	269	-11	3788	-688	-828	MI DULUTH	439	34	4557	217	50	PA WILLIAMSPORT	291	16	2719	129	255
AZ FLAGSTAFF	206	-53	3000	-122	-108	MI INT'L FALLS	503	55	4898	172	-5	RI PROVIDENCE	280	24	2428	51	83
AZ PHOENIX	56	-33	447	-151	-87	MI MINNEAPOLIS	427	56	3703	164	76	SC CHARLESTON	102	-19	890	6	143
AZ TUCSON	67	-31	615	-115	-146	MI ROCHESTER	425	51	3824	181	-38	SC COLUMBIA	129	-18	1248	53	116
AR FORT SMITH	202	6	1645	74	135	MS JACKSON	162	12	1347	230	374	SC GREENVILLE	167	-8	1578	122	43
AR LITTLE ROCK	193	7	1550	98	118	MS MERIDIAN	148	5	1173	55	219	SD ABERDEEN	467	82	3983	174	-83
CA FRESNO	142	-3	1087	-121	-14	MO COLUMBIA	288	28	2490	200	147	SD HURON	431	67	3801	236	15
CA LOS ANGELES	27	-36	294	-221	-141	MO KANSAS CITY	289	15	2500	116	73	SD PIERRE	391	53	3502	185	-73
CA SACRAMENTO	140	-7	1208	-16	30	MO SAINT LOUIS	265	15	2117	46	77	SD RAPID CITY	290	-13	3162	-120	-426
CA SAN DIEGO	45	-11	393	-56	-57	MO SPRINGFIELD	261	23	2228	173	198	SD SIOUX FALLS	426	67	3680	157	15
CA SAN FRANCISCO	109	-10	1013	-287	11	MT BILLINGS	275	-26	3183	-76	-268	TN BRISTOL	216	0	1976	35	92
CO COLORADO SPRINGS	229	-30	2966	107	34	MT GLASGOW	426	42	4031	32	-100	TN CHATTANOOGA	178	-16	1508	-88	11
CO DENVER	205	-47	2720	25	-183	MT GREAT FALLS	276	-36	3675	142	-221	TN KNOXVILLE	195	-8	1770	22	117
CO GRAND JUNCTION	236	-51	2713	135	60	MT HAVRE	375	15	3884	-44	-305	TN MEMPHIS	184	9	1448	67	88
CT HARTFORD	304	24	2727	115	72	MT HELENA	265	-63	3757	-14	-246	TN NASHVILLE	191	-10	1762	107	190
DE WILMINGTON	240	4	2023	-35	69	MT KALISPELL	243	-72	3963	-36	-144	TX ABILENE	134	-23	1316	134	184
DC WASHINGTON	211	2	1818	121	59	MT MISSOULA	215	-91	3664	-48	-217	TX AMARILLO	169	-44	2093	157	-50
FL DAYTONA BEACH	63	0	430	69	225	NE GRAND ISLAND	303	0	2911	1	-220	TX AUSTIN	89	-24	787	40	62
FL FORT MYERS	27	-7	134	-29	82	NE NORTH PLATTE	268	-40	3077	-71	-249	TX BROWNSVILLE	41	-12	326	39	122
FL JACKSONVILLE	88	-6	691	73	234	NE OMAHA	355	40	2993	122	55	TX CORPUS CHRISTI	62	-15	465	21	103
FL KEY WEST	6	-1	16	-11	13	NE SCOTSDUFF	266	-21	3242	189	-219	TX DALLAS FT WORTH	142	-10	1191	126	178
FL MIAMI	11	-6	47	-19	34	NV ELKO	263	-24	3749	496	-101	TX EL PASO	120	-41	1204	-94	-52
FL ORLANDO	44	-5	309	35	159	NV ELY	257	-30	3720	302	279	TX HOUSTON	95	-8	790	87	152
FL PENSACOLA	105	0	774	61	270	NV LAS VEGAS	117	-30	1123	-9	-89	TX LUBBOCK	137	-52	1648	49	100
FL TALLAHASSEE	102	-3	840	80	324	NV RENO	186	-45	2222	-435	-266	TX LUFKIN	125	-1	1067	177	130
FL TAMPA	48	-6	291	-11	146	NC WINNEBOCCA	221	-38	2968	23	-53	TX MIDLAND ODESSA	117	-44	1346	37	118
FL WEST PALM BEACH	19	-8	94	-25	58	NH CONCORD	342	22	3269	24	10	TX SAN ANGELO	113	-40	1148	9	123
GA ATHENS	161	0	1396	101	106	NJ ATLANTIC CITY	220	-14	2215	90	121	TX SAN ANTONIO	97	-21	795	42	123
GA ATLANTA	157	-11	1273	-70	27	NJ NEWARK	255	20	1979	3	134	TX VICTORIA	76	-15	636	48	142
GA AUGUSTA	137	-10	1171	8	140	NM ALBUQUERQUE	172	-52	1985	-90	-81	TX WACO	138	-5	1203	235	275
GA MACON	134	-2	1220	156	220	NY ALBANY	353	47	3049	135	138	TX WICHITA FALLS	165	-13	1547	163	250
GA SAVANNAH	100	-16	833	-1	152	NY BINGHAMTON	349	48	3322	250	93	UT CEDAR CITY	202	-54	2671	4	-74
ID BOISE	200	-59	2728	-3	-126	NY BUFFALO	331	48	2930	176	179	UT SALT LAKE CITY	201	-65	2646	41	-148
ID POCATELLO	215	-86	3510	255	63	NY MASSENA	450	100	3500	-27	43	VT BURLINGTON	423	90	3367	72	194
IL CHICAGO	308	2	2872	89	20	NY NEW YORK	250	19	1916	-36	-8	VA LYNCHBURG	192	-21	1906	17	123
IL MOLINE	328	14	2868	64	-27	NY ROCHESTER	343	60	3029	248	117	VA NORFOLK	137	-41	1404	-11	100
IL PEORIA	302	1	2669	23	18	NY SYRACUSE	362	69	3090	263	238	VA RICHMOND	158	-44	1669	-51	15
IL ROCKFORD	324	-2	3051	57	-44	NC ASHEVILLE	202	-1	2024	113	176	VA ROANOKE	212	2	2035	120	140
IL SPRINGFIELD	284	0	2519	72	185	NC CAPE HATTERAS	95	-43	821	-194	35	WA OLYMPIA	140	-56	2402	-222	-44
IN EVANSVILLE	236	-7	2091	27	173	NC CHARLOTTE	146	-34	1399	-58	44	WA QUILLAYUTE	135	-46	2551	-130	-123
IN FORT WAYNE	301	11	2668	19	72	NC GREENSBORO	170	-26	1756	65	36	WA SEATTLE TACOMA	132	-50	2111	-105	-42
IN INDIANAPOLIS	271	-2	2538	114	201	NC RALEIGH DUREHAM	144	-38	1568	54	89	WA SPOKANE	199	-74	3214	-6	-188
IN SOUTH BEND	325	38	2869	191	195	NC WILMINGTON	108	-32	1016	-24	64	WA YAKIMA	205	-54	2898	25	-180
IA DES MOINES	370	50	3030	172	66	ND BISMARCK	478	86	4242	177	-81	WV BECKLEY	243	-4	2393	-44	141
IA MASON CITY	417	53	3631	155	-32	ND FARGO	489	76	4223	86	-119	WV CHARLESTON	225	-4	2054	36	111
IA SIOUX CITY	379	45	3334	224	81	ND MINOT	489	97	4363	206	-137	WV HUNTINGTON	231	3	2076	37	148
IA WATERLOO	376	26	3230	-69	-86	ND WILLISTON	465	69	4355	141	-138	WI KAU CLAIRE	425	47	3822	141	150
KS CONCORDIA	278	5	2528	71	-194	OH AKRON CANTON	295	20	2774	192	142	WI GREEN BAY	373	21	3463	-22	-54
KS DODGE CITY	226	-24	2426	187	-286	OH CLEVELAND	294	19	2652	112	169	WI MADISON	355	14	3248	-88	-18
KS GOODLAND	242	-17	2870	165	-255	OH COLUMBUS	276	11	2403	-42	120	WI MILWAUKEE	317	-4	2776	-288	-183
KS RUSSELL	248	-18	2439	59	-215	OH CINCINNATI	266	11	2417	150	197	WI CASPER	268	-33	3266	-185	-71
KS TOPEKA	286	18	2478	113	63	OH DAYTON	288	19	2582	143	174	WI CHEYENNE	251	-22	3456	213	122
KS WICHITA	245	-6	2205	68	-5	OH TOLEDO	314	22	2824	30	213	WI LANDER	251	-75	3648	35	-82
KY LEXINGTON	254	18	2210	135	214	OH YOUNGSTOWN	299	16	2850	112	123	WI ROCK SPRINGS	268	-47	4014	231	63
KY LOUISVILLE	236	7	2071	112	285	OK OKLAHOMA CITY	204	1	1847	204	170	WI SHERIDAN	278	-37	3548	-28	-298

Based on 1961-90 normals.

December Weather and Crop Summary

Weather

The Polar Front Jet Stream (PFJ), locked safely north of the Canadian border until December 20, plunged precipitously southeastward thereafter, ushering a frigid, stormy regime into the Nation's northeastern quadrant. Accumulated positive temperature anomalies vanished in the Eastern States, and were significantly reduced in the North-Central States. However, temperatures remained above normal for the duration of the month in the High Plains, which remained west of the PFJ's thrust and under the influence of downslope (warm) winds. In the West, near- to above-normal temperatures prevailed, along with below-normal precipitation.

California Water Conditions Update: Sustained heavy precipitation failed to materialize across the West in December, despite encouraging storm systems during the first half of the month. But after a mid-month transition from slow-moving, spring-like storms to a storm-blocking ridge of high pressure, chances for rain and snow dwindled. Nevertheless, the cumulative storage of California's 155 largest reservoirs is near normal due to the drought-ending precipitation of the 1992-93 wet season. The State's reservoirs contained 22.5 million acre feet (7.3 trillion gallons) of water on January 1, 1994, which is 101 percent of the long-term average. A year ago, on January 1, 1993, the cumulative effects of 6 years of drought had left reservoir storage at 13.0 million acre feet (4.2 trillion gallons).

On January 1, 1994, snowpack in California's Sierra Nevada mountains stood at 45 percent of normal, ranging from about 40 percent of normal in the south to 55 percent of normal in the north. During a typical season, the Sierras amass slightly less than half of the season's snowfall by January 1, and reach a maximum snow cover on about April 1. Subsequent spring snowmelt is the primary source of water for the State's reservoirs.

Snow cover, depth, and frequency increased dramatically after mid-month in an arc from the Great Lakes States to the Northeast. Elkins, WV reported at least a trace of snow on each day from December 18 through month's end en route to a December-record snowfall of 36.7 inches. In contrast, snow (and cold air) infrequently covered winter wheat from Kansas southward. Farther north, warmth eroded considerable snow cover in Montana. By December 31, snow covered an area north of a line from the Dakotas southeastward to the middle Mississippi and Ohio Valleys, eastward to the Middle Atlantic States.

Buffalo, NY noted -9°F on December 27, their lowest reading since January 21, 1985. A day earlier, Sault Ste. Marie, MI eclipsed its December record with -31°F. Several weeks earlier, record warmth pressed into the Pacific Northwest in advance of a strong storm. Portland, OR (65°F) and Salem, OR (66°F) registered December records on the 10th. The storm responsible for that warmth turned out to be the last in a series of slow-moving, cross-continental storms, effectively shutting down the precipitation machine across the West Coast States. Farther east, rain and snow continued at an irregular rate, as storms originating in the Canadian Prairies (termed "Alberta Clippers") occasionally tapped sub-tropical moisture. One such storm deposited an inch of snow in Columbus, GA on December 23, while another dropped 4 inches of snow and ice on Richmond, VA on December 28-29.

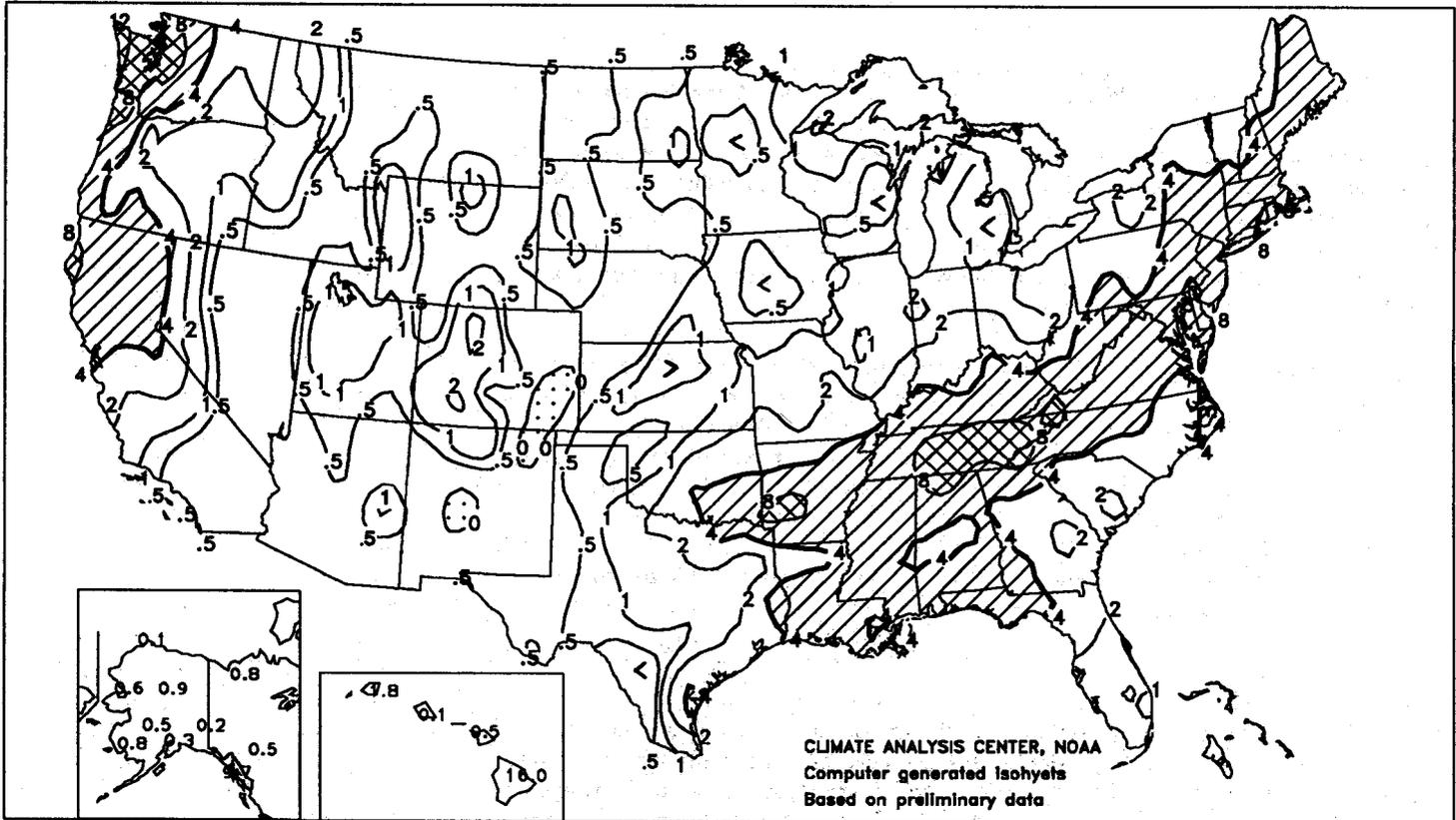
Fieldwork

Snow cover for winter wheat was adequate in the Northwest and northern Great Plains in early December. Above-normal temperatures during the month in Montana and the Northwest reduced the snow cover. By the end of the month, snow cover for winter wheat in these areas was slight to non-existent. Warm conditions in the central Great Plains reduced and removed most of their snow cover in December. Further east, snow and low temperatures during December provided adequate cover for winter wheat across the Dakotas, Minnesota, and the middle Mississippi and Ohio Valleys. Dry conditions slowed winter wheat growth in the southern Great Plains. In the South and Southeast, winter wheat fields were affected by low temperatures and excessive moisture. By the end of December, the winter wheat crop across the Nation was in generally good condition. However, producers in the Northwest, Montana, and the central Great Plains were concerned about the lack of snow cover.

The soybean harvest in the Southeast ended by mid-December, and the cotton harvest concluded in Texas at the end of the month. The citrus harvest was active throughout the month. Cool weather in California and Florida in early December enhanced citrus color.

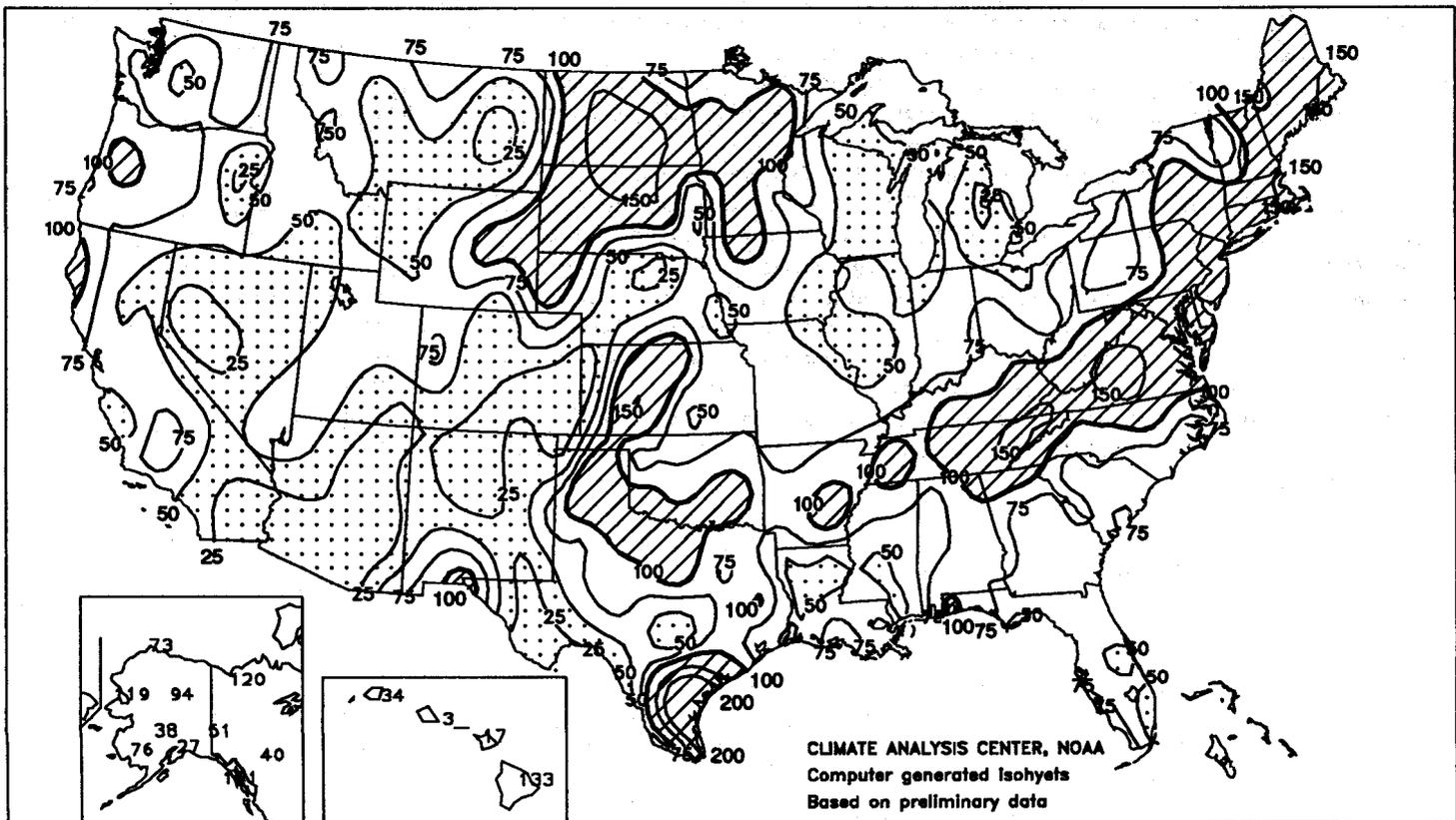
TOTAL PRECIPITATION (inches)

DEC 1993



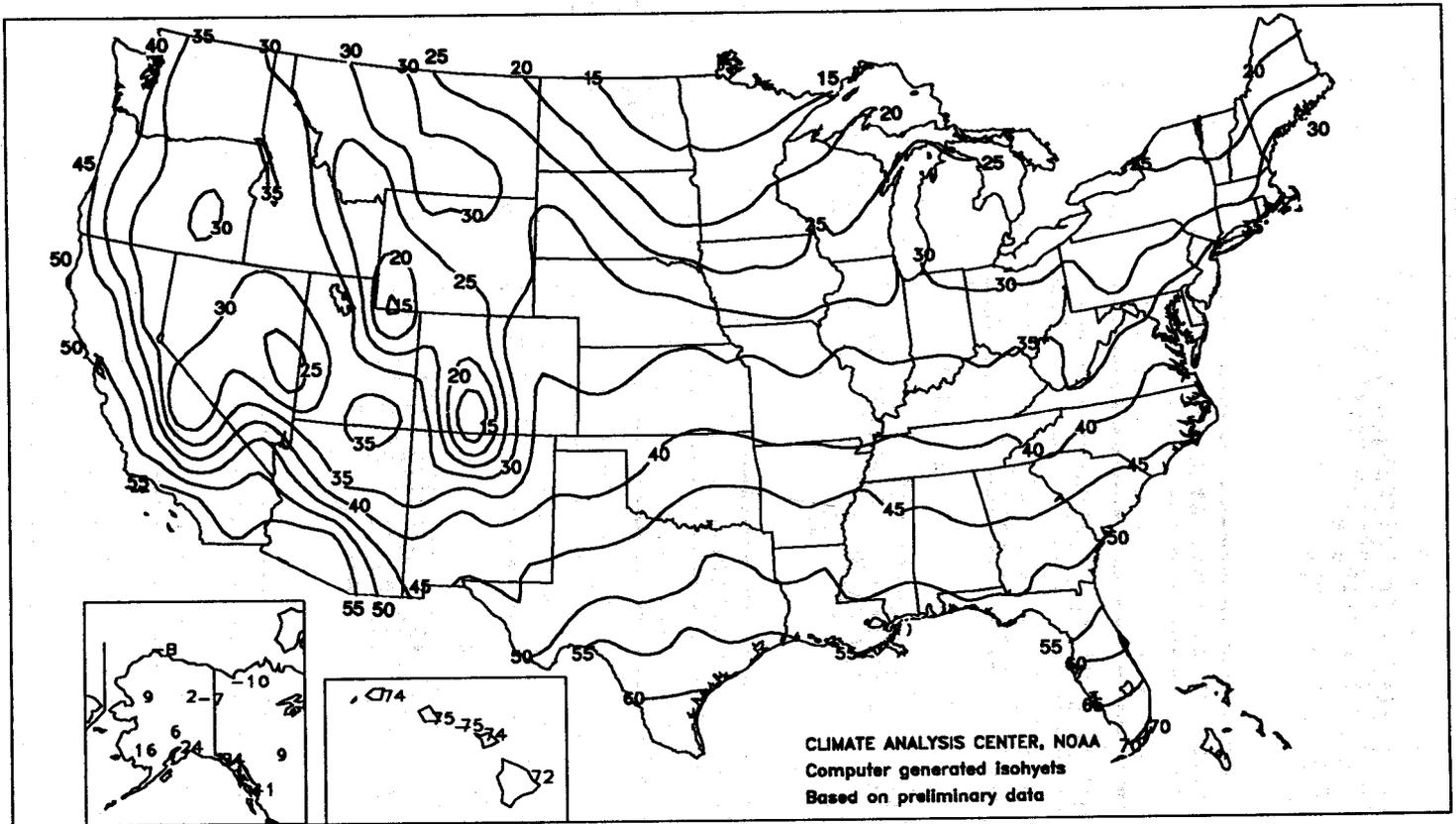
PERCENT OF NORMAL PRECIPITATION

DEC 1993



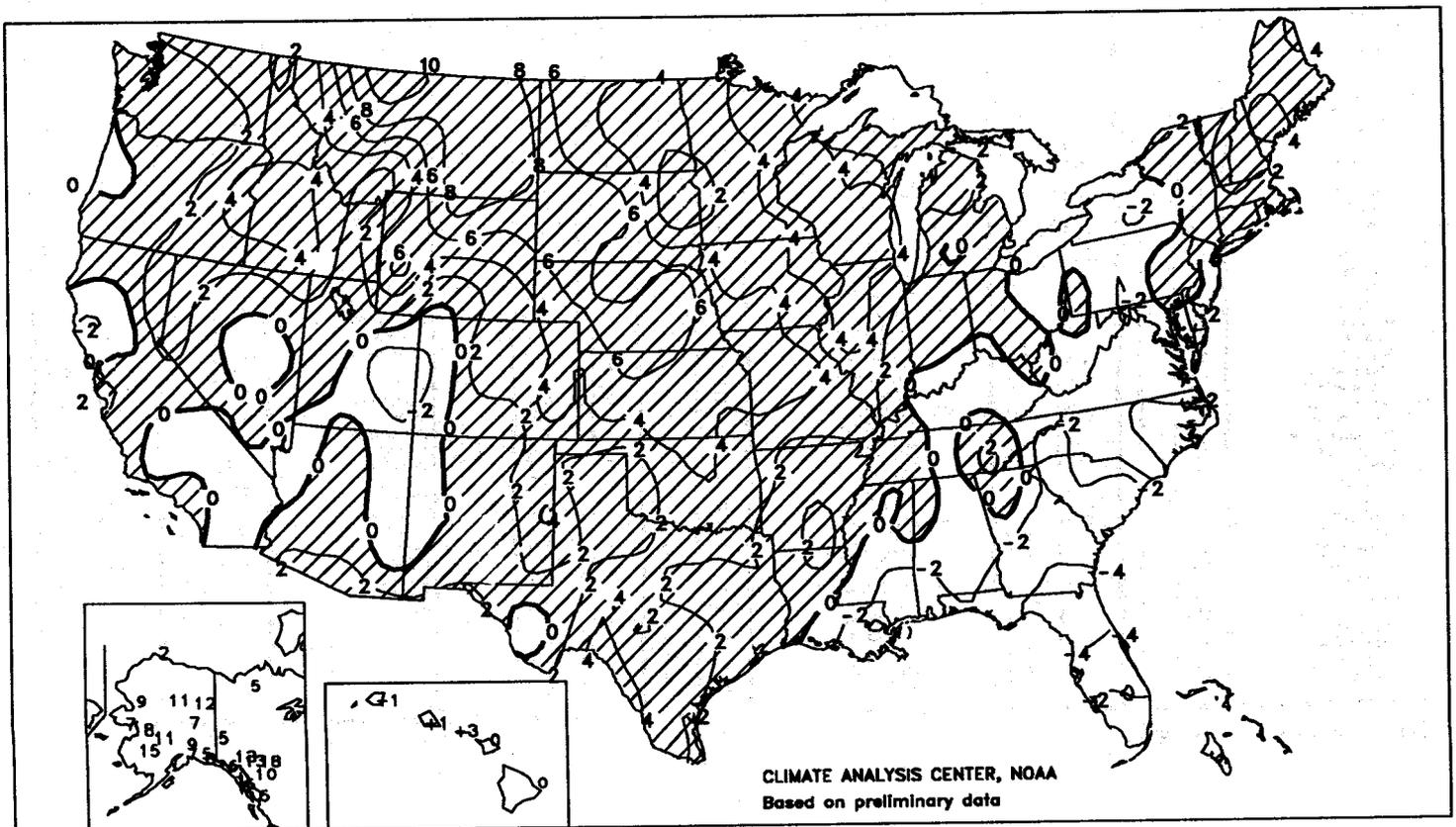
AVERAGE TEMPERATURE(°F)

DEC 1993



Departure of Average Temperature from Normal(°F)

DEC 1993



TEMPERATURE AND PRECIPITATION SUMMARY December 1993

STATES AND STATIONS	Temp. °F		Precip.		STATES AND STATIONS	Temp. °F		Precip.		STATES AND STATIONS	Temp. °F		Precip.	
	AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL BIRMINGHAM	44	-1	4.0	-1.1	LA BATON ROUGE	50	-3	3.3	-2.2	OK YOUNGSTOWN	29	0	2.6	-0.4
AL HUNTSVILLE	42	-1	4.9	-0.5	LA LAKE CHARLES	54	0	2.5	-2.6	OK OKLAHOMA CITY	42	3	1.3	-0.1
AL MOBILE	50	-3	3.7	-1.6	LA NEW ORLEANS	52	0	2.9	-2.8	OK TULSA	42	3	1.8	-0.4
AK MONTGOMERY	47	-1	4.7	-0.5	ME SHREVEPORT	49	1	1.4	-2.7	OR ASTORIA	43	0	9.6	-1.0
AK ANCHORAGE	24	8	0.3	-0.8	ME CARIBOU	19	1	4.0	0.8	OR BURNS	29	4	0.8	-0.3
AK BARROW	-8	3	0.1	0.0	MD BALTIMORE	30	0	5.4	0.8	MD MEDFORD	39	1	2.4	-0.9
AK FAIRBANKS	1	7	0.4	-0.4	MD PORTLAND	36	0	4.4	1.0	MD PENDELTON	36	1	0.9	-0.7
AK JUNEAU	36	9	5.9	1.5	MA BOSTON	37	0	4.7	1.1	MD PORTLAND	41	1	5.0	-1.1
AK KODIAK	35	4	10.8	4.0	MA CHATHAM	34	1	6.6	2.6	MA SALEM	41	1	6.8	0.0
AK NOME	15	8	1.9	1.1	MI DETROIT	26	2	7.7	3.2	PA ALLENTOWN	33	1	5.0	1.5
AZ FLAGSTAFF	30	0	0.8	-1.5	MI DETROIT	26	2	0.4	-1.6	PA ERIE	31	-1	2.9	-0.7
AZ PHOENIX	56	2	T	-1.0	MI FLINT	27	0	0.8	-2.0	PA HARRISBURG	35	2	3.2	-0.1
AZ PRESCOTT	39	2	0.5	-1.2	MI GRAND RAPIDS	31	0	0.5	-1.6	PA PHILADELPHIA	38	4	3.7	0.0
AZ TUCSON	53	2	0.1	-0.9	MI HOUGHTON LAKE	28	4	1.5	-1.4	PA PITTSBURGH	32	0	2.1	-0.8
AZ WINSLOW	33	3	0.1	-0.9	MI LANSING	26	4	0.7	-1.2	PA SCRANTON	30	0	3.1	0.6
AR YUMA	58	3	0.0	-0.4	MI MARGUETTE	28	2	0.7	-1.3	PA WILLIAMSPORT	31	0	2.7	-0.4
AR FORT SMITH	44	3	2.9	-0.2	MI MERRIMON	21	1	1.3	-1.3	RI PROVIDENCE	34	1	5.9	1.4
AR LITTLE ROCK	45	2	4.4	-0.3	MI SABLET ST. MARIE	29	1	1.1	-0.9	SC CHARLESTON	49	-3	2.3	-0.8
CA BAKERSFIELD	47	-1	0.6	0.0	MN ALEXANDRIA	16	3	0.7	0.0	SC COLUMBIA	45	-2	2.4	-1.2
CA BISHOP	37	-1	T	T	MN DULUTH	17	4	1.3	0.0	SC FLORENCE	46	-1	1.9	-1.2
CA BUREKA	49	1	7.1	1.1	MN IWT'Z FALLS	13	6	0.4	-0.4	SD GREENVILLE	41	-2	2.9	-1.2
CA FRESNO	46	0	1.0	-0.4	MN MINNEAPOLIS	22	4	0.6	-0.5	SD ABERDEEN	18	0	0.6	0.0
CA LOS ANGELES	58	2	1.0	-0.7	MN ROCHESTER	21	4	0.7	-0.3	SD HURON	20	2	0.7	0.2
CA REDDING	46	0	3.2	-2.4	MN ST. CLOUD	18	3	0.8	-0.1	SD RAPID CITY	31	7	0.5	0.1
CA SACRAMENTO	44	-1	1.8	-0.7	MS GREENWOOD	47	1	3.0	-2.9	SD SIOUX FALLS	22	4	0.3	-0.4
CA SAN DIEGO	57	0	0.8	-0.8	MS JACKSON	46	-1	2.9	-3.4	TN BRISTOL	38	0	5.9	2.4
CA SAN FRANCISCO	50	1	2.2	-0.9	MS MERIDIAN	48	0	3.3	-2.8	TN CHATTANOOGA	43	2	5.3	0.1
CA STOCKTON	--	--	--	--	MS TUFELO	43	-1	4.8	-0.8	TN KNOXVILLE	40	0	8.1	3.5
CO ALAMOSA	19	1	0.1	-0.3	MO CAPE GIRARDEAU	38	2	2.8	-1.6	TN MEMPHIS	45	1	5.6	-2.0
CO CO. SPRINGS	32	1	0.1	-0.2	MO COLUMBIA	35	4	1.5	-1.1	TX ABILENE	40	0	6.6	2.0
CO DENVER	34	4	0.4	-0.2	MO KANSAS CITY	35	4	1.1	-0.5	TX AMARILLO	48	2	0.9	-0.1
CO GRAND JUNCTION	29	-1	0.6	0.0	MO SAINT LOUIS	37	3	1.5	-1.6	TX AUSTIN	39	2	1.0	0.5
CO PUEBLO	32	1	T	-0.4	MO SPRINGFIELD	38	3	1.6	-1.1	TX BEAUMONT	56	3	1.1	-0.7
CT BRIDGEPORT	35	1	4.5	1.0	MT BILLINGS	34	8	0.2	-0.6	TX BROWNSVILLE	64	2	2.3	1.0
CT HARTFORD	31	1	4.2	0.2	MT GLASGOW	23	8	0.1	-0.3	TX CORPUS CHRISTI	60	2	4.8	3.6
DC WASHINGTON	38	-1	4.4	1.3	MT GREAT FALLS	34	10	0.3	-0.6	TX DEL RIO	57	5	0.2	-0.9
FL APALACHICOLA	51	-4	2.8	-1.3	MT HAVRE	29	11	T	-0.5	TX EL PASO	47	3	0.7	0.1
FL DAYTONA BEACH	56	-4	1.9	-0.7	MT HELENA	30	9	0.1	-0.5	TX FORT WORTH	49	4	2.5	0.4
FL FT. MYERS	64	-1	1.3	-0.6	MT KALISPELL	28	5	1.6	-0.2	TX GALVESTON	59	2	2.4	-1.1
FL JACKSONVILLE	51	-7	1.9	-1.0	MT MILES CITY	30	11	0.1	-0.6	TX HOUSTON	55	2	2.7	-2.1
FL KEY WEST	71	-1	2.2	0.2	MT MISSOULA	28	4	0.4	-0.8	TX LAREDO	43	3	0.3	-0.2
FL MIAMI	69	0	0.5	-1.3	MT MOUND	32	6	0.4	-0.3	TX LUBBOCK	47	1	0.3	-0.2
FL ORLANDO	59	-3	0.8	-1.4	MT NORTH PLATTE	30	6	0.4	-0.3	TX MIDLAND	50	4	0.8	0.0
FL TALLAHASSEE	50	-3	1.3	-0.9	MT OMAHA	30	5	0.4	-0.6	TX SAN ANGELO	55	3	0.4	-1.1
FL TAMPA	60	-3	2.8	-1.5	MT SCOTTSDALE	30	4	0.6	0.0	TX SAN ANTONIO	57	2	4.0	1.0
FL WEST PALM BEACH	65	-3	2.2	-0.8	MT VALENTINE	29	4	0.5	0.0	TX WACO	50	1	1.5	-0.4
GA ATHENS	44	-1	16.1	4.1	NV KELY	26	4	T	-1.0	TX WICHITA FALLS	45	2	2.6	1.1
GA ATLANTA	44	-1	0.3	-3.5	NV KIRBY	25	-1	0.2	-0.6	UT BLANDING	32	--	0.2	-1.1
GA AUGUSTA	46	-2	0.6	-2.7	NV LAS VEGAS	46	1	0.2	-0.2	UT CEDAR CITY	30	0	0.4	-0.4
GA MACON	46	-3	2.8	-1.5	NV RENO	37	4	0.2	-0.8	UT SALT LAKE CITY	31	2	0.9	-0.5
GA SAVANNAH	50	-2	2.2	-0.8	NH WINDHEUCCA	31	1	0.3	-0.5	VT BURLINGTON	24	1	1.6	-0.8
HI HILO	72	0	16.1	4.1	NH CONCORD	27	3	3.4	0.2	VA LYNCHBURG	38	0	4.9	1.7
HI HONOLULU	75	1	0.3	-3.5	NJ ATLANTIC CITY	35	-1	4.2	0.9	VA NORFOLK	42	-2	3.3	0.1
HI KAHULUI	74	1	0.6	-2.7	NM ALBUQUERQUE	37	2	T	-0.5	VA RICHMOND	39	-1	3.8	0.5
HI LIHUE	74	1	2.8	-2.4	NM CLOVIS	42	4	0.5	-0.1	VA ROANOKE	36	-2	5.3	2.3
ID BOISE	33	4	1.0	-0.4	NM ROSWELL	42	1	0.1	-0.3	VA COLVILLE	30	2	2.9	0.4
ID LEWISTON	36	1	0.8	-0.4	NY ALBANY	27	1	3.1	0.2	VA QUILLAYUTE	42	1	12.9	-2.6
ID POCAHYELLO	26	1	0.6	-0.5	NY BINGHAMTON	25	-1	3.3	0.3	VA SEATTLE-TACOMA	41	1	4.4	-1.6
IL CAIRO	--	--	--	--	NY BUFFALO	30	0	3.6	-0.1	VA SPOKANE	31	3	1.8	-0.6
IL CHICAGO	30	3	1.0	-1.5	NY NEW YORK	38	1	4.4	1.0	VA HALLA WALLA	37	3	2.0	-0.4
IL MOLINE	29	4	1.1	-1.1	NY ROCHESTER	28	-1	1.6	-1.1	VA YAKIMA	33	3	1.0	-0.4
IL PEORIA	31	4	1.2	-1.2	NY SYRACUSE	27	-2	3.2	0.0	WV BECKLEY	35	-1	4.5	1.2
IL QUINCY	32	3	0.9	-1.4	NC ASHEVILLE	37	-3	3.6	-0.8	WV CHARLESTON	37	-1	3.2	-0.2
IL ROCKFORD	28	4	1.2	-0.8	NC CHARLOTTE	43	0	3.3	-0.1	WV ELKINS	31	-1	5.0	1.5
IL SPRINGFIELD	33	3	1.1	-1.7	NC GREENSBORO	39	-2	3.3	-0.1	WV HUNTINGTON	36	1	3.3	-0.3
IN EVANSVILLE	36	-1	1.5	-1.4	NC HATTERAS	48	-1	4.1	-0.4	WV PARKERSBURG	34	-1	2.0	-0.9
IN FORT WAYNE	31	2	2.2	-1.2	NC NEW BERN	44	-3	1.6	-2.1	WV GREEN BAY	25	5	0.4	-1.1
IN INDIANAPOLIS	32	1	1.5	-1.8	NC RALEIGH	40	-2	3.7	0.5	WV LACROSSE	26	5	0.8	-0.5
IN SOUTH BEND	30	3	0.9	-0.5	ND WILMINGTON	46	-1	2.7	-1.4	WV MADISON	27	5	0.4	-1.3
IA DES MOINES	28	2	1.0	-0.9	ND BISMARCK	18	4	0.8	0.3	WV MILWAUKEE	30	5	0.7	-1.6
IA DUBUQUE	26	3	0.5	-0.2	ND FARGO	16	4	1.0	0.4	WV HANAU	22	4	0.6	-0.9
IA STOUX CITY	26	4	0.8	-0.5	ND GRAND FORKS	13	2	0.4	-0.2	WV CASPER	29	5	0.7	0.0
IA WATERLOO	25	4	1.1	0.3	ND WILLISTON	20	7	0.4	-0.2	WV CHEYENNE	31	3	0.3	-0.1
KS CONCORDIA	35	3	1.0	0.4	OH AKRON-CANTON	29	-1	2.8	-0.2	WV LAMAR	25	4	0.4	-0.2
KS DODGE CITY	36	4	T	-0.4	OH CINCINNATI	33	-1	2.5	-0.6	WV SHERIDAN	30	8	0.5	-0.2
KS GOODLAND	33	3	0.9	-0.5	OH CLEVELAND	31	0	2.2	-0.9	PR SAN JUAN	79	1	3.0	-1.7
KS TOPEKA	35	4	0.4	-1.0	OH COLUMBUS	33	3	2.2	-0.8					
KY WICHITA	38	4	6.2	1.2	OH DAYTON	31	-1	2.8	-0.2					
KY BOWLING GREEN	38	0	4.3	--	OH MANSFIELD	30	0	1.2	-1.2					
KY JACKSON	37	0	3.3	-0.7	OH TOLEDO	29	1	1.2	-1.7					
KY LEXINGTON	35	-1	2.6	-1.1										
KY LOUISVILLE	36	-1	3.6	-1.1										
KY PADUCAH	39	1	T	T										

Based on 1951-90 normals.

HEATING DEGREE DAYS (Base 65° F) December 1993

STATES AND STATIONS	TOTAL	DEP. FROM NORMAL	STATES AND STATIONS	TOTAL	DEP. FROM NORMAL	STATES AND STATIONS	TOTAL	DEP. FROM NORMAL
AL BIRMINGHAM	630	16	PORTLAND	1082	-112	BRADFORD	1248	2
HUNTSVILLE	701	16	MD BALTIMORE	886	9	ERIE	1064	25
MOBILE	464	71	MA BOSTON	953	-20	PHILADELPHIA	818	-87
MONTGOMERY	552	60	MI ALBENA	1201	-79	PITTSBURGH	1030	-9
AK ANCHORAGE	1264	-246	DETROIT	1054	-84	SCRANTON	1075	-10
BARROW	2240	-122	FLINT	1169	-3	WILLIAMSPORT	1057	0
BETHEL	1502	-250	GRAND RAPIDS	1152	-23	RI PROVIDENCE	966	-32
COLD BAY	1011	-43	LANSING	1156	-41	SC CHARLESTON	507	68
FAIRBANKS	1970	-247	MUSKOGEE	1098	-34	COLUMBIA	619	58
JUNEAU	897	-278	TRAVERSE CITY	1141	-87	GREENVILLE	724	51
KING SALMON	1253	-269	MI DULUTH	1478	-140	SD ABERDEEN	1442	-99
KOTzebue	1732	-311	INT'L FALLS	1596	-196	HURON	1369	-85
MCCRATH	1817	-384	MINNEAPOLIS	1319	-141	PIERRE	1227	-140
Nome	1534	-255	ROCHESTER	1341	-141	RAPID CITY	1034	-231
ST PAUL ISLAND	1149	33	MS JACKSON	590	48	STOCK FALLS	1329	-119
YAKUTAT	969	-206	MERIDIAN	521	-4	TN BRISTOL	823	-8
AZ FLAGSTAFF	1070	-27	MO COLUMBIA	935	-94	CHATTANOOGA	679	-62
PHOENIX	261	-84	KANSAS CITY	937	-136	KNOXVILLE	766	-6
TUCSON	350	-53	SANIT LOUIS	852	-112	MEMPHIS	618	-42
AR FORT SMITH	653	-113	SPRINGFIELD	836	-85	NASHVILLE	759	-1
LITTLE ROCK	633	-74	MT BILLINGS	962	-263	TX ABILENE	524	-81
CA FRESNO	592	-16	GLASGOW	1281	-263	AMARILLO	808	-63
LOS ANGELES	198	-60	GREAT FALLS	962	-312	AUSTIN	324	-102
SACRAMENTO	622	11	HAYNE	1118	-358	BROWNSVILLE	134	-43
SAN DIEGO	237	-6	HELENA	1078	-280	CORPUS CHRISTI	205	-56
SAN FRANCISCO	457	-27	KALISPELL	1151	-160	DALLAS FT WORTH	476	-90
CO COLORADO SPRINGS	990	-101	MISSOULA	1152	-138	EL PASO	549	-99
DENVER	939	-115	NE GRAND ISLAND	1028	-200	HOUSTON	343	-31
GRAND JUNCTION	1098	-27	NORTH PLATTE	1066	-199	LUBBOCK	669	-87
CT HARTFORD	1049	-52	OMAHA	1091	-168	LUFKIN	450	-16
DE WILMINGTON	876	-29	SCOTTSDRUFF	1074	-129	MIDLAND OCESSA	555	-77
DC WASHINGTON	828	34	NV ELKO	1204	-14	SAN ANGELO	455	-134
FL DAYTONA BEACH	295	78	ELY	1233	12	SAN ANTONIO	319	-90
FORT MEERS	88	-12	LAS VEGAS	568	-30	VICTORIA	267	-55
JACKSONVILLE	421	90	RENO	872	-129	WACO	477	-47
KEY WEST	10	-9	WINNEBOCCA	1044	-47	WICHITA FALLS	607	-81
MIAMI	32	-9	NH CONCORD	1173	-89	UT CEDAR CITY	1064	-2
ORLANDO	205	41	NJ ATLANTIC CITY	920	15	SALT LAKE CITY	1027	-67
PENSACOLA	405	34	NEWARK	852	-47	VT BURLINGTON	1250	-52
TALLAHASSEE	463	74	NM ALBUQUERQUE	852	-69	VA LYNCHBURG	851	26
TAMPA	187	16	NY ALBANY	1165	-29	NORFOLK	732	75
WEST PALM BEACH	64	-10	BINGHAMTON	1227	33	RICHMOND	802	30
GA ATHENS	658	41	BUFFALO	1099	-14	ROANOKE	893	65
ATLANTA	608	-28	MASSENA	1305	-84	WA OLYMPIA	768	-63
AUGUSTA	603	51	NEW YORK	839	-41	QUILLAYUTE	717	-49
MACON	601	90	ROCHESTER	1134	21	SEATTLE TACOMA	721	-39
SAVANNAH	473	47	SYRACUSE	1181	43	SPOKANE	1050	-103
ID BOISE	963	-119	NC ASHEVILLE	872	81	YAKIMA	978	-113
POCATELLO	1201	-45	CAPE HATTERAS	530	27	WV BECKLEY	999	38
IL CHICAGO	1084	-106	CHARLOTTE	679	-15	CHARLESTON	875	7
MOLINE	1098	-130	GREENSBORO	806	46	HUNTINGTON	889	18
PEORIA	1035	-143	RALEIGH DURHAM	760	66	WI EAU CLAIRE	1334	-160
ROCKFORD	1149	-122	WILMINGTON	578	59	GREEN BAY	1224	-165
SPRINGFIELD	979	-115	ND BISMARCK	1458	-123	MADISON	1181	-161
IN EVANSVILLE	878	-46	FARGO	1510	-145	MILWAUKEE	1080	-179
FORT WAYNE	1044	-84	MINOT	1444	-149	WY CASPER	1104	-173
INDIANAPOLIS	1006	-51	WILLISTON	1374	-232	CHEYENNE	1055	-98
SOUTH BEND	1087	-32	OR ANSON CANTON	1097	34	LANIER	1240	-130
IA DES MOINES	1129	-130	CLEVELAND	1066	9	ROCK SPRINGS	1302	-50
MASON CITY	1305	-143	COLUMBUS	992	-34	SHERIDAN	1071	-243
STOUC CITY	1217	-122	CINCINNATI	996	19			
WATERLOO	1219	-167	DAYTON	1047	12			
KS CONCORDIA	919	-178	TOLEDO	1098	-52			
DODGE CITY	887	-121	YOUNGSTOWN	1100	-1			
GOODLAND	985	-116	OK OKLAHOMA CITY	706	-91			
RUSSELL	901	-159	TULSA	695	-114			
TOPEKA	931	-129	OR ASTORIA	687	-14			
WICHITA	837	-155	EUGENE	790	49			
KY LEXINGTON	925	23	MEDFORD	804	-39			
LOUISVILLE	881	10	NORTH BEND	576	-10			
LA BATON ROUGE	454	62	PENDLETON	904	-48			
LAKE CHARLES	365	-10	PORTLAND	719	-50			
NEW ORLEANS	399	50	REDMOND	987	-42			
SHREVEPORT	490	-45	SALEM	732	-43			
ME BANGOR	1195	-107	PA ALLENTOWN	988	-41			

Based on 1961-90 normals.

December Weather in Historical Perspective

Normal to above-normal temperatures in eight of nine climatic divisions paced the Nation to its 28th warmest December in 99 years of recordkeeping (table 1). The Nation's monthly average temperature of 34.8°F was 2.0°F above normal (figure 1). Only the Southeast region ranked in the lowest third of its historical distribution, with a 25th coldest December. In contrast, the West North Central region notched its 15th warmest December.

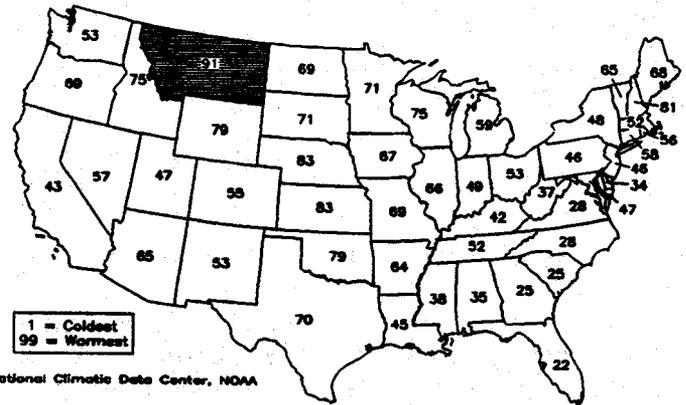
Seven of nine climatic divisions reported well-below-normal precipitation, fueling the 12th driest December since 1895 (table 1, figure 2). Nationally, an average of 1.65 inches of precipitation fell, which was 72 percent of normal. State-by-state historical rankings of temperature and precipitation appear in figure 3. Precipitation rankings should be used with caution due to the high variability of precipitation on a small scale of time and space.

Table 1. Temperature and precipitation rankings for December 1993, based on the period 1895-1993. 1 = Driest/Coldest, 99 = Wettest/Hottest.

Region	Precipitation	Temperature
Northeast	64	52
East North Central	12	69
Central	43	58
Southeast	33	25
West North Central	13	85
South	27	69
Southwest	8	58
Northwest	22	70
West	27	51
National	12	72

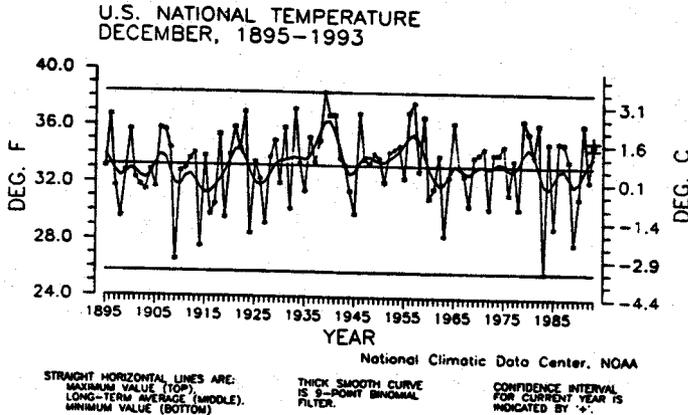
Figure 3

DECEMBER 1993 STATEWIDE TEMPERATURE RANKS

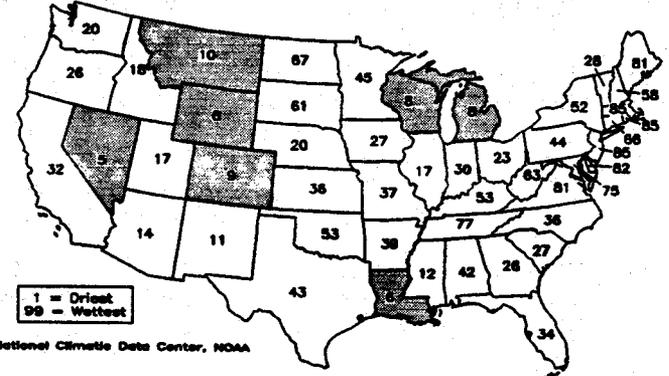


Temperature Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1993. States having a rank of top ten coldest (rank 1-10) or top ten warmest (rank 90-99) are shaded.

Figure 1

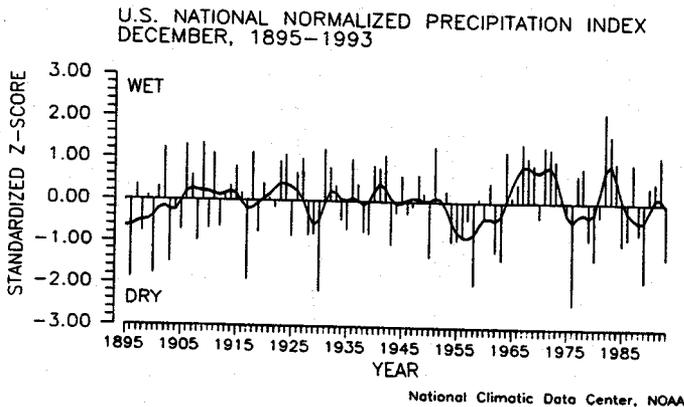


DECEMBER 1993 STATEWIDE PRECIPITATION RANKS



Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1993. States having a rank of top ten driest (rank 1-10) or top ten wettest (rank 90-99) are shaded.

Figure 2



1993 Weather Review

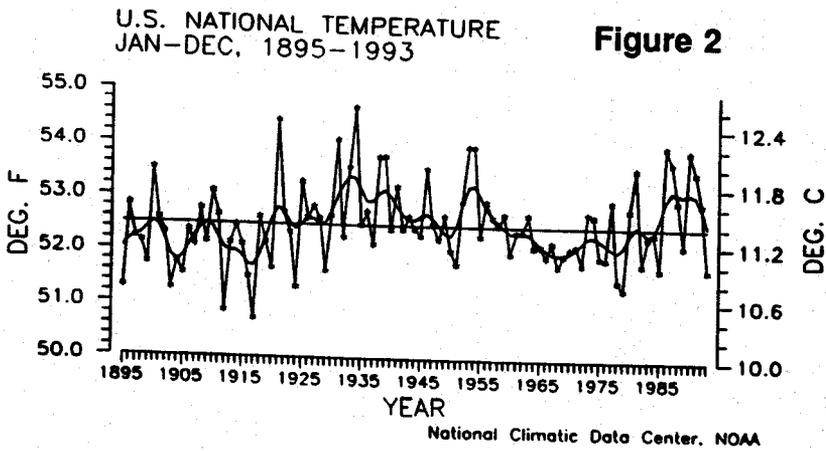
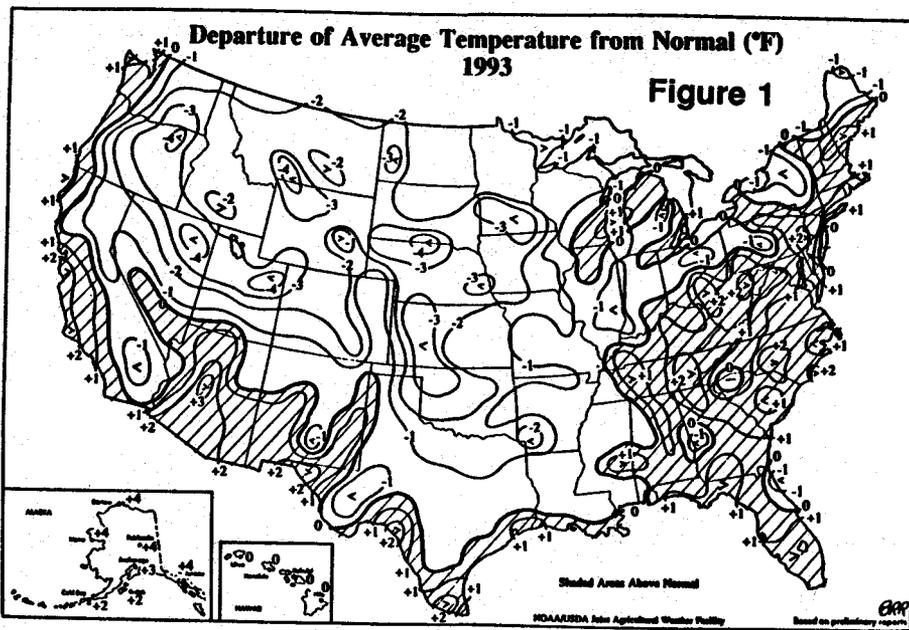
Relentless spring and summer rainfall in the upper Midwest triggered record flooding across the Mississippi and Missouri River basins. Heavy rain and snow early in the year ended the long-term drought in California, and an enormous storm lashed the eastern seaboard in March. Severe summer drought slashed crop production in the Southeast.

Winter (December 1992 - February 1993)

Heavy rain and snow in California eradicated long-term water shortages and ended the 6-year drought. With winter (December-February) precipitation ranging from 12 to 50 inches (100 to 400 percent of normal), this was the wettest 3-month period since January-March, 1983. Statewide precipitation for the winter was the highest since 1968-69 and resulted in widespread flooding. A particularly stormy period from January 6 through 20 could be blamed on a series of very wet low pressure systems tracking northeastward from the Pacific into California.

A series of fierce winter storms battering the region the following month caused Arizona's Gila River to overflow its banks on February 21. Heavy rain sent water rushing through the Painted Rock Dam's spillways, flooding large sections of farmland. By February 24, residents of southwest Arizona's farm belt were abandoning homes, businesses, and farms. The Southwest recorded its wettest winter in the entire 98-year period of record.

A large part of the Nation experienced its coldest weather of the winter during February. In Alaska, the coldest airmass since February 1989, embraced the State during late January and early February before invading "the lower 48." By February 7, readings dropped to -14° F in Albany, NY, the lowest in 6 years. Ten days later, temperatures dipped to -16° F in Goodland, KS, and -21° F in North Platte, NE.



Much of the country was wetter, snowier, and colder than normal during the winter of 1992-93, though areas east of the Mississippi River averaged 1° to 4° F milder than the long-term mean. The winter temperature pattern--above normal in the east and below normal in the central and west--was similar to the annual temperature pattern (fig. 1) and contributed to this being the coldest year nationally since 1985 (fig.2).

Winter precipitation averaged about 150 percent of normal in the upper Mississippi Valley, a

contributing factor to the catastrophic flooding which followed a few months later.

Spring (March - May)

A storm of historic magnitude developed in the Gulf of Mexico on Friday, March 12 and tracked up the east coast on Saturday, March 13. Often referred to as the "Storm of the Century," the record low pressures and accompanying strong winds as well as the immense territory buried by heavy snow made this "nor'easter" a prime candidate for the east coast's greatest winter storm since the Blizzard of 1888. The strength, size, and late-season nature of the storm demolished dozens of all-time barometric, monthly snowfall, and daily minimum temperature records from the Gulf coast to New England. Significant impacts occurred from Canada to Cuba. A nine-foot surge--similar to that from a hurricane--was reported on the Florida gulf coast, as well as a wind of 110 mph. Dozens of tornadoes touched down across the Florida peninsula. The reported death toll from the storm in the United States, Canada, and Cuba totaled 243. Some 3 million people were left without power and thousands were isolated by record snowfalls, which exceeded 12 inches from Alabama through the Appalachians and piedmont to Canada. Totals of 2 to 3 feet were found over mountainous areas and locations vulnerable to lake effects. Syracuse's total of 43 inches made this the greatest single snowfall since records began in 1902. In Birmingham, AL, their 13-inch snowfall set a new 24-hour record for any month, a record for maximum snow depth, maximum snow from a single storm, and maximum snow in a single month.

The bitter cold that followed the storm broke or tied at least 68 low temperature records on Sunday, March 14, and another 72 on Monday. The Sunday low of 21° F at Mobile, AL, not only broke the daily record by 8°F but also set a new all-time low for the month of March.

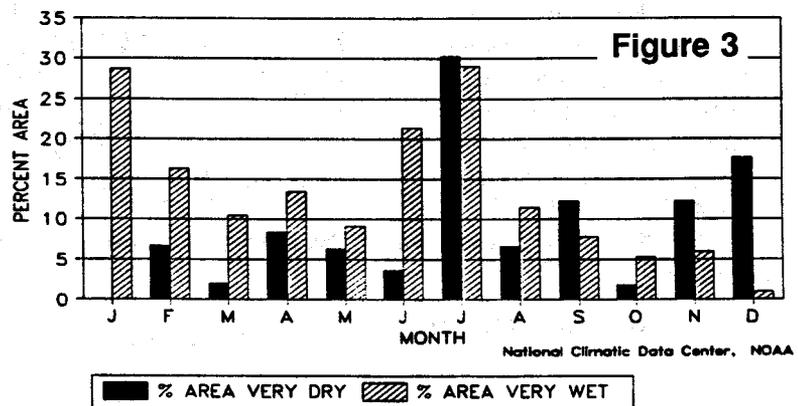
In the Northeast, this storm was preceded by a month-long series of snowstorms and followed by a spate of rainstorms, causing widespread flooding from late-March through mid-April.

Damp, cool weather during the spring in the western Corn Belt, east-central Plains, and the Mississippi Delta delayed spring fieldwork and crop progress. Spring precipitation was 150 percent of normal over parts of Wisconsin, Minnesota, South Dakota, Iowa, Missouri, and Kansas. A long series of consecutive weeks with heavy precipitation began in late March in Iowa. This began a wet spell that was nearly unbroken through the summer.

Summer (June - August)

The genesis for the Midwest flooding goes back to the summer of 1992, as much of the eastern half of the Nation was unusually wet during July 1992 - March 1993. This made the Midwest highly susceptible to flooding due to saturated soils and high streamflow levels. The combination of these factors plus excessive spring and summer rainfall, with April-September totals exceeding 50 inches at some spots, created severe flooding throughout the northern half of the Mississippi drainage basin during June and July, with the floodwaters generally receding during August. Some locations in Iowa, Kansas, and Missouri measured more than a year's worth of rain during April-July. Many reservoirs overflowed, over two-thirds of the region's levees were overtopped or breached, and severe lowland flooding resulted. At some points, the Mississippi River expanded to a width of nearly 7 miles and the Missouri to 20 miles. In July, the confluence of the Mississippi and

U.S. NATIONAL PRECIPITATION
PERCENT AREA, JANUARY-DECEMBER 1993



Missouri Rivers met 20 miles upstream of its normal position. The flooding, which covered 10 million acres, reportedly caused some 48 deaths and over \$12 billion in crop and property damage. Official USDA figures show that 8.7 million acres of crops were destroyed or could not be planted or harvested across the nine States affected by the flooding: Iowa, Minnesota, North Dakota, South Dakota, Wisconsin, Illinois, Missouri, Nebraska, and Kansas. In addition to the crop losses, many tons of valuable topsoil were washed into the Gulf of Mexico.

The persistence of the wet pattern was highly unusual, as clusters of thunderstorms crossed the Midwest several times each week during June and July. A string of 10 consecutive months with above-normal precipitation began across Iowa in November 1992. In Iowa, every week in June and July had above-normal rainfall. Even September was abnormally wet from southern Iowa southward through Missouri. Not until October was there below-normal rainfall across most of the flooded region.

The same weather system that contributed to the persistent wetness in the Midwest—a stagnant Bermuda high—caused drought across the south-central and southeastern States. As a result, July saw nearly one-third of the country unusually wet and nearly one-third unusually dry (fig. 3). Although Tropical Storm Arlene provided heavy rains to the central and western Gulf coast and southeastern Plains during late June, abnormally hot, dry weather prevailed for the remainder of the summer across most of the South and East. On August 29, San Antonio reported rain after enduring a record 63 days with nothing more than a trace. In the Southeast, drought centered in South Carolina reduced crop yields from Georgia to Virginia. The weather was unusually warm and dry from mid-April through early September, though heavy rains brought some relief in early August. South Carolina had the driest June this century and North Carolina the second driest. Charlotte, NC, measured just 0.15 in. of rain the entire month. A July heat wave worsened drought in the Southeast and spread it northward to the mid-Atlantic region. During July 4-11, temperatures hit the mid-90s from New York to Florida. Washington, Philadelphia, and New York City had three consecutive days of 100° F readings (July 8-10).

The Southeast ended the season with the driest summer this century and the second hottest. By contrast, the Northwest had the coolest summer in 98 years and the third wettest. Summer rainfall in the Mississippi River basin, at about 140 percent of normal, surpassed the record previously set in 1915. Annual precipitation of some 42 inches was the greatest in 98 years of recordkeeping (fig. 4).

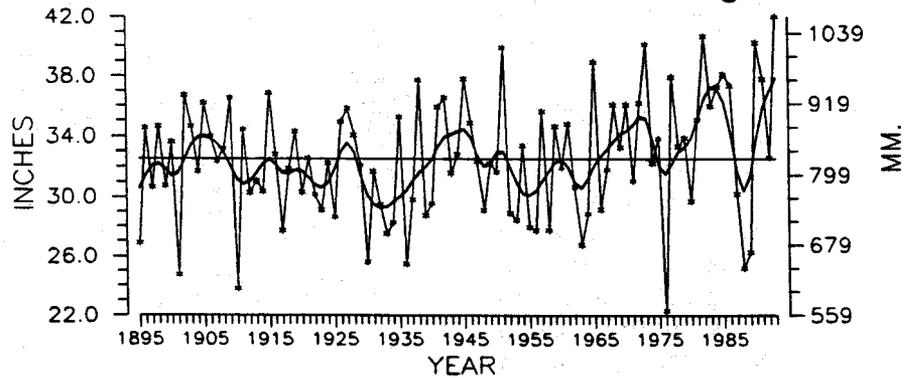
Autumn (September - November)

The country had its coldest autumn since 1976. Only the southeast and western coasts had above-normal temperatures.

A change in the upper air pattern finally allowed the upper Mississippi Valley to begin to dry out in September. However, heavy rain continued to soak the middle Mississippi Valley, delaying the return of normal barge traffic as the Mississippi rose to more than 9 feet above flood stage at St. Louis, MO.

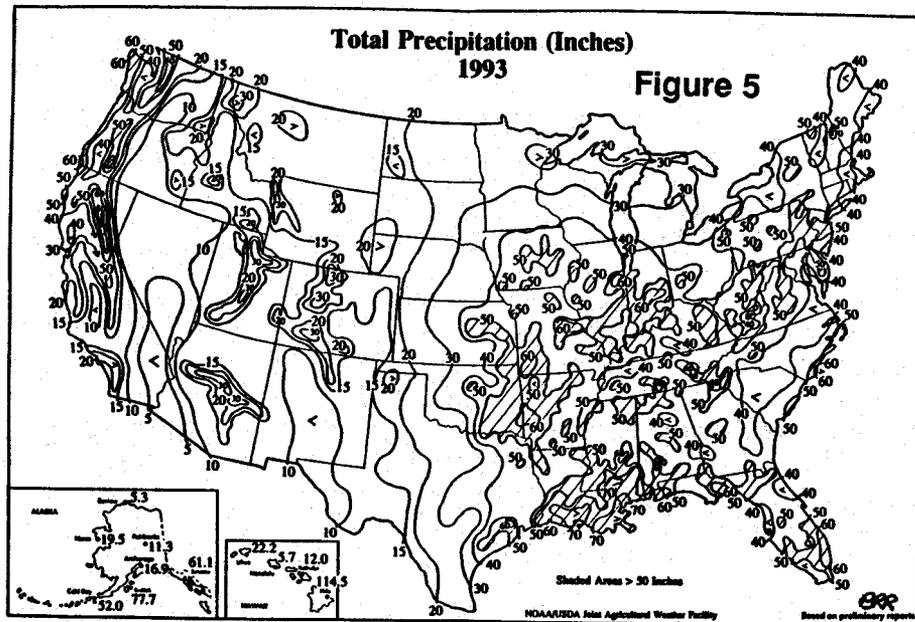
UPPER MISSISSIPPI RIVER BASIN PRECIPITATION
JAN-DEC, 1895-1993

Figure 4



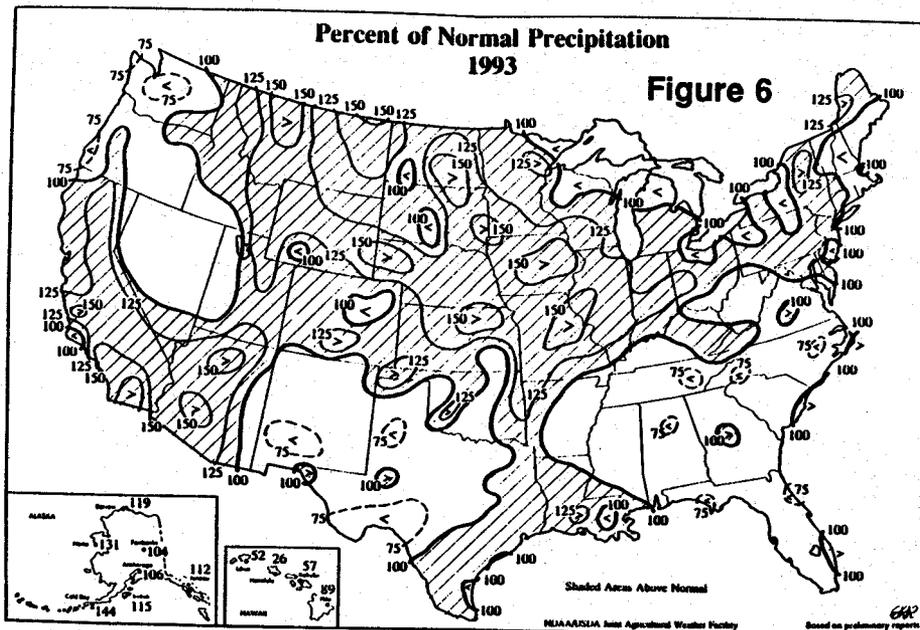
National Climatic Data Center, NOAA

With crops far behind schedule due to the cool, wet summer, the main concern this autumn in the western Corn Belt was an early frost. Though minor freezes occurred on September 15, 27, and 30, the low temperatures were limited in duration and extent. A freeze on October 2 and a widespread freeze on October 10 finally ended the growing season across the upper Midwest. The October freezes damaged late-planted corn and ended a miserable growing season for farmers affected by the earlier heavy rains and flooding.



Until late October, the 1993 fire season in the far Western States had been quiet. Then on October 27, more than a dozen wildfires raced across southern California as strong Santa Ana winds gusted to 70 mph. After conditions improved by the month's end, a second round of fires erupted on November 2, with the worst blaze near Malibu. In the end, the fires burned 200,000 acres, destroyed over 1,000 homes, took three lives, and injured more than 120 people.

A cold outbreak brought snow and record-low temperatures to central and eastern parts of the country on October 30-31. The Halloween arctic outbreak brought snow flurries to parts of Texas and the Southeast



for the first time ever in October and deposited heavy snow from the middle Ohio Valley to northern New England.

In November, a Thanksgiving week storm and an arctic airmass affected much of the Nation. The weather complex first pounded the Northwest with snow and severe cold and then moved into the northern Plains. A nearly stationary upper level low pressure system ensured the snow would persist. On November 22-27, the snow piled up in Bismarck, ND, with the final tally of 28.3 inches setting an all-time single storm snowfall record. The total of 25.3 inches also broke the single storm record at Aberdeen, SD. The blizzard across the High Plains produced wind chill readings as low as -40° F on the day before Thanksgiving. The frigid

temperatures on November 24-26 set dozens of low temperature records across the western and central parts of the country. As the storm reached the eastern seaboard, as much as 8 inches of rain inundated portions of the Middle Atlantic piedmont on November 27-28.

Less than 2 weeks earlier, summer's last gasp produced record heat from New Hampshire to Florida. Over 72 daily high temperature records were set across the eastern third of the country on November 14-16. New York City had its latest 80 degree reading ever on the 15th.

JAN-DEC 1993 STATEWIDE PRECIPITATION RANKS

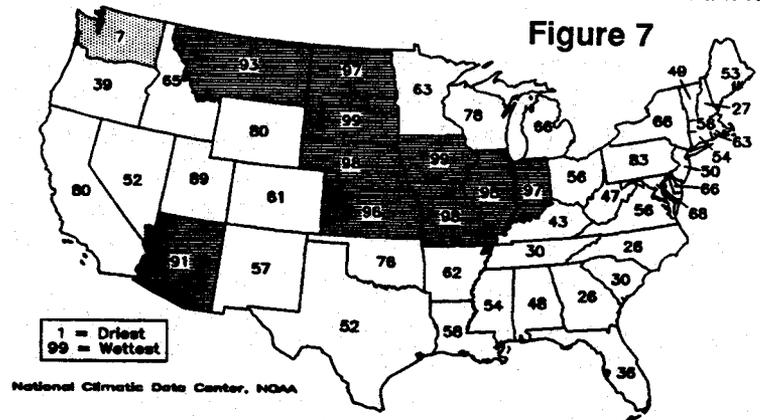


Figure 7
Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1993. States having a rank of top ten driest (rank 1-10) or top ten wettest (rank 90-99) are shaded.

December 1993

December was stormy on both coasts, with Pacific storms lashing the California, Oregon, and Washington coasts on the 7th and 10th and storms bringing high winds and heavy rain or snow to the east coast on December 4-5, 11-12, 20-21, and 28-29. Frigid air dropped temperatures to well below zero on December 27-29 across the North Central and Northeastern States.

Summary

The spring and summer deluge caused many locations in the Central United States to report the wettest year ever, with total annual precipitation exceeding 50 inches and 150 percent of normal across parts of the Central United States (figs. 5 and 6). Nationally, the year was cool and wet (Table 1). Illinois, Iowa, Nebraska, and South Dakota had either the wettest or second wettest year since records started in 1895 (fig.7). The wet areas were also unusually cool. For Kansas, Nebraska, Wyoming, Idaho, and Oregon, 1993 was one of the 10 coldest on record (fig. 8).

--Douglas Le Comte

Table 1. Temperature and precipitation rankings for the year 1993, based on the period 1895-1993. 1 = Driest/Coldest, 99 = Wettest/Hottest.

Region	Precipitation	Temperature
Northeast	67	42
East North Central	93	20
Central	89	37
Southeast	34	46
West North Central	98	10
South	67	18
Southwest	82	46
Northwest	26	8
West	81	46
National	87	13

JAN-DEC 1993 STATEWIDE TEMPERATURE RANKS

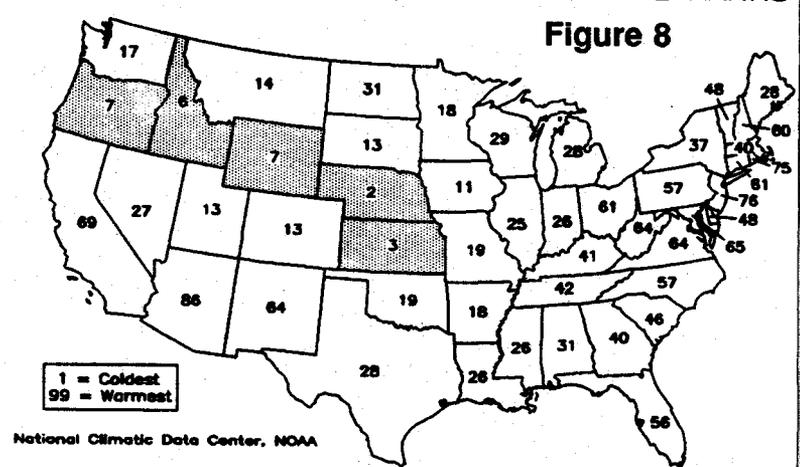


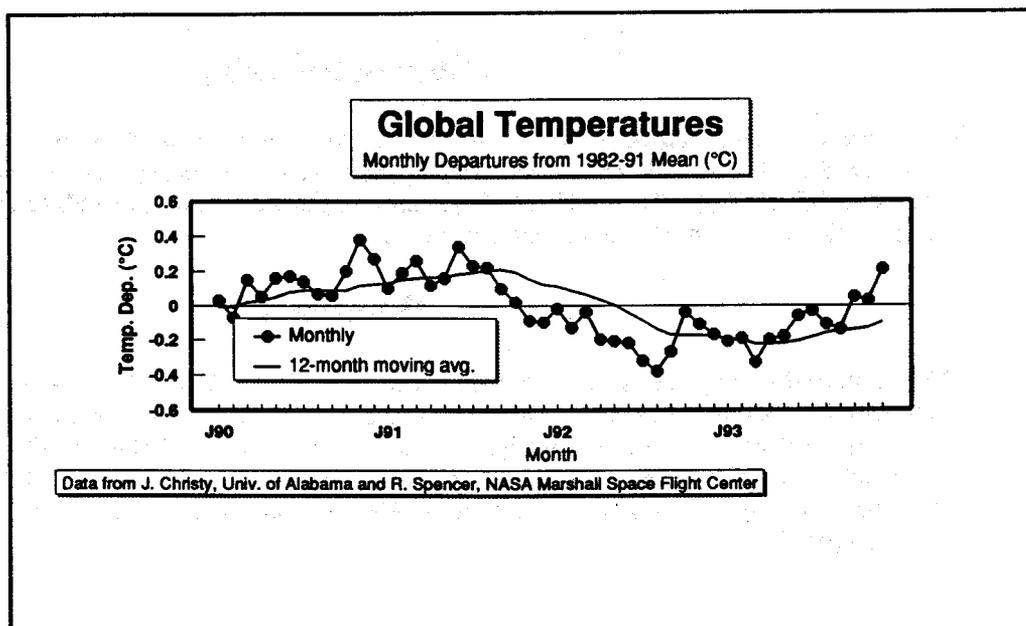
Figure 8
Temperature Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1993. States having a rank of top ten coldest (rank 1-10) or top ten warmest (rank 90-99) are shaded.

Global Temperatures--Cooling Abates

Impacts from the June 1991 eruption of Mt. Pinatubo appeared to wane during 1993, as satellite-measured temperatures began to increase. Though the average temperature for 1993 remained below the 10-year mean for the globe (-0.10°C departure) and the Northern (-0.13°C) and Southern Hemispheres (-0.07°C), temperatures increased significantly toward the end of the year, with December readings above the 10-year mean and the highest since the summer of 1991, shortly after the eruption of Mt. Pinatubo in the Philippines. The temperature trend is consistent with observations that the aerosol cloud created by Pinatubo had virtually disappeared by autumn of 1993. Temperatures were slightly higher in 1993 than in 1992, which was the coldest year since 1985, according to the satellite record. In the United States, preliminary data indicate that 1993 was the coldest year since 1985. Some climatologists believe that the volcano-induced cooling interrupted a global warming trend which could resume as soon as the effects from Pinatubo dissipate. Many meteorologists believe that the Pinatubo impacts on the atmosphere contributed to the U.S. flooding last summer.

Though the eruption of Mt. Pinatubo in June 1991 likely affected the global mean temperature, analysts from the Climate Analysis Center believe that the exact changes in circulation are not known and it is difficult to directly link

the floods to the eruption. During 1992 and 1993, an El Niño/Southern Oscillation (ENSO) episode occurred. Though factors other than the ENSO are responsible for the floods, CAC analysts believe that the long-lived ENSO event "probably" contributed "to the large-scale atmospheric features associated with the persistent 1993 Mississippi River valley flooding." They note that "Preliminary tests using the current ENSO-related SST anomalies in a numerical climate model at the National Meteorological Center show a response in North America that replicates the observed precipitation and temperature anomaly pattern to a considerable extent" (*Special Climate Summary 93/3 Growing Season Summary*, September 14, 1993, National Weather Service, National Meteorological Center, Climate Analysis Center).



Douglas Le Comte

National Agricultural Summary

January 3 - 9, 1994

HIGHLIGHTS: Winter wheat in the upper Great Plains benefited from increased protection from low temperatures as two storms brought more snow. Small grains and winter wheat in the southern Great Plains suffered from another week of dry conditions. Heavy snows fell across the Northeast, which hindered outside farm work and stressed livestock. Fieldwork in the Southeast was hindered by cool, damp conditions. Temperatures across the eastern two-thirds of the Nation were generally below normal, which stressed livestock and increased the need for supplemental feeding.

SMALL GRAINS: This week's snow provided good cover for winter wheat from the northern Great Plains to Ohio. Along the eastern edge of the Rockies, however, snow cover was light to non-existent. High winds caused some soil erosion in Colorado, but little damage to the winter wheat crop. Low temperatures in Kansas, at the end of the week, were not expected to cause significant damage to the crop. In the southern Plains, conditions remained dry. In the Texas southern plains, some fields were heavily stressed by the dry conditions and increased insect pressure. In California, small grains and wheat needed more rain to promote good germination and growth. Small grains and wheat in the South and Southeast needed warmer conditions to promote growth.

OTHER FIELD CROPS: Georgia onion planting was virtually completed. Onion fields were planted and sprayed for weeds in California. The Texas onion crop made good progress last week. The sugarcane harvest advanced, and sugarcane planting continued in Florida. Louisiana sugarcane producers drained fields. Tobacco bed preparation remained active in Georgia and North Carolina. Tobacco plant beds were planted and maintained in Florida. Cool conditions helped cool season crops but slowed progress of other crops in Hawaii. Potato planting neared completion in southern Florida. Rainfall in southern Florida helped the already-planted potato crop.

FRUITS AND NUTS: The pecan harvest was active in Georgia, Arizona, and Louisiana. In Texas, harvest neared completion in the Cross Timbers and south-central areas. Low prices slowed the native pecan harvest in Texas. Citrus harvests

advanced in Arizona, California, and Florida. This week's rain and low temperatures prevented new growth in the Florida citrus groves. Pruning of deciduous trees continued in the Northwest and California. Pruning progress in the Northwest was hindered by wet weather.

VEGETABLES: The vegetable harvest continued in California, Florida, Texas, and Arizona. Rain hampered fieldwork in some areas of Florida. Cold weather delayed broccoli packing along the California central coast. Progress was nearly a month behind normal. Preparations for the planting of spring vegetables continued across the Nation where conditions allowed.

PASTURE AND LIVESTOCK: Livestock remained stressed in the north-central and northeastern parts of the Nation by below-normal temperatures. Pressure on hay supplies in the upper Mississippi Valley continued as the cold conditions required increased amounts of supplemental feeds. In the West, above-normal temperatures reduced livestock stress and the need for supplemental feeding. Nationally, hay supplies were adequate, but livestock producers in the Midwest watched their supplies carefully. Pasture feed condition for the Nation was generally fair. Pastures in California and the southern Great Plains needed rain to promote growth. Cool conditions in the South and Southeast slowed pasture growth. Livestock condition for the Nation was fair to good. Respiratory problems occurred on some livestock farms in Kentucky. Coyotes caused problems for some cow-calf herds in Texas. Calving and lambing activities were active in Idaho.

(Continued from front cover)

mix of ice and snow affected areas from Washington, DC northward. Elsewhere, light snow continued to fall and blow from the northern Plains into the Great Lakes, locally heavy rain fell across the Southeast, and precipitation accumulated in the Pacific Northwest. Williston, ND set a 24-hour snowfall record for January with 10.1 inches on Tuesday and Wednesday. Rainfall topped an inch at Atlanta, GA and Tallahassee, FL. More than 2 inches of rain drenched North Bend, OR. Record warmth spread across the South from the West as the week progressed. Daily records included 84°F in Los Angeles (Civic Center) on Sunday, 84°F in Tucson, AZ on Tuesday, and 85°F in Corpus Christi, TX on Thursday. In contrast, lows included

-35°F in Ely, MN on Wednesday and -29°F in Watertown, NY on Thursday. Cold air briefly dipped into the central Plains, where temperatures fell below 0°F as far south as Goodland, KS. The late-week storm sliced across northern Utah on January 5-6, setting a 24-hour snowfall record (for any month) at Alta in the Wasatch Mountains (55.5 inches). Late in the week, ice and snow returned to the Northeast. The northern Middle Atlantic region was glazed with ice, while New England received heavy snow. Additional snowfall on Friday in Syracuse, NY brought their 4-day snowfall to 30.5 inches. Boston, MA received 14.5 inches of new snow; Hartford, CT netted 15.4 inches. Snow cover at week's end was greater than 2 feet at locations such as Jamestown, ND, Houghton, MI, Dubois, PA, and Rome, NY.

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 0.45 to 1.70 in. north; 0.13 to 1.43 in. central; 0.03 to 0.52 in. south. Temperatures 1 to 6° below normal over State. Lows 12 to 22° north; 15 to 25° central; 21 to 28° south. Highs 58 to 70° north; 62 to 75° central; 73 to 76° south.

Primary activities: General care of livestock, poultry, catfish.

ARIZONA: Record, near-record highs recorded many areas early week. Temperatures normal to 8° above normal. Extremes 5°; 74° higher elevations, 15°; 84° deserts. No precipitation.

Small grains field preparations, planting nearing completion. Small grain seeded 91%, 81% 1992, 88% avg.; established 84%, 66% 1992, 73% avg. Alfalfa good to excellent. Harvest, sheeping off activities continued light; stand renovation, new stand establishment mostly normal to above normal. Citrus harvest active. Grapefruit, navel, sweet oranges, lemons available central, western areas. Tangerines, tangelos, also available central area. Winter vegetable harvest steady. Available from both western, central areas: broccoli, cabbage, cauliflower, leaf, romaine lettuces, spinach. Western harvest also included: Iceberg, Boston lettuce, endive, escarole. Central crops also available included: Asparagus, carrots, mixed greens, green onions, radishes, rapini, turnips. Pecans, tomatoes continued available eastern areas.

ARKANSAS: Cool week, temperatures averaging below normal. Scattered showers statewide throughout week. Extremes 6°; 74°. Rainfall 0.02 to 1.68 in.

Soil moisture supplies adequate to surplus. Wheat fair to good, needs sunshine, dry weather. Livestock good. Producers feeding hay, supplies adequate. Pastures good condition.

CALIFORNIA: Precipitation northern half of State. Central valley fog less persistent.

Light rain slowed field activities, north. Elsewhere, fieldwork progressed more normal pace. Planting small grains, forage crops, new alfalfa where soil moisture allowed. Good germination, growth most areas; more rain needed to improve stands. Some fields sprayed broadleaf weeds. Few fields grain sorghum harvested. Alfalfa, sudangrass greenchopped southern counties. General activities included pre-irrigation, herbicide applications, preparation for planting corn, cotton, other row crops. Pruning deciduous trees, vines progressing. Weed control, dormant sprays, fertilizer applications continued. Dates harvest complete; quality, yield above average. Lemon, grapefruit, navel orange, tangerine harvests continued. Broccoli harvest slowed down central valley. Packing along central coast 30 days behind due to cold weather. Central valley cabbage continued to be harvested. Carrots coming Kern County, with supplies tight. Harvest cauliflower light Tulare County. Cauliflower movement light. Desert valley celery continued harvested. Demand light, movement sluggish. Lettuce planted San Joaquin Valley, earlier plantings mature. Head, Leaf, Romaine lettuce harvested desert valleys. Onion fields planted,

sprayed for weeds San Joaquin Valley. Winter potato movement from Riverside County continued. Spinach planted spring harvest Tulare County, harvest occurred Coachella Valley. Processing tomato beds fumigated in Fresno County. Ground preparation, preplant weed control took place San Joaquin Valley. Other crops being harvested: green onions, sweet potatoes, radicchio, taro root, turnips, various oriental vegetables. Range, pastures in fair condition. Rainfall below normal. Warmer weather, additional moisture needed. Cattle grazing lower ranges, pastures.

COLORADO: Several weather systems moved through leaving considerable snow in the mountains, little moisture at lower elevations. Windy conditions were noted during most of the week producing occasional blizzard conditions at higher terrain, numerous avalanches. Strongest system came through on the 5th, 6th leaving up to a foot of snow in the mountains, generally less than 0.10 in. at lower elevations. Arctic air dropped temperatures as much as 30° in the east, 15 to 20° mountains, west. The 7th, 8th were mostly dry, warmer, occasionally windy at lower elevations. The 9th brought 2 to 5 in. snow to the mountains. Temperatures mostly 3 to 6° above normal except near the eastern foothills where readings of 7 to 10° above normal were more common.

Care of livestock primary producer activity. Windy conditions in several localities on Eastern Plains resulted in some wind erosion, limited damage to wheat.

FLORIDA: Cool week with temperatures 4 to 8° below normal north, 3 to 6° central, south. Warmest highs; middle 70s north, upper 70s central, lower 80s south. Lows; middle 20s Panhandle, Big Bend, middle 30s central, upper 30s interior south. Rain 1 to 3 days except 2 to 4 days south. Rain totals under one third in. Panhandle, mostly under three-quarters of an inch elsewhere with local amounts over 1.00 in. Big Bend, south.

Soil moisture mostly short to adequate throughout State. Sugarcane harvest, planting active. Planting, maintaining tobacco beds. Making preparations for spring planted crops. Citrus groves, trees had rain, cool temperatures preventing new growth. Generally trees excellent condition. Fruit drop below normal, natural on-tree fruit color advanced except Valencias. Early-mid orange harvest active all areas. White, colored grapefruit movement increasing. Navel harvest almost complete. Early tangerine harvest almost complete. Dancy tangerine, tangelo movement increasing. Condition of all crops generally good. Rain hampered field activities in local areas. Rainfall good for potatoes south. Sweet corn harvesting started East Coast, Homestead. Potato planting about complete South. Volume leaders; Tomatoes, peppers, squash, cucumbers, cabbage. Also available; snap beans, chinese cabbage, carrots, sweet corn, celery, eggplant, endive, escarole, iceberg, specialty lettuces, radishes, strawberries, cherry tomatoes. Pasture 30% poor, 45% fair, 25% good. Cattle herds mostly fair to good.

GEORGIA: Temperatures generally 3 to 6° below normal, a few locations central 7 to 8° below normal. Highs 50s northeast to 70s

south. Colder temperatures single digits northeast, teens across the north, low to middle 20s central, southwest, upper 20s southeast. Days with precipitation 1 to 2 across the State, 3 to 5 days northeast. Rain 1.00 to 2.00 in. north, central, 0.50 in. south with some totals over 1.00 in.

Soil moisture adequate throughout the State. Limited field preparation over the previous week due to cold temperatures, wet fields. Scattered pecan harvest, tobacco bed preparation. Soybean, cotton harvest basically unchanged. Onion plantings virtually finished. Pest control in some peach orchards. All crop conditions fair to good except for pasture poor to fair.

HAWAII: Year began sunny, cool. Rainfall generally light, none to 1.20 in., mainly over windward areas. Temperatures high 50s to mid 80s.

Favorable weather facilitated harvesting efforts during week. Lower temperatures beneficial for cooler seasonal crops, slowed progress in other crops. Rousing efforts for disease control in banana, papaya ongoing. Banana, tomato production heavy. Papaya output declining.

IDAHO: Temperatures 5 to 12° above normal. Precipitation 0.45 to 1.55 in. north, 0.42 to 0.64 in. southwest, 0.03 to 0.42 in. south central, none to 0.42 in. east.

Soil moisture adequate. Hay, roughage supplies adequate. Activities: Marketing, educational meetings, shop activities, livestock care. Bonneville County reports some potato movement with extensive hollow heart in some lots. Livestock good condition with early calving, lambing.

ILLINOIS: Cold, drier-than-normal weather occurred last week, with arctic air across the State, increased snowcover north. Temperatures 2 to 13° below normal. Highs low 20s to 30s. Lows lower teens to lower 20s. Extreme low 18° below zero in the far northwest corner of the State. Precipitation mostly 0.15 in. which was drier than normal. By weekend 4 in. of snow remained mainly over the north.

Farm activities were slowed to a minimum last week, as below normal temperatures especially in the north, made livestock care difficult. Cold also had varying effects on livestock, as straw, hay supplies continue to be top priorities.

INDIANA: Cooler than normal temperatures dominated the week again. High temperatures low to mid 20s north to the 30s south, which was 2 to 8° below normal. Lows single digits, low teens in the north to the mid teens to lower 20s south, which was mostly 1 to 7° below normal. Rainfall, water equivalent, around none to 0.30 in. over the central to near 0.60 in. parts of the north, south. Snow depth of 1 to 3 in. remained mainly over the north by the weekend.

Frozen ground continues to permit late harvest of corn, lime spreading, manure hauling. Wheat remains adequate to good. Operators with exposed wheat are concerned with winter kill. Hay supplies remain adequate to good. Livestock mostly good. Other activities: Grain marketing, fixing machinery, tax preparation.

IOWA: Coldest week in 3 years with temperatures 6 to 11° below normal. Extremes -18°; 32°. Up to 6 in. new snow extreme northeast 4th. Total snowcover about 1 in. southwest; 2 to 4 in. central; locally up to 9 in. northwest. Precipitation trace central to 0.46 in. northeast; average 0.06 in. (normal 0.20 in.).

Colder weather has increased farmers' concern about poor quality forage harvested this crop year.

KANSAS: Temperatures above normal over the whole State. Warmest area was the northwest 6° above normal. West central, southwest districts 5° above normal. Central district 4° above normal, other districts were at normal to 2° above normal.

Above-normal temperatures, coupled with very light precipitation, characterized the weather conditions across State last week. Precipitation has been very light since Thanksgiving, in sharp contrast to last year. Low temperatures slid to the zero level at the end of the week, not expected to cause any significant damage to the 1994 wheat crop.

KENTUCKY: Cold weather continued. Temperatures below normal nearly entire week, highs 30s first of week. Weekend highs upper 20s to lower 30s, lows teens to single digits. Highs mid 40s on 6th to lower 50s. Precipitation greatest east 1.00 in. 6th, 7th. Precipitation amounts west were light after several inches of snow first of week.

Soil moisture adequate. Soils generally frozen. Burley prices generally lower following Christmas recess with increased amounts going to pool. Belt sales 85% production estimate. Farmers attending agricultural commodity meetings. Livestock satisfactory, damp conditions causing some respiratory problems. Feed supplies adequate.

LOUISIANA: Temperatures 0.6 to 3.0° below normal. Extremes 19°; 75°. Rainfall 0.04 in. west-central to 0.76 in. northeast.

Field activity was at minimum as cold weather a rain showers continued hampering field activities. Activities included, preparing farm records for tax purposes, equipment repair, headland maintenance, drainage system maintenance, limited fall plowing. Cattlemen continued top-dressing pastures, managing herds during the winter months. Pecan harvest continued active. Southern sugarcane farmers were busy draining fields.

MARYLAND & DELAWARE: **MARYLAND:** Precipitation 1.29 in., normal 0.53 in. Temperature 33.4°, normal 33.4°. Extremes 1°; 53°.

Activities: Attending meetings. Caring for livestock.

DELAWARE: Precipitation 1.08 in., normal 0.55 in. Temperature 36.1°, normal 34.5°. Extremes 19°; 51°.

Activities: Attending meetings. Caring for livestock.

MICHIGAN: Extremes -16°; 32°. Precipitation 0.14 to 0.75 in. across State. Heavy snow fell across the State at midweek giving way to very cold temperatures late in the week, over the weekend.

Feed supplies are adequate, livestock are in good condition. Major activities included: Spreading fertilizer, manure, pruning, hauling corn, soybeans to the elevator, getting ready for taxes, plowing snow.

MINNESOTA: Temperatures 7 to 14° below normal for the State. Extremes -35°; 22°. Precipitation of 0.14 to 0.53 in. was 0.01 to 0.31 in. above normal. Maximum precipitation 1.30 in. Snowfall 3 to 11 in. for the State. Snow depth at weekend 5 to 7 in. southern third of the State, 11 to 24 in. elsewhere.

Another cold week stressed livestock, continued press on feed supplies throughout the State. Farmers are busy with chores, ordering supplies for the 1994 growing season.

MISSISSIPPI: Temperatures 42°, 0.9° below normal. Extremes 13°; 76°. Most areas of the State received only small amounts of rainfall. Rainfall 0.62 in., 0.58 in. below normal. Soil temperature 44°.

Days suitable for fieldwork 0.9, 0.8 1993, 1.1 avg. Soil moisture 43% adequate, 57% surplus. Hay Supply 17% short, 83% adequate. Feed grain 100% adequate. Livestock 17% fair, 83% good. Pasture 81% of normal. Activities: feeding livestock.

MISSOURI: Temperatures 3 to 4° below normal most areas, except Bootheel, 3° above normal. Most locations received 0.10 to 0.20 in. precipitation, except Bootheel 0.40 in.

Cold weather limited farm activities to normal barnyard work.

MONTANA: Temperatures above normal west of the continental divide, below normal east. Precipitation slightly above normal west of the continental divide, while little to none east.

Protectiveness of snowcover for winter wheat is mostly poor to fair. Winter wheat fair to mostly good. Grazing is mostly open, difficult in some areas. Farm, ranch activity mostly livestock care, feeding, general maintenance.

NEBRASKA: Temperatures 8° below normal in the northeast to 5° above normal in the southwest. Only light precipitation fell in the northeast, nearly a half inch fell in the southwest. Snowfall 2 to 6 in. parts of the west, southwest.

Farm, ranch activities included: Livestock care, grain handling, machinery preparations for the upcoming crop season.

NEVADA: Storm system at midweek brought strong, gusty winds across northern half of State, resulted in only light precipitation. Temperatures above normal across State. Extremes -2°; 67°.

Livestock feeding requirements continued favorable due to above normal temperatures, little snowcover. Major activities included care, feeding of livestock, chopping ice for livestock water, general maintenance, working on income tax.

NEW ENGLAND: Precipitation 0.82 to 2.63 in. regionwide. Temperatures 0 to 16° north; 15 to 25° south. Temperatures 34 to 46° north; 36 to 50° south. Minimum temperatures -19 to 1° north; -3 to 12° south.

Major farm activities: Removing snow from barnyards, tending livestock, preparing for lambing.

NEW JERSEY: Temperatures much below normal; averaged 20° north, 27° south, 32° coastal. Extremes 5°; 49°. Precipitation was above normal; averaging 1.49 in. north, 1.53 in. south, 1.66 in. coastal. Heaviest 24 hour total 1.45 in. on 7th, 8th. Heaviest 24-hour snowfall 3.5 in. on the 3rd, 4th. Snow on ground on 10th: none in south, 2 to 3 in. of ice in central, 4 to 6 in. north.

Farmers busy caring for livestock, plowing snow, doing other normal winter chores.

NEW MEXICO: Temperatures 3° above normal for State. Record-high temperatures for the month of January were recorded in two towns. Extremes -7° north; 80° southeast. Precipitation spotty, light with the greatest amount measured at 0.15 in.

Farming activities were slow for the week with preparation for spring crops the primary task. Supplemental feeding was still prevalent across the State.

NEW YORK: Temperatures below normal, coldest on 6th, 7th. Temperatures 0° to mid teens in Upstate areas to the 20s southeast. Extremes -29°; 47°. Above-normal precipitation with several inches of snow southeast to 3 feet in Upstate regions. Heaviest snowfall was on the 4th.

Major activities: Tending livestock, attending meetings, clearing snow. Extreme cold weather made outside activities difficult.

NORTH CAROLINA: Mean temperatures 36° at Asheville to 51° at Hatteras. Precipitation 0.72 in. at Raleigh to 1.40 inches at Hatteras.

Days suitable for fieldwork 1.4. Soil moisture 74% adequate, 26% surplus. Crop conditions: Wheat 37% fair, 63% good; oats 35% fair, 65% good; barley 36% good, 64% excellent; rye 36% fair, 64% good; pasture 7% very poor, 17% poor, 45% fair, 31% good; soybeans 5% very poor, 24% poor, 53% fair, 18% good; hay, roughage supplies 2% very short, 33% short, 65% adequate. Feed grain supplies 14% short, 86% adequate. Activities included: Tobacco plant bed preparation; tending livestock; cutting wood.

NORTH DAKOTA: Temperatures 8 to 12° below normal. Extremes -41° west central; 38° southwest, south central. A number of storm systems dumped several inches of snow in most areas.

Snowcover sufficient to protect fall-seeded crops in most areas. Cattle, sheep in good condition despite severely cold weather. Feed, forage in good supply, usage increased recently. Secondary road conditions drifted which limited grain marketing.

OHIO: Wintry weather dominated. An east coast snowstorm coated the State with upwards of 0.60 in. (water equivalent) early in the week. This was followed by an arctic blast that dropped temperatures below zero in north, into the single digits in the south. Temperatures well below normal with means only in the mid teens to mid 20s. This was 3 to 5° below normal in the south, 6 to 10° short of normal in the north. Highs varied in the 20s to low 30s with mean lows from near 10° north to 20° south. Precipitation close to normal, heaviest near the lakes and in southern, eastern sections. Amounts of 0.20 to 0.60 in. were common with heavier totals just shy of an inch over the southeast.

Snowcover protected fall seeded grains such as wheat, rye, speltz from extreme low temperatures. Livestock was sheltered, required considerable amounts of hay or other roughage.

OKLAHOMA: Temperatures 1° below normal southeast to 4° above normal Panhandle. Precipitation none northeast, central areas to 0.05 in. north central.

Dry conditions persist in the western half of the State hampering plant development of small grains. Livestock markets in most areas have picked up since the holidays. Feeder steers, calves steady to \$2.00 lower, heifers steady to \$4.00 lower.

OREGON: Temperatures above normal; 6 to 13° northeast, elsewhere 3 to 9°. Plentiful precipitation, coastal areas 2.50 to 4.00 in., Willamette valley 1.50 to 3.33 in., elsewhere under 1.00 in.

Soil moisture adequate. Winter orchard pruning slowed, weather. Livestock good to excellent. Supplemental feeding continued statewide.

PENNSYLVANIA: Major snowstorm beginning of week. Average temperature 25°, 2° below normal. Extremes -2°; 52°. Precipitation 1.55 in., 0.88 in. above normal.

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

PUERTO RICO: Island rainfall 0.55 in. was 0.21 in. below normal. Highest rainfall 1.65 in. at Dorado, 1.29 in. at San Juan, 0.99 in. at Canovanas. Highest 24 hour total 0.68 in. at San Juan, Yauco. Island temperatures 76 to 78° on coast, 70 to 72° interior with mean station temperature 78.9° at Guayama to 61.2° at Cerro Maravilla. Extremes 55°; 90°.

SOUTH CAROLINA: Temperatures 1 to 4° above normal across State. Precipitation 0.30 in. Heaviest in Upstate with 0.75 to 1.00 in. Very little rainfall in the east.

Farming activities: Seeding tobacco beds; taking soil samples; making farm plans, attending meetings. Wheat good; livestock good; hay supply good; pasture growth slow.

SOUTH DAKOTA: Temperatures 10 to 15° below normal in east, 0 to 5° above normal in the west. Extremes -26°; 48°. General 1 to 3 in. new snow fell over most of the State. Northeast, northwest had the greatest amounts with up to 7 in. new snow. Snow depths 20 to 30 in. northeast, 10 to 20 in. north-central through east-central, only trace amounts in the southwest, along the southern border.

Activities: livestock care, farm shows, livestock sales.

TENNESSEE: Temperatures near normal to about 7° below normal. Lows in the 20s. Highs upper 30s to mid 40s. Precipitation amounts were generally between 0.50 to 1.00 in. west; between 1.00 to 3.00 in. middle, east.

Cattle, wheat remain in good condition. Soil moisture levels are adequate. Livestock chores, farm maintenance continue to occupy most of the farmers' schedules.

TEXAS: A surge of arctic air ended a mild winter period. Temperatures in 60s to 70s were common through midweek. Colder air pushed into Texas 6th to 7th, dropped temperatures considerably. Precipitation amounts were light as system rapidly moved eastward, and dry, cold air quickly took over at end of week. Warm weather early in week generally offset cold snap that arrived late. Averages were at or above normal for most areas. Departures ranged from normal in South Central Texas to 4° above normal in High Plains. Only negative departure was in South Texas where Lower Valley 3° below normal.

Crops: Small grains wheat, oats continued to be in need of significant moisture. In driest areas of Southern Low Plains, some wheat fields appear to be dying due to lack of moisture and insect infestations seem to be on increase. In Edwards Plateau, wheat has reached critical moisture stage in some areas. Statewide wheat condition 58% normal, 66% 1992.

Commercial Vegetables: In Rio Grande Valley, onion crop made good progress. Harvesting of cabbage, carrots, celery and greens continued. Preparation for watermelon planting continued. In East Texas, some winter greens were harvested. Land preparation continued. In High Plains, land preparation was active. In Trans-Pecos, some weed control, irrigating continued along Rio Grande River. Peaches: some producers were pruning trees in East and South Central Texas. Pecans: harvest was winding down in Cross Timbers, South Central Texas. Harvest of native pecans has slowed in some areas of State due to low prices.

Range and Livestock: Ranges, pastures continued to deteriorate across State from lack of moisture. Rangeland in Northern High Plains presented some ranchers with possible fire hazards. Coyotes were also a problem for cow-calf producers.

In Cross Timbers some ranchers were moving cattle off of wheat pastures as forage supplies diminished. Water levels in stock tanks were low in many areas of State, becoming critical in some areas of Southern Low Plains. Feeding of hay, supplement continued across State. Livestock remained in fair to good condition.

UTAH: Temperature maxima and minima 6° above normal. Precipitation was zero for Dixie, Uinta Basin, Southeast Divisions. Rest of the State received light to moderate precipitation.

Major farming activities were general caring for livestock, marketing agricultural products, bookkeeping.

VIRGINIA: Temperatures above normal. Extremes 8°; 67°. Precipitation normal. Freezing rain, sleet in the western counties.

Days suitable for fieldwork 0.1. Topsoil 5% short, 26% adequate, 69% surplus. Winter grains, grazing crops condition 6% poor, 32% fair, 59% good, 3% excellent. Forage from pastures, grazing crops dairy cattle 4%, beef cattle 10%, sheep 9%. Pesticide recertification, repairing machinery, fixing fences, working on farm records, cutting firewood, caring for livestock.

WASHINGTON: Temperatures 5 to 12° above normal across the State. Precipitation 0.37 to 2.84 in. west; 0.01 to 1.78 in. east.

Days suitable for fieldwork 3.0. Soil moisture 29% short, 70% adequate, 1% surplus. Hay, other roughage supplies 5% very short, 10% short, 85% adequate. Range, pasture 30% very poor, 20% poor, 40% fair, 10% good. Winter wheat dryland 1% poor, 47% fair, 50% good, 2% excellent; irrigated 3% fair, 95% good, 2% excellent. Barley dryland 95% fair, 5% good; irrigated 15% fair, 85% good. Pruning, caning were the major activity for fruit growers across the State, although progress was slowed in some areas due to rain. Forced rhubarb harvest is expected to start next week. Many producers were taking inventory, budgeting, purchasing seeds, fertilizers, in preparation for spring crops. Livestock producers are looking ahead towards calving, lambing. General animal health appears to be mostly good.

WEST VIRGINIA: Temperature 28°. Extremes 1°; 49°. Precipitation 2.33 in. Temperatures between 2° above normal, 4° below normal. Precipitation was about 2.00 in. above normal, and fell mostly in the form of snow.

Activities: feeding livestock, bookkeeping, general maintenance.

WISCONSIN: Temperatures below normal with above normal precipitation. Snowstorm on 6th, 7th left between 4 and 10 in. of snow. The Lake Superior snowbelt region received more than a foot of snow. Average temperature 7°. Extremes -31°; 34°. Precipitation 0.70 in.

Snow will help prevent frost depths from penetrating quickly. With the frozen ground, farmers continue to spread manure. Beyond daily outside chores most other farm activity has been confined to heated areas.

WYOMING: Temperatures above normal across the State 1° above normal in Kaycee to 11° above normal in Afton. Precipitation was near to above normal in the eastern third and extreme western parts of the State. All other areas were below normal. Sundance, Jackson, Afton, Douglas reported the largest amounts of precipitation with about 0.40 in.

Winter wheat mostly fair to good. Snowcover protection on winter wheat mostly short. Livestock good. Hay, roughage supplies mostly adequate.

International Weather and Crop Summary

HIGHLIGHTS

January 2 - 8, 1994

FSU-WESTERN: Unusually mild weather continued over winter grain areas.

EUROPE: More heavy rain inundated northwestern Europe, while unseasonably warm weather persisted in the east.

SOUTH ASIA: Dry, warm weather hastened growth of winter grains and oilseeds.

SOUTHEAST ASIA: A tropical depression brought more inundating rain to grain and copra areas in eastern Philippines. Unseasonable warmth in Thailand taxed reservoirs as secondary rice planting began.

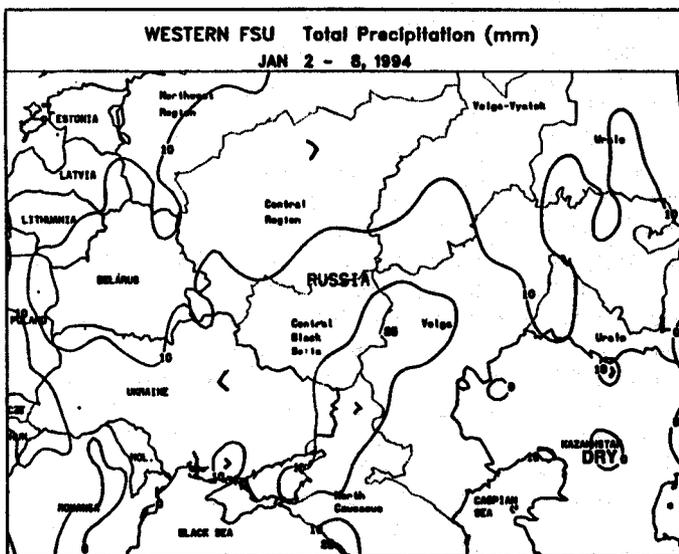
EASTERN ASIA: Seasonably dry weather continued across the North China Plain, while wheat lost some winter hardiness due to above-normal temperatures.

AUSTRALIA: Across eastern Australia, hot, dry weather stressed sorghum and cotton.

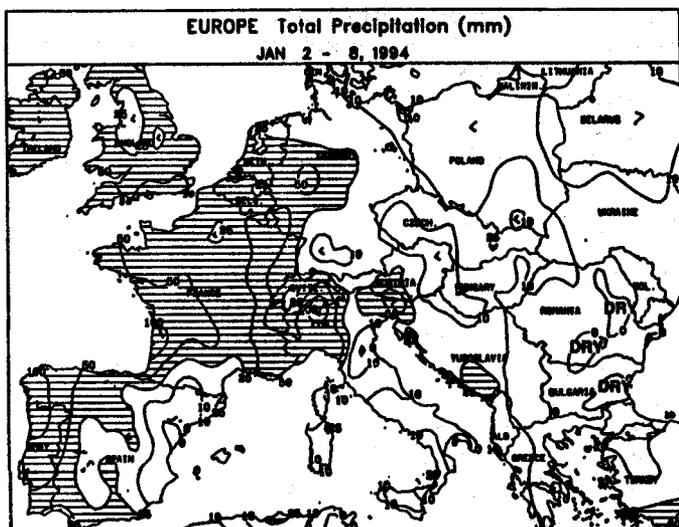
SOUTH AMERICA: In Argentina, showers favored germinating soybeans but slowed late southern wheat harvesting. In southern Brazil, widespread showers benefited northern soybeans, while drier weather prevailed across the extreme south.

NORTHWESTERN AFRICA: Beneficial rain covered winter grain areas in Morocco and Algeria.

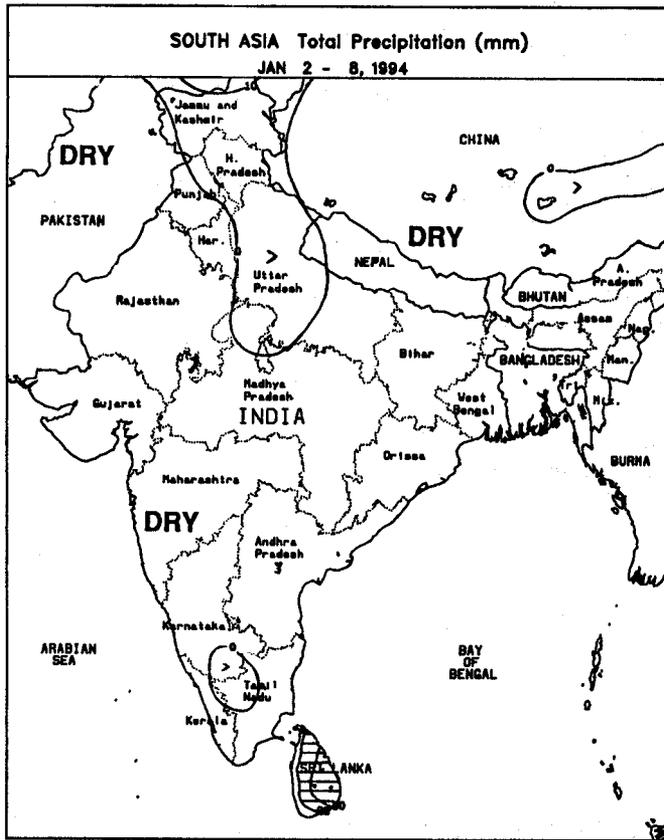
SOUTH AFRICA: Mostly dry, seasonably warm weather dominated primary corn areas, as crops approached reproduction.



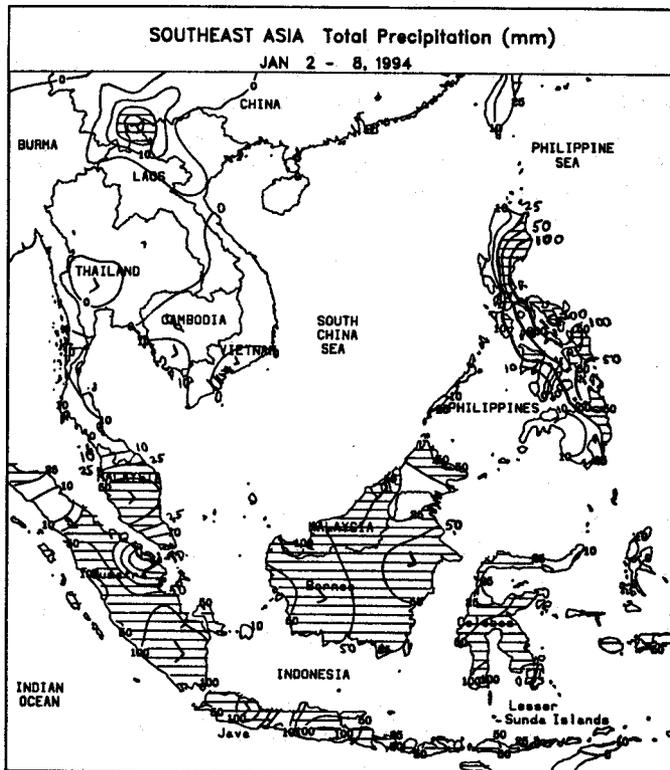
FSU-WESTERN: Unseasonably mild weather continued over winter grain areas in the Baltic States, Belarus, and Russia, providing favorable overwintering conditions. Weekly temperatures averaged 4-8 degrees Celsius (C) above normal over most areas. Winter grain areas in Ukraine and North Caucasus, Russia continued to lack a protective snow cover, leaving winter grains vulnerable to potential extreme cold. Widespread light precipitation (around 10 mm) prevailed over most areas, falling mostly as snow in northern areas of Russia. A mixture of rain, freezing rain, and snow covered Ukraine and North Caucasus.



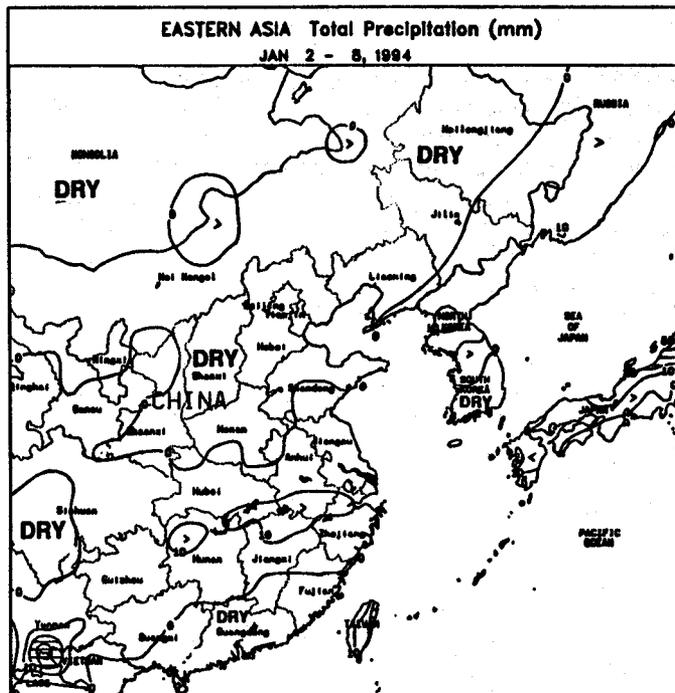
EUROPE: Wet weather continued to plague western Europe, with waterlogged fields and reported flooding. Weekly rainfall averaged 25-100 mm or more from western Spain through France and the United Kingdom to northwestern portions of Germany and Italy. The moisture was beneficial for winter crops in southern Spain, where 10-38 mm fell. The rain (10-25 mm) also improved moisture reserves in east-central Europe, from southern Poland to northern Hungary. Light precipitation (less than 10 mm) fell elsewhere, except for dry weather in Bulgaria and southern Romania. Unseasonably mild winter weather continued across Europe, with temperatures generally averaging 2-7 degrees C above normal, except in the United Kingdom, where seasonal temperatures prevailed. Minimum temperatures averaged 1-5 degrees C in most crop areas, leaving dormant winter crops vulnerable to weather extremes across the north.



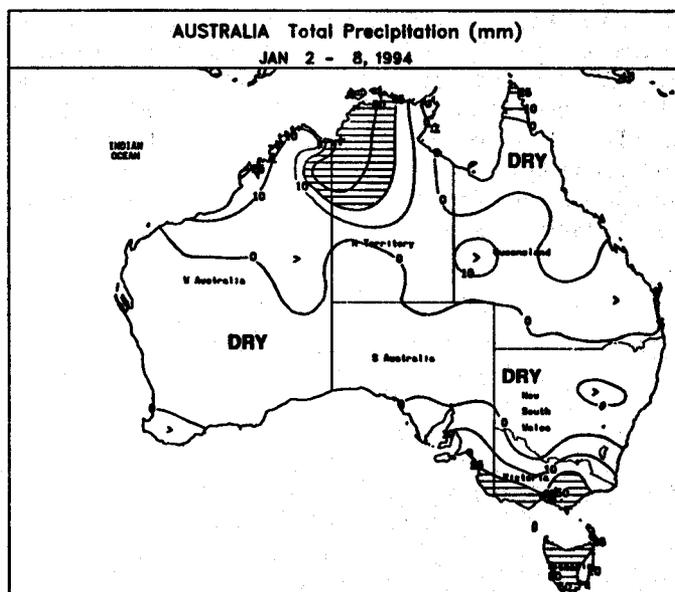
SOUTH ASIA: Dry weather dominated the region, although moderate showers (25-50 mm or more) continued over Sri Lanka. Warmer-than-normal weather continued from central India to Pakistan, increasing growth rates of winter grains and oilseeds.



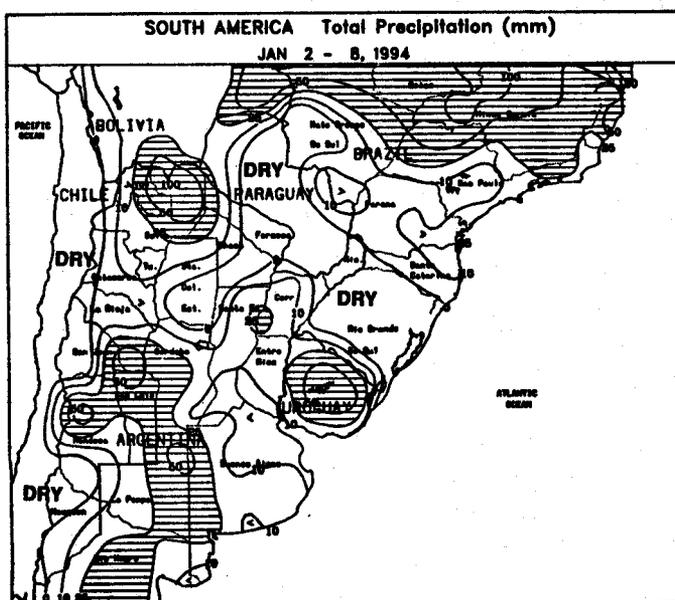
SOUTHEAST ASIA: Another tropical depression brought moderate to heavy showers (35-100 mm or more) to the east-central Philippines. Inundating rain (100-360 mm) concentrated over southern Luzon likely caused additional flooding to rice, corn, and copra. In Thailand, unseasonably warm weather increased irrigation demands of second-season rice, typically planted in January and February. Further south, moderate to heavy showers (25-100 mm or more) covered primary rice and oil palm areas of Malaysia and Indonesia. At this time of year, the Intertropical Convergence Zone (ITCZ) is established over Indonesia, with rainfall peaking throughout Java from January to early-March. In contrast, rainfall over the Malay Peninsula typically peaks in November, although weekly normals this time of year still range from 25 to 50 mm.



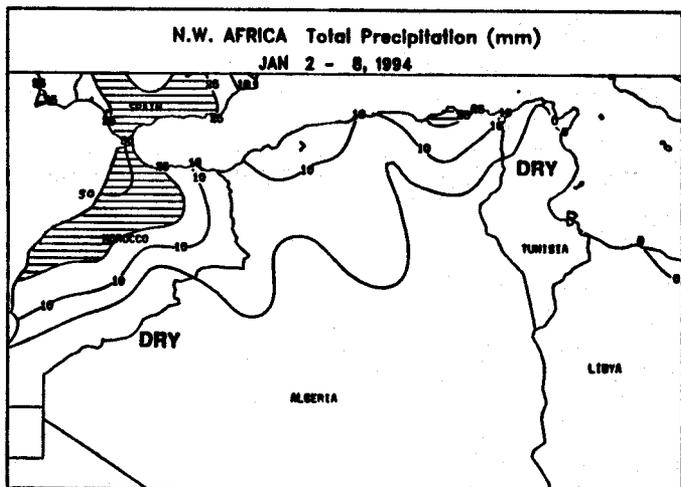
EASTERN ASIA: Seasonably dry weather continued across the North China Plain, while temperatures averaging 4-6 degrees C above normal caused some wheat to lose winter hardiness. Light rain (3-18 mm) fell across the Yangtze Valley, replenishing reservoir levels.



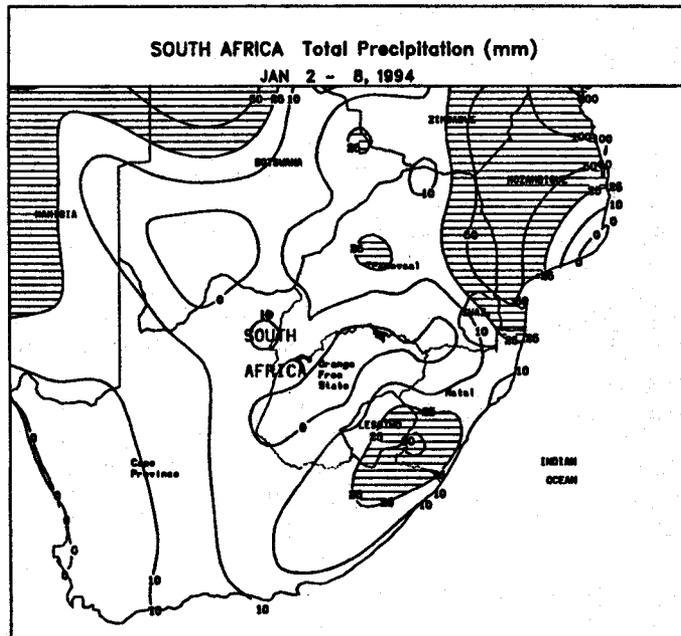
AUSTRALIA: Hot, mostly dry weather prevailed across eastern Australia, stressing vegetative sorghum and cotton. Maximum temperatures ranged from 40 to 43 degrees C across southern Queensland and northern New South Wales, resulting in weekly temperatures averaging 2-4 degrees C above normal. Long-term moisture deficits have led to low reservoir levels across the east. Rain is needed soon to prevent reductions in summer crop yield potentials. Little or no rain fell across the northeastern Queensland sugarcane region, as weekly temperatures averaged 2-3 degrees C above normal. Despite a good start in the northern monsoon, recent tropical cyclone activity offshore may have disrupted the normal moisture flow over land. Victoria received light to moderate rain (10-25 mm), slowing late wheat harvesting.



SOUTH AMERICA: In Argentina, light to moderate rain (7-30 mm) fell across southern Buenos Aires and La Pampa, slowing late wheat harvesting. Lighter amounts of rain (3-10 mm) favored germinating soybeans across northern Buenos Aires and southern Santa Fe. Temperatures averaged 1-2 degrees C below normal across the central crop region of Argentina. In southern Brazil, dry weather prevailed across Rio Grande do Sul and Santa Catarina, allowing fields to dry out. Soybean planting should be completed across the country. In Parana and Mato Grosso do Sul, scattered showers (5-20 mm) aided vegetative soybeans. A stalled front brought moderate to heavy showers (25-110 mm) across Mato Grosso, Goias, and Minas Gerais, favoring soybeans, but causing isolated flooding. Widespread showers (20-100 mm) benefited cocoa across southern Bahia.



NORTHWESTERN AFRICA: Widespread beneficial rain began over Morocco on January 7, and spread eastward over winter grain areas in Algeria and Tunisia. Rainfall in Morocco ranged from 22 to 46 mm, benefiting winter grains in the vegetative stage. In Algeria, late-week rain (8-25 mm) dampened topsoils, improving conditions for crop emergence and establishment. Although little, if any, precipitation covered winter grains in Tunisia during the week, substantial rain began falling on January 9. *(More details will be provided in next week's summary.)*



SOUTH AFRICA: Widely scattered, light rain (12 mm or less) covered the primary corn regions, but temperatures remained seasonable, reducing evapotranspiration rates. Light to moderate rain (10-46 mm) fell over crop regions of southern Natal and eastern Cape Province, including coastal sugarcane areas. Corn typically advances through reproduction from mid-January to mid-February, necessitating more rain in western crop areas that have not benefited from the favorable conditions experienced in the east.

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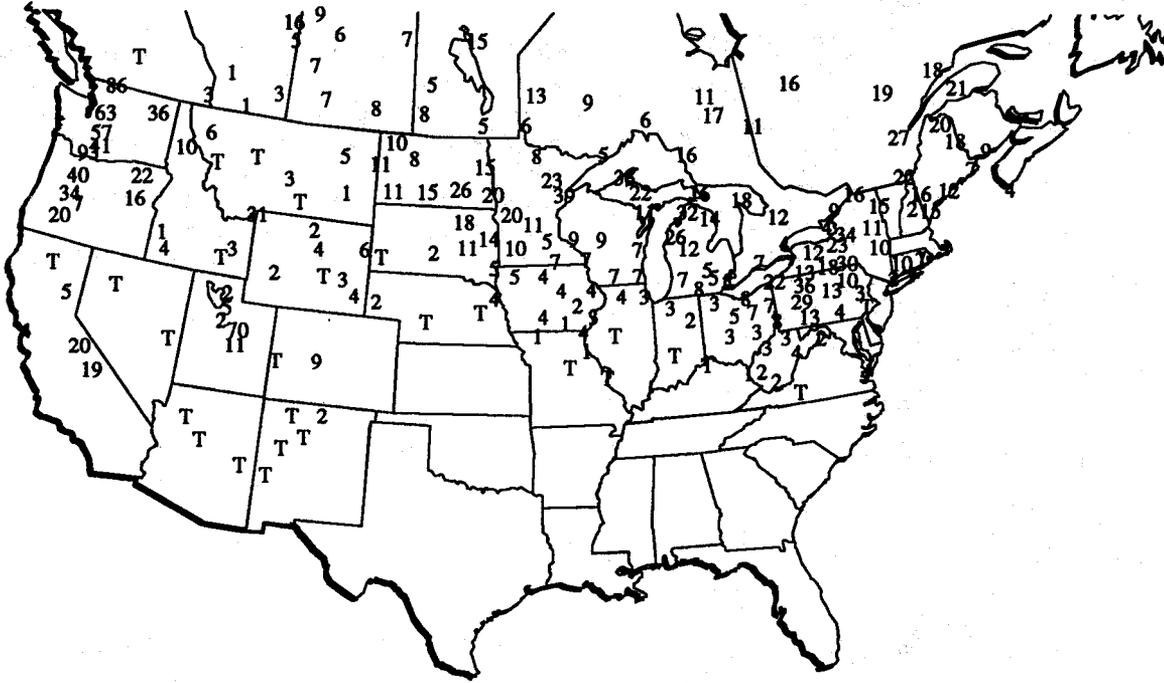
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