

# WEEKLY WEATHER AND CROP BULLETIN

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

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

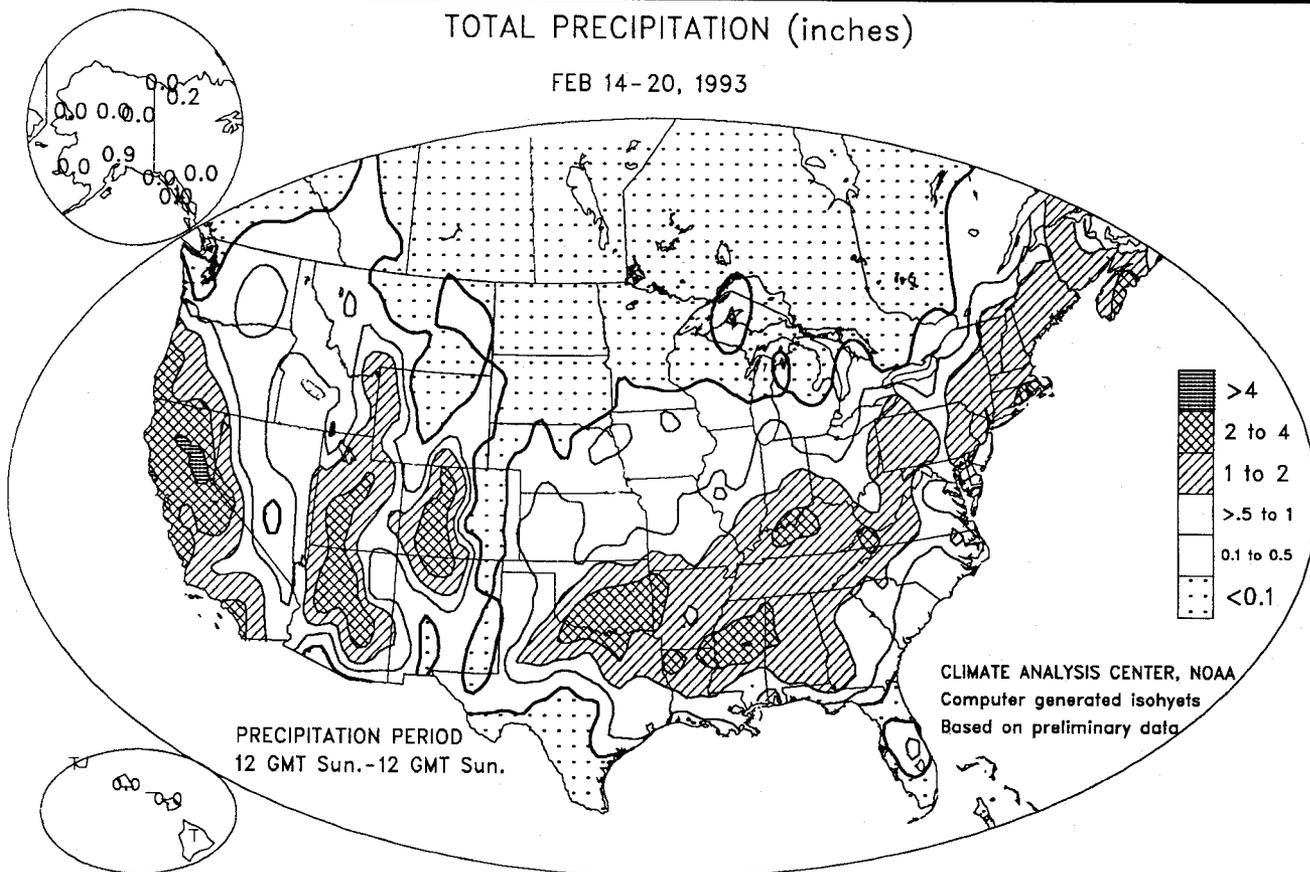
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Washington, D.C.

February 23, 1993

## TOTAL PRECIPITATION (inches)

FEB 14-20, 1993



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

PRECIPITATION PERIOD  
12 GMT Sun.-12 GMT Sun.

## HIGHLIGHTS

February 14 - 20, 1993

Heavy snow blanketed winter grains in the central Plains and the Midwest prior to the arrival of the coldest air of the winter. Later in the week, sub-freezing temperatures pushed into northern Peninsular Florida, while a storm thrashed the West with heavy precipitation and high winds. During the first half of the week, a storm center advanced from New Mexico to Maine. More than 6 inches of snow fell along and just north of the storm's track. By Tuesday morning, formerly bare ground was covered by 7 inches of snow in Dalhart, TX, 10 inches in Garden City, KS, and 12 inches in Cape Girardeau, MO. Storm-total snowfall reached 21 inches on the Ozark Plateau in southwestern Missouri. Meanwhile, arctic air drove southward through the High Plains in the storm's wake, setting up an intense temperature contrast. In Texas alone, McAllen recorded a high of 95°F on

(Continued to p.7)

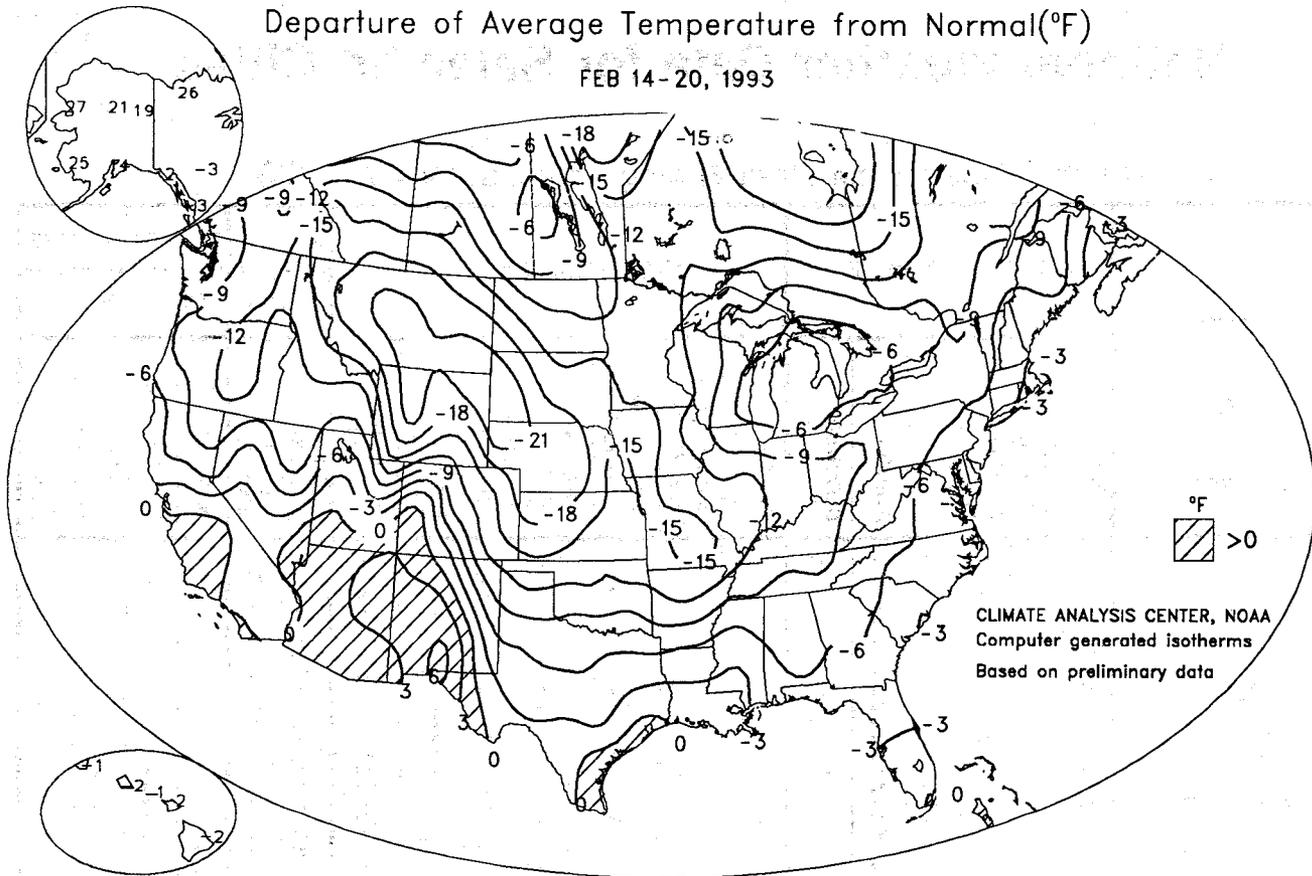
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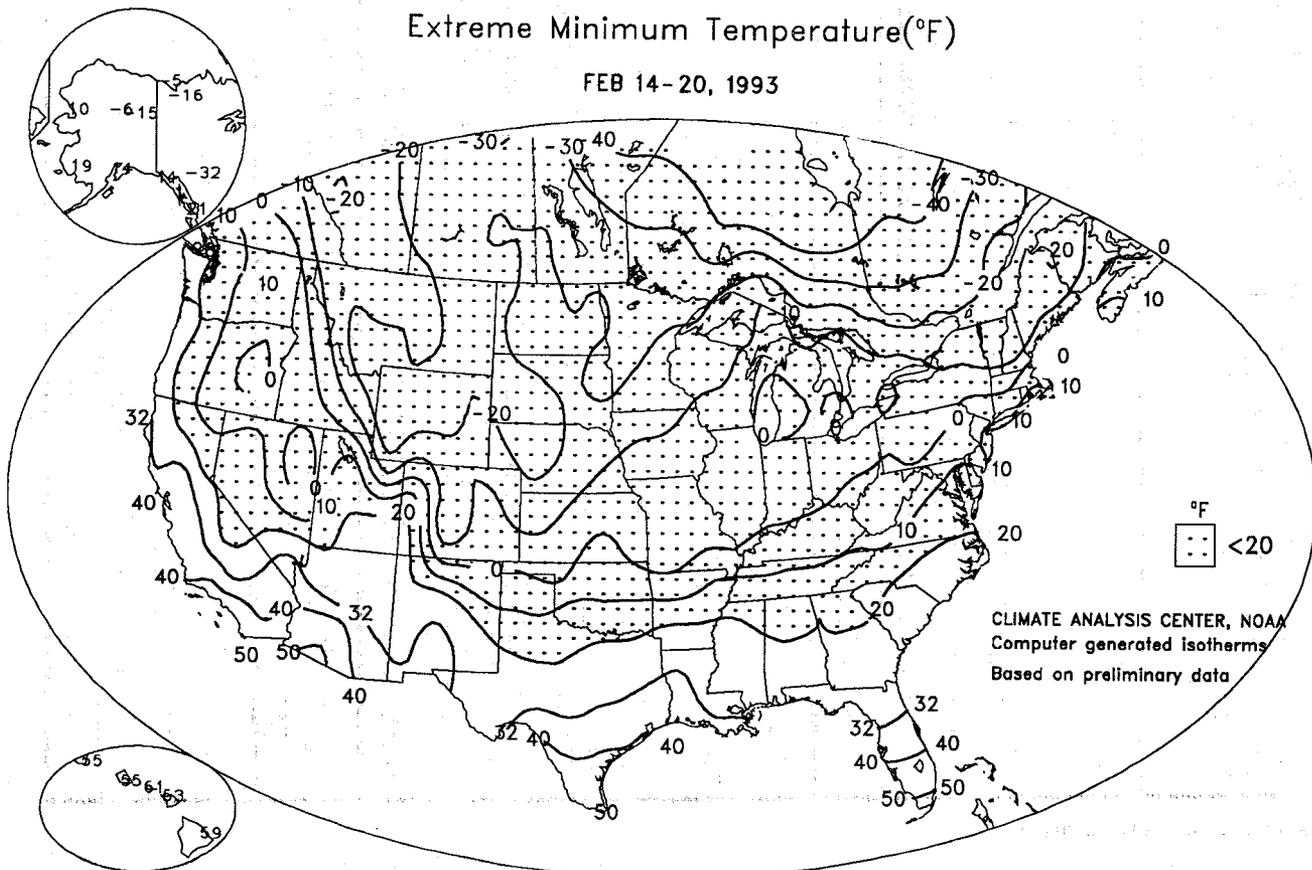
### Departure of Average Temperature from Normal(°F)

FEB 14-20, 1993



### Extreme Minimum Temperature(°F)

FEB 14-20, 1993



# National Weather Data for Selected Cities

Weather Data for the Week Ending February 20, 1993

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
AL BIRMINGHAM	50	28	58	17	39	-7	.9	-.3	.6	13.2	98	8.0	95	86	41	0	5	3	1	1	
MOBILE	61	39	70	27	50	-4	.8	-.6	.8	16.7	120	11.4	133	86	46	0	2	2	1	1	
MONTGOMERY	55	33	68	23	44	-4	.9	-.4	.9	16.3	118	8.5	99	84	42	0	3	1	1	1	
AK ANCHORAGE	36	24	43	13	30	11	1.1	-.1	1.1	2.6	106	1.9	140	98	78	0	7	1	0	0	
BARROW	19	0	28	-11	9	27	1.1	.0	1.1	.9	266	.6	305	91	80	0	7	2	2	0	
FAIRBANKS	27	5	32	-3	16	19	1.1	-.1	1.1	3.7	231	2.5	317	92	74	0	7	1	0	0	
JUNEAU	38	19	42	14	29	0	0.0	-.9	0.0	19.9	170	14.2	195	98	65	0	7	0	0	0	
KODIAK	39	31	45	30	35	4	1.3	.1	.9	12.6	69	7.8	69	100	88	0	7	3	3	1	
NOME	34	24	37	17	29	26	.5	.4	.2	3.4	161	2.1	167	99	67	0	7	5	0	0	
AZ PHOENIX	65	52	71	48	58	0	1.4	.3	.3	9.6	457	6.6	581	86	46	0	0	3	0	0	
PRESCOTT	49	36	57	31	42	3	1.4	1.0	1.1	10.0	239	7.9	307	90	58	0	1	5	1	1	
TUCSON	64	44	69	36	54	0	1.0	.8	.5	9.4	388	6.0	438	91	37	0	0	4	0	0	
YUMA	61	54	72	47	61	0	1.5	.4	.5	5.7	590	2.7	544	70	37	0	0	1	1	1	
AR FORT SMITH	49	24	56	12	33	-10	1.6	.9	1.5	11.6	175	6.1	168	89	53	0	6	2	1	1	
LITTLE ROCK	41	27	62	13	34	-10	.5	-.4	.5	10.5	98	6.0	101	81	58	0	4	2	0	0	
CA BAKERSFIELD	63	46	70	40	55	1	1.1	-.2	.0	4.9	220	3.1	193	86	46	0	0	3	0	0	
EUREKA	52	40	56	34	46	-4	2.9	1.7	1.8	21.1	137	11.7	125	92	67	0	0	4	1	1	
FRESNO	62	44	66	35	53	1	.8	.4	.5	9.8	211	7.1	220	87	47	0	0	2	0	0	
LOS ANGELES	63	51	67	48	57	-1	2.3	1.7	1.6	19.7	335	15.5	368	88	56	0	0	3	2	2	
REDDING	50	39	61	29	44	-7	2.7	1.7	1.1	27.3	184	16.9	182	85	51	0	1	4	3	3	
SACRAMENTO	58	41	61	35	49	-2	1.3	.6	.5	17.4	208	12.4	212	95	57	0	0	4	1	1	
SAN DIEGO	64	54	69	52	59	1	2.1	1.7	1.4	15.3	338	12.7	436	84	57	0	0	3	2	2	
SAN FRANCISCO	59	47	63	41	53	0	2.6	1.8	1.2	20.8	212	14.7	221	94	58	0	0	5	1	1	
CO DENVER	35	9	57	-9	22	-12	.2	.1	.2	1.9	130	1.3	148	85	46	0	6	3	0	0	
GRAND JUNCTION	45	27	57	22	36	-1	.5	.3	.2	2.5	160	2.2	244	95	54	0	5	4	0	0	
PUEBLO	38	9	68	-5	23	-12	T	-.1	T	.9	100	.5	96	91	48	0	6	1	0	0	
CT BRIDGEPORT	36	23	48	12	29	-1	.8	.1	.7	9.0	102	4.7	88	71	46	0	6	2	1	1	
HARTFORD	32	14	38	2	23	-5	1.1	.3	1.1	9.2	96	4.8	85	83	45	0	7	2	1	1	
DC WASHINGTON	41	26	49	11	33	-5	.4	-.3	.4	7.0	91	4.2	90	70	36	0	4	1	0	0	
FL APALACHICOLA	62	41	70	31	52	-3	.3	-.7	.3	9.3	88	7.7	118	77	46	0	0	0	0	0	
DAYTONA BEACH	67	44	80	32	56	-4	T	-.8	T	6.5	86	6.0	121	96	47	0	1	1	0	0	
JACKSONVILLE	65	38	75	26	52	-5	T	-1.0	T	5.9	67	5.2	89	92	38	0	1	1	0	0	
KEY WEST	74	63	81	58	68	-2	0.0	-.4	0.0	8.0	151	8.0	239	85	55	0	0	0	0	0	
MIAMI	77	58	85	50	68	-1	0.0	-.5	0.0	7.7	145	5.8	166	86	43	0	0	0	0	0	
ORLANDO	71	47	81	35	59	-3	1.1	-.7	.1	6.2	95	5.3	121	86	42	0	0	1	0	0	
TALLAHASSEE	64	35	71	27	50	-4	.7	-.8	.7	13.2	96	11.8	136	89	35	0	2	1	1	1	
TAMPA	70	49	77	36	59	-3	.2	-.6	.1	5.7	91	4.7	114	91	43	0	0	2	0	0	
WEST PALM BEACH	75	55	84	46	65	-2	1.1	-.6	1.1	11.6	170	9.7	214	92	46	0	0	1	0	0	
GA ATLANTA	48	31	63	19	40	-6	.9	-.3	.9	14.1	114	7.7	95	81	43	0	3	2	1	1	
AUGUSTA	55	32	66	19	43	-4	.5	-.6	.5	10.4	100	8.2	116	81	36	0	3	1	0	0	
MACON	54	32	68	20	43	-6	.9	-.3	.9	10.8	89	7.7	97	80	36	0	2	1	1	1	
SAVANNAH	58	37	70	27	48	-4	.3	-.5	.3	9.6	109	8.1	138	86	36	0	1	1	0	0	
HI HILO	77	61	78	59	69	-2	T	-2.6	T	20.6	71	3.6	21	79	50	0	0	1	0	0	
HONOLULU	80	62	82	56	71	-2	0.0	-.5	0.0	7.5	84	1.1	20	84	45	0	0	0	0	0	
KARULUI	79	60	82	53	69	-2	0.0	-.7	0.0	4.8	50	2.3	36	81	48	0	0	0	0	0	
LIHUE	77	63	79	56	70	-2	T	-.8	T	23.1	171	.9	11	81	53	0	0	1	0	0	
ID BOISE	35	19	52	4	27	-10	.5	.2	.2	3.1	88	2.3	102	94	62	0	7	5	0	0	
LEWISTON	34	21	46	9	27	-12	.3	.0	.2	1.9	59	1.5	75	78	46	0	6	2	0	0	
POCATELLO	29	10	44	-11	20	-10	.7	.5	.3	5.4	194	3.5	212	88	61	0	6	6	0	0	
IL CHICAGO	27	12	33	-3	19	-7	.3	-.1	1.1	6.7	138	4.2	173	89	55	0	7	2	0	0	
MOLINE	24	10	32	0	17	-8	T	-.3	T	6.4	142	2.4	106	82	60	0	7	1	0	0	
PEORIA	24	9	32	-5	16	-11	.4	.0	.2	7.4	153	4.4	182	87	60	0	7	3	0	0	
QUINCY	24	10	34	-7	17	-12	.3	-.1	.2	4.9	107	2.9	128	87	60	0	7	2	0	0	
ROCKFORD	26	10	32	-1	18	-5	.2	-.1	.2	6.2	152	2.8	139	89	51	0	7	1	0	0	
SPRINGFIELD	27	9	35	-15	18	-11	.6	.2	.2	7.4	138	5.1	190	88	60	0	7	3	0	0	
IN EVANSVILLE	31	18	37	1	24	-13	1.0	.2	.8	6.8	75	5.1	96	85	55	0	7	3	1	1	
FORT WAYNE	25	11	33	-6	18	-8	.4	-.1	.3	8.9	148	6.3	199	91	63	0	7	5	0	0	
INDIANAPOLIS	27	12	36	-9	19	-11	.9	.3	.4	6.5	90	4.7	118	88	59	0	7	4	0	0	
SOUTH BEND	26	14	31	0	20	-7	1.2	.7	1.0	8.7	129	4.8	135	90	61	0	7	5	1	1	
IA DES MOINES	19	6	29	-6	13	-13	.2	-.1	1.1	4.4	149	2.5	154	84	61	0	7	3	0	0	
SIoux CITY	18	1	27	-13	10	-14	1.4	1.2	1.3	2.2	187	2.4	255	91	64	0	7	3	0	1	
WATERLOO	19	4	30	-7	12	-9	.3	.0	.3	3.9	104	1.3	86	82	61	0	7	1	0	0	
KS CONCORDIA	24	9	36	-4	16	-15	.2	.0	.2	3.6	196	2.2	224	89	67	0	7	1	0	0	
DODGE CITY	29	11	48	-4	20	-15	.6	.4	.5	4.0	261	3.1	357	95	68	0	7	2	0	0	
GOODLAND	25	3	36	-16	14	-19	.2	.1	1.1	1.6	155	1.4	233	92	68	0	7	2	0	0	
TOPEKA	27	14	38	-1	21	-12	.5	.2	.5	5.1	169	3.1	192	90	62	0	7	2	0	0	
WICHITA	29	15	45	2	22	-14	.2	-.1	.2	4.0	138	2.9	185	90	69	0	7	2	0	0	
KY BOWLING GREEN	36	21	47	6	29	-9	.9	-.2	.7	7.6	65	4.5	68	93	60	0	7	3	1	1	
LEXINGTON	32	20	43	3	26	-9	1.1	.3	.6	5.8	64	4.0	79	92	60	0	7	4	1	1	
LOUISVILLE	33	21	37	2	27	-10	1.4	.5	.8	7.2	83	5.6	110	89	54	0	7	3	1	1	
LA BATON ROUGE	64	41	75	28	53	-1	.8	-.6	.8	19.6	136	14.9	167	85	48	0	2	1	1	1	
LAKE CHARLES	62	45	73	32	53	-1	.5	-.4	.3	12.4	102	8.6	120	93	58	0	1	2	0	1	
NEW ORLEANS	63	44	74	32	53	-1	.5	-1.0	.5	13.9	92	8.3	88	89	51	0	1	1	1	1	
SHREVEPORT	55	39	73	31	47	-2	3.2	2.2	3.2	14.2	118	8.4	116	91	52	0	3	2	1	1	

Based on 1951-80 normals.

Weather Data for the Week Ending February 20, 1993

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		
ME CARIBOU	16	-3	24	-18	7	-6	.9	.4	.5	5.5	79	3.9	104	86	56	0	7	3	0		
PORTLAND	30	9	36	-4	20	1.5	1.5	.7	1.5	8.0	76	5.9	99	88	46	0	7	3	1		
MD BALTIMORE	39	23	47	9	31	.6	.6	.2	.6	9.1	105	4.4	84	75	38	0	7	1	1		
SALISBURY	43	24	58	10	33	1.1	1.1	.1	1.1	10.4	107	5.0	82	93	51	0	5	1	1		
MA BOSTON	37	23	51	15	30	1.5	1.5	.6	1.4	14.2	139	5.9	95	80	42	0	7	4	1		
CHATHAM	35	22	46	12	29	2.5	1.5	.5	1.5	12.6	114	5.6	86	88	53	0	7	4	2		
MI ALPENA	23	5	31	-10	14	T	T	T	T	2.7	60	1.5	59	89	50	0	7	1	0		
DETROIT	27	13	35	-2	20	.2	.2	.3	.1	6.8	119	4.5	152	88	59	0	7	4	0		
FLINT	27	11	35	-1	19	.2	.2	.1	.1	5.4	124	3.3	149	89	58	0	7	4	0		
GRAND RAPIDS	26	16	32	21	21	.3	.3	.1	.1	8.0	143	4.7	170	93	61	0	7	6	0		
HOUGHTON LAKE	23	6	30	-6	15	.4	.4	.3	.3	3.9	91	1.9	82	89	57	0	7	1	0		
LANSING	18	13	34	2	20	.2	.2	.1	.1	5.8	136	3.7	161	88	55	0	7	4	0		
MARQUETTE	18	-7	25	-16	5	.5	.5	.1	.1	5.3	89	2.8	84	82	57	0	7	0	0		
MUSKEGON	28	16	33	8	22	-.3	-.2	-.2	-.1	5.6	87	2.9	86	85	57	0	7	4	0		
SAULT ST. MARIE	20	-1	27	-11	10	-.5	-.2	-.3	-.1	5.9	90	2.5	67	85	52	0	7	4	0		
MN ALEXANDRIA	9	-9	19	-22	0	-14	.1	.1	.1	1.9	90	1.0	72	84	60	0	7	1	0		
DULUTH	13	-11	20	-18	1	-12	T	T	T	3.2	107	2.0	114	78	46	0	7	0	0		
INT'L FALLS	8	-18	19	-27	-5	-14	T	T	T	2.4	110	.7	53	83	45	0	7	0	0		
MINNEAPOLIS	14	-3	22	-12	5	-13	T	T	T	2.5	97	1.4	95	80	48	0	7	0	0		
ROCHESTER	11	-4	21	-15	3	-14	.1	.1	.1	2.8	125	1.5	123	86	62	0	7	1	1		
MS GREENWOOD	52	32	69	21	42	-.5	1.1	.0	1.1	10.7	77	5.1	63	89	44	0	3	2	1		
JACKSON	57	36	75	24	47	-.1	1.0	-.2	.8	11.3	75	7.0	79	88	48	0	2	2	1		
MERIDIAN	57	36	70	26	46	-.3	.7	-.6	.7	19.6	131	13.7	153	81	39	0	2	2	1		
MO CAPE GIRARDEAU	33	17	42	-2	25	-12	1.4	.5	1.3	9.4	99	7.6	149	88	56	0	7	3	1		
COLUMBIA	26	12	40	-6	19	-12	.7	.2	.4	6.1	115	3.4	129	86	58	0	7	3	0		
KANSAS CITY	25	11	36	-6	19	-13	.3	.0	.2	6.3	189	2.6	144	86	59	0	7	3	1		
SAINT LOUIS	29	16	37	-1	23	-12	.8	.3	.5	8.6	139	5.0	156	83	56	0	7	3	0		
SPRINGFIELD	31	14	50	-6	22	-13	1.0	.5	.8	8.5	151	4.2	143	89	59	0	7	2	1		
MT BILLINGS	18	-1	33	-15	9	-.2	.2	.1	.1	1.2	58	.7	53	78	50	0	7	4	0		
GLASGOW	8	-11	17	-23	-2	-20	.2	.1	.1	.7	81	.5	93	87	62	0	7	3	0		
GREAT FALLS	14	-3	30	-16	5	-.23	.4	-.3	.1	2.1	97	1.8	136	84	58	0	7	5	0		
HAYVE	11	-7	22	-20	2	-20	T	-.1	T	1.2	87	.6	82	66	50	0	7	0	0		
HELENA	14	-3	32	-17	6	-.21	.6	.5	.3	2.3	153	1.7	189	81	56	0	7	4	0		
KALISPELL	17	-3	31	-21	7	-.20	.4	-.1	-.2	4.1	100	2.1	89	81	47	0	7	3	0		
MILES CITY	12	-9	22	-24	2	-.23	.2	.0	.1	1.2	80	.8	91	86	63	0	7	2	0		
MISSOULA	19	1	34	-16	10	-.20	.5	.3	.3	2.3	76	1.5	80	81	56	0	7	4	0		
NE GRAND ISLAND	20	0	30	-15	10	-.18	.1	-.1	.1	2.9	178	2.0	221	90	68	0	7	1	0		
LINCOLN	22	7	29	-8	15	-.12	T	-.2	T	1.9	103	1.0	106	88	62	0	7	1	0		
NORFOLK	18	0	27	-15	9	-.16	.7	.5	.5	3.5	207	2.6	266	87	62	0	7	3	0		
NORTH PLATTE	21	-5	33	-21	8	-.20	.3	-.2	.2	2.1	192	1.8	279	91	61	0	7	4	0		
OMAHA	20	5	28	-11	13	-.14	.2	-.1	.1	2.7	132	1.7	150	77	59	0	7	3	0		
SCOTTSBLUFF	20	-3	34	-20	8	-.23	.3	-.2	.2	2.6	191	1.9	246	89	62	0	7	2	0		
VALENTINE	17	-7	32	-25	5	-.23	T	-.1	T	.9	71	.8	99	85	59	0	7	1	0		
NV ELY	34	8	41	-6	21	-.9	.6	.4	.3	4.0	209	3.1	261	92	54	0	7	6	0		
LAS VEGAS	60	43	65	37	51	0	.3	.2	.1	4.9	421	3.2	405	76	38	0	0	3	0		
RENO	40	24	46	18	32	-.7	.8	.6	.3	5.2	186	3.3	181	96	54	0	6	6	0		
WINNEMUCCA	39	24	53	15	31	-.5	T	-.1	T	3.2	154	2.2	182	89	54	0	6	2	0		
NH CONCORD	31	4	39	-16	18	-.5	.7	.0	.7	4.8	65	2.6	60	89	43	0	7	1	1		
NJ ATLANTIC CITY	40	19	53	7	30	-.4	.5	-.2	.5	8.2	91	4.2	74	83	37	0	7	1	1		
NM ALBUQUERQUE	54	36	66	30	45	4	.7	.6	.4	3.0	234	1.8	229	83	33	0	2	2	0		
CLOVIS	45	25	72	12	35	-.6	.2	.0	.1	.9	75	.7	96	97	57	0	6	2	0		
ROSWELL	56	34	76	27	45	0	.1	-.1	.0	1.4	119	.8	119	91	40	0	4	2	0		
NY ALBANY	29	5	36	-6	17	-.7	.6	.0	.6	7.3	106	4.2	107	91	48	0	7	2	1		
BINGHAMTON	24	8	33	-5	16	-.7	1.1	.6	1.1	7.2	102	4.2	105	90	54	0	7	1	1		
BUFFALO	26	14	33	1	20	-.5	.8	-.2	.7	9.4	117	5.6	128	87	53	0	7	4	1		
NEW YORK	37	24	50	13	30	-.3	.8	-.1	.8	11.1	131	5.6	111	73	43	0	6	1	1		
ROCHESTER	25	11	33	-1	18	-.7	.3	-.2	.3	6.3	101	3.4	94	93	56	0	7	1	0		
SYRACUSE	26	13	37	1	20	-.5	.7	-.1	.5	6.9	99	4.4	114	88	52	0	7	4	0		
NC ASHEVILLE	41	25	57	12	33	-.7	.6	-.5	.6	9.0	79	5.3	76	82	45	0	7	1	1		
CHARLOTTE	47	30	51	21	39	-.4	.7	-.3	.7	10.8	109	8.0	125	74	37	0	5	1	1		
GREENSBORO	44	27	48	16	35	-.5	.5	-.3	.5	7.8	88	5.3	96	73	39	0	6	1	1		
HATTERAS	50	33	64	21	41	-.4	.8	-.2	.8	15.9	124	10.2	124	90	50	0	2	2	1		
NEW BERN	51	33	67	25	42	-.4	.4	-.7	.3	11.3	102	8.2	112	92	42	0	3	2	0		
RALEIGH	49	30	59	20	39	-.3	.5	-.5	.4	8.2	87	5.7	94	83	39	0	5	2	0		
WILMINGTON	54	33	69	26	44	-.2	.2	-.9	.2	12.6	105	8.1	103	84	43	0	3	2	0		
ND BISMARCK	11	-6	20	-17	2	-.14	.1	.0	.1	1.0	83	.6	74	82	59	0	7	1	0		
FARGO	8	-10	15	-19	-1	-.14	T	-.1	T	1.5	89	.9	91	81	62	0	7	1	0		
GRAND FORKS	8	-8	15	-16	0	-.11	T	-.1	T	1.1	64	.4	34	82	60	0	7	0	0		
WILLISTON	9	-7	16	-18	1	-.16	.1	.0	.1	.9	59	.4	48	83	64	0	7	2	0		
OH AKRON-CANTON	24	12	33	-5	18	-.10	.6	.0	.4	7.3	111	5.1	138	92	66	0	7	4	0		
CINCINNATI	28	16	36	-2	22	-.10	1.2	.6	.6	7.1	94	5.7	131	91	59	0	7	5	1		
CLEVELAND	27	15	34	-1	21	-.7	.6	.0	.5	10.0	152	5.7	162	87	57	0	7	4	0		
COLUMBUS	28	16	37	-2	22	-.6	.6	.1	.5	6.6	102	5.2	151	89	61	0	7	4	1		
DAYTON	27	12	34	-7	20	-.10	.9	.4	.5	7.6	117	6.0	168	90	60	0	7	4	0		

Based on 1951-80 normals.

Weather Data for the Week Ending February 20, 1993

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
TOLEDO	27	15	35	-1	21	-5	.2	-.2	.2	7.5	129	4.0	136	87	61	0	7	1	0	0	
YOUNGSTOWN	25	13	36	-3	19	-7	.6	-.1	.7	8.4	130	4.9	139	92	65	0	7	4	0	1	
OK OKLAHOMA CITY	42	22	77	9	32	-10	1.0	.1	.5	6.9	196	3.8	180	90	56	0	6	2	1	1	
TULSA	39	20	72	6	29	-12	1.0	-.2	.7	9.1	185	3.9	140	90	57	0	7	3	1	1	
OR ASTORIA	42	28	47	23	35	-9	.4	-.5	.4	12.9	50	7.0	45	78	47	0	7	1	0	0	
BURNS	27	12	40	-4	20	-10	.1	.1	.1	3.3	124	2.2	142	89	58	0	7	1	1	0	
MEDFORD	46	29	55	23	38	-6	.4	.0	.3	6.9	93	3.4	83	95	58	0	5	4	0	0	
PENDLETON	32	18	47	10	25	-15	.4	.1	.4	3.0	75	2.2	94	91	55	0	7	3	0	0	
PORTLAND	40	29	50	27	35	-9	.6	-.4	.6	8.7	61	3.7	46	75	55	0	7	2	1	1	
SALEM	41	28	45	23	35	-9	1.0	-.1	.8	14.0	88	6.2	67	75	51	0	7	3	1	1	
PA ALLENTOWN	32	17	38	5	25	-5	1.3	.5	.7	7.7	88	4.5	85	81	48	0	7	1	1	1	
ERIE	27	15	32	0	21	-8	.8	.2	.5	8.0	108	4.6	122	92	60	0	7	4	0	0	
HARRISBURG	32	21	40	5	27	-5	.9	.2	.9	5.5	67	3.5	70	78	47	0	7	1	1	1	
PHILADELPHIA	39	23	51	11	31	-2	.7	.9	.9	9.0	96	4.4	77	72	40	0	6	1	1	1	
PITTSBURGH	28	15	41	-1	22	-7	1.0	.5	.9	7.5	106	4.7	112	90	60	0	7	6	1	1	
SCRANTON	30	13	37	0	21	-6	.7	.5	.4	5.8	94	2.9	80	84	48	0	7	2	0	0	
RI PROVIDENCE	38	19	50	9	28	-2	2.4	1.5	2.4	14.0	129	7.1	110	84	42	0	7	2	1	1	
SC CHARLESTON	58	38	70	29	48	-3	.2	.6	.2	12.7	143	11.2	197	83	38	0	1	1	0	0	
COLUMBIA	52	33	61	24	43	-4	.4	.6	.4	13.1	120	9.9	134	87	40	0	3	1	0	0	
FLORENCE	55	36	64	28	45	-2	.2	.6	.2	11.7	131	8.0	138	77	38	0	1	1	0	0	
GREENVILLE	47	28	52	18	38	-6	.6	.5	.6	14.7	130	9.7	135	82	38	0	5	1	1	1	
SD ABERDEEN	12	-9	20	-19	1	-15	T	T	T	1.1	73	.9	90	81	62	0	7	2	0	0	
HURON	13	-7	22	-21	3	-17	T	T	T	1.0	75	.6	79	83	58	0	7	0	0	0	
RAPID CITY	13	-4	27	-21	3	-23	.1	-.1	.0	1.7	145	1.2	165	88	64	0	7	3	0	0	
STOUX FALLS	13	-4	21	-19	5	-16	T	T	T	1.8	114	1.0	109	84	63	0	7	0	0	0	
TN CHATTANOOGA	45	29	56	17	37	-6	.8	-.4	.7	12.9	96	7.4	89	82	43	0	5	2	1	1	
KNOXVILLE	40	26	55	13	33	-7	.5	-.5	.5	11.9	103	5.2	75	84	49	0	4	3	0	0	
MEMPHIS	42	28	58	16	35	-10	.6	-.6	.6	8.2	66	4.7	70	89	53	0	4	1	1	1	
NASHVILLE	40	23	51	12	32	-9	1.1	.2	1.1	7.5	70	4.6	75	82	53	0	5	3	1	1	
TX ABILENE	52	33	74	21	42	-5	.4	.1	.3	2.7	94	1.7	92	87	51	0	3	2	0	0	
AMARILLO	39	20	72	6	30	-10	.2	-.1	.2	1.5	114	1.1	119	94	64	0	6	2	0	0	
AUSTIN	59	43	82	33	51	-2	.1	-.5	.1	9.2	179	5.9	180	88	55	0	0	2	0	0	
BEAUMONT	64	48	72	38	56	1	.7	-.1	.4	18.7	155	12.2	168	93	63	0	0	3	0	0	
BROWNSVILLE	71	58	82	50	64	2	T	T	T	5.4	147	4.5	189	96	70	0	0	0	0	0	
CORPUS CHRISTI	69	53	85	43	61	2	T	T	T	2.8	63	1.8	57	87	56	0	0	0	0	0	
DEL RIO	64	47	84	40	55	1	T	T	T	1.7	54	1.3	62	73	45	0	0	1	0	0	
EL PASO	67	45	75	39	56	7	.2	-.1	.1	2.9	222	1.6	220	65	24	0	0	3	0	0	
FORT WORTH	52	37	74	24	44	-3	1.1	.5	1.1	9.6	173	5.4	155	84	54	0	3	2	1	1	
GALVESTON	62	52	71	42	57	2	.3	-.2	.3	16.1	191	12.3	250	88	67	0	0	2	0	0	
HOUSTON	65	47	80	36	56	2	.6	-.4	.5	10.5	94	7.0	109	89	56	0	0	2	1	1	
LUBBOCK	47	29	74	16	38	-6	.2	.0	.1	2.7	195	1.3	154	92	59	0	6	3	0	0	
MIDLAND	55	33	77	23	44	-5	.3	.1	.2	2.5	184	1.9	215	91	48	0	3	2	0	0	
SAN ANGELO	55	36	79	24	46	-3	.2	-.1	.2	1.9	79	1.1	71	86	49	0	3	2	0	0	
SAN ANTONIO	63	45	83	35	54	0	T	T	T	6.2	138	4.1	134	81	51	0	0	1	0	0	
VICTORIA	65	48	78	39	57	1	.2	-.5	.1	8.8	104	6.7	122	91	58	0	0	2	0	0	
WACO	55	39	72	28	47	-3	.6	-.1	.6	8.2	166	4.9	159	85	53	0	2	2	1	1	
WICHITA FALLS	47	28	80	17	38	-7	2.1	1.6	1.1	5.8	136	3.6	133	88	53	0	5	2	2	2	
UT CEDAR CITY	44	28	51	17	36	1	1.0	.8	.6	4.8	245	3.8	295	93	48	0	5	3	1	1	
SALT LAKE CITY	38	21	50	14	30	-5	.4	.1	.4	5.3	158	4.3	217	91	60	0	6	4	0	0	
VT BURLINGTON	24	1	31	-13	13	-6	.3	-.1	.3	4.6	85	3.6	123	96	55	0	7	4	0	0	
VA NORFOLK	46	30	63	19	38	-3	.3	-.5	.3	9.1	96	5.9	95	77	42	0	5	2	0	0	
RICHMOND	46	26	57	15	36	-3	.3	-.5	.3	8.8	101	6.0	110	82	39	0	5	2	0	0	
ROANOKE	40	25	48	10	33	-5	.6	-.2	.5	7.8	102	5.2	110	72	42	0	7	2	0	0	
WA QUILLAYUTE	42	28	45	20	35	-7	.3	-.2	.3	18.5	48	8.8	37	81	40	0	6	1	0	0	
SHATTLE-TACOMA	42	30	45	23	36	-8	.3	-.7	.3	8.4	59	4.4	53	65	37	0	5	1	0	0	
SPOKANE	26	14	34	5	20	-14	.8	.5	.6	4.4	81	2.3	74	73	55	0	7	4	1	1	
YAKIMA	34	20	46	10	27	-10	.6	.5	.4	3.9	123	1.6	90	79	45	0	7	3	0	0	
WV BECKLEY	32	19	52	3	26	-7	.4	-.4	.2	6.2	75	2.3	45	87	56	0	7	4	0	0	
CHARLESTON	36	22	59	7	29	-7	.2	-.6	.1	6.2	74	2.7	54	84	54	0	7	3	0	0	
HUNTINGTON	35	21	53	6	28	-5	.5	-.3	.3	6.4	73	3.5	68	90	58	0	7	6	0	0	
PARKERSBURG	32	18	43	2	25	-8	.7	.0	.6	5.6	69	3.6	69	90	57	0	7	2	1	1	
WI GREEN BAY	21	5	30	-6	13	-5	T	T	T	3.7	112	1.5	80	80	46	0	7	0	0	0	
LACROSSE	18	-1	25	-10	9	-12	.3	-.1	.3	3.4	122	1.8	120	78	49	0	7	1	0	0	
MADISON	24	8	29	-3	16	-5	T	T	T	4.4	126	2.0	107	76	47	0	7	1	0	0	
MILWAUKEE	26	12	31	-1	19	-5	T	T	T	5.3	109	2.9	112	73	47	0	7	0	0	0	
WAUSAU	17	-4	26	-14	7	-11	T	T	T	3.4	115	1.6	107	88	57	0	7	0	0	0	
WY CASPER	26	-2	45	-23	12	-15	.4	.2	.3	2.5	155	1.6	172	79	57	0	7	4	0	0	
CHEYENNE	29	5	49	-13	17	-12	.1	-.1	.0	1.4	136	.9	150	84	52	0	7	2	0	0	
LANDER	13	-6	35	-21	3	-23	.2	.0	.1	2.0	139	1.2	135	89	63	0	7	2	0	0	
SHERIDAN	18	-4	32	-18	7	-20	T	T	T	1.9	99	.7	56	86	56	0	7	1	0	0	

Based on 1951-80 normals.

## HEATING DEGREE DAYS (Base 65° F) February 14 - 20, 1993

(Cumulative totals and departures from normal are for the period July 1, 1992 - February 20, 1993)

STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE		
	TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP fm 91-92		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP fm 91-92		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP fm 91-92
AL BIRMINGHAM	178	49	2041	-167	18	SHREVEPORT	124	19	1781	-15	151	DAYTON	317	72	3908	-138	102
MOBILE	102	17	1153	-228	-229	ME CARIBOU	407	44	6611	92	212	TOLEDO	309	37	4209	-356	126
MONTGOMERY	145	35	1615	-182	-124	PORTLAND	314	22	4978	-33	265	YOUNGSTOWN	317	45	4316	-186	197
AK ANCHORAGE	243	-83	7311	-75	430	MD BALTIMORE	238	27	3195	-164	-31	OK OKLAHOMA CITY	230	65	2824	-5	378
BARRROW	388	-209	12457	-340	-616	MA SALISBURY	221	23	3013	-102	92	TULSA	250	85	2939	89	576
FAIRBANKS	344	-132	10015	-220	195	MA BOSTON	245	5	3877	100	249	OR ASTORIA	206	59	3407	134	429
JUNEAU	251	-3	5761	-291	529	MI CHATHAM	252	15	3731	-44	201	BURNS	316	99	5771	1108	1244
KODIAK	208	-44	5756	150	399	MI ALPENA	355	27	5529	-38	305	MEDFORD	191	37	2911	-342	213
NOME	248	-186	9663	507	1113	MI DETROIT	316	44	4274	-264	146	PENDLETON	276	103	4121	436	803
AZ FLAGSTAFF	215	-23	4474	-205	160	FLINT	319	29	4647	-161	116	PORTLAND	210	61	3051	-65	537
PHOENIX	45	-21	778	-357	67	GRAND RAPIDS	310	22	4669	-75	186	SALEM	211	57	3110	-118	439
PRESCOTT	157	-21	3001	-280	08	HOUGHTON LAKE	352	25	5440	-146	272	PA ALLENTOWN	282	34	3946	-130	279
TUCSON	73	-9	1165	-143	29	LANSING	315	24	4780	-14	160	ERIE	306	26	3969	-510	97
WINSLOW	154	-27	3577	58	-135	MARQUETTE	415	62	6452	93	210	HARRISBURG	267	33	3670	-115	215
YUMA	25	-17	628	-171	183	MUSKOGON	299	14	6201	-60	235	PHILADELPHIA	238	17	3142	-357	63
AR FORT SMITH	224	70	2560	-114	229	SAULT ST MARIE	387	33	6245	101	377	PITTSBURGH	301	48	3862	-318	67
LITTLE ROCK	217	74	2408	-38	235	MN ALEXANDRIA	450	86	6405	-36	473	SCRANTON	306	40	4138	-260	46
CA BAKERSFIELD	70	-10	1520	-91	-168	DULUTH	446	80	6639	-122	157	RI PROVIDENCE	255	6	3905	-92	320
EUREKA	134	22	2511	-394	50	INT'L FALLS	487	90	7307	-89	432	SC CHARLESTON	119	13	1361	-311	-47
FRESNO	82	-16	1708	-254	-90	MINNEAPOLIS	415	88	5635	-58	192	COLUMBIA	154	30	1974	-66	93
LOS ANGELES	54	-2	737	-224	116	ROCHESTER	429	98	5962	137	364	FLORENCE	134	11	1739	-236	-4
REDDING	145	47	1951	31	152	SANT CLOUD	430	78	6268	-51	322	GREENVILLE	190	41	2509	63	297
SACRAMENTO	108	9	1866	-97	59	MS GREENWOOD	160	36	1862	-266	-14	SD ABERDEEN	441	103	6234	150	864
SAN DIEGO	44	-5	666	-130	122	JACKSON	127	11	1630	-252	-76	HURON	430	108	5819	61	801
SAN FRANCISCO	84	-7	1562	-447	-39	MERIDIAN	129	17	1625	-318	-102	RAPID CITY	422	154	5584	590	1212
STOCKTON	96	-3	1806	-146	-26	MO CAPE GIRARDEAU	278	83	3183	-122	299	ST LOUIS	296	82	3403	-231	321
CO DENVER	300	84	4458	376	464	KANSAS CITY	324	99	3975	100	441	SPRINGFIELD	296	99	3318	-91	279
GRAND JCT.	202	-12	3958	-212	-362	SAINT LOUIS	296	82	3403	-231	321	MT BILLINGS	391	142	5253	321	1086
PUEBLO	291	87	4466	588	547	SPRINGFIELD	296	99	3318	-91	279	GLASGOW	462	126	6482	226	1260
CT BRIDGEPORT	247	7	3643	-34	205	GREAT FALLS	413	152	5759	498	1339	HAVRE	438	129	6423	370	1412
HARTFORD	290	29	4334	19	352	HELENA	412	147	6033	447	890	KALISPELL	399	135	6024	290	957
DE WILMINGTON	245	24	3279	-237	118	MILES CITY	440	148	5845	272	1329	MISSOULA	382	130	5833	440	995
DC WASHINGTON	220	29	2971	-28	230	NE GRAND ISLAND	383	125	5077	402	1035	LINCOLN	350	86	4854	222	902
FL APALACHICOLA	100	22	770	-368	-292	NORFOLK	389	106	5136	93	770	NORTH PLATTE	393	134	5231	359	1014
DAYTONA BEACH	68	12	446	-270	-164	OMAHA	363	105	4752	230	588	SCOTTSBLUFF	395	156	5311	662	1059
FORT MYERS	17	-11	106	-267	-80	VALENTINE	417	136	5464	331	823	NV ELY	306	56	5334	274	599
JACKSONVILLE	92	17	895	-250	-174	LAS VEGAS	93	-7	1888	-73	133	RENO	230	41	3934	-120	593
KEY WEST	5	-2	8	-93	-6	WINNEMUCCA	235	35	4663	344	782	NH CONCORD	330	32	5194	64	398
MIAMI	5	-9	25	-149	-30	NJ ATLANTIC CITY	245	23	3437	-54	99	NM ALBUQUERQUE	139	-38	3091	-169	-68
ORLANDO	45	3	314	-236	-108	CLOVIS	210	43	3011	22	-64	ROSWELL	140	10	2430	-27	-212
TALLAHASSEE	105	21	989	-338	-306	NY ALBANY	334	44	4759	-39	258	BINGHAMTON	342	45	5095	133	568
TAMPA	45	-4	319	-287	-138	BUFFALO	314	31	4476	-95	180	NEW YORK	242	21	3277	-111	290
W. PALM BEACH	15	-6	69	-157	-62	ROCHESTER	326	42	4720	179	310	SYRACUSE	315	30	4689	80	273
GA ATLANTA	176	38	2080	-222	141	NC ASHEVILLE	223	44	2936	-168	171	CAPE HATTERAS	163	27	1536	-339	-18
AUGUSTA	150	28	1811	-186	-52	CHARLOTTE	183	31	2284	-232	242	GREENSBORO	207	34	2836	-32	371
MACON	149	38	1737	-67	42	NEW BERN	159	23	1847	-303	04	RALEIGH-DURHAM	180	17	2477	-152	194
SAVANNAH	120	22	1270	-266	-52	WILMINGTON	148	26	1723	-159	-22	ND BISMARCK	436	90	6540	150	991
ID BOISE	265	67	4439	410	677	FARGO	458	86	6659	69	693	GRAND FORKS	451	68	6907	-22	657
LEWISTON	261	82	3972	168	615	OH AKRON-CANTON	327	64	4208	-110	149	WILLISTON	445	100	6807	311	1216
POCATELLO	316	73	5341	488	735	CLEVELAND	309	47	4007	-237	142	COLUMBUS	298	54	3712	-333	80
IL CHICAGO	318	49	4469	-50	197	CINCINNATI	297	69	3620	-162	185	DAYTON	317	72	3908	-138	102
MOLINE	334	60	4566	-93	326	ME CARIBOU	407	44	6611	92	212	TOLEDO	309	37	4209	-356	126
PEORIA	339	76	4220	-258	153	PORTLAND	314	22	4978	-33	265	YOUNGSTOWN	317	45	4316	-186	197
QUINCY	336	89	4196	8	381	MD BALTIMORE	238	27	3195	-164	-31	OK OKLAHOMA CITY	230	65	2824	-5	378
ROCKFORD	326	39	4814	-106	287	MA SALISBURY	221	23	3013	-102	92	TULSA	250	85	2939	89	576
SPRINGFIELD	327	83	3810	-280	98	MA BOSTON	245	5	3877	100	249	OR ASTORIA	206	59	3407	134	429
IN EVANSVILLE	282	75	3173	-323	-3	MI CHATHAM	252	15	3731	-44	201	BURNS	316	99	5771	1108	1244
FORT WAYNE	327	59	4225	-214	164	MI ALPENA	355	27	5529	-38	305	MEDFORD	191	37	2911	-342	213
INDIANAPOLIS	317	75	3811	-249	189	MI DETROIT	316	44	4274	-264	146	PENDLETON	276	103	4121	436	803
SOUTH BEND	313	45	4266	-168	145	FLINT	319	29	4647	-161	116	PORTLAND	210	61	3051	-65	537
IA DES MOINES	364	86	4744	24	455	GRAND RAPIDS	310	22	4669	-75	186	SALEM	211	57	3110	-118	439
DUBUQUE	354	53	5251	31	362	HOUGHTON LAKE	352	25	5440	-146	272	PA ALLENTOWN	282	34	3946	-130	279
ST LOUIS CITY	384	98	5147	120	615	LANSING	315	24	4780	-14	160	ERIE	306	26	3969	-510	97
WATERLOO	371	62	5188	-191	293	MARQUETTE	415	62	6452	93	210	HARRISBURG	267	33	3670	-115	215
KS CONCORDIA	340	107	4461	394	915	MUSKOGON	299	14	6201	-60	235	PHILADELPHIA	238	17	3142	-357	63
DODGE CITY	313	107	4339	681	964	SAULT ST MARIE	387	33	6245	101	377	PITTSBURGH	301	48	3862	-318	67
GOODLAND	354	127	4883	645	979	MN ALEXANDRIA	450	86	6405	-36	473	SCRANTON	306	40	4138	-260	46
TOPEKA	310	88	3915	-5	556	DULUTH	446	80	6639	-122	157	RI PROVIDENCE	255	6	3905	-92	320
WICHITA	297	93	3659	115	566	INT'L FALLS	487	90	7307	-89	432	SC CHARLESTON	119	13	1361	-311	-47
KY BOWLING GREEN	252	62	3014	-187	138	MINNEAPOLIS	415	88	5635	-58	192	COLUMBIA	154	30	1974	-66	93
LEXINGTON	273	62	3250	-242	91	ROCHESTER	429	98	5962	137	364	FLORENCE	134	11	1739	-236	-4
LOUISVILLE	267	67	2989	-332	120	SANT CLOUD	430	78	6268	-51	322	GREENVILLE	190	41	2509	63	297
LA BATON ROUGE	86	3	1124	-245	-96	MS GREENWOOD	160	36	1862	-266	-14	SD ABERDEEN	441	103	6234	150	864
LAKE CHARLES	80	2	1104	-183	-73	JACKSON	127	11	1630	-252	-76	HURON	430	108	5819	61	801
NEW ORLEANS	80	2	924	-293	-257	MERIDIAN	129	17	1625	-318	-102	RAPID CITY	422	154	5584	590	1212

Based on 1951-80 normals.

## National Agricultural Summary

February 15 - 21, 1993

**HIGHLIGHTS:** Snow and rain fell from Texas to New England during the early part of the week, bringing snow cover to winter grains, halting field activities in the South, and stressing livestock. A cold front midweek brought some of the coldest temperatures of the season to parts of the Plains, the Midwest, and the East, and stressed livestock. Heavy rains and snow fell in the Southwest, delaying fieldwork and hindering calving and lambing activities. A major snowstorm moved across the upper Midwest at week's end, which increased snow cover for the small grain and hay crops.

**SMALL GRAINS:** Snow cover for winter wheat improved across the northern half of the Nation with the passing of two snowstorms. Ice and snow blanketed winter wheat in Kansas. Cold, wet weather in Oklahoma had slowed wheat development. Wheat condition in Texas was rated at 68 percent (%) of normal, compared with 84% last year at this time. Excessive moisture flooded some wheat fields in California. Producers fertilized the crop where weather conditions allowed. Rust was reported in wheat fields in southern Arkansas. Lack of sunshine and excessive moisture restricted small grain growth in Texas, but the low temperatures have restricted insect activity.

**COTTON:** Wet weather slowed cotton field activities in Arizona. Seedbed preparation and weed control activities were conducted in California where weather permitted.

**OTHER FIELD CROPS:** Alfalfa was reported in good condition in Arizona. California alfalfa was sprayed for insects and weeds where conditions allowed. Tobacco beds were maintained in the southeast, and planting continued where weather permitted. The Georgia crop remained in good condition. The onion crop in Georgia was rated fair to good, while the crop in the Trans-Pecos area of Texas continued to progress well. Weed control measures were applied in Georgia and New Mexico. Onion planting began in east Texas, where weather allowed, and advanced in the Kern-Tulare area of California. Corn and sorghum planting started in the Rio Grande Valley of Texas. Potato planting was underway in east Texas. Safflower planting in limited areas continued in California. The sugarcane harvest was active in Florida, and sugar beets in California received herbicides. Potato planting was underway in Texas.

**FRUIT AND NUTS:** The pecan harvest remained active in Arizona, and pecan trees were pruned in New Mexico. The Arizona citrus harvest continued in the central and eastern areas with

oranges, lemons, grapefruit, and tangerines picked. In Florida, low temperatures retarded growth. However, by the end of the week, favorable weather returned, bringing optimum harvesting conditions for oranges, tangerines, and grapefruit. Pruning of fruit trees continued in Georgia and California, with peach tree pruning in Georgia nearly completed. Early variety peaches were blooming in Texas and California. Blooming of early varieties of plum, apricot, nectarines, and apples began in California. The California orange harvest remained steady.

**VEGETABLES:** Wet weather interrupted vegetable harvests in California and Arizona. Snow and ice stopped land preparations in the High Plains region of Texas and rain delayed spring planting preparations in California. Spotty frost damage was reported to vegetable crops in northern Florida. In Arizona, broccoli, cauliflower, and lettuce harvests continued. Cabbage harvesting began on Florida's east coast. The Florida tomato and pepper harvests advanced. Carrots and cabbage were harvested in the Rio Grande valley of Texas. Asparagus harvest advanced in the Imperial Valley of California. The California celery harvest continued where weather permitted. The broccoli harvest was moderate in the central coast and slow in the Modesto-Turlock areas of California. Sweet corn in the Coachella Valley of California was progressing well. Lettuce fields in California's Westside area were thinned, and treated for mildew and aphids.

**PASTURES AND LIVESTOCK:** The cold and wet conditions continued to plague livestock producers. Snow and windy weather in the Western States caused problems for newborn calves and lambs. Livestock problems have been reported across the northern half of the country. Supplemental feeding was increased by producers in response to the cold weather. Spot shortages of feed were reported in Michigan and Wyoming. This week's precipitation continued to improve pasture prospects. Producers in the Southeast continue to wait for drier weather to dry pastures.

(Continued from front cover)

Monday, and **Amarillo** reported a low of 7°F on Tuesday. As a result, strong thunderstorms flared across the **Gulf Coast States**. Rainfall topped 3 inches in **Shreveport, LA**. More than a dozen daily record lows were set on Wednesday, including -21°F in **North Platte, NE**, and -16°F in **Goodland, KS**. Cold air spilled across the **Midwest** on Thursday and into the **Southeast** by Friday as the storm lifted into **New England**. A temperature of -15°F in **Springfield, IL**, was the lowest reading since the cold spell of December 1989. Temperatures dropped below 0°F as far southeast as the **Ohio River**. On Friday morning, temperatures fell into the teens as far south as **central Alabama** and **central Georgia**. **Huntsville, AL**, noted 14°F. Farther south, **Jacksonville, FL**, registered 26°F, and **Daytona Beach, FL**, dipped to 32°F. In contrast, **Barrow, AK**, attained 26°F on Friday to set a daily record high, exemplifying a week of anomalous warmth in the northernmost State. Late in the

week, cold weather prevailed in the **East**, with heavy snowfall limited to **western New York's snowbelt** and **Cape Cod**. **Chatham, MA**, was buried under 18 inches of snow. Elsewhere, a new storm swept into the **West** with rain, snow, and fierce winds. Flash flooding and mudslides battered **southern California**, and river flooding resumed in **Arizona**. Peak rainfall included 13.07 inches at **Lake Arrowhead, CA**, and 5.31 inches in **Flagstaff, AZ**. Both **Lake Arrowhead, CA**, and **Wrightwood, CA**, recorded more than 6 inches of rain on Friday. In **central and southeastern Arizona**, the **Verde, Gila, and San Francisco Rivers** overflowed. Farther north and east, heavy snow blanketed much of the remainder of the **West**. **Sierra Ski Ranch, CA**, near U.S. Route 50, received 81 inches to boost their total snow depth to 200 inches. Wind gusts reached 51 mph at **Albuquerque, NM**, 70 mph at **Guadalupe Pass, TX**, and 96 mph at **Rock Springs, WY**. By Saturday night, heavy snow spread into **Nebraska** and **Iowa**. **Sioux City, IA**, reported 14 inches of new snow.

## 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 0.65 to 2.24 in. north; 0.62 to 2.15 in. central; 0.81 in. to 1.80 in. south. Temperatures 3 to 10° below normal north; 2 to 7° below normal central; 5° below normal to 1° above south. Lows 11 to 20° north; 13 to 25° central; 21 to 28° south. Highs 59 to 76° north; 68 to 77° central; 71 to 74° south.

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

**ARIZONA:** Rains statewide early week, late week. Scattered showers 14th, 15th, cloudy 16th, sunny 17th, cloudy with scattered showers 18th, heavy storms 19th, scattered showers 20th. Temperatures 1° below to 4° above normal. Extremes 20°; 70° higher elevations, 30°; 73° deserts.

Field activities slow due to rain. Cotton field preparations slow. Alfalfa good. Harvest light, all areas. Weed infestations moderate; insects, disease light. Small grains planted 100%, 100% 1992, 100% avg.; stands established 99%, 100% 1992, 99% avg.; jointing 25%, 33% 1992, 32% avg. Fields in good condition. Harvest vegetables active, weather permitting. Broccoli, cauliflower, lettuce, bok choy, cilantro, kale, parsley, napa, spinach, available western, central areas. Also available west: Artichokes, celery, escarole, endive. Leeks, beets, cabbage, dill, kohlrabi, radishes, rapini, mixed greens, green onions, turnips available, central. Citrus harvest continued central, western areas. Sweet, navel orange harvest near complete; valencia orange harvest gaining momentum. Lemons, grapefruit, tangerines, tangelos available both areas. Tomatoes, pecans harvested eastern areas.

**ARKANSAS:** Very cold middle of week; warming by week-end. Heavy snow in northern areas first of week, scattered rain showers elsewhere. Extremes 2°; 80°. Rainfall 0.51 to 3.09 in.

Soil moisture supplies adequate to surplus. Wheat fair to good, making normal progress. Farmers continued to fertilize wheat. Rust emerged in wheat fields in southern part of State. Excessive snow caused chicken houses, other structures to collapse in north part of State. Livestock good. Producers feeding hay, supplies adequate. Pastures good.

**CALIFORNIA:** Received much rain 17th through 19th with near normal temperatures throughout the State. Rainfall is running well above normal.

Field activities again halted; rain most areas. Growth small grains, new alfalfa progressed central, south; many northern wheat fields in standing water. Wheat, barley treated broadleaf weeds between rains. Few fields oats seeded aerially; safflower planting limited areas. Established alfalfa sprayed aphids, weeds, weevils as allowable. Sugarbeets received herbicide applications; seed alfalfa hand weeded. Cotton prepared planting, sprayed weed control. Seasonal fruit practices continued. Pruning trees, vines being done. Orchard replanting continued. Beehives moved into almond orchards. Early varieties peaches, plums, nectarines, apricots, apple trees in bloom. Orange harvest steady. Lemons, oranges exported. Avocados picked. Granny Smith apples packed out of cold

storage. Winter vegetable harvest progressed, rain interruptions. Spring planting, ground preparation made headway, rain delayed. Asparagus harvest underway Imperial Valley. Broccoli harvest moderate, variable quality, central coast. Harvest slow Modesto-Turlock. Westside fields developing normally. Cauliflower harvest light Salinas-Watsonville, moderate Santa Maria, variable quality. Celery harvested south coast, weather permitted. Desert valley harvest winter vegetables progressed. Coachella Valley sweet corn crop progressed well. Planting melons underway Palo Verde Valley. Earliest fields germinated. Westside area lettuce fields thinned, treated mildew, aphids. Onion, garlic planting progressed Kern-Tulare area. Fall potato movement Tulelake-Butte Valley storages slowed seasonally. Rainfall received all areas. Rangeland, pasture conditions continued improve. Livestock good to excellent condition. Limited supplemental feeding. Livestock movement light to moderate. Sheep continued graze alfalfa fields.

**COLORADO:** At the beginning of the week a winter storm produced snow, blowing snow across eastern areas with cold arctic air, temperatures in the single digits during the day, 10 to 20° below zero at night. Wind chill readings 20 to 40° below zero. In the west, temperatures were near normal. Snow began to fall in the mountains around midweek, continued into the weekend with heavy snow fall in portions of the central, southwest mountains. By the 21st total snowfall accumulations in the mountains since 17th reached 4 to 6 feet mainly west of the Divide, on west-facing slopes. Temperatures well below normal across east due to the Arctic airmass. In the east, temperatures 10 to 20° below normal while in the west they were near normal.

Care, feeding of livestock along with calving, lambing were the main producer activities. Sheep shearing is just getting started in some areas.

**FLORIDA:** Temperatures 2 to 5° below normal northwestern areas, near normal extreme south. Freezing temperatures north, 30s central, 19th, 20th mornings. Lows; mid, upper 20s north, low, mid 30s central, low 40s interior south, near 50° along lower southeast coast. Highs 70s north, low 80s central, south. Rain totals; Panhandle, Big Bend 0.50 to locally 2.00 in., elsewhere, 0.25 in. or less, no rain most southern areas.

Sugarcane harvest active. Tobacco growers are maintaining plant beds. Farmers making land preparation for corn, peanuts. Citrus trees forming bloom. New growth, bloom now in all stages, some open flowers. Cold temperatures holding new growth back. Weather conditions optimum for harvest operations last of week. Early-mid orange movement active all areas. Grapefruit harvest active for fresh and processing. Temple, Honey tangerine movement active. Caretakers cutting cover crops, hedging, topping harvested groves. Mild days, cool nights experienced in major vegetable growing areas. Spotty frost damage northern locations. Irrigation needed some southern areas. Cabbage harvest started on east coast. Volume leaders: Tomatoes, cabbage, peppers, squash, potatoes. Also available: Snap beans, carrots, celery, chinese cabbage, sweet corn, cucumbers, eggplant, escarole, iceberg lettuce, romaine, specialty

lettuces, radishes, strawberries, cherry tomatoes. State's pastures fair to excellent. Pasture 10% poor, 45% fair, 30% good, 15% excellent. Moisture levels mostly adequate. State's cattle herds mostly good condition.

**GEORGIA:** Temperatures 3 to 9° below normal north, 1 to 5° below normal south. Warmest highs mid to upper 50s northeast mountains, mid to upper 60s north, central, upper 60s to mid 70s south. Coolest lows mid to upper teens north, low 20s central, south except mid 20s extreme south, along the coast. Rain 3 to 4 days north, west central, 1 to 2 days south, east. Rain totals north, central, 0.75 to 2.25 in. South varied, 0.25 to 1.50 in., heavier amounts west.

Soil moisture adequate to surplus. Field preparation active drier areas. Growers applying nitrogen to small grains where the soil will support equipment. Pruning peach trees near completion. Disease control in onions active, crop fair to good. Tobacco plants good condition. Small grains fair to good. Pastures poor to mostly fair. Cattle fair to good. Hogs good.

**HAWAII:** Weather mostly cool, brisk during nights, early mornings, with sunshine warming days. Passing cold fronts generated chilly air over Island chain causing daily record low temperatures. Some scattered showers fell on windward areas, higher elevations, mostly dry other areas. Temperatures mid 50s to mid 80s. Rainfall none to 0.70 in.

Cool seasonal crops benefited from recent cool, dry weather, however, conditions were generally unfavorable for other crops, pasture grass growth. Most field operations normal. Irrigation necessary as soil moisture levels low many areas. Banana, papaya production lower. Sugar harvesting underway some, but not all, islands yet.

**IDAHO:** Temperatures 3 to 15° below normal. Scattered precipitation was reported throughout the State with Ketchum reporting 1.52 in.

Soil moisture varied across the State: adequate north, southwest, southeast; short south central. Activities: Planning spring field activities, hauling grain, repairing farm machinery, attending meetings. Hay, roughage supplies adequate. Livestock activities: Cattle on winter hay, calving, lambing in progress. Livestock fair to good; however, weather causing some calving problems in parts of State.

**ILLINOIS:** Extreme winter conditions prevailed last week as cold arctic air followed a significant snow storm across central, southern sections. Storm was followed by a weaker system over the weekend which brought 1 to 5 in. of snowfall to the north. Temperature averages of 16 to 27° were 6 to 12° below normal. Extremes -15°; mid 30s. Precipitation 0.25 to 1.75 in., with snowfall of 6 to 10 in. across the south early in the period.

Farm activities were at a slower pace last week due to extreme weather, deteriorating road conditions. Winter wheat continues in mostly good condition, with much of the crop snow covered.

**INDIANA:** Temperatures 7 to 16° below normal. Highs were in the mid 20s to low 30s. Lows mostly in the teens. Precipitation, liquid equivalent, averaged 0.50 to 1.30 in. across State, except along the Ohio river which reported about 2.00 in.

Farm activities were put to a halt with the heavy snow, cold weather this past week. The heavy snowcover is welcomed by farmers to help protect the winter wheat crop from damaging low temperatures. Livestock feeding has increased, animals are

under increased stress during the recent cold snap. Hay supplies are reported to be fair to good in most locations.

**IOWA:** Temperatures 7° below normal east to 14° below normal west. Extremes -24° Sibley, 17th; 32° Burlington, Lamoni, Ottumwa 21st. Heavy snow north over weekend. Snowcover 10 to 21 in. north; 5 to 15 in. central; 1 to 5 in. south.

Snowpack water content of 2.00 to 4.00 in. north raises concern for potential spring flooding. Soils generally frozen to about 20 in. depth except far southeast with less than one foot of frost. Ice, snow limited all field activities, caused stress, respiratory illnesses among livestock.

**KANSAS:** Temperatures 15° below normal northwest, 13 to 14° below normal elsewhere. Precipitation light to moderate; low 0.18 in. northeast, high 0.75 in. west central.

Wheat stands blanketed by ice, snow. Soil moisture supplies continue to buildup. Cold, wet weather causing problems getting feed to livestock. Feed grain, forage supplies adequate, quality poor some areas. Calving under way; stockmen busy caring for newborn.

**KENTUCKY:** Wet week with widely varying temperatures. Precipitation 1.00 to 3.00 in.; averaged near 1.50 in. High temperatures 35 to 40°, 10° below normal, ranging from teens 18th to 60s 21st. Low temperatures 20 to 25°, 7° below normal. Readings near zero 18th.

Cold, wet conditions stressed livestock, increased feed requirements. Producers busy providing feed, water. Pastures snow covered, stock ponds frozen. Snowcover provided some protection for winter wheat most areas. Burley sales extremely light.

**LOUISIANA:** Temperatures 0.6 to 4.1° below normal. Extremes 26°; 75°. Rainfall 0.46 in. west central to 3.53 in. northwest.

Excellent weather last week enabled farmers to begin preparations for spring planting. Crawfishing continued as well as tending to livestock, pasture fertilization for the spring.

**MARYLAND & DELAWARE:** **MARYLAND:** Precipitation 0.86 in. Temperature 32.8°, normal 35.6°. Extremes -1°; 59°.

Hay supplies adequate. Cutting firewood, feeding hay, caring for livestock. Small grains good. Tax preparation. Making plans for spring planting.

**DELAWARE:** Precipitation 0.85 in. Temperature 34.8°, normal 36.5°. Extremes 9°; 61°.

Hay supplies adequate. Pastures, livestock mostly excellent condition. Small grains good condition. Tax preparation. Making plans for spring planting.

**MICHIGAN:** Extremes -10°; 35°. Precipitation none to 1.04 in. Most of the Lower Peninsula received some snow accumulation.

Corn harvest remained at 90%. High moisture, low test weights continued to plague the corn crop. Snow storms that moved through last week hampered progress in corn harvest. Feed supplies are short to adequate. Livestock decline due to temperature swings, problems with moldy corn. Major activities included caring for livestock, purchasing seed for spring planting, spreading manure, repairing equipment, shoveling, plowing snow, preparing income tax.

**MINNESOTA:** Temperatures 11 to 15° below normal for the State. Extremes -27°; 27°. Precipitation 0.01 to 0.32 in., 0.09 in.

above normal for the southeast, 0.03 to 0.14 in. below normal elsewhere. Greatest weekly total was 0.45 in. Snowfall 7 in. southeast, 1 to 2 in. elsewhere. Snow depths at weekend 7 to 14 in. for the State.

Colder weather created higher feed usage, supply remains good. Livestock bedding is in short supply. Grain movement is slow.

**MISSISSIPPI:** Temperature 43°, 4.8 below normal. Extremes 13°, 79°. Rainfall was near normal across the State. Rainfall 1.36 in., 0.07 above normal. Soil temperatures 46°.

Days suitable for fieldwork 1.1, 2.2 1992, 3.4 avg. Soil moisture 25% adequate, 75% surplus. Wheat 38% fair, 62% good. Hay supply 25% short, 63% adequate, 12% surplus. Feed grain 87% adequate 13% surplus. Livestock 8% poor, 18% fair, 74% good. Activities: Feeding cattle.

**MISSOURI:** Temperatures 13° below normal. Precipitation 0.82 in., with heavy snow on 15th, 16th, followed by rain late in week. Precipitation under 0.50 in. northern districts to nearly 1.50 in. south central, southeast.

Heavy snow, followed by cold temperatures limited farm work to livestock chores, indoor work. Snowcover helped protect wheat crop from cold temperatures.

**MONTANA:** Temperatures 20° below normal. Precipitation statewide with largest amounts northwest, southwest, 0.50 to 0.40 in. respectively, with smallest amounts southeast at 0.10 in.

Snowcover protection for winter wheat was replenished. Most livestock receiving supplemental feed. Calving, lambing progressing under severe cold, heavy snow conditions.

**NEBRASKA:** Temperatures 14 to 24° below normal. Precipitation in the form of snow occurred at beginning, end of week. Water equivalents 0.20 in. east central to 1.44 in. northeast.

Most of the wheat crop has adequate snowcover. Farm activities included: Monitoring, working with farm stored grain, equipment maintenance, livestock care, routine chores.

**NEVADA:** Low pressure system brought unsettled weather first of period. Cold front brought snow to northern sections 15th while southern areas remained sunny. By 16th frontal system moved into central areas leaving up to 8 in. new snow in higher western valleys. Clouds, precipitation continued over northern, central areas remainder of week. Precipitation spread into southern areas 18th, continued through 20th. Temperatures lower than normal north, central; above normal in the south.

Snow, windy weather hard on newborn calves, lambs. Precipitation about twice normal for this time of year many areas, has greatly improved outlook for coming year. Main farm/ranch activities: Calving, lambing, care, feeding of livestock, general maintenance.

**NEW ENGLAND:** Precipitation 2.44 in. Rhode Island, 0.32 to 1.55 in. elsewhere. Temperatures single digits to high 20s. Maximum temperatures mid 20s to low 50s. Minimum temperatures minus 36 to minus 4° north, minus 11 to 12° south.

Major farm activities: Tending livestock, cutting firewood, making general repairs.

**NEW JERSEY:** Temperatures much below normal, 23° north, 30° south, 32° coastal. Extremes -2°, 56°. Precipitation above normal; 1.69 in. north, 1.20 in. south, 1.13 in. coastal. Heaviest 24 hour total 1.40 in. on 16th, 17th. Heaviest 24 hour snowfall 4.5 in. on 21st, 22nd. Depth of snow on ground 22nd 2 to 9 in.

Farmers caring for livestock, tending to other normal winter chores, plowing snow.

**NEW MEXICO:** Temperatures 7° below normal in the northeast plains, several degrees above normal elsewhere. Arctic air dominated the northeast plains during the first half of the week. Extremes -1° northeast; 81° southeast. Most areas received some precipitation, with higher amounts in the north central, southwest, south central mountains. Higher totals 1.25 in. to over 1.50 in.

Farmers continue to prepare land for spring crops, cultivate onions, prune pecan trees.

**NEW YORK:** Colder than normal with heavier than normal precipitation. Heavy snow in eastern areas. Lighter snowfall occurred in St. Lawrence Valley, northern Adirondacks, Champlain Valley. Temperatures got colder as week wore on. Minimums well below zero in northern areas. Extremes -35°, 50°.

Activities: Caring for livestock, cutting firewood, attending meetings. Coldness, heavy snow made outside chores difficult.

**NORTH CAROLINA:** Temperatures 3 to 7° below normal. Largest departures were in western areas. Precipitation 1.24 in. at Bryson City to 0.01 in. at Blowing Rock.

Crop condition: Winter wheat 5% poor, 37% fair, 55% good, 3% excellent. Oats 5% poor, 41% fair, 52% good, 2% excellent. Barley 4% poor, 42% fair, 52% good, 2% excellent. Rye 4% poor, 31% fair, 62% good 3% excellent. Hay, roughage supplies 3% short, 91% adequate, 6% surplus. Feed grain supplies 1% short, 91% adequate, 7% surplus. Activities included: tobacco plant bed preparation, maintenance; tending small grains, field preparation; tending livestock; equipment repair.

**NORTH DAKOTA:** Temperatures 20° below normal in the southwest to 11° below normal in the north central. Extremes -28° south central; 32° north central. Precipitation none north central, northeast, east central to 0.09 in. southwest.

Snowcover was sufficient to protect winter wheat, rye, alfalfa. Livestock good. Calving, lambing were well underway in most areas. Supplemental feed supplies were adequate. Grain, livestock marketing was normal.

**OHIO:** A major winter storm deposited moderate to heavy snow as week began; thunderstorms at week's end. High temperatures mid 20s to mid 30s, 7 to 12° colder than normal. Lows single digits to low 20s, 1 to 13° below normal. Most areas experienced their coldest temperatures of the winter with extreme lows of zero to 9° below zero. The two storms pushed weekly precipitation totals (water equivalent) as much as 1.00 in. above normal. Rainfall 0.50 in. north to 2.00 in. south. Snowcover at weekend 2 to 5 in. across the north; little or no snow remained in the south.

Livestock have caused considerable damage in pastures due to freezing, thawing, significant precipitation. Fieldwork is at a standstill due to snow, rain.

**OKLAHOMA:** Temperatures 6° below normal southwest, southeast to 15° below normal north central. Precipitation 0.06 in. Panhandle to 1.24 in. southeast.

Prices for stocker steers, steer calves under 650 lbs. steady, steers over 650 lbs. \$1.50 to \$2.00 per cwt. lower. All heifers \$2.00 to \$3.00 lower. Cold, wet weather has slowed wheat development, delayed topdressing of nitrogen.

**OREGON:** Bitter cold temperatures statewide. Western temperatures 2 to 10° below normal, eastern temperatures 8 to 16° below normal. Snow, freezing rain reported statewide.

Soil moisture mostly adequate, statewide. Snowpack normal to above normal. Fruit, nut winter orchard activities continue, Willamette Valley. Some cranberry frost concerns, southern coast. Livestock good. Lambing, calving continues. Forage in pastures, ranges beginning to increase.

**PENNSYLVANIA:** Below normal temperatures, above normal precipitation. Coldest week of the season. Temperature 23°, 3° below normal. Extremes -20°; 51°. Precipitation 0.80 in., 0.17 in. above normal.

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

**PUERTO RICO:** Island rainfall 0.52 in. was 0.04 in. below normal. Highest rainfall was 2.58 in. at Maricao 2 SSW, 1.87 in. at Pico Del Este. Highest 24 hour total 2.55 in. at Maricao 2 SSW on 17th. Island temperatures 75 to 76° on the coasts, 68 to 70° interior with mean station temperature 61.4° at Pico Del Este to 78.8° at Roosevelt Roads. Extremes 51°; 90°.

**SOUTH CAROLINA:** Temperatures across State 2 to 4° below normal. Average rainfall 0.50 in.

Farm activities: More wet fields delayed small grain, tobacco fieldwork, land preparation; some small grain damage; pastures wet; livestock fair to good.

**SOUTH DAKOTA:** Temperatures 15 to 25° below normal across the State. Extremes -34°; 46°. Precipitation fell early in the week; up to 0.20 in. of water-equivalent snow fell in the Black Hills. Snow fell over the weekend, especially in the southeast corner where up to 0.30 in. of water equivalent fell.

**TENNESSEE:** Temperatures 5 to 10° below normal, with the Plateau region being the coldest. Precipitation was above normal. Several areas received a trace of snow on the 15th, then rain on the 16th. Rainfall returned on the 20th, 21st, bringing over an inch to some western areas.

Wheat mostly good. Farm activity remains limited: Livestock care, general maintenance.

**TEXAS:** Tail-end of major winter storm dominated early part of week with some additional snow in High Plains, heavy rains North Central, Northeast Texas. Some snow flurries lingered on High Plains into midweek. Later part of week was dry except some showers over Lower Valley, few coastal stations. Temperatures were cold North, cool South; strong warming trend over weekend. Temperatures below normal most areas, near normal East, South. Precipitation amounts below normal statewide.

**Crops:** Planting corn fields active Rio Grande Valley. Some fields also planted as far north as Coastal Bend. Most other areas preparing to plant as conditions improve. Planting grain sorghum also underway Rio Grande Valley. Small grain growth restricted by excessive moisture, lack of sunshine. Insect activity slow to build with lower temperatures. Wheat fields Blacklands top-dressed with fertilizer conditions allowing. Grazing small grain fields limited by mud. Statewide wheat condition 68% normal, 84% 1991.

**Commercial Vegetables:** Rio Grande Valley, carrots, cabbage were harvested. Citrus harvest continued. High Plains, land preparation activities delayed by snow, ice. East Texas, onion, potato, cabbage planting underway as conditions allowed. Trans-Pecos, onions progressing well. Several early variety peaches blooming Hill Country, Blacklands, East, Central Texas. Spraying dormant oil continued.

**Range and Livestock:** Snow, ice on Plains required increased supplemental feeding, most other areas continued normal

feeding. Hay supplies short many places. Winter pastures improving with recent warmer weather, but grazing hampered by mud. Lice infestations still problem Blacklands, East Texas. Overall livestock remained fair, good.

**UTAH:** Temperature maximums 6° less than normal, minimums were 3° less than normal. Precipitation above normal.

Major farm, ranch activities were machinery maintenance, hauling manure, feeding, caring for livestock. Some early calving, lambing reported across the State.

**VIRGINIA:** Temperatures near normal to below normal. Extremes 0°; 63°. Precipitation 0.46 to 2.56 in. Snow fell in the northern, western areas of the State with accumulations 0.5 in. at Richmond to 6.0 in. west.

Days suitable for fieldwork 2.0. Topsoil 7% short, 59% adequate, 34% surplus. Pasture 20% poor, 57% fair, 23% good. Winter grains, grazing crops condition rated 12% poor, 61% fair, 25% good, 2% excellent. Forage from pastures, grazing crops dairy cattle 4%, beef cattle 14%, sheep 12%. Calving, lambing, pruning fruit trees, gassing, seeding tobacco plantbeds, topdressing small grains, fertilizing, liming land, attending production meetings, soil sampling, preparing for taxes. Producers continued making Maple syrup in Highland County.

**WASHINGTON:** Temperatures 4° below normal to 8° below normal west; 5° below normal to 13° below normal east. Precipitation none to 0.01 in. west; none to 0.76 in. east.

Days suitable for fieldwork 3.9. Soil moisture 23% short, 77% adequate. Hay, other roughage 12% very short, 17% short, 57% adequate, 14% surplus. Range, pasture 30% very poor, 24% poor, 33% fair, 13% good. Winter wheat dryland 40% fair, 60% good; irrigated 100% good. Barley dryland 55% fair, 45% good; irrigated 100% good. Arctic cold moved into region after several weeks of mild weather; below normal precipitation continued. Some injury incurred in winter seed cabbage, daffodil crops; damage expected in cereal grains with no cover, early district stone fruits/grapes. Ranchers trucking in hay eastside where local supplies depleted. Cold untimely as lambing/calving nears peak.

**WEST VIRGINIA:** Temperature 29°. Extremes -3°; 61°. Precipitation 1.57 in.

Hay feed supplies adequate. Other feed supplies adequate. Cattle good. Sheep good. Wheat fair. Farm activities: general maintenance, feeding livestock, calving, lambing, bookkeeping.

**WISCONSIN:** Temperature 11°. Extremes -22°; 34°. From the 15th through early on the 19th, there were a few flurries in the southeast. A major winter storm hit the southern part of the State over the weekend. By the 21st, accumulations reached 6 to 12 in. in the south; the central part of the State received 1 to 4 in. of snow. There was little snowfall in the north. There was some lake-effect snowfall near Lake Superior, Lake Michigan.

Late February frost depth 16.5 in., 14.0 in. 1992, 17.5 in. avg. Snow depth 4.3 in., 4.1 in. 1992, 8.9 in. avg. Data on snow, frost depths relate to 19th.

**WYOMING:** Temperatures were below normal across the entire State with many of the basins having departures of 15 to 25° below normal. Most of State received precipitation, but was at or below normal levels except northwest, which received slightly above-normal precipitation.

1993 Winter wheat crop fair to good. Livestock mostly good. Supplemental feeding continuing. Hay supplies dwindling in scattered regions. Farm, ranch activities: feeding, caring for livestock, routine maintenance. Producers beginning to calve, lamb.

## El Niño Update

The 1991-92 El Niño contributed to a number of significant weather anomalies around the world last year, including drought in southern Africa, Indonesia, and Australia. Though the El Niño appeared to end during the spring of 1992, El Niño-like conditions have returned in recent months. According to data supplied by the Climate Analysis Center/National Meteorological Center, the Southern Oscillation Index (SOI) has returned to levels near or below -1 for the past 4 months (fig. 1) after remaining near 0 during August-September. This leaves the 5-month running mean near -1. The SOI, which is a measure of the air pressure difference between Tahiti and Darwin, Australia, serves as a key indicator for the state of the El Niño/Southern Oscillation (ENSO). Negative (positive) extremes of the SOI are related to warm (cold) episodes in the tropical Pacific, which are often characterized by abnormally warm water throughout the equatorial central and eastern Pacific. In the eastern Pacific, these abnormal warmings are generally referred to as El Niño, and this term is quite often used when referring to warm episodes. The 1991-92 occurrence weakened abruptly from May to July 1992 (see "The Demise of the El Niño?" in the June 9, 1992, issue of the *Weekly Weather and Crop Bulletin*). The SOI rose to 0, and equatorial sea-surface temperatures cooled.

Recent sea-surface temperatures are near normal along the Equator, but there remains a large pool of warmer-than-normal water stretching from the date line northeastward to Baja California (fig. 2). The resulting tropical surge of moisture from the Pacific has contributed to the drought-ending precipitation in California. The El Niño-like Pacific circulation pattern has likely contributed to other weather anomalies around the Pacific basin and elsewhere, though it is difficult to separate the ENSO signal from random weather variations. Recent heavy rains in Java, Indonesia, and northern Australia run counter to the conditions expected during a typical ENSO (see "El Niño and the Hawaiian Drought," May 12, 1992, *WWCB*).

As for the future, according to the latest diagnostic advisory issued by the Climate Analysis Center, experimental forecast techniques indicate that sea-surface temperatures in the tropical central Pacific will remain near or slightly warmer than normal through April 1993. For the remainder of 1993, one model indicates cooler-than-normal water conditions while another indicates near-normal conditions, with both techniques exhibiting low confidence beyond April 1993.

Douglas Le Comte

Figure 1

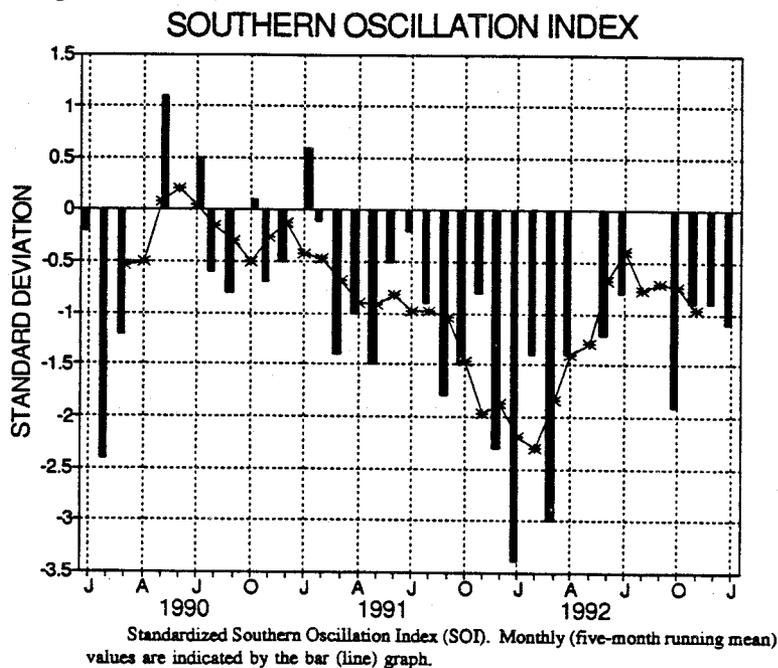
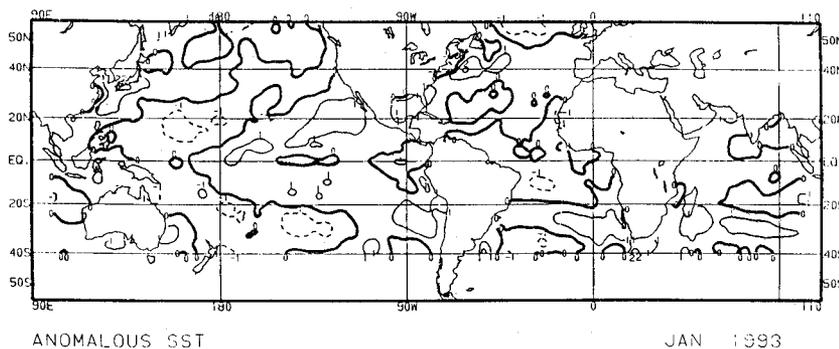


Figure 2



## International Weather and Crop Summary HIGHLIGHTS

February 14 - 20, 1993

**FSU-WESTERN:** A cooling trend covered dormant winter grains. Persistent dryness limited soil moisture recharge in Ukraine.

**EUROPE:** Dryness prevailed over winter grain areas of Spain. Light precipitation covered dormant grains in the northeast.

**NORTHWESTERN AFRICA:** Dry weather covered winter grain areas in Morocco, western Algeria, and Tunisia. Light rain benefited crops in central and eastern Algeria.

**SOUTH AFRICA:** Scattered showers continued, with western corn areas receiving unseasonably light totals.

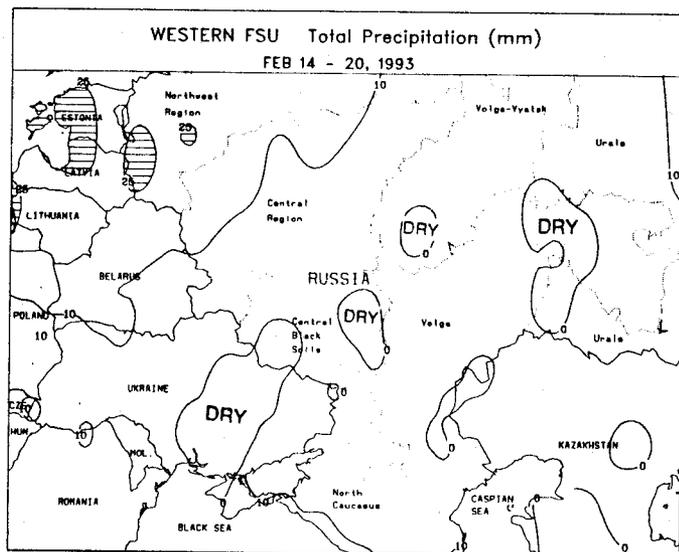
**SOUTH ASIA:** Warm, dry weather hastened growth of immature grains and oilseeds.

**SOUTHEAST ASIA:** Showers continued over Indonesia and central Philippines but were sparse over Malaysia.

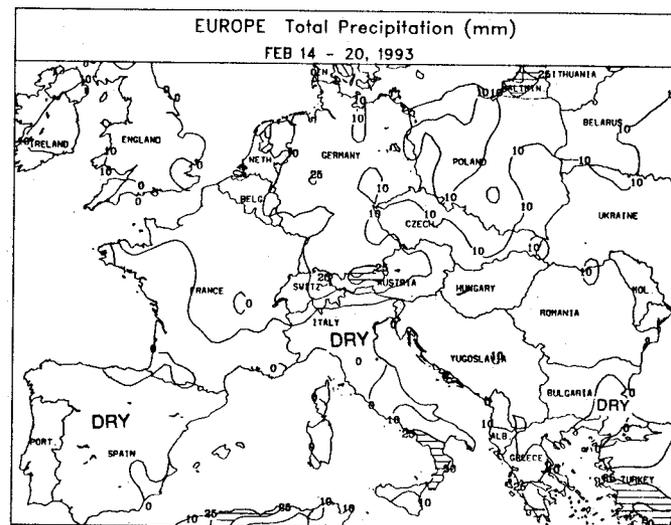
**EASTERN ASIA:** Widespread rain benefited southern China's reservoirs and soil moisture for greening winter grains.

**AUSTRALIA:** Light rain brought little relief to stressed eastern summer crops.

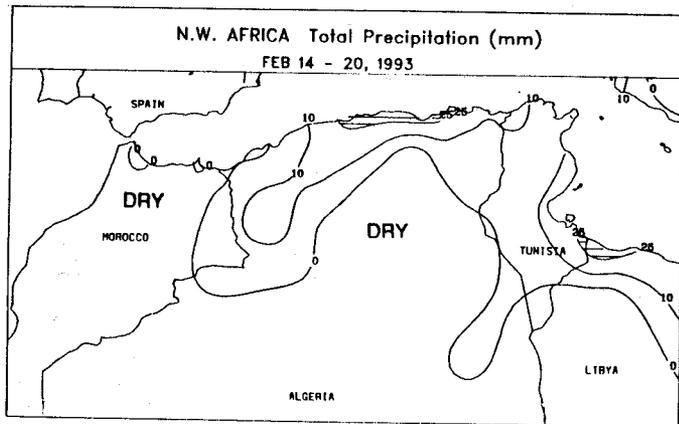
**SOUTH AMERICA:** Favorable summer crop development continued across Brazil and Argentina.



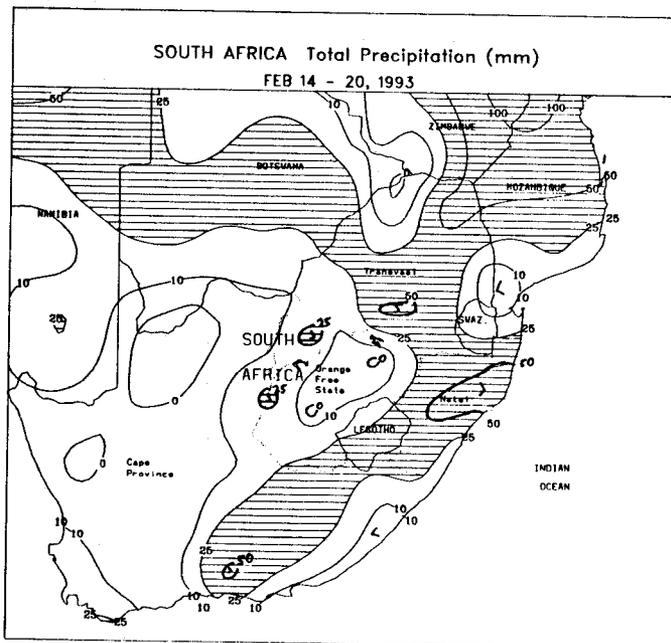
**FSU-WESTERN:** A cooling trend occurred, with average temperatures below freezing over most of the region. Average temperatures were 2-4 degrees Celsius (C) above normal in the Baltic States, Belarus, and Northwest Region, and 2-4 degrees C below normal in Volga Vyatsk, Volga Valley, southern Ukraine, and North Caucasus. Elsewhere, temperatures averaged near normal. Lowest minimum temperatures ranged from -10 to -20 degrees C in the Baltic States, Belarus, Ukraine, Black Soils Region, and North Caucasus and -20 to -25 degrees C in Central Region, Volga Vyatsk, and Volga Valley. Snow cover was adequate to protect dormant winter grains from extreme cold. Precipitation continued light (about 10 mm) over most areas. Greatest amounts of rainfall (10-25 mm) covered Estonia, Latvia, and Northwest Region. Little, if any, precipitation covered Ukraine, continuing a dry pattern that has lasted since December.



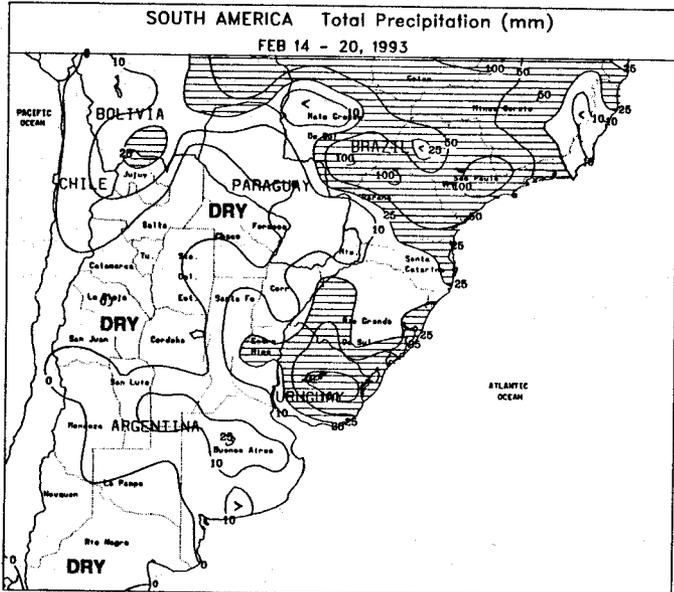
**EUROPE:** Unfavorably dry weather prevailed over Spain, continuing the long-term dryness during the typically wetter season of the year. Much of Spain's annual rainfall occurs during the autumn and winter, characteristic of the Mediterranean region. Moisture supplies for vegetative winter grains and irrigation reserves are low over the Iberian peninsula. Dry weather continued over Italy's Po Valley and most of southeastern Europe as well. The light and variable rainfall (mostly 10 mm or less) continued over north-central and northeastern Europe, favoring moisture for dormant winter crops. Near- to slightly above-average temperatures dominated the region, with below-average temperatures confined to Italy and southeastern Europe. Average high temperatures ranging from 10 to 15 degrees C in northern Spain and from 15 to 20 degrees C in the south aggravated increasingly poor growing conditions.



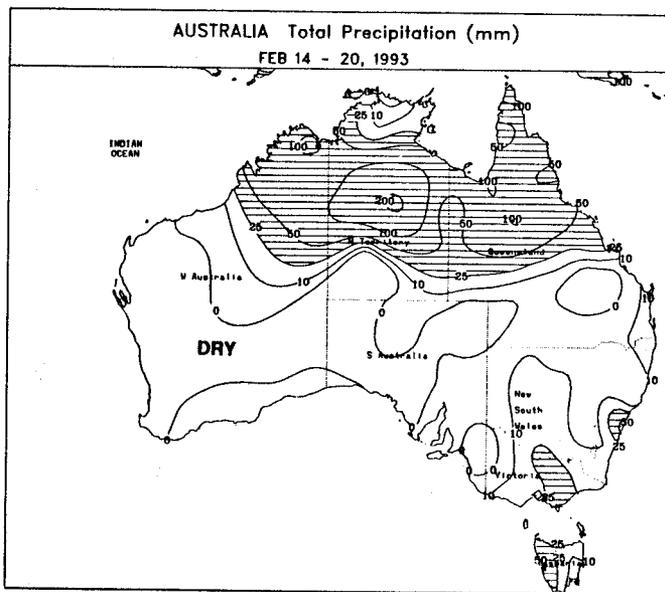
**NORTHWESTERN AFRICA:** Little, if any, precipitation covered winter grain areas in Morocco and western Algeria, where drought conditions continued to adversely affect crops. The dryness in these areas has likely caused spotty emergence, stunted plant growth, and accelerated crop development. As a result, yield prospects have been reduced and rain is needed soon to prevent further declines in yield. In central and eastern Algeria, light rain (around 10 mm) benefited winter grains in the jointing stage. The sixth consecutive week of dry weather covered winter grains in Tunisia. Although moisture reserves were becoming unfavorably low for crops in Tunisia, temperatures averaged 2-4 degrees C below normal, reducing crop-water use.



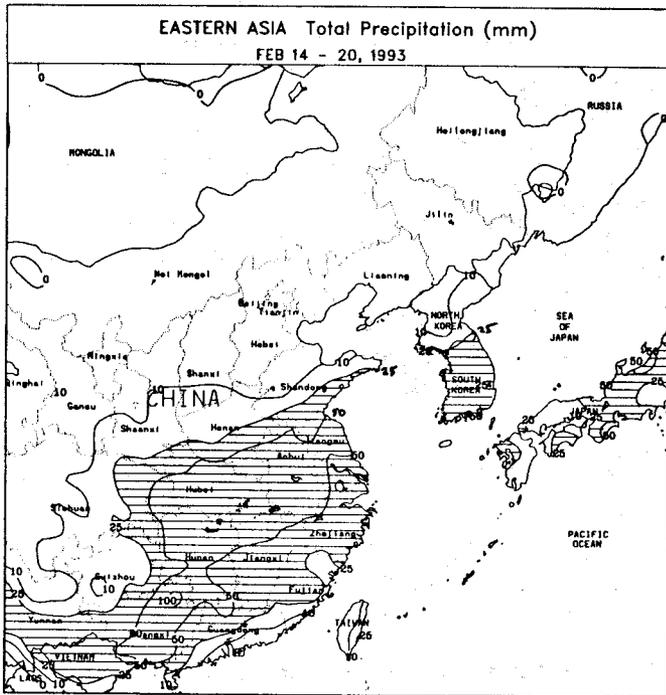
**SOUTH AFRICA:** Scattered showers continued throughout the primary corn areas, with only a few locations in the west reporting amounts over 25 mm. In contrast, widespread showers (25-65 mm) returned to south-central Transvaal, benefiting filling crops. Moderate to heavy rain (25-78 mm) continued over grain areas of Natal and eastern Cape Province, but most coastal areas, including much of Natal's sugarcane region, received 5-23 mm. High temperatures averaged in the upper 20's C in the western corn belt, and the mid 20's C elsewhere, maintaining seasonable crop growth rates and moisture usage.



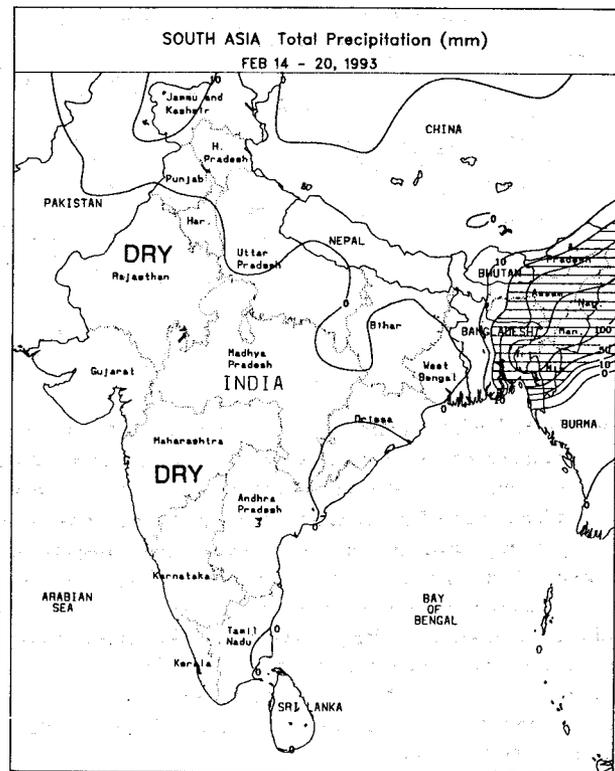
**SOUTH AMERICA:** Across Argentina's main summer crop region, light to moderate rain (5-18 mm, with isolated amounts between 30-40 mm) kept soils moist for vegetative to reproductive corn and soybeans. While rainfall has been somewhat light the past few weeks, seasonable temperatures and adequate soil moisture reserves should ensure favorable growing conditions. Temperatures averaged 2-4 degrees C above normal across most of Buenos Aires, with the warmest readings in the south (maximum temperatures ranged from 35 to 38 degrees C). The warmth spurred winter wheat harvesting toward completion. Temperatures were seasonable elsewhere in Argentina. Widespread moderate to heavy showers (20-125 mm) continued across west-central (Mato Grosso and Goias) and southern Brazil, keeping soils well-watered for corn, cotton, and flowering to pod-filling soybeans. Widespread rains will be needed the next several weeks to maintain excellent soybean yield prospects. Near-normal temperatures also favored crop development.



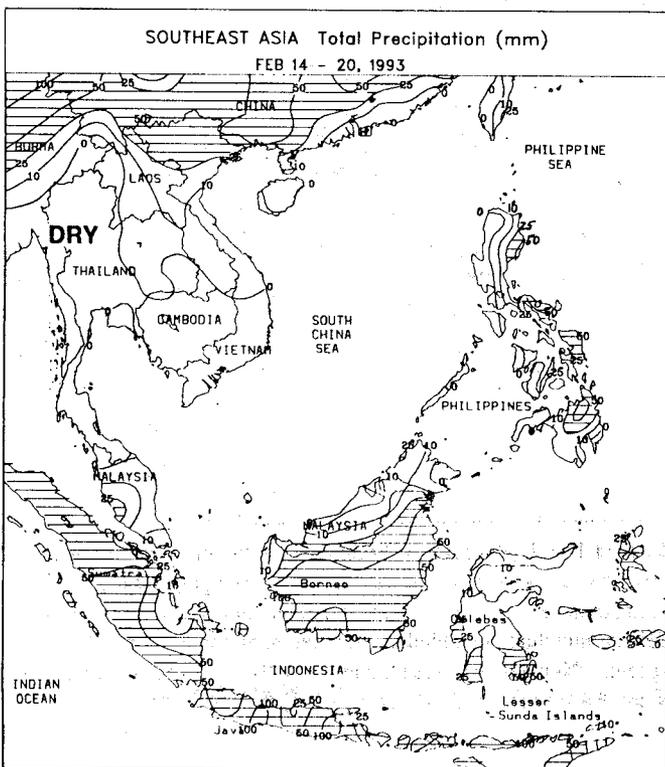
**AUSTRALIA:** Light, scattered rain (1-11 mm) fell across southern Queensland and northern New South Wales, bringing little relief to stressed summer crops. While temperatures returned to near normal, significant moisture is needed to stabilize sorghum and cotton yield prospects. Northeastern Queensland finally received widespread showers (14-94 mm), aiding vegetative sugarcane.



**EASTERN ASIA:** Unseasonable temperatures (3-6 degrees C above normal) likely caused premature greening of winter wheat across the North China Plain. Winter wheat is still vulnerable to any late-season cold air outbreak. Widespread moderate to heavy rain (20-100 mm) covered central China, from Guangxi northeastward to Jiangsu, replenishing reservoirs and benefiting soil moisture for greening winter grains.



**SOUTH ASIA:** Mostly dry, unseasonably warm weather accelerated growth of immature winter grains and oilseeds as well as increased irrigation usage in Pakistan and north-central India. Temperatures averaged 2-4 degrees C above normal, but hot weather (highs in the mid 30's C) was of a short duration in Haryana, where crops were in or nearing reproduction and vulnerable to heat stress. Hot, dry weather likely stressed rice in or around Andhra Pradesh, but showers (25-79 mm) and mild temperatures benefited crops over Assam and portions of Bangladesh.



**SOUTHEAST ASIA:** Moderate to heavy showers (25-100 mm or more) covered most Indonesian crop areas, maintaining adequate to abundant moisture levels but causing more flooding. In contrast, rainfall continued to be sparse over Malaysia and peninsular Thailand, with only isolated areas reporting more than 10 mm. Although western peninsular Malaysia is experiencing a seasonal rainfall minima, February's average weekly rainfall should range from 30 to 40 mm, so recent totals continue to be well below normal. Beneficial showers (25-82 mm) continued over the central Philippines, improving conditions for secondary grain growth.

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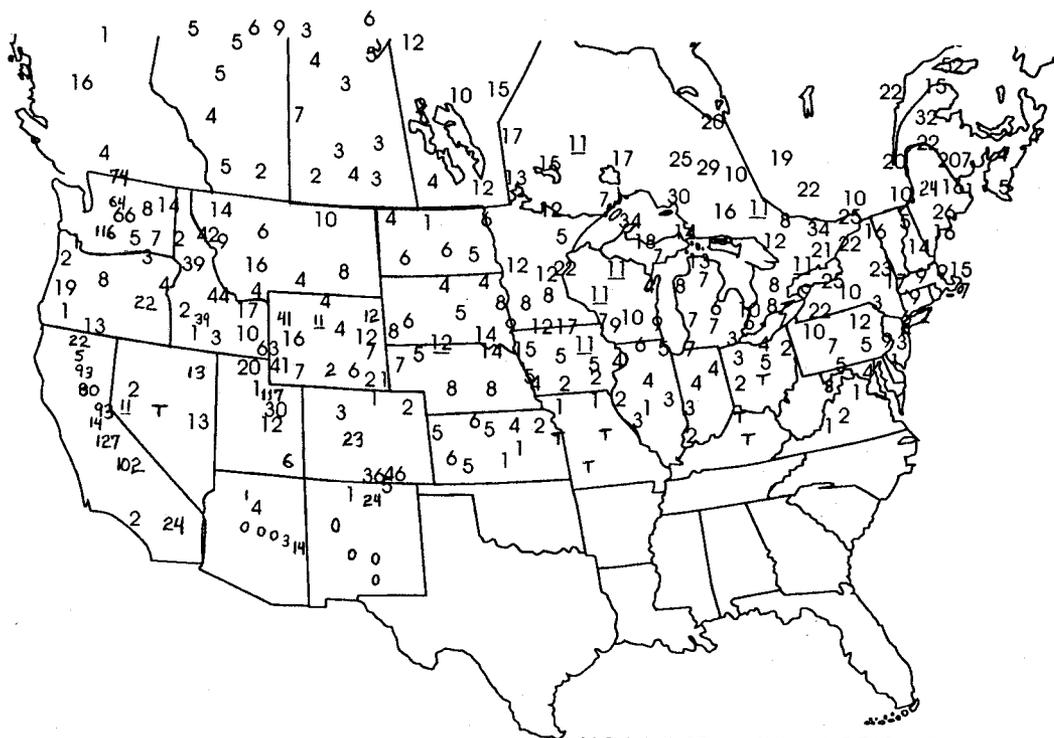
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## Total Snow Cover (Inches) February 22, 1993



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