

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

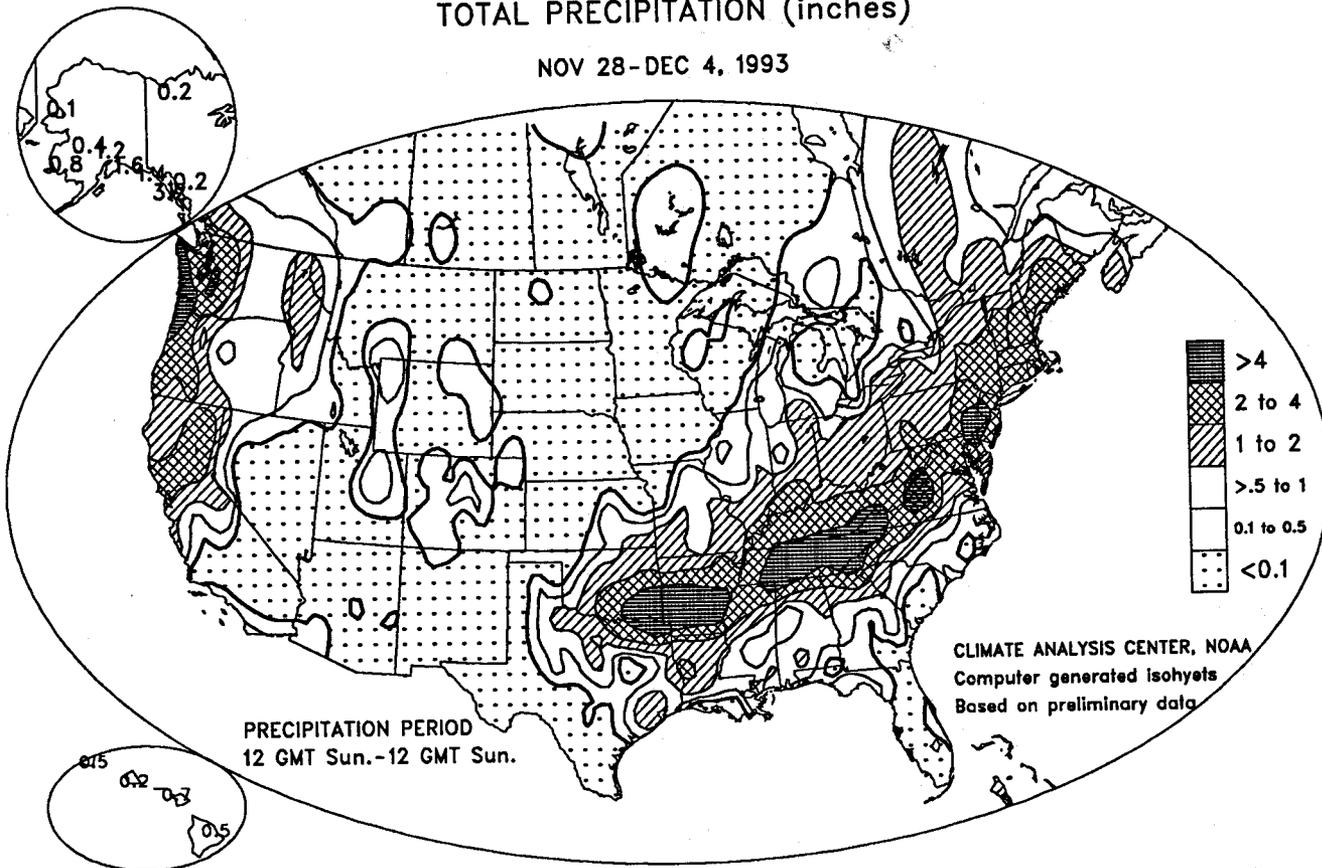
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Washington, D.C.

December 7, 1993

TOTAL PRECIPITATION (inches)

NOV 28 - DEC 4, 1993



HIGHLIGHTS

November 28 - December 4, 1993

The most significant snowstorm of the 1993-94 wet season blanketed peaks and passes from the Cascades to the Sierras early in the week. As the storm advanced eastward, areas from the southeastern Plains to the Northeast weathered heavy rainfall for the second time in a week. On Sunday, heavy rain and gale-force winds battered the Northeast as last week's powerful storm finally departed. Rainfall locally topped 3 inches in New England, and a wind gust to 68 miles per hour was measured at the Blue Hill Observatory near Boston, MA. Cold air in the storm's wake allowed temperatures to fall below freezing as far south as Brownsville, TX (31°F). Also on Sunday, Corpus Christi, TX, which recently set an October low-temperature record, broke its November mark with 28°F. Meanwhile in the Northwest, valley rains and mountain snows developed in conjunction with an

(Continued to p. 20)

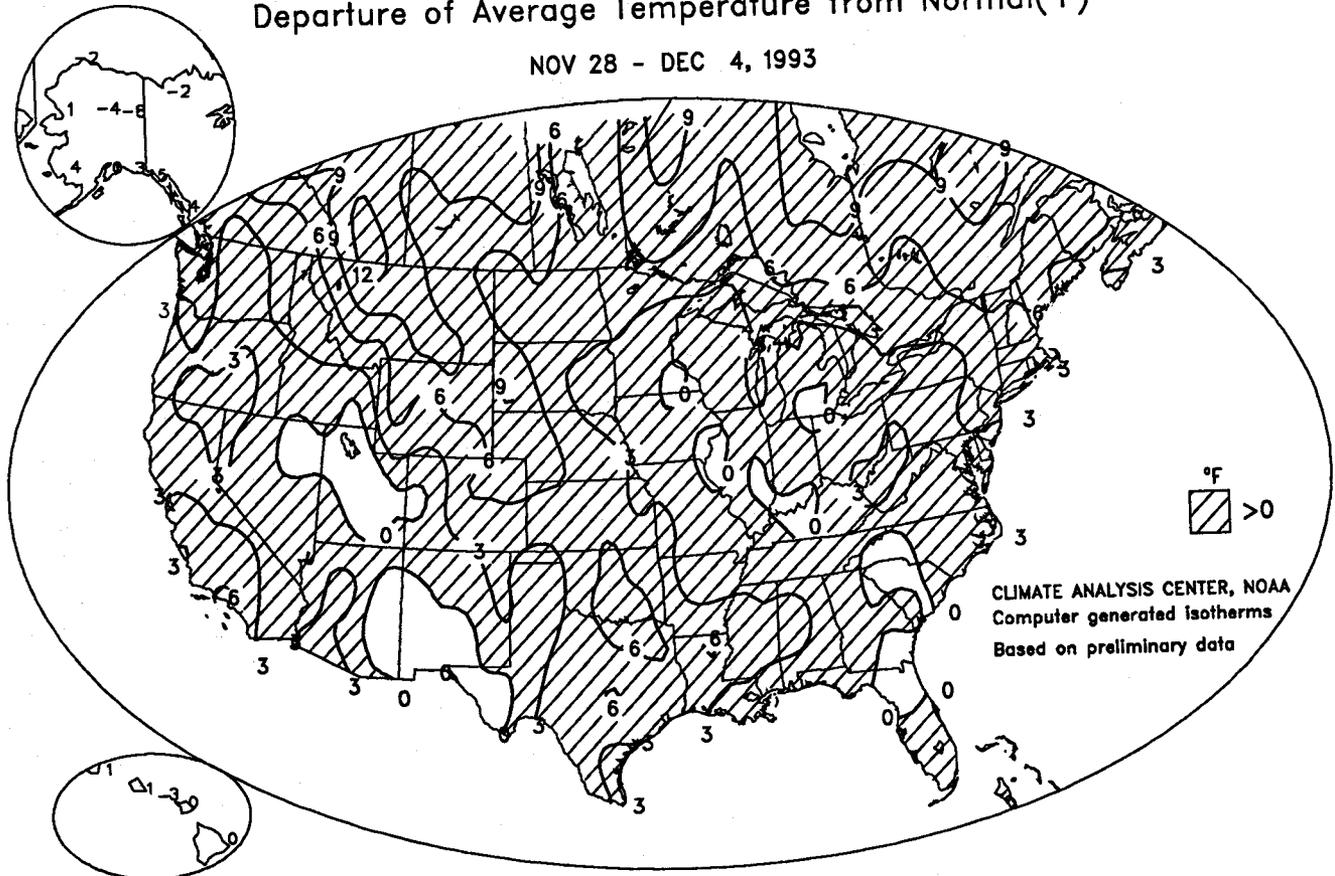
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Departure of Average Temperature from Normal(°F)

NOV 28 - DEC 4, 1993

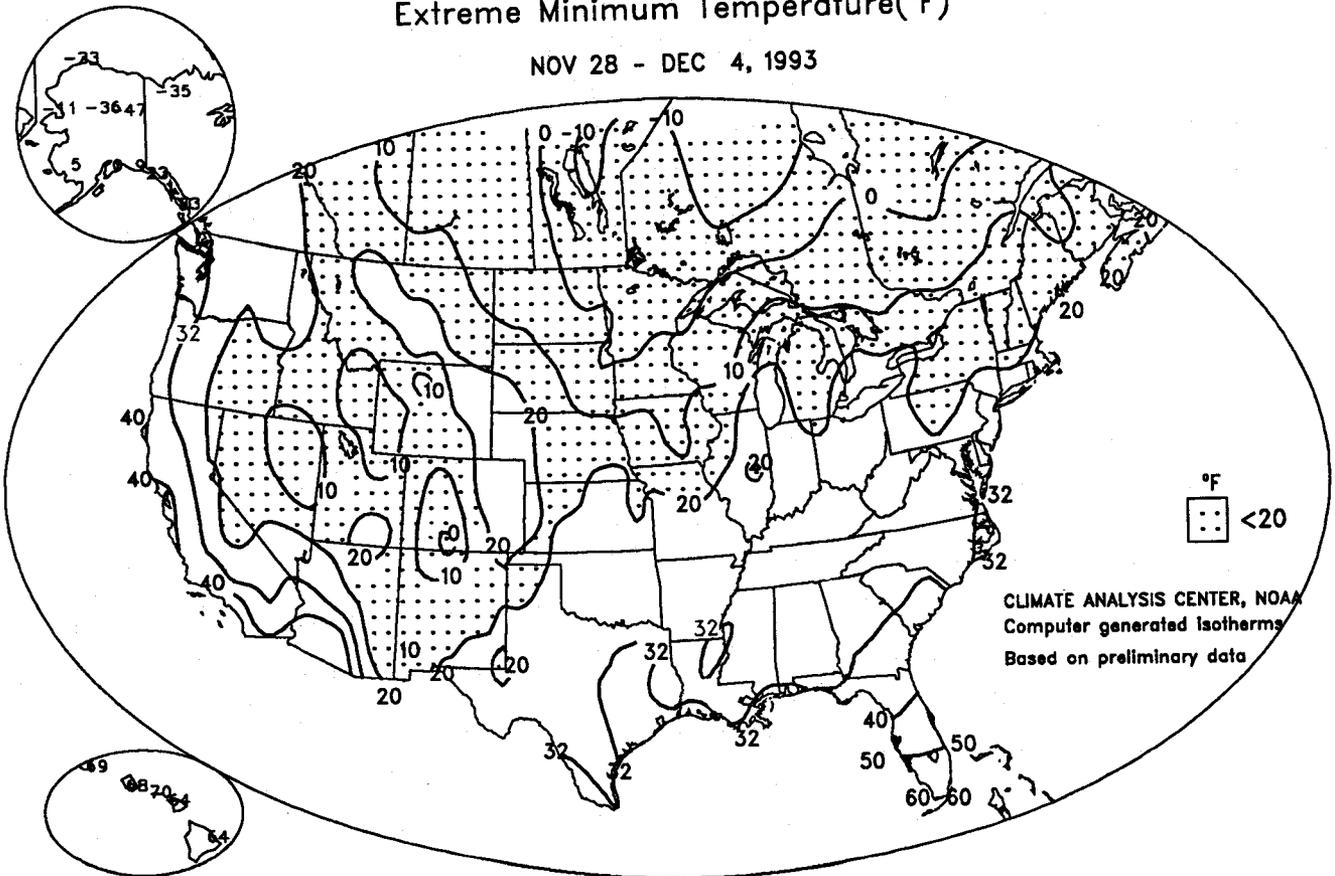


°F
▨ >0

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

Extreme Minimum Temperature(°F)

NOV 28 - DEC 4, 1993



°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 December 4, 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	64	40	68	26	52	3	.5	-.7	.5	.5	75	35.5	71	77	42	0	0	0	0	0	0		
MOBILE	71	43	75	30	57	1	.3	-.8	.3	.45	57.0	96	87	50	0	0	2	1	1	1	0		
MONTGOMERY	68	39	73	25	53	2	.6	-.5	.6	.89	48.2	95	84	44	0	0	2	7	4	4	0		
AK ANCHORAGE	22	10	29	0	16	-1	.1	-.1	.1	.71	16.7	112	90	75	0	0	7	7	1	1	0		
BARROW	-4	-16	4	-33	-10	-2	.4	-.2	.4	150	5.2	124	79	74	0	0	7	7	1	1	0		
FAIRBANKS	0	-18	16	-28	-9	-5	.4	-.2	.4	0	10.9	107	79	74	0	0	7	3	3	4	0		
JUNEAU	39	33	43	31	36	2	1.4	.5	1.0	1.3	232	56.5	112	96	81	0	0	0	0	1	1	0	
KODIAK	40	29	43	20	34	2	1.0	.5	.6	.1	12	67.0	109	82	62	0	0	6	6	4	3	0	
NOME	19	3	27	-12	11	1	.3	.1	.1	.1	100	17.7	125	89	76	0	0	7	7	5	5	0	
AZ PHOENIX	72	47	76	44	60	3	.0	-.2	.0	.0	0	13.3	195	57	19	0	0	7	7	0	0	0	
PRESCOTT	60	28	65	24	44	5	.0	-.4	.0	.0	0	16.9	93	64	20	0	0	7	7	0	0	0	
TUCSON	72	39	77	31	56	1	.0	-.2	.0	.0	0	14.8	134	62	16	0	0	1	1	0	0	0	
YUMA	75	53	80	48	64	5	.0	-.1	.0	.0	0	4.6	167	33	15	0	0	0	0	4	2	2	
AR FORT SMITH	59	39	65	27	49	5	2.0	1.2	1.3	2.0	435	46.7	122	90	63	0	0	1	1	4	4	0	
LITTLE ROCK	57	41	61	30	49	3	3.3	2.2	2.5	3.3	503	46.7	103	84	58	0	0	1	1	3	2	0	
CA BAKERSFIELD	65	44	82	37	55	4	.6	.4	.3	.0	0	7.6	146	74	44	0	0	0	0	2	2	0	
EUREKA	58	47	65	40	52	3	1.3	-.2	.6	.73	32.9	102	89	60	0	0	0	0	5	5	1	0	
FRESNO	61	42	68	37	51	3	.3	.0	.2	.0	0	12.7	137	92	61	0	0	0	0	2	2	0	
LOS ANGELES	76	53	84	48	64	6	.7	.3	.7	.0	0	19.5	184	62	25	0	0	0	0	1	1	0	
REDDING	57	38	68	33	47	0	1.4	.1	1.1	.3	40.7	143	97	51	0	0	0	0	3	3	1	1	
SACRAMENTO	59	41	65	35	50	2	1.3	.7	1.0	.0	0	21.7	142	100	68	0	0	0	0	2	2	1	0
SAN DIEGO	72	51	77	47	62	3	.1	-.3	.1	.0	0	16.5	193	81	39	0	0	0	0	1	1	0	0
SAN FRANCISCO	62	47	68	42	54	3	1.2	.5	.8	.1	14	21.3	126	91	59	0	0	0	0	3	1	1	0
CO DENVER	54	28	61	22	41	7	.0	-.2	.0	.0	0	14.4	97	81	32	0	0	7	7	0	0	0	
GRAND JUNCTION	46	23	52	15	34	-1	.4	-.1	.4	.11	11.2	114	85	42	0	0	7	7	2	2	0	0	
PUEBLO	55	21	64	17	38	3	.4	-.1	.4	.11	14.5	134	87	40	0	0	7	7	0	0	0	0	
CT BRIDGEPORT	50	37	62	28	44	4	1.4	.5	.7	.7	143	33.6	87	82	53	0	0	2	2	2	2	0	
HARTFORD	48	30	62	21	39	4	1.9	1.0	1.5	.5	87	41.4	102	88	52	0	0	4	4	2	2	1	
DC WASHINGTON	54	38	63	30	46	2	3.3	2.6	2.2	1.1	266	38.1	106	85	62	0	0	1	2	2	2	0	
FL APALACHICOLA	70	41	75	38	55	-3	.1	-.8	.1	.1	18	48.7	95	88	62	0	0	0	0	1	1	0	0
DAYTONA BEACH	73	55	80	41	64	2	.1	-.5	.1	.1	27	33.9	74	92	53	0	0	0	0	0	0	0	0
JACKSONVILLE	67	46	78	36	57	-4	.1	-.5	.0	.1	17	46.2	98	94	55	0	0	0	0	2	2	0	0
KEY WEST	78	69	81	64	74	1	.4	-.5	.1	.0	0	33.8	89	82	61	0	0	0	0	1	1	0	0
MIAMI	79	65	84	57	72	1	.1	-.4	.1	.0	0	60.5	111	78	51	0	0	0	0	1	1	0	0
ORLANDO	75	55	79	45	65	0	.4	-.5	.1	.4	43.8	95	90	56	0	0	0	0	1	1	0	0	
TALLAHASSEE	71	43	77	29	57	1	.2	-.9	.2	.2	24	49.7	81	87	43	0	0	2	1	1	1	0	0
TAMPA	76	53	81	43	65	0	.0	-.5	.0	.0	0	36.2	86	91	51	0	0	0	0	1	1	0	0
WEST PALM BEACH	78	62	82	54	70	0	.4	-.5	.1	.4	12	61.2	107	86	60	0	0	0	0	1	1	0	0
GA ATLANTA	62	40	68	32	51	3	.6	-.3	.6	.6	113	46.2	98	77	44	0	0	1	1	1	1	0	0
AUGUSTA	66	38	78	30	52	1	.4	-.1	.6	.6	147	36.2	87	87	42	0	0	2	1	1	1	0	0
MACON	66	37	75	28	52	0	.5	-.4	.5	.5	96	47.1	115	90	42	0	0	2	1	1	0	0	0
SAVANNAH	66	44	76	36	55	0	.4	-.6	.4	.4	9	45.9	99	87	40	0	0	0	0	1	1	0	0
HI HILO	78	67	81	65	73	-1	4.1	.9	1.1	2.4	137	100.8	85	95	75	0	0	0	7	5	0	0	0
HONOLULU	82	71	85	68	77	1	.4	-.8	.4	.0	0	5.5	29	78	59	0	0	0	0	0	0	0	0
KAHULUI	82	68	88	64	75	1	.2	-.5	.2	.2	50	11.6	65	82	62	0	0	0	2	0	0	0	0
LIHU	79	72	81	69	75	1	.8	-.4	.3	.7	106	18.9	49	78	69	0	0	0	4	4	0	0	0
ID BOISE	43	28	48	13	36	2	.9	.6	.6	.7	378	12.4	114	90	61	0	0	5	4	1	1	0	0
LEWISTON	47	36	52	29	42	5	.5	.3	.2	.2	125	12.4	108	75	45	0	0	1	3	0	0	0	0
POCATELLO	37	20	40	5	29	0	.1	-.2	.0	.1	36	17.3	155	84	65	0	0	7	3	0	0	0	0
IL CHICAGO	41	27	48	23	34	2	.2	-.5	.1	.2	58	44.1	131	90	64	0	0	6	3	0	0	0	0
MOLINE	38	22	50	11	30	-2	.1	-.4	.1	.1	45	49.8	134	93	75	0	0	6	2	0	0	0	0
PEORIA	40	28	53	19	34	1	.6	-.1	.3	.4	120	53.4	156	94	73	0	0	5	5	0	0	0	0
QUINCY	41	27	52	19	34	-1	.6	.0	.2	.6	174	36.8	98	90	68	0	0	4	4	0	0	0	0
ROCKFORD	38	25	46	21	31	1	.3	-.2	.3	.3	113	41.6	120	95	69	0	0	6	4	0	0	0	0
SPRINGFIELD	43	31	56	23	37	1	.5	-.2	.3	.5	124	47.0	143	90	69	0	0	4	4	0	0	0	0
IN EVANSVILLE	48	35	60	25	42	0	2.1	1.1	.9	2.0	383	45.2	106	90	72	0	0	4	4	4	2	0	0
FORT WAYNE	41	31	47	23	36	2	.7	.0	.4	.6	164	41.3	128	97	72	0	0	4	4	4	4	0	0
INDIANAPOLIS	43	33	51	23	38	2	1.0	.2	.5	1.0	209	49.6	134	87	73	0	0	4	4	4	1	0	0
SOUTH BEND	41	28	51	23	35	0	.6	-.2	.3	.5	113	45.7	126	91	69	0	0	5	4	0	0	0	0
IA DES MOINES	41	23	52	9	32	2	.4	-.4	.4	.4	55.0	167	92	70	0	0	7	1	0	0	0	0	
SIoux CITY	36	21	42	10	28	1	.4	-.2	.4	.4	31.9	127	92	75	0	0	7	7	0	0	0	0	
WATERLOO	36	20	44	12	28	1	.4	-.4	.4	.4	52.3	160	95	71	0	0	7	7	0	0	0	0	
KS CONCORDIA	52	26	59	21	39	5	.0	-.2	.0	.0	0	43.4	155	86	54	0	0	6	0	0	0	0	0
DODGE CITY	55	26	60	22	40	4	.4	-.1	.4	.4	33	25.5	122	84	43	0	0	7	1	0	0	0	0
GOODLAND	53	24	60	21	38	5	.0	-.1	.0	.0	0	20.2	114	82	41	0	0	7	7	0	0	0	0
TOPEKA	50	26	58	17	38	2	.4	-.3	.4	.4	14	46.5	137	97	66	0	0	6	1	0	0	0	0
WICHITA	57	31	61	24	44	5	.2	-.2	.2	.2	86	31.7	94	86	53	0	0	5	1	2	2	0	0
KY BOWLING GREEN	51	33	61	22	42	0	3.5	2.3	2.0	3.5	527	35.4	76	98	65	0	0	4	3	3	1	0	0
LEXINGTON	48	34	57	23	41	1	1.4	.5	.9	1.4	269	43.7	106	88	69	0	0	4	3	2	2	0	0
LOUISVILLE	48	34	58	23	41	0	1.5	.6	.7	1.5	298	46.3	112	94	75	0	0	4	3	2	2	0	0
LA BATON ROUGE	70	44	75	29	57	2	.4	-.8	.3	.4	51	57.9	103	98	45	0	0	1	2	0	0	0	0
LAKE CHARLES	73	48	79	33	61	4	.2	-.9	.2	.2	33	57.1	113	94	5								

Weather Data for the Week Ending December 4, 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
ME CARIBOU	36	23	53	10	29	7	.5	-.3	.2	.2	44	36.2	107	85	60	0	7	5	4	0	
PORTLAND	45	30	56	19	37	5	1.1	-.0	1.0	.2	29	38.7	96	84	55	0	7	3	3	1	
MD BALTIMORE	52	34	62	26	43	2	2.2	1.4	1.3	1.3	284	39.3	104	83	54	0	3	2	2	0	
SALISBURY	56	33	67	27	44	1	.5	-.3	.4	.1	29	43.5	103	96	60	0	4	2	0	0	
MA BOSTON	48	36	62	26	42	3	1.2	.2	.9	.3	50	36.9	97	81	57	0	3	2	1	1	
CHATHAM	49	38	57	32	43	4	1.3	.2	1.1	.2	34	34.6	84	89	69	0	1	3	1	1	
MI ALPENA	39	24	47	14	32	3	.1	-.5	.1	.1	18	25.6	94	95	64	0	5	1	0	0	
DETROIT	41	30	47	24	36	2	.4	-.3	.2	.3	79	30.2	100	90	72	0	4	3	0	0	
FLINT	39	25	48	17	32	-1	.2	-.4	.1	.2	58	30.8	108	96	69	0	5	2	0	0	
GRAND RAPIDS	40	25	49	20	33	1	.6	-.2	.4	.4	107	45.5	135	94	62	0	7	3	0	0	
HOUGHTON LAKE	38	26	43	15	32	4	.2	-.4	.1	.1	50	26.1	98	91	60	0	5	2	0	0	
LANSING	40	24	51	18	32	1	.2	-.3	.1	.2	63	35.0	118	94	65	0	6	3	0	0	
MARQUETTE	32	21	38	7	27	4	.1	-.6	.0	.1	17	31.7	96	91	67	0	7	2	0	0	
MUSKEGON	41	27	47	20	34	1	.3	-.5	.2	.2	56	35.3	118	90	64	0	6	3	0	0	
SAULT ST. MARIE	33	22	39	10	28	2	.4	-.3	.3	.4	85	31.8	100	94	74	0	6	4	0	0	
MN ALEXANDRIA	28	17	32	-3	23	2	T	-.2	T	T	0	25.9	104	96	85	0	7	0	0	0	
DULUTH	27	15	33	-6	21	1	.1	-.2	.1	.1	50	31.2	108	93	75	0	7	4	0	0	
INT'L FALLS	26	15	32	-9	21	6	.4	-.2	.2	.2	209	21.3	90	94	77	0	7	3	0	0	
MINNEAPOLIS	31	20	35	10	25	1	T	-.3	T	T	12	31.8	116	89	75	0	7	1	0	0	
ROCHESTER	29	18	36	7	24	0	T	-.3	T	T	0	37.8	131	92	71	0	7	0	0	0	
MS GREENWOOD	66	44	72	33	55	5	.9	-.4	.6	.9	124	39.9	81	85	47	0	0	3	1	1	
JACKSON	67	41	69	31	54	3	.3	-1.0	.3	.3	44	45.6	92	95	44	0	4	2	0	0	
MERIDIAN	69	40	73	28	55	3	.3	-1.0	.3	.3	37	51.4	100	87	45	0	2	2	0	0	
MO CAPE GIRARDEAU	49	36	60	25	42	1	1.8	.7	.9	1.8	297	48.0	113	95	67	0	4	3	2	0	
COLUMBIA	46	30	61	20	38	2	.7	.0	.4	.7	172	61.7	170	93	75	0	4	4	0	0	
KANSAS CITY	48	28	57	20	38	2	.1	-.3	.1	.1	27	50.4	139	94	65	0	6	2	0	0	
SAINT LOUIS	45	34	55	22	40	0	.8	.0	.6	.8	186	54.1	155	89	69	0	4	4	1	1	
SPRINGFIELD	54	33	65	19	43	4	1.0	.2	.6	1.0	231	55.2	134	92	69	0	3	4	1	1	
MT BILLINGS	48	32	53	27	40	11	T	-.1	T	T	33	15.6	108	68	45	0	4	2	0	0	
GLASGOW	34	16	38	12	25	4	T	-.1	T	T	0	16.1	152	91	68	0	7	0	0	0	
GREAT FALLS	47	31	51	27	39	11	.1	-.1	.1	.1	56	22.9	158	77	51	0	5	1	0	0	
HAVRE	42	23	48	13	32	10	T	-.1	T	T	0	12.8	120	91	63	0	7	0	0	0	
HELENA	43	24	46	14	34	8	T	-.1	T	T	33	18.7	169	87	51	0	7	1	0	0	
KALISPELL	38	28	44	18	33	7	.3	.0	.2	.3	119	22.1	148	92	68	0	6	5	0	0	
MILES CITY	43	25	48	14	34	10	T	-.1	T	T	38	18.7	138	93	63	0	7	1	0	0	
MISSOULA	38	26	42	17	32	5	.1	-.2	.0	.1	46	13.7	110	89	57	0	7	2	0	0	
NE GRAND ISLAND	48	24	52	19	36	6	.0	-.2	.0	.0	0	32.7	134	88	58	0	7	0	0	0	
LINCOLN	47	24	53	20	35	4	.0	-.2	.0	.0	0	25.4	92	94	56	0	7	0	0	0	
NORFOLK	42	22	48	16	32	4	.0	-.2	.0	.0	0	33.9	138	88	69	0	7	0	0	0	
NORTH PLATTE	51	19	56	17	35	6	.0	-.1	.0	.0	0	26.0	138	92	50	0	7	0	0	0	
OMAHA	40	26	47	19	33	3	T	-.3	T	T	0	41.4	145	88	73	0	7	0	0	0	
SCOTTSBLUFF	46	26	50	23	36	6	T	-.1	T	T	0	24.2	164	87	44	0	7	0	0	0	
VALENTINE	46	22	53	15	34	4	.0	-.2	.0	.0	0	20.3	92	83	48	0	7	0	0	0	
NV ELY	45	14	56	5	30	1	T	-.0	.1	.1	0	9.9	103	85	31	0	7	1	0	0	
LAS VEGAS	63	39	69	34	51	2	T	-.1	T	.0	0	4.8	128	55	20	0	0	0	0	0	
RENO	51	29	56	23	40	5	.1	-.1	.1	.1	0	6.4	97	83	37	0	6	2	0	0	
WINNEMUCCA	47	24	49	15	35	3	.1	-.2	.1	.1	0	7.0	93	85	43	0	7	1	0	0	
NE CONCORD	44	23	61	12	34	4	1.7	.9	1.5	.2	45	28.5	84	94	52	0	6	2	1	1	
NJ ATLANTIC CITY	53	32	62	24	43	2	.9	.1	.5	.4	93	35.0	93	88	60	0	3	2	1	0	
NM ALBUQUERQUE	54	26	59	20	40	1	.0	-.1	.0	.0	0	8.8	105	77	22	0	7	0	0	0	
CLOVIS	61	29	68	23	45	3	.0	-.1	.0	.0	0	14.0	82	59	18	0	5	0	0	0	
ROSBELL	65	26	73	20	45	1	.0	-.1	.0	.0	0	9.9	81	63	24	0	7	0	0	0	
NY ALBANY	46	27	63	19	36	4	2.5	1.7	1.7	.8	190	38.9	116	91	55	0	6	4	2	2	
BINGHAMTON	41	27	56	16	34	2	2.2	1.4	1.2	1.0	239	40.2	117	90	60	0	7	4	2	1	
BUFFALO	42	30	49	22	36	2	1.6	.7	.7	.9	186	38.1	107	89	59	0	5	4	1	1	
NEW YORK	52	40	63	32	46	4	1.4	.6	.8	.6	134	39.4	101	76	52	0	1	2	2	2	
ROCHESTER	41	30	47	20	36	1	1.0	.4	.6	.6	147	28.1	95	92	60	0	4	2	1	1	
SYRACUSE	43	29	56	16	36	2	1.5	.7	.8	1.0	220	46.9	130	91	61	0	5	4	1	1	
NC ASHEVILLE	55	30	63	24	42	-1	1.7	.7	1.7	1.7	295	36.1	69	93	44	0	6	1	1	1	
CHARLOTTE	59	36	68	29	48	1	.7	-.1	.7	.7	153	33.2	83	80	42	0	2	1	1	1	
GREENSBORO	56	34	65	25	45	0	.6	-.1	.6	.6	150	39.7	100	86	49	0	3	1	1	1	
HATTERAS	63	49	71	41	56	3	.8	-.3	.8	.8	0	55.1	106	87	63	0	0	1	1	1	
NEW BERN	64	38	73	30	51	0	.1	-.7	.1	.1	9	43.0	84	95	45	0	1	2	0	0	
RALEIGH	58	35	67	28	46	0	.3	-.4	.3	.3	73	34.6	90	88	50	0	3	2	0	0	
WILMINGTON	66	39	74	32	52	2	T	-.8	T	T	0	59.1	111	97	42	0	1	0	0	0	
ND BISMARCK	32	16	39	4	24	4	T	-.1	T	T	50	26.2	174	98	70	0	7	1	0	0	
FARGO	31	17	35	6	24	6	T	-.1	T	T	0	20.9	111	89	70	0	7	1	0	0	
GRAND FORKS	28	11	33	-2	20	3	T	-.1	T	T	0	20.9	118	94	81	0	7	0	0	0	
WILLISTON	34	13	40	6	24	5	T	-.1	T	T	0	18.6	141	92	68	0	7	0	0	0	
OH AKRON-CANTON	43	31	52	25	37	1	1.4	.7	1.2	1.3	327	39.8	116	94	63	0	4	3	1	1	
CINCINNATI	45	33	56	22	39	1	1.3	.5	.8	1.3	300	37.5	97	90	72	0	4	4	1	1	
CLEVELAND	43	31	50	22	37	1	1.2	.4	.9	1.1	260	39.5	117	89	66	0	5	3	1	1	
COLUMBUS	45	34	55	26	39	4	1.4	.6	1.0	1.3	307	37.0	105	90	70	0	4	4	1	1	
DAYTON	44	32	55	23	38	1	1.9	1.2	1.4	1.9	463	51.4	151	88	71	0	4	4	1	1	

Based on 1961-90 normals.

Weather Data for the Week Ending December 4, 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	TEMP. °F		PRECIP.	
																		90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
TOLEDO	41	29	48	19	35	2	.6	-.1	.5	.6	134	29.2	96	94	72	0	4	5	0		
YOUNGSTOWN	43	31	51	25	37	2	1.0	-.2	.8	.9	217	35.1	101	88	62	0	5	4	0		
OK OKLAHOMA CITY	61	38	67	27	49	6	.5	-.1	.3	.5	225	32.1	100	85	51	0	1	4	0		
TULSA	59	35	66	24	47	4	.9	-.3	.5	.9	279	38.3	99	92	51	0	3	4	0		
OR ASTORIA	52	42	55	36	47	3	5.9	3.4	2.1	2.7	196	46.0	80	99	78	0	0	7	4		
BURNS	40	23	44	9	32	3	.4	-.1	.2	.2	106	8.8	97	88	55	0	7	3	0		
MEDFORD	50	37	64	32	43	4	.8	-.0	.5	.3	75	14.5	91	95	67	0	1	4	0		
PENDLETON	48	33	58	19	41	4	1.2	-.8	.7	.3	155	13.3	124	86	64	0	2	4	1		
FORTLAND	52	40	61	35	46	4	1.8	-.4	.9	1.2	149	26.6	86	91	76	0	0	7	1		
SALEM	53	40	61	32	47	5	2.1	-.5	1.2	1.6	184	29.4	88	87	66	0	1	7	1		
PA ALLENTOWN	50	31	66	21	41	4	2.7	1.8	1.4	1.4	292	49.4	122	88	58	0	4	2	2		
ERIE	42	31	51	23	37	0	1.3	-.4	.8	1.1	202	36.3	94	90	58	0	4	4	1		
HARRISBURG	49	34	57	21	42	0	2.5	1.7	1.8	.7	150	45.1	120	88	54	0	2	2	2		
PHILADELPHIA	54	37	67	30	46	0	2.6	1.7	1.7	.9	188	39.4	92	82	56	0	2	2	2		
FITTSBURGH	46	33	54	26	39	0	1.1	-.4	.8	.9	245	37.1	108	88	57	0	5	5	1		
SCRANTON	46	30	62	21	38	0	2.4	1.7	2.0	.4	108	36.9	108	87	56	0	4	2	1		
RI PROVIDENCE	50	33	62	25	42	0	1.7	-.7	1.5	.2	41	36.7	88	85	53	0	3	2	1		
SC CHARLESTON	65	42	76	37	54	-1	.5	-.6	.5	.5	11	50.4	103	89	47	0	0	1	0		
COLUMBIA	64	36	76	29	50	0	.5	-.3	.5	.5	112	37.1	79	87	42	0	2	1	0		
FLORENCE	65	38	76	32	51	0	.1	-.1	.1	.1	14	31.1	76	91	38	0	1	1	0		
GREENVILLE	57	34	64	25	45	0	1.1	-.2	1.1	1.1	202	37.4	78	86	43	0	4	1	1		
SD ABERDEEN	33	20	39	7	24	-2	.5	-.1	.0	.0	0	27.6	133	93	78	0	7	0	0		
HURON	34	17	39	2	25	0	.0	-.1	.0	.0	0	29.3	149	94	73	0	7	0	0		
RAPID CITY	49	27	54	22	38	0	.1	-.0	.1	.1	167	19.4	120	87	48	0	7	1	0		
SIOUX FALLS	31	18	38	7	25	0	.0	-.2	.0	.0	0	35.8	154	94	70	0	7	0	0		
TN CHATTANOOGA	59	35	64	26	47	2	2.1	-.9	2.0	2.1	312	36.9	75	94	52	0	4	2	1		
KNOXVILLE	54	35	56	27	45	1	5.2	4.2	5.0	5.2	909	43.2	100	93	60	0	4	2	1		
MEMPHIS	59	42	68	31	50	3	3.6	2.2	2.1	3.6	466	41.9	89	84	59	0	1	3	2		
NASHVILLE	54	36	63	25	45	0	3.3	2.2	2.4	3.3	533	40.8	94	87	57	0	4	3	2		
TX ABILENE	65	42	68	31	54	4	.5	-.2	.4	.5	336	18.4	78	77	41	0	1	6	0		
AMARILLO	61	25	69	19	43	2	.0	-.1	.0	.0	0	17.4	91	81	28	0	6	0	0		
AUSTIN	75	49	77	35	62	6	.1	-.4	.1	.1	22	25.5	84	78	44	0	0	1	0		
BEAUMONT	75	49	80	30	62	5	.5	-.7	.5	.5	74	65.6	124	96	47	0	1	1	0		
BROWNSVILLE	79	54	85	31	67	2	.0	-.3	.0	.0	0	25.0	98	94	46	0	1	0	0		
CORPUS CHRISTI	77	50	82	28	64	2	.0	-.3	.0	.0	0	32.9	113	92	45	0	1	0	0		
DEL RIO	72	50	76	28	61	5	.0	-.2	.0	.0	0	14.2	60	85	50	0	1	0	0		
EL PASO	65	32	72	21	49	1	.0	-.1	.0	.0	0	8.9	106	67	18	0	4	0	0		
FORT WORTH	68	45	72	31	57	7	1.6	1.2	1.1	1.6	586	31.9	90	83	56	0	1	2	2		
GALVESTON	70	58	76	40	64	5	.3	-.5	.3	.3	61	45.0	115	86	69	0	0	2	0		
HOUSTON	73	48	80	33	61	4	1.2	.0	1.2	1.2	184	56.6	113	94	55	0	0	2	1		
LUBBOCK	63	29	69	21	46	2	.1	-.1	.1	.1	100	12.5	69	80	25	0	6	1	0		
MIDLAND	65	36	71	24	50	2	.0	-.1	.0	.0	0	16.1	109	74	30	0	3	0	0		
SAN ANGELO	69	40	74	25	55	5	.2	.0	.1	.2	145	15.1	76	75	38	0	2	2	0		
SAN ANTONIO	74	46	79	25	60	4	.1	-.4	.1	.1	35	31.7	107	80	46	0	2	1	0		
VICTORIA	76	49	80	36	63	4	.4	-.3	.4	.4	105	47.8	112	89	49	0	0	1	0		
WACO	70	45	73	31	57	5	.2	-.3	.2	.2	70	30.5	101	88	56	0	1	2	0		
WICHITA FALLS	66	39	72	29	52	5	1.6	1.3	1.4	1.6	805	28.3	93	83	56	0	3	2	1		
UT CEDAR CITY	50	22	55	16	36	2	.1	-.1	.1	.0	0	9.8	91	80	27	0	6	1	0		
SALT LAKE CITY	42	24	45	15	33	-1	.1	-.3	.0	.0	11	18.0	120	88	56	0	7	2	0		
VT BURLINGTON	43	30	63	16	37	7	1.5	-.8	1.0	.5	128	33.2	103	88	51	0	2	4	1		
VA NORFOLK	58	41	70	33	49	2	.3	-.4	.2	.1	16	32.8	78	87	53	0	0	2	0		
RICHMOND	58	36	69	29	47	3	1.1	-.4	.9	.2	46	38.6	96	92	51	0	3	2	1		
ROANOKE	52	32	63	23	42	0	2.7	2.0	2.7	2.7	690	37.1	96	84	49	0	4	1	1		
WA QUILLAYUTE	50	40	52	34	45	4	4.4	.8	1.1	2.5	122	59.5	65	97	89	0	0	6	5		
SEATTLE-TACOMA	50	42	55	37	46	4	2.2	.8	1.1	1.2	151	25.1	78	91	73	0	0	7	1		
SPOKANE	41	30	47	24	35	5	.9	-.3	.5	.5	168	12.4	86	94	80	0	5	6	0		
YAKIMA	43	27	54	22	35	2	.3	.0	.1	.1	76	5.5	81	94	69	0	6	3	0		
WV BECKLEY	49	32	56	22	41	2	1.7	.9	1.6	1.7	402	37.3	98	90	55	0	5	2	1		
CHARLESTON	53	37	66	27	45	4	1.5	.7	1.5	1.5	324	39.9	101	89	57	0	4	3	1		
HUNTINGTON	51	36	63	27	44	4	1.1	.3	1.1	1.1	233	40.0	99	84	58	0	4	3	1		
PARKERSBURG	48	36	60	30	42	3	.9	.2	.7	.9	244	36.3	95	87	61	0	4	3	1		
WI GREEN BAY	36	24	43	17	30	4	-.1	-.4	.1	.1	4	33.4	121	90	65	0	6	2	0		
LACROSSE	32	22	39	13	27	0	.0	-.3	.0	.0	0	40.9	139	89	71	0	7	0	0		
MADISON	36	22	45	18	29	1	.1	-.4	.1	.1	25	43.1	140	91	66	0	6	2	0		
MILWAUKEE	40	28	48	24	34	4	1.0	.4	.5	.4	130	36.6	118	94	73	0	6	4	1		
WAUSAU	30	20	36	1	25	1	.2	-.2	.1	.2	73	35.9	114	91	69	0	7	3	0		
WY CASPER	44	29	49	21	37	9	.1	-.1	.1	.1	56	15.3	128	75	40	0	5	1	0		
CHEYENNE	45	26	52	22	36	5	.0	-.1	.0	.0	0	18.6	133	77	42	0	7	0	0		
LANDER	40	19	43	11	29	5	.0	-.2	.0	.0	0	16.2	129	81	42	0	7	0	0		
SHERIDAN	47	25	53	23	36	10	.0	-.2	.0	.0	11	16.8	121	87	53	0	7	1	0		

Based on 1961-90 normals.

HEATING DEGREE DAYS (Base 65° F) November 28 - December 4, 1993

(Cumulative totals and departures from normal are for the period July 1 - December 4, 1993)

STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE			STATES AND STATIONS	WEEKLY		CUMULATIVE		
	TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP from '92		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP from '92		TOTAL	DEPARTURE	TOTAL	DEPARTURE	DEP from '92
AL BIRMINGHAM	92	-22	607	21	02	LA BATON ROUGE	56	-14	412	125	63	TULSA	121	-29	999	294	176
HUNTSVILLE	111	-17	713	41	15	LAKE CHARLES	41	-26	332	64	13	OR ASTORIA	124	-21	1611	101	74
MOBILE	55	-15	358	68	07	NEW ORLEANS	51	-9	312	68	30	EUGENE	147	-8	1328	150	229
MONTGOMERY	81	-10	485	65	26	SHREVEPORT	54	-39	556	174	75	MEDFORD	149	-27	1169	8	235
AK ANCHORAGE	337	6	2934	-485	-500	ME BANGOR	208	-42	1872	62	-81	NORTH BEND	109	-12	1426	72	214
BARROW	517	6	5738	-826	-934	PORTLAND	191	-38	1694	20	-66	PENDLETON	171	-26	1458	65	60
BETHEL	342	-32	3454	-590	-714	MD BALTIMORE	152	-13	990	42	-38	PORTLAND	130	-28	1085	-65	50
COLD BAY	218	-10	2841	-384	-495	MA BOSTON	161	-21	1172	76	-128	REDMOND	201	-15	2145	259	305
FAIRBANKS	511	31	3934	-423	-599	MI ALPENA	231	-19	2103	157	-150	SALEM	129	-33	1208	-90	122
JUNEAU	200	-52	2347	-551	-369	MI DETROIT	205	-14	1389	-36	-138	PA ALLENTOWN	167	-29	1297	63	-85
KING SALMON	276	-52	2986	-692	-714	FLINT	228	2	1804	263	80	BRADFORD	229	-16	1950	-52	-68
KOTZEBUE	431	-12	4360	-366	-668	GRAND RAPIDS	225	-6	1742	156	14	ERIE	195	-2	1385	145	26
MCCRATH	480	8	3874	-633	-658	LANSING	229	-4	1788	183	-57	PHILADELPHIA	133	-36	818	-194	-144
NOME	374	-9	3997	-401	-839	MUSKEGON	215	-6	1700	179	-1	PITTSBURGH	178	-22	1274	-38	-110
ST PAUL ISLAND	256	16	3166	-509	-609	TRVERSE CITY	219	-22	1795	65	-166	SCRANTON	183	-25	1460	87	20
YAKUTAT	219	-37	2645	-484	-482	WI DULUTH	308	-10	2736	291	51	WILLIAMSPORT	186	-17	1442	105	68
AZ FLAGSTAFF	206	-22	1821	-40	46	INT'L FALLS	310	-41	2877	250	76	RI PROVIDENCE	161	-28	1247	50	-30
PHOENIX	34	-24	148	-38	-8	MINNEAPOLIS	276	-6	2053	233	87	SC CHARLESTON	78	-3	300	-55	-45
TUCSON	65	-8	240	-19	-61	ROCHESTER	288	0	2161	259	-10	COLUMBIA	102	-1	516	-11	-34
AR FORT SMITH	110	-32	821	157	122	MS JACKSON	77	-23	600	135	119	GREENVILLE	134	8	725	67	-73
LITTLE ROCK	109	-22	759	149	130	MERIDIAN	72	-22	504	19	33	SD ABERDEEN	269	-35	2149	143	-22
CA FRESNO	95	-22	397	-106	09	MO COLUMBIA	186	-8	1322	244	108	HURON	274	-11	2095	234	67
LOS ANGELES	10	-37	67	-147	-26	KANSAS CITY	188	-17	1343	225	91	PIERRE	261	-10	1986	264	136
SACRAMENTO	102	-16	485	-29	64	SAINT LOUIS	175	-5	1053	125	73	RAPID CITY	190	-68	1912	91	04
SAN DIEGO	23	-20	114	-54	05	SPRINGFIELD	149	-26	1168	204	152	SIOUX FALLS	279	-5	2031	200	83
SAN FRANCISCO	73	-21	474	-261	49	MT BILLINGS	171	-79	2020	184	224	TN BRISTOL	154	-5	973	16	-61
CO COLORADO SPRINGS	189	-37	1830	227	158	GLASGOW	278	-31	2435	239	276	CHATTANOOGA	123	-15	674	-41	-105
DENVER	168	-50	1649	170	123	GREAT FALLS	179	-82	2511	457	376	KNOXVILLE	140	-7	843	12	-4
GRAND JUNCTION	183	-7	1461	208	213	HAVRE	228	-73	2474	259	219	MEMPHIS	101	-21	662	70	44
CT HARTFORD	149	-21	956	-27	-101	HELENA	219	-60	2501	300	346	NASHVILLE	137	-5	837	88	70
DE WILMINGTON	134	-12	817	66	-103	KALISPELL	223	-49	2654	169	291	TX ABILENE	78	-32	679	216	177
DC WASHINGTON	27	-5	78	-24	-34	MISSOULA	230	-38	2385	158	174	AMARILLO	155	-18	1179	256	97
FL DAYTONA BEACH	5	-9	19	-14	-13	NE GRAND ISLAND	201	-42	1659	181	14	AUSTIN	34	-38	374	139	66
FORT MYERS	57	2	188	-25	-40	OMAHA	207	-48	1837	158	51	BROWNSVILLE	20	-6	148	82	58
JACKSONVILLE	0	0	0	0	00	SCOTTSDUFF	220	-23	1624	229	97	CORPUS CHRISTI	30	-10	202	83	46
KEY WEST	0	-7	4	-6	02	NV ELKO	203	-42	1988	324	149	DALLAS FT WORTH	57	-43	581	196	137
MIAMI	19	-5	57	-12	-21	ELY	253	5	2392	541	246	EL PASO	114	-10	578	39	-19
ORLANDO	49	-17	260	-1	-10	LAS VEGAS	245	-8	2343	328	407	HOUSTON	43	-22	357	107	51
PENSACOLA	54	-17	263	-30	-33	RENO	97	-14	472	40	19	LUBBOCK	132	-14	893	181	148
TALLAHASSEE	19	-9	54	-32	-35	WINNEMUCCA	173	-34	1244	-268	39	LUFKIN	58	-26	499	168	50
TAMPA	1	-7	11	-9	-5	NH CONCORD	205	-20	1796	108	179	MIDLAND ODESSA	102	-20	708	144	120
WEST PALM BEACH	112	-2	603	42	-26	NJ ATLANTIC CITY	220	-23	1851	91	-51	SAN ANGELO	72	-34	594	155	126
GA ATHENS	97	-20	530	-54	-70	NEWARK	130	-36	914	7	-30	SAN ANTONIO	47	-23	380	127	82
ATLANTA	93	-7	445	-57	-42	NM ALBUQUERQUE	174	-10	1036	31	47	VICTORIA	30	-26	293	99	68
AUGUSTA	94	2	499	47	16	NY ALBANY	199	-27	1619	116	-59	WACO	56	-36	590	253	197
MACON	69	-9	274	-48	-40	BINGHAMTON	217	-15	1834	165	-116	WICHITA FALLS	88	-40	800	232	213
SAVANNAH	206	-11	1643	164	81	BUFFALO	201	-14	1576	132	-37	UT CEDAR CITY	203	-14	1505	70	116
ID BOISE	254	3	2197	386	260	MASSENA	219	-47	1838	-56	-185	SALT LAKE CITY	222	6	1507	174	79
POCATELLO	215	-11	1559	183	-9	NEW YORK	133	-31	875	-30	-112	VT BURLINGTON	196	-53	1776	17	-76
IL CHICAGO	243	10	1528	174	-22	ROCHESTER	202	-13	1630	159	-88	VA LYNCHBURG	144	-12	903	-9	-43
MOLINE	213	-9	1403	149	18	SYRACUSE	204	-13	1628	146	-37	NORFOLK	108	-12	565	-60	-52
PEORIA	233	-10	1666	173	-43	NC ASHEVILLE	157	4	1003	25	-22	RICHMOND	123	-20	743	-59	-105
ROCKFORD	196	-9	1318	169	137	CAPE HATTERAS	62	-28	210	-199	-129	ROANOK	158	0	976	36	-56
SPRINGFIELD	161	-13	1015	50	77	CHARLOTTE	120	-7	603	-30	-42	WA OLYMPIA	141	-36	1549	-122	119
IN EVANSVILLE	200	-15	1391	75	-48	GREENSBORO	142	0	816	26	-73	QUILLAYUTE	136	-28	1758	-45	73
FORT WAYNE	184	-17	1317	143	79	RALEIGH DURHAM	129	0	698	10	-54	SEATTLE TACOMA	130	-29	1311	-29	119
INDIANAPOLIS	212	-3	1535	177	56	WILMINGTON	87	-2	352	-62	-98	SPOKANE	206	-36	2041	146	165
SOUTH BEND	230	-10	1611	237	40	ND BISMARCK	288	-28	2405	185	76	YAKIMA	208	-15	1788	173	214
IA DES MOINES	279	-1	2007	231	-6	FARGO	285	-40	2314	114	-10	WV BECKLEY	169	-18	1197	-106	-73
MASON CITY	256	-4	1836	294	112	MINOT	262	-58	2514	212	105	CHARLESTON	137	-27	978	-7	-77
WATERLOO	257	-8	1723	55	-85	WILLSTON	289	-35	2627	283	191	HUNTINGTON	149	-17	986	-19	-41
KS CONCORDIA	180	-34	1396	223	-21	OH AKRON CANTON	198	-5	1444	121	-100	WI EAU CLAIRE	288	-1	2157	233	127
DODGE CITY	169	-29	1388	327	26	CLEVELAND	195	-5	1355	69	-74	GREEN BAY	243	-26	1947	96	-72
GOODLAND	186	-40	1725	286	73	COLUMBUS	177	-19	1182	-49	-72	MADISON	251	-10	1804	47	-35
RUSSELL	168	-41	1360	221	33	CINCINNATI	179	-7	1199	91	-18	MILWAUKEE	215	-28	1458	-123	-191
TOPEKA	187	-16	1330	213	93	DAYTON	190	-7	1302	90	-12	WY CASPER	197	-67	1986	3	131
WICHITA	146	-44	1178	208	122	TOLEDO	210	-12	1482	41	-18	CHEYENNE	203	-39	2245	327	274
KY LEXINGTON	164	-7	1068	64	11	YOUNGSTOWN	194	-17	1512	75	-103	LANDER	248	-36	2257	221	283
LOUISVILLE	164	1	989	67	102	OK OKLAHOMA CITY	108	-41	973	272	189	ROCK SPRINGS	257	-27	2562	327	311
											SHERIDAN	202	-69	2292	233	274	

Based on 1961-90 normals.

November Weather and Crop Summary

Weather

Cold outbreaks headlined early- and late-month weather news, but in between, an assortment of storms soaked areas from the Ozark Plateau to the Northeast. The storm associated with the late-month, Thanksgiving-week arctic outbreak was responsible for record-setting snowfalls in the Dakotas, while a compact but intense storm generated heavy precipitation at mid-month in the Southwest. However, storms largely bypassed the Northwestern and South-Central United States, resulting in much-below-normal precipitation.

Early-November temperatures dipped to the freezing mark as far south as the lower Rio Grande Valley, the Mississippi Delta, and northern Florida. Temperatures quickly returned to seasonable levels, however, as subtropical moisture crept northward in advance of a series of eastern Pacific storm systems. By mid-month, a wet pattern became established in an arc from the central Gulf coast into the Ohio Valley, as moisture funneled northward into a succession of fast-moving storms.

During the last 10 days of the month, an arctic airmass and an accompanying storm system slowly and systematically unleashed their collective fury on much of the Nation. The weather complex first punched into the Northwest with snow, followed by severe cold, as temperatures as low as -5°F in winter wheat areas of the Northwest. Snow also blanketed winter wheat areas of the northern Plains before temperatures plummeted to as low as -20°F. The arctic blast was tempered by the time it reached the Hard Red Winter Wheat Belt, where, in the absence of snow cover, extreme minimum temperatures dipped only as low as the single digits.

Snowfall in the Dakotas reached record proportions during Thanksgiving week. Bismarck, ND set a single-storm snowfall record (28.3 inches), while Aberdeen, SD broke a monthly snowfall record (30.1 inches), largely on the strength of the late-month storm. By the time the storm reached the Eastern Seaboard, its precipitation was in the form of rain, but as much as 8 inches inundated portions of the Middle Atlantic piedmont during the last weekend of the month. Arctic high pressure in the storm's wake was strong enough to set November barometric records in several locations, including Wilmington, DE (30.76 inches of mercury, adjusted to sea level) and Bridgeport, CT (30.77 inches).

Fieldwork

Rainfall for November was greater than normal over many parts of the Nation and temperatures were mostly below normal, but harvests of the major crops progressed toward completion.

Although the corn harvest was behind average in early November, relatively dry conditions the first half of the month allowed progress to exceed the average by mid-month. Wetter conditions the second half of November caused some delays especially in the eastern Corn Belt, but by the end of the month, the corn harvest was virtually completed.

The progress of the soybean harvest at the beginning of November equaled last year and average. The mostly favorable conditions early in the month allowed the harvest to progress at the same pace as average. By the middle of the month, the harvest was virtually completed in all areas with the exception of scattered fields in the Ohio Valley and in the Southeast. Wet conditions hindered harvest progress in the Ohio Valley, and caused delays in the Southeast the last part of the month. By the end of November, a few fields remained for harvest in the Ohio Valley and progress in the Southeast was behind last year and average.

Progress of the sorghum harvest was behind normal at the beginning of November. Cool, dry conditions over the Great Plains allowed the harvest to advance rapidly. By mid-month, the harvest was completed except in Colorado, Oklahoma, and New Mexico, where wet conditions or a late-developing crop slowed progress. By the end of the month, harvest progress in these three States pushed toward completion.

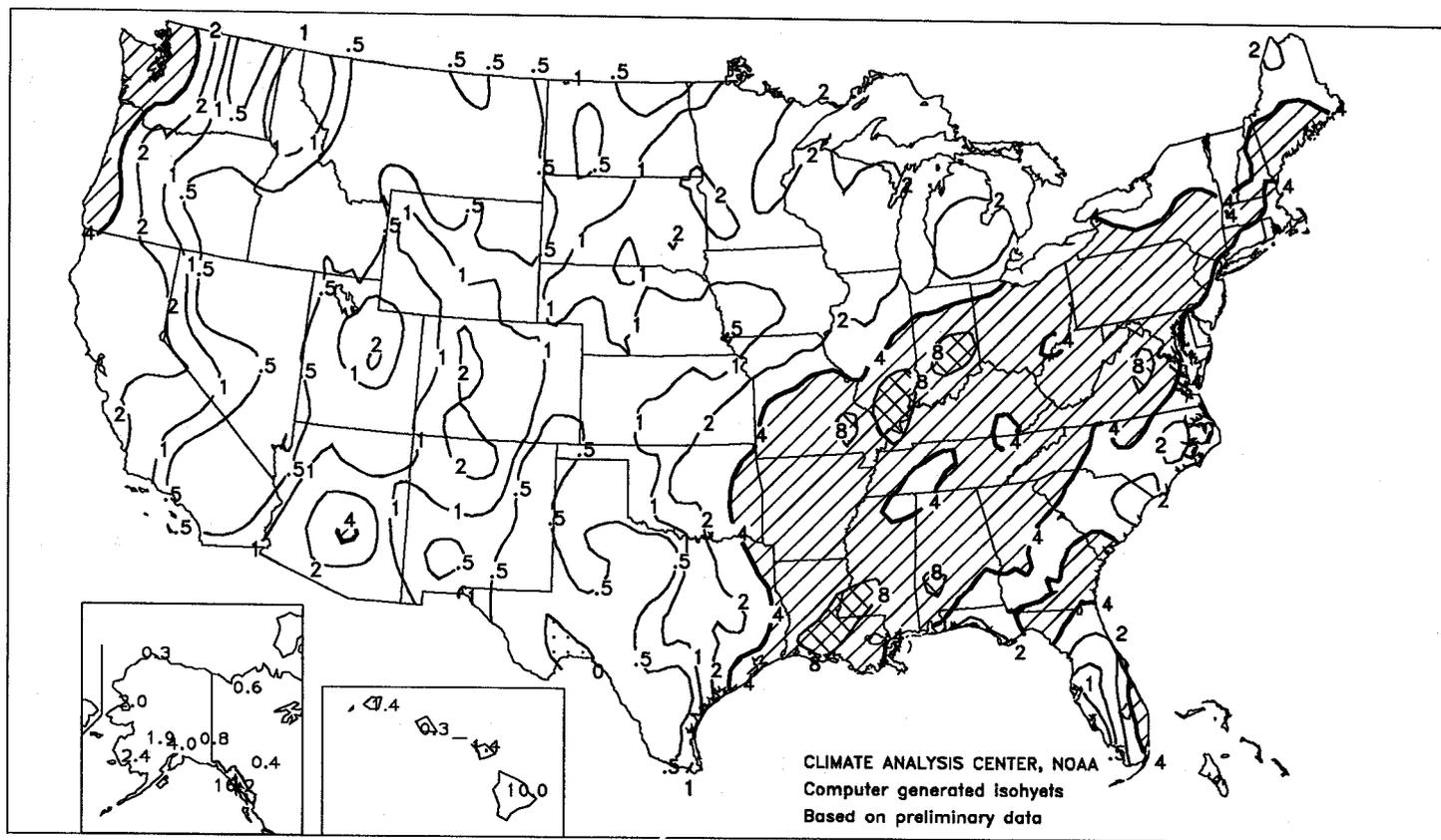
The cotton harvest was ahead of last year and average in early November. A freeze at the beginning of the month in northern Texas enhanced harvest prospects. Rain over the cotton-producing areas throughout the month caused harvest delays. However, progress remained ahead of average, and by the end of the month, the harvest was virtually completed in all areas except for a portion of northern Texas.

Winter wheat seedings were completed on time by the first half of November. Winter wheat emergence was also near average for the month, with emergence slightly behind average in the Northwest. Snow across the Northwest and the upper Great Plains the end of November gave the emerged wheat an adequate cover. Nationally, winter wheat condition rated 69-percent good to excellent at the end of the month.

Citrus harvests were active in Arizona, California, Florida. Rains during the middle of November slowed the Arizona and California harvests. Dry conditions across Florida prompted some growers to irrigate their citrus groves.

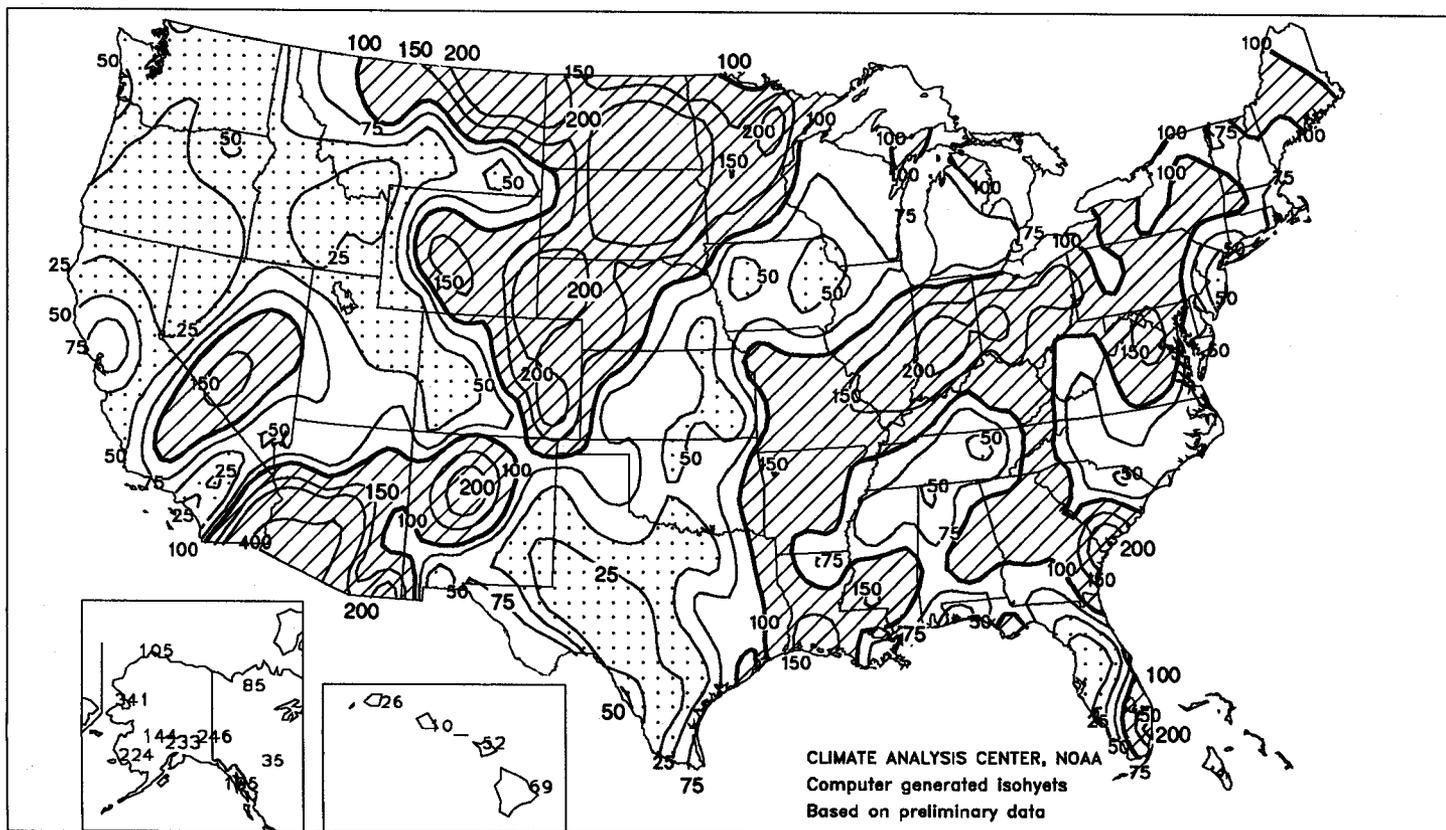
TOTAL PRECIPITATION (inches)

NOV 1993



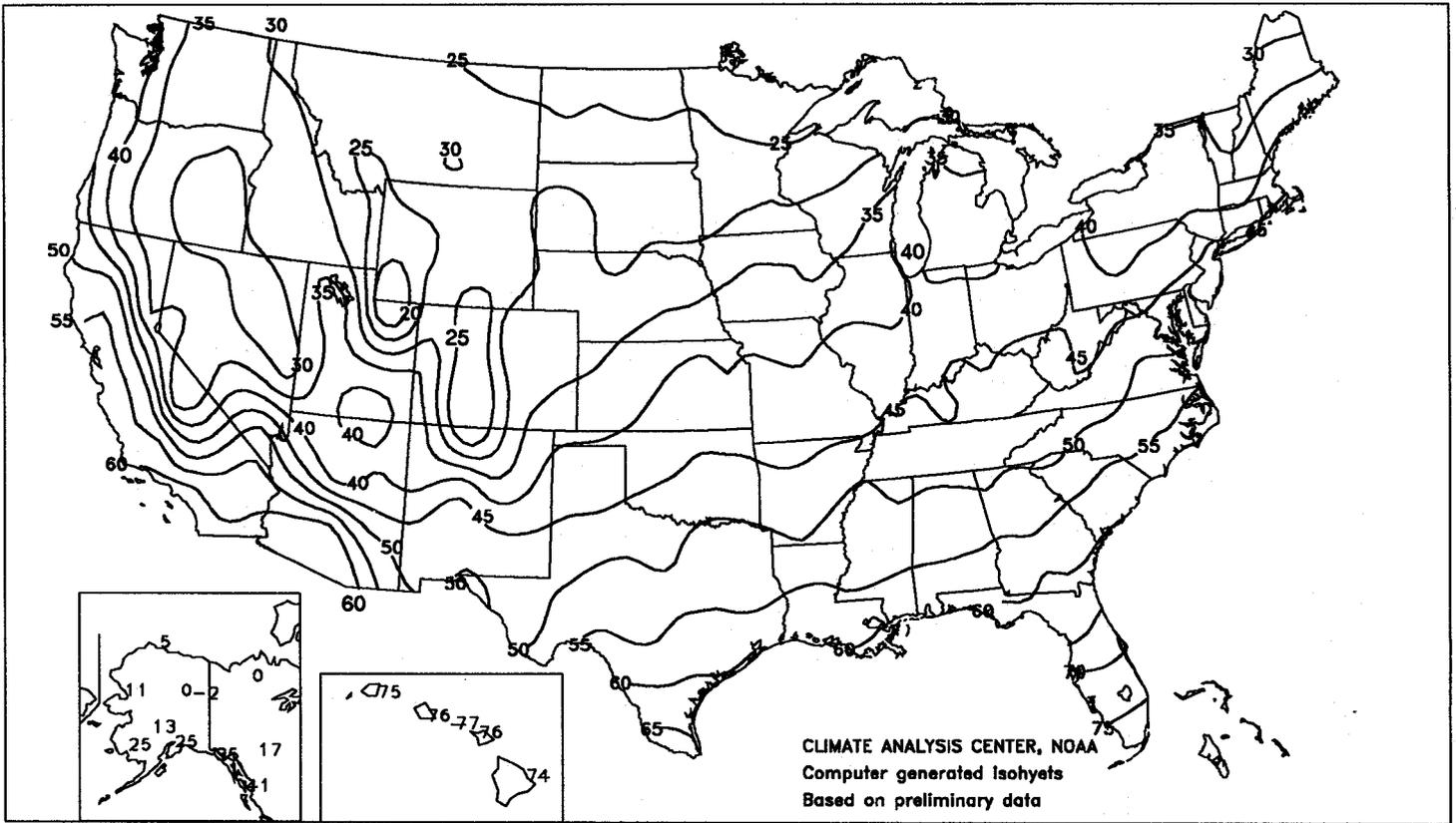
PERCENT OF NORMAL PRECIPITATION

NOV 1993



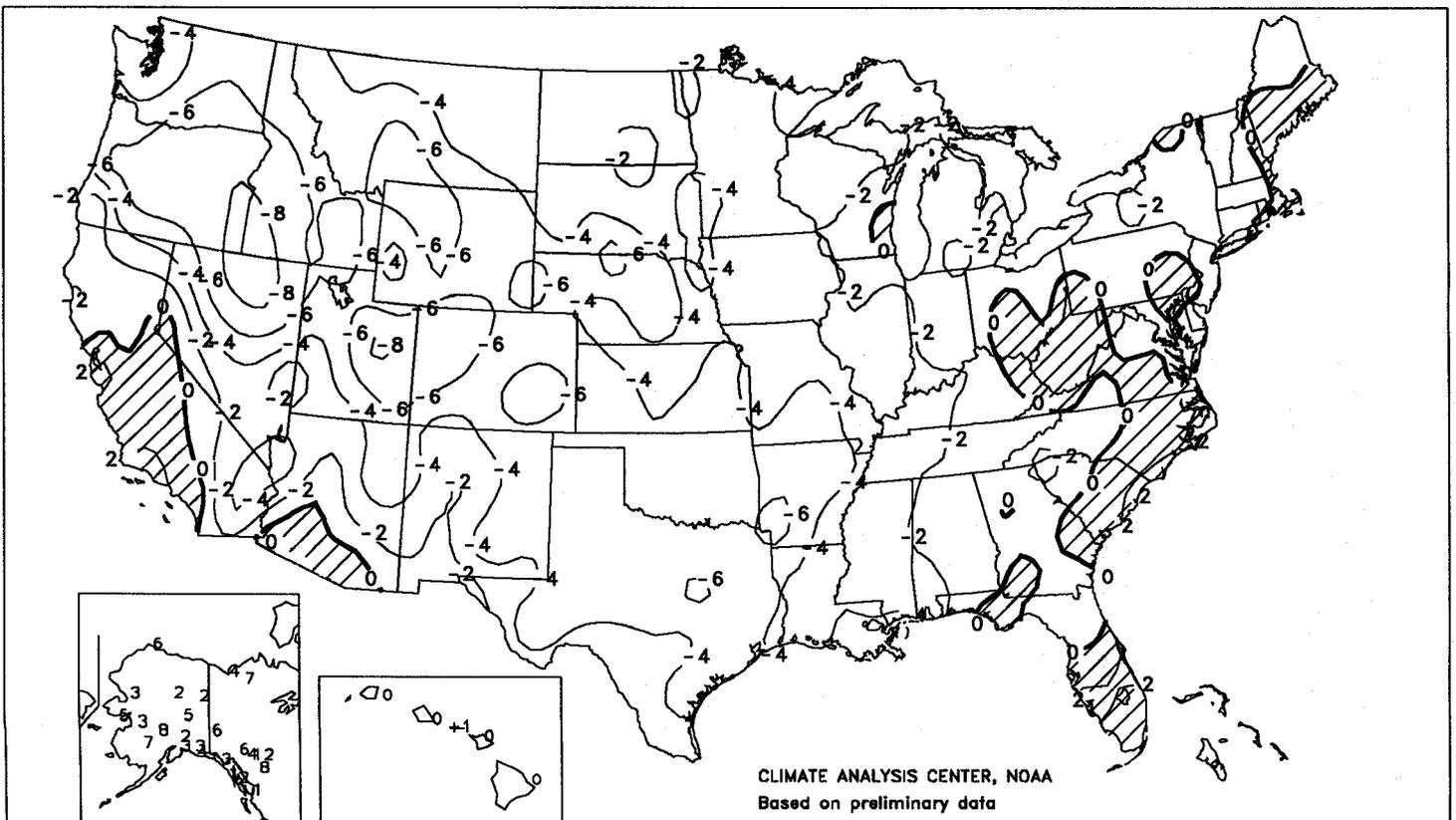
AVERAGE TEMPERATURE(°F)

NOV 1993



Departure of Average Temperature from Normal(°F)

NOV 1993



TEMPERATURE AND PRECIPITATION SUMMARY
November 1993

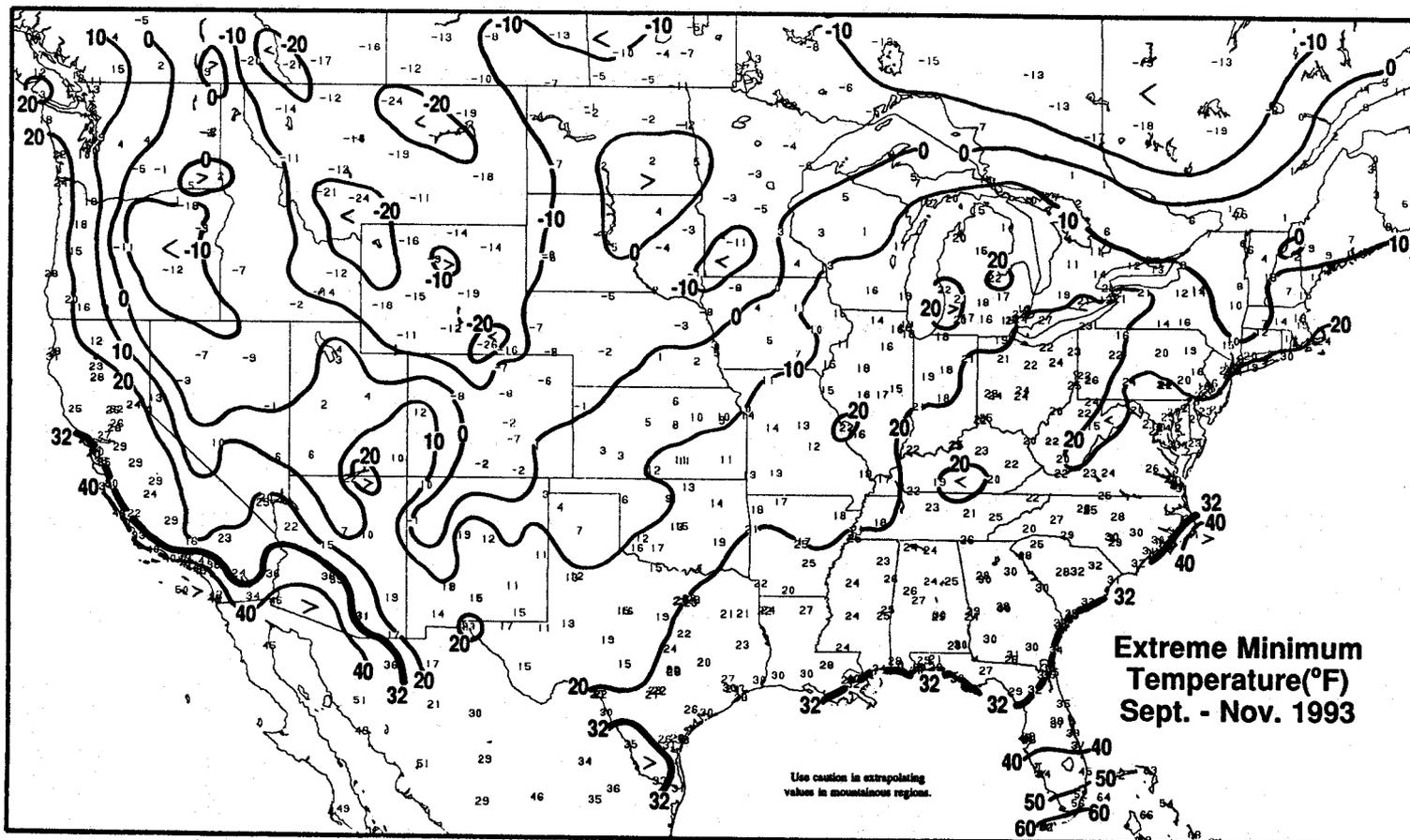
Table with 12 columns: STATES AND STATIONS, Temp. °F (Average, Departure), Precip. (Total, Departure), and another set of the same columns. Rows list various cities across the US with their respective temperature and precipitation data for November 1993.

Based on 1961-90 normals

HEATING DEGREE DAYS (Base 65° F) November 1993

STATES AND STATIONS	TOTAL	DEP. FROM NORMAL	STATES AND STATIONS	TOTAL	DEP. FROM NORMAL	STATES AND STATIONS	TOTAL	DEP. FROM NORMAL
AL BIRMINGHAM	410	46	PORTLAND	777	-12	BRADFORD	870	3
AL HUNTSVILLE	459	48	MO BALTIMORE	556	10	ERIE	692	38
MOBILE	278	82	MA BOSTON	580	-11	PHILADELPHIA	482	-76
AL MONTGOMERY	347	73	MI ALPENA	904	25	PITTSBURGH	657	-24
AK ANCHORAGE	1188	-126	DETROIT	713	-31	SCRANTON	704	-4
BARROW	1777	-224	FLINT	842	74	WILLIAMSPORT	725	29
BETHEL	1189	-257	GRAND RAPIDS	812	2	RI PROVIDENCE	629	-1
COLD BAY	793	-125	LANSING	840	39	SC CHARLESTON	208	-25
FAIRBANKS	1679	-190	MUSKEGON	796	28	COLUMBIA	341	18
JUHEAU	836	-154	TRAVERSE CITY	836	2	GREENVILLE	445	43
KING SALMON	1057	-224	MN DULUTH	1214	116	SD ABERDEEN	1099	58
KOTZEBUE	1590	-126	INT'L FALLS	1259	56	HURON	1054	76
MCCRATH	1551	-267	MINNEAPOLIS	1025	71	PIERRE	1046	119
NOME	1285	-188	ROCHESTER	1034	62	RAPID CITY	970	64
ST PAUL ISLAND	846	-114	MS JACKSON	402	107	STOUX FALLS	1045	85
YAKUTAT	898	-113	MERIDIAN	350	49	TN BRISTOL	542	2
AZ FLAGSTAFF	881	35	MO COLUMBIA	743	116	CHATTANOOGA	443	8
PHOENIX	124	-10	KANSAS CITY	760	103	KNOXVILLE	498	9
TUCSON	185	-3	SAINT LOUIS	628	64	MEMPHIS	446	66
AR FORT SMITH	547	115	SPRINGFIELD	692	122	NASHVILLE	528	78
LITTLE ROCK	509	113	MT BILLINGS	998	101	TX ABILENE	459	142
CA FRESNO	320	-22	GLASGOW	1184	110	AMARILLO	717	147
LOS ANGELES	59	-68	GREAT FALLS	1092	159	AUSTIN	298	123
SACRAMENTO	391	40	HAVRE	1131	69	BROWNSVILLE	110	60
SAN DIEGO	98	-11	HELENA	1129	127	CORPUS CHRISTI	157	62
SAN FRANCISCO	254	-52	KALISPELL	1163	143	DALLAS FT WORTH	414	139
CO COLORADO SPRINGS	963	147	MISSOULA	1126	148	EL PASO	370	-8
DENVER	898	118	NE GRAND ISLAND	911	89	HOUSTON	269	88
GRAND JUNCTION	874	136	NORTH PLATTE	961	73	LUBBOCK	580	124
CT HARTFORD	722	29	OMAHA	885	96	LUFKIN	365	133
DE WILMINGTON	529	-32	SCOTTSBLUFF	1053	192	MIDLAND ODESSA	457	80
DC WASHINGTON	490	34	NV ELKO	1138	262	SAN ANGELO	401	102
FL DAYTONA BEACH	66	-16	ELY	1075	151	SAN ANTONIO	287	107
FORT MERS	19	-6	LAS VEGAS	389	85	VICTORIA	227	80
JACKSONVILLE	151	2	RENO	723	-18	WACO	419	176
KEY WEST	0	0	WINNEMUCCA	995	179	WICHITA FALLS	530	147
MIAMI	4	-2	NH CONCORD	852	15	UT CEDAR CITY	842	83
ORLANDO	47	-7	NJ ATLANTIC CITY	596	20	SALT LAKE CITY	900	174
PENSACOLA	212	29	NEWARK	519	-12	VT BURLINGTON	843	-3
TALLAHASSEE	208	5	NM ALBUQUERQUE	641	20	VA LYNCHBURG	521	2
TAMPA	47	-23	NY ALBANY	790	31	NORFOLK	355	-25
WEST PALM BEACH	11	-4	BINGHAMTON	838	37	RICHMOND	438	-24
GA ATHENS	396	42	BUFFALO	758	23	ROANOKE	535	10
ATLANTA	348	-19	MASSENA	879	-12	WA OLYMPIA	763	88
AUGUSTA	302	-12	NEW YORK	488	-40	QUILLAYUTE	693	66
MACON	342	55	ROCHESTER	776	41	SEATTLE TACOMA	680	89
SAVANNAH	194	-19	SYRACUSE	790	55	SPOKANE	1054	157
ID BOISE	961	208	NC ASHEVILLE	565	40	YAKIMA	997	205
POCATELLO	1109	227	CAPE HATTERAS	153	-112	WV BECKLEY	632	-16
IL CHICAGO	784	34	CHARLOTTE	387	-4	CHARLESTON	545	-1
MOLINE	826	64	GREENSBORO	483	18	HUNTINGTON	553	-2
PEORIA	761	47	RALEIGH DURHAM	410	-4	WI EAU CLAIRE	1042	64
ROCKFORD	836	26	WILMINGTON	246	-13	GREEN BAY	930	12
SPRINGFIELD	730	67	ND BISMARCK	1141	49	MADISON	884	-4
IN EVANSVILLE	600	36	FARGO	1144	37	MILWAUKEE	759	-60
FORT WAYNE	712	1	MINOT	1183	70	WY CASPER	1053	96
INDIANAPOLIS	685	25	WILLISTON	1197	63	CHRYENNE	1067	173
SOUTH BEND	765	42	OH AKRON CANTON	717	27	LANDER	1199	185
IA DES MOINES	851	71	CLEVELAND	694	22	ROCK SPRINGS	1170	132
MASON CITY	998	68	COLUMBUS	638	-25	SHERIDAN	1063	88
SIoux CITY	978	120	CINCINNATI	644	23			
WATERLOO	915	36	DAYTON	673	10			
KS COMCORDIA	799	94	TOLEDO	758	8			
DODGE CITY	797	143	YOUNGSTOWN	733	13			
GOODLAND	935	146	OK OKLAHOMA CITY	619	157			
RUSSELL	784	94	TULSA	609	156			
TOPEKA	763	103	OR ASTORIA	666	123			
WICHITA	718	109	EUGENE	782	215			
KY LEXINGTON	611	41	MEDFORD	745	118			
LOUISVILLE	577	40	NORTH BEND	568	121			
LA BATON ROUGE	315	118	PENDLETON	904	199			
LAKE CHARLES	260	67	PORTLAND	698	131			
NEW ORLEANS	259	81	REDMOND	1019	215			
SHREVEPORT	403	139	SALEM	722	122			
ME BANGOR	845	-4	PA ALLENTOWN	657	0			

Based on 1961-90 normals.



Two impressive early-season cold blasts—one during Halloween weekend and the other during Thanksgiving week—produced most of the autumn's extreme minimum temperatures. The earlier cold wave set more than 100 daily record lows and a handful of October record lows, primarily from Texas eastward across the Gulf Coast States. The latter blast dealt its harshest cold to the Northwest and the northern Plains, although temperatures dipped below freezing as far south as Brownsville, TX. The Nation's northeastern quadrant escaped the brunt of the cold airmasses, as exemplified by a comparison of extreme minima in the upper Ohio Valley and the central Gulf Coast region.

Autumn Weather Review

HIGHLIGHTS: A slight, but important, eastward shift in the weather pattern did not stop heavy rain from occurring, but allowed it to fall in areas—from the Ozark Plateau to the Northeast—not affected by the last summer's flooding. Meanwhile, the upper Mississippi Valley welcomed an extended drier-than-normal period. But a dry autumn in other areas contributed to a variety of problems, including limited moisture for winter wheat and a wildfire threat in the West, as well as topsoil moisture shortages in parts of Texas. Above-normal precipitation in several other areas, including the central High Plains and Arizona, were due to a handful of strong storms rather than a consistent pattern of wetness. Near-normal precipitation graced the Southeast, although vestiges of last summer's drought remained from Virginia southward.

Anomalously cool weather also shifted eastward, covering the central United States, where seasonal departures ranged from 2 to 5°F below normal. Only small portions of the West and the Southeast recorded above-normal average temperatures during the autumn.

SEPTEMBER: Although September is typically a summer-to-autumn transitional month, September 1993 also marked an important change in the upper air pattern that allowed the upper Mississippi Valley to begin to dry out. However, heavy rain continued to soak the middle Mississippi Valley, delaying the return of normal barge operations as the Mississippi rose to more than 9 feet above flood stage in St. Louis, MO. But west of the Continental Divide, virtually no rain fell, raising concerns of autumn wildfires.

Despite a cold weather regime in the Central United States, Corn Belt growers survived most of the month without a major freeze. After a freeze in the northern Plains and central High Plains on September 14, more than 2 weeks passed before a freeze hit

Wisconsin on September 30. Despite the near-normal date for a first freeze, soybeans and especially corn were damaged due to the crops' late maturity.

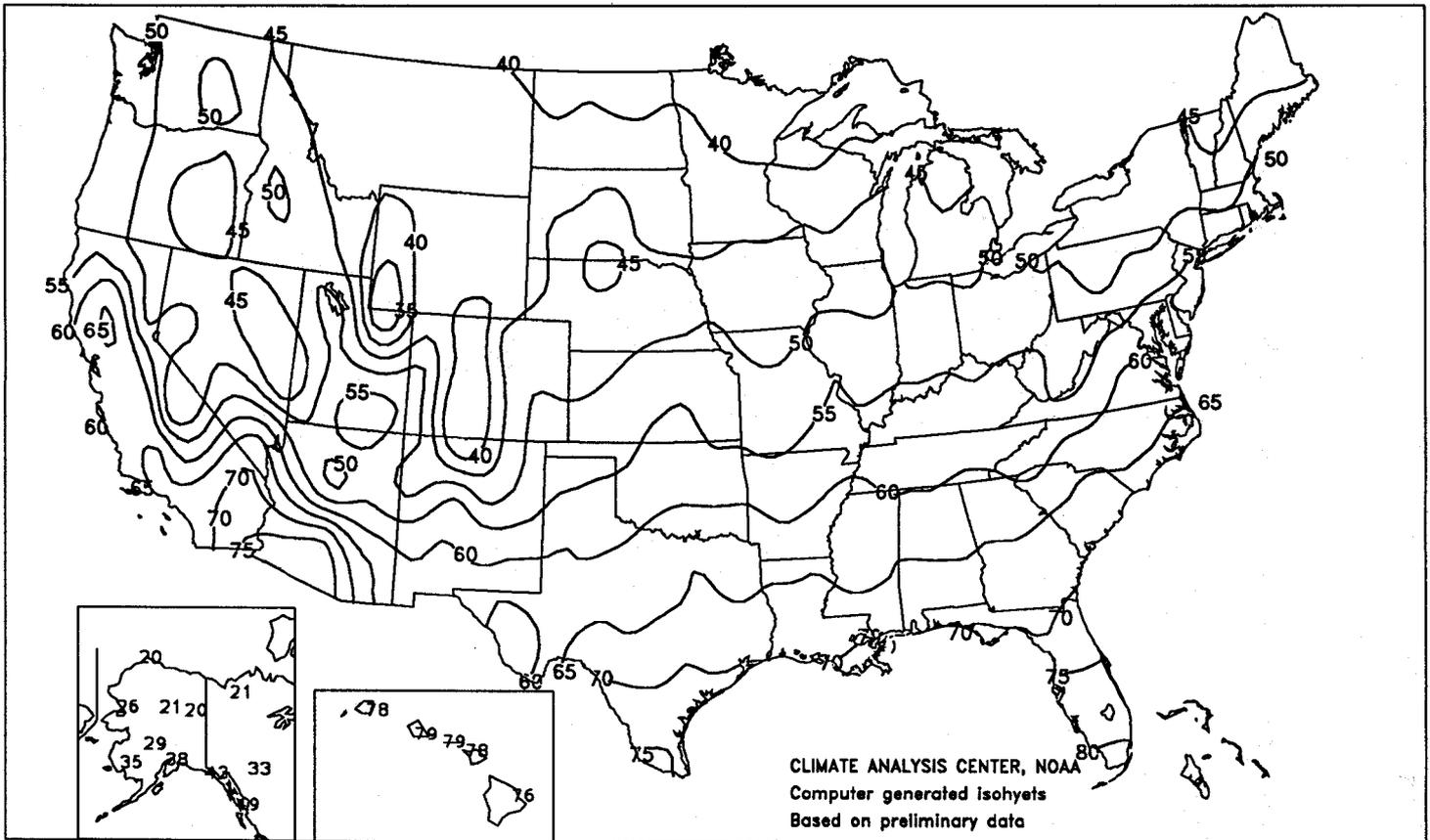
OCTOBER: A freeze struck Minnesota, eastern North Dakota, and northern Iowa on November 2, closing out the growing season in the northwestern Corn Belt and causing additional crop damage. Monthly temperatures again averaged below normal in the central third of the Nation, while warm, dry weather covered the West Coast States. When Santa Ana winds howled westward into the Los Angeles basin late in the month, abundant chaparral and dried grasses fueled wildfires that consumed more than 250 acres of sylvan and suburban land, including more than 1,000 buildings.

Heavy rainfall events became more sporadic and shifted southeastward during the month, primarily affecting the Ohio Valley and Gulf Coast States. The upper Mississippi Valley enjoyed its driest month in a year. At month's end, a Halloween arctic blast sent flurries flying and temperatures plunging across the South. On October 31, temperatures dipped below freezing as far south as southern Texas and the central Gulf coast, while wet snow blanketed the upper Ohio Valley.

NOVEMBER: After the Halloween arctic outbreak subsided, a wet weather pattern developed in an arc from the central Gulf coast to the Northeast. In the Ohio Valley, some significant tributary flooding developed after mid-month, especially in Indiana. Farther west, southern California endured another round of Santa Ana fires early in the month before a cooler and occasionally showery pattern diminished the fire threat. Late in the month, a slow-moving storm dumped record snowfall in the northern Plains and drove arctic air through the Northwest and deep into the Plains. However, the storm provided insulating snow cover to Washington's and Montana's winter wheat areas before temperatures plunged below 0°F.

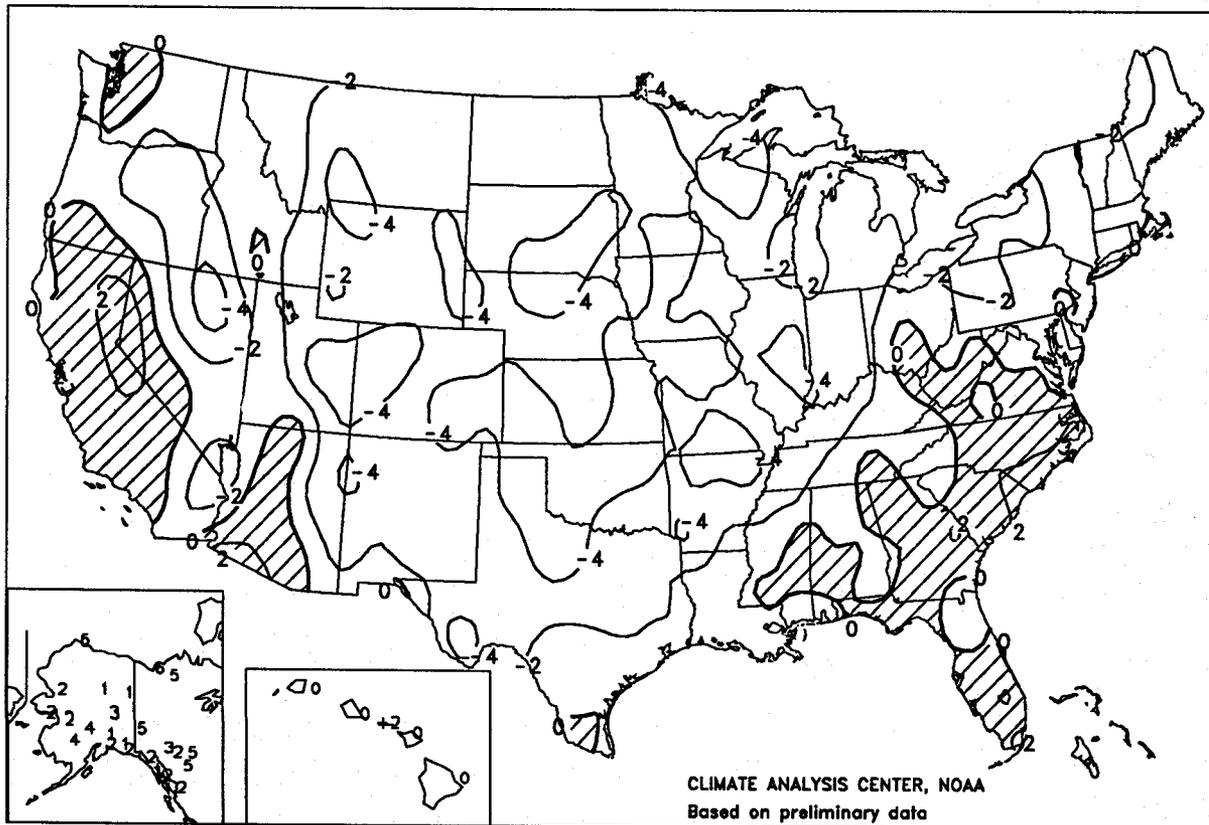
FALL Average Temperature(°F)

SEP-NOV 1993



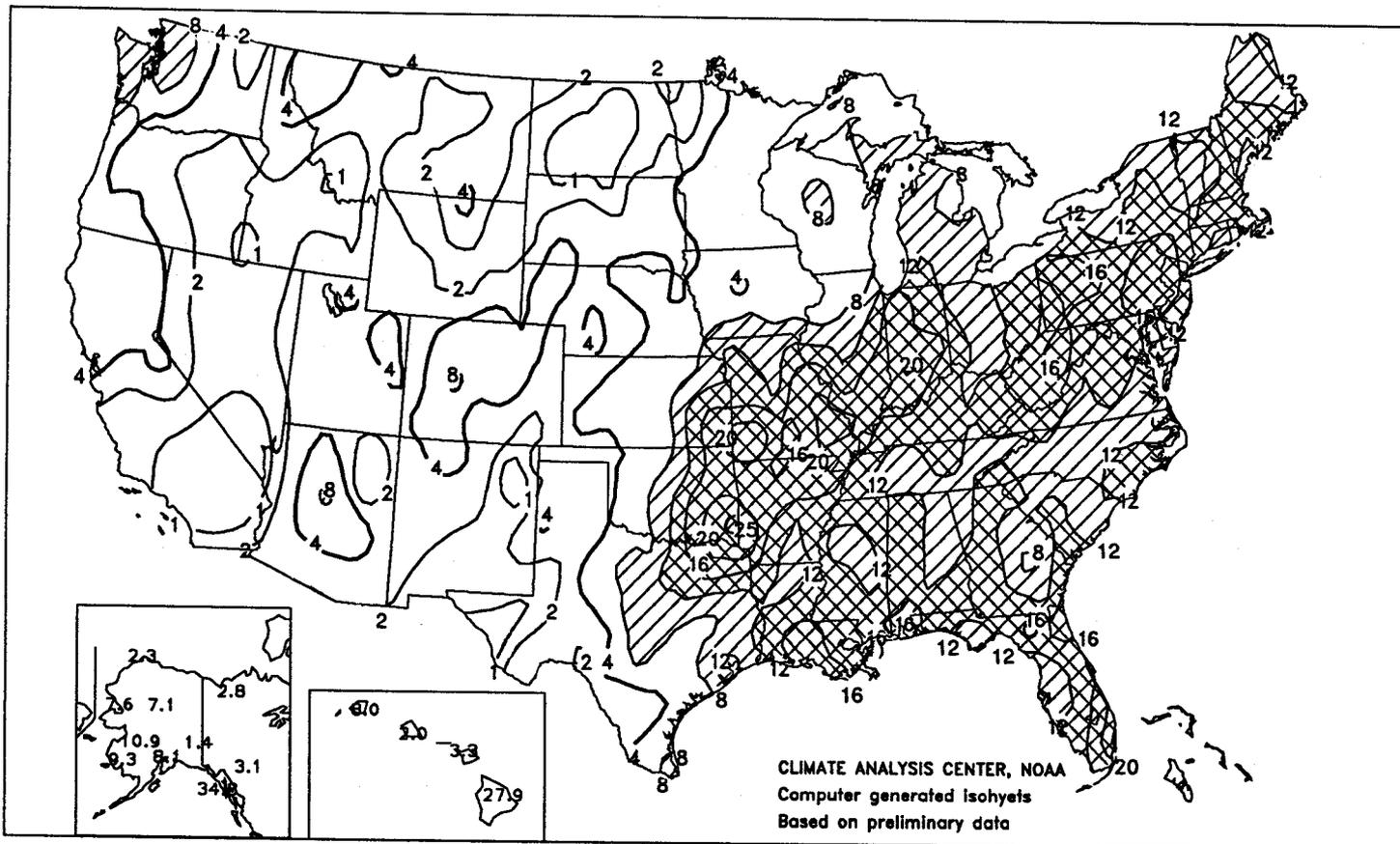
FALL Departure from Normal Average Temperature(°F)

SEP-NOV 1993



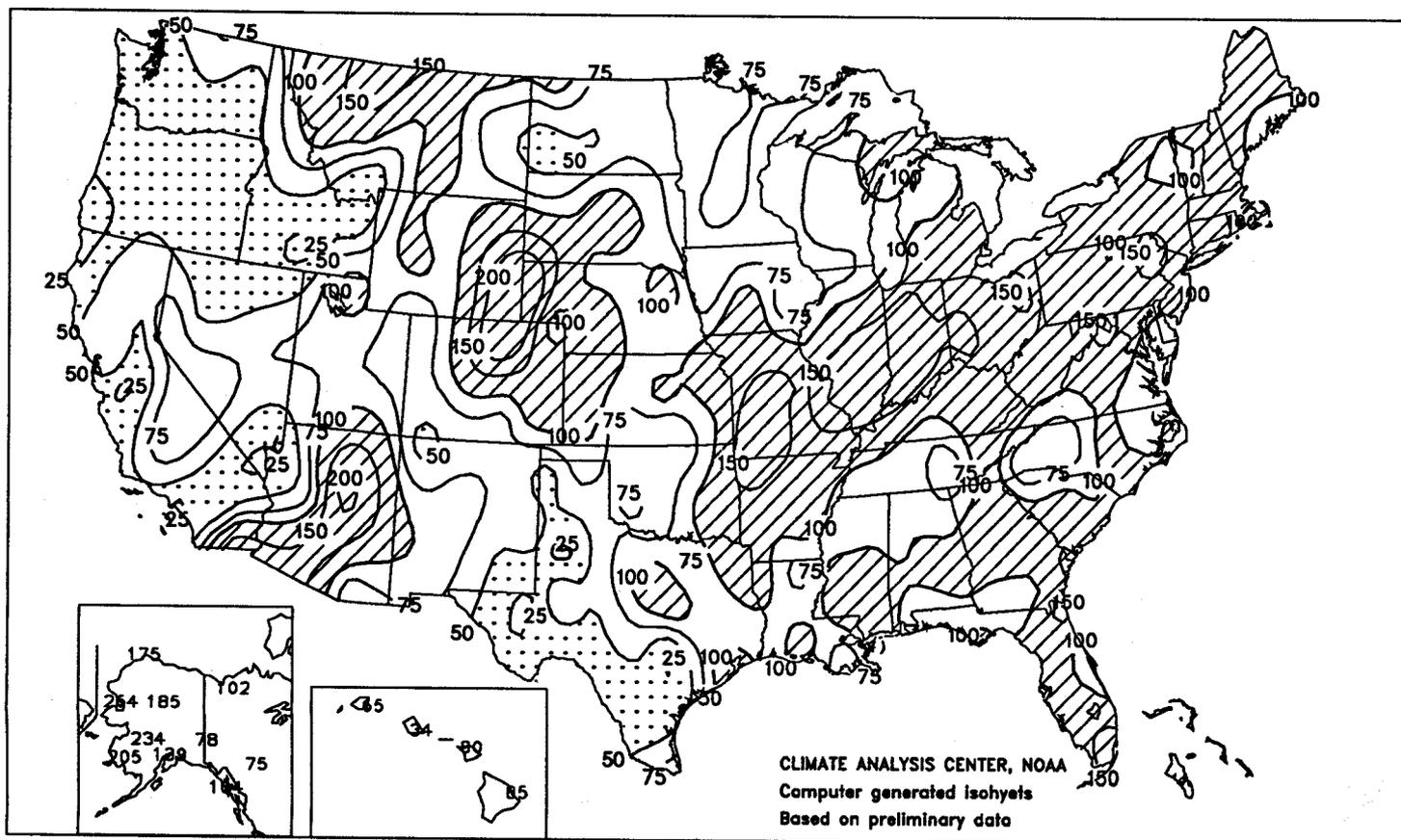
FALL TOTAL PRECIPITATION (inches)

SEP-NOV 1993



FALL PERCENT OF NORMAL PRECIPITATION

SEP-NOV 1993



National Agricultural Summary

November 29 - December 5, 1993

HIGHLIGHTS: The completion of the remaining row crop harvests were delayed by a late-week storm, which brought heavy rains to the lower Mississippi, Tennessee, and Ohio Valleys and into the middle and North Atlantic Coast States. Snow cover for the winter wheat in the northern Plains was reduced by above-normal temperatures. Rain fell across much of the Pacific coast early in the week and boosted small grain prospects in California.

SMALL GRAINS: Above-normal temperatures reduced some snow cover over the winter wheat in the northern Plains, but the remaining cover was still adequate. Small grains and winter wheat growing in the lower Mississippi and Ohio Valleys needed sunshine and drier conditions. Many small grain fields in Texas needed rain to boost growth. This week's rain improved prospects for small grains planted in California. In Washington, little damage occurred to small grains from last week's cold weather.

SOYBEANS: In Georgia and the Carolinas, the harvest advanced to 76 percent (%) complete, compared with 70% last year and an 81% average. This week's rain caused concern for Kentucky producers who still had soggy, unharvested soybean fields. Elsewhere, wet conditions hindered the harvest from reaching completion.

COTTON: The Texas cotton harvest was active in the High Plains and the Trans-Pecos regions. Rains delayed stalk shredding and ground work in parts of south Texas. Stalk shredding and discing of harvested cotton acres continued in Arizona and California.

OTHER FIELD CROPS: Onion planting in Georgia continued with progress behind last year and average. The Texas spring onion crop made good progress last week. The sorghum harvest in Oklahoma and New Mexico reached 92% complete, compared with 97% last year. The chile pepper harvest neared completion in New Mexico. In Louisiana, the sweetpotato harvest ended. Progress of the peanut harvest in Oklahoma remained behind last year and

average. In Texas, the peanut harvest advanced with yields less than expected.

FRUITS AND NUTS: Citrus harvests remained active in Arizona, California, and Florida. The California Central Valley navel orange harvest was slowed by varying fruit maturity. Low temperatures from the previous weeks' weather enhanced California citrus color. Hail damage from a November storm was observed on some fruit in Tulare County, California. The Pecan harvest was active in New Mexico and advanced in Texas. In South Carolina and Mississippi, harvest progress was behind last year and average.

VEGETABLES: The vegetable harvest remained active in California, Florida, and Arizona. Rain delayed field activities in northern and central California. High winds scarred some vegetable plants in the Dade County and Homestead areas of Florida. Vegetable crops in the Texas Winter Garden areas made average progress.

PASTURE AND LIVESTOCK: Pasture feed conditions remained generally fair to good across the Nation. Lack of snow cover across the central Plains and parts of Utah allowed livestock to graze on crop stubble. Rains in northern California improved pasture prospects. However, pastures in southern California and much of Texas could benefit from rain. Supplemental feeding continued where needed. Hay supplies remained mostly adequate, but some shortages were reported in Iowa and Arizona. Although some livestock in Texas showed winter stress, livestock condition remained mostly good nationally.

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 0.47 to 2.65 in. north; 0.01 to 0.99 in. central; 0.17 to 0.82 in. south. Temperatures 1 to 8° above normal north; 3 to 8° above normal central; 1 to 6° above normal south. Lows 21 to 40° north; 23 to 35° central; 26 to 41° south. Highs 62 to 70° north; 67 to 73° central; 73 to 76° south.

Primary activities: Cultivating fields, general care of livestock, poultry, catfish.

ARIZONA: Warm temperatures early week gave way to below normal temperatures mid week, warm again late week. Temperatures varied 1° below normal to 4° above normal. Extreme 5°; 72° higher elevations; 22°; 78° deserts. No precipitation recorded.

Cotton harvest nearing completion; 97% harvested, 99% 1992, 95% avg. Stalk shredding, plowdown activity moderate to active central, eastern, complete west. Small grains field preparations active. Small grain seeded 47%, 46% 1992, 43% avg.; established 30%, 27% 1992, 27% avg. Alfalfa good. Harvest light all areas. Sheeping off activities light to moderate all areas. Grapefruit, navel oranges, lemons available central, western areas. Tangerines, tangelos available central area. Vegetable harvest active. Available from western, central areas: Iceberg, Boston, leaf, romaine, broccoli, cabbage, spinach. Also available from west: Celery, endive, escarole. Additional central crops included: Sweet corn, mixed greens, leeks, green onions, radishes, rapini. Cattle, calves fair to good. Average to below average feed supplies available. Soil moisture, stockwater supplies mostly adequate.

ARKANSAS: Temperatures a little above normal. Rain, thunderstorms occurred statewide the latter part of week, heaviest southern region. Extremes 14°; 72°. Rainfall 1.10 to 6.40 in.

Days suitable for fieldwork 3. Soil moisture adequate to surplus. Main farming activities: Harvesting cotton, soybeans; planting wheat, oats; marketing calves, working cattle; poultry house maintenance. Wheat condition fair to good, needs sunshine, dry weather. Some wheat fields saturated. Wheat planted 92%, 97% 1992, 97% avg. Soybeans harvested 94%, 99% 1992, 98% avg. Livestock good. Producers feeding hay, supplies adequate. Pasture feed good.

CALIFORNIA: Rain first half of week northern, central locations brought season totals up around 50% of normal to date. Temperatures 1 to 3° above normal.

Rainfall assisted emergence, development fall small grains, forage crops. Winter wheat reported good, excellent. Many fall small grains irrigated. Planting, field preparation fall, winter crops continued. Safflower planting underway scattered areas. Cotton harvest nearly complete. Shredding, discing harvested acres, plowdown requirement pink bollworm control. Milo harvest progressed, final alfalfa cuttings taken. Alfalfa planting underway many parts State. 1994 sugarbeets irrigated, thinned, hand weeded. Bareroot nursery stock digging active. Pruning,

weed control, replanting, tree hole fumigation continued. Date, avocado picking continued in southern areas. Central valley navel orange harvest slowed due to varying maturity. Lemon, grapefruit, tangerine picking active. Cold weather enhanced citrus color. Some hail damage reported from November storm Tulare County. Harvest broccoli continued central, desert valleys. Carrots packed desert valleys. Harvest cauliflower underway Stanislaus, Imperial Counties. Along central coast harvest broccoli, cauliflower, celery continued. Garlic planted central valley. Fall head lettuce Waukena area, Imperial, Coachella Valleys continued harvest, good quality. Harvest fall head lettuce winding down central valley. Spring melons planted Imperial Valley. Harvest potatoes continued Coachella Valley. Spinach planted Stanislaus County, nearly complete Tulare County. Squash planted Imperial Valley. Ground work continued around State. Rain delayed field activities San Joaquin, other northern valley counties. Other crops harvested: Eggplant, cabbage, snap beans, sweet potatoes, okra, peppers. Rangeland just beginning to green up. Supplement feeding continued. Range poor to good. Additional rainfall improved conditions northern districts. Additional rainfall needed many southern areas. Livestock in good condition.

COLORADO: Several fast moving but mostly dry disturbances moved across the State. Precipitation was primarily limited to the northern, central mountains, was very light for the period. Temperatures varied only slightly from day to day. Temperatures mostly 1 to 7° above normal while precipitation was almost entirely under 0.10 in. Cold air trapped in western mountain valleys led to local cold spots. One disturbance brought nearly 0.50 in. of moisture to Longmont on the 30th.

Producers still are trying to finish corn harvest which has been delayed due to wet field conditions in some areas.

FLORIDA: Temperatures 1 to 4° above normal. Highs; upper 70s to middle 80s. Lows; lower 30s north to lower 50s southeast coast. Rain reported 1 day or less. Rain totals generally under 0.20 in., except 0.50 in. isolated areas.

Soil moisture short to adequate with scattered areas surplus. Cotton and soybean harvest virtually complete. Sugarcane harvest active. Small grain, sugarcane planting active. Pecan harvest active. Groves in excellent condition. Rainfall light, scattered. Cold front low 50s. Harvest active fresh varieties for holidays. Most processing plants receiving early, mids. Growers prepare groves for winter. Weather dry, warmer than normal in major vegetable growing areas. Growers irrigating crops south. High winds east coast, Dade/Homestead cause some leaf burn, scarring of some snap beans, eggplant, squash. Volume leaders; tomatoes, peppers, cucumbers, snap beans, squash. Also available; cabbage, Chinese cabbage, carrots, sweet corn, celery, iceberg, specialty lettuces, radishes, cherry tomatoes, watermelons. Pasture feed 5% poor, 35% fair, 55% good, 5% excellent. Cattle herds mostly fair to good.

GEORGIA: Temperatures 1 to 7° above normal northern half, southwest. 1° below to 4° above southeast. Warmest in low 60s mountains, mid to upper 60s north, 70s in central, south. Coolest 20s extreme north, low to mid 30s elsewhere. Rained 1 day central, south, 2 days north. Precipitation below normal most of State except mountains. Rainfall 0.60 to 2.00 in. north, 0.25 to 1.00 in. southwest, less than 0.25 in. southeast.

Days suitable for fieldwork 5.5. Soil moisture 1% very short; 16% short; 82% adequate; 1% surplus. Cotton 3% very poor, 11% poor, 79% fair, 7% good; 97% harvested, 83% 1992, 93% avg. Sorghum 98% harvested for grain, 96% 1992, 98% avg. Soybeans 13% very poor, 46% poor, 35% fair, 6% good; 86% harvested, 85% 1992, 90% avg. Wheat 50% fair, 50% good; 78% planted, 70% 1992, 71% avg.; 56% emerged, 49% 1992, 47% avg. Rye 96% planted, 96% 1992, 96% avg. Other small grains 41% fair, 59% good; 92% planted, 93% 1992, 89% avg. Onions 82% fair, 18% good; 55% planted, 60% 1992, 73% avg. Other vegetables 9% very poor, 8% poor, 49% fair, 34% good. Apples 98% harvested, 100% 1992, 100% avg. Pecans 1% poor, 17% fair, 82% good; 69% harvested, 79% 1992, 80% avg. Pasture feed 20% poor, 54% fair, 24% good, 2% excellent. Cattle fair to good. Hogs fair to good, mostly good. Other activities included work on tobacco beds, overseeding pastures, liming pastures, soil testing, repairing equipment, worming cattle, fertilizing winter forage crops, routine care of livestock, poultry.

HAWAII: Weather cool, windy. A large, surface high pressure system north of Island chain generated strong winds 35 to 40 mph, with some gusts over 60 mph winds over weekend, causing high wind warnings issued for the State. Soil moisture, reservoir levels benefited from added showers. Rainfall none to 4.80 in. Temperatures 60s to low 80s.

Only minor damage reported so far to crops exposed to high winds. Spraying activities were interrupted by gusty winds. Banana production moderate to heavy. Papaya output higher. Tomato harvesting increasing.

IDAHO: Temperatures 6° above normal to 7° below normal. Precipitation 0.41 to 2.27 in. north, 0.40 to 1.61 in. southwest, none to 0.78 in. southcentral, none to 0.09 in. east. Fairfield reached the State low of -15°.

Soil moisture adequate. Hay, roughage supplies adequate. Activities: Marketing, pesticide recertification programs, machinery repair, shop work, livestock care. Livestock good condition that has improved with warmer weather.

ILLINOIS: Mostly dry weather the first half of the week was followed by damp weather for the second half. Temperatures 1 to 6° above normal. Highs were mostly in the 40s while average lows upper 20s to upper 30s. Southern areas had 1.00 to 2.00 in. of rain, while northern areas received 0.25 to 0.60 in.

Farmers were finishing harvest on corn, soybeans, sorghum, tending livestock, machinery maintenance.

INDIANA: Temperatures 3 to 6° above normal. Mean readings between the mid 30s to mid 40s with high temperatures 40 to 50° while mean lows were 30 to 40°. Rainfall, water equivalent, 0.50 in. north to around 1.00 in. central area to near 2.00 in. far south.

Soils remain wet throughout the State. Weather has been somewhat uncooperative in allowing remaining corn to be

harvested. Reports indicate 1% to 5% of corn still unharvested. Moisture content in harvested corn remains below average. Wheat varies from fair to excellent with most reporters rated the crop good.

IOWA: A mild week with temperatures averaging 2 to 4° above normal. Extremes 9° Decorah (30th); 53° Lamoni and Ottumwa (2nd). No measurable precipitation over much of west, central with up to 0.35 in. rain at Keokuk in extreme southeast. Precipitation only 0.02 in. (normal 0.28 in.). Snowcover of 1 to 3 in. remains in far northwest from Thanksgiving storm.

Lack of snow has allowed farmers to utilize corn stalks for forage helping out the short hay supply.

KANSAS: Temperatures across State were above normal for the week in all districts. Temperatures 5° above normal in the northwest district to only 1° above normal in the east central district. Rainfall was light with no rain in the northwest, north central, or west central districts. Southeast district had the most weekly rainfall, averaging 0.37 in.

Temperatures warmed somewhat from last week, averaged in the high 30s to low 40s across all districts. Very little precipitation was received except in the southeast which received one-third of an inch of rain. Harvest progress is in the wrap-up stages. Livestock continue to graze wheat pasture, stalks, stubble. Stock has received little weather stress to this point.

KENTUCKY: Very wet period. Most locations 1.50 to 2.00 in. rain, some locations around 4.00 in. Heaviest precipitation fell across southern sections near end of period. Temperatures near or slightly above normal. Maximum temperatures around normal values, while minimum temperatures generally 5 to 7° above normal.

Most soils saturated, some lowland flooding. Concern about soybeans still in fields. Wheat mostly emerged. Stands generally satisfactory except where standing water. Type 35, 36 dark air cured markets opened last week. Burley sales little better, considerable leaf still going to pool. Livestock satisfactory, would benefit from drier weather.

LOUISIANA: Temperatures 1.8 to 5.3° above normal. Extremes 24°; 79°. Rainfall 0.21 in. southwest to 1.37 in. west central.

Days suitable for fieldwork 4.7. Soil moisture 79% adequate, 21% surplus. Cotton 100% harvested, 100% 1992, 100% avg. Pecans 82% harvested, 87% 1992, 77% avg. Harvest continued active. Soybeans 99% harvested, 99% 1992, 99% avg. Harvest virtually complete. Sweet potatoes 99% harvested, 98% 1992, 98% avg. Harvest active, winding down. Sugarcane 78% harvested, 75% 1992, 79% avg. Harvest progressed steadily with good tonnage, lower than average sucrose content. Wheat 2% very poor, 26% poor, 42% fair, 30% good; 96% planted, 83% 1992, 88% avg.; 92% emerged, 77% 1992, 82% avg. Planting winding down. Livestock 40% fair, 60% good. Cattlemen beginning to feed more hay to their herds. Pastures 10% poor, 10% fair, 76% good, 4% excellent. Vegetables 12% poor, 48% fair, 40% good.

MARYLAND & DELAWARE: **MARYLAND:** Precipitation 2.72 in., normal 0.80 in. Temperature 43.7°, normal 39.6°. Extremes 18°; 69°.

Activities: Harvesting soybeans, grain corn, sorghum, hay. Stripping tobacco. Finishing planting of wheat, rye. Caring for livestock. General chores.

DELAWARE: Precipitation 1.84 in., normal 0.81 in. Temperature 44.8°, normal 41.1°. Extremes 25°; 67°.

Activities: Harvesting soybeans, sorghum, hay. Finishing small grain seeding. Caring for livestock. General chores.

MICHIGAN: Extremes 10°; 51°. Precipitation 0.02 to 0.94 in. across the State.

Corn 95% harvested, 35% 1992, 85% avg. Major activities: Cutting firewood, drying corn, harvesting corn when possible, repairing, storing machinery, spreading fertilizer, manure.

MINNESOTA: Temperatures 2 to 7° above normal for the State. Extremes -2°; 38°. Precipitation 0.04 to 0.30 in. below normal the State. Precipitation 0.01 to 0.23 in. for the State. Greatest weekly precipitation 0.38 in. Snowfall a trace to 3 in. for the State. Snow depth at weekend 1 to 3 in. for the southern third of the State, 5 to 10 in. elsewhere.

Some corn continues to be picked, fed to cattle as silage. Movement of small grains, potatoes continues. Winter association meetings have begun, giving producers a chance to get off the operation.

MISSISSIPPI: Temperatures 53°, 2.2° above normal. Extremes 19°; 75°. Entire delta, northern districts nearly 3.00 in. of rainfall. Central through the coastal district received a minimal amount. State average of 1.33 in. was normal. Soil temperatures 51°.

Days suitable for fieldwork 4.9, 3.7 1992, 3.1 avg. Soil moisture 3% very short, 10% short, 74% adequate, 10% surplus, 3% excessive. Soybeans 97% harvested, 96% 1992, 96% avg. Wheat 99% planted, 96% 1992, 94% avg.; 94% emerged, 88% 1992, 82% avg.; 6% poor, 55% fair, 39% good. Hay Supply 4% short, 92% adequate, 4% surplus. Feed grain 8% short, 84% adequate, 8% surplus. Pecans 67% harvested, 75% 1992, 75% avg.; 28% poor, 52% fair, 18% good, 2% excellent. Livestock 1% poor, 31% fair, 62% good, 6% excellent. Pasture feed 85% of normal. Activities: Completing crop harvest, cutting cotton stalks, feeding livestock.

MISSOURI: Temperatures 1° below normal north central, northeast to 3° above normal southwest. Precipitation 0.83 in., varying from 0.04 in. northwest to 2.06 in. southeast.

Crop harvest virtually complete. Topsoil 41% adequate, 59% surplus. Pasture feed 4% poor, 44% fair, 50% good, 2% excellent. Winter wheat 2% very poor, 10% poor, 63% fair, 25% good. Hay supply 9% short, 77% adequate. Livestock 12% fair, 85% good, 3% excellent.

MONTANA: Temperatures 1 to 11° above normal. Precipitation received statewide ranging from very light to moderate.

Protectiveness of snowcover for winter wheat has diminished in some areas. Livestock in good condition receiving supplemental feed with some open grazing.

NEBRASKA: Temperatures 3 to 9° above normals. Only trace amounts of precipitation.

Producer activities included finishing fall harvest, drying grain, livestock care.

NEVADA: Low pressure system brought widespread rain, show showers northern half of State with widely scattered

showers in south. Greatest precipitation 0.35 in. Extremes 3°; 69°.

Major activities include care, feeding of livestock, general maintenance.

NEW ENGLAND: Precipitation 0.72 to 5.70 in. regionwide. Temperatures 28 to 36° north; 33 to 41° south. Maximum temperatures 51 to 63° north; 58 to 64° south. Minimum temperatures 7 to 20° north; 13 to 28° south.

Major farm activities: Preparing for winter.

NEW JERSEY: Temperatures slightly above normal north, south; much above normal coastal sections, 38° north, 43° south, 51° coastal. Extremes 15°; 65°. Precipitation above normal; 2.17 in. north, 2.51 in. south, 2.57 in. coastal. Heaviest 24 hour total 3.24 in. on 5th, 6th.

Farmers busy deer hunting, cutting, digging, selling Christmas trees, pruning fruit, caring for livestock.

NEW MEXICO: Temperatures a few degrees above normal in the plains, near normal elsewhere. Extremes 4° northwest; a balmy 74° southeast. Only measurable precipitation for the week fell in the higher elevations of the north with the plains receiving a little drizzle.

Days suitable for fieldwork 6.6. Soil moisture 73% short, 27% adequate. Crop conditions: Cotton fair to excellent; 90% harvested. Irrigated sorghum fair to good. Dryland sorghum poor to fair. Sorghum harvest 95% complete. Irrigated wheat 18% poor, 29% fair, 53% good. Dryland wheat 50% poor, 40% fair, 10% good. Pecans 11% poor, 45% fair, 44% good; harvest active. Chile harvest near complete. Cattle, sheep poor to mostly good. Range feed conditions 67% of normal.

NEW YORK: Temperatures above normal in most areas, upper 20s in the Adirondacks to the low to middle 30s for most areas in Upstate. Southeastern temperatures upper 30s to mid 40s. Extremes 5° above in Raybrook; 64° Battenville. Precipitation above normal 0.75 in. Rochester vicinity to 3.75 in. near Poughkeepsie.

Rainy weather halted corn harvest. Apple growers packing apples, making cider, did clean up work in storage facilities. Potato growers packing, grading potatoes. Vegetable growers packing, grading late season crops. Other major activities: Tending to livestock, preparing barns, farm equipment for winter.

NORTH CAROLINA: Temperatures slightly above normal. Precipitation as much as 4.00 in. in the west; light in the east.

Days suitable for fieldwork 5.0. Soil moisture 21% short, 71% adequate, 9% surplus. Crop condition: Wheat 1% poor, 30% fair, 67% good, 2% excellent. Oats 1% poor, 31% fair, 66% good, 2% excellent. Barley 1% poor, 27% fair, 70% good, 2% excellent; rye 4% poor, 25% fair, 70% good, 1% excellent. Pasture feed 2% very poor, 18% poor, 43% fair, 37% good. Cotton 13% poor, 64% fair, 23% good. Soybeans 15% good, 55% fair, 30% good. Hay, roughage supplies 3% very short, 29% short, 66% adequate, 2% surplus. Feed grain supplies 3% very short, 19% short, 76% adequate, 2% surplus. Soybeans harvested 76%, 67% 1992, 78% avg. Sorghum for grain harvested 94%, 92% 1992, 99% avg. Cotton harvested 95%, 70% 1992, 89% avg. Major activities: Planting small grain; harvesting soybeans, cotton. Other activities included: Land preparation; tending livestock; general farm maintenance.

NORTH DAKOTA: State had below normal precipitation, slightly above normal temperatures. Temperatures 3 to 6° above normal. Extremes -5° southeast; 46° southwest.

Remaining corn, sunflower snowbound, fall seeded crops in good condition. Corn for grain, sunflower each 97% harvested. Snow cover sufficient to protect 95% of winter wheat, rye, alfalfa. Winter wheat 1% poor, 23% fair, 67% good, 9% excellent. Rye 1% very poor, 2% poor, 27% fair, 63% good, 7% excellent. Livestock mostly good despite recent severe weather. Cattle 5% fair, 91% good, 4% excellent. Sheep 3% fair, 91% good, 6% excellent. Supplemental feed being given to nearly all livestock, hay supplies 3% short, 68% adequate, 29% plentiful. Livestock marketing normal.

OHIO: Cold air invaded the State early in the week. Warmer weather, rain arrived as a front moved through on the 2nd. Low pressure brought locally heavy rain on the 4th, causing flooding in some areas. Temperatures 2 to 6° warmer than normal due to above normal nighttime temperatures more than anything else. Highs were in the lower 40s north to near 50° far south. Lows 30 to 40°. Precipitation 1.00 in. or more was common.

Soils remain saturated in most areas, preventing fieldwork.

OKLAHOMA: Temperatures 4° above normal Panhandle to 6° above normal north central. Precipitation 0.02 in. Panhandle to 4.09 in. southeast.

Days suitable for fieldwork 5.4. Topsoil 31% short, 59% adequate, 10% surplus. Subsoil moisture 24% short, 76% adequate. Wheat 26% fair, 74% good; 31% acres grazed, 19% 1992, 27% avg. Sorghum 90% harvested, 95% 1992, 89% avg. Soybeans 95% harvested, 87% 1992, 91% avg. Peanuts 87% harvested, 99% 1992, 99% avg. Cotton 92% harvested, 51% 1992, 58% avg. Feeders, calves steady to \$3.00 higher.

OREGON: Temperatures normal to 4° above normal. Precipitation 2.00 in. or more Willamette Valley, coast, coastal range; 0.75 to 1.75 in. southwestern valleys; eastern sections 0.25 to 1.50 in.

Soil moisture short to mostly adequate. 1994 winter wheat fair to good. Christmas tree, holly harvests full swing. Winter orchard clean up underway. Livestock good to excellent. Supplemental feeding underway, statewide.

PENNSYLVANIA: Temperature 40°, 2° above normal. Extremes 15°; 62°. Precipitation 1.28 in., 0.52 in. above normal. Activities: Hauling manure; fixing fence; caring for livestock.

PUERTO RICO: Island rainfall 0.58 in. was 0.58 in. below normal. Highest total rainfall 2.64 in. Pico Del Este, 1.93 in. Coloso, 1.90 in. Roosevelt Roads. Island temperatures 77 to 78° on Coast, 71 to 74° in Interior with mean station 81.7° at Roosevelt Roads to 64.2° at Pico Del Este. Extremes 53°; 93°.

SOUTH CAROLINA: Seasonal temperatures, sunny skies until late week, showers, imbedded heavy rains developed. Temperatures near normal along the Coast to 2° below normal in the Upstate. Rainfall 0.50 in.

Days suitable for fieldwork 5.9. Soil moisture 2% very short, 49% short, 49% adequate. Barley fair to good; 84% planted, 95% 1992, 90% avg.; 79% emerged, 91% 1992, 83% avg. Oats fair to good; 89% planted, 92% 1992, 90% avg.; 83% emerged, 85% 1992, 79% avg. Rye fair to good; 86% planted, 94% 1992,

87% avg.; 82% emerged, 88% 1992, 77% avg. Wheat fair to good; 71% planted, 60% 1992, 70% avg.; 53% emerged, 46% 1992, 50% avg. Sorghum poor to fair; 90% harvested, 100% 1992, 91% avg. Soybeans 6% very poor, 23% poor, 58% fair, 13% good; 68% harvested, 61% 1992, 77% avg. Sweet potatoes fair; 94% harvested, 100% 1992, 94% avg. Pecans fair. Pasture feed 1% very poor, 27% poor, 54% fair, 18% good. Winter grazing fair to good; 95% emerged, 93% 1992, 91% avg.

SOUTH DAKOTA: Temperatures 1 to 8° above normal last week. Extremes -2°; 62°. Precipitation generally light, less than half an inch. Maximum 1.16 in. Precipitation for the year continues to be well above average especially in the southeast.

Snowcover ranges from over a foot in the northeast to just scattered low drifts in much of the western plains. Farm activities include: Finishing corn harvest, livestock care, equipment maintenance, routine chores.

TENNESSEE: Temperatures 2 to 4° above normal. Eastern areas recorded the lowest reading at 23° on 29th morning. Memphis had the highest reading 68° 1st. Rainfall was above normal especially in the east where Knoxville recorded 5.01 in. on 4th, 4.00 in. above normal.

Tobacco stripping is virtually wrapped up. Activity in cotton fields is finished, only a small portion of the double crop soybeans remain in the fields. Other activities include routine farm maintenance, livestock chores. Cattle are in good condition.

TEXAS: A cold front, a series of upper level disturbances moving along it generated showers, thunderstorms across State. Rainfall amounts were heaviest in eastern half of State, with north central climate division 1.28 in., low rolling plains division 0.80 in. Rainfall was below normal in seven of ten climate divisions, with departures -0.07 in. Trans-Pecos to -0.27 in. south central. Individual station totals between 6.00 to 8.00 in. extreme northeast counties of Red River, Bowie. Mean temperatures were above normal across State, +0° low rolling plains to +7° East Texas, Edwards Plateau, southern Texas. Soil temperatures 40° at Bushland 64° Beeville, Uvalde. Highest maximum soil temperature recorded was 76° at Beaumont, lowest minimum was 32° at Bushland.

Crops: Cotton harvest was active in High Plains. Southern High Plains, rain late in week delayed some producers from cutting stalks, working ground. Harvest was winding down in Edwards Plateau. In Trans-Pecos, weather was favorable for harvesting. Small grains: existing oat stands made good progress in Blacklands. In Edwards Plateau, wheat crop was beginning to suffer from a lack of moisture. In South Texas, producers were fertilizing fields as they continued to plant wheat. In Northern High Plains, irrigated wheat fields made good progress, dry land fields were in need of rain. Most fields across State could use a good rain to boost growth. Wheat 65% normal, 59% 1992. Peanuts harvest continued in Blacklands where reported irrigated yields were below average. Some irrigated yields in South Central Texas were also disappointing. Dryland crop also continued to be disappointing as some fields were abandoned. Soybeans harvest was winding down in Northern High Plains.

Commercial Vegetables: Rio Grande Valley, spring onion crop made good progress. Producers were preparing land for spring tomato, watermelon crops. San Antonio-Winter Garden, cabbage, spinach crops made average progress. Onion planting was winding down. Some land preparation continued. East Texas,

harvest of fall vegetables continued. High Plains, some producers were preparing land. Trans-Pecos, producers were controlling weeds, irrigating fields along Rio Grande River. Pecans harvest was in full swing across State. Weather conditions were perfect in many areas of Trans-Pecos for harvesting nuts. Low prices continued to be reported in many areas across State. In Edwards Plateau, some below normal yields were reported.

Range and Livestock: Livestock remained in fair to good condition across most of State as supplemental feeding has increased after recent hard freezes. Most areas could use a good rain to boost winter forage growth on ranges, pastures. Some livestock in High Plains were showing signs of winter stress. Ranchers continued to move cattle on to small grain pastures.

UTAH: Temperature maximums 3° below normal, minimums 4° below normal. Precipitation was light across the entire State, none for the Uintah Basin, southeast divisions.

Lack of heavy snow fall has enabled cattle, sheep to remain on crop aftermath with little or no supplemental feeding. Major farm activities include: Attending meetings; marketing onions, hay, grains; feeding, caring for livestock.

VIRGINIA: Temperatures below normal the beginning of the week, above normal weekend. Extremes 16°; 66°. Heavy rainfall was observed in many areas ranging from 0.25 to 4.14 in.

Days suitable for fieldwork 3.7. Topsoil 1% short, 74% adequate, 25% surplus. Pasture feed 7% very poor, 8% poor, 71% fair, 14% good. Soybeans harvested 85%, 79% 1992, 87% avg. Cotton harvesting 100% completed, 70% 1992, 83% avg. Winter grains, grazing crops 1% very poor, 4% poor, 49% fair, 43% good, 3% excellent. Winter wheat 95% seeded, 90% 1992, 90% avg. Forage from pastures, grazing crops dairy cattle 8%, beef cattle 45%, sheep 51%. Stripping, grading, marketing fire, burley tobacco, cutting Christmas trees, spreading manure, spreading lime.

WASHINGTON: Temperatures 1° below normal to 5° above normal west; 6° below normal to 2° above normal east. Precipitation 0.30 to 3.29 in. west; none to 1.28 in. east. Freezing temperatures reported across the entire State with the exception of the coast. Lows 15 to 37° west, 0 to 17° in the east. Highs 52 to 59° west, 38 to 60° east.

Days suitable for fieldwork 3.0. Soil moisture 70% short, 29% adequate, 1% surplus. Hay, other roughage supplies 15% short, 85% adequate. Range, pasture feed 13% very poor, 40% poor, 40% fair, 7% good. Winter wheat dryland 55% fair, 45% good; irrigated 5% fair, 95% good. Barley dryland 75% fair, 25% good; irrigated 15% fair, 85% good. Cold weather, rains slowed outside work across the State. Little damage to small grain crops was reported after the recent cold weather. Vegetable harvests were completed in most places. Limited fruit tree pruning was in progress. Christmas tree farms continued to be busy, with harvest of both trees, wreath boughs continuing. U-cut Christmas tree operations were doing a strong business.

WEST VIRGINIA: Temperature 42°. Extremes 18°; 66°. Precipitation 1.64 in.

Days suitable for fieldwork 3.4. Soil moisture 5% short, 75% adequate, 20% surplus. Pasture feed 10% poor, 60% fair, 20% good, 10% excellent; 79% of normal. Cattle 10% fair, 90% good. Sheep 5% fair, 95% good. Corn 92% harvested. Wheat good; 96% sown. Barley good. Soybeans 90% harvested. Farm activities: Moving livestock, feeding livestock, chopping silage, harvesting corn, harvesting soybeans, sowing wheat, general maintenance.

WISCONSIN: No arctic outbreaks invaded the State so temperatures above normal. Weak weather systems that did pass by our region brought generally light precipitation in the form of rain, freezing drizzle, snow. Temperature 29°; 5° above normal. Extremes -4°; 50°. Precipitation 0.10 to 0.40 in. Early December frost depth 1.2 in., 0.3 in 1992, 1.7 in. avg. Snow depth 2.6 in., 0.6 in. 1992, 2.5 in. avg. Data on frost, snow depths relate to December 3, 1993.

WYOMING: Temperatures 7° below normal in Jackson, Powell to 5° above normal in Casper, Wheatland. Precipitation was mostly below normal with only small amounts of precipitation a few scattered areas.

Topsoil 18% short, 78% adequate, 4% surplus. Subsoil 20% short, 80% adequate. Corn harvested 81%. Sugarbeets harvested 100%. Winter wheat 38% fair, 62% good. Cattle, sheep mostly good. Hay, roughage supplies 8% short, 83% adequate, 9% surplus.

(Continued from front cover)

approaching storm system. Weekly rainfall, mostly accumulated before midweek, included 5.85 inches in Astoria, OR, 2.05 inches in Salem, OR, and 1.27 inches in Sacramento, CA. Even as far south as Los Angeles, CA, two-thirds of an inch of rain fell on Tuesday morning. The snow depth at Stampede Pass, WA (elevation 3,960 feet) increased 10 inches during the week, to 24 inches. Farther south, as much as 2 feet of snow accumulated in the Sierra Nevada mountains. By Wednesday, much of the storm's energy translated eastward, producing a mixture of light snow and light rain across the western Great Lakes States. But on Thursday, a surge of sub-tropical energy

rejuvenated the weather system, engendering heavy rainfall from northeastern Texas into Arkansas. Heavy rainfall propagated eastward into the Mid-Atlantic region by Saturday. Considerable flash flooding occurred in areas such as the southern Ozarks and the lower Ohio Valley, which have been wet since mid-November, and the Middle Atlantic States, which received copious rainfall a week earlier. Storm totals included 3.58 inches in Memphis, TN, 5.18 inches in Knoxville, TN, 2.69 inches in Roanoke, VA, and 2.40 inches in Allentown, PA. In New England, precipitation developed in the form of snow before changing to rain. At week's end, a new storm lashed the Northwest with high winds and orographic snowfall.

November 1993

MONTHLY DATA FROM SELECTED FOREIGN CITIES
CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA
*** = DATA NOT AVAILABLE

International Weather and Crop Summary
HIGHLIGHTS

November 28 - December 4, 1993

FSU: Winter grains remained dormant. Widespread light snow accompanied the fourth consecutive week of bitter cold.

EUROPE: The cold wave ended by week's end across northern and eastern Europe. Beneficial precipitation continued in Greece.

SOUTH ASIA: A tropical cyclone hit southeastern India, causing some coastal flooding and crop damage.

SOUTHEAST ASIA: Typhoon Lola rolled across the central Philippines, bringing heavy showers to rice and sugarcane areas. Heavy rain continued over Java, aiding newly planted rice.

EASTERN ASIA: Winter wheat entered dormancy across the northern Chinese wheat areas. Rice harvesting neared completion across southern China.

AUSTRALIA: Mostly dry, hot weather favored wheat harvesting but stressed germinating summer crops across the east. Wheat harvesting continued across the west and south.

SOUTH AMERICA: Showers continued to slow summer crop planting across the region.

NORTHWESTERN AFRICA: Winter grain planting progressed over the region. Moisture was adequate for germination and early establishment in most areas.

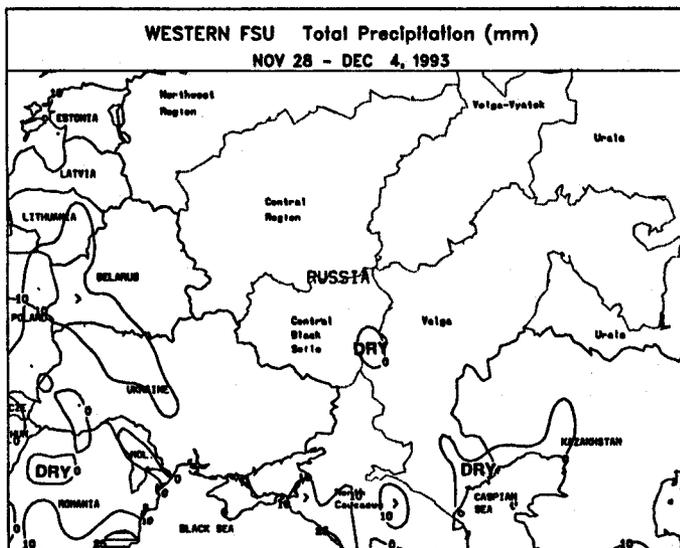
SOUTH AFRICA: Beneficial showers covered eastern corn and sugarcane areas, but dry, warm weather intensified in the western corn belt.

COUNTRY	CITY	TEMPERATURE (C)					PRECIPITATION (MM)		
		AVG MAX	AVG MIN	HI MAX	LO MIN	AVG	DPART F/NRM	DPART F/NRM	
NORWAY	OSLO	-1	-4	4	-15	-3	-1.2	119	29
SWEDEN	STOCKHOLM	3	0	6	-7	1	-1.3	26	-28
FINLND	HELSINKI	-2	-5	7	-13	-3	-3.4	8	-63
U KING	GLASGOW	7	2	12	-8	4	-2.2	75	-38
	EDINBURGH	7	1	13	-9	4	-1.6	36	-26
	BIRMINGHAM	7	2	14	-5	5	-1.6	73	14
	LONDON	8	2	17	-7	5	-1.7	53	-24
IRELND	DUBLIN	9	5	14	0	7	-0.1	48	-17
ICELND	REYKJAVIK	5	2	10	-3	4	2.4	162	89
DENMRK	COPENHAGEN	4	2	10	-5	3	-2.6	29	-19
LUXEMB	LUXEMBOURG	3	-1	14	-9	1	-2.7	18	-61
SWITZL	ZURICH	3	0	13	-7	2	-2.6	53	-31
	GENEVA	6	2	16	-4	4	-0.8	22	-70
FRANCE	PARIS/ORLY	7	1	20	-7	4	***	18	**
	STRASBOURG	4	0	14	-9	2	-2.8	10	-35
	BOURGES	7	1	21	-8	4	-2.4	25	-33
	BORDEAUX	12	4	22	-5	8	-0.6	40	-53
	TOULOUSE	11	5	19	-2	8	-0.4	49	1
	MARSEILLE	14	6	20	-2	10	-0.3	39	-19
SPAIN	VALLADOLID	11	3	19	-4	7	-0.7	23	-29
	MADRID	13	4	17	-2	9	-0.5	37	-29
	SEVILLE	19	10	23	4	15	-0.5	50	-21
PORTUG	LISBON	16	11	20	5	13	-0.8	143	43
GERMNY	HAMBURG	3	-1	9	-8	1	-3.8	30	-41
	BERLIN	2	-1	8	-9	1	-4.3	31	-19
	DUSSELDORF	6	0	17	-10	3	-3.4	49	-14
	LEIPZIG	2	-2	9	-12	0	-4.8	41	5
	DRESDEN	3	-2	10	-13	1	-3.8	44	2
	STUTTGART	4	-1	14	-11	2	-2.6	35	-13
	NURNBERG	3	-1	11	-12	1	-2.9	27	-17
AUSTRI	VIENNA	3	-1	14	-10	1	-3.1	54	13
	INNSBRUCK	7	0	18	-8	3	0.0	23	-37
CZECH	PRAGUE	2	-2	10	-13	0	-3.0	39	8
POLAND	WARSAW	0	-5	11	-15	-3	-6.1	20	-22
	LODZ	1	-4	11	-14	-2	-3.9	23	-16
	KATOWICE	3	-3	14	-14	0	-2.5	30	-11
	PRZEMYSL	1	-5	15	-15	-2	-5.9	18	-23
HUNGAR	BUDAPEST	4	0	18	-10	2	-3.1	85	33
F YUGO	BELGRADE	7	1	24	-6	4	-3.1	52	-4
ROMANI	BUCHAREST	3	-4	17	-19	0	-6.2	67	20
BULGAR	SOFIA	5	-1	22	-9	2	-2.7	42	-8
ITALY	MILAN	10	5	18	-2	7	0.6	66	-29
	VERONA	11	4	19	-5	8	1.1	55	-18
	VENICE	11	5	17	-2	8	0.3	148	64
	GENOA	13	9	19	2	11	-1.8	69	-90
	ROME	17	10	22	2	13	0.9	111	5
	NAPLES	17	10	23	5	13	1.4	154	0
GREECE	THESSALONIKA	13	7	26	0	10	-1.0	64	6
	LARISSA	12	7	24	-1	10	-1.2	166	105
	ATHENS	16	12	24	7	14	-1.4	203	148
TURKEY	ISTANBUL	13	8	23	2	11	-0.9	110	22
	ANKARA	8	-3	20	-10	3	-3.2	42	17
CYPRUS	LARNACA	21	12	27	5	17	-1.2	50	12
ESTONI	TALLINN	-3	-7	6	-19	-5	-6.2	6	-58
FSU	ST. PETERSBERG	-4	-7	4	-15	-6	-5.9	2	-50
LITHUA	KAUNAS	-2	-6	7	-15	-4	-6.3	11	-40
FSU	MINSK	-4	-9	5	-17	-6	-7.2	8	-42
	KAZAN	-8	-13	1	-23	-11	-7.5	21	-23
	MOSCOW	-6	-10	3	-19	-8	-6.7	8	-47
	YEKATERINBURG	-11	-16	-1	-28	-13	-7.7	20	-9
	OMSK	-13	-20	-1	-29	-17	-9.5	12	-16
	KUSTANAY	-13	-21	-1	-27	-17	-11.5	6	-17
	KRASNOYARSK	-9	-13	4	-26	-11	-3.2	19	-18
	NOVOSIBIRSK	-13	-17	2	-29	-15	-5.3	32	5
	BARNAUL	-12	-17	2	-29	-15	-8.3	24	-10
	KHABAROVSK	-4	-10	8	-22	-7	1.0	54	34
	VLADIVOSTOK	2	-3	15	-13	0	1.0	86	55
	KIEV	-3	-9	8	-17	-6	-7.9	23	-26
	LVOV	1	-5	14	-16	-2	-4.8	24	-20
	KIROVOGRAD	-2	-10	8	-18	-6	-7.9	20	-16

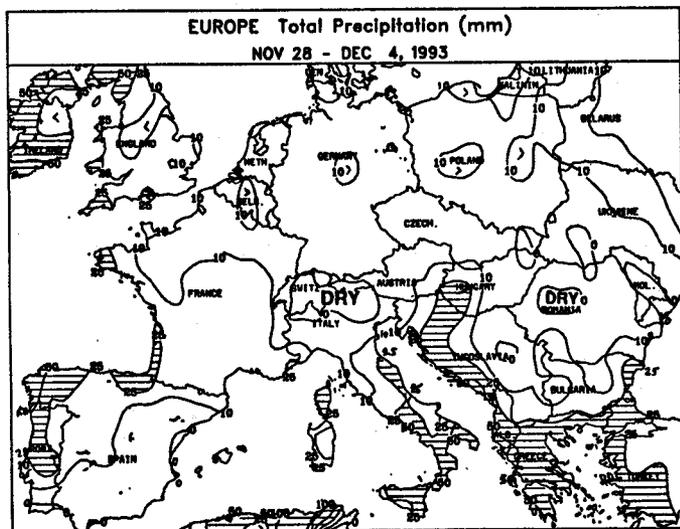
Based on Preliminary Reports

November 1993

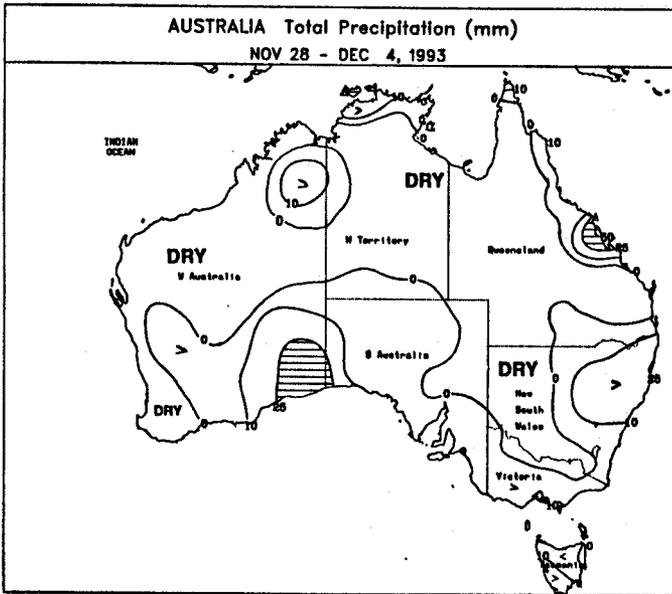
COUNTRY	CITY	TEMPERATURE (C)					PRECIPITATION (MM)			COUNTRY	CITY	TEMPERATURE (C)					PRECIPITATION (MM)				
		AVG	AVG	HI	LO	DPART	DPART	TOTAL	F/NRM			AVG	AVG	HI	LO	DPART	DPART	TOTAL	F/NRM		
		MAX	MIN	MAX	MIN	AVG	F/NRM	TOTAL	F/NRM			MAX	MIN	MAX	MIN	AVG	F/NRM	TOTAL	F/NRM		
FSU	ODESSA	2	-3	13	-11	-1	-6.5	27	-13	KENYA	NAIROBI	25	14	28	9	20	0.4	119	-2		
	YALTA	7	-2	16	-5	4	-5.2	5	-57		TANZAN	DAR ES SALAAM	31	**	33	12	**	***	125	9	
	VORONEZH	-6	-12	3	-19	-9	-8.7	14	-38		GABON	LIBREVILLE	29	23	31	21	26	0.1	250	-273	
	SARATOV	-7	-11	2	-18	-9	-7.3	9	-31		TOGO	LOME	32	**	33	22	**	***	31	9	
	KHARKOV	-5	-11	7	-18	-8	-9.2	5	-38		B FASO	OUAGADOUGOU	37	22	38	19	30	1.8	0	-2	
	VOLGOGRAD	-4	-11	10	-19	-8	-7.2	8	-26		IVRY C	ABIDJAN	32	25	37	23	29	1.2	131	-11	
	ROSTOV	-3	-9	8	-15	-6	-9.4	7	-42		MOZAMB	MAPUTO	28	20	36	16	24	-0.1	40	-33	
	ASTRAKHAN	-3	-10	10	-21	-6	-9.4	15	-1		ZAMBIA	LUSAKA	28	19	33	17	23	0.0	64	-28	
	KRASNODAR	0	-8	17	-19	-4	-10.1	30	-31		ZIMBAB	HARARE	27	16	33	14	21	0.7	101	0	
	ORENBURG	-9	-15	0	-25	-12	-8.6	6	-33		S AFRI	PRETORIA	26	16	31	11	21	0.0	93	-8	
	TSELINGRAD	-12	-19	-1	-33	-16	-7.3	8	-3		JOHANNESBURG	JOHANNESBURG	23	12	28	7	18	-0.2	111	-6	
	KARAGANDA	-10	-17	-1	-28	-14	-8.6	21	-7		BETHAL	BETHAL	23	12	28	6	18	-0.4	128	1	
	TBILISI	7	1	20	-3	4	-4.0	81	49		DURBAN	DURBAN	26	19	30	14	22	0.6	84	-25	
	TASHKENT	8	2	18	-10	5	-2.8	86	43		CAPE TOWN	CAPE TOWN	25	13	33	7	19	1.2	2	-14	
	ASHKHABAD	8	3	18	-5	5	-4.3	52	31		CANADA	TORONTO	7	-1	16	-10	3	0.0	66	-5	
	SYRIA	DAMASCUS	19	3	28	-6	11	-1.2	16		-9	MONTREAL	MONTREAL	5	-3	14	-14	1	-0.3	98	5
	ISRAEL	JERUSALEM	18	10	26	2	14	-0.9	52		-11	WINNIPEG	WINNIPEG	-1	-10	8	-22	-6	-1.0	21	0
	PAKIST	KARACHI	32	18	37	12	25	1.3	0		-2	REGINA	REGINA	-2	-12	6	-22	-7	-2.0	22	10
INDIA	AMRITSAR	28	11	38	6	20	1.6	2	-5	SASKATOON	SASKATOON	-4	-13	4	-29	-9	-2.7	19	6		
	NEW DELHI	29	13	33	8	21	0.4	0	-6	LETHBRIDGE	LETHBRIDGE	4	-8	12	-27	-2	-0.8	16	0		
	AHMEDABAD	33	19	36	13	26	1.1	10	-2	CALGARY	CALGARY	3	-9	12	-30	-3	0.0	11	-1		
	INDORE	31	15	33	10	23	0.9	3	-19	EDMONTON	EDMONTON	1	-8	11	-24	-4	0.6	25	9		
	CALCUTTA	30	19	32	15	25	1.1	25	9	VANCOUVER	VANCOUVER	8	1	12	-10	5	-1.4	64	-106		
	VERAVAL	33	22	36	17	27	1.1	5	-21	MEXICO	GUADALAJARA	**	**	29	7	**	***	0	-13		
	BOMBAY	33	22	35	16	28	1.3	0	-7	MEXICO CITY	MEXICO CITY	**	**	27	8	**	***	**	**		
	POONA	29	15	31	8	22	0.1	5	-18	ACAPULCO	ACAPULCO	33	24	35	23	29	0.9	0	-44		
	BEGAMPET	30	17	32	11	23	0.5	0	-23	BERMUD	ST. GEORGES	26	22	29	18	24	2.6	150	31		
	VTSHAKHAPATNAM	30	23	31	21	27	***	3	**	BAHAMA	NASSAU	29	22	31	19	25	1.4	24	-31		
	MADRAS	30	23	32	20	27	0.5	453	113	CUBA	HAVANA	28	23	32	19	26	1.7	90	19		
	MANGALORE	33	23	36	20	28	1.0	39	-33	JAMAIC	KINGSTON	32	24	34	22	28	1.2	112	31		
H KONG	KINGS PEAK	24	19	30	11	22	***	123	**	P RICO	SAN JUAN	31	24	33	21	27	0.5	108	-43		
N KREA	PYONGYANG	9	1	18	-15	5	1.5	57	8	GUADEL	RAIZET	31	22	33	20	27	1.0	54	-87		
S KREA	SEOUL	13	6	21	-9	9	2.9	65	29	MARTINQ	LAMENTIN	29	24	31	21	26	0.7	139	-51		
JAPAN	SAPPORO	9	3	17	-2	6	1.5	87	-12	BARBAD	BRIDGETOWN	30	25	30	23	27	0.3	48	-84		
	NAGOYA	17	9	23	2	13	1.8	113	43	TRINID	PORT OF SPAIN	31	23	33	22	27	1.3	134	-64		
	TOKYO	17	11	24	5	14	1.7	170	80	COLOMB	BOGOTA	20	10	21	6	14	1.0	164	77		
	YOKOHAMA	18	11	24	4	14	1.9	98	-6	VENEZU	CARACAS	29	22	31	19	26	-1.1	58	7		
	KYOTO	18	10	24	1	14	2.4	108	33	F GUIA	CAYENNE	31	23	32	22	27	0.7	69	-86		
	OSAKA	18	12	24	4	15	2.1	90	25	BRAZIL	FORTALEZA	**	25	31	24	**	***	4	-9		
THAILN	PHETCHABUN	34	20	36	14	27	1.6	0	-19	RECIFE	RECIFE	**	**	30	21	**	***	22	-23		
	BANGKOK	32	23	34	20	28	0.5	4	-48	BELO HORIZONTE	BELO HORIZONTE	29	20	34	15	24	1.5	181	-61		
MALAYS	KUALA LUMPUR	32	24	33	22	28	1.6	319	43	CAMPO GRANDE	CAMPO GRANDE	32	21	36	18	27	1.7	102	-82		
VIETNM	HANOI	26	20	31	14	23	1.2	16	-28	FRANCA	FRANCA	29	20	33	18	24	3.1	121	-85		
CHINA	HARBIN	-2	-10	14	-23	-6	1.1	9	1	LONDRINA	LONDRINA	**	**	35	14	**	***	48	-103		
	HAMI	6	-6	23	-14	0	0.1	0	-1	SANTA MARIA	SANTA MARIA	27	**	36	12	**	***	240	129		
	LANCHOW	9	-2	20	-9	3	1.4	4	-1	PORTO ALEGRE	PORTO ALEGRE	28	18	35	11	23	1.6	139	64		
	BEIJING	8	0	20	-10	4	-0.3	43	37	PERU	LIMA	22	17	25	16	19	0.3	0	0		
	TIENTSIN	8	0	20	-10	4	-1.8	53	43	BOLIVI	LA PAZ	15	4	19	2	10	-0.7	62	12		
	LHASA	12	-4	16	-7	4	1.0	1	-1	CHILE	SANTIAGO	26	8	32	3	17	-0.2	0	-7		
	KUNMING	19	6	21	4	13	1.1	16	-24	ARGENT	IGUAZU	30	17	37	11	24	***	169	**		
	CHENGCHOW	11	2	25	-13	6	-1.5	79	54	FORMOSA	FORMOSA	30	19	37	13	25	0.4	211	27		
	YEHCHANG	14	8	25	-1	11	-1.4	73	26	CERES	CERES	26	15	32	9	21	-1.7	113	14		
	HANKOW	14	6	25	-2	10	-0.8	138	82	CORDOBA	CORDOBA	26	15	35	8	21	-0.3	191	91		
	CHUNGKING	18	12	25	5	15	***	35	**	RIO CUARTO	RIO CUARTO	24	14	35	8	19	-0.5	210	89		
	CHIHKIANG	16	8	26	-1	12	-0.4	50	-19	ROSARIO	ROSARIO	25	15	33	11	20	-0.2	82	-15		
	WU HU	15	8	25	-4	11	***	121	**	BUENOS AIRES	BUENOS AIRES	24	14	31	7	19	0.2	98	-1		
	SHANGHAI	17	11	25	-2	14	***	67	**	SANTA ROSA	SANTA ROSA	25	11	34	7	18	-1.2	187	88		
	NANCHANG	17	10	26	-1	13	0.1	107	53	TRES ARROYOS	TRES ARROYOS	21	11	30	3	16	-0.4	151	76		
	TAIPEI	24	21	30	14	23	2.5	73	9	N CALD	NOUMEA	28	21	32	18	24	0.7	40	-34		
	CANTON	24	17	30	7	20	1.2	74	33	FLJI	NAUSORI	28	22	31	18	25	0.5	229	-28		
	NANNING	25	17	31	9	21	1.8	99	54	SAMOA	PAGO PAGO	30	26	32	23	28	1.1	221	-55		
CNRY I	LAS PALMAS	22	17	27	13	19	-0.9	51	29	TAHITI	PAPEETE	31	23	32	21	27	1.1	46	-115		
MOROCC	CASABLANCA	19	12	22	8	16	-0.2	155	82	N ZEAL	AUCKLAND	18	12	20	9	15	-1.1	0	-82		
	MARRAKECH	18	10	23	6	14	-1.7	38	0	WELLINGTON	WELLINGTON	15	11	19	7	13	***	56	**		
ALGERI	ALGER	19	11	25	5	15	0.2	95	-10	PA N G	PORT MORESBY	31	24	33	22	28	-0.1	9	-43		
	BATNA	16	4	24	-3	10	0.3	10	-26	AUSTRL	DARWIN	33	26	35	23	29	-0.1	93	-38		
TUNISI	TUNIS	21	12	28	4	17	0.7	49	-7	MOREE	MOREE	31	17	39	10	24	1.1	16	-36		
NIGER	NIAMEY	38	21	39	13	30	1.8	0	0	BRISBANE	BRISBANE	25	18	31	15	22	-1.1	68	-42		
MALI	TIMBUKTU	35	20	40	14	27	1.6	3	3	PERTH	PERTH	25	15	35	10	20	0.7	4	-19		
	BAMAKO	35	23	37	19	29	2.3	143	140	CEDUNA	CEDUNA	25	12	43	5	19	-0.7	17	-1		
MAURIT	NOUAKHOTT	30	18	36	14	24	-1.6	2	-2	ADELAIDE	ADELAIDE	23	12	42	7	18	-0.6	23	1		
SENEGL	DAKAR	27	21	30	18	24	-1.6	0	0	MEL											



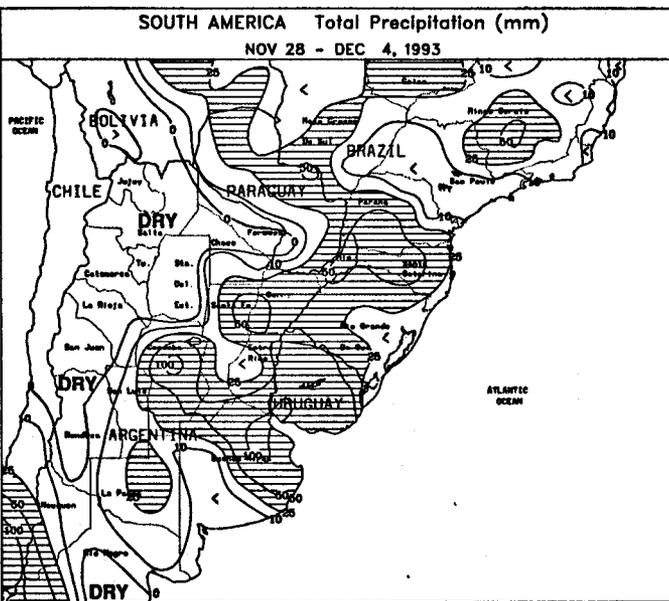
FSU-WESTERN: The fourth consecutive week of bitter cold covered winter grain areas in the Baltic States, Belarus, Ukraine, and Russia. Widespread light snow dusted the region, increasing snow cover. Weekly average temperatures were 4-8 degrees Celsius (C) below normal in the north and west, and 9-13 degrees C below normal in southeastern winter wheat areas (eastern Ukraine, North Caucasus, and lower Volga). Lowest temperatures ranged from -10 to -15 degrees C in the Baltic States, Belarus, and western Ukraine, and -15 to -25 degrees C in Russia and eastern Ukraine. A variable snow cover provided protection from extreme cold, minimizing the threat of widespread winterkill. However, some localized damage is likely in Russia and Ukraine, especially in areas where crops were poorly established prior to entering dormancy. By week's end, the bitter cold weather over the region began to moderate, as milder air from Europe penetrated into western areas.



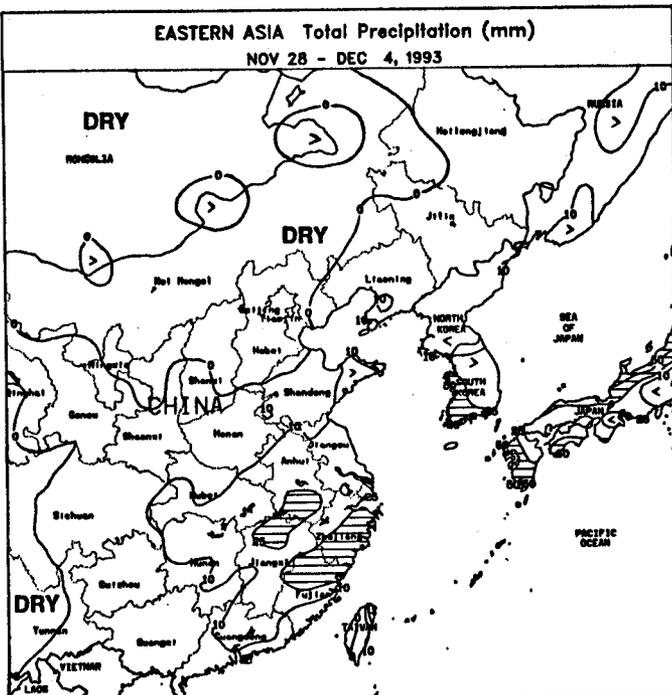
EUROPE: The cold wave lingered across northern and eastern Europe early in the week, but moderating temperatures toward week's end eased stress on vulnerable crops and livestock. Light precipitation (generally 10 mm or less) covered most of these areas, with light snow and ice disrupting most activities before changing to light rain late in the week as far east as western Poland. Heavier, but variable, precipitation (10-70 mm) fell over the United Kingdom, southern France, and northwestern portions of the Iberian peninsula, slowing late-season fieldwork in the north. The rain in western Spain and northern Portugal helped early-season crop growth. Widespread, beneficial rain (35-69 mm) in Greece continued to improve moisture supplies for agriculture, with variable precipitation (4-22 mm) bringing some relief from drought in Bulgaria.



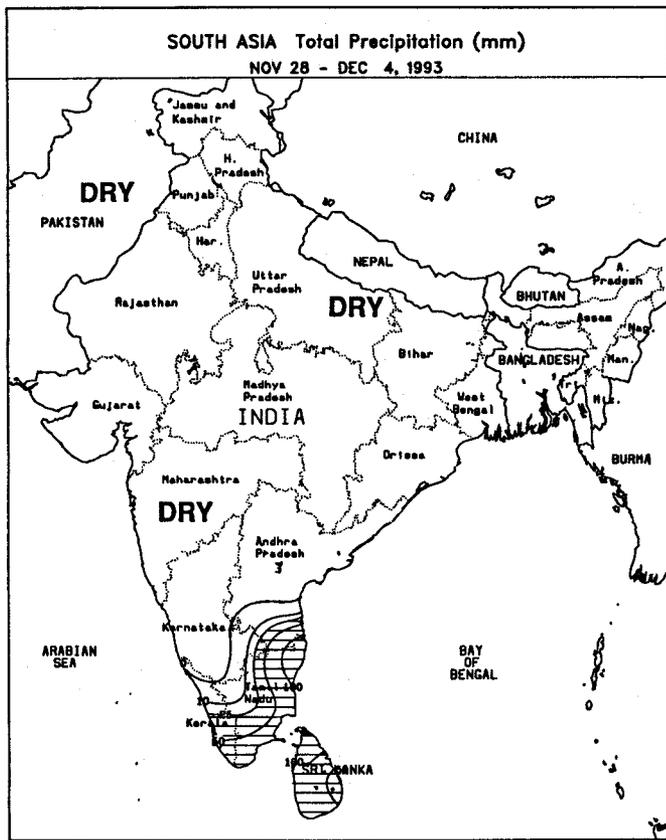
AUSTRALIA: Widely scattered light rain (1-10 mm, with isolated amounts greater than 20 mm) fell across eastern Australia, allowing wheat harvesting to progress with only slight interruptions. However, hot weather (maximum temperatures ranging from 37 to 42 degrees C) stressed germinating cotton and sorghum. Irrigation supplies are low for summer crops, due to long-term moisture deficits. Summer crop planting should be completed within a month and timely rains are needed to ensure adequate yields. Hot, dry weather also reduced pasture growth across interior southern Queensland. Little or no rain fell in the western and southern wheat areas, aiding harvesting. Temperatures averaged 4-6 degrees C above normal across the east and 1-2 degrees below normal across the west.



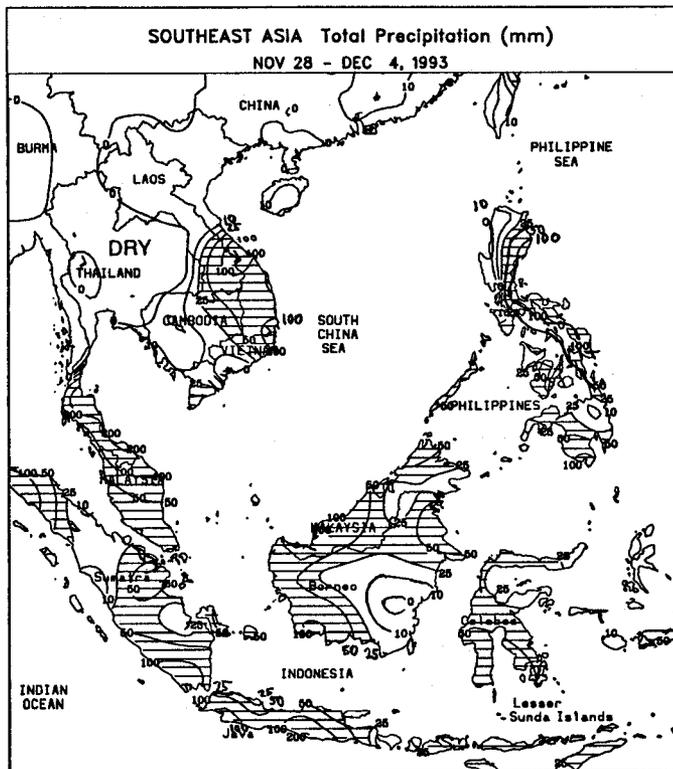
SOUTH AMERICA: In southern Brazil, moderate showers (32-65 mm) continued to slow summer crop planting across Rio Grande do Sul and Santa Catarina. Further north, light to moderate showers (10-40 mm) kept soils well watered and increased soil moisture across Goiás and Mato Grosso. The showers were especially beneficial since maximum temperatures ranged from 33 to 37 degrees C (average temperatures 2-4 degrees C above normal), increasing evaporative demands on crops. Spotty showers (11-40 mm) fell across inland and coastal cocoa areas of Bahia. Across Argentina, two frontal systems swept across the central crop area during the week, producing moderate showers (10-60 mm). Isolated heavy showers occurred near the city of Buenos Aires and central Córdoba (110-170 mm), producing local flooding. The showers continued to slow summer crop planting but increased soil moisture reserves. Sunflower seed has been most negatively impacted since it does not tolerate wet conditions as well as corn or soybeans. Scattered showers (15-60 mm) continued to slow cotton planting and replanting across northern Argentina. Temperatures averaged 1-2 degrees C below normal across central Argentina.



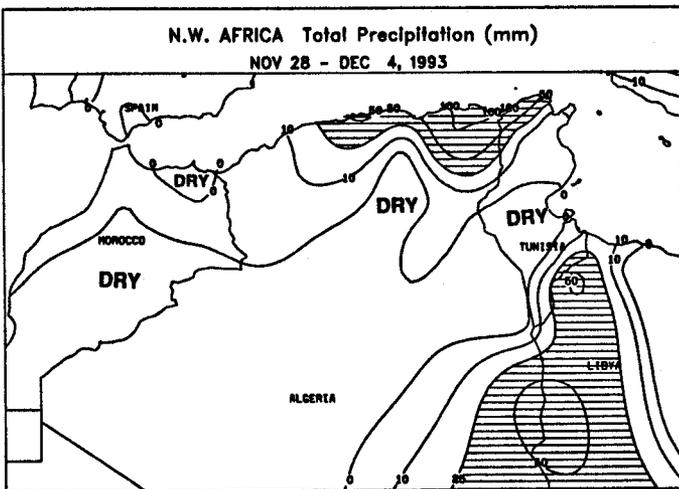
EASTERN ASIA: Seasonable temperatures returned to the North China Plain, but were still cold enough for winter wheat to enter dormancy across the northern areas. Maximum temperatures ranged from 0 to 7 degrees C, melting most of the remaining snow cover. Light rain (5-20 mm) fell across the southern portion of the main wheat belt (southern Henan, Anhui, Jiangsu, and Hubei), aiding late-autumn vegetative growth. Widespread light to moderate rain (10-35 mm) covered southern China, slowing late double-crop rice harvesting that should be nearing completion. The moisture favored winter crops. Temperatures averaged near normal in the north and 2-4 degrees C above normal across the south.



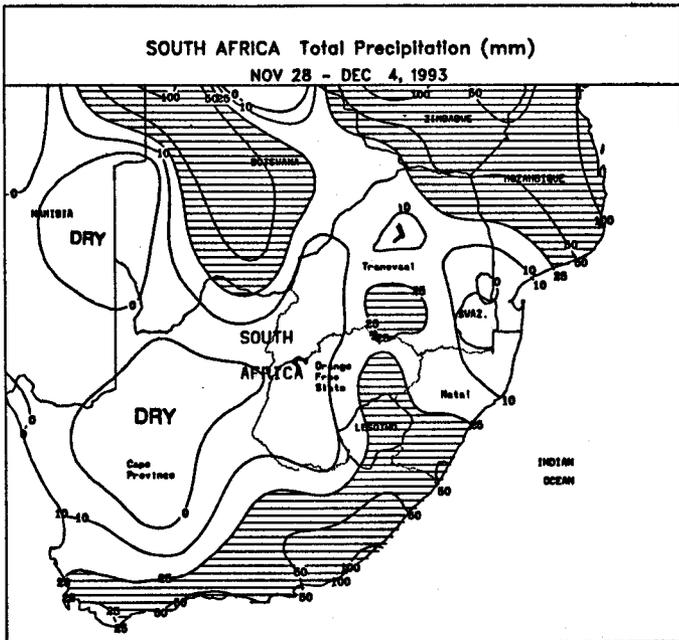
SOUTH ASIA: A tropical cyclone struck southern India on December 4 just south of Madras with sustained winds of 70 knots. Rainfall for the week ending on December 4 totaled 50-150 mm in the area, causing some coastal flooding, with more recorded on December 5 and 6 as the storm tracked northwestward through India's southern interior. Climatic studies have shown that while Bay of Bengal storms are uncommon this time of year, occurrence is not without precedent. More information will be provided in next week's summary with regard to total rainfall and impact on rice and immature rabi (fall-planted) crops. Elsewhere, warm, dry weather in Pakistan's and India's northern half benefited summer crop harvests and development of the mainly irrigated winter grain and oilseed crops.



SOUTHEAST ASIA: Typhoon Lola hit southeastern Luzon on December 5 with sustained winds of about 80 knots. Lola moved rapidly westward and was positioned just west of Manila as of 00Z December 6. Moderate to heavy rain (50-200 mm or more) was reported for the week ending December 4, but more was likely on December 5 and 6 in important rice, sugarcane, and copra areas. More information will be provided in next week's summary. Elsewhere, more heavy rain (50-145 mm) fell along Vietnam's central coast, exacerbating flooding. Unseasonably hot weather in Thailand reduced moisture reserves for the upcoming dry-season rice crop. Further south, moderate to heavy rain continued throughout primary crop areas of Malaysia and Indonesia, causing some local flooding but increasing irrigation reserves for rice and other crops.



NORTHWESTERN AFRICA: Mostly dry weather prevailed over Morocco and western Algeria, benefiting winter grain planting. Moisture conditions were adequate for germination and early establishment in these areas. Further east, wet weather moistened topsoils in central and eastern Algeria and Tunisia, prompting widespread planting slowed by earlier dryness. Rainfall in these areas generally ranged from 10 to 25 mm, with coastal locations receiving rainfall from 50 to 100 mm.



SOUTH AFRICA: Moderate showers (15-39 mm) benefited vegetative corn in the eastern half of the corn belt. To the south, moderate to heavy rain (25-50 mm or more) covered most crop areas of southern and eastern Cape Province and southern Natal. Crops that benefited from the coastal rainfall included corn, fruits, vegetables, and sugarcane. In contrast, warm, dry weather continued for the third week in western corn areas (southwestern Transvaal and central and southern Orange Free State), reducing moisture for vegetative corn.

Cuban Sugar and Brazilian Cocoa Highlights

Poor weather conditions prevailed over portions of Cuba's sugarcane areas for the second consecutive year (fig. 1). Sugarcane harvest usually begins across Cuba in November and finishes by June. Typically, this is a period of relatively low precipitation, with weekly normal rainfall ranging from 5 to 12 mm between November and early April. Mid-summer rainfall averaged below normal (fig. 2). Seasonable rains from mid-August to early October promoted crop development. During the fall, the lack of tropical storm and hurricane activity across the northern Caribbean eased the threat of crop damage. Nevertheless, heavy rain (50-200 mm) fell across eastern Cuba during late November, slowing early harvesting. This region typically accounts for 31 percent of Cuba's sugarcane

production. The rest of Cuba received only light to moderate rain (10-40 mm).

In Brazil, the main cocoa region of Bahia has received below-normal rainfall (fig. 3), possibly lowering yields. Across the region, November rainfall averaged 20 to 50 percent of normal. The last few weeks have seen a seasonal increase in rain, but a substantial moisture deficit still exists. The main cocoa crop usually flowers in May and is harvested from October to April. The mid-crop (temporao) flowers in December, with the harvest occurring the following May to September.

--Bob Stefanski

PERCENT OF SUGARCANE PRODUCTION 1986/87-88/89 AVERAGE

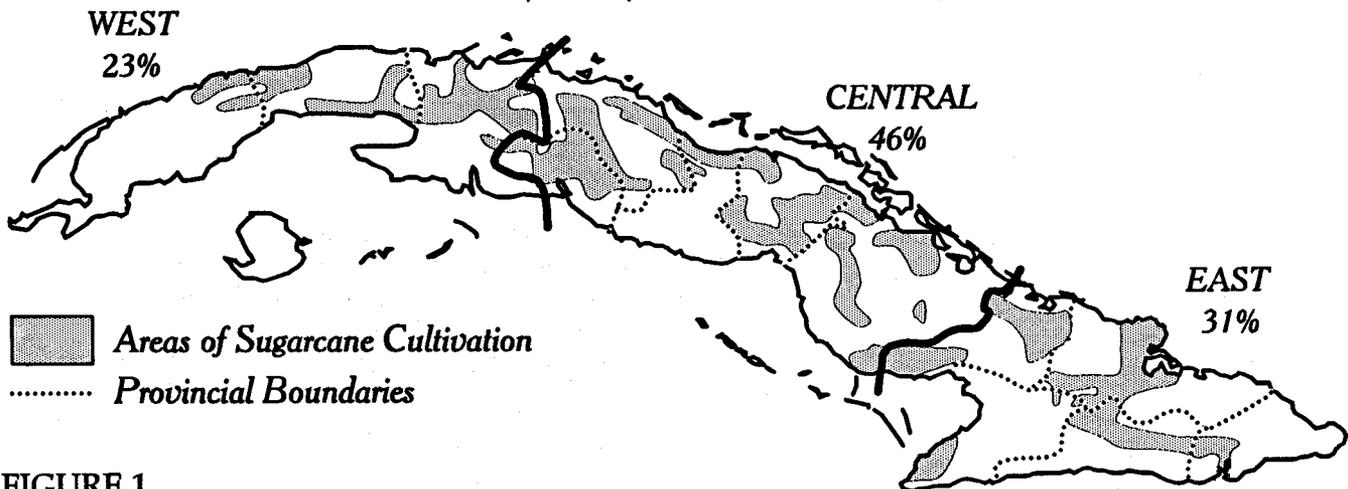


FIGURE 1

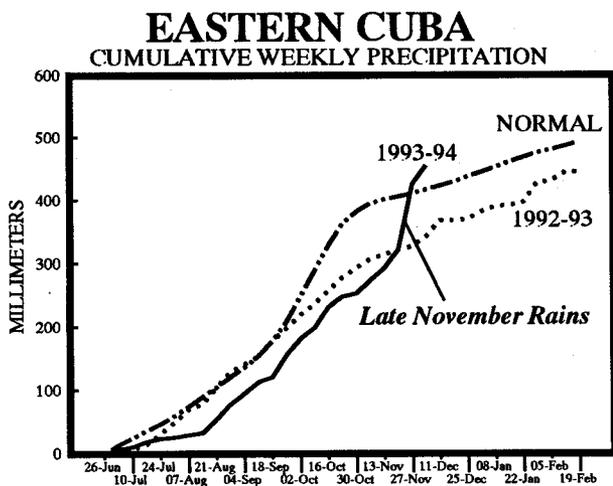


FIGURE 2

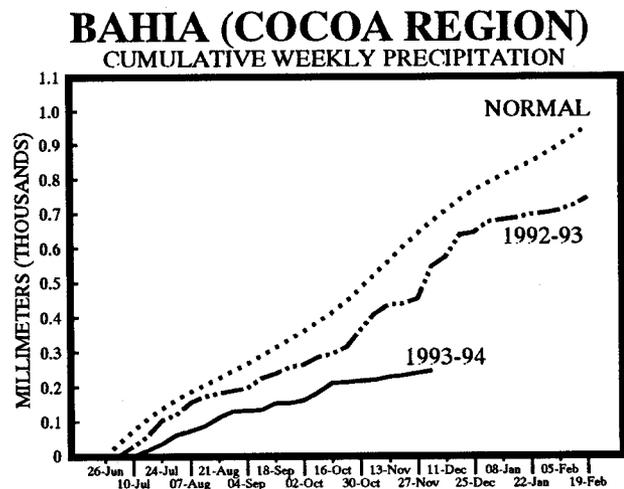


FIGURE 3

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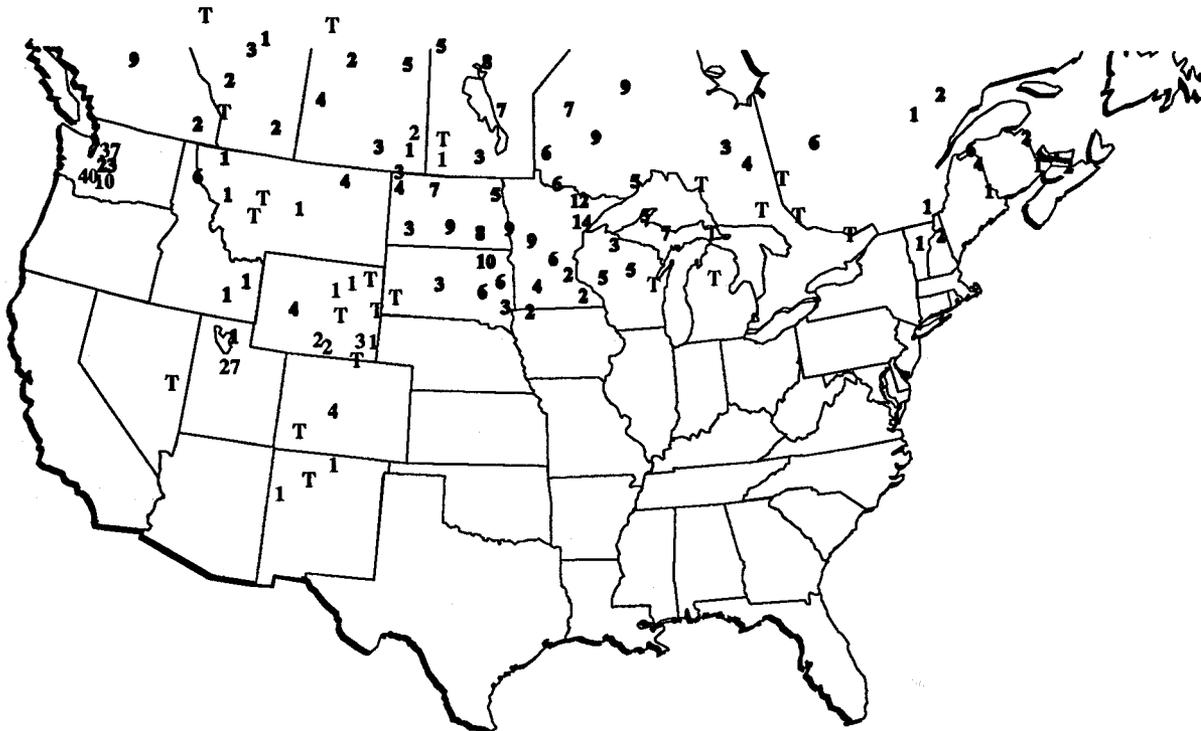
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