

# WEEKLY WEATHER AND CROP BULLETIN

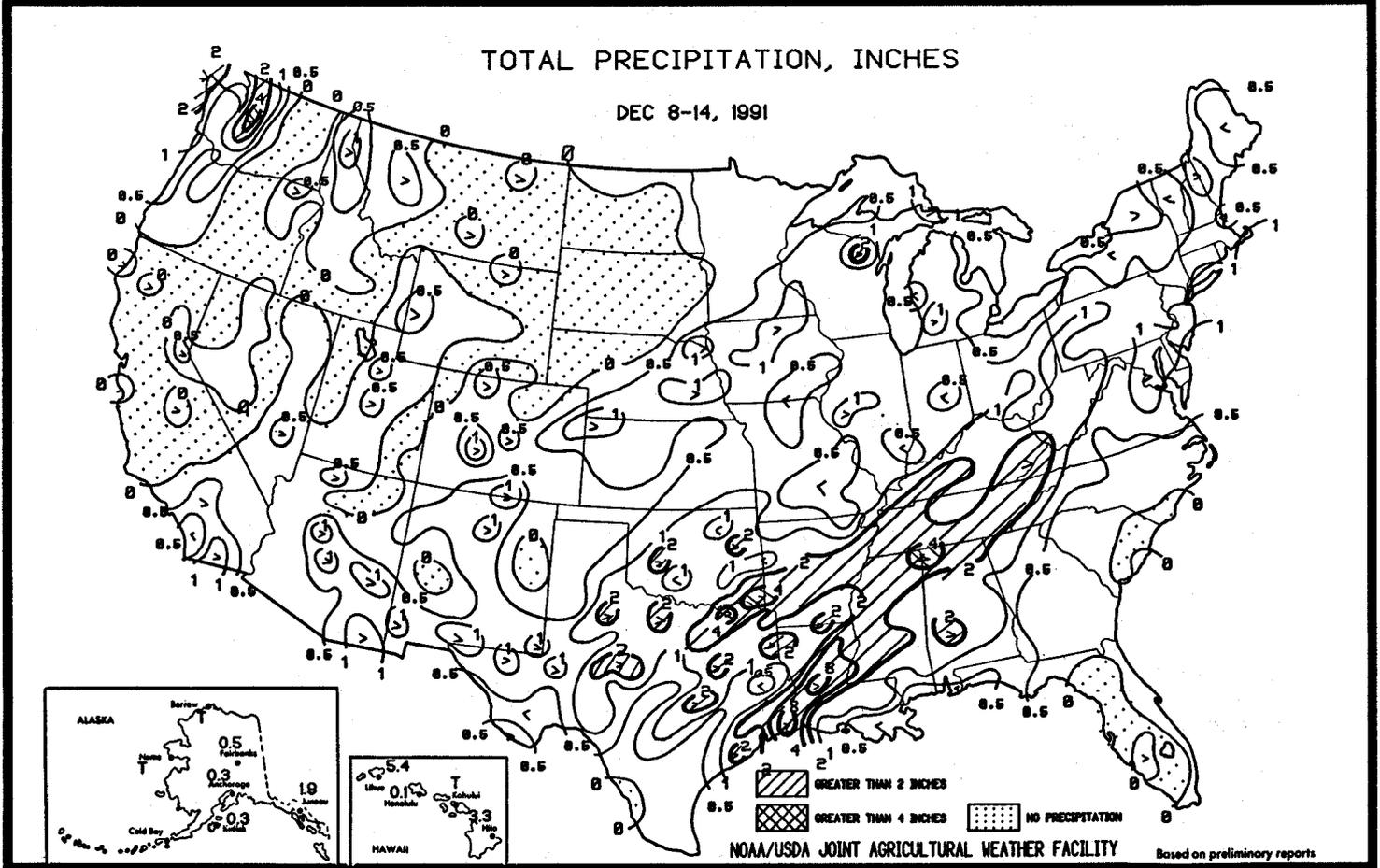
U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration,  
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## HIGHLIGHTS

December 8 - 14, 1991

A pair of storm systems spun northeastward from Baja California, spreading warmth (50 daily record highs) and moisture from the Southwest to the Northeast. Late in the week, cooler, drier air overspread the Nation behind the second storm. As the week commenced, moisture streaked out of the southern Plains toward the mid-Atlantic coast, resulting in more than 1 inch of rainfall from eastern Texas to New Jersey. By Tuesday, heavy rain and mountain snow moved into the Southwest. Rainfall topped 1 inch in southern California's Imperial Valley and locally surpassed 2 inches near Phoenix, AZ. In the Pacific Northwest, a steady onshore wind sparked heavy precipitation until Thursday. After midweek, significant rain moved into the central and southern Plains, while thunderstorms erupted in the lower Mississippi and Tennessee Valleys. On Friday, rainfall totaled nearly 7 inches in Beaumont, TX, and topped 3 inches in Natchez, MS. This week's two rainfall events, in combination with heavy rain during the past 3 weeks, caused widespread

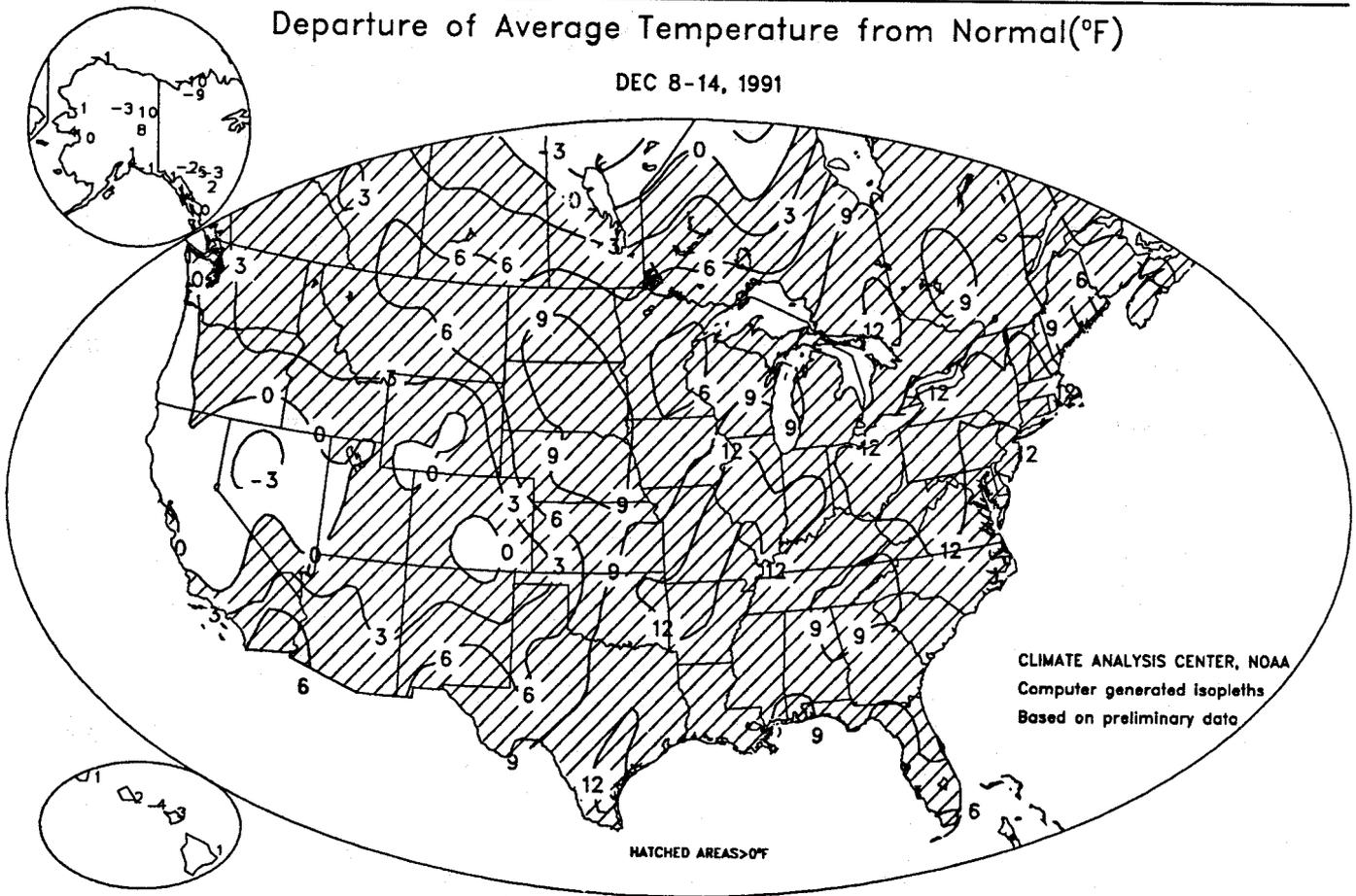
flooding from eastern Texas to southern Tennessee. Before the second storm swept off the East coast, temperatures soared to 66° F in Burlington, IA, and to 71° F in Atlantic City, NJ. Cold, windy weather returned at week's end. Temperatures fell below 0° F in the western Great Lakes States, snow squalls raged near the Great Lakes, and winds gusted above 60 mph in the Northeast.

## Contents

	Page
Highlights & Total Precipitation Map .....	1
Temperature Departure & Extreme Minimum Maps ..	2
Snow Cover Map .....	3
National Weather Data for Selected Cities ....	4
Autumn Weather Review .....	7
Autumn Weather in Historical Perspective .....	10
National Agricultural Summary .....	12
State Summaries of Weather and Agriculture ...	13
International Weather and Crop Summary & November Precipitation and Temperature Maps	18
November El Niño Update .....	31
Subscription and Mailing Permit Information ..	32

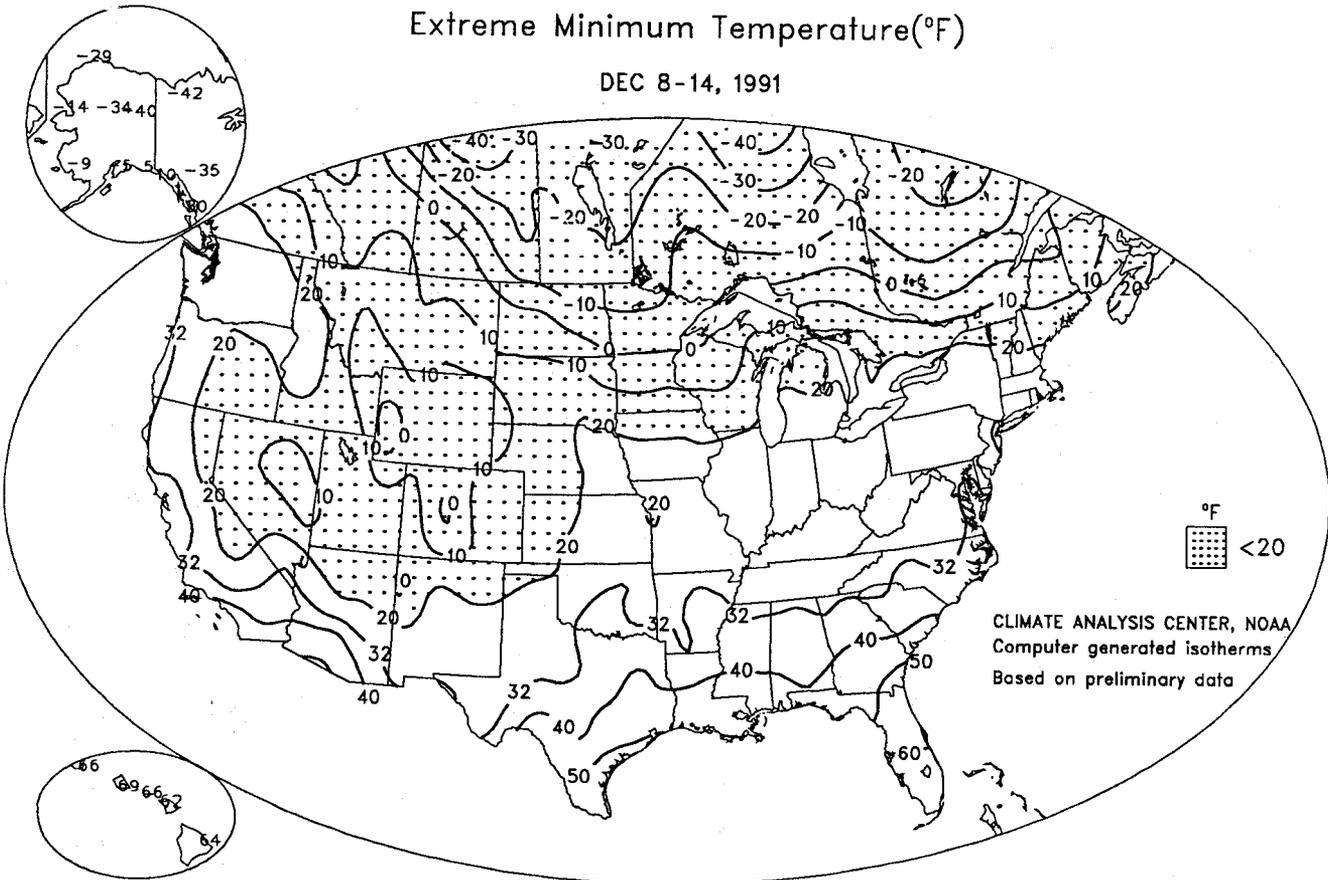
Departure of Average Temperature from Normal(°F)

DEC 8-14, 1991



Extreme Minimum Temperature(°F)

DEC 8-14, 1991





# National Weather Data for Selected Cities

Weather Data for the Week Ending December 14, 1991

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		
AL BIRMINGHAM	67	44	70	35	56	9	1.3	-.2	.5	2.6	121	51.9	101	95	55	0	0	3	0		
MOBILE	73	51	77	43	62	8	1.5	-.7	.5	1.7	73	80.3	131	97	59	0	0	2	0		
MONTGOMERY	69	44	75	34	57	7	1.8	-.7	.5	1.2	167	65.6	142	98	55	0	0	2	2		
AK ANCHORAGE	23	16	33	11	19	5	1.3	-.1	.5	1.2	234	16.7	117	95	83	0	7	2	5		
BARROW	-6	-21	3	-29	-14	-1	1.0	-.6	.5	0	1.8	39	82	71	0	7	0	0	0		
FAIRBANKS	6	-6	24	-20	0	9	1.5	-.6	.5	1.94	9.0	90	87	77	0	7	5	0	0		
JUNEAU	37	30	43	21	33	5	2.4	1.3	.6	248	79.5	158	99	79	0	4	6	2	2		
KODIAK	37	24	41	18	31	0	1.0	-.1	.6	130	93.7	163	85	52	0	7	2	0	0		
NOME	9	-8	20	-22	0	0	1.3	-.1	.6	68	13.9	98	86	65	0	7	2	0	0		
AZ PHOENIX	69	51	75	44	60	4	1.1	-.1	.6	171	7.3	114	84	40	0	0	2	1	1		
PRESCOTT	53	29	57	21	41	2	1.0	-.8	.6	208	15.2	125	89	45	0	4	2	1	1		
TUCSON	67	46	73	39	57	5	1.5	-.3	.6	130	9.8	94	93	40	0	0	2	0	0		
YUMA	67	51	73	47	59	4	1.2	-.2	.6	262	2.7	121	72	40	0	0	3	0	0		
AR FORT SMITH	65	43	80	29	54	12	1.9	-.2	.5	2.4	169	44.2	116	94	46	0	1	4	0	0	
LITTLE ROCK	63	50	68	38	57	13	2.4	1.4	1.5	156	57.7	123	81	58	0	0	5	2	0	0	
CA BAKERSFIELD	50	40	59	34	45	-3	1.1	-.1	.6	64	5.1	97	99	79	0	0	0	0	0	0	
BUREKA	53	39	56	36	46	4	1.4	-.1	.6	32	21.9	63	95	75	0	0	1	0	0	0	
FRESNO	50	40	56	36	45	-1	1.3	-.3	.6	42	9.6	101	96	73	0	0	1	0	0	0	
LOS ANGELES	69	53	80	46	61	3	1.0	-.0	.6	58	8.6	78	95	47	0	0	3	0	0	0	
REDDING	62	35	67	27	49	1	1.3	-.5	.6	19	21.1	57	83	28	0	3	0	0	0	0	
SACRAMENTO	51	36	63	31	44	-2	1.0	-.6	.6	38	14.6	96	99	66	0	2	0	0	0	0	
SAN DIEGO	68	53	77	45	61	2	1.4	-.1	.6	74	12.2	147	92	52	0	0	2	0	0	0	
SAN FRANCISCO	60	43	66	41	51	2	1.0	-.7	.6	1	13.3	77	86	41	0	0	0	0	0	0	
CO DENVER	45	23	54	16	34	1	1.1	-.1	.6	0	20.2	136	79	37	0	7	0	0	0	0	
GRAND JUNCTION	39	22	45	17	31	1	1.1	-.0	.6	54	8.8	118	93	58	0	7	2	0	0	0	
PUEBLO	47	20	57	12	33	0	1.3	-.2	.6	194	14.0	132	86	46	0	7	1	0	0	0	
CT BRIDGEPORT	54	40	63	31	47	12	1.2	-.3	.6	3.1	182	39.4	100	93	60	0	1	5	0	0	
HARTFORD	54	35	61	28	45	14	1.5	-.5	.6	2.1	109	46.4	111	93	53	0	3	4	0	0	
DC WASHINGTON	61	42	71	38	52	12	1.2	-.5	1.1	3.6	252	28.2	76	95	52	0	0	2	1	1	
FL APALACHICOLA	73	58	77	50	65	10	1.1	-.7	.6	45	90.0	170	99	70	0	0	3	0	0	0	
DAYTONA BEACH	80	59	85	52	69	9	1.4	-.1	.6	5	66.1	140	99	60	0	0	2	0	0	0	
JACKSONVILLE	77	55	82	50	66	10	1.1	-.4	.6	21	79.3	158	99	54	0	0	2	0	0	0	
KEY WEST	81	71	82	70	76	5	1.1	-.4	.6	1	40.6	106	92	70	0	0	1	0	0	0	
MIAMI	82	68	83	65	75	6	1.1	-.3	.6	14	71.4	127	94	60	0	0	2	0	0	0	
ORLANDO	81	61	84	59	71	9	1.4	-.4	.6	23	60.9	126	99	52	0	0	1	0	0	0	
TALLAHASSEE	76	51	80	41	64	10	1.5	-.5	.6	1.1	58	71.8	116	99	54	0	0	2	0	0	
TAMPA	80	62	82	59	71	9	1.0	-.5	.6	7	43.2	95	99	59	0	0	0	0	0	0	
WEST PALM BEACH	81	67	83	64	74	7	1.5	-.0	.6	9	86	76.4	131	95	60	0	0	4	0	0	0
GA ATLANTA	66	46	73	39	56	11	1.6	-.4	.6	1.5	83	54.7	119	93	54	0	0	2	0	0	0
AUGUSTA	72	42	78	33	57	9	1.1	-.6	.6	8	59	54.7	134	98	41	0	0	2	0	0	0
MACON	71	47	76	39	59	10	1.2	-.7	.6	1.5	88	50.1	118	99	55	0	0	2	0	0	0
SAVANNAH	74	54	80	49	64	13	1.2	-.4	.6	1.9	74	67.5	140	95	48	0	0	2	0	0	0
HI HILO	81	66	84	64	74	2	3.3	-.2	1.8	12.5	198	149.8	123	94	63	0	0	7	2	2	0
HONOLULU	83	71	85	69	77	3	1.1	-.7	.6	1	16.7	78	83	55	0	0	0	0	0	0	0
KAHULUI	86	67	90	62	77	3	1.2	-.6	.6	2	11.1	67	86	49	1	0	0	2	0	0	0
LIHUE	80	70	83	67	75	2	5.4	4.2	4.5	5.4	227	37.1	91	90	70	0	0	0	0	0	0
ID BOISE	42	25	51	22	34	1	1.2	-.3	.6	38	9.4	87	88	53	0	7	4	0	2	0	0
LEWISTON	47	32	51	25	40	4	1.0	-.2	.6	34	11.1	92	81	47	0	5	1	0	0	0	0
POCATELLO	35	21	39	13	28	1	1.2	-.2	.6	1	23	13.5	134	89	54	0	7	0	0	0	0
IL CHICAGO	48	30	60	19	39	10	1.9	-.3	.6	1.4	131	35.3	107	99	67	0	5	3	0	0	0
MOLINE	52	29	67	25	40	12	1.5	-.0	.6	1.9	103	33.5	93	94	61	0	6	3	0	0	0
PRORIA	52	31	69	22	42	12	1.2	-.9	.6	1.4	150	35.5	105	96	61	0	4	2	1	1	1
QUINCY	55	33	70	26	44	13	1.6	-.2	.6	1.0	127	35.8	97	92	52	0	4	3	0	0	0
ROCKFORD	48	27	60	21	38	11	1.8	-.3	.7	1.3	147	31.9	90	97	63	0	6	3	1	1	1
SPRINGFIELD	55	35	68	24	45	13	1.5	-.0	.6	1.8	86	37.4	114	98	63	0	3	1	1	1	1
IN EVANSVILLE	59	39	64	27	49	12	1.3	-.5	.6	2.7	171	31.7	80	93	59	0	3	3	0	0	0
FORT WAYNE	50	34	61	24	42	12	1.0	-.4	.6	1.7	146	44.4	134	96	67	0	4	3	0	1	1
INDIANAPOLIS	55	38	63	25	46	13	1.4	-.3	.6	1.8	61	36.9	99	93	64	0	3	3	0	0	0
SOUTH BEND	49	32	62	25	41	10	1.6	-.1	.6	1.1	82	35.8	99	97	67	0	4	2	0	0	0
IA DES MOINES	46	26	56	23	36	9	1.7	-.4	.6	1.4	146	38.3	128	90	51	0	7	2	1	1	1
STOUX CITY	42	27	49	22	34	9	1.8	-.6	.6	1.8	234	26.2	105	92	58	0	7	1	1	1	1
WATERLOO	40	24	47	19	32	8	1.8	-.5	.6	1.0	172	42.6	132	95	65	0	7	2	1	1	1
KS CONCORDIA	50	32	55	25	41	9	1.5	-.3	.6	1.5	141	18.8	70	87	40	0	3	2	0	0	0
DODGE CITY	51	30	56	22	40	5	1.5	-.4	.6	1.5	221	9.8	49	88	41	0	4	1	1	1	1
GOODLAND	46	26	55	18	36	5	1.7	-.7	.6	1.7	406	22.8	144	91	44	0	7	2	1	1	1
TOPEKA	55	30	62	27	43	9	1.4	-.4	.6	1.5	106	27.4	84	88	43	0	5	2	1	1	1
WICHITA	55	33	62	25	44	9	1.6	-.4	.6	1.6	129	25.3	90	92	47	0	4	2	1	1	1
KY BOWLING GREEN	59	39	67	27	49	10	2.5	1.5	1.9	5.8	292	47.4	102	96	65	0	3	3	1	1	1
LEXINGTON	59	41	64	28	50	13	1.5	-.6	1.0	5.6	328	40.1	92	92	58	0	1	3	1	1	1
LOUISVILLE	60	41	67	30	50	12	1.5	-.7	1.1	3.9	246	36.9	89	90	60	0	3	3	1	1	1
LA ALEXANDRIA	70	55	77	42	62	11	4.5	3.4	2.5	6.6	301	75.7	153	95	64	0	0	4	2	1	1
BATON ROUGE	74	55	81	45	65	11	1.1	-.0	.7	1.8	82	70.5	133	94	58	0	0	4	1	1	1
LAKE CHARLES	72	59	78	47	65	11	1.9	-.2	.7	1.8	80	70.0	137	100	77	0	0	5	1	1	1
NEW ORLEANS	75	57	82	46	66	11	1.3	-.9	.2	1.8	35	100.6	178	98	64	0	0	3	0	0	0

Based on 1951-80 normals

Weather Data for the Week Ending December 14, 1991

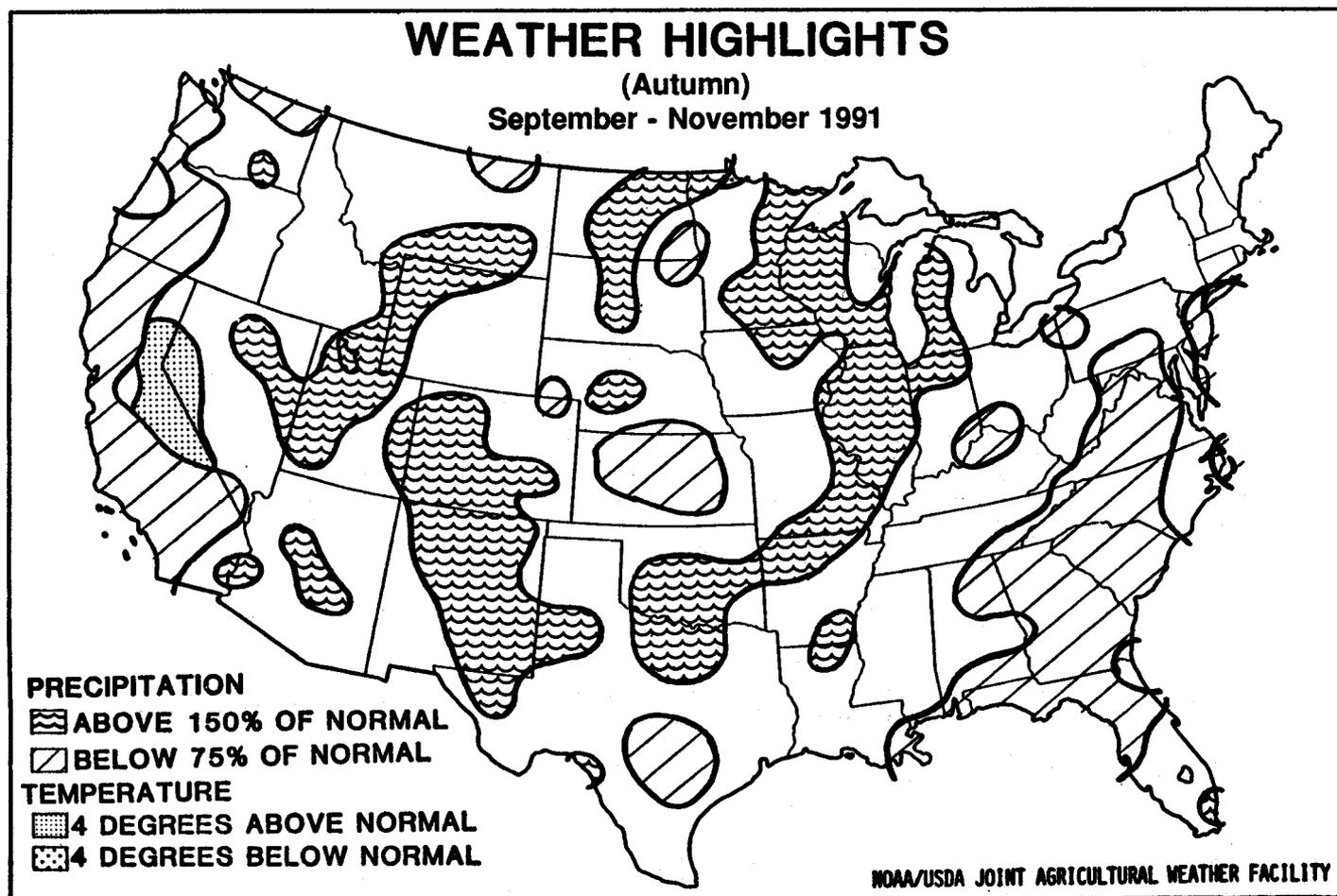
STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION						RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS						
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE 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
SHREVEPORT	68	53	72	34	60	11	2.3	1.5	1.8	5.0	286	79.5	191	97	66	0	0	5	1		
ME CARIBOU	33	14	44	-2	23	6	.8	.0	.4	1.8	124	35.1	101	90	63	0	0	3	0		
PORTLAND	44	27	52	20	36	9	.8	.5	.4	2.1	99	55.2	135	94	58	0	0	3	0		
MD BALTIMORE	58	37	67	29	48	10	1.3	.6	1.1	3.1	204	29.3	74	98	55	0	0	4	1		
SALISBURY	61	37	68	27	49	9	.8	.0	.6	3.1	186	43.2	99	94	51	0	0	3	1		
MA BOSTON	54	40	61	36	47	12	.5	.5	.4	1.7	84	41.5	101	91	52	0	0	4	0		
CHATHAM	51	41	54	33	46	9	1.1	.1	.5	2.5	112	38.2	87	89	72	0	0	4	0		
MI ALPENA	44	26	53	20	35	9	.4	.1	.3	1.1	120	33.4	120	93	56	0	0	2	0		
DETROIT	51	32	60	27	41	11	.3	.3	.2	1.1	94	28.9	98	91	69	0	0	3	0		
FLINT	49	29	58	22	39	11	.7	.2	.6	1.5	159	31.0	111	95	62	0	0	2	1		
GRAND RAPIDS	48	30	60	22	39	10	1.1	.5	.5	2.0	165	44.3	138	96	61	0	0	3	1		
HOUGHTON LAKE	42	27	51	17	35	10	.9	.2	.3	1.8	201	37.6	139	93	65	0	0	3	0		
LANSING	48	28	58	23	38	10	.7	.3	.7	1.6	136	30.3	107	96	67	0	0	3	1		
MARQUETTE	36	22	39	10	29	9	.5	.1	.3	1.3	109	36.9	103	96	72	0	0	3	0		
MUSKOGON	45	31	53	24	38	8	.4	.2	.4	1.2	102	40.7	136	96	68	0	0	3	0		
SAULT ST. MARIE	37	25	41	17	31	10	1.3	.7	.6	2.0	160	32.6	102	97	73	0	0	4	2		
MN ALEXANDRIA	30	14	39	2	22	6	.1	.1	.1	.5	146	28.3	117	90	69	0	0	2	0		
DULUTH	30	12	36	-5	21	5	.1	.2	.1	.5	83	43.3	151	88	65	0	0	3	0		
INT'L FALLS	29	11	42	-13	20	9	.3	.1	.2	.8	177	27.7	117	90	59	0	0	3	0		
MINNEAPOLIS	35	16	41	10	25	4	.5	.3	.5	.9	210	36.5	142	93	63	0	0	3	0		
ROCHESTER	34	19	38	11	27	7	1.0	.8	1.0	1.3	298	36.7	132	95	75	0	0	2	1		
MS GREENWOOD	67	50	71	32	59	12	3.0	1.8	1.9	8.0	331	66.1	132	92	51	0	0	4	2		
JACKSON	67	49	71	41	58	9	2.1	.9	1.4	5.1	217	62.9	129	98	56	0	0	2	2		
MERIDIAN	70	47	78	37	59	10	1.9	.6	1.0	6.1	248	72.8	145	96	46	0	0	3	2		
MO CAPE GIRARDEAU	60	41	65	28	51	11	.9	.0	.6	3.8	218	47.0	110	92	54	0	0	4	1		
COLUMBIA	59	35	76	22	47	12	.6	.1	.6	1.4	155	33.6	94	85	45	0	0	3	1		
KANSAS CITY	54	32	64	27	43	8	.6	.3	.5	.6	91	27.3	77	85	50	0	0	4	1		
SAINT LOUIS	60	40	74	28	50	15	.4	.1	.4	.9	83	32.3	99	86	46	0	0	2	1		
SPRINGFIELD	62	37	77	26	49	12	.4	.2	.3	1.3	105	35.5	93	86	41	0	0	3	0		
MT BILLINGS	42	25	47	15	34	5	.1	.1	.1	.2	64	20.6	143	74	35	0	0	7	1		
GLASGOW	39	18	48	10	28	10	T	.0	T	.2	125	11.0	103	84	42	0	0	7	0		
GREAT FALLS	42	24	49	18	33	5	T	.2	T	.1	24	14.1	97	74	33	0	0	6	1		
HAVRE	40	19	50	11	30	9	T	.1	.0	T	0	9.0	79	82	38	0	0	7	0		
HELENA	39	20	50	3	30	5	.6	.4	.3	.8	282	12.0	107	85	45	0	0	7	4		
KALISPELL	38	27	45	20	32	7	.3	.1	.2	.6	84	15.1	102	86	52	0	0	6	0		
MILES CITY	43	21	49	14	32	9	T	.1	T	.1	25	20.0	144	77	37	0	0	7	0		
MISSOULA	39	25	49	19	32	5	.5	.2	.3	.9	178	11.6	93	91	54	0	0	7	3		
NE GRAND ISLAND	48	28	54	20	38	10	1.1	.9	1.0	1.1	328	28.8	127	86	39	0	0	7	2		
LINCOLN	49	28	55	23	38	10	1.0	.8	.9	1.0	319	23.8	89	91	42	0	0	7	2		
NORFOLK	46	27	53	21	37	11	.7	.6	.7	.7	254	29.1	125	86	43	0	0	7	2		
NORTH PLATTE	49	24	56	18	37	9	.3	.2	.3	.3	145	20.1	106	89	31	0	0	6	2		
OMAHA	45	31	51	23	38	9	1.1	1.0	1.0	1.1	305	36.6	123	85	57	0	0	5	2		
SCOTTSBLUFF	48	19	52	7	33	4	T	.1	T	T	0	14.3	100	86	28	0	0	7	0		
VALENTINE	46	22	50	11	34	8	T	.1	T	T	0	21.9	129	86	35	0	0	7	0		
NV ELY	43	11	51	7	27	0	T	.1	T	.1	36	9.9	116	82	41	0	0	7	1		
LAS VEGAS	58	40	62	34	49	3	.1	.0	.1	.1	69	3.9	102	75	32	0	0	0	2		
RENO	44	20	49	17	32	-1	.0	.3	.0	T	2	5.0	78	91	47	0	0	7	0		
WINNEMUCCA	40	15	46	11	28	-4	T	.2	T	.5	118	7.6	106	93	54	0	0	7	1		
NH CONCORD	46	27	50	18	36	10	.6	.2	.5	2.0	124	37.9	109	99	57	0	0	5	3		
NJ ATLANTIC CITY	61	36	71	27	48	11	.9	.0	.6	2.7	164	33.4	84	96	55	0	0	3	3		
NM ALBUQUERQUE	51	30	58	25	41	4	.6	.5	.6	.6	277	10.7	141	80	39	0	0	5	2		
CLOVIS	56	32	66	24	44	4	.0	.1	.0	T	0	21.4	128	86	42	0	0	2	0		
ROSWELL	60	35	67	28	47	7	.7	.6	.7	.7	400	19.3	186	83	35	0	0	1	1		
NY ALBANY	49	33	54	25	41	13	.4	.3	.2	1.9	140	34.8	103	94	58	0	0	4	3		
BINGHAMTON	49	35	54	26	42	14	.5	.1	.4	1.7	128	32.4	92	89	62	0	0	3	4		
BUFFALO	51	35	59	26	43	13	.7	.1	.4	1.9	122	38.3	108	95	60	0	0	2	5		
NEW YORK	57	44	64	38	50	13	.7	.1	.3	2.5	149	37.2	92	90	52	0	0	4	0		
ROCHESTER	52	34	59	24	43	12	.2	.5	.1	1.0	84	27.3	91	92	60	0	0	2	3		
SYRACUSE	53	34	60	28	43	13	.3	.5	.1	1.6	108	35.6	96	94	52	0	0	4	4		
NC ASHEVILLE	61	36	66	27	49	8	.3	.4	.2	3.9	271	42.7	102	94	49	0	0	4	0		
CHARLOTTE	67	44	72	35	56	12	.2	.5	.2	.9	64	43.2	105	88	41	0	0	0	2		
GREENSBORO	64	40	69	31	52	11	.5	.2	.3	1.7	117	40.7	101	88	46	0	0	1	2		
HATTERAS	70	54	76	49	62	12	.2	.8	.2	1.4	71	61.4	115	90	60	0	0	0	1		
NEW BERN	72	43	80	35	58	10	T	.8	T	.5	33	47.3	93	92	48	0	0	0	1		
RALEIGH	67	42	73	31	54	12	.1	.6	.1	.7	49	33.5	84	89	43	0	0	1	2		
WILMINGTON	72	45	78	36	58	9	T	.8	T	.8	54	56.1	109	95	45	0	0	0	0		
ND BISMARCK	39	18	45	7	29	11	T	.1	T	T	18	16.6	112	85	45	0	0	7	0		
FARGO	30	14	40	-6	22	7	.1	.1	.1	.3	118	20.8	109	89	64	0	0	7	2		
GRAND FORKS	29	11	40	-9	20	7	T	.1	T	.3	104	21.6	120	87	63	0	0	7	1		
WILLISTON	36	14	41	3	25	8	T	.1	T	.2	82	17.7	134	88	51	0	0	7	0		
OH AKRON-CANTON	52	36	59	27	44	13	.7	.1	.5	2.7	224	23.5	69	94	62	0	0	2	4		
CINCINNATI	56	38	62	27	47	12	.9	.2	.7	3.6	266	38.6	101	92	63	0	0	2	4		
CLEVELAND	55	37	63	28	46	13	.3	.3	.2	1.6	123	32.0	95	91	63	0	0	2	3		
COLUMBUS	56	37	63	28	46	13	1.1	.5	.9	2.9	252	31.9	90	91	60	0	0	2	4		

Based on 1951-80 normals

Weather Data for the Week Ending December 14, 1991

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		.01 INCH OR MORE		.50 INCH OR MORE	
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE				
DAYTON	54	36	62	25	45	12	.7	.1	.5	2.2	198	35.8	108	91	65	0	0	3	3	1	0		
TOLEDO	51	33	62	26	42	12	.3	-.3	.3	1.1	87	26.8	89	95	72	0	0	5	3	1	0		
YOUNGSTOWN	54	35	60	28	45	14	1.5	-.1	.5	2.0	160	24.7	69	93	57	0	0	3	3	1	0		
OK OKLAHOMA CITY	61	42	66	32	52	12	1.0	.7	.9	1.5	275	39.3	130	89	45	0	0	1	1	2	1		
TULSA	64	42	73	35	53	12	1.0	.5	.6	1.5	171	30.5	81	82	38	0	0	0	0	2	1		
OR ASTORIA	48	38	54	30	43	12	1.2	-.4	.5	4.9	95	55.6	88	97	74	0	0	2	2	4	1		
BURNS	42	19	48	14	30	2	.0	-.4	.0	.1	18	5.4	58	93	48	0	0	6	0	0	0		
MEDFORD	40	33	49	31	37	-1	.4	-.8	.7	.7	48	14.2	80	100	87	0	0	2	1	1	0		
PENDLETON	50	33	58	23	41	4	.4	-.4	.4	.4	54	13.2	119	80	47	0	0	3	0	0	0		
PORTLAND	47	37	54	31	42	1	.3	-.2	.2	2.6	93	31.9	95	96	75	0	0	2	3	0	0		
SALEM	46	35	52	28	41	-1	.2	-.4	.2	1.8	58	31.5	87	95	75	0	0	2	3	3	0		
PA ALLENTOWN	53	35	58	26	44	11	.8	-.0	.4	2.6	152	33.5	80	95	56	0	0	3	3	5	0		
ERIE	54	37	61	27	46	14	.5	-.3	.2	2.0	127	30.5	80	90	58	0	0	1	1	4	1		
HARRISBURG	55	36	62	27	46	11	1.3	.6	1.1	2.7	179	31.0	83	94	60	0	0	2	2	1	0		
PHILADELPHIA	57	39	65	34	48	11	.9	.1	.7	3.3	214	35.6	91	94	56	0	0	0	0	4	1		
PITTSBURGH	56	38	61	30	47	14	.7	.2	.6	2.8	250	31.2	90	90	55	0	0	2	5	1	1		
SCRANTON	52	34	57	26	43	12	.7	.1	.3	2.2	186	29.7	89	91	56	0	0	4	3	0	0		
RI PROVIDENCE	57	37	66	26	47	13	.7	-.3	.3	2.3	111	44.8	105	91	45	0	0	2	4	3	0		
SC CHARLESTON	73	50	79	43	62	11	T	-.7	T	.4	33	48.5	98	94	47	0	0	0	1	0	0		
COLUMBIA	71	41	78	32	56	8	T	-.7	T	.8	58	60.6	129	95	38	0	0	1	1	0	0		
FLORENCE	71	47	80	37	59	11	T	-.7	T	.3	24	43.0	102	89	40	0	0	0	0	0	0		
GREENVILLE	65	42	69	34	53	9	.3	-.6	.1	1.2	71	45.6	94	92	47	0	0	0	2	0	0		
SD ABERDEEN	40	20	46	13	30	12	T	-.1	T	T	14	23.0	132	89	53	0	0	7	0	0	0		
HURON	42	21	48	13	32	11	T	-.1	T	T	0	23.3	128	86	46	0	0	7	0	0	0		
RAPID CITY	46	22	50	10	34	7	T	-.1	T	T	18	17.3	109	76	31	0	0	6	0	0	0		
SIoux FALLS	40	23	47	15	32	10	.2	.0	.2	.2	53	27.4	116	90	56	0	0	7	1	0	0		
TN CHATTANOOGA	61	39	68	32	50	8	2.1	1.0	.9	5.5	245	53.5	107	100	51	0	0	2	3	2	2		
KNOXVILLE	60	38	64	31	49	7	2.2	1.2	1.3	8.2	411	56.3	126	97	55	0	0	2	3	2	2		
MEMPHIS	64	47	67	31	56	11	2.5	1.4	1.4	6.2	285	60.2	124	92	55	0	0	1	3	2	2		
NASHVILLE	60	43	68	31	52	10	1.9	.9	1.0	6.3	311	45.3	99	92	60	0	0	3	2	2	2		
TX ABILENE	63	46	73	32	54	7	1.8	1.6	1.6	1.8	458	28.9	127	94	57	0	0	1	4	1	0		
AMARILLO	55	30	67	21	42	3	.2	.1	.2	.2	100	13.3	71	88	35	0	0	5	1	1	0		
AUSTIN	72	58	78	45	65	12	2.0	1.5	1.1	2.1	214	40.1	133	92	60	0	0	0	6	1	1		
BEAUMONT	72	60	79	48	66	11	8.1	7.0	7.4	10.2	455	80.0	153	99	73	0	0	0	4	1	1		
BROWNSVILLE	81	67	86	55	74	11	.2	-.1	.1	.2	46	29.7	121	98	63	0	0	0	2	0	0		
CORPUS CHRISTI	77	66	85	54	71	12	T	-.3	T	.1	13	38.3	127	97	66	0	0	0	1	0	0		
DEL RIO	70	56	78	50	63	10	1.0	.8	.4	1.0	343	19.9	118	82	50	0	0	0	4	0	0		
EL PASO	63	40	70	33	52	6	.7	.6	.7	.7	429	9.6	130	82	36	0	0	0	2	1	0		
FORT WORTH	69	51	78	37	60	12	1.5	1.1	.9	2.3	285	47.0	156	91	53	0	0	0	3	1	1		
GALVESTON	70	61	74	53	65	8	2.9	2.0	2.3	3.1	189	59.8	155	99	80	0	0	0	5	1	1		
HOUSTON	72	59	78	44	66	10	2.0	1.1	1.6	2.4	141	54.2	122	98	69	0	0	0	4	1	0		
LUBBOCK	61	38	67	30	49	7	.4	.3	.4	.4	206	22.2	128	88	44	0	0	1	1	0	0		
MIDLAND	63	41	68	28	52	6	.7	.6	.6	.7	305	22.1	167	96	47	0	0	1	2	1	1		
SAN ANGELO	68	47	74	34	57	9	1.0	.9	.8	1.0	345	21.4	121	95	52	0	0	0	3	1	1		
SAN ANTONIO	72	57	77	39	65	11	1.0	.7	.9	1.1	161	29.9	106	95	58	0	0	0	3	1	1		
VICTORIA	74	62	81	49	68	11	.4	-.1	.2	.5	55	51.1	143	97	66	0	0	0	4	0	0		
WACO	70	54	77	35	62	11	.8	.4	.4	1.0	111	38.2	128	96	63	0	0	0	5	0	0		
WICHITA FALLS	65	44	74	33	55	10	1.7	1.5	.9	2.2	398	31.2	121	91	46	0	0	0	5	0	0		
UT CEDAR CITY	42	22	51	14	32	0	.2	.0	.1	.2	52	12.0	121	91	56	0	0	7	2	0	0		
SALT LAKE CITY	40	25	45	22	33	-1	T	.3	T	.2	31	17.6	122	88	54	0	0	7	1	0	0		
VT BURLINGTON	45	28	53	21	36	12	.2	-.4	.1	.9	77	32.1	100	94	59	0	0	5	5	0	0		
VA NORFOLK	65	43	73	33	54	10	.5	-.2	.3	.8	61	41.3	96	95	55	0	0	0	2	0	0		
RICHMOND	65	41	74	30	53	12	1.1	.3	.8	2.8	187	34.1	81	97	54	0	0	1	3	1	0		
ROANOKE	63	38	69	28	51	11	1.1	-.3	.2	2.7	207	35.9	96	87	42	0	0	2	2	0	0		
WA QUILLAYUTE	48	37	51	27	42	1	3.4	-.6	1.0	8.1	103	96.4	100	100	72	0	0	2	5	3	0		
SEATTLE-TACOMA	47	37	51	29	42	1	.6	-.9	.4	2.2	78	34.3	98	94	63	0	0	1	4	0	0		
SPOKANE	40	28	45	21	34	4	.5	-.6	T	.9	79	14.0	92	88	59	0	0	6	0	0	0		
YAKIMA	50	24	57	20	37	5	T	.3	T	.1	22	7.5	106	99	51	0	0	7	1	0	0		
WV BECKLEY	55	38	60	26	47	12	1.5	.8	.8	4.8	351	38.6	95	85	48	0	0	2	3	1	0		
CHARLESTON	62	40	67	29	51	13	1.6	.9	.9	4.3	302	40.9	101	91	45	0	0	2	3	2	1		
HUNTINGTON	61	40	66	28	50	12	.9	.2	.5	3.8	270	37.0	95	90	48	0	0	3	2	1	0		
PARKERSBURG	60	39	65	27	50	13	.9	.3	.3	3.8	316	43.3	120	96	55	0	0	3	5	0	0		
WI GREEN BAY	38	24	42	12	31	9	.7	.3	.6	1.2	175	26.3	97	96	70	0	0	7	2	1	1		
LACROSSE	38	23	43	15	31	7	.9	.6	.8	1.2	233	36.1	123	93	64	0	0	7	3	1	1		
MADISON	45	25	53	18	35	10	.6	.2	.6	1.3	175	38.7	130	97	65	0	0	6	2	1	1		
MILWAUKEE	46	30	58	20	38	11	.6	.2	.6	1.4	144	38.8	131	95	65	0	0	5	2	1	1		
WAUSAU	36	21	41	6	29	9	.8	.5	.8	1.3	202	38.7	125	98	70	0	0	7	2	1	1		
WY CASPER	36	14	38	2	25	-2	.1	.0	.1	.3	123	12.4	113	80	46	0	0	7	2	0	0		
CHEYENNE	42	21	48	10	32	1	T	.1	T	T	12	18.6	142	76	27	0	0	7	1	0	0		
LANDER	38	15	43	8	27	3	T	.1	T	.1	25	14.5	114	75	38	0	0	7	1	0	0		
SHERIDAN	40	17	49	8	29	3	.4	.3	.4	.6	173	16.0	109	81	42	0	0	7	2	1	0		

Based on 1951-80 normals



### Autumn Weather Review

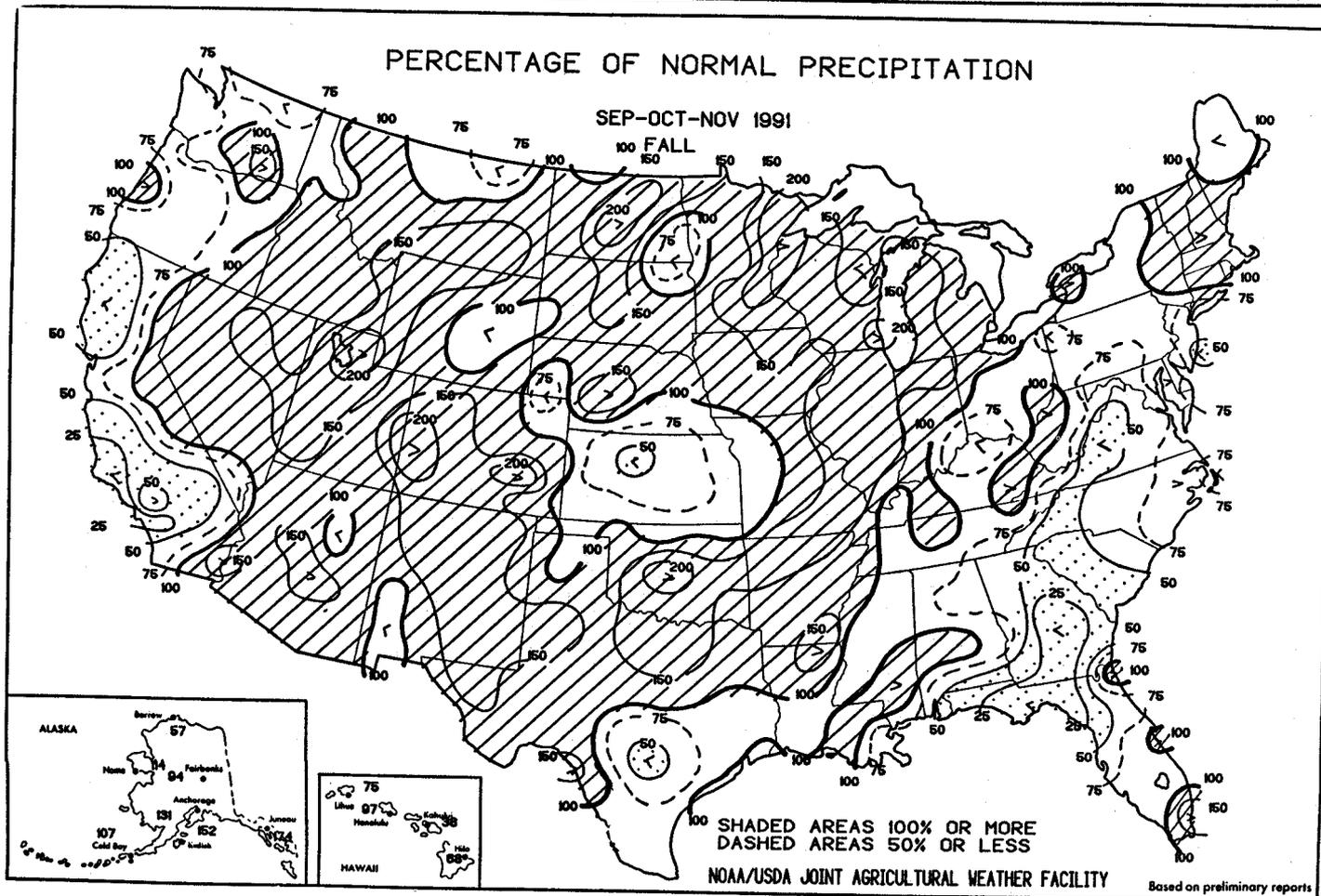
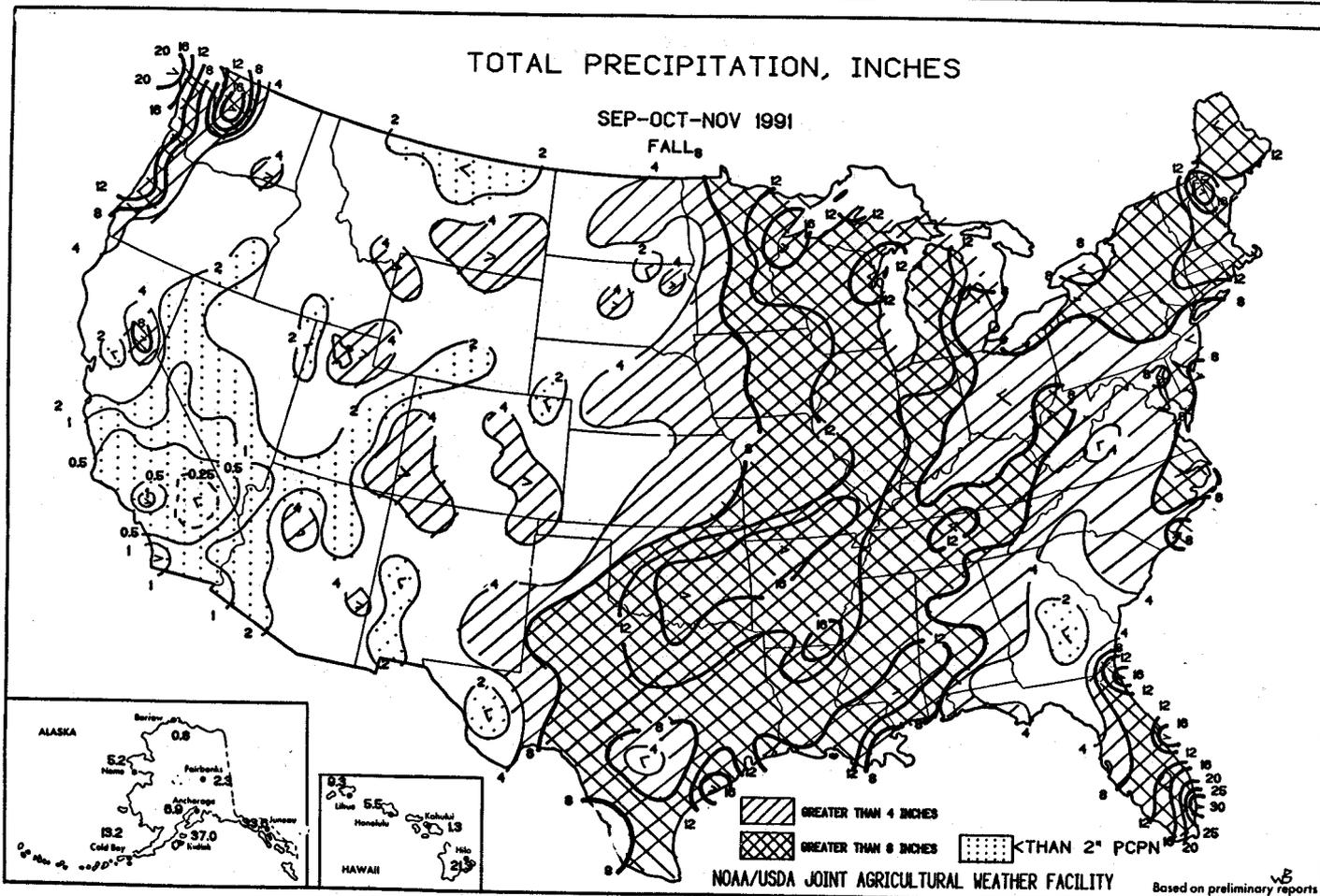
**HIGHLIGHTS:** An arctic outbreak in late October and early November headlined a two-faceted autumn. Until the cold snap, very warm, dry weather prevailed in the West, while periods of warmth and coolness were interspersed in the East. Afterward, strong storms dumped heavy snow on the Rockies and brought cold, wet weather to the Central States.

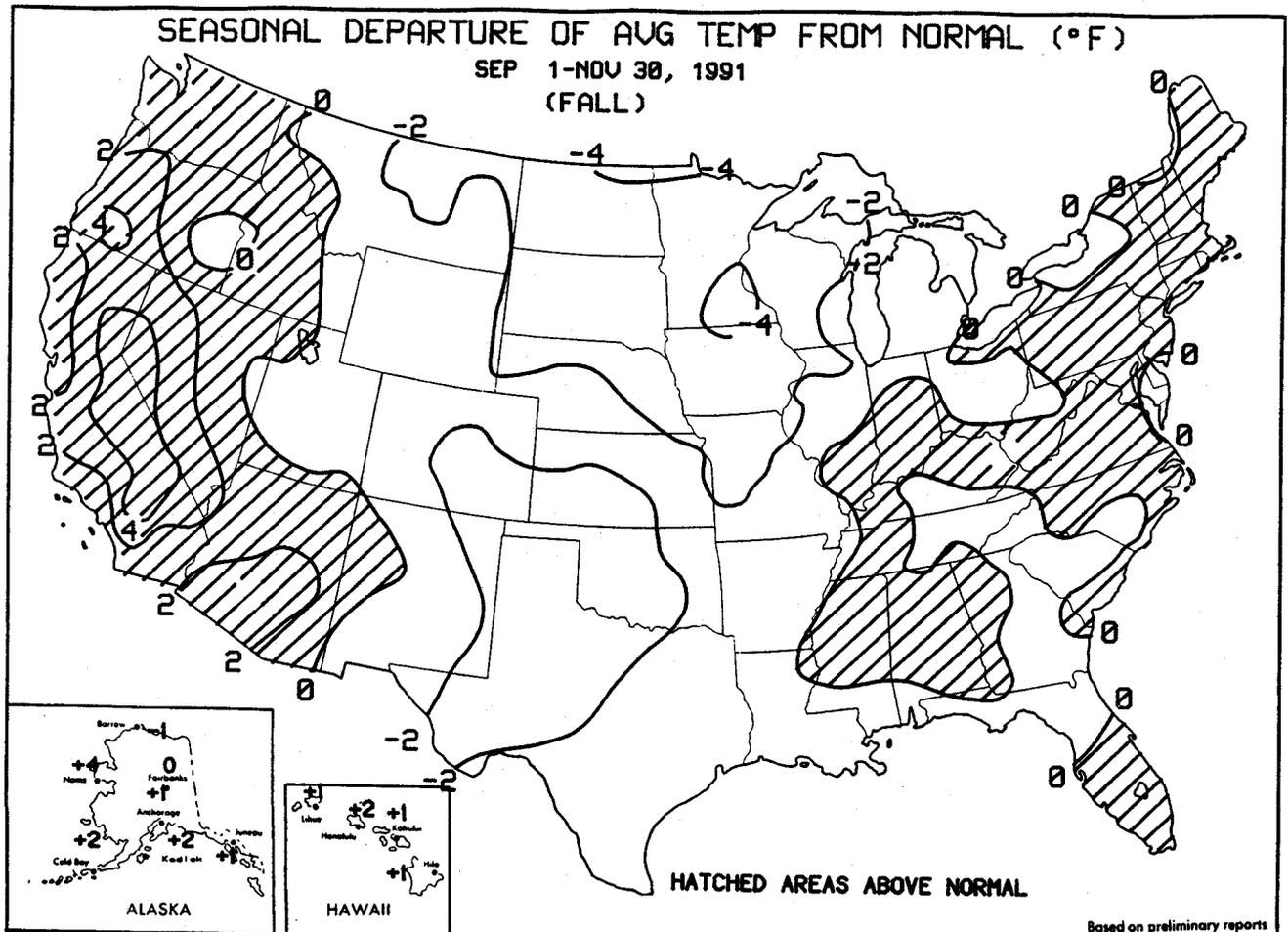
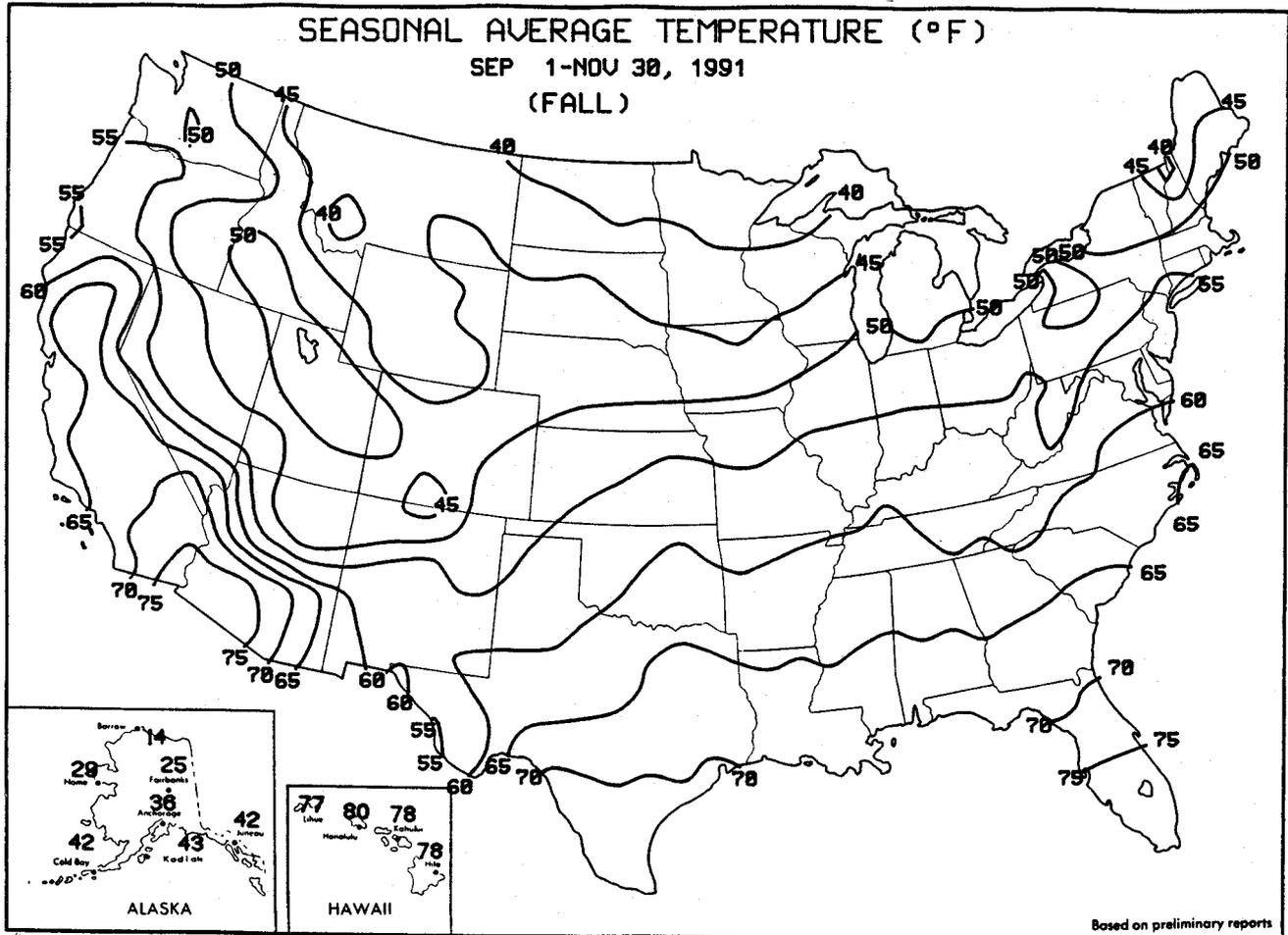
Only one significant storm struck California during the autumn (October 25-26). Although the storm aided fire control efforts, it proved to be a false start to the rainy season. Dry weather also covered the Central and Southern Atlantic Coast States throughout the fall. Excessively dry conditions plagued parts of Georgia and northern Florida. In the central Plains, late October and November precipitation improved drought conditions, but failed to overcome early autumn moisture deficits.

**SEPTEMBER:** Heavy rain pounded the southern Plains until the 20th, and thunderstorms were common in the upper Mississippi Valley and the intermountain West until mid-month. Farther east, a late heat wave scorched the East during the middle third of the month. But a sudden shot of cold air followed, dropping temperatures below freezing in the western Corn Belt. Crops were sufficiently developed that only late-maturing soybeans in Iowa and Minnesota were damaged. In the West, the second half of the month was very warm and dry.

**OCTOBER:** Dryness worsened in the central Plains and the West until late in the month. Little rain fell in the Southeast. Fires got out of control in the central Appalachians, and an urban wildfire swept through the eastern hills of Oakland, CA. Winter wheat conditions deteriorated in Kansas and Georgia. After the 22nd, powerful storms and cold blasted into the Western and Central States. At month's end, one massive winter storm dumped snow on the Rockies and Plains, while another damaged the northern Atlantic coastline.

**NOVEMBER:** Winter-like cold cloaked the eastern two-thirds of the Nation early in the month. In a 2-week period ending the 10th, more than 640 daily record lows were established. Although the cold eased thereafter, storms trekked unabated across the Nation. All of the West except California received drought-easing precipitation. Wheat conditions improved in the central Plains, and record November snowfall buried several cities from the central Rockies to the western Great Lakes. Besides California, only parts of southern Texas and the Southeast received less than half of the normal November moisture. Toward the end of meteorological autumn (November 30), snow continued to accumulate in the North Central States, while strong winds trailing a storm created a wall of dust in central California, causing a major chain-reaction accident.





# Autumn Weather in Historical Perspective

Autumn of 1991 was cool, with slightly above-normal precipitation for the Nation. It was the 26th coldest autumn on record (table 1), and broke a 4-year trend of near- to above-normal fall temperatures (fig. 1). September–November areally averaged precipitation was marginally above the long-term mean, making autumn 1991 the 45th wettest (53rd driest) such period since 1895 (table 1). The standardized precipitation index, which takes local climatology into account, ranked autumn of 1991 as the 32nd wettest in the past 97 years. It was the wettest fall since the record-setting autumn wetness of 1985 and 1986 (fig. 2).

The most anomalous autumn cold was registered in the East North Central (7th coldest fall), South (14th coldest), and West North Central regions (19th coldest), largely due to a cold weather regime that established itself during late October. It was the coldest autumn in the East North Central region since 1976 (fig. 3). In contrast, the West region noted its

second warmest autumn, trailing only 1988 (fig. 4).

The East North Central (8th wettest autumn) and Southwest regions (18th wettest) were the only areas to receive substantially above-normal precipitation during the autumn. Weather in both regions turned much wetter toward the end of October. Three regions battled extensive autumn wildfires. Those regions were also excessively dry: Southeast (7th driest autumn), West (19th driest), and Northwest (27th driest). In California, autumn precipitation was the 8th lowest on record (fig. 5).

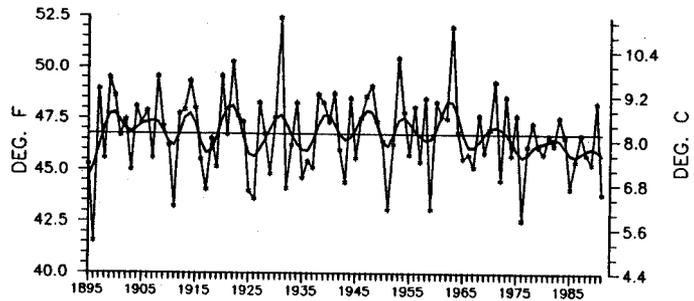
Besides California, the Southeastern States of Florida, Georgia, and South Carolina reported the 10th driest, or drier, autumn on record. Utah, Illinois, Minnesota, and Wisconsin attained a 10th wettest, or wetter, autumn (table 2). Minnesota and Wisconsin also had a 10th coldest, or colder, autumn, along with Iowa and Texas. In contrast, Arizona, California, and Nevada had one of their 10 warmest autumns.

**TABLE 1. TEMPERATURE AND PRECIPITATION RANKINGS FOR SEP–NOV 1991, BASED ON THE PERIOD 1895–1991. 1 = DRIEST/COLDEST, 97 = WETTEST/HOTTEST.**

REGION	PRECIPITATION	TEMPERATURE
NATIONAL	53	26
NORTHEAST	48	57
EAST NORTH CENTRAL	90	7
CENTRAL	65	32
SOUTHEAST	7	37
WEST NORTH CENTRAL	62	19
SOUTH	68	14
SOUTHWEST	80	47
NORTHWEST	27	58
WEST	19	96

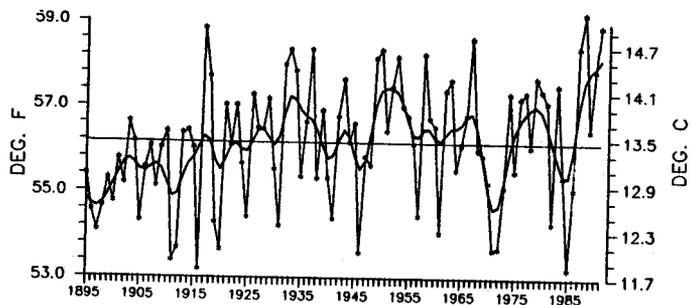
**Figure 3**

EAST NORTH CENTRAL REGION TEMPERATURE SEP–NOV, 1895–1991



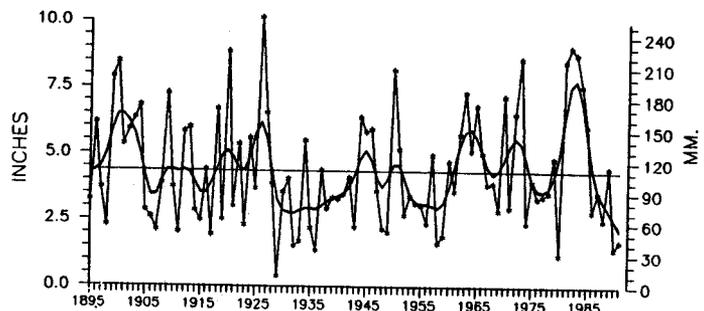
**Figure 4**

WEST REGION TEMPERATURE SEP–NOV, 1895–1991



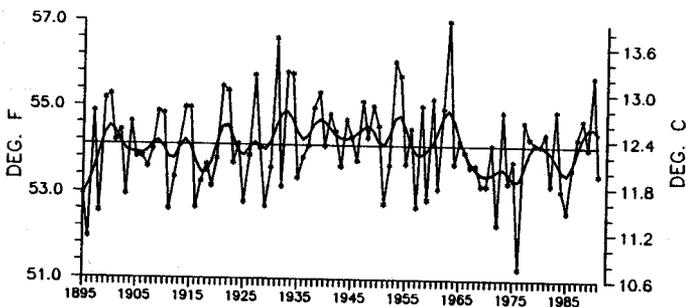
**Figure 5**

CALIFORNIA STATEWIDE PRECIPITATION SEP–NOV, 1895–1991



**Figure 1**

U.S. NATIONAL TEMPERATURE AUTUMN, 1895–1991



**Figure 2**

U.S. NATIONAL WEIGHTED MEAN PRECIPITATION INDEX SEP–NOV, 1895–1991

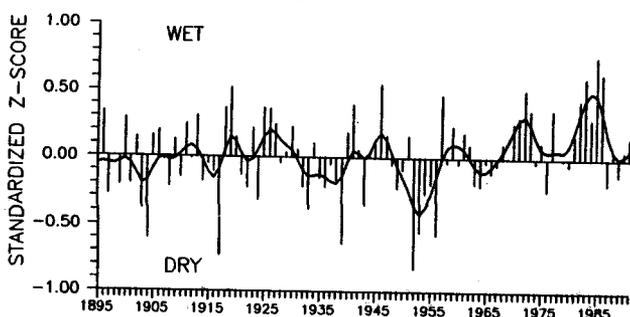
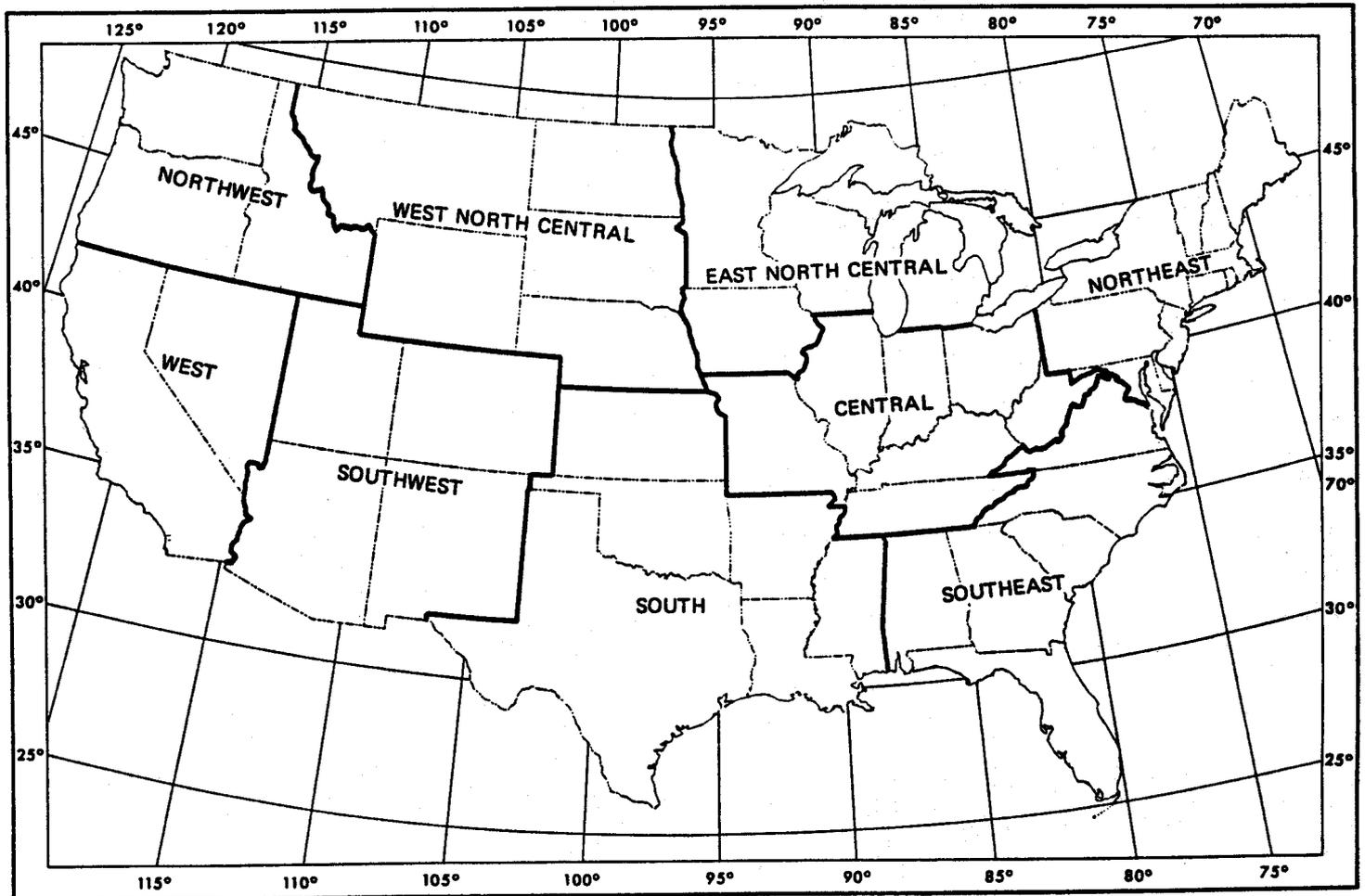


TABLE 2. PRECIPITATION RANKINGS FOR SEP-NOV 1991, BASED ON THE PERIOD 1895 TO 1991. 1 = DRIEST, 97 = WETTEST.

STATE	RANK	STATE	RANK	STATE	RANK	STATE	RANK
AL	47	IA	80	NE	69	RI	82
AZ	43	KS	25	NV	65	SC	6
AR	72	KY	38	NH	68	SD	51
CA	8	LA	57	NJ	22	TN	48
CO	84	ME	60	NM	80	TX	64
CT	65	MD	25	NY	58	UT	89
DE	21	MA	87	NC	14	VT	73
FL	7	MI	83	ND	72	VA	17
GA	6	MN	91	OH	19	WA	28
ID	48	MS	53	OK	79	WV	30
IL	93	MO	73	OR	13	WI	94
IN	75	MT	56	PA	24	WY	53

TABLE 3. TEMPERATURE RANKINGS FOR SEP-NOV 1991, BASED ON THE PERIOD 1895 TO 1991. 1 = COLDEST, 97 = WARMEST.

STATE	RANK	STATE	RANK	STATE	RANK	STATE	RANK
AL	28	IA	5	NE	12	RI	86
AZ	95	KS	16	NV	92	SC	31
AR	17	KY	64	NH	68	SD	13
CA	96	LA	23	NJ	61	TN	34
CO	26	ME	54	NM	11	TX	8
CT	74	MD	50	NY	48	UT	50
DE	40	MA	38	NC	51	VT	72
FL	39	MI	21	ND	14	VA	65
GA	28	MN	8	OH	46	WA	61
ID	39	MS	42	OK	20	WV	60
IL	19	MO	17	OR	82	WI	10
IN	47	MT	27	PA	58	WY	33



The nine climatically homogeneous regions of the contiguous United States as defined by the National Climatic Data Center (NCDC).

## National Agricultural Summary

December 9 - 15, 1991

**HIGHLIGHTS:** Above-normal temperatures across the eastern two-thirds of the Nation reduced or eliminated snow cover from fall-seeded grains. Attendant rainfall in much of the East and Pacific Northwest served to replenish soil moisture supplies.

**SMALL GRAINS:** Completion of small grain seeding was delayed by rains in Texas and the Delta, but additional precipitation further replenished soil moisture supplies in the Pacific Northwest, and Central and Eastern States. Well above-normal temperatures melted much of the remaining snow cover in the North Central and Rocky Mountain States, leaving fall seeded grains vulnerable to freeze.

**CORN:** Efforts to harvest continued in Iowa though progress was hampered by storms. Some Iowa corn fields may not be harvested until spring. High moisture content delayed harvest of corn for grain in northern Utah.

**SOYBEANS:** Continued rains further delayed the completion of harvest in the Delta, with harvest over 95 percent (%) complete. Predominately dry weather along the Atlantic Coast allowed harvest to progress, reaching 93% complete in South Carolina and 97% complete in North Carolina.

**COTTON:** Cotton producers in Oklahoma and the Texas Plains made good harvest progress until midweek when rain showers halted activities. Harvest progress was past the midpoint in Oklahoma and 78% complete in Texas. Picking of some late-maturing fields continued in California and North Carolina, second-pick gleaning was active in South Carolina.

**GRAIN SORGHUM:** Harvest was winding down in California and North Carolina, and only a few scattered grain sorghum fields remained for harvest on the Texas Plains.

**OTHER FIELD CROPS:** A small amount of alfalfa hay was cut in Arizona. Peanut harvest met a few rain delays in Texas, and a few recently dug fields were damaged. Sugarcane harvest was virtually complete in Louisiana and neared completion in Florida. Sunflower and sugarbeet

harvests remained active in Texas. Flash floods on the Hawaiian island of Kauai Saturday caused loss of life, property, and agriculture. Damage to agriculture included flooding of the major taro growing area, livestock losses, downed coffee trees, erosion, and washouts of sugarcane fields.

**FRUIT AND NUTS:** Harvests of lemons, grapefruit, oranges, and tangerines were active in Arizona. Kiwifruit harvest was winding down in California, while date and persimmon harvests continued. Avocado picking was underway in western Riverside County, CA. Cold, frosty mornings forced citrus growers to run water and use wind machines to protect fruit, with picking of navel oranges, grapefruit, lemons, and tangerines active. Early orange harvest was very active in Florida, and grapefruit, tangerine, and tangelo picking continued. Pruning of deciduous fruit trees was common across the Northern States.

**VEGETABLES:** Lettuce and mixed vegetable harvests continued in western and central Arizona. Harvest of fall crops was slowing and harvest of winter crops was increasing in Florida. Florida's volume leaders were tomatoes, peppers, squash, cucumbers, sweet corn, and snap beans. Harvest operations continued in Texas' lower Rio Grande valley, with onions progressing well. Rains delayed harvest activities at midweek in the San Antonio-Winter Garden area. Asparagus harvest was active in the Coachella Valley, CA, with good to excellent quality. Broccoli, carrot, cauliflower, and celery harvests continued. Lettuce season was closing in Santa Maria, CA.

**PASTURES AND LIVESTOCK:** Milder temperatures along with moisture helped forage conditions in the Southern and Eastern States. Early calving started in Idaho. Hay supplies remained mostly adequate across the Nation.

## State Summaries of Weather and Agriculture

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

**ALABAMA:** Rainfall 1.00 to 2.00 in.; over 4.00 in. northwest; generally under 0.75 extreme south. Temperatures 5 to 8° above normal.

Days suitable for fieldwork 4.1. Soil moisture 3% short, 70% adequate, 27% surplus. Winter wheat 94% seeded, 91% 1990, 92% avg. Pastures 3% very poor, 13% poor, 48% fair, 36% good. Livestock 43% fair, 53% good, 4% excellent. Primary activities: Seeding small grains, winter forages; shredding cotton stalks; soil testing; turning land; feeding, marketing livestock; maintenance, repair on farm equipment; general care of livestock, poultry, catfish.

**ARIZONA:** Cloudy statewide, light showers south, 8th to 9th. Rain statewide, snow higher elevations, 11th to 12th. Clear to partly cloudy 12th. Sunny, 13th to 14th. Temperatures 3° below to 8° above normal. Extremes 15°; 69° higher elevations, 27°; 75° deserts.

Cotton harvested 100%, 100% 1990, 98% avg.; second picking south, east. Stalk shredding, plow down, active central, south, east, light to moderate west. Alfalfa harvest, light, condition good; sheeping off, light, central, south, east, moderate, west. Small grains seeded 60%, 66% 1990, 53% avg.; small grains established, 45%, 42% 1990, 27% avg. Lemons, grapefruit, oranges, tangerines, mixed vegetables, lettuce harvested central, west. Peanuts harvested west. Pecans harvested, central.

**ARKANSAS:** Temperatures slightly above normal, with heavy, widespread rainfall first, middle of the week. Extremes 16°; 72°. Rainfall 0.46 in.; 3.62 in.

Less than 5% of the soybeans remain to be harvested. Cotton gins continued to gin modules. The wet weather kept producers from doing any fieldwork. Livestock good.

**CALIFORNIA:** A low pressure system brought rain, snow to parts of northern areas early in the week. Low moved south, brought rain to much of the southern part of the State. High pressure over the rest of the State brought fog to the valleys with cool conditions.

Field activities slowed, earlier rains. Rice stubble burning halted, poor weather conditions. Late cotton harvest continued. Shredding, discing, pink bollworm control progressed. Next years cotton, sugarbeets treated weed control. Grain sorghum harvest winding down. Seeding new alfalfa active some areas. Emerged fields good development. Some herbicide applications. Ground preparation, seeding, small grains, forage crops continued. Germination, emergence slowed, dry soils. Harvested corn disced, preparation next year. Cold mornings forced deciduous trees, vines into deeper dormancy. Pruning almond, plum, nectarine, peach, apricot, olive, walnut trees continued. Dormant tree, weed spraying underway. Harvest kiwifruit winding down.

Coachella Valley, date harvest continued. Pecans, persimmons continued harvesting. Fuji apples held in storage packed. Avocado picking underway, Western Riverside. Picking Navel oranges steady. Pummelo grapefruit picked, exported. Harvest desert lemons, grapefruit, orlandos, tangerines proceeded. Cold, frosty mornings forced citrus growers to run water, wind machines to protect fruit. Mandarin harvest progressed; Satsuma harvest winding down. Asparagus harvest active Coachella Valley good to excellent quality. Broccoli fairly light Salinas-Watsonville, moderate Santa Maria with good quality. Fall packing continued central valley, desert area. Carrot harvest active Kern Tulare area, Coachella Valley good quality. Cauliflower very light Salinas Watsonville, most shippers finished for season; Santa Maria light, variable quality. Celery moderate Salinas Watsonville, heavy Santa Maria good quality. Lettuce light Santa Maria, variable quality, as season closes. Fall potato movement Tulelake Butte Valley continued, excellent quality. Other vegetables harvested: cabbage, leaf lettuce, various oriental vegetables. Range poor to fair. Supplemental feeding continued. Pastures improved slowly. Livestock good condition.

**COLORADO:** Sunny, mild 9th to 10th. A storm with snow in southern part of the State on 11th, ice to snow in southern sections on the 12th with 5.00 in. snow reported in Pueblo. Mostly clear across the state 12th through 14th. Lows for the week were from below zero in the southern valleys into the teens on the Western Slope and Eastern Plains. Highs teens in the mountains to the 40s to 50s in the west, east.

**FLORIDA:** Temperatures 6 to 10° above normal. Common highs 80 to 85°, except Panhandle with upper 70s. Coldest temperatures upper 20s to mid 30s north, 40s central, 50s interior south, 60s along lower southeast coast. Heaviest rain totals northwest with 0.50 to 1.00 in. Elsewhere, rainfall generally under 0.25 in.

Soil moisture Panhandle, southern Peninsula short to adequate; northern, central Peninsula mostly short. Winter wheat planting for grain winding down. Cotton harvest virtually complete. Sugarcane harvest, planting active. Citrus groves, trees, fruit good condition. Rain needed, irrigation all areas. Warm temperatures. Water supplies good condition. Early orange harvest very active for fresh processing. Grapefruit packing for domestic, export shipments. Early tangerines slowing, Dancy tangerines, tangelo fresh shipments increasing for Christmas. Mild weather turned cool by weekend over major vegetable producing areas. Planting winter crops active. Harvest fall crops slowing, becoming active winter crops. Volume leaders: Tomatoes, peppers, squash, cucumbers, sweet corn, snap beans. Also available: cabbage, carrots, celery, eggplant, escarole, lettuce, radishes, strawberries. Homestead tomato harvest underway. State's pastures poor to good. Pasture ratings 15%

poor, 35% fair, 50% good. Moisture levels short to adequate. State's cattle herds fair to excellent condition.

**GEORGIA:** Warm week. Temperatures 4 to 7° above normal north, 8 to 12° above normal elsewhere. Warmest mostly 70s; varied from low, mid 60s mountains to low 80s near Florida border. Coldest upper teens to low 20s mountains to low, mid 30s near Atlantic coast. Rain late week, early weekend. Heaviest northwest, totals 1.00 to 2.00 in. common. Lightest east central, southeast; amounts under 0.25 in.

Soil moisture short. Rain needed to sustain limited soil moisture for small grains, winter grazing growth. Light land preparation, including mowing stalks, disking. Tobacco bed preparation active. Onion planting 80% complete, mostly fair. Soybean, pecan harvest winding down. Cattle, hogs good.

**HAWAII:** Flash floods island of Kauai 14th, caused loss of life, property, agriculture. Low pressure system northwest of Kauai brought unexpected heavy rainfall to east, north areas of that island resulting in major flooding. Damage to agriculture included flooding of major taro growing area, livestock losses, downed coffee trees, erosion, washouts of sugarcane fields. Weather variable rest of State during week, mixture sunshine, showers. Rain brought relief some areas, other locations remained dry. Up Country Maui continued under voluntary 10% water restrictions. Temperatures mid 60s to high 80s. Cooler evening temperatures slowed progress some crops, benefited others. Rainfall none to 18.40 in.

Days suitable for fieldwork 7.0. Insect spraying normal. Cavendish banana harvesting heavy. Cucumber, tomato plantings harvesting active. Mechanical damage caused bruises to initial tomato shipments. Moderate papaya production expected from Puna, Hawaii. Taro production expected to decline as result of weekend floods in major growing area in Hanalei Valley, island of Kauai.

**IDAHO:** Temperatures 2° below normal to 7° above normal across State. Scattered precipitation covered State; Kellogg in north received most with 1.34 in.

Soil moisture mostly adequate across State. Activities: Attending meetings, marketing commodities, repairing equipment. Hay, roughage supplies adequate. Some hay being fed. Early calving has started. Livestock reported in good to excellent condition.

**ILLINOIS:** Temperatures averaged 5 to 10° above normal; extremes mid 20s to 60° across the State. The majority of precipitation fell around 12th, 0.50 to 0.75 in. Some snow fell across the northern part of the state. Soil moisture was mostly adequate, while winter wheat was fair to good.

**INDIANA:** Temperatures 5 to 10° above normal. Highs mid 40s to mid 50s. Lows mid 20s to mid 30s. Extremes, teens to mid 60s. Precipitation 0.33 to 0.66 in. Some weekend snow in northern areas.

Some farmers were able to do some plowing this week. Other activities included hauling grain, hauling manure, cleaning and repairing

machinery, fixing fence, building repairs, winterizing the farmstead, attending pesticide application school and equipment shows, bookwork. Farmers are concerned with wheat condition due to change in temperatures. There is also concern with hay supplies. Livestock condition okay.

**IOWA:** Mild week with rain statewide on 11th, 12th. Temperatures 5 to 9° above normal. Extremes 4° (Decorah 15th and Fayette 16th), 68° (Keosauqua 12th). Precipitation 0.14 in. at Clarinda to 1.43 in. at Massena; State average 0.78 in. Weekly normal 0.25 in.

Efforts to harvest remaining corn continues. December 1, 97% harvested. Some may not be harvested until spring. Cold weather has reduced fall tillage to lowest total since 1986. Fall tilled 32%, fertilizer applied to 24%.

**KANSAS:** No weather data available.

Topsoil moisture generally adequate to surplus central and east; short to adequate west. Wheat stands showing moderate to good top growth; root development also improving. Better grazing available but still shorter than normally seen at this time. Most producers feeding and keeping close eye on livestock.

**KENTUCKY:** Temperatures 5 to 10° above seasonal normals. Rainfall well above average. High temperatures 50s, lows 40s. Cooler weekend with highs 40s, lows by 15th 20s. Rainfall 1.00 to 2.00 in. Greatest rainfall 13th, some locations 2.00 in.

Topsoil moisture mostly adequate. Kentucky burley sales reached 254.5 million lbs. by the 12th. Average price \$181.32 per cwt. Growers have placed 2.1 million pounds under loan for season as of 12th. Pastures limited. Livestock satisfactory condition.

**LOUISIANA:** Temperatures 10 to 12° above normal. Extremes 38°; 83°. Rainfall 0.61 in. southeast to 4.75 in. central.

Main activities: Pecan harvest, top dressing winter pastures, wheat, drainage work due to abundant rainfall, crawfishing. Sugarcane harvest virtually complete.

**MARYLAND & DELAWARE:** MARYLAND: Precipitation 0.93 in. Temperature 47.8°, normal 37.4°. Extremes 20°; 72°.

Activities: Preparing fields for spring planting; stripping tobacco; fall vegetable harvest; gleaning fields; liming, fertilizer applications; marketing, caring for livestock, holiday preparation.

DELAWARE: Precipitation 1.01 in. Temperature 49.7°, normal 38.7°. Extremes 25°; 73°.

Activities: Cleaning, storing equipment; cleaning seed for next year; marketing, caring for livestock, holiday preparation.

**MICHIGAN:** Temperatures 7 to 13° above normal. Extremes -4°; 62°. Precipitation 0.30 to 1.27 in. across the State. Unseasonably warm weather ended 14th with snowfall throughout the State.

Livestock in good condition with adequate feed supplies. Major activities: Cutting, splitting wood; pruning orchards, grape vines; hauling manure; storing, repairing equipment.

**MINNESOTA:** Temperatures 2 to 7° above normal for the State. Extremes -23°; 46°. Precipitation totals averaged 0.02 to 0.95 in. for the State;

0.37 to 0.42 in. above normal for the south central, southeast, east central regions, near normal to 0.15 in. below normal elsewhere. Greatest weekly total 1.14 in. at Waseca. Snowfall 12 in. for the north central district, 1 to 3 in. elsewhere. Snow depth on 15th averaged 15 to 16 in. in the northeast, north central, east central regions, 2 to 3 in. elsewhere.

**MISSISSIPPI:** Temperature 58°, 9.8° above normal. Extremes 29°; 80°. Heavy rainfall across most of the State. Rainfall 2.42 in. 1.16 above normal. Soil temperature 56°.

Days suitable for fieldwork 2.5, 3.8 1990, 3.4 avg. Soil moisture 37% adequate, 38% surplus, 25% excessive. Soybeans 99% harvested, 100% 1990, 99% avg.; 49% poor, 50% good, 1% excellent. Hay supply, 29% adequate, 71% surplus. Feed grain 33% adequate, 67% surplus. Wheat planted 99%, 95% 1990, 97% avg.; 95% emerged, 93% 1990, 91% avg.; 52% fair, 47% good, 1% excellent. Pecans 83% harvested, 90% 1990, 86% avg.; 50% fair, 50% excellent. Livestock 100% good. Pasture 87% of normal. Activities: Feeding cattle, cleaning equipment.

**MISSOURI:** Temperatures 10° above normal. Precipitation 0.57 in.; 1.50 in. southeast to mostly 0.60 in. or less elsewhere.

Late fieldwork limited by muddy fields, damp weather. Main activities care of livestock, work around farmyard.

**MONTANA:** Temperatures 5 to 10° above normal statewide. Warmest in east. Precipitation mainly in west, southwest with amounts nearly 0.50 in. Eastern precipitation none to light.

Winter wheat condition 2% poor, 20% fair, 74% good, 4% excellent. Snowcover protection 81% poor, 13% fair, 3% good, 3% excellent. About 75% cattle, sheep receiving supplemental feed. Grazing 94% open, 5% difficult, 1% closed.

**NEBRASKA:** Temperatures 3° above normal in the northwest to 11° above normal in the northeast. Precipitation occurred midweek with trace amounts in the northwest, over 1.00 in. central portion.

**NEVADA:** Temperatures below normal north, above normal south. Extremes 0°; 68°. Precipitation none to 0.61. Most precipitation occurred in south central areas.

No unusual damage to crops or livestock injuries reported due to weather. Major activities include general maintenance, feeding and caring for livestock.

**NEW ENGLAND:** Precipitation 0.10 to 0.80 in. north; 0.50 to 1.25 in. south. Temperatures low to mid 20s northern Maine, low to high 30s elsewhere north, high 30s to high 40s south. Maximum temperatures low 40s north to mid 60s south; minimum temperatures 10° north to low 30s south.

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

**NEW JERSEY:** Temperatures much above normal, averaged 41° north, 45° south, 47° coastal. Extremes 20°; 71°. Precipitation near normal; averaged 0.68 in. north, 0.91 in. south, 0.83 in. coastal. Heaviest 24 hour total 0.98 in. on 9th, 10th.

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

**NEW MEXICO:** Temperatures for the week averaged within a 1 to 2° of normal over the north, about 3° above normal in the south. A storm system brought widespread precipitation during the middle of the week with the highest reported total of 1.25 in.

**NEW YORK:** Mild week. Highs reached the 60s in southeast on 9th. Lows 20s to 30s except for readings in the teens from the Adirondacks to the St. Lawrence, Champlain Valleys. Extremes 14°; 64°. Rainfall was variable. Much needed rain fell. Southeastern areas received 1.25 to 1.75 in. Elsewhere precipitation was lighter, ranging from 0.25 to 0.75 in.

Major activities: Caring for livestock, winter chores, spreading manure, maintenance, attending meetings.

**NORTH CAROLINA:** Temperatures above normal. Extremes 25°; 80°. Rainfall none to 1.90 in.

Days suitable for fieldwork 5.5. Soil moisture 1% very short, 19% short, 77% adequate, 3% surplus. Crop condition: wheat 1% poor, 22% fair, 75% good, 2% excellent; oats 1% poor, 27% fair, 72% good; barley 2% poor, 31% fair, 67% good; rye 24% fair, 76% good; Pasture 1% very poor, 8% poor, 48% fair, 43% good. Soybeans harvested 93%, 95% 1990, 86% avg; wheat emerged 87%, 85% 1990, 88% avg. Livestock feed from pastures 44%. Hay, roughage supplies 3% short, 85% adequate, 12% surplus. Feed grain supplies 5% short, 89% adequate, 6% surplus. Major activities included: Harvesting cotton, sorghum, soybeans; planting small grains. Other activities included: land preparation; cutting wood; tending livestock; preparing tobacco plant beds; harvesting Christmas trees; equipment repair; general farm maintenance.

**NORTH DAKOTA:** Temperatures 4 to 8° above normal. Extremes -12° east central, north central; 48° southwest, south central. Precipitation ranged from none west central, southwest, south central to 0.16 in. northeast.

Concern for winter wheat, rye reported in areas with minimal snow cover. Livestock good condition with adequate hay, feed supplies available.

**OHIO:** Featured unusually mild temperatures, moderate precipitation as southerly breezes supplied State with abundant warmth, moisture. Towards weekend the moisture came to an end as winds turned to the northwest, temperatures dipped to subnormal levels. Mean maximum temperatures varied from the mid to upper 40s north into the mid 50s south while average minimums reached from near 30° north towards the upper 30s south. For the week temperatures averaged from the upper 30s north to the mid 40s south, which is 6 to 10° above normal. Precipitation was lightest over the far north where totals were between 0.20 to 0.40 in. Elsewhere 0.40 to 0.80 in., with upwards of 0.80 to 1.20 in. in the far south. Precipitation totals were 0.25 in. below normal north to 0.50 in. above normal south.

**OKLAHOMA:** Temperatures 8° above normal northeast to normal Panhandle. Precipitation 0.23 in. southeast to 1.38 in. central.

Rain, slow drying has improved wheat condition, stopped cotton harvest. Extension specialist places cotton 55% harvested. Cattle good; feeder cattle prices lower than preceding week.

**OREGON:** Temperatures above normal, eastern areas; normal, western areas. Dense fog, western areas. Very strong winds, 12th, causing tree damage, power outages, central, northeastern areas. Light precipitation reported statewide.

Soil moisture mostly adequate. Winter wheat condition fair to good. Herbicide applications to wheat, grass seed fields. Dormant sprays applied to peaches. Hazelnut, grape, caneberry pruning continued. Christmas tree harvest winding down. Onion sorting, grading underway. Livestock condition was mostly good to excellent. Supplementary feeding, pasture seedings continued statewide. Pastures mostly dormant, eastern areas, higher elevations. Range, pasture, fair to good east, good west.

**PENNSYLVANIA:** Moderate weather with slightly above normal temperatures. Temperature 43°, 8° above normal. Extremes 20°, 65°. Precipitation 0.81 in.; 0.08 in. above normal. Activities: Repairing fence; hauling manure; maintaining machinery; caring for livestock.

**SOUTH CAROLINA:** Temperatures 6 to 8° above normal. Light rain showers weekend. Rainfall 0.30 in. mountains to near none along coast.

Farm activities: Soybean harvest nearing completion; scrapping few cotton fields; preparing tobacco beds; small grains seeding almost complete; liming fields. Pastures average; hay supply adequate. Livestock condition good. Watering ponds low; need rain.

**SOUTH DAKOTA:** Temperatures 5 to 10° above normal statewide. Extremes -9°, 56°. Only the southeast, extreme north, northern Black Hills reported more than a trace of precipitation. Maximum 0.79 in.

The wide range of temperatures is causing some disease problems in newly weaned calves. Lack of snow cover concerns many winter wheat farmers.

**TENNESSEE:** Cold front brought rain 9th. Series of low pressures along stationary front brought significant rainfall statewide 12th through 14th. High pressure provided cool, dry weekend. Temperatures much above normal statewide. Ranged 2° above normal Bristol to 10° above normal Memphis. Extremes 67° Memphis, 12th, 13th; 18° Crossville, 15th. Precipitation averaged much above normal statewide. Ranged from 1.92 in. Nashville to 4.11 in. Jackson. Amounts of 1.00 in. to 2.00 in. common with storms 12th through 14th.

Statewide subsoil moisture continues to improve, mostly adequate to surplus. Main activities: General farm maintenance, repairs; winterizing; hauling manure; storing crops; chopping firewood; caring for livestock. Livestock good.

**TEXAS:** First half week very mild for mid-December. Showers began week, then a short dry period during mid week. Major change around 12th, 13th as cold front edged its way across

State. Significant rains fell North, South, Southeast Texas. On weekend, light showers dotted far South Texas. Front also brought lower temperatures 13th to 15th. Temperature averages at or above normal for week. Temperature departures below normal eastern, south central, southern areas state.

**Crops:** Few scattered grain sorghum fields remained for harvest Plains. Sorghum harvested 100% 1991; 100% 1990; 99% avg. Cotton producers the Plains made good harvest progress until midweek, showers halted activities. Some remaining fields the northern Blacklands, additional moisture was damaging open cotton. Producers Trans Pecos, Hill Country trying wind up harvest when rain activities. Land preparations continued Coastal Bend, Valley few delays. Cotton harvested 78% 1991; 90% 1990; 86% avg. Small grains parts State needed additional sunshine to make optimal progress. Temperatures mild last week, and along with the moisture, created good growing conditions Plains, Cross Timbers. Insect activity beginning increase some fields because of the recent moisture. A few scattered fields left for planting. Wheat condition 79% normal; unchanged from last year. 8% excellent; 52% good; 37% fair; 3% poor. Wheat planted: 100% 1991; 100% 1990; 100% avg. Wheat emerged: 94% 1991; 97% 1990; 98% avg. Soybean harvest also held up midweek Plains, and Upper Coast. Peanut harvest Cross Timbers, Blacklands met few delays mid late week. A few recently dug fields damaged by last week's rain. Minor problems occurred Low Plains: nuts coming loose from plants. Sugarbeet harvest experienced some delays from rainfall High Plains. Other Crops: Peanuts harvested: 91% 1991; 95% 1990; 96% avg. Pecans harvested: 74% 1991; 70% 1990; 82% avg. Soybeans harvested: 98% 1991; 93% 1990; 96% avg. Sugarbeets harvested: 74% 1991; 95% 1990; 94% avg. Sunflowers harvested: 88% 1991; 87% 1990; 95% avg. Oats planted: 90% 1991; 90% 1990; 96% avg.

**Commercial Vegetables:** Lower Rio Grande valley, harvest operations continued. Onions making good progress. Irrigation activities increasing. San Antonio Winter Garden, rains delayed harvest activities midweek. Pecan harvest also slowed some during week. Quality remained fair. Prices down some.

**Range and Livestock:** Milder temperatures along with moisture helped forage conditions many areas. Normal winter feeding activities continued. Stockers continued let out on small grain pastures. Overall, livestock conditions good. Milder weather conditions helped, 7% excellent; 45% good; 39% fair; 9% poor.

**UTAH:** Temperature maximums averaged at normal for this time of year. Minimums about 3° less than normal. Light precipitation.

Most counties report good conditions for farm activities. Mink pelting is underway. Livestock reported to be in mostly good condition. Some northern counties report delays in corn grain harvest due to high moisture content. One county did report an incident involving loss of cattle from nitrate poisoning. Fall tillage, winter machinery maintenance continues. Fall seeded wheat in good condition.

**VIRGINIA:** Temperatures above normal for the period. Extremes 21°, 75°. Rainfall was close to normal. Range 0.11 to 1.38 in.

Days suitable for fieldwork 3.5. Topsoil moisture 8% short, 85% adequate, 7% surplus. Soybeans harvested 97%, 97% 1990, 91% avg. Winter grains, grazing crops condition 4% very poor, 14% poor, 51% fair, 29% good, 2% excellent. Forage from pastures, winter grazing crops dairy cattle 17%, beef cattle 34%, sheep 38%. Producers were busy plowing, pruning fruit trees, gassing plant beds, caring for livestock.

**WASHINGTON:** Temperatures normal to 3° above normal, west; 3° below normal to 8° above normal, east. Precipitation 0.58 to 1.89 in. west; none to 0.74 in. east.

Days suitable for fieldwork, 2.2. Soil moisture 31% short, 68% adequate, 1% surplus. Hay, other roughage 8% short, 75% adequate, 17% surplus. Range and pasture 10% very poor, 22% poor, 17% fair, 51% good. Winter wheat 2% poor, 15% fair, 83% good. Soil moisture has improved during the last couple weeks of gentle rainfall. There are some concern of vulnerability of just emerging winter wheat stands to a cold snap in eastern areas where farmers are hoping for snow cover. Pruning was taking place in central Washington orchard areas. Harvesting of Christmas trees was about completed. Cattle were on feed or late fall pasture.

**WEST VIRGINIA:** Temperature 46°. Extremes 13°; 68°. Precipitation 1.24 in.

Days suitable for fieldwork 3.4. Soil moisture, 27% short, 65% adequate, 8% surplus. Wheat, 100% good. Barley, 100% sown; 100% good. Pastures, 32% very poor, 10% poor, 33% fair, 25% good; 53% of normal. Cattle, good. Sheep, good. Farm activities: general maintenance, fencing, marketing livestock, stripping tobacco.

**WISCONSIN:** Temperature 25°. Extremes -12°; 59°. Light snow on 9th in north. Rain, freezing rain on 11th, 12th with precipitation 0.20 to 0.80 in. Light snow across the south on evening of the 14th.

Mid-December frost depth at record low; 1.0 in. 1991, 4.7 in. average. Snow depth 3.1 in. 1990, 4.5 in. 1991 as of December 13.

**WYOMING:** Temperatures mostly above normal. Precipitation above normal north central, mostly below normal elsewhere.

Winter wheat mostly fair to good. Additional moisture, snow cover needed. Cattle, sheep mostly good, supplemental feeding continuing. Preparations for calving and lambing in progress.

## International Weather and Crop Summary

### HIGHLIGHTS

December 8 - 14, 1991

WESTERN USSR ... Milder weather follows early week bitter cold, favoring dormant winter grains.

EUROPE ... Mostly dry, cold weather prevails across the continent.

EASTERN ASIA ... Seasonably dry conditions exist in the North China Plain, where moisture is needed for winter wheat establishment.

SOUTHEAST ASIA ... Widespread showers continue over Malaysia and Indonesia.

SOUTH ASIA ... Grain, oilseed, and cotton harvests progress.

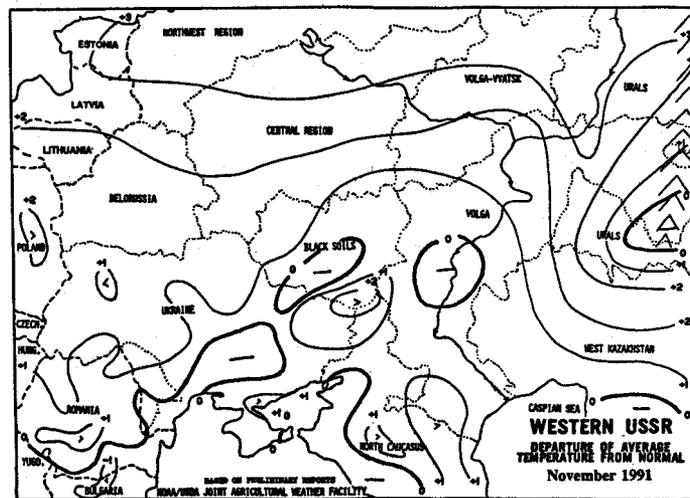
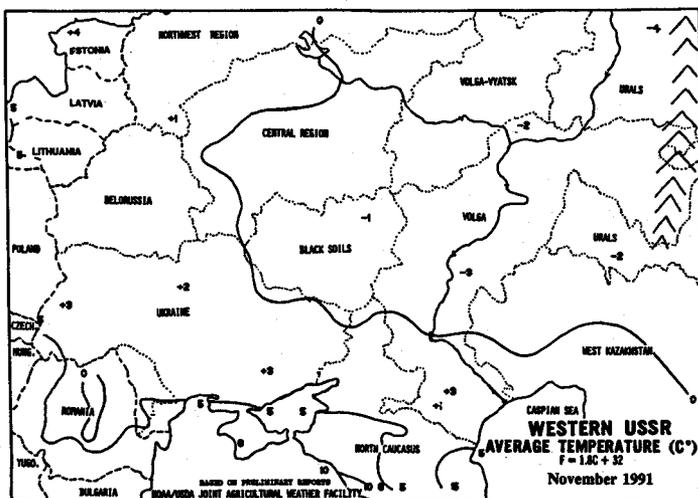
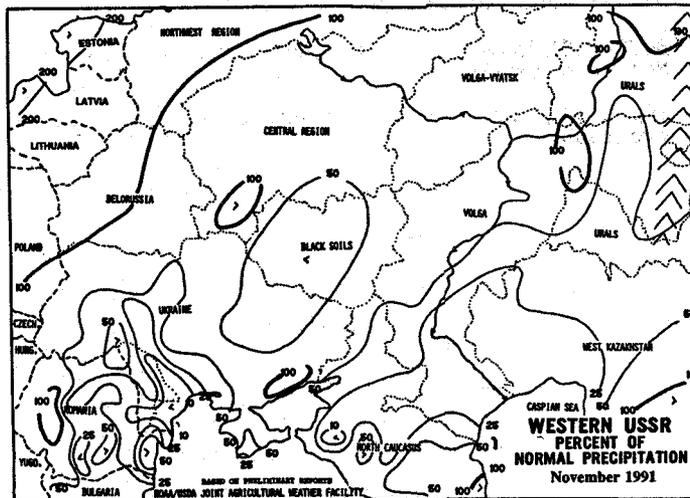
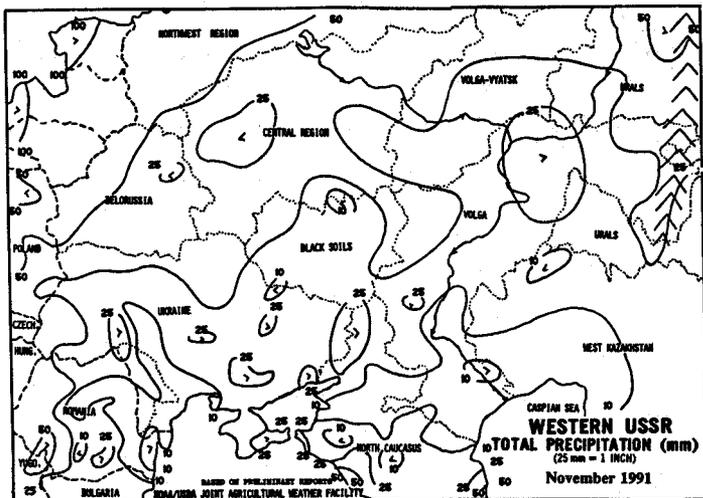
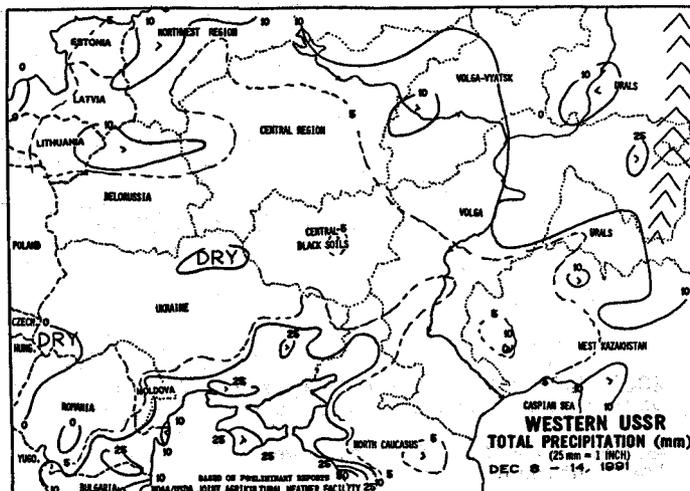
SOUTH AMERICA ... Wet conditions delay fieldwork in Argentina and cause potential problems for winter wheat. In southern Brazil, beneficial rain favors summer crops.

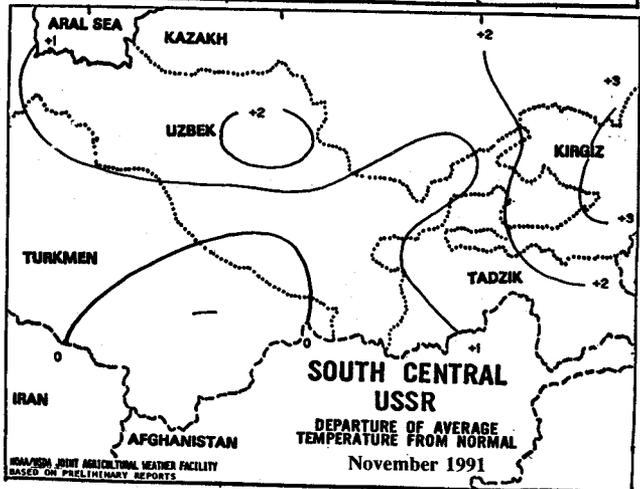
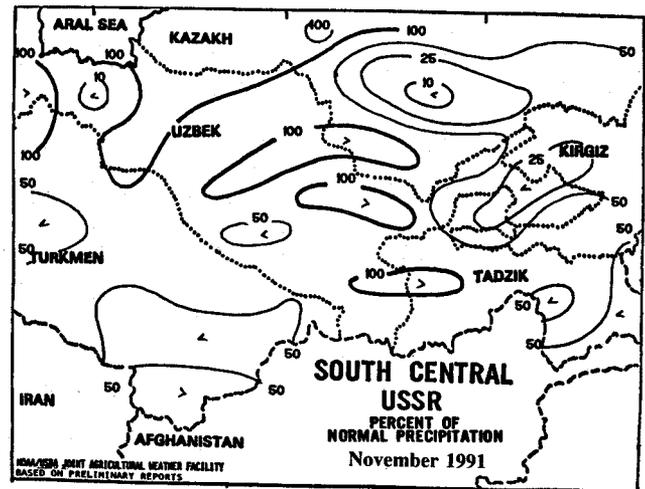
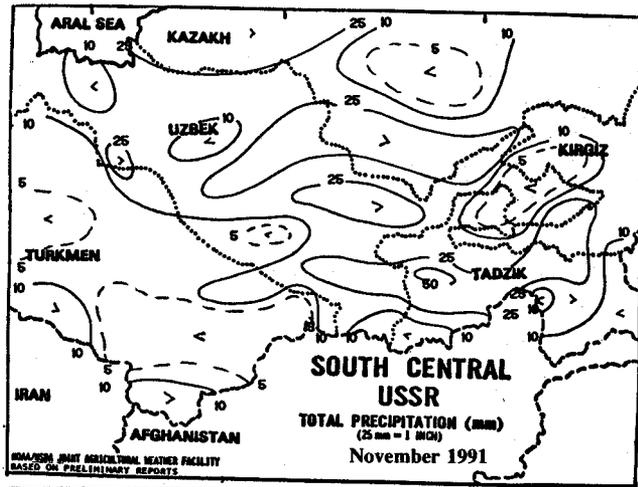
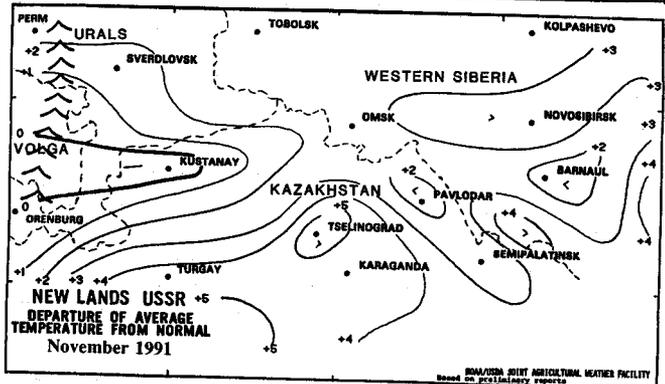
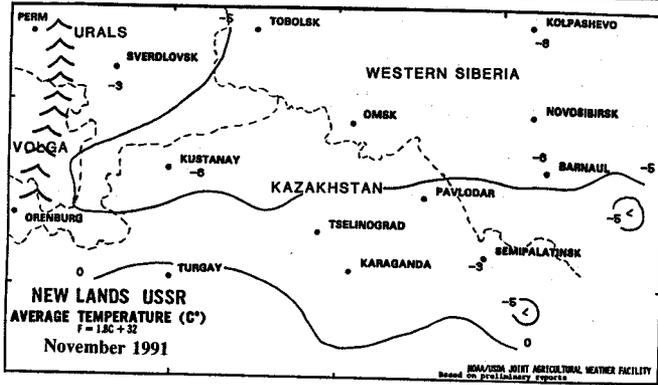
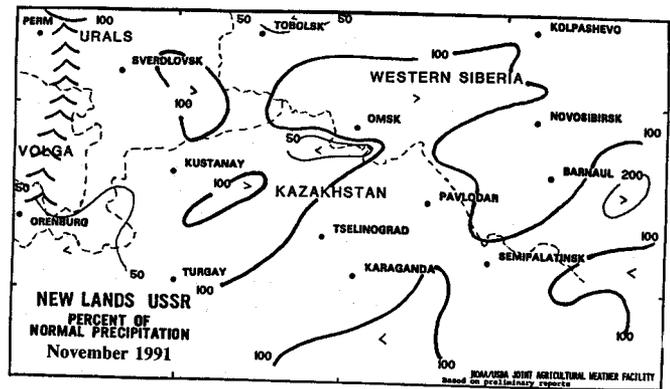
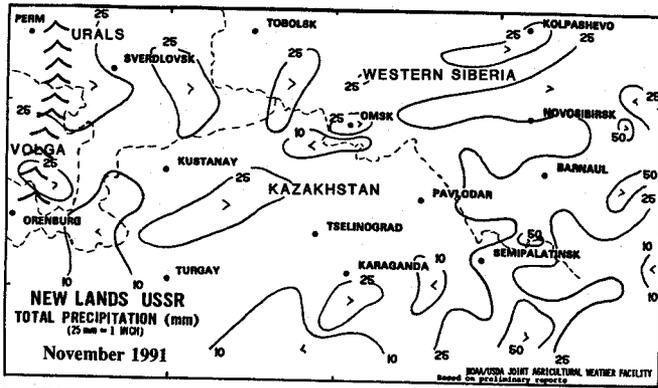
AUSTRALIA ... Heavy rains delay eastern summer crop planting, while conditions remain favorable for winter wheat harvesting in the west and southeast.

NORTHWESTERN AFRICA ... Little, if any, precipitation covers winter grains in Morocco, Algeria, and Tunisia.

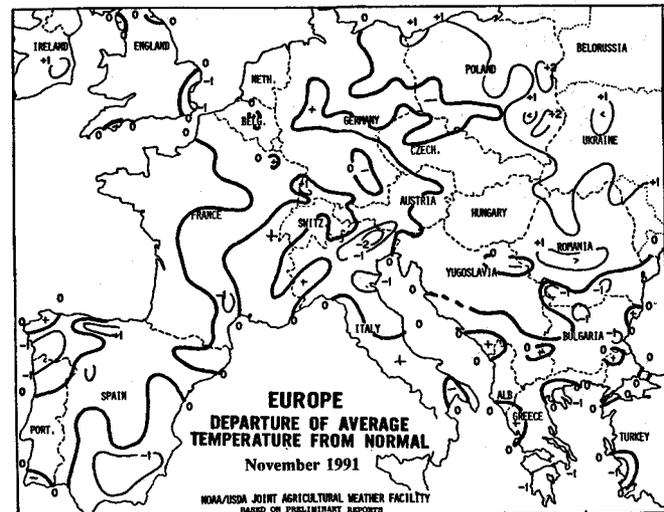
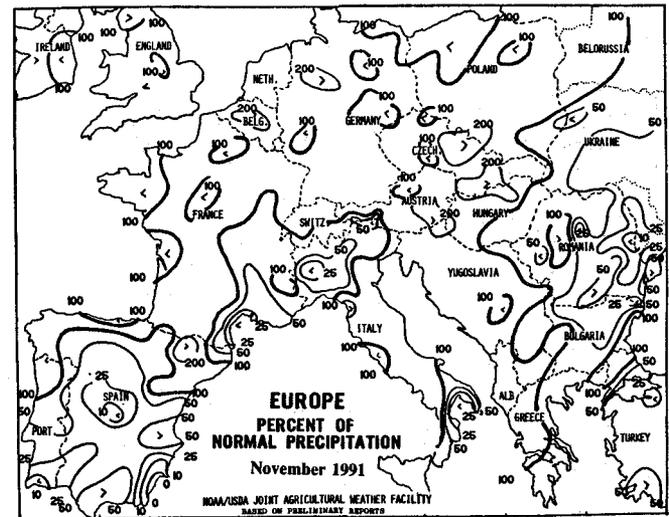
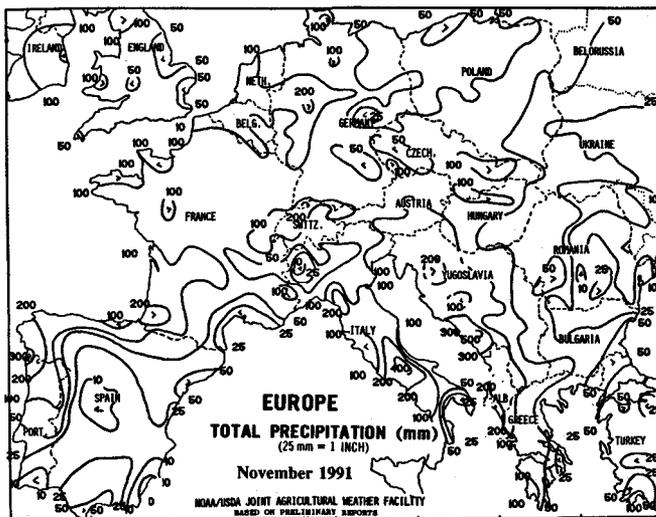
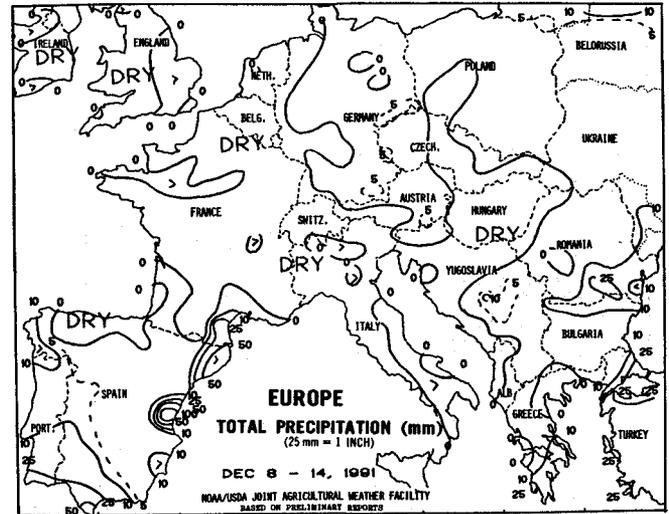
SOUTH AFRICA ... Rain and seasonable temperatures help vegetative corn.

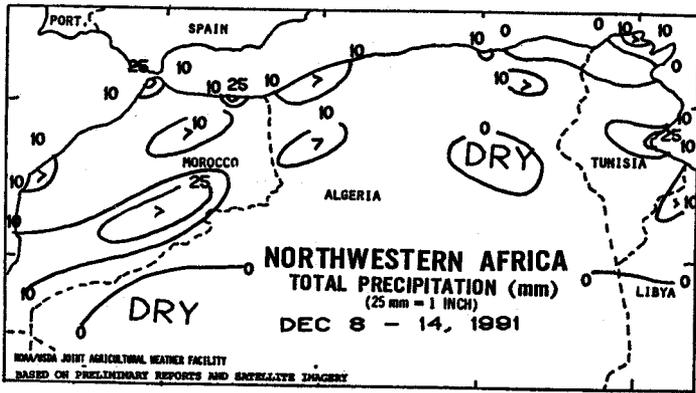
**WESTERN USSR ...** As the week began, bitter cold continued over most winter grain areas. Minimum temperatures as low as -15 degrees Celsius (C) covered crop areas as far south as southern Ukraine and North Caucasus. Although winter grains were stressed by the bitter cold, snow cover was adequate in most areas to protect the crop from potential winterkill. The cold weather pattern continued until December 11, when milder air spread eastward over the region, raising minimum temperatures to near freezing. Precipitation during the week was less than 10mm, except in southern Ukraine where a storm system from the Mediterranean brought rainfall ranging from 10 to 27mm. In November, below-normal precipitation covered most crop areas, helping late-season harvesting. Winter grains remained dormant in the north and entered dormancy in the south. Monthly average temperatures ranged from 1 to 3 degrees C above normal, providing favorable hardening conditions.



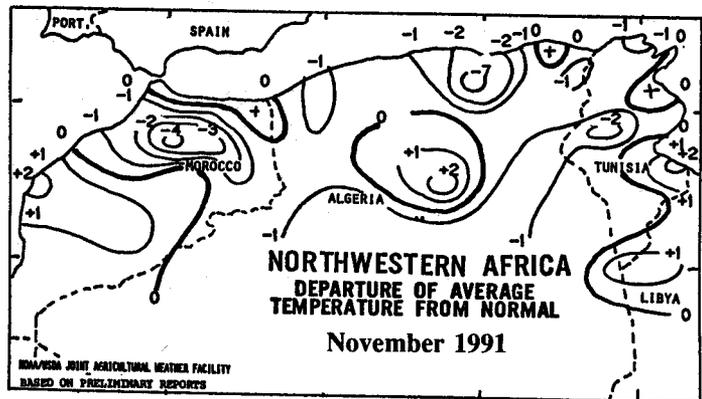
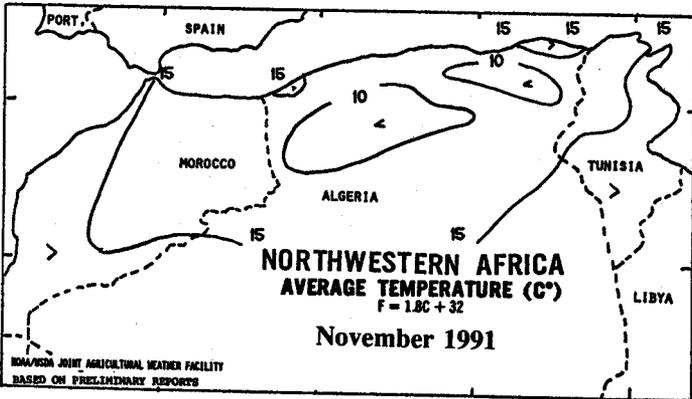
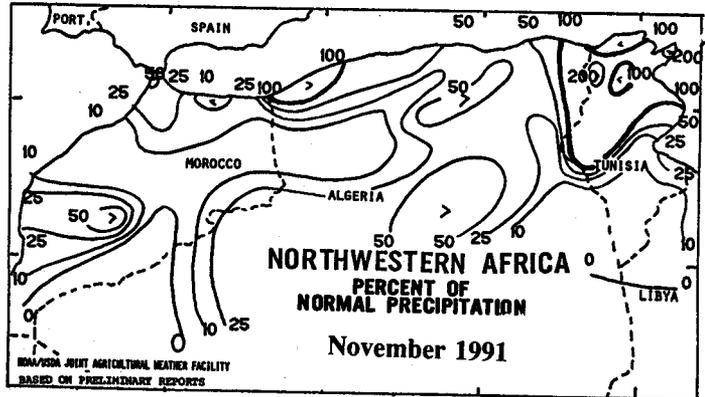
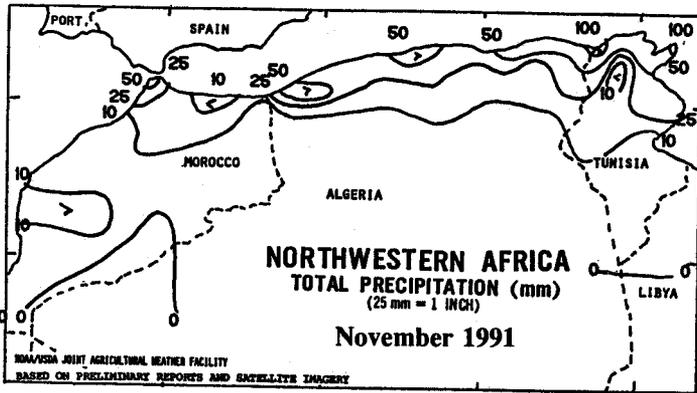


**EUROPE** ... Mostly dry weather prevailed throughout the region, with significant showers confined to the Iberian peninsula. In Spain, isolated heavy rain fell along southern and eastern coastal areas, where weekly rainfall reached 50-119mm. Elsewhere, rainfall averaged less than 10mm, except in southern Romania (10-29mm). The dry, cold weather allowed some late sugarbeet harvesting, but weekly temperatures averaged 2-6 degrees C below normal across northern Europe and 5-10 degrees C below normal in the east. November rainfall averaged above normal across northern and central Europe, providing adequate moisture for winter crop establishment but slowing sugarbeet harvesting. Rainfall slackened to near and below normal across much of the Mediterranean region, with well below-average November rainfall in Spain limiting moisture for winter crops.

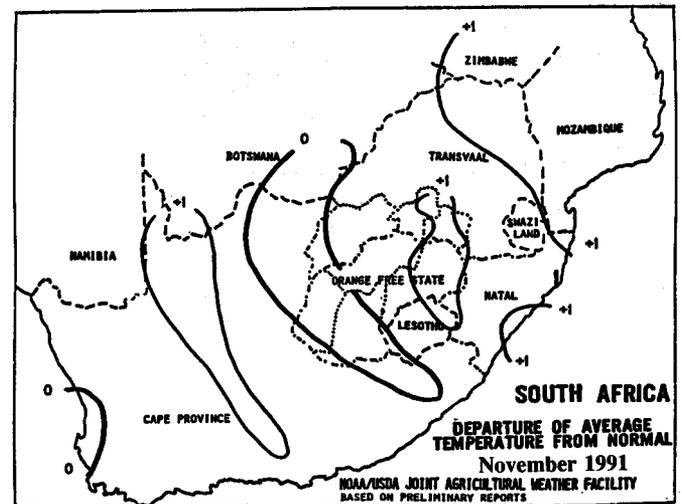
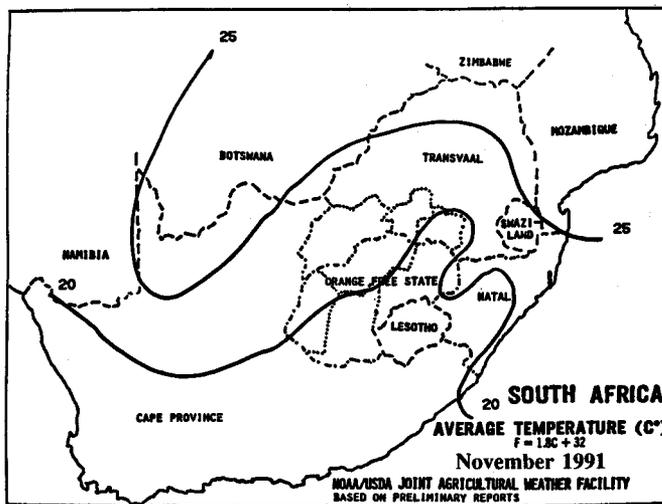
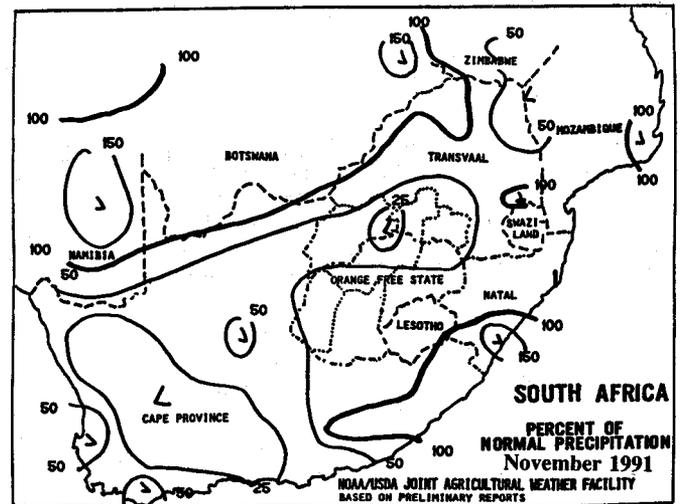
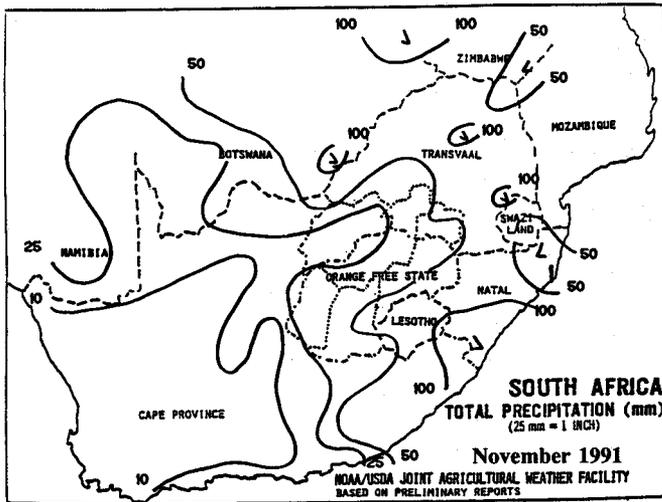
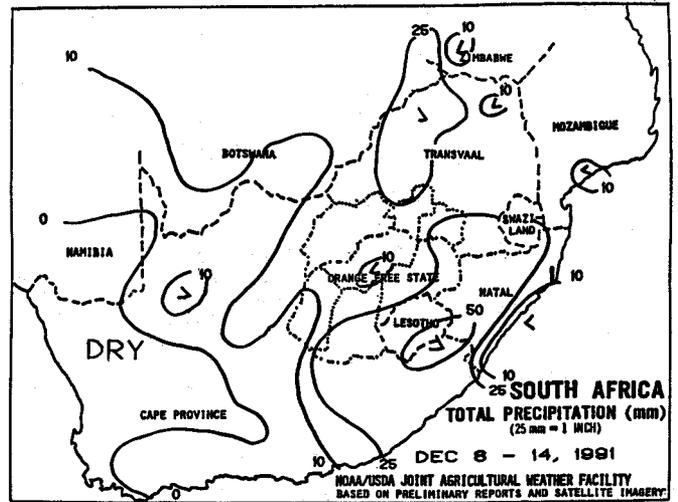


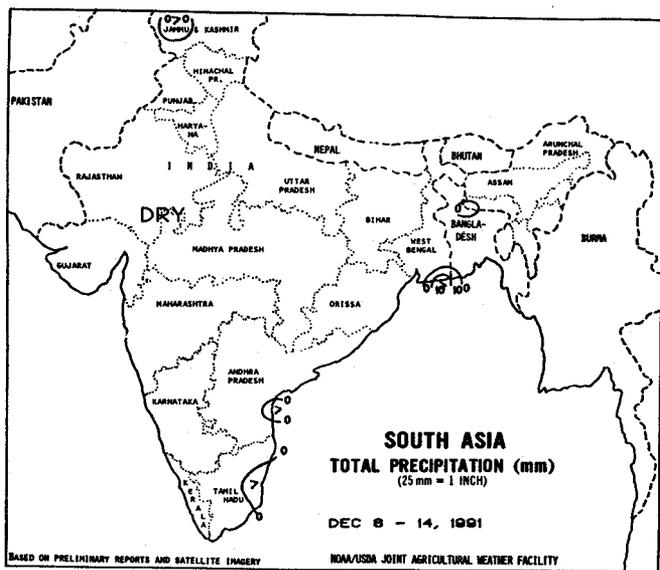


**NORTHWESTERN AFRICA** ... Light precipitation (5-10mm) covered Moroccan winter grain areas, continuing November's below-normal precipitation pattern. Moderate rain (25-40mm) fell east of Marrakech, outside the primary growing area. Although November's meager rainfall pattern over Morocco allowed winter grain planting to progress toward completion, widespread soaking rain is needed for crop establishment. Further east, rainfall in November was below normal (15-35mm) in western and central Algeria, and above normal (37 to 71mm) in eastern Algeria and Tunisia. Precipitation amounts this past week in Algeria and Tunisia were less than 10mm, allowing late-season planting activities to progress with only minor delays.

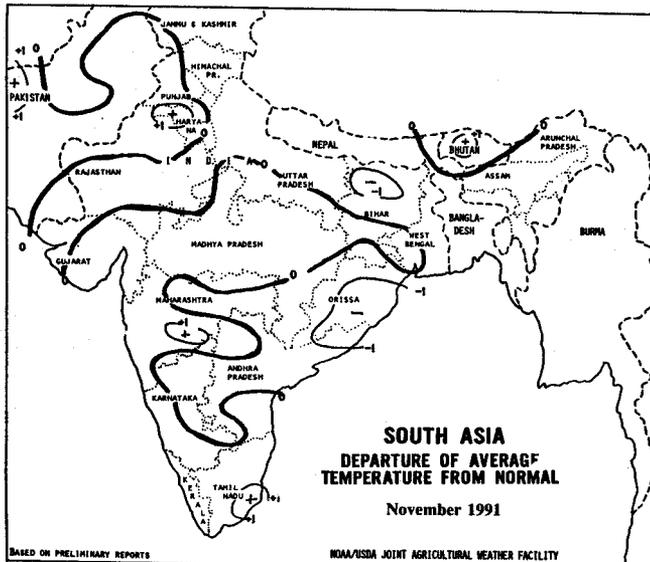
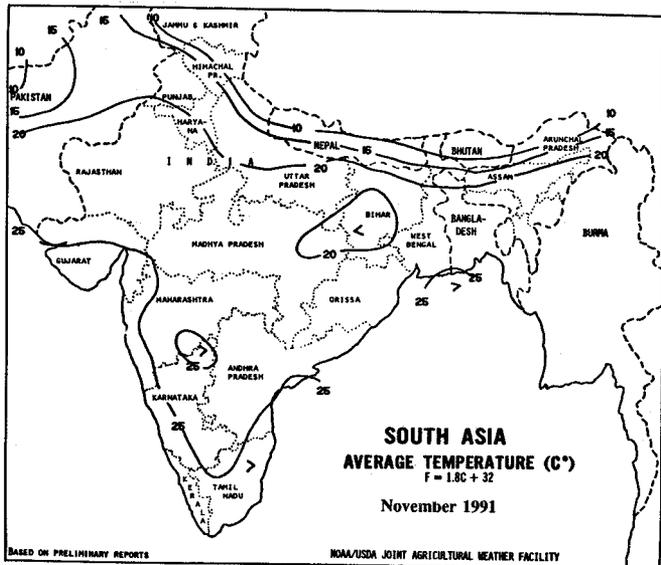
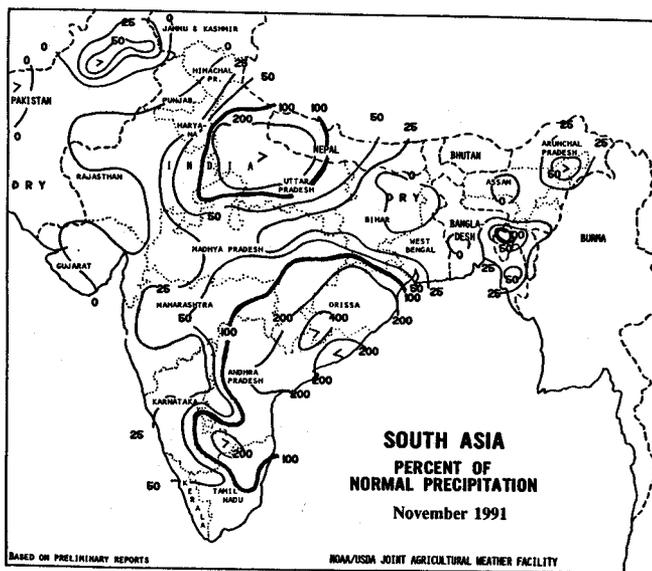
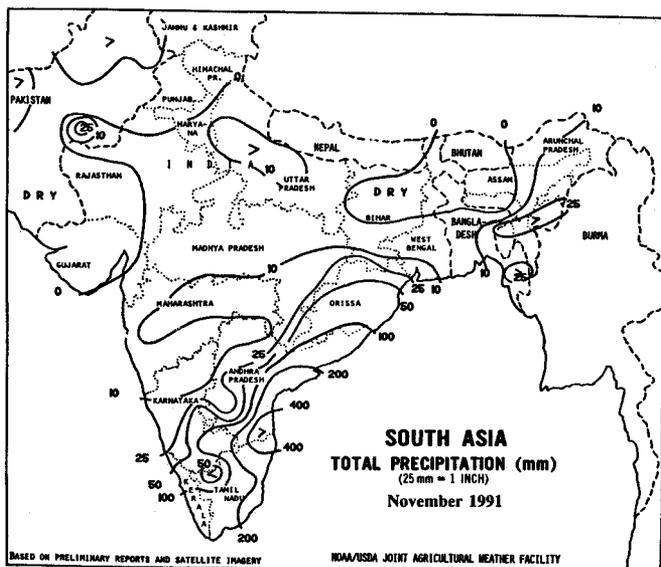


**SOUTH AFRICA** ... Light to moderate rain (10-36mm) and seasonable temperatures helped vegetative corn across the region. Moderate showers (25-64mm) covered most of Natal and eastern Cape Province, but only light rain (10mm or less) fell over sugarcane areas of Natal's immediate coast. In November, drier-than-normal weather, accompanied by periodic high temperatures, reduced topsoil moisture for emerging corn in western crop areas. Near- to above-normal rainfall elsewhere benefited vegetative grain and sugarcane.

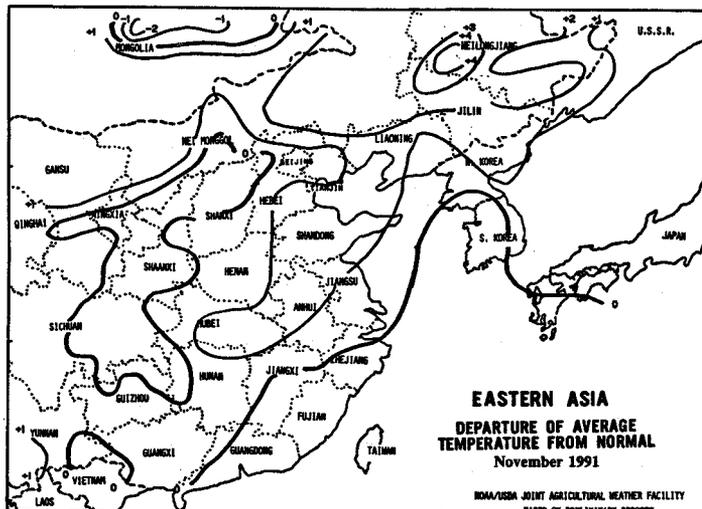
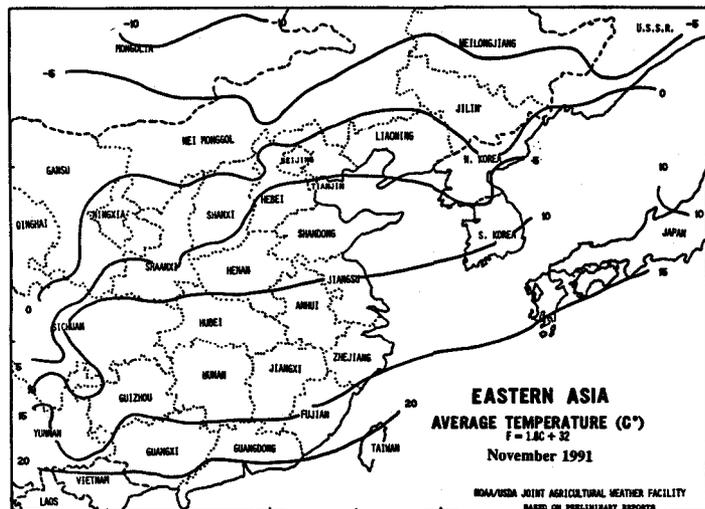
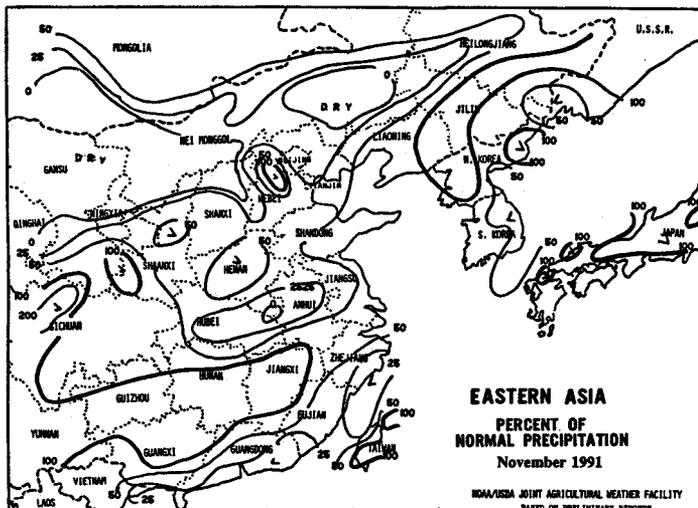
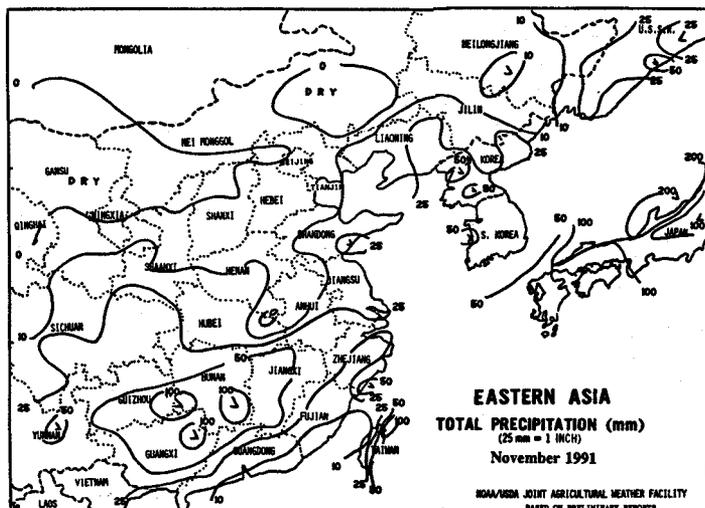
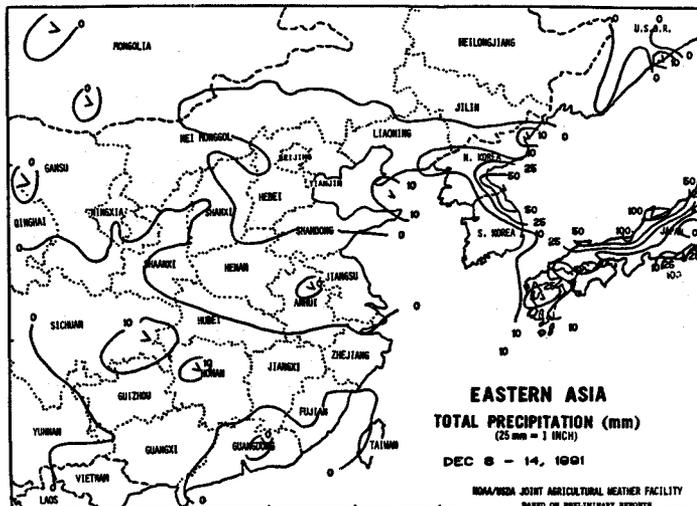


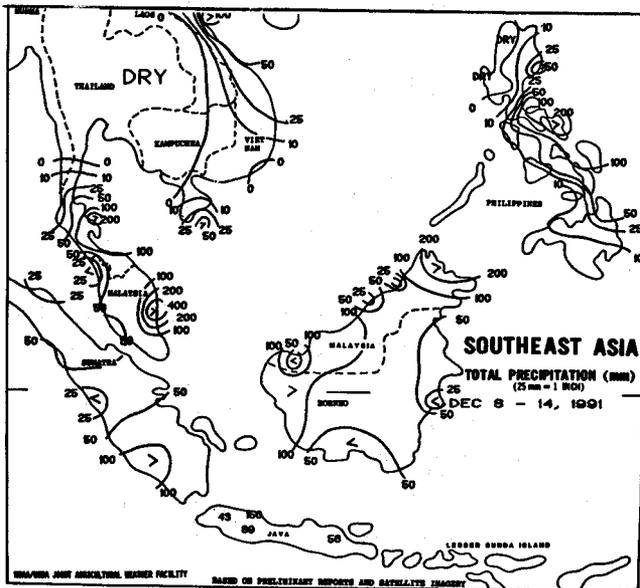


**SOUTH ASIA** ... Seasonably dry, warm weather favored harvests of summer cotton, grains, and oilseeds across the region. Milder weather returned to winter grain and oilseed areas of northern India and Pakistan, favoring germination and establishment. In November, heavy showers, due partly to a tropical cyclone, improved moisture for dry season crops over southern India but caused some flooding in coastal rice areas. Conditions elsewhere were favorable for summer crop maturation and winter plantings.

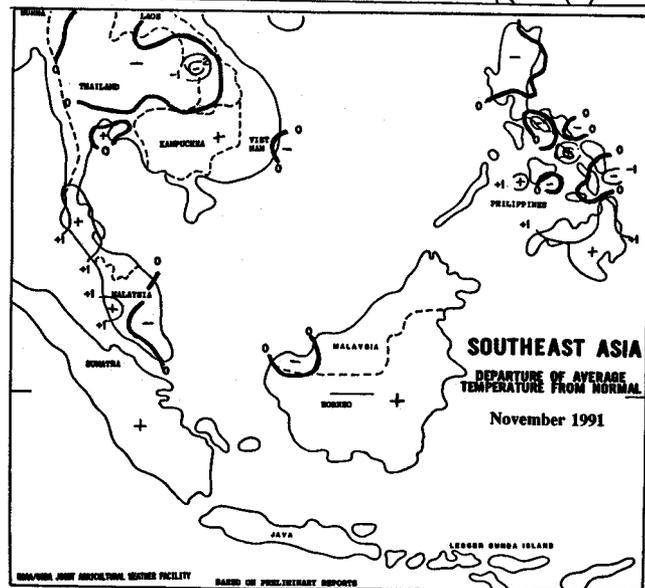
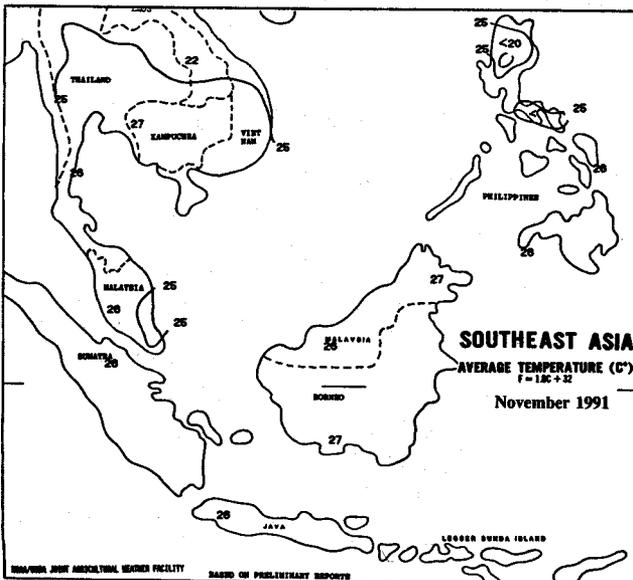
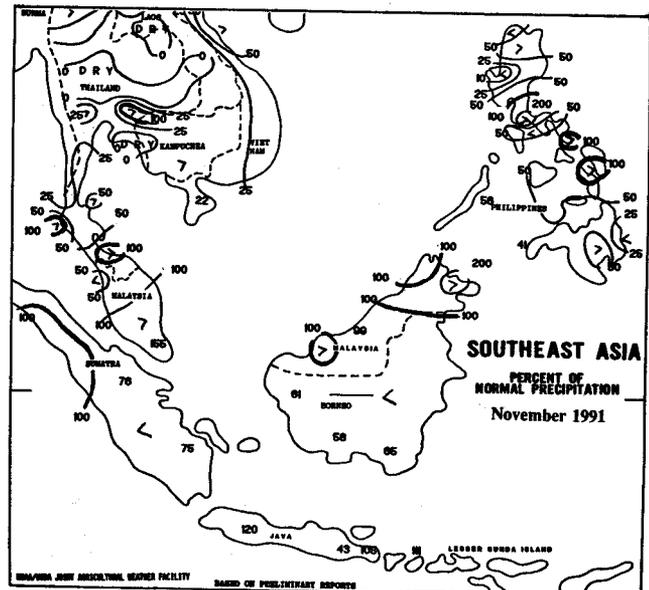
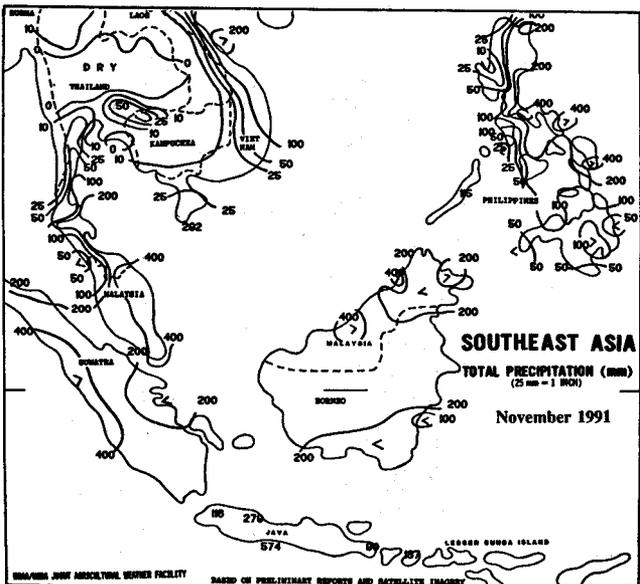


**EASTERN ASIA** ... Little or no rain fell across the North China Plain, keeping winter wheat conditions unfavorable. However, cooler weather should prompt winter wheat into dormancy. Scattered light rain (3-13mm) spread across southern China, favoring developing winter crops. Weekly temperatures averaged 1-3 degrees C above normal across southern China. In November, most of the country received below-normal rainfall, with portions of the North China Plain receiving only 25-50 percent of normal rainfall, producing poor conditions for winter wheat establishment. Southern China received near-to above-normal rainfall, increasing reservoir levels and benefiting winter crop germination.

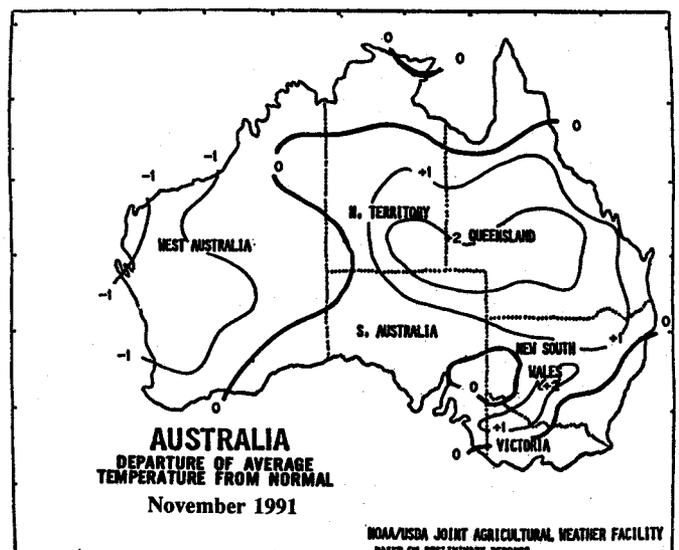
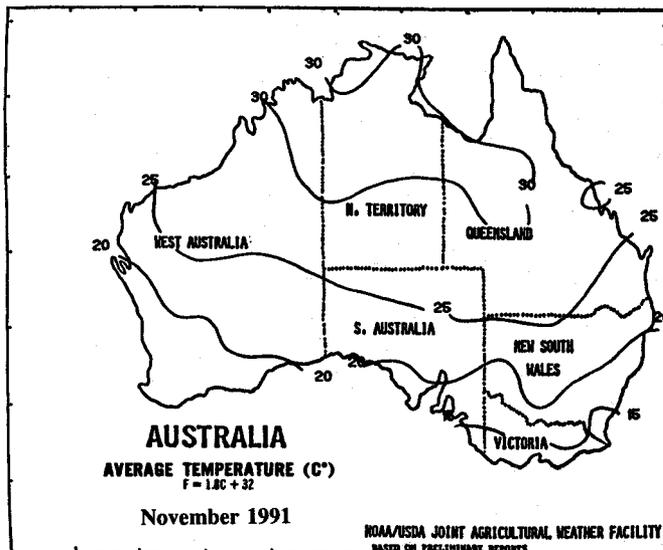
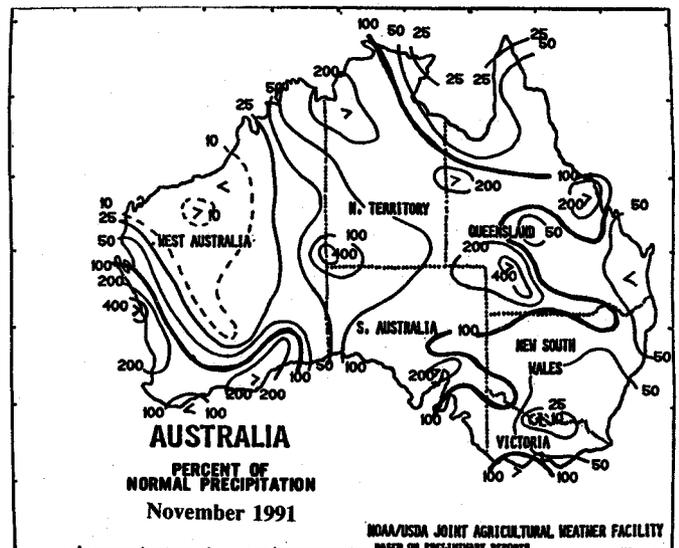
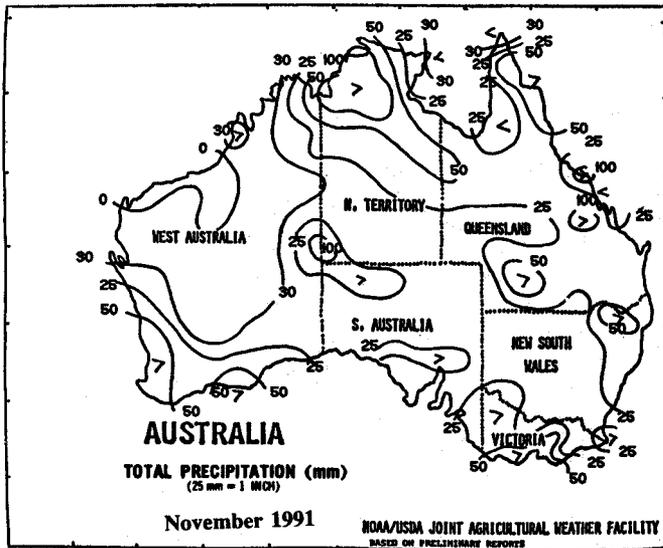
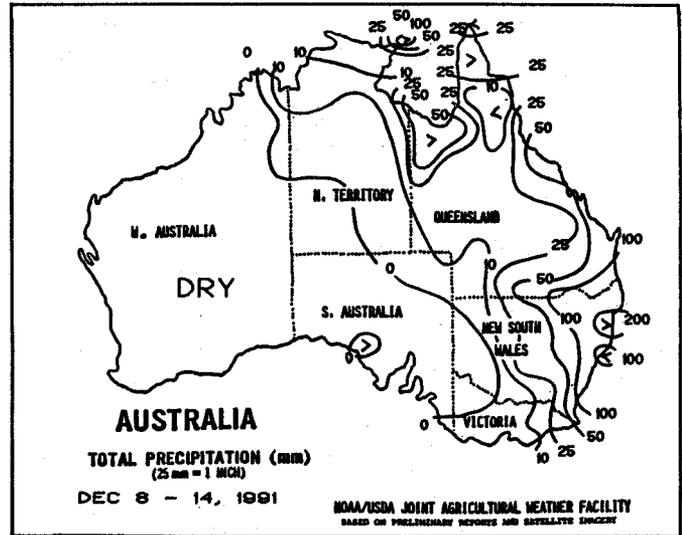




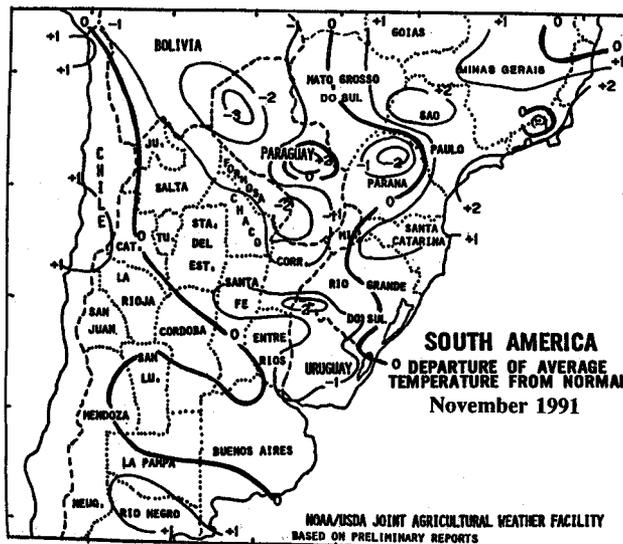
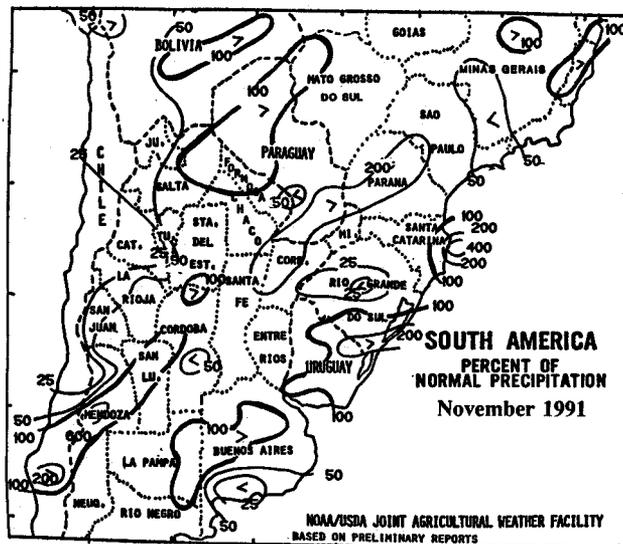
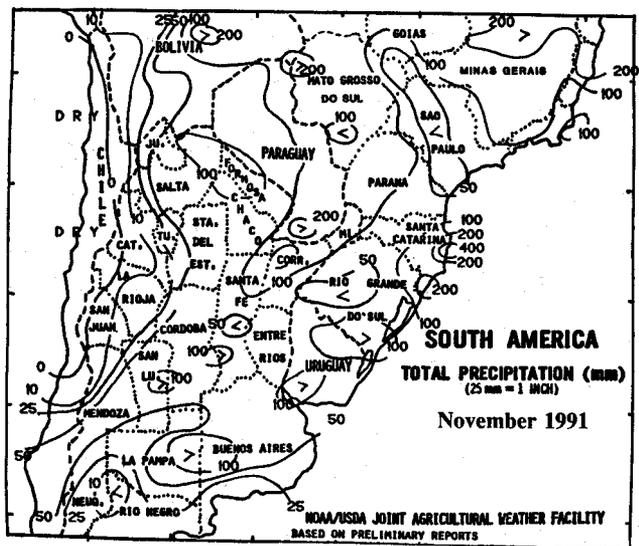
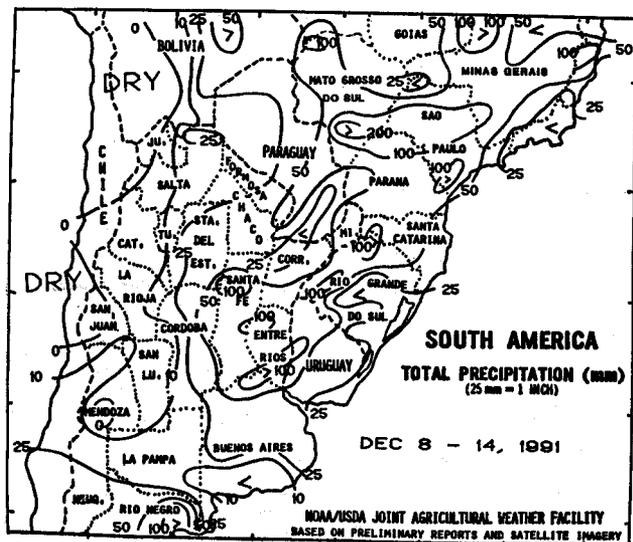
**SOUTHEAST ASIA** ... Continuing showers (25-100mm or more) over primary crop regions of Malaysia and Indonesia increased irrigation reserves but exacerbated flooding in eastern Malaysia and along the Malay Peninsula. November's seasonal increase in rainfall across the region improved rice planting prospects in Java following months of drought. Moderate to heavy showers (25-179mm) fell along Vietnam's coast, but seasonably dry weather continued elsewhere in Indochina. During November, seasonable dryness benefited Thailand's maturing rice, but tropical showers continued along the Vietnamese coast, although amounts were below normal. In the Philippines, moderate to heavy rain (50-303mm) fell over southern Luzon and the northern Visayan islands, but unseasonably light rain continued over primary grain regions. In November, tropical storms brought locally heavy showers and flooding to crop regions of southern Luzon and the eastern Visayans. Rainfall elsewhere was below normal but timely for fall grains.

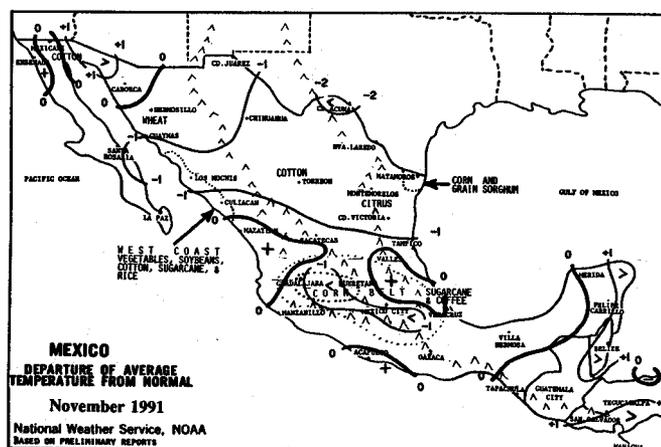
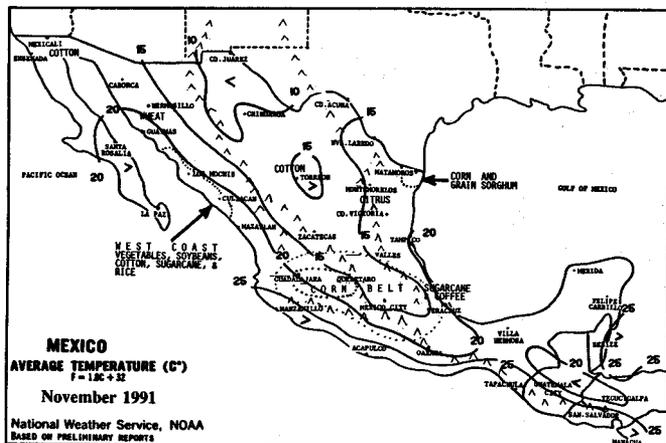
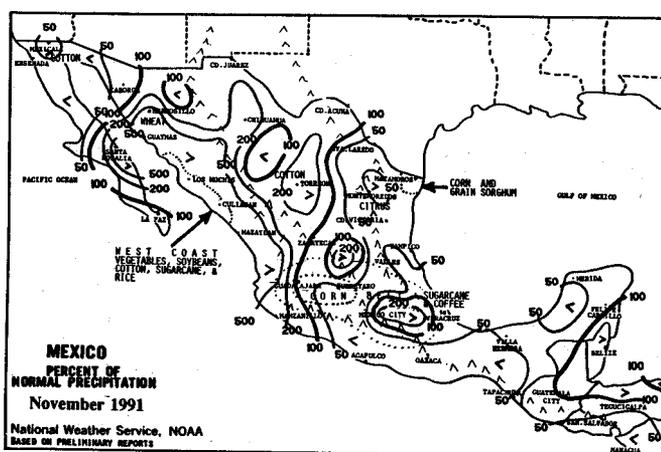
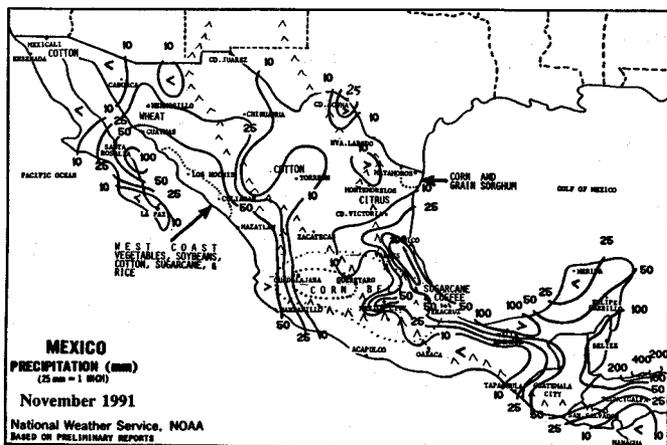


**AUSTRALIA** ... Widespread rain (20-59mm) covered eastern Australia, aiding germinating summer crops. Heavier rains (136-292mm) fell across northeastern New South Wales, delaying summer crop planting and causing local flooding. Only light rains fell across the extreme southeastern wheat belt, slightly delaying harvesting. Dry conditions in the west favored winter wheat harvesting. Weekly temperatures averaged near normal in the west and 2-4 degrees C below normal across the eastern summer crop regions. For November, above-normal rains came early in the month for Western Australia, but a dry second half aided wheat harvesting there and across southern Australia. Much needed rain fell across Queensland and New South Wales, relieving drought conditions and increasing soil moisture for summer crop planting. Monthly temperatures averaged 1 degree C below normal in the west and 1-2 degrees C above normal in the east.

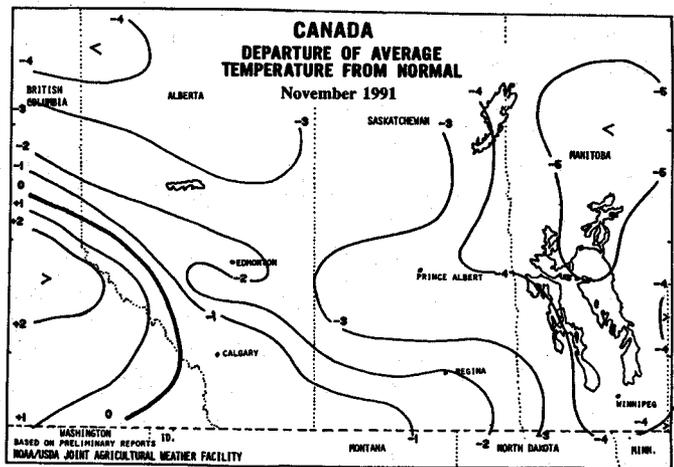
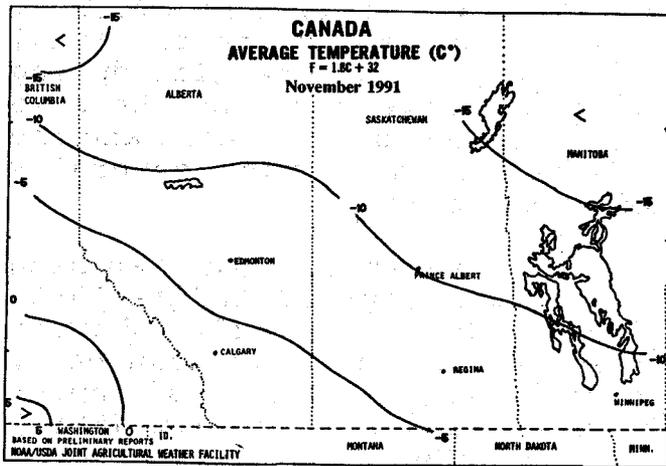
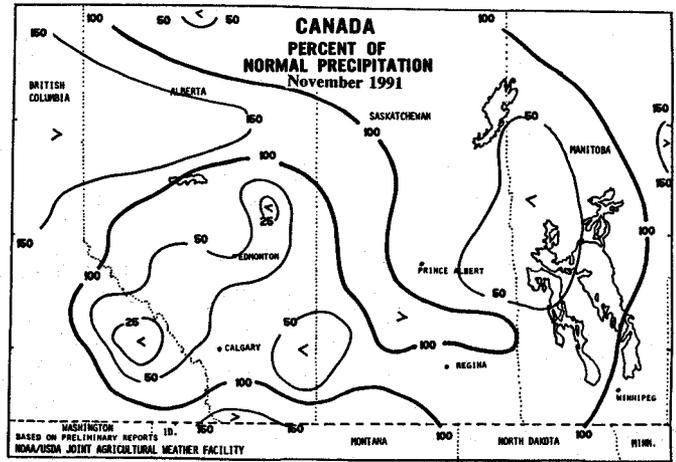
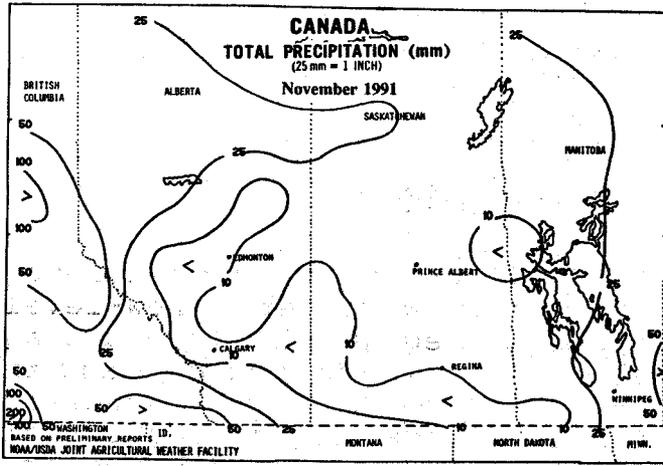


**SOUTH AMERICA** ... Moderate to heavy rain (30-116mm) covered Santa Fe, and northern Buenos Aires, impeding winter wheat harvesting and summer crop planting. Additionally, weekly average temperatures across the wheat belt were 1-3 degrees C below normal. Continued wet and cool weather has increased the likelihood of disease and lodging problems for ripe winter wheat. According to most sources, soybean planting was more than half completed, corn planting more than three-quarters, and wheat harvesting about one-quarter. In southern Brazil, widespread moderate to heavy rain (40-113mm) spread from Sao Paulo to northern Rio Grande do Sul, aiding developing corn and soybeans. Rainfall during the last few weeks has greatly improved the soil moisture situation. Weekly temperatures averaged 1-2 degrees C above normal in southern Brazil. In November, plentiful rains aided planting moisture throughout Argentina, but caused some planting delays. In southern Brazil, portions of Sao Paulo, Rio Grande do Sul, and Minas Gerais received less than half of normal rainfall, with other areas receiving near to above normal rains. Monthly temperatures averaged 1-2 degrees C below normal in central Argentina and 1-2 degrees C above normal in southern Brazil.





MEXICO ... During November, unseasonably heavy rains (25-86mm) fell across western crop areas, favoring winter wheat development and reservoir levels. Near- to above-normal rains fell elsewhere with the exception of the northeastern, southern, and far eastern regions. Temperatures for the month averaged 1 degree C below normal in the north and near normal elsewhere throughout the country.



## November El Niño Update

Warm (ENSO [El Niño/Southern Oscillation]) episode conditions continued to evolve throughout the equatorial Pacific in November. Low-level westerly wind anomalies prevailed throughout the equatorial Pacific, as sea surface temperature anomalies increased in the Niño 3 region and in many other areas of the tropical eastern and central Pacific. Increases in sea surface temperature (SST) anomalies along the western equatorial South American coast in late October were sustained throughout November, with some coastal stations reporting positive SST anomalies of 2 to 3° C. Enhanced convection (negative outgoing longwave radiation [OLR] anomalies), which developed over the central equatorial Pacific during late October, persisted and intensified during November. At the same time, positive OLR anomalies persisted over sections of Indonesia and the Philippines. This pattern of OLR anomalies is a feature generally observed during the mature phase of warm (ENSO) episodes.

The rapid evolution toward mature warm episode conditions that has been observed since September is similar to that which occurred in late 1986, as the 1986-87 ENSO episode developed. During November 1986, enhanced convection developed in the central equatorial Pacific, accompanied by the development of anomalous subtropical and extratropical upper tropospheric circulation features generally found during warm (ENSO) episodes. Some of those features, such as the upper tropospheric anticyclonic anomaly couplet straddling the equator near the International Date Line, are weakly indicated in the analyses for November 1991.

During November 1991 there was a tendency for the enhanced equatorial convection and low-level westerly wind anomalies to shift eastward relative to their November 1986 counterparts. It is still too early to tell if this eastward shift will be a persistent feature of this warm episode. However, data from early December indicate a continuation of this trend, with the development of a tropical storm in the vicinity of American Samoa (15° South, 170° West) and strong low-level westerly wind anomalies extending as far east as 160° West near 5° South.

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