

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

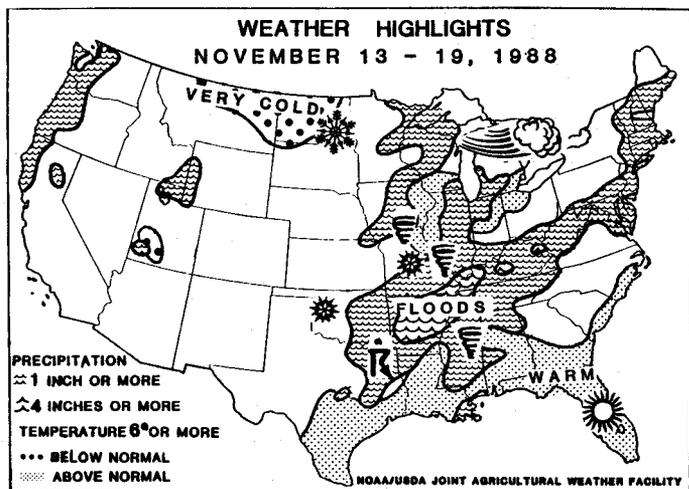
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Nov. 22, 1988

National Weather Summary

November 13-19, 1988



TUESDAY...The massive storm moved into the central portions of the Nation. The low pressure area associated with the system intensified, producing snow and strong winds over the upper Mississippi Valley and upper Great Lakes. Heavy snow continued over the Rockies and northern Plains. Severe thunderstorms developed in the warm air ahead of the trailing cold front, causing numerous tornadoes, damaging winds, and hail in the middle and lower Mississippi Valley.

WEDNESDAY...Widespread rain covered the eastern third of the country as the storm pushed eastward. Blustery winds continued over the Great Lakes. Cold air surged into the north-central States behind the storm system. A second winter storm spread high wind, rain, and snow in the higher elevations over the Pacific Northwest.

THURSDAY...The storm system brought showers and thunderstorms down the eastern seaboard before moving into the Atlantic in the afternoon. Rain and snow were widespread as another storm in a series of storms crossed the Western States.

FRIDAY...Severe thunderstorms, fueled by moisture from the Gulf of Mexico, developed from eastern Texas into the middle Mississippi Valley, producing gusty winds and heavy rain. Flooding resulted from torrential rain over Arkansas. A band of heavy snow fell across the northern Plains into the upper Mississippi Valley. Snow continued over the northern and central Rockies.

(Continued to backcover)

HIGHLIGHTS: Two major storm systems brought widespread rain from the southern Plains to the northern and mid-Atlantic coasts and to the Pacific Northwest. These systems also brought snow to the higher elevations of the West, northern and central Plains, and upper Mississippi Valley. Severe thunderstorms developed from the first system and spawned numerous tornadoes in the middle Mississippi Valley during the first half of the week. The second storm at week's end drenched the lower Mississippi and lower Ohio Valleys with torrential rain and caused tornadoes from eastern Texas into Tennessee.

SUNDAY...A large storm system moved into the western third of the Nation and produced rain, snow, and high wind. Another storm system brought widespread rain to the Northeast. Warm weather persisted across the southern Plains.

MONDAY...The first major winter storm of the season spread heavy snow and high winds across the Rockies and northern Plains. Substantial rain fell in central and southern California. Clear skies prevailed over the eastern half of the Nation, and unseasonably warm weather continued across the south-central States.

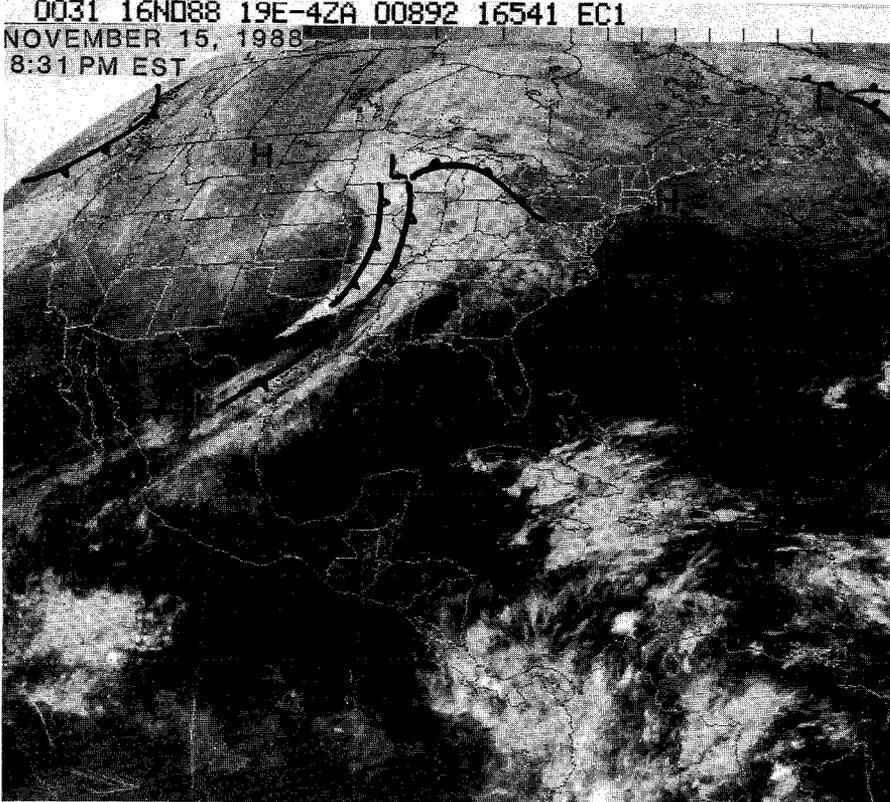
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PRICE INCREASE

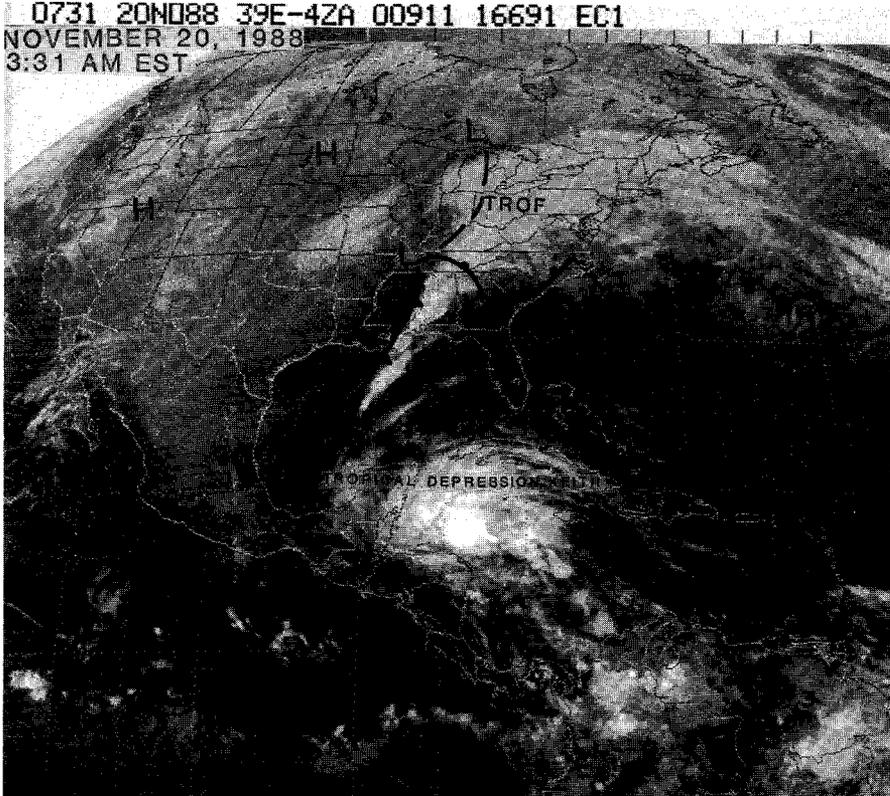
Due to increased printing costs, the price of the Weekly Weather and Crop Bulletin will be increased to \$35 for domestic and \$50 for foreign subscriptions on December 1, 1988.

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NOVEMBER 15, 1988
8:31 PM EST



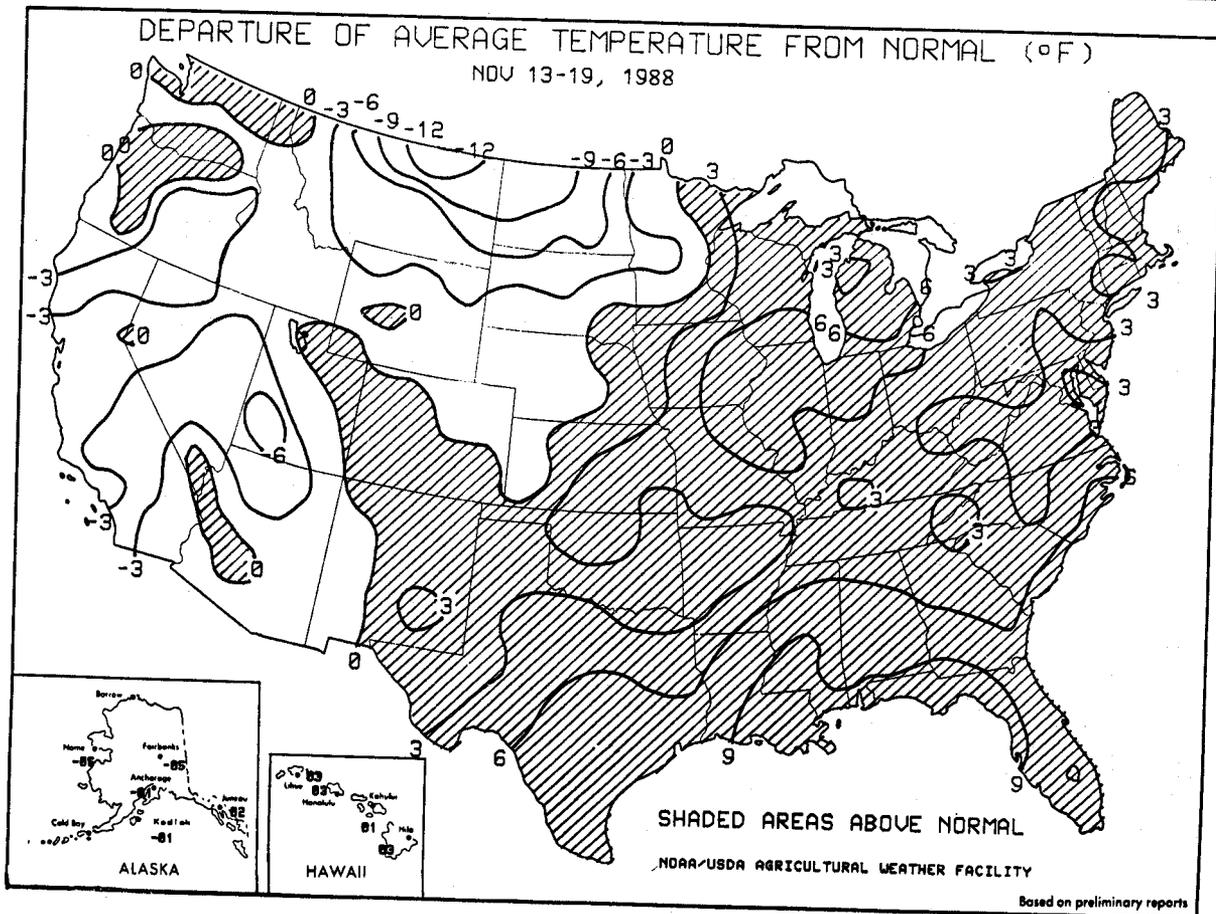
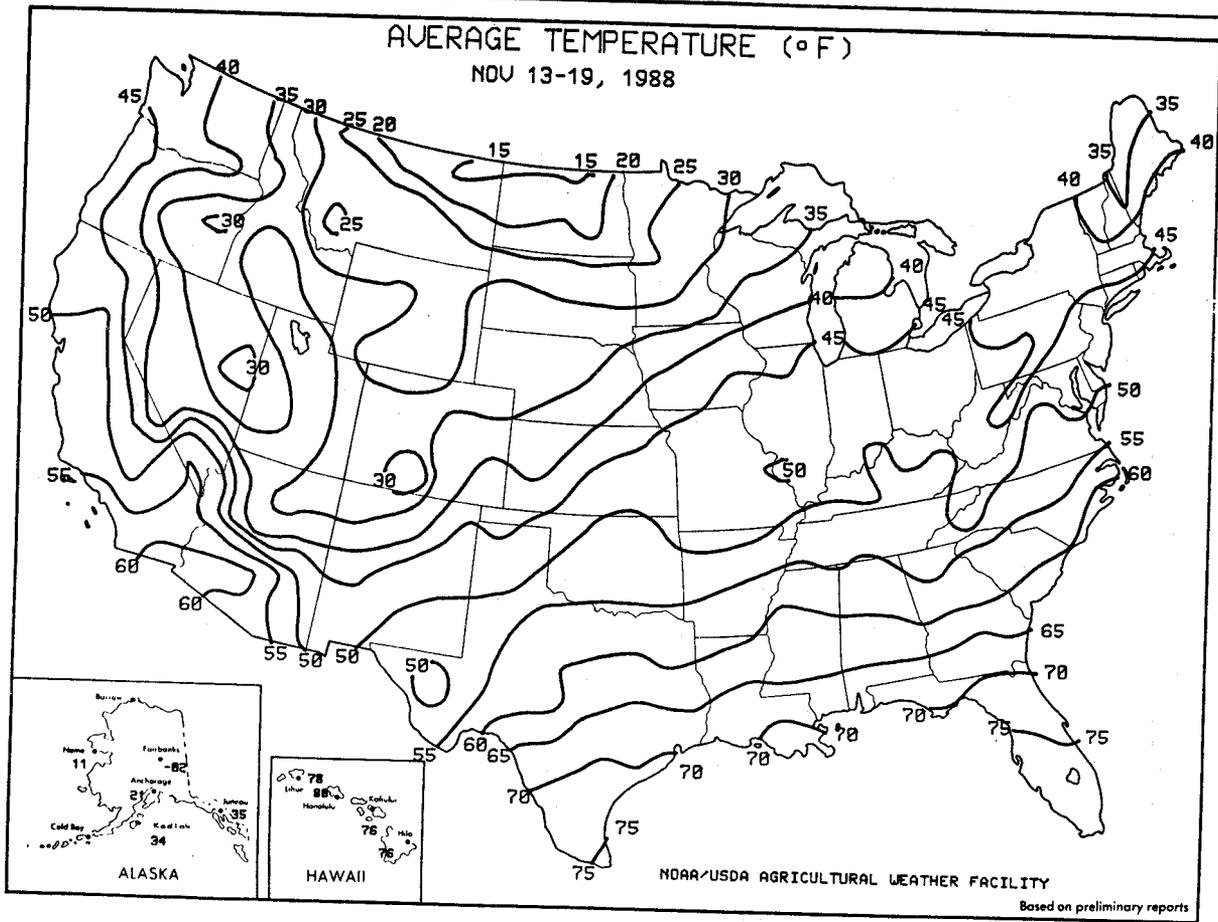
THE FIRST MAJOR WINTER STORM OF THE SEASON BRINGS SNOW TO THE NORTHERN PLAINS AND SEVERE THUNDERSTORMS WHICH SPAWN NUMEROUS TORNADOES IN THE MIDDLE MISSISSIPPI VALLEY.

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NOVEMBER 20, 1988
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SEVERE THUNDERSTORMS DEVELOP OVER ALABAMA, AND WIDESPREAD RAIN COVERS THE NORTHEAST. SNOW FALLS FROM EASTERN OKLAHOMA INTO MISSOURI. TORNADOES AND TORRENTIAL RAIN WITH EXTENSIVE FLOODING RESULTED AS THE SECOND MAJOR STORM OF THE WEEK CROSSED THE LOWER MISSISSIPPI VALLEY.

THE TROPICAL DEPRESSION BECOMES TROPICAL STORM KEITH BEFORE MOVING OVER THE YUCATAN PENINSULA AND INTO THE GULF OF MEXICO.



National Weather Data for Selected Cities

Weather Data for the Week Ending November 19, 1988

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 Sep 1	PCT. NORMAL SINCE Sep 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE		PRECIPITATION	
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	68	47	74	34	58	6	.9	-.1	.6	13.6	150	35.2	73	95	56	0	0	2	1
MOBILE	77	58	81	49	67	9	.5	-.4	.4	17.4	157	59.7	104	97	62	0	0	3	0
MONTGOMERY	73	51	81	39	62	8	.9	-.2	.7	16.6	194	56.6	132	97	56	0	0	3	1
AK ANCHORAGE	25	16	34	8	21	-1	-.2	.0	.1	4.3	90	11.8	88	91	75	0	7	4	0
BARROW	-12	-22	-5	-29	-17	-15	T	-.1	T	.7	50	3.4	78	78	67	0	7	0	0
FAIRBANKS	5	-10	11	-20	-2	-5	.2	.0	.1	2.1	92	9.6	101	87	75	0	7	4	0
JUNEAU	39	31	41	4	35	2	.9	-.3	.6	17.3	99	48.6	104	96	83	0	7	7	1
KODIAK	39	29	45	22	34	-1	.6	-.7	.4	21.9	129	70.6	132	87	56	0	6	3	0
NOME	17	5	30	-9	11	-5	.3	-.1	.1	1.9	45	11.6	85	85	64	0	7	0	0
AZ PHOENIX	72	49	84	43	61	1	.2	-.1	.2	2.6	170	6.5	110	58	23	0	0	1	0
PRESCOTT	54	28	68	21	41	-2	.2	-.1	.2	.7	20	13.4	80	78	31	0	5	1	0
TUCSON	69	41	82	32	55	-3	.1	-.1	.1	3.0	117	10.9	111	69	18	0	1	1	0
YUMA	74	50	84	43	62	-1	0	0	0	.5	81	2.8	136	55	22	0	0	0	0
AR FORT SMITH	63	38	81	24	51	2	2.9	2.0	1.9	11.5	133	32.2	90	97	48	0	2	3	2
LITTLE ROCK	61	45	75	35	53	2	11.5	10.5	7.0	15.3	157	42.2	98	86	58	0	0	2	0
CA BAKERSFIELD	62	40	73	36	51	-5	-.1	-.1	.1	.1	11	3.1	67	87	61	0	0	6	1
EUREKA	56	44	60	37	50	-1	1.6	.2	.7	5.7	78	21.6	72	94	52	0	0	4	0
FRESNO	59	42	63	33	50	-2	.8	.5	.4	.8	63	6.4	77	94	52	0	0	2	0
LOS ANGELES	67	51	70	45	59	-2	.4	0	.3	.4	34	5.1	52	85	38	0	0	4	0
REDDING	55	39	58	33	47	-6	1.5	.2	1.0	4.9	76	21.8	69	97	56	0	0	2	0
SACRAMENTO	60	43	65	38	51	-1	.4	-.1	.2	.8	31	7.7	58	91	50	0	0	4	0
SAN DIEGO	65	51	67	45	58	-4	.4	.2	.4	.5	41	7.2	93	87	50	0	0	1	0
SAN FRANCISCO	61	48	63	43	55	0	.6	0	.3	1.3	48	8.5	57	90	57	0	0	3	0
CO DENVER	51	23	71	17	37	-1	.3	.1	.3	1.4	52	13.9	97	86	32	0	7	1	0
GRAND JUNCTION	48	31	63	24	39	1	.5	.4	.3	1.9	96	7.8	110	91	45	0	5	2	0
PUEBLO	58	22	75	11	40	1	T	-.1	T	1.9	98	10.7	103	77	25	0	7	0	0
CT BRIDGEPORT	56	40	61	35	48	3	1.5	.7	.6	9.4	106	33.5	92	82	56	0	0	4	2
HARTFORD	54	31	64	26	42	1	1.3	.3	.8	8.0	81	34.5	89	88	47	0	5	3	1
DC WASHINGTON	60	43	67	38	51	3	2.3	1.6	1.0	6.9	88	28.4	82	92	43	0	0	4	2
FL APALACHICOLA	77	64	80	61	70	10	.9	.2	.5	13.8	104	59.8	118	97	70	0	0	2	0
DAYTONA BEACH	82	61	88	52	72	7	0	-.6	0	8.9	69	34.1	75	99	61	0	0	0	0
JACKSONVILLE	80	58	85	50	69	8	.4	0	.4	20.6	184	57.2	118	98	61	0	0	1	0
KEY WEST	84	76	85	73	80	5	T	-.7	T	4.3	32	35.6	97	89	69	0	0	0	0
MIAMI	85	73	86	67	79	8	.2	-.4	T	8.1	78	45.1	96	99	50	0	0	0	0
ORLANDO	85	65	88	61	75	8	T	-.4	T	7.4	66	44.3	76	97	57	0	0	1	0
TALLAHASSEE	80	57	82	52	69	10	T	-.8	T	7.4	66	44.3	76	97	57	0	0	0	0
TAMPA	86	65	88	60	75	9	0	-.4	0	15.0	158	46.1	105	98	49	0	0	0	0
WEST PALM BEACH	83	72	84	65	78	6	.2	-.5	.2	8.7	45	62.6	111	88	64	0	0	1	0
GA ATLANTA	66	47	74	39	56	5	.6	-.2	.4	13.9	181	42.3	99	90	51	0	0	3	0
AUGUSTA	71	44	77	38	57	4	.6	.1	.3	12.2	182	39.6	102	97	46	0	0	2	0
MACON	73	48	78	40	61	6	.6	0	.5	11.3	173	41.1	104	96	51	0	0	2	1
SAVANNAH	75	51	81	44	63	6	T	-.4	T	13.3	158	46.6	101	95	52	0	0	0	0
HI HILO	83	69	87	68	76	3	5.6	2.1	3.4	31.9	122	113.1	103	93	60	0	0	5	3
HONOLULU	87	72	89	68	80	3	.1	-.7	.1	2.5	55	9.8	52	86	53	0	0	2	0
KAHULUI	84	68	86	65	76	2	.1	-.4	.1	2.9	120	15.8	108	92	62	0	0	1	0
LIHUE	81	74	82	69	78	2	.5	-.8	.3	8.7	84	33.9	93	89	72	0	0	3	0
ID BOISE	46	32	53	25	39	0	.7	.4	.4	2.5	118	9.4	97	90	55	0	4	4	0
LEWISTON	43	33	48	26	38	-2	-.1	-.2	.1	1.4	55	8.2	74	92	65	0	4	2	0
POCATELLO	37	30	40	24	34	-1	.8	.6	.5	1.4	64	6.0	63	92	64	0	6	5	1
IL CHICAGO	55	37	65	31	46	6	1.2	.7	.6	13.5	185	29.2	94	81	51	0	2	3	1
MOLINE	56	36	67	30	46	8	.5	.1	.3	6.4	84	23.1	67	92	58	0	3	3	0
PEORIA	56	36	66	29	46	7	1.3	.9	.9	7.4	100	19.2	60	94	57	0	3	3	0
QUINCY	59	36	69	28	48	7	.6	.1	.4	4.2	47	16.2	46	89	51	0	3	1	0
ROCKFORD	53	34	64	30	44	7	1.2	.7	1.0	7.7	96	22.1	65	95	59	0	3	2	1
SPRINGFIELD	57	38	67	29	47	6	1.1	.6	.7	7.5	107	20.7	66	93	57	0	2	3	1
IN EVANSVILLE	60	36	70	28	48	4	3.1	2.3	1.9	11.1	154	34.8	94	95	57	0	3	3	0
FORT WAYNE	54	36	65	29	45	6	.3	-.3	.1	6.7	100	29.6	95	92	56	0	2	3	0
INDIANAPOLIS	58	37	68	30	47	6	.7	.6	.7	7.7	108	27.9	80	90	51	0	2	3	1
SOUTH BEND	55	37	65	30	46	6	1.3	.6	.7	15.5	190	34.4	101	88	49	0	1	3	2
IA DES MOINES	53	33	70	28	43	5	1.8	1.4	1.7	8.2	100	20.5	70	90	55	0	5	2	1
SIoux CITY	46	28	57	19	37	1	.6	.4	.6	6.6	138	22.0	90	94	61	0	6	2	1
WATERLOO	52	32	63	24	42	7	.9	.6	.9	4.0	58	17.6	56	96	59	0	4	1	0
KS CONCORDIA	54	29	72	21	42	1	.4	.2	.4	1.6	30	13.9	53	84	54	0	4	1	0
DODGE CITY	57	29	82	23	43	1	.1	-.1	.1	3.4	97	14.8	75	85	31	0	5	1	0
GODDARD	51	23	65	18	37	0	.2	0	.2	2.5	94	20.3	131	87	43	0	7	1	0
TOPEKA	61	32	74	25	47	5	.3	-.1	.2	2.8	37	18.2	58	87	43	0	4	2	0
WICHITA	60	35	74	29	47	4	.6	.2	.3	2.1	31	16.5	60	87	43	0	3	2	0
KY BOWLING GREEN	60	35	68	27	48	2	3.6	2.7	2.5	16.3	195	39.4	91	98	59	0	3	3	2
LEXINGTON	59	37	66	28	48	4	2.4	1.6	2.2	11.1	148	33.7	83	87	53	0	2	3	1
LOUISVILLE	61	37	71	30	49	4	2.2	1.4	1.7	7.1	87	32.3	84	86	51	0	2	4	1
LA ALEXANDRIA	76	54	84	41	65	9	.3	-.7	.2	8.5	100	38.0	83	94	58	0	0	3	0
BATON ROUGE	78	60	85	50	69	11	1.0	-.1	1.0	14.7	157	67.4	137	93	55	0	0	1	1
LAKE CHARLES	78	57	82	47	68	8	.1	-.9	0	13.5	114	53.7	113	93	56	0	0	2	0
NEW ORLEANS	78	64	82	47	71	12	1.1	.2	.6	9.9	92	69.8	132	96	70	0	0	3	1

Based on 1951-80 normals

Weather Data for the Week Ending November 19, 1988

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 Sep 1	PCT. NORMAL SINCE Sep 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	TEMPERATURE °F		PRECIPITATION		
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE	
SHREVEPORT	73	46	81	33	60	5	1.0	.1	.5	9.1	111	29.3	76	96	54	0	0	3	1	
ME CARIBOU	40	29	50	20	35	4	.3	-.5	.1	7.6	88	28.3	88	88	61	0	6	4	0	
PORTLAND	50	31	57	25	41	2	1.3	.1	.9	11.6	115	40.2	108	91	53	0	5	3	1	
MD BALTIMORE	60	38	65	33	49	3	2.0	1.2	.9	6.3	75	29.2	79	94	47	0	0	4	2	
SALISBURY	64	37	75	29	50	3	1.3	.6	.9	8.8	92	41.3	102	96	48	0	2	3	1	
MA BOSTON	54	38	63	34	46	2	1.2	.2	.7	6.3	67	30.6	81	82	49	0	0	2	1	
CHATHAM	53	40	61	37	47	2	1.1	0	.7	10.1	99	33.3	83	87	60	0	0	0	1	
MI ALPENA	46	30	61	26	38	3	.1	-.4	.1	7.7	118	25.1	96	94	61	0	0	6	0	
DETROIT	54	37	67	29	45	6	.3	-.3	.2	10.3	180	23.8	87	89	49	0	2	3	0	
FLINT	52	35	64	24	44	5	.9	.3	.7	10.0	171	25.6	98	89	56	0	2	3	0	
GRAND RAPIDS	51	34	63	25	42	4	.7	.4	.4	16.9	220	33.7	112	93	60	0	2	4	1	
HOUGHTON LAKE	44	31	59	22	37	3	.8	.2	.3	11.5	179	27.3	108	89	64	0	4	5	0	
LANSING	52	33	64	23	42	4	.3	-.2	.3	12.8	205	29.4	111	92	55	0	2	2	0	
MARQUETTE	39	27	53	23	33	4	.7	.1	.3	15.4	170	37.6	111	93	72	0	7	5	0	
MUSKEGON	51	36	64	27	43	5	1.6	.9	1.0	16.3	217	32.3	116	88	53	0	1	3	1	
SAULT ST. MARIE	42	31	56	26	36	4	2.1	1.3	1.1	13.2	151	31.3	105	97	71	0	4	7	1	
MN ALEXANDRIA	31	19	45	4	25	-3	.5	.2	.3	5.5	112	21.7	92	95	73	0	7	3	0	
DULUTH	34	25	38	19	30	2	1.9	1.5	1.0	9.9	152	30.3	110	96	75	0	7	3	2	
INT'L FALLS	30	22	35	16	26	2	1.0	.7	.5	6.2	109	23.9	105	96	81	0	7	4	0	
MINNEAPOLIS	39	25	48	16	32	0	.9	.6	.5	5.9	114	17.8	71	92	66	0	6	2	0	
ROCHESTER	42	26	59	19	34	2	1.1	.8	1.0	6.2	94	19.4	72	93	69	0	6	2	1	
MS GREENWOOD	73	50	82	37	62	9	1.5	.4	1.2	15.9	179	33.1	72	93	51	0	0	2	1	
JACKSON	74	53	82	39	63	9	1.5	.6	1.4	13.1	159	38.2	85	98	62	0	0	3	1	
MERIDIAN	74	51	81	37	62	9	2.7	1.9	2.6	18.2	223	46.5	100	97	55	0	0	2	1	
MO CAPE GIRARDEAU	60	39	70	29	50	1	2.4	1.5	1.3	15.0	179	34.0	86	96	57	0	2	4	2	
COLUMBIA	59	37	71	24	48	5	.8	.3	.7	6.7	78	25.8	76	94	53	0	2	3	1	
KANSAS CITY	59	34	75	26	46	3	.4	0	.4	9.5	111	22.3	65	80	46	0	2	1	0	
SAINT LOUIS	60	41	70	30	50	6	2.1	1.5	1.2	8.1	123	28.3	92	85	50	0	1	3	2	
SPRINGFIELD	58	38	75	25	48	4	1.6	.9	.8	10.3	111	43.1	120	89	51	0	2	3	2	
MT BILLINGS	39	23	46	15	31	-3	.1	-.1	.1	3.3	112	9.4	68	80	44	0	7	3	0	
GLASGOW	24	7	41	-7	15	-13	.1	0	.1	1.2	74	7.0	68	92	76	0	7	1	0	
GREAT FALLS	37	20	44	11	28	-5	.3	.1	.1	3.2	143	10.7	77	87	55	0	7	3	0	
HAVRE	27	5	43	-8	16	-14	.1	0	.1	2.0	105	5.8	52	95	72	0	7	1	0	
HELENA	35	19	40	6	27	-3	.3	.1	.2	3.2	171	9.4	88	93	62	0	7	2	0	
KALISPELL	40	30	43	27	35	4	.1	-.2	0	3.3	115	12.3	90	94	55	0	7	5	0	
MILES CITY	31	18	47	10	24	-7	.2	0	.1	2.1	89	4.5	34	81	61	0	7	2	0	
MISSOULA	35	25	38	17	30	-2	.3	.1	.2	1.5	64	10.2	88	100	73	0	7	4	0	
NE GRAND ISLAND	46	26	63	17	36	-1	.2	0	.2	3.7	93	20.6	93	91	55	0	5	1	0	
LINCOLN	51	29	65	22	40	2	.4	.2	.4	7.1	137	17.6	68	92	57	0	5	1	0	
NORFOLK	47	26	59	19	37	2	.2	.1	.2	6.1	157	23.3	103	90	53	0	6	1	0	
NORTH PLATTE	47	21	60	13	34	0	.1	0	.1	1.8	64	18.6	100	95	50	0	7	1	0	
OMAHA	50	30	64	25	40	1	.7	.4	.7	5.3	83	20.3	70	83	56	0	4	1	1	
SCOTTSBLUFF	45	21	58	11	33	-2	.3	.2	.3	1.5	71	14.9	107	88	48	0	6	1	0	
VALENTINE	45	20	56	9	32	-1	.3	-.1	.1	2.0	79	19.4	117	80	45	0	7	1	0	
NV ELY	41	15	60	4	28	-5	.7	.5	.5	1.3	76	7.3	91	84	46	0	6	2	1	
LAS VEGAS	63	44	76	36	53	0	.7	-.1	.1	1.3	76	7.3	91	84	46	0	6	2	1	
RENO	49	30	56	27	40	1	.3	.2	.2	.4	45	2.8	49	85	38	0	6	3	0	
WINNEMUCCA	42	27	51	15	34	-3	.2	0	.1	1.0	71	5.2	80	92	56	0	6	3	0	
NH CONCORD	50	28	60	20	39	2	.7	-.2	.5	6.0	70	30.4	95	90	51	0	5	3	0	
NJ ATLANTIC CITY	60	35	69	28	47	2	1.5	.6	1.2	8.5	104	30.9	84	95	46	0	2	3	1	
NM ALBUQUERQUE	57	29	72	20	43	0	.1	0	.1	3.0	161	13.0	178	70	26	0	5	2	0	
CLOVIS	59	31	75	24	45	-1	.1	0	0	2.8	70	19.5	119	72	27	0	4	2	0	
ROSWELL	68	34	84	26	51	5	T	-.1	T	1.6	54	13.2	131	58	19	0	4	0	1	
NY ALBANY	53	32	62	27	43	4	1.0	.2	.6	5.9	74	27.0	86	90	49	0	4	3	0	
BINGHAMTON	49	34	57	28	42	4	.6	-.2	.3	6.5	79	31.4	96	89	51	0	2	3	0	
BUFFALO	51	36	68	30	43	3	.8	-.1	.7	10.1	119	35.0	107	85	51	0	3	4	1	
NEW YORK	56	44	62	41	50	4	1.6	-.7	1.0	9.3	103	35.2	93	82	47	0	0	3	2	
ROCHESTER	51	33	62	26	42	2	.1	-.5	.1	4.6	66	22.4	81	88	49	0	4	2	0	
SYRACUSE	53	37	63	29	45	5	.2	-.6	.1	8.4	98	31.5	91	86	44	0	1	2	0	
NC ASHEVILLE	60	35	68	25	47	1	.6	-.1	.3	7.3	83	23.2	59	98	42	0	4	4	0	
CHARLOTTE	66	43	73	39	55	4	.2	-.5	.2	9.3	117	31.3	81	81	36	0	0	2	0	
GREENSBORO	63	39	71	34	51	3	.5	-.1	.4	8.3	99	31.4	83	87	38	0	0	3	0	
HATTERAS	73	58	79	54	65	10	.1	-.1	.1	7.6	56	39.5	80	89	61	0	0	1	0	
NEW BERN	74	47	80	42	60	6	.3	-.5	.2	5.6	51	45.6	94	93	56	0	0	2	0	
RALEIGH	65	40	73	35	52	3	.6	-.1	.6	12.7	164	35.4	94	95	41	0	0	3	1	
WILMINGTON	74	47	80	40	61	6	.2	-.6	.1	6.0	57	55.6	114	92	51	0	0	2	0	
ND BISMARCK	29	14	46	3	21	-6	.3	.2	.2	1.3	53	9.4	65	93	70	0	7	3	0	
FARGO	31	18	50	7	25	-3	.5	.4	.3	4.8	133	13.3	72	96	73	0	7	4	0	
GRAND FORKS	29	16	46	2	23	-3	.5	.3	.4	2.8	77	11.8	68	93	69	0	7	4	0	
WILLISTON	24	9	40	-3	16	-11	.3	.2	.3	2.1	89	9.6	75	93	75	0	7	2	0	
OH AKRON-CANTON	55	36	68	29	45	5	.5	-.1	.4	10.5	157	30.5	95	88	46	0	2	3	0	
CINCINNATI	57	36	66	28	46	4	.8	-.1	.5	8.0	109	35.5	99	90	55	0	2	4	1	
CLEVELAND	56	36	70	29	46	5	.4	-.3	.2	7.6	108	25.9	82	90	45	0	2	3	0	
COLUMBUS	57	35	70	29	46	4	.7	-.1	.5	8.1	131	33.4	101	89	46	0	2	3	0	

Weather Data for the Week Ending November 19, 1988

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 Sep 1	PCT. NORMAL SINCE Sep 1	TOTAL, IN., SINCE JAN 1	PCT. NORMAL SINCE JAN 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	PRECIPITATION	
																		.01 INCH OR MORE	.50 INCH OR MORE
DAYTON	55	37	64	30	46	4	.9	.3	.4	12.5	209	32.5	104	86	52	0	2	3	0
TOLEDO	55	36	66	31	46	7	.5	-.1	.3	9.4	160	25.6	91	89	51	0	2	4	0
YOUNGSTOWN	54	36	68	30	45	5	.5	-.2	.4	8.3	111	28.8	86	87	41	0	1	3	0
OK OKLAHOMA CITY	63	40	78	33	52	4	.7	-.4	.6	9.7	136	30.6	105	87	44	0	0	3	1
TULSA	61	40	75	32	51	2	1.5	-.9	1.0	10.4	110	30.6	85	88	43	0	1	2	1
OR ASTORIA	52	40	57	32	46	-1	1.9	-.5	.5	11.6	73	43.0	79	97	76	0	1	6	2
BURNS	37	22	42	10	29	-5	.4	.1	.3	1.0	50	5.9	72	88	69	0	7	2	0
MEDFORD	50	37	53	31	43	1	.8	.1	.3	2.4	57	9.2	61	97	63	0	2	5	0
PENDLETON	47	36	52	33	42	1	.8	.4	.3	2.3	94	9.6	97	86	56	0	0	4	0
PORTLAND	51	42	53	38	46	1	1.6	.3	.8	6.9	88	26.4	91	96	74	0	0	6	1
SALEM	50	40	54	34	45	1	1.6	.2	.7	6.0	71	24.8	80	96	76	0	0	7	1
PA ALLENTOWN	55	36	62	31	46	4	.9	-.1	.5	7.0	75	35.0	90	88	50	0	1	4	1
ERIE	54	37	69	34	45	4	.5	-.4	.3	13.3	133	35.1	99	88	45	0	0	3	0
HARRISBURG	56	34	65	30	45	2	1.1	.3	.6	6.7	80	31.8	91	94	47	0	3	3	1
PHILADELPHIA	60	37	68	32	49	3	1.3	.5	.7	7.1	85	34.5	94	93	49	0	1	4	1
PITTSBURGH	56	36	70	30	46	5	.4	-.2	.3	5.7	85	24.1	73	86	44	0	2	3	0
SRANTON	54	36	62	31	45	4	.8	.1	.5	5.4	68	28.6	91	87	47	0	2	2	1
RI PROVIDENCE	56	33	63	28	44	1	.9	-.1	.6	7.8	79	33.4	85	88	51	0	2	2	1
SC CHARLESTON	77	52	82	46	65	8	T	-.5	T	11.0	122	41.4	87	96	46	0	0	1	0
COLUMBIA	72	42	80	37	57	4	.4	-.2	.4	12.0	146	41.9	94	95	40	0	0	1	0
FLORENCE	71	44	79	39	58	3	.4	-.2	.4	8.8	114	36.1	90	92	42	0	0	1	0
GREENVILLE	66	42	74	34	54	3	.4	-.3	.4	10.0	101	34.1	74	92	44	0	0	2	0
SD ABERDEEN	33	19	53	5	26	-3	.2	.1	.2	6.3	222	17.8	105	90	67	0	7	2	0
HURON	38	22	56	13	30	-1	.3	.1	.2	4.7	149	18.5	104	91	63	0	6	2	0
RAPID CITY	42	23	53	15	32	-2	.2	.1	.2	2.0	95	10.3	67	96	51	0	7	2	0
SIoux FALLS	42	25	55	14	34	2	.2	.0	.2	5.6	116	18.0	78	92	59	0	7	2	0
TN CHATTANOOGA	64	42	71	30	53	5	.5	-.4	.4	11.8	121	38.7	84	95	47	0	1	3	0
KNOXVILLE	64	37	77	28	51	3	1.6	.7	.7	7.5	95	29.2	71	97	45	0	2	4	2
MEMPHIS	67	43	77	35	55	4	6.9	5.9	6.1	16.2	192	41.6	93	96	54	0	0	3	1
NASHVILLE	64	40	70	28	52	4	2.4	1.6	2.2	7.7	93	25.7	61	97	51	0	1	3	1
TX ABILENE	71	45	83	34	58	6	T	-.3	T	2.8	44	15.4	70	73	30	0	0	0	0
AMARILLO	61	32	80	21	47	2	.2	.1	.2	4.1	119	24.5	134	67	27	0	4	1	0
AUSTIN	78	55	86	42	66	8	.3	-.1	.2	2.4	29	18.1	63	83	42	0	0	2	0
BEAUMONT	78	57	83	45	67	8	.5	-.5	.4	13.1	113	44.3	91	94	57	0	0	2	0
BROWNSVILLE	85	66	90	58	76	8	.1	-.2	.1	9.4	97	23.0	97	97	53	1	0	2	0
CORPUS CHRISTI	82	63	89	53	72	8	.1	-.2	.1	9.0	89	18.3	62	97	54	0	0	2	0
DEL RIO	75	54	86	41	64	6	T	-.2	T	4.8	87	15.2	92	73	31	0	0	0	0
EL PASO	68	36	79	25	52	1	T	-.1	T	2.1	93	10.4	146	54	17	0	3	0	0
FORT WORTH	70	46	85	32	58	3	1.6	1.2	.8	7.8	101	22.5	78	88	43	0	1	2	2
GALVESTON	78	65	81	53	71	9	.8	.1	.8	11.1	106	36.9	103	91	66	0	0	1	1
HOUSTON	81	56	87	40	68	8	.3	-.6	.1	2.8	25	21.6	52	94	47	0	0	4	0
LUBBOCK	66	35	84	24	51	3	.2	.0	.2	2.4	58	12.4	73	66	21	0	3	1	0
MIDLAND	70	36	84	26	53	2	0	-.1	0	5.1	132	17.7	138	81	21	0	3	0	0
SAN ANGELO	73	43	85	28	58	4	0	-.2	0	3.2	56	13.3	77	82	26	0	2	0	0
SAN ANTONIO	79	56	86	41	68	9	T	-.5	T	1.5	18	18.4	68	86	38	0	0	2	0
VICTORIA	82	60	87	47	71	9	.2	-.4	.1	3.7	34	13.7	40	92	51	0	0	2	0
WACO	77	48	87	32	62	6	.8	.3	.7	7.3	95	21.7	77	88	38	0	1	3	1
WICHITA FALLS	69	42	84	32	55	4	.1	-.2	.1	8.3	121	22.4	90	90	38	0	1	2	0
UT CEDAR CITY	43	20	62	2	32	-6	1.0	.8	.9	1.7	77	12.0	129	96	57	0	6	3	1
SALT LAKE CITY	47	31	63	23	39	0	.5	.3	.4	1.6	57	8.0	60	93	45	0	5	4	0
VT BURLINGTON	50	32	62	22	41	5	.6	-.1	.3	6.4	82	24.1	80	81	44	0	5	4	0
VA NORFOLK	67	41	77	33	54	2	.7	.1	.7	7.0	75	36.5	89	96	50	0	0	1	1
RICHMOND	65	37	76	29	51	2	1.1	.3	1.0	7.6	82	35.3	90	97	41	0	2	3	1
ROANOKE	62	35	70	26	48	2	.5	-.1	.1	6.0	73	28.0	80	91	35	0	2	4	0
WA QUILLAYUTE	51	37	54	32	44	0	1.7	-.4	1.4	24.5	99	81.9	97	99	72	0	1	5	1
SEATTLE-TACOMA	48	40	54	35	44	0	1.9	.6	1.0	10.3	116	27.4	91	97	71	0	0	4	1
SPOKANE	39	29	44	27	34	0	.3	-.2	.1	4.2	138	12.8	97	99	73	0	5	3	0
YAKIMA	46	29	52	21	38	0	.1	-.1	0	1.0	74	4.5	74	94	61	0	5	4	0
WV BECKLEY	58	35	72	23	46	5	1.0	.3	.5	10.0	124	30.8	81	87	32	0	2	4	1
CHARLESTON	61	35	76	24	48	3	2.3	1.6	1.5	8.9	121	27.3	72	93	35	0	3	4	2
HUNTINGTON	60	34	74	23	47	1	2.3	1.6	2.0	8.4	119	31.3	85	89	40	0	3	4	1
PARKERSBURG	58	35	72	25	47	2	.8	.2	.5	8.0	119	28.3	83	91	36	0	3	3	0
WI GREEN BAY	46	29	59	18	38	4	.7	.3	.5	9.3	147	21.9	85	96	69	0	4	3	0
LACROSSE	50	29	61	22	39	4	1.2	.8	1.2	8.3	129	24.6	87	91	55	0	6	2	1
MADISON	53	33	64	25	43	8	.9	.5	.7	7.2	113	21.7	76	90	53	0	3	3	1
MILWAUKEE	51	36	60	30	44	7	1.3	.9	.6	12.2	193	28.1	100	91	55	0	2	3	1
WAUSAU	43	26	60	17	35	4	1.1	.7	1.1	7.9	109	21.5	72	95	73	0	7	3	1
WY CASPER	40	20	62	12	30	-2	.2	.1	.1	1.1	56	5.8	55	92	46	0	7	3	0
CHEYENNE	43	19	66	9	31	-3	.1	0	.1	2.0	96	15.0	118	88	42	0	7	1	0
LANDER	41	21	49	15	31	1	.1	-.1	.1	1.0	38	6.9	56	82	37	0	7	2	0
SHERIDAN	36	20	44	13	28	-3	.1	-.1	.1	1.3	47	8.8	63	89	53	0	7	2	0
PR SAN JUAN	85	74	87	72	79	0	3.5	2.0	1.4	13.1	85	54.1	113	92	73	0	0	7	3

Heating Degree Days Summary

CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA
ASSESSMENT AND INFORMATION SERVICES CENTER-NESDIS-NOAA
LAST DATE OF DATA COLLECTION PERIOD IS 11-19-1988

ACCUMULATIONS ARE FROM JULY 1
** - NORMAL LESS THAN 100 OR RATIO INCALCULABLE

Table with columns: STATE CITY, CALL WEEK, WEEK DEV, WEEK DEV, CUM TOTAL, CUM DEV FROM NORM, CUM DEV FROM L YR, CUM DEV FROM NORM, CUM DEV FROM L YR, CUM DEV FROM NORM, CUM DEV FROM L YR. Lists cities and their corresponding heating degree day data.

National Agricultural Summary

November 14-20, 1988

HIGHLIGHTS: Rain again slowed harvest progress in the Corn Belt and Delta but benefited fall sown grain. Moisture benefited fall sown crops in the Pacific Northwest. Soil moisture remained mostly short to adequate in the West and adequate in most of the East. Suitable days for fieldwork ranged from 3 in the Delta to over 6 in the West.

Winter wheat was mostly good to fair. Crop emergence was 95 percent (%) complete, 1 percentage point ahead of 1987 and 9 points ahead of the 5-year average. Corn harvest was 96% complete, 3 points behind 1987 but 5 points ahead of normal. Soybean harvest was 93% complete, 5 points behind last year but 4 points ahead of normal. Rain and wet field conditions hampered both corn and soybean harvests in the Corn Belt and the Delta. Cotton harvest was 72% complete, 6 points and 8 points ahead of last year and normal, respectively. Harvest was slowed by rain in California and the Delta. Rain and snow delayed completion of sorghum harvest in Kansas. Florida's citrus and vegetable producing areas remained dry. Livestock was in mostly good condition. Supplemental feeding continued to increase.

SMALL GRAINS: Winter wheat was mostly good to fair except in the Plains where it was fair to good. Ninety-five percent of the crop was emerged, slightly ahead of last year's 94% and 9 points ahead of the average. Greenbug populations continued to increase in Kansas. Recent rain and snow relieved moisture stress in some areas. Seeding was complete, but moisture may encourage additional seeding in previously dry areas. Blowing sand caused minor damage in newly emerged fields in the Texas Plains. Greenbug and rust problems continued to increase in some fields. Many fields showed signs of moisture stress. Emergence has been slow in central Texas. Rain in eastern Texas improved crop condition. Cool temperatures continued to slow Russian wheat aphid activity in Oregon and Washington. Rain relieved moisture stress in eastern Oregon. Snow provided protection and needed moisture in Montana. Mild fall temperatures benefited South Dakota's crop. Moisture was still needed to reduce winter kill. Rain improved crop conditions in the Corn Belt.

CORN: Corn harvest was 96% complete, 3 points behind 1987 but 5 points ahead of the 91% average. Harvest was over 90% complete in all the major producing States except Michigan, Ohio, and Pennsylvania. Harvest was complete in Georgia, Illinois, Iowa, Kansas, Nebraska, South Dakota, and Texas. Michigan's harvest was slowed by rain and was 80% finished, 5 points behind normal. Wet field conditions hampered harvest in Ohio. Harvest was 82% complete, slightly behind the 83% normal. Pennsylvania's harvest advanced 14 points but was still 8 points behind the 76% average.

SOYBEANS: Harvest was 93% complete, 5 points behind 1987 but 4 points ahead of normal. Rain again slowed harvest in much of the Corn Belt and the Delta. Michigan's harvest was 20 points behind the 95% average. Mississippi's harvest advanced 9 points but was still 10 points behind the 81% average. Favorable harvest conditions early in the week allowed Alabama's harvest to advance 15 points. Harvest reached 74% completion but was still 7 points behind normal. Harvest was less than half finished in the Carolinas but ahead of normal. North Carolina's harvest was 47% finished, 2 points ahead of normal and South Carolina's was 48% complete, 6 points ahead of normal.

COTTON: Harvest advanced 8 points and was 72% complete, 6 points and 8 points ahead of 1987 and normal, respectively. Harvest was ahead of normal except in the Southeast and Arizona. California's harvest neared completion but was slowed by rain. Harvest progressed rapidly in Texas following a killing frost. Harvest was 51% complete, 12 points ahead of normal. High winds caused minor damage in the Cross-Timbers area. Killing frost was expected to speed defoliation in Oklahoma. Harvest was 50% finished, 25 points ahead of normal. Mississippi's harvest was slowed by rain. Harvest was 94% complete, 3 points ahead of normal. Arizona's harvest was 4 points behind the 79% average. At midweek, high winds interrupted harvesting.

OTHER FIELD CROPS: Oklahoma's sorghum harvest reached 80% completion, 15 points ahead of 1987 but equal to the average. Harvest was 8 points ahead of the 90% average in Texas. Harvest in the Plains areas was complete. Rain and snow delayed harvest completion in Kansas.

Peanut harvest was nearly complete in Georgia and North Carolina. Texas' harvest was 84% finished, 12 points ahead of normal. Harvest was 85% complete, 10 points behind 1987 but equal to normal in Oklahoma.

Windy conditions placed burley tobacco in and out of proper case for stripping in Kentucky. Stripping was 45% complete, slightly behind the 46% normal. Quality was mostly good. Burley tobacco stripping was 78% complete, 13 points ahead of normal in Tennessee.

FRUIT AND NUTS: Florida citrus producers continued to irrigate to maintain surface moisture. Fresh fruit harvest activity increased and was generally ahead of last season. Harvest activity included navel oranges, seedless grapefruit, and Robinson tangerines. Caretakers prepared young trees for winter. Lemon and grape harvests continued in central and western Arizona. Navel oranges and tangerines were harvested in the central area. Citrus harvest continued active in the Rio Grande Valley of Texas. Desert lemon and grapefruit harvests were active in California. Hass avocado harvest started. Table grape and new crop navel orange harvests continued. Desert melons were mostly harvested. Pecan harvest was active.

VEGETABLES: Winter planting and fall harvest were active in Florida. Continued warm, dry weather made irrigation necessary in most areas. Harvest activities included tomatoes, cucumbers, sweet corn, and celery. Fall lettuce harvest was very active in Arizona. Spring lettuce plantings began. Cabbage, pepper, cucumber, and tomato harvests were active in the Rio Grande Valley of Texas. Pepper and tomato harvests were at their peak in the San Antonio-Winter Garden area. A hard freeze limited harvest in the High Plains. Peppers were mostly harvested in the Trans-Pecos. Broccoli and cauliflower harvests were active in California. Quality of harvested lettuce was good in the Kingsburg-Dinuba area. Riverside potato harvest continued.

PASTURES AND LIVESTOCK: Pastures were mostly fair to good. Livestock was mostly good. Supplemental feeding continued to increase as pastures went dormant. Crop residue grazing continued. Texas Hill Country pastures needed rain to promote growth for winter grazing. Livestock water supplies remained short in northern Missouri.

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 2.00 to 3.00 in. common; 3.00 to 4.00 in. isolated areas. Temperatures 8 to 12° warmer than normal.

Days suitable for fieldwork 3.8. Soil moisture 5% short, 67% adequate, 28% surplus. Favorable harvest, planting conditions early week; showers caused delays weekend. Soybeans 92% mature, 100% 1987, 99% avg.; 74% harvested, 93% 1987, 81% avg. Cotton 92% harvested, 100% 1987, 92% avg. Sorghum 96% harvested, 97% 1987, 96% avg. Wheat 67% seeded, 74% 1987, 68% avg. Pastures livestock mostly good. Primary activities: Harvesting cotton, soybeans, sorghum, fall vegetables, pecans; seeding, fertilizing small grains; fertilizing pastures; soil testing; cleaning, repairing equipment; routine care livestock, poultry.

ARIZONA: Sunny, unseasonably mild 13th. Abrupt change 14th, first major winter storm moved into State. Fast moving upper level low pressure system, associated cold front spread rain, snow, very strong winds, sharply cooler air. Clearing began 15th, west, as low moved into Colorado, New Mexico. Rainfall 0.25 to 0.50 in. Snow level reached 6,000 ft.; 2 to 4 in. over Grand Canyon, Mogollon Rim, White Mountains northward. Another fast moving cold storm 18th spread snow northeast; 2 to 6 in. Morning of 19th temperatures dipped to 4 to 14° northern mountains, 30s and 40s lower deserts. Temperatures 6° below to 1° above normal.

Cotton harvest continued; 75% 1st picked, 85% 1987. Strong winds, blowing dust 14th temporarily interrupted fieldwork west. Rest of week, harvest completion followed by rapid stalk shredding, plowdown. Further north harvest slowed by frost; expected to increase quality of crop. Central growers devoting full attention to harvesting. Stalk shredding, plowdown progressed throughout most of State. Alfalfa harvest neared completion. Limited cutting, curing under favorable conditions west, central. Sheeping off increased except central, southeast. New, renovated stands excellent condition. Seedbed preparation, planting wheat, barley continued on limited scale; 15% planted west; lesser amounts elsewhere. Lemon, grapefruit harvest, packing continued steady pace west. Fall lettuce harvest very active. Assorted vegetables harvested west. Vegetables at all stages of development continued good progress. Lemons, grapefruit, navel oranges, tangerines harvested, packed central. Pecan harvest, packing also progressed. Few cantaloup, honeydew melons packed. Fall lettuce harvest underway. Assorted vegetables also harvested. Apple packing continued east; fall lettuce harvest full swing; spring lettuce being planted.

ARKANSAS: Temperatures cooler as week progressed. Temperature extremes 20°; 81°. Extremely heavy rainfall across State except for extreme southeast as tornadoes, flash floods occurred several areas. Rainfall 0.70 to 11.56 in.

Days suitable for fieldwork 4.0. Soil moisture 19% short, 47% adequate, 34% surplus. Major farming activities: Soybean, cotton harvest; wheat, oat seeding; fertilizing pastures, small grains; preparing cattle for winter. Soybeans 97% shedding leaves, 100% 1987, 99% avg.; 93% mature, 99% 1987, 96% avg. Oats 90% planted, 86% 1987, 81% avg. Wheat 84% planted, 92% 1987, 75% avg. Hay, roughage 2% very short, 68% short, 29% adequate, 1% surplus. Pasture, range 3% very poor, 19% poor, 62% fair, 16% good. Livestock mostly good.

CALIFORNIA: Cold, wet front brought heaviest rain north coast. Northern mountains picked up beginning of good snow pack. Highs pressure built towards end of week giving northern counties season's first light frost.

Field activities northern half virtually stopped, slowed southern half. Rice stubble burning halted. Cotton harvest winding down, rain slowed some. Shredding, discing active. Seeding winter grains weather permitting. Sugarbeet, alfalfa, harvests normal. Dry bean, corn harvests nearly complete. Southern seed corn drying, expect harvest 2 weeks. Land preparation active, weather permitted. Table grape, kiwifruit, persimmon harvests continued. Hass avocado harvest started. Harvesting of dates progressed. Desert lemon, grapefruit harvests progressed. New crop navel oranges harvest continued. Pecan harvest active. Normal fall cultural practices progressed. Broccoli, cauliflower harvests active east, westside. Broccoli moderate supply, good quality Salinas-Santa Maria. Lettuce harvest ongoing; reduced volume, good quality Kingsburg-Dinuba, season Salinas-Santa Maria area almost complete. Fumigating tomato fields, preparation bell pepper hot beds continued Merced-Atwater. Potato harvest ongoing, fair sizes Riverside. Desert vegetables being harvested, sweet corn, melon harvests drawing to close. Strawberry plants being harvested Tulelake-Butte Valley. Harvests cabbage, pumpkins, peppers, carrots, sweetpotatoes, squash, market, cherry tomatoes progressed Kingsburg-Dinuba areas. Livestock fair to good statewide. Range, pasture fair to very poor. Rainfall helped depleted grass, water supply conditions to slight degree, much more needed. Supplemental feeding continued, ample feed supplies most areas. Calving, lambing active.

COLORADO: Cold front on 14th left 1 to 5 in. snow southern mountains, 10 to 15 in. northern mountains. Areas west of mountains 0.02 to 0.04 in. of moisture while eastern areas received 0.01 in. or less. Another front left 4 to 8 in. of snow southern mountains on 18th but little elsewhere. Temperatures within 2° of normal.

FLORIDA: Temperatures 6 to 8° above normal statewide with several records broken. Rainfall heaviest Panhandle, southeast coast, under 0.25 in. statewide; isolated amounts up to 1.00 in.

Soil moisture short to adequate. Harvest good; cotton, soybean, sugarcane harvest active. Late haymaking continued Peninsula. Small grain planting for grazing continued. Field preparation active for winter wheat. Unseasonably warm temperatures, little or no rainfall many areas stressed forage growth. However, conditions improved somewhat, parts of Panhandle received most rain. Grazing mostly fair Panhandle through upper central Peninsula, east coast; elsewhere mostly good except for drier high ground pastures. Cattle, calves fair to mostly good or better. Only traces of rain over citrus areas. Irrigation continued many groves to maintain surface moisture. Harvest fresh fruit shipments increased; generally ahead of last season. Early, navel oranges, seedless grapefruit, robinson tangerines, tangelos predominant types shipped fresh. Winter weather preparation continued mainly young tree groves. Dry, warm weather vegetable producing areas. Irrigation continued heavy. Harvest fall crops, planting winter crops active. Good volume available tomatoes, cucumbers, peppers, squash,

snap beans, sweet corn, celery. Lesser supply eggplant, radishes, escarole, endive, specialty lettuce, carrots. First early plant city strawberries picked.

GEORGIA: Rain near 2.00 in. extreme north, 0.50 to 1.00 in. north, central; 0.25 in. east, southeast. Parts of southeast no rain. Warm temperatures 4 to 8° above normal north, east; 7 to 12° warmer south, west. Warmest near 70° mountains to low and mid 80s extreme south. Coldest 20s mountains near 50° extreme southeast.

Days suitable for fieldwork 5.4. Soil moisture 1% very short, 39% short, 59% adequate, 1% surplus. Peanut harvest nearly complete. Soybean harvest full swing, nearly 25%. Wheat 42% planted, 30% 1987, 47% avg.; Rye, other small grain seedings near average. Pecan harvest gained momentum, 45% harvested. Pastures fair to good. Cattle, hogs mostly good.

HAWAII: Variable weather. Warmer than normal early week. Mostly sunny mornings, afternoon cloudiness with heavy, isolated showers. Increased showers late week; cleared by weekend. Winds lighter than normal 5 to 15 mph. Temperatures upper 60s to upper 80s. Rainfall none to 5.20 in.

Days suitable for fieldwork 7.0. Most crops good condition. Chinese cabbage production seasonally moderate. Head cabbage harvesting moderate. Lettuce production light. Tomato output expected to increase coming weeks. Ginger root harvesting light, fields good. Papaya production steady.

IDAHO: Precipitation above normal statewide, except north. Temperatures near normal.

Winter wheat fair to good. Sugarbeet harvesting wrapping up. Rain, snow halted fieldwork. Primary activities included feeding livestock, marketing, shipping products; shopwork, cleaning yards, attending seminars. Livestock good. Hay, roughage mostly adequate.

ILLINOIS: Temperatures near normal south to 7° above normal north. Precipitation 0.50 to 1.00 in. northwest, 1.00 to 3.00 in. elsewhere. Normal northwest, greater than normal extreme south.

Soil moisture 58% short, 37% adequate, 5% surplus. Winter wheat mostly good; aided by recent rainfall, mild temperatures. Smaller than normal plants due to slow emergence from dry conditions at seeding. Livestock good to excellent; gaining good, resisting diseases aided by mild weather conditions.

INDIANA: Temperatures 3 to 8° above normal. Lows 20s to 30s, highs mid 60s to 70. Precipitation heavy, 1.00 to 3.00 in. extreme south.

Days suitable for fieldwork 2.8. Topsoil moisture 4% short, 69% adequate, 27% surplus. Subsoil moisture 42% short, 53% adequate, 5% surplus. Wheat 99% seeded, 100% 1987, 96% avg. Pastures 3% very poor, 30% poor, 49% fair, 18% good. Spring cropland 48% plowed, 41% avg. Hay, roughage for feeding season 11% very short, 33% short, 56% adequate. Wet soils limited field activity. Weekend showers statewide.

IOWA: Rare November tornado outbreak on evening of 15th east followed by 2 to 6 in. of snow, same night northwestern third of State. Temperature extremes morning low of 8° Spencer on 21st to afternoon high of 70° Des Moines, Creston on 15th. Temperatures 1° below normal northwest to 6° above normal southeast. Precipitation well above normal most areas; 0.19 to 3.12 in.; average 0.09 in.

General rain early week limited remaining field activities. Livestock mostly good. Grazing of

stubble fields. Equipment moving to machine sheds for general repairs, clean-up.

KANSAS: Temperatures 35° northwest to 47° southeast, within 2° of normal except northeast, east central 4° above normal. Rainfall covered most of State, 1.00 to 2.00 in. southeast, 0.25 in. central, northeast, 0.10 in. extreme western areas.

Days suitable for fieldwork 4.5. Topsoil moisture 71% short, 27% adequate, 2% surplus. Subsoil moisture 83% short, 17% adequate. Corn harvest complete, but rain, snow delay completion sorghum, soybean harvest. Many corn, sorghum stubble fields being grazed. Wheat seeding complete but recent moisture may encourage additional seeding some previously dry spots. Emergence, early growth good but poor secondary root development. Recent rain, snow relieved moisture stress but moisture still short most areas. Greenbug populations increased, farmers keeping close eye on infestation levels. Range, pasture short but feed grain and forage supplies generally adequate.

KENTUCKY: Temperatures mild. Lows mid 30s, 3 to 6° above normal. Highs mid 50s to mid 60s, 3 to 8° above normal. Up to 0.50 in. precipitation south 16th. Heavy weekend rains brought 2.00 to 5.00 in. Heaviest over central sections.

Days suitable for fieldwork 4.2. Soil moisture 4% very short, 38% short, 57% adequate, 1% surplus. Burley tobacco 45% stripped, 38% 1987, 46% avg.; 11% fair, 78% good, 11% excellent. Windy conditions placed tobacco in, out of case for stripping. Markets to open 21st. Wheat 93% seeded, 96% 1987, 78% avg.; adequate growth; 1% very poor, 1% poor, 28% fair, 66% good, 4% excellent. Pasture mostly good to fair.

LOUISIANA: Temperatures 4 to 9° above normal. Temperature extremes 31°; 89°. Rainfall 0.13 to 2.07 in.

Days suitable for fieldwork 4.4. Soil moisture 10% short, 71% adequate, 19% surplus. Sweetpotatoes 97% harvested. Sugarcane good; 100% planted, 58% harvested, both above average. Winter wheat fair to good; 67% planted, 50% emerged, both higher than average. Pecans 42% harvested, below average. Hay, roughage 29% short, 71% adequate. Livestock, pastures, vegetables fair to good. Transplanting strawberries, cabbage. Main activities: Harvesting cotton, pecans, soybeans, sugarcane, sweetpotatoes, vegetables; planting sugarcane, wheat, winter pastures; fertilizing pastures.

MARYLAND & DELAWARE: **MARYLAND:** Precipitation 1.12 in. Temperature 49°; normal 47°. Temperature extremes 19°; 77°.

Days suitable for fieldwork 4.6. Topsoil moisture 5% short, 75% adequate, 20% good. Subsoil moisture 20% short, 80% adequate. Hay 15% short, 85% adequate. Corn grain 97% harvested, 97% avg. Soybeans 85% harvested, 75% avg. Winter wheat 97% seeded, 97% avg. Barley 100% seeded, 99% avg. Rye 97% planted, 99% avg.

DELAWARE: Precipitation 1.11 in. Temperature 50°, normal 16°. Temperature extremes 27°; 75°.

Days suitable for fieldwork 4.3. Topsoil moisture 100% adequate. Subsoil moisture 100% adequate. Hay 100% adequate. Corn grain 99% harvested, 99% avg. Soybeans 85% harvested, 75% avg. Winter wheat 90% seeded, 90% avg. Barley 100% seeded, 99% avg. Rye 100% seeded, 85% avg.

MICHIGAN: Temperatures 4 to 7° above normal. Temperature extremes 23°; 67°. Precipitation 0.13 to 2.07 in.

Days suitable for fieldwork 2.3. Soil moisture 15% adequate, 85% surplus. Corn 80% harvested, 98% 1987, 85% avg. Soybeans 75% harvested, 97% 1987, 95% avg. Winter wheat 95% emerged, 98% 1987, none avg.; 5% poor, 15% fair, 50% good, 30% excellent. Major activities: Corn for grain, soybean harvests; sugarbeet harvest, equipment maintenance, repair.

MINNESOTA: Temperatures 2° above normal to 5° below normal. Temperature extremes 1°; 62°. Precipitation 0.27 to 1.27 in. Snow up to 10 in. Topsoil moisture 10% very short, 44% short, 45% adequate, 1% surplus. Subsoil moisture 50% very short, 45% short, 5% adequate. Hay 4% very short, 46% short, 48% adequate, 2% surplus. Cattle, calves 26% fair, 69% good, 5% excellent. Snowfall covered most of State. Wet snow abundant in moisture, welcomed. Subsoil moisture remained critically short.

MISSISSIPPI: Warmer than normal with above average rainfall statewide. Late week system produced tornadoes on 20th. Maximum rainfall 5.13 in. Extreme temperatures 27°; 84°.

Days suitable for fieldwork 2.7, 3.3 1987, 3.2 avg. Soil moisture 35% adequate, 40% surplus, 25% excessive. Cotton 94% harvested, 99% 1987, 91% avg. Soybeans 71% harvested, 96% 1987, 81% avg. Wheat good; 70% planted, 73% 1987, 66% avg.; 60% emerged. Pecans fair; 35% harvested, 42% 1987, 47% avg. Pastures good. Livestock good. Hay, roughage mostly adequate. Activities: Soybean harvest, wheat planting, cleaning up after storms.

MISSOURI: Temperatures 6° above normal northeast to normal southeast. Rain 0.50 to 1.00 in. northern third, much heavier south, up to 6.00 in. Botheel.

Soil moisture improved by rain, but many northern counties still short. Run-off water needed for stock ponds. Muddy soil southeast delaying completion of soybean, cotton harvesting.

MONTANA: Temperatures below normal except west. All areas measured precipitation most north central, southwest, southeast.

Snow added some protection to winter wheat. Grazing more difficult but still mostly open. Hay feeding increased.

NEBRASKA: Week started with rain, snow. Cold, temperatures near normal east to 5° below normal west. Precipitation 0.25 to 0.75 in. Extremes 7°; 64°.

Days suitable for fieldwork 3.3. Topsoil moisture 62% short, 38% adequate. Subsoil moisture 81% short, 19% adequate. Lack of adequate subsoil moisture concern. Wheat 3% poor, 29% fair, 68% good. Still few corn fields standing, mainly west. Pasture, range feed 2% very short, 30% short, 68% adequate. Concerns hay level supplies still exists.

NEVADA: Strong cold front early accompanied by strong winds, significant precipitation. More than 2 ft. snow accumulated western areas, Sierras. Weaker storm followed brought moderate amounts rain, snow across north. These storms coldest of season, extreme south first widespread freeze. Temperatures slightly below seasonal normals. Temperature extremes up to 79°.

Low temperatures hard on newborn calves, lambs. Feed requirements increased with freezing temperatures.

NEW ENGLAND: Precipitation (rainfall, water equivalent of snow) 1.50 to 2.00 in. south, 0.75 to 1.50 in. north. Additional precipitation 20th as storm moved through area; 1.00 to 2.00 in. north,

2.00 to 3.00 in. south. Temperatures mid 30s near Canadian border to upper 40s south coast. Temperatures below normal.

Major farm activities: Machinery repair, getting ready for winter.

NEW JERSEY: Temperatures slightly above normal; 45° north, 49° south, 52° coastal. Extremes 25°; 71°. Precipitation much above normal; 3.31 in. north, 2.63 in. south, 2.20 in. coastal. Heaviest 24-hour total 2.32 in. on 20th, 21st.

Topsoil moisture excessive. Soybean, corn for grain harvest advanced as conditions permitted. Drier weather needed. Fall crops continued to move from storage. Cider making active. Fall sown grains, cover crops growing well. Heavy rain caused some erosion.

NEW MEXICO: Temperatures below normal over most of State. Two storm systems brought snow over northern portion of State.

Days suitable for fieldwork 6.3. Soil moisture 69% short, 31% adequate. Some moderate to heavy freeze damage. Cotton 65% harvested; 100% good. Wheat 20% poor, 50% fair, 30% good; 100% emerged, moisture needed. Cattle 38% fair, 54% good, 8% excellent. Sheep 50% fair, 50% good. Range 8% poor, 61% fair, 31% good.

NEW YORK: Wet; mild start, seasonably cool weekend. One system brought rain on 13th, greatest southeast, extreme western areas. Another system brought rain night of 16th, 17th. Another system brought rain weekend. Several places southeast better than 2.00 in. for week. Temperatures topped 60° several days.

Wet conditions limited outside work. Caring for livestock, preparing for winter major activities.

NORTH CAROLINA: Temperatures 2 to 11° above normal statewide. Temperature extremes 21°; 80°. Precipitation 0.06 to 1.38 in.

Days suitable for fieldwork 4.8. Soil moisture 28% short, 80% adequate, 2% surplus. Pasture 4% poor, 31% fair, 65% good. Peanut 99% threshed, 99% 1987, 99% avg. Sorghum for grain 92% harvested, 95% 1987, 88% avg. Oats 86% planted, 88% 1987, 84% avg.; 2% poor, 17% fair, 81% good. Barley 92% planted, 91% 1987, 86% avg.; 20% fair, 80% good. Rye 84% planted, 81% 1987, 81% avg.; 2% poor, 13% fair, 83% good. Wheat 69% planted, 80% 1987, 75% avg.; 2% poor, 15% fair, 80% good, 3% excellent. Major farm activities: Harvesting soybeans, seeding small grains. Other activities: Harvesting corn, peanuts, cotton; tobacco plantbed preparation; grading tobacco; harvesting Christmas trees; tending livestock, general farm maintenance.

NORTH DAKOTA: Temperatures 6 to 10° below normal. Extremes -13°; 53°. Snow statewide. Precipitation 0.10 in. southwest to 0.43 in. east central.

Soil moisture below average. Hay, feed mostly adequate. Working cattle, moving hay, attending meetings major farm activities.

OHIO: Temperatures 5 to 10° above normal. Extremes 20°; 70°. Precipitation 1.00 to 2.00 in. statewide. Soil temperatures mid 40s to mid 50s.

Days suitable for fieldwork 5.0. Soil moisture 11% short, 76% adequate, 13% surplus. Harvest slow; wet soils, rain. Wind lodged more corn. Moisture in harvested grain; 22% corn, 15% soybeans. Winter wheat mostly good. Pasture fair to good.

OKLAHOMA: Temperatures 6° below normal north central to 3° above normal southwest. Precipitation 0.17 in. Panhandle to 2.37 in. east central.

Days suitable for fieldwork 5.2. Topsoil moisture 38% short, 60% adequate, 2% surplus. Subsoil moisture 35% short, 65% adequate. Wheat 35% fair, 65% good; 95% emerged, 95% 1987, 75% avg. Cotton 50% harvested, 20% 1987, 25% avg. Recent hard freeze should defoliate plants. Sorghum 80% harvested, 65% 1987, 80% avg. Soybeans 70% harvested, 65% 1987, 60% avg. Peanuts 85% harvested, 95% 1987, 85% avg. Pastures dormant after late week freeze. Forage supplies dwindled. Cattle good; marketings average, prices up slightly from last week.

OREGON: Near normal weekly temperatures all sections except south central area 1 to 5° cooler than normal. High plateau 5.70 in. rainfall. Western valleys, north central section 1.80 to 2.50 in. Coast 3.20 in. East of the Cascades 0.60 in. with some snow higher elevations.

Soil moisture surplus coast, adequate western interiors, short to adequate east of Cascades. Fall grain seeding essentially complete. Russian wheat aphid activity lessened, some spraying continued. Field conditions improved by recent precipitation, especially east. Cranberry harvest completed south coast. Other fruit, nut activity limited to dormant spraying, pruning, training. Vegetable harvest wrapped up, except carrots Willamette Valley. Livestock generally good. Range, pasture good to excellent west, fair to good east. Moisture conditions will continue to improve until ground freezes.

PENNSYLVANIA: Mild, wet. Temperature 44°, 20° above normal. Temperature extremes 23°; 74°. Precipitation 1.05 in., 0.29 in. above normal.

Days suitable for fieldwork 4.0. Soil moisture 21% short, 64% adequate, 15% surplus. Corn 68% harvested, 85% 1987, 76% avg.; 15% very poor, 31% poor, 33% fair, 16% good, 5% excellent. Soybean 68% harvested, 90% 1987, 78% avg.; 8% very poor, 17% poor, 34% fair, 35% good, 6% excellent. Fourth cutting alfalfa 93%, 94% 1987. Hay fair. Amount of feed being obtained from pastures average. Activities: Harvesting corn grain, soybeans, hay, haylage, fruit, baling fodder; planting wheat, rye; fall plowing; spreading manure, fertilizer; caring for livestock; maintaining machinery, fixing fence.

PUERTO RICO: Island rainfall 2.87 in., 1.45 in. above normal. Highest rainfall 7.26 in. San Lorenzo, 6.98 in. San Juan City, 5.93 in. Pico Del Este-Luquillo. Highest 24-hour total 3.98 in. San Juan City. Total rainfall since January 1st 60.14 in., 6% above normal. San Juan WSFO mean temperature 79°, 6° below normal. Total rainfall 3.45 in., 2.12 in. above normal. Divisional temperature 79° on coasts, 73 to 74° interior. Mean station temperature 65° Pico Del Este-Luquillo to 80° San Juan City. Lowest minimum temperature 51° Adjuntas. Highest maximum temperature 92° San Sebastian, Coloso.

SOUTH CAROLINA: Temperatures near seasonal average. Rainfall 1.01 in. Chester to less than 0.10 in. areas Coastal Plains.

Days suitable for fieldwork 5.7. Soil moisture 2% very short, 69% short, 29% adequate. Cotton 87% harvested, 100% 1987, 88% avg.; 1% very poor, 3% poor, 96% fair. Soybeans 95% leaves shedding, 100% 1987, 99% avg.; 95% matured, 100% 1987, 90% avg.; 48% harvested, 61% 1987, 42% avg.; 5% poor, 53% fair, 37% good, 5% excellent. Peanuts fair to good; 94% harvested, 100% 1987, 98% avg. Sweetpotatoes fair to good; 87% harvested, 87% 1987, 90% avg. Sorghum fair to good; 78% harvested, 89% 1987, 83% avg. Pastures fair to good. Livestock good. Winter wheat 52% planted, 49% 1987, 46% avg.; 33% emerged, 34% 1987, 31% avg.

SOUTH DAKOTA: Temperatures 4° below to 5° above normal. Extremes -2°; 62°. Largest amount of precipitation southwest into northeast. Snow north central, northeast, parts of Black Hills 1 to 6 in. Recent moisture benefited fall sown crops. Winter wheat mostly good to fair. Mild fall temperatures should help reduce winterkill as long as adequate moisture received. Moving livestock closer to winter feeding areas, hay from fields into stockyards.

TENNESSEE: Mild, wet. Dry early week, significant rain 16th, weekend. Temperatures 2 to 6° above normal. Rainfall heaviest west, above normal statewide. Amounts 2.00 in. east, 8.00 in. west.

Days suitable for fieldwork 4.0. Soil moisture 1% very short, 17% short, 73% adequate, 9% surplus. Pastures normal. Burley tobacco 78% stripped, 60% 1987, 65% avg. Wheat 96% seeded, 91% 1987, 74% avg. Primary activities: Harvest, sowing small grains, fence building, repairing equipment, land preparation, shearing Christmas trees, tending livestock, general farm chores.

TEXAS: Week started warm temperatures, precipitation southeast. Cold front, upper air disturbance triggered showers eastern third State 15th. Cooler air spread midweek, first freezing temperatures of season over parts west, north. Late week, strong storm system brought heavy snows parts Panhandle, south Plains, heavy rains north central, northeast counties. Lighter rains south central, southeastern areas. Colder air across State, some low temperatures west central. Precipitation below normal, above normal amounts Blacklands, northern east. Temperatures much below normal southern High Plains, Rolling Plains, Trans-Pecos. Readings above normal south central, normal elsewhere.

Crops: Cotton harvest advanced rapidly behind fronts, as freeze finally arrived. Some producers Cross-Timbers forced curtail defoliating operations because high winds. Winds caused minor damage. Harvesting increased Trans-Pecos. Cotton 99% open bolls, 90% 1987, 90% avg. Grain sorghum harvest finish rapidly Plains. Good yields remained throughout season. Sorghum 98% harvested for grain, 87%, 1987, 90% avg. Small amount moisture, allowed remaining wheat to be planted. Emergence slow many central fields because dry conditions. High winds declining soil moisture Plains, many fields being stress for moisture. Blowing sand caused problems young emerging fields. Greenbugs, rust increased some fields Plains. Rainfall eastern parts increased growth small grains. Wheat 100% planted all purposes, 97%, 1987, 94% avg. Peanut harvest continued across State fair, good yields irrigated fields, below average dryland fields. Hay making remained active. Soybean harvest increased plains, freeze helped dry down plants. Along Coast, harvesting continued with average crop. Sugarbeet, sugarcane harvest remained active, above average yields. Other Field Crops: Peanuts 84% harvested, 75% 1987, 72% avg. Pecans 46% harvested, 42% 1987, 44% avg. Soybeans 91% harvested, 85% 1987, 74% avg. Sugarbeets 68% harvested, 83% 1987, 71% avg. Sunflowers 88% harvested, 88% 1987, 83% avg. Oats 87% planted, 91% 1987, 89% avg.

Commercial Vegetables: Rio Grande Valley harvest cabbage, peppers, cucumbers, tomatoes remained active. Onions showing good growth. Citrus harvest steady, good yields, quality. San Antonio-Winter Garden harvest cabbage, carrots continued. Pepper, tomato harvest at peak. High Plains hard freeze limit remaining vegetables. Some carrots still harvested. Trans-Pecos pepper harvest winding down. Cooler weather limit remaining vegetables. Pecan harvest steady. High winds

helped nuts fall. Overall, average crop. Prices remained below 1987.

Range and Pasture: High, virtually dry winds further declined pasture conditions central. Heavy feeding continued. Small grains provided grazing Plains; regrowth slow because lack moisture. Pastures good east. Hill Country producers need rain winter pastures. Livestock markets remained steady.

UTAH: Precipitation light to very heavy. Temperatures 2° below to 3° above normal.

Soil moisture 67% short, 33% adequate. Fall seeded wheat 16% very poor, 15% poor, 66% fair, 3% good to excellent. Winter range feed 45% poor, 46% fair, 9% good. Cattle, grain harvest completed. Hay harvest complete most State. Some 7th cutting alfalfa harvest extreme south. Feed supplies short several counties. Hay movement sooner than normal. Major farm activities: Winterizing equipment, shipping calves, lambs; plowing, fall tillage, fall fertilizer application, hauling manure.

VIRGINIA: Near normal rainfall, above normal temperatures. Rainfall none to 2.11 in. Temperature 28°; 75°. Temperatures 5° above normal.

Days suitable for fieldwork 5.5. Topsoil moisture 27% short, 67% adequate, 6% surplus. Grain corn 90% harvested, 94% 1987, 90% avg. Soybeans 56% harvested, 67% 1987, 53% avg. Burley tobacco stripped. Wheat 70% seeded, 83% 1987, 77% avg. Some hay cut. Marketed feeder cattle. Winter grains, grazing crops 15% poor, 62% fair, 23% good. Pasture 8% very poor, 49% poor, 25% fair, 16% good, 2% excellent.

WASHINGTON: Wet as cool weather prevailed. Precipitation above normal on both sides of Cascades; snow levels remained 2,000 to 4,000 ft. Temperatures near to slightly below normal.

Soil moisture 70% short, 30% adequate. Winter wheat 35% fair, 65% good. Wet weather restricted field activities across State. Spraying for Russian wheat aphids came to an end as nights cooled. Growers harvested carrots, late vegetable crops weather permitted. Preparations for tree planting next spring, fertilizer application main orchard activities. Some pastures still available for livestock most being supplemented with hay.

WEST VIRGINIA: Temperature 47°, 3 to 7° above normal. Extremes 16° Elkins; 76° Charleston, Gary, Romney. Precipitation 1.96 in.

Days suitable for fieldwork 5.1. Soil moisture 57% short, 43% adequate. Corn fair to good; 88% harvested. Livestock good to fair. Feed 45% short, 55% adequate. Farm activities: Corn picking, livestock care.

WISCONSIN: Temperatures 37°. Extremes 8°; 65°. Precipitation 0.80 to 1.40 in. Strong winds on 16th. Snow 1 to 2 in. north on 17th.

Rain aided topsoil moisture. Normal fall farm activities.

WYOMING: Temperatures near normal. Precipitation slightly above normal.

Winter wheat fair to good. Additional moisture needed for good development. Livestock fair to good. Movement to winter pastures, market continued. Hay mostly short.

Crop Progress 1/

FOR WEEK ENDING NOVEMBER 20, 1988

	CORN % HARVESTED		
	1988	1987	AVG.
COLO	93	95	92
GA	100	100	100
ILL	100	100	95
IND	95	100	90
IOWA	100	100	94
KANS	100	100	97
KY	94	99	92
MICH	80	98	85
MINN	99	99	92
MO	99	100	89
NEBR	100	100	91
N C	97	99	97
OHIO	82	100	83
PA	68	85	76
S DAK	100	100	88
TEX	100	100	100
WIS	95	99	83
17 STATES	96	99	91

THESE 17 STATES PRODUCED 94% OF THE 1987 CORN CROP.

	COTTON % HARVESTED		
	1988	1987	AVG.
ALA	92	100	92
ARIZ	75	85	79
ARK	95	99	92
CALIF	95	95	87
GA	84	95	85
LA	96	100	93
MISS	94	99	91
MO	96	100	92
N MEX	65	44	50
N C	79	90	80
OKLA	50	20	25
S C	87	100	88
TENN	96	100	92
TEX	51	34	39
14 STATES	72	66	64

THESE 14 STATES PRODUCED 100% OF THE 1987 COTTON CROP.

	SOYBEANS % HARVESTED		
	1988	1987	AVG.
ALA	74	93	81
ARK	80	96	78
GA	75	85	69
ILL	100	100	95
IND	97	100	94
IOWA	100	100	97
KANS	98	98	85
KY	86	97	78
LA	88	99	89
MICH	75	97	95
MINN	99	99	98
MISS	71	96	81
MO	97	100	79
NEBR	100	100	100
N C	47	67	45
OHIO	96	100	94
S C	48	61	42
S DAK	100	100	100
TENN	94	99	74
19 STATES	93	98	89

THESE 19 STATES PRODUCED 96% OF THE 1987 SOYBEANS CROP.

	WINTER WHEAT % EMERGED		
	1988	1987	AVG.
ARK	67	86	NA
CALIF	20	30	28
COLO	99	99	98
GA	23	15	30
IDAHO	100	93	97
ILL	100	100	87
IND	95	92	93
KANS	97	99	90
MICH	95	98	NA
MO	89	99	71
MONT	95	100	88
NEBR	100	100	100
N MEX	100	100	NA
N C	56	60	NA
OHIO	90	96	93
OKLA	95	95	75
OREG	86	75	87
S DAK	100	100	100
TEX	98	93	85
WASH	95	88	96
20 STATES	94	94	NA
EXCL. STATES WITH NA	95	94	86

THESE 20 STATES PRODUCED 91% OF THE 1987 WINTER WHEAT CROP.

NA - NOT AVAILABLE.

Crop Condition

FOR WEEK ENDING NOVEMBER 20, 1988

STATE	WINTER WHEAT				
	VP	P	F	G	EX
ARK	0	0	15	67	18
CALIF	0	0	20	80	0
COLO	2	5	28	59	6
GA	0	0	32	66	2
IDAHO	2	7	33	44	14
ILL	0	0	18	68	14
IND	0	2	30	64	4
KANS	1	13	42	28	16
MICH	0	5	15	50	30
MO	3	8	60	27	2
MONT	2	5	45	43	5
NEB	0	3	29	68	0
N MEX	0	20	50	30	0
N C	0	2	15	80	3
OHIO	0	7	32	51	10
OKLA	0	0	35	65	0
OREG	0	30	20	50	0
S DAK	5	13	38	35	9
TEX	3	16	49	28	4
WASH	0	0	35	65	0
19 STATE	1	8	37	47	7

VP - VERY POOR P - POOR F - FAIR
G - GOOD EX - EXCELLENT

1/ AVERAGES FOR THESE SUMMARIES ARE FOR THE YEARS 1983 - 1987.

International Weather and Crop Summary

November 13-19, 1988

HIGHLIGHTS

WESTERN USSR ... The fifth consecutive week of unseasonable cold weather keeps winter grains dormant.

EUROPE ... Warmer-than-normal weather returns to all but eastern crop areas.

SOUTH ASIA ... Rain lingers over India's southern tip, but dry, warm weather elsewhere benefits maturing crops.

EASTERN ASIA ... Heavy rain continues harvest delays in the southeast. Warmer-than-normal temperatures persist in the North China Plain.

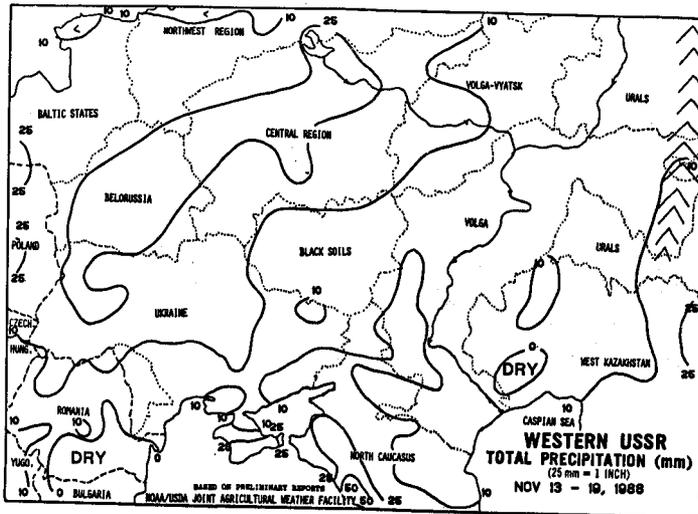
SOUTHEAST ASIA ... Dry weather favors mature crops in central and eastern Thailand. Showers cover Malaysia and Indonesia with flooding likely over the Malay Peninsula. Drier weather covers most Philippine crop regions.

SOUTH AMERICA ... In Argentina, showers improve conditions for early crop growth in many areas. In Brazil, rain favors soybean emergence in the south, but dryness persists in Parana.

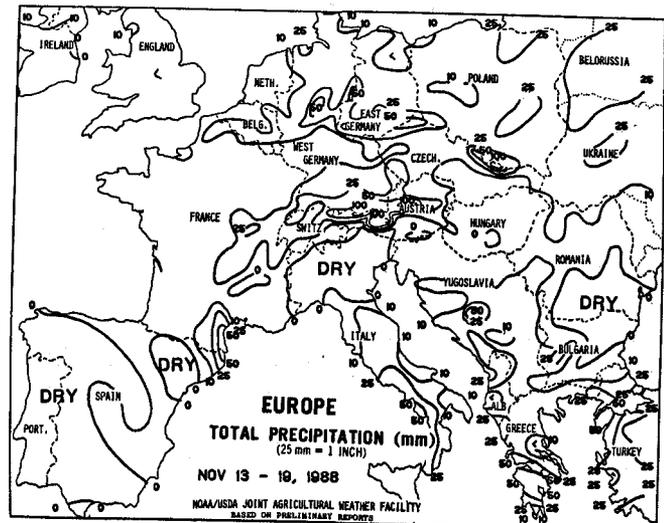
AUSTRALIA ... Heavy rain delays winter grain harvest but benefits summer crops in the southeast. Cooler-than-normal temperatures return to sections of the southeast for the first time since early August.

SOUTH AFRICA ... Rain covers the Maize Triangle, maintaining favorable moisture reserves but slowing fieldwork.

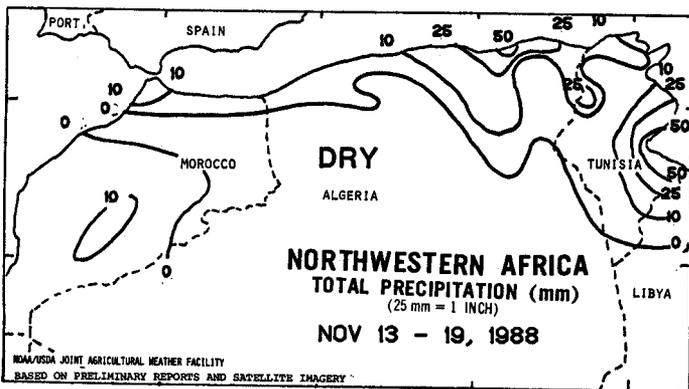
NORTHWESTERN AFRICA ... Dry weather returns to Moroccan winter grain areas. Mostly light showers cover Algeria and Tunisia, where more rain is needed for winter grain planting.



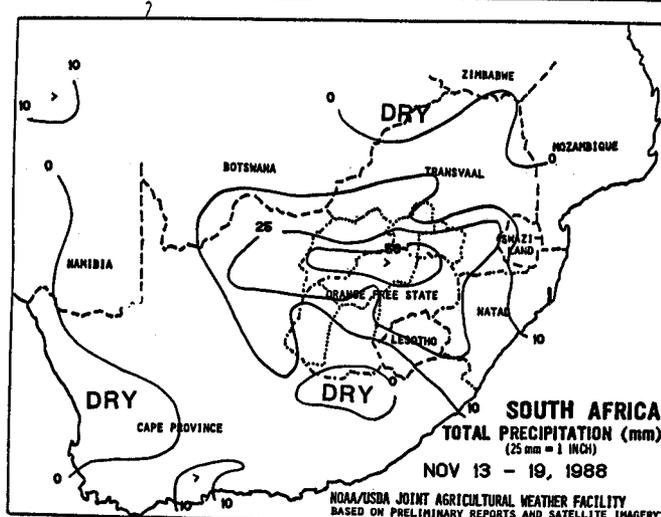
WESTERN USSR ... The fifth consecutive week of unseasonable cold weather kept winter grains dormant. Average weekly temperatures ranged from 2 to 4 degrees Celsius (C) below normal in the south but were only slightly below normal (around 1 degrees C) in the north. Extreme cold was confined to winter grain areas in the extreme eastern Ukraine, the Volga, the eastern Black Soils Region, and the Volga Vyatsk, where lowest temperatures ranged from -10 to -15 degrees C. Precipitation was widespread, with heaviest amounts (20-40mm) covering the western Ukraine, Belorussia, the Central Region, and the western North Caucasus. The precipitation in these areas fell mostly as snow except in the western North Caucasus where rain occurred.



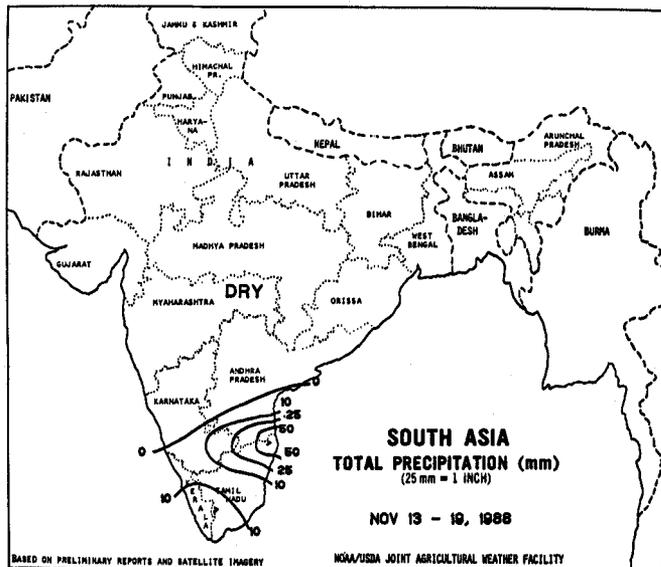
EUROPE ... Mostly dry, warmer-than-normal weather covered the Iberian Peninsula, favoring progress in late winter grains planting and rapid germination and establishment of recently planted crops. Scattered light to moderate rain (5-20mm) benefited establishing to hardening winter crops across the remainder of western Europe. Temperatures moderated to above-normal values across all but eastern crop areas, where below-normal temperatures persisted for the fourth consecutive week. In the north, scattered moderate to heavy rain and snow (10-25mm, with isolated amounts greater than 25mm) fell over sections of West and East Germany, Poland, and Czechoslovakia. Beneficial light to moderate rain (5-20mm) across southeastern Europe helped increase soil moisture levels in southern Italy and much of the southern Balkans.



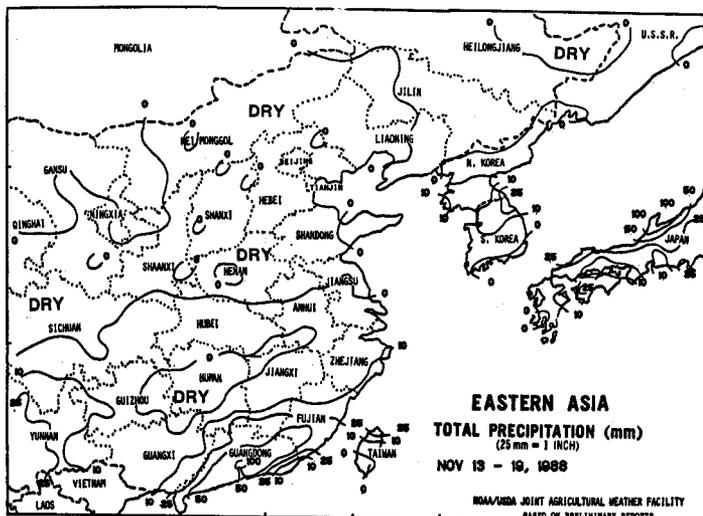
NORTHWESTERN AFRICA ... Following last week's abundant precipitation, dry weather returned to Moroccan winter grain areas. The dry weather helped planting operations, but widespread followup rains are needed for early plant establishment. Persistent dryness continued over northwestern Algeria where winter grain planting delays likely continued. Light precipitation covered winter grain areas in central and eastern Algeria, and northern Tunisia. Greatest amounts (10-25mm) occurred along coastal crop areas, helping to initiate planting. Precipitation amounts (less than 10mm) in southern areas were not sufficient to promote planting. Significant rain (25-79mm) over southeastern Tunisia fell outside the principal winter grain areas.



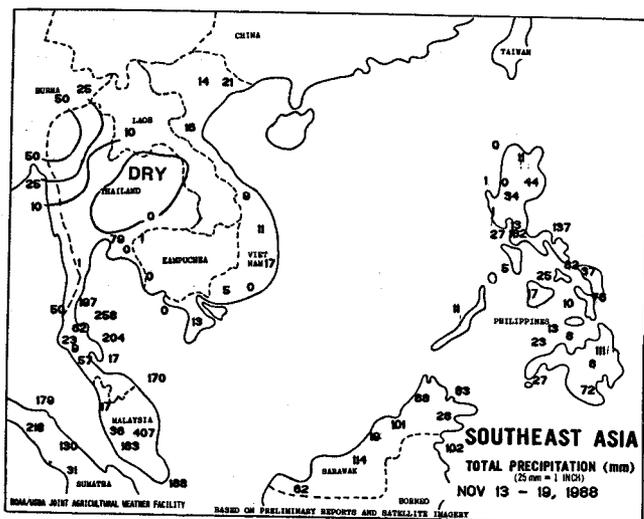
SOUTH AFRICA ... Moderate to heavy showers (10-50mm or more) returned to the Maize Triangle, maintaining favorable soil moisture levels for newly planted corn but causing fieldwork delays. Heaviest rainfall (50-62mm) occurred across the central Triangle. Temperatures over the primary corn areas continued unseasonably cold, ranging from 1 to 5 degrees C below normal. Elsewhere in South Africa, mostly dry weather covered the Transvaal north of the Triangle as light to moderate rain (4-18mm) covered crop regions of the Cape Province and Natal. Warmer weather is needed across the region to stimulate early corn growth.



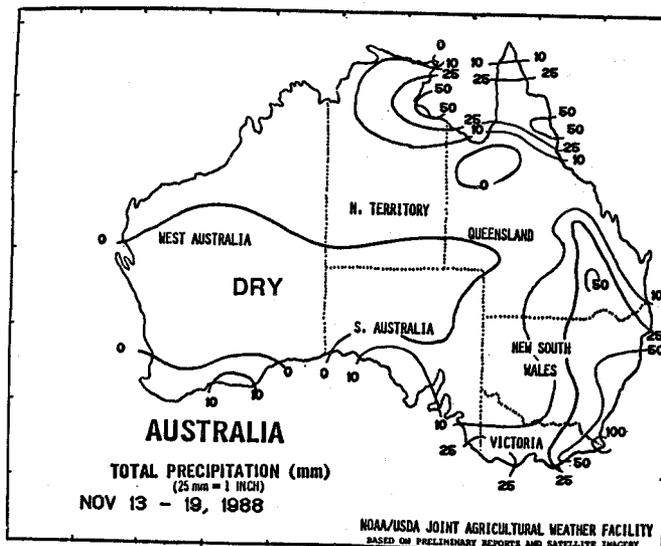
SOUTH ASIA ... Locally heavy rain (79mm) continued over northeastern Tamil Nadu, but light rain (1-25mm) fell elsewhere over India's southern tip. Dry, warm weather elsewhere across South Asia benefited maturing crops and, to the north, wheat planting. Cotton in southern India ranged from boll forming to mature.



EASTERN ASIA ... Heavy rain (25-75mm, with isolated amounts greater than 75mm) continued to cause extensive delays in late double-crop rice harvest across sections of eastern Guangxi, Guangdong, southern Fujian, and Taiwan, although beneficial drier weather developed by week's end. Heavy rain (25-75mm) also fell across sections of the eastern Korean Peninsula and northern Honshu in Japan. Scattered light showers covered sections of the Yangtze Valley, while the North China Plain remained mostly dry. Above-normal mean temperatures continued to accelerate rates of fall establishment of winter crops across the North China Plain, although unfavorably dry soils may have caused stress in nonirrigated crops in Shandong.

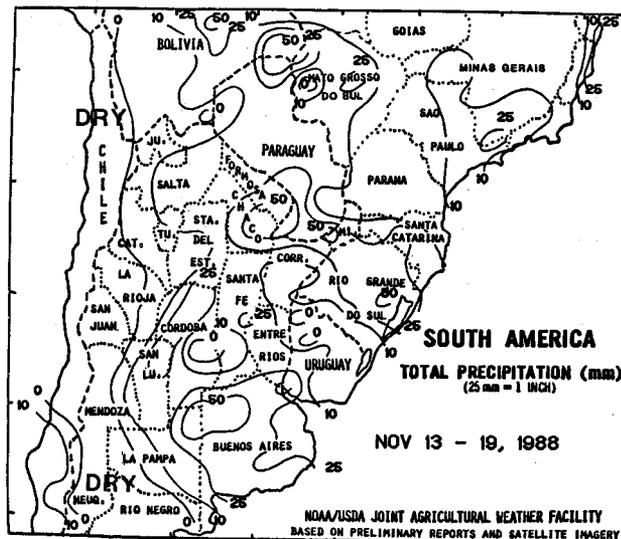


SOUTHEAST ASIA ... Moderate to heavy showers (25-85mm) fell over northern Thailand, but dry weather continued over central and eastern areas, benefiting mature crops. Light rain (5-21mm) fell along Vietnam's coast. Heavy rain (100-200mm or more) returned to much of the Malay Peninsula, causing local flooding. Variable showers (25-100mm or more) fell elsewhere in Malaysia and Indonesia, boosting irrigation reserves for rice planting which is usually underway by December. In the Philippines, locally heavy showers (100-182mm) continued over the east-central islands, but elsewhere, seasonably drier weather brought relief to areas hit hard by recent weeks of excessive rain.



AUSTRALIA ... A strong center of low pressure brought scattered moderate to heavy rain (10-50mm, with isolated amounts in excess of 50mm) to sections of South Australia, Victoria, New South Wales, and southeastern Queensland, causing delays in winter grain harvest but benefiting recently planted summer crops. Wheat and barley harvests are now in full swing across most southern growing areas. Cooler air behind the system brought the first below-normal mean temperatures to southern and eastern crop areas since early August. In Western Australia, scattered light showers fell in coastal areas of the southwest, while interior crop areas turned seasonably dry. Seasonal rainfall in growing areas of Western Australia normally diminishes rapidly during the spring months of September and October.

SOUTH AMERICA ... In Argentina, substantial rain (20-50mm) moistened most summer crop areas, including the northern cotton areas. Locally heavier showers (50-78mm) soaked topsoils in northwestern Buenos Aires, northeastern La Pampa, and southern portions of Chaco and Formosa. The much needed moisture helped crop planting and establishment. Lighter rain fell in the important crop areas of southeastern Cordoba and southern Santa Fe, leaving topsoils in need of additional moisture for corn and soybean emergence. In south-central Brazil, additional rain (25-40mm) favored soybean germination in Rio Grande do Sul, while some beneficial but scattered showers (10-27mm) fell in Mato Grosso do Sul. Light showers (less than 10mm) fell in Parana, where soybean planting has fallen behind average due to dryness. Topsoil moisture remains unfavorably low for crop establishment in Parana and Mato Grosso do Sul. Weekly temperatures averaged 3-4 degrees C above normal in most summer crop areas.



Pacific Temperatures and Global Weather Conditions

Just as ENSO (El Nino-Southern Oscillation) conditions in the Equatorial Pacific are associated with weather anomalies worldwide, El Nino's opposite, sometimes referred to as La Nina, also has global repercussions.

A study by Climate Analysis Center scientists, C. Ropelewski and M. Halpert, has identified those areas of the world most likely to be affected by rainfall anomalies during or following these cold phases of the Southern Oscillation. Cooler-than-normal sea surface temperatures in the Equatorial Pacific and high pressure over the Southeast Pacific near Tahiti and low pressure to the west near Darwin, Australia, characterize this phase.

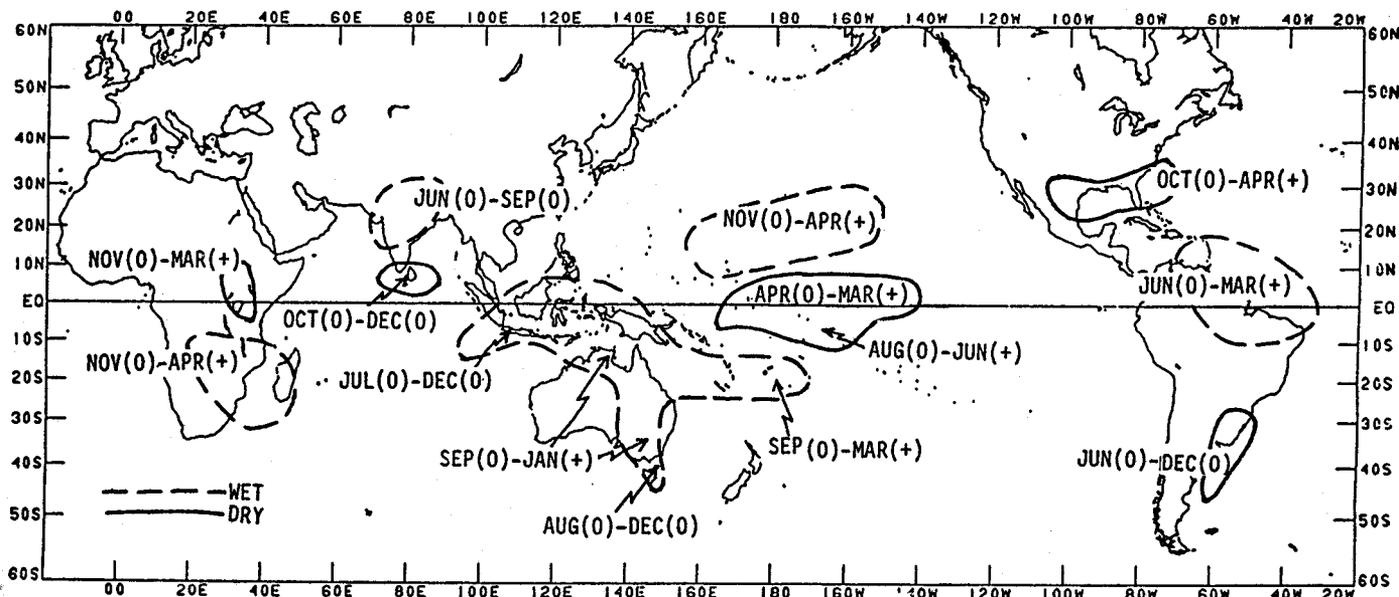
The study, entitled "Precipitation Patterns Associated with the High Index Phase of the Southern Oscillation," will be published in a forthcoming Journal of Climate. As shown in the accompanying map, the article depicts the regions, the nature of the anomaly, and the most likely months of the occurrence.

Pacific data indicate that the current cold phase is the strongest since the mid-1970's. The map suggests that some of the rainfall anomalies already seen these past few months --wetness in southern Africa and dryness in southern India, Brazil, and Argentina--are related to the Southern Oscillation.

The areas shown are nearly identical to the corresponding El Nino areas (Weekly Weather and Crop Bulletin, Mar. 3, 1987, Vol. 74, No. 9).^{1/} As expected, the sign of the precipitation anomaly is the opposite with the cold phase.

^{1/} For other articles on El Nino see Weekly Weather and Crop Bulletin, Feb. 24, 1987, Vol. 74, No. 8 and May 19, 1987, Vol. 74, No. 20.

REGIONS LIKELY TO EXPERIENCE ANOMALOUS PRECIPITATION DURING THE HIGH INDEX PHASE OF THE SOUTHERN OSCILLATION



Note: An "0" in parentheses after the month indicates the month of the same year as the high index phase of the Southern Oscillation began; a "+" indicates the following year. For the event currently in progress, "0" is 1988 and "+" is 1989.

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(Continued from p. 11)

SATURDAY...The second major storm of the week spread rain from the southern Plains to the northern and mid-Atlantic coasts. Heavy rain continued over the middle and lower Mississippi Valley and moved eastward, causing extensive flooding from Mississippi to Kentucky. Severe thunderstorms spawned tornadoes from eastern Texas into the Tennessee Valley. Snow fell from the Texas Panhandle into Missouri and continued across the north-central States. An approaching cold front brought more rain into the Pacific Northwest.

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