

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

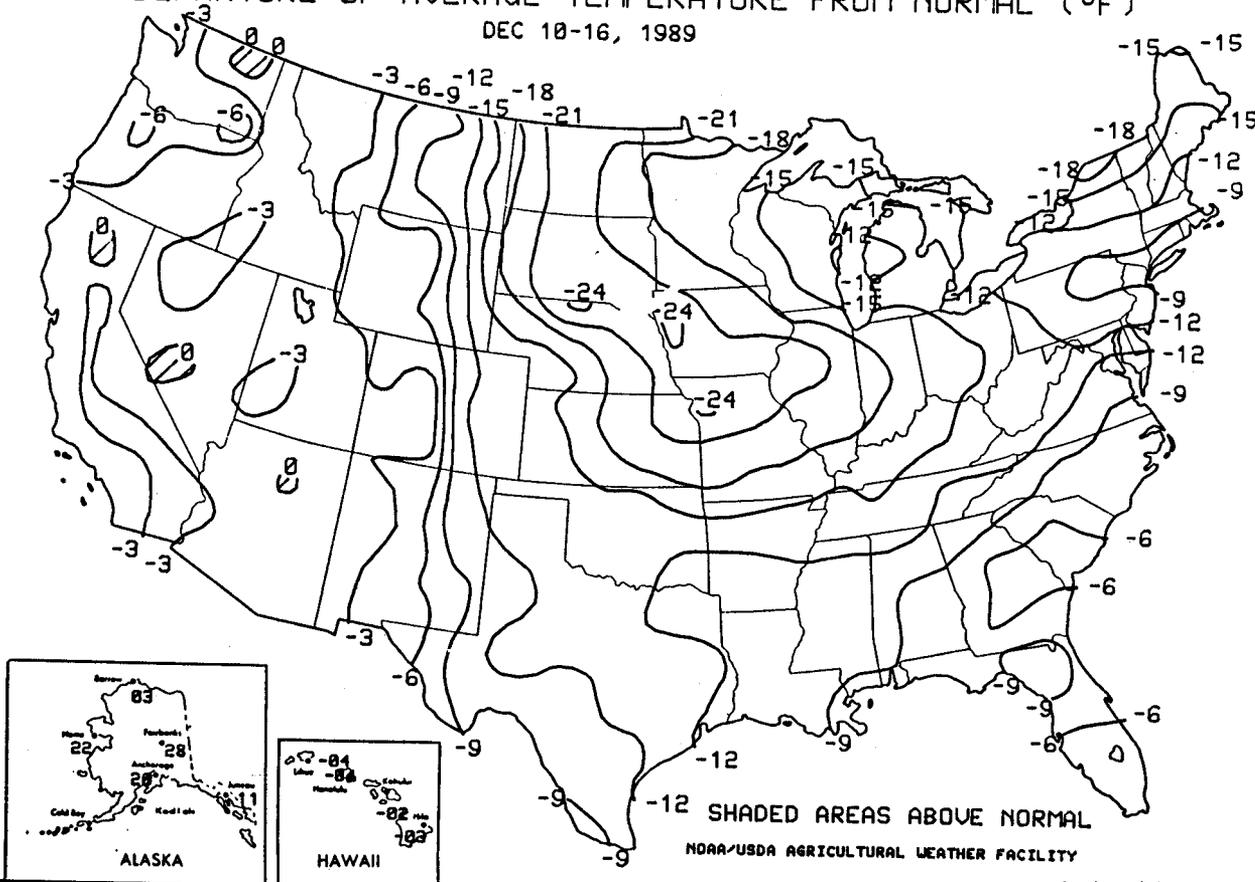
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DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

DEC 10-16, 1989



Based on preliminary reports

HIGHLIGHTS

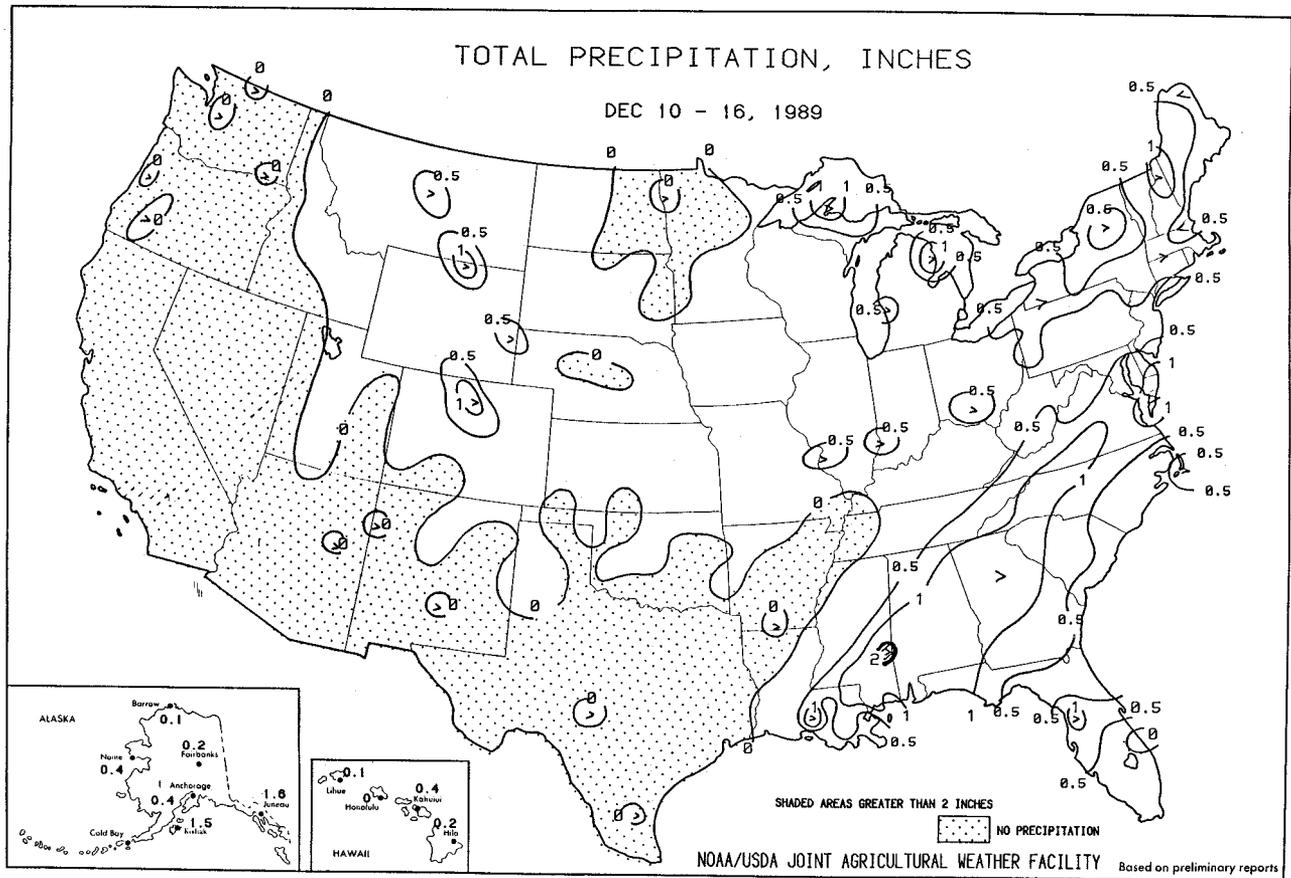
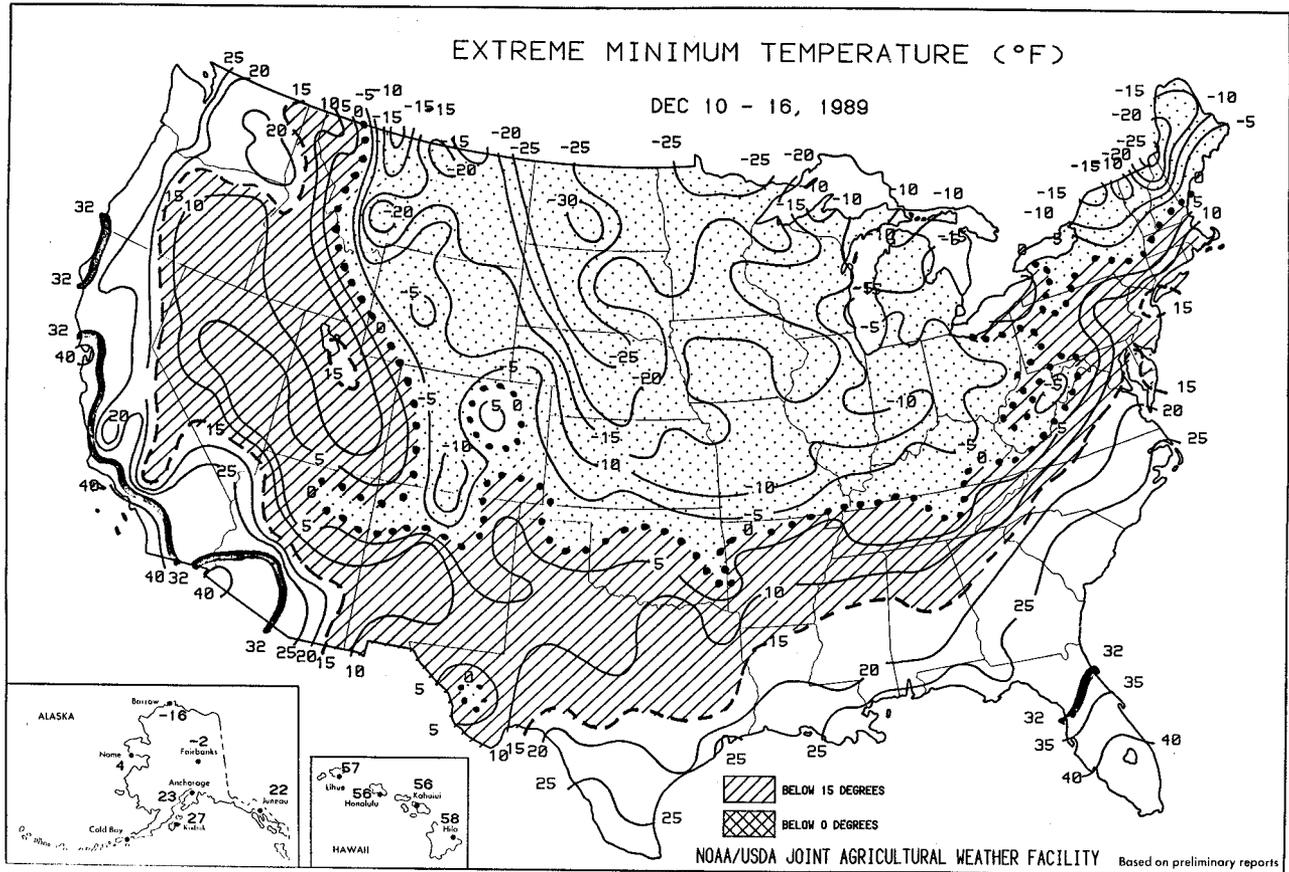
December 10-16, 1989

Bitter polar air invaded the eastern two-thirds of the Nation, where freezing temperatures reached into the lower Rio Grande Valley, southern California, and northern Florida. Temperatures averaged as much as 24 degrees Fahrenheit below normal in the Missouri Valley, as much of the central United States remained in a deep freeze. At the first of the week, a frontal system spread beneficial snow over the winter wheat in the central Plains and middle Mississippi Valley. The system then brought heavy rain across the Southeast and additional snow over the Appalachians and middle Atlantic States. Arctic air plunged into the eastern half of the country behind the system. On Wednesday morning, Brownsville, TX, had a record-low temperature of 30 (Continued to p. 7)



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National Weather Data for Selected Cities

Weather Data for the Week Ending December 16, 1989

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	TEMPERATURE		PRECIPITATION		
																90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE	
AL BIRMINGHAM	.47	26	58	12	36	-10	.8	-.4	.5	1.9	79	59.7	115	84	47	0	6	2	0	
MOBILE	57	32	69	23	44	-9	1.4	-.9	.9	4.0	146	60.7	98	91	48	0	6	2	0	
MONTGOMERY	53	29	68	19	41	-8	1.3	-.8	1.1	5.1	214	70.6	152	83	48	0	4	2	1	
AK ANCHORAGE	39	28	46	23	34	19	.3	0	.1	.4	63	26.6	186	97	63	0	5	4	0	
BARROW	-6	-13	7	-16	-9	3	T	0	T	.1	129	7.2	161	84	68	0	7	1	0	
FAIRBANKS	27	10	38	-2	19	28	.2	.1	.1	.2	58	10.0	99	96	78	0	7	4	0	
JUNEAU	42	35	46	22	38	11	2.5	1.5	1.2	3.3	133	49.0	97	100	90	0	1	4	2	
KODIAK	42	33	46	27	38	8	1.5	.3	.7	7.5	264	56.7	98	97	75	0	3	4	2	
NOME	31	21	35	4	26	21	.4	.2	.2	.6	172	20.5	144	100	80	0	7	3	2	
AZ PHOENIX	65	40	71	36	53	-1	0	0	0	0	0	4.6	71	34	12	0	0	0	0	
PRESCOTT	53	20	59	11	37	-1	0	0	0	0	0	9.4	52	45	16	0	7	0	0	
TUCSON	65	33	75	26	49	-3	0	0	0	0	0	6.3	60	32	10	0	2	0	0	
YUMA	65	45	71	40	55	-2	0	0	0	0	0	7.2	319	34	13	0	0	0	0	
AR FORT SMITH	42	16	62	5	29	-13	0	0	0	0	0	7.2	319	34	13	0	0	0	0	
LITTLE ROCK	43	20	61	6	32	-12	0	0	0	.2	11	46.9	122	81	32	0	7	0	0	
CA BAKERSFIELD	57	31	65	26	44	-4	0	0	0	.2	7	47.5	101	62	42	0	6	0	0	
EUREKA	55	38	60	36	47	-2	0	0	0	0	0	2.9	55	88	38	0	5	0	0	
FRESNO	56	32	62	28	44	-1	0	0	0	.6	19	25.3	72	93	66	0	0	0	0	
LOS ANGELES	67	48	74	46	58	0	0	0	0	0	0	6.9	72	99	51	0	5	0	0	
REDDING	65	31	71	24	48	1	0	0	0	0	0	4.2	38	78	31	0	0	0	0	
SACRAMENTO	55	31	61	29	43	-3	0	0	0	0	0	29.6	79	82	23	0	5	0	0	
SAN DIEGO	67	47	73	42	57	-1	T	T	T	0	0	15.1	98	100	54	0	5	0	0	
SAN FRANCISCO	60	41	62	38	50	1	0	0	0	0	0	2.7	30	78	29	0	0	0	0	
CO DENVER	30	11	41	5	21	-12	.6	.5	.4	.6	190	15.3	103	83	48	0	7	4	0	
GRAND JUNCTION	36	15	40	8	25	-4	.1	-.1	.1	.1	29	5.6	74	67	33	0	7	1	0	
PUEBLO	32	8	47	-5	20	-13	.1	-.1	.1	.5	276	7.3	69	92	53	0	7	3	0	
CT BRIDGEPORT	34	19	38	11	26	-8	.2	-.7	.2	.2	12	49.9	126	69	44	0	7	1	0	
HARTFORD	29	13	38	3	21	-9	.7	-.3	.4	.7	32	53.9	128	74	40	0	7	2	0	
DC WASHINGTON	34	22	38	15	28	-11	.5	-.2	.3	.8	50	49.0	132	90	59	0	7	3	0	
FL APALACHICOLA	60	37	72	31	49	-7	1.0	-.2	.6	4.6	261	55.9	105	94	53	0	1	2	1	
DAYTONA BEACH	64	40	77	34	52	-8	.2	-.3	.2	1.5	133	42.2	89	91	49	0	0	1	0	
JACKSONVILLE	62	34	75	29	48	-8	.5	-.1	.5	1.5	127	49.5	99	95	42	0	2	1	0	
KEY WEST	73	60	80	55	66	-5	.8	-.4	.5	1.1	113	30.6	79	93	65	0	0	2	1	
MIAMI	74	54	81	47	64	-5	.3	-.1	.1	.3	32	42.3	75	91	61	0	0	3	0	
ORLANDO	66	44	78	37	55	-7	.6	-.2	.6	2.1	220	43.2	89	89	49	0	0	1	1	
TALLAHASSEE	59	30	69	22	44	-9	.5	-.5	.3	2.1	94	61.1	98	98	49	0	6	2	0	
TAMPA	67	44	76	36	56	-6	.9	-.4	.5	2.4	222	41.3	91	90	48	0	0	2	1	
WEST PALM BEACH	73	50	80	44	62	-6	.1	-.4	.1	.2	13	36.8	63	92	57	0	0	1	0	
GA ATLANTA	48	29	57	15	39	-6	1.2	-.3	1.2	3.4	163	62.1	134	80	47	0	4	3	1	
AUGUSTA	53	32	61	25	42	-5	.7	0	.7	3.5	230	48.0	117	91	47	0	5	2	1	
MACON	54	31	65	21	42	-7	1.4	-.5	1.4	6.1	309	48.7	114	92	46	0	4	2	1	
SAVANNAH	57	34	63	29	46	-6	.2	-.4	.2	3.2	237	44.7	92	88	42	0	2	2	1	
HI HILO	77	60	81	58	69	-3	.2	-.2	1.4	1.9	161.9	133	83	49	0	0	1	0	0	
HONOLULU	79	62	81	56	71	-4	0	0	0	1.3	77	22.9	106	81	39	0	0	0	0	
KAHULUI	77	66	79	56	72	-2	.4	-.2	.3	3.4	271	39.2	234	82	50	0	0	2	0	
LIHUE	75	62	79	57	69	-4	.1	-.2	1.6	58	54.4	133	76	52	0	0	1	0	0	
ID BOISE	41	18	48	13	29	-3	0	0	0	1	16	10.5	97	90	45	0	7	0	0	
LEWISTON	40	-29	45	24	35	-1	0	0	0	1	15	13.4	110	81	60	0	6	0	0	
POCATELLO	35	18	43	5	26	-1	.1	-.2	0	1	11	9.5	94	86	52	0	7	2	0	
IL CHICAGO	20	4	35	-8	12	-16	.1	-.5	0	1	8	29.1	88	84	54	0	7	4	0	
MOLINE	16	-3	33	-16	6	-21	.2	-.2	.2	.2	24	31.4	87	88	61	0	7	3	0	
PEORIA	15	-2	35	-14	7	-22	.4	0	.4	.4	40	22.1	65	87	62	0	7	4	0	
QUINCY	18	0	36	-14	9	-22	.1	-.3	0	1	15	17.7	48	83	58	0	7	4	0	
ROCKFORD	17	-1	32	-16	8	-18	.1	-.3	0	1	11	25.8	72	86	60	0	7	4	0	
SPRINGFIELD	20	3	45	-11	11	-20	.1	-.4	0	1	9	27.6	83	86	59	0	7	2	0	
IN EVANSVILLE	27	10	43	-6	19	-17	.2	-.6	0	.3	15	46.3	116	92	54	0	7	2	0	
FORT WAYNE	22	5	38	-9	13	-17	.2	-.4	1	.2	18	34.4	103	92	66	0	7	5	0	
INDIANAPOLIS	22	6	34	-12	14	-18	.4	-.3	.3	.5	31	49.1	131	88	57	0	7	4	0	
SOUTH BEND	22	6	36	-7	14	-16	.3	-.4	1	.8	52	35.1	96	96	68	0	7	5	0	
IA DES MOINES	15	-4	28	-12	6	-21	.1	-.1	1	1	25	28.7	95	80	60	0	7	3	0	
SIoux CITY	11	-10	29	-15	0	-24	.2	0	.2	.3	70	19.2	77	77	59	0	7	2	0	
WATERLOO	12	-6	28	-16	3	-20	T	-.2	T	T	5	19.4	60	85	61	0	7	1	0	
KS CONCORDIA	24	-1	41	-16	12	-20	.2	0	.2	.2	38	24.4	91	81	52	0	7	1	0	
DODGE CITY	32	6	44	-8	19	-15	.1	-.1	0	.3	111	20.5	102	87	47	0	7	2	0	
GOODLAND	29	5	44	-8	17	-14	.1	0	1	.2	80	18.0	113	95	53	0	7	3	0	
TOPEKA	21	-2	41	-15	10	-23	.4	1	.4	.2	59	38.2	116	88	56	0	7	2	0	
WICHITA	27	6	41	-10	17	-19	T	-.2	T	T	.3	58	34.6	123	82	50	0	7	1	0
KY BOWLING GREEN	33	14	40	-1	24	-15	.2	-.8	.2	1.0	44	58.2	124	92	62	0	7	1	0	
LEXINGTON	29	12	36	-6	20	-16	.2	-.7	.2	.3	17	51.7	118	89	63	0	7	1	0	
LOUISVILLE	29	14	38	-4	22	-16	.2	-.6	1	.3	17	49.8	120	86	50	0	7	2	0	
LA ALEXANDRIA	54	29	70	20	42	-9	T	-.1	T	.6	24	55.7	112	80	43	0	5	2	0	
BATON ROUGE	56	29	70	21	43	-11	.5	-.7	.3	3.1	123	84.2	158	91	50	0	6	1	0	
LAKE CHARLES	57	31	71	23	44	-10	T	-.1	T	.9	34	59.3	115	88	45	0	5	1	0	
NEW ORLEANS	59	34	74	27	46	-9	.3	-.9	.2	5.2	195	66.4	117	90	49	0	4	2	0	

Based on 1951-80 normals

Weather Data for the Week Ending December 16, 1989

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	
SHREVEPORT	52	26	70	15	39	-10	T	-0.9	T	.2	7	57.7	138	79	30	0	5	0	0	
ME CARIBOU	11	-7	24	-12	2	-15	.4	-0.3	.3	2.1	124	32.6	93	78	57	0	7	5	0	
PORTLAND	25	4	31	-3	14	-12	.4	-0.7	.4	1.3	56	40.7	99	79	38	0	7	1	0	
MD BALTIMORE	33	18	36	12	25	-12	.6	-0.2	.3	1.3	71	50.8	127	93	67	0	7	3	0	
SALISBURY	36	19	47	13	27	-12	1.5	.7	1.0	2.3	122	53.2	122	99	71	0	7	4	1	
MA BOSTON	31	17	36	10	24	-10	.2	-0.8	.2	.3	13	41.8	101	60	36	0	7	2	0	
CHATHAM	34	21	41	14	27	-8	.5	-0.6	.5	.5	21	45.7	103	76	51	0	7	2	1	
MI ALPENA	21	2	29	-8	12	-13	.9	-0.4	.5	1.0	100	21.4	77	89	69	0	7	4	0	
DETROIT	25	8	35	0	16	-13	.2	-0.4	.1	.3	21	28.3	96	92	68	0	7	4	0	
FLINT	22	6	33	-3	14	-14	.2	-0.3	.1	.1	19	30.4	109	89	69	0	7	4	0	
GRAND RAPIDS	23	6	33	-5	14	-14	.2	-0.4	.1	.4	29	33.3	103	85	60	0	7	3	0	
HOUGHTON LAKE	20	4	28	-7	12	-12	.1	-0.4	0	.2	18	19.5	72	88	65	0	7	2	0	
LANSING	22	5	32	-2	14	-14	.1	-0.5	.1	.2	17	30.1	105	89	65	0	7	2	0	
MARQUETTE	14	-1	23	-11	6	-13	.8	.2	.3	1.6	123	28.7	80	98	75	0	7	6	0	
MUSKOGON	24	13	37	-1	19	-11	.6	0	.2	.7	52	24.7	82	88	58	0	7	6	0	
SAULT ST. MARIE	12	-5	28	-10	3	-17	.2	-0.4	.1	1.0	73	25.2	79	81	55	0	7	2	0	
MN ALEXANDRIA	7	-8	16	-20	-1	-16	T	-0.2	T	T	5	20.9	86	87	68	0	7	1	0	
DULUTH	7	-11	14	-22	-2	-17	.1	-0.2	.1	.2	31	25.9	90	82	58	0	7	2	0	
INT'L FALLS	0	-18	10	-28	-9	-19	.1	-0.2	.1	.2	43	20.7	87	81	61	0	7	1	0	
MINNEAPOLIS	10	-3	20	-13	3	-17	.1	-0.1	0	.1	19	23.0	89	78	55	0	7	5	0	
ROCHESTER	9	-6	23	-15	2	-17	.1	-0.1	.1	.1	20	23.1	83	83	63	0	7	2	0	
MS GREENWOOD	48	23	62	15	36	-11	T	-1.2	T	.6	22	61.1	121	84	41	0	6	1	0	
JACKSON	53	25	67	17	39	-10	.1	-1.1	.1	2.1	79	50.5	103	90	46	0	6	2	0	
MERIDIAN	52	25	69	15	39	-10	1.1	-0.2	.8	4.4	155	68.0	135	88	47	0	6	2	1	
MO CAPE GIRARDEAU	32	11	49	-2	21	-	T	-0.9	T	.1	3	48.3	113	85	47	0	7	0	0	
COLUMBIA	23	3	49	-11	13	-21	.2	-0.3	.1	.2	23	34.2	95	86	52	0	7	5	0	
KANSAS CITY	19	-2	40	-16	9	-26	.2	-0.1	.1	.3	38	37.4	106	87	59	0	7	2	0	
SAINT LOUIS	25	9	48	-8	17	-18	.3	-0.3	.2	.3	28	28.3	86	82	48	0	7	3	0	
SPRINGFIELD	31	7	57	-9	19	-18	.1	-0.5	.1	.5	35	31.2	81	81	47	0	7	1	0	
MT BILLINGS	29	9	36	-9	19	-9	.5	-0.3	.2	.7	189	14.8	102	85	62	0	7	4	0	
GLASGOW	19	-4	33	-15	8	-10	.1	.1	0	.2	107	10.1	95	88	67	0	7	6	0	
GREAT FALLS	32	12	40	-18	22	-5	.4	.2	.2	.5	129	21.8	150	90	65	0	7	5	0	
HAVRE	27	2	33	-21	14	-6	T	-1	T	.7	272	11.9	104	95	70	0	7	0	0	
HELENA	33	16	41	-11	24	0	T	-1	T	.1	32	12.0	107	86	54	0	6	2	0	
KALISPELL	29	17	36	9	23	-2	.2	-0.2	.1	1.5	186	21.4	143	91	72	0	7	6	0	
MILES CITY	19	-2	33	-18	9	-14	.1	0	0	.7	216	14.4	104	87	62	0	7	4	0	
MISSOULA	31	19	39	3	25	-1	.1	-0.2	0	.3	47	13.2	106	93	69	0	7	2	0	
NE GRAND ISLAND	21	-3	39	-16	9	-19	.1	-0.1	.1	.3	75	21.8	96	84	58	0	7	2	0	
LINCOLN	19	-6	34	-16	7	-21	.2	-0.1	.1	.4	126	23.7	89	85	61	0	7	4	0	
NORFOLK	16	-11	33	-21	2	-23	.3	.2	.2	.5	171	16.3	70	90	64	0	7	4	0	
NORTH PLATTE	26	-2	49	-23	12	-15	.1	0	.1	.2	86	14.0	73	88	53	0	7	3	0	
OMAHA	15	-7	31	-15	4	-24	.1	0	0	.3	76	22.2	74	75	53	0	7	4	0	
SCOTTSBLUFF	23	3	36	-9	13	-15	.4	.3	.3	.5	208	9.9	69	88	61	0	7	3	0	
VALENTINE	13	-12	32	-29	1	-24	.1	0	0	.1	74	12.2	72	67	47	0	7	2	0	
NV ELY	41	7	50	1	24	-2	0	-0.2	0	T	5	6.7	78	81	28	0	7	0	0	
LAS VEGAS	57	32	62	24	45	-1	0	-0.1	0	0	0	2.2	57	37	17	0	3	0	0	
RENO	47	16	55	15	32	-1	0	-0.3	0	0	0	7.3	112	86	28	0	7	0	0	
WINNEMUCCA	42	10	47	7	26	-5	0	-0.2	0	.1	33	5.6	77	89	35	0	7	0	0	
NH CONCORD	23	5	32	0	14	-11	.3	-0.5	.3	.5	28	37.9	108	81	42	0	7	2	0	
NJ ATLANTIC CITY	37	14	47	3	25	-12	.5	-0.3	.3	1.0	51	49.8	125	92	57	0	7	4	0	
NM ALBUQUERQUE	45	21	59	12	33	-3	.2	0	.2	.3	100	5.0	65	63	29	0	7	1	0	
CLOVIS	43	15	66	4	29	-11	T	-1	T	.5	172	14.6	87	69	28	0	7	1	0	
ROSWELL	48	18	74	8	33	-8	T	-1	T	0	6.2	60	57	19	0	7	0	0		
NY ALBANY	24	7	34	-1	16	-12	.3	-0.4	.2	.4	27	39.4	116	87	50	0	7	3	0	
BINGHAMTON	23	11	29	2	17	-10	.7	0	.6	.9	57	38.0	107	90	64	0	7	3	1	
BUFFALO	25	13	33	2	19	-11	.9	.1	.4	1.2	64	40.0	112	94	63	0	7	7	0	
NEW YORK	35	24	42	16	29	-7	.2	-0.7	.2	.2	10	54.0	132	71	45	0	7	2	0	
ROCHESTER	24	13	34	-4	19	-11	.6	0	.3	1.0	70	32.2	107	90	63	0	7	6	0	
SYRACUSE	24	7	34	0	16	-13	.2	-0.5	.1	.6	32	35.4	95	91	63	0	7	3	0	
NC ASHEVILLE	37	21	46	7	29	-11	.7	0	.7	2.5	152	59.7	141	96	64	0	6	2	1	
CHARLOTTE	43	28	51	21	36	-7	.8	.1	.8	2.4	143	48.6	118	85	59	0	5	3	1	
GREENSBORO	39	24	48	17	32	-9	1.2	.4	1.1	2.5	149	49.5	122	89	63	0	7	2	1	
HATTERAS	51	33	57	30	42	-8	.6	-0.4	.3	4.1	182	88.3	165	96	64	0	4	3	0	
NEW BERN	48	29	55	25	38	-9	.2	-0.7	.1	3.9	213	61.7	120	96	56	0	6	3	0	
RALEIGH	41	27	52	19	34	-9	.6	-0.1	.5	2.5	161	53.2	133	93	60	0	6	3	0	
WILMINGTON	51	29	62	26	40	-9	.4	-0.3	.2	5.4	307	64.9	126	97	61	0	6	3	0	
ND BISMARCK	5	-16	19	-32	-6	-22	.1	0	.1	.2	64	11.2	75	82	63	0	7	2	0	
FARGO	3	-10	11	-20	-4	-18	T	-1	T	.1	16	19.0	100	82	66	0	7	0	0	
GRAND FORKS	2	-13	8	-21	-5	-18	T	-1	T	.1	19	11.5	64	84	55	0	7	1	0	
WILLISTON	11	-14	28	-27	-2	-18	.1	0	.1	.2	68	11.3	85	85	63	0	7	2	0	
OH AKRON-CANTON	24	11	31	-2	17	-14	.4	-0.2	.3	.6	46	37.9	110	92	65	0	7	4	0	
CINCINNATI	25	12	35	-8	19	-16	.3	-0.4	.3	.5	34	48.2	125	87	56	0	7	1	0	
CLEVELAND	25	12	33	0	19	-14	.5	-0.1	.3	.8	57	43.0	127	89	64	0	7	6	0	
COLUMBUS	24	11	34	-7	17	-15	.3	-0.3	.2	.6	43	42.6	120	92	65	0	7	4	0	

Weather Data for the Week Ending December 16, 1989

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
DAYTON	22	8	32	-7	15	-17	.4	-.2	.3	.8	60	48.3	145	96	67	0	7	4	0
TOLEDO	24	5	36	-6	14	-15	.2	-.4	.1	.3	22	36.5	121	90	64	0	7	4	0
YOUNGSTOWN	25	12	31	0	18	-12	.2	-.3	.3	.6	41	42.4	119	91	66	0	7	3	0
OK OKLAHOMA CITY	38	17	50	3	27	-13	T	T	T	.2	30	40.7	135	75	39	0	7	1	0
TULSA	36	15	56	-1	25	-15	T	T	T	.2	16	29.6	78	74	37	0	7	0	0
OR ASTORIA	48	32	51	30	40	-4	T	T	T	6.7	112	54.6	85	96	69	0	5	0	0
BURNS	39	10	45	6	25	-3	0	0	0	.1	8	9.4	100	96	51	0	0	0	0
MEDFORD	46	24	55	22	36	-3	T	T	T	.7	37	14.8	83	98	60	0	7	1	0
PENDLETON	36	22	42	17	29	-7	T	T	T	.1	16	12.4	110	94	71	0	7	0	0
PORTLAND	43	31	48	28	37	-4	T	T	T	2.6	82	28.8	85	99	74	0	5	0	0
SALEM	41	30	47	24	35	-6	T	T	T	3.7	103	27.5	75	100	81	0	5	0	0
PA ALLENTOWN	30	18	36	12	24	-8	.2	-.7	.1	.3	15	44.0	104	84	55	0	7	2	0
ERIE	28	18	32	8	23	-9	.9	-.2	.4	1.6	87	40.8	106	88	58	0	7	6	0
HARRISBURG	31	18	36	9	24	-10	.3	-.5	.2	.4	23	45.7	122	88	57	0	7	3	0
PHILADELPHIA	34	19	42	13	26	-10	.2	-.6	.1	.6	32	48.1	122	84	53	0	7	3	0
PITTSBURGH	25	13	31	-2	19	-13	.7	-.1	.6	1.0	77	41.1	117	89	66	0	7	3	1
SCRANTON	28	16	33	7	22	-8	.2	-.4	.2	.2	16	38.2	114	86	53	0	7	1	0
RI PROVIDENCE	32	17	41	11	25	-8	.6	-.4	.2	.8	32	55.0	128	64	37	0	7	2	0
SC CHARLESTON	57	34	64	30	45	-5	.5	-.2	.5	2.8	189	53.5	107	88	43	0	3	2	0
COLUMBIA	52	31	60	27	42	-5	.9	-.2	.9	4.5	266	51.0	108	93	55	0	5	2	1
FLORENCE	52	29	58	26	40	-7	.4	-.3	.4	3.5	244	50.3	119	91	48	0	5	1	0
GREENVILLE	42	28	46	20	35	-9	1.1	-.2	1.0	3.5	173	49.2	101	85	61	0	5	2	1
SD ABERDEEN	6	-10	15	-20	-2	-19	T	T	T	.2	16	18.4	106	86	64	0	7	1	0
HURON	9	-11	20	-19	-1	-21	T	T	T	.1	63	14.5	79	61	0	7	1	0	0
RAPID CITY	17	-5	34	-25	6	-21	T	T	T	.6	256	13.4	84	89	71	0	7	4	0
SIoux FALLS	9	-9	21	-17	0	-21	T	T	T	.2	54	15.7	87	82	60	0	7	1	0
TN CHATTANOOGA	42	23	50	8	33	-9	.7	-.5	.4	1.6	61	69.7	139	88	53	0	7	3	0
KNOXVILLE	38	23	45	6	30	-11	.6	-.4	.4	1.1	48	54.5	122	88	63	0	7	3	0
MEMPHIS	42	20	58	7	31	-13	T	T	T	.2	9	57.1	117	80	47	0	7	0	0
NASHVILLE	36	17	44	2	27	-15	.1	-1.0	0	.3	14	55.4	121	87	55	0	6	2	0
TX ABILENE	49	21	79	9	35	-12	0	-.2	0	.2	33	27.6	121	65	20	0	6	0	0
AMARILLO	37	13	52	3	25	-13	.1	0	-.1	.5	180	19.5	104	78	34	0	7	1	0
AUSTIN	56	26	74	16	41	-12	T	T	T	.1	6	25.8	85	74	28	0	6	0	0
BEAUMONT	58	33	70	21	45	-9	T	T	T	2.8	109	65.8	125	89	44	0	4	0	0
BROWNSVILLE	65	40	77	30	53	-10	T	T	T	1.4	249	20.9	85	87	45	0	2	0	0
CORPUS CHRISTI	61	33	75	24	47	-12	T	T	T	1.5	247	18.8	62	82	38	0	2	0	0
DEL RIO	54	29	67	22	41	-12	0	0	0	.3	81	9.1	54	61	28	0	6	0	0
EL PASO	57	25	73	8	41	-4	0	0	0	0	0	7.1	96	48	16	0	5	0	0
PORT WORTH	49	23	75	12	36	-12	0	0	0	2	39.5	131	69	26	0	6	0	0	0
GALVESTON	57	39	69	29	48	-9	T	T	T	.4	19	41.3	107	83	47	0	1	0	0
HOUSTON	57	28	73	19	42	-13	T	T	T	2	56.5	127	83	36	0	5	0	0	0
LUBBOCK	47	14	85	7	31	-11	T	T	T	.2	79	14.8	86	66	23	0	7	1	0
MIDLAND	50	18	79	10	34	-12	T	T	T	.1	16	8.0	60	66	21	0	6	0	0
SAN ANGELO	51	21	83	11	36	-13	0	-.1	0	.3	30	17.5	99	69	20	0	6	0	0
SAN ANTONIO	55	26	71	17	41	-13	0	-.3	0	.9	45	22.1	78	77	29	0	6	0	0
VICTORIA	59	31	71	20	45	-12	T	T	T	.9	77	25.5	71	81	33	0	4	0	0
WACO	53	24	78	11	38	-12	0	-.4	0	.1	8	28.0	94	69	25	0	6	0	0
WICHITA FALLS	43	18	65	9	30	-14	0	-.3	0	T	2	36.4	140	67	27	0	6	0	0
UT CEDAR CITY	43	14	52	6	28	-3	T	T	T	0	0	6.4	64	89	29	0	7	0	0
SALT LAKE CITY	36	23	40	16	30	-1	.1	-.2	.1	.1	16	10.7	74	87	49	0	7	2	0
VT BURLINGTON	16	0	25	-7	8	-16	.4	-.2	.4	.8	61	35.5	109	87	55	0	7	3	0
VA NORFOLK	41	29	52	23	35	-9	1.0	-.3	.6	3.5	225	57.1	132	95	62	0	6	4	1
RICHMOND	38	24	47	18	31	-10	.9	-.2	.6	2.1	122	49.3	117	89	62	0	6	4	1
ROANOKE	36	18	47	8	27	-12	.8	-.1	.7	1.6	105	53.3	142	91	60	0	5	3	1
WA QUILLAYUTE	43	31	46	27	37	-4	T	T	T	6.7	75	83.1	85	99	81	0	6	0	0
SEATTLE-TACOMA	44	32	47	29	38	-3	0	0	0	4.1	127	34.1	97	98	76	0	4	0	0
SPOKANE	35	22	40	17	28	-1	T	T	T	.8	68	13.9	91	94	67	0	7	0	0
YAKIMA	37	20	46	16	28	-4	T	T	T	.2	31	5.4	77	97	68	0	7	0	0
WV BECKLEY	29	14	39	-2	22	-13	.5	-.2	.3	1.1	67	42.3	104	96	61	0	7	2	0
CHARLESTON	32	19	43	2	25	-12	.2	-.6	.1	.5	29	56.6	140	91	62	0	7	2	0
HUNTINGTON	31	17	39	-1	24	-14	.2	-.5	.2	.6	38	58.3	149	90	59	0	7	2	0
PARKERSBURG	28	13	34	-4	20	-16	.1	-.5	.1	.4	29	51.8	142	92	65	0	7	1	0
WI GREEN BAY	17	2	30	-13	10	-12	.3	0	.2	.3	43	20.2	74	79	56	0	7	3	0
LACROSSE	13	-2	29	-13	6	-17	.3	0	.3	.3	46	22.8	77	82	56	0	7	2	0
MADISON	18	1	32	-8	9	-14	T	T	T	T	4	24.2	81	81	55	0	7	1	0
MILWAUKEE	21	6	33	-4	14	-13	T	T	T	.1	7	30.1	101	75	49	0	7	2	0
WAUSAU	13	-2	26	-10	6	-14	.2	-.1	.1	.2	23	22.3	72	86	60	0	7	2	0
WY CASPER	28	7	37	-12	17	-9	.1	-.1	0	.1	56	13.6	124	85	56	0	7	4	0
CHEYENNE	27	7	39	-5	17	-13	.4	-.3	.1	.4	216	12.4	95	93	59	0	7	5	0
LANDER	32	9	47	-4	21	-3	.2	.1	.1	.2	82	15.3	120	82	48	0	7	3	0
SHERIDAN	27	8	34	-15	18	-8	1.2	1.0	.5	1.4	355	14.3	97	94	76	0	7	5	1

Heating Degree Days (Base 65°) For November 1989

States and Stations	TOTAL	Depart	States and Stations	TOTAL	Depart	States and Stations	TOTAL	Depart
AL. Birmingham . . .	358	-29	MD. Baltimore . . .	600	39	OK> OKLA. CITY . . .	386	-100
Mobile . . .	204	-14	MA. Boston . . .	660	66	TULSA . . .	375	-99
Montgomery . . .	301	-6	Chatham . . .	622	28	OR. Astoria . . .	464	-88
AK. Anchorage . . .	1428	129	MI. Alpena . . .	1010	113	Burns . . .	950	68
Barrow . . .	2335	355	Detroit . . .	797	32	Medford . . .	651	9
Fairbanks . . .	2164	331	Flint . . .	864	78	Pendleton . . .	607	-110
Nome . . .	1654	190	Grand Rapids . . .	874	79	Portland . . .	486	-99
AZ. Flagstaff . . .	792	-69	Houghton Lake . . .	1025	122	Salem . . .	523	-86
Phoenix . . .	36	-123	Lansing . . .	934	139	PA. Allentown . . .	680	5
Tucson . . .	107	-97	Marquette . . .	1199	152	Erie . . .	706	-23
Winslow . . .	618	-45	S. Ste. Marie . . .	1099	133	Harrisburg . . .	663	30
Yuma . . .	28	-64	MN. Duluth . . .	1249	145	Philadelphia . . .	594	18
AR. Fort Smith . . .	378	-78	Internatl Falls . . .	1312	109	Pittsburg . . .	723	21
Little Rock . . .	326	-88	Minneapolis . . .	1105	151	Scranton . . .	750	27
CA. Bakersfield . . .	264	-4	Rochester . . .	1132	160	RI. Providence . . .	668	20
Eureka . . .	365	-43	St. Cloud . . .	1198	142	SC. Charleston . . .	169	-93
Fresno . . .	310	-44	MS. Jackson . . .	265	-51	Columbia . . .	283	-56
Los Angeles . . .	44	-95	Meridian . . .	282	-53	Greenville . . .	423	0
Redding . . .	336	-4	MO. Columbia . . .	635	-10	SD. Aberdeen . . .	1085	41
Stockton . . .	331	-20	Kansas City . . .	675	18	Huron . . .	1024	40
San Diego . . .	67	-51	St. Louis . . .	536	-76	Rapid City . . .	847	-56
San Francisco . . .	249	-66	Springfield . . .	546	-51	Sioux Falls . . .	1056	96
CO. Denver . . .	658	-131	MT. Billings . . .	752	-148	TN. Chattanooga . . .	423	-60
Pueblo . . .	676	-68	Glasgow . . .	982	-92	Knoxville . . .	499	13
CO. Bridgeport . . .	648	63	Great Falls . . .	845	-85	Memphis . . .	336	-79
Hartford . . .	715	13	Havre . . .	933	-126	Nashville . . .	408	-84
DC. Washington . . .	507	18	Helena . . .	839	-169	TX. Abilene . . .	286	-75
FL. Apalachicola . . .	121	-33	Kalispell . . .	872	-151	Amarillo . . .	507	-81
Jacksonville . . .	133	-31	Miles City . . .	827	-163	Austin . . .	157	-64
Key West . . .	0	0	Missoula . . .	828	-168	Beaumont . . .	149	-41
Miami . . .	0	-5	NE. Grand Island . . .	786	-36	Brownsville . . .	43	-12
Orlando . . .	27	-20	Lincoln . . .	807	12	Corpus Christi . . .	74	-42
W. Palm Beach . . .	2	-7	Norfolk . . .	906	36	Del Rio . . .	171	-32
Tallahassee . . .	186	-24	North Platte . . .	815	-85	El Paso . . .	344	-64
Tampa . . .	27	-38	Omaha . . .	835	25	Fort Worth . . .	251	-49
GA. Atlanta . . .	318	-76	Valentine . . .	882	-48	Galveston . . .	88	-51
Augusta . . .	282	-56	NV. Ely . . .	898	-35	Houston . . .	160	-41
Macon . . .	280	-19	Las Vegas . . .	224	-122	Lubbock . . .	409	-86
Savannah . . .	191	-49	Reno . . .	688	-71	Midland . . .	341	-44
ID. Boise . . .	759	0	Winnemucca . . .	822	3	San Angelo . . .	284	-42
Lewiston . . .	531	-216	NH. Concord . . .	865	34	San Antonia . . .	165	-34
Pocatello . . .	831	-63	NJ. Atlantic City . . .	617	35	Victoria . . .	109	-41
IL. Chicago . . .	813	57	NM. Albuquerque . . .	551	-79	Waco . . .	227	-38
Moline . . .	785	5	NY. Albany . . .	766	-5	Wichita Falls . . .	318	-78
Peoria . . .	749	-7	Binghamton . . .	875	62	UT. Salt Lake City . . .	729	-30
Rockford . . .	881	56	Buffalo . . .	806	65	VT. Burlington . . .	849	-3
Springfield . . .	683	-4	New York . . .	552	15	VA. Lynchburg . . .	525	-15
Fort Wayne . . .	760	13	Rochester . . .	801	69	Norfolk . . .	356	-37
Indianapolis . . .	718	22	Syracuse . . .	779	47	Richmond . . .	468	-15
South Bend . . .	779	38	NC. Asheville . . .	558	0	Roanoke . . .	560	17
IA. Des Moines . . .	865	73	Charlotte . . .	382	-47	WA. Quillayute . . .	565	-371
Dubuque . . .	917	41	Greensboro . . .	481	-14	Seattle-Tacoma . . .	534	-72
Souix City . . .	956	97	Hatteras . . .	200	-76	Spokane . . .	805	-98
KS. Concordia . . .	660	-57	Raleigh . . .	404	-46	Walla Walla . . .		
Dodge City . . .	623	-52	Wilmington . . .	259	-36	Yakima . . .	694	-110
Goodland . . .	685	-122	ND. Bismark . . .	1066	-26	WV Beckley . . .	652	-32
Topeka . . .	672	3	Fargo . . .	1224	120	Charleston . . .	553	-38
Wichita . . .	578	-43	Williston . . .	1065	-57	Huntington . . .	557	-25
KY. Lexington . . .	592	-11	OH. Akron-Canton . . .	764	44	WI. Green Bay . . .	1000	76
Louisville . . .	539	-28	Cincinnati . . .	630	-18	La Crosse . . .	1000	109
LA. Baton Rouge . . .	177	-41	Cleveland . . .	716	20	Madison . . .	952	61
Lake Charles . . .	165	-39	Columbus . . .	680	-7	Milwaukee . . .	890	59
New Orleans . . .	142	-44	Dayton . . .	713	26	WY Casper . . .	825	-138
Shreveport . . .	244	-49	Toledo . . .	789	18	Cheyenne . . .	779	-127
ME. Caribou . . .	1116	99	Youngstown . . .	772	28	Lander . . .	886	-140
Portland . . .	824	26				Sheridan . . .	843	-132

CORRECTION

This is the corrected version of the text continued from the front page.

(Continued from front cover)
degrees Fahrenheit. During the latter half of the week, another frontal system spread snow from the **northern and central Rockies** to the **middle and northern Atlantic coast**, and rain, freezing rain, and snow across the **Southeast**. At week's end, more snow fell across the **central Plains** and **northern** portions of the **southern Plains**, while bitter polar air settled over much of the country. Fifty-nine stations reported record-low temperatures in the **eastern** half of the **Nation**. Cool, dry conditions prevailed over the **far West**.

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.; mostly under 0.30 in. northwest. Temperatures 10 to 15° below normal; 6 to 8° below normal extreme southeast.

Primary activities: General care of livestock, poultry; turning harvested cropland; repairing, cleaning, storing harvest equipment; harvesting remaining cotton, soybean fields, weather permitting; seeding winter annuals; pruning fruit trees.

ARIZONA: Very cold, dry air dominated early week; clear skies turned cloudy, slight warming late in period. Isolated, light snow north, trace of rain southwest; precipitation none to traces. Temperatures normal to 5° below normal. Extremes 0°; 78°.

Cotton 99% harvested, 98% 1988, 97% avg.; stalk shredding active. Small grains planted 67%, 62% 1988, 46% avg.; stands established 42%, 34% 1988, 15% avg.; good. Sheep grazing on alfalfa continued; crop mostly good except central fair to good. Harvest, packing lemons, oranges, grapefruit, tangerines continued west, central; groves good. Fall lettuce, mixed vegetable harvests continued all areas. Apple packing completed east. Pecan harvest, packing active throughout State.

ARKANSAS: Unusually cold, dry. Light snow latter part of week. Extremes -3°; 60°. Rainfall none to 0.08 in.

Wheat fair to good. Pecan harvest complete. Pastures fair to good. Livestock fair to good. Hay supply good.

CALIFORNIA: High pressure pacific northwest continued dry weather pattern. Circulation around high brought slightly below normal temperatures.

Weather good, fieldwork active entire week. Seeding small grains active. Emerged fields mostly good. Dryland showing some stress, cold, dry weather. Broadleaf herbicides applied. Few late cotton fields harvested. Land preparation next years crop active. Sugarbeet harvest active central areas. Sheep grazed many central, southern alfalfa fields. Rice stubble burned, as air quality regulations permitted. Routine cultural practices: Pruning, spraying, irrigating, fertilizing continued. Deglet Noor date harvest winding down. Avocado harvest continued, wind damage. Navel orange picking gained momentum. Desert grapefruit, lemon, tangerine harvests ongoing. Packing Satsuma mandarins continued. Broccoli continued moderate supply generally good quality. Desert broccoli harvest active. Cauliflower moderate supply, Santa Maria area. Celery moderate supply, generally good quality. Desert lettuce harvest at slow pace. Livestock good, statewide. Range, pasture conditions fair to poor, water supplies very low due to lack of rainfall. Movement to winter feeding areas steady. Supplemental feeding continued.

COLORADO: Continuous snow was brought to most of the mountains with scattered snow showers over

the Eastern Plains. Precipitation a trace to 2.00 in., however, many areas of the mountains received 30.0 to 40.0 in. of snow. Steamboat Springs received 89.0 in. of snow. Due to cold temperatures water content ratio was less than 1/10. Temperatures 1 to 12° below normal with the lowest recorded -13° below zero.

FLORIDA: Cold week; temperatures 7 to 10° below normal north, 5° below central, 1 to 3° below normal extreme south. Freezing temperatures occurred in central areas. Coldest low 20s Panhandle to 40s along lower southeast coast. Warmest temperatures mostly in 70s, upper 60s Panhandle to low 80s south. Panhandle received 1.00 to 2.00 in. rains. Elsewhere 0.50 in. or less with isolated near 1.00 in.

Panhandle soil moisture mostly adequate; Peninsula short to adequate. Rains, Panhandle delayed completion cotton, soybean harvests, winter wheat planting. Sugarcane harvest active. Most cattle northern half of State receiving supplemental feedings, or grazing fair to good winter pastures. Southern Peninsula pastures fair to good. Cattle remain fair to good. Cold temperatures beneficial for citrus trees. Moisture adequate. Fresh harvest active; picking for processing increased all areas. Caretakers prepared for cold temperatures. Cultivation continued. Temperatures continued cool over major vegetable producing areas. Winds limited potential frost damage. Rainfall limited. Planting, harvest active. Volume leaders: Tomatoes, peppers, celery, cucumbers, squash, snap beans, sweet corn. Also available: Cabbage, radishes, lettuce, carrots, eggplant, escarole. Harvest west central fall crops complete.

GEORGIA: Cold week. Temperatures 7 to 13° below normal north, 7 to 10° elsewhere. Warmest from the mid 40s extreme northeast mountains, low and mid 50s remainder north, mid 60s central, low 70s along Florida border. Coldest single digits mountains, middle teens elsewhere north, low 20s central, mid 20s Florida border. Coastal lows no colder 30°. Rain entire State, 1.00 to 2.00 in. except southeast under 1.00 in.

Soil moisture adequate to surplus. Field activities limited, wet soils, rainy damp conditions. Cotton, soybean harvest very little progress. Pecan harvest slowed. Small grain seeding also slow, some fields may not be planted. Wheat, other small grains good. Tobacco bed preparation getting underway. Onion transplanting about 75% complete, supply of transplants short. Pastures fair to good. Cattle, hogs good.

HAWAII: Record low temperatures chilled islands on 15th, 16th. Strong northerly winds up to 30 mph brought temperatures down to 56°. Skies mostly clear with light to moderate showers. Rainfall none to 2.06 in.

Days suitable for farm work 7.0. Papaya production steady. Pineapple harvesting continuous.

IDAHO: Temperatures continued below normal with averages up to 5° below normal. Overnight lows dipped below zero at several locations. Precipitation was very light, spotty statewide.

Very little fieldwork completed, except warmer areas. Marketing grain, potatoes, shopwork, fertilizing were main crop activities. Vaccinating, weighing, selling calves, some calving, lambing, feeding hay. Livestock normal condition for this time of year. Hay, roughage supplies short north, adequate rest of State.

ILLINOIS: Temperatures 19 to 28° below normal north, 19 to 24° below normal south. Precipitation 0.15 in. or less north, 0.10 to 0.50 in. central, south.

Soil moisture 77% short, 23% adequate. Winter wheat 3% poor, fair 24%, 62% good, 11% excellent. Livestock mostly good.

INDIANA: Temperatures more than 20° below normal. Lows near 0°, highs mid teens to low 20s. Precipitation up to 0.40 in.

Scattered fields of corn, soybeans remain for harvest. Other activities: Moving grain to market, spreading fertilizer, lime, farm machinery repair, record keeping, plowing, processing tobacco, hauling manure, cutting wood, care of livestock. Snow, frigid temperatures limited field activities.

IOWA: Bitterly cold week, temperatures 20 to 25° below normal. Extremes -20°; 27°. Precipitation trace to 0.18 in.; average 0.03 in.

Livestock good. Main activities: Caring for livestock, routine chores, bookkeeping, planning for next year.

KANSAS: Temperatures well below normal all areas. Precipitation 0.02 to 0.19 in. across State.

Snow provided blanket for wheat. Extreme low temperatures killed green bug population. Livestock stressed by low temperatures. Feeding increased.

KENTUCKY: First half cold, highs upper 20s to lower 30s. Mid week colder arctic air behind cold front. Last half cold, highs lower teens, lows -10° 16th. Temperatures 20°, 15° to 20° below normal. Snow 3.00 to 5.00 in. west, north, 15th southeast 1.00 to 3.00 in.

Burley tobacco market closed for Christmas. Sales resume January 8, 1990. Kentucky burley gross sales reached 285.8 million pounds, with an average price of \$167.28 per cwt. Abnormal cold, snow stressed livestock. Producers chopping ice, tending livestock.

LOUISIANA: Temperatures 9 to 11° below normal. Extremes 12°; 76°. Rainfall none to 1.00 in.

Main activities: Harvesting sugarcane, pecans, winter vegetables; caring for livestock; routine chores.

MARYLAND & DELAWARE: **MARYLAND:** Precipitation 0.58 in. Temperatures 25°, normal 38°. Extremes 1°; 43°.

DELAWARE: Precipitation 0.72 in. Temperatures 27°, normal 37°. Extremes 7°; 42°.

MICHIGAN: Temperatures 10 to 15° below normal. Extremes -11°; 36°. Precipitation 0.03 to 0.85 in. across State. Most areas received some snow.

Heavy snowfalls occurred in northern, extreme western sections. Central, southern districts still need more snow cover to protect wheat and alfalfa seedings.

Major activities: Repairing machinery, marketing grain, moving hay supplies, attending farm meetings. Cold temperatures made livestock chores difficult, increased hay, feed consumption. Livestock good despite cold weather. Hay, feed supplies abundant.

MINNESOTA: Temperatures 14 to 21° below normal. Extremes -28°; 30°. Precipitation 0.01 to 0.38 in. Greatest weekly total 1.02 in.

MISSISSIPPI: Cold, wet. Extremes 5°; 73°. Maximum rainfall 2.00, average 0.38.

Days suitable for fieldwork 1.5, 3.7 1988, 3.4 avg. Soil moisture surplus. Cotton, soybean harvest complete. Wheat fair; 97% planted, 96% 1988, 93% avg. Pecan harvest virtually complete. Hay, roughage supplies adequate. Pastures, livestock good. Ranchers feeding extra hay, supplements. Activities: Shopwork, cattle chores.

MISSOURI: Temperatures 16 to 23° below normal. Lower extremes below zero except Bootheel. Snow 3.00 to 6.00 in. over broad area on 14th, some southern counties missed.

Cold weather, snow limited farm activities to care of livestock, inside work. Feed supplies generally adequate.

MONTANA: Temperatures 1 to 8° below normal west, 4 to 17° below normal east. Few areas east over a foot of snow.

Topsoil mostly adequate. Winter wheat mostly good. Wind damage to winter wheat none to light. Snow cover protection fair. Most livestock receiving supplemental feed. Grazing difficult.

NEBRASKA: Temperatures 18 to 26° below normal. Precipitation occurred intermittently. Rainfall less than 0.10 in. central, up to 0.50 in. western section. Extremes -30°; 42°. Parts of eastern, central now have light snow cover.

NEVADA: Strong ridge high pressure eastern pacific, cold low pressure trough produced cool, dry northerly flow air throughout week. No precipitation. Temperatures 3 to 5° below normal north, central. Near normal extreme south.

Low night temperatures hard on newborn calves, lambs. Chopping ice required most areas.

NEW ENGLAND: Precipitation (rainfall and water equivalent of snow) 0.25 to 0.75 in. across the region. Temperatures near zero along the Canadian border to mid 20s south coast. Temperatures well below normal.

Major farm activities: Tending livestock, machinery maintenance, clearing snow, shipping produce for holiday trade.

NEW JERSEY: Temperatures much below normal; 21° north, 24° south, 28° coastal. Extremes -3°; 48°. Precipitation below normal; 0.22 in. north, 0.34 in. south, 0.24 in. coastal. Heaviest 24 hour total 0.48 in. on 12th, 13th. Heaviest 24 hour snowfall 7.00 in. on 12th, 13th. Depth of snow on ground 18th, 2.00 to 3.00 in. south to 3.00 to 4.00 in. north.

Scattered harvest of soybeans, corn for grain continued. Other activities: Marketing crops from storages, pressing cider, cutting, digging Christmas trees, pruning fruit, caring for livestock.

NEW MEXICO: Temperatures well below normal across State; light snowfall over central, northeast areas.

Cotton harvest virtually complete. Wheat condition unchanged from previous weeks; hard freeze may have caused additional damage.

NEW YORK: Temperatures 5 to 15° below normal. Only major precipitation came on 15th. Storm dumped 5.00 to 10.0 in. of snow in most areas.

Grading, packing apples. Cut your own Christmas tree operations continued active. Caring for livestock. Many farmers still deer hunting.

NORTH CAROLINA: Temperatures 6 to 10° below normal across State. Extremes -4°; 65°. Precipitation 0.50 to 2.00 in.

Days suitable for fieldwork 0.9. Soil moisture 32% adequate, 68% surplus. Pasture 3% very poor, 10% poor, 37% fair, 48% good, 2% excellent. Livestock feed from pasture 51%. Crop condition: Wheat, 21% fair, 77% good, 2% excellent; oats 1% poor, 17% fair, 79% good, 3% excellent; barley 19% fair, 79% good, 2% excellent; rye 1% poor, 21% fair, 76% good, 2% excellent; Hay, roughage supplies 1% short, 86% adequate, 13% surplus. Feed grain supplies, 96% adequate, 4% surplus. Activities: cutting wood; tending livestock, general farm maintenance.

NORTH DAKOTA: Dry, extremely cold Statewide. Temperatures 24° below normal south central to 19° below normal east central. Precipitation trace east central to 0.13 in. southwest.

Soil moisture below normal. Additional snow cover needed for adequate protection of fall seeded crops, alfalfa. Livestock good, receiving supplemental forages. Hay, roughage supplies adequate, cold weather increased daily requirements for cattle.

OHIO: Temperatures 15 to 20° subnormal. Highs low to mid 30s. Lows to -15°. Highs upper teens to mid 20s. Lows in single digits. Precipitation 0.10 in. or less falling as dry, powdery snow to a depth of 2 to 5 in. Frost extended deeper into soil.

Snow covered most of Ohio protecting winter wheat, grasslands form bitter cold, wind. Producers busy keeping animals, poultry warm, fed, watered.

OKLAHOMA: Temperatures 20° below normal northeast to 18° below normal east central. Precipitation none east central, southwest, south central to 0.09 in. north central.

Some snowfall provided insulation, moisture for pastures. Coldest weather of year stressed cattle. Supplemental feeding active. Cattle prices higher than preceding week.

OREGON: Temperatures 4° below normal west, 3° below normal east. Less than 0.10 in. precipitation across State.

Soil moisture short to adequate east, mostly adequate west. Winter wheat all up Columbia Basin; Russian wheat aphid numbers increasing, too cold to spray. Winter wheat mostly good all

areas. Chemical weed control underway in berry crops west. Vegetable harvest completed, except some late cabbage, root crops. Livestock good to excellent. Range, pastures fair to good. Weaning weights generally above average.

PENNSYLVANIA: Very cold, dry across State. Late week storm gave State 2.00 to 7.00 of snow. Temperatures 21°, 11° below normal. Extremes 15°; 42°. Precipitation 0.32 in., 0.40 in. below normal.

Activities: Harvesting corn grain; spreading manure, maintaining machinery, caring for livestock.

PUERTO RICO: No data available.

SOUTH CAROLINA: Temperatures 38°. Rainfall 1.00 in. with heavier amounts in upper State to lesser amounts along the coast.

SOUTH DAKOTA: Temperatures 15 to 24° below normal. Extremes -39°; 49°. Precipitation above normal most of west, extreme south; below normal elsewhere. Maximum 36.0 in. snow, 1.58 in. melted precipitation. Precipitation for the year above normal northwest, northeast, below normal elsewhere. Range 3.67 in. above normal to 8.08 in. below normal. Snow cover a trace to 26.0 in.

TENNESSEE: Arctic air continued to settle over State. Additional strong cold fronts crossed State 12th, 15th. Rain fell ahead of fronts, snow behind fronts. Temperatures much below normal Statewide. Precipitation near normal.

Caring for livestock, machinery repairs, meetings main activities.

TEXAS: Arctic air provided wintery conditions across State this week. Freezing temperatures, record lows common. Air mostly dry with not much precipitation. Second surge settled into State weekend, pulled moist air across Mexico, provided for sleet, freezing rain south central, east. Precipitation light for the week.

Crops: Grain sorghum producers finished harvest in high plains for this season. Stalk shredding through mid week. Sorghum harvested 100%, 100% 1988, 98% avg. Cotton producers about done in Plains also. Micronaire grades low late cotton. Gins able to keep up with harvest, about done also. Cotton 98% harvested, 94% 1988, 79% avg. Small grains suffered at late week coldest temperatures of the year, sent many fields into dormancy. Poor root development, cold weather may caused additional stand losses in Plains Cross Timbers. Fields in Blacklands, Central were surviving, very slow growth. Some spraying for insects continued. Wheat 100% planted, 100% 1988, 99% avg. Emerged 97%, 100% 1988, 97% avg. Peanut harvest winding down South Central. Some freeze damage occurred remaining fields. Most harvest now over Cross Timbers, where grades remained low late in season. Soybean harvest moved ahead in Plains, virtually complete. Along the Upper Coast, some acreage remained to be harvested. Other crops: Peanuts harvested 95%, 99% 1988, 95% avg. Pecans 86%, 89% 1988, 82% avg. Soybeans harvested 94%, 100% 1988, 95% avg. Sugarbeets 100%, 100% 1988, 93% avg. Sunflowers harvested 96%, 100% 1988, 97% avg. Oats planted 97%, 98% 1988, 96% avg.

Commercial Vegetables: Rio Grande Valley, minimal damage occurred from cold. Most

remaining peppers tomatoes ended. Lettuce, cabbage, celery escaped serious damage. Citrus fruit, trees not damaged. Strong north winds curled leaves nursery stock. Harvest continued active. San Antonio Winter Garden, minor damage occurred pepper fields. Some leaf burn occurred broccoli, cauliflower plants. Pecan harvest good progress most areas. Harvest nearing completion central, east. Short crop still many areas.

Range and Livestock: Cold temperatures ended growth warm season grasses. Forage supplies low on many ranges. Small grains continued supply little grazing across Plains. Producers pulling stockers off fields. Herd reductions continued parts of State. Bitter cold temperatures in Plains hurt some young livestock.

UTAH: Temperatures 10° below normal. Precipitation was light in northern half, south central parts, almost zero in rest of State.

Concerns over dry weather continued. Moisture level too low for tillage operations in central area. Range fair to poor. Pelting of mink in full swing. Maintenance of equipment, fences, yards continued.

VIRGINIA: Cold temperatures continued, average 10°, -15° below normal. Extremes -3°; 52°. Precipitation rain, sleet, snow; generally 1.00 to 2.00 in. Snow cover throughout State.

No days suitable for fieldwork. Topsoil 60% surplus, 40% adequate. Soybeans 95% harvested, unchanged, 89% 1988, 86% 5-yr avg. Winter grains, grazing crops 5% excellent, 37% good, 37% fair, 16% poor, 5% very poor. Forage from pastures, beef cattle 7%, sheep 6%. Marketing burley tobacco, calving, lambing.

WASHINGTON: Temperatures normal to 5° below normal, east; 1° to 4° below normal, west. Precipitation none to 0.05 in. east; none to 0.36 in., west.

Days suitable for fieldwork 3.6. Soil moisture 35% short, 50% adequate, 15% surplus. Range, pasture 85% short, 15% adequate. Hay, other roughage 20% short, 75% adequate, 5% surplus. Highlands, many areas could use snow cover. Christmas tree harvest activity was winding down with only U-cut places still in operation. The pruning of fruit trees, canberries, grapes continued. Digging carrots, feeding livestock were the other activities. No field activity other than some spraying for Russian wheat aphids during the week. Winter wheat 42% fair, 58% good.

WEST VIRGINIA: Temperatures 20°. Extremes -26°; 44°. Precipitation light, mostly in the form of snow, 0.02 in. to 0.51 in. below normal.

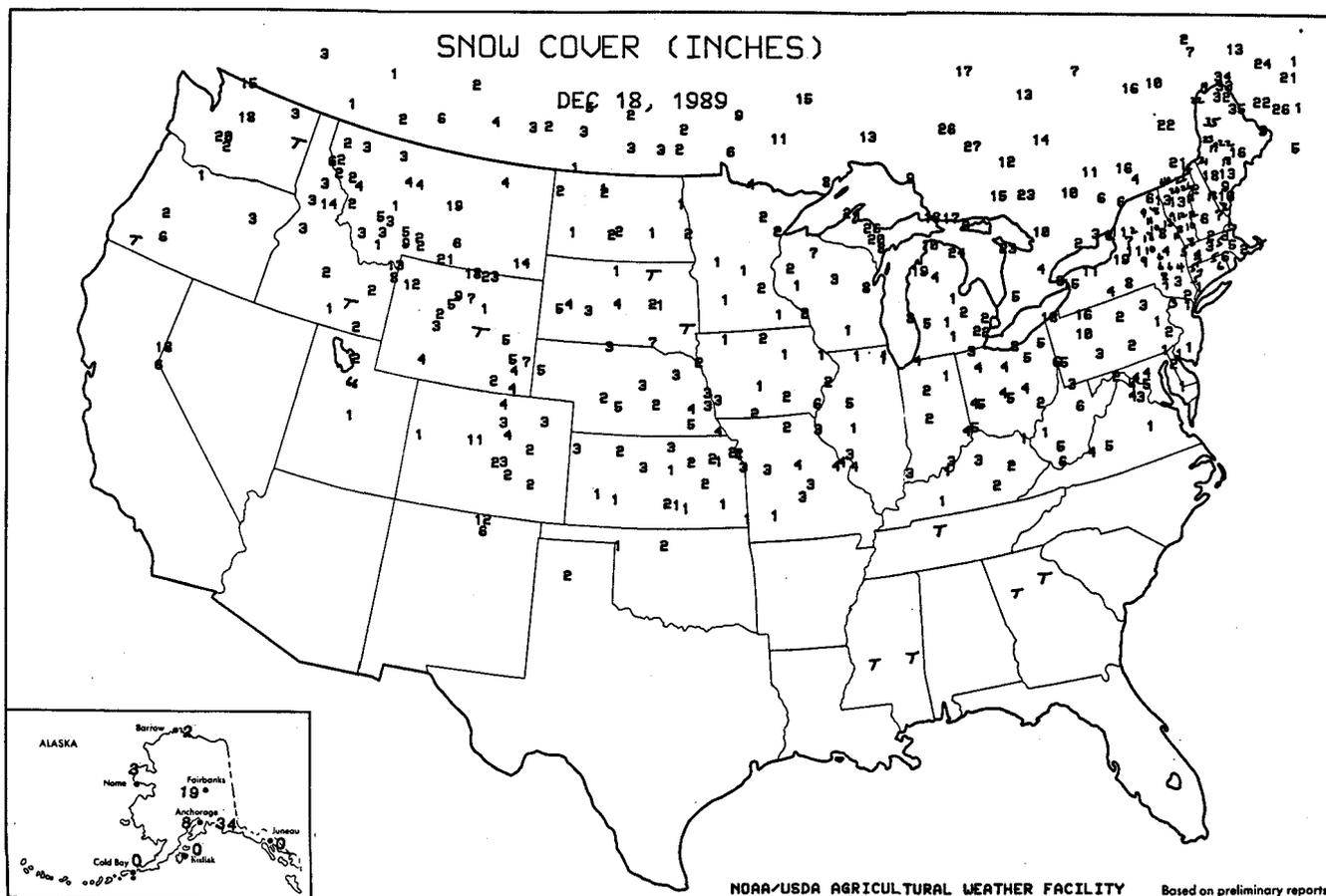
Days suitable for fieldwork 1.5. Soil moisture 8% short, 72% adequate, 20% surplus. Wheat, barley fair to good. Livestock good. Feed supplies adequate to surplus. Farm activities: Feeding livestock, farm maintenance, picking corn, stripping tobacco.

WISCONSIN: Temperatures 7°. Extremes -25°; 32°. Precipitation 0.10 to 0.40 in. Snow 1.00 to 7.00 in. north, trace to 1.00 in. south; 13th, 14th.

Record frost depth 11.7 in., greatest since 1961. Snow cover 2.30 in.

WYOMING: Temperatures 1 to 14° below normal. Precipitation above normal.

Winter wheat fair to good with snow cover most areas. Livestock mostly good. Supplemental feeding increasing with colder temperatures, snow cover. Culling, marketing of livestock continues.



International Weather and Crop Summary

HIGHLIGHTS

December 10-16, 1989

USSR ... Rapid warming weather melts snow cover in the Ukraine and North Caucasus. Winter grains remain dormant.

NORTHWESTERN AFRICA ... Beneficial precipitation continues over Moroccan winter grain areas. Insufficient moisture in western and central Algeria, as well as southernmost crop areas in eastern Algeria and Tunisia, likely causes planting delays.

EUROPE ... Heavy rain continues flooding problems in sections of Spain and Portugal but improves soil moisture in the northwest.

SOUTH ASIA ... Seasonably dry weather continues, reaching most southern areas.

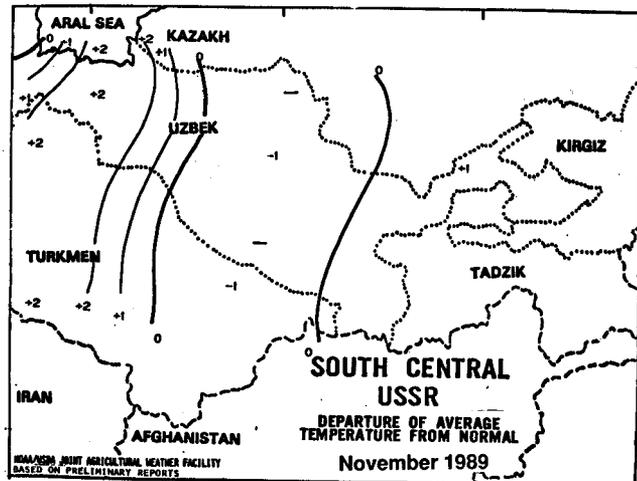
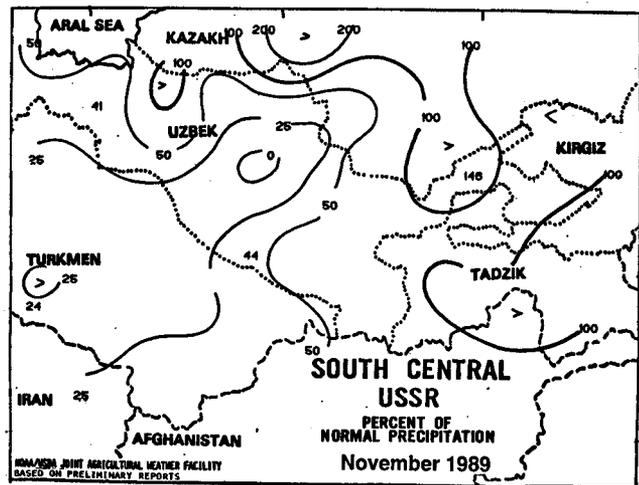
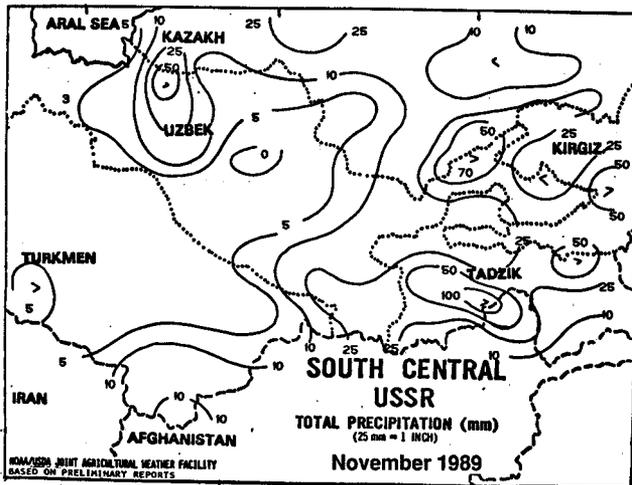
EASTERN ASIA ... Rain and snow fall in sections of central China and Japan. Dryness and above-normal temperatures continue in most crop areas.

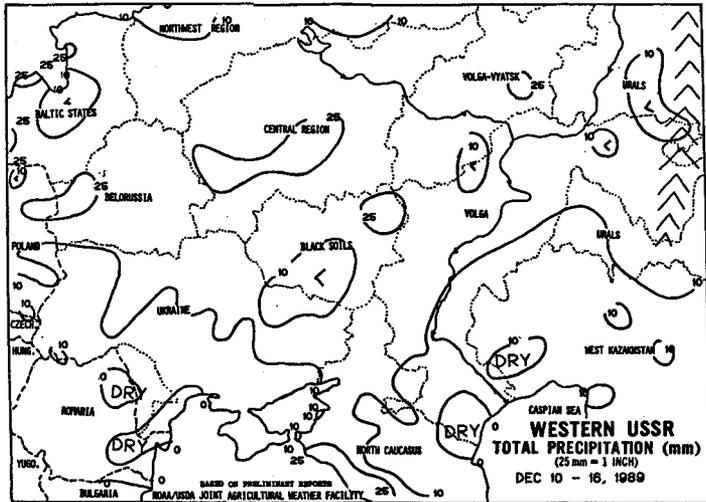
SOUTHEAST ASIA ... Seasonable rain continues over Java but diminishes over northern Indonesia and Malaysia.

SOUTH AFRICA ... Scattered showers and milder temperatures benefit vegetative crops. Some dryness persists in the western Maize Triangle.

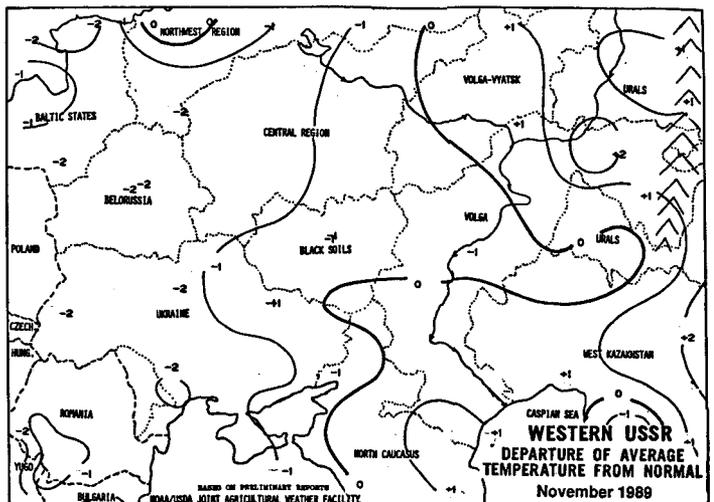
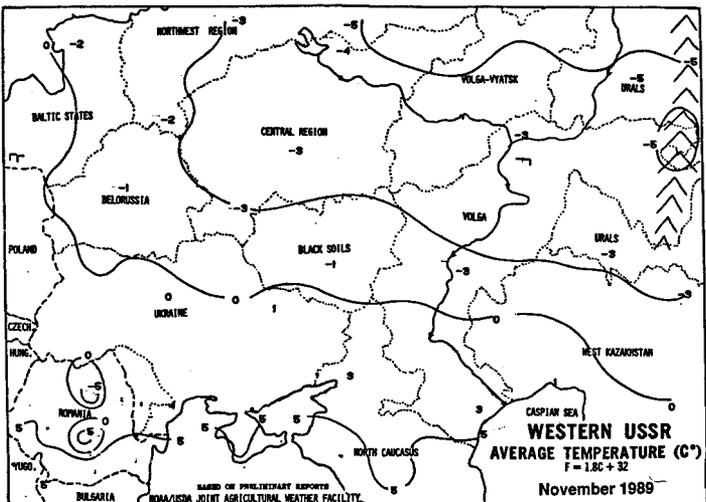
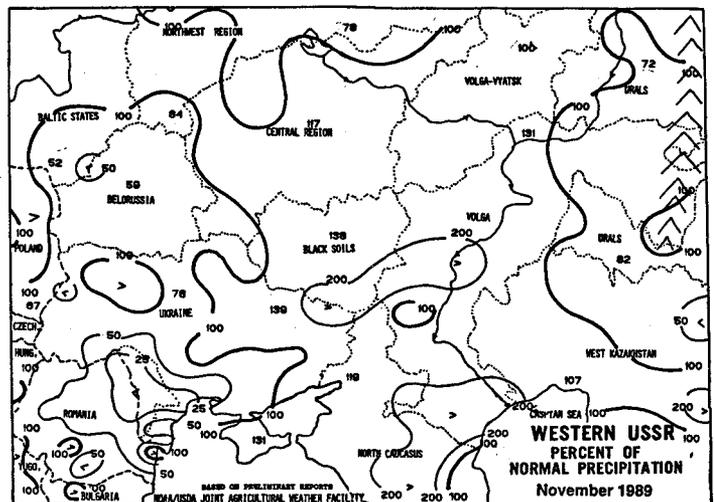
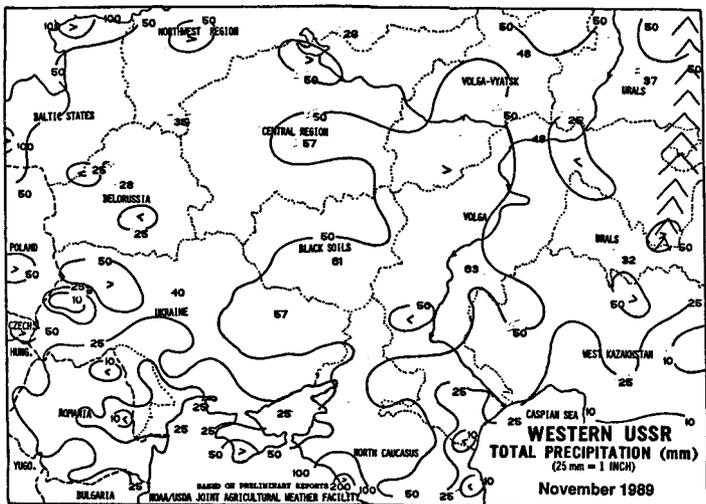
SOUTH AMERICA ... Widespread rain benefits most summer crops but slows Argentina's wheat harvest.

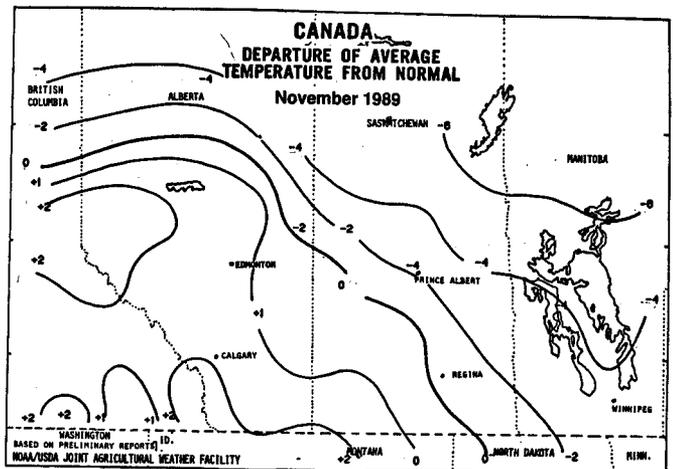
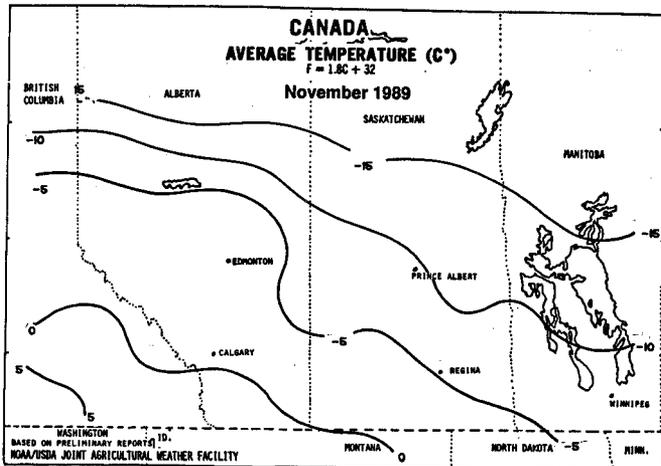
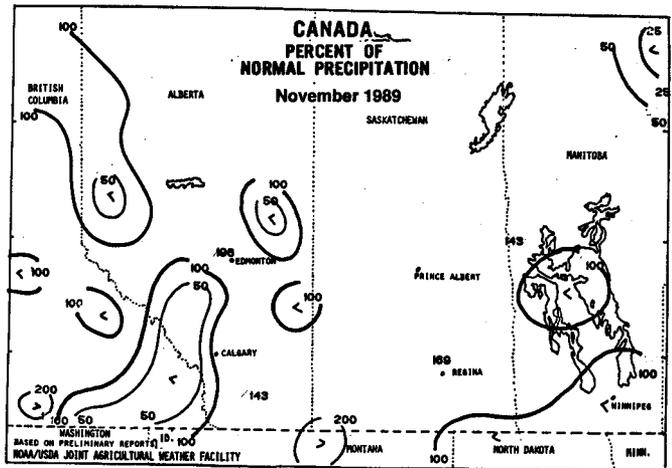
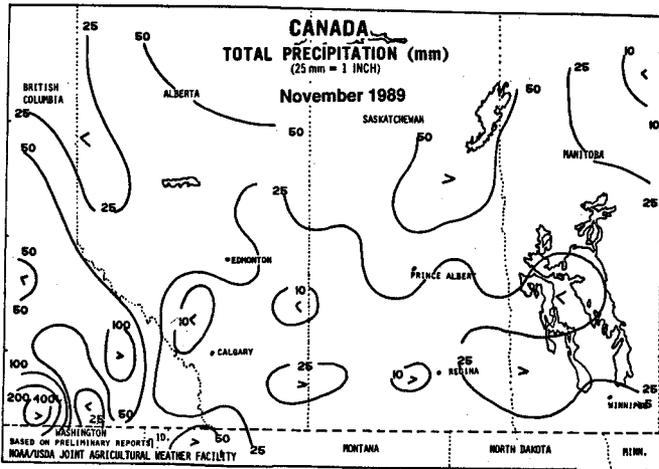
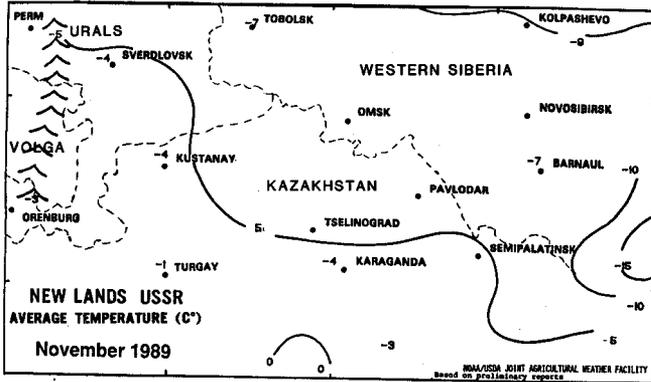
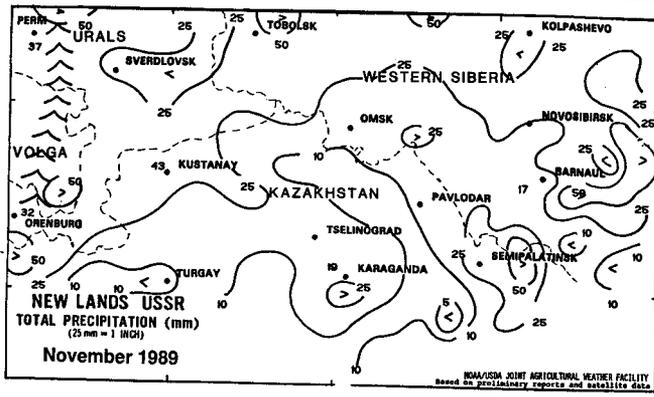
AUSTRALIA ... Tropical Cyclone Felicity brings heavy rain and localized flooding to the north. Rain benefits summer crops in the east.

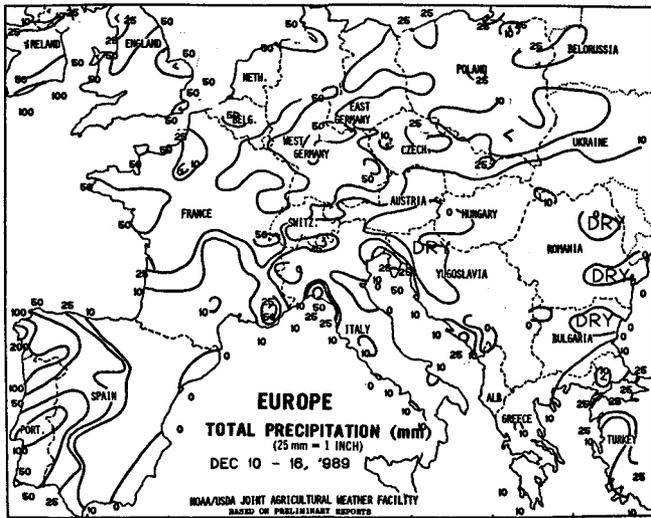




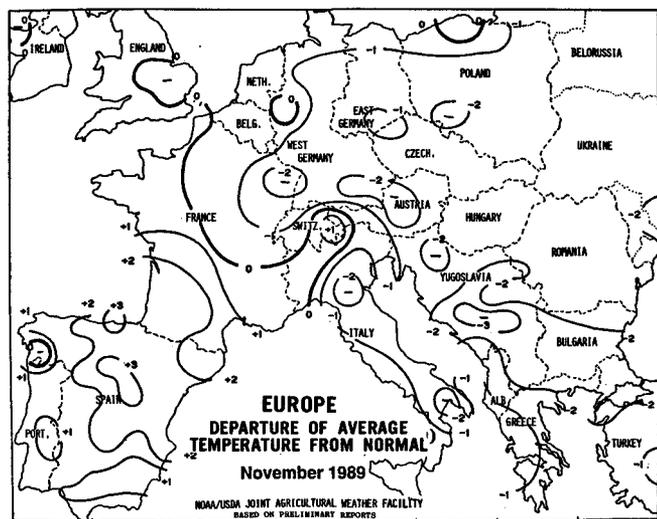
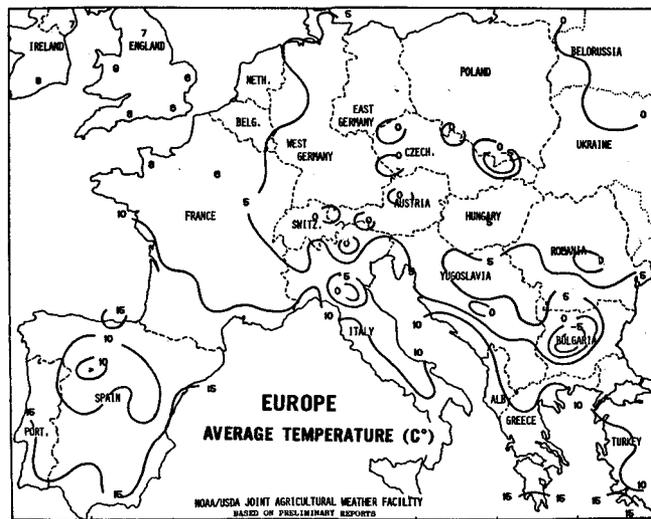
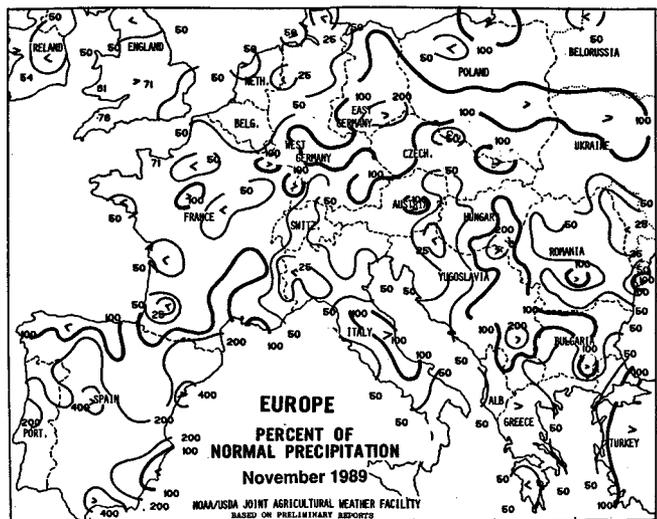
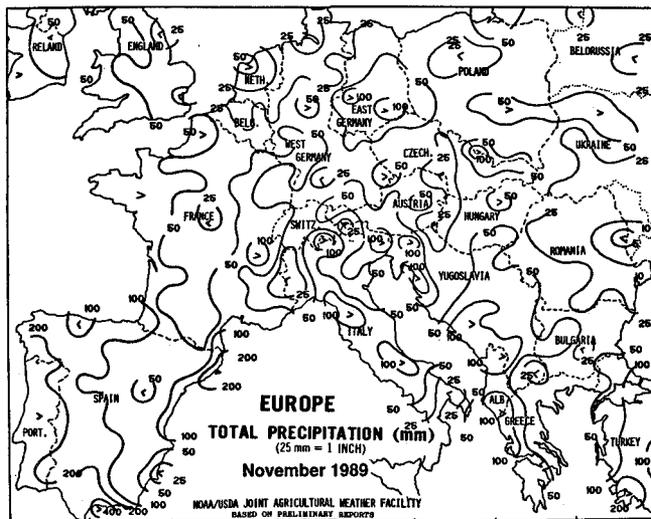
WESTERN USSR ... Rapid warming weather covered dormant winter grains over most of the region. By week's end, maximum temperatures rose to above freezing as far north as the Central and Volga Vyatsk Regions. By week's end, maximum temperatures ranging from 5 to 12 degrees Celsius (C) in the Ukraine and North Caucasus accompanied light rain, melting most of the snow cover. Although the mild weather in the north melted some snow cover, it still remained deep enough to provide protection from potential extreme cold. In November, above-normal precipitation covered winter grain areas over most of the region, except for those in Belorussia and the southern Ukraine, where precipitation was below normal. Northern winter grains entered dormancy early in the month, about 2 weeks later than usual. In the south, winter grains entered dormancy by month's end, around usual dates. Ample moisture and mild weather during the autumn allowed winter grains to become well established prior to dormancy with sufficient hardening. Although bitter cold on November 27-28 covered the Central Region, the Volga Vyatsk Region, the northern Black Soil Region, and the upper Volga, snow cover was sufficient to protect winter grains from potential winterkill.



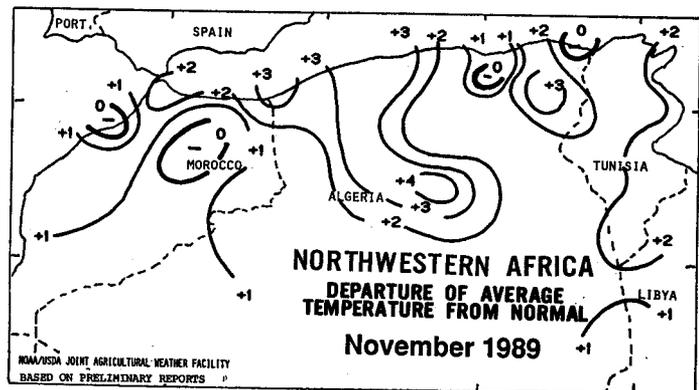
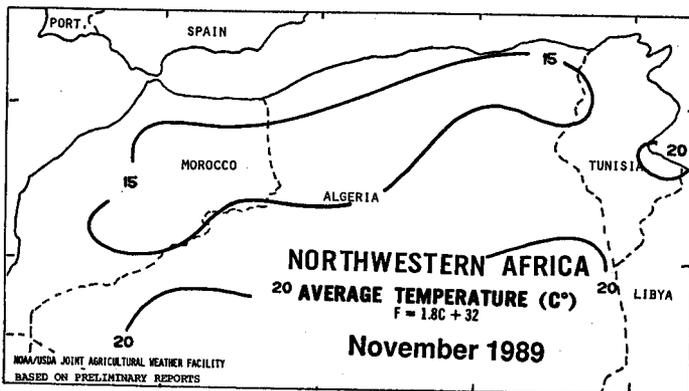
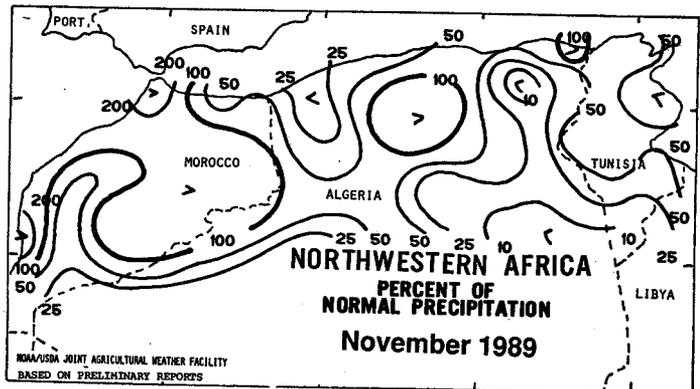
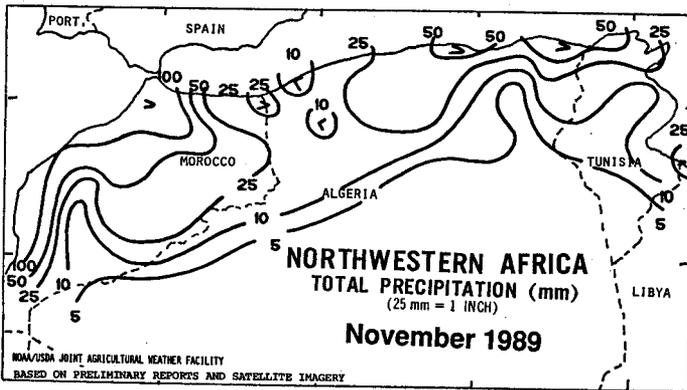
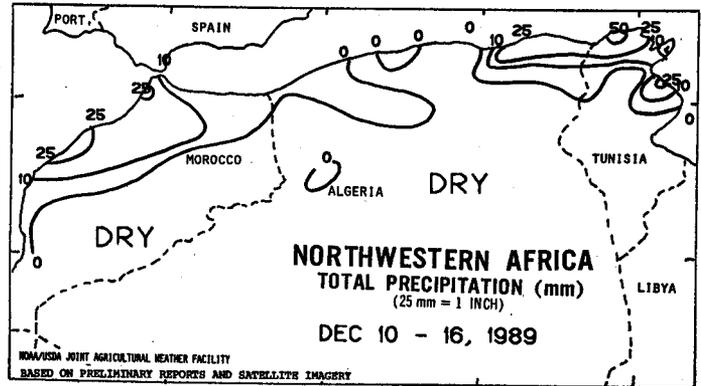


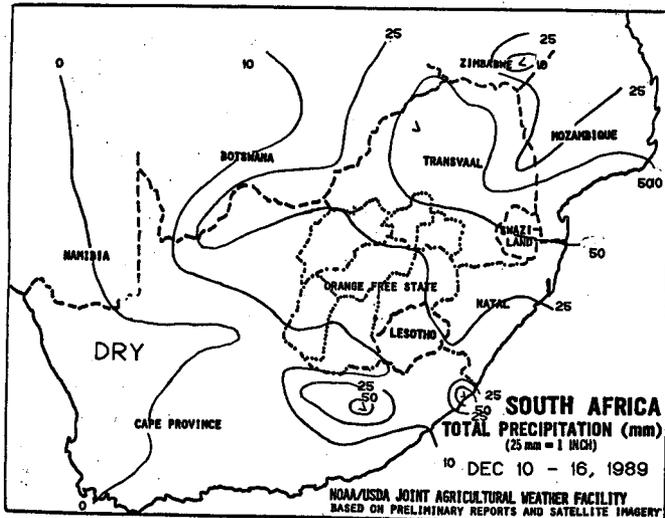


EUROPE ... Heavy rain (25-100mm, with scattered amounts in excess of 100mm) persisted across western sections of the Iberian Peninsula, continuing flooding in southwestern Spain and southern Portugal. Beneficial dryness and warm temperatures, however, covered much of southeastern Spain. In the north, a late-week storm brought strong winds and heavy rain (40-70mm, with isolated amounts greater than 100mm) to much of Ireland, England, northern France, Benelux, West Germany, and East Germany, with moderate to heavy snow and rain (10-30mm) in Scotland, southern Scandinavia, Poland, and Czechoslovakia. The precipitation helped reduce effects of persistent drier-than-normal weather over the past several weeks. Scattered, mostly light rain and snow (less than 10mm) fell in the Balkans. Above-normal temperatures (2-4 degrees C above normal) returned to western and central crop areas, reducing the area of snow cover to northeastern crop areas as indicated by satellite. Cooler-than-normal temperatures had persisted over all but extreme western Europe during much of November and early December.

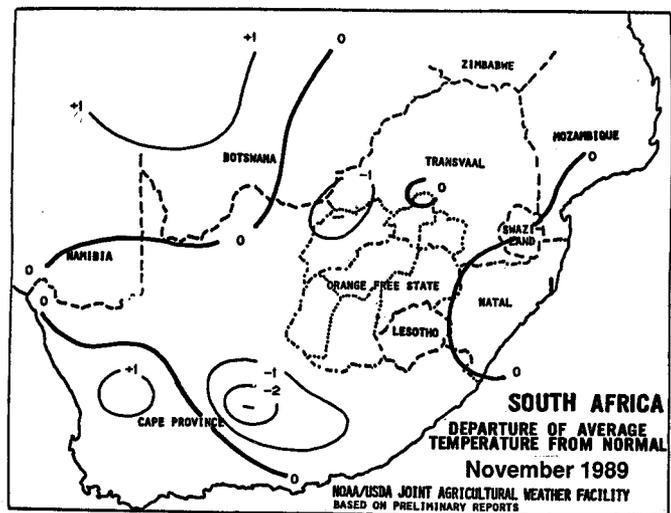
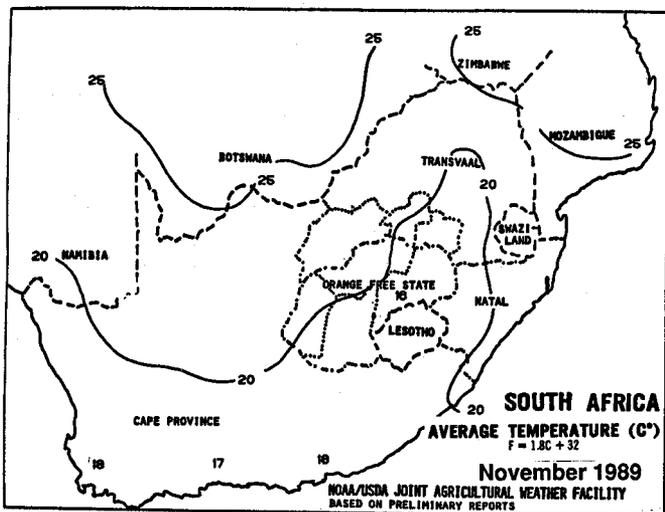
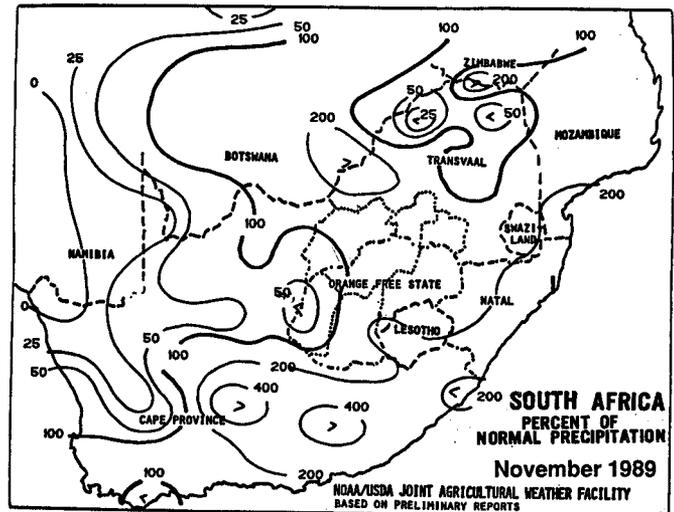
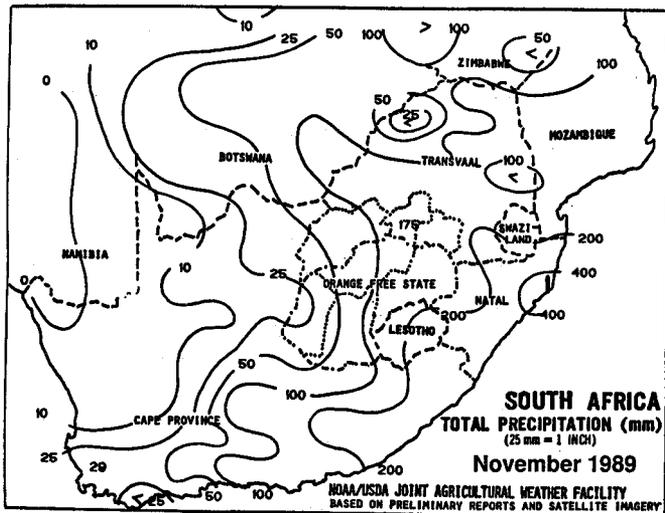


NORTHWESTERN AFRICA ... Widespread beneficial precipitation (19-45mm) continued over winter grain areas in northern Morocco, while lighter rainfall (5-10mm) covered southern crop areas. Above-normal precipitation in November over most winter grain areas in Morocco provided adequate to abundant topsoil moisture for winter grain planting. Spotty dryness in southern crop areas around Marrakech, however, may have caused some planting delays. In Algeria, minimal rain in western and central crop areas continued November's well-below-normal precipitation pattern, causing planting delays. Planting usually begins in November and extends well into December. In Algeria, planting often extends into January. In eastern Algeria and Tunisia, widespread precipitation (10-44mm) continued November's near-normal rainfall pattern over northernmost winter grain areas, providing favorable moisture for crop emergence and early growth. In contrast, well-below-normal precipitation since early November in southern growing areas has created limited moisture for planting, and rain is needed to ensure a good start to this year's growing season.

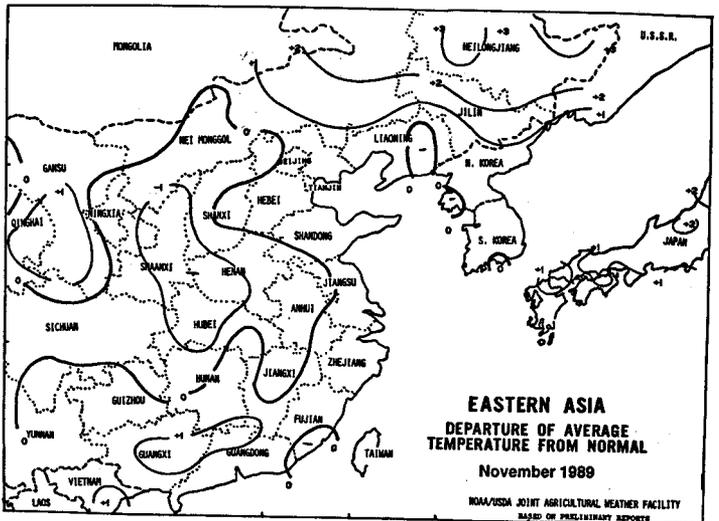
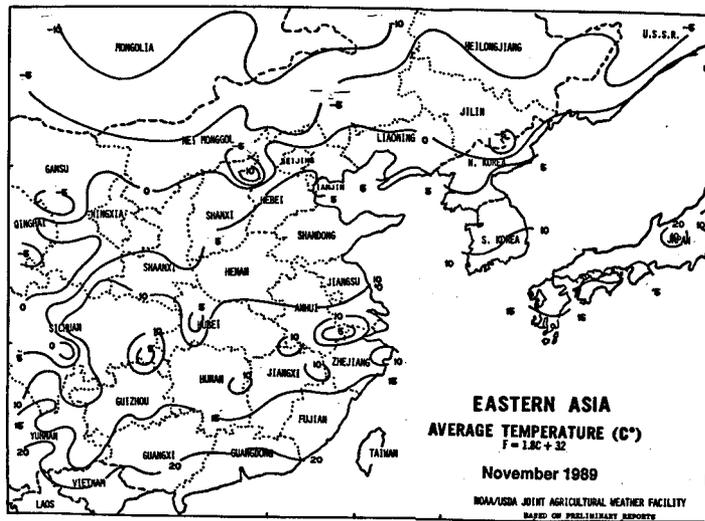
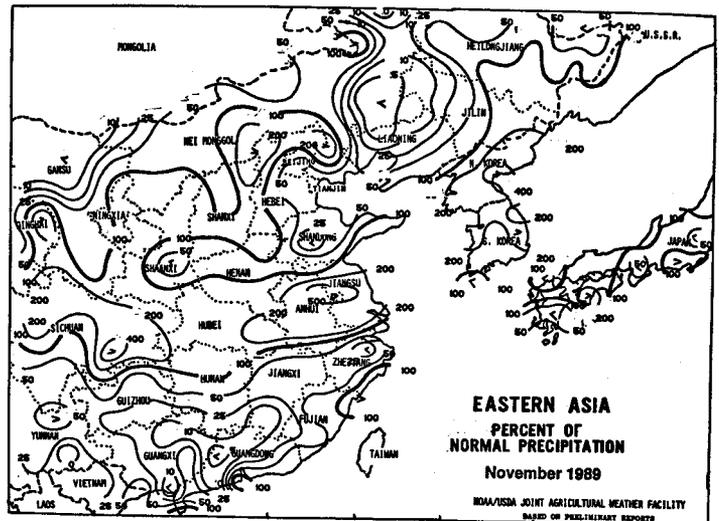
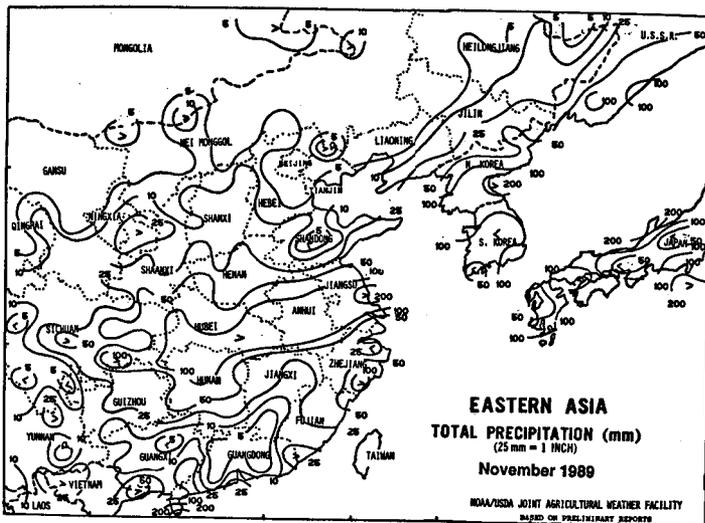
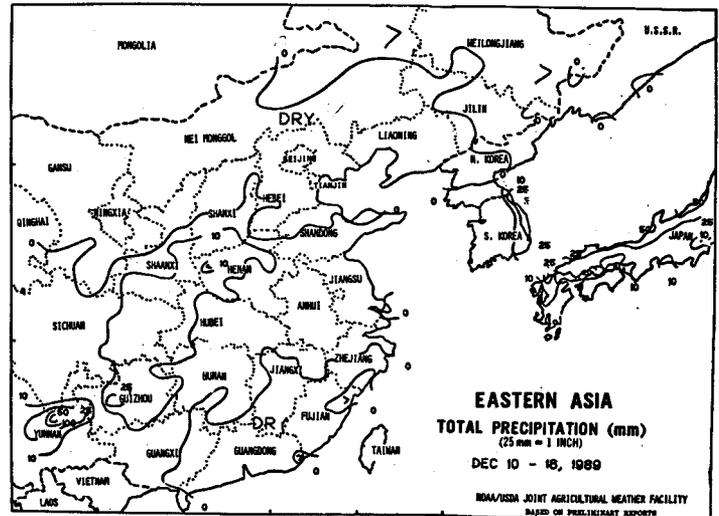


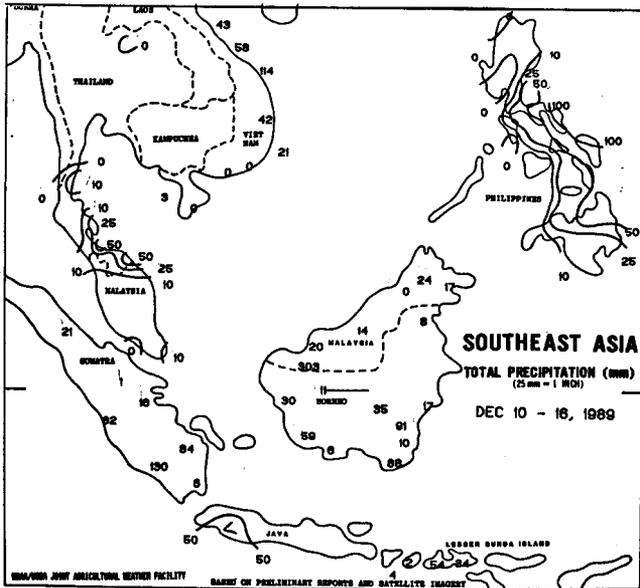


SOUTH AFRICA ... Scattered showers and somewhat milder weather covered South Africa's primary crop areas. Amounts continued to be below normal (9-21mm), however, over the western third of the Maize Triangle, where moisture was limited for normal corn development. Rainfall elsewhere in the primary corn regions, Natal, and the eastern Cape Province ranged from 15 to 58mm, benefiting vegetative crops. Temperatures averaged 1-2 degrees C below normal across the Maize Triangle and as much as 2 degrees C above normal in coastal regions. In November, rainfall was near to above normal over most primary crop regions. The driest areas were in the western Maize Triangle, but timely rain in mid-November favored planting. November temperatures averaged slightly below normal with seasonal warming weather progressing throughout the month.

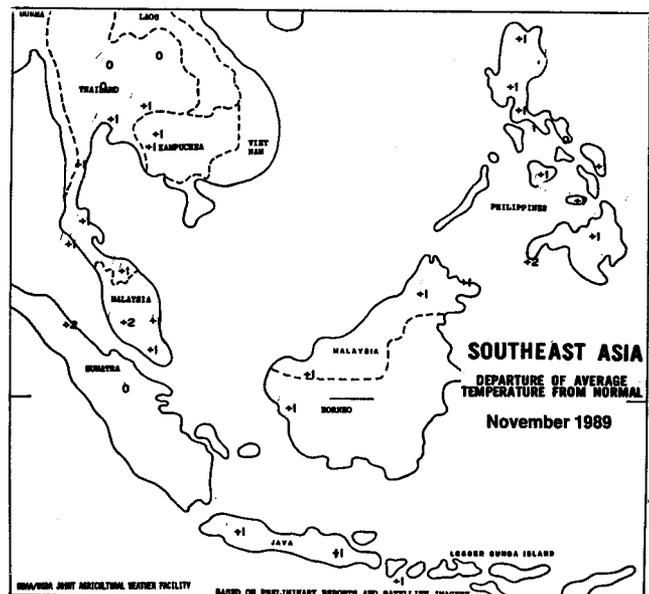
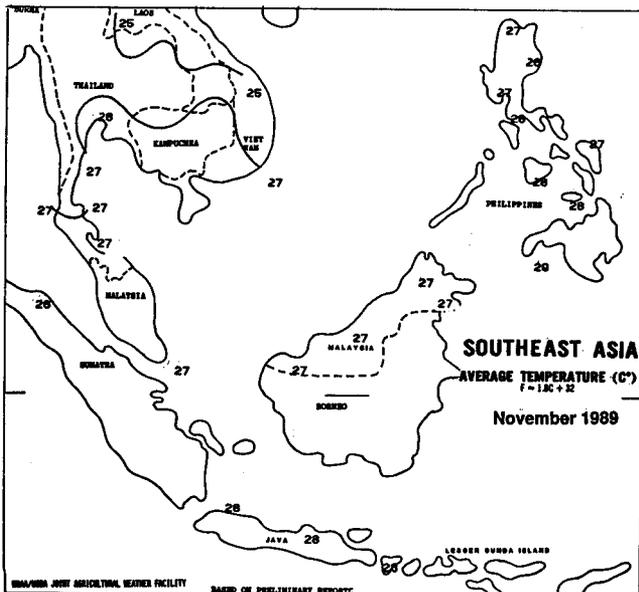
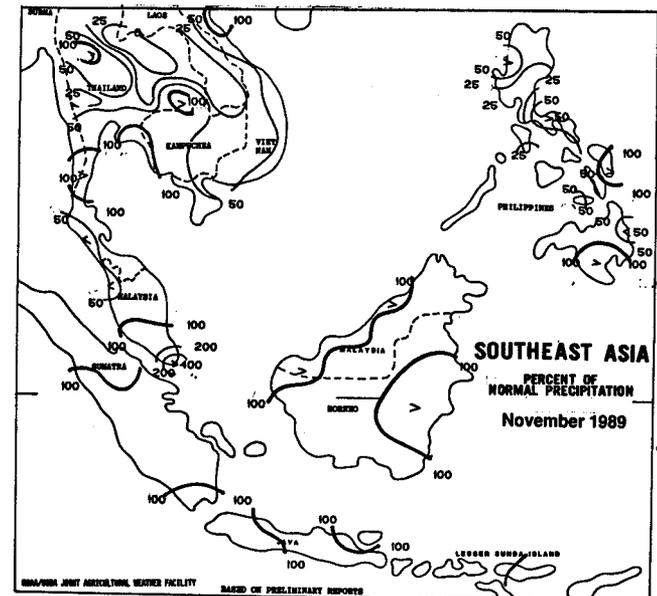
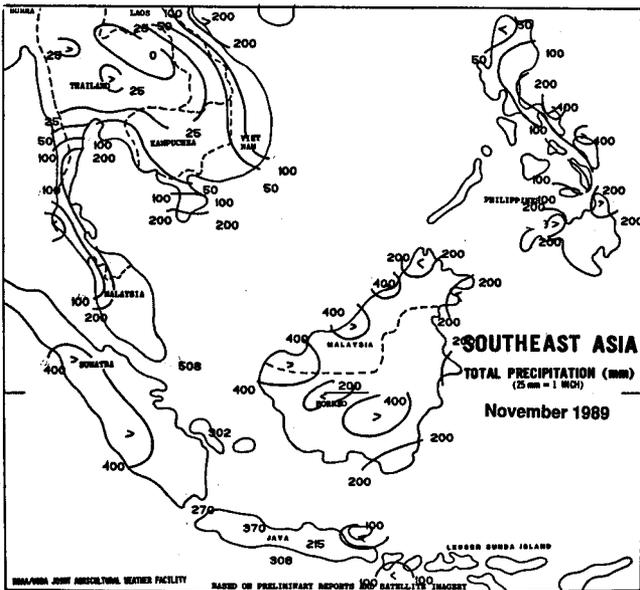


EASTERN ASIA ... Scattered light to moderate rain (5-20mm) continued early in the middle and upper sections of the Yangtze and Yellow River Valleys, with some of the precipitation in sections of Shaanxi and Shanxi falling as snow. Mostly dry weather persisted across the remainder of China and Taiwan. Drier-than-normal weather also covered much of northeastern and southern China during November. In the east, moderate to heavy rain (10-35mm) continued along western coastal sections of Honshu in Japan and eastern coastal North and South Korea. Moderate to heavy rain and snow (20-50mm) fell in Hokkaido. Temperatures were above normal (2-6 degrees C above normal) over all but far eastern crop areas, continuing a trend that has persisted as long as 4 weeks in the North China Plain.

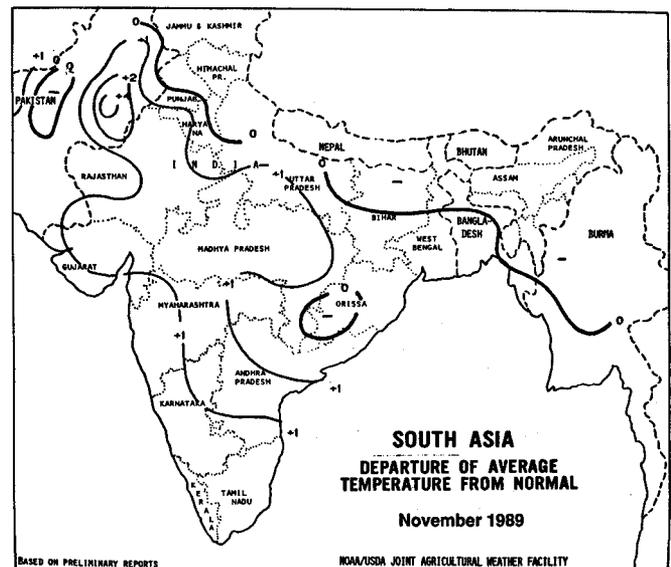
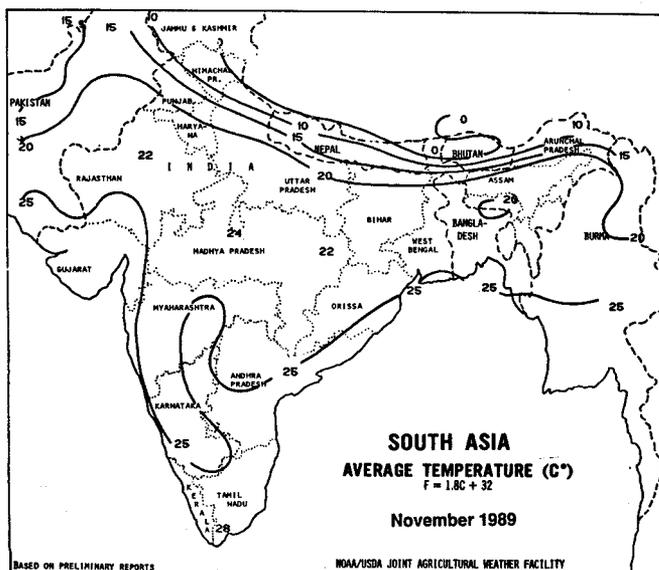
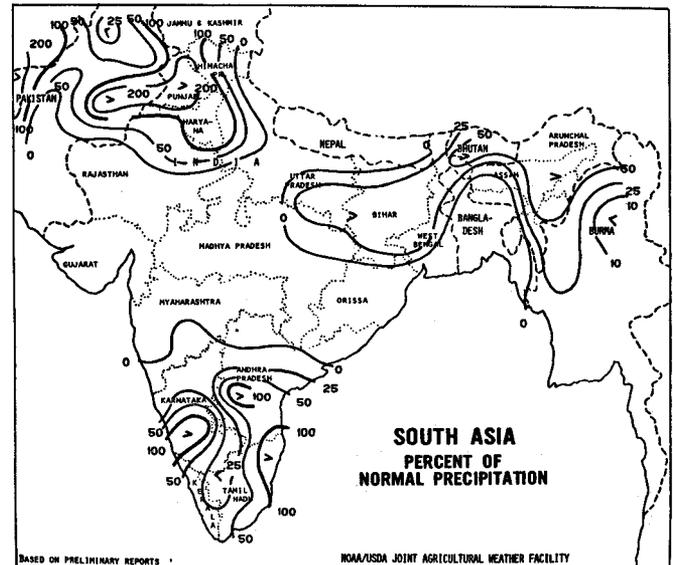
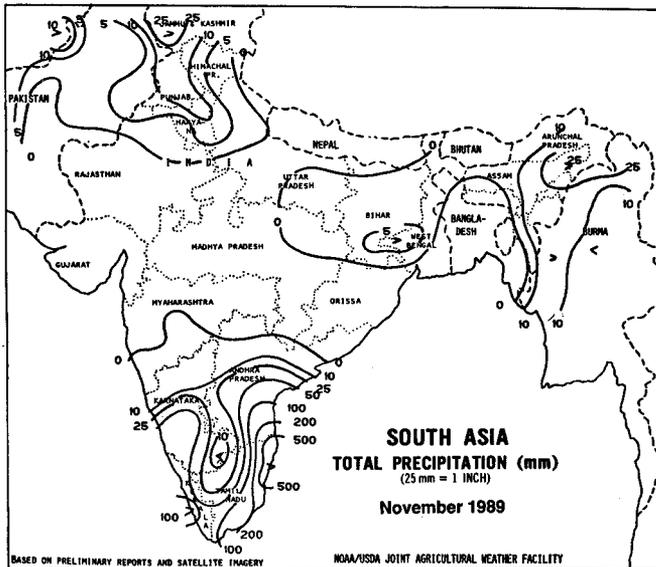
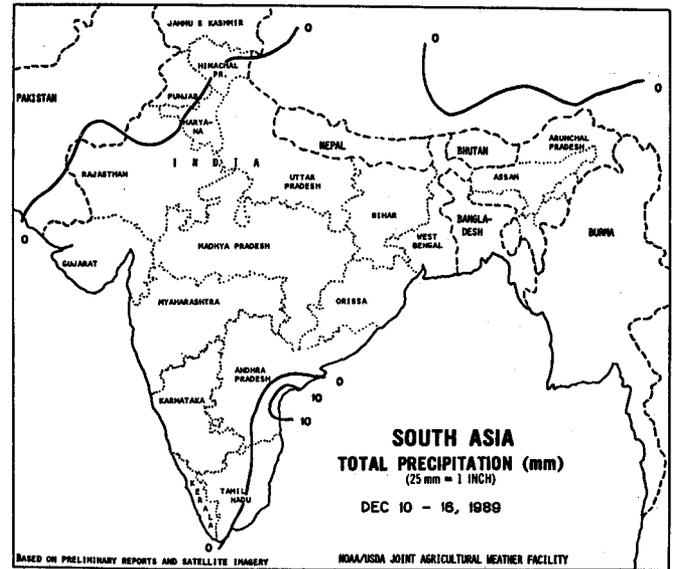


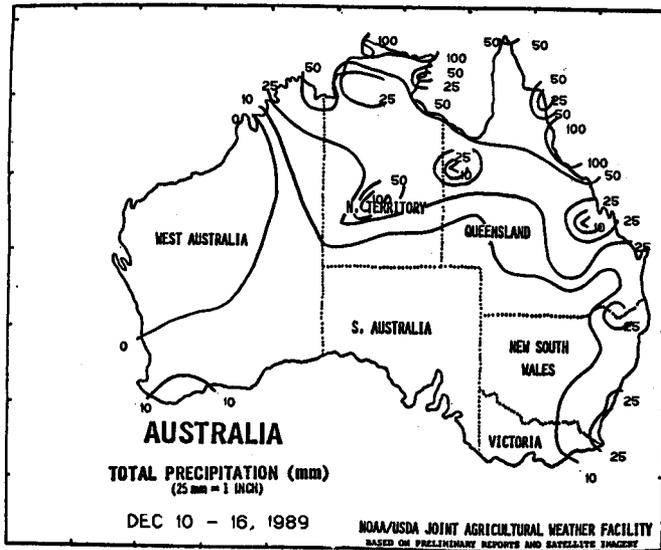


SOUTHEAST ASIA ... Moderate showers (22-50mm or more) covered Java and local areas elsewhere in Indonesia, maintaining favorable irrigation reserves for rice planting and development. Rainfall continued to taper off across northern Indonesia and Malaysia, with large areas receiving less than 25mm. Near- to above-normal November rainfall provided favorable planting and early growing conditions over most of Indonesia and Malaysia. In Thailand, scattered showers (10-25mm or more) returned to peninsular Thailand, but dry weather continued further north. In November, frequent rainfall benefited most of the Thai peninsula, but in early November, Typhoon Gay hit plantation crop regions of the northern peninsula. Scattered rain in early November from the Northern Hills to Bangkok favored secondary crops. Moderate to heavy showers (25-50mm or more) returned to the central Philippines. November rainfall was below normal over most Philippine crop areas, but heavy showers from Typhoon Hunt fell along the east coast late in the month.

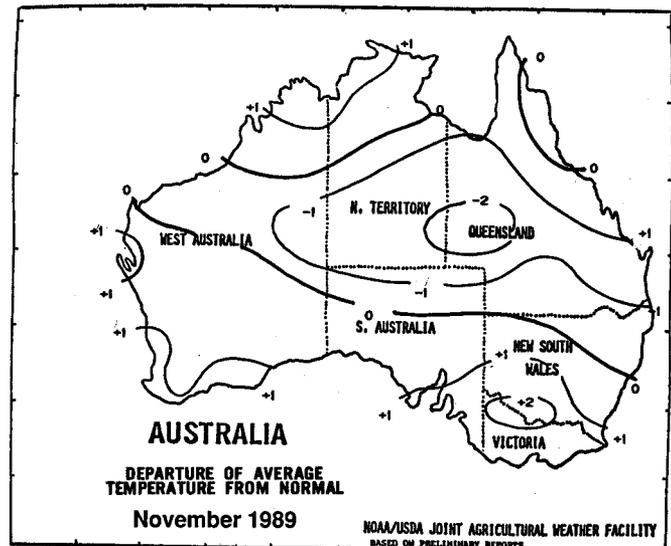
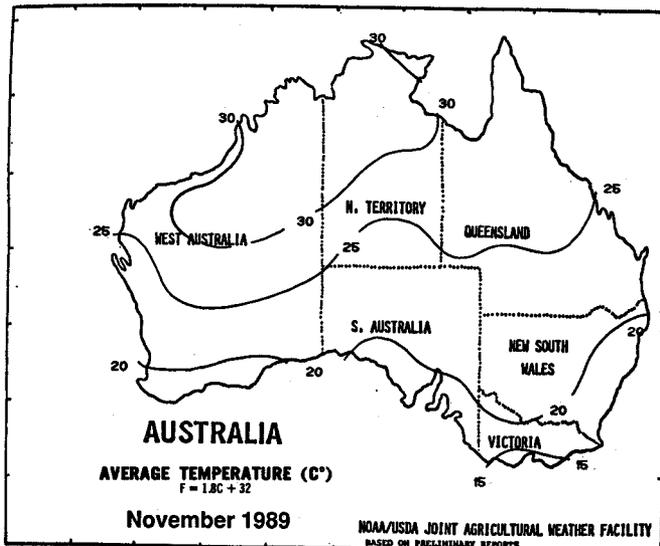
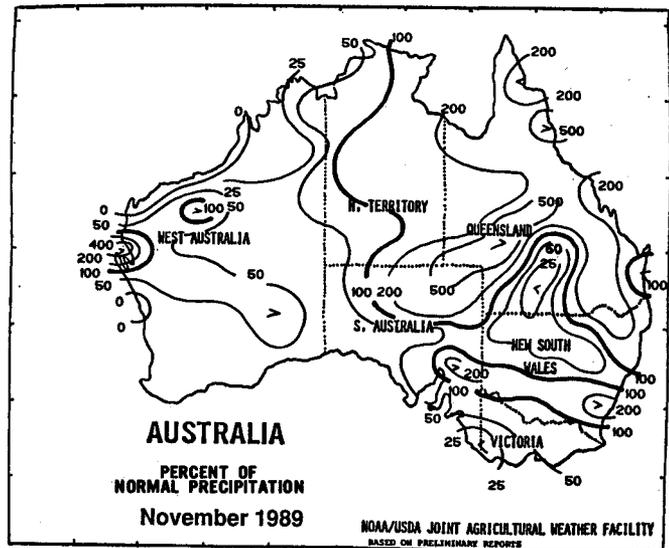
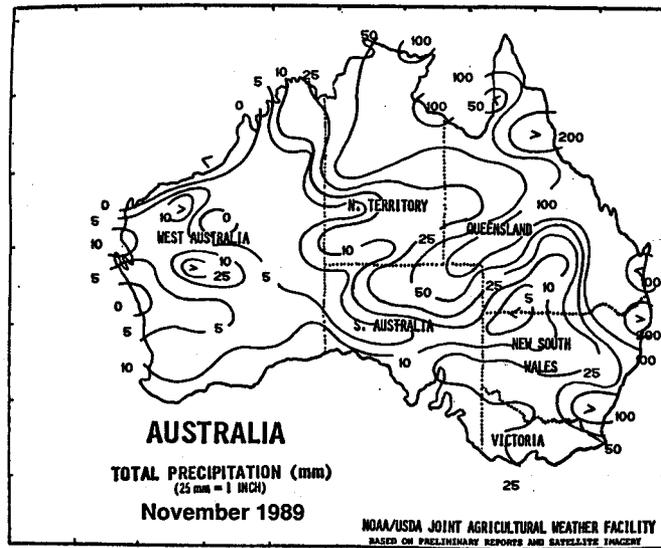


SOUTH ASIA ... Seasonably dry weather continued over the region, extending southward to India's southern tip. Minimal rain (2-11mm) was limited to northeastern Tamil Nadu, southeastern Andhra Pradesh, and local areas of the northern wheat belt. The dry weather favored late summer crop harvests and winter grain plantings, but fieldwork should be nearly complete this time of year. Temperatures averaged within 1 degree C of normal, but minimum temperatures dipped below 5 degrees C in northernmost wheat regions. In November, dry, warmer-than-normal weather dominated the northern two-thirds of the region, favoring maturing crops. Scattered light rain boosted local irrigation reserves in the far north and the southern interior. Moderate to heavy rain (50-100mm or more), however, covered southern coastal areas, boosting local irrigation levels for secondary rice but causing local flooding. The rain in the southeast was due partly to Tropical Cyclone Gay, which caused local flooding and damage to mature summer crops.

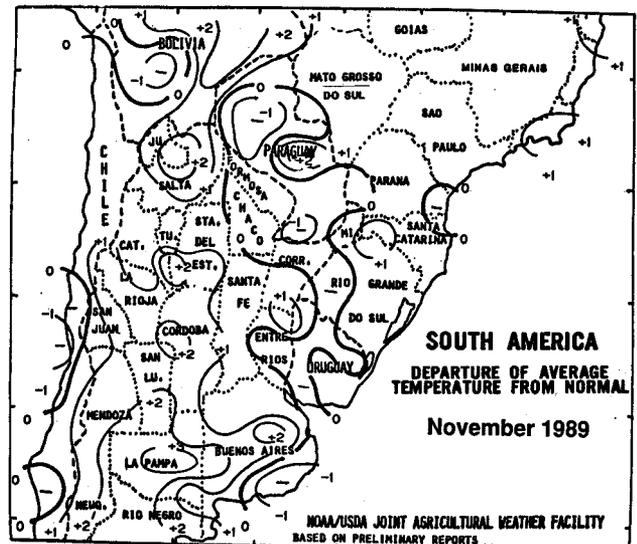
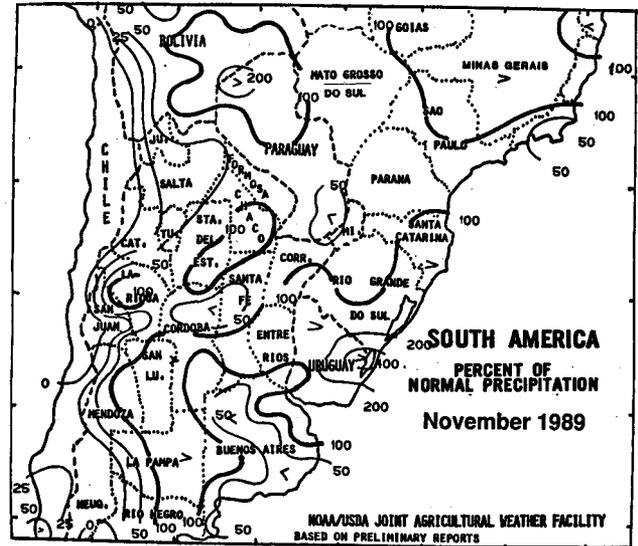
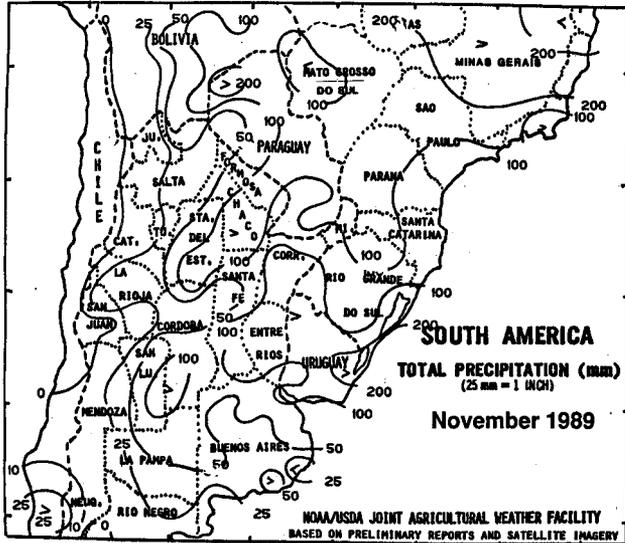
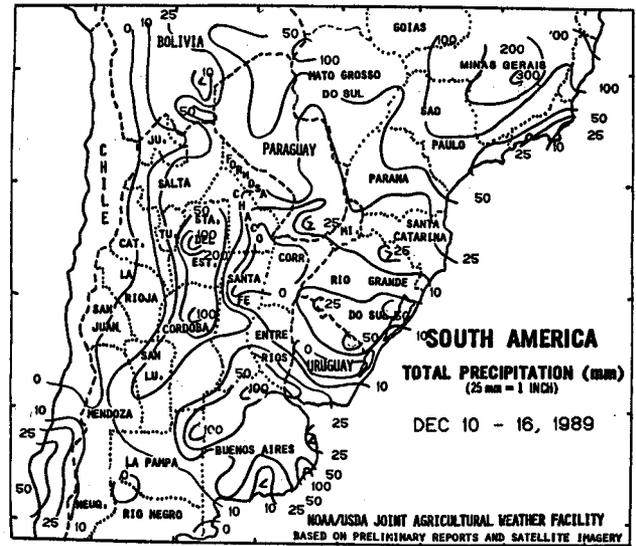




AUSTRALIA ... A tropical disturbance moved across northern coastal Northern Territory on the 12th and 13th, bringing torrential rain (50-200mm) and flooding to sections of extreme northern Western Australia and Northern Territory. The disturbance became Tropical Cyclone Felicity over the Gulf of Carpentaria on the 14th before making landfall in northern Queensland on the 15th. Heavy rains (50-100mm, with isolated amounts in excess of 100mm) caused localized flooding but came too late to delay sugarcane harvest, which is largely complete. Elsewhere, scattered rain (5-30mm) favored summer crops in eastern sections of Queensland and New South Wales, while mostly dry weather benefited winter grain harvest in the southeast. During November, above-normal rainfall delayed late winter grain harvest in Queensland and northern New South Wales, while below-normal rainfall accelerated maturation and drydown of winter crops across most southern growing areas.



SOUTH AMERICA ... In Argentina, soaking rain (50-100mm or more) fell over northwestern Buenos Aires and northern Cordoba while 19-50mm of rain covered most of the remaining corn and wheat areas. Periodic rain brought November monthly totals close to or above normal throughout most summer crop areas except for a narrow northwest to southeast portion of Buenos Aires, where less than 50 percent of normal rainfall occurred. Recent moisture favored summer grain growth and soybean planting (60 percent sown) but slowed wheat harvesting (nearly 40 percent complete). Mostly light rain fell recently in northern cotton areas, which received near-average November rainfall. In south-central Brazil, light showers and warm weather in Rio Grande do Sul hastened soybean planting but limited topsoil moisture. November rain tended below average, especially in western soybean areas of Rio Grande do Sul. Weekly rainfall increased further north, with rainfall averaging 25-91mm in Parana and 38-118mm in Mato Grosso do Sul. Inundating rain (100-313mm) flooded southern Minas Gerais. Brazil's soybean planting pushed over 75 percent completion, behind the average pace but similar to last year.



Heating Degree Day Data Weekly Summary

CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA
ASSESSMENT AND INFORMATION SERVICES CENTER-NESDIS-NOAA
LAST DATE OF DATA COLLECTION PERIOD IS 12-16-1989

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

Table with columns: STATE CITY, CALL, WEEK TOTAL, WEEK DEV FROM, WEEK DEV FROM, CUM TOTAL, CUM DEV FROM, CUM DEV FROM, CUM DEV FROM, CUM DEV FROM, STATE CITY, CALL, WEEK TOTAL, WEEK DEV FROM, WEEK DEV FROM, CUM TOTAL, CUM DEV FROM, CUM DEV FROM, CUM DEV FROM, CUM DEV FROM.

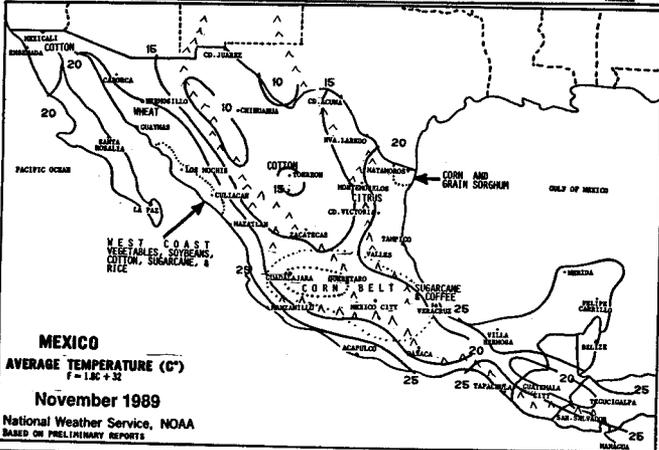
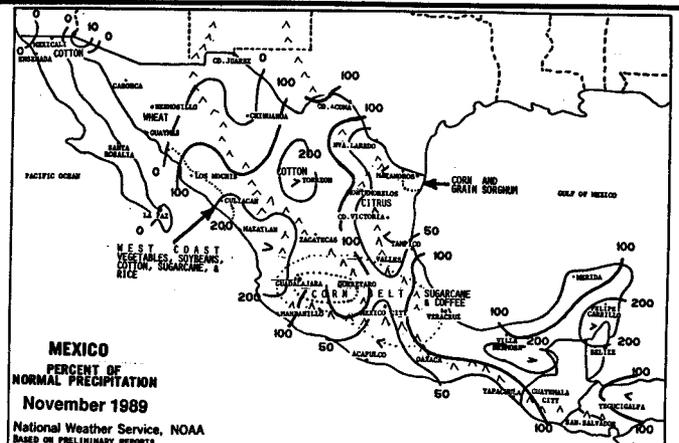
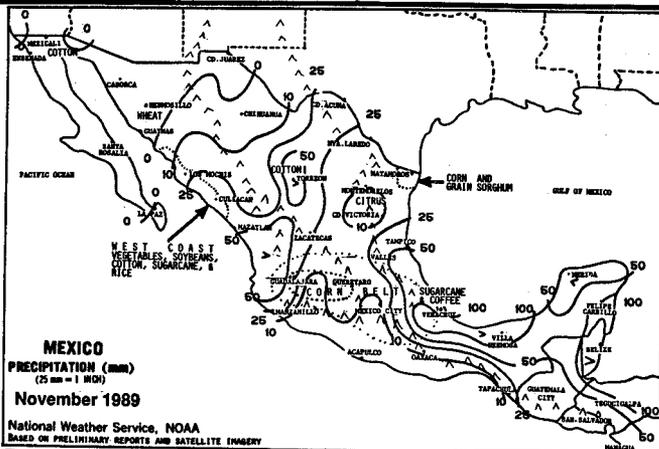
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