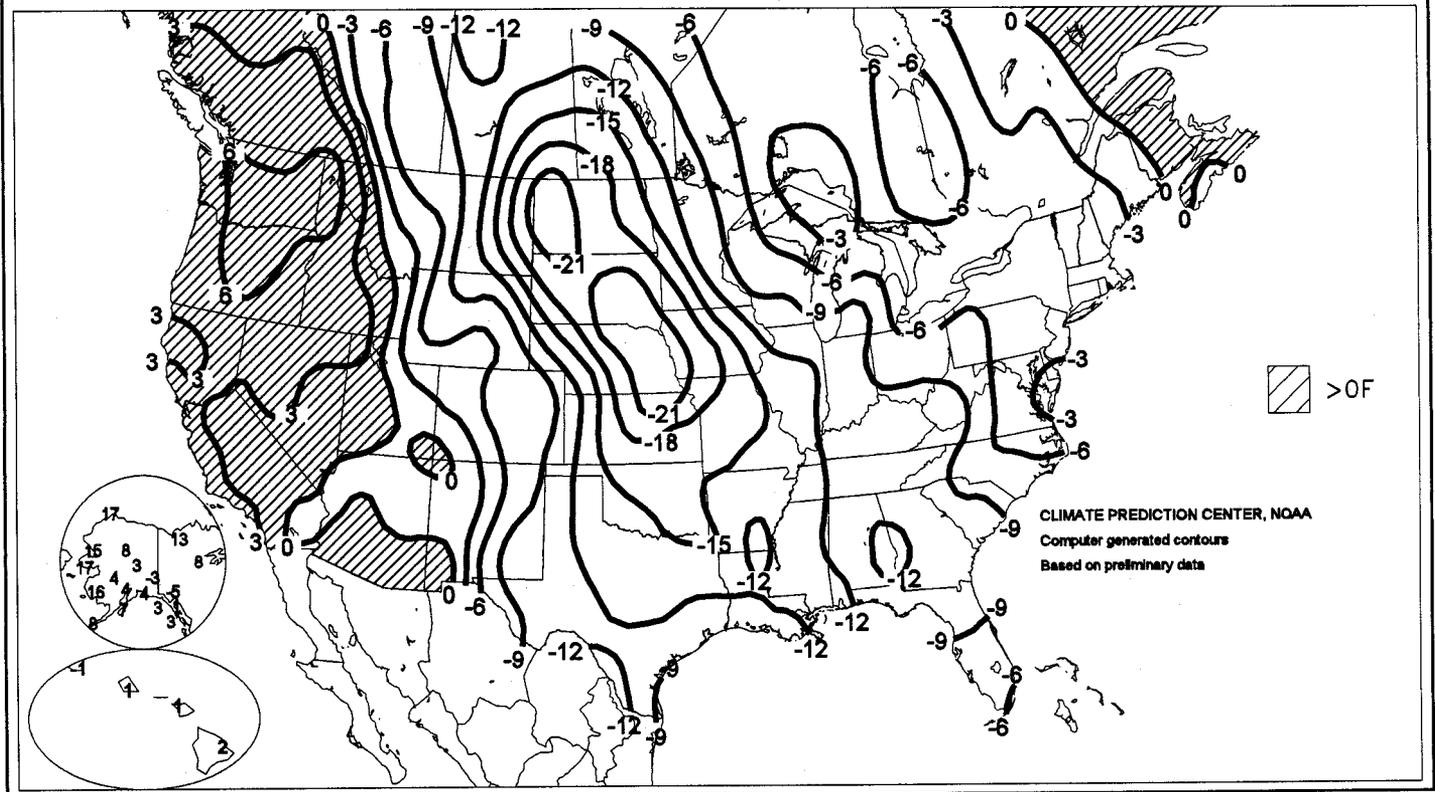


# WEEKLY WEATHER AND CROP BULLETIN

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

Departure of Average Temperature from Normal (°F)  
MAR 8 - 14, 1998



## HIGHLIGHTS

March 8 - 14, 1998

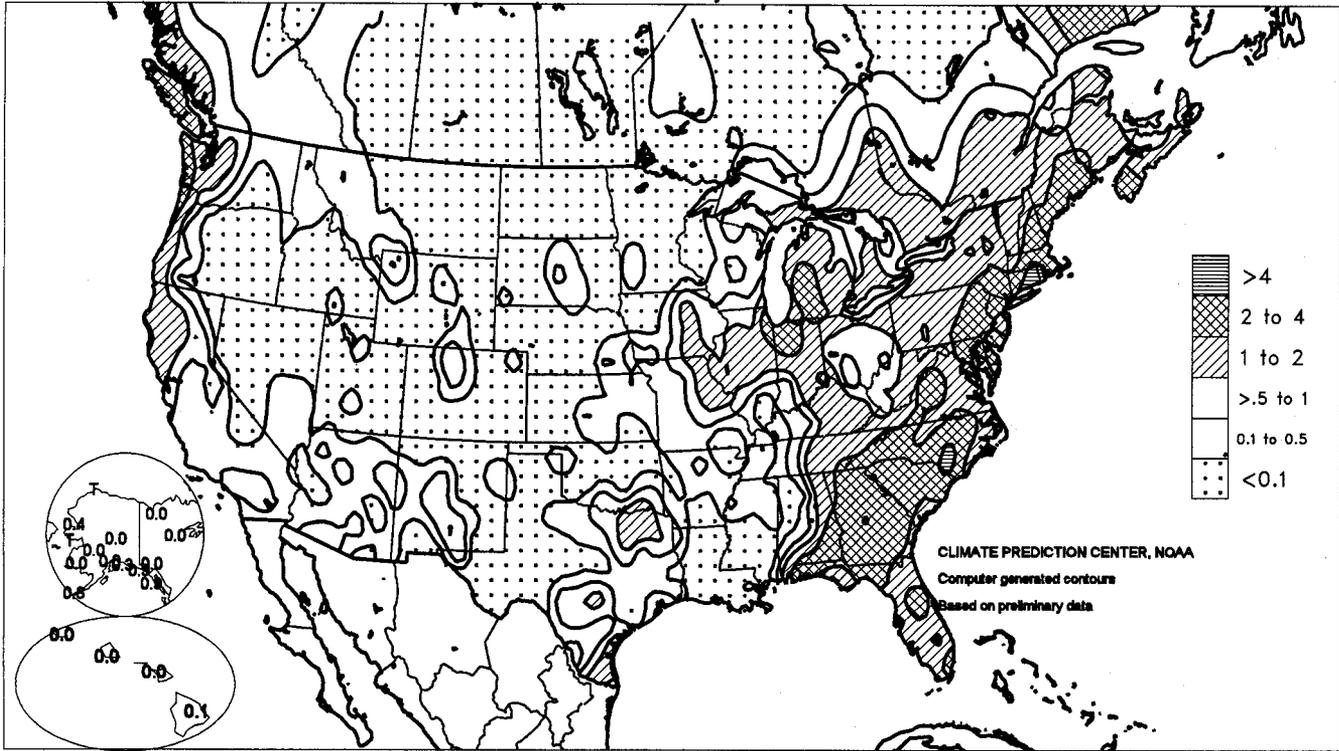
**A**rctic air overspread areas east of the Rocky Divide, the first time in 2 months that extremely cold weather affected any part of the Nation. During a 4-day period (March 10-13), more than 130 daily-record lows were tied or broken, mostly from the northern Plains and upper Midwest into the Southeast. Weekly temperatures in these areas averaged 10 to 24°F below normal despite some late-week warming. In contrast, weekly readings were as much as 7°F above normal in the Northwest. Generally light precipitation fell along the West Coast, although a late-week storm delivered locally heavy rain to southern California. Significant precipitation developed across the Southwest and

*(Continued on back cover)*

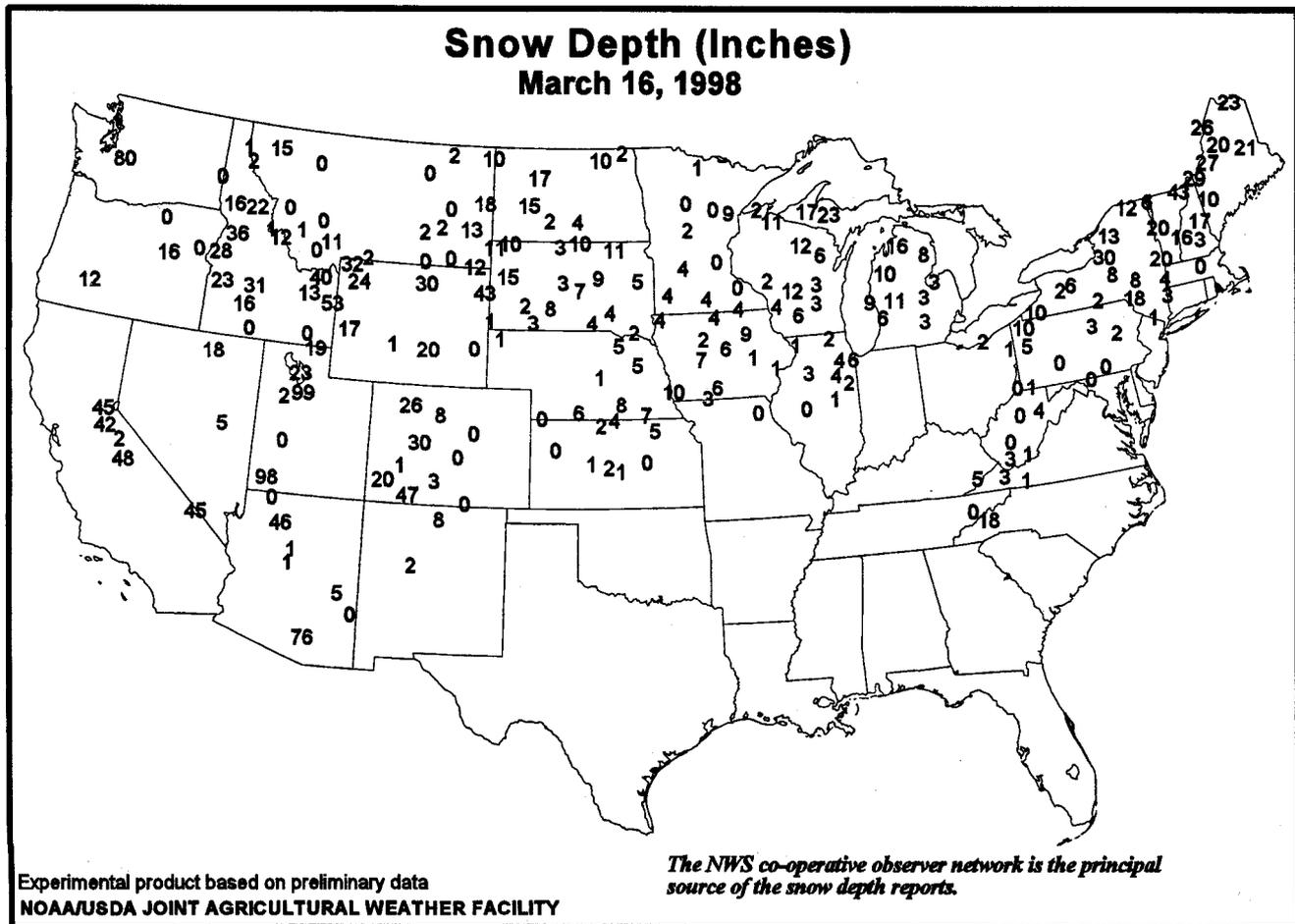
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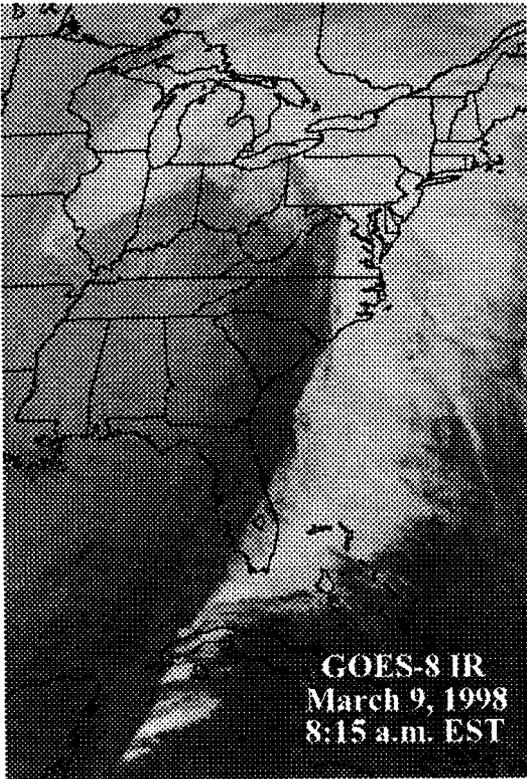
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### Total Precipitation (Inches) MAR 8 - 14, 1998



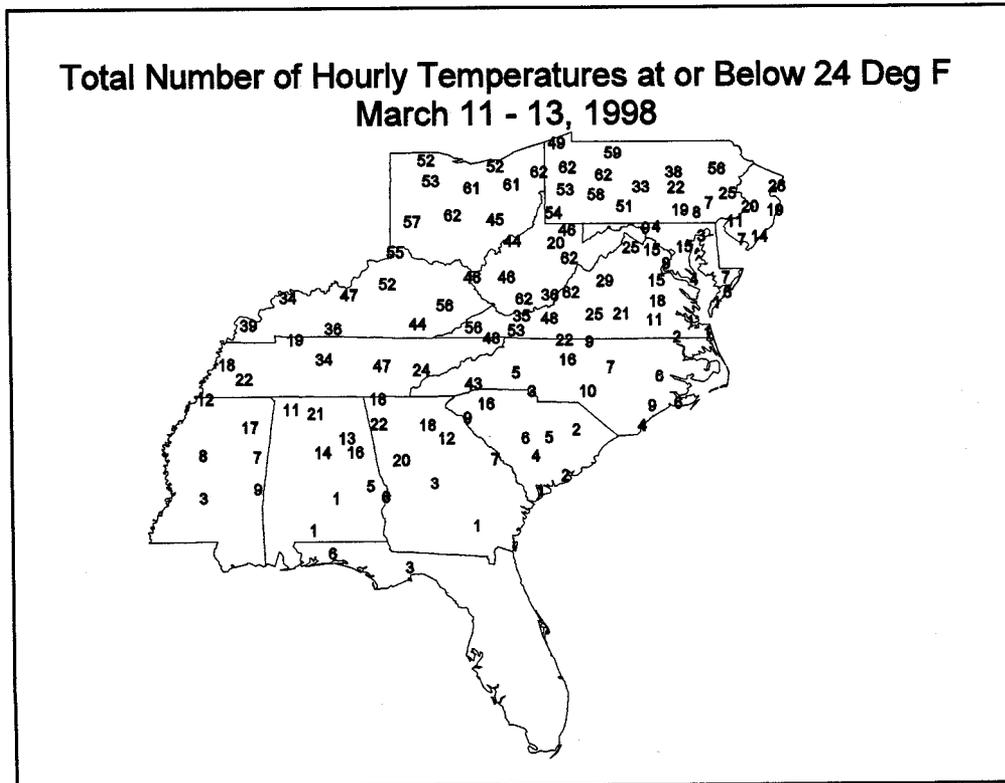
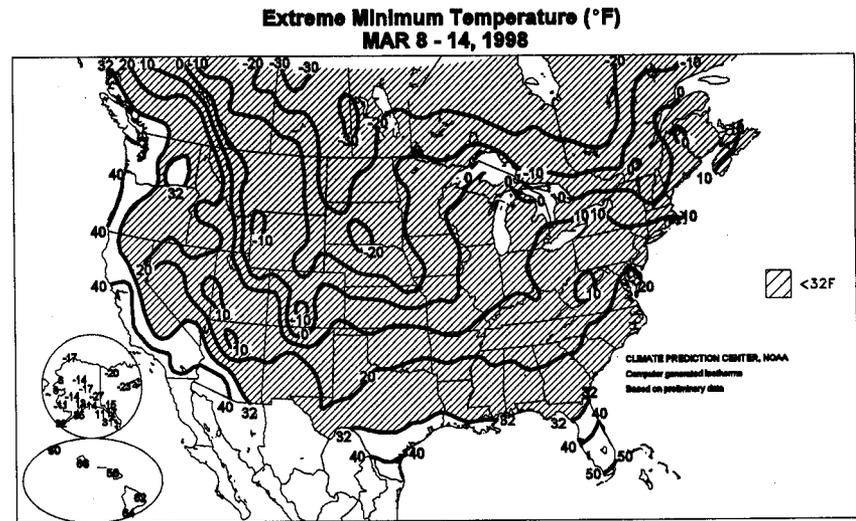
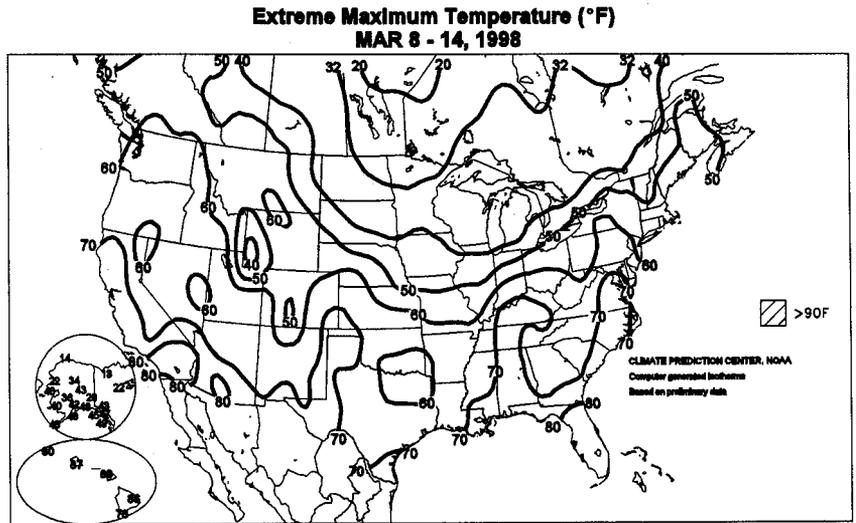
### Snow Depth (Inches) March 16, 1998





GOES-8 IR  
March 9, 1998  
8:15 a.m. EST

After blanketing the central Plains and Midwest with heavy snow and causing major flooding in the Southeast, a storm system (above) helps to draw the coldest air of the season into parts of the Central and Southeastern United States.



# National Weather Data for Selected Cities

Weather Data for the Week Ending March 14, 1998

Data Provided by Climate Prediction Center (301-763-8000 EXT. 7511) and the Southern Regional Climate Center

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 Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL IN, SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	92 AND BELOW	0.1 INCH OR MORE	
																		01 INCH OR MORE	50 INCH OR MORE
AL BIRMINGHAM	53	31	71	19	42	-11	0.57	-0.85	0.57	4.14	148	20.72	184	82	47	0	4	1	0
HUNTSVILLE	50	30	71	17	40	-11	0.30	-1.22	0.28	1.73	58	16.31	125	81	49	0	4	2	0
MOBILE	58	34	74	27	48	-13	1.42	-0.07	1.42	10.13	341	31.33	238	77	38	0	3	1	1
MONTGOMERY	58	33	71	24	44	-12	0.02	-1.44	0.02	1.32	48	15.22	116	79	43	0	4	1	0
AK ANCHORAGE	37	19	42	13	28	4	0.00	-0.17	0.00	0.00	0	0.83	33	78	49	0	7	0	0
BARROW	8	-7	13	-17	0	17	0.02	-0.01	0.02	0.02	33	0.02	7	85	78	0	7	1	0
FAIRBANKS	29	-8	43	-17	10	2	0.00	-0.08	0.00	0.00	0	0.08	7	82	32	0	7	0	0
JUNEAU	37	27	47	17	32	0	0.40	-0.36	0.15	0.40	28	4.83	48	88	70	0	5	4	0
KODIAK	41	37	43	35	39	6	2.88	1.79	1.30	5.03	233	25.74	174	82	80	0	0	6	2
NOME	31	18	40	8	25	17	0.02	-0.09	0.02	0.15	68	1.37	85	83	80	0	7	1	0
AZ FLAGSTAFF	47	19	53	1	33	-1	0.35	-0.26	0.35	1.04	87	4.48	84	81	36	0	7	1	0
PHOENIX	75	51	82	42	63	2	0.10	-0.12	0.10	0.11	25	3.39	188	63	20	0	0	1	0
PRESCOTT	58	30	66	20	44	2	0.08	-0.36	0.08	0.52	59	3.34	85	70	24	0	4	1	0
TUCSON	72	45	79	33	59	1	0.14	-0.03	0.14	0.22	87	3.58	190	61	20	0	0	1	0
YUMA	77	55	84	45	66	2	0.00	-0.06	0.00	0.00	0	1.28	188	49	22	0	0	0	0
AR FORT SMITH	47	28	61	19	37	-13	0.18	-0.72	0.10	1.27	75	12.08	195	81	54	0	5	2	0
LITTLE ROCK	50	31	61	16	40	-11	0.34	-0.77	0.34	1.98	92	12.19	137	73	48	0	4	1	0
CA BAKERSFIELD	67	45	78	39	56	-1	0.32	0.07	0.31	0.78	152	7.44	307	91	55	0	0	2	0
EUREKA	60	44	71	35	52	3	1.64	0.38	1.56	2.16	105	28.91	220	100	70	0	0	3	1
FRESNO	67	46	75	42	58	2	0.01	-0.43	0.01	0.47	53	8.87	187	93	47	0	0	1	0
LOS ANGELES	71	51	78	49	61	3	0.88	0.19	0.37	1.03	101	18.09	306	84	52	0	0	2	0
REDDING	65	42	79	33	54	2	0.95	-0.10	0.41	1.27	80	30.70	243	90	48	0	0	3	0
SACRAM/MCCLELL	67	48	73	37	57	-	0.05	-	0.05	0.24	-	19.42	-	91	57	0	0	1	0
SAN DIEGO	68	53	78	48	61	1	0.09	-0.32	0.08	0.31	37	10.65	254	72	41	0	0	2	0
SAN FRANCISCO	64	49	70	45	57	4	0.16	-0.58	0.08	0.64	36	22.42	249	90	63	0	0	3	0
CO ALAMOSA	46	10	55	-5	28	-3	0.00	-0.11	0.00	0.06	32	0.09	12	85	28	0	7	0	0
CO SPRINGS	46	15	62	6	30	-6	0.00	-0.20	0.00	0.00	0	0.37	35	72	28	0	7	0	0
DENVER	45	15	64	2	30	-8	0.00	-0.27	0.00	0.89	138	0.98	82	86	36	0	7	0	0
GRAND JUNCTION	54	24	66	14	39	-3	0.00	-0.20	0.00	0.24	82	1.19	83	71	24	0	7	0	0
PUEBLO	50	11	70	4	30	-10	0.00	-0.17	0.00	0.02	6	0.29	31	74	22	0	7	0	0
CT BRIDGEPORT	41	27	57	16	34	-3	2.68	1.84	2.14	2.71	165	11.33	144	77	49	0	4	3	1
HARTFORD	41	22	58	11	32	-4	2.90	2.08	2.40	3.05	192	9.54	116	81	51	0	6	2	2
DC WASHINGTON	48	32	72	20	40	-6	1.86	0.94	0.88	2.37	186	13.01	189	60	42	0	4	2	2
DE WILMINGTON	44	30	62	20	37	-4	1.44	0.67	0.94	2.35	155	10.09	135	61	34	0	4	2	2
FL DAYTONA BEACH	84	45	86	37	55	-9	1.75	1.06	1.45	1.79	129	13.37	184	89	50	0	0	2	1
JACKSONVILLE	83	39	84	31	51	-9	0.85	-0.02	0.80	1.37	78	15.97	178	85	42	0	4	2	1
KEY WEST	71	61	82	56	68	-7	0.86	0.47	0.86	1.56	197	8.85	192	79	57	0	0	1	1
MIAMI	73	58	83	49	65	-7	1.06	0.52	1.06	1.63	154	9.28	180	93	57	0	0	1	1
ORLANDO	67	47	86	40	57	-9	2.30	1.53	2.30	2.47	157	13.20	192	80	41	0	0	1	1
TAMPA	68	48	83	39	57	-9	0.83	0.08	0.83	0.91	58	16.37	249	80	46	0	0	1	1
VALPARAISO/EGLIN	59	37	73	28	48	-9	0.24	-0.99	0.24	1.50	63	17.35	161	72	36	0	3	1	0
WEST PALM BEACH	71	54	83	46	63	-7	1.43	0.58	1.43	2.34	140	19.74	276	83	57	0	0	1	1
GA ATHENS	54	31	68	20	42	-10	3.08	1.81	3.08	4.53	181	18.11	157	80	41	0	4	2	1
ATLANTA	51	30	66	19	41	-11	3.52	2.18	3.52	6.06	229	19.06	156	75	47	0	4	1	1
AUGUSTA	57	33	71	20	45	-9	3.19	2.10	3.14	5.30	244	19.17	183	78	39	0	4	2	1
COLUMBUS	56	34	67	25	45	-11	2.85	1.52	2.85	4.24	161	11.67	97	70	40	0	5	1	1
MACON	56	33	68	23	45	-11	1.81	0.89	1.81	3.41	152	15.35	133	81	42	0	5	1	1
SAVANNAH	58	36	69	24	47	-11	1.54	0.66	1.54	2.34	135	16.73	195	88	40	0	4	1	1
HI HILO	84	64	86	62	74	2	0.05	-2.98	0.04	0.81	14	3.28	13	81	52	0	0	2	0
HONOLULU	83	67	87	66	75	1	0.00	-0.52	0.00	0.00	0	0.98	14	83	55	0	0	0	0
KAHULUI	86	62	89	58	74	1	0.00	-0.63	0.00	0.00	0	0.86	10	81	48	0	0	0	0
LIHUE	79	64	80	60	72	-1	0.00	-0.94	0.00	0.00	0	3.94	36	87	64	0	0	0	0
ID BOISE	58	35	69	26	47	5	0.04	-0.25	0.02	0.47	84	4.61	150	77	34	0	2	2	0
LEWISTON	59	40	67	33	49	6	0.08	-0.17	0.04	1.13	240	3.23	121	80	47	0	0	2	0
POCATELLO	49	25	60	14	37	2	0.01	-0.27	0.01	0.29	54	3.71	148	89	44	0	6	1	0
IL CHICAGO/O'HARE	32	18	38	10	25	-10	2.78	2.22	1.97	2.93	282	7.30	186	77	54	0	6	3	2
MOLINE	31	17	44	7	24	-11	1.04	0.41	1.04	1.23	108	6.92	178	80	56	0	6	1	1
PEORIA	31	16	42	3	23	-13	1.72	1.11	1.38	1.79	157	6.98	171	85	58	0	6	2	1
ROCKFORD	31	17	41	7	24	-9	0.91	0.41	0.89	1.07	115	5.00	148	73	44	0	6	2	1
SPRINGFIELD	33	17	48	-1	25	-13	1.27	0.57	1.14	1.39	105	6.52	141	82	60	0	6	2	1
IN EVANSVILLE	43	24	69	11	34	-11	0.58	-0.48	0.43	0.78	38	5.74	73	85	55	0	6	2	0
FORT WAYNE	37	19	53	11	28	-7	1.78	1.13	1.34	1.90	158	7.30	147	85	59	0	6	2	1
INDIANAPOLIS	39	20	58	8	29	-10	1.18	0.34	0.94	1.46	90	5.21	82	83	63	0	6	2	1
SOUTH BEND	31	19	42	10	25	-11	1.60	0.94	0.94	1.71	137	7.21	134	86	62	0	6	5	1
IA BURLINGTON	32	17	46	2	25	-12	1.60	1.00	1.44	1.68	153	7.08	202	77	54	0	6	2	1
CEDAR RAPIDS	25	12	38	-4	19	-15	0.80	0.32	0.80	0.94	107	4.25	148	85	64	0	7	1	1
DES MOINES	24	7	41	-8	16	-19	1.08	0.60	1.08	1.27	144	3.84	130	85	64	0	7	1	0
DUBUQUE	29	13	37	-1	21	-11	0.77	0.16	0.75	1.02	90	5.00	135	81	57	0	7	2	1
SIOUX CITY	22	2	44	-14	12	-22	-	-	-	0.71	91	1.99	98	83	63	0	7	-	-
WATERLOO	28	10	42	-5	18	-14	0.36	-0.12	0.34	0.53	80	3.18	115	82	64	0	7	2	0
KS CONCORDIA	28	9	53	-5	19	-21	0.09	-0.39	0.08	0.32	36	2.69	121	81	60	0	7	2	0
DODGE CITY	38	13	67	2	25	-16	0.28	-0.05	0.28	0.71	118	1.79	104	86	59	0	7	1	0
GOODLAND	42	13	68	-1	27	-10	0.00	-0.26	0.00	0.10	20	0.85	87	78	39	0	7	0	0
TOPEKA	30	10	54	-8	20	-21	0.40	-0.12	0.38	1.09	111	2.85	89	83	58	0	7	2	0

Based on 1961-90 normals

Weather Data for the Week Ending March 14, 1998

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 Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL IN. SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	92 AND BELOW	TEMP, °F		01 INCH OR MORE	50 INCH OR MORE
																		90 AND ABOVE	92 AND BELOW		
WICHITA	37	17	68	9	27	-17	0.07	-0.47	0.06	0.46	46	1.80	65	81	47	0	7	2	0		
KY JACKSON	44	26	71	11	34	-11	0.92	-0.17	0.54	1.33	62	9.51	98	81	48	0	6	4	1		
LEXINGTON	42	23	70	9	33	-11	1.16	0.16	0.94	1.44	74	8.01	100	84	52	0	6	2	1		
LOUISVILLE	44	26	74	10	36	-9	1.18	0.13	-	1.39	67	9.66	117	79	48	0	6	-	-		
PADUCAH	43	24	63	12	34	-12	0.23	-0.86	0.17	0.79	37	8.61	92	84	54	0	5	3	0		
LA BATON ROUGE	58	35	68	28	47	-13	0.00	-1.08	0.00	1.70	78	22.24	178	79	36	0	2	0	0		
LAKE CHARLES	59	39	67	34	49	-10	0.28	-0.47	0.21	2.05	135	17.19	179	79	44	0	0	3	0		
NEW ORLEANS	59	40	73	34	49	-11	0.04	-1.10	0.04	3.30	141	26.85	200	72	41	0	0	1	0		
SHREVEPORT	52	34	60	27	43	-13	0.16	-0.87	0.06	0.17	10	13.20	139	75	44	0	3	3	0		
ME CARIBOU	31	12	47	-2	22	-1	1.48	0.94	1.18	1.92	181	8.60	159	87	57	0	7	5	1		
PORTLAND	39	19	68	4	29	-2	2.40	1.59	1.63	2.42	152	12.97	163	79	50	0	6	3	2		
MD BALTIMORE	47	31	73	17	39	-4	3.74	2.97	2.87	4.59	298	16.66	215	70	41	0	4	2	2		
MA BOSTON	41	24	68	10	32	-5	2.37	1.54	2.14	2.43	147	12.73	144	78	52	0	6	3	1		
WORCESTER	35	19	57	7	27	-5	4.08	3.20	3.73	4.21	242	11.96	135	80	53	0	6	3	1		
MI ALPENA	28	14	36	2	21	-5	1.71	1.25	0.54	2.11	240	6.66	175	89	84	0	7	6	1		
GRAND RAPIDS	30	16	36	2	23	-9	2.72	2.17	1.36	2.87	276	8.50	198	88	81	0	6	4	2		
HOUGHTON LAKE	27	14	35	0	20	-6	1.14	0.70	0.71	1.39	167	4.39	125	90	61	0	7	5	1		
LANSING	30	14	37	3	22	-10	1.81	1.12	1.00	2.06	220	7.54	200	89	84	0	7	3	2		
MARQUETTE	23	9	31	-2	18	-5	1.41	0.78	0.53	2.44	205	6.29	124	90	53	0	7	6	0		
MUSKOGON	30	20	36	5	25	-7	1.16	0.82	0.52	1.33	130	5.67	117	86	82	0	6	5	1		
MN DULUTH	22	3	31	-6	13	-10	0.00	-0.41	0.00	0.18	24	4.83	167	82	48	0	7	0	0		
INT'L FALLS	21	0	30	-8	10	-9	0.07	-0.16	0.04	0.19	46	1.90	98	82	40	0	7	3	0		
MINNEAPOLIS	28	10	37	2	19	-9	0.04	-0.37	0.04	0.23	30	2.66	102	72	38	0	7	1	0		
ROCHESTER	23	8	36	-3	16	-12	0.03	-0.33	0.03	0.15	22	3.00	137	79	58	0	7	1	0		
ST. CLOUD	26	6	36	-2	16	-9	0.00	-0.28	0.00	0.30	58	1.87	99	75	42	0	7	0	0		
MS JACKSON	52	32	67	23	42	-13	0.00	-1.30	0.00	2.39	94	17.43	140	76	39	0	5	0	0		
MERIDIAN	54	31	69	22	43	-13	0.00	-1.54	0.00	2.31	76	21.29	156	79	38	0	4	0	0		
TUPELO	48	29	64	18	38	-14	0.16	-1.22	0.16	3.39	128	15.67	128	79	43	0	5	1	0		
MO COLUMBIA	34	16	65	-1	25	-16	0.90	0.21	0.78	1.81	124	7.32	159	83	58	0	7	3	1		
KANSAS CITY	31	13	62	-7	22	-19	0.51	-0.03	0.47	1.38	137	3.44	107	79	80	0	7	2	0		
SAINT LOUIS	39	20	58	4	29	-14	1.04	0.24	0.86	1.49	98	7.30	134	84	56	0	6	3	1		
SPRINGFIELD	37	19	60	6	28	-16	0.44	-0.41	0.40	1.48	92	8.43	151	87	57	0	6	3	0		
MT BILLINGS	35	12	62	-5	23	-11	0.06	-0.18	0.04	0.48	107	1.28	63	92	61	0	7	2	0		
BUTTE	44	12	66	-8	29	2	0.04	-0.13	0.04	0.51	165	1.81	148	90	50	0	7	1	0		
GLASGOW	24	3	47	-11	13	-14	0.06	-0.01	-	0.12	86	0.53	68	81	54	0	7	-	-		
GREAT FALLS	37	17	60	3	27	-5	0.06	-0.18	0.06	0.41	93	1.58	82	88	64	0	7	1	0		
KALISPELL	45	26	67	12	36	3	0.42	0.20	0.20	1.36	302	2.68	87	95	59	0	7	5	0		
MILES CITY	28	3	42	-12	14	-17	0.04	-0.07	0.04	0.18	82	0.81	66	88	63	0	7	1	0		
MISSOULA	50	28	60	20	39	4	0.02	-0.20	0.02	0.46	102	2.22	89	88	45	0	5	1	0		
NE GRAND ISLAND	25	4	55	-10	15	-21	0.01	-0.39	0.01	0.10	14	0.97	50	82	57	0	7	1	0		
LINCOLN	25	3	49	-15	14	-23	0.60	0.16	0.59	1.57	194	3.56	173	86	80	0	7	2	1		
NORFOLK	22	2	45	-14	12	-21	0.05	-0.35	0.02	0.56	76	1.07	53	82	58	0	7	3	0		
NORTH PLATTE	34	6	61	-12	20	-15	0.00	-0.24	0.00	0.19	43	0.86	69	88	50	0	7	0	0		
OMAHA	24	4	44	-11	14	-22	0.64	0.20	-	1.57	194	3.17	137	83	61	0	7	-	-		
SCOTTSBLUFF	40	8	59	-4	24	-11	0.00	-0.23	0.00	0.59	137	1.43	104	87	51	0	7	0	0		
VALENTINE	25	1	43	-27	13	-19	0.00	-0.21	0.00	0.31	79	0.50	46	87	60	0	7	0	0		
NV ELY	47	17	55	3	32	-2	0.00	-0.22	0.00	0.11	27	2.22	123	85	36	0	7	0	0		
LAS VEGAS	67	45	74	37	58	1	0.14	0.03	0.14	0.14	64	3.20	278	61	22	0	0	1	0		
RENO	59	30	65	23	45	3	0.05	-0.12	0.05	0.57	154	4.25	173	83	27	0	5	1	0		
WINNEMUCCA	59	27	68	18	43	4	0.00	-0.17	0.00	0.15	45	3.42	201	82	31	0	6	0	0		
NH CONCORD	36	18	50	3	27	-3	2.19	1.58	1.85	2.38	197	8.47	135	72	44	0	6	3	1		
NJ NEWARK	43	29	60	19	36	-4	1.78	0.91	1.13	1.84	109	11.54	142	74	48	0	5	3	2		
NM ALBUQUERQUE	57	33	65	27	45	-1	0.13	0.02	0.13	0.24	109	1.04	90	48	19	0	3	1	0		
NY ALBANY	37	20	57	6	28	-4	1.37	0.72	0.80	1.58	122	7.94	134	85	54	0	6	3	2		
BINGHAMTON	32	18	57	7	25	-6	1.53	0.91	0.70	1.67	137	9.26	166	90	59	0	6	5	1		
BUFFALO	34	21	58	10	27	-5	1.61	1.02	0.60	1.85	158	9.73	167	85	56	0	7	7	2		
ROCHESTER	36	21	63	12	28	-4	1.28	0.79	0.61	1.10	111	9.07	175	89	53	0	6	7	0		
SYRACUSE	37	20	63	9	28	-4	1.23	0.63	0.49	1.38	119	9.30	165	89	57	0	6	6	0		
NC ASHEVILLE	46	24	64	14	35	-11	1.53	0.46	1.46	1.83	86	18.19	196	85	44	0	6	2	1		
CHARLOTTE	55	33	71	21	44	-5	1.57	0.52	1.43	2.15	103	11.71	121	72	34	0	4	3	1		
GREENSBORO	51	30	66	17	41	-7	1.84	0.99	1.70	1.99	116	13.26	162	70	39	0	4	2	1		
HATTERAS	49	38	62	29	43	-7	0.50	-0.49	0.40	0.57	29	18.03	158	79	56	0	4	2	0		
RALEIGH	54	32	68	20	43	-6	2.38	1.50	1.85	2.51	139	15.79	178	68	39	0	5	2	2		
WILMINGTON	58	35	73	21	48	-7	0.76	-0.15	0.41	0.84	48	19.36	208	81	38	0	4	2	0		
ND BISMARCK	17	-3	33	-15	7	-19	0.00	-0.15	0.00	0.12	46	1.88	161	82	63	0	7	0	0		
DICKINSON	17	-7	37	-26	6	-23	0.04	-0.08	0.04	0.17	77	2.56	275	85	68	0	7	1	0		
FARGO	16	1	30	-7	8	-15	0.00	-0.21	0.00	0.06	16	2.36	154	80	62	0	7	0	0		
GRAND FORKS	14	-2	28	-10	6	-15	0.00	-0.20	0.00	0.00	0	1.94	124	81	63	0	7	0	0		
JAMESTOWN	17	-3	33	-12	7	-17	0.05	-0.12	0.03	0.20	63	2.20	158	92	67	0	7	2	0		
WILLISTON	15	-11	34	-28	2	-24	0.00	-0.14	0.00	0.20	80	2.31	188	86	62	0	7	0	0		
OH AKRON-CANTON	36	20	62	12	27	-9	1.32	0.68	0.75	1.62	112	7.83	134	88	57	0	6	5	1		
CINCINNATI	41	21	68	7	31	-10	1.26	0.31	0.79	1.62	88	7.93	112	87	59	0	6	3	1		
CLEVELAND	36	23	63	17	30	-6	0.84	0.20	0.44	1.43	114	7.25	132	85	58	0	6	5	0		
COLUMBUS	40	24	61	16	32																

Weather Data for the Week Ending March 14, 1998

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 Mar 1	PCT. NORMAL SINCE Mar 1	TOTAL IN, SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	92 AND BELOW	TEMP. °F		PRECIP.	
																		01 INCH OR MORE	50 INCH OR MORE	01 INCH OR MORE	50 INCH OR MORE
OK TOLEDO	37	21	53	14	29	-6	1.59	1.01	0.90	1.63	147	8.37	183	87	57	0	6	2	2		
OK YOUNGSTOWN	36	21	55	13	28	-6	1.23	0.54	0.49	1.60	120	8.34	151	87	57	0	6	7	0		
OK OKLAHOMA CITY	44	26	61	16	34	-15	0.02	-0.59	0.02	1.22	104	5.42	141	78	52	0	6	1	0		
OK TULSA	43	23	64	14	33	-16	0.00	-0.76	0.00	2.74	188	6.52	132	81	47	0	6	0	0		
OR ASTORIA	56	45	61	40	50	4	3.01	1.34	1.66	5.42	161	32.14	153	98	82	0	0	7	2		
OR BURNS	54	29	61	23	41	6	0.18	-0.08	0.17	0.48	102	5.70	267	95	45	0	7	2	0		
OR EUGENE	59	42	71	33	51	4	0.49	-0.82	0.17	1.55	59	15.84	98	89	63	0	0	6	0		
OR MEDFORD	61	38	69	33	50	3	0.09	-0.34	0.06	0.72	83	8.78	160	91	50	0	0	3	0		
OR PENDLETON	62	40	67	38	51	7	0.08	-0.20	0.06	0.61	113	4.40	136	91	47	0	0	3	0		
OR PORTLAND	58	46	64	41	52	5	0.67	-0.16	0.41	1.89	112	13.93	128	91	64	0	0	5	0		
OR SALEM	58	43	68	33	51	6	0.75	-0.24	0.18	1.87	93	17.09	137	96	69	0	0	7	0		
PA ALLENTOWN	43	27	62	17	35	-3	1.97	1.24	1.37	2.11	146	9.38	124	76	46	0	5	3	2		
PA ERIE	36	24	61	18	30	-4	0.42	-0.24	0.20	0.78	61	7.41	128	87	63	0	7	3	0		
PA MIDDLETOWN	43	29	65	19	36	-3	1.43	0.66	0.96	2.16	140	11.70	160	68	44	0	4	2	1		
PA PHILADELPHIA	46	30	67	20	38	-3	1.13	0.37	0.92	1.77	118	9.26	123	72	49	0	5	2	1		
PA PITTSBURGH	38	23	58	12	30	-7	0.72	-0.04	0.48	0.93	63	7.12	111	86	48	0	6	4	0		
PA SCRANTON	39	25	63	14	32	-3	1.07	0.51	0.80	1.20	107	7.07	132	85	48	0	5	4	1		
PA WILLIAMSPORT	39	25	60	16	32	-4	1.25	0.53	0.66	1.32	94	11.85	177	79	45	0	5	3	2		
RI PROVIDENCE	43	25	58	14	34	-2	3.52	2.61	3.02	3.68	206	16.06	173	80	49	0	5	3	2		
SC BEAUFORT	58	37	71	24	48	-10	1.71	0.75	1.67	2.06	109	18.31	206	83	41	0	4	2	1		
SC CHARLESTON	59	37	74	22	48	-9	1.87	0.85	1.85	2.35	117	20.10	230	84	36	0	3	2	1		
SC COLUMBIA	56	33	70	20	45	-9	1.97	0.84	1.94	2.50	112	15.66	145	82	40	0	4	2	1		
SC GREENVILLE	53	30	68	19	42	-9	2.44	1.19	2.40	3.20	129	18.91	154	74	40	0	4	2	1		
SD ABERDEEN	16	-3	36	-14	6	-21	0.00	-0.27	0.00	0.14	28	1.53	115	82	65	0	7	0	0		
SD HURON	18	-2	38	-17	8	-21	0.01	-0.34	0.01	0.15	23	1.10	84	80	61	0	7	1	0		
SD RAPID CITY	28	3	48	-18	15	-17	0.00	-0.20	0.00	0.30	79	0.94	74	86	70	0	7	0	0		
SD SIOUX FALLS	18	1	37	-11	10	-21	0.02	-0.31	0.02	0.54	89	1.70	97	82	62	0	7	1	0		
TN BRISTOL	46	26	66	13	36	-10	1.04	0.19	0.59	1.32	78	8.58	103	83	44	0	6	2	1		
TN CHATTANOOGA	51	30	69	19	41	-8	1.58	0.19	1.67	3.81	138	16.37	131	72	45	0	5	2	1		
TN KNOXVILLE	49	29	73	16	39	-8	1.31	0.13	1.25	1.60	89	8.93	85	79	44	0	4	2	1		
TN MEMPHIS	46	30	63	18	38	-13	0.29	-0.91	0.28	2.67	113	14.95	143	73	50	0	5	2	0		
TN NASHVILLE	47	28	73	15	38	-11	0.48	-0.64	0.38	1.25	58	9.04	95	81	48	0	5	3	0		
TX ABILENE	52	31	63	22	42	-13	0.20	-0.10	0.16	0.58	102	2.43	88	83	46	0	5	2	0		
TX AMARILLO	46	22	72	14	35	-10	0.03	-0.19	0.02	0.11	26	2.87	188	83	37	0	6	2	0		
TX AUSTIN	56	40	63	32	48	-12	0.46	0.06	0.20	0.57	67	8.50	138	71	46	0	1	4	0		
TX BEAUMONT	58	41	66	36	50	-10	0.38	-0.36	0.36	3.08	207	16.94	178	76	46	0	0	2	0		
TX BROWNSVILLE	67	54	72	45	60	-7	0.29	0.20	0.19	0.34	148	2.43	85	84	53	0	0	2	0		
TX CORPUS CHRISTI	63	48	71	40	56	-8	1.83	1.62	0.89	1.85	402	5.58	135	83	58	0	0	4	2		
TX DEL RIO	58	43	65	36	51	-11	0.04	-0.08	0.04	0.07	29	0.46	26	65	38	0	0	1	0		
TX EL PASO	64	33	75	27	48	-5	0.01	-0.08	0.01	0.05	31	0.24	24	62	28	0	5	1	0		
TX FORT WORTH	50	34	57	24	42	-13	0.58	-0.02	0.51	1.02	87	9.31	179	74	46	0	3	3	1		
TX GALVESTON	58	46	66	39	52	-8	0.03	-0.53	0.03	0.11	10	10.56	160	83	54	0	0	1	0		
TX HOUSTON	59	38	68	30	49	-10	0.50	-0.18	0.33	0.53	40	10.74	142	81	47	0	1	4	0		
TX LUBBOCK	50	28	67	14	38	-12	0.09	-0.10	0.09	0.13	33	1.99	137	78	36	0	6	1	0		
TX MIDLAND	57	32	70	20	45	-10	0.00	-0.14	0.00	0.02	7	0.76	59	72	32	0	4	0	0		
TX SAN ANGELO	57	33	69	24	45	-11	0.08	-0.11	0.08	0.13	33	1.38	60	78	36	0	5	1	0		
TX SAN ANTONIO	57	41	63	32	49	-11	1.01	0.68	0.50	1.10	167	7.71	184	76	46	0	1	3	1		
TX VICTORIA	59	42	67	32	50	-12	0.75	0.42	0.50	0.78	113	5.78	119	85	53	0	1	3	1		
TX WACO	53	36	61	26	44	-13	0.39	-0.11	0.36	0.42	42	10.58	224	79	48	0	4	2	0		
TX WICHITA FALLS	48	29	63	20	39	-13	0.03	-0.44	0.03	0.16	18	4.82	145	76	52	0	5	1	0		
UT SALT LAKE CITY	47	29	57	14	38	-2	0.00	-0.42	0.00	1.09	136	7.61	241	75	46	0	4	0	0		
VT BURLINGTON	33	18	53	0	25	-4	1.64	1.16	0.96	2.07	223	9.06	207	86	51	0	6	4	1		
VA LYNCHBURG	47	27	67	11	37	-8	1.95	1.15	1.41	2.61	166	16.54	222	68	40	0	5	2	2		
VA NORFOLK	54	37	73	25	45	-2	1.60	0.75	0.89	1.76	103	15.98	179	69	44	0	3	2	2		
VA RICHMOND	53	32	74	19	43	-4	2.64	1.81	1.80	3.01	182	15.83	194	68	29	0	4	2	2		
VA ROANOKE	46	28	63	15	37	-8	1.11	0.31	0.79	1.15	73	17.11	237	66	43	0	4	2	1		
VA WASH/DULLES	47	29	73	16	38	-4	1.24	0.52	0.76	1.81	127	13.06	188	70	42	0	4	2	1		
WA HANFORD	62	39	72	33	51	-	0.01	-0.13	0.01	0.14	61	2.53	154	77	45	0	0	1	0		
WA OLYMPIA	56	41	63	36	48	-	1.62	0.45	1.03	2.95	120	19.89	123	98	72	0	0	5	1		
WA QUILLAYUTE	53	45	59	40	49	6	3.08	0.37	1.22	3.73	68	34.67	107	97	85	0	0	7	3		
WA SEATTLE-TACOMA	56	45	68	40	50	5	1.09	0.26	0.72	2.10	124	12.55	113	93	67	0	0	4	1		
WA SPOKANE	52	36	65	31	44	6	0.28	-0.07	0.14	0.59	84	4.24	102	92	57	0	2	2	0		
WA YAKIMA	59	35	68	31	47	5	0.01	-0.13	0.01	0.14	42	3.94	173	91	52	0	2	1	0		
WV BECKLEY	39	20	59	8	30	-11	0.76	-0.01	0.34	1.15	76	10.93	148	87	57	0	6	4	0		
WV CHARLESTON	45	28	67	13	35	-9	1.01	0.18	0.51	1.55	95	9.22	122	85	54	0	6	4	1		
WV ELKINS	38	22	60	5	30	-8	0.82	-0.23	0.37	0.85	51	7.98	99	83	54	0	6	5	0		
WV HUNTINGTON	43	26	70	14	35	-10	0.77	-0.06	0.43	1.15	71	9.78	133	83	46	0	6	3	0		
WI EAU CLAIRE	28	12	35	3	20	-7	0.12	-0.22	0.09	0.52	84	4.46	191	79	49	0	7	2	0		
WI GREEN BAY	29	14	34	6	21	-6	0.35	-0.09	0.25	0.73	89	3.73	124	79	51	0	7	2	0		
WI MADISON	27	13	37	4	20	-10	0.68	0.22	0.68	1.08	127	4.76	159	76	50	0	7	1	1		
WI MILWAUKEE	30	17	36	10	24	-8	0.75	0.19	0.69	0.82	88	6.70	164	74	50	0	6	3	1		
WY CASPER	41	12	58	-1	26	-8	0.00	-0.19	0.00	0.04	11	1.09	73	83	49	0	7	0	0		
WY CHEYENNE	41	12	58	0	26	-8	0.03	-0.19	0.02	0.20	50	0.57	48	87	41	0	7	2	0		
WY LANDER	37	11	53	-5	24	-8	0.00	-0.23	0.00	0.09	22	0.80	54	86	54	0	7	0	0		
WY SHERIDAN	37	10	60	-6	23	-9	0.00	-0.19	0.00	0.17	47	0.67	38	87	57	0	7	0	0		

NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

# National Agricultural Summary

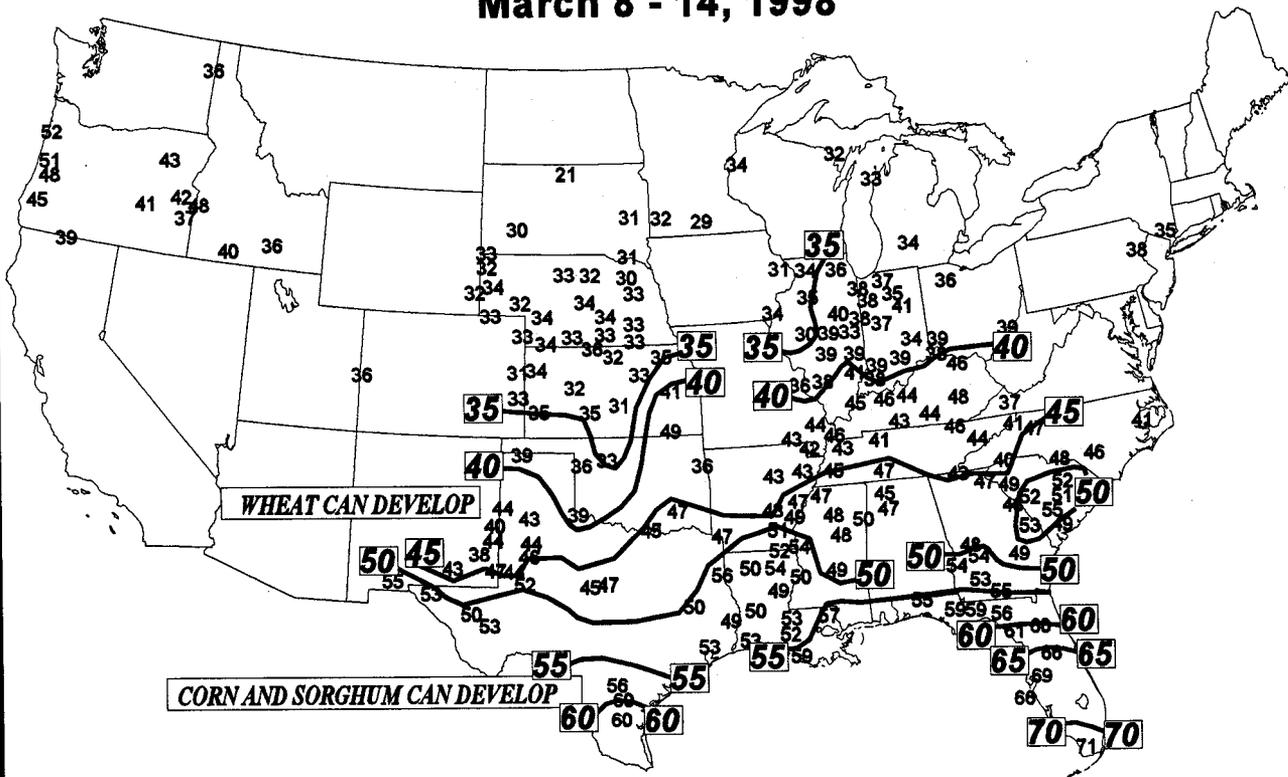
March 9 - 15, 1998

## HIGHLIGHTS

A strong cold front brought sub-freezing temperatures as far south as central Texas and the Gulf of Mexico, damaging fruit and nut trees and slowing the growth of winter wheat, vegetables, and early-planted field crops. The peach crop in Georgia, the Carolinas, and Texas suffered considerable freeze damage to early-blooming varieties and young trees. Blueberry, strawberry, and pecan growers also reported damage caused by freezing temperatures. In southern Florida, temperatures remained warm enough to prevent damage to the vegetable and citrus crops. Field activities were sharply curtailed throughout the Southeast due to the cold weather and wet fields. The Corn Belt and Great Plains States experienced bitterly cold weather early in the week, but the winter wheat crop did not suffer significant damage. Snow cover helped protect the crop in the

northern Great Plains. Leaf burn was reported throughout the central and southern Plains, but wind and freeze damage was expected to be light. In Texas, emerged corn was damaged by strong winds. Fieldwork was limited in the central Plains by cold, wet weather, but Texas farmers continued planting corn, cotton, and grain sorghum and began planting rice. Temperatures were above normal in California and the Pacific Northwest. The warm, sunny weather aided the progress of California's spring vegetables and helped dry out orchards and vineyards. Almond and stone fruit trees were near full bloom. Fieldwork resumed in most areas until showers later in the week halted activity in some northern locations. Plants in some low-lying small grain and alfalfa fields continued to recover from excessive moisture, but still showed signs of stress.

**Average Soil Temperature (°F 4-Inch Bare)  
March 8 - 14, 1998**



NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY  
Based on preliminary data

## Winter Weather Review

**Highlights:** El Niño had a profound influence on the Nation's weather patterns during the winter months. The two most consistent effects were warmth in the North, especially from the upper Midwest into the Northeast; and wetness in the Southeast, continuing a trend that developed in mid-October. Despite the consistently above-normal temperatures in many areas, the winter featured a catastrophic ice storm in northern New England (January 5-9) and a blizzard on parts of the northern Plains (February 25-March 1). Another persistent weather feature was heavy rainfall in California, especially in early December and for a month-long period ending in late February. The California rainfall resulted in the wettest February on record in many locations, inducing flooding, mudslides, and agricultural disruptions (fieldwork delays and crop damage). Along the East Coast, several "nor'easters" delivered high winds, torrential precipitation, and heavy surf. Two such storms--a week apart in late January and early February--dumped record snowfall in the Ohio Valley and central Appalachians. On the night of February 22-23, another low-pressure system sparked Florida's deadliest tornado outbreak on record, leaving 38 people dead.

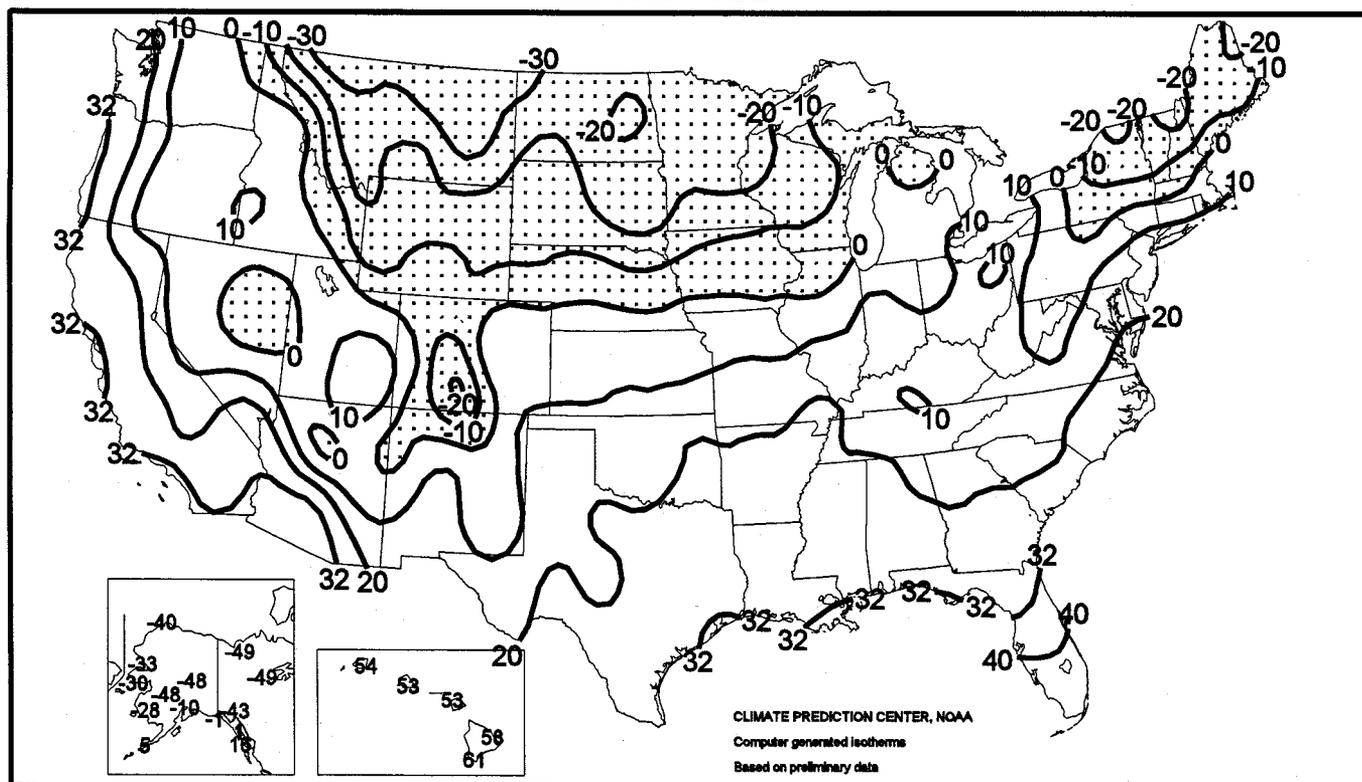
Winter temperatures averaged 4 to 12°F above normal from the northern Plains to the Northeast. Departures generally ranged from +2 to +5 in the Northwest and 0 to +4 from the central and southern Plains into the Southeast. Near-normal readings prevailed in California and the Southwest, highlighted by very cool weather along the primary storm track in December and February. Winter precipitation totaled more than 200 percent of normal across southern Arizona and most of California; on parts of the central and southern Plains; and in portions of the Mid- and Southern Atlantic States.

**December:** Monthly temperatures ranged from 5 to 15°F above normal across the North Central States, but were as much as 3°F below normal in the Southeast. Heavy snowfall suppressed temperatures in the southern Rockies and southern Plains, where departures ranged from -2 to -9°F. Despite the lack of Arctic air, the passage of several strong storms lowered temperatures across the Deep South. On December 13-14 and again toward month's end, temperatures dipped to near-freezing levels as far south as Texas' Lower Rio Grande Valley. December-record rainfall drenched central and northeastern Florida, while near-record totals soaked parts of Texas. Snow occasionally fell across the South, including up to 8 inches in Mississippi on December 14, and as much as 4 feet in the mountains of the Southwest after mid-month. After early- to mid-month rainfall, California's weather pattern turned quiet.

**January:** Arctic air briefly edged into the North before mid-month, but quickly lost its punch. As a result, monthly temperatures averaged 3 to 12°F above normal, except on the northern Plains and across parts of the West Coast States (near normal). From January 5-9, one of the worst ice storms on record struck northern New England. During the same period, heavy rain fell in the Southeast, contributing to January-record rainfall in more than a dozen locations from Louisiana to Virginia. From January 27-28, an East Coast storm padded rainfall totals and dumped heavy snow in the central and southern Appalachians. Above-normal precipitation also occurred in the Northwest.

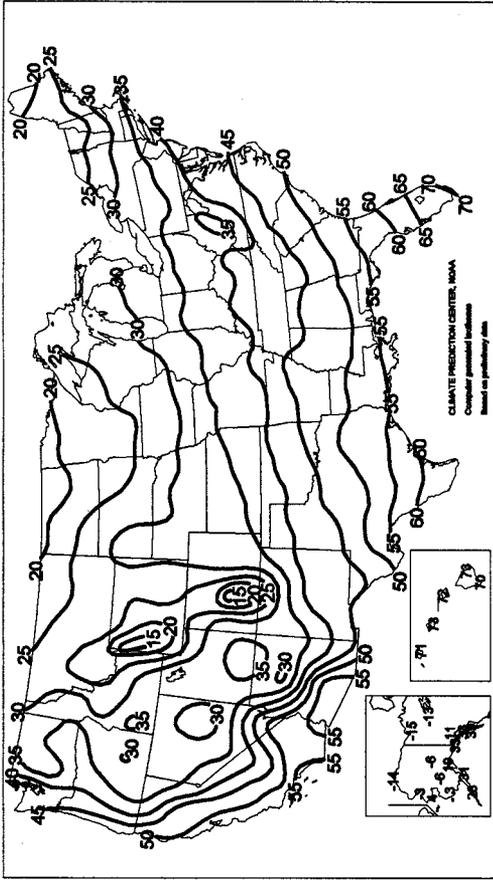
**February:** A complete summary appeared in last week's *Bulletin*.

### Winter Extreme Minimum Temperature (°F) DEC 1997 - FEB 1998

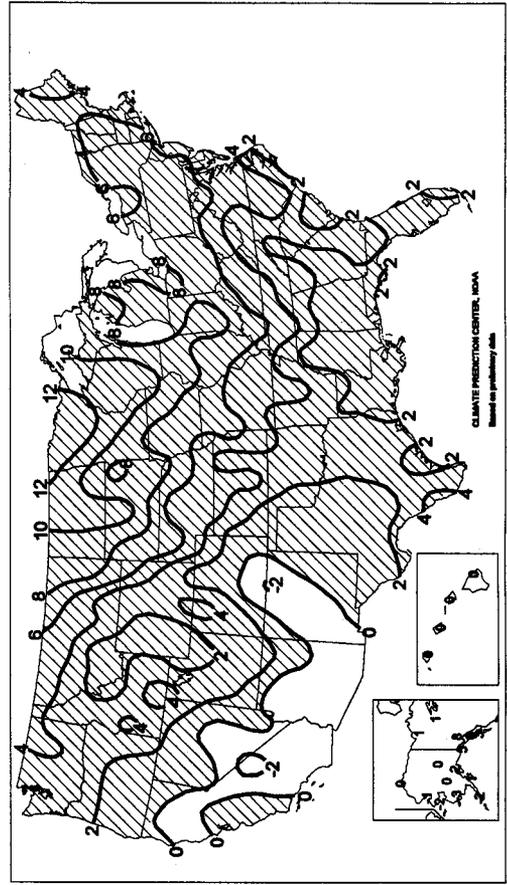


In several parts of the Nation, winter's extreme minimum temperatures remained higher than ever before recorded. For example, cold-season lows of 5°F in Goodland, KS and 16°F in Springfield, MO--if they had stood through the Arctic outbreak of March 10-13--would have broken records set in 1982-83. For the first time in 58 years of airport records, winter lows failed to dip below 0°F in Portland, ME, breaking their 1952-53 record of 1 day. In Illinois, cold-season readings remained at or above 0°F at Peoria for the first time since 1952-53. In Milwaukee, WI, the winter ended with 45 consecutive days of above-normal temperatures, approaching their 1878 record of 54 days.

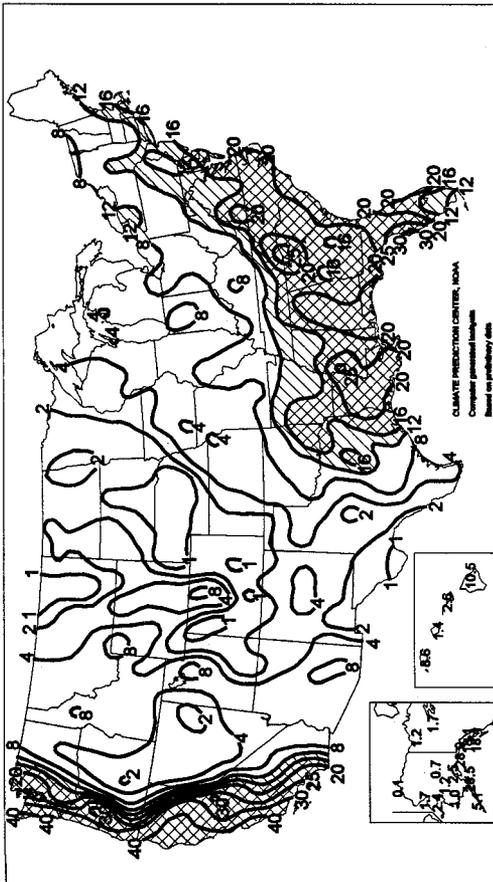
Winter Average Temperature (°F)  
DEC 1997 - FEB 1998



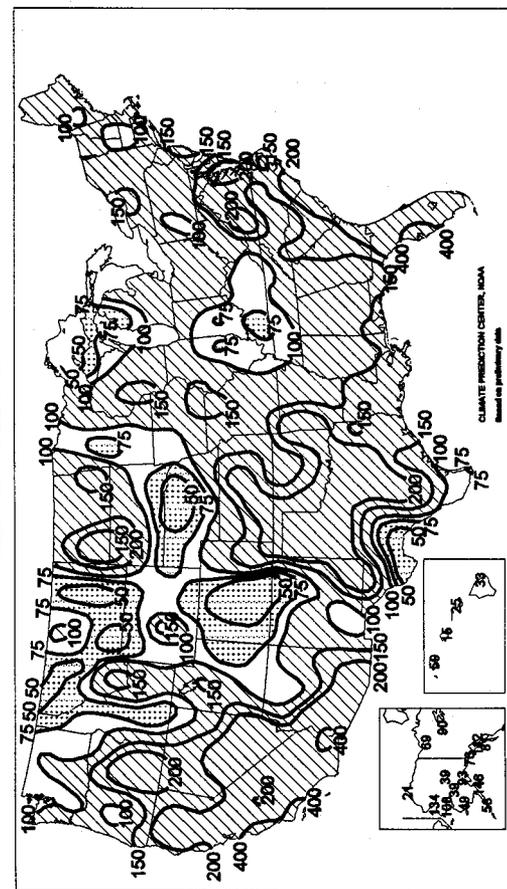
Winter Departure from Normal Average Temperature (°F)  
DEC 1997 - FEB 1998



Winter Total Precipitation (Inches)  
DEC 1997 - FEB 1998



Winter Percent of Normal Precipitation  
DEC 1997 - FEB 1998



# International Weather and Crop Summary

March 8 - 14, 1998

## HIGHLIGHTS

**FSU-WESTERN:** A cooling trend was accompanied by widespread rain and snow in most winter grain areas.

**EUROPE:** Unseasonably cool, showery weather in most areas slowed winter grain development and early-spring fieldwork.

**NORTHWESTERN AFRICA:** The fifth consecutive week of dryness in Morocco stressed winter grains, in or nearing the heading stage.

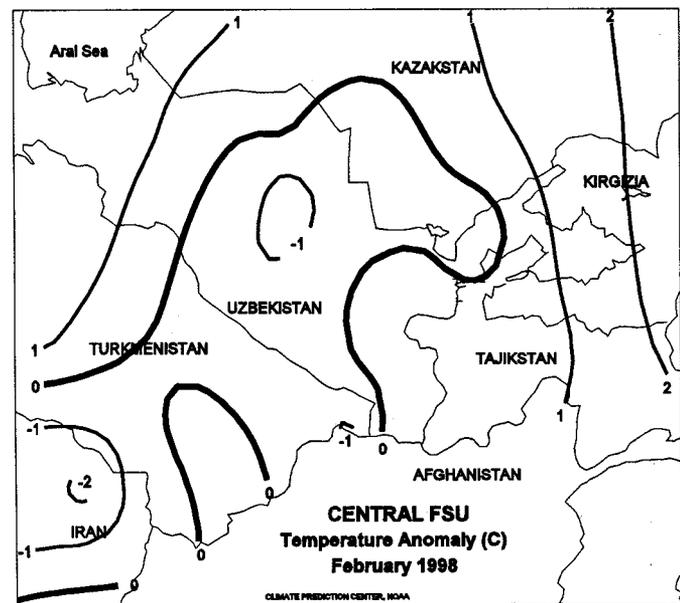
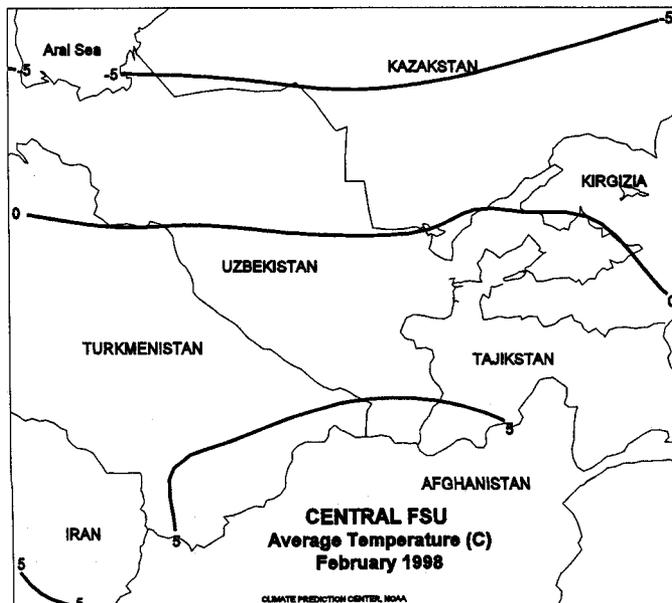
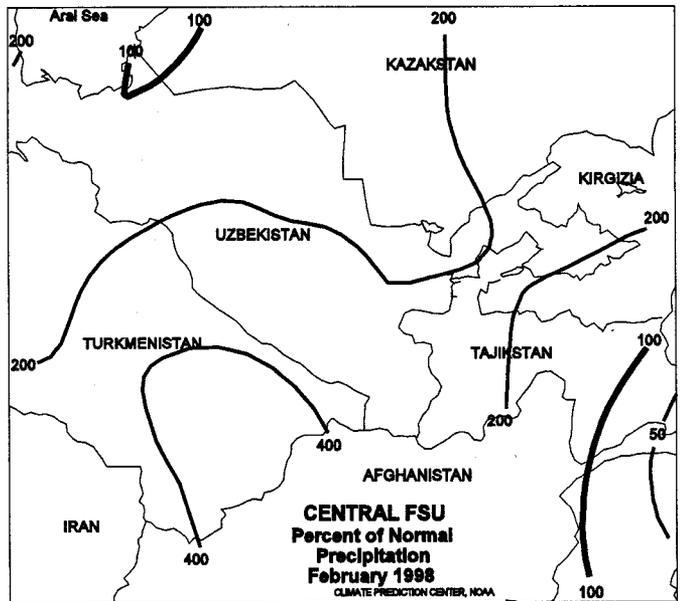
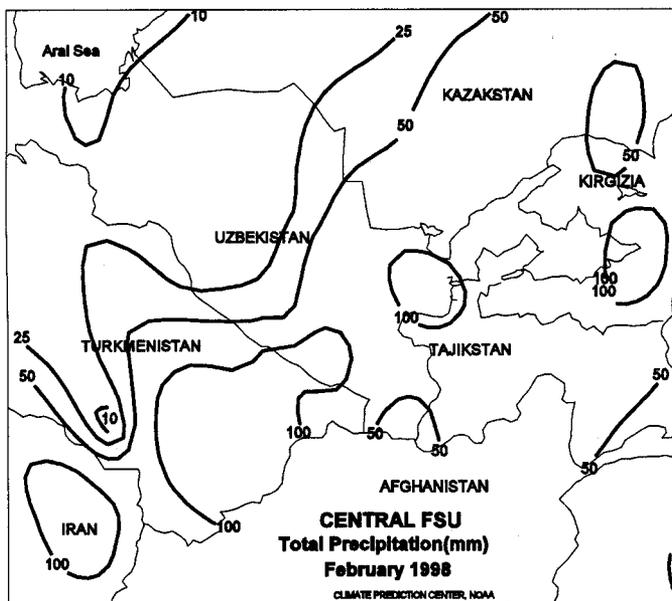
**AUSTRALIA:** Continued dryness in the east favored mature summer crops, while in the southwest, autumn rains covered primary agricultural areas.

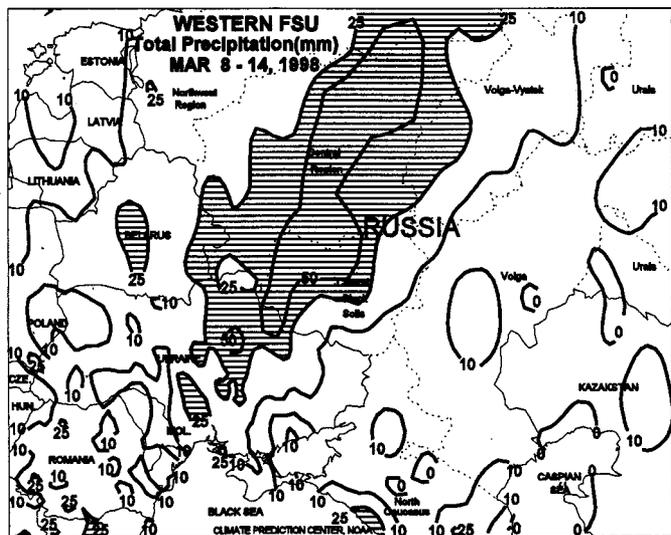
**SOUTH AFRICA:** Showery, cooler weather slowed development of corn and other summer crops.

**SOUTHEAST ASIA:** Showers continued to reduce long-term moisture deficits in Java, but drought continued across the eastern Philippines and eastern Malaysia.

**EASTERN ASIA:** Timely rain benefited greening winter wheat across most of the North China Plain.

**SOUTH AMERICA:** In Rio Grande do Sul, Brazil and northern Argentina, heavy showers slowed summer crop harvesting, while drier weather favored corn and sunflower harvesting in central Argentina.

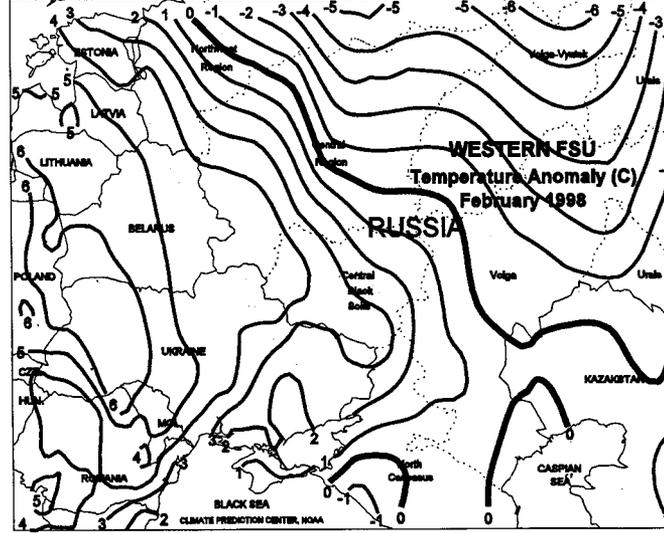
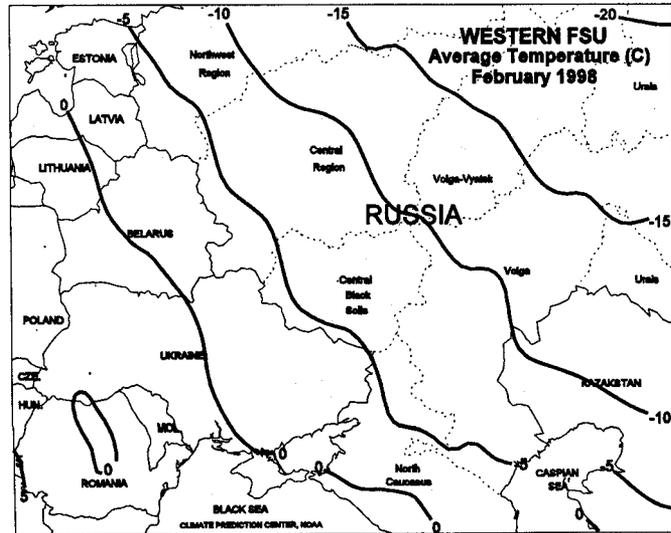
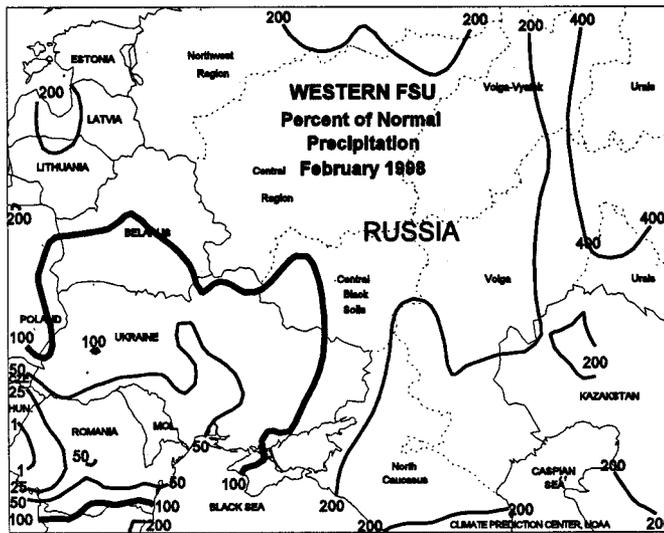
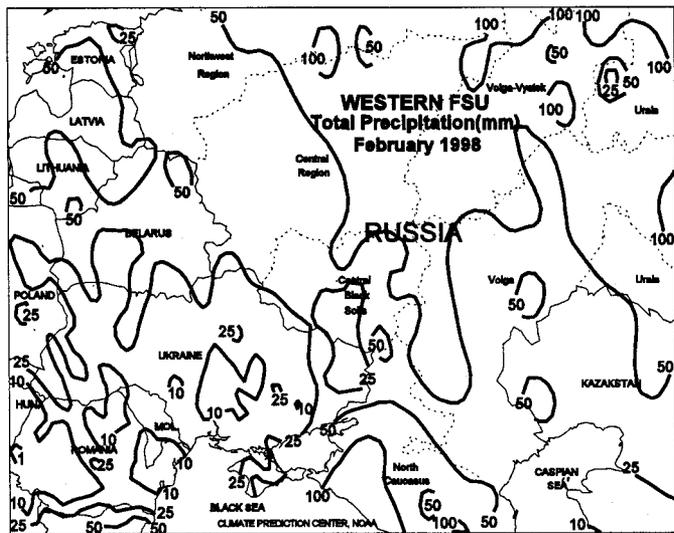




**FSU-WESTERN**

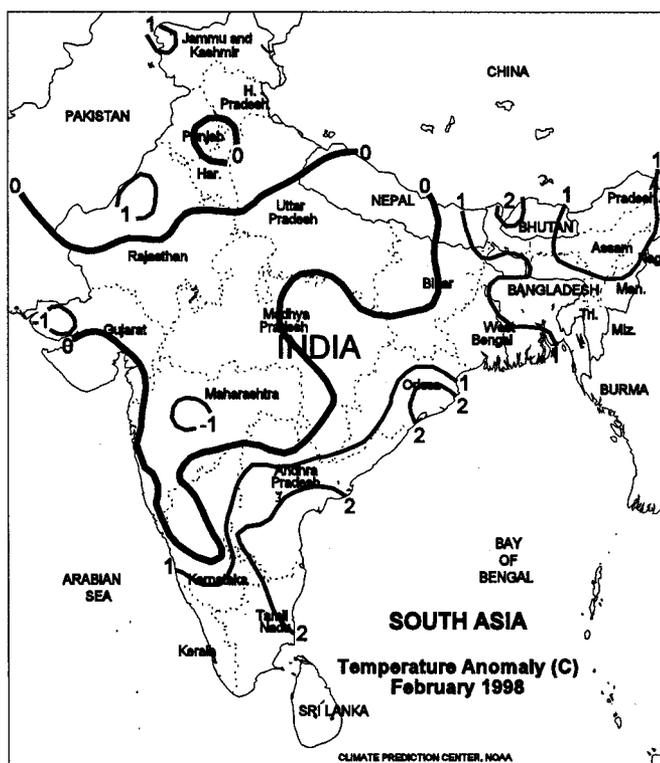
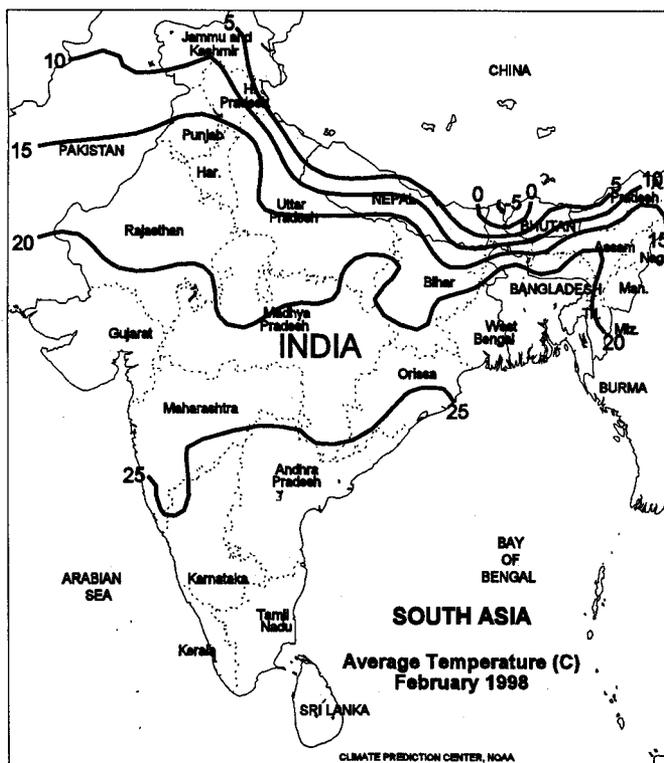
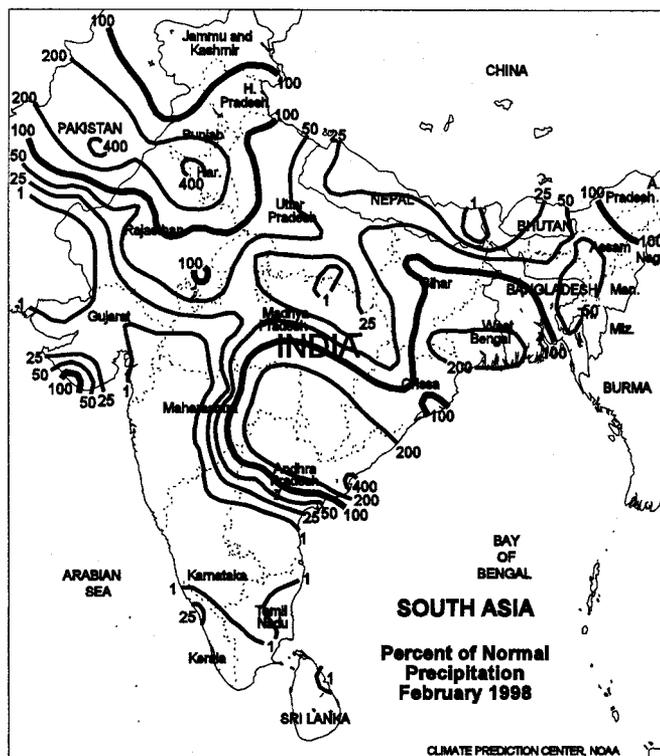
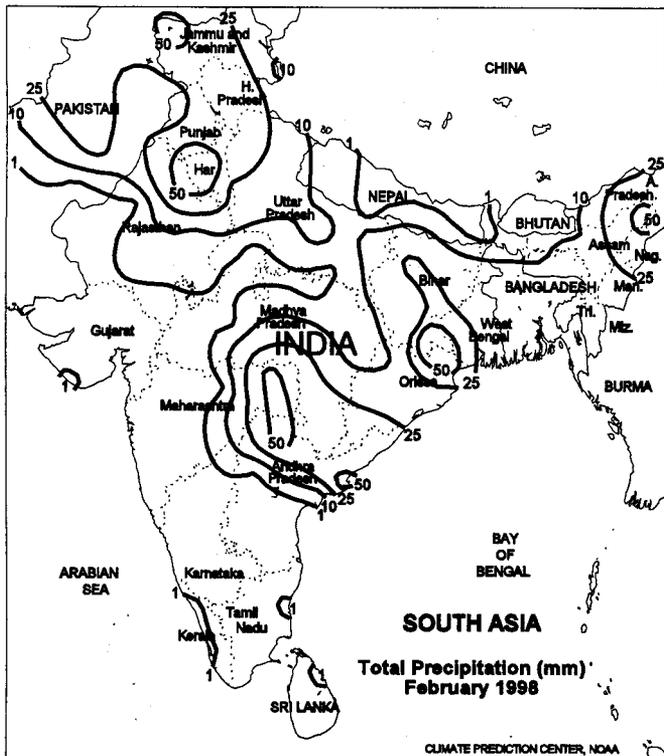
A cooling trend was accompanied by widespread beneficial rain and snow in most winter grain areas. Greatest amounts of precipitation (10-50 mm, with local amounts in excess of 50 mm) fell in Ukraine, Belarus, and parts of Russia (Northwest Region, Central Region, Volga Vyatsk Region, and Central Black Soils Region). Lesser amounts of moisture (4-12 mm) fell in the Baltics and remaining areas in Russia (Volga Valley and North Caucasus). Rain changed to snow in western areas, with heavy snow falling in Belarus and parts of Ukraine. The moisture that fell in Ukraine was especially beneficial in boosting topsoil moisture, following 2 months of below-normal precipitation. Although temperatures did not fall low enough to threaten winter grains, the colder weather kept winter grains dormant in most areas. In February, overwintering conditions continued mostly favorable for winter grains in Russia, Ukraine, Belarus, and the Baltics. In early February, bitterly cold weather was accompanied by light to moderate snow in most areas. Minimum temperatures ranged from -15 to -30 degrees C as far south as southern Ukraine and the North Caucasus region in Russia. A fresh snow cover in most areas protected winter

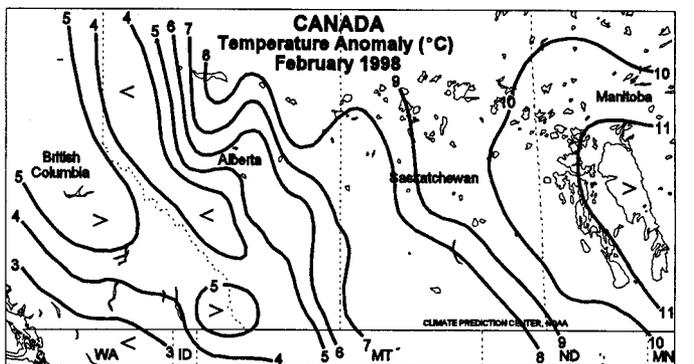
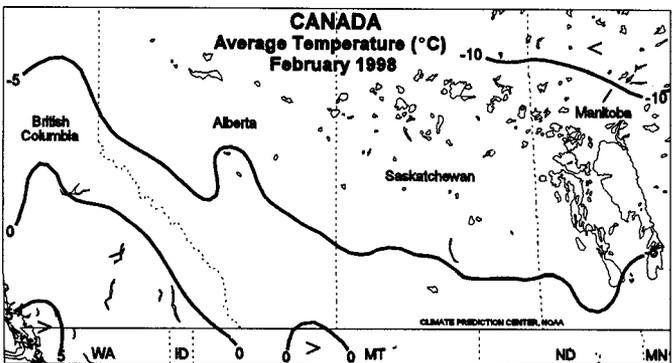
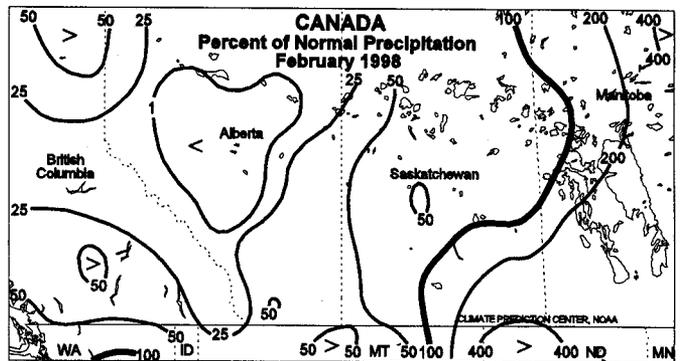
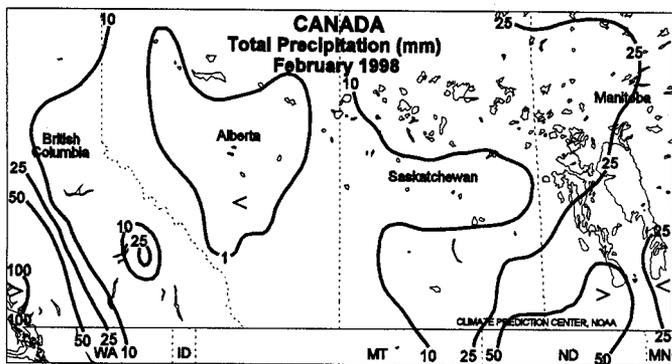
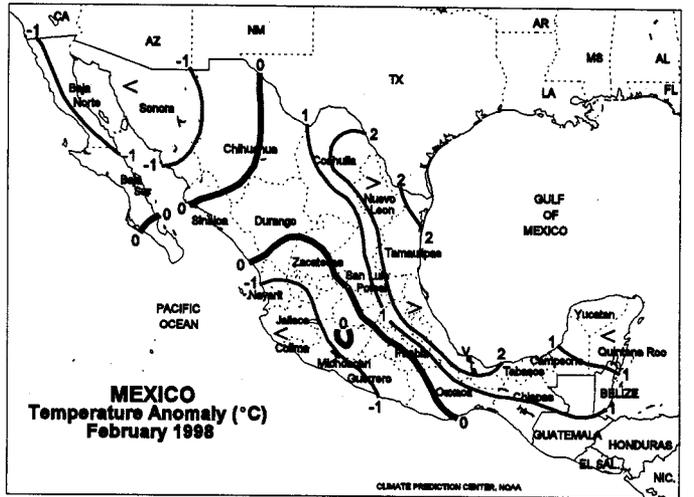
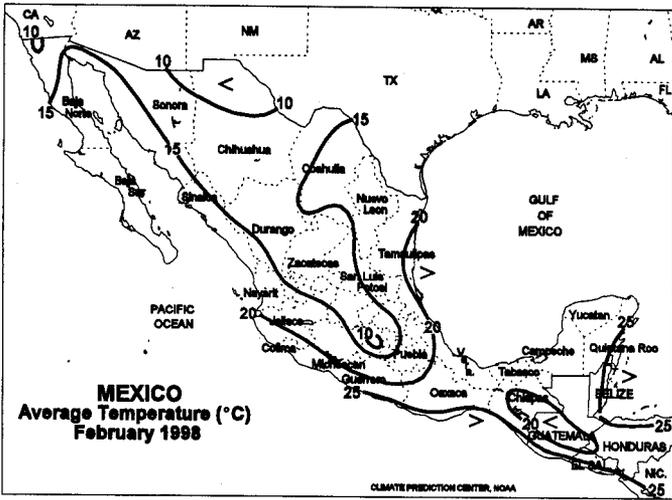
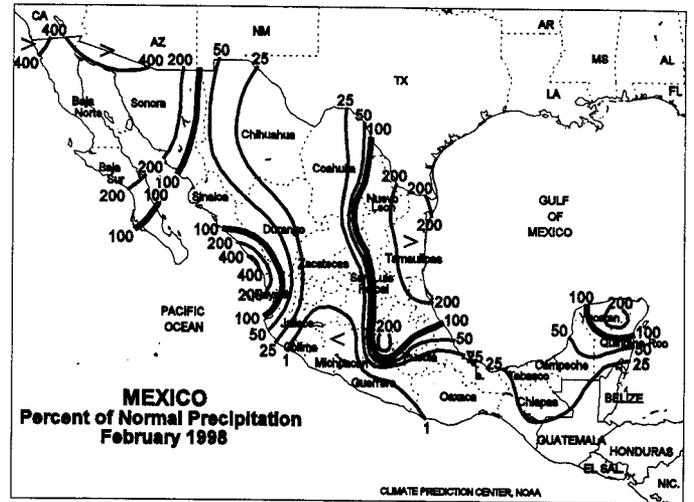
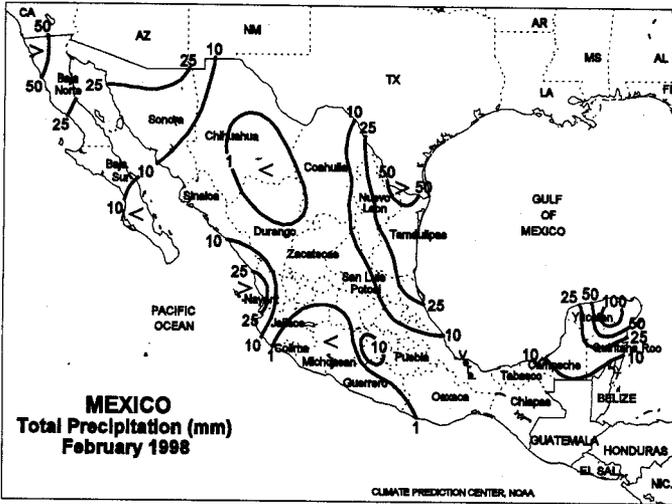
grains from potential widespread damage. On February 9, a warming trend began in winter grain areas in Ukraine, the North Caucasus region in Russia, Belarus, and the Baltics and continued until month's end, improving overwintering conditions for winter grains, but melting protective snow cover. In most of Russia, although temperatures fluctuated widely during February, a moderate to deep snow cover protected most winter grains from potential damage. Above-normal precipitation fell in Russia, Belarus, and the Baltics in February, boosting potential moisture reserves. More than twice the normal amount of moisture fell in the North Caucasus region in Russia. Winter grain areas in Ukraine continued to receive below-normal precipitation in February. The lack of snow cover and generally dry weather in Ukraine favored early-season fieldwork, including early-spring fertilizer applications.

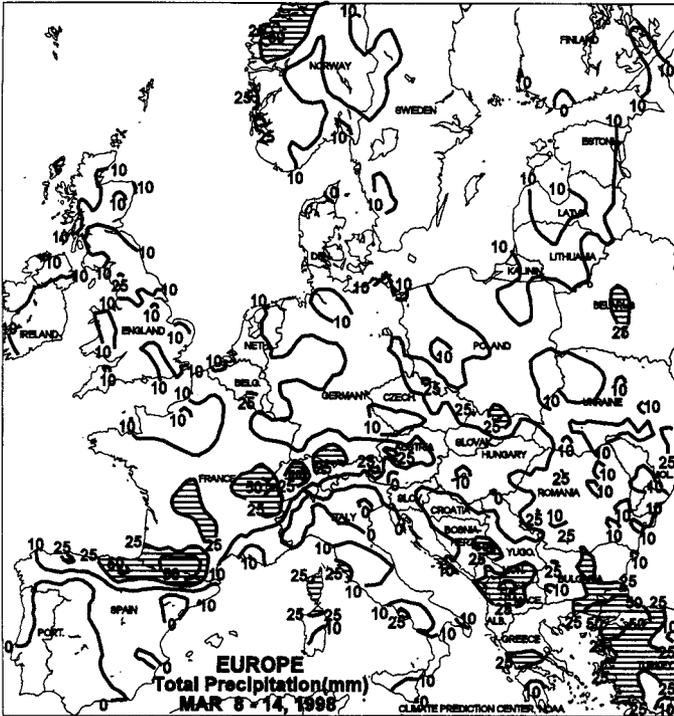


SOUTH ASIA

In February, moderate showers (10-50 mm or more) covered northern winter crop areas of Pakistan and India, boosting moisture for immature wheat and rapeseed. Rain (10-25 mm or more, locally exceeding 50-100 mm) also fell in eastern rice areas from Andhra Pradesh through Bangladesh. Early harvesting of winter-grown crops (wheat, rapeseed, and rabi crops such as rice and groundnuts) are likely underway in southern growing areas, with activity moving northward over the next few weeks.

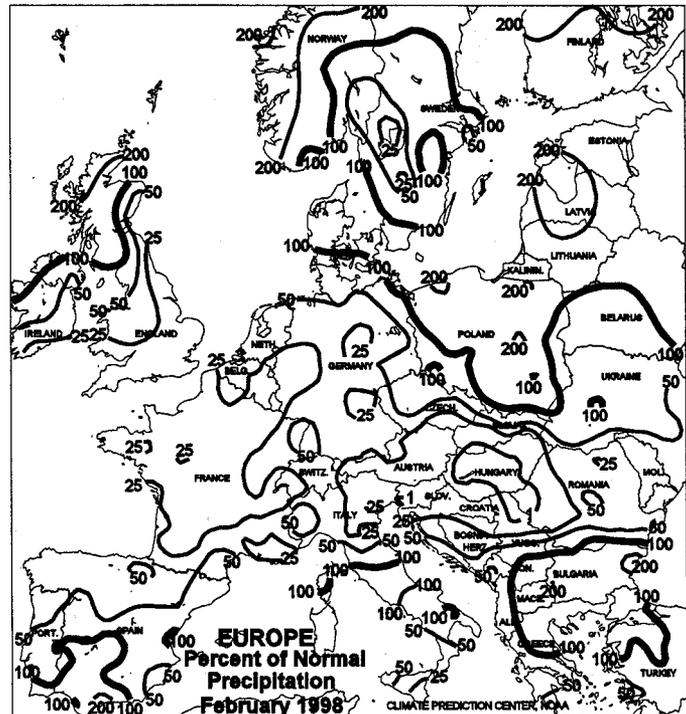
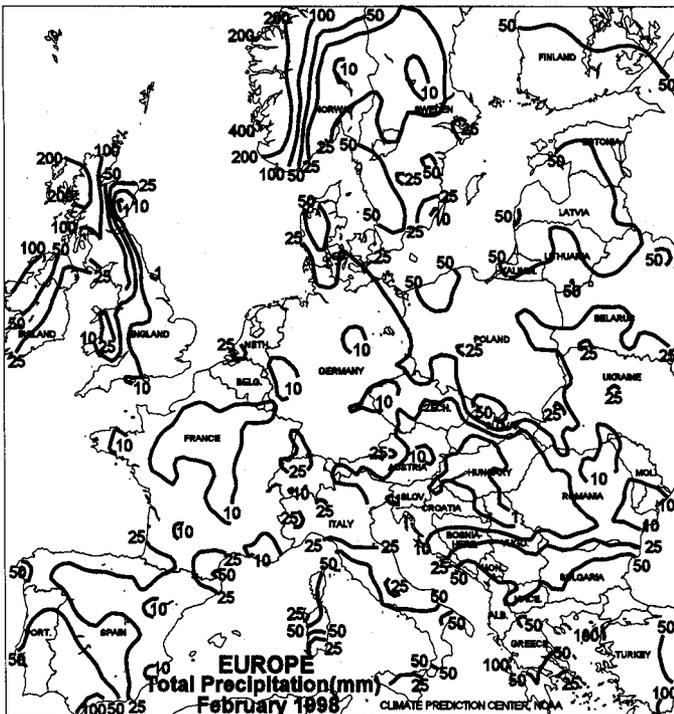


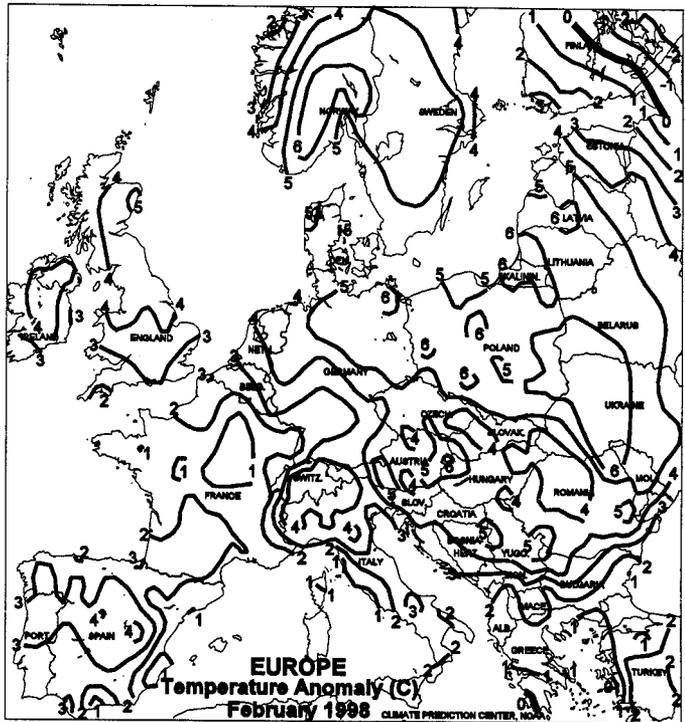




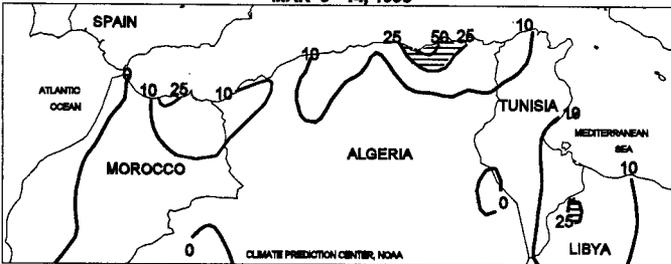
**EUROPE**

Unseasonably cool weather prevailed over Europe, slowing winter grain development that was 1 to 3 weeks ahead of normal. Weekly temperatures averaged 1 to 3 degrees C below normal throughout most of Europe. Light precipitation (5-25 mm) accompanied the cooler weather in northern Europe, slowing early fieldwork for spring grain planting. Farther south, several days of dry weather in Spain and Italy favored early-summer crop planting. Cold, wet weather (10-31 mm) in Greece slowed cotton planting. In February, a brief episode of bitterly cold weather prevailed over winter grain areas in northeastern Europe from February 1-3, accompanied by some snow. The cold spell was followed by unusually mild weather that began about February 8 and persisted until month's end. The mild weather pattern prompted winter grains to break dormancy 1 to 3 weeks earlier than usual in most areas. By month's end, winter grains were greening in eastern Europe and rapidly developing in the western and southern areas. The combination of unusually mild weather and below-normal precipitation in England, France, Germany, and northern Italy favored early-spring fieldwork. Above-normal precipitation was confined to Poland, Bulgaria, and extreme southern Spain.





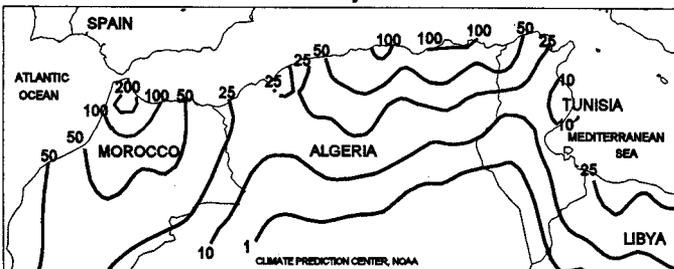
**NORTHWEST AFRICA Total Precipitation (mm) MAR 8 - 14, 1998**



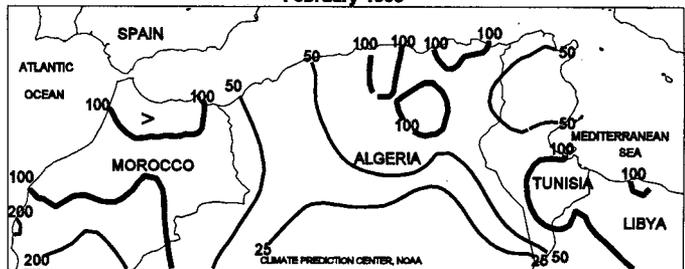
**NORTHWESTERN AFRICA**

The fifth consecutive week of dry weather prevailed over winter grain areas in Morocco, increasing stress on winter grains, in or nearing the heading stage of development. Rain is needed soon to prevent further declines in crop conditions. Farther east, light showers (7-25 mm) fell in Algeria and Tunisia, providing some moisture for winter wheat in the jointing stage. In February, wet weather in Morocco early in the month was followed by a dry weather pattern that began about February 8 and persisted until month's end. As a result, moisture reserves were depleted during the month as winter grains advanced through the jointing stage of development. Farther east, below-normal precipitation in winter grain areas of Algeria and Tunisia in February maintained January's below-normal precipitation pattern in these areas. Subsoil moisture reserves remain critically low throughout Morocco, Algeria, and Tunisia, necessitating timely rains during the remainder of the growing season to prevent significant declines in yield prospects.

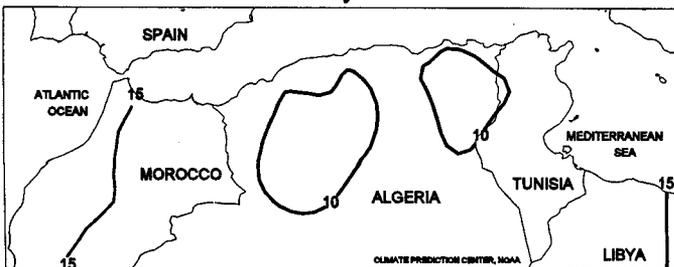
**NORTHWEST AFRICA Total Precipitation (mm) February 1998**



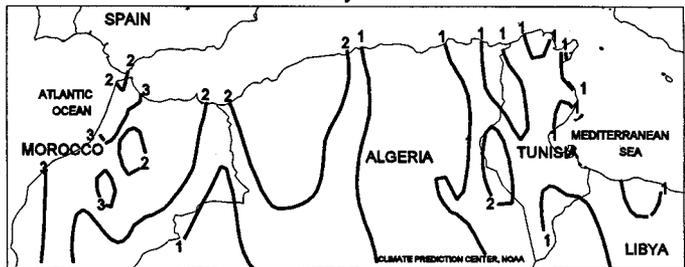
**NORTHWEST AFRICA Percent of Normal Precipitation February 1998**

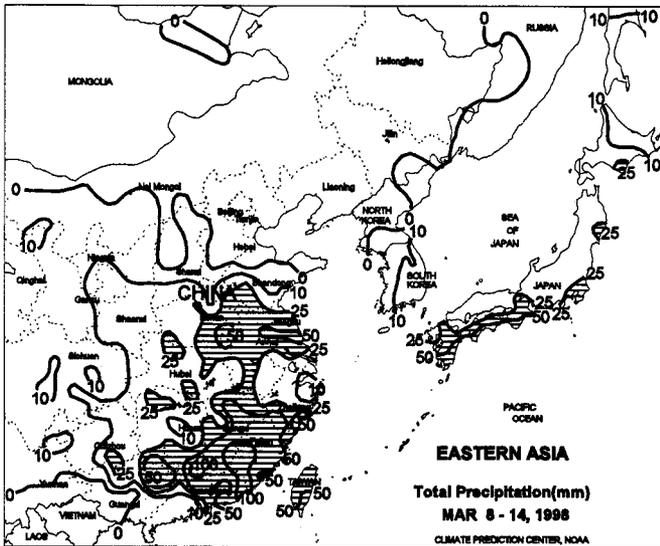


**NORTHWEST AFRICA Average Temperature (C) February 1998**



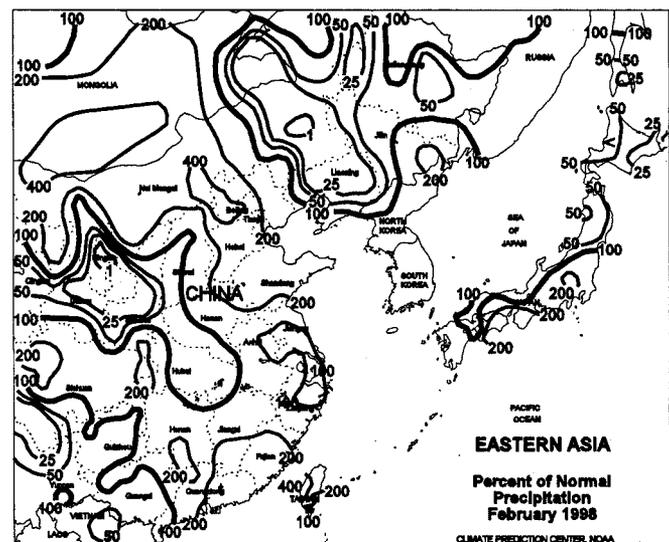
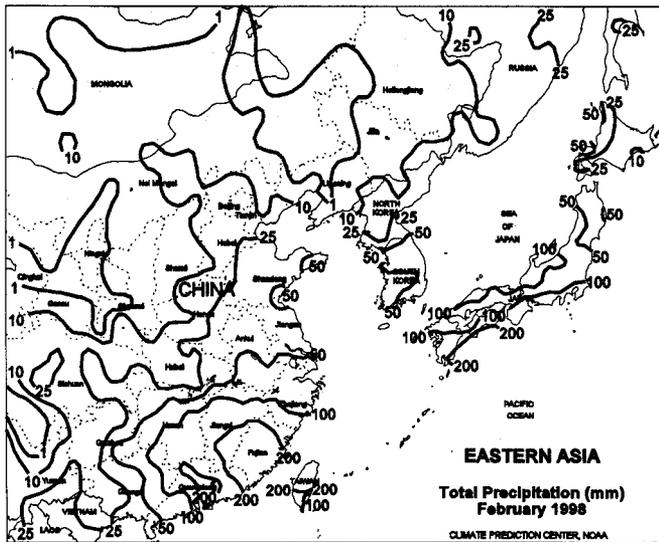
**NORTHWEST AFRICA Temperature Anomaly (C) February 1998**

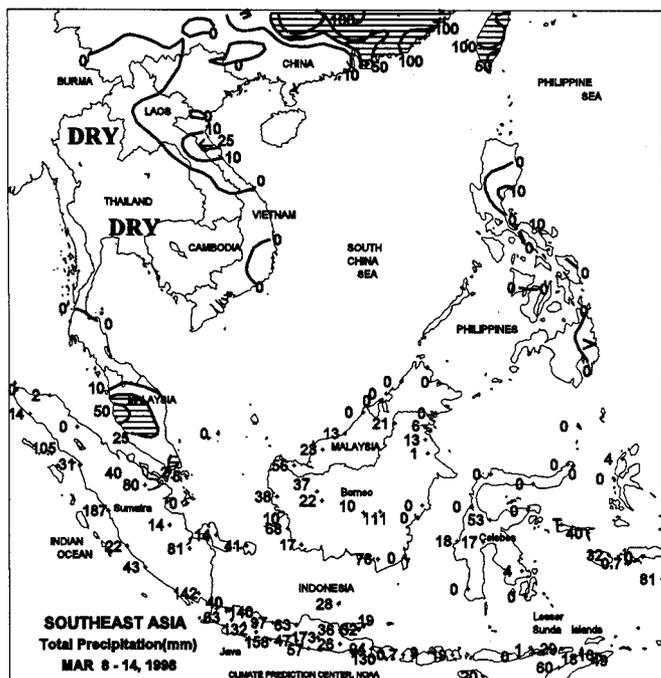
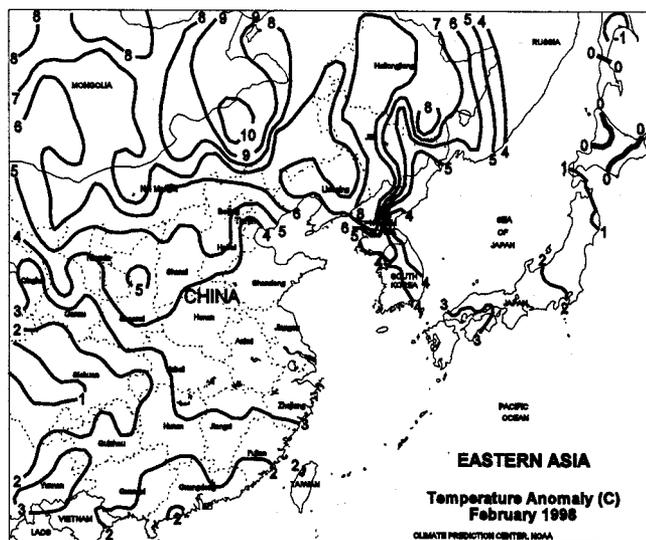
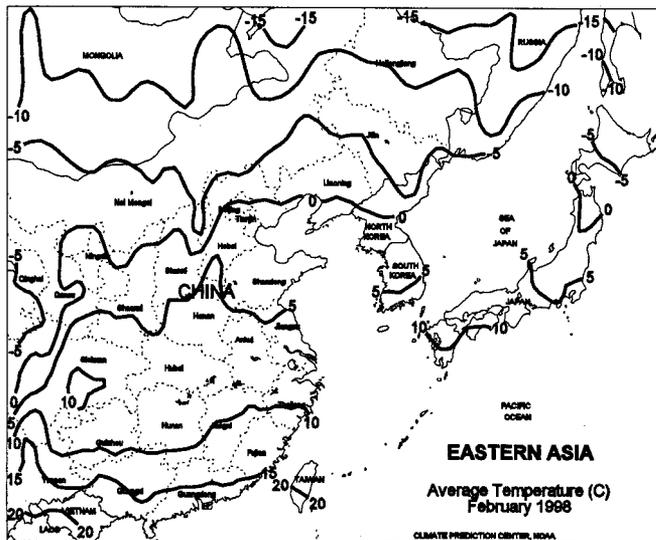




**EASTERN ASIA**

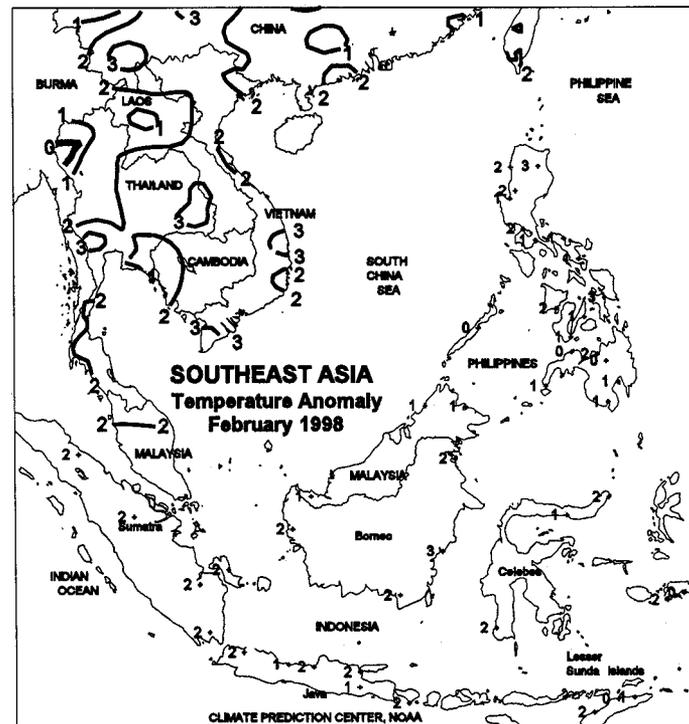
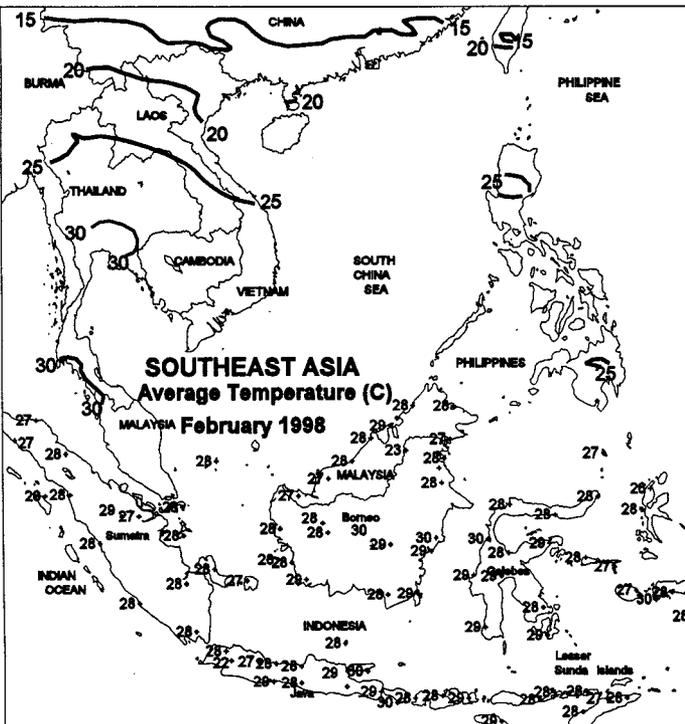
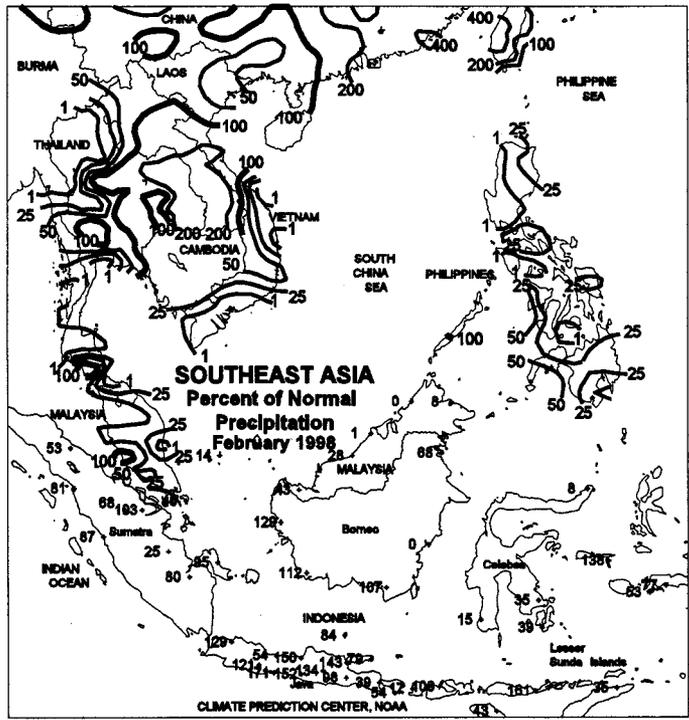
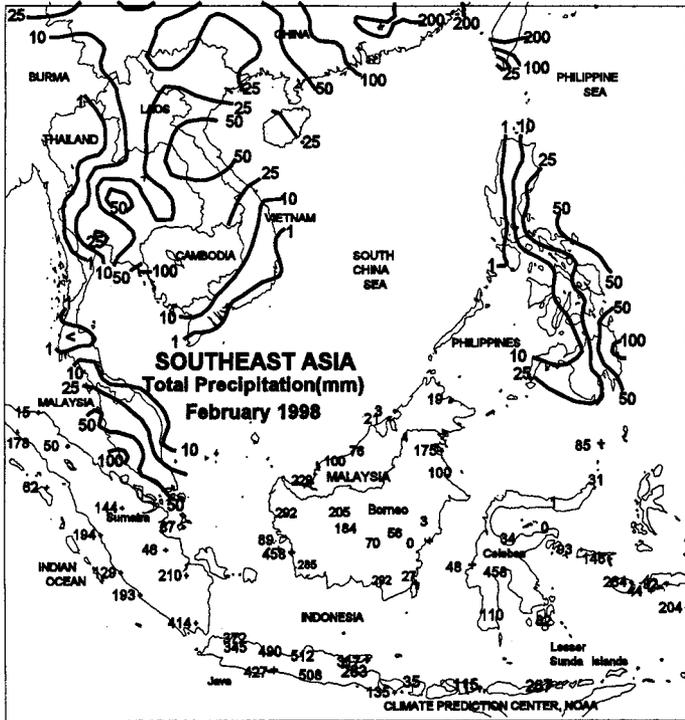
Timely rainfall (5-40 mm) benefited greening winter wheat across the southern half of the North China Plain (Henan, southern Shandong, northern Anhui, and Jiangsu). Winter wheat continued to break dormancy across the region. Showers (20-80 mm, with isolated amounts greater than 100 mm) covered southern China, aiding early double-crop rice and early corn, but increasing disease potential for winter oilseeds. During February, above-normal rainfall continued to increase moisture supplies across most of eastern and southern China. February temperatures averaged 3 to 4 degrees above normal, prompting winter wheat to begin breaking dormancy earlier than normal.

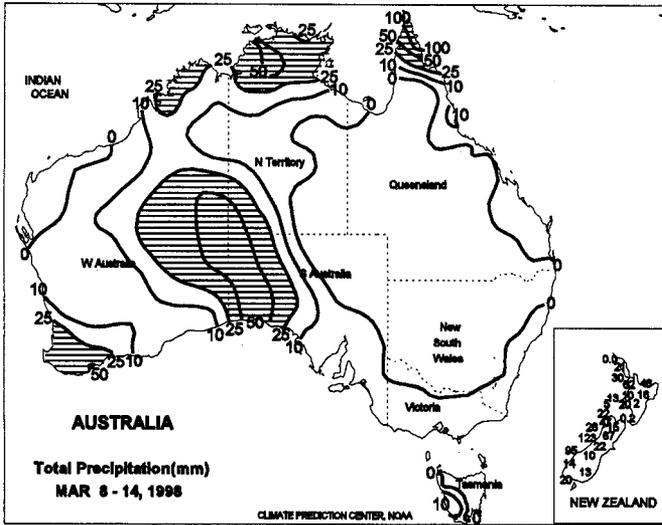




**SOUTHEAST ASIA**

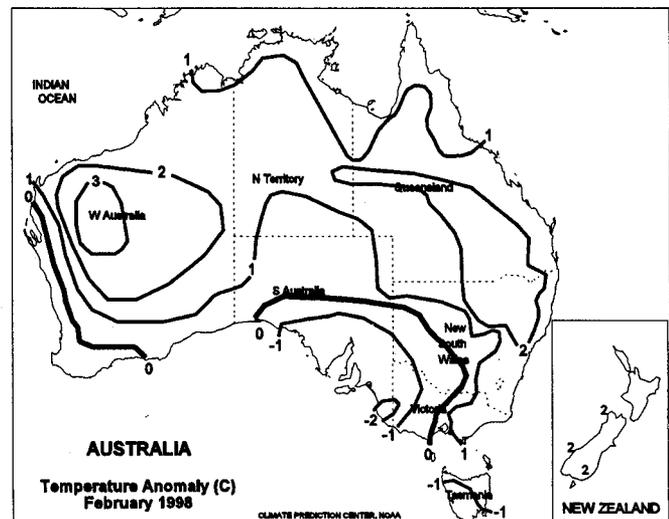
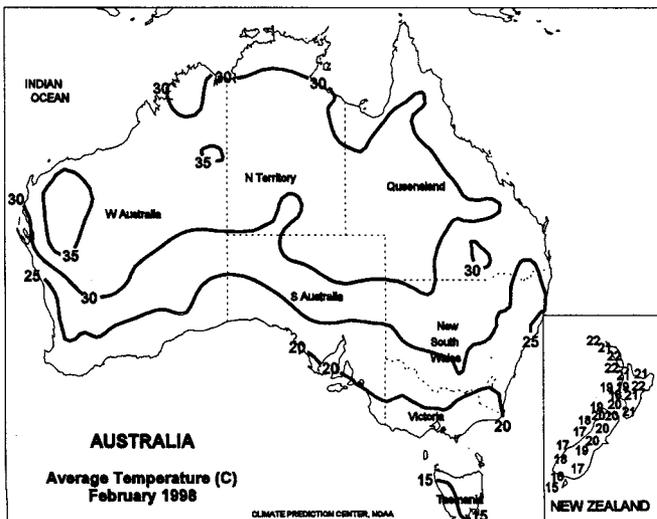
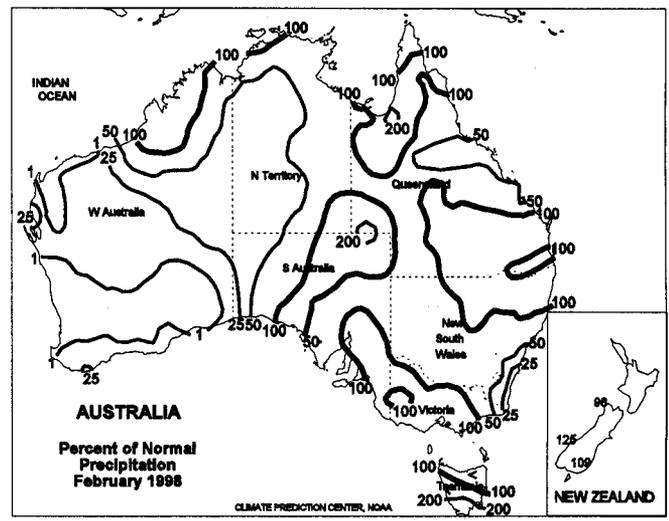
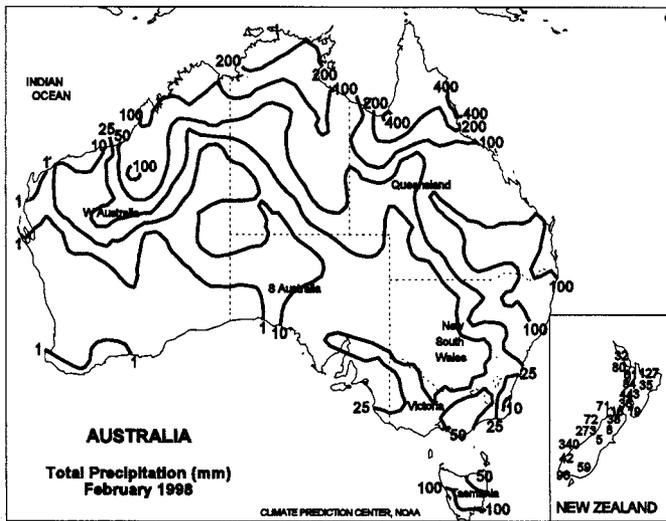
In Java and southern Sumatra, seasonably heavy showers (50-130 mm) continued to benefit main-season rice and reduce long-term moisture deficits. This is a continuation of the above-normal February rainfall. Mostly dry weather worsened drought across the eastern Philippines and oil palm areas of eastern Malaysia (Sabah). The eastern Philippines received less than 50 percent of normal rainfall during February. Hot weather (1-3 degrees C above normal) during the week increased irrigation use across Thailand.

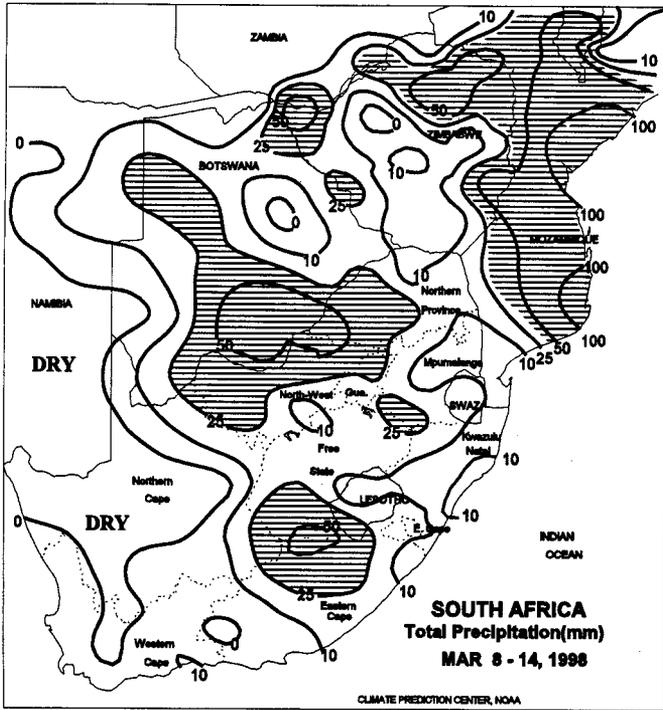




**AUSTRALIA**

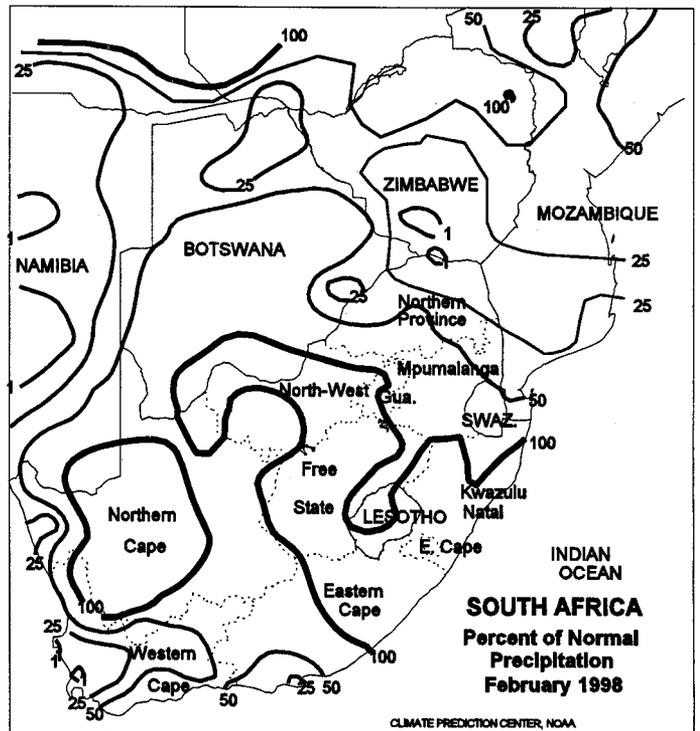
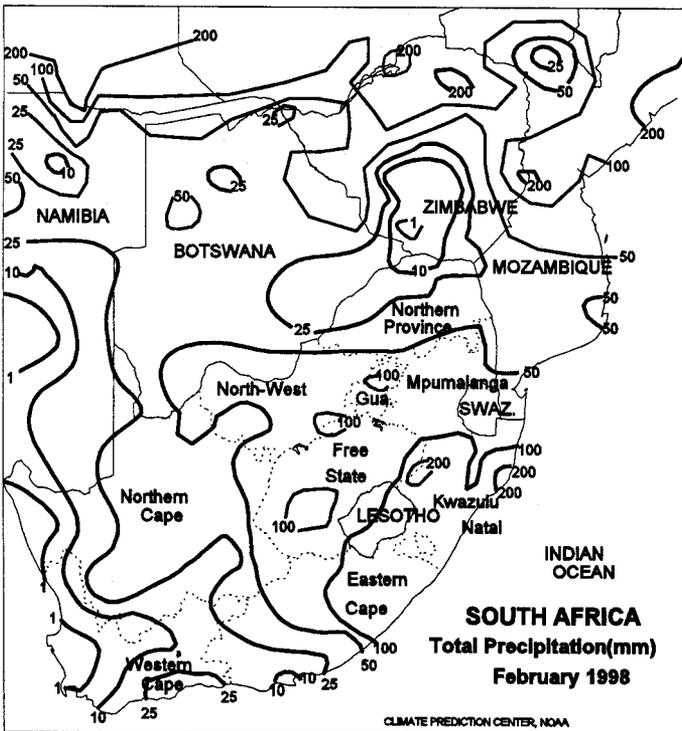
Warm, dry weather continued throughout the east, benefiting mature cotton and sorghum. Monsoon rains receded to northern sections of the Cape York Peninsula and Arnhem Land, allowing northernmost sugarcane areas to dry out. In the southwest, moderate showers (10-25 mm or more) covered primary agricultural areas of Western Australia, benefiting livestock and increasing soil moisture for wheat. Scattered showers (10-25 mm or more) continued across New Zealand. February rainfall was near to above normal throughout eastern Australia, the exception being some sugarcane areas along the Queensland coast that were drier than normal. Most of the rain in the main sorghum and cotton areas fell during mid month, with favorable dryness settling into the area by late February. At month's end, heavy rain had developed over northern sugarcane areas, but a drying trend had begun over the bulk of the region.

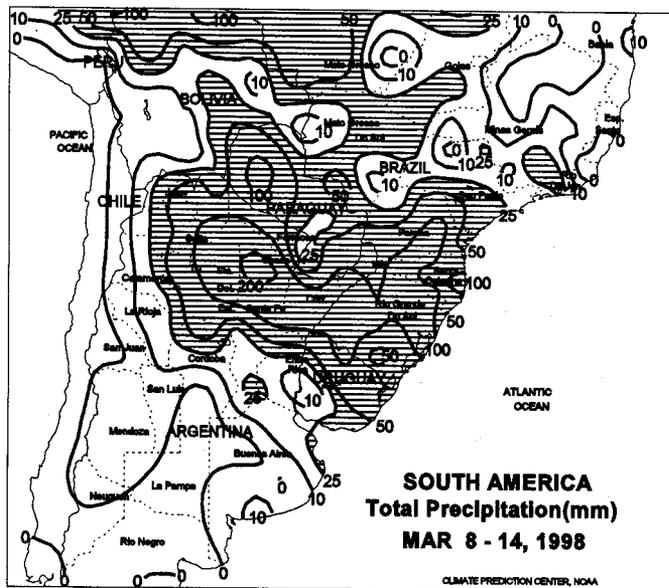
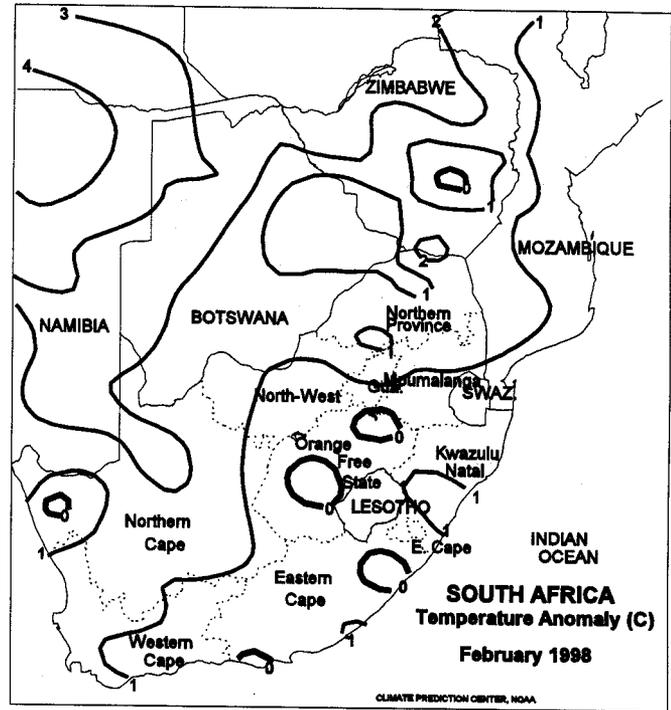
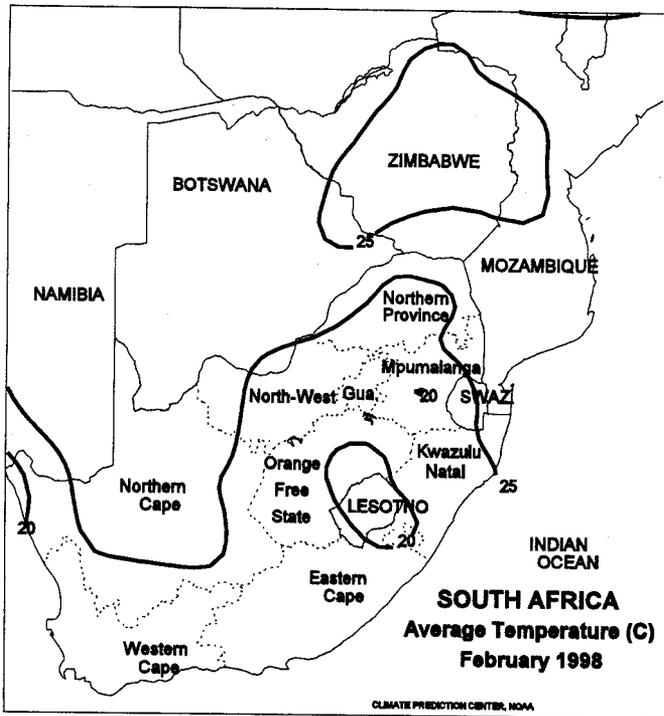




**SOUTH AFRICA**

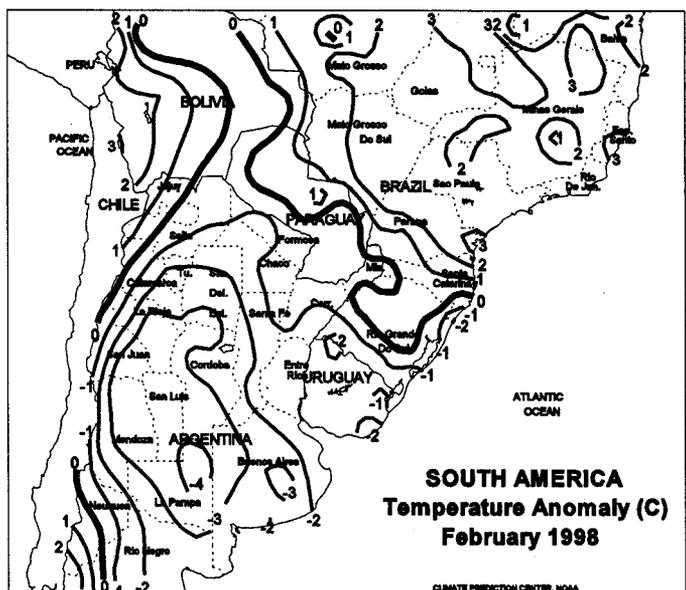
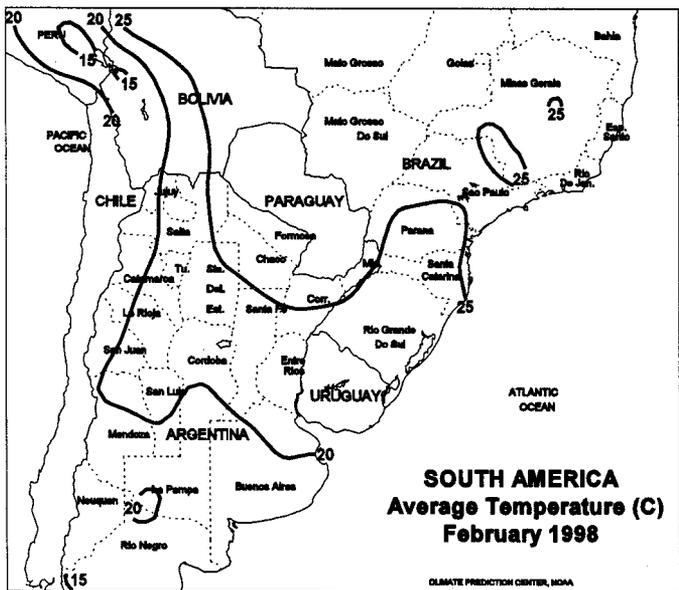
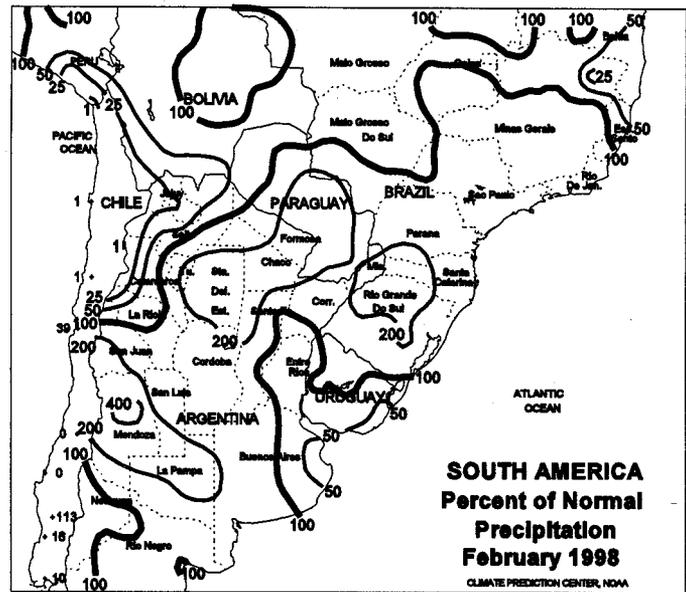
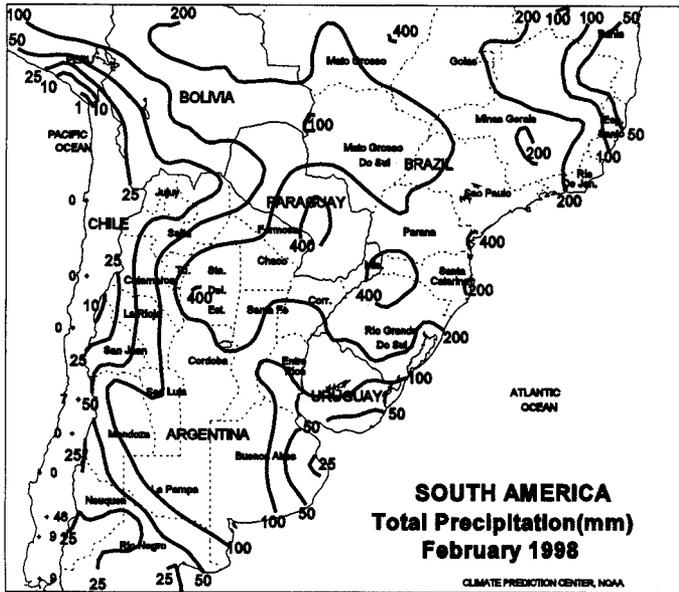
Scattered showers (10-25 mm, locally exceeding 50 mm) swept across the corn belt. Cool weather accompanied the rain, slowing growth of corn and other summer crops. Warmer, drier weather dominated the coastal provinces, favoring activities ranging from early sugarcane harvesting to wheat pre-planting fieldwork. February got off to a warm, dry start, with reproductive corn experiencing some stress early in the month. Locally heavy, soaking rain during the third week brought relief to summer crops but caused some flooding in sugarcane areas of Kwazulu-Natal. Crops now need warm, sunny weather to reach maturity before the first autumn freeze.

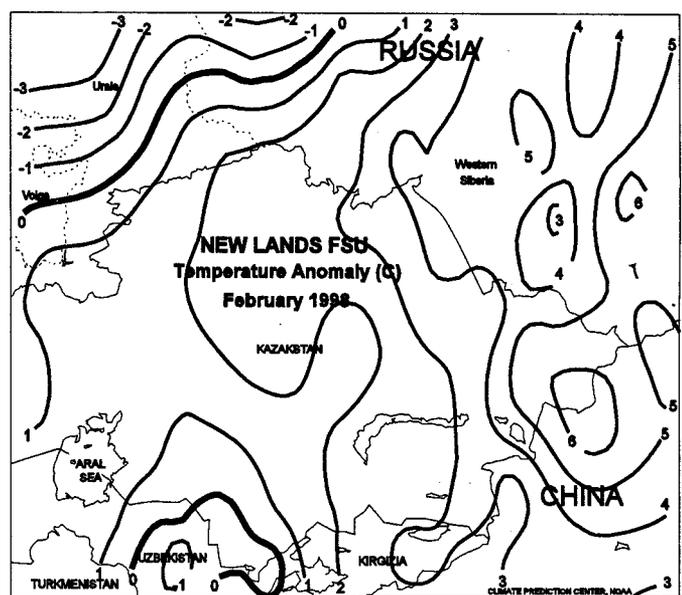
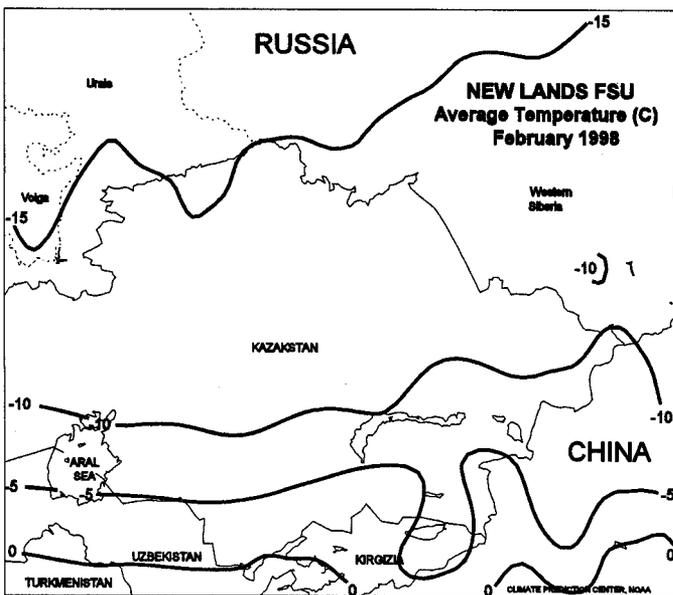
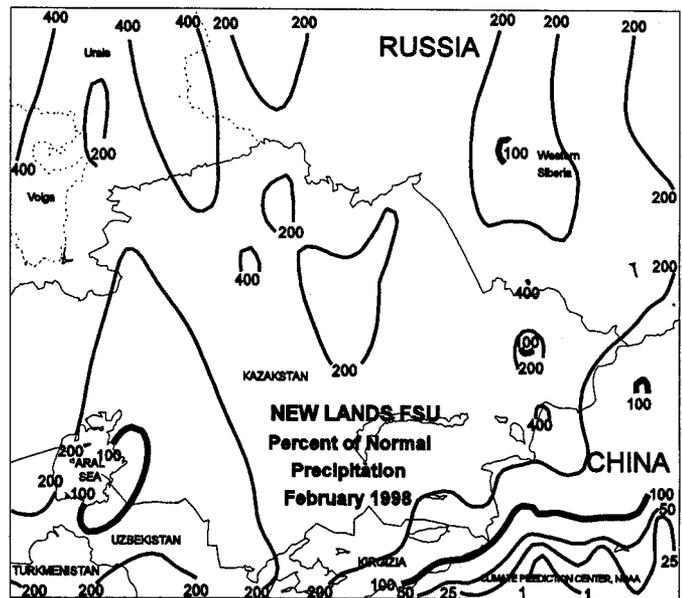
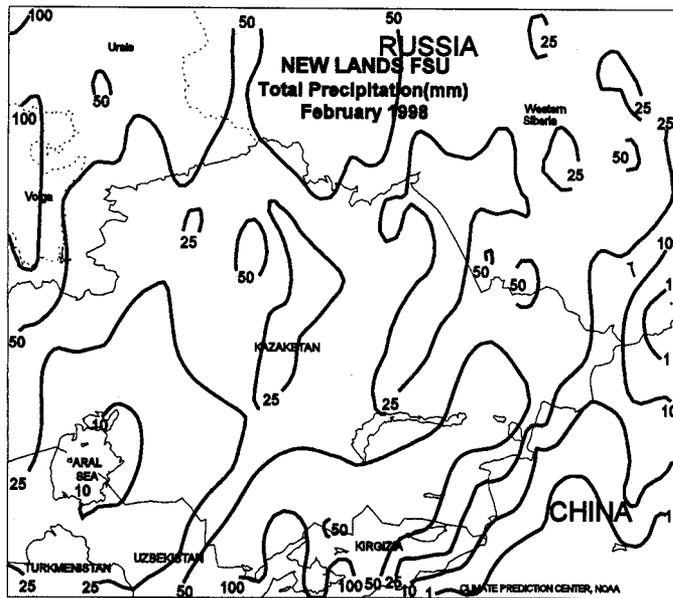




**SOUTH AMERICA**

Heavy showers (90-120 mm) slowed soybean harvesting in Rio Grande do Sul, Brazil. Elsewhere in southern Brazil, variable showers (10-40 mm) favored late-filling soybeans, but did not significantly hamper soybean harvesting. Brazilian soybean harvesting is about 15 percent complete. In northern Argentina, heavy showers (150-200 mm) possibly damaged maturing cotton and slowed harvest activities. Farther south in central Argentina, drier weather (5-20 mm, with an isolated amount greater than 40 mm) favored corn and sunflower harvesting. According to reports as of March 5, corn harvesting is 4 percent and sunflower harvesting 28 percent complete. Near- to above-normal February rainfall provided ample moisture for filling summer crops across Argentina and southern Brazil. Monthly temperatures averaged 2 to 4 degrees C below normal across central Argentina and 1 to 3 degrees C above normal in southern Brazil.





## El Niño Update

The following is derived from the El Niño/Southern Oscillation (ENSO) Diagnostic Advisory 98/2 issued by the Climate Prediction Center/National Centers for Environmental Prediction (NCEP) on March 10, 1998.

Very warm episode (ENSO) conditions continued during February 1998, as tropical Pacific sea surface temperatures (SST's) remained well above normal east of the date line. SST anomalies exceeded  $+2.0^{\circ}\text{C}$  over the equatorial Pacific east of  $170^{\circ}\text{W}$  and  $+3.0^{\circ}\text{C}$  from  $140^{\circ}\text{W}$  eastward. Actual SST's greater than  $28^{\circ}\text{C}$  (the threshold for deep tropical convection and heavy precipitation) were observed everywhere throughout the equatorial Pacific.

Based on current conditions in the tropical Pacific and on the NCEP SST predictions, we expect warm episode (ENSO) conditions to continue through May. We also expect anomalous circulation features to continue over North America through March, and possibly into April. Impacts of these conditions are likely to be recurring periods of significant storm activity and precipitation across California and the southern tier of the United States. Globally, we expect drier-than-normal conditions over Indonesia, northern Australia, northern South America, and southern Africa, and wetter-than-normal conditions over the central and eastern equatorial Pacific, along the coasts of Ecuador and northern Peru, and over southeastern South America. A return to wetter-than-normal conditions is also likely over central Chile during April through July, as the jet stream over the eastern South Pacific continues to be stronger than normal.

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*(Continued from front cover)*

southern Plains at week's end. Farther east, snow continued early in the week across the Midwestern and Great Lakes States, while rainfall exceeded 2 inches along the entire Atlantic Seaboard. In parts of the Southeast, serious flooding continued in the wake of earlier rains.

On Sunday, Des Moines, IA received 11.0 inches of snow, their greatest calendar-day total on record in March. Omaha, NE netted 12.7 inches, their highest storm-total snowfall since 14.1 inches fell on March 28-29, 1987. Farther north, totals in Michigan reached 15.7 inches in Gaylord and 15.9 inches in Houghton Lake. Meanwhile, heavy rain developed along the East Coast. In Worcester, MA, rainfall of 3.73 inches on March 9 was their third-highest calendar-day total for March. For Hartford, CT (2.40 inches), Providence, RI (3.02 inches), and Worcester, Monday was the rainiest March day since March 31, 1987.

In southeastern Alabama, the Pea River at Elba crested on Monday at 9.20 feet above flood stage (afs), 2 days after flooding much of the town. The crest was the town's third highest on record, more than 10 inches above the July 1994 (Tropical Storm Alberto) level. Other gauging points in the Southeast that approached record levels included the Apalachicola River at Blountstown, FL (12.23 feet afs on March 13, third highest on record), the Withlacoochee River at Valdosta, GA (9.5 feet afs, fourth highest), and the Choctawhatchee River at Newton, Alabama (15.58 feet afs on March 9, fourth highest). At week's end, the worst flooding was occurring along the lower Flint River in Georgia, where more than 11,000 people remained out of their homes.

A half-dozen daily-record lows were set in the Rocky Mountain States on Sunday, including a March-record low of -23°F in Rawlins, WY. Bitterly cold air soon overspread the Central States, ending long streaks of above-normal temperatures (more than 40 days) in Moline, IL and Milwaukee, WI. By Wednesday morning, the core of the high-pressure system reached the South Dakota-Nebraska border with a central pressure of at least 31.12 inches (1054 millibars). March barometric pressure records were set in Wichita, KS (30.91 inches), Des Moines, IA (30.90 inches), St. Louis, MO (30.81 inches), and Columbia, MO (30.80 inches). Wichita's reading was their fifth highest on record.

On March 11, a low of -15°F in Hastings, NE was a March record. In South Dakota, Rapid City's low of -18°F was their second-lowest March reading, behind -21°F on March 8, 1996. Elsewhere, minima included -27°F in Valentine, NE and -28°F in Williston, ND. A day later in Omaha, NE, a low of -11°F represented the latest occurrence of the season's lowest temperature, breaking their record set on March 5, 1960. On Thursday, the season's lowest readings were also observed in several other locations, including -6°F in Topeka, KS (previously 6°F on January 13), 4°F in St. Louis, MO (13°F on January 13), 8°F in Indianapolis, IN (13°F on November 17 and December 31), and 16°F in Little Rock, AR (24°F on December 6 and January 16). In Iowa, lows of -24°F at Bedford and Guthrie Center ranked as the State's fourth-lowest March readings. Kansas City's low of -7°F was their latest sub-zero reading during any winter season. Farther south, lows dipped below freezing on Friday morning as far south as the Florida cities of Gainesville (29°F) and Ocala (30°F). Other minima in the Southeast included 20°F at both Augusta, GA and Columbia, SC. Farther north, Saranac Lake, NY recorded -19°F.

The cold dealt a glancing blow to jointing winter wheat on the southern Plains, where lows dipped into the middle to upper 10's on March 10 and 12. On most of the central and northern Plains, snow cover was adequate to protect wheat from the extreme cold. In the Ohio Valley, however, lows on March 12 ranged from 0 to 15°F, burning back some recent winter wheat growth. Three consecutive freezes (March 11-13) in the Southeast threatened peach blooms and ground crops (for example, vegetables and strawberries).

During the mid- to late-week period, several daily-record highs were set in the West. Chatsworth, CA notched 87°F on March 11. On Friday, maxima reached 67°F in Pendleton, OR and 71°F in Wenatchee, WA. Meanwhile in southern California, late-week rainfall totaled 0.96 inches in Torrance and 1.10 inches in Oceanside Harbor. Little or no rain fell in Hawaii, however, perpetuating the 4½-month dry spell. In addition, Honolulu collected a daily-record high (87°F) on Tuesday. Farther north, very mild weather spread into western Alaska (up to 17°F above normal), resulting in daily-record highs on Saturday in Nome (40°F) and King Salmon (49°F).

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