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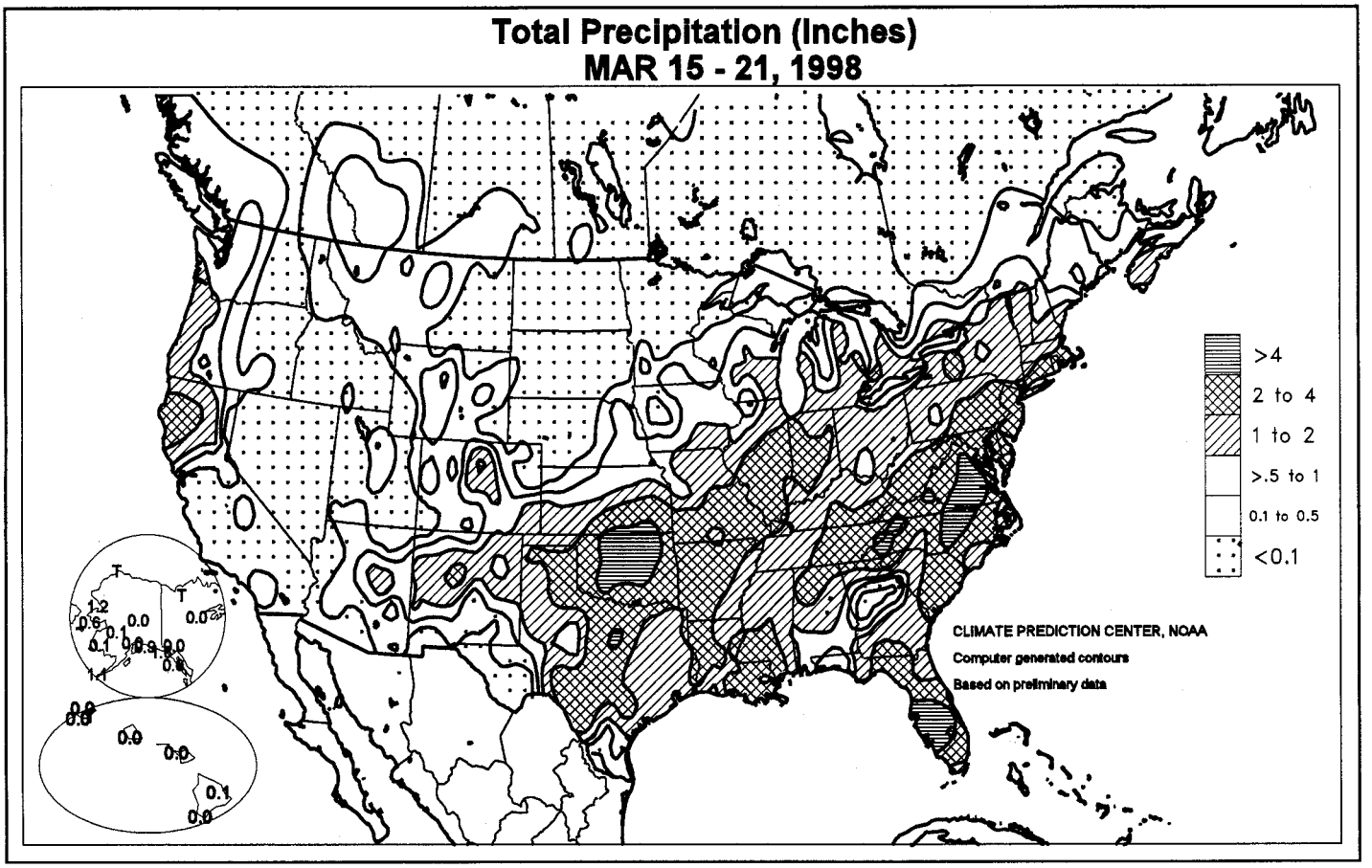
WEEKLY WEATHER AND CROP BULLETIN

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



HIGHLIGHTS

March 15 - 21, 1998

Although spring officially began on Friday, winter refused to relinquish its grip on most of the Nation **east of the Rockies** for the second consecutive week. Subnormal temperatures and unseasonably heavy snows blanketed parts of the **central Rockies** and **Plains, Midwest**, and **New England**. In **Colorado**, over 1 foot of snow fell in lower elevations while 2 to 3 feet covered foothills and mountainous areas. In the **East**, generally less than 12 inches of snow fell, but in some locations this snowfall exceeded the entire winter 1997-98 total. Weekly temperatures averaged 3°F to 13°F below normal from **southwestern Texas** northeastward to the **Great Lakes**, and 3°F to 6°F below normal from **central**

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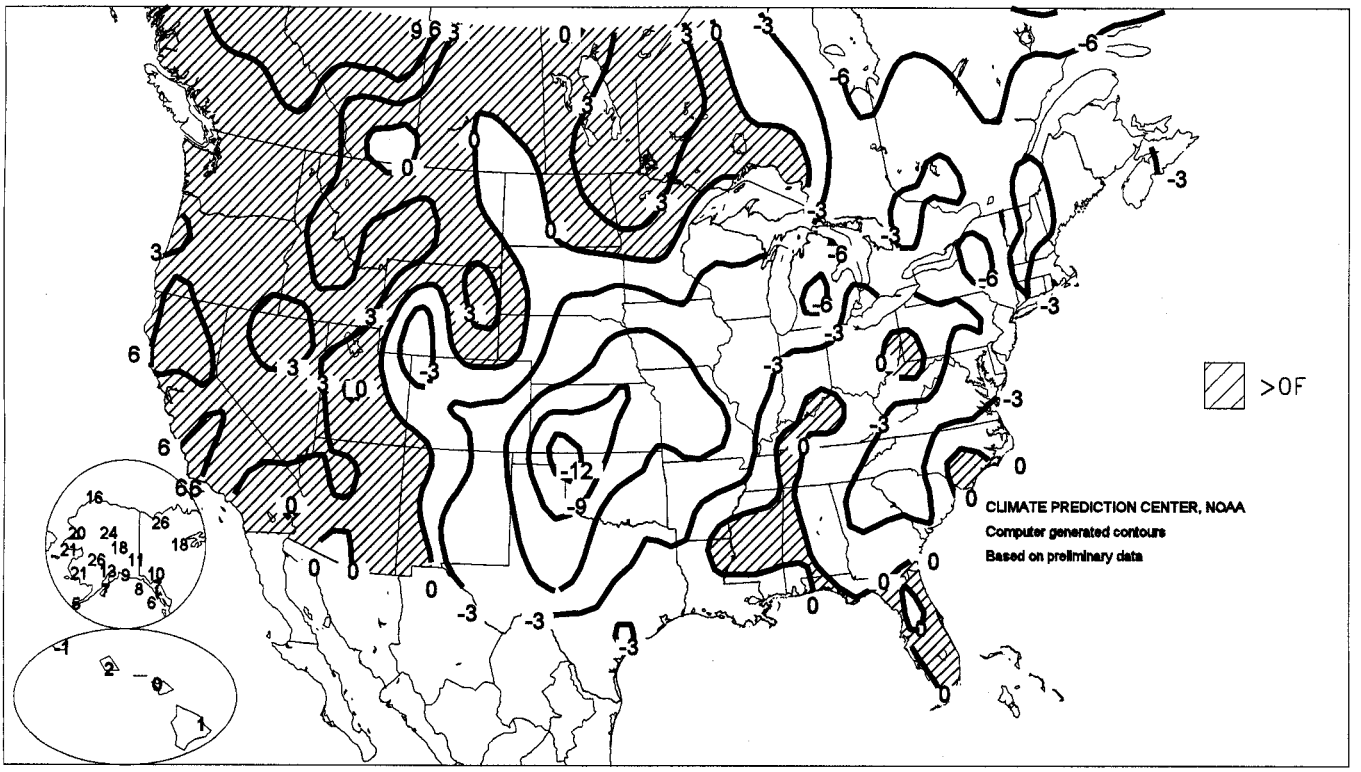
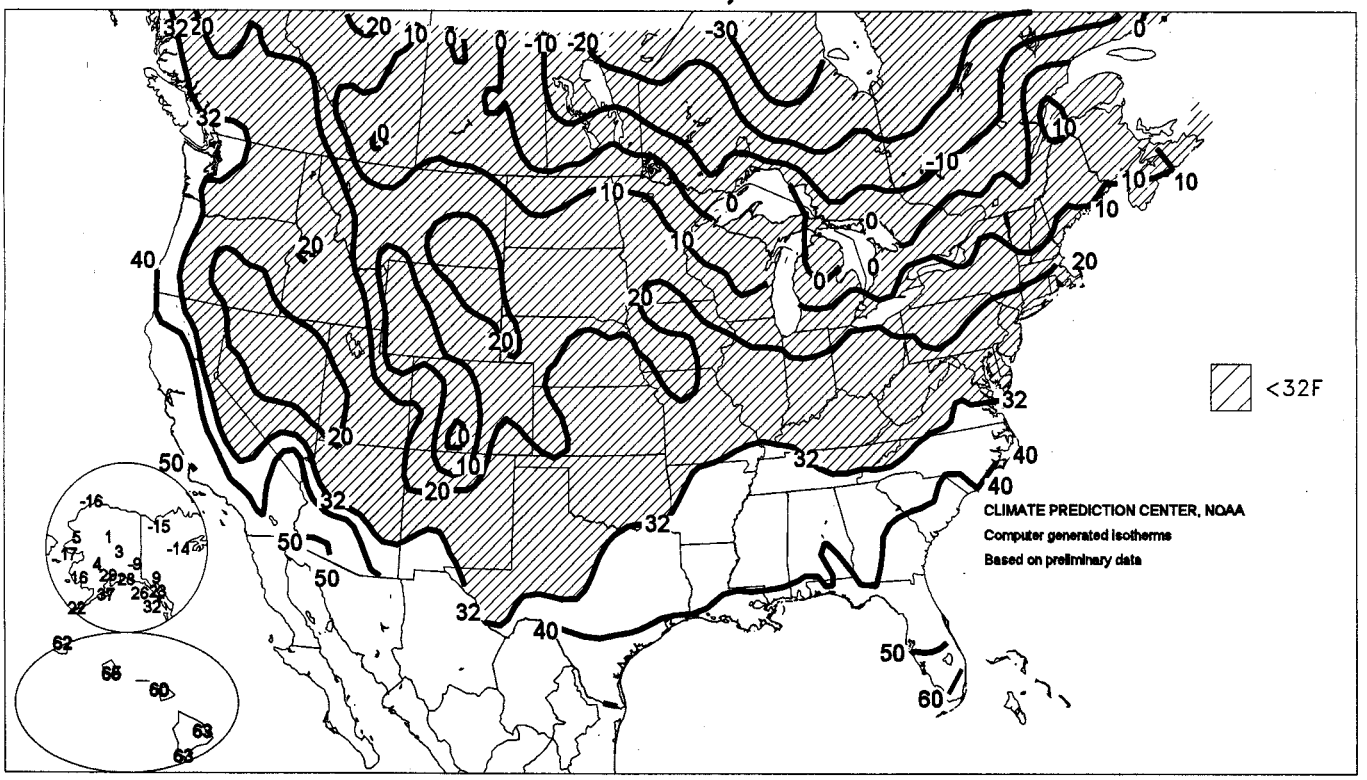
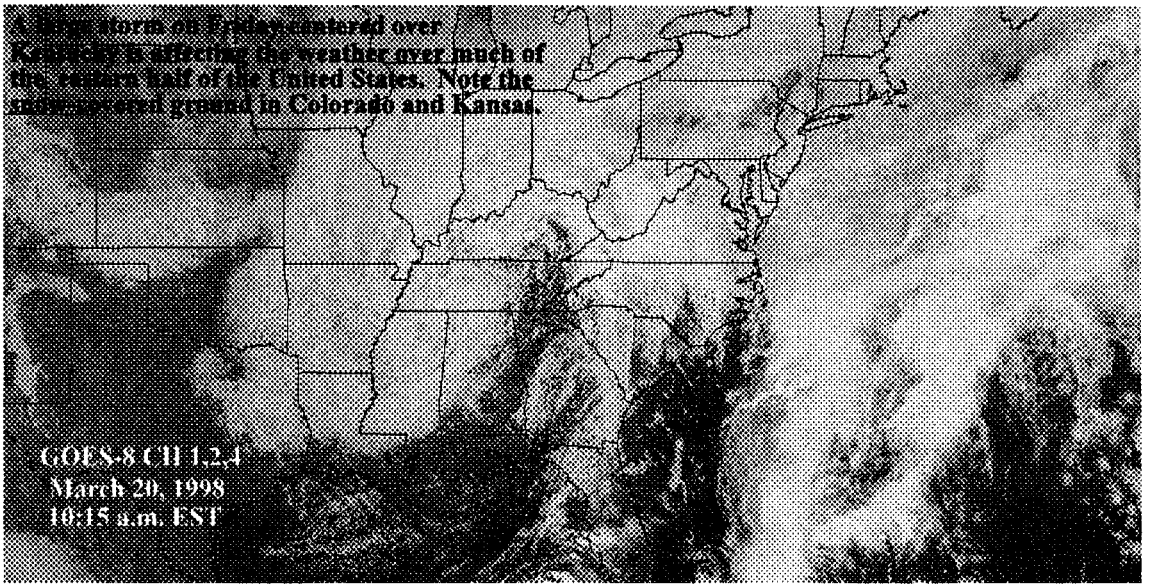
Departure of Average Temperature from Normal (°F)
MAR 15 - 21, 1998



Extreme Minimum Temperature (°F)
MAR 15 - 21, 1998





(Continued from front cover)
Georgia northeastward into **Maine**. Fortunately, readings were not as severe as last week's Arctic outbreak as the mercury remained above freezing across the **Southeast**. The region, however, was not left unscathed as severe thunderstorms battered the **Southeast**, producing hail and spawning deadly tornadoes in **northeastern Georgia** and **central North Carolina** that took 11 lives near **Gainesville, GA** and 2 in **Stoneville, NC** Friday morning. The pair of strong storm systems responsible for this week's stormy weather also dropped moderate to heavy rains on a large portion of the **south-central Great Plains, middle Mississippi, Ohio**, and **Tennessee Valleys, central Gulf Coast**, and the **Atlantic Coast States**. The rains fell on already-saturated soils, necessitating dozens of flash flood warnings and causing numerous rivers to overflow their banks. In contrast, much of the **West** observed mild and dry weather, except for early-week light showers in the **Southwest** and rains from an approaching cold front at the week's end in **northern California**. Farther north, a persistent southerly flow pushed temperatures to record highs in **Alaska** as weekly departures ranged between +15°F and +26°F across central and northern sections of the State.

Early in the week, a storm system rapidly intensified over **southern New Mexico**, generating showers and thunderstorms across **Texas** and **Oklahoma**. On Sunday, a record 0.93 inches of rain dampened **Del Rio, TX** while 6 to 12 inches of snow blanketed the **Texas** and **Oklahoma Panhandles** and the higher elevations of **New Mexico**. **Albuquerque, NM** set daily precipitation records on both Sunday (1.45 inches) and Monday (0.42 inches). On Monday, strong thunderstorms dropped a record 1.34 and 1.23 inches of rain on **Austin** and **San Antonio, TX**, respectively. In contrast, a large area of high pressure over the **Great Lakes** kept the eastern half of the Nation relatively dry and chilly, although the bitterly cold Arctic air was confined to **Canada** and **northern Michigan**. Record lows were set at **Houghton Lake** (-10°F), **Alpena** (-9°F), and **Muskegon, MI** (9°F) on March 16. Fortunately, the dry weather allowed swollen rivers to recede in **Alabama, Georgia**, and **Florida**. As the storm system slowly tracked to the northeast Tuesday, heavy rains pushed into the **central Great Plains, Midwest**, and **southern Mississippi Valley**, including a record rainfall of 1.62 inches at **Peoria, IL** on March 17. As the moisture advected northward into the retreating cold air, 5 to 10 inches of snow fell on **northern Michigan**, setting a new March record of 40.0 inches (through March 17) at **Alpena, MI** after minimal snowfall this winter.

By Tuesday afternoon into Wednesday, a second storm system quickly dropped southeastward from **southern British Columbia** into the **central Rockies** and rapidly strengthened. Heavy snow (1 to 3 feet) covered much of **Colorado**, including nearly 2 feet at **Colorado Springs, CO**. Meanwhile, the first storm system slowly moved into **southeastern Canada**, generating widespread showers and thunderstorms from **Florida** northward into **New England**. The rains were locally heavy, and dumped record March 19 rainfall at **Bridgeport, CT** (1.56 inches), **Newark, NJ** (1.40 inches), **Melbourne, FL** (3.22 inches), and **Orlando, FL** (2.17 inches). By Thursday afternoon, the second storm system further intensified and moved steadily eastward over the **south-central Mississippi Valley**, setting the **East Coast** up for a second round of heavy rainfall for the weekend.

By Friday morning, the deep low pressure area was centered over **Kentucky** and spreading a large canopy of cold rain to the north, with snow along the fringe in northern parts of **Missouri** and **Illinois**. Severe weather developed in the warm sector to the southeast, with the deadly outbreak of tornadoes in **northeastern Georgia** around 6:30 a.m. EST, and more killer tornadoes in **central North Carolina** later that morning. Numerous thunderstorms spread heavy rains northward Friday night into the **Mid-Atlantic States**, while snow fell to the north. With the storm centered near the **Delaware coast** by Saturday afternoon, snow was falling from **Pennsylvania** into **New England**. The 5 inches recorded in **New York City** by Sunday afternoon was 10 times the amount that had accumulated for the entire season up to this weekend. More spring-like weather, however, prevailed in **Alaska**, where **Barrow** and **Juneau** tied the record high temperature for March with readings of 34°F and 61°F, respectively, on Saturday. Very dry and warm weather persisted across **Hawaii**, with **Honolulu** failing to record any measurable March rainfall (through the 23rd), and only reporting 0.98 inches since January 1 (normal=7.42 inches).

National Weather Data for Selected Cities

Weather Data for the Week Ending March 21, 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			
																	TEMP, °F		PRECIP.	
		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	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	62	46	76	36	54	-1	0.72	-0.71	0.63	4.86	115	21.44	153	89	58	0	0	3	1
	HUNTSVILLE	58	44	70	36	51	-2	1.87	0.33	0.89	3.60	80	18.19	125	89	63	0	0	4	2
	MOBILE	67	50	74	39	59	-2	0.85	-0.62	0.50	10.98	247	32.18	220	96	68	0	0	5	1
	MONTGOMERY	66	49	77	40	57	-1	1.28	-0.15	0.98	2.60	60	16.50	114	90	62	0	0	5	1
AK	ANCHORAGE	45	32	49	29	39	13	0.00	-0.17	0.00	0.00	0	0.63	31	85	49	0	4	0	0
	BARROW	8	-6	34	-16	1	16	0.02	-0.01	0.02	0.04	50	0.04	13	87	80	0	7	1	0
	FAIRBANKS	46	14	54	3	30	18	0.00	-0.08	0.00	0.00	0	0.08	7	88	40	0	7	0	0
	JUNEAU	48	32	61	23	40	7	--	--	--	--	--	--	--	97	67	0	3	4	0
	KODIAK	42	38	48	37	40	7	--	--	--	--	--	--	--	97	80	0	0	5	3
	NOME	35	25	39	17	30	21	0.57	0.46	0.23	0.72	218	1.94	112	90	76	0	6	6	0
AZ	FLAGSTAFF	52	26	61	16	39	3	0.47	-0.12	0.23	1.51	85	4.95	84	91	32	0	5	3	0
	PHOENIX	72	53	80	50	62	0	0.08	-0.12	0.08	0.19	29	3.47	173	75	34	0	0	1	0
	PRESCOTT	60	33	66	25	46	3	0.24	-0.18	0.19	0.79	61	3.61	83	86	33	0	3	3	0
	TUCSON	70	48	78	42	59	0	0.03	-0.14	0.03	0.25	50	3.62	177	84	33	0	0	1	0
	YUMA	79	55	84	51	67	2	0.00	-0.06	0.00	0.07	41	1.33	182	68	30	0	0	0	0
AR	FORT SMITH	56	41	63	31	48	-4	2.56	1.64	0.76	3.83	146	14.64	205	96	74	0	1	5	3
	LITTLE ROCK	60	43	71	37	52	-2	1.85	0.74	0.92	3.83	117	14.04	140	91	65	0	0	4	2
CA	BAKERSFIELD	72	48	77	45	60	2	0.00	-0.24	0.00	0.76	104	7.44	281	92	54	0	0	0	0
	EUREKA	61	45	68	38	53	4	0.54	-0.69	0.45	2.70	51	29.45	204	99	68	0	0	4	0
	FRESNO	72	51	76	46	61	6	0.01	-0.42	0.01	0.48	37	8.68	172	88	47	0	0	1	0
	LOS ANGELES	65	55	68	53	60	2	0.00	-0.44	0.00	1.03	71	18.09	284	94	79	0	0	0	0
	REDDING	69	51	75	44	60	8	1.29	0.29	1.23	2.56	82	31.99	235	77	44	0	0	3	1
	SACRAM/MCCLELL	71	52	73	46	61	--	0.10	--	0.10	0.34	--	19.52	--	92	58	0	0	1	0
	SAN DIEGO	65	57	70	52	61	2	0.00	-0.41	0.00	0.31	25	10.65	232	83	67	0	0	0	0
	SAN FRANCISCO	63	52	69	48	58	4	0.12	-0.58	0.12	0.66	30	22.54	232	93	72	0	0	1	0
CO	ALAMOSA	47	19	55	1	33	0	0.14	0.03	0.13	0.20	67	0.23	27	91	33	0	7	2	0
	CO SPRINGS	44	25	60	14	34	-3	1.62	1.40	1.50	1.62	270	1.99	155	90	52	0	5	2	1
	DENVER	48	26	58	16	37	-3	0.37	0.07	0.37	1.06	132	1.33	72	91	44	0	7	1	0
	GRAND JUNCTION	54	29	66	23	42	-2	0.66	0.44	0.35	0.90	148	1.86	112	72	37	0	6	2	0
	PUEBLO	48	25	63	17	36	-6	1.77	1.58	1.31	1.79	358	2.06	184	95	54	0	5	3	1
CT	BRIDGEPORT	40	32	44	26	36	-3	0.55	-0.31	0.31	3.27	131	11.90	136	84	63	0	4	3	0
	HARTFORD	40	28	46	21	34	-4	1.47	0.64	1.17	4.52	187	11.01	122	89	63	0	5	3	1
DC	WASHINGTON	46	37	59	32	41	-6	3.24	2.52	1.31	5.61	261	16.25	214	81	61	0	1	5	3
DE	WILMINGTON	44	33	48	26	39	-5	2.55	1.77	1.04	4.90	213	12.64	153	87	63	0	4	4	2
FL	DAYTONA BEACH	74	55	81	43	64	0	2.07	1.42	0.92	3.86	189	15.44	195	94	57	0	0	3	3
	JACKSONVILLE	72	53	80	42	62	1	1.31	0.48	0.88	2.68	103	17.28	176	95	57	0	0	2	1
	KEY WEST	78	69	82	63	73	-1	1.25	0.86	1.11	2.81	240	10.11	202	88	69	0	0	2	1
	MIAMI	79	66	84	61	72	0	2.27	1.72	1.55	3.90	242	11.54	202	87	64	0	0	3	2
	ORLANDO	75	57	81	46	66	-1	2.53	1.80	2.08	5.00	217	15.72	206	93	57	0	0	3	1
	TAMPA	75	59	81	49	67	0	4.27	3.59	3.18	5.18	234	20.64	284	90	65	0	0	3	2
	VALPARAISO/EGLIN	67	53	73	41	60	2	0.44	-0.75	0.32	5.58	151	23.16	191	90	59	0	0	1	0
	WEST PALM BEACH	78	65	85	56	71	1	1.69	0.84	1.26	4.03	160	21.43	268	81	59	0	0	3	1
GA	ATHENS	58	41	72	38	50	-5	0.45	-0.81	0.41	4.98	132	18.56	145	91	59	0	0	4	0
	ATLANTA	57	41	68	37	49	-5	0.10	-1.22	0.04	6.16	155	19.17	142	91	63	0	0	3	0
	AUGUSTA	65	43	75	39	54	-2	0.80	-0.26	0.76	6.10	188	19.97	173	93	54	0	0	2	1
	COLUMBUS	66	46	76	41	56	-2	0.37	-0.95	0.15	4.61	116	12.05	90	90	52	0	0	3	0
	MACON	65	45	74	41	55	-3	0.82	-0.27	0.82	4.23	127	16.17	128	91	53	0	0	1	1
	SAVANNAH	68	50	80	44	59	-1	1.72	0.85	1.62	4.06	157	18.44	196	95	64	0	0	3	1
HI	HILO	81	66	83	63	73	1	0.12	-3.10	0.07	0.93	10	3.38	12	91	64	0	0	4	0
	HONOLULU	84	68	88	65	76	2	0.00	-0.50	0.00	0.00	0	0.98	13	81	47	0	0	0	0
	KAHULUI	83	65	84	60	74	1	0.00	-0.62	0.00	0.00	0	0.86	10	86	52	0	0	0	0
	LIHUE	79	65	83	63	72	-1	0.02	-0.94	0.02	0.02	1	3.95	33	87	60	0	0	1	0
ID	BOISE	58	35	65	27	46	3	0.07	-0.23	0.07	0.54	62	4.67	139	71	33	0	3	1	0
	LEWISTON	57	37	64	31	47	3	0.03	-0.22	0.02	1.16	161	3.26	112	77	41	0	1	2	0
	POCATELLO	52	27	61	21	39	2	0.00	-0.30	0.00	0.29	35	3.71	132	85	40	0	6	0	0
IL	CHICAGO/O'HARE	40	31	52	22	35	-3	0.70	0.07	0.47	3.63	217	8.01	175	87	68	0	3	3	0
	MOLINE	41	30	49	24	36	-3	1.43	0.73	1.26	2.66	143	8.35	180	88	67	0	5	3	1
	PEORIA	43	31	52	22	37	-3	1.83	1.14	1.61	3.62	198	8.81	185	90	71	0	4	2	1
	ROCKFORD	40	28	46	19	34	-2	0.57	-0.01	0.32	1.64	109	5.57	141	88	61	0	6	4	0
	SPRINGFIELD	44	33	53	23	38	-3	1.70	0.94	1.10	3.09	149	8.22	153	92	75	0	4	4	1
IN	EVANSVILLE	54	37	69	23	45	-1	1.57	0.47	0.74	2.35	74	7.31	82	90	62	0	1	5	1
	FORT WAYNE	43	30	60	21	36	-2	2.05	1.38	1.18	3.95	210	9.35	165	93	70	0	5	4	1
	INDIANAPOLIS	47	35	63	20	41	-1	2.98	2.10	1.17	4.44	178	8.19	112	92	68	0	3	5	3
	SOUTH BEND	42	29	55	15	35	-3	0.60	-0.12	0.41	2.31	117	7.81	128	92	67	0	5	2	0
IA	BURLINGTON	43	32	51	24	38	-2	1.22	0.54	1.17	2.90	163	8.28	198	83	62	0	3	3	1
	CEDAR RAPIDS	38	28	47	20	33	-3	0.79	0.24	0.50	1.59	111	4.90	142	93	64	0	6	3	1
	DES MOINES	37	28	46	22	32	-6	0.60	0.05	0.53	1.87	132	4.44	127	89	65	0	6	3	1
	DUBUQUE	35	27	43	19	31	-4	0.63	-0.05	0.31	1.65	91	5.64	128	90	68	0	6	4	0
	SIOUX CITY	37	27	47	20	32	-5	0.52	0.06	0.47	1.23	88	2.51	94	92	67	0	7	2	0
	WATERLOO	36	27	46	21	32	-4	0.49	-0.05	0.26	1.02	71	3.67	111	94	76	0	6	2	0
KS	CONCORDIA	39	29	61	24	34	-8	0.60	0.08	0.31	0.92	64	3.29	120	92	73	0	7	4	0
	DODGE CITY	38	28	53	22	33	-11	1.53	1.16	0.85	2.24	229	3.33	159	94	80	0	7	5	2
	GOODLAND	44	25	62	18	34	-5	0.05	-0.23	0.03	0.15	19	0.90	59	93	63	0	7	2	0
	TOPEKA	41	31	56	25	36	-8	1.03	0.45	0.67	2.12	136	3.68	104	92	65	0	4	3	1

Based on 1961-90 normals

Weather Data for the Week Ending March 21, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		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	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	42	32	49	24	37	-9	3.15	2.58	1.63	3.60	228	4.94	147	93	76	0	3	4	2
KY	JACKSON	56	39	68	25	47	-1	1.23	0.13	0.57	2.56	79	10.75	99	89	53	0	3	4	1
	LEXINGTON	54	38	66	22	46	0	1.30	0.28	1.00	2.74	93	9.31	103	87	59	0	2	5	1
	LOUISVILLE	55	40	67	26	48	1	2.20	1.13	1.28	3.59	114	11.85	127	85	60	0	1	6	1
	PADUCAH	53	39	64	33	46	-2	2.07	0.94	1.10	2.86	87	10.68	102	94	71	0	0	6	1
LA	BATON ROUGE	70	50	79	40	60	-2	1.97	0.90	1.89	3.67	113	24.20	176	88	54	0	0	4	1
	LAKE CHARLES	71	51	80	39	61	0	1.75	1.01	1.71	3.80	167	18.94	183	94	55	0	0	4	1
	NEW ORLEANS	69	54	75	45	62	-1	2.49	1.40	1.14	5.79	169	29.35	202	86	61	0	0	3	2
	SHREVEPORT	66	46	77	34	56	-2	2.09	1.29	2.06	2.26	92	15.29	149	92	47	0	0	2	1
ME	CARIBOU	32	12	41	5	22	-4	0.19	-0.36	0.17	2.08	129	8.76	147	82	45	0	7	2	0
	PORTLAND	37	25	43	19	31	-3	0.40	-0.43	0.31	2.82	116	13.37	144	87	60	0	6	2	0
MD	BALTIMORE	47	33	58	23	40	-5	2.87	2.10	0.85	7.46	323	19.51	229	86	61	0	3	5	4
MA	BOSTON	38	31	41	27	34	-5	1.24	0.41	1.07	3.67	148	13.98	144	87	69	0	5	3	1
	WORCESTER	34	26	40	22	30	-4	1.59	0.68	1.11	5.80	219	13.55	138	88	68	0	7	4	1
MI	ALPENA	31	10	35	-10	21	-8	1.50	1.01	0.86	3.70	270	8.24	192	88	63	0	7	2	2
	GRAND RAPIDS	34	23	41	9	29	-6	0.64	0.03	0.31	3.51	213	9.14	186	88	62	0	6	3	0
	HOUGHTON LAKE	33	14	39	-9	23	-6	0.68	0.21	0.44	2.07	158	5.07	127	86	55	0	7	3	0
	LANSING	34	22	42	4	28	-6	0.66	0.12	0.39	2.71	184	8.20	190	89	68	0	6	3	0
	MARQUETTE	29	2	32	-16	16	-9	0.40	-0.23	0.40	2.84	164	6.69	119	92	50	0	7	3	0
	MUSKEGON	36	23	44	9	30	-4	0.95	0.36	0.46	2.28	142	6.62	122	87	56	0	6	3	0
MN	DULUTH	30	17	35	10	23	-2	0.00	-0.45	0.00	0.18	15	4.63	143	88	56	0	7	0	0
	INT'L FALLS	37	16	41	5	27	3	0.00	-0.25	0.00	0.19	29	1.90	87	71	36	0	7	0	0
	MINNEAPOLIS	38	23	45	16	31	-1	0.07	-0.39	0.06	0.30	24	2.74	90	84	49	0	7	2	0
	ROCHESTER	32	23	36	19	27	-3	0.24	-0.18	0.14	0.39	36	3.24	124	87	64	0	7	4	0
	ST. CLOUD	38	22	45	17	30	2	0.10	-0.23	0.07	0.40	47	1.98	89	84	44	0	7	2	0
MS	JACKSON	68	48	78	33	58	1	1.82	0.48	0.94	4.21	108	19.24	139	85	53	0	0	4	2
	MERIDIAN	67	48	74	34	57	0	0.84	-0.70	0.75	3.15	69	22.14	146	91	61	0	0	4	1
	TUPELO	63	46	75	32	54	0	1.16	-0.25	0.75	4.55	111	16.72	122	91	60	0	1	6	1
MO	COLUMBIA	43	32	55	26	38	-6	1.85	1.11	0.79	3.46	170	9.18	172	91	73	0	3	5	2
	KANSAS CITY	41	32	55	27	37	-7	0.84	0.25	0.53	2.22	139	4.28	113	88	68	0	2	4	1
	SAINT LOUIS	46	35	57	26	41	-5	3.04	2.20	0.98	4.53	192	10.34	165	90	70	0	2	4	3
	SPRINGFIELD	45	35	54	27	40	-7	3.83	2.92	1.91	5.31	210	12.25	189	100	76	0	3	6	3
MT	BILLINGS	49	31	59	26	40	4	0.20	-0.07	0.09	0.68	94	1.48	65	92	47	0	5	4	0
	BUTTE	47	21	56	11	34	5	0.11	-0.07	0.11	0.62	127	1.92	135	93	41	0	7	1	0
	GLASGOW	40	24	48	17	32	2	0.15	0.06	0.11	0.27	123	0.68	79	95	63	0	7	2	0
	GREAT FALLS	46	23	59	12	35	1	0.50	0.24	0.41	0.91	130	2.08	95	88	43	0	7	3	0
	KALISPELL	46	27	56	20	36	2	0.24	0.02	0.12	1.60	239	2.92	88	92	49	0	7	3	0
	MILES CITY	42	27	52	23	35	1	0.14	0.00	0.07	0.32	86	0.94	69	97	66	0	7	3	0
	MISSOULA	50	29	59	21	39	3	0.24	0.02	0.23	0.69	105	2.46	91	86	44	0	5	2	0
NE	GRAND ISLAND	40	27	56	23	33	-5	0.15	-0.30	0.13	0.25	21	1.12	47	92	74	0	7	2	0
	LINCOLN	37	27	50	21	32	-8	0.57	0.07	0.47	2.14	163	4.14	162	92	73	0	7	3	0
	NORFOLK	36	25	49	18	30	-6	0.22	-0.22	0.22	0.78	66	1.29	52	92	69	0	7	1	0
	NORTH PLATTE	42	25	62	18	34	-3	0.05	-0.24	0.04	0.24	33	0.91	59	93	65	0	7	2	0
	OMAHA	38	28	48	18	33	-7	0.42	-0.06	0.37	1.99	153	3.59	128	92	72	0	6	2	1
	SCOTTSBLUFF	50	27	61	23	38	2	0.07	-0.19	0.07	0.66	97	1.50	92	93	48	0	6	1	0
	VALENTINE	40	24	54	18	32	-2	0.05	-0.19	0.03	0.36	56	0.54	41	94	66	0	7	2	0
NV	ELY	52	24	60	19	38	3	0.00	-0.22	0.00	0.11	17	2.22	110	83	30	0	7	0	0
	LAS VEGAS	72	49	78	45	60	4	0.00	-0.09	0.00	0.14	45	3.20	258	58	21	0	0	0	0
	RENO	64	30	69	24	47	4	0.02	-0.14	0.02	0.59	113	4.27	164	78	24	0	4	1	0
	WINNEMUCCA	59	24	67	14	42	1	0.06	-0.12	0.06	0.21	41	3.48	185	88	30	0	6	1	0
NH	CONCORD	38	24	43	14	31	-2	0.70	0.09	0.60	3.08	169	9.17	133	87	58	0	6	3	1
NJ	NEWARK	44	33	49	27	38	-5	2.14	1.25	1.37	3.98	154	13.67	152	87	66	0	4	3	1
NM	ALBUQUERQUE	55	36	66	29	45	-2	2.01	1.90	1.45	2.24	679	3.04	241	82	36	0	1	4	1
NY	ALBANY	39	28	47	20	33	-2	0.52	-0.15	0.39	2.08	107	8.47	129	89	64	0	5	2	0
	BINGHAMTON	36	24	43	14	30	-3	1.71	1.06	1.21	3.15	169	10.74	163	96	68	0	5	5	1
	BUFFALO	36	25	44	11	30	-4	1.45	0.84	0.85	3.27	184	11.15	164	94	69	0	5	5	1
	ROCHESTER	36	24	44	13	30	-5	1.54	1.02	0.79	3.10	210	11.01	195	95	70	0	5	5	1
	SYRACUSE	38	25	44	12	31	-4	1.37	0.73	1.03	2.74	152	10.65	169	94	65	0	6	5	1
NC	ASHEVILLE	52	36	70	32	44	-4	1.80	0.74	0.86	3.63	113	19.98	193	94	58	0	1	6	2
	CHARLOTTE	58	42	73	38	50	-2	0.86	-0.16	0.61	3.01	97	12.57	118	87	55	0	0	5	1
	GREENSBORO	53	39	70	34	46	-4	1.63	0.78	0.50	3.62	141	14.89	164	87	58	0	0	6	1
	HATTERAS	55	47	60	40	51	-1	1.58	0.60	1.42	2.15	72	19.61	159	95	74	0	0	5	1
	RALEIGH	56	40	69	32	48	-3	4.87	4.01	2.14	7.38	277	20.65	210	90	63	0	1	5	3
	WILMINGTON	66	46	73	37	56	1	1.30	0.42	0.93	2.14	79	20.64	201	90	58	0	0	4	1
ND	BISMARCK	35	25	43	15	30	1	0.02	-0.16	0.02	0.14	32	1.89	140	93	74	0	7	1	0
	DICKINSON	33	21	40	13	27	-3	0.02	-0.14	0.02	0.19	50	2.57	236	95	83	0	7	1	0
	FARGO	37	26	42	20	32	5	0.04	-0.21	0.04	0.10	16	2.40	135	88	66	0	7	1	0
	GRAND FORKS	35	23	40	8	29	4	0.49	0.27	0.49	0.49	83	2.43	137	93	72	0	7	1	0
	JAMESTOWN	35	24	43	16	30	2	0.16	-0.04	0.14	0.36	69	2.35	147	95	71	0	7	2	0
	WILLISTON	33	22	37	13	27	-2	0.00	-0.16	0.00	0.20	49	2.31	166	93	78	0	7	0	0
OH	AKRON-CANTON	44	30	55	19	37	-2	0.71	-0.06	0.30	2.33	105	8.54	129	91	65	0	4	6	0
	CINCINNATI	50	37	62	22	43	-1	1.62	0.63	0.67	3.24	114	9.55	118	90	63	0	3	6	1
	CLEVELAND	42	32	56	22	37	-1	1.48	0.81	0.98	2.91	152	8.74	142	90	69	0	4	6	1
	COLUMBUS	48	35	61	24	41	0	0.97	0.21	0.37	1.89	87	6.66	101	87	58	0	3	4	0
	DAYTON	46	34	59	21	40	-1	1.28	0.48	0.54	2.35	104	7.97	122	91	61	0	3	5	1
	MANSFIELD	42	30	55	20	36	-2	1.19	0.42	0.62	2.02	94	7.48	122	95	72	0	5	4	1

Based on 1961-90 normals

Weather Data for the Week Ending March 21, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		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	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	40	29	51	20	35	-2	1.01	0.39	0.47	2.64	153	9.37	180	93	65	0	5	4	0
	YOUNGSTOWN	45	30	56	17	37	0	0.82	0.10	0.33	2.43	118	9.17	147	91	66	0	4	6	0
OK	OKLAHOMA CITY	52	39	58	30	45	-6	3.96	3.33	1.73	5.17	287	9.38	209	94	68	0	1	5	3
	TULSA	52	38	58	28	45	-6	3.57	2.76	1.35	6.32	278	10.09	175	94	67	0	1	5	3
OR	ASTORIA	58	43	66	37	50	4	0.65	-0.95	0.61	6.08	123	32.80	145	95	64	0	0	3	1
	BURNS	55	28	64	20	41	4	0.19	-0.05	0.18	0.67	94	5.89	239	88	37	0	6	3	0
	EUGENE	59	38	68	32	49	1	1.24	-0.02	1.14	2.76	71	17.05	98	89	56	0	1	3	1
	MEDFORD	67	41	74	33	54	7	0.24	-0.17	0.16	0.96	74	9.02	153	87	38	0	0	2	0
	PENDLETON	58	38	64	31	48	3	0.03	-0.25	0.03	0.64	78	4.43	128	83	42	0	2	1	0
	PORTLAND	62	43	70	37	52	5	0.54	-0.27	0.44	2.44	98	14.48	124	90	47	0	0	4	0
	SALEM	60	40	68	35	50	4	0.93	-0.01	0.92	2.78	94	18.00	135	93	52	0	0	2	1
PA	ALLENTOWN	44	30	50	21	37	-3	1.66	0.92	0.65	3.77	172	11.04	133	85	58	0	4	5	2
	ERIE	40	29	51	20	35	-2	0.67	-0.02	0.24	1.45	74	8.08	125	92	76	0	4	5	0
	MIDDLETOWN	48	32	70	24	40	-2	2.16	1.42	0.70	4.32	189	13.86	172	86	59	0	3	4	3
	PHILADELPHIA	45	34	48	28	40	-3	2.14	1.34	1.20	3.91	171	11.41	137	87	62	0	3	4	2
	PITTSBURGH	49	33	61	21	41	1	1.00	0.20	0.62	1.93	85	8.11	113	91	62	0	4	5	1
	SCRANTON	43	29	56	22	36	-1	1.27	0.71	0.85	2.47	147	8.34	141	90	61	0	2	4	1
	WILLIAMSPORT	44	30	53	19	37	-2	1.44	0.72	1.02	2.77	130	13.30	179	88	60	0	3	5	1
RI	PROVIDENCE	40	30	45	24	35	-3	2.67	1.74	2.23	6.35	234	18.74	184	87	61	0	5	3	1
SC	BEAUFORT	64	48	72	45	56	-3	0.42	-0.53	0.33	2.48	87	18.73	190	94	69	0	0	3	0
	CHARLESTON	66	48	74	40	57	-2	3.16	2.15	1.93	5.51	182	23.26	239	92	63	0	0	3	2
	COLUMBIA	62	43	75	38	52	-4	1.75	0.64	1.59	4.25	127	17.41	146	91	52	0	0	2	1
	GREENVILLE	56	39	73	36	48	-5	0.74	-0.50	0.54	3.94	106	17.65	144	89	55	0	0	5	1
SD	ABERDEEN	36	25	46	18	30	0	0.02	-0.30	0.02	0.16	20	1.56	95	91	70	0	7	1	0
	HURON	38	26	49	20	32	-1	0.00	-0.39	0.00	0.15	14	1.10	52	88	64	0	7	0	0
	RAPID CITY	46	25	66	16	35	1	0.17	-0.07	0.15	0.47	76	1.11	74	92	56	0	7	2	0
	SIOUX FALLS	36	25	44	20	30	-3	0.29	-0.10	0.24	0.83	83	1.99	93	92	68	0	7	2	0
TN	BRISTOL	54	37	64	24	45	-3	2.49	1.65	1.25	3.81	150	11.06	120	94	58	0	1	5	2
	CHATTANOOGA	56	43	68	36	49	-2	2.63	1.24	1.92	6.44	155	18.99	137	94	67	0	0	5	2
	KNOXVILLE	56	41	68	33	48	-1	2.86	1.68	1.50	4.46	127	11.78	100	89	57	0	0	4	2
	MEMPHIS	60	45	70	36	53	-1	1.79	0.55	0.91	4.46	124	16.75	143	94	62	0	0	6	2
	NASHVILLE	56	43	69	34	49	-2	1.01	-0.11	0.56	2.26	69	10.05	94	88	65	0	0	6	1
TX	ABILENE	61	40	77	28	51	-6	2.36	2.06	1.32	2.95	339	4.80	157	90	51	0	1	3	2
	AMARILLO	47	30	63	27	39	-9	2.15	1.93	1.33	2.26	348	5.02	287	97	71	0	5	3	1
	AUSTIN	71	50	80	42	60	-2	1.39	0.98	1.18	1.96	156	7.89	154	81	42	0	0	2	1
	BEAUMONT	70	52	79	39	61	-1	1.40	0.68	1.38	4.48	203	18.34	177	94	58	0	0	2	1
	BROWNSVILLE	78	59	85	50	68	-1	0.28	0.17	0.27	0.62	194	2.71	92	93	48	0	0	2	0
	CORPUS CHRISTI	73	55	78	44	64	-2	0.64	0.45	0.59	2.49	377	6.20	144	94	55	0	0	2	1
	DEL RIO	75	47	83	41	61	-3	1.88	1.73	0.98	1.92	505	2.31	122	84	29	0	0	2	2
	EL PASO	65	42	71	37	54	-2	0.12	0.06	0.12	0.17	81	0.36	35	68	30	0	0	1	0
	FORT WORTH	63	45	78	34	54	-3	2.93	2.29	1.33	3.97	219	12.25	210	88	57	0	0	4	2
	GALVESTON	68	54	76	44	61	-1	1.32	0.83	1.28	1.43	95	11.88	169	93	63	0	0	4	1
	HOUSTON	71	49	79	37	60	-1	1.56	0.90	1.51	2.09	106	12.30	149	95	51	0	0	3	1
	LUBBOCK	55	34	68	28	44	-8	1.16	0.97	1.00	1.29	222	3.15	192	92	55	0	4	2	1
	MIDLAND	64	38	76	29	51	-5	0.42	0.28	0.38	0.44	107	1.17	82	85	37	0	1	3	0
	SAN ANGELO	64	40	77	29	52	-7	1.70	1.51	1.01	1.81	312	3.04	124	91	45	0	2	5	2
	SAN ANTONIO	72	48	78	38	60	-3	1.70	1.37	1.23	2.80	283	9.41	208	88	41	0	0	3	1
	VICTORIA	72	50	78	39	61	-3	1.24	0.91	1.18	2.02	198	7.02	135	95	50	0	0	2	1
	WACO	66	46	79	36	56	-3	1.60	1.07	1.04	2.00	131	12.16	231	91	54	0	0	4	1
	WICHITA FALLS	56	40	71	29	48	-6	2.56	2.05	1.53	2.74	194	7.49	192	92	61	0	1	5	2
UT	SALT LAKE CITY	54	32	63	28	43	1	0.13	-0.31	0.13	1.22	98	7.74	215	84	40	0	4	1	0
VT	BURLINGTON	35	22	43	9	29	-3	0.96	0.45	0.60	2.99	208	9.98	205	91	64	0	6	5	1
VA	LYNCHBURG	49	36	70	29	43	-4	1.33	0.53	0.78	3.94	166	17.87	216	73	50	0	1	4	1
	NORFOLK	53	43	66	39	48	-1	2.47	1.63	1.06	4.23	166	18.45	189	89	66	0	0	5	1
	RICHMOND	49	36	61	27	43	-6	3.71	2.88	1.62	6.72	271	19.34	218	86	70	0	2	5	3
	ROANOKE	50	36	71	29	43	-5	4.07	3.27	3.09	5.22	220	21.18	264	89	53	0	3	6	2
	WASH/DULLES	47	33	63	24	40	-4	3.87	3.15	1.80	5.68	265	16.91	221	89	63	0	3	5	2
WA	HANFORD	64	40	69	29	52	--	0.00	--	0.00	0.14	47	2.53	148	63	27	0	1	0	0
	OLYMPIA	59	36	67	29	47	3	0.31	-0.80	0.29	3.16	91	20.19	117	99	49	0	2	2	0
	QUILLAYUTE	57	40	65	33	48	5	0.84	-1.74	0.59	4.58	57	35.51	101	95	59	0	0	3	1
	SEATTLE-TACOMA	57	41	63	36	49	3	0.29	-0.51	0.17	2.39	96	12.83	108	93	52	0	0	4	0
	SPOKANE	54	34	61	29	44	5	0.08	-0.25	0.04	0.67	64	4.31	96	89	43	0	3	3	0
	YAKIMA	60	34	66	25	47	4	0.06	-0.09	0.06	0.20	43	4.00	165	81	38	0	2	1	0
WV	BECKLEY	46	33	62	22	40	-3	2.62	1.85	1.44	3.77	165	13.55	166	96	67	0	4	6	2
	CHARLESTON	52	37	65	26	45	-2	1.88	1.05	0.89	3.43	139	11.10	132	88	62	0	3	4	2
	ELKINS	49	30	61	19	40	0	2.35	1.47	0.99	3.20	125	10.01	116	90	64	0	4	5	3
	HUNTINGTON	55	39	68	24	47	0	0.84	-0.01	0.37	1.99	80	10.60	129	85	57	0	1	3	0
WI	EAU CLAIRE	38	20	46	11	29	-1	0.51	0.10	0.47	1.03	101	4.96	181	93	50	0	7	3	0
	GREEN BAY	33	21	38	9	27	-4	0.85	0.37	0.59	1.58	121	4.57	131	86	63	0	7	3	1
	MADISON	34	22	41	8	28	-5	0.83	0.32	0.40	1.91	140	5.60	160	89	69	0	6	4	0
	MILWAUKEE	35	28	39	18	31	-3	0.98	0.35	0.46	1.90	114	7.69	163	87	69	0	6	3	0
WY	CASPER	45	25	56	19	35	1	0.05	-0.17	0.03	0.09	16	1.14	66	88	48	0	7	2	0
	CHEYENNE	44	23	53	14	33	0	0.24	0.00	0.18	0.44	68	0.81	57	89	53	0	7	4	0
	LANDER	40	20	52	12	30	-5	0.78	0.52	0.54	0.87	128	1.57	90	89	54	0	7	2	1
	SHERIDAN	48	27	62	20	37	3	0.27	0.06	0.16	0.44	75	0.93	47	93	51	0	7	3	0

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

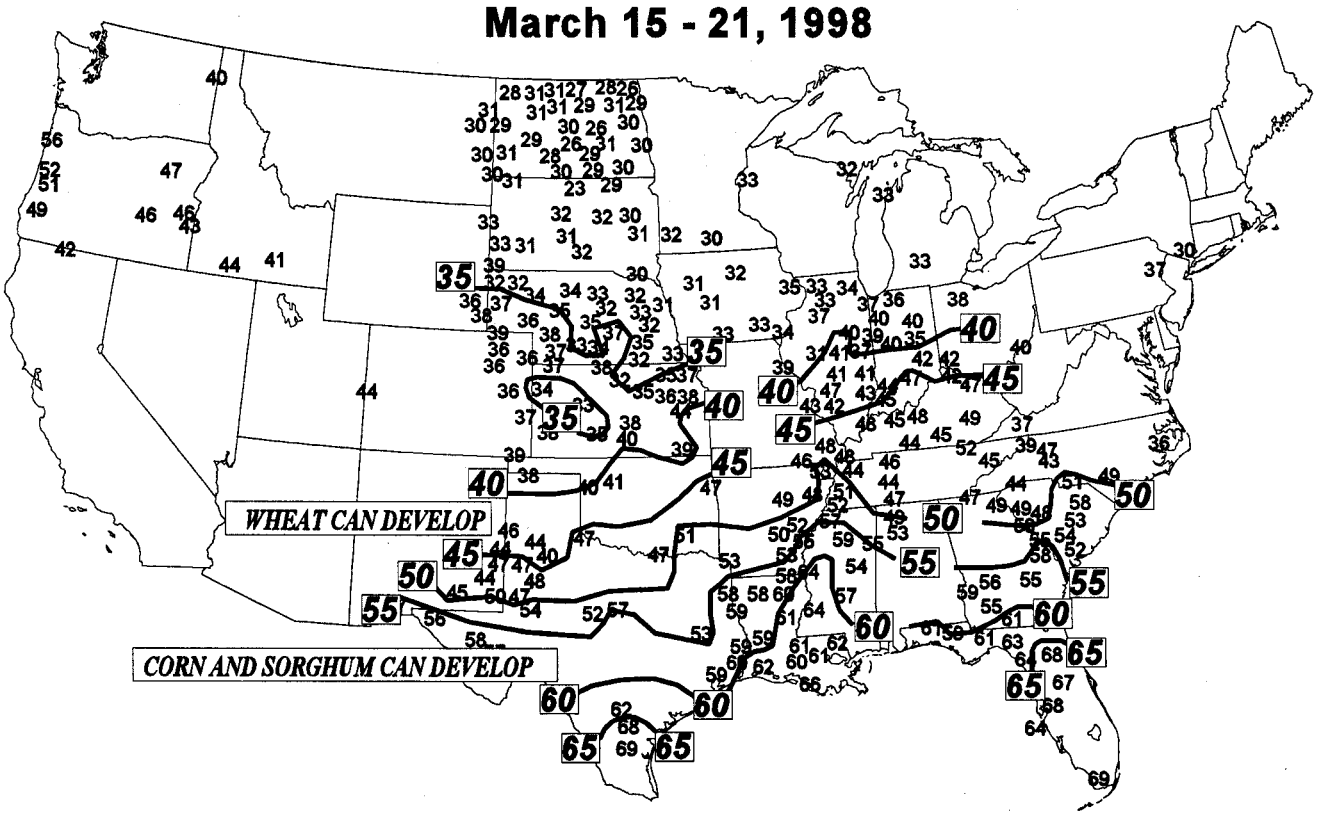
National Agricultural Summary

March 16 - 22, 1998

HIGHLIGHTS

Planting, spring tillage, and crop development were slowed by a powerful storm that brought snow and below-normal temperatures to an area extending from the southern Plains to New England. The storm slowed development of the winter wheat crop, especially in Kansas where jointing is behind normal. Farther south, development was not as affected. In Oklahoma, the crop was jointing ahead of normal, and in Texas the crop continued to head out. The winter wheat condition remained mostly good. As the storm proceeded eastward, it dropped heavy rainfall on the already saturated Southeastern States, further delaying field preparation and planting. Storm-related tillage delays were not as severe in Texas. However, recently planted crops were germinating slowly and some emerged corn and cotton fields were showing stress due to low temperatures. In the western Corn Belt and northern Plains, temperatures were mostly normal and precipitation was light. Warmer weather in Florida helped vegetable plant growth, but citrus bloom development remained slow. California and the Pacific Northwest experienced warm, dry weather most of the week, allowing field preparation and planting to resume a normal pace. The sunny weather also allowed growers to work in orchards and vineyards. Some cotton was planted in the San Joaquin Valley, but soil temperatures were still too low in most areas. Warm weather aided spring vegetables. Early varieties of almonds, stone fruit, and grapes were developing leaves, while later varieties were in bloom.

Average Soil Temperature (°F 4-Inch Bare)
March 15 - 21, 1998



NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary data

International Weather and Crop Summary

March 15 - 21, 1998

HIGHLIGHTS

FSU-WESTERN: Unseasonably cold, snowy weather kept winter grains dormant and prevented early-season fieldwork for spring grain planting.

EUROPE: Mild, dry weather favored developing winter grains in the west, while unseasonably cold weather in the east slowed further growth of winter grains.

NORTHWESTERN AFRICA: A developing drought in Morocco worsened conditions for winter grains in the heading stage.

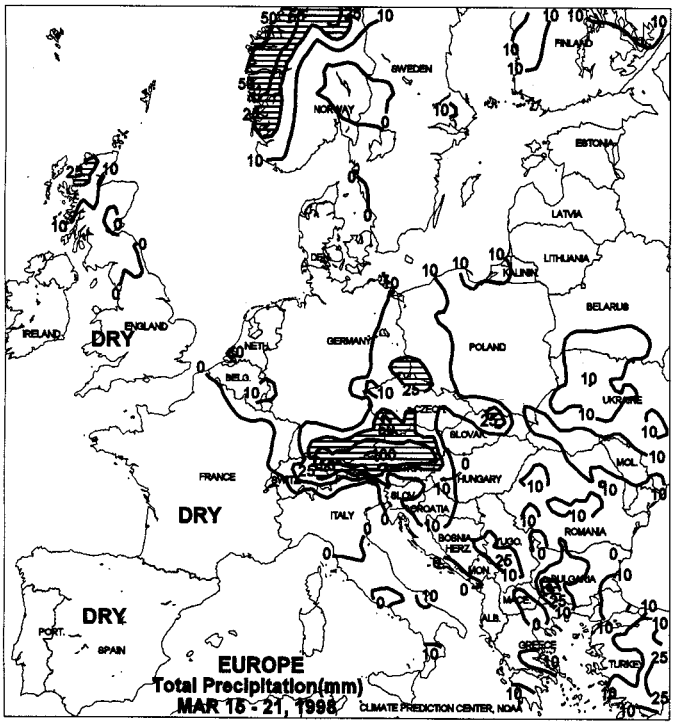
AUSTRALIA: Conditions were favorable for maturing cotton and sorghum.

SOUTH AFRICA: Warmer, drier weather helped the development of late-planted corn.

SOUTHEAST ASIA: Showers continued to benefit main-season rice in Java, but drought persisted across the eastern Philippines and eastern Malaysia.

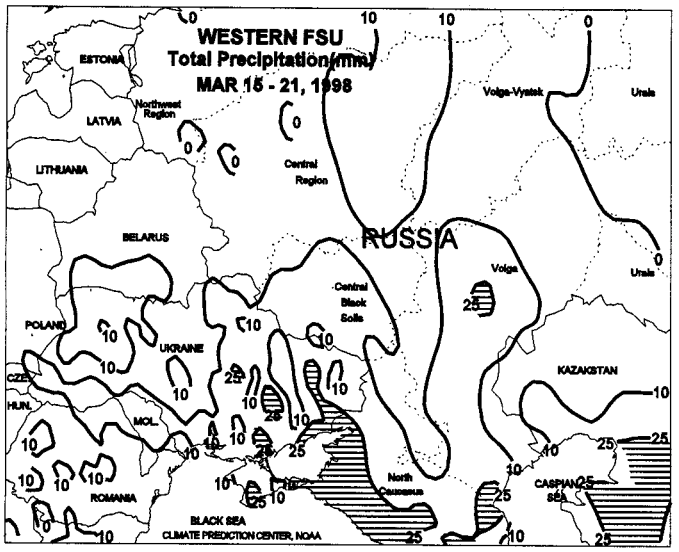
EASTERN ASIA: Freezing temperatures burned back vegetative winter wheat in the North China Plain and raised concerns for winter wheat across the Yangtze Valley.

SOUTH AMERICA: In Rio Grande do Sul, Brazil, heavy showers slowed harvesting and increased disease problems for soybeans. Drier weather favored summer crop harvesting in central Argentina.



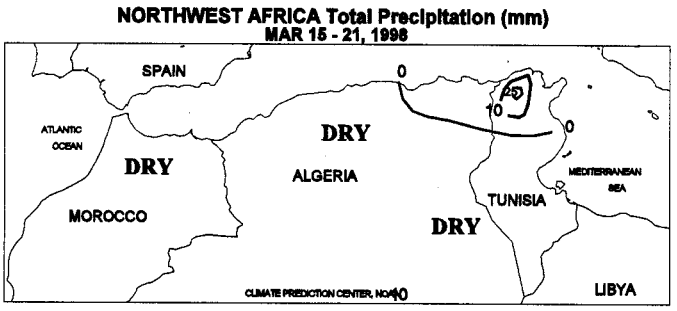
EUROPE

Unseasonably mild weather returned to most of western Europe, promoting rapid growth and development of winter grains. Furthermore, mostly dry weather accompanied the mild weather in these areas, favoring spring grain and summer crop planting. In Spain, dry weather has persisted in central and southern areas since February 10, lowering topsoil moisture. Rain is needed for winter wheat, approaching the heading stage in the south, and for the early development of spring-sown crops. Farther east, unseasonably cold weather prevailed over eastern Europe, where weekly temperatures averaged 2 to 5 degrees C below normal. The cold weather slowed further greening of winter grains. Extreme minimum temperatures in the region ranged from -4 to -10 degrees C, with lowest temperatures (less than -10 degrees C) observed in northeastern Poland and higher elevations in central Romania. Light rain and snow (3-10 mm) fell intermittently during the week in eastern Europe, preventing early-season fieldwork for spring grain planting.



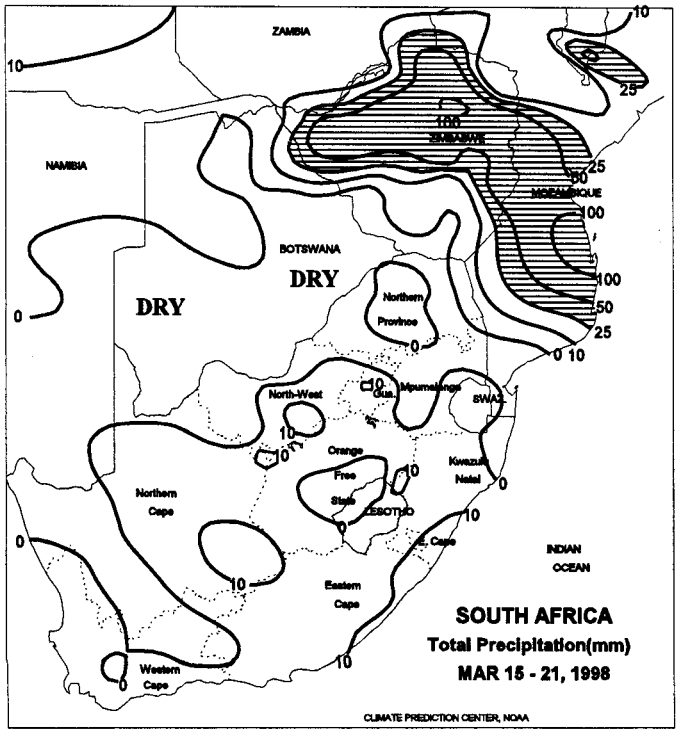
FSU-WESTERN

Unseasonably cold weather prevailed over most of the region, keeping winter grains dormant. Weekly temperatures averaged 1 to 3 degrees C below normal in most areas. Typically, winter grains begin breaking dormancy in early April in Ukraine and southern areas in Russia (southern Black Soils Region, lower Volga Valley, and the North Caucasus). Snow accompanied the colder weather in most areas. By week's end, snow cover extended as far south as the Black Sea coast. The cold, wet weather pattern halted early-spring grain planting in southern Ukraine and the North Caucasus region in Russia.



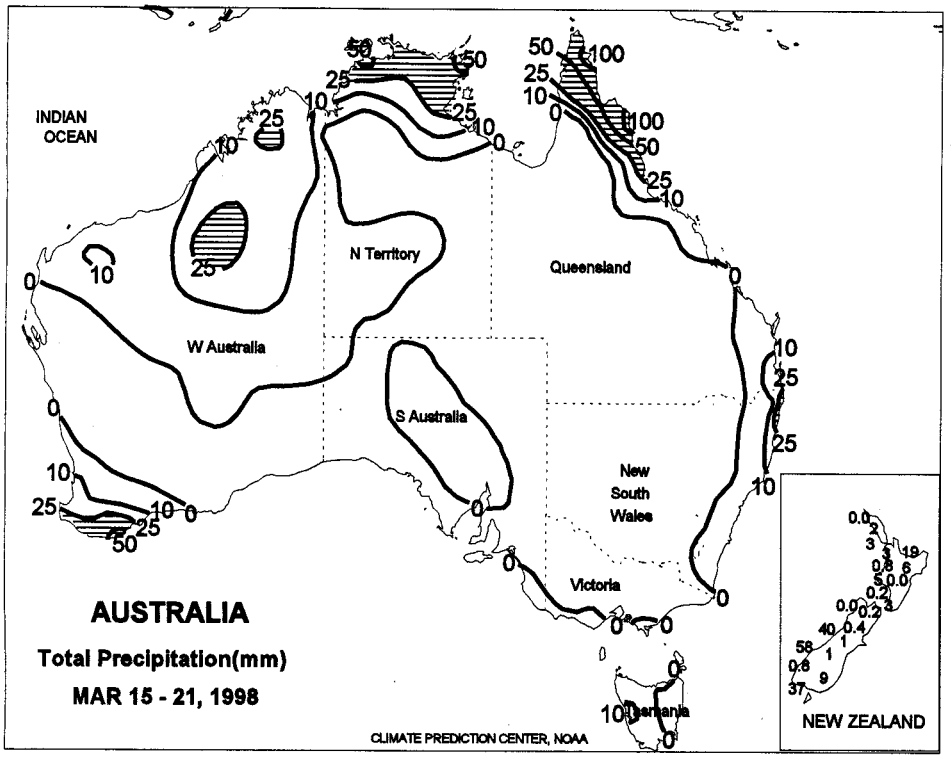
NORTHWESTERN AFRICA

Winter grains were in or nearing the heading stage throughout most of the region. The sixth consecutive week of dry weather prevailed over winter grain areas in Morocco, worsening conditions for winter grains in the heading stage. Rain is needed soon to prevent further declines in crop conditions. Farther east, drought continued in winter grain areas of western and central Algeria, causing further declines in crop conditions. Dry weather returned to winter grain areas in eastern Algeria, while light showers (7-25 mm) dampened crop areas in Tunisia. Moisture reserves remain limited for crop growth in these areas, and additional moisture is needed to prevent the development of significant stress. Weekly temperatures averaged 1 to 3 degrees C above normal in Morocco and western Algeria, further increasing evaporation rates.



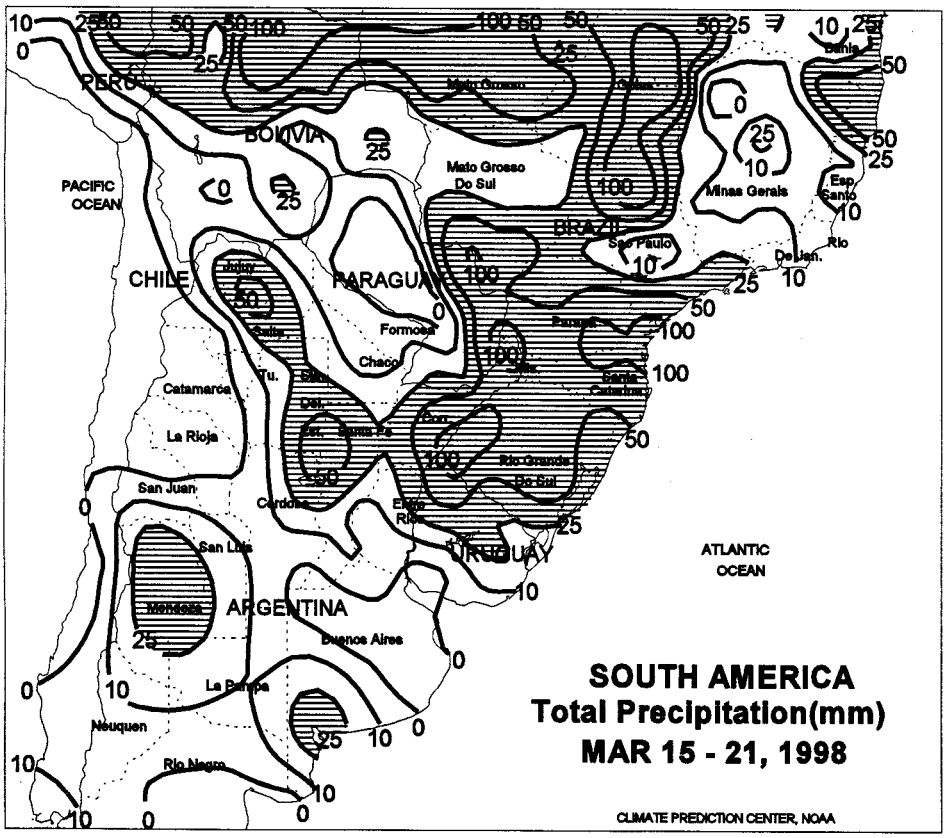
SOUTH AFRICA

Drier, warmer weather dominated the corn belt, aiding development of late-planted summer crops. Highs reached the low 30's in central and western sections of the corn belt, where much of the crop is developmentally behind schedule. The average date of the first autumn freeze is 4 to 5 weeks away in the traditionally cooler areas. Summer crop yield potential varies across the region, and weather conditions over the next few weeks will help determine the final outcome. Elsewhere, scattered, light showers (15 mm or less) lingered over agricultural regions of the coastal provinces, including Natal-Kwazulu's coastal sugarcane areas.



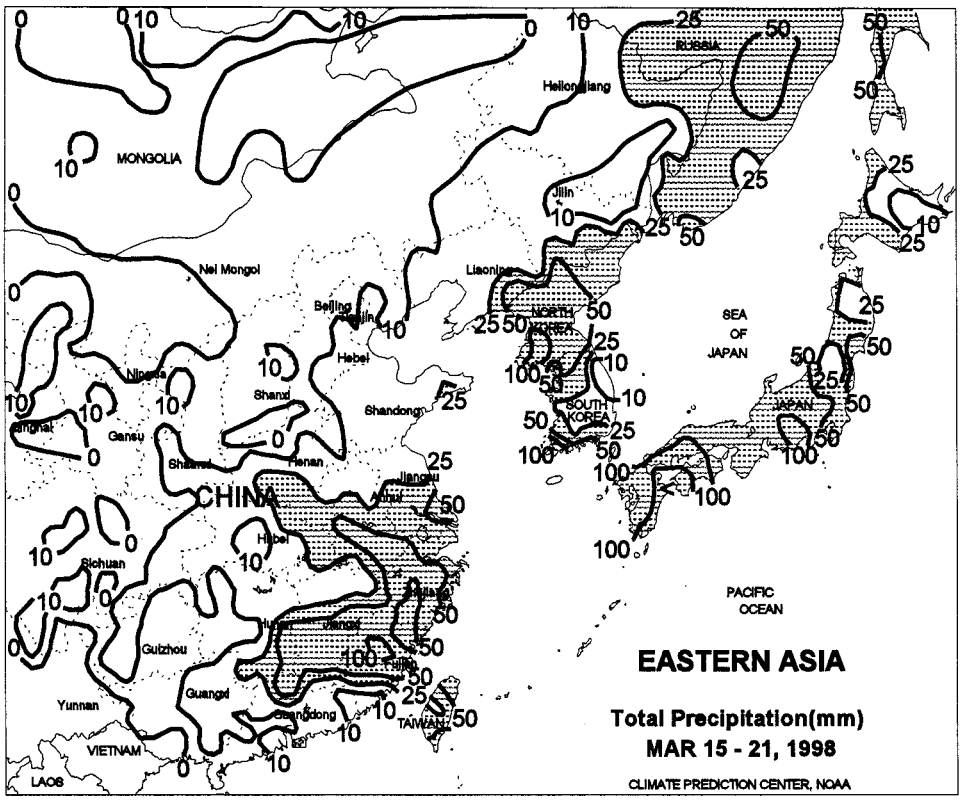
AUSTRALIA

Warm, dry weather continued to dominate the east, with temperatures averaging 3 to 5 degrees C above normal. Along the coast, tropical showers remained north of the main sugarcane areas as temperatures averaged near to above normal. While beneficial for maturing cotton and sorghum, conditions in recent weeks have been unfavorable for sugarcane, which is generally not harvested for a few more months. Warmer, drier weather returned to agricultural areas of Western Australia following last week's beneficial rain, although moderate rain (10-25 mm or more) redeveloped over southern crop areas by week's end. In New Zealand, rainfall was light (10 mm or less) in the main pasture lands.



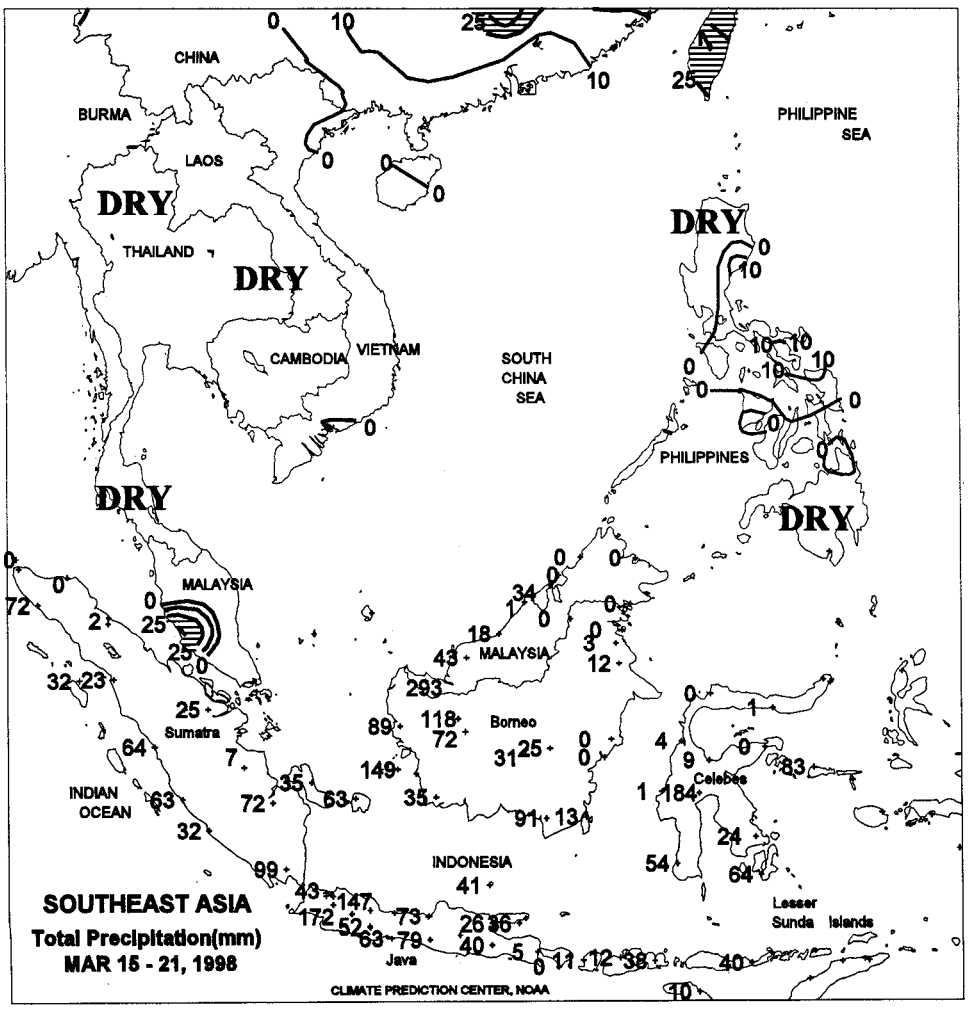
SOUTH AMERICA

Heavy showers (90-120 mm) again slowed early soybean harvesting in Rio Grande do Sul, Brazil. The excessive moisture during the past 2 weeks across the region has increased disease problems for maturing soybeans. Drier weather is needed to improve quality. Elsewhere in southern Brazil, moderate showers (25-80 mm) caused minor harvesting delays. According to reports as of March 12, Brazilian soybean harvesting was 14 percent complete compared with 21 percent last year. In northern Argentina, drier weather (5-20 mm) eased wetness and improved cotton quality. Scattered, light to moderate showers (5-40 mm) did not hamper summer crop harvesting across central Argentina. According to reports as of March 13, Argentine corn harvesting was 6 percent complete and sunflower harvesting was 40 percent complete.



EASTERN ASIA

Freezing temperatures (minimum temperatures -3 to 0 degrees C) on March 20 and 21 burned back vegetative winter wheat in the North China Plain. Farther south, the cold weather raised concerns for winter wheat nearing the heading stage across the Yangtze Valley (Hunan and southern Hubei eastward to Zhejiang). Historically, winter wheat in the Yangtze Valley accounts for less than 10 percent of the total production. Light rain (5-25 mm) covered the North China Plain, increasing moisture supplies for vegetative winter wheat. Light to moderate (10-50 mm) rain maintained moisture supplies for winter grains and oilseeds across the Yangtze Valley. Heavier showers (75-100 mm) slowed rice transplanting across extreme southeastern China (Jiangxi and Fujian).



SOUTHEAST ASIA

In Java and southern Sumatra, seasonably heavy showers (30-80 mm, with isolated amounts greater than 100 mm) continued to benefit main-season rice. Scattered, light showers (5-25 mm) brought little or no drought relief to the eastern Philippines and oil palm areas of eastern Malaysia (Sabah). Across Thailand, hot weather (temperatures averaged 2-5 degrees C above normal, with highs ranging from 40-42 degrees C) increased irrigated water use for second-season rice.

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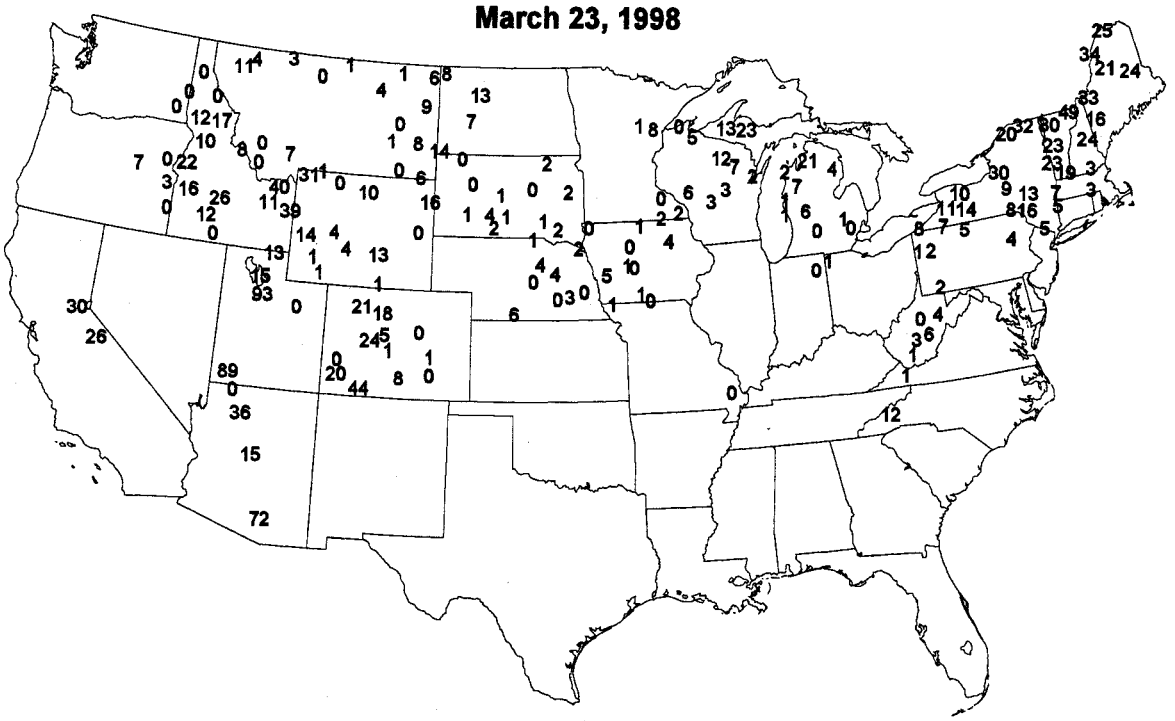
Snow Depth (Inches)
March 23, 1998



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The NWS co-operative observer network is the principal source of the snow depth reports.

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