WEEKLY WEATHER AND CROP BULLETIN

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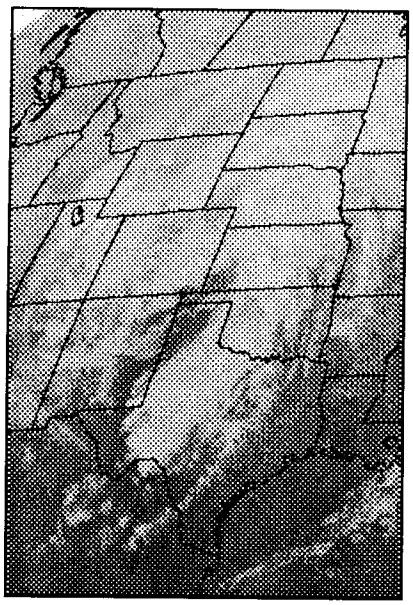

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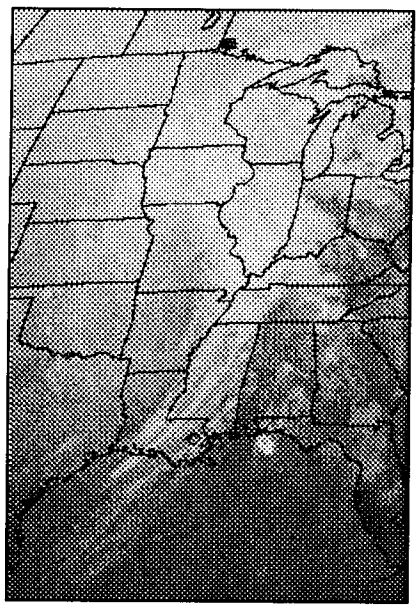

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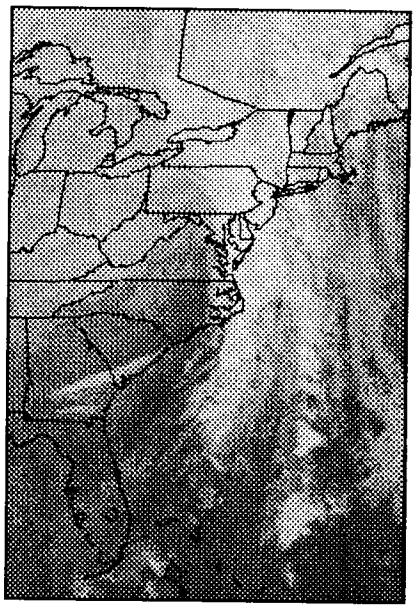

January 19, 18:15 GMT

Classic Plains blizzard spins northeastward from eastern Colorado to western Quebec.

HIGHLIGHTS

January 14 - 20, 1996

An exceptionally strong storm traveled from the **central Rockies** through the **Great Lakes region**, inducing blizzard conditions in the **North Central States**, buffeting wheat stands in the **central and southern Plains**, and sparking major river flooding in the **Northeast**. The storm tapped a small portion of a large cold-air reserve over **Alaska** and **Canada**, briefly chilling the **Plains**. Temperatures dipped to 0°F as far south as **northern Oklahoma**, but extreme cold, with lows of -30 to -50°F, was confined to areas from **northeastern Montana** to **northwestern Wisconsin**. Farther west, heavy snow accumulated from the **Cascades** and **Sierra Nevada** to the **Rocky Divide**, while heavy rain soaked the **West Coast**.

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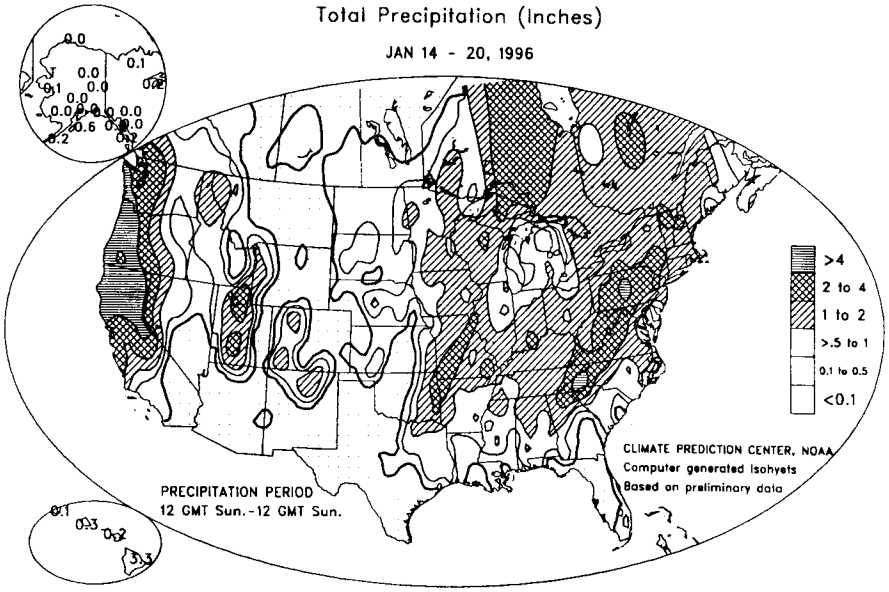
(Continued from front cover)
Early in the week, about 30 daily-record highs were set in advance of the developing storm. On Monday, record warmth spanned the Nation, stretching from **Medford, OR** (59°F) to **Greenville-Spartanburg, SC** (68°F). In between, highs reached 70°F as far north as **Pueblo, CO**. The storm reached peak intensity over the **central High Plains** on Wednesday, with a minimum central pressure of about 28.88 inches (978 millibars). January-record barometric readings were observed in **Dodge City, KS** (28.95 inches), **Wichita, KS** (29.04 inches), and **Dallas-Ft. Worth, TX** (29.31 inches), while an all-time record was measured in **El Paso, TX** (29.22 inches).

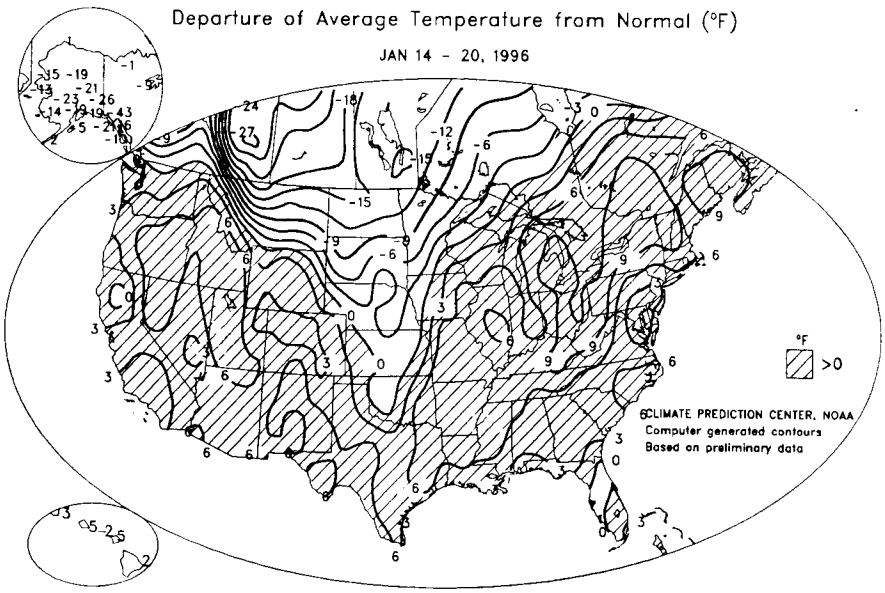
In the **Plains**, areas south of the storm's center received little moisture and were blasted with high winds that reduced visibilities due to blowing dust. At midweek, west-southwesterly winds in **Texas** gusted to 75 mph in **El Paso** and 59 mph at both **Lubbock** and **Midland**. Meanwhile, heavy snow spread from the **Sierra Nevada** into the **northern Plains**. On Wednesday, **Salt Lake City, UT** (10.0 inches) and **Bismarck, ND** (12.6 inches) received January-record, single-day snowfalls, while **Duluth, MN** marked their first of two daily-snowfall records, totaling 14.9 inches. In the **northern Plains**, bitter cold and savage northerly winds--which on Thursday morning gusted to 61 mph in **Aberdeen, SD** and 55 mph in **Fargo, ND**--lowered wind chills to -60 to -90°F. Highs on Thursday reached only -7°F in **Aberdeen** and -10°F in **Fargo**; a day later in **North Dakota**, daily-record lows included -34°F in **Minot** and -39°F in **Bismarck**. Extreme cold blanketed **northern Minnesota** on Saturday, where lows dipped to -42°F in **International Falls** and -50°F in **Hibbing**.

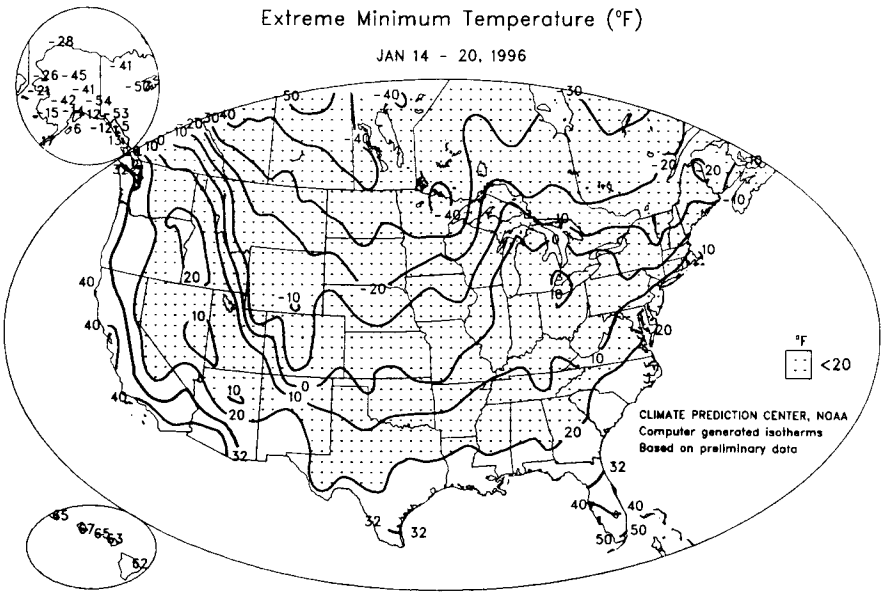
Cold air, borne on winds that gusted to 66 mph in **Dodge City, KS** and a January-record 64 mph in **North Platte, NE**, swept southeastward at midweek, lowering temperatures as much as 60°F in a few hours. Snow fell as far south as **Oklahoma City, OK** (1.0 inch) and **Springfield, MO** (1.4 inches). Severe thunderstorms, which spawned about 10 tornadoes, accompanied the cold front on January 17-18 from **Oklahoma** and **eastern Texas** into the **Midwest**. Meanwhile, warmth briefly surged into the **Midwest** and **Northeast**, setting about four dozen daily records. On Thursday, Moline, IL notched a daily-record high of 56°F, but saw the mercury drop to -1°F by midnight. Highs of 61°F on Thursday in **Muskegon, MI** and 65°F on Friday in **Burlington, VT** were their second-highest January temperatures on record.

Late Thursday into Friday, runoff from heavy rain and rapid snow melt overwhelmed **Middle Atlantic** drainage basins, including the **Delaware, Susquehanna, upper Ohio, Potomac**, and **James Rivers**. In **Williamsport, PA**, 3.03 inches of rain fell on January 18-19, breaking their January 24-hour record. Except on the **Ohio River**, where high water continued to move westward, crests moved into tidal waters by January 22, ending the short-lived but rare and severe winter flood. Along some stretches, flood waters rivaled those effected by hurricane remnants, such as Juan (November 1985) and Agnes (June 1972) in the **Potomac basin**, and Eloise (September 1975) in the **Susquehanna basin**.

Farther west, two rounds of heavy snow helped to reduce seasonal deficits. **Alta, UT** received a 4-day total of 58 inches, half of which fell in 24 hours on January 16-17. More than 3 feet fell on parts of the **Sierra Nevada**, boosting the snowpack to about half of normal. Elsewhere in **northern California**, 5-day precipitation (ending January 20) reached 5.76 inches in **Blue Canyon** and 7.19 inches in **Kentfield**. Farther north, weekly totals included 4.04 inches in **Salem, OR** and 6.02 inches in **Quillayute, WA**. Snow blanketed wheat areas east of the **Washington Cascades**, where late-week totals included 5.7 inches in **Yakima** and 8.9 inches in **Spokane**. Meanwhile in **Alaska**, temperatures in **Fairbanks** averaged 21°F below normal and failed to exceed -23°F during the week. In contrast, warmth cloaked **Hawaii**, where readings averaged 2 to 5°F above normal and **Kahului** recorded a maximum of 88°F.







National Weather Data for Selected Cities

Weather Data for the Week Ending January 20, 1996

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 Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL BIRMINGHAM	60	34	70	15	47	6	0.95	-0.20	0.95	8.30	98	3.53	105	88	51	0	4	1	1
MOBILE	65	40	76	22	52	3	0.23	-0.82	0.23	11.83	141	2.98	97	90	47	0	3	1	0
MONTGOMERY	62	35	72	21	49	5	0.41	-0.69	0.41	8.72	104	2.55	80	88	46	0	4	1	0
AK ANCHORAGE	3	-11	5	-14	-4	-18	0.00	-0.17	0.00	0.20	12	0.11	21	89	78	0	7	0	0
BARROW	-6	-17	9	-28	-12	1	0.00	-0.03	0.00	0.06	30	0.00	0	79	76	0	7	0	0
FAIRBANKS	-25	-38	-23	-41	-32	-21	0.00	-0.10	0.00	0.23	20	0.16	48	70	67	0	7	0	0
JUNEAU	16	-1	23	-5	7	-17	0.00	-1.04	0.00	5.63	76	1.57	53	86	52	0	7	0	0
KODIAK	32	19	37	6	25	-5	0.60	-1.09	0.40	13.41	115	1.97	40	87	69	0	7	3	0
NOME	3	-15	10	-21	-6	-13	0.10	-0.08	0.10	1.05	76	0.46	85	82	69	0	7	1	0
AZ PHOENIX	69	45	74	40	57	3	0.00	-0.14	0.00	0.01	1	0.00	0	39	14	0	0	0	0
PRESCOTT	57	28	67	17	42	6	0.00	-0.34	0.00	0.17	7	0.00	0	59	21	0	5	0	0
TUCSON	70	40	76	33	55	4	0.00	-0.19	0.00	0.22	13	0.00	0	38	12	0	0	0	0
YUMA	75	50	81	46	63	6	0.00	-0.08	0.00	0.02	3	0.00	0	39	13	0	0	0	0
AR FORT SMITH	57	30	73	8	43	7	0.39	-0.02	0.39	5.35	125	1.19	95	86	50	0	3	1	0
LITTLE ROCK	--	--	--	--	--	--	0.73	0.09	--	6.01	101	2.03	92	--	--	-	-	-	-
CA BAKERSFIELD	57	40	61	35	48	0	0.20	0.01	0.15	2.23	196	0.20	38	96	64	0	0	2	0
EUREKA	57	46	61	39	51	3	2.36	0.99	1.10	15.57	156	4.00	101	90	50	0	0	7	1
FRESNO	55	41	59	34	48	2	0.16	-0.29	0.12	2.02	76	0.16	13	95	47	0	0	2	0
LOS ANGELES	66	52	68	50	59	2	0.38	-0.18	0.23	2.54	81	0.38	26	97	19	0	0	2	0
REDDING	47	37	56	32	42	-4	4.83	3.44	2.07	16.25	171	5.45	136	98	75	0	1	6	4
SACRAMENTO	54	43	62	39	49	4	0.97	0.10	--	6.17	126	1.03	43	95	65	0	0	-	-
SAN DIEGO	65	53	69	47	59	1	0.12	-0.29	0.10	1.00	36	0.12	10	91	43	0	0	3	0
SAN FRANCISCO	58	48	62	43	53	4	2.57	1.55	1.35	8.98	152	2.57	91	92	57	0	0	5	2
CO DENVER	46	16	62	-12	31	2	0.03	-0.08	0.03	0.19	20	0.15	47	63	27	0	6	1	0
GRAND JUNCTION	42	20	51	14	31	4	0.26	0.15	0.22	0.83	81	0.28	82	82	41	0	7	2	0
PUEBLO	53	11	70	-8	32	2	0.13	0.05	0.10	0.15	23	0.15	65	76	22	0	6	2	0
CT BRIDGEPORT	40	25	55	13	32	4	0.94	0.21	0.75	5.95	106	4.01	188	88	60	0	6	3	1
HARTFORD	40	19	57	2	30	5	1.16	0.40	1.15	7.04	114	4.73	210	91	55	0	7	2	1
DC WASHINGTON	47	25	62	17	36	2	0.86	0.25	0.79	6.40	131	4.23	238	91	58	0	6	2	1
FL PANAMA CITY	66	42	75	26	54	3	0.06	-1.10	0.06	2.61	33	0.41	13	92	52	0	2	1	0
DAYTONA BEACH	71	44	81	35	57	0	0.08	-0.54	0.08	4.94	115	1.51	87	98	50	0	0	1	0
JACKSONVILLE	69	41	79	27	55	0	0.13	-0.57	0.11	3.13	65	0.94	48	96	50	0	2	2	0
KEY WEST	74	63	81	56	69	-1	0.51	0.04	0.32	3.81	114	0.88	66	85	65	0	0	3	0
MIAMI	77	61	83	45	69	2	0.43	-0.03	0.43	2.12	68	1.27	99	85	57	0	0	1	0
ORLANDO	72	46	83	37	59	0	0.00	-0.52	0.00	5.69	159	4.95	349	96	50	0	0	0	0
TALLAHASSEE	68	39	76	25	54	3	0.13	-0.94	0.13	5.47	67	1.69	55	94	46	0	3	1	0
TAMPA	72	49	80	38	60	1	0.00	-0.44	0.00	5.17	154	4.15	346	93	47	0	0	0	0
WEST PALM BEACH	76	59	85	40	68	2	0.18	-0.38	0.16	2.73	71	1.16	75	89	60	0	0	2	0
GA ATLANTA	56	35	67	16	46	5	1.04	-0.03	0.99	6.69	91	3.15	103	95	57	0	2	2	1
AUGUSTA	63	33	73	18	48	4	0.81	-0.11	0.63	6.31	106	1.78	69	95	50	0	3	3	1
MACON	64	35	75	19	49	4	0.21	-0.81	0.21	3.60	50	1.24	43	93	47	0	3	1	0
SAVANNAH	66	41	74	26	53	5	0.22	-0.61	0.12	2.15	41	1.26	54	91	57	0	2	2	0
HI HILO	82	65	83	62	74	2	3.31	1.11	1.98	10.12	55	6.03	93	88	62	0	0	4	2
HONOLULU	86	71	87	67	78	5	0.30	-0.51	0.26	2.74	44	1.44	60	89	57	0	0	2	0
KAHULUI	85	68	88	63	76	5	0.21	-0.75	0.15	2.33	39	0.21	8	92	59	0	0	2	0
LIHUE	79	70	81	65	75	3	0.13	-1.23	0.07	8.40	92	1.63	41	86	70	0	0	3	0
ID BOISE	41	28	53	22	35	6	0.39	0.06	0.31	2.65	115	0.51	54	97	63	0	7	4	0
LEWISTON	44	31	54	22	37	4	0.35	0.05	0.21	2.26	109	1.00	116	91	57	0	4	3	0
POCATELLO	38	21	48	2	30	6	0.72	0.48	0.33	2.79	155	0.81	116	86	58	0	6	5	0
IL CHICAGO	39	19	61	4	29	8	0.96	0.63	0.64	1.85	52	1.25	117	85	62	0	6	2	1
MOLINE	37	14	56	-7	26	6	1.29	0.95	1.11	2.01	61	1.54	143	89	71	0	7	2	1
PEORIA	38	15	58	-4	27	6	0.74	0.41	0.59	1.26	36	0.95	90	92	73	0	7	2	1
QUINCY	42	18	63	-4	30	7	1.07	0.78	1.02	1.50	46	1.28	136	90	62	0	6	2	1
ROCKFORD	34	15	57	0	25	7	0.65	0.37	0.46	1.44	49	0.97	109	92	72	0	7	2	0
SPRINGFIELD	40	19	60	0	30	6	0.71	0.39	0.71	2.41	64	1.08	103	91	69	0	6	1	1
IN EVANSVILLE	48	27	66	8	37	5	0.76	0.10	0.75	5.19	90	2.00	102	88	66	0	5	2	1
FORT WAYNE	39	18	60	6	29	6	0.64	0.23	0.51	2.76	66	1.52	119	90	70	0	6	3	1
INDIANAPOLIS	41	21	61	4	31	6	1.21	0.70	0.59	5.20	106	2.49	160	90	72	0	6	3	2
SOUTH BEND	39	19	62	6	29	6	0.58	0.10	0.47	2.75	57	0.86	56	88	64	0	6	4	0
IA DES MOINES	34	10	55	-8	22	3	0.60	0.38	0.46	0.74	36	0.74	114	88	72	0	7	2	0
SIOUX CITY	26	4	54	-13	15	-3	0.63	0.52	0.63	1.20	104	0.89	241	86	64	0	7	1	1
WATERLOO	33	7	54	-15	20	6	1.09	0.92	0.73	1.39	76	1.23	232	91	69	0	7	2	1
KS CONCORDIA	38	9	60	-6	23	-2	0.17	0.04	0.17	0.67	54	0.41	105	86	51	0	7	1	0
DODGE CITY	47	13	64	2	30	0	0.28	0.17	0.28	0.90	93	0.31	100	82	38	0	7	1	0
GOODLAND	45	13	63	-2	29	1	0.00	-0.08	0.00	0.32	49	0.18	72	77	36	0	7	0	0
TOPEKA	37	13	65	-4	25	-1	0.24	0.03	0.16	1.25	60	0.66	102	85	56	0	7	2	0
WICHITA	39	16	65	-1	28	-2	0.04	-0.15	0.04	0.71	36	0.08	14	88	62	0	7	1	0
KY BOWLING GREEN	54	27	68	10	41	8	0.91	0.07	0.91	5.25	69	2.90	115	95	60	0	6	1	1
LEXINGTON	48	26	69	9	37	7	0.88	0.26	0.88	5.42	92	2.71	142	90	57	0	6	1	1
LOUISVILLE	48	27	69	10	38	6	1.15	0.52	1.03	5.75	104	2.45	130	87	61	0	6	2	1
LA BATON ROUGE	67	40	77	23	54	4	0.17	-0.93	0.17	5.78	66	0.48	15	93	50	0	3	1	0
LAKE CHARLES	66	42	75	26	54	4	0.22	-0.80	0.22	8.04	100	1.59	53	90	54	0	3	1	0
NEW ORLEANS	67	43	76	26	55	4	0.27	-0.86	0.24	7.26	81	2.19	68	88	45	0	3	2	0
SHREVEPORT	64	40	75	17	52	7	0.00	-0.94	0.00	5.68	75	0.49	18	83	50	0	3	0	0

Based on 1961-90 normals.

Weather Data for the Week Ending January 20, 1996

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 Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
ME CARIBOU	27	7	50	-22	17	9	0.22	-0.32	0.14	2.46	51	0.65	39	84	61	0	5	5	0
PORTLAND	38	16	49	-6	27	6	0.92	0.14	0.83	7.08	102	2.95	126	89	57	0	6	2	1
MD BALTIMORE	46	24	58	16	35	4	0.54	-0.15	0.51	8.76	163	6.09	305	92	60	0	6	2	1
SALISBURY	52	27	67	20	39	5	0.63	-0.20	0.59	5.95	98	3.26	137	96	55	0	5	2	1
MA BOSTON	44	26	60	11	35	7	0.96	0.16	0.94	8.18	129	5.00	214	82	55	0	5	2	1
CHATHAM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-	-	-	-
MI ALPENA	35	17	52	-3	26	9	0.12	-0.25	0.05	1.57	50	0.21	19	88	57	0	5	3	0
DETROIT	42	23	58	10	32	10	0.87	0.49	0.51	2.03	50	1.16	96	87	62	0	5	4	1
FLINT	40	22	60	10	31	10	0.93	0.63	0.57	2.17	71	1.02	107	89	64	0	5	3	1
GRAND RAPIDS	37	19	60	8	28	6	0.36	-0.04	0.19	1.93	47	0.39	30	89	66	0	6	3	0
HOUGHTON LAKE	31	18	54	-3	25	8	0.46	0.13	0.27	2.12	71	0.73	71	89	66	0	5	4	0
LANSING	39	20	60	8	30	10	0.37	0.04	0.23	1.55	51	0.48	48	92	63	0	6	3	0
MARQUETTE	23	2	44	-15	12	1	2.06	1.58	1.34	5.36	132	2.88	197	88	61	0	7	6	1
MUSKEGON	36	17	61	6	27	4	0.48	-0.04	0.17	2.52	54	0.63	39	89	66	0	7	4	0
SAULT ST. MARIE	28	8	43	-8	18	6	1.59	1.05	0.62	7.99	176	1.73	105	93	67	0	6	6	1
MN ALEXANDRIA	10	-13	28	-31	-1	-8	0.18	-0.04	0.13	1.09	82	0.37	59	94	67	0	7	2	0
DULUTH	13	-10	29	-35	2	-5	0.68	0.40	0.33	2.63	126	1.08	130	83	56	0	7	4	0
INT'L FALLS	4	-20	21	-42	-8	-9	1.15	0.96	0.47	2.67	185	1.40	237	80	62	0	7	4	0
MINNEAPOLIS	23	3	34	-18	13	2	1.06	0.84	0.90	2.61	154	1.46	232	83	61	0	7	3	1
ROCHESTER	26	2	45	-20	14	3	1.15	0.98	0.59	2.04	132	1.41	271	93	76	0	7	3	2
MS GREENWOOD	64	39	75	18	51	9	0.44	-0.64	0.42	7.47	82	1.68	52	86	50	0	3	2	0
JACKSON	64	38	74	19	51	8	0.89	-0.34	0.89	7.94	80	2.51	68	84	47	0	3	1	1
MERIDIAN	64	35	74	19	49	5	0.37	-0.77	0.32	3.88	41	0.97	29	93	50	0	4	2	0
MO CAPE GIRARDEAU	50	29	66	9	39	8	0.87	0.24	0.80	6.14	96	2.48	127	92	62	0	3	3	1
COLUMBIA	44	21	66	-3	33	7	1.88	1.56	1.09	3.63	99	2.02	198	88	64	0	6	2	2
KANSAS CITY	37	14	66	-7	26	0	0.62	0.38	0.33	1.28	55	0.92	124	82	59	0	7	2	0
SAINT LOUIS	47	26	65	2	36	7	1.23	0.84	1.08	5.26	123	2.42	197	88	62	0	5	3	1
SPRINGFIELD	51	27	69	-2	39	9	1.76	1.40	1.25	4.50	117	2.02	177	86	57	0	4	2	2
MT BILLINGS	29	2	54	-16	16	-7	0.11	-0.10	0.07	0.75	54	0.39	63	84	51	0	7	2	0
GLASGOW	4	-15	27	-36	-6	-16	0.10	0.02	--	0.84	139	0.46	191	82	69	0	7	-	-
GREAT FALLS	22	-7	51	-18	8	-13	0.08	-0.13	0.04	0.29	20	0.17	27	88	58	0	7	2	0
HAVRE	6	-14	45	-34	-4	-18	0.00	-0.11	0.00	0.59	65	0.08	22	80	69	0	7	0	0
HELENA	27	4	47	-15	15	-4	0.03	-0.11	0.03	0.70	69	0.35	81	85	62	0	7	1	0
KALISPELL	28	16	42	2	22	2	0.38	0.03	0.13	3.52	128	1.32	127	85	65	0	5	4	0
MILES CITY	20	-4	45	-23	8	-7	0.03	-0.09	0.03	1.19	120	0.91	239	83	62	0	7	1	0
MISSOULA	35	21	49	2	28	5	0.53	0.25	0.21	2.79	139	1.18	140	88	71	0	5	6	0
NE GRAND ISLAND	31	5	63	-11	18	-4	0.52	0.41	0.52	1.11	108	0.85	274	85	54	0	7	1	1
LINCOLN	33	7	56	-6	20	-1	0.15	0.04	0.15	0.64	52	0.38	106	92	54	0	7	1	0
NORFOLK	26	3	61	-13	15	-4	0.39	0.28	0.39	1.04	97	0.57	173	82	58	0	7	1	0
NORTH PLATTE	35	5	62	-12	20	-1	0.28	0.20	0.28	0.42	60	0.42	175	89	47	0	7	1	0
OMAHA	31	6	53	-9	19	-2	0.35	0.18	--	1.14	76	0.60	111	91	61	0	7	-	-
SCOTTSBLUFF	44	11	63	-5	27	3	0.26	0.15	0.26	1.03	116	0.48	155	81	32	0	7	1	0
VALENTINE	31	3	59	-19	17	-5	0.02	-0.06	0.02	0.20	26	0.14	52	81	49	0	7	1	0
NV ELY	42	14	57	2	28	4	0.07	-0.10	0.07	0.53	44	0.07	15	81	36	0	7	1	0
LAS VEGAS	61	38	67	31	49	4	0.00	-0.11	0.00	0.01	1	0.00	0	36	17	0	1	0	0
RENO	49	29	59	18	39	6	0.35	0.10	0.20	2.59	153	0.35	49	83	39	0	5	2	0
WINNEMUCCA	44	28	54	16	36	6	0.58	0.41	0.37	2.24	162	0.63	126	88	52	0	5	2	0
NH CONCORD	41	12	55	-7	27	8	1.20	0.65	1.19	4.25	88	2.28	138	92	53	0	7	2	1
NJ ATLANTIC CITY	46	24	60	17	35	4	0.59	-0.20	0.59	4.09	73	2.60	114	89	55	0	6	1	1
NM ALBUQUERQUE	53	29	63	21	41	7	0.11	-0.00	0.11	0.37	46	0.21	68	57	24	0	4	1	0
CLOVIS	58	26	71	12	42	6	0.15	0.07	0.15	0.35	45	0.15	63	58	19	0	5	1	0
ROSWELL	65	30	75	17	48	8	0.02	-0.06	0.02	--	--	0.16	67	59	20	0	4	1	0
NY ALBANY	42	19	60	-3	31	11	0.51	-0.01	0.51	2.73	61	1.31	83	87	59	0	5	1	1
BINGHAMTON	39	17	55	-2	28	7	1.42	0.89	1.42	3.58	78	2.60	164	91	62	0	5	1	1
BUFFALO	43	21	61	5	32	9	0.86	0.27	0.79	5.18	94	1.52	83	87	57	0	5	3	1
NEW YORK	43	27	59	18	35	4	0.56	-0.13	0.56	4.98	92	2.82	141	83	55	0	6	1	1
ROCHESTER	44	22	61	5	33	10	0.81	0.35	0.75	3.80	92	2.30	167	88	56	0	5	3	1
SYRACUSE	44	19	64	-1	32	9	1.24	0.72	1.15	4.13	87	2.24	143	86	58	0	5	2	1
NC ASHEVILLE	55	27	63	13	41	4	2.32	1.45	1.73	5.27	76	3.85	153	93	54	0	5	2	2
CHARLOTTE	57	32	68	20	45	5	0.51	-0.33	0.48	3.29	56	2.07	87	90	50	0	3	2	0
GREENSBORO	52	29	66	17	40	4	1.25	0.53	1.13	3.80	70	2.42	117	92	60	0	4	2	1
HATTERAS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-	-	-	-
NEW BERN	64	36	73	28	50	7	0.51	-0.47	0.41	3.72	58	2.17	79	92	48	0	2	2	0
RALEIGH	56	31	70	20	44	5	0.65	-0.14	0.50	4.72	86	2.82	127	87	38	0	4	2	1
WILMINGTON	62	37	70	26	50	7	0.43	-0.64	0.35	3.58	50	1.51	50	95	54	0	2	2	0
ND BISMARCK	8	-13	32	-39	-3	-11	0.60	0.49	0.58	1.31	164	0.75	242	83	68	0	7	3	1
FARGO	5	-16	25	-30	-6	-11	1.19	1.03	0.95	2.19	199	1.45	315	83	71	0	7	2	1
GRAND FORKS	0	-18	17	-34	-9	-13	0.57	0.40	0.33	1.47	132	0.70	149	81	68	0	7	4	0
WILLISTON	5	-15	28	-35	-5	-14	0.51	0.40	0.26	1.31	138	0.64	178	82	60	0	7	4	0
OH AKRON-CANTON	43	22	62	7	33	8	0.39	-0.09	0.39	1.62	37	0.75	52	86	53	0	5	1	0
CINCINNATI	46	24	68	7	35	7	1.02	0.44	1.01	5.23	107	1.83	107	90	60	0	6	2	1
CLEVELAND	45	25	64	10	35	11	0.78	0.34	0.40	2.39	54	0.93	67	89	60	0	5	3	0
COLUMBUS	47	26	68	10	37	13	0.89	0.46	0.70	4.04	94	2.09	158	88	61	0	5	2	1
DAYTON	43	21	65	7	32	6	0.90	0.43	0.90	3.61	83	2.40	168	94	68	0	6	1	1

Based on 1961-90 normals.

Weather Data for the Week Ending January 20, 1996

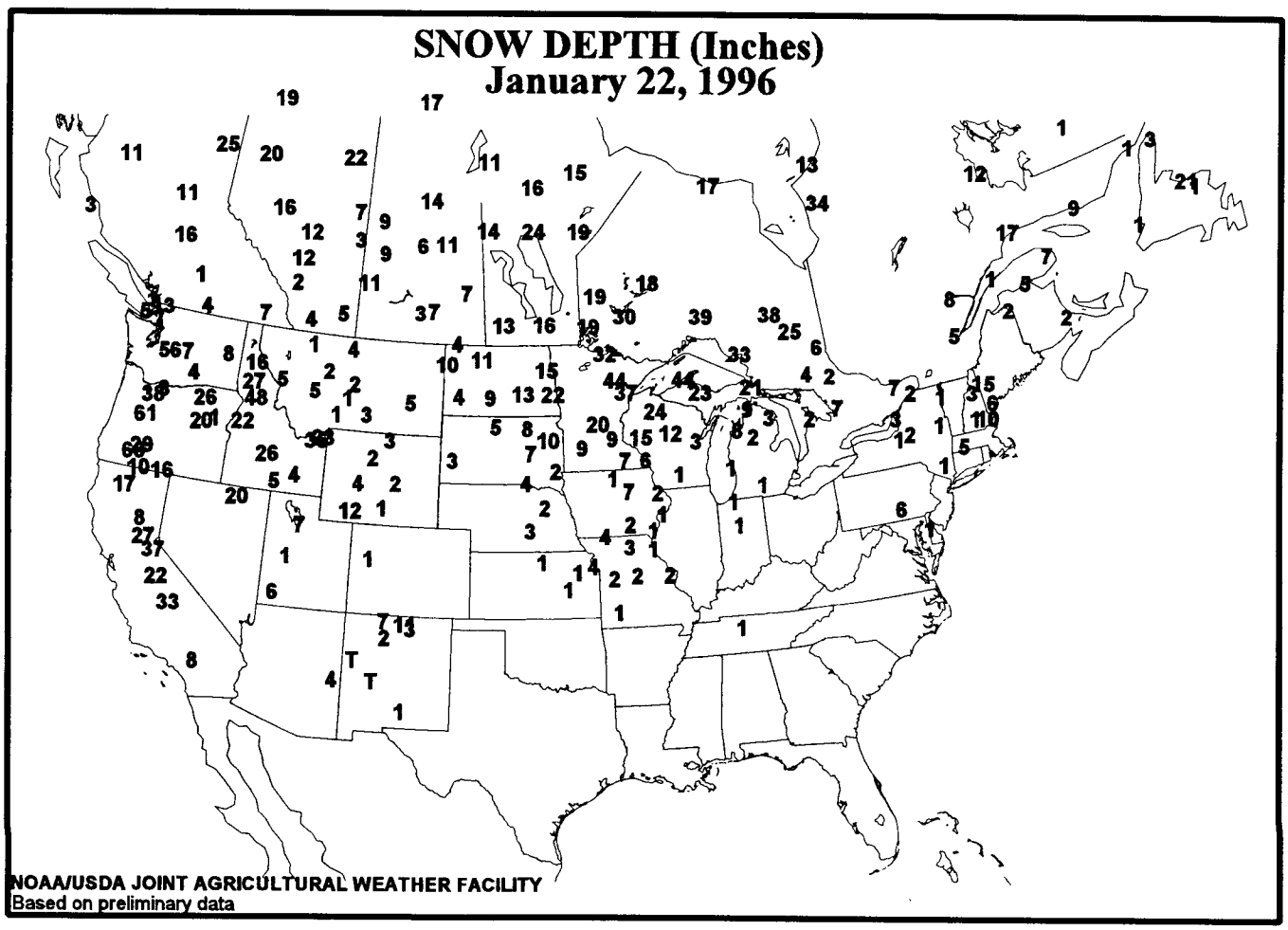
STATES AND STATIONS	TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																TEMP. °F		PRECIP.	
	AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTRME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
TOLEDO	41	22	62	10	31	9	0.92	0.55	0.72	1.83	44	1.20	99	92	67	0	5	3	1
YOUNGSTOWN	44	22	61	8	33	10	0.97	0.50	0.76	3.44	79	1.82	126	89	60	0	5	3	1
OK OKLAHOMA CITY	48	24	67	7	36	0	0.06	-0.19	0.06	2.42	115	0.06	8	80	46	0	5	1	0
TULSA	50	26	68	4	38	3	0.45	0.12	0.37	2.24	71	0.47	47	79	50	0	3	2	0
OR ASTORIA	50	39	56	33	45	3	2.92	0.65	1.22	17.69	103	6.41	96	96	76	0	0	7	2
BURNS	37	25	44	16	31	8	0.73	0.51	0.34	3.54	195	1.02	152	97	67	0	7	5	0
MEDFORD	49	37	59	33	43	5	2.09	1.49	0.66	10.67	207	2.99	163	95	64	0	0	5	2
PENDLETON	47	34	60	27	40	7	0.60	0.26	0.36	2.83	108	1.06	105	90	59	0	4	3	0
PORTLAND	49	40	55	33	44	5	3.36	2.15	0.95	11.11	114	5.06	140	92	75	0	0	7	4
SALEM	49	40	54	31	45	5	4.04	2.71	1.38	12.87	119	5.59	140	95	79	0	1	7	4
PA ALLENTOWN	39	15	58	4	27	1	1.94	1.22	1.89	5.82	104	4.37	210	86	63	0	7	2	1
ERIE	45	25	61	10	35	10	1.04	0.56	0.60	5.41	106	2.18	144	84	55	0	5	4	1
HARRISBURG	38	21	56	14	29	1	0.92	0.29	0.87	6.65	132	4.11	228	92	59	0	6	2	1
PHILADELPHIA	43	24	62	18	33	4	0.78	-0.00	0.78	4.85	82	2.71	119	92	54	0	7	1	1
PITTSBURGH	48	25	63	8	37	11	1.24	0.67	1.17	4.25	93	2.62	155	84	52	0	5	3	1
SCRANTON	43	19	62	0	31	7	1.53	1.06	1.46	5.34	137	4.12	301	86	62	0	5	3	1
RI PROVIDENCE	43	24	55	9	34	6	0.99	0.12	0.99	4.69	68	2.54	99	84	56	0	6	1	1
SC CHARLESTON	65	38	76	24	51	4	0.04	-0.74	0.04	1.61	30	0.59	27	92	56	0	3	1	0
COLUMBIA	61	36	71	24	48	5	0.34	-0.68	0.28	2.99	47	0.81	28	88	53	0	3	2	0
FLORENCE	64	36	79	25	50	7	0.14	-0.66	0.11	2.62	48	0.93	41	92	47	0	3	2	0
GREENVILLE	57	33	68	20	45	5	1.33	0.42	0.72	5.02	74	2.97	113	86	53	0	3	3	2
SD ABERDEEN	14	-8	43	-27	3	-7	0.31	0.17	0.28	0.89	99	0.42	108	84	60	0	7	2	0
HURON	19	-5	50	-25	7	-6	0.35	0.27	0.33	0.79	113	0.51	212	86	67	0	7	2	0
RAPID CITY	28	4	57	-16	16	-6	0.20	0.12	0.20	0.83	115	0.68	283	87	58	0	7	1	0
SIOUX FALLS	22	-1	46	-19	10	-3	0.43	0.32	0.40	0.73	70	0.62	188	89	62	0	7	2	0
TN CHATTANOOGA	53	30	67	15	42	5	0.93	-0.17	0.86	8.67	103	4.85	152	91	61	0	4	2	1
KNOXVILLE	52	30	72	14	41	5	0.90	-0.04	0.83	6.94	95	4.42	161	95	59	0	5	3	1
MEMPHIS	57	35	70	15	46	7	1.38	0.57	1.34	8.78	107	3.19	128	82	56	0	3	2	1
NASHVILLE	54	29	68	12	42	6	0.93	0.14	0.82	5.27	75	3.02	127	89	55	0	4	3	1
TX ABILENE	64	34	74	14	49	6	0.07	-0.16	0.07	0.66	40	0.43	67	71	23	0	3	1	0
AMARILLO	57	20	71	4	39	4	0.00	-0.11	0.00	0.59	82	0.00	0	64	25	0	5	0	0
AUSTIN	68	41	76	26	55	6	0.05	-0.34	0.05	0.54	18	0.05	5	81	32	0	3	1	0
BEAUMONT	66	44	75	26	55	4	0.17	-0.92	0.09	12.40	156	1.26	40	97	60	0	3	2	0
BROWNSVILLE	75	49	80	34	62	3	0.00	-0.36	0.00	1.06	47	0.07	7	89	46	0	0	0	0
CORPUS CHRISTI	73	44	81	28	59	4	0.00	-0.39	0.00	0.72	31	0.09	9	86	43	0	1	0	0
DEL RIO	74	38	82	24	56	7	0.00	-0.25	0.00	0.49	27	0.00	0	80	28	0	2	0	0
EL PASO	65	35	73	26	50	7	0.00	-0.08	0.00	0.35	41	0.11	42	40	14	0	5	0	0
FORT WORTH	62	33	75	15	48	6	0.49	0.09	0.49	2.95	91	0.90	79	82	45	0	3	1	0
GALVESTON	64	53	70	33	58	6	0.05	-0.69	0.03	5.64	99	0.07	3	91	62	0	0	2	0
HOUSTON	69	45	79	26	57	8	0.23	-0.60	0.13	5.71	78	0.72	29	90	42	0	2	2	0
LUBBOCK	60	26	73	13	43	4	0.00	-0.08	0.00	0.45	58	0.00	0	71	18	0	5	0	0
MIDLAND	68	32	79	17	50	7	0.00	-0.11	0.00	0.31	39	0.08	26	69	17	0	4	0	0
SAN ANGELO	68	33	80	15	51	7	0.00	-0.18	0.00	0.26	21	0.06	12	73	20	0	2	0	0
SAN ANTONIO	71	38	79	21	55	5	0.00	-0.39	0.00	0.63	25	0.00	0	80	30	0	2	0	0
VICTORIA	71	43	78	24	57	5	0.00	-0.77	0.00	2.87	56	0.00	0	95	30	0	1	0	0
WACO	65	33	77	17	49	4	0.45	0.09	0.33	1.88	65	0.84	82	82	39	0	3	2	0
WICHITA FALLS	54	26	73	11	40	1	0.01	-0.29	0.01	0.85	35	0.10	12	77	36	0	5	1	0
UT CEDAR CITY	49	23	62	6	36	7	0.09	-0.08	0.07	0.37	33	0.09	21	72	31	0	6	2	0
SALT LAKE CITY	45	25	57	15	35	7	1.24	0.99	0.84	2.56	119	1.36	184	90	53	0	7	4	1
VT BURLINGTON	42	17	65	-9	29	13	1.68	1.27	1.62	4.89	134	2.24	184	83	54	0	5	4	1
VA NORFOLK	55	33	71	23	44	6	1.32	0.47	1.19	5.92	105	4.06	167	88	55	0	3	3	1
RICHMOND	49	27	68	18	38	3	0.78	0.04	0.67	4.31	80	2.61	123	80	48	0	5	2	1
ROANOKE	52	28	65	12	40	6	1.97	1.39	1.19	7.58	163	5.28	316	87	53	0	4	3	2
WA QUILLAYUTE	44	36	52	31	40	0	6.02	2.78	3.01	26.67	107	12.74	135	98	85	0	3	7	3
SEATTLE-TACOMA	45	37	53	32	41	1	3.68	2.46	1.68	12.21	128	5.84	162	92	70	0	1	7	4
SPOKANE	36	25	48	13	31	4	0.60	0.16	0.18	3.57	95	0.93	69	86	64	0	5	4	0
YAKIMA	41	23	53	12	32	2	0.64	0.36	--	1.72	76	0.87	105	89	62	0	7	-	-
WV BECKLEY	50	27	61	6	39	10	1.05	0.39	0.89	6.52	126	4.09	213	87	53	0	4	3	1
CHARLESTON	52	28	68	10	40	8	1.46	0.81	0.89	5.80	110	3.76	198	91	53	0	5	3	2
HUNTINGTON	52	30	71	9	41	11	0.95	0.29	0.61	6.61	120	3.78	193	90	55	0	5	2	1
PARKERSBURG	50	28	69	7	39	9	0.66	-0.06	0.62	4.29	86	2.45	118	93	53	0	5	2	1
WI GREEN BAY	29	8	48	-7	19	5	0.46	0.21	0.28	2.04	88	0.77	99	85	64	0	6	4	0
LACROSSE	29	6	49	-14	17	3	0.99	0.79	--	2.26	119	1.44	229	88	55	0	7	-	-
MADISON	32	11	54	-1	22	6	0.91	0.65	0.80	1.87	77	1.10	139	87	65	0	7	2	1
MILWAUKEE	34	16	53	4	25	6	0.55	0.20	0.29	1.44	42	0.97	88	87	65	0	7	2	0
WAUSAU	25	4	45	-15	15	3	1.50	1.30	1.26	2.65	127	1.65	258	90	55	0	7	2	1
WY CASPER	37	16	50	-15	27	5	0.33	0.22	0.30	1.15	112	0.79	214	69	49	0	5	2	0
CHEYENNE	41	16	54	-8	28	2	0.00	-0.08	0.00	0.24	37	0.04	17	65	29	0	7	0	0
LANDER	37	12	54	-17	24	5	0.04	-0.07	0.04	0.67	76	0.36	116	73	47	0	7	1	0
SHERIDAN	33	8	54	-13	21	0	0.09	-0.08	0.09	0.73	61	0.44	94	83	54	0	7	1	0
PR SAN JUAN	84	73	85	72	78	1	2.95	2.34	1.13	8.22	123	4.38	222	89	62	0	0	7	2

Based on 1961-90 normals.

National Agricultural Summary

HIGHLIGHTS for January 15 - 21, 1996

Volatile weather patterns across most of the Nation disrupted fieldwork and increased the need for supplemental feeding of livestock. Storm systems brought heavy rain over most of the Pacific Coast, delaying fieldwork. Small grain growth improved as a result of the moisture, although some counties reported standing water in wheat fields. Drier weather later in the week allowed producers to fertilize and spray fields with herbicides in preparation for spring planting. In the Northwest, the storm system brought snow cover to winter wheat. Rain mixed with snow fell over the western Corn Belt. The rain and snow melt caused major flooding in the Northeast and mid-Atlantic States. Cold air plunging into the Central States contributed to blizzard conditions that stressed livestock. High winds caused soil erosion from Kansas to the Texas High Plains and raised concern for damage to the winter wheat. The cold blast combined with strong winds pushed wind chills below zero in the Texas Plains. Hay supplies were becoming tight as the low temperatures compelled livestock producers to increase feeding. Winter wheat suffered since the cold front brought little moisture to Texas. Warm weather over southern Florida helped vegetable plants recover from the previous week's low temperatures. Planting gaps, caused by heavy autumn rains, slowed Florida's vegetable harvest. Movement of Florida's early mid-season oranges to processors was very active.



1995 Weather Review

The year featured a mild winter over most of the country, though a series of Pacific storms hammered the West Coast in January and March. The spring was unusually wet and stormy across central parts of the country, resulting in major crop planting delays. Several severe heat waves affected the Midwest and East during the summer, though showers were frequent enough to prevent major drought from developing across the Midwest. Drought did, however, hurt crops in other parts of the country, especially in the Mid-Atlantic region. The most active Atlantic tropical storm season since 1933 resulted in several hurricanes striking Florida. A cold snap in September brought the growing season to an early end for farmers in the western Corn Belt. For the year as a whole, most of the country was warmer and wetter than normal (figs. 1,2, and 3).

Winter (December 1994 - February 1995)

The winter contrasted sharply with the 1993-94 season, as above-normal temperatures prevailed this year from coast to coast. Over the past 100 years, only the winter of 1991-92 was warmer for the Nation as a whole. Every region measured temperatures above normal for the 3-month period, with the average national winter temperature 3°F above normal. Readings exceeded 6°F above normal at a number of locations.

Table 1. Temperature/Precipitation Rankings for 1995
Based on the Period 1895-1995
1 = Driest/Coldest, 101 = Wettest/Hottest

Region	Precipitation	Temperature
Northeast	18	65
East North Central	71	49
Central	54	49
Southeast	73	39
West North Central	95	65
South	53	58
Southwest	53	95
Northwest	97	92
West	97	94
National	87	82

Heavy winter precipitation contributed to the fourth wettest calendar year on record for both the West and Northwest regions (table 1).

Pacific storms brought heavy rains and mountain snows to California in January and March, resulting in significant flooding and crop and property damage. January monthly rainfall set a record of 21.49 inches at Red Bluff, CA, and 12.71 inches at Los Angeles. A series of storms in March set high-water marks in parts of west-central California and deposited several feet of snow on the Sierra Nevada. By April 1, the Sierra Nevada snowpack averaged 65 to 80 percent above normal.

Elsewhere, the lack of normal winter cold and snow was the main weather story. During the week of February 19-25, spring-like weather broke out across the country, with temperatures rising into the 80's as far north as Grand Island, NE, and into the 90's in southern California. Nationally, more than a dozen all-time monthly records were set during the week, and about 200 daily records were broken.

The mildness contributed to a dearth of snow in the East, with Philadelphia recording no measurable snow through January 1995. Winter did make a brief appearance in early February as a deep low pressure center tracked northeastward along the northeast coast, producing 6 to 21 inches of snow from Kentucky to Maine.

In Hawaii, drought led to restrictions on irrigation for vegetable crops on the Big Island and Maui. Hilo measured one-third its normal rainfall from December 1994 through March 1995.

Spring (March - May)

A persistent upper level trough over the Rockies maintained wet, cool conditions across central and western areas of the country during April and May. Snow piled up over the western mountains and persistent rains delayed crop planting in the Great Plains. A particularly notable storm system traveled northeastward across the Plains on April 10-11, bringing up to 34 inches of snow to South Dakota, as much as 13 inches of rain to Louisiana, an ice storm to Iowa, and temperatures down to the teens and 20's to western Kansas. The low temperatures severely damaged winter wheat, especially in southwestern Kansas. The cool, wet weather significantly delayed planting of spring wheat on the Plains and summer crops in the Corn Belt.

May was exceptionally wet and stormy, as precipitation totaled more than twice normal from California to the Ohio Valley. Heavy rains set numerous monthly records and caused flooding of the Mississippi, Missouri, and Ohio Rivers. St. Louis, MO, measured 12.92 inches of rain this month as Midwestern farmers struggled to complete planting. By late May, planting progress of the national corn, soybean, and spring wheat crops was the farthest behind in more than 10 years.

Severe weather was rampant across the Nation in May, with several bouts of thunderstorms, hail, damaging winds, and tornadoes. Almost 300 tornadoes were reported over a 2-week period at mid-month, and the monthly total of 408 tornadoes set a new May record.

Summer (June - August)

Around June 9, the circulation pattern changed markedly, as upper level ridging began to dominate the central States and troughing became entrenched over the west coast, ending the 9-week stretch of wet, cool weather over the middle of the country. As a result, several severe heat waves affected the country into early September.

In June, record heat covered the Great Lakes region and the Northeast, as monthly temperatures averaged 2 to 7°F above normal. The heat wave of June 16-23 brought thermometer readings well into the 90's as far north as the northern Great Plains. International Falls, MN, measured all-time high temperatures of 99°F on both June 17 and 18. Burlington, VT made it into triple-digit territory with a 100°F reading on June 19. The Pacific Northwest also contributed to the record book, with Quillayute, WA setting five consecutive daily-record highs at the end of June, including 92°F on June 28 and 29.

One of the most intense heat waves of the century migrated from the Great Plains to the Northeast during July 10-15, bringing a lethal combination of extreme heat and humidity to the region. Temperatures hit the 100°F mark on July 10 as far north as Nebraska. By July 12, temperatures in the high 90's to well over 100°F stretched from Nebraska to Illinois and southward to Texas. Record heat covered the Illinois-Wisconsin area on the 13th, as Chicago's reading of 106°F at Midway Airport was an all-time record for any observing site in the city. Nearly unprecedented dew points in the mid-70's to low 80's raised apparent temperatures to dangerous levels of 115°F and higher across the Midwest for several days. Chicago's mean apparent temperature for the July 12-15 period made this the second most intense heat wave during this century, resulting in the deaths of about 700 people (*Mayor's Commission on Extreme Weather Conditions, Final Report, City of Chicago*).

The heat spread eastward, and on July 14, temperatures in the 90's and 100's extended from New England to the Mid-Atlantic States and westward to the Great Lakes and southward to Kansas. Readings neared or exceeded the 100°F level along the Eastern Seaboard from Florida to Connecticut on the 15th.

Though temperatures eased somewhat across the East after the 15th, they remained abnormally high, as Baltimore, MD, recorded 25 consecutive 90°F days beginning on July 12. In addition, a heat wave struck the Southwest at the end of the month, causing Yuma, AZ, to set an all-time high record of 124°F on July 28.

The mid-July heat did not significantly affect summer crops due to the delayed growth stage resulting from the wet spring. However, more heat in late July and, especially, during August did reduce yield potential of corn and soybeans.

August temperatures were above-normal for all but the northwestern quadrant of the country, as another major heat wave covered the Midwest and East during August 12-18. Readings in the 90's and 100's set more than 100 daily temperature records within this period, including 103°F at Birmingham, AL on August 16, their fourth consecutive daily record. Monthly temperatures 5 to 8°F above normal damaged crops in the Corn Belt, while heat and dryness hurt crops in the Middle Atlantic and Arklatex regions.

Near-record heat in the Southwest, Southeast, Central, and East North Central regions contributed to the Nation having its fourth

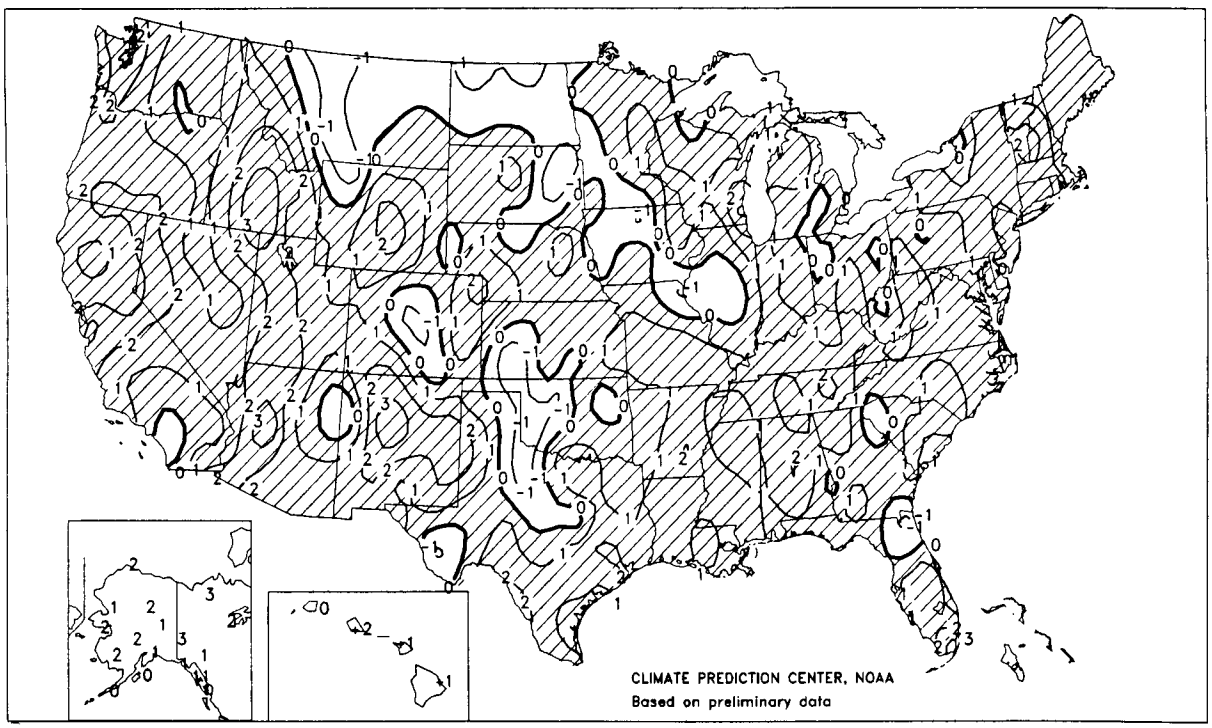


Figure 1

hottest August on record, and hottest since 1983. This was also the second driest August on record in the Northeast.

By the end of summer, drought extended from Virginia to Maine, as the Northeast endured its driest summer since 1913 and second driest of record. This was also the hottest summer on record for several locations from the Great Lakes to the Northeast. Philadelphia, PA notched a record hot season, and Pittsburgh recorded its hottest summer since 1901. Chicago's mean temperature was their highest since 1955.

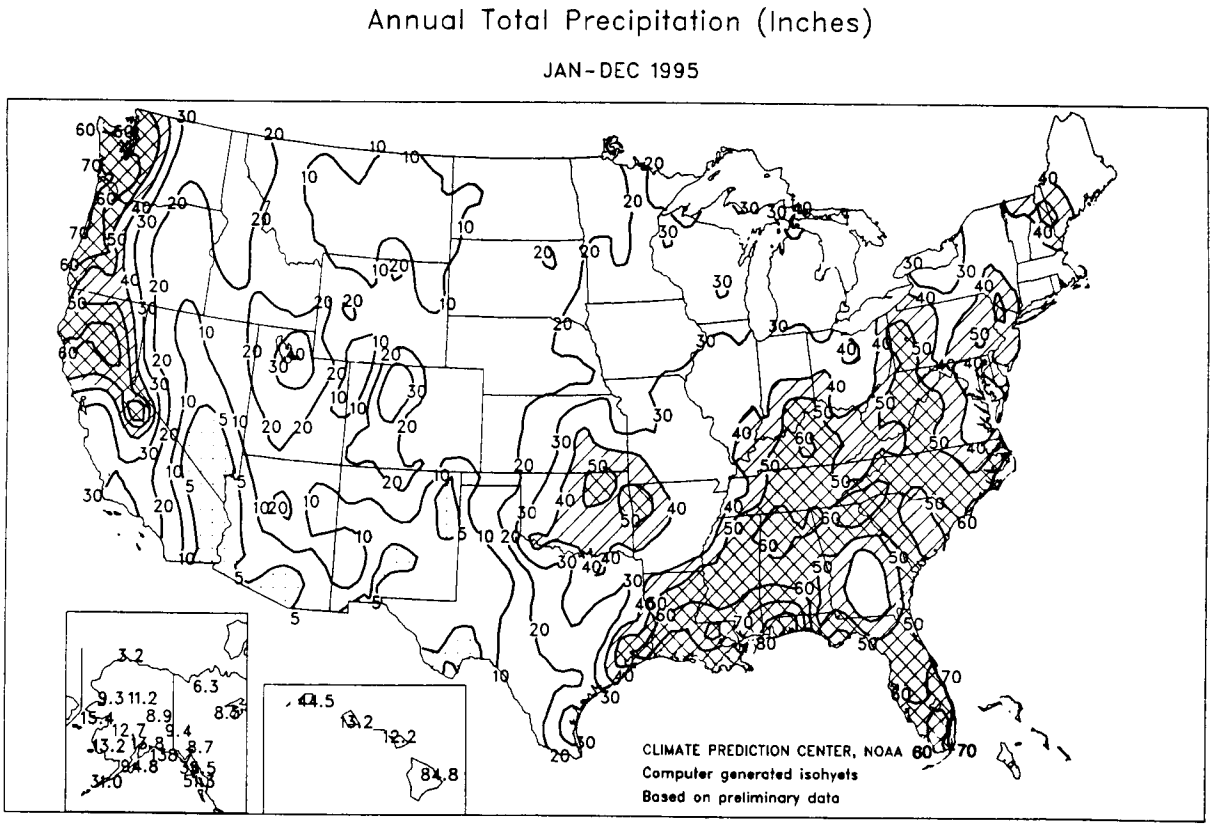


Figure 2

Autumn (September - November)

Another heat wave over the central and southern States persisted into early September, but a major shift in the circulation pattern produced important weather changes for the country. Northwesterly flow at high levels brought much cooler air into the Great Plains during September, and troughing over the East helped to transport needed moisture to the Eastern Seaboard.

Canadian high pressure tracked southward on September 9-11, bringing a taste of fall to the Midwest and Northeast, but a more significant influx of cool air journeyed southward into the Great Plains on September 20-21. Up to 10 inches of snow covered the Colorado foothills, and the earliest measurable snow on record fell at Grand Island, NE and Dodge City, KS. The freeze that struck the central Plains and the western Corn Belt on September 22 and 23 ended the growing season 1 to 3 weeks early, causing damage to summer crops, particularly soybeans.

The Atlantic experienced its most active tropical storm season since 1933, with 19 named storms, including 11 hurricanes. Hurricane Erin struck Florida's east coast on August 2, crossed the peninsula, and hit the panhandle the next day. Tropical Storm Jerry, the third storm to hit Florida this season (Hurricane Allison hit the panhandle on June 5) crossed the east coast near West Palm Beach on August 23 and tracked northward as a depression, bringing heavy rains to Florida, Georgia, and South Carolina. Powerful Hurricane Luis skirted Puerto Rico and the U.S. Virgin Islands on September 5-6. Hurricane Marilyn, however, directly hit St. Thomas, St. Croix, and eastern Puerto Rico on September 15-16, causing estimated property losses of $1.5 billion and 8 deaths.

Hurricane Opal, the most damaging storm to strike the mainland this year, crossed the Florida panhandle near Pensacola on October 4, bringing wind gusts to 144 mph. Major flood and wind damage stretched along 120 miles of Florida coastline. Heavy rains and high winds spread northward into Georgia and Alabama. Opal was blamed for nine deaths and estimated property losses of $3 billion.

During October, heavy rains from the remnants of Opal and the passage of three soaking cold fronts virtually eliminated long-term drought across the East. In Florida, a stalled cold front contributed

to large rainfall totals and flooding over the peninsula, as over a foot of rain fell across the southern third of the State in October.

October and November were abnormally dry from California eastward to the central and southern Great Plains. Rainfall was less than one-quarter normal across key crop areas of Kansas and under one-half of normal across the Texas plains during both months, causing crop condition ratings to fall. This was the driest October-November period since 1921 for the primary hard red winter wheat region.

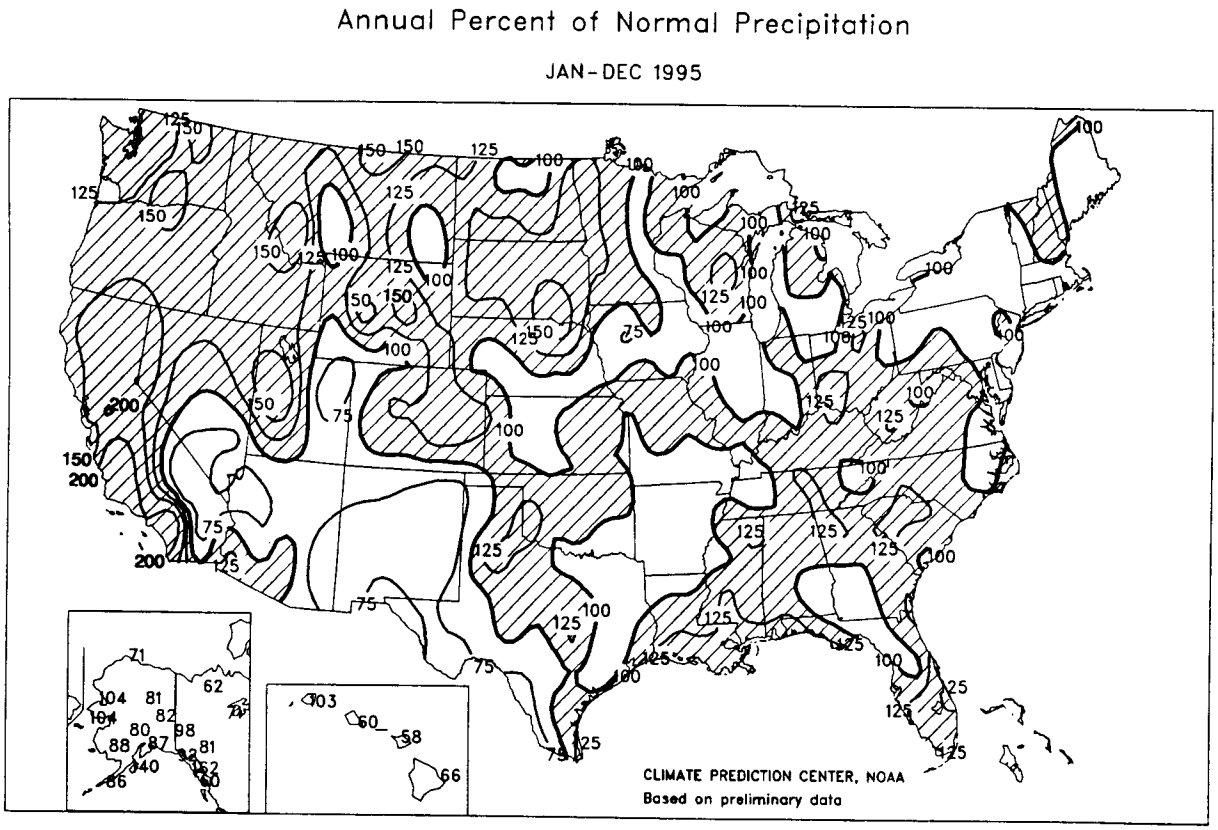


Figure 3

The rainy season started unusually late in California, with Sacramento seeing its first rainfall on December 1, its latest onset date on record. Prodigious rains, however, fell farther to the north, as amounts in November ranged from 10 to 36 inches across western Washington and northwest Oregon. The combination of heavy rain and melting snow caused major flooding late in the month in the Puget Sound drainage basin and along a few tributaries of the lower Columbia River.

Ridging aloft helped produce anomalous warmth across the western half of the country in November, with monthly temperatures mostly 4 to 8°F above normal. Wintry weather took hold in the eastern half of the country, where a number of locations measured record snowfall totals in the Northeast and Mid-Atlantic regions, including 34.2 inches at Syracuse, NY.

December

The first month of meteorological winter featured abundant cold in the eastern third of the country and abnormal warmth across the western two-thirds of the Nation, with many locations from Missouri westward averaging 4 to 6°F above average. The rainy season began with a vengeance over California, with totals more than twice normal across much of the State. Monthly amounts exceeded 12 inches from northwestern California through coastal Oregon and along the coast of Washington.

A storm of historical proportions contributed to much of the monthly precipitation along the West Coast. The extremely intense Pacific storm hit the Northwest coast on December 12 with hurricane-force winds and heavy rains. Wind gusts topped 100 mph from the mouth of the Columbia River to San Francisco Bay, and rainfall during December 10-12 exceeded 11 inches in parts of northern California.

In the Great Lakes region, a frigid Canadian air mass contributed to record lake-effect snows. During December 8-12, Sault Sainte Marie, MI measured a phenomenal 61.7 inches of snow, setting an all-time record for any snowstorm.

A large snowstorm tracked across the central and eastern United States during December 17-20, leaving a wide band of snow from Kansas to New England. Up to 10 inches of snow eased drought in the southern Great Plains, and 5 to 12 inches fell from Missouri through Illinois to the Northeast.

International Weather and Crop Summary

January 14 - 20, 1996

HIGHLIGHTS

FSU-WESTERN: Unusually cold weather continued over traditional winter wheat areas in Ukraine and southern Russia.

EUROPE: Overwintering conditions favored winter grains.

NORTHWESTERN AFRICA: Light to moderate showers promoted winter grain development.

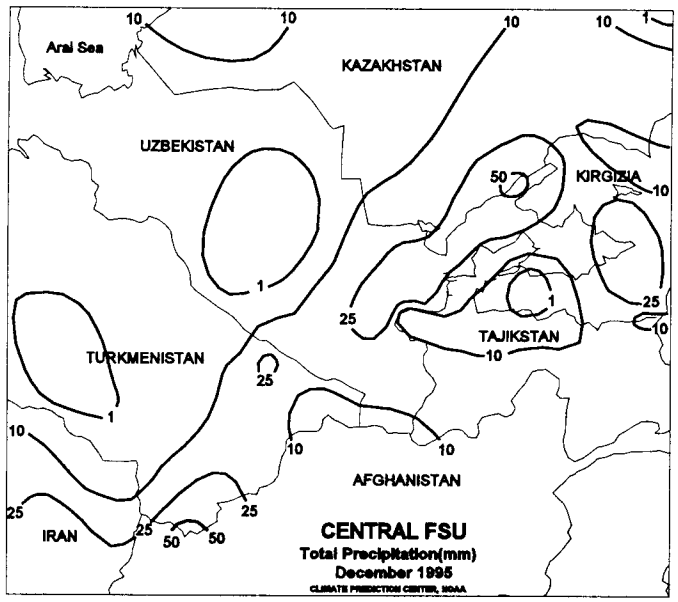
SOUTH AFRICA: Showers swept through the corn belt, increasing moisture in the west for crops entering reproduction.

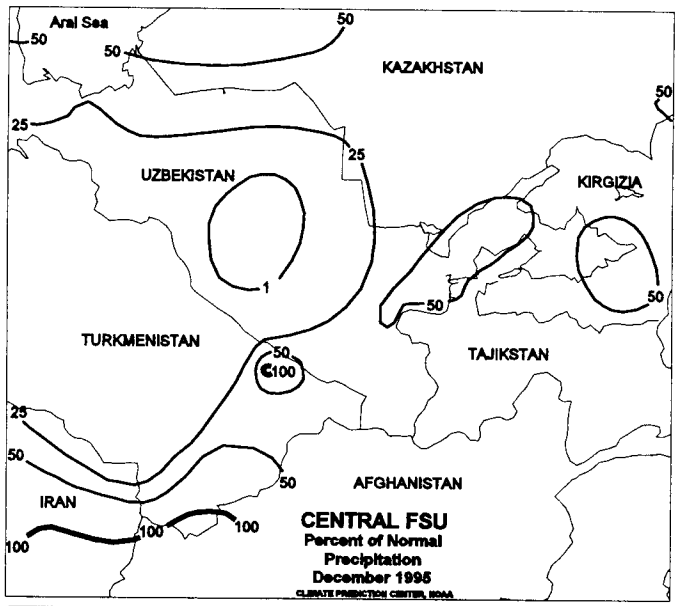
AUSTRALIA: Beneficially drier weather brought relief to eastern Australia's cotton and sorghum.

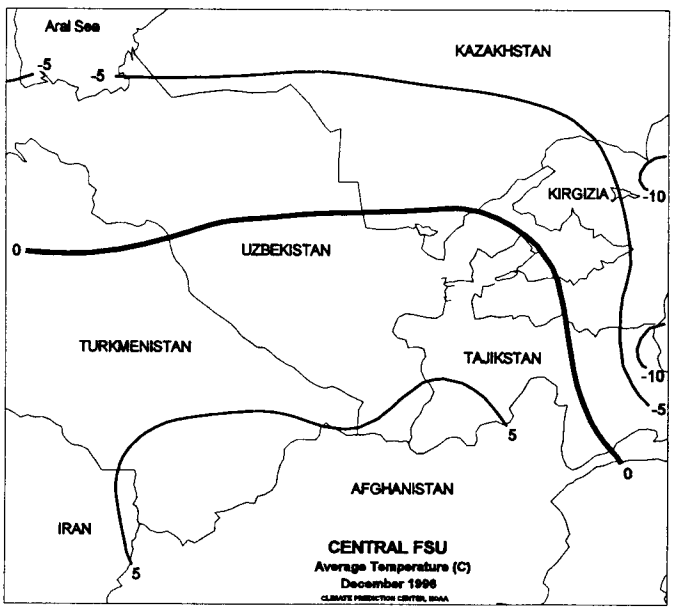
EASTERN ASIA: Widespread rain continued to ease dryness across the Yangtze Valley.

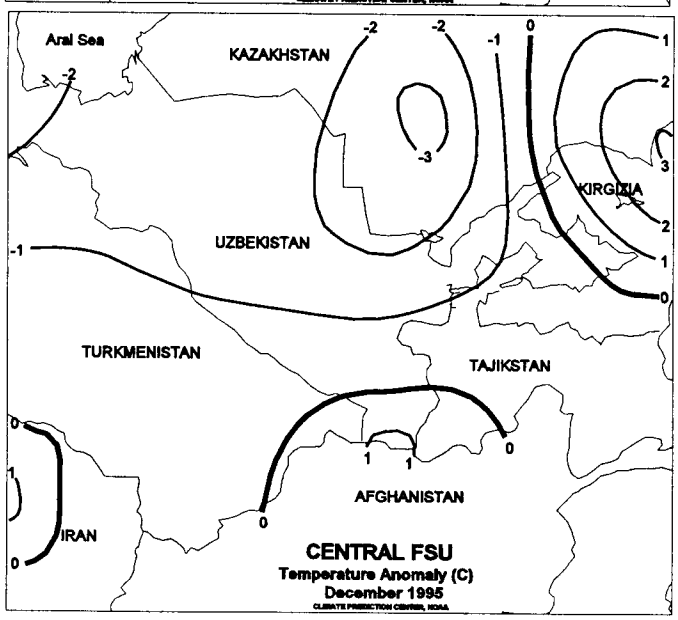
SOUTHEAST ASIA: Excessive rain caused flooding again in southern Luzon, Philippines.

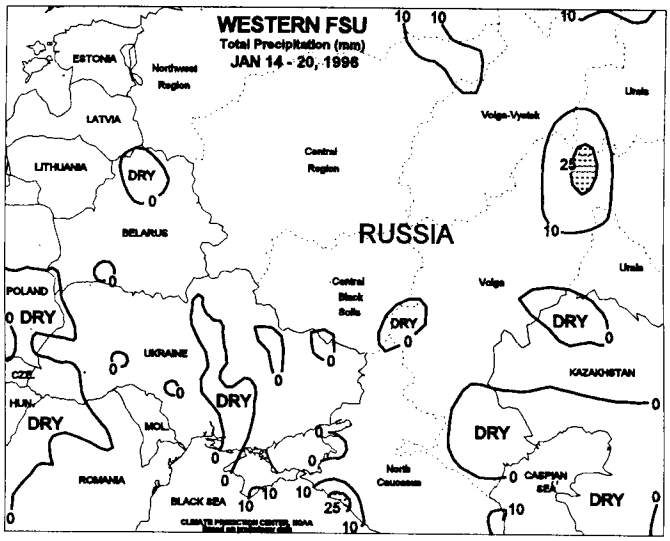
SOUTH AMERICA: Widespread heavy showers substantially increased soil moisture for vegetative to early-reproductive soybeans across southern Brazil. In central Argentina, cool weather kept crop water use low while rain benefited western crops.





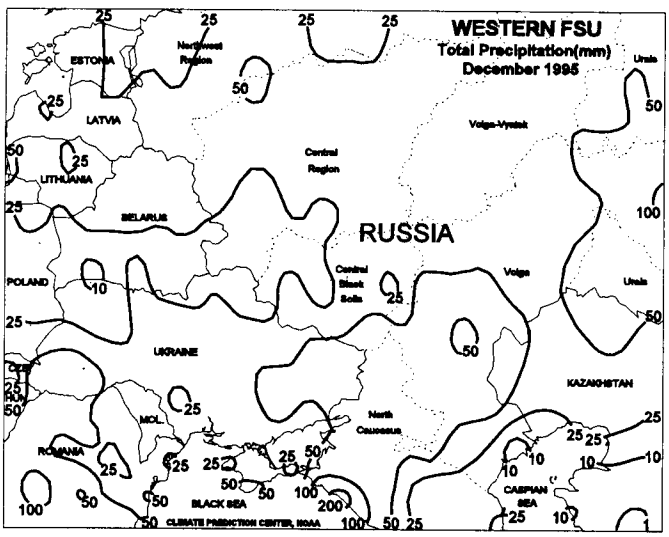


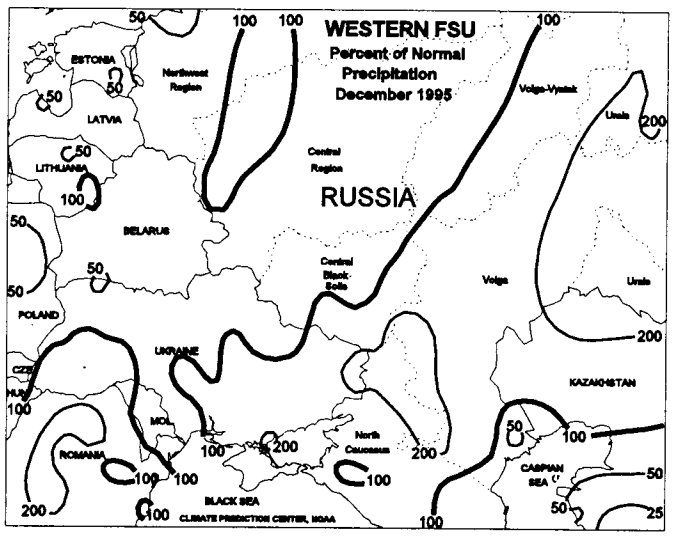


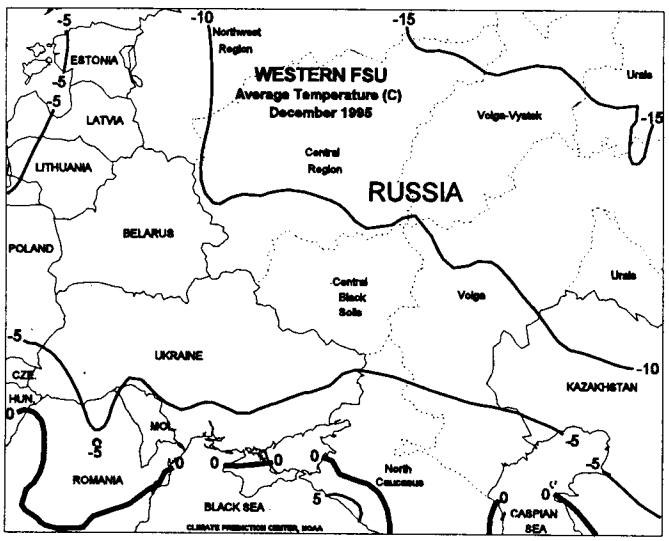


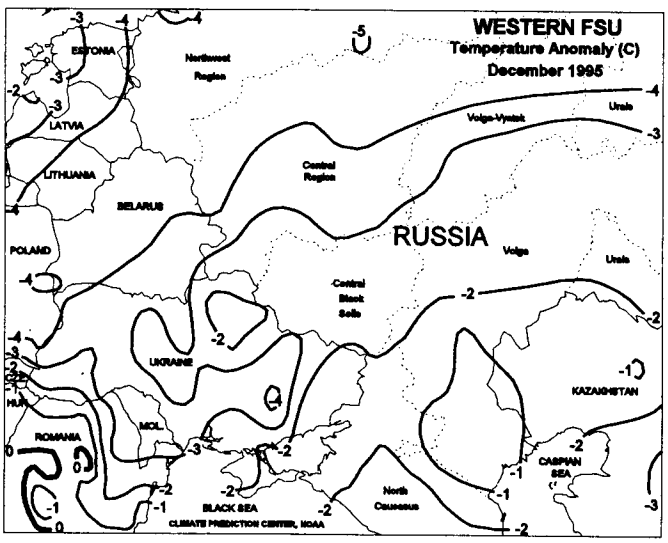
FSU-WESTERN

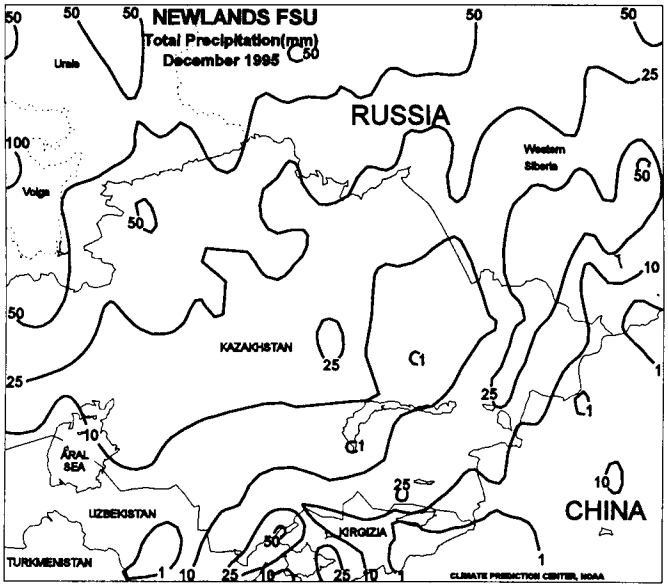
Light snow or flurries covered dormant winter grains across the region. Greatest amounts of precipitation (2-10 mm) fell over Russia and the Baltics, with lesser amounts of moisture (1-5 mm) covering Ukraine and Belarus. Although unusually cold weather prevailed over traditional winter wheat-producing areas in Ukraine and southern Russia, adequate snow cover protected the crop from potential winterkill. In December, above-normal precipitation covered southwestern and eastern Ukraine, and parts of Russia (North Caucasus, Volga Valley, and Volga Vyatsk Region), increasing moisture reserves. Elsewhere, precipitation was below normal in north-central Ukraine, Belarus, the Baltics, and the Central Region in Russia. Temperatures fell steadily during December in Belarus, the Baltics, and parts of northern Russia. Farther south in Ukraine and southern Russia, unseasonably cold weather in early December was followed by a period of unseasonably mild weather from December 19 to 27, causing considerable melting of snow. On December 28, however, bitter cold spread south over these areas, and was accompanied by light to moderate snow. As a result, most winter grain areas were covered with snow, reducing the threat of widespread damage. However, snow cover amounts were variable and isolated damage was possible.

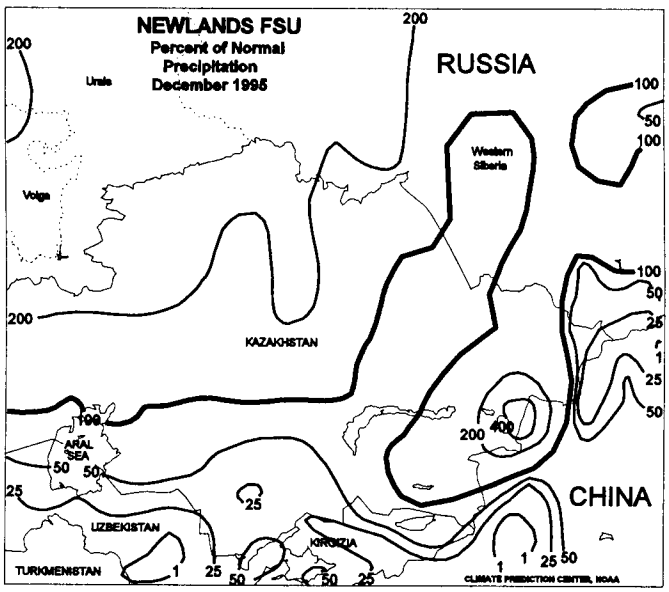


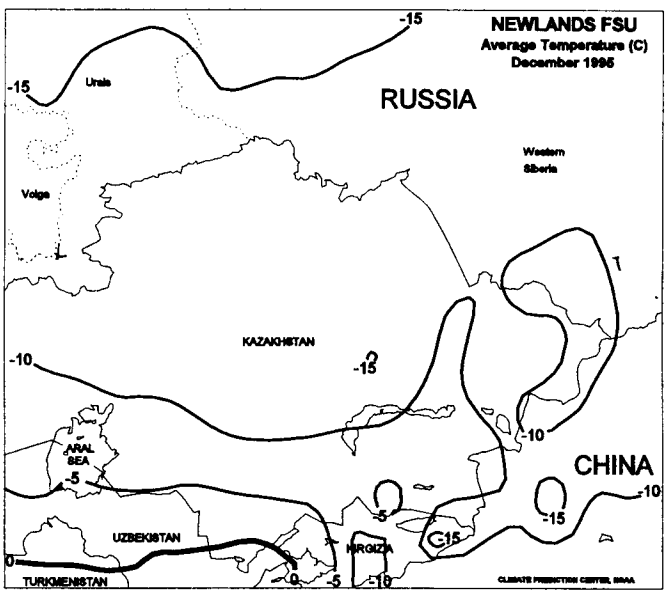


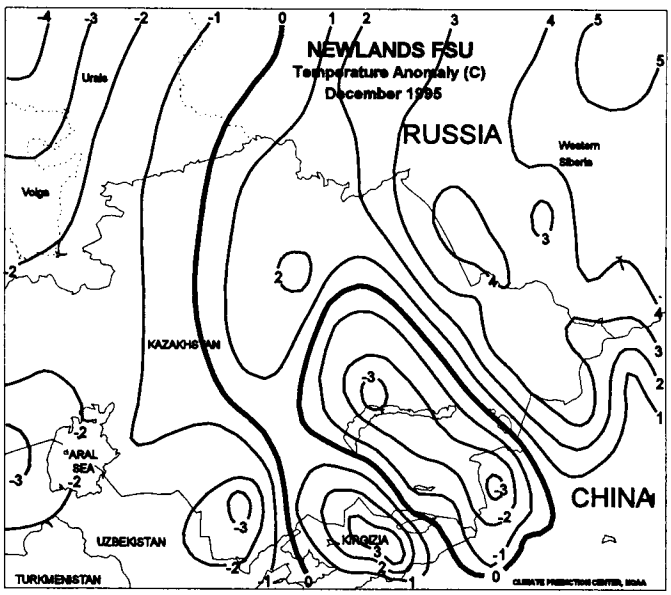


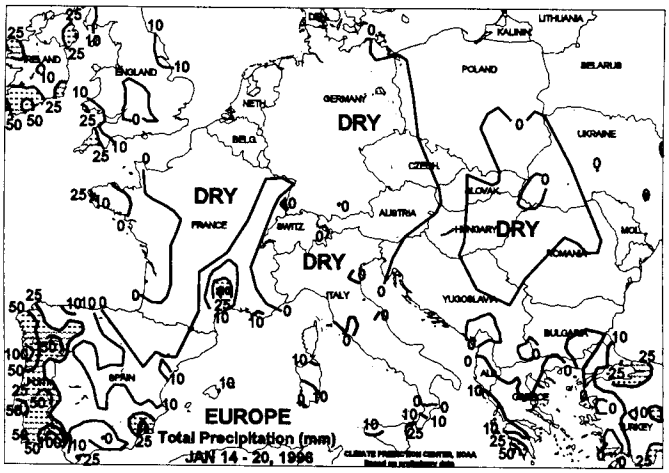



NEWLANDS FSU
Total Precipitation(mm)
December 1995
RUSSIA
Urals
Volga
Western Siberia
KAZAKHSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA


NEWLANDS FSU
Percent of Normal
Precipitation
December 1995
RUSSIA
Urals
Volga
Western Siberia
KAZAKHSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA

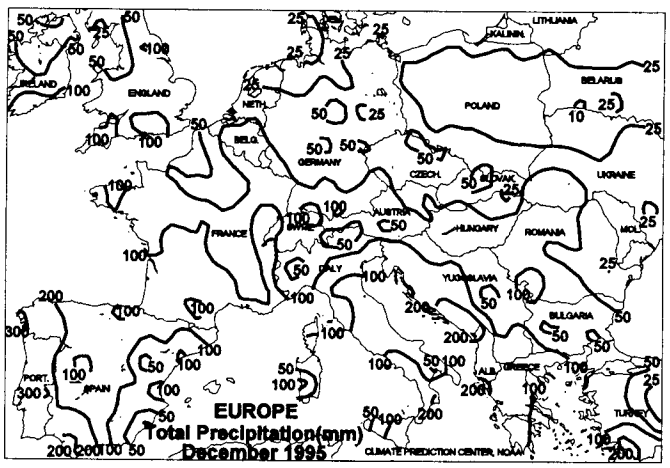

NEWLANDS FSU
Average Temperature (C)
December 1995
RUSSIA
Urals
Volga
Western Siberia
KAZAKHSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA

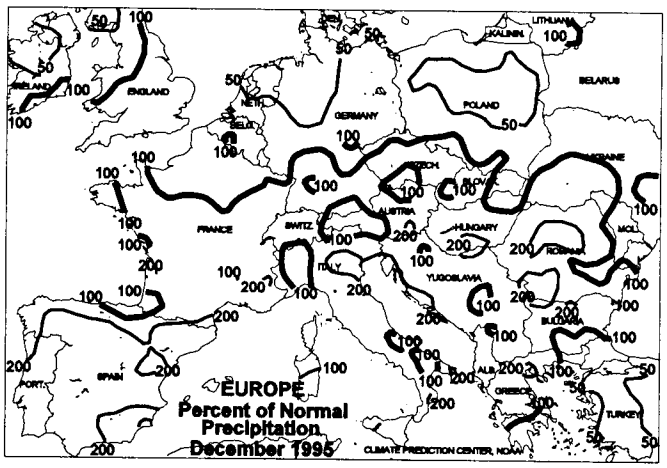

NEWLANDS FSU
Temperature Anomaly (C)
December 1995
RUSSIA
Urals
Volga
Western Siberia
KAZAKHSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA

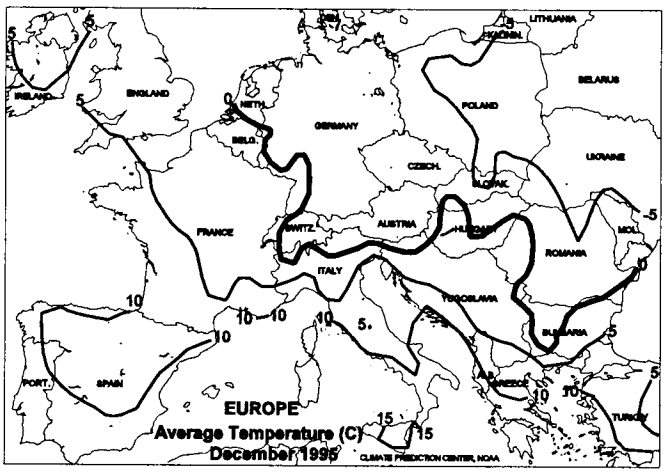


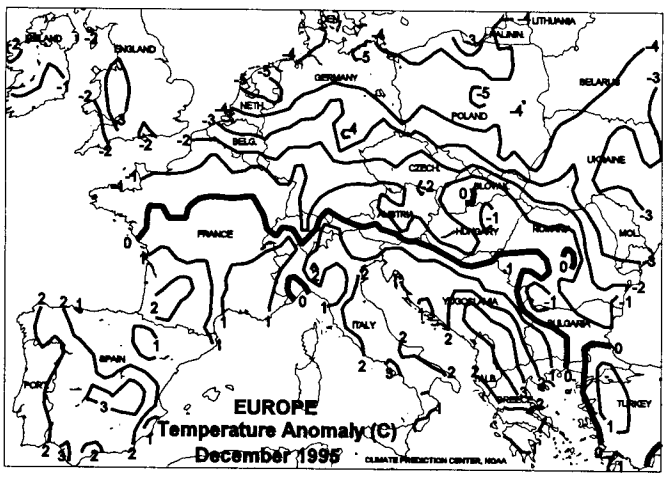
EUROPE

Generally dry weather prevailed over most of Europe. The exception was in Portugal, where continued moderate to heavy rain (25-50 mm, with local amounts in excess of 100 mm) increased the potential for flooding. Near- to above-normal temperatures provided favorable overwintering conditions for winter grains across northern and eastern Europe. In December, above-normal precipitation fell over England, most of France, the Iberian Peninsula, Italy, former Yugoslavia, Hungary, Romania, Bulgaria, and Greece, boosting moisture reserves. Much-above-normal rainfall (200-400 percent of normal) over Spain continued November's above-normal rainfall pattern, easing long-term drought. Farther north, unseasonably cold weather was accompanied by below-normal precipitation over extreme northern France, the Netherlands, Belgium, northern and central Germany, and Poland. An adequate snow cover in these areas protected winter grains from periods of unusual cold during December.

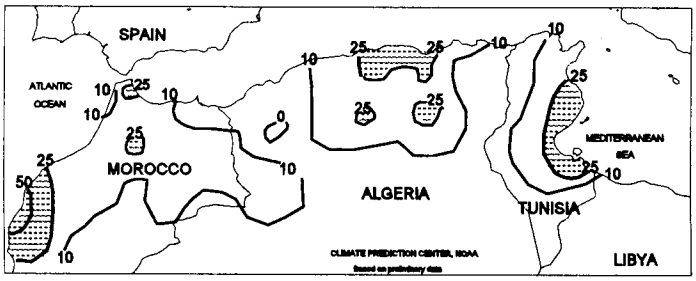








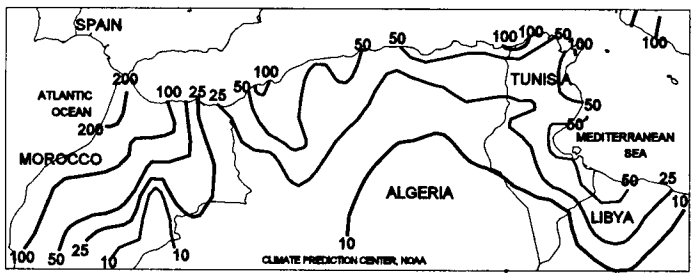
NORTHWEST AFRICA Total Precipitation (mm)
JAN 14 - 20, 1996



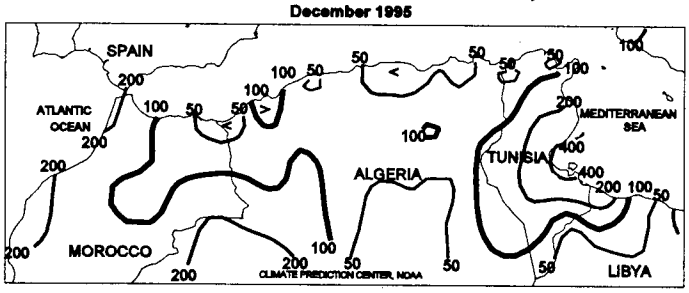
NORTHWESTERN AFRICA

Light to moderate showers (5-37 mm) continued to benefit vegetative winter grains over the region. The precipitation maintained abundant moisture conditions for developing crops in Morocco and continued to improve moisture for winter grains in Algeria and Tunisia. In December, above-normal precipitation fell over Morocco, benefiting winter grain emergence and early establishment. Farther east, well-below-normal precipitation over Algeria and Tunisia limited moisture for developing crops. Although rain the past 2 weeks over Algeria and Tunisia reversed December's unfavorably dry weather, timely rains will be needed during the remainder of the growing season to boost yield prospects.

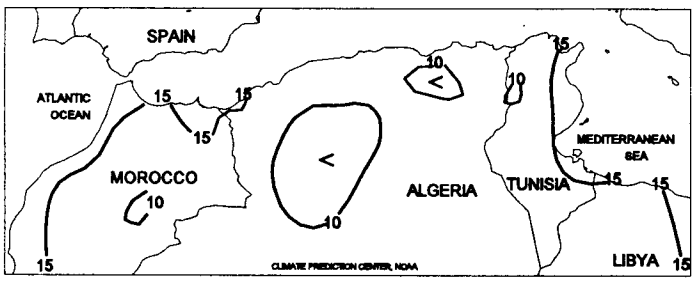
NORTHWEST AFRICA Total Precipitation (mm)
December 1995



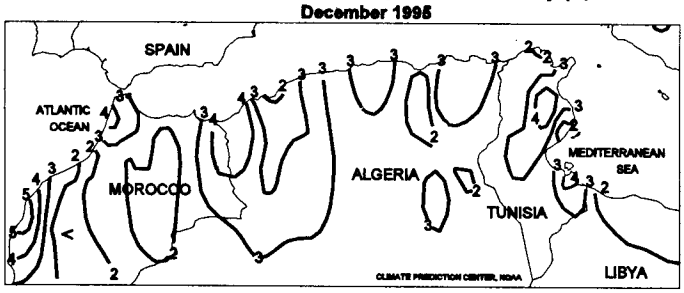
NORTHWEST AFRICA Percent of Normal Precipitation
December 1995

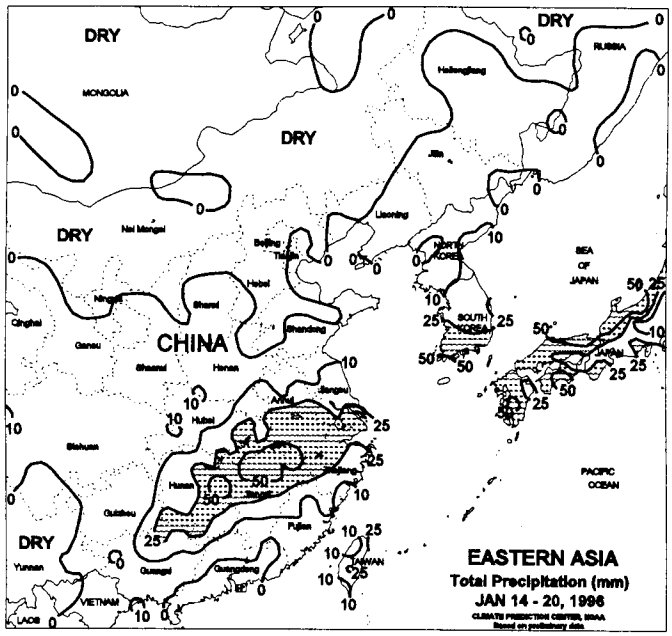


NORTHWEST AFRICA Average Temperature(C)
December 1995



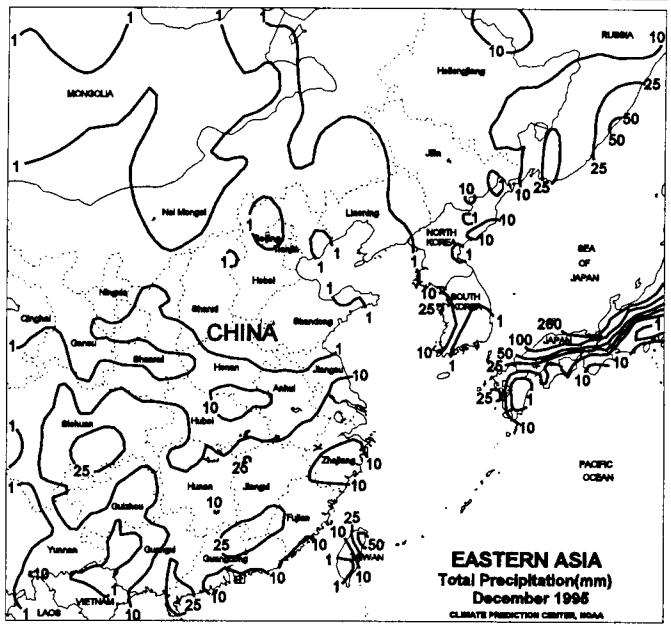
NORTHWEST AFRICA Temperature Anomaly (C)
December 1995

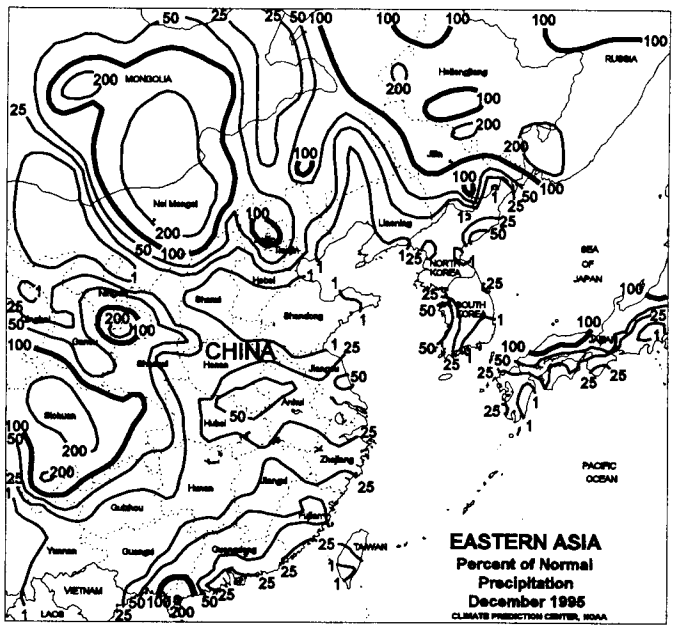


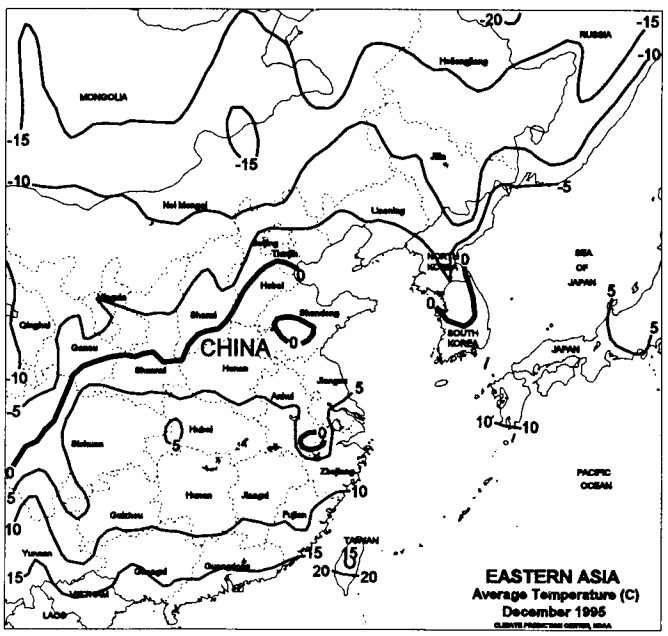


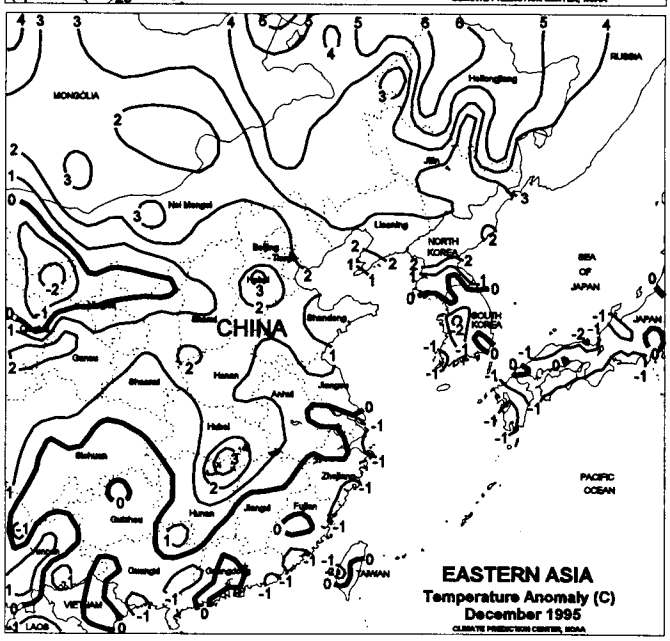
EASTERN ASIA

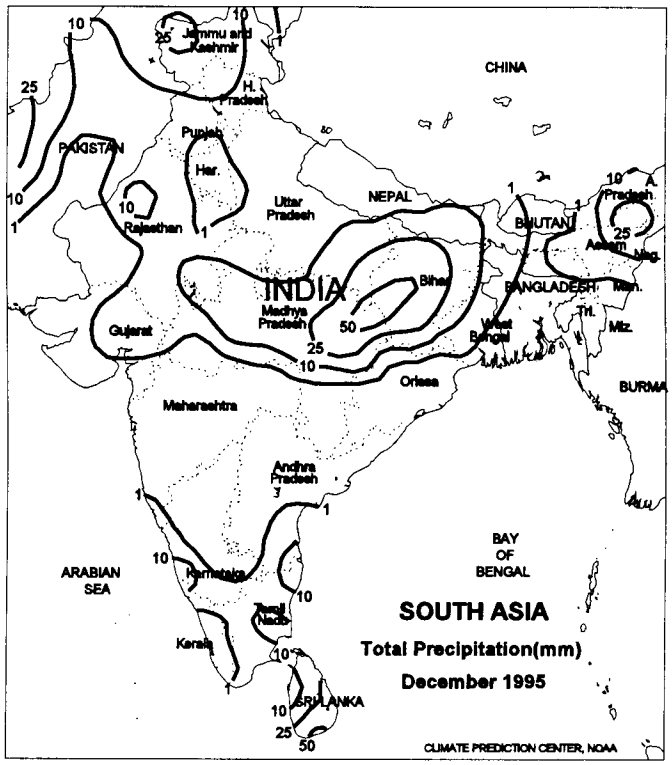
Widespread rain (10-60 mm) again covered the Yangtze Valley, boosting soil moisture and irrigation supplies for winter grains and oilseeds. The rain the past 2 weeks has significantly eased dryness due to below-normal December rainfall (20-50 percent of normal). Seasonably dry, cool weather continued across the North China Plain, keeping winter wheat dormant. While little or no precipitation fell across the North China Plain during December, normal precipitation typically averages near or less than 10 mm per month from December to February. Therefore, any winter precipitation deficits can be quickly erased when the summer rains begin. Also, due to the seasonally low winter precipitation, snow cover is meager across the region. Elsewhere, December rainfall averaged below normal across southern China, but near- to above-normal rainfall across Sichuan aided winter grains.

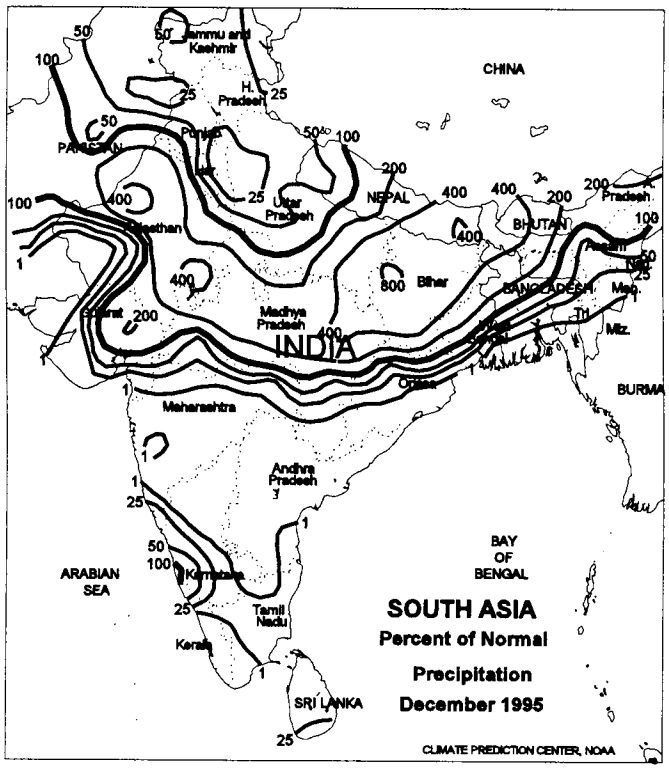


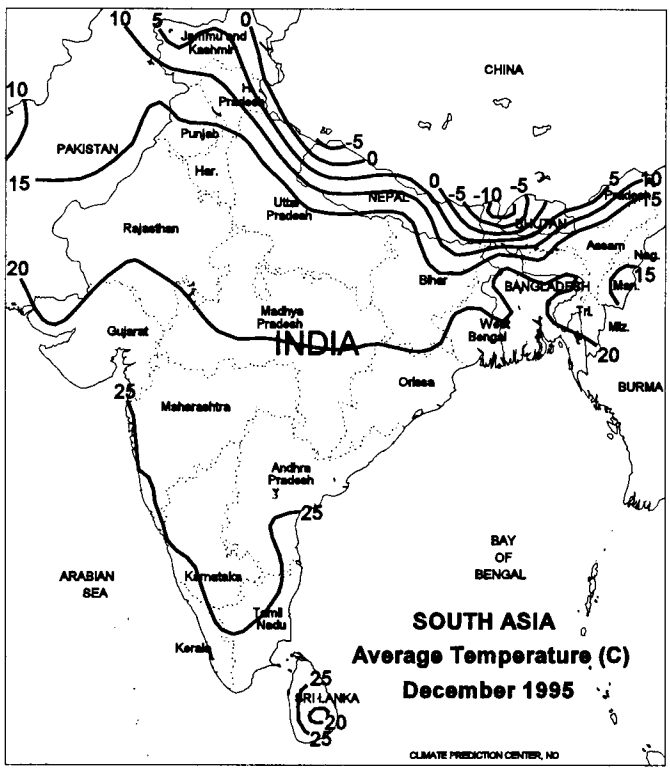







SOUTH ASIA
Total Precipitation(mm)
December 1995
CLIMATE PREDICTION CENTER, NOAA
CHINA
PAKISTAN
NEPAL
BHUTAN
BANGLADESH
BURMA
INDIA
ARABIAN SEA
BAY OF BENGAL
SRI LANKA
Jammu and Kashmir
H. Pradesh
Punjab
Har.
Uttar Pradesh
Rajasthan
Bihar
Madhya Pradesh
Gujarat
West Bengal
Orissa
Maharashtra
Andhra Pradesh
Karnataka
Tamil Nadu
Kerala
Assam
Nag.
Man.
Tri.
Miz.


SOUTH ASIA
Percent of Normal
Precipitation
December 1995
CLIMATE PREDICTION CENTER, NOAA
CHINA
PAKISTAN
NEPAL
BHUTAN
BANGLADESH
BURMA
INDIA
ARABIAN SEA
BAY OF BENGAL
SRI LANKA
Jammu and Kashmir
H. Pradesh
Punjab
Uttar Pradesh
Rajasthan
Bihar
Madhya Pradesh
Gujarat
West Bengal
Orissa
Maharashtra
Andhra Pradesh
Karnataka
Tamil Nadu
Kerala
Assam
Nag.
Man.
Tri.
Miz.


SOUTH ASIA
Average Temperature (C)
December 1995
CLIMATE PREDICTION CENTER, NO
CHINA
PAKISTAN
NEPAL
BHUTAN
BANGLADESH
BURMA
INDIA
ARABIAN SEA
BAY OF BENGAL
SRI LANKA
Jammu and Kashmir
H. Pradesh
Punjab
Har.
Uttar Pradesh
Rajasthan
Bihar
Madhya Pradesh
Gujarat
West Bengal
Orissa
Maharashtra
Andhra Pradesh
Karnataka
Tamil Nadu
Kerala
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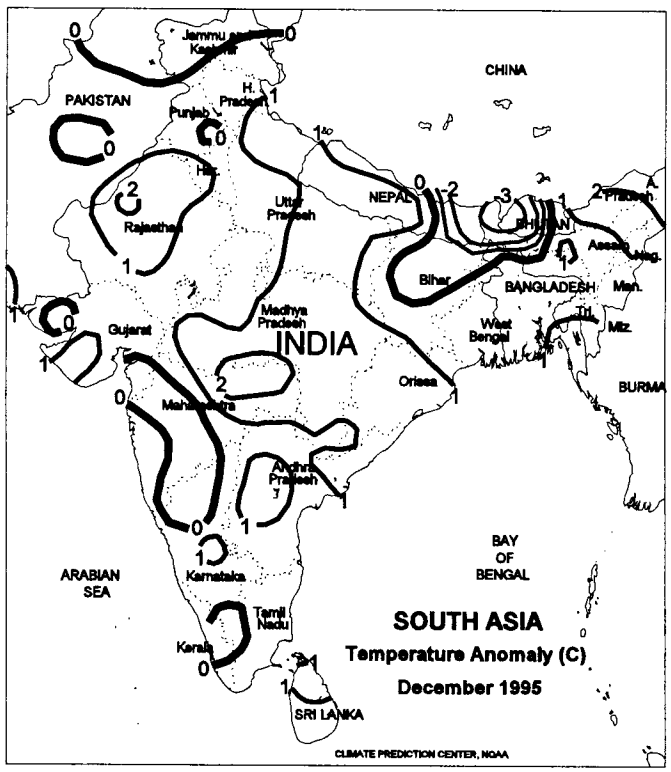
SOUTH ASIA
Temperature Anomaly (C)
December 1995
CLIMATE PREDICTION CENTER, NOAA
CHINA
PAKISTAN
NEPAL
BHUTAN
BANGLADESH
BURMA
INDIA
ARABIAN SEA
BAY OF BENGAL
SRI LANKA
Jammu and Kashmir
H. Pradesh
Punjab
Uttar Pradesh
Rajasthan
Bihar
Madhya Pradesh
Gujarat
West Bengal
Orissa
Maharashtra
Andhra Pradesh
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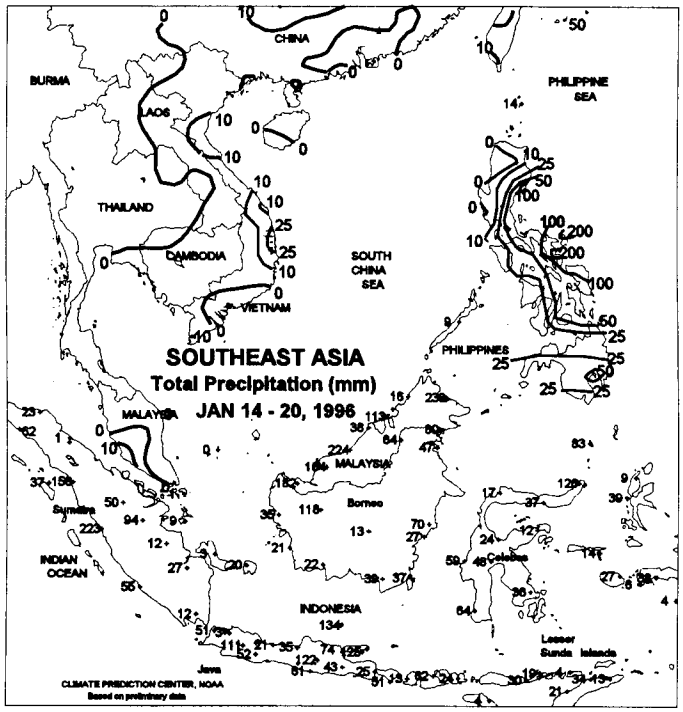
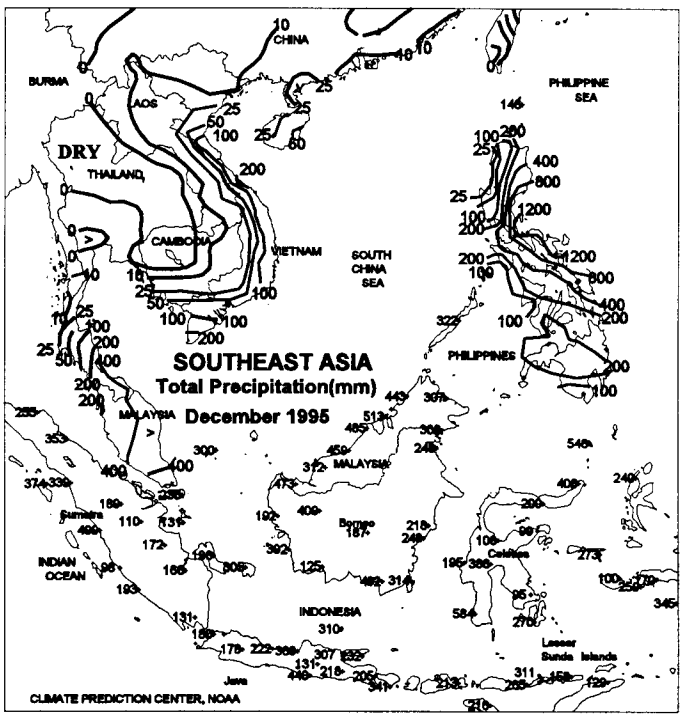
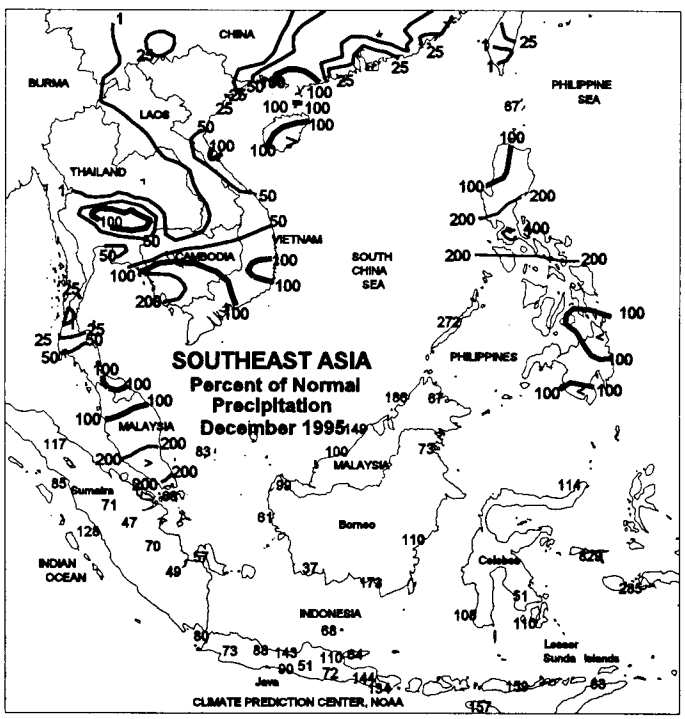
Tamil Nadu
Kerala
Assam
Nag.
Man.
Tri.
Miz.

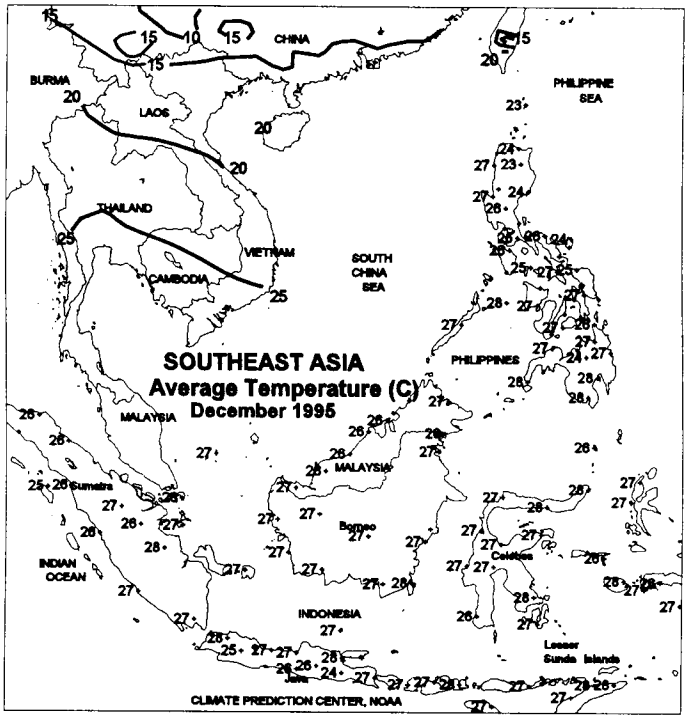


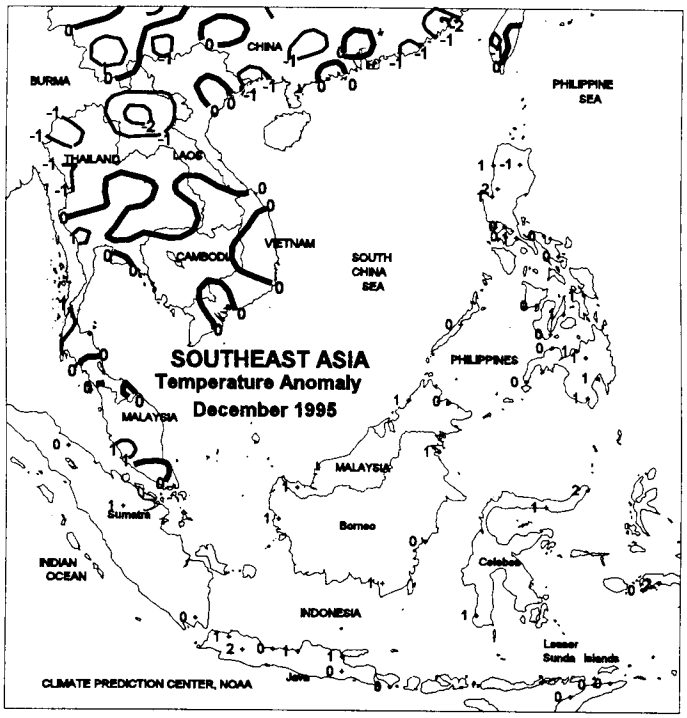
SOUTHEAST ASIA

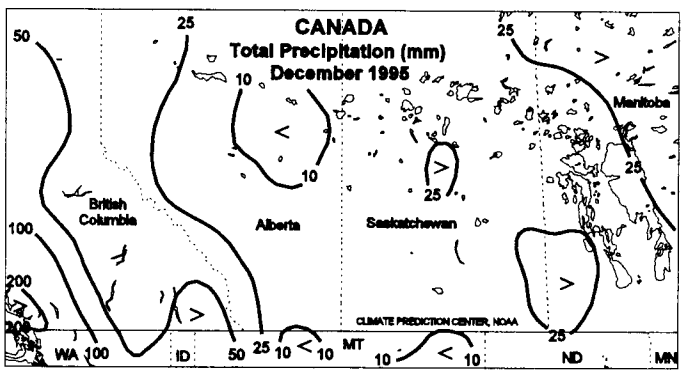
Moderate to heavy showers (50-100 mm) fell across eastern Luzon, Philippines and the central islands, increasing irrigation supplies for secondary rice. However, very heavy showers (150-300 mm) caused flooding in extreme southern Luzon. Dry, hot weather (2-4 degrees C above normal) prevailed across Thailand, but irrigation reserves should be adequate for second-season rice. Widespread showers (20-120 mm) maintained adequate irrigation supplies for main-season rice across Java. During December, the Philippines received near- to above-normal rainfall. Southern Luzon reported rainfall greater than 200 percent of normal, causing flooding. December rainfall averaged below normal across Indochina, except for portions of south Thailand and southern Vietnam, which experienced near- to above-normal rainfall. Peninsular Malaysia reported near-normal rainfall, with the southern portions averaging greater than 200 percent of normal. Across Java, December rainfall averaged 70 to 90 percent of normal in the west and 70 to 130 percent of normal in the east.

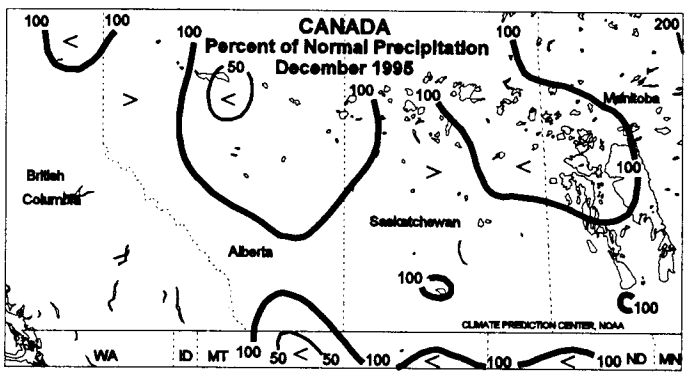


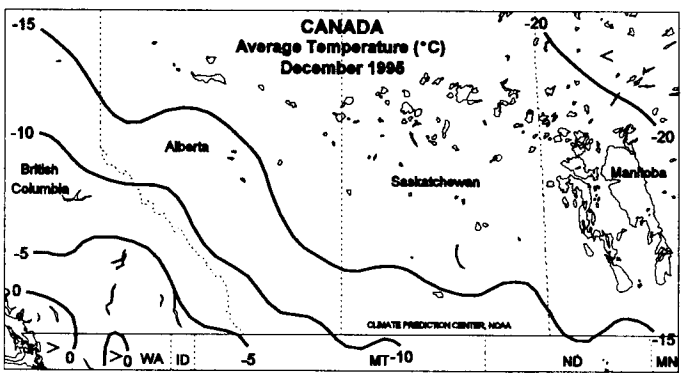


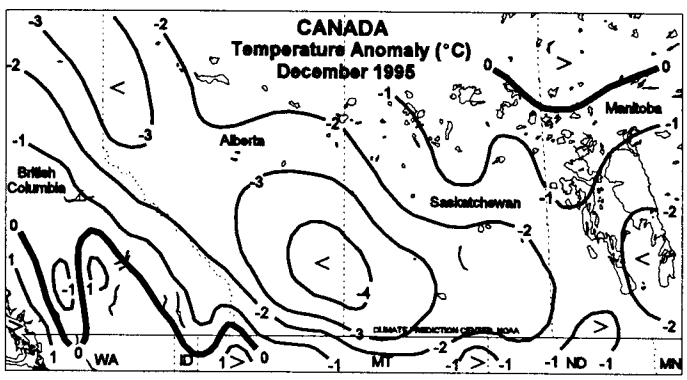

SOUTHEAST ASIA
Average Temperature (C)
December 1995
CHINA
BURMA
LAOS
THAILAND
VIETNAM
CAMBODIA
SOUTH CHINA SEA
PHILIPPINE SEA
PHILIPPINES
MALAYSIA
Sumatra
Borneo
Celebes
INDIAN OCEAN
INDONESIA
Lesser Sunda Islands
Java
CLIMATE PREDICTION CENTER, NOAA

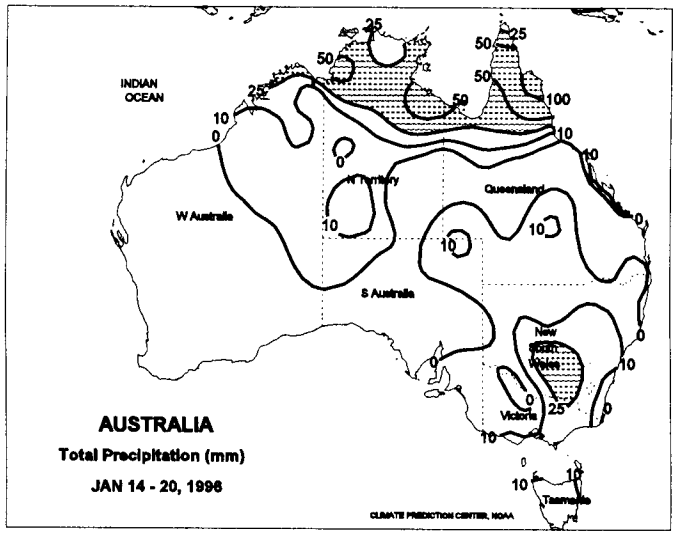

SOUTHEAST ASIA
Temperature Anomaly
December 1995
CHINA
BURMA
THAILAND
LAOS
VIETNAM
CAMBODIA
SOUTH CHINA SEA
PHILIPPINE SEA
PHILIPPINES
MALAYSIA
Sumatra
Borneo
Celebes
INDIAN OCEAN
INDONESIA
Lesser Sunda Islands
Java
CLIMATE PREDICTION CENTER, NOAA


CANADA
Total Precipitation (mm)
December 1995
British Columbia
Alberta
Saskatchewan
Manitoba
WA
ID
MT
ND
MN
CLIMATE PREDICTION CENTER, NOAA


CANADA
Percent of Normal Precipitation
December 1995
British Columbia
Alberta
Saskatchewan
Manitoba
WA
ID
MT
ND
MN
CLIMATE PREDICTION CENTER, NOAA

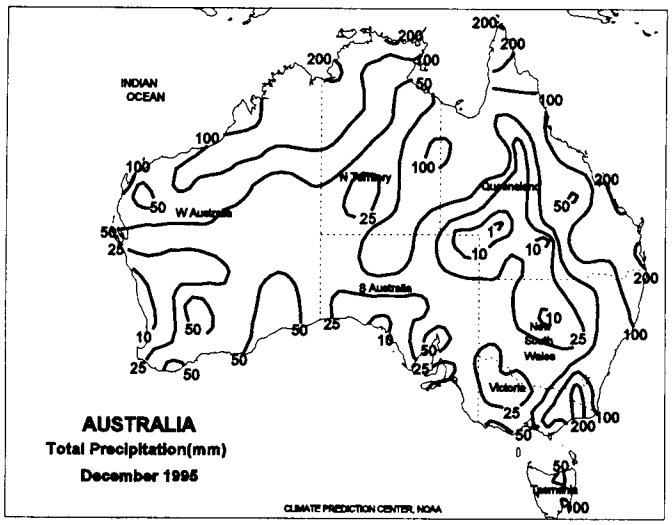

CANADA
Average Temperature (°C)
December 1995
British Columbia
Alberta
Saskatchewan
Manitoba
WA
ID
MT
ND
MN
CLIMATE PREDICTION CENTER, NOAA

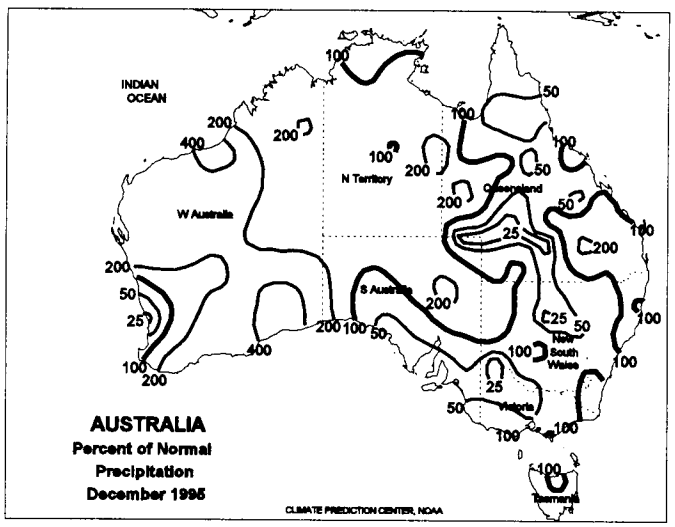

CANADA
Temperature Anomaly (°C)
December 1995
British Columbia
Alberta
Saskatchewan
Manitoba
WA
ID
MT
ND
MN
CLIMATE PREDICTION CENTER, NOAA

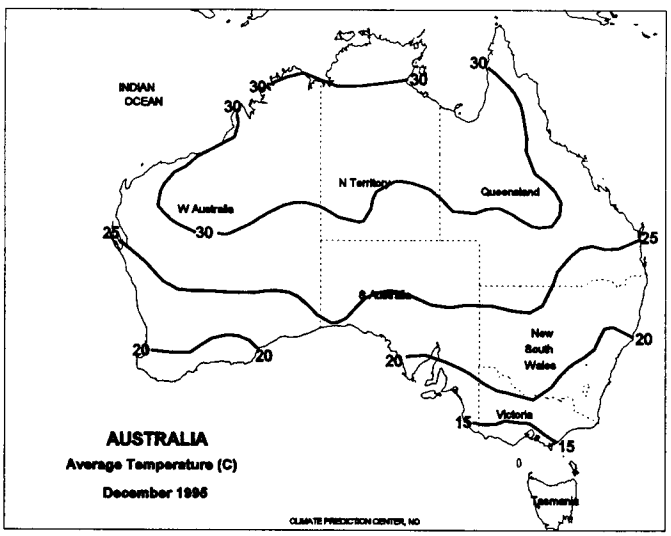


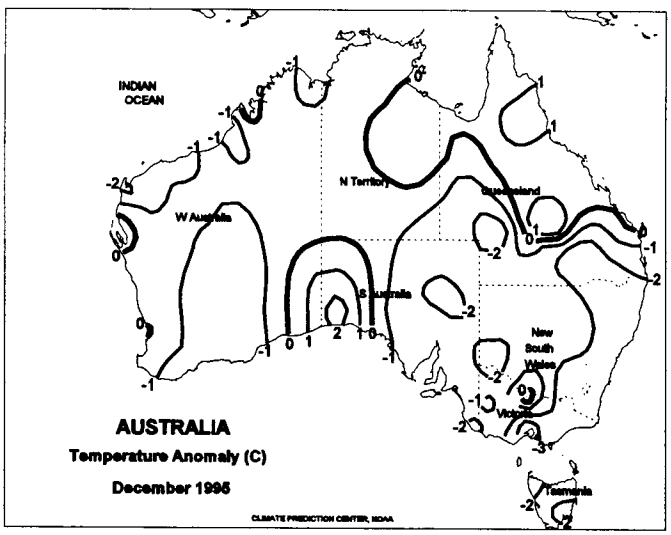
AUSTRALIA

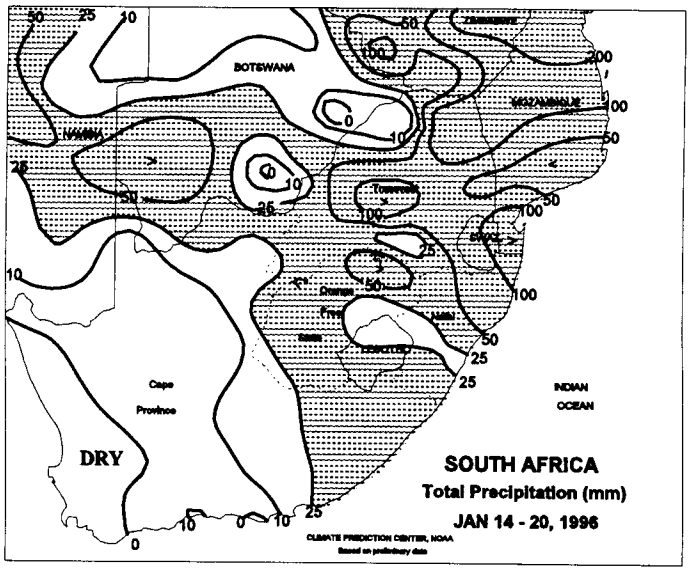
Beneficially drier weather dominated east-central Australia, bringing some relief to excessively wet cotton and sorghum areas. Generally warm, dry weather continued across the west and south, favoring unharvested winter wheat. In New Zealand, moderate rain (10-27 mm) was limited to pasture land in North Island. In December, rainfall continued near to above normal in the main sorghum and cotton areas of southeastern Queensland. Drier weather returned in December to pasture land across western Queensland into central New South Wales, following a wet November. Western summer crop areas of New South Wales (near the Queensland border) also received near- to below-normal rainfall. Elsewhere, drier-than-normal weather in December favored maturing winter wheat in the south, but late-month showers in Western Australia raised concerns for crop quality.





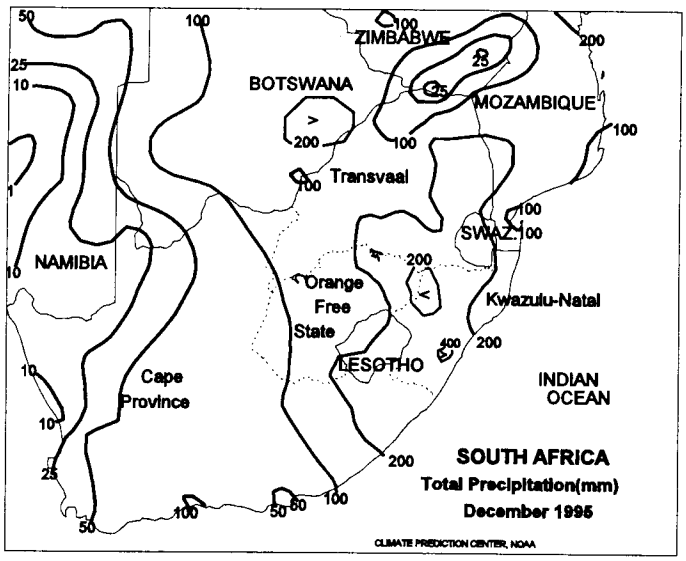


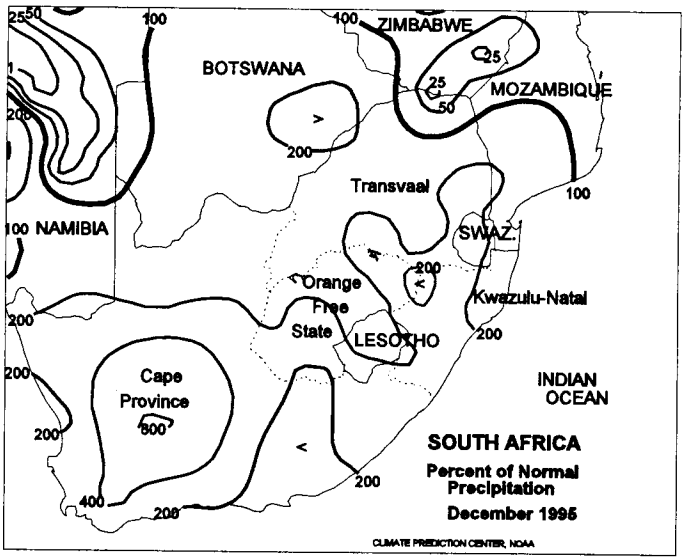


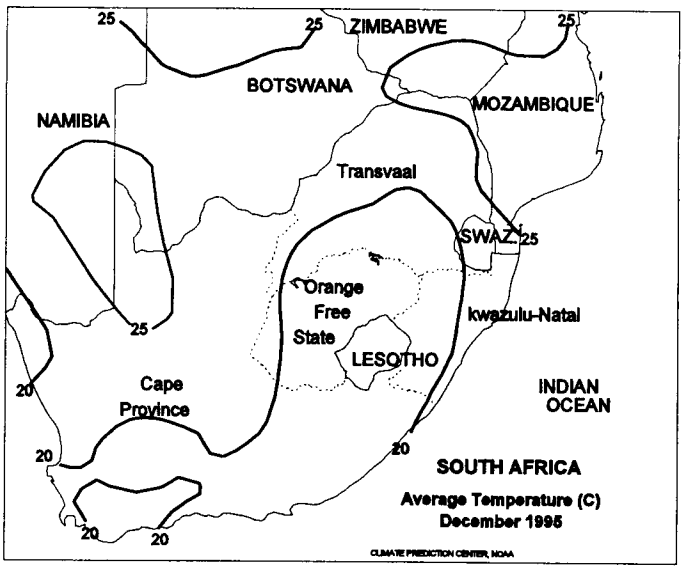


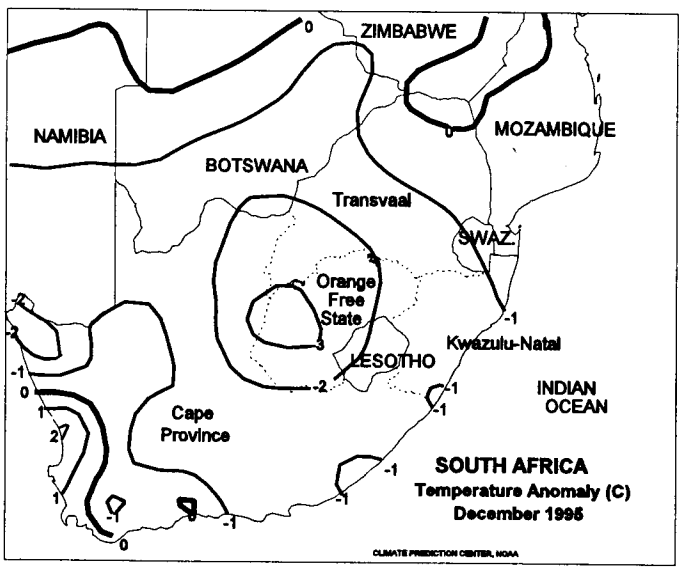
SOUTH AFRICA

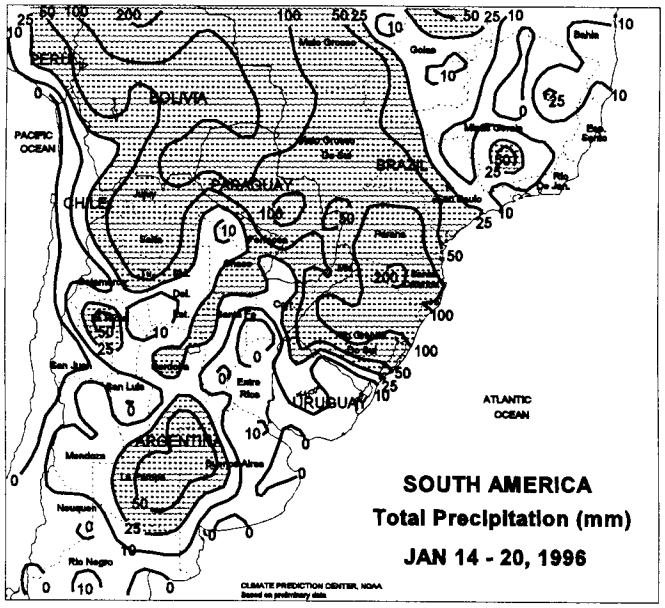
Beneficial rain (16-47 mm) swept across the western corn belt, improving prospects for corn in or nearing reproduction following a 3-week dry spell. In southwestern Orange Free State, the rain ended a heat-wave that caused some crop stress. In the east, scattered, locally heavy showers (10-25 mm, locally exceeding 50 mm) maintained adequate to excessive moisture for corn development. Moderate rain (20-45 mm) kept sugarcane in Kwazulu-Natal well watered. In December, rainfall was above normal throughout South Africa. In the western corn belt, heaviest rain occurred early in the month and was timely for germination and establishment. Monthly rainfall totaled 100 to 200 mm, and temperatures were 2 to 3 degrees C below-normal. In the east, inundating rain the latter half of December resulted in some flooding near Johannesburg, as well as in the coastal sugarcane areas. Rainfall in the east totaled 200 to 400 mm, making it one of the wettest Decembers on record.





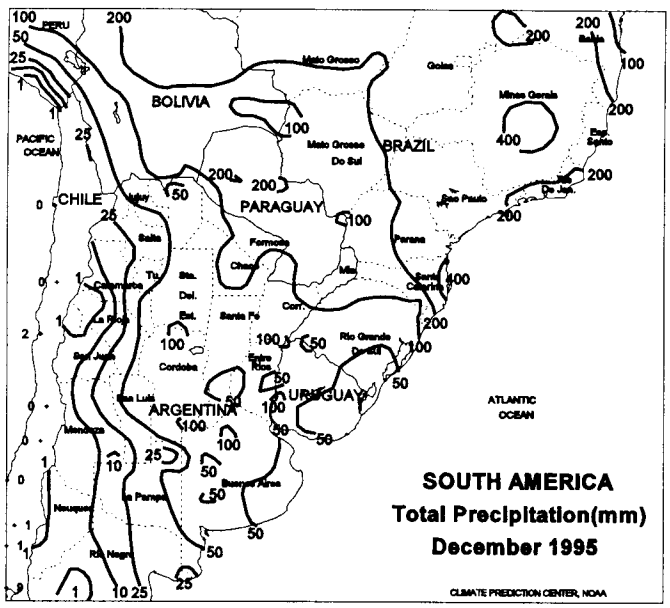


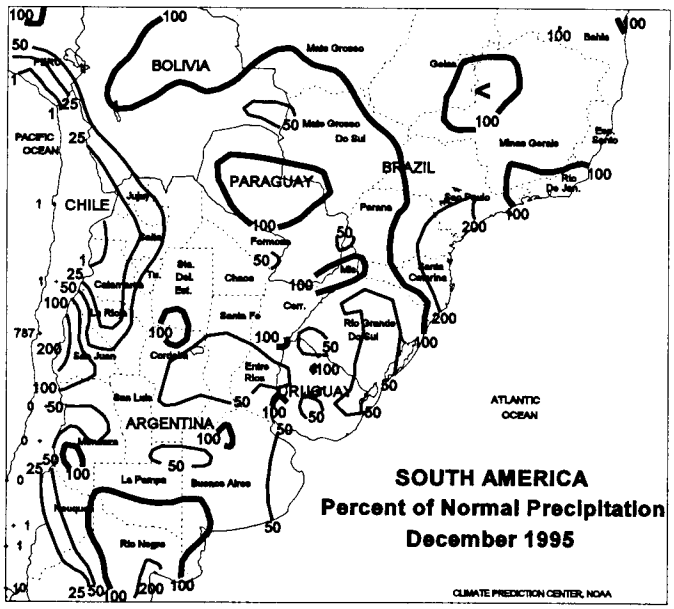


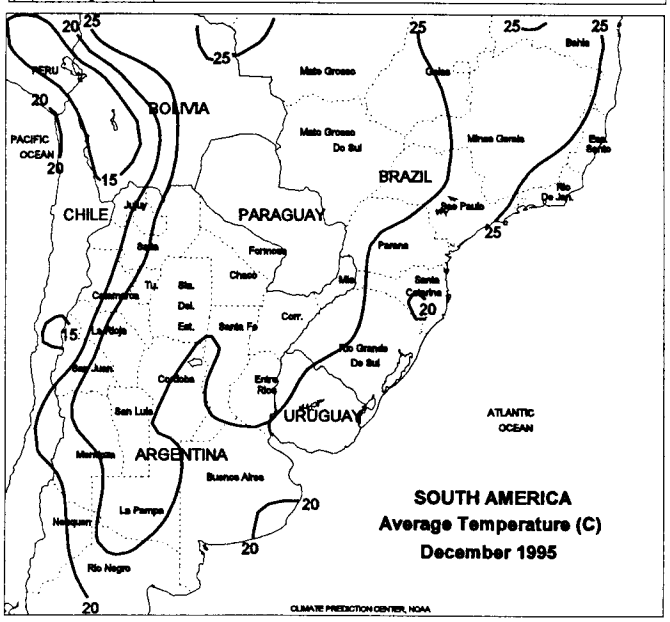


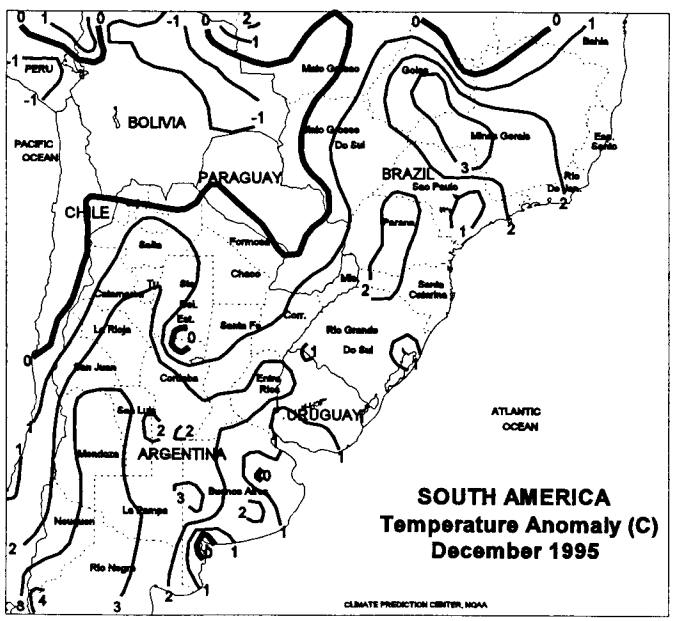
SOUTH AMERICA

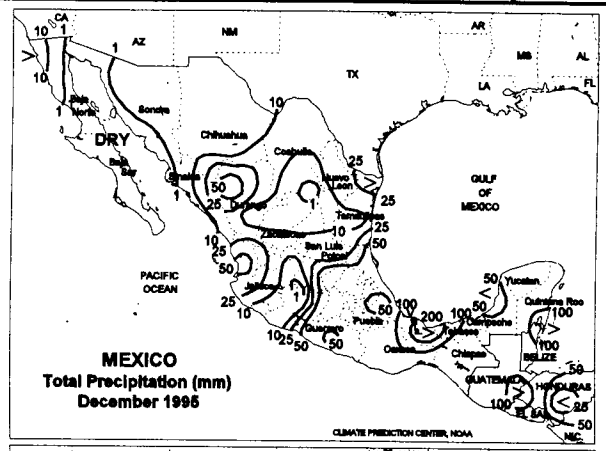
In southern Brazil, timely widespread showers (90-140 mm) substantially increased soil moisture in the main soybean-growing areas of Rio Grande do Sul, Santa Catarina, and Parana. The showers favored germinating to early-reproductive soybeans. Growing-season rainfall had been inconsistent through December, causing about 50 percent of the soybean crop in Rio Grande do Sul to be planted late. Across Mato Grosso do Sul and Mato Grosso, moderate showers (25-90 mm) aided vegetative to early-reproductive soybeans. Drier, warmer weather (less than 25 mm; 1-3 degrees C above normal) favored coffee and citrus across northern Sao Paulo and southern Minas Gerais, which had been excessively wet. In central Argentina, moderate to heavy rain (30-75 mm) fell across southern Cordoba, northern La Pampa, and northwestern Buenos Aires, aiding filling corn and sorghum and vegetative soybeans. Lighter rain (less than 15 mm) was reported across southern Santa Fe and northern Buenos Aires. Temperatures averaged 2 to 4 degrees C below normal across the region, keeping crop water use low. Across northern Argentina and southern Paraguay, moderate rain (10-50 mm) aided cotton and soybeans. During December, mostly below-normal rainfall, along with above-normal temperatures, stressed soybeans and corn in extreme southern Brazil and central Argentina. Near- to above-normal rainfall maintained soil moisture for summer crops across the rest of southern Brazil.

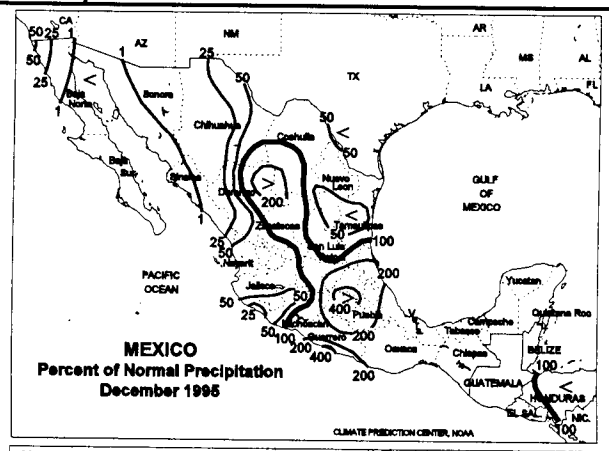


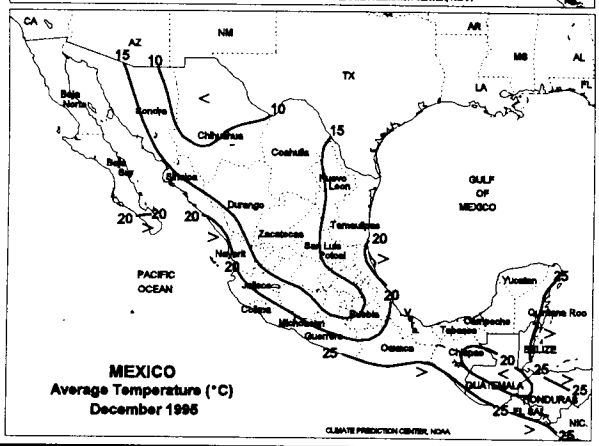


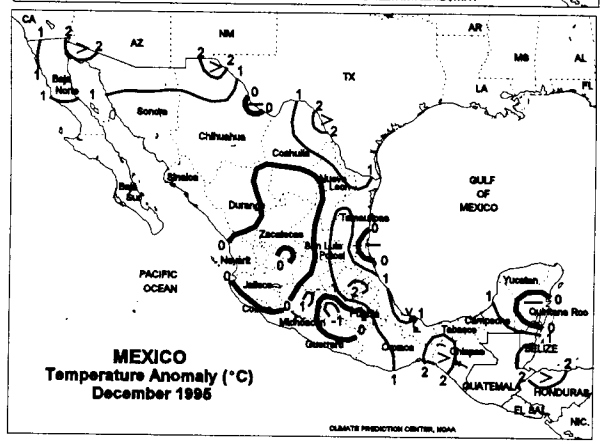












Rain Brings Relief to South American Crops

After spring dryness stressed summer crops in extreme southern Brazil and central Argentina, rain in January 1996 markedly improved growing conditions for crops across the region.

In southern Brazil, a spring drought (late October-mid December 1995) developed across Rio Grande do Sul, western Santa Catarina, and extreme southwestern Parana, stressing corn and soybeans (fig. 1). In Rio Grande do Sul, drought delayed soybean planting by mid-December, when about 50 percent of the crop remained to be planted. Therefore, there is a wide gap in soybean crop progress throughout Rio Grande do Sul. Also, several periods of hot weather (maximum temperatures 35-40 degrees C) prevailed during December, further reducing soil moisture and stressing crops. Rain finally brought some relief to the region during late December and early January, but most of Rio Grande do Sul received only light to moderate rain. However, during the week ending January 20 (the last week of data for figures 1 and 2), widespread heavy showers substantially increased soil moisture for summer crops in northwestern Rio Grande do Sul. These rains were especially timely, since soybeans typically advance through reproduction from mid-January to mid-February. Since corn enters reproduction earlier than soybeans, the rain likely stabilized yield potential, but may have come too late to improve crop prospects. Since a good portion of the soybeans were planted late in Rio Grande do Sul, any adverse weather later in the season (March) could still negatively affect immature soybeans.

In Argentina, unlike its northern neighbor, a full-fledged spring drought never developed, but rainfall was inconsistent throughout the main summer crop area (fig. 2). As figure 2 shows, the region received widespread rain about once a month since late September, but rainfall trended below the seasonal average. Also, portions of the main summer crop area did not receive significant rain for a couple of weeks at a time. This situation would cause more early-season stress than usual because of the severe winter drought (June - September 1995) across the region (WWCB, Vol. 82, No. 43, p 30). The rain became more consistent during early January, but periodic rain is still needed across the region. As in southern Brazil, the rain benefited vegetative soybeans more than reproductive to filling corn. Typically in Argentina, soybeans advance through reproduction during the month of February.

--Bob Stefanski

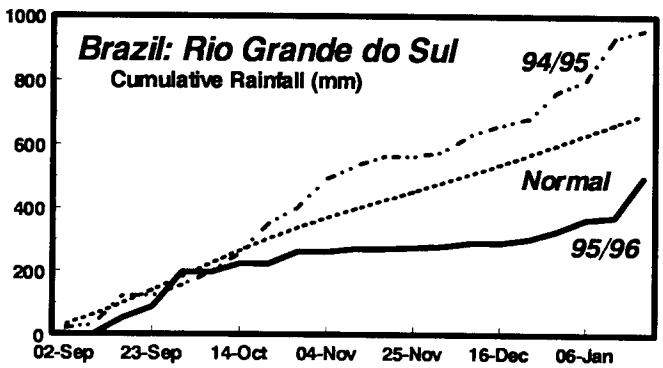


Fig. 1

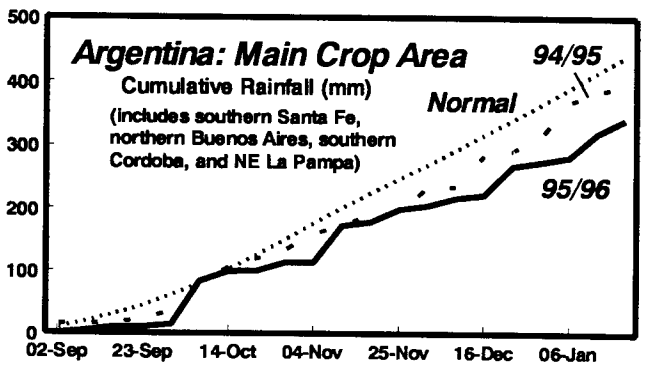


Fig. 2

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Selected Storm Highlights, January 17-20, 1996

All-Time Low Barometric Pressure:

Location	Amount/Date	Previous
El Paso, TX	29.22" on Jan. 17	29.24" (date not available)

January-Record Barometric Pressure:

Location	Amount/Date	Previous
Dodge City, KS	28.95" on Jan. 17	29.02" in Jan. 1877
Wichita, KS	29.04" on Jan. 17	29.09" in Jan. 1947
Dallas, TX	29.31" on Jan. 17	29.32" in Jan. 1969

January-Record Single-Day Snowfall:

Location	Amount/Date	Previous
Bismarck, ND	12.6" on Jan. 17	not available
S.L. City, UT	10.0" on Jan. 17	9.9" on Jan. 29, 1980

January-Record 24-Hour Rainfall:

Location	Amount/Date	Previous
Williamsport, PA	3.03" on Jan. 18-19	2.65" in Jan. 1905

East-West Temperature Contrasts:

Date	High Temp. / Location	Low Temp. / Location
Jan. 19	66°F in Massena, NY	-39°F in Bismarck, ND
Jan. 20	50°F in Caribou, ME	-50°F in Hibbing, MN

Total Snowfall and Peak Wind, Jan. 17-18:

Location	Snowfall	Dir. / Peak Gust
Fargo, ND	18.0"	NNW at 55 mph
Aberdeen, SD	9.2"	North at 61 mph
Rochester, MN	6.9"	North at 54 mph
Valentine, NE	4.5"	NW at 53 mph
Concordia, KS	3.8"	NW at 60 mph
Wichita, KS	1.2"	North at 59 mph
Amarillo, TX	1.0"	WSW at 54 mph
North Platte, NE	0.8"	NW at 64 mph
Sioux City, IA	0.5"	North at 63 mph
Dodge City, KS	Trace	NW at 66 mph

Coldest Since...

Location	Temp. / Date	Previous
Duluth, MN	-35°F on Jan. 20	-35°F on Jan. 30, 1994 -38°F on Jan. 17, 1982

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