

WEEKLY WEATHER AND CROP BULLETIN

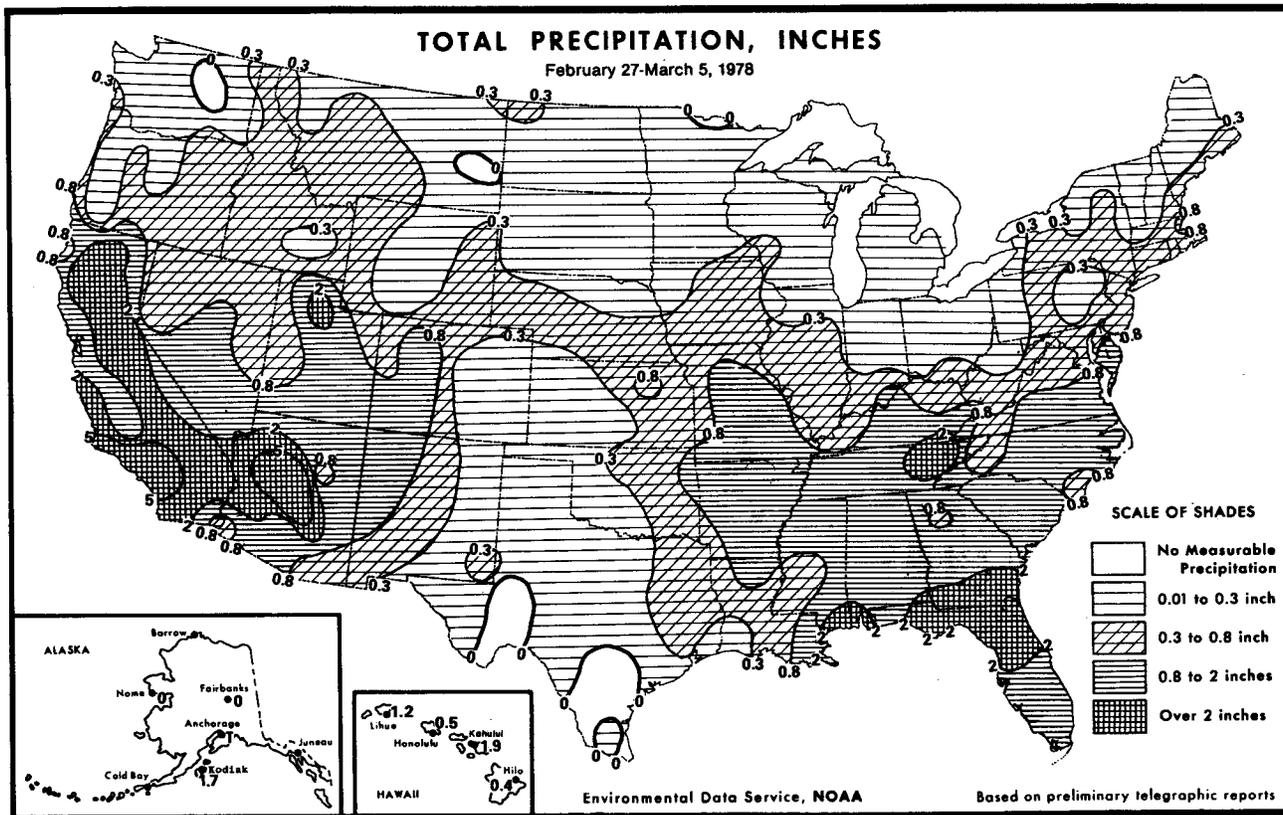
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National Weather Summary

February 27 - March 5

HIGHLIGHTS: Heavy rains drenched California and the southern Plateau Region; localized flooding and mud slides plagued the area. Moderate to heavy precipitation extended into the Colorado and New Mexico Rockies. Elsewhere sizable rain or snow covered Missouri, Arkansas, and Tennessee as well as from Florida to the middle Atlantic Coast. Again the Pacific Northwest remained relatively dry.

Temperatures were colder than normal in the Northwest and southwestward through the Rockies and then eastward to the Atlantic Coast. Readings were 20 to 25 degrees below normal in the northern Plains and 15 to 18 degrees colder than expected in the Midwest.

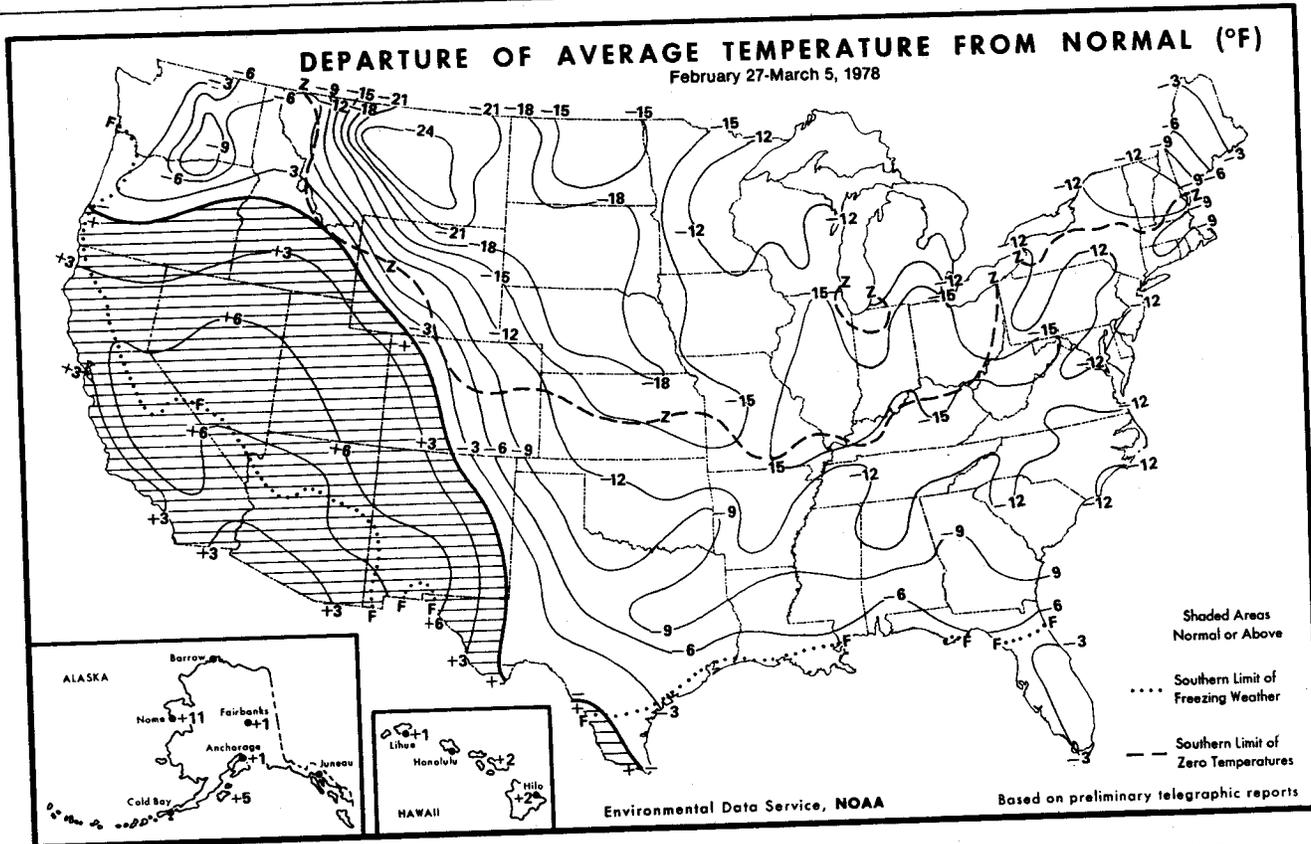
A stationary front triggered heavy snow in the west central Plains on Monday; a half-foot or more

covered sections of western Nebraska and eastern Wyoming. The snow spread further into the Nation's midsection reaching the middle Mississippi Valley by nightfall. Meantime, rain stretched from New Mexico to Louisiana; a half-inch dampened points in Oklahoma, Arkansas, Mississippi, and southern Missouri. Rain also fell over southern California into Arizona with reports of a half-inch at stations in both States.

February's parting shot brought snow from the center of the country to the Atlantic Coast on Tuesday. The heaviest amount, 5 inches, blanketed Chillicothe in north central Missouri. Florida was getting its share of rain---more than a half-inch moved into Jacksonville. Rain became heavy from California inland to Arizona and Nevada. More than one inch had fallen in Los Angeles.

For the first time in weeks, the temperature broke into the 90's; McAllen, Texas, reported 91°.

This has been a winter to remember for Little Rock, Ark. The season's average temperature registered a record 37.3°, undercutting the 1917/18 low mark. Additionally, Little Rock was blitzed by 20 days of snow, toppling the former



15-day record. Heading westward, Bakersfield, Calif., noted a new rainfall record for any month---ever; February propelled 4.67 in. into the city, breaking the old mark of 4.61 in.---and it was still raining on the last day of the month.

A low pressure system off the California coast continued to inundate the southern two-thirds of the Golden State with heavy rains on the first day of March. By nightfall, the precipitation reached into the Great Plains. Los Angeles measured nearly 4 inches by midmorning and Mount Wilson was awash in more than eight and one-half inches. Streams overflowed in Arizona where more than 3 inches fell on several points. Snow blanketed the Rockies; a foot covered southern Colorado and 5 inches hit Butte, Mont. Meantime light snowfall extended from the Midwest to the middle Atlantic Coast.

On the sunny side, Miami Beach set a record high temperature, 86°, topping the old mark by 3.

It was a record cold February for many stations, especially in the South. Shivering through their coldest February were Key West, Fla.; Birmingham, Ala.; Lake Charles, La.; Cape Hatteras, N.C.; Evansville, Ind.; and in West Virginia, Elkins and Charleston. The second coldest February was in the books in Meridian, Miss.; Augusta, Ga.; Concord, N.H.; Sioux City, Iowa; and in Missouri, St. Joseph and Kansas City.

North Platte, Nebr., established a record February snowfall, 20.6 in., beating the former amount by 5 inches.

The central U.S. reeled under the spell of a winter storm on Thursday. Bitterly cold air from the north teamed with a strong low pressure center over Oklahoma to trigger heavy snow from Missouri northward and heavy rain to the south. Kansas City notched 7 inches of snow and Topeka, 5 inches; Blytheville, in extreme northeastern Arkansas, chalked up over an inch of rain. At day's end,

the snow edged into the Atlantic Coast States where Charlotte, N.C., gathered 4 inches.

Heavy rain continued from the lower West Coast to the Plateau Region; 2 to 4 inches drenched points in Arizona. Localized flooding soaked Phoenix and Las Vegas.

Record low temperatures chilled a large area east of the Mississippi River. Among them, Detroit called in -4° and Cleveland 1°. The biggest departure was registered in Elkins, W.Va.; the -15° reading dipped 11 degrees from the 1960 record.

The eastward-moving low pressure system chugged into the Atlantic Coast States on Friday dumping snow from the Virginias to New England; Washington, D.C., and Philadelphia picked up 5 inches. A cold front trailing southward from the low, set off icing in the Carolinas and 10 tornadoes in Florida; Gainesville gathered 2 inches of rain and Miami was soaked by an inch and one-quarter. Heavy snow fell on the Colorado Rockies, but was lighter in the Midwest. A few showers still plagued California and the Southwest.

Cincinnati's winter has been the snowiest on record; 49.7 inches topped last year's high mark of 47.3.

Record temperatures for the day---in Nebraska, Lincoln, -7°, and Omaha's -4°; in Missouri, St. Joseph notched 0° and Kansas City had -4°.

Heavy rains blasted California and the southern Plateau Region again on Saturday adding to the saturated conditions. Flooding and mud slides devastated sections of the Golden State, Arizona, and Nevada. Several inches of rain fell on many areas; more than 14 inches over a 3-day period inundated the mountains northwest of Santa Barbara and, in Las Vegas, up to 5 feet of water stood on city streets. Snow fell in several areas from the Rockies to the East Coast.

(continued on page 8)



National Agricultural Summary

February 27 - March 5

HIGHLIGHTS: Subnormal temperatures held icily onto the Nation from the Rockies eastward and in parts of the Northwest. Although readings did moderate, temperatures remained low enough to keep most of the U. S. snow cover intact limiting fieldwork in northern areas. Soil temperatures in southern areas warmed very slowly limiting both the amount and kinds of crops farmers could plant. In the Southeast and Southwest corners of the Nation, rains saturated soils and also limited fieldwork. Crop planting pushed forward slowly where farmers found dry soils warmed to acceptable levels. Growers planted corn in the extreme southern States. Irish potato planting extended across the South and up the Pacific Coast States into Washington. Winter wheat headed in southern Arizona and California but lay dormant in northern areas. Pastures reacted slowly to the moderating, though subnormal temperatures. Cattle realized very little benefit from grasslands and needed heavy supplements of feed and hay to stay in condition.

SMALL GRAINS: Temperatures stimulated growth of southern winter wheat stands, but most major production areas stayed dormant, usually under a layer of snow. These snows protected northern stands from the cold and locked moisture in its whiteness although most snow-covered areas had ample soil moisture. The southern Great Plains needed additional moisture and warmer weather.

Kansas wheat rated good to excellent with a light snow on most of the crop; most stands were dormant. Oklahoma winter wheat rated fair to good and improving; insect activity was minimal. Texas wheat responded to warm temperatures but growth was limited. High and Low Plains stands received some precipitation but needed more. New Mexico dryland wheat rated fair and irrigated stands scored fair to good. Winter wheat from Nebraska northward through the Great Plains lay sheltered under snow. Snow also covered winter wheat in the eastern north central States.

In the Southeast, wheat rated only poor to fair but improved where temperatures warmed enough to permit growth. Farmers fertilized open fields which were either dry enough or not yet thawed. Overall the southern crop was not growing as it should for this time of year; higher temperatures could remedy the situation.

Mild temperatures and rain improved the California crop, however, flooding destroyed a few stands. Southern California stands headed. Washington and Oregon growers sprayed and fertilized wheat fields.

OTHER CROPS: Tobacco plant beds rated fair in Florida and fair to good in Georgia. A few South Carolina tobacco transplants were ready for removal from beds. Virginia producers fumigated and began planting the first beds. Tennessee tobacco bed preparation lagged.

Irish potato planting advanced across the South. Alabama growers planted 50%; Mississippi 24%, lagging 1977's 37%; Louisiana and North Carolina producers also were planting. Washington growers seeded potatoes where fields were dry.

Florida sugarcane harvest was almost finished. Young cane grew very slowly; Louisiana growers shaved sugarcane stubble.

Corn planting advanced in Florida, Mississippi, and Texas. Lone Star State growers planted less than 1%, but last year had reached 1% and normally attain 8%. Producers in California and Alabama harvested overwintered corn.

Texas farmers planted 1% of the grain sorghum, short of 1977's 3% and the 10% average. Cotton planting got underway on a limited scale in the lower Rio Grande Valley; normally 2% was planted in previous years. Arkansas and California growers destroyed overwintered crop residue.

FRUITS AND NUTS: Deciduous fruit growers pruned trees in the middle Atlantic States and the Pacific Northwest, fertilized orchards across the South, and sprayed and fertilized trees in Washington and Oregon. California almond trees passed peak bloom; desert grapes leafed out. Texas pecan trees were dormant. Peach trees along the Texas upper Gulf Coast began blooming and swelled in central areas.

Florida citrus groves rated excellent; higher temperatures were needed to stimulate new growth and bloom buds. Only a little new growth was observed on cold-damaged twigs. Texas growers harvested Valencias and grapefruit as the bloom period approached. Arizona citrus harvest progressed as field conditions allowed. California grapefruit, lemon, and orange harvests advanced slowly under adverse weather conditions.

VEGETABLES: Higher temperatures moved into Florida vegetable growing areas; frost-damaged plants displayed new growth while fruit set improved. Shipments increased 9% from the previous week. Volume held steady or increased; only chinese cabbage, eggplant, escarole, lettuce, and radishes decreased. Watermelon condition ranged from poor to good and recovering from frost damage. Oldest plants sent out runners. Texas growers harvested cabbage, carrots, broccoli, cauliflower, spinach, onions, and lettuce and planted spring crops including watermelons. Arizona rains temporarily delayed vegetable planting and harvesting. Crops planted before or between the rains grew well. California producers picked asparagus, lettuce, and strawberries. Rains curtailed both planting and harvests.

PASTURES AND LIVESTOCK: Subnormal temperatures held grassland growth to a minimum although southern pastures provided some forage. Cattle producers in northern areas fed heavy rations of both hay and grain to offset low readings. Standing water was a problem in low areas of Florida as low temperatures slowed growth. Oklahoma native pastures rated fair and improving. Texas winter grasses grew in response to warm weather; ranges need more sunshine to improve grazing significantly. Ranchers fed protein supplements and hay. Arizona ranges were the best in several years; stock water tanks were almost full. California ranges and pastures rated good. Cattle producers in the foothills supplied supplemental feeding. Calving and lambing continued with deaths of newborn above normal in coldest areas of the Nation.

Temperature and Precipitation Data for the Week Ending Midnight, L.a.t., March 5, 1978

States and Stations	Temperature °F		Precipitation Inches		States and Stations	Temperature °F		Precipitation Inches		States and Stations	Temperature °F		Precipitation Inches	
	Average	Departure	Total	Departure		Average	Departure	Total	Departure		Average	Departure	Total	Departure
ALA. Birmingham . . .	38	-12	1.5	+ .1	LA. Baton Rouge . . .	50	- 6	.5	- .7	Youngstown . . .	17	-13	.2	- .4
ALA. Mobile . . .	50	- 6	2.5	+ 1.0	LA. Lake Charles . . .	52	- 5	.2	- .8	OKLA. Okla. City . . .	34	-10	.2	- .2
ALA. Montgomery . . .	46	- 7	1.2	- .1	LA. New Orleans . . .	53	- 5	1.1	- .2	OKLA. Tulsa . . .	31	-13	.7	+ .2
ALASKA. Anchorage . . .	21	+ 1	T	- .2	MAINE. Shreveport . . .	44	- 9	.5	- .4	OREG. Astoria . . .	42	- 2	.5	- 1.2
ALASKA. Barrow . . .	4	+ 1	0	- .1	MAINE. Caribou . . .	15	- 3	.1	- .4	OREG. Burns . . .	35	+ 1	.3	+ .1
ALASKA. Fairbanks . . .	4	+ 1	0	- .1	MAINE. Portland . . .	18	- 9	.3	- .5	OREG. Medford . . .	45	+ 2	.3	- .1
ALASKA. Juneau . . .	36	+ 5	1.7	+ .7	MD. Baltimore . . .	28	-10	.5	- .3	OREG. Pendleton . . .	32	-10	.4	+ .1
ALASKA. Kodiak . . .	16	+11	0	- .2	MASS. Boston . . .	25	- 9	.8	- .1	OREG. Portland . . .	42	- 2	.2	- .7
ALASKA. Nome . . .	16	+11	0	- .2	MASS. Chatham . . .	27	- 9	.6	- .1	OREG. Salem . . .	43	- 1	.1	- 1.0
ARIZ. Flagstaff . . .	37	+ 5	5.0	+ 4.6	MICH. Alpena . . .	14	- 7	.1	- .3	PA. Allentown . . .	23	-10	.4	- .4
ARIZ. Phoenix . . .	62	+ 5	1.8	+ 1.5	MICH. Detroit . . .	18	-12	.1	- .4	PA. Erie . . .	16	-12	.1	- .5
ARIZ. Tucson . . .	58	+ 3	.7	+ .6	MICH. Flint . . .	15	-12	T	- .4	PA. Harrisburg . . .	23	-13	.3	- .4
ARIZ. Winslow . . .	48	+ 6	.7	+ .4	MICH. Grand Rapids . . .	17	-11	.1	- .3	PA. Philadelphia . . .	25	-12	.6	- .2
ARIZ. Yuma . . .	35	+ 2	.5	+ .4	MICH. Houghton Lake . . .	13	- 8	.1	- .3	PA. Pittsburgh . . .	22	-11	.2	- .5
ARK. Fort Smith . . .	35	- 9	.9	+ .1	MICH. Lansing . . .	13	-14	.1	- .4	PA. Scranton . . .	18	-13	.2	- .3
ARK. Little Rock . . .	33	-13	1.1	0	MICH. Marquette . . .	16	-17	.1	- .3	R.I. Providence . . .	21	-11	.4	- .5
CALIF. Bakersfield . . .	51	+ 6	1.0	+ .8	MICH. Muskegon . . .	18	-10	.1	- .4	R.I. S.C. Charleston . . .	43	-10	1.0	0
CALIF. Eureka . . .	52	+ 4	.5	- .7	MICH. S. Ste. Marie . . .	10	-19	.2	- .2	S.C. Columbia . . .	39	-11	.9	- .2
CALIF. Fresno . . .	59	+ 7	1.9	+ 1.5	MINN. Duluth . . .	- 7	-10	.1	- .2	S.C. Greenville . . .	35	-12	1.1	- .1
CALIF. Los Angeles . . .	59	0	8.5	+ 7.9	MINN. Internatl Falls . . .	- 2	-15	T	- .2	S.D. Aberdeen . . .	1	-19	.2	+ .1
CALIF. Red Bluff . . .	56	+ 4	4.2	+ 3.5	MINN. Minneapolis . . .	12	-10	.2	- .1	S.D. Huron . . .	4	-19	.1	- .1
CALIF. San Diego . . .	63	+ 5	2.7	+ 2.3	MINN. Rochester . . .	10	-11	.2	- .1	S.D. Rapid City . . .	10	-18	.3	+ .1
CALIF. San Francisco . . .	55	+ 3	1.9	+ 1.3	MINN. St. Cloud . . .	8	-11	.1	- .1	S.D. Sioux Falls . . .	8	-16	.2	- .1
CALIF. Stockton . . .	57	+ 6	2.2	+ 1.7	MISS. Jackson . . .	44	- 8	.4	- .9	TEX. Chattanooga . . .	36	-10	1.2	- .1
COLO. Denver . . .	28	- 6	.2	0	MISS. Meridian . . .	43	- 9	1.0	- .4	TEX. Knoxville . . .	37	-13	2.7	+ 1.5
COLO. Grand Junction . . .	42	+ 5	.7	+ .5	MO. Columbia . . .	22	-15	1.0	+ .5	TEX. Memphis . . .	33	-10	1.5	+ .4
COLO. Pueblo . . .	31	- 6	T	- .1	MO. Kansas City . . .	19	-18	.8	+ .4	TEX. Nashville . . .	32	-12	1.1	0
CONN. Bridgeport . . .	24	-10	.4	- .4	MO. St. Louis . . .	22	-16	.7	+ .1	TEX. Abilene . . .	45	- 7	.1	- .1
CONN. Hartford . . .	22	- 8	.6	- .2	MO. Springfield . . .	25	-15	.8	+ .2	TEX. Amarillo . . .	34	- 8	.1	0
CONN. D.C. Washington . . .	30	-10	.5	- .2	MONT. Billings . . .	6	-24	.4	+ .2	TEX. Austin . . .	55	- 2	T	- .8
FLA. Apalachicola . . .	53	- 5	2.0	+ .9	MONT. Glasgow . . .	- 4	-23	.1	0	TEX. Beaumont . . .	65	0	0	- .2
FLA. Daytona Beach . . .	57	- 4	2.1	+ 1.3	MONT. Great Falls . . .	3	-25	.4	+ .2	TEX. Brownsville . . .	60	- 2	T	- .3
FLA. Ft. Myers . . .	52	- 4	.9	+ .2	MONT. Havre . . .	- 1	-22	.1	0	TEX. Corpus Christi . . .	-	-	-	-
FLA. Jacksonville . . .	52	- 6	2.1	+ 1.2	MONT. Helena . . .	17	-11	.3	+ .2	TEX. Dallas . . .	58	- 1	T	- .2
FLA. Key West . . .	69	- 4	1.0	+ .6	MONT. Kalispell . . .	23	- 4	.2	0	TEX. Del Rio . . .	59	+ 8	.2	+ .1
FLA. Lakeland . . .	61	- 3	1.3	+ .5	MONT. Miles City . . .	4	-21	T	- .1	TEX. El Paso . . .	44	- 7	T	- .6
FLA. Miami . . .	69	0	1.4	+ 1.0	MONT. Missoula . . .	24	- 6	.2	+ .1	TEX. Fort Worth . . .	53	- 5	.1	- .5
FLA. Orlando . . .	63	0	1.4	+ .6	NEBR. Grand Island . . .	13	-18	.3	+ .1	TEX. Galveston . . .	53	- 5	.3	- .4
FLA. Tallahassee . . .	49	- 8	2.9	+ 1.5	NEBR. Lincoln . . .	13	-19	.4	+ .1	TEX. Lubbock . . .	42	- 3	.1	- .1
FLA. Tampa . . .	60	- 4	.9	0	NEBR. Norfolk . . .	12	-15	.2	0	TEX. Midland . . .	50	- 1	T	- .1
FLA. W. Palm Beach . . .	66	- 2	.9	+ .2	NEBR. N. Platte . . .	11	-19	.4	+ .3	TEX. San Angelo . . .	49	- 4	.1	0
GA. Atlanta . . .	38	- 9	.8	- .5	NEBR. Omaha . . .	14	-15	.4	+ .1	TEX. San Antonio . . .	55	- 2	T	- .4
GA. Augusta . . .	41	-10	.6	- .5	NEBR. Valentine . . .	7	-20	.1	0	TEX. Victoria . . .	56	- 3	T	- .5
GA. Macon . . .	44	- 9	1.0	- .2	NEV. Ely . . .	38	+ 8	.6	+ .4	TEX. Waco . . .	43	-11	.3	- .2
GA. Savannah . . .	45	-10	.9	0	NEV. Las Vegas . . .	56	+ 4	1.2	+ 1.5	TEX. Wichita Falls . . .	39	-10	.1	- .2
HAWAII. Hilo . . .	73	+ 2	.4	- 2.9	NEV. Reno . . .	44	+ 5	.7	+ .5	UTAH. Blanding . . .	40	+ 5	1.4	+ 1.2
HAWAII. Honolulu . . .	73	0	.5	- .2	NEV. Winnemucca . . .	41	+ 5	.4	+ .2	UTAH. Salt Lake City . . .	40	+ 4	2.2	+ 1.9
HAWAII. Kahului . . .	72	+ 1	1.9	+ 1.2	N.H. Concord . . .	13	-14	.3	- .4	VT. Burlington . . .	9	-14	.1	- .3
HAWAII. Lihue . . .	74	+ 1	1.2	+ .1	N.J. Atlantic City . . .	21	-14	.6	- .4	VA. Lynchburg . . .	29	-12	.9	+ .1
IDAHO. Boise . . .	41	+ 2	.7	+ .4	N.J. Trenton . . .	25	-12	.4	+ .5	VA. Norfolk . . .	32	-12	1.3	+ .5
IDAHO. Lewiston . . .	36	- 5	.3	+ .1	N.MEX. Albuquerque . . .	47	+ 4	.6	+ .5	VA. Richmond . . .	29	-13	.9	+ .1
IDAHO. Pocatello . . .	35	+ 3	.1	- .1	N.MEX. Roswell . . .	49	+ 3	.3	+ .2	VA. Roanoke . . .	29	-12	1.0	+ .2
ILL. Cairo . . .	28	-15	.7	- .3	N.Y. Albany . . .	18	-10	.2	- .4	WASH. Colville . . .	27	- 7	.1	- .2
ILL. Chicago . . .	18	-13	.2	- .3	N.Y. Binghamton . . .	14	-12	.4	- .2	WASH. Omak . . .	32	- 3	0	- .2
ILL. Moline . . .	17	-13	.3	- .1	N.Y. Buffalo . . .	15	-12	.3	- .3	WASH. Quillayute . . .	40	- 2	T	- 2.7
ILL. Peoria . . .	17	-15	.3	- .2	N.Y. New York . . .	26	-10	.3	- .4	WASH. Seattle-Tacoma . . .	43	0	.1	- .8
ILL. Rockford . . .	13	-15	.1	- .3	N.Y. Rochester . . .	17	-11	.4	- .2	WASH. Spokane . . .	30	- 5	.2	- .2
ILL. Springfield . . .	18	-16	.5	0	N.Y. Syracuse . . .	18	-10	.3	- .4	WASH. Walla Walla . . .	36	- 7	.3	0
IND. Evansville . . .	22	-17	.4	- .6	N.C. Asheville . . .	32	-10	.6	- .4	WASH. Yakima . . .	35	- 4	.1	0
IND. Ft. Wayne . . .	14	-17	.1	- .5	N.C. Charlotte . . .	36	-11	1.3	+ .2	W.Va. Beckley . . .	21	-14	.5	- .4
IND. Indianapolis . . .	20	-15	.2	- .5	N.C. Greensboro . . .	30	-13	1.0	+ .1	W.Va. Charleston . . .	25	-15	.5	- .4
IND. South Bend . . .	18	-12	.2	- .3	N.C. Hatteras . . .	37	-11	1.7	+ .7	W.Va. Huntington . . .	25	-14	.7	- .2
IOWA. Burlington . . .	18	-13	.4	0	N.C. Raleigh . . .	36	- 9	1.0	+ .2	W.Va. Parkersburg . . .	23	-15	.2	- .6
IOWA. Des Moines . . .	15	-13	.4	0	N.C. Wilmington . . .	39	-12	.7	- .3	WIS. Green Bay . . .	7	-15	.1	- .2
IOWA. Dubuque . . .	12	-14	.2	- .3	N.DAK. Bismarck . . .	4	-14	.1	0	WIS. La Crosse . . .	10	-15	.5	+ .2
IOWA. Sioux City . . .	11	-17	.2	- .1	N.DAK. Fargo . . .	1	-16	.2	+ .1	WIS. Madison . . .	12	-12	.1	- .2
KANS. Concordia . . .	19	-16	.3	0	N.DAK. Williston . . .	1	-20	.2	+ .1	WIS. Milwaukee . . .	13	-13	.2	- .2
KANS. Dodge City . . .	26	-11	.1	- .1	OHIO. Akron-Canton . . .	18	-13	.2	- .4	WYO. Casper . . .	19	- 9	.3	+ .2
KANS. Goodland . . .	21	-12	T	- .1	OHIO. Cincinnati . . .	19	-18	.2	- .7	WYO. Cheyenne . . .	20	-10	.5	+ .3
KANS. Topeka . . .	20	-17	.6	+ .3	OHIO. Cleveland . . .	19	-12	.1	- .5	WYO. Lander . . .	21	- 7	T	- .2
KANS. Wichita . . .	26	-13	.2	- .1	OHIO. Columbus . . .	19	-15	.2	- .5	WYO. Sheridan . . .	7	-21	.1	- .1
KY. Lexington . . .	23	-16	.4	- .6	OHIO. Dayton . . .	19	-15	.2	- .4	P.R. San Juan . . .	80	+ 4	.2	- .3
KY. Louisville . . .	25	-14	.9	- .2	OHIO. Toledo . . .	13	-18	.1	- .4					

Based on 1941-70 normals

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State Summaries of Weather and Agriculture

These summaries provide brief descriptions of crop and weather conditions important on a national scale. More detailed data are available in Weather and Crop Bulletins published each Monday by ESCS State offices in cooperation with the National Weather Service.

ALABAMA: Rain and cold. Temperatures 10° below normal. Rainfall ranged from 1.00 to 2.50 in.

Fieldwork made limited progress. Some cotton and soybean fields harvested. Small grains made little growth. Major farm activity: Care and feeding of livestock and poultry. Planting spring Irish potatoes about 50% complete. Livestock producers continued to feed large amounts of hay.

ARIZONA: Rain 2.00 to 10.00 in. over large areas. Snow mostly over 7,000 ft. Light amounts fell southwest basin to southeast valleys. Mild temperatures prevailed.

Rain and muddy fields; flooding many areas. Field crops planted prior to January rains making excellent progress. Prospects for spring, summer irrigation supply excellent. Field operations most late spring, early summer harvested crops temporarily delayed. Rain, muddy fields slowed or stopped all vegetable harvesting. Planting some melons for early summer harvest delayed; fields planted between storms growing well. Citrus harvest progressed as field conditions allowed. Range conditions appear best in several years; stock water tanks virtually all full, soil moisture condition good. Cattle, calves, sheep, lambs generally good condition.

ARKANSAS: Precipitation mostly early week; drying out last two days. Amounts averaged 1.35 in. ranged, 1.88 to 0.92 in. temperature very cold; 18 to 11° below normal. Extremes: 57 and 5°. Record cold temperatures broken.

Cattle herds remain on full feed. Hay supplies being depleted. Virtually no nitrogen applications. Limited stalk destruction. No small grain growth.

CALIFORNIA: Precipitation over 2.00 in. common in Sacramento Valley, along south coastal areas and in mountains. Temperatures slightly above normal.

Established crops benefited from mild temperatures, rainfall. Green chopping alfalfa, oats for dairy stock. Some small grain acreage lost to flooding; heading out in south. Overwintered corn harvested. Cotton fields complying for plowdown. Sugarbeets planted. Almonds past full bloom. Grapefruit, lemon and orange harvests slow. Desert grapes leafing out. Planting, harvesting again curtailed by rain. Delayed planting causing growers to consider alternate crops. Asparagus cutting started delta, Salinas. Lettuce decreasing Imperial Valley, increasing Palo Verde Valley. Picking strawberries curtailed by rain. Range, pasture good. Supplemental feeding continues foothill areas. Calving continues. Lambing nearing end.

COLORADO: Heavy precipitation in mountains and western slope. Snowfall in mountains 8 to 16 in. 1st. Strong arctic air over eastern plains 2d produced light precipitation. Temperatures 7° above normal San Luis Valley; 3 to 8° above normal western slope; 1 to 4° above normal mountains; 3 to 7° below normal eastern plains; 10° below normal extreme northeast.

FLORIDA: Heavy rain on 3d. Mild temperatures ended with readings dipping well below normal. Rainfall generally ranged between 1.00 and 2.50 in.

Soil moisture adequate south, mostly excessive all other areas. Fieldwork limited by wet soils. Corn planting underway but only small acreage

planted. Tobacco plant beds fair condition. Small grains improving. Sugarcane harvest nearing completion. Young cane growing very slowly. Continued cold weather hampered pasture growth. Considerable standing water low areas. Cattle condition variable, poor to good. Marketings active. Citrus grove condition excellent; trees waiting for warm weather to stimulate new growth, bloom buds. Moisture adequate to surplus, little new growth on cold damaged twigs. Harvest continues active on early and mid-season oranges. Warmer weather moved into vegetable growing areas. Frost-damaged plants now putting on new growth. Fruit set, quality, packout improving. Spot replanting active. Overall shipments increased 9% from previous week. Volume steady to increased, most crops, including cabbage, carrots, celery, strawberries, peppers, potatoes, tomatoes. Snap beans, sweet corn, cucumbers, okra, squash held steady. Shipments chinese cabbage, eggplant, escarole, lettuce, radishes decreased. Watermelon crop poor to good. Most plants showing good recovery from frost damage. Replanting, spot resetting about complete. Oldest plants showing runners. Seeding underway north central area. Spring potato plantings Hastings area nearing completion.

GEORGIA: Temperatures 3 to 6° below normal. Averages ranged from 36° extreme north to 54° extreme south. Colder first of week. Rain fell last half of week. Amounts ranged from 0.75 in. north to 1.50 in. extreme south. Some freezing rain, sleet and snow north on 2d. Dry 4th and 5th.

Soil moisture adequate to excessive. Farm activities fairly active. Land preparation behind normal southwest, central and east, not yet begun in north. Small grain poor to fair north, fair to good elsewhere. Tobacco plants in fair to good condition. Pastures poor north, fair elsewhere. Cattle fair condition.

HAWAII: First good rains in several months 28th and 1st all islands brought relief to dry areas Kona, Kau Island Hawaii, some parts of Maui.

Rain beneficial to sugarcane, orchards, pastures and generally vegetables. Vegetable supplies: Cucumbers, sweetpotatoes light, others adequate. Banana supplies light. Papaya supplies moderate. Pineapple harvesting light. More sugar mills grinding.

IDAHO: Temperatures above normal first of week, near normal by weekend. Temperatures 1 to 5° below normal north and 1 to 5° above normal south. Precipitation varied with north generally receiving largest amounts. South, precipitation ranged from trace to 0.30 in.

Activity slow and centered on marketing and getting ready for spring. Lambing nearing completion. Calving continuing at normal pace. Livestock good condition with adequate feed supplies.

ILLINOIS: Temperatures 13 to 17° below normal. Minimum temperatures below zero at weekend. Precipitation 0.25 to 0.75 in. Snowfall 3 to 5 in. 2d, heaviest south. Central areas 3 to 5 in. snow 27th, 28th.

Winter wheat mostly good; snow covered. Livestock condition good, minor calf and pig losses. Feed consumption up; slow gains. Soil moisture adequate to surplus.

INDIANA: Cold; temperatures 13° below normal and ranged from -6 to 39°. Precipitation ranged from 0.08 to 0.84 in.; heaviest south. Snow cover 3 in. south to 15 in. near Lake Michigan.

Fieldwork almost nil. Activities: Moving grain, some manure hauling, caring for livestock, and chores.

IOWA: Temperatures 15° subnormal. Moderate to light precipitation mostly on 2d and 3d as snow. Snow cover varies between 4 in. and 14 in. with water equivalents mostly between 1.00 and 3.00 in. Greater water contents mostly in northeast. Frost penetration varies from around 36 in. some south and east localities to 60 to 84 in. deep in north-west.

KANSAS: Precipitation ranged from trace in south-west; 0.25 to 0.50 in. central and 0.50 to 0.75 in. northeast. Heavy snows 4 to 8 in. northeast and north central. Freezing rain or drizzle elsewhere at midweek. Temperatures averaged 20° north central to 28° southeast or 10 to 15° below normal.

Oat seeding 0%, last year 30%, normal 15%. Barley seeding 0%, 35% last year, 10% normal. Wheat condition good to excellent. Light snow cover on most wheat; crop still dormant. Topsoil moisture supplies adequate. Subsoil moisture short west. Death loss new born livestock high. Heavy supplemental feeding needed.

KENTUCKY: Precipitation mainly snow 28th and 2d. Heaviest accumulation 2d with 2 to 6 in. Fair and cold by end of week. Temperatures averaged some 10 to 15° below normal.

Cold plus snow cover necessitated heavy supplemental feeding livestock. Only Lexington burley market remains open.

LOUISIANA: Temperatures 5 to 11° below normal. Extremes: 19 and 80°. Showers 2d and 3d.

Land preparation, fertilizing pastures. Fieldwork: 2.7 days favorable. Soil moisture adequate northeast, surplus elsewhere. Shaving sugarcane stubble. Irish potato planting active. Strawberries 10 days to two weeks late. Small grains poor to fair condition. Pastures poor. Cattle fair.

MARYLAND & DELAWARE: Temperatures 10° below normal. Highs in 30's, lows in 20's. Western areas colder. Precipitation light, 0.50 to 1.00 in. rain. Snow on 3d. Weekend sunny, windy, cold. Farmers limited to inside work.

MICHIGAN: Temperatures 10 to 14° below normal over southern Lower and 7 to 9° below normal elsewhere. Coldest temperatures midweek with lows ranging from -22° northwest Upper to -4° over parts of southern Lower. Precipitation light and mainly confined to snow flurries. Snow depths average 9 in. over southern Lower, 18 in. over northern Lower and 22 in. over Upper.

Farm activities primarily feeding of livestock and farm chores.

MINNESOTA: Temperatures 10 to 19° below normal. Extremes: 29 and -22°. Precipitation near normal except 0.20 to 0.27 in. below normal extreme north central and northeast. Precipitation totals less than 0.10 in. north central and northeast and 0.10 to 0.25 in. elsewhere except 0.25 to 0.45 in. extreme southeast. Snow up to 1 in. north central and northeast and 2 to 5 in. elsewhere. Snow depth 6 to 10 in. central and 10 to 15 in. elsewhere except locally 15 to 25 in. north central and northeast.

MISSISSIPPI: Temperatures 4 to 10° below normal. Extremes: 19 and 75°.

Soil moisture surplus to adequate. Fieldwork: 1.8 days suitable. Acreage plowed 15%, 38% 1977, 23% average. Irish potatoes 24% planted, 37% 1977. Corn planting just started. Winter wheat and oats in poor to fair condition.

MISSOURI: Temperatures 15° below normal. Snowfall heaviest in north and central sections with 4 to 8 in., less elsewhere. Water equivalent 0.75 to more than 1.00 in.

Topsoil moisture adequate to surplus. Condition of winter wheat mostly fair. Supply of hay and other roughages mostly adequate. Hog and cattle losses due to unfavorable weather normal to moderate. General condition of livestock mostly fair.

MONTANA: Cold; temperatures 10° lower than normal west and southwest and 25° below normal elsewhere. Coldest midweek with warming by weekend. Snow early week with scattered showers late week. Precipitation above normal through most of west and central.

Livestock fair to good. Calving and lambing active. Continuing problems with deep snow and feeding. Death losses normal to slightly above.

NEBRASKA: Temperatures 15 to 20° below normal. Precipitation ranged from 1 to 2 in. snow north-west to 8 to 10 in. snow southeast.

Winter wheat condition good. Snow cover adequate. Calving losses above normal due to extreme cold. Supplemental feeding necessary all sections. Hay supplies average or above.

NEVADA: Precipitation all areas with most south and central. Temperatures warm enough to keep most precipitation as rain, except mountain elevations above 7,000 feet. Temperatures 3 to 6° above normal. Extremes: 20's to low 70's.

Livestock wintering well. Stormy weather unfavorable for calving and lambing.

NEW ENGLAND: Snow 2 to 9 in. over southern areas. Temperatures unseasonably cold; 3 to 12° below normal.

NEW JERSEY: Temperatures 14° below normal. Extremes: -5 and 38°. Rainfall 0.40 in. north, 0.48 in. central, and 0.61 in. south.

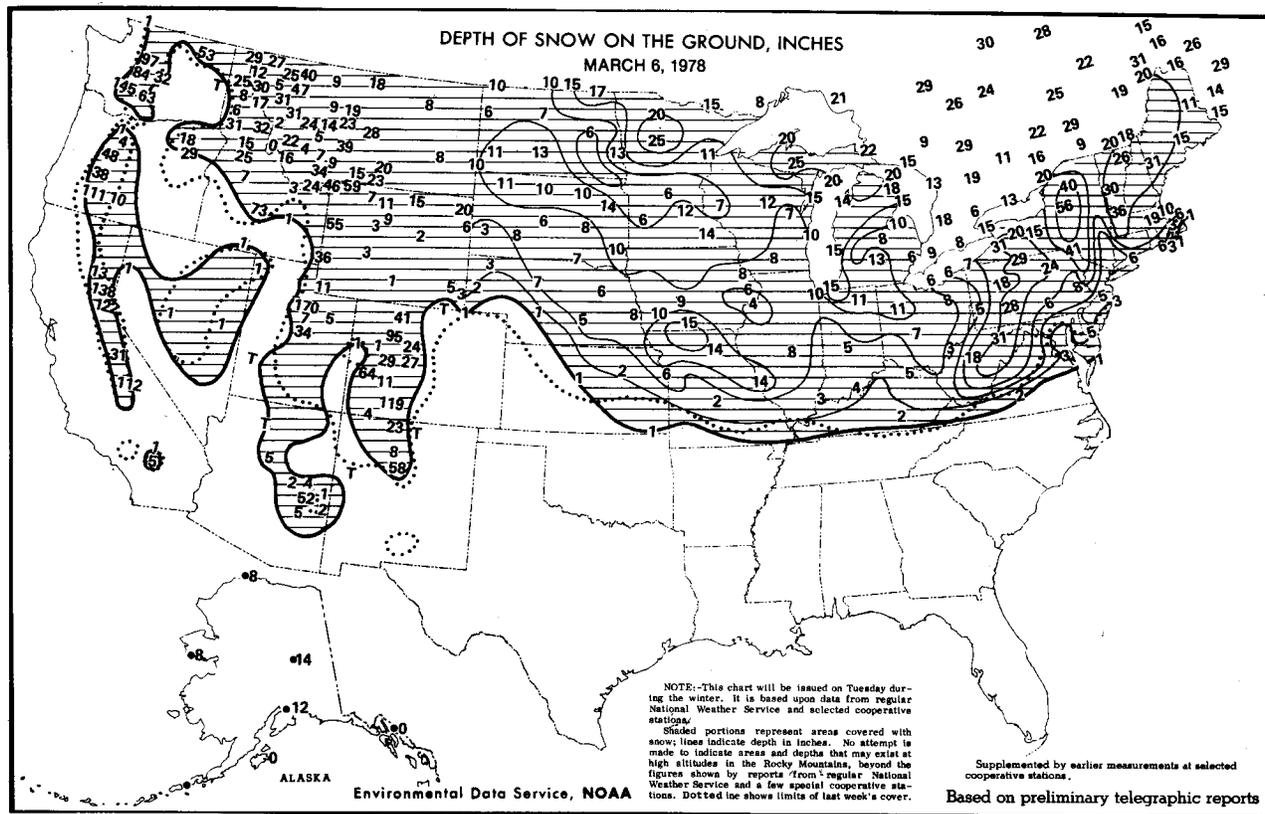
Snow covered fields and freezing temperatures limited early fieldwork. Activities limited to tending livestock and caring for early greenhouse vegetable plants. Early planting of hardy vegetables expected as soon as soils dry.

NEW MEXICO: Rain and snow south and west early week spreading statewide and continuing through 4th. Total 1 to 2 in. most of west and central highlands.

Irrigated winter wheat fair to good condition with moderate to heavy grazing. Dryland winter wheat fair condition with light grazing. Irrigated winter barley fair to good condition with moderate to heavy grazing. Ranges fair to good with supplemental feeding increasing. Livestock good with calving, lambing, and shearing continuing.

NEW YORK: Temperatures nearly 10° below normal. Precipitation generally light despite 3 to 6 in. snow 3d. Wind gusts to 40 mph or higher common. Unusually heavy snow pack remains Upstate.

NORTH CAROLINA: Temperatures 10° below normal. Precipitation moderate to heavy.



Fieldwork: 2 days suitable. Soil moisture adequate to mostly surplus. Condition of small grains, tobacco beds, Irish potatoes fair; pastures poor to fair. Supplies of hay, roughage, and feed grains short to adequate. Plantings of Irish potatoes just underway.

NORTH DAKOTA: Stormy weather deposited 1 to 3 in. new snow. Temperatures continued cold; 12 to 18° below normal. Extremes: -24 and 31°. Equivalent precipitation averaged over 0.33 in. northwest and 0.10 in. elsewhere.

Farm activities slow. Calving and lambing underway. Winter conditions stressed cows and ewes. Flooding a big concern; large snow accumulations to melt.

OHIO: Below normal temperatures ranging from -5° north to 30° south. Snow flurries north each day. Heavier precipitation south. Ranges: 0.06 in. northeast to 0.68 in. southeast.

Farmers hauling manure on frozen fields. Maple syrup producers concerned over late spring. Distribution of hay difficult as some hay barns still inaccessible to road vehicles. Calving and lambing gaining momentum. Sheep shearing underway.

OKLAHOMA: Temperatures 9° below normal southeast and southwest to 14° below normal north central and northeast. Precipitation ranged from 0.01 Panhandle to 0.84 in. northeast.

Topsail and subsoil moisture supplies adequate. Winter wheat condition improving, now rated fair to good. Insect activity minimal at present. Some plans to fertilize wheat as soon as soils dry sufficiently. Livestock fair to good condition. Spring calving proceeding normally. Native pastures and ranges improved but still rated fair.

OREGON: Precipitation relatively light. Coastal areas received from 1.00 to 1.50 in. Along northern border precipitation ranged from 0.50 to 0.74 in. Elsewhere amounts generally less than 0.25 in.

Temperatures near seasonal normal. Extremes: low 60's, upper 20's west; low 50's, low teens east.

Farm activities light. Spraying and fertilizing grain fields as weather permits. Spring land preparation also starting. Orchard work continuing. Sprays applied to fruits and berries. Training berries continues. Livestock feeding continues. Feed supplies adequate.

PENNSYLVANIA: Cold and mostly dry. Temperatures 15° below normal. Extremes: 37 and -8°. Light snow or flurries during week; heavier snow 3d over southeast. Snow cover increased slightly. Snow measures 2 to 3 ft. northern and central mountains and 3 to 18 in. elsewhere.

Farmers doing normal winter chores.

PUERTO RICO: Island rainfall 0.51 in. or 0.07 in. below normal. Temperatures 78° on coasts and 72° interior. Extremes: 93 and 54°.

SOUTH CAROLINA: Temperatures above normal 26th, then considerably below rest of week. Several inches snow in higher northwest elevations 2d, less in foothills. Extremes: 67 and 18°.

Few tobacco plants ready to transplant. Other activities included preparing land for spring planting; incorporating pre-plant herbicides; fertilizing pastures, small grains, apple, peach trees.

SOUTH DAKOTA: Temperatures 15 to 20° below normal. Only extreme west had above 32° readings. Extremes: -27 and 41°. Light snow widespread. Heaviest

amounts of 0.25 in. east central and southeast. Most of northwest only trace.

TENNESSEE: Rain or snow fell each day. Heavy rains 2d. Amounts ranged from 0.50 in. east to over 1.50 in. west. Fair weather prevailed by weekend. Average temperatures 10 to 15° below normal. Highs averaged upper 30's to low 40's with lows averaging low 20's to near 30°.

Preparation of tobacco beds behind schedule. Equipment ready for spring plowing when weather permits. Other activities include care of livestock and general farm chores.

TEXAS: Temperatures 2 to 4° below normal except Trans-Pecos, Edwards Plateau, lower Valley above normal. Rainfall below normal except Trans-Pecos normal. Soil temperatures 60's south; 60's, low 70's in lower Rio Grande Valley.

Land preparations, fertilizer applications more active northern areas. Sorghum growers from Lower Blacklands southward beginning to plant. Corn planting underway as far north as lower Blacklands, but less than 1% planted. South growers need moisture for planting. Cotton planting just beginning in lower Rio Grande Valley, Coastal Bend. Wheat fields responded to warmer temperatures early week, but growth limited; warmer weather needed. Stands on High, Low Plains received additional moisture, but more needed. Oat stands making limited to fair growth in response to recent moisture, warmer temperatures. Fields Edwards Plateau, South need more moisture; warmer temperatures needed. Flax growth slowed by continued cool weather, lack of moisture. Some South fields beginning to bud. Sugarcane harvest active lower Valley. Sorghum planted 1%, 3% 1977, 10% average. Cotton planted 0%, 0% 1977, 2% average. Corn planted 0%, 1% 1977, 8% average.

Harvest of Valencias and grapefruit continues as bloom period approaches. Cabbage, carrot, broccoli, lettuce, cauliflower, spinach, onion harvests active. Planting spring crops continues. Earlier planted watermelon fields sprouted, planting continues. Pecan trees remain dormant. Peach trees along upper Gulf Coast began blooming. Trees in South continue blooming. Buds swelling in central Texas, no activity north.

Winter grasses, weeds began to grow with warmer temperatures early week. More sunshine needed before grazing conditions improve significantly. Ranchers feeding protein supplements, hay. Livestock condition generally fair; some shrinkage in underfed herds. Sheep, goat shearing progressing.

UTAH: Rain in valleys and snow in mountains. Accumulated moisture moderate to heavy. Temperatures 1 to 2° below normal to 1 to 10° above. Topsoil moisture adequate; subsoil dry south and east.

(continued from page 2)

Frigid temperatures put the center of the Nation into a deep freeze; record low readings chilled 18 cities from the Plains to the Appalachians. Setting their lowest temperatures ever for the month of March were Topeka, -7°, Kansas City, -9°, and St. Joseph's -13°. In northeastern Kansas, Frankfort carried on at -25°. Lansing, Mich., at -13°, dipped 15 degrees below its old mark.

Sunday's bizarre weather picture included an unusual tornado in southern California, more than 2 dozen record low temperatures, a snow cover record, winter lingering in Florida, and a sign of spring in the southern Plains.

Farm activities slowed due to rain and mud. Livestock on ranges in good condition. Some spring calving starting and some farm flock early lambing. Corrals and feedlots sloppy with rain and melting snow.

VIRGINIA: Temperatures in low 30's; 8° below normal. Extremes: 69 and 7°. Precipitation 0.75 in. occurring mostly as snow. Snow amounts varied from 1 to 2 in. east; 6 to 10 in. southwest.

Topsoil moisture adequate to surplus. Pastures, winter grains, grazing crops mostly fair; small grains brown in central areas. Flue-cured tobacco plant beds fumigated; a few seeded. Continued snow fall, cold hampering fieldwork, putting farmers about one week behind usual. Plowing, disking limited south central, southeast. Fieldwork: 0.7 days favorable. Livestock mostly good, feed and forage short, calves prepared for feeder sales. Other activities: Pruning fruit trees; fertilizing small grains.

WASHINGTON: West: Temperatures normal to a little below normal. Precipitation well above normal except in extreme northwest Olympic Peninsula.

Herbicide, fertilizer, and lime application occurring conditions permitting. Pastures showing limited growth. Calving and lambing continues.

East: Temperatures 2 to 4° below normal. Precipitation well above normal.

Seed bed preparation continues; wheat, mint, and potato planting beginning on dryer soils. Winter wheat, grapes, and fruit trees being fertilized. Fruit and grape buds hardy. Feed supplies adequate.

WEST VIRGINIA: Temperatures much below normal. Precipitation near normal northeast, below normal elsewhere. Extremes: 46 and -15°.

Ground covered by snow, limiting field activities. Hay supply becoming short. Grain and other supplies mostly adequate. Continued cool weather and muddy barn lots causing calf and lamb losses.

WISCONSIN: Temperatures below normal. Highs mostly 20's, lows near zero or below. Extremes: 32 and -22°. Light snow 27th; more general snow 2d, 1 to 2 in. statewide, up to 3 in. southeast. Snow of 1 to 3 in. near Lake Michigan 28th.

WYOMING: Temperatures below normal even though in 40's southeast and upper 30's elsewhere. Precipitation varied from 0 to 0.94 in. Precipitation above normal with exception of extreme northeast and central portions below normal. Snow deep many areas.

Heavy feeding necessary to maintain livestock condition. Some ranchers short of hay. Recent moisture in main wheat growing areas will give winter wheat good start later in season.

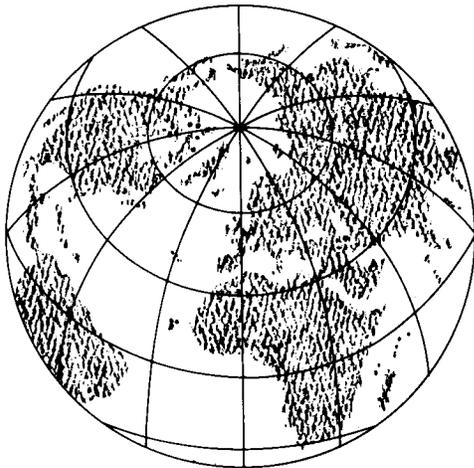
Rain persisted on the West Coast extending into the Southwest with snow in the higher elevations. Numerous funnel clouds whirled through lower California while a rare tornado touched down 40 miles north of Bakersfield.

The record low temperatures hit stations from Texas northeastward to the Midwest and all the way to the Atlantic Seaboard. A sampling showed Cincinnati's all-time March low of -4°; Baltimore's 11°, 9 degrees below the 1960 record; and in Florida, Key West shivered through its coldest afternoon when the high reached only 62°.

Des Moines, Iowa, had 77 consecutive days of snow cover, a record, and Oklahoma hopes spring isn't far behind after the first flock of geese was sighted flying north.

World Weather and Crop Update

February 27 - March 5



USSR. Temperatures moderated in the USSR and, by the weekend, were well above normal. Snow cover has melted in Moldavia, southern Ukraine, and most of the North Caucasus while winter grains have come out of dormancy in some areas. Fieldwork has begun in the more southerly areas--mainly top dressing of winter grains by airplanes. Asiatic USSR remains locked in winter with snow retention measurements the only field activity at this time of year.

ASIA. In the People's Republic of China, winter grains resumed vegetation over most of the northern

winter wheat belt. Precipitation was scanty north of the Yangtze River, but significant moisture fell in the south, especially in Kwangtung and Fukien provinces where preparations for the early rice crop were underway. Scattered light showers dotted India's northern wheat provinces, but precipitation was insignificant in the rest of the country.

AUSTRALIA. It was a generally dry week in Australia's principal grain areas except for light showers in Queensland. Normal tropical activity for this time of year produced heavy rains in the northern areas.

AFRICA. Most of the main agricultural areas of North Africa received some precipitation. Morocco recorded 15-30 mm over widespread portions; like amounts, but less extensive in area, fell over Algeria while Tunisia reported 5-20 mm with fairly general coverage. In South Africa, light to moderate showers dampened the maize triangle over the weekend.

EUROPE. Weather throughout most of the European sub-continent, including eastern Europe, featured mild temperatures and light precipitation. Heavy rains, however, drenched northern and central Spain, Mediterranean France, and northern Italy. Mild temperatures with little or no precipitation helped field activity in Greece and Turkey.

SOUTH AMERICA. Substantial rains throughout southern and southeastern Brazil have eased the drought situation. Rains arrived too late to aid early soybeans and upland rice, but could improve the conditions of late variety beans. Heavy rains drenched most of Brazil's northeastern states including the coastal areas which needed moisture. Early in the week heavy showers were widespread over Argentina's principal grain areas.

MEAN DATE OF LAST 32° (F) TEMPERATURE IN SPRING





SPEAKING OF SPRING

OUTLOOK FOR AGRICULTURE AND WEATHER

by

Richard E. Felch
Weather Analyst, USDADonald J. Haddock
Weekly Weather & Crop Bulletin Staff

The 1978 planting season is just around the corner for much of the Nation. Planting of a wide variety of crops has already begun in Florida and southern parts of Georgia, Texas, Arizona, and California. It will spread northward as soils warm and dry. Crop development and the speed planting progresses northward depend largely upon the weather this winter and spring. There is increasing concern about planting being later than normal because of wet soils and slow warming. A generous snow cover blankets the northern half of the country. While this cover has helped to reduce the depth of frost in protected areas the wet condition of the soil has produced a very heavy frost. It will likely take longer than normal for the ground to thaw. Soil temperatures are generally colder than normal all the way to the Gulf.

Because of heavy rains last fall and moisture this winter, soil moisture profiles from the eastern Great Plains to the Atlantic Coast are filled to capacity thus taking very little rainfall to keep growers out of the field. This is particularly serious because the wet fall prevented a great deal of fieldwork from being completed.

Available forecast information points to a colder than normal spring. Southern areas are expected to be wetter than normal in March although no definitive statement can be made about precipitation. The question posed---what is the likelihood of a relatively normal planting season this spring? The purpose of this article is to discuss in more detail what we know about the situation, and might expect in the coming weeks---first a review of the past winter.

November thru February Weather

Several conspicuous features stand out this winter. Uppermost is the major reversal from extreme drought to extreme wetness across most of the country. The only significant dry area remaining is the southwestern Great Plains and western Texas. Figure 1 shows the total rainfall for the period. Unseasonable warmth in the West gave a head start on this year's crops. Winter temperatures are averaging 3 to 7 degrees above normal. This pattern is indicative of an early spring as some fruit and nut trees are in full bloom or leafing out, and vegetable plantings increase.

East of the Rockies, frigid readings and general dampness have held since late last fall. Temperatures averaging 6 to 9 degrees below normal

for such a long period coupled with frequent rains and snows have greatly hampered agriculture. Livestock losses and, to a lesser extent those of crops, will be unknown until spring, but will probably be larger than normal. Supplemental feeding of animals and hauling milk to market has been a big problem in some northern areas because of the large amounts of snow and ice. Cold soils have kept planting behind schedule for the Gulf Coast as well as early crops and some spring grains in the central Plains.

Forecast Information

There is a need for warm, drying weather, particularly from the Plains eastward. Therefore the longer range weather outlook becomes very important.

March Weather Outlook. Below normal temperatures again are expected across large portions of the U.S. east of the Rockies during March. Near to slightly above normal conditions are anticipated along the Great Lakes east and north, including New England. The Southwest is expected to be above normal.

Large portions of the Nation can expect above normal precipitation, with the exception of the Upper Columbia and Snake River Basins south into all of Nevada and most of Utah. Much of the Dakotas east and south, including the Great Lakes and much of the Ohio River Drainage, New England, as well as southern Texas, should have less than normal moisture during March.

There are both positive and negative implications for agriculture if this forecast holds up. Cool, wet conditions over the dry portions of the southwestern Great Plains would reduce the demand for moisture as the wheat breaks dormancy, and would allow some buildup of soil moisture. Such conditions over the eastern Great Plains would maintain the current good condition of the crop. Dry, cold conditions over the Corn Belt may allow a more gradual snowmelt, reducing the likelihood of serious flooding and allow some ground drainage since frost depths are less than normal. On the other hand, cool, wet conditions over the south and southeast would further delay field preparations, since much of the area is already experiencing saturated soils. Planting and crop development in extreme southern areas may continue to lag behind schedule while those in western areas remain ahead, depending upon recent rains in California and Arizona.

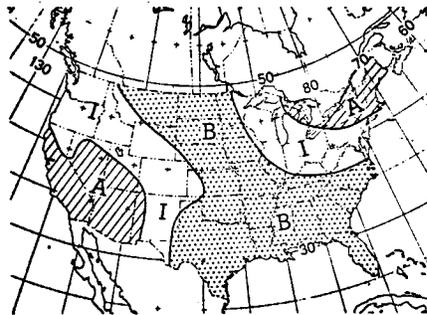
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Spring Temperature Outlook. Colder than normal weather should continue well into the spring over the Great Plains, South, and Southeast. New England, however, should turn warmer than normal and much of the Southwest and California will continue warm. Other areas are indeterminate--- cold or warm is equally likely. The odds are 3 to 2 that the forecast will prove correct based

rains in California and Arizona could result in replanting, set back production schedules, or reduce the earliness factor of the Southwest.

Eastern and Western growers facing decisions on having to plant late may consider either planting on the slightly cool or damp side, but with a very high quality seed (laboratory germination in the 90's), or using a high seeding rate with seeds

OUTLOOK FOR SPRING AVERAGE TEMPERATURES
March through May 1978



The two categories Above and Below are to be compared to the long-term average or "normal" temperatures of the years 1941-70. Each category has a natural climatic frequency or probability of 50%. Each carries a 60% probability of occurring where forecast (shaded area), based on the verification scores of nineteen years of experimental seasonal predictions.

*NOAA, National Weather Service
Long Range Prediction Group

A Above Normal, 60% chance of occurrence

B Below Normal, 60% chance of occurrence

I Indeterminate, 50% chance of Above Normal
50% chance of Below Normal

on 19 previous spring predictions. No forecast can be made for expected precipitation.

Statistical Information. Historical weather data may be analyzed to provide some information about the likelihood of specific amounts of precipitation. March-April precipitation will be very important for completing field preparations for planting. Dividing the Corn Belt into three bands---north, central, and south---it was determined that for a normal planting season, total precipitation would have to be less than 3, 4, and 5" respectively. Because moisture patterns vary, the odds of receiving less than these critical amounts is about one in three for the entire area.

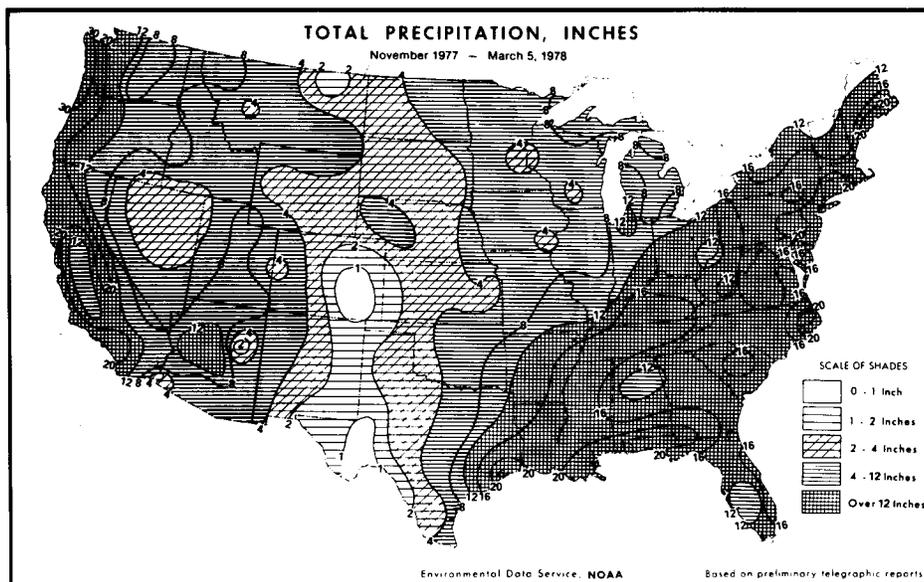
treated with an effective fungicide. Using shorter-range maturing varieties may be helpful if crop development is abnormally affected by fall frost, rains, insects, diseases, and weeds. For vegetable and row crops, planting in the warmer tops of beds or ridges rather than in the deep furrows could help germination.

Reviewing by region, the Deep South may experience delays in planting cotton and rice. This could result in a larger soybean acreage. The major winter wheat areas have excellent moisture and good condition, pointing to another bumper crop. The spring grains area of the northern Plains have better than normal moisture, but some delays in planting may be expected. The Corn Belt situation has the most serious implication. Based on climatological data and forecast materials, the odds are only about one in five that corn will be planted without delays and about one in three for soybeans.

Overall Agricultural Situation and Outlook

A simple overall interpretation of this winter and spring weather is that plant development and field activities may be about 2 weeks ahead of normal in the West and unseasonably slow in most areas east of the Rockies. However, recent heavy

While this may seem rather pessimistic, there is an optimistic point to remember. First, if delays do not become extreme, the soil moisture situation will be the best in several years in most areas. In irrigated areas, reservoirs are in excellent shape.



Picking a Safe Planting Date

It's that time of year again when colorful seed catalogs are in demand, and agriculturists are full of enthusiasm and expectation as the spring planting season approaches. Growers need all the weather and climatic information that is available to help reduce the risk of replanting which can be costly not only for loss of seed, labor, and soil moisture, but because it affects crop development schedules, yield, and price received.

Three primary ingredients are needed to obtain a good stand of seedlings---warm soil and air temperatures after planting, adequate soil moisture, and high quality seed.

To keep up with the status of spring soil temperatures and the speed that warming progresses northward, a soil temperature map will be published on a space-available basis. The 4-inch bare soil measurement was selected because of its widespread use across the Nation and as a compromise between the 2, 6, and 8-inch observations

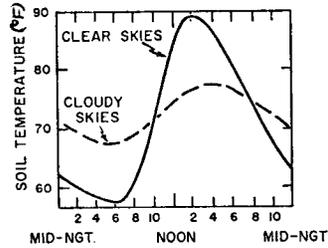
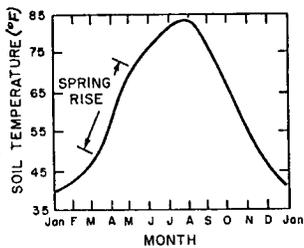


Figure 1--Average monthly 4-inch soil temperature near Northeast Arkansas Experiment Station, Keiser, Arkansas.

Figure 2--Hourly 4-inch soil temperature in May near Keiser, Arkansas with clear skies and cloudy skies.

From Soil Temperatures and Cotton Planting in the Mid-South by Riley, Newton, Measells, Downey and Hand. Miss. Ag. Exp. Sta. Bul. 678, Feb. 1964.

that are used in a few areas. The weekly average was selected as the best measure to represent the temperature regime. It is the mean of the daily maxima and minima. The soil temperature data is supplied by the National Weather Service, state universities, and USDA.

Four-inch soil temperatures vary throughout the year and follow a pattern similar to those of air temperatures but with a slight time lag. Figure 1 shows the month-to-month variation and the springtime rapid rise. Figure 2 indicates the hour-to-hour variations. The solid line depicts the diurnal (daily) changes under clear skies while the dashed line shows the smaller changes that occur under cloudy conditions. The average for the day can be ascertained from the 10 to 11 a.m. reading.

Location and depth of soil thermometers, time of observations, interpretation and planting rules vary considerably across the Nation. Even within a state variations can occur.

How warm must the soil be for seed germination? This depends upon the type of crop. It ranges from low for wheat and cabbage to moderate for corn and tomatoes to high for cotton and watermelon. Duration of temperature is also a controlling factor; more days are necessary for emergence at the cooler temperatures than when the optimum range is reached. Temperature-duration-crop germination data is contained in the accompanying tables 1, 2, and 3.

Crop planting rules differ greatly, although most appear to be based upon soil temperatures averaging between the minimum for germination and the lower value of the optimum range. Seed

quality is also a controlling factor. For example, a planting rule for cotton can be derived from the emergence data obtained under actual field conditions as depicted in figure 3. In other words, to get 50% field emergence from seed having 90% laboratory germination (high quality), cotton may

TABLE 1. CARDINAL TEMPERATURE POINTS FOR GERMINATION OF CERTAIN CROP SEEDS*

Crop	Cardinal Points in Degrees Fahrenheit			Days Required for Germination at Indicated Temperatures			
	Minimum	Optimum	Maximum	40°F	54°F	60°F	66°F
Red clover	34	86	99	7.5	3.0	1.75	1.0
Alfalfa	34	86	99	6.0	3.75	2.75	2.0
Heap	34-36	95	113	3.0	2.0	1.0	1.0
Pens	34-36	86	95	5.0	3.0	1.75	1.75
Rye	34-36	77	86	4.0	2.5	1.0	1.0
Vetch	34-36	86	95	6.0	5.0	2.0	2.0
Flax	33-37	77	86	8.0	4.5	2.0	2.0
Timothy	37-39	79	86	—	6.5	3.25	3.0
Wheat	39-40	77	86-90	6.0	3.0	2.0	1.75
Barley	39-40	68	82-86	6.0	3.0	2.0	1.75
Oats	39-41	77	86	7.0	3.75	2.75	2.0
Carrot	39-41	77	86	—	6.75	4.25	3.25
Sugar beet	39-41	77	82-86	22.0	9.0	3.75	3.75
Lentils	39-41	86	97	6.0	4.0	2.0	1.75
Maize	46-50	89-93	104-111	—	11.25	3.25	3.0
Sorghum	46-50	89-93	104	—	11.25	4.75	4.0
Rice	50-53	86-90	97-101	—	—	—	—
Tobacco	55-57	82	95	—	—	9.0	6.25
Pumpkin	51	89-93	104	—	—	10.75	4.0
Melon	34-39	95	104	—	—	15.0	17.0

* Adapted from data by F. Haberlaudt in *Grate Ernährungsphysiologisches Practicum höherer From Crop Adaptation and Distribution by Carroll P. Wilsie. W. E. Freeman & Co. © 1962.*

SOIL TEMPERATURE CONDITIONS FOR VEGETABLE SEED GERMINATION¹ TABLE 2

Crop	Minimum, °F.	Optimum Range, °F.	Optimum, °F.	Maximum, °F.
Asparagus	50	60-85	75	95
Bean	60	60-85	80	95
Bean, lima	60	65-85	85	85
Beet	40	50-85	85	95
Cabbage	40	45-95	85	100
Carrot	40	45-85	80	95
Cauliflower	40	45-85	80	100
Celery	40	60-70	70 ²	85 ²
Chard, Swiss	40	50-85	85	95
Corn	50	60-95	95	105
Cucumber	60	60-95	95	105
Eggplant	60	75-90	85	95
Lettuce	35	40-80	75	85
Muskmelon	60	75-95	90	100
Okra	60	70-95	95	105
Onion	35	50-95	75	95
Parsley	40	50-85	75	90
Parsnip	35	50-70	65	85
Pea	40	40-75	75	85
Pepper	60	65-95	85	95
Pumpkin	60	70-90	95	100
Radish	40	45-90	85	95
Spinach	35	45-75	70	85
Squash	60	70-95	95	100
Tomato	50	60-85	85	95
Turnip	40	60-105	85	105
Watermelon	60	70-95	95	105

¹ Compiled by J. F. Harrington, Dept. of Vegetable Crops, Univ. of Calif. at Davis.

² Daily fluctuation to 60° or lower at night is essential.

From *Handbook for Vegetable Growers* by J. E. Knott. John Wiley & Sons, Inc. © 1957.

be planted when the soil temperature averages 66°. For seed testing 80% (medium quality), plant at 70°, or if seed quality is 70% or less (low quality), wait until the soil temperature is above 75°. The temperature limits selected were 1/4, 1/2, and 3/4 of the 20° span between the minimum germinating temperature and the beginning

of the optimum range. The minimum is 60° and the beginning of the optimum range under field conditions is about 80°.

Applying the same technique to tomato and some corn varieties which have a minimum germinating temperature of 50° and an optimum threshold

planting, not only until the soil is warm but until chances dwindle for a critically cold air mass hitting the region. The chart, Mean Date of Last 32° Temperature in Spring, shows the dates on which the chance of the last freeze has fallen to 50%. This risk is rather high though

DAYS TO APPEARANCE OF SEEDLINGS AT VARIOUS SOIL TEMPERATURES FROM SEED PLANTED AT ONE-HALF INCH DEPTH¹ TABLE 3

Crop	Soil Temperature in Degrees Fahrenheit								
	32	41	50	59	68	77	86	95	104
Asparagus	x	x	53	24	15	10	11	19	28
Bean	x	x	x	16	11	8	6	6	x
Bean, lima	...	...	x	30	18	6	6	x	...
Beet	...	42	17	10	6	5	4	4	...
Cabbage	...	...	15	9	6	4	3	...	...
Carrot	x	51	17	10	7	6	6	8	x
Cauliflower	...	...	19	10	6	5	4	...	...
Celery	x	41	16	12	7	x	x	x	...
Corn	x	x	22	12	7	4	4	3	x
Cucumber	x	x	x	13	6	4	3	3	...
Eggplant	...	...	...	...	13	8	5	...	...
Lettuce	49	15	7	4	3	2	2	x	x
Muskmelon	...	...	...	...	8	4	3	...	...
Okra	x	x	x	27	17	12	7	6	6
Onion	135	31	13	7	5	4	4	12	x
Parsley	...	...	29	17	14	13	12	...	...
Parsnip	171	57	27	19	14	15	32	x	x
Pea	...	36	13	9	7	6	6	...	...
Pepper	x	x	x	25	12	8	8	9	x
Radish	...	29	11	6	4	3	3	...	...
Spinach	62	22	12	7	6	5	6	x	x
Tomato	x	x	43	14	8	6	6	9	x
Turnip	x	x	5	3	2	1	1	1	2
Watermelon	...	x	...	...	12	5	4	3	...

x = little or no germination.
 ... = not tested.
¹ Data compiled by J. F. Harrington, Dept. of Vegetable Crops, Univ. of Calif. at Davis.
 From Handbook for Vegetable Growers by J. E. Knott, John Wiley & Sons, Inc. © 1957.

beginning at 60° would result in the following rule: plant when soil temperatures average 53° for high quality seed, 55° for medium quality, and above 58° for the lower quality seed.

Cold temperatures may deal a crippling blow to tender young seedlings. So it is wise to delay

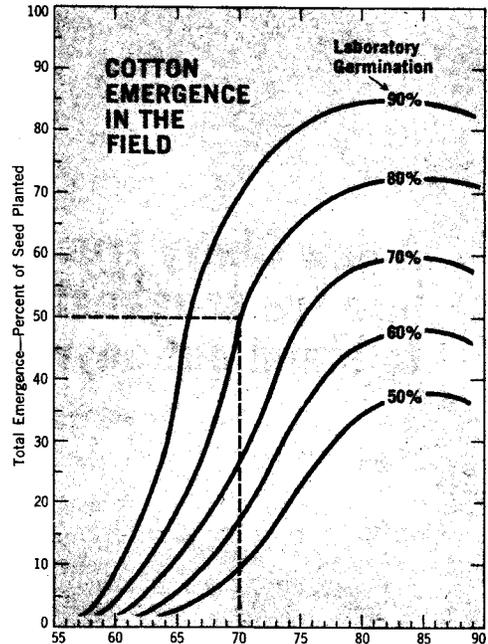
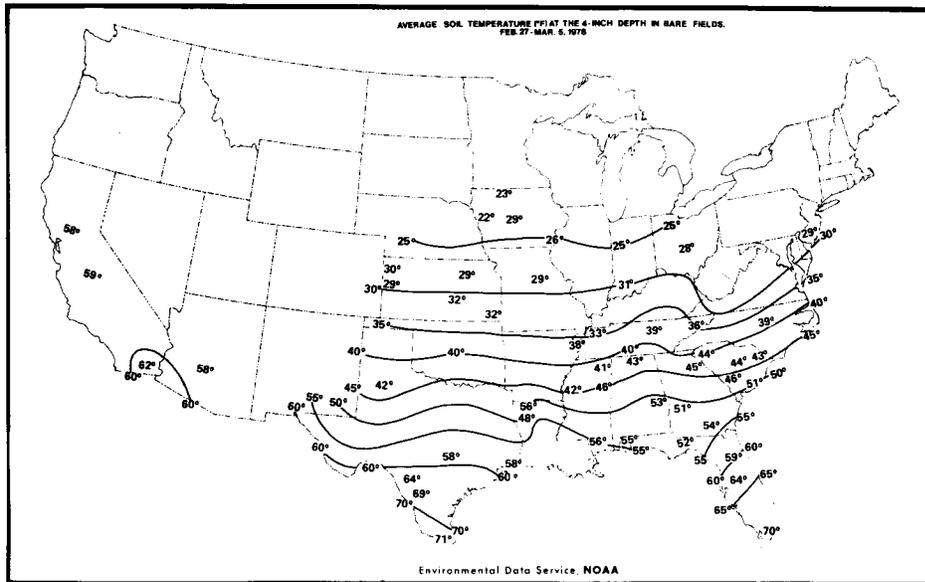
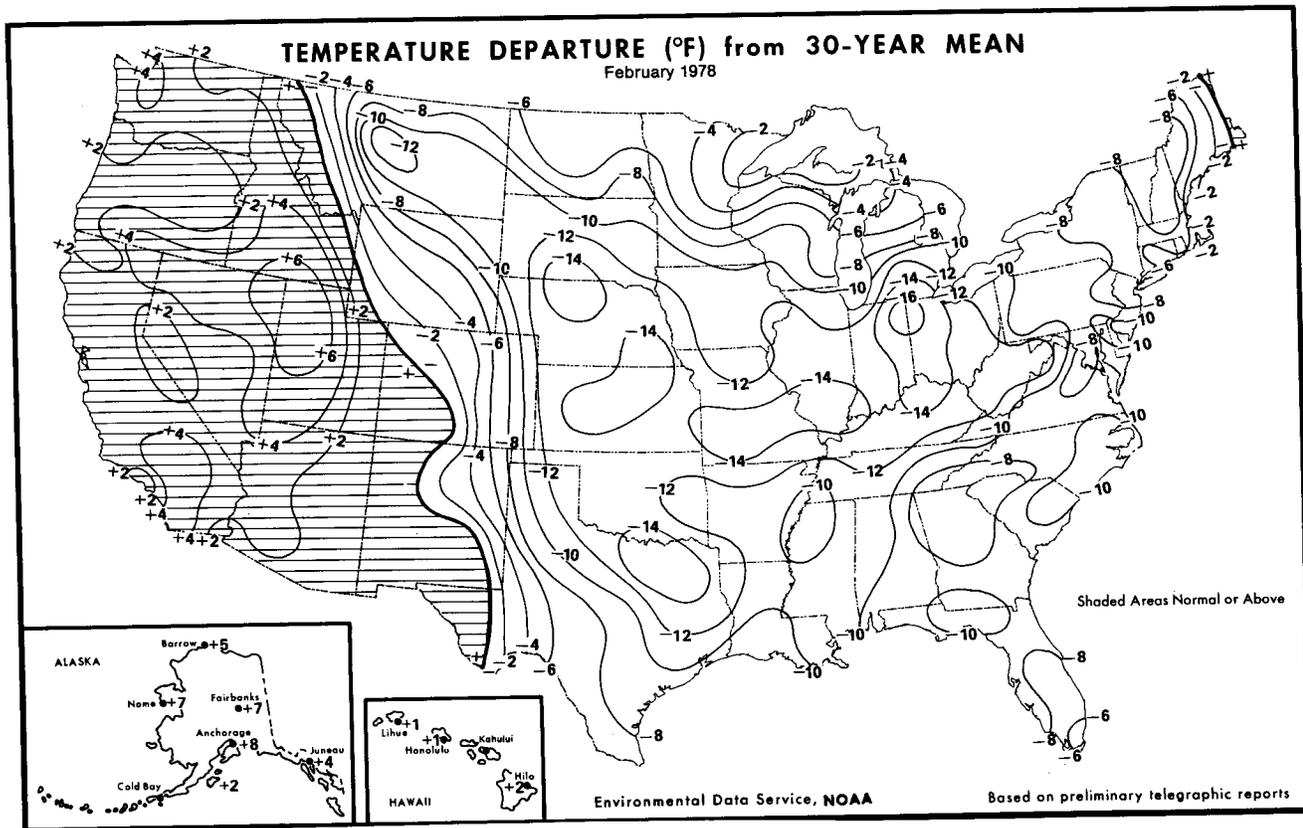


Figure 3. Mean Soil Temperature (°F) at 2-Inch Depth from Planting to Final Emergence. From Picking a Safe Cotton-Planting Date by Donald J. Baddock. The Progressive Farmer, Feb. 1967.

for tender crops, and would probably result in replanting about every other year. The risk is reduced to 10% (1 year in 10) by waiting about 18 days, and down to 5% risk (1 year in 20) by delaying about 23 days after the mean date on the chart. (See map on page 9)



Environmental Data Service, NOAA



February Weather Summary

HIGHLIGHTS: February 1978 was a frigid winter month for many cities east of the Rockies. For some points, it was one of the coldest Februaries on record. Unlike last year, when sudden warming took place in midmonth, this February continued to be colder than normal from the Continental Divide to the Atlantic and, typical of the entire winter, warmer than normal in the West. Fruit trees in California bloomed much earlier than usual. A slight warming trend started in the Plains and spread eastward near midmonth, but hopes for another early spring were smashed when another Arctic air mass plunged into the northern Plains and rapidly spread southward and eastward.

Again, unlike last year, precipitation for the month stood well above normal from the Great Plains westward. Snow pack approached normal levels in the mountains as did previously depleted reservoirs. There were some exceptions in the West; parts of Washington and Oregon measured much less than normal precipitation. Nearly all of the area from the Mississippi Valley eastward had much below normal precipitation although the amount of snow was generally above normal. This area had been very wet earlier this year so the departure was, for the most part, welcome. The exception was the extreme southeastern U.S. where rainfall was well above normal.

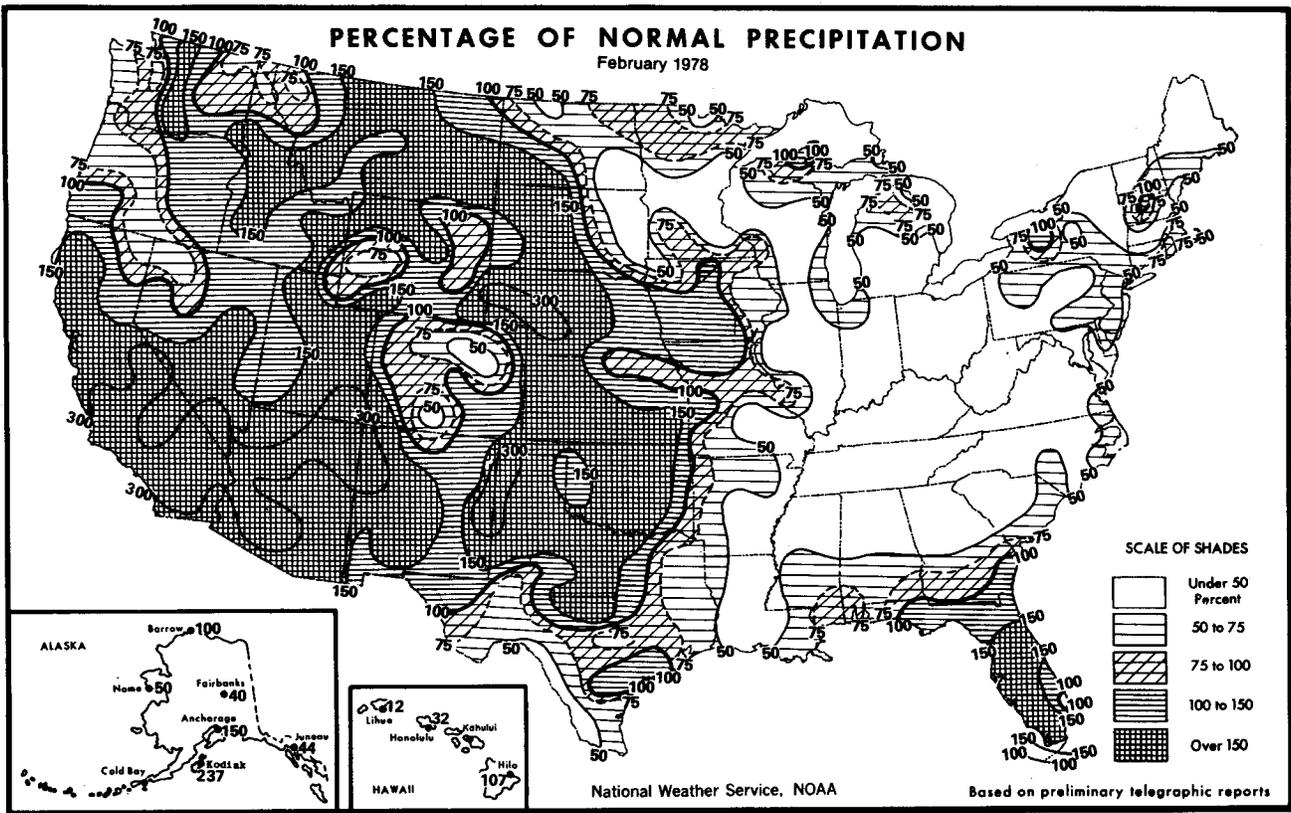
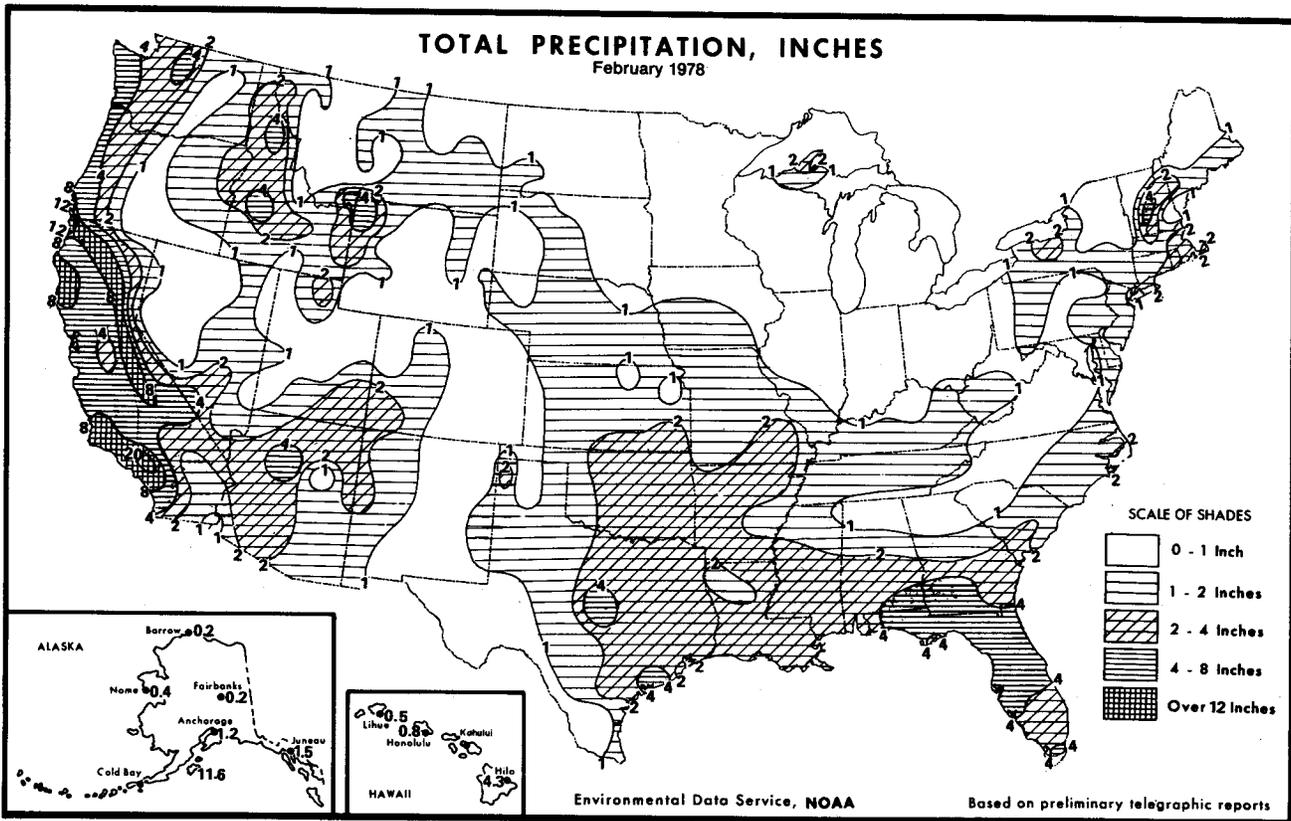
Precipitation was generally light over most of the Nation during the first week of February. Exceptions included the central Gulf Coast where rain measured a little over an inch, and the Northwest where rain totaled up to an inch on the mountain slopes and 2 to 5 inches on the coastline. Widespread snow fell, but the snow-on-the-ground line receded along its southern boundary. Much colder than normal temperatures continued over the country east of the Rockies while the West was unusually warm.

The second week of February showed no signs of easing the severe winter. The Rocky Mountains and areas eastward to the Atlantic were much colder than normal. The southern Plains and parts of the Midwest averaged as much as 15 to 18 degrees colder than expected this time of year. Precipitation fell excessively in many parts of the U.S. Early in the week, the Northeast was blanketed by heavy snow. At midweek, the central and southern Plains, and from New Mexico into Mississippi, experienced a mixed bag of precipitation that included snow, sleet, and rain. More than 2 inches fell in eastern Oklahoma and Texas. Later, heavy rain fell in Florida. A storm system dumped heavy rain throughout California after midweek, and moved eastward into the Plateau and Southwest.

Precipitation covered most of the U.S. during the week of mid-February. Snow again fell in the southern Plains and heavy rain washed Florida. The Plateau and Southwest had some heavy snow and rain showers. The central Mississippi Valley and parts of the Ohio Valley added significant amounts to their snow cover.

The cold weather became even more widespread at mid-February while below-normal temperatures extended all the way to the Sierra and Cascade Mountains. The central Plains averaged as much as 22 degrees colder than normal.

Unlike the final ten days of February last year when all of the area east of the Rockies experienced a dramatic warming, a continuing cold pattern froze the Nation east of the Rockies; warm air persisted to the west. The 0°F temperature line remained well south to the Oklahoma Plains. Fortunately snow covered most of the winter wheat providing a welcome blanket against the bitter cold. Light precipitation moved over most of the country during the last ten days until moderate rain began at month's end in southern California and Arizona. The lower Mississippi and Tennessee Valleys measured sizable precipitation during the period.



Temperature and Precipitation Data for February 1978

States and Stations	Temperature °F		Precipitation Inches		States and Stations	Temperature °F		Precipitation Inches		States and Stations	Temperature °F		Precipitation Inches	
	Average	Departure	Total	Departure		Average	Departure	Total	Departure		Average	Departure	Total	Departure
ALA. Birmingham . . .	37	-10	1.3	- 4.0	LA. Baton Rouge . . .	45	- 9	2.2	- 2.6	Youngstown . . .	16	-11	6	- 1.8
Mobile . . .	45	- 9	4.0	0.8	Lake Charles . . .	46	- 9	2.1	- 2.4	OKLA. Okla. City . . .	29	-12	3.2	- 1.9
Montgomery . . .	43	- 8	2.3	- 2.0	New Orleans . . .	45	-11	2.5	- 2.3	Tulsa . . .	29	-12	2.8	+ 1.1
ALASKA. Anchorage . .	26	+ 8	1.2	+ .4	Shreveport . . .	38	-13	1.9	- 1.8	OREG. Astoria . . .	46	+ 2	5.4	+ - 2.4
Barrow . . .	14	+ 5	.2	0	MAINE. Caribou . . .	13	0	.3	- 1.8	Burns . . .	32	+ 1	1.4	+ .2
Fairbanks . . .	4	+ 7	.2	- .3	Portland . . .	19	- 4	.9	- 2.6	Medford . . .	45	+ 4	2.5	+ .3
Juneau . . .	32	+ 4	1.5	+ 1.9	MD. Baltimore . . .	27	- 8	.6	- 2.2	Pendleton . . .	39	0	1.6	- .5
Kodiak . . .	33	+ 2	11.6	+ 6.7	MASS. Boston . . .	27	- 3	2.9	- .6	Portland . . .	45	+ 2	3.3	- .8
Nome . . .	12	+ 7	.4	.4	Chatham . . .	28	-	1.5	- .8	Salem . . .	45	+ 2	3.5	- 1.3
ARIZ. Flagstaff . . .	31	0	4.7	+ 3.2	MICH. Alpena . . .	14	- 4	.6	- .8	PA. Allentown . . .	22	- 7	1.6	- 1.2
Phoenix . . .	59	+ 0	2.2	+ 1.6	Detroit . . .	16	-11	.5	- 1.3	Erie . . .	15	-10	.6	- 1.5
Tucson . . .	54	0	1.8	+ 1.1	Flint . . .	13	-11	.5	- 1.1	Harrisburg . . .	23	- 9	1.4	- 1.0
Winslow . . .	39	0	.7	+ .3	Grand Rapids . . .	14	-11	.5	- 1.0	Philadelphia . . .	25	- 9	1.4	- 1.2
Yuma . . .	60	+ 1	.8	+ .5	Houghton Lake . . .	13	- 5	.6	- .6	Pittsburgh . . .	21	- 8	.5	- 1.9
ARK. Fort Smith . . .	32	-11	2.7	- .5	Lansing . . .	11	-13	.5	- 1.1	Scranton . . .	19	- 9	.9	- 1.1
Little Rock . . .	32	-11	1.5	- 2.9	Marquette . . .	19	- 1	.9	- .6	R.I. Providence . . .	22	- 7	3.2	- 1.3
CALIF. Bakersfield . .	56	+ 4	4.7	+ 3.7	Muskegon . . .	16	- 9	.8	- 1.0	S.C. Charleston . . .	43	- 8	1.8	- 1.5
Eureka . . .	50	+ 2	6.1	+ .9	S. Ste. Marie . . .	11	- 4	.5	- 1.0	Columbia . . .	38	-10	1.3	- 1.4
Fresno . . .	53	+ 3	4.4	+ 2.7	MINN. Duluth . . .	11	- 1	.4	- .5	Greenville . . .	37	- 7	.5	- 3.9
Los Angeles . . .	59	+ 1	8.9	+ 6.1	Internatl Falls . .	3	- 4	.3	- .4	S.D. Aberdeen . . .	6	- 9	.2	- .4
Red Bluff . . .	53	+ 3	5.4	+ 2.2	Minneapolis . . .	12	- 5	.2	- .6	Huron . . .	7	-11	.5	- .3
San Diego . . .	61	+ 4	2.6	+ 1.1	Rochester . . .	8	- 9	.3	- .4	Rapid City . . .	15	-11	.8	+ .2
San Francisco . . .	53	+ 2	4.9	+ 1.9	St. Cloud . . .	9	- 4	.2	- .6	Sioux Falls . . .	9	-10	.3	- .7
Stockton . . .	52	+ 3	2.5	+ .4	MISS. Jackson . . .	40	-10	2.4	- 2.2	TENN. Chattanooga . .	36	- 7	.7	- 4.5
COLO. Denver . . .	31	- 2	.3	- .4	Meridian . . .	39	-11	2.6	- 2.3	Knoxville . . .	35	- 8	1.0	- 3.7
Grand Junction . . .	34	0	.6	0	MO. Columbia . . .	22	-12	1.7	- .1	Memphis . . .	35	- 9	1.3	- 2.4
Pueblo . . .	29	- 6	.3	0	Kansas City . . .	20	-13	1.3	0	Nashville . . .	29	-12	1.6	- 2.8
CONN. Bridgeport . . .	24	- 7	1.3	- 1.4	St. Louis . . .	21	-14	1.6	- .5	TEX. Abilene . . .	39	- 9	1.3	+ .3
Hartford . . .	22	- 5	1.4	- 1.8	Springfield . . .	23	-14	1.5	- .7	Amarillo . . .	30	-10	.8	+ .2
D.C. Washington . . .	31	- 6	.4	- 2.1	MONT. Billings . . .	16	-11	1.8	+ 1.2	Austin . . .	45	- 8	2.0	- 1.1
FLA. Apalachicola . .	47	- 9	3.9	+ .1	Glasgow . . .	7	- 8	.4	+ .1	Beaumont . . .	47	- 8	2.3	- 1.9
Daytona Beach . . .	52	- 8	6.0	+ 3.1	Great Falls . . .	15	-12	1.2	+ .4	Brownsville . . .	56	- 7	1.3	- .2
Ft. Myers . . .	57	- 8	3.4	+ 1.4	Havre . . .	12	- 6	1.0	+ .6	Corpus Christi . . .	52	- 8	.8	- 1.2
Jacksonville . . .	48	- 8	4.2	+ .6	Helena . . .	23	- 2	.6	+ .2	Dallas . . .	50	- 6	.4	- .6
Key West . . .	65	- 7	1.8	- .1	Kalispell . . .	25	0	.7	- .3	Del Rio . . .	49	+ 1	.5	+ .1
Lakeland . . .	55	- 7	4.0	+ 1.5	Miles City . . .	12	-10	1.1	+ .6	El Paso . . .	33	-16	3.3	+ .9
Miami . . .	63	- 5	3.4	+ 1.4	Missoula . . .	27	0	.7	0	Fort Worth . . .	47	- 9	1.8	- .9
Orlando . . .	56	- 6	5.5	+ 2.5	NEBR. Grand Island .	15	-13	1.2	+ .4	Galveston . . .	45	-10	3.1	+ .4
Tallahassee . . .	45	-10	5.0	+ .2	Lincoln . . .	13	-15	1.2	+ .3	Houston . . .	34	- 9	1.4	+ .9
Tampa . . .	53	- 9	5.2	+ 2.3	Norfolk . . .	12	-12	.9	+ .1	Lubbock . . .	44	-10	1.3	- .3
W. Palm Beach . . .	60	- 6	2.5	- .1	N. Platte . . .	15	-13	2.0	+ 1.5	Midland . . .	44	- 4	.2	+ .3
GA. Atlanta . . .	39	- 6	.8	- 3.6	Omaha . . .	14	-12	1.4	+ .4	San Angelo . . .	44	- 6	1.2	+ .4
Augusta . . .	40	- 8	1.5	- 2.3	Valentine . . .	10	-15	1.2	+ .7	San Antonio . . .	46	- 9	1.8	- .3
Macon . . .	43	- 7	1.9	- 2.5	NEV. Ely . . .	31	+ 3	1.3	+ .7	Victoria . . .	48	- 9	2.9	+ .6
Savannah . . .	44	- 8	3.1	+ .2	Las Vegas . . .	52	+ 3	1.5	+ 1.2	Waco . . .	42	- 9	2.8	+ .4
HAWAII. Hilo . . .	73	+ 2	4.3	- 8.6	Reno . . .	38	+ 1	1.0	+ .1	Wichita Falls . . .	33	-13	2.0	+ .8
Honolulu . . .	73	+ 1	.8	- 1.7	Winnemucca . . .	38	+ 4	.6	- .2	UTAH. Blanding . . .	33	0	2.7	+ 1.8
Kahului . . .	72	+ 1	.5	- 3.8	N.H. Concord . . .	14	- 9	.7	- 1.8	Salt Lake City . . .	40	+ 7	2.0	+ .8
Lihue . . .	38	+ 2	1.5	+ .3	N.J. Atlantic City . .	24	-10	1.1	- 2.3	VT. Burlington . . .	11	- 8	.2	- 1.5
IDAHO. Boise . . .	41	+ 3	1.5	+ .6	Trenton . . .	26	- 7	1.4	- 1.3	VA. Lynchburg . . .	30	- 8	.5	- 2.3
Lewiston . . .	34	+ 5	1.1	+ .3	N.MEX. Albuquerque .	39	- 1	1.0	+ .6	Norfolk . . .	33	- 8	1.9	- 1.4
Pocatello . . .	34	+ 5	1.1	+ .3	Roswell . . .	45	+ 2	.5	+ .1	Richmond . . .	30	- 9	.5	- 2.5
ILL. Cairo . . .	28	-12	1.1	- 2.7	N.Y. Albany . . .	18	- 6	.9	- 1.2	Roanoke . . .	30	- 8	.7	- 2.4
Chicago . . .	17	-10	.9	- .7	Binghamton . . .	15	- 8	1.3	- 1.0	WASH. Colville . . .	32	+ 1	1.0	- .4
Moline . . .	14	-12	.7	- .6	Buffalo . . .	16	- 8	1.4	- 1.2	Omak . . .	32	+ 2	1.4	+ .3
Peoria . . .	15	-13	.6	- .9	New York . . .	27	- 6	.9	- 2.2	Quillayute . . .	44	+ 3	6.5	- 5.5
Rockford . . .	12	-12	.5	- .8	Rochester . . .	16	- 9	2.4	0	Seattle-Tacoma . . .	46	+ 4	3.6	- .6
Springfield . . .	17	-13	.8	- 1.0	Syracuse . . .	18	- 7	.8	- 2.0	Spokane . . .	34	+ 2	1.6	- .1
IND. Evansville . . .	21	-15	.8	- 2.5	N.C. Asheville . . .	33	- 6	.4	- 3.2	Walla Walla . . .	42	+ 2	1.4	0
Ft. Wayne . . .	11	-17	.3	- 1.8	Charlotte . . .	37	- 7	.7	- 3.1	Yakima . . .	38	+ 2	1.3	+ .5
Indianapolis . . .	18	-13	.4	- 2.0	Greensboro . . .	32	- 9	.7	- 2.7	W.Va. Beckley . . .	22	-11	1.0	- 2.3
South Bend . . .	15	-11	.9	- 1.0	Hatteras . . .	36	-10	2.9	- 1.3	Charleston . . .	24	-13	1.3	- 1.8
IOWA. Burlington . . .	16	-11	.6	- .7	Raleigh . . .	33	- 9	1.4	- 1.9	Huntington . . .	25	-11	1.1	- 1.8
Des Moines . . .	13	-11	1.3	+ .2	Wilmington . . .	39	- 9	1.3	- 2.1	Parkersburg . . .	22	-12	.5	- 2.3
Dubuque . . .	12	-10	.7	- .6	N.DAK. Bismarck . . .	9	- 5	.4	0	WIS. Green Bay . . .	11	- 7	.4	- .6
Sioux City . . .	10	-13	1.0	+ .1	Fargo . . .	3	- 8	.2	- .2	La Crosse . . .	11	- 9	.7	- .2
KANS. Concordia . . .	18	-14	.7	- .2	Williston . . .	8	- 6	.5	0	Madison . . .	12	- 8	.2	- .8
Dodge City . . .	21	-14	1.4	+ .8	OHIO. Akron-Canton .	16	-12	.5	- 1.7	Milwaukee . . .	16	- 7	.6	- .5
Goodland . . .	20	-12	.9	+ .5	Cincinnati . . .	18	-15	.3	- 2.7	WYO. Casper . . .	22	- 5	.8	+ .3
Topeka . . .	20	-13	.8	- .2	Cleveland . . .	17	-11	.5	- 1.7	Cheyenne . . .	25	- 4	.8	+ .3
Wichita . . .	24	-12	1.7	+ .7	Columbus . . .	17	-13	.3	- 2.0	Lander . . .	22	- 4	.5	- .2
KY. Lexington . . .	21	-14	.7	- 2.7	Dayton . . .	17	-13	.2	- 2.0	Sheridan . . .	18	- 8	.8	0
Louisville . . .	24	-12	.8	- 2.7	Toledo . . .	12	-15	.5	- 1.3	P.R. San Juan . . .	--	--	--	--

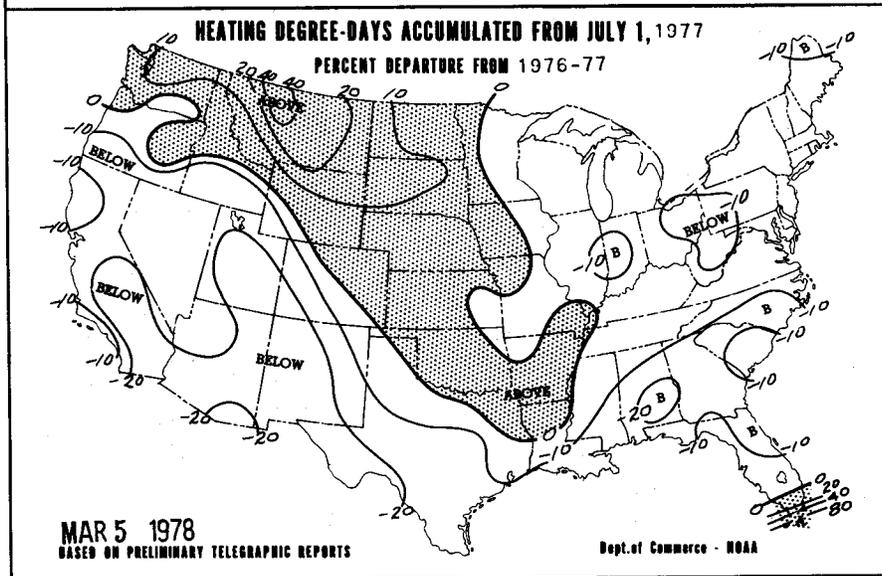
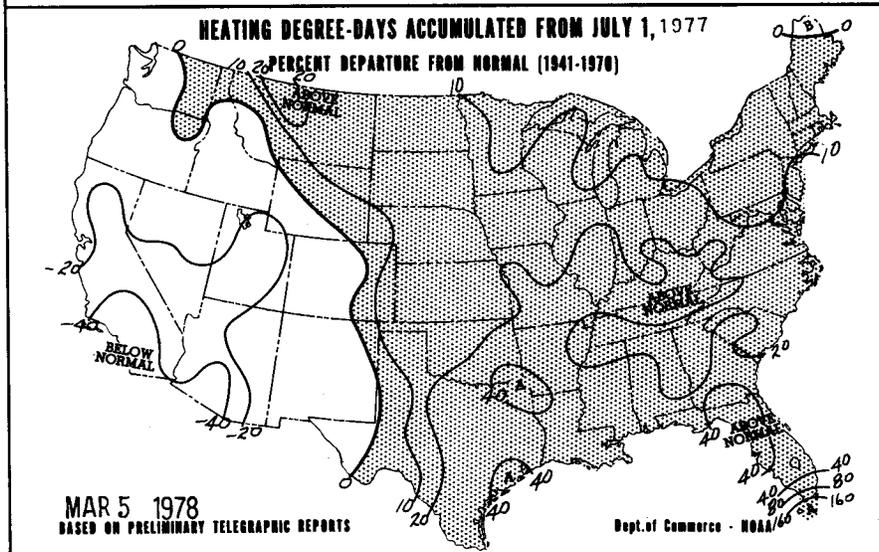
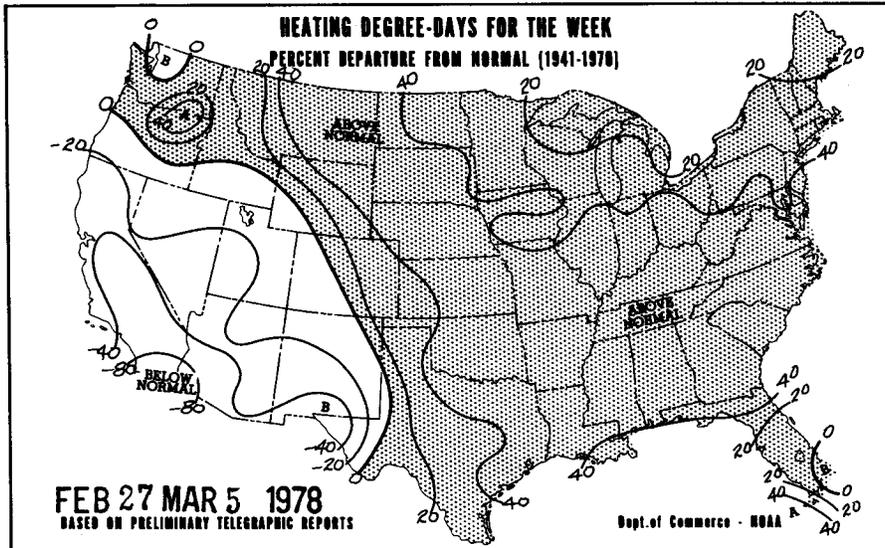
Based on 1941-70 normals

Heating Degree Days (Base 65° F.)

February 1978

ALA. Birmingham . . .	768	MAINE. Caribou . . .	1467	OKLA. Okla. City . . .	990
Mobile . . .	551	Portland . . .	1276	Tulsa . . .	989
Montgomery . . .	601	MD. Baltimore . . .	1048	OREG. Astoria . . .	524
ALASKA. Anchorage . . .	1077	MASS. Boston . . .	1057	Burns U. . .	923
Barrow . . .	2223	Chatham . . .	1045	Medford . . .	571
Fairbanks . . .	1711	MICH. Alpena . . .	1421	Pendleton . . .	714
Juneau . . .	922	Detroit . . .	1357	Portland . . .	561
Nome . . .	1487	Flint . . .	1438	Salem . . .	547
ARIZ. Flagstaff . . .	954	Grand Rapids . . .	1413	PA. Allentown . . .	1190
Phoenix . . .	172	Houghton Lake . . .	1513	Erie . . .	1408
Tucson . . .	313	Lansing . . .	1496	Harrisburg . . .	1175
Winslow . . .	720	Marquette U. . .	1295	Philadelphia . . .	1121
Yuma . . .	135	S. Ste. Marie . . .	1503	Pittsburgh . . .	1229
ARK. Fort Smith . . .	924	MINN. Duluth . . .	1520	Scranton . . .	1279
Little Rock . . .	921	Internatl Falls . . .	1745	R. I. Providence . . .	1192
CALIF. Bakersfield . . .	241	Minneapolis . . .	1488	S. C. Charleston . . .	616
Eureka U. . .	404	Rochester . . .	1581	Columbia . . .	741
Fresno . . .	343	St. Cloud . . .	1561	Greenville . . .	787
Los Angeles U . . .	174	MISS. Jackson . . .	706	S. DAK. Aberdeen . . .	1650
Red Bluff . . .	339	Meridian . . .	714	Huron . . .	1620
Stockton . . .	358	Vicksburg U . . .	--	Rapid City . . .	1383
San Diego . . .	117	MO. Columbia . . .	1206	Sioux Falls . . .	1576
San Francisco . . .	335	Kansas City . . .	1266	TENN. Chattanooga . . .	821
COLO. Denver . . .	936	St. Louis . . .	1223	Knoxville . . .	846
Grand Junction . . .	852	Springfield . . .	1172	Memphis . . .	835
Pueblo . . .	1001	MONT. Billings . . .	1366	Nashville . . .	997
CONN. Bridgeport . . .	1136	Glasgow . . .	1610	TEX. Abilene . . .	730
Hartford . . .	1192	Great Falls . . .	1410	Amarillo . . .	972
D. C. Washington . . .	933	Havre . . .	1473	Austin . . .	561
FLA. Apalachicola . . .	498	Helena . . .	1175	Beaumont . . .	497
Ft. Myers . . .	216	Kalispell . . .	1098	Brownsville . . .	287
Jacksonville . . .	484	Miles City . . .	1492	Corpus Christi . . .	382
Key West . . .	85	Missoula . . .	1050	Dallas . . .	--
Lakeland U. . .	277	NEBR. Grand Island . . .	1396	Del Rio . . .	422
Miami . . .	99	Lincoln . . .	1447	El Paso . . .	449
Orlando . . .	255	Norfolk . . .	1477	Fort Worth . . .	786
Daytona Beach . . .	356	North Platte . . .	1400	Galveston U. . .	501
Tallahassee . . .	548	Omaha . . .	1437	Houston . . .	553
Tampa . . .	323	Valentine . . .	1526	Lubbock . . .	864
GA. Atlanta . . .	714	NEV. Ely . . .	959	Midland . . .	586
Augusta . . .	689	Las Vegas . . .	355	San Angelo . . .	588
Macon . . .	617	Reno . . .	739	San Antonio . . .	521
Savannah . . .	594	Winnemucca . . .	762	Victoria . . .	467
IDAHO. Boise . . .	744	N. H. Concord . . .	1435	Waco . . .	639
Lewiston . . .	673	N. J. Atlantic City . . .	1146	Wichita Falls . . .	881
Pocatello . . .	875	Trenton U . . .	1080	UTAH. Milford . . .	794
ILL. Cairo U. . .	1044	N. MEX. Albuquerque . . .	713	Salt Lake City . . .	697
Chicago . . .	1346	Roswell . . .	593	VT. Burlington . . .	1547
Moline . . .	1379	N. Y. Albany . . .	1305	VA. Lynchburg . . .	972
Peoria . . .	1383	Binghamton . . .	1392	Norfolk . . .	902
Rockford . . .	1471	Buffalo . . .	1378	Richmond . . .	964
Springfield . . .	1348	New York . . .	1061	Roanoke . . .	989
IND. Evansville . . .	1228	Rochester . . .	1360	WASH. Colville . . .	927
Fort Wayne . . .	1482	Syracuse . . .	1322	Omak . . .	--
Indianapolis . . .	1312	N. C. Asheville . . .	878	Quillayute . . .	585
South Bend . . .	1401	Charlotte . . .	786	Seattle-Tacoma . . .	525
IOWA. Burlington . . .	1357	Greensboro . . .	927	Spokane . . .	862
Des Moines . . .	1442	Hatteras R. . .	813	Walla Walla U. . .	651
Dubuque . . .	1491	Raleigh . . .	883	Yakima . . .	753
Sioux City . . .	1534	Wilmington . . .	736	W. VA. Beckley . . .	1211
KANS. Concordia . . .	1299	N. DAK. Bismarck . . .	1564	Charleston . . .	1138
Dodge City . . .	1216	Fargo . . .	1721	Huntington . . .	1122
Goodland . . .	1263	Williston U . . .	1600	Parkersburg U. . .	1186
Topeka . . .	1240	OHIO. Akron-Canton . . .	1367	WIS. Green Bay . . .	1500
Wichita . . .	1149	Cincinnati U. . .	1303	Madison . . .	1466
KY. Lexington . . .	1219	Cleveland . . .	1343	Milwaukee . . .	1356
Louisville . . .	1145	Columbus . . .	1346	WYO. Casper . . .	1191
LA. Baton Rouge . . .	546	Dayton . . .	1339	Cheyenne . . .	1115
Lake Charles . . .	539	Toledo . . .	1484	Lander . . .	1192
New Orleans . . .	556	Youngstown . . .	1382	Sheridan . . .	1323
Shreveport . . .	746				

Preliminary reports from airport locations, except those marked U for urban and R for rural.
*Estimated.



HEATING DEGREE DAYS (BASE 65°) FOR WEEK ENDING MAR. 5, 1978.

STATES AND STATIONS	WEEKLY			SEASONAL ACCUMULATION +			STATES AND STATIONS	WEEKLY			SEASONAL ACCUMULATION +		
	TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77	TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77		TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77	TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77
ALA. BIRMINGHAM.....	185	73	2975	577	247	247	MAINE CARIBOU.....	341	10	6995	95	856	856
MOBILE.....	137	35	2023	552	217	217	PORTLAND.....	330	62	5712	209	488	488
MONTGOMERY.....	130	42	2172	224	617	617	MD. BALTIMORE.....	260	71	4000	276	313	313
ARIZ. FLAGSTAFF.....	196	35	4216	948	670	670	MASS. BOSTON.....	279	60	4246	41	382	382
PHOENIX.....	211	21	645	702	250	250	MICH. ALPENA.....	346	39	6200	19	563	563
TUCSON.....	144	16	359	359	114	114	DETROIT.....	315	39	5527	49	649	649
WINSLOW.....	120	21	3148	588	187	187	FLINT.....	315	39	5527	49	649	649
YUMA.....	5	28	559	48	187	187	GRAND RAPIDS.....	315	39	5527	49	649	649
ARK. FORT SMITH.....	209	77	3503	693	241	241	Houghton Lake.....	315	39	5527	49	649	649
LITTLE ROCK.....	201	86	4399	578	238	238	LANSING.....	315	39	5527	49	649	649
CALIF. BAKERSFIELD.....	223	49	61	846	523	523	LANSING.....	315	39	5527	49	649	649
FURBER.....	223	49	61	846	523	523	MUSKOGEE.....	315	39	5527	49	649	649
FRESNO.....	223	49	61	846	523	523	S. STE. MARIE.....	315	39	5527	49	649	649
LOS ANGELES.....	223	49	61	846	523	523	MINN. DULUTH.....	404	68	7656	419	372	372
RED BLUFF.....	10	11	1628	489	68	68	INTERNAT. FALLS.....	426	109	7426	681	600	600
SAN DIEGO.....	10	24	1755	359	223	223	MNAPOLIS.....	426	109	7426	681	600	600
SAN FRANCISCO.....	67	47	1595	604	305	305	ROCHESTER.....	426	109	7426	681	600	600
STOCKTON.....	47	51	1595	604	305	305	ST. CLOUD.....	426	109	7426	681	600	600
COLO. DENVER.....	259	43	4388	56	28	28	MISS. JACKSON.....	443	49	2613	640	128	128
GRAND JUNCTION.....	259	43	4388	56	28	28	MERIDIAN.....	443	49	2613	640	128	128
PUEBLO.....	259	43	4388	56	28	28	MO. COLUMBIA.....	401	104	4752	70	466	466
CONN. BRIDGEPORT.....	286	56	4265	235	258	258	KANSAS CITY.....	401	104	4752	70	466	466
HARTFORD.....	286	56	4265	235	258	258	ST. LOUIS.....	401	104	4752	70	466	466
DEL. WILMINGTON.....	287	91	4339	495	236	236	SPRINGFIELD.....	401	104	4752	70	466	466
D.C. WASHINGTON.....	243	71	3546	167	365	365	MONT. BILLINGS.....	404	15	6401	1040	1391	1391
FLA. APALACHICOLA.....	73	15	1445	449	233	233	GLASGOW.....	404	15	6401	1040	1391	1391
DAYTONA BEACH.....	73	15	1445	449	233	233	GREAT FALLS.....	404	15	6401	1040	1391	1391
FORT MYERS.....	73	15	1445	449	233	233	HAVRE.....	404	15	6401	1040	1391	1391
JACKSONVILLE.....	73	15	1445	449	233	233	HELENA.....	404	15	6401	1040	1391	1391
KEY WEST.....	73	15	1445	449	233	233	HELENA.....	404	15	6401	1040	1391	1391
LAKELAND.....	73	15	1445	449	233	233	MILES CITY.....	404	15	6401	1040	1391	1391
MIAMI.....	73	15	1445	449	233	233	MISSOULA.....	404	15	6401	1040	1391	1391
ORLANDO.....	73	15	1445	449	233	233	NEBR. GRAND ISLAND.....	422	124	5676	687	454	454
TALLAHASSEE.....	73	15	1445	449	233	233	LINCOLN.....	422	124	5676	687	454	454
TAMPA.....	73	15	1445	449	233	233	NORFOLK.....	422	124	5676	687	454	454
NORTH PALM BEACH.....	73	15	1445	449	233	233	NORTH PLATTE.....	422	124	5676	687	454	454
GA. ATLANTA.....	188	64	3871	444	489	489	OMAHA.....	422	124	5676	687	454	454
AUGUSTA.....	188	64	3871	444	489	489	VALENTINE.....	422	124	5676	687	454	454
MACON.....	188	64	3871	444	489	489	NEV. ELY.....	488	56	4862	706	698	698
SAVANNAH.....	188	64	3871	444	489	489	LAS VEGAS.....	488	56	4862	706	698	698
IDAHO. BOISE.....	168	17	3871	523	922	922	RENO.....	488	56	4862	706	698	698
LEWISTON.....	168	17	3871	523	922	922	WINNEMUCA.....	488	56	4862	706	698	698
POCATELLO.....	168	17	3871	523	922	922	N. H. CONCORD.....	360	93	6160	622	410	410
ILL. CAIRO.....	269	113	4176	996	113	113	N. J. ATLANTIC CITY.....	390	93	413	331	331	331
CHICAGO.....	330	130	5520	787	286	286	TRENTON.....	390	93	413	331	331	331
MOLINE.....	330	130	5520	787	286	286	N. MEX. ALBUQUERQUE.....	261	31	3174	294	852	852
PEORIA.....	330	130	5520	787	286	286	ROSNELL.....	261	31	3174	294	852	852
ROCKFORD.....	330	130	5520	787	286	286	N. Y. ALBANY.....	327	66	5441	177	408	408
SPRINGFIELD.....	329	115	5323	913	251	251	BINGHAMTON.....	327	66	5441	177	408	408
IND. EVANSVILLE.....	299	118	4541	820	198	198	BUFFALO.....	327	66	5441	177	408	408
FORT WAYNE.....	299	118	4541	820	198	198	NEW YORK.....	327	66	5441	177	408	408
INDIANAPOLIS.....	332	129	5027	938	299	299	ROCHESTER.....	327	66	5441	177	408	408
SOUTH BEND.....	331	86	5479	550	297	297	SYRACUSE.....	327	66	5441	177	408	408
IOWA. BURLINGTON.....	329	93	5691	850	159	159	N. C. ASHEVILLE.....	330	71	3853	487	349	349
DES MOINES.....	329	93	5691	850	159	159	CHARLOTTE.....	330	71	3853	487	349	349
DUBUQUE.....	329	93	5691	850	159	159	GREENSBORO.....	330	71	3853	487	349	349
STOUC CITY.....	329	93	5691	850	159	159	HATTERAS.....	330	71	3853	487	349	349
KANS. CONCORDIA.....	324	111	5168	750	388	388	RALEIGH.....	330	71	3853	487	349	349
DODGE CITY.....	324	111	5168	750	388	388	WILMINGTON.....	330	71	3853	487	349	349
GOODLAND.....	324	111	5168	750	388	388	N. DAK. BISMARCK.....	428	102	7736	648	648	648
TOPERA.....	324	111	5168	750	388	388	FARGO.....	428	102	7736	648	648	648
NICHITA.....	324	111	5168	750	388	388	HILLISTON.....	428	102	7736	648	648	648
KY. LEXINGTON.....	290	105	4522	751	310	310	OHIO. AKRON-CANTON.....	330	93	5357	620	513	513
LOUISVILLE.....	280	98	4372	658	115	115	CINCINNATI.....	330	93	5357	620	513	513
LA. BATON ROUGE.....	182	36	1831	356	255	255	CLEVELAND.....	330	93	5357	620	513	513
LAKE CHARLES.....	91	23	1828	512	117	117	COLUMBUS.....	330	93	5357	620	513	513
NEW ORLEANS.....	83	29	1735	445	185	185	DAYTON.....	330	93	5357	620	513	513
SHREVEPORT.....	148	61	2674	807	120	120	TOLEDO.....	330	93	5357	620	513	513
YOUNGSTOWN.....	336	91	5379	517	712	712	OKLA. OKLAHOMA CITY.....	218	72	3640	589	152	152
TULSA.....	218	72	3640	589	152	152	TULSA.....	218	72	3640	589	152	152
OREG. ASTORIA.....	344	34	4022	174	169	169	BURNS.....	344	34	4022	174	169	169
BURNS.....	344	34	4022	174	169	169	HEDFORD.....	344	34	4022	174	169	169
HEDFORD.....	344	34	4022	174	169	169	PORTLAND.....	344	34	4022	174	169	169
PORTLAND.....	344	34	4022	174	169	169	SALEM.....	344	34	4022	174	169	169
SALEM.....	344	34	4022	174	169	169	PA. ALLENTOWN.....	373	73	4767	278	288	288
PA. ALLENTOWN.....	373	73	4767	278	288	288	ERIE.....	373	73	4767	278	288	288
ERIE.....	373	73	4767	278	288	288	HARRISBURG.....	373	73	4767	278	288	288
HARRISBURG.....	373	73	4767	278	288	288	PHILADELPHIA.....	373	73	4767	278	288	288
PHILADELPHIA.....	373	73	4767	278	288	288	PITTSBURGH.....	373	73	4767	278	288	288
PITTSBURGH.....	373	73	4767	278	288	288	SCRANTON.....	373	73	4767	278	288	288
SCRANTON.....	373	73	4767	278	288	288	R. I. PROVIDENCE.....	305	77	4722	285	421	421
R. I. PROVIDENCE.....	305	77	4722	285	421	421	S. C. CHARLESTON.....	152	53	2148	313	310	310
S. C. CHARLESTON.....	152	53	2148	313	310	310	COLUMBIA.....	152	53	2148	313	310	310
COLUMBIA.....	152	53	2148	313	310	310	GREENVILLE.....	152	53	2148	313	310	310
GREENVILLE.....	152	53	2148	313	310	310	SDAK. ABERDEEN.....	447	135	7611	965	715	715
SDAK. ABERDEEN.....	447	135	7611	965	715	715	HURON.....	447	135	7611	965	715	715
HURON.....	447	135	7611	965	715	715	RAPID CITY.....	447	135	7611	965	715	715
RAPID CITY.....	447	135	7611	965	7								

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