

# WEEKLY WEATHER AND CROP BULLETIN

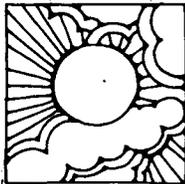
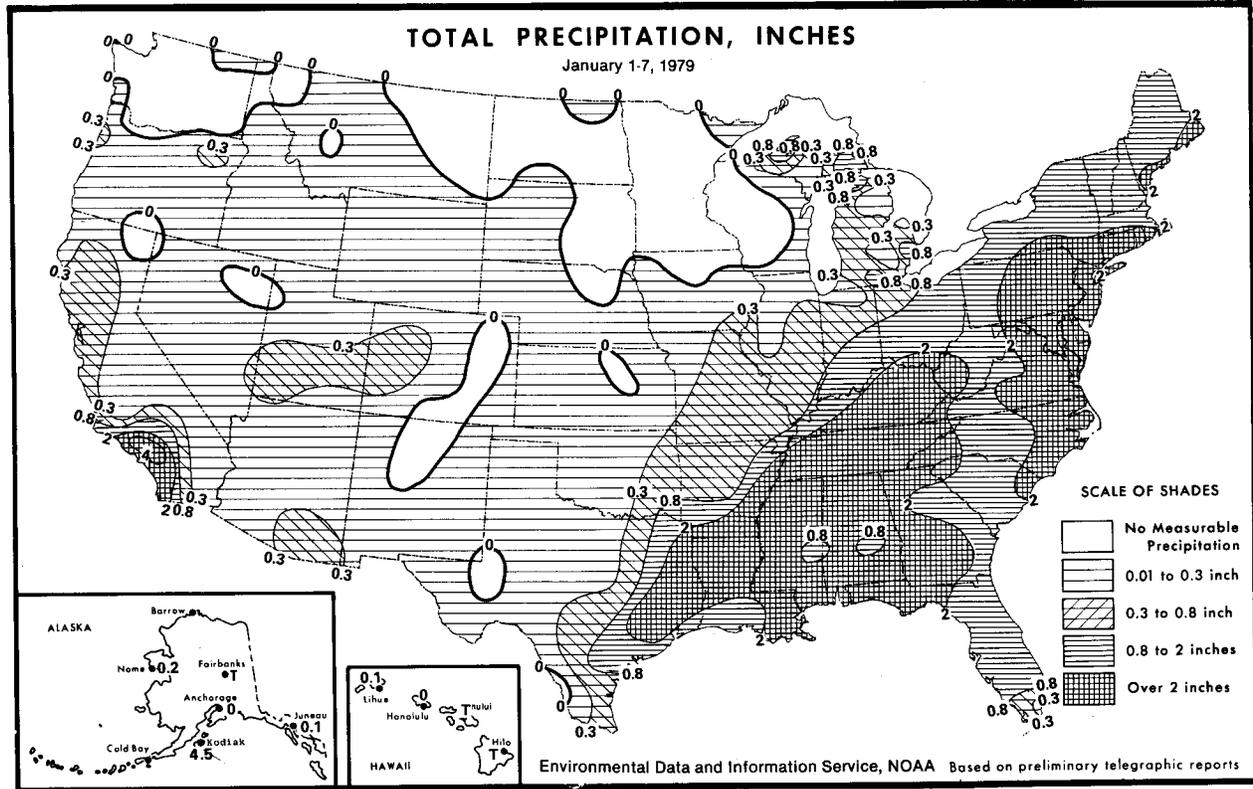
U.S. DEPARTMENT OF COMMERCE  
Environmental Data and Information Service, NOAA

U.S. DEPARTMENT OF AGRICULTURE  
Economics, Statistics, and Cooperatives Service

Volume 66, No. 2

Washington, D.C.

Jan. 9, 1979



## National Weather Summary

January 1 - 7

**HIGHLIGHTS:** After cold air plunged southward through the Plains, warm, moist air from the Gulf moved northward and triggered moderate to heavy precipitation; the moisture fell along the edge of the eastward-surging cold air mass from East Texas to New England. Snow followed in the colder air behind the front. A Pacific storm touched off heavy rains in southwestern California.

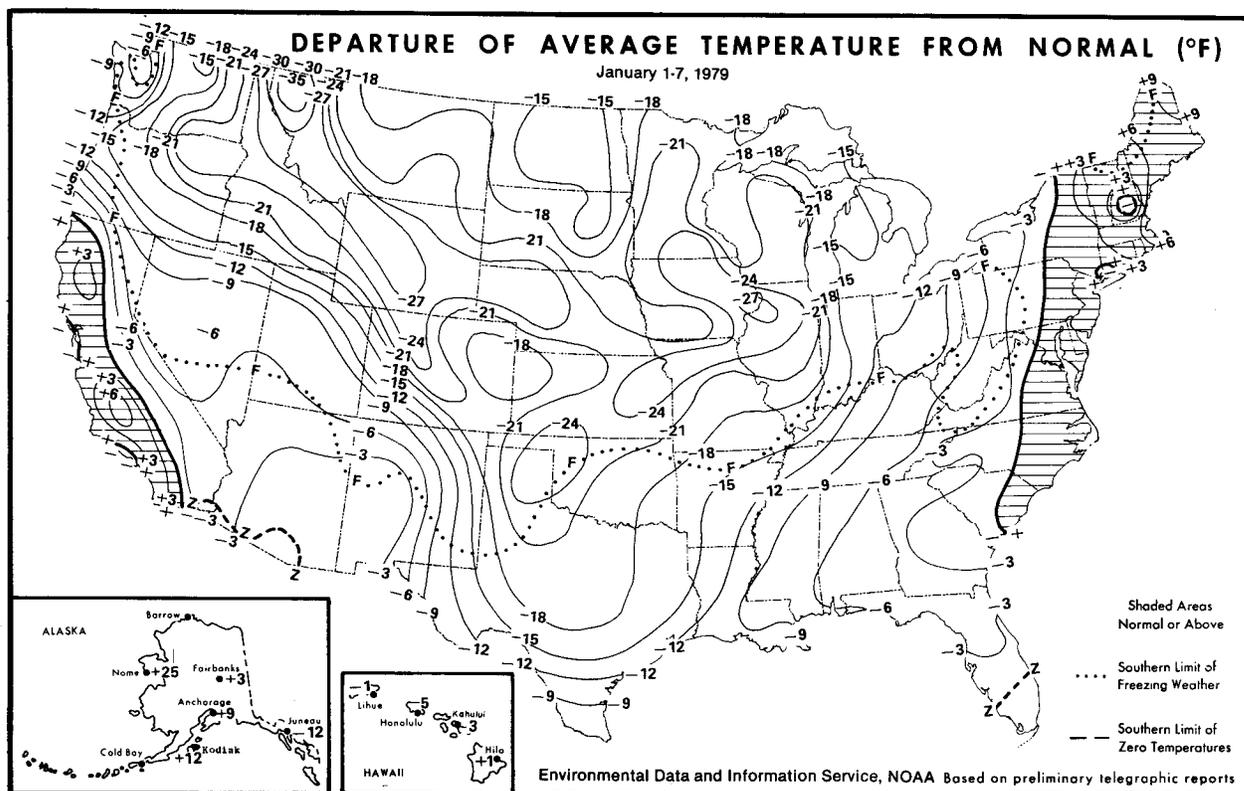
Average temperatures ranged much below normal in the Rockies and Plains producing one of the coldest weeks of the season. The coldest areas (from Idaho to Illinois) dipped 25 to 35 degrees below normal. Most of California and the Atlantic Coast scored near- or above-normal readings.

A slow-moving cold front brought a white New Year's Day into an area from the southern Plains to the Great Lakes. Ahead of the front, rain soaked a section from the Deep South across the Ohio Valley to the Atlantic Coast. One to 2 inches soaked points from Mississippi eastward to Florida and northward to the Carolinas. Light amounts of moisture fell to the north. Tornadoes touched down in Mississippi, Alabama, and Florida.

Behind the cold front, temperatures plummeted to new lows. A sampling showed a record  $-5^{\circ}$  at Wichita and  $15^{\circ}$  at Waco, central Texas. In Washington State, Spokane notched  $-22^{\circ}$  and Olympia's all-time record low reading plunged to  $-8^{\circ}$ .

By contrast, temperatures hovered well above normal in the East and South. Orlando, east central Florida, saw a record-equaling  $83^{\circ}$ . Beckley, southern West Virginia, at  $63^{\circ}$ , topped the old mark by 6 degrees. Baltimore opened the record book to  $64^{\circ}$ .

Frigid weather gripped much of the Nation west of the Atlantic Seaboard on Tuesday. Dozens of new records were set from the Plains to the Great



Lakes---to list but a few-- 13° at Austin, Tex., Kansas City's -11°, Little Rock's 7°, -22° at Mason City, northern Iowa, and -17° at Rockford, northern Illinois. The -27° at Moline, northwestern Illinois, stood as the lowest reading ever there.

Rain persisted along the East Coast with one-half to 2.8 inches falling from Florida to New England.

Early in the day, the East and South basked under unseasonable warmth including a record high temperature of 64° at Baltimore. By day's end, however, the thermometer dropped sharply. Record cold chilled Meridian, eastern Mississippi, 15°; Huntsville, northern Alabama, 14°; and Roanoke, southwestern Virginia, 11°.

On Wednesday, precipitation was light throughout much of the country, but temperatures put the Nation in a deep freeze.

While snow covered the ground from New England to eastern Tennessee and from the Plains northwestward to Washington State, more than two dozen stations scored record low readings.

Baltimore, which notched two record high temperatures earlier in the week, noted a record low of 10°. Some other records showed 28° at Daytona Beach, Fla., Miami's 42°, New Orleans's 23°, -17° at Topeka, and 26° at Brownsville, southern Texas. Akron, northeastern Ohio, shivered at a record -6°, and reached only +6° for the day's high, making for the coldest January 3 on record. The record high reading at Beckley, W.Va., on Monday, gave way to another record of -4°, undercutting the old mark by 16 degrees. Before the cold front moved through, Portland, southern Maine, called in a record high of 49°.

Snow squalls raced from the eastern portions of the Great Lakes and Ohio Valley into New York State on Thursday. Some light snow dusted the northern Rockies and central Plains.

Record low readings again chilled the East Coast; those temperatures included 3° at Atlantic

City, Baltimore's 8°, 9° at Raleigh, N.C., and Miami's 45°.

A series of storms produced a variety of precipitation on Friday. Moisture from the Gulf of Mexico overrode arctic air triggering freezing rain or snow from the southern Plains to the middle Atlantic Coast. Rain fell to the south where Houston picked up three-quarters inch.

Meantime a strong cold front surged into California and dumped rain in parts of southern California and the Southwest; snow covered high elevations. More than 2 inches of rain soaked Los Angeles.

On Saturday, a mixture of moisture clouded the weather picture from the Southwest across the Mississippi Valley to the Atlantic Seaboard.

San Diego collected 1.27 in. of rain to run its weekly total past 2 inches. As part of the same system, Chama, northern New Mexico, managed 6 inches of new snow.

Ice storms plagued an area from Oklahoma across Arkansas to Mississippi and the western Ohio Valley. Rainfall amounts included an inch and a third at Houston, more than an inch at El Dorado, southern Arkansas, and an inch and one-third at Alexandria, central Louisiana. Up to 2 inches of snow whitened the mid-Atlantic States.

The winter storm system persisted with unsettled weather from the eastern edge of the southern Plains to the Atlantic Coast on Sunday.

Ice from freezing rain continued as a problem in Oklahoma, Arkansas, and Mississippi. Rain fell heavily along the coasts of the Gulf and Atlantic Ocean. One to 3 inches of rain drenched stations from the Deep South through the Carolinas to the middle Atlantic area. The Ohio Valley reported heavy snow---as much as 7 inches at Columbus, central Ohio. New England received about 4 inches in the northern sections.

Bitter cold gripped the northern Plateau Region; Pocatello, southeastern Idaho, at -28°, had its third coldest day on record.



## National Agricultural Summary

January 1 - 7

**HIGHLIGHTS:** Low temperatures gripped most of the Nation sending temperatures as much as 8 degrees below normal in the lower Rio Grande Valley and 25 to 30 degrees subnormal in the central Plains. The low temperatures damaged Texas citrus and destroyed some vegetable crops. Fortunately most of the Nation's winter wheat lay protected under a blanket of snow in the Great Plains where the most extreme temperatures were felt. The cold weather stressed cattle and required producers to feed heavy rations of grain and forage. Florida's citrus was nipped by subfreezing temperatures but sustained no apparent damage. The only areas of the country reporting above-normal temperatures were the East Coast from South Carolina northward and the California Coast. Low temperatures slowed small grain and pasture growth across the South. Stock ponds froze, and farmers had to chop through the ice to provide water for the cattle.

**SMALL GRAINS:** Winter wheat generally rated good in spite of the severe weather prevailing throughout most of the major production areas. Snowcover saved the crop from the low temperatures and winds. Some stands across the South rated only poor to fair because of the low temperatures and the lack of snow protection. Some areas of the South had been dry during seeding, and stands did not go into the winter in very good condition. Small grains seeding continued in the Southwest.

Kansas winter wheat was snow-covered except in the northwest corner of the State. Subsoil moisture was short throughout Kansas and surface moisture fell short in the northwest and southwest. A mantle of snow protected the Oklahoma winter wheat in the north central area. Freezing weather in Texas pushed wheat into dormancy. Grazing scored short to unavailable as fields lay covered by snow or ice from the High Plains southward into central Texas. Many areas reported leaf freeze damage. The Pacific Northwest noted some possible freeze damage from the plunging temperatures but made no assessment as to the extent. Arizona and California farmers made excellent progress planting small grains. Small grains were germinating in the Sacramento Valley.

**OTHER CROPS:** A few States reported some straggling row crop harvests including corn in Ohio and Georgia and soybeans in Virginia, South Carolina, and Georgia.

Cotton harvesting was virtually complete, and gins began closing from the Delta States eastward. Texas cotton harvest advanced to 96% complete before freezing rain and snow brought picking to a standstill in most of the northern and western areas. Gins were able to catch up which freed trailers for the final harvest. Farmers in the Coastal Bend and the Lower Rio Grande Valley completed cotton seedbed preparations for planting next month. Arizona growers finished harvesting and plowed down crop residue. New Mexico ginnings lagged at 75% compared with the 95% average. Cotton scrapping and second pickings continued in some areas of California, but for the most part harvest was complete.

Tobacco producers in the major producing States continued marketing the crop. Farther south, growers prepared seedbeds for planting.

**FRUITS AND NUTS:** Pecan harvests across the South neared completion. Georgia reached 95%, but New Mexico was plagued with wet soils and picking only reached the halfway point.

Florida citrus grove condition rated excellent. Freezing temperatures on January 3 did very little damage. Surface moisture in the citrus areas rated adequate. Orange and grapefruit harvests moved actively. Low temperatures in Texas on January 3 and 4 defoliated outer leaves of all types of citrus, particularly younger trees in western and northern groves of the lower Rio Grande Valley. Fruit damage hurt many areas, but the extent was not known. Wood damage appeared minimal. Orange drop presented problems as harvest activity concentrated on delivering fallen fruit to processors. Fresh market citrus shipments were halted out of Texas from the 6th to the 17th excluding gift packs. Arizona citrus growers harvested lemons, grapefruit, Navels, sweet oranges, and tangerines. California Navels suffered a reduction in fresh supplies as more of the crop was diverted to processors.

**VEGETABLES:** Adverse weather in Florida slowed vegetable harvests at midweek. However, overall shipments increased 28% from the previous week. Cabbage, sweet corn, chinese cabbage, strawberries, and watermelon shipments increased considerably. Carrots, celery, eggplant, escarole, peppers, and tomatoes registered a more modest increase while other crop supplies dwindled. Tender foliage showed some evidence of windburn. Low midweek temperatures slowed spring planting.

Most vegetables in the lower Rio Grande Valley suffered freeze damage including leafburn and plant dehydration. Some vegetable stands were expected to recover depending upon the crop and the stage of maturity. Farther north in Texas, hardier crops were damaged or lost to the freeze including some mature cabbage and broccoli. Spinach fields sustained freeze damage, but plants should make new growth. Growers had to revert to hand harvesting some crops because freeze damage prevented machine harvest. Arizona growers harvested lettuce while at the same time planting the spring crop. California harvests of broccoli, cauliflower, and celery decreased in the south. Morning ice delayed lettuce harvest in the Imperial Valley.

**PASTURES AND LIVESTOCK:** Pastures rated fair across the southern part of the Nation. Low temperatures slowed growth, and in some areas cattle producers fed supplemental rations of hay and forage. Texas range and pastures deteriorated. Small grain pastures from the Panhandle to central Texas provided fair grazing. Cold weather and limited grazing stressed livestock; many displayed only poor to fair condition. Cattle lost weight although ranchers boosted hay and supplemental feeding. Herdsmen on the Edwards Plateau sustained heavy losses of lambs and kids during the cold spell. California's cold temperatures slowed growth throughout the State and froze stock ponds in northern areas. Feed and hay held adequate throughout the Nation although spot shortages developed in some localities.

Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., Jan. 7, 1979

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	- 6	2.6	+ 1.5	LA. Baton Rouge . . .	44	- 7	1.4	+ .4	Youngstown . . .	18	- 8	1.2	+ .6
Mobile . . .	46	- 5	2.4	+ 1.2	Lake Charles . . .	42	-10	1.7	+ .7	OKLA. Okla. City . . .	17	-20	.1	- .2
Montgomery . . .	43	- 4	1.8	+ .8	New Orleans . . .	44	- 9	3.2	+ 2.1	Tulsa . . .	17	-19	.3	0
ALASKA Anchorage . . .	20	+ 9	0	- .2	Shreveport . . .	31	-16	3.1	+ 2.2	OREG. Astoria . . .	31	-10	T	- 2.3
Barrow . . .	-	-	-	-	MAINE Caribou . . .	20	+ 9	1.4	+ .9	Burns . . .	9	-16	T	- .4
Fairbanks . . .	-11	+ 3	T	- .1	Portland . . .	28	+ 6	2.4	+ 1.6	Medford . . .	35	- 1	.1	- .7
Juneau . . .	12	-12	.1	- .8	MD. Baltimore . . .	35	+ 2	3.4	+ 2.7	Pendleton . . .	4	-28	.1	- .3
Kodiak . . .	42	+12	4.5	+ 3.4	MASS. Boston . . .	36	+ 6	1.5	+ .7	Portland . . .	24	-14	T	- 1.4
Nome . . .	30	+25	.2	0	Chatham . . .	35	-	1.6	-	Salem . . .	24	-15	.2	- 1.4
ARIZ. Flagstaff . . .	26	- 2	.2	- .3	MICH. Alpena . . .	6	-13	.2	- .2	PA. Allentown . . .	29	+ 1	3.7	+ 3.0
Phoenix . . .	50	- 1	.1	- .1	Detroit . . .	12	-13	.2	- .3	Erie . . .	17	- 9	1.4	+ .8
Tucson . . .	50	0	.8	+ .6	Flint . . .	9	-14	.2	- .2	Harrisburg . . .	30	0	2.7	+ 2.1
Winslow . . .	29	- 2	T	- .1	Grand Rapids . . .	11	-13	.5	0	Philadelphia . . .	35	+ 2	3.2	+ 2.5
Yuma . . .	50	- 5	.1	0	Houghton Lake . . .	2	-16	.2	- .2	Pittsburgh . . .	20	- 8	1.6	+ 1.0
ARK. Fort Smith . . .	22	-17	.4	- .1	Lansing . . .	9	-14	.2	- .4	Scranton . . .	26	0	2.4	+ 1.9
Little Rock . . .	25	-14	.7	- .2	Marquette . . .	2	-17	T	- .4	R.I. Providence . . .	34	+ 5	2.6	+ 1.8
CALIF. Bakersfield . . .	53	+ 7	.2	0	Muskegon . . .	12	-13	.6	+ .1	S.C. Charleston . . .	48	0	1.3	+ .6
Eureka . . .	49	+ 2	.1	- 1.6	S. Ste. Marie . . .	2	-13	.3	- .2	Columbia . . .	44	- 1	1.6	+ .8
Fresno . . .	47	+ 3	.2	- .2	MINN. Duluth . . .	-10	-19	T	- .3	Greenville . . .	39	- 3	2.2	+ 1.3
Los Angeles . . .	55	- 2	2.2	+ 1.6	Internat Falls . . .	-17	-20	T	-	S.D. Aberdeen . . .	- 6	-16	T	-
Red Bluff . . .	47	+ 3	.6	- .4	Minneapolis . . .	6	-19	T	- .2	Huron . . .	5	-18	T	- .1
San Diego . . .	59	+ 4	2.0	+ 1.6	Rochester . . .	-12	-26	T	- .2	Rapid City . . .	2	-20	T	- .1
San Francisco . . .	47	- 1	.5	- .5	St. Cloud . . .	-11	-21	T	- .2	Sioux Falls . . .	- 6	-21	T	- .1
Stockton . . .	44	0	.3	- .4	MISS. Jackson . . .	38	- 9	4.7	+ 3.6	TENN. Chattanooga . . .	35	- 5	2.3	+ 1.1
COLO. Denver . . .	11	-19	T	- .1	Meridian . . .	39	- 7	1.5	+ .4	Knoxville . . .	33	- 7	2.7	+ 1.7
Grand Junction . . .	12	-14	.3	+ .2	MO. Columbia . . .	9	-20	.3	- .1	Memphis . . .	28	-12	2.2	+ 1.1
Pueblo . . .	7	-23	T	- .1	Kansas City . . .	4	-24	.1	- .2	Nashville . . .	28	-10	3.4	+ 2.3
CONN. Bridgeport . . .	30	- 1	2.1	+ 1.5	St. Louis . . .	12	-19	.3	- .1	TEX. Abilene . . .	26	-18	T	- .2
Hartford . . .	28	+ 3	2.3	+ 1.5	Springfield . . .	13	-20	.4	0	Amarillo . . .	11	-25	T	- .1
D.C. Washington . . .	38	+ 3	2.5	+ 1.9	MONT. Billings . . .	3	-19	.1	0	Austin . . .	32	-18	.6	+ .2
FLA. Apalachicola . . .	49	- 5	2.7	+ 2.0	Glasgow . . .	9	-19	T	- .1	Beaumont . . .	42	-10	1.8	+ .9
Daytona Beach . . .	57	- 1	1.5	+ 1.1	Great Falls . . .	2	-19	.1	- .1	Brownsville . . .	52	- 8	.5	+ .2
Ft. Myers . . .	61	- 3	.9	+ .5	Havre . . .	- 5	-17	T	- .1	Corpus Christi . . .	45	-11	.6	+ .3
Jacksonville . . .	49	- 5	1.3	+ .7	Helena . . .	- 7	-25	T	- .1	Del Rio . . .	37	-13	.1	0
Key West . . .	69	- 2	.4	0	Kalispell . . .	-14	-33	T	- .4	El Paso . . .	40	- 3	.2	+ .1
Lakeland . . .	-	-	-	-	Miles City . . .	- 5	-21	T	- .1	Fort Worth . . .	27	-18	.3	- .1
Miami . . .	66	- 2	.3	- .2	Missoula . . .	- 9	-30	T	- .3	Galveston . . .	43	-11	1.8	+ 1.1
Orlando . . .	58	- 2	1.2	+ .7	NEBR. Grand Island . . .	1	-21	T	- .1	Houston . . .	38	-14	3.8	+ 3.0
Tallahassee . . .	47	- 5	4.2	+ 3.3	Lincoln . . .	1	-21	T	- .1	Lubbock . . .	21	-18	T	- .1
Tampa . . .	58	- 2	1.5	+ 1.0	Norfolk . . .	0	-19	T	- .1	Midland . . .	25	-18	T	- .1
W. Palm Beach . . .	65	- 1	.8	+ .2	N. Platte . . .	- 2	-25	.2	+ .1	San Angelo . . .	27	-19	T	- .1
GA. Atlanta . . .	39	- 3	1.5	+ .5	Omaha . . .	1	-19	.1	0	San Antonio . . .	36	-15	.6	+ .3
Augusta . . .	43	- 2	1.1	+ .3	Valentine . . .	4	-24	T	- .1	Victoria . . .	39	-15	1.8	+ 1.4
Macon . . .	45	- 2	2.1	+ 1.2	NEV. Ely . . .	17	- 6	.1	- .1	Waco . . .	27	-20	.3	- .1
Savannah . . .	47	- 2	1.4	+ .7	Las Vegas . . .	39	- 4	.1	0	Wichita Falls . . .	22	-19	T	- .3
HAWAII. Hilo . . .	72	+ 1	T	- 2.3	Reno . . .	24	- 7	.1	- .2	UTAH. Blanding . . .	20	- 7	.3	0
Honolulu . . .	68	- 5	0	- 1.0	Winnemucca . . .	20	- 8	.1	- .1	Salt Lake City . . .	18	- 9	T	- .3
Kahului . . .	69	- 3	T	- .8	N.H. Concord . . .	19	- 2	1.8	+ 1.2	VT. Burlington . . .	22	+ 4	1.5	+ 1.1
Lihue . . .	71	- 1	.1	- 1.4	N.J. Atlantic City . . .	33	0	2.4	+ 1.6	VA. Lynchburg . . .	32	- 4	2.3	+ 1.7
IDAHO. Boise . . .	9	-19	.1	- .2	Trenton . . .	34	+ 2	2.6	+ 2.0	Norfolk . . .	41	+ 1	2.1	+ 1.4
Lewiston . . .	8	-23	T	- .3	N.MEX. Albuquerque . . .	32	- 2	T	- .1	Richmond . . .	39	+ 2	2.1	+ 1.5
Pocatello . . .	1	-22	.2	0	Roswell . . .	25	-12	.1	0	Roanoke . . .	32	- 4	2.0	+ 1.4
ILL. Cairo . . .	20	-16	.5	- .4	N.Y. Albany . . .	24	+ 2	1.7	+ 1.2	WASH. Colville . . .	1	-22	0	- .5
Chicago . . .	2	-23	.1	- .3	Binghamton . . .	23	+ 1	2.2	+ 1.6	Omak . . .	8	-14	0	- .4
Moline . . .	- 5	-27	.1	- .3	Buffalo . . .	19	- 5	1.5	+ .9	Quillayute . . .	31	- 8	0	- 3.4
Peoria . . .	- 1	-25	.3	- .1	New York . . .	33	+ 1	1.9	+ 1.2	Seattle-Tacoma . . .	34	- 4	0	- 1.3
Rockford . . .	- 3	-23	.1	- .3	Rochester . . .	20	- 5	.9	+ .4	Spokane . . .	1	-24	T	- .6
Springfield . . .	4	-23	.2	- .2	Syracuse . . .	23	- 1	1.3	+ .7	Walla Walla . . .	8	-25	T	- .5
IND. Evansville . . .	17	-16	.9	+ .1	N.C. Asheville . . .	36	- 2	2.6	+ 1.8	Yakima . . .	8	-19	0	- .3
Ft. Wayne . . .	12	-14	.3	- .3	Charlotte . . .	39	- 3	.8	0	W. VA. Beckley . . .	28	- 3	1.9	+ 1.1
Indianapolis . . .	13	-15	.8	+ .2	Greensboro . . .	37	- 1	1.5	+ .8	Charleston . . .	28	- 6	2.4	+ 1.6
South Bend . . .	10	-14	.3	- .3	Hatteras . . .	49	+ 3	1.7	+ .7	Huntington . . .	26	- 8	2.4	+ 1.7
IOWA Burlington . . .	2	-21	.5	+ .1	Raleigh . . .	41	+ 1	1.8	+ 1.1	Parkersburg . . .	24	- 9	1.7	+ 1.0
Des Moines . . .	0	-20	T	- .3	Wilmingon . . .	46	0	2.8	+ 2.1	WISC. Green Bay . . .	- 7	-23	T	- .2
Dubuque . . .	- 6	-24	T	- .4	N. DAK. Bismarck . . .	- 5	-14	T	- .1	La Crosse . . .	- 2	-18	T	- .2
Sioux City . . .	- 3	-21	T	- .1	Fargo . . .	-10	-17	T	- .1	Madison . . .	- 4	-21	T	- .3
KANS. Concordia . . .	7	-19	T	- .1	Williston . . .	- 9	-18	T	- .1	Milwaukee . . .	- 1	-21	T	- .4
Dodge City . . .	8	-23	.1	0	OHIO. Akron-Canton . . .	18	- 9	1.2	+ .6	WYO. Casper . . .	- 2	-25	.2	+ .1
Goodland . . .	12	-15	T	- .1	Cincinnati . . .	19	-12	1.8	+ 1.1	Cheyenne . . .	7	-20	.1	0
Topeka . . .	3	-25	.1	- .2	Cleveland . . .	19	- 8	1.2	+ .6	Lander . . .	- 9	-28	T	- .1
Wichita . . .	9	-22	.2	0	Columbus . . .	19	- 9	1.6	+ 1.0	Sheridan . . .	- 1	-22	.1	0
KY. Lexington . . .	23	-10	2.4	+ 1.5	Dayton . . .	18	-10	1.6	+ 1.0	P.R. San Juan . . .	78	+ 2	.3	- .6
Louisville . . .	23	-10	1.8	+ 1.0	Toledo . . .	11	-14	.3	- .2					

Based on 1941-70 normals

Publication of the Weekly Weather and Crop Bulletin began in 1872 as the Weekly Weather Chronicle. It is issued under general authority of the Act of January 12, 1895 (44USC 213), 53d Congress, 3d Session. Contents of the Bulletin may be reprinted freely, with proper credit.

Standard copy for the Bulletin is prepared by Donald J. Haddock, Lyle Denny, and O. W. Byrd, Environmental Data and Information Service,

National Oceanic and Atmospheric Administration; Harry DeLong and Jim Carlin, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture.

Yearly subscription rate: \$13.00 domestic and \$18.00 foreign airmail. Order from the Agricultural Weather Facility, USDA South Building, Room 1248, Washington, D.C. 20250. Make checks payable to Department of Commerce, NOAA.

## 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:** Temperatures 6° below normal; coldest of season early in week, 20° below normal. Most locations received 2.00 to 4.00 in. rain.

Fieldwork: 2.3 days suitable. Soil moisture adequate. Farm activity limited to care and feeding livestock, poultry, general chores. Plowing 16% complete, fieldwork slightly behind schedule. Pastures short, poor condition. Stored feed supply adequate. Wheat, livestock fair condition.

**ARIZONA:** Clear, cold early week; partly cloudy, warm midweek. Pacific storm end of week produced precipitation most areas. Snow level 5,500 ft; 1 to 6 in. new snow White Mountains, Mogollon Rim. Temperatures mostly below normal.

Field conditions improved. Light, scattered showers. Cotton harvest, residue disposal practically complete, preparation underway 1979 crop. Preparations, planting small grains increasing. Early fields excellent progress. Fall sugarbeet harvest standstill, muddy fields. Spring beets growing well. Alfalfa minimal growth, haying seasonally slow. Harvest lettuce, mixed vegetables good progress. Lettuce harvest central area about complete, full swing west. Planting spring crop active. Lemons, grapefruit, Navels, sweet oranges, tangerines being picked. Groves reasonably good condition. Ranges fair, little forage growth due to low temperatures. Ranchers feeding supplements. Stock water, soil moisture adequate. Cattle, calves good condition. Lambing full swing.

**ARKANSAS:** Cold, icy week. Snow and sleet northwest half beginning of week and major winter storm statewide weekend. Temperatures below freezing with means 14 to 21° below normal. Extremes: -2 and 41°. Least precipitation 0.42 in.; most 6.87 in.

Farming activities limited to feeding livestock and poultry. No field activity.

**CALIFORNIA:** Warming temperatures although cold air mass early week kept averages below normal. Rainfall late week brought considerable precipitation to south coast and desert areas but only light rain elsewhere.

Planting small grains central coast, San Joaquin and Imperial Valley. Winter grains Sacramento Valley germinated. Alfalfa and small grains sprayed for weed control San Joaquin Valley. Control gophers alfalfa plantings Sacramento Valley. Planting sugarbeets San Joaquin Valley. Cotton plowdown, post harvest shredding, discing continued San Joaquin Valley. Cotton scrapping, second pickings continued Riverside County. Cotton harvest nearing completion most areas. Seasonal pruning, spraying, weeding, deciduous fruit orchards. Avocados wind damage San Bernardino and Riverside. Date harvest continued. Desert grapefruit light demand. Navel oranges reduced fresh supply; diversion to byproducts. Dancy tangerines about done. Kinnow mandarin harvest beginning. Cold weather retarding vegetable growth. Harvests of broccoli, cauliflower, celery increasing south. Lettuce harvest Imperial Valley delayed by ice mornings. Curtailed by rain 2d. Heavy cullage winter potatoes due to freeze damage. Grass growth slowed due cold. Sacramento, San Joaquin Valleys fog also hampered growth. Supplemental feeding peak some areas. Stock ponds frozen north. Movement bee hives to almond orchards beginning.

**COLORADO:** Very cold; temperatures 20° below normal over eastern plains and 10° below normal over mountains. Two Pacific storm systems caused 12 to 24 in. snow in central and northern mountains 3d to 5th and 6 in. more on western slope on 6th to 7th. Only light snow fell on eastern plains.

**FLORIDA:** Strong cold front entered Panhandle late 1st; crossed entire Peninsula, 2d. Heavy rainfall resulted ranging from high of 2.28 in. north to 0.22 in. south. Temperatures dropped rapidly with front passage but averaged around 2° below normal. High pressure dominated through 6th. Second cold front began moving into Panhandle late 7th with accompanying rainfall.

Soil moisture mostly adequate. Sugarcane harvest continued; crop in generally good condition. Farmwork slowed due to rain and cold. Small grains fair to good but growth slowed by cold. Pasture grazing reduced by cold weather from Panhandle to central. Pastures good condition south. Cattle mostly good condition. Citrus grove condition excellent. Very little fruit icing from freezing temperatures on 3d. Surface moisture adequate all areas. Orange and grapefruit harvests active. Vegetable harvest slowed midweek due to adverse weather. Overall shipments increased 28% from previous week. Cabbage, sweet corn, chinese cabbage, strawberry, watermelon shipments up considerably. Carrots, celery, eggplant, escarole, peppers, tomatoes increased while snap beans, cucumbers, lettuce, okra, radishes, squash supplies decreased. Quality, size generally good but packout lowered by wind scarring. Some windburn to tender foliage evident. Spring planting active but slowed midweek due to cold. Strawberry crop condition mostly good; some rain damage, windburn evident. Harvest increasing. Fall watermelon crop mostly complete. Some light foliage burn to early plantings of spring crop. Growth, germination slowed. Plantings expected active when temperatures warm.

**GEORGIA:** Rain statewide first of week. Temperatures turned sharply colder after precipitation ended averaging 3° below normal. Extremes: 78 and 4°. Rainfall ranged from 0.87 to 2.80 in.

Soil moisture adequate south and east of Macon, surplus elsewhere. Corn, cotton and soybean harvest essentially complete. Pecans 95% gathered. Small grain and pasture fair to mostly good condition. Cattle fair to mostly good. Hogs good. Tobacco bed work active, mostly complete. Heavy liming activity between rains.

**HAWAII:** Weather dry, cool. Record low temperatures some areas retard crop growth mainly higher elevation. Most low-lying plantings improving. Kona area, island of Hawaii, need more moisture.

Vegetable supplies generally light. Banana supplies light to moderate. Papayas light. Pineapple slow harvesting. Sugar continued slack. Pastures generally good.

**IDAHO:** Cold weather prevailed. Temperatures 13 to 30° below normal. Precipitation light and well below normal.

Farm activities limited mostly to care of livestock as sharply below normal temperatures persist. Stress on livestock; heavy supplemental feeding.

ILLINOIS: Temperatures: 16 to 27° below normal. Precipitation 0.50 to 1.00 in. Snow depths 4 in. south to 15.0 in. north.

Winter wheat mostly good condition, snow covered. Livestock good condition; minor cold weather stress. Main farm activities livestock care, general chores. Soil moisture adequate.

INDIANA: Very cold, temperatures 16° below normal. Precipitation 0.20 in. north to 0.80 in. south. Some flooding south. Weekend snow storm resulted in 5 to 10 in. snowcover.

Activities limited to inside work and caring for livestock. Tobacco stripping almost completed.

IOWA: Very cold, dry week. Temperatures 21° subnormal. Snowcover varied from 4 in. extreme west to 8 or 10 in. east. Little new snow fell mostly in the south and east.

KANSAS: Moisture ranged few hundredths northwest, 0.25 to 0.50 in. southwest and north central, locally 0.75 to 1.00 in. east and south central. Snow depths weekend ranged 6 to over 10 in. north-east, 2 to 5 in. south. Temperatures ranged 7° north central and southwest, 14° southeast; 7 to 24° below normal.

Wheat had snowcover except northwest. Subsoil moisture mostly short. Surface moisture mostly short northwest and southwest. Hay and forage shortages south central and southeast. Livestock heavily stressed by cold and snow; extra supplemental feeding.

KENTUCKY: Temperatures above normal 1st but averaged 10° below normal rest of week. Precipitation above normal, falling mostly on 1st and weekend. Amounts 2.00 to 4.00 in. central and east.

Outdoor activity limited to care and feeding of livestock and maintenance work; most of State covered by snow and ice. Stored feed in good supply. Cattle coming off mild fall in good condition. Tobacco marketing continued.

LOUISIANA: Temperatures 7 to 15° below normal. Extremes: 75 and 12°. General rains.

Activities: Care and feeding of livestock.

MARYLAND & DELAWARE: Temperatures 1° below normal. Highs in mid-40's and lows in 20's. Precipitation widespread; 1.50 to 2.25 in. Saturday partly cloudy, with light showers and light snow 6th. Foggy and rainy 7th.

MICHIGAN: Very cold with temperatures 7 to 15° below normal over lower Peninsula and 12 to 20° below normal over Upper. Upper Peninsula precipitation ranged from 0.02 to 2.51 in. Lower Peninsula amounts ranged from 0.07 to 1.26 in. Snow depths increased 5 to 10 in.

Farm activities: Grading and marketing stored crops, maintenance and repair of buildings and equipment, feeding livestock and regular chores.

MINNESOTA: Temperatures 20° below normal. Extremes: 17 and -34°. Precipitation 0.19 in. below normal with only traces of snowfall. Snow depth weekend 10 in., ranging from 3 in. or less southwest to 19 in. extreme north central.

MISSISSIPPI: Temperatures 5 to 10° below normal. Extremes: 7 and 76°. Rainfall on 4 or 5 days. Some light snow in many areas.

Soil moisture adequate to surplus. Fieldwork: 0.5 days suitable. Farmers feeding and caring for livestock. Freezing weather greatly reduced winter grazing. Winter wheat poor to fair condition.

Livestock condition fair. Hay and roughage supplies mostly adequate, with scattered areas short. Feed grain supplies adequate to short.

MISSOURI: Temperatures 11° below normal Bootheel, 20° below normal elsewhere. Precipitation general ranging from 0.50 in. northwest, 1.00 in. or more central, to over 2.00 in. southwest.

Farming activities limited by severe cold weather. Livestock care hampered by snow and ice.

MONTANA: Extremely cold; temperatures in west and southwest averaged 30° below normal. Elsewhere temperatures 20 to 25° below normal. As result of extreme cold, precipitation very light.

Livestock in fair condition with stress common due to cold. Supplemental feeding difficult and grazing closed.

NEBRASKA: Temperatures 20 to 25° below normal. Precipitation less than 0.10 in. north; 0.10 to 0.20 in. south. Snowcover gradually building; fair to good some areas. Farm activities primarily care of livestock.

NEVADA: Continued cold early, moderating temperatures end of week. Light precipitation most areas. Temperatures 4 to 18° below normal. Extremes: 56 and -23°.

Feeding and chopping ice for livestock main ranch activity.

NEW ENGLAND: Strong southerly winds ahead of cold front pushed temperatures to near record levels. Moderate to heavy rains 1.00 to 2.00 in. Arctic air settled in behind this system keeping temperatures from climbing above teens and 20's.

NEW JERSEY: Temperatures slightly below normal, averaging 30° north, 32° south and 34° coastal. Extremes: 5 and 63°. Precipitation well above normal averaging 3.86 in. north, 2.97 in. south and 2.78 in. coastal. Snow fell 6th and 7th. Snow depth 1 in.

Farmers caring for livestock and tending to other winter chores.

NEW MEXICO: Scattered rains and snows with heaviest amounts northern mountains. Temperatures 15 to 20° colder than normal eastern plains and 3 to 10° below normal elsewhere.

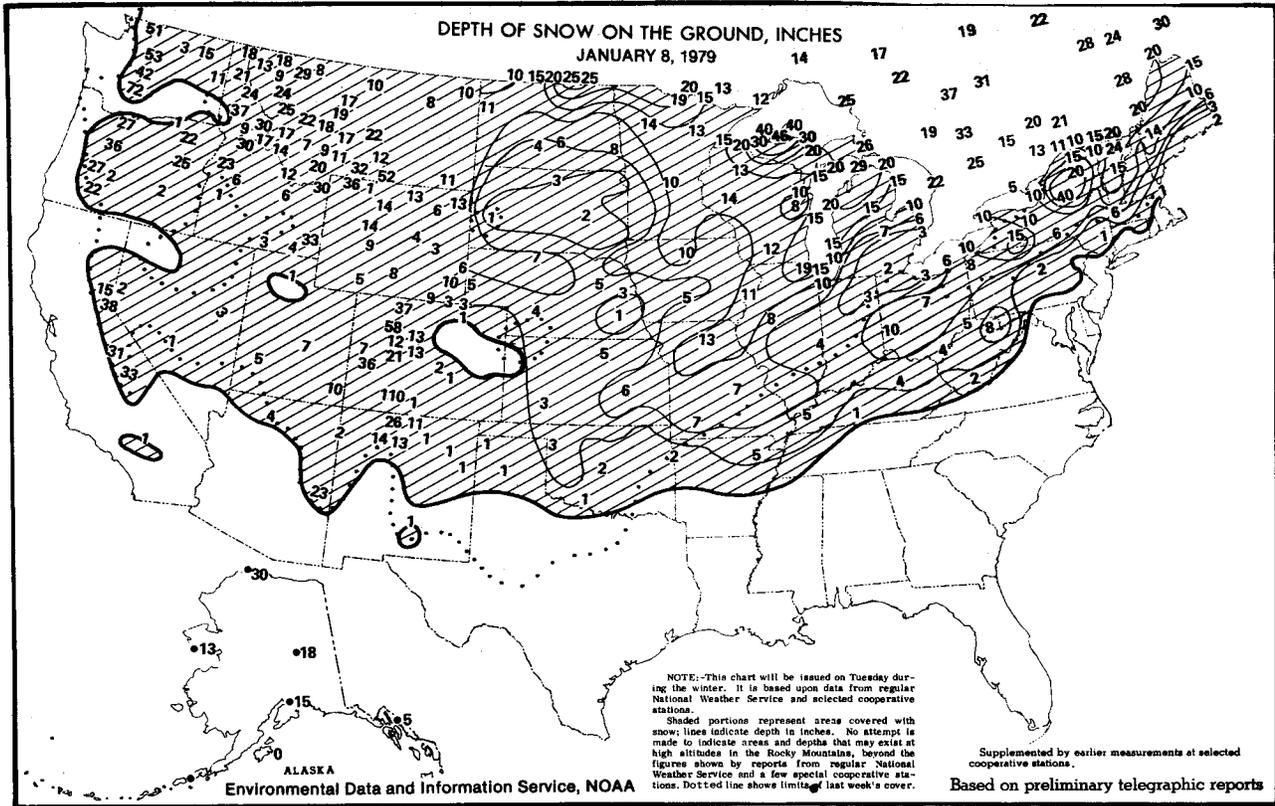
As of 1st, about 75% cotton ginned compared with average of 95%. Wheat and barley good. Pecan harvest slightly over 50%, wet soils continue to limit activity. Livestock fair. Some calves and sheep lost to bitter cold, frozen rain, and snow.

NEW YORK: Temperatures east slightly above normal while central and west below normal. Precipitation on heavy side and in form of snow except for 1st when rain was general. Precipitation averaged from 1.50 to 2.25 in.

NORTH CAROLINA: Temperatures 2° above normal east; 3° subnormal west. Precipitation widespread; 1.00 to 2.00 in.

Fieldwork: 2.1 days suitable. Soil moisture mostly adequate to surplus. Condition of small grains fair to mostly good; pastures fair. Supplies of hay, roughage and feed grains mostly adequate to surplus.

NORTH DAKOTA: Very cold and windy. Temperatures 17 to 21° below normal. Extremes: -36 to 14°. Gusty west winds prevailed. Drifting snow and blocked roads problem many rural areas. No significant snowfall.



Farm activities mostly limited to feeding livestock and clearing snow. Grain movement continued slow.

**OHIO:** Warm weekend, but high temperatures fell into low teens by midweek. Low  $-8^{\circ}$ . Temperatures more than  $10^{\circ}$  below normal. Soil temperatures at 4 in. generally below freezing except for some areas in south. Snowcover statewide weekend. Water equivalent totals ranged from only 0.31 to 1.79 in. These amounts above normal over all but northwest.

Limited corn harvest continued.

**OKLAHOMA:** Temperatures averaged 19 to  $23^{\circ}$  below normal east and 20 to  $25^{\circ}$  below normal west. Precipitation fell several times as freezing rain, sleet, and snow; amounts ranged from 0.03 in. Panhandle to 0.47 in. southeast.

Snowfall north central sufficient to cover small grain pastures. Hay supplies rapidly depleted. Weather hard on livestock but no major problems developed.

**OREGON:** Extremely cold; temperatures 15 to  $25^{\circ}$  below normal; 5 to  $10^{\circ}$  below normal along southern border. High temperatures 30's west, teens and 20's east, except along southern border. Lows in teens and 20's west and generally 10 to  $20^{\circ}$  below zero east. Precipitation less than normal.

Fieldwork nil. Some freeze damage possible to fall seeded crops, too early to determine extent. Livestock feeding heavy, animals in good condition. Hay supplies abundant. Storage crops, potatoes and onions moving to market.

**PENNSYLVANIA:** Coldest week of season and wettest since mid-May. Midweek cold snap along with blustery winds to 40 mph brought lowest temperature

of season with wind chill factor nearly  $-60^{\circ}$ . Extremes:  $-11$  and  $62^{\circ}$ . Weekend storm brought heavy precipitation, mostly rain south and snow north that measured 1.50 in. northwest to over 4.00 in. parts of southeast. New snow from 3 in. southeast to 12 in. northwest.

Normal winter chores.

**PUERTO RICO:** Island average rainfall 0.54 in. or 0.33 in. below normal. Temperatures averaged about  $75^{\circ}$  on coasts and  $70^{\circ}$  interior. Extremes: 88 and  $48^{\circ}$ .

**SOUTH CAROLINA:** Near normal temperatures, rainfall. Rather cloudy with precipitation early, late week. Rainfall heaviest in higher elevations, coast.

Cold, rain late in week interrupted fieldwork. Soybean combining about to wind down. Cotton harvest about complete, many gins closed. Pruning fruit trees, grape vines; preparing croplands for spring planting; general farm maintenance.

**SOUTH DAKOTA:** Bitter cold; temperatures 17 to  $23^{\circ}$  subnormal. Extremes:  $-36$  and  $23^{\circ}$ . Measurable precipitation only a few areas. Snowcover from a trace to 1.00 in. west central and south central. Northern areas have 6 to 8 in. East 4 to 8 in. snowcover.

**TENNESSEE:** Rain early week; fair midweek. Ice storm weekend over west, rain middle and east. Precipitation 1.75 in. Temperatures below normal. Lows upper teens and highs about  $35^{\circ}$ .

Soil moisture surplus. Pastures and small grains fair. Cattle fair; on supplemental feed. General chores and care of livestock main activities.

**TEXAS:** Arctic front moved into State early week bringing cold temperatures. Another cold front

4th pushed into State bringing freezing rain, snow north and northwestern areas, and scattered showers over southern areas. Temperatures 20° below normal northwest, 10° below normal elsewhere. Precipitation 1.50 in. above normal along central to Upper coast, 1.00 in. above normal east. Near normal over Panhandle, west, south and central.

Ice, snow, freezing weather sharply reduced cotton harvest. Gins continued to run on stocks on hand. Wheat, oats little or no growth. Grazing sharply curtailed under blanket ice, snow. Many stands suffered leaf freeze damage. Cotton harvest slowed to standstill as freezing rain, snow covered most of northern, western areas. With slowdown in stripping activity, gins catching up and freeing trailers for final harvest push. Cotton harvest 96%, 100% 1977, 99% average. Farmers Coastal Bend, lower Rio Grande Valley completed seedbed preparation and ready to go when planting dates roll around next month. Wheat pushed into dormant stage most areas by freezing weather. Grazing short; many fields covered by snow or ice from High Plains south into central Texas. Leaf freeze damage noted many areas. Greenbugs, winter grain mites building up Low Plains before last cold front covered stands with blanket of snow or ice. Oats little or no growth because of severe cold weather. Extent of freeze damage not been assessed yet, but grazing sharply reduced as ice, snow covered many areas. Flax severely damaged by cold weather in south. Some farmers will try to replant as soon as weather conditions permit.

Lower Rio Grande Valley vegetables suffered damage as result of freeze. Mature lettuce, cabbage suffered leaf burn, plant dehydration. Frame leaves young lettuce plants burned; most fields expected to recover. Cabbage heavy losses, especially young fields; tonnage expected reduced in salvagable, mature fields. Many broccoli fields destroyed; also cauliflower plants not tied at time of freeze. Carrot harvest continued; top damage reported. Onions also top damaged. Duration mid-20's temperatures on night 2d, early morning hours 3d caused widespread defoliation outer leaves all types citrus, particularly younger trees western, northern groves. Fruit damage reported many areas; extent not known this time. Wood damage believed minimal. Fruit drop-page particularly oranges present problems as harvest activities concentrated on fallen fruit for processors. Shipping holiday declared all Texas fresh market citrus movement, excluding gift fruit; 6th to 17th. Eagle Pass nearly all cauliflower fields lost to freeze. Broccoli, onions, carrots and cabbage fields also damaged. Laredo some mature cabbage fields lost due to freeze. Young spinach fields burned; plants expected make new growth. Harvest mature fields continued. Carrots and onions suffered top burn. Broccoli fields damaged; some growers expect tonnage reduction. San Antonio-Winter Garden cauliflower fields destroyed by freeze. Mature cabbage fields wrapper and cap leaf damage. Tonnage reduction expected harvest included smaller, lighter heads. Onion tops laying over, growers hoping plants recover. Some carrot fields hand harvested, tops badly damaged, thus preventing machine harvest. Range and pasture conditions deteriorated

by wet freezing weather. Small grain pastures from Panhandle to central furnishing fair grazing. Along Coastal Bend dried grasses furnishing limited grazing. Result of cold weather, limited grazing, livestock poor to fair condition. Although ranchers increased hay and supplemental feeding, cattle drawn, shrinkage problems reported. Edwards Plateau, heavy losses lambs, kids during cold spell.

UTAH: Recurring snow in scattered areas. Amounts moisture generally light to moderate. Temperatures coldest of winter. Sub-zero minimum most areas except extreme southwest. Averages range between 4 and 29° below normal.

Colder temperatures limited farm activities to feeding and caring for livestock. Sorting, grading and marketing onions, potatoes, and apples.

VIRGINIA: Rain 1st through 3d and again on weekend. Average temperature 36°; slightly below normal. Extremes: 71 and -5°.

Topsoil moisture adequate to surplus. Fieldwork: 1.6 days suitable. Winter grains and grazing mostly good. Wet, cold weather and frozen ground limited field activity. Some remaining corn, soybeans harvested; lime and fertilizer spread. Other activities: care of livestock; tobacco marketing; pruning orchards.

WASHINGTON: West: Temperatures 11 to 20° below normal. Precipitation ranged from 1.40 to 2.00 in. below normal.

Low temperatures worry berry and cabbage seed growers. Equipment repair, livestock feeding major activities. Feed adequate.

East: Temperatures 24 to 30° below normal. Precipitation ranged from 0.30 to 0.50 in. below normal.

Farm activity down. Some winter injury to grain stands likely. Some bud and tree injury reported in colder areas of Yakima Valley. Livestock feeding continued.

WEST VIRGINIA: Temperatures unseasonably cold. Warm beginning, cold midweek. Extremes: 64 and -6°. Precipitation 0.70 to 1.30 in. above normal. Most rain 2.37 in.

Fieldwork: 1.7 days suitable. Soil moisture adequate to surplus. Hay supply adequate. Increased hay consumption by livestock. Livestock in good condition.

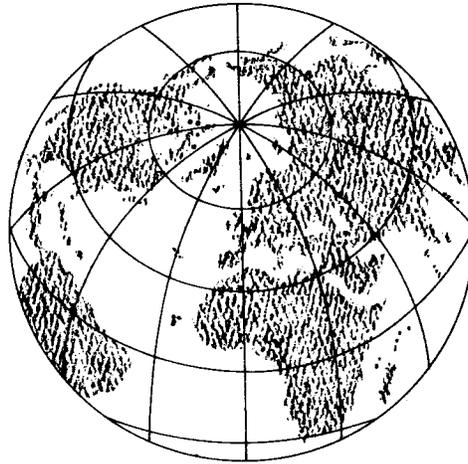
WISCONSIN: Clear, very cold; temperatures about 18° subnormal. Daily highs near zero or below until weekend when reached 10°. Overnight lows well below zero. No precipitation except for a little lingering snow southeast 1st. Most areas have a foot of snow on the ground.

WYOMING: Another very cold week with temperatures 30 to 50° below normal. Precipitation generally below normal with exception of southeast.

Snowcover most areas and extremely cold. Ranchers feeding heavy. If weather does not break some ranchers will be looking for additional hay before spring. Winter wheat snow-covered in many areas minimizing wind and freeze damage.

## World Weather and Crop Update

January 1 - 7



**USSR.** Abundant snowfall of 20 to 40 mm (water equivalent) continued in the eastern Ukraine, and some heavy amounts (50 to 70 mm water equivalent) fell in Krasnodar Kray. Temperatures turned colder with lows below  $-20^{\circ}\text{C}$  as far south as the northeastern coast of the Black Sea, but snow depths have been sufficient to protect the wheat crop. Above-normal snowfall also blanketed much of the Central Region, the Volga Valley, and the New Lands making the soil moisture outlook for spring-sown crops quite good.

**PEOPLE'S REPUBLIC OF CHINA.** Rainfall returned to below normal again along the southeast coast after a surge above normal last week. An extensive area to the northeast of Vietnam saw much-above-normal rains, but soil moisture in areas to the east may be in short supply at planting time in the spring. The wheat belt continued seasonally dry, and temperatures there moderated somewhat.

**AUSTRALIA.** As the wheat harvest finished up, all of the country except the most-northerly areas remained rainless. In the North, rainfall continued somewhat below normal for the most part, but an area along the northeast coast of Queensland was swamped with rains of up to 270 mm. Reports indicated some damage to the sugarcane crop.

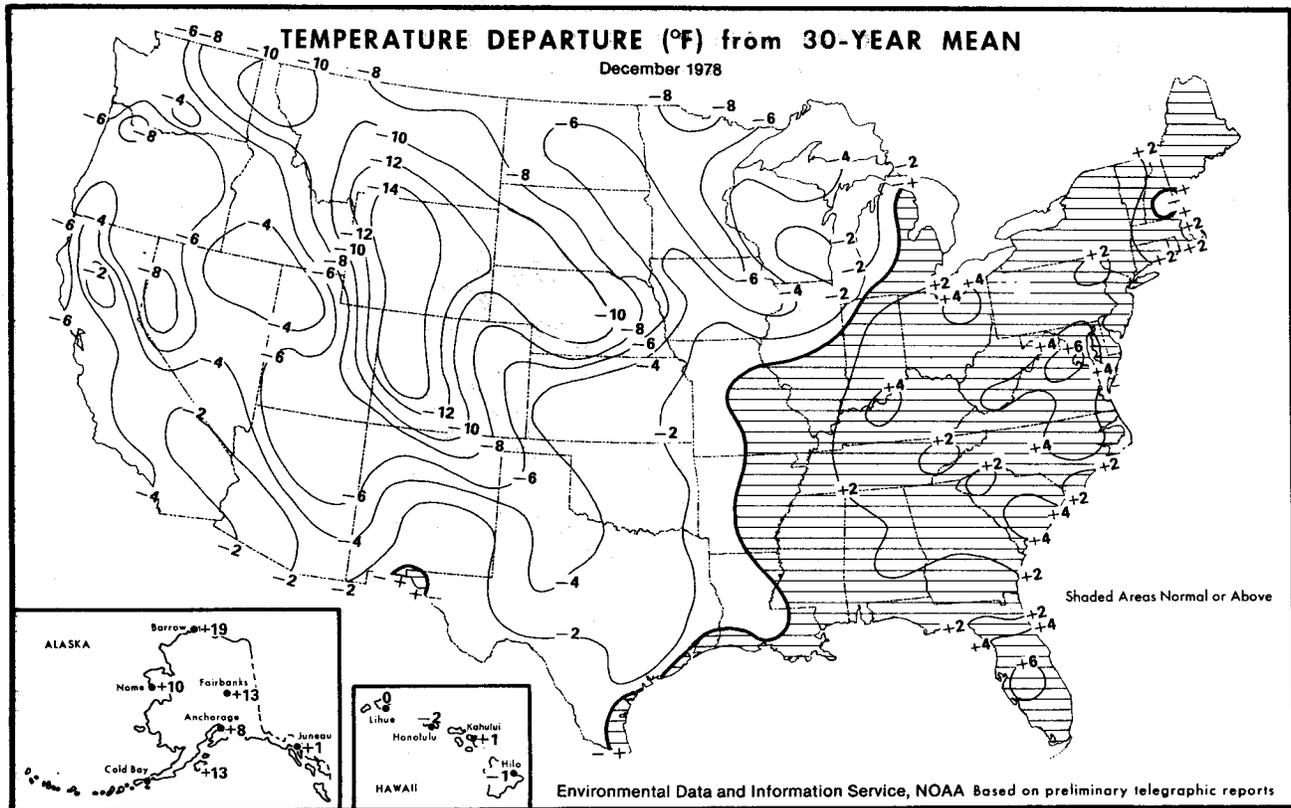
**INDIA.** The entire country became nearly rainless as monsoon activity in the peninsula ceased abruptly several weeks earlier than normal. Likewise there was no sign of snowfall in the mountains of the north; normally snow begins in December and continues through January.

**AFRICA.** Relatively dry weather continued in northern Africa with substantial amounts falling only along the Atlantic coast of Morocco (about 10 mm) and the eastern coastal area of Algeria

(about 20 mm). Rains at the end of December in Morocco helped the wheat crop, but totals since fall planting lagged far behind. In South Africa's Maize Triangle, many locations in northern and eastern portions received normal rainfall amounts of 20 to 40 mm. However, southern areas remained dry, and deficiencies continued in other northern areas as the corn crop continued vegetative growth under stress from lack of moisture.

**EUROPE.** A variable precipitation pattern partially relieved some previously dry areas but left some others still short of moisture. Much of eastern Spain received above-normal rainfall of 10 to 30 mm, and although much more will be needed to bring soil moisture up to normal, these rains will help the developing wheat crop. Only a relatively localized area in southeastern Spain remained dry, as did an area encompassing portions of Austria, Hungary, and Czechoslovakia. Most of northern Europe turned relatively dry and quite cold, but had received abundant snowfall last week adequately protecting winter grain crops.

**SOUTH AMERICA.** Brazilian soybean areas north of Parana stayed wet again as much-above-normal rains in excess of 100 mm fell in southern Mato Grosso and western Sao Paulo. Amounts in Parana tapered off to 10 to 15 mm, and less than 5 mm fell on soybean areas of Santa Catarina and Rio Grande do Sul. Though rainfall in Parana was much below normal, the crop there should have sufficient moisture to carry it through. However, the crop in Rio Grande do Sul is not so far advanced, and more rain is needed. An unusual rainfall pattern in Argentina dropped amounts of 25 to 50 mm in the northwest part of the country, but left the important crop areas to the east with only light amounts of 5 to 15 mm. The corn crop should have adequate water, however, as it nears maturity.



## December Weather Summary

**HIGHLIGHTS:** Early in December, an outbreak of very cold air moved southward down the West Coast of the U.S. and into northern Mexico. A hard freeze resulted in southern California. The freezing temperatures moved eastward into Arizona and northern Mexico, and then to the Rio Grande Valley where a moderate freeze occurred. The southernmost extent of the snowcover line in the Plains remained in southern Nebraska until late in the month when it moved southward into northern Texas.

Total precipitation for the month was less than 50 percent of normal in northern California, Oregon, Washington, and most of Idaho. Less than half the normal precipitation also fell in the Plains from Kansas southward. Excessive moisture fell in the Southwest and Rockies as well as the area from Arkansas through the Great Lakes and most of New England. Temperatures averaged below normal west of the Mississippi River, especially in the central Rockies and above normal in the East:

On Friday, the first day of December, a surge of very cold air pushed into the northern Plains and drastically dropped temperatures. Snow accumulated from the northern Rockies to the western Great Lakes and southward to Nebraska.

Early in the first week of December (4 - 10), the jet stream oriented itself from Alaska southward into California and began funneling very cold air into the area. Freezing weather in California began on the 6th, and a hard freeze encompassed the State and moved into Arizona on the night and morning of the 8th and 9th. Moderate damage to crops was reported. The cold air moved eastward and caused damage to crops in Texas's Rio Grande Valley on the 8th and 9th. At the same time, temperatures dropped to single digits in the winter wheat area of the central Plains. All of the area south of

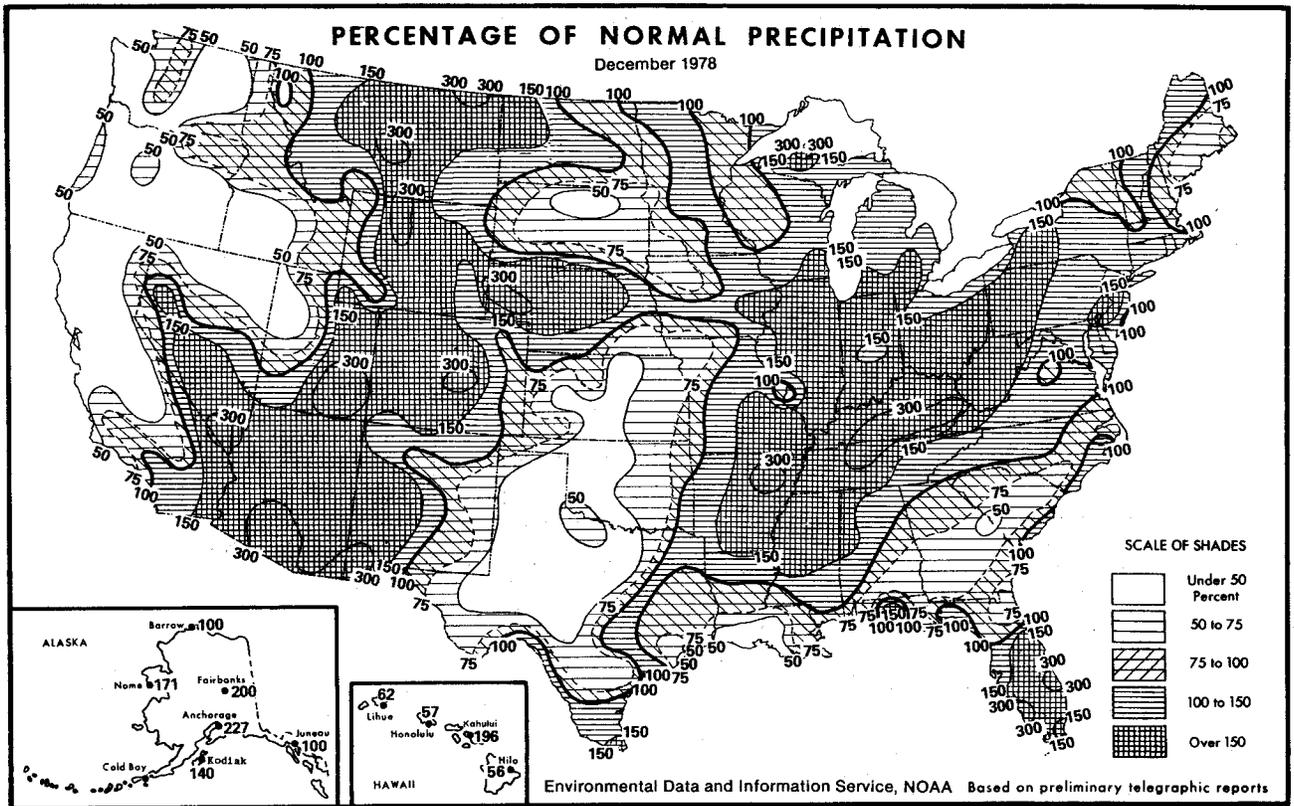
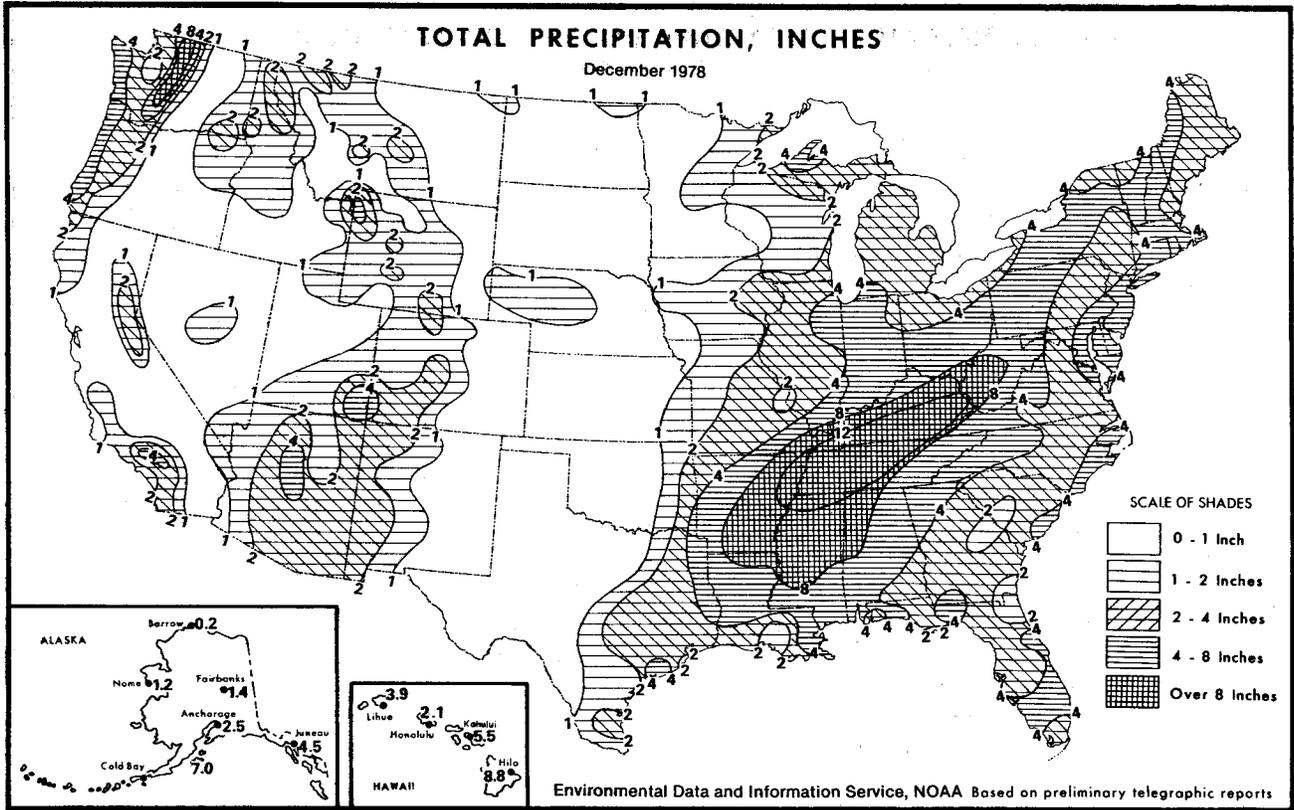
Nebraska stood without snowcover. The cold air covered all of the U.S. by week's end. Moderate to heavy precipitation occurred from Louisiana to the mid-Atlantic States as the leading edge of the cold air encountered warm, moist air from the Gulf of Mexico.

December's second week brought moderating temperatures to much of the Nation. Even areas that remained colder than normal were much warmer than the previous week. In contrast, however, the Southeast averaged 4 to 6 degrees colder than normal after a week of warm weather. Little precipitation fell during the second week except for showers totaling nearly an inch in the Northwest, Southwest, in northern New England, and the southern tip of Florida.

The third week of December, the 18th to 24th, carried a continuation of showers in the Northwest and Southwest. A storm system from the Gulf of Mexico spread rain throughout the East. More than two inches fell from southern Alabama to eastern North Carolina helping to ameliorate the area's long-standing moisture deficit. Temperatures ranged warmer than normal throughout much of the country, except the West Coast and the Great Plateau where averages generally showed 3 to 6 degrees colder than normal.

December ended with a week of wet weather from eastern Texas to New England and in southern Florida. Moderately cold air swept from the Gulf of Alaska to the northern central Plains and eastward during the early part of the week; as month's end approached, the trajectory of very cold air spread from western Canada into the Plateau and Rockies.

By Sunday morning, single-digit temperatures covered the winter wheat areas of western Kansas, Oklahoma, and the Texas Panhandle. This time, however, the cold air was preceded by snow which covered the area. The very cold air moved southward and eastward.



Temperature and Precipitation Data for December 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.	46	+ 1	5.4	+ .2	LA. Baton Rouge.	52	- 1	1.9	- 3.1	Youngstown.	32	+ 3	4.2	+ 1.6
Mobile.	54	+ 1	4.4	- 1.5	Lake Charles.	54	0	2.4	- 3.3	OKLA. Okla. City.	37	- 3	.7	- .6
Montgomery.	51	+ 2	4.2	- .7	New Orleans.	56	+ 1	4.4	- .7	Tulsa.	38	- 2	.8	- .8
ALASKA. Anchorage.	21	+ 8	2.5	+ 1.4	Shreveport.	48	- 1	5.1	+ .9	OREG. Astoria.	38	- 5	5.0	- 5.6
Barrow.	7	+19	.2	0	MAINE. Caribou.	16	0	3.0	+ .4	Burns.	22	- 6	.6	- 1.1
Fairbanks.	3	+13	1.4	+ .7	Portland.	26	0	3.2	- 1.1	Medford.	33	- 5	.7	- 3.0
Keneau.	28	+ 1	4.5	0	MD. Baltimore.	40	+ 5	4.6	+ 1.3	Pendleton.	30	- 6	1.9	+ .4
Kodiak.	43	+13	7.0	+ 2.0	MASS. Boston.	35	+ 2	3.6	- .6	Portland.	32	- 9	2.5	- 3.5
Nome.	14	+10	1.2	+ .5	Chatham.	36	-	5.2	-	Salem.	35	- 6	2.6	- 4.3
ARIZ. Flagstaff.	24	- 6	5.4	+ 3.2	MICH. Alpena.	24	+ 1	2.3	+ .4	PA. Allentown.	34	+ 3	4.0	+ .4
Phoenix.	52	- 1	2.5	+ 1.7	Detroit.	29	0	2.8	+ .5	Erie.	31	+ 2	3.8	+ 1.0
Tucson.	50	- 2	2.7	+ 1.8	Flint.	27	0	2.6	+ .9	Harrisburg.	36	+ 3	4.0	+ .9
Winslow.	27	- 7	1.0	+ .4	Grand Rapids.	27	0	3.3	+ 1.1	Philadelphia.	39	+ 4	5.6	+ 2.3
Yuma.	53	- 3	.7	+ .4	Houghton Lake.	22	- 1	2.1	+ .3	Pittsburgh.	33	+ 2	5.2	+ 2.7
ARK. Fort Smith.	40	- 2	3.3	+ .4	Lansing.	27	0	2.9	+ .9	Scranton.	29	- 1	3.1	+ .6
Little Rock.	42	0	8.1	+ 4.0	Marquette.	20	- 4	2.2	+ .2	R.I. Providence.	33	+ 1	5.2	+ 1.1
CALIF. Bakersfield.	46	- 2	.6	- .1	Muskegon.	26	- 3	2.8	+ .4	S.C. Charleston.	53	+ 4	4.1	+ 1.0
Eureka.	43	- 6	1.2	- 5.4	S. Ste. Marie.	18	- 2	3.3	+ .9	Columbia.	50	+ 4	1.8	- 1.6
Fresno.	43	- 3	.6	- 1.1	MINN. Duluth.	10	- 4	1.2	- .2	Greenville.	43	0	3.4	- .7
Los Angeles.	53	- 5	1.5	- .7	Internatl Falls.	1	- 8	.9	- .1	S.D. Aberdeen.	11	- 6	.1	- .4
Red Bluff.	45	- 1	.1	- 3.8	Minneapolis.	15	- 4	.9	0	Huron.	25	- 6	.3	- .2
San Diego.	55	- 2	2.2	+ .5	Rochester.	13	- 6	.8	0	Rapid City.	17	-10	.3	- .2
San Francisco.	46	- 4	.6	- 3.4	St. Cloud.	9	- 7	1.0	+ .1	Sioux Falls.	15	- 5	.5	- .2
Stockton.	42	- 4	.6	+ 2.1	MISS. Jackson.	49	0	8.4	+ 3.4	TENN. Chattanooga.	44	+ 3	7.6	+ 2.3
COLO. Denver.	25	- 8	.8	+ .4	Meridian.	48	0	6.1	+ .5	Knoxville.	43	+ 1	5.9	+ 1.4
Grand Junction.	16	-14	1.3	+ .7	MO. Columbia.	34	+ 1	2.5	+ .7	Memphis.	44	+ 1	13.1	+ 8.4
Pueblo.	24	- 9	.7	+ .4	Kansas City.	31	- 1	1.1	- .4	Nashville.	43	+ 3	13.6	+ 9.1
CONN. Bridgeport.	36	+ 2	4.8	+ 1.4	St. Louis.	35	0	1.8	- .2	TEX. Abilene.	43	- 3	.3	- .7
Hartford.	29	+ 1	4.2	+ .1	Springfield.	35	- 1	3.7	+ 1.2	Amarillo.	33	- 6	.3	- .4
D.C. Washington.	43	+ 6	4.0	+ 1.0	MONT. Billings.	16	-11	1.7	+ 1.0	Austin.	50	- 2	2.8	+ .6
FLA. Apalachicola.	56	+ 1	1.1	+ 2.2	Glasgow.	9	- 8	.5	+ .2	Beaumont.	57	+ 3	3.7	- 1.2
Daytona Beach.	66	+ 6	4.9	+ 2.9	Great Falls.	17	-10	1.1	+ .4	Brownsville.	63	0	1.9	+ .7
Ft. Myers.	70	+ 5	4.2	+ 2.9	Havre.	12	- 6	.6	+ .2	Corpus Christi.	59	0	1.8	+ .3
Jacksonville.	55	0	1.8	- .8	Helena.	15	- 8	.8	+ .2	Del Rio.	51	- 1	.8	+ .3
Key West.	76	+ 4	.4	- 1.1	Kalispell.	14	- 9	.9	- .6	El Paso.	45	+ 1	.5	0
Lakeland.	-	-	-	-	Miles City.	13	- 9	.7	+ .2	Fort Worth.	46	- 2	.8	- 1.0
Miami.	73	+ 5	2.1	+ .5	Missoula.	16	- 9	1.0	- .1	Galveston.	57	0	1.3	- 2.4
Orlando.	67	+ 5	3.7	+ 1.8	NEBR. Grand Island.	18	- 9	.6	0	Houston.	53	- 2	2.6	- 1.4
Tallahassee.	54	+ 1	4.6	+ .4	Lincoln.	22	- 5	.4	- .3	Lubbock.	38	- 3	.2	- .4
Tampa.	66	+ 4	3.1	+ .9	Norfolk.	17	- 7	.9	+ .3	Midland.	43	- 3	.2	- .3
W. Palm Beach.	71	+ 4	5.3	+ 3.1	N. Platte.	15	-12	1.0	+ .6	San Angelo.	44	- 4	.3	- .4
GA. Atlanta.	46	+ 2	3.8	- .4	Omaha.	21	- 5	.7	- .1	San Antonio.	52	- 1	1.1	- .4
Augusta.	48	+ 2	1.3	- 2.1	Valentine.	13	-11	.7	+ .4	Victoria.	54	- 2	1.3	- .7
Macon.	50	+ 2	2.2	- 2.1	NEV. Ely.	21	- 5	.7	0	Waco.	47	- 3	2.0	0
Savannah.	53	+ 3	2.9	- .4	Las Vegas.	43	- 2	1.2	+ .8	Wichita Falls.	40	- 4	.7	- .6
HAWAII. Hilo.	71	- 1	8.8	- 7.0	Reno.	25	- 8	.8	- .3	UTAH. Blanding.	23	- 7	4.3	+ 3.0
Honolulu.	72	- 2	2.1	- 1.6	Winnemucca.	26	- 4	.4	- .5	Salt Lake City.	27	- 3	.6	- .8
Kahului.	74	+ 1	5.5	+ 2.7	N.H. Concord.	23	- 2	2.9	- .4	VT. Burlington.	25	+ 2	2.1	- .1
Lihue.	73	0	3.9	- 2.4	N.J. Atlantic City.	38	+ 3	3.5	- .5	VA. Lynchburg.	40	+ 2	4.1	+ .9
IDAHO. Boise.	27	- 5	.6	- .8	Trenton.	38	+ 3	5.6	+ 1.3	Norfolk.	45	+ 3	2.3	- .8
Lewiston.	29	- 6	1.0	- .3	N.MEX. Albuquerque.	34	- 2	.8	+ .3	Richmond.	43	+ 4	3.8	+ .6
Pocatello.	20	- 7	.7	- .3	Roswell.	38	- 1	.4	- .1	Roanoke.	40	+ 3	3.2	+ .1
ILL. Cairo.	39	0	11.3	+ 7.8	N.Y. Albany.	29	+ 3	3.1	+ .2	WASH. Colville.	18	- 9	.7	- 1.5
Chicago.	26	- 3	4.1	+ 2.0	Binghamton.	28	+ 3	3.2	+ .4	Omak.	18	- 9	.2	- 1.4
Moline.	23	- 4	3.2	+ 2.4	Buffalo.	30	+ 2	3.5	+ .5	Quillayute.	36	- 5	7.7	- 7.9
Peoria.	27	- 1	3.5	+ 1.6	New York.	38	+ 2	4.9	+ 1.3	Seattle-Tacoma.	37	- 4	1.4	- 4.5
Rockford.	22	- 3	2.8	+ 1.1	Rochester.	30	+ 2	4.4	+ 2.0	Spokane.	19	-10	1.1	- 1.3
Springfield.	31	0	3.4	+ 1.5	Syracuse.	30	+ 2	4.1	+ 1.0	Walla Walla.	32	- 5	2.3	+ .3
IND. Evansville.	37	+ 2	6.1	+ 2.8	N.C. Asheville.	41	+ 2	4.3	+ .7	Yakima.	28	- 3	.1	- 1.1
Ft. Wayne.	31	+ 2	3.8	+ 1.6	Charlotte.	45	+ 2	3.1	- .3	W. VA. Beckley.	37	+ 4	5.9	+ 2.6
Indianapolis.	34	+ 3	4.0	+ 1.3	Greensboro.	42	+ 2	4.5	+ 1.3	Charleston.	39	+ 3	8.0	+ 4.8
South Bend.	29	+ 1	4.4	+ 1.9	Hatteras.	51	+ 3	3.3	- 1.2	Huntington.	39	+ 3	8.7	+ 5.7
IOWA. Burlington.	26	- 2	1.8	+ .2	Raleigh.	45	+ 4	3.3	+ .2	Parkersburg.	37	+ 2	6.7	+ 3.9
Des Moines.	23	- 2	1.4	+ .3	Wilmington.	49	+ 1	4.7	+ 1.3	WISC. Green Bay.	18	- 3	1.4	+ .1
Dubuque.	19	- 4	2.4	+ .5	N. DAK. Bismarck.	11	- 5	.5	0	La Crosse.	20	- 2	.9	- .1
Sioux City.	16	- 8	.8	0	Fargo.	7	- 6	.5	- .1	Madison.	21	- 1	1.7	+ .2
KANS. Concordia.	28	- 2	.2	- .6	Williston.	8	- 7	1.0	+ .5	Milwaukee.	24	0	2.9	+ 1.1
Dodge City.	31	- 2	.4	- .1	OHIO. Akron-Canton.	33	+ 4	4.2	+ 1.8	WYO. Casper.	13	-13	1.2	+ .7
Goodland.	25	- 5	.4	0	Cincinnati.	36	+ 2	6.5	+ 3.6	Cheyenne.	21	- 8	.5	+ .1
Topeka.	30	- 2	.6	- .9	Cleveland.	34	+ 4	3.0	+ .6	Lander.	9	-14	1.2	+ .7
Wichita.	32	+ 3	.6	- .5	Columbus.	34	+ 3	5.0	+ 2.6	Sheridan.	13	-13	1.0	+ .3
KY. Lexington.	38	+ 2	10.0	+ 6.4	Dayton.	34	+ 3	4.5	+ 2.2	P.R. San Juan.	80	+ 3	2.6	- 2.1
Louisville.	40	+ 4	7.6	+ 4.3	Toledo.	30	+ 2	3.3	+ 1.1					

Based on 1941-70 normals

## THE TEMPERATURE ENVIRONMENT OF SOVIET WINTER WHEAT

by J.L. Lambert  
World Food and Agricultural Outlook  
and Situation Board, USDA

December 18 - 24, 1978

There has been some concern about possible damage to the Soviet winter wheat crop during a cold-air outbreak in the week prior to Christmas of 1978. The following analysis was based on Soviet studies of temperature regimes and winter hardiness of wheat, based upon information provided by Michael Zahn of the Foreign Demand and Competition Division of ESCS. This information was used to assess the impact of temperature and snowcover on the wheat crop during that week.

The condition of the crop as it went into dormancy this autumn was considered to be about average. Both October and November had been drier than normal in the Ukraine, but abundant rains in September had adequately replenished soil moisture, so that germination and early development neared normal. Snowfall before the onset of potentially damaging cold weather in early December gave adequate protection to the crop. The onset of winter in the Ukraine was gradual enough to allow the crop to develop sufficient hardiness to withstand temperatures of  $-16^{\circ}\text{C}$  to  $-18^{\circ}\text{C}$  at the tillering nodes of plants by mid-December.

Data were extracted from a family of curves (published in the USSR) relating node temperatures (at 3 cm depth) to minimum screen temperature and snow depth; a single curve was drawn indicating combinations of minimum screen temperature and snow depth that would produce a node temperature

of  $-16^{\circ}\text{C}$ . Figure 1 shows this simplified physical relationship, where the temperatures may be regarded as critical minimum air temperatures that might cause winterkill during this week.

Values of these critical minimum air temperatures were calculated from snow depths along two north-south transects---one passing about 150 km west of Kiev and the other extending from Voronezh south to Krasnodar. A total of 11 stations were used. Trends of daily maximum and minimum air temperatures at these stations were analyzed for the week of the cold spell and were compared with values of the critical minimum air temperature.

Coldest conditions occurred on the mornings of the 22nd and 23rd, but at no time did minimum air temperature drop below the critical value. Stations at which temperatures were closest to critical values were those where snow depth was 5 cm or less, but the margin of safety was nearly always at least  $5^{\circ}\text{C}$ . The area which came closest to experiencing damage extended from the east central Ukraine through the central Ukraine to the northwestern Ukraine. Temperatures to the north and east of these locations were surely colder, but greater snow depth there protected the crop adequately. Areas to the south and west with little or no snowcover also had warmer temperatures. There may have been some winterkill in areas where snow depths were minimal in this danger zone, but for the most part the crop appears to have withstood this round of cold weather.

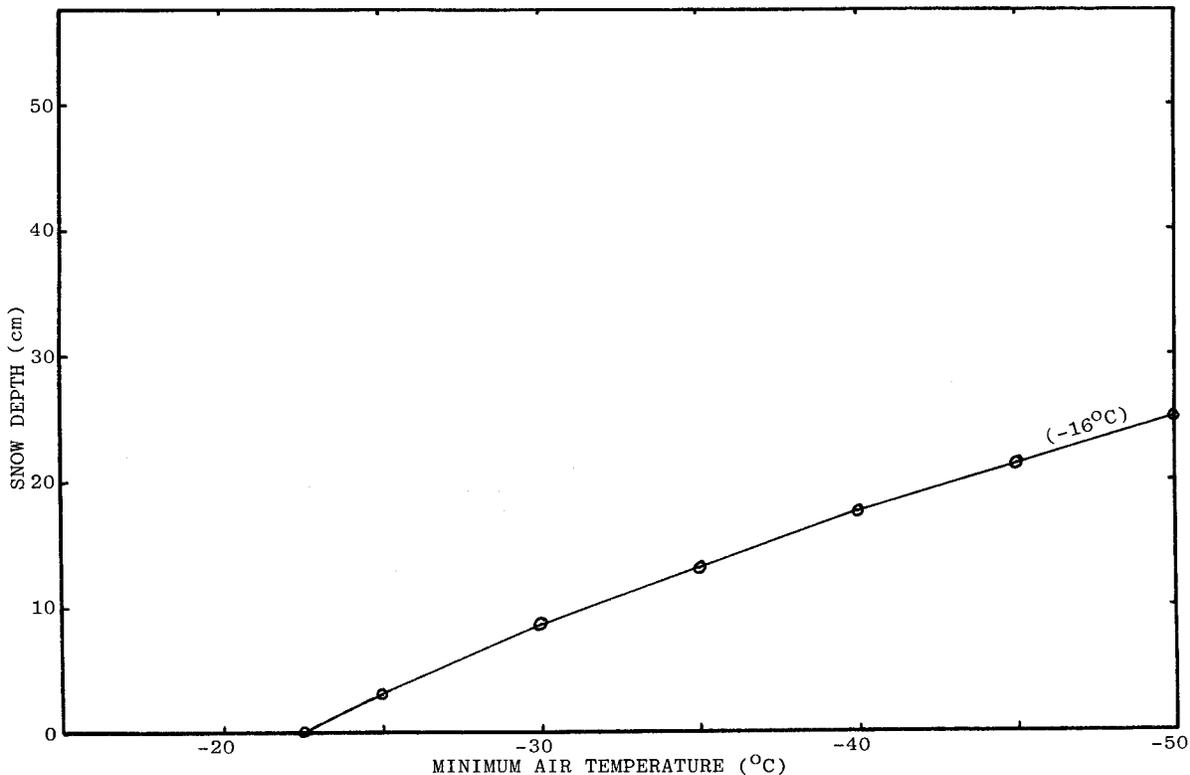
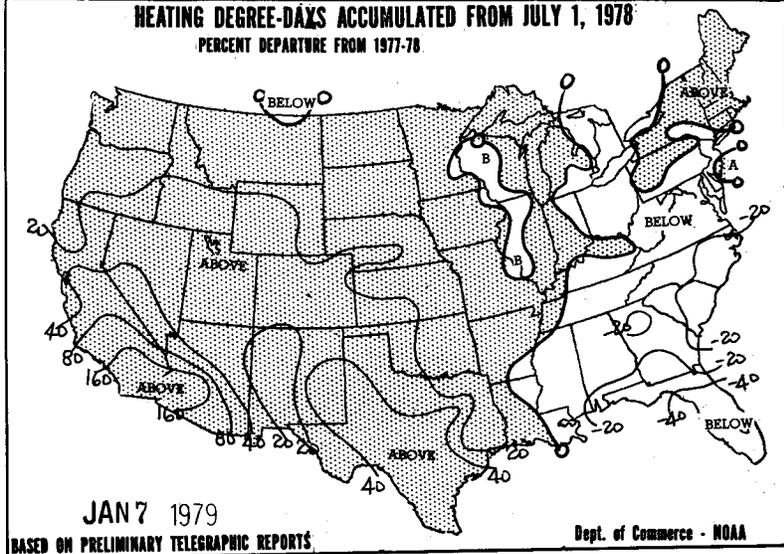
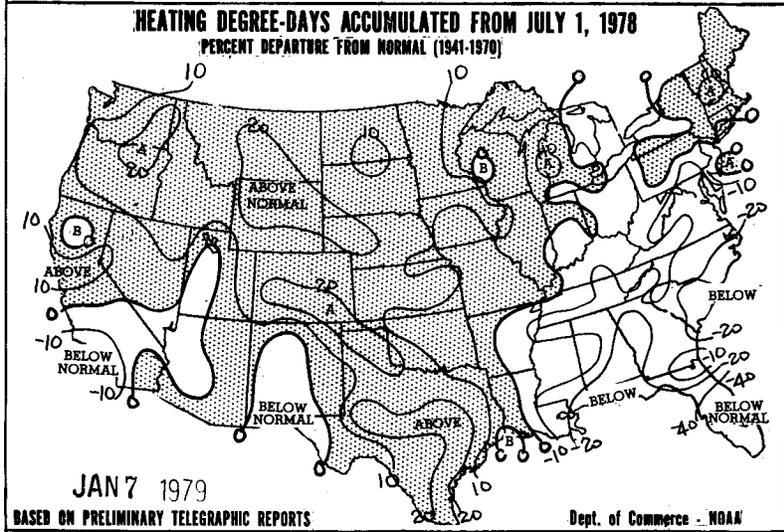
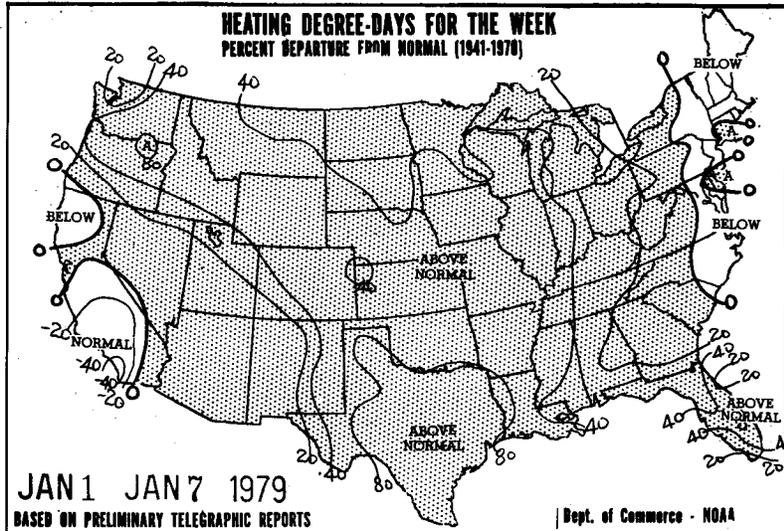


Figure 1. Winter wheat tillering node temperature ( $-16^{\circ}\text{C}$  line) as a function of snow depth and minimum air temperature. Node depth is 3 cm.



HEATING DEGREE DAYS (BASE 65°) FOR WEEK ENDING JAN. 7, 1979.

STATES AND STATIONS	WEEKLY		SEASONAL ACCUMULATION +			STATES AND STATIONS	WEEKLY		SEASONAL ACCUMULATION +			STATES AND STATIONS	WEEKLY		SEASONAL ACCUMULATION +		
	TOTAL	DEPARTURE*	TOTAL	DEPARTURE*	DEPARTURE FROM 1977-78		TOTAL	DEPARTURE*	TOTAL	DEPARTURE*	DEPARTURE FROM 1977-78		TOTAL	DEPARTURE*	TOTAL	DEPARTURE*	DEPARTURE FROM 1977-78
ALA. BIRMINGHAM.....	190	40	1164	134	98	MAINE CARIBOU.....	319	63	4261	171	183	OKLA. OKLAHOMA CITY.....	330	57	2595	77	6
MOBILE.....	134	17	563	172	208	PORTLAND.....	260	41	3144	58	17	TULSA.....	333	136	1736	130	237
MONTGOMERY.....	150	24	755	282	89	MD. BALTIMORE.....	220	4	1772	217	123	BURNS.....	107	124	3660	482	158
ARIZ. FLAGSTAFF.....	268	9	3158	1	773	MASS. BOSTON.....	198	48	2315	98	228	OREG. ASTORIA.....	234	64	2498	192	183
PHOENIX.....	200	1	692	414	414	MICH. ALPENA.....	401	80	3284	229	253	MEDFORD.....	202	28	3335	180	355
TUCSON.....	203	2	796	437	370	DETROIT.....	372	99	2758	99	115	PENDLETON.....	202	19	3053	156	156
WINSLON.....	206	10	2207	79	385	FLINT.....	101	101	2993	16	50	PORTLAND.....	202	9	3443	344	351
YUMA.....	100	26	605	147	389	GRAND RAPIDS.....	399	101	3999	171	171	SALEM.....	202	101	2457	350	351
ARK. FORT SMITH.....	297	114	1571	86	98	HOUGHTON LAKE.....	452	169	3629	154	154	PA. ALLENTOWN.....	295	14	2304	174	81
LITTLE ROCK.....	278	96	1407	89	73	LANSING.....	109	109	3071	270	121	ERIE.....	202	59	2634	122	218
CALIF. BAKERSFIELD.....	83	49	891	102	417	LANSINGTELE.....	109	109	3071	270	121	HARRISBURG.....	202	59	1961	266	266
EUREKA.....	183	18	2313	181	326	MUSKOGEE.....	443	95	4027	228	139	PHILADELPHIA.....	202	1	3053	135	135
FRESNO.....	128	19	1216	349	386	S. STE. MARIE.....	443	95	4027	228	139	PITTSBURGH.....	202	1	2739	89	68
LOS ANGELES.....	121	15	558	83	310	MINN. DULUTH.....	523	133	4425	268	60	R. I. PROVIDENCE.....	230	22	2496	101	145
RED BLUFF.....	121	26	1097	489	389	INTERNAT. FALLS.....	273	133	4911	491	131	S. C. CHARLESTON.....	122	3	665	286	199
SAN DIEGO.....	40	30	452	80	400	MNAPOLIS.....	454	113	3951	113	105	COLUMBIA.....	145	5	883	299	379
SAN FRANCISCO.....	142	30	1428	164	428	ROCHESTER.....	348	121	3064	501	320	GREENVILLE.....	185	24	1288	132	64
STOCKTON.....	145	2	1337	138	465	ST. CLOUD.....	339	15	444	362	111	S. DAK. ABERDEEN.....	492	109	4064	374	72
COLO. DENVER.....	377	132	2901	356	604	MISS. JACKSON.....	485	59	971	51	72	HURON.....	422	40	3832	398	233
GRAND JUNCTION.....	370	97	3015	501	819	MO. COLUMBIA.....	388	136	2201	219	34	RAPID CITY.....	438	139	3555	479	236
PUEBLO.....	404	161	2848	499	624	KANSAS CITY.....	431	17	5411	219	21	SIoux FALLS.....	498	145	3720	357	138
CONN. BRIDGEPORT.....	253	14	2053	26	78	ST. LOUIS.....	470	71	3731	130	130	TENN. CHATTANOOGA.....	210	35	1351	236	183
HARTFORD.....	258	22	2871	237	315	SPRINGFIELD.....	463	139	2109	130	130	KNOXVILLE.....	223	48	1440	123	133
DEL. WILMINGTON.....	231	0	1925	110	231	MONT. BILLINGS.....	431	132	3885	790	432	MEMPHIS.....	206	87	1249	190	177
D. C. WASHINGTON.....	204	6	1459	321	178	GLASGOW.....	419	136	4457	410	10	NASHVILLE.....	204	65	1524	111	150
FLA. APALACHICOLA.....	107	23	409	173	228	GREAT FALLS.....	419	136	4457	410	10	TEXAS. ABILENE.....	280	131	1314	163	301
DAYTONA BEACH.....	107	10	160	198	212	HALE.....	419	136	4457	410	10	AMARILLO.....	173	173	3680	305	11
FORT MYERS.....	113	9	46	46	138	HALE.....	419	136	4457	410	10	AUSTIN.....	121	82	894	143	302
JACKSONVILLE.....	113	32	556	22	99	HALE.....	419	136	4457	410	10	BEAUMONT.....	169	72	229	96	96
KEY WEST.....	113	32	556	22	99	HALE.....	419	136	4457	410	10	BROWNSVILLE.....	169	72	229	96	96
LAKELAND.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	CORPUS CHRISTI.....	140	99	287	61	110
MIAMI.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	DEL RIO.....	140	99	287	61	110
MIRAMAR.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	FORT WORTH.....	121	128	1149	107	107
ORLANDO.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	GALVESTON.....	140	99	287	61	110
TALAHASSEE.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	HOUSTON.....	140	99	287	61	110
TAMPA.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	LUBBOCK.....	140	99	287	61	110
NEXT PALM BEACH.....	113	17	135	13	152	HALE.....	419	136	4457	410	10	MIDLAND.....	140	99	287	61	110
GA. ATLANTA.....	182	21	1083	208	284	NEBR. GRAND ISLAND.....	445	146	3231	480	535	SAN ANGELO.....	140	99	287	61	110
AUGUSTA.....	182	14	993	183	284	LINCOLN.....	449	150	2973	318	163	SAN ANTONIO.....	140	99	287	61	110
Macon.....	182	15	822	464	404	MORFOLK.....	457	137	3326	349	298	VICTORIA.....	140	99	287	61	110
SAVANNAH.....	182	12	611	272	218	NORTH PLATTE.....	471	178	3623	687	603	WICHITA FALLS.....	500	132	1519	845	294
IDAHO. BOISE.....	408	131	2959	385	571	OMAHA.....	414	120	2765	196	108	UTAH. SALT LAKE CITY.....	329	66	2634	6	566
LEWISTON.....	408	6	464	404	4	VALLENTINE.....	480	168	3690	565	364	VT. BURLINGTON.....	299	30	3408	163	143
POCATELLO.....	408	6	464	404	4	NEV. ELY.....	318	27	3665	302	677	VA. LYNCHBURG.....	235	32	1719	135	186
ILL. CAIRO.....	444	142	1798	121	136	LAS VEGAS.....	177	23	1174	35	426	NORFOLK.....	235	32	1222	101	162
CHICAGO.....	444	142	1798	121	136	MINNEMUCA.....	204	49	2970	362	745	RICHMOND.....	235	12	1484	82	162
HOLINE.....	444	142	1798	121	136	N. H. CONCORD.....	279	29	3396	302	71	ROANOKE.....	235	12	1484	82	162
PEDRIA.....	444	142	1798	121	136	N. J. ATLANTIC CITY.....	227	7	2061	43	125	WASH. OULLAYUTE.....	335	52	2793	449	19
ROCKFORD.....	444	142	1798	121	136	TRENTON.....	219	19	1888	125	173	SEATTLE-TACOMA.....	335	52	2793	449	19
SPRINGFIELD.....	444	142	1798	121	136	N. MEX. ALBUQUERQUE.....	231	11	1874	76	184	SPOKANE.....	335	52	2793	449	19
IND. EVANSVILLE.....	331	106	2001	18	25	ROSNELL.....	278	83	1787	40	661	WASH. SEATTLE-TACOMA.....	335	52	2793	449	19
FORT WAYNE.....	331	106	2001	18	25	N. Y. ALBANY.....	283	18	3020	151	181	HALLA HALLA.....	335	52	2793	449	19
INDIANAPOLIS.....	331	106	2001	18	25	BINGHAMTON.....	283	18	3020	151	181	YARINA.....	335	52	2793	449	19
SOUTH BEND.....	331	106	2001	18	25	BUFFALO.....	283	18	3020	151	181	W. VA. BECKLEY.....	261	23	2140	324	214
IOWA. BURLINGTON.....	448	151	2959	449	204	NEW YORK.....	283	18	3020	151	181	CHARLESTON.....	261	23	2140	324	214
DES MOINES.....	448	151	2959	449	204	ROCHESTER.....	283	18	3020	151	181	HUNTINGTON.....	261	23	2140	324	214
DUBUQUE.....	448	151	2959	449	204	SYRACUSE.....	283	18	3020	151	181	PARKERSBURG.....	261	23	2140	324	214
ST. LOUIS.....	448	151	2959	449	204	N. C. ASHEVILLE.....	203	11	1634	253	245	WIS. GREEN BAY.....	506	165	3657	265	135
KANS. CONCORDIA.....	40	130	260	198	246	CHARLOTTE.....	203	11	1634	253	245	LACROSSE.....	486	165	3463	206	206
DODGE CITY.....	40	130	260	198	246	GREENSBORO.....	203	11	1634	253	245	HADISON.....	486	165	3463	206	206
GOODLAND.....	40	130	260	198	246	HATTERAS.....	203	11	1634	253	245	MILWAUKEE.....	486	165	3463	206	206
GOODLAND.....	40	130	260	198	246	WATKINS.....	203	11	1634	253	245	WYO. CASPER.....	473	178	3998	773	809
TOPEKA.....	40	130	260	198	246	WELLSVILLE.....	203	11	1634	253	245	CHEYENNE.....	473	178	3998	773	809
WICHITA.....	40	130	260	198	246	WILMINGTON.....	203	11	1634	253	245	LAMAR.....	473	178	3998	773	809
WICHITA.....	40	130	260	198	246	N. DAK. BISMARK.....	495	104	4277	40	68	SHERIDAN.....	473	178	3998	773	809
WICHITA.....	40	130	260	198	246	FARGO.....	495	104	4277	40	68	OKLA. OKLAHOMA CITY.....	333	136	1736	130	237
WICHITA.....	40	130	260	198	246	HILLSTON.....	495	104	4277	40	68	TULSA.....	333	136	1736	130	237
WICHITA.....	40	130	260	198	246	OHIO. AKRON-CANTON.....	340	74	2529	62	46	ASTORIA.....	234	64	2498	192	183
WICHITA.....	40	130	260	198	246	CINCINNATI.....	340	74	2529	62	46	BURNS.....					

Agricultural Weather Facility  
USDA South Bldg., Room 1248  
Washington, DC 20250

# IMMEDIATE - U. S. Weather Report

This Report Will be Treated in All Respects as Letter Mail

## FIRST CLASS MAIL

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF COMMERCE

COM 210

