

WEEKLY WEATHER AND CROP BULLETIN

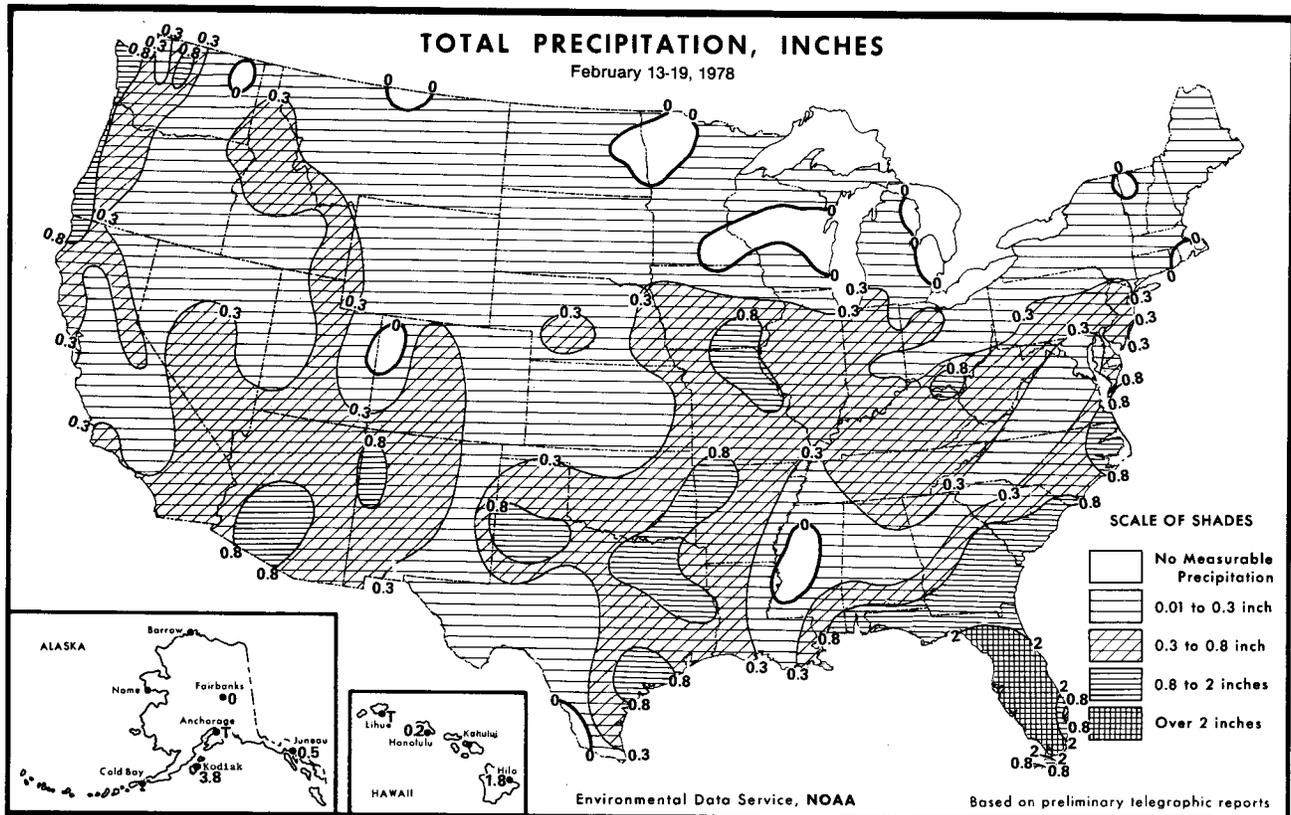
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National Weather Summary

February 13 - 19

HIGHLIGHTS: Some sections of the southern Plains were blanketed by more snow than usual for this time of year. The rest of the country received near or less-than-normal amounts except Florida where some portions were soaked by 3 inches of rain.

Below-normal temperatures extended all the way from the Atlantic Coast to the Cascade and Sierra Mountains in the West. The greatest departures from normal chilled an area from northern Texas to Nebraska---readings dipped as much as 23 degrees.

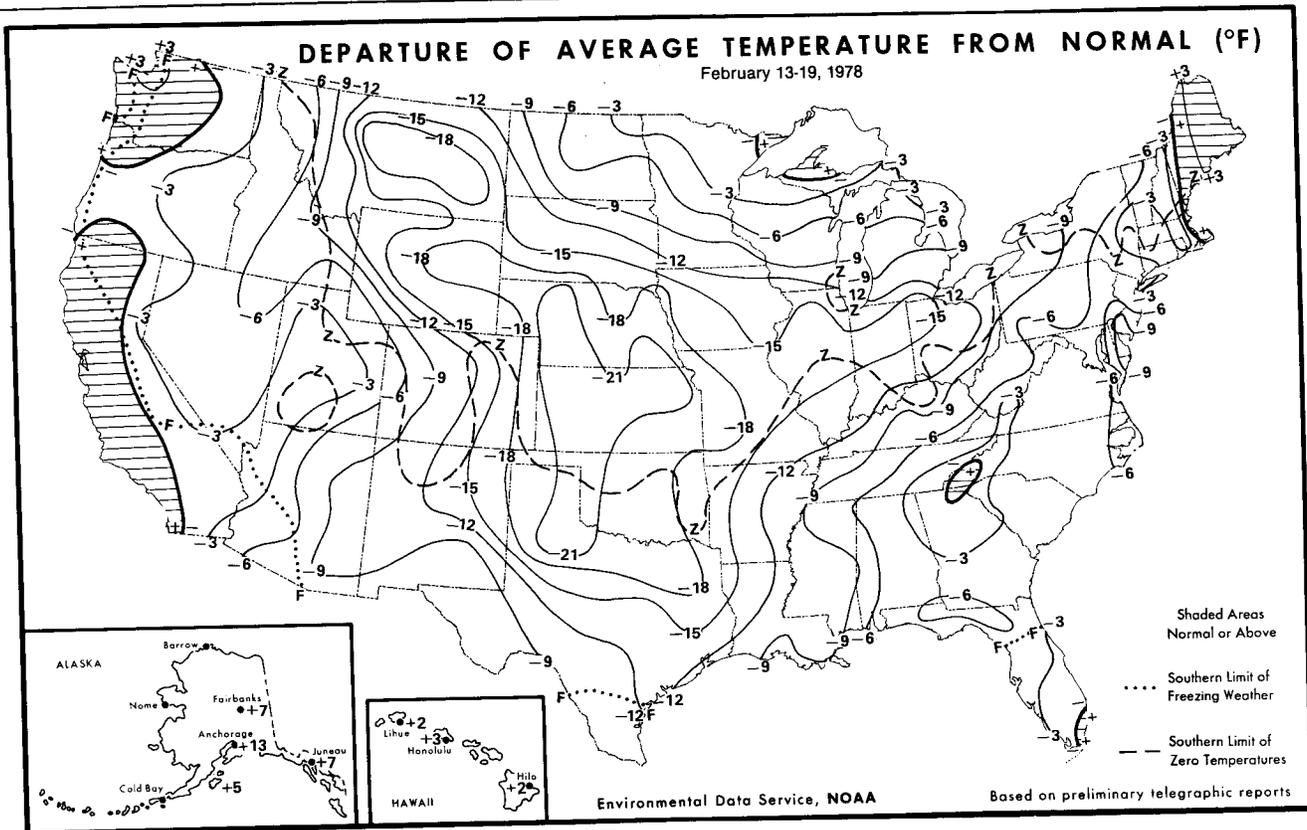
Heavy snow blew into the central Plains and middle Mississippi Valley again on Monday; accumulations ranged from a half-foot to 16 inches. Des Moines gathered over 10 inches within a 24-hour

period. Kansas City marked its heaviest snowfall in 16 years. The storm moved eastward by day's end bringing snow to the central Appalachians and middle Atlantic Coast States.

Another low pressure center trudged over California dampening the Golden State and the Desert Southwest. Snow whitened sections from the Sierra Mountains to the Plateau Region. Downpours hit the Phoenix and Las Vegas areas.

On Tuesday, the storm moved off the Atlantic Coast out to sea, but not before depositing its snow. Hardest-hit eastern Pennsylvania saw 4 inches cover Philadelphia; the Quaker City, with more than 42 inches of snow this season, has noted its fifth snowiest winter on record. The storm developing in the Southwest carried heavy snow to

portions of Arizona and New Mexico and locally heavy rains to southern sections. In Arizona, Flagstaff called in an 18-inch snow cover and Chandler waited out more than an inch of rain. Another cold front jostled the upper West Coast; Crescent City, Calif., had three-quarters inch of rain.



Casper, Wyo., set a record low temperature, -13° , beating the 1942 mark by 6.

Snow checked into the upper half of the Plateau Region on Wednesday; in north central Idaho, Grangeville notched 10 inches, and 4 inches fell on Salt Lake City. Snow also entered the southern Plains and extended to Dallas/Ft. Worth with a 2-inch cover. Rain dampened the Gulf Coast and as far east as Florida where Tallahassee measured one-third inch.

The frosty winter has taken hold of the central Midwest---Des Moines failed to reach 32° for a record 39 consecutive days. Sioux Falls, S. Dak., has fallen short of the freezing mark every day since December 22. In the Ohio Valley, Louisville set a record for continuous snow cover, a string of 38 days.

A winter storm tracked out of the Rocky Mountains into the Plains on Thursday dumping snow over a large area; up to a foot blanketed the southern Texas Panhandle with lighter amounts further north. The lower half of the Atlantic Coast reported light snow with rain in the southern reaches; Orlando chalked up more than 2 inches of rain.

Omaha had spent the past 41 days below 32° , a record; and it was a record 40 days for Dubuque, Iowa. New low temperatures froze Lincoln, Nebr., -18° , and St. Joseph, Mo., -10° .

Heavy snow blanketed the southern Plains from the Texas Panhandle to Arkansas on Friday. Up to 10 inches buried the Lubbock and Amarillo areas while Dallas/Ft. Worth reported 7 inches. Thunderstorms extended from the Texas Gulf Coast to Florida; hail pummeled parts of Texas and Louisiana and Homestead Air Force Base, Fla., was saturated by nearly and inch and one-half of rain. By evening, the system had moved through Kentucky and Tennessee and threatened the Atlantic Coast States.

Winter has struck hard in the southern Plains. Dallas/Ft. Worth has been surprised by a record winter snowfall of more than 18 inches, topping the 1963/64 mark of 15.3 in., and outdistancing the seasonal average of 2.8 in. Oklahoma City has notched its snowiest winter through February, nearly 20 inches, a far cry from the 9-inch average for the season.

Biting-cold temperatures plagued the Nation's mid-section again; St. Joseph, Mo., shivered through another record, -14° , and North Platte, Nebr., contended with its new low reading of -19° .

Snow drove through the lower Ohio Valley on Saturday leaving 3 to 6 inches in western Kentucky, but lost its punch when reaching the Atlantic Coast. Heavy rains drenched portions of Florida; more than an inch soaked Gainesville, Tampa, and Miami.

The record-setting cold wave persisted in the center of the country. At least 9 cities called in the bone-chilling readings. A sampling included Oklahoma City's -1° ; Topeka's -9° ; a frigid -5° in South Bend, Ind.; and, again, St. Joseph, Mo., at -16° , dipped 6 degrees below its 1936 record.

Precipitation was generally light on Sunday; the heaviest amounts fell in the Rockies where 2 inches of snow whitened some areas.

Thermometer watching made for a more interesting day. Temperatures plunged from the Lake States to the South with records falling in more than 20 cities. For the fourth consecutive day, St. Joseph, Mo., made the list---this time it was -10° . In Lansing, Mich., a frosty -21° undercut the 1966 mark by 10. New Orleans' 31° and 32° at Galveston numbed the Gulf Coast. Fort Smith, Ark., plummeted 12 degrees from the 1910 mark to 4° .

It has hardly been a winning streak in Huron, S. Dak., and Des Moines---both cities kept their "not reaching 32° " string alive. Des Moines wearily counted 43 straight days and Huron coped with its 65th.



National Agricultural Summary

February 13-19

HIGHLIGHTS: Subnormal temperatures kept an icy grip on most of the Nation. Readings in the Great Plains dipped as much as 23 degrees below normal, but snow extending into Texas protected most winter wheat. Very little precipitation fell, except in Florida, and soils were either snow-covered or saturated limiting fieldwork and throwing southern farmers behind schedule. Farmers prepared land for spring planting across the southern fringe of the U. S. extending as far north as South Carolina. Only well-drained fields could be worked because of surplus soil moisture. Low temperatures forced livestock producers to maintain a heavy feeding rate. Snow hindered some cattlemen trying to reach animals in deep drifts. Winter wheat grew in the South but remained dormant in the North. Wheat producers fertilized open fields. Fruit growers pruned apple and peach trees while vegetable activity was restricted to the major southern production areas.

SMALL GRAINS: Snow sheltered winter wheat from the Texas Panhandle northward against chilly temperatures ranging from 10 to 23 degrees subnormal in the Great Plains. Rain and snow also brought moisture to the drought-stressed Texas Plains crop. Winter wheat grew slowly in the extreme South.

Kansas winter wheat condition did not change; snow insulated most of the crop from bitter cold. Oklahoma winter wheat rated fair; soil moisture was adequate and snow now covering the State should provide additional moisture. Warming temperatures should spark vigorous small grain growth. Texas High and Low Plains winter wheat prospects improved with much-needed moisture from heavy snows; subsoils needed additional moisture to replenish spent reserves. The full effects of the prolonged dry winter season will be known only when higher temperatures and sunshine reach the area. New Mexico's wheat stood unchanged; irrigated stands graded fair to good and dryland poor to fair. Arizona's early wheat headed, but most stands had only reached the jointing stage.

Eastern north central States winter wheat lay dormant under a heavy layer of snow. Generally crop conditions rated good. In the Southeast, wheat lay exposed to a wide range of weather conditions. The Alabama and Florida crops began growing after a warming trend although average temperatures registered subnormal. Further north in Virginia and Maryland, snow blanketed most of the crop, limiting the winterkill. Farmers fertilized some exposed fields. Crop condition was fair to good with some poor stands in Mississippi.

California's small grain fields yellowed from standing water in some areas. Farmers applied herbicides and fertilizer.

OTHER CROPS: Wet, cold soils limited fieldwork and planting for the 1978 cotton crop and also delayed scrapping and plowdown of the 1977 crop in a few isolated areas. A few South Carolina growers were scrapping cotton and simultaneously preparing fields for seeding. Texas cotton growers in the Rio Grande Valley bided their time waiting for dry fields and higher soil temperatures. Arizona growers had some cotton to harvest, but preplant operations began for the new crop. California cotton plowdown drew to a standstill because of wet soils.

Tobacco operations stretched from Florida to Virginia. Florida tobacco plants were growing slowly in subnormal temperatures. Georgia growers prepared plant beds, seeding a few. South Carolina producers fumigated beds. Virginia preparations for flue-cured tobacco seedbeds moved slowly.

Florida corn growers plowed some land and Texas producers planted some early acres but cool, wet conditions slowed progress. Sorghum growers in the lower Rio Grande Valley also waited for drier and warmer soils.

FRUITS AND NUTS: Deciduous orchard growers pruned fruit trees throughout most production areas except the north. Apple and peach pruning extended into Maryland in the East and into Washington in the Pacific Northwest. Washington's trees wintered well. Early almonds bloomed in California but cold, cloudy weather may inhibit pollination. Lower Rio Grande Valley peaches just began blooming and along the upper Gulf Coast entered the pink bud stage. Texas pecan growers applied dormant oil sprays. Both Florida citrus trees and fruit rated excellent. Excessive moisture caused no problems but slowed harvest. New growth started in all ages of trees. Texas grapefruit movement increased as groves dried. Arizona citrus harvest was limited. California rains hindered citrus picking; lemons moved from the Santa Barbara area and between storms Navels were harvested. Some Valencias split from too much water; blue and green mold developed in some groves.

VEGETABLES: Locally heavy rains in Florida delayed harvest, but overall shipments declined less than 1%. Volume of most vegetable crops held steady or increased; only chinese cabbage and tomatoes declined. Growers spot reset cold-damaged plants and planted watermelons. In Texas, wet soils and low temperatures slowed plant growth and seeding of new crops. Growers harvested cabbage, lettuce, carrots, spinach, broccoli, and cauliflower. Arizona producers picked lettuce and mixed vegetables, but wet fields delayed planting spring lettuce. California vegetable supplies were light; wet fields delayed both harvest and planting in central areas and the south coast. Growers harvested lettuce in desert areas and carrots from Coachella Valley; other areas were too wet. Processing tomato planting moved slowly.

PASTURES AND CATTLE: Pastures scored poor to fair across the South; grasslands provided no grazing in other areas. Low temperatures held growth to a minimum and, in many areas, wet soils prevented farmers from turning cattle onto pastures. Livestock producers fed heavy rations of grain and hay to make up for the lack of grazing and provide rations necessary for the subnormal temperatures. Hay and feed supplies were generally adequate and should last through the winter. Snow complicated livestock chores in north central States. Death loss among newborn ran higher than usual because of the cold. Florida grazing conditions rated poor to fair; water covered low-lying northern pastures and small grain pastures grew slowly. Cattle overgrazed many pastures. Texas cattle lost weight and condition for lack of grazing. Winter pastures should improve when temperatures return to normal; meanwhile ranchers fed large quantities of hay and protein supplements. Arizona ranges and stock water supplies improved. Warm California temperatures boosted range growth and earlier rains filled stock ponds with runoff.

Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., Feb. 19, 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 . . .	42	-5	.3	-1.0	LA. Baton Rouge . . .	45	-9	.2	-1.0	Youngstown . . .	16	-11	.2	-.4
Mobile . . .	48	-6	1.1	-.1	Lake Charles . . .	44	-11	.4	-.8	OKLA. Okla. City . . .	23	-19	.3	-.1
Montgomery . . .	47	-4	T	-1.1	New Orleans . . .	45	-11	.5	-.7	Tulsa . . .	24	-18	.4	0
ALASKA Anchorage . . .	31	+13	T	-.2	Shreveport . . .	35	-16	.7	-.2	OREG. Astoria . . .	44	0	.8	-1.1
Barrow . . .	5	+7	0	-.1	MAINE. Caribou . . .	17	+4	1	-.5	Burns . . .	28	-4	.3	0
Fairbanks . . .	35	+7	.5	-.3	Portland . . .	25	+2	T	-.9	Medford . . .	43	+1	.2	-.3
Juneau . . .	37	+5	3.8	+2.5	MD. Baltimore . . .	30	-5	.2	-.5	Pendleton . . .	37	-3	.1	-.2
Kodiak . . .	37	---	---	---	MASS. Boston . . .	32	+2	T	-.9	Portland . . .	45	+2	.4	-.6
Nome . . .	23	-8	---	---	Chatham . . .	32	---	0	---	Salem . . .	44	+1	.5	-.7
ARIZ. Flagstaff . . .	51	-4	1.3	+1.2	MICH. Alpena . . .	16	-2	T	-.3	PA. Allentown . . .	25	-4	T	-.6
Phoenix . . .	45	-9	.4	+2	Detroit . . .	16	-11	0	-.4	Erie . . .	16	-7	.6	0
Tucson . . .	31	-9	.4	+3	Flint . . .	14	-10	0	-.4	Harrisburg . . .	25	-9	.5	-.1
Winslow . . .	55	-5	.3	+2	Grand Rapids . . .	15	-9	.1	-.3	Philadelphia . . .	23	-6	.2	-.4
Yuma . . .	28	-16	.9	+1	Houghton Lake . . .	11	-7	T	-.3	Pittsburgh . . .	22	-5	.3	-.2
ARK. Fort Smith . . .	31	-12	.3	-.8	Lansing . . .	12	-12	T	-.4	Scranton . . .	25	-4	T	-.8
Little Rock . . .	54	+1	.2	-.1	Marquette . . .	21	+1	.1	-.3	R.I. Providence . . .	48	-3	1.0	+2
CALIF. Bakersfield . . .	49	0	.8	-.5	Muskegon . . .	16	-9	1	-.3	S.C. Charleston . . .	43	-5	1.6	-.3
Eureka . . .	50	0	1	-.3	S. Ste. Marie . . .	12	-3	.2	-.2	Columbia . . .	41	-3	.2	-.9
Fresno . . .	50	0	.1	-.3	MINN. Duluth . . .	11	-1	T	-.1	S.D. Aberdeen . . .	5	-10	T	-.2
Los Angeles . . .	56	+2	.3	-.4	Internatl Falls . . .	6	-1	T	-.1	Huron . . .	4	-14	T	-.2
Red Bluff . . .	52	+2	.2	-.6	Minneapolis . . .	10	-7	T	-.2	Rapid City . . .	11	-15	.1	0
San Diego . . .	58	+1	.4	0	Rochester . . .	7	-10	T	-.1	Sioux Falls . . .	5	-15	T	-.3
San Francisco . . .	52	+1	.3	-.4	St. Cloud . . .	9	4	T	-.2	TENN. Chattanooga . . .	42	-1	.3	-1.0
Stockton . . .	50	+1	.1	-.4	MISS. Jackson . . .	40	-10	.2	-1.0	Knoxville . . .	40	-3	.3	-.9
COLO. Denver . . .	22	-11	.1	-.1	Meridian . . .	17	-17	.8	+4	Memphis . . .	35	-9	.2	-1.0
Grand Junction . . .	31	-3	T	-.1	MO. Columbia . . .	14	-20	.6	+3	Nashville . . .	32	-9	.5	-.6
Pueblo . . .	21	-14	.2	+1	Kansas City . . .	20	-15	.8	+3	TEX. Abilene . . .	32	-16	.2	0
CONN. Bridgeport . . .	26	-5	.2	-.5	St. Louis . . .	18	-19	.4	-.2	Amarillo . . .	20	-20	.4	+3
Hartford . . .	26	-1	.1	-.7	Springfield . . .	11	-17	.1	0	Austin . . .	41	-13	.7	-.1
D.C. Washington . . .	34	-3	.2	-.4	MONT. Billings . . .	11	-17	.1	-.1	Beaumont . . .	45	-10	.4	-.7
FLA. Apalachicola . . .	57	+3	1.9	+1.1	Glasgow . . .	1	-15	T	-.1	Brownsville . . .	54	-10	.2	-.2
Daytona Beach . . .	62	-3	2.6	+2.1	Great Falls . . .	9	-18	.1	-.1	Corpus Christi . . .	48	-12	.4	-.1
Ft. Myers . . .	51	-5	1.5	+6	Havre . . .	5	-13	T	-.1	Dallas . . .	---	---	---	---
Jacksonville . . .	69	-3	.3	-.2	Helena . . .	16	-10	T	-.1	Del Rio . . .	47	-9	T	-.3
Key West . . .	59	+3	2.8	+2.3	Kalispell . . .	21	-5	T	-.2	El Paso . . .	42	-7	T	-.1
Lakeland . . .	70	+2	1.9	+1.4	Miles City . . .	3	-19	.1	0	Fort Worth . . .	30	-19	.9	+3
Miami . . .	56	-5	3.7	+2.9	Missoula . . .	23	-5	.1	-.1	Galveston . . .	45	-11	.7	0
Orlando . . .	49	-6	1.7	+5	NEBR. Grand Island . . .	8	-20	.2	0	Houston . . .	42	-14	.6	-.3
Tallahassee . . .	49	-6	3.1	+2.4	Lincoln . . .	5	-23	.3	+1	Lubbock . . .	32	-21	1.1	+1.0
Tampa . . .	58	-4	.8	+2	Norfolk . . .	6	-18	.2	0	Midland . . .	38	-10	.1	0
W. Palm Beach . . .	66	0	.8	+2	N. Platte . . .	7	-22	.3	+2	San Angelo . . .	38	-13	T	-.2
GA. Atlanta . . .	44	-1	.3	-.8	Omaha . . .	8	-18	.5	+3	San Antonio . . .	44	-11	.3	-.3
Augusta . . .	45	-3	.9	-.1	Valentine . . .	4	-21	.1	0	Victoria . . .	44	-13	1.2	+6
Macon . . .	47	-3	.8	-.3	NEV. Ely . . .	23	-5	.7	+6	Waco . . .	38	-13	.4	-.2
Savannah . . .	48	-4	1.4	+7	Las Vegas . . .	46	-3	.1	-.2	Wichita Falls . . .	27	-19	.6	+3
HAWAII. Hilo . . .	73	+2	1.8	-1.6	Reno . . .	32	-3	.1	-.1	UTAH. Blanding . . .	26	-7	.3	+1
Honolulu . . .	75	+3	.2	-.4	Winnemucca . . .	18	-4	.1	-.5	Salt Lake City . . .	32	-2	.5	+2
Kahului . . .	---	---	---	---	N.H. Concord . . .	26	-8	.2	-.6	VT. Burlington . . .	11	-8	T	-.4
Lihue . . .	73	+2	T	-1.0	N.J. Atlantic City . . .	29	-4	.4	-.3	VA. Lynchburg . . .	34	-4	.1	-.6
IDAHO. Boise . . .	31	-5	.3	0	Trenton . . .	28	-12	.3	+2	Norfolk . . .	35	-6	1.0	+2
Lewiston . . .	36	-3	.5	+3	N. MEX. Albuquerque . . .	36	-7	.1	0	Richmond . . .	34	-5	.2	-.6
Pocatello . . .	24	-6	.3	+1	Roswell . . .	22	-1	T	-.6	Roanoke . . .	34	-4	.1	-.7
ILL. Cairo . . .	28	-12	.3	-.6	N.Y. Albany . . .	17	-6	.2	-.4	WASH. Colville . . .	30	-1	0	-.4
Chicago . . .	15	-13	.2	-.2	Binghamton . . .	16	-8	T	-.6	Omak . . .	31	0	.1	-.2
Moline . . .	11	-15	.4	+1	Buffalo . . .	30	-3	.2	-.6	Quillayute . . .	44	+2	1.2	-.8
Peoria . . .	12	-16	.4	0	New York . . .	15	-10	T	-.6	Seattle-Tacoma . . .	46	+3	.7	-.3
Rockford . . .	14	-17	.5	+1	Rochester . . .	18	-7	T	-.7	Spokane . . .	32	-1	T	-.4
Springfield . . .	23	-13	.6	-.2	Syracuse . . .	39	0	.2	-.7	Walla Walla . . .	39	-2	.1	-.3
IND. Evansville . . .	11	-17	.2	-.3	N.C. Asheville . . .	40	-4	.2	.8	Yakima . . .	37	+1	.1	-.2
Ft. Wayne . . .	18	-13	.2	-.4	Charlotte . . .	36	-5	.2	.6	W.Va. Beckley . . .	29	-3	.5	-.3
Indianapolis . . .	14	-12	.3	-.2	Greensboro . . .	39	-7	1.5	+4	Charleston . . .	29	-7	.6	-.1
IOWA. Burlington . . .	13	-15	.4	+1	Hatteras . . .	38	-4	.4	-.4	Huntington . . .	26	-9	.4	-.3
Des Moines . . .	9	-16	.6	+3	Raleigh . . .	43	-5	.6	-.3	Parkersburg . . .	26	-9	.4	-.3
Dubuque . . .	9	-13	T	-.3	Wilmington . . .	8	-6	T	-.1	WIS. Green Bay . . .	10	-8	T	-.3
Sioux City . . .	4	-20	.4	+2	N. DAK. Bismarck . . .	4	-7	T	-.1	La Crosse . . .	11	-9	T	-.2
KANS. Concordia . . .	11	-21	.1	-.1	Fargo . . .	4	-11	T	-.1	Madison . . .	14	-9	T	-.3
Dodge City . . .	13	-23	.1	0	Williston . . .	16	-12	.2	-.3	Milwaukee . . .	9	-18	.1	0
Goodland . . .	11	-21	.2	+1	OHIO. Akron-Canton . . .	20	-13	.1	-.7	Cheyenne . . .	13	-16	.2	+1
Topeka . . .	11	-23	.3	0	Cincinnati . . .	17	-11	.2	-.3	Lander . . .	10	-16	T	-.2
Wichita . . .	17	-20	.1	-.2	Cleveland . . .	17	-13	.2	-.4	Sheridan . . .	12	-14	.3	+1
KY. Lexington . . .	25	-10	.6	-.2	Columbus . . .	17	-13	.1	-.5	Dayton . . .	11	-16	.2	-.2
Louisville . . .	27	-9	.6	-.3	Dayton . . .	11	-16	.2	-.2	Toledo . . .	11	-16	.2	-.2

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: Temperatures 7° below normal. Light rain scattered throughout State; heavier amounts recorded in south.

Land breaking, fertilizer and chemical applications made in accessible fields. Low-lying fields too wet. Small grains made some growth and in fair condition. Livestock in fair condition. Soil moisture adequate to surplus.

ARIZONA: Precipitation early week, snow above 4,000 ft. Temperatures 5 to 10° below normal.

Rains hampered field activities. Some cotton to be harvested; preplant operations started. Small grain planting virtually completed. Much of crop jointing, early plantings headed. Sugarbeets excellent progress. Alfalfa haying seasonally slow, gradually increasing. Harvest lettuce, mixed vegetables continues. Later fields responding well rain, warm weather. Wet fields preventing fieldwork some areas, delayed planting spring lettuce. Citrus harvest continues limited. Ranges show improvement. Soil moisture, stock water adequate. Cattle, sheep good condition.

ARKANSAS: Colder than normal. Storm 17th spread 1 to 7 in. snow. Highest norm 49°; lowest 41°. Highest mean 37°, lowest mean 25°. Most precipitation 2.06 in., least 0.45 in.

Fieldwork limited to cattle feeding. Herds continued to be fed a full ration. Hay supplies running short; cattle marketings up. Small grain growth nil.

CALIFORNIA: Considerable precipitation early week. Small amounts later to northwest coast and northern mountain areas. Cooler air over entire State kept temperatures near or slightly below normal.

Oats, barley developed well, some yellowing. Herbicides and fertilizer applied to small grains, alfalfa. Some sugarbeets drowned. Cotton plowdown at standstill. Pruning and dormant spraying main activities. Symptoms of leached nutrients in avocados. Citrus harvest hindered by rain. Lemons moving from Santa Barbara. Navels harvested between storms. Some valencias splitting from too much water and some groves infected with blue and green molds. Early almond varieties virtually all blooming. Concern that cold, cloudy weather inhibiting pollination. Wet conditions slowed vegetable harvest and planting central and south coast. Most vegetable supplies light. Lettuce harvest active desert. Carrot harvest increasing Coachella Valley; elsewhere too wet to harvest. Some damage spring potato crop Kern County. Processing tomato early planting slowed. Warm weather accelerated grass growth. Calving, lambing continue. Stock ponds full.

COLORADO: Heavy snow south; moisture ranged from 1.70 in. southwest corner to 0.54 in. southeast corner. Less than 0.10 in. San Luis Valley. Temperatures across east 12 to 20° below normal; elsewhere 12° below normal to 3° above normal.

FLORIDA: Mostly cloudy, cool; showers, thunder-showers developed latter part of week with moderate to heavy rainfall. Rainfall averaged 1.00 to 4.00 in. most of Peninsula; lighter amounts Panhandle. Temperatures averaged below normal due to cloudiness and rain.

Soil moisture adequate southern half of Peninsula, generally surplus elsewhere. Rains and

wet soils severely hampered fieldwork now considerably behind schedule. However, some plowing for corn accomplished extreme western Panhandle. Small grains began limited growth after several days of warming temperatures. Grazing conditions poor to fair. Low-lying northern pastures under water. Growth small grain pastures slow; overgrazing a problem. Supplemental feeding heavy. Cattle condition poor to good. Citrus tree and fruit condition excellent. Excessive moisture most areas causing no problems. New growth starting in trees of all ages. Rain slowed harvest. Locally heavy rains interrupted vegetable harvest late in week. Overall shipments declined less than 1%. Harvest most crops steady to increasing, including snap beans, cucumbers, escarole, strawberries, okra, peppers, potatoes, radishes. Crops remaining steady were cabbage, carrots, celery, sweet corn, eggplant, lettuce, squash. Only chinese cabbage, tomatoes declined in volume. Soot resetting replacing cold damaged plants active. Watermelon plantings, replantings active.

GEORGIA: Temperatures 3 to 6° below normal; ranging from 38° northeast to 49° extreme south. Precipitation mainly latter part week; ranging from less than 0.50 in. to near 0.75 in. extreme south.

Soil moisture improved north and east, continuing excessive central and southwest. Farm activities remain limited. Tobacco bed preparation complete and planting beginning. Spring land preparation limited to higher, drier soils. Northern areas reporting least favorable conditions, very limited activity. Small grains range from good south to fair north. Pastures fair south to poor north with most of better hay already fed. Cattle good condition central areas, poor to fair north, fair elsewhere.

HAWAII: Weather variable. Beneficial rains some sections.

Crop progress fair to good with irrigation. Dry conditions still exist some parts. Island Hawaii. Unirrigated sugarcane fields Kau affected. Unirrigated banana and macadamia nut orchards yield reduction anticipated Kona. Rains needed next few weeks to trigger coffee flowering. Banana, papaya and pineapple harvesting light. Some sugar mills stopped grinding after starting. Still slow. Reservoirs to irrigate sugarcane low. Pastures poor to fair some areas Island Hawaii. Other islands fair to good.

IDAHO: Temperatures 4° below normal. Extremes: 44 and -17°. Precipitation above normal except Panhandle. Some southern stations totaled near 1.00 in.

Wet weather limited farm activities. Corrals muddy. Calving and lambing continues at a rapid pace in some areas. Feed supplies adequate.

ILLINOIS: Temperatures 13 to 19° below normal. Precipitation 0.25 to 0.75 in. most areas, heaviest 13th. Snow 1 to 5 in. 13th many areas. Snow 2 in. southeast 17th.

Winter wheat good. Snow cover protected crop nearly all areas. Movement grain to market slow all areas. Livestock good condition, feed consumption up due cold weather. Marketing hindered by snow-covered roads. Soil moisture adequate to surplus.

INDIANA: Temperatures 10 to 15° below normal. Extremes: 40 and -10°. Most additional snow confined to southern third but snow depths ranged from 19 in. northwest to 3 in. along river in southwest.

No fieldwork. Caring for livestock, clearing snow, repairing equipment, limited manure hauling and grain going to market. Overwintering crops under heavy snow cover.

IOWA: Much below normal temperatures. Heavy snowfalls at beginning of week across south increased snow cover. At week's end snow depths 10 to 13 in. south and 6 to 9 in. north. Frost penetration of soil around 36 in. south 30 to 60 in. north depending on snow cover, and northwest about 48 to 60 in. under snow cover but in exposed areas over 60 in. deep with some water lines frozen.

KANSAS: Near record cold. Temperatures 11° north central, 2° southeast; 18 to 24° below normal. Major winter storm produced 3 to 6 in. snow southeast and 8 to 12 in. elsewhere. Moisture amounts from 0.25 to 0.75 in. west to nearly 2.00 in. southeast.

Heavy supplemental feeding of livestock. Snow causing problems feeding. Higher than normal death loss in young calves. Some heavy farrowing losses. Continued low temperatures reducing weight gains of feedlot cattle. Winter wheat condition little changed. Snow cover providing protection from bitter cold. Farm activities: Snow removal, caring for livestock, preparing for spring work.

KENTUCKY: Very cold with temperatures 10° below normal. Precipitation mostly snow averaged 0.50 to 1 in. Snow depths ranged from 2 to 8 in.

Snow cover most areas. Winter pastures mostly covered creating heavy demand for supplemental feed. Blackbirds causing problems and no longer congregated in only west.

LOUISIANA: Temperatures 10 to 15° below normal. Extremes: 70 and 19°. General rain 17th.

Limited land preparation underway south. Other farm activity: Care and feeding livestock.

MARYLAND & DELAWARE: Temperatures 10° below normal. Highs in upper 30's, lows in upper 20's. Western areas colder. Precipitation averaged 0.50 in. rain. About 1 in. snow fell in western areas. Weekend sunny and cold with snow flurries 18th.

Snow covering ground. Apple and peach pruning continues. Hay supplies running short in some areas. Small grains in good condition. Very little winterkill so far.

MICHIGAN: Cold, dry. Lower Peninsula temperatures 4° below normal extreme north to 15° below normal extreme south. Temperatures over upper near normal to 7° below normal. Many subzero readings recorded 14th, 18th, and 19th. Precipitation over lower 0.30 in. near Lake Michigan and trace to 0.10 in. elsewhere. Over Upper from 0.10 to 0.20 in. near Lake Superior to trace interior portions. Frequent snow flurries mainly near Great Lakes.

Farm chores and livestock feeding main farm activities.

MINNESOTA: Temperatures near normal extreme northeast to 15° below normal extreme southwest. Extremes: 31 and -13°. Precipitation 0.12 to 0.21 in. below normal. Totals ranged from trace to 0.06 in. north central. Snow depth 4 to 10 in. central and southwest, 10 to 20 in. south central and southeast and most of northern half except locally over 20 in. some sections of southeast, north central and extreme northeast.

MISSISSIPPI: Temperatures 6 to 12° below normal. Extremes: 14 and 69°.

Soil moisture adequate to surplus. Fieldwork: 1.8 days suitable. Acreage plowed 10%, 20% 1977, 15% average. Irish potatoes 6% planted, 7% 1977. Winter wheat and oats poor to fair condition. Livestock fair to poor condition. Hay and roughage supplies short to adequate. Feed grain supplies mostly short.

MISSOURI: Temperatures ranged from 9° below normal Bootheel to 15° below normal west central plains. Daytime highs in upper 20's to mid-30's. Precipitation mainly snow with melted equivalents from 0.60 in. east to 0.87 in. west central plains. Snow fall depths up to 12 in. north and central sections from storm 12th and 13th. Depth at week's end 2 to 3 in. southeast, 6 to 10 in. elsewhere.

MONTANA: Cold week, significant warming occurred week's end. Temperatures 2 to 16° below normal. Precipitation below normal except southeast near average. Frequent light snow showers. Snow depths ranged from 6 in. west of Divide; 20 to 30 in. central, north central and east.

Livestock condition fair to good. Continuing concern over hay shortages east. Abatement of blizzard conditions made it possible to dig out and reach most livestock.

NEBRASKA: Storm left snow ranging from 0.10 in. Panhandle to 2 in. east. Temperatures 20° below normal.

NEVADA: Light showers north, fair south early week. Fair weather end of week. Temperatures 2 to 4° below normal. Extremes: -1 and 60°.

Limited fieldwork extreme south. Fair progress early calving and lambing.

NEW ENGLAND: Blanket of snow averaged between 18 to 24 in. Snow flurries or very light snow fell on four days, but added little to the already deep snow cover. Between periods of light snow there was considerable sunshine and little wind. Temperatures near average.

NEW JERSEY: Temperatures 8° below normal averaging 23° north, 26° south and 28° coastal. Extremes: -3 and 44°. Precipitation 0.30 to 0.70 in. below normal, averaging 0.34 in. north, 0.40 in. south and 0.28 in. coastal. Four inch soil temperature at Glassboro averaged 29°.

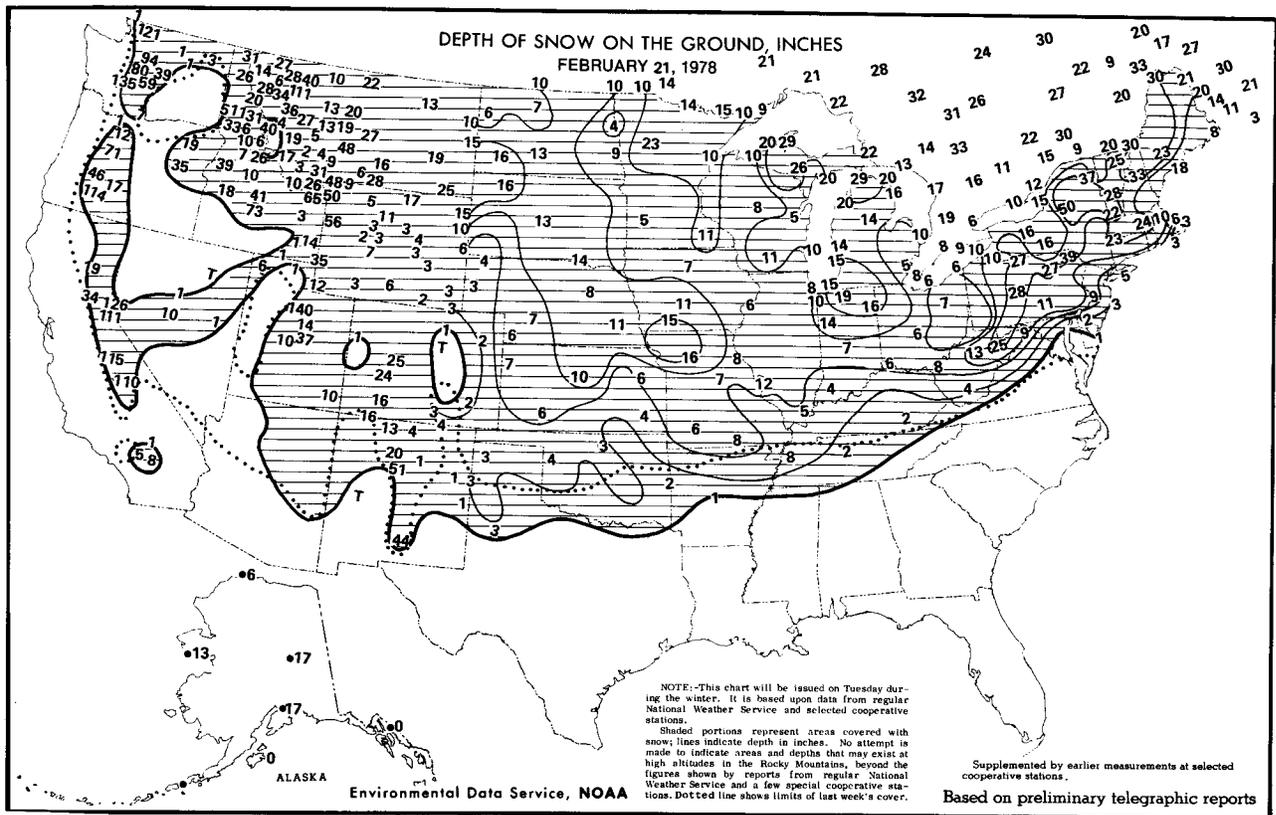
Farm activity continues on very limited basis because of cold temperatures and significant snow cover. Tending livestock continues.

NEW MEXICO: Recurring rains and snows 14th to 17th. Most totals 0.25 to 0.50 in. with heaviest amounts mountain sections. Clearing west and central over weekend.

Planting mid-season onions continued. Irrigated winter wheat, fair to good condition with moderate grazing. Dryland winter wheat, poor to fair with very light grazing. Irrigated winter barley, fair to good condition with moderate to heavy grazing. Ranges, fair condition with supplemental feeding increasing. Cattle, good with calving continuing. Sheep, good with lambing and limited shearing in progress.

NEW YORK: Temperatures a few degrees below normal. Extremes: -23 and 41°. Precipitation under in., mostly as flurries. Heavy snow cover Upstate.

NORTH CAROLINA: Temperatures near normal in mountain and southern Piedmont; 2 to 6° below normal elsewhere. Precipitation light to moderate.



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

NORTH DAKOTA: Cold and dry. Temperatures below normal. Extremes: 25 and -17°. Precipitation generally below 0.05 in. except portions of south central and all of southwest. Greatest snow depth 61 in. southwest.

Farm activities: Digging out of snow in west to allow feeding livestock. Some livestock losses but extent unknown until snow melts. Feeding in west very difficult and livestock under much stress. Farmers and ranchers continue to prepare for calving and lambing as conditions allow.

OHIO: Unseasonably cold. Fair weather 15th with snow flurries remainder of week.

Lambing underway. Pastures and winter grains dormant. Farmers concerned about energy crisis and effects on operations should electricity be cut back.

OKLAHOMA: Temperatures much below normal ranging from 15° below normal southeast to 22° below normal northwest. Extremes: -3 and 48°. Precipitation statewide ranging from 0.82 in. southeast to 0.16 in. west central.

Topsoil and subsoil moisture supplies generally adequate. Entire State snow covered but most livestock remain in fair condition. Hay supplies depleted rapidly but still adequate. Winter wheat fair condition. Native pastures fair condition. Warm weather should spark vigorous growth of small grains and native grasses.

OREGON: Precipitation in all areas; from 0.50 to 1.00 in. rain along coast and in Willamette Valley. Elsewhere rainfall ranged from 0.10 to 0.40 in.

Temperatures from near to 5° below normal. Extremes: high 50's, mid-20's west; high 40's, near zero east.

Farm activity light due to weather conditions. Spring land preparation waiting for fields to dry. Some ryegrass fields suffering from standing water. Grain fields mostly okay. Spraying underway where conditions permit. Orchard and berry fieldwork continues between showers. Pastures growing well but too wet to graze. Calving and lambing continue. Livestock in good shape. Feed supplies adequate.

PENNSYLVANIA: Colder than normal; departures 8 to 12°. Record cold 13th as near to below zero statewide. Extremes: -18 and 40°. Fairly dry with sunshine on alternate days. Precipitation as snow from less than 0.10 in. northwest to 0.60 in. lower Susquehanna melted where 4 to 7 in. new snow accumulated. Snow depths 12 to 36 in. Farmers doing normal winter chores.

PUERTO RICO: Island average rainfall 0.39 in. or 0.28 in. below normal. Temperatures about 75° on coasts and 69° interior. Extremes: 90 and 47°.

SOUTH CAROLINA: Colder than usual, notably southern portion. Extreme low 18°. Precipitation normal except less for extreme northwest. Few snow flurries 19th in extreme north.

Fieldwork resumed with more favorable weather. Cotton scrapping nearing completion. Preparing land for 1978 crop. Tobacco beds being fumigated, prepared for seeding.

SOUTH DAKOTA: Temperatures cold, but moderating by end of week. Averages 27° below normal northwest to 8° below normal northeast. Extremes: -27 and 35°. Light snow statewide. Snowfall heaviest northwest and south central. Moisture amounts up to 0.60 in. northwest and 0.45 in.

south central. Moisture generally less than 0.25 in. southeast and 0.10 in. elsewhere.

TENNESSEE: Rain or snow fell in some part of State each day. Precipitation less than 0.50 in. with some areas receiving 5 in. new snow. Temperatures 1 to 3° below normal east and 8 to 12° below normal west. Lows averaged mid-20's to low 30's and highs averaged from upper 30's to near 50°.

Farm activities consisted of general chores and livestock care.

TEXAS: Two cold fronts caused considerable snow, rain. Temperatures 6 to 20° below normal. Precipitation near normal. Soil temperatures in south ranged from near 60° lower Valley to 50's in Winter-Garden, Coastal Bend.

Heavy snows northern areas delayed land preparation but brought much needed moisture to High and Low Plains. Cool, wet weather delaying final pre-plant preparations and start of planting southern areas. Wheat fields on High and Low plains received much needed moisture from heavy snows; more needed as subsoil moisture very short. Prospects for growth improved by recent moisture, but warmer weather required before effects of prolonged dry winter known. Cold weather limiting progress all area; sunshine needed. Oat stands will benefit from recent moisture, especially Cross-Timbers, Edwards Plateau prospects improved. Cold temperatures limited growth most areas. Flax growth slowed by cold, wet conditions in south central. Fields in south need rain, sunshine. Sugarcane harvest active. Cotton producers in valley waiting for dry fields, warmer soil temperatures. Few gins on southern High Plains still operating. Sorghum producers in Valley will begin planting as soon as fields dry; soil temperatures rise. Corn planting just beginning in south but cool, wet weather slowing progress. Grapefruit movement continued increase as groves dried. Temperatures retarded melon growth. Growers harvesting cabbage, lettuce, carrots, spinach, broccoli, cauliflower. Land preparation, planting behind schedule. Few peach trees in Lower Rio Grande Valley began blooming. Trees along Upper Gulf Coast entering pink bud stage. Planting and pruning continues elsewhere. Pecan growers applying dormant oil spray as weather allows.

Livestock most areas continue to lose weight, condition due to cold, wet weather, lack of grazing. Ranchers feeding large amounts hay, protein supplements. Recent moisture should improve growth of winter pastures when warm weather, sunshine arrive; presently growth very limited. Calving, lambing continuing; some death losses due to recent bad weather.

UTAH: Recurring rain in valleys and snow in mountains. Amounts generally moderate to heavy but locally light few isolated areas. Temperatures dropped below normal. Averages ranged from 4° above normal to 7° below.

Farm activities included feeding and caring for livestock. Some marketing of dry onions,

apples and potatoes. Livestock on winter ranges continues in good condition. Some farm flock early lambing.

VIRGINIA: Cold with temperatures averaging about 10° below normal. Extremes ranged from mid-50's to near 0. Precipitation light, less than 0.25 in. Heaviest in coastal sections with 0.50 to 0.75 in. Precipitation as snow west; mostly rain east and central.

Topsoil moisture adequate to surplus. Snow, ice, and wet conditions hindering livestock feeding. Small grains winterkill limited. Feed supplies short. Newborn deaths up due to cold weather. Fieldwork: 0.2 days suitable. Activities: Maple tree tapping; pruning; topdressing small grain; selling stored grains; slow progress flue tobacco seedbed preparation.

WASHINGTON: West: Temperatures normal except 4 to 5° below in Cascades and east Olympic-Cascade foothills. Precipitation 0.30 to 0.80 in. below normal except in western coastal Olympic and western Cascade mountain area.

Wet conditions restrained field activity.

East: Temperatures 1 to 2° below normal except 1° above in Okanogan-Big Bend area. Precipitation 0.20 in. below normal except 0.40 in. below normal northeast and 0.80 in. below eastern Cascades.

Fruit trees wintered well. Alfalfa fertilization and tree pruning continue. Herbicide application beginning. Run-off for spring looks good.

WEST VIRGINIA: Temperatures well below normal. Precipitation below normal. Snow depths up to 30 in. mountains, 6 to 10 in. elsewhere.

Soil moisture mostly adequate. Snow coverage preventing fieldwork. Hay supply short to adequate. Some herds calf losses heavier than normal due to cold damp conditions. Grain and other supplies mostly adequate.

WISCONSIN: Cold, dry. Little day to day temperature changes. Highs in teens and 20's, lows ranged from -10 to 12°. Periods of snow flurries but no significant accumulation. Good snow cover remains as temperatures continue below freezing.

WYOMING: Temperatures below normal with highs generally in 30's. Low temperatures ranged from -5 to -20°. Precipitation above normal with north receiving most and south least.

Winter wheat fair to good. Snow cover reported in many areas. Livestock mostly good condition. Heavy supplemental feeding because of cold weather and snow cover, some shortages. Lambing of farm flocks and calving started.



GEORGE WASHINGTON AS A FARMER AND WEATHER OBSERVER

by

William Hodge
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George Washington's accomplishments as Commander-in-Chief and first President are well-known. His remarkable achievements in other areas of work have, to a large extent, been overlooked. These talents spanned several endeavors, as documented by volumes of letters, notes, and diaries. Farming served as an occupation and fascination for Washington; thus weather observations became important in his daily routine in Virginia. Weather notes are woven throughout his writings, and number so many that editors of his papers usually omit them as being trivial and inconsequential.

Washington's interest in the weather might have been scientific as well as agricultural. There was a growing curiosity in all the natural sciences during the 18th century. Benjamin Franklin raised questions about the movement of storms. Two future Presidents, James Madison and Thomas Jefferson, observed and recorded the weather in other parts of Virginia. Their observations were listed in tables---Washington wrote his notes in narrative form making difficult reading for historians. Later years would provide still another President, John Adams, recording the temperature three times daily while residing at the White House.

Short descriptions of the weather dotted Washington's earliest diaries. As a 16-year old surveyor, he kept a detailed weather record in the Valley of Virginia. His notes became more systematic after he turned from soldiering in the French and Indian War to planting along the Potomac River. He divided his diaries into three sections during these years---"When and How My Time is Spent", "Remarks of the Weather", and "Observations".

Washington faced several hardships in taking up the life of a farmer. When he settled at Mt. Vernon in 1759, only about half of the 2,500 acres was tillable. Most fields were of mediocre quality, markets were far away, and the cost of transportation was great. Many nearby plantation owners plunged into debt because of these conditions.

At first, his goal was to raise the finest tobacco in the Potomac Valley. It soon became obvious that the soil was unsuitable, so he turned to wheat. By 1766 wheat had replaced tobacco as the principal cash crop at Mt. Vernon, though he continued to raise tobacco on other plantations. Wishing to enlarge his profit, he built a grist mill, divided the flour into superfine, fine, and middling grades, and marketed his own brand. Present-day farmers will understand his frustration when, in 1772, he shipped 273 barrels of flour to Barbados only to have the agent pocket the money received.

Washington attempted to broaden his knowledge of the science of agriculture. Once when he asked his purchasing agent for "the newest and most approved" books on agriculture, he received "A New System of Agriculture, or a Speedy Way to Grow Rich". He tried extensive experiments on seeds and fertilizers, grafting of fruit trees, and new kinds of farm implements. When he traveled throughout the new country as President, he conversed with farmers

writing down their practices for future reference. One day President Washington wrote: "According to Col. West, the greatest part of this next moon should be as this day---i.e., the same kind of weather that happens upon the Thursday before the change will continue through the course of the next moon or at least the first and second quarters of it." A later entry showed some skepticism of this theory.

Everyday farming operations were so time-consuming that extensive writing would appear to have been difficult. Simply buying supplies required planning months ahead, since nearly all items had to be shipped from England. He protested to his agents in England about low prices received for his tobacco and high prices he was charged for the low quality and poorly packed goods sent to him in return.

He often rode 60 miles a day on horseback overseeing what was being done on the land surrounding Mt. Vernon. He began fishing for herring on a commercial scale. Rarely idle, he worked hard even in the winter months. During that season, hogs were slaughtered and meat cured; repairs were made to buildings, dams, fences, and piers damaged by winter storms; and preparations began for the coming season.

During Washington's Presidential absences, Mt. Vernon's farm operations were entrusted to a manager. Washington required a complete formal report each week from him, which started with a meteorological table. Usually, temperature, wind direction, and sky condition or type of precipitation were given three times each day. Then followed a full description of the work accomplished, the harvests, and the receipts. Washington probably used the weather tables to judge the efficiency of the work and the progress of the crops. He maintained close touch with the farm's daily routine sending detailed instructions to the manager by mail.

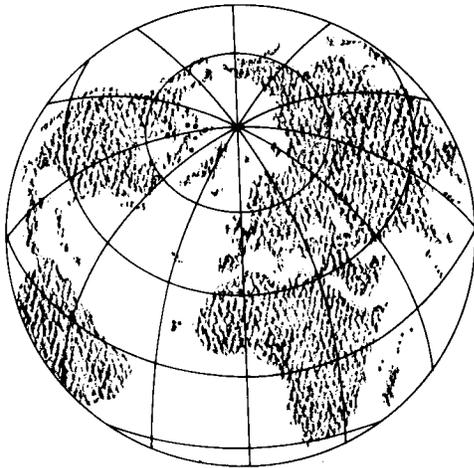
Many visitors paid social calls to Mt. Vernon and, in the later years, accounts of the weather and the social visitors were sometimes combined into one narrative of the day's happenings. Occasionally he left blank spaces in an almanac to write remarks about the weather. Almanacs were considered an almost indispensable facet of farming and daily life. Ruled paper was scarce in America at that time; he spaced his lines by using a heavily ruled guide sheet below the page. Evidence of his failing eyesight in later years was apparent when the writing dropped off the edge of the paper onto the guide sheet.

Washington continued his observations through to his death. He installed a thermometer and noted the temperatures at morning and night. It is believed the last lines Washington wrote were his weather account for December 13, 1799. The entry was written as follows:

Morning snowing and about 3 inches deep---wind at NoE & Mer(cury) at 30---Contd snowing till 1 o'clock---and about 4 it became perfectly clear---wind in the same place but not hard---Mer 28 at night.

On the next page, in someone else's handwriting, this following note appeared: "This paper probably contains the last words that General Washington committed to writing. On the night of the 13th he was attacked by the disorder of which he died."

George Washington left a legacy of new farming methods. He said he had "little proficiency" in agriculture, but his knowledge and perceptions out-paced most farmers of his time.



World Weather and Crop Update

January Review---February 20

USSR. January temperatures ranged above normal throughout the USSR. However, short cold spells exposed winter grains for brief periods to temperatures in the danger zone near -20° C. Although most areas had adequate snow cover to protect dormant wheat plants, the southern Ukraine and Moldavia have contended without snow cover most of the winter. Soviet media reported that grain crops and perennial grasses, as of mid-February, have wintered "normally" almost everywhere claiming that overall conditions are "better than in the past." Some winterkill undoubtedly has occurred because of severe frosts and the lack of snow cover in some important areas at critical times since early December.

ASIA. In the People's Republic of China, January precipitation was above normal in the south, but below even the very low normals over the winter wheat regions in the north. However, condition of winter wheat in most areas is generally good with prospects further enhanced by widespread snow and rain in the first half of February. Precipitation was seasonally light in India with heaviest amounts falling on the winter rice areas along the southeast coast. Light amounts of rain also fell on part of the north central wheat growing region.

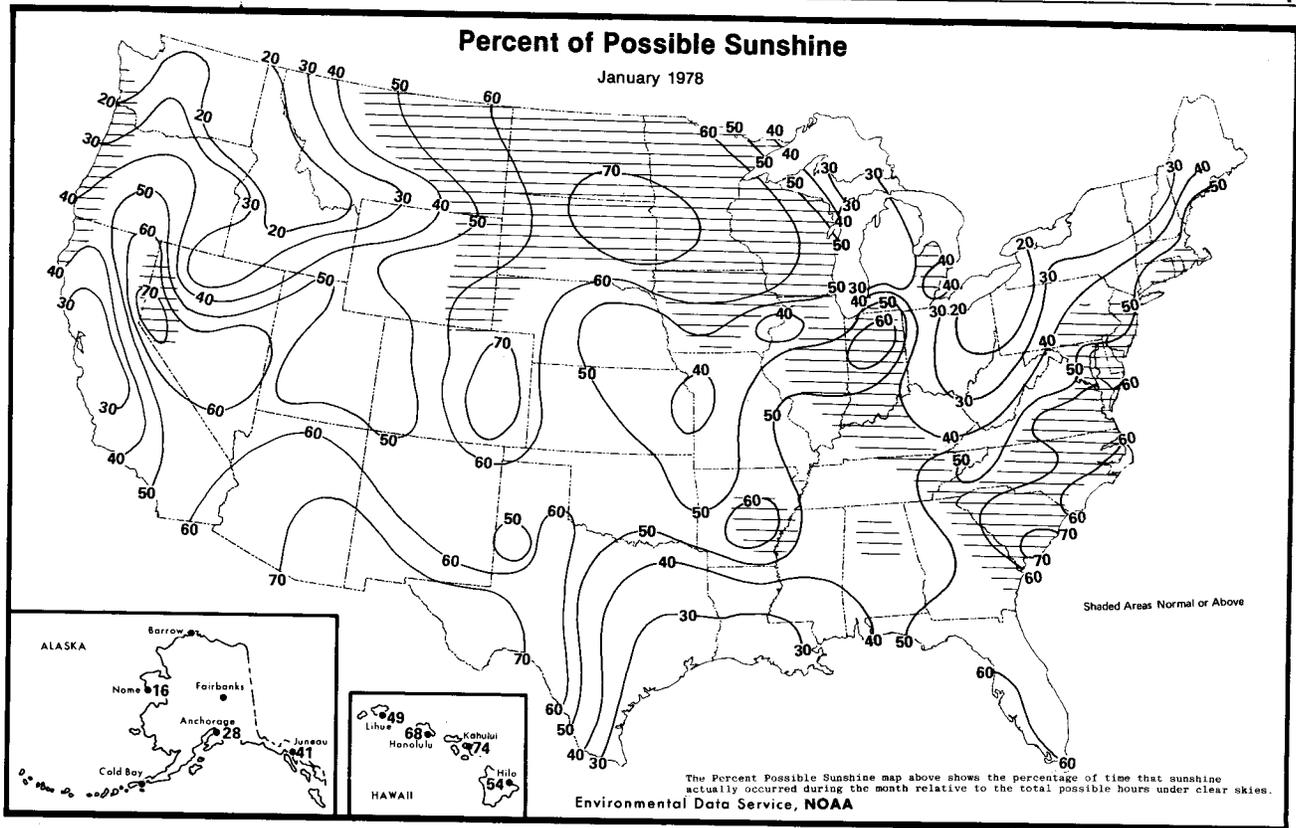
AUSTRALIA. Heavy rains over the eastern half of Queensland, New South Wales, and Victoria eased the drought situation, especially aiding pastures and replenishing stock water. Good follow-up rains are required for continued recovery from the drought. But there was little or no improvement in the other major grain areas where January precipitation was generally well below normal. Rainfall, thus far in February, has been spotty permitting little or no improvement in soil moisture which is abnormally low over widespread areas.

AFRICA. Generous rains in January and into mid-February have greatly improved moisture conditions in Algeria and Tunisia, both of which had been suffering from a severe moisture deficiency. Rainfall has been adequate to maintain good growing conditions throughout the main agricultural areas in South Africa. The Sahelian countries remained seasonally dry, while the only significant precipitation in West Africa fell along the coasts of Liberia and Sierra Leone.

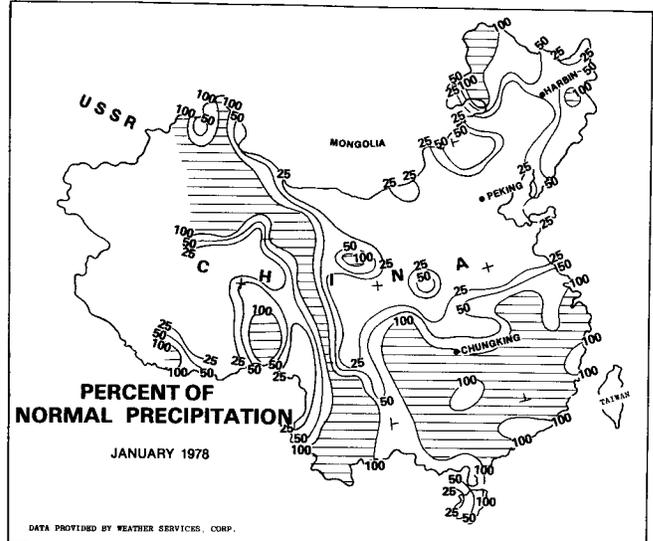
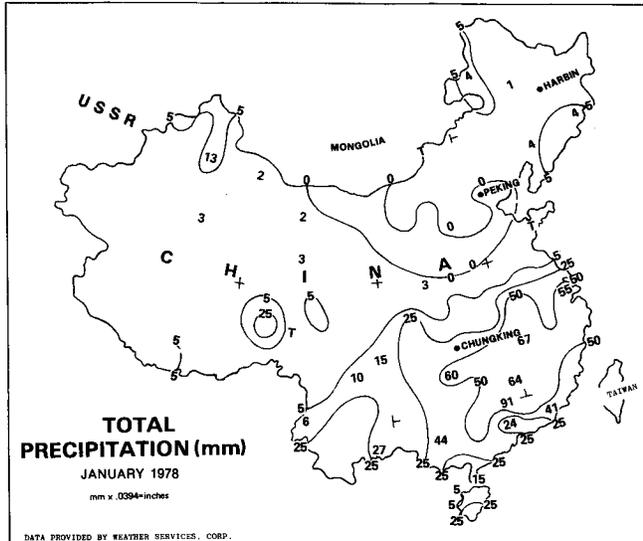
EUROPE. Western Europe enjoyed generally mild and wet weather during January with temperatures

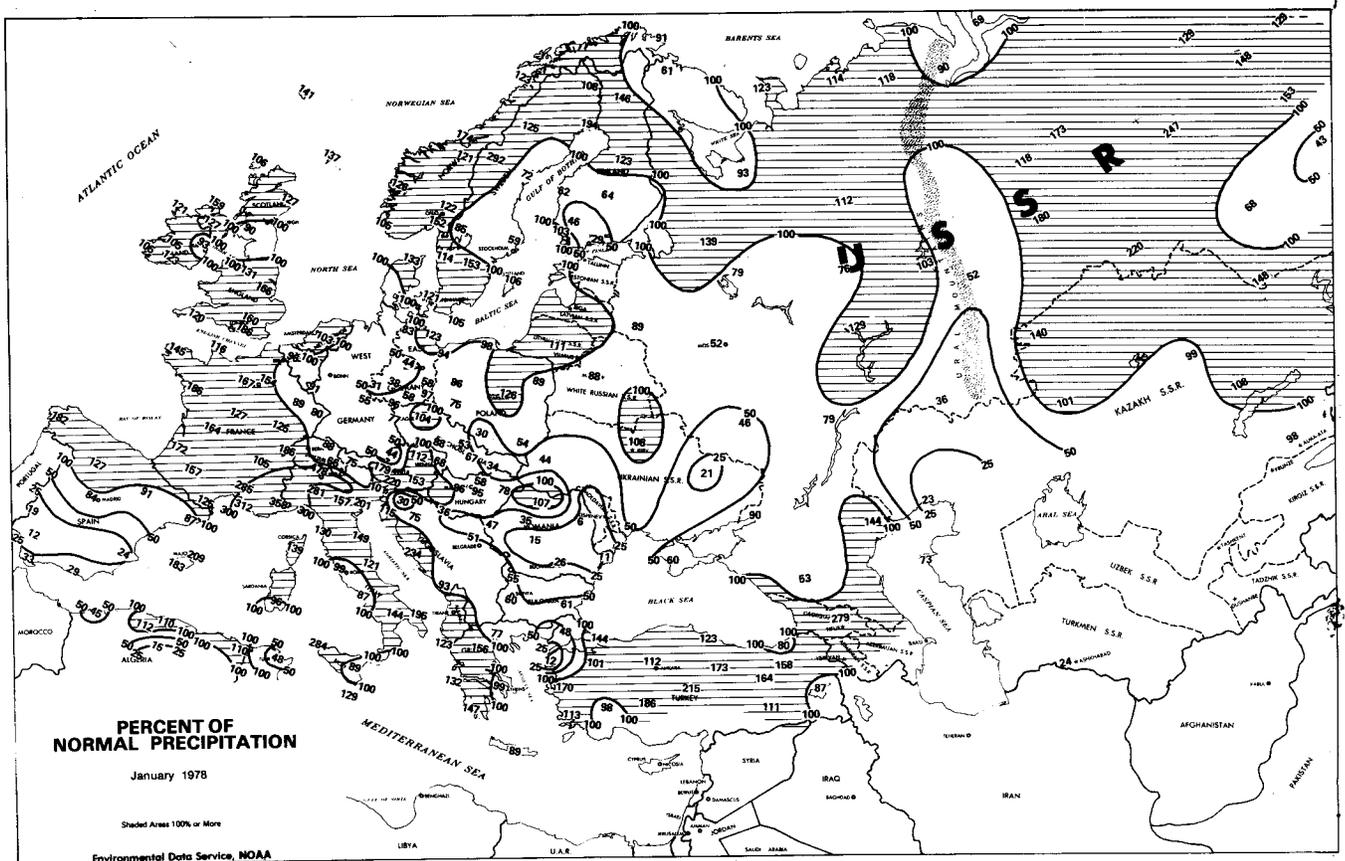
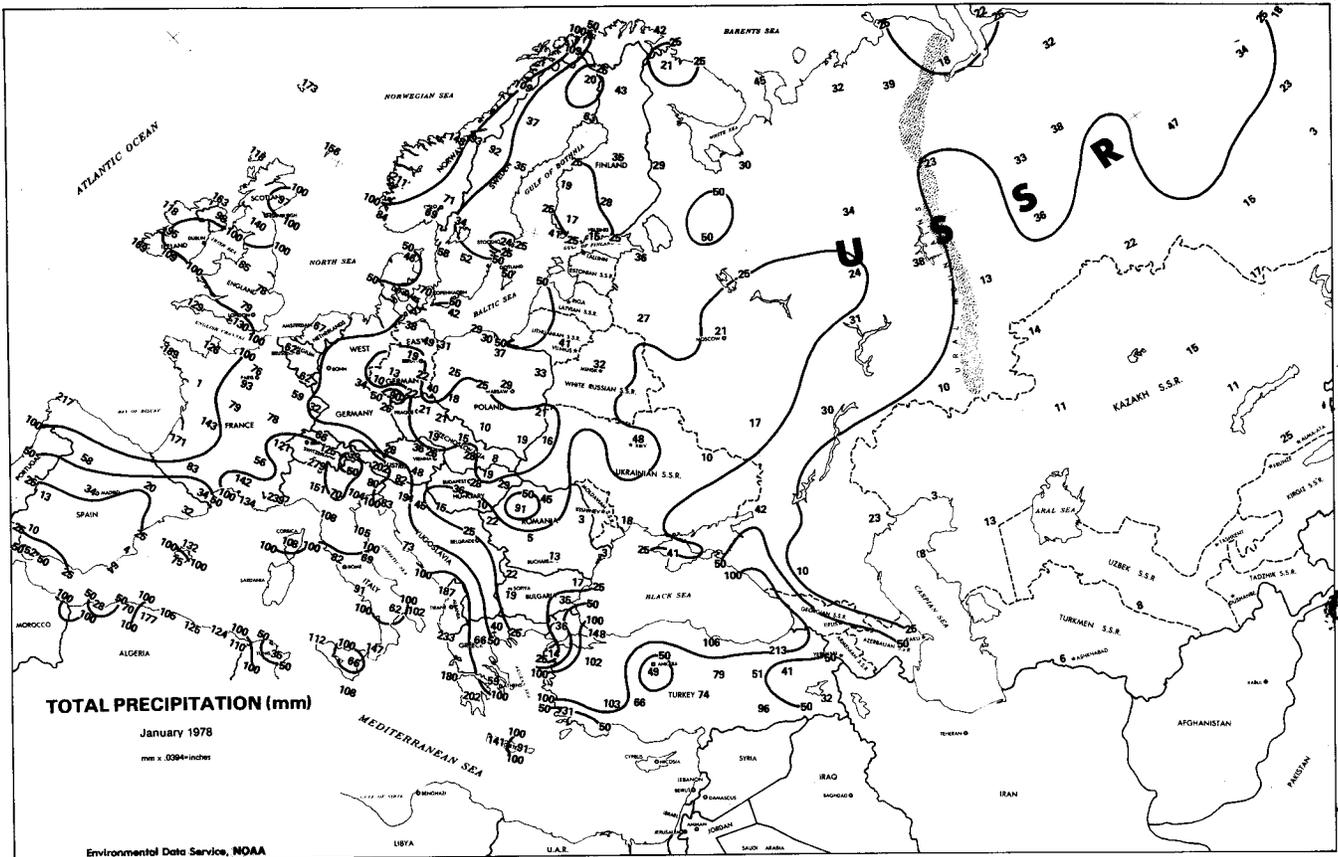
(excluding the U.K., western France and northern Spain) and precipitation well above normal. Weather during February brought colder temperatures with snow in the northern half of the region. Heavy precipitation, mainly snow, fell throughout northern Spain in January, but well below normal moisture was recorded in the south. Although snow hampered the harvesting of corn, sugarbeets, potatoes and olives in Spain, small grains, pulses, and vineyards were helped by more seasonal temperatures. Spain's citrus crop was not affected by the cold wave, but strong winds caused fruit to fall in some areas. Eastern Europe also enjoyed above normal temperatures in January, but precipitation was generally well below normal. Estimated soil moisture, although not important at this time of year, is well below normal over most of the southern half of this region, especially Hungary, Romania, and Bulgaria. Temperatures were seasonal during the first half of February with light to moderate snow cover established in the northern countries. Temperatures and precipitation rose well above normal over the main agricultural areas of Turkey during January, and additional moisture has fallen in February.

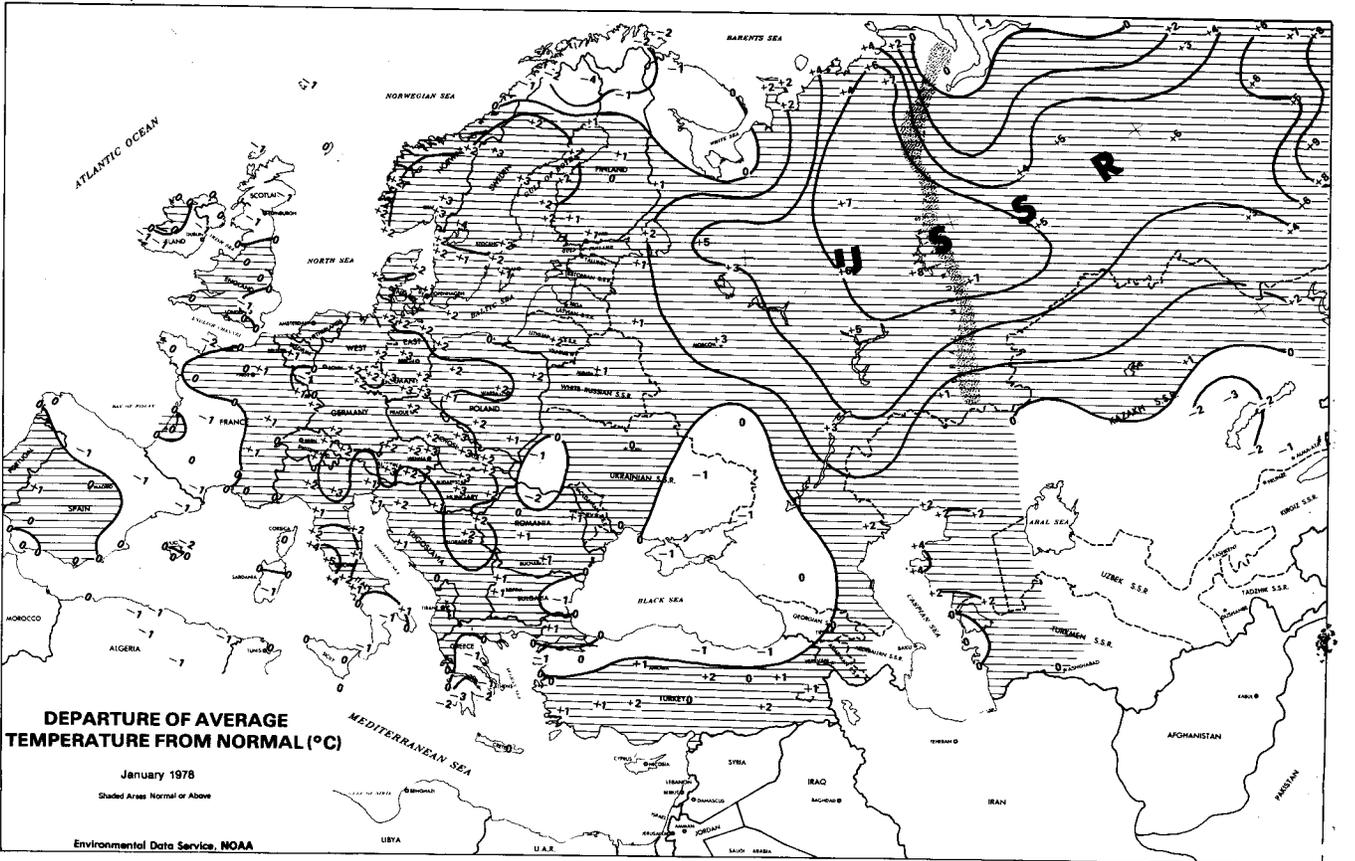
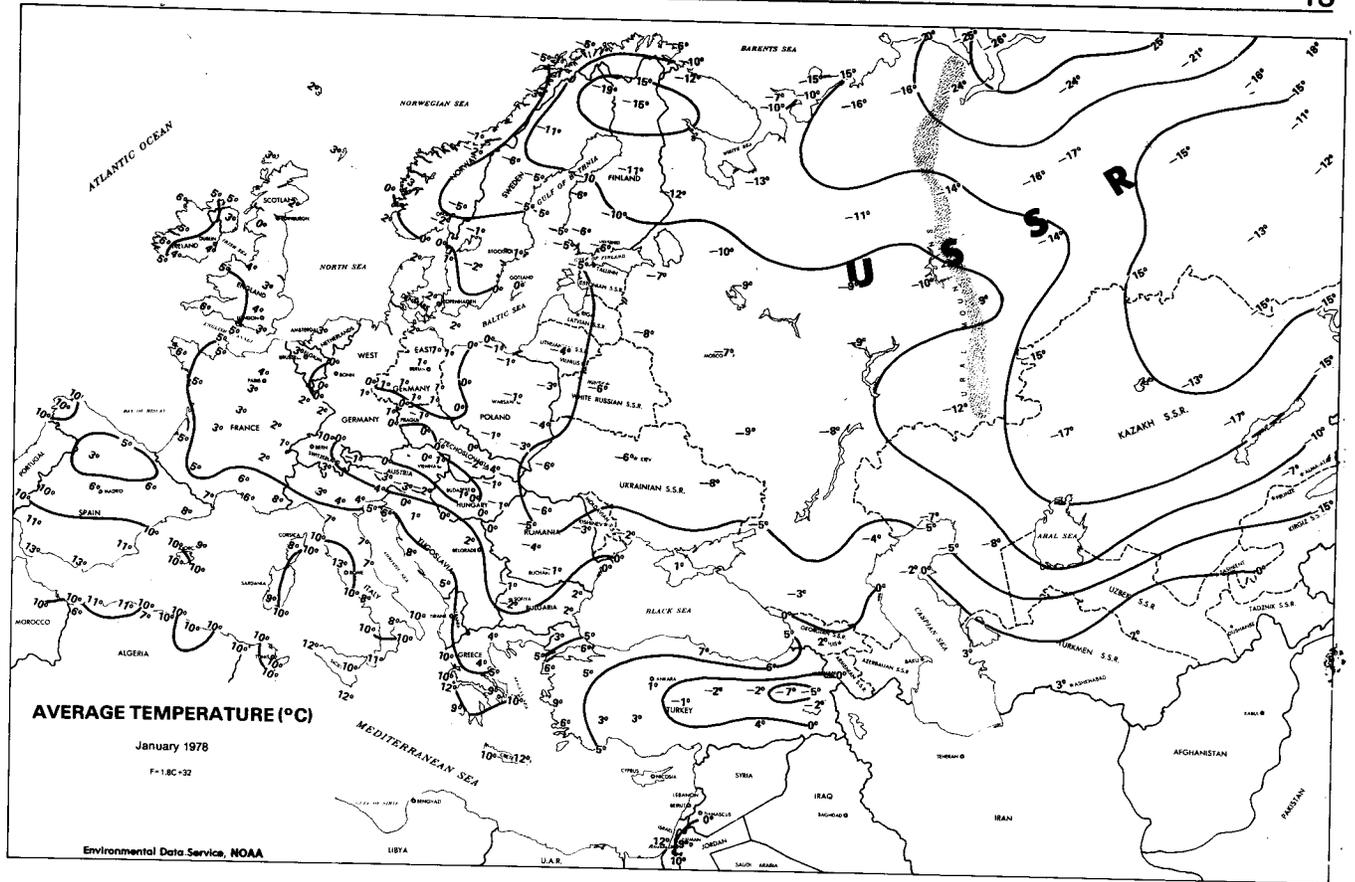
AMERICAS. Argentina crop and pasture conditions continued generally favorable. January precipitation was well above normal in the main agricultural areas, with timely rains falling in February. But the crop picture is patchy in the principal crop regions in Brazil. Abundant rains fell in January in Rio Grande do Sul in the extreme south; rainfall has been adequate through mid-February. But crops in the western sections of Parana and Sao Paulo---prime soybean areas---have been suffering from deficient moisture for the past two months. January rainfall, in particular, was well below normal during the period when water demands were at the mid-summer peak, and February rains, thus far, have been insufficient. The moisture situation in Brazil's northeast has greatly improved in recent weeks although precipitation continued to be below normal in the coastal regions. In the Prairie Provinces of Canada, total snowfall as of the end of January was normal or slightly below. However, existing moisture reserves, together with the potential snow melt water, is expected to provide near capacity conditions for both fallow and stubble areas in all three provinces.

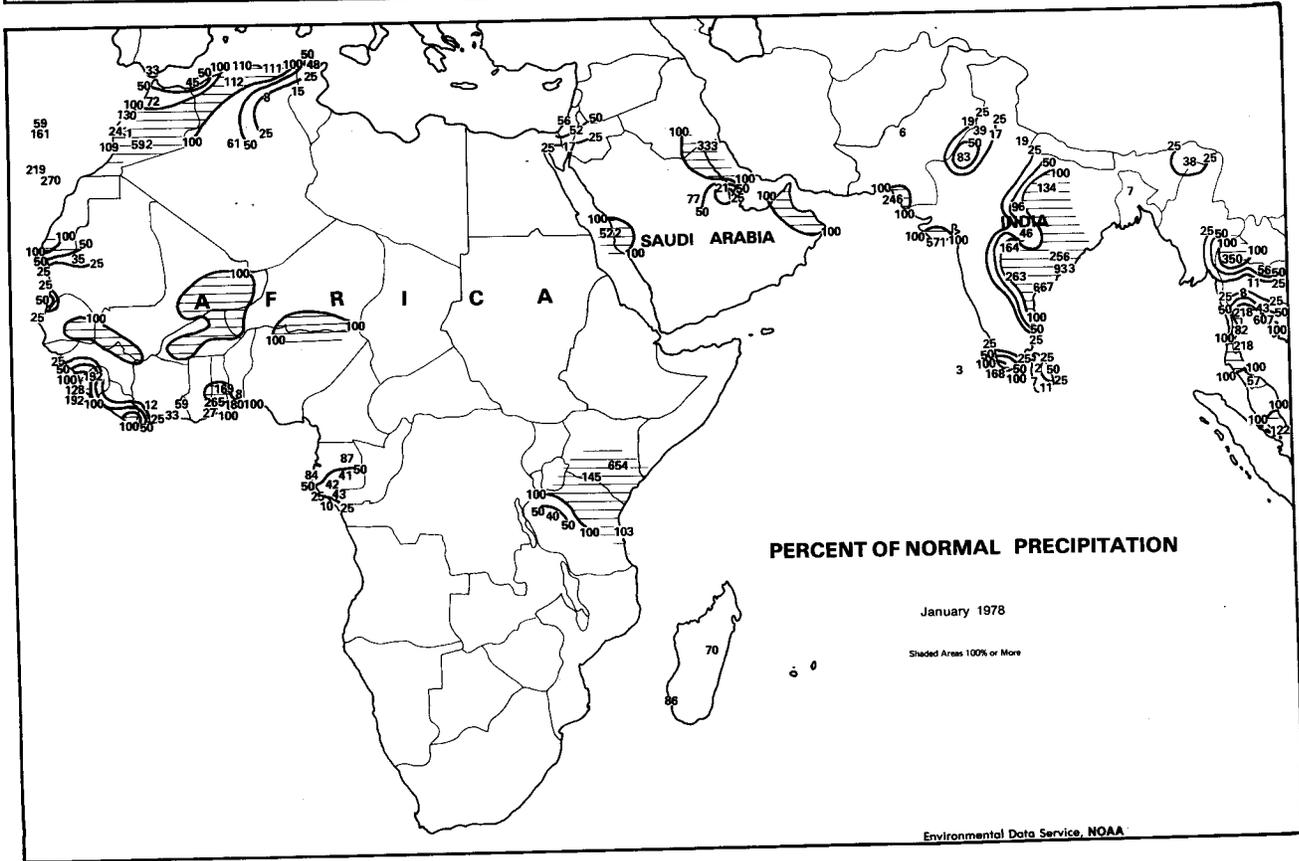
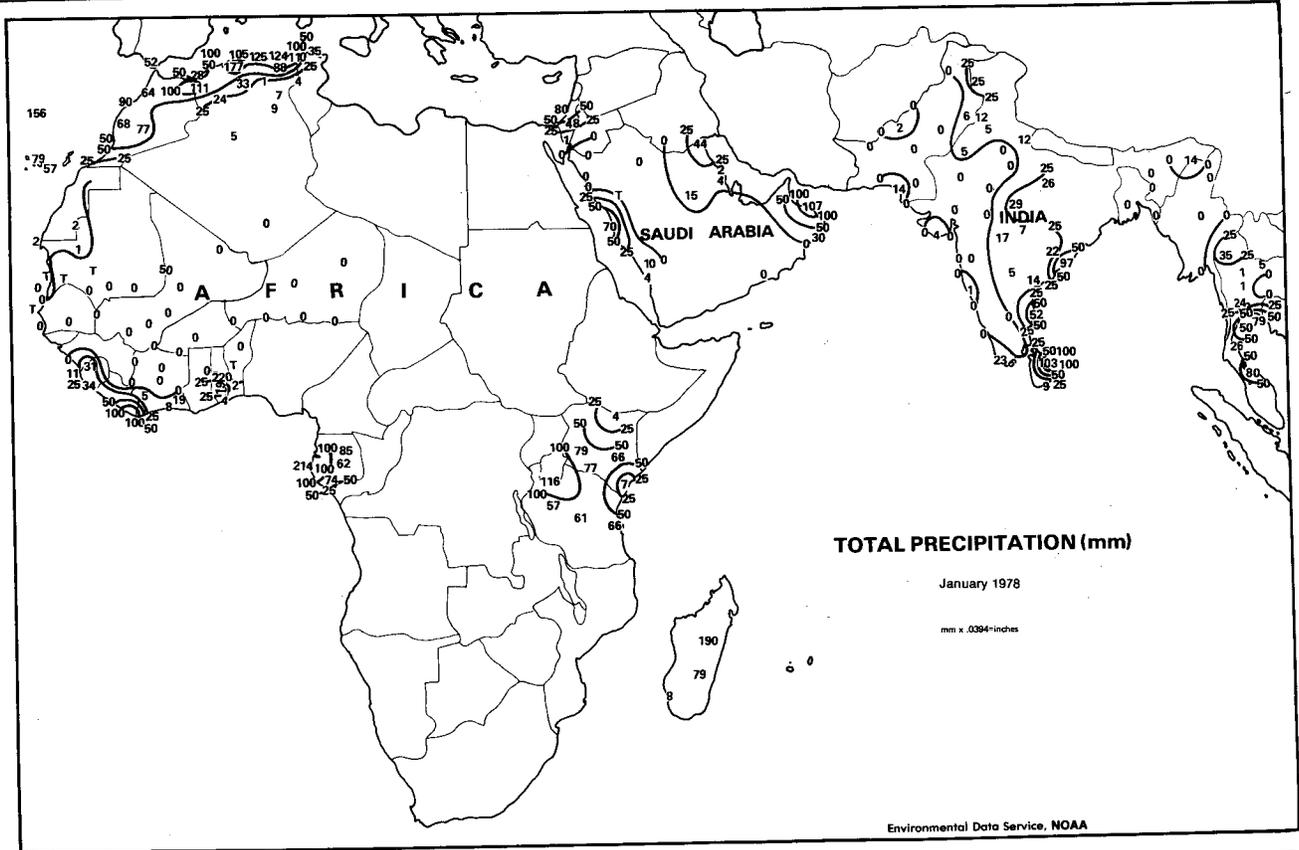


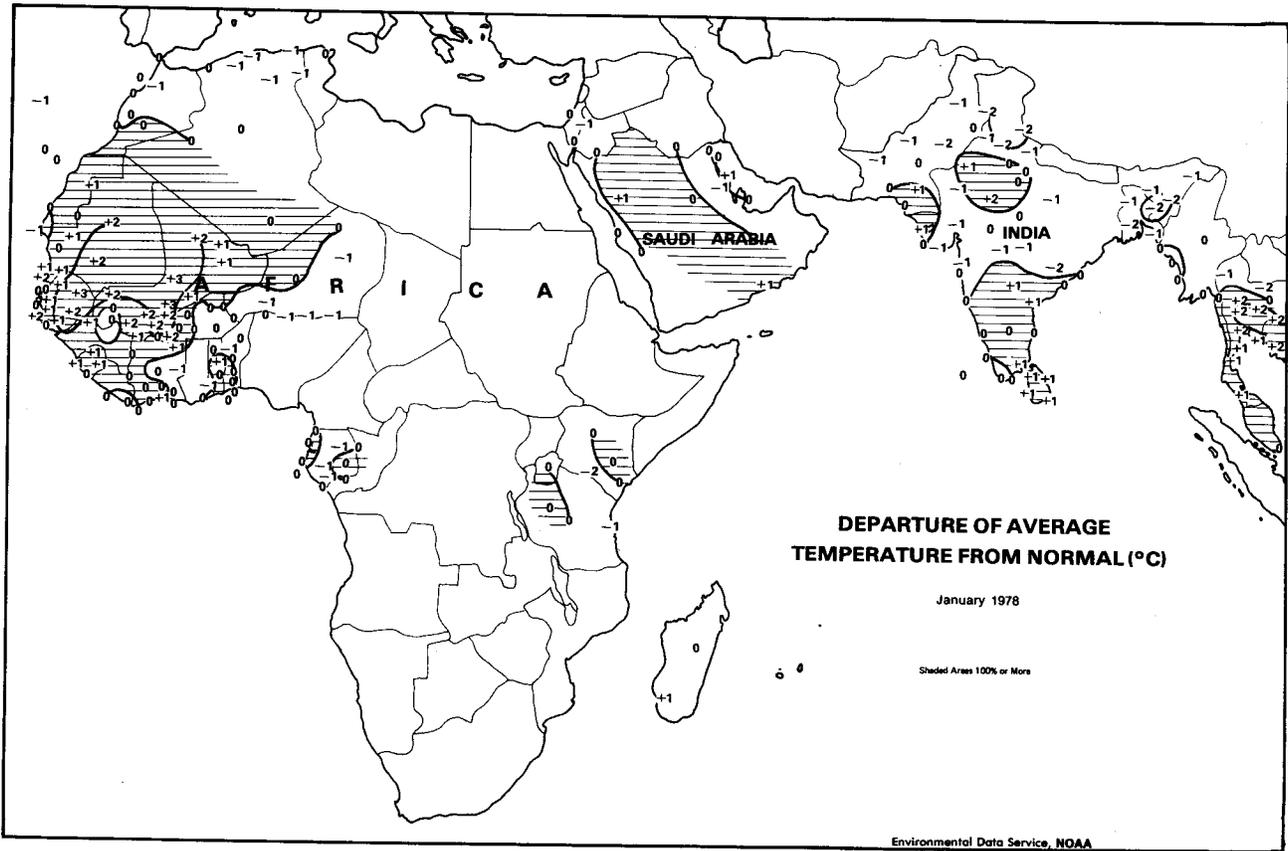
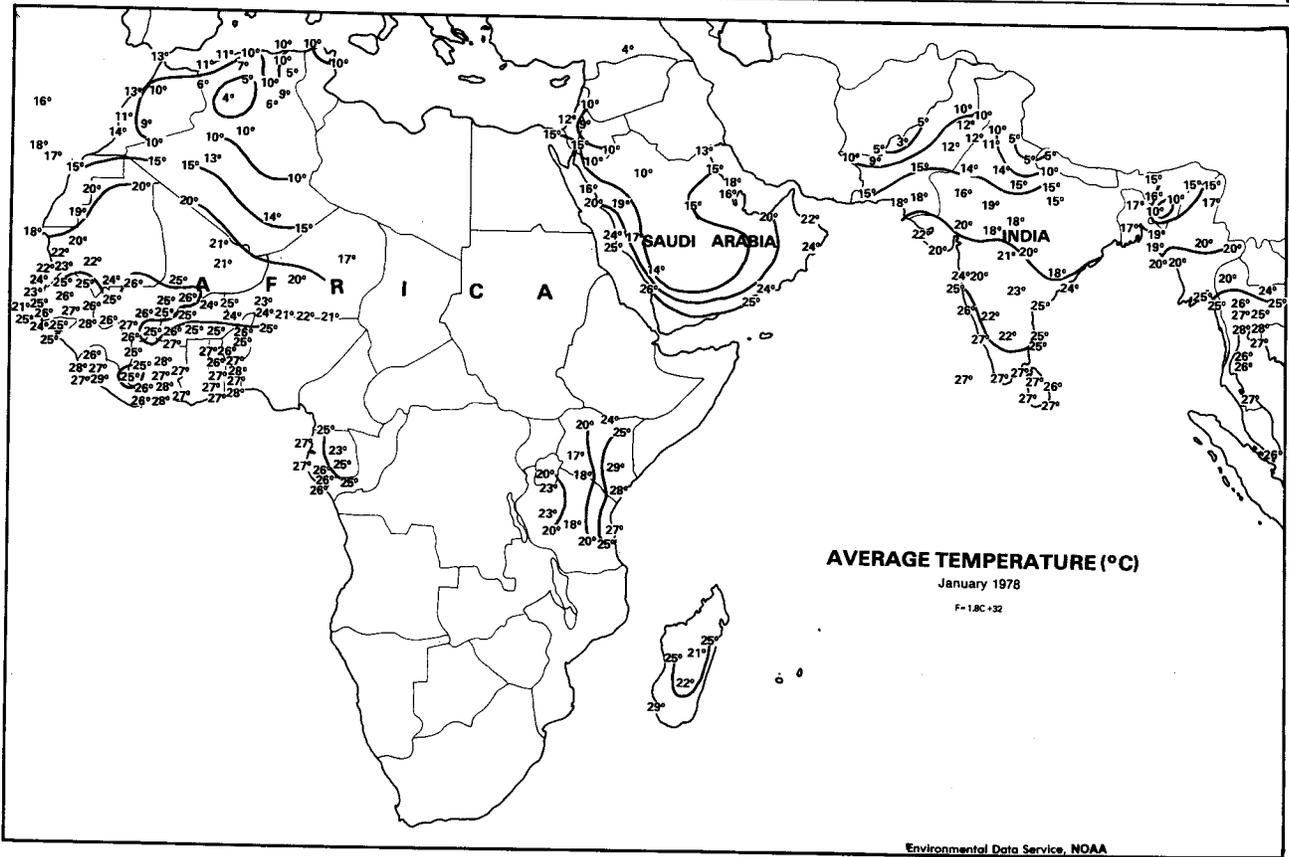
China Precipitation

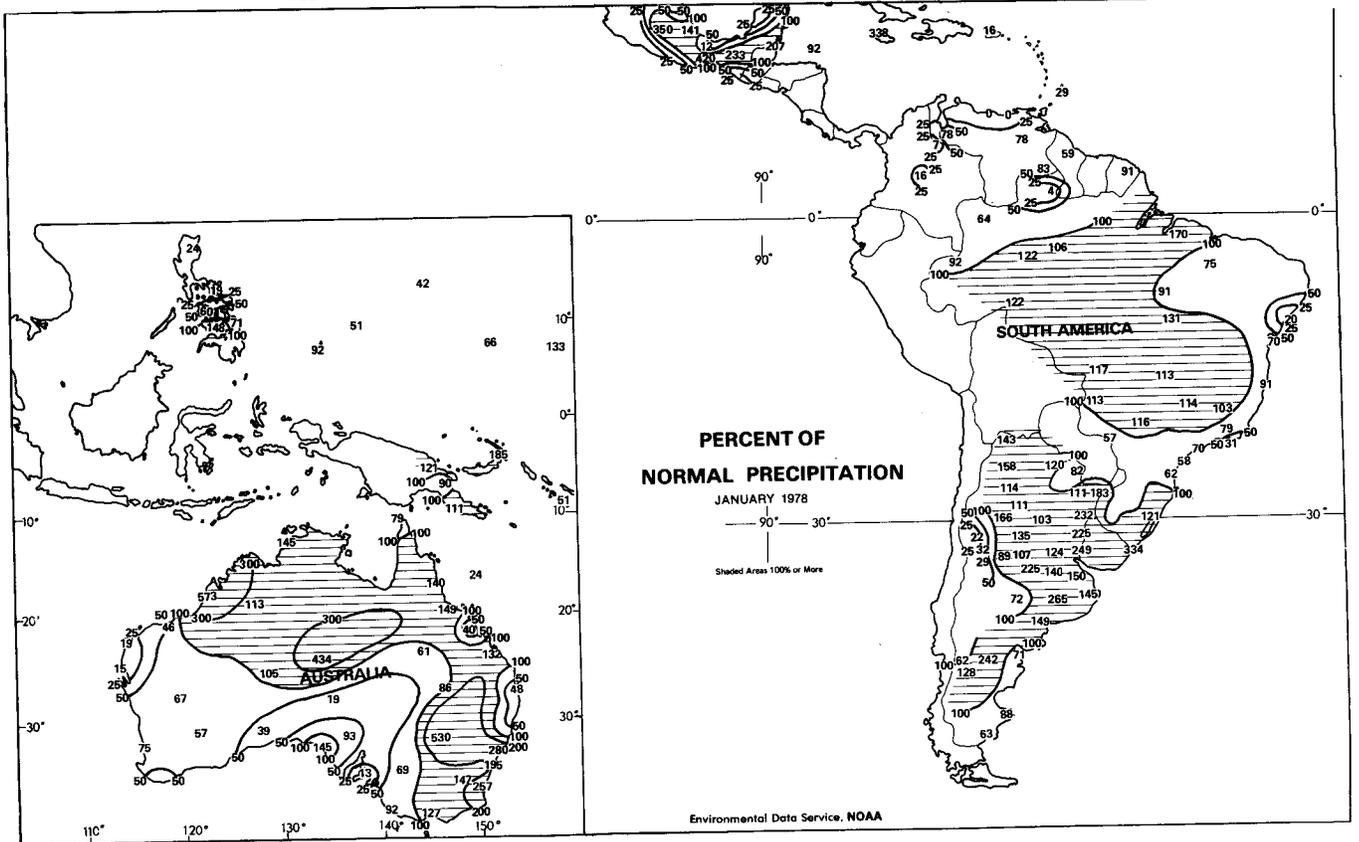
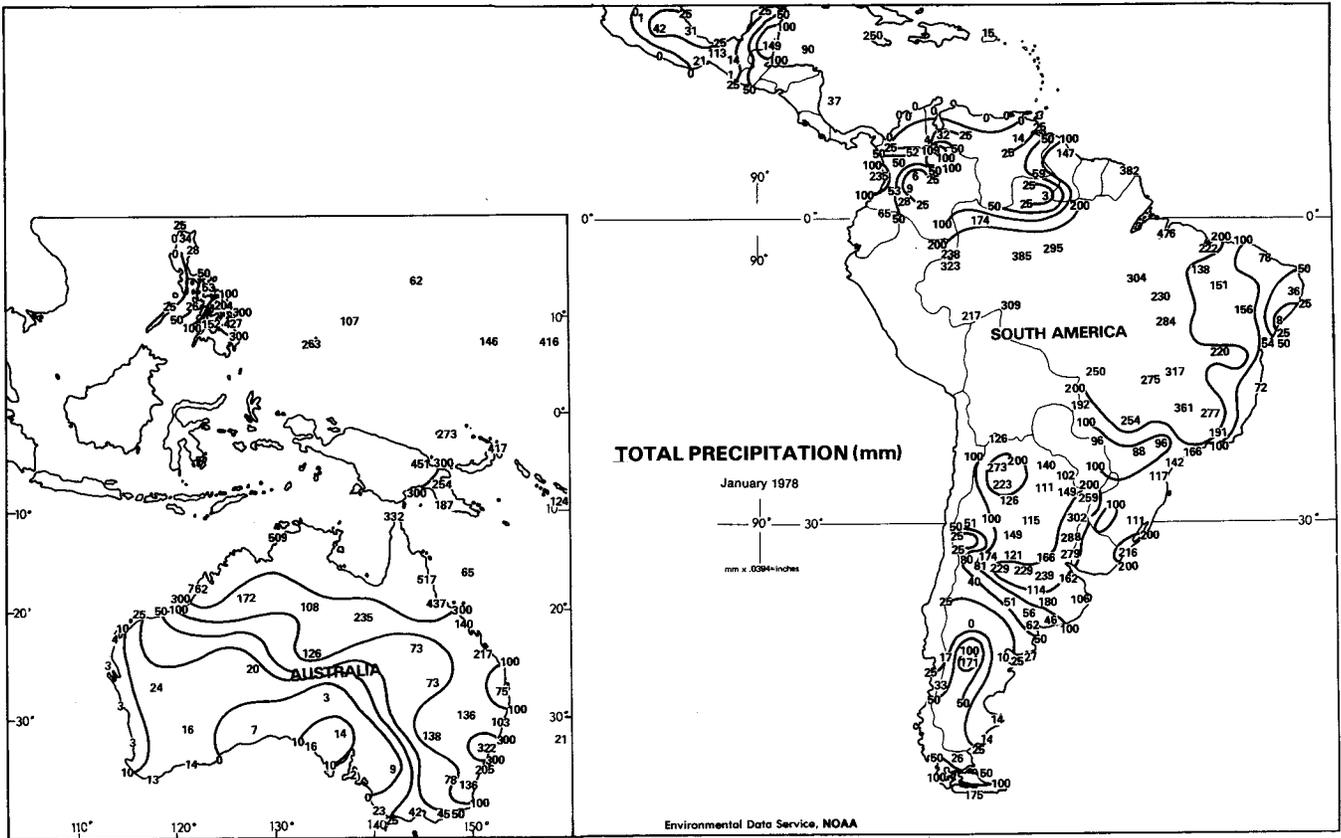


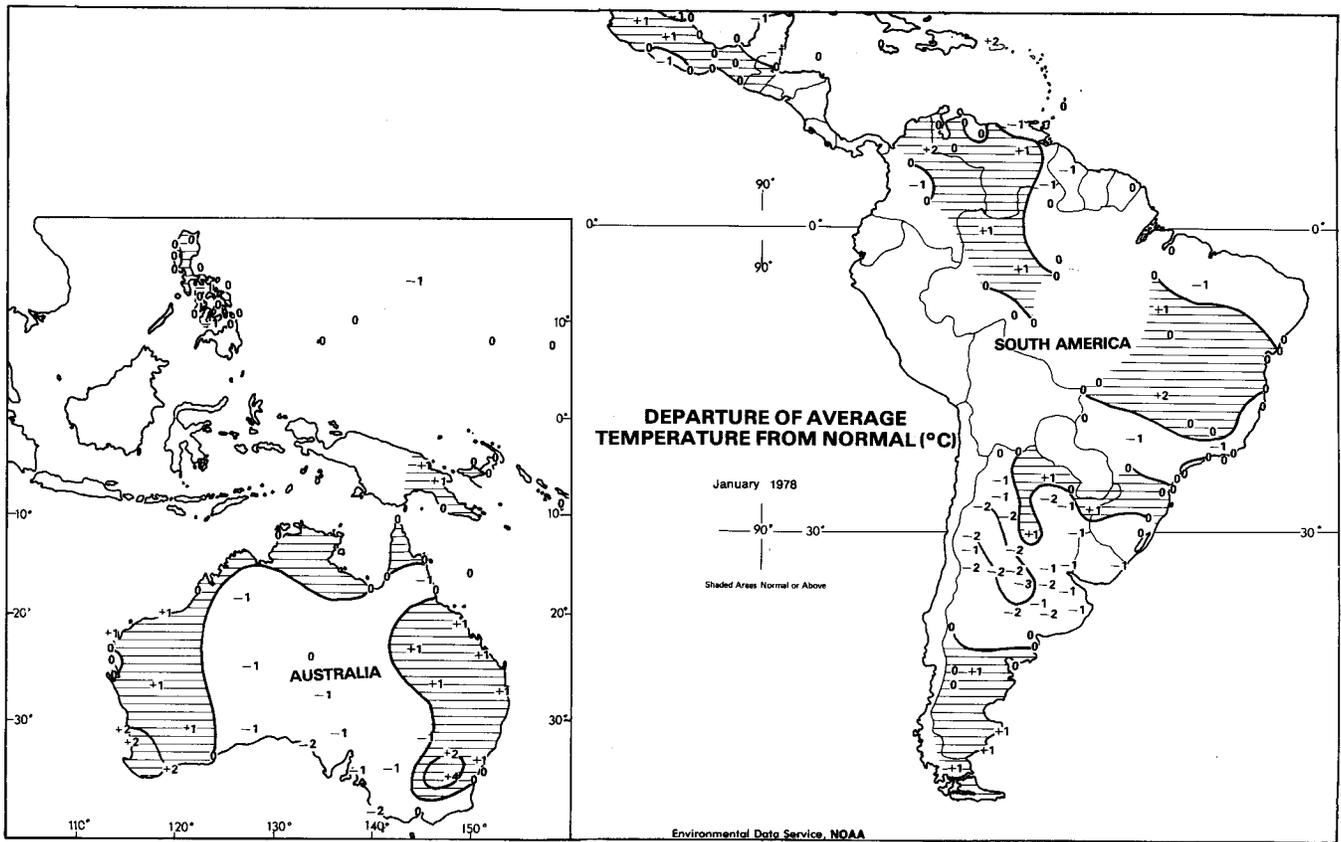
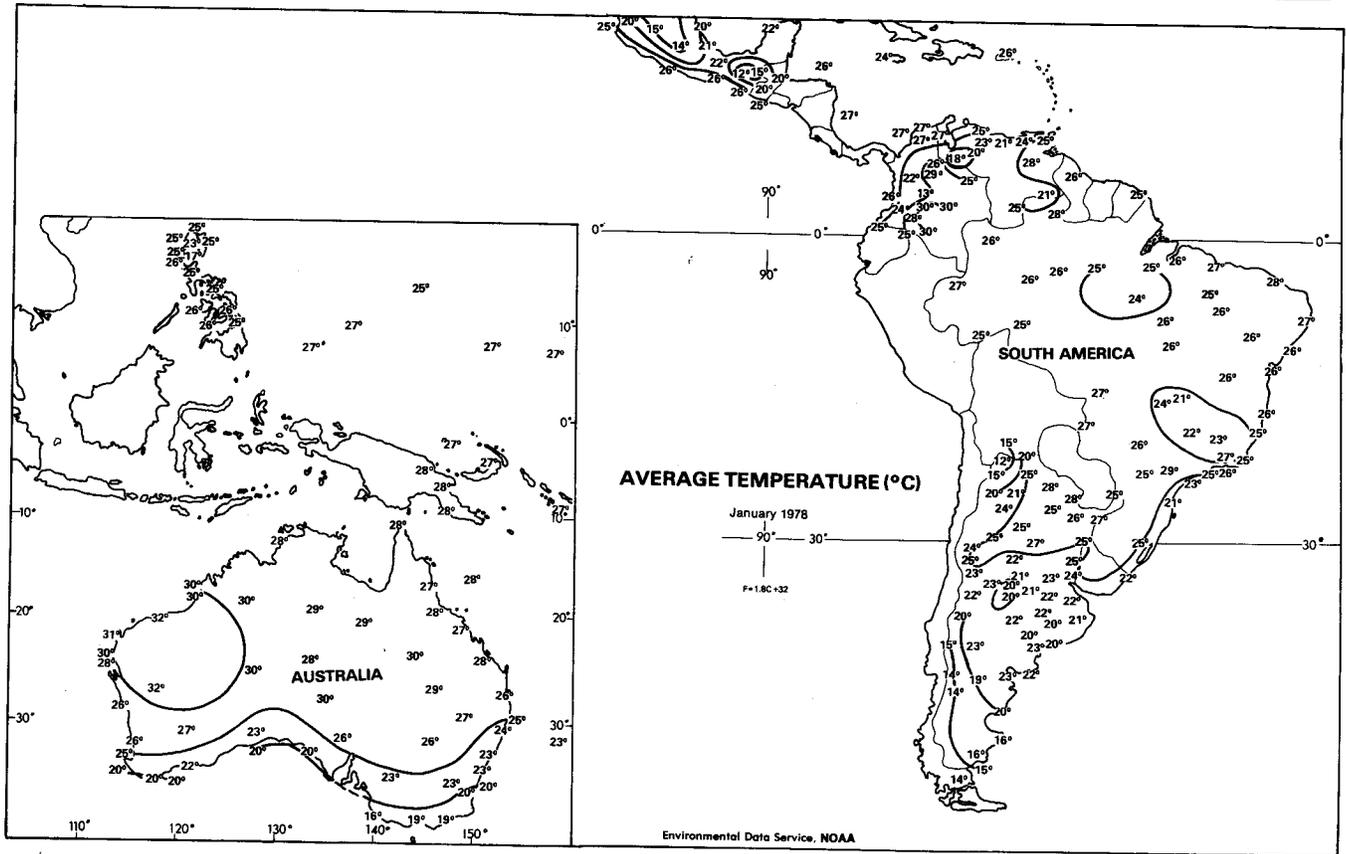


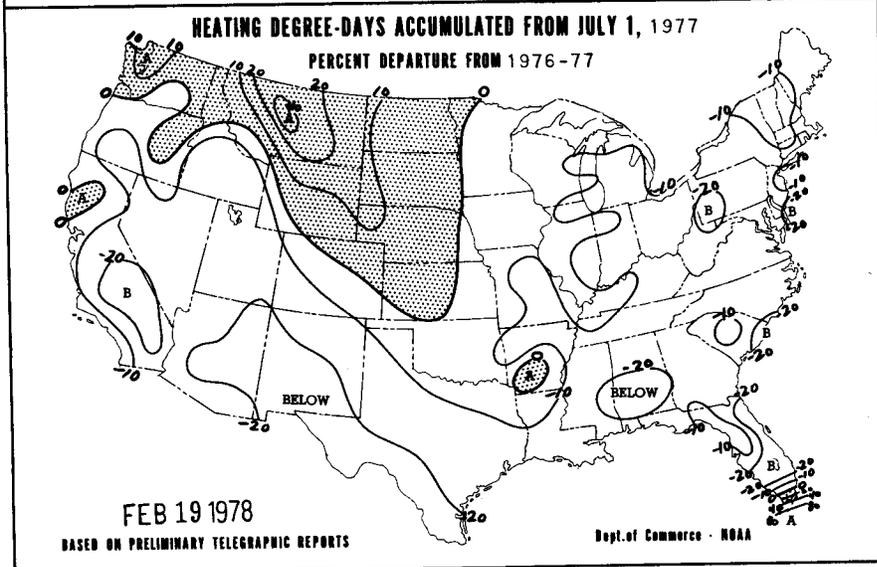
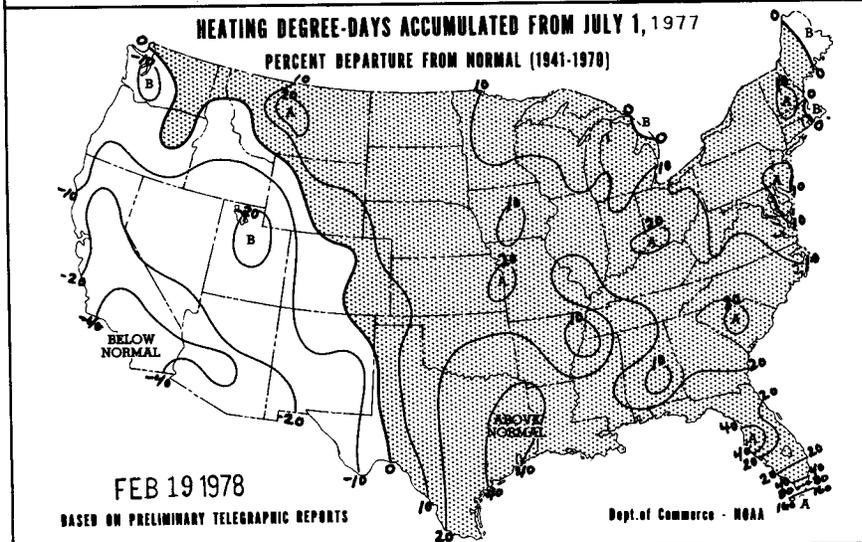
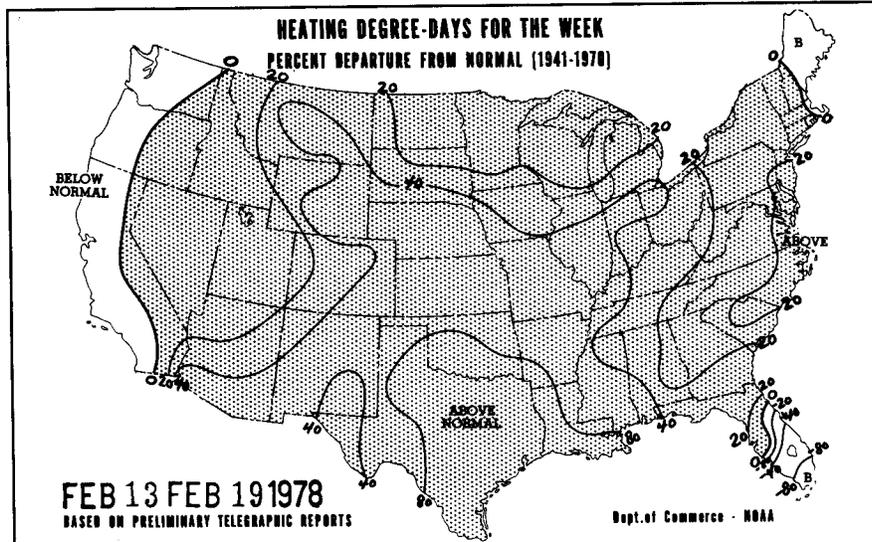












HEATING DEGREE DAYS (BASE 65°) FOR WEEK ENDING FEB. 19, 1978.

STATES AND STATIONS	WEEKLY			SEASONAL ACCUMULATION +			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		TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77			
ALA. BIRMINGHAM.....	15	30	259	431	437	437	MAINE. CARBOU.....	33	30	634	68	845	YOUNGSTOWN.....	34	72	4728	369	945		
MONTGOMERY.....	12	19	1781	454	454	454	PORTLAND.....	27	20	599	144	582	OKLA. OKLAHOMA CITY.....	29	135	3225	475	29		
ARIZ. FLAGSTAFF.....	2	4	3837	86	86	86	MD. BALTIMORE.....	24	28	3493	160	553	TULSA.....	125	125	3276	526	124		
PHOENIX.....	2	4	3636	66	66	66	MASS. BOSTON.....	23	11	3719	34	512	OREG. ASTORIA.....	14	1	518	113	202		
TUCSON.....	2	4	3636	66	66	66	MICH. ALPENA.....	33	5	5545	10	643	BURNS.....	15	1	518	113	202		
YUCLA.....	2	4	3636	66	66	66	DETROIT.....	34	7	5022	5	471	PENDLETON.....	15	1	518	113	202		
ARK. FORT SMITH.....	2	4	3636	66	66	66	FLINT.....	34	7	5022	5	471	PORTLAND.....	14	1	518	113	202		
LITTLE ROCK.....	2	4	3636	66	66	66	GRAND RAPIDS.....	34	7	5022	5	471	SALEM.....	14	1	518	113	202		
CALIF. BAKERSFIELD.....	7	13	907	750	430	430	HOUGHTON LAKE.....	34	7	5022	5	471	PA. ALLENTOWN.....	28	32	4181	157	516		
EUREKA.....	11	17	2666	487	487	487	LANSING.....	34	7	5022	5	471	ERIE.....	28	32	4181	157	516		
FRESNO.....	11	17	2666	487	487	487	MARQUETTE.....	34	7	5022	5	471	HARRISBURG.....	28	32	4181	157	516		
LOS ANGELES.....	11	17	2666	487	487	487	MUSKOGEE.....	34	7	5022	5	471	PHILADELPHIA.....	28	32	4181	157	516		
RED BLUFF.....	11	17	2666	487	487	487	S. STE. MARIE.....	34	7	5022	5	471	PITTSBURGH.....	28	32	4181	157	516		
SAN DIEGO.....	11	17	2666	487	487	487	MINN. DULUTH.....	34	7	5022	5	471	SCRANTON.....	28	32	4181	157	516		
SAN FRANCISCO.....	11	17	2666	487	487	487	INTERNATL FALLS.....	34	7	5022	5	471	I. PROVIDENCE.....	26	26	4141	173	619		
STOCKTON.....	11	17	2666	487	487	487	MINNEAPOLIS.....	34	7	5022	5	471	S.C. CHARLESTON.....	11	12	1424	106	456		
COLO. DENVER.....	7	7	395	384	155	155	ROCHESTER.....	34	7	5022	5	471	COLUMBIA.....	11	12	1424	106	456		
GRAND JUNCTION.....	7	7	395	384	155	155	ST. CLOUD.....	34	7	5022	5	471	GREENVILLE.....	11	12	1424	106	456		
PUEBLO.....	7	7	395	384	155	155	MISS. JACKSON.....	17	6	2295	518	307	S. DAK. ABERDEEN.....	4	6	6784	779	469		
CONN. BRIDGEPORT.....	34	34	3705	126	438	438	MD. COLUMBIA.....	31	114	4155	514	699	HURON.....	4	6	6784	779	469		
HARTFORD.....	34	34	3705	126	438	438	KANSAS CITY.....	31	114	4155	514	699	RAPID CITY.....	4	6	6784	779	469		
DEL. WILMINGTON.....	56	56	3769	330	492	492	ST. LOUIS.....	31	114	4155	514	699	ST. LOUIS FALLS.....	4	6	6784	779	469		
D.C. WASHINGTON.....	21	21	3088	66	590	590	SPRINGFIELD.....	31	114	4155	514	699	TENN. CHATTANOOGA.....	1	3	2994	375	458		
FLA. APALACHICOLA.....	26	26	1440	368	234	234	MONT. BILLINGS.....	116	116	5733	872	1138	KNOXVILLE.....	1	3	2994	375	458		
DAYTONA BEACH.....	26	26	1440	368	234	234	GLASGOW.....	116	116	5733	872	1138	MEMPHIS.....	1	3	2994	375	458		
FORT MYERS.....	26	26	1440	368	234	234	GREAT FALLS.....	116	116	5733	872	1138	NASHVILLE.....	1	3	2994	375	458		
JACKSONVILLE.....	26	26	1440	368	234	234	HAVRE.....	116	116	5733	872	1138	TEXAS. ABILENE.....	114	114	2392	360	361		
KEY WEST.....	26	26	1440	368	234	234	HELENA.....	116	116	5733	872	1138	AMARILLO.....	114	114	2392	360	361		
LAKELAND.....	26	26	1440	368	234	234	KALISPELL.....	116	116	5733	872	1138	AUSTIN.....	114	114	2392	360	361		
MIRAL.....	26	26	1440	368	234	234	MILES CITY.....	116	116	5733	872	1138	BEAUMONT.....	114	114	2392	360	361		
ORLANDO.....	26	26	1440	368	234	234	MISSOULA.....	116	116	5733	872	1138	BROWNSVILLE.....	114	114	2392	360	361		
TALLAHASSEE.....	26	26	1440	368	234	234	NEBR. GRAND ISLAND.....	139	139	5023	520	216	CORPUS CHRISTI.....	118	118	2020	254	216		
TAMPA.....	26	26	1440	368	234	234	LINCOLN.....	139	139	5023	520	216	DEL RIO.....	118	118	2020	254	216		
NEXT PALM BEACH.....	17	17	284	35	89	89	NORFOLK.....	139	139	5023	520	216	EL PASO.....	118	118	2020	254	216		
GA. ATLANTA.....	8	8	2646	333	621	621	NORTH PLATTE.....	139	139	5023	520	216	FORT WORTH.....	118	118	2020	254	216		
AUGUSTA.....	8	8	2646	333	621	621	ORAMA.....	139	139	5023	520	216	GALVESTON.....	118	118	2020	254	216		
Macon.....	8	8	2646	333	621	621	VALENTINE.....	139	139	5023	520	216	HOUSTON.....	118	118	2020	254	216		
SAVANNAH.....	8	8	2646	333	621	621	NEV. ELY.....	31	31	4495	579	508	LUBBOCK.....	118	118	2020	254	216		
IDAHO. BOISE.....	30	30	3562	454	855	855	LAS VEGAS.....	31	31	4495	579	508	MIDLAND.....	118	118	2020	254	216		
LEHIStON.....	30	30	3562	454	855	855	RENO.....	31	31	4495	579	508	SAN ANGELO.....	118	118	2020	254	216		
POCATELLO.....	30	30	3562	454	855	855	MINNEAPOLIS.....	31	31	4495	579	508	SAN ANTONIO.....	118	118	2020	254	216		
ILL. CAIRO.....	105	105	3654	144	795	795	N.H. CONCORD.....	23	25	5463	477	591	VICTORIA.....	143	80	1334	332	282		
CHICAGO.....	105	105	3654	144	795	795	N.J. ATLANTIC CITY.....	52	52	3569	171	361	MACO.....	143	80	1334	332	282		
MOLINE.....	105	105	3654	144	795	795	TRENTON.....	52	52	3569	171	361	NICHITA FALLS.....	143	80	1334	332	282		
PEORIA.....	105	105	3654	144	795	795	N.MEX. ALBUQUERQUE.....	25	4	2907	240	746	UTAH. SALT LAKE CITY.....	22	3	3266	864	736		
ROCKFORD.....	105	105	3654	144	795	795	ROSWELL.....	25	4	2907	240	746	VT. BURLINGTON.....	50	50	5529	218	489		
SPRINGFIELD.....	105	105	3654	144	795	795	N.Y. ALBANY.....	14	14	4811	86	563	VA. LYNCHBURG.....	217	29	3412	359	566		
IND. EVANSVILLE.....	91	91	3978	610	475	475	BINGHAMTON.....	14	14	4811	86	563	NORFOLK.....	217	29	3412	359	566		
FORT WAYNE.....	91	91	3978	610	475	475	BUFFALO.....	14	14	4811	86	563	RICHMOND.....	217	29	3412	359	566		
INDIANAPOLIS.....	91	91	3978	610	475	475	NEW YORK.....	14	14	4811	86	563	ROANOKE.....	217	29	3412	359	566		
SOUTH BEND.....	91	91	3978	610	475	475	N.C. ASHEVILLE.....	182	182	3403	214	599	WASH. QUILLAYUTE.....	143	19	3689	41	290		
IOWA. BURLINGTON.....	105	105	5043	446	152	152	CHARLOTTE.....	182	182	3403	214	599	SEATTLE-TACOMA.....	130	24	2984	386	306		
DES MOINES.....	105	105	5043	446	152	152	COLUMBIA.....	182	182	3403	214	599	SPORANE.....	130	24	2984	386	306		
DUBUGUE.....	105	105	5043	446	152	152	GREENSBORO.....	182	182	3403	214	599	HALLA HALLA.....	130	24	2984	386	306		
SIOUX CITY.....	105	105	5043	446	152	152	HATTERAS.....	182	182	3403	214	599	YAKIMA.....	130	24	2984	386	306		
KANS. CONCORDIA.....	145	145	4572	588	159	159	RALEIGH.....	182	182	3403	214	599	VA. BECKLEY.....	252	22	4293	399	753		
BOGIE CITY.....	145	145	4572	588	159	159	WILMINGTON.....	182	182	3403	214	599	CHARLESTON.....	255	55	3847	451	718		
GOODLAND.....	145	145	4572	588	159	159	N. DAK. BISMARK.....	39	39	6974	726	471	HUNTINGTON.....	249	47	3761	552	604		
TOPEKA.....	145	145	4572	588	159	159	FARGO.....	39	39	6974	726	471	PARKERSBURG.....	248	76	3930	504	736		
WICHITA.....	145	145	4572	588	159	159	HILLISTON.....	39	39	6974	726	471	WIS. GREEN BAY.....	384	55	5891	388	778		
KY. LEXINGTON.....	75	75	3948	559	596	596	OHIO. ARRON-CANTON.....	81	81	4714	465	779	LACROSSE.....	370	56	5844	650	471		
LOUISVILLE.....	75	75	3948	559	596	596	CINCINNATI.....	81	81	4714	465	779	MADISON.....	374	62	5846	537	564		
LA. BATON ROUGE.....	35	35	1613	279	369	369	CLEVELAND.....	90	90	4461	901	537	HILMAUREE.....	354	57	5266	274	609		
LAKE CHARLES.....	35	35	1613	279	369	369	COLUMBUS.....	90	90	4461	901	537	WYO. CASPER.....	127	127	5221	257	298		
NEW ORLEANS.....	35	35	1613	279	369	369	DAYTON.....	90	90	4461	901	537	CHEYENNE.....	111	111	4943	269	98		
SHREVEPORT.....	35	35	1613	279	369	369	TOLEDO.....	90	90	4461	901	537</								

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