

# WEEKLY WEATHER AND CROP BULLETIN

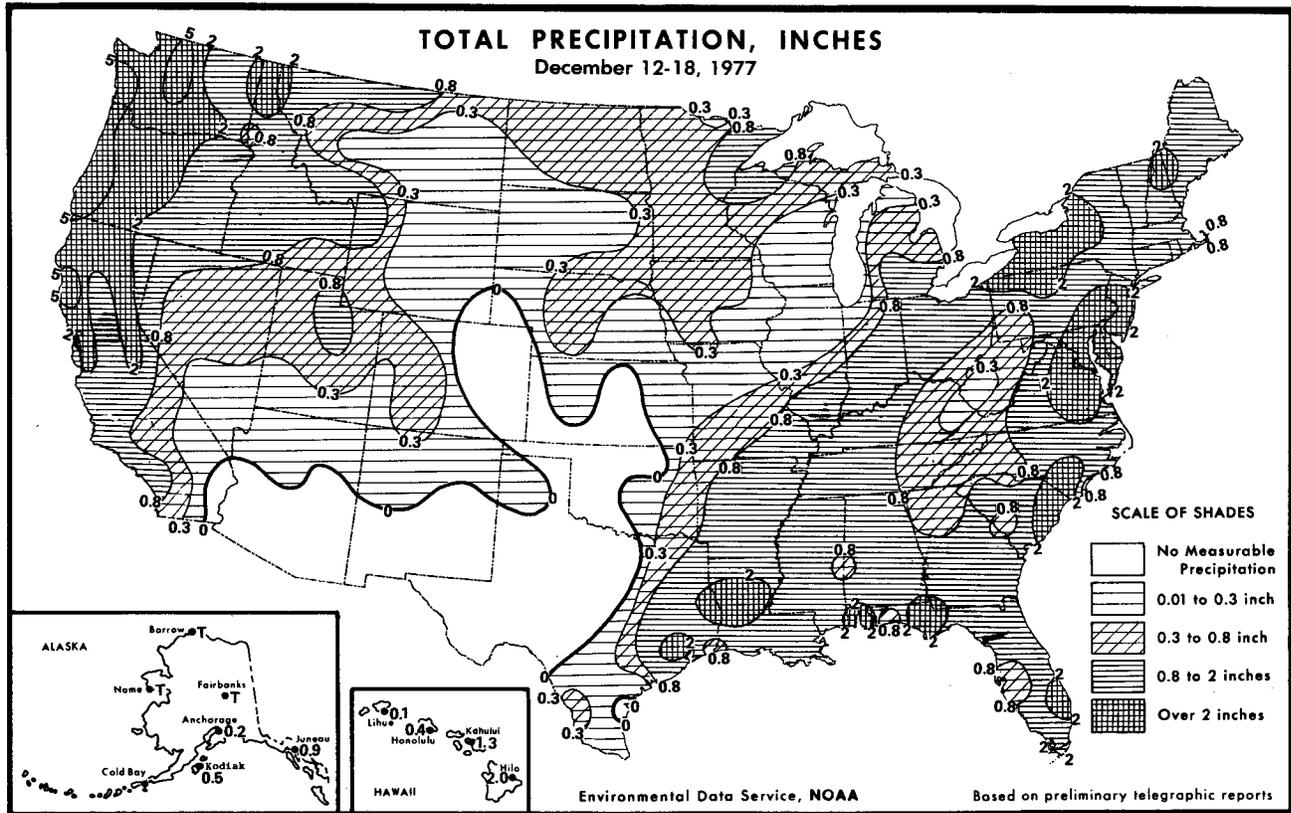
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## National Weather Summary

December 12 - 18

**HIGHLIGHTS:** Hopes for a break in the long-standing western drought were boosted by heavy rains last week. Rains covered the entire West Coast with snow in the mountains and extended all the way to the Rockies excepting the Deep Southwest. Abnormally dry conditions continued in West Texas. At week's end, heavy rains triggered localized flooding in the middle Atlantic Coast States.

Only New England recorded less than normal temperatures in the entire country; it was 3 to 5° colder than expected for this time of year. Elsewhere readings were much higher--12° above normal in the northern parts of the Rockies and Plateau Region and 12 to 15° higher from southeastern New Mexico to the western Great Lakes.

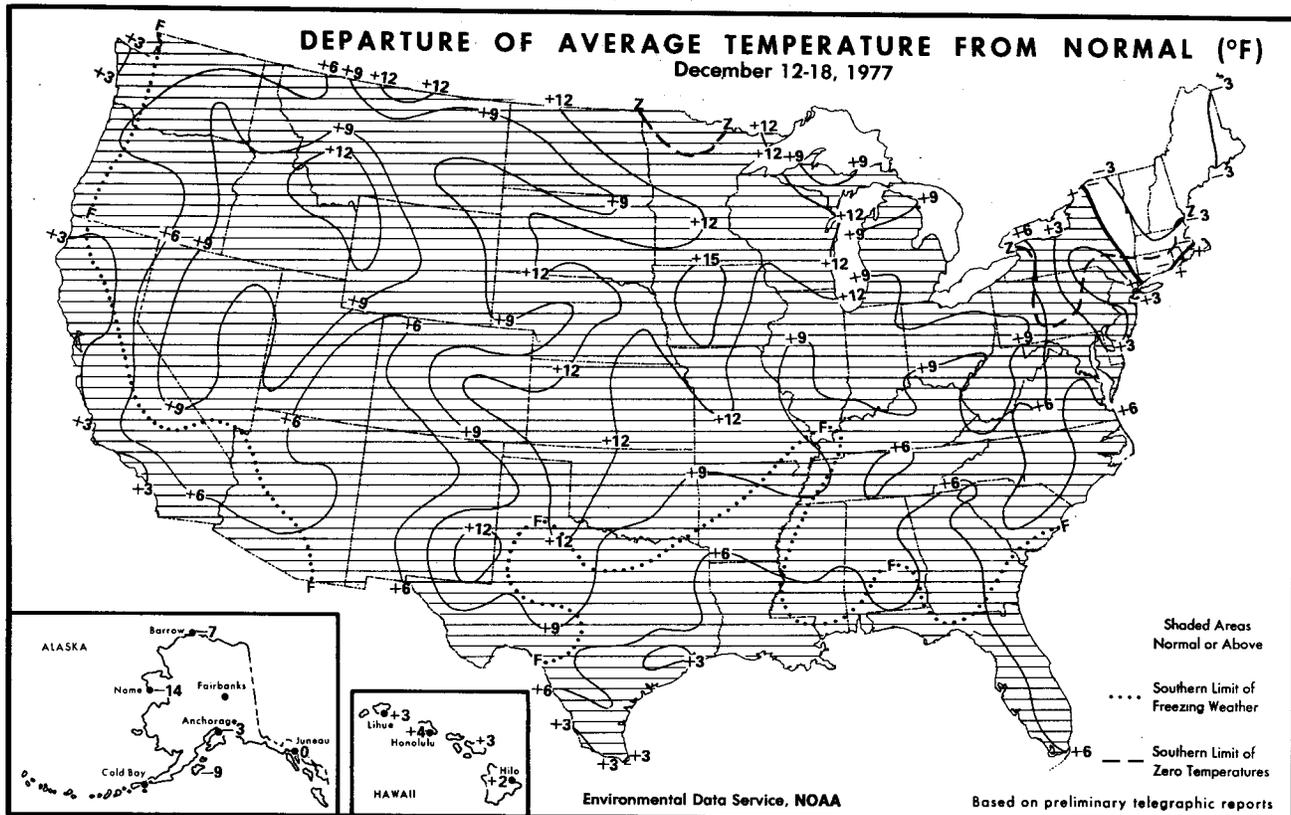
Record cold temperatures were noted in many eastern cities on Monday. They included -13° at

Burlington, Vt., 5° at Boston, and Philadelphia's 9°. Small patches of precipitation were reported as drizzle from Texas to Kansas, snow flurries from the northern Great Lakes to New England, light rain from the Texas Gulf Coast to the lower Ohio Valley, and rain up to three-quarters inch on the upper West Coast.

A large high pressure system in the east pumped warm air from the South to the cold-beleaguered center of the Nation.

Thunderstorms rumbled from East Texas through Louisiana to Arkansas and Mississippi. Hail, high winds, and tornadoes also pummeled the area; in all, Texas recorded 5 twisters, Mississippi 1.

Heavy rains also hit the Pacific Northwest setting off localized flooding. Rain amounts for the day included 2.18 in. at Houston, 2 inches at



Lake Charles, La., and about an inch and one-half at Shreveport, La., and Portland, Ore.

On Wednesday showers and thunderstorms covered an area from the eastern Gulf Coast through the Tennessee and Ohio Valleys. Snow fell in upper New England and rain, rather heavy, was falling over the northern half of the Pacific Coast into the Rockies. Rainfall included 1.11 in. at Raleigh, N.C., 1.64 in. at Ukiah, Calif., and 2.45 in. at Panama City, Fla.

Cooperstown, N.Y., marked its second wettest year in 124 years. So far this year, 55.25 in. of precipitation has dampened the city.

A large and intense low pressure system over western Washington carried high winds and rain from the West Coast to the Rockies on Thursday. Sections of northern California notched another inch of rain as did Pocatello, Idaho. By evening freezing rain glazed North Dakota and northern Minnesota. Further south, one-half to one inch of rain soaked portions of Florida.

Last week's record cold temperatures gave way to new high readings this day. Grand Island, Nebr., bested its 1939 high of 61° by three; Alamosa, Colo., was warmed by 57°; and 75° at Las Vegas and 84° at Miami Beach opened the record book.

The intense low pressure now in the northern Plains brought rain, snow, and freezing rain to the upper halves of the Plains and Rockies on Friday. Most of the precipitation was rain, however, accompanied by high winds. By afternoon a band of thunderstorms containing hail and high winds hit around East Texas, western Louisiana, Arkansas, and Missouri; tornadoes touched down in Texas and Missouri. Other storms rumbled over the Georgia and North Carolina coasts and the lower

half of Florida. Another storm system approached the upper Pacific Coast carrying rain and snow to the higher elevations.

Warm air meant record temperatures in the Plains and upper Midwest including 87° at Del Rio, Texas, 65° at St. Joseph, Mo., and 48° at Muskegon, Mich.

Thunderstorms continued in the Deep South on Saturday and extended into the lower Mississippi Valley; Mobile was soaked by nearly an inch and one-half of rain. Rain persisted along the West Coast from Washington to Los Angeles. While some northern California points measured 1 to 2 inches of rain, heavy snows blanketed the Sierra Nevada Mountains; more than 20 inches fell on some stations. The precipitation extended inland where Carson City, Nev., had 1.72 in. of rain. Snow and rain also hit the upper portions of the Plains and Mississippi Valley. By nightfall rain moved to the East Coast dumping a half-inch on several cities.

Record high readings again marked the Midwest--Chicago's 60° beat the 1877 record by 5 degrees; South Bend, Ind., at 54°, overwhelmed its former top reading by 10 degrees; and Bakersfield, Calif., got into the act notching 75°.

Sunday morning precipitation covered two large areas. The section from the West Coast to Montana and Colorado was hit by rain and snow while rain and freezing rain fell from Michigan eastward to New York and from the middle Atlantic Coast States northward to southern New England. Three and four-inch rains hit the Washington, D.C./Baltimore areas as the heavy snows whitened the Rockies.

New high temperatures were established at several Texas points including Dallas/Fort Worth's 81°.

## National Agricultural Summary

December 12-18

**HIGHLIGHTS:** High temperatures melted most of the snow cover from the Dakotas to New England. The water runoff kept fields wet and prevented most harvesting activity. Rains in the South also mired harvest equipment and stalled progress. Unseasonably high temperatures permitted small grains to grow this late in the season. Southern pastures also got a boost from the temperatures and additional rainfall. Rains also extended from the Pacific Northwest into northern California providing a temporary remedy to dry topsoils.

**SMALL GRAINS:** Winter wheat rated good to excellent except the dryland stands on the southern Great Plains. High temperatures sustained some small grain growth, but also removed most of the snow cover which accumulated earlier in the northern Great Plains and Corn Belt.

Kansas wheat rated good to excellent; only the western areas showed moisture stress. Strong winds blew some dust but damage was not assessed. Cattle pastured 15% of the acreage, the same as average but more than 1976's dry 5%. Oklahoma reported almost all wheat germinated and emerged at 99%, the same as last year and average. Producers sprayed to control greenbugs. Texas wheat seedings were generally complete. Irrigated stands on the High Plains grew well, but dryland stands throughout the Plains area suffered moderate to severe moisture stress. High winds caused some erosion and further depleted soil moisture. Growth in other areas of Texas was fair due to dry weather. Montana wheat rated good; snow cover was good in the northeast but only poor to fair elsewhere. Idaho's crop was improving with the arrival of precipitation. Rains also brightened prospects for the crops in Washington, Oregon and northern California. Southern California needs rain. New Mexico's irrigated wheat rated fair to good with 65% being grazed; dryland stands scored only poor to fair supporting only limited grazing. In the South seeding was virtually complete. High temperatures and plenty of soil moisture aided growth.

**COTTON:** Picking was almost complete in all States although cold and wet conditions prolonged harvest schedules in the Delta and Southeast. Harvest was almost finished in the Carolinas and stood at 89% in Georgia. Alabama producers reached 92%. Arkansas growers harvested some cotton and destroyed stalks. Oklahoma's cotton harvest reached 90%. Texas growers reached 99% well ahead of 1976's 88% and the 81% average. Most growers should complete stripping within a week. Arizona's harvest was winding down and New Mexico reached 95%. California growers shredded and disked stalks, working to meet the January 1 plow-down date.

**CORN:** Corn harvest went unfinished again with soggy fields standing in the way of completion. Several Corn Belt States have some acreage to harvest, particularly Missouri, Indiana, and, to a lesser extent, Ohio.

**SOYBEANS:** Soybean combining also was incomplete in the same north central States where the corn harvest lagged. Among the south central States wet fields stifled progress. Alabama growers reached 87% and Mississippi stood at 91% short of 1976's 99% and the 93% average. Arkansas producers have considerable acreage to harvest under wet conditions. Some farmers used tractors to assist combines through deeply rutted fields. In the Southeast where soybeans are normally late wet conditions also plagued combining operations, but progress was on schedule with North Carolina at 84%, the same as 1976 and the average, and Georgia at 90% ahead of 1976's 85%.

**OTHER CROPS:** Sugarcane harvest was active in Florida, Louisiana, and Texas.

Farmers stripped and marketed tobacco. Kentucky tobacco markets closed on the 16th for the holidays.

**FRUITS AND NUTS:** Pecan picking was almost complete in Florida, Alabama, and New Mexico. Georgia pecans rated fair with 88% harvested, ahead of last year's 81%. Mississippi picking reached 92%, between 1976's 95% and the 90% average. Texas pecan harvest stood at 87% compared with 93% in 1976 and the 79% average. Fruit growers pruned deciduous orchards, grapevines and nut trees.

In Florida citrus groves rated excellent with adequate to surplus rain. Trees were dormant. Fruit had good color except old tree Valencias. Picking was very active except in rainy areas. California grapefruit harvest slowed. Navel harvest continued with good quality but some frost damage. Arizona growers picked both Navel and sweet oranges, tangerines, lemons, and grapefruit. The Texas citrus harvest was very active.

**VEGETABLES:** Florida vegetable shipments increased 9% over the previous week although showers delayed harvests. Crops gaining in volume included cabbage, celery, radishes, squash, and tomatoes; holding steady were snap beans, carrots, Chinese cabbage, **escarole-endive** and peppers; declining were sweet corn, cucumbers, eggplant, and lettuce. Strawberry harvest just started with good volume expected early January. Texas growers harvested bell peppers, cabbage, carrots, cucumbers, spinach, broccoli, and cauliflower. California producers shipped broccoli, cauliflower, carrots, celery and lettuce.

**PASTURES AND LIVESTOCK:** Southern pastures rated fair to good and provided grazing as far north as Kentucky. Florida's grasslands rated only poor to fair; rains provided some improvement but cool temperatures slowed growth. East Texas pastures got a boost from rain but elsewhere dry soils limited grazing. Native pastures were grazed heavily. Ranchers provided extra hay and feed to keep cattle in fair to good condition. Pacific Northwest rains helped pasture growth as far south as northern California. Southern California rangeland presents a serious fire danger until moisture relieves the situation.

Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., Dec.18, 1977

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 . . .	51	+ 6	.9	- .3	La. Baton Rouge . . .	58	+ 5	1.3	+ .1	Youngstown . . .	37	+ 8	1.4	+ .8
Mobile . . .	56	+ 3	2.6	+ 1.2	Lake Charles . . .	57	+ 3	1.7	+ .4	OKLA. Okla. City . . .	51	+11	T	- .3
Montgomery . . .	56	+ 8	1.0	-.2	New Orleans . . .	59	+ 4	1.3	+ .1	Tulsa . . .	51	+11	T	- .4
ALASKA. Anchorage . . .	10	- 3	.2	0	Shreveport . . .	53	+ 4	1.6	+ .7	OREG. Astoria . . .	47	+ 4	5.9	+ 3.5
Barrow . . .	-20	- 7	T	0	MAINE. Caribou . . .	13	- 3	1.3	+ .7	Burns . . .	34	+ 6	1.5	+ 1.1
Fairbanks . . .	---	---	---	---	Portland . . .	21	- 4	1.9	+ 1.0	Medford . . .	42	+ 4	2.8	+ 2.0
Juneau . . .	28	0	.9	- .1	MD. Baltimore . . .	40	+ 5	4.1	+ 3.3	Pendleton . . .	44	+ 8	1.0	+ .7
Kodiak . . .	21	- 9	T	-.6	MASS. Boston . . .	32	- 1	1.2	+ .2	Portland . . .	47	+ 6	4.5	+ 3.2
Nome . . .	-10	-14	T	-.2	Chatham . . .	31	---	.8	---	Salem . . .	47	+ 6	4.4	+ 2.9
ARIZ. Flagstaff . . .	36	+ 6	.2	-.3	MICH. Alpena . . .	32	+ 9	.3	- .1	PA. Allentown . . .	33	+ 3	2.2	+ 1.4
Phoenix . . .	59	+ 7	0	-.2	Detroit . . .	34	+ 6	.9	+ .4	Erie . . .	37	+ 8	2.6	+ 2.0
Tucson . . .	57	+ 5	0	-.2	Flint . . .	35	+ 8	.6	+ .4	Harrisburg . . .	35	+ 3	1.9	+ 1.2
Winslow . . .	42	+ 8	0	- .1	Grand Rapids . . .	36	+ 9	1.0	+ .5	Philadelphia . . .	35	0	2.6	+ 1.8
Yuma . . .	61	+ 5	0	- .1	Houghton Lake . . .	32	+ 9	.6	+ .2	Pittsburgh . . .	41	+11	.4	- .2
ARK. Fort Smith . . .	48	+ 7	.8	+ .1	Lansing . . .	36	+ 9	1.0	+ .5	Scranton . . .	34	+ 5	1.4	+ .8
Little Rock . . .	49	+ 8	.9	0	Marquette . . .	32	+ 8	.5	+ .1	R. I. Providence . . .	31	0	1.3	+ .4
CALIF. Bakersfield . . .	56	+ 8	.3	+ .2	Muskegon . . .	35	+ 7	.2	- .4	S. C. Charleston . . .	58	+ 9	2.2	+ 1.5
Eureka . . .	52	+ 3	2.7	+ 1.2	S. Ste. Marie . . .	31	+11	.4	- .1	Columbia . . .	51	+ 5	.8	0
Fresno . . .	51	+ 5	1.3	+ .9	MINN. Duluth . . .	28	+14	1.1	+ .8	Greenville . . .	49	+ 6	.8	- .1
Los Angeles . . .	60	+ 2	.8	+ .3	Internat Falls . . .	22	+13	.3	+ .1	S. D. Aberdeen . . .	25	+ 8	.3	+ .2
Red Bluff . . .	48	+ 2	1.8	+ .9	Minneapolis . . .	31	+12	.5	+ .3	Huron . . .	31	+12	.2	+ .1
San Diego . . .	62	+ 5	.4	0	Rochester . . .	33	+14	.4	+ .2	Rapid City . . .	37	+10	.1	0
San Francisco . . .	53	+ 3	1.6	+ .7	St. Cloud . . .	28	+12	.6	+ .4	Sioux Falls . . .	32	+12	.5	+ .3
Stockton . . .	49	+ 3	.9	+ .3	MISS. Jackson . . .	55	+ 6	1.7	+ .5	TENN. Chattanooga . . .	48	+ 7	.7	- .5
COLO. Denver . . .	43	+10	T	- .1	Meridian . . .	54	+ 6	.8	- .5	Knoxville . . .	48	+ 7	.5	- .5
Grand Junction . . .	35	+ 6	.2	+ .1	MO. Columbia . . .	44	+11	.2	- .2	Memphis . . .	52	+ 9	.8	- .3
Pueblo . . .	45	+12	T	- .1	Kansas City . . .	44	+12	.1	- .3	Nashville . . .	46	+ 6	1.1	+ .1
CONN. Bridgeport . . .	33	0	1.6	+ .8	St. Louis . . .	43	+ 8	.8	+ .3	TEX. Abilene . . .	57	+11	T	- .2
Hartford . . .	26	- 2	1.6	+ .7	Springfield . . .	47	+11	.4	- .2	Amarillo . . .	48	+ 9	.2	0
D. C. Washington . . .	42	+ 5	3.4	+ 2.7	MONT. Billings . . .	35	+ 8	.3	+ .2	Austin . . .	59	+ 7	.1	- .4
FLA. Apalachicola . . .	58	+ 3	1.8	+ 1.0	Glasgow . . .	26	+ 8	.3	+ .2	Beaumont . . .	59	+ 5	.4	- .7
Daytona Beach . . .	68	+ 9	1.4	+ .9	Great Falls . . .	35	+ 8	.4	+ .3	Brownsville . . .	66	+ 3	.1	- .2
Ft. Myers . . .	70	+ 5	.9	+ .5	Havre . . .	32	+13	.9	+ .8	Corpus Christi . . .	65	+ 6	T	- .4
Jacksonville . . .	62	+ 7	.9	+ .3	Helena . . .	36	+12	T	- .1	Dallas . . .	---	---	---	---
Key West . . .	74	+ 3	3.2	+ 2.8	Kaliispell . . .	30	+ 6	1.1	+ .8	Del Rio . . .	59	+ 7	0	- .1
Lakeland . . .	67	+ 5	.8	+ .3	Millis City . . .	32	+10	T	- .1	El Paso . . .	50	+ 6	0	- .1
Miami . . .	76	+ 8	1.0	+ .6	Missoula . . .	32	+ 7	.7	+ .4	Fort Worth . . .	56	+ 8	T	- .4
Orlando . . .	69	+ 8	1.2	+ .8	NEBR. Grand Island . . .	40	+13	T	- .1	Galveston . . .	61	+ 4	1.2	+ .4
Tallahassee . . .	58	+ 5	2.0	+ 1.0	Lincoln . . .	38	+11	.1	0	Houston . . .	56	+ 1	2.2	+ 1.3
Tampa . . .	67	+ 5	.8	+ .3	Norfolk . . .	36	+12	T	- .2	Lubbock . . .	51	+10	0	- .1
W. Palm Beach . . .	75	+ 8	4.3	+ 3.8	N. Platte . . .	36	+ 9	.6	+ .5	Midland . . .	55	+ 9	0	- .1
GA. Atlanta . . .	49	+ 6	.6	- .4	Omaha . . .	40	+14	.2	0	San Angelo . . .	58	+10	0	- .1
Augusta . . .	53	+ 7	.8	0	Valentine . . .	35	+11	.6	+ .5	San Antonio . . .	57	+ 4	.1	- .3
Macon . . .	53	+ 5	1.7	+ .9	NEV. Ely . . .	32	+ 6	.6	+ .5	Victoria . . .	61	+ 5	.1	- .3
Savannah . . .	57	+ 7	1.7	+ .9	Las Vegas . . .	53	+ 8	T	- .1	Waco . . .	58	+ 8	T	- .5
HAWAII. Hilo . . .	74	+ 2	2.0	- 1.8	Reno . . .	40	+ 7	1.0	+ .8	Wichita Falls . . .	53	+ 9	T	- .3
Honolulu . . .	78	+ 4	.4	- .4	Winnemucca . . .	40	+10	.6	+ .4	UTAH. Blanding . . .	34	+ 4	.2	+ .1
Kahului . . .	75	+ 3	1.3	+ .7	N. H. Concord . . .	19	- 5	1.3	+ .6	Salt Lake City . . .	41	+11	.9	+ .6
Lihue . . .	75	+ 3	1.3	+ .7	N. J. Atlantic City . . .	38	+ 3	1.5	+ .6	VT. Burlington . . .	18	- 4	1.6	+ 1.1
IDAHO. Boise . . .	42	+10	1.2	+ .9	Trenton . . .	37	+ 2	2.2	+ 1.4	VA. Lynchburg . . .	44	+ 6	1.6	+ .8
Lewiston . . .	43	+ 8	.8	+ .5	N. MEX. Albuquerque . . .	41	+ 5	0	- .1	Norfolk . . .	48	+ 6	1.7	+ 1.0
Pocatello . . .	37	+10	.5	+ .3	Roswell . . .	51	+12	0	- .1	Richmond . . .	46	+ 7	2.8	+ 2.1
ILL. Cairo . . .	48	+ 9	1.4	+ .5	N. Y. Albany . . .	26	0	1.0	+ .3	Roanoke . . .	42	+ 5	1.2	+ .5
Chicago . . .	40	+12	.1	- .4	Binghamton . . .	30	+ 5	2.0	+ 1.4	WASH. Colville . . .	34	+ 6	.9	+ .4
Moline . . .	37	+10	T	- .4	Buffalo . . .	34	+ 6	2.2	+ 1.5	Omak . . .	33	+ 6	1.4	+ 1.0
Peoria . . .	37	+ 9	T	- .4	New York . . .	39	+ 4	1.9	+ 1.1	Quillayute . . .	43	+ 2	3.9	+ .3
Rockford . . .	35	+10	.1	- .3	Rochester . . .	34	+ 6	2.0	+ 1.5	Seattle-Tacoma . . .	45	+ 4	2.8	+ 1.5
Springfield . . .	39	+ 9	.2	- .2	Syracuse . . .	29	+ 1	2.1	+ 1.4	Spokane . . .	37	+ 8	2.0	+ 1.5
IND. Evansville . . .	43	+ 8	1.2	+ .4	N. C. Asheville . . .	44	+ 6	.5	- .3	Walla Walla . . .	48	+11	2.1	+ 1.7
Ft. Wayne . . .	37	+ 9	1.3	+ .8	Charlotte . . .	49	+ 7	.6	- .2	Yakima . . .	39	+ 7	2.2	+ 2.0
Indianapolis . . .	41	+10	1.5	+ .9	Greensboro . . .	43	+ 4	1.3	+ .6	W. Va. Beckley . . .	45	+13	.5	- .3
South Bend . . .	39	+11	.2	- .4	Hatteras . . .	54	+ 7	1.9	+ .8	Charleston . . .	46	+10	.3	- .4
IOWA. Burlington . . .	38	+10	.3	- .1	Raleigh . . .	45	+ 4	1.4	+ .7	Huntington . . .	45	+ 9	.2	- .4
Des Moines . . .	40	+15	T	-.2	Wilmington . . .	54	+ 7	.4	- .4	Parkersburg . . .	42	+ 7	.4	- .2
Dubuque . . .	34	+11	.3	- .1	N. DAK. Bismarck . . .	25	+ 9	.4	+ .3	WIS. Green Bay . . .	34	+13	.2	- .1
Sioux City . . .	38	+14	.6	+ .4	Fargo . . .	28	+13	.5	+ .4	La Crosse . . .	35	+13	.1	- .1
KANS. Concordia . . .	41	+11	T	-.2	Williston . . .	25	+ 9	.3	+ .2	Madison . . .	35	+13	.1	- .3
Dodge City . . .	46	+13	T	- .1	OHIO. Akron-Canton . . .	39	+10	1.2	+ .7	Milwaukee . . .	36	+12	.2	- .2
Goodland . . .	40	+10	T	- .1	Cincinnati . . .	41	+ 8	1.6	+ 1.0	WYO. Casper . . .	34	+ 8	.1	0
Topeka . . .	42	+10	.1	- .3	Cleveland . . .	34	+ 4	1.5	+ 1.0	Cheyenne . . .	36	+ 7	T	- .1
Wichita . . .	46	+12	T	- .3	Columbus . . .	40	+10	.9	+ .4	Lander . . .	34	+11	T	- .1
KY. Lexington . . .	44	+ 9	.5	- .3	Dayton . . .	41	+10	1.7	+ 1.2	Sheridan . . .	32	+ 6	.2	+ .1
Louisville . . .	44	+ 9	1.7	+ 1.0	Toledo . . .	44	+16	1.2	+ .7	P. R. San Juan . . .	78	+ 1	1.9	+ .8

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 SRS State offices in cooperation with the National Weather Service.

**ALABAMA:** Temperatures 7° above normal. General rains 14th.

Fieldwork: 3.7 days suitable. Soil moisture adequate to surplus. Cotton 92% harvested. Soybeans 87% harvested. Pecan harvest nearly complete. Pastures, livestock fair condition.

**ARIZONA:** Mild, dry cooled with scattered precipitation northern half 18th. Temperatures 2 to 8° above normal.

Cotton harvest winding down central, west. Small grains, good progress, planting active. Early planted grain growing well. Sugarbeets good growth. Alfalfa haying slow. Lettuce harvest continued full swing Yuma, tapering off Salt River Valley. Harvest early cabbage, cauliflower, broccoli underway. Picking navels, sweets, early tangerines, lemons, grapefruit continued. Later varieties sizing well. Ranges drying, unseasonably warm temperatures, wind. Cattle, calves, sheep, lambs fair to good condition. Supplemental feeding and watering required.

**ARKANSAS:** Rainfall 11th through 13th, 16th and early 17th; amounts 0.50 to 1.50 in. Temperatures 3 to 10° above normal. Mean temperatures 46 to 55°.

Considerable soybean acreage still to harvest; wet most areas, combines making deep ruts. Some growers pulling combine through field with tractor. Some cotton stalk destruction; limited scrapping. Small grain stands good; growth good with warmer weather.

**CALIFORNIA:** Moist, subtropical air produced precipitation totals to 2.00 to 5.00 in. north coast 14th, and up to 6.00 in. central Sierra Nevada 15th. Temperatures a few to several degrees above normal.

Winter grains growing well north; more moisture needed south. Forage greenchopped. New alfalfa fields doing well; older fields bothered by pests. Cotton growers shredding and disking to meet January 1 plowdown date. Pruning continues on grapevines, and deciduous fruit and nut trees. Table grape movement slow from storage. Grapefruit movement slow. Navel orange harvest continues. Quality good with some frost damage. Artichokes light. Broccoli, cauliflower, carrot, celery, lettuce volume good. Rains northern half brought some optimism. Grasses benefited, some runoff. More rain needed; fire danger high south. Supplemental feeding continues. Lambing, calving continues.

**COLORADO:** Lower elevations western slope received 0.05 to 0.15 in. moisture. Higher elevation received 0.40 to 0.80 in. moisture. From 5 to 15 in. new snow fell most mountain areas. Dry arctic air spread over eastern plains with only trace of precipitation. Temperatures well above normal; 5 to 10° above western slope, 6 to 13° above eastern plains. Much cooler air spread over eastern plains early week, but strong chinook winds developed along eastern foothills midweek returning temperatures to above normal.

**FLORIDA:** Partly cloudy to cloudy with scattered to numerous showers and thundershowers. Cold front night of 12th, cleared skies and brought much drier air. Rainfall mostly moderate to heavy with totals

averaging 0.75 to over 4.00 in. Temperatures mild except cooling a little, on 18th, but averaged near to slightly above normal.

Soil moisture mostly adequate. Sugarcane harvest active. Soybean and cotton harvest nearing completion. Small grains making excellent growth. Pecan harvest over. Land preparation and liming soil for early spring planting is increasing. Pasture conditions mostly poor to fair. Some improvement from rainfall. Cool temperatures slowed permanent pasture growth; some overgrazing. Supplemental feeding underway some northern areas. Small grain pastures improving. Cattle condition mostly good. Citrus grove condition excellent; adequate to surplus rain. Trees dormant condition, fruit good color all types except old tree Valencias. Harvest very active except in rain areas. Vegetable harvest active but interrupted by showers. Shipments gained 9% over previous week. Quality generally good. Crops gaining in volume were cabbage, celery, radishes, squash and tomatoes. Holding steady were snap beans, carrots, chinese cabbage, escarole-endive, green peppers. Declining in volume were sweet corn, cucumbers, eggplant, lettuce. Strawberry harvest just underway. Good volume expected early January. First potato digging expected early January.

**GEORGIA:** Temperatures near normal; normals ranged from 38° extreme northeast to 55° extreme southeast. Cool early week, warm last of week. Extremes: 9 and 78°. Rainfall last of week; amounts averaged 0.50 to 1.00 in.

Soil moisture mostly adequate to excessive. Fieldwork: 3 days suitable. Harvest slow in some areas due to wet fields. Corn poor; harvest 99% complete, last year 96%. Cotton mostly poor to fair; 89% harvested, same last year. Soybeans mostly fair to good; 90% harvested, 85% last year. Pastures, hogs and cattle mostly fair to good. Pecans fair; harvest 88% complete, 81% last year. Wheat, rye and other small grains 96%, 98%, 97% seeded respectively, compared to 92%, 94%, and 94% last year.

**HAWAII:** Weather favorable. Rains beneficial to crops and dry pasture areas Hawaii Island. Temperatures dropping; getting cooler most islands.

Frequent spraying continues, disease and insect control. Vegetable supplies: Cabbage crops, cucumbers, daikon, dasheen heavy. Others light to moderate. Banana, papaya supplies heavy. Pineapple harvesting light. Sugar: Few mills grinding. Pastures: Rains beneficial.

**IDAHO:** Temperatures 6 to 16° above normal. Extremes: 59 and 6°. Precipitation 0.06 to 1.67 in. above normal.

Recent wet weather kept farm activities to minimum. Crop outlook improving. Some erosion from run-off. Livestock generally good condition but health problems increasing with continued wet weather. Calving and lambing slow. Feed supplies generally adequate.

**ILLINOIS:** Temperatures 9 to 12° above normal; maximum temperatures midweek in 50's and 60's. Precipitation less than 0.10 to 1.33 in.; heaviest rain in south. No snow cover.

Winter wheat good. Plowing for 1978 corn and soybeans about 50% complete, last year 70%, average 63%. Soil moisture adequate to surplus.

INDIANA: Warmer than normal temperatures and steady midweek rains washed away much snow cover. Only northwest section received less than 1.00 in. rain. High temperatures averaged 4 to 7° above normal while lows averaged 12 to 14° above normal. Four in. soil temperatures climbed back into mid to upper 30's.

Fieldwork nil. Soils unfrozen and fields muddy. Limited manure spread. Caring for livestock and usual chores. Most of tobacco crop sold.

IOWA: Unseasonable warmth with temperatures 10 to 15° above normal melted most snow cover. Rains late week light in south and east to above normal northwest; moisture averaged above 0.50 in.

KANSAS: Unusually mild temperatures. Traces to few hundredths in. moisture. Temperatures ranged from 41° northwest to 49° southeast; 9 to 13° above normal. Near record high temperatures, 70° some areas. Strong northerly winds and considerable blowing dust west 16th.

Wheat condition good to excellent. Strong winds caused some dust blowing, damage unknown. Pasturing wheat 15%, last year 5%, average 15%. Short moisture situation west continues showing effect in wheat; moisture elsewhere adequate. Harvests virtually complete. Livestock enjoyed milder temperatures; grazing corn, milo stubble fields, wheat pasture. Feed supplies adequate. Activities: Caring for livestock, repairing machinery, and general farm chores.

KENTUCKY: Midweek rainfall averaging 1.50 in. south and 0.25 to 0.50 in. north; another at week's end with 0.25 to 0.50 in. rainfall. Temperatures near normal except 20° above seasonal normals of 35 to 40° at week's end.

Outside activities limited due to rain. Livestock receiving supplemental feeding but pastures providing some grazing. Tobacco markets closed for holidays 16th.

LOUISIANA: Temperatures 2 to 6° above normal. Extremes: 77 and 31°. Rain statewide 13th and 14th.

Sugarcane harvest continued. Other activities included caring for livestock and shopwork.

MARYLAND & DELAWARE: Temperatures 2° below normal. Highs, mid-40's; lows upper 20's. Precipitation widespread, most areas received 1.00 in. or less.

Tobacco stripping progressing well. Apple growers selling apples and making cider. Some pruning being done. Weather excellent for small grains; off to good start, condition rated good to excellent. Soybeans harvested where possible. Topsoil moisture adequate to surplus; subsoil moisture adequate.

MICHIGAN: Temperatures ranged from 9° above normal central Upper and 10° above normal Lower to 12° above normal eastern Upper. Mean temperatures varied from near 30° Upper to mid-30's western and southern Lower. Maximum temperatures end of week reached mid-30's to upper 40's. Minimum temperature 12th; 5° northeast Lower to 15° western Lower. Precipitation ranged from 0.25 in. western Upper and northeastern Lower to near 1.00 in. south central Lower. Considerable snow melted.

Farm activities restricted to farm chores and feeding livestock. Shipping fruit and vegetables out of storages continued.

MINNESOTA: Warm and general rain late week reduced snow cover significantly. Temperatures 13° above normal. Extremes: 42 and -3°. Precipitation averaged more than 0.50 in. above normal west central thru northeast, ranging to near normal northwest and southeast. Precipitation totals ranged from more than 0.75 in. west central and northeast to less than 0.10 in. extreme southeast. Snowfall amounts ranged from traces most of south half to less than 1 in. northeast. Snow on ground ranged from trace or none south half to around 14 in. north central.

MISSISSIPPI: Temperatures near or slightly below normal. Coldest temperature 14°.

Soil moisture surplus to excessive north, surplus elsewhere. Fieldwork: 1.7 days suitable. Soybeans 91% harvested, 99% 1976, 93% average. Pecans 92% harvested, 95% 1976, 90% average. Winter wheat in good to fair condition. Oats in good condition. Pasture and livestock in fair to good condition. Hay and roughage supplies adequate. Feed grain supplies short to adequate.

MISSOURI: Temperatures above normal. Precipitation ranged from 0.10 to 0.50 in. over north and west to 1.00 to 2.00 in. Bootheel.

Some row crops still remaining for harvest. Almost no harvesting done as warmer temperatures softened ground and damp weather prevented drying.

MONTANA: Warm and wet. Temperatures about 10° above normal. Nearly 2.00 in. rain and snow southwest and about 1.00 in. west of Divide. Precipitation above normal in all but southeast.

Winter wheat condition good; snow cover in northeast good, poor to fair other areas. Livestock condition good; 90% on supplemental feed. Grazing conditions open southwest and south central; open to difficult in other areas.

NEBRASKA: Precipitation in form of isolated light showers. Temperatures 10 to 15° above normal.

Main farm activities: Fertilizing, stalk choppin, machinery maintenance, care of livestock. Stalk fields continue providing forage.

NEVADA: All areas received precipitation except extreme south. Snow in areas above 6,000 ft. Temperatures averaged 3 to 15° above normal. Extremes: 75 and 16°.

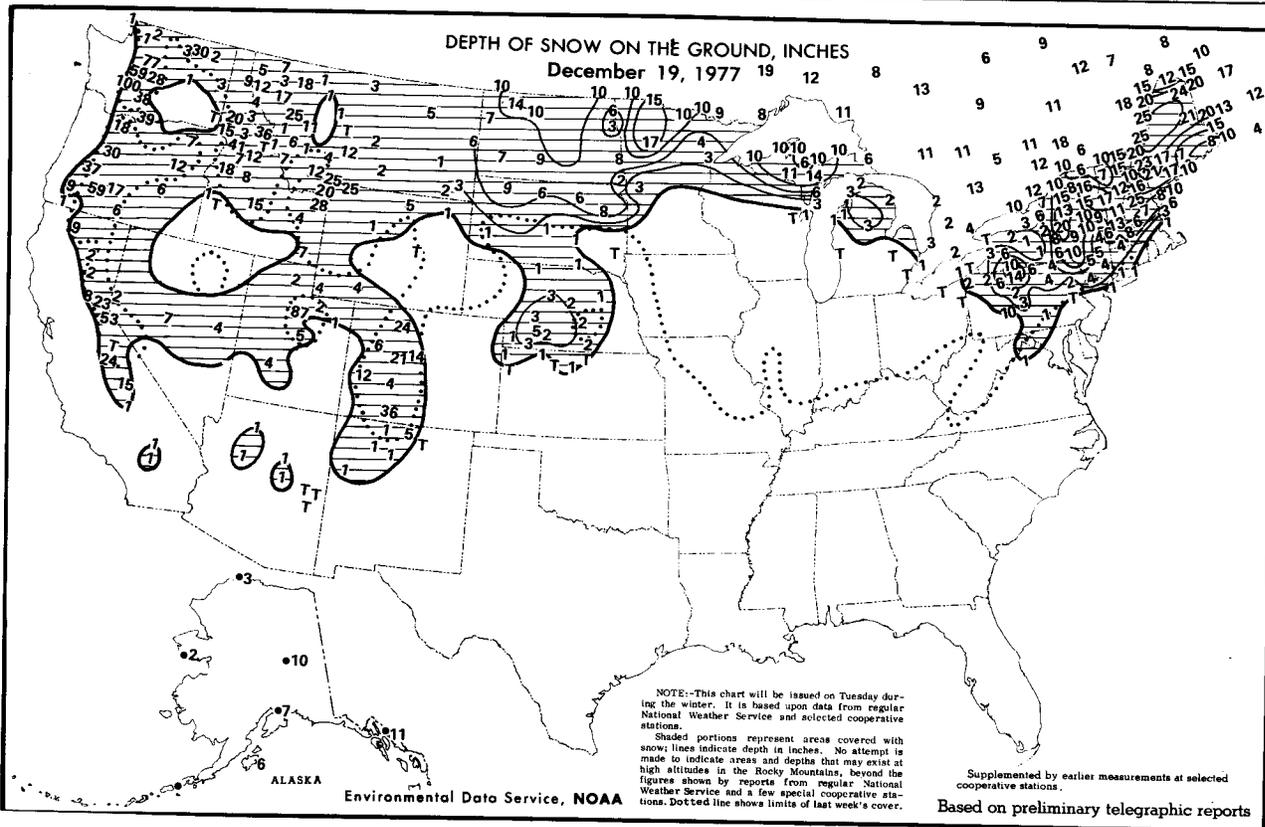
Cotton harvest nearing completion. Supplemental feeding increased by inclement weather.

NEW ENGLAND: Record or near record low temperatures 25 to 35° below normal north and from 15 to 25° below normal south early week. Moderation by 15th; readings 8 to 13° above normal. Precipitation a few hundredths on 12th, 13th 0.40 in. south and 0.25 to 0.75 in. north. Major storm 14th produces 1.00 to 2.00 in. water content north and 1.00 to 1.25 in. south. Few hundredths in southern New England 18th.

NEW JERSEY: Temperatures slightly below normal, averaging 30° north, 35° south and 36° coastal areas. Extremes: 1 and 57°. Precipitation well above normal, averaging 2.17 in. north, 1.77 in. south and 2.11 in. coastal sections. Ice and snow north on 18th. Snow on the ground 19th; 2 in. to trace.

Ground condition very wet. Farm activities mostly limited to routine seasonal machinery maintenance and livestock chores.

NEW MEXICO: Rapidly moving cold fronts 12th, 16th, 18th brought strong winds and substantial tempera-



ture drops. Few inches new snow northern mountain sections but continued dry in central and south.

Cotton 95% harvested. Irrigated winter wheat fair to good condition with 65% being grazed. Dryland winter wheat poor to fair condition with limited grazing. Pecan harvest nearing completion. Ranges poor to fair. Livestock good.

**NEW YORK:** Temperatures above normal south, below normal north. Mainly below zero temperatures on 12th. Precipitation 1.00 to 2.00 in.; snow, sleet and freezing rain many areas.

**NORTH CAROLINA:** Temperatures 2 to 4° above normal. Precipitation 0.50 to 1.00 in.

Fieldwork: 3 days suitable. Soil moisture mostly adequate to surplus. Condition: Small grains good; pastures fair to good. Seeded: Small grains virtually complete. Harvested: Cotton and sorghum grain nearly complete. Soybeans 84%; about same as 1976 and average.

**NORTH DAKOTA:** Mild and wet. Above normal temperatures with most stations in low 40's at midweek. Precipitation above normal except east central. Heavy snow north central and portions of west central 17th. Extremes: 43 and -22°.

Stockmen faced with considerable feed difficulties as cold, wet plagues area. Road conditions poor; very little grain movement.

**OHIO:** Warming on 12th and temperatures above normal the remainder of week. Rain, mild temperatures and rapidly melting snow cover on 14th caused some flooding. Rain, 0.50 to 1.00 in., fell over west 18th.

Some harvesting of both corn and soybeans remains to be done.

**OKLAHOMA:** Temperatures 6 to 9° above normal southeast, 10 to 12° above normal elsewhere. Extremes: 78 and 27°. Precipitation light.

Topsoil moisture supplies short; subsoil moisture adequate. Wheat 99% up to stand, the same as last year and average. Sorghum harvest virtually complete. Cotton harvest 94% complete. Soybean harvest 94% complete, the same as last year. Native pastures and ranges in fair to good condition. Stock ponds beginning to run low. Livestock good condition. Main farm activities: Cotton and soybean harvest, spraying greenbugs on small grains, and caring for livestock.

**OREGON:** Heavy rains caused major flooding in west. Eugene reported 8.08 in. with 5.00 in. or more recorded throughout Willamette Valley. Over 7.00 in. recorded along north coast. Rainfall substantial east of Cascades, ranging from 0.80 to 3.43 in. Temperatures 6 to 12° above normal. Extremes: low 60's, low 30's west; high 50's mid-20's east.

Field activity minimal due to heavy rains. Soil moisture supply improving. Some low lying pastures flooded. Fall sown crops look good. Cattle continue in excellent condition. Feeding continues; supplies locally adequate.

**PENNSYLVANIA:** Moderating temperatures by mid-week broke first winter cold snap with rain, freezing rain and snow coming by weekend. Temperatures slightly above normal with 58 and -4° the extremes. Precipitation varied from 0.50 in. southwest to over 3.00 in. southeast. Several inches new snow higher elevations.

Farmers doing normal winter chores.

PUERTO RICO: Island average rainfall 0.93 in. or 0.11 in. below normal. Temperatures averaged about 76 to 78° on coasts and 73 to 74° interior. Extremes: 93 and 52°.

SOUTH CAROLINA: Temperatures below normal. Rains scattered middle, late week with heaviest in north-east, south.

Cold weather, wet fields made cotton, soybean harvesting difficult. Farmer free market cotton sales continued light.

SOUTH DAKOTA: Temperatures 7 to 15° above normal. Extremes: 5 and 62°. Most precipitation late week as rain or snow, ranged from 0.63 in. extreme east to 0.25 in. elsewhere.

TENNESSEE: Temperatures in mid to upper 40's; 7 to 11° above normal. Cold fronts at beginning and end of week caused scattered showers averaging 0.75 in., slightly less than normal. Clear skies midweek and 18th.

Farm activities included care of livestock, limited fall plowing, fence repair, other general farm chores.

TEXAS: Cold front early, another late. Temperatures above normal. Precipitation normal east, upper coast; elsewhere below normal.

Clear weather plains, Trans-Pecos allowed farmers nearly complete cotton harvest. High winds caused some erosion, further depleted soil moisture. Rains south central, east beneficial to winter pastures. Cotton harvest nearing completion. Most growers should complete stripping next week. Peanut harvest generally complete; only few scattered fields left Cross-Timbers. Sugarcane harvest full swing lower valley. Wheat seeding generally complete. Irrigated stands High Plains making good progress but dryland stands entire Plains under moderate to severe moisture stress. Growth other areas fair; dry weather limiting progress. Oat stands making fair progress but lack of moisture slowed growth many areas. Flax planting progressing. Stands generally good but rain would improve growth. Cotton harvested 99%, 88% 1976, 81% average. Peanuts harvested 100%, 99% 1976, 97% average. Soybeans harvested 100%, 100% 1976, 99% average. Pecans harvested 87%, 93% 1976, 79% average. Wheat planted 100%, 99% 1976, 100% average. Oats planted 100%, 100% 1976, 100% average. Flax planted 88%, 64% 1976, 85% average.

Lower Rio Grande Valley onions, lettuce making favorable progress. Harvest of citrus, bell peppers remains heavy; limited movement cabbage, carrots, cucumbers. Few fields spinach being cut. Coastal Bend cucumber growth slowed as harvest nears completion. Laredo cabbage, onions continue good growth. Eagle Pass light harvest broccoli, cauliflower, cabbage, spinach. Planting late spinach active. High Plains carrot harvest complete.

Scattered rain east, south central should improve winter grazing, but remainder dry except along coast. Due dry weather small grain pastures furnishing limited grazing; making little growth. Native pastures grazed heavily; mostly short, dry. Ranchers most areas feeding supplements, hay. Due relatively mild temperatures and supplemental feed.

livestock generally fair to good condition, although many herds declining.

UTAH: Rain in valleys and snow in mountains with rain changing to snow latter part. Accumulated amounts moisture generally moderate to heavy northwest and light to moderate elsewhere. Cooling trend but averages continued much above normal.

Most fall work completed. Many farmers repairing equipment. Other activities: Sorting and marketing of apples, potatoes, and onions.

VIRGINIA: Precipitation ranged from 0.50 in. southwest to over 3.00 in. east. Temperatures below usual first of week, mild at end. Extremes: 65 and 6°.

Topsoil moisture adequate to surplus. Winter grains, grazing crops good to excellent. Feed supplies mostly adequate, some roughage shortages. Pasturing small grains, fescue growth excellent from fall rains. Ending soybean, sorghum, corn harvests. Some small grain seeding. Livestock good. Activities: Plowing, fertilizing, liming, soil sampling, tobacco marketing, calving, lambing. Fieldwork: 1.9 days favorable.

WASHINGTON: West: Temperatures 5 to 6° above normal. Precipitation 0.30 to 3.60 in. above normal. Moderate to heavy rainfall caused flooding of low-lying farmland.

Most livestock on feed; local hay available; also alfalfa hay coming in from east.

East: Temperatures 5 to 8° above normal. Precipitation 1.30 to 1.70 in. above normal.

Some erosion occurred, rainfall too heavy for soil absorption or frozen ground. Heavy rainfall increased moisture in root area of fruit trees proving additional needed protection against low temperatures. Orchard activity slow, pruning continues as weather permits. Rainfall benefitted fall planted grain where conditions permitted good percolation.

WEST VIRGINIA: Temperatures much above normal. Extremes: 65 and -4°. Precipitation above normal central and northeast, below normal elsewhere.

Fieldwork: 2.5 days suitable. Soil moisture mostly adequate. Hay and grain supplies short to adequate.

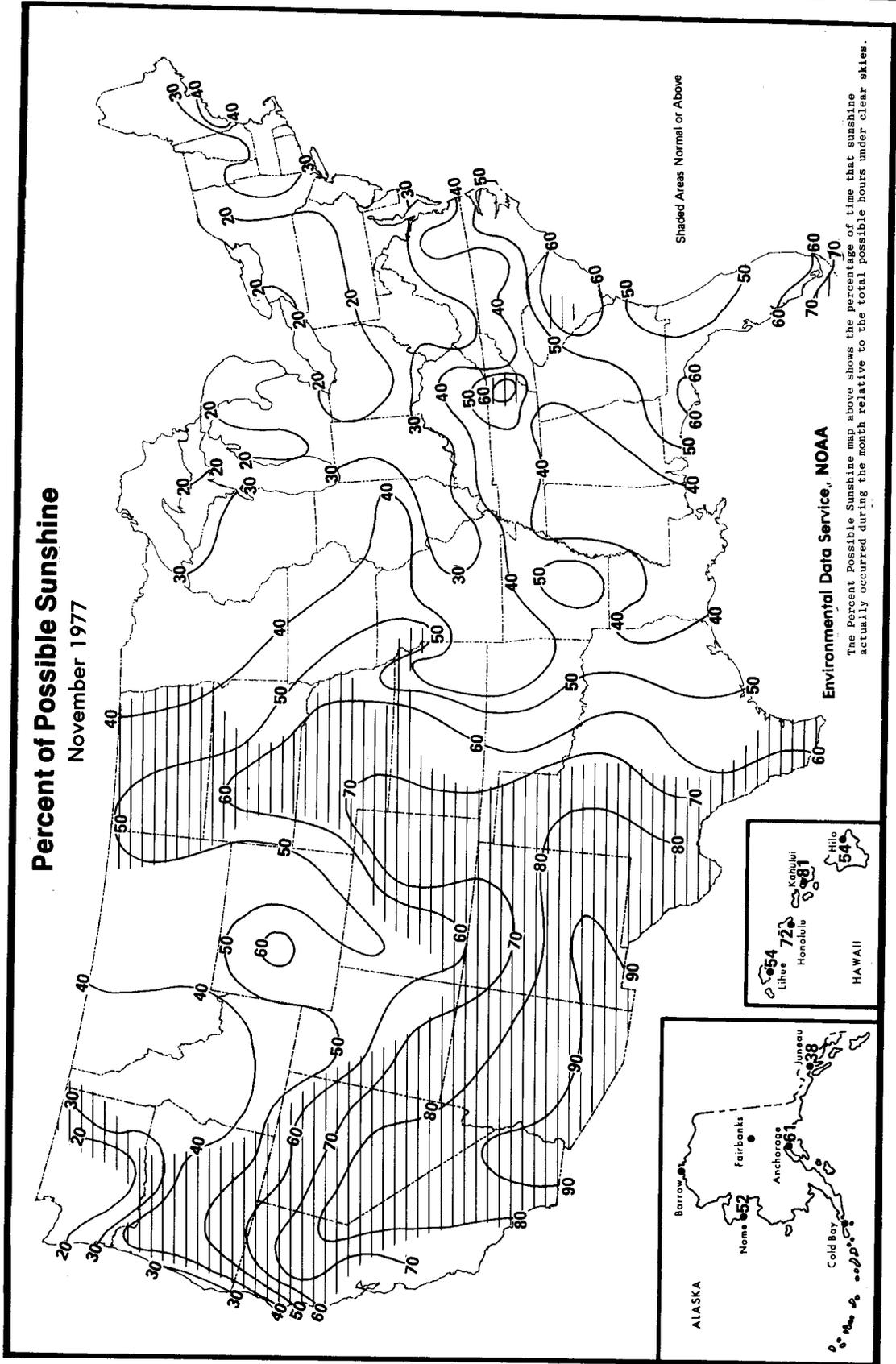
WISCONSIN: Mild with light precipitation. Temperatures above normal. Extremes: 6 and 50°. Precipitation less than 0.25 in. except northwest 17th where 0.50 to 1.00 in. rain, freezing rain, and snow. Warm temperatures reduced snow cover considerably. Snow depths averaged 6 in. as of 16th, but many bare areas after 50° 17th. Frost depths only 2 in. as of 16th.

WYOMING: Temperatures generally above normal. Snake drainage well above normal followed by Green and Bear drainage. Highest temperatures generally in 50's. Lowest temperature generally 5 to -5°. Precipitation generally below normal. Green and Bear drainage had greatest variation.

Winter wheat fair to good. Livestock generally good condition. Below normal supplemental feeding due to mild weather. Feed supplies adequate.

#### NOTE

The previous issue was Volume 64, No. 50...not No. 48 as shown.



## World Weather and Crop Update

November Review - December 20

USSR. The mild fall continued throughout November with well above normal temperatures over the main agricultural areas. The mild weather extended the vegetative season by 10-20 days in many areas of European USSR, favoring the development of winter grains. Early December, however, brought more seasonable temperatures, and bitter cold accompanied the first real cold spell of this season which hit on December 11. Although snow cover had been established over much of the winter grain area, Moldavia, southern Ukraine, and the North Caucasus were essentially without snow cover and crops have been tested in some areas by temperatures that reached  $-18^{\circ}$  at Rostov. Temperatures, however, moderated by mid-December.

ASIA. Early November rains helped winter grains in the main wheat belt of North China. Mid-December rains in this important region have added to soil moisture which was well above normal in most northern provinces at the end of November. Harvesting of late crops in the south was aided by generally sunny and dry weather. November weather in India featured two destructive cyclonic storms (hurricanes) on November 12 and 19, causing heavy losses to crops and livestock in Andhra Pradesh and Tamil Nadu. Rainfall was especially heavy over the southern half of India in November, but the first two weeks of December have been warm and dry. Northern wheat growing areas, in general, were seasonally dry. In Malaysia, the rice-growing states of Kedah and Perlis have been suffering from a severe moisture deficit that threatens to significantly reduce production in these important regions. The rice crop in northeastern Thailand also has been hindered by drought.

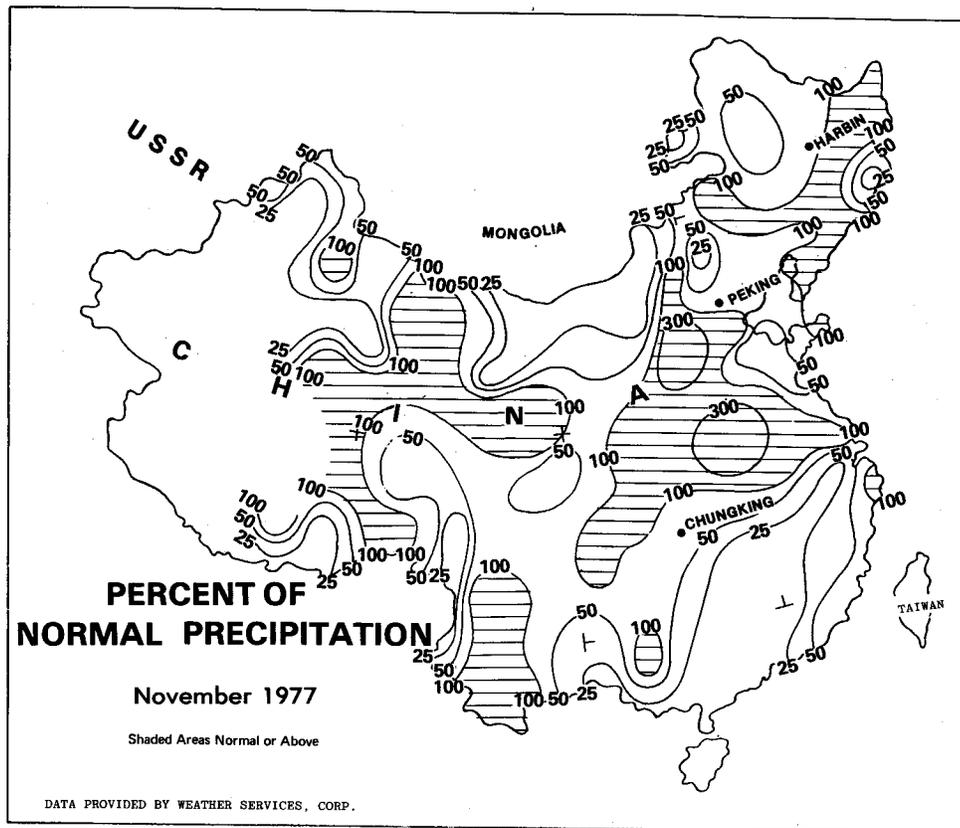
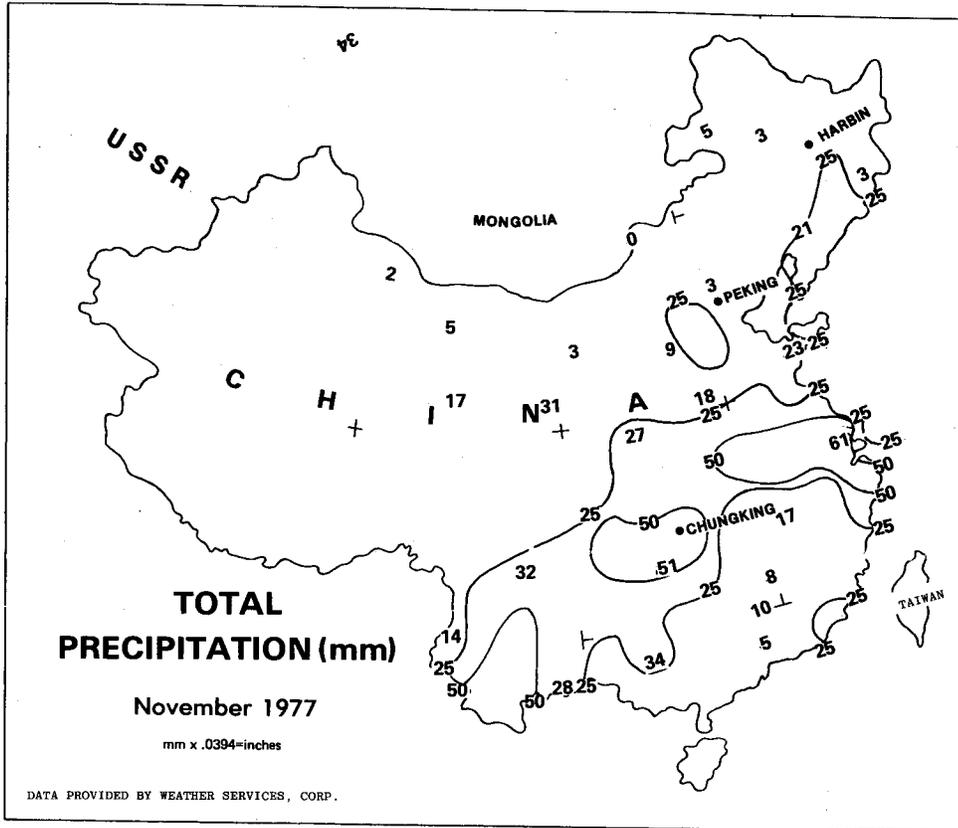
AFRICA. Above-normal temperatures and precipitation in November helped pastures and winter grains in North Africa--Morocco, Algeria, and Tunisia. December rainfall has been relatively light in the latter two countries, and additional precipitation is needed to restore sub-soil moisture to normal levels. Although November rainfall was normal

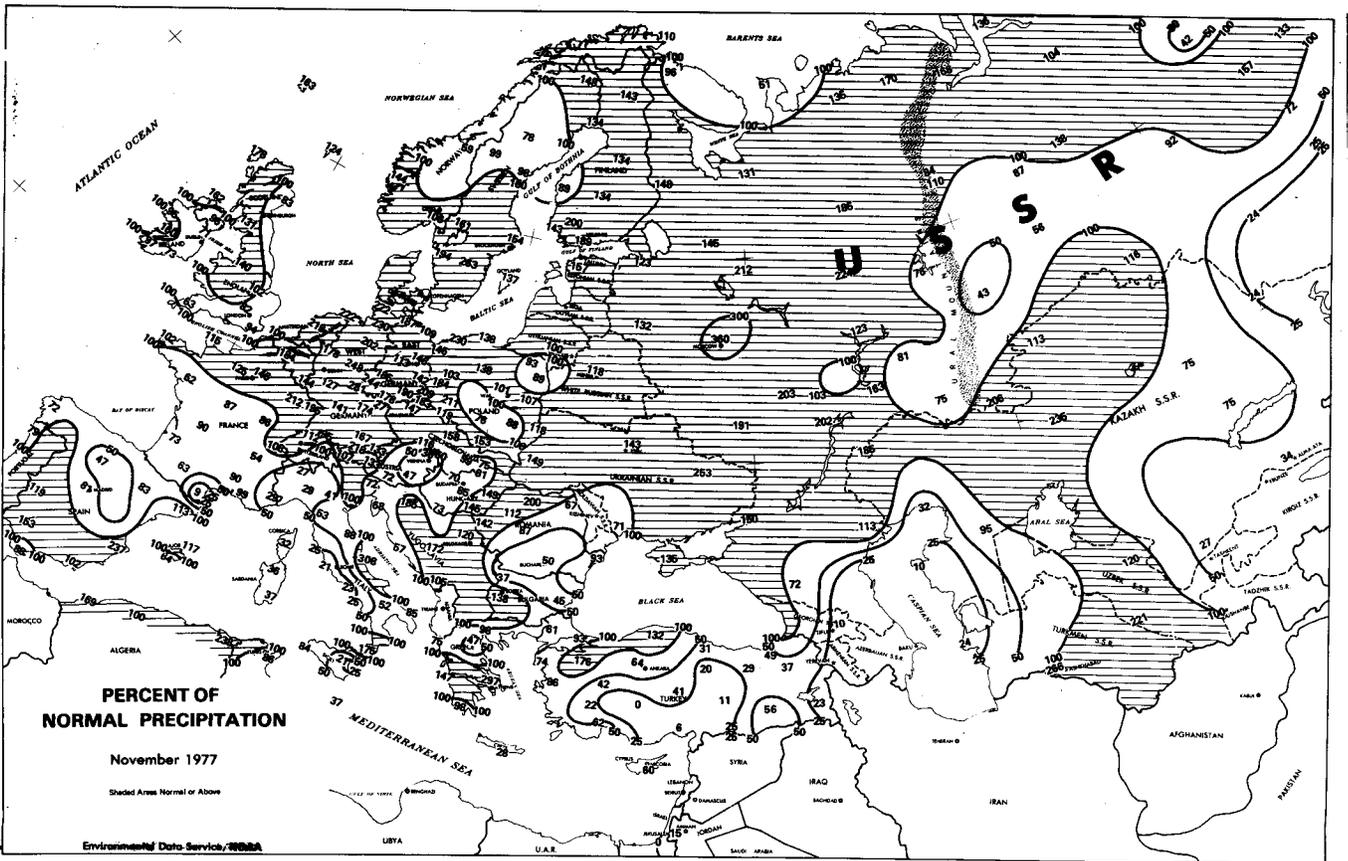
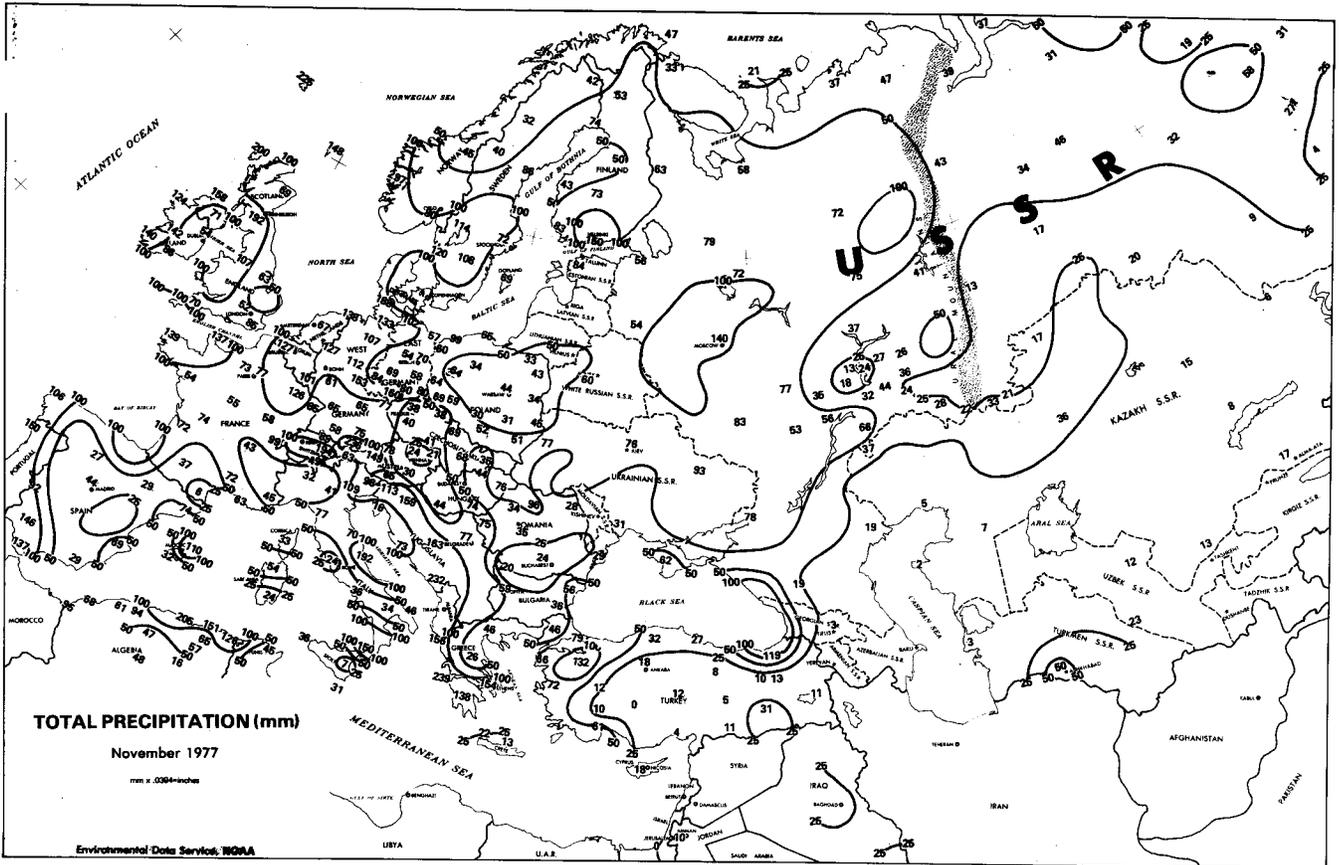
over much of the maize triangle in South Africa, spring sowing was less favored in some areas, especially in the southern part of this important crop area. Rainfall has been relatively light in December, and additional moisture is needed for normal crop and pasture development.

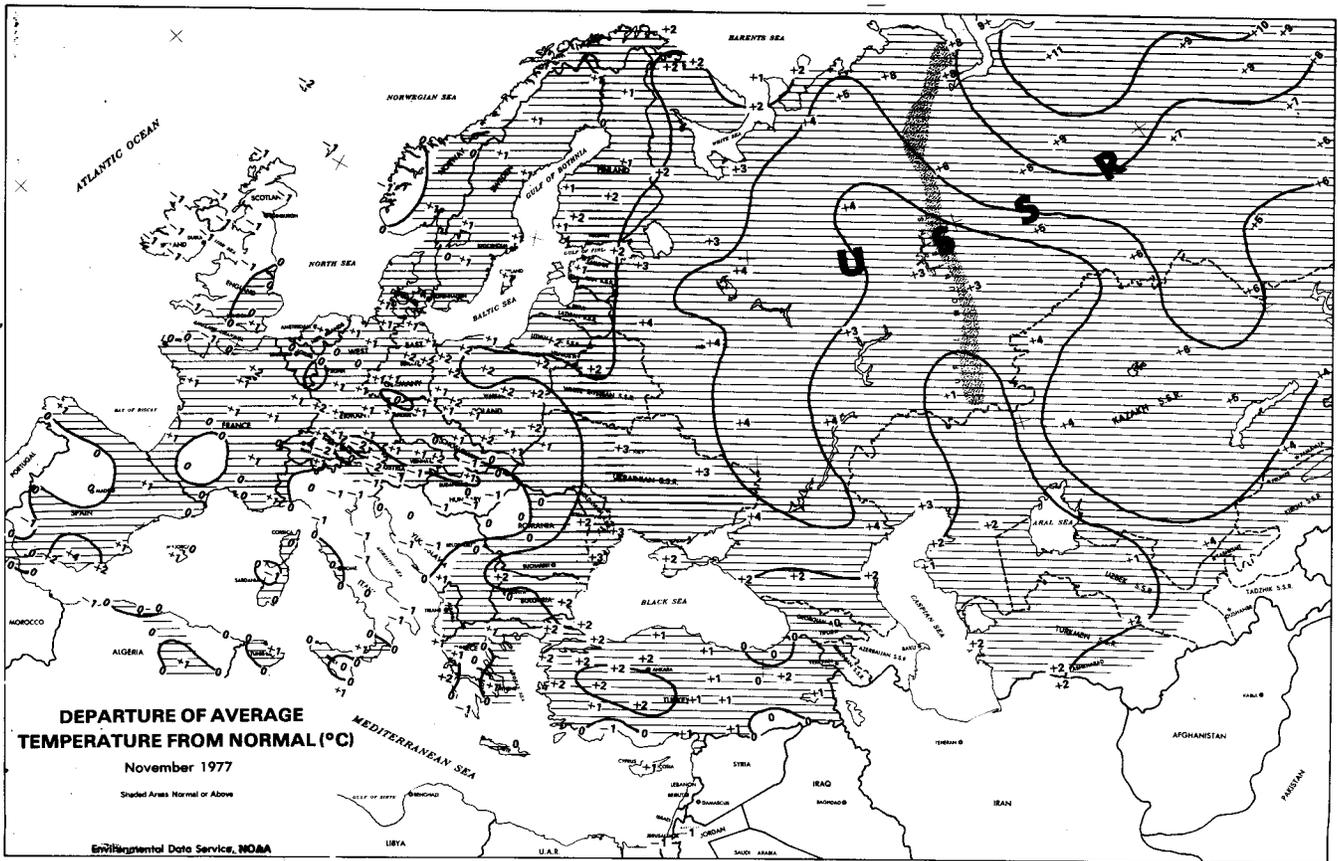
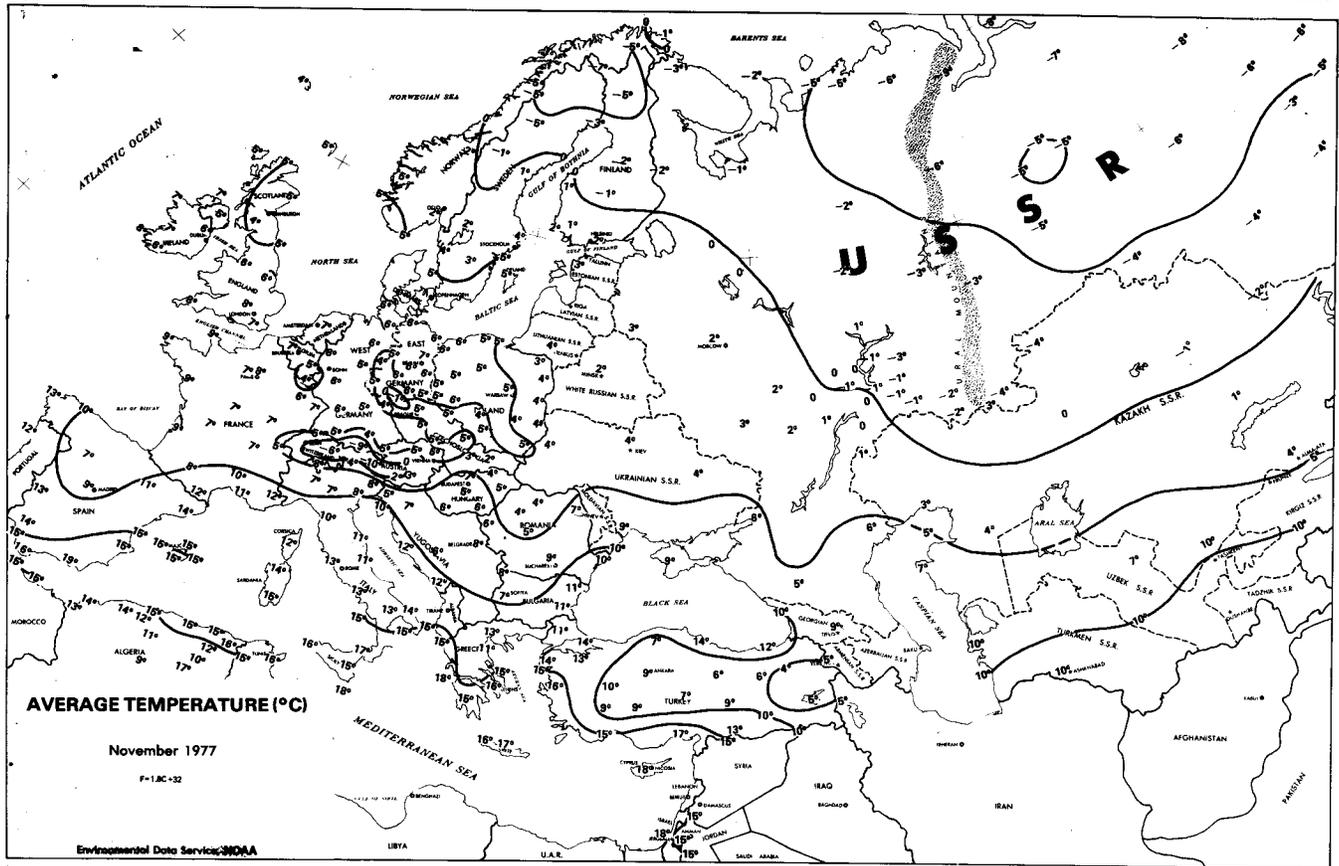
SOUTH AMERICA. Abundant November rains favored development of pastures and spring crops throughout the main agricultural areas of Brazil and Argentina. Harvesting of winter grains which is now underway in Argentina, however, may have been hampered by locally excessive moisture. Mid-December rains brought needed moisture to north-eastern Brazil which has been suffering from a moisture deficiency.

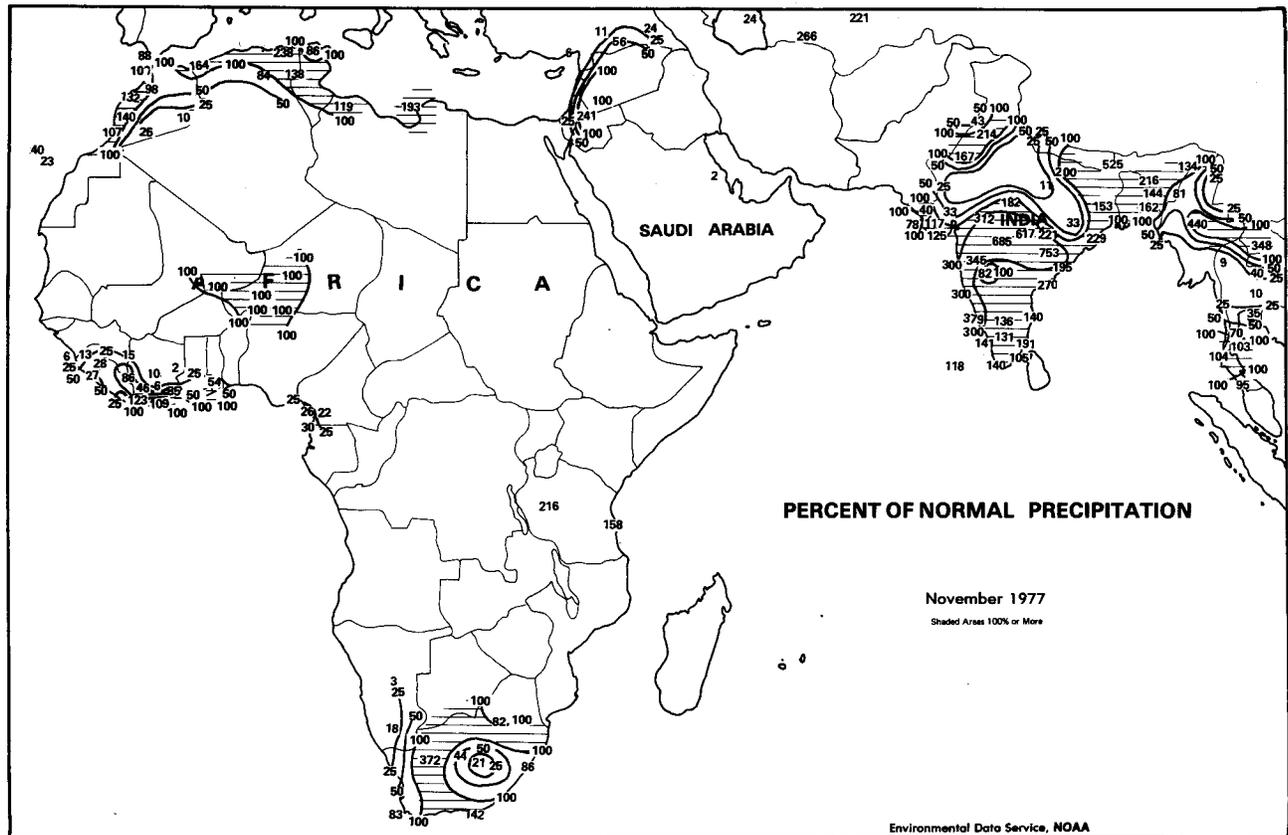
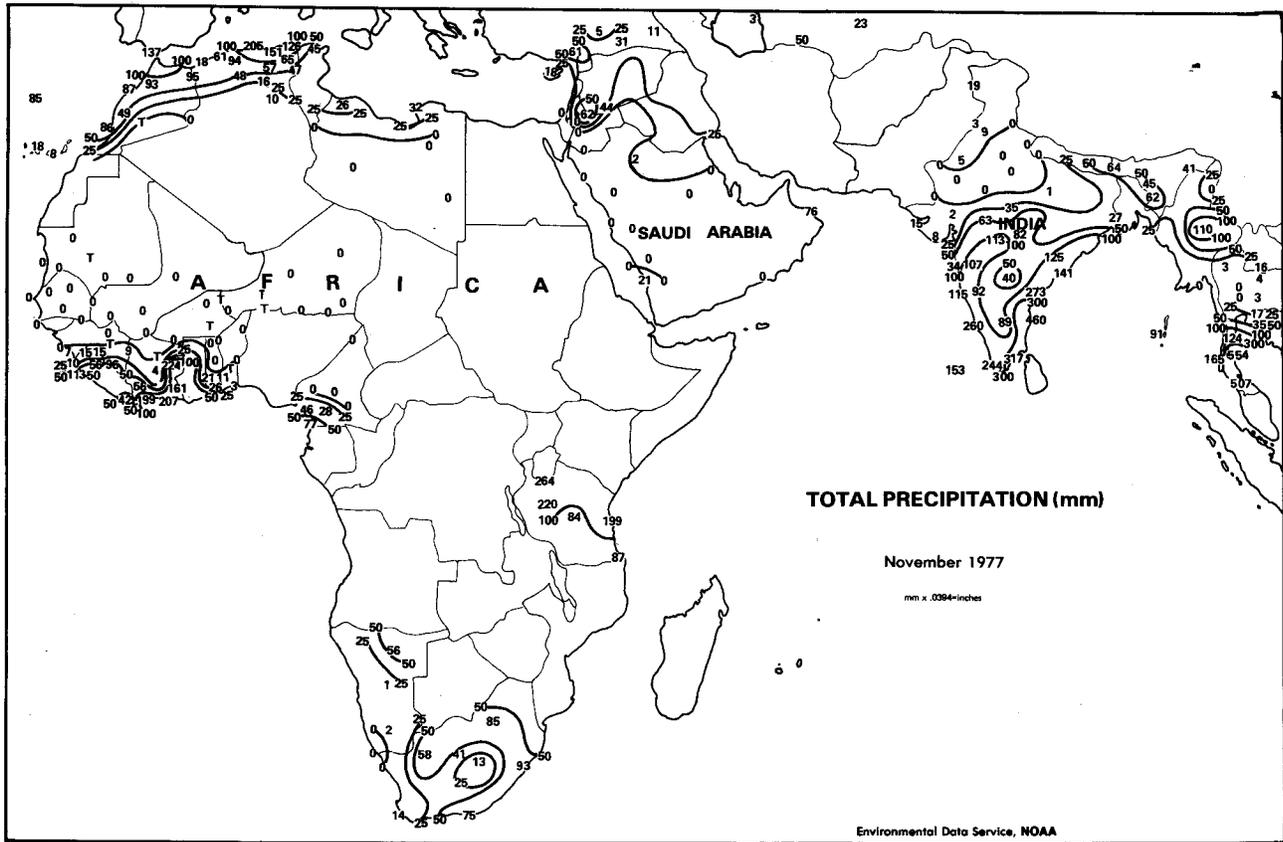
AUSTRALIA. November rains were generally too little and too late to help winter grain crops which matured earlier than normal because of the prolonged drought that has afflicted most areas. Non-irrigated crops and pastures continued to suffer from a moisture deficiency and high temperatures in December. Shortages of forage have resulted in abnormally high marketings of livestock at this time of year.

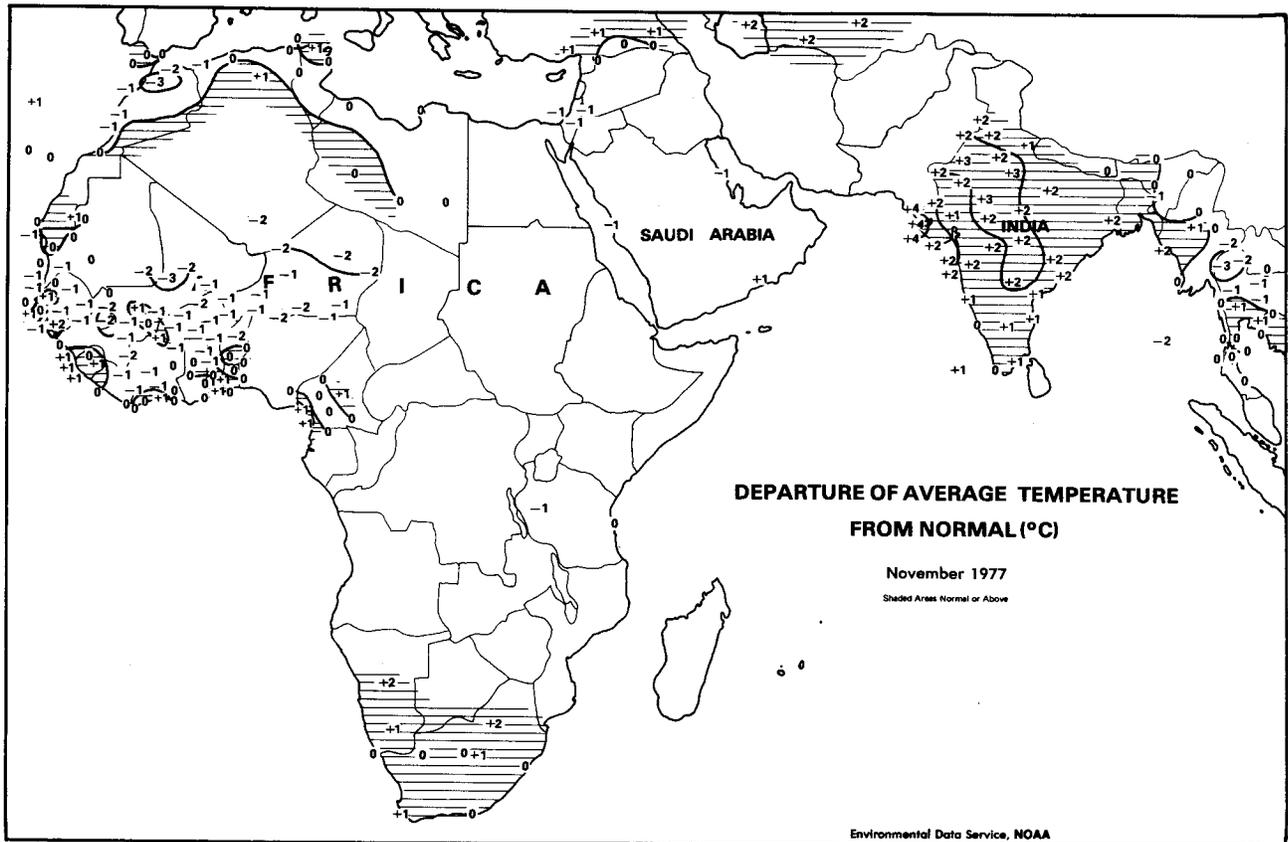
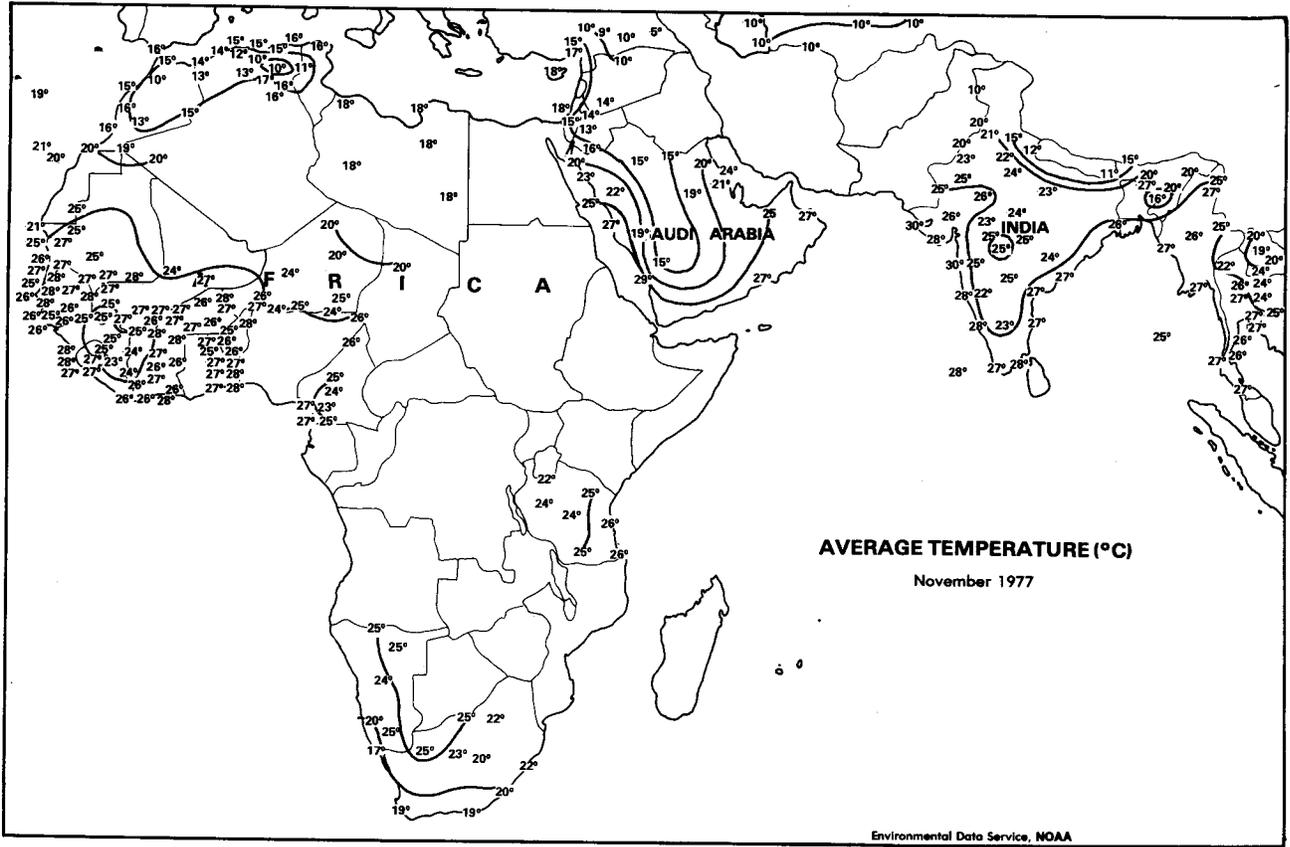
EUROPE. November continued to be mild but wet in western Europe, primarily in the northern half of that region. Lack of snow cover and mild temperatures have made outdoor feeding of livestock possible into mid-December, thus enabling farmers to conserve hay for winter feeding. Eastern Europe, in general, also welcomed the mild November temperatures and above-normal precipitation. Additional moisture, however, is required in some countries to bring sub-soil moisture up to normal levels. November precipitation throughout the main wheat-growing areas in Turkey was well below normal, and little significant precipitation has fallen thus far in December. Adequate precipitation has not been available for sowing and normal development of winter grains in some areas.

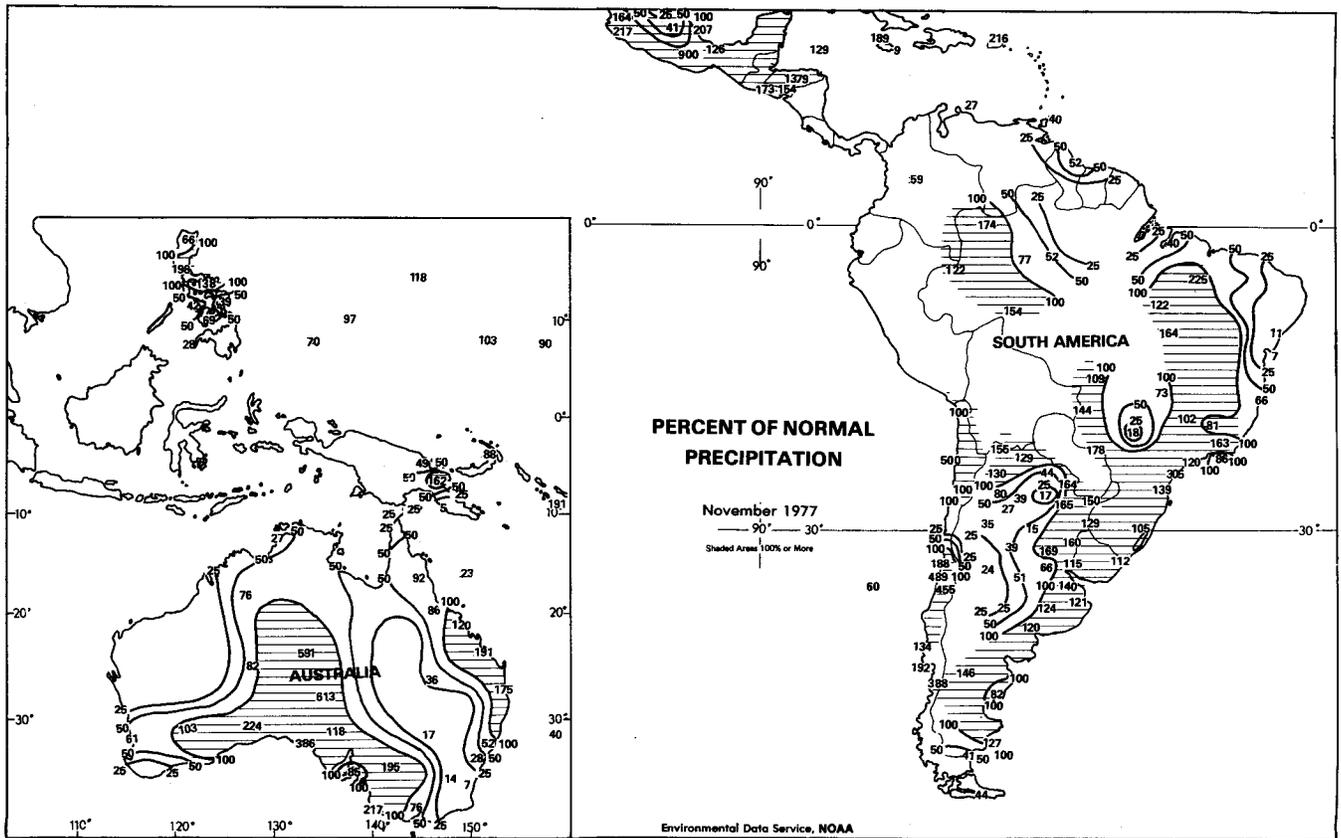
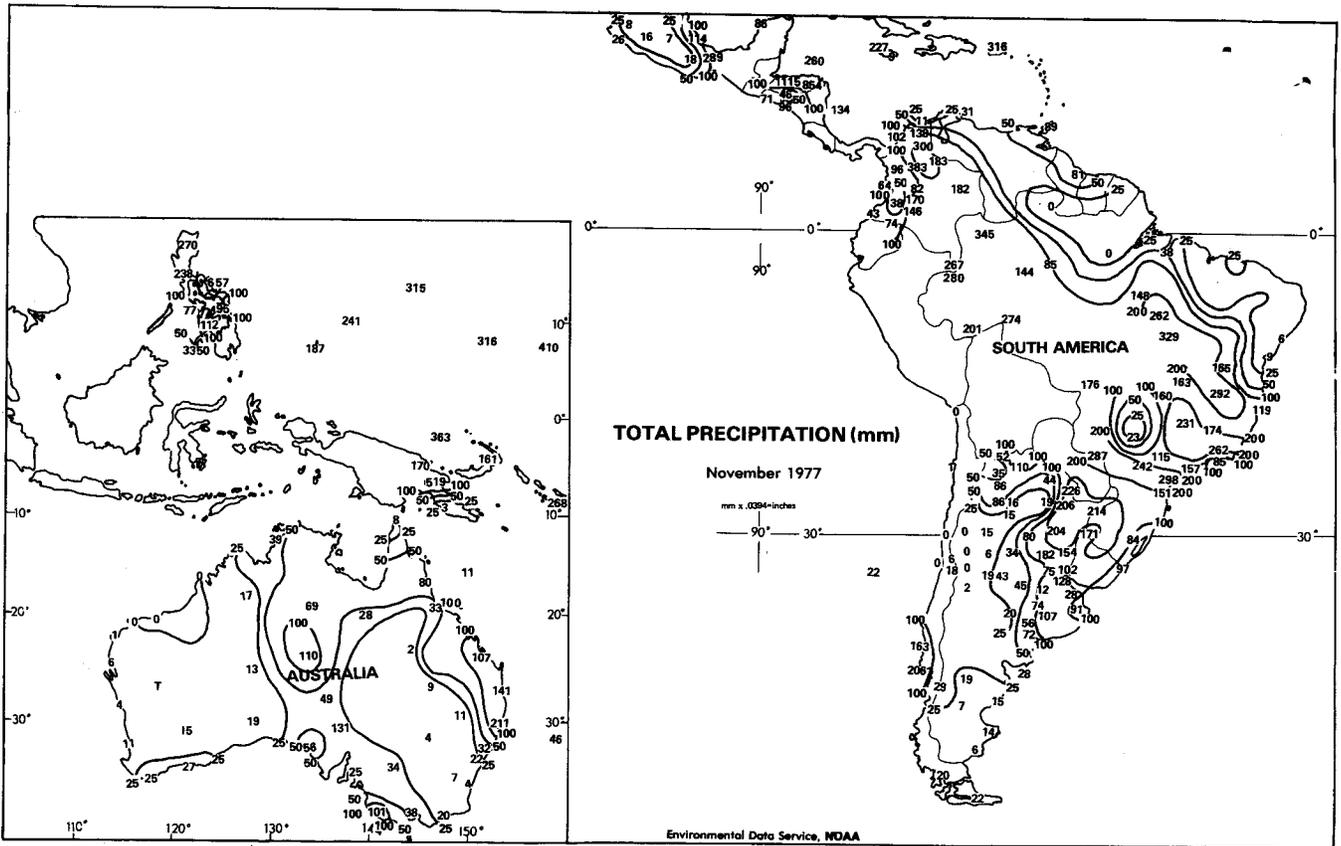


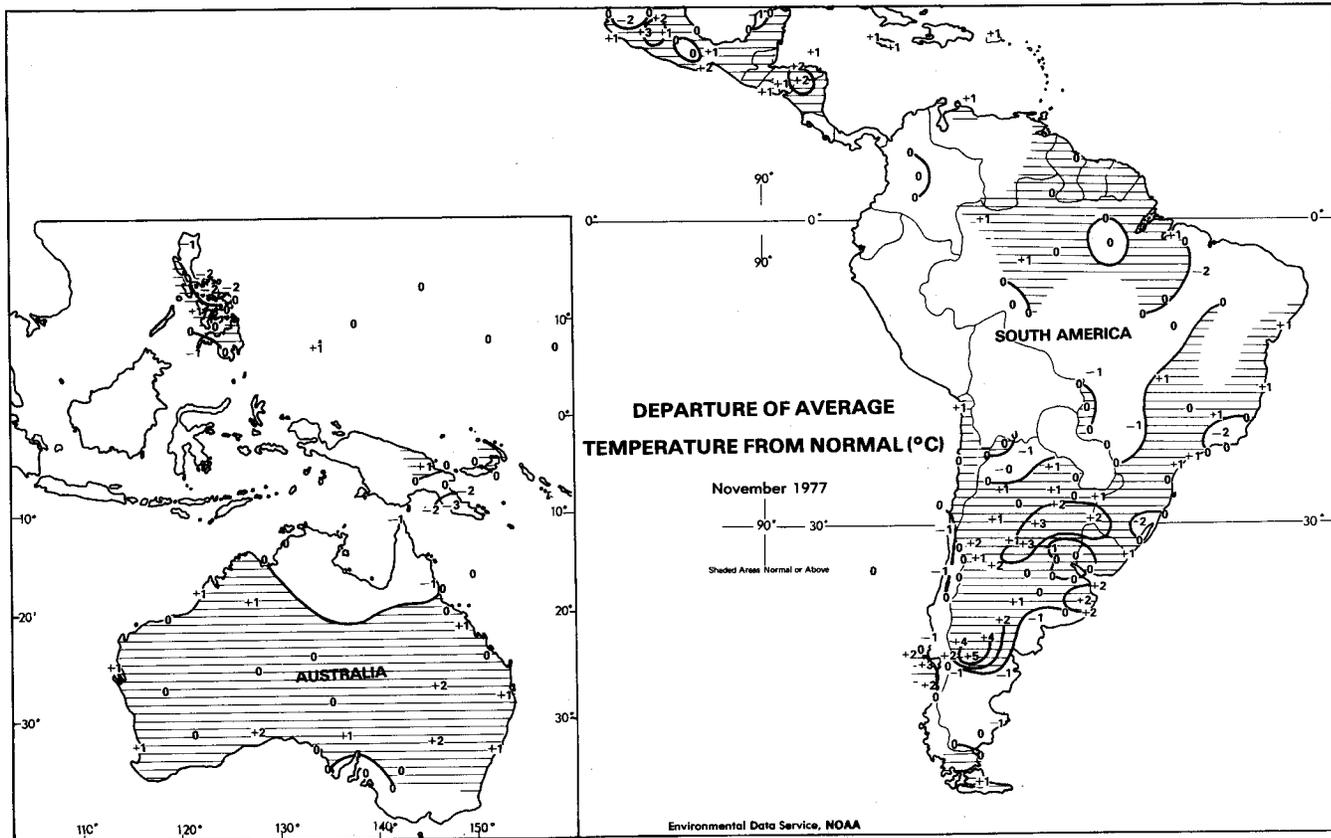
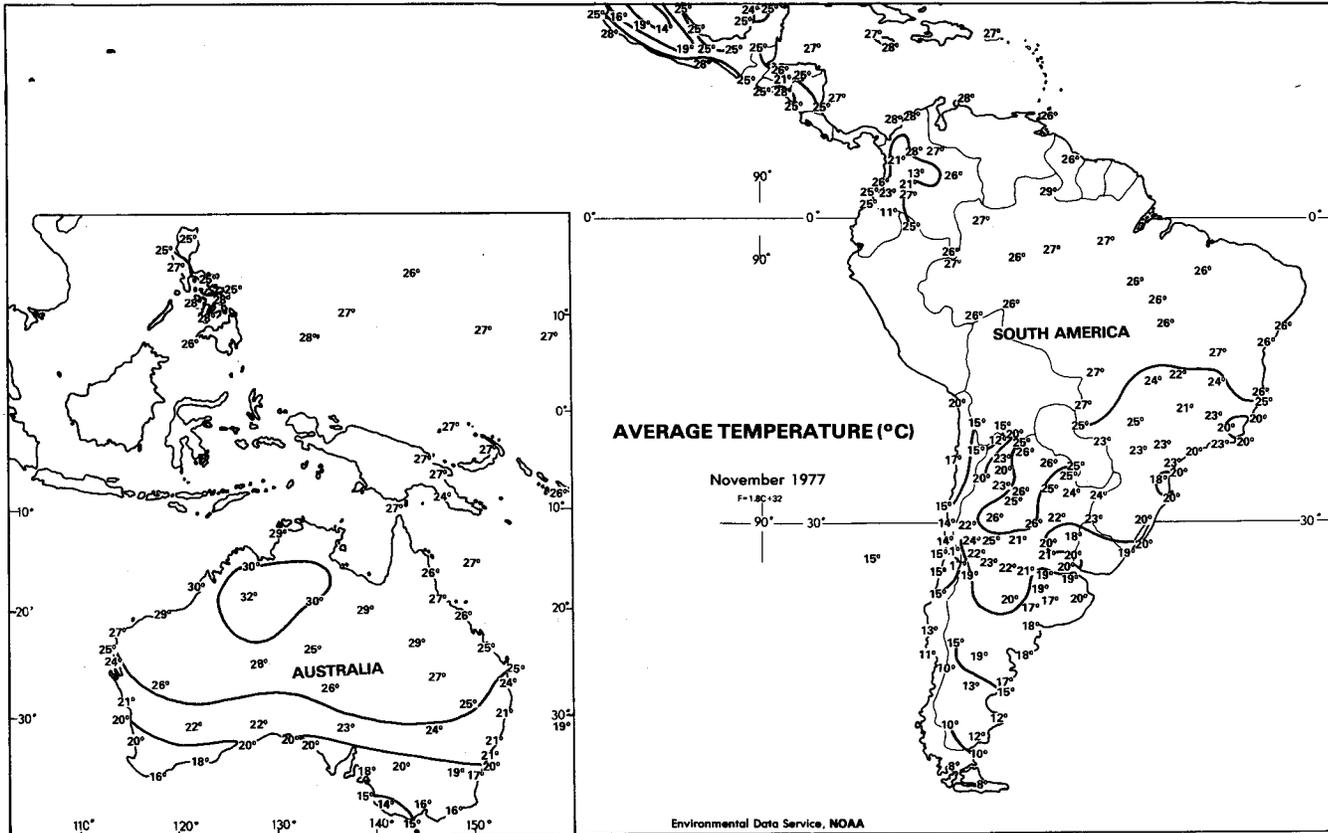














HEATING DEGREE DAYS (BASE 65°) FOR WEEK ENDING DEC. 18, 1977.

STATES AND STATIONS	WEEKLY		SEASONAL ACCUMULATION +			STATES AND STATIONS	WEEKLY		SEASONAL ACCUMULATION +			STATES AND STATIONS	WEEKLY		SEASONAL ACCUMULATION +		
	TOTAL	DEPARTURE*	TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77		TOTAL	DEPARTURE*	TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77		TOTAL	DEPARTURE*	TOTAL	DEPARTURE*	DEPARTURE FROM 1976-77
ALA. BIRMINGHAM.....	9	44	791	85	420	MAINE. CARIBOU.....	81	37	3034	12	57	YOUNGSTOWN.....	192	63	1901	0	629
MOBILE.....	9	44	446	20	446	PORTLAND.....	81	37	2411	17	57	OKLA. OKLAHOMA CITY	98	77	957	102	433
MONTGOMERY.....	9	44	480	20	480	MD. BALTIMORE.....	179	31	1281	73	395	TULSA.....	100	76	922	82	488
ARIZ. FLAGSTAFF.....	9	52	1749	44	1749	MASS. BOSTON.....	229	3	1511	13	252	OREG. ASTORIA.....	100	76	922	82	488
PHOENIX.....	9	52	1749	44	1749	MICH. ALPENA.....	39	3	1096	106	566	BURNS.....	100	76	922	82	488
TUCSON.....	9	52	1749	44	1749	DETROIT.....	39	3	1096	106	566	MEDFORD.....	100	76	922	82	488
WINSTON-SALEM.....	9	52	1749	44	1749	FLINT.....	39	3	1096	106	566	PORTLAND.....	100	76	922	82	488
YUMA.....	9	52	1749	44	1749	GRAND RAPIDS.....	39	3	1096	106	566	SALEM.....	100	76	922	82	488
ARK. FORT SMITH.....	11	47	939	84	530	HOUGHTON LAKE.....	39	3	1096	106	566	PA. ALLENTOWN.....	100	76	922	82	488
LITTLE ROCK.....	11	47	906	84	530	LANSING.....	39	3	1096	106	566	BERKELEY.....	100	76	922	82	488
CALIF. BAKERSFIELD.....	11	70	1345	27	88	MARQUETTE.....	39	3	1096	106	566	HARRISBURG.....	100	76	922	82	488
EUREKA.....	11	70	1345	27	88	MUSKOGEE.....	39	3	1096	106	566	PHILADELPHIA.....	100	76	922	82	488
FRESNO.....	11	70	1345	27	88	S. STE. MARIE.....	39	3	1096	106	566	PITTSBURGH.....	100	76	922	82	488
LOS ANGELES.....	11	70	1345	27	88	MINN. DULUTH.....	39	3	1096	106	566	SCRANTON.....	100	76	922	82	488
SAN DIEGO.....	11	70	1345	27	88	INTERNATL FALLS.....	39	3	1096	106	566	R. I. PROVIDENCE.....	239	2	1675	4	458
SAN FRANCISCO.....	11	70	1345	27	88	MINNEAPOLIS.....	39	3	1096	106	566	S. C. CHARLESTON.....	47	6	508	320	320
STOCKTON.....	11	70	1345	27	88	ROCHESTER.....	39	3	1096	106	566	COLUMBIA.....	110	6	804	287	468
COLO. DENVER.....	13	73	1626	25	277	ST. CLOUD.....	39	3	1096	106	566	GREENVILLE.....	110	6	804	287	468
GRAND JUNCTION.....	13	73	1626	25	277	MISS. JACKSON.....	68	46	645	23	412	S. DAK. ABERDEEN.....	280	5	2956	222	17
GARFIELD.....	13	73	1626	25	277	MO. COLUMBIA.....	44	4	1501	28	574	HURON.....	280	5	2956	222	17
WELD.....	13	73	1626	25	277	KANSAS CITY.....	44	4	1501	28	574	RAPID CITY.....	280	5	2956	222	17
CONN. BRIDGEPORT.....	13	10	1339	65	361	ST. LOUIS.....	44	4	1501	28	574	SIoux FALLS.....	280	5	2956	222	17
HARTFORD.....	13	10	1339	65	361	SPRINGFIELD.....	44	4	1501	28	574	TENN. CHATTANOOGA.....	119	49	1006	81	387
DEL. WILMINGTON.....	192	22	1421	37	271	MONT. BILLINGS.....	204	61	2508	237	343	KNOXVILLE.....	119	49	1006	81	387
D. C. WASHINGTON.....	159	36	1071	116	392	GLASGOW.....	70	62	470	470	409	MEMPHIS.....	119	49	1006	81	387
FLA. APALACHICOLA.....	48	24	310	42	292	GREAT FALLS.....	70	62	470	470	409	NASHVILLE.....	119	49	1006	81	387
DAYTONA BEACH.....	48	24	129	90	58	HAVRE.....	70	62	470	470	409	TEXAS. ABILENE.....	56	74	645	95	602
FORT MYERS.....	48	24	141	90	58	HELENA.....	70	62	470	470	409	AMARILLO.....	56	74	645	95	602
JACKSONVILLE.....	48	24	37	90	230	KALISPELL.....	70	62	470	470	409	AUSTIN.....	56	74	645	95	602
KEY WEST.....	48	24	14	90	58	MILES CITY.....	70	62	470	470	409	BEAUMONT.....	56	74	645	95	602
LAKELAND.....	48	24	14	90	58	MISSOULA.....	70	62	470	470	409	BROWNSVILLE.....	56	74	645	95	602
MIAMI.....	48	24	14	90	58	NEBR. GRAND ISLAND.....	174	91	1882	43	325	DEL RIO.....	56	74	645	95	602
ORLANDO.....	48	24	14	90	58	LINCOLN.....	174	91	1882	43	325	EL PASO.....	56	74	645	95	602
TALLAHASSEE.....	48	24	14	90	58	NORFOLK.....	174	91	1882	43	325	FORT WORTH.....	56	74	645	95	602
TAMPA.....	48	24	14	90	58	NORTH PLATTE.....	174	91	1882	43	325	GALVESTON.....	56	74	645	95	602
NEST PALM BEACH.....	48	24	14	90	58	OWA. VALENTINE.....	174	91	1882	43	325	HOUSTON.....	56	74	645	95	602
GA. ATLANTA.....	110	4	861	63	455	NEV. ELI.....	223	49	2174	371	356	LUBBOCK.....	56	74	645	95	602
AUGUSTA.....	110	4	861	63	455	LAS VEGAS.....	223	49	2174	371	356	MIDLAND.....	56	74	645	95	602
Macon.....	110	4	861	63	455	RENO.....	223	49	2174	371	356	SAN ANGELO.....	56	74	645	95	602
SAVANNAH.....	110	4	861	63	455	SPRINGFIELD.....	223	49	2174	371	356	SAN ANTONIO.....	56	74	645	95	602
IDAHO. BOISE.....	159	70	1739	131	157	UTAH. SALT LAKE CITY.....	159	84	1456	435	311	WASH. BELLINGHAM.....	159	84	1456	435	311
LEWISBURG.....	159	70	1739	131	157	VT. BURLINGTON.....	159	84	1456	435	311	VA. LYNCHBURG.....	159	84	1456	435	311
POCATELLO.....	159	70	2007	258	179	N. H. CONCORD.....	321	38	2487	259	316	NORFOLK.....	159	84	1456	435	311
ILL. CAIRO.....	225	57	1263	150	272	N. J. ATLANTIC CITY.....	191	21	1329	52	544	RICHMOND.....	159	84	1456	435	311
CHICAGO.....	225	57	1263	150	272	TRENTON.....	191	21	1329	52	544	ROANOKE.....	159	84	1456	435	311
MOLINE.....	225	57	1263	150	272	N. MEX. ALBUQUERQUE.....	165	37	1137	604	577	WASH. BELLINGHAM.....	159	84	1456	435	311
PEORIA.....	225	57	1263	150	272	ROSELLE.....	165	37	1137	604	577	NORFOLK.....	159	84	1456	435	311
ROCKFORD.....	225	57	1263	150	272	N. Y. ALBANY.....	74	1	2111	87	364	RICHMOND.....	159	84	1456	435	311
SPRINGFIELD.....	225	57	1263	150	272	BINGHAMTON.....	74	1	2111	87	364	ROANOKE.....	159	84	1456	435	311
IND. EVANSVILLE.....	151	57	1339	45	405	BUFFALO.....	74	1	2111	87	364	SEATTLE-TACOMA.....	151	19	2232	100	273
FORT WAYNE.....	151	57	1339	45	405	NEW YORK.....	74	1	2111	87	364	SPokane.....	151	19	2232	100	273
INDIANAPOLIS.....	151	57	1339	45	405	ROCHESTER.....	74	1	2111	87	364	HALLA HALLA.....	151	19	2232	100	273
SOUTH BEND.....	151	57	1339	45	405	SYRACUSE.....	74	1	2111	87	364	VAKIHA.....	151	19	2232	100	273
IOWA. BURLINGTON.....	188	73	1955	163	435	N. C. ASHEVILLE.....	47	39	1801	93	478	W. VA. BECKLEY.....	188	92	1688	98	590
BES HAINES.....	188	73	1955	163	435	CHARLOTTE.....	47	39	1801	93	478	CHARLESTON.....	188	92	1688	98	590
DUBUQUE.....	188	73	1955	163	435	GREENSBORO.....	47	39	1801	93	478	HUNTINGTON.....	188	92	1688	98	590
SIoux CITY.....	188	73	1955	163	435	HARTFORD.....	47	39	1801	93	478	PARKERSBURG.....	188	92	1688	98	590
KANS. CONCORDIA.....	166	77	1461	10	326	RALEIGH.....	47	39	1801	93	478	WIS. GREEN BAY.....	166	63	2555	114	558
BODGE CITY.....	166	77	1461	10	326	WILMINGTON.....	47	39	1801	93	478	LACROSSE.....	166	63	2555	114	558
GOOBLAND.....	166	77	1461	10	326	N. DAK. BISHARCK.....	277	66	3088	290	138	MADISON.....	166	63	2555	114	558
TOPEKA.....	166	77	1461	10	326	HILLSTON.....	277	66	3088	290	138	MILWAUKEE.....	166	63	2555	114	558
WICHITA.....	166	77	1461	10	326	OHIO. ARRON-CANTON.....	184	67	1867	57	573	WYO. CASPER.....	166	63	2555	114	558
LA. BATON ROUGE.....	41	45	374	13	470	CINCINNATI.....	184	67	1867	57	573	CHEYENNE.....	166	63	2555	114	558
LAKE CHARLES.....	41	45	374	13	470	CLEVELAND.....	184	67	1867	57	573	LANDER.....	166	63	2555	114	558
NEW ORLEANS.....	41	45	374	13	470	COLUMBUS.....	184	67	1867	57	573	SHERIDAN.....	166	63	2555	114	558
SARASOTA.....	41	45	374	13	470	DAYTON.....	184	67	1867	57	573						

BASED ON 1941-70 NORMALS.

+ ACCUMULATION FROM JULY 1, 1977.

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