

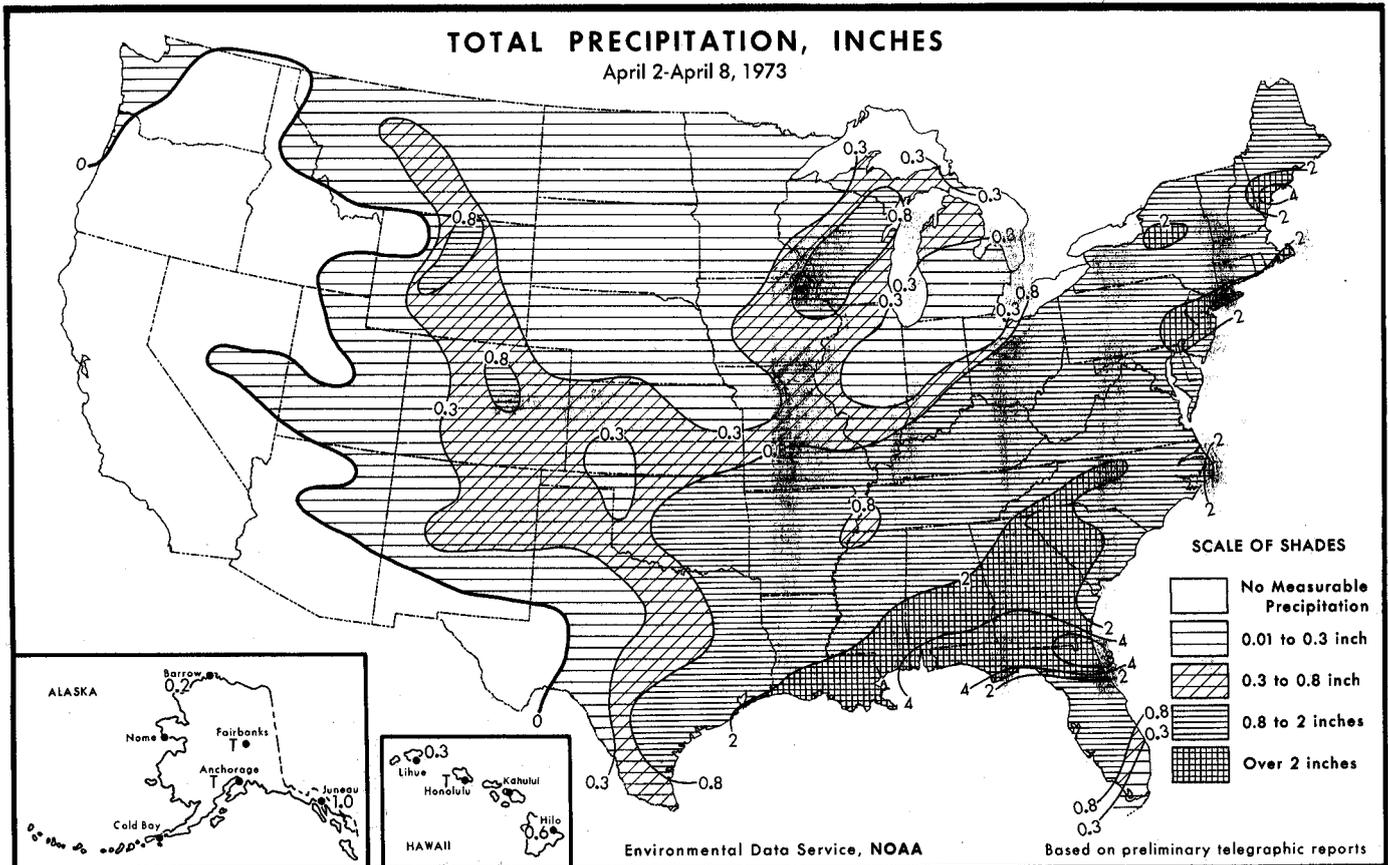
# Weekly Weather & Crop Bulletin

U. S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Environmental Data Service

U. S. DEPARTMENT OF AGRICULTURE  
Statistical Reporting Service

Volume 60, No. 15

Apr. 9, 1973 Washington, D. C.



USCOMN-NOAA-DC

## NATIONAL WEATHER SUMMARY

**HIGHLIGHTS:** A gigantic flood, fed by 3 weeks of rains, rolled down the Mississippi. It may equal the 1951 deluge and rival the record flood of 1844. Torrential rains soaked the Deep South for the third week in a row. An Arctic air mass crippled the southern Rockies and Great Plains spreading blizzards and high winds.

**PRECIPITATION:** The East, the eastern Corn Belt, and a strip extending from Kentucky, through Arkansas into East Texas received heavy rains ranging from 0.8 inch to 2.00 inches, which worsened an already bad flood situation. Throughout parts of the Deep South and northern Florida 2.00 to 4.00 inches of torrential rain soaked soils.

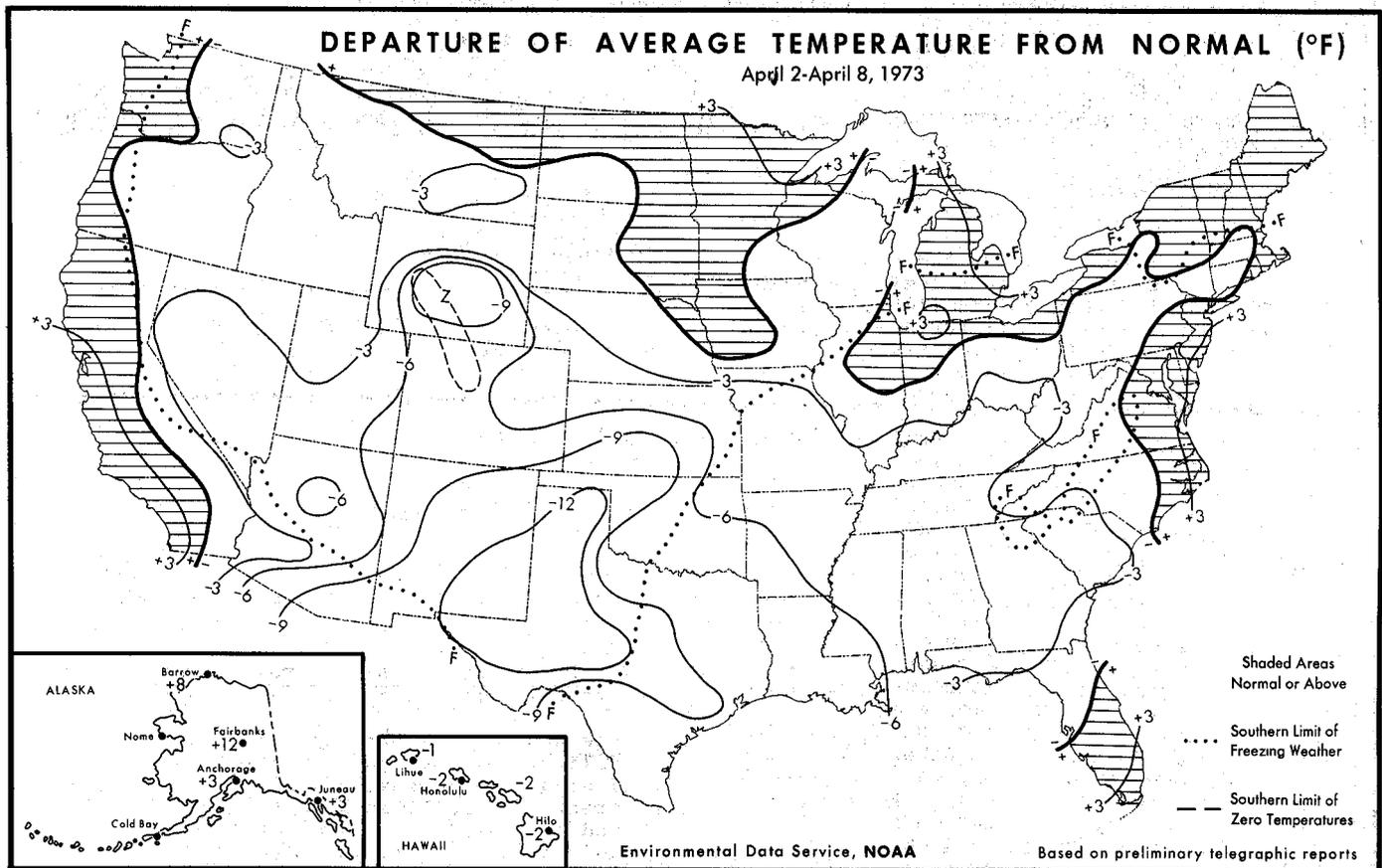
In contrast, most of the West Coast and almost all areas west of the Rockies received no precipitation. The Mountain States and the western Great

Plains had unseasonal snow and blizzards due to frigid Arctic air.

Monday brought 1 inch of snow to Wisconsin, Iowa, and eastern Nebraska and Kansas. Rain increased flooding from Illinois to Louisiana. The Ohio River at Cairo, Ill., crested 16 feet above flood stage, less than 4 feet below the record 1937 crest.

On Tuesday rain fell over most of the Nation. A Low in southeastern Louisiana set off intense thundershowers in the Gulf States. These reached severe proportions as the storm traveled east, and torrential rains struck southern Georgia and northern Florida. By Wednesday morning, Jacksonville, Fla., had received 7.57 inches of rain and Brunswick, Ga., 2.33 inches.

Scattered showers continued all day Wednesday throughout the Southeast, with extremely heavy



showers throughout Florida. Sun City, 17 miles north of Tampa, Fla., received 5.50 inches of rain in a 2-hour period. Locally heavy rains caused flash flooding in Georgia.

Late Wednesday and early Thursday the Mississippi flood crest moved into the lower Mississippi. The river was 6 1/2 feet above flood stage as it passed through Memphis, Tenn. Also, a near record flood, 7 feet above flood stage, raged along the Suwannee River in northern Florida.

On Thursday a storm brought winter back to New England, blanketing Maine, Vermont, and New Hampshire with snow. The storm also spread rain down the Ohio Valley; otherwise most of the Nation enjoyed fair weather.

On Friday, light rains and snows fell over New England, the Appalachians, and westward into Minnesota. Heavier snows prevailed over Montana and North Dakota.

By Saturday snow fell on the Canadian Border from Minnesota to Montana. The storm extended southwards. Lander, Wyo., recorded 9 inches of snow. In the Gulf, a Low pushed more rain into the Deep South. Mobile, Ala., recorded 2.46 inches and Marietta, Ga., 2.06 inches.

By Sunday, an intense winter-like storm moved through the southern Rockies and into southwest Texas. It spread gusty winds, unseasonably low temperatures, and snow into the Plains. At Lander, Wyo., recorded 10 inches of snow; Denver, Colo., 9 inches; Amarillo, Tex., 3 inches. Late Sunday, the storm edged its way into the upper Mississippi Valley. By early Monday, over a foot of snow had fallen over parts of Iowa and Wisconsin.

**TEMPERATURE:** Winter maintained its grip on most of the Rockies and Western Plains. Almost all of Wyoming had temperatures 9° lower than normal, while large areas of Texas and New Mexico fell 10° below the norm. And in general, most of the Nation's midsection had a week cooler than normal.

On Monday, April 9, cold air pushed southward over the Western Plains bringing freezing temperatures as far south as West Texas. Later in the week, a cold front moved out of Canada. Thursday temperatures stayed in the 30's around Lake Superior. By Friday, winterlike weather began to spread across the Nation's northern half. Winter blizzards and winds returned to the Rockies in force by Saturday.

By Sunday the Arctic air plunged the mercury to -2° at Lander, Wyo., breaking all-time-low record for such a late date. Other low records were: Scottsbluff, Neb., 7°, and Denver, Colo., 6°.

Elsewhere in the Nation, spring continued to march north. Warmer than normal temperatures clung mainly to the ocean coasts, the Great Lakes area, and some areas in the north-central region.

In the East, chilly mornings generally began the day. Temperatures ranged in the 30's and 40's in the North, and in the 40's and 50's in the South. Southern Florida usually began its day in the 70's. Temperatures generally rose to midday highs in the 50's and 60's for the North, 60's and 70's for the South. Parts of southern Florida reached the low- and mid-80's.

The West Coast maintained higher than average temperatures. Southern California remained 3° above the weekly norm, while northwards it stayed about 1° above normal.

## NATIONAL AGRICULTURAL SUMMARY

**AGRICULTURAL HIGHLIGHTS:** Winter wheat growth rapid in southern Great Plains. \* Spring wheat seeding has good start. \* Fieldwork further delayed by wet conditions.

**SMALL GRAINS:** Winter wheat in the southern Great Plains made rapid growth last week with condition remaining good to excellent. Spring planting of small grains fell further behind the normal pace in the North Central States. Kansas winter wheat growth was rapid with about 12 percent of the acreage jointing. Some wheat in central and eastern sections of Kansas was hurt by floods and standing water. Problems also continue with soil borne mosaic and nitrogen deficiency in these areas. Sunshine promoted growth of Oklahoma wheat now about 67 percent jointing in good to excellent condition. Texas wheat and oat crops are making excellent progress with above normal grain prospects. Wheat in Nebraska and Colorado is in above average condition, but growth has been limited by cold, wet soil. Moisture shortages continue in the Pacific Northwest and Montana keeping wheat condition in the fair to good range. Farmers in northern Idaho are reseeding winterkilled wheat.

Wet conditions continue to slow spring small grain plantings in the southern Corn Belt while early progress has been good in the Dakotas, Minnesota and Wisconsin. Kansas oat seeding is 26 percent completed compared to the average of 76 percent. Missouri oat acreage is only 2 percent seeded compared to 79 percent last year. Spring wheat seeding in Minnesota is ahead of normal at 6 percent complete and is near normal in South Dakota at 12 percent seeded.

**OTHER CROPS:** Cold, cloudy, wet weather over the South and most of the North Central States last week continued to delay land preparation and planting of cotton, corn, and other crops. Major flooding of farmland continued to increase along the Mississippi River with about 7.8 million acres under water as of April 8 from Iowa to Louisiana. Limited progress occurred in some Southern States on higher elevation fields. Over the weekend an intense winter-like storm moved into the Central States dumping heavy snowfall and paralyzing farm activities. The additional precipitation will increase the 1 to 2 weeks time required to dry out soils in the Corn Belt to permit plowing which is far behind normal.

**Cotton** planting in South Texas advanced slightly to 8 percent complete compared to 17 percent last year. Early seeded acreage is making good progress. Freezing temperatures reached into central and southwest Texas last week keeping soils cold and delaying planting progress. A few scattered fields were planted to cotton in northern Alabama. Cotton is less than 2 percent planted in Georgia.

**Corn** planting in south Texas increased to 41 percent complete compared to 60 percent last year. Planting ranges from 5 to 10 percent planted from Louisiana to South Carolina, which is well behind normal. In North Carolina about 3 percent of the corn acreage is planted compared to 4 percent last year.

**Sorghum** planting in south Texas reached 30 percent complete compared to 39 percent last year. **Tobacco** growth in North Carolina is spotty--some plants are showing signs of excessive water. In Kentucky tobacco beds need sunshine, but are in good shape with seeding 82 percent complete and 41 percent emerged. Transplanting tobacco in South Carolina is 6 percent done compared with 31 percent last year. Rice acreage in Texas is 32 percent planted versus 78 percent last year while seeding in Louisiana is less than 15 percent complete. Some rice seeding is expected in Arkansas next week.

**Fruits and Nuts:** **Citrus** harvesting is still active in Florida and Texas where supplies will remain available through May. The **Valencia orange** harvest is commencing in several areas of California while the **navel orange** harvest is well along. Cold weather damaged **peach** crop prospects in the Texas High Plains and may have caused some damage in North Carolina, although it is too early to tell. **Deciduous tree** crops in California have benefited from adequate moisture and warmer temperatures. The **almond** set is light in many areas. **Blooming of fruit trees** in Oregon is widespread.

**Vegetables:** Heavy rains damaged some vegetable crops in northern Florida, but many crops benefited from the additional moisture. **Onion** supplies are increasing in the Lower Rio Grande Valley of Texas and the Coastal Bend area. Cold weather has hurt onions already planted on the High Plains. In California, harvesting of **broccoli** and **cauliflower** is increasing near **Salinas** while the **spring lettuce** harvest passed its peak at Palo Verde. Wet weather has limited vegetable planting progress in most areas of the South but progress in Washington and Oregon has been good.

**PASTURES AND LIVESTOCK:** Pasture conditions are above normal in most areas of the Country, but excessive wetness continues to limit topdressing and grazing. Snowstorms the past two weekends in the southern Rocky Mountain States and Great Plains have been hard on livestock. Calving losses in Colorado and New Mexico are expected to be more than usual. Feedlots in the Plains States remain very muddy.

Temperature and Precipitation Data for the Week Ending Midnight, l.s.t., Apr. 8, 1973

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 . . .	53	- 7	1.8	+ .5	La. Baton Rouge . . .	59	- 6	2.3	+ .9	Youngstown . . .	43	0	1.2	+ .4
Mobile . . .	61	- 4	4.5	+2.7	Lake Charles . . .	58	- 7	2.3	+1.4	OKLA. Okla. City . . .	48	- 8	.8	+ .2
Montgomery . . .	58	- 3	2.3	+ .9	New Orleans . . .	58	- 7	3.2	+2.1	Tulsa . . .	51	- 4	1.1	+ .3
ALASKA Anchorage . . .	34	+ 3	T	+ .1	Shreveport . . .	55	- 7	1.5	+ .4	OREG. Astoria . . .	48	+ 1	T	-1.5
Barrow . . .	1	+ 8	.2	+ .2	MAINE. Caribou . . .	33	+ 2	1.1	+ .5	Burns . . .	42	0	0	- .2
Fairbanks . . .	35	+13	T	+ .1	Portland . . .	41	+ 2	6.1	+5.1	Medford . . .	52	+ 4	0	- .2
Juneau . . .	38	+ 3	1.0	+ .3	MD. Baltimore . . .	51	+ 1	2.0	+1.2	Pendleton . . .	47	- 1	T	- .2
Kodiak . . .	---	---	---	---	MASS. Boston . . .	44	0	1.8	+ .8	Portland . . .	51	+ 2	T	- .6
Nome . . .	---	---	---	---	Chatham . . .	43	---	2.4	---	Salem . . .	48	+ 1	0	- .8
ARIZ. Flagstaff . . .	33	- 7	0	- .3	MICH. Alpena . . .	37	+ 3	.6	0	PA. Allentown . . .	47	+ 2	2.5	+1.6
Phoenix . . .	62	- 2	0	- .1	Detroit . . .	45	+ 3	.1	- .5	Erie . . .	40	0	.9	+ .2
Tucson . . .	53	-10	0	- .1	Flint . . .	43	+ 4	.2	- .4	Harrisburg . . .	48	0	2.1	+1.4
Winslow . . .	46	- 5	.1	- .0	Grand Rapids . . .	43	+ 2	.2	- .4	Philadelphia . . .	50	+ 2	2.3	+1.5
Yuma . . .	65	- 3	T	- .1	Houghton Lake . . .	38	+ 2	.5	+ .1	Pittsburgh . . .	44	- 1	1.2	+ .4
ARK. Fort Smith . . .	50	- 8	1.7	+ .9	Lansing . . .	42	+ 1	.1	- .5	Scranton . . .	43	- 1	1.8	+1.1
Little Rock . . .	54	- 5	1.1	+ .1	Marquette . . .	33	- 2	.8	+ .3	R.I. Providence . . .	45	+ 2	1.8	+ .8
CALIF. Bakersfield . . .	63	+ 3	0	- .2	Muskegon . . .	42	+ 2	.1	- .4	S.C. Charleston . . .	59	- 3	.9	+ .1
Eureka . . .	50	0	0	- .8	S. Ste. Marie . . .	36	+ 3	.2	- .3	Columbia . . .	57	- 4	2.6	+1.6
Fresno . . .	59	0	0	- .4	MINN. Duluth . . .	34	+ 3	.1	- .4	Greenville . . .	55	- 3	2.6	+1.6
Los Angeles . . .	66	+ 5	0	- .3	Internatl Falls . . .	34	+ 3	.2	- .1	S.D. Aberdeen . . .	40	+ 1	.1	- .3
Red Bluff . . .	60	+ 2	0	- .5	Minneapolis . . .	39	0	.2	- .2	Huron . . .	41	+ 2	T	- .4
San Diego . . .	63	+ 3	0	- .3	Rochester . . .	38	- 1	.4	- .1	Rapid City . . .	38	- 1	.2	- .1
San Francisco . . .	58	+ 3	0	- .4	St. Cloud . . .	39	+ 2	.1	- .2	Sioux Falls . . .	49	+ 9	T	- .4
Stockton . . .	60	+ 2	0	- .4	MISS. Jackson . . .	55	- 6	1.7	+ .5	TENN. Chattanooga . . .	53	- 4	1.1	- .1
COLO. Denver . . .	37	- 5	1.6	+1.2	Meridian . . .	56	- 5	2.3	+ .9	Knoxville . . .	53	- 2	1.9	+1.0
Grand Junction . . .	42	- 6	.1	- .1	MO. Columbia . . .	47	- 4	.7	0	Memphis . . .	53	- 5	.5	- .7
Pueblo . . .	40	- 6	.3	+ .1	Kansas City . . .	46	- 5	.2	- .6	Nashville . . .	51	- 5	1.3	+ .2
CONN. Bridgeport . . .	42	- 2	2.2	+1.3	St. Louis . . .	48	- 2	.7	- .2	TEX. Abilene . . .	51	-10	.1	- .2
Hartford . . .	44	- 1	1.2	+ .4	Springfield . . .	47	- 4	.9	0	Amarillo . . .	39	-14	.5	+ .3
D.C. Washington . . .	54	+ 2	1.5	+ .8	MONT. Billings . . .	37	- 4	.4	+ .1	Austin . . .	55	-10	.8	+ .2
FLA. Apalachicola . . .	63	- 2	2.0	+1.0	Glasgow . . .	38	+ 1	.2	+ .1	Beaumont . . .	57	- 3	1.5	+ .7
Daytona Beach . . .	69	+ 2	2.9	---	Great Falls . . .	35	- 3	.4	+ .2	Brownsville . . .	66	- 6	.6	+ .3
Ft. Myers . . .	74	+ 3	.9	+ .3	Havre . . .	39	+ 2	.2	0	Corpus Christi . . .	68	- 6	1.2	+ .8
Jacksonville . . .	65	- 1	8.8	+8.0	Helena . . .	36	- 2	.2	0	Dallas . . .	---	---	---	---
Key West . . .	79	+ 4	T	- .5	Kalispell . . .	38	- 1	.2	- .0	Del. Rio . . .	61	- 8	T	- .3
Lakeland . . .	69	+ 5	1.6	+ .8	Miles City . . .	37	- 3	T	- .2	El Paso . . .	48	-12	0	- .1
Miami . . .	79	+ 6	T	- .6	Missoula . . .	40	0	T	- .2	Fort Worth . . .	53	- 9	.6	- .1
Orlando . . .	72	+ 3	1.6	+ .7	NEBR. Grand Island . . .	43	- 1	.2	- .2	Galveston . . .	43	- 7	2.1	+1.4
Tallahassee . . .	61	- 4	7.6	+6.4	Lincoln . . .	45	- 2	.3	- .2	Houston . . .	56	- 9	1.1	+ .4
Tampa . . .	69	0	1.4	+ .6	Norfolk . . .	43	0	.1	- .4	Lubbock . . .	44	-12	.1	- .1
W. Palm Beach . . .	77	+ 4	.7	---	N. Platte . . .	40	- 3	.2	- .2	Midland . . .	49	-12	T	- .1
GA. Atlanta . . .	53	- 4	2.4	+1.2	Omaha . . .	45	+ 1	.3	- .2	San Angelo . . .	62	-12	.3	+ .1
Augusta . . .	57	- 3	2.8	+1.9	Valentine . . .	39	- 1	T	- .4	San Antonio . . .	58	- 7	1.2	+ .7
Macon . . .	58	- 5	2.8	+1.7	NEV. E . . .	35	- 4	T	- .2	Victoria . . .	60	- 7	1.4	+ .9
Savannah . . .	62	- 1	1.1	+ .2	Las Vegas . . .	57	- 4	0	- .1	Waco . . .	54	- 9	.5	- .3
HAWAII. Hilo . . .	70	- 2	.6	-2.6	Reno . . .	41	- 4	0	- .2	Wichita Falls . . .	58	- 2	.4	0
Honolulu . . .	72	- 2	T	- .5	Winemucca . . .	40	- 3	0	- .2	UTAH. Blanding . . .	38	- 7	T	- .3
Kahului . . .	71	- 2	---	---	N.H. Concord . . .	39	0	1.9	+1.2	Salt Lake City . . .	44	- 2	T	- .4
Lihue . . .	71	- 1	.3	- .6	N.J. Atlantic City . . .	53	+ 6	1.2	+ .3	VT. Burlington . . .	38	+ 1	1.7	+1.1
IDAHO. Boise . . .	46	0	0	- .3	Trenton . . .	49	+ 2	2.5	+1.7	VA. Lynchburg . . .	51	- 1	1.2	+ .3
Lewiston . . .	47	0	0	- .3	N.MEX. Albuquerque . . .	41	-11	.7	+ .6	Norfolk . . .	57	+ 3	1.0	+ .3
Pocatello . . .	40	- 2	.1	- .1	Roswell . . .	44	-12	.2	+ .1	Richmond . . .	55	+ 1	1.5	+ .7
ILL. Cairo . . .	51	- 4	1.0	- .1	N.Y. Albany . . .	42	0	1.9	+1.3	Roanoke . . .	51	- 2	1.3	+ .5
Chicago . . .	45	0	.2	- .6	Binghamton . . .	39	0	1.6	+ .9	WASH. Colville . . .	44	0	T	- .2
Moline . . .	44	- 1	.7	- .0	Buffalo . . .	41	+ 2	1.2	+ .5	Omak . . .	43	- 4	0	- .2
Peoria . . .	46	0	.2	- .6	New York . . .	49	+ 2	2.3	+1.4	Quillayute . . .	47	+ 2	.2	-2.0
Rockford . . .	42	- 1	.4	- .3	Rochester . . .	41	+ 1	1.5	+ .9	Seattle-Tacoma . . .	48	+ 1	T	- .7
Springfield . . .	47	- 2	.3	- .5	Syracuse . . .	40	- 1	3.0	+2.2	Spokane . . .	43	0	0	- .3
IND. Evansville . . .	49	- 5	.9	- .1	N.C. Asheville . . .	51	- 2	1.4	+ .6	Walla Walla . . .	50	- 1	T	- .3
Ft. Wayne . . .	45	0	.1	- .6	Charlotte . . .	53	- 4	1.8	+ .9	Yakima . . .	47	0	0	- .1
Indianapolis . . .	46	0	.4	- .5	Greensboro . . .	52	- 2	2.1	+1.3	W.Va. Beckley . . .	44	- 3	1.2	+ .1
South Bend . . .	47	+ 4	.1	- .7	Hatteras . . .	60	+ 4	2.1	+1.4	Charleston . . .	49	- 3	1.2	+ .2
IOWA. Burlington . . .	44	- 2	.7	- .1	Raleigh . . .	55	- 1	1.3	+ .6	Huntington . . .	48	- 5	1.2	+ .9
Des Moines . . .	45	+ 1	.4	- .1	Wilmington . . .	61	+ 1	.9	+ .1	Parkersburg . . .	47	- 3	1.5	+ .6
Dubuque . . .	40	- 2	1.3	- .6	N.DAK. Bismarck . . .	36	- 1	.2	0	WIS. Green Bay . . .	37	- 1	1.3	+ .9
Sioux City . . .	46	+ 2	.1	- .3	Fargo . . .	37	+ 1	T	- .3	La Crosse . . .	40	- 2	1.3	+ .7
KANS. Concordia . . .	45	- 4	.2	- .2	Williston . . .	37	+ 1	.1	- .1	Madison . . .	29	0	.7	+ .2
Dodge City . . .	38	-11	.2	- .1	O.HIO. Akron-Canton . . .	44	0	1.0	+ .3	Milwaukee . . .	39	0	.4	- .1
Goodland . . .	38	- 6	.4	+ .1	Cincinnati . . .	45	- 3	1.4	+ .5	WYO. Casper . . .	30	- 9	.4	+ .1
Topeka . . .	46	- 4	.2	- .4	Cleveland . . .	45	+ 2	1.0	+ .2	Cheyenne . . .	30	- 8	.4	0
Wichita . . .	44	- 9	.4	- .1	Columbus . . .	46	- 1	1.0	+ .2	Lander . . .	29	-10	1.3	+ .9
KY. Lexington . . .	47	- 4	1.9	+ .8	Dayton . . .	44	- 3	1.0	+ .2	Sheridan . . .	38	- 1	.9	+ .5
Louisville . . .	48	- 3	1.8	+ .8	Toledo . . .	44	+ 1	.1	- .5	P.R. San Juan . . .	80	+ 4	0	- .6

## CONDENSED STATE SUMMARIES

These summaries provide brief descriptions of condition and activities important on a national scale. Detailed reports of crop and weather conditions during the growing season are contained in State issues of Weekly Weather and Crop Bulletins published by field office of the Statistical Reporting Service, U.S.D.A. in cooperation with NOAA Climatologists.

**ALABAMA:** Rain, mainly in south Tuesday, followed by clearing and much cooler. Scattered frost and temperatures in low 30's north. Friday morning, 40's south. Scattered wind damage and statewide heavy rains Saturday with 1.00 to 3.00 inches common, locally heavier in south. Warmer weekend. Limited progress in preparing land in northern counties. Plowing and applications of fertilizers and herbicides limited to driest upland fields during midweek. These activities further delayed by rain and wet grounds south and central. Few scattered fields planted to cotton in north. Continued wet ground slowed planting of corn in south. Prospects for small grains favorable except in lowlands. Most growers have completed bedding sweet potatoes Cullman County. Few tomatoes set Geneva and Houston Counties as weather permitted. Heavy rains, however, damaged young plants. Pastures supplied seasonally short to adequate grazing. Stockmen making extra effort to apply fertilizer to pastures as continued wet weather delayed this operation.

**ARIZONA:** Temperatures continued much below normal for fifth consecutive week with largest departures in the southeast. Precipitation averaged 0.10 inch or less with showers higher elevations north and east. Strong winds Saturday brought significant drying statewide. Minimum temperatures continued well above freezing for Yuma and the Salt River Valley. Cotton planting continued statewide. Small grains normal progress Salt River Valley, Yuma. Safflower excellent progress Yuma, Sorghum planting continued. Sugarbeet planting, development continued. Alfalfa hay cutting underway. Harvest lettuce, mixed vegetables continued Yuma, Salt River Valley. Cantaloupes western area slow progress. Harvest Valencia oranges full swing Yuma, Salt River Valley. Grapefruit harvest limited. Arizona ranges fair to excellent--higher elevation ranges too cold to promote growth new feed, lower elevation ranges greening up. Soil moisture supplies good. Desert ranges green providing good grazing. Stockwater good. Cattle, calves fair to good, calving active. Death losses from poisonous weeds. Sheep, lambs fair.

**ARKANSAS:** Mean temperatures ranged from mid-50's in south to upper 40's in northwest and north-central. Departures from 5° to 11° below normal with largest departures mainly in west. Highest 77° at El Dorado on 2nd. Lowest 29° at Gilbert and Calico Rock in north-central on 5th and 6th. Cooling early week followed by warming trend late week and cooling on weekend. Precipitation heaviest north-central with several totals excess of 2.00 inches. Elsewhere amounts generally 1.00 to 2.00 inches but few localities reported about 0.50 to 1.00 inch. Largest weekly total 2.45 inches Calico Rock and Gilbert. Smallest 0.53 inch Brinkley and east central section. Most rain occurred early week and weekend.

Spring plowing and seedbed preparations far behind normal. Soil moisture surplus virtually all areas. Many acres flooded in Delta. Need 10 days to 2 weeks of dry weather most areas before field work becomes widespread. Still some 1972 cotton and soybeans to be harvested. Limited amount rice seeding expected next week east-central and south-east. Wheat and oats mostly good condition except

low areas where some drowning occurred. Peaches good condition. Strawberries full bloom, setting fruit. Tomato transplanting over 50% complete southern area. Pastures and hay crop growing well. Weevils infesting alfalfa. Cattle mostly good condition. Grazing adequate most areas, supplemental feeding diminishing.

**CALIFORNIA:** Warm daytime temperatures after midweek with averages near or slightly above normal for first time since February statewide except the mountain and desert basins. No precipitation. Fieldwork progressed rapidly under drying conditions statewide. Sugar beet digging in high gear Sacramento and San Joaquin Valleys. Small grains growing well and earlier water-damaged fields improved. Heading progressing northward to Sacramento Valley. Some mature fields lodged by winds. Alfalfa cutting continues, weeds and weevils more problem than normal. Some rice ground worked. Preparation for other spring plantings most active. Warmer temperatures, adequate soil moisture stimulated growth, development deciduous tree crops. Strong winds caused some loss citrus, avocado groves. Most fruit trees blossomed, leafing out, and looking good. Fertilizing, disking, spraying, fumigation continues. Some early irrigation Fresno area. Although some frost damage, losses expected light. Almond set light many locations. Brown rot concerns Brentwood, Winters apricot growers. Harvest navel oranges well along southern California. Valencia orange harvest started desert area, southern California, lower San Joaquin Valley. Pollination prunes generally complete, present set prospects favorable. Artichoke production increased San Mateo. Desert asparagus expected end this week, while diversion of fresh market to processing expected delta area. Wind caused "crooking" many areas. Harvesting broccoli, cauliflower increasing Salinas, continuing Santa Barbara--cabbage light to moderate. Carrot digging slowed desert. Celery cutting strong Oxnard. Palo Verde spring lettuce harvest at peak level. Oxnard light. Strawberry picking increasing Orange, Los Angeles--good quality, size. Santa Maria picking spotty due to rains. Processing tomato plantings above normal activity compensating for March high rains--plants growing, good stand. Rangeland providing adequate feed, supplemental feeding very limited, mostly higher elevations. Lambing-calving active throughout State. Shearing central valley. Bees moving to citrus areas San Joaquin Valley. Feedlots drying out. Egg and milk production seasonal level.

**COLORADO:** Temperatures well below normal all areas with some record-low temperatures recorded over weekend. Warmer temperatures east on 5th and 6th. Otherwise mostly cold and windy with blowing snow and ground blizzards over much of State. Heavy snows and high winds east, foothills, and north-central mountains over weekend. Denver got 12 inches new snow, heavier in foothills. Denver snowfall for year 150% normal. South one-third of State running 200% normal for both snow and water-equivalent since October. Wet fields limited soil preparation and spring planting most areas. Surface and subsoil moisture supplies adequate to

surplus. Winter wheat and barley condition good to excellent, growth limited by cool wet soil. Muddy fields continue to limit winter wheat grazing by livestock. Alfalfa condition generally good most areas. Most fruit trees still dormant west slope. Livestock poor to fair condition. Losses newborn livestock above normal. Supplemental feeding of livestock heavy statewide.

**FLORIDA:** Record heavy rains panhandle and north Florida, extensive lowland flooding vicinity Suwannee River. Rainfall in area averaged over 6.00 inches with many reports of 10.00 to 15.00 inches. Remainder of State received 1.00 to 2.00 inches except below 0.10 inch lower east coast and Keys. Temperatures near normal northern sections, becoming slightly above normal southern sections. Small grain crops heading out. Heavy rains affecting all other crops and land preparation, flooding and erosion damaging crops in north. Seed, fertilizer and tobacco plant supplies becoming limited. Rains in upper Florida causing loss of fertilizer and flooding, other areas reflect improved grazing. Most cattle improved. Citrus trees excellent condition, bloom period continues--oranges having petal drop. Rains and warm weather continuing abundant new growth. Harvest active for this time of year. Hedging and postbloom sprays in progress. Some vegetable crops benefited while others damaged by last week's widely varying weather. Rains heavy in north, some replanting necessary. Strong winds caused some leaf burn. Cabbage in full volume. Tomatoes and sweetcorn increasing. Celery and leafy vegetables continue in good supply, peppers are about steady, other crops in seasonal supply.

**GEORGIA:** Excessive rainfall continued statewide. Totals mostly from 2.00 to 7.00 inches with parts of south receiving more. Flash flooding numerous small streams and many major rivers overflowing their banks. Heavy damage to roads, bridges and other property especially in south. Temperatures continued seasonally mild from 2° to 4° below normal. Coolest weather Friday when lows below freezing extreme north and light frost as far south as Athens. Soil moisture mostly surplus statewide. Rains continued to stall fieldwork. Tobacco, mostly fair to good, 39% transplanted, well below year earlier. Corn 8% and cotton less than 2% planted. Peaches mostly good. Some frost damage earlier north. Pastures and livestock mostly good condition. Small grains mostly good, with some wheat in heading stage south. Vegetables and melons fair to good condition.

**HAWAII:** Weather cool and cloudy with scattered, light to moderate showers. Crop progress favorable. Supplies of vegetables and fruits adequate. Sugar-cane harvest active--pineapple light but increasing gradually. Winds stronger than usual but crop damage light. Cattle and pastures fair to good condition.

**IDAHO:** Temperatures near previous week. Averages near normal except 2° to 6° below southcentral and east. Precipitation approached normal but mostly below. The Clearwater River Basin and north recorded 0.40 to 0.60 inch, the largest amounts. Frequent winds depleting soil moisture in newly planted grain fields and ranges. Growth of grains and grasses slow. Limited irrigation starting in south. Reseeding winter wheat fields that were winterkilled underway in north. Lambing mostly complete, most ewes and yearlings sheared.

**ILLINOIS:** After some cooling early week temperatures again climbed into the 60's and low 70's by

the 6th. Weekly temperatures averaged from near normal to 4° below. Weekly precipitation generally in the 1.00- to 1.50- inch range with most rain coming on the weekend of the 31st and 1st and again about midweek. Winter wheat, other small grains, and legumes good condition. Some winter wheat acreage flood-damaged. Oat seeding delayed with 20% seeded. Corn and soybean land 33% plowed, virtually unchanged from December 1972. Little fieldwork thus far. Main activities machinery repair and routine farm chores. Less than 1 day suitable for fieldwork. Livestock good condition, feedlots still muddy, Pastures supplying 25% livestock roughage requirements. Soil moisture 97% surplus, 3% adequate.

**INDIANA:** Temperatures averaged below normal and ranged from 34° to 67°. Precipitation light north but 0.50 to 1.00 inch south. Sunshine below normal. Soil temperatures at 4-inch depth were in 40's and normal. Fieldwork: Slow start. Spring plowing 15% done, no advance from last fall. Oats 5% seeded, 15% in 1972. Vegetative growth 12 days ahead average. Wheat 4 inches high, same as 1972. Pastures fair to good. No days suitable for fieldwork. Both topsoil and subsoil moisture surplus.

**IOWA:** Unavailable due to adverse weather.

**KANSAS:** Variable weather. Fair and mild at mid-week changing to cold, wet and windy late week. Major storm April 7 to 8 brought light to moderate precipitation; totals generally 0.10 to 0.75 inch. Blizzard or near blizzard western Kansas April 7 to 8. Heavy snow parts that area with 6 to 10 inches locally. Drifts 3 to 4 feet parts extreme northwest. Weekly mean temperatures 9° to 11° below normal south-central and southwestern Kansas; elsewhere 4° to 8° below normal. Wet fields slow small grain plantings. Oat seedings 26% completed 87% last year, 10-year average 76%. Spring barley 30% seeded, 82% last year, average 68%. No corn planted, compared usual 3%. Field preparations for planting far behind usual. Wheat growth rapid and plants jointing on 12% of acreage, about average. Wheat in west benefited from additional weekend moisture, but central and eastern hurt some by floods and standing water. Soil borne mosaic and nitrogen deficiencies problem eastern and some central. Alfalfa growth rapid, some damage from weevils. Snowstorms past two weekends hard on livestock in west, some calves lost. Grazing of wheat limited by wet fields and livestock being taken off more advanced growth. Cool season pasture grass furnishing more feed. Livestock marketings irregular due to withholding and meat boycott.

**KENTUCKY:** Rainfall totals 0.65 inch to 2.00 inches. Temperatures 2° to 4° below normal. Rain one or more areas and temperatures below normal most days, but sunny on 6th. Ohio and Mississippi rivers remained above flood stage. Soil moisture surplus statewide. Only 1.5 day suitable for fieldwork. Land 31% plowed--no progress. Tobacco beds 82% seeded - 41% with plants up. Beds need sunshine, but in good shape. Pasture condition excellent furnishing 60% roughage requirements of livestock. Growth of small grains satisfactory, some yellowing from surplus moisture. Height about 1 inch above year ago. Apple trees 70% bloom. Peach trees 90% bloom.

**LOUISIANA:** Temperatures 6° to 10° below normal. Moderate to heavy rains Monday, Friday and Sunday, with weekly totals 1.00 to more than 3.00 inches. Temperature extremes 83° at Houma and Diamond April 2 and 30° at Ashland Thursday. Greatest 1-day rain totaled 3.00 inches at Mossant Airport

measured Saturday morning. Some fieldwork accomplished on well-drained land. Moderate to heavy rainfall April 6 stopped all fieldwork for several days. Land preparation and planting remains behind schedule. Planting corn 5% to 10% complete, 25% last year. Rice seeding 12% to 15% complete southwest. Flood waters extended into additional lowlying areas. Movement cattle to high ground continues. Pasture feed average grazing of winter pastures limited by boggy fields. Livestock fair to good condition. Bedding sweet potatoes continued. Cultivation and fertilization sugarcane continued in dryer fields.

**MARYLAND AND DELAWARE:** Temperatures above normal east; elsewhere near normal, daytime highs near or below normal and night-time lows well above normal in cloudy, showery weather. Warm days on the 4th and 6th, many readings near 70°. Quite cool nights on the morning of the 6th. Precipitation totals 0.75 inch to 2.00 inches, southeast and ranging to 3.75 inches central and northeast and 1.50 to 2.50 inches in west. Heavy showers and thunderstorms with several reports of hail 0.50 to 0.75 inch in diameter. Widespread heavy showers on the 4th. Farmers behind schedule. Fieldwork standstill except where rainfall lightest southern Eastern Shore and southern Delaware. Repeated flooding of low areas causing more than usual spot damage in central and northeast areas. Peach trees starting to bloom in south. Livestock generally good as pastures provide more feed.

**MICHIGAN:** Cool and wet early, fair with warming trend midweek until turning cooler. Temperature averages: 2° below normal to 4° above normal east Upper Peninsula; normal to 4° above normal Lower Peninsula. Precipitation totals: 0.10 to 0.75 inch Upper Peninsula and 0.10 in south to 0.75 inch northwest Lower Peninsula.

**MINNESOTA:** Temperatures 2° below normal in southeast to 3° above normal from central through the northeast. Extremes 65°, 16°. Little to no precipitation except early in period and late in period in south-central and southeast. Late on the 8th and during the 9th, heavy snows fell southeast of a line from Fairmont to just south of Twin Cities. Heaviest amount reported by noon on the 9th, 16 inches at Grand Meadow. All lakes south of Lake Mille Lacs clear of ice. Unseasonable warm weather in March has hastened fieldwork, particularly on lighter soils. Heavy soils in some places are still too wet to work. Planting of spring wheat at 6% is 3% above normal. Corn at 2% seeded is 1% above normal. Soybeans at 1% are normal. Topsoil and subsoil moisture generally adequate except generally short in extreme southwest corner and surplus in southeast. Pastured crops and pastures in mostly good condition, though generally dormant.

**MISSISSIPPI:** Temperatures were generally in sections 3° to 5° below normal. Precipitation statewide and ranged generally from 0.50 to 2.00 inch. South reported local amounts up to 4.00 inch. Over the weekend a front produced heavy showers and thunderstorms. Total rainfall generally 1.00 to 2.00 inches. Strong, damaging winds accompanied the activity on coast. Cooler temperatures followed the cold frontal passage. Soil moisture adequate high elevations, excessive to flooding in lowlands. Days suitable for fieldwork improved to 2.5 days compared to 0.6 day previous week and 3.0 days a year ago. Land preparation active on high elevations in most areas.

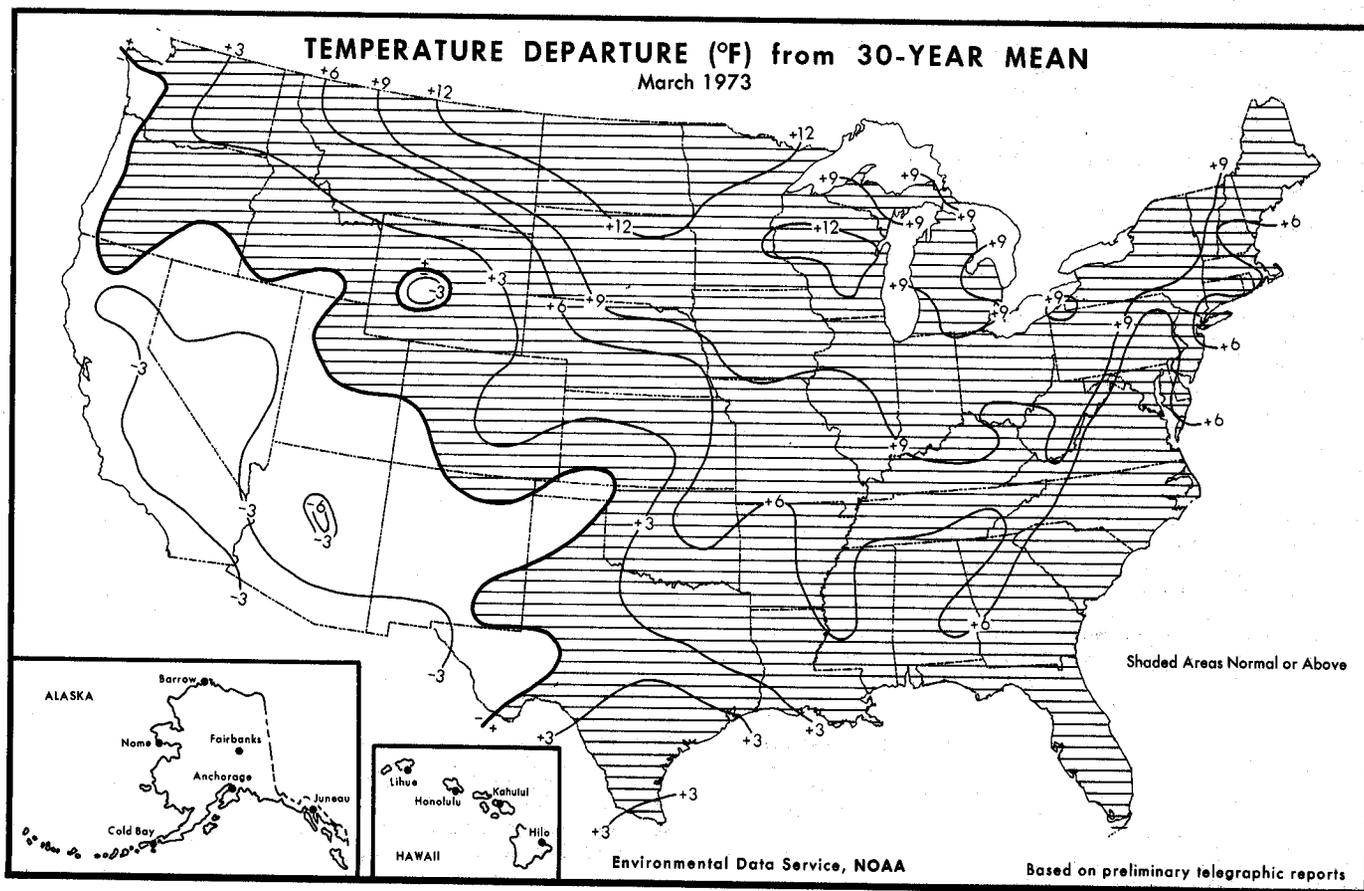
Several thousand acres of cropland flooded in lower Delta. Big question: How long before rivers and streams return to their banks? Plowing 28% complete. Corn 5% planted. Wheat and oats 14% headed. Wheat, oats, Irish potatoes, peaches, truck crops, pastures, and livestock continue in fair to good condition.

**MISSOURI:** Cloudy, cold, damp week. Considerable cloudiness held daytime to 40's much of week. The sun managed to shine end of week with temperatures rising into the upper 60's and low 70's. Precipitation lighter than previous weeks, but some areas of central and northeast received 2.00 inches. Over the weekend a new storm dropped another 1.00 inch over southern two-thirds, and left a belt of 4-inch snow from near the Lake of the Ozarks to near Kirksville. Fieldwork virtual standstill with practically no days suitable. Plowing remains 11% complete compared to 70% last year. Oats only 2% seeded, compared to 79% a year ago. Wheat and pastures mostly fair to good condition. Soil moisture surplus all areas.

**MONTANA:** Temperatures from near normal to a few degrees below. Warming to midweek, cooler thereafter. Generally stormy late Thursday and Friday and over the east on Sunday. Precipitation statewide averaged about 0.20 inch. Very windy Thursday with considerable blowing dust. Winter wheat stand good south-central and southeast, fair southwest, fair to good elsewhere. Winter wheat condition fair north-central and southwest, good south-central and southeast, fair to good elsewhere. Winter wheat growth resumed all districts except southwest. Topsoil moisture short north-central and central, adequate south-central, short to adequate elsewhere. Spring crop planting begun all districts. Calving 55% and lambing 50% complete.

**NEBRASKA:** Snow began west on the 7th and spread over 12 inches along the western border with 1 to 2 inches elsewhere. High temperatures reached the 60's and 70's on the 5th and 6th but cooled rapidly by end week with normal highs 20° to 30° below normal. Temperatures 5° to 8° below normal west to a few degrees above normal east. Conditions improved and many farmers were able to get some fieldwork done before weekend snow. Fieldwork consisted of harvesting some remaining crops, stalk shredding, plowing, disking, fertilizer spreading, and manure hauling. There has been limited seeding, sugar beets and small grains. Winter wheat condition remains above average. Grain sorghum harvest 95% complete, corn 88% complete. Scours problem with young calves. Weather difficult for most young livestock. However, death loss newborn calves reported near normal. Ranges have not greened yet and most old grass gone.

**NEVADA:** Temperature 1° to 3° below normal north and 7° below normal extreme south. High temperature 80° in Las Vegas, low 9° in Winnemucca. Precipitation light and spotty over State, varying from trace to 0.14 inches. Rainfall occurred on Monday. Cool early in week with moderate trend late week. Seedbed preparation for spring planted crops progressing north. Preparation for cotton planting underway Pah-rump valley. Moapa Valley green onion and radish harvest full swing. Tomatoes for transplant up. First cutting alfalfa hay and green chop started extreme southern valleys. Range and pasture feed condition fair northwest, good to excellent elsewhere. Livestock good condition.



## WEATHER - MARCH 1973

**TEMPERATURE:** March temperatures were warmer than normal over the entire Nation except for the Southwest. The Great Plains averaged 9° to 12° above normal, while the South and the Atlantic and Gulf Coasts were generally 3° to 6° above normal. This temperature pattern was persistent throughout the month with very few exceptions.

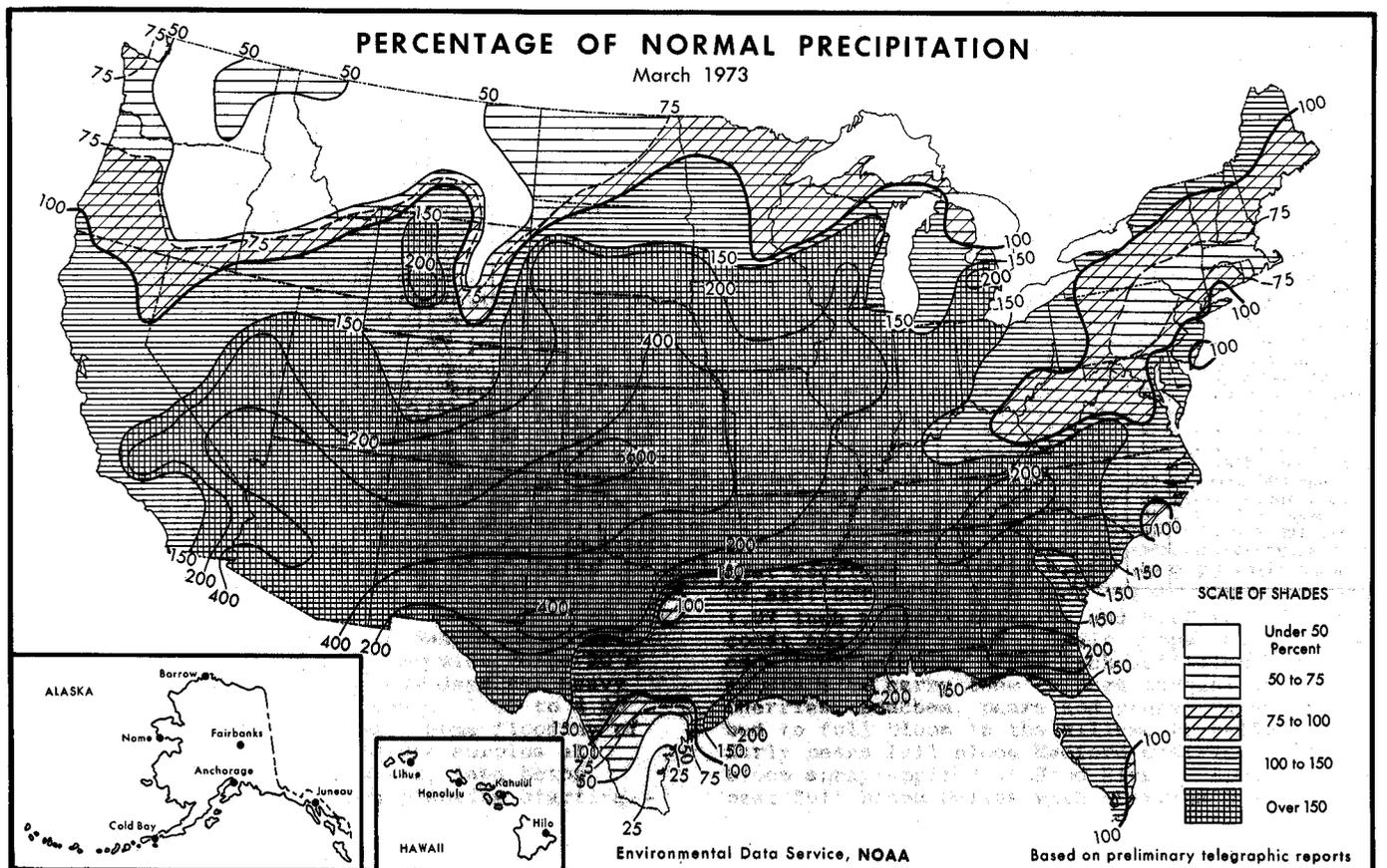
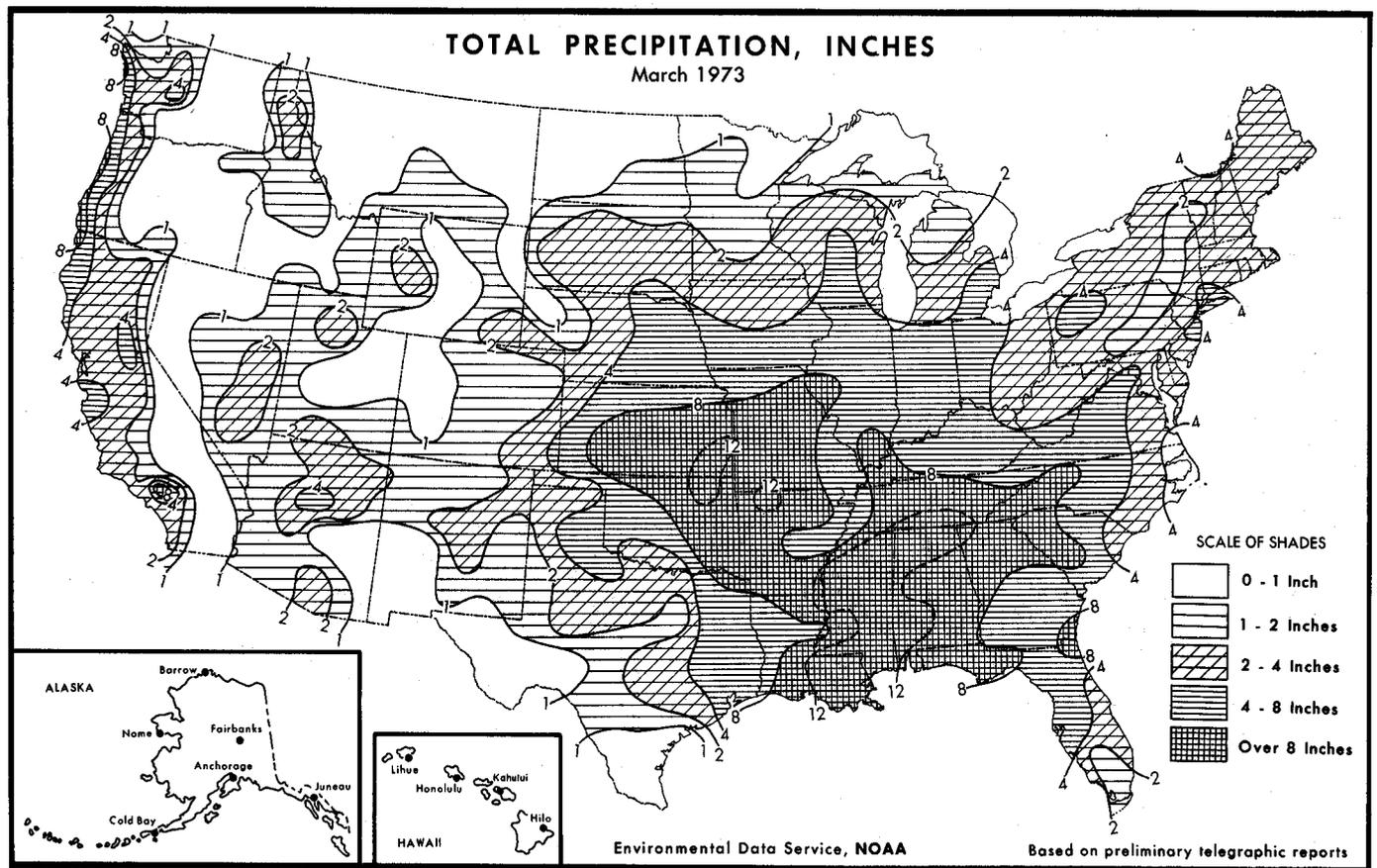
During early March, the entire Nation was much warmer than usual except for the New England States and a few isolated areas in the western States. The northern Great Plains were 12° to 21° above normal. Temperatures were at least 9° to 12° above normal in this area during the entire month of March, bringing an early spring to the area.

Temperatures during the second week of March were again warmer than normal over the entire Nation except for the Southwest. Except for a few areas along the Atlantic Coast, temperatures east of a line from Mobile, Ala., to Havre, Mont., were at least 9° above normal with the greatest departures over Ohio, Indiana, Kentucky and parts of West Virginia and Pennsylvania. Temperatures were 18° to 24° above normal in this area.

Temperatures continued to average 6° to 12° warmer than usual over the eastern two-thirds of the Nation until late in the month, but the very

warm pattern returned again at month's end.

**PRECIPITATION:** Wet is the word to describe March precipitation. Almost the entire Nation received above normal precipitation during the month. The only areas receiving below normal precipitation were the Pacific Northwest, Montana, North Dakota, northern Minnesota, parts of New England, and the southern tip of Texas. From two to four times the normal precipitation for March fell on the southern portion of the western Great Plains, the Southwest, and portions of the South. Rains were frequent and heavy in many areas, setting new monthly records or tying old ones in several Corn Belt States. Dodge City, Kans., received 8.80 inches of rain, which is over seven times the normal expected rainfall for March. Most of the soils in the areas receiving this heavy rain were already saturated from plentiful moisture last fall, and at the month's end some flooding was occurring along many of the tributaries of the Missouri and Mississippi Rivers. Most of the snowcover in the northern States was melted early in the month by the warm temperatures. The heaviest snowfalls of the month occurred in the southern States. Flagstaff, Ariz., received several snowfalls, setting an all time record for the year.



Temperature and Precipitation Data for Mar. 1973

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 . . .	59	+ 4	9.7	+3.7	La. Baton Rouge . . .	65	+ 4	12.7	+7.8	Youngstown . . .	45	+10	3.7	+ .3
Mobile . . .	65	+ 5	11.6	+4.4	Lake Charles . . .	64	+ 3	7.4	+3.2	OKLA., Okla. City . . .	53	+ 4	6.8	+4.8
Montgomery . . .	62	+ 6	9.8	+3.6	New Orleans . . .	66	+ 5	12.2	+6.9	Tulsa . . .	54	+ 9	11.9	+9.9
ALASKA, Anchorage . . .	24	+ 1	.7	+ .2	Shreveport . . .	61	+ 4	5.0	+ .8	OREG., Astoria . . .	44	- 1	5.7	+3.2
Barrow . . .	-21	- 6	T	- .1	MAINE, Caribou . . .	30	+ 7	2.7	+ .3	Burns . . .	37	0	.4	- .6
Fairbanks . . .	12	+ 3	.4	- 0	Portland . . .	38	+ 7	3.3	-1.0	Medford . . .	45	+ 1	1.6	- .2
Juneau . . .	33	+ 3	3.0	- .3	MD., Baltimore . . .	48	+ 5	4.0	+ .2	Pendleton . . .	46	+ 1	4	- .8
Kodiak . . .	-	-	-	-	MASS., Boston . . .	43	+ 5	2.2	-2.0	Portland . . .	48	+ 2	2.4	-1.4
Nome . . .	2	- 6	.1	- .8	Chatham . . .	-	-	-	-	Salem . . .	45	0	3.5	-1.2
ARIZ., Flagstaff . . .	27	- 9	6.2	+4.7	MICH., Alpena . . .	35	+ 7	1.8	- .2	PA., Allentown . . .	44	+ 6	2.8	-1.0
Phoenix . . .	57	- 2	1.7	+1.0	Detroit . . .	43	+ 8	4.5	+2.1	Erie . . .	42	+ 8	3.2	+ .3
Tucson . . .	52	- 6	2.2	+1.7	Flint . . .	41	+10	4.2	+2.1	Harrisburg . . .	45	+ 5	2.0	-1.4
Winslow . . .	44	- 2	2.1	+1.7	Grand Rapids . . .	42	+10	3.3	+1.0	Philadelphia . . .	47	+ 6	3.5	- .3
Yuma . . .	60	- 3	1.0	+ .8	Houghton Lake . . .	27	0	1.7	0	Pittsburgh . . .	48	+11	3.9	+ .6
ARK., Fort Smith . . .	55	+ 4	8.2	+4.7	Lansing . . .	40	+ 8	3.6	+1.2	Scranton . . .	42	+ 6	1.8	-1.0
Little Rock . . .	58	+ 6	7.9	+3.1	Marquette . . .	35	+ 8	1.8	- .1	R.I., Providence . . .	44	+ 7	2.8	-1.3
CALIF., Bakersfield . . .	54	- 3	2.5	+1.4	Muskegon . . .	41	+ 8	2.6	+ .5	S.C., Charleston . . .	61	+ 4	6.2	+2.3
Eureka . . .	47	- 2	7.1	+1.8	S. Ste. Marie . . .	35	+11	1.8	- 0	Columbia . . .	59	+ 5	10.9	+6.6
Fresno . . .	50	- 5	2.8	+ .8	MINN., Duluth . . .	32	+11	1.5	- .1	Greenville . . .	55	+ 4	8.7	-3.9
Los Angeles . . .	58	- 1	2.7	+ .4	Internatl Falls . . .	33	+14	.9	- 1	S.D., Aberdeen . . .	40	+12	1.3	+ .2
Red Bluff . . .	50	- 4	3.5	+ .8	Minneapolis . . .	40	+13	1.1	- .4	Huron . . .	40	+11	2.2	+1.1
San Diego . . .	58	- 1	2.3	+ .7	Rochester . . .	39	+11	2.9	+1.3	Rapid City . . .	38	+ 7	2.7	+1.7
San Francisco . . .	51	- 2	2.9	+ .2	St. Cloud . . .	37	+11	1.4	+ .1	Sioux Falls . . .	40	+10	3.5	+2.0
Stockton . . .	51	- 2	3.2	+ .8	MISS., Jackson . . .	62	+ 6	6.1	+ .5	TENN., Chattanooga . . .	55	+ 4	13.8	+8.2
COLO., Denver . . .	40	+ 4	1.8	+ .6	Meridian . . .	62	+ 5	14.3	+8.0	Knoxville . . .	56	+ 6	10.2	+5.5
Grand Junction . . .	42	0	.6	- .2	MO., Columbia . . .	49	+ 7	10.1	+7.4	Memphis . . .	57	+ 6	7.6	+2.5
Pueblo . . .	43	+ 3	1.3	+ .8	Kansas City . . .	48	+ 5	9.1	+6.6	Nashville . . .	57	+ 8	9.9	+4.7
CONN., Bridgeport . . .	42	+ 4	5.0	+ .7	St. Louis . . .	51	+ 8	5.8	+2.7	TEX., Abilene . . .	57	+ 2	3.3	+2.3
Hartford . . .	43	+ 7	3.2	- .6	Springfield . . .	52	+ 8	9.0	+6.2	Amarillo . . .	47	- 1	4.0	+3.2
D.C., Washington . . .	51	+ 6	3.0	- .2	MONT., Billings . . .	39	+ 5	1.6	+ .5	Austin . . .	64	+ 4	2.9	+ .8
FLA., Apalachicola . . .	64	+ 3	6.0	+1.5	Glasgow . . .	39	+12	.3	- .3	Beaumont . . .	63	+ 1	7.2	+4.0
Daytona Beach . . .	-	-	-	-	Great Falls . . .	40	+ 9	.3	- .6	Brownsville . . .	70	+ 2	.2	- .8
Ft. Myers . . .	72	+ 4	3.9	+1.3	Havre . . .	39	+12	T	- .6	Corpus Christi . . .	69	+ 4	.2	-1.2
Jacksonville . . .	66	+ 4	10.2	+6.7	Helena . . .	36	+ 5	T	- .7	Dallas . . .	66	+ 3	1.2	+ .4
Key West . . .	76	+ 3	2.2	+ .4	Kalispell . . .	39	+ 7	.5	- .5	Del Rio . . .	52	- 3	.6	+ .2
Lakeland . . .	70	+ 3	4.4	+ .1	Miles City . . .	41	+10	.2	- .5	El Paso . . .	60	+ 4	2.3	- .2
Miami . . .	75	+ 4	1.8	- .5	Missoula . . .	39	+ 5	.2	- .5	Fort Worth . . .	65	+ 4	9.5	+6.6
Orlando . . .	71	+ 5	4.1	+ .7	NEBR., Grand Island . . .	41	+ 5	5.3	+4.0	Houston . . .	64	+ 3	3.7	+1.0
Tallahassee . . .	65	+ 4	13.6	+8.4	Lincoln . . .	43	+ 5	6.7	+8.0	Lubbock . . .	51	+ 1	1.9	+1.2
Tampa . . .	70	+ 4	4.2	+ .4	Norfolk . . .	41	+ 8	5.1	+3.5	Midland . . .	55	0	1.7	+1.3
W. Palm Beach . . .	-	-	-	-	N. Platte . . .	40	+ 5	2.4	+1.4	San Angelo . . .	59	+ 2	1.2	+ .3
GA., Atlanta . . .	57	+ 6	9.5	+4.5	Omaha . . .	43	+ 8	5.2	+3.7	San Antonio . . .	66	+ 5	1.6	- .1
Augusta . . .	60	+ 5	6.2	+2.0	Valentine . . .	40	+ 9	2.3	+1.3	Victoria . . .	68	+ 5	1.0	-1.3
Macon . . .	62	+ 5	6.5	+1.6	NEV., Ely . . .	30	- 4	2.2	+1.3	Waco . . .	60	+ 2	3.0	+ .6
Savannah . . .	64	+ 6	5.4	+1.4	Las Vegas . . .	52	- 3	1.8	+1.4	Wichita Falls . . .	59	+ 5	3.9	+2.4
HAWAII, Hilo . . .	-	-	-	-	Reno . . .	38	- 4	.7	0	UTAH, Blanding . . .	-	-	-	-
Honolulu . . .	-	-	-	-	Winnemucca . . .	37	- 1	.9	+ .1	Salt Lake City . . .	42	+ 2	2.7	+1.1
Kahului . . .	-	-	-	-	N.H., Concord . . .	36	+ 4	2.6	- .7	VT., Burlington . . .	37	+10	2.1	0
Lihue . . .	-	-	-	-	N.J., Atlantic City . . .	48	+ 7	3.1	- .8	VA., Lynchburg . . .	51	+ 5	6.4	+2.8
IDAHO, Boise . . .	43	+ 1	.6	- .7	Trenton . . .	47	+ 6	4.0	+ .2	Norfolk . . .	52	+ 4	4.7	+1.2
Lewiston . . .	46	+ 3	.5	- .7	N.MEX., Albuquerque . . .	45	- 1	2.2	+1.7	Richmond . . .	53	+ 5	3.4	0
Pocatello . . .	36	0	1.4	+ .4	Roswell . . .	52	+ 2	1.6	+1.1	Roanoke . . .	51	+ 5	5.9	+2.4
ILL., Cairo . . .	55	+ 7	6.7	+1.9	N.Y., Albany . . .	42	+ 9	2.0	- .7	WASH., Colville . . .	41	+ 3	.9	- .3
Chicago . . .	45	+ 9	4.6	+1.9	Binghamton . . .	40	+ 9	2.0	- .9	Omak . . .	43	+ 3	.4	- .4
Moline . . .	45	+10	7.4	+5.0	Buffalo . . .	42	+10	3.3	+ .1	Quillayute . . .	43	0	9.7	-1.4
Peoria . . .	47	+ 9	7.0	+4.1	New York . . .	45	+ 4	3.5	- .7	Seattle-Tacoma . . .	44	0	1.6	-2.2
Rockford . . .	43	+ 9	4.5	+2.0	Rochester . . .	43	+11	2.9	- 1	Spokane . . .	41	+ 3	.8	- .7
Springfield . . .	48	+ 8	7.9	+5.0	Syracuse . . .	43	+10	3.4	- .2	Walla Walla . . .	49	+ 3	.9	- .7
IND., Evansville . . .	54	+ 9	7.0	+2.7	N.C., Asheville . . .	53	+ 7	8.9	+5.2	Yakima . . .	45	+ 3	T	- .6
Ft. Wayne . . .	45	+ 9	4.6	+1.8	Charlotte . . .	54	+ 4	7.0	+2.6	W.Va., Beckley . . .	49	+ 9	4.5	- .6
Indianapolis . . .	49	+10	5.6	+1.2	Greensboro . . .	52	+ 5	5.7	+2.0	Charleston . . .	52	+ 8	3.4	- .9
South Bend . . .	47	+12	3.9	+1.2	Hatteras . . .	55	+ 4	6.2	+2.0	Huntington . . .	53	+ 8	2.7	- .9
IOWA, Burlington . . .	46	+ 9	5.6	+2.9	Raleigh . . .	55	+ 5	4.1	+ .7	Parkersburg . . .	53	+10	3.3	- .8
Des Moines . . .	46	+12	4.2	+2.1	Wilmington . . .	59	+ 5	3.5	- .5	WIS., Green Bay . . .	40	+12	2.4	+1.1
Dubuque . . .	42	+10	4.8	+2.0	N.DAK., Bismarck . . .	39	+13	.6	- .2	La. Crosse . . .	42	+11	3.7	+1.6
Sioux City . . .	43	+10	4.0	+2.5	Fargo . . .	36	+12	1.3	+ .5	Madison . . .	42	+13	5.0	+3.2
KANS., Concordia . . .	45	+ 5	7.4	+5.9	Williston . . .	37	+13	.5	- .2	Milwaukee . . .	40	+ 9	2.9	+ .6
Dodge City . . .	42	0	8.8	+7.6	OHIO, Akron-Canton . . .	48	+11	4.4	+1.1	WYO., Casper . . .	33	+ 1	.5	- .5
Goodland . . .	40	+ 3	2.9	+1.8	Cincinnati . . .	51	+ 8	6.0	+2.1	Cheyenne . . .	32	0	1.8	+ .6
Topeka . . .	48	+ 6	8.4	+6.4	Cleveland . . .	47	+12	3.5	+ .4	Lander . . .	27	- 5	3.0	+1.8
Wichita . . .	48	+ 3	9.2	+7.6	Columbus . . .	50	+11	3.4	+ .2	Sheridan . . .	35	+ 4	1.4	0
KY., Lexington . . .	54	+11	5.1	+ .3	Dayton . . .	49	+10	4.6	+1.5	P.R., San Juan . . .	-	-	-	-
Louisville . . .	54	+11	6.3	+1.7	Toledo . . .	44	+ 9	4.2	+1.9					

**NEW ENGLAND:** Week very wet. Temperatures within 2° of normal. Some highs in 60's in south on Saturday. Precipitation daily first half of week and again over the weekend in the extreme south. Heavy, wet snow many areas in north April 2 and 3 with totals to 12 inches--trees broken and utility outages extensive. Northern areas hit again on 4th and 5th with totals locally to 10 inches, again with similar damage. Many stations in north such as Lakeport, N. H., had more snow in the first week of April than in the 2 previous months combined. Total precipitation mostly 1.00 to 2.00 inches but locally up to 5.00 inches in southwestern Maine where washout damage was heavy.

**NEW JERSEY:** A very wet week due to coastal storm. Temperatures generally near normal except considerably above normal near shore. Readings ranged from the upper 60's on the 7th to the mid-20's on the 9th. Precipitation averaged 1.70 inch over the north, 2.10 inches over central and southern interior and 1.90 inch along coast. Weather station totals varied from 1.20 inches at Atlantic City Marina to 2.70 inches at Nova. Soil moisture surplus statewide. Fieldwork delayed on poorly drained fields. On light soil and well-drained fields, soil preparation and planting progressed between rains. Peaches blooming in south. Fruit tree spraying active as weather permits. Oat seeding underway. Lime and fertilizer being spread on pastures, hay, and grain crops.

**NEW MEXICO:** Recurring snow with deep drifts and cold in northeast. Heaviest precipitation in central and northeast with most snow early and late in week. Little precipitation in south and west. Temperatures 10° below normal over most areas and near 20° below normal in northeast. Warming Friday and Saturday, cooling Sunday. Minimum temperatures in mountains from 5° to 15°. Maximum temperatures ranged from 50° at Las Vegas to 79° at Carlsbad. Heavy snows in northern half paralyzed field activities. South much milder permitting continued preirrigation, preplanting activities. Winter small grains good. Spring barley fully emerged, good stands. Very limited winter wheat grazing. Alfalfa greening, needs warmer weather for further progress. Ranges poor to fair, north; mostly good, south. Severe snow storms northeast, expected calving losses high; cattle losses higher than usual.

**NEW YORK:** Very wet with precipitation widespread daily from 1st through 5th. Heaviest 24-hour amounts occurred on 4th with 0.80 to 1.50 inch all sections. Weekly totals through Friday 2.50 to near 4.00 inches eastern two-thirds. Decreasing to 1.20 inch in southwest. Precipitation included snowfall of 1.00 to 4.00 inches in southwest on 4th. Showers extreme southeast on weekend total 0.20 to 0.70 inch. Daytime temperature into 40's to low 50's entire week update but warmed to 60's coast on 7th. Nights seasonally mild early week but gradually turning cooler last half with low to mid 20's entire week update morning of 9th.

**NORTH CAROLINA:** Temperatures near normal with only small daily changes. Statewide range 20's to low 80's. Showers every few days and heavy rains over weekend, total amounts 1.00 to 4.00 inches averaging 2.00 inches. Some flooding of river lowgrounds. Soil moisture surplus all areas. Farm activities limited, land being prepared as soils dry. Corn planting starting

3% in compared with about 4% last year. Some tobacco plants showing signs of too much water. Tobacco plant growth spotty, some ready to plant and some coming up. Some planted Irish potatoes rotting in fields. Frost April 5 to 6 may have damaged peaches, too early to assess.

**NORTH DAKOTA:** Fair and mild through midweek. Change to cloudy and colder with light rain or snow last half. Precipitation heaviest in southwest with up to 3.00 inches of snow. Temperatures below normal. Fieldwork underway with continued mild weather. Moisture short in some areas. Seeding of small grains underway. Young calves and lambs making good progress, few losses.

**OHIO:** Problems on western and southern shores. Lake Erie: More rain coupled with northeasterly winds caused more shore erosion and flooding. Minimum temperatures mostly in the 30's and 40's. The warmest days were 6th and 7th when the highs climbed into mid-50's to mid-60's. Highs during the rest of week in 40's and 50's. Precipitation almost daily. Some relatively high amounts. Youngstown, 0.94 inch during the 24-hour period from 11:00 A.M. on the 1st to the 2nd. From 10:00 P.M. on 3rd to 10:00 P.M. on 4th, Cleveland 0.73 inch, and 0.69 inch at Cincinnati and Dayton. Spring fieldwork lagging much behind wet spring of 1972 and 1968-72 usual progress. Rain and muddy field conditions limited fieldwork to less than 1 day. Soil moisture supplies adequate 3%, surplus 97%. Plowing for corn and soybeans only 25% complete, less than half normal, 55% complete in 1972. Fall plowing sharply reduced in 1972 by wet weather and late harvest of corn and soybean crops. Oat seeding 5% complete, 10% last year, and normal progress 30%. Potato and sugar beet planting just starting. Seeding tobacco beds 35% complete.

**OKLAHOMA:** Temperatures considerably below normal with greatest departure in south-central with 9° below normal. Precipitation from about 0.50 inch southeast to 1.70 inch northeast and east-central. Heavy snow northwest and Panhandle and snow mixed with sleet and rain in some other parts. Wheat made good growth past week with 2 days of sunshine. Wheat now 67% jointing, condition remains good to excellent. Barley and oats condition continues to improve, both reported good. Barley 40% jointing, oats 25%. Small acreage corn planted south-central; soils too wet for field activity most areas. Alfalfa weevil infestation increasing but hay prospects remain good. Ranges providing more grazing as early grasses and clovers start growing. Cattle condition showing improvement with most good.

**OREGON:** Weekly temperature 2° to 4° below normal in south-central but near normal elsewhere. Weekly lows 15° to 32° east and 29° to 37° west. Highs climbed to new seasonal values 65° to 78°. Precipitation continued below normal most sections. Amounts trace to 0.22 inch most of east but up to 0.58 inch extreme south, 0.21 to 1.07 inch western interior and 0.28 to 1.71 inch coast and coast range. Grain crops fair to good condition but many areas lack sufficient soil moisture to carry them through adequately. Cherry patches, peaches and prunes range from bud to full bloom in the Willamette Valley. Early peaches full bloom Medford district. Pink bloom early applied at Hood River. Apricots just past full bloom Dalles with cherries just coming

on. Bloom sprays applied and freeze precautions ready. Spring fieldwork continues ahead of normal. Spraying, liming, fertilizing and plowing continue. Planting of peas, sugar beets, potatoes and onions continue. Cabbage and brussel sprout seedbeds being prepared and planted. Livestock good. Pastures greening and some stock on early pastures. Soil moisture generally short in crop and rangeland areas.

**PENNSYLVANIA:** Rather wet week with near normal temperatures. Rain first half of week and over weekend. Heaviest amounts Tuesday night into Wednesday morning and Saturday night into Sunday. Rain mixed with or changed to snow before ending in higher elevations of west and north but accumulations remained 1 inch or less. Weekly precipitation 1.00 to 1.50 inch northwest half, 1.50 to 2.20 inches southeast half. Highs mostly 40's to 60's except 30's some areas Thursday. Overnite lows mostly 30's and 40's until 20's many areas Monday morning. Extremes: 70°, 17°. Weekly temperatures within plus or minus 2° of normal.

**PUERTO RICO:** Very dry week. Island rainfall only 0.03 inch or about 0.66 inch below normal. Highest weekly total 0.97 inch eastern mountains. Little or no rain islandwide. Agricultural drought intensifying rapidly islandwide and crop moisture conditions now serious in southern and northern divisions. Emergency aid being provided to dairy industry in south. Temperatures at coastal divisions averaged 78° and interior divisions 72° with departures about 1° to 2° below normal in southern divisions and 1° to 3° above normal in northern divisions. Highest temperature 96°, lowest 51°. Sugarcane harvesting operations made excellent progress but young ratoons need more rain in non-irrigated zones. Coffee plantations report drought retarding spring growth and that continued dry weather will cause loss of coffee buds. Tobacco harvesting and curing progressed well but leaf size small and planting schedules retarded by dry weather. Pasture conditions all zones generally poor to fair with production continuing to drop, many cattle suffering lack of feed. Minor crop yields significantly reduced and most farmers generally delaying further planting until arrival of spring rains.

**SOUTH CAROLINA:** Heavy rainfall early in week brought most of the weekly totals, which ranged from 2.00 to 3.50 inches statewide. Rain began again as week ended. Temperatures about 60° were about normal. Lows to 28° were felt on the 6th accompanied by light frost. Wet conditions preventing field activities. Tobacco beds good condition--6% transplanted compared with 31% last year. No cotton planted, 2% last year. Corn 8% planted, 28% last year. Small grains fair to good. Pastures good. Peaches good. Some frost damage on Thursday night. Spring vegetables good.

**SOUTH DAKOTA:** Weekly temperatures near normal to 2° below normal. Extremes: 15° at Lemmon on 9th to 72° at Vermillion on 5th. Precipitation fell mostly end of week as rain, turning to snow, with totals ranging from a trace in portions of east to over 0.50 inch in parts of north-central. Pollock reported 0.53 inch on 6th. Snow cover of up to 2 inches was reported in north-central region on 6th with up to about 2 feet reported in northern Black Hills. Topsoil moisture adequate statewide. Fieldwork continued during week but was depressed at end of week by cool, windy

weather. Spring plowing 8% complete. Spring wheat seeding 12% complete and barley and oat seeding 6% complete. These aspects of spring fieldwork are 2% ahead of last year, but 1% behind normal. Livestock good condition, losses of young animals light. Yards and lots beginning to dry out and firm up. Pastures greening and some cattle on pasture and getting supplemental feed.

**TENNESSEE:** Mean temperatures from 6° below normal in southwest to 2° below normal in northeast. General cooling trend at midweek, with scattered frost over a considerable area. Highest 74° at Athens on 4th. Lowest 26° at Waynesboro on 6th. Showers early week and weekend with heaviest amounts of 1.50 inch or more in parts of eastern half, with Knoxville reporting largest total 1.87 inch. Western portion totals generally less than 1.00 inch with Memphis reporting smallest total 0.54 inch. Rains and wet fields delay land preparation as spring planting approaches. Only 45% of spring plowing completed, compared to average 60%. Farmers able to work in the fields 1.3 days; fifth consecutive week less than 2 days suitable for fieldwork. Pastures very good condition, considerably above last year and most years.

**TEXAS:** Two late winter storms moved across Texas last week. Up to 5 inches of snow was measured in Panhandle Tuesday and blizzard conditions observed the Panhandle and northwest Texas weekend. Weekly temperatures averaged 10° to 15° below normal. Marfa was the coldest with 10° Monday morning. On the same day temperatures ranged from the upper teens through the mid-20's across the High Plains and freezing temperatures were reported as far east as a line from Gainesville through the Hill country of Central Texas to just north of Del Rio. Several cities also established new record low temperatures for the Date Monday morning. Weekly precipitation totals averaged 1.00 to 2.00 inches in East Texas, 0.33 to 1.00 inch in the northwest while little or no rain was observed in the southwest. Planting of cotton, corn, sorghum, rice, peanuts fair progress. Cold, wet soils holding most farmers back. Early seeded cotton, corn, sorghum good progress but cutworm and southern corn rootworm damage forced farmers to replant. Wheat, oats are excellent progress. Grazing abundant and grain prospects above normal. Major crops percent planted: cotton 8, last year 17; corn 41, last year 60; sorghum 30, last year 39; peanuts 13, last year 7; rice 32, last year 78. In Lower Rio Grande Valley onion supplies increasing. Moderate supplies of cabbage and carrots remain available. In Winter Garden-San Antonio area a hail storm damaged some lettuce, onions, spinach and watermelons along a line from Eagle Pass to Frio Town. At Laredo carrot digging continues active. In Coastal Bend onion harvest underway, seed stems have been minimal to date. Spinach harvest complete. Some cucumbers and melons beginning to set fruit. In East and Central Texas field setting of tomatoes in progress. Watermelon and cantaloupe seeding continues. On High Plains cold weather could have adverse effect on onions already planted. Carrot, potato and onion planting continues. Peach crop on High Plains damaged by cold weather, extent unknown. Citrus harvest lags behind schedule with supplies available through May.

**UTAH:** Recurring periods rain and snow. Accumulated amounts locally very heavy central mountains but generally light to moderate elsewhere.

Scofield area got 18 inches new snow in 24 hours. Most sections averaged 2° to 10° below normal. Contrast between now and a year ago fantastic. Year ago planting was 45% completed spring wheat, 35% oats, 55% barley, 45% sugar beets, nearly complete for dry onions, the fruit crops had bloomed in March and were already mostly destroyed by killing frost. Now very little planting of any crop has been done, fruit trees have not blossomed. Range lambing progressing and calving over half completed. Shearing well along, although behind last year because of storms. Care and feeding of beef cattle and sheep on winter and spring range lands and valley farms plus dairy herds and poultry flocks continue major activities. Irrigation water supplies good to excellent all areas from reservoir storage and stream-flow. Soil moisture plentiful nearly all farming areas. Marketing of potatoes and apples from storage nearly completed.

VIRGINIA: Temperatures about 3° above normal ranging from normal to 6° above. Highs in upper 70's with lows in 30's. Rainfall near middle and again at end of period with totals averaging around 1.75 inch. Little progress made in fieldwork due to rain and mud. Only 1.2 days suitable for fieldwork. Topsoil moisture 80% surplus. Started planting corn in south-east but acreage minor. Most farmers prepared fields or applied fertilizer. Small grains, hay and pastures made good growth. Pastures excellent. Yellow dwarf in barley in northern neck. Livestock wintered well. Additional cattle moved to pasture, some calf scours, a few cows lost from grass tetany. Most cattle and sheep healthy and in good flesh. Sheep shearing began. On Eastern Shore, planted Irish potatoes and bedded sweet potatoes. Peaches blooming Winchester area. Blooming well advanced, freeze damage minor--prospects favorable. Apples bloom southern areas east of mountains and showing pink Roanoke area.

WASHINGTON: Western Washington: Temperatures near normal, precipitation below normal. Cane-berry pruning ending, spraying underway. Lifting, planting strawberries, Christmas trees continued. Peas, other early vegetables planted. Harvest field rhubarb active. Fertilizing planting pastures. Livestock good shape, being turned onto grass. Green chopping rye continued.

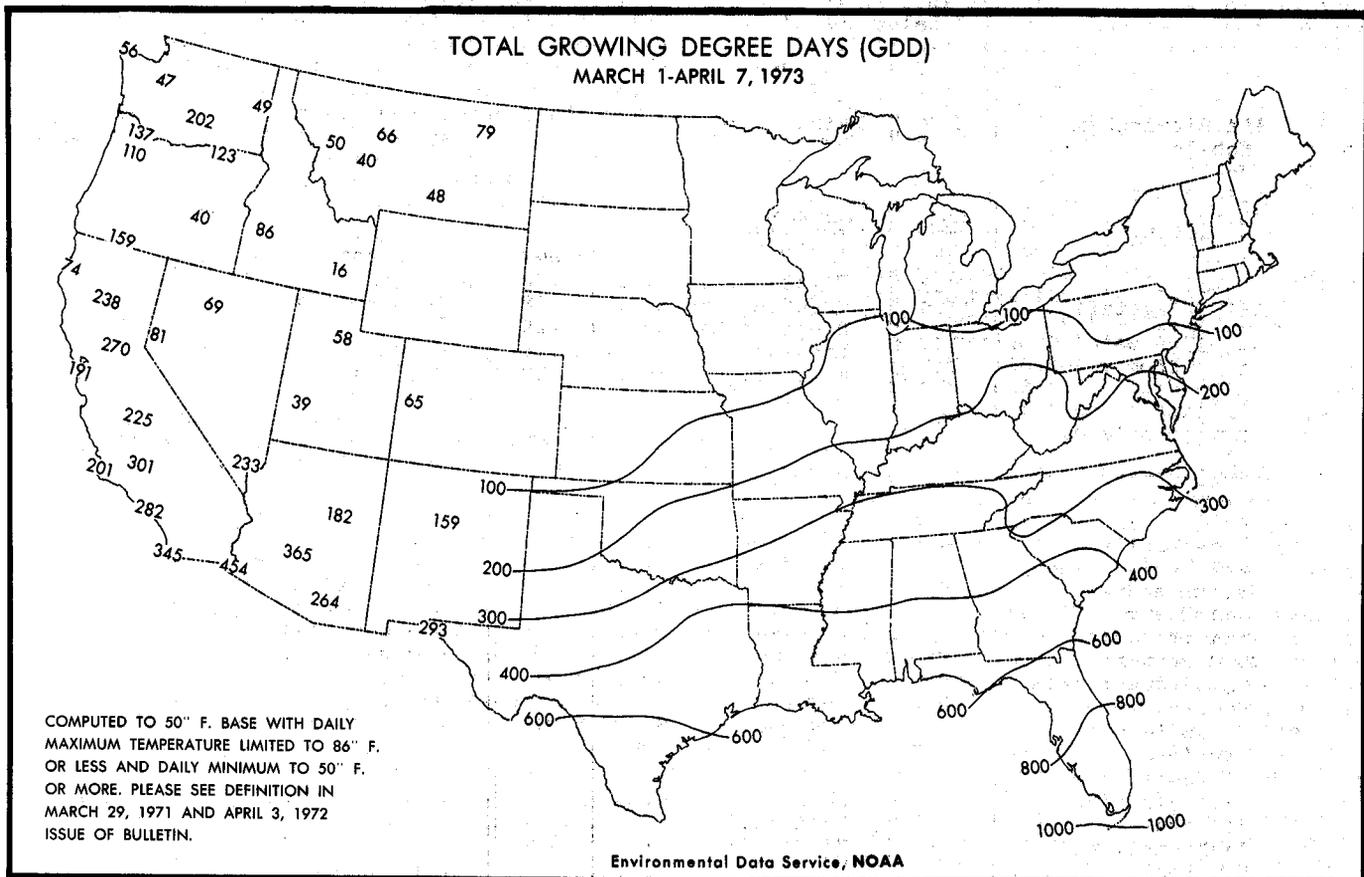
Eastern Washington: Temperatures warm, near normal. Little precipitation only in southeast. Soil moisture short. Early irrigation underway where available. Sugar beet planting nearly done. Early potato crop seeded. Spring grains 70% to 90% planted many areas. Dry and green peas, alfalfa, hay and pastures going in. Spraying and fertilizing active. Fruit trees blooming. Orchards heated several nights. Hop-grape trellising continued.

WEST VIRGINIA: Some rain almost daily with weekly totals near 1.00 inch. Thunderstorms April 1. Traces of snow with rain April 4 and 5 as temperatures neared freezing. Temperatures below normal from April 2 through 8. Pastures ahead of schedule--greening and growing well. Small grains wintered in only fair condition. Main farm activities tending livestock and general maintenance. Wet weather continued delay of spring planting and plowing.

WISCONSIN: Some rain and cloudiness early week. Sunny and mild Thursday and Friday. Colder with snowstorm developing over weekend. Worst snowstorm this year in most areas with well over 1 foot of snow April 9 and huge drifts closing roads. Little fieldwork done early week. A little plowing, disking, chopping stalks and seeding oats and rye. Main farm activities care and feeding of livestock. Soil moisture surplus most areas except adequate in the north-west.

WYOMING: Scattered light snows western half, generally light to moderate eastern half. Horse Creek reported most moisture, 0.71 inch. Temperatures near 11° below normal. Lows were mostly 45° to 55° west of Divide and Upper Platte River drainage, mid-50's and 60's elsewhere. Lows were mostly -5° to 15° west of Divide and Upper Platte River drainage. Temperature extremes 68° at several northern stations and -10° at Fox Park. Main agricultural activities were feeding and care of livestock. Calving about half done. Farm flock lambing also at half-way mark. Lambing of range flocks just beginning. Shearing farm flocks 60% complete; range flocks 20% complete. Little fieldwork done because of snow and cold weather.

Standard copy for the Weekly Weather and Crop Bulletin is prepared by: Dr. Richard E. Feich, Agricultural Climatologist; Arlon M. Scott, Agricultural Statistician; John C. Ryan, Editor.



#### GROWING DEGREE DAYS - 1973

Beginning with this issue, we again start publishing weekly maps of accumulated growing degree days (GDD). The GDD accumulation for a particular day is calculated according to the definition (WWCB, May 5, 1969).

$$\text{GDD} = \frac{\text{daily max } (\leq 86^{\circ}\text{F}) + \text{daily min } (\geq 50^{\circ}\text{F})}{2} - 50^{\circ}\text{F}$$

Maximum temperature above 86°F are entered as 86° and minima below 50°F are entered as 50°. These restrictions take into account the differing response of plants to quite high or low temperatures. At temperatures below 50° the growth and development of many warm season crops is negligible. As temperatures increase above 86°, the additional heat does not contribute to the growth of the plant. This particular method of calculating GDD was introduced in the Bulletin in 1969, and in 1970 the Hybrid Seed Corn Industry adopted it as the basis for a uniform maturity rating system.

Heating Degree Days (Base 65° F.)

MARCH, 1973

ALA. Birmingham . . . . .	217	MAINE, Caribou . . . . .	1092	OKLA. Okla. City . . . . .	380
Mobile . . . . .	83	Portland . . . . .	842	Tulsa . . . . .	321
Montgomery . . . . .	133	MD. Baltimore . . . . .	511	OREG. Astoria . . . . .	635
ALASKA, Anchorage . . . . .	1258	MASS. Boston . . . . .	666	Burns . . . . .	864
Barrow . . . . .	2667	Chatham . . . . .	----	Medford . . . . .	616
Fairbanks . . . . .	1637	MICH. Alpena . . . . .	913	Pendleton . . . . .	588
Juneau . . . . .	986	Detroit . . . . .	667	Portland . . . . .	525
Nome . . . . .	1968	Flint . . . . .	725	Salem . . . . .	626
ARIZ. Flagstaff . . . . .	1176	Grand Rapids . . . . .	708	PA. Allentown . . . . .	633
Phoenix . . . . .	254	Houghton Lake . . . . .	829	Erie . . . . .	697
Tucson . . . . .	410	Lansing . . . . .	774	Harrisburg . . . . .	607
Winslow . . . . .	643	Marquette . . . . .	923	Philadelphia . . . . .	547
Yuma . . . . .	147	S. Ste. Marie . . . . .	923	Pittsburgh . . . . .	508
ARK. Fort Smith . . . . .	315	MINN. Duluth . . . . .	1022	Scranton . . . . .	704
Little Rock . . . . .	216	Internat'l Falls . . . . .	993	R. I. Providence . . . . .	648
CALIF. Bakersfield . . . . .	325	Minneapolis . . . . .	761	S. C. Charleston . . . . .	167
Eureka . . . . .	537	Rochester . . . . .	792	Columbia . . . . .	219
Fresno . . . . .	444	St. Cloud . . . . .	849	Greenville . . . . .	323
Los Angeles . . . . .	214	MISS. Jackson . . . . .	135	S. DAK. Aberdeen . . . . .	783
Red Bluff . . . . .	466	Meridian . . . . .	125	Huron . . . . .	775
Stockton . . . . .	421	Vicksburg . . . . .	----	Rapid City . . . . .	847
San Diego . . . . .	208	MO. Columbia . . . . .	499	Sioux Falls . . . . .	775
San Francisco . . . . .	416	Kansas City . . . . .	526	TENN. Chattanooga . . . . .	294
COLO. Denver . . . . .	771	St. Louis . . . . .	430	Knoxville . . . . .	283
Grand Junction . . . . .	705	Springfield . . . . .	414	Memphis . . . . .	237
Pueblo . . . . .	684	MONT. Billings . . . . .	810	Nashville . . . . .	261
CONN. Bridgeport . . . . .	704	Glasgow . . . . .	802	TEX. Abilene . . . . .	235
Hartford . . . . .	665	Great Falls . . . . .	785	Amarillo . . . . .	548
D. C. Washington . . . . .	423	Havre . . . . .	792	Austin . . . . .	72
FLA. Apalachicola . . . . .	71	Helena . . . . .	892	Beaumont . . . . .	77
Ft. Myers . . . . .	2	Kalispell . . . . .	789	Brownsville . . . . .	4
Jacksonville . . . . .	67	Miles City . . . . .	760	Corpus Christi . . . . .	28
Key West . . . . .	0	Missoula . . . . .	800	Dallas . . . . .	----
Lakeland . . . . .	21	NEBR. Grand Island . . . . .	734	Del Rio . . . . .	31
Miami . . . . .	0	Lincoln . . . . .	688	El Paso . . . . .	384
Orlando . . . . .	12	Norfolk . . . . .	735	Fort Worth . . . . .	155
Pensacola . . . . .	----	North Platte . . . . .	756	Galveston . . . . .	39
Tallahassee . . . . .	106	Omaha . . . . .	681	Houston . . . . .	75
Tampa . . . . .	18	Valentine . . . . .	773	Lubbock . . . . .	416
GA. Atlanta . . . . .	240	NEV. Ely . . . . .	1067	Midland . . . . .	320
Augusta . . . . .	181	Las Vegas . . . . .	437	San Angelo . . . . .	183
Macon . . . . .	137	Reno . . . . .	834	San Antonio . . . . .	29
Savannah . . . . .	98	Winnemucca . . . . .	859	Victoria . . . . .	20
IDAHO, Boise . . . . .	673	N. H. Concord . . . . .	905	Waco . . . . .	154
Lewiston . . . . .	588	N. J. Atlantic City . . . . .	523	Wichita Falls . . . . .	213
Pocatello . . . . .	895	Trenton . . . . .	562	UTAH, Blanding . . . . .	----
ILL. Cairo . . . . .	298	N. MEX. Albuquerque . . . . .	807	Salt Lake City . . . . .	711
Chicago . . . . .	609	Roswell . . . . .	384	VT. Burlington . . . . .	855
Moline . . . . .	598	N. Y. Albany . . . . .	709	VA. Lynchburg . . . . .	435
Peoria . . . . .	566	Binghamton . . . . .	770	Norfolk . . . . .	403
Rockford . . . . .	875	Buffalo . . . . .	696	Richmond . . . . .	394
Springfield . . . . .	512	New York . . . . .	613	Roanoke . . . . .	428
IND. Evansville . . . . .	345	Rochester . . . . .	690	WASH. Colville . . . . .	744
Fort Wayne . . . . .	607	Syracuse . . . . .	687	Omak . . . . .	639
Indianapolis . . . . .	477	N. C. Asheville . . . . .	374	Quillayute . . . . .	675
South Bend . . . . .	588	Charlotte . . . . .	341	Seattle-Tacoma . . . . .	639
IOWA, Burlington . . . . .	578	Greensboro . . . . .	396	Spokane . . . . .	733
Des Moines . . . . .	548	Hartford . . . . .	302	Walla Walla . . . . .	500
Dubuque . . . . .	688	Maui . . . . .	334	Yakima . . . . .	610
Sioux City . . . . .	678	Wilmington . . . . .	217	W. VA. Beckley . . . . .	506
KANS. Concordia . . . . .	628	W. DAK. Bismarck . . . . .	787	Charleston . . . . .	394
Dodge City . . . . .	712	Butte . . . . .	892	Huntington . . . . .	363
Goodland . . . . .	770	Williston . . . . .	855	Parkersburg . . . . .	367
Topeka . . . . .	537	OHIO, Akron-Canton . . . . .	538	WIS. Green Bay . . . . .	785
Wichita . . . . .	506	Cincinnati . . . . .	446	Madison . . . . .	720
KY. Lexington . . . . .	353	Cleveland . . . . .	569	Milwaukee . . . . .	769
Louisville . . . . .	349	Columbus . . . . .	444	WYO. Casper . . . . .	984
LA. Baton Rouge . . . . .	77	Dayton . . . . .	502	Cheyenne . . . . .	1017
Lake Charles . . . . .	74	Toledo . . . . .	639	Lander . . . . .	1186
New Orleans . . . . .	72	Youngstown . . . . .	630	Sheridan . . . . .	915
Shreveport . . . . .	135				

A WORLD ESTIMATE OF THE GREEN WAVE AND ITS  
POSSIBLE DETECTION BY ERTS-1 SATELLITE

Joseph M. Caprio  
Montana Agricultural Experiment Station  
Bozeman

The Geographical Progression of the Green Waves

With the ending of subfreezing temperatures in the spring vegetative growth is initiated first in southern areas at low elevations and progresses late in the season to tundra zones of higher elevation and the far north. When an adequate amount of vegetative growth has occurred, the landscape changes color, usually from brown or yellow to green. Thus, green color advances over the globe in the spring like a wave moving from the south to the north.

In an effort to obtain an estimate of the timing of the "green wave", observations were made on the greening of a 3-acre level bluegrass lawn on the Montana State University campus adjacent to the Weather Service climatological station. This field is exposed to full sunlight and is irrigated during the growing season. In the spring of 1972, colored pictures were taken of the field every several days. Information on phenological stages of the purple common lilac and two honeysuckle species growing in one corner of the field were made during the same period. It was determined from this information that the field changed from a predominate brown to a predominate green color at approximately the same time that 200,000 Solar-Thermal Units (STU) had accumulated. This corresponds approximately to the time when potential evapotranspiration has reached a total accumulation of about two inches.

Since information on only temperature and solar radiation is required to determine the accumulation of STU in the spring, a rough estimate of the average date of green wave passage can be made for those locations where both temperature and solar radiation are measured. The average date when 200,000 STU accumulate was determined for more than 100 locations in middle and high latitudes of the Northern Hemisphere. It was assumed that plant growth was not limited by lack of soil moisture. Also, lines of average green wave arrival were drawn only for places where minimum temperature during the coldest time of the year averages near or below 31° Fahrenheit.

Since mean temperatures for the coldest month at stations in the Southern Hemisphere north of Antarctica are nearly all above freezing, no lines have been drawn in the Southern Hemisphere. This suggests that most of the land in the Southern Hemisphere could be green the entire year, given proper vegetative cover and an adequate supply of moisture. No attempt has been made to account for the many irregularities in the pattern in mountainous terrain.

The map of the geographical progression of the green wave is given in the figure. The estimated isopleths of dates of green wave passage make an interesting pattern. The April 15 line, for example, extends from a southern extreme of about 35

degrees north latitude in the United States and Japan to a northern extreme of about 55 degrees north latitude in western North American and western Europe. The July 15 line appears to correspond rather closely with the southern margin of the tundra zone. The tundra extends from the poleward limit of forest, northward to the southern edge of the zone of perpetual ice where practically no plant life is found.

Undoubtedly, numerous modifications of this preliminary estimate of the average advance of the green wave will have to be made as more information from ground, aircraft and satellite observations becomes available. Remote sensing information from aircraft and satellites was not utilized in constructing this map.

Phenology Satellite Experiment

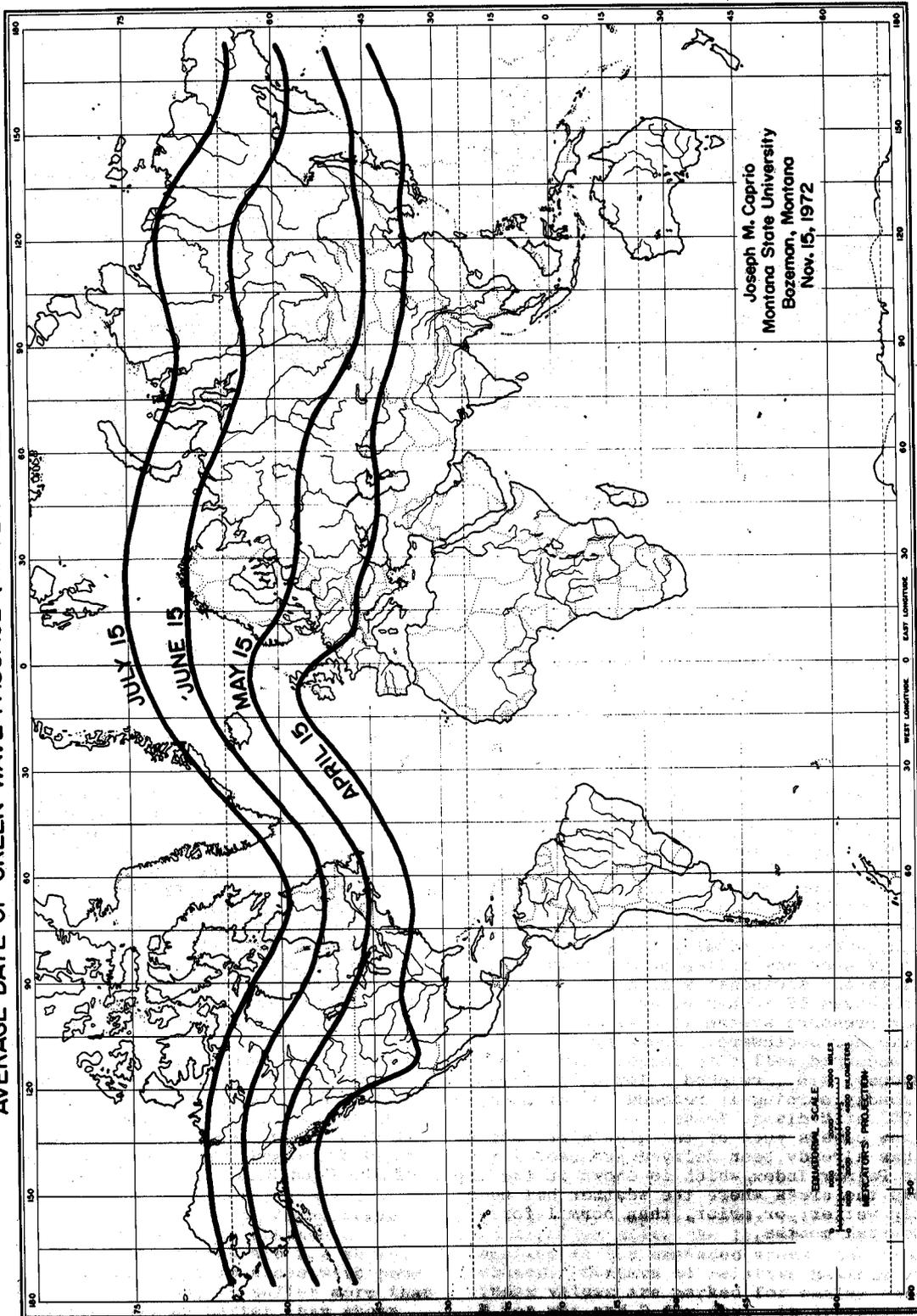
Scientists are involved in scores of research projects designed to determine possible applications for satellite information in their particular fields. One such research project entitled "Phenology Satellite Experiment" is designed to determine possible uses of satellite data in phenology.

On July 23, 1972 the National Aeronautics and Space Administration launched the first Earth Resources Technology Satellite (ERTS-1). The satellite is orbiting the earth from north to south at a height of about 550 miles and returns to the same path every 18 days. It is an experimental spacecraft, intended to demonstrate the usefulness of repeated satellite observations of the earth's surface. It will take photographs and relay spectral (surface color) information back to earth for at least a year.

One of the objectives of the Phenology Satellite Experiment is to learn more about the polar advance of the green wave of new vegetative growth in the spring. Numerous agricultural experiment stations throughout the country are participating in this project under sponsorship of the National Aeronautics and Space Administration.

The timing of the green wave will vary from year to year due to annual differences in weather conditions in manner similar to annual fluctuations of such phenological events as the blooming of lilacs and honeysuckle. It will be possible in the future to determine the average date of green wave passage at a given point on the earth's surface if records of the greening of the vegetation are kept at the site for a number of years. Thus, by utilizing ground observations or possibly aircraft and satellite data, accurate maps of the average date of green wave passage for given geographical areas may be developed. This information on the green wave could be very useful for resource management agencies and others concerned with managing the extensive farm and forest areas of the nation.

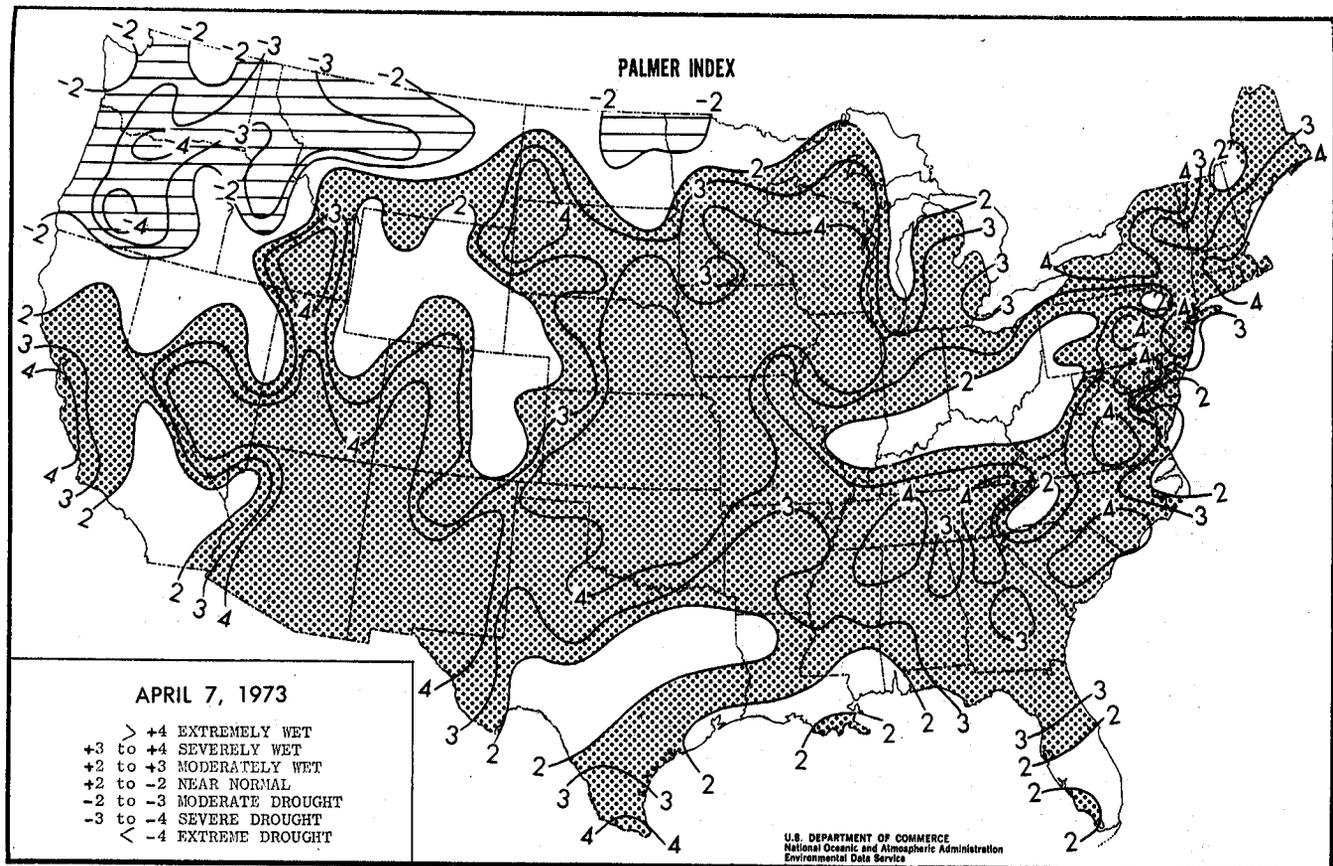
AVERAGE DATE OF GREEN WAVE PASSAGE (AFTER PRELIMINARY MODEL)



Joseph M. Caprio  
Montana State University  
Bozeman, Montana  
Nov. 15, 1972

EQUATORIAL SCALE  
1000 MILES  
1000 KILOMETERS  
MERCATOR'S PROJECTION

index values merely reflect the  
ordinary irrigation needs of the  
comparability of the



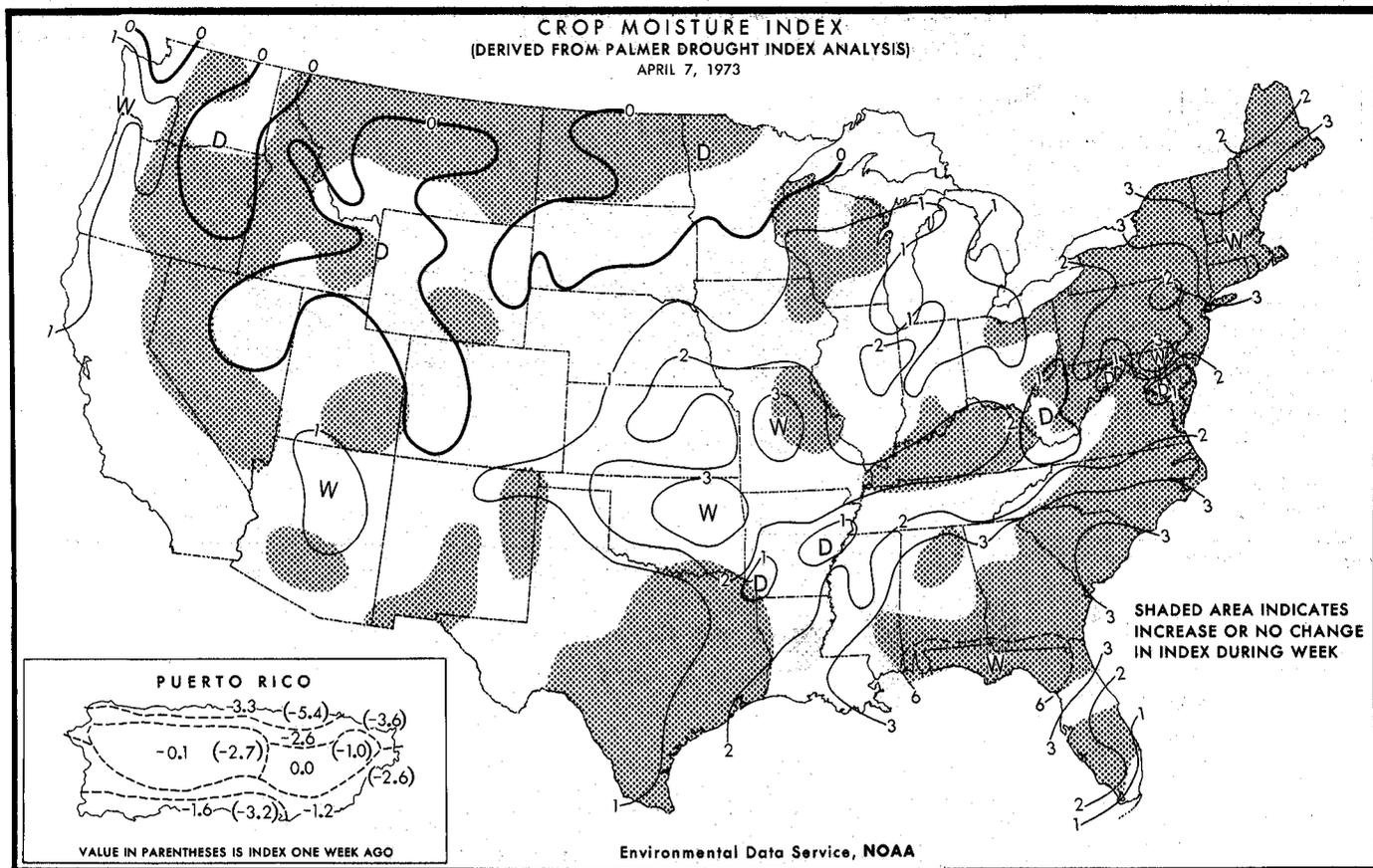
#### HEAVY SNOWS DELAY MIDWEST FIELDWORK FURTHER

Heavy snows fell over much of the Corn Belt on Sunday and Monday as a result of a tremendous Low pressure system moving across the central United States. As of Tuesday morning, April 10, it was snowing at Chicago, Detroit, Cleveland and eastward to the Appalachians, and southward to Louisville, Kentucky. High winds accompanying the widespread snows have created blizzard conditions in many areas and paralyzed the upper Midwest. Over a foot of snow has fallen over central and northeast Iowa and southeast Minnesota. Dubuque, Iowa, has received 18 inches of snow.

The Low pressure system is also forcing frigid Arctic air southward. Freezing temperatures have occurred well into Texas. The temperature at Sydney, Neb., reached a low of 3° this morning. Monday morning it reached -3° at Laramie, Wyo., and 20° at Midland, Texas.

The snow covers much of the area where spring fieldwork has already been delayed because of wet soils. The Palmer Index, which is shown in the map above, shows the areas where the weather has been persistently wetter, or drier, than normal for the past several months.

The snow will delay fieldwork further in two ways. The snow will provide additional moisture to saturate soils in areas where some drying has occurred. It will also prevent any drying of the soils until the snow cover has melted. Colder temperatures following the passage of the storm will prevent melting and slow field drainage. Once soils are again exposed, 6 to 10 days of good drying weather will be required before fieldwork can begin on a large scale. Virtually no plowing has been completed in the Corn Belt since last fall except in the northern States. Therefore, farmers are already several days and even weeks behind in their field preparations. The additional moisture will delay the beginning of the drying period, and approximately 70% of the corn and soybean acreage in Iowa, Illinois and Indiana remains to be plowed. It appears that it will be at least the last week in April before major fieldwork operations can begin over most of the Corn Belt.



INDEX DECREASED DURING WEEK  
(Unshaded Areas)

INDEX INCREASED OR DID NOT CHANGE DURING WEEK  
(Shaded areas)

INDEX

- ABOVE 3.0 SOME DRYING, BUT STILL EXCESSIVELY WET.
- 2.0 to 3.0 MORE DRY WEATHER NEEDED, WORK DELAYED.
- 1.0 to 2.0 FAVORABLE, EXCEPT STILL TOO WET IN SPOTS.
- 0 to 1.0 FAVORABLE FOR NORMAL GROWTH AND FIELDWORK.
- 0 to -1.0 TOPSOIL MOISTURE SHORT; GERMINATION SLOW.
- 1.0 to -2.0 ABNORMALLY DRY, PROSPECTS DETERIORATING.
- 2.0 to -3.0 TOO DRY, YIELD PROSPECTS REDUCED.
- 3.0 to -4.0 POTENTIAL YIELDS SEVERELY CUT BY DROUGHT.
- BELOW -4.0 EXCEPTIONALLY DRY, MOST CROPS ABOUT RUINED

INDEX

- ABOVE 3.0 EXCESSIVELY WET, SOME FIELDS FLOODED.
- 2.0 to 3.0 TOO WET, SOME STANDING WATER.
- 1.0 to 2.0 PROSPECTS ABOVE NORMAL, SOME FIELDS TOO WET.
- 0 to 1.0 MOISTURE ADEQUATE FOR PRESENT NORMAL NEEDS.
- 0 to -1.0 PROSPECTS IMPROVED, BUT RAIN STILL NEEDED.
- 1.0 to -2.0 SOME IMPROVEMENT, BUT STILL TOO DRY.
- 2.0 to -3.0 DROUGHT EASED, BUT STILL SERIOUS.
- 3.0 to -4.0 DROUGHT CONTINUES, RAIN URGENTLY NEEDED.
- BELOW -4.0 NOT ENOUGH RAIN, STILL EXCEPTIONALLY DRY.

The map above is based on weekly areal mean values of temperature and precipitation for 350 climatological divisions. Weather during previous weeks has been taken into account through successive weekly computations of both topsoil and subsoil moisture. The map shows recent crop moisture conditions; i.e., areas in which crops have been hindered by abnormal dryness or wetness, and areas where moisture conditions have been favorable.

This is a generalized picture; local variations caused by the occurrence or absence of heavy rain or by soil differences are not shown. Shallow rooted crops and crops in areas with poor soils are likely, on occasion, to suffer more than indicated. Conditions may be better than shown in areas having exceptionally good soils.

The legend applies primarily to growing rather than matured vegetation. Interpretation of the

effects on crops and native vegetation must, therefore, take account of the stage of growth as well as the status and trend of moisture conditions. The trend is indicated by the shading which denotes areas where the index did not decrease below its value of a week previous; i.e., conditions did not become noticeably drier during the week. A trend toward drier occurred in the unshaded regions. The lines show the crop moisture situation according to the computed index values which may be interpreted using the legends above. One legend applies to the unshaded areas, the other to the shaded. Centers of relative maximum and minimum index values are marked for easier recognition - W for wet and D for dry. In irrigated regions the index values merely reflect departures from ordinary irrigation requirements.



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## WATER SUPPLY OUTLOOK FOR THE WESTERN UNITED STATES

April 1, 1973

The table below shows the most probable April 1 forecasts in percent of the 15-year (1953-67) average. The most probable runoff forecasts are for the residual period, except water-year for the Sacramento and San Joaquin Basins; April 1 to June 30, 1973 for the Missouri, Yellowstone, and North Platte Basins; November 1, 1972 to June 30, 1973, for the Little Colorado Basin; and March 1 to June 30, 1973 for the Gila Basin. The publication "Water Supply Outlook for the Western United States," issued as of April 1, 1973 contains water supply forecasts for about 375 stations in the Western United States.

River	Station	Forecast 1,000 acre feet	Percent, 15-year average 1/
Columbia	Grand Coulee, Wash.	54,300	78
Columbia	The Dalles, Oreg.	78,100	74
Snake	Clarkston, Wash.	15,700	71
Sacramento	Red Bluff, Calif.	9,600	110
San Joaquin	Big Creek, Calif.	1,570	123
Weber	Gateway, Utah	366	144
Jordan	Utah Lake, Utah	304	125
Truckee	Lake Tahoe to Farad	275	100
Colorado	Lake Powell, inflow	9,340	126
Green	Green River, Utah	2,360	117
San Juan	Bluff, Utah	1,630	157
Little Colo.	Woodruff, Ariz.	25	329
Gila	Solomon, Ariz.	136	316
Rio Grande	San Marcial, N.Mex.	659	194
Arkansas	Pueblo, Colo.	365	105
Missouri	Ft. Peck, Mont.	2,700	61
Yellowstone	Sidney, Mont.	5,800	91
North Platte	Glendo, Wyo.	806	121

1/ 1953-67

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