

UNITED STATES DEPARTMENT OF COMMERCE  
WEATHER BUREAU  
WASHINGTON

July 15, 1959

IN REPLY, PLEASE ADDRESS  
CHIEF, U. S. WEATHER BUREAU  
WASHINGTON 25, D. C.  
AND REFER TO

C-3.1

FILE: 922

MEMO

(Climatological Services Memorandum No. 74)

WASHINGTON, D. C.  
7-15-59

MEMORANDUM

TO : Area and State Climatologists, Field Aides (HC), Field Aides, WRPCs, River District Offices, and Area Engineers.  
(With copies to cooperating Universities and State Agencies, Regional Administrative Offices, and First Order Stations for information)

FROM : Office of Climatology

SUBJECT : Climatological Services Memorandum No. 74

COOPERATIVE PROJECTS IN CLIMATOLOGY

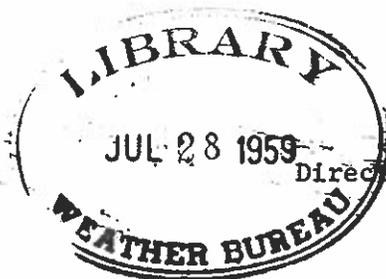
The present report represents the progress of our cooperative projects (of which there are 38) for the period January 1 through December 31, 1958. Work prior to that time has been summarized in Climatological Services Memorandums Nos. 59 and 67.

The stations and years for which cards have been punched and exchanged as well as publications and research studies utilizing the punched card data are listed on the following pages.

Cooperative agreements effected in 1958 are Oregon State College at Corvallis, Oregon; Utah State University at Logan, Utah; University of Vermont at Burlington, Vermont.

Also included in this report is a summary of the total number of cards punched by the universities, duplicate cards furnished the Weather Bureau and cards reproduced by the Weather Bureau and furnished the universities as of January 1, 1959.

Numerous studies have been performed and the card data are available at the universities and state agencies for further climatological research.



*H. E. Landsberg*

H. E. Landsberg  
Director, Office of Climatology



ARIZONA, UNIVERSITY OF - TUCSON

1009 cards reproduced by the Weather Bureau and furnished to the University.

ARIZONAPeriod of Record - 7/1948-12/1957

Aguila	Mesa Experiment Farm
Ajo	Miami
Alpine	Montezuma Castle
Apache Powder Co.	Mormon Flat
Ash Fork	Nogales
Bartlett Dam	Parker
Bisbee	Patagonia
Bowie	Payson Ranger Sta.
Buckeye	Pinal Ranch
Canelo Ranger Sta.	Prescott
Casa Grande Ruins	Roosevelt
Childs	Sacaton
Chinle	Saint Johns
Chiricahua National Mon.	San Rafael Ranch
Clifton	Seligman
Crown King	Sierra Ancha
Douglas Smelter	Snowflake
Duncan	Springerville
Eagle Creek	Stephens Ranch
Elgin	Superior
Florence	Sycamore Ranger Sta.
Fort Valley	Tempe Tuba City
Gila Bend	Tucson - University of Arizona
Gisela	Wallace Ranger Sta.
Globe	Walnut Creek
Gould's Ranch	Walnut Grove
Granite Reef Dam	Whiteriver
Holbrook	Wickenburg
Jerome	Wilcox
Kayenta	Williams
Kingman	Winslow WB Airport
Lees Ferry	Y Lightning Ranch
Leslie Canyon	Young
Litchfield Park	Yuma Citrus Sta.
McNary	

<u>STATION</u>	<u>Period</u>	<u>STATION</u>	<u>Period</u>
Bagdad	1/48-12/57	*Drake Ranger Sta.	1/54-12/57
*Benson	7/48-12/57	*Fairbank	7/48-12/57
*Casa Grande	7/48-12/57	Fort Defiance	7/48-4/49
Cedar Glade	7/48-1/54	*Fort Grant	7/48-12/57
*Cibecue	7/48-12/57	*Fort Huachuca	9/54-12/57
Cochise Power House	7/48-12/54	Grand Canyon Hq.	7/48-8/57
Dateland	4/52-5/54; 6/55-12/57	Helvetia	7/48-4/50
		Intake	7/48-4/52

UNIVERSITY OF ARIZONA (Cont.)

<u>STATION</u>	<u>Period</u>	<u>STATION</u>	<u>Period</u>
*Maricopa	7/48-9/52; 5/55-11/56; 4-11/57	Santa Margarita	7/48-11/50
Stanfield (substitute for Maricopa)	5/54-2/55	Santa Rita Exp. Range	5/50-12/57
Marinette	12/48-5/50; 11/50-3/51; 2/52-9/54; 1/56-12/57	Sentinel	1/50-3/57
Mohawk	11/48-5/51	Silverbell	3/53-12/57
Mount Trumbull	7/48-11/57	Tempe 3 S	7/48-6/52
*Natural Bridge	7/48-12/57	*Tombstone	7/48-1/52; 3/53-12/57
Oracle	7-10/48; 2/50-10/57	Wellton	7/48-8/49; 2/50-12/57
Painted Canyon	1/51-12/57	Window Rock	5/49-12/57
*Pinedale	7/48-12/57	Wittman	11/51-6/54; 12/54-7/57
Portal	7/48-3/55	*Yuma	7/48-12/56; 3-12/57
*Red Rock 6 SW	4/51-12/57		
*Reno Ranger Sta. Ruby 4 NW	7/48-12/57 7/48-12/55	<u>NEW MEXICO</u>	
*Rucker Canyon	7/48-12/57	Agricultural College	7/48-12/57
*Stafford	7/48-12/57	Cimarron	"
Salome 6 SE	7/48-4/57	Fort Bayard	"
San Simon	7/48-1/49; 1-12/57	Hood Ranger Sta.	1/48-3/54; 1-12/57
		Reserve Ranger Sta.	4/54-12/57
		Santa Fe	1/48-12/57

368,000 1009 Cards furnished the University by the Weather Bureau.

\* Some months missing

COLORADO STATE UNIVERSITY - FT. COLLINS

1009 Cards punched by the University.

<u>STATION</u>	<u>Period</u>
Akron 4 E	1918-1935
Akron CAA	3/37-7/48
Arriba	1907-1917; 4/28-7/48
Cheyenne Wells	1918-7/48
Eads	11/19-4/22; 5/23-2/38; 9/38-7/48
Haswell	6/22-7/48
Holly	1918-9/45
Julesburg	1918-7/48
Limon	1918-9/27; 11/29-7/48
Rush	1924-7/48
Springfield	1918-7/48
Two Buttes	1918-7/48

104,955 Total number of cards punched.

CONNECTICUT, UNIVERSITY OF - STORRS  
(Memorandum of Understanding Type 2)\*

1009 Cards

Period - 1/56-12/57

STATION

Cream Hill

Hartford

Mt. Carmel

Norfolk

Norwalk closed April 11, 1956

Putnam

Storrs

Waterbury 1-12/1957-only

Westbrook

5,900 Total number of cards punched.

\* The Type 2 Memorandum of Understanding provides for the Weather Bureau doing the cooperative portion of the punching at cost.

FLORIDA, UNIVERSITY OF - GAINESVILLE

Duplicate 1009 cards furnished the Weather Bureau by the University.

STATIONPeriod of Record - 1/31-6/48

Arcadia  
Avon Park  
Bartow  
Blountstown  
Brooksville  
Crescent City  
Coconut Grove  
Defuniak Springs  
Deland  
Eustis  
Everglades  
Federal Point  
Fellsmere  
Ft. Myers  
Ft. Pierce  
Glen St. Mary  
Homestead  
Hypoluxo  
Kissimmee  
Lake City  
Madison  
Marianna  
Moore Haven  
Plant City  
Punta Gorda  
St. Leo  
Titusville  
Bradenton

1/13-6/48

Approximately 186,000 cards have been punched by the University.

IDAHO, UNIVERSITY OF - MOSCOW

Records for the Parma Experiment Station are being placed on punch cards.

ILLINOIS STATE WATER SURVEY - URBANARadiosonde Daily Cards  
(All levels)

<u>STATION</u>	<u>Period</u>
Nashville, Tennessee	1/56-12/57
Columbia, Missouri	"
Peoria, Illinois	10/56-12/57
Green Bay, Wisconsin	1/56-12/57
Rantoul, Illinois	1-9/56

Approximately 40,000 cards.

Reproduced by the Weather Bureau and furnished State Water Survey.

INDIANA - PURDUE UNIVERSITY - LAFAYETTE

WBAN #1 cards reproduced by the Weather Bureau and furnished the University.

Period of Record

STATION

May 15 through Sept. 15; 1948 through 1957

Evansville  
Ft. Wayne  
Indianapolis

Approximately 87,000 cards.

IOWA STATE COLLEGE - AMES  
(Memorandum of Understanding Type 2)

1009 cards

<u>STATION</u>	<u>Period</u>
<u>MINNESOTA</u>	
Bird Island	7/48-12/56
Pine River Dam	"
<u>WISCONSIN</u>	
Eau Claire	6/48-12/56
Eau Claire CAA	10/49-12/56
Merrill	1/48-9/50; 4/51-12/56
Minoqua Dam	1/48-12/56
Sturgeon Bay	6/48-12/56
Viroqua	<u>1/48-12/56</u>
	24,800

Weekly summary cards

<u>STATION</u>	<u>Period</u>
Cloquet	3/1911-3/14/55
Crookston	3/1901- "
Grand Rapids	3/1915- "
Itasca	3/1912- "
Minneapolis	3/1901- "
Morris	" - "
Waseca	3/1915- "
Worthington	<u>3/1901- "</u>
	21,400

46,200 Total cards.

Thom, H. C. S. and Shaw, R. H. - Climatological Analysis of Freeze Data for Iowa. Monthly Weather Review 86:251-257. 1958.

Shaw, R. H. - When will it Snow in the Fall. Iowa Farm Science 13: No. 5, 7-8. 1958.

Elford, C. R. and Shaw, R. H. - Soil Temperature Summarization for Ames, Iowa - Iowa State College Special Report Series. (Manuscript in preparation.)

KANSAS STATE COLLEGE - MANHATTAN

1009 cards

<u>STATION</u>	<u>Period</u>	<u>STATION</u>	<u>Period</u>
El Dorado	8/48-12/57	Medicine Lodge	1/56-12/57
Burr Oak	"	Ottawa	"
Ellsworth	"	Phillipsburg	"
Marysville	"	Winfield	"
Colby	1/56-12/57	Ashland	1-12/57
Columbus	"	Elkhart	"
Garden City	"	Emporia	"
Hays	"	Healy	"
Horton	"	Independence	"
Larned	"	Minneapolis	"
Manhattan	"	St. Francis	"
McPherson	"	Tribune	"

WBAN #3 reproduced and furnished the College.

<u>STATION</u>	<u>Period</u>
Dodge City	1/48-12/57
Goodland	"
Topeka	"
Wichita	<u>1/54-12/57</u>

25,550 1009 cards  
12,400 WBAN #3

Approximately 38,000 cards reproduced and furnished the College by the Weather Bureau.

1009's punched by College

<u>STATION</u>	<u>Period</u>
Burr Oak	11/00-7/48
El Dorado	<u>1/04-7/48</u>
	33,600

MAINE, UNIVERSITY OF - ORONO

Duplicate 1009 cards furnished the University.

<u>STATION</u>	<u>Period</u>
Caribou	1/56-12/57
Farmington	"
Ft. Fairfield	"
Houlton	"
Old Town	"
Fort Kent	11/52-12/57
Lewiston	6/48-12/57
Portland	1/55-12/57
Presque Isle	1/55-12/57
Rockland	6/48-12/57
Rumford	6/48-12/57

21,000 cards furnished the University by the Weather Bureau.

MARYLAND, UNIVERSITY OF - COLLEGE PARK, AND UNIVERSITY OF DELAWARE

<u>STATION</u>	<u>Period of Record</u>	
	<u>1009 Cards</u>	<u>Monthly Summary</u>
<u>MARYLAND</u>		
Annapolis Academy	8/48-12/57	1/48-12/56
Charlotte Hall	"	"
Chestertown	"	"
Chesville-Bridgeport	"	"
College Park	"	"
Crisfield	"	"
Cumberland	"	"
Easton	1/53-12/57	1/53-12/56
Elkton	8/48-12/57	1/48-12/56
Frostburg	"	"
Hancock Fruit Lab.	"	"
La Plata	9/48-12/57	"
Laurel	1/56-12/57	8/49-12/56
Oakland	8/48-12/57	1/48-12/56
Owings Ferry Landing	"	"
Princess Anne	12/48-12/57	12/48-12/56
Salisbury	8/48-12/57	1/48-12/56
Snow Hill	12/48-12/57	"
Solomons	8/48-12/57	1/48-12/56
Westminster	1/56-12/57	1/48-12/56
Woodstock	"	"
<u>DELAWARE</u>		
Dover	10-12/57	1/48-12/56
Georgetown	1/56-12/57	"
Newark University Farm	"	"

63,800 1009 Cards  
2,500 Monthly Summary

66,300 Total number of cards reproduced by the Weather Bureau and furnished the University.

1009 cards punched by the University of Maryland.

<u>STATION</u>	<u>Period</u>	<u>STATION</u>	<u>Period</u>
Annapolis	7/94-2/34	College Park	1/21-12/22
Aberdeen	1/19-7/48	Conowingo	1/36-7/48
Boysds	12/19-7/48	Crisfield	1/20-7/48
Cheltenham	1/09-12/20	Deer Park	10/94-12/18
Chesville-Bridgeport	6/20-12/25	Easton	1/49-12/52

UNIVERSITY OF MARYLAND (Cont.)

<u>STATION</u>	<u>Period</u>	<u>STATION</u>	<u>Period</u>
Emmitsburg	1/93-7/48	Hagerstown	12/91-7/48
Fallston	9/97-7/48	Millington	4/37-7/48
Frederick	1/93-7/48	Pocomoke City	3/94-6/29
Grantsville	8/94-1/44	Rock Hall	1/98-12/47
Great Falls	1/98-7/48	Salisbury	1/06-12/19

210,900 1009 cards punched by the University of Maryland.

1009 cards punched by the University of Delaware.

<u>STATION</u>	<u>Period</u>
Millsboro	1/93-12/01
Delaware City	1/02-12/20; 1/34-12/36

11, 700 1009 cards punched by the University of Delaware.

Fieldhouse, D. J. - University of Delaware and Engelbrecht, H. H. - U.S.W.B.  
Calculating the Need for Irrigation in Delaware

The daily weather records from Dover, Delaware for the period 1893 to 1957 were used in this study. The data used were on punch cards.

The entire operation of calculating evapotranspiration, adjusting the potential evapotranspiration to "actual" water loss, subtracting the water loss and adding the precipitation recharge was done by machine.

MICHIGAN STATE UNIVERSITY - EAST LANSING

1009 cards reproduced by the Weather Bureau and furnished to the University.

<u>STATION</u>	<u>Period</u>
Ann Arbor	5/48-12/56
Big Rapids	1/48-12/57
Higgins Lake	5/48-12/56
Ironwood	5/48-12/56

13,140      1009 cards furnished the University by the Weather Bureau.

MISSOURI, UNIVERSITY OF - COLUMBIA

1009 cards punched by the Weather Bureau and furnished to the University.

STATIONPeriod

Mexico, Mo.

1/53-12/56

1,460 1009 cards furnished the University by the Weather Bureau.

Decker, W. L. - Chances of Dry Periods in Missouri. Missouri Agricultural Experiment Station Bulletin 707. June, 1958.

McQuigg, J. D. and Decker, W. L. - Solar Energy. A Summary of Records at Columbia, Missouri. Missouri Agricultural Experiment Station Research Bulletin 671. July, 1958.

Brooker, D. B. and McQuigg, J. D. - Analysis of Weather Data Pertinent to Crop Drying. Paper presented at Stran-Steel Farm Structures Research Conference, Chicago, Illinois.

They plan to publish the results of the summarization of solar radiation data observed at Columbia, Missouri, as a "Research Bulletin."

MONTANA STATE COLLEGE - BOZEMAN

Duplicate 1009 cards furnished the Weather Bureau by the College.

<u>STATION</u>	<u>Period</u>
Conrad	3/11-1947
Dillon	1895-1947
Flatwillow	6/13-1947
Fortine	3/06-1947
Glasgow	7/93-1947
Malta	5/05-1947
Norris Madison	1/07-1947
Plevna	3/12-1947
Poplar	<u>2/93-1947</u>
	143,800

NEBRASKA, UNIVERSITY OF - LINCOLN

1009 cards furnished the Weather Bureau by the University.

<u>STATION</u>	<u>Period</u>
Ashland	1/00-7/48
Elkhart	1/00-11/05; 8/11-7/48
Tribune	<u>1/00-10/01; 5/12-7/48</u>

47,100 cards

Project 510: Placing Nebraska Climatological Data on Punch Cards and Preparation of Rainfall Summaries.

Data selected for temperature summarization will be compiled and used in a regional study. Summaries are being made on the frequency of occurrence and runs of days with temperatures below or above selected levels.

Regional precipitation probability studies are nearing completion.

A manuscript on agricultural weather stations and their instrumentation is ready for publication.

Revision of Project 510 to include summarization and publication of an atlas of Nebraska's climate is thought necessary in light of new agricultural problems, i.e., tomatoes.

Andrews, F. C. - Large Sample Variance of an Estimator for Values of the Probability Distribution of Precipitation. (Submitted for publication.)

NEW HAMPSHIRE, UNIVERSITY OF - DURHAM

1009 cards furnished the University.

<u>STATION</u>	<u>Period</u>
Berlin, N. H.	1-3/1926-1948; 10-12/1926-1948
Kingston, R. I.	" "

CONNECTICUT

Norwalk	1-12/1956
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MAINE

Eastport	"
Farmington	"
Presque Isle	"

MASSACHUSETTS

Adams	"
Bluehill	"
Hyannis	"
Springfield	"

NEW HAMPSHIRE

Berlin	"
Durham	"
Hanover	"
Keene	"

RHODE ISLAND

Kingston	"
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VERMONT

Burlington	"
Newport	"

MARYLAND

Keedysville	"
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14,200 1009 cards furnished the University by the Weather Bureau.

NEW JERSEY, NEW BRUNSWICK - RUTGERS UNIVERSITY  
(Memorandum of Understanding Type 2)

1009 cards furnished the University.

STATION

Period - 1/48-12/56

Belvidere  
Boonton  
Charlottesville  
Flemington  
Indian Mills  
Layton  
Long Branch  
Moorestown  
New Brunswick

29,600      Total cards

Work has concentrated primarily on the interpolation of the missing data needed to fill in the gaps in the punched card decks.

The NE-35 "Short Program" has been used for the analysis of the period March 1, 1926, through February 29, 1956, for Flemington, Indian Mills, Moorestown and New Brunswick.

NEW MEXICO AGRICULTURAL EXPERIMENT STATION - LAS CRUCES

<u>STATION</u>	<u>1009 Cards Punched by the College</u>	<u>Reproduced by the College and Furnished the Weather Bureau</u>
Lovington	8/19-7/47	8/19-3/26; 10/26-10/29; 1/32-7/47
Mosquero Clayton	8/27-7/47	8/27-7/47 2/96-12/99; 1/09-9/11; 3/13-7/47
Clovis		6/11-7/47
Tucumari	1/10-9/20; 1/21-7/47	12/40-9/20; 1/21-7/47

31,000

Cards punched by the College.

59,900

Cards reproduced by the College and furnished the Weather  
Bureau.

NEW YORK, ITHACA - CORNELL UNIVERSITY  
(Memorandum of Understanding Type 2)

1009 Cards - Period 1-12/56

STATION

Albany  
Alfred  
Angelico  
Auburn  
Bridgehampton  
Canton  
Chazy  
Cooperstown  
Delhi  
Elmira  
Fredonia  
Geneva  
Ithaca  
Janestown  
Little Falls

STATION

Lockport  
Lowville  
Morrisville  
Norwich  
Ogdensburg  
Oswego  
Port Jervis  
Poughkeepsie  
Rochester  
Roxbury  
Salisbury  
Setauket  
Syracuse  
Watertown  
Whitehall

Walden

1/56-12/57

Hourly Surface CardsSTATION

Westhampton Beach

Period

7/51-6/58

STATION

\*Auburn

Period

5/48-12/55

11,700 1009 cards punched for the University.  
58,400 Hourly Surface Cards.  
\* 2,700 Duplicate 1009 cards furnished the University.

OHIO AGRICULTURAL EXPERIMENT STATION - WOOSTER

Duplicate 1009 cards furnished the University.

<u>STATION</u>	<u>Period</u>
Cadiz	5/48-12/56
Kenton	5/48-12/57
Ironton	"
Greenville	"

13,500      Total cards

OKLAHOMA STATE UNIVERSITY - STILLWATER

Duplicate 1009 cards furnished the University by the Weather Bureau.

<u>STATION</u>	<u>Period</u>
Ada	8/47-1/48; 1/56-12/57
Chandler	" "
El Reno	" "
Marlow	" "
Frederick	1-12/1947; 1/56-12/57
Hollis	" "
Lookeba	" "
Newkirk	" "
Pawhuska	" "
Shawnee	" "
Tipton	" "
Pauls Valley	7/46-12/47; 1/56-12/57
Ardmore	1/56-12/57
Bristow	"
Chickasha	"
Durant	"
Enid	"
Holdenville	"
Jefferson	"
Kingfisher	"
Okemah	"
Stillwater	"
Tishomingo	"
Waurika	"

21,200 Total cards

PENNSYLVANIA STATE UNIVERSITY - UNIVERSITY PARK

Duplicate 1009 cards furnished the University by the Weather Bureau.

STATION Period - 5/48-12/56

Altoona  
 Brookville  
 Butten  
 Carlisle  
 Claysville  
 Clearfield  
 Corry  
 Donora  
 Ebensburg  
 Emporium  
 Franklin  
 Freeland  
 George School  
 Gettysburg  
 Greenville  
 Huntingdon  
 Johnstown  
 Lancaster  
 Lawrenceville  
 Lock Haven  
 Montrose  
 New Castle  
 Newell  
 Palmerton  
 Philadelphia  
 Ridgway  
 Somerset  
 State College  
 Towanda  
 Uniontown  
 Warren  
 York

<u>STATION</u>	<u>Period</u>
Bethlehem	5/48-9/53; 6/55-12/56
Mt. Pocono	5-9/48; 7/49-12/56
Selinsgrove	5-11/48; 7/49-12/56
Stroudsburg	6/48-12/56
Wellsboro	10/50-12/56
Williamsport	5/48-10/49

115,340 Total cards

SOUTH DAKOTA STATE COLLEGE - BROOKINGS

1009 cards reproduced and furnished the College by the Weather Bureau.

Period 1-12/1957

STATION

Academy  
 Armour  
 Bison  
 Bonesteel  
 Britton  
 Brookings  
 Camp Crook  
 Centerville  
 Clark  
 Cottonwood  
 Custer  
 Du Pree  
 Eureka  
 Faith  
 Faulkton  
 Forestburg  
 Gannvalley  
 Gregory

STATION

Highmore  
 Hot Springs  
 Howard  
 Kennebec  
 Lead  
 Lemmon  
 Longvalley  
 Marion  
 Martin  
 McIntosh  
 Mellette  
 Menno  
 Milbank  
 Miller  
 Mitchell  
 Mobridge  
 Murdo  
 Newell

STATION

Oelrichs  
 Pine Ridge  
 Pollock  
 Redfield  
 Redig  
 Roscoe  
 Sisseton  
 Spearfish  
 Timber Lake  
 Tyndall  
 Vale  
 Vermillion  
 Vivian  
 Wentworth  
 White Lake  
 Winner  
 Wood

WBAN #3 cards

Period 1-12/57

STATION

Aberdeen  
 Huron  
 Pierre  
 Rapid City  
 Sioux Falls  
 Watertown  
 Yankton

19,300	1009 cards
2,600	WBAN #3
21,900	Total cards

Pengra, R. F. - Agricultural Drought in South Dakota. Agricultural Economics Pamphlet 94. July, 1958.

TEXAS BOARD OF WATER ENGINEERS - AUSTIN

<u>Type of Card</u>	<u>Furnished the Weather Bureau by the Board of Water Engineers</u>	<u>Furnished the Board by the Weather Bureau</u>
1009	395,000	314,300
Hourly Precipitation	164,000	30,000
Monthly Precipitation	<hr/>	<hr/> 41,000
Total	559,000	385,300

Current plans of the Board of Water Engineers are to select stations with long continuous periods of record, distributed over the State, and put the weather data on punch cards. Their current estimates are that this will add about two and one half million cards to their present files. When this is done, they plan three studies using this information:

To determine

1. The maximum possible rainfall
2. The maximum probable rainfall
3. The frequency of various intensities of rainfall and their probable return period. The lower limit of the return period that they currently plan is a two-year frequency, the upper limit a 100-year frequency.

UTAH STATE UNIVERSITY - LOGAN

1009 cards punched by the University and duplicates furnished the Weather Bureau.

1928-1948

18 stations

Approximately 125,000 cards punched.

Several weather-crop summaries for locations in Utah are planned.

VERMONT, UNIVERSITY OF AND STATE AGRICULTURAL COLLEGE - BURLINGTON  
(Memorandum of Understanding Type 2)

1009 cards punched.

<u>STATION</u>	<u>Period</u>
Cornwall	1/26-12/56
Northfield	"
St. Johnsbury	"

33,945 Total cards.

WASHINGTON, STATE COLLEGE OF - PULLMAN

Duplicate 1009 cards furnished the Weather Bureau by the College.

STATIONPeriod

Prosser

1/31-5/48

6,350 Total cards

WASHINGTON, UNIVERSITY OF - SEATTLE

Punched by the University.

<u>STATION</u>	<u>Period</u>
Tatoosh Island (WBAN #3)	1/03-6/48
Wilbur (1009's)	2/00-6/48

74,200 Duplicate 1009 cards furnished the Weather Bureau by the University.

16,600 Duplicate WBAN #3 furnished the Weather Bureau by the University.

WEST VIRGINIA UNIVERSITY - MORGANTOWN  
(Memorandum of Understanding Type 2)

1009 cards punched.

Period 1-12/56

STATION

Bayard  
Buckeye  
Charleston  
Clarksburg  
Elkins AP  
Fairmont  
Flat Top  
Gary  
Glenville  
Huntington  
Kearveysville  
London Lock  
Mannington

STATION

Marlinton  
Martinsburg  
McRoss  
Parkersburg  
Petersburg  
Piedmont  
Pt. Pleasant  
Spencer  
Wardensville  
Wheeling  
White Sulphur Springs  
Williamson

9,100 Total cards

WYOMING, UNIVERSITY OF - LARAMIE1009 Cards

<u>STATION</u>	<u>Punched by the University</u>	<u>Reproduced by Weather Bureau and furnished the University</u>
Cheyenne		8/48-1956
Chugwater		"
Cody		"
Colony	1915-7/48	"
Douglas	1915-7/48	"
Evanston		"
Farson		"
Green River	1915-7/48	
Grover	1915-7/48	
Lusk	1915-7/48	8/48-1956
Moran	1915-7/48	"
Newcastle		"
Pine Bluffs	1919-7/48	"
Powell		"
So. Pass City	1915-7/48	
Worland		8/48-1956

96,700 Punched by the University.  
58,400 Duplicate 1009 cards furnished the Weather Bureau by the  
University.  
40,000 Reproduced by the Weather Bureau and furnished the University.

Probability of Rain Interference in Haymaking. A part of the Wyoming Experiment Station's contributing project to Western Regional Project W-36, "Efficiency in the harvesting and use of seeded forage crops," is concerned with the evaluation of different hay-harvesting methods from the standpoint of rain interference in haymaking.

SUMMARY OF CARDS AS OF JANUARY 1, 1959

	<u>Cards Punched by the University</u>	<u>Duplicates furnished the Weather Bureau</u>	<u>Reproduced by the Weather Bureau and furnished the University</u>
University of Arizona	542,100	400,000	2,270,000
University of Arkansas	195,100	152,800	43,600
Colorado State University	105,000		
University of Connecticut	86,600	(Type 2 Agreement)	
University of Delaware	100,300		22,500
University of Florida	186,000	186,000	11,000
Illinois State Water Survey	1,070,300	998,000	991,500
Indiana - Purdue University	473,300	194,000	115,000
Iowa State College	*681,500	*681,500	93,000
Iowa State College	46,200	(Type 2 Agreement)	
Kansas State College	384,000	222,800	100,800
University of Maine	76,000	(Type 2 Agreement)	
University of Maryland	580,800	9,500	148,400
University of Massachusetts	52,600	(Type 2 Agreement)	
Michigan State College	86,500	68,300	35,800
University of Minnesota	138,200	78,300	36,300
University of Missouri	643,500	643,200	171,000
Montana State College	697,800	522,900	10,200
University of Nebraska	519,400	47,100	71,300
University of New Hampshire	106,800	90,300	82,700
New Jersey, Rutgers University	128,800	(Type 2 Agreement)	
New Mexico College of Agri- culture and Mechanic Arts	66,000	59,900	
New York, Cornell University	387,300	(Type 2 Agreement)	
North Dakota Agricultural College	180,400	59,100	30,000
Ohio Agricultural Experiment Station	109,600	19,700	28,300
Oklahoma State University	365,700	143,800	89,800
Pennsylvania State University	292,700		115,300
South Dakota State College	561,000	426,400	477,900
Texas Board of Water Engineers	710,900	681,000	537,000
Utah State University	125,000	125,000	
University of Utah	322,100	168,800	40,800
University of Vermont	33,900	(Type 2 Agreement)	
State College of Washington	6,350	6,350	3,100
University of Washington	91,300	90,800	
West Virginia University	257,100	(Type 2 Agreement)	
University of Wisconsin	124,000	124,000	106,400
University of Wyoming	279,600	58,400	65,500
<b>TOTALS</b>	<b>10,813,750</b>	<b>6,257,950</b>	<b>5,697,200</b>

\* Under Weather Bureau Contract

REFERENCES

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- Colville, W. L. - Nebraska Agricultural Experiment Station Annual Project Report, 1958.
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- Texas Board of Water Engineers - Annual Report on Status of Cooperative Card Punch Program, January 1959.
- Church, Phil E. and Phillips, Earl L. - First Annual Progress Report, November 1958, University of Washington.
- Becker, C. F., Long, J. and Hosick, A. H. - Wyoming Climatology Progress Report for 1958.

