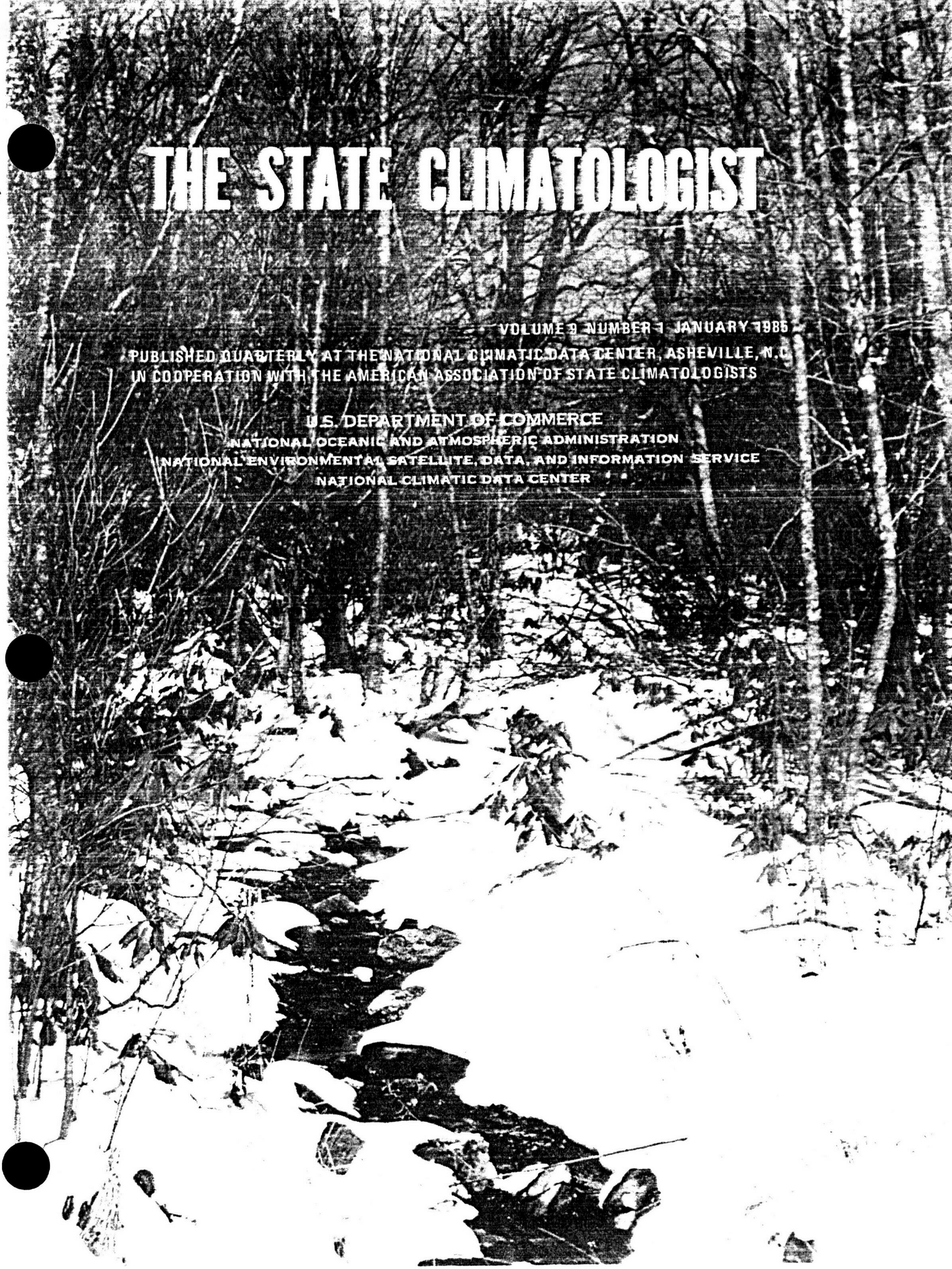
THE STATE CLIMATOLOGIST

VOLUME 9 NUMBER 1 JANUARY 1985

PUBLISHED QUARTERLY AT THE NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, N.C.
IN COOPERATION WITH THE AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
NATIONAL CLIMATIC DATA CENTER



Climatography #20 Update. We are presently 75% through the reprint of the new Climatography #20 series. There are 1900 different stations in all with a projected completion in early March 1985. Upon completion, there will be bound sets made by state containing a newly generated map as well as a station list. One bound set will be provided free to each state as soon as they are available.

1983 CD Annuals. The printing of the revised 1983 CD Annuals is complete. There had been some data problems with the initial run, thus necessitating a rerun and new printing. Subscription copies will be mailed by February 13, 1985.

NCDC/SC Exchange Program. NCDC received applications from a record number (25%) of State Climatologists for the FY-85 Exchange Program. Unfortunately we were unable to secure additional funding to cover this number of applications. Following are a list of those states that were selected to participate this year: Alabama, Colorado, Connecticut, Iowa, Maryland, Montana, New Jersey, South Carolina, and Utah. We would hope that those states not chosen this year will re-submit their applications next year. We greatly appreciate your interest in this program.

Climate Computer (CLICOM) Project. In support of the WMO World Climate Data Program (WCDP), the United States has been asked to take the lead in developing a basic micro-computer system to be deployed in developing countries.

The proposed pilot project concentrates on designing a "turn key" hardware/software system that will allow participating countries to salvage climate data from deteriorating manuscript forms and begin building digital data bases. The focus will be on data management with some rudimentary software to produce summary data.

A properly designed, user friendly system is essential to assure acceptance by participating countries, and will encourage the construction of data bases that can be used as input to a variety of applications programs.

The thrust of this phase is to provide the hardware/software/simplified operations manuals and training needed to get the project underway. Generalized programs, applicable to all types of climate data processing, will be emphasized.

Although the NCDC will have the lead role in this pilot project, advice from NOAA, other governmental agencies, and civilian experts will be solicited. In addition, there will be an oversight committee composed of NCDC, NWS, and WMO experts.

It is important to remember that the principal goal of this phase is to provide a means of digitizing and managing a climate data base which can then be used with confidence as input to follow-on applications programs.

Development - MAPSO. MAPSO (Microcomputer-Aided Paperless Surface Observations) became operational in January with one Pacific Region station, Kahului, Hawaii. At this time digital data have been received, on Apple-formatted diskettes, for the first 20 days of January. The Pacific Region diskettes require some format changes, and we are in the process of making slight modifications to our software to process these data.

Alaskan Region MAPSO will become operational with 14 stations in February. All Alaskan stations are using IBM-PCs for data input and processing.

Operational MAPSO stations will not submit MF1 manuscripts; thus, we have developed an "MF1 clone" on COM to fulfill the NCDC archive requirement. Focal points for this project are Marc Plantico, Dan Manns, and Tom Reek.

Maximum Short Duration Precipitation. Starting with February data, the National Weather Service personnel will no longer compute maximum precipitation. This will be calculated at NCDC by digitizing the First-Order universal rain gauge charts and through the use of newly designed and developed software. The digitization will be done by the Cooperative Data Branch using the Data General Eclipse computer.

Testing of the system is presently being completed using 25 stations from December 1984 and January 1985. The system appears to be running perfectly. Focal point for this project is Catherine Godfrey.

LCD Annual Publication. Tom Reek and Eric Gadberry have been working on this project which has entailed a complete redesign of the publication and the system which produces it. Dynamically labeled and scaled graphs have replaced the narratives on the cover page. The publication has been expanded to eight pages, tables have been redesigned, and the print size expanded. In addition, the microfiche archive product has been designed for optimum readability.

Several of the State Climatologists made some excellent suggestions concerning the content and form of the new LCD Annual while here at NCDC during last year's Exchange Program. A sample of the new LCD Annual appears in this issue of the State Climatologist.

Applied Climatology Workshop. NCDC had hoped to have a short seminar/workshop in conjunction with the 1985 AASC meeting. This idea has died due to a lack of funds. Now we are hoping to put together a 1 or 2 week workshop on Applied Climatology sometime in 1986.

What is needed are your thoughts on what subjects to address, what audience would benefit the most, whether it should be one long course or a series of shorter classes, and if Asheville is a good location or should we "go to the audience"?

If you have any thoughts or comments, please contact Steve Doty by letter or telephone (704-259-0475).

New Station Minimum Temperature. No doubt we will learn of many more broken temperature records as the January 1985 weather forms come into the National Climatic Data Center. Certainly we are already aware of the temperatures that we experienced here during the Arctic Outbreak of January 20 and 21. We have continued the old Weather Bureau records for downtown Asheville through a cooperative station on the roof of the Center. The Weather Bureau records began on September 1, 1902, but we also have some older Smithsonian records dating back to 1873. A review of all the records showed that the previous coldest recorded temperature in the Asheville City area was -10°F set during the record outbreak of February 13-14, 1899. The coldest temperature recorded since 1902 was -8°F on December 25, 1983. Both of these records were left far behind when the temperature fell to -17°F on the morning of January 21, 1985. Nearby, Mt. Mitchell set a new state record of -34°F breaking the old record of -29°F set on January 30, 1966.

NEWS FROM THE STATES

TENNESSEE. Mr. Wayne Hamberger is now the Acting Tennessee State Climatologist replacing Mr. Chuck Bach. Chuck's recent promotion in the Tennessee Valley Authority (TVA) necessitated him to vacate his position as State Climatologist. Chuck will still remain in the same office with Mr. Hamberger and therefore, will not be totally removed from any association with the State Climatologist Program. Please address all future correspondence to:

Mr. Wayne Hamberger
Tennessee Valley Authority
310 Evans Building
Knoxville, TN 37902
Phone: 615-632-4222
FTS-856-4222

Welcome to the group Wayne, and thanks Chuck for your help and support over the past years.

OREGON. Dr. Kelly T. Redmond is now the Oregon State Climatologist. Dr. Redmond had been the assistant SC for the past several years, and will take over for Dr. Allan H. Murphy. We would also like to thank Dr. Murphy for his contributions to the SC program and congratulate Dr. Redmond on the assumption of his new position. Kelly may be reached at the same address and phone number as Dr. Murphy.

NEVADA. The new State Climatological Library was dedicated at the University of Nevada-Reno on November 19th. It is located in the Department of Geography wing of Mackay Science Hall, and is a part of the William D. Phillips Memorial Map and Climatological Library Room. Members of the University administration, Nevada State administration, and the National Oceanic and Atmospheric Administration took part in the ceremony. The public was also invited to view the collection of climate data, including many old handwritten records from the last century, some from long-since-gone mining camps.

NEW STATE PUBLICATIONS OR REPORTS

CLIMATE OF NEVADA - By John W. James
Nevada State Climatologist

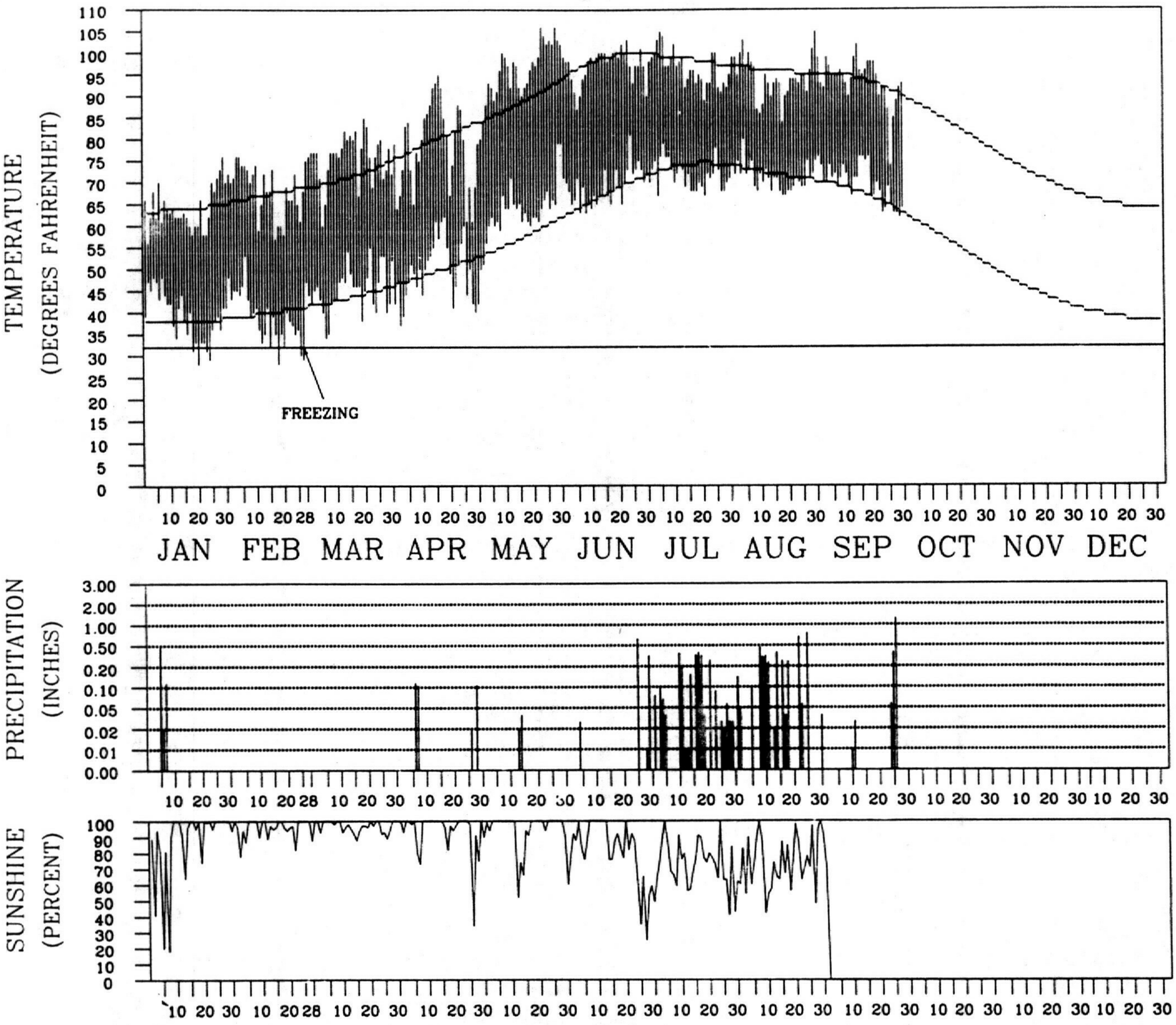
This concise 28-page report describes through both narrative and tabular form the five climatic regions of Nevada.

Paper No. 84-12

ISSN 0189-0580

1984 LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA
TUCSON, ARIZONA
NATIONAL WEATHER SERVICE OFFICE

Daily Data



TEMPERATURE DEPICTS NORMAL MAXIMUM, NORMAL MINIMUM AND ACTUAL DAILY HIGH AND LOW VALUES (FAHRENHEIT)
PRECIPITATION IS MEASURED IN INCHES, SCALE IS NON-LINEAR
SUNSHINE IS PERCENT OF THE POSSIBLE SUNSHINE

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, NORTH CAROLINA, 28801

Kenneth D. Hadeen
DIRECTOR
NATIONAL CLIMATIC DATA CENTER

noaa — NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION — NATIONAL ENVIRONMENTAL SATELLITE, DATA AND INFORMATION SERVICE — NATIONAL CLIMATIC DATA CENTER ASHEVILLE NORTH CAROLINA

METEOROLOGICAL DATA FOR 1984

TUCSON, ARIZONA

LATITUDE: 32°07' N LONGITUDE: 110°56' W ELEVATION: FT. (grd) 2584 (msl) 2555 TIME ZONE: MOUNTAIN WBAN: 23160

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:													
Averages													
-Daily Maximum	64.4	68.6	76.0	78.5	96.1	97.1	96.6	94.5	93.5				0.0
-Daily Minimum	39.1	38.7	44.9	49.4	63.6	69.0	71.7	71.2	69.4				0.0
-Monthly	51.8	53.7	60.5	64.0	79.9	83.1	84.2	82.9	81.5				0.0
-Monthly Dewpt.	31.1	20.0	19.7	26.3	32.8	41.3	60.9	60.8	51.8				0.0
Extremes													
-Highest	76	76	85	95	106	103	105	105	102				0
-Date	29	29	20	16	28	23	5	30	14				
-Lowest	28	28	34	37	50	63	67	67	62				0
-Date	20	18	6	2	1	8	21	19	29				
DEGREE DAYS BASE 65 °F:													
Heating	402	323	140	110	0	0	0	0	0				0
Cooling	0	0	6	87	469	549	601	562	503				0
% OF POSSIBLE SUNSHINE	88	96	97	93	93	81	73	75	82				0
AVG. SKY COVER (tenths)													
Sunrise - Sunset	3.1	3.7	2.8	2.9	2.2	4.6	5.7	5.2	3.4				0.0
Midnight - Midnight	3.1	3.0	2.3	2.5	2.2	4.5	6.6	5.7	3.5				0.0
NUMBER OF DAYS:													
Sunrise to Sunset													
-Clear	19	14	21	18	21	10	5	9	19				0
-Partly Cloudy	7	9	6	9	8	13	19	12	6				0
-Cloudy	5	6	4	3	2	7	7	10	5				0
Precipitation .01 inches or more	3	0	0	4	2	4	21	15	5				0
Snow, Ice pellets 1.0 inches or more	0	0	0	0	0	0	0	0	0				0
Thunderstorms	0	0	0	0	3	7	25	20	5				0
Heavy Fog, visibility 1/4 mile or less	2	0	0	0	0	0	0	0	1				0
Temperature °F													
-Maximum													
90° and above	0	0	0	4	27	29	30	27	26				0
32° and below	0	0	0	0	0	0	0	0	0				0
-Minimum													
32° and below	4	5	0	0	0	0	0	0	0				0
0° and below	0	0	0	0	0	0	0	0	0				0
AVG. STATION PRESS. (mb)	928.2	926.9	924.5	923.0	923.5	922.8	924.5	925.2	923.8				0.0
RELATIVE HUMIDITY (%)													
Hour 05	64	41	34	43	33	36	69	68	53				0
Hour 11 (Local Time)	43	24	19	22	16	20	40	43	34				0
Hour 17	34	16	11	16	11	20	36	40	28				0
Hour 23	58	34	24	31	21	30	60	59	46				0
PRECIPITATION (inches):													
Water Equivalent													
-Total	0.62	0.00	0.00	0.36	0.06	1.05	2.92	4.19	1.81				0.00
-Greatest (24 hrs)	0.48	0.00	0.00	0.23	0.06	0.66	0.53	0.81	1.35				0.00
-Date	5			6- 7	13-14	25	17-18	8- 9	25-26				
Snow, Ice pellets													
-Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.0
-Greatest (24 hrs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.0
-Date													
WIND:													
Resultant													
-Direction (!!!)	138	142	242	230	214	217	181	173	138				000
-Speed (mph)	4.0	1.9	3.2	3.9	2.5	4.7	2.3	2.6	4.4				0.0
Average Speed (mph)	8.4	8.4	9.2	9.8	8.8	9.1	8.1	7.5	9.0				0.0
Fastest Mile													
-Direction (!!!)	E	W	SW	SW	SE	S	NE	S	SE				
-Speed (mph)	28	33	38	41	43	34	45	35	34				0
-Date	30	14	26	25	13	29	16	22	15				
PEAK GUST													
-direction (!!!)	SE	W	SW	SW	SE	S	NE	SW	SE				MSG
Speed (mph)	38	39	51	55	55	41	62	41	43				0
-Date	30	25	26	25	13	29	16	25	15				

(!!!) See Reference Notes on Page 6B

NORMALS, MEANS, AND EXTREMES

TUCSON, ARIZONA

LATITUDE: 32 °07'N LONGITUDE: 110 °56' W ELEVATION: FT. (grd) 2584 (msl) 2555 TIME ZONE: MOUNTAIN WBAN: 23160

	(a)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:														
Normals														
-Daily Maximum		64.1	67.4	71.8	80.1	88.8	98.5	98.5	95.9	93.5	84.1	72.2	65.0	81.7
-Daily Minimum		38.1	40.0	43.8	49.7	57.5	67.4	73.8	72.0	67.3	56.7	45.2	39.0	54.2
-Monthly		51.1	53.7	57.8	64.9	73.2	83.0	86.2	84.0	80.4	70.4	58.7	52.0	67.9
Extremes														
-Record Highest	43	87	92	92	102	107	111	111	109	107	101	90	84	111
-Year		1953	1957	1950	1943	1958	1970	1983	1944	1983	1980	1947	1954	JUN 1970
-Record Lowest	43	16	20	20	27	38	47	62	61	44	26	24	16	
-Year		1949	1955	1965	1945	1950	1955	1982	1956	1965	1971	1979	1974	DEC 1954
NORMAL DEGREE DAYS:														
Heating (base 65°F)		431	326	246	86	8	0	0	0	0	30	204	403	1734
Cooling (base 65°F)		0	12	22	86	262	537	657	589	462	198	15	0	2840
% OF POSSIBLE SUNSHINE	36	80	83	86	92	94	93	78	82	87	89	85	80	86
MEAN SKY COVER (tenths)														
Sunrise - Sunset	42	4.7	4.5	4.5	3.4	2.7	2.2	5.2	4.4	2.9	2.8	3.5	4.4	3.8
MEAN NUMBER OF DAYS:														
Sunrise to Sunset														
-Clear	43	14	13	15	17	21	22	10	13	20	20	18	15	198
-Partly Cloudy	43	7	7	7	7	6	6	12	12	7	6	6	6	89
-Cloudy	43	10	9	10	5	4	2	9	6	4	5	6	10	80
Precipitation														
.01 inches or more	43	4	4	4	2	1	2	10	9	5	3	3	4	51
Snow, Ice pellets														
1.0 inches or more	43	*	*	*	*	0	0	0	0	0	0	*	*	0
Thunderstorms	43	*	*	*	1	1	2	14	13	6	2	*	*	39
Heavy Fog Visibility														
1/4 mile or less	43	*	*	*	0	0	0	0	0	0	0	*	*	0
Temperature °F														
-Maximum														
90° and above	43	0	*	*	4	17	28	29	29	23	8	*	0	138
32° and below	43	0	0	0	0	0	0	0	0	0	0	0	0	0
-Minimum														
32° and below	43	7	4	1	*	0	0	0	0	0	*	1	5	18
0° and below	43	0	0	0	0	0	0	0	0	0	0	0	0	0
AVG. STATION PRESS. (mb)	11	927.5	927.1	924.5	924.0	922.5	922.8	924.6	924.8	924.2	925.7	926.9	927.9	925.2
RELATIVE HUMIDITY (%)														
Hour 05	43	62	59	54	42	34	32	57	65	55	52	54	61	52
Hour 11 (Local Time)	43	40	35	30	21	17	17	33	38	32	30	32	39	30
Hour 17	43	33	27	23	[illegible]	13	13	28	33	27	25	28	34	25
Hour 23	43	57	49	43	[illegible]	24	23	47	53	44	43	48	56	43
PRECIPITATION (inches):														
Water Equivalent														
-Normal		0.83	0.63	0.68	0.32	0.14	0.22	2.42	2.13	1.33	0.88	0.62	0.94	11.14
-Maximum Monthly	43	2.94	2.90	2.26	1.66	0.89	1.46	6.17	7.93	5.11	4.98	1.90	5.02	7.93
-Year		1979	1980	1952	1951	1943	1954	1981	1955	1964	1983	1952	1965	AUG 1955
-Minimum Monthly	43	T	0.00	0.00	0.00	0.00	0.00	0.27	0.23	0.00	0.00	0.00	0.00	T
-Year		1970	1972	1956	1972	1974	1983	1947	1976	1953	1982	1980	1981	JAN 1970
-Maximum in 24 hrs	43	1.40	1.49	1.19	0.75	0.89	1.27	3.93	2.48	3.05	3.58	1.86	1.54	3.93
-Year		1946	1942	1952	1952	1943	1954	1958	1961	1964	1983	1968	1967	JUL 1958
Snow, Ice pellets														
-Maximum Monthly	43	4.7	3.9	5.7	2.0	0.0	0.0	0.0	0.0	0.0	T	6.4	6.8	6.8
-Year		1949	1965	1964	1976						1959	1958	1971	DEC 1971
-Maximum in 24 hrs	42	3.5	3.9	5.7	2.0	0.0	0.0	0.0	0.0	0.0	T	6.4	6.8	6.80
-Year		1949	1965	1964	1976						1959	1958	1971	DEC 1971
WIND:														
Mean Speed (mph)	38	7.8	8.1	8.5	8.9	8.6	8.6	8.3	7.7	8.2	8.2	8.1	7.8	8.2
Prevailing Direction through 1963		SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE
Fastest Mile														
-Direction (!!!)	35	E	E	SE	SE	NE	SE	SE	NE	SE	SE	E	W	SE
-Speed (mph)	35	40	59	41	46	42	50	71	54	54	47	55	44	71
-yea		1962	1952	1955	1952	1965	1961	1971	1969	1960	1948	1951	1949	JUL 1971

(!!!) See Reference Notes on Page 6B.

PRECIPITATION (inches)

TUCSON, ARIZONA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1955	1.89	0.19	0.03	T	0.03	0.03	5.10	7.93	0.05	0.32	T	0.33	15.90
1956	1.08	0.54	0.00	0.31	T	0.36	2.77	1.12	0.37	0.27	T	0.22	7.04
1957	2.37	0.36	0.93	0.16	0.33	0.17	1.25	3.92	T	2.62	0.56	0.89	13.56
#1958	T	1.15	1.82	0.48	0.02	0.51	5.20	0.91	0.21	1.21	1.09	0.00	12.60
1959	0.03	0.28	T	0.01	0.00	T	3.92	2.79	T	0.70	0.29	1.97	9.99
1960	2.01	0.42	0.25	0.00	0.08	0.25	0.73	2.09	1.20	0.71	0.07	0.93	8.74
1961	0.95	0.01	0.41	T	0.00	0.26	1.81	4.28	0.51	0.65	0.44	1.57	10.89
1962	1.39	0.33	0.25	T	0.00	0.25	1.38	0.48	2.86	0.22	0.49	0.93	8.58
1963	0.59	0.81	0.34	0.32	T	T	1.66	2.86	1.45	0.60	1.26	0.08	9.97
1964	0.14	0.13	0.81	0.67	0.00	0.01	4.82	3.90	5.11	0.91	0.68	0.81	17.99
1965	0.45	0.64	0.27	0.23	T	0.01	2.13	1.12	0.82	0.07	0.77	5.02	11.53
1966	1.74	2.25	0.19	0.12	0.11	0.02	2.57	3.31	3.53	0.32	0.06	0.19	14.41
1967	0.04	0.13	0.41	0.29	0.62	0.42	2.72	2.00	1.35	1.03	0.48	3.44	12.93
1968	0.18	0.99	1.79	0.62	T	0.00	1.97	1.12	T	0.09	1.86	0.32	8.94
1969	0.74	0.50	0.34	0.60	0.46	0.00	1.51	2.57	1.31	0.03	1.06	0.82	9.94
1970	T	0.34	1.13	0.45	0.03	0.33	2.53	1.43	3.58	1.73	0.00	0.43	11.98
1971	0.04	0.50	T	0.56	0.01	T	2.18	3.29	1.75	1.18	0.69	1.97	12.17
1972	0.00	0.00	0.01	0.00	0.24	0.68	3.49	2.93	1.09	4.51	1.30	0.61	14.86
1973	0.06	1.60	2.20	0.02	0.09	0.50	1.74	0.54	T	0.00	0.47	0.00	7.22
1974	0.93	T	0.55	T	0.00	0.01	4.44	1.04	1.69	2.12	0.81	0.33	11.92
1975	0.36	0.13	0.95	0.27	0.11	0.00	2.38	0.32	1.26	T	0.34	0.52	6.64
1976	0.06	0.53	0.38	0.57	0.23	0.10	1.18	0.23	1.68	0.37	0.48	0.47	6.28
1977	1.83	0.04	0.74	0.43	0.08	0.06	0.76	0.80	1.41	2.36	0.33	1.33	10.17
1978	2.05	1.75	0.89	0.01	0.61	0.22	0.78	1.59	1.66	1.86	1.58	2.73	15.73
1979	2.94	0.42	0.64	0.04	0.67	0.53	2.04	2.60	0.02	0.33	0.01	0.15	10.39
1980	0.73	2.90	1.22	0.08	T	0.23	1.78	1.95	2.93	0.22	0.00	0.19	12.23
1981	1.29	0.71	1.98	0.56	0.26	0.16	6.17	0.80	1.10	0.06	0.61	0.00	13.70
1982	1.56	0.06	1.26	0.05	0.51	0.13	2.13	2.51	2.69	0.00	1.30	1.59	13.79
1983	1.70	0.94	1.28	0.14	T	0.00	1.98	4.24	4.28	4.98	1.71	0.61	21.86
1984	0.62	0.00	0.00	0.36	0.06	1.05	2.92	4.19	1.81				
Record Mean	0.84	0.81	0.74	0.35	0.19	0.25	2.24	2.11	1.33	0.69	0.77	1.00	11.33

See Reference Notes on Page 6B.

Page 4A

AVERAGE TEMPERATURE (deg. F)

TUCSON, ARIZONA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1955	46.7	48.8	59.6	64.4	71.8	82.3	84.6	81.8	81.2	74.3	58.5	55.5	67.4
1956	56.1	48.7	60.2	64.2	75.8	86.2	85.4	84.0	84.3	70.2	57.8	52.5	68.8
1957	53.8	61.1	59.6	66.2	71.2	85.3	88.1	84.2	81.3	67.9	54.3	54.9	69.0
1958	51.4	55.8	54.2	64.5	79.1	84.9	86.9	84.5	80.5	71.9	57.8	55.6	68.9
1959	53.8	51.5	58.2	69.2	72.5	85.4	86.6	81.8	80.2	69.7	58.5	51.4	68.2
1960	46.8	47.8	61.0	65.7	71.9	83.5	86.0	84.2	81.2	67.3	59.2	49.1	67.0
1961	52.5	53.0	58.2	66.2	72.9	84.7	86.1	81.8	77.1	68.5	54.4	50.5	67.1
1962	49.0	54.7	53.3	70.1	71.7	80.3	84.9	87.0	81.3	70.6	61.5	54.0	68.2
1963	48.3	57.5	57.7	64.0	77.3	80.5	87.6	82.3	82.4	73.2	59.3	52.7	68.6
1964	47.5	47.7	54.8	63.2	73.2	82.0	86.2	81.6	76.3	72.1	55.2	52.4	66.0
1965	53.6	51.1	55.1	64.5	70.1	77.6	85.0	84.0	76.8	71.9	62.6	52.1	67.1
1966	47.7	47.8	60.1	66.8	76.1	82.8	85.3	82.9	78.3	68.1	61.1	52.4	67.4
1967	51.4	55.6	62.1	62.1	71.9	80.7	85.4	84.6	80.7	71.6	62.9	48.6	68.1
1968	52.4	59.1	58.7	63.2	73.3	83.5	84.9	81.3	80.7	71.7	58.3	50.6	68.1
1969	55.5	53.1	54.3	66.6	74.9	80.7	86.1	86.3	81.2	66.8	58.6	52.4	68.0
1970	50.0	57.0	55.9	61.1	75.2	83.4	87.2	84.8	76.4	65.1	60.1	51.8	67.3
1971	50.5	52.3	59.8	62.8	69.3	81.2	87.5	81.3	79.1	64.2	56.8	47.1	66.0
1972	50.4	55.8	65.0	65.8	72.3	81.6	86.6	82.9	78.6	66.5	53.0	49.0	67.3
1973	47.6	53.4	51.6	59.7	73.0	81.4	84.3	84.7	79.6	70.7	58.4	52.3	66.4
1974	50.2	51.9	60.1	66.1	74.3	86.9	83.5	83.0	77.8	69.1	57.5	47.0	67.3
1975	49.8	50.7	55.3	57.9	69.8	80.5	84.2	85.8	80.0	69.5	59.3	53.0	66.3
1976	52.6	58.4	58.2	64.8	74.5	83.4	83.9	85.3	77.7	67.8	60.0	52.2	68.3
1977	50.7	56.9	55.7	67.0	70.8	84.7	87.0	86.4	82.0	73.3	61.7	56.9	69.4
1978	53.1	53.6	61.8	65.2	73.1	85.8	88.1	84.7	80.9	73.8	58.5	49.7	69.0
1979	48.4	53.8	56.4	65.6	72.2	83.1	87.5	83.4	84.2	73.0	56.6	55.0	68.3
1980	54.3	57.9	57.5	65.6	71.5	84.9	88.6	84.6	80.5	69.6	59.5	58.1	69.4
1981	54.8	57.1	57.1	69.1	73.4	86.1	85.2	86.4	80.7	68.1	62.2	55.0	69.6
1982	50.7	54.7	57.7	66.1	72.3	80.5	84.8	83.9	79.2	67.0	57.7	50.1	67.0
1983	52.9	53.8	57.3	60.4	73.8	81.6	86.9	84.0	82.2	69.5	57.4	53.5	67.8
1984	51.8	53.7	60.5	64.0	79.9	83.1	84.2	82.9	81.5				
Record Mean	50.4	53.3	57.7	64.4	72.6	82.1	86.0	84.0	80.0	69.5	58.2	51.4	67.4
Max	64.3	67.6	72.7	80.6	89.3	98.8	99.1	96.6	94.0	84.8	73.1	65.3	82.2
Min	36.4	39.0	42.7	48.3	55.8	65.4	72.9	71.3	66.0	54.1	43.3	37.5	52.7

See Reference Notes on Page 6B.

Page 4B

HEATING DEGREE DAYS Base 65 deg. F

TUCSON, ARIZONA

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
1955-56	0	0	0	0	198	288	268	468	167	84	0	0	1473
1956-57	0	0	0	47	223	378	340	128	167	50	18	0	1351
1957-58	0	0	0	41	314	306	416	252	329	100	0	0	1758
# 1958-59	0	0	0	27	215	284	340	370	205	8	10	0	1459
1959-60	0	0	0	45	189	416	556	493	136	68	5	0	1908
1960-61	0	0	0	37	183	486	381	331	206	41	9	0	1674
1961-62	0	0	0	61	312	444	491	285	357	5	7	0	1962
1962-63	0	0	0	13	137	336	515	215	234	79	0	0	1529
1963-64	0	0	0	2	186	372	533	497	321	107	27	0	2045
1964-65	0	0	0	5	293	383	348	383	305	114	21	0	1852
1965-66	0	0	8	33	110	396	532	473	166	26	0	0	1744
1966-67	0	0	0	20	126	386	416	256	115	113	20	0	1452
1967-68	0	0	0	14	89	502	384	170	200	91	0	0	1450
1968-69	0	0	0	4	204	440	288	328	339	34	35	0	1672
1969-70	0	0	0	55	188	384	455	224	274	132	8	0	1720
1970-71	0	0	0	58	143	403	445	350	200	111	12	0	1722
1971-72	0	0	0	120	249	548	444	259	73	50	0	0	1743
1972-73	0	0	0	96	358	489	533	320	410	174	19	0	2399
1973-74	0	0	0	23	216	390	451	362	161	49	5	0	1657
1974-75	0	0	0	53	218	552	465	393	299	217	29	0	2226
1975-76	0	0	0	38	191	365	378	180	221	88	5	0	1466
1976-77	0	0	0	45	178	390	435	221	287	65	9	0	1630
1977-78	0	0	0	1	117	242	365	313	144	64	24	0	1270
1978-79	0	0	0	15	213	470	511	311	260	76	20	0	1876
1979-80	0	0	0	26	252	302	323	202	227	84	3	0	1419
1980-81	0	0	0	66	197	210	310	220	244	31	0	0	1278
1981-82	0	0	0	34	106	304	437	291	223	46	10	0	1451
1982-83	0	0	0	41	211	456	371	309	239	168	6	0	1801
1983-84	0	0	0	0	232	348	402	323	140	110	0	0	1555
1984-85	0	0	0										

See Reference Notes on Page 6B.

Page 5A

COOLING DEGREE DAYS Base 65 deg. F

TUCSON, ARIZONA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
1969	0	0	15	87	348	477	658	669	493	118	1	0	2866
1970	0	5	0	25	333	561	693	620	347	68	4	0	2656
1971	6	0	45	51	152	493	706	514	430	101	12	0	2510
1972	0	1	82	82	236	506	678	563	414	150	1	0	2713
1973	0	0	0	21	272	495	603	615	445	206	26	2	2685
1974	0	0	18	87	301	664	581	564	387	185	1	0	2788
1975	0	0	4	11	184	471	604	651	458	182	27	0	2592
1976	2	0	14	89	306	557	597	636	386	139	34	0	2760
1977	0	0	5	133	198	597	691	669	517	266	23	0	3099
1978	0	0	54	76	283	630	721	616	483	293	28	0	3184
1979	0	0	1	101	249	551	706	576	580	282	6	0	3052
1980	0	4	1	109	211	606	742	615	474	216	37	3	3018
1981	0	8	4	159	267	639	633	670	476	137	27	2	3022
1982	0	4	4	82	244	471	622	594	437	112	0	0	2570
1983	0	0	8	36	288	503	688	600	523	145	10	0	2801
1984	0	0	6	87	469	549	601	562	503				

See Reference Notes on Page 6B.

Page 5B

SNOWFALL (inches)

TUCSON, ARIZONA

SEASON	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
1955-56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	2.0
1956-57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1957-58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1958-59	0.0	0.0	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4
1959-60	0.0	0.0	0.0	T	0.0	T	1.3	T	0.0	0.0	0.0	0.0	1.3
1960-61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1961-62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	T
1962-63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1963-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	0.0	5.7
1964-65	0.0	0.0	0.0	0.0	0.1	0.0	0.0	3.9	0.0	0.0	0.0	0.0	4.0
1965-66	0.0	0.0	0.0	0.0	0.0	0.3	T	1.2	0.0	0.0	0.0	0.0	1.5
1966-67	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T	0.0	0.0	T
1967-68	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6
1968-69	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	T	0.0	0.0	0.0	0.4
1969-70	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	T	T	0.0	0.0	T
1970-71	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	0.0	T
1971-72	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	6.8
1972-73	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1973-74	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	T	0.0	0.0	0.0	0.4
1974-75	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.5	0.0	0.0	0.0	0.5
1975-76	0.0	0.0	0.0	0.0	T	T	0.0	0.0	3.8	2.0	0.0	0.0	5.8
1976-77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977-78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978-79	0.0	0.0	0.0	0.0	0.0	T	1.2	0.0	0.0	0.0	0.0	0.0	1.2
1979-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1980-81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	T
1981-82	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.0	0.0	0.0	T
1982-83	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	T
1983-84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984-85	0.0	0.0	0.0										
Record Mean	0.0	0.0	0.0	T	0.2	0.3	0.2	0.2	0.3	0.1	0.0	0.0	1.2

See Reference Notes on Page 6B.

REFERENCE NOTES

TUCSON, ARIZONA

GENERAL
T - TRACE AMOUNT
BLANK ENTRIES DENOTE MISSING/UNREPORTED DATA
# INDICATES A STATION OR INSTRUMENT RELOCATION
SEE STATION LOCATION TABLE ON PAGE 8

PAGE 2
PM - LAST DAY OF PREVIOUS MONTH

PAGE 3
(a) - YEARS OF RECORD, THROUGH THE CURRENT YEAR UNLESS OTHERWISE NOTED, BASED ON JANUARY DATA
* LESS THAN ONE HALF
NORMALS - BASED ON THE 1951-1980 RECORD PERIOD
MEANS - LENGTH OF RECORD IN (a) IS FOR COMPLETE DATA YEARS, EXCEPT AS NOTED
EXTREMES - LENGTH OF RECORD IN (a) MAY BE FOR OTHER THAN COMPLETE OR CONSECUTIVE DATA YEARS EXTREME DATES ARE MOST RECENT OCCURENCE
WIND DIR.- NUMERALS SHOW TENS OF DEGRESS CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM
RESULTANT DIRECTIONS ARE GIVEN TO WHOLE DEGREES

TUCSON, ARIZONA
NATIONAL WEATHER SERVICE OFFICE

Within 10 to 15 miles of the station the terrain is flat or gently rolling, with many dry washes. There is a general increase in elevation from north and northwest to south and southeast. Rugged mountain ranges and jutting hills encircle the valley floor. The higher mountains to the north, east, and south reach up to over 5,000 feet above the airport, and are at distances of 25 to 40 miles. To the west, the hills and smaller mountains range from 500 to 4,000 feet above the airport; all are more than 5 miles distant.

The soil cover is rather sandy, and native vegetation is mostly brush, cacti, and small trees, typical of the low latitude desert climate. The metropolitan area of Tucson lies at the foot of the Catalina Mountains, to the north of the airport. As a result of the lower elevation and more protected location of the City, recorded maximum temperatures are usually higher there than at the airport and minimum temperatures are correspondingly lower than at the airport.

As might be expected from its geographical situation, the climate of Tucson is prominently characterized by a long, hot season, beginning in April and ending in October. Maximum temperatures above 90 degrees are the rule from May through September. Occurrences of temperatures of 100 degrees or higher averaged 41 days annually for the 25-year period 1951-75, but these extreme temperatures are not as uncomfortable as they might seem since they are associated with low relative humidity. June and July averaged 14 days each with 100 degrees or higher readings. Under usual conditions, the diurnal temperature range is large, averaging almost 30 degrees, although it may exceed 40 degrees. Clear skies or very thin high clouds permit intense surface heating during the day and active radiational cooling at night, a process enhanced by the characteristic atmospheric dryness. The average growing season in the Tucson area approximates 250 days.

The distribution of precipitation through the year is such that more than 50 percent of the annual amount usually falls between July 1 and September 15, and a secondary maximum from December through March provides over 20 percent of the yearly precipitation. During the July-September period scattered convective or orographic showers and thunderstorms occur that often fill dry washes to overflowing. On occasion, brief, torrential downpours cause spectacular and destructive flash floods in sections of the metropolitan area, sometimes from short-period falls of over 1.50 inches. Hail rarely falls in thunderstorms, and sleet is an almost unknown form of precipitation. The December through March precipitation is more general and occurs as prolonged rainstorms that provide much needed replenishment of ground water. During these storms, snow often falls on the higher mountains, but snow in Tucson itself is infrequent particularly in accumulations exceeding an inch in depth.

Relative humidity shows a pronounced daily oscillation in line with the usual large daily range in temperature. From near the first of the year, the average relative humidity decreases steadily until July and the beginning of the thunderstorm season, when it shows a marked increase. By the middle of September, and end of the thunderstorm season, it decreases again, resuming the upward climb in late November. Only occasionally during the summer is relative humidity high enough to produce appreciable physical discomfort, and then only for short periods. During the hot season, relative humidity values may fall below 10 percent during afternoons, and sometimes below 5 percent. The low average wet bulb temperature during hot weather makes evaporative air coolers effective most of the time.

Tucson lies in the zone receiving more sunshine than any other section of the United States; the persistence of the bright sunshine is one of the most noteworthy features of this desert climate. Cloudless days are commonplace, and average cloudiness, much of it being very thin cirriform clouds, is low.

Surface winds are generally light, with no important seasonal changes in either velocities or prevailing direction. Occasional windstorms cause localized duststorms, particularly in the outlying sections of Tucson where the ground has been disturbed in numerous development areas. During the spring months, winds may briefly be strong enough to cause some damage to trees and buildings. Wind velocities and directions are influenced to an important extent by the surrounding mountains, as well as by the general slope of the terrain. With weak pressure gradients, local winds tend to be in the SE quadrant during the night and early morning hours, veering to NW during the day. Highest velocities usually occur with winds from the SW and E to S.

While dust and haze of local origin are frequently visible, their effect on the general clarity of the atmosphere is not great. Visibility values are normally high; and fog is extremely rare.

STATION LOCATION

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above: Sea level — Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Sunshine Switch	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Automatic Observing Equipment *	Remarks
COOPERATIVE																
University of Arizona	10/1891	Present	NA	32° 14'	110° 57'	2391	45 a40	11 a5	11 a5				3			a - Effective 9/1894.
AIRPORT																
Tucson Municipal (Later Davis-Monthan Air Force Base)	1/22/30	10/14/48	NA	32° 11'	110° 55'	2553	b33	Unk c5	Unk c5		e14	b3 d14	Unk c5 d14			Army Signal Service to Nov. 1932. b - Added 6/17/40. c - Effective 6/17/40. d - Moved to roof 7/23/47. e - Added 10/1/47.
Tucson Municipal	10/14/48	10/15/58	4.9 mi.SW	32° 08'	110° 57'	2558	33	5	5	Unk	5		5	%4		New Airport
Tower & Operations Bldg. Tucson Municipal AP †	10/15/58	6/4/80	4500 ft. E	32° 07'	110° 56'	2584	20	5	5	109	3	NA	4	%5	NA	
† Tucson International AP effective 3/13/63																% - Telepsychrometer.
Nat. Weather Svc Bldg. Tucson International AP	6/4/80	Present	600' NE	32° 07'	110° 56'	2580	f20	5	5	15	3	NA	4	%5	NA	f - Not moved 6/4/80.

* Type
M = AMOS
T = AUTOB

SUBSCRIPTION:
Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801, ATTN: Publications.

I certify that this is an official publication of the National Oceanic and Atmospheric Administration, and is compiled from records received at the National Climatic Data Center, Asheville, North Carolina 28801.

Acting Director
National Climatic Data Center

USCOMM-NOAA-ASHEVILLE - 1300

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
NATIONAL CLIMATIC DATA CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM 210
FIRST CLASS

The State Climatology Program for Nebraska

The University of Nebraska's Center for Agricultural Meteorology and Climatology (CAMaC) was formed in the late 1970s when existing meteorology and climatology units were consolidated into one research, teaching and service unit. Dr. Norman J. Rosenberg is director of the Center which is located in the recently remodeled L. W. Chase Hall on the East Campus of the University of Nebraska, Lincoln. CAMaC's mission in research, extension and teaching is carried on by six faculty members. In addition, there are five courtesy appointments to the CAMaC faculty.

Users of climate data in Nebraska are served by staff members of the Center for Agricultural Meteorology and Climatology. Data collection and dissemination are supervised by Dr. Kenneth G. Hubbard, the Climate Resources Specialist.

Activities of the Climate Resources Specialist include:

a) coordinating the University's basic-data collection, storage and retrieval program with the National Climatic Data Center and the Nebraska Natural Resources Data Bank;

b) preparing and interpreting the data necessary for pamphlets, reports and press releases;

c) developing and managing the new data collection system involving automatic weather stations within the state and other real-time data sources; application of this data and existing climatological information to specific operational activities and extension education programs such as irrigation scheduling, integrated pest management; and

d) participating with researchers from other disciplines in climatological research efforts related to food, energy and planning for preparedness against natural hazards.

Climate Resources Library

An up-to-date library of climate data and publications is maintained as a resource area to help in answering the many requests for descriptive or quantitative weather information. Copies of original weather records and published weather data are kept for Nebraska and surrounding states. In addition, climatological and meteorological reference books and extension reports are available to users of the Climate Resources Library. Computer data retrieval is also used to fill user requests. Mr. Mathew Werner (Fig. 1) is the primary contact for users of the Climate Resources Library.

Much of the information received at the library is in the form of microfiche. This microfiche is used in a reader/printer located in the library to produce images or paper copies as needed for users.

A publication based on incoming weather records is published at the end of each month to provide Nebraskans with a preliminary assessment of recent weather conditions in the state. The preliminary report focuses on temperature and precipitation but also includes solar radiation, wind and humidity information when appropriate. The report is circulated to a regular mailing list of about 150 including newspapers and wire services.

A Near-Real Time Data Network

CAMaC has developed a weather data network, the first of its kind, to supply timely weather information to decision makers in agriculture. In 1980 the Center, with funding from NOAA's National Climate Program Office, undertook development of a weather network that would support irrigation and other agricultural operations. By the spring of 1981, the network was operating. This network automatically collects hourly weather data from monitoring stations across the state. After collection, the data are archived and summarized for dissemination by the University's Automated Weather Data Network--**AWDN**, for short.

Four of the five initial weather monitoring stations were located in southwestern Nebraska, an area where irrigation using ground-water from the Ogallala aquifer had been widely adopted by farmers. The stations were spaced 70 miles apart in a nearly uniform grid. Today, there are 23 stations in Nebraska, six in South Dakota, one in Colorado and one in Kansas that feed weather data to Nebraska's CAMaC network.

A complete station has several weather measuring instruments attached to a 10-foot tower (see Fig. 2). The instruments measure wind speed and direction, air temperature and relative humidity, solar radiation, soil temperature and precipitation. Each station also has a microprocessor that records data--serving as an on-site data observer. After monitoring signals from the instruments each minute, this microprocessor calculates hourly averages or totals that are stored in the microprocessor's memory bank.

To complete the collection process, a computer at CAMaC automatically establishes a telecommunication link with the remote weather stations at

3 a.m. daily to gather the information (see Fig. 3). With this technology the university quickly completes data collection and eliminates the need to manually record and process the information.

When the information is collected from these stations, it is then uploaded to a "main frame" computer that houses the user-friendly **AGNET** system. Many Nebraska farmers tap AGNET for a variety of information and applications, such as marketing and finance, crop and livestock production, and grain handling. Weather-related programs, such as irrigation scheduling and crop development, are now available to farmers through the university's AGNET system.

Data collected from these automated stations is also used by the University's extension Agricultural Climate Situation Committee to provide farmers with viable management options. The AGNET system and the agricultural climate situation committee are two unique means of analyzing and distributing pertinent weather information (see Fig. 3), and both provide a key service that farmers can't get elsewhere.

AGNET'S ROLE

Weather data collected by the automated weather stations is used in AGNET computer programs for scheduling irrigation, estimating crop development rates, estimating energy requirements for grain drying, and predicting livestock weight gains. Other possible AGNET weather-related programs include scheduling fertilizer applications, the time of pesticide applications, and analyzing weather's stress on crops and livestock.

The AGNET computer program that estimates crop development rates is **CROP STATUS**. Initially developed by Ralph Neild, a UNL climatologist and the Agricultural Climate Situation Committee founder, the program allows farmers to estimate frost probability and harvest dates based on growing degree days and planting scenarios.

The grain drying AGNET program, called **BINDRY**, uses temperature and relative humidity data. Farmers can use up-to-date weather data to estimate the future moisture and temperatures in the bin and to determine the airflow needed for that day. BINDRY provides drying information for each layer. If a farmer fills a grain bin to 25% of its capacity, the program tells him how much the grain has dried and when he can load more grain into the bin.

In the livestock management area, one of the programs offered by AGNET is called **BEEF**. This program estimates the energy balance of feedlot animals and projects the amount of feed needed for body maintenance and weight gain. The program is based on feed ratios, economic factors, and weather data, such as temperature, relative humidity, and wind.

Although AGNET programs range from listing the hourly and daily weather factors in a specific region to estimating crop development, frost probability or harvest dates based on growing degree days and climatic conditions, the most popular weather-related programs among AGNET users are the ones on irrigation.

Thomas Thompson, an AGNET supervisor and UNL agricultural engineer, developed a data management system to handle AWDN data on AGNET and was one of the scientists who helped develop an irrigation scheduling program on the AGNET system. The **IRRIGATE** program, based on soil information, irrigation system size and speed, and weather data, projects a time period in which irrigation should be scheduled to avoid either overwatering or crop stress.

The second method of delivering weather information to Nebraska farmers involves the University's Agriculture Climate Situation Committee.

The committee, formed in 1981, is part of the agricultural cooperative extension service and reviews weather information from the AWDN every Monday afternoon during the growing season. After examining weather information and discussing what it means to the state's farmers, the committee issues advisories that are distributed (see Fig. 4) by 55 state newspapers, 20 radio stations, and an extension television program called Farm and Ranch Review.

The committee members include meteorologists, climatologists, agronomists, soil scientists, plant pathologists, entomologists, a rangeland specialist, a forester, an animal scientist, a veterinarian, and a journalist who is responsible for condensing the committee's advisory information and releasing it to the state's newspapers and radio stations.

When the committee meets, the climatologists summarize the recent weather features and the crops' estimated stage of growth based on weather information. All specialists on the committee then offer observations that they have made and outline problems that have been identified during the past week. The committee also taps into other information sources, such as the Weekly Weather and Crop Bulletin, and the Monthly and Seasonal Weather Outlooks produced by NOAA and USDA. The Nebraska State Climatology Program coordinates the reference materials used by the committee.

Before this committee and the Automated Weather Data Network were created in Nebraska, there was no forewarning or forecasting of what kind of damage might result when a serious weather problem developed. Specialists were pressed for information before adequate data could be collected and analyzed. Today, specialists are working with near-real time data provided by the automated weather network, and the committee can make an immediate and unified appraisal.

Summary

The State Climatology Program in Nebraska employs traditional functions of archiving and disseminating weather data as well as new technologies for near-real time data collection, summarization and distribution. This has allowed CAMaC to develop a wider user audience. For example, accesses by users of the weather related programs on AGNET exceeded 15,000 in 1984. In Nebraska, the Agricultural Climate Situation Committee, AWDN and AGNET are part of the effort to better serve users of climate information.

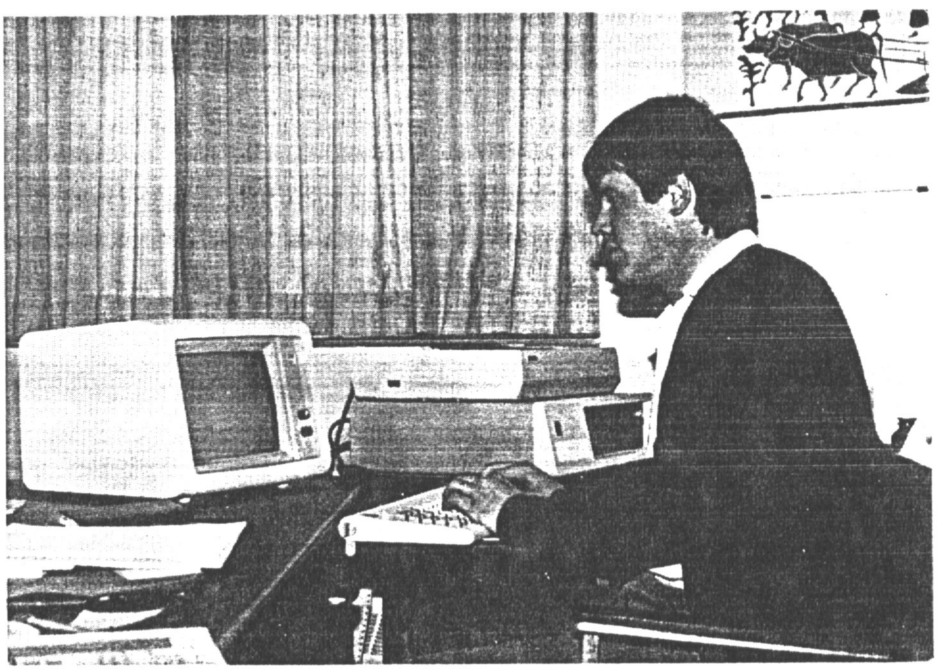


Fig. 1. Mathew Werner is responsible for weather data requests. Traditional hard copy weather data archives have been augmented at Nebraska in recent years by computer accessible data sets.

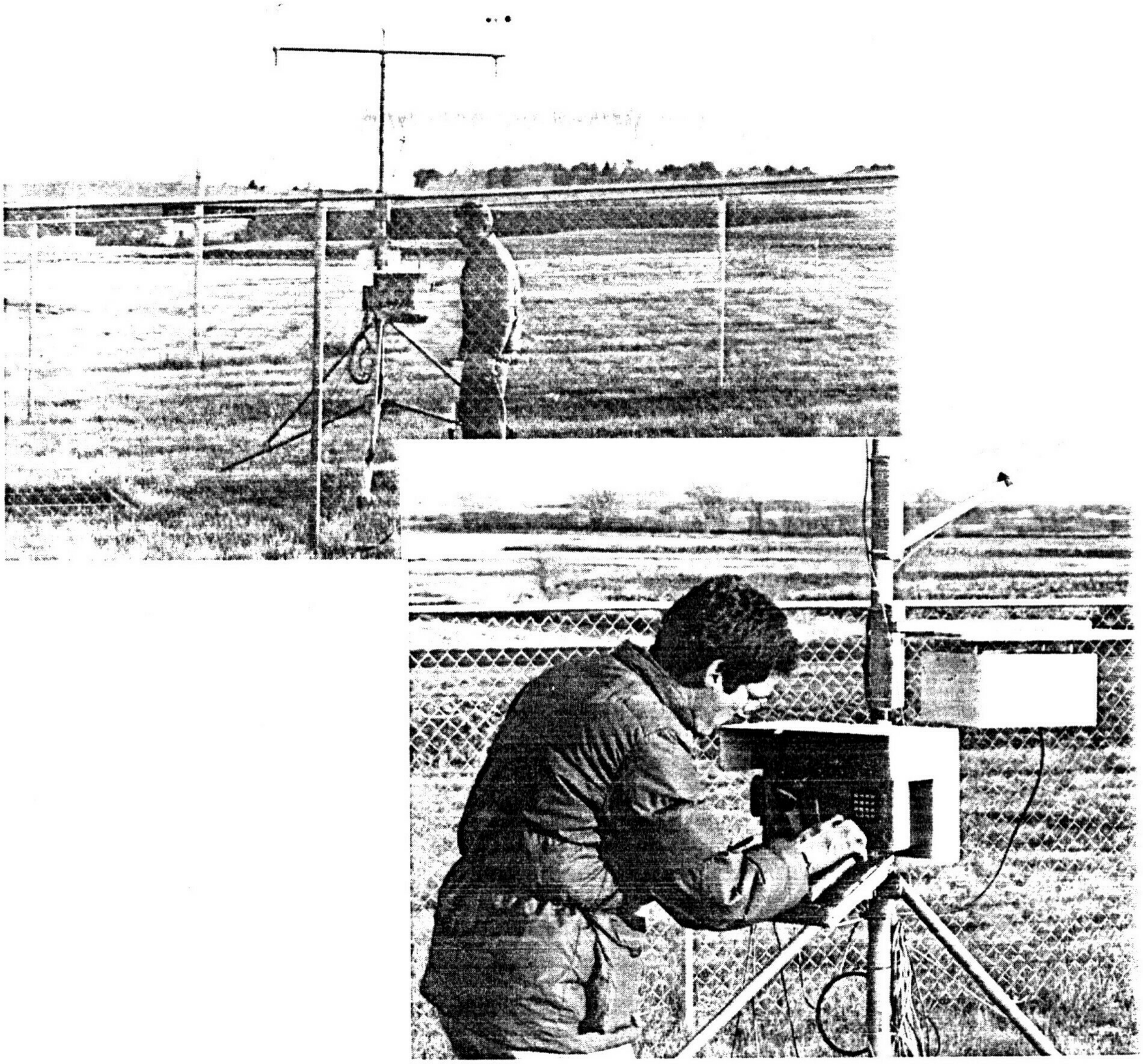


Fig. 2. There are 23 automated weather stations located across Nebraska, collecting weather data that is transmitted to the University of Nebraska-Lincoln, Center for Agriculture Meteorology and Climatology (CAMaC). Jerry Schmidt, AWDN technician, checks the micro-processor (above) that stores weather data and enables a computer at CAMaC to retrieve the data automatically via telephone lines.

Nebraska Weather and Climate Information Services

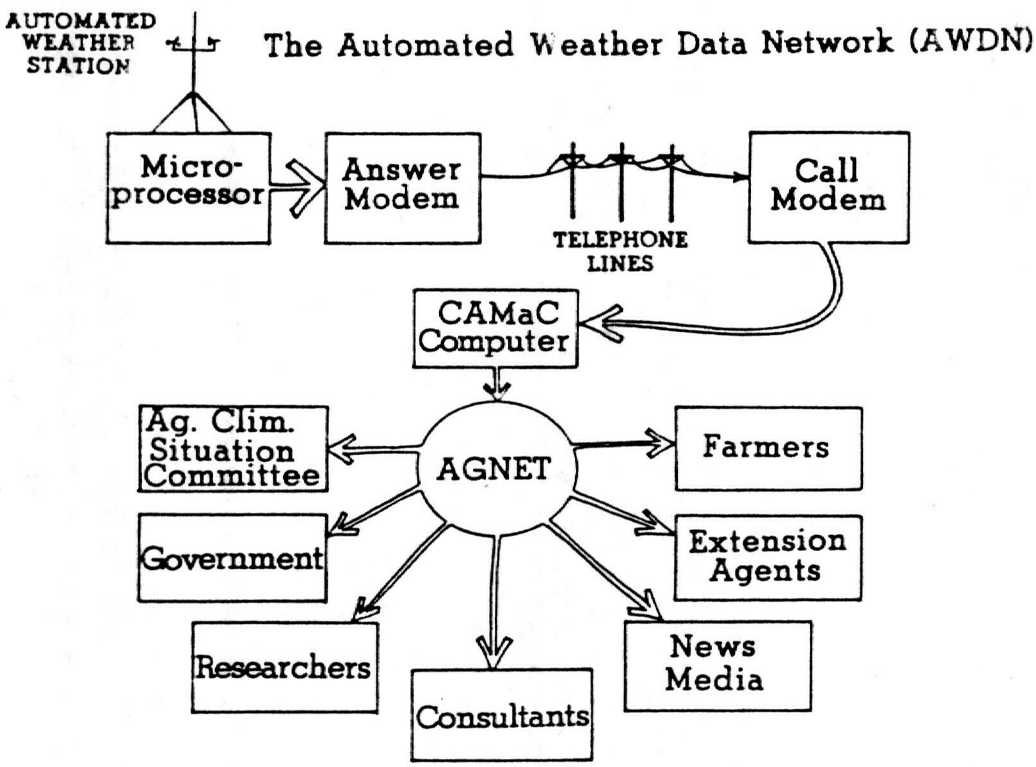


Fig. 3. Once weather information is collected by the automated stations located across Nebraska, it is sent to a CAMaC computer and then transmitted to the AGNET computer information service and the University Extension Agricultural Climate Situation Committee. AGNET and the situation committee are separate methods of distributing weather information to farmers, news media, extension agents, agricultural consultants, researchers, and both state and federal government agencies.

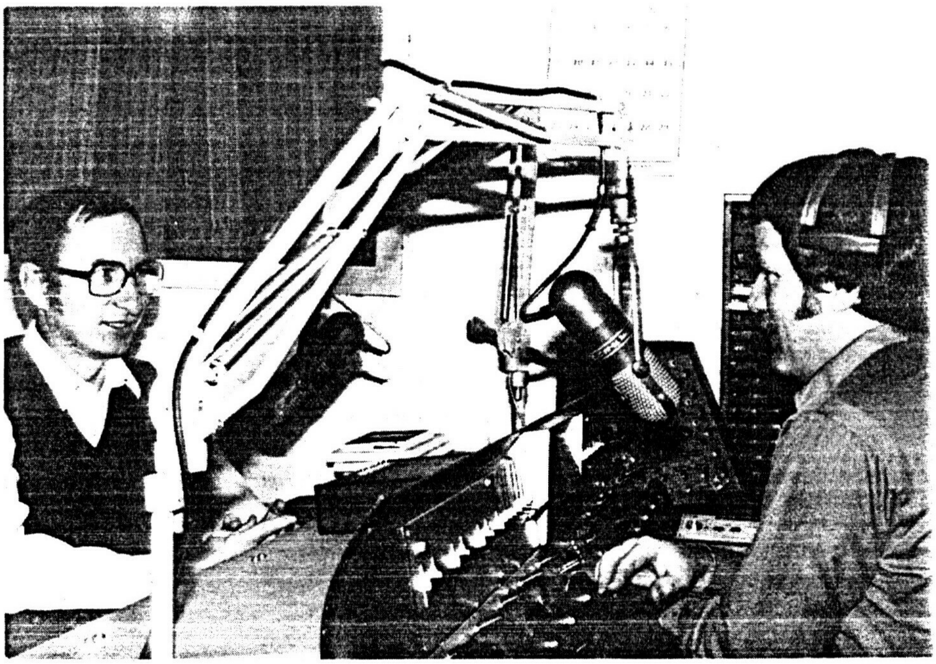


Fig. 4. Ken Hubbard (left), University of Nebraska climate resource specialist and one of two climatologists on the University's Agriculture Climate Situation Committee, is issuing a weather advisory for farmers. The message, taped by a committee member, is accessed by approximately 20 Nebraska radio stations every Monday during the growing season. AGNET and Nebraska's daily and weekly newspapers also receive the weather advisories. Craig Derscheid, a University of Nebraska agriculture communications specialist, is behind the control panel.