ORNL/CDIAC-53
NDP-041

Environmental Sciences Division

THE GLOBAL HISTORICAL CLIMATOLOGY NETWORK: LONG-TERM MONTHLY TEMPERATURE, PRECIPITATION, SEA LEVEL PRESSURE, AND STATION PRESSURE DATA

Contributed by

Russell S. Vose*, Richard L. Schmoyer
Oak Ridge National Laboratory
Oak Ridge, Tennessee

Peter M. Steurer, Thomas C. Peterson, Richard Heim, Thomas R. Karl
National Climatic Data Center
Asheville, North Carolina

Jon K. Eischeid
Cooperative Institute for Research in Environmental Sciences
Boulder, Colorado

Prepared by Russell S. Vose
*Energy, Environment, and Resources Center
University of Tennessee
Knoxville, Tennessee

Environmental Sciences Division
Publication No. 3912

Date Published: July 1992

Prepared for the
Global Change Research Program
Environmental Sciences Division
Office of Health and Environmental Research
U.S. Department of Energy
(KP 05 00 00 0)

Prepared by the
Carbon Dioxide Information Analysis Center
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6335
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

1. NAME OF THE NUMERIC DATA PACKAGE

The Global Historical Climatology Network: Long-Term Monthly Temperature, Precipitation, Sea Level Pressure, and Station Pressure Data

2. PRINCIPAL INVESTIGATORS

Russell S. Vose
Carbon Dioxide Information Analysis Center
Oak Ridge National Laboratory
Post Office Box 2008
Oak Ridge, Tennessee 37831-6335

Richard L. Schmoyer
Statistical Computing Office
Oak Ridge National Laboratory
Post Office Box 2008
Oak Ridge, Tennessee 37831-6367

Peter M. Steurer, Thomas C. Peterson, Richard Heim, Thomas R. Karl
National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

Jon K. Eischeid
Cooperative Institute for Research in Environmental Sciences
Campus Box 216
Boulder, Colorado 80309-0216

3. KEYWORDS

Global climate change; regional climate change; monthly means/totals; temperature; precipitation; sea level pressure; station pressure.

4. BACKGROUND INFORMATION

Greenhouse gas concentrations in the atmosphere have increased markedly during the last several decades (Keeling et al. 1990; Conway et al. 1988). Most simulations of climate change suggest that detectable, if not significant, modifications of global temperature, precipitation, and pressure patterns may accompany these rising concentrations. A number of studies (e.g., Gruza and Apasova 1981; Jones et al. 1986a; Jones et al. 1986b; Bradley et al. 1987; Diaz et al. 1989; Jones et al. 1989; Karl et al. 1989; Vinnikov et al. 1990) have examined the global climate record of the past 50-150 years in order to verify the presence (or absence) of an enhanced greenhouse

effect. Most of these studies have at best detected only a small long-term trend in global climate. It is conceivable that the greenhouse gas-induced changes, if in fact they have occurred, are too small to be measured. On the other hand, the present climate record may be inadequate for the assessment of global climate change.

The main source of global historical climatological data is a series of manuscript publications called the *World Weather Records* (WWR), which has been produced by the Smithsonian Institution (1927, 1934, 1947), the U.S. Weather Bureau (1959, 1967), and the National Environmental Satellite Data and Information Service (NESDIS) (1983, 1991). Except for the first version, which contains data through 1920, each version of the WWR contains 10 years of data (i.e., 1921-1930; 1931-1940; 1941-1950; 1951-1960; 1961-1970; 1971-1980) for hundreds of first-order and cooperative weather stations worldwide. Another source of more recent climatological data is a series of manuscript publications called *Monthly Climatic Data for the World* (MCDW), which has been produced monthly by NESDIS since 1961. The MCDW publication consists primarily of first-order weather station data that have been exchanged through the Global Telecommunications System on a real-time basis.

The WWR and the MCDW archives are acquired at regular intervals by the National Center for Atmospheric Research (Spangler and Jenne 1990), and comprise a subset of a data base called the *World Monthly Swface Station Climatology* (WMSSC). In addition to WWR and MCDW reports, the WMSSC contains data acquired through the efforts of individuals or special projects. In all, nearly 4000 stations are available. The WMSSC is one of the most frequently used data bases for the study of global climate change (WMO 1990). Unfortunately, the WMSSC contains data from only a very small proportion of the roughly 40,000 worldwide stations that currently measure temperature and precipitation at least one time per day (WMO 1983). Furthermore, most of the stations in the WMSSC are located at urban or airport sites and, in general, are unevenly distributed across the globe.

Some researchers (e.g., Wemstedt 1972; Bradley et al. 1985; Eischeid et al. 1991) have compiled their own global and hemispheric data sets for specific applications. These data sets typically combine data from the WMSSC with data from other sources to better sample rural and data-sparse areas. Some data sets also include homogeneity adjustments to compensate for changes in station location, instrumentation, and urbanization. However, many are subject to relatively little quality control.

In response to this rapid growth in the number of global data sets, the Carbon Dioxide Information Analysis Center (CDIAC) and the National Climatic Data Center (NCDC) commenced the Global Historical Climatology Network (GHCN) project. The purpose of this project is to construct an improved global base-line data set of monthly mean temperature, precipitation, sea level pressure, and station pressure for a dense network of worldwide meteorological stations. Specifically, the GHCN project seeks to consolidate the numerous pre-existing national-, regional-, and global-scale data sets into a single global climate data base that can be updated, enhanced, and distributed at regular intervals. Planned improvements entail the inclusion of additional data, the correction of erroneous data, the adjustment of data inhomogeneities, the addition of new variables, and the production of gridded data sets.

This Numeric Data Package contains the first version of the GHCN data base (i.e., GHCN Version 1.0). The NDP consists of this document and two magnetic tapes containing machine-readable data files and accompanying retrieval codes. This document describes in detail both the GHCN data base and the contents of the magnetic tapes. Specific emphasis is placed upon exploring the spatial and temporal dimensions of the data base. Limitations and restrictions on the utility of the data base are also discussed.

5. SOURCE AND SCOPE OF THE DATA

The purpose of this section is to provide a detailed description of the GHCN data base. Information regarding data base compilation is presented first. Each variable (temperature, precipitation, sea level pressure, and station pressure) is then discussed at length.

COMPILATION OF THE GHCN DATA BASE

The compilation of the GHCN data base took place in several stages, beginning with data set acquisition. The GHCN data base was assembled from the various national-, continental-, and global-scale data bases listed in Table 1. Most of the global data sets in Table 1 are derived from the WMSSC, and therefore contain many of the same stations (i.e., duplicates). However, each also includes previously undigitized data that either extends the records of WMSSC stations or consists of observations from additional stations. Similarly, most of the national- and continental-scale data sets in Table 1 contain numerous stations that have never been incorporated into a global data base. In addition, several of the national-scale data sets, notably those from the USSR and China, were only recently made available through bilateral data exchanges and thus have rarely, if ever, been used by anyone outside their respective countries.

The second step in the compilation of the GHCN data base entailed scrutinizing and revising all station inventory parameters (i.e., country codes, station numbers, station names, latitudes, longitudes, and elevations). Whenever possible, all such parameters were updated with the most recent information available from the World Meteorological Organization (WMO).

In the third compilation step, all data sets were merged and subjected to a process that removed the numerous "duplicate" stations. On average, for each unique temperature and precipitation station, there were two duplicates, while for sea level pressure and station pressure, there was an average of one duplicate station for each unique station.

In the final compilation step, all stations in the data base were subjected to a two-part quality control analysis. In the first part, all observations exceeding certain thresholds (obtained from world record values) were set to missing. In the second part, each time series was plotted and inspected for "gross" errors (i.e., errors visible to the naked eye). Some erroneous values were readily corrected (i.e., observations with missing negative signs, etc.), while others were uncorrectable and had to be set to missing.

Data collection (as opposed to analysis) was emphasized during the first year of the project. As a result, the GHCN data base is considerably larger than most of its predecessors. Specifically, the GHCN data base contains 80 and 100% more temperature and precipitation stations, respectively, than the WMSSC (the number of sea level pressure and station pressure stations is roughly the same for both data bases). Furthermore, across all variables, many of the stations in the GHCN data base have longer periods of record than their counterparts in the WMSSC.

Only one restriction was applied to limit the size of the data base. To be included, a station was required to have a minimum of 10 years of data for at least one of the four variables. Consequently, the distribution of stations across the globe is uneven. For example, industrialized countries such as the United States have a large network of stations with periods of record in excess of 10 years, while developing countries such as Brazil have only a small number of stations with long periods of record. A detailed inventory of all stations in the GHCN data base is presented in Appendix C. As a future goal, an effort will be made to develop a data set consisting only of long-term records from a network of stations that is more uniformly distributed across the globe.

TEMPERATURE

The GHCN data base contains mean monthly temperature data (in tenths of degrees Celsius) for 6039 stations throughout the world. Detailed information regarding the lengths of station records is given in Fig. 1. The majority (61%) have records for fewer than 50 years, but a significant proportion (10%) have records in excess of 100 years. The longest period of record for any given station is 290 years (1701-1990 for **Berlin-Tempelhof,** Germany). Most records (90%) end in the 1980s. No data are available for any station after 1990.

The global distribution of temperature stations is depicted in Fig. 2. The density of stations in central North America and central Europe is extremely high, and moderately high in eastern Europe, central Asia, and eastern Asia. Significant data gaps are evident in northern North America, the Amazon basin, the Sahara desert, the Arabian peninsula, northern Asia, the Tibetan plateau, the East Indies, western Australia, and all of Antarctica. The global distribution of stations with 50 years or more of data (Fig. 3) is characterized by a lower density of stations in all areas, and the appearance of additional data gaps over South America, Africa, and central Asia. Stations with 100 years or more of data (Fig. 4) are primarily restricted to eastern North America, central Europe, and scattered pockets in Asia. There are few stations in the Southern Hemisphere with 100 years of data.

The evolution of the temperature station network through time is presented in Fig. 5. In general, the number of stations has increased over the past 300 years, particularly in third-world countries. The rate of increase has accelerated since the late nineteenth century, owing to the widespread introduction of reliable thermometers and the increased habitation of areas that were previously less populated (Figs. 6-8). The sharp increase in the number of stations in 1951 and in 1961 is due to the inclusion of the 1951-1960 and 1961-1970 versions of the WWR data set in the WMSSC. The similar increase in the number of stations in 1981 is due to the inclusion of the Climate Analysis Center global temperature and precipitation data set, which contains a large number of stations that only have data for the period 1981-1990. The decrease in the number of stations in 1971 results from the inclusion of only three of the six volumes of the 1971-1980 WWR publication (i.e., three volumes have yet to be prepared and thus could not be included). The decrease in the number of stations in the late 1980s results from the fact that most of the data sets from which the GHCN was compiled were produced during the late 1980s.

The proportion of stations with various quantities of missing data is detailed in Fig. 9. Nearly 77% of all stations are missing less than 10% of their data. Typically, these are the same stations in central North America, Europe, and central Asia with the longest periods of record (Fig. 10). In contrast, the data-sparse areas of the Amazon basin and Sahara desert are characterized by higher proportions of missing data.

PRECIPITATION

The GHCN data base contains total monthly precipitation data (in tenths of millimeters) for 7533 stations throughout the world. Detailed information regarding the lengths of station records is given in Fig. 11. A slight majority (55%) have records in excess of 50 years, and a significant proportion (13%) have records in excess of 100 years. The longest period of record for any given station is 291 years (1697-1987 for Kew, United Kingdom). Most records (76%) end in the 1980s. No data are available for any station after 1990.

The global distribution of precipitation stations is depicted in Fig. 12. The density of stations in central North America, central Europe, sub-Saharan Africa, and eastern Australia is extremely high, and moderately high in eastern Europe and Asia. Significant data gaps are evident in northern North America, central South America, the Sahara desert, the Arabian peninsula, the Tibetan plateau, the East Indies, and all of Antarctica. The global distribution of stations with 50 years or more of data (Fig. 13) is characterized by a lower density of stations in most areas and the appearance of additional data gaps over southern Africa, central Asia, and western Australia. Stations with 100 years or more of data (Fig. 14) are concentrated in eastern North America, central Europe, and eastern Australia.

The evolution of the precipitation station network through time is presented in Fig. 15. In general, the number of stations has increased over the past 300 years, particularly in third-world countries. The rate of increase has accelerated since the late nineteenth century, owing to the increased habitation of areas that were previously less populated (Figs. 16-18). The sharp increase in the number of stations in 1951 is due to the inclusion of the 1951-1960 version of the WWR data set in the WMSSC. The decrease in the number of stations after 1971 results from the inclusion of only three of the six volumes of the 1971-1980 WWR publication (i.e., three volumes have yet to be prepared and thus could not be included). The continuing decrease in the number of stations through the 1980s results from the fact that most of the data sets from which the GHCN was compiled were produced during the late 1980s, and in the case of the African data sets, in the early 1980s or late 1970s.

The proportion of stations with various quantities of missing data is detailed in Fig 19. Nearly 72% of all stations are missing less than 10% of their data. Typically, these are the same stations in central North America, central Europe, and eastern Australia with the longest periods of record (Fig. 20). In contrast, the data-sparse areas of South America and northern Africa are characterized by higher proportions of missing data.

OPERATION

1. Execute UPDATE

2. Enter parameters as explained on the screen or above. For example,

   p=natempoldpl. c=tucson.temp

   would cause UPDATE to look for a program library called **natempoldpl.** and would write the file **tucson.temp.**

   UPDATE will ask for the deck deckname unless the i parameter is specified when **infile** must be available with the deck decknames starting in column 1 (i.e, 02078815 or AZ04501).

3. Decks can be added to the **oldpl.** with the addfile parameter and a **newpl.** will be created

   a=newdata.file

   where the **newdata.file** has as its first record the *DECK *DECKNAME*. Multiple decks can be added, the first record of each deck must contain an unique *DECKNAME.*

Note 1:

UPDATE is available for PC execution, and at the University of Arizona on the VAX and CONVEX main frames:

On the PC/DOS and VAX versions of UPDATE the parameters are entered interactively on one line after execution. The VAX execution command is: update when the alias update — @zeta2_:[trlab] is specified in the login.com file.

On the CONVEX/UNIX version the parameters are entered on the command line, i.e., update **p=natempoldpl c=tucson.temp** . The execution command is: update when the path /trl/trlab/ is specified in the .cshrc file.

Note 2:

Computer system file name specifications vary. This version of the manual has been written for the VAX/VMS operating system wherein the file name is made up of a name and an extension separated by a period. The extension is not required if the period is specified, as in **oldpl. .**

On other systems, such as those operating under UNIX, periods and extensions are not required but may be present as part of the file name.

Prcalp (1)

4057605002	EL ALAMO, ENS.	31.60	-116.10	1115	1948	1988	2.4	0	
4057605003	EL PINAL, ENS.	32.20	-116.30	1350	1948	1989	6.7		
4057605004	LA PROVIDENCIA, ENS.	31.40	-116.20	175	1953	1989	3.8		
4057605005	LA PUERTA, TEC.	32.50	-116.70	480	1948	1989	5.0		
4057605006	OJOS NEGROS, ENS.	31.90	-116.30	712	1948	1989	4.6		
4057605007	OLIVARES MEXICANOS,	32.10	-116.60	351	1949	1989	1.8		
4057605008	PRESA RODRIGUEZ, TIJ	32.50	-116.90	120	1928	1989	14.5	0	- 1[illegible]
4057605009	SAN JUAN DE DIOS NOR	32.10	-116.20	1280	1956	1985	7.5		
4057605010	SAN TELMO, ENS.	31.00	-116.10	70	1948	1986	1.1	0	278.74
4057605011	SAN VICENTE, ENS.	31.30	-116.30	110	1948	1989	4.2	0	
4057605012	SANTO TOMAS, ENS.	31.60	-116.40	152	1948	1989	1.6		
4057605013	TIJUANA, TIJ.	32.50	-117.00	53	1921	1984	22.7	0	-276.53
4057605014	VALLE DE LAS PALMAS,	32.40	-116.60	280	1948	1989	4.4		
4057605015	LA RUMOROSA, TEC.	32.60	-116.10	1232	1932	1989	16.8	0	319.92
4057605016	BATAQUES, MEX.	32.60	-115.20	70	1948	1989	3.0	0	
4057605017	DELTA, MEX.	32.40	-115.20	12	1948	1989	3.6	0	
4057605018	MEXICALI, MEX.	32.70	-115.50	60	1921	1989	20.9		
4057605501	COLONIA VICENTE GUER	30.70	-116.00	40	1948	1989	2.6	0	
4057605504		30.10	-115.70	82	1953	1988	5.1	0	
4057605505	EL SOCORRO, ENS.	30.30	-115.80	26	1956	1989	11.0	0	- 598.98
4057605506	LAS ESCOBAS, ENS.	30.60	-115.90	50	1948	1989	2.4	0	
4057605507	SAN AGUSTIN, ENS.	29.90	-115.00	552	1956	1988	3.8	0	
-4057605508	SAN LUIS, ENS.	29.70	-114.70	510	1956	1988	8.3		
4057605510	COLONIA JUAREZ, MEX.	32.30	-115.00	7	1949	1989	3.9		
4057605512	PRESA MORELOS, MEX.	32.70	-114.70	28	1948	1989	6.3		
4057605513	RIITO, S.L.R.C.	32.10	-114.90	13	1949	1986	1.5		
4057605515	PUNTA PRIETA, BAJA CALIFO	28.92	-114.15	200	1954	1988	3.6		
4057605516	CHAPALA, BAJA CALIFORNIA	29.40	-114.37	665	1953	1988	3.0		
4057606101	SONOITA, SON.	31.90	-112..90	350	1952	1986	1.0		
4057611301	PRESA CUAUHTEMOC, SO	30.90	-111.50	.590	1941	1986	0.0		
4057611802	MOCTEZUMA, SONORA	29.80	-109.68	620	1943	1978	6.0	0	131.52
4057616002	EL CARRIZAL, SON.	29.10	-111.70	49	1954	1986	6.6	0	
4057616004	SAN JOSE, SON.	28.80	-111.70	29	1954	1985	1.6	0	828.02
4057616006	PRESA ABELARDO RODRIGUEZ,	29.08	-110.92	210	1946	1987	0.8		
4057616007	EL OREGANO, SONORA		-110.72	275	1941	1987	0.2	0	614.16
4057616008	OPODEPE, SONORA	29.92	-110.62	650	1944	1983	5.8		
4057616009	MAZATAN, SONORA	29.00	-110.13	530	1945	1978	6.4		1009.72
4057616010	PRESA PLUTARCO ELIAS CALL	28.98	-109.65	350	1941	1985	2.8	0	-789.52
4057622000	TEMOSACHIC,CHIH.	28.95	-107.83	1870	1921	1987	30.3	0	789.84
4057622002	LA JUNTA, CHIHUAHUA	28.77	-107.98	1900	1924	1984	11.5	0	728.81
4057622003	DOLORES, CHIHUAHUA	28.87	-108.47	1926	1957	1985	10.9	0	1622.91
4057622004	ARIVECHI, SONORA	28.93	-109.18	556	1943	1987	10.7	0	1093 58
4057622005	BACHINIVA, CHIHUAHUA	28.77	-107.25	2100	1926	1987	3.9	0	780.85
4057622006	SAHUARIPA, SONORA	29.05	-109.23	460	1942	1987	4.3	0	99.31
4057622007	MULATOS, SONORA	28.65	-108.75	0	1947	1987	1.8	0	
4057622008	TEJOLOCACHIC, CHIHUAHUA	28.77	-107.67	1925	1933	1987	2.4	0	11 18
4057622009	NAMIQUIPA, CHIHUAHUA	29.25	-107.42	1828	1923	1987	28.1	0	
4057622010	CIUDAD GUERRERO, CHIHUAHU	28.55	-107.48	2000	1923	1987	2.6	0	8.03
4057622502	DELICIAS, CHIHUAHUA	28.20	-105.47	1170	1934	1987	1.7	0	1128.74
mr,4057624300	PIEDRAS NkRAS,COAH.	28.70	-100.52	250	1951	1990	35.4	0	2395.65
TS4057624301	SABINAS COAHUILA	27.85	-101.12	335	1922	1986	26.9	0	13a7,i)
4057625301	EL ARCO, ENS.	28.00	-113.40	300	1953	1989	4.3	0	04.
4057625302	RANCHO ALEGRE, ENS.	28.30	-113.90	120	1954	1988	0.5	0	1845.11
4057625305	SANTA CATARINA SUR:,	28.10	-113.10	270	1954	1988	1.7	0	1879.49
4057625306	SANTA GERTRUDIS, ENS	28.10	-113.10	400	1955	1988	21.1	0	2452.96
4057625307	BAHIA DE LOS ANGELES	28.90	-113.60	4	1953	1988	4.6		1911.7
4057625308	EL BARRIL, ENS.	28.30	-112.90	50	1955	1989	5.5		
4057625309	BAHIA TORTUGAS, BAJA CALI	27.70	-114.87	0	1954	1987	6.6		
4057625310	SAN REGIS, BAJA CALIFORNI	28.60	-113.75	490	1954	1989	2.8		
4057625314	SAN_JOSE DE GRACIA, BAJA	26.50	-112.72	138	1954	1987	1.0		

Faltan (2)

4057625315	SAN IGNACIO, BAJA CALIFOR	27.30	-112.88	'95	1939	1987	0.9	0
4057625601	GUAYMAS	27.90	-110.90	4	1951	1984	21.6	0
4057625802	PRESA ADOLFO R. CORT	27.20	-109.10	147	1955	1986	8.6	0
4057625803	TESIA, SON.	27.20	-109.40	50	1952	1985	0.0	0
4057625804	SANTA ROSA, SONORA	28.43	-109.18	1020	1955	1987	5.8	0
4057625805	TRES HERMANOS, SONORA	27.20	-109.20	100	1941	1987	2.1	0
4057625806	TONICHI, SONORA	28.60	-109.57	200	1946	1987	3.8	0
4057625807	QUIRIEGO, SONORA	27.52	-109.25	521	1927	1987	1.0	0
4057625808	SAN JAVIER, SONORA	28.60	-109.73	750	1923	1987	17.9	0
4057625809	NURI, SONORA	28.12	-109.33	440	1924	1982	22.3	0
4057625810	LA DURA, SONORA	28.38	-109.57	160	1923	1985	18.4	0
v4057631100	CHOIX,SIN.	26.72	-108.28	238	1921	1985	6.3	0
4057631101	BATOPILAS, CHIHUAHUA	27.03	-107.73	556	1946	1987	1.6	0
4057631102	CREEL, CHIHUAHUA	27.75	-107.63	2345	1952	1985	20.1	0
4057631103	CHINIPAS, CHIHUAHUA	27.40	-108.53	700	1926	1987	2.8	0
4057631104	MINAS NUEVAS, SONORA	27.07	-109.02	508	1927	1987	0.7	0
+4057631105	ALAMOS, SONORA	27.03	-108.93	410	1946	1984	0.9	71
4057631106	JAINA, SINALOA SRH	25.90	-108.02	200	1942	1985	0.8	0
4057631107	HUITES, SINALOA	26.90	-108.37	168	1941	1985	3.0	0
4057631108	EL FUERTE, SINALOA	26.42	-108.62	84	1946	1985	4.2	0
4057631109	BAMICORI, SINALOA	26.38	-108.50	152	1953	1983	1.9	0
4057632302	PRESA LA BOQUILLA, CHIHUA	27.55	-105.40	1300	1941	1986	0.2	0
TS4057634200	MONCLOVA,COAH.	26.88	-101.42	615	1921	1981	6.1	0
*4057634202	SANBUENAVENTURA, COAHUIL	27.07	-101.55	495	1927	1984	19.8	0
64057634203	PROGRESSO, COAHUILA	27.43	-100.98	305	1943	1986	2.7	0
TS4057634204	PRESA VENUSTIANO CARRANZA	27.52	-100.62	270	1940	1986	4.8	0
04057634205	CUATRO CIENEGAS, COAHUILA	26.98	-102.07	735	1941	1986	11.4	0
IS,4057634206	GRANJA EXPERIMENTAL, NUEV	27.23	-100.15	193	1933	1986	1.2	0
4057634207	LAGUNA bE SALINILLAS NUE	27.43	-100.38	240	1939	1986	0.3	0
4057637300	TEPEHUANES,DGO.	25.35	-105.78	1967	1922	1984	1.2	0
4057637303	GUANACEVI, DURANGO	25.93	-105.95	2200	1922	1984	1.9	0
0'4057638200	TORREON,COAH.	25.53	-103.45	1124	1951	1970	0.4	0
4057638202	EL RODEO, DURANGO	25.18	-104.57	n40	1925	1985	3.7	0
4057638205	SAN PEDRO DEL GALLO, DURA	25.57	-104.30	1600	1944	1985	10.7	0
4057638206	NAZAS, DURANGO	25.22	-104.12	1245	1941	1985	2.8	0
4057638207	CD LERDO, DURANGO	25.53	-103.53	1135	1921	1976	1.5	0
4057638208	CUENCAME, DURANGO	24.87	-103.70	1580	1938	1987	0.3	0
4057638209	CANON FERNANDEZ, DURANGO	25.27	-103.77	1300	1941	1986	0.5	0
.D.4057639001	EJIDO REATA, COAHUI	26.13	-101.08	950	1955	1986	6.8	0
CD4057639002	GENERAL CEPEDA, COAHUILA	25.38	-101.48	1470	1941	1986	2.0	0
IO:4057639003	RAMOS ARIZPE, COAHUILA	25.55	-100.97	1399	1926	1986	2.3	0
D4057639004	PARRAS, COAHUILA	25.45	-102.18	1500	1947	1985	1.1	0
4057639300	MONTERREY,N.L.	25.87	-100.20	512	1902	1990	16.2	0
2 4057639301	LA BOCA, NUEVO LEON	25.42	-100.15	445	1923	1986	8.5	0
L.:4057639302	LOS RAMONES, NUEVO LEON	25.70	-99.63	210	1940	1986	0.4	0
TS4057639303	HIGUERAS, NUEVO LEON	25.97	-100.02	490	1926	1986	2.5	0
1.5?4057639304	LAS ENRAMADAS, NUEVO LEON	25.50	-99.52	190	1926	1986	6.8	0
TS4057639305	CADEREYTA, NUEVO LEON	25.58	-100.00	350	1940	1981	2.6	0
TS4057639306	SAN JUAN, NUEVO LEON	25.55	-99.83	270	1943	1984	6.5	0
4057639307	MONTEMORELOS, NUEVO LEON	25.18	-99.83	425	1939	1986	1.7	0
TS4057639308	GENERAL BRAVO, NUEVO LEON	25.78	-99.18	125	1926	1986	3.0	0
4057639309	CIENEGA DE FLORES, NUEVO	25.95	-100.17	400	1939	1986	1.7	0
TS4057639310	LINARES, NUEVO LEON	24.87	-99.57	350	1927	1987	2.7	0
4057640202	IRAKY, BAJA CALIFORNIA SU	24.88	-111.28	120	1946	1987	1.4	0
4057640203	EL PASO DE IRITU, BAJA CA	24.77	-111.13	140	1942	1987	0.5	0
4057640204	L AGUAJITO, BAJA CALIFOR	24.93	-111.05	160	1940	1987	2.4	0
4057640502	SANTIAGO, BAJA CALIFORNIA	23.47	-109.73	125	1939	1987	2.0	0
4'4057640503	SANTA GERTRUDIS, BAJA CAL	23.53	-110.02	450	1942	1984	0.2	0
4057640504	SAN PEDRO, BAJA CALIFORNI	23.93	-110.25	190	1944	1987	3.8	0
4057640505	SAN JOSE DEL CABO, BAJA C	23.08	-109.67	7	1938	1987	5.7	0

4850.65

4057640506	SAN JACINTO, BAJA CALIFOR	23.25	-110.07	150	1953	1987	1.2	0
4057640507	EL PILAR, BAJA CALIFORNIA	24.47	-111.00	15	1944	1987	2.5	0
4057640508	SAN FELIPE, BAJA CALIFORN	23.13	-109.75	450	1939	1987	3.9	0
4057640509	SAN BARTOLO SUR, BAJA CAL	23.73	-109.87	395	1940	1987	4.7	0
4057640510	LAGUNILLAS, BAJA CALIFORN	24.05	-110.38	100	1952	1987	5.1	0
4057640511	LOS DIVISADEROS, BAJA CAL	23.87	-110.15	490	1943	1987	1.9	0
4057640512	CADUANO, BAJA CALIFORNIA	23.28	-109.75	195	1942	1987	1.4	0
4057640513	CABO SAN LUCAS, BAJA CALI	22.88	-109.92	25	1942	1987	2.7	0
4057641202	ALONA	24.80	-107.13	170	1944	1985	5.8	0
4057641203	PALOS BLANCOS, SINALOA	24.92	-107.38	88	1939	1985	2.1	0
4057641204	MOCORITO, SINALOA	25.48	-107.92	60	1921	1985	24.7	0
4057641205	COSALA, SINALOA SMN	24.42	-106.68	300	1921	1987	10.4	0
4057641206	BADIRAGUATO, SINALOA	25.37	-107.55	230	1921	1985	9.4	0
4057642302	FRANCISCO I. MADERO, DURA	24.40	-104.32	1960	1929	1987	2.7	0
4057642303	CANATLAN, DURANGO	24.52	-104.78	1950	1949	1987	3.0	0
4057647102	SAN MARCOS, DURANGO	24.30	-103.55	2030	1942	1987	2.2	0
154057649101	PADILLA, TAMAULIPAS	24.00	-98.78	153	1941	1987	4.3	0 TDF
4057649102	EL BARRETAL, TAMAULIPAS	24.08	-99.13	195	1941	1987	0.7	0 TPF
4057649103	VILLAGRAN, TAMAULIPAS	24.47	-99.50	380	1943	1984	1.2	0 T
4057649104	VILLAGRAN, TAMAULIPAS	24.47	-99.48	380	1940	1987	0.3	0
4057649105	HIDALGO, TAMAULIPAS	24.25	-99.43	330	1926	1987	4.3	0 TPF
4057649901	SAN FERNANDO, TAMAULIPAS	24.85	-98.17	43	1932	1987	0.1	0 -rp f
4057651900	COLOTLAN, JAL.	22.12	-103.27	1673	1971	1980	9.2	0
4057652500	ZACATECAS,ZAC. (LA B	22.78	-102.57	2612	1951	1990	23.1	0
4057653901	CHARCAS, SAN LUIS POTOSI	23.12	-101.12	2020	1921	1986	4.9	0
4057654302	EL REFUGIO MANTE, TAMAULI	22.57	-99.02	100	1972	1983	0.7	0
4057654303	TANTIZOHUICHE, SAN LUIS P	21.82	-98.97	70	1935	1984	21.8	0
4057654304	REQUETEMU, SAN LUIS POTOS	21.93	-98.90	89	1954	1984	1.3	0
154057654305	CIUDAD MANTE, TAMAULIPAS	22.82	-99.03	100	1958	1982	3.0	0 2
4057654306	HACIENDA SANTA ELENA TAM	22.52	-99.00	90	1922	1984	12.4	0 TDF
4057654307	AGUA BUENO, SAN LUIS POTO	21.95	-99.38	372	1927	1987	18.9	0
4057655601	SANTIAGO IXCUINTLA, NAYAR	21.82	-105.20	15	1947	1985	6.4	0
4057655602	SAN PEDRO, NAYARIT	21.95	-105.18	18	1944	1985	1.8	0
4057655603	SAN BLAS, NAYARIT	21.53	-105.28	2	1921	1987	32.0	0
4057655604	PASO DE AROCHA, NAYARIT	21.28	-105.10	30	1949	1985	1.6	0
4057655605	JUMATAN, NAYARIT	21.65	-105.03	365	1942	1987	18.1	0
4057655606	AHUACATLAN, NAYARIT	21.03	-104.48	990	1924	1987	2.2	0
4057655607	ACAPONETA, NAYARIT	22.50	-105.37	22	1944	1985	1.6	0
4057655608	PUERTO VALLARTA, JALISCO	20.62	-105.23	2	1927	1987	3.8	0
4057655609	LA DESEMBOCADA, JALISCO	20.73	-105.15	20	1949	1987	3.0	0
4057655610	TUXPAN, NAYARIT	21.95	-105.30	8	1930	1976	30.1	0
4057655611	TETITLAN, NAYARIT	21.13	-104.62	750	1927	1987	31.4	0
4057655612	MASCOTA, JALISCO	20.53	-104.80	1240	1923	1987	8.8	0
4057655613	EL TUITO, JALISCO	20.32	-105.32	600	1947	1987	9.6	0
4057657101	PRESA SAN MIGUEZ EL ALTO,	20.98	-102.40	1850	1942	1987	4.7	0
4057657701	LEON	21.10	-101.70	1809	1878	1970	8.1	0
4057657702	IRAPUATO, GUANAJUATO	20.68	-101.35	1725	1921	1986	2.9	0
4057658100	RIO VERDE,S.L.P.	21.85	-100.00	990	1971	1980	2.5	0
4057658101	PASO DE SAN ANTONIO, SAN	22.02	-100.38	1240	1943	1987	1.5	0
4057658502	TLANCHINOL, HIDALGO	20.98	-98.65	1589	1942	1978	7.7	0
4057658503	ORIZATLAN, HIDALGO	21.17	-98.62	575	1942	1987	6.0	0
4057658504	HUEJUTLA, HIDALGO	21.13	-98.43	480	1926	1987	3.5	0
4057658505	CHICONTEPEC, VERACRUZ	20.98	-98.17	595	1922	1987	21.3	0
4057661200	GUADALAJARA, JAL.	20.67	-103.38	1551	1921	1988	8.8	0
4057661201	VALLE DE GUADALUPE, JALIS	21.02	-102.62	1820	1941	1987	2.1	0
4057661202	TOTOTLAN, JALISCO	20.53	-102.80	1540	1941	1987	4.1	0
4057661203	TEPATITLAN, JALISCO	20.82	-102.77	1800	1941	1987	2.8	0
4057661204	EL SALTO, JALISCO	20.52	-103.18	1508	1942	1987	5.3	0
4057661205	CHAPALA, JALISCO	20.30	-103.18	1523	1934	1987	1.5	0
4057662500	QUERETARO,QRO.	20.60	-100.38	1813	1971	1980	0.0	0

Precip (4)

4057662502	SAN JOSE ITURBIDE, GUANAJ	21.00	-100.38	2100	1949	1986	1.1	
4057662503	HUICHAPAN, HIDALGO	20.37	-99.65	1102	1921	1987	3.4	
4057663200	PACHUCA,HGO.	20.13	-98.73	2417	1971	1980	0.8	
4057663202	MIXQUIAHUALA, HIDALGO	20.23	-99.20	2050	1926	1987	33.6	
4057664000	TUXPAN.VER.	20.95	-97.40	28	1971	1980	0.0	o
4057664001	IXHUATLAN, VERACRUZ	20.70	-98.00	306	1942	1987	3.6	
4057664400	AEROP.INTERNACIONAL MERID	20.98	-89.65	9	1895	1990	10.7	0 TDF
4057664401	TELCHAQUILLO, YUCATAN	20.65	-89.30	20	1949	1986	4.6	o TDF
4057664402	TEKAX, YUCATAN	20.18	-89.28	33	1948	1986	4.3	0 TDF(T)
4057664403	SOTUTA, YUCATAN	20.58	-89.00	11	1945	1987	5.8	0 TDF(T)
4057664404	IZAMAL, YUCATAN	20.93	-89.00	14	1948	1983	11.1	0 TDF
4057664700	VALLADOLID,YUC.	20.70	-88.2	22	1921	1985	34.5	o SEF
4057664701	DZITAS, YUCATAN	20.80	-88.52	27	1948	1986	4.7	o S (T)
4057664800	COZUMEL,Q.ROO	20.52	-86.95	3	1971	1980	0.8	0
4057665400	MANZANILLO,COL.	19.05	-104.33	3	1921	1981	7.1	0
4057665401	CALLEJONES, COLIMA	18.82	-103.65	24	1943	1987	2.8	0
4057665402	TECOMAN, COLIMA	18.92	-103.88	33	1942	1987	5.8	0
4057665403	IXTLAHUACAN, COLIMA	18.98	-103.75	150	1927	1987	14.9	0
4057665404	COQUIMATLAN, COLIMA	19.20	-103.82	310	1947	1987	6.3	0
4057665601	COLIMA, COLIMA	19.23	-103.73	495	1921	1988	7.5	0
4057666201	YURECUARO, MICHOACAN	20.33	-102.28	1537	1934	1987	2.8	0
4057666202	SANTA FE DEL RIO, MICHOAC	4.22	-101.83	1690	1935	1985	2.9	0
4057666203	LA PIEDAD, MICHOACHAN	20.33	-102.00	1700	1921	1986	13.0	0
4057666204	LA PALMA, MICHOACAN	20.15	-102.75	1555	1935	1987	3.8	0
4057666205	ATOTONILCO, JALISCO	20.55	-102.52	1600	1941	1987	6.6	0
4057666206	PRESA GUARACHA, MICHOACAN	19.97	-102.58	1570	1936	1987	4.8	0
4057666501	LA UNION, GUERRERO	17.98	-101.82	1195	1924	1986	29.8	0
4057667900	AEROP. INTERNACIONALMEXIC	19.43	-99.08	2234	1878	1987	15.7	0
4057667901	TEXCOCO, MEXICO	19.52	-98.88	2353	1921	1976	4.2	0
4057668001	PRESA REQUENA, HIDALGO	19.92	-99.32	2109	1927	1987	2.5	0
4057668002	TACUBAYA, DISTRITO FEDERA	19.40	-99.20	2309	1900	1987	0.9	0
4057668301	LA VENTA, DISTRITO FEDERA	19.33	-98.30	2400	1948	1983	3.9	0
4057668500	PUEBLA,PUE.	19.03	-98.20	2166	1878	1970	7.0	0
4057668501	CHIETLA, PUEBLA	18.52	-98.57	1222	1942	1987	4.2	0
4057668700	JALAPA,VER.	19.53	-96.92	1389	1951	1970	7.9	0
4057668701	TEOCELO, VERACRUZ	19.38	-96.97	1213	1942	1984	2.5	0
4057669100	VERACRUZ,VER.	19.20	-96.13	14	1971	1980	0.8	0
4057669101	VERACRUZ, VER.	19.15	-96.12	16	1951	1990	15.0	0
4057669502	HECELCHAKÁN, CAMPECHE TDF	20.18	-90.15	13	1949	1987	5.3	0 TDF
4057669503	BECANCHEN, YUCATAN	19.83	-89.30	30	1949	1984	6.0	0
4057669504	XCUPIL, CAMPECHE SEF	19.72	-89.85	100	1944	1987	4.0	0
4057669505	ESCARCEGA, CAMPECHE T	18.62	-90.73	75	1944	1987	2.8	0
4057669506	CHAMPOTON, CAMPECHE TDF	19.38	-90.73	2	1911	1987	10.1	0
4057672600	CUERNAVACA,MOR.	18.92	-99.25	1560	1946	1987	1.6	0
4057672601	JOLALPAN, PUEBLA	18.32	-98.85	820	1944	1987	2.3	0
4057672602	EL RODEO, MORELOS	18.77	-99.35	1100	1941	1984	22.7	0
4057672603	CUAUTLA, MORELOS	18.80	-98.95	1291	1926	1987	21.4	0
4057672604	JONACATEPEC, MORELOS	18.68	-98.80	1350	1926	1970	3.3	0
4057672605	AXOCHIAPAN, MORELOS	18.50	-98.75	1200	1926	1965	3.1	0
4057672606	IGUALA, GUERRERO	18.37	-99.55	635	1953	1987	0.0	0
4057672607	HUITZUCO, GUERRERO	18.30	-99.33	900	1942.	1987	9.6	0
4057672608	CHAUCINGO, GUERRERO	18.30	-99.12	840	1942	1987	5.8	0
4057673702	CUICHAPA, VERACRUZ	18.77	-96.87	648	1948	1983	4.9	0
4057673703	COSCOMATEPEC, VERACRUZ	19.07	-97.03	1588	1947	1984	2.9	0
4057673704	OJITLAN, OAXACA	18.08	-96.38	233	1947	1983	3.2	0
4057673705	CATALUNA, OAXACA	18.28	-96.72	1000	1951	1984	.7	0
4057673706	AYAUTLA, OAXACA	18.03	-96.67	733	1955	1983	3.4	0
4057673707	EL PALMAR, VERACRUZ	18.52	-96.75	180	1941	1984	9.3	
4057673708	TEMAZCAL, OAXACA	18.23	-96.40	80	1950	1983	1.5	0
4057674100	COATZACOALCOS,VER.	18.15	-94.42	23	1951	1990	17.9	0

Precip (5)

• 4057675000	CHETUMAL,Q.ROO TEF	18.50	-88.30	3	1961	1990	45.3	0
4057677301	PIAXTLA, PUEBLA	18.20	-98.25	1155	1926	1987	3.2	0
4057677500	OAXACA,OAX.	17.07	-96.72	1550	1922	1990	25.1	0
4057677501	CANTON, OAXACA	18.02	-96.28	42	1947	1984	1.3	0,
4057677502	YAVEO, OAXACA	17.33	-95.73	450	1950	1980	4.6	0
4057677503	VALLE NACIONAL, OAXACA	17.78	-96.32	65	1948	1983	0.0	0
4057677504	USILA, OAXACA	17.87	-96.53	230	1950	1984	3.3	0
4057680502	PE TATLAN , GUERRERO	17.53	-101.28	30	1926	1983	31.5	0
4057680503	COYUQUILLA, GUERRERO	17.37	-101.07	50	1953	1986	0.7	0
4057680504	ATOYAC DE ALVAREZ, GUERRE	17.20	-100.43	240	1922	1983	23.3	0
4057683301	MATIAS ROMERO, OAXACA	16.88	-95.05	201	1924	1987	16.0	0
4057683302	JUCHITAN, OAXACA	16.43	-95.03	46	1937	1987	4.4	0
4057683303	I XTE PE C , OAXACA	16.57	-95.10	1200	1937	1987	3.1	0
4057683304	CHICAPA, OAXACA	16.43	-94.82	30	1950	1987	0.7	0
4057683305	LAS CUEVAS, OAXACA	16.45	-95.37	76	1939	1982	0.4	0
4057683306	UNION HIDALGO, OAXACA	16.48	-94.83	10	1942	1987	1.1	0
4057683307	TEHUANTEPEC, OAXACA	16.32	-95.18	55	1936	1987	3.5	0
4057684002	OSTUTA, OAXACA	16.50	-94.45	35	1948	1987	1.3	0
4057684303	COPAINALA, CHIAPAS	17.08	-93.22	910	1927	1975	19.7	0
4057684304	EL BOQUERON, CHIAPAS	16.65	-93.15	480	1948	1986	3.8	0
4057684305	BOMBANA, CHIAPAS	16.95	-93.03	614	1945	1986	5.6	0
4057684306	BOCHIL, CHIAPAS	16.98	-92.92	1272	1942	1988	6.6	0
4057684307	OCOZOCUAUTLA, CHIAPAS	16.75	-93.38	864	1939	1988	8.8	0
4057684308	IXTAPA, CHIAPAS	16.77	-92.92	1020	1926	1987	18.7	0
4057684500	SN. CRISTOBAL LAS CASAS	16.73	-92.63	2276	1922	1988	13.8	0
4057684501	CHIAPILLA, CHIAPAS	16.50	-92.73	560	1926	1988	5.0	0
4057684800	COMITAN,CHIS.	16.25	-92.13	1530	1923	1988	9.7	0
4057684801	LA TRINITARIA, CHIAPAS	16.12	-92.05	1530	1946	1987	9.5	0
4057685501	POCHUTLA, OAXACA	15.75	-96.48	160	1961	1987	17.0	0
4057690300	TAPACHULA, CHIS	14.92	-92.27	182	1951	1990	13.1	0

Station [redacted] Location [redacted] Lat Long Ele Year Year MM

4057605002 EL ALAMO, ENS. [redacted].60 -116.10 1115 1948 1988 2.4 0
4057605003 EL PINAL, ENS. [redacted]2.20 -116.30 1350 1948 1989 6.7 0
4057605004 LA PROVMENCIA, ENS. [redacted]1.40 -116.20 175 1953 1989 3.8 0
4057605005 LA PUERTA, TEC. [redacted]2.50 -116.70 480 1948 1989 5.0 0
4057605006 OJOS NEGROS, ENS. [redacted]1.90 -116.30 712 1948 1989 4.6 0
4057605007 OLIVARES MEXICANOS, [redacted]2.10 -116.60 351 1949 1989 1.8 0
4057605008 PRESA RODRIGUEZ, TIJ [redacted]2.50 -116.90 120 1928 1989 14.5 0
4057605009 SAN JUAN DE DIOS NOR [redacted]2.10 -116.20 1280 1956 1985 7.5 0
4057605010 SAN TELMO, ENS. [redacted]1.00 -116.10 70 1948 1986 1.1 0
4057605011 SAN VICENTE, ENS. [redacted]1.30 -116.30 110 1948 1989 4.2 0
4057605012 SANTO TOMAS, ENS. [redacted]1.60 -116.40 152 1948 1989 1.6 0
4057605013 TIJUANA, TU. [redacted]2.50 -117.00 53 1921 1984 22.7 0
4057605014 VALLE DE LAS PALMAS, [redacted]2.40 -116.60 280 1948 1989 4.4 0
4057605015 LA RUMOROSA, TEC. [redacted]2.60 -116.10 1232 1932 1989 16.8 0
4057605016 BATAQUES, MEX. [redacted]2.60 -115.20 70 1948 1989 3.0 0
4057605017 DELTA, MEX. [redacted]2.40 -115.20 12 1948 1989 3.6 0
4057605018 MEXICALI, MEX. [redacted]2.70 -115.50 60 1921 1989 20.9 0
4057605501 COLONIA VICENTE GUER [redacted]0.70 -116.00 40 1948 1989 2.6 0
4057605504 EL ROSARIO, ENS. [redacted]0.10 -115.70 82 1953 1988 5.1 0
4057605505 EL SOCORRO, ENS. [redacted]0.30 -115.80 26 1956 1989 11.0 0
4057605506 LAS ESCOBAS, ENS. [redacted]0.60 -115.90 50 1948 1989 2.4 0
4057605507 SAN AGUSTIN, ENS. [redacted]9.90 -115.00 552 1956 1988 3.8 0
4057605508 SAN LUIS, ENS. [redacted]9.70 -114.70 510 1956 1988 8.3 0
4057605510 COLONIA JUAREZ, MEX. [redacted]2.30 -115.00 7 1949 1989 3.9 0
4057605512 PRESA MORELOS, MEX. [redacted]2.70 -114.70 28 1948 1989 6.3 0
4057605513 RIITO, S.L.R.C. [redacted]2.10 -114.90 13 1949 1986 1.5 0
4057605515 PUNTA PRIETA, BAJA CALIFO 28.92-114.15 200 1954 1988 3.60
4057605516 CHAPALA, BAJA CALIFORNIA 29.40 -114.37 665 1953 1988 3.0 0
4057606101 SONOITA, SON. [redacted]1.90 -112.90 350 1952 1986 1.0 0
4057611301 PRESA CUAUHTEMOC, SO [redacted]0.90 -111.50 590 1941 1986 0.0 0
4057611802 MOCTEZUMA, SONORA [redacted]9.80 -109.68 620 1943 1978 6.0 0
4057616002 EL CARRIZAL, SON. [redacted]9.10 -111.70 49 1954 1986 6.6 0
4057616004 SAN JOSE, SON. [redacted]8.80 -111.70 29 1954 1985 1.6 0
4057616006 PRESA ABELARDO RODRIGUEZ, 29.08 -110.92 210 1946 1987 0.8 0
4057616007 EL OREGANO, SONORA [redacted]9.23 -110.72 275 1941 1987 0.2 0
4057616008 OPODEPE, SONORA [redacted]9.92 -110.62 650 1944 1983 5.8 0
4057616009 MAZATAN, SONORA [redacted]9.00 -110.13 530 1945 1978 6.4 0
4057616010 PRESA PLUTARCO ELIAS CALL 28.98 -109.65 350 1941 1985 2.8 0
4057622000 TEMOSACHIC,CHM. [redacted]8.95 -107.83 1870 1921 1987 30.3 0
4057622002 LA JUNTA, CHIHUAHUA [redacted]8.77 -107.98 1900 1924 1984 11.5 0
4057622003 DOLORES, CHIHUAHUA [redacted]8.87 -108.47 1926 1957 1985 10.9 0
4057622004 ARIVECHI, SONORA [redacted]8.93 -109.18 556 1943 1987 10.7 0
4057622005 BACHINIVA, CHIHUAHUA [redacted]8.77 -107.25 2100 1926 1987 3.9 0
4057622006 SAHUARIPA, SONORA [redacted]9.05 -109.23 460 1942 1987 4.3 0
4057622007 MULATOS, SONORA [redacted]8.65 -108.75 0 1947 1987 1.8 0
4057622008 TEJOLOCACHIC, CHIHUAHUA 28.77 -107.67 1925 1933 1987 2.4 0
4057622009 NAMIQUIPA, CHIHUAHUA [redacted]9.25 -107.42 1828 1923 1987 28.1 0
4057622010 CIUDAD GUERRERO, CHMUAHU 28.55 -107.48 2000 1923 1987 2.6 0
4057622502 DELICIAS, CHIHUAHUA [redacted]8.20 -105.47 1170 1934 1987 1.7 0
4057624300 PIEDRAS NEGRAS,COAH. [redacted]8.70 -100.52 250 1951 1990 35.4 0
4057624301 SABINAS, COAHUILA [redacted]7.85 -101.12 335 1922 1986 26.9 0
4057625301 EL ARCO, ENS. 28.00 -113.40 300 1953 1989 4.3 0
4057625302 RANCHO ALEGRE, ENS. 28.30 -113.90 120 1954 1988 0.5 0
4057625305 SANTA CATARINA SUR, 28.10 -113.10 270 1954 1988 1.7 0
4057625306 SANTA GERTRUDIS, ENS 28.10 -113.10 400 1955 1988 21.1 0
4057625307 BAHIA DE LOS ANGELES 28.90 -113.60 4 1953 1988 4.6 0
4057625308 EL BARRIL, ENS. 28.30 -112.90[redacted]0 1955 1989 5.5 0
4057625309 BAHIA TORTUGAS, BAJA CALI 27.70 -114.87 0 1954 1987 6.6 0
4057625310 SAN REGIS, BAJA CALIFORNI 28.60 -113.75 490 1954 1989 2.8 0
4057625314 SAN JOSE DE GRACIA, BAJA 26.50 -112.72 138 1954 1987 1.0 0
4057625315 SAN IGNACIO, BAJA CALIFOR 27.30 -112.88 95 1939 1987 0.9 0
4057625601 GUAYMAS [redacted] 27.90 -110.90 4 1951 1984 21.6 0
4057625802 PRESA ADOLFO R. CORT [redacted]7.20 -109.10 147 1955 1986 8.6 0

2

Station	Location	Lat	Long	Ele	Year	Year	MM
4057625803	TESIA, SON.	27.20	-109.40	50	1952	1985	0.0 0
4057625804	SANTA ROSA, SONORA	28.43	-109.18	1020	1955	1987	5.8 0
4057625805	TRES HERMANOS, SONORA	27.20	-109.20	100	1941	1987	2.1 0
4057625806	TONICHI, SONORA	28.60	-109.57	200	1946	1987	3.8 0
4057625807	QUIRIEGO, SONORA	27.52	-109.25	521	1927	1987	1.0 0
4057625808	SAN JAVIER, SONORA	28.60	-109.73	750	1923	1987	17.9 0
4057625809	NUM, SONORA	28.12	-109.33	440	1924	1982	22.3 0
4057625810	LA DURA, SONORA	28.38	-109.57	160	1923	1985	18.4 0
4057631100	CHOIX,SIN.	26.72	-108.28	238	1921	1985	6.3 0
4057631101	BATOPILAS, CHIHUAHUA	27.03	-107.73	556	1946	1987	1.6 0
4057631102	CREEL, CHIHUAHUA	27.75	-107.63	2345	1952	1985	20.1 0
4057631103	CHINIPAS, CHIHUAHUA	27.40	-108.53	700	1926	1987	2.8 0
4057631104	MINAS NUEVAS, SONORA	27.07	-109.08	1927	1987	0.7 0	
4057631105	ALAMOS, SONORA	27.03	-108.93	410	1946	1984	0.9 0
4057631106	JAINA, SINALOA SRH	25.90	-108.02	[illegible]	1942	1985	0.80
4057631107	HUITES, SINALOA	26.90	-108.37	168	1941	1985	3.0 0
4057631108	EL FUERTE, SINALOA	26.42	-108.62	84	1946	1985	4.2 0
4057631109	BAMICORI, SINALOA	26.38	-108.50	152	1953	1983	1.9 0
4057632302	PRESA LA BOQUILLA, CHIHUA	27.55	-105.40	1300	1941	1986	0.2 0
4057634200	MONCLOVA,COAH.	26.88	-101.42	615	1921	1981	6.1 0
4057634202	SAN BUENAVENTURA, COAHUIL	27.07	-101.55	495	1927	1984	19.8 0
4057634203	PROGRESSO, COAHUILA	27.43	-100.98	305	1943	1986	2.7 0
4057634204	PRESA VENUSTIANO CARRANZA	27.52	-100.62	270	1940	1986	4.8 0
4057634205	CUATRO CIENEGAS, COAHUILA	26.98	-102.07	735	1941	1986	11.4 0
4057634206	GRANJA EXPERIMENTAL, NUEV	27.23	-100.15	193	1933	1986	1.2 0
4057634207	LAGUNA DE SALINILLAS, NUE	27.43	-100.38	240	1939	1986	0.3 0
4057637300	TEPEHUANES,DGO.	26.35	-105.78	1967	1922	1984	1.2 0
4057637303	GUANACEVI, DURANGO	25.93	-105.95	2200	1922	1984	1.9 0
4057638200	TORREON,COAH.	25.53	-103.45	1124	1951	1970	0.4 0
4057638202	EL RODEO, DURANGO	25.18	-104.57	1340	1925	1985	3.7 0
4057638205	SAN PEDRO DEL GALLO, DURA	25.57	-104.30	1600	1944	1985	10.7 0
4057638206	NAZAS, DURANGO	25.22	-104.12	1245	1941	1985	2.8 0
4057638207	CD LERDO, DURANGO	25.53	-103.53	1135	1921	1976	1.5 0
4057638208	CUENCAME, DURANGO	24.87	-103.70	1580	1938	1987	0.3 0
4057638209	CANON FERNANDEZ, DURANGO	25.27	-103.77	1300	1941	1986	0.5 0
4057639001	EJIDO REATA, COAHUILA	26.13	-101.08	950	1955	1986	6.8 0
4057639002	GENERAL CEPEDA, COAHUILA	25.38	-101.48	1470	1941	1986	2.0 0
4057639003	RAMOS ARIZPE, COAHUILA	25.55	-100.97	1399	1926	1986	2.3 0
4057639004	PARRAS, COAHUILA	25.45	-102.18	1500	1947	1985	1.1 0
4057639300	MONTERREY,N.L.	25.87	-100.20	512	1902	1990	16.2 0
4057639301	LA BOCA, NUEVO LEON	25.42	-100.15	445	1923	1986	8.5 0
4057639302	LOS RAMONES, NUEVO LEON	25.70	-99.63	210	1940	1986	0.4 0
4057639303	HIGUERAS, NUEVO LEON	25.97	-100.02	490	1926	1986	2.5 0
4057639304	LAS ENRAMADAS, NUEVO LEON	25.50	-99.52	190	1926	1986	6.8 0
4057639305	CADEREYTA, NUEVO LEON	25.58	-100.00	350	1940	1981	2.6 0
4057639306	SAN JUAN, NUEVO LEON	25.55	-99.83	270	1943	1984	6.5 0
4057639307	MONTEMORELOS, NUEVO LEON	25.18	-99.83	425	1939	1986	1.7 0
4057639308	GENERAL BRAVO, NUEVO LEON	25.78	-99.18	125	1926	1986	3.0 0
4057639309	CIENEGA DE FLORES, NUEVO	25.95	-100.17	400	1939	1986	1.7 0
4057639310	LINARES, NUEVO LEON	24.87	-99.57	350	1927	1987	2.7 0
4057640202	IRAKY, BAJA CALIFORNIA SU	24.88	-111.28	120	1946	1987	1.4 0
4057640203	EL PASO DE IRITU, BAJA CA	24.77	-111.13	140	1942	1987	0.5 0
4057640204	EL AGUAJITO, BAJA CALIFOR	24.93	-111.05	160	1940	1987	2.4 0
4057640502	SANTIAGO, BAJA CALIFORNIA	23.47	-109.73	125	1939	1987	2.0 0
4057640503	SANTA GERTRUDIS, BAJA CAL	23.53	-110.02	450	1942	1984	0.2 0
4057640504	SAN PEDRO, BAJA CALIFORNI	23.93	-110.25	190	1944	1987	3.8 0
4057640505	SAN JOSE DEL CABO, BAJA C	23.08	-109.67	7	1938	1987	5.7 0
4057640506	SAN JACINTO, BAJA CALIFOR	23.25	-110.07	150	1953	1987	1.2 0
4057640507	EL PILAR, BAJA CALIFORNIA	24.47	-111.00	15	1944	1987	2.5 0
4057640508	SAN FELIPE, BAJA CALIFORN	23.13	-109.75	450	1939	1987	3.9 0
4057640509	SAN BARTOLO SUR, BAJA CAL	23.73	-109.87	395	1940	1987	4.7 0
4057640510	LAGUNILLAS, BAJA CALIFORN	24.05	-110.38	100	1952	1987	5.1 0
4057640511	LOS DIVISADEROS, BAJA CAL	23.87	-110.15	490	1943	1987	1.9 0

Station	Location	Lat	Lone	Ele	Year	Year	MM
4057640512	CADUANO, BAJA CALIFORNIA	23.28	-109.75	195	1942	1987	1.4 0
4057640513	CABO SAN LUCAS, BAJA CALI	22.88	-109.92	25	1942	1987	2.7 0
4057641202	SANALONA, SINALOA SRH	24.80	-107.13	170	1944	1985	5.8 0
4057641203	PALOS BLANCOS, SINALOA	24.92	-107.38	88	1939	1985	2.1 0
4057641204	MOCORITO, SINALOA	25.48	-107.92	60	1921	1985	24.7 0
4057641205	COSALA, SINALOA SMN	24.42	-106.68	300	1921	1987	10.4 0
4057641206	BADIRAGUATO, SINALOA	25.37	-107.55	230	1921	1985	9.4 0
4057642302	FRANCISCO I. MADERO, DURA	24.40	-104.32	1960	1929	1987	2.7 0
4057642303	CANATLAN, DURANGO	24.52	-104.78	1950	1949	1987	3.0 0
4057647102	SAN MARCOS, DURANGO	24.30	-103.55	2030	1942	1987	2.2 0
4057649101	PADILLA, TAMAULIPAS	24.00	-98.78	153	1941	1987	4.3 0
4057649102	EL BARRETAL, TAMAULIPAS	24.08	-99.13	195	1941	1987	0.7 0
4057649103	VILLAGRAN, TAMAULIPAS	24.47	-99.50	380	1943	1984	1.2 0
4057649104	VILLAGRAN, TAMAULIPAS	24.47	-99.48	380	1940	1987	0.3 0
4057649105	HIDALGO, TAMAULIPAS	24.25	-99.43	330	1926	1987	4.3 0
4057649901	SAN FERNANDO, TAMAULIPAS	24.85	-98.17	43	1932	1987	0.1 0
4057651900	COLOTLANJAL.	22.12	-103.27	1673	1971	1980	9.2 0
4057652500	ZACATECAS,ZAC. (LA B	22.78	-102.57	2612	1951	1990	23.1 0
4057653901	CHARCAS, SAN LUIS POTOSI	23.12	-101.12	2020	1921	1986	4.9 0
4057654302	EL REFUGIO MANTE, TAMAULI	22.57	-99.02	100	1972	1983	0.7 0
4057654303	TANTIZOHUICHE, SAN LUIS P	21.82	-98.97	70	1935	1984	21.8 0
4057654304	REQUETEMU, SAN LUIS POTOS	21.93	-98.90	89	1954	1984	1.3 0
4057654305	CIUDAD MANTE, TAMAULIPAS	22.82	-99.03	100	1958	1982	3.0 0
4057654306	HACIENDA SANTA ELENA, TAM	22.52	-99.00	90	1922	1984	12.4 0
4057654307	AGUA BUENO, SAN LUIS POTO	21.95	-99.38	372	1927	1987	18.9 0
4057655601	SANTIAGO IXCUINTLA, NAYAR	21.82	-105.20	15	1947	1985	6.4 0
4057655602	SAN PEDRO, NAYARIT	21.95	-105.18	18	1944	1985	1.80
4057655603	SAN BLAS, NAYARIT	21.53	-105.28	2	1921	1987	32.0 0
4057655604	PASO DE AROCHA, NAYARIT	21.28	-105.10	30	1949	1985	1.6 0
4057655605	JUMATAN, NAYARIT	21.65	-105.03	365	1942	1987	18.1 0
4057655606	A1{UACATLAN, NAYARIT	21.03	-104.48	990	1924	1987	2.2 0
4057655607	ACAPONETA, NAYARIT	22.50	-105.37	22	1944	1985	1.6 0
4057655608	PUERTO VALLARTA, JALISCO	20.62	-105.23	2	1927	1987	3.8 0
4057655609	LA DESEMBOCADA, JALISCO	20.73	-105.15	20	1949	1987	3.0 0
4057655610	TUXPAN, NAYARIT	21.95	-105.30	8	1930	1976	30.1 0
4057655611	TETITLAN, NAYARIT	21.13	-104.62	750	1927	1987	31.4 0
4057655612	MASCOTA, JALISCO	20.53	-104.80	1240	1923	1987	8.8 0
4057655613	EL TUITO, JALISCO	20.32	-105.32	6d0	1947	1987	9.6 0
4057657101	PRESA SAN MIGUEZ EL ALTO,	20.98	-102.40	1850	1942	1987	4.7 0
4057657701	LEON	21.10	-101.70	1809	1878	1970	8.1 0
4057657702	IRAPUATO, GUANAJUATO	20.68	-101.35	1725	1921	1986	2.9 0
4057658100	RIO VERDE,S.L.P.	21.85	-100.00	990	1971	1980	2.5 0
4057658101	PASO DE SAN ANTONIO, SAN	22.02	-100.38	1240	1943	1987	1.5 0
4057658502	TLANCHINOL, HIDALGO	20.98	-98.65	1589	1942	1978	7.7 0
4057658503	ORIZATLAN, HIDALGO	21.17	-98.62	575	1942	1987	6.0 0
4057658504	HUEJUTLA, HIDALGO	21.13	-98.43	480	1926	1987	3.5 0
4057658505	CHICONTEPEC, VERACRUZ	20.98	-98.17	595	1922	1987	21.3 0
4057661200	GUADALAJARAjAL.	20.67	-103.38	1551	1921	1988	8.8 0
4057661201	VALLE DE GUADALUPE, JALIS	21.02	-102.62	1820	1941	1987	2.1 0
4057661202	TOTOTLAN, JALISCO	20.53	-102.80	1540	1941	1987	4.1 0
4057661203	TEPATULAN, JALISCO	20.82	-102.77	1800	1941	1987	2.8 0
4057661204	EL SALTO, JALISCO	20.52	-103.18	1508	1942	1987	5.3 0
4057661205	CHAPALA, JALISCO	20.30	-103.18	1523	1934	1987	1.5 0
4057662500	QUERETARO,QRO.	20.60	-100.38	1813	1971	1980	0.0 0
4057662502	SAN JOSE ITURBIDE, GUANAJ	21.00	-100.38	2100	1949	1986	1.1 0
4057662503	HUICHAPAN, HIDALGO	20.37	-99.65	1102	1921	1987	3.4 0
4057663200	PACHUCA,HGO.	20.13	-98.73	2417	1971	1980	0.8 0
4057663202	MaQUIAHUALA, HIDALGO	20.23	-99.20	2050	1926	1987	33.6 0
4057664000	TUXPAN.VER.	20.95	-97.40	28	1971	1980	0.0 0
4057664001	IXHUATLAN, VERACRUZ	20.70	-98.00	306	1942	1987	3.6 0
4057664400	AEROPINTERNACIONAL MERID	20.98	-89.65	9	1895	1990	10.7 0
4057664401	TELCHAQUILLO, YUCATAN	20.65	-89.30	20	1949	1986	4.6 0
4057664402	TEKAX, YUCATAN	20.18	-89.28	33	1948	1986	4.3 0

Station	Location	Lat	Long	Ele	Year	Year	MM	
4057664403	SOTUTA, YUCATAN	20.58	-89.00	11	1945	1987	5.8	0
4057664404	IZAMAL, YUCATAN	20.93	-89.00	14	1948	1983	11.1	0
4057664700	VALLADOLID,YUC.	20.70	-88.22	22	1921	1985	34.5	0
4057664701	DZITAS, YUCATAN	20.80	-88.52	27	1948	1986	4.7	0
4057664800	COZUMEL,Q.ROO	20.52	-86.95	3	1971	1980	0.8	0
4057665400	MANZANILLO,COL.	19.05	-104.33	3	1921	1981	7.1	0
4057665401	CALLEJONES, COLIMA	18.82	-103.65	24	1943	1987	2.8	0
4057665402	TECOMAN, COLIMA	18.92	-103.88	33	1942	1987	5.8	0
4057665403	IXTLAHUACAN, COLIMA	18.98	-103.75	150	1927	1987	14.9	0
4057665404	COQUIMATLAN, COLIMA	19.20	-103.82	310	1947	1987	6.3	0
4057665601	COLIMA, COLIMA	19.23	-103.73	495	1921	1988	7.5	0
4057666201	YURECUARO, MICHOACAN	20.33	-102.28	1537	1934	1987	2.8	0
4057666202	SANTA FE DEL RIO, MICHOAC	20.22	-101.83	1690	1935	1985	2.9	0
4057666203	LA PIEDAD, MICHOACHAN	20.33	-102.00	1700	1921	1986	13.0	0
4057666204	LA PALMA, MICHOACAN	20.15	-102.75	1555	1935	1987	3.8	0
4057666205	ATOTONILCO, JALISCO	20.55	-102.52	1600	1941	1987	6.6	0
4057666206	PRESA GUARACHA, MICHOACAN	19.97	-102.58	1570	1936	1987	4.8	0
4057666501	LA UNION, GUERRERO	17.98	-101.82	1195	1924	1986	29.8	0
4057667900	AEROP. INTERNACIONALMEXIC	19.43	-99.08	2234	1878	1987	15.7	0
4057667901	TEXCOCO, MEXICO	19.52	-98.88	2353	1921	1976	4.2	0
4057668001	PRESA REQUENA, HIDALGO	19.92	-99.32	2109	1927	1987	2.5	0
4057668002	TACUBAYA, DISTRITO FEDERA	19.40	-99.20	2309	1900	1987	0.9	0
4057668301	LA VENTA, DISTRITO FEDERA	19.33	-98.30	2400	1948	1983	3.90	
4057668500	PUEBLA,PUE.	19.03	-98.20	2166	1878	1970	7.0	0
4057668501	CHIETLA, PUEBLA	18.52	-98.57	1222	1942	1987	4.2	0
4057668700	JALAPA,VER.	19.53	-96.92	1389	1951	1970	7.9	0
4057668701	TEOCELO, VERACRUZ	19.38	-96.97	1213	1942	1984	2.5	0
4057669100	VERACRUZ,VER.	19.20	-96.13	14	1971	1980	0.8	0
4057669101	VERACRUZ, VER.	19.15	-96.12	16	1951	1990	15.0	0
4057669502	HECELCHAKAN, CAMPECHE	20.18	-90.15	13	1949	1987	5.3	0
4057669503	BECANCHEN, YUCATAN	19.83	-89.30	30	1949	1984	6.0	0
4057669504	XCUPIL, CAMPECHE	19.72	-89.85	100	1944	1987	4.0	0
4057669505	ESCARCEGA, CAMPECHE	18.62	-90.73	75	1944	1987	2.8	0
4057669506	CHAMPOTON, CAMPECHE	19.38	-90.73	2	1911	1987	10.1	0
4057672600	CUERNAVACA,MOR.	18.92	-99.25	1560	1946	1987	1.6	0
4057672601	JOLALPAN, PUEBLA	18.32	-98.85	820	1944	1987	2.3	0
4057672602	EL RODEO, MORELOS	18.77	-99.35	1100	1941	1984	22.7	0
4057672603	CUAUTLA, MORELOS	18.80	-98.95	1291	1926	1987	21.4	0
4057672604	JONACATEPEC, MORELOS	18.68	-98.80	1350	1926	1970	3.3	0
4057672605	AXOCHIAPAN, MORELOS	18.50	-98.75	1200	1926	1965	3.1	0
4057672606	IGUALA, GUERRERO	18.37	-99.55	635	1953	1987	0.0	0
4057672607	HUITZUCO, GUERRERO	18.30	-99.33	900	1942	1987	9.6	0
4057672608	CHAUCINGO, GUERRERO	18.30	-99.12	840	1942	1987	5.8	0
4057673702	CUICHAPA, VERACRUZ	18.77	-96.87	648	1948	1983	4.9	0
4057673703	COSCOMATEPEC, VERACRUZ	19.07	-97.03	1588	1947	1984	2.9	0
4057673704	OJITLAN, OAXACA	18.08	-96.38	233	1947	1983	3.2	0
4057673705	CATALUNA, OAXACA	18.28	-96.72	1000	1951	1984	2.7	0
4057673706	AYAUTLA, OAXACA	18.03	-96.67	733	1955	1983	3.4	0
4057673707	EL PALMAR, VERACRUZ	18.52	-96.75	180	1941	1984	9.3	0
4057673708	TEMAZCAL, OAXACA	18.23	-96.40	80	1950	1983	1.5	0
4057674100	COATZACOALCOS,VER.	18.15	-94.42	23	1951	1990	17.9	0
4057675000	CHETUMAL,Q.ROO	18.50	-88.30	3	1961	1990	45.3	0
4057677301	PIAXTLA, PUEBLA	18.20	-98.25	1155	1926	1987	3.2	0
4057677500	OAXACA,OAX.	17.07	-96.72	1550	1922	1990	25.1	0
4057677501	CANTON, OAXACA	18.02	-96.28	42	1947	1984	1.3	0
4057677502	YAVEO, OAXACA	17.33	-95.73	450	1950	1980	4.6	0
4057677503	VALLE NACIONAL, OAXACA	17.78	-96.32	65	1948	1983	0.0	0
4057677504	USILA, OAXACA	17.87	-96.53	230	1950	1984	3.3	0
4057680502	PETATLAN, GUERRERO	17.53	-101.28	30	1926	1983	31.5	0
4057680503	COYUQUILLA, GUERRERO	17.37	-101.07	50	1953	1986	0.7	0
4057680504	ATOYAC DE ALVAREZ, GUERRE	17.20	-100.43	240	1922	1983	23.3	0
4057683301	MATIAS ROMERO, OAXACA	16.88	-95.05	201	1924	1987	16.0	0
4057683302	JUCHITAN, OAXACA	16.43	-95.03	16	1937	1987	4.4	0

Station	Location	Lat	Long	Ele	Year	Year	MM	
4057683303	IXTEPEC, OAXACA	16.57	-95.10	1200	1937	1987	3.1	0
4057683304	CHICAPA, OAXACA	16.43	-94.82	30	1950	1987	0.7	0
4057683305	LAS CUEVAS, OAXACA	16.45	-95.37	76	1939	1982	0.4	0
4057683306	UNION HIDALGO, OAXACA	16.48	-94.83	10	1942	1987	1.1	0
4057683307	TEHUANTEPEC, OAXACA	16.32	-95.18	55	1936	1987	3.5	0
4057684002	OSTUTA, OAXACA	16.50	-94.45	35	1948	1987	1.3	0
4057684303	COPAINALA, CHIAPAS	17.08	-93.22	910	1927	1975	19.7	0
4057684304	EL BOQUERON, CHIAPAS	16.65	-93.15	480	1948	1986	3.8	0
4057684305	BOMBANA, CHIAPAS	16.95	-93.03	614	1945	1986	5.6	0
4057684306	BOCHIL, CHIAPAS	16.98	-92.92	1272	1942	1988	6.6	0
4057684307	OCOZOCUAUTLA, CHIAPAS	16.75	-93.38	864	1939	1988	8.8	0
4057684308	IXTAPA, CHIAPAS	16.77	-92.92	1020	1926	1987	18.7	0
4057684500	SN. CRISTOBAL LAS CASAS	16.73	-92.63	2276	1922	1988	13.8	0
4057684501	CHIAPILLA, CHIAPAS	16.50	-92.73	560	1926	1988	5.0	0
4057684800	COMITAN,CHIS.	16.25	-92.13	1530	1923	1988	9.7	0
4057684801	LA TRINITARIA, CHIAPAS	16.12	-92.05	1530	1946	1987	9.5	0
4057685501	POCHUTLA, OAXACA	16.75	-96.48	160	1961	1987	17.0	0
4057690300	TAPACHULA, CHIS	14.92	-92.27	182	1951	1990	13.1	0

APPENDIX B
STATION LIST -- TEMPERATURE

SEQ #	DIV #	ST #	STN #	NAME	LAT DEG MIN	LONG DEG MIN	ELEV. METERS
1	01	03	039	SAN IGNACIO, BAJA CALIF. SUR	27 18N	112 53W	00095
2	02	03	006	CABO SAN LUCAS, BAJA CALIFORNIA SUR	22 53N	109 55W	00025
3	02	03	038	SAN FELIPE, BAJA CALIFORNIA SUR	23 08N	109 45W	00450
4	02	03	048	SANTIAGO, BAJA CALIFORNIA SUR	23 28N	109 44W	00125
5	03	26	001	EL AGUILA, SONORA	29 07N	109 40W	00340
6	03	26	005	ARIVECHI, SONORA	28 56N	109 11W	00556
7	03	26	018	LA DURA, SONORA	28 23N	109 34W	00160
8	03	26	045	EL OREGANO, SONORA	29 14N	110 43W	00275
9	03	26	051	SAHUARIPA, SONORA	29 03N	109 14W	00460
10	03	26	057	SAN PEDRO DE LA CUEVA, SONORA	29 17N	109 44W	00450
11	03	26	065	TONICHI, SONORA	28 36N	109 34W	00200
12	03	26	119	PRESA ABELARDO RODRIGUEZ, SONORA	29 05N	110 55W	00210
13	03	26	121	PRESA PLUTARCO ELIAS CALLES, SONORA	28 59N	109 39W	00350
14	04	25	014	COSALA, SINALOA	24 25N	106 41W	00300
15	04	25	016	CULIACAN, SINALOA	24 49N	107 24W	00062
16	04	25	017	CHOIX PUEBLO, SINALOA	26 43N	108 19W	00350
17	04	25	022	EL FUERTE, SINALOA	26 25N	108 37W	00084
18	04	25	026	HUITES, SINALOA	26 54N	108 22W	00168
19	04	25	028	JAINA, SINALOA	25 54N	108 01W	00200
20	04	26	029	MINAS NUEVAS, SONORA	27 04N	109 01W	00508
21	04	25	040	PALOS BLANCOS, SINALOA	24 55N	107 23W	00088
22	04	26	049	QUIRIEGO, SONOR	27 31N	109 15W	00521
23	04	26	066	TRES HERMANOS, SONORA	27 12N	109 12W	00100
24	05	08	016	CUAUHTEMOC, CHIHUAHUA	28 24N	106 52W	02050
5	05	08	018	CHIHUAHUA, CHIHUAHUA	28 38N	106 04W	01440
26	05	08	030	CIUDAD GUERRERO, CHIHUAHUA	28 33N	107 29W	02000
27	05	08	037	LA JUNTA, CHIHUAHUA	28 46N	107 59W	01900
28	05	08	069	TEMOSACHIC, CHIHUAHUA	28 57N	107 50W	01857
29	06	10	014	FRANCISCO I. MADERO, DURANGO	24 24N	104 19W	01960
30	06	10	017	GUANACEVI, DURANGO	25 56N	105 57W	02200
31	06	10	020	CIUDAD LERDO, DURANGO	25 32N	103 32W	01135
32	06	10	021	CIUDAD LERDO, DURANGO	25 32N	103 32W	01135
33	06	10	035	EL RODEO, DURANGO	25 11N	104 34W	01340
34	06	10	049	TEPEHUANES, DURANGO	25 21N	105 43W	01787
35	06	10	103	GUANACEVI, DURANGO	25 56N	105 57W	02200
36	06	10	116	TEPEHUANES, DURANGO	25 21N	105 43W	01787
37	07	05	010	CUATRO CIENEGAS, COAHUILA	26 59N	102 04W	00735
38	07	05	012	PRESA VENUSTIANO CARRANZA, COAHUILA	27 31N	100 37W	00270
39	07	19	017	GRANJA EXPERIMENTAL, NUEVO LEON	27 14N	100 09W	00193
40	07	19	022	LAGUNA DE SALINILLAS, NUEVO LEON	27 26N	100 23W	00240
41	07	05	022	MONCLOVA, COAHUILA	26 35N	101 25W	00645
42	07	05	029	RAMOS ARIZPE, COAHUILA	25 33N	100 58W	01399
43	07	05	032	SALTILLO, COAHUILA	25 27N	100 59W	01520
44	07	05	079	SALTILLO, COAHUILA	25 27N	100 59W	01520
45	08	28	007	EL BARRETAL, TAMAULIPAS	24 05N	099 08W	00195

APPENDIX B (CONTINUED)
STATION LIST -- TEMPERATURE

SEQ #	DIV #	ST #	STN #	NAME	LAT DEG MIN	LONG DEG MIN	ELEV. METERS
46	08	28	009	BURGOS, TAMAULIPAS	24 57N	098 48W	00165
47	08	19	014	LAS ENRAMADAS, ÑUEVO LEON	25 30N	099 31W	00190
48	08	19	025	LINARES, NUEVO LEON	24 52N	099 34W	00350
49	08	19	029	MONTEMORELOS, NUEVO LEON	25 11N	099 50W	00425
50	08	19	030	MONTERREY, NUEVO LEON	25 40N	100 18W	00540
51	08	28	046	SAN FERNANDO, TAMAULIPAS	24 51N	098 10W	00043
52	08	28	058	VILLAGRAN, TAMAULIPAS	24 28N	099 29W	00380
53	08	19	072	LINARES, NUEVO LEON	24 52N	099 34W	00350
54	08	28	167	VILLAGRAN, TAMAULIPAS	24 28N	099 30W	00380
55	09	18	020	TEPIC, NAYARIT	21 31N	104 53W	00920
56	09	18	048	TEPIC, NAYARIT	21 29N	104 54W	00941
57	09	14	064	MASCOTA, JALISCO	20 32N	104 48W	01240
58	09	14	196	MASCOTA, JALISCO	20 32N	104 48W	01240
59	10	06	005	COLIMA, COLIMA	19 14N	103 44W	00495
60	10	06	011	MANZANILLO, COLIMA	19 03N	104 20W	00003
61	11	16	031	CHAPARACO, MICHOACAN	19 59N	102 17W	01633
62	11	14	034	CHAPALA, JALISCO	20 18N	103 11W	01523
63	11	14	045	GUADALAJARA, JALISCO	20 40N	103 23W	01583
64	11	14	101	TEPATITLAN, JALISCO	20 49N	102 46W	01800
65	11	16	110	YURECUARO, MICHOACAN	20 20N	102 17W	01537
66	11	16	112	ZAMORA, MICHOACAN	20 OON	102 17W	01540
67	11	16	189	ZAMORA, MICHOACAN	20 OON	102 17W	01540
68	12	09	012	COLONIA ESCANDON, DISTRITO FEDERAL	19 24N	099 11W	02245
9	12	13	039	PRESA REQUENA, HIDALGO	19 55N	099 19W	02109
70	12	11	046	SAN DIEGO DE LA UNION, GUANAJUATO	21 28N	100 52W	02080
71	12	09	049	TACUBAYA, DISTRITO FEDERAL	19 24N	099 12W	02309
72	13	17	004	CUAUTLA, MORELOS	18 48N	098 57W	01291
73	13	17	005	CUERNAVACA, MORELOS	18 55N	099 44W	01529
74	13	21	061	PIAXTLA, PUEBLA	18 12N	098 15W	01155
75	14	24	001	AGUA BUENO, SAN LUIS POTOSI	21 57N	099 23W	00372
76	14	28	003	AHUALULCO, TAMAULIPAS	22 57N	09908W	00150
77	14	28	011	CAMPO EXP. INGENIO MANTE, TAMAULIPAS	22 43N	098 56W	00100
78	14	28	018	HACIENDA SANTA ELENA, TAMAULIPAS	22 31N	099 00W	00090
79	14	13	034	ORIZATLAN, HIDALGO	21 10N	098 37W	00575
80	15	20	014	CANTON, OAXACA	18 01N	096 17W	00042
81	15	30	031	CUICHAPA, VERACRUZ	18 46N	096 52W	00648
82	15	20	064	OJITLAN, OAXACA	18 05N	096 23W	00233
83	15	20	088	SAN JUAN DEL RIO, OAXACA	17 28N	095 49W	00122
84	15	30	125	TEOCELO, VERACRUZ	19 23N	096 58W	01213
85	15	20	135	VALLE NACIONAL, OAXACA	17 47N	096 19W	00065
86	16	20	053	MATIAS ROMERO, OAXACA	16 53N	095 03W	00201
87	17	07	098	VILLAFLORES, CHIAPAS	16 15N	093 16W	00610
88	18	04	006	CHAMPOTON, CAMPECHE	19 23N	090 44W	00002
89	18	04	010	XCUPIL, CAMPECHE	19 43N	089 51W	00100
90	18	31	017	MERIDA, YUCATAN	20 58N	089 36W	00009

APPENDIX B (CONTINUED)
STATION LIST -- TEMPERATURE

SEQ #	DIV #	ST #	STN #	NAME	LAT DEG MIN	LONG DEG MIN	ELEV. METERS
91	18	31	024	PROGRESO, YUCATAN	21 16N	089 37W	00008
92	18	31	030	TEKAX, YUCATAN	20 11N	089 17W	00033

APPENDIX C

DIVISIONAL INVENTORY

DIV #	TEMP BEGN	TEMP END	MISS MON	MAX # OF STNS	AVG # OF STNS	MIN # OF STNS	PRCP BEGN	PRCP END	MISS MON	MAX # OF STNS	AVG # OF STNS	MIN # OF STNS
1	1941-1984		14	1	1.00	0	1939-1987		0	10	7.14	1
2	1939-1984		0	3	2.82	1	1938-1987		11	17	15.15	0
3	1941-1984		15	8	6.96	0	1923-1987		3	15	10.03	0
4	1921-1984		13	10	7.41	0	1921-1988		5	15	10.76	0
5	1921-1984		21	5	3.61	0	1921-1988		9	19	12.44	0
6	1921-1984		1	7	5.62	0	1921-1987		0	16	10.87	1
7	1921-1984		9	8	6.14	0	1921-1986		0	16	11.60	1
8	1921-1984		10	10	6.77	0	1921-1987		0	20	15.00	1
9	1922-1984		2	4	2.98	0	1921-1987		1	15	9.90	0
10	1921-1981		2	2	1.87	0	1921-1988		3	13	8.35	0
11	1921-1984		1	7	5.03	0	1921-1988		4	20	13.59	0
12	1916-1987		18	4	3.22	0	1900-1987		0	11	6.78	1
13	1926-1985		17	3	2.38	0	1926-1987		0	13	8.90	1
14	1922-1984		21	5	3.36	0	1922-1987		9	14	8.80	0
15	1945-1983		4	6	5.59	0	1941-1985		9	14	10.84	0
16	1941-1984		10	1	1.00	0	1921-1987		0	12	8.05	1
17	1952-1986		15	1	1.00	0	1921-1988		4	14	9.43	0
18	1921-1984		10	5	4.04	0	1911-1988		21	18	10.60	0

APPENDIX D

DIVISIONAL BASE PERIODS

DIV #	PRECIPITATION BASE PERIOD	TEMPERATURE BASE PERIOD
1	1954-1982	1941-1984
2	1954-1983	1942-1982
3	1959-1973	1959-1982
4	1953-1983	1952-1982
5	1960-1983	1951-1980
6	1950-1975	1941-1980
7	1950-1970	1945-1981
8	1947-1981	1950-1971
9	1961-1976	1949-1981
10	1962-1983	1935-1981
11	1953-1983	1952-1979
12	1949-1978	1940-1983
13	1951-1975	1954-1983
14	1959-1983	1949-1970
15	1960-1980	1949-1983
16	1961-1975	1941-1983
17	1954-1976	1952-1986
18	1951-1981	1944-1981

APPENDIX E

DIVISIONAL PRECIPITATION MEAN CORRELATIONS

DIV	JAN	FEB	MAR	APR	MAY	JUN	JLY	AUG	SEP	OCT	NOV	DEC
1	.40	.70	.48	.34	.34	.05	.26	.27	.55	.69	.44	.68
2	.73	.59	.65	.21	.49	.63	.43	.45	.48	.49	.74	.60
3	.87	.74	.67	.73	.58	.43	.18	.30	.32	.58	.84	.82
4	.83	.81	.73	.49	.56	.48	.28	.34	.29	.60	.75	.67
5	.55	.54	.54	.57	.33	.52	.20	.23	.44	.52	.48	.41
6	.29	.61	.68	.30	.42	.43	.24	.50	.50	.55	.45	.36
7	.50	.52	.53	.39	.42	.20	.34	.42	.49	.54	.41	.68
8	.56	.51	.47	.37	.42	.61	.58	.53	.53	.53	.54	.64
9	.70	.77	1.00	.91	.66	.53	.42	.22	.40	.53	.89	.72
10	.79	.48	.93	.50	.62	.37	.25	.40	.39	.31	.60	.47
11	.84	.63	.75	.67	.52	.50	.41	.37	.52	.50	.62	.76
12	.73	.45	.54	.42	.23	.28	.38	.37	.37	.35	.39	.35
13	.79	.50	.45	.41	.44	.40	.49	.53	.48	.59	.48	.52
14	.39	.40	.30	.36	.25	.52	.49	.52	.37	.34	.27	.37
15	.28	.54	.40	.47	.44	.44	.45	.52	.53	.34	.36	.44
16	.12	.35	.10	.36	.49	.32	.51	.78	.57	.57	.93	.41
17	.17	.27	.17	.18	.34	.19	.40	.40	.29	.46	.28	.24
18	.39	.34	.40	.38	.35	.27	.12	.24	.29	.34	.31	.45

APPENDIX F

DIVISIONAL TEMPERATURE MEAN CORRELATIONS

DIV	JAN	FEB	MAR	APR	MAY	JUN	JLY	AUG	SEP	OCT	NOV	DEC
1	INSUFFICIENT NUMBER OF STATIONS TO COMPUTE CORRELATIONS											
2	.33	.50	.26	.40	.43	.35	.02	.26	.12	.28	.40	.38
3	.33	.43	.48	.41	.32	.26	.27	.32	.25	.25	.19	.26
4	.59	.61	.58	.56	.55	.53	.50	.32	.49	.48	.50	.43
5	.68	.66	.74	.64	.61	.45	.50	.34	.61	.65	.50	.55
6	.43	.26	.36	.32	.20	.31	.34	.25	.23	.31	.30	.37
7	.75	.80	.70	.64	.54	.51	.58	.66	.67	.67	.73	.66
8	.91	.88	.92	.76	.69	.61	.59	.55	.74	.75	.63	.81
9	.30	.34	.28	.22	.30	.30	.43	.24	.31	.02	.56	.34
10	.64	.66	.42	.55	.50	.65	.62	.61	.52	.72	.60	.57
11	.71	.70	.64	.61	.27	.61	.53	.32	.27	.58	.50	.41
12	.47	.51	.34	.34	.14	.29	.16	.19	.35	.44	.40	.19
13	.46	.59	.42	.27	.38	.52	.42	.35	.20	.56	.27	.32
14	.47	.48	.50	.54	.40	.56	.54	.34	.35	.39	.66	.47
15	.63	.63	.66	.54	.48	.47	.23	.28	.26	.50	.70	.49
16	INSUFFICIENT NUMBER OF STATIONS TO COMPUTE CORRELATIONS											
17	INSUFFICIENT NUMBER OF STATIONS TO COMPUTE CORRELATIONS											
18	.74	.72	.71	.62	.58	.53	.28	.13	.28	.51	.83	.80