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Two Long-Term Instrumental Climatic Data Bases of the People's Republic of China

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November 1991

中华人民共和国的两个长期性仪器记录的气候数据库

中国北京
中国科学院大气物理研究所
陶诗言，符淙斌，曾昭美，张庆云供稿

环境科学处 D. P. Kaiser 编写
为 Carbon Dioxide Research Program
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6335 编写

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Environmental Sciences Division

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环境科学处

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Two long-term instrumental data bases containing meteorological observations from the People's Republic of China (PRC) are described. These data sets were compiled in accordance with a joint research agreement signed by the United States Department of Energy (DOE) and the PRC Chinese Academy of Sciences (CAS) on August 19, 1987. CAS has provided records from 265 stations, partitioned into networks of 60 and 205 stations which each provide good geographical coverage of the PRC. The 60-station network data contain monthly measurements of barometric pressure, air temperature, precipitation amount, relative humidity, sunshine duration, cloud amount, wind direction and speed, and number of days with snow cover. Detailed station histories are presented for all 60 stations. The 205-station network data contain monthly mean temperatures and monthly precipitation totals; however, station histories are not currently available. Sixteen stations from these data sets (13 from the 60-station, 3 from the 205-station) have temperature and/or precipitation records which begin prior to 1900, whereas the remaining stations began observing in the early to mid 1900s. Records from 262 stations extend through 1988; the remaining three station records extend through the early 1980s.

These data can be used in defining regional climate changes, establishing relationships between regional and large-scale climates, and in studying the climatic impacts of urbanization and increased concentrations of greenhouse gases. Additional uses could include examining impacts of periodic events such as volcanic eruptions or the El Niño/Southern Oscillation (ENSO). These data sets represent the most comprehensive, long-term instrumental Chinese climate data presently available.

提要

陶诗言，符淙斌，曾昭美，张庆云. 1991.
Two Long-Term Instrumental Climatic Data Bases of the People's Republic of China (中华人民共和国的两个长期性仪器记录的气候数据库). Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee. 198pp.

本文描述的内容为中华人民共和国气象观测资料的两个长期性仪器记录的气候数据库。这些数据集是按照美国能源部 (DOE) 与中华人民共和国中国科学院 (CAS) 于 1987年八月十九日签署的联合研究协定而编辑的。中国科学院提供了 265个气象台的观测记录。265个气象台分为两个网络；其一有60台，其二有205台。每一网络均能在地理上很好地涵盖中国。来自60台网络的数据，包括气压、气温、降雨量、相对湿度、日光量和云量，风向与风速，积雪天数等参数的每月平均值、极端值或总值。205台网络的数据，包括每月平均温度和每月总降雨量，其各台台史目前暂缺。这些数据集里的16个气象台 （60台网络中的13台和205台网络中的3台），拥有 1900年以前即已开始的温度与（或）降雨量记录，而其余各台，却是在1900年代的初叶至中叶才开始观测工作的。所有265台的观测记录，均截至1988年为止。

这些数据可用来确定地区气候的改变、确定地区气候与大范围气候之间的关系，并可用来研究气候对都市化和温室气体浓度增加的影响。另外的一些用途，可包括确定火山爆发或厄尼诺和南方涛动(ENSO)等周期性事件的影响。这些数据集能提供目前可供使用的最全面的长期性仪器记录的中国气候数据。

PART 1

INFORMATION ABOUT THE DATA PACKAGE

1. NAME OF THE NUMERIC DATA PACKAGE

Two Long-Term Instrumental Climatic Data Bases of the People's Republic of China

2. CONTRIBUTORS

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3. KEYWORDS

Regional climate change; temperature; precipitation; relative humidity; sunshine duration; cloud amount; snow cover; dominant wind direction/frequency; wind speed.

4. BACKGROUND INFORMATION

The U.S. Department of Energy (DOE) and the People's Republic of China (PRC) Chinese Academy of Sciences (CAS) signed an agreement on August 19, 1987, to carry out a joint research program on possible CO_2-induced climate changes. Concern over such climate changes stems from rising atmospheric concentrations of CO_2 and other greenhouse gases, as well as the ever-increasing global CO_2 emissions from fossil fuel use (Marland and Rotty 1984). The nature of these phenomena signals the need for international research efforts in the area of possible man-made climate change. The intent of the DOE/CAS research agreement is to contribute to research efforts through the performance of four tasks: (1) analysis of general circulation models (GCMs), (2) preparation and analysis of proxy and instrumental data, (3) study of the relationship between large and regional-scale climates, and (4) study of possible increases in atmospheric CH_4 (Koomanoff et al. 1988). Descriptions of these tasks and additional background information on each country's involvement in atmospheric CO_2 research may also be found in Koomanoff et al. (1988).

This package contains and describes two long-term PRC instrumental climate data bases, which were exchanged along with PRC proxy data sets and U.S. instrumental data sets according to the data exchange protocol contained in the DOE/CAS agreement. A descriptive list of the instrumental and proxy data sets compiled to date under the agreement is contained in Table 1. This is essentially Table 1 from Koomanoff et al. (1988), containing many updates of data base specifics which have been derived from DOE analyses of these data sets performed since 1988. These data as a whole should be useful in defining regional climate changes, establishing relationships between regional and large-scale climates, and examining feedback processes during regional climate changes of selected case studies, such as wet and dry periods and desertification (Koomanoff et al. 1988).

Table 1. Instrumental and proxy data sets compiled to date under the DOE/PRC collaborative research program

Name	Variables	Data type	Sampling Method	No. of Stations	Minimum period of Record	Maximum period of Record	Spatial resolution	Temporal resolution	Current form	Source of database	Source of observations
Instrumental Data Sets Prepared by the U.S.											
1. Historical Climatology Network	Temp & Precip T_{avg} T_{max} T_{min} Total precip	Averages, totals	Measured	1219	1900-present	150 years	Contiguous United States	Monthly	Digitized, Published	NCDC[a]	Cooperative observers
2. Cloud and Sunshine Recording Network	Total sky cover (percent)	Averages	Estimates	197	6 years	1871-1987	United States & U.S. territories	Monthly	Digitized, Published	NCDC	NWS[b]
	Sunshine duration	Totals	Measured	246	4 years	1891-1987	United States	Monthly	Digitized, Published	NCDC	NWS
3. Water Vapor Pressure	Vapor pressure	Averages	Measured	197	1940-1987	1893-1987	United States	Monthly	Digitized	NCDC	NWS
4. Station Pressure	Station pressure	Averages	Measured	200-300	1940-present	80 years	United States	Monthly	Digitized	NCDC	NWS
5. Snow Cover	Snow cover (y/n)	Totals	Observed	200-300	1940-present	80 years	United States	Monthly	Digitized	NCDC	NWS
6. Wind	Wind speed (m/sec)	Averages	Measured	300	1931-present	50 years	United States	Monthly	Digitized	NCDC	NWS
Instrumental Data Sets Prepared by the P.R.C.											
7. 60-Station Network	Temperature T_{avg} T_{max} T_{min}	Averages	Measured	60	1951-1988	1841-1988	China	Monthly	Digitized	SMA[c]	SMA
	Extreme T_{max} & T_{min}	Extremes	Measured	60	1984-1988	1984-1988	China	Monthly	Digitized	SMA	SMA
	Total precip (mm)	Totals	Measured	60	1951-1988	1841-1988	China	Monthly	Digitized	SMA	SMA
	Relative humidity (%)	Averages	Measured	60	1951-1988	1875-1988	China	Monthly	Digitized	SMA	SMA
	Sunshine duration (hrs)	Totals	Measured	60	1951-1988	1903-1988	China	Monthly	Digitized	SMA	SMA
	Cloud amount (% of sky cover)	Averages	Estimates	60	1951-1988	1905-1988	China	Monthly	Digitized	SMA	SMA
	Station pressure (mb)	Averages	Measured	60	1951-1988	1872-1988	China	Monthly	Digitized	SMA	SMA
	Days w/snow cover	Totals	Observed	60	1951-1988	1883-1988	China	Daily	Digitized	SMA	SMA
	Wind speed (m/s)	Averages	Measured	60	1951-1988	1875-1988	China	Monthly	Digitized	SMA	SMA
	Dominant wind direction (degrees)	Tabulations	Measured	60	1951-1988	1875-1988	China	Monthly	Digitized	SMA	SMA
	Dominant wind frequency (percent)	Tabulations	NA	60	1951-1988	1875-1988	China	Monthly	Digitized	SMA	SMA
8. 205-Station Network	Mean temperature	Averages	Measured	205	1961-1988	1907-1988	China	Monthly	Digitized	SMA	SMA
	Total precipitation	Totals	Measured	205	1961-1988	1880-1988	China	Monthly	Digitized	SMA	SMA
9. 40-Station Network	T_{max} and T_{min} - mean and extreme values	Averages, extremes	Measured	40	1984-1988	1984-1988	China	Monthly	Digitized	SMA	SMA
10. 180-Station Network	Daily precipitation	Totals	Measured	180	1964-1982	1951-1982	China	Daily	Digitized	SMA	SMA
11. 147-Station Network	10-day precipitation	Totals	Measured	147	1958-1988	1951-1988	China	10-day	Digitized	SMA	SMA
Chinese Proxy Data Sets and Indices											
Temperature											
12. Cold Severity	Index	Areal averages	Estimates	Areal Index	1470-1975	1470-1975	China	Winter	Digitized	IAP[d]	IAP
13. Derived Temperature	Index	Areal index	Estimates	Areal Index	1470-1982	1470-1982	North of Huai River & Qing Mtn.	Winter	Digitized	IG[e]	IG
14. Derived Temperature	Index	Areal index	Estimates	Areal Index	1470-1982	1470-1982	South of Huai River & Qing Mtn.	Winter	Digitized	IG	IG

Table 1 (continued)

Name	Variables	Data type	Sampling Method	No. of Stations	period of Record	Minimum period of Record	Maximum spatial resolution	Temporal resolution	Current form	Source of database	Source of observations
Chinese Proxy Data Sets and Indices											
Temperature (Continued)											
15. Temperature derived from Beijing rain-day data (see No. 20 below)	Derived Temp.	Derived Point Estimates	Estimates		1724-1986	1724-1986	Beijing	Summer	Digitized	SMA	SMA
16. 6000 year Holocene temperatures	Derived Temp.	Estimates	Estimates	52	1950-1979	6000 yr B.P.	China	Annual & Seasonal	Digitized	IG	
Precipitation											
17. Precipitation	Index	Station index	Estimates	120	1470-1979	1470-1981	China	Annual Published	Digitized,	SMA	SMA
18. Plum Rains	Index - intensity of plum rains (1-5) derived from 510-yr precipitation indices	Areal average	Estimates	9	1470-1975	1470-1975	Lower & Middle Yangtze Valley	Seasonal	Digitized	SMA	SMA
19. Flooding	No. of counties affected	Count	Tabulated		1501-1940	1501-1940	China	Annual	Digitized	SMA	SMA
20. Rain days & hours	No. of days	Count	Tabulated	1	1724-1903	1724-1903	Beijing	Monthly (May-August)	Digitized	SMA	SMA
21. Moisture	No. of hours Index	Areal ave[illegible]	Tabulated		1-1950	1-1950	Regional over Eastern China	5-yr intervals	Digitized	SMA	SMA
Temperature/Precipitation											
22. Drought	No. of counties affected	Count	Tabulated		1501-1947	1501-1947	China	Annual	Digitized	IG	IG
23. Dryness/Wetness	Index - dryness/ wetness	Index (1-5)	Estimates	1	1260-1980	1260-1980	Beijing	Annual	Digitized	IG	IG
24. Dryness/Wetness	Index - dryness/ wetness	Index (1-5)	Estimates	1	600-1979	600-1979	Luoyang	Annual	Digitized	IG	IG
25. Harvest	Harvest index	Index (1-7)	Estimates	Areal Index	1736-1979	1736-1979	Beijing	Annual	Digitized	SMA	SMA
Typhoons											
26. No. of regions	No. of regions	Count	Tabulated		1470-1929	1470-1929	Regional	Annual	Digitized	SMA	SMA
27. No. of records	No. of records	Count	Tabulated		1470-1929	1470-1929	Regional	Annual	Digitized	SMA	SMA
28. No. reported	No. reported	Count	Tabulated		1470-1981	1470-1981	Regional	Annual	Digitized	SMA	SMA

[a] National Climatic Data Center (Asheville, North Carolina)
[b] National Weather Service
[c] State Meteorological Administration (Beijing, PRC)
[d] Institute of Atmospheric Physics (Beijing, PRC)
[e] Institute of Geography (Beijing, PRC)

The PRC data sets contained in this package are comprised of observations from a 60-station network (Table 1, No. 7) and a 205-station network (Table 1, No. 8). These data sets contain monthly means, extremes, and totals of several important climatic variables. A subset of the monthly mean temperature data has already been used in assessing urban heat island effects in eastern China over the period 1954–1983 (Jones et al. 1990; Wang et al. 1990). The other types of data contained within will likely prove to be of similar practical value.

These data sets contain the most comprehensive, long-term instrumental Chinese climate data presently available. They may be used for comparison with the Chinese climate records published in the *World Monthly Surface Station Climatology* (Spangler and Jenne 1990), *World Weather Records*[*], and records published by Jones et al. (1985), Bradley et al. (1985), and Eischeid et al. (1991). The spatial and temporal coverage offered by these 265 stations significantly improves upon that of other published sources.

5. SOURCE AND SCOPE OF THE DATA

Two PRC climate data bases, derived mainly from instrument measurements, are presented in this package; one consists of monthly means, extremes, or totals of 14 meteorological variables observed at 60 stations, the other contains monthly mean temperatures and monthly precipitation totals from 205 stations. The two data bases have no stations in common. Each is described in detail in the following sections.

60-STATION NETWORK

As previously noted, the data from the 60-station network consist of monthly means, extremes, or totals of the following 14 meteorological variables:

- Mean Station Pressure (mb)
- Mean Temperature (°C)
- Mean Maximum Temperature (°C)
- Mean Minimum Temperature (°C)
- Total Precipitation (mm)
- Sunshine Duration (hours)
- Mean Cloud Amount (percentage of sky cover)
- Mean Relative Humidity (percent)
- Snow Days (days with snow cover)
- Dominant Wind Direction (degrees)
- Mean Wind Speed (m/s)
- Dominant Wind Frequency (percent)
- Extreme Maximum Temperature (°C)
- Extreme Minimum Temperature (°C)

[*][Smithsonian Institution (1927, 1934, 1947); U.S. Weather Bureau (1959,1967); National Environmental Satellite, Data, and Information Service (1981–1983)]

A sample listing of these data, illustrating the initial records contained in the 60-station data file included with this package, is presented in Table 2. Each record contains one month's data; the World Meteorological Organization (WMO) station number, year, and month, followed by the data variables in the same order as previously listed. Each data value is given in tenths of its specified unit of measure. Missing data values are indicated by "-9999".

Four basic criteria were used in selecting stations to make up the 60-station network: (1) the station should be representative of a particular climate region of China, (2) the station's data should be of relatively high quality, (3) the period of record of the station should be reasonably long, and (4) the resulting station network should have a relatively uniform spatial distribution. An inventory of the selected stations is given in Table 3. Thirteen stations began observing before 1900; Beijing's record being the longest, with temperature and precipitation data dating back to 1841. All 60 stations have temperature and/or precipitation data available from the beginning of their periods of record, with other types of observations beginning more randomly with time throughout the network. Records from all stations run through 1988, but extreme maximum and minimum temperature data are available for each station only since 1984.

A better feel for the relative length of station records in this data set can be gained using Fig. 1, which shows the percentage and cumulative percentage of stations falling into specific ranges of record length. In the figure the length of station record refers to the number of years for which the station has at least partial data, which in most cases is less than the number of years since the station opened (Discontinuities in the records are the norm). Figure 1 indicates nearly one-half of the 60 stations have some type of data for at least 70 years, but only 10% have data for 100 years or more. Figure 2 shows the number of stations with data for each year over the period 1841–1988. The most notable feature of this graph is the reduction in the number of stations operating in the 1940s (centered on 1945 and assumably related to World War II and its aftermath). Figure 2 also shows that data are available from all 60 stations over the period 1951–1988. Periods of whole years with no data have been omitted from the data set and are detailed in Table 4.

Maps depicting the evolution of the 60-station network are shown in Figs. 3–7. They indicate the locations of stations which had been opened as of 1880, 1900, 1920, 1940, and 1951, respectively. However, each station shown does not necessarily have data for that particular year. Numbers plotted at station locations correspond to the station identification numbers at the left of Tables 3 and 4. Stations with data for 1945 (the leanest data year in the era of decreased coverage caused by World War II) are mapped in Fig. 8.

Details of data collection methods used at the 60 stations (e.g., type, orientation, and calibration of instruments; daily observing times; and observational techniques) have been made available by CAS and are contained in Appendix A. Station histories extending through 1983 are available for all 60 stations and are given in Appendix B. Some 161 official PRC sources were used in compiling the data set and are listed in Appendix C.

Table 2. Sample listing of the PRC 60-station climate data set[a]

50527	1909	1	9478	-296	-237	-355	11	-9999	200	-9999	-9999	-9999	16	-9999	-9999	-9999
50527	1909	2	9429	-249	-185	-315	51	-9999	420	-9999	-9999	-9999	26	-9999	-9999	-9999
50527	1909	3	9437	-182	-114	-250	29	-9999	410	-9999	-9999	-9999	34	-9999	-9999	-9999
50527	1909	4	9383	-36	16	-97	27	-9999	570	-9999	-9999	-9999	46	-9999	-9999	-9999
50527	1909	5	9375	105	170	22	103	-9999	600	-9999	-9999	-9999	40	-9999	-9999	-9999
50527	1909	6	9361	165	232	71	99	-9999	580	-9999	-9999	-9999	23	-9999	-9999	-9999
50527	1909	7	9358	201	259	135	1245	-9999	700	-9999	-9999	-9999	22	-9999	-9999	-9999
50527	1909	8	9393	184	248	118	545	-9999	600	-9999	-9999	-9999	18	-9999	-9999	-9999
50527	1909	9	9381	86	149	31	840	-9999	620	-9999	-9999	-9999	30	-9999	-9999	-9999
50527	1909	10	9457	-1	58	-55	89	-9999	550	-9999	-9999	-9999	30	-9999	-9999	-9999
50527	1909	11	9410	-120	-67	-180	69	-9999	580	-9999	-9999	-9999	34	-9999	-9999	-9999
50527	1909	12	9471	-253	-200	-304	48	-9999	410	-9999	-9999	-9999	10	-9999	-9999	-9999
50527	1910	1	9474	-308	-246	-361	15	-9999	230	-9999	-9999	-9999	11	-9999	-9999	-9999
50527	1910	2	9453	-243	-166	-308	39	-9999	320	-9999	-9999	-9999	13	-9999	-9999	-9999
50527	1910	3	9430	-165	-86	-238	37	-9999	380	-9999	-9999	-9999	28	-9999	-9999	-9999
50527	1910	4	9385	10	76	-58	42	-9999	510	-9999	-9999	-9999	45	-9999	-9999	-9999
50527	1910	5	9370	98	159	25	160	-9999	830	-9999	-9999	-9999	40	-9999	-9999	-9999
50527	1910	6	9318	166	228	92	571	-9999	870	-9999	-9999	-9999	35	-9999	-9999	-9999
50527	1910	7	9323	200	253	149	1234	-9999	910	-9999	-9999	-9999	26	-9999	-9999	-9999
50527	1910	8	9391	179	239	126	1053	-9999	710	-9999	-9999	-9999	25	-9999	-9999	-9999
50527	1910	9	9433	88	160	25	496	-9999	560	-9999	-9999	-9999	28	-9999	-9999	-9999
50527	1910	10	9463	17	94	-46	82	-9999	560	-9999	-9999	-9999	33	-9999	-9999	-9999
50527	1910	11	9443	-120	-61	-177	23	-9999	620	-9999	-9999	-9999	35	-9999	-9999	-9999
50527	1910	12	9473	-254	-197	-305	4	-9999	390	-9999	-9999	-9999	32	-9999	-9999	-9999
50527	1911	1	9466	-251	-188	-313	84	-9999	500	-9999	-9999	-9999	25	-9999	-9999	-9999
50527	1911	2	9498	-230	-156	-293	16	-9999	580	-9999	-9999	-9999	31	-9999	-9999	-9999
50527	1911	3	9459	-158	-81	-233	43	-9999	580	-9999	-9999	-9999	32	-9999	-9999	-9999
50527	1911	4	9405	24	85	-44	135	-9999	640	-9999	-9999	-9999	48	-9999	-9999	-9999
50527	1911	5	9363	102	167	14	122	-9999	800	-9999	-9999	-9999	45	-9999	-9999	-9999
50527	1911	6	9349	157	221	87	1150	-9999	850	-9999	-9999	-9999	33	-9999	-9999	-9999
50527	1911	7	9351	194	254	129	545	-9999	910	-9999	-9999	-9999	28	-9999	-9999	-9999
50527	1911	8	9378	188	249	128	863	-9999	720	-9999	-9999	-9999	24	-9999	-9999	-9999
50527	1911	9	9418	104	177	34	253	-9999	600	-9999	-9999	-9999	31	-9999	-9999	-9999
50527	1911	10	9453	0	78	-71	12	-9999	550	-9999	-9999	-9999	41	-9999	-9999	-9999
50527	1911	11	9459	-116	-47	-178	35	-9999	660	-9999	-9999	-9999	29	-9999	-9999	-9999
50527	1911	12	9479	-277	-211	-336	45	-9999	590	-9999	-9999	-9999	24	-9999	-9999	-9999

[a]Missing values are represented by -9999.

Table 3. Inventory of stations in the PRC 60-station climate network

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation (m)	Beginning of period of record[c]
1	Hailaer	50527	49°13′	119°45′	612.8	1909
2	NenJiang	50557	49°10′	125°14′	242.2	1939
3	BoKeTu	50632	48°46′	121°55′	739.4	1914
4	QiQiHaEr	50745	47°23′	123°55′	145.9	1930
5	HaErBin	50953	45°41′	126°37′	171.7	1898
6	Yi Ning	51431	43°57′	81°20′	662.5	1951
7	WuLuMuQi	51463	43°47′	87°37′	917.9	1907
8	HaMi	52203	42°49′	93°31′	737.9	1951
9	Jiu Quan	52533	39°46′	98°31′	1477.2	1934
10	ZhangYe	52652	38°56′	100°35′	1483.0	1937
11	XiNing	52866	36°37′	101°46′	2261.2	1936
12	LanZhou	52889	36°03′	103°53′	1517.2	1932
13	HuHeHaoTe	53463	40°48′	111°38′	1063.0	1915
14	YinChuan	53614	38°29′	106°13′	1111.5	1935
15	YuLin	53646	38°14′	109°42′	1057.5	1933
16	TaiYuan	53772	37°47′	112°33′	777.9	1916
17	MuDanJiang	54094	44°34′	129°36′	241.4	1909
18	ChangChun	54161	43°53′	125°20′	236.8	1909
19	ShenYang	54342	41°46′	123°26′	41.6	1905
20	BeiJing	54511	39°56′	116°17′	54.0	1841
21	TianJin	54527	39°06′	117°10′	3.3	1900
22	BaoDing	54602	38°50′	115°34′	17.2	1913
23	DaLian	54662	38°54′	121°38′	92.8	1904
24	YanTai	54765	37°32′	121°24′	46.7	1886
25	JiNan	54823	36°41′	116°59′	51.6	1916
26	QingDao	54857	36°04′	120°20′	76.0	1898
27	LaSa	55591	29°42′	91°08′	3658.0	1935
28	ChengDu	56294	30°40′	104°01′	506.1	1907
29	XiChang	56571	27°54′	102°16′	1590.0	1924
30	TengChong	56739	25°07′	98°29′	1647.8	1911
31	KunMing	56778	25°01′	102°41′	1891.4	1901
32	TianShui	57006	34°35′	105°45′	1131.7	1935
33	XiAn	57036	34°18′	108°56′	396.9	1922
34	ZhengZhou	57083	34°43′	113°39′	110.4	1930
35	HanZhong	57127	33°04′	107°12′	508.4	1932
36	YiChang	57461	30°42′	111°18′	133.1	1882
37	WuHan	57494	30°37′	114°08′	23.3	1880
38	ChongQing	57516	29°35′	106°28′	259.1	1891
39	ChangSha	57679	28°12′	113°05′	44.9	1909
40	ZhiJiang	57745	27°27′	109°41′	272.2	1938
41	GuiYang	57816	26°35′	106°43′	1071.2	1920
42	XuZhou	58027	34°17′	117°09′	41.0	1915
43	QingJiang	58144	33°36′	119°02′	17.5	1913

Table 3. (continued)

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation (m)	Beginning of period of record[c]
44	NanJing	58238	32°03′	118°47′	8.9	1905
45	ShangHai	58367	31°10′	121°26′	4.5	1871
46	AnQing	58424	30°32′	117°03′	19.8	1931
47	HangZhou	58457	30°14′	120°10′	41.7	1904
48	NanChang	58606	28°36′	115°55′	46.7	1929
49	QuZhou	58633	28°58′	118°53′	66.9	1950
50	WenZhou	58659	28°01′	120°40′	7.1	1883
51	FuZhou	58847	26°05′	119°17′	83.8	1880
52	YongAn	58921	25°58′	117°21′	206.0	1938
53	LiuZhou	59046	24°28′	109°22′	97.6	1936
54	XiaMen	59134	24°29′	118°04′	139.4	1886
55	WuZhou	59265	23°29′	111°18′	119.2	1898
56	GuangZhou	59287	23°08′	113°19′	6.6	1908
57	ShanTou	59316	23°24′	116°41′	1.2	1880
58	NanNing	59431	22°49′	108°21′	72.2	1907
59	ZhanJiang	59658	21°13′	110°24′	25.3	1913
60	HaiKou	59758	20°02′	110°21′	14.1	1912

[a] North
[b] East
[c] Obtained from data base, station histories may give a different year.

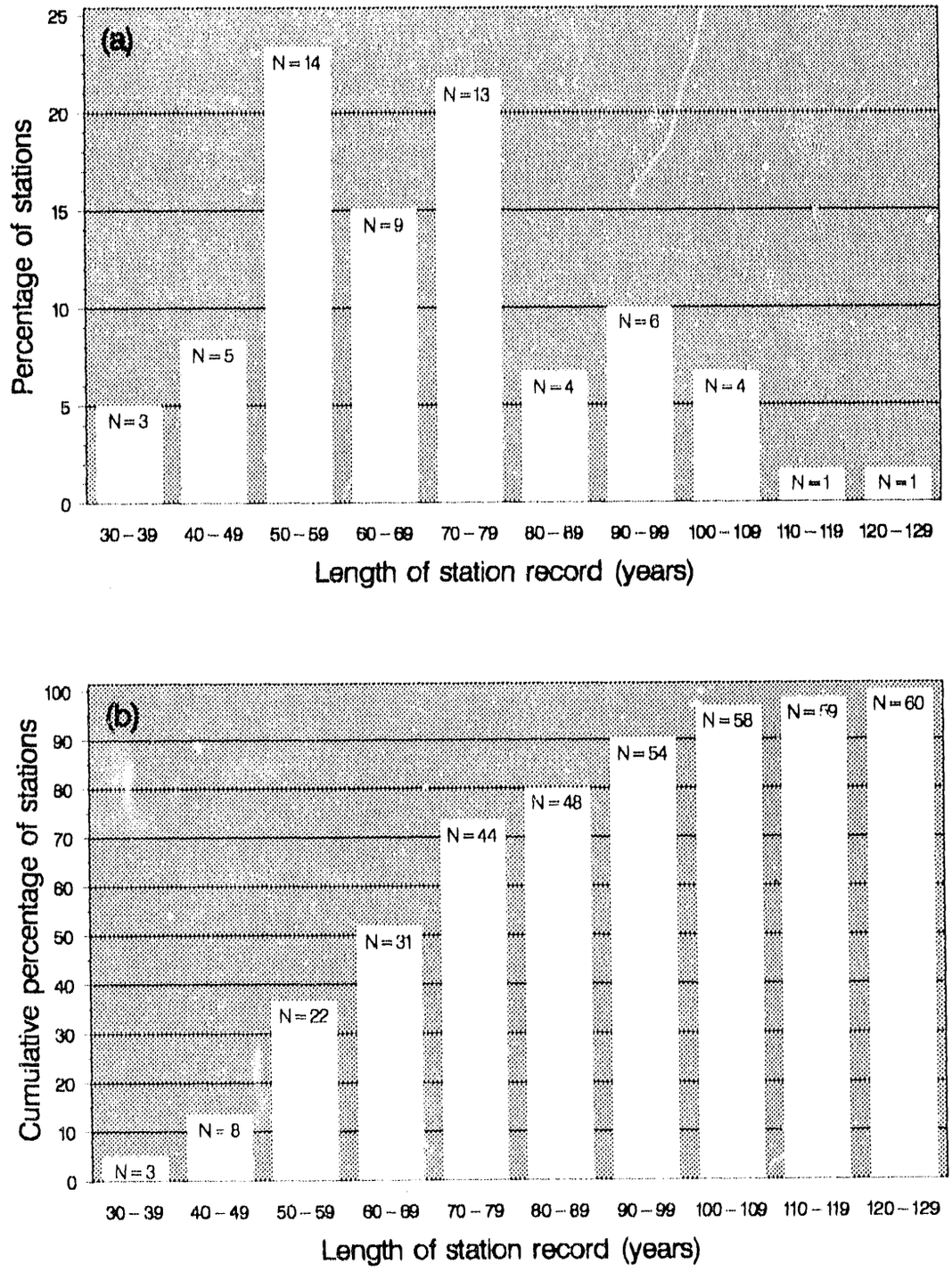

Fig. 1. Percentage (a) and cumulative percentage (b) of stations from the PRC 60-station climate network with given record lengths.

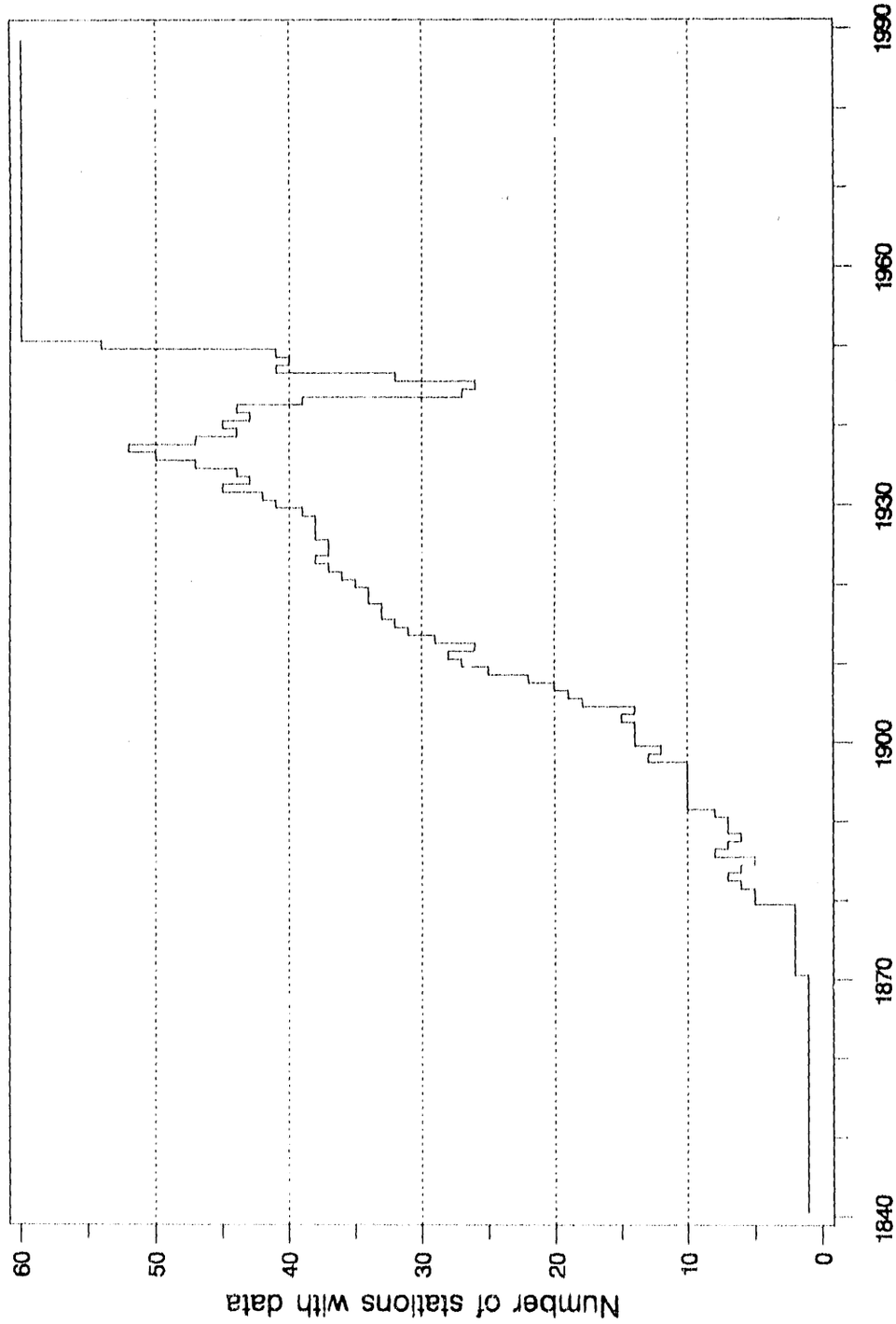

Fig. 2. Number of stations in the PRC 60-station climate network with data for each year over the period 1841–1988.

Table 4. Gaps in the periods of record of stations in the PRC 60-station climate network

	Station name	Station number	Years with no data		
1	Hailaer	50527	1933–1934	1943–1949	
2	NenJiang	50557	1946–1948		
3	BoKeTu	50632	1933–1950		
4	QiQiHaEr	50745	1944–1948		
5	HaErBin	50953	1907–1908	1944–1948	
6	Yi Ning	51431[a]			
7	WuLuMuQi	51463	1909	1912–1929	1931–1940
8	HaMi	52203[a]			
9	Jiu Quan	52533[a]			
10	ZhangYe	52652	1942–1950		
11	XiNing	52866[a]			
12	LanZhou	52889[a]			
13	HuHeHaoTe	53463	1938	1944–1945	
14	YinChuan	53614	1939–1949		
15	YuLin	53646	1949		
16	TaiYuan	53772	1938	1944–1945	1949
17	MuDanJiang	54094	1933–1936	1944–1948	
18	ChangChun	54161	1944–1946		
19	ShenYang	54342	1944–1946		
20	BeiJing	54511	1856–1858	1862–1867	1885
			1887–1888	1901–1902	1904
			1909	1912–1913	1938–1939
21	TianJin	54527	1935		
22	BaoDing	54602	1940–1943	1944–1949	
23	DaLian	54662[a]			
24	YanTai	54765	1944–1949		
25	JiNan	54823[a]			
26	QingDao	54857[a]			
27	LaSa	55591	1939	1950	
28	ChengDu	56294	1912–1922	1930–1931	
29	XiChang	56571[a]			
30	TengChong	56739	1942–1950		
31	KunMing	56778	1904–1950	1915–1917	
32	TianShui	57006	1941		
33	XiAn	57036	1928–1930		
34	ZhengZhou	57083	1939–1949		
35	HanZhong	57127	1946		
36	YiChang	57461	1939–1946		
37	WuHan	57494	1884	1941–1946	
38	ChongQing	57516[a]			
39	ChangSha	57679	1939	1941–1945	

Table 4. (continued)

	Station name	Station number	Years with no data		
40	ZhiJiang	57745[a]			
41	GuiYang	57816[a]			
42	XuZhou	58027	1924–1925	1938	1944–1948
43	QingJiang	58144	1924–1927	1939–1946	1949
44	NanJing	58238	1938–1945		
45	ShangHai	58367[a]			
46	AnQing	58424	1939–1941	1943–1949	
47	HangZhou	58457	1938–1941	1943–1944	1948–1949
48	NanChang	58606	1939–1945		
49	QuZhou	58633[a]			
50	WenZhou	58659	1885	1943–1945	
51	FuZhou	58847	1886–1891	1899	1945
52	YongAn	58921	1949		
53	LiuZhou	59046[a]			
54	XiaMen	59134	1888–1891	1943–1946	
55	WuZhou	59265	1945		
56	GuangZhou	59287	1944–1946		
57	ShanTou	59316	1944–1949		
58	NanNing	59431	1916–1920		
59	ZhanJiang	59658	1940–1949		
60	HaiKou	59758	1944–1946		

[a]At least partial data are available for all years in the station's period of record.

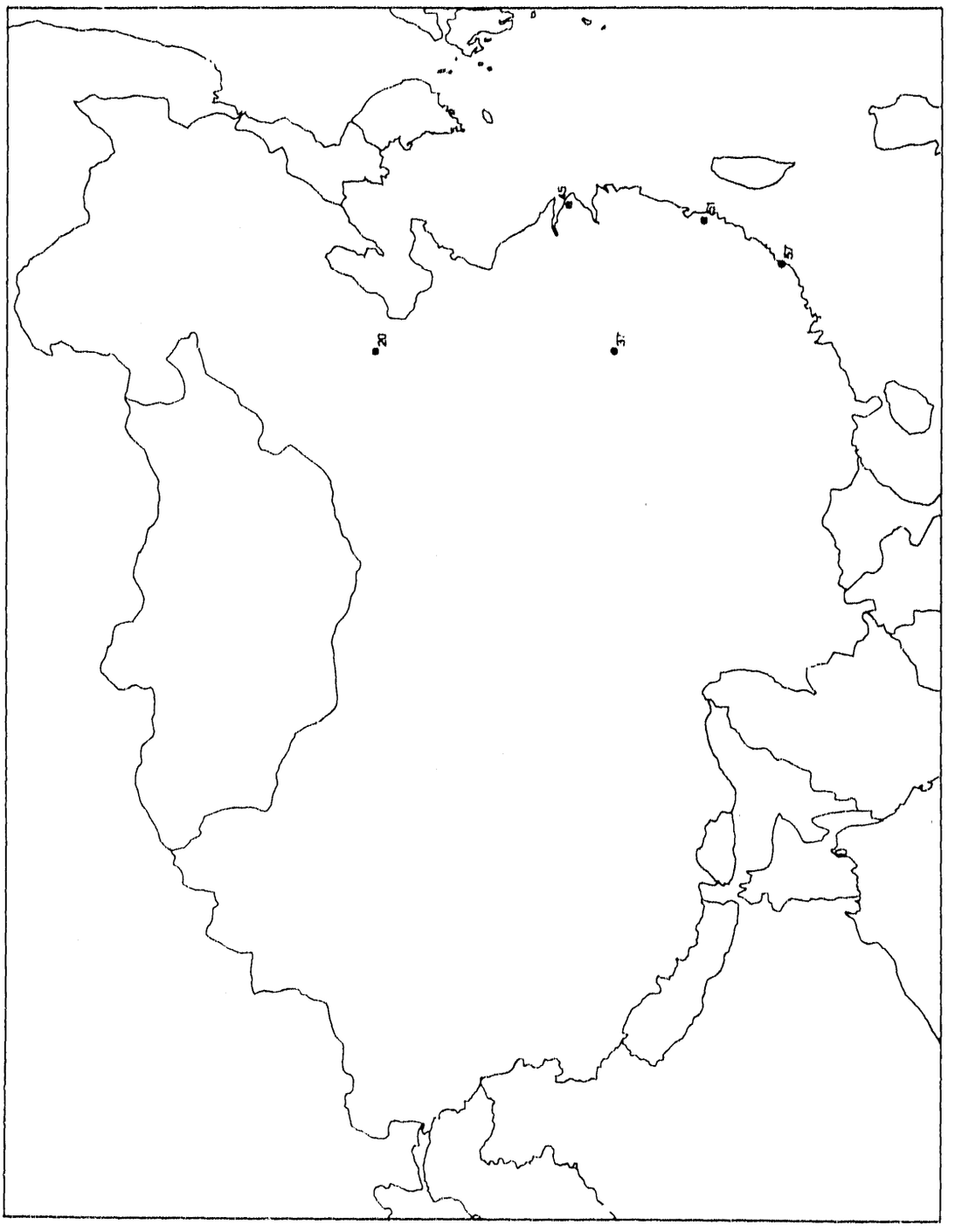

Fig. 3. Distribution of stations from the PRC 60-station climate data set as of 1880. Station numbers correspond to the order of stations in Table 3.

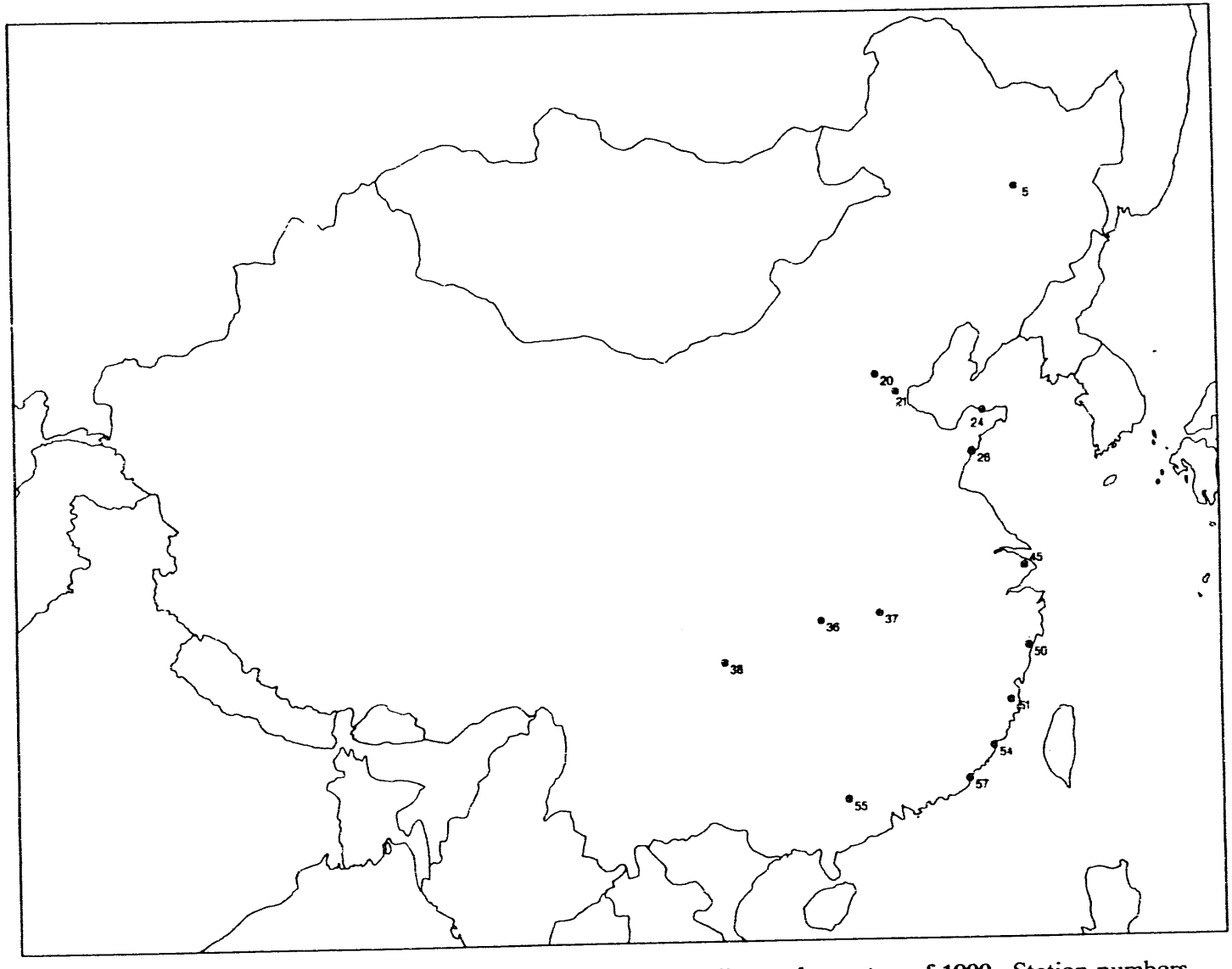

Fig. 4. Distribution of stations from the PRC 60-station climate data set as of 1900. Station numbers correspond to the order of stations in Table 3.

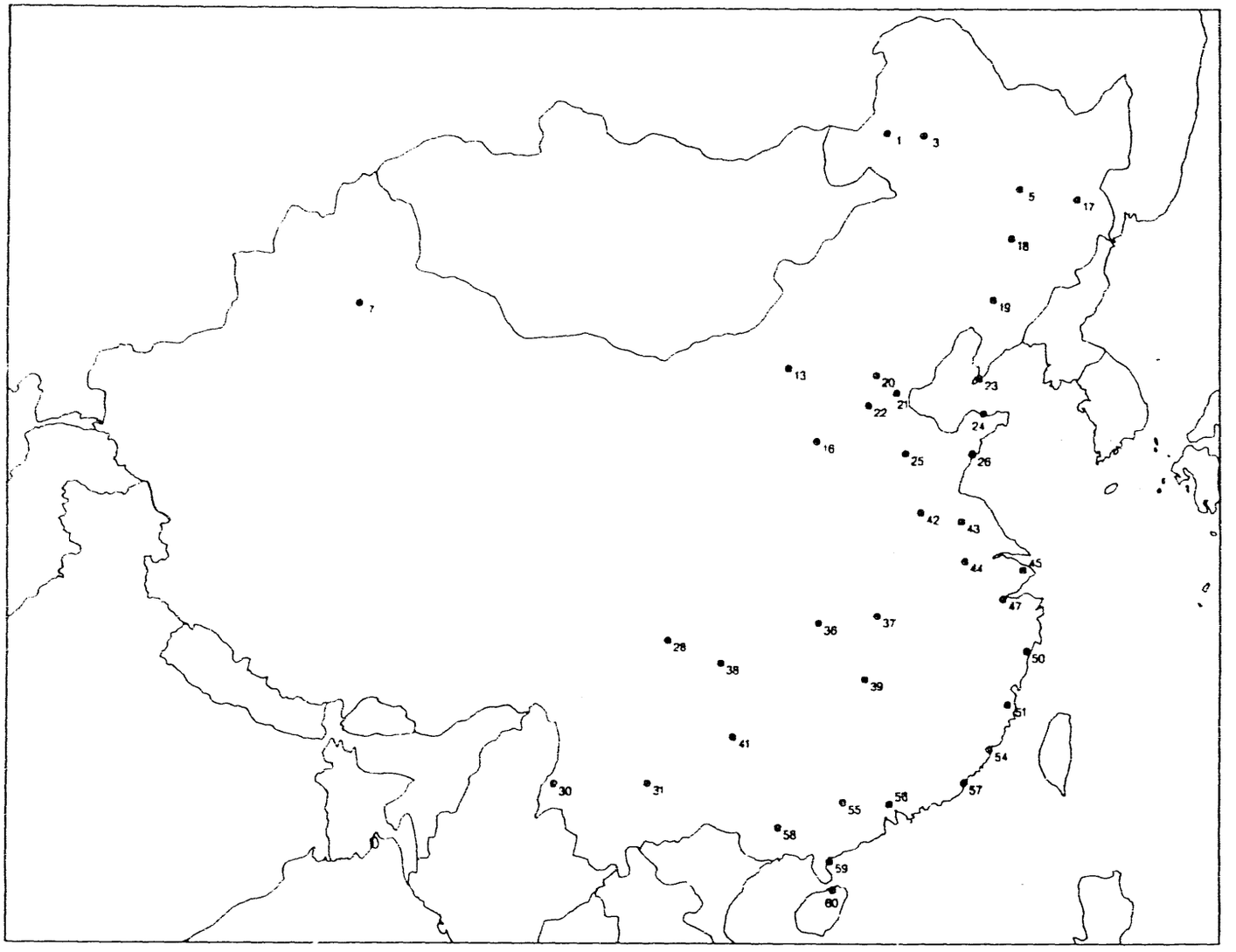

Fig. 5. Distribution of stations from the PRC 60-station climate data set as of 1920. Station numbers correspond to the order of stations in Table 3.

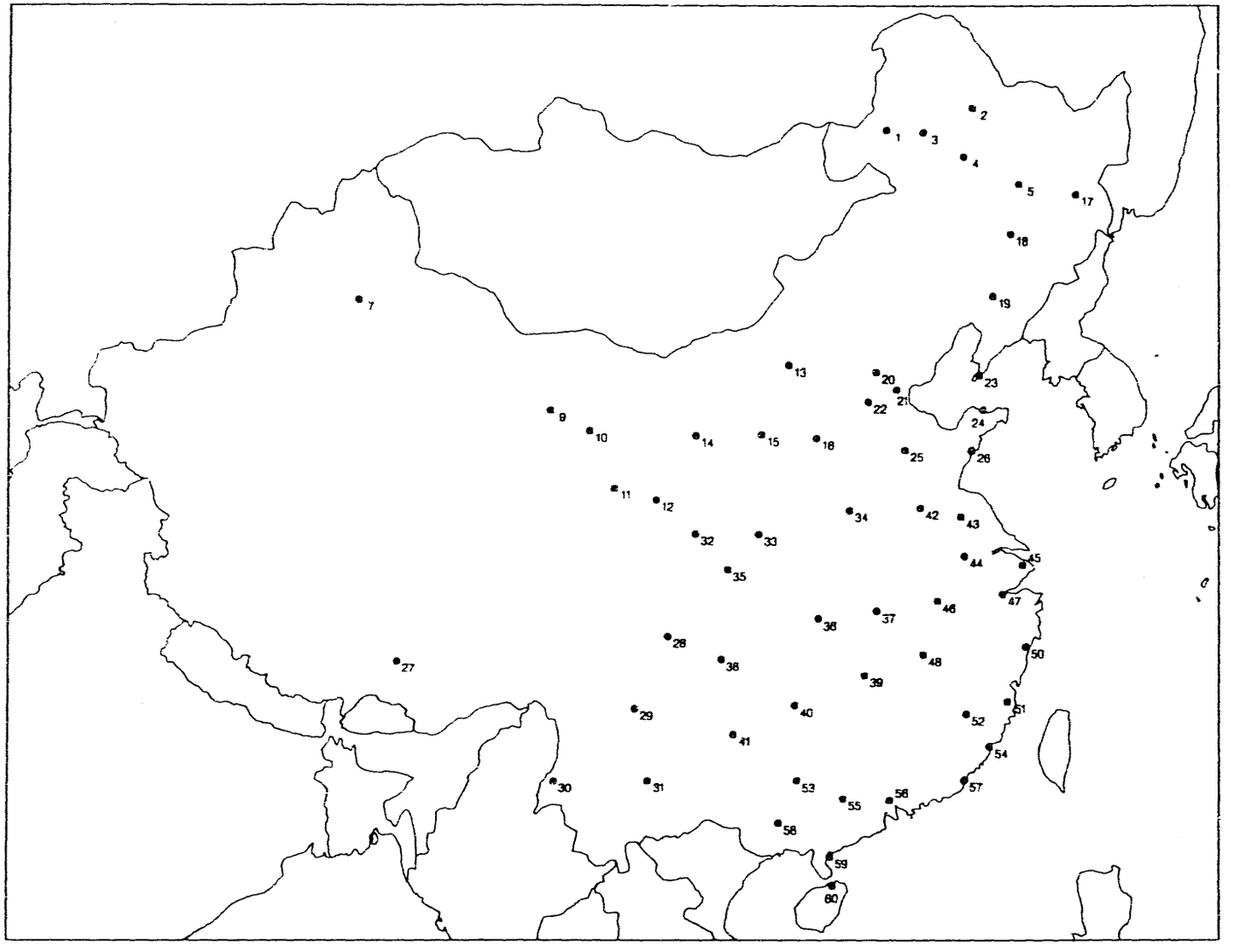

Fig. 6. Distribution of stations from the PRC 60-station climate data set as of 1940. Station numbers correspond to the order of stations in Table 3.

Fig. 7. Distribution of stations from the PRC 60-station climate data set over the period 1951–1988. Station numbers correspond to the order of stations in Table 3.

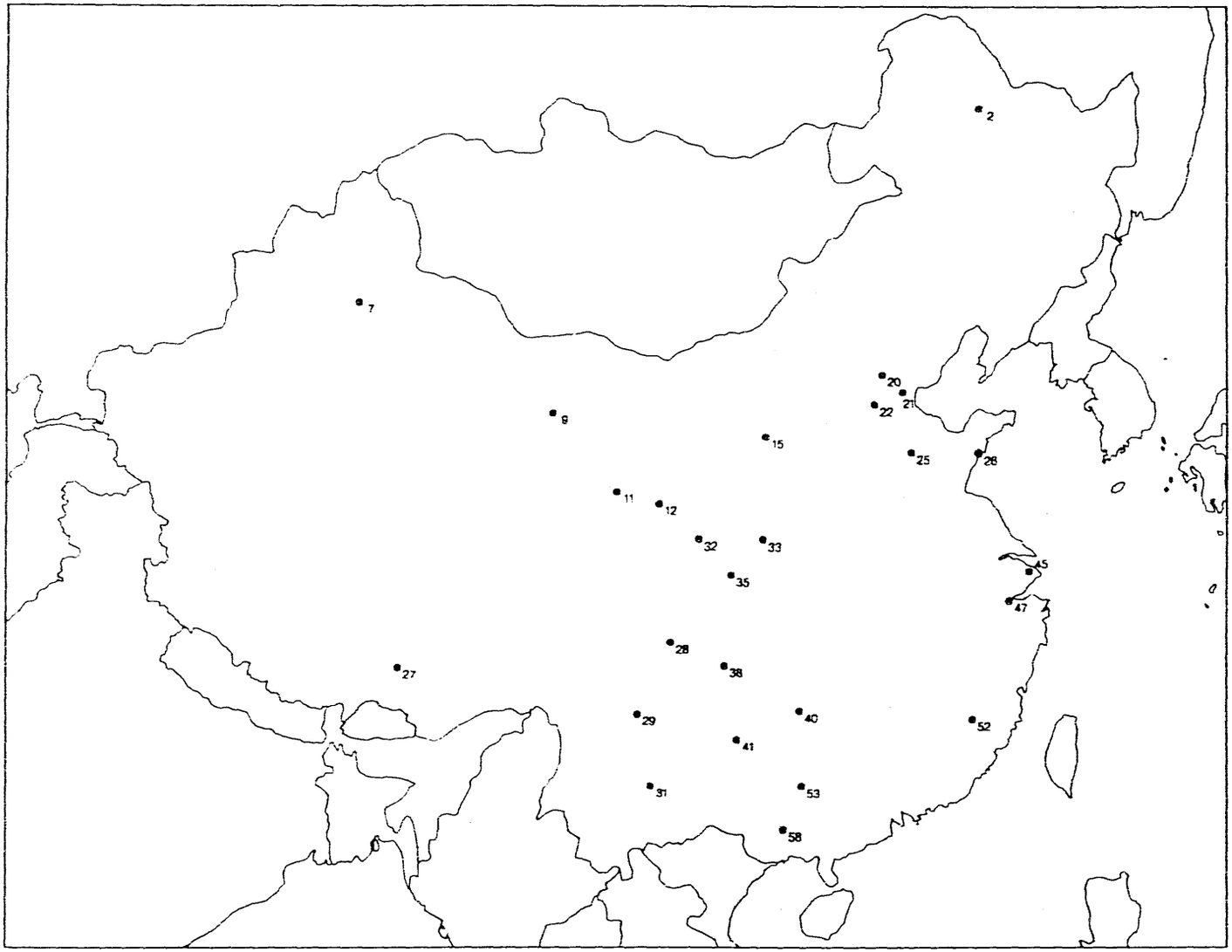

Fig. 8. Distribution of stations from the PRC 60-station climate data set which have data for 1945. Station numbers correspond to the order of stations in Table 3.

205-STATION NETWORK

The data from the 205-station network contain two variables: monthly mean temperature and total monthly precipitation. The data are stored in two files, one with temperatures (in tenths of degrees Celsius) and the other with precipitation totals (in tenths of millimeters), samples of which are shown in Tables 5 and 6, respectively. Each record of a file contains data from one year: the WMO station number and year followed by twelve monthly data values. Missing values are represented by "-9999". An inventory of the 205 stations is given in Table 7. The temperature data date back to 1907 (Jingzhou, No. 57476), and the precipitation data to 1880 (Wuhu, No. 58334). Temperature and precipitation records from 202 stations extend through 1988. Records from Geershiquanhe (No. 55228), Hekou (No. 56989), and Lingling (No. 57866) extend through 1982, 1980, and 1983, respectively.

As with the 60-station network, percentage plots have been prepared for the 205-station network showing the relative length of station records. These are shown separately for temperature records (Fig. 9) and precipitation records (Fig. 10). The ranges of station record length reflect the number of years for which the station has at least partial data, which is often less than the number of years since the station opened. As with the 60-station network, this has much to do with World War II's effect on station operations, as illustrated in Fig. 11, which shows the number of stations with temperature and precipitation data for each year over the period 1880–1988. (Because of their relatively small number, years without data have been left in these data sets rather than detailing them separately as with the 60-station data set.) Figures 9 and 10 show that for both temperature and precipitation data, the most typical length of record ranges between 30–40 years, with a relatively small share of stations [29 stations (~15%) for temperature data; 24 stations (~12%) for precipitation data] having records for 50 or more years. It is evident from comparing Figs. 9 and 10 with Fig. 1 that the 60-station data set offers more truly long-term records and, as previously noted, contains temperature and/or precipitation data from the beginning of each station record.

Maps depicting the evolution of the 205-station temperature and precipitation network are given in Figs. 12–17. Figures 12–16 show, for temperature and precipitation data individually, the locations of stations which had been opened as of 1900, 1920, and 1940. Each station shown on these maps does not necessarily have data for that particular year. Figure 17 shows the network in 1961, the first year all 205 stations had temperature and precipitation data. Numbers plotted on these maps at station locations correspond to the station identification numbers at the left of Table 7. The locations of stations actually having data for 1945 (one of two especially affected years in the era of decreased coverage caused by World War II) are shown separately for temperature and precipitation data in Figs. 18 and 19. Unfortunately, station histories are not currently available for any stations in the 205-station network; therefore, details regarding instrumentation, collection methods, changes in station location or observing times, and official data sources are not known.

Table 5. Sample listing of the PRC 205-station monthly mean temperature data set[a]

50136	1958	-309	-251	-168	-32	86	149	-9999	-9999	74	-23	-166	-280
50136	1959	-300	-237	-103	5	91	169	171	178	111	-14	-206	-281
50136	1960	-345	-249	-182	-36	67	161	190	161	74	-50	-201	-289
50136	1961	-338	-250	-139	-20	81	133	176	158	82	-30	-181	-277
50136	1962	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
50136	1963	-261	-221	-139	-32	70	148	195	171	83	-15	-167	-266
50136	1964	-274	-248	-129	-21	89	151	172	147	71	-43	-198	-316
50136	1965	-329	-279	-157	-20	82	150	174	150	71	-13	-226	-353
50136	1966	-317	-299	-187	-44	93	152	180	157	75	-11	-216	-309
50136	1967	-285	-234	-134	10	98	163	191	149	62	-4	-183	-255
50136	1968	-291	-218	-97	36	95	156	199	152	68	-36	-217	-335
50136	1969	-351	-344	-173	-16	73	149	182	163	65	-25	-189	-287
50136	1970	-311	-256	-160	5	86	173	195	154	75	-59	-204	-274
50136	1971	-315	-279	-150	-32	102	182	179	155	88	-6	-145	-263
50136	1972	-335	-280	-137	-7	74	137	169	134	84	-41	-237	-309
50136	1973	-319	-242	-146	-27	89	179	199	146	97	-45	-175	-279
50136	1974	-321	-272	-156	-7	75	153	202	162	87	-58	-216	-322
50136	1975	-293	-269	-119	25	110	175	180	156	70	-30	-171	-242
50136	1976	-257	-283	-166	-1	86	135	188	145	91	-56	-227	-328
50136	1977	-311	-277	-143	-13	91	160	177	153	72	-40	-205	-304
50136	1978	-309	-243	-149	13	84	158	168	153	72	-26	-154	-274
50136	1979	-321	-259	-152	-3	107	163	184	140	76	-47	-222	-286
50136	1980	-304	-228	-175	-37	76	166	193	165	76	-44	-173	-283
50136	1981	-281	-267	-159	23	89	144	192	140	65	-24	-196	-252
50136	1982	-274	-226	-153	26	87	164	186	152	65	-45	-192	-260
50136	1983	-272	-272	-92	-11	85	131	171	155	101	-36	-158	-270
50136	1984	-287	-265	-152	5	112	157	180	143	83	-46	-198	-315
50136	1985	-333	-261	-156	6	90	161	181	152	78	-29	-161	-279
50136	1986	-275	-224	-114	-11	90	182	191	153	48	-49	-181	-275
50136	1987	-332	-224	-162	-21	62	163	172	164	73	-16	-227	-291
50136	1988	-270	-241	-155	12	81	171	189	173	94	-10	-147	-232

[a]Missing values are represented by -9999.

Table 6. Sample listing of the PRC 205-station monthly precipitation data set[a]

50136	1958	27	2	168	453	587	776	-9999	-9999	920	132	47	68
50136	1959	36	11	60	23	329	471	1406	1655	588	335	213	85
50136	1960	10	84	34	284	681	348	925	930	359	201	179	8
50136	1961	18	25	20	211	303	1055	588	1040	217	111	167	93
50136	1962	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
50136	1963	14	45	134	303	266	1142	1165	570	473	134	58	55
50136	1964	18	0	26	149	235	820	1027	397	690	395	105	56
50136	1965	36	32	124	122	241	289	1187	791	460	177	75	58
50136	1966	78	24	35	179	139	1766	770	780	243	176	84	11
50136	1967	38	28	20	98	274	340	847	996	498	186	18	60
50136	1968	15	7	156	162	314	573	917	531	705	65	205	98
50136	1969	8	53	32	61	411	356	816	1770	948	357	73	32
50136	1970	9	70	81	187	493	627	964	733	613	142	82	19
50136	1971	32	69	135	296	43	210	1291	479	468	65	35	79
50136	1972	49	14	150	223	83	319	952	1687	476	213	95	69
50136	1973	17	41	152	122	396	317	882	635	150	20	118	62
50136	1974	41	84	34	103	385	419	868	616	440	84	121	36
50136	1975	34	39	34	342	356	683	1280	636	238	421	99	61
50136	1976	45	102	67	8	443	337	1241	784	248	148	61	56
50136	1977	1	13	54	111	561	1138	1881	1537	676	212	105	64
50136	1978	39	32	69	434	189	437	1725	1026	458	137	53	38
50136	1979	55	93	85	247	44	177	385	1095	374	9	98	81
50136	1980	37	32	73	398	436	697	850	862	487	61	242	120
50136	1981	2	18	6	133	544	890	847	1615	311	72	29	63
50136	1982	91	23	48	244	261	161	1540	2360	497	128	96	53
50136	1983	63	2	58	350	411	509	796	339	1193	152	234	36
50136	1984	50	20	40	280	520	550	1250	2520	640	220	160	30
50136	1985	40	60	40	230	370	470	470	1080	640	400	40	20
50136	1986	50	20	80	90	110	580	1270	750	110	120	20	20
50136	1987	50	60	50	70	120	660	370	1050	750	550	120	40
50136	1988	40	20	10	310	590	650	990	750	190	30	140	60

[a]Missing values are represented by -9999.

Table 7. Inventory of stations in the PRC 205-station temperature and precipitation network

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation[c]	First year of record	
						Temp.	Precip.
1	Humamehe	50136	53°28′	122°22′	296.0	1958	1958
2	Huma	50353	51°43′	126°39′	177.4	1954	1954
3	Xuguitu Qi Tulihe	50434	50°29′	121°41′	732.6	1957	1957
4	Sunwu	50564	49°26′	127°21′	234.5	1954	1954
5	Keshan	50658	48°03′	125°53′	236.9	1936	1936
6	Horqing Youyi Qianq	50727	47°10′	119°57′	1027.2	1953	1938
7	Hailun	50756	47°26′	126°58′	239.2	1933	1933
8	Yichun	50774	47°43′	128°54′	231.3	1956	1956
9	Fujin	50788	47°14′	131°59′	64.2	1936	1936
10	Anda	50854	46°23′	125°19′	149.3	1914	1914
11	Dong Ujimqin Qi	50915	45°31′	116°58′	838.7	1956	1956
12	Qian Gorlos	50949	45°07′	124°50′	134.7	1953	1953
13	Tonghe	50963	45°58′	128°44′	108.6	1953	1936
14	Jixi	50978	45°17′	130°57′	232.8	1949	1951
15	Altay	51076	47°44′	88°05′	735.3	1938	1954
16	Tacheng	51133	46°44′	83°00′	548.0	1940	1954
17	Hoboksar	51156	46°47′	85°43′	1291.6	1954	1954
18	Jinghe	51334	44°37′	82°54′	320.1	1953	1953
19	Qitai	51379	44°01′	89°34′	793.6	1952	1952
20	Hami Qijiaojing	51495	43°29′	91°38′	873 2	1953	1953
21	Turpan	51573	42°56′	89°12′	34.5	1952	1952
22	Kuqa	51644	41°43′	82°57′	1099.0	1951	1951
23	Kashi	51709	39°28′	75°59′	1288.7	1951	1951
24	Bachu	51716	39°48′	78°34′	1116.5	1954	1954
25	Ruoqiang	51777	39°02′	88°10′	888.3	1954	1954
26	Shache	51811	38°26′	77°16′	1231.2	1954	1954
27	Hotan	51828	37°08′	79°56′	1374.6	1942	1954
28	Qiemo	51855	38°09′	85°33′	1247.5	1954	1954
29	Ejin Qi	52267	41°57′	101°04′	940.5	1960	1960
30	Yemajie	52323	41°35′	96°53′	1962.7	1958	1958
31	Dunhuang	52418	40°09′	94°41′	1138.7	1938	1951
32	Anxi	52424	40°32′	95°46′	1170.8	1939	1951
33	Yumenzhen	52436	40°16′	97°02′	1526.0	1953	1953
34	Lengh	52602	38°50′	93°23′	2733.0	1957	1957
35	Qilian Tuole	52633	38°49′	98°25′	3360.7	1957	1957
36	Minqin	52681	38°38′	103°05′	1367.0	1953	1953
37	Da Qaidam	52713	37°51′	95°22′	3173.2	1957	1957
38	Tianzhu Wushaoling	52787	37°12′	102°52′	3045.1	1951	1951
39	Golmud	52818	36°25′	94°54′	2807.7	1956	1956
40	Dulan	52836	36°18′	98°06′	3191.1	1940	1954
41	Uulan Caka	52842	36°47′	99°05′	3087.6	1956	1956

Table 7. (continued)

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation[c]	First year of record	
						Temp.	Precip.
42	Gonghe	52856	36°16′	100°37′	2835.0	1953	1953
43	Linxia	52984	35°35′	103°11′	1917.0	1943	1951
44	Tongwei Huajialing	52996	35°23′	105°00′	2450.6	1943	1951
45	Erenhot	53068	43°39′	111°58′	964.7	1956	1956
46	Abag Qi	53192	44°01′	114°57′	1126.1	1953	1953
47	Sonid Youqi	53276	42°24′	112°54′	1150.5	1953	1953
48	Urad Zhongqi	53336	41°34′	108°31′	1288.2	1954	1954
49	Darhan Muminggan	53352	41°42′	110°26′	1375.9	1939	1954
50	Huade	53391	41°54′	114°00′	1482.5	1953	1953
51	Datong	53487	40°06′	113°20′	1067.2	1921	1919
52	Alxa Youqi Jartai	53502	39°47′	105°45′	1031.8	1955	1955
53	Otog Qi	53529	39°06′	107°59′	1380.3	1955	1955
54	Wutaishan	53588	39°02′	113°32′	2895.8	1956	1956
55	Weixian	53593	39°50′	114°34′	909.5	1954	1922
56	Alxa Zuoqi	53602	38°50′	105°40′	1561.4	1953	1953
57	Xingxian	53664	38°28′	111°08′	1012.6	1921	1955
58	Zhongning	53705	37°29′	105°40′	1183.3	1939	1953
59	Yanchi	53723	37°47′	107°24′	1347.8	1954	1954
60	Xingtai	53798	37°04′	114°30′	76.8	1954	1922
61	Yanan	53845	36°36′	109°30′	957.6	1945	1952
62	Jiexiu	53863	37°03′	111°56′	748.8	1921	1921
63	Anyang	53898	36°07′	114°22′	75.5	1932	1919
64	Pingliang	53915	35°33′	106°40′	1346.6	1937	1951
65	Qingyang Xifengzhen	53923	35°44′	107°38′	1421.9	1937	1951
66	Yuncheng	53959	35°02′	111°01′	376.0	1939	1956
67	Jarud Qi	54026	44°34′	120°54′	265.0	1953	1953
68	Bairin Zuoqi	54027	43°59′	119°24′	484.4	1953	1953
69	Suifenhe	54096	44°23′	131°09′	496.7	1936	1936
70	Abagnar Qi	54102	43°57′	116°04′	989.5	1939	1953
71	Linxi	54115	43°36′	118°04′	779.0	1936	1936
72	Tongliao	54135	43°36′	122°16′	178.5	1936	1936
73	Siping	54157	43°11′	124°20′	164.2	1934	1934
74	Dunhua	54186	43°22′	128°12′	523.7	1931	1931
75	Duolun	54208	42°11′	116°28′	1245.4	1938	1938
76	Chifen	54218	42°16′	118°58′	571.1	1936	1936
77	Fuxin	54237	42°02′	121°39′	144.0	1938	1938
78	Yanji	54292	42°53′	129°28′	176.8	1914	1914
79	Weichang	54311	41°56′	117°45′	842.3	1936	1936
80	Chaoyang	54324	41°33′	120°27′	169.2	1932	1908
81	Jinzhou	54337	41°08′	121°07′	65.9	1939	1936

Table 7. (continued)

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation[c]	First year of record	
						Temp.	Precip.
82	Tonghua	54363	41°41′	125°54′	402.9	1936	1936
83	Linjiang	54374	41°43′	126°55′	332.5	1953	1938
84	Zhangjiakou	54401	40°47′	114°53′	724.2	1937	1919
85	Chengde	54423	40°58′	117°56′	375.2	1937	1922
86	Xingcheng	54455	40°35′	120°42′	8.8	1936	1936
87	Qaixian Xiongyue	54476	40°10′	122°09′	20.4	1914	1914
88	Kuanding	54493	40°43′	124°47′	260.1	1954	1936
89	Dandong	54497	40°03′	124°20′	15.1	1924	1907
90	Cangzhou	54616	38°20′	116°50′	9.6	1954	1930
91	Dezhou	54714	37°26′	116°19′	21.2	1951	1932
92	Huimin	54725	37°30′	117°32′	11.3	1933	1929
93	Rongchengchenshanto	54776	37°24′	122°41′	47.7	1924	1886
94	Weifang	54843	36°42′	119°05′	44.1	1929	1929
95	Laiyang	54852	36°56′	120°42′	30.5	1930	1932
96	Heze	54906	35°15′	115°26′	49.7	1933	1931
97	Yanzhou	54916	35°34′	116°51′	51.6	1951	1951
98	Juxian	54936	35°35′	118°50′	107.4	1931	1951
99	Linyi	54938	35°03′	118°21′	87.9	1932	1929
100	Geershiquanhe	55228	32°30′	80°05′	4728.0	1961	1961
101	Nagqu	55299	31°29′	92°04′	4507.0	1955	1955
102	Xigaze	55578	29°15′	88°53′	3836.0	1956	1956
103	Lhunze	55696	28°25′	92°28′	3860.0	1960	1960
104	Qumarleb	56021	34°08′	95°47′	4175.0	1957	1957
105	Yushu	56029	33°01′	97°01′	3681.2	1954	1954
106	Madoi	56033	34°55′	98°13′	4272.3	1953	1953
107	Minxian	56093	34°26′	104°01′	2314.6	1937	1951
108	Wudu	56096	33°24′	104°55′	1079.1	1944	1951
109	Qamdo	56137	31°09′	97°10′	3306.0	1941	1952
110	Garze	56146	31°37′	100°00′	3393.5	1952	1951
111	Xiaojin	56178	31°00′	102°21′	2369.2	1952	1952
112	Songpan	56182	32°39′	103°34′	2850.7	1940	1951
113	Pingwu	56193	32°25′	104°31′	876.5	1937	1952
114	Mianyang	56196	31°28′	104°41′	470.8	1954	1954
115	Litang	56257	30°00′	100°16′	3948.9	1953	1953
116	Yaan	56287	29°59′	103°00′	627.6	1939	1951
117	Nyingchi	56312	29°34′	94°28′	3000.0	1953	1953
118	Leshan	56386	29°34′	103°45′	424.2	1936	1951
119	Jiulong	56462	29°00′	101°30′	2987.3	1953	1953
120	Leibo	56485	28°16′	103°35′	1474.9	1937	1954
121	Yibin	56492	28°48′	104°36′	340.8	1932	1951

Table 7. (continued)

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation[c]	First year of record	
						Temp.	Precip.
122	Lijiang	56651	26°52′	100°13′	2393.2	1943	1951
123	Huili	56671	26°39′	102°15′	1787.1	1938	1953
124	Weining	56691	26°52′	104°17′	2237.5	1937	1951
125	Dali	56751	25°42′	100°11′	1190.5	1939	1951
126	Panxian	56793	25°47′	104°37′	1527.1	1940	1951
127	Lincang	56951	23°57′	100°13′	1463.7	1954	1953
128	Jinghong	56959	22°00′	100°48′	552.7	1954	1954
129	Puer Simao	56964	22°40′	101°24′	1302.1	1952	1952
130	Mengzi	56985	23°23′	103°23′	1300.7	1928	1951
131	Hekou	56989	22°30′	103°57′	1367.0	1954	1954
132	Lushi	57067	34°03′	111°02′	568.8	1953	1953
133	Luoyang	57073	34°40′	112°25′	154.5	1951	1931
134	Nanyang	57178	33°02′	112°35′	129.2	1934	1932
135	Xihua	57193	33°47′	114°31′	52.6	1954	1954
136	Wanyuan	57237	32°04′	108°02′	674.0	1953	1953
137	Ankang	57245	32°43′	109°02′	290.8	1953	1953
138	Yunxian	57253	32°51′	110°49′	201.9	1941	1933
139	Laohekou	57265	32°23′	111°40′	90.0	1950	1933
140	Zhumadian	57290	33°00′	114°01′	82.7	1953	1922
141	Xinyang	57297	32°08′	114°03′	114.5	1932	1922
142	Bazhong	57313	31°51′	106°46′	360.0	1953	1953
143	Zhongxiang	57378	31°10′	112°34′	65.8	1953	1930
144	Suining	57405	30°30′	105°35′	278.2	1936	1951
145	Nanchong	57411	30°48′	106°05′	297.7	1940	1952
146	Enshi	57447	30°17′	109°28′	457.1	1951	1933
147	Jingzhou	57476	30°20′	112°11′	32.6	1907	1906
148	Neijiang	57504	29°35′	105°03′	347.1	1936	1951
149	Pengshui	57537	29°18′	108°10′	310.6	1937	1951
150	Yueyang	57584	29°23′	113°05′	51.6	1924	1953
151	Tongzi	57606	28°08′	105°50′	972.0	1937	1951
152	Youyang	57633	28°50′	108°46′	663.7	1938	1951
153	Yuanling	57655	28°28′	110°24′	151.6	1942	1953
154	Changde	57662	29°03′	111°41′	35.0	1932	1951
155	Zunyi	57713	27°42′	106°53′	843.9	1941	1951
156	Meitan	57722	27°46′	107°28′	791.8	1940	1951
157	Sinan	57731	27°57′	108°15′	416.3	1940	1951
158	Shaoyang	57766	27°14′	111°28′	248.6	1936	1951
159	Yichun	57793	27°48′	114°23′	131.3	1953	1953
160	Jian	57799	27°07′	114°58′	76.4	1930	1930
161	Wugang	57853	26°44′	110°38′	341.0	1953	1953

Table 7. (continued)

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation[c]	First year of record	
						Temp.	Precip.
162	Lingling	57866	26°14′	111°37′	172.6	1942	1951
163	Hengyang	57872	26°54′	112°36′	103.2	1932	1951
164	Suichang	57896	26°20′	114°30′	126.1	1951	1951
165	Xingren	57902	25°26′	105°11′	1378.5	1943	1951
166	Luodian	57916	25°26′	106°46′	440.3	1944	1952
167	Guilin	57957	25°20′	110°18′	161.8	1935	1951
168	Chenzhou	57972	25°48′	113°02′	184.9	1936	1957
169	Ganzhou	57993	25°51′	114°57′	123.8	1939	1924
170	Haoxian	58102	33°52′	115°46′	37.7	1953	1922
171	Sheyang	58150	33°46′	120°15′	2.0	1954	1953
172	Fuyang	58203	32°55′	115°49′	30.6	1953	1922
173	Bengfu	58221	32°57′	117°23′	18.7	1932	1918
174	Dongtai	58251	32°51′	120°19′	4.3	1924	1924
175	Nantong	58259	32°01′	120°51′	5.3	1917	1917
176	Huoshan	58314	31°24′	116°19′	68.1	1954	1954
177	Hefei	58321	31°52′	117°14′	27.9	1946	1952
178	Wuhu	58334	31°20′	118°23′	14.8	1924	1880
179	Huangshi	58407	30°15′	115°03′	19.6	1954	1934
180	Dinghai	58477	30°02′	122°07′	35.7	1933	1931
181	Jiujiang	58502	29°44′	116°00′	33.2	1924	1885
182	Tunxi	58531	29°43′	118°17′	145.4	1953	1953
183	Shengxian	58556	29°36′	120°49′	104.3	1933	1929
184	Li Shui	58646	28°27′	119°55′	60.8	1933	1932
185	Huangyan	58665	28°38′	121°25′	1.3	1951	1932
186	Pucheng	58731	27°55′	118°32′	276.9	1935	1936
187	Jianyang	58734	27°20′	118°07′	181.1	1940	1940
188	Fuding	58754	27°20′	120°12′	36.2	1953	1953
189	Guangchang	58813	26°51′	116°20′	143.8	1954	1954
190	Nanping	58834	26°39′	118°10′	125.6	1935	1935
191	Dehua Jiuxianshan	58931	25°43′	118°06′	1653.5	1956	1956
192	Guangnan	59007	24°42′	105°04′	1249.6	1954	1954
193	Lianxian	59072	24°47′	112°23′	97.6	1952	1953
194	Shaoguan	59082	24°48′	113°35′	69.3	1946	1951
195	Meixian	59117	24°16′	116°06′	87.8	1953	1953
196	Zhangzhou	59126	24°30′	117°39′	28.9	1951	1941
197	Bose	59211	23°54′	106°36′	173.5	1939	1951
198	Guiping	59254	23°24′	110°05′	42.2	1953	1953
199	Heyuan	59293	23°44′	114°41′	41.1	1953	1953
200	Longzhou	59417	22°22′	106°45′	128.3	1953	1953
201	Yulin	59453	22°38′	110°10′	81.8	1954	1954

Table 7. (continued)

	Station name	Station number	Latitude[a]	Longitude[b]	Elevation[c]	First year of record	
						Temp.	Precip.
202	Shenzhen	59493	22°33′	114°06′	18.2	1953	1953
203	Haifen Shanwei	59501	22°47′	115°22′	4.6	1953	1953
204	Danxian	59845	19°31′	109°35′	168.7	1953	1953
205	Qionghai	59855	19°14′	110°28′	24.0	1953	1953

[a] North
[b] East
[c] Meters above sea level

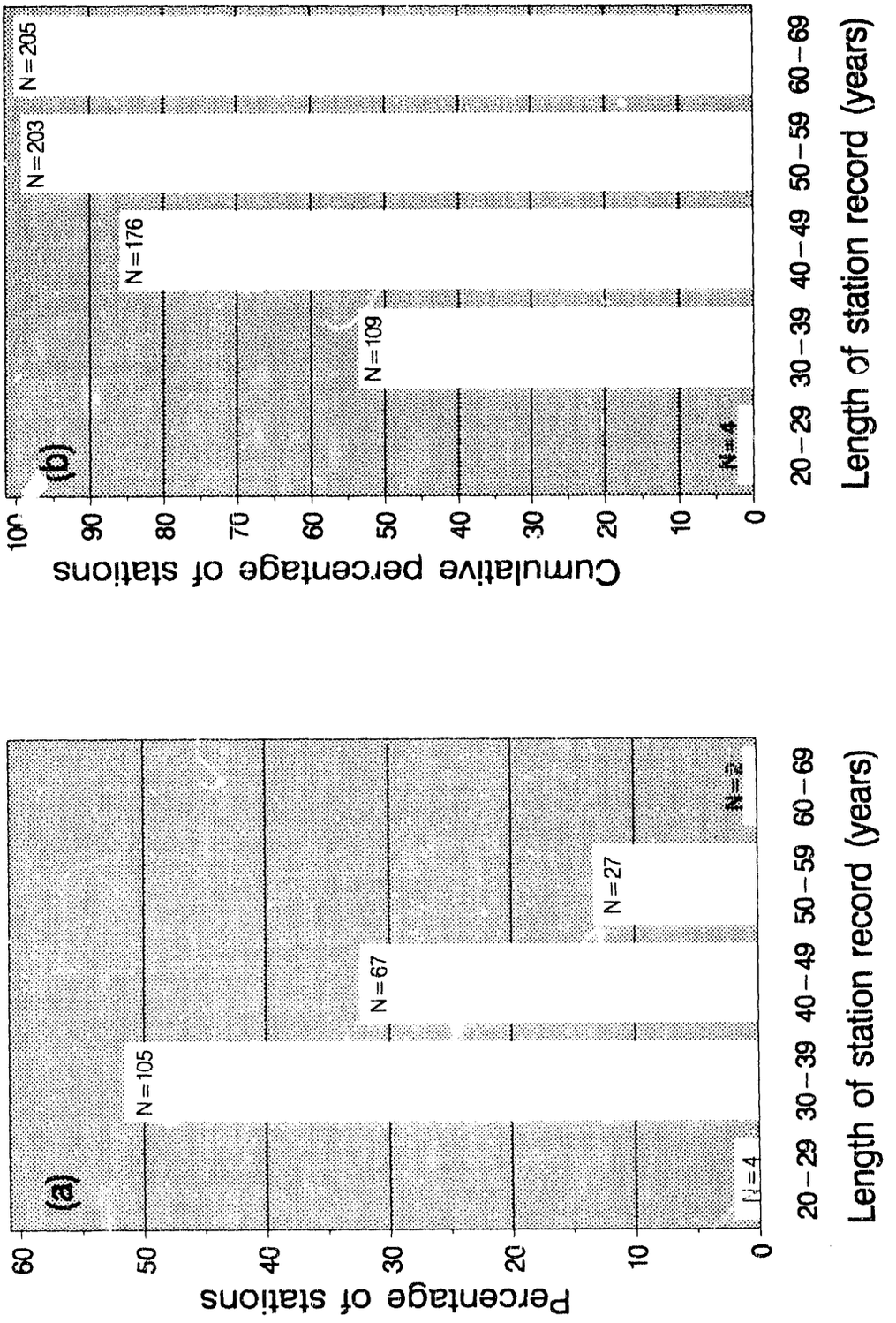

Fig. 9. Percentage (a) and cumulative percentage (b) of stations from the PRC 205-station temperature data set with given record lengths.

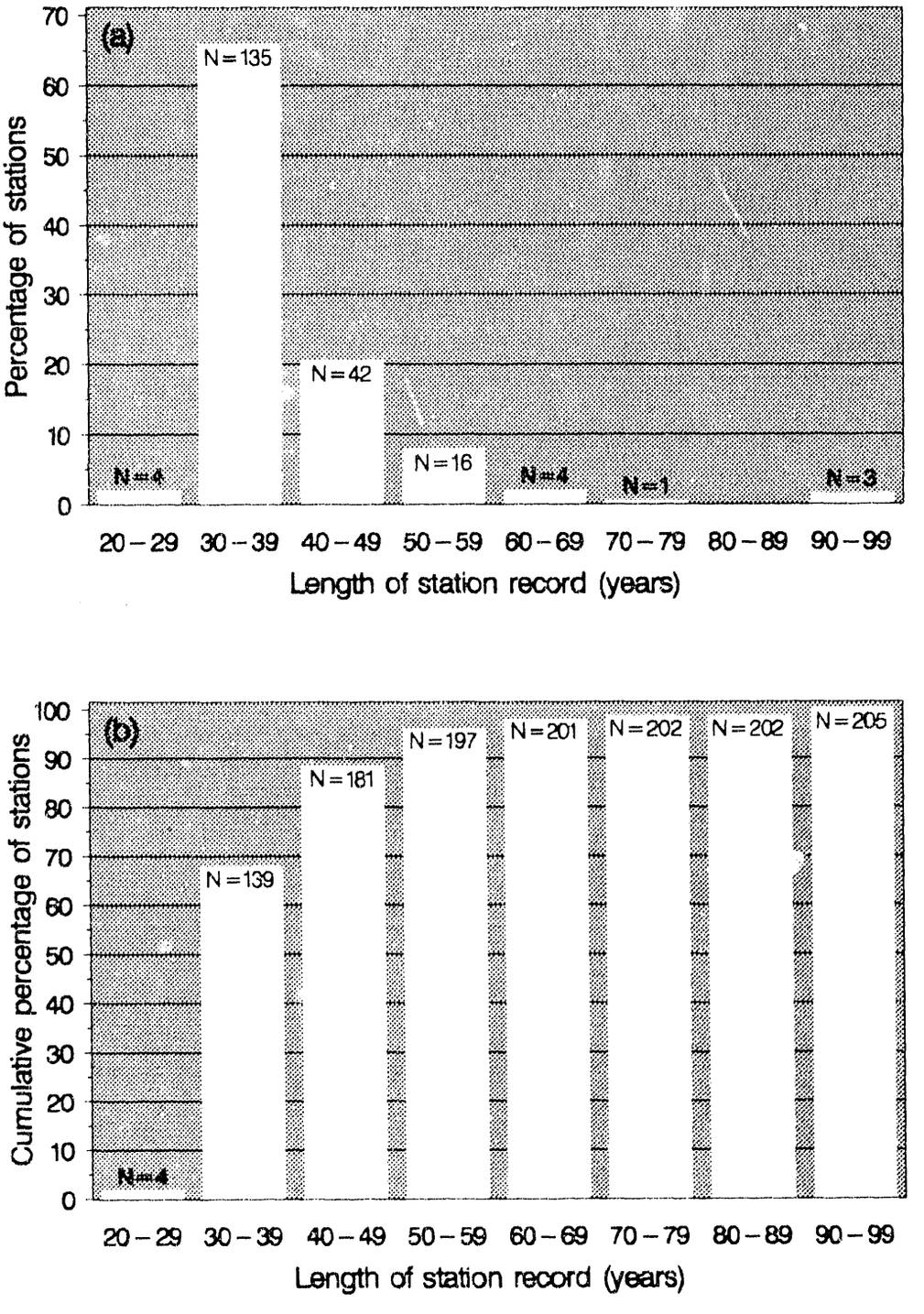

Fig. 10. Percentage (a) and cumulative percentage (b) of stations from the PRC 205-station precipitation data set with given record lengths.

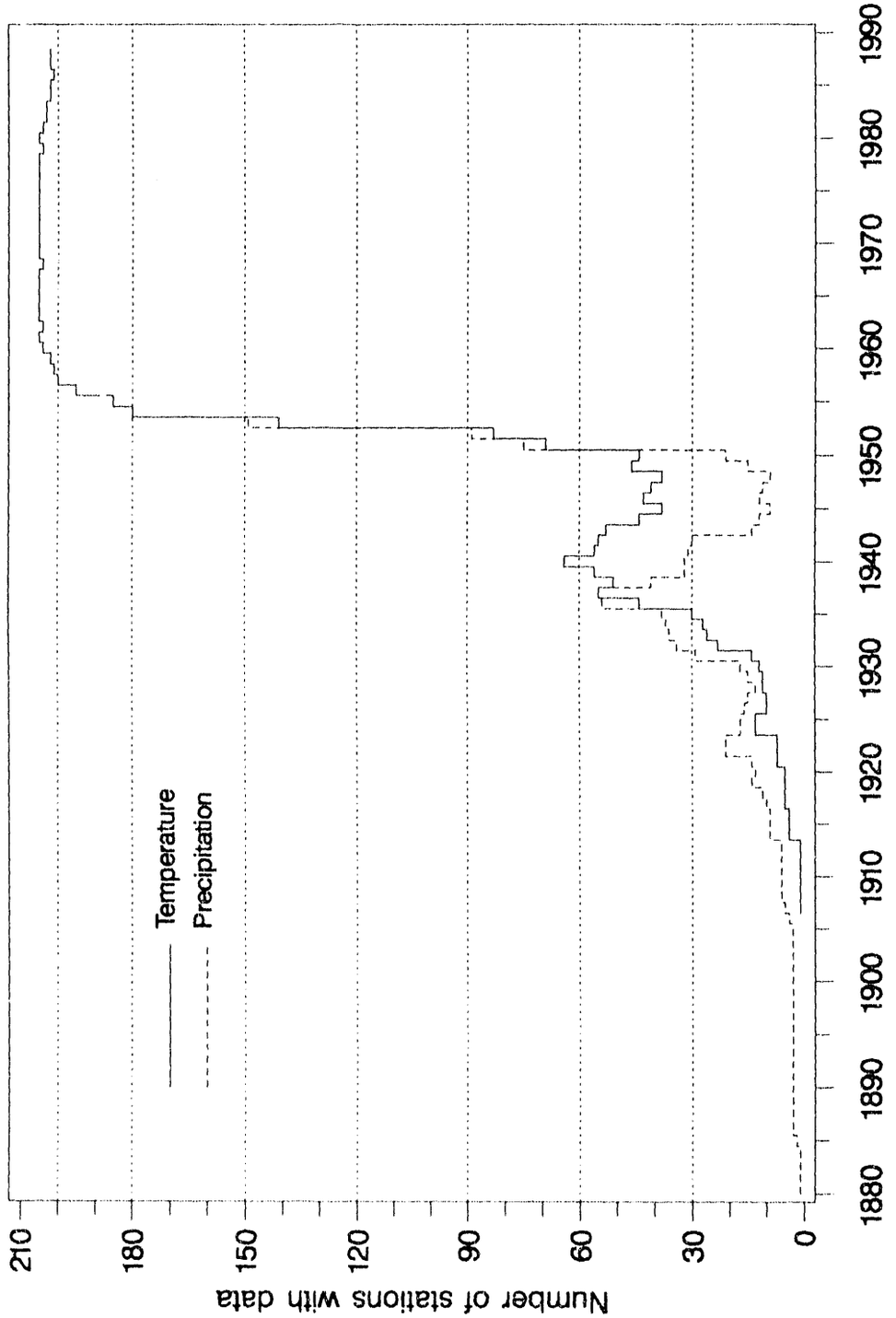

Fig. 11. Number of stations in the PRC 205-station climate network with data for each year over the period 1880–1988.

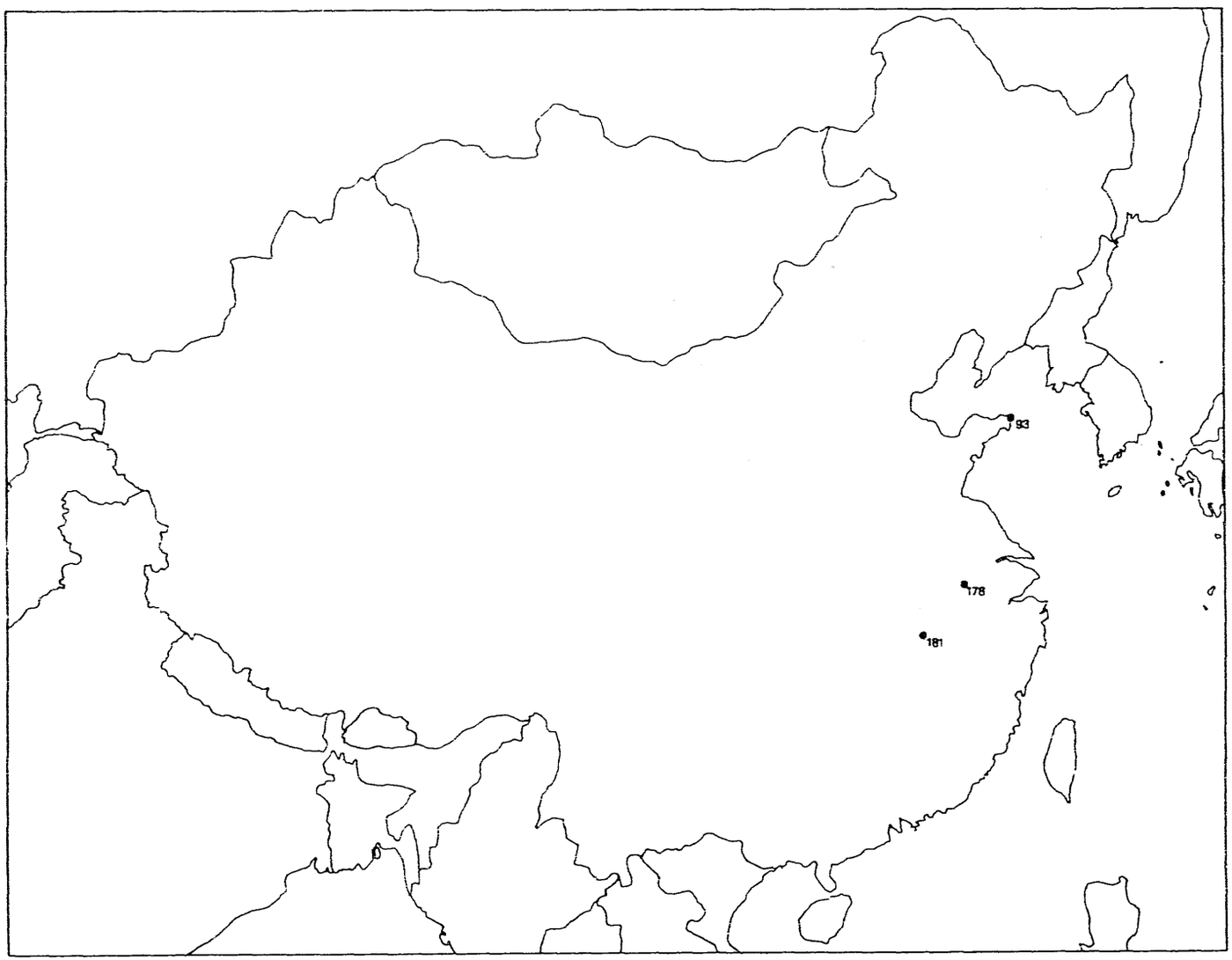

Fig. 12. Distribution of stations from the PRC 205-station precipitation data set as of 1900. Station numbers correspond to the order of stations in Table 7.

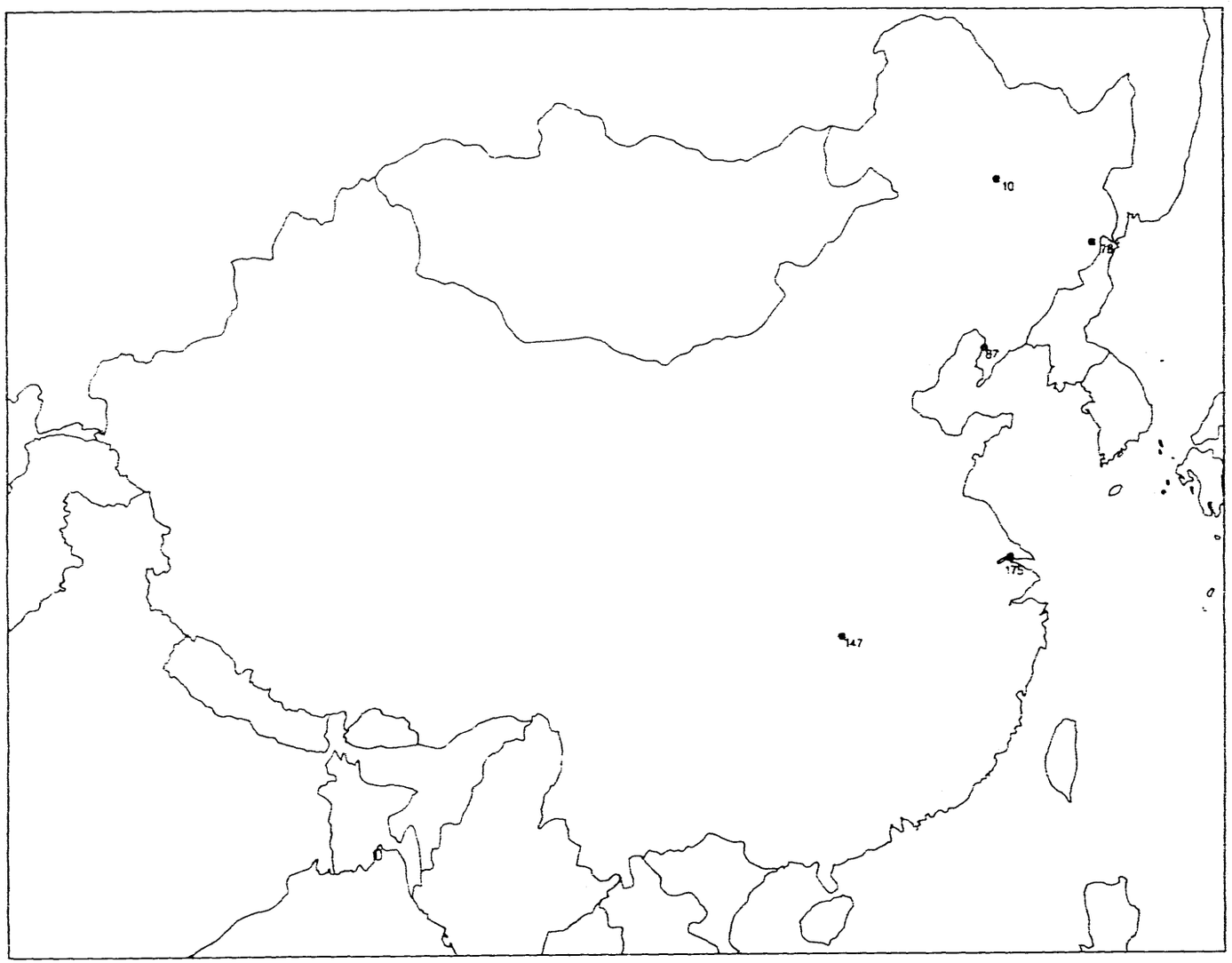

Fig. 13. Distribution of stations from the PRC 205-station temperature data set as of 1920. Station numbers correspond to the order of stations in Table 7.

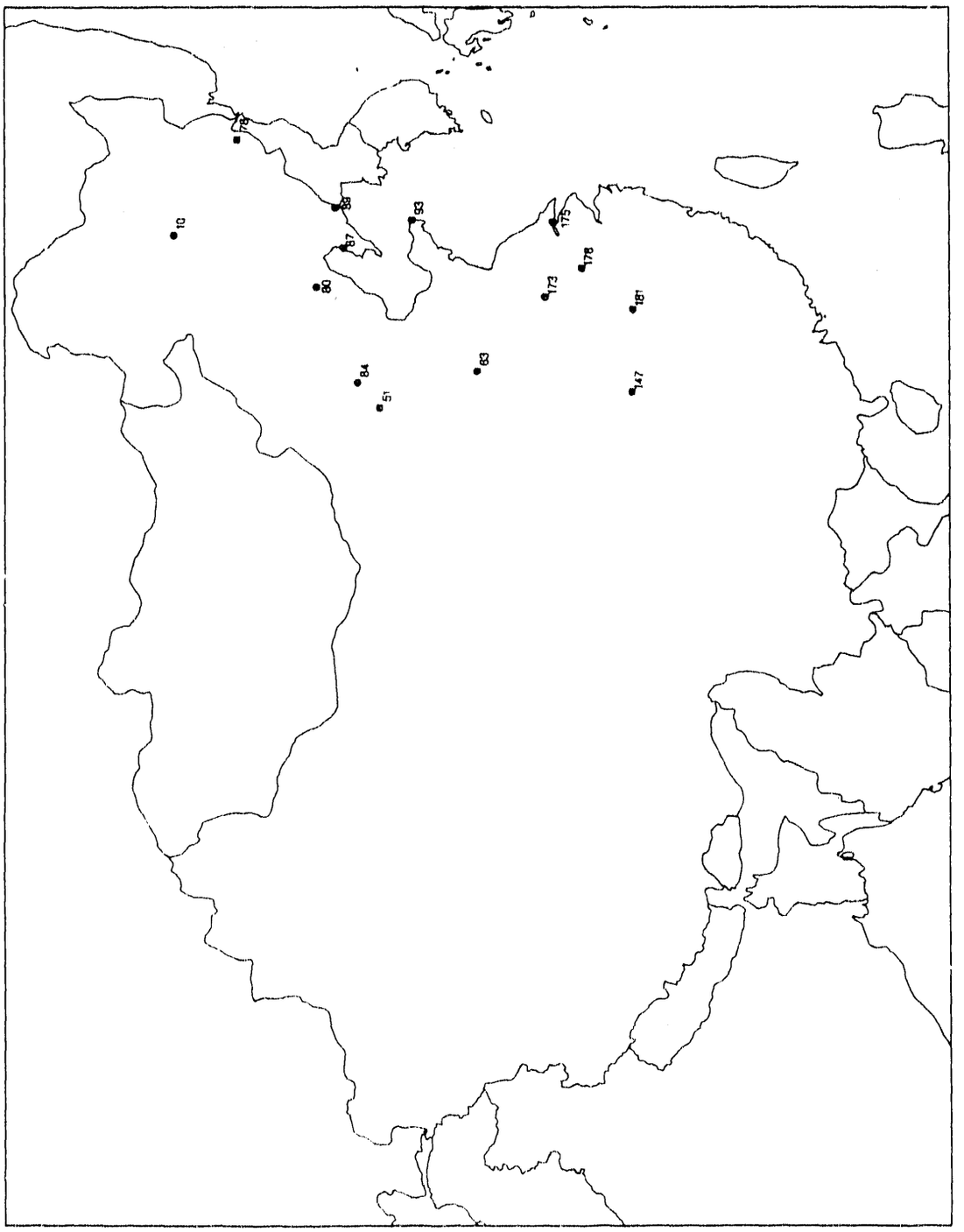

Fig. 14. Distribution of stations from the PRC 205-station precipitation data set as of 1920. Station numbers correspond to the order of stations in Table 7.

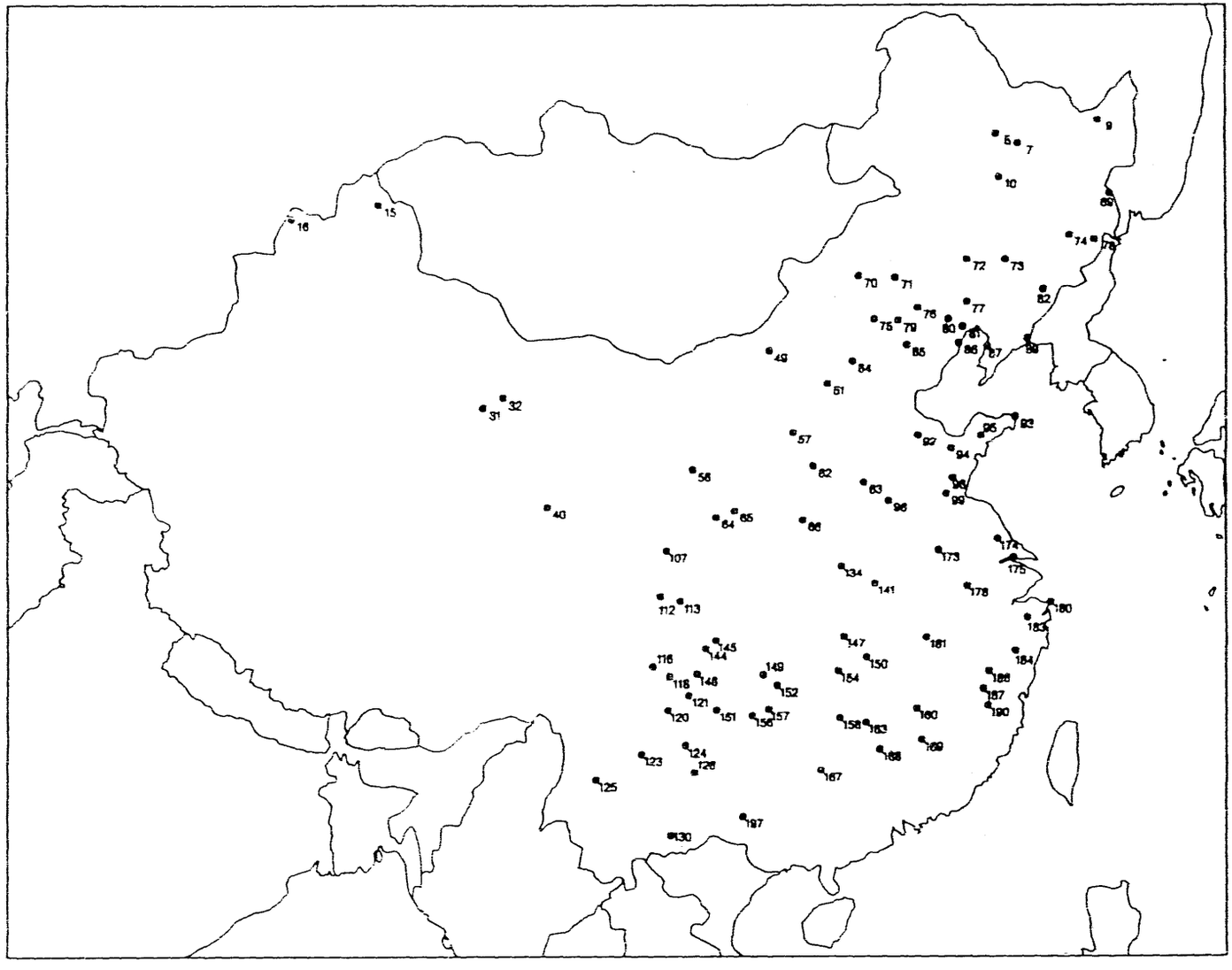

Fig. 15. Distribution of stations from the PRC 205-station temperature data set as of 1940. Station numbers correspond to the order of stations in Table 7.

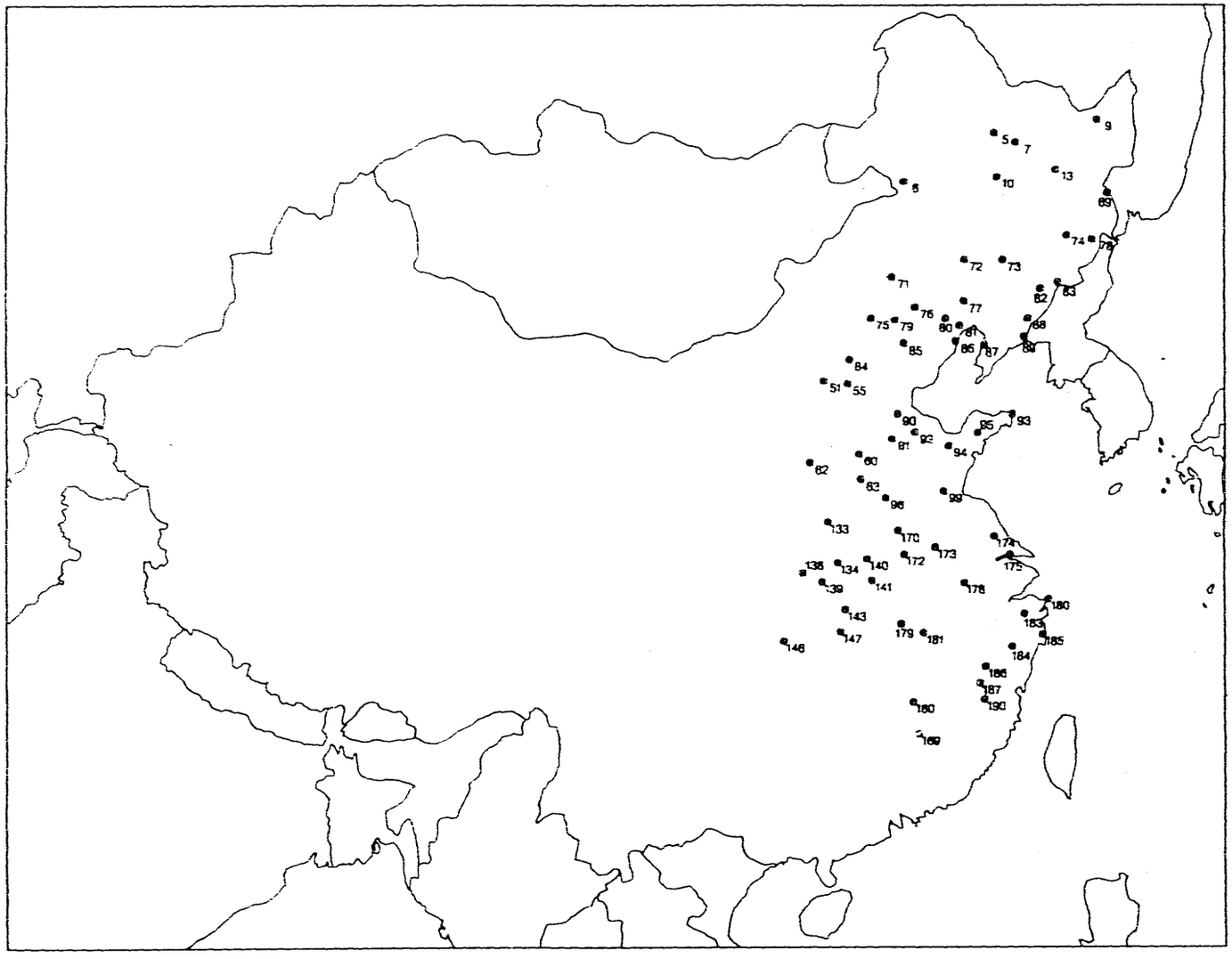

Fig. 16. **Distribution of stations from the PRC 205-station precipitation data set as of 1940.** Station numbers correspond to the order of stations in Table 7.

Fig. 17. Distribution of stations in the PRC 205-station temperature and precipitation data sets as of 1961. Station numbers correspond to the order of stations in Table 7.

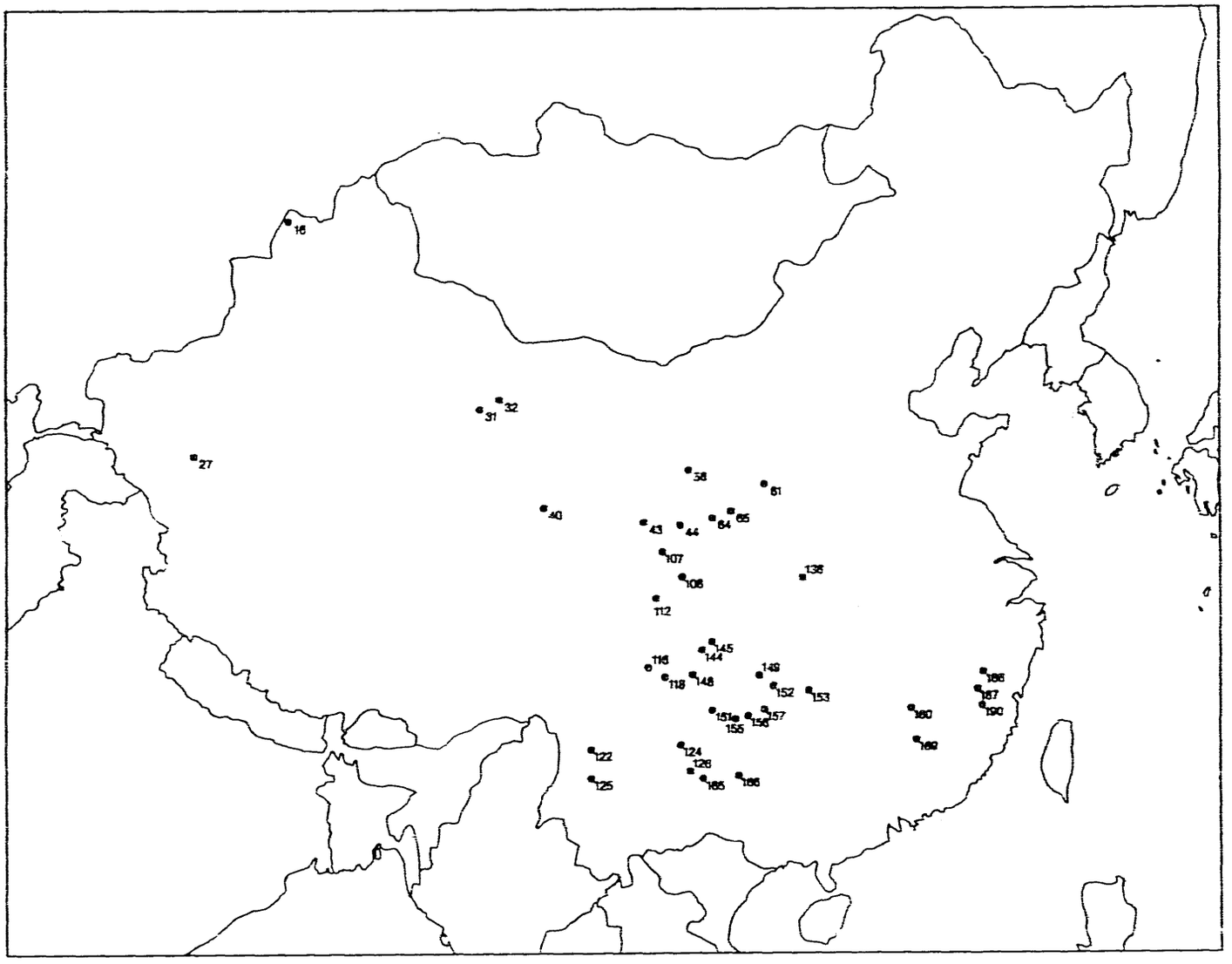

Fig. 18. Distribution of stations from the PRC 205-station temperature data set which have data for 1945. Station numbers correspond to the order of stations in Table 7.

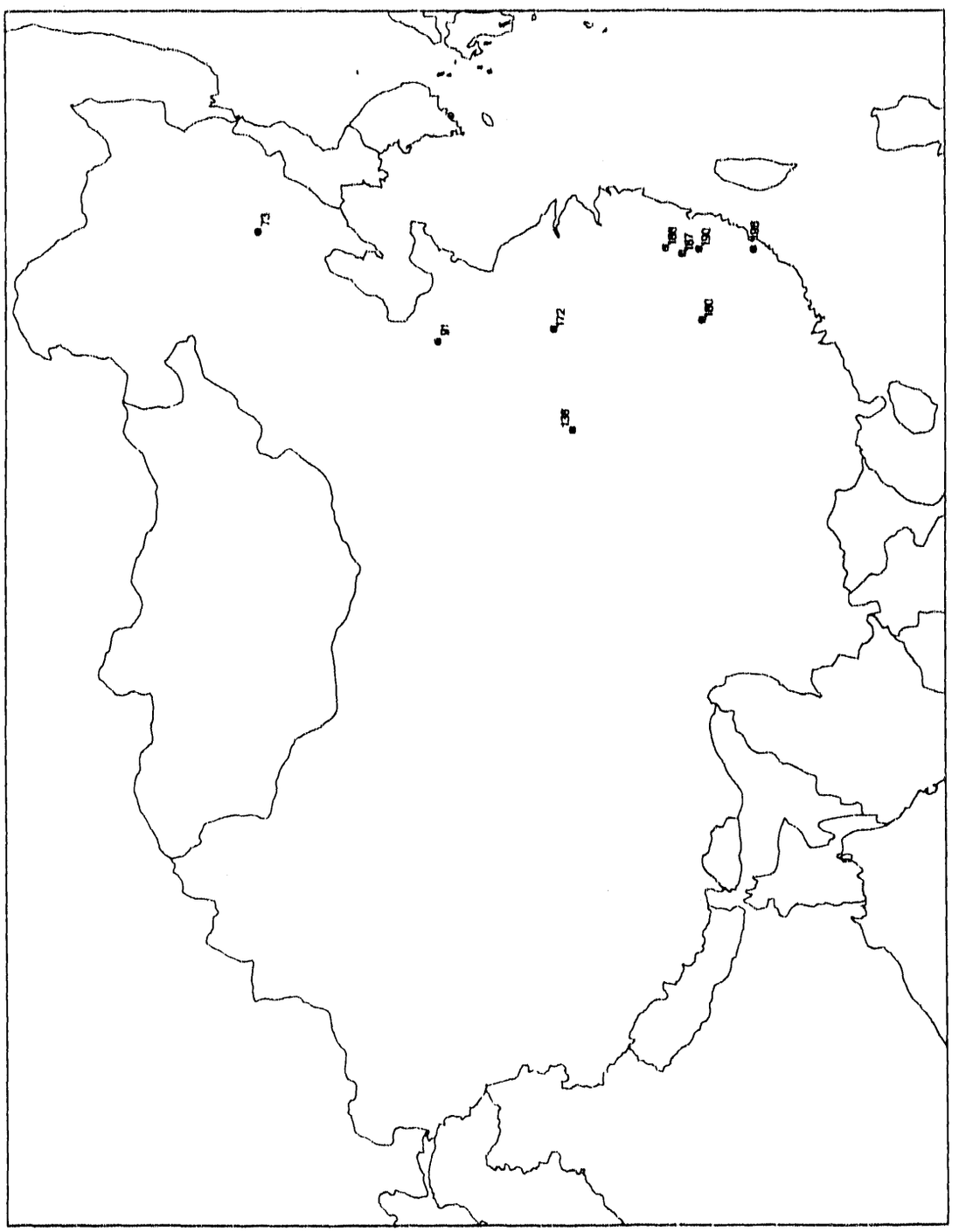

Fig. 19. Distribution of stations from the PRC 205-station precipitation data set which have data for 1945. Station numbers correspond to the order of stations in Table 7.

6. APPLICATIONS OF THE DATA

Together these data bases represent the most comprehensive, long-term instrumental climate data presently available from the PRC. They may be used for detecting and monitoring long-term climatic changes on a regional scale and in studies attempting to determine the climatic impacts of urbanization and increased atmospheric concentrations of greenhouse gases. The data may also be used by dendrochronologists and paleoclimatologists for calibrating tree ring growth, pollen, and marine plankton data or by those studying impacts of periodic events such as volcanic eruptions or the El Niño/Southern Oscillation (ENSO). Examples of the latter include the telecommunication studies of Díaz and Fu (1987), who examined the correlation between Yangtze River Valley summer precipitation and the ENSO, and Zhang et al. (1987) who analyzed correlations between tropical sea surface temperature and surface land temperatures in China.

The potential uses of the 60-station data set are especially myriad, owing to the many types of relatively long-term data. The temperature, precipitation, sun, cloud, and snow cover data should be especially useful in establishing relationships between regional and large-scale climates.

Analyses of surface pressure and wind fields can play important roles in examining spatial, temporal, and intensity variations of important seasonal climate features affecting China such as the Siberian High and the monsoons of south, southeast, and east Asia. Temperature, precipitation, and relative humidity data should also be valuable in studying these monsoon circulations.

Sunshine duration and cloud amount data are useful in identifying patterns of spatial and temporal variability in each and in understanding past climatic conditions. Karl and Steurer (1990) have illustrated the importance of changes in regional cloudiness to temperature changes and show that increases in cloud amount over the United States since the mid-1950s may help explain its lower rate of temperature increase compared to the rest of the northern hemisphere and the observed decrease in the U.S. average daily temperature range. Sunshine duration measurements are also useful for examining the availability of sunshine and can be used indirectly to determine average insolation. Cloud amount data, when coupled with other cloud parameters, are also useful in verifying and tuning radiative-transfer schemes in climate models.

Monthly data on the number of days with snow cover can be used for studying regional feedbacks between snow cover extent and variables such as temperature, cloud cover, and relative humidity. They could also be used in conjunction with these and other variables to examine the temporal influence of late winter and early spring snow cover extent on the onset of the Asian summer monsoon circulations.

7. LIMITATIONS AND RESTRICTIONS

Few station records included in the PRC data sets can be considered truly homogeneous. Even the best stations were subject to minor relocations or changes in observing times, and many have undoubtedly had the effects of urbanization imparted on measures of variables such as temperature (and therefore perhaps number of days with snow cover). Fortunately, for the 60-station network, detailed station histories are available to assist in proper interpretation of trends or jumps in the data. However, examination of these data has uncovered evidence of three undocumented station moves

(Sects. 8 and 12). Users should therefore exercise caution when using the data. Unfortunately, station histories for the 205-station network are not presently available.

In the interest of timely dissemination of the data, all of the questionable values found in the data have not been researched. Many have been flagged (Sects. 8 and 12) so that the user may determine how to treat them.

Inhomogeneities may have been created in the sunshine and cloud amount data through the evolution of sunshine recorder instrumentation and cloud measurement procedures. Unfortunately, little documentation is available at this time to confirm exact dates of sunshine recorder changes or give details on methods employed by Chinese observers in their estimation of cloud amount.

8. QUALITY ASSURANCE OF THE PRC CLIMATE DATA BASES

An important part of the numeric data package process at CDIAC is the quality assurance (QA) of data before distribution. Data received at CDIAC are rarely in perfect condition for immediate distribution, regardless of the source. To guarantee data of the highest possible quality, CDIAC conducts extensive QA reviews, which involve examining the data for completeness, reasonableness, and accuracy. Although these reviews have common objectives, they are tailored to each data set, often requiring extensive programming efforts. Although time-consuming, the QA process is an important component in the value-added concept of assuring accurate, usable data for researchers.

Given the large amount and many types of data contained in the PRC data sets as a whole, it is not surprising that CDIAC has found some erroneous and inconsistent values in the data files. Many of these problems were resolved with the help of CAS, but in the interest of timely dissemination of the data, any remaining questionable data are flagged so users may treat these data as they see fit. Flag codes for the data and their definitions are provided in Sect. 12. Descriptions of the QA reviews performed for each of the PRC data sets are presented in the following sections.

60-STATION NETWORK

The data from these stations were provided by CAS as two files; one with data extending through 1983, the other with data over the period 1984–1988. The latter data set, in addition to the twelve variables found in the former (Sects. 5 and 12), contained values of monthly extreme maximum and minimum temperature. These two data sets were interleaved according to station number, and the missing indicator "-9999" was inserted in the record position of extreme maximum and minimum temperature for years through 1983. The resulting data set was then examined thoroughly using computer software routines developed to check for (1) trends or jumps in the data not explained by seasonal cycles or documented station moves; (2) statistical outliers; (3) identical, non-zero values reported over consecutive months for variables such as total precipitation and sunshine duration; (4) proper relationships between monthly temperature variables; and (5) impossible values (e.g., number of days with snow cover exceeding the number of days in a particular month). The results of the QA checks (by data type), along with a brief assessment of station histories for the 60 stations, are given in the following sections.

Station Histories

These histories (Appendix B) contain much of the information needed to determine if a particular station's data can be used confidently by researchers in their assessments of regional and/or large-scale climate change. References to data sources (Appendix C) are provided, as is information regarding station locations (e.g., city, suburb, or countryside, and elevation), station moves, and observing times. However, some potentially useful station-specific details are not present. For example, the switch from the Jordan Photographic Sunshine recorder to the Campbell-Stokes Sunshine recorder, noted in Appendix A as occurring in 1954, may not have taken place at all stations simultaneously as implied. Sunshine recorder changes took many years to implement over the entire U.S. sunshine recording network (Steurer and Karl 1991).

Users should be aware that histories for all stations extend only through 1983. Updates will hopefully be available at a future date. [illegible], it was found that for three stations (53463, 58367, and 58633), the data record begins before the period documented by the station history. For three other stations (50745, 54527, and 56294), data is not available until several years after the first year documented in the station histories. Finally, barometric pressure data suggest that three station histories (for stations 57127, 57461, and 57516) lack documentation of station moves (discussed in the following section).

Monthly Mean Barometric Pressure

The data seem to show an occasional departure from reporting values to the nearest tenth of a millibar, as evidenced by occurrences of several (in one case, six) consecutive monthly values containing a zero in the tenths place.

Software designed to find deviations from the otherwise characteristic seasonal cycle of monthly mean barometric pressure observed at all 60 stations uncovered evidence of undocumented station moves at stations 57127, 57461, and 57516, each one having one or more years of pressure data with a markedly different range as compared to prior or subsequent years. Other single-month values which departed significantly from typical seasonal trends were flagged if not corroborated by neighboring stations.

Temperature

Checks for proper relationships between the various monthly mean/extreme temperatures have been made, and the relatively small number of errors found have been corrected through consultation with CAS.

Another simple check involved looking for statistical outliers by calculating the mean and standard deviation of the respective monthly values for all temperature variables from each station. Values lying 3.5 or more standard deviations away from the mean of the respective monthly values were flagged if not corroborated by temperatures at neighboring stations. Checking for departures from the characteristic seasonal cycle of monthly mean temperature produced several values that, while not statistical outliers, were also flagged as suspect if they could not be corroborated by monthly temperature trends from neighboring stations. The user is referred to the discussion of flag codes for the 60-station data set in Sect. 12 for additional details.

Total Precipitation

QA checks basically focused on flagging very high totals and non-zero repeated totals. Totals exceeding 500 mm (~20 in.) were found in 176 cases, and three of these totals exceeded 1 m. Practically all of these totals were considered valid; they were received in the warmer half of the year in regions that typically experience monsoonal effects. However, the extremely high totals found in the original CAS data set for LaSa (No. 55591) for May–September of 1936 (486.5, 517.7, 2049.6, 1313.2, and 619.2 mm, respectively) were considered suspect and replaced by totals for LaSa obtained from Eischeid et al. (1991). These totals are flagged in the file included with this package and are 48.5, 52.7, 205.0, 131.0, and 62.0 mm for May–September, respectively. Several high totals for other stations, while not edited, were also flagged, as were several non-zero identical totals over consecutive months (Sect. 12).

Sunshine Duration

These data were checked for identical values over consecutive months. This type of occurrence should be relatively rare since the monthly totals are rounded to the nearest tenth of an hour. Forty-nine pairs of months were found where this did occur. These values have been flagged (Sect. 12) so users may decide if they appear plausible (perhaps by considering cloud amounts or other data over these months).

Monthly maximum possible sunshine duration was calculated for each station using the station's latitude and assuming a smooth, spherical earth where the sun's rays would not be blocked by natural or man-made obstructions. Using the maximum durations, monthly values of percentage of possible sunshine were calculated for each station and plotted versus corresponding monthly cloud amounts. The plots were examined for obvious outlier data points; ten points being flagged from ten different stations. The sun and cloud values producing these points were examined in the context of the range of sun and cloud data for the particular month and station so as to determine which value was spurious. These values were then set to the missing indicator "-9999". Documentation provided by CAS (Appendix A) points out that a significant number of estimates (not identified) are included in these data.

Monthly Mean Cloud Amount

These data were simply checked for values ≤ 0 or $\geq 100\%$. No values of 0% were found, but four values of 100% were found at four different stations. They are considered reasonable in light of the concurrent values of sunshine duration and relative humidity reported at each station. Documentation provided by CAS (Appendix A) points out that a significant number of estimates (not identified) are included in these data.

Monthly Mean Relative Humidity

These data were simply checked for values ≤ 0 or $\geq 100\%$. None were found; the data appeared reasonable upon cursory inspection.

Total Number of Days with Snow Cover

Monthly variations for stations reporting any days with snow cover seem reasonable, and no values exceeding the number of days in a particular month were found.

Monthly Dominant Wind Direction and Dominant Wind Frequency

Inconsistencies have been found in these data. The dominant wind direction is defined in Appendix A as the most frequent wind direction observed for the month, measured in 22.5° increments of azimuth clockwise from north. A direction of 0° is used to denote calm winds, while 360° indicates a north wind. The data have been checked to make sure all dominant wind directions (if not set to the missing code "-9999") are 0° or some multiple of 22.5° up to 360°. Pre-1981 data show a large number of dominant wind directions with values of 0°, the extent of which varies greatly by individual station. This probably makes good physical sense, as diurnal variations alone in many areas could often be associated with lengthy periods of calm at night. However, all dominant wind directions for 1981–1983 are missing, and there are no values of 0° for any station during the period 1984–1988. This most likely implies a change in the expression of dominant wind direction for the period 1984–1988, while the reason for missing data for 1981–1983 is unknown. Data prior to 1981 have reasonable values for dominant wind frequency, usually ranging from ~10 to 50%. Frequencies for 1981–1983 are missing due to missing dominant wind direction, as are those for 1984–1988, even though values of unknown character are present for dominant wind direction. Taking these factors into consideration, the pre-1981 data are considered reasonable, but the nature of these data thereafter is unknown.

Monthly Mean Wind Speed

These data appear reasonable; values range from 0 to 9.4 m/s. Only one value of 0 was found (for December 1952 at Yi Ning, No. 51431), and since the dominant wind direction is given as 0° (calm) the value has not been researched. (The dominant wind frequency is missing for this month).

205-STATION NETWORK

CAS provided data from these stations as separate temperature and precipitation files. These have been slightly reformatted to allow for the insertion of flags. QA checks and results for each data set are described in the following sections.

Temperature

Means and standard deviations of each station's respective monthly values were calculated. Values lying 3.5 or more standard deviations away from their respective means were flagged if not corroborated by temperatures at neighboring stations. Checking for departures from the characteristic seasonal cycle of monthly mean temperature produced

several values that, while not statistical outliers, were deemed suspect if they could not be corroborated by monthly temperature trends from neighboring stations. For additional details of flag codes for the 205-station temperature data set, refer to Sect. 12.

Total Precipitation

QA checks focused on researching very high totals and flagging non-zero totals repeated over consecutive months. Several hundred totals exceeding 500 mm are present in the data, with three June totals from Heyuan (No. 59293) exceeding 1 m. These Heyuan totals and several other especially large totals were researched by CAS and confirmed. All of these large amounts were received in the warmer half of the year in regions that typically experience monsoonal effects.

Many instances of identical non-zero totals over consecutive months were found in the data. These have been flagged as described in Sect. 12 for the 205-station precipitation data set.

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10. HOW TO OBTAIN THE DATA PACKAGE

The PRC climate data files are available on request on a 9-track magnetic tape from CDIAC. This document and the magnetic tape are available free of charge. Requests for the magnetic tape should include any specific instructions for transmitting the data (e.g., 1600 or 6250 BPI density, labeled or non-labeled, ASCII or EBCDIC characters, and block size or record length constraints) required by the user to access the data. Requests not accompanied by specific instructions will be filled on 9-track, 6250 BPI, standard-labeled tapes with characters written in EBCDIC. Requests should be addressed to:

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

Telephone: (615) 574-0390
FTS 624-0390

Fax: (615) 574-2232
FTS 624-2232

Electronic Mail: BITNET eMail: CDP@ORNLSTC
INTERNET: CDP@STC10.CTD.ORNL.GOV
OMNET: CDIAC

PART 2

INFORMATION ABOUT THE MAGNETIC TAPE

11. CONTENTS OF THE MAGNETIC TAPE

The following is a list of files distributed on magnetic tape by CDIAC along with this documentation.

File number and description	File size (kB)	Logical records	Record format[a]	Block size	Record length
1. General descriptive information file	84.62	656	FB	6400	128
2. FORTRAN IV data retrieval code to read and print the station inventory from the 60-station data set (File 12)	2.67	33	FB	8000	80
3. FORTRAN IV data retrieval code to read and print the station inventory from the 205-station data set (File 13)	2.75	34	FB	8000	80
4. FORTRAN IV data retrieval code to read and print the 60-station data set (File 14)	3.08	38	FB	8000	80
5. FORTRAN IV data retrieval code to read and print the 205-station temperature data set (File 15)	2.59	32	FB	8000	80
6. FORTRAN IV data retrieval code to read and print the 205-station precipitation data set (File 16)	2.51	31	FB	8000	80
7. SAS[b] data retrieval code to read and print the station inventory from the 60-station data set (File 12)	1.54	19	FB	8000	80

	File number and description	File size (kB)	Logical records	Record format[a]	Block size	Record length
8.	SAS data retrieval code to read and print the station inventory from the 205-station data set (File 13)	1.70	21	FB	8000	80
9.	SAS data retrieval code to read and print the 60-station data set (File 14)	2.10	26	FB	8000	80
10.	SAS data retrieval code to read and print the 205-station temperature data set (File 15)	1.78	22	FB	8000	80
11.	SAS data retrieval code to read and print the 205-station precipitation data set (File 16)	1.78	22	FB	8000	80
12.	Station inventory file for the PRC 60-station climate data set	3.18	60	FB	5200	52
13.	Station inventory file for the PRC 205 station temperature and precipitation data sets	13.74	205	FB	6600	66
14.	PRC 60-station climate data set	6517.21	50521	FB	6400	128
15.	PRC 205 station temperature data set	1016.21	9155	FB	8800	110
16.	PRC 205 station precipitation data set	1008.55	9086	FB	8800	110
	Total size and records	8666.01	69,961			

[a]FB = fixed block.
[b]SAS is a registered trademark of SAS Institute, Inc., Cary, North Carolina 27511-8000.

12. DESCRIPTIVE FILE ON THE MAGNETIC TAPE

The following is a listing of the first file on the magnetic tape distributed by CDIAC. This file is intended to provide the details (i.e., variable descriptions, formats, and units) of each file associated with this numeric data package.

TITLE OF THE DATA SET

Two Long-Term Instrumental Climatic Data Bases of the People's Republic of China

DATA CONTRIBUTORS

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Institute of Atmospheric Physics
Chinese Academy of Sciences
Beijing, China

SOURCE AND SCOPE OF THE DATA

Two PRC climate data bases, derived mainly from instrument measurements, are presented in this package; one consists of monthly means, extremes, or totals of 14 meteorological variables observed at 60 stations, the other contains monthly mean temperatures and monthly precipitation totals from 205 stations. The two data bases have no stations in common. Each is described in detail in the following sections.

60-Station Network

As previously noted, the data from these 60 stations consist of monthly means, extremes, or totals of the following 14 meteorological variables:

- Mean Station Pressure (mb)
- Mean Temperature (°C)
- Mean Maximum Temperature (°C)
- Mean Minimum Temperature (°C)
- Total Precipitation (mm)
- Sunshine Duration (hours)
- Mean Cloud Amount (percentage of sky cover)
- Mean Relative Humidity (percent)
- Snow Days (days with snow cover)
- Dominant Wind Direction (degrees)
- Mean Wind Speed (m/s)
- Dominant Wind Frequency (percent)
- Extreme Maximum Temperature (°C)
- Extreme Minimum Temperature (°C)

Each record contains one month's data; the WMO station number, year, and month, followed by the data variables in the same order as previously listed. Each data value is given in tenths of its specified unit of measure. Missing data values are indicated by "-9999".

Four basic criteria were used in selecting stations to make up the 60-station network: (1) the station should be representative of a particular climate region of China, (2) the station's data should be of relatively high quality, (3) the period of record of the station should be reasonably long, and (4) the resulting station network should have a relatively uniform spatial distribution. Thirteen stations began observing before 1900, Beijing's record is the longest, with temperature and precipitation data dating back to 1841. All 60 stations have temperature and/or precipitation data available from the beginning of their periods of record, with other types of observations beginning more randomly with time throughout the network. Records from all stations run through 1988, but extreme maximum and minimum temperature data are available for each station only since 1984. Nearly one-half of the 60 stations have some type of data for at least 70 years, but only six have data for 100 years or more. Data are available from all 60 stations over the period 1951–1988. Periods of whole years without data are omitted from the data set. Station histories are available for these stations and are contained in Appendix B of the document which accompanies this tape.

205-Station Network

Data from the 205-station network contain two variables: monthly mean temperature and total monthly precipitation. The data are stored in two files, one with temperatures (in tenths of degrees Celsius) and the other with precipitation totals (in tenths of millimeters). Each record of a file contains data from one year: the WMO station number and year followed by twelve monthly data values. Missing values are represented by "-9999". The temperature data date back to 1907 (Jingzhou, No. 57476) and the precipitation data to 1880 (Wuhu, No. 58334). Temperature and precipitation records from 202 stations extend through 1988. Records from Geershiquanhe (No. 55228), Hekou (No. 56989), and Lingling (No. 57866) extend through 1982, 1980, and 1983, respectively. Because of their relatively small number, years without data have been left in these data sets. For both temperature and precipitation data, the most typical length of record ranges between 30–40 years, with a relatively small share of stations [29 stations (~15%) for temperature; 24 stations (~12%) for precipitation] having records for 50 or more years. The 60-station data set offers more truly long-term records and, as previously noted, contains temperature and/or precipitation data from the beginning of each station record. The first year for which all 205 stations have temperature and precipitation data is 1961. Unfortunately, station histories are not currently available for any of the stations in the 205-station network; therefore, details regarding instrumentation, collection methods, changes in station location or observing times, and official data sources are not known.

DATA FORMAT

The information on this tape is arranged in sixteen files, containing the following:

- this descriptive file
- five FORTRAN IV input/output routines (one per file)
- five SAS* input/output routines (one per file)
- the station inventory for the PRC 60-station network
- the station inventory for the PRC 205-station network
- the 60-station network climate data set
- the 205-station network temperature data set
- the 205-station network precipitation data set

STATION INVENTORY FILE FOR THE PRC 60-STATION NETWORK CLIMATE DATA SET

The station inventory file for the 60-station climate data set (File 12 on the magnetic tape) is sorted by 5-digit station number, with one record per station containing a sequence number (1–60), station name, station number, latitude, longitude, elevation above sea level, and the beginning year of the station's record.

The file may be read using the following FORTRAN format:

```
      INTEGER SEQNUM,STANUM,LATDEG,LATMIN,LONDEG,LONMIN,
     + BEGYR
      REAL ELEV
      CHARACTER*10 STNAME
      READ(5,100,END=99)SEQNUM,STNAME,STANUM,LATDEG,LATMIN,
     + LONDEG,LONMIN,ELEV,BEGYR
  100 FORMAT(1X,I2,1X,A10,2X,I5,3X,I2,1X,I2,3X,I3,1X,I2,2X,F6.1,2X,I4)
```

or by using the SAS format:

```
INPUT SEQNUM 2-3 STNAME $ 5-14 STANUM 17-21 LATDEG 25-26
    LATMIN 28-29 LONDEG 33-35 LONMIN 37-38 ELEV 41-46 BEGYR 49-52
```

*SAS is a registered trademark of SAS Institute, Inc., Cary, North Carolina 27511-8000.

Stated in tabular form, the contents include the following.

Variable	Variable type	Variable width	Starting column	Ending column
SEQNUM	Numeric	2	2	3
STNAME	Character	10	5	14
STANUM	Numeric	5	17	21
LATDEG	Numeric	2	25	26
LATMIN	Numeric	2	28	29
LONDEG	Numeric	3	33	35
LONMIN	Numeric	2	37	38
ELEV	Numeric	6	41	46
BEGYR	Numeric	4	49	52

where

SEQNUM is the station's relative position in the file (1–60);

STNAME is the name of the station;

STANUM is the WMO station number;

LATDEG is the degrees portion of the station's latitude;

LATMIN is the minutes portion of the station's latitude;

LONDEG is the degrees (east) portion of the station's longitude;

LONMIN is the minutes portion of the station's longitude;

ELEV is the elevation of the station above sea level (m); and

BEGYR is the beginning year of the station's record.

STATION INVENTORY FILE FOR THE PRC 205-STATION NETWORK TEMPERATURE AND PRECIPITATION DATA SETS

The station inventory file for the 205-station data sets (File 13 on the magnetic tape) is sorted by 5-digit station number, with one record per station containing a sequence number (1–205), station name, station number, latitude, longitude, elevation above sea level, and the beginning years of the station's temperature and precipitation records.

The file may be read using the following FORTRAN format:

```
      INTEGER SEQNUM,STANUM,LATDEG,LATMIN,LONDEG,LONMIN,
     + TBEGYR,PBEGYR
      REAL ELEV
      CHARACTER*20 STNAME
      READ(5,100,END=99)SEQNUM,STNAME,STANUM,LATDEG,LATMIN,
     + LONDEG,LONMIN,ELEV,TBEGYR,PBEGYR
  100 FORMAT(1X,I3,1X,A20,1X,I5,2X,I2,1X,I2,2X,I3,1X,I2,2X,F6.1,2(2X,I4))
```

or by using the SAS format:

```
INPUT SEQNUM 2-4 STNAME $ 6-25 STANUM 27-31 LATDEG 34-35
    LATMIN 37-38 LONDEG 41-43 LONMIN 45-46 ELEV 49-54 TBEGYR 57-60
    PBEGYR 63-66
```

Stated in tabular form, the contents include the following.

Variable	Variable type	Variable width	Starting column	Ending column
SEQNUM	Numeric	3	2	4
STNAME	Character	20	6	25
STANUM	Numeric	5	27	31
LATDEG	Numeric	2	34	35
LATMIN	Numeric	2	37	38
LONDEG	Numeric	3	41	43
LONMIN	Numeric	2	45	46
ELEV	Numeric	6	49	54
TBEGYR	Numeric	4	57	60
PBEGYR	Numeric	4	63	66

where

SEQNUM is the station's relative position in the file (1–205);

STNAME is the name of the station;

STANUM is the WMO station number;

LATDEG is the degrees portion of the station's latitude;

LATMIN is the minutes portion of the station's latitude;

LONDEG is the degrees (east) portion of the station's longitude;

LONMIN is the minutes portion of the station's longitude;

ELEV is the elevation of the station above sea level (m);

TBEGYR is the beginning year of the station's temperature record; and

PBEGYR is the beginning year of the station's precipitation record.

60-STATION NETWORK CLIMATE DATA FILE

The climate data set from the 60-station network (File 14 on the magnetic tape) contains monthly measurements of 14 climatological variables. The data are sorted by station number, with each record containing data for one month, including station number, year, month, mean station pressure, mean temperature, mean maximum and minimum temperatures, total precipitation, sunshine duration, mean cloud amount, mean relative humidity, total days with snow cover, dominant wind direction, mean wind speed, dominant wind frequency, and extreme maximum and minimum temperatures for the month (1984–1988 only).

The file may be read using the following FORTRAN format:

```
      INTEGER STANUM,YEAR,MON,PRES,MEANT,MEANMX,MEANMN,
     + PRECIP,SUN,CLD,RH,SNOW,WDIR,WSPD,WFREQ,EXMX,EXMN

      CHARACTER*1 RECF,PRESF,MEANTF,MXF,MNF,PRECF,SUNF,CLDF,
     + RHF,SNOWF,WDIRF,WSPDF,WFREQF,EXMXF,EXMNF

      READ(5,100,END=99)STANUM,YEAR,MON,RECF,PRES,PRESF,MEANT,
     + MEANTF,MEANMX,MXF,MEANMN,MNF,PRECIP,PRECF,SUN,SUNF,
     + CLD,CLDF,RH,RHF,SNOW,SNOWF,WDIR,WDIRF,WSPD,WSPDF,
     + WFREQ,WFREQF,EXMX,EXMXF,EXMN,EXMNF
  100 FORMAT(1X,I5,1X,I4,1X,I2,1X,A1,14(I6,1X,A1))
```

or by using the SAS format:

```
INPUT STANUM 2-6 YEAR 8-11 MON 13-14 RECF $ 16 PRES 18-22
    PRESF $ 24 MEANT 26-30 MEANTF $ 32 MEANMX 34-38 MXF $ 40
    MEANMN 42-46 MNF $ 48 PRECIP 50-54 PRECF $ 56
    SUN 58-62 SUNF $ 64 CLD 66-70 CLDF $ 72
    RH 74-78 RHF $ 80 SNOW 82-86 SNOWF $ 88
    WDIR 90-94 WDIRF $ 96 WSPD 98-102 WSPDF $104
    WFREQ 106-110 WFREQF $ 112
    EXMX 114-118 EXMXF $ 120 EXMN 122-126 EXMNF $ 128;
```

Stated in tabular form, the contents include the following.

Variable	Variable type	Variable width	Starting column	Ending column
STANUM	Numeric	5	2	6
YEAR	Numeric	4	8	11
MON	Numeric	2	13	14
RECF	Character	1	16	16
PRES	Numeric	5	18	22
PRESF	Character	1	24	24
MEANT	Numeric	5	26	30
MEANTF	Character	1	32	32
MEANMX	Numeric	5	34	38
MXF	Character	1	40	40
MEANMN	Numeric	5	42	46
MNF	Character	1	48	48
PRECIP	Numeric	5	50	54
PRECF	Character	1	56	56
SUN	Numeric	5	58	62
SUNF	Character	1	64	64
CLD	Numeric	5	66	70
CLDF	Character	1	72	72
RH	Numeric	5	74	78
RHF	Character	1	80	80
SNOW	Numeric	5	82	86
SNOWF	Character	1	88	88
WDIR	Numeric	5	90	94
WDIRF	Character	1	96	96
WSPD	Numeric	5	98	102
WSPDF	Character	1	104	104
WFREQ	Numeric	5	106	110
WFREQF	Character	1	112	112

Variable	Variable type	Variable width	Starting column	Ending column
EXMX	Numeric	5	114	118
EXMXF	Character	1	120	120
EXMN	Numeric	5	122	126
EXMNF	Character	1	128	128

where

STANUM is the WMO station number;

YEAR is the year of the data;

MON is the month of the data;

PRES is the monthly mean station pressure (mb);

MEANT is the monthly mean temperature (°C);

MEANMX is the monthly mean of the daily maximum temperatures (°C);

MEANMN is the monthly mean of the daily minimum temperatures (°C);

PRECIP is the total precipitation (liquid and equivalent liquid of frozen precipitation) for the month (mm);

SUN is the total sunshine duration for the month (hr);

CLD is the mean cloud amount for the month (percent of sky cover);

RH is the mean relative humidity for the month (percent);

SNOW is the number of days in the month with measurable snow cover;

WDIR is the dominant (most frequent) wind direction observed over the month, measured in 22.5° increments of azimuth clockwise from north (0° indicates calm winds, while 360° indicates a north wind);

WSPD is the mean wind speed for the month (m/s);

WFREQ is the dominant wind frequency for the month (percent);

EXMX is the extreme maximum temperature observed for the month (°C); and

EXMN is the extreme minimum temperature observed for the month (°C).

All of the above meteorological variables are expressed in tenths of their specific units of measure.

Flag codes for the data

RECF is a flag denoting if any observations in the record have been corrected using other sources or flagged as being suspect. The following codes indicate which values have been flagged:

P = pressure;
T = one or more temperatures;
R = precipitation total;
S = sunshine duration;
M = more than one type of parameter; and
blank = record contains no data flags.

PRESF is the pressure value flag. The codes are as follows:

T = the pressure departs from general monthly trends; and
E = pressure values for this year suggest a prior or subsequent change in barometer elevation not noted in the station history.

MEANTF is a flag denoting suspect values of mean monthly temperature. The codes are as follows:

A = outlier value*; not consistent with other reported mean temperature variables for this month;
B = outlier value; repeated the following month;
C = outlier value;
D = value is identical to previous month's value;
E = value does not fit typical monthly trends and is inconsistent with other reported mean temperature variables for the month;
F = value is the highest ever reported for this month at this station and is repeated the following month;
G = value is identical to previous month's value, which has been flagged as being suspect; and
H = all three mean temperature variables have identical values over May and June of the current year.

*Defined as lying 3.5 or more standard deviations away from the mean value of the variable.

MXF is a flag denoting suspect values of monthly mean maximum temperature. The codes include A, D, E, and H from the aforementioned MEANTF flag, in addition to the following:

I = outlier value; likely caused by an error in sign.

MNF is a flag denoting suspect values of monthly mean minimum temperature. The codes are A, D, E, H, and I from the aforementioned MEANTF and MXF flags.

PRECF is the precipitation total flag. The codes are as follow:

R = total is identical to the previous or following month's total;
H = total is especially high for this station and is considered suspect; and;
E = original total was considered suspect due to being especially high for the station. It has been replaced by data from Eischeid et al. (1991).

SUNF is the sunshine duration flag. The code used is:

R = total is identical to the previous or following month's total.

The data flags CLDF, RHF, SNOWF, WDIRF, WSPDF, WFREQF, EXMXF, and EXMNF are not used in the current version of the 60-station data set (their storage locations contain only blanks) because, of their associated variables, only the dominant wind direction data contain values of a questionable nature. Pre-1981 data contain a considerable number of dominant wind directions of 0° (calm winds), whereas data from the period 1984–1988 contain none. (Dominant wind direction data for the period 1981–1983 are missing.)

205-STATION MONTHLY MEAN TEMPERATURE FILE

The temperature data set from the 205-station network (File 15 on the magnetic tape) contains monthly mean temperatures. The data are sorted by station number, with each record containing data for one year, including station number, year, and mean temperatures for January through December. Temperatures are given in tenths of degrees Celsius.

The file may be read using the following FORTRAN format:

```
      INTEGER STANUM, YEAR, TEMP(12)
      CHARACTER*1 RFLAG, TFLAG(12)
      READ (5,100,END=99) STANUM, YEAR, RFLAG,
     + (TEMP(I),TFLAG(I), I=1,12)
  100 FORMAT(2I6,1X,A1,12(I6,1X,A1))
```

or by using the SAS format:

```
INPUT STANUM 2-6 YEAR 9-12 RFLAG $ 14
JAN 16-20 JANFL $ 22 FEB 24-28 FEBFL $ 30 MAR 32-36 MARFL $ 38
APR 40-44 APRFL $ 46 MAY 48-52 MAYFL $ 54 JUN 56-60 JUNFL $ 62
JUL 64-68 JULFL $ 70 AUG 72-76 AUGFL $ 78 SEP 80-84 SEPFL $ 86
OCT 88-92 OCTFL $ 94 NOV 96-100 NOVFL $ DEC 104-108 DECFL $ 110
```

Stated in tabular form, using variable names from the SAS format, the contents include the following.

Variable	Variable type	Variable width	Starting column	Ending column
STANUM	Numeric	5	2	6
YEAR	Numeric	4	9	12
RFLAG	Character	1	14	14
JAN	Numeric	5	16	20
JANFL	Character	1	22	22
FEB	Numeric	5	24	28
FEBFL	Character	1	30	30
MAR	Numeric	5	32	36
MARFL	Character	1	38	38
APR	Numeric	5	40	44
APRFL	Character	1	46	46
MAY	Numeric	5	48	52
MAYFL	Character	1	54	54
JUN	Numeric	5	56	60
JUNFL	Character	1	62	62
JUL	Numeric	5	64	68
JULFL	Character	1	70	70
AUG	Numeric	5	72	76
AUGFL	Character	1	78	78
SEP	Numeric	5	80	84
SEPFL	Character	1	86	86
OCT	Numeric	5	88	92
OCTFL	Character	1	94	94
NOV	Numeric	5	96	100
NOVFL	Character	1	102	102
DEC	Numeric	5	104	108
DECFL	Character	1	110	110

where

STANUM is the WMO station number;

YEAR is the year of the data; and

JAN-DEC are the monthly mean temperatures, given in tenths of degrees Celsius.

Flag codes for the data

RFLAG is a flag denoting whether any observations in the record are considered suspect and/or have been flagged. The codes are as follows:

X = one or more temperatures have been flagged;
Z = the record is not recommended for use due to a spurious series of at least three consecutive monthly values; and
blank = the record contains no data flags.

JANFL-DECFL are flags denoting suspect temperature values. The codes are as follows:

A = outlier value*; departs from typical monthly trends;
B = outlier value; likely caused by an error in sign;
C = outlier value; repeated the following month;
D = outlier value; identical to previous month's value;
E = outlier value;
F = value is identical to the previous month's value;
G = this station (No. 54852) shows identical July and August temperatures over the period 1973–1975;
H = this station (No. 57411) shows two pairs of repeated temperatures over the period May–August 1969. The values are not statistical outliers, but their pattern makes them suspect; and
I = this station (No. 58734) has repeated temperatures for October–December 1945; the December value is an outlier.

205-STATION PRECIPITATION FILE

The precipitation data set from the 205-station network (File 16 on the magnetic tape) contains monthly precipitation totals. The data are sorted by station number, with each record containing data for one year, including station number, year, and precipitation totals for January–December (in tenths of millimeters).

*Defined as lying 3.5 or more standard deviations away from the mean value of the variable.

The file may be read using the following FORTRAN format:

```
      INTEGER STANUM,YEAR,P(12)
      CHARACTER*1 RFLAG, PFLAG(12)
      READ (5,100,END=99) STANUM, YEAR, RFLAG, (P(I),PFLAG(I), I=1,12)
  100 FORMAT(2I6,1X,A1,12(I6,1X,A1))
```

or by using the SAS format:

```
INPUT STANUM 2-6 YEAR 9-12 RFLAG $ 14
JAN 16-20 JANFL $ 22 FEB 24-28 FEBFL $ 30 MAR 32-36 MARFL $ 38
APR 40-44 APRFL $ 46 MAY 48-52 MAYFL $ 54 JUN 56-60 JUNFL $ 62
JUL 64-68 JULFL $ 70 AUG 72-76 AUGFL $ 78 SEP 80-84 SEPFL $ 86
OCT 88-92 OCTFL $ 94 NOV 96-100 NOVFL $ DEC 104-108 DECFL $ 110
```

Stated in tabular form, using variable names from the SAS format, the contents include the following.

Variable	Variable type	Variable width	Starting column	Ending column
STANUM	Numeric	5	2	6
YEAR	Numeric	4	9	12
RFLAG	Character	1	14	14
JAN	Numeric	5	16	20
JANFL	Character	1	22	22
FEB	Numeric	5	24	28
FEBFL	Character	1	30	30
MAR	Numeric	5	32	36
MARFL	Character	1	38	38
APR	Numeric	5	40	44
APRFL	Character	1	46	46
MAY	Numeric	5	48	52
MAYFL	Character	1	54	54
JUN	Numeric	5	56	60
JUNFL	Character	1	62	62
JUL	Numeric	5	64	68
JULFL	Character	1	70	70
AUG	Numeric	5	72	76
AUGFL	Character	1	78	78
SEP	Numeric	5	80	84
SEPFL	Character	1	86	86
OCT	Numeric	5	88	92
OCTFL	Character	1	94	94

Variable	Variable type	Variable width	Starting column	Ending column
NOV	Numeric	5	96	100
NOVFL	Character	1	102	102
DEC	Numeric	5	104	108
DECFL	Character	1	110	110

where

STANUM is the WMO station number;

YEAR is the year of the data; and

JAN–DEC are the monthly precipitation totals, given in tenths of millimeters.

Flag codes for the data

RFLAG is a flag denoting if any observations in the record have been flagged as being suspect. The codes are as follows:

X = one or more precipitation totals have been flagged; and
blank = the record contains no data flags.

JANFL–DECFL are flags denoting suspect precipitation values. The single code used is:

R = total is repeated over consecutive months. Totals ≤1.0 mm repeated over two or more consecutive months were not flagged. If all entries in records containing repeated totals contained zeros in their tenths place, the repeated totals were only flagged if they were ≥10.0 mm. All non-zero totals repeated over three consecutive months were flagged regardless of magnitude.

REFERENCES

Eischeid, J. K., H. F. Diaz, R. S. Bradley, and P. D. Jones. 1991. A comprehensive precipitation data set for global land areas. DOE/ER-69017T-H1. Carbon Dioxide Research Division, U.S. Department of Energy, Washington, D.C.

13. LISTINGS OF THE FORTRAN IV DATA RETRIEVAL PROGRAMS

The following is a listing of the FORTRAN IV data retrieval program provided on magnetic tape (File 2 on the tape) by CDIAC for reading and printing the station inventory file for the 60-station data set (File 12 on the tape). The job control language (JCL) statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDIN60 JOB(12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//  EXEC FORTQCLG
//FORT.SYSIN DD *
C FORTRAN RETRIEVAL CODE TO READ AND PRINT THE STATION
C INVENTORY FOR THE 60-STATION DATA SET
C (FILE 12 ON THE MAGNETIC TAPE).
C
      INTEGER SEQNUM,STANUM,LATDEG,LATMIN,LONDEG,LONMIN,
     + BEGYR
      REAL ELEV
      CHARACTER*10 STNAME
C INITIALIZE A COUNTER FOR THE NUMBER OF RECORDS OUTPUT.
      NREC = 0
    1 CONTINUE
      READ(5,100,END=99)SEQNUM,STNAME,STANUM,LATDEG,LATMIN,
     + LONDEG,LONMIN,ELEV,BEGYR
  100 FORMAT(1X,I2,1X,A10,2X,I5,3X,I2,1X,I2,3X,I3,1X,I2,2X,F6.1,2X,I4)
C
C WRITE OUT A HEADER ON EACH PAGE OF THE LISTING.
      IF (MOD(NREC,58).EQ.0) WRITE(6,200)
      WRITE(6,100)SEQNUM,STNAME,STANUM,LATDEG,LATMIN,LONDEG,
     + LONMIN,ELEV,BEGYR
      NREC = NREC + 1
  200 FORMAT('1','  STATION      NO.   DEG MIN  DEG MIN ELEV(M)',
     + ' BEG',/)
      GO TO 1
   99 CONTINUE
      STOP
      END
/*
//GO.FT05F001 DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.STAINV60.DATA,LABEL=(12,SL,EXPDT=98000)
//GO.FT06F001 DD *
//
```

The following is a listing of the FORTRAN IV data retrieval program provided on magnetic tape (File 3 on the tape) by CDIAC for reading and printing the station inventory file for the 205-station data sets (File 13 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDIN205 JOB(12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//  EXEC FORTQCLG
//FORT.SYSIN DD *
C FORTRAN RETRIEVAL CODE TO READ AND PRINT THE STATION
C INVENTORY FOR THE 205-STATION DATA SET (FILE 13 ON THE
C MAGNETIC TAPE)
C
      INTEGER SEQNUM,STANUM,LATDEG,LATMIN,LONDEG,LONMIN,
     + TBEGYR,PBEGYR
      REAL ELEV
      CHARACTER*20 STNAME
C INITIALIZE A COUNTER FOR THE NUMBER OF RECORDS OUTPUT.
      NREC = 0
    1 CONTINUE
      READ(5,100,END=99)SEQNUM,STNAME,STANUM,LATDEG,LATMIN,
     + LONDEG,LONMIN,ELEV,TBEGYR,PBEGYR
  100 FORMAT(1X,I3,1X,A20,1X,I5,2X,I2,1X,I2,2X,I3,1X,I2,2X,F6.1,
     + 2(2X,I4))
C
C WRITE OUT A HEADER ON EACH PAGE OF THE LISTING.
      IF (MOD(NREC,58).EQ.0) WRITE(6,200)
      WRITE(6,100)SEQNUM,STNAME,STANUM,LATDEG,LATMIN,LONDEG,
     + LONMIN,ELEV,TBEGYR,PBEGYR
      NREC = NREC + 1
  200 FORMAT('1','    STATION',15X,'NO.  DEG MIN DEG MIN ELEV(M)',
     + ' TBEG  PBEG',/)
      GO TO 1
   99 CONTINUE
      STOP
      END
/*
//GO.FT05F001 DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.STAIN205.DATA,LABEL=(13,SL,EXPDT=98000)
//GO.FT06F001 DD *
//
```

The following is a listing of the FORTRAN IV data retrieval program provided on magnetic tape (File 4 on the tape) by CDIAC for reading and printing the 60-station climate data file (File 14 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDDAT60 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(1,00)
//   EXEC FORTQCLG
//FORT.SYSIN DD *
C FORTRAN RETRIEVAL CODE TO READ AND PRINT THE 60 STATION
C CLIMATE DATA FILE (FILE 14 ON THE MAGNETIC TAPE).
      INTEGER STANUM,YEAR,MON,PRES,MEANT,MEANMX,MEANMN,
     + PRECIP,SUN,CLD,RH,SNOW,WDIR,WSPD,WFREQ,EXMX,EXMN
      CHARACTER*1 RECF,PRESF,MEANTF,MXF,MNF,PRECF,SUNF,CLDF,
     + RHF,SNOWF,WDIRF,WSPDF,WFREQF,EXMXF,EXMNF
C INITIALIZE A COUNTER FOR THE NUMBER OF RECORDS OUTPUT.
      NREC = 0
   1  CONTINUE
      READ(5,100,END=99)STANUM,YEAR,MON,RECF,PRES,PRESF,MEANT,
     + MEANTF,MEANMX,MXF,MEANMN,MNF,PRECIP,PRECF,SUN,SUNF,
     + CLD,CLDF,RH,RHF,SNOW,SNOWF,WDIR,WDIRF,WSPD,WSPDF,
     + FREQ,WFREQF,EXMX,EXMXF,EXMN,EXMNF
 100  FORMAT(1X,I5,1X,I4,1X,I2,1X,A1,14(I6,1X,A1))
C WRITE OUT A HEADER ON EACH PAGE OF THE LISTING.
      IF (MOD(NREC,58).EQ.0) WRITE(6,200)
C
      WRITE(6,100)STANUM,YEAR,MON,RECF,PRES,PRESF,MEANT,
     + MEANTF,MEANMX,MXF,MEANMN,MNF,PRECIP,PRECF,SUN,SUNF,
     + CLD,CLDF,RH,RHF,SNOW,SNOWF,WDIR,WDIRF,WSPD,WSPDF,
     + FREQ,WFREQF,EXMX,EXMXF,EXMN,EXMNF
C
      NREC = NREC + 1
C
 200  FORMAT('1','STNUM','  YR MON FL PRES   MEANT  MEANMX  MEANMN',
     + '  PRECIP   SUN    CLD    RH     SNOW   WDIR   WSPD',
     + '   WFREQ   EXMX   EXMN',/)
      GO TO 1
  99  CONTINUE
      STOP
      END
/*
//GO.FT05F001 DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.CLIMAT60.DATA,LABEL=(14,SL,EXPDT=98000)
//GO.FT06F001 DD *
//
```

The following is a listing of the FORTRAN IV data retrieval program provided on magnetic tape (File 5 on the tape) by CDIAC for reading and printing the 205-station monthly mean temperature file (File 15 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDT205 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(1,00)
//   EXEC FORTQCLG
//FORT.SYSIN DD *
C FORTRAN RETRIEVAL CODE TO READ AND PRINT THE 205-STATION
C MONTHLY MEAN TEMPERATURE FILE (FILE 15 ON THE MAGNETIC TAPE).
C
      INTEGER STANUM,YEAR,TEMP(12)
      CHARACTER*1 RFLAG, TFLAG(12)
C
C INITIALIZE A COUNTER FOR THE NUMBER OF RECORDS OUTPUT.
      NREC = 0
C
   1  CONTINUE
C
      READ(5,100,END=99)STANUM,YEAR,RFLAG,(TEMP(I),TFLAG(I), I=1,12)
 100  FORMAT(2I6,1X,A1,12(I6,1X,A1))
C
C WRITE OUT A HEADER ON EACH PAGE OF THE LISTING.
      IF (MOD(NREC,58).EQ.0) WRITE(6,200)
C
      WRITE(6,100)STANUM,YEAR,RFLAG,(TEMP(I),TFLAG(I), I=1,12)
C
      NREC = NREC + 1
C
 200  FORMAT('1','STNUM   YR FL JAN    FEB    MAR    APR ',
     + '  MAY    JUN    JUL    AUG    SEP    OCT    NOV ',
     + '  DEC',/)
      GO TO 1
  99  CONTINUE
      STOP
      END
/*
//GO.FT05F001 DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.TEMPS205.DATA,LABEL=(15,SL,EXPDT=98000)
//GO.FT06F001 DD *
//
```

The following is a listing of the FORTRAN IV data retrieval program provided on magnetic tape (File 6 on the tape) by CDIAC for reading and printing the 205-station monthly precipitation file (File 16 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDCLD JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(1,00)
//   EXEC FORTQCLG
//FORT.SYSIN DD *
C FORTRAN RETRIEVAL CODE TO READ AND PRINT THE 205-STATION
C MONTHLY PRECIPITATION FILE (FILE 16 ON THE MAGNETIC TAPE).
C
      INTEGER STANUM,YEAR,P(12)
      CHARACTER*1 RFLAG, PFLAG(12)
C
C INITIALIZE A COUNTER FOR THE NUMBER OF RECORDS OUTPUT.
      NREC = 0
C
   1  CONTINUE
C
      READ (5,100,END=99) STANUM, YEAR, RFLAG,(P(I),PFLAG(I), I=1,12)
 100 FORMAT(2I6,1X,A1,12(I6,1X,A1))
C
C WRITE OUT A HEADER ON EACH PAGE OF THE LISTING.
      IF (MOD(NREC,58).EQ.0) WRITE(6,200)
C
      WRITE(6,100) STANUM, YEAR, RFLAG,(P(I),PFLAG(I), I=1,12)
C
      NREC = NREC + 1
C
 200 FORMAT('1','STNUM   YR  FL JAN    FEB    MAR    APR  ',
     + '  MAY    JUN    JUL    AUG    SEP    OCT    NOV  ',
     + '  DEC',/)
C
      GO TO 1
  99 CONTINUE
      STOP
      END
/*
//GO.FT05F001 DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.PRECP205.DATA,LABEL=(16,SL,EXPDT=98000)
//GO.FT06F001 DD *
//
```

14. LISTINGS OF THE SAS INPUT/OUTPUT RETRIEVAL PROGRAMS

The following is a listing of the SAS data retrieval program provided on magnetic tape (File 7 on the tape) by CDIAC for reading and printing the station inventory file for the 60-station data set (File 12 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDIN60 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//  EXEC SAS,SASRGN=4096K,WORK=1600
//IN DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//  DSN=MFF.NDP039.STAINV60.DATA,LABEL=(12,SL,EXPDT=98000)
//FT06F001 DD SYSOUT=A
//SYSIN DD *

* SAS RETRIEVAL CODE TO READ AND PRINT THE STATION INVENTORY
FILE FOR THE 60-STATION DATA SET (FILE 12 ON THE MAGNETIC TAPE);

DATA INV60;
INFILE IN;
INPUT SEQNUM 2-3 STNAME $ 5-14 STANUM 17-21 LATDEG 25-26
      LATMIN 28-29 LONDEG 33-35 LONMIN 37-38 ELEV 41-46 BEGYR 49-52;

 FILE PRINT NOTITLE HEADER=NEWPAGE;
 PUT _INFILE_;
 RETURN;
 NEWPAGE;
 PUT @5 'STATION      NO.   DEG MIN  DEG MIN ELEV(M) BEG'/;
 RETURN;
RUN;
/*
//
```

The following is a listing of the SAS data retrieval program provided on magnetic tape (File 8 on the tape) by CDIAC for reading and printing the station inventory file for the 205-station data sets (File 13 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDIN205 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//   EXEC SAS,SASRGN=4096K,WORK=1600
//IN DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//  DSN=MFF.NDP039.STAIN205.DATA,LABEL=(13,SL,EXPDT=98000)
//FT06F001 DD SYSOUT=A
//SYSIN DD *

* SAS RETRIEVAL CODE TO READ AND PRINT THE STATION INVENTORY
  FILE FOR THE 205-STATION DATA SETS (FILE 13 ON THE MAGNETIC
  TAPE);

DATA INV205;
INFILE IN;
 INPUT SEQNUM 2-4 STNAME $ 6-25 STANUM 27-31 LATDEG 34-35
       LATMIN 37-38 LONDEG 41-43 LONMIN 45-46 ELEV 49-54 TBEGYR 57-60
       PBEGYR 63-66;

 FILE PRINT NOTITLE HEADER=NEWPAGE;
 PUT _INFILE_;
 RETURN;
 NEWPAGE:
 PUT @6 'STATION' @28 'NO.  DEG MIN DEG MIN ELEV(M) TBEG  PBEG'/;
 RETURN;
RUN;
/*
//
```

The following is a listing of the SAS data retrieval program provided on magnetic tape (File 9 on the tape) by CDIAC for reading and printing the 60-station climate data file (File 14 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDDAT60 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//   EXEC SAS,SASRGN=4096K,WORK=1600
//IN DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.CLIMAT60.DATA,LABEL=(14,SL,EXPDT=98000)
//FT06F001 DD SYSOUT=A
//SYSIN DD *

* SAS RETRIEVAL CODE TO READ AND PRINT THE 60-STATION CLIMATE
  DATA FILE (FILE 14 ON THE MAGNETIC TAPE);

DATA CLIM60;
INFILE IN;
 INPUT STANUM 2-6 YEAR 8-11 MON 13-14 RECF $ 16 PRES 18-22 PRESF $ 24
      MEANT 26-30 MEANTF $ 32 MEANMX 34-38 MXF $ 40
      MEANMN 42-46 MNF $ 48 PRECIP 50-54 PRECF $ 56
      SUN 58-62 SUNF $ 64 CLD 66-70 CLDF $ 72
      RH 74-78 RHF $ 80 SNOW 82-86 SNOWF $ 88
      WDIR 90-94 WDIRF $ 96 WSPD 98-102 WSPDF $104
      WFREQ 106-110 WFREQF $ 112
      EXMX 114-118 EXMXF $ 120 EXMN 122-126 EXMNF $ 128;

 FILE PRINT NOTITLE HEADER=NEWPAGE
 PUT _INFILE_;
 RETURN;

 NEWPAGE:
 PUT @2 'STNUM YEAR MO FL PRES   MEANT  MEANMX  MEANMN  '
  'PRECIP   SUN    CLD     RH    SNOW  WDIR   WSPD  '
  ' WFREQ   EXMX   EXMN'/;
 RETURN;
RUN;
/*
//
```

The following is a listing of the SAS data retrieval program provided on magnetic tape (File 10 on the tape) by CDIAC for reading and printing the 205-station monthly mean temperature file (file 15 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDT205 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//   EXEC SAS,SASRGN=4096K,WORK=1600
//IN DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.TEMPS205.DATA,LABEL=(15,SL,EXPDT=98000)
//FT06F001 DD SYSOUT=A
//SYSIN DD *

* SAS RETRIEVAL CODE TO READ AND PRINT THE 205-STATION MONTHLY
  MEAN TEMPERATURE FILE (FILE 15 ON THE MAGNETIC TAPE);

DATA TEMP205;
INFILE IN;
 INPUT STANUM 2-6 YEAR 9-12 RFLAG $ 14
 JAN 16-20 JANFL $ 22 FEB 24-28 FEBFL $ 30 MAR 32-36 MARFL $ 38
 APR 40-44 APRFL $ 46 MAY 48-52 MAYFL $ 54 JUN 56-60 JUNFL $ 62
 JUL 64-68 JULFL $ 70 AUG 72-76 AUGFL $ 78 SEP 80-84 SEPFL $ 86
 OCT 88-92 OCTFL $ 94 NOV 96-100 NOVFL $ DEC 104-108 DECFL $ 110;

 FILE PRINT NOTITLE HEADER=NEWPAGE;
 PUT _INFILE_;
 RETURN;
 NEWPAGE:
 PUT @2 'STNUM  YEAR FL  JAN    FEB    MAR    APR    MAY'
   '    JUN    JUL    AUG    SEP    OCT    NOV    DEC'/;
 RETURN;
RUN;
/*
//
```

The following is a listing of the SAS data retrieval program provided on magnetic tape (File 11 on the tape) by CDIAC for reading and printing the 205-station monthly precipitation file (File 16 on the tape). The JCL statements (preceded by // or /*) shown in the following are not provided in the file on the magnetic tape. The JCL statements required will vary for each operating system. The JCL statements shown in the following are provided to illustrate the statements required by an individual at ORNL who has requested these data on a nine-track, 6250 BPI, standard-labeled tape with characters written in EBCDIC and who is attempting to read the tape on an IBM mainframe (e.g., IBM 3090).

```
//UIDP205 JOB (12345,TAPE,IO10),'USER ADDRESS',TIME=(,30)
//   EXEC SAS,SASRGN=4096K,WORK=1600
//IN DD UNIT=TAPE62,VOL=SER=TAPENUMB,DISP=(,PASS),
//   DSN=MFF.NDP039.PRECP205.DATA,LABEL=(16,SL,EXPDT=98000)
//FT06F001 DD SYSOUT=A
//SYSIN DD *

* SAS RETRIEVAL CODE TO READ AND PRINT THE 205-STATION MONTHLY
  PRECIPITATION FILE (FILE 16 ON THE MAGNETIC TAPE);

DATA PREC205;
INFILE IN;
 INPUT STANUM 2-6 YEAR 9-12 RFLAG $ 14
 JAN 16-20 JANFL $ 22 FEB 24-28 FEBFL $ 30 MAR 32-36 MARFL $ 38
 APR 40-44 APRFL $ 46 MAY 48-52 MAYFL $ 54 JUN 56-60 JUNFL $ 62
 JUL 64-68 JULFL $ 70 AUG 72-76 AUGFL $ 78 SEP 80-84 SEPFL $ 86
 OCT 88-92 OCTFL $ 94 NOV 96-100 NOVFL $ DEC 104-108 DECFL $ 110;

 FILE PRINT NOTITLE HEADER=NEWPAGE;
 PUT _INFILE_;
 RETURN;
 NEWPAGE:
 PUT @2 'STNUM  YEAR FL  JAN     FEB     MAR     APR     MAY'
   '    JUN     JUL     AUG     SEP     OCT     NOV     DEC'/;
 RETURN;
RUN;
/*
//
```

15. VERIFICATION OF DATA TRANSPORT

The five data files described herein may be read using the FORTRAN or SAS input/output routines provided. Users should verify that the files have been correctly transported to their systems by generating some or all of the statistics presented in Tables 8-12. These statistics were generated in SAS (PROC MEANS) but can be duplicated in other statistical packages or languages. If the statistics generated by the user differ from those presented here, the files may have been corrupted in transport.

These statistics are presented only as a tool to ensure proper reading of the data files. They are not to be construed as either a summary of the PRC climate data or an indicator of trends in these data.

Table 8. Characteristics of numeric variables from the 60-station inventory file (File 12)

Variable	Number of observations	Mean value	Minimum value	Maximum value
SEQNUM	60	30.500000	1.000000	60.000000
STANUM	60	55890.733333	50527.000000	59758.000000
LATDEG	60	33.416667	20.000000	49.000000
LATMIN	60	30.433333	1.000000	58.000000
LONDEG	60	111.716667	81.000000	129.000000
LONMIN	60	28.533333	1.000000	59.000000
ELEV	60	501.736667	1.200000	3658.000000
BEGYR	60	1913.233333	1841.000000	1951.000000

Table 9. Characteristics of numeric variables from the 205-station inventory file (File 13)

Variable	Number of observations	Mean value	Minimum value	Maximum value
SEQNUM	205	103.00000	1.000000	205.000000
STANUM	205	55398.770732	50136.000000	59855.000000
LATDEG	205	34.156098	19.000000	53.000000
LATMIN	205	30.180488	0.000000	59.000000
LONDEG	205	109.273171	75.000000	131.000000
LONMIN	205	28.775610	0.000000	59.000000
ELEV	205	875.800000	1.300000	4728.000000
TBEGYR	205	1944.243902	1907.000000	1961.000000
PBEGYR	205	1944.609756	1880.000000	1961.000000

Table 10. Characteristics of numeric variables from the 60-station climate data file (File 14)

Variable	Number of observations	Mean value	Minimum value	Maximum value
STANUM	50521	56133.637101	50527.000000	59758.000000
YEAR	50521	1948.734091	1841.000000	1988.000000
MON	50521	6.509155	1.000000	12.000000
PRES	50521	4720.056867	-9999.000000	10360.000000
MEANT	50521	-1048.202787	-9999.000000	328.000000
MEANMX	50521	-1604.397063	-9999.000000	395.000000
MEANMN	50521	-1660.756299	-9999.000000	280.000000
PRECIP	50521	398.641753	-9999.000000	10318.000000
SUN	50521	-1852.183924	-9999.000000	3906.000000
CLD	50521	-3063.088241	-9999.000000	1000.000000
RH	50521	-1630.216187	-9999.000000	990.000000
SNOW	50521	-3290.252390	-9999.000000	310.000000
WDIR	50521	-3432.722551	-9999.000000	3600.000000
WSPD	50521	-2458.855169	-9999.000000	94.000000
WFREQ	50521	-4941.773500	-9999.000000	940.000000
EXMX	50521	-9268.719107	-9999.000000	432.000000
EXMN	50521	-9284.591200	-9999.000000	244.000000

Table 11. Characteristics of numeric variables from the 205-station monthly mean temperature file (File 15)

Variable	Number of observations	Mean value	Minimum value	Maximum value
STANUM	9155	55468.011906	50136.000000	59855.000000
YEAR	9155	1964.746696	1907.000000	1988.000000
JAN	9155	-1002.653960	-9999.000000	208.000000
FEB	9155	-965.259421	-9999.000000	225.000000
MAR	9155	-906.209285	-9999.000000	251.000000
APR	9155	-839.558493	-9999.000000	268.000000
MAY	9155	-792.198143	-9999.000000	370.000000
JUN	9155	-764.451338	-9999.000000	332.000000
JUL	9155	-753.769416	-9999.000000	360.000000
AUG	9155	-765.309011	-9999.000000	371.000000
SEP	9155	-795.136210	-9999.000000	319.000000
OCT	9155	-852.265647	-9999.000000	305.000000
NOV	9155	-928.904533	-9999.000000	286.000000
DEC	9155	-989.643474	-9999.000000	228.000000

Table 12. Characteristics of numeric variables from the 205-station monthly total precipitation file (File 16)

Variable	Number of observations	Mean value	Minimum value	Maximum value
STANUM	9086	55481.342945	50136.000000	59855.000000
YEAR	9086	1963.914484	1880.000000	1988.000000
JAN	9086	-800.750165	-9999.000000	2685.000000
FEB	9086	-726.452124	-9999.000000	5067.000000
MAR	9086	-574.599384	-9999.000000	6377.000000
APR	9086	-350.912063	-9999.000000	6921.000000
MAY	9086	-72.017389	-9999.000000	8262.000000
JUN	9086	168.092450	-9999.000000	11412.000000
JUL	9086	375.360225	-9999.000000	9319.000000
AUG	9086	255.803324	-9999.000000	9040.000000
SEP	9086	-154.390931	-9999.000000	9200.000000
OCT	9086	-482.246753	-9999.000000	8115.000000
NOV	9086	-690.477108	-9999.000000	8059.000000
DEC	9086	-809.260511	-9999.000000	2496.000000

APPENDICES

APPENDIX A

INSTRUMENTATION AND DATA COLLECTION METHODS OF STATIONS IN THE PRC 60-STATION CLIMATE NETWORK

BAROMETRIC PRESSURE

Fortin and Kew-pattern barometers and an aneroid barograph are employed. They are positioned in observation rooms to decrease temperature variability. The two instruments are positioned near each other, away from doors and windows, and are calibrated at regular intervals.

Station pressures are recorded in millibars, with monthly means being calculated from daily means and reported to the nearest tenth of a millibar. Mercury column heights, expressed in millimeters, had been reported before 1953 for some stations, but they have been converted to millibars. Since 1950, readings have been corrected and reduced for temperature effects, instrumental error, and gravity error (including latitude and altitude effects). Readings were not corrected for gravity effects prior to 1950.

TEMPERATURE

Dry- and wet-bulb thermometers are fixed together in an instrument shelter. The standard bulb heights used prior to 1950 are not known. For the period 1954–1960 the standard height was 2 m. The standard height used since 1961 is 1.5 m, as it was for the period 1950–1953. Observing times have varied over the years. The observing times for each station prior to 1950, along with details on which observations were used in calculating the daily mean, may be found in the accompanying station histories (Appendix B). Since 1950, observations have been made using Local Standard Time (LST) (1951–1953), Local Mean Solar Time (LMST) (1954–July 1960), and Beijing Time (BT) (August 1960–present).

Maximum and minimum thermometers are laid horizontally in the same shelter, 3 and 2 cm higher, respectively, than the dry- and wet-bulb thermometers. Prior to 1951, observation and adjustment were performed at 2000 BT, but since 1951 have taken place at 2000 LST.

RELATIVE HUMIDITY

A ventilated psychrometer and hair hygrometer (models not given) are housed in separate shelters. Readings from each instrument are translated into relative humidities via their respective tables or charts. Temperature observations are made simultaneously. Circa 1953, certain stations (not identified) used a different humidity table which resulted in errors of 1–2%.

PRECIPITATION

A Dines tilting-siphon rain gauge and a siphon rainfall recorder are used. Observation times prior to 1950 are not known. Since then, observations have been taken at midnight LST (1951–1953), 1900 LMST (1954–July 1960), and 2000 BT

(August 1960–present). Observed totals may include liquid precipitation, liquid equivalent of solid precipitation or frost, dew, or fog. Amounts less than 0.05 mm are recorded as zero.

SUNSHINE DURATION

Prior to 1954, a Jordan Photographic Sunshine Recorder was used, and since 1954 a Campbell-Stokes Sunshine Recorder has been used. CAS states that some monthly sunshine durations have been estimated, but these entries have not been flagged or documented.

CLOUD AMOUNT

Cloud amount has been estimated in tenths of sky cover by observers. Zero indicates clear skies; 10 indicates overcast skies. Monthly mean cloud amounts are obtained from averaging mean daily amounts for the month, multiplying by 10 to obtain a percentage, and rounding this value to the nearest whole percent. CAS states the data contain many estimates, but, as with the sunshine data, these have not been identified via flagging or documentation.

WIND DATA

Since 1954, an EL electric wind direction and speed device and a Dines wind direction and speed recorder have been used. Receivers for wind instruments are mounted on a pole 10–12 m above ground level. The type of instrument used before 1954 is unclear, but at the following stations the Beaufort Scale was employed:

ZhangYe (52652)
LanZhou (52889)
YanTai (54765)
LaSa (55591)
TengChong (56739)
TianShui (57006)
ZhengZhou (57083)
YiChang (57461)
ChangSha (57679)
GuiYang (57816)
AnQing (58424)
WenZhou (58659)
FuZhou (58847)
XiaMen (59134)
WuZhou (59265)
ShanTou (59316)
HaiKou (59758)

The Beaufort Scale entries from these stations have been converted to m/s.

Observation times used in calculating the daily mean are unclear for the period prior to 1951. Several different time groups were used over the period 1951–1953 (Appendix B). For the period 1954–July 1960, observations from 0100, 0700, 1300 and 1900 were used (assumably LMST), and since August 1960, observations from 0200, 0800, 1400, and 2000 have been used (assumably BT). Wind direction is recorded in 22.5° increments of azimuth clockwise from north (sixteen directions), with 0° indicating calm winds and 360° indicating a north wind. The monthly dominant wind direction is simply the most frequent wind direction observed during the month, and its frequency (percentage of the time it was observed) is the dominant wind frequency.

APPENDIX B

STATION HISTORIES OF THE PRC 60-STATION CLIMATE NETWORK

Data source codes in each station history correspond
to the numbered data sources in Appendix C.

No. 1 50527 Hai La Er

A. Main Data Sources

1. 1909.1-1950.12 (16)
   1909-1930 (Total amount of cloud) (14)
2. 1951.1-1960.12 (17)
3. 1961.1-1980.12 (18)(6)(7)(8)(9)(10)(11)
4. 1981-1983 (13)
5. 1961-1970 (The mean pressure is taken from) (157)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1909.1-1932		49° 14'	119° 43'	609.7	126° 30'E Local time	3(7,13,21)
1935-1936		49° 13'	119° 44'	619.0	120° E.M.T	6(2,6,10, 14,18,22)
1937-1942		49° 13'	119° 44'	619.0	135° E.M.T	6(2,6,10, 14,18,22)
1950.1-12	Dong Shan airport	49° 13'	119° 45'	676.6	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1952.1-12	As above	49° 13'	119° 45'	676.6	120° E.M.T	24(1-24)
1954.10	As above	49° 13'	119° 45'	676.6	Local mean solar time	4(1,7,13,19)
1954.11-12	As above	49° 13'	119° 45'	676.8	Local mean solar time	4(1,7,13,19)
1956.1-1960.7	East-river district (in city)	49° 13'	119° 45'	612.9	Local mean solar time	4(1,7,13,19)
1960.8-1976.3	As above	49° 13'	119° 45'	612.9	120° E.M.T	4(2.8.14.20)
1976.4-1983	As above	49° 13'	119° 45'	612.8	120° E.M.T	4(2.8.14.20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(7,13,21)	1909-1932	1909-1932	------	------
6(2,6,10, 14,18,22)	1935-1941,1950	1935-1942, 1950	1935-1942, 1950(3-12)	------
8(3,6,9,12, 14,18,21,24)	1951	1951	1951	1951
24(1-24)	1952-1953	1952-1953	1952-1953	
4(1,7,13,19)	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1.Old-name:" Hu Lun ".

No. 2 50577 Nen Jiang

A. Main Data Sources

1. 1939-1950 (19)
2. 1951-1980 (20)
3. 1971-1980 (159)
4. 1981-1983 (13)
5. 1951-62 (Mean maximum and minimum temperature) (12)
   1963-70 (156)
   1971-80 (159)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1939-1945		49° 10'	125° 13'	222.3 (223.7)	135° E.M.T	
1949.8	Nen jiang (town)	49° 10'	125° 13'	222.3 (223.7)	120° E.M.T	5(6,10,14, 18,22)
1949.9,1950	(in city)	49° 10'	125° 13'	222.3 (223.7)	120° E.M.T	4(6,10,14,18)
1951	Xin Hua street	49° 10'	125° 13'	222.3 (223.7)	120° E.M.T	6(2,6,10,14, 18,22)
1952-53	As above	49° 10'	125° 13'	222.3 (223.7)	Local mean solar time	8(3,6,9,12, 14,18,21,24)
1954.1-60.6	As above	49° 10'	125° 13'	222.3 (223.7)	120° E.M.T	24(1-24)
1960.7-1972.5	As above	49° 10'	125° 13'	222.3 (223.7)	120° E.M.T	4(2,8,14,20)
1972.6-Now	Southern suburb	49° 10'	125° 14'	242.2	120° E.M.T	

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Cloud (Period)
6(2,6,10,14 18,22)	1939-1945.7 1949.9-1950	1939-1945.7 1949.9-1950	1939-1945.7 1949.9-1950	1939.9-1945.7
5(6,10,14,18, 22)				1939-1945.7
8(3,6,9,12, 14,18,21,24)	1951	1951	1951	1951
24(1-24)	1952-1953	1952-1953	1952-1953	1952-1953
4(1,7,13,19)	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6
4(2,8,14,20)	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983

D. Remarks:

No. 3 50632 Bo Ke Tu

A. Main Data Sources

1. 1914-1950 (21)
2. 1914-1932 (15)
3. 1951-1960 (22)
4. 1971-1980 (160)
5. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1914-1932		48° 46'	121° 55'	698.8	126° 30' Local time	3(7,13,21)
1951.1-10	Northern mountain Kan,(countryside)	48° 46'	121° 55'	------	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1951.11-12	2500M away from the old address	48° 46'	121° 55'	738.7	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1952.1-1953.12	As above	48° 46'	121° 55'	738.7	120° E.M.T	24(1-24)
1954.1-1960.7	As above	48° 46'	121° 55'	738.7	Local mean solar time	4(1,7,13,19)
1960.8-1960.12	As above	48° 46'	121° 55'	738.7	120° E.M.T	4(2,8,14,20)
1961.1-1970.12	As above	48° 46'	121° 55'	738.7	(Beijing time)	4(2,8,14,20)
1971.1-now	As above	48° 46'	121° 55'	739.4	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(7,13,21)	1915-1932	1914-1932	------	------
8(3,6,9,12, 14,18,21,24)	------	1951	1951	1951.1-12
24(1-24)	1952-1953	1952-1953	1952-1953	1952-1953
4(1,7,13,19)	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7
4(2,8,14,20)	1960.8-now	1960.8-now	1960.7-now	1960.7-now

D. Remarks:

1. Old-name: 'Gui Xi Bo Ke Tu".

No. 4 50745 Qi Qi Ha Er

A. Main Data Sources

1. 1909-1928 (1)
2. 1909-1932 (3)
   1928-1950 (161)
3. 1951-1980 (20)
4. 1981-1983 (13)
5. 1951-1962 (Mean/max/min temperature and total cloud amount) (12)
   1963-1970 (156)
   1971-1980 (159)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1909-1928	In routine office place (in city)	47° 10'	123° 49'	149.3		
1928-1930.4	As above	47° 22'	123° 55'	152.2	120° E.M.T	1(10)
1930.5-1935	As above	47° 22'	123° 55'	152.2	135° E.M.T	3(5,13,21)
1933	As above	47° 22'	123° 55'	152.2	135° E.M.T	3(6,14,22)
1936-1938	As above	47° 46'	123° 55'	152.2	120° E.M.T	3(6,14,22)
1939-1942.4	As above	47° 20'	123° 56'	147.0	120° E.M.T	6(2,6,10,14
1949.6		47° 20'	123° 56'	147.0	120° E.M.T	4(6,10,14,18)
1949.7-12		47° 20'	123° 56'	147.0	120° E.M.T	6(2,6,10,14 18,22)
1950	No.1.Meteo-street Shang-fu road	47° 20'	123° 56'	147.0	120° E.M.T	6(2,6,10,14 18,22)
1951-1952	As above	47° 20'	123° 56'	147.0	120° E.M.T	24(1-24)
1953-1960.7	As above	47° 20'	123° 56'	147.0	Local mean solar time	4(1,7,13,19)
1960.8-1963.12	As above	47° 20'	123° 56'	147.0	(Beijing time)	4(2,8,14,20)
1964.1-1983	West-big bridge-west (in city)	47° 23'	123° 55'	145.9	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(5,13,21)	1930-1932 1934-1935	1930-1932 1934-1935	1930-1932 1934-1935	
3(6,14,22)	1933,1936	1933,1936-1938 1950.11-12	1933-1936	
4(6,10,14,18)		1949.6	1949.6	
6(2,6,10,14) 18,22)	1939-1941.4 1950	1939-1942.4 1949.7-12, 1950.1-10	1939-1942.4, 1949.7-12,1950	
24(1-24)	1951-53	1951-53	1951-53	1951-53
4(1,7,13,19)	1954.1-60.6	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6
4(2,8,14,20)	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983

D. Remarks:

1. Old name: "Long Jiang Ang Ang Xi".

No. 5 50953 Ha Er Bin

A. Main Data Sources

1.	1898-1906	(3)
2.	1909-1950	(23)
3.	1951-1980	(20)
4.	1981-1983	(13)
5.	1951-1962	(12)
	1971-1980	(159)
	1963-1970	(156)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1898-1906	------	45° 46'	126° 58'	147.0	------	------
1909-1935	------	45° 45'	126° 38'	145.1	120° E.M.T	3(5,13,21)
1936-1942	------	45° 45'	126° 38'	145.1	135° E.M.T	6(2,6,10,14, 18,22)
1949-1950	Nan Gang big straight street (in city)	45° 45	126° 38'	145.1	120° E.M.T	6(2,6,10,14 18,22)
1951-1953	As above	45° 45'	126° 38'	145.1	120° E.M.T	24(1-24) 18,22)
1954-1960.6	GongBin road, XiangTan district	45° 45'	126° 46'	146.0	Local mean solar time	4(1,7,13,19)
1971.1-1979	Xue fu road	45° 41'	126° 37'	171.7	(Beijing time)	4(2,8,14,20)
1980-1983	No.47. Electricity-carbon factory street, Gong Bin road	45° 45'	126° 46'	142.3	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Cloud (Period)	Wind (Period)
3(5,13,21)	1909-1935	1909-1935	1909-1935		
6(2,6,10,	1936-1942	1936-1942	1936-1942		
14,18,22)	1949-1950	1949-1950	1949-1950		
24(1-24)	1951-1953	1951-1953	1951-1953	1951-1953	1951-1953
4(1,7, 13,19)	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6
4(2,8, 14,20)	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983

D. Remarks:

1. Old name:" Benjiang ".

No. 6 51431 Yi Ning

A. Main Data Sources

1. 1951.8-1980 (24)
2. 1981-1983 (13)
3. 1951.8-12 (Mean temperature, dominant winds and mean wind speed) (12)
   1951.9-12 (Precitation) (12)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1951.8-1953.12	Airport	43° 55'	81° 17'	670.0	(Beijing time)	8(3,6,9,12,14 18,21,24)
1954.1-12	Airport	43° 55'	81° 17'	670.0	(Beijing time)	4(4,10,16,22) 4(3,9,15,21)
1955.1-1957.9	Airport	43° 55'	81° 17'	670.0	(Beijing time)	4(1,7,13,19)
1957.10	Airport	43° 57'	81° 20'	662.5	(Beijing time)	4(1,7,13,19)
1957.11-60.7	Airport	43° 55'	81° 17'	664.0	(Beijing time)	4(1,7,13,19)
1960.8-61.12	Airport	43° 55'	81° 17'	663.0	(Beijing time)	4(2,8,14,20)
1962-1983	Airport	43° 57'	81° 20'	662.5	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Cloud (Period)	Wind (Period)	Precipitation (Period)
8(3,6,9, 12,14, 18,21,24)	1951.8-53.12	1951.8-53.12	1951.8-53.12	1951.8-53.12	1951.8-53.12	-------
4(4,10, 16,22)		1954	1954			1954
4(3,9,15, 21)					1954	1954
4(1,7 13,19)	1955.1-60.7	1955.1-60.7	1955.1-60.7	1955.1-60.7	1955.1-60.7	1955.1-60.7
4(2,8, 14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 7 51463 Wu Lu Mu Qi

A. Main Data Sources

1. 1907-1940	(1)(3)
2. 1941-1950	(25)
3. 1951-1980	(26)
4. 1981-1983	(13)
5. 1951.1-3 (dominant winds)	(12)
1954.1-6 (mean wind speed)	(12)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1907-1908		43° 52'	87° 36'	905.0		3(7,13,21)
1910-1911		43° 45'	87° 40'	915.0		3(7,14,21)
1930-1931						
1941-1945						4(1,7,13,19)
1945-1950					90° E.M.T	
1951.1-12	Southern gate (in city)	43° 47'	87° 37'	905.0	90° E.M.T	
1952.1-5	As above	43° 47'	87° 37'	909.0	90° E.M.T	24(1-24)
1952.6-53.12	As above	43° 47'	87° 37'	902.7	90° E.M.T	8(3,6,9,12, 14,18,21,24)
1954.1-55.12	As above	43° 47'	87° 37'	912.6	Local mean solar time	4(1,7,13,19)
1956.1-58.3	As above	43° 47'	87° 37'	911.6	Local mean solar time	4(1,7,13,19)
1958.4-1960.10	As above	43° 49'	87° 33'	850.5	Local mean solar time	4(1,7,13,19)
1960.11-1975.12	Western suburb airport	43° 54'	87° 28'	653.5	(Beijing time)	4(2,8,14,20)
1976.1-1983	Southern gate	43° 47'	87° 37'	917.9	(Beijing time)	4(2,8,14,20)

C. Number of observations used for calculating the daily mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Cloud (Period)	Wind (Period)
3(7,13,21)	1907-1908	1907-1908			
	1910-1911.6	1910-1911.6			
3(7,14,21)		1930-1931.5			
24(1-24)	1951-1953	1951-1953	1951-1953		
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983	1960.8-1983

D. Remarks:

1. Old name: " Di Hua "
2. Station has moved six times since 1950.
3. There was a large change of position and elevation during 1960.11-1975.12.

No. 8 52203 Ha Mi

A. Main Data Sources

1. 1951-1980 (27)
2. 1981.1-1983 (13)
3. 1951.1-3 (dominant winds) (12)
   1953.8-9
   1954.1-2,10-12 (Mean pressure) (12)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1951.1-1953.12		42° 50'	93° 27'	770.0	time Zone	8(3,6,9,12, 14,18,21,24)
1954.1-1957.1		42° 50'	93° 27'	735.0	Local mean solar time	4(4,10,16,22) 4(3,9,15,21)
1957.2-1957.6		42° 50'	93° 27'	784.2	Local mean solar time	4(1,7,13,19)
1957.7-1959.8		42° 50'	93° 27'	767.0	Local mean solar time	4(1,7,13,19)
1959.9-1960.6		42° 50'	93° 27'	737.9	Local mean solar time	4(1,7,13,19)
1960.7-1962.6		42° 50'	93° 27'	737.9	(Beijing time)	4(2,8,14,20)
1962.7-1983		42° 49'	93° 31'	737.9	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
8(3,6,9,12, 14,18,21,24)	1951-1953	1951-1953	1951-1953	1951-1953
4(4,10,16,22)		1954	1954	
4(3,9,15,21)				1954
4(1,7,13,19)	1955.1-1960.7	1955.1-1960.7	1955.1-1960.7	1955.1-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 9 52533 Jiu Quan

A. Main Data Sources

1. 1934.7-1950.12 (28)
2. 1951-1969.12 (29)
3. 1970 (wind, sunshine, and precipitation) (7)(9)(10)
4. 1971-1980 (30)
5. 1934.7-1970 (Mean pressure, temperature, humidity, and snow days) (31)
6. 1981-1983 (13)
7. 1934-1936 (cloud amounts and dominant winds) (15)
8. 1951-1962, 1971-1980 (Total amount of cloud) (12)(159)
   1963-1970 (Total amount of cloud) (156)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1934.7-12	Cheng Men stree (in city)	39° 50'	99° 07'	1478.2	105° E.M.T	6(6,9,12, 14,18,21)
1935.1-1939.11	As above	39° 50'	99° 07'	1478.2	105° E.M.T	24(1-24)
1939.12-1951.2	As above	39° 50'	99° 07'	1478.2	105° E.M.T	24(1-24)
1951.3-1953	South city airport	39° 40'	98° 43'	1469.3	105° E.M.T	24(1-24)
1954.1-1957.	Jia Yu Guan airport	39° 50'	98° 15'	1542.7	Local mean solar time	4(1,7,13, 19)
1957.7-1960.7	Guo Yuan commune (in village)	39° 46'	98° 31'	1477.2	Local mean solar time	4(1,7,13, 19)
1960.8-1983	Cai Yuan commune	39° 46'	98° 31'	1477.2	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,21)		1934-1936.10	1934-1936.10	
24(1-24)		1937-1953	1937-1953	
4(1,7,13,19)		1954-1960.7	1954-1960.7	1957.7-1960.7
4(2,8,14,20)		1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 10 52652 Zhang Ye

A. Main Data Sources

1. 1937-1950 (37)
2. 1951-1969 (38)
3. 1970 (wind, precipitation, and sunshine) (7)(9)(10))
4. 1951-1970 (pressure, temperature, humidity, and snow days) (31)
5. 1971-1980 (39)
6. 1981-1983 (13)
7. 1951-1962 (total cloud amount) (12)
   1963-1970 (total cloud amount) (156)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1937-1939	Southeast side of city (suburb)	38° 56'	100° 37'			4(6,9,14,21)
1940-1941	As above	38° 56'	100° 37'		Local time	3(6,14,21)
1951-1953	Big Man Bao South(countryside)	38° 55'	100° 35'	1550.0	105° E.M.T	8(3,6,9,12, 18,21,24)
1954-1955.3	As above	38° 55'	100° 35'	1550.0	Local mean solar time	4(1,7,13,19)
1955.4-1959.7	"Long Gong Temple" the out of small south gate	38° 56'	100° 35'	1479.5	Local mean solar time	4(1,7,13,19)
1959.8-1980.7	Western gate out (suburb)	38° 56'	100° 35'	1468.5	Local mean solar time	4(1,7,13,19)
1960.8-1962	As above	38° 56'	100° 35'	1468.5	(Beijing time)	4(2,8,14,20)
1963-1983	As above	38° 56'	100° 35'	1483.9	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,21)	1937.4-1941	1937.4-1941	
8(3,6,9,12,14 18,21,24)	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-now	1960.8-now	1960.8-now

D. Remarks:

1. Date divided time: 22 local time during 1937-1941
   24 105°E mean time during 1951-1953
   19 local mean solar time (L.M.S.T) during 1954-1960.7
   20 Beijing time during 1960.8-1983

NO. 11 52866 XI Ning

Main Data Sources	Number of Data
1. 1936–1949	(1)(3)(5)(4)
2. 1951.2–1953	(12)
3. 1954.1–1970	(32)
4. 1981–1983	(32)
5. 1961–1970 (Total amount of cloud	(156)
1951–1953 (Snow days)	(156)
1951–1954 (Dominant and cominant wind frequence	(156)

二、List of location of station, time standard and times of observation

Observational period	Address	Location of station			Time Zone system	Times of observation
		Lat N	LoN.E	H(M)(PH		
1936–1949		36° 17	101° 49	227.5		
1951–1952.6		36° 35	101° 55'	2296.0		
1952.7–1953.12		36° 35	101° 55	2295.9	E.M.T	8(3,6,9,12, 14,18,21,24)
1954.1–8	Small bridge of xi Ning	36° 35'	101° 55'	2231.1	Local time	4(1,7,13,19)
1954.9–1960.7	No.7 54 street	36° 35'	101° 55'	2261.2	Local time	4(1,7,13,19)
1960.8–1973.12	No.7 54 street	36° 35	101° 55	2261.2	(Beijing time)	4(2,8,14,20)
1974.1–1983	No.7 54	36° 37	101° 46	2261.2	(Beijing time)	4(2,8,14,20)

三、Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative numidity (Period)	Wind (Period)
3(6,14,21)	1951–1953.12	1951–1953.12	1936,38,40.11–12 41.12,42.9–43.3, 9–12,44(3–12),45.5	
8(3,6,9,12, 14,18,21,24)			1937,39–40.10.41 (3–11),42(1–8),43 (4–8),45.6–53	
4(1,7,13,19)	1954–1960.7	1954–1960.7	1954–1960.7	1957.7–1960.7
4(2,8,14,20)	1960.8–1983	1960.8–1983	1960.8–1983	1960.8–1983

四、Remarks column

No.'12 52889 Lan Zhou

A. Main Data Sources

1. 1932.6-1950	(33)(34)
2. 1951-1969	(35)
3. 1932-1970	(31)
4. 1970 (wind, precipitation, and sunshine)	(7)(9)(10)
5. 1971-1980	(36)
6. 1981-1983	(13)
7. 1933-1936 (mean wind speed)	(15)
1934-1936 (dominant winds)	
8. 1951-1962 (cloud amount)	(12)
1963-1970 (cloud amount)	(156)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1932.6	In Garden of Xi Guan Gu	36° 03'	104° 48'	1556.0	120° E.M.T	4(6,10,11,18)
1932.7	As above	36° 03'	104° 48'	1556.0	120° E.M.T	6(5,8,11,14, 18,21)
1932.8-1934.1	As above	36° 03'	104° 48'	1556.0	120° E.M.T	9(5,8,11,14, 18,21)
1934.2-1934.12	As above	36° 03'	104° 48'	1556.0	120° E.M.T	24(5-22,23-4)
1935-1943	out of Eastern side gate	36° 03'	103° 51'	1508.5	120° E.M.T	24(5-22,23-4)
1944	As above	36° 03'	103° 51'	1508.5	120° E.M.T	24(1-24)
1945-1950.10	As above	36° 03'	103° 51'	1508.5	105° E.M.T	24(1-24)
1950.11-1952	Airport of Eastery suburb	36° 03'	103° 57'	1520.0	105° E.M.T	24(1-24)
1953	No.55 Sheng Li road,out of Eastern side gate	36° 01'	103° 59'	1507.8	105° E.M.T	24(1-24)
1954-1956.6	As above	36° 01'	103° 59'	1517.2	Local mean solar time	4(1,7,13,19)
1956.7-1960.7	No.8 Small Gong Xing Dun Eastern suburb	36° 03'	103° 53'	1517.2	Local mean solar time	4(1,7,13,19)
1960.8-1983	No.456,East road, Dong Gang(suburb)	36° 03'	103° 53'	1517.2	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
------	1932.6-1947	1932.6-1934.1	1932.6-1934.1	
24(1-24)	1948-1953	1934.2-1953	1934.2-1953	
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1957.7-1960.7
4(2,8,14,20)	1960.8-1969	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1.Date divided time: 22 120°E mean time during 1932-1945
24 105°E mean time during 1946-1953
19 local mean solar time (L.M.S.T.) during 1954-1960.7
20 Beijing time during 1960.8-1983

2. In 24 times observations, data are from autographic records for the period 23 p.m.to 4 a.m.

No. 13 53463 Hu He Hao Te

A. Main Data Sources

1. 1920-1950 (40)
2. 1951-1980 (41)
3. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1920-1947.3	Gui Sui Shi Da Tai Shen Cai agricu-lture school	40° 48'	111° 38'	1035.0	120° E.M.T	3(6,14,21)
1947.4-1950	As above	40° 48'	111° 38'	1035.0	105° E.M.T	3(6,14,21)
1951-1953	New city Of Gui Sui East gate out ai-rport	40° 49'	111° 41'	1062.2	105° E.M.T	8(3,6,9,12, 18,21,24)
1954-1960.7	As above	40° 49'	111° 41'	1062.2	Local mean solar time	4(1,7,13,19)
1960.8-1983	As above	40° 49'	111° 41'	1063.0	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
3(6,14,21)	1947-1950	1930-1937	1934-1936
	1951-1953	1939-1943	1947-1950
		1946-1950	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Date divided time: 21 105°E meridian time before 1951 year
   24 105°E meridian time during 1951-1953
   19 local solar time (L.M.S.T.) during 1954-1960.7
   20 Beijing time during 1960.8-1983

2. Minimum temperature for 1955.5, and sunshine hours and cloud amounts for 1951-1980 were estimated.

3. Old name: Gui Sui

No. 14 53614 Yin Chuan

A. Main Data Sources

1. 1935-1938 (1)(3)
2. 1951-1960 (42)
3. 1951-1980 (43)
4. 1981-1983 (13)
5. 1951-1953 (mean wind speed) (12)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1935-1938		38° 28'	106° 13'	1065.0	120° E.M.T	3(6,14,21)
1951.1-12	Western flower garden of new city (airport)	38° 25'	107° 05'	1115.0	105° E.M.T	3(6,14,21)
1952.1-5	As above	38° 25'	107° 20'	1115.0	105° E.M.T	8(3,6,9,12,14 18,21,24)
1952.6-11	As above	38° 25'	107° 16'	1115.0	105° E.M.T	8(3,6,9,12,14 18,21,24)
1952.12	As above	38° 25'	107° 16'	1120.0	105° E.M.T	8(3,6,9,12,14 18,21,24)
1953.1-5	As above	38° 25'	107° 16'	1115.0	105° E.M.T	8(3,6,9,12,14 18,21,24)
1963.6-12	As above	38° 25'	107° 16'	1101.3	105° E.M.T	8(3,6,9,12,14 18,21,24)
1954.1	As above	38° 25'	107° 16'	1101.3	Local mean solar time	4(1,7,13,19)
1954.2-6	New city "Zhen Xiang village"	38° 25'	106° 16'	1115.0	Local mean solar time	4(1,7,13,19)
1954.7-1956.4	As above	38° 25'	106° 16'	1111.5	Local mean solar time	4(1,7,13,19)
1956.5-1960.7	As above	38° 31'	106° 16'	1111.5	Local mean solar time	4(1,7,13,19)
1960.8-1971.1	As above	38° 31'	106° 16'	1111.5	(Beijing time)	4(2,8,14,20)
1971.2-1983	As above	38° 29'	106° 13'	1111.5 (1112.2)	(Beijing time	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,21)	1951.1-12	1935-1938 1951.1-12	1951.1-12	1951.1-1953.12
8(3,6,9,12,14, 18,21,24)	1952.1-1953	1937-1953 1952-1953	1937-1953 1952-1953	
4(1,7,13,19)	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Old name: " Ning Xia".

No. 15 53646 Yu Lin

A. Main Data Sources

1.	Before 1950	(1)(3)(4)
2.	1951-1960	(44)
3.	1961-1970	(6)(7)(8)(9)(10)(11)
4.	1971-1980	(159)
5.	1981-1983	(13)
6.	1961-1963	(12)
	1964-1970	(156)
7.	1971-1980 (dominant winds)	(156)
	1971-1980 (snow days)	

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1933-1950		38° 17'	109° 45'	1120.7	120° E.M.T	3(6,14,21)
1951.1-2	Lu Second pedagogical school-up alley	38° 15'	109° 25'	1094.2	120° E.M.T	3(6,14,21)
1951.3-11	As above	38° 15'	109° 25'	1094.2	105° E.M.T	3(6,14,21)
1951.12-1952.10	NO.4-Up alley of Sheng Li (in city)	38° 15'	109° 25'	1094.2	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1952.11-1953.12	No.2. Middle alley of Sheng Li	38° 15'	109° 25'	1094.2	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1954.1-3	As above	38° 15'	109° 25'	1094.2	Local time	4(1,7,13,19)
1954.4-1956.7	Wei-Ze alley mouth	38° 15'	109° 25'	1054.0	Local time	4(1,7,13,19)
1956.8-1960.7	As above	38° 15'	109° 25'	1054.0	Local time	4(1,7,13,19)
1960.8-1962.12	South gate out airort (suburb)	38° 17'	109° 25'	1057.5	(Beijing time)	4(2,8,14,20)
1963.2-1983		38° 14'	109° 42'	1057.5	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
3(6,14,21)			1936.11-1948
	1951-1953	1951-1953	1951-1953
8(3,6,9,12,14, 18,21,24)			1952-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 16 53772 Tai Yuan

A. Main Data Sources

1. 1916-1950	(45)
2. 1951-1970	(46)
3. 1971-1980	(159)
4. 1981-1983	(13)
5. 1971-1980	(156)

B. Location of Station, Time Standard and Times of Observation

Observational period	address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1916-1925	In agricultureal school	----	----	----	----	6(2,6,10,14 18,22)
1926-1933	As above	37° 54'	112° 31'	805.0	----	6(2,6,10,14 18,22)
1934-1937	As above	37° 54'	112° 31'	805.0	120°E.M.T	3(6,14,21) 18,22)
1939-1943		37° 50'	112° 35'	805.0		
1946.11-12	Xu Tan First agricultural experiment field	38° 02'	112° 02'	540.0	120° E.M.T	3(6,14.21)
1947.3-12	As above	37° 54'	112° 02'	760.0	120° E.M.T	3(6,14,21)
1948.1-1950	As above	37° 55'	112° 31'	805.0	120° E.M.T	3(6,14,21)
1951-1953	New city airpot (North suburb)	37° 55'	112° 31'	779.6 (800m)	(Beijing time)	8(3,6,9,12, 14,18,21,24)
1954	Qin Xian airpot (south suburb)	37° 52'	112° 33'	782.9 (783.7)	Local time	4(1,7,13,19)
1955-1960.12	As above	37° 48'	112° 36'	783.7 (784.5)	Local time	4(1,7,13,19)
1961-1963	Xu Tan village(Southern countrysids)	37° 48'	112° 36'	783.7 (784.5)	(Beijing time)	4(2,8,14,20)
1964-1983	Yin Jia Bao village (southern countryside)	37° 47'	112° 33'	777.9 (779.4)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
3(6,14,21)	1934-1937.9	1934-1937.9	1934-1937.9
	1951-1953	1950-1953	1950-1953
6(2,6,10,14,18, 22)	1916-1933	1916-1933	1916-1933
		1939-1943	
		1946.11-12	
		1947.3-1948	1947.3-1948
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Mean pressure was pressure of the ice point during the 1916-1935.

2. Date divided time: 24 Beijing time during 1951-1953
19 local time during 1954-1960.7
20 Beijing time during 1960.8-1983

3. Old name: " Yang Qu "

No. 17 54094 Mu Dan Jiang

A. Main Data Sources

1. 1909-1950 (61)
2. 1951-1980 (20)
3. 1981-1983 (13)
4. 1951-1962 (mean/max/min temperature and cloud amount) (12)(159)
   1971-1980
5. 1963-1970 (mean/max/min temperature and cloud amount) (156)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1909-1932		44° 35'	129° 36'	238.5 (241.0)	126° 30' E.M.T	3(7,13,21)
1937-1943.2	No.64 TaiPingAn street	44° 35'	129° 36'	238.5 (240.3)	135° E.M.T	5(6,10,14, 14,18)
1949.1	As above	44° 35'	129° 36'	238.5 (240.3)	120° E.M.T	3(7,13,19)
1949.2-3	As above	44° 35'	129° 36'	238.5 (240.3)	120° E.M.T	4(6,10,14, 18)
1949.4-12	As above	44° 35'	129° 36'	238.5 (240.3)	120° E.M.T	6(2,6,10, 14,18,22)
1950	As above	44° 35'	129° 36'	240.3 (240.6)	120° E.M.T	6(2,6,10, 14,18,22)
1951-1953	As above	44° 35'	129° 36'	240.3 (240.6)	120° E.M.T	24(1-24)
1954-1960.7	As above	44° 35'	129° 36'	240.3 (240.6)	120° E.M.T	4(1,7,13,19)
1960.8-1983	As above	44° 34'	129° 36'	241.4	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(7,13,21)	1909-1932	1909-1932		1909-1932
6(2,6,10,14, 18,22)	1937-1941.4	1937-1943.2	1937-1943.2	1949.4-1950
	1949.4-1950	1949.4-1950	1949.4-1950	
5(6,10,14, 18,22)				1937-1941.4
24(1-24)	1951-1953	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 18 54161 Chang Chun

A. Main Data Sources

1. 1909-1950 (47)
2. 1951-1980 (48)
3. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1909-1936	East end of free broad road, NanLing	43° 52'	125° 20'	215.7	120° E.M.T	6(2,6,10,14, 18,22)
1949-1950	As above					
1937-1942	As above	43° 52'	125° 20'	215.7	135° E.M.T	6(2,6,10,14, 18,22)
1947-1950	As above	43° 52'	125° 20'	215.7	127° 30' E.M.T	8(3,6,9,12, 14,18,21,24)
1951-1953		43° 53'	125° 13'	236.8	120° E.M.T	24(1-24)
1954-1960.7		43° 53'	125° 13'	236.8	Local mean solar time	4(1,7,13,19)
1960.8-1983		43° 53'	125° 13'	236.8	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
3(6,14,21)	1929.5-1936	1929.5-1936	1929.5-1936
6(2,6,10,14, 18,22)	1909-1929.4	1909-1929.4	1909-1929.4
	1937-1941.4	1937-1942.4	1937-1942.4
	1949-1950	1949-1950	1949-1950
8(3,6,9,12, 14,18,21,24)		1947-1948	1947-1948
24(1-24)	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 19 54342 Shen Yang

A. Main Data Sources

1.	1905-1950	(49)
2.	1951-1960	(50)
3.	1961-1970	(51)
4.	1971-1980	(51)
5.	1981-1983	(13)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1907.7-1912		41° 47'	123° 24'	43.0	135° E.M.T	6(3,7,11,15, 19,23)
1905-1907.6	Feng Tian Big east gate	41° 47'	123° 24'	43.0	120° E.M.T	6(2,6,10,14, 19,23)
1913-1942	Hall temple of ging-dynasty					
1947-1948		41° 47'	123° 24'	44.3	120° E.M.T	24(6-21,22-5)
1949.9-1950	No.2 South one road,"Heping district"	41° 47'	123° 24'	43.0	120° E.M.T	6(2,6,10,14, 18,22)
1951-1953	As above	41° 47'	123° 24'	43.0	(Beijing time)	24(1-24)
1954-1960.7	No.5 Wu Li He Zi southern tower street,	41° 46'	123° 26'	41.6	Local mean solar time	4(1,7,13,19)
	Shen He district (suburb)	41° 46'	123° 26'	41.6	(Beijing time)	4(2,8,14,20)
1960.8-12	No.2.Two duan culture road Shen He district(in city)	41° 46'	123° 26'	41.6	(Beijing time)	4(2,8,14,20)
1961-1983	As above					

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,22)	1950	1929.5-1936.7 1905-1907.6	1950	
6(2,6,10,14, 18,22)	1905-1907.6 1913-1942,1949	1913-1929.4 1936.8-1942 1949-1950	1905-1907.6 1913-1942,1949	
6(3,7,11,15, 19,23)	1907.7-1912 1947-1948	1907-1912 1947-1948	1907.7-1912 1947-1948	
24(1-24)	1951-1953	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

There were more small wind speed and higher temperature during the 1951-1953 years, because this station was in city. The records has a better representativeness after 1953.

No. 20 54511 Beijing

A. Main Data Sources

1. 1841-1980 (52)
2. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1841-1849		39° 57'	116° 29'	37.5	----	----
1856-1874						
1850-1855		39° 57'	116° 29'	37.5		24(1-24)
1875-1914		39° 57'	116° 29'	37.5		3(7,13,21)
1915-1928	Pao Zi river	39° 54'	116° 28'	37.5	120° E.M.T	24(1-24)
1933-1937						
1929-1932	Pao Zi river	39° 54'	116° 28'	37.5	120° E.M.T	8(3,6,9,12,15, 18,21,24)
1940-1945	West suburban Park	39° 56'	116° 20'	51.3	135° E.M.T	6(2,6,10,14, 18,22)
1946-1953.5	As above	39° 56'	116° 20'	51.3	120° E.M.T	24(1-24) 18,22)
1953.6-12	No.7. Five towers temple, west suburb	39° 57'	116° 19'	52.3	120° E.M.T	24(1-24)
1954-1960.7	As above	39° 57'	116° 19'	52.3	Local mean solar time	4(1,7,13,19)
1960.8-1964	As above	39° 57'	116° 19'	53.3	120° E.M.T	4(2,8,14,20)
1965-1968	Dong Hei Fa Da Xing couty	39° 35'	116° 19'	29.4	120° E.M.T	4(2,8,14,20)
1969-1970.6	Zhang Hua, West surburbs	39° 56'	116° 16'	53.3	120° E.M.T	4(2,8,14,20)
1970.7-1980	Old palace Da Xing county	39° 48'	116° 28'	31.2	120° E.M.T	4(2,8,14,20)
1981-1983	Bei Wa road, west surbruban	39° 56'	116° 17'	54.0	120° E.M.T	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Maximum+minimum)/2		1925.1-2		
3(7,13,21)	1975-1914	1841-1849	1875-1914	1875-1883
		1859-1861		
		1870-1914		
3(6,14,22)	1915-1929	1868-1869		
	1934-1937			
3(6,15,21)		1929.7		1894-1895
6(2,6,10,14, 18,22)	1940-1945	1940-1945	1930.4-12	1929-1932
			1940-1945	1940-1945
8(3,6,9,12, 14,18,21,24)	1930.4-1930.12	1930-1932	1929-1932	
24(1-24)	1933-1936...1937	1850-1855	1915.5-1918	1918-1925-1928
	1946-1953	1915.4-1925	1924-1928	1935.7-1936,1942-
		1928,1933-1937.8	1933-1937	1943,1946-1953
		1946-1953	1946-1953	
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

No. 20 54511 Beijing (cont.)

D. Remarks:

Date divided time: not clear during 1875-1895
24 120°E mean time during 1915-1932
24 120°E mean time during 1934-1937
24 120°E mean time during 1946-1953
21 120°E mean time during 1933
22 135°E mean time during 1940-1945
19 local mean solar time (L.M.S.T.) during 1954-1960
20 120°E mean solar time since 1960.8

No. 21 54527 Tian Jin

A. Main Data Sources

1. 1891-1904 (1)
2. 1891-1906.6 (3)
3. 1904-1950 (53)
4. 1951-1980 (54)
5. 1981-1983 (13)
6. 1951-1954 (pressure, temperature, humidity, and winds) (12)
7. 1928-1936 (cloud amount) (15)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1891-1904	Britainnic concession	39° 07'	117° 12'			3(9,12,16)
-1906		39° 08'	117° 11'	19.0		
1904-1927		39° 10'	117° 10'	5.0		
1928-1934,1936		39° 09'	117° 09'	4.5		
1937.1-7	Five roads of italian concession	39° 08'	117° 12'	19.0	120° E.M.T	3(6,14,22)
1938-1945	As above	39° 08'	117° 12'	19.0	120° E.M.T	24(1-24)
1946-1949	No.17, Nan Jing road first district	39° 09'	116° 09'	4.6	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1950-	Zhang Guei village	39° 09'	117° 23'	2.9	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1951-1953	No.22, Free road, two district,	39° 08'	117° 11'	16.0	120° E.M.T	24(1-24)
1954	As above	39° 08'	117° 11'	16.0	117° Local Mean solar time	4(1,7,13,19)
1955-1960.7	Meteo-station road,	39° 06'	117° 10'	3.3	117°Local Mean solar time	(1,7,13,19)
1960.8-1983	As above	39° 06'	117° 10'	3.3	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(9,12,16)		1891-1904		
3(6,14,22)	1904-1934,1939	1904-1934,1936	1904-1934,1936	
3(6,14,21)	1946-1950			
8(3,6,9,12, 14,18,21,24)		1946-1950		
24(1-24)	1937-1942	1937-1942	1937-1942	1951-1953
	1944-1945	1941-1945	1944-1945	
	1951-1953	1951-1953	1951-1953	
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 22 54602 Bao Ding

A. Main Data Sources

1. 1913-1935 (1)
2. 1914-1948 (3)
3. 1927-1950 (4)
4. 1927-1950 (5)
5. 1951-1960 (55)
6. 1961-1970 (precipitation, cloud, temperature, winds,
   1971-1980 humidity, pressure, sunshine, and weather
   days data of He Bei province.) (56)
7. 1981-1983 (12)
8. 1929-1936 (pressure, cloud, wind speed,
   and dominant winds) (15)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1913-1935.7	Qing Yuan county	38° 53'	115° 28'	21.9 (22.3)	120° E.M.T	6(2,6,10,14,) 18,22)
1944-1950		38° 50'	115° 34'	18.9 (21.9)		
1951-1953	Xin Hua village three districts	38° 50'	115° 34'	18.9 (21.9)	Local mean solar time	24(1-24)
1954.1-11	As above	38° 50'	115° 34'	18.9 (21.9)	Local mean solar time	4(1,7,13,19)
1954.12-1957	The red star road surburb	38° 53'	115° 34'	18.9 (19.2)	Local mean solar time	4(1,7,13,19
1958-1960.7	Yang Zhuang commune, red star road (suburb)	38° 50'	115° 34'	17.2	Local mean solar time	4(1,7,13,19)
1960.8-1983	As above	38° 50'	115° 34'	19.2	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
6(2,6,10,14, 18,22)		1913-1933	1927-1936.4
3(6,14,22)		1934-1935	
6(1,5,9,13, 17,21)			1944-1945
8(3,6,9,12, 14,18,21,24)			1946-1948.10
3(7,14,21)			1949.9-1952.6
3(6,14,21)	1951-1953	1951-1953	1952.7-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 23 54662 Da Lian

A. Main Data Sources

1. 1904-1950 (57)
2. 1951-1960 (60)
3. 1961-1970 (60)
4. 1971-1980 (60)
5. 1981-1983 (13)
6. 1928-1936 (cloud amount) (14)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1904-1906		38° 56'	121° 36'	5.4	120° E.M.T	6(2,6,10,14,18,22)
1907-1917	Si Er Gou	38° 56'	121° 36'	12.4	120° E.M.T	6(2,6,10,14,18,22)
1918-1940		38° 54'	121° 38'	95.6	120° E.M.T	6(2,6,10,14,18,22)
1950	XingGong street shaHe Kou district	38° 54'	121° 38'	33.8	(Beijing	6(2,6,10,14,18,22)
1951	No.886 Xing Gong street Sha He Kou district	38° 54'	121° 38'	31.8	(Beijing	24(1-24)
1952-1953	Wu Chang iron Shan alley Zhong Shan district	38° 54'	121° 38'	95.6	(Beijing time)	24(1-24)
1954-1956	As above	38° 54'	121° 38'	95.6	Local mean solar time	4(1,7,13,19)
1957-1960.7	South meantain sea-front Jin county	39° 01'	121° 43'	62.4	Local mean solar time	4(1,7,13,19)
1960.8-1967	As above	39° 01'	121° 43'	62.4	(Beijing time)	4(2,8,14,20)
1968.1-6	As above	39° 01'	121° 43'	62.4	(Beijing time)	3(8,14,20)
1968.7-1969.3	As above	39° 01'	121° 43'	62.4	(Beijing time)	4(2,8,14,20)
1969.4-1970	KunMing street iron mountain range, Zhong Shan district	38° 54'	121° 38'	95.6	(Beijing time,	4(2,8,14,20)
1971-1975.9	As above	38° 54'	121° 38'	93.5	(Beijing time)	4(2,8,14,20)
1975.10-1983	As above	38° 54'	121° 38'	92.8	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,22)	1934-1935	1934-1935	1934-1935	
6(2,6,10,14,18,22)	1905-1933	1905-1933	1905-1933	
	1936-1940,1950	1936-1940,1950	1936-1940,1950	
24(1-24)	1951-1953	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 24 54765 Yan Tai

A. Main Data Sources

1.	1886-1938	(3)
2.	1924-1943	(2)
3.	1907-1950	(4)
4.	1909-1936	(5)
5.	1905-1936 (pressure)	(15)
	1905-1923 (temperture)	
	1928-1936 (wind speed, cloud amount)	
	1928-1933	
6.	1937-1943	(62)
7.	1951-1960	(63)
8.	1971-1980	(64)
9.	1961-1970	(157)
10.	1981-1983	(13)

B. Location of Station, Time Standard and Times of Observation

Observational period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time Zone system	Times of observations
1886-1942	Chefoo station	37° 33'	121° 22'	3.0	120° E.M.T	
-1950		37° 32'	121° 23'	45.6		
1951.1-1952	No:20 Broad road in city	37° 36'	121° 26'	12.1 (13.5)	(Beijing time)	24(1-24)
1953-	"Sea-front" the grape mountain	37° 32'	121° 24'	46.7 (47.2)	(Beijing time)	24(1-24)
1954-1957.5	Sea-front the grape station	37° 32'	121° 24'	46.7	Local time	4(1,7,13,19)
1957.6-11	As above	37° 32'	121° 24'	46.7 (37.5)	Local time	4(1,7,13,19)
1957.12-1960.6	As above	37° 32'	121° 24'	46.7 (40.9)	Local time	4(1,7,13,19)
1961.7-1964.8	As above	37° 32'	121° 24'	46.7 (44.7)	(Beijing time)	4(2,8,14,20)
1964.9-1976.11	As above	37° 32'	121° 24'	46.7 (40.9)	(Beijing time)	4(2,8,14,20)
1976.12-1983	As above	37° 32'	121° 24'	46.7 (47.8)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Max+Min)1/2		1924-1928		
8(3,6,9,12, 15,18,21,24)		1929-1933		
3(6,14,21)		1934-1935		
3(6,14,22)			1907-1936 1939-1940	
24(1-24)	1951.1-1953	1951.1-1953	1951.1-1953	1951.1-1953
4(1,7,13,19)	1954-1960.6	1954-1960.6	1954-1960.6	1954-1960.6
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.7-1983

D. Remarks:

1. Relative humidity data were not corrected by the pressure.

2. Old name: " chefoo "

No. 25 54823 Ji Nan

A. Main Data Sources

1. 1916-1950 (65)
2. 1951-1980 (66)
3. 1981-1983 (13)
4. 1932-1936 (15)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1916-1920					120° E.M.T	
1921		36° 44'	117° 08'	40.0	120° E.M.T	6(2,6,10,14, 18,22)
1922-1931		36° 40'	116° 08'	42.5	120° E.M.T	6(2,6,10,14, 18,22)
1932-1934	KuiXing building southeast city	36° 40'	117° 02'	49.4	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1935-1937.9	As above	36° 40'	117° 02'	49.4	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1938.5-1939	As above	36° 40'	117° 02'	49.4	135° E.M.T	6(7,10,13,16, 19,22)
1940-1945	As above	36° 40'	117° 02'	49.4	135° E.M.T	8(1,4,7,10, 13,16,19,22)
1946	As above	36° 40'	117° 02'	49.4	120° E.M.T	8(3,9,12,14, 15,18,21,24)
1947-1948	As above	36° 40'	117° 02'	49.4	120° E.M.T	8(3,9,12,14, 15,18,21,24)
1949-	Mulberry field,Northeast suburbs	36° 42'	117° 04'	28.8	120° E.M.T	8(3,9,12,14, 15,18,21,24)
1950-1953.6	As above	36° 42'	117° 04'	28.8 (29.7)	120° E.M.T	24(1-24)
1953.7-9	WuYeng mountian Northwest hill-top	36° 41'	116° 58'	55.7 (55.7)	(Beijing time)	16(6-21)
1953.10-12	As above	36° 41'	116° 58'	54.0 (55.7)	(Beijing time)	16(6-21)
1954.1-8	As above	36° 41'	116° 58'	54.0 (55.7)	Local time	4(1,7,13,19)
1954.9-1957.6	As above	36° 41'	116° 58'	55.1 (37.5)	Local time	4(1,7,13,19)
1957.7-1960.6	As above	36° 41'	116° 58'	51.6 (52.2)	Local time	4(1,7,13,19)
1960.7-1966.12	As above	36° 41'	116° 59'	51.6 (52.2)	(Beijing time)	4(2,8,14,20)
1967.1-1983	As above	36° 41'	116° 59'	51.6 (57.8)	(Beijing time)	4(2,8,14,20)

No. 25 54823 Ji Nan (cont.)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)	Wind (period)
	1919-1920 1938.5-1939	1919-1920	1919-1920	
3(6,14,21)		1936-1937.9		
6(2,6,10,14, 18,22)	1921-1931	1921-1931	1921-1931	
6(7,10,13,16, 19,22)		1938-1939	1938.5-1938	
8(3,6,9,12, 14,18,21,24)	1935-1937.9 1947-1949	1935,1947-1949	1947-1949	
8(3,6,9,12, 15,18,21,24)	1932-1934	1932-1934	1932-1934	
8(1,4,7,10,13 16,19,22)	1940-1945	1940-1945	1940-1945	
8(3,9,12,14, 15,18,21,24)	1946	1946	1946	
24(1-24)	1950-1953	1950-1953	1950-1953	195-1953
4(1,7,13,19)	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6	1954.1-1960.6
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.7-1983

D. Remarks:

1. Data divided time: 21 120°E meridian time during 1950-1953
   19 local time during 1954.1-1960.6
   20 Beijing time since 1960.7

2. The pressure has been corrected to the present hight.

No. 26 54857 Qing Dao

A. Main Data Sources

1. 1898-1950	(67)
2. 1951-1980	(68)
3. 1981-1983	(13)
4. 1916-1936	(14)
5. 1937-1943	(62)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1898-1899	No.1 GuanTao road				120° E.M.T	3(8,14,20)
1900-1901	As above				120° E.M.T	
1902-1905.5	As above				120° E.M.T	3(7,14,21)
1905.6-1915	South district Guan Xiang hill	36° 04'	120° 19'	77.0	120° E.M.T	3(7,14,21)
1916.6-1924.2	As above	36° 04'	120° 19'	77.0	120° E.M.T	3(1,5,9,13, 17,21)
1924.3-1937.8	As above	36° 04'	120° 19'	77.0	120° E.M.T	24(6-21,22-5)
1938.6-1945	As above	36° 04'	120° 19'	77.0	120° E.M.T	6(1,5,9,13, 17,21)
1946-1950	As above	36° 04'	120° 19'	77.0	120° E.M.T	24(6-21,22-5) 17,21)
1951-1953	Hill-top of Guan Xiang	36° 04'	120° 19'	77.0 (78.6)	(Beijing time)	24(1-24)
1954-1959	As above	36° 04'	120° 19'	77.0 (78.6)	(Beijing time)	4(1,7,13,19)
1960-1960.6	As above	36° 04'	120° 19'	77.0 (78.6)	(Beijing time)	4(1,7,13,19)
1960.7-1970	As above	36° 04'	120° 19'	77.0 (78.6)	(Beijing time)	4(2,8,14,20)
1971-1983	South district Fu Long hill (hill-top)	36° 04'	120° 20'	76.0 (77.2)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)
1(10)	1914-1915.2		
3(8,14,20)		1898.3-1899	1898.6-1899
3(7,14,21)	1907-1913	1902-1915	1902-1915
	1915.2-12		
3(6,14,22)		1940-1946.2	1940-1946.2
6(2,6,10,14, 18,22)	1916-1924.2	1916-1924.2	1916-1924.2
	1938-1945	1938-1939	1938-1939
24(1-24)	1924.3-1937.5	1924.3-1937.8	1924.3-1937.8
		1900-1901	1900-1901
4(1,7,13,19)	1954-1960.6	1954-1960.6	1954-1960.6
4(2,8,14,20)	1960.7-1983	1960.7-1983	1960.7-1983

D. Remarks:

No. 27 55591 La Sa

A. Main Data Sources

1. 1935-1949 (2)(3)
2. 1935.7-1936 (pressure, humidity, cloud amount, and wind speed) (15)
3. 1941-1949 (4)
4. 1951-1960 (69)(70)(71)
   1961-1970
   1971-1975
5. 1976-1980 (159)
6. 1976-1980 (snow days) (156)
   1971-1980 (dominant winds)
7. 1961-1970 (mean/max/min temperature and cloud amount) (157)
8. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1935-1949		29° 48'	91° 02'	3600.0	90° E.M.T	3(6,14,21)
1951.11-1952.3	Cai lawcourt east suburbs	29° 41'	91° 15'	3600.0	90° E.M.T	8(3,6,9,12, 14,18,21,24)
1952.4-6	Zhi Zhong Lin "Pass"	29° 41'	91° 08'	3600.0	90° E.M.T	8(3,6,9,12, 14,18,21,24)
1952.7-12	De Qing Zong of east suburb	29° 42'	91° 23'	3600.0	90° E.M.T	8(3,6,9,12, 14,18,21,24)
1953.1-1954.5	Southwest city(in city)	29° 43'	91° 02'	3658.0	90° E.M.T	8(3,6,9,12, 14,18,21,24)
1954.6-1955.12	As above	29° 43'	91° 02'	3658.0	Local mean solar time	4(1,7,13,19)
1956.1-1960.7	As above	29° 42'	91° 08'	3658.0	Local mean solar time	4(1,7,13,19)
1971-1983	North road of Lin Lang (in city)	29° 42'	91° 08'	3658.0	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)	Wind (period)
3(6,14,21)		1935-1949		
8(3,6,9,12, 14,18,21,24)	1954.1-5	1954.1-5	1954.1-5	1954.1-5
4(1,7,13,19)	1954.6-1960.7	1954.6-1960.7	1954.6-1960.7	1954.6-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Date divided time: 24-24 90°E mean time during 1951.11-1954.5
   19-19 local mean solar time (L.M.S.T) during 1954.1-1960.6
   20-20 Beijing time since 1960.8

No. 28 56294 Cheng Du

A. Main Data Sources

1. 1906-1933 (3)
2. 1932.8-1950 (72)
3. 1933-1936 (pressure, cloud amount) (15)
4. 1951-1980 (73)
5. 1951-1960 (74)
   1971-1980 (dominant winds) (157)
6. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1906-1933		30° 38'	104° 02'			
1932-1934	Campus of Si Chuan university	30° 41'	104° 15'	503.1	105° E.M.T	8(3,6,9,12,15, 18,21,24)
1935-1940	As above	30° 41'	104° 15'	503.1	105° E.M.T	8(3,6,9,12,14, 15,18,21,24)
1941-1946	Dong Sha He Bao	30° 40'	104° 04'	553.4	105°E.M.T	24(1-24)
1947-1950	As above	30° 40'	104° 04'	526.0	105° E.M.T	24(1-24)
1951.1-8	Small Tian Zhu street (out city)	30° 40'	104° 04'	491.1	105° E.M.T	24(1-24)
1951.9-1953	As above	30° 40'	104° 04'	497.9	105° E.M.T	24(1-24)
1954-1957.4	As above	30° 40'	104° 04'	497.9	Local time	4(1,7,13,19)
1957.5-1960.7	Guang Hua village west (suburb)	30° 40'	104° 04'	505.9	Local time	4(1,7,13,19)
1960.8-1970	As above	30° 40'	104° 04'	507.6	(Beijing time)	4(2,8,14,20)
1971-1981	As above	30° 40'	104° 01'	507.6	(Beijing time)	4(2,8,14,20)
1982-	As above	30° 40'	104° 01'	506.1 (507.6)	(Beijing time)	4(2,8,14,20)
1983-	As above	30° 40'	104° 01'	506.1 (507.3)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)
3(6,14,21)	1934	1932-1934	1932-1934
6(6,14,21)	1935-1940	1935-1940	1935-1941.2
24(1-24)	1941-1942	1941-1953	1941.3-1953
	1947-1953		
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 29 56571 Xi Chang

A. Main Data Sources

1. 1924-1950	(2)(3)(4)
2. 1951-1970	(75)(76)
3. 1971-1980	(13)
4. 1951-1980	(77)
5. 1951-1960	(12)
1971-1980	(156)
6. 1981-1983	(13)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1924.2-1950		27° 53'	102° 18'	1517.0	120° E.M.T	3(6,14,21)
1938-1950		27° 53'	102° 18'	1517.0	120° E.M.T	3(6,14,21)
1926-1935		27° 55'	102° 18'	------	120° E.M.T	3(6,14,21)
1939.3-1950.3		27° 53'	102° 18'	1582.8	120° E.M.T	3(6,14,21)
1951.1-3	Small temple YiDanTu airport (countryside)	27° 53'	102° 18'	1582.8	105° E.M.T	6(6,9,12, 14,18,21)
1951.4-7	As above	27° 53'	102° 18'	1582.8	105° E.M.T	24(1-24)
1951.8-12	As above	27° 53'	102° 02'	1582.8	105° E.M.T	24(1-24)
1954-1960.7	North tower temple (in city)	27° 53'	102° 02'	1590.7	Local mean solar time	4(1,7,13,19)
1960-1968.6	As above	27° 53'	102° 02'	1590.7	(Beijing time)	4(2,8,14,20)
1968.7-11	As above	27° 53'	102° 02'	1590.7	(Beijing time)	3(8,14,20)
1968.12-1978	As above	27° 53'	102° 02'	1590.7	(Beijing time)	4(2,8,14,20)
1979-1982.3	As above	27° 54'	102° 16'	1590.7 (1598.9)	(Beijing time)	4(2,8,14,20)
1982.4-1983	As above	27° 54'	102° 16'	1590.9 (1598.9)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)	Wind (period)
------	------	1938-1939.1	------	------
3(6,14,21)	1951.1-3	1939.3-1941 1942-1951	1939.3-1951.3	
6(6,9,12,14, 18,21)				1951.1-3
16(6-21)				1954.4-7
24(1-24)	1951.4-1953	1951.4-1953	1951.4-1953	1951.8-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Differences of wind direction, pressure, etc. occur around 1954 due to a change of station location.

No. 30 56739 Teng Chong

A. Main Data Sources

1.	1911-1938 (precipitation)	(3)(80)
2.	1916-1941	(2)
3.	1951-1980	(78)
4.	1981-1983	(13)
5.	1981-1936	(15)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1911-1932	------	25° 00'	98° 40'	1633.7		
1934	Customs station	25° 00'	98° 40'	1633.7		(Maximum+minimum)/2
1932.11-1933		25° 00'	98° 40'	1633.7	105° E.M.T	8(3,6,9,12,15,18,21,24)
1935-1938.10		25° 00'	98° 40'	1633.7	120° E.M.T	3(6,14,21)
1938.11-1941		25° 00'	98° 40'	1633.7		
1951-1953		25° 07'	98° 29'	1647.8	105° E.M.T	24(1-24)
1954-1960.7		25° 07'	98° 29'	1647.8	Local mean solar time	4(1,7,13,19)
1960.8-1983		25° 07'	98° 29'	1647.8	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)
------		1916-1932.10	
------		1938.11-1941	
(Maximum+minimum)/2		1934	
8(3,6,9,12,14,18,21,24)		1932.11-1933	
3(6,14,21)		1935-1938.10	
8(3,6,9,12,14,18,21,24)	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1.Old name : Tong Tye

No. 31 56778 Kun Ming

A. Main Data Sources

1. 1901-1936 (3)
2. 1928-1950 (79)
3. 1951-1980 (78)(80)
4. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1901-1936		25° 02'	102° 41'	1893.0	105° E.M.T	3(6,14,21)
1928-1936.5	Qianju street	25° 03'	102° 42'	1922.1	105° E.M.T	24(6-21, 22-5)
1936.6-1938.4	Yi-De meteorological station					
1946	Wu-Jia-Ba	25° 02'	102° 43'	1902.0	105° E.M.T	8(3,6,9,12 15,18,21,24)
1947-1951.8	Wu-Jia-Ba	25° 02'	102° 43'	1902.0	105° E.M.T	24(1-24)
1951.9-12	Wu-Jia-Ba	25° 02'	102° 43'	1961.0	105° E.M.T	24(1-24)
1952.1-8	Wu-Jia-Ba	25° 02'	102° 43'	1893.4	105° E.M.T	24(1-24)
1952.9-12	Wu-Jia-Ba	25° 02'	102° 43'	1891.0	105° E.M.T	24(1-24)
1953-1960.7		25° 01'	102° 41'	1891.4	Local mean solar time	4(1,7,13,19)
1960.8-1983		25° 01'	102° 41'	1891.4	(Beijing time)	4(2,8,14,20)

C. Number of observations used for calculating the daily mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)
(Maximum+minimum)/2	------	1921-1927	------
3(6,14,21)	1929-1938.4	1928-1938.4	1930-1936.4
3(6,15,21)	1946	1946	1946
24(1-24)	1947-1953	1947-1953	1937-1938.4 1947-1953
4(1,7,13,19)	1953-1960.7	1953-1960.7	1953-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 32 57006 Tian Shui

A. Main Data Sources

1. 1935.9-1950 (81)
2. 1951-1969 (82)
3. 1970 (temperature, wind, precipitation and sunshine) (10)(9)(7)
4. 1935.9-1940 (mean temperature, humidity, snow days) (31)
   1942-1970
5. 1971-1980 (83)
6. 1981-1983 (13)
7. 1951-1962 (cloud amount) (12)
   1963-1970 (156)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1935.9-1938.12	Duan Xi Wang	34° 36'	105° 34'	1174.0	120° E.M.T	24(1-24)
1940.4-1940.11	Jia Ya					7(6,9,12,14,
1942.1-1942.5	As above	34° 36'	105° 34'	1174.0	120° E.M.T	3(6,14,21)
1942.6-1944.5	As above	34° 36'	105° 34'	1174.0	120° E.M.T	5(6,9,12,18, 21)
1945.1-7	As above	34° 36'	105° 34'	1174.0	120° E.M.T	9(6,7,9,12, 13,14,18,
1945.8-1949.7	As above	34° 36'	105° 34'	1174.0	120° E.M.T	6(6,9,12,15, 18,21)
1949.8-1950.12	He Nan Liang Jia Ping	34° 36'	105° 34'	1202.1	120° E.M.T	6(6,9,12,15, 18,21)
1951.1-1952.5	As above	34° 36'	105° 34'	1225.0	105° E.M.T	8(3,6,9,12, 15,18,21,24)
1952.6-1953.12	Dong ErShiLI Pu Zhao Jia village	34° 29'	106° 01'	1096.1	105° E.M.T	8(3,6,9,12, 15,18,21,24)
1954.1-12	As above	34° 29'	106° 01'	1096.1	Local mean solar time	4(1,7,13,19)
1955.1-1960.7	East outside WuLiPu Jing Jia village	34° 35'	105° 45'	1131.7	Local mean solar time	4(1,7,13,19)
1960.8-1983	As above	34° 35'	105° 45'	1131.7	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)	Wind (period)
3(6,14 21)	1935.9-1950.12	1935.9-1950.12	1935.9-1950.12	1935.9-1950.12
3(3,6,9,12, 15,18,21,24)	1951-1953	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7	1954.1-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Date divided time: 22 120°E mean time during 1935-1950
   24 105°E mean time during 1951-1953.
   19 local mean solar time (L.M.S.T.) during 1954-1960.7.
   20 Beijing time since 1960.8

No. 33 57036 Xi An

A. Main Data Sources

1. 1922-1950	(84)
2. 1951-1960	(85)
3. 1961-1970	(86)
4. 1971-1980	(87)
5. 1981-1983	(13)
6. 1961-1970	(157)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1922-1925	------	34° 15'	108° 55'	395.0		------
1931.3-5	------	------	------	---		------
1931.10-1932	Meteorological station	34° 24'	108° 50'	395.0		9(6,8,10,12, 14,16,18, 20,22)
1933-1936	As above	34° 24'	108° 50'	395.0	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1937-1940	As above	34° 15'	108° 55'	395.0	120° E.M.T	24(1-24)
1941-1942.1	As above	34° 15'	108° 55'	395.0	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1942.2-1946	As above	34° 15'	108° 55'	416.0	120° E.M.T	24(1-24)
1947-1950.2	Revolutionary Park	34° 15'	108° 55'	416.0	105° E.M.T	24(1-24)
1950.3-11	Mian street of Guan Xi	34° 15'	108° 55'	405.3	105° E.M.T	24(1-24)
1950.12-1953	Western suburbs airport	34° 15'	108° 55'	400.0 402.0	105° E.M.T	24(1-24)
1954	As above	34° 15'	108° 55'	400.0 402.0	(Beijing time)	4(2,8,14,20)
1955.1-11	No.7, Liu He Yao village	34° 15'	108° 55'	413.0 410.8	Local mean solar time	4(1,7,13,19)
1955.12-1958.12	Bei Guan Da Hua Road	34° 15'	108° 55'	412.7 413.4	Local mean solar time	4(1,7,13,19)
1959-1960.7	Xiao Jia village North gate out	34° 15'	108° 55'	396.9 398.0	Local mean solar time	4(1,7,13,19)
1960.8-1962.12	As above	34° 15'	108° 55'	396.9	(Beijing time)	4(2,8,14,20)
1963.1-1983	As above	34° 18'	108° 56'	396.9	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)
------	1931-1933	1922-1925	
		1931-1933	1931-1933
6(6,9,12,15, 18,21)		1931.3-5	
9(6,8,10,12,14, 16,18,20,22)		1931.10-1932	
8(3,6,9,12,15, 18,21,24)		1933	
3(6,14,21)	1934-1950.11	1934-1936	1934-1936
24(1-24)	1950.12-1953	1950.12-1953	1950.12-1953
4(1,7,13,19)	1955-1960.7	1955-1960.7	1955-1960.7
4(2,8,14,20)	1954,1960.8-1983	1954,1960.8-1983	1954,1960.8-1983

D. Remarks:

No. 34 57083 Zheng Zhou

A. Main Data Sources

1. 1930-1935	(3)(15)
2. 1935-1950	(88)
3. 1951-1960	(89)
4. 1961-1962	(12)
1963-1967	(7)(6)(5)(10)(11)(8)(156)(90)
5. 1971-1980	(159)
6. 1981-1983	(13)
7. 1952.12-1953	(12)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1930-1935.5		34° 35'	113° 40'	107.0	120° E.M.T	
1935.6-1938.5	Wu Li Pu	34° 50'	113° 55'	107.0	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1950.5-12	Out of east city	34° 45'	113° 35'	80.6	120° E.M.T	24(6-21,22-5)
1951-1953	Eastern suburb airport	34° 45'	113° 35'	80.6	120° E.M.T	24(1-24)
1954-	As above	34° 45'	113° 35'	80.6	120° E.M.T	4(2,8,14,20)
1955-1960.6	Qiu village of eastern suburb	34° 43'	113° 39'	109.0	Local mean solar time	4(1,7,13,19)
1960.7-	As above	34° 43'	113° 39'	109.0	(Beijing time)	4(2,8,14,20)
1971-1983	As above	34° 43'	113° 39'	110.4	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)	Wind (period)
3(6,14,21)	1935.6-1937	1935.6-1937	1935.6-1937	
	1938.1-5	1938.1-5	1938.1-5	
24(1-24)	1950.5-1953	1950.5-1953	1950.5-1953	1950.5-1953
4(1,7,13,19)	1955.1-1960.6	1955.1-1960.6	1955.1-1960.6	1955.1-1960.6
4(2,8,14,20)	1954	1954	1954	1954
4(2,8,14,20)	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983

D. Remarks:

The data at 22 00 - 5 00 hours were taken from autographic records.

No. 35 57127 Han Zhong

A. Main Data Sources

1.	1935-1950	(3)(2)(4)
2.	1951-1960	(91)
3	1961-1970	(6)(7)(8)(9)(10)(11)(156)
4.	1971-1980	(159)(92)
5.	1981-1983	(13)
6.	1955-1956 (dominant winds)	(12)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1935-1		32° 56'	107° 12'	----	120° E.M.T	3(6,14,21)
1932-1950		33° 05'	107° 04'	520.0	120° E.M.T	3(6,14,21)
1951-1952.1		33° 05'	107° 10'	510.1 (511.4)	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1952.2-1953		33° 05'	107° 10'	510.1 (511.4)	105° E.M.T	24(1-24)
1954-1956.6		33° 05'	107° 10'	510.1 (511.4)	105° E.M.T	24(1-24)
1957.1-5		33° 00'	107° 16'	684.0 (684.8)	(Beijing time)	4(2,8,14,20)
1957.6-1960.7		33° 00'	107° 16'	508.3 (509.1)	Local time	4(1,7,13,19)
1960.8-1962		33° 00'	107° 16'	684.0 (509.1)	(Beijing time)	4(2,8,14,20)
1963-1979		33° 04'	107° 12'	508.3 (509.1)	(Beijing time)	4(2,8,14,20)
1980-1983		33° 04'	107° 12'	508.4 (509.1)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)
3(6,14,21)		1935-1950	1935.6-1945 1948.10-1949.8
8(3,6,9,12, 14,18,21,24)	1951-1952.1	1951-1952.1	1951.1
24(1-24)	1952.2-1953	1952.2-1953	1951.2-1954
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1957.1-5	1957.1-5	1957.1-5
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Date divided time: 24 105°E mean time during 1951-1953
19 local time during 1954-1960.7
20 Beijing time since 1960.8

No. 36 57461 Yi Chang

A. Main Data Sources

1. 1882.7-1950 (93)
2. 1928-1936 (pressure, humidity, winds, cloud amount) (15)
3. 1951-1980 (94)
4. 1981-1983 (13)
5. 1951-1953 (12)

B. Location of Station, Time Standard and Times of Observations

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1882.7-1885 1886-1938.4 1947-1951	Customs station Hydrologic station	30° 42'	111° 16'			
1951.8-1952	The mountian rauge of peach beosson	30° 42'	111° 05'	70.2 (71.0)	120° E.M.T	16(6-21)
1953	As above	30° 42'	111° 05'	70.2 (71.0)	120° E.M.T	24(1-24)
1954.1-6	As above	30° 42'	111° 05'	70.2 (71.0)	Local mean solar time	4(1,7,13,19)
1954.7-1956.9	ZhaoJun temple of Dong Shan Park (suburb)	30° 42'	111° 05'	133.4 (134.0)	Local mean solar time	4(1,7,13,19)
1956.10-1960.7	DongHu country Tai Ping garden	30° 42'	111° 05'	69.7 (70.0)	Local mean solar time	4(1,7,13,19)
1960.8-1969	As above	30° 42'	111° 05'	69.7 (70.0)	(Beijing time)	4(2,8,14,20)
1970-1974	As above	30° 42'	111° 05'	131.1	(Beijing time)	4(2,8,14,20)
1975-1980.9	As above	30° 42'	111° 05'	130.4 (131.0)	(Beijing time)	4(2,8,14,20)
1980.10-1981.9	As above	30° 42'	111° 05'	133.1 (134.3)	(Beijing time)	4(2,8,14,20)
1981.10-1983	As above	30° 42'	111° 18'	133.1 (134.3)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (period)	Temperature (period)	Relative humidity (period)	Wind (period)
(Maximum+minimum)/2		1924-1933		
3(6,14,21)		1934-1938		
24(1-24)	1951.8-1953	1951.8-1953	1951.8-1953	1951.8-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Date divided time: Not clear before 1951
21 120°E mean time during 1951-1952
24 120°E mean time during 1953
19 local mean solar time (L.M.S.T.) during 1954-1960.7
20 Beijing time since 1960.8

No. 37 57494 Wu Han

A. Main Data Sources

1. 1880-1950 (95)
2. 1951-1980 (96)
3. 1981-1983 (13)
4. 1930-1936 (cloud amount) (15)
   1937-1943 (cloud amount) (62)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1880.3-1914.8	Old address of custmes Along the river broad way MinGu road crossing	30° 35'	114° 18'			
1914.9-1924.7	Old address of first wharf along the river broad way	30° 35'	114° 18'			
1924.8-1938.4	Wu Han juncture along the river broad way	30° 35'	114° 18'			
1905.2-1940	Japan station	30° 35'	114° 17'		120° E.M.T	3(6,14,22)
1937-1938.4	No.11 Shi Hui Yan Wu Chang	30° 32'	114° 17'	29.3	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1947.1-2	As above	30° 32'	114° 17'	29.3	120° E.M.T	6(6,9,12,14, 18,21,24)
1947.3-1948.3	As above	30° 32'	114° 17'	29.3	120° E.M.T	16(6-21)
1948.4-1949	As above	30° 32'	114° 17'	29.3	120° E.M.T	24(1-24)
1950.1-8	WangJiaTun airport HanKou	30° 35'	114° 17'	23.6	120 °E.M.T	24(1-24)
1950.9-1951	As above	30° 35'	114° 17'	23.6	120° E.M.T	24(1-24)
1952-1953.9	No.231 Qu Jia Tiao Han Kou	30° 38'	114° 17'	23.2	120° E.M.T	24(1-24)
1953.10-12	As above	30° 38'	114° 17'	23.2	120° E.M.T	24(1-24)
1954-1959	As above	30° 38'	114° 17'	23.0	Local mean solar time	4(1,7,13,19)
1960.1-7	Wu Jia mountian of west-east lake Han Kou	30° 38'	114° 04'	22.8	Local mean solar time	4(1,7,13,19)
1960.8-1969.1	As above	30° 38'	114° 04'	22.8	(Beijing time)	4(2,8,14,20)
1969.11-1981.	WuJia Bend Wu Chang	30° 38'	114° 04'	22.8	(Beijing time)	4(2,8,14,20)
1982.4-1983	Wu Jia mountian Han Kou	30° 37'	114° 08'	23.3	(Beijing time)	4(2,8,14,20)

No. 37 57494 Wu Han (cont.)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,22)	1950.2-12	1950.2-12	1905.2-12	
	1906.7-1927.3	1906.7-1927.3	1906.7-1927.3	
	1927.5-1936	1927.5-1936	1927.5-1936	
	1939-1940	1939-1940	1939-1940	
8(3,6,9,12,15, 18,21,24)		1937-1938.4	1937-1938.4	
		1947.1-2		
3(6,14,21)	1947.1-2			
6(6,9,12,14, 18,21)				1947.1-1947.2
16(6-21)				1947.3-1948.3
24(1-24)	1947.3-1948.3	1947.3-1948.3	1947.3-1948.3	1905-1940
	1948.4-1949	1948.4-1949	1948.4-1949	1948.4-1949
	1950-1953	1950-1953	1950-1953	1950-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Date divided time: Not clear during 1880-1886.1
21 clock during 1886.2-1887.3,6
9 clock during 1887.4-1887.5,7-1935.6
6 clock during 1935.7-1938.4
21 clock during 1947-1949
24 clock during 1950-1953
19 clock during 1954-1960.7
20 clock since 1960.6

2. The precipitation data was taken form customs station during 1880-1949.

No. 38 57516 ChongQing ShaPingBa

A. Main Data Sources

1.	1891-1950	(97)
2.	1928-1936	(15)
3.	1951-1980	(98)
4.	1981-1983	(13)
5.	1951-1960 (dominant winds)	(99)
6.	1961-1980 (dominant winds)	(156)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1891-1923,1939	------	----	-----	----	------	------
1924-1933		29° 33'	106° 33'	217.1	105° E.M.T	4(6,9,15,21)
1934-1936		29° 33'	106° 33'	217.1	105° E.M.T	3(6,14,21)
1937-1938		29° 33'	106° 33'	217.1	120° E.M.T	3(6,14,21)
1940-1943.2	Chong Qing university (suburb)	29° 33'	106° 33'	269.3	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1943.3-12	As above	29° 33'	106° 33'	288.5	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1944-1947.6	Li Jia Park (suburb)	29° 33'	106° 33'	291.7	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1947.7-1950	As above	29° 33'	106° 33'	291.7	105° E.M.T	24(6-21, 22-5)
1951-1953	No.147 LiJia Park suburbs	29° 35'	106° 28'	260.6	105° E.M.T	8(3,6,9,12, 14,18,21,24)
1954-1960.7	As above	29° 35'	106° 28'	260.6	Local mean solar time	4(1,7,13,19)
1960.8-1961.6	As above	29° 35'	106° 28'	260.6	(Beijing time)	4(2,8,14,20)
1961.7-1983	As above	29° 35'	106° 28'	259.1	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
(Maximum+minimum)/2	------	1924-1928	------
3(6,14,21)	1934-1938	1934-1938	1934-1938
	1940-1947	1940-1947	1940-1947
3(6,15,21)	------	1929-1933	------
4(6,9,15,21)			1929-1933
24(1-24)	1948-1950	1948-1950	1948-1950
8(3,6,9,12,14, 18,21,24)	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 39 57679 Chang Sha

A. Main Data Sources

1. 1909-1950	(100)(3)
2. 1932-1950	(101)
3. 1951-1980	(102)
4. 1981-1983	(13)
5. 1928-1936	(15)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1909-1938	Meteorological station cusmos	28° 12'	112° 47'	60.0		
1932.8-1938.7	TianXin Park	28° 13'	112° 46'	90.0	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1938.8-1948.1	Dong Tang of Southern mouth out	28° 13'	112° 46'	60.0	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1948.2-12	The grave of a revolutionnary martyr Xiang Qing road	28° 13'	112° 46'	55.0	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1949-1950.7	Army road side	28° 15'	112° 50'	60.0	120° E.M.T	8(3,6,9,15, 18,21,24)
1950.8-1951	No.94 Army road side	28° 15'	112° 50'	60.0	120° E.M.T	24(1-24)
1952.1	As above	28° 15'	112° 50'	60.0	(Beijing time)	24(1-24)
1952.2	As above	28° 15'	112° 50'	60.0	(Beijing time)	24(1-24)
1952.3-5	As above	28° 15'	112° 50'	60.0	(Beijing time)	24(1-24)
1952.6-1953	As above	28° 15'	112° 50'	60.0	(Beijing time)	24(1-24)
1954.1	Yang Jia mountian range of Xiao Guan gate out	28° 15'	112° 50'	48.0	Local time	4(1,7,13,19)
1954.2-1955.9	As above	28° 15'	112° 50'	48.6	Local time	4(1,7,13,19)
1955.10-1956.1	As above	28° 15'	112° 50'	48.0	Local time	4(1,7,13,19)
1956.11-1960.7	NiuJiaoTang of rainflower parvilicen south gate out	28° 15'	112° 50'	81.3	Local time	4(1,7,13,19)
1960.8-1963	As above	28° 15'	112° 50'	81.3	(Beijing time)	4(2,8,14,20)
1964-1983	FuYuan Zi of east county mountian range agricultural field	28° 12'	113° 05'	44.9	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Maximum+minimum)/2	------	1924-1928	------	------
8(3,6,9,12,15, 18,21,24)	1932.8-1950.7	1920-1933	1932.8-1938.7 1946.4-1949.3 1946.10-1950.7	
3(6,14,21)		1933-1950		
24(1-24)	1950.8-1953	1951-1953	1950.8-1953	1950.8-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

No. 39 57679 Chang Shu (cont.)

D. Remarks:

1. Before 1948.2, pressure was always corrected to 60 meters elevation.

2. During 1951-1983, pressure was reduced by 3.5 mb to adjust for the lower station elevation.

No. 40 57745 Zhi Jiang

A. Main Data Sources

1. 1938-1949 (3)(2)(4)
2. 1951-1980 (103)
3. 1981-1983 (13)(104)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1938.6-1948.3	GuJia garden of west gate out	27° 28'	109° 54'	251.9	120° E.M.T	3(6,14,21)
1948.4-1949.3	HouShaLong of river west	27° 27'	109° 38'	------	120° E.M.T	3(6,14,21)
1949.4-1950.12	ZhongSha Park	27° 27'	109° 38'	---	120° E.M.T	3(6,14,21)
1951-1953	North of airport East gate out	27° 27'	109° 38'	266.5	120° E.M.T	8(3,6,9,12,14,18,21,24)
1954-1955.10	North of airport East gate out	27° 27'	109° 38'	266.5	Local time	4(1,7,13,19)
1955.11-1960	As above	27° 27'	109° 38'	266.5	Local time	4(1,7,13,19)
1961-1971	North of airport East gate out	27° 27'	109° 38'	266.5	(Beijing time)	4(2,8,14,20)
1972-1973.11	Long Jing Po of North gate out(hill top)	27° 27'	109° 38'	271.9	(Beijing time)	4(2,8,14,20)
1973.12-1976	As above	27° 27'	109° 38'	272.2	(Beijing time)	4(2,8,14,20)
1977-1983	As above	27° 27'	109° 41'	271.9	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean Times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
3(6,14,21)	------	1938-1949	1938.6-1949.4 1950.6-1950.12
24(1-24)	1951-1953	1951-1953	1951-1953
4(4,7,13,19)	1954-1960	1954-1960	1954-1960
4(2,8,14,20)	1961-1983	1961-1983	1961-1983

D. Remarks:

No. 41 57816 Gui Yang

A. Main Data Sources

1. 1920-1950	(105)
2. 1951-1960	(12)
3. 1961-1970	(106)
4. 1971-1980	(107)
5. 1981-1983	(13)
6. 1961-1970	(157)
7. 1933-1936	(15)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1920-1935		26° 18'	106 '40'	1075.0	------	------
1935.11	Cheng Lang three pieces of farmland (suburb)	26° 35'	106° 40'	1075.0	120° E.M.T	6(6,9,12,14, 10,21)
1935.12-1936	As above	26° 35'	106° 43'	1075.0	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1937-1938	Mulberry field LiuGuang gate out (suburb)	26° 35'	106° 43'	1075.0	120° E.M.T	24(1-24)
1939-1946.6	As above	26° 35'	106° 43'	1057.4	105° E.M.T	24(1-24)
1946.7-1953.8	No:117 Xin-Hua road (in city)	26° 35'	106° 43'	1057.4	105° E.M.T	24(1-24)
1953.9-12	As above	26° 34'	106° 42'	1071.0	105° E.M.T	24(1-24)
1954-1960.7	No:56 CuiWui alley (in city)	26° 34'	106° 42'	1071.2	Local time	4(1,7,13,19)
1960.8-1965.3	As above	26° 34'	106° 42'	1071.2	(Beijing time)	4(2,8,14,20)
1965.4-1983	As above	26° 35'	106° 43'	1071.2	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
		1920-1935	
3(6,14,21)	1935.11-12	1936,1938.5-1940	1935.11-1936
			1938.5-1940
			1944.2-1945.4
8(3,6,9,12,14, 18,21,24)	1936		
24(1-24)	1937-1953	1937-1938.4	1937-1938.4
		1941-1953	1941-1944.1
			1945.5-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 42 58027 Xu Zhou

A. Main Data Sources

1. 1915-1950	(3)(108)
2. 1929-1936	(15)
3. 1951-1959	(109)
4. 1960-1980	(110)
5. 1981-1983	(13)
6. 1926-1973	(111)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1915-1926.5	------	34° 18'	117° 16'	----	------	------
1926-1933.5	Experimental wheat crop countryside	34° 17'	117° 10'	43.3	------	6(6,7,11,14,
1934.5	------	-----	------	----	------	17,21)
1933.6-12	As above	34° 17'	117° 10'	43.3	------	4(7,11,14,17)
1934.1-12	As above	34° 17'	117° 10'	43.3	120° E.M.T	6(6,7,11,14, 17,19)
1934.4-12	As above	34° 17'	117° 10'	43.3	120° E.M.T	3(6,14,21)
1935-1937	As above	34° 17'	117° 10'	43.3	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1939-1943		34° 17'	117° 14'	38.0		
1949	Agricural field of flower garden Bei Guan Wai (Suburb)	34° 15'	117° 15'	44.4	120° E.M.T	
1950-1952	As above	34° 15'	117° 15'	44.4	120° E.M.T	8(3,6,9,12,14 18,21,24)
1953	Dong He village East (Suburb)	34° 19'	117° 22'	34.3	120° E.M.T	
1954-1959	As above	34° 19'	117° 22'	34.3	Local mean solar time	4(1,7,13,19)
1960.1-7		34° 17'	117° 18'	43.0	Local mean solar time	4(1,7,13,19)
1960.8-1979		34° 17'	117° 18'	43.0	(Beijing time)	4(2,8,14,20)
1980-1981.4		34° 17'	117° 10'	41.0 (41.7)	(Beijing time)	4(2,8,14,20)
1981-1983		34° 17'	117° 09'	43.0 (41.9)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
(Maximum+minimum)/2		1926-1928	
5(6,7,11,14,17)		1929-1933	
3(6,14,21)	1951-1953	1934-1937.9	1934-1937
		1949.4-12	1951-1952
8(3,6,9,12,14, 18,21,24)	1935-1937	1950-1953	1950-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983
	1926-1934	1939-1943	1926-1933,1949

D. Remarks:

1. Old name: Tong Shan "

No. 43 58144 Qing-Jiang (Wei-Yin)

A. Main Data Sources

1.	1913-1950 (precipitation)	(3)
2.	1928-1937 (temperature)	(111)
3.	1950 (humidity)	(4)
4.	1932-1950	(5)
5.	1951-1980	(112)
6.	1981-1983	(13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1913-1950		33° 35'	119° 05'			
1928-1931.11		33° 39'	119° 07'	19.1		
1931.12-1935	Meteorological station of agricultural college (Northern street gate)	33° 05'	119° 02'	14.0	120° E.M.T	4(6,10,14,18)
1935	As above	33° 05'	119° 02'	14.0	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1936	As above	33° 39'	119° 07'	18.3	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1937.1-10	As above	33° 39'	119° 07'	18.3	120° E.M.T	3(6,14,21) 15,18,21,24)
1950.5-6	yellow river bank of Nor- countryside	33° 36'	118° 58'	20.0	120° E.M.T	4(2,8,14,20)
1950.7-12	As above	33° 36'	118° 58'	20.0	120° E.M.T	8(3,6,,9,12, 15,18,21,24)
1951-1953	As above	33° 35'	1190 02'	18.3 (19.5)	(Beijing time)	6(6,9,12,14, 18,21)
1954-1956.8	As above	33° 36'	118° 58'	20.0 (21.5)	(Beijing time)	16(6-21)
1956.9-1959.10	North DaWang village (countryside)	33° 36'	119° 01'	14.4 (15.7)	Local time	4(1,7,13,19)
1959.11-1967	North suburb commume countryside	33° 36'	119° 02'	15.5 (17.0)	(Beijing time)	4(2,8,14,20)
1968.1-4	As above	33° 36'	119° 02'	15.5 (17.0)	(Beijing time)	4(2,8,14,20)
1968.5-1980	As above	33° 36'	119° 02'	15.5 (17.0)	(Beijing time)	4(2,8,14,20)
1981-1983	As above	33° 36'	119° 02'	15.5 (18.7)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
4(6,10,14,18)	------	1931.12-1935	------
8(3,6,9,12,15, 18,21,24)	1950.7-1952	1935-1936	1950.7-12
		1950.7-1952	1951-1952
3(6,14,21)		1937.1-10	
24(1-24)	1953	1953	1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1950.5-6 1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. This station actually moved just three times, in 1931.12, 1950.5, and 1956.9. Although there were no station moves during 1954.1-1956.8, a change of measurement technique resulted in new assignments of longitude, latitude and elevation.

No. 44 58238 Nan Jing

A. Main Data Sources

1.	1905-1950	(113)
	1905-1970	(114)
	1963-1972	(111)
2.	1971-1980	(115)
3.	1971-1980	(159)
4.	1908-1928	(5)
5.	1981-1983	(13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1905-1919	Japanconsate in city	32° 05'	118° 49'	28.9		3(6,14,22)
1922	The sportryround of Nanjing unicersity (in city)	32° 03'	118° 47'	12.6		(Maximum+minimum)/2
1924-1926	As above	32° 03'	118° 47'	12.6		2(9,12)
1927	Jin Ling university TianJing road in city	32° 02'	118° 49'	25.0		(Maximum+minimum)/2
1928.1-5	No.56 opposite the Cheng Xian Jie university	32° 02'	118° 47'	10.5		24(1-24)
1928.6-9	As above	32° 02'	118° 47'	10.5		24(1-24)
1928.10-1937.11	No.2 Bei Ji Ge(mountion top)	32° 03'	118° 47'	61.5	120° E.M.T	24(1-24)
1940.8	Zhan Guo Lu (in city)	32° 01'	118° 47'	10.0		4(9,12,14,18)
1940.9-1941.7	As above	32° 01'	118° 47'	10.0		8(3,6,9,12, 14,18,21,24)
1941.8-1943.10	As above	32° 01'	118° 47'	10.0		24(1-24)
1946.1-6	Bei Ji Ge (mountion top)	32° 03'	118° 47'	61.5		8(3,6,9,12, 14,18,21,24)
1946.7-1948	As above	32° 03'	118° 47'	61.5		3(6,14,21)
1949-1950.6	No.148 ZhongShanBei road in city ShanXi road	32° 03'	118° 47'	9.8		24(1-24)
1949.10-1950.12	Bei Ji Ge (mountion top)	32° 03'	118° 47'	61.5		8(6,8,9,12,14 18,20,21)
1951-1953	As above	32° 03'	118° 47'	61.5		24(1-24) 18,20,21)
1954-1957	As above	32° 03'	118° 47'	61.5	Local time	4(1,7,13,19) 18,20,21)
1956-1960.7	Small teach-ground(country side)	32° 03'	118° 47'	8.9	Local time	4(1,7,13,19)
1960.8-1983	As above	32° 03'	118° 47'	8.9	(Beijing time)	4(2,8,14,20)

No. 44 58238 Nan Jing (cont.)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)	Cloud (Period)
3(6,14,22)		1905,1907-1919			
(Maximum+minimum)/2		1921-1922			
(9+21)/2		1927			
		1924-1926,1928			
24(1-24)		1928-1940.8			
	1929-1937	1929-1937	1929-1937	1929-1937	
	1949-1953	1949-1953	1949-1953	1948-1953	1948-1953
3(6,14,21)	1946-1948	1946-1948	1946-1948		
16(------)				1946-1947	1946-1947
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 45 58367 Shanghai

A. Main Data Sources

1. 1873-1950 (116)(117)
   1873-1970
2. 1951-1980 (118)
3. 1933-1936,11 (15)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1873-1900	Xu Jia Hui	31° 12'	121° 26'	7.0	120° E.M.T	24(1-24)
1901-1955	Xu Jia Hui	31° 12'	121° 26'	4.6	120° E.M.T	24(1-24)
1956-1983	No.7 Longcao road(observational field-countryside)	31° 10'	121° 26'	4.5	120° E.M.T	24(1-24)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)	Cloud (Period)
(Maximum+minimum)/2		1873-1874			
3(7,12,21)	1873.1-1874.8		1873-1874.8	1873.1-1874.8	1873.1-1874.8
7(4,7,10,13, 16,19,22)	1874.9-1875.1		1874.9-1875.1 1882.12-1883.11 1884.1-2	1874.9-1875.1	1874.9-1875.1
8(1,4,7,10, 13,16,19,22)	1875.2-1878.12	1877.5-1887	1875.2-1878.12	1875.2-1878.12	1875.2-1878.12
24(1-24)	1879.1-1950	1879.1-1950	1884.3-1950	1879.1-1950	1879.1-1950
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1951-1953 1960.8-1983	1951-1953 1960.8-1983	1951-1953 1960.8-1983	1951-1953 1960.8-1983	1951-1953 1960.8-1983

D. Remarks:

1. Date divided time: 24 120°E mean time before 1951
   20 120°E mean time after 1951

No. 46 58424 An Qing

A. Main Data Sources

1. 1931-1942 (2)(3)(15)
2. 1950.4-1980 (119)
3. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(FH)	Time zone system	Times of observations
1931-1938	------	30° 37'	117° 04'	---	------	------
1950.4-1953	No.3 finance street (in city)	30° 37'	117° 02'	26.3 (31.0)	(Beijing time)	24(1-24)
1954-1956	In garden of military su-bares (in city)	30° 32'	117° 02'	38.4 (39.5)	Local mean solar time	4(1,7,13,19)
1957-1959.11	Half and two Li North gate out countryside	30° 31'	117° 02'	40.9 (42.7)	Local mean solar time	4(1,7,13,19)
1959.12	As above	30° 31'	117° 02'	42.2 (40.7)	Local mean solar time	4(1,7,13,19)
1960-1961.1	As above	30° 31'	117° 02'	42.2 (40.7)	(Beijing time)	4(2,8,18,20)
1961.2-1964.9	As above	30° 31'	117° 02'	42.2 (43.6)	(Beijing time)	4(2,8,18,20)
1964.10-1976.12	As above	30° 31'	117° 02'	44.0 (45.4)	(Beijing time)	4(2,8,18,20)
1977.1-1983	Wang Jia Zhi house DaQing road (North suburb)	30° 32'	117° 03'	19.8 (19.6)	(Beijing time)	4(2,8,18,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
24(1-24)	1950.4-1953	1950.4-1953	1950.4-1953	1950.4-1953
4(1,7,13,19)	1954-1959	1954-1959	1954-1959	1954-1959
4(2,8,14,20)	1960-1983	1960-1983	1960-1983	1960-1983

D. Remarks:

1. The variation of height in 1964.10 was due to the variation of starting point of the height above sea level (from Wu Song mouth-Huang Hai).

2. The difference of pressure height for 1961.2-1964.9 and 1964.10-1976.12 periods had been corrected.

3.Olc name: " Huai Ning ".

No. 47 58457 Hang Zhou

A. Main Data Sources

1. 1904-1950 (120)
2. 1951-1970 (121)
3. 1971-1980 (122)
4. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1904-1918		30° 11'	120° 12'	10.0	120° E.M.T	3(6,14,22)
1919-1932		30° 16'	120° 10'	10.0	120° E.M.T	------
1933	General road (in city)	30° 16'	120° 10'	10.0	120° E.M.T	6(6,9,12,15,18,21)
1934.1-9	As above	30° 16'	120° 10'	10.0	120° E.M.T	7(6,9,12,14,15,18,21)
1934.10-1937	As above	30° 16'	120° 10'	10.0	120° E.M.T	24(1-24)
1942	No.14 Liang Dao Shan	30° 18'	120° 02'	----	120° E.M.T	4(6,9,14,21)
1945-1947		30° 18'	120° 02'	----	120° E.M.T	
1950.1	Jian Qiao airport	30° 20'	120° 14'	7.7	120° E.M.T	16(6-21)
1950.2-1952	As above	30° 20'	120° 14'	7.7 (8.5)	(Beijing time)	24(1-24)
1953.1-4	Xin Min alley, He Fang street (in city)	30° 15'	120° 10'	11.0 (13.4)	(Beijing time)	24(1-24)
1953.5	As above	30° 15'	120° 10'	11.6 (13.4)	(Beijing time)	24(1-24)
1953.6-12	As above	30° 15'	120° 10'	11.6 (19.9)	(Beijing time)	24(1-24)
1954	As above	30° 15'	120° 10'	11.6 (19.9)	Local time	4(1,7,13,19)
1955.1-6	GongZhen Bridge suburb	30° 20'	120° 10'	5.3 (7.6)	Local time	4(1,7,13,19)
1955.7-1958	As above	30° 20'	120° 10'	5.3 (6.0)	Local time	4(1,7,13,19)
1959-1960.7	Pond temple GenShan gate out (countryside)	30° 19'	120° 12'	7.2 (8.0)	Local time	4(1,7,13,19)
1960.8-1970	As above	30° 19'	120° 12'	7.2 (8.0)	(Beijing time)	4(2,8,14,20)
1970-1983	FengShan gate steamed bun hill top	30° 14'	120° 10'	41.7 ----	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
------	1933	1919-1933,1942 1945-1947	1933,1942 1945-1947	
3(6,14,22)	1904-1918	1904-1918	1904-1918	
3(6,14,21)	1934-1937,1950	1934-1937,1950	1934-1937,1950	
24(1-24)	1950.2-1953	1950.2-1953	1950.2-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 48 58606 Nan Chang

A. Main Data Sources

1. 1929-1950	(123)
2. 1951-1962	(124)
3. 1963-1970	(6)(7)(8)(9)(10)(11)
4. 1951-1980	(125)
5. 1971-1980	(159)
6. 1981-1983	(13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1929-1935		23° 42'	115° 51'			3(9,12,15)
1936	YuZhang park	28° 41'	115° 54'		Local time	2(Maximum+minimum)
1937	As above	28° 41'	115° 54'		local time	
1938.2-6	As above	28° 41'	115° 54'		120° E.M.T	8(3,6,9,12,14,18,21,24)
1938.7	As above	28° 41'	115° 54'		120° E.M.T	3(6,14,21)
1938.8-9	As above	28° 41'	115° 54'		120° E.M.T	6(6,9,12,14,18,21)
1946-1948.6		-----	------		------	
1948.10-1949.2	Jin Wai Monumental	28° 34'	------	26.0	------	16(5-21)
1950.6-1952	San Jia Dian (suburb)	28° 40'	115° 58'	26.4	------	24(1-24)
1953	As above	28° 40'	115° 58'	27.8	------	24(1-24)
1954-1960.6	Deng ports	28° 40'	115° 58'	46.7	Local mean solar time	4(1,7,13,19)
1960.7-1977	As above	28° 40'	115° 58'	46.7	(Beijing time)	4(2,8,18,20)
1978-1983	As above	28° 36'	115° 55'	46.7	(Beijing time)	4(2,8,18,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Maximum+minimum)/2		1936		
3(6,14,21)		1937-1938.9	1936.7-1938.9	
		1948.10-1949.2	1948.10-1949.2	
3(9,12,15)		1929-1935		
24(1-24)	1950.6-1953	1950.6-1953	1950.1-1953	1951-1953
4(1,7,13,19)	1954-1960.6	1954-1960.6	1954-1960.6	1954-1960.6
4(2,8,14,20)	1960.7-1983	1960.7-1983	1960.7-1983	1960.7-1983

D. Remarks:

No. 49 58633 Qu Zhou

A. Main Data Sources

1. 1951-1970 (127)
2. 1971-1980 (128)(159)
3. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1951.1-2	Qu Zhou	28° 58'	118° 53'	68.6 (72.8)	(Beijing time)	24(1-24)
1951.2-1952.1	Qu Zhou Fu hill	28° 58'	118° 53'	80.3 (80.8)	(Beijing time)	24(1-24)
1952.2-1953	As above	28° 58'	118° 53'	80.0 (80.8)	(Beijing time)	24(1-24)
1954	East city (suburb)	28° 58'	118° 53'	80.0 (----)	Local time	4(1,7,13,19)
1955.1-9	As above	28° 58'	118° 53'	62.0 (63.0)	Local time	4(1,7,13,19)
1955.10-1960.7	Northern gate out (suburb)	28° 58'	118° 52'	66.1 (67.1)	Local time	4(1,7,13,19)
1960.8-1974.2	As above	28° 58'	118° 52'	66.1 (67.1)	(Beijing time)	4(2,8,18,20)
1974.3-1975.6	As above	28° 58'	118° 52'	66.1 (71.0)	(Beijing time)	4(2,8,18,20)
1975.7-1976	As above	28° 58'	118° 52'	66.7 (71.0)	(Beijing time)	4(2,8,18,20)
1977-1983	As above	28° 58'	118° 52'	66.9 (71.0)	(Beijing time)	4(2,8,18,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
24(1-24)		1951-1953	1951-1953	1951-1953
8(3,6,9,12, 15,18,21,24)	1955.1-1955.9	1954-1955.9	1954-1955.9	1954-1955.9
4(1,7,13,19)	1955.10-1960.7	1955.10-1960.7	1955.10-1960.7	1955.10-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 50 58659 Wen Zhou

A. Main Data Sources

1. 1883-1950 (129)
2. 1951-1970 (130)
3. 1971-1980 (159)(131)
4. 1981-1983 (13)
5. 1951-1954 (12)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1883-1923		28° 01'	120° 38'	4.3	120° E.M.T	------
1924-1925.10	Meteorological station of custmos	28° 01'	120° 38'	4.3	------	2(9,15)
1925.11-1927.7					120° E.M.T	
1929.9	As above	28° 01'	120° 38'	4.3	120° E.M.T	3(9,12,15)
1927.8-1929.8	As above	28° 01'	120° 38'	4.3	120° E.M.T	3(9,12,14)
1929.11-1932.12						
1929.10	As above	28° 01'	120° 38'	4.3	120° E.M.T	4(9,12,14,16)
1933	As above	28° 01'	120° 38'	4.3	120° E.M.T	8(3,6,9,12,
1934-1938.10	As above	28° 01'	120° 38'	4.3	120° E.M.T	3(6,14,21)
1938.11-1941					120° E.M.T	------
1950.1	No.13 kan Er alley	28° 01'	120° 40'	4.0	120° E.M.T	8(3,6,9,12,15,18,21,24)
1950.2-3	As above	28° 01'	120° 40'	4.0	120° E.M.T	16(----)
1950.4-12	As above	28° 01'	120° 40'	7.9	120° E.M.T	24(1-24)
1951-1952.9	Jiao Xiang alley in city	28° 01'	120° 40'	7.9	(Beijing	24(1-24)
1952.10-1953.1	YongDong road KanErDi east gate out	28° 01'	120° 40'	4.0	(Beijing time)	24(1-24)
1954-1960.6	As above	28° 01'	120° 40'	10.0	Local time	4(1,7,13,19
1960.7	NanTang town Shuang Jing Tou (countryside)	28° 01'	120° 40'	7.0	Local time	4(1,7,13,19)
1960.8	As above	28° 01'	120° 40'	7.0	(Beijing time)	4(2,8,18,20)
1960.9	As above	28° 01'	120° 40'	10.0	(Beijing time)	4(2,8,18,20)
1960.10-1978	As above	28° 01'	120° 40'	6.9	(Beijing time)	4(2,8,18,20)
1979-1983	As above	28° 01'	120° 40'	7.1	(Beijing time)	4(2,8,18,20)

No. 50 58659 Wen Zhou (cont.)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)	Cloud (Period)
(Maximum+minimum)/2		1924-1932			
3(6,14,21)	1934-1938	1934-1938	1934-1938	1934-1938	1934-1938
6(6,9,12,14,18,21,)					
8(3,6,9,12,15,18,21,24)			1933		
8(3,6,9,12,15,18,21,24)	1950.1	1950.1	1950.1		
16(6-21)					1950.2-3
24(1-24)	1950.2-1953	1950.2-1953 1938.11-1941	1950.2-1953	1950.4-1953 1933	1950.4-1953 1933
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	------
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983	------
3(8,14,20)				1968.9.10	------

D. Remarks:

1. Old name: ' Yong Jia ".

No. 51 58847 Fu Zhou

A. Main Data Sources

1. 1880-1944	(132)
2. 1945-1950	(133)
3. 1951-1980	(134)
4. 1981-1983	(13)
5. 1905-1923 1946-1947	(2)(3)
6. 1928-1938	(15)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1880-1904	Customs station	----	-----	---	------	------
1905-1923	As above	26° 00'	119° 20'	---	120° E.M.T	2(9,15)
1924-1931.3	As above	25° 59'	119° 27'	19.8	120° E.M.T	4(3,9,15,21)
1931.4-1932.8	As above	25° 59'	119° 27'	19.8	120° E.M.T	5(3,6,9,15,21,)
1932.9-1933	As above	25° 59'	119° 27'	19.8	120° E.M.T	8(3,6,9,12,14,18,21,24)
1934-1935		25° 59'	119° 27'	19.8	120° E.M.T	3(6,14,21)
1936 1938.6-12	Jie Fan road	26° 05'	119° 08'	---	120° E.M.T	8(3,6,9,12,14,18,21,24)
1937-1938.5	As above	26° 05'	119° 08'	---	120° E.M.T	24(1-24)
1939-1940.6	As above	26° 05'	119° 08'	19.8	120° E.M.T	3(6,14,21)
1940.7-1944	As above	26° 05'	119° 08'	19.8	120° E.M.T	
1946.1-3	Wang Jia ancestral temple Wu Shi hill	26° 05'	119° 17'	68.9	120° E.M.T	16(6-21)
1946.4-7	As above	26° 05'	119° 17'	68.9	120° E.M.T	16(6-21)
1946.8-1948.4	As above	26° 05'	119° 17'	68.9	120° E.M.T	16(6-21)
1948.5-1950.6	As above	26° 05'	119° 17'	88.9	120° E.M.T	16(6-21)
1950.7-1953	As above	26° 05'	119° 17'	88.9	120° E.M.T	16(6-21)
1944.1-1960.7	As above	26° 05'	119° 17'	84.0	Local time	4(1,7,13,19)
1960.8-1964.6	As above	26° 05'	119° 17'	84.0	(Beijing time)	4(2,8,14,20)
1964.7-1979.10	As above	26° 05'	119° 17'	84.0	(Beijing time)	4(2,8,14,20)
1979.11-1983	As above	26° 05'	119° 17'	83.8	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)	Cloud (Period)
(9+15)/2		1905-1923			
1(9)			1924-1932.8		
(Maixmum+mini mum)/2		1924-1932.8			
3(6,14,21)	1935,1938-1941 1946.4-7	1934-1935 1941.12 1938.6-1940	1934-1935 1938-1941		
16(6-21)	1946.1-3 1946.8-1950.6	1946.1-3 1946.8-1950.6 1946.8-7	1946-1947	1946.1-3 1946.8-1950.6 1946.4-7	1946.1-3 1946.8-1950.6 1946.4-7
8(3,6,9,12,14,18,21,24)	1936	1932.9-1933 1936	1932.9-1933 1936		
24(1-24)	1937 1950.7-1953	1937-1938.5 1941.1-3 1950.7-1953	1937, 1942-1944 1950.7-1953	1950.7-1953	1950.7-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 52 58921 Yong An

A. Main Data Sources

1. 1938-1950	(135)
2. 1951-1980	(136)
3. 1981-1983	(13)
4. 1951-1954	(12)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1938-1939.5		25° 58'	117° 21'		120° E.M.T	16(6-21)
1939.6-1940.1	Mao Ping village	25° 58'	117° 21'		120° E.M.T	16(6-21)
1940.2-9	South side of YiHe mountian	25° 58'	117° 21'	184.1 (184.1)	120° E.M.T	16(6-21)
1940.10-1948	YiHe mountian	25° 58'	117° 21'	210.0	120° E.M.T	16(6-21)
1950.6-7	yellow mountian road new north gate out	25° 58'	117° 21'	-----	120° E.M.T	16(6-21)
1950.8-12	Zhong Shan Park	25° 58'	117° 21'	-----	Time zone time	5+(times)
1951.1-11	As above	25° 58'	117° 21'	210.0	Time zone time	3(6,14,21),
1951.12-1952.8	As above	25° 58'	117° 21'	210.0	Time zone time	6(6,9,12,14 20,21)
1952.9-1953	As above	25° 58'	117° 21'	210.0	Time zone time	16(6-21)
1954.1-1960.7	As above	25° 58'	117° 21'	210.0	Local time	4(1,7,13,19)
1960.8-1979	As above	25° 58'	117° 21'	208.3	(Beijing time)	4(2,8,14,20)
1980.1-1983	As above	25° 58'	117° 21'	208.3	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)	Cloud (Period)
3(6,14,21)	1938.10-1948				1938.10-1948
	1940-1947				1951-1952
4(1,7,13,19)				1939-1942	
16(6-21)	1948-1950				1953
24(1-24)	1953	1938.10-1948			
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983	

D. Remarks:

No. 53 59046 Liou Zhou Sha Tang

A. Main Data Sources

1. 1936-1957 (137)
2. 1959-1960 (12)
3. 1961-1970 (mean/max/min temperature, cloud amount and precipitation) (157)
4. 1961-1980 (138)
5. 1981-1983 (13)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1936	In agricultural experiment field	24° 28'	109° 22'	107.0	105° E.M.T	3(6,14,21)
1937-1944.9	As above	24° 28'	109° 22'	107.0	105° E.M.T	6(6,9,12,14,18,21)
1946-1947	As above	24° 28'	109° 22'	107.0	105° E.M.T	6(6,9,12,14,18,21)
1948-1951	As above	24° 28'	109° 22'	-----	105° E.M.T	6(6,9,12,14,18,21)
1952-1954.6	As above	24° 28'	109° 22'	107.0	105° E.M.T	6(6,9,12,14,18,21)
1954.7-1960.7	As above	24° 28'	109° 22'	97.6	Local mean solar time	4(1,7,12,19)
1960.8-1983	As above	24° 28'	109° 22'	97.6	Local mean solar time	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
3(6,14,21)	1936	1936-1944.9 1946-1954.6	1936	1936-1944.9 1946-1954.6
6(6,9,12,14 18,21)			1937-1944.9 1946-1954.6	
8(3,6,9,12, 14,18,21,24)	1937-1944.9 1946-1954.6			
4(1,7,13,19)	1954.7-1960.7	1954.7-1960.7	1954.7-1960.7	1954.7-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 54 59134 Xia Men

A. Main Data Sources

1. 1886-1951 (139)
2. 1951-1980 (140)
3. 1981-1983 (13)
4. 1929-1933 (The native pressure) (15)
   1928-1936 (humidity)
   1928-1936 (cloud amount)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1886-1923	------	24° 26'	118° 04'	4.9	120° E.M.T	------
1924-1933	meteorological station of custmos	24° 26'	118° 04'	4.9	120° E.M.T	8(3,6,9,12, 14,18,21,24)
1934-1938.10	As above	24° 26'	118° 04'	4.9	120° E.M.T	
1947-1948.6	As above	24° 27'	118° 02'	23.4	120° E.M.T	3(6,14,21)
1948.7-1949	As above	24° 27'	118° 02'	23.4	120° E.M.T	16(6-21)
1950.1-5	Gao Qi airport	24° 25'	118° 05'	12.0	120° E.M.T	16(6-21)
1950.6-10	No.6 Bai He road	24° 25'	118° 05'	40.0	120° E.M.T	24(1-24)
1950.11-12	As above	24° 25'	118° 05'	10.0	120° E.M.T	24(1-24)
1951.1	As above	24° 32'	118° 07'	6.8 (8.2)	120° E.M.T	24(1-24)
1952.1-12	Raise flag hill	24° 32'	118° 07'	6.8 (8.2)	time zone time	24(1-24)
1953.1-12	He hill	24° 27'	118° 04'	40.6 (43.7)	time zone time	24(1-24)
1954.1-1957.12	As above	24° 27'	118° 04'	40.6 (43.7)	Local time	4(1,7,13,19)
1958.1-1960.8		24° 31'	118° 09'	23.4 (23.8)	Local time	4(1,7,13,19)
1960.9-1967.8	Raise flag	24° 31'	118° 09'	23.4 (23.8)	(Beijing time)	4(2,8,14,20)
1967.9-1980.12	Heroic hill	24° 27'	118° 04'	63.2 (63.4)	(Beijing time)	4(2,8,14,20)
1981.1-1983		24° 29'	118° 04'	139.4	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)	Cloud (Period)
(Maximum+minimum)/2		1924-1928			
3(6,14,21)	1934-1938.10	1934-1938.10	1934-1938.10	1934-1938.10	1934-1938.10
		1947-1950.5	1947-1950.5		
8(3,6,9,12, 15,18,21,24)		1929-1933			
16(6-21)				1950.1-5	1950.1-5
24(1-24)		1950.6-1953	1950.6-1953	1950.6-1953	1950.6-1953
------		1915-1923	------	1924-1933	1924-1933
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960 8-1983	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Some records were taken from data source (12) during 1951-1954 period.
Location of station: 24° 24' 118° 04' 8.2(M) in 1952.1-7.
24° 24' 118° 04' 10.7(M) in 1952.8-12.
24° 24' 118° 07' 10.7(M) in 1953.
24° 24' 118° 04' 41.4(M) in 1954.

No. 55 59265 Wu Zhou

A. Main Data Sources

1. 1898-1957 (145)
2. 1924-1950 (146)
3. 1951-1960 (153)
4. 1951-1960 (12)
5. 1961-1970 (149)
6. 1981-1983 (13)
7. 1961-1970 (mean/max/min temperature and cloud amount) (157)
8. 1951.1-1953.2 (12)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1898-1927	Hydrologic station	23° 29'	111° 18'			
1924-1928	Cang Wu	23° 38'	111° 17'	10.7		
1929-1933	Cang Wu	23° 38'	111° 17'	10.7	120° E.M.T	8(3,6,9,12, 15,18,21,24)
1934-1944	Cang Wu	23° 38'	111° 17'	10.7	120° E.M.T	3(6,14,21)
1951.1-9	No.8 Bou Ai road	23° 30'	111° 25'	43.8	105° E.M.T	16(6-21)
1951.10-1952.10	No.21 western alley of Wei Xin	23° 30'	111° 25'	42.9	105° E.M.T	16(6-21)
1952.11-12	No.19 Zhu Ji road	23° 30'	111° 25'	45.3	105° E.M.T	16(6-21)
1953.1-12	As above	23° 30'	111° 25'	43.0	105° E.M.T	24(1-24)
1954-1960.7	Pang hill top	23° 29'	111° 18'	119.2	Local mean solar time	4(1,7,13,19)
1960.8-1983	As above	23° 29'	111° 18'	119.2	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
(Maximum+minimum)/2		1924-1928	
3(6,14,21)		1929-1933	1938.1-1943.10
		1934-1944	1944.1-8
24(1-24)	1953.2-12	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Old name: " Cang tong "

No. 56 59287 Guang Zhou

A. Main Data Sources

1.	1908-1912 1938-1943	(3)
2.	1912-1920	(5)
3.	1912-1950	(14)
4.	1951-1960	(142)
5.	1961-1980	(6)(7)(8)(9)(10)(11)(143)
6.	1928-1936	(15)
7.	1981-1983	(13)(143)
8.	1963-1965 (cloud amount, dominant winds)	(156)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1908-1912	------	23° 06'	113° 38'	8.8	------	------
1912-1914.8	Agriculture college of Zhong Sha university	23° 08'	113° 17'	27.5		2(------)
1914.9-1930.4	As above	23° 08'	113° 17'	27.5	113° E Local mean solar time	6(2,6,10,14, 18,21)
1930.5-1937.8	As above	23° 08'	113° 17'	13.4	113iπE Local mean solar time	6(2,6,10,14, 18,21)
1946.10-9 1950-1952.6	No.18 Song Gang, east-road of east mountian (in city)	23° 00'	113° 13'	10.4	120° E.M.T	24(1-24)
1952.7-1953	No.7 Fu Yin road, plum blossom village	23° 00'	113° 13'	18.0	120° E.M.T	24(1-24)
1954.1-1957.6	As above	23° 00'	113° 13'	18.0	Local mean solar time	4(1,7,13,19)
1957.7-1960.7	Tian He airport	23° 08'	113° 19'	6.3	Local mean solar time	4(1,7,13,19)
1960.8-1979	As above	23° 08'	113° 19'	6.3 (7.6)	(Beijing time)	4(2,8,14,20)
1980-1983		23° 08'	113° 19'	6.6 (7.6)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
(Maximum+mini mum)/2		1924-1928	
6(2,6,10,14, 18,22)		1929-1933	
3(6,14,21)	1936-1937.8	1934-1937.8	
24(1-24)	1948.10-1949.9 1950-1953 1930.5-1933	1948.10-1949.9 1950-1953	1948.10-1949.9 1950-1953 1912.2-1933
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 57 59316 Shan Tou

A. Main Data Sources

1. 1880-1943 (3)
2. 1924-1942 (2)(1)
3. 1928-1936 (15)
4. 1951-1962 (12)(144)
5. 1963-1980 (6)(7)(8)(9)(10)(11)(143)
6. 1981-1983 (143)(13)
7. 1963-1965 (pressure, cloud amount and dominant winds (156)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1880-1923	Customs station	23° 21'	116° 40'	3.4	120° E.M.T	
1924-1928	As above	23° 21'	116° 40'	3.4	120° E.M.T	2(Maximum+minimum)
1929-1933	As above	23° 21'	116° 40'	3.4	120° E.M.T	8(3,6,9,12,15,18,21,24)
1934-1938.10	As above	23° 21'	116° 40'	3.4	120° E.M.T	3(6,14,21)
1938.10-1942	As above	23° 21'	116° 40'	3.4	120° E.M.T	
1951-1952.5	No.311 WaiMa road in city	23° 20'	116° 40'	2.1	120° E.M.T	24(1-24)
1952.6-1953.12	As above	23° 21'	116° 40'	5.3	120° E.M.T	24(1-24)
1954-1955.9	As above'	23° 21'	116° 40'	5.3	Local mean solar time	4(1,7,13,19)
1955.9-1960.7	Near the Kong religion temple (suburb)	23° 21'	116° 40'	5.3	Local mean solar time	4(1,7,13,19)
1960.8-1965	As above	23° 21'	116° 40'	4.3	(Beijing time)	4(2,8,14,20)
1966-1983	As above	23° 24'	116° 41'	1.2 (3.5)	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Maximum+minimum)/2		1924-1928		
8(3,6,9,12,15,18,21,24)		1929-1933		
3(6,14,21)		1934-1938.10 1938.10-1942	1950(7-12)	
24(1-24)	1951-1953	1951-1953	1951-1953	1952-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 58 59431 Nan Ning

A. Main Data Sources

1.	1907.9-1950	(145)
2.	1935-1950	(4)
3.	1922-1950	(147)
4.	1946-1950	(148)
5.	1951-1960	(12)
6.	1961-1970	(149)
7.	1971-1980	(149)
8.	1981-1983	(13)
9.	1961-1970 (mean/max/min temperature and cloud amount)	(157)
10.	1935-1936 (pressure, cloud amount, and winds)	(15)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1907-1949	Hydrologic station	22° 48'	108° 22'			
1922-1939	Climatological observation station	22° 42'	108° 16'	76.0 (76.7)	120° E.M.T	3(6,14,21)
1946-1950.5		22° 42'	108° 16'	76.0 (76.7)	105° E.M.T	3(6,14,21)
1950.6-1953		22° 48'	108° 18'	74.0	105° E.M.T	24(1-24)
1954.1-1956.8		22° 48'	108° 18'	74.9	Local mean solar time	4(1,7,13,19)
1956.9-1960.7		22° 51'	108° 19'	122.3	Local mean solar time	4(1,7,13,19)
1960.8-1965.9		22° 49'	108° 21'	122.3	(Beijing time)	4(2,8,14,20)
1965.10-1983		22° 49'	108° 21'	72.2	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)
3(6,14,21)		1922-1935.6 1946-1949 1937-1939	1935-1944
24(1-24)	1950-1953	1950-1953	1950-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1950.5-6 1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Old name: " Yong Ning "

No. 59 59658 Zhan Jiang

A. Main Data Sources

1. 1913-1953 (156)
2. 1931-1940 (151)
3. 1951-1960 (152)
4. 1961-1980 (143)(6)(7)(8)(9)(10)(11)
5. 1981-1983 (13)(143)
6. 1963-1965 (pressure, cloud amount, dominant winds) (156)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1913-1936	Customs station	21° 05'	110° 25'	14.0		
1921-1936	As above	21° 03'	110° 35'	14.0		
1936-1940		21° 03'	110° 28'	14.0	105° E.M.T	3(3,7,13)
1950.6-1953	No.1 Min You road in city	21° 02'	110° 28'	10.0	120° E.M.T	24(1-24)
1954.1-10	As above	21° 02'	110° 28'	10.0	Local mean solar time	4(1,7,13,19)
1954.11-1960.7	Xia Shan Egg mountian range (countryside)	21° 02'	110° 28'	26.4	Local mean solar time	4(1,7,13,19)
1960.8-1973	As above	21° 02'	110° 28'	26.4	(Beijing time)	4(2,8,14,20)
1974-1978		21° 13'	110° 24'	25.1	(Beijing time)	4(2,8,14,20)
1979-1983		21° 13'	110° 24'	25.3	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Maximum+minimum)/2		1921-1936		
3(6,14,21)		1950.6-12	1950.6-12	
24(1-24)	1953.8-12	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954-1960.7	1954-1960.7	1954-1960.7	1954-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

No. 60 59758 Hai K..a

A. Main Data Sources

1. 1928-1936 (13)
2. 1912-1942 (154)(2)(3)
3. 1943-1949 (62)
4. 1951-1960 (155)
5. 1961-1980 (143)(6)(7)(8)(9)(10)(11)
6. 1981-1983 (143)(13)
7. 1963-1965 (pressure, cloud amount and dominant winds in 1978) (156)

B. Location of Station, Time Standard and Times of Observations.

Observational Period	Address	Location of station Lat.N	LoN.E	H(M)(PH)	Time zone system	Times of observations
1912-1923	Qong mountian	20° 01'	110° 16'	2.7	105° E.M.T	
1924-1928	Qong mountian	20° 01'	110° 16'	2.7	105° E.M.T	2(Maximum+minimum)
1929-1933	Qong mountian	20° 01'	110° 16'	2.7	105° E.M.T	8(3,6,9,12,15,18,21,24)
1934-	Qong mountian	20° 01'	110° 16'	2.7	105° E.M.T	3(6,14,21)
1951.1-1953.4	Airport	20° 00'	110° 25'	16.1	120° E.M.T	24(1-24)
1953.5-7	Hai Kou airport	20° 00'	110° 25'	16.1	120° E.M.T	24(1-24)
1953.8-12	No.2 Wen Ming east road (suburb)	23° 30'	110° 25'	2.8	120° E.M.T	24(1-24)
1954-1957.4	Long Ji village of ZiLong town third district (countryside)	20° 00'	110° 25'	14.4	Local mean solar time	4(1,7,13,19)
1957.5-1960.7	As above	20° 00'	110° 25'	14.1	Local mean solar time	4(1,7,13,19)
1960.8-1968	Fu Cheng town Qong mountian county (countryside)	20° 01'	110° 21'	17.6	(Beijing time)	4(2,8,14,20)
1969-1983	As above	20° 02'	110° 21'	14.1	(Beijing time)	4(2,8,14,20)

C. Number of Observations Used for Calculating the Daily Mean

Mean times	Mean pressure (Period)	Temperature (Period)	Relative humidity (Period)	Wind (Period)
(Maximum+minimum)/2		1924-1928		
8(3,6,9,12,15,18,21,24)	1928-1933	1928-1933	1928-1933	1928-1933
3(6,14,21)	1934-1936	1934-1936	1934-1936	1934-1936
24(1-24)	1951-1953.7	1951-1953	1951-1953	1951-1953
4(1,7,13,19)	1954.3-1960.7	1954.3-1960.7	1954.3-1960.7	1954.3-1960.7
4(2,8,14,20)	1960.8-1983	1960.8-1983	1960.8-1983	1960.8-1983

D. Remarks:

1. Old name: " Qong mountain "

APPENDIX C

SOURCES OF DATA FOR THE PRC 60-STATION CLIMATE DATA SET

	Data Source	Period	Publisher	Publication Date
1	The Temperature Data of China	-1940	National Research Institute of Meteorology, Academia Sinica, Beijing	1942
2	The Air Temperature Data of China	-1953	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
3	The Precipitation Data of China	-1953	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
4	The Humidity Data of China	-1953	Central Meteorological Bureau, the People's Republic of China, Beijing	1958
5	The Sunshine Data of China	-1953	Central Meteorological Bureau, the People's Republic of China, Beijing	1958
6	The Air Temperature Data of China (two volumes)	1951-1970	Central Meteorological Bureau, the People's Republic of China, Beijing	1963, 1976
7	The Precipitation Data of China (two volumes)	1951-1970	Central Meteorological Bureau the People's Republic of China, Beijing	NA[a]
8	The Humidity Data of China (two volumes)	1951-1970	Central Meteorological Bureau, the People's Republic of China, Beijing	1963, 1977
9	The Sunshine Data of China (two volumes)	1961-1970	Central Meteorological Bureau, the People's Republic of China, Beijing	1974
10	The Wind Data of China	1951-1970	Central Meteorological Bureau, the People's Republic of China, Beijing	1974
11	The Weather Data of China	1961-1970	Central Meteorological Bureau, the People's Republic of China, Beijing	1978

	Data Source	Period	Publisher	Publication Date
12	The Monthly Surface Bulletin and Annual Report of China	1951–1962	Central Meteorological Bureau, the People's Republic of China, Beijing	NA
13	The Monthly Surface Bulletin	1981–1983	Central Meteorological Bureau, the People's Republic of China, Beijing	NA
14	The Meteorological Data of East Asia (fifth volume)	–1940	Central Meteorological Observatory, Japan	NA
15	The Meteorological Data of East Asia (first volume)	–1940	Central Meteorological Observatory, Japan	NA
16	The Meteorological Data of Hai Laer	1909–1950	The Meteorological Bureau of Inner–Mongolian Autonomous Region	NA
17	The Summary of the Decade Meteorological Data of Hai–Laer	1951–1960	The Meteorological Bureau of Inner–Mongolian Autonomous Region	NA
18	The Basic Summary of the Climatological Data of Inner–Mongolian Autonomous Region	1951–1980	The Meteorological Bureau of Inner–Mongolian Autonomous Region	NA
19	The Meteorological Data of Nenjing	1939–1950	Shen–Yang Centre Meteorological Observatory	NA
20	The Basic Meteorological Data of Hei–Long–Jiang	1951–1980	The Meteorological Bureau of Hei–Lang–Jiang Province	1982
21	The Meteorological data of Bo–Ke–Tu	1914–1950	The Meteorological Bureau of Inner–Mongolian Autonomous Region	NA
22	The Summary of the Decade Meteorological Data of Bo–Ke–Tu	1951–1960	The Meteorological Bureau of Inner–Mongolian Autonomous Region	NA

	Data Source	Period	Publisher	Publication Date
23	The Meteorological Data of Ha-Er-Bin	1909–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
24	The Climatological Data of Xinjiang Uighur Autonomous Region (Yi-Ning Kazak Autonomous Zhou)	1951–1980	The Meteorological Bureau of Xinjiang Uighur Autonomous Region	1985
25	The Climatological Data of Xinjiang Uighur Autonomous Region	1941–1950	The Meteorological Bureau of Xinjiang Uighur Autonomous Region	1959
26	The Climatological Data of Xinjiang Uighur Autonomous Region Stations	1951–1980	The Meteorological Bureau of Xinjiang Uighur Autonomous Region	1985
27	The Climatological Data of Xinjiang Uighur Autonomous Region (Ha-Mi Administrative Region)	1951–1980	The Meteorological Bureau of Xinjiang Uighur Autonomous Region	1985
28	The Meteorological Data of Jiu-Quan	1934–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
29	The Meteorological Data of Jiu-Quan	1951–1969	The Revolutionary Committee of Meteorological Bureau of Gansu Province	1972
30	Jiu-Quan Basic Climatological Data of Gansu Province	1971–1980	The Meteorological Bureau of Gansu Province	1982

	Data Source	Period	Publisher	Publication Date
31	The Meteorological Data of Gansu Province (pressure, temperature, humidity, and various weather days)	-1975	The Meteorological Bureau of Gansu Province	1977
32	The Meteorological Data of Xi-Ning	1954-1970	The Meteorological Bureau of Qinghai Province	1972
33	The Meteorological Data of Lan-Zhou	1932-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
34	The Climatological Data of Lan-Zhou for 20 Years	1934-1953	The Institute of Geophysics, Academia Sinica, Beijing	1953
35	The Meteorological Data of Lan-Zhou	1951-1969	The Revolutionary Committee of Meteorological Bureau of Gansu Province	1970
36	Lan-Zhou Observatory Basic Climatological Data of Gansu Province	1971-1980	NA	NA
37	The Meteorological Data of Zhang-Ye	1937-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
38	The Meteorological Date of Zhang-Ye	1951-1969	The Revolutionary Committee of Meteorological Bureau of Gansu Province	1970
39	Zhang-Ye Station Basic Climatological Data of Gansu Province	1971-1980	The Meteorological Bureau of Gansu Province	1982
40	The Meteorological Data-Data of Hu-He-Hao-Te	1920-1950	The Meteorological Bureau of Inner-Mongolian Autonomous Region	1955

	Data Source	Period	Publisher	Publication Date
41	The Meteorological Data of Inner-Mongolia (surface part)	1951–1970	The Meteorological Bureau of Inner-Mongolian Autonomous Region	1972
42	The Summary of Climatological Data of Yin-Chuan for Ten Years	1951–1960	The Meteorological Bureau of the Agricultural Department Ning-Sia-Hui Autonomous	1962
43	The Basic Summary of the Climatological Data of Ning-Sia-Hui Autonomous	1951–1980	The Meteorological Bureau of the Agricultural Department Ning-Sia-Hui Autonomous	NA
44	The Decade Climatological Summary of Shan-Xi Province (Shan North Volume)	1951–1960	The Meteorological Institute of Shan-Xi Province	1962
45	The Meteorological Data of Tai-Yuan	1916–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
46	The Summary of Basic Climatological Data for Tai-Yuan of Shan Xi	1915–1980	The Meteorological Bureau of Shan-Xi Province	1984
47	The Meteorological Data of Chang-Chun	1909–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
48	The Summary of the Basic Climatological Data for Chang-Chun of Ji-Lin Province	1951–1980	The Meteorological Bureau of Ji-Lin Province	1983
49	The Meteorological Data of Shen-Yang	1905–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
50	The Summary of the Climatological Data of Shen-Yang	1951–1960	The Meteorological Bureau of Liao-Ning Province	1963

	Data Source	Period	Publisher	Publication Date
51	The Basic Climatological Data of Shen-Yang (two volumes)	1961-1980	The Meteorological Bureau of Liao-Ning Province	1974, 1982
52	The Climatological-Data of Beijing	1841-1980	The Meteorological Bureau of Beijing	1983
53	The Meteorological Data of Tian-Jin	1904-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
54	The Basic Summary of Meteorological Data of Tian-Jin	1951-1980	The Meteorological Bureau of Tian-Jin	NA
55	The Basic Summary of the Decade Climatological Data Bao-Ding	1951-1960	The Meteorological Bureau of He-Lei Province	1963
56	The Data of the Precipitation, Temperature, Humidity, Pressure, Sunshine, Wind, Amount of Cloud, and Weather Days of He-Bei Province	1951-1980	The Data Room of the Meteorological Bureau of He Bei Province	NA
57	The Meteorological Data of Da-Lian	1904-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
58	The Summary of Climatological Data of Da-Lian	1951-1960	The Meteorological Bureau of Liao-Ning Province	1963
59	The Summary of Climatological Data of Da-Lian	1961-1970	The Meteorological Bureau of Liao-Ning Province	1974
60	The Summary of Climatological Data of Da-Lian	1971-1980	The Meteorological Bureau of Liao-Ning Province	1982
61	The Meteorological Data of Mu-Dan-Jiang	1909-1950	Sem-Yang Centre Meteorological Observatory	1954

	Data Source	Period	Publisher	Publication Date
62	The Meteorological Summary of Japan	1949	The Meteorological Department of Japan	NA
63	The Basic Summary of Climatological Data of Yan-Tai	1951-1960	The Meteorological Bureau of Shandong Province	NA
64	The Climatological Data of Yan-Tai	1951-1980	The Data Room of Shandong Meteorological Bureau	1982
65	The Climatological Data of Ji-Nan	-1953	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
66	The Data of Meteorology of Ji-Nan	1951-1980	Shandong Meteorological Bureau	1982
67	The Meteorological Data of Qing-Dao	1898-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica. Beijing	1954
68	The Basic Summary of Qing-Dao for the Year	1951-1980	Shandong Meteorological Bureau	1982
69	The Climatological Data of La-Sa	1951-1960	The Meteorological Bureau of the Tibet Autonomous Region	1964
70	The Climatological Data of La-Sa	1961-1970	The Meteorological Bureau of the Tibet Autonomous Region	1973
71	The Climatological Data of La-Sa	1971-1975	The Meteorological Bureau of the Tibet Autonomous Region	1979
72	The Meteorological Data of Chengdu	-1953	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
73	The Climatological Data of Sichuan Province (Wenjiang Region)	1951-1970	The Meteorological Bureau of Sichuan Province	1972
74	Chengdu Meteorological Data of Sichuan Province	1951-1960	The Meteorological Bureau of Sichuan Province	1964

	Data Source	Period	Publisher	Publication Date
75	Xi-Chang Meteorological Data of Sichuan Province	1951-1960	The Chengdu Central Meteorological Observatory of Sichuan Provincial Meteorological Bureau	1964
76	Xi-Chang Meteorological Data of Sichuan Province	1951-1970	The Chengdu Central Meteorological Observatory of Sichuan Provincial Meteorological Bureau	1972
77	The Climatological Data of Xi-Chang Province	1951-1980	The Meteorological Bureau of Sichuan Province	1982
78	The Climatological Data of Yunnan Province (24 volumes)	1951-1980	The Meteorological Bureau of Yunnan Province	1972, 1982
79	The Meteorological Data of Kun-Ming	1928-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
80	Temperature, Precipitation, Sunshine, Mean Speed, Humidity Data of Yunnan Province	-1957	The Meteorological Bureau of Yun-Nan Province	1959
81	The Meteorological Data of Tian Shui	1935-1950	Lan-Zhou Central Meteorological Observatory of Gansu Province	1970
82	The Meteorological Data of Tian-Shui	1951-1960	The Revolutionary Committee of Meteorological Bureau of Gansu Province	1972
83	The Basic Climatological Data of Tian Shui Observatory of Gan-Su Province	1971-1980	The Meteorological Bureau of Gansu Province	1982
84	The Meteorological Data of Xi-An	1922-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954

	Data Source	Period	Publisher	Publication Date
85	The Decade Climatological Summary of Shan-Xi Province (The Central Shan-Xi Plain Volume)	1951-1960	The Meteorological Institute of Shan-Xi Province	1962
86	The Decade Climatological Summary of Xi-An	1961-1970	The Meteorological Bureau of Shan-Xi	1972
87	The Decade Climatological Summary of Shan-Xi Province	1971-1980	The Meteorological Bureau of Shan-Xi	1982
88	The Meteorological Data of Zheng-Zhou	1935-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
89	The Meteorological Data of Zheng-Zhou	1951-1960	The Meteorological Observatory of He-Nan Province	1963
90	The Climatological Data of He-Nan Province	1971-1980	The Data Room of Meteorological Bureau, He-Nan Province	1982
91	The Decade Climatological Summary of Shan-Xi Province (Shan South Volume)	1951-1960	The Meteorological Institute of Shan-Xi Province	1962
92	The Decade Climatological Summary of Shan-Xi Province (Shan South Volume)	1971-1980	The Meteorological Bureau of Shan-Xi	1982
93	The Meteorological Data of Yi-Chang	1882-1950	The Meteorological Institute of Hu-Bei Province	1962
94	Yi-Chang Basic Summary of Meteorology Data	1951-1980	The Meteorological Bureau of Hu-Bei Province	1982
95	The Meteorological Data of Wu-Han	1882-1950	Wu-Han Central Meteorological Observatory	1965

	Data Source	Period	Publisher	Publication Date
96	The Meteorological Data of Wu-Han	1951-1980	The Meteorological Bureau of Hu-Bei Province	NA
97	The Meteorological Data of Chong-Qing	1891-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
98	The Meteorological Data of Sichuan Province	1951-1980	The Meteorological Bureau of Sichuan Province	NA
99	The Meteorological Data of Chong-Qing, Sichuan Province	1951-1960	The Chengdu Central Meteorological Observatory of Sichuan Provincial Meteorological Bureau	1964
100	The Temperature and Precipitation Data of Hunan Province	1909-1950	Chang-Sha Meteorological Observatory of Hunan Province	1958
101	The Historical Data of Chang-Sha	1932-1950	The Meteorological Bureau of Hunan Province	1959
102	The Basic Data Summary of Chang-Sha	1951-1980	The Meteorological Bureau of Hunan Province	1982
103	The Basic Summary of Meteorological data, Hu-Nan Province	1951-1970	The Meteorological Bureau of Hunan Province	1959
104	The Monthly Climatological Bulletin of Hu-Nan Province	1981-1983	The Climatological Data Room of Hu-Nan Province	NA
105	The Meteorological Data of Gui-Yang	1920-1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
106	The Basic Meteorological Data of Gui-Yang	1961-1970	The Meteorological Bureau of Gui-Zhou	1972
107	The Basic Meteorological Data of Gui-Yang	1971-1980	The Meteorological Bureau of Gui-Zhou	NA

	Data Source	Period	Publisher	Publication Date
108	The Meteorological Data of Xu-Zhou	1915–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
109	The Climatological Data Summary Xu-Zhou-Dong-He-Cun	1951–1980	The Meteorological Bureau of Jiang-Su Province	NA
110	The Basic Climatological Data of Xu-Zhou	1960–1980	The Meteorological Bureau of Jiang-Su Province	NA
111	Jiang-Su Temperature Data (mean, maximum, minimum)	1926–1973	The Meteorological Bureau of Jiang-Su Province	NA
112	Qing-Jiang Climatological Data of Jiang-Su	1951–1980	The Meteorological Bureau of Jiang-Su Province	NA
113	The Meteorological Data of Nan-Jing	1905–1970	The Meteorological Office of East China	1954
114	The Meteorological Data of Nan-Jing	1905–1970	The Meteorological Observatory of Jiang-Su Province	1973
115	The Basic Climatological Data of Nan-Jing	1871–1950	The Meteorological Bureau of Jiang-Su Province	NA
116	The Meteorological Data of Shanghai	1873–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
117	The Meteorological Data of Shanghai	1873–1970	Shanghai Meteorological Bureau	1974
118	The Meteorological Data of Shanghai	1951–1980	Shanghai Meteorological Bureau	1980
119	An-Qing Summary of Surface Climatological Data	1951–1980	The Meteorological Bureau of An-Hai Province	1982

	Data Source	Period	Publisher	Publication Date
120	The Meteorological Data of Hang Zhou	1904–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
121	Hang–Zhou Climatological Data of Zhejiang	1951–1970	The Meteorological Observatory of Zhejiang	NA
122	Hang–Zhou Climatological Data of Zhejiang	1971–1980	The Meteorological Observatory of Zhejiang	NA
123	The Meteorological Data Summary of Nan–Chang	1929–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
124	The Climatological Data Summary of Nan–Chang	1951–1962	The Hydrometeor Bureau of the Department of Water Conservancy and Electric Power, Jiang–Xi Province	NA
125	The Temperature Data of Jiang–Xi Province	1951–1980	The Meteorological Bureau of Jiang–Xi Province	1982
126	Nan–Chang Decade Climatological Data Summary of Jing–Xi Province	1951–1970	The Meteorological Bureau of Jiang–Xi Province	1982
127	Qu–Zhou Climatological Data of Zhe-Jiang	1951–1970	The Meteorological Observatory of Zhejiang	NA
128	Qu–Zhou Climatological Data Summary of Zhe–Jiang Province	1951–1980	The Meteorological Observatory of Zhejiang	NA
129	The Meteorological Data of Wen-Zhou	1883–1950	The Shanghai Central Meteorological Cal Observatory	1956
130	Wen–Zhou Climatological Data of Zhe–Jiang	1951–1970	The Meteorological Observatory of Zhejiang	NA

	Data Source	Period	Publisher	Publication Date
131	Wen-Zhou Climatological Data Summary	1951–1980	The Meteorological Observatory of Zhejiang	NA
132	The Meteorological Data of Fu-Zhou	1880–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
133	The Meteorological Data of Fu-Zhou	1945–1950	The Meteorological Observatory of the Agricultural Department, Fu-Jian Province	1958
134	The Basic Climatological Data of Fu-Zhou	1951–1980	The Meteorological-Bureau of Fu-Jian	1982
135	The Meteorological Data of Yan-An	1938–1950	The Shanghai Central Observatory	1956
136	The Basic Climatological Data of of Yong-An	1951–1980	The Meteorological-Bureau of Fu-Jian	1982
137	The Meteorological Data of Liu-Zhou	1936–1957	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	1956
138	The Basic Summary of Guang-Xi Meteorological Data	1951–1980	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	NA
139	The Meteorological Data of Xia-Men	1886–1951	The Shanghai Central Observatory	1956
140	The Climatological Data of Xia-Men	1951–1980	The Meteorological-Bureau of Fu-Jian	NA
141	The Meteorological Data of Guang-Zhou	1912–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954
142	The Climatological Data Summary of Guang-Zhou	1951–1960	The Meteorological Bureau of Guang-Dong Province	1962

	Data Source	Period	Publisher	Publication Date
143	The Climatological Yearbook of Guang-Dong Province	1966-1983	The Meteorological Bureau of Guang-Dong Province	1983
144	Shan-Tou Climatological Data Summary of Guang-Dong Province	1951-1962	The Meteorological Bureau of Guang-Dong Province	1963
145	The Precipitation Data of Guang-Xi Province	-1950	The Data Room of Meteorological Bureau, Guang-Xi Province	1959
146	The Meteorological Data (humidity, sunshine) of Guang-Xi-Zhuang Autonomous Region Observatory	1935-1950	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	1956
147	The Air Temperature Data of Guang-Xi-Zhuang Autonomous Region	1922-1950	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	1956
148	The Wind Data of Guang-Xi	1946-1950	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	NA
149	The Climatological Data Summary of Guang-Xi-Zhuang Autonomous Region	1961-1980	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	NA
150	The Meteorological Data of Zhan-Jiang	1913-1953	The Data Room of Meteorological Bureau, Guang-Dong Province	1959
151	World Weather Records	1931-1940	Smithsonian Institution	1947
152	Climatological Data summary of Lan-Jiang	1951-1960	The Meteorological Bureau of Guang-Dong Province	NA
153	Meteorological Data of Wu-Zhou	1951-1960	The Meteorological Bureau of Guang-Xi-Zhuang Autonomous Region	1961

	Data Source	Period	Publisher	Publication Date
154	The Temperature, Precipitation, and Evaporation Data of Guang-Dong Province	1912–1942	The Data Room of Meteorological Bureau, Guang-Dong Province	1959
155	The Climatological Data Summary of Qiong-San	1951–1960	The Meteorological Bureau of Guang-Dong Province	1962
156	Reference room of National Meteorological Bureau	NA	NA	NA
157	The monthly bulletin and annual report of native station	NA	NA	NA
158	NA	NA	NA	NA
159	Annual Report of Meteorological Records	1971–1980	Central Meteorological Bureau	NA
160	The Climatological Data Summary of Inner-Mongolia Autonomous Region	1951–1980	NA	NA
161	The Meteorological Data of Qi-Qi-Ha-Er	1928–1950	Central Meteorological Bureau & Institute of Geophysics, Academia Sinica, Beijing	1954

[a]Not available.

APPENDIX D

REPRINTS OF PERTINENT LITERATURE

GEOPHYSICAL RESEARCH LETTERS, VOL. 17, NO. 12, PAGES 2377-2380, DECEMBER 1990

URBAN HEAT ISLANDS IN CHINA

Wei-Chyung Wang[1], Zhaomei Zeng[1,2], Thomas R. Karl[3]

Abstract. We used 1954-1983 surface temperature from 42 Chinese urban (average population $1.7*10^6$) and rural (average population $1.5*10^5$) station pairs to study the urban heat island effects. Despite the fact that the rural stations are not true rural stations, the magnitude of the heat islands was calculated to average 0.23 °C over the thirty-year period with a minimum value during the 1964-1973 decade and maximum during the most recent decade. The urban heat islands were found to have seasonal dependence which varied considerably across the country. The urban heat islands also had a strong regional dependence with the Northern Plains dominating the magnitude of the heat islands. The changes in heat island intensity over three decades studied suggest a general increase in heat island intensity of about 0.1°C, but this has not been constant in time. These results suggest that caution must be exercised when attributing causes to observed trends when stations are located in the vicinity of metropolitan areas.

Introduction

In recent years concerns were raised about whether the observed increase in atmospheric greenhouse gases was the main cause for the observed increases in the global mean surface temperature of ~ 0.5 °C during the last hundred years (see WMO/UNEP, 1990 for a review). These concerns intensified after the 1988 abnormal weather of record high temperature and drought conditions in many regions of the United States and record storms sweeping over Europe. In addition, the 1980's have been documented as the warmest decade on record. Many of these weather anomalies are not inconsistent with the simulations from the general circulation models, which also predict a substantial global warming in the next few decades if the current increasing trends for greenhouse gases continue. A global warming will have serious implications on regional weather and climate with subsequent effects on economic and social activities. Active research has been focused on climate model development to improve regional climate prediction and on observations to detect the greenhouse warming signals (CES, 1989).

One area of the detection issue has focused on the credibility of greenhouse warming attribution in the global temperature trend when many stations are located in the vicinity of major urban areas (Wood, 1988; Karl and Quayle, 1988; Karl et al., 1988; Jones et al., 1990). Regional studies indicate that there exists a significant urban heat island effect in the United States; in some cases it can introduce bias of 0.1-0.3 °C per decade in the temperature trend.

Karl et al. (1988) and Balling and Idso (1989) have studied the relationship between population change and urban warming bias in the United States and the correlations were found to be statistically significant. Karl et al. (1988) have developed an empirical relation to correct the urban warming bias in the United States Historical Climate Network (HCN). Even in this mostly rural network of stations, a warm bias of about 0.06 °C occurs during the twentieth century due to population growth around observing sites.

Both the United States and China are located in mid-latitudes with comparable land areas. However, the climates of the two countries are different due to the different topographical and geographic conditions. In addition, there are considerable differences in the non-climatic factors such as the energy consumption, industrialization and population density, which may affect the temperature trends and the magnitude of the urban bias. Consequently, the urban warming bias in China may have a different pattern than that found in the United States.

Several empirical studies have already been conducted to study the urban heat island effects in China (see Zhou and Zhang, 1985 for a review). However, these studies focused on either the big cities such as Shanghai or the comparative study between a big city and the suburbs for one or two selected cities (see Chow, 1986). Here we perform a study of the urban warming bias in the Eastern half of China using many stations. Our work differs from the recent study by Jones et al. (1990). They have shown that any urban bias in their data has been mitigated over Eastern China. The reasons for this are not clear. Our intent is to determine the magnitude and scope of heat islands in China and determine whether there is evidence of any change in their intensity over the past few decades.

Analysis

The temperature data used in this study are based on 42-pairs of urban-rural stations from a 260-station temperature data set recently compiled under the United States' Department of Energy and People's Republic of China's Academy of Sciences joint research program on the greenhouse effect (Koomanoff et al., 1988). The temperatures cover the period up to 1983. For some stations, the data dated back to the nineteenth century, for example, Beijing from 1841 and Shanghai from 1873.

Data from selected 84 rural and urban stations includes monthly mean temperatures for the period 1954-1983. The period was chosen mainly because most stations were established by 1954 and continuous records exist. We grouped the 42-pairs into six regions: (I) Northeast, (II) Northern Plains, (III) Middle-Lower Changjiang and Huaihe Basin, (IV) Southeast Coast, (V) Southwest and (VI) Northwest; each region had seven station pairs (see Figure 1). Discussion of the geophysical features and climate characteristics of these regions can be found in Domros and Peng (1988). Figure 1 also shows the locations of the station pairs, and the averaged station heights, populations and linear trends over separate urban and rural stations for the individual regions. These stations primarily cover the Eastern part of China. They were chosen based on station histories: selected stations have relatively few, if any, changes in instrumentation, location, or observation times over this period. Additional criteria used to choose the 42-pairs urban-rural stations are: as small as possible spatial distance between the individual pair; most stations with 1985 population of over one million for urban sites (average 1.71 million) and less than 0.2 million for rural sites (average 0.147 million); and suitability of topography, geographical location and the spatial location of the station network.

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0094-8276/90/90GL-02300$03.00

Region	Urban (U)/ Rural (R)	Height (m)	Population (1000)	Linear Trend (°C/30 years)
I	U	172	1697	0.82
	R	142	241	0.51
II	U	67	2494	0.64
	R	41	89	0.35
III	U	47	1382	0.11
	R	45	188	0.21
IV	U	31	2025	0.10
	R	29	59	0.05
V	U	726	1490	-0.21
	R	647	162	-0.14
VI	U	1143	1212	0.70
	R	1073	144	0.44
China				
	U	363	1717	0.36
	R	330	147	0.24

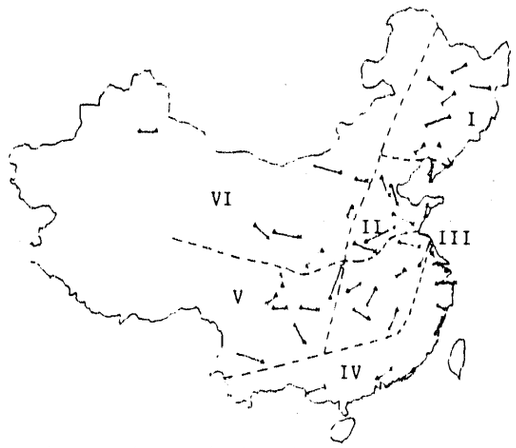

Fig.1: The 42-pairs urban (in Δ) and rural (in X) stations used to study the urban heat islands. The values of station heights, populations, and 30-year linear trends averaged over the separate urban and rural stations are calculated for six regions: (I) Northeast, (II) Northern Plains, (III) Middle-Lower Changjiang and Huaihe Basin, (IV) Southeast Coast, (V) Southwest, and (VI) Northwest. Note that the population statistics used are 1981 - 1985 averages for urban stations and 1984 - 1985 averages for rural stations.

We first examined the spatial pattern of the temperature trends for the individual stations and the results of the regional average are included in Figure 1. In general, the regions of the Northeast, and Northern Plains and Northwest showed large positive trends for both the urban and rural stations while negative trends were observed in the Southwest. Note that these results imply a tendency for a decrease in the north-south temperature gradient. The thirty-year trends averaged over the Eastern half of China were 0.36 °C for the urban stations and 0.24 °C for the rural stations.

Figure 2 shows the 1954-1983 annual mean temperatures averaged over the 42 urban and rural stations separately. In general, three stages are observed for both the urban and rural temperatures: a warming trend before 1961; a cooling trend between 1961-1969; and a warming trend after 1969. The temperatures averaged over the thirty years for rural and urban stations are calculated to be 12.61°C and 12.80 °C, respectively.

These urban-rural temperature differences however, include factors such as differences in geography and topography, which will have influences on the temperature differences. To minimize the effect of topography and geography, we used multiple regression techniques. The differences in altitude, latitude and longitude between the paired urban and rural stations were used to predict the urban-rural temperature difference. The residuals between these predictions and the actual urban-rural temperature differences were used to refine the urban-rural differences. The differences are referred to as "corrected" differences. Using the F-test, we find that the regressions are statistically significant at the 0.01 significance level for the annual averages and at the 0.05 level for the seasonal averages.

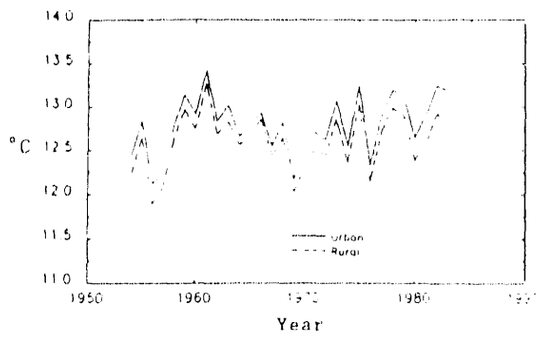

Fig. 2: The annual mean temperatures averaged over the urban and rural stations shown in Figure 1. The mean temperatures for rural and urban stations averaged over 1954-1983 are 12.61°C and 12.80°C, respectively.

The corrected annual and seasonal urban heat islands are given in Table 1. The results indicate that temperatures averaged 0.23 °C warmer in the urban areas across all regions and seasons (as opposed to 0.19 °C for the uncorrected urban-rural difference). Averaged across all of China, the strongest urban heat islands, 0.29 °C, occurred in winter and the weakest, 0.14 °C, in summer. Considerable variability exists from region to region however, and a portion of this variability is unlikely to be related to heat island effects. For example, if we omit the Northern Plains which has a very large difference between summer and winter, then the results are similar to those observed in the United States: stronger heat islands occur in summer compared to winter (Table 1). As such, the summer to winter differences may not be significant. Further study of the characteristics in the region of Northern Plains, including the data quality, is warranted. The Middle-Lower Changjiang and Huaihe Basin and the Northwest also showed a large annual urban heat islands (about 0.35 °C), but the seasonal variation is relatively small; in fact, these two regions together with the Northern Plains dominate the annual average urban-rural temperature difference of 0.23 °C for all of China. The urban-rural temperature differences in other areas were small. The large difference between regions suggests that more data would be desirable to determine whether the regional differences are sampling errors or real physical characteristics.

The interannual variability of the annual and seasonal mean urban-rural temperatures is shown in Figure 3. This is of particular interest with respect to potential urban heat island biases in long-term temperature series derived from urban stations in China. For the annual-mean case (Figure 3a) the changes in the urban-rural temperature difference had two stages, a decreasing trend before 1966 and an increasing trend afterwards. The magnitude of the increase is particularly large after 1977. These trends may be associated with energy consumption and population movement resulting from economic and political activities during the periods of the Great Leap Forward before 1966 and the Cultural Revolution afterward. During those periods, many factories were closed and production halted through a reduction of the staff. Since 1972, industry functions gradually returned to normal and after

Table 1. Annual and seasonal urban heat islands (°C) in China averaged over the period 1954-1983

Region	Spring	Summer	Autumn	Winter	Annual
Northeast	0.18	0.03	-0.09	0.06	0.04
Northern Plains	0.20	-0.18	1.07	1.42	0.63
Middle-Lower Changjiang and Huaihe Basin	0.44	0.42	0.38	0.21	0.36
Southeast Coast	-0.13	0.20	0.03	-0.08	0.01
Southwest	0.24	0.04	-0.05	-0.22	0.00
Northwest	0.32	0.35	0.36	0.35	0.35*
China—Mean	0.21 (0.21)†	0.14 (0.21)	0.28 (0.13)	0.29 (0.06)	0.23 (0.15)
Standard Deviation	0.19 (0.21)	0.22 (0.17)	0.44 (0.22)	0.59 (0.22)	0.26 (0.18)

* The annual value is 0.28 °C if the Hohhot-Urad Zhongqi pair in the far west is excluded (see Figure 1); this will have a small effect on the annual mean over China, reducing to 0.22 °C.† Values in the parentheses are the averages without including the Northern Plains.

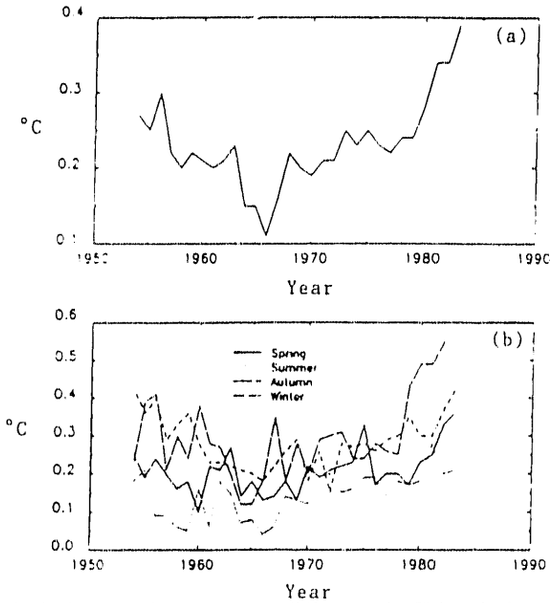

Fig. 3: Urban-rural temperature difference in China during 1954-1983 for (a) annual mean and (b) seasonal mean values.

1978, factory production and economic development rapidly expanded under the new Open Door policy. As a result, a large inflow of rural population to the cities occurred so that the urban heat islands in China may have increased as a result. This is evident beginning the year 1977 in Figure 3a. Much more detailed analyses of the attributes are needed however, before we can be certain of the causes for such trends.

On a seasonal basis (Figure 3b), similar features are also observed. It is quite clear that, for all four seasons, the magnitudes of the urban heat island bias after 1966 has been increasing. The trend is particularly strong during autumn and winter. Before 1966, except for autumn and winter, the urban-rural temperature differences showed little trend.

The annual and seasonal urban heat-island bias during the three ten-year periods are summarized in Table 2. The values reflect the heat island features discussed above: maximum during winter and minimum during summer for the average of all regions, but just the opposite when the Northern Plains is omitted from the sample. Increased heat islands occur during the most recent decade for all of Eastern China with and without the Northern Plains. We have also examined the urban heat island bias for the three ten-year periods on the regional basis, shown in Table 3. The general characteristics are similar to the annual features observed in Table 2. However, the decadal changes in urban-rural temperature differences are large in Northeast, Northern Plains, Southeast Coast, and the Northwest while the other two regions showed small changes.

Because of the lack of population statistics in China, in the analysis of the relation between population and heat island effects we used the available population data during 1981-1985 for the cities and 1984-1985 for the rural stations. The population difference versus the temperature difference for the individual urban-rural pairs were used to derive an empirical correlation. The relationship exists. However, the correlation is not statistically significant, which suggests that we would problably need many more station pairs before we could

Table 2. Annual and seasonal urban heat islands (°C) in China

Period	Spring	Summer	Autumn	Winter	Annual
1954-63	0.20 (0.21)*	0.12 (0.19)	0.31 (0.18)	0.29 (0.06)	0.23 (0.16)
1964-73	0.17 (0.19)	0.12 (0.18)	0.22 (0.06)	0.23 (0.01)	0.19 (0.11)
1974-83	0.25 (0.23)	0.19 (0.25)	0.31 (0.16)	0.36 (0.13)	0.28 (0.19)

*Values in the parentheses are the averages without including the Northern Plains.

Table 3. Annual urban heat islands (°C) in China

Region	1954-63	1964-73	1974-83	1954-83
Northeast	0.00	-0.03	0.16	0.04
Northern Plains	0.62	0.57	0.70	0.63
Middle-Lower Changjiang and Huaihe Basin	0.41	0.34	0.34	0.36
Southeast Coast	0.00	-0.05	0.06	0.01
Southwest	0.01	0.01	-0.01	0.00
Northwest	0.35	0.28	0.42	0.35
China	0.23	0.19	0.28	0.23

predict the magnitude of the urban heat islands on an annual basis.

Conclusions and Discussion

We used the 1954-1983 surface temperature data in Eastern China to examine the urban heat island effects. The average effect was calculated to be quite substantial in our data, about 0.23 °C for the last thirty years. The heat island effects also had strong seasonal and regional dependences with considerable variability.

Our focus in the present study has been mainly on the urban-rural temperature difference so that the choice of the station network was strictly based on the station pairs and their homogeneous distribution. Consequently, our rural stations are generally not the true "rural" stations; rather they are cities with fairly large populations (see Figure 1). Our results suggest that in the absence of other factors which could cancel the urban heat island bias, stations in China located in the vicinity of major cities have relatively large heat islands. The changes in the magnitude of the urban-rural temperature differences over the 1954-83 period indicate that since the late 1970's the rate of warming at urban stations is over 0.1 °C per decade relative to more rural stations. Although there has been rapid urbanization in China since the 1970's, it is not certain whether the trend from such a short period should be attributed solely to urbanization. An updated data set may clarify this situation. These results suggest that caution must be used when using trends from stations in the vicinity of major metropolitan areas.

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