HISTORY OF WEATHER OBSERVATIONS
Jackson, Mississippi
1849 - 1960

June 2006

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Alan Gerard, Meteorologist in Charge of the National Weather Service Office in Jackson, shared historical and climatological archives of the office. Because of his kindness, a number of specific questions were answered regarding the evolution of weather observing in Jackson.

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HISTORY OF WEATHER OBSERVATIONS

Jackson, Mississippi

1849 – 1960

Gary Grice

INTRODUCTION

Historical Overview

Jackson is located in central Mississippi along the Pearl River (Figure 1). The city is primarily in Hinds County, but also extends into Rankin County to the east and Madison County to the north. Jackson is the capital of Mississippi.

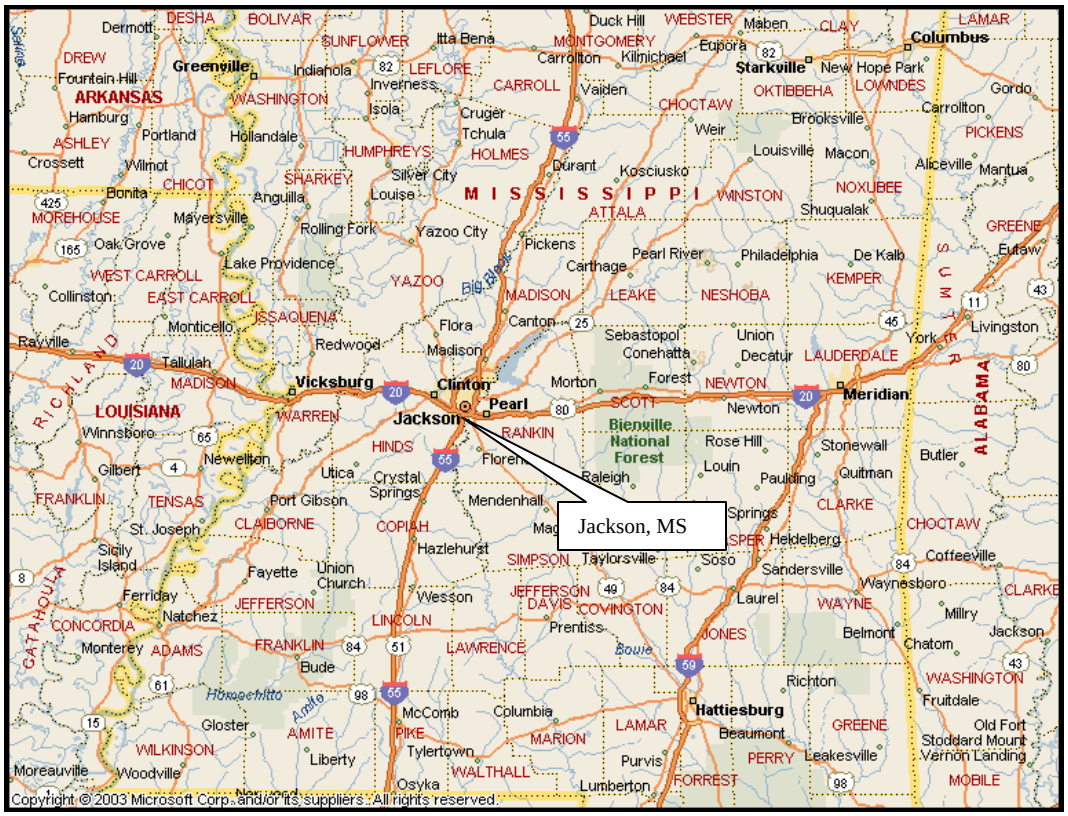


Figure 1. Location of Jackson, MS. East-west distance across the map is approximately 235 miles.

Choctaw Indians initially occupied the area that is now Jackson, but the land was ceded to the United States on 18 October 1820 by the Treaty of Doaks Stand, negotiated by Andrew Jackson and Thomas Hinds. The area was originally called LeFleur's Bluff, after the French trader Louis LeFleur, who established an Indian trading post in the early 1800s at what was to become downtown Jackson.

The State General Assembly selected the area around LeFleur's Bluff to be the state capital because of its central location within the state. On 28 November 1821, the General Assembly in Natchez began passage of legislation to locate the town and move the government to the new state capital. The city was named for General Andrew Jackson and incorporated as a town by the State General Assembly on 21 January 1823.

In the early years, the population of Jackson consisted of 10 to 15 families and growth during the early 1800s was slow. However, the railroad came to Jackson in 1840, eventually opening transportation to other Mississippi cities and the nation to the east. The first railroad extended to Canton, MS (25 miles to the north) and in 1858, rail travel was completed from Jackson to New Orleans. The population was estimated at 529 in 1839, but had increased to 1,881 in 1850 and to 3,191 in 1860. As elsewhere across the south, cotton was king and the city prospered during the mid 1800s as agricultural products could be shipped to New Orleans by rail and to the rest of the world through that sea port.

Jackson was devastated during the Civil War. As the state capital, as well as a manufacturing and railroad center, Jackson was the focus of military activities throughout the war. The city was occupied four times in 1863 and 1864, each time undergoing significant destruction. Recovery after the war was slow, but as 1900 neared, Jackson began to rebound, especially as railroads radiated from the city. From 1900 through 1905, the population of Jackson more than doubled and the number of businesses tripled. The population in 1905 was estimated at 36,000. The growth and prosperity that began in the late 1800s and continued through 1905, was maintained through the mid 20th Century.

The early 20th Century also saw air traffic increase in Jackson and central Mississippi. Hawkins Field, located approximately three and one-half miles northwest of downtown, was dedicated on 9 November 1928. Airmail service was inaugurated to the city on 15 October 1930, setting the stage for continued growth in aviation. Hawkins Field continued to be the focus for private and commercial aviation through the 1950s.

The Jackson weather observing history is unique in that no Signal Service office was located in the city and Weather Bureau observations did not begin until 1931. Weather observations from 1849 to 1931 primarily were taken by individual citizens as part of the Smithsonian, Army Medical Department, and Signal Service/Weather Bureau Cotton Region, Voluntary, and Cooperative Observing Programs..

The first weather observations recorded at Jackson were taken in 1849 by students at the Oakland Institute, located near downtown. The observations were part of the Smithsonian Institution Program. Smithsonian observers took weather observations at Jackson sporadically through the 1850s and in the early 1870s, and U.S. Army surgeons took the observations from 1873 into 1876.

From 1883 through 1931, weather observing in Jackson was part of the Signal Service/Weather Bureau Cotton Region, Voluntary, or Cooperative Observing Programs. During this 48 year period, individual citizens observed the weather at various locations around the city.

The first regular and routine Weather Bureau observations were taken at Hawkins Field beginning in 1931 as part of the agency's aviation weather program. The Weather Bureau office was closed in June 1935 (due to budget restrictions during the Depression era) and aviation weather observations were taken at the airport by employees of the U.S. Department of Air Commerce (later to become the Commerce Department). During the same time, climatological observations were taken by a cooperative observer. The Weather Bureau office reopened in Jackson, and at Hawkins Field, in December 1938 and continued to take weather observations through 1960 (the end of this study).

Goal of the Study

The goal of this study is to document the primary weather observational path at Jackson, MS leading to the Weather Bureau observing program in the mid 20th Century. Descriptions of Jackson weather observations since around 1960 are available through easily obtainable climatic records, with the challenge being to identify and define the roots of the path that began in the 1800s and continued through times of significant transition in the early 1900s. Extrinsic observations, i.e., those by Smithsonian, Army Medical Department, cotton region, and voluntary (or cooperative) observers, are considered in relation to the beginning of the central observational stream eventually established by the Weather Bureau. This does not minimize the importance of these collateral observations, but rather focuses on the original events that led to the routine, formal weather observing program of modern times.

LOCATION OF OBSERVATIONS

The timeline of weather observing at Jackson, MS differed from many other stations in that no Signal Service office was located at this site and official Weather Bureau observations did not commence until 1931. Consequently, most weather observing, especially from 1883 until 1931, was performed by voluntary/cooperative observers, with the stations moving at fairly frequent intervals.

Informal Weather Observations (1854-1868)

Harold Garthur Evans, a physician, kept a fairly detailed journal from 20 March 1854 through 1 April 1868. However, entries in the journal were not made every day and appeared to be tied to significant weather and/or agricultural events. Weather entries were subjective, e.g., "Slow rain this morning," and "Windy from the southwest one of the heaviest rains that has fallen for four years. I am scraping cotton on the other side of the creek. The creek has not been as full but once before since I have lived here." The exact location of Dr. Garthur's observations could not be determined. However, the following note was found in the Mississippi Department of Archives and History: "Dr. Harold Garthur Evans was born in South Carolina 2 August 1805. He moved to Rankin County Mississippi on 31 December 1849 and lived at Steen's Creek in Rankin County." Steen's Creek was located near Florence which is approximately 10 miles southeast of Jackson.

Smithsonian Institution Observations (1849-1871)

Figure 2 shows the locations of the weather observations taken at Jackson by Smithsonian observers and U.S. Army surgeons for the period 1849 through 1876.

Figure 2. Locations of Smithsonian and U.S. Army Medical Department observers in Jackson from 1849 through 1876. Information is plotted on a current map of the city. North is at the top of the page and east-west distance across the map is approximately one- and one-third miles.

Oakland Institute (1849-1854)
Approximate Location – North West Street

In 1844, the "Ladies Institute" was opened by Mrs. Susan S. Oakley in Jackson. The goal of the school staff was to, "devote their attention to imparting a well grounded English education, a knowledge of ancient and modern Languages, the Sciences, Music, and all the accomplishments desirable in polite life." In 1845, Mrs. Oakley's husband, Thomas Oakley, joined her in managing the school. The name of the school was subsequently changed to "The Oakland Institute."

The first weather observations for Jackson in the National Climatic Data Center (NCDC) database were taken on 1 June 1849 by women students at the Oakland Institute. The first form signed (August 1849) was by Henrietta M. Van Winkle. Henrietta was listed as a "pupil." An accompanying document summarizing the August 1849 weather in Jackson stated: "Extract from the Meteorological Journal Kept by the Young Ladies of the First-Class at the Oakland Institute, Jackson Mississippi." Other students that signed observation forms included, Mary J. Matthews, Sally F. Swann, Catherine D. Barrett, Martha H. Marrifs, Fanny Oakley, and Mary Oakley.

These observations were listed in the Smithsonian Institution records under "Thomas Oakley." Smithsonian records stated the observations were taken from 1849 through 1852. However, based on the NCDC database, students at the Oakland Institute took weather observations at least through August 1854. The Oakland Institute was located on North West Street, just north of the intersection with Mississippi Street (Figure 2). However, exact position could not be determined.

Jackson Female Institute (1853-1854)
Approximate Location – West Street

In January 1854, Mr. and Mrs. A.R. Green purchased the Jackson Female Institute from a Mr. Turner M. Ellis. According to Smithsonian records, A.R. Green took weather observations in Jackson in 1854. However, the NCDC database also contains observations for A.R. Green for the month of January 1853 (no other observations were found in 1853 for this individual). The exact location of the observations by Mr. Green could not be determined. Also, his residence could not be determined, but a couple of documents at the Mississippi Department of Archives and History indicated the Jackson Female Institute was located on "West Street near the Baptist Church."

The NCDC database contains weather observations for the period of October 1855–December 1855 for a location identified as "Hatoh & Company" (name and spelling uncertain due to illegible handwriting on observation forms). The observations were taken on Smithsonian forms but Smithsonian records did not show this station or observer. No information could be found as to where in Jackson these observations were taken.

R.S. Jackson (1870-1871)
(Mississippi College)
Clinton, MS (Exact Location Unknown)

R.S. Jackson took weather observations for the Smithsonian during 1870 and 1871 at the Mississippi College (approximately eight miles west northwest of Jackson) in Clinton, MS. Other than the station being located somewhere at the college, no information could be found on the exact location. Observations for this station in the NCDC database are for December 1870 (first observation was 4 December 1870) and January 1871, extending through March 1871. The last observation for this site was 31 March 1871.

Weather Observations by Army Surgeons (1873-1876*)*

U.S. Army surgeons took weather observations in Jackson from May 1873 through December 1876 (based on the NCDC database). According to the NCDC database, the first weather observation by U.S. Army surgeons in Jackson was 1 May 1873 and the last observation on 31 December 1876. U.S. Army Surgeon publications suggest the observation period was 1873-1876 even though the fort was built in 1867.

Surgeons at Army forts usually took weather observations at the post hospitals. Weather Bureau documents prepared in the 1950s stated the hospital (and observations) was located at the southeast corner of Hooker and Willow Streets (Figure 2). U.S. Army Surgeon documents only stated, "The military post of Jackson occupies an elevated spot of about 15 acres to the west and adjoining the corporate limits of the city." The documents also stated that water had to be hauled around one mile from the Pearl River. The intersection of Hooker and Willow Streets is approximately one mile west of the Pearl River. GPS coordinates were 32°17'39"N 90°11'48"W. Elevation was 288 feet.

Cotton Region, Voluntary, and Cooperative Weather Observers (1883-1931)

Figure 3 shows the locations of the cotton region, voluntary, and cooperative weather observers in Jackson from1883 to 1931.

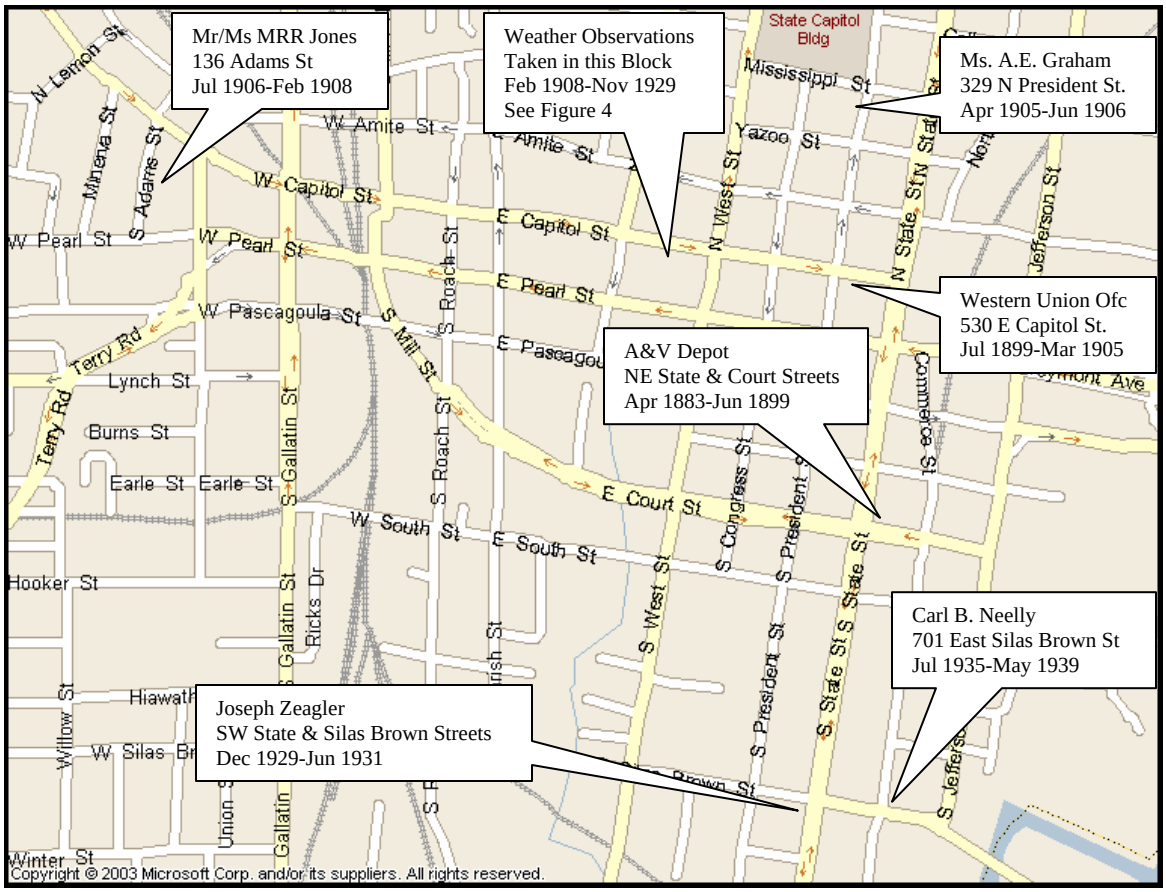


Figure 3. Locations of cotton region, voluntary, and cooperative observers from 1883 to 1931, plotted on a current map of Jackson. Also included is the location of the cooperative weather station at 701 East Silas Brown Street that took observations from 1 July 1935 through May 1939 when the Weather Bureau office at Hawkins Field was closed due to budget restrictions. North is at the top of the page. East-west distance across the map is approximately one and one-third miles.

According to available records, a weather observing gap existed between 31 December 1876 (last observations by the Army surgeons) and 1 April 1883 when cotton region observations were first available (in the NCDC database). According to Signal Service records, cotton region observations began in Jackson on 1 April 1882 (first observations available in the NCDC database were April 1883). Cotton region observations were taken from April through October (start and stopping times varied depending on available funding) to generally correspond to the growing/harvesting season for cotton. For an explanation of the Cotton Region observing program, refer to the Natchez, MS report under this contract (see Bibliography).

Alabama and Vicksburg Railroad Depot (April 1883-June 1899)
430 South State Street (Northeast corner of State Street and Court Street)

The first cotton region observation in the NCDC database on 1 April1883 was taken by John Keeton. The last observation taken by Mr. Keeton was 30 September 1883. The time of Mr. Keeton's observations was 5 p.m. local time.

Edward B. Bailey began taking cotton region observations on 1 October 1883 and continued through 31 October 1883 (end of the cotton region observing season). Mr. Bailey commenced observations again on 1 April 1884 (beginning of the cotton region observing season), with his last observation 30 April 1884.

Subsequent cotton region observers were the following:

1 May 1884 – 31 July 1884 – W.E. Blount
18 August 1884 – 31 August 1884 – Edward B. Bailey
1 September 1884 – 31 October 1884 – A.A. Edwards
1 May 1885 – 30 June 1885 – A.A. Edwards
1 July 1885 – 31 October 1885 – Edward B. Bailey
10 April 1886 – 31 October 1886 – R.B. Brown
1 May 1887 – 31 July 1887 – W.B. Wright
12 August 1887 – 30 October 1887 – C.C. Whitney
8 April 1888 – 31 May 1888 – B.M. Burns
1 June 1888 – 31 October 1888 – W.P. Moore
1 May 1889 – 30 June 1889 – W.P. Moore
1 July 1889 – 30 November 1889 – S.E. Flanagan
1 May 1890 – 30 September 1890 – James Kevil
1 October 1890 – 30 November 1890 – H.S. Wright
1 May 1891 – 30 November 1891 – H.S. Wright
15 April 1892 – 30 November 1892 – H.S. Wright
16 April 1893 – 30 June 1893 – R.C. Wright
1 July 1893 - C.A. Land

Beginning 16 April 1893, weather observations were taken essentially on a continuous basis (additional observations under the Voluntary Observer Program began

in December 1893) throughout the years at Jackson by Weather Bureau cotton region and voluntary/cooperative observers. Time of the observations was around 5 p.m.

According to the NCDC database, a few voluntary weather observations, i.e., observations continued during the winter months, appeared to have been taken as early as 1888. However, these observations were very sporadic. Based on all available information, the path that led to continuous weather observing in Jackson began with the group indicated above.

A conflict was found regarding where these initial weather observations were taken. Weather Substation History documents, as well as Station Location sections of *Local Climatological Data*, do not mention the location of weather observations in Jackson prior to June 1893. However, a few documents found in the National Weather Service Forecast Office in Jackson and in the Mississippi Department of Archives and History all state the first cotton region weather observations in April 1883 were taken at the Alabama and Vicksburg Depot (A&V Depot) located on Court and State Streets (see Figure 3). This seems reasonable since early cotton region observations (in the 1880s and 1890s) frequently were taken at railroad depots. It also agrees with the location mentioned in the Substation History documents and *Local Climatological Data* for observations taken after June 1893. The GPS coordinates for the A&V Depot were 32°17’41”N 90°10’47” W. Ground elevation was 283 feet above sea level.

C.A. Land was the observer from July 1893 through December 1898 and J.T. Park was the observer from April 1899 through June 1899. Mr. Land and Mr. Park both were telegraph operators for the A&V Railroad.

NOTE – Completed observation forms by voluntary/cooperative observers cease in the NCDC database after December 1902. Considerable reliance after this date was placed on observer information in the monthly Weather Bureau publications entitled, *Mississippi Section of the Climate and Crop Service of the Weather Bureau*.

Western Union Office (July 1899-March 1905)
530 East Capitol Street (south side of street)

A conflict was found with regard to the specific location of the Western Union Office in Jackson during the period of the voluntary/cooperative weather observations. Weather Bureau Substation History documents prepared in the 1950s listed the address for this location as 530 East Capitol Street and also stated the office was on the south side of the street. Sanborn insurance maps indicate the telegraph office remained at the same location-south side of the street and three buildings east of the western end of the intersection of Capitol and President street-from 1885 through 1905. However, the street number of the office changed twice. According to the Sanborn maps, the address of the office was 531 East Capitol Street, with 530 East Capitol Street located immediately west (buildings on the block were numbered consecutively with the address of the first building south of Capitol Street and east of President Street indicated as 528, the second building 529, etc.). By 1890, the numbering system had changed to even numbers on the

south side of Capitol Street and odd numbers on the north side. The block number also was changed from 500 block to 300 block and the address of the Western Union Office became 306 East Capitol Street. Between 1900 and 1904, the numbering system for the block was changed again with odd numbers on the south side of Capitol Street and even numbers on the north side. The number of the block also changed from 300 to 500, with the address of the Western Union Office becoming 509 East Capitol Street. At no time from 1885 through 1904 was the address of the Western Union Office listed as "530 East Capitol Street, neither on the Sanborn maps nor in the city directories.

- Voluntary/cooperative station located approximately one-quarter mile northwest of station at A&V Depot
- A.L. Julienne was the observer July 1899 – January 1900
- John M. Heaphy was the observer February 1900 – March 1900
- T.P. Cummings was the observer April 1900 – September 1902
- Joseph J. Ahern (line chief) was the observer October 1902 – February 1903
- George F. Graham was the observer March 1903 – March 1905
- All the observers worked for the Western Union telegraph office except George Graham who was employed by Postal Telegraph which was located next door to Western Union
- No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level
- GPS coordinates were 32°17'57"N 90°10'52"W. Ground elevation was 298 feet

Ms. Alice E. Graham (April 1905-June 1906)
329 North President Street

- The station was located approximately 1,000 feet north of the Western Union Office
- GPS coordinates were 32°18'9"N 90°10'52"W. Ground elevation was 302 feet

NOTE – Weather Bureau Station History documents (prepared in the 1950s), Climatological Service reports (prepared during the early 1900s), as well as the Station Location section of Local Climatological Data indicated cooperative observations from April 1905 through June 1906 were taken by Western Union employees at 530 East Capitol Street. However, the Weather Bureau cooperative observer inspection report on 20 March 1906 clearly stated the observations were taken at 329 North President Street by Ms. A.E. Graham. The inspection report was accepted as correct.

Mr. and Ms. Milton R.R. Jones (July 1906-21 February 1908)
136 Adams Street

- Station located approximately eight-tenths mile west of the previous station at 329 North President's Street

- Actual observer listed on the Weather Bureau's cooperative inspection report (17 July 1906) was "Mrs. Tempest E. Jones, but the residence belonged to Milton R.R. Jones
- No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level
- GPS coordinates were 32°18'2"N 90°11'45"W. Ground elevation was 320 feet

Barometer – Board of Trade Building (21 February 1908-18 March 1910)
210 East Capitol Street (in the basement)
Instrument Shelter and Rain Gage at 245 East Capitol Street (Post Office lot)

An investigation by local Weather Bureau officials in 1949 determined that from March 1908 to November 1929 (exact dates not specified) the instrument shelter and standard eight-inch rain gage were located over sod at the southwest corner of the Post Office lot at 245 East Capitol Street. During this period, the barometers were moved several times as described below. A conflict was found regarding barometer locations between the Weather Bureau Station History forms prepared in the 1940s and 1950s and documents on instrument status prepared during the early 20th Century. The latter information was supported by the cover sheets for the monthly observations and was accepted for this report.

Figure 4 shows the locations of the weather stations in Jackson from 21 February 1908 through June 1931.

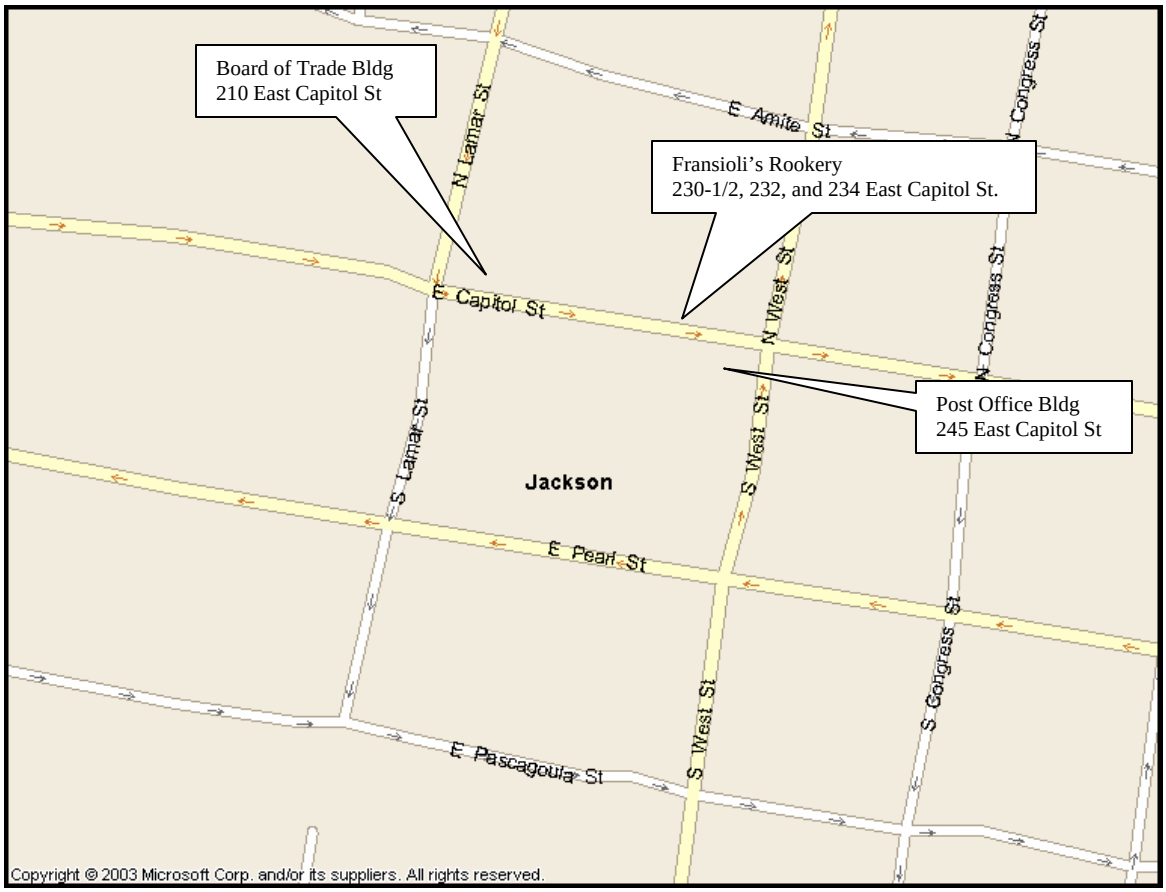


Figure 4. Locations of weather stations in Jackson from 21 February 1908 through June 1931, plotted on a current map of the city. North is at the top of the page.

- Barometer located at the Board of Trade Building, 210 East Capitol Street (in the basement) and Instrument shelter and rain gage on the SW corner of the Post Office lot (245 East Capitol Street)
- Board of Trade Building also known as the Lamar Mutual Life Insurance Building
- Station located approximately six-tenths mile east of previous site at 136 Adams Street
- The observer was Frank J. Heintz
- Listed elevation 280 feet above sea level
- GPS coordinates for the Board of Trade Building were 32°17'59"N 90°11'9"W. Ground elevation was listed as 280 feet
- GPS coordinates for the Post Office Building were 32°17'59"N 90°11'5"W. Ground elevation was 285 feet

Barometer – Board of Trade Building (19 March 1910-6 October 1912)
210 East Capitol Street (on the second floor of the building)
Instrument Shelter and Rain Gage Remained at 245 East Capitol Street (Post Office lot)

- Barometers located on the 2nd floor of the Board of Trade Building, 210 East Capitol Street
- Instrument shelter and rain gage remained at the southwest corner of the Post Office lot
- B.H. Klyce was the observer March 1910-December 1910
- A.S. Nall was the observer January 1911-October 1912
- Elevation of the barometers was listed as 297 feet above sea level
- GPS coordinates for the Board of Trade Building were 32°17'59"N 90°11'9"W. Ground elevation was listed as 280 feet
- GPS coordinates for the Post Office Building were 32°17'59"N 90°11'5"W. Ground elevation was 285 feet

Barometer – Board at Fransioli's Rookery (6 October 1912-31December 1920)
230-1/2 East Capitol Street (on the second floor of the building)
Instrument Shelter and Rain Gage Remained at 245 East Capitol Street (Post Office lot)

- Barometers located on the 2nd floor of Fransioli's Rookery at 230-1/2 East Capitol Street, building also included the addresses of 232 and 234 East Capitol St.
- The rookery was approximately 200 feet east of the Board of Trade Building
- Instrument shelter and rain gage remained at the Post Office lot
- A.S. Nall was the observer October 1912-September 1918
- E.E. Frantz (Justice of the Peace) was the observer October 1918-December 1920
- Elevation 304 feet above sea level. Ground elevation 285 feet

All Instruments at Post Office (31 December 1920–30 November 1929)
245 East Capitol Street

- Station located at the Post Office Building, 245 East Capitol Street
- Instrument shelter and rain gage remained at this location since 21 Feb 1908
- L.P. May was the observer January 1921
- Oscar H. Flowers was the observer February 1921-March 1922
- Albert S. Nall (broker) was the observer April 1922-March 1923
- A.G. McDonald (Post Office clerk) was the observer April 1923
- R.M. Striger was the observer May 1923-January 1924
- William H. Collins (clerk) was the observer January 1924-June 1927
- C.L. Walker was the observer July 1927-November 1929
- No barometer at this station, but elevation of the ground was estimated at 294 feet. Actual ground elevation was 285 feet

Joseph Zeagler (12 December 1929 – June 1931)
Southwest Corner of South State Street and Silas Brown Street

- Station approximately one mile south of previous location (Post Office)
- Address was 805 South State Street
- Mr. Joseph Zeagler was a merchant
- No barometer at this station, but elevation of the ground was estimated at 294 feet
- GPS coordinates for this station were 32°17’25”N 90°10’57”W. Ground elevation was 278 feet

Observations at Hawkins Field (1931-1938)

Jackson did not have a Signal Service or Weather Bureau city office (as occurred at many U.S. cities prior to observations taken at the airport). The first Weather Bureau observations at Jackson were at Hawkins Field located approximately three miles northwest of downtown (location of the Weather Bureau office; see Figure 5).

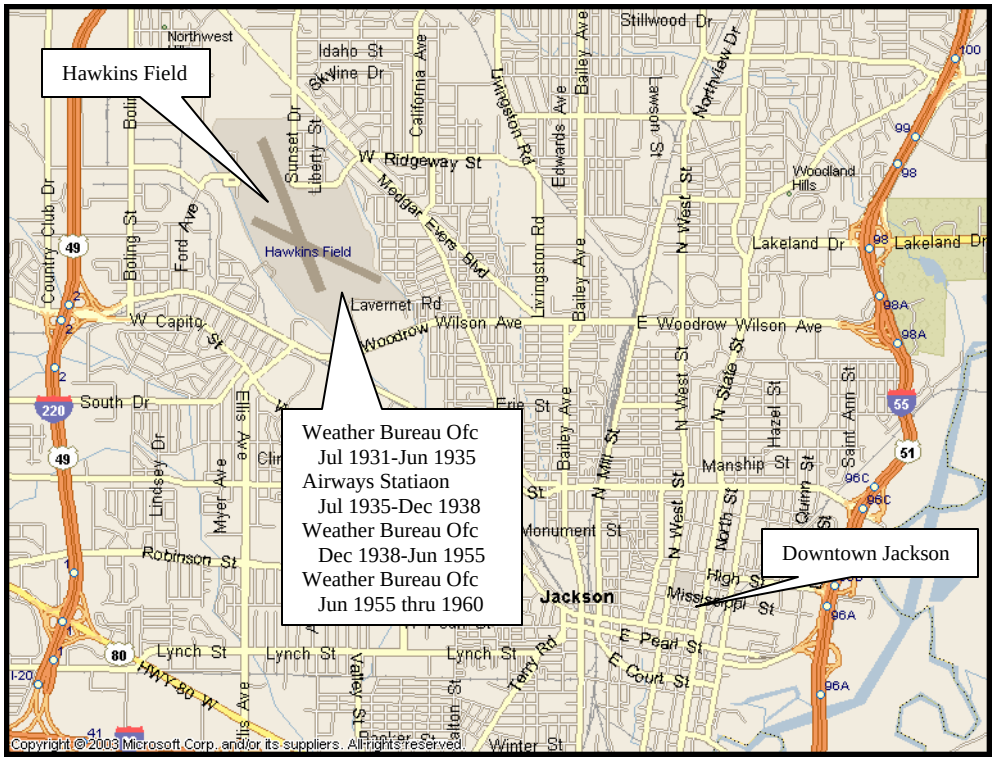


Figure 5. Location of Hawkins Field, Weather Bureau offices, and Department of Commerce weather station (Airways Radio Station) with respect to downtown Jackson. Information is plotted on a current map of the city. North is at the top of the page. East-west distance across the map is approximately five and three-quarters miles.

NOTE – All Weather Bureau station elevations in this report are for office barometers unless otherwise indicated. All elevations related to barometers in this report are above sea level unless otherwise indicated.

Weather Bureau Office (July 1931-June 1935)
Administration Building at the Municipal Airport (Hawkins Field)

- Office located approximately three and one-half miles northwest of previous location (Southwest corner South State and Silas Brown Streets
- Address for the Weather Bureau office in the Jackson City Directory was listed as 1130 Woodrow Wilson Avenue
- Elevation was listed as 323 feet above sea level
- The office was closed in June 1935 due to budget restrictions
- GPS coordinates 32°19'43"N 90°13'00"W

NOTE – Considerable conflict existed between information on Weather Bureau Station History forms prepared in the 1950s/1960s and forms in the mid 1930s with respect to the location of the weather instruments from June 1935 to November 1937. The timeline below was based on available information on the Weather Bureau forms in the mid 1930s.

Department of Commerce Radio Station Building (8 July 1935 – 15 November 1937)
Jackson Municipal Airport (Hawkins Field)

- Station Located 230 feet east of the previous Airport Administration Building
- Address of the "Airways Radio Station" was listed in the Jackson City Directory as "Airport Road" (previously called Woodrow Wilson Avenue
- Elevation 321 feet above sea level
- Only aviation observations were taken at this location, i.e., no climatological recordings. Climatological observations for the period were made at 701 East Silas Brown Street
- A note on a Weather Bureau inspection form stated that an elevation bench mark was "…on large concrete slab forming doorstep of Radio Station."

Department of Commerce Radio Station (15 November 1937 – 1 December 1938)
Airport Administration Building (Hawkins Field)

In 1937, a new Airport Administration Building was completed near the previous Administration Building. The previous Administration Building was moved farther west-southwest from its initial location. On 15 November 1937, the Department of Commerce Radio Station (Airways Station) moved into the new Administration Building.

- Station Located 230 feet west of the previous location (Department of Commerce Radio Station Building)
- Elevation was 332 above sea level

- Weather instruments were on the second floor of the Administration Building
- Only aviation observations were taken at this location, i.e., no climatological recordings. Climatological observations for the period were made at 701 East Silas Brown Street

Interim Cooperative Observer (1935-1939)

Carl B. Neelly (1 July 1935-May 1939)
701 East Silas Brown Street

- Station located on south side of street
- Station located approximately three and one-half miles southeast of the Weather Bureau station at Hawkins Field
- Station was located in the rear of an auto repair shop
- Observer was Carl B. Neelly (filling station and garage owner)
- No barometer at this site, but ground elevation estimated at 294 feet above sea level
- GPS coordinates 32°17’24”N 90°10’50”W. Elevation 295 feet

Observations at Hawkins Field (1938-1960)

Weather Bureau Office (1 December 1938 – 5 June 1955)
Airport Administration Building (Hawkins Field)

- Weather Bureau office located on the 2nd floor of the Administration Building (new) at the Jackson Municipal Airport (Hawkins Field)
- Instruments initially were situated approximately in the same location as for observations taken by the Department of Commerce Radio Station for 15 November 1937 – 1 December 1938
- Elevation 332 feet above sea level

Weather Bureau Office (5 June 1955 through 1960)
Operations Building (Hawkins Field)

- Weather Bureau office in the Operations Building of the Jackson Municipal Airport (Hawkins Field)
- Station located 200 feet west southwest of previous location (Administration Building)
- The old Administration Building was moved approximately 200 feet west-southwest when the new Administration Building was built and became the Operations Building
- Elevation 316 feet above sea level

INSTRUMENTATION

Informal Weather Observations (1854-1868)

No information could be found regarding weather instruments used by Harold Garthur Evans. Based on his diary from 1854 into 1868, it is unlikely that he used any instruments, i.e., weather descriptions were qualitative with indication of temperature, amount of rainfall, etc. No quantitative atmospheric recordings were made.

Smithsonian Institution Observations (1849-1871)

Oakland Institute (1849-1854)
Approximate Location – North West Street

Figures 6A and 6B show the first weather observations depicted in the NCDC database for Jackson (June 1849).

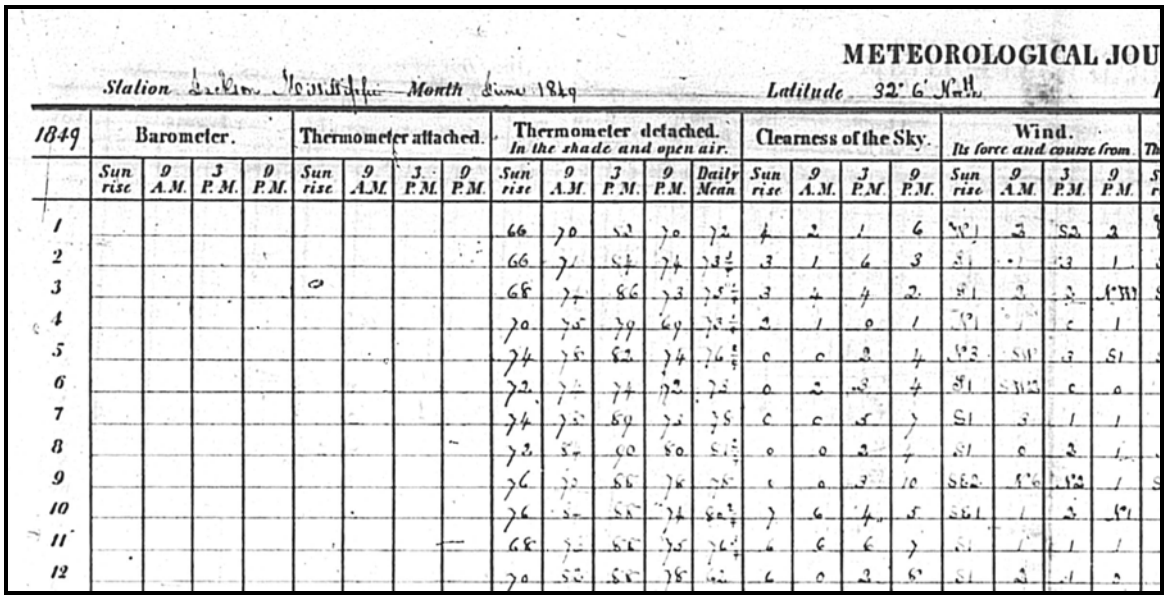
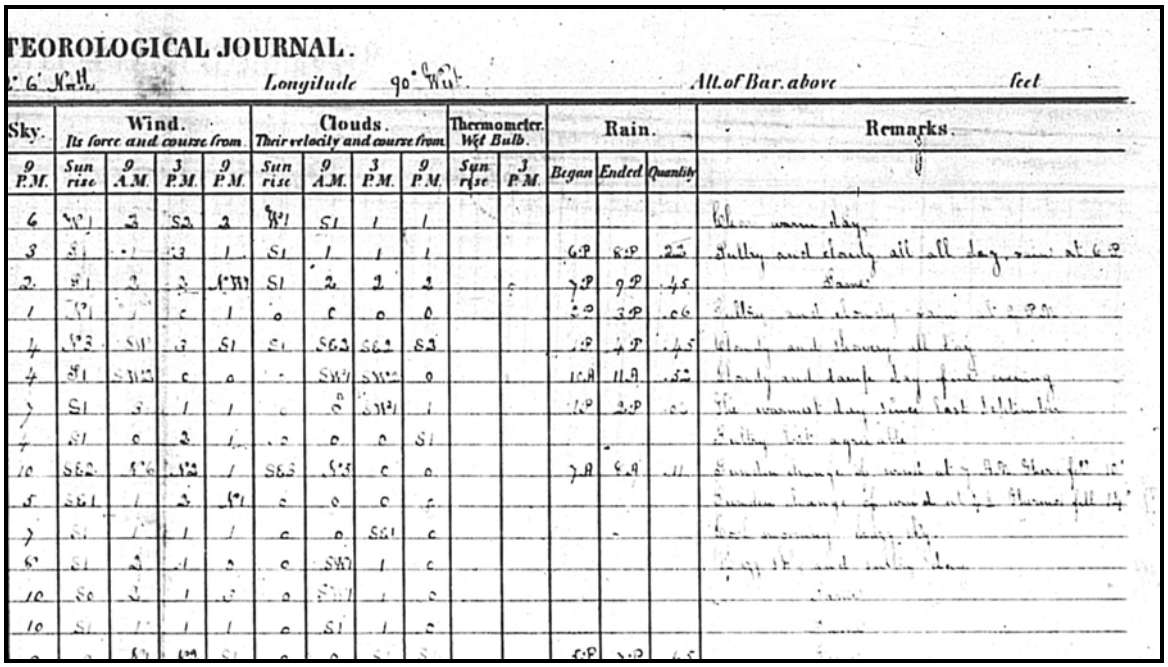


Figure 6A. Left side of the weather observing form for observations taken at the Oakland Institute in Jackson, MS in June 1849. Only the top half of the form is shown to improve readability. From the official station history files at the National Climatic Data Center.



TEOROLOGICAL JOURNAL.

Longitude 90° West. Alt. of Bar. above feet

Sky.	Wind. Its force and course from				Clouds. Their velocity and course from				Thermometer. Wet Bulb.		Rain.			Remarks.
9 P.M.	Sun rise	9 A.M.	3 P.M.	9 P.M.	Sun rise	9 A.M.	3 P.M.	9 P.M.	Sun rise	3 P.M.	Began	Ended	Quantity	
6	W1	3	S2	2	W1	S1	1	1						[illegible] warm day
3	S1	0	S3	1	S1	1	1	1			6:P	8:P	.23	Sultry and cloudy all day [illegible] at 6 P
2	S1	2	3	W1	S1	2	2	2		0	7:P	9:P	.45	Same
1	W1	1	0	1	0	0	0	0			2:P	3:P	.06	Sultry and cloudy [illegible]
4	W3	SW	3	S1	S1	S63	S63	S3			1:P	4:P	.45	Cloudy and showery all day
4	S1	SW3	0	0	0	SW1	SW2	0			10:A	11:A	.52	Cloudy and damp day [illegible] morning
7	S1	3	1	1	0	0	SW1	1			1:P	3:P	.05	The warmest day since last [illegible]
7	S1	0	3	1	0	0	0	S1						Sultry [illegible] again [illegible]
10	S63	W6	W3	1	S63	S5	0	0			7:A	8:A	.11	[illegible]
5	S61	1	3	W1	0	0	0	0						[illegible]
7	S1	1	1	1	0	0	S61	0						[illegible] morning [illegible] day
8	S1	3	1	0	0	SW1	1	0						[illegible]
10	S0	3	1	0	0	SW1	1	0						Same
10	S1	1	1	1	0	S1	1	0						[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			6:P	[illegible]	[illegible]	[illegible]

Figure 6B. Right side of the weather observing form for observations taken at the Oakland Institute in Jackson, MS in June 1849. Only the top half of the form is shown to improve readability. From the official station history files at the National Climatic Data Center.

First observation in the NCDC database for the Oakland Institute was on 1 June 1849 with observations through August 1854.

According to the observation forms, the students at the Oakland Institute observed/measured temperature, clearness of the sky, wind direction and force, cloud movement, and precipitation. Remarks regarding the daily weather also were included. Based on the observations, this station likely had a thermometer, rain gage, and probably, a wind vane. Wind force was most likely estimated. Although no specific information could be found regarding location, and/or exposure of weather instruments at the Oakland Institute, general descriptions regarding weather instruments were published in 1854 by the Smithsonian Institution through its Annual Report. This general description can be found in the Minneapolis/St. Paul, MN report under this contract (see Bibliography). Smithsonian instructions to observers were published in 1856 in its Annual Report.

Observations for the institute in the NCDC database for the following months:

1849 – June-December
1850 – No data
1851 – January – May, July – November
1852 – February – December
1853 – No data
1854 – Summaries for January through June

In addition to the daily observations (up to four observations each day), Oakland Institute students also prepared a summary at the end of each month highlighting the means, extremes and weather for the month. The November 1849 summary compared the month's rainfall to rain that fell in November 1848, suggesting the institute was taking observations prior to 1849.

In August 1849, Oakland Institute students began recording barometric measurements (a barometer was added to the station), as well as readings from the attached thermometer. On 18 January 1851, the students stopped taking pressure measurements.

In 1850, Dr. E.D. Fenner (from New Orleans), made the following comment regarding the weather observations at the Oakland Institute:

> "For the meteorological part of this essay, I am indebted to the kindness and industry of Mr. And Mrs. Oakley, principals of the Oakland Institute of Jackson, and the young ladies of the first class of that Institution. It affords me high gratification to be able, in this public manner, to bear testimony to their indefatigable efforts to promote the objects of science, and to say, from my knowledge of Mr. Oakley's methodical mode of business, that the register appended is substantially correct, and entitled to our highest confidence."

The terrain along all West Street through downtown Jackson was relatively flat with the greatest slope in the area where the Oakland Institute was located. In the general area of this station, the terrain sloped slightly down towards the southwest, i.e., approximately 10 feet per city block.

Jackson Female Institute (1853-1854)
Approximate Location – West Street

Observations for A.R. Green in the NCDC database are listed for the following months:

1853 – January
1854 – February – April, August

The observations in 1854 likely were taken at the Jackson Female Institute which was located on West Street (specific location not identified). A.R. Green made the following observations/measurements at 7 a.m., 2 p.m., and 9 p.m.:

1. Temperature – Dry Bulb
2. Atmospheric moisture – Wet Bulb
3. Precipitation – Beginning, ending, and daily amount
4. Wind direction and force (force expressed as a scale)
5. Cloud movement
6. Significant weather in a Remarks column

This station had two thermometers (dry bulb and wet bulb), rain gage, and most likely a wind vane. Wind force likely was estimated.

Weather observations at the Hatoh & Company location were taken at 7 a.m., 2 p.m., and 9 p.m. for the following parameters:

1. Temperature – Exposed
2. Precipitation amounts (daily)
3. Cloud amounts and direction of movement
4. Wind direction and force (force expressed as a scale)
5. Significant weather in a Remarks column

This station had a thermometer, rain gage, and most likely, a wind vane. Wind force likely was estimated. No information was found on this station.

R.S. Jackson (1870-1871)
(Mississippi College)
Clinton, MS (Exact Location Unknown)

R.S. Jackson took weather observations for the Smithsonian from December 1870 into 1871 at the Mississippi College in Clinton, MS (eight miles west northwest of Jackosn). Observations were taken at 7 a.m., 2 p.m., and 9 p.m. for the following parameters:

1. Barometric pressure
2. Temperature – Attached and detached
3. Precipitation – Beginning, ending, and daily amount
4. Type of clouds and movement
5. Wind direction and force (force expressed as a scale)

This station had a barometer, rain gage, two thermometers (attached and detached), and most likely a wind vane. Wind force likely was estimated.

Weather Observations by Army Surgeons (1873-1876*)*

The first weather observation by Army surgeons in Jackson (in the NCDC database) was on 1 May 1873. Maximum/minimum temperature readings commenced 13 May 1873. A note was included that stated, "Self-registering thermometers received May 12th."

U.S. Army surgeons took weather observations at 7 a.m., 2 p.m., and 9 p.m. for the following parameters:

1. Temperature – Exposed, maximum, and minimum
2. Atmospheric moisture – Dry bulb and wet bulb
3. Precipitation – Beginning, ending, and daily amount

4. Clouds – Amount and movement
5. Wind – Direction and force (expressed as a scale)
6. Significant weather in a Remarks column

This station had one thermometer (exposed), psychrometer (wet bulb and dry bulb thermometers), maximum thermometer, minimum thermometer, rain gage, and most likely a wind vane. The station may also have had an anemometer, but most likely, wind force was subjectively estimated. Weather instrument and observing instructions in effect in the War Department during the 1870s are contained in the reports for Fort Gibson, OK, Fort Union, NM, and Fort Snelling, MN under this contract (see Bibliography).

Beginning with the 2 p.m. observation on 11 September 1875, barometric readings were included. A note on the September 1875 observing form stated, "On the 11 instant I constructed a barometer by which I can make these observations. I think it desirable, if consistent with the interests of the service, that a 'Barometer and Thermometer attached' be furnished this post." Barometric readings continued to be made subsequently, along with the following comments:

> October 1875 – "The Barometer is a private instrument and it is not known whether Aneroid or Mercurial."
>
> December 1875 – "A private instrument, whose accuracy and construction are unknown."
>
> March 1876 – "The Barometer is not a government Barometer, and made by myself—but it would be preferable to have one as supplied to Regular Post."
>
> May 1876 – "This Instrument is private property, and its qualities are not known."

Figure 7 shows the site (intersection of Willow and Hooker Streets) indicated by the Weather Bureau to be the location of the U.S. Army hospital and accordingly, the place of the weather observations from 1873 through 1876.

Figure 7. Location of U.S. Army hospital (according to Weather Bureau documents) and site of weather observations by Army surgeons. View is east-southeast. Road on left side of picture is Hooker Street, with Willow extending left to right. Photograph by the author.

Cotton Region, Voluntary, and Cooperative Weather Observers (1883-1931

Alabama and Vicksburg Railroad Depot (April 1883-June 1899)
430 South State Street (Northeast corner of State Street and Court Street)

Cotton region observations that began in Jackson in the early 1880s consisted of maximum/minimum temperatures and 24 hour precipitation. Cotton region observers were furnished a maximum thermometer, minimum thermometer, and a rain gage. According to the NCDC database, John Keeton was the first cotton region observer. His first observation was 1 April 1883 and his last on 30 September 1883. Observation time was 5 p.m. local time.

Edward B. Bailey assumed cotton region observing responsibility on 1 October 1883. Mr. Bailey also used a maximum thermometer, minimum thermometer, and a rain gage. Observation times also were at 5 p.m.

Subsequent cotton region observers (i.e., through November 1893) also used a maximum thermometer, minimum thermometer, and rain gage. The following changes occurred during the 1890s:

1. Beginning in June 1893, cotton region observers began including starting and stopping times of precipitation.

2. Beginning 1 April 1895, cotton region observers included sky conditions at observation time (5 p.m.).
3. In October 1895, the observation times changed from 5 p.m. to 7 a.m.

The terrain around the depot was flat. Figure 8 is a picture showing the general area of the depot and flatness of the terrain.

Figure 8. Location of the A&V Railroad Depot looking northeast. Court Street extends from left-to-right through the photograph. Original depot no longer exists. Photograph shows the flatness of the terrain that surrounded the old depot. Photograph by the author.

In 1949, local Weather Bureau officials conducted an investigation as to the general location of weather instrument at the cooperative observer sites in Jackson from 1893 through 1939. For all the cooperative stations below, the officials were able to locate the observer or someone familiar with each observing site. As a result, the investigation was able to ascertain the general location of the instruments, i.e, whether the instruments were on the roof of a building or located over ground. That information was helpful for this report. Weather Bureau inspection reports beginning in March 1906 also were important in describing specific instrument exposures.

The 1949 investigation by Weather Bureau officials did not reveal the exact location of the instruments at the A&V Depot, and it was assumed the station was on the grounds of the depot.

Barometer – No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level. Actual ground elevation was 283 feet.

Instrument Shelter – Local Weather Bureau officials estimated the height of the maximum/minimum thermometers to be five feet above ground.

Rain Gage – Local Weather Bureau officials estimated the height of the rain gage to be three feet above ground.

Wind Instruments – No wind instruments were at this station.

1 July 1899 – March 1905 – Weather Bureau cooperative observer located at the Western Union Office, 530 East Capitol Street. Instruments were located in the rear of the Western Union Office on the south side of East Capitol Street. Observation time was 7 a.m.

Barometer – No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level. Actual ground elevation was 298 feet.

Instrument Shelter – The 1949 investigation indicated the instruments were moved from this location to the "old Western Union Office" in July 1900 and that the instruments may have been moved to the Postal Telegraph Office in March 1903. Based on Sanborn Insurance Maps for the period, the "old Western Union Office" and "Postal Telegraph Office" were the same building immediately west of the Western Union Office of 1900. Local Weather Bureau officials estimated the height of the maximum/minimum thermometers to be five feet above ground.

Rain Gage – See the 1949 Weather Bureau investigation listed under the instrument shelter. Local Weather Bureau officials estimated the height of the rain gage to be three feet above ground.

Wind Instruments – No wind instruments were at this station.

Figure 9 shows the location of the Western Union Office and Postal Telegraph Office. Terrain around the offices sloped gently down towards the west.

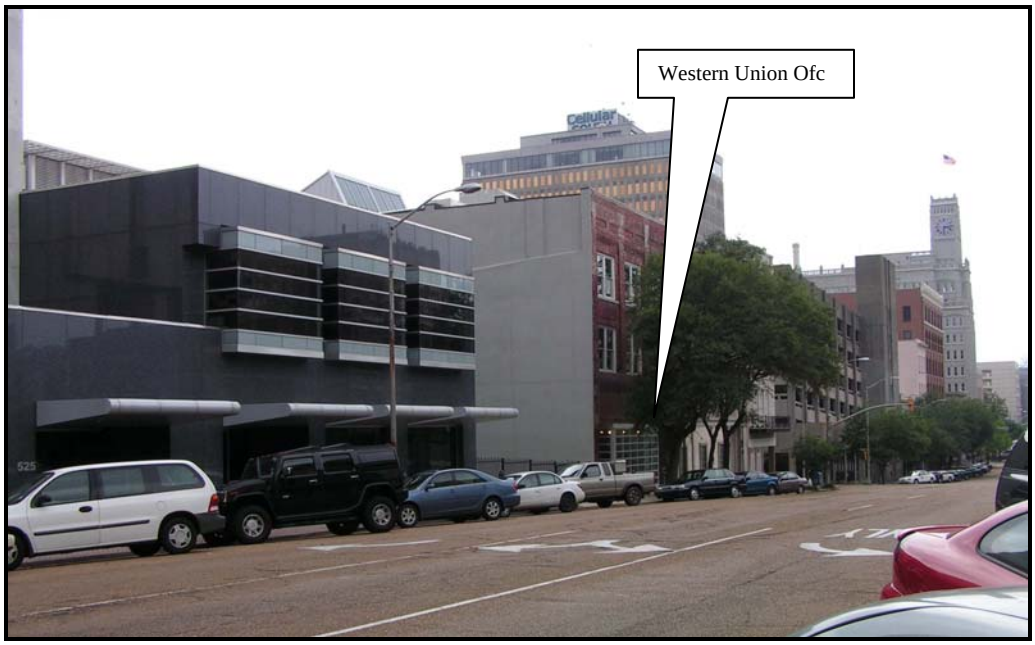


Figure 9. Locations of Western Union Office, old Western Union Office, and Postal Telegraph Office. View is southwest. Actual buildings may not currently exist. Old Western Union Office and Postal Telegraph Office (same building) were immediately west (right) of the label in the figure. Photograph by author.

April 1905 – June 1906 – Weather Bureau cooperative observer at 329 North President Street. The observer was Ms. A.E. Graham and the observation time was 7 a.m.

Barometer – No barometer at this station. Ground elevation was 302 feet.

Instrument Shelter – The instrument shelter was over sod with the floor of the shelter 55 inches above ground. The Weather Bureau inspection report (20 March 1906) stated the shelter and maximum/minimum thermometers were property of the "U.S. Weather Bureau," with the shelter 20 feet from the nearest highest object. The thermometers were approximately five feet above ground.

Rain Gage – The rain gage was located approximately three feet above ground. The Weather Bureau inspection report stated the nearest high object was 25 feet from the gage. The inspection report stated the gage was the property of the Weather Bureau.

Wind Instruments – No wind instruments at this station.

Figure 10 shows the topography around the site where this station was located. The terrain sloped gently to the south.

Figure 10. Location of weather station at 329 North President Street (April 1905-June 1906). Residence and station were on the right side of the street (west side) shown in photograph, but house has been demolished and large buildings currently occupy the site. View is southwest. Photograph by the author.

July 1906 – 21 February 1908 – Weather Bureau cooperative observer located at 136 Adams Street. Observers were Mr. and Ms. M.R.R. Jones. Observation time was 7 a.m.

Barometer – No barometer was at this station. Elevation of the ground was estimated to be 298 feet above sea level. Actual ground elevation was 320 feet.

Instrument Shelter – Local Weather Bureau officials estimated the height of the maximum/minimum thermometers to be approximately five feet above ground. The Weather Bureau inspection report (17 July 1906) stated the shelter was 50 feet from nearest high object

Rain Gage – Local Weather Bureau officials estimated the height of the rain gage to be five feet above ground. The inspection report stated the gage was fastened to a fence with the top of the gage five feet above ground. The gage was about 60 feet east of a tree that was approximately 50 feet high.

Wind Instruments – No wind instruments were at this station.

Figure 11 shows the topography around this observing site. Terrain sloped upward toward the north and northeast.

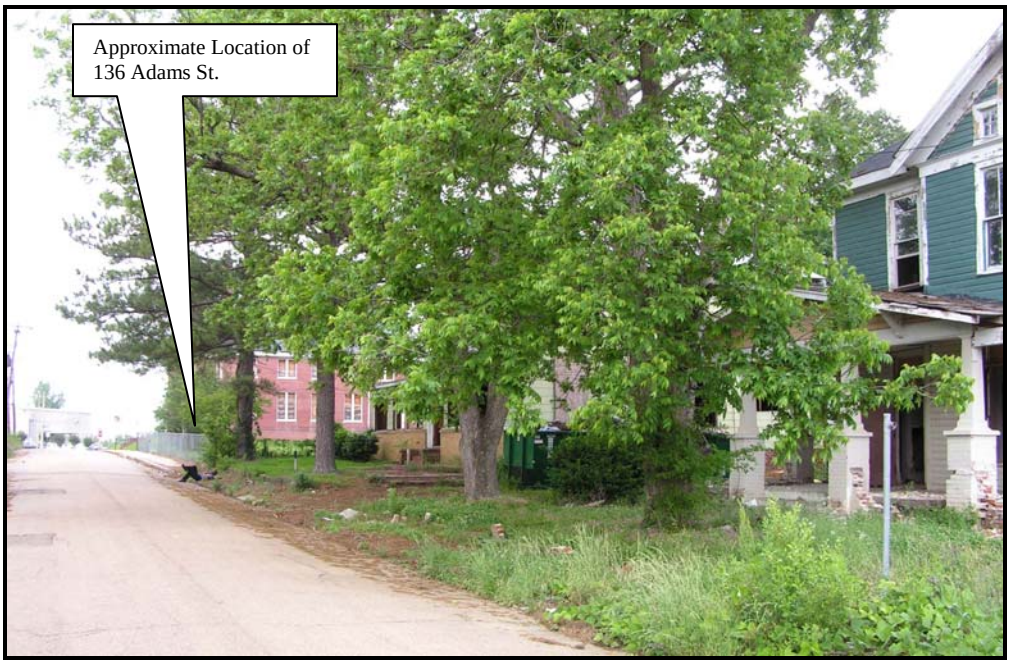


Figure 11. Location of weather station at 136 Adams Street (July 1906-February 1908). Residence and station were on the right side of the street (south side) shown in photograph, but house has been demolished. View is northeast. Photograph by author.

21 February 1908 – 18 March 1910 – Weather Bureau cooperative station at the Board of Trade Building, 210 East Capitol Street, and Post Office lot, 245 East Capitol Street.

Barometer – Barometers located in the basement of the Board of Trade Building building, with the listed elevation 280 feet above sea level. Ground elevation was 280 feet above sea level.

NOTE – The following note was included in the 1960 Annual Summary of the Local Climatological Data: "…the thermometers and rain gage were apparently in SITU during the entire period February 1908 – December 1929, at U.S. Post Office, on lawn, at 245 East Capitol Street."

Instrument Shelter – The cotton region instrument shelter was located over sod on the southwest corner of the lot containing the Post Office (Figure 12 and Figure 13). The shelter was two feet long, two feet wide, and two feet high, with the floor of the shelter four feet above ground. The exposed thermometer and maximum/minimum thermometers were five feet above ground.

Rain Gage – The rain gage was located at the southwest corner of the lot containing the Post Office. The gage was three feet above ground.

Wind Instruments – No wind instruments were at this station.

Additional Equipment/Information – No observation time was indicated for this station.

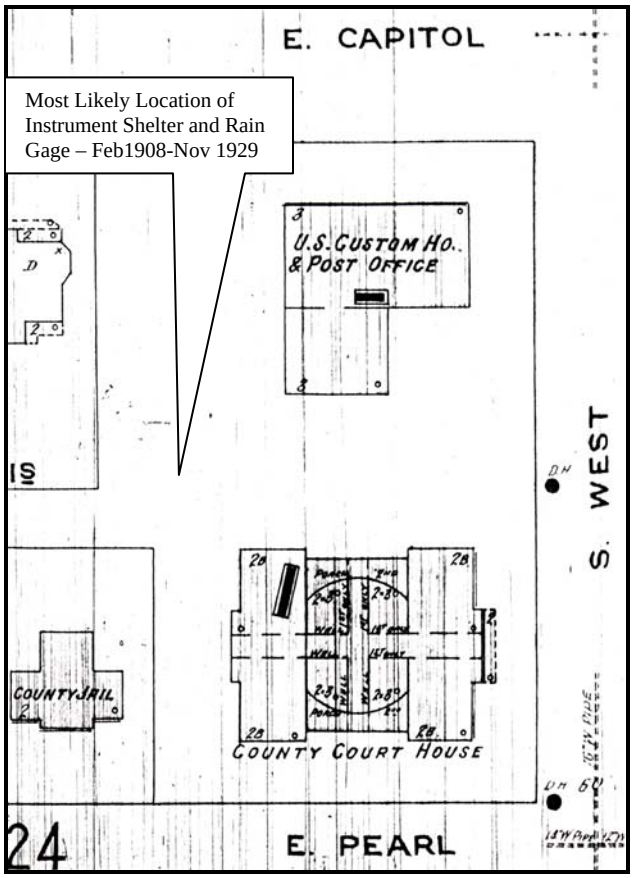


Figure 12. Location of instrument shelter and rain gage 21 February 1908 through 30 November 1929. Information plotted on a 1909 Sanborn Map. North is at the top of the map. From the Jackson Public Library.

Figure 13. Most likely location of the instrument shelter and rain gage from 21 February 1908 through 30 November 1929. Building in center of photograph is the Post Office building that was built in 1934. It is in the approximate position as the one indicated in Figure 12, except larger in size, both horizontally and vertically. View is northeast. Photograph made by the author.

Figure 14 shows Capitol Street and the location of the weather stations. The terrain sloped gently upward from west to east along the street.

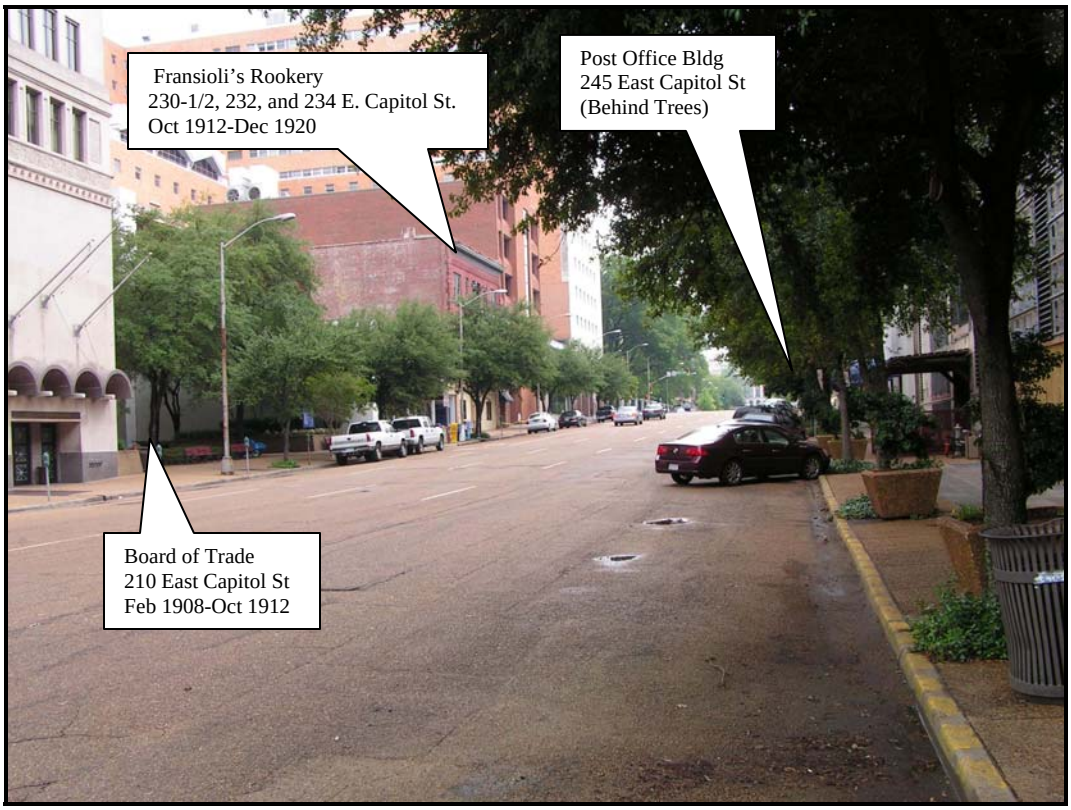


Figure 14. Locations of Weather Bureau cooperative observer barometers on Capitol Street 21 February 1908-31 December 1920. Photograph shows the gentle slope of the terrain. View is east-northeast. The Fransioli Building indicated in the photograph was built by Charles A. Fransioli around 1905 as a place for his popular variety store, "New Rookery." Photograph by the author.

19 March 1910 – 6 October 1912 – Weather Bureau cooperative station located at the Board of Trade Building, 210 East Capitol Street, and Post Office lot, 245 East Capitol Street.

Barometer – The barometers were attached to a west facing fall, approximately three feet south of the north wall of the office on the second floor of the building. Elevation of the barometers was 297 feet above sea level.

Instrument Shelter – Instrument shelter and thermometers (exposed and maximum/minimum) remained at the southwest corner of the Post Office lot.

Rain Gage – The rain gage remained at the southwest corner of the Post Office lot.

Wind Instruments – No wind instruments were at this station.

Additional Equipment/Information –Observation time for this station was 8 a.m. local time.

6 October 1912 - 31 December 1920 – Weather Bureau cooperative station at Fransioli's Rookery at 230-1/2 East Capitol Street (also 232 and 234 East Capitol Street), and the Post Office lot at 245 East Capitol Street.

Barometer – The barometers were on the second floor of Fransioli's Rookery Building. The elevation of the two mercurial barometers was listed as 304 feet above sea level. Ground elevation was 285 feet. To lighten the workload on the observer, the barometric pressure observations were discontinued 1 March 1920 and the barometers removed.

Instrument Shelter – The cotton region instrument shelter and thermometers (exposed and maximum/minimum) remained on the southwest corner of the Post Office lot approximately 10 feet from a board fence (8 feet high). Bottom of the shelter was four feet above sod. The Weather Bureau inspection on 10 February 1920 stated the shelter was in good shape and did not need any repairs or need painting. The 1 July 1920 inspection report stated the thermometers were badly corroded and were cleaned by the inspector.

Rain Gage – The standard rain gage remained on the southwest corner of the Post Office lot about 7 feet from the instrument shelter and 17 feet from an 8 foot high board fence. The top of the gage was three feet above ground. The Weather Bureau inspection on 10 February 1920 stated the exposure of the gage was satisfactory. The same inspection report stated:

"The amounts of precipitation for 24-hour periods in form 1001-A are from 7 p.m. to 7 p.m., while those entered in form 1006 are from 7 a.m. to 7 a.m. This procedure appears to be the cause of endless complications and a frequent source of errors in the monthly reports. Two decidedly different 24-hour precipitation entries are the result of this system, so that the records are likely to be apparently inconsistent for local use."

Wind Instruments – No wind instruments were at this station.

Additional Equipment/Information – This station also had a chain and weight river gage. Observation time was 8 a.m. until 1 March 1920 when it was changed to 7 a.m.

31 December 1920 – 30 November 1929 –Weather Bureau cooperative observer located at the Post Office Building, 245 East Capitol Street.

Barometer – No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level. Actual ground elevation was 285 feet.

Instrument Shelter – The instrument shelter had remained at this location since 21 February 1908 (southwest corner of the Post Office lot). The exposed and maximum/minimum thermometers were five feet above ground. A Weather Bureau inspection on 5-6 October 1922 found the thermometers to be badly corroded. The inspector cleaned the instruments. The same inspector also stated one of the shelter supports was decayed and should be replaced, and that the shelter should be painted. The inspector on 29-30 March 1923 also reported the instrument shelter needed painting. The inspection also stated the shelter was not braced against the wind, but repairs were made in May 1923. Inspection reports throughout the 1920s-8-9 May 1923, 18-19 January 1924, and 3-4 February 1926 all indicated the shelter needed painting.

Rain Gage – The rain gage had remained at this location since 21 February 1908 (southwest corner of the Post Office lot) and was three feet above ground. Weather Bureau inspections reported exposure of the rain gage to be satisfactory. An inspection on 8-9 May 1923 stated the rain gage was moved to a different location, but still in the immediate vicinity of the instrument shelter (exact location appears to be a site southeast of the shelter, i.e., still located on the southwest part of the Post Office lot). The inspection report on 3-4 February 1926 stated that branches from a nearby tree were within a few feet of the rain gage.

Wind Instruments – No wind instruments were at this station.

Additional Equipment/Information – Observation time was not specifically indicated, but the inspection report on 29 March 1923 stated the following:

"Appears desirable that the instrument shelter be wired for one light, as for several weeks the observation is taken before daylight and the requirement for a p.m. observation also makes necessary the occasional use of artificial light. The observer has made use of an oil lantern for this purpose."

12 December 1929 – June 1931 – Weather Bureau cooperative observer located on the southwest corner of South State Street and Silas Brown Street.

Barometer – No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level. Actual elevation 278 feet.

Instrument Shelter – The maximum/minimum thermometers were five feet above ground. The instrument shelter was painted between 14 December 1929 and 4 March 1931, most likely around January 1930.

Rain Gage – The rain gage was three feet above ground.

Wind Instruments – No wind instruments were at this station.

Additional Equipment/Information – No observation time was indicated for this site. This station had two section staff river gages. The Weather Bureau inspection report on 12-14 December 1929 stated:

> "It seems difficult to keep a good observer at Jackson even though he is paid $20 per month, due to the fact that the courts, the newspapers, and the public generally are ever demanding more information."

Figure 15 shows the terrain around the location of this observation site. The terrain was flat in this part of Jackson.

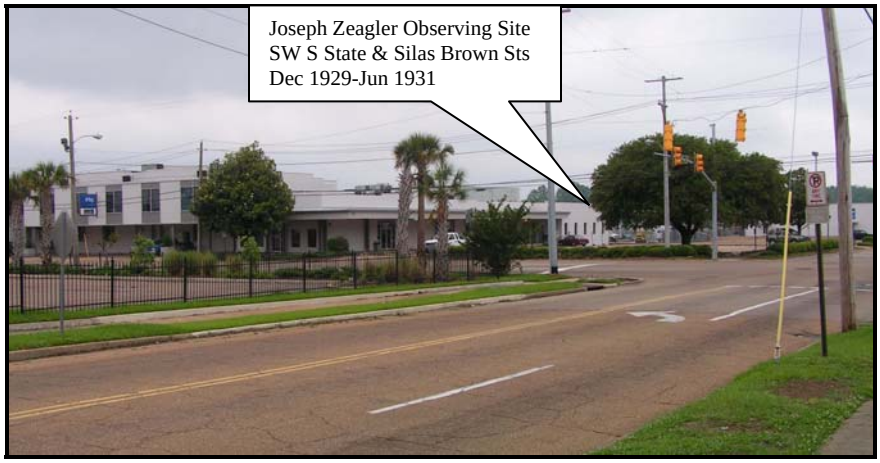


Figure 15. Observing site and residence for Joseph Zeagler at southwest corner of South State Street and Silas Brown Street. View is southwest. Street in foreground is Silas Brown Street. Original buildings no longer exist, but photograph shows flatness of the terrain. Photograph by the author.

Observations at Hawkins Field (1931-1938)

Figure 16 is an enlargement of Hawkins Field that shows the locations of the Weather Bureau and Department of Commerce offices from July 1931 through 1960. The terrain immediately around the observing sites was relatively flat. More hilly type terrain prevailed north of the airport.

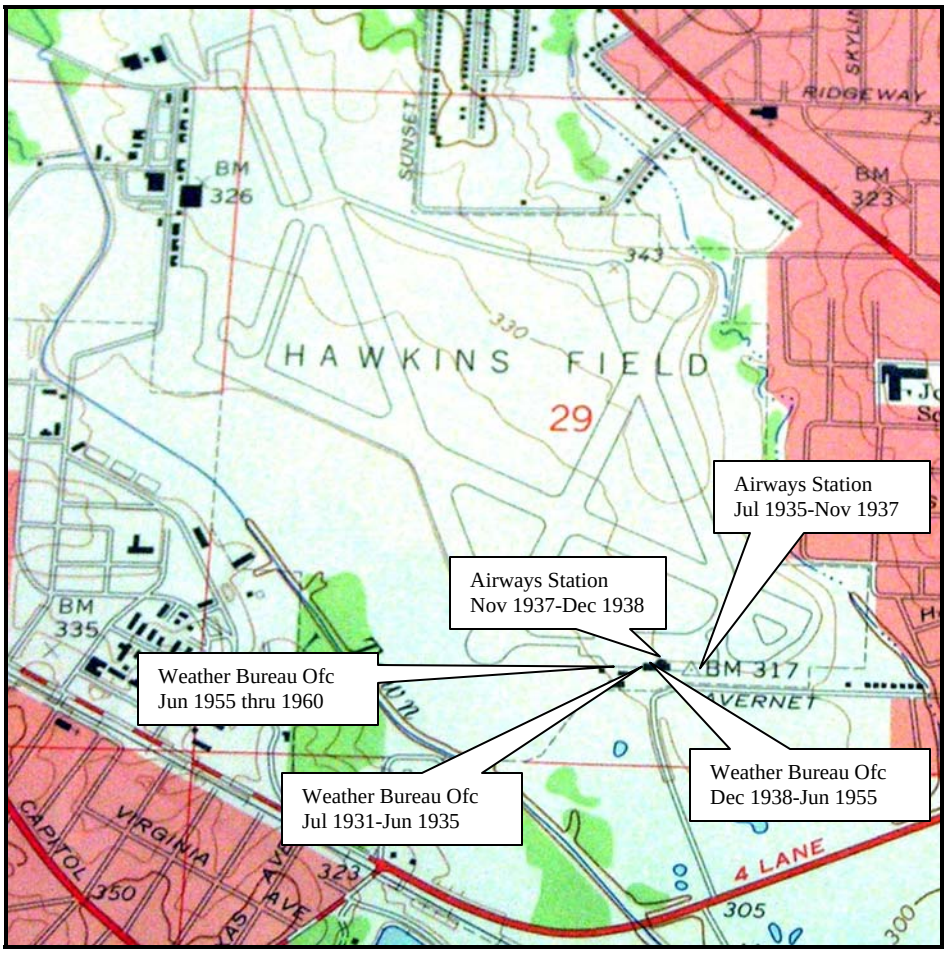


Figure 16. Topographical map (prepared 1963) showing the locations of the Weather Bureau offices and Airways Stations (Department of Commerce) from July 1931 through 1960. North is at the top of the page. East-west distance across the map is approximately one and one-third miles. From the Jackson Municipal Library.

Figures 17 and 18 are current photographs showing the locations of the Weather Bureau and Department of Commerce offices from July 1931 through 1960.

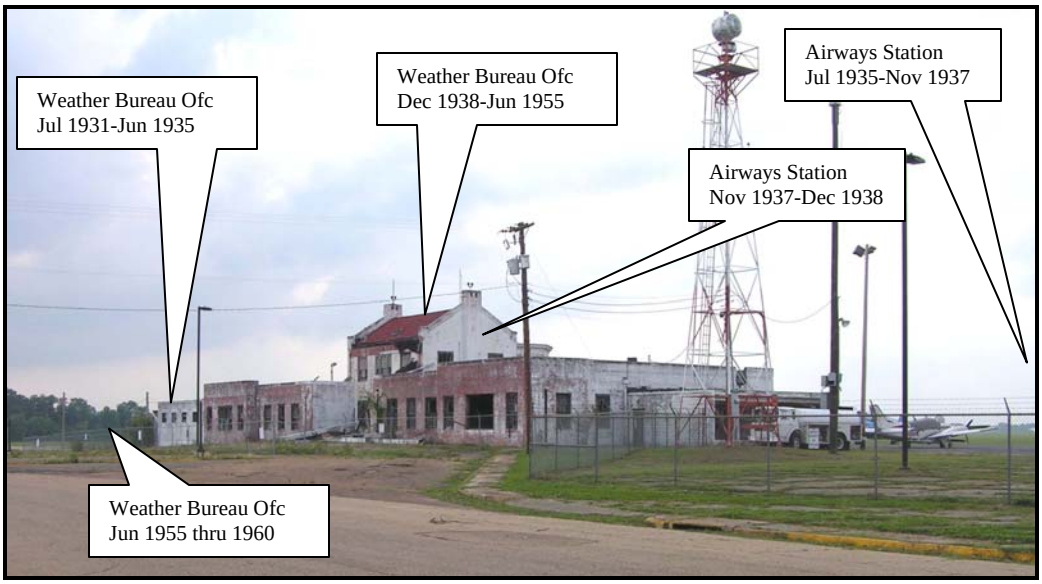


Figure 17. Current photograph showing the locations of the Weather Bureau and Department of Commerce weather stations from July 1931 through 1960. Building in center of photograph is old Airport Administration Building built in 1937. Previous Weather Bureau building and Department of Commerce office do not exist. View is northwest. Photograph by the author.

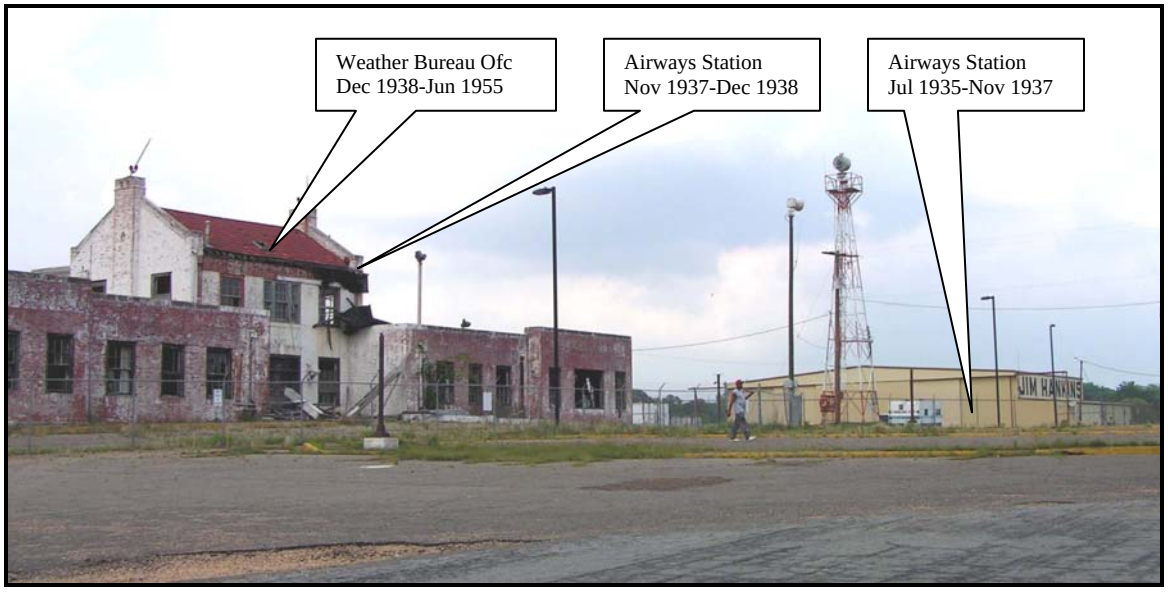


Figure 18. Current photograph showing the locations of the Weather Bureau and Department of Commerce weather stations from June 1935 through June 1955. Building in left part of photograph is old Airport Administration Building built in 1937. Airways Radio Station Building no longer exists. View is northeast. Photograph by the author.

July 1931 – June 1935 – Weather Bureau office located in the Administration Building at the Jackson Municipal Airport (Hawkins Field). The Administration Building was an

old farm house (see Figure 19) and the Weather Bureau office was in a room in the north end of the building (Figure 20).

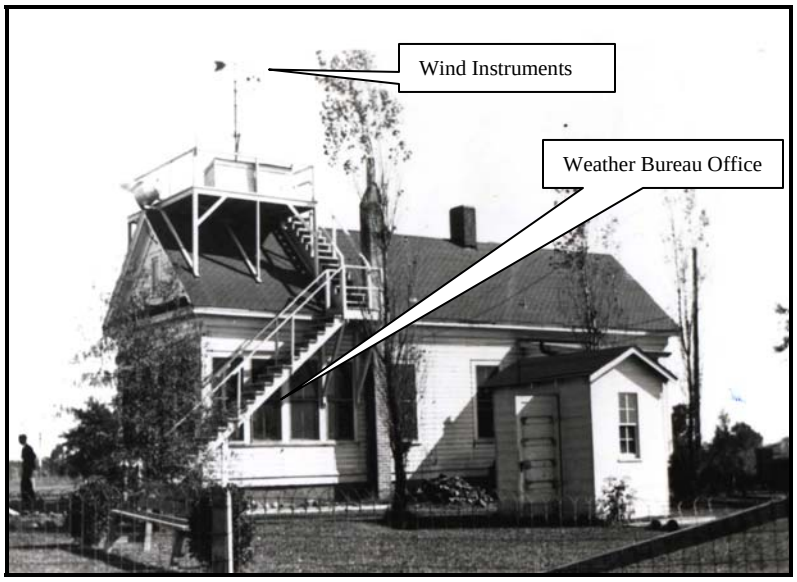


Figure 19. Airport Administration Building at the Jackson Municipal Airport (circa 1933). View is southeast. From Weather Bureau files.

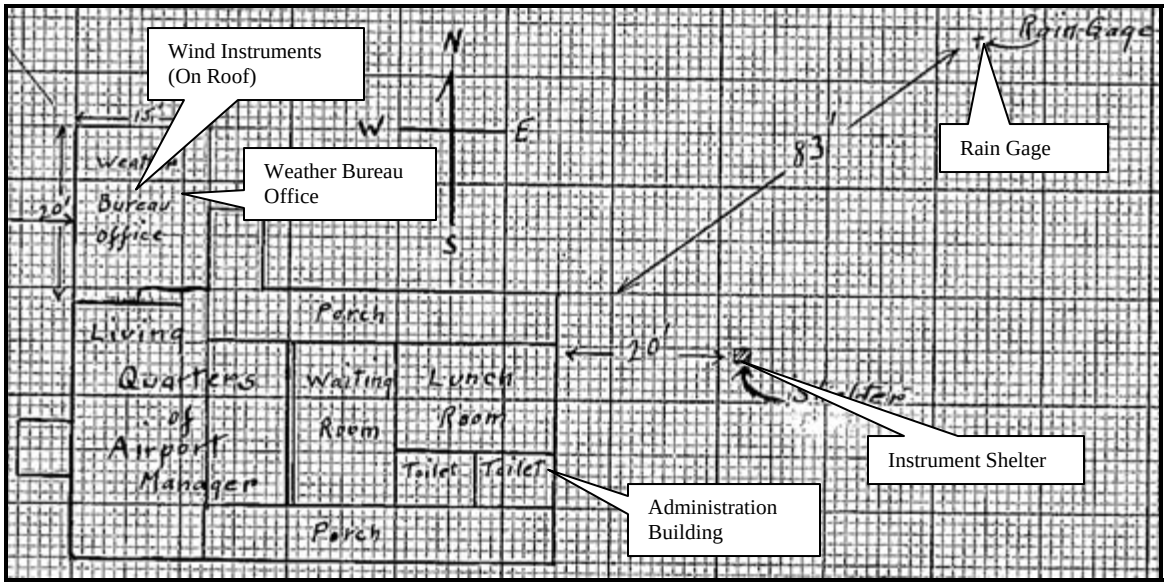


Figure 20. Schematic of Administration Building, showing Weather Bureau office, and weather instruments at the Jackson Municipal Airport (13 January 1933). North is at the top of the page. From the official station history files at the National Climatic Data Center.

Barometer – This station had an aneroid (Tycos) and two mercurial barometers (operational and extra). Elevation of the barometers was 323 feet above sea level.

The aneroid barometer was on the north wall of the Weather Bureau office in the Administration Building. Between 13 January 1933 and 1 January 1935 (no exact date could be found for the move), a building was built to house a "Remote Control Radio Station," i.e., an Airways Radio Station (Department of Commerce). The Airways Radio Station wast approximately 230 feet east of the Weather Bureau office (see Figure 22) and the aneroid barometer was moved to the east wall of that building. Elevation of the instrument did not change significantly.

The mercurial barometers were mounted on barometer boards on the south wall of the Weather Bureau office, approximately three feet above the floor (Figure 21). The mercurial barometers remained in the Weather Bureau office (Administration Building) through 1 June 1935. A barograph was installed by 22 March 1935.

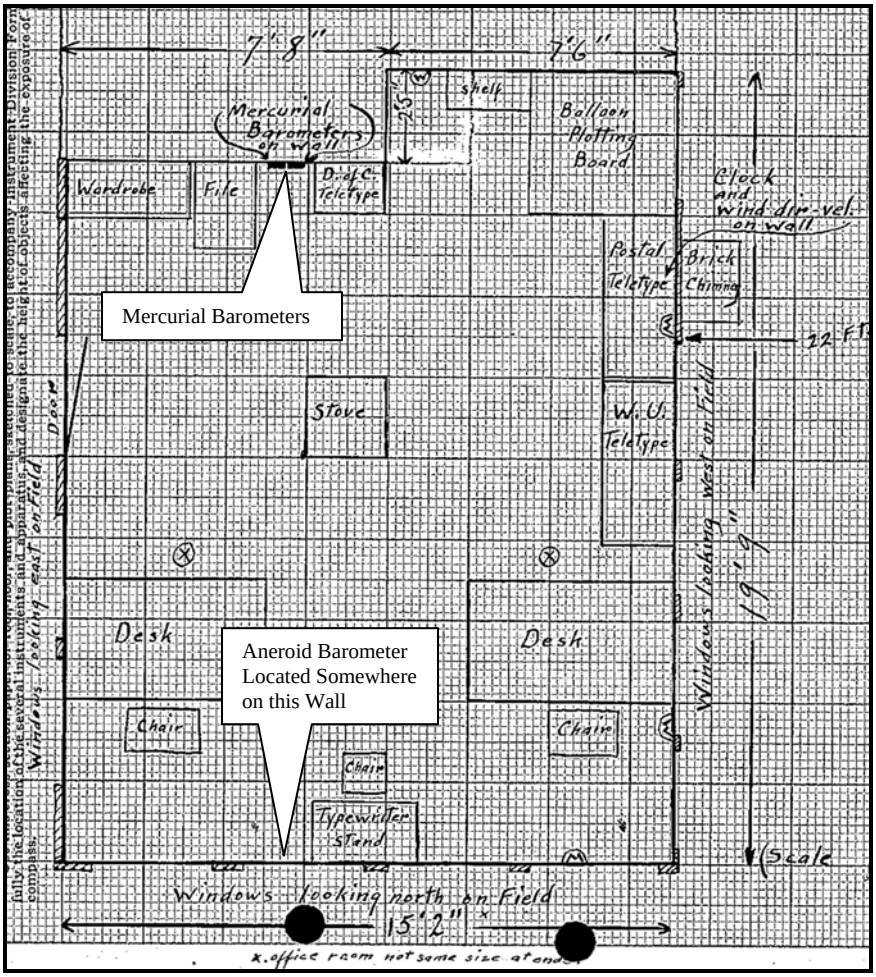


Figure 21. Weather Bureau office in the Administration Building at the Jackson Municipal Airport (13 January 1933). North is at the top of the page. From the official station history files at the National Climatic Data Center.

Instrument Shelter – The cotton region shelter was located four feet above the ground and was 20 feet east of the Administration Building (Figure 20). The exposed, maximum/minimum thermometers, and psychrometer were five feet above ground. Between 13 January 1933 and 1 January 1935, the instrument shelter was moved to a position over sod 230 feet east of the Administration Building and 15 feet south of the radio station building (Figure 22). No exact date could be found for the move.

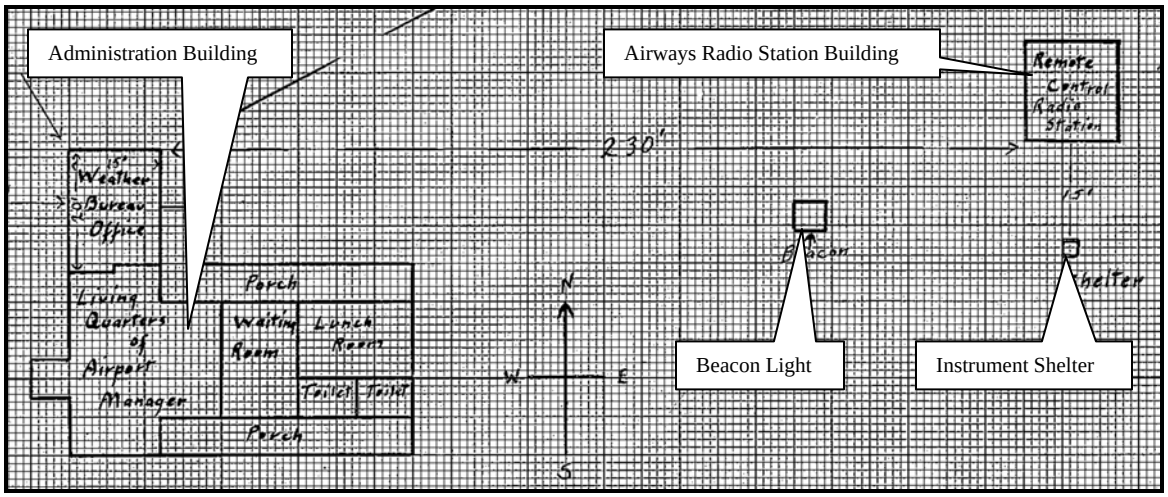


Figure 22. Schematic of Administration Building, Weather Bureau office, and weather instruments at the Jackson Municipal Airport (1 January 1935). North is at the top of the page. From the official station history files at the National Climatic Data Center.

Rain Gage – The standard eight-inch rain gage was located 83 feet northeast of the Administration Building (Figure 20) and was three feet above ground. Between 13 January 1933 and 9 September 1933 (exact date unknown), the rain gage was moved to the southeast corner of the platform on the roof of the Administration Building, approximately 5 feet above the roof and 28 feet above ground.

Wind Instruments – A 3-cup anemometer and 3 foot wind vane (changed to a 4 foot vane by 22 March 1935) were located on the roof of the Administration Building 12 feet above the roof and 37 feet above ground (Figures 19 and 20). Between 13 January 1933 and 1 January 1935, the wind instruments were moved to the roof of the radio station building, approximately 230 feet east of the Administration Building (Figure 22). The instruments were 13 feet above the roof of the radio station building and 28 feet above ground. No exact date could be found for the move.

Additional Equipment/Information – The following note was included on a Weather Bureau form prepared 22 March 1935, “Beginning November 15, 1934, surface observations taken by Bureau of Air Commerce employees, except when

taken by Weather Bureau employees." This Weather Bureau station was closed in June 1935 due to budget restrictions, with aviation observations assumed by Air Commerce employees. Also in June 1935, official weather observations at Jackson as part of the climate program were assumed by a cooperative observer at 701 East Silas Brown Street (see description of this station below).

8 July 1935 – 15 November 1937 – Department of Commerce Radio Station Building at the Jackson Municipal Airport.

Only aviation observations were taken at this location, i.e., no climatological recordings. Climatological observations for the period were made at 701 East Silas Brown Street.

Information was sketchy regarding this station, but aviation weather observations were taken at the station by Department of Commerce during the period the Weather Bureau office was absent.

Barometer – Elevation of the barometer was 321 feet above sea level. No information could be found as to the type or location of the barometer, except the note from the previous station that said the aneroid barometer was moved from the Weather Bureau station in the Administration Building to the Airways Radio Station between 1933 and 1935 and was located on the east wall of radio station building. Elevation of the instrument did not change significantly.

Instrument Shelter – No information could be found regarding where the instrument shelter was located. However, temperature and dew point readings were made during the period as part of the aviation weather observations. When the Weather Bureau office was closed (at the Administration Building), the instrument shelter was located approximately 15 feet south of the Airways Radio Station. No information could be found as to whether the shelter remained in the same location through this period.

Rain Gage – Rainfall amounts were included in the daily observations so this station had a rain gage. No information could be found as to the type or location of the gage. When the Weather Bureau office closed, the rain gage was located on the roof of the old Administration Building so the gage likely was moved.

Wind Instruments – No information could be found regarding the location of the wind instruments. However, wind direction and speed measurements were included in the aviation observations for the period. Between 13 January 1933 and 1 January 1935, the wind instruments were moved to the roof of the radio station building from the old Administration Building that was located 230 feet to the west (Figure 22). The instruments were 13 feet above the roof of the radio station building and 28 feet above ground. No exact date could be found for the move, but the wind instruments likely remained in the same location through this period.

15 November 1937 – 1 December 1938 – Department of Commerce Radio Station in the new Airport Administration Building at the Jackson Municipal Airport (Hawkins Field). Figure 23 shows the location of the weather instruments at the Airport Administration Building on 15 November 1937.

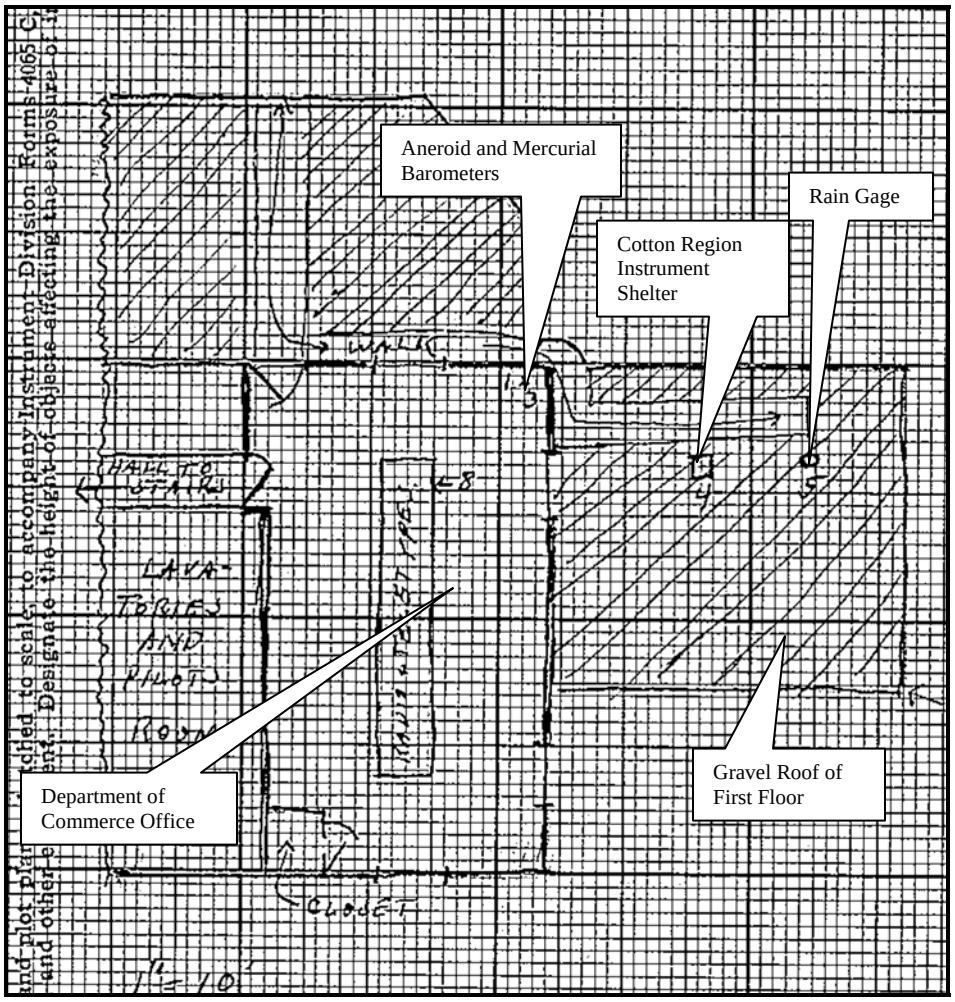


Figure 23. Location of weather instruments at the Airport Administration Building on 15 November 1937. North is at the top of the page. From the official station history files at the National Climatic Data Center.

<u>Barometer</u> – This station had a mercurial barometer, aneroid barometer, and seven-day barograph. The aneroid barometer (Tycos) was fastened to the north wall of the office near the northeast corner. The mercurial barometer (H.J. Green) was on the east wall near the northeast corner of the office. No information was found regarding the location of the barograph. Elevation of the barometer was listed as 332 feet above sea level.

Instrument Shelter – The cotton region instrument shelter was located four feet above the gravel roof of the first floor of the Administration Building. A second story wall rose 10 feet above the first story roof and was 10 feet west of the instrument shelter. The shelter contained an exposed thermometer, fan psychrometer, and maximum/minimum thermometers.

Rain Gage – The standard eight inch rain gage was located on the roof of the first floor of the Airport Administration Building. The top of the gage was approximately three feet above the roof. A 10 foot tall wall was located 20 feet west of the rain gage.

Wind Instruments – The wind instruments were located on top of a 50 foot tower supporting a beacon light for the airport. The tower was approximately 100 feet east-southeast of the Administration Building. The anemometer was a three-cup type and the wind vane was a three-foot metal variety.

Interim Cooperative Observer (1935-1939)

1 July 1935 – May 1939 – Cooperative observer station located at 701 East Silas Brown Street. Figure 24 shows the general area where the cooperative observations were taken from 1935 to 1939.

Figure 24. General area surrounding 701 East Silas Brown Street. Original structures no longer standing, but photograph shows the general flatness of the terrain. The Pearl River is behind the trees in the background of the photograph. View is east-northeast. Photograph by the author.

Barometer – No barometer was at this station. Elevation of the ground was estimated to be 294 feet above sea level. Actual ground elevation 295 feet.

Instrument Shelter – The instrument shelter was located over sod at the rear of an auto repair shop, approximately 70 feet from a wall (12 feet high) of the repair shop. The maximum/minimum thermometers were five feet above ground. No psychrometer was at this station. The Weather Bureau inspection report on 2-6 August 1935 stated the shelter was painted and moved. The report did not specify where the shelter was moved, but implied it remained in the same general area at the auto repair shop. According to the inspection reports, the shelter also was painted around 1 October 1936 (exact date not specified) and again around 9 November 1938.

The inspection report on 1 October 1936 stated the lot containing the cooperative instruments was clean, clear of debris, and covered with sod. Exposure was rated as excellent with no nearby trees or buildings. The instrument shelter was painted around December 1936.

Rain Gage – The rain gage support was secured to the side of a 6”x6” post that was set in the ground. Top of the gage was one foot above the post and approximately nine feet above ground. The rain gage was located about six feet south of the instrument shelter. The Weather Bureau inspection report on 2-6 August 1935 stated the rain gage was moved. The report did not specify where the gage was moved, but implied it remained in the same general area at the auto repair shop.

Wind Instruments – No wind instruments were at this station.

Additional Equipment/Information – This station had a wire-weight river gage and Stevens recording river gage with outside staff gage. The Weather Bureau inspection report on 1 October 1936 stated the following:

> “The river and second-order station at Jackson is in exceptionally good condition generally. The observer is interested in the work and he and his employees, four in number, serve the public very efficiently. Mr. Neelly informed the inspector that during periods of extremely cold or extremely warm weather, periods of stormy, rainy weather, or during periods of high water in the Pearl River, telephone calls average about 75 daily. Current weather data, river data and the daily forecasts are kept on a paper by the telephone and the information given to anyone calling for same. The daily weather and river data and the forecasts and river warnings, if any, are given to the daily newspapers and to the radio station. Numerous firms and city, county, and state officials call for information from time-to-time. All this service is rendered willingly by Mr. Neelly and he considers it well worth while. No advertising is connected with the weather service he and his employees render, never-the-less, he fells that to some extent it has increased his business. This is natural. It is doubtful if a similar set-up could be found at Jackson, where the observer would willingly and gladly

furnish so much weather service to the public. It is believed the Weather Bureau service rendered at Jackson is as good as it can be made unless the present second-order station be replaced by a first-order station."

Observation time at this station was 7 a.m.

Observations at Hawkins Field (1938-1960)

1 December 1938 – 5 Jun1955 – Weather Bureau office located on the second floor of the new Administration Building at the Jackson Municipal Airport (Figure 25).

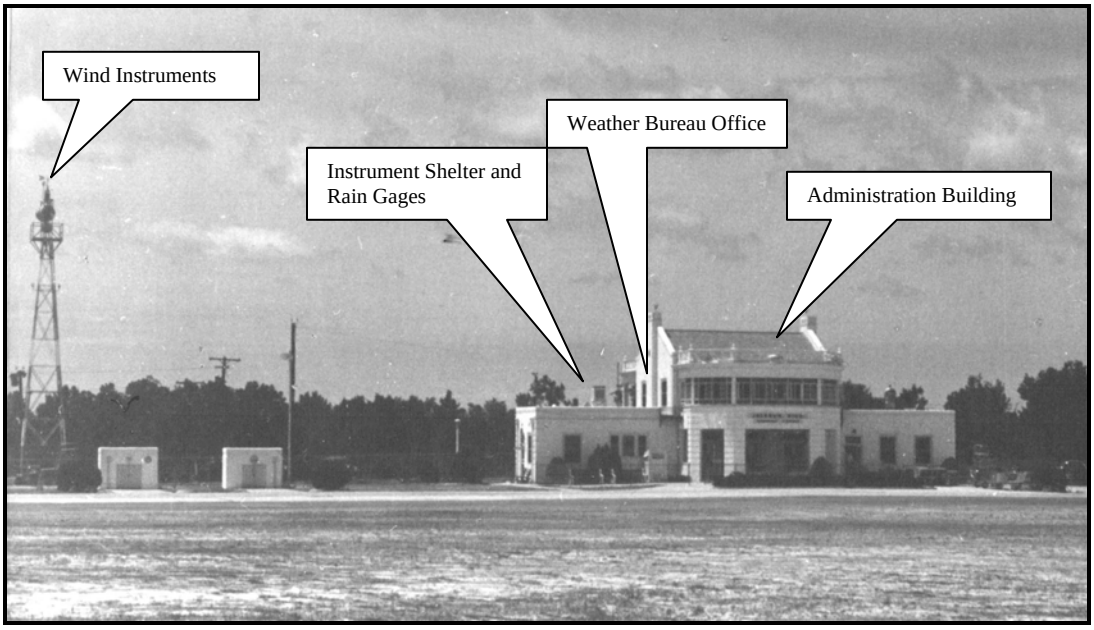


Figure 25. Airport Administration Building, Weather Bureau office, and weather instruments at the Jackson Municipal Airport (circa 1940). View is south southwest. From the official station history files at the National Climatic Data Center.

Barometer – This station had an aneroid barometer (Tycos), two mercurial barometers (station and extra; made by Green), and a seven day barograph. The aneroid barometer was fastened to the north wall of the office near the northeast corner of the room. The mercurial barometers were mounted on a board on the east wall near the northeast corner of the room. The barograph was located along the north wall near the northeast corner of the room (Figure 26). By 1 April 1939, the seven day barograph was replaced with a four day barograph (Friez). Elevation of the barometers was 332 feet above sea level.

By 31 December 1939, the aneroid barometer was moved to the west wall of the balloon inflation house located approximately 105 feet west of the Administration Building and 160 feet west of the Weather Bureau office.

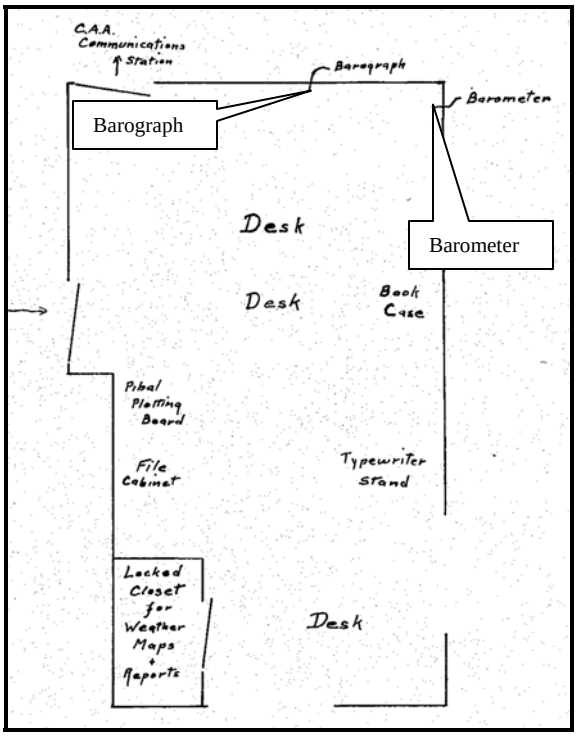


Figure 26. Weather Bureau office on the second floor of the Administration Building at Jackson Municipal Airport (circa 1940). North is at the top of the page. From the official station history files at the National Climatic Data Center.

On 12 October 1947, the Weather Bureau office moved to the southwest part of the second floor of the Administration Building (Figure 27). At that time, the mercurial barometers and barograph were moved from the northeast part of the office to the southwest part. Elevation changed from 332 feet to 333 feet. An altimeter setting indicator was added around January 1948.

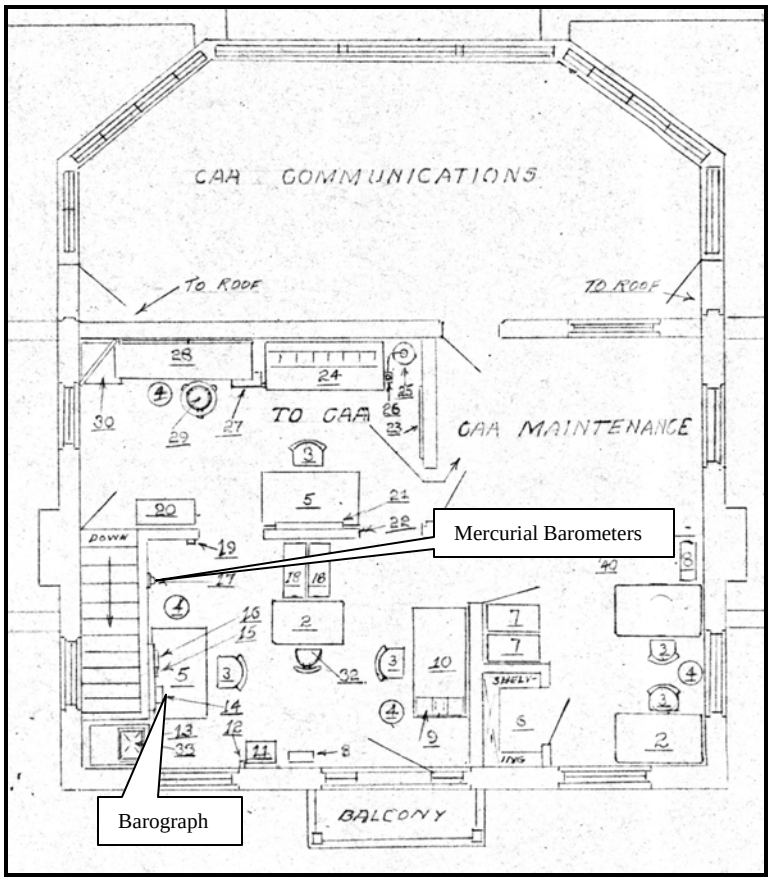


Figure 27. Schematic of the Weather Bureau office (after 12 October 1947) on the second floor of the Administration Building at the Jackson Municipal Airport (Hawkins Field). North is at the top of the figure. From the official station history files at the National Climatic Data Center.

Instrument Shelter – The cotton region instrument shelter was located over a gravel roof on the top of the first floor of the Administration Building (Figure 28). Walls from the second story of the building extended 10 feet high and were located 10 feet west of the shelter. The floor of the shelter was 4 feet above the roof and 18 feet above ground. The instrument shelter initially was situated at the same location as for observations taken by the Department of Commerce Radio Station for 15 November 1937-1 December 1938. The shelter had an exposed thermometer, psychrometer (sling and fan), and maximum/minimum thermometers. Figure 29 is a close-up of the weather instruments.

Figure 28. Instrument shelter and rain gages on the roof of the Administration Building at the Jackson Municipal Airport (circa 1940). View is northwest. From the official station history files at the National Climatic Data Center.

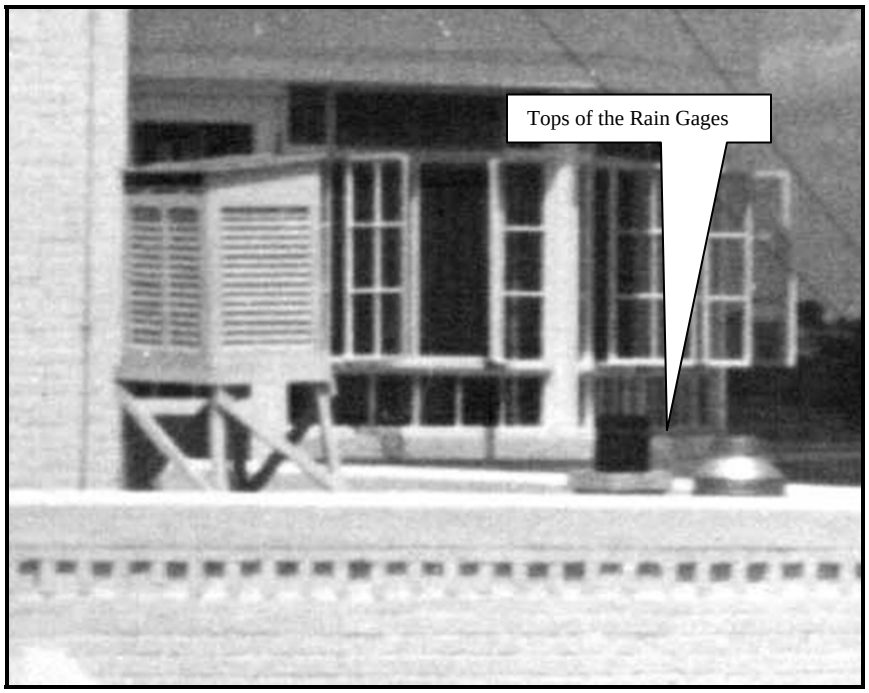


Figure 29. Enlargement of Figure 28 showing the instrument shelter and rain gages (circa 1940). Standard rain gage belonged to the Weather Bureau and the weighing rain gage was the property of the U.S. Engineers, Flood Control Section. View is towards the northwest. From the official station history files at the National Climatic Data Center.

Based on Weather Bureau inspections, the condition of the instrument shelter deteriorated during 1939 (and possibly in 1938). The following comment was made in the 31 December 1939 inspection: "Cotton reporting (sic) shelter in poor condition is in use…Upon arrival of requisitioned standard shelter, ground exposure will be used." The instrument shelter was not replaced until 28 July 1941 when a large type shelter was installed over ground approximately 58 feet west of the corner of the Administration Building (Figure 30). At the same time, a whirling type apparatus (Friez) was added. Instruments in the shelter were approximately five feet above ground. Weather Bureau inspection reports rated the exposure as "fair," with the main concern the proximity of the shelter to a concrete driveway and concrete airplane loading ramp.

Figure 30. Instrument shelter (new shelter) and rain gages on the west side of the Administration Building at the Jackson Municipal Airport (11 April 1942). Standard rain gage belonged to the Weather Bureau and the weighing rain gage was the property of the U.S. Engineers, Flood Control Section. View is east southeast. From the official station history files at the National Climatic Data Center.

Figure 31 shows the location of weather instruments on the ground west of the Administration Building at the Jackson Municipal Airport on 1 August 1941.

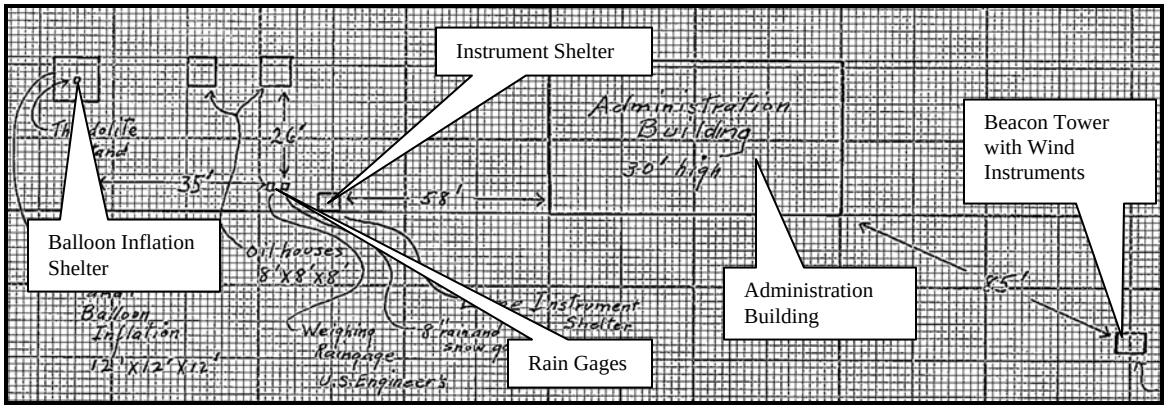


Figure 31. Location of weather instruments at Jackson Municipal Airport on 1 August 1941. North is at the top of the page. From the official station history files at the National Climatic Data Center.

On 4 April 1944, the Weather Bureau office at Jackson began taking radiosonde observations at the airport. In support of this program, a cotton region shelter was installed (exact location not specified but likely near the existing instrument shelter and inflation building). Radiosonde observations were discontinued 30 September 1945 due to budget restrictions (observations were paid by the U.S.

Army with funding stopped 30 September 1945) and the extra instrument shelter was removed.

A thermograph was added to the instrument shelter between 15 April 1946 and 1 September 1946.

On 12 October 1947 the instrument shelter (large type) was moved to the west roof of the Administration Building (Figures 32, 33, and 34). The exposed thermometer, maximum/minimum thermometers, thermograph, and psychrometer were approximately five feet above the roof and 21 feet above ground. Weather Bureau inspections indicated this location was not idea. The inspection on 10 August 1950 stated the following:

> "Local influences which may affect exposures are the nearby concrete ramp to the northwest; the asphalt paved parkway to the southward; the large hangar roof to the westward and the remainder of the administration building to the eastward. There is no well suited ground exposure not subject to these same conditions within practical distance of the WBO (Weather Bureau office). While not ideal, the roof exposure is reasonably representative and is good."

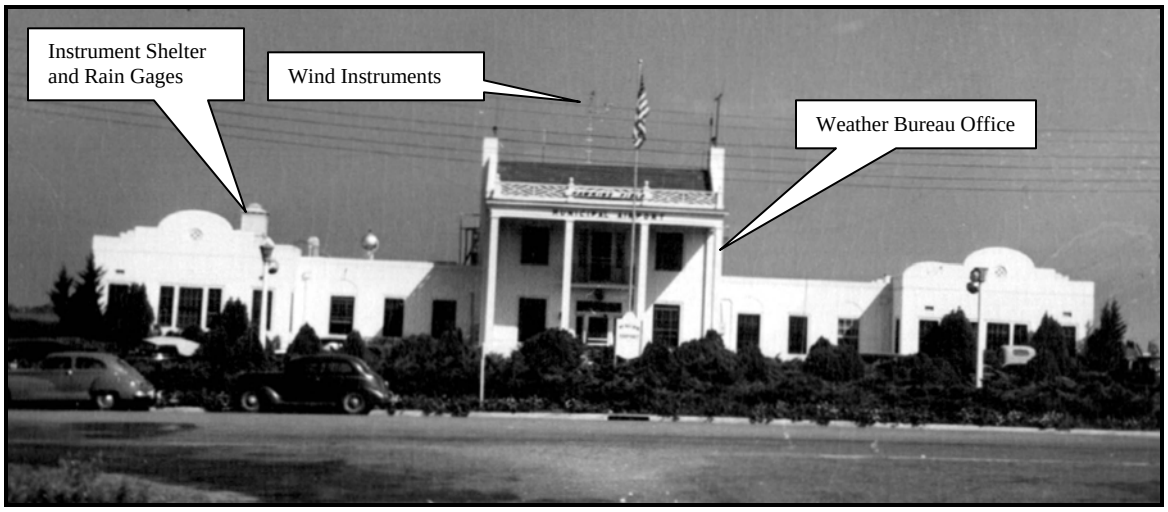


Figure 32. Administration Building and weather instruments at Jackson Municipal Airport (15 October 1947). View is toward the north. From the official station history files at the National Climatic Data Center.

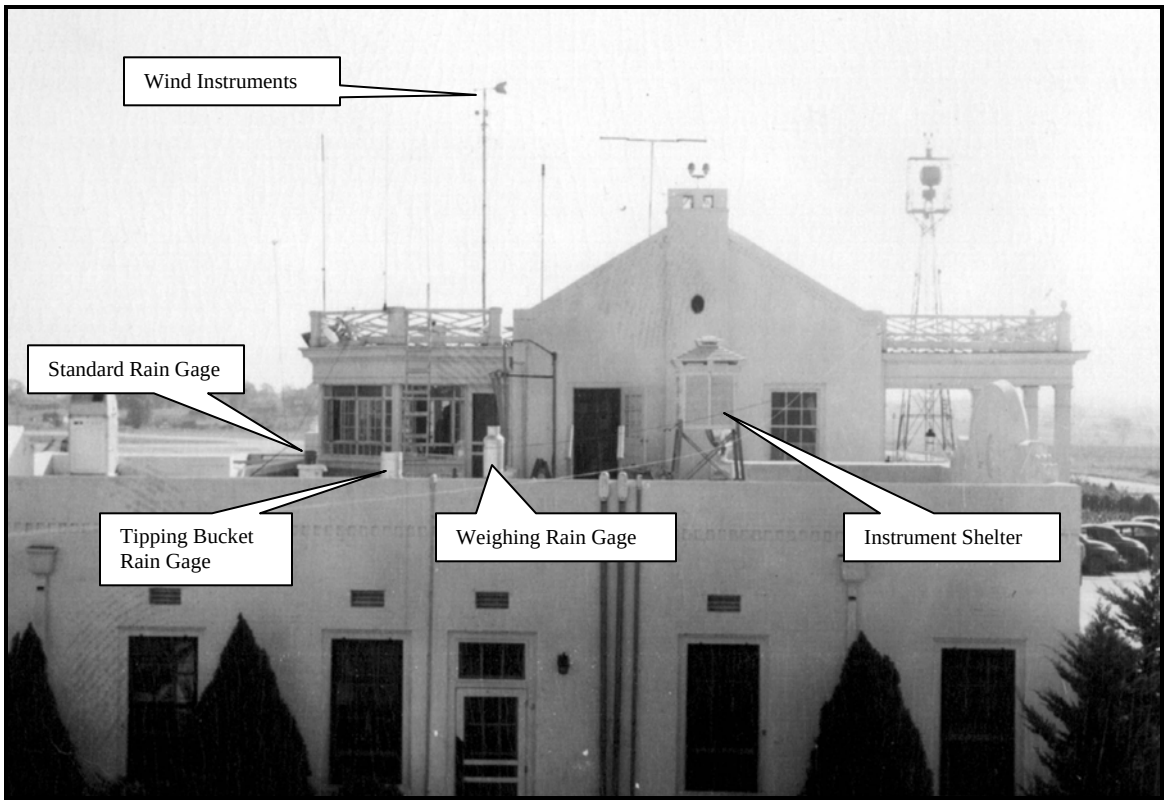


Figure 33. Weather instruments on the west roof of the Administration Building at Jackson Municipal Airport (15 October 1947). View is east. From the official station history files at the National Climatic Data Center.

Figure 34. Weather instruments on top of the Administration Building at the Jackson Municipal Airport (Hawkins Field) on 15 October 1947. View is northeast. From the official station history files at the National Climatic Data Center.

Rain Gage – An 8-inch standard rain gage was initially located on the roof of the first floor of the Administration Building about 10 feet east of the instrument shelter. The 10 foot second story of the building was located approximately 20 feet west of the gages. The rain gage initially was situated at the same location as for observations taken by the Department of Commerce Radio Station for 15 November 1937-1 December 1938. By early 1940 the U.S. Engineers, Flood Control Section installed a weighing rain gage along side the Weather Bureau standard rain gage (made by Friez; see Figures 28 and 29). The gages were 14 feet above ground.

On 28 July 1941, the gages were moved to a location approximately 69 feet west of the Administration Building (Figure 30).

On 12 October 1947, the standard and weighing rain gages were moved to the west roof on top of the first floor of the Administration Building (Figures 32, 33, and 34). Approximately the same time, a tipping bucket rain gage (Friez) was installed. The gages were approximately 4 feet above the roof and 20 feet above ground. The exposure was rated as good.

In January 1953 (exact date not specified), the location of the standard rain gage was moved approximately 10 feet from north of the tipping bucket rain gage to just east of the weighing rain gage (compare Figure 35 with Figure 36). No

significant change in elevation occurred. A note on the 1 December 1953 Station History form stated, "Gage in standby state, not used for official precipitation."

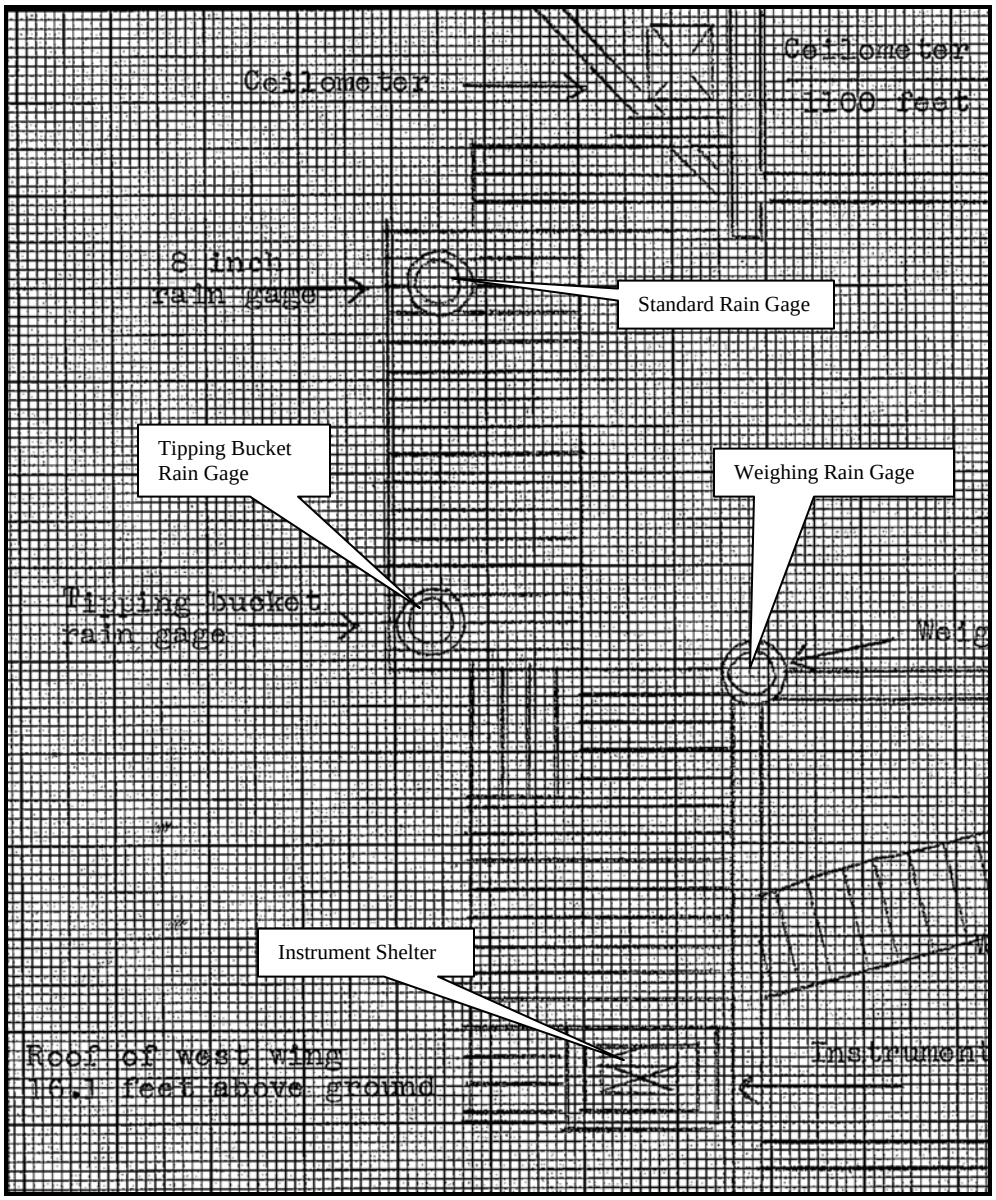


Figure 35. Drawing of the roof of the Administration Building at Jackson Municipal Airport (Hawkins Field) on 11 September 1952, showing the location of the rain gages. North is at the top of the figure. Tipping bucket rain gage was approximately 15 feet north of the instrument shelter. From the official station history files at the National Climatic Data Center.

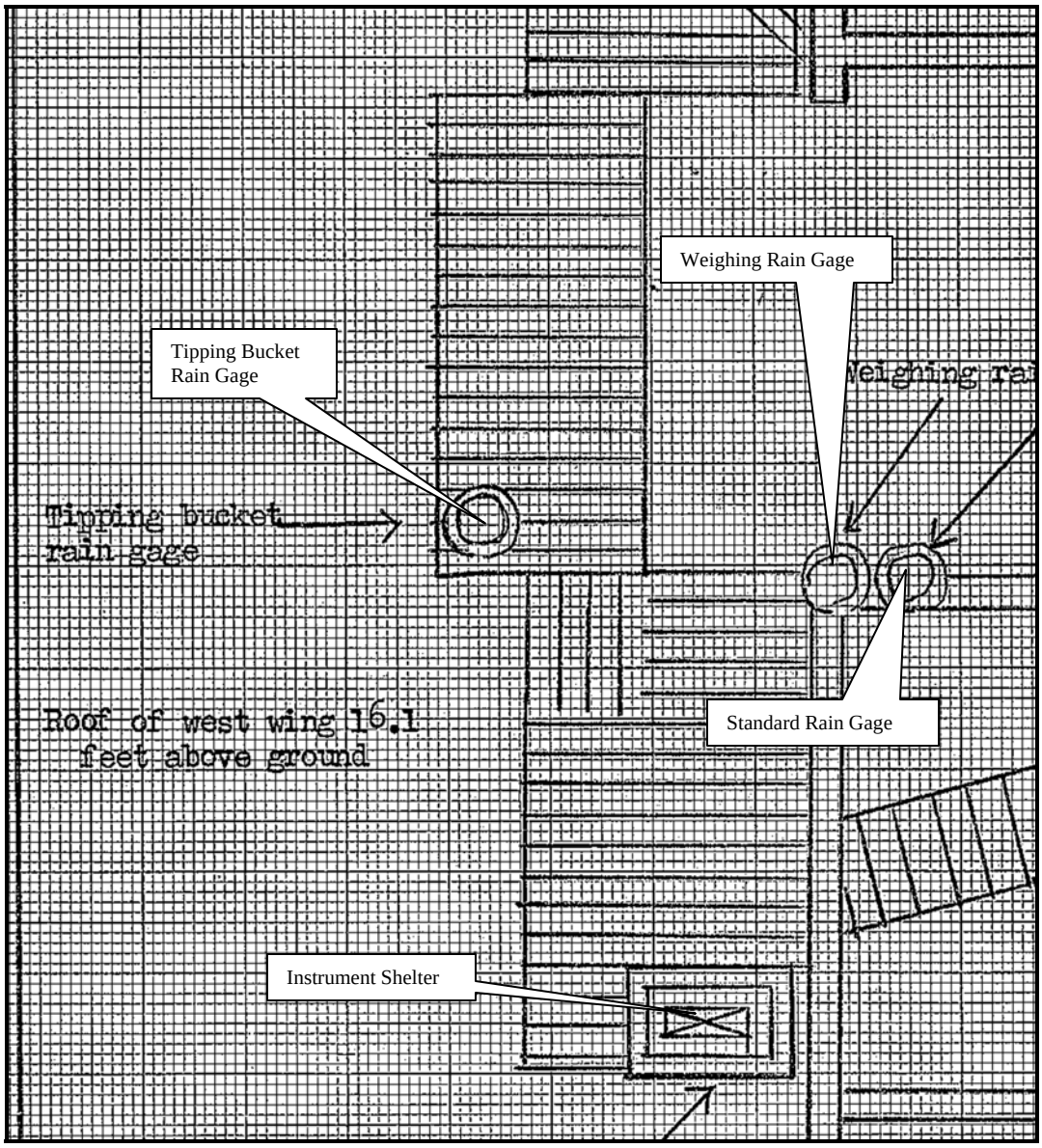


Figure 36. Drawing of the roof of the Administration Building at Jackson Municipal Airport (Hawkins Field) on 15 May 1953, showing the location of the rain gages. North is at the top of the figure. Tipping bucket rain gage was approximately 15 feet north of the instrument shelter. From the official station history files at the National Climatic Data Center.

Wind Instruments – The wind instruments initially were located on top of a 60 foot beacon tower approximately 85 feet southeast of the Administration Building (see Figure 25). The anemometer (3 cup) and wind vane (3 foot) were approximately 68 feet above ground. Figure 37 shows the anemometer and wind vane on top of the beacon tower.

Figure 37. Anemometer and wind vane on top of the beacon tower at the Jackson Municipal Airport (circa 1940). View is northwest. From the official station history files at the National Climatic Data Center.

On 12 October 1947, the wind instruments were moved to the roof of the Administration Building (Figure 38). The anemometer was 20 feet above the roof and 46 feet above ground. The wind vane was 21 feet above the roof and 47 feet above ground. This exposure was rated as very good.

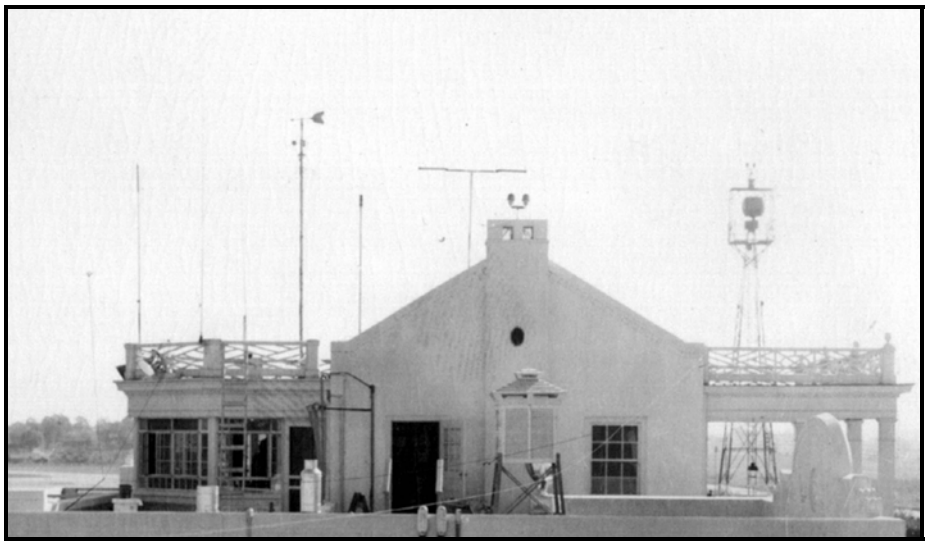


Figure 38. Wind instruments on top of the Administration Building (15 October 1947). View is east. Light beacon tower that previously supported the wind instruments is located in the right background. From the official station history files at the National Climatic Data Center.

Figure 39 shows the wind instruments over the Administration Building in October 1951.

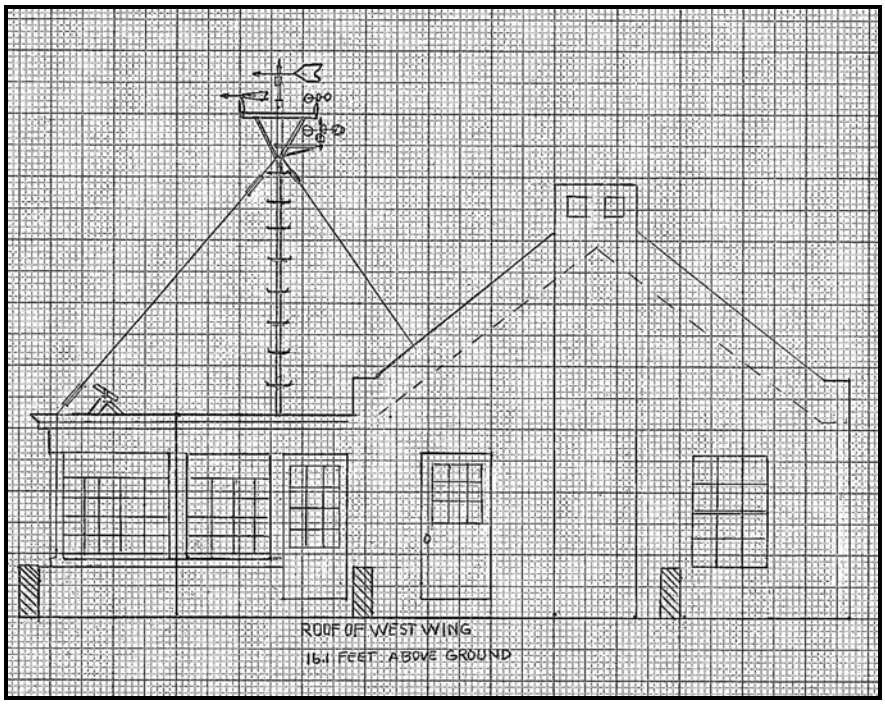


Figure 39. Wind instruments on top of the Administration Building (26 October 1951). View is east from the instrument shelter on the roof of the west wing of the building. From the official station history files at the National Climatic Data Center.

Additional Equipment/Information – A sunshine recorder was installed on the roof of the Administration Building on 27 January 1949. The U.S. Air Force (Detachment #1 6th Weather Squadron) began taking radiosonde observations at Hawkins Field on 1 March 1953 on a temporary basis and continued through 14 May 1953. It appears the Air Force took radiosonde observations for similar months for the years 1954 and 1955. Pibals were taken at this station beginning 1 January 1939. The U.S. Army Air Corps took aviation weather observations at Hawkins Field from 31 August 1942 through 31 October 1944. The Army observations likely were taken at the northwest part of the field.

NOTE – Weather Bureau documents prepared in the 1950s stated that from June 1939 through 12 October 1947, the instrument shelter and rain gage were located over sod with the shelter 4 feet 10 inches above ground and rain gage 3 feet 7 inches above ground. The timeline quoted in this report is at conflict with those statements, but is supported by Weather Bureau documents prepared at the time, i.e., during the late 1930s and 1940s.

5 June 1955 through 1960 – Weather Bureau office located in the Operations Building at the Jackson Municipal Airport (Hawkins Field). The station was located 200 feet west of the Airport Administration Building. The Operations Building was the old Airport Administration that was moved west when the new Administration Building was built.

Barometer – The mercurial barometers were located near the center of the wall on the east side of the office. The station also had a barograph (Friez) and altimeter setting indicator (Kollsman). The barometers were 316 feet above sea level. A note on a Weather Bureau form on 5 June 1955 stated, "Barograph subject to vibration when drawers of observer's consol are closed."

Instrument Shelter – The instrument shelter was located over sod approximately 70 feet west southwest of the office (Figure 40). The exposed and maximum/minimum thermometers were six feet above ground. The psychrometer (Friez whirling type) was five feet above ground. The station also had a thermograph (Friez) and telethermoscope (Leeds and Northrup) seven feet above ground. A surfaced runway was located about 750 feet west of the shelter and a surfaced ramp about 100 feet to the north. Weather Bureau inspection reports stated that no obstructions existed to adversely affect temperature and atmospheric moisture measurements.

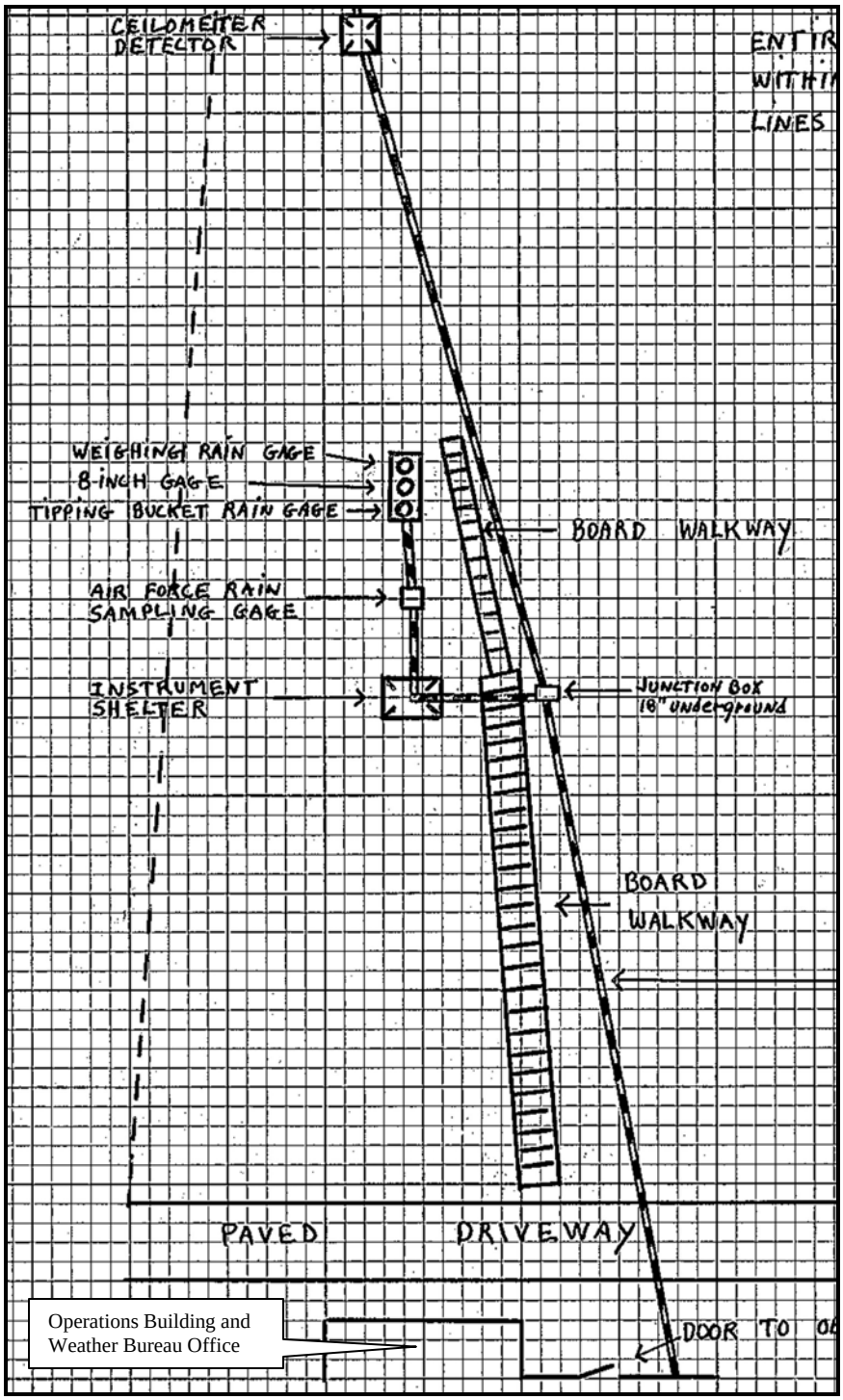


Figure 40. Location of the instrument shelter and rain gages at the Jackson Municipal Airport (Hawkins Field) on 5 June 1955. North is at the right side of the figure. Area within the dashed lines was covered by sod. From the official station history files at the National Climatic Data Center.

Figure 41 shows Weather Bureau grounds on 1 January 1957 with the addition of the inflation shelter.

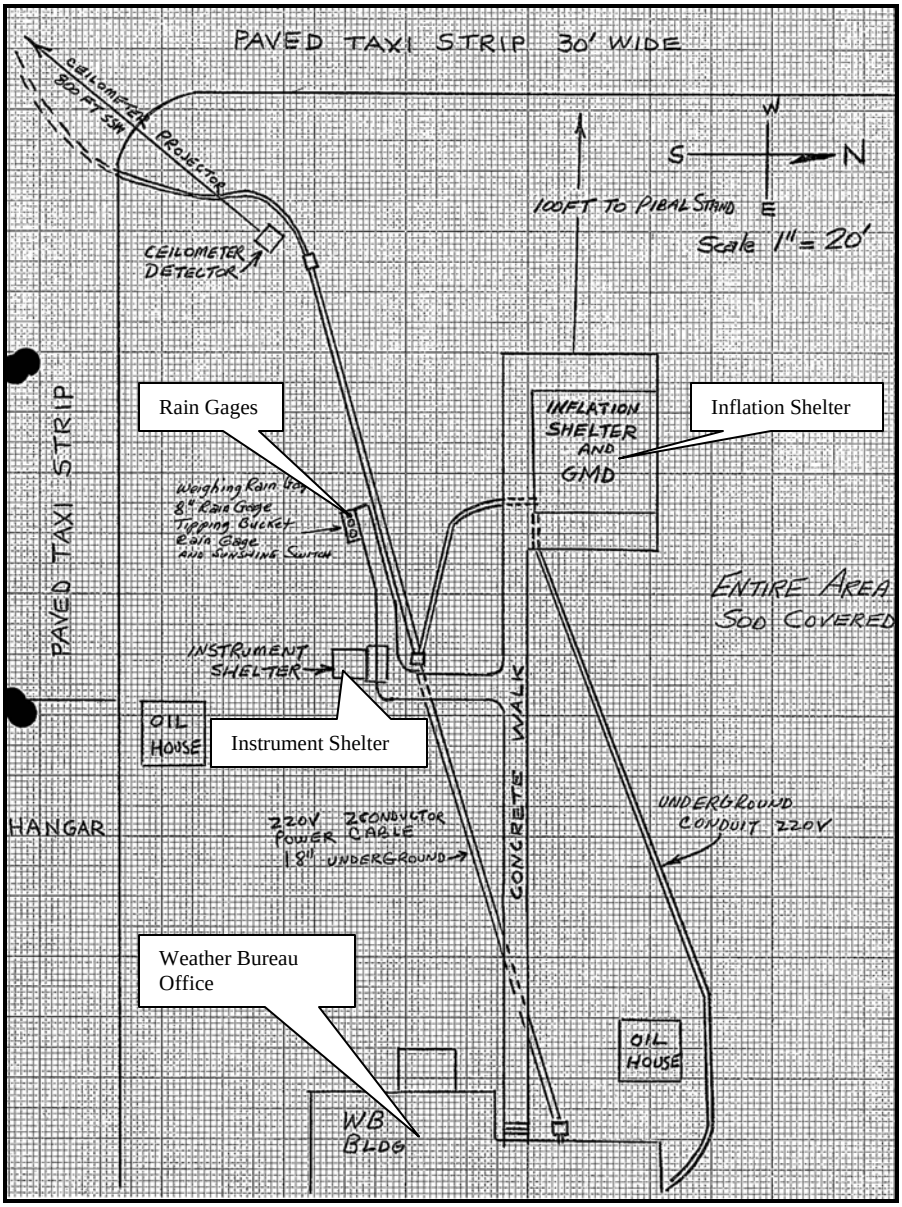


Figure 41. Location of the instrument shelter and rain gages at the Jackson Municipal Airport (Hawkins Field) on 1 January 1957. North is at the right side of the figure. From the official station history files at the National Climatic Data Center.

The Weather Bureau inspection on 1 January 1958 stated the following with regard to nearby influences:

> "Town Creek lies in a low flood plain 3/8 mile south of the station, ¼ mile SSE of the instrument shelter. Trees growing inside the earthen fill for Woodrow Wilson Drive, 3/8 mile south of the Weather Bureau quarters

and the earth fill combine to slow air drainage from the more than 343 foot MSL elevation to the northward to the less than 300 foot elevations to the southward on clear nights, causing some pooling of the cold air at present thermometer levels. Present estimates that these effects may produce temperatures from 1 to 3 degrees lower than at the locations in use 1939 through May 1955."

Figure 42 shows the position of Weather Bureau weather instruments at Jackson Municipal Airport (Hawkins Field) on 1 February 1960.

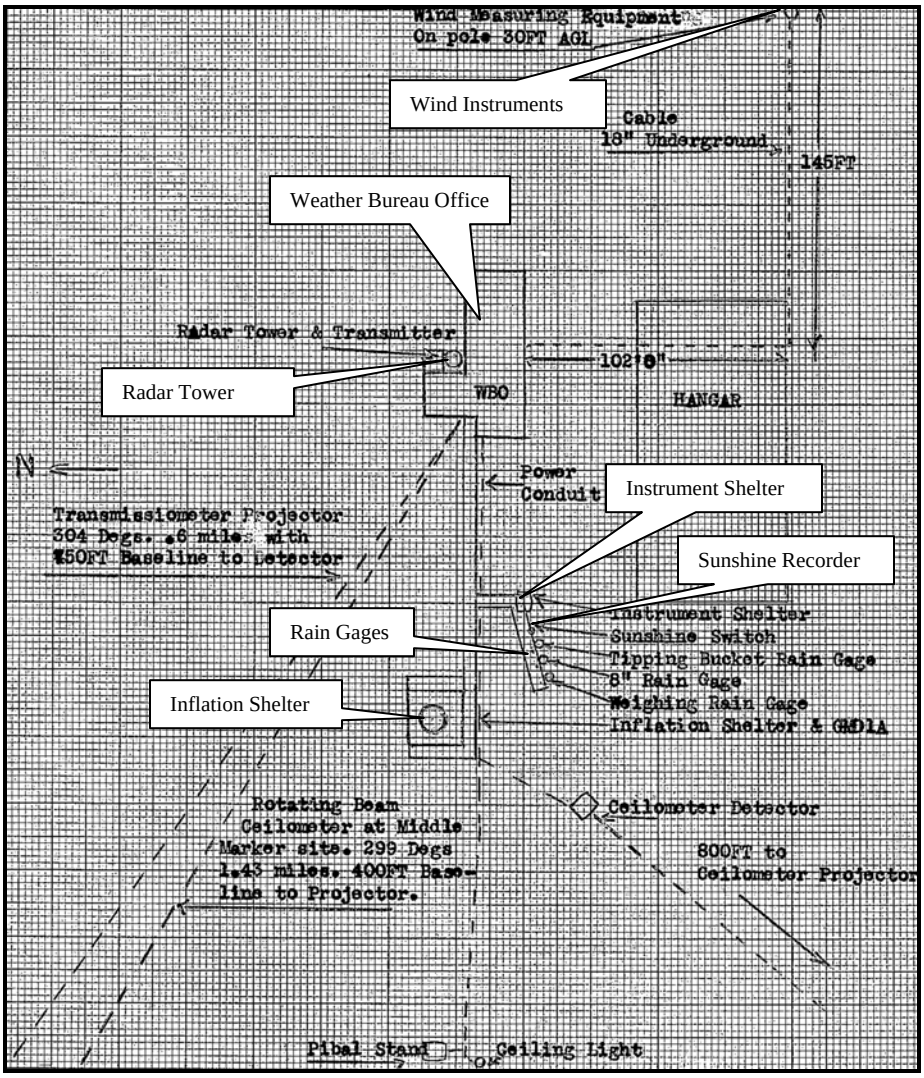


Figure 42. Location of Weather Bureau instruments at the Jackson Municipal Airport (Hawkins Field) on 1 February 1960. North is at the left side of the figure. From the official station history files at the National Climatic Data Center.

Rain Gage – The standard (WS Jenks), tipping bucket (Friez), and weighing rain (Friez) gages were located approximately 85 feet west southwest of the Weather Bureau office and around 15 feet west of the instrument shelter. The gages were mounted on concrete blocks 8 feet long and 26 inches wide. The tops of the rain gages were about four feet above ground. In addition, the U.S. Air Force had installed a rain sampling gage near the Weather Bureau gages that was removed by 1 January 1957.

Wind Instruments – The wind instruments were on the north side of the roof of the Operations Building (Figure 43), 15 feet above the roof and 39 feet above ground.

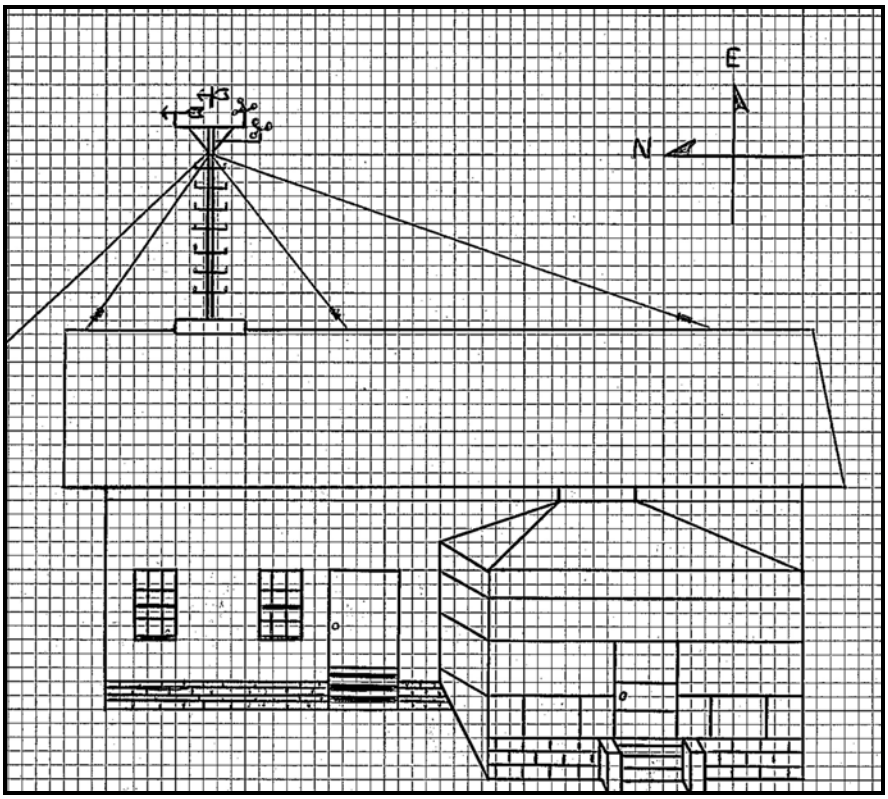


Figure 43. Wind instruments on top of the Operations Building at the Jackson Municipal Airport (5 June 1955). View is toward the east from the instrument shelter. From the official station history files at the National Climatic Data Center.

On 17 February 1959, the wind instruments were moved 177 feet southeast to the top of a pole 30 feet above ground (see Figure 42). The new position was approximately 145 feet southeast of the southeast corner of the Operations Building. The instruments were moved because the radar tower (for the WSR-3; see Additional Equipment/Information below) was constructed next to the Operations Building, obstructing wind measurements.

Additional Equipment/Information – This station began taking radiosonde observations on 1 February 1956 as part of the Weather Bureau upper-air program.

Below are the time periods for upper-air observations at Jackson Municipal Airport (Hawkins Field) through 1960:

1 January 1939 – 28 February 1953 – PIBAL Observations
1 March 1953 – 14 May 1953 – Radiosonde Observations
15 May 1953 – 1 February 1954 (approximate date) – PIBAL Observations
1 February 1954 (approximate) – 15 May 1954 – Radiosonde Observations
16 May 1954 – 1 February 1955 – PIBAL Observations
1 February 1955 – 15 May 1955 – Radiosonde Observations
15 May 1955 – 1 February 1956 – PIBAL Observations
1 February 1956 through 1960 – Radiosonde Observations

A Weather Surveillance Radar (WSR-3; 10 centimeter wavelength) was installed 26 April 1959.

A sunshine recorder was located at this station, six feet above ground. The recorder was on a metal pole 75 feet west southwest of the Weather Bureau Operations Building.

Figure 44 is a picture of the southeast ramp area of Hawkins Field where Weather Bureau and Department of Commerce weather observations were taken from June 1931 through 1960.

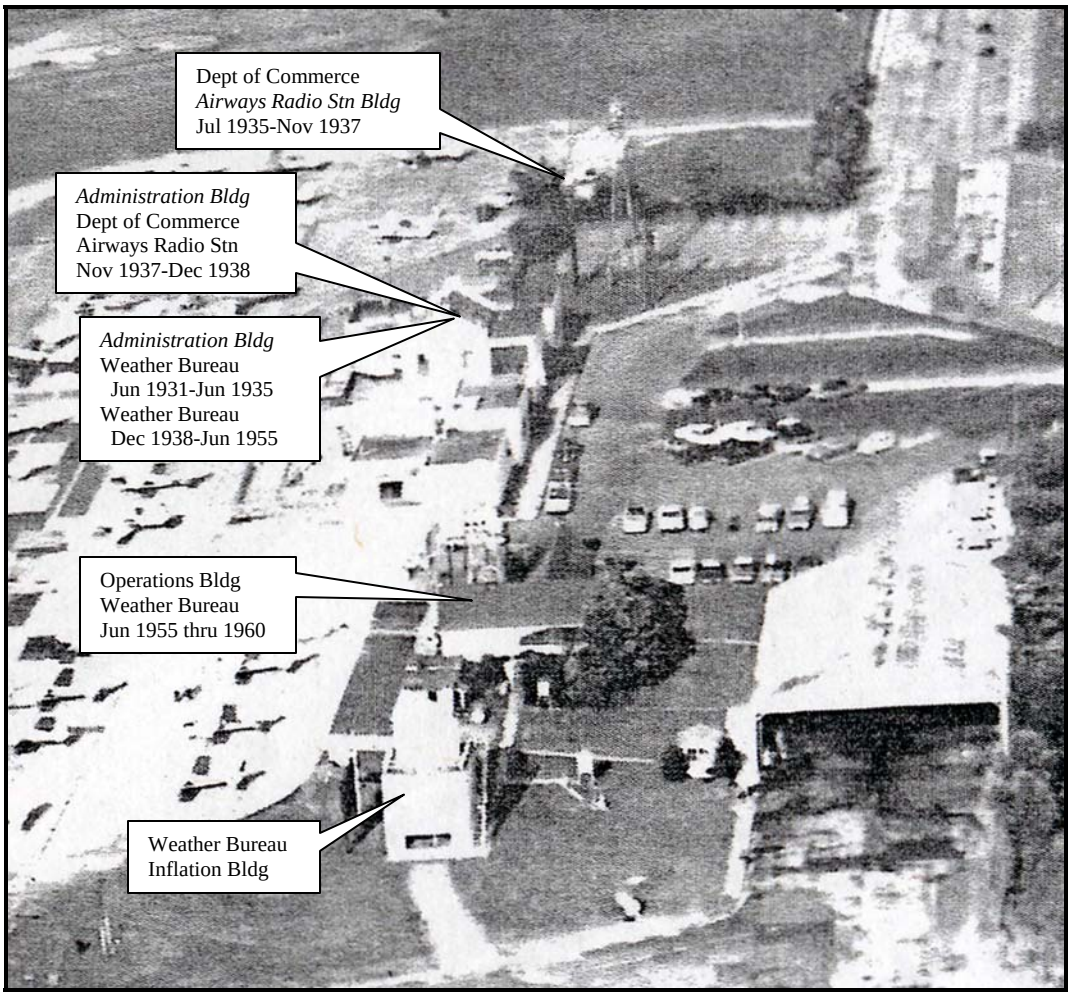


Figure 44. Photograph taken in 1968 showing the locations where Weather Bureau and Department of Commerce weather observations were taken at Hawkins Field from June 1931 through 1960. North is to the left of the photograph. From the Mississippi Department of Archives and History.

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APPENDIX

Methodology

The timeline for weather observing at Jackson differed from other stations researched as part of this project. Timelines for most stations followed the evolution of observing beginning with Army surgeons or Smithsonian observers in the mid to late 1800s, with the U.S. Signal Service and Weather Bureau assuming responsibility in the late 1800s. In Jackson, individual citizens took the observations from 1849 into 1931, beginning with Smithsonian observers and continuing with cotton region, voluntary, and cooperative observers. The U.S. Army Medical Department took observations for approximately three years (1873-1876). No Signal Service office was located in Jackson and the Weather Bureau opened its first office in the city in 1931. Consequently, the methodology followed for this report differed from numerous previous approaches.

Station history files at the National Climate Data Center (NCDC) provided descriptions of weather station locations beginning in 1849, i.e., at the Oakland Institute. These files also were important through the Smithsonian years, for observations by the Army surgeons, and into the late 1800s and early 20th Century. Records of the Weather Bureau office in Jackson first appeared in 1931.

Entries from local Climate Record Books at the National Climate Data Center provided the backbone for locations and general exposures for barometers, instrument shelters (especially thermometers), rain gages, and anemometers/wind vanes. However, conflicts were found between information on these documents (which were written beginning in the late 1940s) and material contained in Weather Bureau reports prepared at the time of interest, e.g., inspection reports, reports on instruments, etc. When conflicts arose, information on forms prepared during the time of interest was usually followed.

Of particular help was the archive of cotton region and voluntary/cooperative observations for Jackson in the NCDC database, beginning in April 1883 and continuing through November 1902. These records were important for establishing the transition from part-time cotton region observations (during the growing season) to continuous observations through the year by voluntary observers that began in 1893. Also important were the monthly listing of voluntary/cooperative observers for Mississippi stations contained in Monthly Bulletin of the Mississippi Weather Service that began in 1888 (in the NCDC database), later evolving into the Weather Bureau Climate and Crop Service, and finally to Climatological Data. These publications allowed for the monthly tracking of voluntary/cooperative observers at Jackson.

Cover sheets from the Original Monthly Record of Observations from March 1908 through July 1920, and March 1937 through April 1940, provided a near continuous record of elevations for station thermometer, rain gage, and wind instruments. During the latter part of this study, Weather Bureau officials routinely documented station history

and instrument status through forms entitled, Description of Topography and Exposure of Instruments, Report of Elevation and Position of Instruments, and Surface Weather Observations. Information on these forms provided significant detail regarding the offices at Hawkins Field.

Information regarding duration of observations by Smithsonian Institution weather observers in the Jackson area was obtained from yearly Smithsonian Institution reports, as well as from the NCDC data base. Local newspaper archives (microfilm) also provided information on the Smithsonian observers.

General historic information for the Jackson area was found on various web sites. City directories for Jackson and Sanborn Insurance Maps (at the Jackson Public Library) were invaluable in establishing timelines for observer residences and locations of commercial offices. In particular, the city directories were essential in confirming the residences of cooperative observers during the early 20th Century. Sanborn Insurance Maps for the appropriate period helped define relevant commercial sites, e.g., the A&V Railroad Depot.

Other information and data sources checked (by person, telephone, or through the Internet) during this study were: the Jackson Public Library, the Mississippi Department of Archives and History, and Mississippi College Library. Also, relevant information regarding the Weather Bureau, and Army Medical Department was obtained from the Dallas, TX Public Library, Oklahoma State University Library, National Library of Medicine at Bethesda, MD, and the NOAA Library.