



December 10, 2017

MEMORANDUM FOR: Derek S. Arndt
Chief, Climate Monitoring Section, Center for Weather and Climate
National Centers for Environmental Information

FROM: Karin Gleason
Meteorologist, Monitoring Section, Center for Weather and Climate

SUBJECT: SCEC Report for Texas Minimum Temperature Record in 1899

Summary:

On 24 February 2016, a State Climate Extremes Committee (SCEC) convened to verify / validate a tie for the record minimum temperature (-23°F) observed in Tulia, TX reported on 12 February 1899. The currently recognized record minimum temperature for Texas occurred on 8 February 1933 and is located in Seminole, TX.

After reviewing the observational evidence, the SCEC unanimously agreed that the Tulia, TX minimum temperature is valid and would tie with Seminole, TX as the record minimum observed temperature for the State of Texas. In particular, the committee found that the following were true and valid:

- LOCATION: Tulia 6NE, TX (GHCN ID: USC00419176)
- DATE: 12 February 1899
- MINIMUM TEMPERATURE: -23°F

Sequence of Events, Examination & Decision:

The current recognized minimum temperature record of -23°F for the state of Texas occurred on 8 February 1933 in Seminole, TX. This record was verified and validated by the State Climate Extreme Committee ([SCEC](#)) when NCEI began keeping track of official records in 2006. At the time of this verification, metadata records maintained by NCEI did not include 1899 in the Tulia station history even though the data were included in the archive and were considered valid by the quality control procedures. As a result, the record value was not considered as a tie with Seminole because it was not eligible for consideration.

After review of the data maintained in the NCEI archive, it was determined that the Tulia station history should be extended to include the months for which data are available and archived. Once the station history records were updated, the Tulia minimum temperature value reported on 12 February 1899 became eligible for consideration by the SCEC.





It was the unanimous decision of the SCEC that this -23°F minimum temperature value is indeed valid and ties with the SCEC recognized minimum temperature record for Texas. Supporting documentation follows:

- 1) Existing Texas minimum temperature record from SCEC website identifies Seminole, TX at -23°F on 8 February 1933 (Figure 1).
- 2) The Office of the Texas State Climatologist and the National Weather Service (NWS) in Lubbock have always considered the Tulia record to be the original record and tied years later by Seminole (Figure 2).
- 3) A map provided by the Office of the Texas State Climatologist depicting record low temperatures for February 1899 by county (Figure 3). There is no superficial reason to question the record as it was observed by an official weather observer during the coldest day in Texas history. The only questionable aspect to this reported value is the large departure from surrounding stations. Table 1 illustrates the wide variation in temperature across the Texas Panhandle (High Plains Climate Division 1) on 8 February 1933, when the Seminole record occurred. The 1899 record has fewer observations than in 1933, but similar variations in temperature are noted.
- 4) A review of the Tulia station indicated that the site was operational from 1 July 1896 to 31 August 1919, even though some records during this period do not exist in the NCEI archive (Figure 4).
- 5) The original observer form indicating a minimum temperature of -23°F on 12 February 1899 was submitted as evidence (Figure 5).
- 6) Per the recommendation from NCEI's metadata scientists, the station history for Tulia was extended to include the 1899 record period allowing this station to be considered for the record. See [Datzilla](#) Ticket #6025 for more details.

Finding of Committee:

The SCEC convened via Webinar on 24 February 2016 to discuss the proposed new record. Four (4) representatives participated in this call. This included Kevin Robbins, Director of the Southern Region Climate Center; John Nielsen-Gammon, Texas State Climatologist; Justin Weaver, Meteorologist-in-Charge at the NWS Weather Forecast Office (WFO) - Lubbock; and Victor Murphy, Climate Service Program Manager for NWS Southern Region. In addition, Bryant Korzeniewski, Meteorologist with ERT/STG and metadata specialist at NCEI as well as John Lipe with the WFO in Lubbock participated in the webinar.

Based upon the documented evidence, the SCEC agreed unanimously (by a vote of 4-0) that the all-time minimum temperature record for Texas, which occurred in Tulia, TX on 12 February 1899 is valid and ties with the previous record set in 1933 in Seminole, TX. The SCEC **recommends the NCEI Climate Monitoring Chief approve the SCEC action to acknowledge the -23°F temperature in both Tulia, TX and in Seminole, TX as a tie for the state record minimum temperature record for Texas.**





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 NATIONAL ENVIRONMENTAL SATELLITE DATA
 AND INFORMATION SERVICE
 NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
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NCEI Climate Monitoring Chief Decision:

Approved (as recommended in boldface above):

Signed _____ Date: _____

Not approved (will be returned to SCEC with no action taken):

Signed _____ Date: _____

Texas	Maximum Temperature	120°F	August 12, 1936	SEYMOUR 3NW	418221	E1
			June 28, 1994	MONAHANS	415999	E1
Texas	Minimum Temperature	-23°F	February 8, 1933	SEMINOLE	418201	E
Texas	24-Hour Precipitation i	42 in.	July 25 - 26, 1979	Alvin		EA
Texas	24-Hour Snowfall i	25 in.	March 28, 2009	FOLLETT	413225	NSA
Texas	Snow Depth	33 in.	February 7, 1956	VEGA 2NW	419330	N

Figure 1. Existing state records for Texas from the NCEI SCEC website:

<https://www.ncdc.noaa.gov/extremes/scec/records>





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WINTER WEATHER CLIMATOLOGY

THE FOLLOWING REPRESENTS A HISTORICAL SNAPSHOT OF SOME OF THE COLDEST TEMPERATURES ACROSS THE STATE OF TEXAS, AS WELL AS A BRIEF REVIEW OF IMPORTANT WINTER WEATHER PRODUCTS FROM THE NATIONAL WEATHER SERVICE IN LUBBOCK.

FEBRUARY 1899 WAS A VERY COLD MONTH. DURING THE PERIOD OF FEBRUARY 11TH THROUGH THE 13TH, AN ARCTIC AIRMASS RACED SOUTH FROM THE NORTHERN AND CENTRAL PLAINS STATES INTO THE STATE OF TEXAS. THE BITTERLY COLD AIRMASS PLUNGED AS FAR SOUTH AS THE UPPER TEXAS COAST WHERE A THIN LAYER OF ICE COATED MOST OF GALVESTON BAY ON FEBRUARY 12TH.

SOME OF THE COLDEST WEATHER ON RECORD FOR THE STATE OF TEXAS OCCURRED ON FEBRUARY 12TH. IN FACT, THE LOWEST TEMPERATURE IN THE STATE OCCURRED RIGHT HERE IN WEST TEXAS. ON THE MORNING OF FEBRUARY 12TH, THE THERMOMETER PLUMMETED TO 23 DEGREES BELOW ZERO AT TULIA IN SWISHER COUNTY. THERE WERE UNOFFICIAL REPORTS OF LOW TEMPERATURES REACHING 30 DEGREES BELOW ZERO IN THE NORTHERN PANHANDLE.

THE ALL TIME RECORD LOW TEMPERATURE ESTABLISHED AT TULIA WAS TIED YEARS LATER WHEN ANOTHER ARCTIC AIRMASS PLUNGED INTO THE SOUTH PLAINS. IN ADDITION, THE SMALL TOWN OF SEMINOLE IN GAINES COUNTY REPORTED A TEMPERATURE OF 23 DEGREES BELOW ZERO ON FEBRUARY 8TH 1933.

THE YEARS 1899 AND 1933 WERE NOT THE ONLY YEARS FOR RECORD COLD ACROSS THE STATE OF TEXAS. THE FOLLOWING IS A LIST OF CITIES WITH CORRESPONDING RECORD LOW TEMPERATURES AND DATES OF OCCURRENCE.

ABILENE.....	.9	BELOW ZERO.....	SET IN 1947
AMARILLO.....	.16	BELOW ZERO.....	SET IN 1899
AUSTIN.....	.2	BELOW ZERO.....	SET IN 1949
BEAUMONT/PORT ARTHUR.....	.11	DEGREES.....	SET IN 1930
BROWNSVILLE.....	.12	DEGREES.....	SET IN 1899
CORPUS CHRISTI.....	.11	DEGREES.....	SET IN 1899
DALLAS/FORT WORTH.....	.8	BELOW ZERO.....	SET IN 1899
DEL RIO.....	.10	DEGREES.....	SET IN 1989
EL PASO.....	.8	BELOW ZERO.....	SET IN 1962
GALVESTON.....	.8	DEGREES.....	SET IN 1899
HOUSTON.....	.5	DEGREES.....	SET IN 1930 AND 1940
LUBBOCK.....	.17	BELOW ZERO.....	SET IN 1933
MIDLAND/ODESSA.....	.11	BELOW ZERO.....	SET IN 1985
SAN ANGELO.....	.4	BELOW ZERO.....	SET IN 1989
SAN ANTONIO.....	.0	DEGREES.....	SET IN 1949
WACO.....	.5	BELOW ZERO.....	SET IN 1949 AND 1899
WICHITA FALLS.....	.12	BELOW ZERO.....	SET IN 1947

Figure 2. Lubbock, TX National Weather Service Forecast Office website recognition of coldest known temperatures across Texas: <http://www.srh.noaa.gov/lub/?n=wwad-coldestintexas>



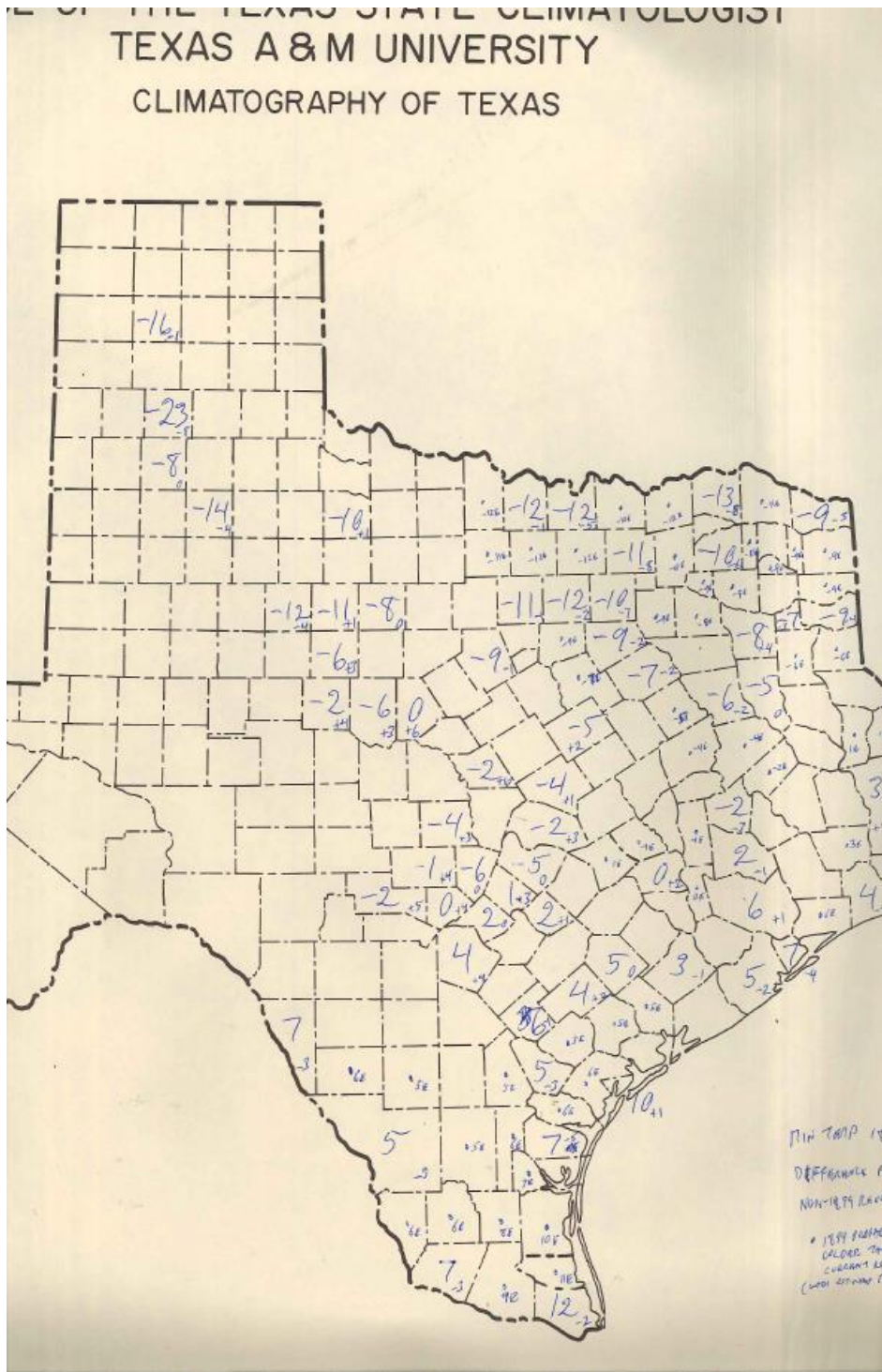


Figure 3. Office of the Texas State Climatologist hand annotation of record low temperatures for February 1899 by county. Small numbers are the actual, or estimated, departures from the record value.





Review of Tulia 6NE COOP Site

- Site in existence from July 1, 1896 to August 31, 1919.
- As per NCEI, GHCN-D is treating this as a valid value.

GHCN Browser Screen - USC00419176 Created on-02/22/2016 7:7

TULIA 6 NE, TX Date:189902 Elev=1068.0 Lat: 34.6000 Lon:101.7000

day	TMAX	TMIN	TOBS	PRCP	SNOW	SNWD	WTXX
01	52 Z	11 Z					
02	42 Z	8 Z					
03	42 Z	17 Z					
04	28 Z	8 Z					
05	16 Z	4 Z		0.05 Z	0.5 Z		
06	12 Z	2 Z		0.00 T Z	0.0 T Z		
07	25 Z	-11 Z					
08	47 Z	4 Z					
09	35 Z	2 Z		0.00 T Z	0.0 T Z		
10	63 Z	4 Z					
11	7 Z	-4 Z		0.05 Z	0.5 Z		
12	30 Z	-23 Z					
13	52 Z	9 Z					
14	52 Z	23 Z		0.00 T Z	0.0 T Z		
15	59 Z	16 Z					
16	56 Z	22 Z					
17	52 Z	25 Z					
18	57 Z	20 Z					
19	67 Z	18 Z					
20	70 Z	26 Z					
21	60 Z	24 Z					
22	62 Z	24 Z					
23	35 Z	9 Z					
24	52 Z	11 Z					
25	57 Z	28 Z					
26	56 Z	14 Z					
27	58 Z	18 Z					
28	67 Z	30 Z					

AvMax	AvMin	TotPcn	Snow	S Depth	HDD	CDD
46.8	12.1	M	M		987	0
AvTnp: 29.5	Day: 20	Max24Hr:	Day:			
MaxTp: 70	Day: 12	Number Days With:	Pcn >.1:	>.5:	>1:	SF>1=: M
MinTp: -23		MxT >=90: 0	MxT <=32: 6	MnT <=32: 28	MnT <=0: 3	SD>=: M

Figure 4. Review of Tulia station record in GHCN database.





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Voluntary Observers' Meteorological Record: Month of February 1899 Station Tulsa County Swisher State Oklahoma

Maximum temperature 70 date 20
 Minimum temperature -25 date 12
 Mean temperature (mean max. + mean min. ÷ 2) 29.5
 Mean temperature (7 a.m. + 9 a.m. ÷ 2) 47
 Mean max. temperature 47 mean min. temperature 12
 Total precipitation 1.0 inches
 Greatest precipitation in any 24 consecutive hours 0.5 date 11
 Total snowfall during the month 0.0 inches
 Depth of snow on ground on 1st 0 inches
 Depth of snow on ground at end of month 0 inches
 No. of clear days 0 partly cloudy 20
 on which all or more precipitation fell 20
 Prevailing wind direction North
 Dates of frost (Light) None
 (Killing) None
 Dates of hail None
 Dates of sheet None
 Dates of aurora None
 Time used on this form (a) Central
 (b) Local, eastern, central, or Pacific

Remarks:
 (Thunderstorms and miscellaneous phenomena)

BEST AVAILABLE RECORD

W.H.A.
T.H. Franklin
 Voluntary Observer

IN TRIPLICATE

Day	TEMPERATURE				PRECIPITATION				Prevailing wind direction	Character of day	Remarks	
	7 A.M.	9 A.M.	5 P.M.	Mean	Time of beginning	Time of ending	Amount	Snowfall in inches				
1				5.2	7	31.5	0.1					
2				4.8	8	31.5	0.2					
3				4.2	17	29.3	0.2					
4				2.5	8	19	0.2		0.5	1/2		
5				1.6	7	10	0.2		0.5	1/2		
6				1.2	2	7	0.0					
7				2.5	-11	7	0.0					
8				4.7	4	26.3	0.0					
9				3.5	2	28.3	0.0		0.5	1/2		
10				6.3	4	33.3	0.0					
11				7	-4	1.3	0.0		0.5	1/2		
12				3.0	-23	3.5	0.0					
13				5.2	9	30.3	0.0					
14				5.2	6.3	37.3	0.0		0.5	1/2		
15				5.9	1.6	37.3	0.0					
16				1.6	2.2	39	0.4					
17				5.2	2.3	38.3	0.0					
18				5.7	2.0	38.3	0.0					
19				6.7	1.8	42.3	0.0					
20				7.0	2.6	42	0.0					
21				6.0	2.3	42	0.6					
22				6.3	2.2	43	0.3					
23				3.5	9	43	0.6					
24				5.2	11	37.3	1.1					
25				5.7	1.8	42.3	0.6					
26				5.6	1.4	35	0.2					
27				5.8	1.8	38	0.0					
28				6.7	3.0	42.3	0.7					
29												
30												
31												
Mean				13.11	3.39	42.5	4.98		1.0	1.0		

Figure 5. Tulsa, TX observer form for February 1899.





Daily Data for February 8, 1933 for TX HIGH PLAINS Climate Division

Click column heading to sort ascending, click again to sort descending.

Name	Station Type	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
SEMINOLE	COOP	26	-23	0.00	0.0	2
MULESHOE #1	COOP	21	-21	0.00	0.0	0
LUBBOCK 9 N	COOP	18	-17	0.00	0.0	0
TAHOKA	COOP	19	-15	0.00	0.0	0
LAMESA 1 SSE	COOP	27	-12	0.30	3.0	M
MIDLAND INTL AP	WBAN	29	-11	0.00	M	M
VEGA 2 NW	COOP	7	-11	0.00	0.0	2
MIAMI	COOP	20	-11	0.00	0.0	0
BOOKER	COOP	28	-11	T	T	0
MIDLAND 4 ENE	COOP	11	-10	0.08	1.0	M
DALHART EXP STN	COOP	22	-10	0.00	0.0	0
SPEARMAN	COOP	20	-10	0.00	0.0	0
STRATFORD	COOP	19	-10	0.00	0.0	0
PLAINVIEW	COOP	20	-8	0.00	0.0	M
CANADIAN	COOP	M	-8	0.00	0.0	0
CROSBYTON	COOP	17	-5	0.28A	1.0A	M
FLINT	COOP	16	5	0.00	0.0	0

Table 1. Illustration of variation and spread in observed minimum temperatures in the High Plains Climate Division reported on 8 February 1933.

