

WWW.MESONET.TTU.EDU

West Texas Mesonet

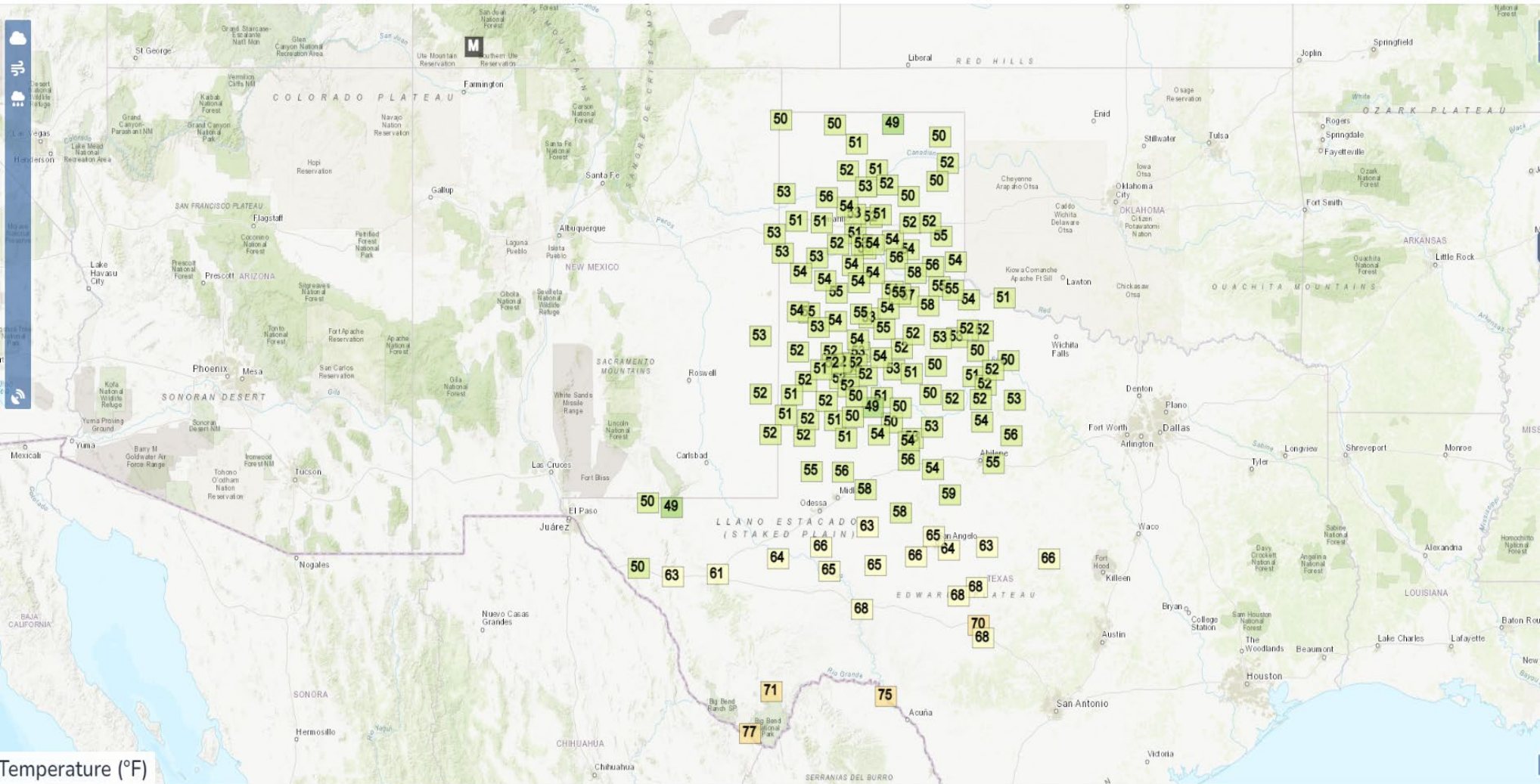


**WEST TEXAS
MESONET**

West Texas Mesonet – MAP

148 COMPLETED STATIONS – JANUARY 2023

West Texas Mesonet



SITE PHOTO
CROWELL 1E – FOARD COUNTY

West Texas Mesonet



SITE PHOTO

ENDEE 2SW — QUAY COUNTY, NEW MEXICO

West Texas Mesonet



SITE PHOTO

CASTOLON — BIG BEND NATIONAL PARK — BREWSTER COUNTY

West Texas Mesonet



STARTUP/FUNDING

West Texas Mesonet

- ❖ Initial funding received to start West Texas Mesonet in 1999 after closure of Reese Air Force Base (west of Lubbock, Texas). Texas Department of Economic Development provided money to the community after the base closure to help with job generation. Texas Tech University Wind Science and Engineering allocated money for 25 stations from this initial funding. First station installed at Reese Center in May of 2000.
- ❖ Current funding:
 - National Mesonet Program
 - Wind Energy
 - National Wind Institute
 - Selling data feeds and archive data

INSTRUMENTATION

West Texas Mesonet

- ❖ **The following data are recorded at each mesonet station every minute (sensors are sampled by the datalogger at 5 Hz):**
- ❖ 10-meter wind speed and direction (average and peak wind speed)
- ❖ 9-meter temperature
- ❖ 20-ft wind speed (fire weather)
- ❖ 2-meter wind speed
- ❖ 2-meter temperature
- ❖ 1.5-meter temperature and relative humidity (including dewpoint calculation)
- ❖ barometric pressure (using digital barometer: calculations include station pressure and altimeter)
- ❖ rainfall (one-minute, hourly, daily, weekly, monthly, yearly, station histories)
- ❖ 2-meter solar radiation (OTT/Kipp and Zonen SP-Lite2 and CM-3)

INSTRUMENTATION

West Texas Mesonet



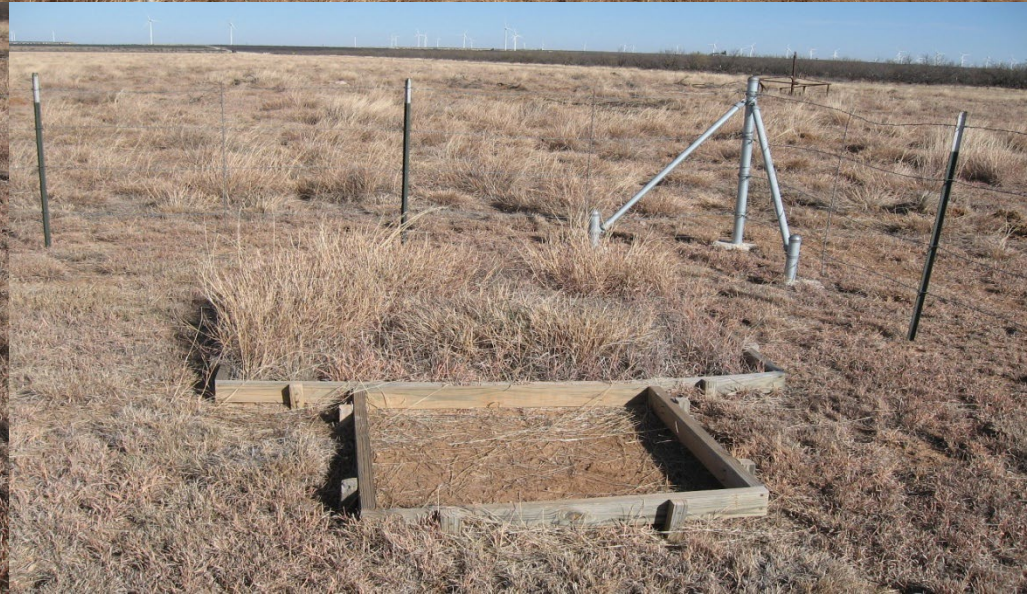
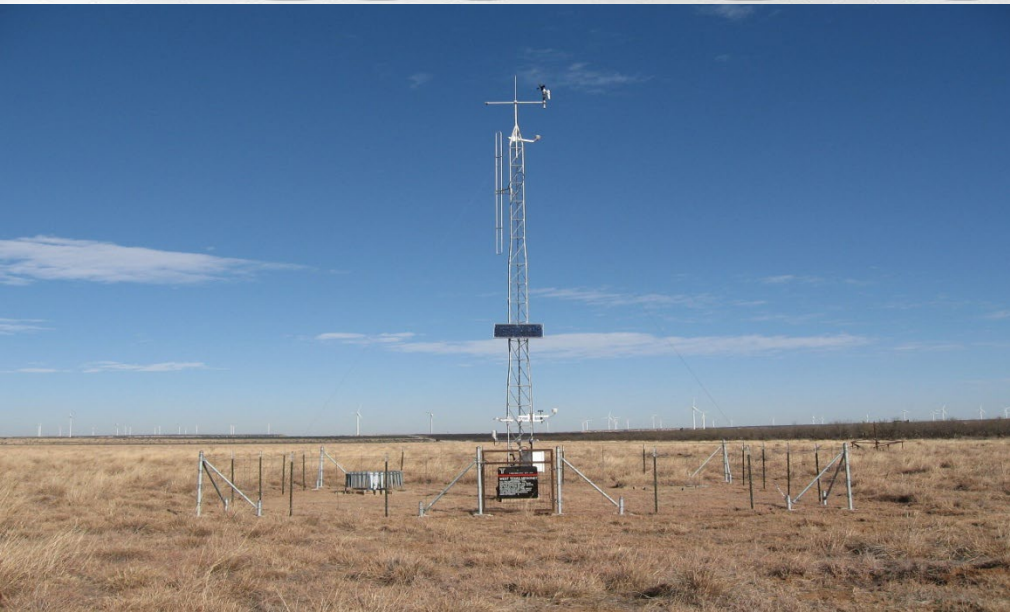
❖ **The following data are collected at most mesonet stations every 15 minutes:**

- ❖ Soil Temperature at 5cm (~2 inches) under sod-covered ground
- ❖ Soil Temperature at 10cm (~4 inches) under sod-covered ground
- ❖ Soil Temperature at 20cm (~8 inches) under sod-covered ground
- ❖ Soil Temperature at 5cm (~2 inches) for bare ground
- ❖ Soil Temperature at 20cm (~8 inches) for bare ground
- ❖ Soil Moisture at 5cm (~2 inches) (all of these are sod-covered ground)
- ❖ Soil Moisture at 20cm (~8 inches)
- ❖ Soil Moisture at 60cm (~24 inches)
- ❖ Soil Moisture at 75cm (~30 inches)
- ❖ Leaf Wetness

STATION LAYOUT AND INSTRUMENTATION

FLUVANNA 3W WTM STATION

West Texas Mesonet



USERS/IMPORTANCE

West Texas Mesonet

❖ Users:

- ❖ Agriculture
- ❖ Wind Power Industry
- ❖ National Weather Service
- ❖ NOAA Weather Radio
- ❖ Media Outlets
- ❖ And Many More....
- ❖ Schools
- ❖ Community Leaders
- ❖ Emergency Management
- ❖ General Public

- ❖ Real-time Data Access: Real-time (last 24-hours) mesonet information (data and products) is free to anyone on the web page at <https://www.mesonet.ttu.edu>. WTM archive data for the public is distributed through Synoptic Data <https://synopticdata.com>
 - ❖ Average web hits per day: **73,000**
 - ❖ Average Apple IOS users per day: **5,000**
- ❖ Maintenance: Each station is visited every two months to complete routine maintenance. When an instrument fails, we replace it as soon as possible. If a station is not sending quality data, it is not helping anyone.
- ❖ New Stations: We attempt to add 8-9 new mesonet stations each year. Funding determines the number of new stations. We try and fill in data holes with new locations...most new locations are requests from the National Weather Service, state agencies, or private ranches.

WTM WEB PRODUCTS

[HTTPS://WWW.MESONET.TTU.EDU/](https://www.mesonet.ttu.edu/)

West Texas Mesonet

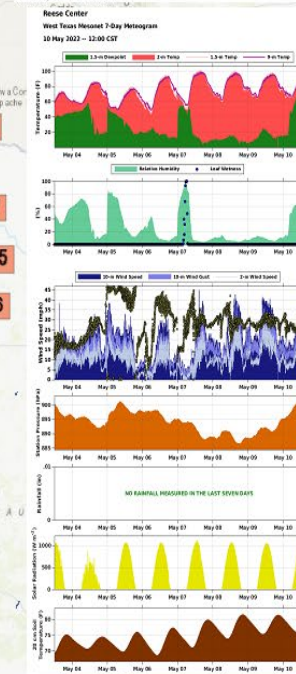
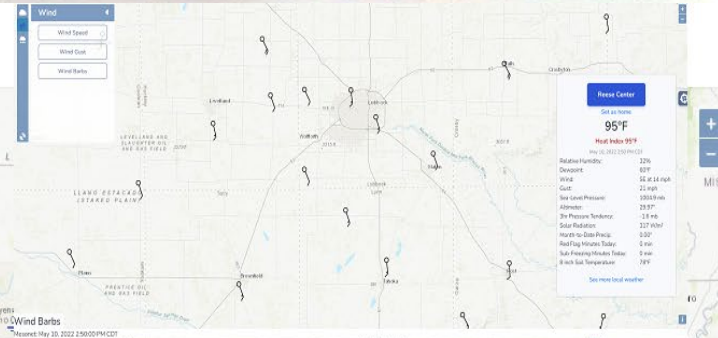
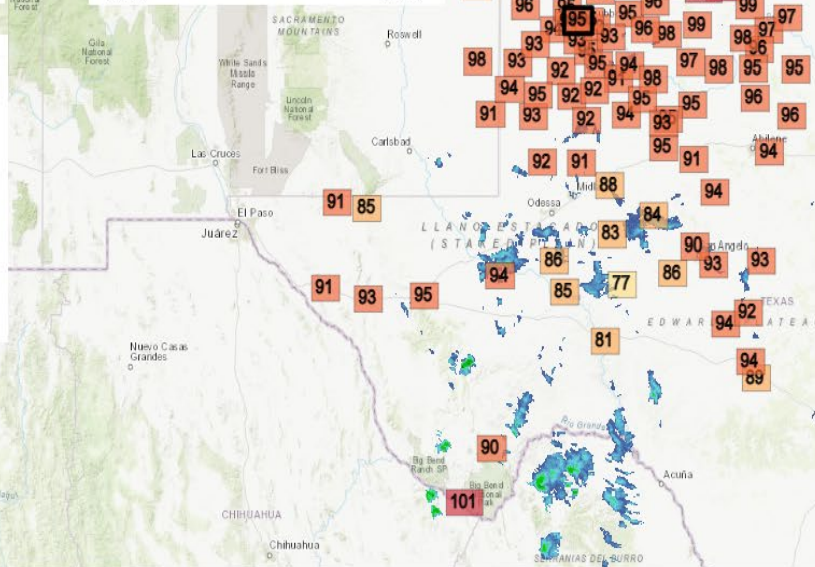
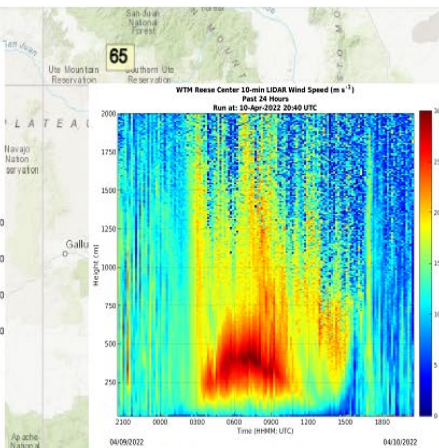
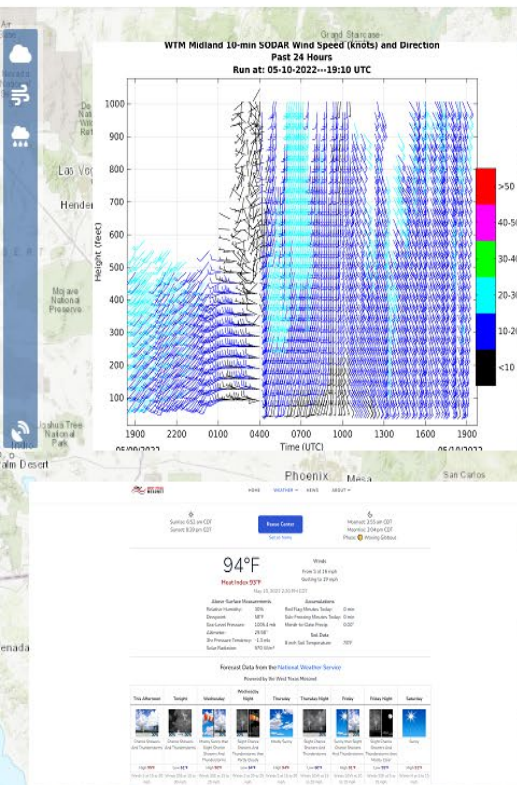


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Reese Center

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95°F

Heat Index 94°F

May 10, 2022 2:25 PM CDT

Relative Humidity:	28%
Dewpoint:	56°F
Wind:	S at 21 mph
Gust:	24 mph
Sea-Level Pressure:	1005.0 mb
Altitude:	29.98"
3hr Pressure Tendency:	-1.4 mb
Solar Radiation:	873 W/m²
Month-to-Date Precip:	0.00"
Red Flag Minutes Today:	0 min
Sub-Freezing Minutes Today:	0 min
8 inch Soil Temperature:	78°F

[See more local weather](#)

Temperature (°F)

Mesonet: May 10, 2022 2:25:00 PM CDT

Radar: May 10, 2022 2:23:00 PM CDT

NWS Radar Reflectivity:

WTM WEB PRODUCTS

LATEST WEATHER OBSERVATIONS

[HTTPS://WWW.MESONET.TTU.EDU/LATEST-OBS](https://www.mesonet.ttu.edu/latest-obs)

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Latest Weather Observations

[CURRENT AND FORECAST](#)[METEOROGRAMS](#)[LATEST WEATHER OBSERVATIONS](#)[DAILY WEATHER SUMMARY](#)[PRECIP HISTORY](#)[SODAR](#)[LIDAR](#)

Station	Time of Last	Temp	Dew Point	1.5m-9m ΔT	Relative Humidity	Wind Dir	Wind Speed	Wind Gust	Altimeter	1hr Precip	24hr Precip	Solar Radiation	RFTI
Abernathy	Jan 7, 2:45 PM CST	53°F	27°F	0.5°F	36%			9 mph	30.25"	0.00"	0.00"	265 W/m²	0
Adrian	Jan 7, 2:45 PM CST	50°F	26°F	0.6°F	38%			8 mph	30.26"	0.00"	0.00"	533 W/m²	0
Aiken	Jan 7, 2:45 PM CST	54°F	26°F	0.2°F	33%			7 mph	30.26"	0.00"	0.00"	462 W/m²	0
Albany	Jan 7, 2:45 PM CST	56°F	29°F	1.4°F	35%			16 mph	30.24"	0.00"	0.00"	345 W/m²	0
Amarillo 15NNW	Jan 7, 2:45 PM CST	54°F	26°F	0.6°F	34%	N [16°]	6 mph	7 mph	30.26"	0.00"	0.00"	485 W/m²	0
Amarillo 7SSE	Jan 7, 2:45 PM CST	50°F Wind Chill 49°F	25°F	1.5°F	37%	N [355°]	4 mph	5 mph	30.27"	0.00"	0.00"	258 W/m²	0
Amarillo 9NNE	Jan 7, 2:45 PM CST	51°F	26°F	0.1°F	37%	N [360°]	3 mph	5 mph	30.26"	0.00"	0.00"	464 W/m²	0
Amherst	Jan 7, 2:45 PM CST	53°F	23°F	0.9°F	32%	N [16°]	8 mph	9 mph	30.25"	0.00"	0.00"	394 W/m²	0
Andrews	Jan 7, 2:45 PM CST	54°F	23°F	1.8°F	30%	N [7°]	10 mph	12 mph	30.24"	0.00"	0.00"	302 W/m²	0
Anton	Jan 7, 2:45 PM CST	52°F	23°F	0.8°F	33%	NE [23°]	8 mph	10 mph	30.25"	0.00"	0.00"	282 W/m²	0
Aspermont	Jan 7, 2:45 PM CST	51°F	28°F	1.2°F	40%	N [338°]	9 mph	11 mph	30.26"	0.00"	0.00"	252 W/m²	0
Big Lake	Jan 7, 2:45 PM CST	65°F	24°F	1.0°F	21%	N [353°]	8 mph	10 mph	30.21"	0.00"	0.00"	590 W/m²	0
Bootleg	Jan 7, 2:45 PM CST	52°F	22°F	0.8°F	31%	N [22°]	4 mph	9 mph	30.28"	0.00"	0.00"	370 W/m²	0
Borger	Jan 7, 2:45 PM CST	51°F	26°F	1.3°F	37%	N [353°]	8 mph	12 mph	30.26"	0.00"	0.00"	502 W/m²	0
Boys Ranch	Jan 7, 2:45 PM CST	56°F	28°F	0.7°F	35%	N [20°]	3 mph	5 mph	30.26"	0.00"	0.00"	499 W/m²	0
Brownfield	Jan 7, 2:45 PM CST	52°F	24°F	0.8°F	34%	NE [38°]	7 mph	9 mph	30.24"	0.00"	0.00"	252 W/m²	0

WTM WEB PRODUCTS

LATEST WEATHER OBSERVATIONS

[HTTPS://WWW.MESONET.TTU.EDU/DAILY-ATMO](https://www.mesonet.ttu.edu/daily-atmo)

West Texas Mesonet

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Daily Weather Summary

Station in red indicates incomplete data.



Station	Max Temp	January 2023							Min RH	10m Avg Wind	METEORGRAMS		Wind	10m Peak Gust w/ Obs Time	Precip Today	Daily Solar
		Su	Mo	Tu	We	Th	Fr	Sa			LATEST WEATHER OBSERVATIONS					
Abernathy	73°F						6	7	10%	12.8 mph W [259°]	DAILY WEATHER SUMMARY		nph	29.6 mph [262°] @4:29 PM CST	0.00"	2.90 kWh/m²
Adrian	65°F	1	2	3	4	5			16%	16.1 mph W [260°]	PRECIP HISTORY		mph	42.3 mph [284°] @3:40 PM CST	0.00"	3.78 kWh/m²
Aiken	74°F	15	16	17	18	19	20	21	10%	14.1 mph SW [247°]	SODAR		mph	32.8 mph [253°] @3:36 PM CST	0.00"	3.74 kWh/m²
Albany	80°F	22	23	24	25	26	27	28	33%	6.8 mph S [199°]	LIDAR		nph	27.4 mph [209°] @4:34 PM CST	0.00"	3.11 kWh/m²
Amarillo 15NNW	70°F	Please select one of the previous 7 days							13%	13.9 mph SW [238°]	12.5 mph	9.1 mph	39.3 mph [262°] @4:46 PM CST	0.00"	3.59 kWh/m²	
Amarillo 7SSE	71°F	35°F			55%			10%	12.4 mph W [268°]	11.0 mph	8.7 mph	38.9 mph [270°] @4:31 PM CST	0.00"	3.40 kWh/m²		
Amarillo 9NNE	70°F	32°F			54%			11%	12.1 mph SW [241°]	11.0 mph	9.0 mph	40.6 mph [252°] @3:16 PM CST	0.00"	3.38 kWh/m²		
Amherst	73°F	39°F			53%			8%	13.0 mph W [255°]	11.9 mph	8.1 mph	38.4 mph [259°] @2:04 PM CST	0.00"	3.67 kWh/m²		
Andrews	78°F	43°F			49%			9%	10.9 mph SW [222°]	8.7 mph	6.1 mph	29.6 mph [251°] @3:48 PM CST	0.00"	3.22 kWh/m²		
Anton	76°F	37°F			55%			8%	12.1 mph W [251°]	10.9 mph	8.6 mph	36.2 mph [249°] @2:39 PM CST	0.00"	3.25 kWh/m²		
Aspermont	82°F	30°F			78%			15%	8.1 mph SW [203°]	7.1 mph	4.8 mph	30.7 mph [209°] @1:09 PM CST	0.00"	3.83 kWh/m²		
Big Lake	74°F	46°F			81%			31%	10.6 mph S [181°]	10.0 mph	7.8 mph	27.3 mph [182°] @1:29 PM CST	0.00"	4.02 kWh/m²		
Bootleg	66°F	33°F			53%			12%	17.9 mph W [252°]	15.9 mph	12.9 mph	40.9 mph [262°] @3:22 PM CST	0.00"	3.51 kWh/m²		
Borger	71°F	35°F			53%			12%	14.7 mph SW [243°]	13.9 mph	11.0 mph	43.8 mph [272°] @5:00 PM CST	0.00"	3.80 kWh/m²		
Boys Ranch	69°F	29°F			71%			12%	9.2 mph E [92°]	8.3 mph	7.0 mph	36.5 mph [260°] @4:35 PM CST	0.00"	3.68 kWh/m²		

CURRENT AND FORECAST

METEOGRAMS

LATEST WEATHER OBSERVATIONS

DAILY WEATHER SUMMARY

PRECIP HISTORY

SODAR

LIDAR

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LATEST WEATHER OBSERVATIONS

[HTTPS://WWW.MESONET.TTU.EDU/PRECIP-HST](https://www.mesonet.ttu.edu/precip-hst)

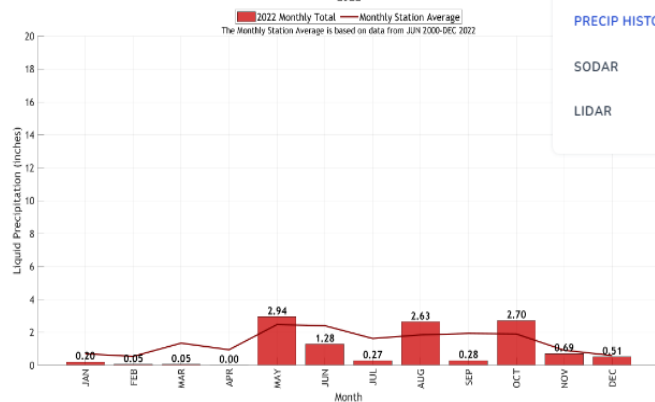
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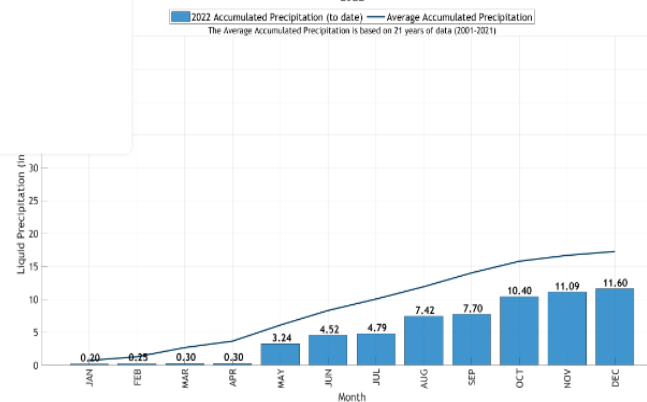
Reese Center

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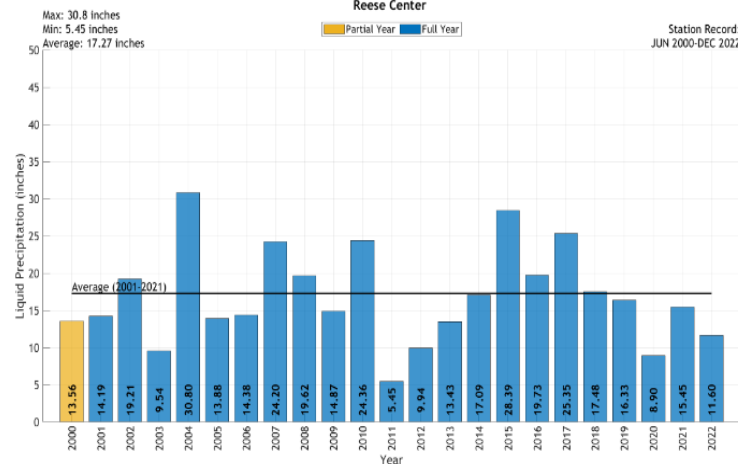
Monthly Precipitation Summary
Reese Center
2022



Accumulated Precipitation Summary
Reese Center
2022



Yearly Precipitation Summary
Reese Center



[HTTPS://WWW.MESONET.TTU.EDU/LATEST-SOBS](https://www.mesonet.ttu.edu/latest-sobs)

West Texas Mesonet



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LATEST SOIL OBSERVATIONS

DAILY SOIL SUMMARY

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LATEST WEATHER OBSERVATIONS

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Daily Soil Summary

Station in red indicates incomplete data. N/A indicates sensor not installed. -- indicates data not available.



Station	Avg Nat 2in Temp	January 2023							Avg Natural n Temp	Avg Bare 2in Temp	Avg Bare 8in Temp	7-day Avg Natural 8in Temp	7-day Avg Bare 8in Temp	Avg 2in Water Cont	Avg 8in Water Cont	Avg 24in Water Cont	Avg 30in Water Cont	Avg Leaf Wetness
		Su	Mo	Tu	We	Th	Fr	Sa										
Abernathy	45°F						6	7	7°F	46°F	43°F	46°F	43°F	0.185	0.220	0.154	0.150	1%
Adrian	44°F	1	2	3	4	5			3°F	45°F	43°F	43°F	43°F	0.234	0.216	0.177	0.181	0%
Aiken	45°F	8	9	10	11	12	13	14	4°F	47°F	45°F	44°F	45°F	0.252	0.191	0.184	0.163	0%
Albany	50°F	15	16	17	18	19	20	21	0°F	51°F	51°F	51°F	51°F	0.208	0.228	0.283	0.247	2%
Amarillo 15NNW	47°F	22	23	24	25	26	27	28										
		29	30	31	1	2	3	4										
		Please select one of the previous 7 days							4°F	46°F	46°F	45°F	45°F	0.111	0.080	0.079	0.063	0%
Amarillo 7SSE	43°F				43°F			42°F		44°F	43°F	43°F	43°F	0.261	0.250	0.173	0.172	0%
Amarillo 9NNE	N/A				N/A			N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%
Amherst	47°F				49°F			48°F		49°F	49°F	47°F	47°F	0.139	0.097	0.171	0.185	0%
Andrews	53°F				53°F			52°F		52°F	52°F	51°F	51°F	N/A	N/A	N/A	N/A	0%
Anton	47°F				48°F			46°F		47°F	48°F	46°F	47°F	0.189	0.148	0.190	0.218	1%
Aspermont	47°F				48°F			49°F		67°F	50°F	50°F	51°F	0.150	0.168	0.258	0.252	0%
Big Lake	51°F				51°F			52°F		53°F	52°F	51°F	51°F	0.197	0.224	0.254	0.197	0%
Bootleg	45°F				45°F			44°F		46°F	45°F	43°F	43°F	0.257	0.222	0.182	0.194	0%
Borger	46°F				46°F			45°F		46°F	45°F	44°F	44°F	0.108	0.077	0.064	0.063	0%
Boys Ranch	46°F				46°F			45°F		46°F	45°F	47°F	46°F	N/A	N/A	N/A	N/A	0%

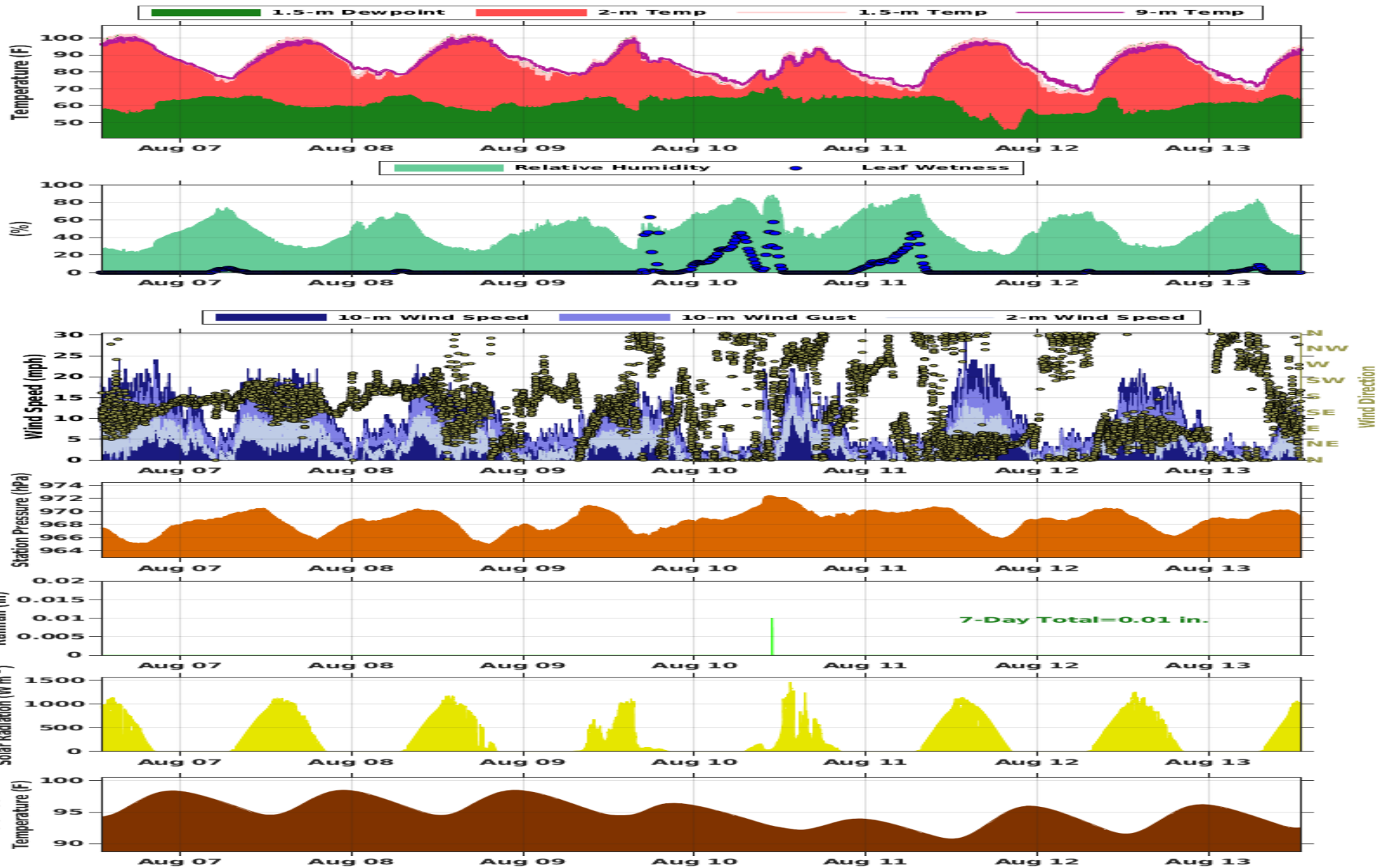
WTM PRODUCTS

METEOGRAMS

Albany

West Texas Mesonet 7-Day Meteogram

13 August 2022 -- 13:00 CDT



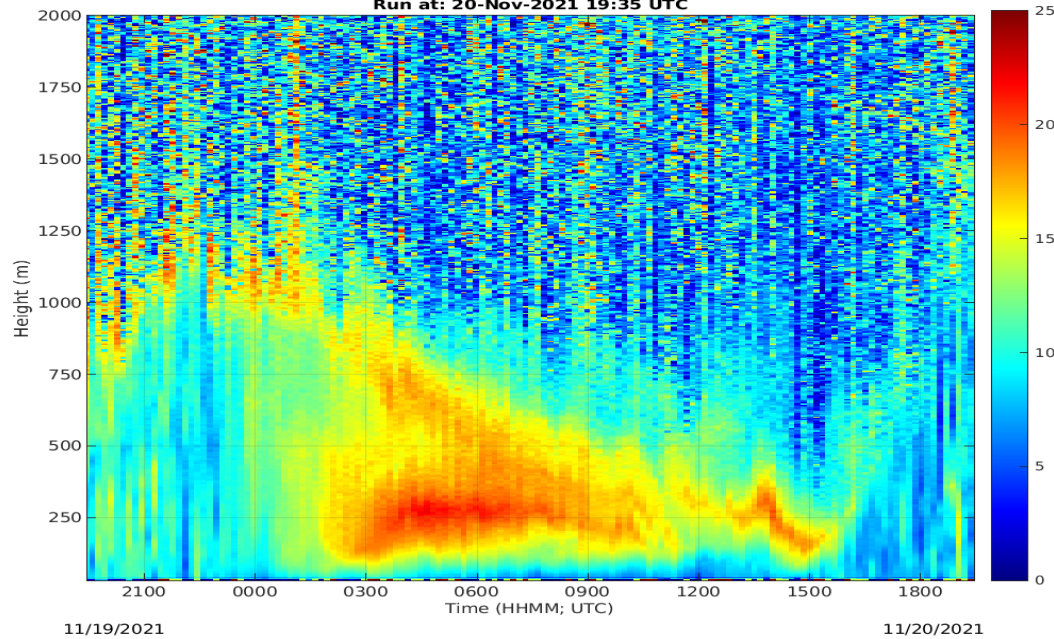
WTM PRODUCTS AND PLATFORMS

LIDAR AND SODAR DATA

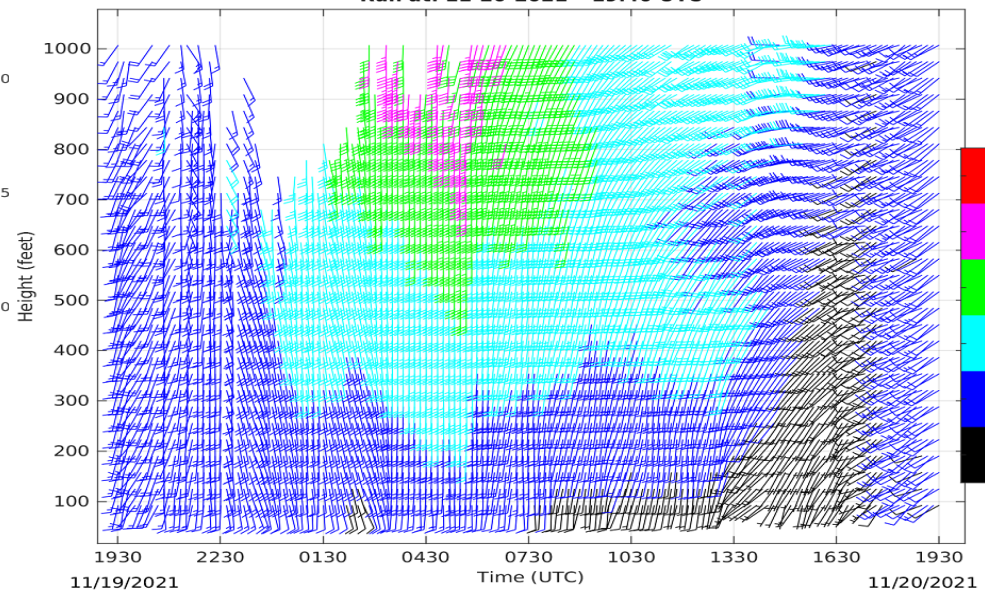
West Texas Mesonet



**WTM Reese Center 10-min LIDAR Wind Speed (m s^{-1})
Past 24 Hours
Run at: 20-Nov-2021 19:35 UTC**



**WTM Midland 10-min SODAR Wind Speed (knots) and Direction
Past 24 Hours
Run at: 11-20-2021---19:40 UTC**



WTM PRODUCTS

APPLE IOS/ANDROID APP

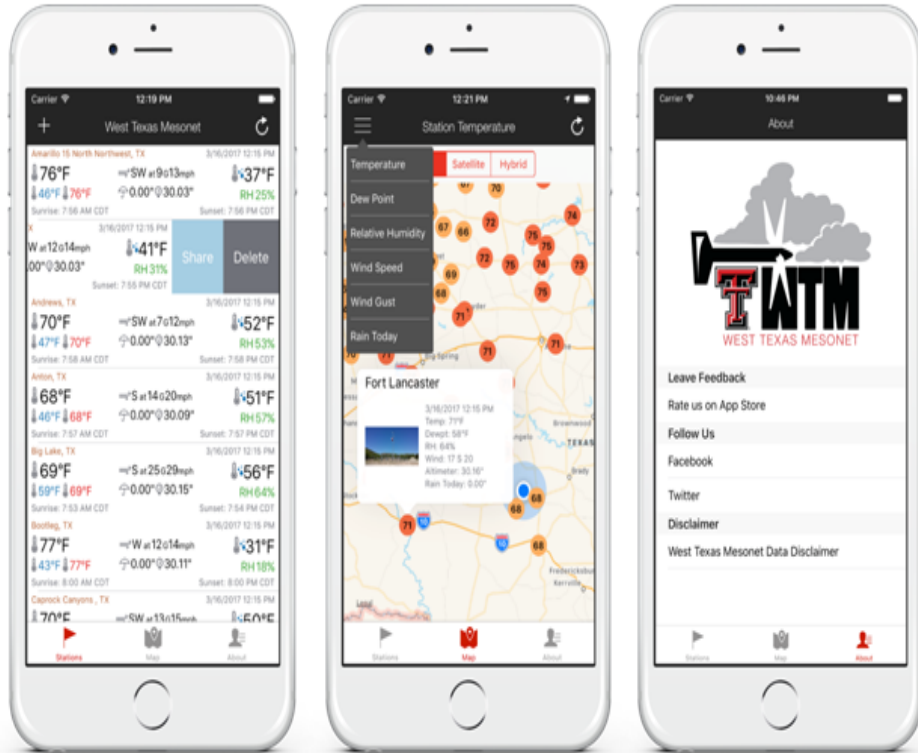


West Texas Mesonet

iOS Mobile Application Design

❖ Software components

- Stations – real time data for each stations selected by user
- Map – overall weather data for all stations
- About – Application related information



West Texas Mesonet

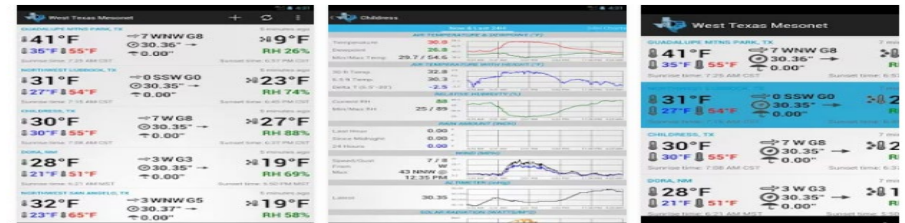
Aeropref Apps Weather

Everyone

This app is compatible with your device.

★★★★★ 75

Installed



The **West Texas Mesonet** app let's you view the current and past 24 hour weather data collected by the Texas Tech University, West Texas Mesonet array of weather stations (<http://www.mesonet.ttu.edu/>). The app allows users to:

- Quickly find and add your favorite stations to your list by typing in the station or nearby city name
- View current meteorological conditions of your saved stations in list view

READ MORE

iOS Mobile Application Implementation Details

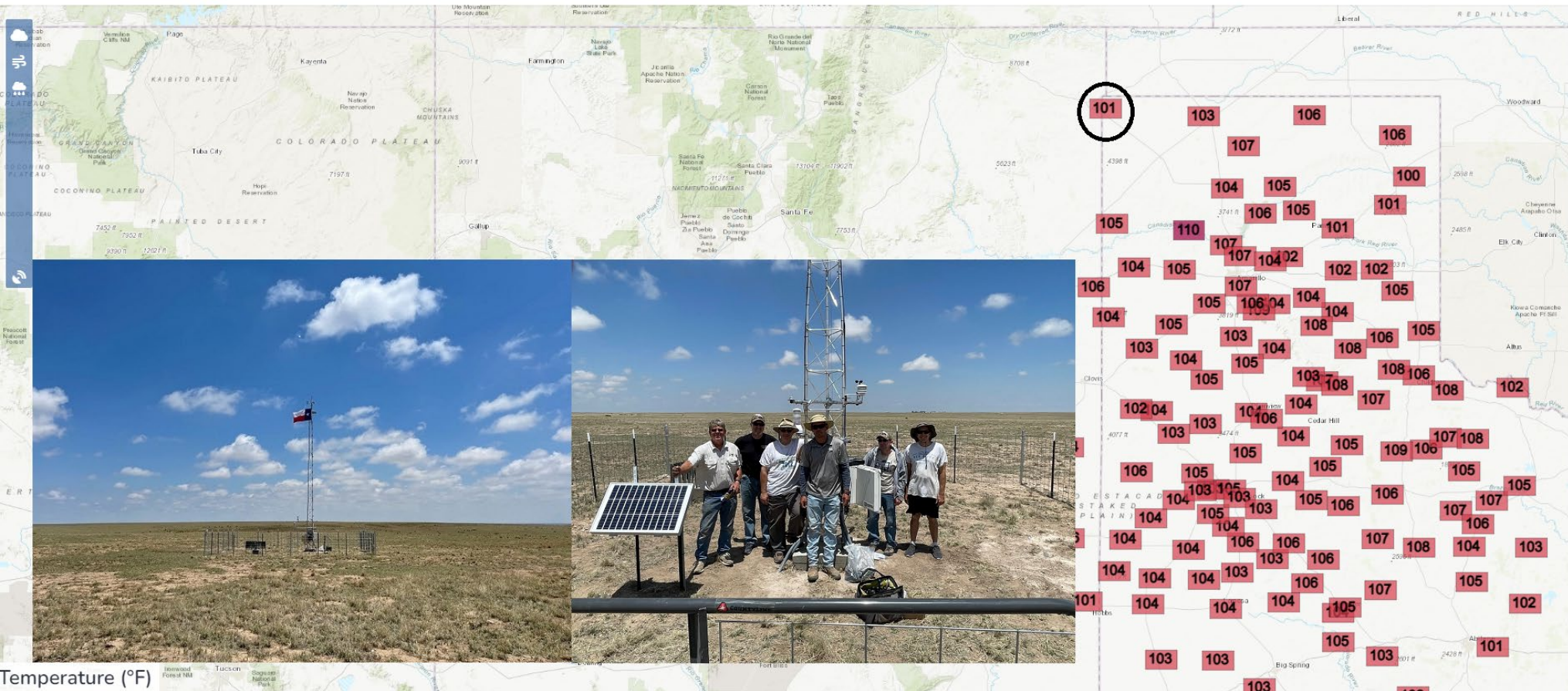
❖ Layout compatibility – iphone & ipad



WTM NEW STATIONS

West Texas Mesonet

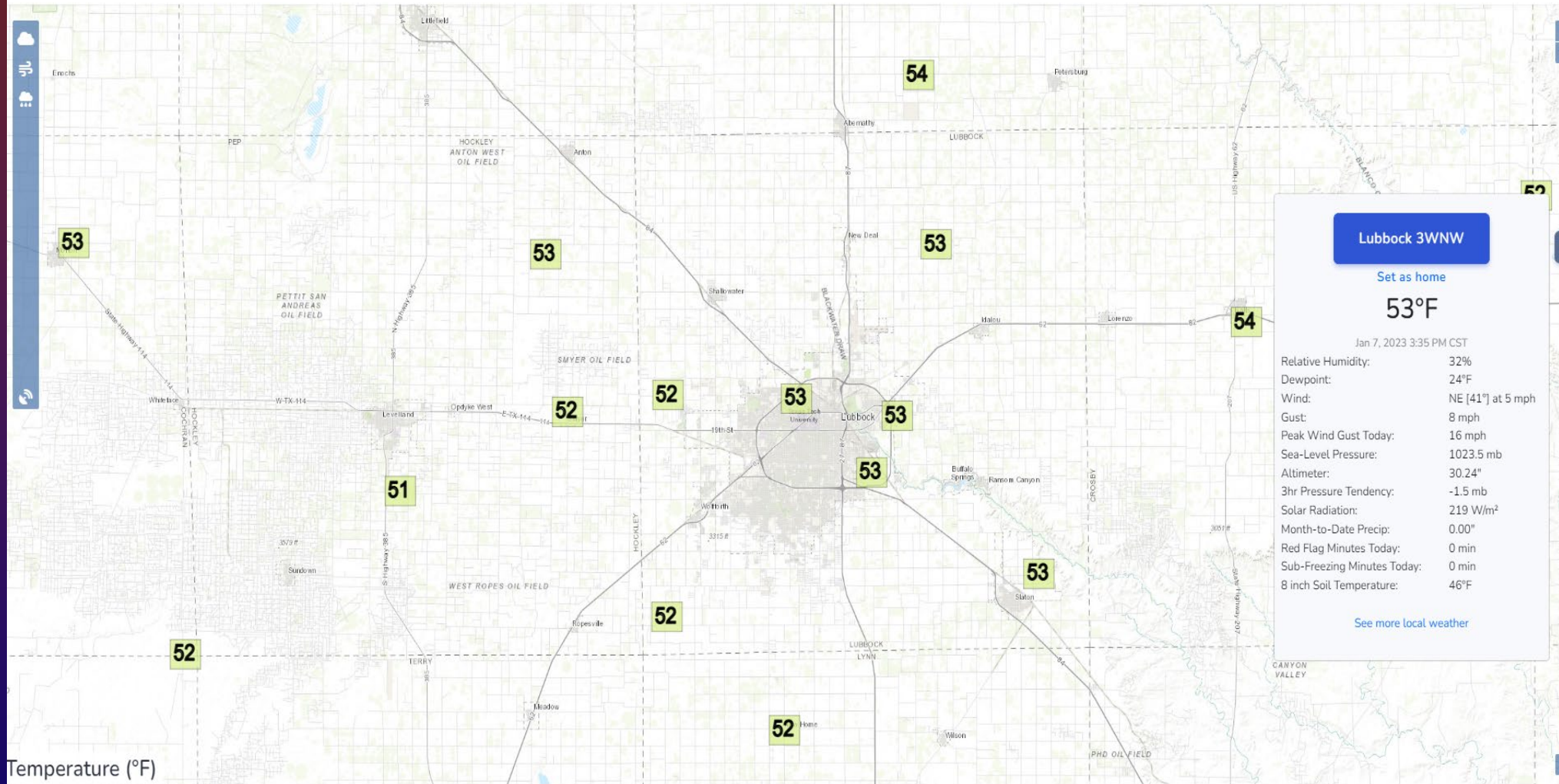
- ❖ Each new mesonet station is a partnership. We try and fill in data holes in our existing network. Our goal is to fill in the western part of Texas with mesonet stations that provide high-quality data.

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WTM NEW STATIONS

LUBBOCK COUNTY MICRONET

West Texas Mesonet

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WEST TEXAS MESONET CONTACT INFORMATION

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