

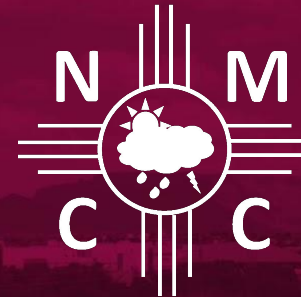
Expansion of our state-wide weather network, the ZiaMet mesonet

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Environmental Sciences

Agricultural Experiment Station



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Oct 20, 2022

ZiaMet weather network – history

- Our weather network started in 1983 with first State Climatologist
 - Started at NMSU Agricultural Science Centers with some collocated with NWS Cooperative stations
 - Primarily served agricultural users
 - 2-meter T/RH, 3-meter winds, 10-cm soil T, solar radiation, tipping bucket
- All stations were funded partially through federal and state research grants
- Data sent from the weather station to NMSU main campus through RF and IP based networking



Expansion in FY22 and FY23

- Building through partnerships with private landowners along with state, local, federal and tribal agencies
- Locations based on proximity to other networks, stakeholder needs, topography, elevation, land cover, and host availability
- Goal is to have at least 3 to 8 stations in each county
 - Even with 215 stations, that's a station every 566 square miles on average
 - Last year we started a partial expansion in eastern NM at the request of legislative sponsors



Funding the expansion

- National Mesonet Program funding started in 2015
- Informal meetings w/Legislators, ranchers and NWS, 2018-2020
 - Drought has been primary motivation for more data
- First state budget request for FY 2021
 - Bill vetoed
- Second state request in FY 2022, granted partial funding
- Third state request in FY 2023 included maintenance funding
- FY 2023-24 funding from federal source

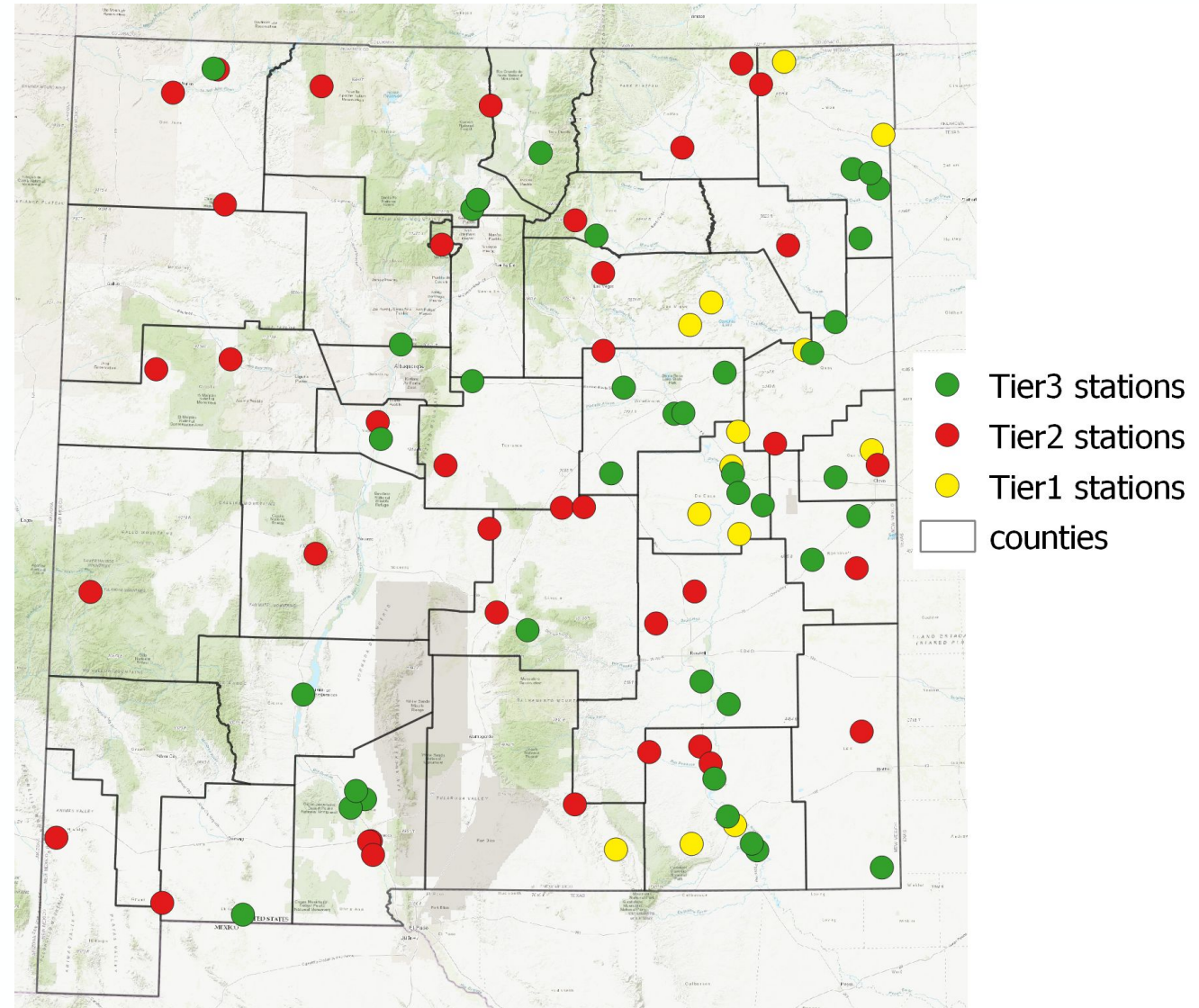


Expansion of NM mesonet - ZiaMet

Expanded from 31 to 96 stations with state legislative funds. We call this our phase I expansion.

Tier 1 and 2 are professional grade Campbell Scientific stations. Tier 1 are 10-meter towers.

Tier 3 are all-in-one weather stations with tipping bucket



Tier 1 station

Mesonet “standard”

10-meter winds and air temperature

Weighing and tipping bucket rain gauges

Multiple soil moisture depths

Use either cellular or satellite communication

We are in the process of installing first of these tier 1 stations



ZiaMet Tier 2

3-m winds, 2-m temperature/RH

10-cm soil temperature/moisture

Solar radiation, barometric pressure

Tipping bucket rain gauge

12 are located at NMSU off-campus science centers

7 collocated with NWS coop



Transferred ownership
from NOAA in 2015

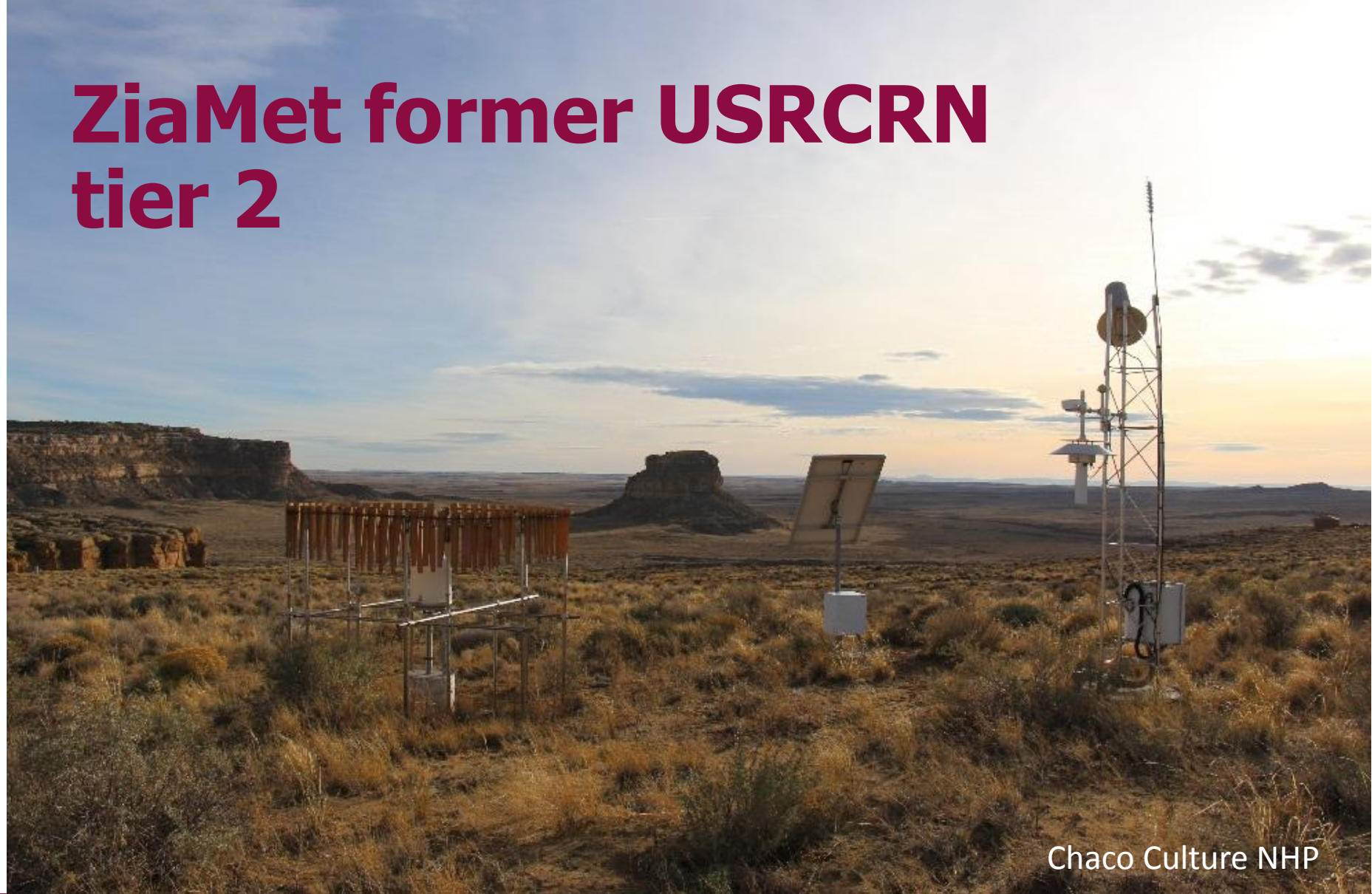
Joint effort between
NMSU, BLM, USFS,
cities, and Nat'l Park
Service

5-minute temp and
precipitation

16 total

Elev. 3,499' to 10,492'

ZiaMet former USRCRN tier 2



Chaco Culture NHP



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Tier 3

Focus mainly on
rainfall and
temperature

10-cm soil
temperature &
moisture

Possibility of
upgrading these at a
later time



Current web portal

weather.nmsu.edu



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New Mexico State University
New Mexico Weather

Home

About

ZiaMet

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Welcome to the home of the [ZiaMet](#) Weather Station Network. ZiaMet is a service of the NM Climate Center. This website also features CoCoRaHS precipitation data for New Mexico. Below are the most current observations for ZiaMet weather stations at NMSU locations across the state, the current CoCoRaHS precipitation map, and the US Drought Monitor map for New Mexico.

ZiaMet @ NMSU Data for 06 October 2022

Station	Time	Temperature (F)			Precipitation (in)
		Latest	Max	Min	
Alcalde ASC	17:15	54.0	68.1	46.9	0.11
Artesia ASC	17:35	62.3	75.1	58.9	0.86
Chihuahua Desert Range RC	17:00	68.2	69.3	52.1	0.01
Clayton LRC	17:15	65.3	68.3	47.7	0.00
Clovis ASC	17:35	60.0	62.7	54.2	0.17
Corona Range LRC	17:45	53.9	55.4	49.3	0.12
Fabian Garcia RC	17:35	74.4	74.8	58.3	0.00
Farmington ASC	17:30	66.0	70.1	46.8	0.00
JTH Forestry Research Center	17:35	51.6	51.6	42.8	0.02
Leyendecker II PSRC	17:35	72.8	74.4	56.9	0.00
Los Lunas ASC	17:40	57.8	68.8	54.6	0.00
NMSU Main Campus	17:30	74.8	75.7	58.4	0.00
Tucumcari ASC	17:35	59.2	66.0	54.2	0.05

The data above is from ZiaMet stations located on NMSU campus and the off-campus science centers, and is showing the most recent five minute reports.

Latest CoCoRaHS Map

NM CoCoRaHS Data for 2022 10-06
Data is reported from 5AM to 10AM

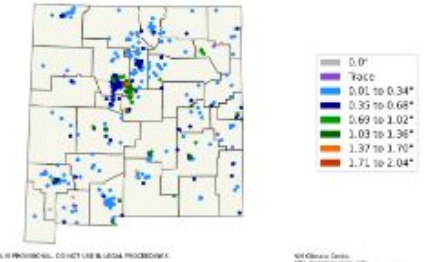


Figure 1. Source: [CoCoRaHS](#) and [NM Climate Center](#)

Drought Status

U.S. Drought Monitor
New Mexico



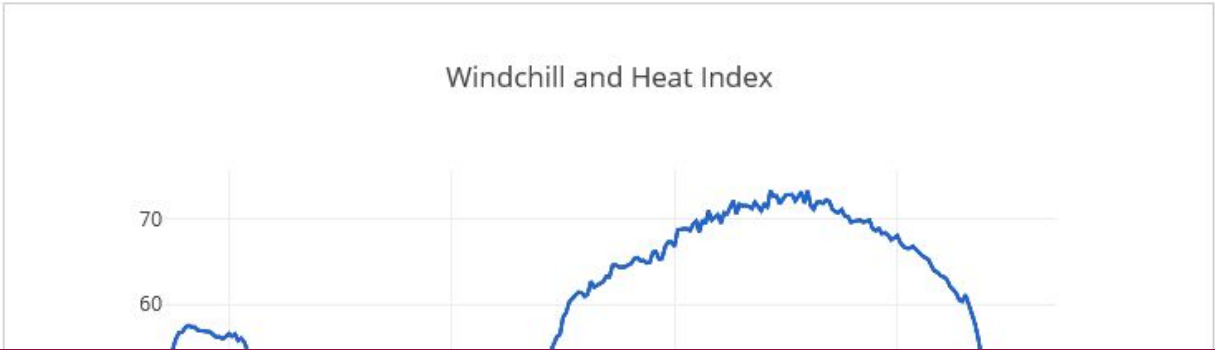
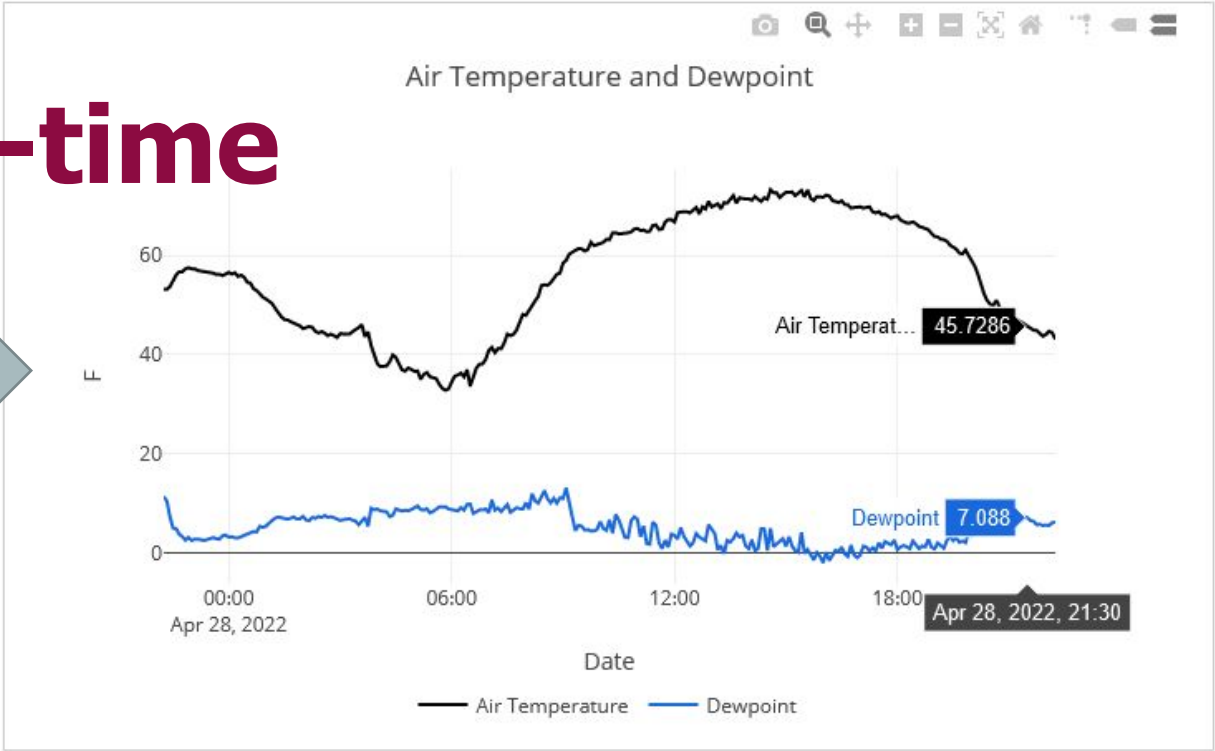
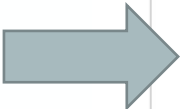
Figure 2. The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the



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Near real-time

5-minute data
Graph shows air
temperature
and dewpoint



Daily Data

[Surface Weather](#)

[Soil Data](#)

[Reference ET and GDD](#)

Latest Conditions

Air Temperature: 43.1° F

Dewpoint: 6.2° F

Relative Humidity: 21.4 %

Wind Speed: 4.0 MPH

Five Minute Max Wind Speed: 7.4 MPH

Five Minute Avg Wind Speed: 4.9 MPH

Wind Direction: 262.3°

Five Minute Avg Wind Direction: 247.5°

24 Hour Precipitation: 0.00 in

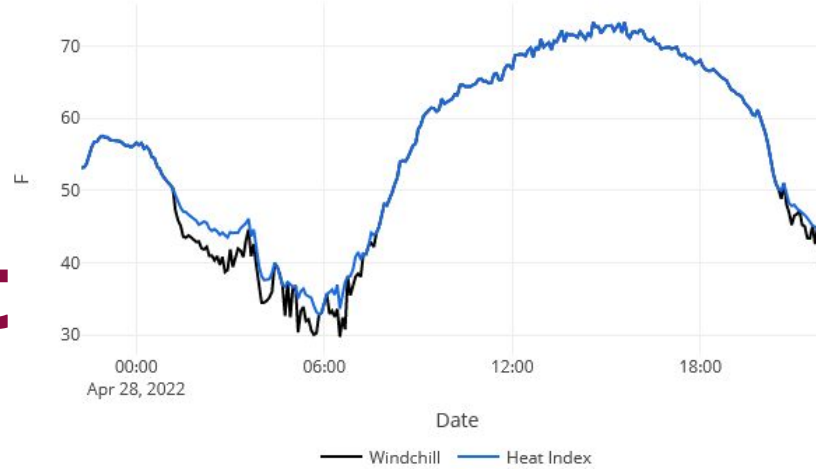
At April 28, 2022, 10:15 p.m.

Since Midnight



Windchill, Heat Index, Relative humidity

Windchill and Heat Index



Five Minute Avg Wind Direction: 247.5°

24 Hour Precipitation: 0.00 in

At April 28, 2022, 10:15 p.m.

Since Midnight

Max Air Temperature: 73.3° F at 2:35 p.m.

Min Air Temperature: 32.8° F at 5:50 a.m.

Avg Air Temperature: 56.1° F

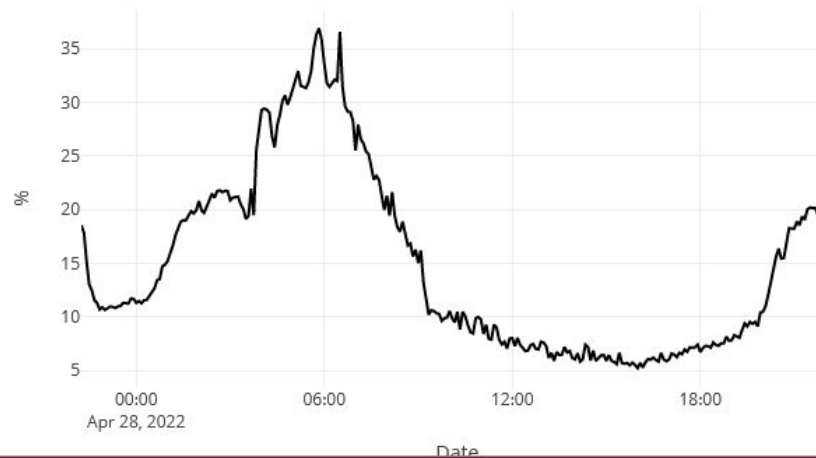
Max Wind Speed: 17.8 MPH at 4:35 p.m.

Avg Wind Speed: 5.1 MPH

Avg Wind Direction: 212.2°

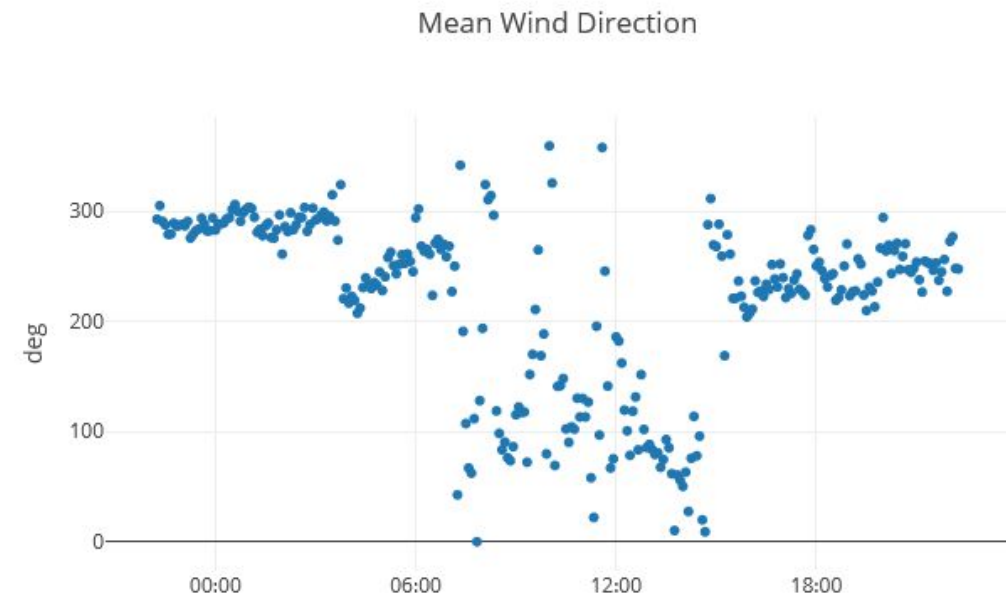
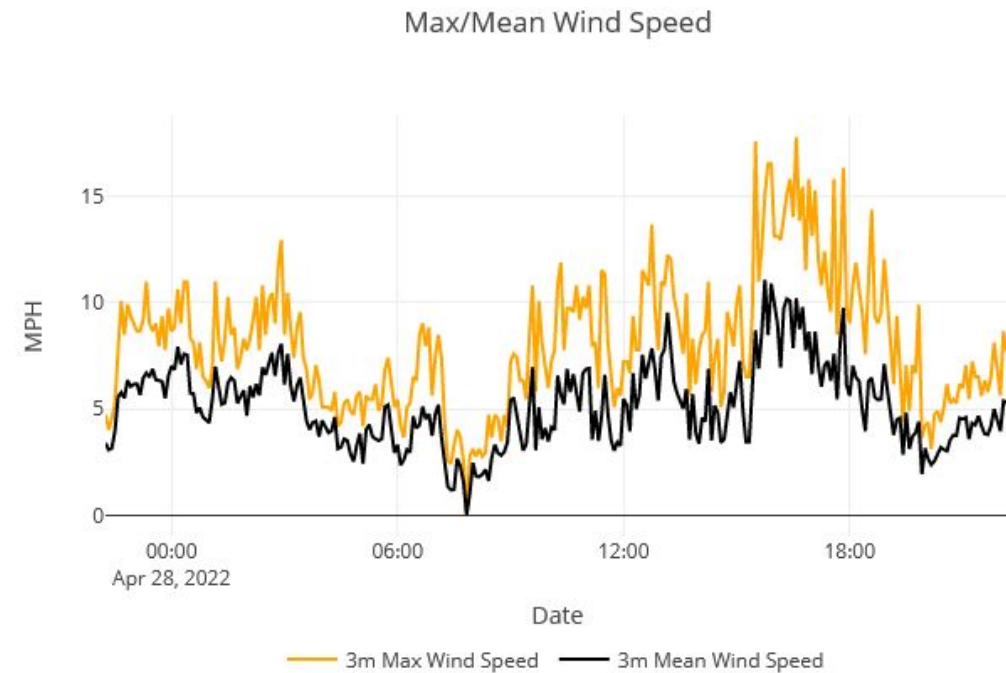
Precipitation: 0.00 in

Relative Humidity

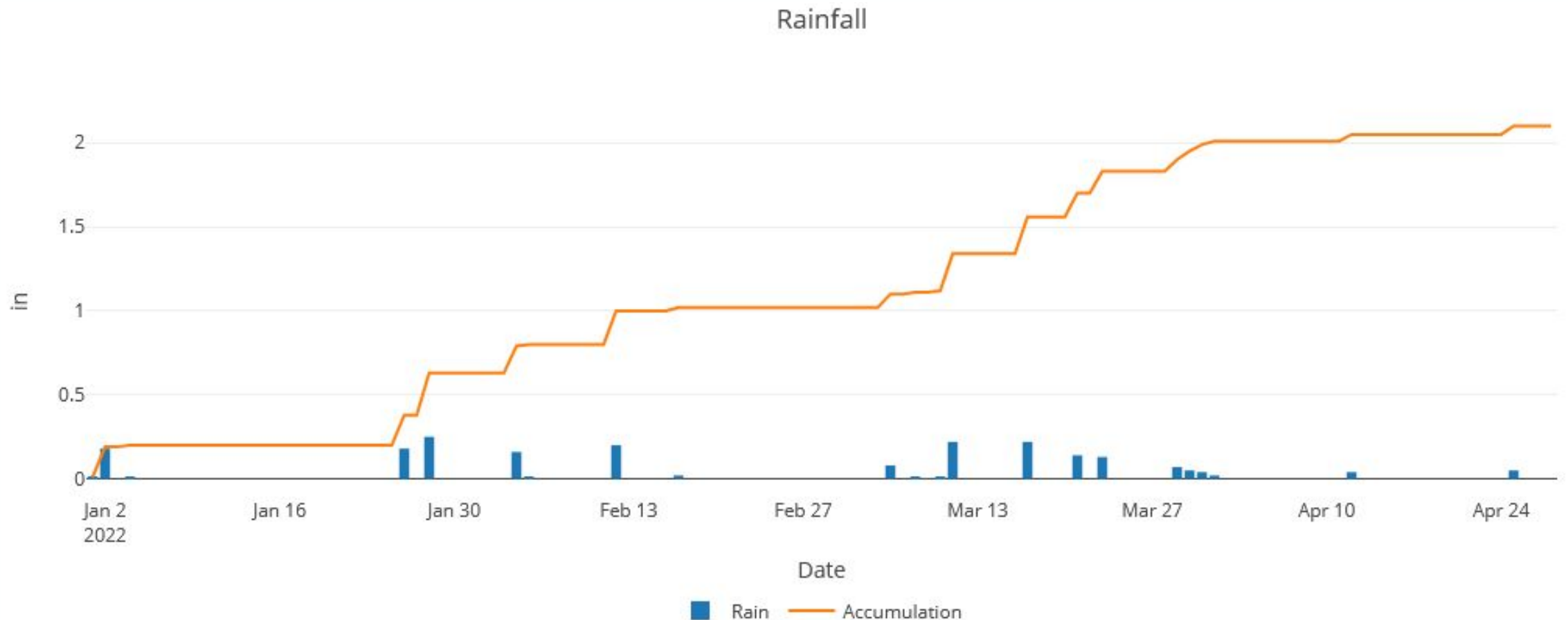


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Wind speed, wind gusts, and wind direction



Rainfall and accumulated rainfall



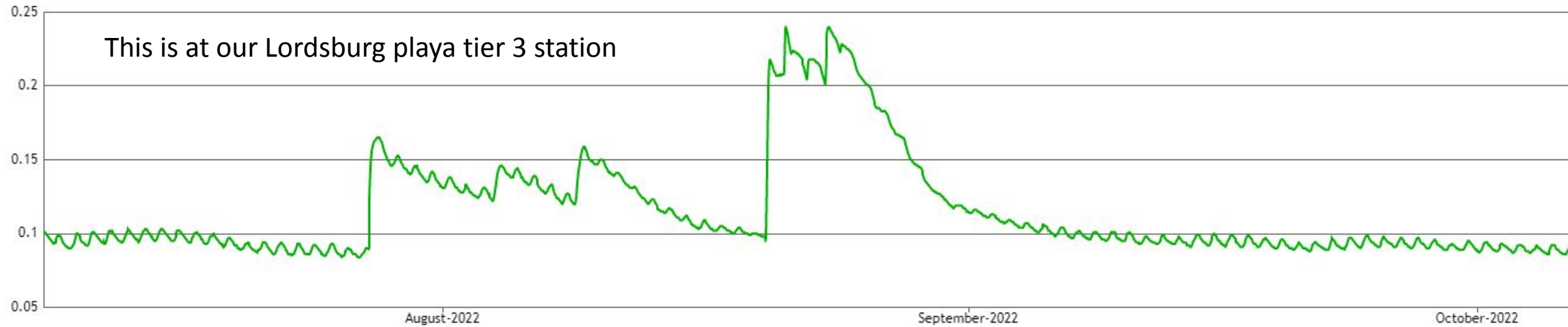
Water Content (m³/m³)

Soil moisture and temperature

Last 3 Months

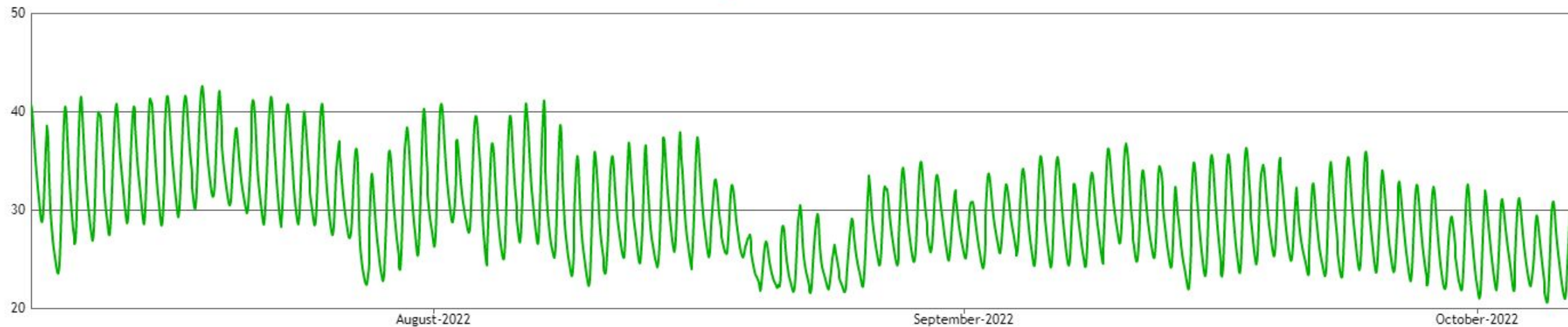
Port 4: TEROS 11

This is at our Lordsburg playa tier 3 station



Soil Temperature (°C)

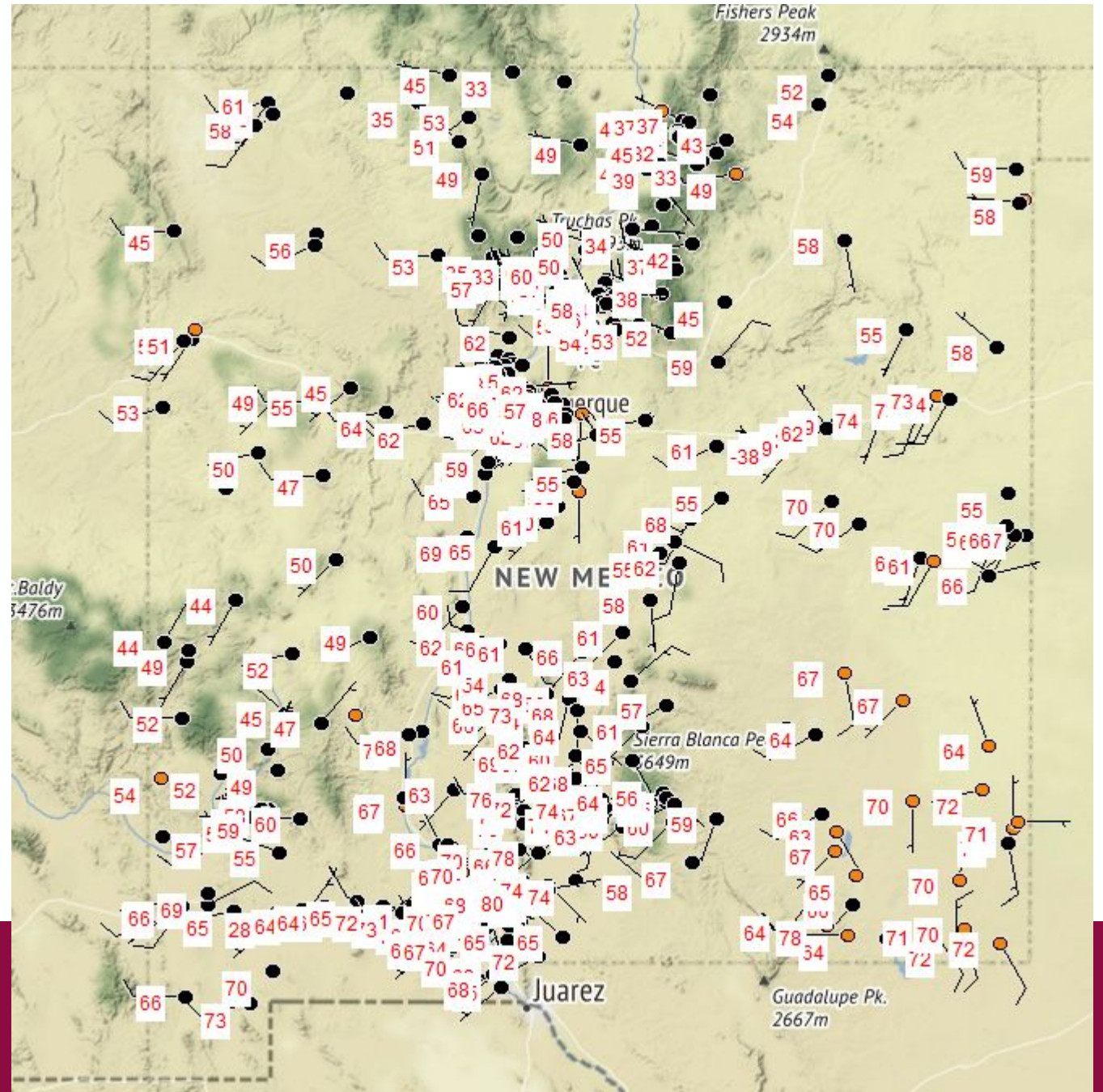
Port 4: TEROS 11



Mesowest

We send our real-time data to NOAA MADIS (Meteorological Assimilation Data Ingest System) and Mesowest.

Mesowest is a public access website for real-time weather data



Mesowest portal



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STATION INFO
ID: NMC06
NAME: JTH Forestry Research Center
LATITUDE: 35.97538
LONGITUDE: -105.34750
ELEVATION: 7260 ft
MNET: NMCC
LAND COVER: 2001 USGS
DATA COURTESY OF:
[New Mexico Climate Center](#)



[Change to Weather Map](#)
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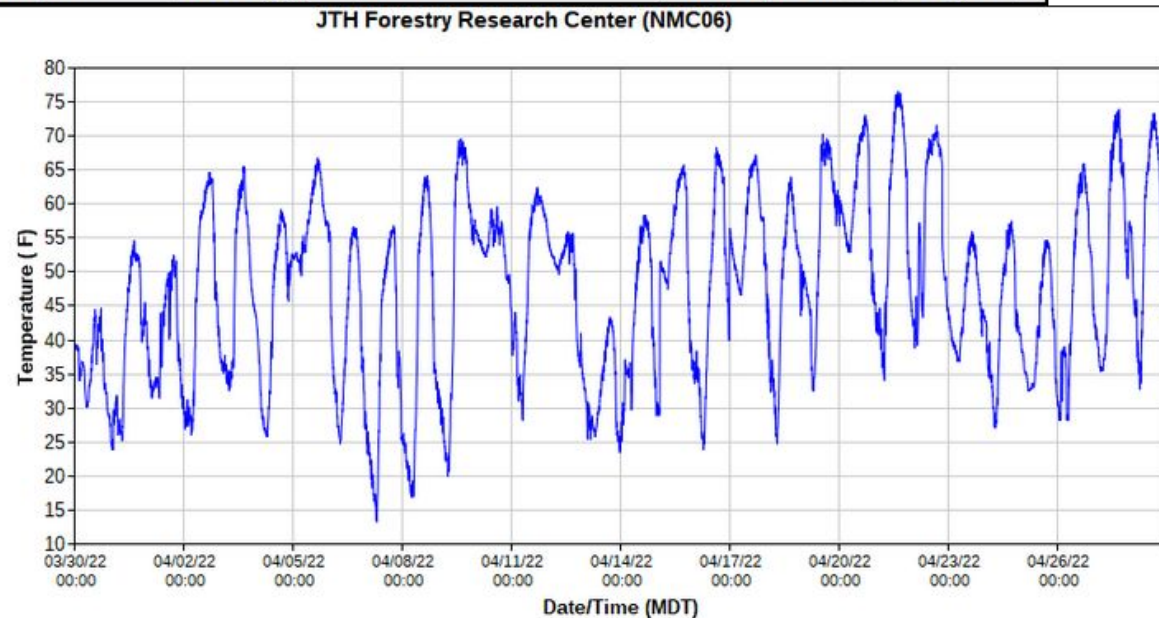
ORIGINAL PRODUCTS

[Original Tabular Display](#)
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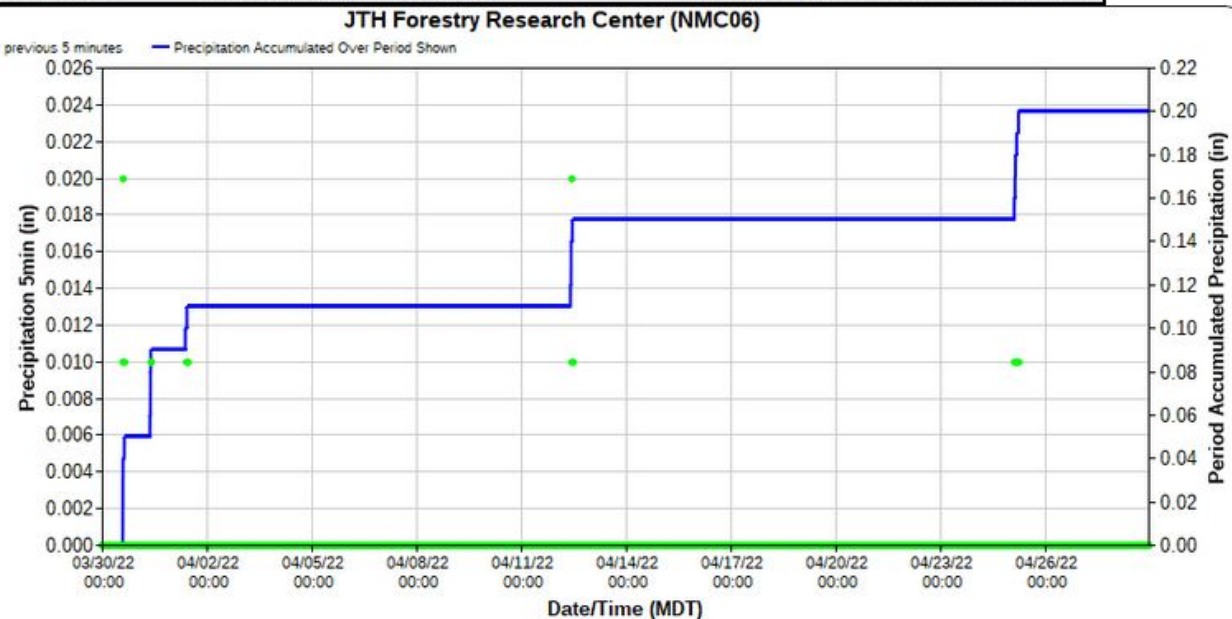
MORE INFO

[Help](#)
[Station Information](#)
[Data Quality](#)
[Latency \(delay of obs\)](#)
[Status \(number of obs\)](#)
[Variable PDF](#)
[Nearby Stations](#)
[Restrictions](#)

Plot #1 Station ID: NMC06 Variable(s): Temperature Sensor Options: ☐ All [Change Graph](#)



Plot #2 Station ID: NMC06 Variable(s): Precipitation 5min Sensor Options: ☐ All [Change Graph](#)

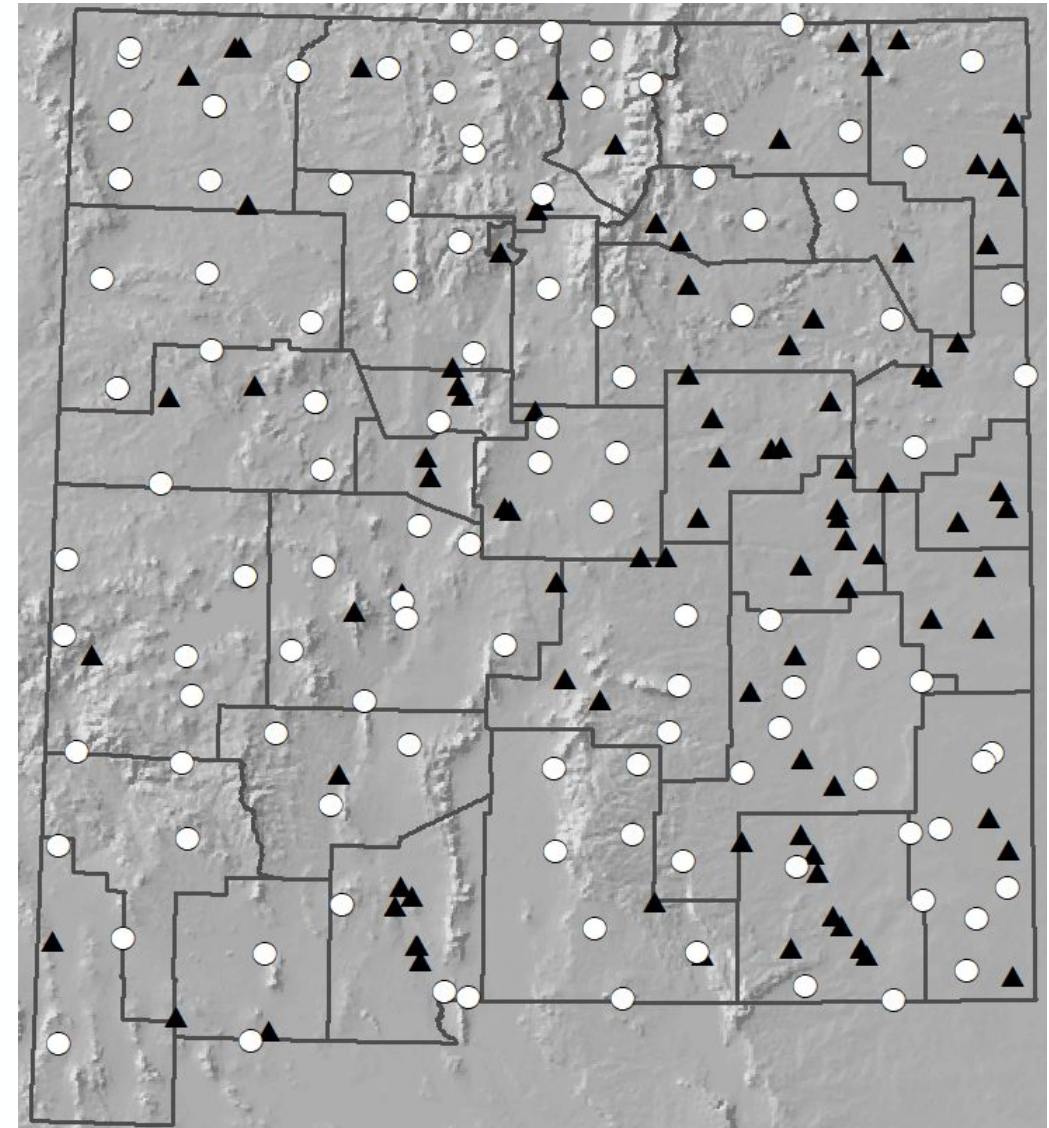


Further expansion of mesonet

In FY2023 and 24 we will be continuing our expansion across the rest of New Mexico as Phase II. We will add another 118 stations.

The map to the right provides tentative locations of sites in phase II shown in white dots. The black triangles are the existing stations after phase I.

This brings the total network to 215 weather stations.



Contact Information

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