



# Agriculture and Natural Resource Applications at the New Mexico Climate Center

Dave DuBois  
NM State Climatologist  
New Mexico State University

# Current NM Climate Center Staff

- Stan Engle, Computer Technician
- Students
  - Zahra (Vida) Ghodsi Zadeh (MS, Env. Sci.)
  - Yizhi Zhao (MS, Env. Sci.)
  - Antonio Arredondo (PhD, Comp. Sci.)
  - Trevor Nash (BS, Env. Sci.)
- Cooperative Extension
  - Liz Smith (extension viticulture)



# NM Activities

- Service to state, region, community, campus
  - monitoring networks
  - drought monitoring
  - contribute to outlooks, workshops & briefings
  - teaching & mentoring
- Outreach & climate literacy
  - workshops on climate and drought, social media
- Research
  - research for state agencies (Env., Trans., Health)

# Monitoring Networks

- NM Agriculture Meteorological network
- Former USRCRN
- Viticulture weather network
- Outreach (low cost) weather network
- CoCoRaHS
- Environmental monitoring network design

Redesigned website, spent a lot of time on CMS

# NM Agricultural Met Stations



Located at NMSU Ag Science Centers

10 active (4 in Las Cruces area)

3 permanently closed

Intend to bring 4 back online (no telemetry, being moved)

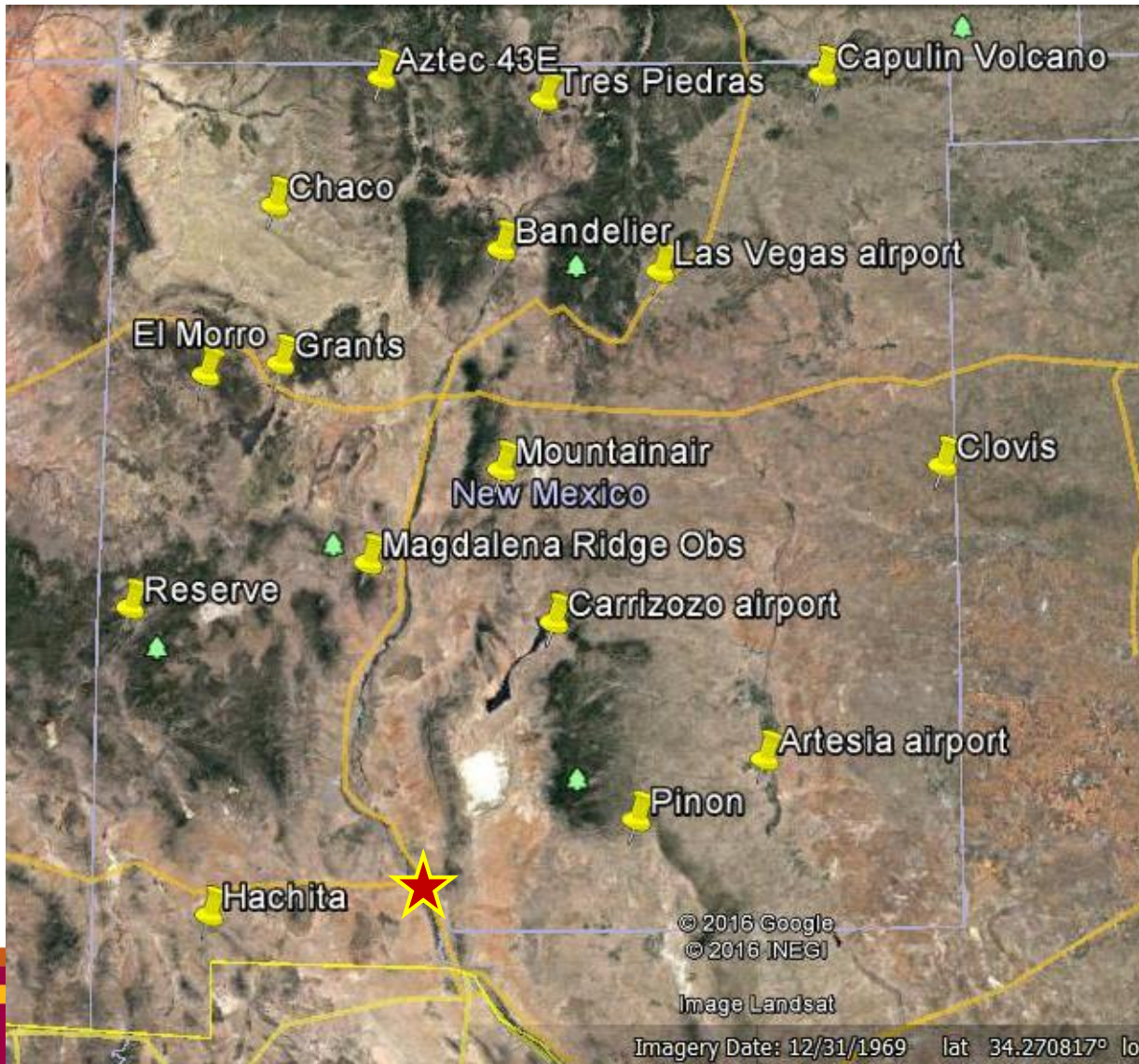
Carlsbad  
Clayton  
Corona  
Derry

# Farmington Ag Science Center

alfalfa, corn, dry beans, potatoes, onions, chile, etc.



# NM former “USRCRN”



Joint effort  
between NMSU,  
BLM, USFS,  
cities, and Park  
Service

Transferred  
ownerships in  
2014-2015

16 total  
5 NPS

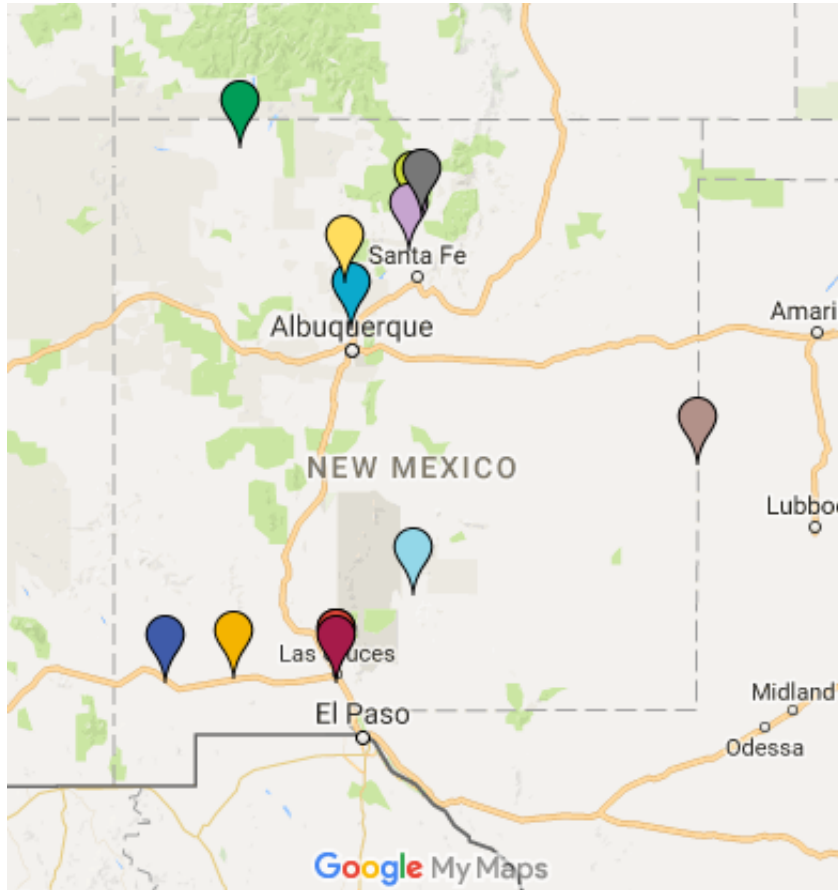
400 mi to Aztec 43E & 428 mi to Capulin Volcano



Piñon, NM on BLM land



# NM Viticulture



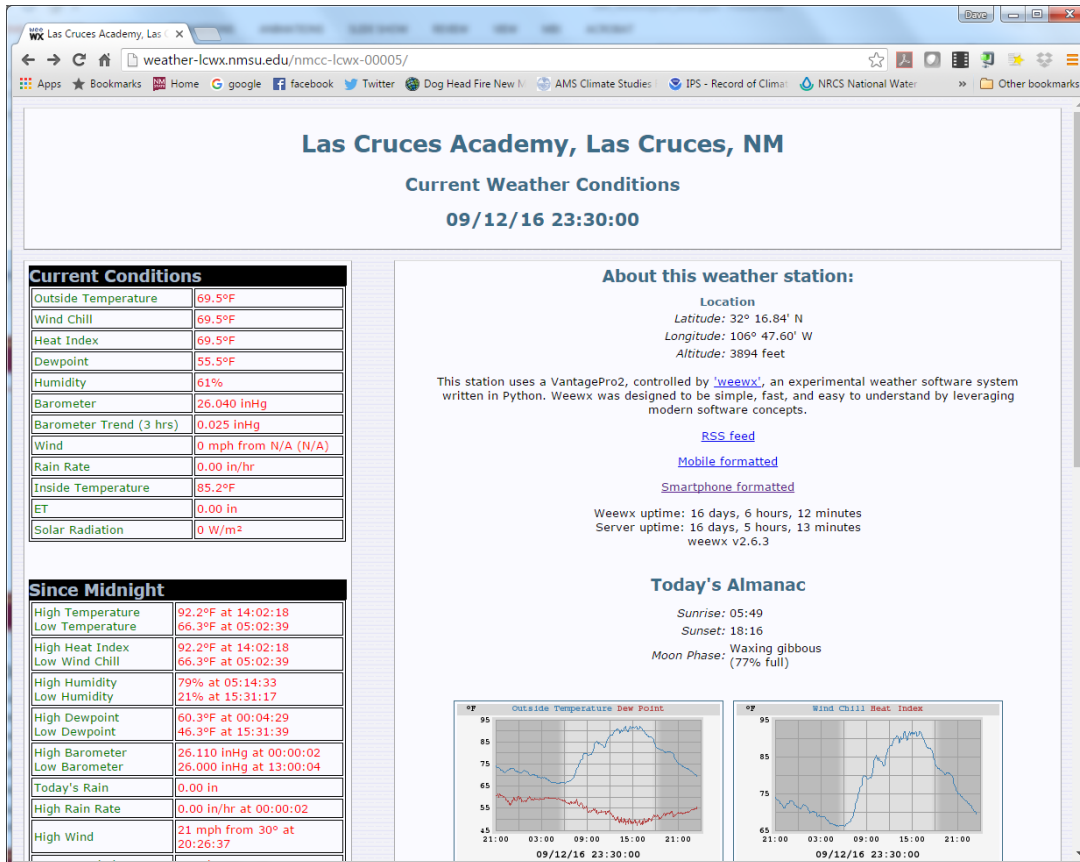
Viticulture program at the  
Department of Extension  
Plant Sciences

11 vineyards supported

Davis VantagePro2 +  
Raspberry Pi + wifi

Data telemetered to main  
campus every 5 min to  
hourly

# NM Low Cost WxNet



Supporting outreach to schools, fire station, city dust control project

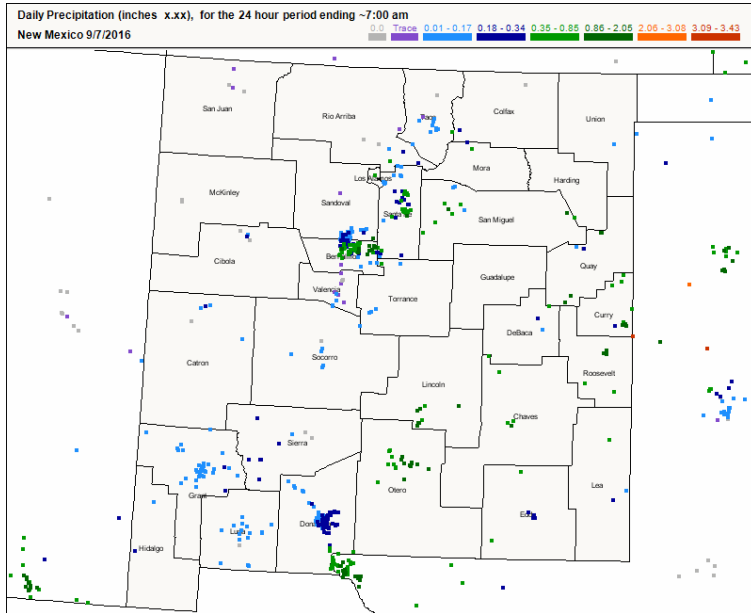
Davis VantagePro2 + Raspberry Pi + wifi

Data telemetered to main campus every 5 minutes

working on lifetime of sensors

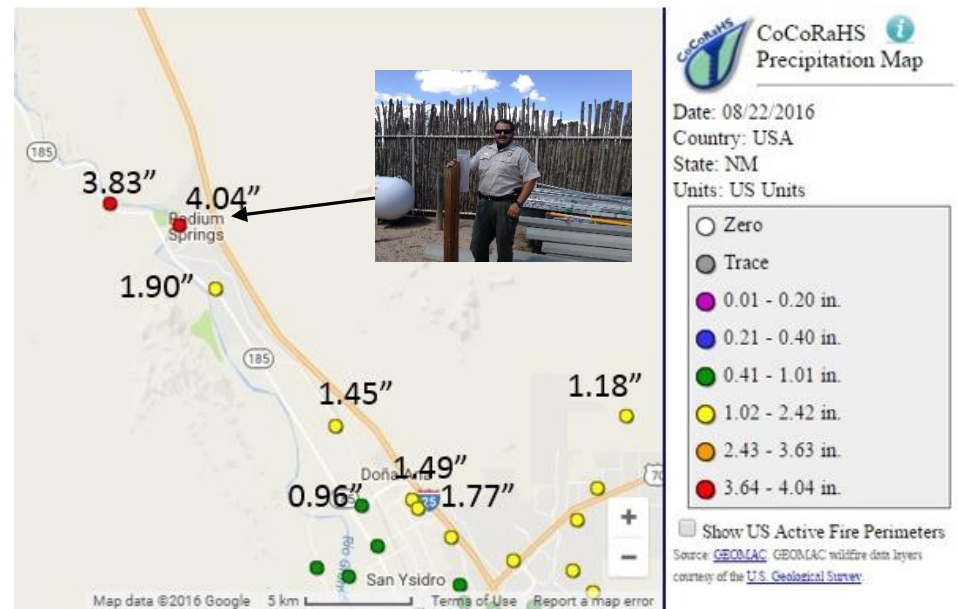
# CoCoRaHS

470 reports on 9/7/2016



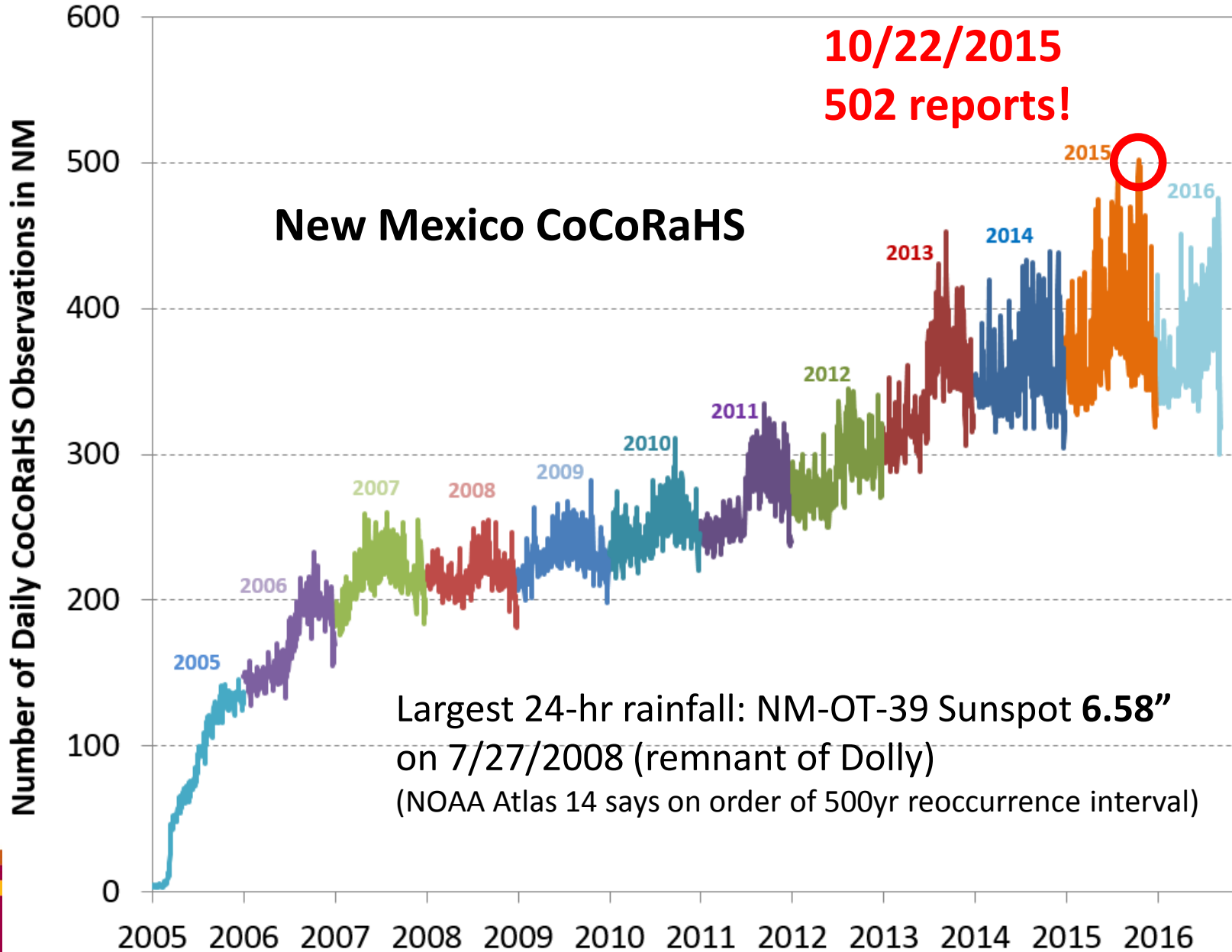
Observers in every county  
but not reporting every  
day

Capturing extreme events  
Radium Springs, August 22, 2016



Leasburg Dam State Park

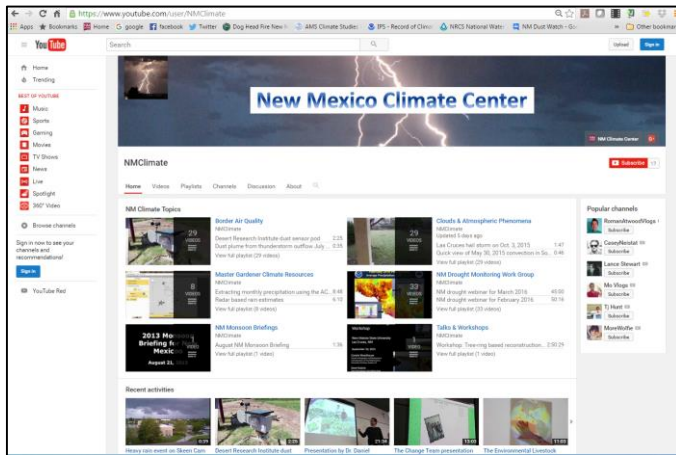
From a "rainy days report" query on CoCoRaHS page



# Outreach & Climate Literacy

- On campus
  - Teaching, sustainability council, invited speakers
- Community
  - School tours, WeatherFest, environmental fairs
  - CoCoRaHS at every opportunity
  - Master Gardeners, Museum Nat'l History
- Global
  - Collaboration with La Salle University, Colombia

# Successes in Social Media



[youtube.com/nmclimate](https://www.youtube.com/user/NMClimate)

YouTube videos covering climate monitoring, how-to, episodes, drought meetings, sampling, health effects, dust storms, workshops



[twitter.com/nmclimate](https://twitter.com/nmclimate)

Twitter provides an immediate two way communication with followers; use in classroom

# Climate Data Hackathon



2-day, focused on tool training, solving a local issue, and communication



What will this look like back on campus?

# Current Research

- NM Dept. of Health
  - Air quality and met monitoring, inventories
- NM Environment Dept.
  - Dust emissions, air quality monitoring
- NM & NV Dept. of Transportation
  - Dust mitigation and monitoring network design
- TAMU/Univ. Chihuahua
- El Paso MPO



# Time lapse camera network

Captures extreme weather events

Every 5 seconds

1+ year of monitoring

Collocated with rain gauges in few areas



# Dry Microburst



PLOTWATCHER PRO

06/09/2015 04:59:05PM 65% 98F

# Haboob



6/16/15

PLOTWATCHER PRO

06/16/2015 05:33:06PM 60% 109F ○

# Looking Ahead

- Data products
  - Leverage USRCRN
- Ag met network
  - Improve data quality & metadata
  - Increase visibility & branding
  - New funding channels
- Increase reach of CoCoRaHS
- Collaborate w/hub, extension, industry

