USDA Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE

Climate information benefiting agriculture & forestry

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Soil Moisture and Wildfire Prediction Workshop
Albuquerque, NM – April 29, 2019

USDA Climate Hub Network

Hubs' Guiding Principles

- **Interface** between *science* & *services;* achieved thru 3 functional areas:

  1. Science synthesis & translation

  2. Stakeholder outreach

  3. Tool development & transfer

Hubs' Guiding Principles

- **Span boundaries** **via** ***partnerships***

  - Ag & Forestry ↔ Climate/Weather Science

  - Across USDA (ARS, FS, NRCS, FSA, APHIS)

  - USDA ↔ Other Feds (DOI, NOAA)

  - USDA ↔ Tribes, States, NGOs, producers

Science Synthesis & Translation
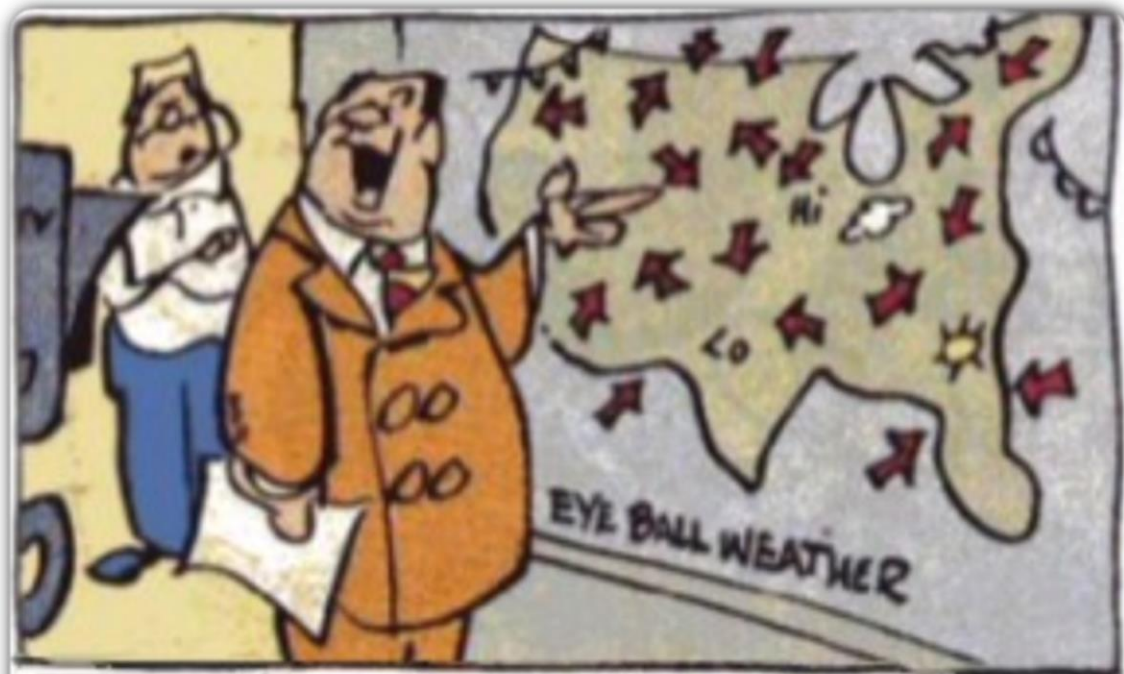
"The forcast for today: scattered arrows."

Science Synthesis & Translation

4ᵗʰ National Climate Assessment

Science Synthesis & Translation

4th National Climate Assessment

FOURTH NATIONAL CLIMATE ASSESSMENT

CHAPTER 6: FORESTS

https://nca2018.globalchange.gov/chapter/6/

Outreach & Education

Ranching with Wildfire:

Casper, WY
December 2, 2018

Ranching with WILDFIRE:
LESSONS LEARNED FROM FELLOW PRODUCERS

Two-Part session
organized by
University of Wyoming Extension & Montana State University Extension

10:00 – 10:50am

from WY ranchers & agency partners

ase COME BACK for the second half of our session!

learned from WY ranchers & agency partners

ets Wyoming livestock producers
cers & agency partners through
iences with major wildfires***

xperiences with wildfire
ming, where fire hit public grazing allotments
g, where fire affected private lands

out wildfire preparedness, response, recovery
h the moderator
ence

through South Dakota State University*

After Fire Toolkit

Southwest Climate Hub, Summer 2018

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About Us   Original Site   Contact Us

REGIONAL HUBS   ALL TOPICS   ALL CLIMATE IMPACTS   ALL ACTIONS & RESOURCES   Search

Southwest Climate Hub   About   Topics   Climate Impacts   Actions & Resources   Drought   Partners

After Fire: Toolkit for the Southwest

This site is meant to serve as a resource for those interested in understanding the methods available to assess potential risks associated with post-fire events. However, wildfire preparation also involves actions that occur before and long after a burn. Therefore the site also includes links to other useful resources for more information regarding other aspects of fire planning.
Visit this tool's website:
After Fire: Toolkit for the Southwest
Release/Version
1
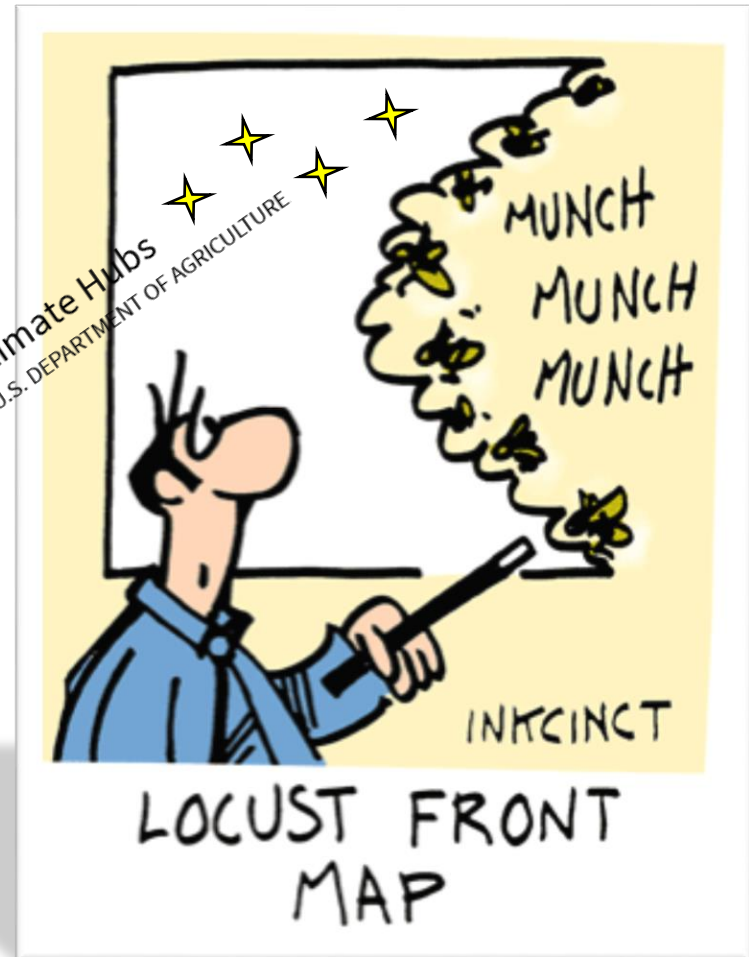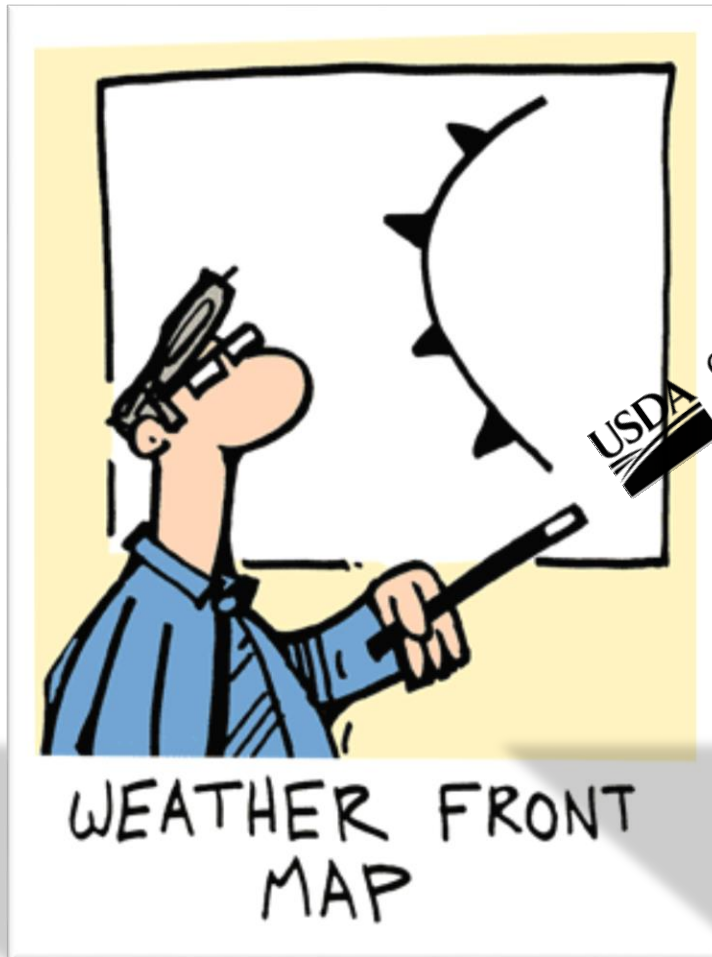Tool Developers

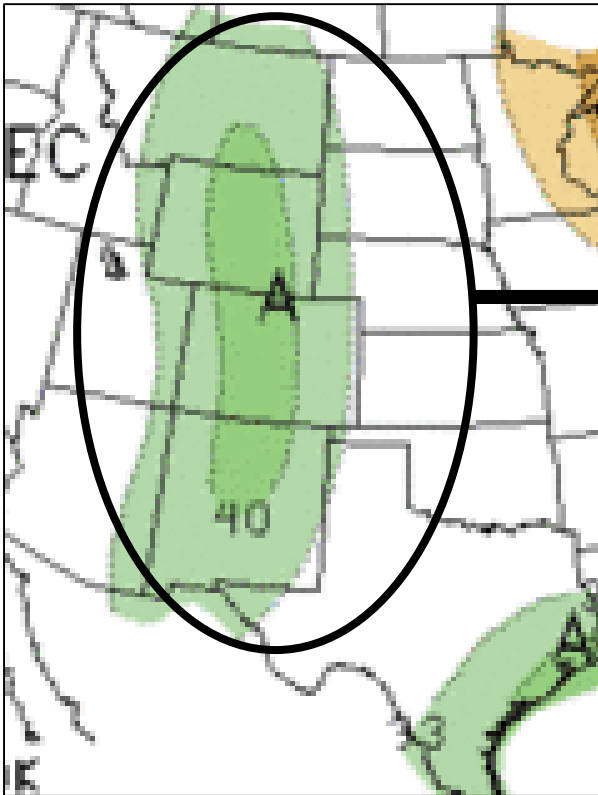Megan Friggens, U.S. Forest Service Rocky Mountain Research Station

https://www.climatehubs.oce.usda.gov/hubs/southwest/tools/after-fire-toolkit-southwest

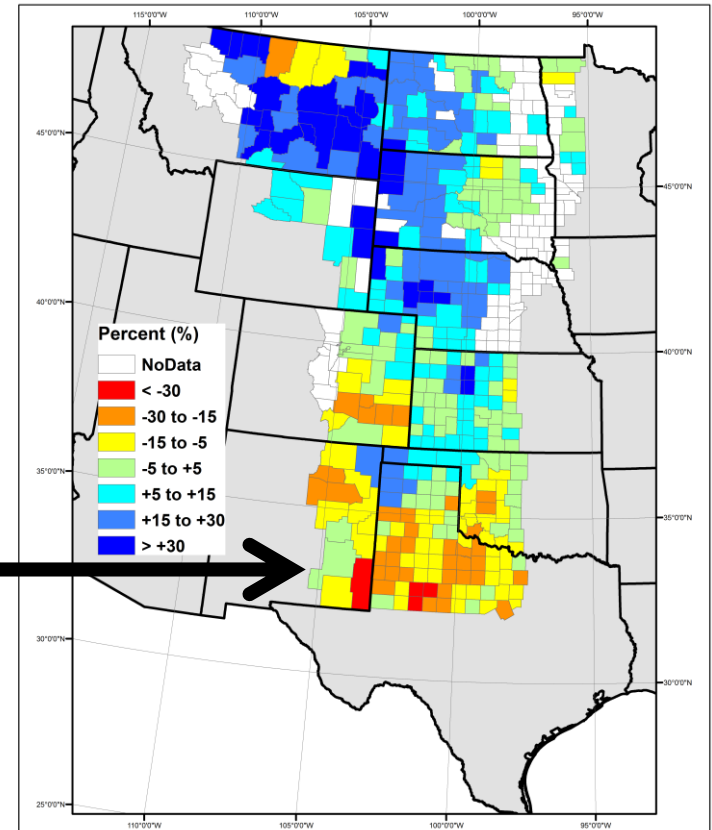# Tool Development & Technology Transfer

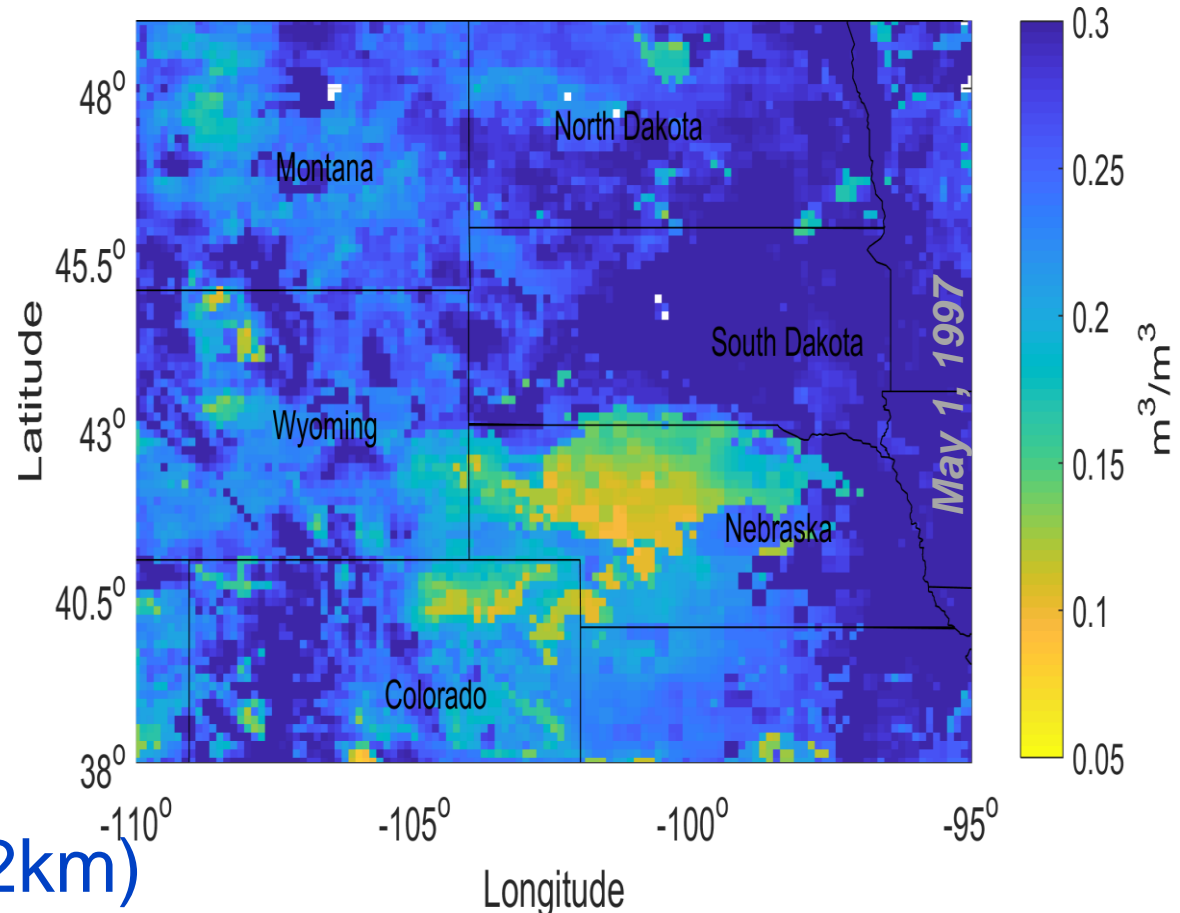# Making Weather Info Usable for Ag

SMERGE

Improved Historical (1979-2016) Root-Zone Soil-Moisture Dataset
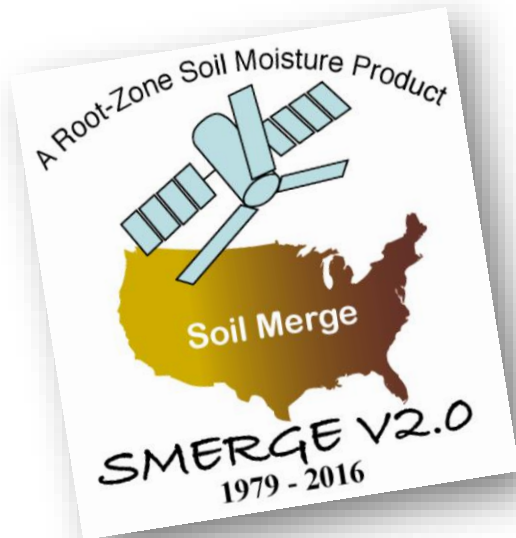
- Continental US,
- 0-40 cm depth,
- Daily timestep,
- 0.125-degree (~12km)

SMERGE

<u>Merges</u> Model & Satellite Approaches

NLDAS-2 Noah
<u>model</u> simulations

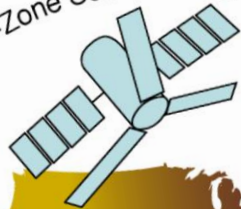**ESA CCI <u>remote</u>**
<u>sensing</u> retrievals

Model Attributes:
1) **Poor forcing**
2) **Uncertain calibration/physics**
3) **Good continuity in time/space**
4) **Multi-layer soil moisture**

Remote Sensing Attributes:
1) **Discontinuous in time/space**
2) **Surface soil moisture only**
3) **Retrieval errors**
4) **Direct "observations"**

A Root-Zone Soil Moisture Product
Soil Merge
SMERGE V2.0
1979 - 2016

SMERGE: Continental U.S.
0.125-degree, daily, 0-40 cm

SMERGE Present'n Later Today
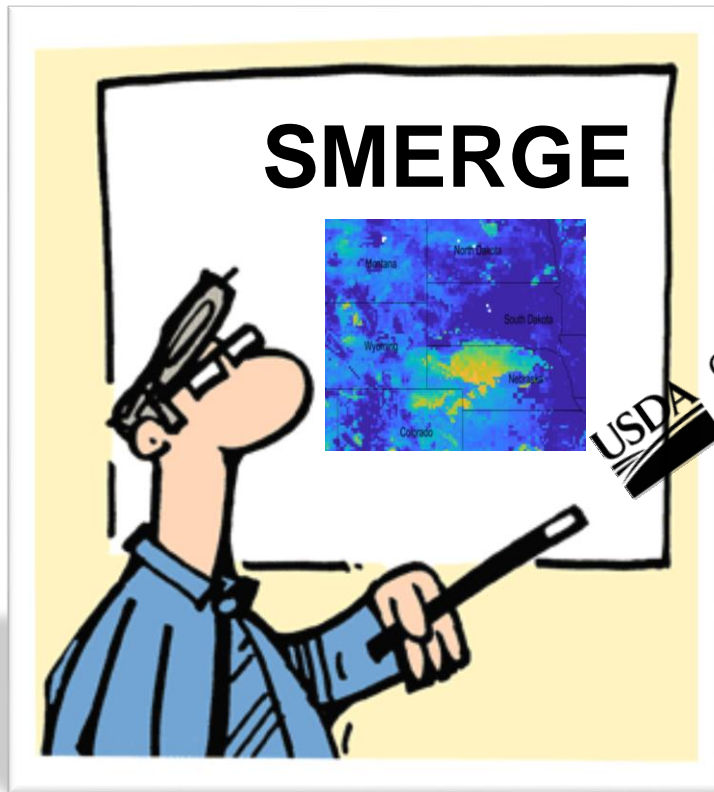
Wade Crow (USDA ARS):

- What *is* SMERGE?
- How is it produced?
- How can you *access* it?

Tobin et al. 2017. *Hydrology & Earth Sys Sci* **21**:4403-17

Gruber et al. 2018. *Water Res Res* **54**:1353-67

https://www.tamiu.edu/cees/smerge/overview.shtml

Let's Discuss How SMERGE Might be Useful to <u>You</u>!

Fire Ratings ???

https://climatehubs.oce.usda.gov
Twitter: @USDAClimateHubs

What can we achieve *together* as *partners*?

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