

The Alabama Office of the State Climatologist (AOSC) Innovating Climate Service Delivery

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Climate service delivery, AOSC's perspective

- ▶ **Alabama Climate Dashboard**
- ▶ **Jupyter Notebook to improve Alabama NWS WFOs S2S messaging**
- ▶ **Alabama Drought Reach**

Alabama Climate Dashboard

Alabama Climate Dashboard by the Office of the State Climatologist

Select a date

Predefined Calendar

Last 14 Days

Last Month

Last 2 Months

Reset

Sensor Network

All

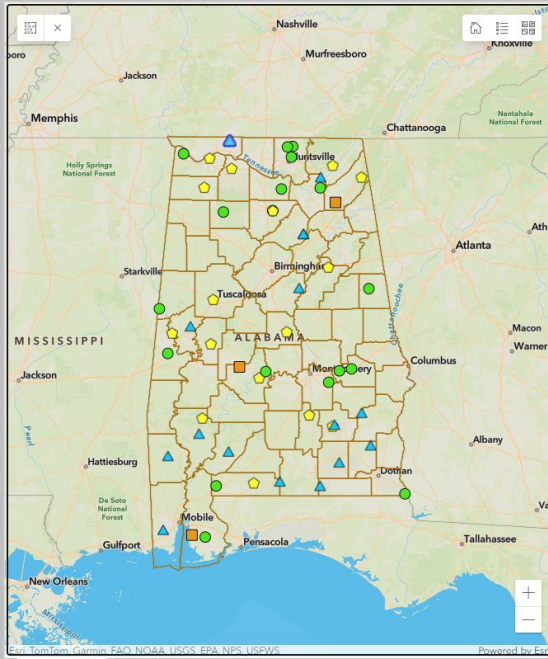
CRN

CRN AL

SCAN

STEMNet

Reset



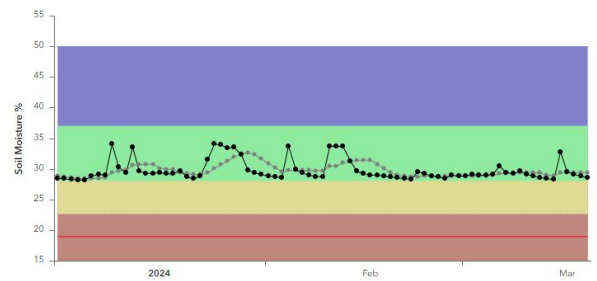
Surface Zone



STEMNet

- Saturation - Field Capacity
- Field Capacity - 50%
- 50% - 20%
- <20%
- Wilting Point

Root Zone



SCAN/CRN

- Max - 80%
- 95%
- 80% - 75%
- 75% - 25%
- 25% - 10%
- 10% - Min
- 5%

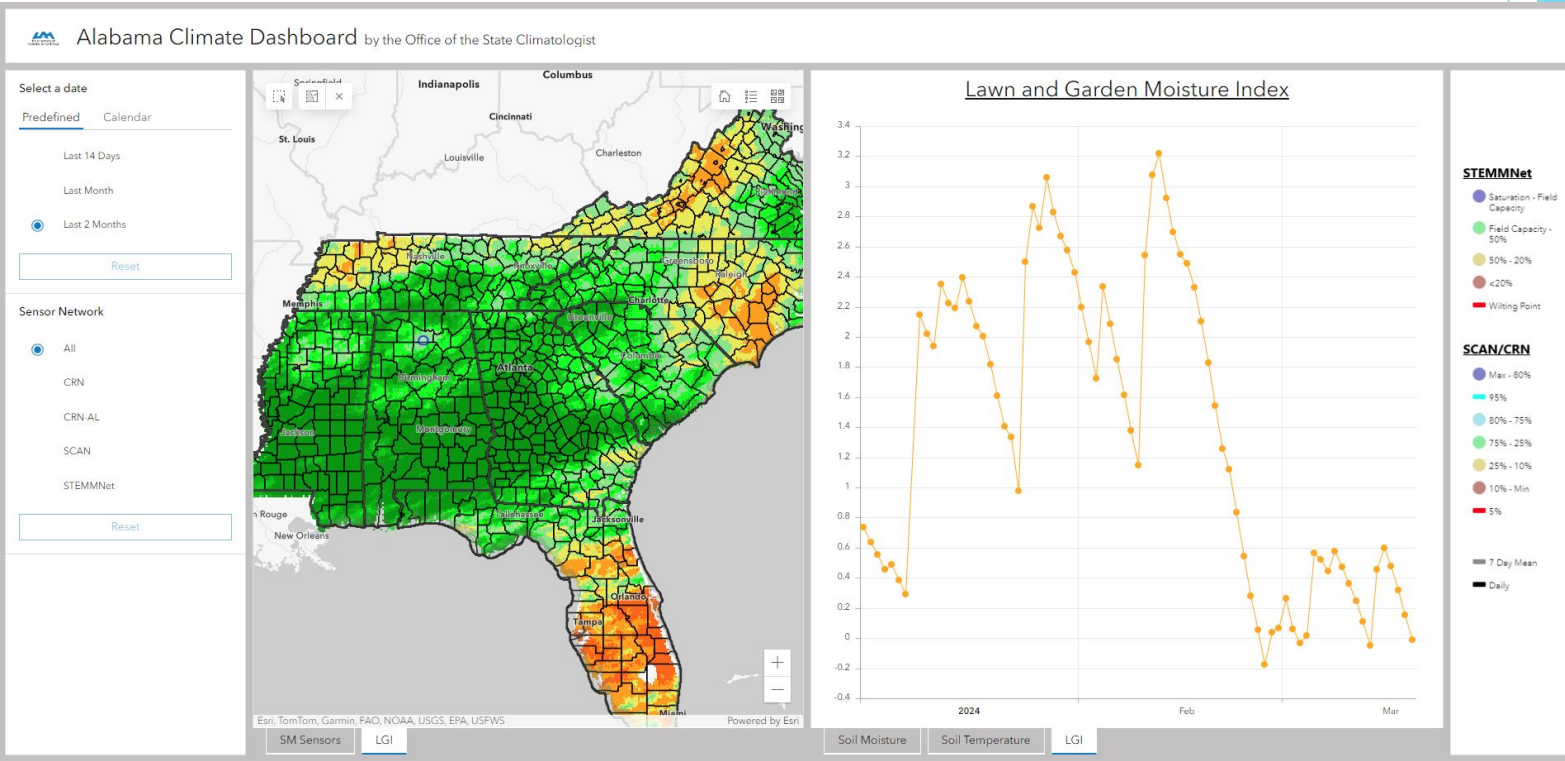
7 Day Mean

Daily

SM Sensors LGI

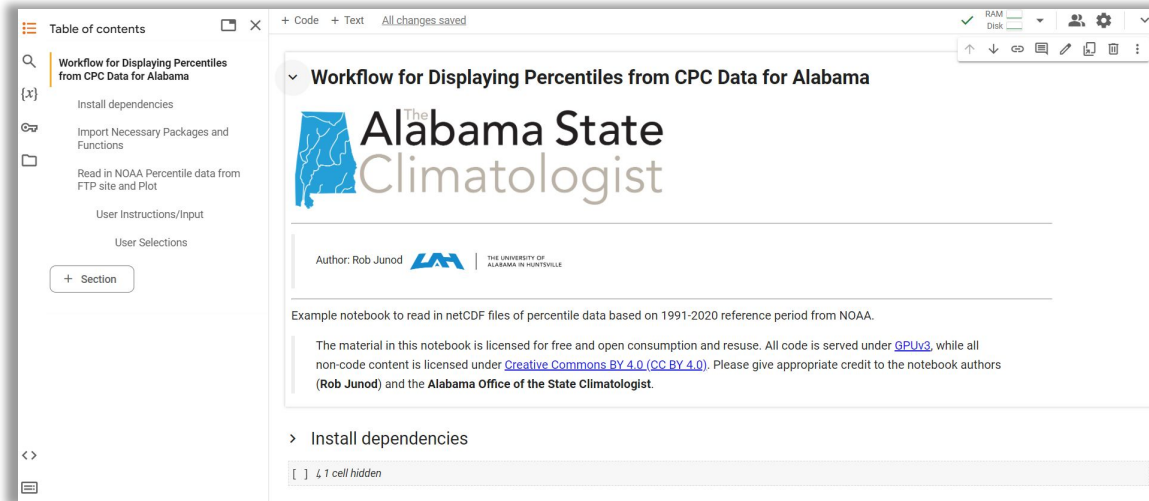
Soil Moisture Soil Temperature LGI

Alabama Climate Dashboard



Jupyter notebook for Alabama NWS WFOs for S2S messaging

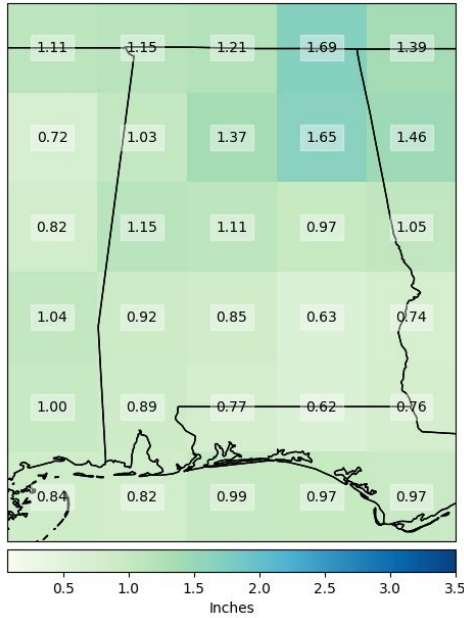
- ▶ Problem : Large CPC percentile netcdf files (1-2GB) and lacking knowledge on how to manage it effectively.
- ▶ Solution : Lower data access barrier via Jupyter notebook/Google Colab!



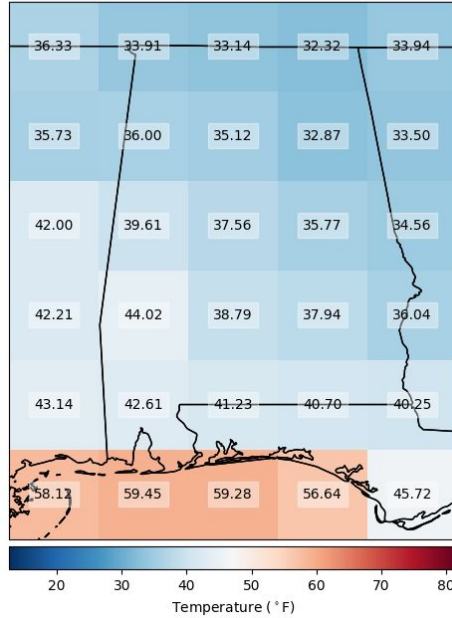
The screenshot displays a Jupyter notebook interface. On the left, a 'Table of contents' sidebar lists sections: 'Workflow for Displaying Percentiles from CPC Data for Alabama', 'Install dependencies', 'Import Necessary Packages and Functions', 'Read in NOAA Percentile data from FTP site and Plot', 'User Instructions/Input', and 'User Selections'. The main notebook area shows the title 'Workflow for Displaying Percentiles from CPC Data for Alabama' and the logo for 'The Alabama State Climatologist'. Below the logo, it identifies the author as Rob Junod, affiliated with The University of Alabama in Huntsville. A paragraph explains that the notebook is an example for reading netCDF files of percentile data based on a 1991-2020 reference period from NOAA. A license notice states that the material is licensed under Creative Commons BY 4.0 (CC BY 4.0) and is served under GPLv3. The notebook also includes a section for 'Install dependencies' with one hidden cell.

Jupyter notebook for Alabama NWS WFOs for S2S messaging

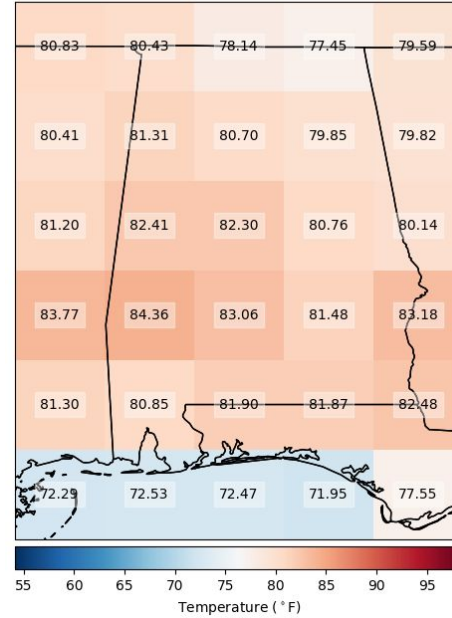
3-Day PRECIP 85 Percentile ending on 03-28



1-Day TMIN 15 Percentile ending on 03-28



1-Day TMAX 85 Percentile ending on 03-28





Moderate Risk of Heavy Precipitation Jan 24th-25th

EXAMPLE

Key Message

A storm system with copious moisture is expected to impact the region with heavy rainfall next week.

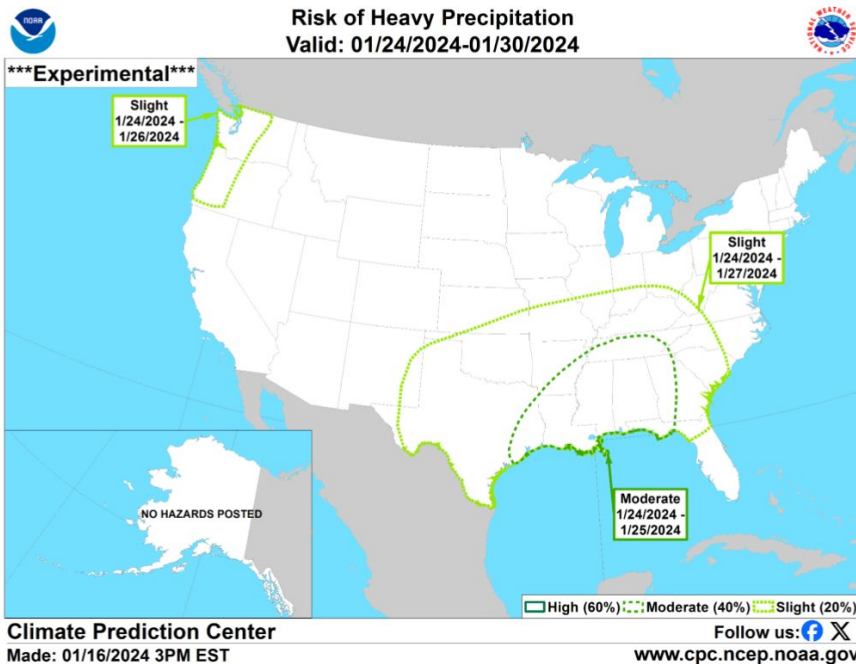
The 8-14 Day Hazards Outlook from the CPC:

- **Moderate Risk (40-60% Chance) for Much Above Normal Precipitation** across the entire area for Jan 24th-25th.

So, what is **Much Above Normal Precipitation**? This means **precipitation** has a good chance to exceed **1.5 to 2 inches** during this period.

Actions to Consider

Consider making plans to prevent impacts to life and property as the risk for flooding will increase during this period, especially for those in flood-prone locations.





High/Moderate Risk of Much Below Normal Temperatures January 16th-18th

EXAMPLE

Key Message

An Arctic air mass is expected to move into the U.S. next week bringing the potential for hazardous cold weather to the Tennessee Valley.

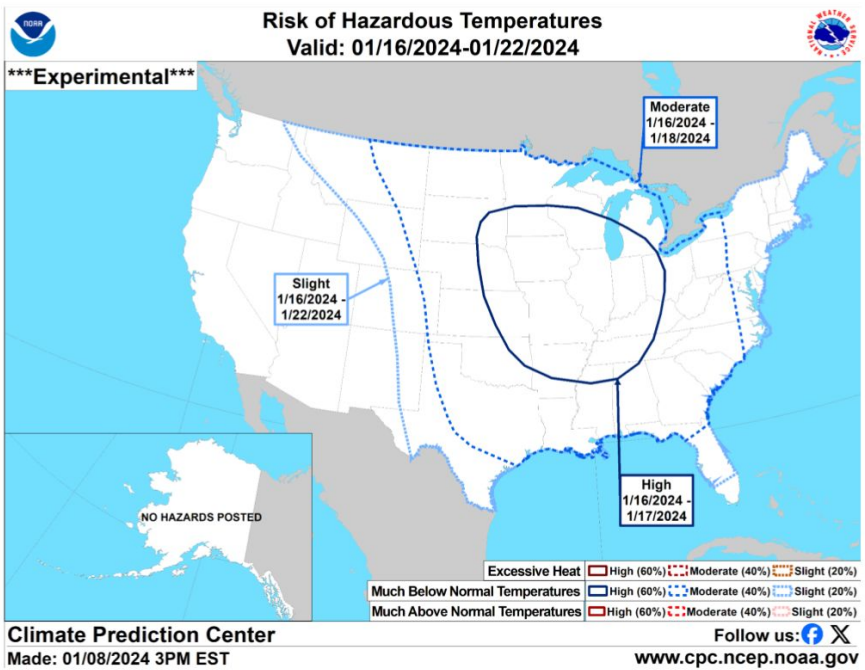
The 8-14 Day Hazards Outlook from the CPC:

- **Moderate Risk (40-60% Chance) for Much Below Normal Temperatures** across the entire area for Jan 16-18th.
- **High Risk (60-80% Chance) for Much Below Normal Temperatures** generally north and west of a line from near Lynchburg to Fayetteville, Huntsville, Decatur and Russellville for Jan 16-17th.

So, what are **Much Below Normal Temperatures**? This means **temperatures** have a good chance to fall to the **mid-teens or lower** during this period.

Actions to Consider

Consider making plans to prevent impacts to people, pets, and property. Keep in mind those who may have inadequate heating, and that pipes are susceptible to freezing in this part of the country when temperatures fall below 20 F.



ALABAMA

Drought



Reach

ALABAMA EXTENSION

Increasing Drought Communication
in Alabama

Drought Has a Major Impact on AL Agriculture

Alabama's **38,000 farms** span nearly **8.2 million acres**, provide jobs to **600,000 Alabamians**, and account for **\$70 billion** of the state's economy.



No. 1 pulp production

No. 2 broiler & catfish production

No. 3 peanut production

According to the 2017 Census, **Dallas**, **DeKalb**, **Jackson**, **Limestone**, and **Montgomery** Counties had the most farm land.



Alabama Drought Reach



- ▶ Better understand drought impacts on Alabama agriculture
- ▶ Help the Alabama State Climate Office refine the U.S. Drought Monitor map of Alabama and narrow the resolution of drought delineations.
- ▶ Communicate statewide drought conditions and improve overall drought literacy.

Summary

- ▶ **Alabama Climate Dashboard:** AOSC's dashboard provides users with real-time access to soil variables and the Lawn and Garden Moisture Index, aiding decision-making processes for various sectors.
- ▶ **Jupyter Notebook to improve Alabama NWS WFOs S2S messaging:** Notebook lowers data access barrier to help Alabama NWS WFOs in S2S DSS information locally.
- ▶ **Alabama Drought Reach:** AOSC/Auburn's initiative to increase drought communication in Alabama