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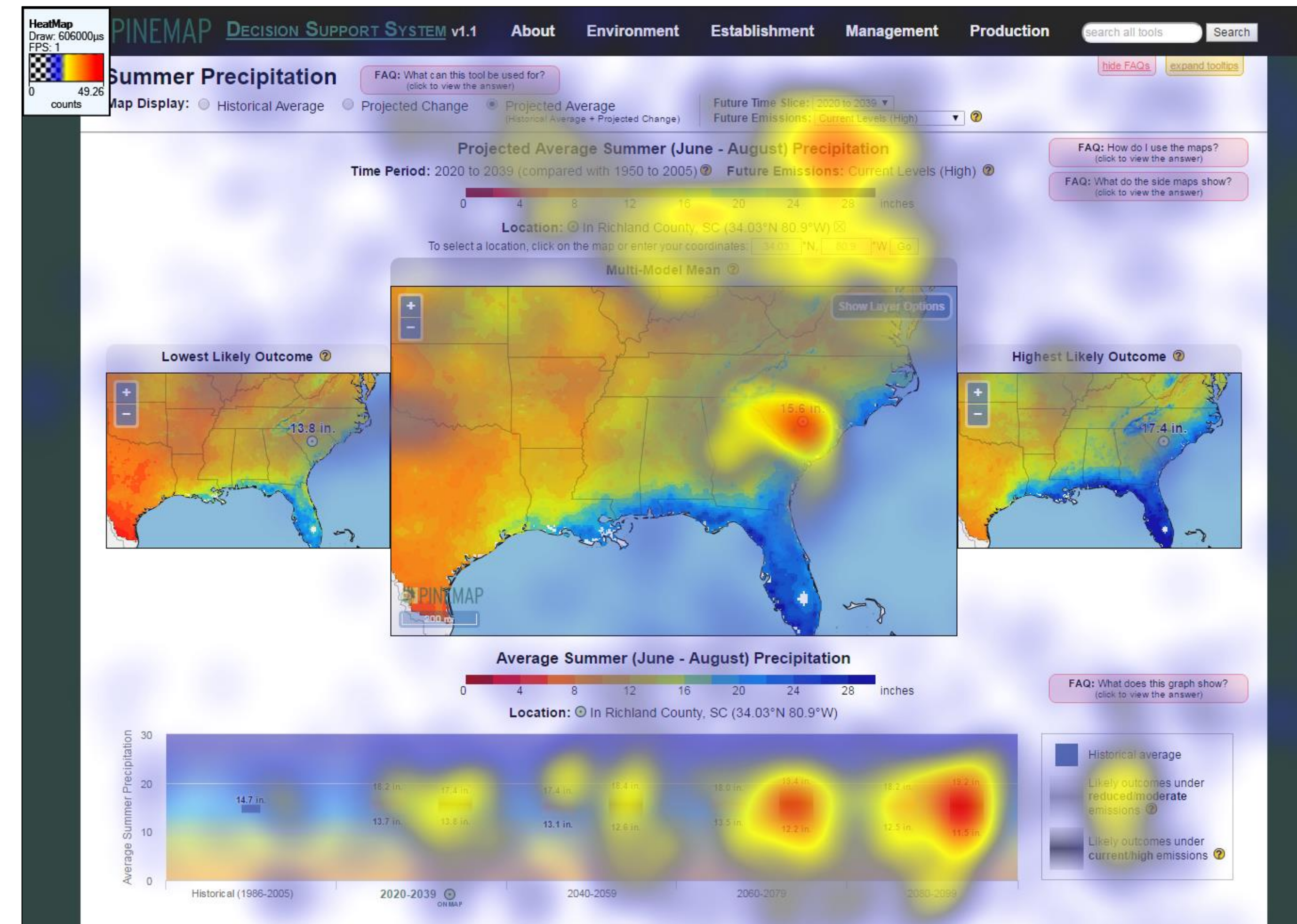
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## About Eye Tracking

- Eye tracking is a **non-invasive** way of collecting data about pupil movements and gaze duration without interfering with normal viewing patterns
- The Tobii hardware and software track user attention: **where** they look, **when** they look, and **for how long**
- Eye tracking results include **heat maps**, **gaze plots**, and **statistical measures of attention** to various areas of interest



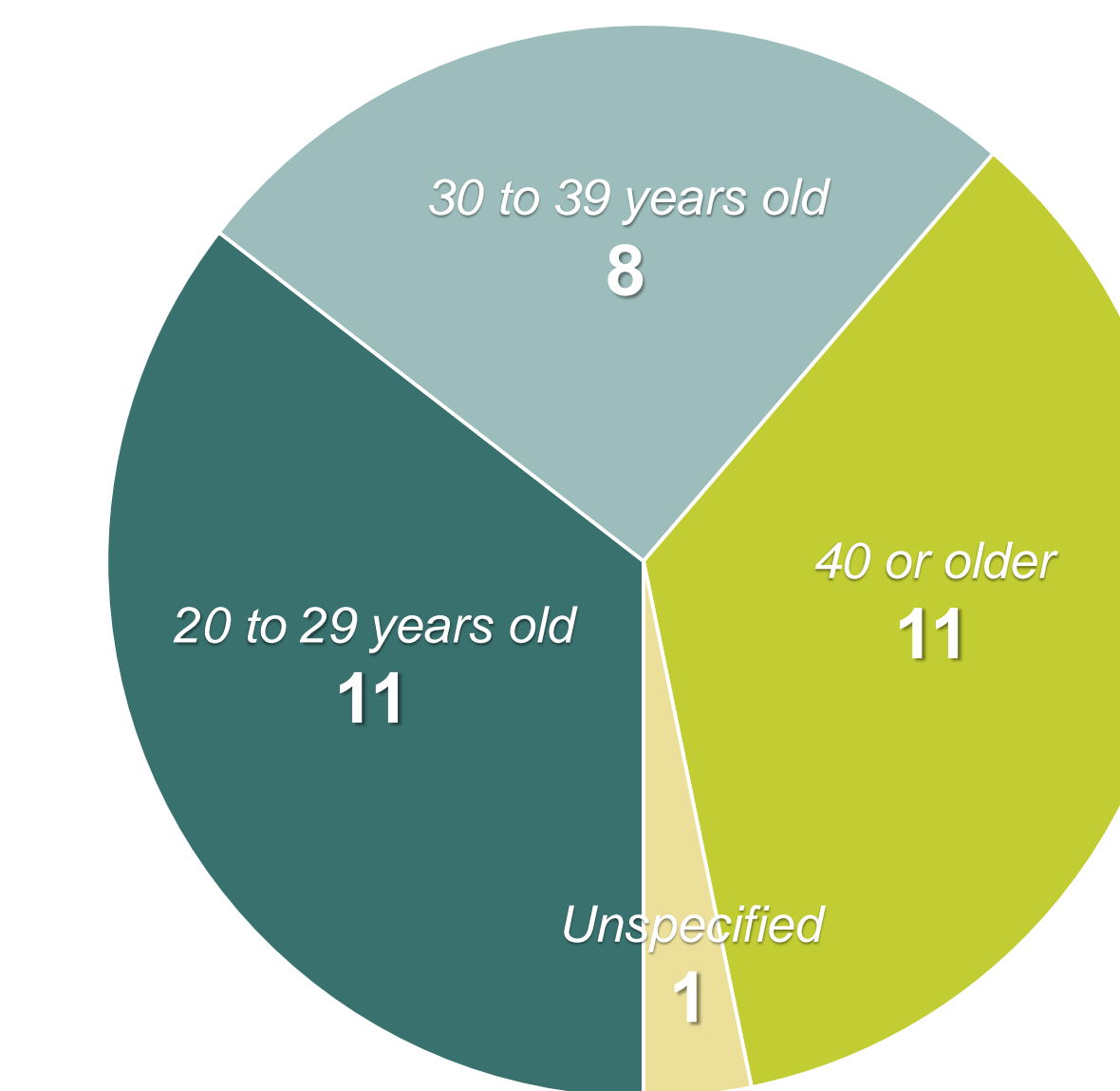
**RIGHT:** Example heat map for the Summer Precipitation tool; areas in red were viewed more frequently



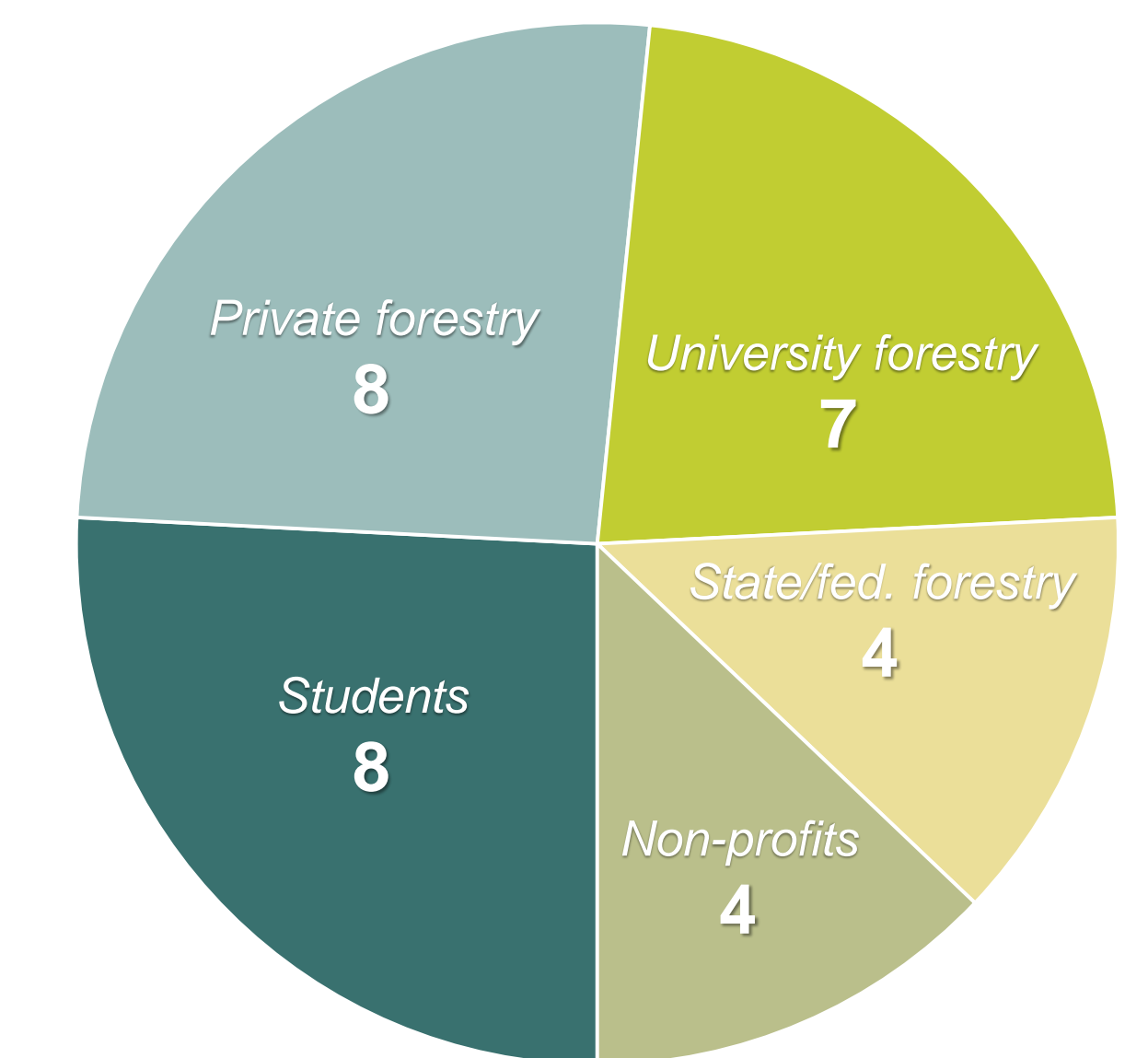
## Eye Tracking at ApSAF

- Participants included 30 volunteers at the **Appalachian Society of American Foresters Meeting** in Durham, NC, on Jan. 28-29, 2016
- Study participants explored the DSS for five minutes before **completing tasks and questions about three tools** while having their eyes tracked

Participants by Age



Participants by Affiliation



## DSS Usability Issues Identified by Eye Tracking Results

### ORIGINAL SITE

### MODIFIED SITE

- 1** Users read text in an **F-pattern**, reading the first line and the first few words of subsequent bullets

Content on the Introduction page was **condensed** with the **most important information put first**
- 2** **Embedded help was underused**; 5 of 31 users looked at FAQ boxes and 3 of 31 used the tooltips

Help options were simplified into a **single tooltip style** that links to more details on an FAQ page
- 3** When prompted to find a value in central NC, only 11 of 31 users clicked the map to **select a location**

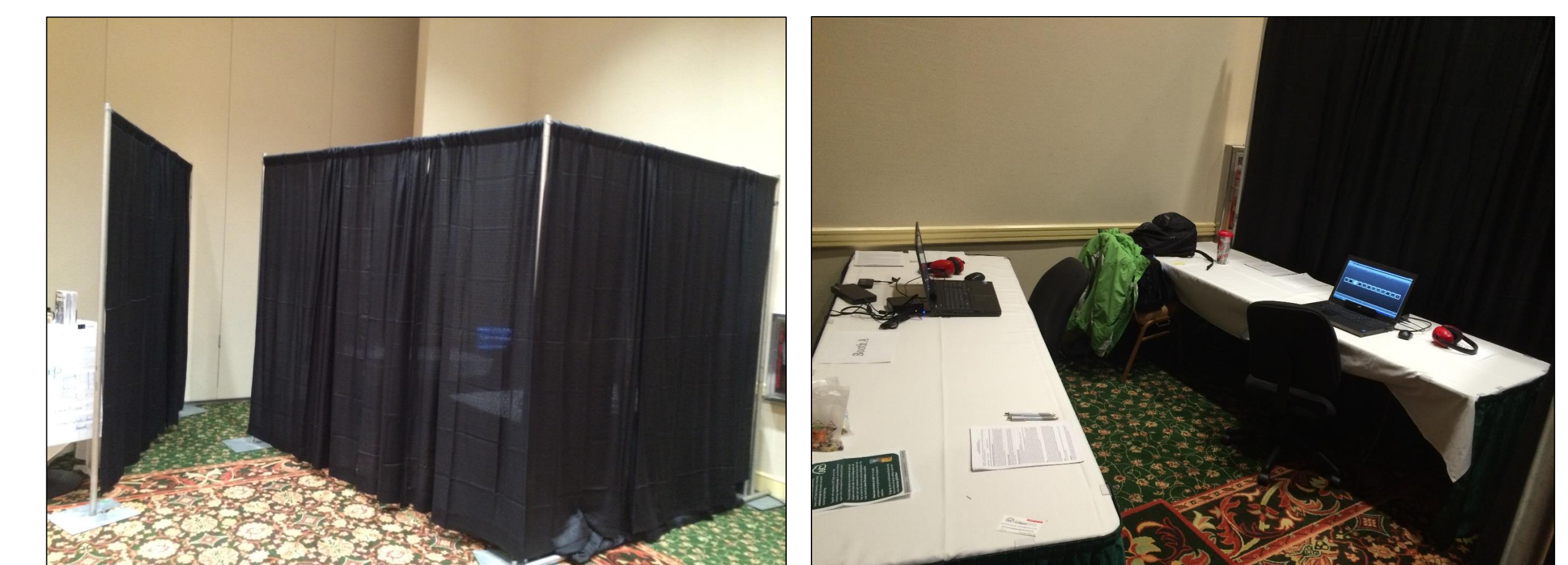
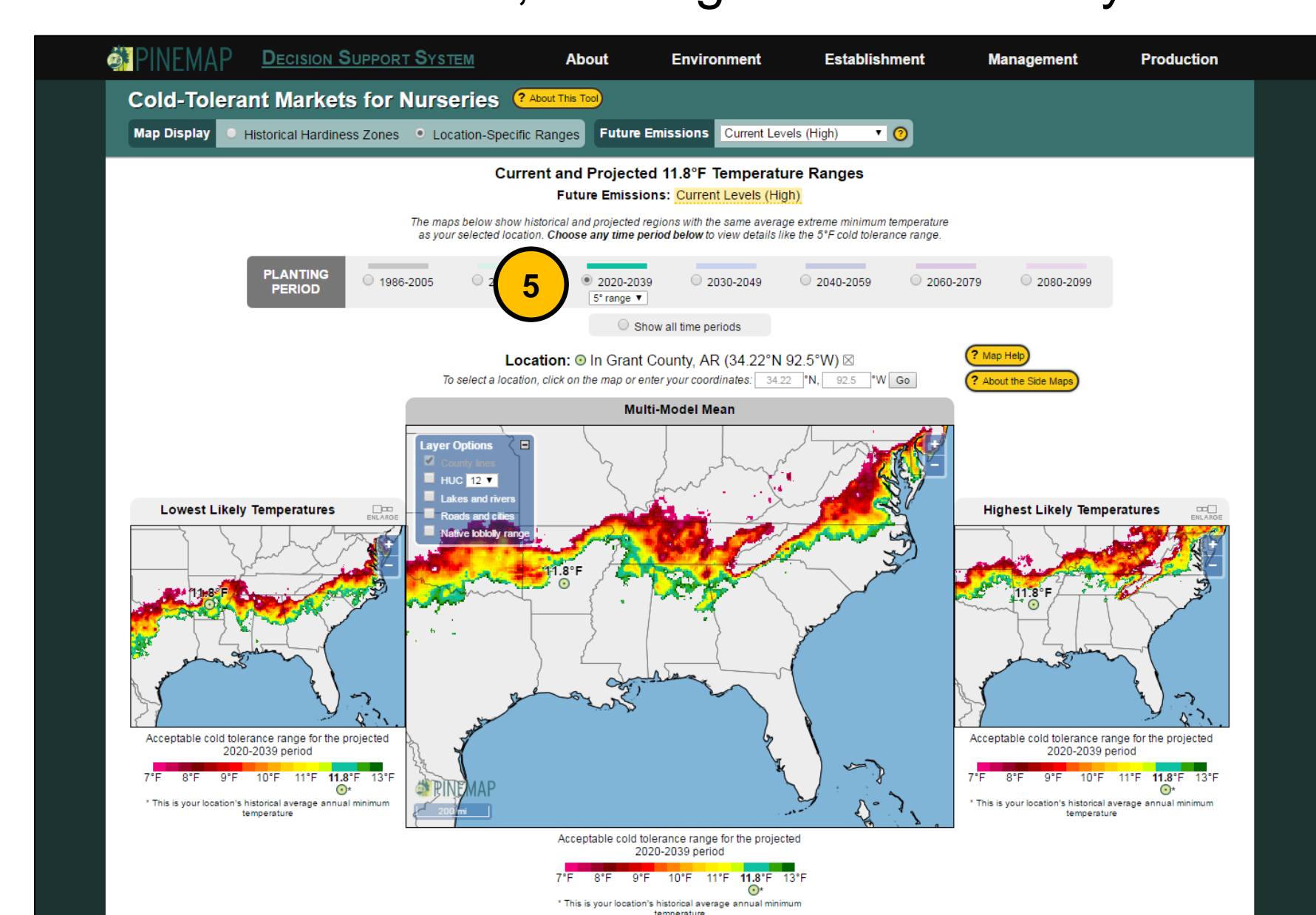
The Location box background now **pulses in red** to emphasize the need to choose a location
- 4** Only 12 of 31 participants used the **Show Layer Options menu** when exploring the page, and 7 could not turn on the loblolly range when prompted

The **Layer Options box** is expanded by default and includes new layers such as Lakes and rivers, Roads and cities, and HUCs

### ORIGINAL SITE

- 5** Only 19 out of 31 users found the **show 5° range** option on the Seeding Markets tool, taking 31 seconds on average to find it

Seeding Deployment tools rebranded as **Dynamic Hardiness Zones**; 5° ranges are shown by default



The eye tracking booth at the ApSAF Meeting, from the exterior (left) and interior (right) with two laptops set up

## Planned Future Analyses

- Comparisons between time spent on tasks and the accuracy of answers to data-related questions
- Results stratified by demographics: gender, age, education level, etc.
- Assessments of how novices vs. experts view information, especially spreads of data on the maps and time series
- Measurement of the time spent viewing and glancing between areas of interest (e.g., bars on the time series)