

Introduction

- **Seasonal climate variability** is an important factor affecting agricultural production
 - www.agroclimate.org
 - Climate information and decision support system for **risk reduction** in agriculture
 - Translate weather and climate data into **information for decision makers**
 - **Weather station-based** information – site-specific information

AgroClimate Tools

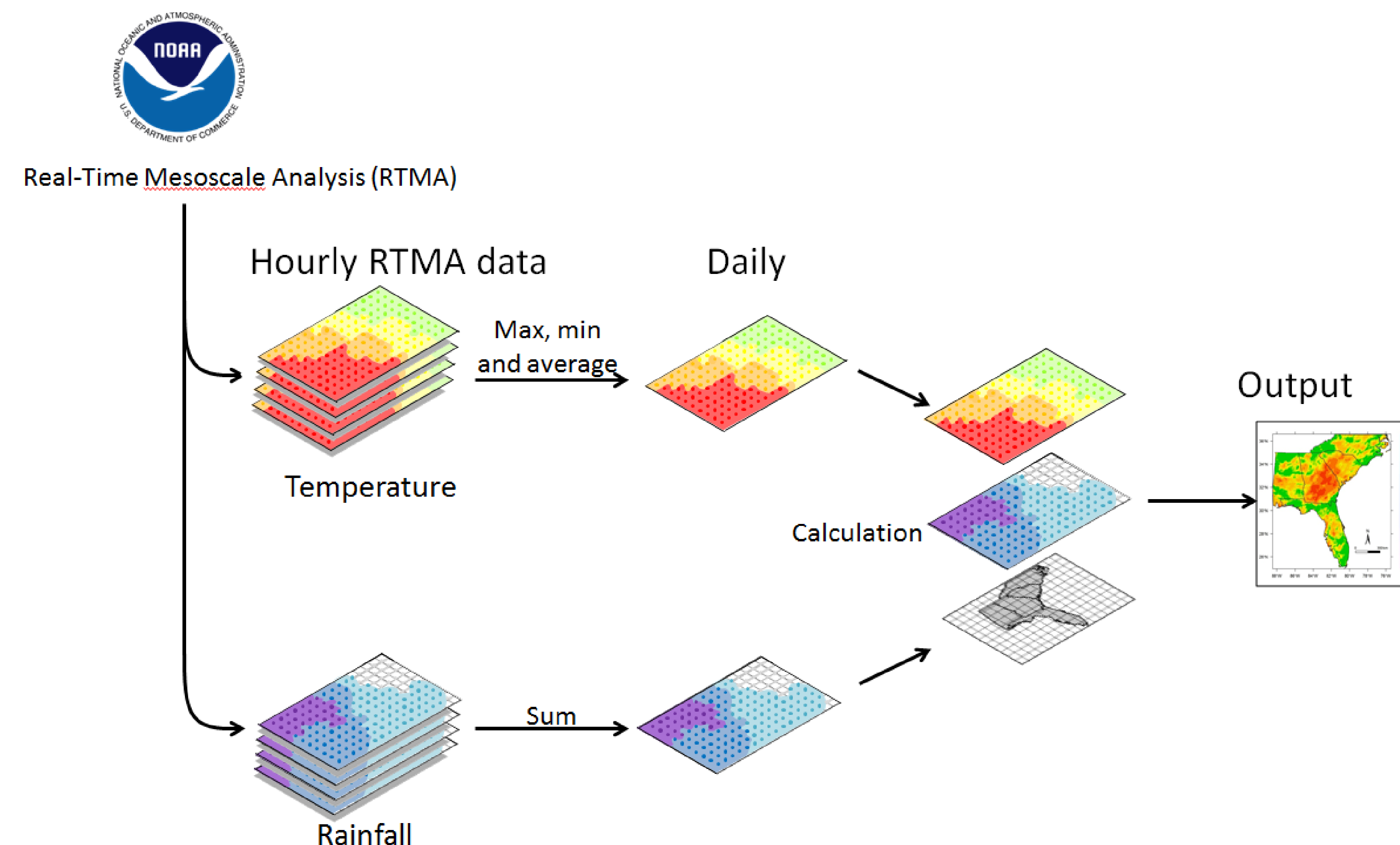
- **Agricultural Reference Index for Drought (ARID)** – based on the evapotranspiration of a reference crop (grass) and a simplified water balance considering a 40-cm rootzone.
- **Strawberry Advisory System (SAS)** - provides recommendations for timing fungicide applications to control Anthracnose and Botrytis.
- **Chill Hours Calculator** - calculates chill hours accumulation using the number of hours below 45°F and the number of hours between 32°F and 45°F.

Objectives

- Enhance the selected AgroClimate tools by developing map-based versions.
- Create a data processing structure that can be easily applied to other tools.
- Use **RTMA** (Real-Time Mesoscale Analysis) data to calculate **ARID, strawberry disease risk indices, and chill hours accumulation**.

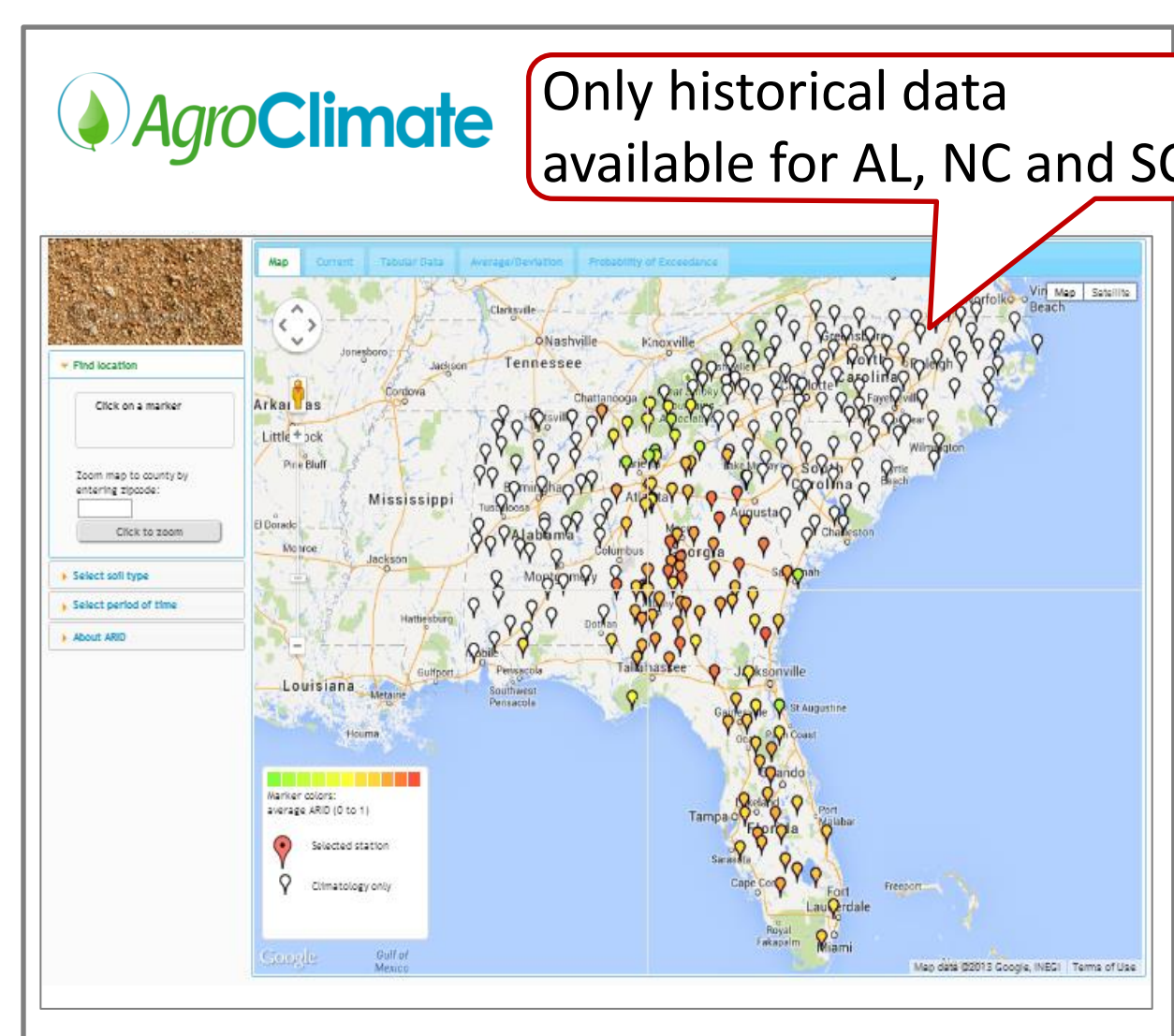
Material and Methods

- RTMA grid data has **hourly** temporal resolution and is provided in **near real time** mode.
- RTMA raw data is converted to shapefiles representing weather variables using tkdegrid software provided by NOAA.
- **Daily and hourly** derived variables are calculated using R programming language
- Soil data information was obtained from the Harmonized World Soil Database V1.2 is used to estimate daily ARID values.

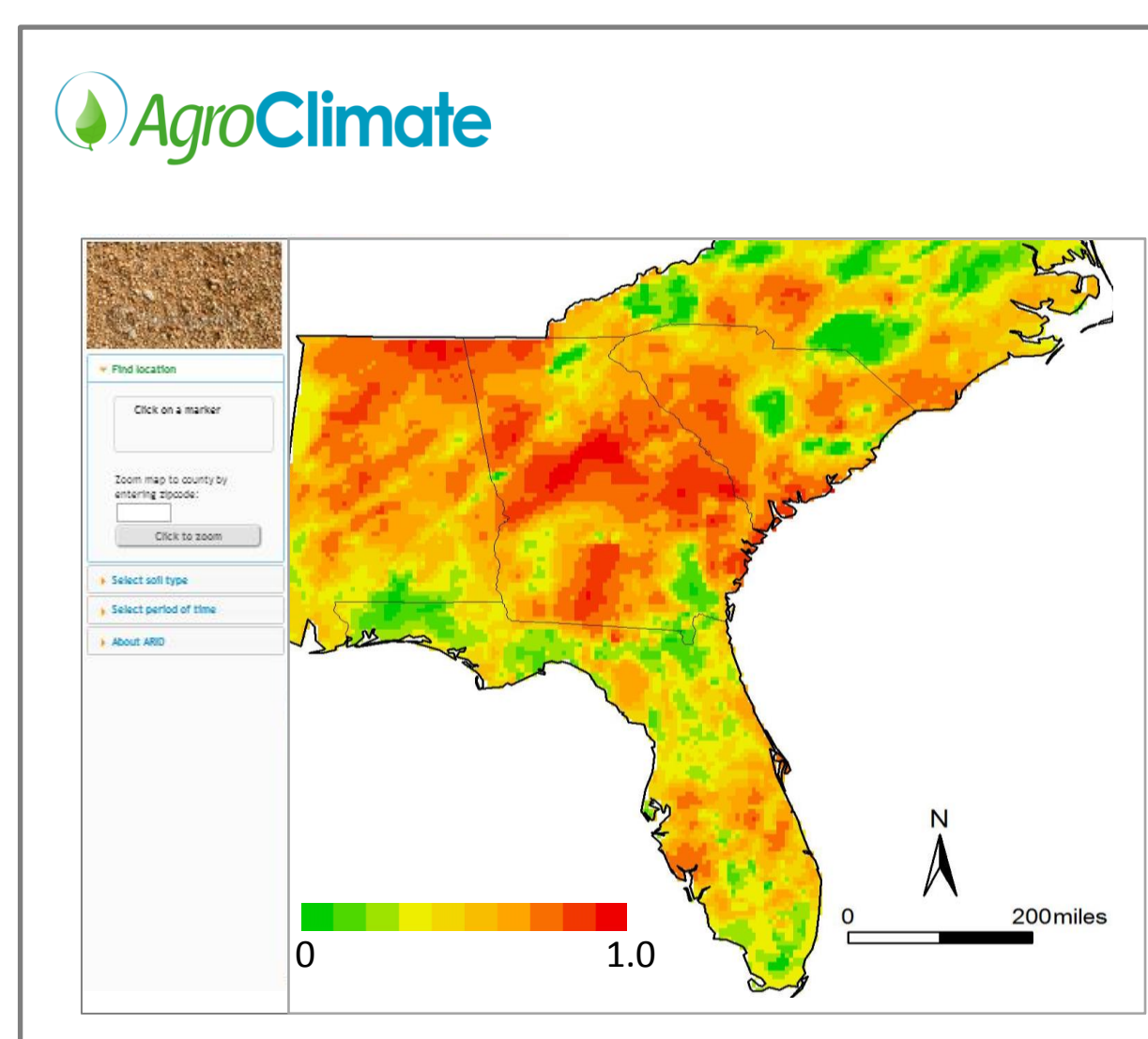


Results

Agricultural Reference Index for Drought (ARID)

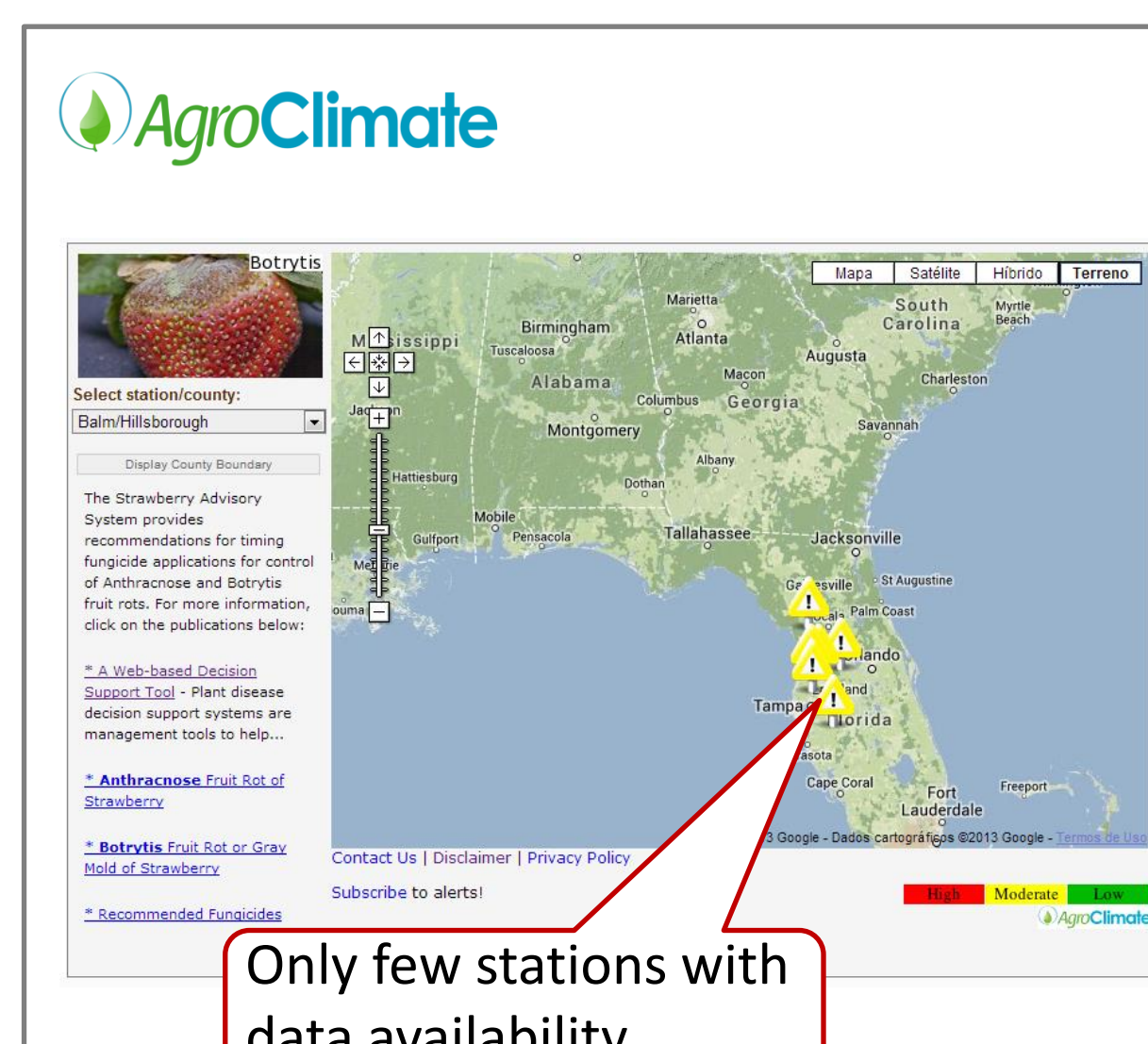


Current ARID tool in the AgroClimate website

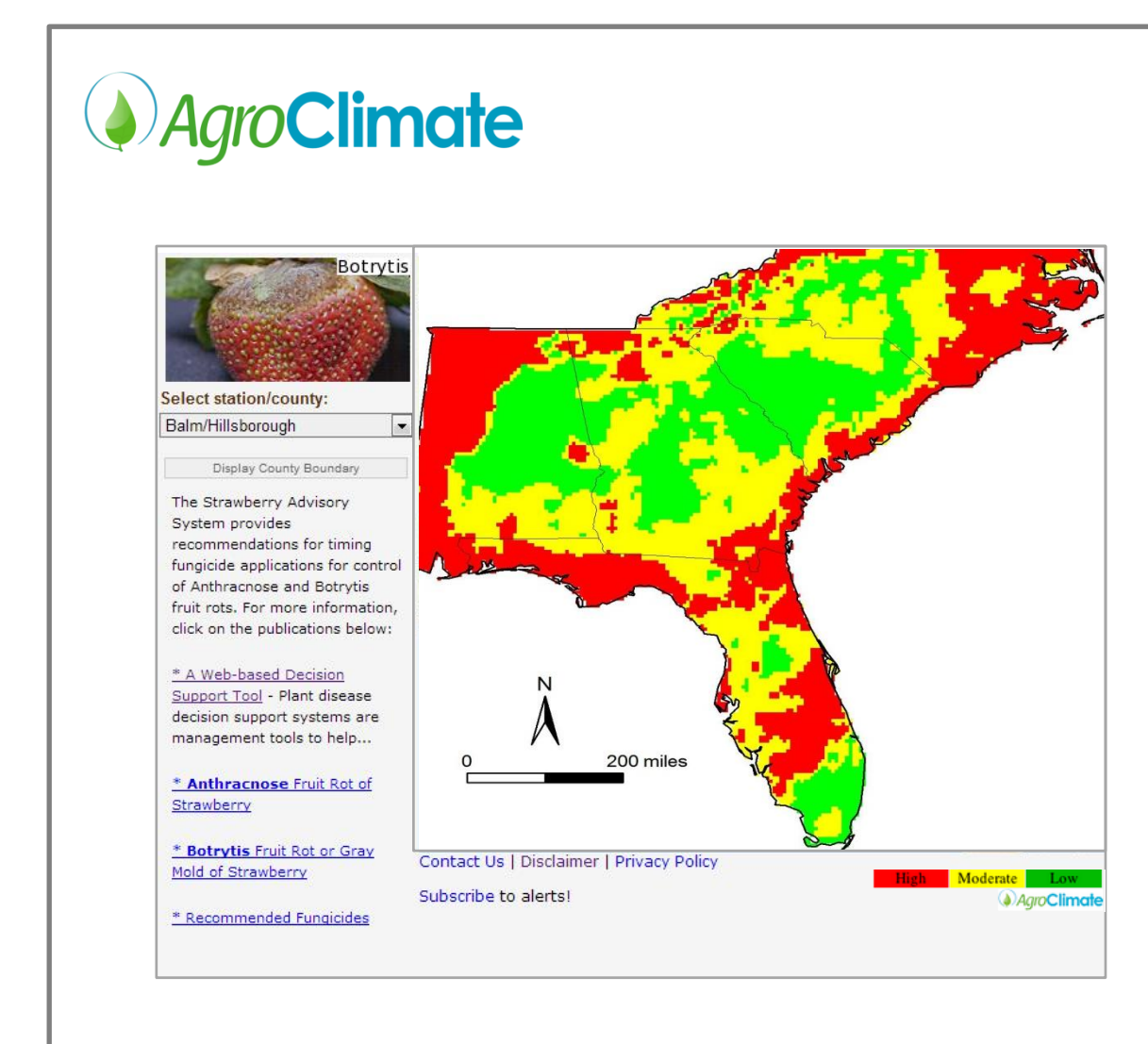


Future map-based ARID tool.

Strawberry Advisory System (SAS)

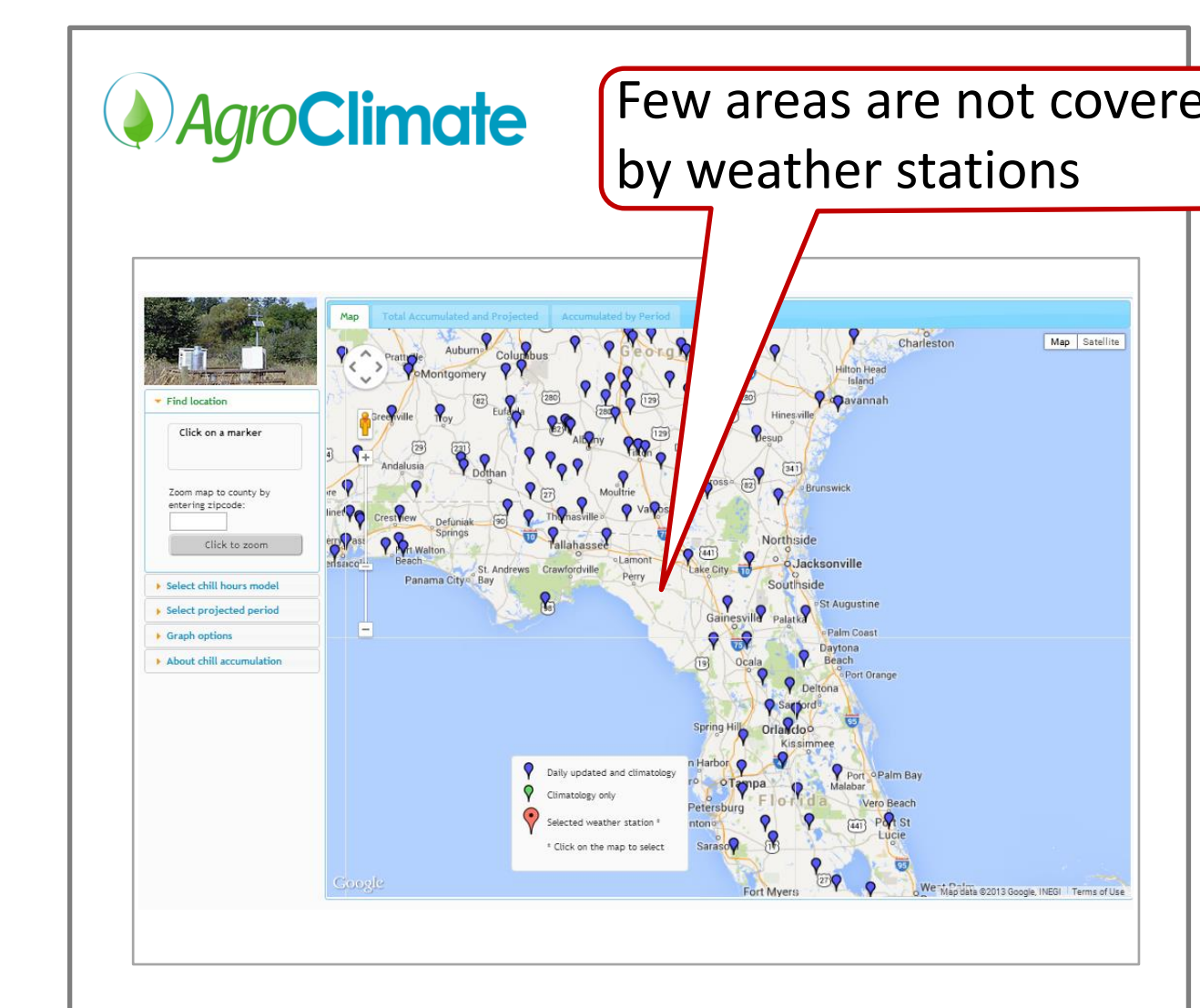


Current SAS tool in the AgroClimate website

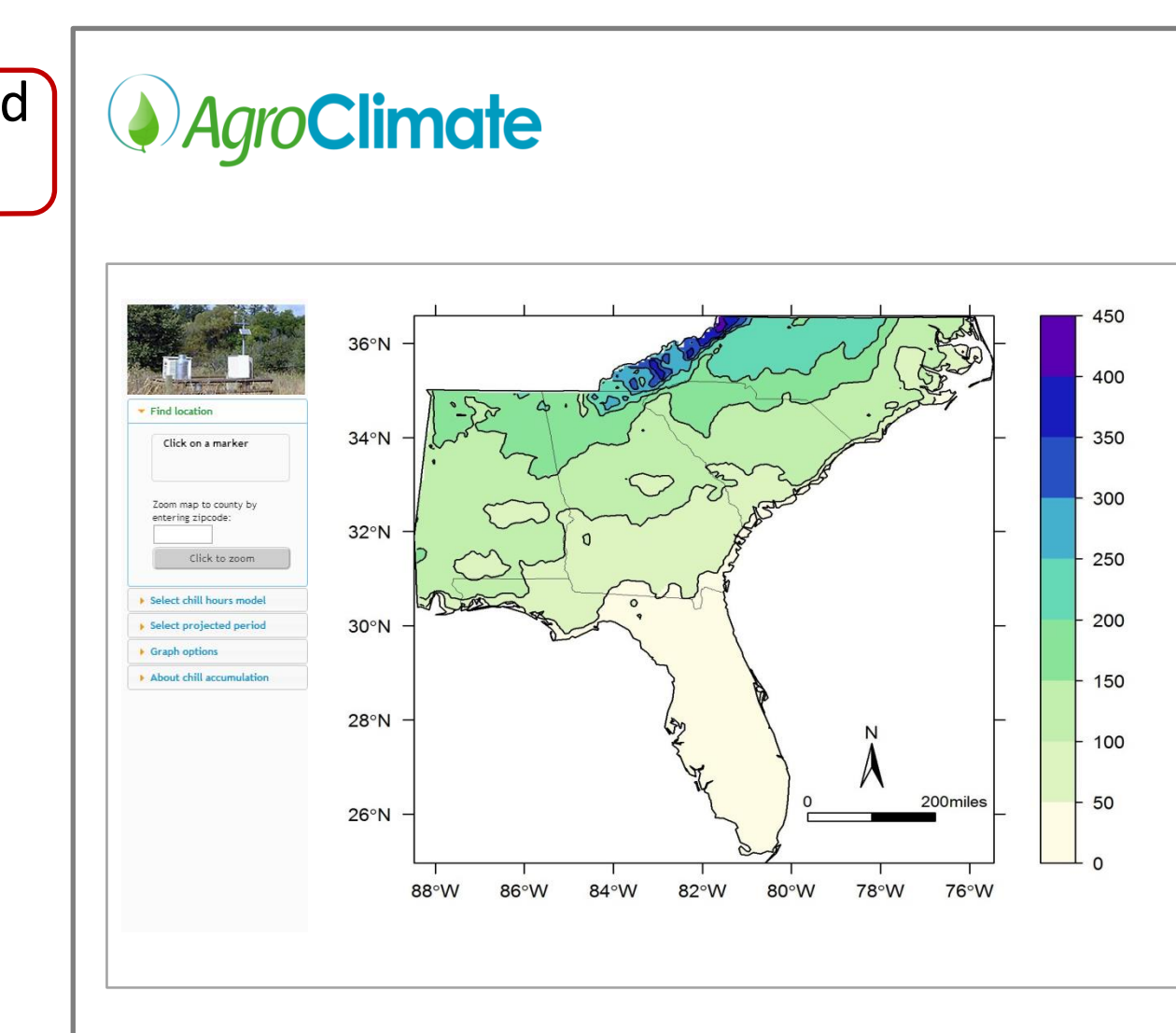


Future map-based SAS tool

Chill Hours Calculator



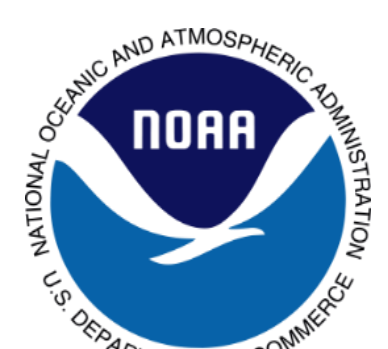
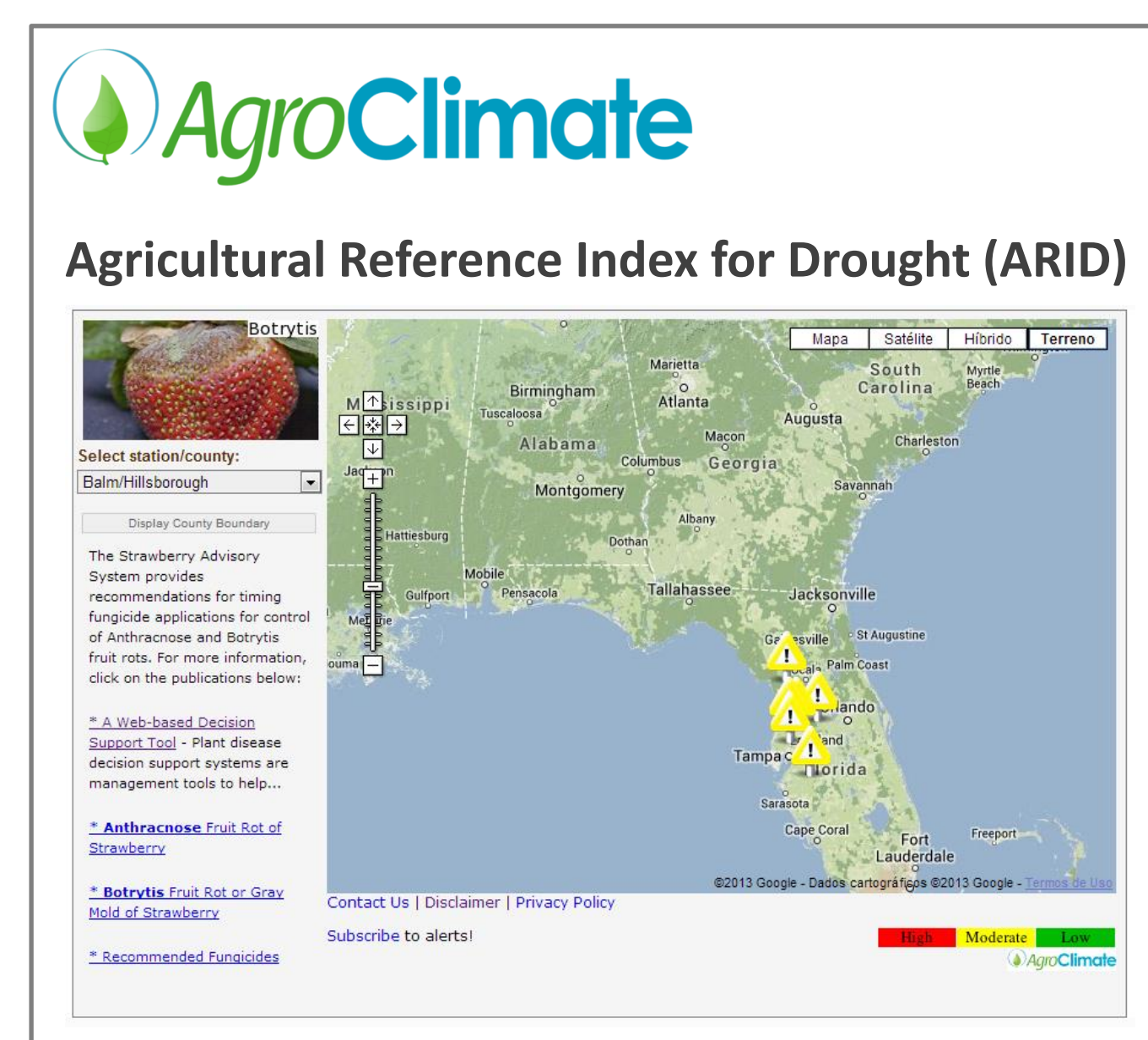
Current hours calculator tool in the AgroClimate website



Future map-based chill hours calculator tool

Next steps

- Implement **real-time map-based monitoring tools** on AgroClimate.org
- Estimate historical averages for derived variables and outputs of interest to determine how current values differ from expected ones (anomalies).
- Suggest **management adaptation strategies** based on this information



Real-Time Mesoscale Analysis (RTMA)

