THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

Climate and Weather Information for Georgia Farmers

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Weather versus Climate: What is the difference?

The difference between weather and climate is a measure of time. Weather is the atmospheric condition at any given time and place and consists of short-term changes in the atmosphere. Climate describes the long-term pattern of weather in a particular area.

Most people think of weather in terms of air temperature, relative humidity, rainfall and precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure (as in high and low pressure).

Weather can change from minute-to-minute, hour-to-hour and day-to-day. Climate, however, is the average weather over a long period of time and over a large area. An easy way to remember the difference is that climate is what you expect, like a very hot summer, based on what has happened in the past. Weather is what you get, like pop-up thunderstorms on a hot day.

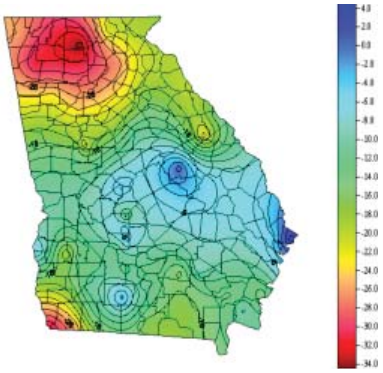
An image of the Earth from space.
Credit: NASA

Sources of Weather Information

The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) is the lead forecasting outlet for the nation's weather, and provides more than 25 different types of weather reports, warnings or watches. The NWS provides special weather statements and short- and long-term forecasts. Some of the reports the NWS issues are: severe thunderstorm watches and warnings; tornado watches and warnings; hurricane watches and warnings; flash flood watches and warnings; blizzard warnings; snow advisories; winter storm watches and warnings; dense fog advisories; and fire weather watch. The NWS broadcasts all of its weather reports on special NOAA weather radio frequencies, and posts them immediately on its web site at: http://www.nws.noaa.gov/

Map of AEMN weather stations.

"AEMN has over 70 automated weather stations across the state of Georgia."



Map showing deviation from normal rainfall in 2007.

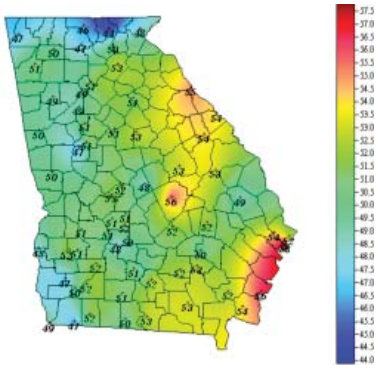
Weather and Climate Information Sites

The Internet has made it possible for government agencies such as NOAA and the NWS to provide basic information on weather and climate, short-term forecasts (including 7- and 10-day forecasts) and seasonal climate forecasts. In addition, several commercial companies provide subscription-based weather forecasts, freeze forecasts and other agricultural weather services. With a computer and access to the Internet, a user can access these Web sites and obtain real-time weather information, including weather radar and satellite maps. The following is a list of links to weather and climate information sites on the Web.

Georgia Automated Environmental Monitoring Network (AEMN): http://www.georgiaweather.net

The Georgia Automated Environmental Monitoring Network (AEMN), managed under the College of Agricultural and Environmental Sciences at the University of Georgia, has an automated network of more than 75 weather stations that collect air and soil temperature, barometric pressure, solar radiation, wind speed and direction, rainfall, relative humidity and soil moisture. The sensors of each station are scanned at a one-second frequency and every 15 minutes a summary is calculated and stored in the data logger. The data are downloaded, processed and disseminated to the public via the Web at www.georgiaweather.net. The data are distributed in near real-time and current conditions are updated at least hourly for all stations.

The Web site offers several calculators, namely: growing degree-days, chilling hours, water balance, soil temperature, heating degree-day, cooling degree-day, rainfall, average temperature and soil temperature *(Hoogenboom, 2003)*. The AEMN Web site also produces daily maps of different weather variables (temperature, precipitation, wind speed, etc.) and drought maps. The Web site features a unique application of weather information on agricultural production by offering a crop simulation and yield analysis tool. This tool allows a user to estimate crop growth and yield as a function of local



The AEMN web site provides current maps such as the air temperature map shown above.

"The AgClimate web site has several decision support tools to help farmers, producers, and water resource managers migrate risks in response to seasonal climate forecasts."

Seasonal climate forecasts for the southeastern U.S., and climate based tools can be found at the AgClimate web site.

weather conditions and management scenarios.

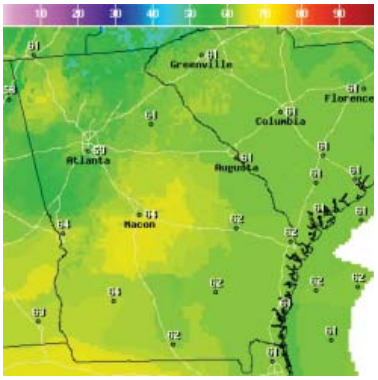
On the AEMN Web site, each location has its own web page that includes site information, current weather data, charts and monthly summary. Links to climate data and the NWS forecasts are also included. Online calculators are available and can be used to calculate degree days, chilling hours,

An AEMN station Web page shows links to site information, current weather data, charts and online calculators.

AgroClimate
http://www.agroclimate.org

AgroClimate is an online service of the Southeast Climate Consortium (SECC) that provides information based on the impacts of El Niño and La Niña events on agriculture, forestry and water resources in the Southeast *(Fraisse, et al, 2006)*. The Web site has several decision support tools to help farmers, producers and water resource managers mitigate risks in response to seasonal climate forecasts. Climate-based tools include yield risk forecast, climate risk tool and peanut irrigation forecasts *(Paz, et al., 2007)* based on El Niño-Southern Oscillation (ENSO) phases. Farmers can view maps, including regional yield maps, chill accumulation, forecast maps of the Keetch-Byram DroughtIndex (KBDI) and freeze risk maps for Georgia under different ENSO phases.

Climate-based tools and seasonal climate forecasts for the southeastern U.S. can be found at the AgroClimate Web site.



Graphical forecast for Georgia available at the NWS web site.

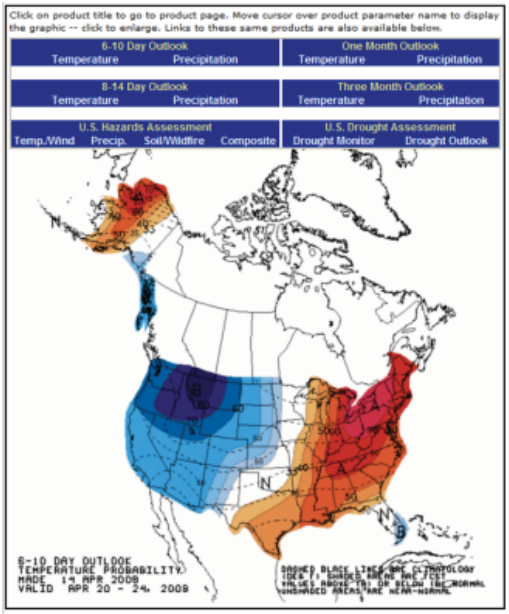
"The CPC provides assessments and forecasts of the impacts of short-term climate variability."

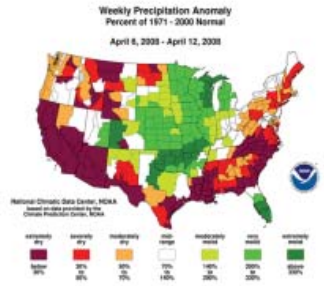
National Weather Service
http://www.weather.gov/view/national.php

The National Weather Service provides weather, hydrologic and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas. NWS data and products form a national information database and infrastructure, which is used by other governmental agencies, the private sector, the public and the global community.

NOAA Climate Prediction Center
http://www.cpc.noaa.gov/index.php

The Climate Prediction Center's (CPC) products include operational predictions of climate variability, real-time monitoring of climate and assessments of the origins of major climate anomalies. The products include hazard assessments and temperature and precipitation outlooks covering time scales from one week to seasons.





U.S. map showing precipitation anomaly
Credit: NCDC

NOAA National Climatic Data Center
http://www.ncdc.noaa.gov/oa/ncdc.html

NCDC is the world's largest active archive of weather data. NCDC produces numerous climate publications and responds to data requests from all over the world. NCDC supports a three-tier national climate services support program, including NCDC, regional climate centers, and state climatologists.

Georgia State Climatology Office
http://climate.engr.uga.edu

The purpose of the State Climatology Office is to provide climate information to all interested users of historic or long-term weather data, to monitor current climate conditions around the state, and to conduct research into topics related to Georgia's weather and climate. The State Climatology Office also provides outreach and service to private citizens, the media, educators, scientists, businesses and government agencies throughout the state.

AWIS Weather Services, Inc.
http://www.awis.com

AWIS Weather Services, Inc. is a commercial weather services company that provides custom packaged information delivery systems for a fee. Subscribers can take advantage of agricultural weather services such as freeze forecasts, leafspot spray advisories and harvest advisories.

Key Definitions

Weather: The atmospheric conditions at a given time and place. Such conditions include temperature, precipitation, air pressure, humidity, wind speed and direction.

Climate: The atmospheric conditions (i.e. weather variables) averaged over a long period (season, year or longer) and over a large area (region, country, continent or larger).

Acknowledgment

Funding for the Georgia Automated Environmental Network was made possible in part through a partnership with the Risk Management Agency (RMA), and through grant support from the Georgia Peanut Commission, Georgia Cotton Commission and Georgia Commodity Commission for Peaches. The Southeast Climate Consortium receives support for its projects, research and activities from NOAA, RMA, and US Department of Agriculture Cooperative State Research, Education and Extension Services (USDA-CSREES).

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Notes

MP 115 June 2008

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, The University of Georgia College of Agricultural and Environmental Sciences and the U.S. Department of Agriculture cooperating.

J. Scott Angle, Dean and Director