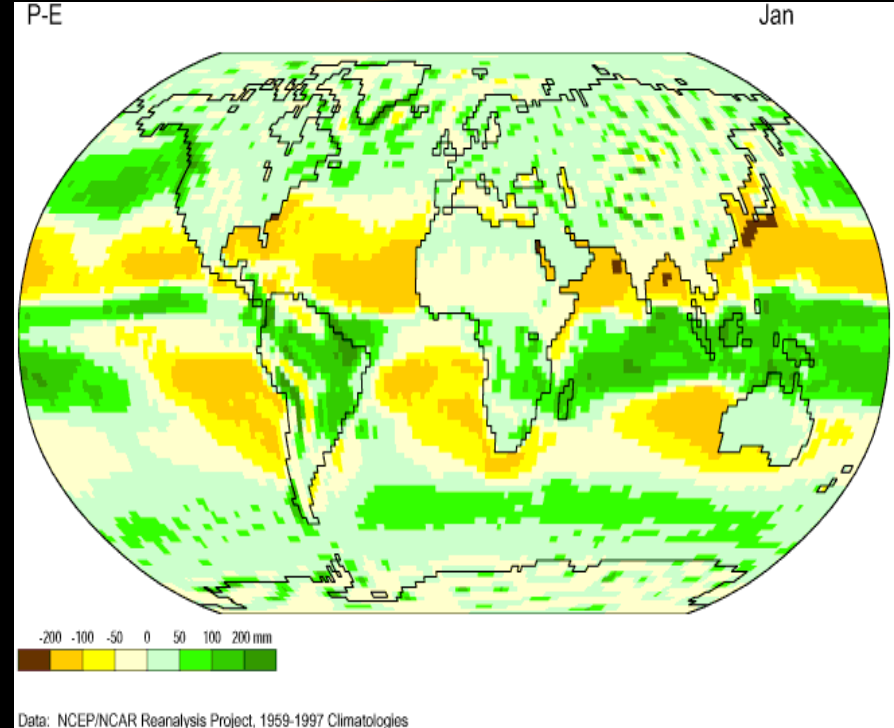




*DETERMINATION OF EFFECTS  
OF TREE RESPONSES ON  
STREAM FLOW DUE TO  
EVAPOTRANSPIRATION.  
BY: ADEBANKE ADENIRAN*

# OBJECTIVE:

- To Conduct a study on the temporal physiological responses of trees related to soil moisture and solar radiation evolved from observations of diurnal stream flow at the Aiken Site.



## PURPOSE AND SCOPE:

To measure the diameter of swelling and its water levels, and find out if it corresponds to the ground water increase and decrease; and to relate the process of transpiration from plant canopies; and evaporation from open bodies of water, wetlands, snow cover, and bare soil, with the diurnal stream flow.

Acquire or build sensors to measure tree diameters and stream gauge level.

Measure tree diameters, and monitor stream levels at the Aiken field site.

Analyze and model the measured data.

# *PROCEDURE:*

- Evapotranspiration is water evaporating from the ground and transpiration by plants. Evapotranspiration is also the way water vapor re-enters the atmosphere.
- Conducted Literary search on the internet and in the following libraries; Emory, Georgia Tech., Georgia Perimeter, and Georgia State.
- Worked with Doctor Mandock, Steve Fischer and Dr. Peters to Develop a detailed plan to measure tree responses at the Aiken site during evapotranspiration.
- Conducted a site survey identifying the tree

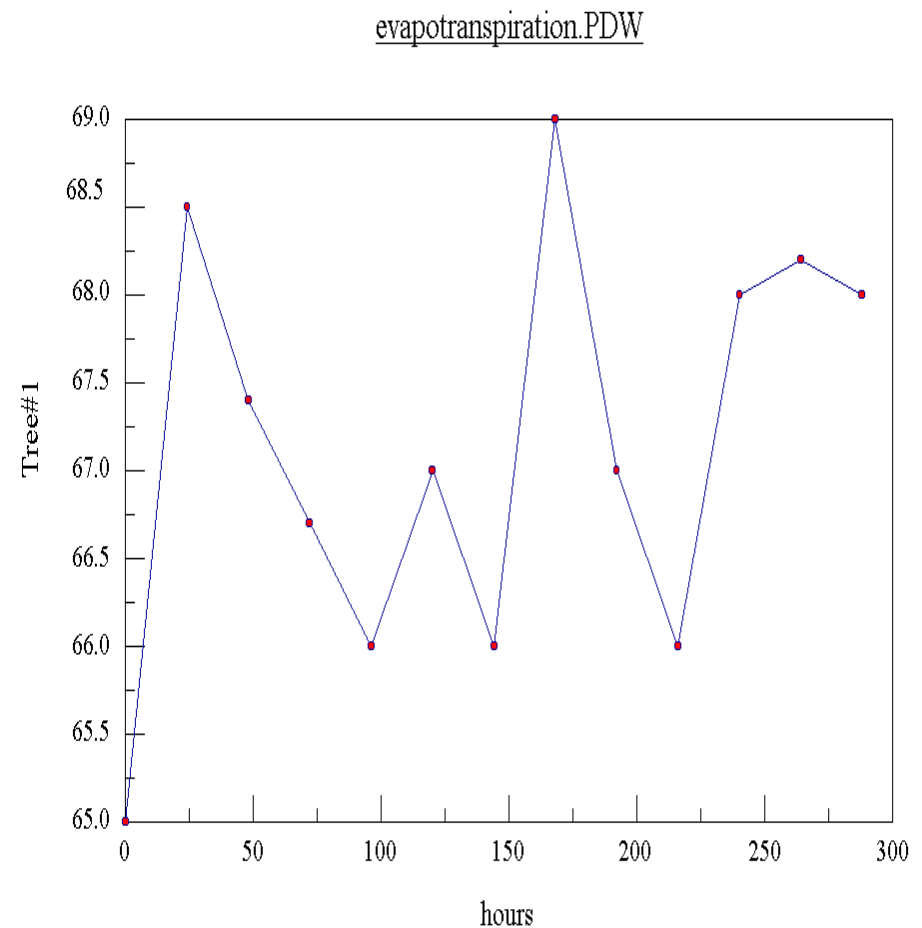
# DEVELOPMENT:

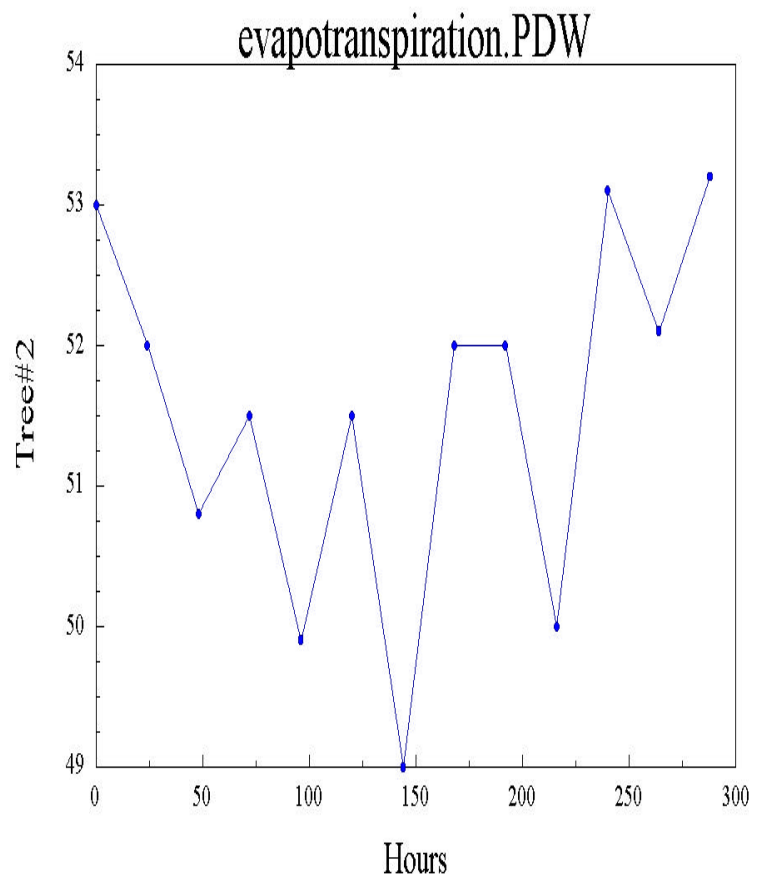
- During the Literary search which was from both the internet and the previously listed libraries, the following articles were obtained which were very useful in the accomplishment of the goal of the environment:
- Morton Fl. 1994. Evaporation Research – A Critical Review and Its Lessons for the Environmental Sciences.

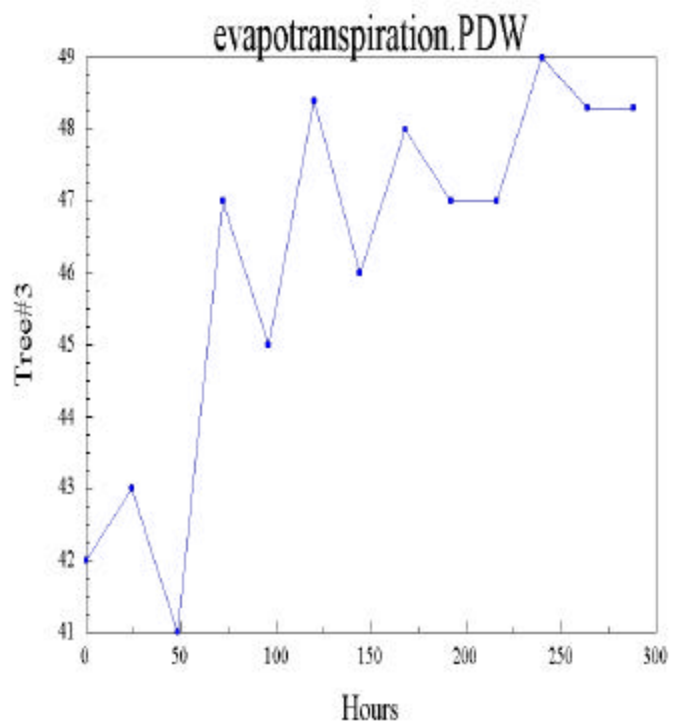


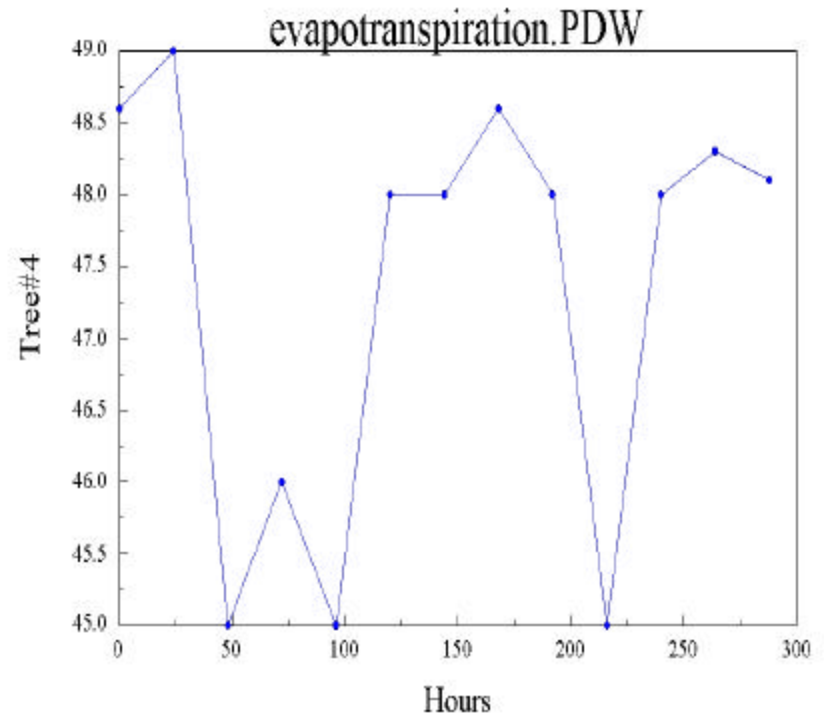
# Accomplishments:

- From the 14th of June to the 27th, measurements were taken at the Aiken site. The measurements were of trees two which were located at the stream level and two which were some distance away from the stream.









## *CONCLUSION:*

- Even though the rulers for the diurnal stream flow measurement were unyielding, the tree measurements, which were taken at specific times of the day (before sunrise, noon and after sunset) proved that the tree diameters shrunk due to solar radiation and expanded right after the the light intensity was reduced.