

# Recent Developments and Future Plans for the North Georgia Lightning Mapping Array (NGLMA) John Trostel and Thomas Perry Severe Storms Research Center Georgia Tech Research Institute, Atlanta GA

## Current Georgia Stations and NALMA

The GTRI SSRC has maintained two LMA stations, one at GTRI's Cobb County Research Facility (CCRF) and a second at the National Weather Service Forecast Office (NWSFO) in Peachtree City for several years. These stations have been used to supplement the existing stations of the North Alabama Lightning Mapping Array (NALMA) which is located in the vicinity of Huntsville, Alabama.

Locations in the vicinity of Atlanta are being investigated for a third station, yet to be deployed.







## Expansion of the NGLMA

The GTRI SSRC obtained an additional five LMA sensors from New Mexico Tech (NMT) for use in a planned expansion of the NGLMA. GTRI personnel recently traveled to NMT to learn more about the construction, maintenance and operation of a new generation of LMA sensors.

One sensor was constructed during this trip and parts for an additional four sensors are on hand at the GTRI SSRC.





#### Construction of new LMA stations

With the recently constructed, smaller, improved LMA unit on hand from the trip to NMT, GTRI's SSRC is now busy constructing an additional four stations. The illustrations below show, from left to right, the completed reference unit, an additional three main cases after completion of machine shop work, and the disassembled reference unit (used as an exemplar for construction of the new stations).





### Research Opportunities for the NGLMA

Once sufficient LMA stations are operating, collaborative and independent research can be undertaken using the array.

It is expected that the array will prove useful as an adjunct to NEXRAD in providing advanced warning of electrically active areas in severe storms, as well as in the investigation of storm dynamics, (such as looking at lightning jump algorithms).

The array will also be used in conjunction with the NALMA to provide an extended network to examine severe storm characteristics in the Southeastern US.





## Potential Array Geometry

The North Georgia Lightning Mapping Array (NGLMA) will consist of up to eight LMA stations distributed around the metropolitan Atlanta area.

Existing LMA stations at the GTRI CCRF and the NWSFO in Peachtree City are shown in red

Discussions are under way to locate three future units at Emory University, at Hartsfield-Jackson Airport and in Douglas County. These locations are shown in yellow.

Three additional units, shown in white, will be distributed around the metro Atlanta area once suitable locations are found.