**NASA DEVELOP National Program**

****University of Georgia

**Summer 2015**

**Short Title: Georgia Disasters and Water Resources**

**Updated Abstract**

Located in southwest Georgia, Dougherty County has a growing populace in an agricultural region that relies heavily on groundwater resources. Partly due to escalated groundwater extraction, this area has experienced an increase in sinkhole development over the last decade. Sinkholes pose a threat to infrastructure development, groundwater pollution, and land use operations. The NASA DEVELOP Georgia Disasters and Water Resources team partnered with the City of Albany and Dougherty County Planning and Development Services (PDS) and the Southwest Georgia Water Resources Task Force (SGWRTF) to assess past sinkhole development and identify areas susceptible to future sinkhole formation. Sinkhole mapping was completed utilizing a time-series of elevation data (1999 – 2011) from NASA’s SRTM and ASTER missions, as well as European Remote-Sensing (ERS-1 and 2) satellite-derived elevation data. The sinkhole inventory maps and spatial statistical techniques (i.e., geographically-weighted regression) were employed to quantify the factors most influential in sinkhole development. With those results, the susceptibility of every area within Dougherty County to future sinkhole formation was identified. The results of this applied science project will enable the PDS and SGWRTF to make informed decisions on current and future land use, safe infrastructure development, and sustainable water resource management.