Project 1
Enhancing Geospatial Research, Teaching and Outreach Capabilities at Tuskegee University

**Funding Source:** National Geospatial Intelligence Agency

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**Project Summary**

Training in Geospatial Sciences (GS) allows students skilled in these areas to have a competitive advantage in the 21st century job market and be well equipped to address major challenges of our time. Unfortunately, despite the widespread tendency in using geospatial courses campus-wide as an integrative tool to strengthen core Science, Technology, Engineering, and Mathematics (STEM) curricula in most universities, many Historically Black Colleges and Universities (HBCU), Minority Serving Institutions (MSI) and minority K-12 schools have not efficiently incorporated geospatial courses in their curricula, research and professional development programs. Thus, despite the growing need, there is evidence of STEM and GS skill shortage among African-Americans, women and other minority graduates, and this has resulted in acute lack of diversity in GS and STEM related workforce.

The project will expand, enhance and integrate geospatial curricula/courses in STEM programs and research activities through the Tuskegee University (TU) Geospatial and Climate Change Center (GCCC). The project objectives and approach will include (i) Developing, enhancing and teaching graduate and undergraduate GS courses; (ii) Mentoring undergraduate students, supervising graduate students in GS research and increasing enrollment of minority students in geospatial fields; (iii) Organizing summer training in GS for minority junior and high school students to help increase their interests in pursuing geospatial and STEM related programs; (iv) Providing geospatial education and training workshops to local minority high schools, community college teachers and Tuskegee Faculty, through professional development workshops and; (v) Organizing Biannual Geospatial Conferences.

The project is expected to increase the number of minorities and underrepresented students and graduates trained in GS, improve their understanding in core GS knowledge areas critical to NGA and GEOINT, provide a pipeline for minorities in geospatial fields to increase diversity and strengthen national geospatial workforce. It will also improve the curricula for teaching GS and enhance STEM programs at TU and expose students and teachers in surrounding community colleges and high schools to GS. Research capacity at the GCCC will be strengthened, moreover, TU will be better equipped to recruit, teach and engage in geospatial research. Project will also results in a number of GS workshops, conferences graduate thesis, and peer reviewed publications.

The proposed project will build upon and leverage resources and faculty expertise at the GCCC and academic strengths of the College of Agriculture, Environment and Nutrition Sciences (CAENS). The Principal Investigator (PI), Dr. Joseph Essamuah-Quansah, has BSc and MSE degrees in Geomatics Engineering, a PhD in Agricultural and Biological Engineering with specialization in Geospatial Applications in Environmental and Natural Resources Engineering, Graduate Certification in Earth Observation, several ESRI certifications and extensive training and experiences in teaching and research in Geospatial Sciences.