

Student and Faculty Geospatial Research Publications Peer-Reviewed Journals (2011-2012)

Geospatial Research Publications In Peer-Reviewed Journals (Including papers in-press and under preparation)

(2011) Karolyn Jimenez*, Kaba Aboubakar*, Eric Nez*, Sunil Bhaskaran, (2012), Research Experiences in Geospatial Science and Technology Projects at Bronx Community College, Perspectives of Undergraduate research and mentoring (PURM). (In review)

Bhaskaran, S., Rahman, A., Dehaan, R., Nez, E*, (2012), Processing and Analysis of Hyperspectral Data for Extracting Specific Urban Features, Journal of the Indian Society of Remote Sensing, Springer publications. (In review)

Bhaskaran, S., Nez, E, Jimenez Karolyn*, Bhatia, S., 2012, Rule Based Classification of High

Resolution Imagery Over Urban Areas In New York City, Geocarto International, Taylor and Francis (In review).

Bhaskaran, S., Devi, S., Bhatia, S., Samal, A, (2012), Mapping Shadows Form Very High Resolution Satellite Data Using HSV and Edge Detection Techniques. (Under preparation)

Bhaskaran, S., Phillip, N., Molina, J., Seliger, M., Khanbilvardi, R., Rapid Assessment of a City's Solar Energy Potential Using Very High Resolution (VHR) Spaceborne Data. (Under preparation)

Javed Mallick, Atiqur Rahman, Maik Netzbund and Sunil

Bhaskaran. Thermal Satellite Data for Assessment and Monitoring of Surface Temperature Changes and Its Impact On Micro-Climate of Delhi. Urbanization and Global Environmental Change, UGEC Viewpoints, International Human Dimensions Programme (IHDP) on Global Climate Change, Arizona State University, USA.

Atiqur Rahman, Yogesh Kumar, Shahab Fazal & Sunil Bhaskaran. (2011). Urbanization and Quality of Urban Environment Using Remote Sensing and GIS Techniques in East Delhi-India. Journal of Geographic Information System, Scientific Research Publishing, USA, Vol. 3 No. 1.

Bhaskaran, S., Phillip, N., Rahman, A, Mallick, J (2011), Applications of satellite data for Aerosol Optical Depth (AOD) retrievals and validation with AERONET data. Atmospheric and Climate Sciences, (2011), 4, 47-53 doi:10.4236/acs.2011.12006 Published Online April 2011 (<http://www.SciRP.org/journal/acs>)

Bhaskaran, S., Determination Of Optimal Scale Parameters For Segmentation of Urban Features from Multispectral Ikonos Imagery, Vol 11, No 2 (2011), Asian Journal of Geoinformatics. <http://www.geoinfo.ait.ac.th/ajg/index.php/ojs/article/view/58>

*Papers authored with undergraduate students.

Geospatial Grants Activity and Submissions - 2011-2012

(2012) Sunil Bhaskaran and Sanjiv Bhatia, \$336,116, "MRI: Acquisition of Imaging Spectrometers for developing innovative techniques for rapid mapping of urban terrain from multi-sensor data and preparing students from underrepresented populations in imaging spectroscopy". Submitted to NSF-MRI.

(2012) Sunil Bhaskaran, \$12,000, Fostering & promoting Interdisciplinary Studies with Geospatial Technology at Bronx Community College. Proposal submitted to PSC-CUNY Awards.

(2011) Sunil Bhaskaran and Vrunda Prabhu, \$21,430, Improving success rates in Math and remedial areas at BCC with geospatial technology,

A contextual, multidisciplinary, sustainable teaching and evaluation model. Proposal for BCC/CUNY Presidential Student Success Grant Program 2011-2012.

(2011) US Army Department of Defense (DoD), \$620,000, Innovative Techniques for Rapid Mapping from Multi-Sensor Data and Preparing Students from

Underrepresented Populations In Imaging Spectroscopy.

(2011) Neal Phillip (PI) & Sunil Bhaskaran (Contact PI., Co-PI), \$2088,596.00, Advancing Global Climate Change Education in Collaboration with Minority Institutions and NASA Scientists.

GEOSPATIAL NEWSLETTER

If you have any interesting information related to Geospatial Technology please send it to us. We will be more than happy to include it in the next edition of the newsletter. Email your stories or facts to Sunil.Bhaskaran@bcc.cuny.edu



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GEOSPATIAL

NEWSLETTER

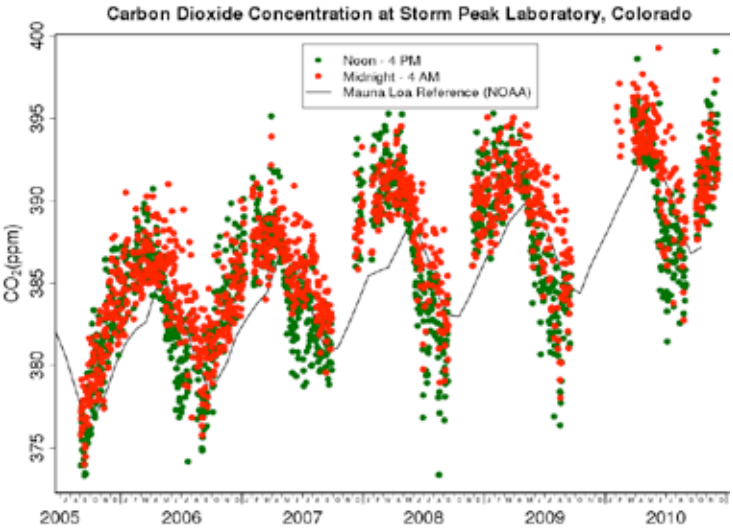
THE GEOSPATIAL MOVEMENT AT BCC!

Welcome to the fifth edition of the Geospatial newsletter! Geospatial newsletter reports on all activities related to Geospatial Technology at BCC and each issue covers 3-4 months of activities. This issue covers activities from Jan-April, 2012. In this issue we focus on the different student projects and publications in geospatial technology. www.bcc.cuny.edu/chemistry/?page=SpatialTechnology.

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1. President of BCC presides over BCC - NOAA-CREST meeting

Dr. Carole M. Berotte Joseph president, of BCC, met with the Director of NOAA-CREST Institute Prof. Reza Khanbilvardi at the department of Chemistry and Chemical Technology on the January 17, 2012. The meeting focused on a potential BCC NOAA-CREST geospatial center. The meeting was also attended by Interim Vice President of Academic Affairs Howard Wach, Chemistry Chairperson Neal Phillip, Dr. Sunil Bhaskaran and Prof. Kamal Ismail.

2. CUNY Vice Chancellor's Office of Research expresses support for the Geospatial Center

CUNY Vice Chancellor for Research Dr. Gillian Small has expressed support for the proposed BCC-NOAA-CREST Geospatial Center at BCC.

3. First geospatial course at BCC

The first geospatial course was offered in Spring 2012 - Freshmen course (FYS10 Sec 3671). The course titled: Planning to excel a BCC and Introduction to Geospatial Technology is being offered for the spring 2012

semester. The course provides Freshmen an opportunity to learn about geospatial technology and its applications.

4. Talk on Geospatial Technology and Careers:

Dr. Sunil Bhaskaran from the Chemistry and Chemical Technology department delivered a talk on March 13, 2012. The talk focused on the importance of learning geospatial technology for BCC students and career opportunities.

5. Student projects in geospatial technology

There has been increasing interest in learning geospatial technology at BCC! Several students from BCC participated in geospatial projects. These projects range from using high precision Global Positioning System (GPS), satellite data and Geographic Information System (GIS) databases. The following are brief descriptions of the projects:

Julissa Lora has been nominated to appear in the Advanced Technology Education (ATE) Student Success Stories video project. ATE is a National Science Foundation (NSF) program that prepares students for work in various high-technology

fields across the United States. Produced by WGBH, public television's pre-eminent production house, the Student Success Stories project will document interesting and vibrant stories about students in ATE programs throughout the country.

The recently acquired Picarro Greenhouse gas monitor is installed on the roof of Meister Hall on the BCC Campus. The installation process was completed at the end of March 2012. The instrument acquires ambient Carbon Dioxide, Methane, and water vapor data.

The instrument makes BCC one of a limited number of sites to officially monitor greenhouse gases in the United States. Storm Peak Lab (SPL), one of main research collaborators, has a similar instrument that acquires greenhouse gas data. The figure below shows the Carbon Dioxide

emission data at SPL over the period from 2005 to 2011. On campus, the real time collection of greenhouse gas data started in April 2012.

Student Projects in Geospatial Technology



Stephan Nunez (with the Trimble GPS)



The high precision Trimble GPS receiver

Stephen Nunez Rojas: Mapping BCC Campus Features With High Precision Global Positioning Systems (GPS) - Trimble Terra Sync

Mapping features and infrastructures on the earth accurately is a fundamental component of any location based analysis. High precision GPS such as the Trimble ProXR Terra Sync hand held receiver delivers sub centimeter level precision and accuracy. A detailed list of BCC Campus features was mapped

using the ProXR Terra Sync GPS. These features were uploaded using the GPS Path Finder software and mapped in a GIS environment. Two students, Stephan Nunez and Richmond Agbesi used high precision GPS receiver to map BCC Campus infrastructure and developed detailed procedures to use the receiver.



Richmond Agbesi: Mapping BCC Campus Features With High Precision Global Positioning Systems (GPS) - Trimble Terra Sync

Mapping features and infrastructures on the earth accurately is a fundamental component of any location-based analysis. High precision GPS such as the Trimble ProXR Terra Sync

hand held receiver delivers sub centimeter level precision and accuracy. A detailed list of BCC Campus features was mapped using the ProXR Terra Sync GPS. These features were uploaded

using the GPS Path Finder software and mapped in a GIS environment. Two students developed detailed tutorials based on the field exercises and data analyses using GIS software.



Cynthia Uffre: Converting BCC Campus and Features From an Analogue to Digital Format

A hard copy map of BCC Campus was converted into a digital format using the editing operations in GIS. The digitization process was carried

out in a controlled environment by assigning snap and weed tolerances. On screen digitization of the BCC Campus was carried out to create

an error free digital layer. Project coordinates were assigned to locate and reference the Campus on the earth.

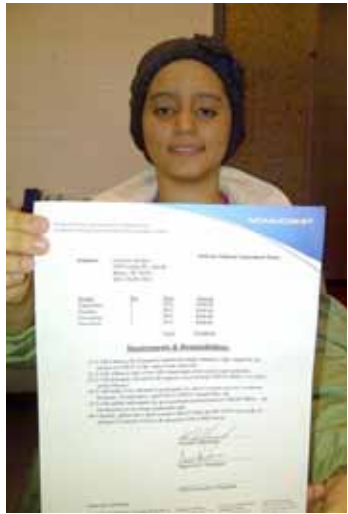
Environmental science students participate in geospatial projects



All students of the Environmental Technology course at BCC participated in geospatial projects in October, 2011

Current Geospatial Students and their Spring 2012 Projects

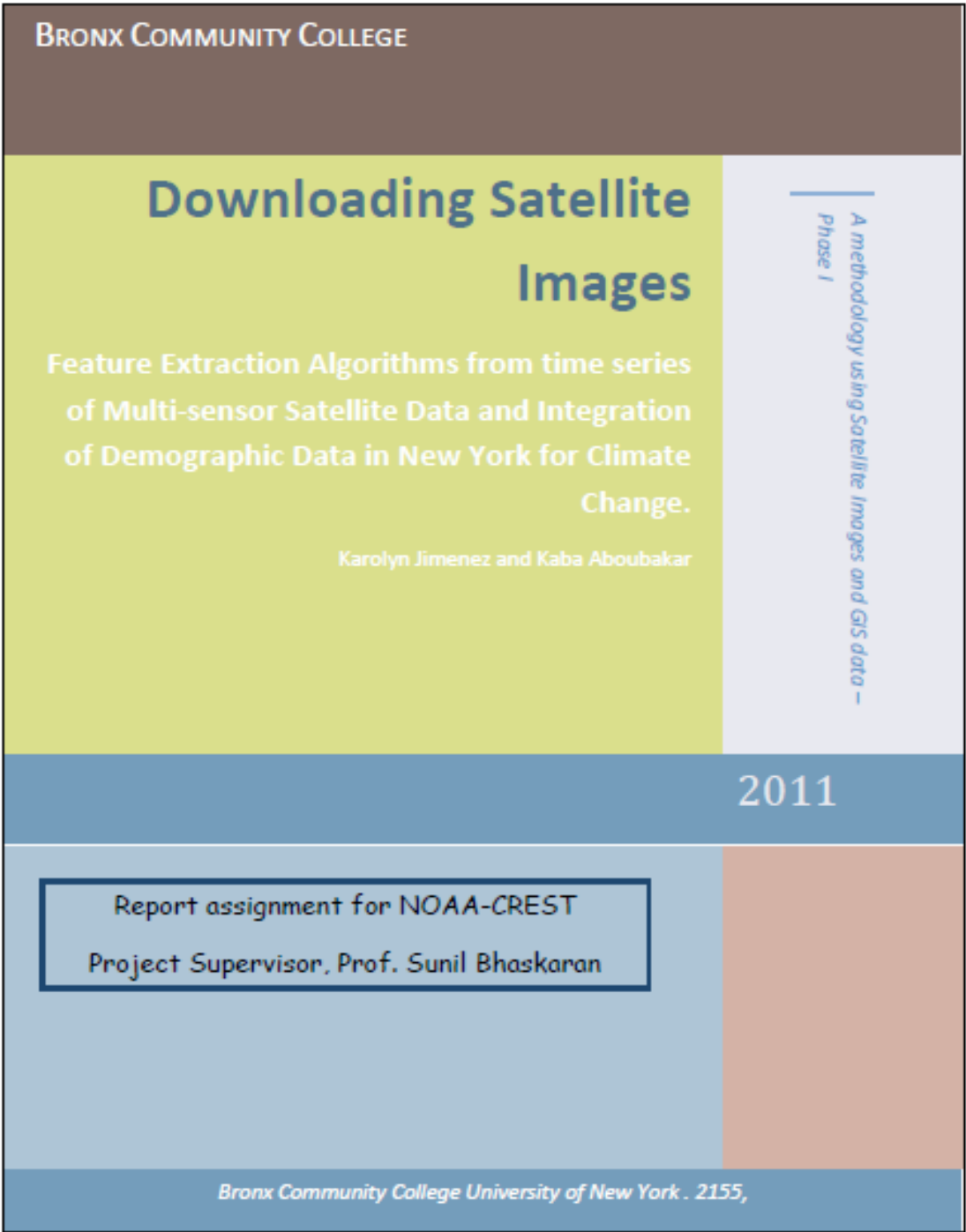
- ✓ Mapping NY City with Rapid-Eye - Karolyn Jimenez
- ✓ Creating Ground Truth Image Over New York City - Leroy Brown
- ✓ Hybrid Image Creation Using Data Fusion Techniques - Eric Nez
- ✓ Image Rectification of High Resolution Satellite Data -Mirca Rodriguez
- ✓ Object Based Approaches In Image Analysis - Ms. Lakiesha Young
- ✓ Building Networks and Analyzing Geospatial Data - The ASAP Project and McDonald's Project - James Carragher
- ✓ Creating A Ground Truth Model Over New York Using Satellite Data - Carmen



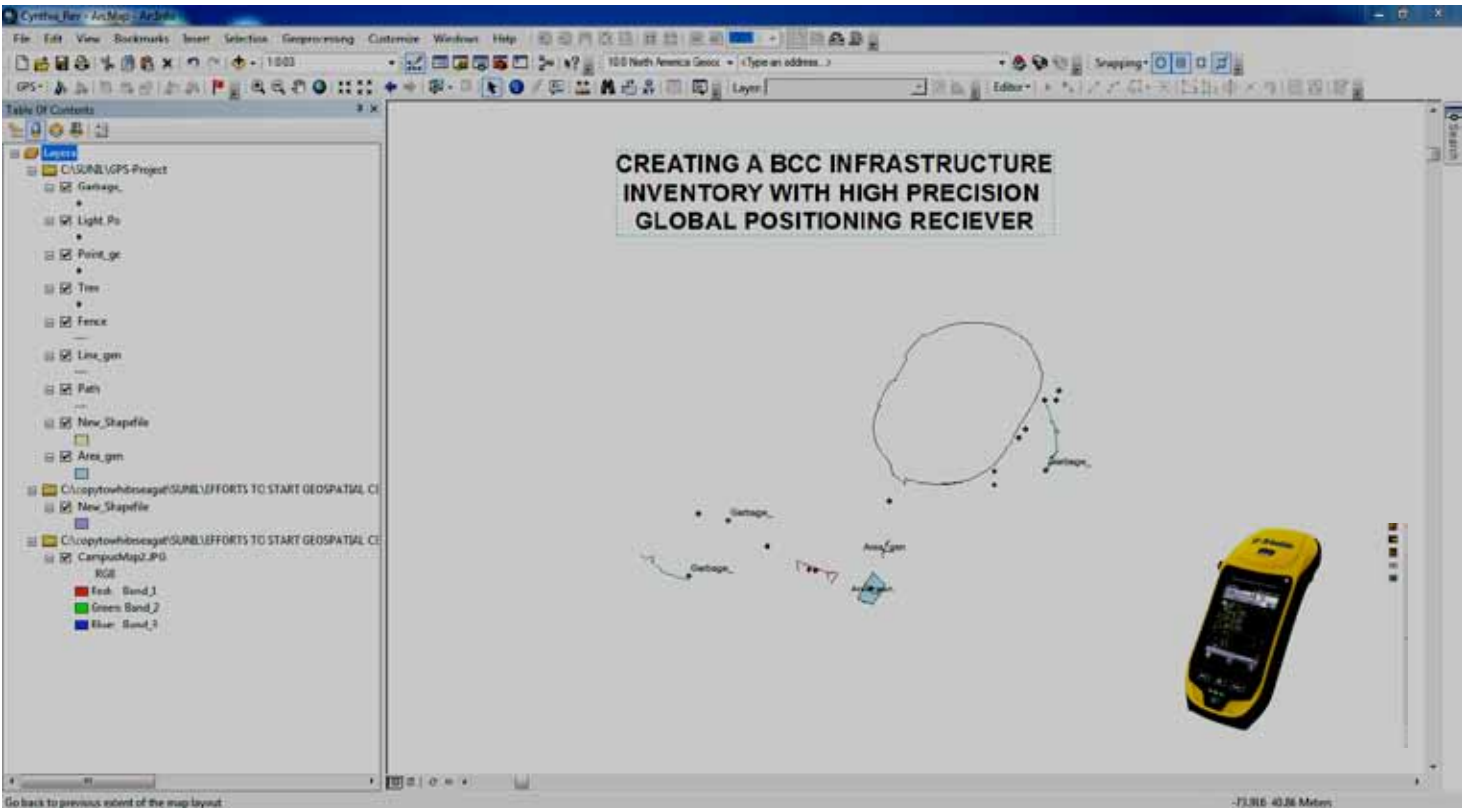
Karolyn Jimenez with the NOAA-CREST scholarship (Award period -June-December, 2011).

Karolyn Jimenez submits report to NOAA-CREST

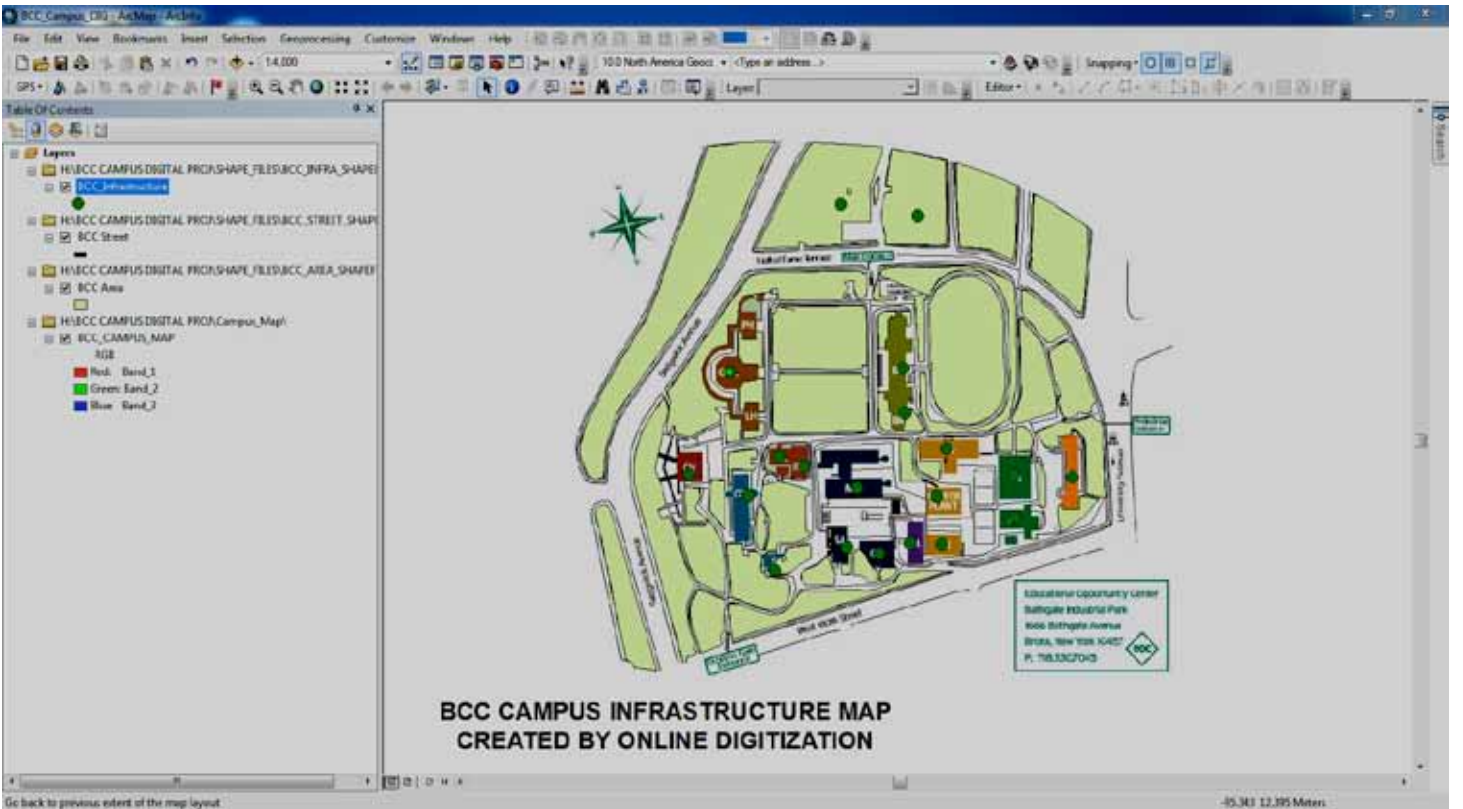
Karolyn Jimenez and Kaba Aboubaker have submitted a report consisting of tasks they performed to the NOAA-CREST institute in 2011. The report titled Feature Extraction Algorithms From Time Series of Multisensory Satellite Data and Integration of Demographic Data in New York for Climate Change.



Cover page of report to NOAA-CREST. Student Authors -Karolyn Jimenez and Kaba Aboubaker.



Cynthia Uffre and Richmond Agbesi: Reproducing Campus Infrastructure - Digitizing BCC Infrastructure



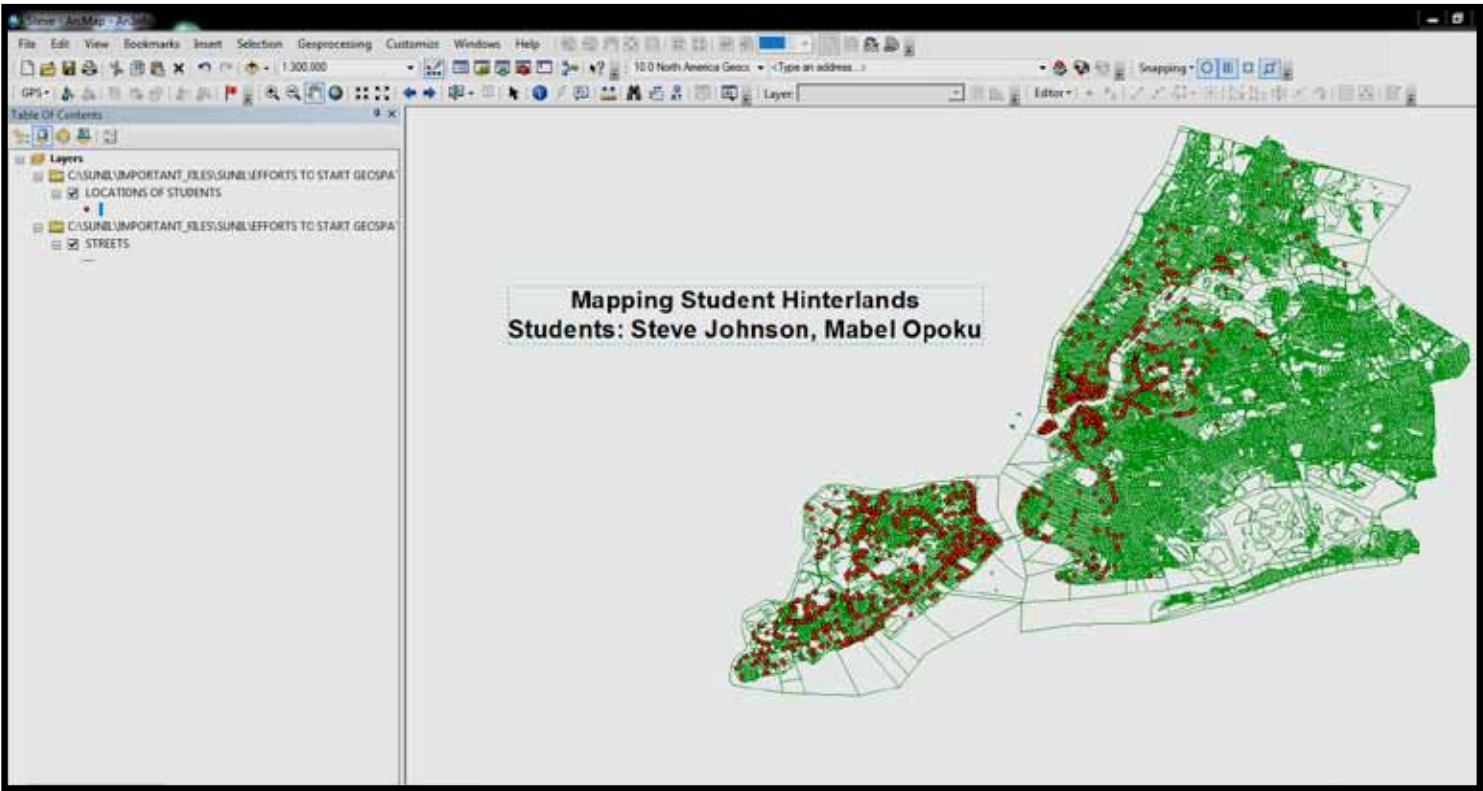


Steve Johnson and Mabel Opoku

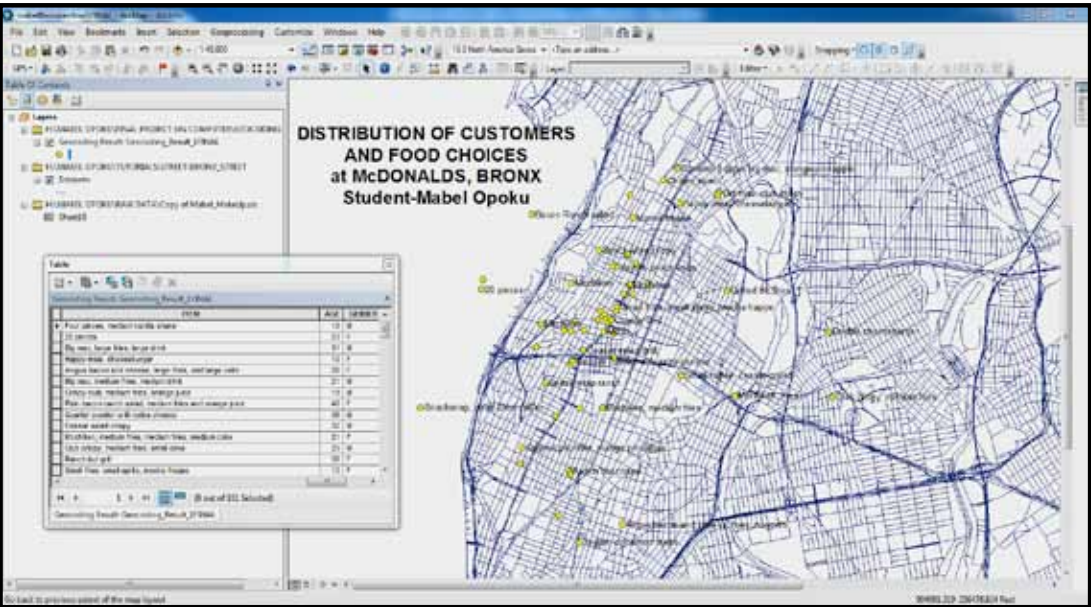
Steve Johnson and Mabel Opoku: Mapping ASAP Hinterlands

The project used GIS software and Geocoding tool to map the locations of students enrolled in the ASAP program at the Bronx Community College of the City

University of New York. Different address locators were used to address match the data.



Visualizing ASAP student hinterlands



Distribution of McDonalds Customers and Food Choices in the Bronx.

Steve Johnson, Yuguindy Peralta and Jasmin Santos: Mapping The Locations and Food Habits of McDonalds Customers

Description of the project: Understanding food habits and locations of customers are important for McDonalds a multinational US Fast Food company. The project used GIS software and Geocoding tool to map the locations of customers and their food choices at a McDonalds in the Bronx, NY.

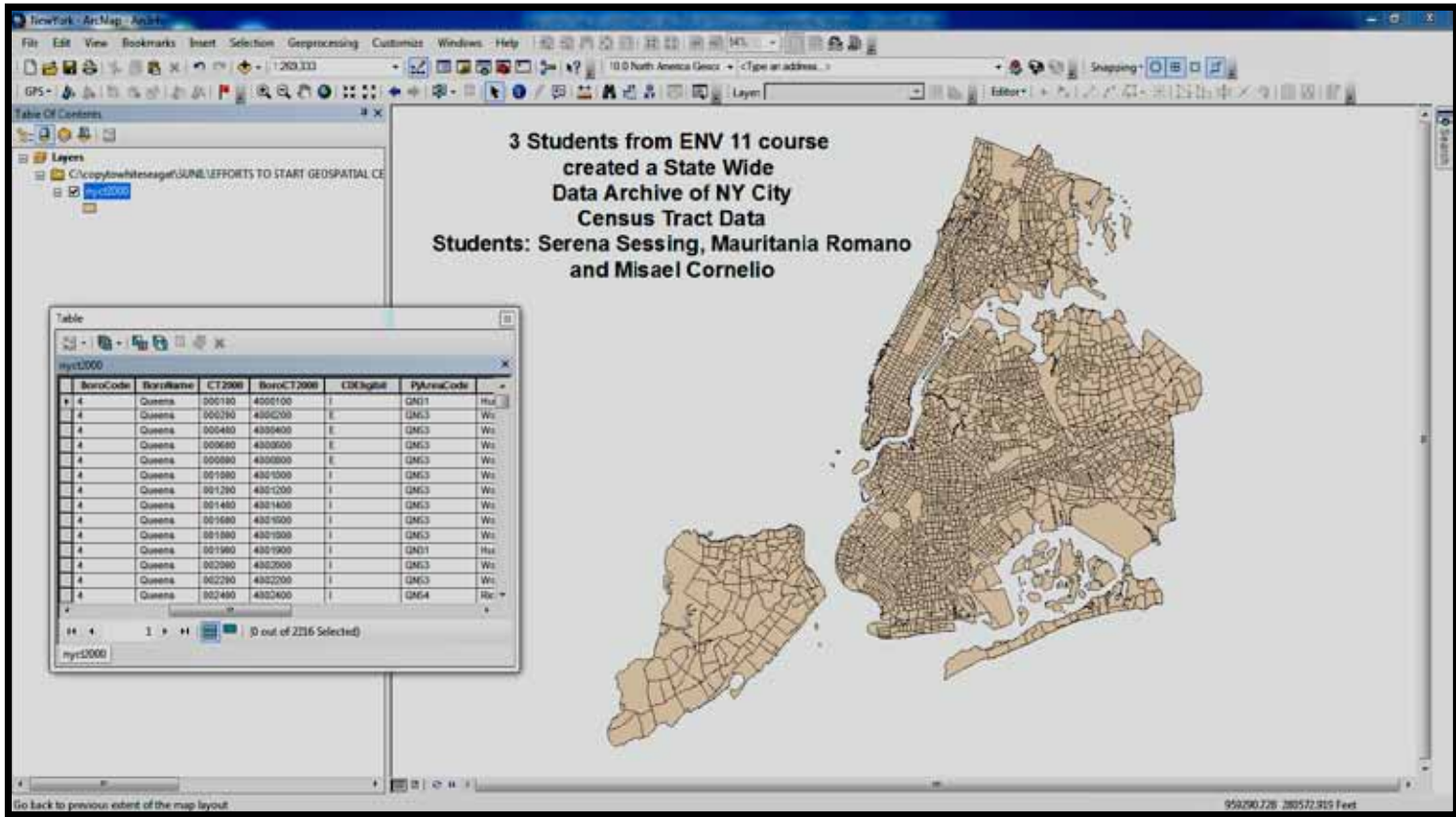


Serena Sessing and Mauritania Romano

Serena Sessing, Misael Cornelio, and Mauritania Romano: Creating an archive of Census data

A data base for New York State and all counties was created by the participating students. They accessed the census website and downloaded TIGER files, demographic variables in excel format. They joined the TIGER files with the aspatial data bases

using GIS software. These data sets can be used in different types of analyses related to the human environment, population dynamics, migration, geographical and sustainability studies.



Creating a data archive of Census variables in New York City.



Kaba Aboubaker and Karolyn Jimenez

Karolyn Jimenez and Kaba Aboubaker (BCC Alumni): Creating an Archive of Different Remotely Sensed Satellite Data

The purpose of this project is to create, analyze, and research using geospatial data. This data that is composed of satellite images downloaded or ordered from USGS. In this project we investigate different Satellite Sensors listed in USGS website resources. This list included ASTER, MODIS AQUA and TERRA, Aerial NAPP, Landsat, EO-1, and ALI. We learn the different characteristics of each sensor in reference to the differences found

in the images and their uses. We also learned the management of creating an organized archive of the images classifying them by date, sensor, bands and others characteristics. We eventually made a detailed table of images ordered or missing. All images are taken from New York State since our study and working area covers only New York state's area.