



After the Storm: Students Take the Lead in Sandy Damage Assessment

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of New York, New Jersey and Connecticut. They labeled damage to homes and buildings on grids using a four-level classification provided by the Federal Emergency Management Agency (FEMA). They also compared photographs to determine how high water levels rose.

Their data was immediately shared with ImageCat, Inc., an international risk- and disaster-management company contracted by New Light Technologies, Inc. of Washington, D.C., to support FEMA's effort. ImageCat compiles the data with other teams' to help provide the federal government with an overall damage assessment. This damage assessment was used by FEMA to determine areas that required immediate assistance and also to provide a rapid estimate for potential recovery costs.

SU GIS Students Are Respected as Professionals Within Their Discipline

SU students were the largest contingent to assist ImageCat and the company paid students for their time. We used to seek out these kinds of opportunities to give our students real-world experience. Now, in the last few years, the reputation of our students has grown so much that organizations seek us out.

Before



After



Superstorm Sandy was the second most destructive hurricane in United States history – striking the eastern seaboard in late October 2012 – causing an estimated \$70 billion in damages. In the wake of Sandy's devastation, agencies from around the country engaged in relief and recovery efforts. Efforts by first responders were critical to provide life-saving activities for those immediately affected by the storm: rescuing people stranded in their homes and giving medical attention to those injured during the storm. Secondary responders worked tirelessly to bring the areas back to a more civilized state by restoring utility services, securing damaged structures, and providing food, water and shelter.

As these efforts were underway, I coordinated a team of some 50 Salisbury University geography students, training in GIS and map interpretation, who assisted with storm damage assessments. Working around the clock in Henson Science Hall on the weekend following the storm, the team, led by four graduate students, examined before-and-after Google Earth aerial images



SU students successfully engaged in similar damage assessment work when an earthquake struck Haiti in 2010, and SU's track record of being able to provide dozens of capable geographers for image interpretation and GIS-related skills positioned SU's students for consideration for the Sandy activities. Having worked in the professional sector for many years, I understand the efforts required to assemble a team on short notice. It is very difficult for any organization to respond at a moment's notice, drop everything and coordinate an effective strategy to get the work done. Doing this within the context of an undergraduate institution is even more formidable. Nonetheless, SU's geography students demonstrated the professional competency to complete the work and the professional ethics to balance their workloads.

SU Students Understood the Importance of the Challenge and Made No Excuses

According to Dr. Brent Skeeter, Geography and Geosciences Department chair, Sandy struck at a particularly busy time in the semester. "Corresponding with the recovery efforts performed by our students, our GIS group was called away to Baltimore for important statewide meetings, while the rest of our department was hosting the Pennsylvania Geographic Society (PGS) Conference on campus," he shared.

In addition, late October was a time that many students were having to complete mid-term assignments. Many of the students gave morning presentations at the PGS Conference and then dashed back to



the lab to complete the recovery efforts throughout the evening. "Without the diligence and professionalism of our students, this work could not have been completed," Skeeter added.

With many of the faculty tied up in Baltimore and the PGS meeting, managing the work activities became the responsibility of the resident graduate students in the department's M.S. in GIS Management Program. These students quickly found themselves no longer talking about managing a large GIS activity in a classroom setting, but they now were actually implementing a large-scale project at a moment's notice. Alexander Nohe, one of four GIS management grad students spearheading the project, said he appreciated being able to apply technical and managerial skills he learned at SU.

"Large organizations can work in unison on disasters," said Nohe. "The damage did not look that bad here, but seeing aerial views [of states further north] really opened my eyes to what happened. This project is definitely a resume builder; it shows employers that I can be useful in working in a stressful environment with minimal information."

The other student managers were Chapman Cole, Eric Flint and John O'Brien.

"This is a great chance to manage a diverse group of people," O'Brien said. "You always learn from projects like this, especially when you can get your hands on real data and work under a deadline."

Cole added: "It's a good feeling to know we are helping further educate FEMA on the damage so they can provide necessary assistance to those affected as soon as possible." Flint noted the importance of collaboration between organizations in order to effectively collect, compile and analyze data.

Like most natural disasters, Sandy came 'out of the blue.' Having done this sort of work for 25 years, I was impressed to see how rapidly this group of young GIS students rose to the occasion and completed the work effort. Our graduate



students showed that they could quickly assemble a data-collection and oversight team, and our undergraduates performed as well as any other team I have worked with in this sort of situation.

"This project is a wonderful opportunity for SU students and faculty to aid fellow citizens who were hit by Superstorm Sandy," said Dr. Karen Olmstead, dean of SU's Henson School of Science and Technology. "By providing much-needed technological and analytical support, they are helping others and gaining practical experience. I am so pleased with the Eastern Shore Regional GIS Cooperative and geography program's real-time assistance with the impacts of the storm."

The project ran the risk of not even getting off the ground. "While the technical challenges of mobilizing so many people in a short time are formidable, we'd be kidding ourselves if we didn't recognize the administrative tasks necessary to complete a project of this scope," said Michael Scott, director of the Eastern Shore Regional GIS Cooperative (ESRGC).

Lauren McDermott, the program manager for the ESRGC and an SU alumna, ensured that all the contractual paperwork was in place so that the work could begin. The task of preparing the paperwork for 50 students was tackled by Jennifer Stevens, the program management specialist in the Geography and Geosciences Department. "It would be impossible to get the students contracts in place within two days, and our students showed great professional maturity by beginning the work assignment even before their contracts were signed," said McDermott.

Scott, an expert in the field of disaster response, added: "in most response situations, professionals often have to realize that the work comes first and then trust that other issues like getting paid will eventually get worked out. We are so proud of the professionalism shown by our students and applaud the great work by our administrative staff to ensure that this work was able to begin in a timely manner." ❖