

The **Power of Data (POD)** project hopes to improve student interest, awareness and attitude toward STEM careers. There are a wide variety of GeoSpatial Technology (GST) career opportunities for young people to consider as a possible profession. The career spotlight pieces are stories from interviews with real people in GST careers. Each of these spotlights presents an opportunity to share with students the many types of careers available in this field.

While reviewing the career spotlight piece, consider:

- How does this individual use the steps of Geospatial Inquiry in their work?
- How could you use this piece with your students to inspire them to pursue a STEM career?

CAREER SPOTLIGHT

Jessica Block, is a Research Analyst at University of California San Diego specializing in the use of sensor networks, remote sensing, and geospatial visualization tools for disaster response, natural resource management, policy decision-making, and sustainability. She is an expert in the management and fusion of datasets from disparate sources, and uses visualization technology as the bridge between University research and the needs of community members. Her research in environmental sustainability has covered regions in the American West, Southeast Australia, Peru, and Mexico where growing populations depend on increasingly unstable resources in the face of climate change.



What led you to become a geospatial career professional?

I remember being in high school and a teacher telling us, “Half of you are going to have jobs that don’t exist yet.” That’s exactly what happened for me and several of the folks I work with who are virtual reality designers. In high school I never would have said, “Hey, I want to do that!”

As a kid I considered myself an environmentalist. I was always wanting to be outside. But, I did not want to just be an advocate for the environment without understanding how it works. I spent my life trying to figure out how to help make a safer environment where we can breathe the air and we can live in harmony with our planet. I majored in Geology and took Urban Planning classes in college to learn the fundamentals of environmental science and planning. I also took part in an internship with the United States Geologic Survey (USGS) working on the Pacific Urban Corridor mapping project. The focus of the project was geologic hazards of the region and specifically how earthquakes, floods, and volcanoes might have an influence on the people who lived there. It was through this internship that I learned to use GIS and how to publish maps.

At some point, I decided I needed to know more about geomorphology; which is the study of how the shape of the surface of the earth changes from processes like rivers cutting mountains and mountains being built by earthquakes. I attended Arizona State University and completed a Masters Degree in geology. While I was there, I worked in a virtual reality facility. The goal of the facility was to give policy makers experiences to help them make informed decisions. For example, in order to know how best to make decisions about water resources, it is helpful to understand how drought is influencing different areas in different ways and how that may impact groundwater depletion in these areas. I used GIS to create virtual reality geographic environments to give policy makers the opportunity to get a really good picture of what is happening with water resources in their area. It was a way to bring people together and have a common picture and visualization of what is happening using maps and GIS.

Working on the virtual reality project in Arizona led to a new opportunity in Australia. I worked on creating visualizations of the drought to better understand where water is in relation to where water is needed most. The drought was causing real strain on people, families and communities. Small farming families had lost millions of dollars from decades of drought. Australia had also experienced massive fires that led to the greatest loss of life due to fires, at that time more than any other place in the world.

The job in Australia led to yet another connection, this time in San Diego. I had colleagues who were working on mapping the 2007 wildfires in San Diego. We began talking about the technologies used to mitigate fire disaster and that led to me to my current job position at University of California San Diego.

What is a typical work day like for you?

Even though I was trained as a geologist, I work with professionals from many different field. I work with engineers who design radio towers and mobile devices and together we research questions about how these types of technologies can be useful for disaster mitigation. One of these projects is the High Performance Research and Education Network (HPREN). The network uses high speed internet connections, web cameras, and weather sensors across San Diego county to monitor where a fire break out and alert us to hazardous fire conditions before they happen.



I also work on a public health projects looking at how our place in the environment can influence our health. I use GIS to understand these kinds of spatial relationships such as how people in high air pollution areas are more likely to have asthma, diabetes, and issues with obesity.

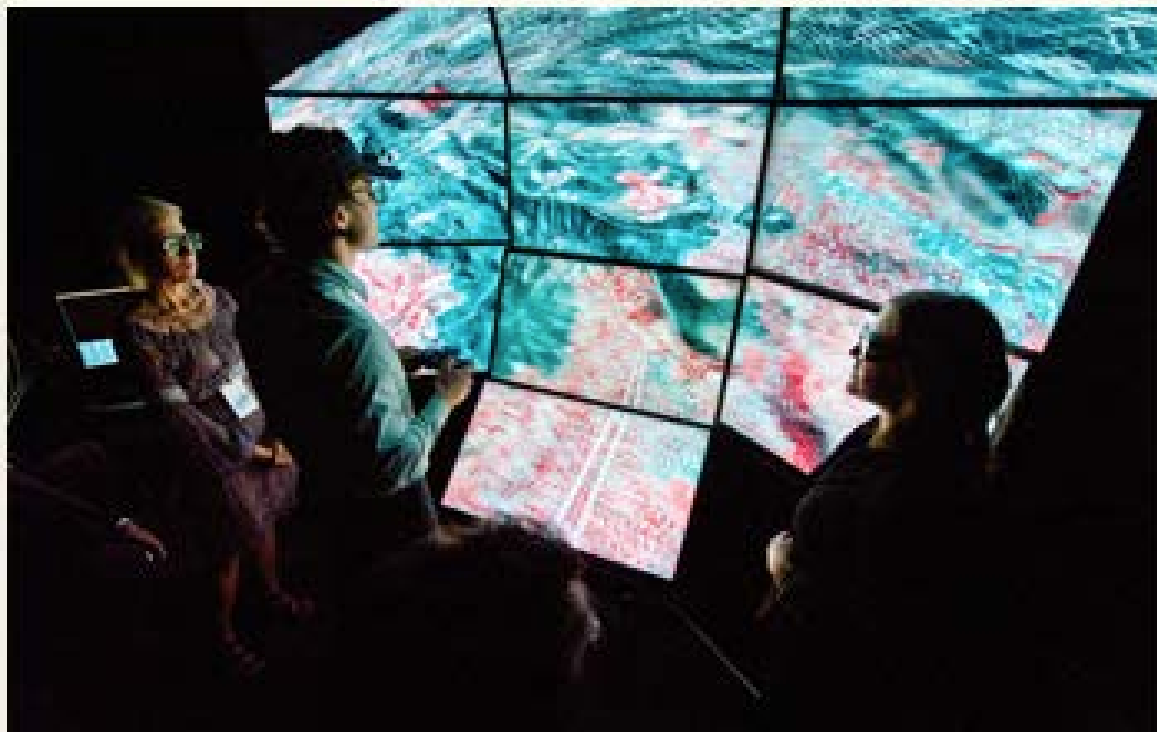
My work varies from day to day. Some days I just get to make maps or collect data from different web sites. For example, I might be working on making a map to figure out where vehicle traffic is in relation to

instances of asthma. On other days I'm having meetings with stakeholders or people at my University or other Universities and talking about the kinds of things we want to work on together. Sometimes I'm visiting with companies that make it their business to collect data and make it available. I also spend chunks of time writing proposals for grants because that is how my job is funded. It takes a long time and is very competitive but it is also very exciting.

GIS is integral to what I do because we need to access, use and share a lot of information. Some GIS software has a steep learning curve, but there are several GIS webmapping tools, many of which are free and easy to use. These tools allow our researchers in the field, who do not have extensive GIS training, to publish and share location specific data we can use for disaster monitoring.

What do you enjoy and find challenging about your position?

The field is always changing and that can be intimidating. I think it can be scary for anyone who is the first person in their family to go to college or if you were never exposed to the academic world. It can feel like you need to know everything. But, unless you are a robot it's impossible to learn everything.



You

As part of a Tuesday evening program, Calit2 Research Scientist Jurgen Schulze (center) and Project Manager Jessica Block (right) demonstrate a 3D visualization of data taken from the 2007 wildfires in San Diego County in the Calit2 NexCAVE.

have to learn to be inquisitive and collaborative.

What I like most about my job is that I'm part of a greater purpose where I'm influencing the world to become a greater place.