



*Empowering Colleges: Expanding the Geospatial Workforce*



### Save the Dates!

The GeoTech Center will be sponsoring a series of regional workshops this year! Please save the dates! For information for any of the workshops, please contact the workshop lead directly.

#### **GeoEd'18: June 4-6, 2018: GeoEd Conference and Exploratorium**

The 11<sup>th</sup> annual GeoEd Conference and Exploratorium will be hosted by Jefferson

Community and Technical College on the Southwest Campus from June 4 - 6, 2018. GeoEd'18 will have featured speakers and high quality professional development activities covering a variety of subjects (TBA soon). The event will feature an educator's round table discussion that will include providing input for the revised Geospatial Technology Competency

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## GeoTech Center Information

This material is based on work supported by the National Science Foundation (DUE #1700496). Any opinions, findings, and conclusions expressed in this material are those of the author(s) and not necessarily those of the National Science Foundation.

The GeoTech Center is virtual, comprised of a Director, four Associate Directors, and eight Assistant Directors from institutions across the nation. The central office is located at Jefferson Community and Technical College (JCTC) in Louisville, KY.

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## Drone Challenge!

Sweetwater Union High School District (SUHSD), in partnership with the U.S. Navy Naval Air Systems Command (NAVAIR), held its 2<sup>nd</sup> annual Quadcopter (Drone) Challenge. The Challenge this year included the participation of nine (9) SUHSD schools (out of 12) in the District. Palomar College (in North County San Diego) and Southwestern College (in South Bay San Diego) -- through the GeoTech Center -- joined the even this year as partners, providing support and sponsorship.

The challenge this year included a ground mission that tasked the student teams to design a compactible, modular, easy to assemble quadcopter, and carrying case (container). The main objectives were to build a remote-controlled Unmanned Airborne System (UAS) that was modular, agile, capable of completing a timed obstacle course, and deliver hypothetical medical supplies to injured personnel. Students had the choice of using First-Person-View (FPV) flight. They also could participate in an optional autonomous portion of the challenge.

### Background

In 2016-17 the NAVAIR STEM Outreach program partnered with SUHSD to

develop a challenge -- first of its kind -- in California. It combined the development of multi-rotor sUAS's kits and 3D printing.

For the Challenge, high school teams received a common kit of electric and electronic components, access to 3D ready to print files, and a set of guidelines and regulations to build a quadcopter (engineered by a NAVAIR engineer).

Each school was assigned a NAVAIR engineering mentor to assist in the aircraft development. Students were encouraged to improve the quadcopter design, but they were also required to explain the reasoning behind their design changes or modifications. Additionally, students needed to create sub-systems to work with the original quadcopter design in order to accomplish the challenge tasks.

Participating schools this year included: *Bonita Vista High School, Eastlake High School, Hilltop High School, Montgomery High School, Olympian High School, Otay Ranch High School, Palomar High School, Southwest High School, and Sweetwater High School.*

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## 2<sup>nd</sup> Annual Quadcopter Challenge (continued)

The winning team this year was Eastlake High School. Eastlake successfully modified the original quadcopter design to fly fast using FPV, and was modularized to carry a payload. The second place team (also using FPV) was Sweetwater High School. The third place team was Olympian High School.

The event included some crashes, some fast flying, some learning, and a lot of fun! Next year, SUHSD hopes to have all 12 schools in the District enter teams. There are also plans to expand the event to other Districts in San Diego County, including Vista.

For information regarding the Challenge, please contact J. Leo Ulloa (SUHSD STEAM Director) at [Jesus.Ulloa-Higuera@sweetwaterschools.org](mailto:Jesus.Ulloa-Higuera@sweetwaterschools.org).



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Model (GTCM). Stipends will be available for educators.

For more information, please contact Vince DiNoto at [vince.dinoto@kctcs.edu](mailto:vince.dinoto@kctcs.edu) (or, 502-213-7280)

### **Regional Workshops:**

Participants attending the following, regional workshops will receive a \$700 stipend as well as free admission to the Esri Education User's Conference (\$175 value). Please contact the workshop leads for attendance details (including any application forms).

#### **Dallas, TX: June 26-28, 2018: The Geoinquiry Process**

Location: Geotechnology Institute at Brookhaven College. Participants in this workshop will engage in the geoinquiry process by going through various exercises developed to help educators better understand ArcGIS Online, Storymaps, and other geospatial resources. Participants will learn how to work with the analysis and presentation functionality of ArcGIS Online. As an outcome of the workshop, all participants will develop an exercise or lesson that can be used in one (or more) of their courses.

For more information, please contact: Scott Sires at

[ssires@dcccd.edu](mailto:ssires@dcccd.edu) (or, 972-860-4362).

#### **Salt Lake City, UT: July 31 to August 2, 2018: Getting Started with UAV's and the FAA Part 107 License**

Location: Salt Lake Community College (Taylorsville Redwood Campus). This workshop will focus on how to get started with UAV's, will prepare participants to take the FAA Part 107 License, introduce the legal aspects of UAV's, and have participants design and exercise or lesson that can be used in one or more of their courses.

For more information, please contact: Adam Dastrup at [adam.dastrup@slcc.edu](mailto:adam.dastrup@slcc.edu) (or, 801-957-4880).

#### **Gettysburg, PA: August 7-9, 2018: GIS for Historical Analysis**

Location: Harrisburg Area Community College. Participants in this workshop will learn how to work with ArcGIS Online, Storymaps, and mobile data collection apps (such as Collector for ArcGIS and Survey123). As part of this workshop, participants will develop a lesson or exercise that can be used in one or more of their courses. This workshop is strongly encouraged for high school social studies teachers

and for college and university history faculty.

For more information, please contact: Nicole Ernst at [nlernst@hacc.edu](mailto:nlernst@hacc.edu) (or, 717-221-1345).

#### **San Diego, CA: July 16-18, 2018: GeoEd West**

The National Geospatial Technology Center of Excellence, in partnership with Southwestern College (SWC) and San Diego State University (SDSU), will host the 10th annual NGTC Geospatial Technology Summer Workshop. The workshop will be held in the Richard Wright Spatial Analysis Lab (SAL lab) on the campus of SDSU from July 16 -18, 2018. High school and 2-year/4-year college faculty, who have previous experience using geospatial technology tools, will come together to design and produce geospatial curriculum using ArcGIS Online (Organizational Account) that can be immediately used in the classroom. The workshop this year will include mobile applications, drones, and ArcGIS Pro.

For more information, please contact: Ken Yanow at [kyanow@swccd.edu](mailto:kyanow@swccd.edu) (or, 619-421-6700, ext. 5720).

## Upcoming Webinar: Drones Flying Free



**The National Geospatial Technology Center of Excellence will be presenting "Drones Flying Free 2018: Your UAS Questions Answered", a free webinar/mini-conference on drones and geospatial technology in partnership with Directions Magazine.**

Register here: <https://register.gotowebinar.com/register/8334806501994383363>

### Agenda:

- **Session 1:** 8:00 AM Pacific/ 11:00 AM Eastern: Lightning Talks (each lasting 15 minutes followed by audience questions and answers by speakers)
- **Session 2:** 11:00 AM Pacific/ 2:00 PM Eastern: "*Your Questions Answered*" Panel Discussion - UAV expert panelists from the first session will answer your submitted questions. We're currently collecting questions from the community! Submit your question now!: <https://goo.gl/forms/ue0oDZjuS30ri5jr2>

### Expert speakers include:



Jonathan Beck

#### Framing Drone Education

This presentation will explore developments in higher education to address the growing needs from advancements in Unmanned Aircraft Systems technology.



Abby Speicher Carroll

#### 10 Steps to Getting Started with Drones

This presentation will explore 10 steps to getting launched in the growing drone industry.



Sue Bickford

#### Fostering Interest for Women and Girls in the UAS Industry

This presentation will address the often-asked question, "Where are the women?"



Eric Delucien

#### The Twilight Zone of Drone Safety

This presentation explores the edges of drone safety and the current regulatory climate to help pilots become more cognizant of the safety and compliance challenges.

## KyTopo: Kentucky's New Topographic Map Series

To read this article in its entirety, please visit:  
<http://annessky.net/blog/?p=2620>

In December of 2011, the Kentucky Aerial Photography and Elevation Program (KYAPED), or [KyFromAbove](#) effort, became a reality. With a focus on acquiring state-of-the-art LiDAR data and full-color, high resolution aerial photography, KyFromAbove promised a new view of the Commonwealth's surface with a level of detail and clarity that had never been imagined. Since that time, and not surprisingly, one of the primary requests made by stakeholders in the GIS Community has been new LiDAR-derived contour lines.

In early 2017, as the impending reality of a statewide elevation model came into focus, the [Kentucky Division of Geographic Information](#) (DGI) began to investigate the creation of a statewide contour dataset and associated cartographic products and web services. Consultation with the Commonwealth's GIS gurus prompted us to think outside of the box.

Although it was painful at times, going through this process was fruitful in that the KyTopo Map Series was conceived. The idea was to create a cartographic product that could be printed and shared as a cached web mapping service. Then, the primary derivative datasets (i.e. contours, hillshade, spot elevations, . . .) would be made available for download and published to the [KyGeoNet](#). Two statewide contour datasets are slated for creation. One will be somewhat aligned with the USGS contour intervals in Kentucky (10', 20, & 40') and another statewide set of 5' contours will leverage scale threshold settings and group layer functionality to adjust dynamically to the viewer's map scale.

The KyTopo map series will be Kentucky-specific in several ways. First, an entirely new set of landscape-oriented quadrangle tiles have been developed. These new tiles align with

our [5k tiling scheme](#) and are in Kentucky's Single Zone coordinate system rather than the traditional USGS UTM-based maps. The map area is exactly 30" wide (60,000') by 20" tall (40,000') and fits nicely on a standard Arch D (24" x 36") printed page. The typical 1:24,000 (1" = 2000') scale has been maintained and there are only 549 tiles as opposed to the 779 tiles offered by USGS. Importantly, the new tiles have square corners unlike the UTM version!

Next on the agenda was the task of coming up with names for the new map tiles. In many instances, the names from the old USGS quads were directly adopted. However, there were many cases where it just didn't make sense. DGI staff studied the USGS methodology used to name its maps many years ago and employed that approach. Basically, the most prominent feature within a given tile was used for the name. For example, the largest city or the most centrally located place name ([GNIS](#)) was selected. In undeveloped areas, State Parks, State Forests, and natural features (i.e. streams, ridges, lakes, . . .) were used for naming the tile they dominated. It is anticipated that the maps will be updated on an annual basis so changes in the transportation network, forest cover, boundaries and other features can be updated accordingly.



Statewide LiDAR coverage was a reality by the end of 2017. Contours are now being generated for the remaining tiles and final map production will commence. It is planned that the map products and ancillary data elements will be made available on the KyGeoNet by Spring of 2018.