### Inspiring the Next Generation of GIS Professionals & Resource Managers with UAVs

**Wing Cheung, GISP, Professor, Palomar College, San Marcos, CA**  
**Jochen Schubert, Research Specialist, University of California, Irvine, CA**

**ABSTRACT TEXT:** In a five-and-a-half-day summer camp funded by the National Science Foundation's UASTEP (Unmanned Aircraft System Operations Technician Program DUE#1700552), 15 high school students were commissioned by the Fallbrook Land Conservancy to gather high resolution drone data on preserve lands that were affected by the 2017 Lilac fires and recent urban development. Faculty members from Palomar College and UC Irvine taught students how to operate drones and groundtruth drone data, guided students in field data collection, and also introduced students to GIS as a data processing and a data presentation platform. This presentation will discuss the logistics and challenges of developing a service learning summer camp from a faculty perspective, and also share with the audience best practices and outcomes from the summer camp.

### The Do's and Don'ts - Using GIS Tools in the Secondary Classroom

**Scott Rutzmoser, MES, GISP, Sr. Geospatial Specialist, Lehigh University, Bethlehem, PA**

**ABSTRACT TEXT:** As part of a NSF supported project, our team is developing a series of novel socio-environmental science investigations (SESI) using a geospatial curriculum approach. The success of these investigations (and the project as a whole) relies heavily on the successful implementation of ArcGIS Online and ArcGIS Collector in the 9th grade classroom. In this session, we will present how we successfully leverage these technologies and review some of the do's and don'ts. The presentation will provide lessons learned, share valuable resources, and outline the steps to get started so you can successfully implement these technologies in your classrooms.

### Lessons from the Spatial Data Acquisition Course on Catalina Island

**Andrew Marx, Associate Professor of Practice, University of Southern California, Spatial Sciences Institute Los Angeles, CA**

**ABSTRACT TEXT:** For the past 16 years, the University of Southern California's Spatial Sciences Institute has been teaching the one-week ‘Catalina Experience’ as a signature part of their online master’s in GIS technology. As the program has grown, faculty have increasingly incorporated student interaction with on-the-ground partners such as the Institute of Creative Technology and the Catalina Island Conservancy and with faculty actively pursuing lines of research at the Wrigley Institute, all while implementing the latest technology to most recently include data collection from autonomous water and aerial platforms (drones). This presentation will detail the advantages, challenges and lessons learned by faculty as they have worked to integrate these different opportunities to improve student learning outcomes.

### Teaching with Geospatial Technology in K-12

**Thomas Herman, PhD, Director, California Geographic Alliance, San Diego, CA**  
**Katsuhiko Oda, PhD, Assistant Professor, USC Dornsife Spatial Sciences Institute, Los Angeles, CA**

**ABSTRACT TEXT:** This presentation will share insights from the work the California Geographic Alliance has done to support teachers in utilizing GIS for instruction in History-Social Science and STEM subjects. Since 2015, the CGA has offered teacher professional development workshops that support teachers in using geospatial technologies, specifically Esri’s ArcGIS Online software. This presentation will explain the rationale for investing resources in GIS workshops for teachers and trace the evolution of our professional development strategies. The bulk of the presentation will discuss a recent research collaboration between the CGA and USC Dornsife Spatial Sciences Institute that is funded by the National Center for Research in Geographic Education. This project aims to advance our understanding of effective teacher professional development by weaving a research methodology into a series of workshops conducted with teachers from the LA region. The presentation is relevant to educators and GIS professionals interested in mentoring teachers and students.