



## Spatial Thinking and Geotechnologies Workshop for University students - Feb 2017

### Point of Contact:

Joseph Kerski, Ph.D., GISP - [jkerski@esri.com](mailto:jkerski@esri.com) 303-625-3925. <http://About.me/josephkerski>  
<http://blogs.esri.com/blogs/gisedcom> and <http://geonet.esri.com> <http://spatialreserves.wordpress.com> + 3,000  
videos on <http://www.youtube.com/geographyuberalles>.

### Workshop Goals and Philosophy:

1. Develop **knowledge and skills** in geotechnologies focusing on environmental applications: GIS, remote sensing, and GPS, technical skills and foundational underpinnings, cloud, data sources and formats, multimedia, data quality; projections, symbolizing, georeferencing, measurement, classification, databases, and mobile workflows.
2. Develop **workforce awareness** of pathways in environmental careers that use GIS and how to prepare.
3. Develop **confidence** that you can use these skills and perspectives to move forward with **your own** career.
  - This is **your** workshop. Let me know how we can help you today and in the future as you use geotechnologies.
  - Using geotechnologies effectively is a journey that will require building a **network** with your colleagues.
  - We will not work with every tool but we will build a foundation so that you will be empowered and confident.
  - The activities include core themes and skills that can be used in many aspects of environmental work.

### Agenda:

- Introductions. What is GIS video: [http://video.esri.com/watch/3623/what-is-gis\\_question](http://video.esri.com/watch/3623/what-is-gis_question)
  - Fill out your own data in Crowdsource Story Map (view) (<http://arcg.is/2kkdpF0>) in ArcGIS Online.
  - What is my role and what is Esri? <http://www.esri.com/about-esri#what-we-do>
  - [Penn State Geospatial Revolution: Trailer video](https://www.youtube.com/watch?v=8WpxgVJXwbk). Penn State. And - Why Get Excited about Web Maps? <https://www.youtube.com/watch?v=8WpxgVJXwbk> -- Why geotechnologies matter in society and in education.
  - Discuss: How are geotechnologies used in society? How are they evolving? How is GIS becoming a platform? What career opportunities exist? US Dept of Labor report. What is GIS? What is ArcGIS?
  - **Investigation 1:** 5 short activities using 5 relevant web maps: (1) [Zika Virus 1947-2016](#). (2) [Spratly Islands Fiery Cross Reef](#) and [Hughes Reef](#). (3) [Seasonal Changes in Snow Cover](#). (4) [Change Matters Viewer](#).
  - **Investigation 2:** [Examine ecoregions, population density, and imagery](#).
  - Discuss: ArcGIS Online use: (0) Anonymous. (1) Public, (2) Developer; (3) Organizational subscription.
  - **Investigation 3:** Colorado Precipitation Activity. Part of the Colorado Digital Atlas: <http://education.maps.arcgis.com/apps/PublicGallery/index.html?appid=bede0ef880d0411eaac9b0af4c1eb5be>
  - **Investigation 4:** National – to-local investigation: [Demographics of the USA](#).
  - **Investigation 5:** Log in to ArcGIS Online; add world hydro. Analysis: Trace downstream.
  - **Investigation 6:** [Examine global plate tectonics](#): Plates, volc, earthquakes. Map last 7 days of earthquakes.
  - **Investigation 7:** Spatial Analysis with Boulder County hazards. <http://www.arcgis.com/home/item.html?id=e68e42c2f98d4172a72b2d2c85c67349>
  - **Investigation 8:** Investigating [storymaps](#). Multimedia interactive web maps. Explore gallery.
  - **Investigation 9:** Build a storymap.
  - **Investigation 10:** Collect and map data on University of Colorado campus grounds.  
Discuss: Methods of collecting data. How GPS works; GPS accuracy; smartphone tools and accuracy.
- Outside:** Collect data with smartphones using 3 methods: (1) Take photo and record data on clipboard, build table. (2) Snap2Map. Take pictures, create storymap of vegetation. (3) Survey123.  
<https://survey123.arcgis.com/share/933b03f8109e411cab344453dbd7a865> Map: <http://arcg.is/2l0UL2O>
- Next Steps: Resources, curriculum, maps, networking, online and face to face courses and opportunities.
  - **Evaluation;** final Q&A. <https://goo.gl/forms/NzqbdPzhkDnsUhRy1> Critical Incident Questionnaire.
    - **Extensions:** Investigation 11: Map data from a spreadsheet: Save and share. Investigate spatial patterns of businesses in a metropolitan area. Classify it. Symbolize (style) it. Then, map your own data.
    - Investigation 12: Use Survey123 to collect vegetation data.
  - Investigation 13: Modify story map: Video, GPX track, embedding. Examine additional story maps (audio, etc.)
  - Investigation 14: Analyzing cholera data. <http://arcg.is/2liV7ko> using the analysis tools in ArcGIS Online. ♦