



## Spatial Thinking and Geotechnologies Workshop: University of Colorado Environmental Program – 8 Feb 2019



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+ 4,000 videos on [YouTube Our World](#) channel.

### 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 Crowdsourcing 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](#). 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?
- Discuss the environmental solutions templates on: <http://solutions.arcgis.com/state-government/environment/environmental-impact/>
- **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](#). (5) [Landsat Explorer App](#). (6) [Water Balance App](#). (7) [Urban Observatory](#) (8) [Migration Over Space and Time](#).
- **Investigation 2:** [Examine ecoregions, population density, and imagery](#).
- Discuss: ArcGIS Online use: (0) Anonymous. (1) Developer; (2) 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 map tour of campus map or Australia trees/biomes. Map Journal (agriculture).
- **Investigation 10:** Collect and map data on University of Colorado campus grounds using Survey123. 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) Take pictures, create storymap of vegetation. (3) Survey123.

<https://survey123.arcgis.com/share/933b03f8109e411cab344453dbd7a865> Map: <http://arcg.is/0zrjPi>

- 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 11: Modify story map: Video, GPX track, embedding. Examine additional story maps (audio, etc.)
- Investigation 12: Analyzing cholera data. <http://arcg.is/1Gj08e> using the analysis tools in ArcGIS Online. ♦