



**National GeoTech Center (NGTC)**  
**Advanced Geospatial Technology**  
**2010 Summer Workshop**  
(Collaborative efforts between SDSU and Southwestern College)

This workshop will introduce advanced geospatial technology (GIS, remote sensing, GPS, and cartography) and customizable geospatial learning modules for your own classes and students as well as textual materials.

**Instructors:** Anita & Roger Palmer, GISetc.

**Hosts:** Professor Ming Tsou, SDSU and Professor Ken Yanow, SWC

**Location:** San Diego State University, Geography SAL lab.

**Date:** July 7, 8, and 9, 2010

**Time:** 9:00AM – 4:00PM

**Workshop Schedule:**

**DAY 1, July 7, Wednesday:**

- 0900      **Opening & Introduction (Tsou and Yanow)**
- 0930-1030      **Session 1: Earthquake modeling. “Who’s Next” from Analyzing Our World**  
                    **Creating grids (extrapolation) from point events and symbolizing them**  
                    **Grid algebra: making a yearly quake density, and difference from avg.**
- 1030-1045      **Break**
- 1045-1200      **Session 2: Modeling assessment: Analysis on your own.**  
                    **Creating an avg weekly quake density and difference from avg on a large quake event**  
                    **Discussion on building projects from scratch and assessment**
- 1200-1315      **Lunch (at the Faculty Club)**
- 1315-1430      **Session 3: Climate Modeling: Single value grids of temperature and rainfall**  
                    **Setting scale and practicing grid algebra (creating a 5 year climate avg)**  
                    **Determining this year’s anomalies in climate**  
                    **Streaming data to see impact on stream gauge readings**
- 1430-1445      **Break**
- 1445-1600      **Session 4: Heat budget calculations**  
                    **Total incoming radiation, reflected radiation, insolation, longwave re-radiation, net radiation**  
                    **Summing total energy proportions and showing the heat budget across the globe**

**DAY 2, July 8, Thursday:**

- 0900-1030      **Session 5: Introduction to ImageJ**  
                    **Zooms, Pans, pixel values, pixel coordinates**  
                    **Compare black and white to color imagery**  
                    **Apply look up table to single value imagery**  
                    **Make surface plot of imagery and cross sections**  
                    **Try a NASA neo bathymetry image to show ocean depth profiles**
- 1030-1045      **Break**

- 1045-1200      **Session 6: Setting scale and making measurements**  
                   **Setting scale for an image:**  
                     Using landmarks and a known distance  
                     Using other tools to find known distances  
                     Knowing your image resolution  
                     Adding scale bar and estimating areas  
                     Using NASA earthkam photo to set scale
- 1200-1315      **Lunch (at the Faculty Club)**
- 1315-1430      **Session 7: Setting the pixel density scale**  
                     Measuring like areas of reflectance  
                     Comparing a series of photos on lake meade  
                     Setting measurement values, defining measured areas.  
                     Grabbing an image pair to compare a growing phenomena after setting scale in density
- 1430-1445      **Break**
- 1445-1600      **Session 8: Making stacks of images in ImageJ**  
                     Stacking images, making an animation, importing a series of photos  
                     Setting scale for stack  
                     Setting thresh-holds to measure change over time  
                     Changing sea ice concentrations at the N. Pole  
                     Export to montage and animated GIF  
                     Grabbing an image sequence of deforestation in Rhodonia to calculate forest change
- DAY 3, July 9, Friday:**
- 0900-1030      **Session 9: Any overflow from yesterday, questions**  
                     Image analysis in Arc GIS  
                     Registering imagery to area Earthkam or Astronaut photography  
                     Download elevation data from seamless.gov  
                     Calculate slope, hillshade, aspect  
                     Drape imagery over elevation layers
- 1030-1045      **Break**
- 1045-1200      **Session 10: Field monitoring (humidity and temperature) over the southeast hill for temp and humidity**  
                     Download and merge data before adding to map  
                     Extrapolate humidity and temperature points  
                     Reclassify the grids into 3 classes  
                     Add humidity re-classification and temperature re-classification,
- 1200-1315      **Lunch (at the Faculty Club)**
- 1315-1430      **Session 11. Download elevation information to create slope, hillshade, aspect maps**  
                     Finish by creating a total hazard map by adding up all the reclassified data altogether.
- 1430-1445      **Break**
- 1445-1600      **Discussion/Feedback and Closing (Tsou and Ken)**