Science Writing V: Again with the dissecting

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GIS Day

- Extra Credit (1/2 point for each event, up to 6 events or 3 points)
--New Assignment--

• Abstract, Results, Discussion, References

• Include tables and figures as needed to demonstrate your results or discussion points

• Use same rubric for the final paper

• Due Tuesday November 24th
Effective writing – Paragraph structure

1. Claim/Topic sentence
2. Evidence
3. Analysis or Conclusion
Claim

• Announce the main focus of your paragraph.
• **** Tell ****
• Claims are mini arguments that supports your paper’s main thesis.
• Your topic sentences should be debatable.
• You will try to support your claim with evidence.
• Develop a claim by thinking of reasons why your main thesis is true.
Example

Several upcoming hyperspectral satellite sensor missions will greatly expand the opportunities for researchers to use imaging spectroscopy data for discriminating and mapping plant species and plant functional types.

Roth et al. 2015
Example

Ecosystem- and regional-scale maps of vegetation composition, function and health derived from remote sensing data have played a key role in measuring and monitoring changes in the natural environment across space and time (Kerr and Ostrovsky, 2003 and Turner et al., 2003).

Roth et al. 2015
Evidence

• Support or back up your claims
• Intro -> previous research findings
• Discussion -> both your research findings and previous research findings
• Incorporate information from several sources in each paragraph
• Avoid retelling from one single author or article
• Aim to represent a variety of views
Example

In particular, these maps are used to characterize the spatial distribution of vegetation types and to monitor land cover change due to climate, natural disasters and human activity. They are also important inputs to ecosystem process and climate models (DeFries, 2008 and Turner et al., 2004).

Roth et al. 2015
Example

Making these maps on a global scale is quite challenging. Most global data products are derived using coarse spatial resolution (≥ 500 m), multispectral data. Sensors such as the Advanced Very High Resolution Radiometer (AVHRR) and Moderate Resolution Imaging Spectrometer (MODIS) have been used to create several global land cover maps that include vegetation types based primarily on biomes (e.g., evergreen forest, woodlands, open shrublands, etc.) (DeFries et al., 1998, Friedl et al., 2002, Hansen et al., 2000, Loveland et al., 2000 and Muchoney et al., 1999). While biome-level maps are useful, many applications require more detailed information regarding plant functional type (PFT) composition (Bonan, Levis, Kergoat, & Oleson, 2002), because these classes are more concretely linked to biospheric processes of interest, such as carbon, water and energy fluxes (DeFries et al., 1995).

Roth et al. 2015
Concluding Observation

- Wrap up your paragraph
- Explain why evidence supports claim and why claim supports the main thesis
- End with your own analysis, rather than evidence
- Keeps author “in control”
- Emphasize your own ideas/observations
Example

However, even with the global availability of finer spatial resolution data, such as Landsat (30 m), discrimination of certain PFTs and many species using broadband sensors can be difficult (Clark, Roberts, & Clark, 2005).

Roth et al. 2015
Example

Despite these successes, these studies have been done using airborne sensors which collect data at relatively fine spatial resolutions (e.g., 4–20 m) and over limited spatial extents. This limits their applicability for monitoring vegetation on regional to global scales.

Roth et al. 2015
Example

While the spectral and radiometric resolutions of the many of these proposed sensors are based on existing aerial sensors, the proposed spatial resolutions will be coarser. Therefore, it is important to evaluate the impacts of spatial resolution on the discrimination of dominant species and PFTs across a wide range of ecosystems.

Roth et al. 2015
In a group (I will assign)

• Read the assigned section.

• For every paragraph identify weak, moderate, or strong claim, evidence, and conclusion.

• Discuss your classifications with your group and provide reasons (one sentence each) for your classification.