From Robert Hijmans:

1)  Describe current bottlenecks and possible future developments in geospatial informatics that supports academic or applied environmental research. Please consider issues of repeat-ability and scale-ability, and issues of software and database development, maintenance and access.

2) Discuss some aspects of how spatial data analysis is different from non-spatial data analysis. Please briefly cover the main types of (quantitative) spatial data analysis.  Also mention why spatial autocorrelation is important in analyzing geographic data.

From Ryan Galt

1. Define the three main philosophies (including their ontologies and epistemologies) that underly GIS and critical GIS.  How does critical GIS seek to inform GIS practice and thought, and how successful has it been?  What can GIS practitioners of a positivist bent learn from poststructuralist and critical realist perspectives?  
  
2. Describe Tufte's main design principles.  Evaluate each from your own perspective (as informed by your work and education in cartography and GIS), and formulate a critique of Tufte's assertions about best principles for design from the perspective of Wood.  To what extent would you agree and disagree with Wood's response?

From Chris Benner

1. A central component of the research and related discourse on open software and data has been notions of empowerment of disadvantaged populations and the potential to contribute to positive socio-economic change. Yet, as Elwood (2006) and others have pointed out, much of the research in this area has focused on access to the *software tools* (e.g. through participatory GIS), and much less attention has been focused on the extent to which broader access to the tools actually can shift power relations in society. In your view, what is required in order to help bridge this gap? In other words, specifically how is it that broader access to geo-spatial tools through open software and data can contribute to social and political change? In answering this question, please consider the importance of the characteristics of the technologies themselves (and how these characteristics shape access, representation, and knowledge generation) vis-à-vis the social, economic and political processes shaping how people *use* the technologies.
2. One of the fundamental principles that has guided the development of Free and Open Source software tools has been their potential contribution to widespread collaboration amongst a diversity of people who can work together to solve complex problems, in a way that is presumably more democratic and accessible than through proprietary systems. Yet today, the mostly widely used tools for facilitating distributed collaboration in society are built on tools developed by large corporations. In the geo-spatial realm, I’m thinking here most prominently of google-earth, google-maps and related applications, but also the ways that geo-referencing through various mechanisms has been a critical part of the wide-spread diffusion of Twitter, Facebook, various iPhone apps, and other prominent social media tool. To what extent is this private development of free collaborative tools in contradiction with the principles of free and open source software (FOSS) development? What do you see as the important similarities and differences in the characteristics of what are often considered true FOSS geo-spatial tools (e.g. Quantum GIS, GRASS) compared to google’s mapping and GIS tools, and how does this related to strengths and weaknesses of each set of tools? What do you see as the implications for the future development of open-source geo-spatial tools in geography?

Jim Quinn’s questions for Alex Mandel:

1)  Proponents of transparency in environmental policy often talk about “Open Source”, “FOSS”, “Commons”, “Open Access”, and variations on crowd-sourced or social-network information (and related intellectual-property approaches of your choice) as if the IP concepts and legal framework were conceptually equivalent.  Are they?  (Common themes?)   Or if not, how do they differ in their concepts and histories of development?  Who were the major actors/innovators?  What are the major conceptual and legal differences as each applies (or doesn’t apply) to code vs. data vs. “expression” (e.g., visualization or cartographic representation), vs. professional publication?

2)  Both curated professional datasets (for example, museum collections, EPA water quality records) and structured “citizen science” data (e.g., Christmas bird counts, River Watch groups) have long been important to environmental analysis.  More broadly crowd-sourced observations (eBird, Open StreetMap, maybe even roadkill apps) may eventually emerge as a third leg of spatially-extensive environmental change-detection.  All have very different properties in how they are collected, and should be managed and interpreted.  Using case studies as appropriate, describe the differences, and how they affect the purposes for which such data should be used.  (Be sure to address reliability/trust issues for individual records, and differences in the attributes and statistical properties or the resulting datasets.)  How can citizen-science and/or crowd-sourced data sources be made more robust and useful in guiding sound environmental policy?

From Bertram

(1) Geographic information systems and other geospatial tools may or may not use additional dimensions beyond the traditional 2D map representations and the data domain: in particular, a third spatial dimension, as well as time, and even other conceptual or "semantic dimensions" are conceivable.

    Give a brief introduction and overview of how existing systems can represent additional dimensions. In particular, how do current system deal with time? What data structures and operations are most commonly used or might be the most important when dealing with spatio-temporal data? What about GIS extensions for "semantic (meta-)data"? To what extent do they already exist and how could they be used?

(2) As more and more spatio-temporal data becomes available to more and more people (both public and not-so-public data, e.g., credit card transactions, cell phone data, sensor data, etc.), and as technical capabilities for presenting, mining, and analyzing data are growing, the opportunities for use and misuse of such data are rapidly increasing as well.

    What are (i) the opportunities and (ii) the possible hazards and threats that you see emerging? What technical and non-technical solutions might we bring to bear?