CLARK UNIVERSITY 1887

Graduate School of Geography   508-793-7336 Phone
950 Main Street   508-793-8881 Fax
Worcester, MA 01610-1477   www.clarku.edu

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Dear Corrie Griffith (corrie.griffith@asu.edu),

Here are my responses to the questions:

1.   What are the key urban remote sensing/urban modeling and forecasting issues that you represent?

My area of expertise concerns effective use of statistics for GIS, remote sensing, and land change modeling. In particular, my research focuses on how selection of measurement and scale influences analyses. The profession pursues the question: "A pervasive question is to optimize the best scale to observe and analyze human and physical activities". I never try to find the "best" scale; instead my methods attempt to find valuable information that each scale has to offer. I desire to see how information changes as we modify scale.

The profession needs easier-to-understand measurements that relate more directly to the information we think we can see in the maps. For example, the Kappa index of agreement criterion continues to be pervasive in remote sending, but Kappa makes little sense (Pontius and Millones in press). The percent correct criterion to compare predicted land cover versus observed land cover is also pervasive, but it has profound problems because it fails to distinguish agreement due to change from agreement due to persistence (Pontius et al. 2011). There are many fundamental conceptual blunders in the profession that could be corrected easily. Instead, many in the profession continue to develop more complicated quantitative methods. The profession convinces students that the only way to graduation is to develop a more complicated measurement.

2.   What are the key challenges, missing opportunities, and exciting developments in your theme and region?

Scientists need to be trained better to communicate effectively with a wide variety of audiences. Public presentation is not taught intensively enough in schools. Experts need to be able to communicate via maps with non-experts and with people from other professions.

3.   Why are we not seeing more studies on smaller urban areas?

If it is true that we see few studies on smaller urban areas, then it might be because there is not enough time to do all urban areas, so it makes sense to tackle the large issues first. More money dedicated to a topic can change any tide in research agendas. My colleague is now working in medium cities like Nashville TN. I am interested in large unrepresented cites like Tehran, where Bryan Pijanowski is making wonderful progress. Why not make more progress on unrepresented important areas, regardless of size? If we do research in data-poor regions, such as in Africa, then we will have an incentive to develop methods that can deal with data-poor environments. When the profession prioritizes complicated and data-hungry algorithms, then the profession becomes restricted to a small number of globally non-representative cities. We should study whatever is most important for humanity, and then create the necessary methods in order to study it. This is how new and important methods are developed.

4.   What platform/data/access limitations do you currently/frequently encounter?

Some models require too much information. These models will be difficult to use in data-poor regions. Many models are extremely poorly documented and the computer source is closed. Researchers hoard data because they cannot get status for publishing data. We need professional recognition for contributions to open source code and for creation of well documented data.

5.   How do these limitations affect our ability to monitor, model and forecast urban areas?

Most of the problems are sociological problems within the profession. People get status by claiming that complicated models produce good results. We need to convert to a culture where we admire people for ability to communicate across audiences. This will require skills in personnel management, cartography, graphical communication, and public speaking. Going to finer resolution guarantees to make the computer files larger and more difficult to handle. It is difficult to characterize anthropogenic land transformation at fine resolutions, because things like shadows change rapidly.

6.   What do you see as missing in terms of case studies and methods?

A large problem in the profession is that scientists think that they need to claim that data and models are good. It makes us blind to where the major problems are. It is a disease that spreads, as younger scientists quickly absorb the professional culture. Editors, reviewers, and authors must be educated that the criterion for publication should be quality of the methods, not the results. If the results show that numbers are not accurate, then it is important for the profession to know that the numbers are not accurate. I see many colleagues who want the results to turn out a certain way, in which case they are not really doing science. A real scientist develops a method so that the results will reveal important information regardless of how the results turn out.

All the Best,
Gil

Robert Gilmore Pontius Jr, PhD
Associate Professor of Geography
Clark University
950 Main Street
Worcester MA 10610
USA
EMAIL rpontius@clarku.edu
PHONE 508 793 7761
FAX   508 793 8881
WEB   http://www.clarku.edu/~rpontius

LITERATURE
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