Darla Munroe

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

I am interested in process-based models of urban change. My background is in applied economic analysis and I've developed several statistical applications to model urban land conversion and urban land value. I'm increasingly interested in integrating more political and social considerations into economic models. I've indirectly worked on environmental problems linked to urban growth (change in forest cover, farmland fragmentation and air pollution). These days I work in North America and Eastern Europe.

I'm actually very interested in reconceptualizing the rural relative to the urban. In traditional urban models, the rural is generally seen as a "hinterland" that is slowly conquered by urban in-migrants. In reality, rural landowners have a lot of agency and their activities are critical for how urban areas evolve and spread. I would like to address this more in my work.

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

Key challenges for me include the representation of complicated social processes in computational models. I think the computational modeling community should reach out to a broader audience for input. Some exciting developments are the new tools of geocomputation and that they are increasingly applied to revisit old problems that were previously considered intractable (e.g., relaxing spatial equilibrium assumptions of urban models).

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

This is a very good question. I'm not sure I have an answer. Part of the problem may be that in order to generate external funding, researchers have to demonstrate either the pressing nature of a problem in one location (i.e., the scope of the problem) or broader applicability (i.e., the generalizability of the problem). Perhaps we are failing in making a case for these two points in studying other, smaller cities. I think we may need to recast how we claim generalizability – i.e., looking at how similar processes are at work in diverse contexts, not that one context is a model for everyone.

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

I am not a very good programmer and it is hard to find collaborators who program well who are interested in the messy social science side. It is also challenging to work across the natural-social divide because our modes of work are so different. Regarding data, obtaining good quality historical data is a huge challenge.

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

We have so much more limited information for anything that happened before the launch of Landsat MSS, and especially before aerial photographs were available (beginning around 1940 in Ohio).

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

As I mentioned above, greater analysis of change at the urban-rural interface is needed. Thinking about "urban" and "rural" not as binary categories but as sets of interrelated processes is one first priority. I think longer, historical trends are needed (looking at multidecadal shifts, such as patterns of industrialization, deindustrialization) and their impacts.

Regarding methods, I think greater implementation of process-based modeling (i.e., mathematical representation of relevant social science theories) is required. But, our greater abilities for dynamic modeling are really challenging our tried-and-true theories – we need more integration between theory and what our new techniques can do.