

**TO:** Workshop Coordinators, UGEC-NASA workshop  
**FROM:** José Lobo\*  
**RE:** Answers to workshop questions  
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1. *What are the key urban remote sensing/urban modeling and forecasting issues that you represent?*

I am an urban economist who has been collaborating with physicists and economic geographers exploring questions around how socio-economic activities in urban areas scale with population size (“urban scaling”). One of the most pressing questions in urban economics and urban planning is to understand how urban size and shape affect energy consumption---and we are severely hampered by the absence of reliable U.S. data on urban energy consumption (in the aggregate, by households and by firms). The recent availability of CO<sub>2</sub> emissions data (the Vulcan Project) has given us a very valuable proxy, but a proxy nevertheless.

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

An exciting data-development in urban economics has been the reporting (by the Commerce Department’s Bureau of Economic Analysis (BEA)) of Gross Metropolitan Product (the equivalent for metropolitan areas of Gross Domestic Product). This now makes it possible to calculate the preferred measure of economic productivity: output per worker. Matching this metric with other socio-economic and environmental measure sought to make it possible to identify how scale, density and urban form affect productivity. But this will require a significant effort in data matching and integration.

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

Perhaps, in the case of the United States, this has been due to the scarcity of data comparable to that which is available for Metropolitan Statistical Areas (MSAs). But the Census Bureau, as well as other agencies of the Federal Government, are starting to report data for both MSAs and Micropolitan Areas (which together constitute Urban Areas) so we are now able to conduct investigation for a larger range of scales for urban agglomerations. [There are 367 MSAs and 577 Micropolitan Areas with MSAs accounting for about 82 of the country’s population while Micropolitan areas account for about 10%.]

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\* Research Faculty, W.P. Carey School of Business, School of Human Evolution and Social Change, and Graduate Program in Applied Mathematics for the Life and Social Sciences, Arizona State University. E-mail: jose.lobo@asu.edu.

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

Besides the absence of energy on energy consumption another important data limitation is posed by the highly restricted access to Census Bureau data on the birth and death of “establishments” (physical places of work). The formation of workplaces and businesses is one of the main activities undertaken by urban residents and a major component of urban “metabolism.” Proprietary, and comparable, data on business formation is available from Dun & Bradstreet but for a very steep price (\$250,000 for an initial two-years license renewable yearly for \$50,000.)

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

The data limitations regarding energy consumption and business formation severely limit our ability to measure and model “urban metabolism.”