Personal Background Note for UGEC-NASA Workshop

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

   My research interests relevant to this group include (a) the phenologies of urban land surfaces as manifested in various parts of the electromagnetic spectrum and the contrasts with and linkages to surrounding landscapes with lesser degrees of settlement patterns, and (b) how to forecast (or project) land change dynamics in and around urban areas so that they can be effectively represented in change scenarios.

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

   Key themes in my part of the planet include (a) managing urban growth amid changing demographics, (b) periurban colonization of agricultural lands, and (c) the promise/threat of biofuels.   A key challenge is imagining plausible scenarios for the better integration of the "Prairie City" with the provisioning potentially available from its ecoregion that is now dominated by cultivation of commodity crops.

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

   I think this may be readily explained by (1) the relatively small number of active investigators, (2) the allure of the big city, (3) interest from funding sources, including the interests of those on review panels, and (4) the theoretical and logistical challenges posed by the "middle-number problem".

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

   Time, attention span, and labor availability are the principal limiting factors in my research.

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

   I'm not sure we know yet what we should be monitoring. I suspect that understanding urban waste streams will be very important for forecasting. However, forecasting requires some sufficient maturity in theory and empiricism to distinguish among possible and probable future states on the basis of knowing the past and current states. Are we there yet?

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

   Although there have been several studies over the years looking at UHI and urban impervious surface, many of these are descriptive aiming to demonstrate the effect or a technique or to quantify areal extent. I think there is need to engage with both the urban climatologists and the civil engineers who handle the routing/treatment of water/wastewater. Further, there are additional portions of the electromagnetic spectrum that can be exploited for characterization of urbanized surfaces and their seasonality and change dynamics.