To *achieve* its mission, NOAA collects, analyzes and distributes data and information from across the organization to help the country (and indeed the world) prepare for future changes to the Earth’s systems. To *measure* its mission impact however, we collect, analyze and distribute an entirely different set of data and information, more than 90 percent of which are focused on output indicators. Output indicators are designed to assess the efficiency of programming implementation targets whereas outcome indicators are designed to assess programmatic impacts on social/environmental systems. In other words, outputs can tell a story of what’s been accomplished, but they cannot measure the value of those accomplishments. NOAA, like many government agencies, continues its important work, while struggling to articulate our impact, creating challenges in justifying our budget. With each NOAA line office characterizing its performance in the context of their mission requirements, there is no integrated view of NOAA performance except as the sum of these disparate parts. My proposed research will examine how NOAA could use more of those same data and observations we use to achieve our mission to measure our mission impact. I propose that remote sensing data can be the adaptive, flexible underlying framework for a place-based view of the systems we are charged with understanding and managing. Few have looked to these data as a potential resource for system-level planning and evaluation; remote sensing in the planning realm has been limited to *urban* planning or disaster response. NOAA CFO’s performance team continues to work to revise, edit and delete metrics as needed to arrive at a shorter set of measures that are illustrative of NOAA’s mission and useful as a management tool. This work is therefore timely, and of interest to NOAA leadership as well as senior executives across the mission lines responsible for NOAA budget formulation, planning, prioritization, execution and evaluation. It also yields value and cost rewards that could not only create efficiencies, but help stave off impending budgets cuts. Partners and users of NOAA data and information also stand to benefit from the articulation of impacts and the prioritization of assets and programs that such a system-wide view affords.