



## **Emergent Environmental Observatories**

Series Ed.: H. Loescher

The fundamental mechanisms underlying ecological processes, phenomena, interactions and feedbacks at regional-to-continental scales are poorly understood and limit the ability of scientists to make reliable forecasts of ecological change. New emergent environmental Observatories, like NEON, mean to address these challenges. As such, the large-scale spatial and temporal experimental designs are meant to capture seven Grand Challenges (GCs) for environmental science for the coming decades (NRC 2001, 2003); biodiversity, biogeochemistry, climate change, ecohydrology, invasive species, infectious disease, and land use change by adopting the cause and effect paradigm (Schimel et al. 2009). This approach has been advocated and deemed transformative by the National Academy of Sciences. New environmental research infrastructures are being developed to provide consistent, continental, long-term, multi-scaled data-sets and data products that serve as a context for research and education. This book series addresses these scientific and engineering approaches and realizes that emergent observatories are novel and transformative, and need to be communicated to the broader user communities. The series explores how research structures best challenge (ecological) theory and provide the information for prognostic understanding, particularly when they can elucidate regional or continental scale theory. This series is being funded and edited under the auspices of the National Ecological Observatory Network, Inc. (NEON). NEON is funded by the National Science Foundation.

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