

Dear Colleagues,

I am writing to share a pre-proposal that we submitted to the NSF Mid-Scale Infrastructure call, which was invited for a full proposal submission. We proposed to add infrastructure to Watersheds 1 and 3 that allowed us to build a high-fidelity data set documenting their spatial and temporal dynamics. The infrastructure would include:

- 1) a mesh network of soil and micrometeorological sensors,
- 2) a drone sensing system including a walk-up tower in an old rain gauge clearing at the top of Watershed 1,
- 3) stream-side laboratories at the weirs to analyze water isotopes and trace gas concentrations, and
- 4) a power transmission line to weir 1 and 3.

The project, if funded, would build these pieces between Oct 1, 2021 and Sept 2026, and be operated for ten years after construction. All data generated from these systems would be served in as close to real-time as possible.

This increase in data density would build on the already deep and comprehensive understanding of the forest that we have developed through the Hubbard Brook Ecosystem Study. In particular, it would allow us to test how internal catchment processes control whole-catchment water, energy, and element budgets.

The construction of the infrastructure would generate additional activity in the forest, the most disruptive being the installation of a power line. This line would be buried under an edge of the main Hubbard Brook road, and would thus disrupt traffic into the forest for approximately a month. Therefore, we are proposing a fall installation to minimize the impact on ongoing field work. The transmission line and the walk-up tower would be subject to NEPA permitting, which would be conducted in year 1 of the project.

Please be in touch with me if you have any questions or comments about the proposed infrastructure. The system would be a platform that can be built upon, so there will be opportunities to collaborate on system additions. Our goal is a project that adds value to the HBES as broadly as possible, so your input is valuable. We are, however, on a fast turnaround for the full proposal, which is due April 23rd.

Sincerely,

Mark Green
Scott Bailey
Peter Groffman
Kevin McGuire
Linda Pardo