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Understanding the effects of above- and belowground linkages on carbon cycling in a high latitude, coastal wetland

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Project Management Plan

Organizational Structure

As shown in the organizational chart below (**Fig 1**), PI Atwood will serve as a direct (co-) supervisor to both post-docs and the PhD student. Co-PI Waring will co-supervise the modelling post-doc, and Co-PI Beard will co-supervise the field post-doc and serve as the primary advisor to the MS student. All PIs will serve as committee members for the graduate students whom they do not directly supervise.

The field-based post-doc and PhD student will be responsible for establishing experimental infrastructure at the field site on the Y-K Delta, measuring plant productivity, sampling soils for nutrient analyses, and measuring trace gas fluxes. Atwood and Beard will train these project members in quantifying ecosystem C pools, and Waring will guide soil biogeochemical assays and protocols related to molecular microbial ecology. The MS student will be responsible for conducting the laboratory incubation experiment described in the proposal. The modelling post-doc will leverage data produced by the field post-doc, PhD student, and MS student to parameterize the MIMICS model.

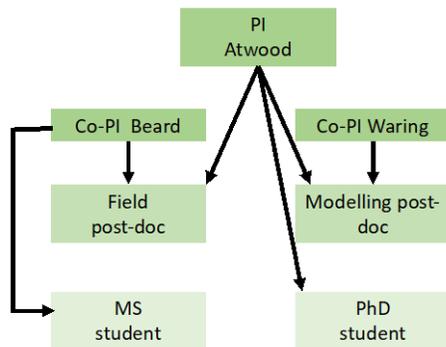


Figure 1. Organizational chart. Arrows indicate direct supervisory roles. All PIs will serve as committee members for PhD and MS students. Post-docs will have the opportunity to mentor graduate students and undergraduate research assistants in the lab and field.

Project Coordination Strategy

Team Meetings

Annual project meetings will be held at USU every January, and will be attended by Atwood, Beard, Waring, and all post-docs and graduate students. These meetings will provide opportunities to provide training, review data, and establish priorities for upcoming field excursions (**Table 2**). Additionally, to the extent possible, (co-) PI visits to the field site in Alaska will be timed to maximize overlap among the project team. Finally, all three PIs, the post-docs, and the graduate students will hold remote team meetings a minimum of four times per year to review progress, present data, plan field excursions, and identify any necessary changes or amendments to planned experiments.

Table 1. Overview of tasks at each in-person annual team meeting

| Annual Meeting | Tasks |
|----------------|---|
| January 2021 | Overview of field site (Beard); LI-COR training (Atwood); microbial sequence analysis mini-workshop (Waring); field season planning |
| January 2022 | Presentation of results from 2021 field season (post-doc/PhD student); data-model integration overview (post-doc); field season planning |
| January 2023 | Presentation of results from 2022 field season (post-doc/PhD student); incubation experiment results (MS student); model results (post-doc) |

Integration across USU and Imperial College London

The modelling post-doc will spend ~2 months annually in Co-PI Waring's lab at Imperial College London (ICL), where he or she will have the opportunity to work closely with Waring on model-related research, interact with other ICL researchers active in ecosystem model development, and take advantage of Imperial's extensive resources for post-doctoral scholars via the Post-doc and Fellows Development Centre. During the remainder of his/her time at USU, this post-doc will collaborate with other members of the project team, reviewing data as it is generated to parameterize and test the MIMICS model. While the post-doc is working at USU, Waring will meet with him/her remotely at least every other week to address project goals, Atwood will join these remote meetings once a month. In addition to the team meetings described above, Waring will meet with other project staff regularly as needed to review progress and provide appropriate mentorship to graduate students. Finally, to streamline collaboration, data will be shared among members of the research teams using the Box platform, which offers secure file storage and customizable sharing/security options.