

March 15, 2023 Joint Methods & CI Working Group Call

Attendees: Carl Boettiger, Quinn Thomas, Jonathan Borrelli, Jody Peters, Chris Jones. Jessica Burnett, Hassan Moustahfid

Regrets: Jake Zwart

Agenda/Notes:

1. Updates and Next Steps
 - a. CI Workshop Proposal - Google doc to collectively develop ideas
 - i. Goal: Identifying and filling gaps in CI/Methods for forecasting
 - ii. Update from Jake/Jessica
 1. Please provide feedback on Outcomes 1-3, format of the workshop, and funding sources.
 2. Anyone able to work on outcome 3?
 3. Appreciate Outcome #3, but if outcomes 1 and 2 fill up a 2.5-3 day workshop, then can put #3 on the back burner
 4. Any general feedback right now would be great
 5. Potentially focus on using HABs as 'case study'
 - iii. Seeking funding from NASA, NSF, USGS
 - iv. Has a government bent so that it will be implemented by agencies. But do want to include input from academia.
 - v. Also want to make sure to include solutions that work across academic/federal interfaces think this will be important for NSF
 - vi. Want to have a general framework that applies generally (not specific to academia or agencies)
 - vii. In the future, Jody/Mike can help Jake/Jessica with budgets.
 - viii. NOAA - working on modeling and sandboxes
 1. Hassan will add info to the top of the document about who he has connected with in NOAA about the proposal and will help to shop it around once the draft is ready
 - b. Brainstorm educational activities that could be developed/promoted by this group
 - i. Short term - any additional Unconference ideas?
<https://github.com/eco4cast/unconf-2023>
 - ii. Longer term ideas for educational opportunities related to CI/methods for the broader EFI community
 - iii. Stats seminar-like presentations or how to use the Stats webinars to bring people into EFI activities
 - iv. Reading group?
 - v. Discussion from call
 1. Forecasting methods stats webinar
 - a. Demoing tools, what they are, how to use them. Lower the barrier to forecasting

- b. Aspects of forecasting CI workflow that people want unpacked
 - i. How GitHub actions
 - ii. Reproducible research - techniques in that
 - iii. R/Python applied to forecasting. Tools that are statistical in nature, but that are computational in nature (docker containers)
 - c. Think about if there is a partner to work on webinars
 - d. Invite someone from Planetary _____ or AWS to provide an overview about computational resources
2. Unconference Ideas
- a. Jessica: Measure the impact EFI activities have on conservation and management
 - i. Is it a conversation focused on a certain set of bullet points that yield a framework for moving forward?
 - 1. Think about how to turn it into an outcome. A way forward. Identified next steps.
 - ii. From NASA - want to measure impact on humans/communities/ecosystems/biodiversity. Do we have any ways we can measure invasive species management and education
 - iii. How to measure "nature positive" and how we are doing. Like carbon accounting in an ecological context. Related to infrastructure and the need to be open source for how organizations come up with certain numbers.
 - iv. Relates to Outcome #2 that proposes to develop a decision framework to figure out when to make additional investments into forecasts operationalization
 - 1. Develop ways to measure impact on communities
 - b. Chris: spatial explicit forecasts. Group is working on building out Sobol method. Trying to use it for uncertainty partitioning. Have partitioned uncertainty across all cells as opposed to within one graph. Have data, have forecast, have part of the method up and running. Could bring that to the meeting to get input. Ideally would like it to be generalized. Sobol is used for vectors but not for rasters.
 - i. Don't have a vignette on how to use it yet. Chris' new grad student is working on it. Could have it in time for the conference. A vignette that uses the

- NEON Challenge data to demonstrate this could be cool.
- ii. Chris will put in project ideas on the GitHub Unconference repo for spatial and aspatial examples.
 - iii. Here is the only sobol analysis for spatial models that Chris has seen
 1. <https://gmd.copernicus.org/articles/15/5489/2022/>
- c. Jody: Documentation/resources/hands-on examples for tables at conferences
- i. A glossy resource to showcase what forecasts are, why it is useful
 - ii. From Jessica: I love this Jody, and actually I think ties well into the Impact Issue I was gonna add....maybe we should combine (with your proposed issue being the main topic) and 'measuring and communicating impact' just a small piece of yours?
 - iii. see also <https://github.com/eco4cast/unconf-2023/issues/9> -- 'communication'
- d. Dashboard
- i. GitHub is now stable so can update the documentation to include the link to it.
 - ii. Shiny app lets people see if there forecast was submitted. GitHub app doesn't do this.
 - iii. Two ways Carl envisions the dashboard being used by Challenge participants 1) See how they are doing relative to everyone else and 2) allow people to dig into individual forecasts so people can see how well their forecast is doing relative to the data
 - iv. Trying to wrap head around questions that people are interested in
 - v. Another part is making it easy for people to be able to do their own analyses with their forecasts or comparing across forecasts
 1. One part to work on is the documentation on the dashboard so it makes it easy for people to grab their data to do their own analyses
 2. Second part is the visualizations. Would like to be able to provide a library that is pre-built so people can get visualizations on their own

3. Want to learn where the intermediate layers are.
 - vi. Purpose of standards is to build tools on top of it for people to be able to do their own analyses so want to leverage that system to allow people to do analyses.
2. Other Resources/Previous Project Ideas
- a. Data Ingest, Cleaning, and Management Task View
 - b. Discuss papers that cover existing cyberinfrastructure or stats methods
 - c. Organize, present, or view presentations about topics in cyberinfrastructure or a stats method