

## October 12, 2021 Joint Methods & CI Working Group Call

Attendees: Libby Mohr, Matt Brousil, Chris Jones, Jody Peters, Kelly Heilman, Cee Nell, Jake Zwart, Rob Kooper

Regrets: Josh Cullen, Mike Dietze

Agenda/Notes:

1. Visualization/Decision Support Tools, User Interface Task View
  - a. Section 4 (feedback from Libby)
    - i. Focused on adding static resources
    - ii. Started to become overwhelmed because there are all different kinds of plots and different tools to make those plots
    - iii. Are there going to be any data or code examples?
      1. Show different types of visualizations
      2. Chris was planning on this for the interactive piece
      3. Data viz component - within types of plots section. Is the goal to explain when to use scatterplot vs when to use histogram/density plots
    - iv. Want to say what the different types of plots are used for - give people a common ground
    - v. Assume doing this with an eye towards forecasting. Yes want to focus on forecasting applications otherwise it could be easy for this to balloon out
    - vi. Why would you use a scatterplot in forecasting? Then the how - what tools you use in R and then have an example
    - vii. Have a paragraph or two as overview, then provide list of resources
    - viii. The Task View will be hosted in Bookdown, so we can point to repo that has that example
    - ix. Maybe don't need to provide examples for every tool. Could link to plots/code that has already been used. Or if there aren't good examples, then
    - x. If we wanted to create some examples - Matt is happy to write up something to harmonize
    - xi. Do people have databases?
      1. Could use something from NEON Challenge
      2. Quinn has file with database of all forecasts submitted
        - a. `read_csv("https://data.ecoforecast.org/analysis/combined_forecasts_scores.csv.gz")`
    - xii. Is there anyone who is good at plotting in Python or Julia?
      1. Libby has plotted in Julia.
  - b. Chris - doing Interactive Spatial Viz - point 10
  - c. Cee will think about the Gif/Video section - They work with Gifs in R so the focus/tools will be R-centric. This is okay since it is a living document and we can always add more non-R tools later if people have suggestions.

- d. Point 8 - Uncertainty Visualization - really want to highlight this since this is key for forecasting.
  - i. Can do uncertainty in 1-dimensional sense or 2-dimensional - error bars and CI, and could go up to 3-dimensional so could add time or space
  - ii. Think this section is really important - but wonder about making it different from other sections about plots.
  - iii. For example, - these are plots that show how to make uncertainty. To make it less repetitive.
  - iv. Show static charts and show a forecasting specific example. Because some charts are suited to uncertainty.
  - v. 1st section was originally called - Exploratory Data - so was broken down by what you use to visualize forecast vs what you use to look at data to do exploratory analysis.
  - vi. But since the focus is on forecasting then want to merge so there isn't redundancy.
  - vii. For animation section - use ensemble plot and animate through time
  - viii. Last week on Standards call - talked about uncertainty in forecasting and where it comes from. So important to highlight the importance of conveying uncertainty for forecasting.
  - ix. Want to show different ways to show uncertainty.
  - x. Show where the model comes from - stochastic vs process uncertainties. How can we visualize them. This gets into more interesting problem - uncertainty comes from multiple sources and how can we show that. For example, can use 3-D visualization to show the different types of uncertainty.
  - xi. This will be a good way to link to the Forecasting Standards
- e. Decision Support - how do we want to incorporate?
  - i. Right now we have section 12 - linking visualization to science and policy
  - ii. A lot of things in Section 12 is repeating tools that are listed above.
  - iii. More effective to incorporate decision support throughout
- f. There is value in having separate section on Uncertainty and User Interfaces
  - i. But could be useful to hint to it in previous sections and link to it in earlier sections.
- g. Section 13 - Environmental Decision Support - could be moved to Section 1 to talk about best practices and connects well with IDEA 3.
- h. Section 12 - Is this supposed to be tools or best practices? If best practices - should be moved to section 1
- i. Section 14 - Chris offered to lead, but not sure if this is meant to be how you call a model from a dashboard or something like the Phenology dashboard from the
  - i. Want to highlight both
- j. Section 6 - is this different from the Interactive Spatial Visualization Section 10?
- k. Libby to reorganize Section 4
- l. Think about keeping the outline and text as separate documents. Start with bookdown. Jody to work on setting this up.

- i. Follow up - In a side conversation with Jake and Mike, decided to continue to edit in the Google doc and then can either move text to Rmd or can use some package like [trackdown](#) to integrate Google doc and Rmd
2. Uncertainty Quantification & Propagation, Modeling & Stats and Workflow Task Views to use as Reference: <https://projects.ecoforecast.org/taskviews/>
3. Data Ingest, Cleaning, Management
  - a. Placeholder until we are further along with the other Task Views or have an identified leader for this
4. [NEON Ecological Forecast Challenge](#) CI Update