

February 23, 2024 Joint Methods & CI Working Group Call

Attendees: John Smith, Jaris Veneros Guevara, Dave Durden, Brittany Barker, Emma Mendelsohn, Jody Peters, Andy Goodwin, Carl Boettiger

Agenda/Notes:

1. Project Updates: Forecasting Wildfire Recovery Using MODIS Leaf Area Index (LAI)
 - a. Background of the project - the goal is to develop a spatially explicit forecast that could be used with the NEON Forecast Challenge cyberinfrastructure. This project was started at the EFI Unconference (summer 2023).
 - i. GitHub repo: <https://github.com/eco4cast/modis-lai-forecast/>
 - ii. This is a prototype for working with spatial data and for managing large datasets in geotiff format instead of the csv/netcdf format that had already been developed for the Forecast Challenge
 - iii. Here is the example of the standard Forecast Challenge CI: <https://github.com/eco4cast/neon4cast-ci> wanted to replicate this and apply to a spatial example for this project. This repo has workflows with GitHub actions that do tasks automatically - it gives a modular way to see what actions need to take place which we can use to check off what is done for the modis-lai spatial forecast example
 - iv. We are using the [STAC](#) framework - spatial temporal assets catalog - this allows for the Challenges to be discoverable
 - v. TERN example to use as reference: <https://projects.ecoforecast.org/tern4cast/>
 - b. List of Tasks to set up GitHub Action Workflow - how are we coming with these tasks?
<https://github.com/eco4cast/modis-lai-forecast/issues/10>
 - i. Targets generation - Jody thinks Dave has accomplished this, has the pull request been merged?
 1. Updated naming conventions from last call and now it merged
 - ii. Benchmark forecast generation - Jody thinks John is working on this
 1. John has code that works for the spatial temporal random walk - still needs to have meeting with Chris. In the meantime put up the code up in the workflow
 - iii. Scores
 1. Have climatological scoring done

2. Will (John's student) has worked on parametric scoring. Currently names a distribution (gamma, normal, etc)
 - distribution_parameter_XX naming convention
 - a. Modified Quinn's code to grab the tifs for different parameters
- iv. Submissions/validation - Jody thinks Emma has a pull request for this, has it been merged?
 1. Getting John's examples up is good to have before working on validation. But could take a stab at the workflow. Next month is very busy for Emma, so will have to wait until after that
 2. Could we use some of the sites from Justin Welty's wildfire dataset? Can we use it as a source of polygon?
 - a. Yes!
 - b. We can pursue this orthogonally - can drop in new polygons in David's targets. This could be a good exercise to go through. There are tons of fires in Justin's database - so is there some specific fires we should focus on?
 - c. Currently only have 2 fire in the targets so want to expand from there
 - i. East Troublesome Fire - it is built in to the targets and is in Colorado - still probably coniferous fire, but maybe different species from the CA fire
 - d. Want to filter out to get the higher quality polygons - use more recent fires
 - e. Knowing the year, knowing ecosystem diversity. In current fire, think it is mostly conifer. Think many of the fires are for the Basin - so high desert
 - f. Thinking about cultural burning may be another thing to consider since this will be of interest to Indigenous partners - don't think these fires would be in Justin's database since that is mainly on federal lands, but we can ask
 - g. Whatever fires we want to add - just need to add them to the shp folder - and all that is needed is a shp file with the relevant dates

- h. Brittany is willing to look at the fire dataset to
 - v. Generate Dashboard/visualizations
 - 1. Wait on this until we have the benchmarks and targets running
 - vi. Generate STAC collections for forecasts, targets, scores tifs
 - vii. Should we schedule a co-working call?
 - 1. Yes!
 - 2. March 8 - 2 hours
 - 2. Check in with John - how is the parametric scoring going? Did John get a chance to connect with Chris about the icar model/random walk analog
 - 3. Discuss ideas for options to submit a proposal to support the development of this project
 - a. Nice next step - chatting with program officers about scope
 - b. John has offered to lead a proposal in the past and is still interested with help from others in the group
 - i. Teaching 2 new preps right now - so working on it over the summer/fall is better for his timeline
 - c. Emma and Brittany are interested in participating
- NASA ROSES -
- <https://nspires.nasaprs.com/external/solicitations/summary.do?sollId={DD4F42B0-D00E-2895-325A-48ECDA13DA58}&path=&method=init>
- i. Proposal due Apr 8 is related to wildland fires - this is when the letter of intent is required. The full proposal is due in May
 - ii. Brittany will look into this more, but booked until first of April
 - iii. There is also a modeling prediction one
 - iv. Quick email to program officers - this is what we have in find, we have a collaborative proposal which may be more unique than other proposals
 - v. Brittany will reach out to the program officer
 - d. If go with NASA, can propose moving toward QUBES stats that will give better resolution spatially and temporally and is a NASA product
 - e. Can make a pitch that we are coming at it from an ecology perspective - section 47-3
 - f. 47-2 - inform decision making - we are in that space
 - g. Life cycle of fire mentions planning for mitigating and recovering. Our emphasis is on ecological recovery.
 - h. Thinking about NSF timelines - could pitch to core programs. For Bio they are all rolling. Think it would be so different from the NASA
 - i. Target for NSF would be modeling and evaluating methods
 - ii. NASA target would be providing deliverables for managers
 - iii. So don't think there would be overlap between the two types of grants
 - i. Proof of principle grant - smaller budget to get a basic competition going and then come back to think about how to scale up

- j. Jody is happy to help coordinate across institutions
 - k. ESTCP - call for nature based solutions in arid landscapes
 - i. <https://www.serdp-estcp.mil/workingwithus/fundingprocess>
 - ii. scroll to the bottom for FY 2025 proposal guidance
 - iii. Implementation of the science
 - iv. Nature based solutions in arid landscapes, specific call:
<https://serdp-estcp.mil/workingwithus/callforproposal?id=13b8ee7a-bba0-4d71-b257-11a1024464a4>
 - v. Really want justification on the benefit cost - you said you are doing this, how will it save DoD money. The way you calculate that needs to pass
 - vi. Andy Chubaty is willing to help with this
 - l. If people come up with other funding opportunities that fit, let the group know
4. **This is for reference, not necessarily needed for today's call:** Resources from Justin Welty's visit on the November call (see full list of notes from the call in the link to the Nov calls above)
- a. Databases and tools mentioned
 - i. [Geodatabase of wildfires](#)
 - ii. [Wildfire Fire Trends Tool](#)
 - iii. [Land Treatment Exploration Tool](#)
 - iv. [RAD framework](#)