

November 17, 2025 Joint Methods & CI Working Group Call

Attendees: Bonnie Ahr, Jody Peters, David Durden, Brittany Barker, Gregor Siegmund, Will Hammond, Mike O'Brien

1. [EFI2026 Conference](#) in Toronto on August 4-7. Working groups and workshops will take place on August 4. More details to come.
 - a. Proposals for Workshop & Working Groups are now open until January 23
 - b. **Working Groups** provide extended time (1/2 day or full day) to work on specific projects with others in the EFI community. These sessions, open to all conference participants, will take place on August 4. Working Groups can be related to the standing EFI Working Groups, other projects, or targeted topics of discussion of interest to the EFI community that will benefit from dedicated in-person time at the conference.
Submit working group ideas to: <https://bit.ly/efi2026-workinggroups>
 - c. **Workshops** are an opportunity to provide topical training, tutorials, and demonstrations for the EFI community. Workshops are approximately 1-2 hours in length and will be interspersed in the schedule on August 5-7.
Submit workshop ideas to: <https://bit.ly/efi2026-workshops>

2. Parallel Processing (Brittany) - The objective is to learn how to use packages like "parallel", "foreach", and "doParallel" packages in R to speed up geospatial data processing. We'll specifically be working with gridded climate data (rasters).
 - a. Note from Brittany: instructions for Monday's demo if you'd like to try to run code in the R Markdown file as I'm working through the demo.
 - b. Clone/download the repo at: https://github.com/bbarker505/parallel_demo
 - c. Install the following R packages: USAboundaries, dplyr, tibble, knitr, terra, sf, parallel, doParallel, foreach, furr, future
 - d. Note: USAboundaries can't be installed from CRAN. Do this instead:
 - e. `remotes::install_github("ropensci/USAboundaries")`
 - f. Don't move any of the associated data files (keep file structure the same)
 - g. I'll be working on RStudio Server on a Linux machine for this demo. I must warn you that the code will run on Windows but parallel operations are actually slower. I only recently got a Windows machine that can handle parallel operations and haven't yet had time to troubleshoot. (Maybe we'll have time to figure out the Windows thing together 😊).
 - h. Notes from the call
 - i. Brittany helped develop DDRP - degree day
 - ii. Models for invasive insect pests, plant pathogens, invasive weeds
 - iii. Input data - gridded temp data, and SMAP (soil moisture from NASA)
 - iv. Why Brittany needed parallelization - had computational overload.
 1. Can now run 4 cohorts in parallel. Then for each cohort has 4 temp raster tiles that gets run in parallel which reduces run time from 7 hours to 20-40 minutes
 - v. Packages for today

1. Foreach - need to have doParallel to run multiple cores in your computer and then executes processes in parallel
2. Parallel package - uses mclapply and mcmapply
 - a. NOTE! mclapply does not run on Windows
 - i. mclapply works the same as lapply
 - ii. foreach vs mclapply - use foreach if you are working on windows or working with people who use windows
- vi. Brittany hasn't been able to run in parallel on Windows, so does her work in Linux
 1. Will has used doparallel on Windows - there was set up needed to make it work
 2. Setting up the job to run in parallel can make it take longer than running in parallel
- vii. future_map function - very similar to mclapply
 1. furr and future packages
 2. Runs extremely slow - so not a bonus for reducing time. But perhaps in some cases it might be a useful function. Perhaps just not for raster data. It is the multisession call that is slowing it down
 - a. Use multisession in Windows - multisession is making a bunch of r sessions in the background, like what you need to do with Windows
 - b. Use multicore in Linux
 3. <https://grantmcdermott.com/ds4e/parallel.html#forking-vs-sockets>
 4. <https://mirai.r-lib.org/articles/parallel.html>
 5. <https://mirai.r-lib.org/articles/mirai-xparallel.html>
 6. <https://future.mirai.futureverse.org/>
- viii. R User Groups - you can find if any are near you here:
<https://www.meetup.com/pro/r-user-groups/>