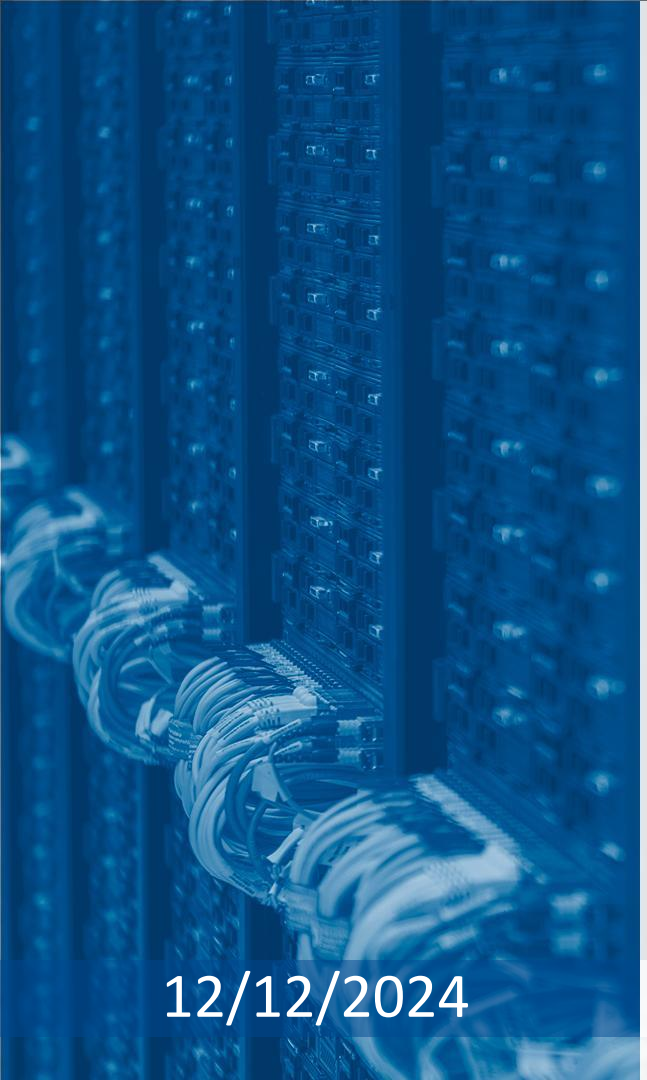

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R user meeting

12/12/2024

Victòria Agudetse, Ariadna Batalla, Theertha Kariyathan

Agenda

1. Ice-breaker: package ‘christmas’
2. News
    - startR
    - s2dv
    - CSTools
    - CSIndicators
    - esviz
    - SUNSET
3. Survey results
4. Q&A

Ice-breaker:
R package ‘christmas’

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R Package ‘christmas’

christmas is a package that **creates different Christmas cards.** Some are cute, some are funny, some don’t really work that well. Let’s take a look…

```
library(christmas)
xmascaganer(year = 2025, language = "catalan", seed = 1)
xmasepitree(year = 2025)
xmashealth(year = 2025)
xmashelix(year = 2025)
xmasneon()
xmaspicasso(year = 2025, language = "catalan")
xmasregression(year = 2025, language = "english")
```

You can see all the functions in the package documentation. Happy Holidays!

startR

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Improve error message about missing dimensions

Start() returns an error message if any of the specified dimensions are not found in some of the requested netCDF files:

```
> Could not find the dimension 'lat' in the file. (...)
```

If there was more than one dimension missing, the error message used to look like this:

```
> Could not find the dimension 'latlon' in the file. (...)
```

Now, it looks like this:

```
> Could not find the dimension(s) 'lat', 'lon' in the file. (...)
```

MR: https://earth.bsc.es/gitlab/es/startR/-/merge_requests/243

status: in master

Possible deprecation of ecFlow as workflow manager

startR can be used to load heavy data in chunks and apply a user-defined function to each chunk. It can use a workflow manager (**Autosubmit** or **ecFlow**) to execute the chunks in parallel on an HPC.

Currently, both workflow managers are supported, but we are considering deprecating ecFlow, because:

1. We have internal support for Autosubmit
2. Newer ecFlow versions seem to give some problems in the BSC-ES Hub
3. It will be time-consuming to do new developments for two different cases

Possible deprecation of ecFlow as workflow manager

The decision is not final yet, and ecFlow will continue working as it is **at least for as long as we have the workstations** and possibly longer if we can easily solve the issues in the Hub.

Steps to do before deprecation:

1. Solve some minor bugs in the implementation of Autosubmit
2. Update the practical guide
3. Update all use cases
4. **What else do you need to support you in this transition?**

s2dv

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RandomWalk bugfix

Bugfix in .RandomWalkTest() when “A_better” or “N.eff” is NA.

```
if (isFALSE(N.eff)){N.eff <- length(skill_A)}

   if (!is.na(output$score) & N.eff >= A_better) {
     p.val <- binom.test(x = A_better, n = floor(N.eff), p = 0.5,
                         conf.level = 1 - alpha,
                         alternative = test.type)$p.value
```

```
Error in if (!is.na(output$score) & N.eff >= A_better) { :
  missing value where TRUE/FALSE needed
```

Comparing an NA in an if() clause gives an error

```
> if (NA >= 1) {print ("hello")}
Error in if (NA >= 1) { : missing value where TRUE/FALSE needed
```

RandomWalk bugfix

Bugfix in .RandomWalkTest() when “A_better” or “N.eff” is NA.

```
if (isFALSE(N.eff)){N.eff <- length(skill_A)}

   if (!is.na(output$score) & N.eff >= A_better) {
   if (!is.na(output$score) & isTRUE(N.eff >= A_better)) {
     p.val <- binom.test(x = A_better, n = floor(N.eff), p = 0.5,
                         conf.level = 1 - alpha,
                         alternative = test.type)$p.value
```

Now if N.eff or A_better is NA the condition returns as FALSE.

MR: https://earth.bsc.es/gitlab/es/s2dv/-/merge_requests/197
status: in master

CSTools

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New methods to .make.eval.train.dexes()

- Nuria added new cross-validation methods to the function .make.eval.train.dexes().
- The function creates training indices for different cross-validation methods.
- The new methods are tested and unit tests were added.
- Next we will focus of simplifying the function and making it visible to the user with its own documentation.

issue: https://earth.bsc.es/gitlab/external/cstools/-/issues/150

status: in branch dev-cross-indices

esviz

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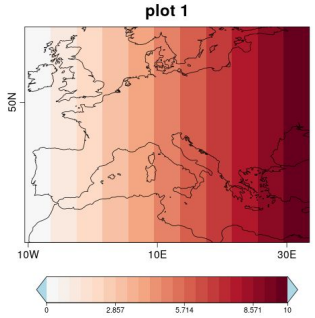
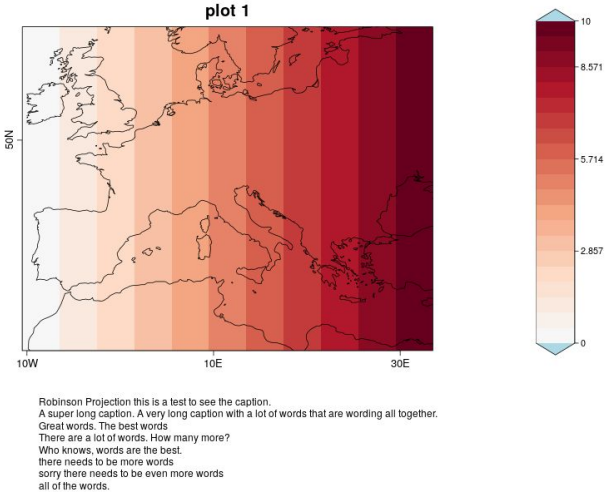
New parameters: caption + vertical colorbar

- **caption**: a character string of the caption located at left-bottom of the plot. Use "\n" to indicate a new line.
- **caption_size**: scale factor for the figure caption. Default is 0.8.

- **vertical**: TRUE/FALSE for vertical/horizontal colour bar. Default is FALSE. Parameters 'width' and 'height' might need to be modified to accommodate the vertical colour bar.

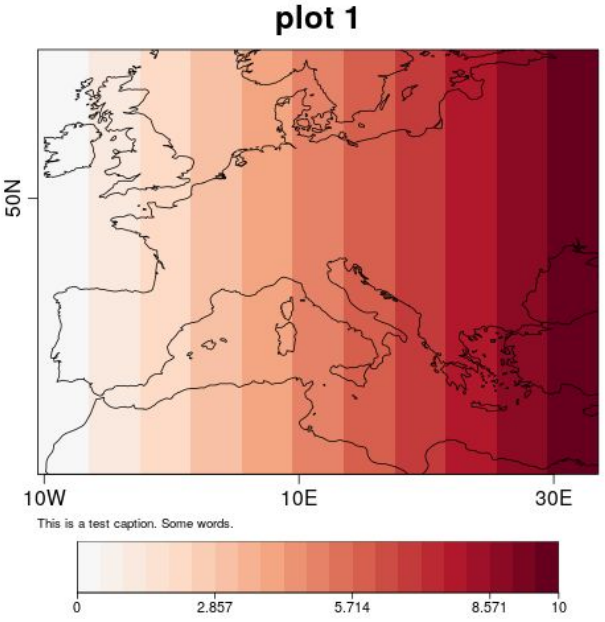


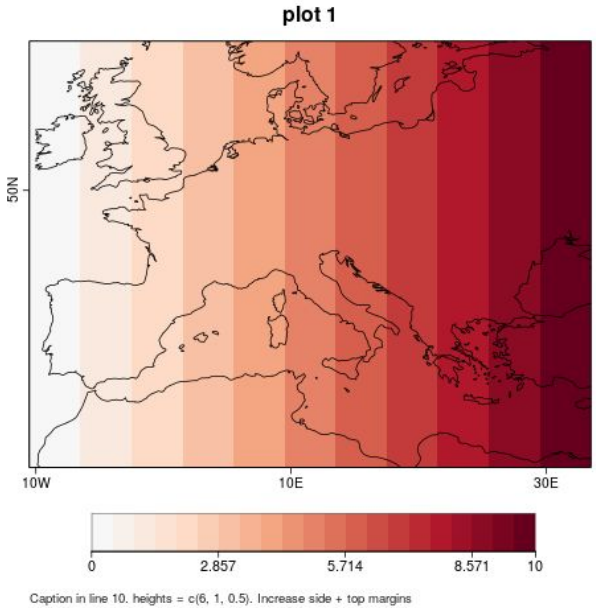


New parameters: caption + vertical colorbar

Question:

- When the color bar is horizontal, should the caption be placed above or below it?





SUNSET

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Launching jobs on CTE-AMD and MN5

The launch_SUNSET.sh script can now be used to launch jobs on CTE-AMD and MN5.

1. **Without Autosubmit:** Your output directory 'Output_dir' should be in **/gpfs/.** You can launch the script directly from the HPC machine.
2. **With Autosubmit:** Your output directory 'Output_dir' should be in **/esarchive/**, and you should launch the script from the Hub or a workstation. A temporary directory will be created in your /gpfs/scratch/ automatically. When all the jobs finish, the outputs will be transferred back to **esarchive** and the temporary files will be cleaned.

We are working on a hands-on tutorial to show the step-by-step process.

issue: https://earth.bsc.es/gitlab/es/sunset/-/issues/149
status: in master

Downscaling module updates

There have been some updates from the Intlr() function from CSDownscale:

1. In the `lr_method = "9nn"` option, Principal Component Analysis (PCA) is applied. A bug related to this application was identified in the function and has been corrected.
2. If `exp` ("hindcast") and `exp_cor` ("forecast") have the same number of members, each member is now downscaled individually, so that the downscaling equations derived from each hindcast member are applied to the same forecast member.

MR: https://earth.bsc.es/gitlab/es/sunset/-/merge_requests/174

status: in master

Documentation improvements

We have added some new information to the SUNSET README.md file detailing the first steps to using the tool: https://earth.bsc.es/gitlab/es/sunset#getting-started-with-sunset

Remember that, additionally, we have:

- The wiki
- Step-by-step use cases
- A recipe template

We are working on more improvements. If you have any suggestions or miss anything, please comment in this issue: Documentation: Errors, improvements and changes

R user meeting survey

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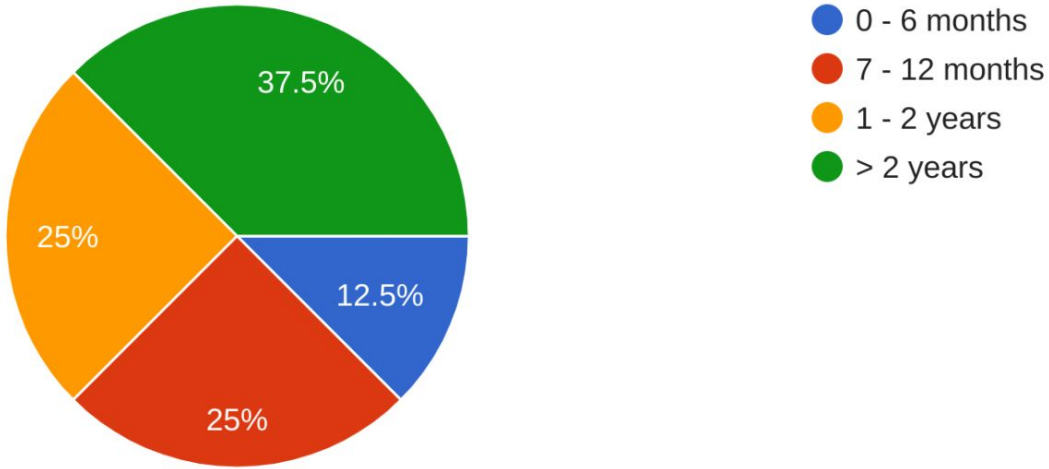
R user meeting survey

0. How long have you been in the BSC R community

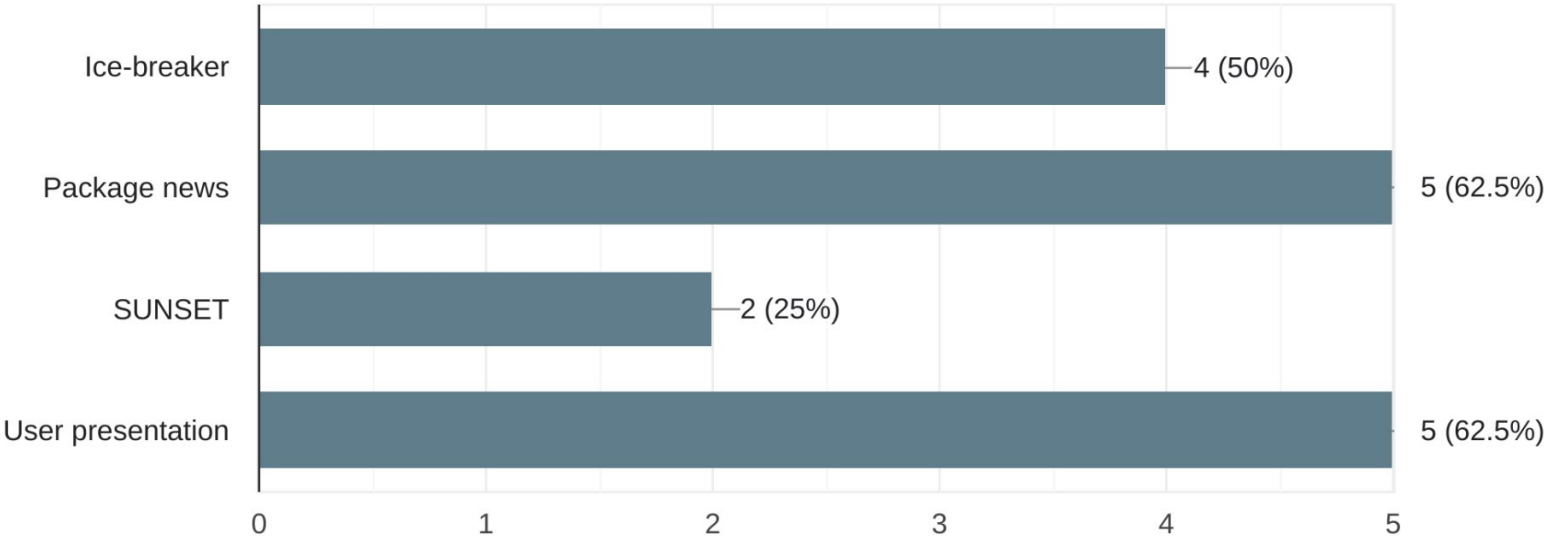
8 responses



R user meeting survey

1. Which parts of the user meeting do you find useful?

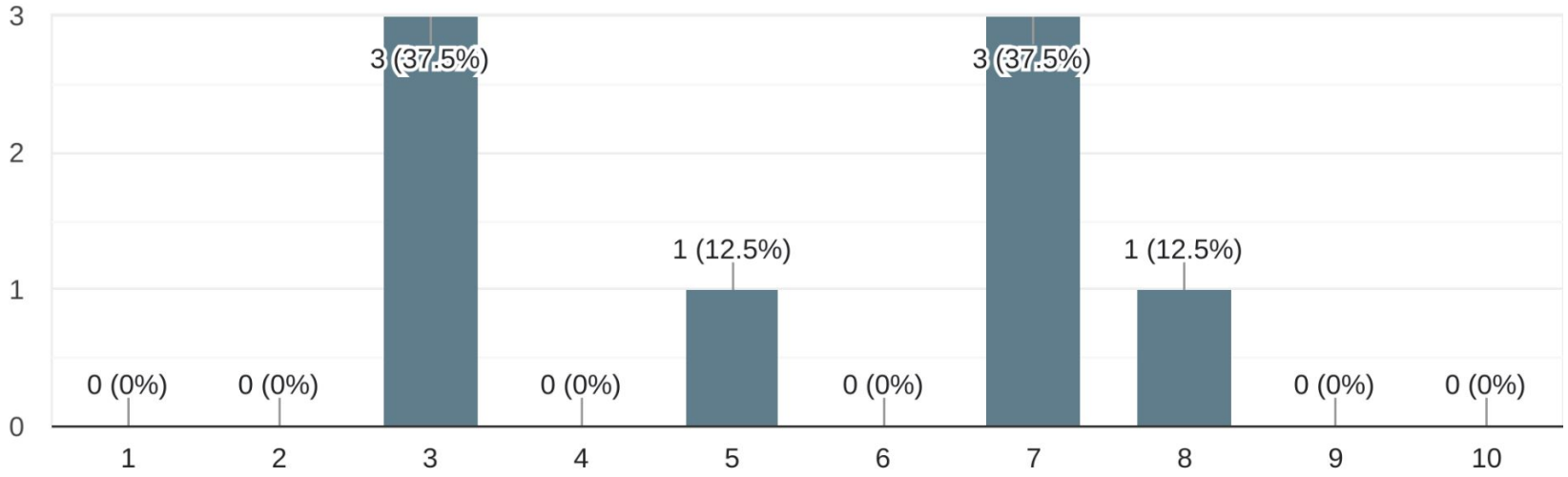
8 responses



R user meeting survey

2. What percentage of the PACKAGE NEWS can you follow usually?

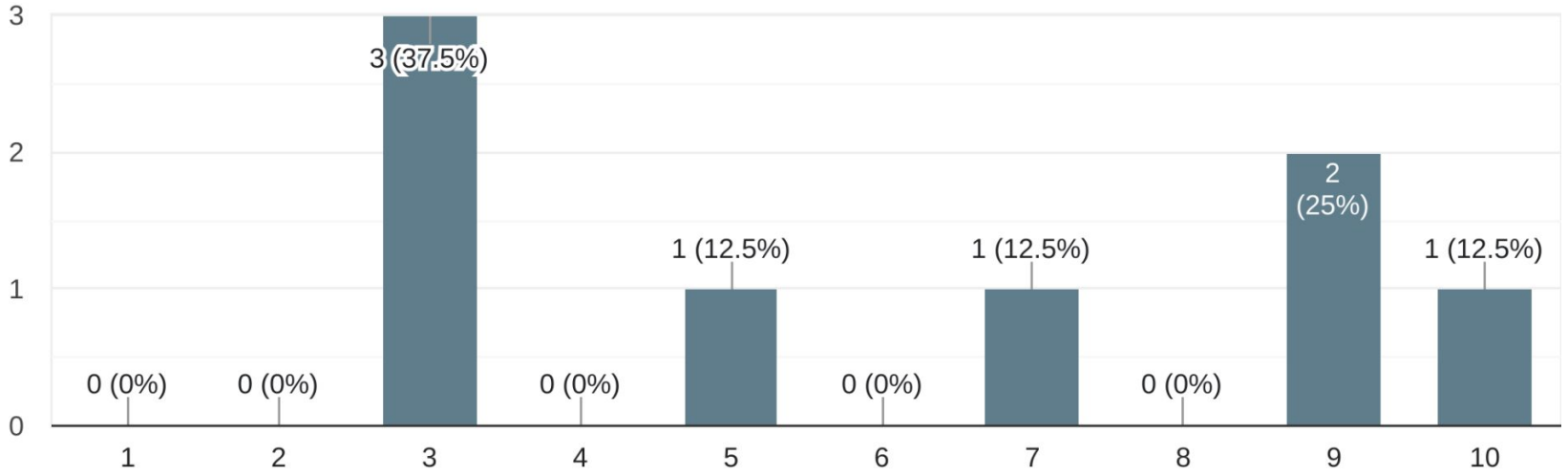
8 responses



R user meeting survey

3. What percentage of the SUNSET UPDATE can you follow usually?

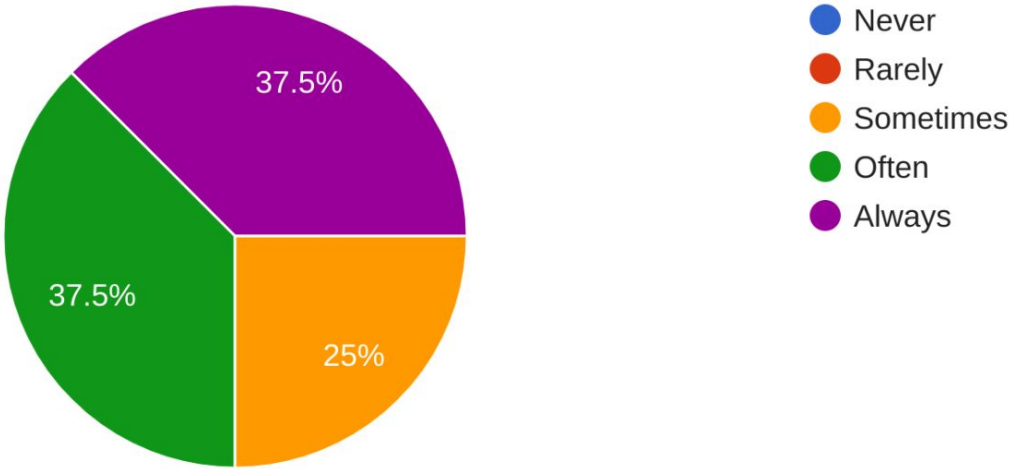
8 responses



R user meeting survey

4. How often do you attend R user meetings?

8 responses



R user meeting survey

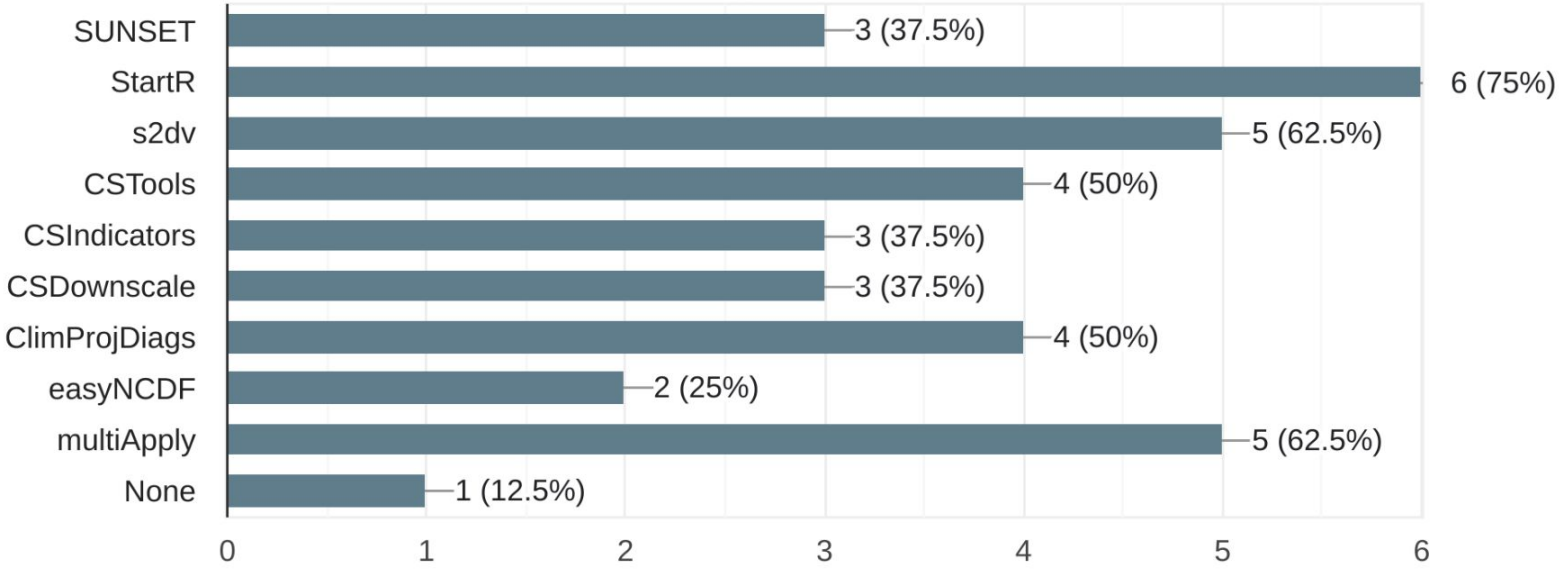
5. We are considering replacing some R user meetings with R support hours, where the R Dev Team books a meeting room and the users can come durin...r meeting to be replaced with an R support hour?

8 responses

R user meeting survey

6. Which internal packages/tools do you use? Note that if you only use the package within SUNSET, you should only select SUNSET.

8 responses

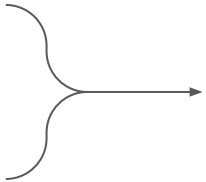


R user meeting survey

7. What things did you find difficult when you started using R tools in our department? Is there any missing information that would be nice to have?

Difficulties:

- Difficulty knowing which what the packages do and how to use them
- Difficulty using MultiApply, startR, SUNSET
- Configuring RStudio/VSCode in Nord3 and MN5



Nice to have:

- Documentation,
- exercises / use cases
- R packages guide / summary

How can we make the information more easy to access?

R user meeting survey

8. Do you have any other suggestions/requests/feedback?

- Help in improvement of functions
- Showing and sharing codes during the User presentation, with some to-do and not-to-do personal feedback of the presenter.

Thanks for joining

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Next meeting: February 6th