ACCORD

A Consortium for COnvection-scale modelling Research and Development

Topical Session about DOCUMENTATION

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5th ACCORD All Staff Workshop
Zalakaros, 31 March – 4 April, 2025

TOPICAL SESSION about Documentation

1) ACCORD Scientific - Technical documentation

DISCUSSION 1

2) Documentation of the Namelists in ACCORD

DISCUSSION 2

3) Welcome pack. User's guides, Tutorials, How To's.

DISCUSSION 3

4) Code Related Documentation. ACCORD GitHub
5) Reports of WW, Meetings and ACCORD Stays. ACCORD Wiki

FINAL DISCUSSION

TOPICAL SESSION about Documentation

1) ACCORD Scientific- Technical documentation

DISCUSSION 1

1) ACCORD Scientific-Technical documentation

Current STATUS:

- There are some parts already documented but not centralized in an ACCORD place.
- Lack of documentation within ACCORD framework.

What we DO intent:

- Have a transversal documentation across all the scientific areas written taking into account the different model versions.
- Help ACCORD members, including the newcomers, to have a general overview of the topic they work with.

What we DO NOT intent:

To provide a full expert knowledge updated about anything.

1) ACCORD Scientific-Technical documentation

Existing documents:

- IFS documentation https://www.ecmwf.int/en/publications/ifs-documentation
- GMAPDOC documentation https://www.umr-cnrm.fr/gmapdoc/
- SURFEX documentation https://www.umr-cnrm.fr/surfex/
  In Hirlam the repositoty: https://github.com/Hirlam/SFXDOC
  In ACCORD the repository: https://github.com/ACCORD-NWP/SURFEX-NWP

And NEW documentations in ACCORD have already started:

1) Harmonie Cy46 Scientific Documentation

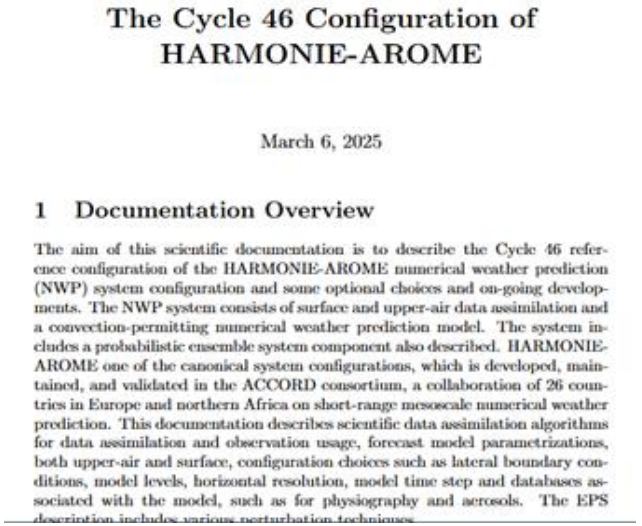
2) Scientific documentation for PHYSICS parametrization in ACCORD

1) ACCORD Scientific-Technical documentation

SOME examples that have already started:

1) **Harmonie Scientific Documentation** : Description of the Harmonie forecast Model , first in LATEX to https://github.com/Hirlam/HarmonieScientificDocumentation and written by Hirlam PLs.
   In this case this doc is scientific, the technical part is on Hirlam/GitHUB/ Wiki https://hirlam.github.io/HarmonieSystemDocumentation/dev/

STRUCTURE:

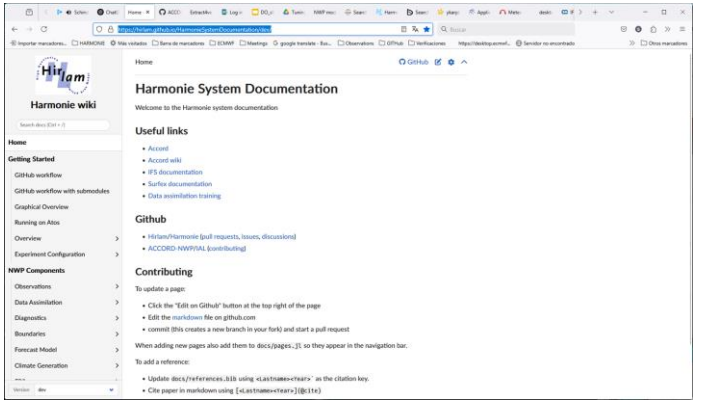


The Cycle 46 Configuration of HARMONIE-AROME

March 6, 2025

1 Documentation Overview

The aim of this scientific documentation is to describe the Cycle 46 reference configuration of the HARMONIE-AROME numerical weather prediction (NWP) system configuration and some optional choices and on-going developments. The NWP system consists of surface and upper-air data assimilation and a convection-permitting numerical weather prediction model. The system includes a probabilistic ensemble system component also described. HARMONIE-AROME one of the canonical system configurations, which is developed, maintained, and validated in the ACCORD consortium, a collaboration of 26 countries in Europe and northern Africa on short-range mesoscale numerical weather prediction. This documentation describes scientific data assimilation algorithms for data assimilation and observation usage, forecast model parametrizations, both upper-air and surface, configuration choices such as lateral boundary conditions, model levels, horizontal resolution, model time step and databases associated with the model, such as for physiography and aerosols. The EPS description includes various perturbation techniques



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1) ACCORD Scientific-Technical documentation

SOME examples that have already started:

2) Scientific documentation for PHYSICS parametrization in ACCORD -

LATEX doc template prepared by Meto

General parts with different sections for the 3 CSC: HARMONIE, AROME and ALARO in case they differ between them.

Meto has suggested some of the people of his team to fill the different parts.

STRUCTURE:

1 Turbulence and convection
2 Cloud macrophysics
3 Radiation
4 Cloud-precipitation microphysics
5 Aerosols and theit link to radiation and clouds
6 Surface-Atmosphere coupling

ACCORD scientific documentation on physics parameterization

Metodija Shapkalijevski *(SMHI)*
Name and Surname *(Affiliation)*

March 6, 2025

1) ACCORD Scientific-Technical documentation

PROPOSED structure **TEMPLATE for each area:** DA, Physics, Dynamics…

For each COMPONENT/Chapter: Common ACCORD part CSC dependent

State of the Art		Links to existing documents (IFS etc)
Scientific part	**Main Assumptions**	relevant for the code
	Main equations	relevant for the code
	Main variables	relevant for the code (include rage of recommended values)
Technical part	**Data structures**	Link between equations and variables
	Call TREES	just the most relevant ones
References		

1) ACCORD Scientific-Technical documentation

ACTIONS:

- **Build** a documentation for all **the ACCORD AREAS**:
  PHY,DA, SFC, DYN, MQA and EPS.
- Further investigate the practical conditions of use of tools: eg. Overleaf with a pay-plan solution

HOW to proceed with this NEW documentation:

- Start with LATEX document (Overleaf) and later on upload it to GitHUB ACCORD (version controlled + need to be updated). LATEX Templates would be provided

- It will be coordinated by the DO and the MG according to the different area topic and ACCORD scientists would be proposed to fill the parts related to their area of expertise.

1) ACCORD Scientific-Technical documentation

DISCUSSION 1

QUESTIONS to discuss:

1) Which is the level of technical details that people expect to have?

2) What do people think of having a CSC dependent parts?

3) How do we handle the existing documentation? Either provide the link (the existing doc remains the ref) or project it into the ACCORD documentation (and the ACCORD one becomes the new reference and is maintained) ?

TOPICAL SESSION about Documentation

2) Documentation of the Namelists in ACCORD

DISCUSSION 2

2) Documentation of the Namelists in ACCORD

ACCORD Namelist Repositoty

https://github.com/ACCORD-NWP/ACCORD_namelists/tree/main

3 folders: ALARO, AROME and HARMONIE-AROME

Goal :
Share all the Namelist and its particularities for the 3 CSCs

How: **QUESTIONS to discuss:**

DISCUSSION 2

Provide a REFERENCE per CSC to simplify the comparison.
And also details for different operational configurations can be stored.

How to document the switches, values and/or the reasons to setup the model?
Better to do it in the namelist itself or in a markdown/LATEX format (**readme.md**) ??

TOPICAL SESSION about Documentation

3) Welcome pack. User's guides, Tutorials, How To's.

DISCUSSION 3

3) User's guides, Tutorials, How To's. Welcome pack.

WELCOME PACK

https://github.com/ACCORD-NWP/ACCORD_documentation

Webinars or Tutorials about:

- How to use GitHub for ACCORD: accounts, teams, tokens, forking workflow, use of issues/PRs, ...
- Contributing guidelines, incl. links to Coding Norms, Scientific doc of the models,, Davai User Guide, etc...
- How to create tickets (if something you find wrong); etc
- Organisation of NWP projects: IAL, OOPS, etc…
- GPU refactoring consequences
- Error debugging
- Good coding practices

DISCUSSION 3

More ideas/needs of TUTORIALS to do?

TOPICAL SESSION about Documentation

4) Code Related Documentation. ACCORD GitHub
5) Reports of WW, Meetings and ACCORD Stays. ACCORD Wiki

FINAL DISCUSSION

4) CODE Related Documentation

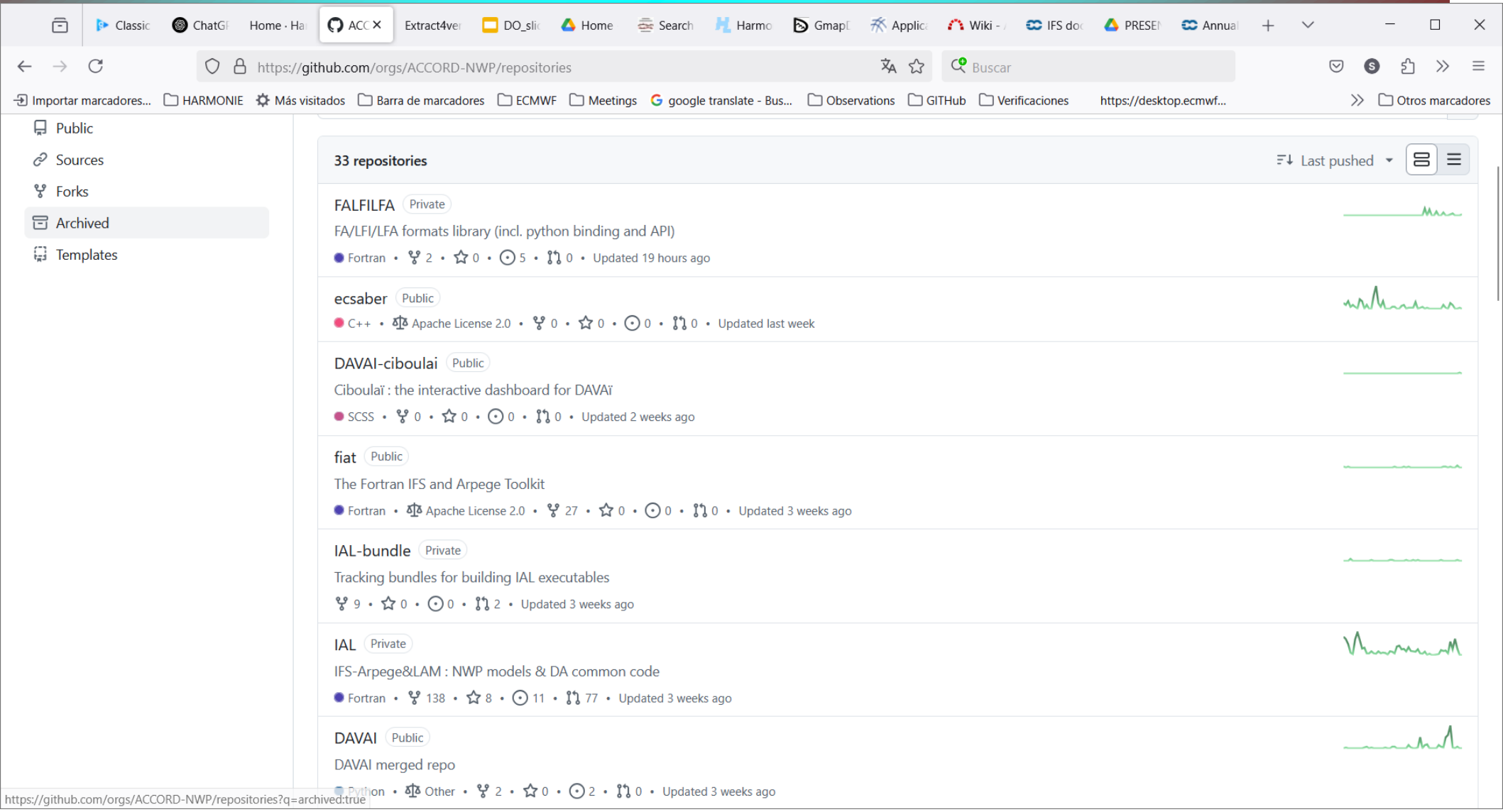
https://github.com/ACCORD-NWP 33 repositories

Discussions about Code at the GitHub FORUM:
https://github.com/orgs/ACCORD-NWP/discussions

NEEDS:

Different description of each one depending on the repository. The description should be in README.md

4) CODE Related Documentation



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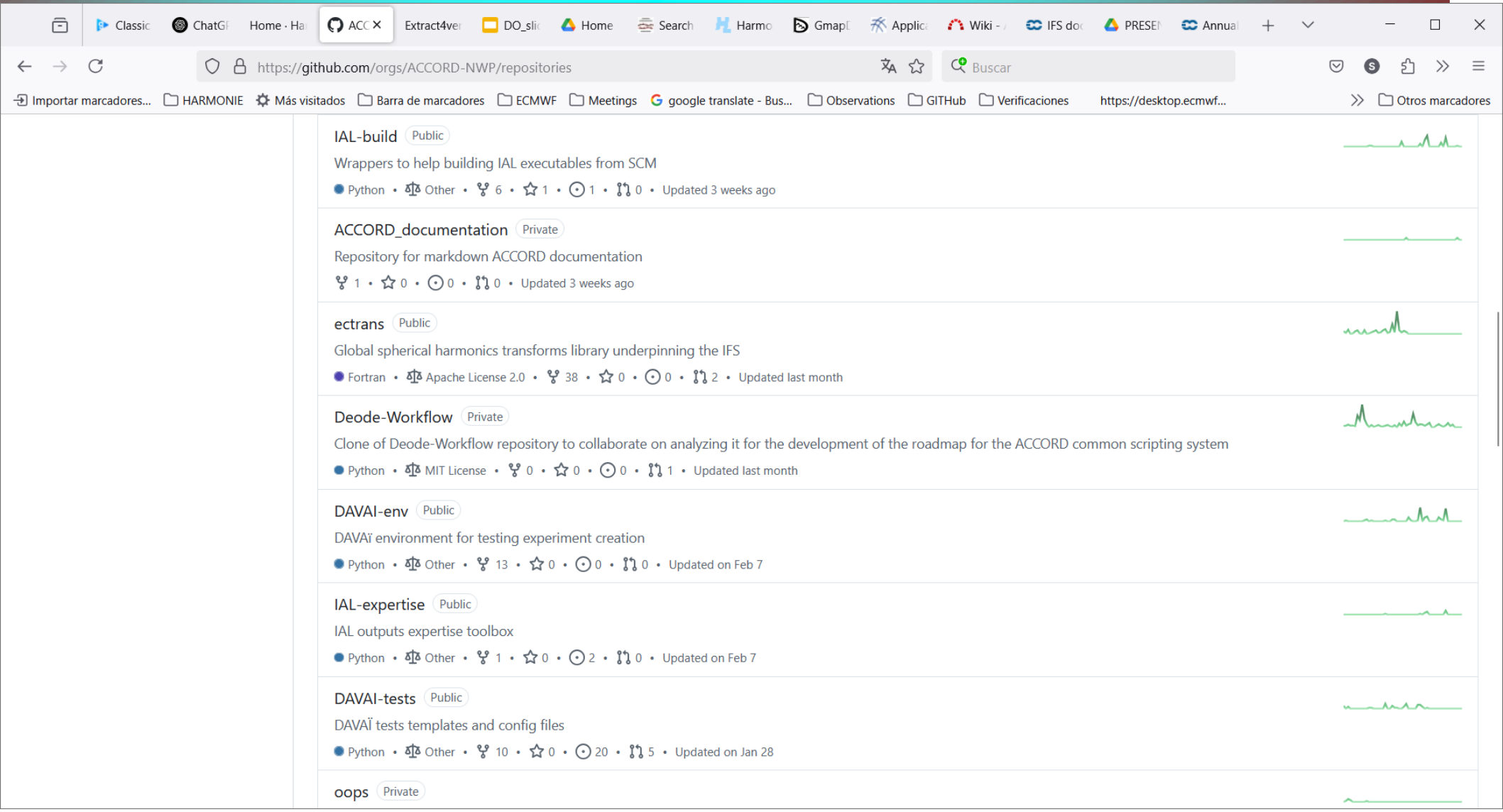

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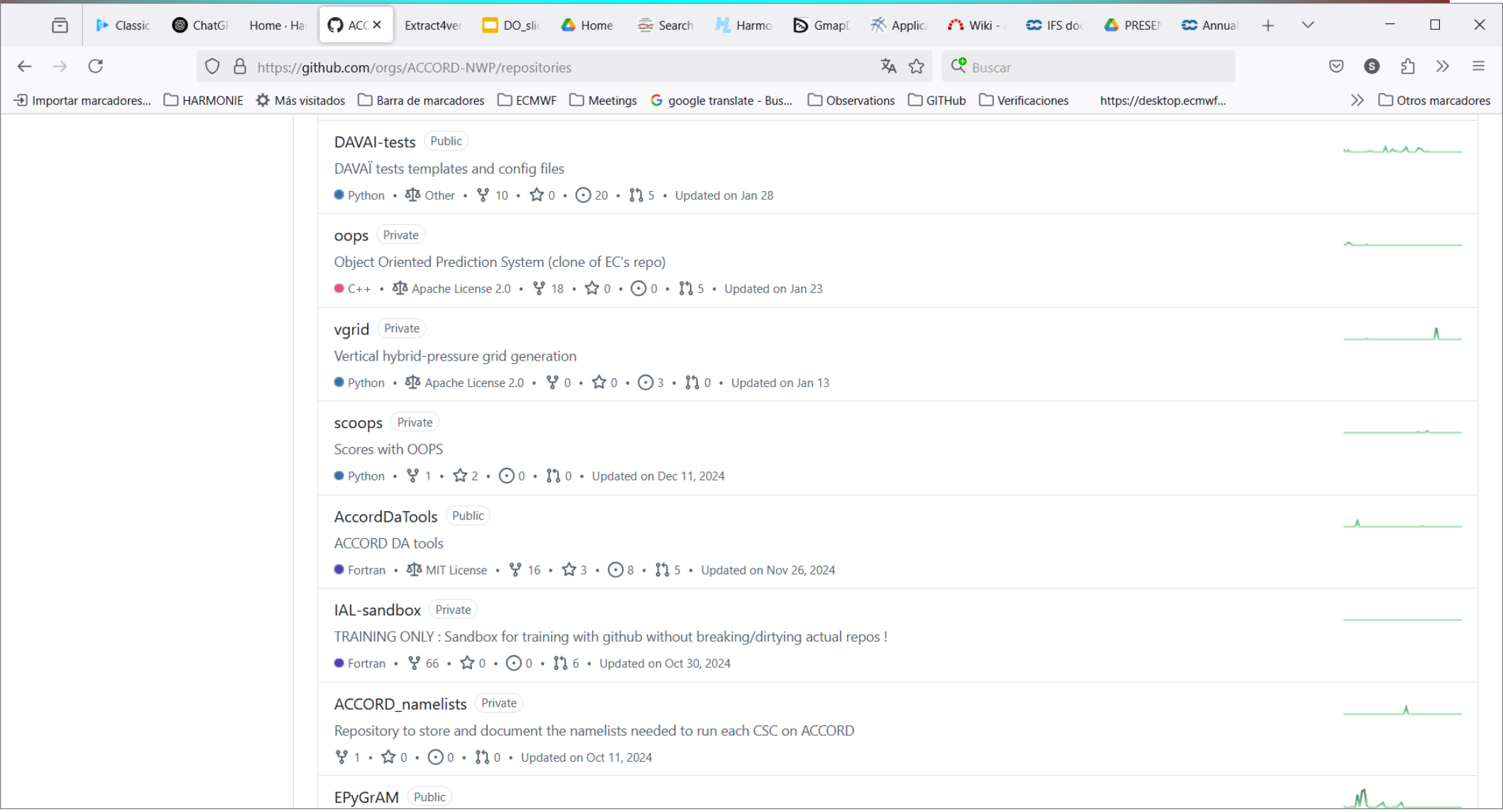

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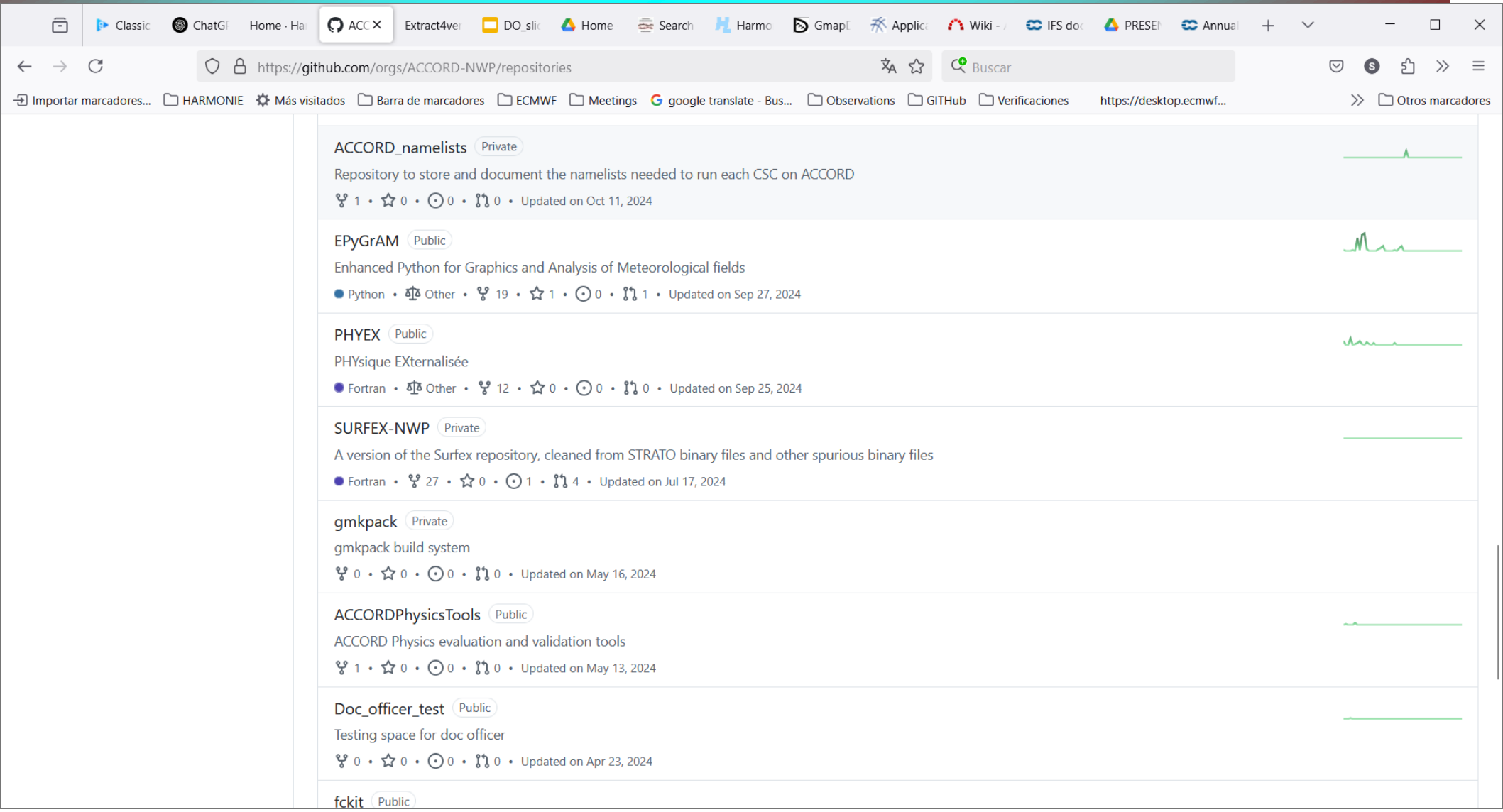

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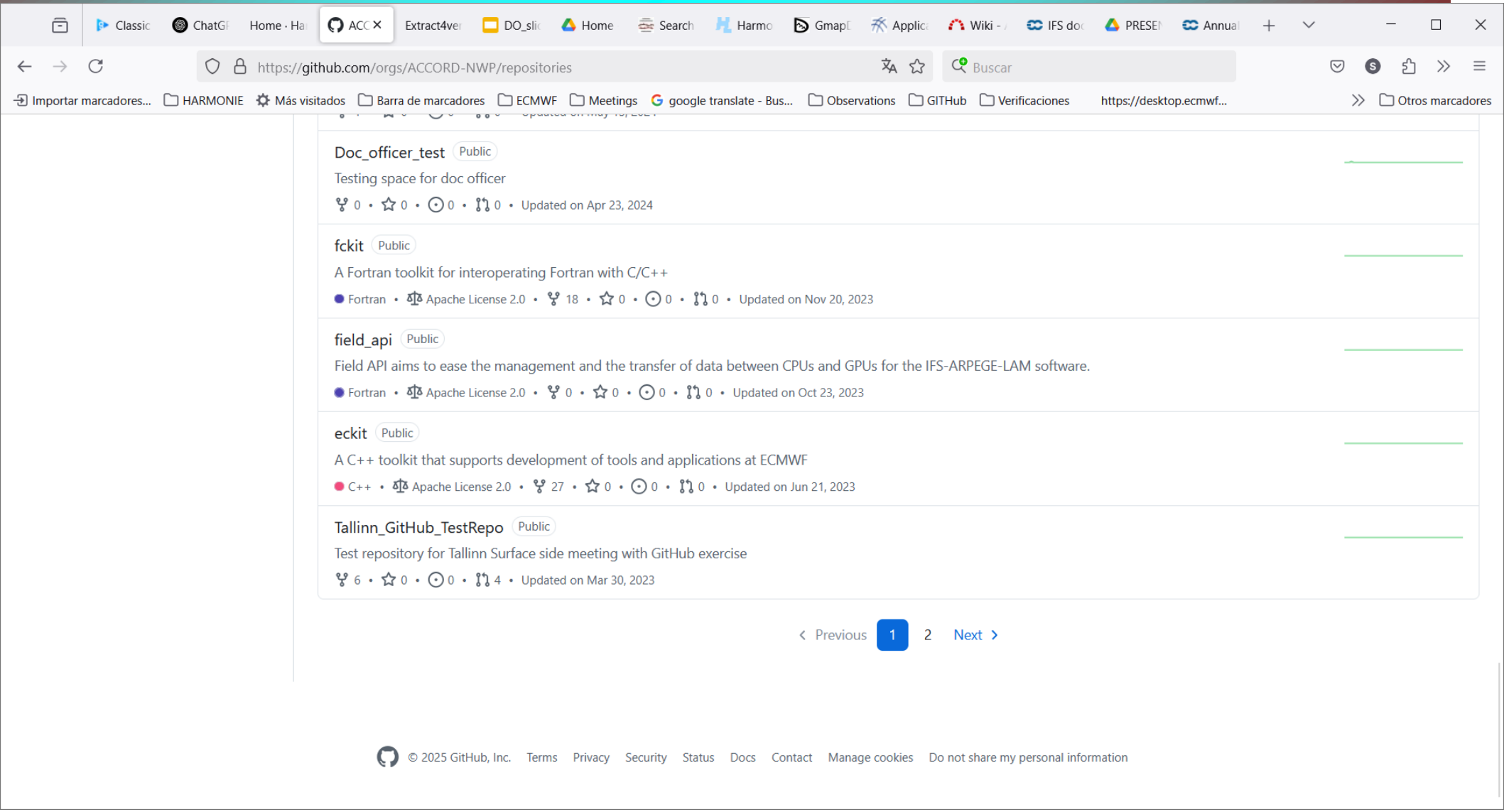
4) CODE Related Documentation



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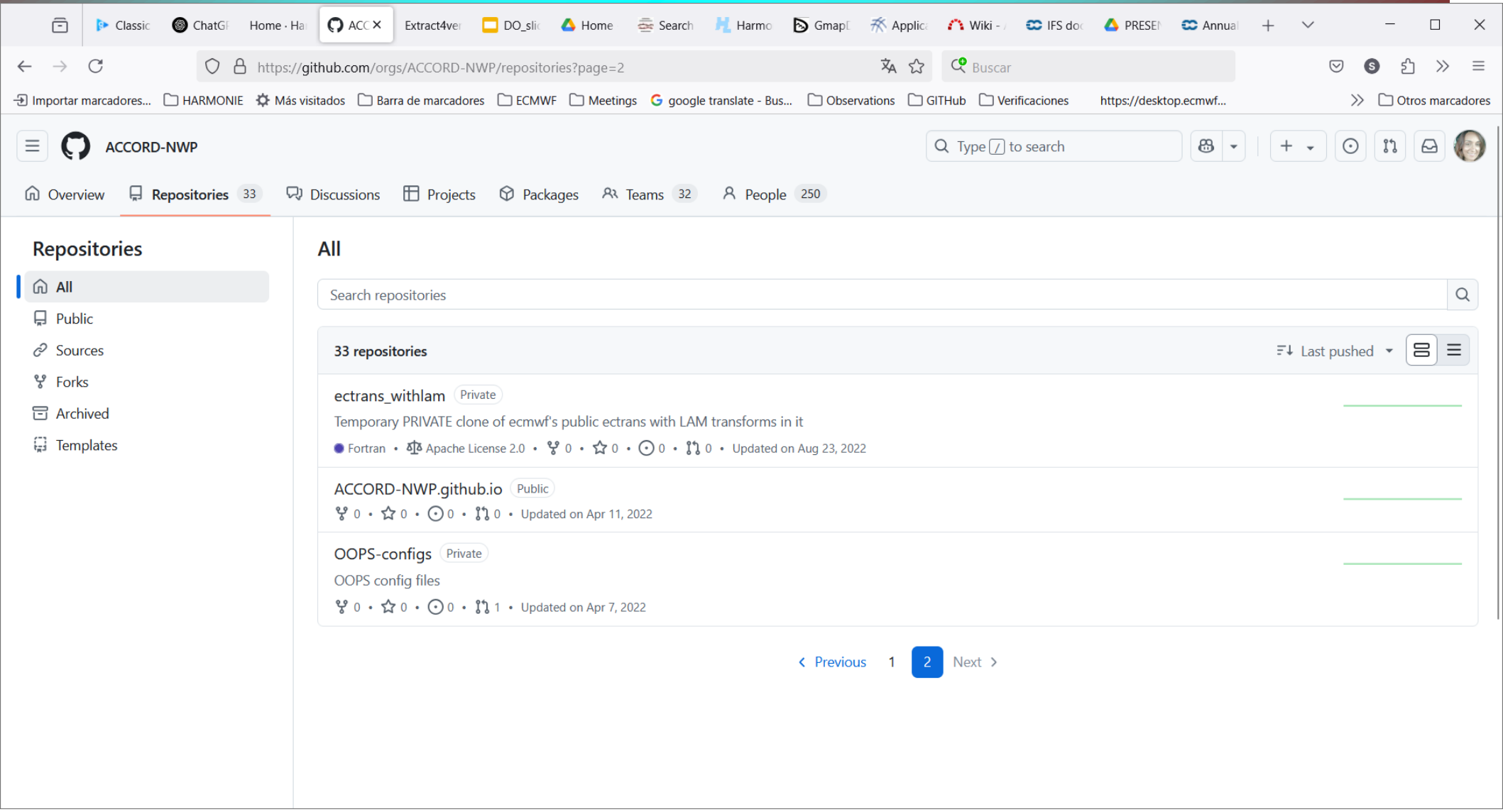

5) Reports of Meetings, WW and Scientific Stays

At the WIKI:
https://redmine.umr-cnrm.fr/projects/accord/wiki/Wiki

- Almost all the reports are uploaded in the WIKI in the appropriate Area section
- How this material is provided in each Area, depends on the Area leader style. Some ALs report more and some less.

NEEDS:
Some of the reports still remain in local (CSC) pages, and they should me moved to the ACCORD WIKI.

FINAL DISCUSSION