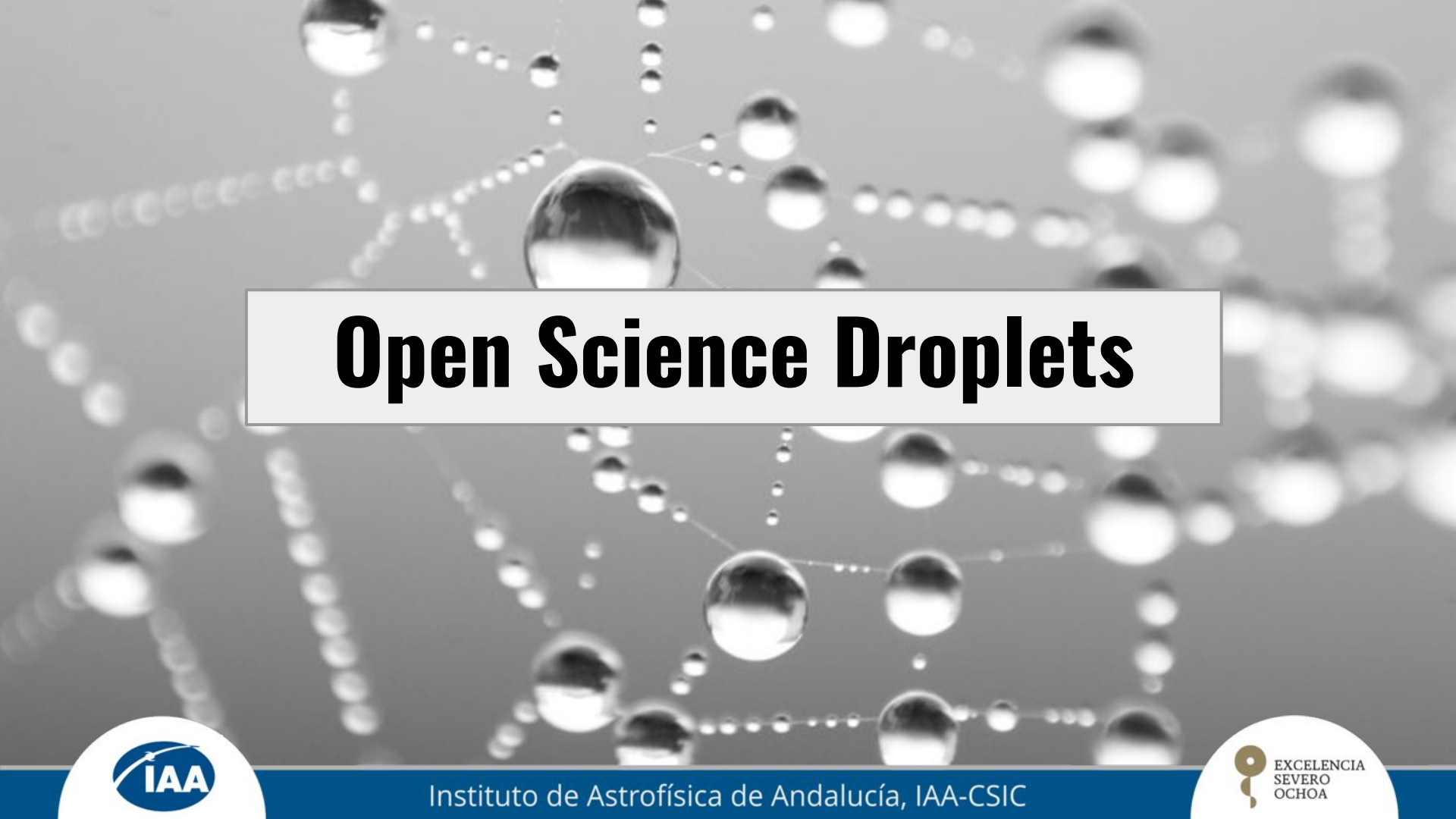

Open Science Droplets
IAA
Instituto de Astrofísica de Andalucía, IAA-CSIC
EXCELENCIA
SEVERO
OCHOA

Open Science Droplets TimeLine

Pre-pandemic era	Jupyter Notebooks
One month ago	Software management with Conda
Two weeks ago	Collaborative science online with GitHub
Today	Version control with Git (episode I)
Next session	Execute your research in the cloud. Binder

Open Science Droplets

Open Science Droplets

```
$>  git init
```

One person starting a new repository locally

```
$>  git clone
```

Downloading and using locally an existing repository
(including all of the files, branches, and commits.)

Open Science Droplets

```
$>  git status
```

It shows you what branch you're working on, what files are in the working or staging directory, and any other important information (deleted, modified, …)

Open Science Droplets

```
$>  git add
```

Adds a change in the working directory to the staging area.

```
$>  git rm
```

Remove files from the working tree of the staging

Open Science Droplets

```
$>  git commit
```

Commits are snapshots of your entire repository at specific times, it tells a story of the history of your repository (😜 ready for time travel)

Open Science Droplets

```
$>  git log
```

It allows you to view information about previous commits that have occurred in your repository

Open Science Droplets

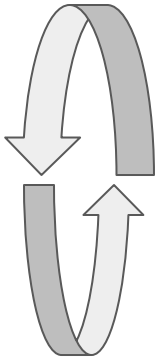
```
$>  git push origin main
```

Upload your local repository content to a remote repository.

Open Science Droplets

Many changes / Grouped changes

```
$>  git add
$>  git commit
$>  git push
```



Open Science Droplets

```
$>  git checkout
```

You want to restore a historic version of a specific file

Open Science Droplets

```
$>  git checkout main
```

You want to restore a historic version of a specific commit or branch

Open Science Droplets

```
$>  git diff <ID> <ID>
```

Comparing two commits

Open Science Droplets

```
$>  git checkout -b <name>
```

Creating a new branch locally

Open Science Droplets

```
$>  git branch
```

List and manage your branches

Open Science Droplets

```
$>  git push origin plot_messier
```

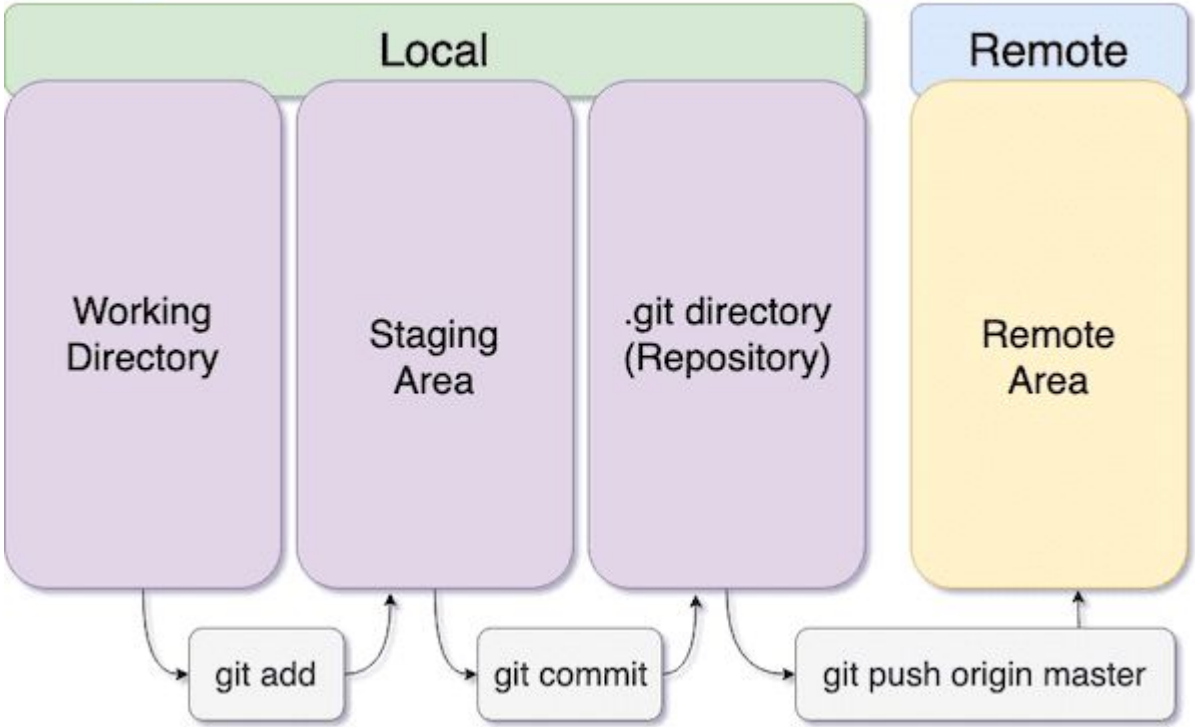
Uploading changes to Github, from local to the new branch

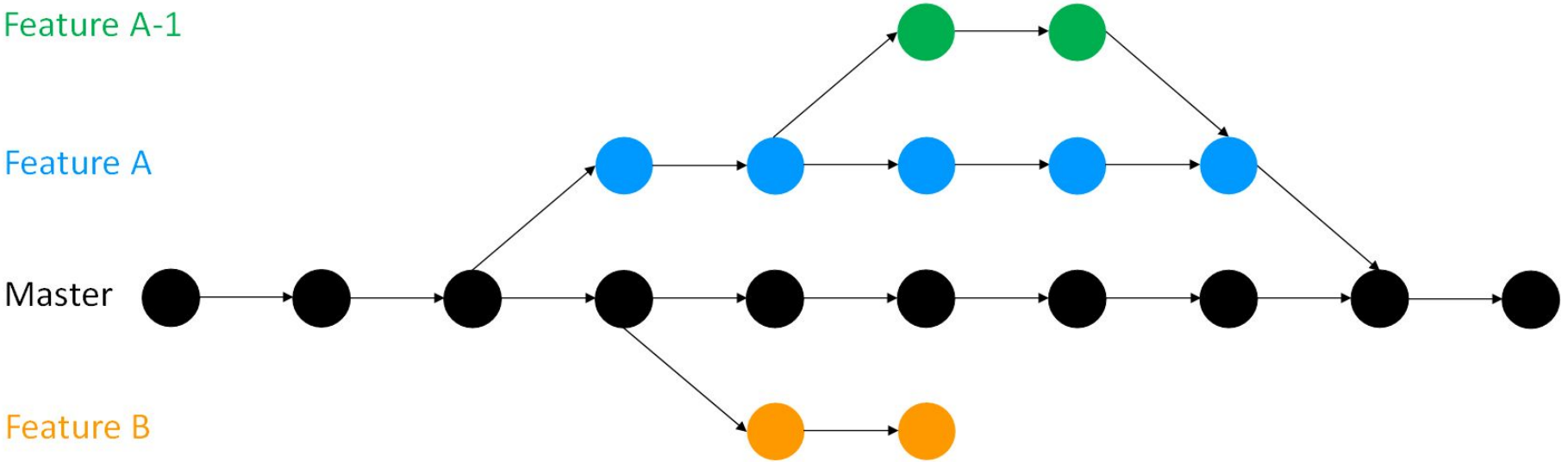
Open Science Droplets

```
$>  git pull
```

Updating your local copy of the repository with the new changes that are in Github.

Git Basic Workflow Lifecycle




Feature A-1
Feature A
Master
Feature B

Open Science Droplets

Additional resources

- Droplets page about git: https://droplets-spsrc.readthedocs.io/git/
- This session: https://github.com/spsrc/droplets/blob/master/sessions/droplets-04-git/droplets-04-git.md
- Learn branching: https://learngitbranching.js.org/
- git - the simple guide
- The Turing Way chapter on version control. Droplets uses material from this very detailed book, check it out!
- An Intro to Git and GitHub for Beginners
- Learn Git. This is a very nice resource
- NBIS - Introduction to Git
- Github Hello World example
- The Git Book. A very detailed guide of everything
- Try Git. Very nice and funny interactive "Try me" resource
- Git for beginners: The definitive practical guide. Very good quick reference for commands.