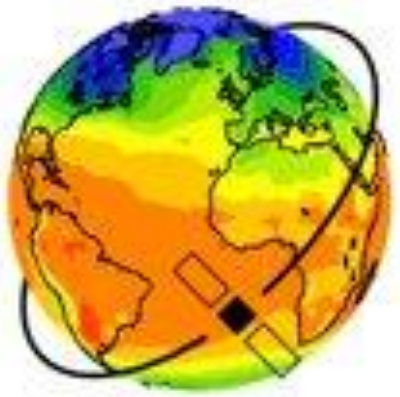


ESMValTool

Earth System Model Evaluation Tool

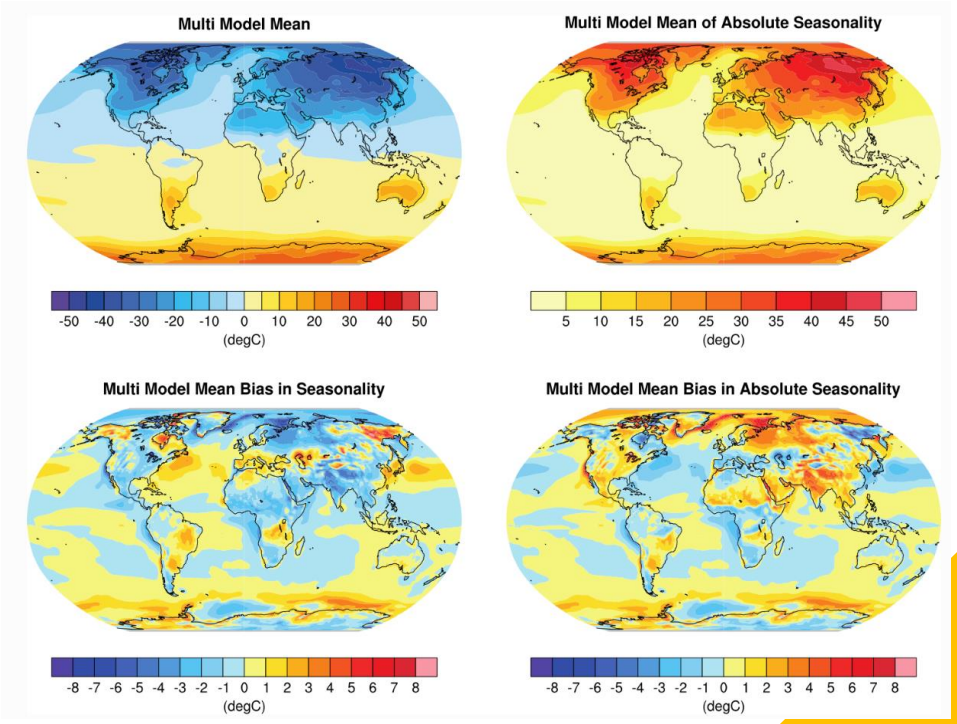
https://www.esmvaltool.org/

Earth System Model Evaluation with ESMValTool in a Jupyter notebook

25 May, EGU 2022

What is ESMValTool?

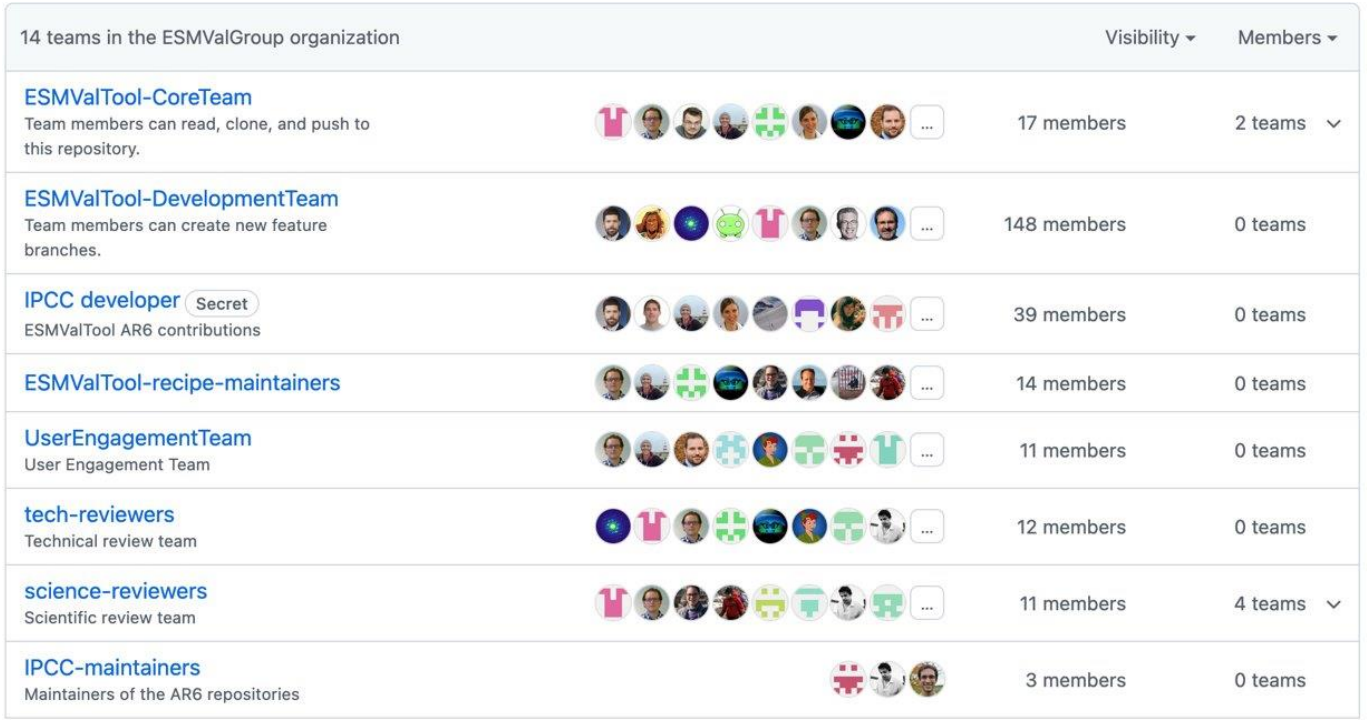
It facilitates the analysis of Earth system model's data.



IPCC AR5 Chapter 9

What is ESMValTool?

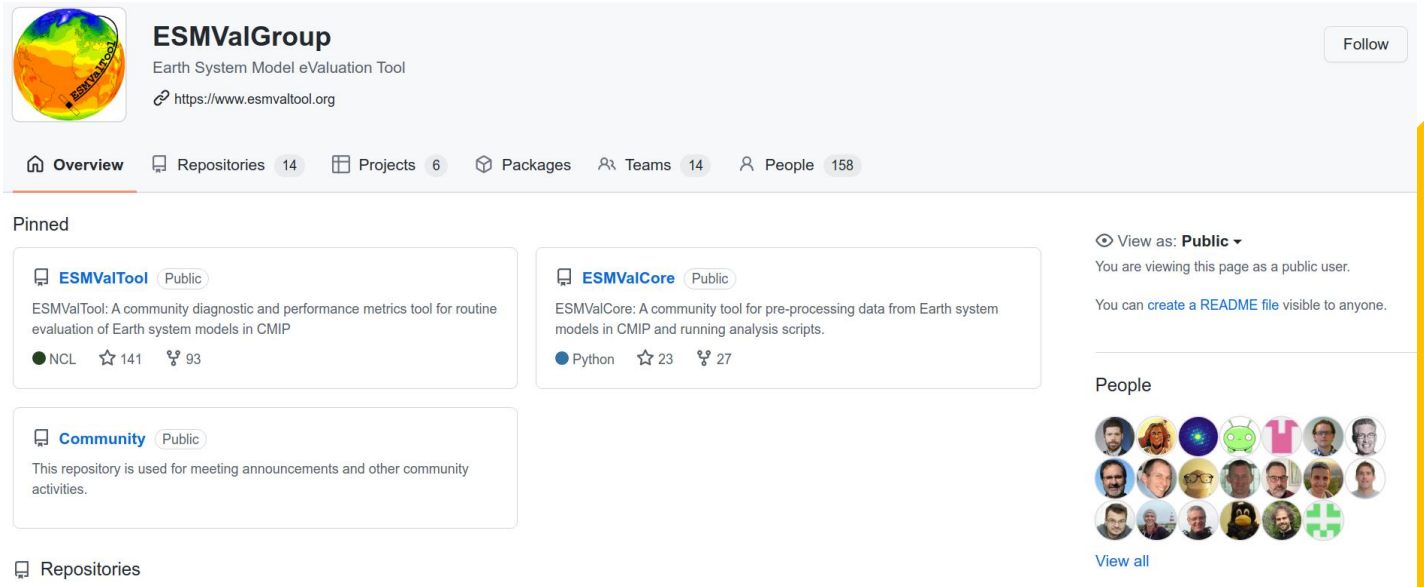
By an international community of scientists and software engineers



14 teams in the ESMValGroup organization		Visibility	Members
ESMValTool-CoreTeam Team members can read, clone, and push to this repository.		17 members	2 teams
ESMValTool-DevelopmentTeam Team members can create new feature branches.		148 members	0 teams
IPCC developer Secret ESMValTool AR6 contributions		39 members	0 teams
ESMValTool-recipe-maintainers		14 members	0 teams
UserEngagementTeam User Engagement Team		11 members	0 teams
tech-reviewers Technical review team		12 members	0 teams
science-reviewers Scientific review team		11 members	4 teams
IPCC-maintainers Maintainers of the AR6 repositories		3 members	0 teams

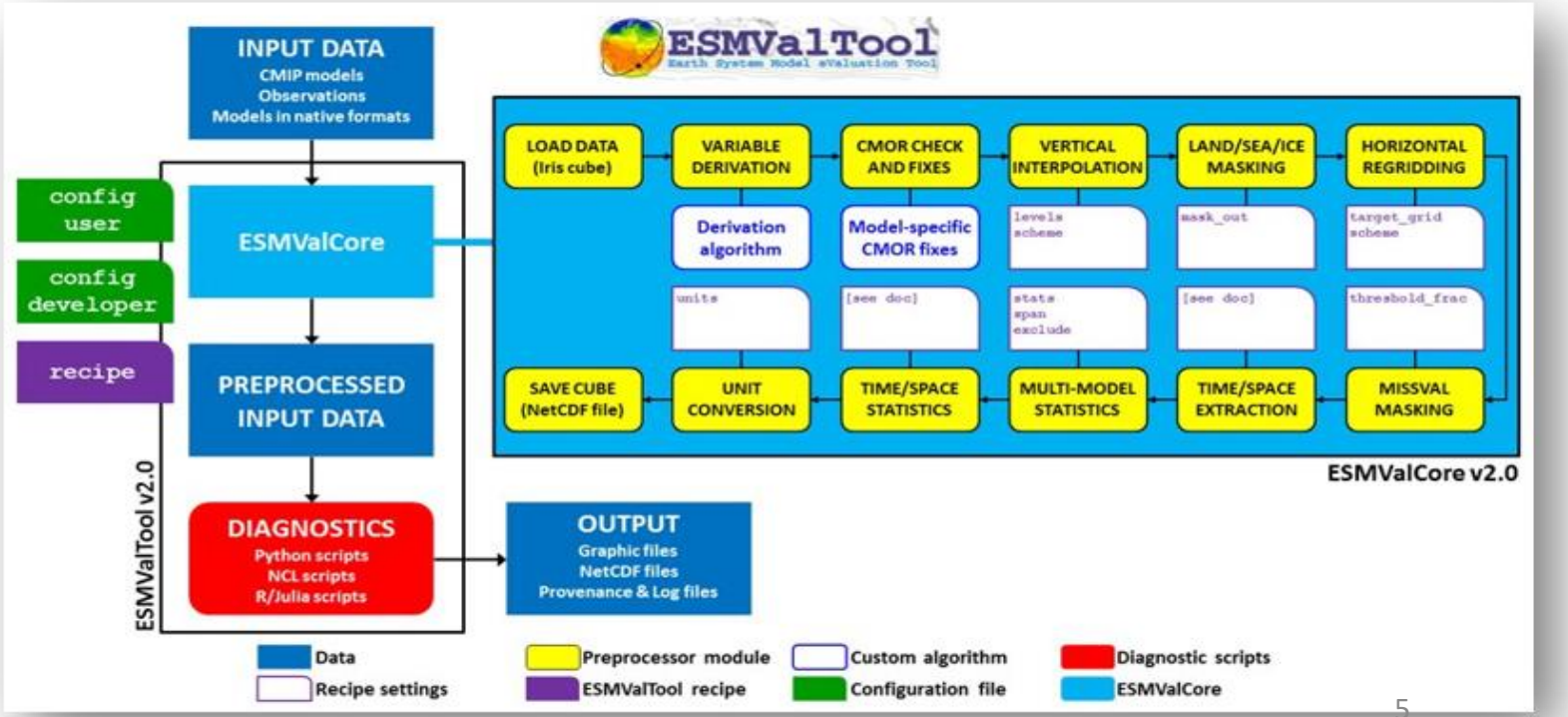
What is ESMValTool?

Developments, maintenance, discussions, and collaborations in **public** https://github.com/esmvalgroup



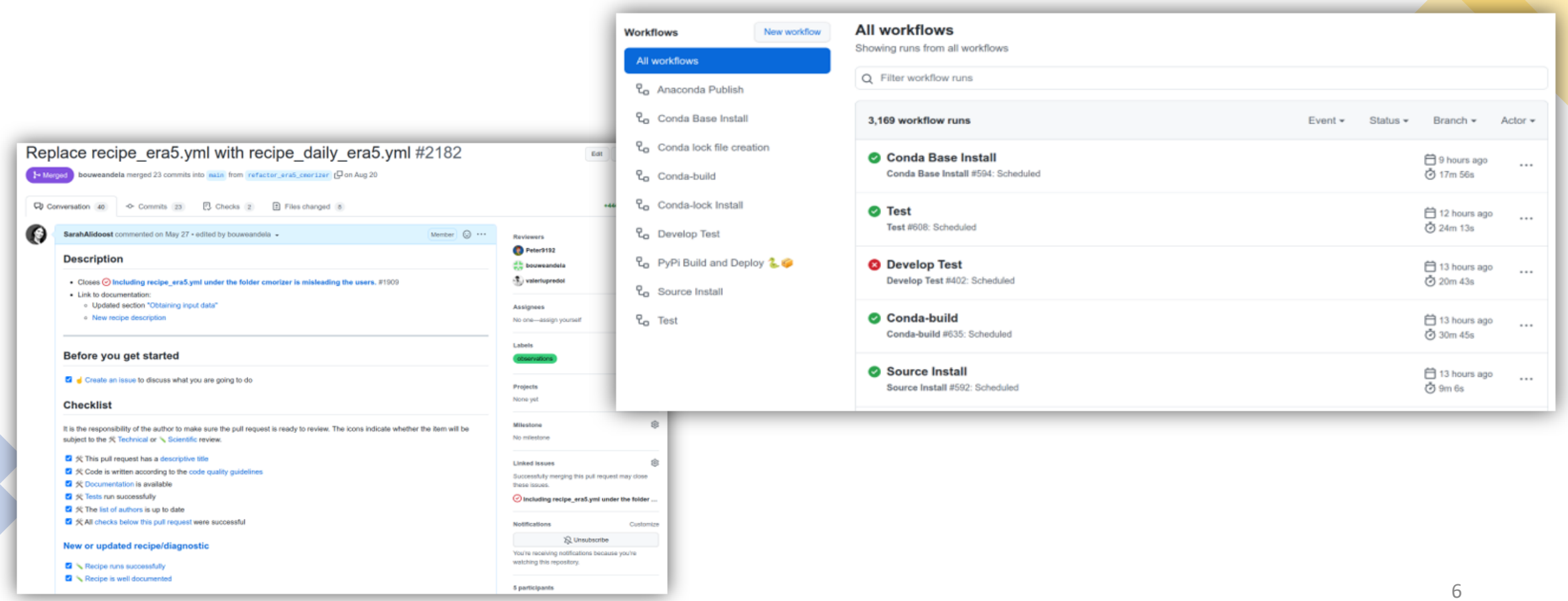
What can ESMValTool do for you?

- Helps to analyze climate data
- Provides provenance and citation information.
- Supports several programming languages and operating systems.
- Helps efficient data processing.



What can ESMValTool do for you?

- Provides automated testing and review processes.



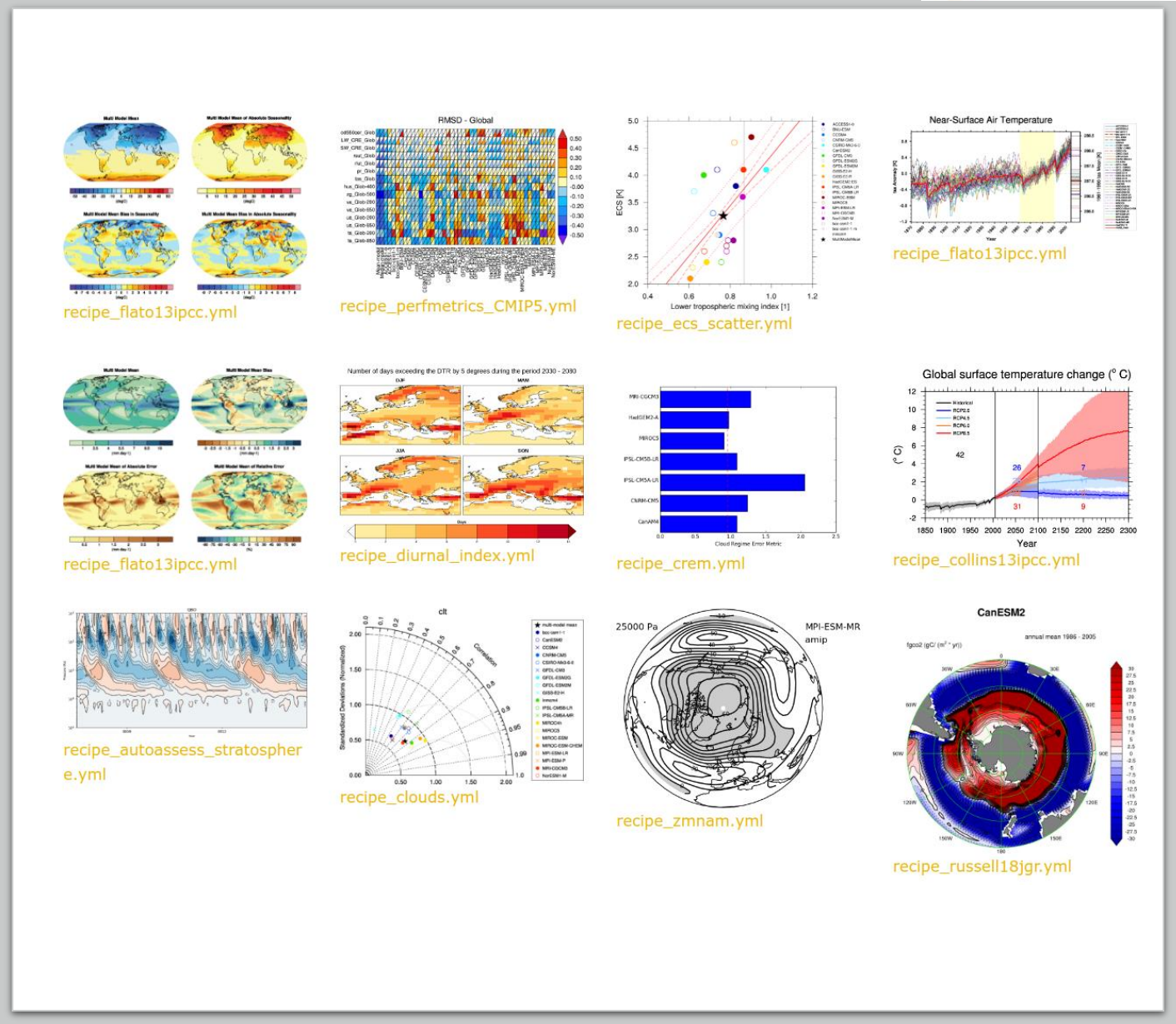
What can ESMValTool do for you?

- A collection of scripts with extensive documentation.

https://docs.esmvaltool.org/

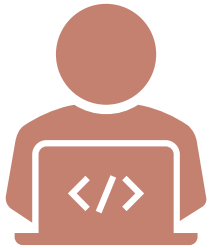
- An online tutorial

https://esmvalgroup.github.io/ESMValTool_Tutorial/

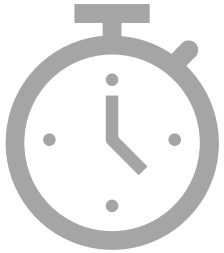


using ESMValTool:

others can understand our analyses



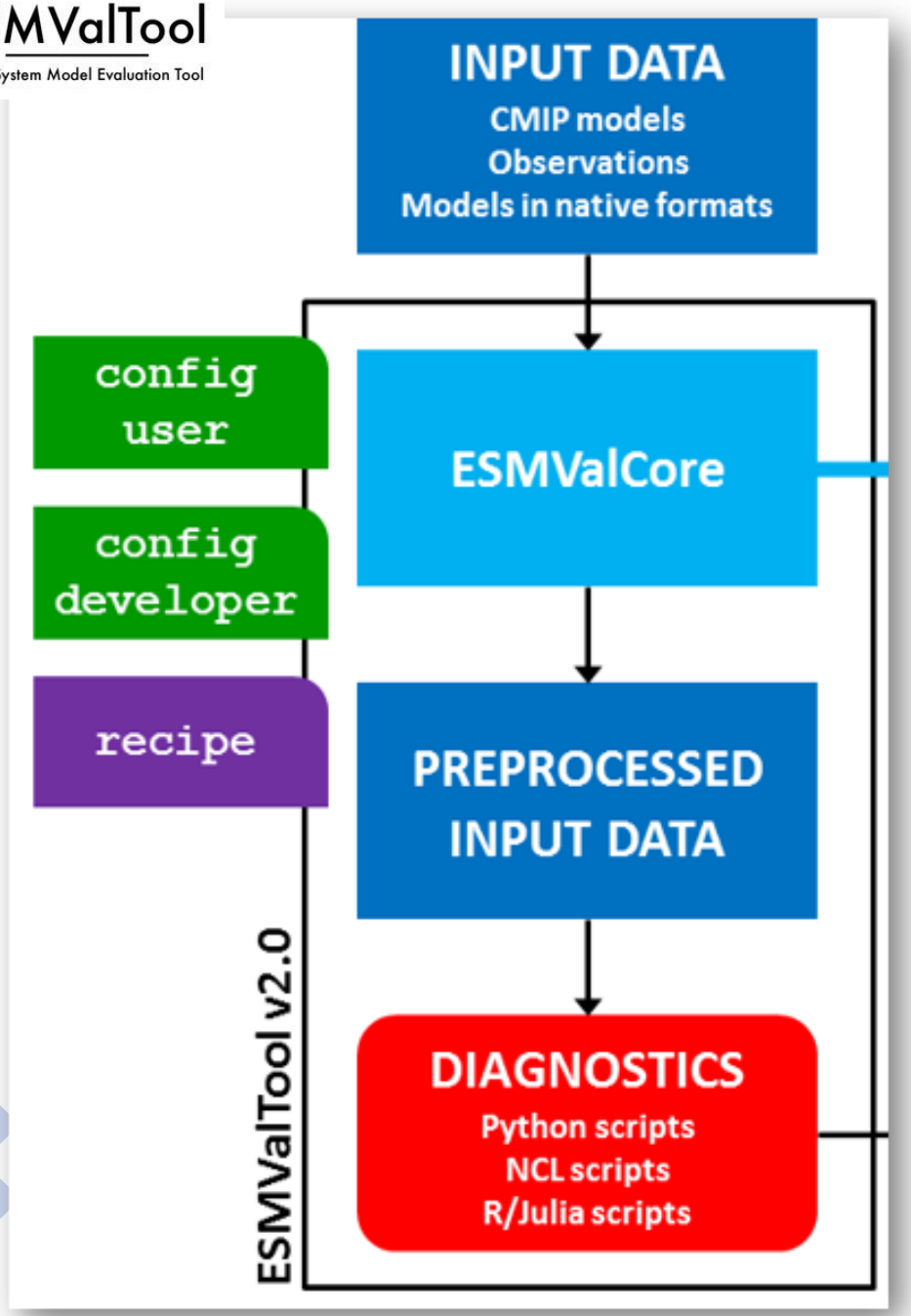
we can re-use code instead of re-implementing it



we spend less time on developing code

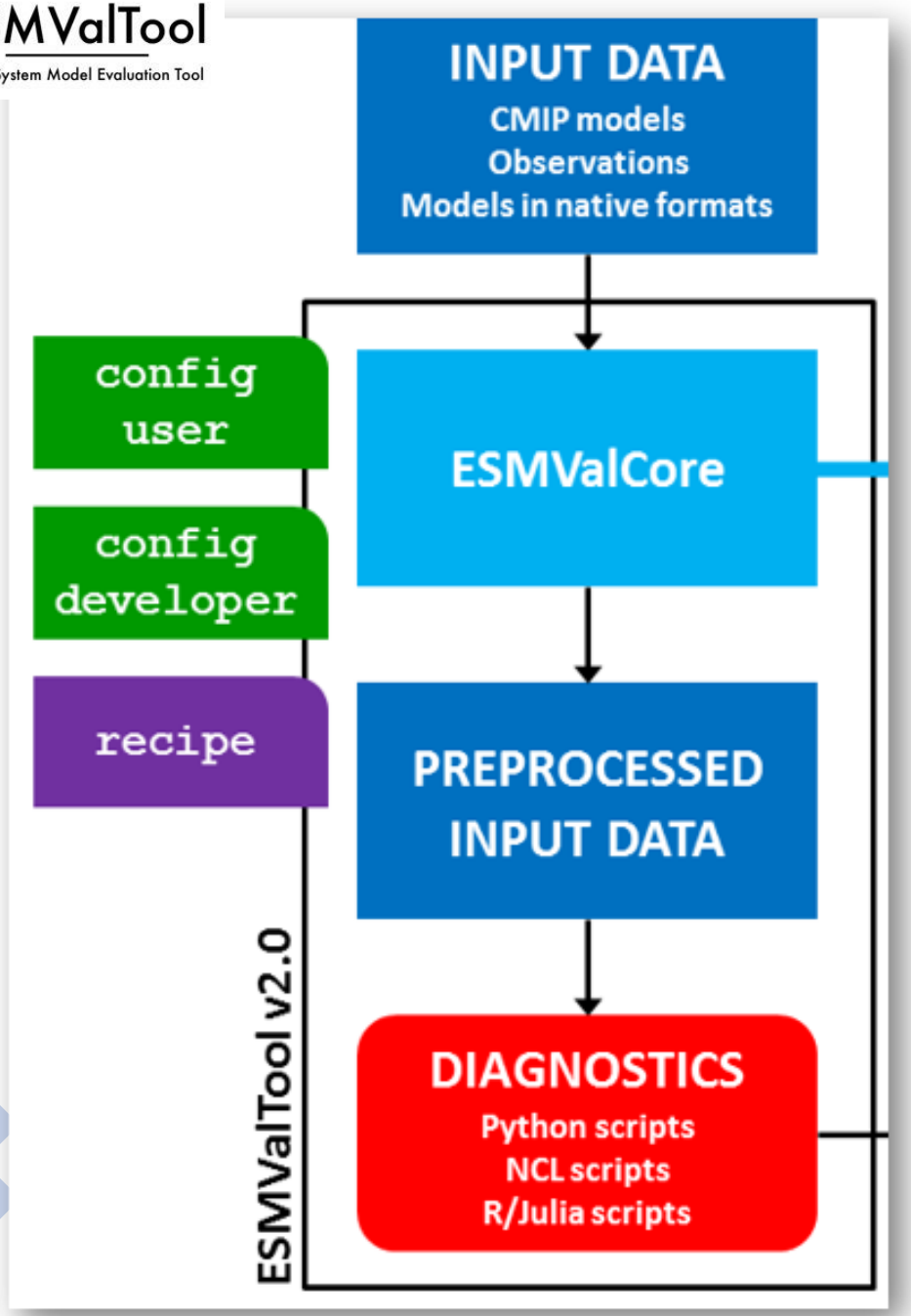
ESMValTool
Earth System Model Evaluation Tool

Earth System Model Evaluation with ESMValTool



ESMValTool
Earth System Model Evaluation Tool

How to run ESMValTool:



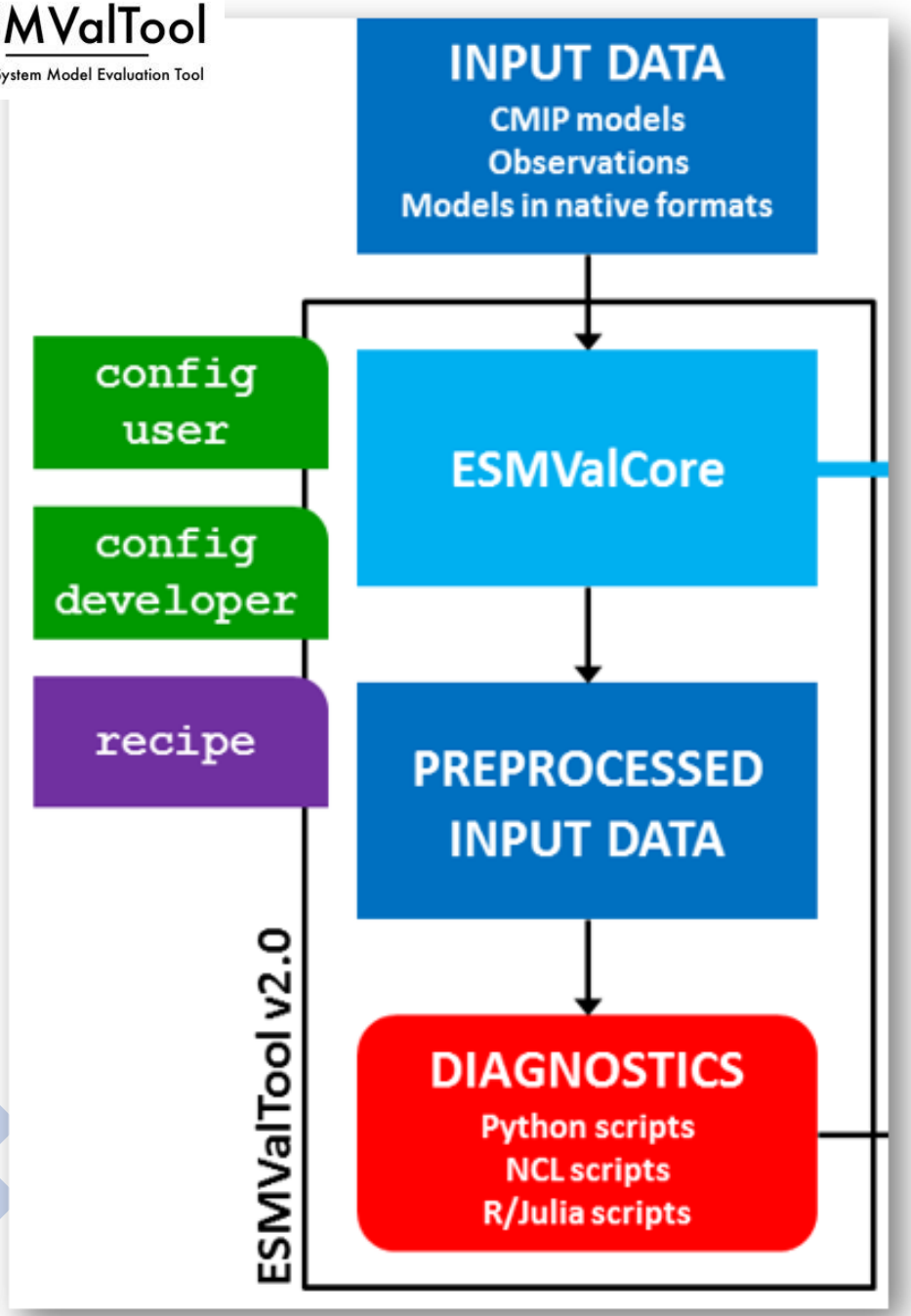
- Run ESMValTool as a command-line tool:

```
esmvaltool run examples/recipe_python.yml
```

- Run ESMValTool using its Python API:

  We learn it during the course.

Earth System Model Evaluation with ESMValTool



Instructions are given to esmvaltool using a YAML script called a recipe.

Instructions like:

- the **datasets** which need to be analyzed,
- the **preprocessors** that need to be applied,
- the specific analysis called **diagnostic** script.

Available recipes:
https://docs.esmvaltool.org/en/latest/recipes/index.html

ESMValTool
Earth System Model Evaluation Tool

Access to CMIP and observational data and a suitable compute cluster

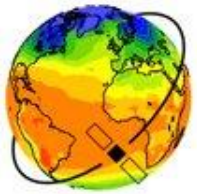
Use a computing cluster with an Earth System Grid Federation (ESGF) node:

- German Climate Computing Center (DKRZ), Germany
- Center for Environmental Data Analysis (CEDA), UK
- Institut Pierre-Simon Laplace (IPSL), France
- Swiss Federal Institute of Technology Zurich (ETHZ), Switzerland
- National Supercomputer Centre (NSC), Sweden
- Barcelona Supercomputing Center (BSC), Spain

Related projects:

- IS-ENES3 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824084

- EUCP has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776613



ESMValTool

Earth System Model Evaluation Tool

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