

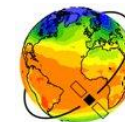
ESMValTool

Earth System Model Evaluation Tool

<https://www.esmvaltool.org/>

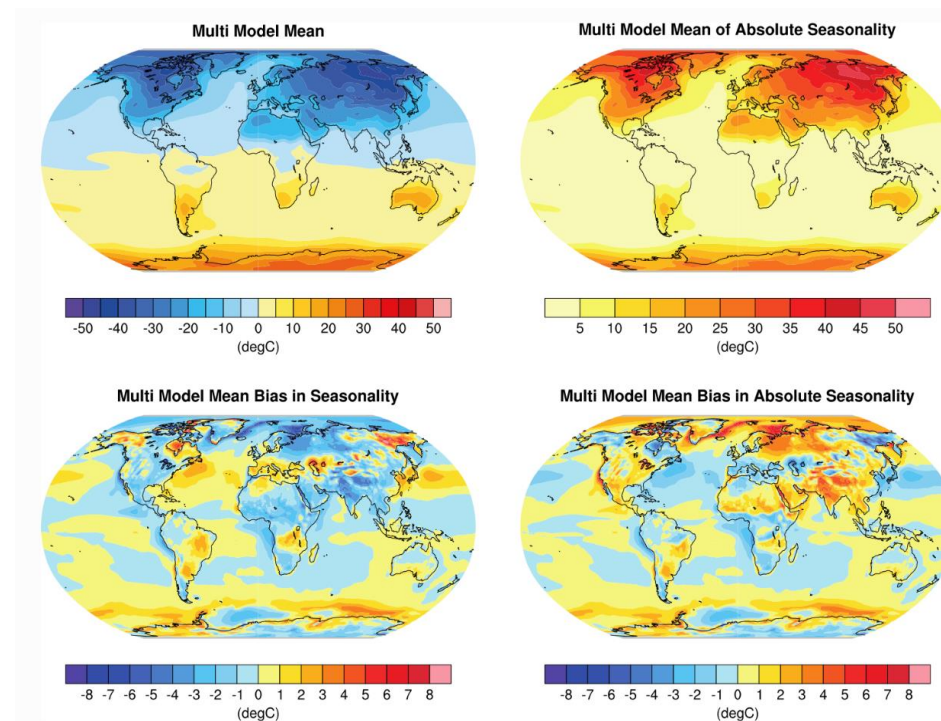
Earth System Model Evaluation with
ESMValTool in a Jupyter notebook

25 May, EGU 2022



What is ESMValTool?









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



[IPCC AR5 Chapter 9](#)

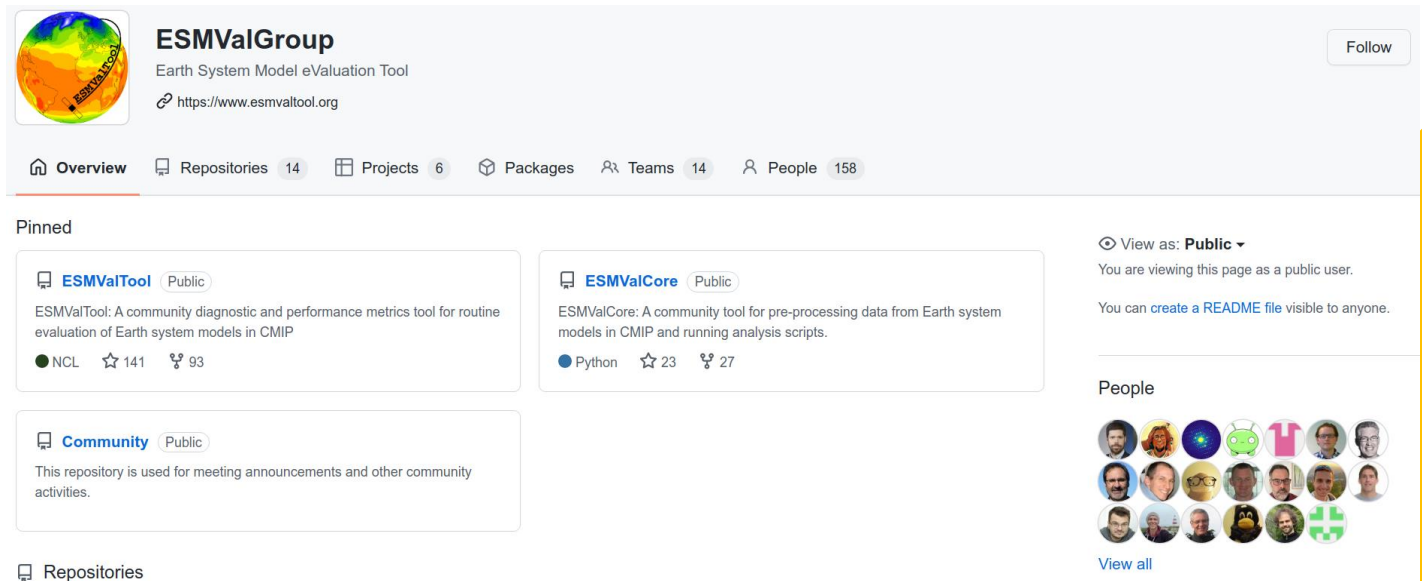
What is ESMValTool?

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?

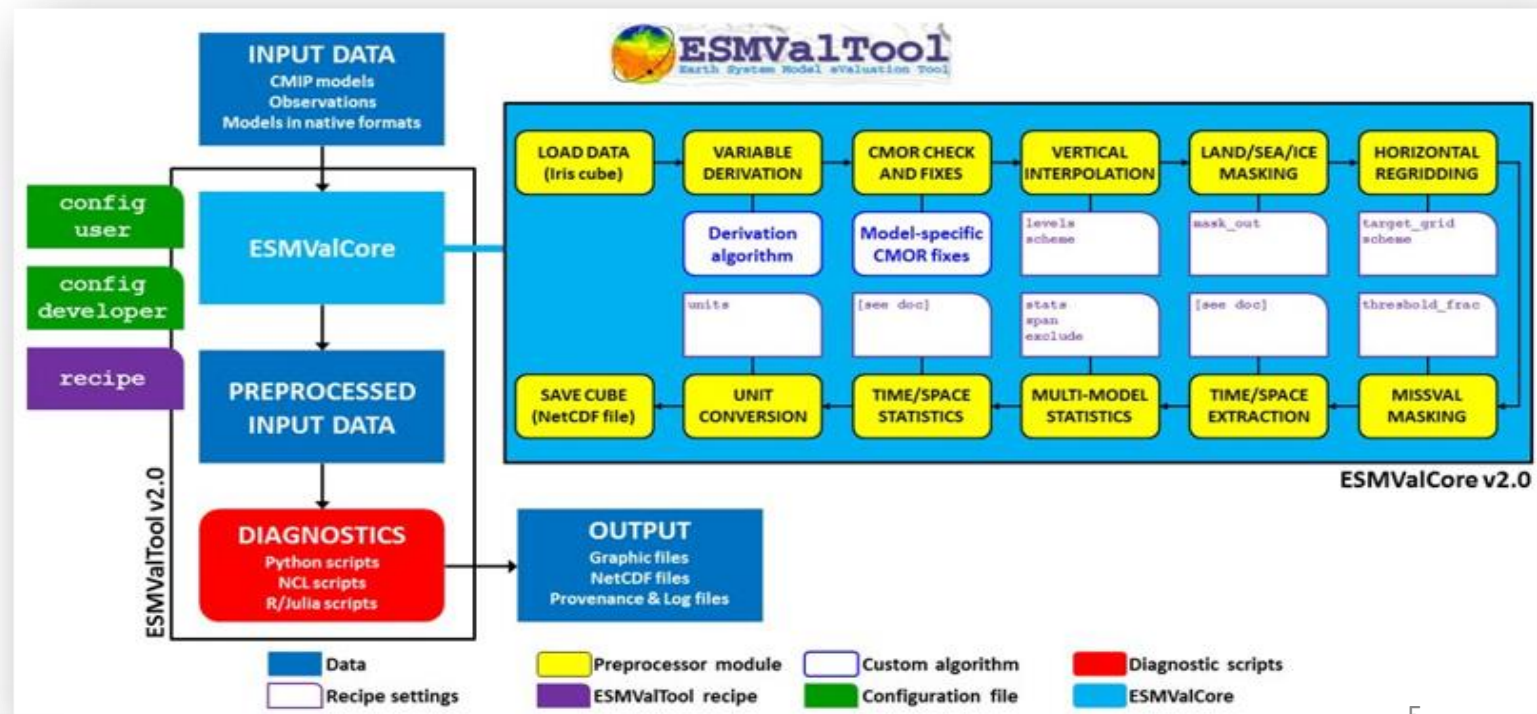
Developments, maintenance, discussions, and collaborations in **public** <https://github.com/esmvalgroup>



The screenshot shows the GitHub profile for ESMValGroup. The profile header includes the ESMValTool logo, the name "ESMValGroup", the description "Earth System Model eValuation Tool", and the website "https://www.esmvaltool.org". A "Follow" button is in the top right. Below the header is a navigation bar with tabs: Overview (selected), Repositories (14), Projects (6), Packages, Teams (14), and People (158). The "Pinned" section displays three repositories: "ESMValTool" (Public, NCL, 141 stars, 93 forks), "ESMValCore" (Public, Python, 23 stars, 27 forks), and "Community" (Public, description: "This repository is used for meeting announcements and other community activities."). On the right, there is a "View as: Public" dropdown, a note about viewing as a public user, a link to create a README file, and a "People" section showing a grid of 15 user avatars with a "View all" link below.

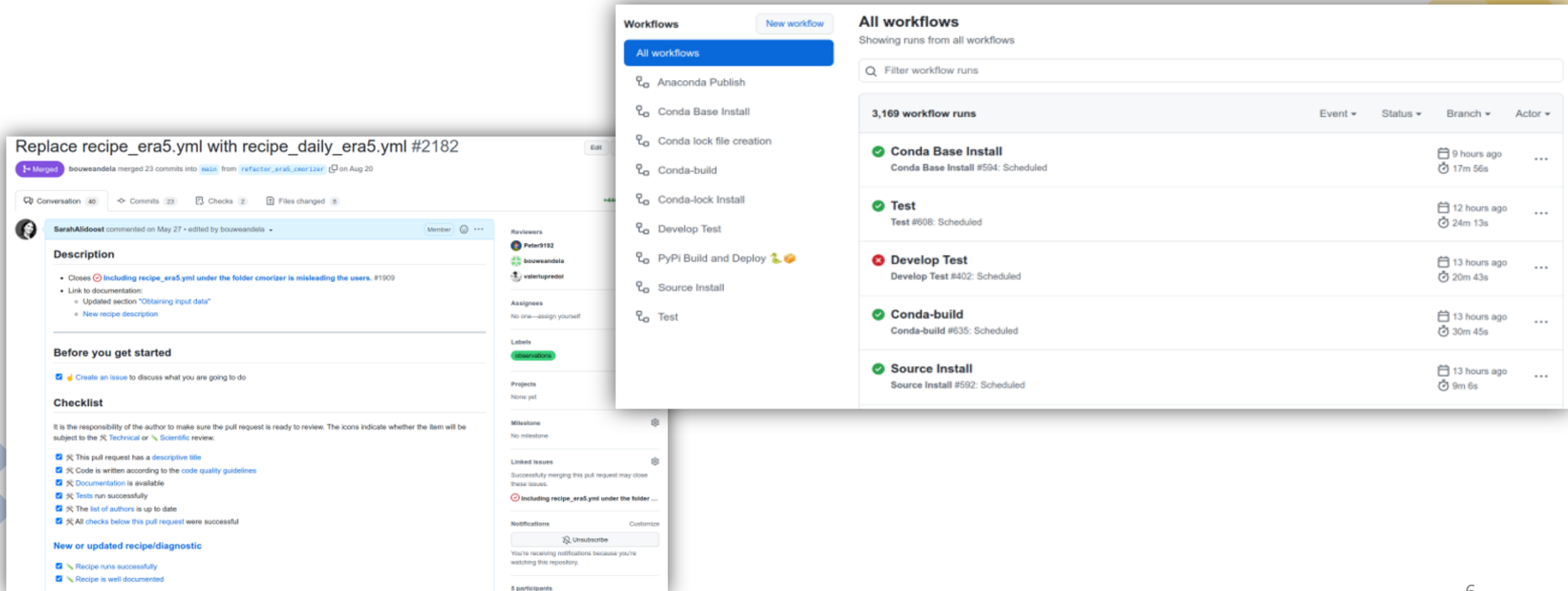
What can ESMValTool do for you?

- 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.



Replace recipe_era5.yml with recipe_daily_era5.yml #2182

Merged: bouweandela merged 23 commits into `main` from `refactor_era5_cmorizer` on Aug 20

Conversation (40) Commits (23) Checks (2) Files changed (8)

SarahAlidoost commented on May 27 • edited by bouweandela

Description

- Closes [including recipe_era5.yml under the folder cmorizer is misleading the users](#). #1909
- Link to documentation:
 - Updated section "Obtaining input data"
 - New recipe description

Before you get started

- ☒ Create an issue to discuss what you are going to do

Checklist

It is the responsibility of the author to make sure the pull request is ready to review. The icons indicate whether the item will be subject to the [Technical](#) or [Scientific](#) review.

- ☒ This pull request has a descriptive title
- ☒ Code is written according to the [code quality guidelines](#)
- ☒ Documentation is available
- ☒ Tests run successfully
- ☒ The list of authors is up to date
- ☒ All checks below this pull request were successful

New or updated recipe/diagnostic

- ☒ Recipe runs successfully
- ☒ Recipe is well documented

Workflows [New workflow](#)

All workflows

- Anaconda Publish
- Conda Base Install
- Conda lock file creation
- Conda-build
- Conda-lock Install
- Develop Test
- PyPi Build and Deploy
- Source Install
- Test

All workflows

Showing runs from all workflows

Filter workflow runs

3,169 workflow runs

| | Event | Status | Branch | Actor |
|---|-------|--------|--------|-------------------------|
| ✓ Conda Base Install Conda Base Install #594: Scheduled | | | | 9 hours ago 17m 56s |
| ✓ Test Test #608: Scheduled | | | | 12 hours ago 24m 13s |
| ✗ Develop Test Develop Test #402: Scheduled | | | | 13 hours ago 20m 43s |
| ✓ Conda-build Conda-build #635: Scheduled | | | | 13 hours ago 30m 45s |
| ✓ Source Install Source Install #592: Scheduled | | | | 13 hours ago 9m 6s |

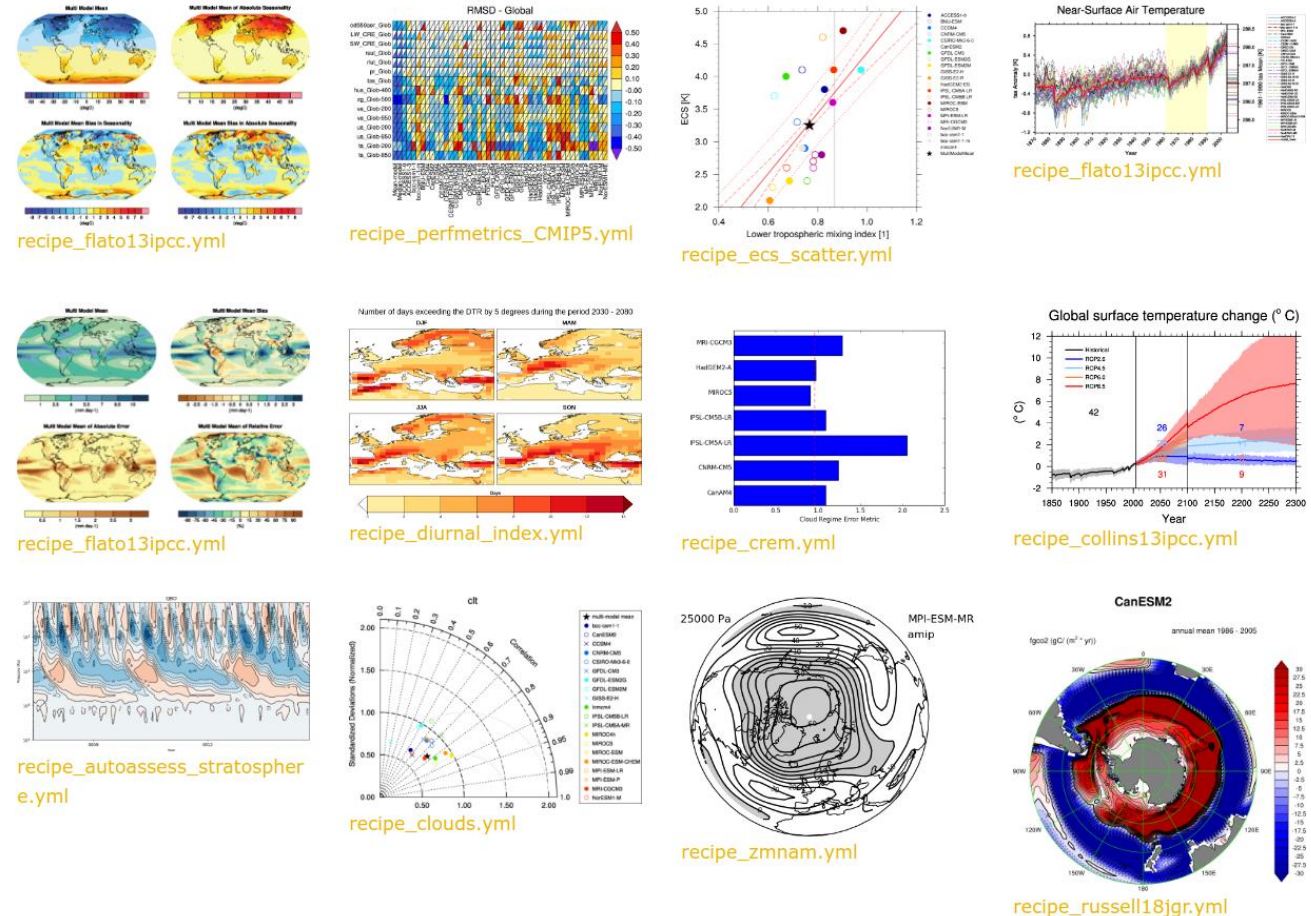
What can ESMValTool do for you?

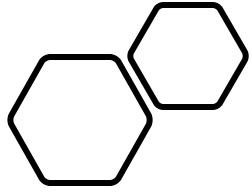
- A collection of scripts with extensive documentation.

<https://docs.esmvaltool.org/>

- An online tutorial

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

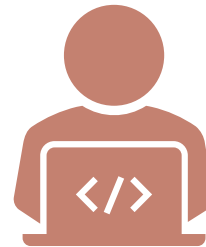




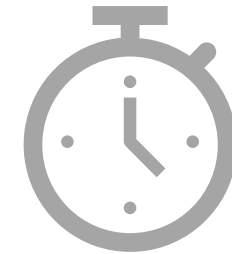
using ESMValTool:



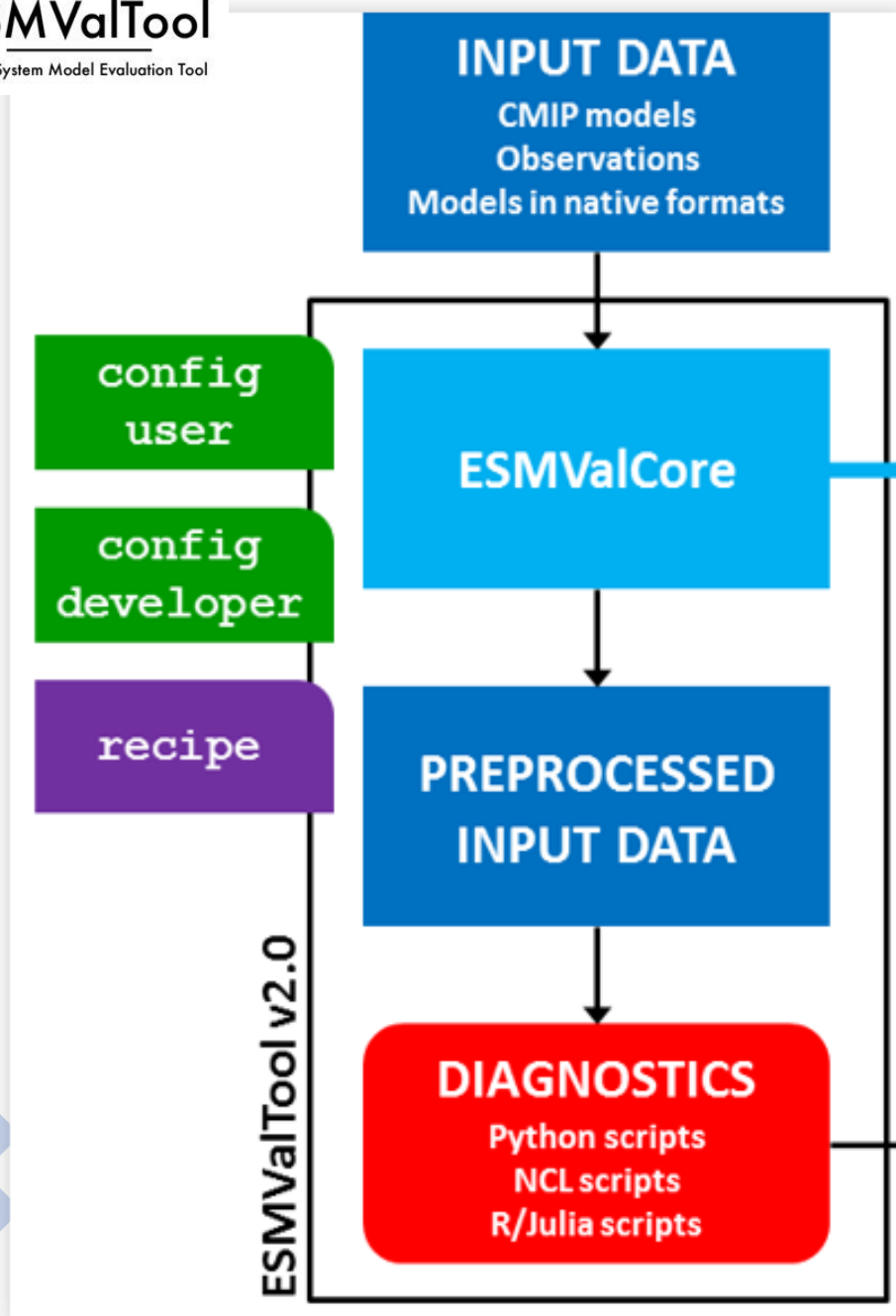
others can understand our
analyses



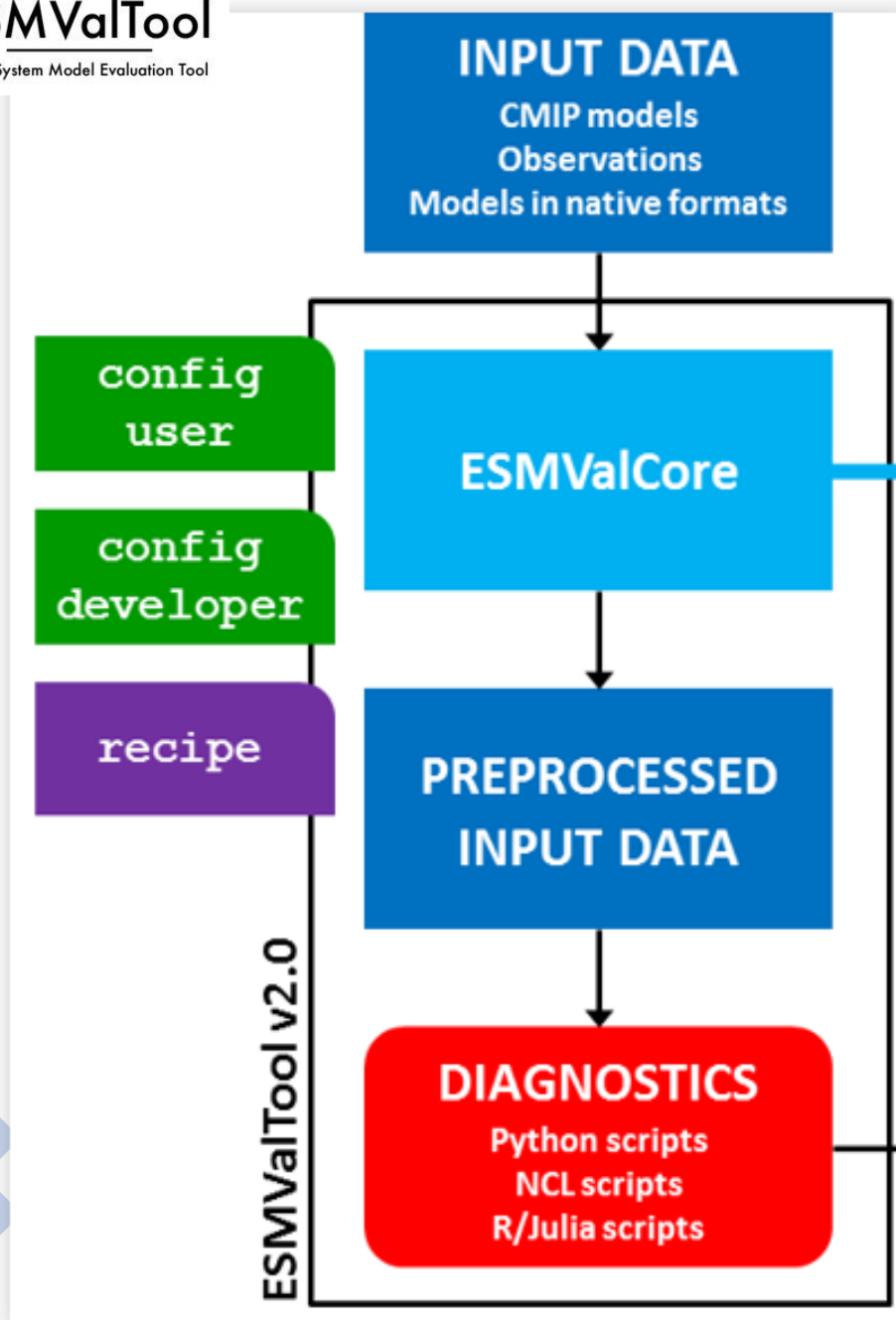
we can re-use code
instead of re-implementing it



we spend less time on
developing code



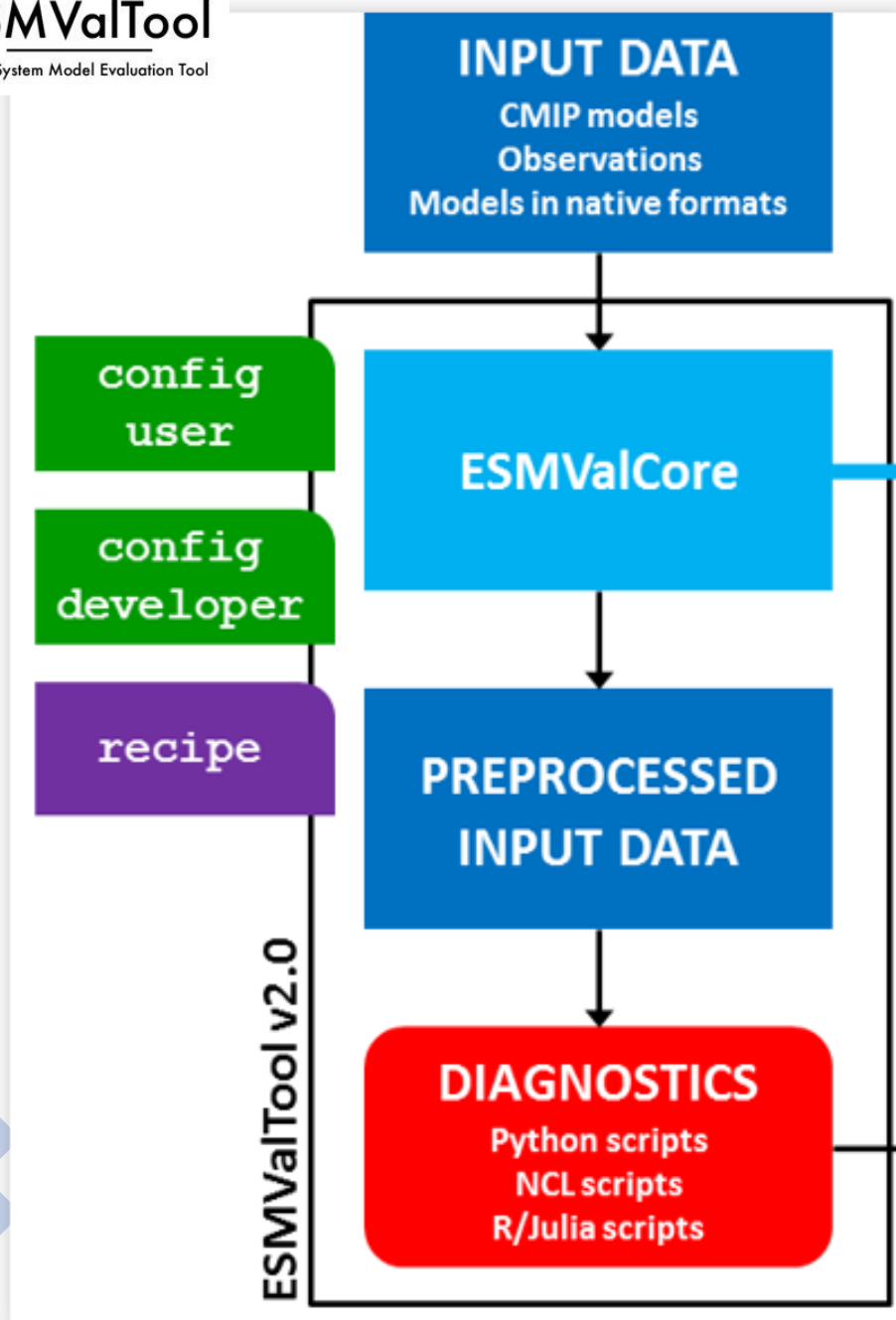
Earth System Model Evaluation with ESMValTool



Earth System Model Evaluation with ESMValTool

Run ESMValTool as a command-line tool:

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



Earth System Model Evaluation with ESMValTool

Run ESMValTool as a command-line tool:

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

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 model-specific analysis called **diagnostic** script.

Available recipes:

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

Access to CMIP and observational data and a suitable compute cluster

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

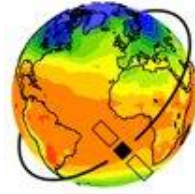
- German Climate Computing Center (DKRZ), Germany
- Center for Environmental Data Analysis (CEDA), UK
- Institut Pierre-Simon Laplace (IPSL), France
- Swiss Federal Institute of Technology Zurich (ETHZ), Switzerland
- National Supercomputer Centre (NSC), Sweden
- Barcelona Supercomputing Center (BSC),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



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