README.md

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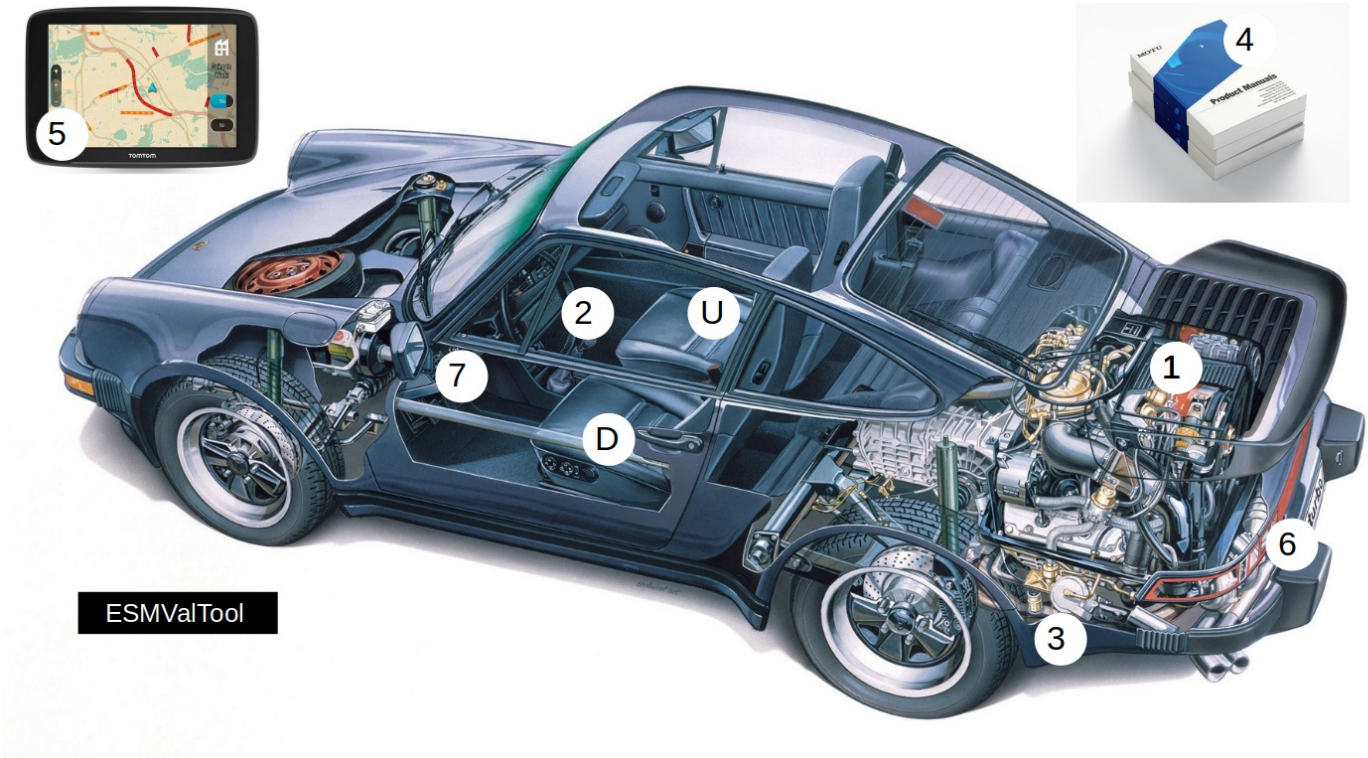
Introduction

ESMValTool is a community-developed climate model diagnostics and evaluation software package, driven both by computational performance and scientific accuracy and reproducibility. ESMValTool is open to both users and developers, encouraging open exchange of diagnostic source code and evaluation results from the Coupled Model Intercomparison Project CMIP ensemble. For a comprehensive introduction to ESMValTool please visit our documentation page.

Running esmvaltool

Diagnostics from ESMValTool are run using recipe files that contain pointers to the requested data types, directives for the preprocessing steps that data will be subject to, and directives for the actual diagnostics that will be run with the now preprocessed data. Data preprocessing is done via the ESMValCore package, a pure Python, highly-optimized scientific library, developed by the ESMValTool core developers, and that performs a number of common analysis tasks such as regridding, masking, levels extraction etc. Diagnostics are written in a variety of programming languages (Python, NCL, R, julia) and are developed by the wider scientific community, and included after a scientific and technical review process.

Run schematic



- **D** Developer (driver)
- **U** User (passenger)
- **1** ESMValCore - the preprocessing engine (car's engine)
- **2** Main controls: recipes, configuration files
- **3** Input data (fuel): various input data types: CMIP, OBS, CORDEX
- **4** Documentation
- **5** Creating a diagnostic (route to follow)
- **6** Provenance (title and registration)
- **7** Continuous testing (dashboard monitoring)
- **Overall** - user engagement and general UX (news: Ranjini leading the group)

Input data

ESMValTool can run with the following types of data as input:

- CMIP5
- CMIP6
- OBS, OBS6
- obs4mips
- ana4mips
- CORDEX

Getting started

Please see getting started on readthedocs.

Getting help

The easiest way to get help if you cannot find the answer in the documentation on readthedocs, is to open an issue on GitHub.

Contributing

If you would like to contribute a new diagnostic or feature, please have a look at our contribution guidelines.