PR🌍CLIAS

ess-based models for climate impact attribution across sectors

the ISIMIP QC-Tool
basic format checks for ISIMIP simulation data

Matthias Büchner, Iliusi Vega, Jochen Klar

Prague, June 5, 2023

Overview

- Command line tool for QC of ISIMIP climate impact data

- Python package (Linux, macOS, Windows)

- tests against <u>protocol schemas</u>:

  - File name patterns, ISIMIP controlled vocabulary (CV)

  - Variables, dimensions and attributes

  - Data model and types

  - Consistency of NetCDF time axis (file name vs. Internal time axis)

  - Data value ranges (when defined)

Open Source

https://github.com/ISI-MIP/isimip-qc

Installation

- Python >= 3.6

- Virtual environment recommended

- # install from the Python Package Index (PyPI), recommended

- `pip install isimip-qc`

- # update from PyPI
  `pip install --upgrade isimip-qc`

Usage

- `isimip-qc [-h] [--config-file CONFIG_FILE] [-c] [-m] [-O]`

- `[--unchecked-path UNCHECKED_PATH] [--checked-path CHECKED_PATH]`

- `[--protocol-location PROTOCOL_LOCATIONS] [--log-level LOG_LEVEL]`

- `[--log-path LOG_PATH] [--log-path-level LOG_PATH_LEVEL] [--include INCLUDE_LIST]`

- `[--exclude EXCLUDE_LIST] [-f] [-w] [-e] [-r [MINMAX]] [-nt] [--fix]`

- `[--fix-datamodel [FIX_DATAMODEL]] [--check CHECK] [--force-copy-move] [-V]`

- `schema_path`

- Pulls protocol specifications from Github or local protocol repository
- Only mandatory argument is the schema_path
- Options described at https://github.com/ISI-MIP/isimip-qc#usage
- Log files per NetCDF data file

Valid ranges

- Helps identify wrong unit conversions and model inadequacies

- Variable ranges collected from coordinated effort among sector coordination

- Defined in protocol variable definitions (Github)

- log level `VRDETAIL` returns top lists of violations with time step and location (time consuming)

Fixing

- Capable of fixing certian aspects of metadata

- - Data model, internal compression

- - Variable long_names, units taken from ISIMIP protocol

- - Removing global and variable attributes (per white list)

- Global attributes added:

- - QC-tool version

- - Protocol git hash

- - Date of check

- - Unique file id (uuid)

Questions, issues, development

- General inquiries: info@isimip.org
- ISIMIP data management team: isimip-data@pik-potsdam.de
- The ISIMIP data management team are:
  - Matthias Büchner: buechner@pik-potsdam.de
  - Iliusi Vega: delvalle@pik-potsdam.de
  - Jochen Klar: klar@pik-potsdam.de