This form documents the artifacts associated with the article (i.e., the data and code supporting the computational findings) and describes how to reproduce the findings.

Part 1: Data

☐ This paper does not involve analysis of external data (i.e., no data are used or the only data are generated by the authors via simulation in their code).

☐ I certify that the author(s) of the manuscript have legitimate access to and permission to use the data used in this manuscript.

Abstract

Availability

☐ Data **are** publicly available.
☐ Data **cannot be made** publicly available.

If the data are publicly available, see the *Publicly available data* section. Otherwise, see the *Non-publicly available data* section, below.

Publicly available data

☐ Data are available online at:

☐ Data are available as part of the paper's supplementary material.

☐ Data are publicly available by request, following the process described here:

☐ Data are or will be made available through some other mechanism, described here:

Non-publicly available data

Description

File format(s)

☐ CSV or other plain text.
☐ Software-specific binary format (.Rda, Python pickle, etc.): pkcle
☐ Standardized binary format (e.g., netCDF, HDF5, etc.):
☐ Other (please specify):

Data dictionary

☐ Provided by authors in the following file(s):
☐ Data file(s) is(are) self-describing (e.g., netCDF files)
☐ Available at the following URL:

Additional Information (optional)

Part 2: Code

Abstract

Description

Code format(s)

- ☐ Script files

    - ☐ R
    - ☐ Python
    - ☐ Matlab
    - ☐ Other:

- ☐ Package

    - ☐ R
    - ☐ Python
    - ☐ MATLAB toolbox
    - ☐ Other:

- ☐ Reproducible report

    - ☐ R Markdown
    - ☐ Jupyter notebook
    - ☐ Other:

- ☐ Shell script
- ☐ Other (please specify):

Supporting software requirements

Version of primary software used

Libraries and dependencies used by the code

Supporting system/hardware requirements (optional)

Parallelization used

- ☐ No parallel code used
- ☐ Multi-core parallelization on a single machine/node

    - – Number of cores used:

- ☐ Multi-machine/multi-node parallelization

    - – Number of nodes and cores used:

License

- ☐ MIT License (default)
- ☐ BSD
- ☐ GPL v3.0
- ☐ Creative Commons
- ☐ Other: (please specify)

Additional information (optional)

Part 3: Reproducibility workflow

Scope

The provided workflow reproduces:

- ☐ Any numbers provided in text in the paper
- ☐ The computational method(s) presented in the paper (i.e., code is provided that implements the method(s))
- ☐ All tables and figures in the paper
- ☐ Selected tables and figures in the paper, as explained and justified below:

Workflow

Location

The workflow is available:

- ☐ As part of the paper's supplementary material.
- ☐ In this Git repository:
- ☐ Other (please specify):

Format(s)

- ☐ Single master code file
- ☐ Wrapper (shell) script(s)
- ☐ Self-contained R Markdown file, Jupyter notebook, or other literate programming approach
- ☐ Text file (e.g., a readme-style file) that documents workflow
- ☐ Makefile
- ☐ Other (more detail in *Instructions* below)

Instructions

Expected run-time

Approximate time needed to reproduce the analyses on a standard desktop machine:

- ☐ < 1 minute
- ☐ 1-10 minutes

☐ 10-60 minutes
☐ 1-8 hours
☐ > 8 hours
☐ Not feasible to run on a desktop machine, as described here:

Additional information (optional)

Notes (optional)