

# Author Contributions Checklist Form

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

The dataset consists of two CSV files. One file contains the observed precipitations at 123 stations in France, from 1980 till 2017 (Sept/Oct/Nov). The other file contains the forecast precipitations at the same stations, from 2012 till 2017 (Sept/Oct/Nov).

## 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

Discussion of lack of publicly available data:

The dataset is provided by Meteo France. The data are available upon request, with the consent of Meteo France.

## Description

### File format(s)

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

### Data dictionary

- ☐ Provided by the 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

The codes consist of both Simulation and Application. The codes are explained in a markdown file “Readme.md”. With the guidance therein, a reader could reproduce all results needed for the tables and figures.

### 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 (described here):

### Supporting software requirements

#### Version of primary software used

R version 4.2.2.

#### Libraries and dependencies used by the code

For simulation, the following packages are needed: "LaplacesDemon", "fMultivar", "evd", "condmixt", "ismev", "mev".

For application, the following packages are needed: "mev", "ggplot2", "sf", "rgdal", "rnaturalearth", "dplyr", "broom".

#### 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 (described here):

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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 here:

For the simulation part, the codes produce numbers used to create the tables and figures, collected in an Excel file.

For the application part, the codes produce numbers used to create the tables, and directly all figures.

### Workflow details

#### 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

The workflow is explained in a markdown file “Readme.md”. With the guidance therein, a reader could reproduce all results needed for the tables and figures.

### 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 documentation (optional)

Notes (optional)