

A critical review of statistical calibration/prediction models handling data inconsistency and model inadequacy

Supporting Information

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The data and codes to reproduce the results of the article are provided:

- R scripts^{[1](#)} and data for the analysis of temperature-dependent synthetic and Kr viscosity data.

How-to Run the codes

The main script is located in `code`. To run it, launch `R CMD BATCH code/reprod.R` in the `base` directory, or run interactively in `RStudio`.

The code might take some time to run. It takes advantage of multicore architectures to run (4) parallel Markov chains. The progress can be followed in the `simulation/XXX/diagnostics` directory, where `XXX` is the name of the dataset (`SD-1`, `SD-2`, `SD-3` or `Kr`) Note that, due to the stochastic sampling method, the numerical results might be slightly different from the ones in the article.

The results are generated in `simulation/XXX`:

- files with extension `.rda` contain the outputs of the models and can be loaded to further processing. To rerun one of the models, delete the corresponding file. and rerun the `reprod.R` code
- directory `diagnostics` contains diagnostic plots and summaries to check the sample generation.
- directories `figures` and `tables` contain the data and plots from which the article's results are drawn.

Session Info

R version 3.3.1 (2016-06-21)

Platform: x86_64-redhat-linux-gnu (64-bit)

Running under: CentOS Linux 7 (Core)

locale:

```
[1] LC_CTYPE=fr_FR.UTF-8 LC_NUMERIC=C LC_TIME=fr_FR.UTF-8 LC_COLLATE=fr_FR.UTF-8
[5] LC_MONETARY=fr_FR.UTF-8 LC_MESSAGES=fr_FR.UTF-8 LC_PAPER=fr_FR.UTF-8 LC_NAME=C
[9] LC_ADDRESS=C LC_TELEPHONE=C LC_MEASUREMENT=fr_FR.UTF-8 LC_IDENTIFICATION=C
```

attached base packages:

```
[1] tcltk parallel stats graphics grDevices utils datasets methods base
```

other attached packages:

```
[1] aplpack_1.3.0 rstan_2.11.1 StanHeaders_2.11.0 ggplot2_2.1.0 knitr_1.14
```

loaded via a namespace (and not attached):

```
[1] Rcpp_0.12.6 codetools_0.2-14 digest_0.6.10 grid_3.3.1 plyr_1.8.4 gtable_0.2.0
[7] magrittr_1.5 stats4_3.3.1 evaluate_0.9 scales_0.4.0 KernSmooth_2.23-15 highr_0.6
[13] stringi_1.1.1 labeling_0.3 tools_3.3.1 stringr_1.1.0 munsell_0.4.3 rsconnect_0.4.3
[19] inline_0.3.14 colorspace_1.2-6 gridExtra_2.2.1
```

References

- (1) R Core Team, R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing: Vienna, Austria, 2015.