Supplementary material overview

A coupled, process-based model of global in-stream carbon biogeochemistry

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Agreement

The CARBON-DISC 1.0 source code and output data is archived on Zenodo (van Hoek et al., 2019) and enables to reproduce the results as presented in the main article. Anyone can use these files for noncommercial academic research only. If you want to make use of the global data, get in touch and we will talk. We would appreciate a short description of what you are planning to do with the data. If you feel that the global data set is a major contribution to your research, we would like to be co-author on any manuscript. If the data is being included in a published manuscript, we would like to see a preprint before submission to make sure the data description is correct. The following directories are accessible on Zenodo (DOI: 10.5281/zenodo.3402473).

A source_code

Contains all source code and accompanying initialization files necessary to run CARBON-DISC 1.0. Instructions to run the model are found in *README.txt*. The core part of CARBON-DISC 1.0 is found in *reactions.py*. The interactions in this script are calculated for all waterbodies (i.e. streams, lakes, reservoirs and floodplains) for all the C species in the three accompanied specie.ini files (*mon_abio_default.ini*, *mon_resp_default.ini*, *mon_bio_default.ini*) in the ini directory.

B model_input

Contains all input data in NETCDF format, necessary to run the CARBON DISC module and to reproduce results discussed in the main text. Global data has been masked to the Rhine basin.

C raw_output_data

Contains the raw output data of concentrations of C species and fluxes of C species of the 6^{th} order and higher in NETCDF format. Model output of smaller orders is available upon request.

D Data for figures

Contains the aggregated output data to be able to reproduce figures of the main article.

E Validation data

Contains csv files to assess validation results.

F Sensitivity analysis

Contains the raw output table in text format of the used Latin Hypercube Sampling method.
Contains the excel file that extracts the relevant results for this article, with the dominant sensitivities highlighted. Positively correlated sensitivities are colored in green, negatively correlated sensitivities are colored in red. Small sensitivities, an SRC > -0.2 and SRC < 0.2, are not highlighted.

References

van Hoek, W. J., Vilmin, L., Beusen, A., J., M., Langeveld, J., Bouwman, A. F. and Middelburg, J. J.: Release version 1 of the CARBON-Dynamic In Stream Chemistry model, , doi:10.5281/ZENODO.3402473, 2019.