

Curriculum Vitæ

Dr Benjamin David Stocker

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<https://stineb.github.io>

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Key achievements

- Developed a novel machine learning-based method to quantify soil moisture effects on vegetation productivity from the combination of flux measurements and satellite data (Stocker et al., 2018, *New Phytologist*)
- Provided the first consistent quantification of multiple climate feedbacks from the terrestrial biosphere using a coupled Earth System Model (Stocker et al., 2013, *Nature Climate Change*)
- Developed the first dynamic global model to simulate the distribution of peatlands and their effect on the carbon cycle under a changing climate (Stocker et al., 2014, *Geosci. Model Dev.*). This model was applied for the first transient simulation of global peatland after the Last Glacial Maximum (Stocker et al., 2017, *PNAS*).

Current position and research foci

March 2017 – February 2019

Marie Skłodowska-Curie Fellow at the Ecological and Forestry Applications Research Centre (CREAF), Barcelona, Spain, supervised by Prof. Josep Peñuelas

- Investigating nutrient and water limitation effects on ecosystem functioning, with a focus on carbon assimilation, allocation, and growth.
- Model development for the representation of terrestrial vegetation and biogeochemistry and model-data integration (<https://stineb.github.io/>)
- Management of code development and data across research groups in collaboration with C. Prentice (Imperial College London, U.K.), Trevor Keenan (Lawrence Berkeley National Lab, U.S.A.), and Sandy Harrison (Reading University, U.K.)

[confirmed] March 2019 – February 2020

Regular research staff with Prof. Josep Peñuelas at Global Ecology Unit, CREAM-CSIC-UAB, Barcelona, Spain

Education

Nov. 2009- Dec. 2013 **Ph.D. Climate Sciences at Climate- and Environmental Physics,**

University of Bern,

Climate Forcings and Feedbacks from the Terrestrial Biosphere – From Greenhouse-Gas Emissions to Anthropogenic Land Use Change

Supervised by Prof. F. Joos

Final grade: 6.0 (maximum: 6.0)

Date obtained: 13. Dec. 2013

- Sep. 2007- Oct. 2009** **M.Sc. Climate Sciences at Climate- and Environmental Physics,**
University of Bern,
Transient Simulations of Land Use Change in the Holocene – Separating the Human Impact from Natural Drivers of the Carbon Cycle
Supervised by Prof. F. Joos
Final grade: 5.73 (maximum: 6.0)
Date obtained: 16. Nov. 2009
- Jun. 2006** **Undergraduate in Geography** (120 ECTS) with a Minor (60 ECTS) in **Physics**, and a complementary (15 ECTS) in **Ecology**, University of Bern

Previous employment

- Sep. 2017- Feb. 2018** Postdoctoral Research Associate with Prof. S. Seneviratne at the Institute for Atmospheric and Climate Science, ETH Zürich, Switzerland
- Developing a machine learning-based method for the identification of soil moisture limitation on ecosystem productivity from Eddy covariance flux data
- Mar. 2015- Sep. 2016** Postdoctoral Research Fellow, funded by Early Postdoc.Mobility by the Swiss National Science Foundation, with Prof. I. C. Prentice at the Department of Life Sciences, Imperial College London, U.K.
- Mar. 2014- Feb. 2015** Postdoctoral Researcher with Prof. I. C. Prentice at the Department of Life Sciences, Imperial College London, U.K.
- Developing methods for simulating carbon-nitrogen cycle interactions
- Jan.-Feb. 2014** Postdoctoral Research Assistant at Climate- and Environmental Physics, University of Bern.
- Simulating land use effects in the coupled Earth system.
- Mar.-Jun. 2011** Visiting Scholar at Macquarie University, Sydney, Australia, Invitation and supervision by Prof. Colin Prentice
- Adopted a nitrogen module within the LPX global vegetation model
- Jan.-Jun. 2007** Internship at FirstClimate, Zürich, private company developing climate change mitigation projects
- Jan.-Jun. 2006** Research assistant, Centre for Development and Environment, development of a GIS-based database for FAO statistics

Awards and fellowships

- **Eccellenza Professorial Fellowship**, granted by the Swiss National Science Foundation, 60 months starting in 2020, total 1.8 mio. CHF (approx. 1.6 mio. EUR)
- **Marie Skłodowska-Curie Individual Fellowship**, 24 months, granted by ERC, scheduled starting date: March 2017, project number H2020-MSCA-IF-2015-701329 FIBER
- **Offered Incoming PEGASUS Fellowship**, granted by the Flemish Science Foundation (FWO), 36 months, July 2016. Not accepted due to acceptance of the ERC Marie Skłodowska-Curie Individual Fellowship.
- **Early Postdoc.Mobility scholarship**, granted by the Swiss National Science Foundation, 18 months starting in March 2015, total 62,750 EUR (72,000 CHF).
- **Faculty prize** for best Master's thesis at the Physics Institute, University of Bern, obtained Feb. 2010
- **Travel grant** for early career scientists for participation at the XIX INQUA Congress in Nagoya (60,000 JPY – approx. 1500 CHF)

- **Travel grant** for a Short Term Science Mission, funded by EU the ClimMani Cost Action ES1308 (ca. 1000 CHF)
- **Erasmus** scholarship from the European Union (ca. 1000 CHF)

Teaching and supervision

- **Lecturing Introduction to the Carbon Cycle** (MRes in Ecosystem and Environmental Change, Imperial College London), based on own teaching material and exercise
- **Co-supervision of graduate student** Fabian Feissli, Physics, University of Bern
 - Close collaboration on the development of an innovative method to simulate land use transitions within the LPX Dynamic Global Vegetation model, led by Prof. F. Joos
- **Co-supervision of undergraduate student** Guan Jie Low, Biology, Imperial College
 - Investigation of past atmospheric N₂O records, led by Prof. I.C. Prentice
- **Teaching assistant** at the Physics Institute, University of Bern, Switzerland
 - *Introduction to Carbon Cycle* by Prof. F. Joos (spring 2012, autumn 2013)
 - *Introduction to Climate- and Environmental Physics* (autumn 2010, autumn 2012)
 - *Physics Lab* (spring 2013)
 - *Climate Modelling and Introduction to Carbon Cycle*, translation of lecture notes from German to English
- **Author of a problem series** for *Introduction to the Carbon Cycle*, University of Berne
 - Designed problems and lead exercises for programming in R with a focus on the global carbon cycle

Professional activities and panel memberships

- **Contributing Author to IPCC** AR5, WGI, Chapter 6 *Carbon and other Biogeochemical Cycles*, and IPCC AR5, WGIII
- **Contributor to the Global Carbon Project**, years 2013, 2014, 2015, 2016, and 2017 (<http://www.globalcarbonproject.org/carbonbudget>)
 - Co-authoring annual summary of the state-of-the-art of the global carbon balance and CO₂ emission estimates
 - Providing simulation results of global CO₂ emissions from land use change
- **Review Editor** for *Forest Growth - from trees to ecosystems*, a specialty of *Frontiers in Forests and Global Change*
- **Session convener:**
 - EGU 2019, Vienna [upcoming]: *Terrestrial ecosystem responses to global change: integrating experiments and models to understand carbon, nutrient, and water cycling, and Scaling terrestrial ecosystem carbon and water response from leaf to continent with observations and simulations*
 - SIBECOL 2019 (First conference of the Iberian Ecological Society), Barcelona: *Predicting the response of carbon, nutrient and water to global change: Where theory, data and models meet*
 - EGU 2018, Vienna: *Terrestrial ecosystem responses to global change: integrating carbon, nutrient, and water cycles from experiments and models*
 - PAGES OSM 2017, Zaragoza: *Understanding past variations in atmospheric greenhouse gases to constrain future feedbacks in the Earth system*
 - INQUA 2015, Nagoya: *Using palaeo-environmental data to quantify climate feedbacks*
- **Ph.D. jury member:** Dr. Marcos Fernández-Martínez, UAB Barcelona, Spain (22.1.2016)
- **Workshop convener:**
 - *Terrestrial nitrogen cycling in Earth system models revisited*, 2.-5.2.2016

- *Palaeoclimate experiments to evaluate the impact of LULC on climate and the carbon cycle: a joint co-design workshop of the PAGES LandCover6ka WG and the Palaeoclimate Modelling Intercomparison Project, 18.-20.9.2018*
- **External reviewer for ERC Consolidator Grant Call 2018**
- **Completed peer reviews** for journals (total: 26): *Nature* (2), *Nature Geoscience* (3), *Nature Climate Change* (1), *New Phytologist* (2), *Global Change Biology* (1), *Geoscientific Model Development* (3), *Biogeosciences* (7), *Journal of Climate* (1), *Earth System Dynamics* (1), *Environmental Research Letters* (1), *Geophysical Research Letters* (1), *Global Biogeochemical Cycles* (1), *Earth and Planetary Science Letters* (1), *Journal of Geophysical Research – Biogeosciences* (1) [see also publons.com/a/1186022/]

Invited seminars and keynotes

- May 2018** “Towards a cost-based approach to understand and model nutrient limitation in terrestrial ecosystems”, INRA Bordeaux, **invited seminar**
- Oct. 2017** “Using data from ecosystem manipulation experiments to calibrate and validate (improve) models”, ClimMani Cost Action Final Conference, Utrecht, **invited keynote**
- Jun. 2017** “Trade-offs and optimality principles to guide the development of a next-generation vegetation model?” IPSL – LSCE, Paris, **invited seminar**
- May 2016** Large CO₂ emissions from preindustrial land use change – Does the carbon budget add up? University of Cambridge, **invited seminar**
- Jan. 2016** “Optimal plant carbon allocation implies a biological control on nitrogen availability”, PLECO, University of Antwerp, **invited seminar**
- Jun. 2015** “Preindustrial human impacts on the carbon cycle”, University of Reading, **invited seminar**
- Jan. 2015** “Preindustrial human impacts on the carbon cycle”, University College London, **invited seminar**
- Sep. 2014** “Spatio-temporal dynamics of global peatland extent and carbon stocks as simulated for the past twenty thousand years”, MPI Hamburg, **invited seminar**

Publications in peer-reviewed scientific journals

I am the author of **36 publications** in journals included in the Web of Science, appearing as a first author in 7 publications. Seven of my publications are in top-ranking journals (*Science*, *Nature*, *PNAS*, *Nature Clim. Change*, *Nature Geosci.*). I have accumulated **2715 citations** and have a **h-index of 18** (Web of Science, 18.2.2019). I have 30 publications without my PhD promoters.

- 2019 Stocker, B. D.**, Zscheischler, J., Keenan T. K., Prentice I. C., Seneviratne S. I., Peñuelas, J.: Drought impacts on terrestrial primary production underestimated by satellite monitoring. *Nature Geoscience*, accepted 31.1.2019

 - I conducted the analysis, developed the model, and wrote the paper.
- 2018 Stocker, B. D.**, Zscheischler, J., Keenan, T. F., Prentice, I. C., Peñuelas, J. and Seneviratne, S. I. (2018), Quantifying soil moisture impacts on light use efficiency across biomes. *New Phytologist*, 218: 1430-1449. doi:10.1111/nph.15123

 - I developed the method, conducted the analysis and wrote the paper.
 - Link: <https://nph.onlinelibrary.wiley.com/doi/abs/10.1111/nph.15123>
- Vicca, S., **Stocker, B.**, Reed, S., Wieder, W. R., Bahn, M., Fay, P., Janssens, I., Lambers, H., Peñuelas, J., Piao, S., Rebel, K., Sardans, J., Sigurdsson, B., Sun, K. V., Wang, Y.-P., Zaehle, S., and Ciais, P.: Using research networks to create the comprehensive datasets needed to assess nutrient availability as a key determinant of terrestrial carbon cycling, *Environmental Research Letters*, URL <http://iopscience.iop.org/10.1088/1748-9326/aaeac7>, 2018.

 - For this perspectives paper, I am acknowledged to have made equal contributions with the first author.
 - Link: <http://iopscience.iop.org/article/10.1088/1748-9326/aaeac7/pdf>
- Terrer, C., Vicca, S., **Stocker, B. D.**, Hungate, B. A., Phillips, R. P., Reich, P. B., Finzi, A. C., and Prentice, I. C.: Ecosystem responses to elevated CO₂ governed by plant-soil interactions and the cost of nitrogen acquisition, *New Phytologist*, 217, 507–522, 2018.

 - I designed the evaluation framework and contributed intensively to writing the manuscript. This was published as a *Tansley Review*
 - Link: http://bstocker.net/wp-content/uploads/2016/09/Terrer_et_al-2017-New_Phytologist.pdf
- Wang, Y., Ciais, P., Goll, D., Huang, Y., Luo, Y., Wang, Y.-P., Bloom, A. A., Broquet, G., Hartmann, J., Peng, S., Peñuelas, J., Piao, S., Sardans, J., **Stocker, B. D.**, Wang, R., Zaehle, S., and Zechmeister-Boltenstern, S.: GOLUM-CNP v1.0: a data-driven modeling of carbon, nitrogen and phosphorus cycles in major terrestrial biomes, *Geoscientific Model Development*, 11, 3903–3928, doi:10.5194/gmd-11-3903-2018, URL <https://www.geosci-model-dev.net/11/3903/2018/>, 2018.

 - I contributed to model formulation, the design of the study and manuscript writing.
 - Link: <https://www.geosci-model-dev.net/11/3903/2018/gmd-11-3903-2018.pdf>

- Le Quéré, C., Andrew, R. M., Friedlingstein, P., Sitch, S., Pongratz, J., Manning, A. C., Korsbakken, J. I., Peters, G. P., Canadell, J. G., Jackson, R. B., Boden, T. A., Tans, P. P., Andrews, O. D., Arora, V. K., Bakker, D. C. E., Barbero, L., Becker, M., Betts, R. A., Bopp, L., Chevallier, F., Chini, L. P., Ciais, P., Cosca, C. E., Cross, J., Currie, K., Gasser, T., Harris, I., Hauck, J., Haverd, V., Houghton, R. A., Hunt, C. W., Hurtt, G., Ilyina, T., Jain, A. K., Kato, E., Kautz, M., Keeling, R. F., Klein Goldewijk, K., Körtzinger, A., Landschützer, P., Lefèvre, N., Lenton, A., Lienert, S., Lima, I., Lombardozzi, D., Metzl, N., Millero, F., Monteiro, P. M. S., Munro, D. R., Nabel, J. E. M. S., Nakaoka, S.-I., Nojiri, Y., Padin, X. A., Peregon, A., Pfeil, B., Pierrot, D., Poulter, B., Rehder, G., Reimer, J., Rödenbeck, C., Schwinger, J., Séférian, R., Skjelvan, I., **Stocker, B. D.**, Tian, H., Tilbrook, B., Tubiello, F. N., van der Laan-Luijkx, I. T., van der Werf, G. R., van Heuven, S., Viovy, N., Vuichard, N., Walker, A. P., Watson, A. J., Wiltshire, A. J., Zaehle, S., and Zhu, D.: Global Carbon Budget 2017, *Earth System Science Data*, 10, 405–448, doi:10.5194/essd-10-405-2018, URL, 2018.

- I prepared land use forcing data and contributed to writing.
- Link: <https://www.earth-syst-sci-data.net/10/405/2018/>

- 2017 Stocker, B. D.**, Yu, Z., Massa, C., and Joos, F.: Holocene peatland and ice-core data constraints on the timing and magnitude of CO₂ emissions from past land use, *Proceedings of the National Academy of Sciences*, 114, 1492–1497, doi:10.1073/pnas.1613889114, 2017.

- I led the study and conducted the analysis and writing.
- Link: <http://bstocker.net/wp-content/uploads/2017/01/stocker17pnas.pdf>

- Arneth, A., Sitch, S., Pongratz, J., **Stocker, B. D.**, Ciais, P., Poulter, B., Bayer, A. D., Bondeau, A., Calle, L., Chini, L. P., Gasser, T., Fader, M., Friedlingstein, P., Kato, E., Li, W., Lindeskog, M., Nabel, J. E. M. S., Pugh, T. A. M., Robertson, E., Viovy, N., Yue, C., and Zaehle, S.: Historical carbon dioxide emissions caused by land- use changes are possibly larger than assumed, *Nature Geoscience*, 10, 79–84, URL <http://dx.doi.org/10.1038/ngeo2882>, 2017.

- I contributed model simulations and contributed to designing the study and writing.
- Link: <http://bstocker.net/wp-content/uploads/2016/09/arneth17natgeo.pdf>

- Terrer, C., Vicca, S., Hungate, B. A., Phillips, R. P., Reich, P. B., Franklin, O., **Stocker, B. D.**, Fisher, J. B., and Prentice, I. C.: Response to Comment on “Mycorrhizal association as a primary control of the CO₂ fertilization effect”, *Science*, 355, 358–358, doi:10.1126/science.aai8242, URL <http://science.sciencemag.org/content/355/6323/358.3>, 2017.

- I contributed to writing.
- Link: http://bstocker.net/wp-content/uploads/2016/09/terrer17sci_response.pdf

- Davis, T. W., Prentice, I. C., **Stocker, B. D.**, Thomas, R. T., Whitley, R. J., Wang, H., Evans, B. J., Gallego-Sala, A. V., Sykes, M. T., and Cramer, W.: Simple process-led algorithms for simulating habitats (SPLASH v1.0): robust indices of radiation, evapotranspiration and plant-available moisture, *Geoscientific Model Development*, 10, 689–708, doi:10.5194/gmd-10-689-2017, URL <http://www.geosci-model-dev.net/10/689/2017/>, 2017.

- I collaborated closely on the development of this model code and wrote its version in Fortran.
- Link: <http://www.geosci-model-dev.net/10/689/2017/>

- Peñuelas, J., Sardans, J., Filella, I., Estiarte, M., Llusía, J., Ogaya, R., Carnicer, J., Bartrons, M., Rivas-Ubach, A., Grau, O., Peguero, G., Margalef, O., Pla-Rabés, S., Stefanescu, C., Asensio, D., Preece, C., Liu, L., Verger, A., Barbeta, A., Achotegui- Castells, A., Gargallo-Garriga, A., Sperlich, D., Farré -Armengol, G., Fernández- Martínez, M., Liu, D., Zhang, C., Urbina, I., Camino-Serrano, M., Vives-Inglá, M., **Stocker, D. B.**, Balzarolo, M., Guerrieri, R., Peaucelle, M., Marañón-Jiménez, S., Bórnez-Mejías, K., Mu, Z., Descals, A., Castellanos, A., and Terradas, J.: Impacts of Global Change on Mediterranean Forests and Their Services, *Forests*, 8, <http://www.mdpi.com/1999-4907/8/12/463/pdf> , 2017.
 - I contributed to writing.
 - Link: <http://www.mdpi.com/1999-4907/8/12/463/pdf>
- Li, W., Ciais, P., Peng, S., Yue, C., Wang, Y., Thurner, M., Saatchi, S. S., Arneeth, A., Avitabile, V., Carvalhais, N., Harper, A. B., Kato, E., Koven, C., Liu, Y. Y., Nabel, J. E. M. S., Pan, Y., Pongratz, J., Poulter, B., Pugh, T. A. M., Santoro, M., Sitch, S., **Stocker, B. D.**, Viovy, N., Wiltshire, A., Yousefpour, R., and Zaehle, S.: Land- use and land-cover change carbon emissions between 1901 and 2012 constrained by biomass observations, *Biogeosciences*, 14, 5053–5067, 2017.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <https://www.biogeosciences.net/14/5053/2017/>
- 2016 Le Quéré, C., Andrew, R. M., Canadell, J. G., Sitch, S., Korsbakken, J. I., Peters, G. P., Manning, A. C., Boden, T. A., Tans, P. P., Houghton, R. A., Keeling, R. F., Alin, S., Andrews, O. D., Anthoni, P., Barbero, L., Bopp, L., Chevallier, F., Chini, L. P., Ciais, P., Currie, K., Delire, C., Doney, S. C., Friedlingstein, P., Gkritzalis, T., Harris, I., Hauck, J., Haverd, V., Hoppema, M., Klein Goldewijk, K., Jain, A. K., Kato, E., Körtzinger, A., Landschützer, P., Lefèvre, N., Lenton, A., Lienert, S., Lombardozzi, D., Melton, J. R., Metzl, N., Millero, F., Monteiro, P. M. S., Munro, D. R., Nabel, J. E. M. S., Nakaoka, S.-I., O'Brien, K., Olsen, A., Omar, A. M., Ono, T., Pierrot, D., Poulter, B., Rödenbeck, C., Salisbury, J., Schuster, U., Schwinger, J., Séférian, R., Skjelvan, I., **Stocker, B. D.**, Sutton, A. J., Takahashi, T., Tian, H., Tilbrook, B., van der Laan-Luijkx, I. T., van der Werf, G. R., Viovy, N., Walker, A. P., Wiltshire, A. J., and Zaehle, S.: Global Carbon Budget 2016, *Earth System Science Data*, 8, 605–649, doi:10.5194/essd-8-605-2016, URL <http://www.earth-syst-sci-data.net/8/605/2016/>, 2016.
 - I contributed model simulations and text on land use emissions and land-ocean carbon fluxes.
 - Link: <http://www.earth-syst-sci-data.net/8/605/2016/>
- Zhang, Y., Xiao, X., Guanter, L., Zhou, S., Ciais, P., Joiner, J., Sitch, S., Wu, X., Nabel, J., Dong, J., Kato, E., Jain, A. K., Wiltshire, A., and **Stocker, B. D.**: Precipitation and carbon-water coupling jointly control the interannual variability of global land gross primary production, *Scientific Reports*, 6, 39748 EP –, URL <http://dx.doi.org/10.1038/srep39748>, 2016.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://dx.doi.org/10.1038/srep39748>
- Zhao, F., Zeng, N., Asrar, G., Friedlingstein, P., Ito, A., Jain, A., Kalnay, E., Kato, E., Koven, C. D., Poulter, B., Rafique, R., Sitch, S., Shu, S., **Stocker, B. D.**, Viovy, N., Wiltshire, A., and Zaehle, S.: Role of CO₂, climate and land use in regulating the seasonal amplitude increase of carbon fluxes in terrestrial ecosystems: a multimodel analysis, *Biogeosciences*, 13, 5121–5137, doi:10.5194/bg-13-5121-2016, 2016.
 - I contributed model simulations.
 - Link: <https://www.biogeosciences.net/13/5121/2016/>

- Murray-Tortarolo, G., Friedlingstein, P., Sitch, S., Jaramillo, V. J., Murguía-Flores, F., Anav, A., Liu, Y., Arneth, A., Arvanitis, A., Harper, A., Jain, A., Kato, E., Koven, C., Poulter, B., **Stocker, B. D.**, Wiltshire, A., Zaehle, S., and Zeng, N.: The carbon cycle in Mexico: past, present and future of C stocks and fluxes, *Biogeosciences*, 13, 223–238, doi:10.5194/bg-13-223-2016, 2016
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.biogeosciences.net/13/223/2016/>
- Calle, L., Canadell, J. G., Patra, P., Ciais, P., Ichii, K., Tian, H., Kondo, M., Piao, S., Arneth, A., Harper, A. B., Ito, A., Kato, E., Koven, C., Sitch, S., **Stocker, B. D.**, Vivoy, N., Wiltshire, A., Zaehle, S., and Poulter, B.: Regional carbon fluxes from land use and land cover change in Asia, 1980–2009, *Environmental Research Letters*, 11, 074 011, URL <http://stacks.iop.org/1748-9326/11/i=7/a=074011>, 2016
 - I contributed model simulations and helped writing the manuscript.
 - Link: http://bstocker.net/wp-content/uploads/2016/09/calle16erl_trendy.pdf
- Cervarich, M., Shu, S., Jain, A. K., Arneth, A., Canadell, J., Friedlingstein, P., Houghton, R. A., Kato, E., Koven, C., Patra, P., Poulter, B., Sitch, S., **Stocker, B.**, Viovy, N., Wiltshire, A., and Zeng, N.: The terrestrial carbon budget of South and Southeast Asia, *Environmental Research Letters*, 11, 105 006, URL <http://stacks.iop.org/1748-9326/11/i=10/a=105006>, 2016.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://stacks.iop.org/1748-9326/11/i=10/a=105006>
- Zhu, Z., Piao, S., Myneni, R. B., Huang, M., Zeng, Z., Canadell, J. G., Ciais, P., Sitch, S., Friedlingstein, P., Arneth, A., Cao, C., Cheng, L., Kato, E., Koven, C., Li, Y., Lian, X., Liu, Y., Liu, R., Mao, J., Pan, Y., Peng, S., Penuelas, J., Poulter, B., Pugh, T. A. M., **Stocker, B. D.**, Viovy, N., Wang, X., Wang, Y., Xiao, Z., Yang, H., Zaehle, S., and Zeng, N.: Greening of the Earth and its drivers, *Nature Clim. Change*, 6, 791–795, 2016.
 - I contributed model simulations and helped writing the manuscript.
 - Link: http://bstocker.net/wp-content/uploads/2016/09/zhu16natcc_greening.pdf
- Mendelsohn, R., Prentice, I. C., Schmitz, O., **Stocker, B.**, Buchkowski, R., and Dawson, B.: The Ecosystem Impacts of Severe Warming, *American Economic Review*, 106, 612–14, doi: 10.1257/aer.p20161104, 2016
 - I conducted the analysis of model simulations and contributed to writing.
 - Link: <http://bstocker.net/wp-content/uploads/2016/09/mendelsohn16.pdf>
- 2015 Stocker, B. D.** and Joos, F.: Quantifying differences in land use emission estimates implied by definition discrepancies, *Earth Syst. Dynam.*, 6, 731–744, doi:10.5194/esd-6-731-2015, 2015.
 - I designed the study, conducted simulations and analysis and wrote the manuscript.
 - Link: <http://www.earth-syst-dynam.net/6/731/2015/esd-6-731-2015.html>
- Le Quéré, C., Moriarty, R., Andrew, R. M., Canadell, J. G., Sitch, S., Korsbakken, J. I., Friedlingstein, P., Peters, G. P., Andres, R. J., Boden, T. A., Houghton, R. A., House, J. I., Keeling, R. F., Tans, P., Arneth, A., Bakker, D. C. E., Barbero, L., Bopp, L., Chang, J., Chevallier, F., Chini, L. P., Ciais, P., Fader, M., Feely, R. A., Gkritzalis, T., Harris, I., Hauck, J., Ilyina, T., Jain, A. K., Kato, E., Kitidis, V., Klein Goldewijk, K., Koven, C., Landschützer, P., Lauvset, S. K., Lefèvre, N., Lenton, A., Lima, I. D., Metzl, N., Millero, F., Munro, D. R., Murata, A., Nabel, J. E. M. S., Nakaoka, S., Nojiri, Y., O'Brien, K., Olsen, A., Ono, T., Pérez, F. F., Pfeil, B., Pierrot, D., Poulter, B., Rehder, G., Rödenbeck, C., Saito, S., Schuster, U., Schwinger, J., Séférian, R., Steinhoff, T., **Stocker, B. D.**, Sutton, A. J., Takahashi, T., Tilbrook, B., van der Laan-Luijkx, I. T., van der Werf, G. R., van Heuven, S., Vandemark, D., Viovy, N., Wiltshire, A., Zaehle, S., and Zeng, N.: Global Carbon Budget 2015, *Earth Syst. Sci. Data*, 7, 349–396, doi:10.5194/essd-7-349-2015, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.earth-syst-sci-data.net/7/349/2015/essd-7-349-2015.html>

- Fowler, D., Steadman, C. E., Stevenson, D., Coyle, M., Rees, R. M., Skiba, U. M., Sutton, M. A., Cape, J. N., Dore, A. J., Vieno, M., Simpson, D., Zaehle, S., **Stocker, B. D.**, Rinaldi, M., Facchini, M. C., Flechard, C. R., Nemitz, E., Twigg, M., Erisman, J. W., Butterbach-Bahl, K., and Galloway, J. N.: Effects of global change during the 21st century on the nitrogen cycle, *Atmos. Chem. Phys.*, 15, 13849-13893, doi:10.5194/acp-15-13849-2015, 2015.
 - I conducted model simulations and helped writing the manuscript.
 - Link: <http://www.atmos-chem-phys.net/15/13849/2015/>
- Olin, S., Lindeskog, M., Pugh, T. A. M., Schurgers, G., Wärlind, D., Mishurov, M., Zaehle, S., **Stocker, B. D.**, Smith, B., and Arneth, A.: Soil carbon management in large-scale Earth system modelling: implications for crop yields and nitrogen leaching, *Earth Syst. Dynam.*, 6, 745-768, doi:10.5194/esd-6-745-2015, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.earth-syst-dynam.net/6/745/2015/esd-6-745-2015.html>
- Ballantyne, A. P., Andres, R., Houghton, R., **Stocker, B. D.**, Wanninkhof, R., Anderegg, W., Cooper, L. A., DeGrandpre, M., Tans, P. P., Miller, J. B., Alden, C., and White, J. W. C.: Audit of the global carbon budget: estimate errors and their impact on uptake uncertainty, *Biogeosciences*, 12, 2565-2584, doi:10.5194/bg-12-2565-2015, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.biogeosciences.net/12/2565/2015/>
- Ahlström, A., Raupach, M. R., Schurgers, G., Smith, B., Arneth, A., Jung, M., Reichstein, M., Canadell, J. G., Friedlingstein, P., Jain, A. K., Kato, E., Poulter, B., Sitch, S., **Stocker, B. D.**, Viovy, N., Wang, Y. P., Wiltshire, A., Zaehle, S., and Zeng, N.: The dominant role of semi-arid ecosystems in the trend and variability of the land CO₂ sink, *Science*, 348, 895-899, doi:10.1126/science.aaa1668, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: http://bstocker.net/wp-content/uploads/2016/09/ahlstroem15sci_csink.pdf
- Le Quéré, C., Moriarty, R., Andrew, R. M., Peters, G. P., Ciais, P., Friedlingstein, P., Jones, S. D., Sitch, S., Tans, P., Arneth, A., Boden, T. A., Bopp, L., Bozec, Y., Canadell, J. G., Chini, L. P., Chevallier, F., Cosca, C. E., Harris, I., Hoppema, M., Houghton, R. A., House, J. I., Jain, A. K., Johannessen, T., Kato, E., Keeling, R. F., Kitidis, V., Klein Goldewijk, K., Koven, C., Landa, C. S., Landschützer, P., Lenton, A., Lima, I. D., Marland, G., Mathis, J. T., Metzl, N., Nojiri, Y., Olsen, A., Ono, T., Peng, S., Peters, W., Pfeil, B., Poulter, B., Raupach, M. R., Regnier, P., Rödenbeck, C., Saito, S., Salisbury, J. E., Schuster, U., Schwinger, J., Séférian, R., Segschneider, J., Steinhoff, T., **Stocker, B. D.**, Sutton, A. J., Takahashi, T., Tilbrook, B., van der Werf, G. R., Viovy, N., Wang, Y.-P., Wanninkhof, R., Wiltshire, A., and Zeng, N.: Global carbon budget 2014, *Earth Syst. Sci. Data*, 7, 47-85, doi:10.5194/essd-7-47-2015, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.earth-syst-sci-data.net/7/47/2015/>
- Bohn, T. J., Melton, J. R., Ito, A., Kleinen, T., Spahni, R., **Stocker, B. D.**, Zhang, B., Zhu, X., Schroeder, R., Glagolev, M. V., Maksyutov, S., Brovkin, V., Chen, G., Denisov, S. N., Eliseev, A. V., Gallego-Sala, A., McDonald, K. C., Rawlins, M. A., Riley, W. J., Subin, Z. M., Tian, H., Zhuang, Q., and Kaplan, J. O.: WETCHIMP-WSL: intercomparison of wetland methane emissions models over West Siberia, *Biogeosciences*, 12, 3321-3349, doi:10.5194/bg-12-3321-2015, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.biogeosciences.net/12/3321/2015/>

- Osborne, J. M., Lambert, F. H., Groenendijk, M., Harper, A. B., Koven, C. D., Poulter, B., Pugh, T. A. M., Sitch, S., **Stocker, B. D.**, Wiltshire, A., and Zaehle, S.: Reconciling Precipitation with Runoff: Observed Hydrological Change in the Midlatitudes, *Journal of Hydrometeorology*, 16, 2403–2420, doi:10.1175/JHM-D-15-0055.1, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: http://bstocker.net/wp-content/uploads/2016/09/osborne14_bs.pdf
- Berchet, A., Pison, I., Chevallier, F., Paris, J.-D., Bousquet, P., Bonne, J.-L., Arshinov, M. Y., Belan, B. D., Cressot, C., Davydov, D. K., Dlugokencky, E. J., Fofonov, A. V., Galanin, A., Lavrič, J., Machida, T., Parker, R., Sasakawa, M., Spahni, R., **Stocker, B. D.**, and Winderlich, J.: Natural and anthropogenic methane fluxes in Eurasia: a mesoscale quantification by generalized atmospheric inversion, *Biogeosciences*, 12, 5393–5414, doi:10.5194/bg-12-5393-2015, 2015.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.biogeosciences.net/12/5393/2015/>
- 2014 Stocker, B. D.**, Spahni, R., and Joos, F.: DYPTOP: a cost-efficient TOPMODEL implementation to simulate sub-grid spatio-temporal dynamics of global wetlands and peatlands, *Geosci. Model Dev.*, 7, 3089–3110, doi:10.5194/gmd-7-3089-2014, 2014.
 - I developed the model for simulating peatland area and carbon dynamics and wrote the manuscript. **This paper was part of my Ph.D.**
 - Link: <http://www.geosci-model-dev.net/7/3089/2014/gmd-7-3089-2014.html>
- **Stocker, B. D.**, Feissli, F., Strassmann, K., Spahni, R., and Joos, F.: Past and future carbon fluxes from land use change, shifting cultivation and wood harvest, *Tellus B*, 66, doi:10.3402/tellusb.v66.23188, 2014
 - I wrote the model for simulating subgrid-scale land use transitions and wrote the manuscript. **This paper was part of my Ph.D.**
 - Link: <http://www.tellusb.net/index.php/tellusb/article/view/23188>
- Le Quéré, C., Peters, G. P., Andres, R. J., Andrew, R. M., Boden, T., Ciais, P., Friedlingstein, P., Houghton, R. A., Marland, G., Moriarty, R., Sitch, S., Tans, P., Arneeth, A., Arvanitis, A., Bakker, D. C. E., Bopp, L., Canadell, J. G., Chini, L. P., Doney, S. C., Harper, A., Harris, I., House, J. I., Jain, A. K., Jones, S. D., Kato, E., Keeling, R. F., Klein Goldewijk, K., Körtzinger, A., Koven, C., Lefèvre, N., Omar, A., Ono, T., Park, G.-H., Pfeil, B., Poulter, B., Raupach, M. R., Regnier, P., Rödenbeck, C., Saito, S., Schwinger, J., Segschneider, J., **Stocker, B. D.**, Tilbrook, B., van Heuven, S., Viovy, N., Wanninkhof, R., Wiltshire, A., Zaehle, S., and Yue, C.: Global carbon budget 2013, *Earth Syst. Sci. Data*, 6, 235–263, doi:10.5194/essd-6-235-2014, 2014.
 - I contributed model simulations and helped writing the manuscript.
 - Link: <http://www.earth-syst-sci-data.net/6/235/2014/>
- 2013 Stocker, B. D.**, Roth, R., Joos, F., Spahni, R., Steinacher, M., Zaehle, S., Bouwman, L., Xu-Ri, and Prentice, I. C.: Multiple greenhouse-gas feedbacks from the land biosphere under future climate change scenarios, *Nature Clim. Change*, 3, 666–672, 2013
 - Link: http://bstocker.net/wp-content/uploads/2016/09/stocker13natcc_multiGHG_PUBLISHED.pdf
- Le Quéré, C., Andres, R. J., Boden, T., Conway, T., Houghton, R. A., House, J. I., Marland, G., Peters, G. P., van der Werf, G. R., Ahlström, A., Andrew, R. M., Bopp, L., Canadell, J. G., Ciais, P., Doney, S. C., Enright, C., Friedlingstein, P., Huntingford, C., Jain, A. K., Jourdain, C., Kato, E., Keeling, R. F., Klein Goldewijk, K., Levis, S., Levy, P., Lomas, M., Poulter, B., Raupach, M. R., Schwinger, J., Sitch, S., **Stocker, B. D.**, Viovy, N., Zaehle, S., and Zeng, N.: The global carbon budget 1959–2011, *Earth Syst. Sci. Data*, 5, 165–185, doi:10.5194/essd-5-165-2013, 2013.
 - Link: <http://www.earth-syst-sci-data.net/5/165/2013/>

- Spahni, R., Joos, F., **Stocker, B. D.**, Steinacher, M., and Yu, Z. C.: Transient simulations of the carbon and nitrogen dynamics in northern peatlands: from the Last Glacial Maximum to the 21st century, *Clim. Past*, 9, 1287-1308, doi:10.5194/cp-9-1287-2013, 2013.
 - Link: <http://www.clim-past.net/9/1287/2013/>
- 2011 Stocker, B. D.**, Strassmann, K., and Joos, F.: Sensitivity of Holocene atmospheric CO₂ and the modern carbon budget to early human land use: analyses with a process-based model, *Biogeosciences*, 8, 69-88, doi:10.5194/bg-8-69-2011, 2011.
 - Link: <http://www.biogeosciences.net/8/69/2011/>
- 2010** Frank, D. C., Esper, J., Raible, C. C., Buntgen, U., Trouet, V., **Stocker, B.**, and Joos, F.: Ensemble reconstruction constraints on the global carbon cycle sensitivity to climate, *Nature*, 463, 527-530, 2010
 - Link: <http://bstocker.net/wp-content/uploads/2016/09/frank10nat.pdf>

Other publications

- 2018 Stocker, B. D.**, Yu, Z., Joos, F.: Contrasting CO₂ emissions from different Holocene land-use reconstructions: Does the carbon budget add up?, *PAGES Magazine*, 26(1), 6-7, doi.org/10.22498/pages.26.1.6, 2018.
 - I wrote this article describing our results of Stocker et al. (2017) *PNAS*
- Harrison, S., **Stocker, B. D.**, Klein-Goldewijk, K., Kaplan, J. O., Braconnot, P.: Do we need to include anthropogenic land-use and land-cover changes in paleoclimate simulations?, *PAGES Magazine*, 26(1), 4-5, doi.org/10.22498/pages.26.1.4, 2018.
 - I wrote parts of the article and created Fig. 2
- 2016 Stocker, B. D.**, Prentice, I. C., Cornell, S. E., Davies-Barnard, T., Finzi, A. C., Franklin, O., Janssens, I., Larmola, T., Manzoni, S., Näsholm, T., Raven, J. A., Rebel, K. T., Reed, S., Vicca, S., Wiltshire, A., and Zaehle, S.: Terrestrial nitrogen cycling in Earth system models revisited, *New Phytologist*, 210, 1165-1168, doi: 10.1111/nph.13997, 2016-21758, 2016.
 - I wrote this *New Phytologist Meeting Report*, which is subject to only editorial review.
 - Link: http://bstocker.net/wp-content/uploads/2016/09/stocker16newphyt_ncycle.pdf

Other products with documented use

- 2018 Stocker, B. D.** (2018). fLUE [Data set]. *Zenodo*. <http://doi.org/10.5281/zenodo.1158524>
 - Dataset accompanying Stocker et al. (2018) *New Phytologist*.
- **Stocker, B. D.** (2018). soilm_global v0.1 (Version v0.1). *Zenodo*. <http://doi.org/10.5281/zenodo.1286966>
 - Code accompanying Stocker et al. (submitted)
- **Stocker, B. D.** (2018). sofun: v1.1.0 (Version v1.1.0). *Zenodo*. <http://doi.org/10.5281/zenodo.1213758>
 - Model code from own development, used and referred to by Stocker et al. (subm.) and Guerrieri et al. (subm.)
- 2017 Stocker, B. D.** (2017). nn_fluxnet2015 (Version submission_2). *Zenodo*. <http://doi.org/10.5281/zenodo.1158575>
 - Code accompanying Stocker et al. (2018) *New Phytologist*.

- **Stocker, B.D.**, Z. Yu, C. Massa, and F. Joos. 2017. Global Peatland Carbon Balance and Land Use Change CO₂ Emissions Through the Holocene. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAAC/1382>
 - Datasets accompanying Stocker et al. (2017) *PNAS*.

Papers in review

- Guerrieri, R., Belmecheri, S., Ollinger, S., Asbjornsen, H., Jennings, K., Xiao, J., **Stocker, B. D.**, Martin, M., Hollinger, D., Bracho-Garrillo, R., Clark, K., Dore S., Kolb, T., Munger, J. W., Novick, K., Richardson, A.: Disentangling the role of photosynthesis and stomatal conductance on rising forest water-use efficiency, in review at *P.N.A.S.*
- Franklin, O., Cramer, W., Pietsch, S., Prentice, I.C., Wang Han, Brännström, Å., Dieckmann, U., Falster, D., Farrior, C., Hofhansl, F., Penuelas, J., Mäkelä, A., Manzoni, S., Rebel, K., Rovenskaya, E., Soudzilovskaia, N., **Stocker, B. D.**, Terrer, C., van Bodegom, P., Wright, I., Zaehle, S.: Challenges and perspectives for modelling changing land ecosystems, submitted to *Nature Sustainability*, 7.8.2018
- Terrer, C., Franklin, O., Prentice, I.C., Keenan, T.F., Kaiser, C., Vicca, S., Fisher, J., Reich, P., **Stocker, B.D.**, Hungate, B.A., Peñuelas, J., McCallum, I., Soudzilovskaia, N., Cernusak, L., Talhelm, A., Piao, S., Newton, P.C.D., Hovenden, M., Blumenthal, D.M., Liu, Y., Müller, C., Winter, K., Field, C.B., Viechtbauer, W., Jackson, R.: The CO₂ fertilisation effect on global plant biomass, in review at *Nature Climate Change* since 1.11.2018
- Peaucelle, M., Ivan Janssens, **Stocker, B.**, Descals Ferrando, A., Fu, Y., Ciais, P., Penuelas, J., Spatial variance of spring phenology in temperate deciduous forests is determined by biogeographical conditions of temperature, light and aridity, in review at *Nature Communications* since 18.2.2019
- Li, G., Copes-Gerbitz, K., **Stocker, B. D.**, Bell, B. A., Fletcher, W., Prentice I. C., Harrison, S. P., Climate controls on recent dieback of the Atlas cedar in Morocco, submitted to *Agricultural and Forest Meteorology*, 21.2.2019
- Fernández-Martínez, M., Yu, R., Gamon, J., Hmimina, G., Filella, I., Balzarolo, M., **Stocker, B.**, Penuelas, J. Monitoring spatial and temporal variabilities of gross primary production using MAIAC MODIS data, submitted to *Remote Sensing of Environment*, 4.3.2019