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(* 25.09.1972, Kiel, Germany)



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Academic education

- 1998–2001 PhD study; Thesis: *'Drought effects on ecosystem carbon and water exchange in three Mediterranean forest ecosystems – a combined top-down and bottom-up analysis'* (summa cum laude), University of Bayreuth.
- 1992–1998 Diploma studies in Landscape Ecology, Institute of Landscape Ecology, University of Münster; Thesis: *'Microbial biomass and carbon mineralisation in the alpine forest-tundra ecotone at Stillberg (Davos, Switzerland)'* (with distinction).

Current positions and affiliations

- 2021 (Jan/Feb) Guest professor at University Innsbruck, Austria.
- since 2014 Founding co-director of the Michael-Stifel-Center Jena for Data-driven and Simulation Science, Friedrich-Schiller-University of Jena (re-elected 2018)
- since 07/2014 Professor for Global Geoecology at the Friedrich Schiller University Jena.
- since 07/2012 Director, Department Biogeochemical Integration, Max-Planck-Institute for Biogeochemistry, Jena.

Previous positions

- 2018-2020 and
- 2014-2016 Managing Director, Max-Planck-Institute for Biogeochemistry, Jena.
- 2006-2012 Max Planck Research Group Leader at Max-Planck-Institute for Biogeochemistry, Jena, Biogeochemical Model-Data-Integration Group.
- 2004–2006 EU-Marie-Curie research fellow at Forest Ecology Lab, Department of Forest Science and Environment, University of Tuscia, Italy.
- 2001–2003 Graduate Research Assistant, teaching and internal co-ordination of the Terrestrial Process Integration Group at Department of Plant Ecology, University of Bayreuth (BMBF Project GLOWA-Danube, EU Projects CarboData and CarboEuroflux).
- 1998–2001 Graduate Research Assistant, Department of Plant Ecology, University of Bayreuth (EU research projects MEDEFU, and VOCAMOD).

Awards/Distinctions/Fellowships

2020	Gottfried Wilhelm Leibniz Prize 2020
since 2019	ERC Synergy Grant USMILE Understanding and Modelling the Earth System with Machine Learning
2018	American Geophysical Union Piers J. Sellers Global Environmental Change Mid-Career Award
2014-2021	Highly cited researcher in Environmental Sciences/Environment and Ecology, 2017-2021 in Geosciences, additionally 2016 and 2018 in Agriculture Sciences, Thomson Reuters, USA/Canada
2013	Max-Planck Research Award (by Alexander-von-Humboldt foundation)
2010	Jim Gray (Microsoft) seed award for excellence in e-science
2009	Essential Science Indicators “Hot paper” (by Sciencewatch) for Moffat, Papale, Reichstein et al., 2007)
2008	ERC Starting Grant QUASOM
2008	“Rising star in Environment & Ecology” (Classified by essential science indicators - Sciencewatch)
2008, 2007	CARBOEUROPE best young scientist paper award for (1) Owen, Tenhunen, Reichstein et al. (2007), Glob. Ch. Biol. 13:734-760 (2) Wutzler and Reichstein (2008), Biogeosciences 5:749-759.
2005	Marie-Curie Intra-European fellowship INTERMODE
2005	CARBOEUROPE best young scientist paper award for Reichstein et al. (2005), Glob.Ch. Biol. 11, 1424-1439
2001	Highest distinction for PhD thesis, University of Bayreuth
1998	Highest distinction for Diploma thesis, University of Münster

Leadership, Committees and Memberships

2022	Member of the Selection Committee for the Award of the Alexander von Humboldt Professorship
since 2021	Chair Steering Committee <i>Knowledge Action Network on Emergent Risks and Extreme Events</i> (a Future Earth, IRDR, WCRP and WWRP initiative)
since 2021	Founding Director ELLIS Unit Jena „Machine Learning for Earth and Climate Sciences“ (jointly with Prof. J. Denzler)
since 2020	Member of the UNDRR-ISC Expert Review Group for the Development of a New Global Disaster Risk Reduction Research Agenda
since 2020	Member of the Strategic Advisory Board of the research field Earth and Environment, Helmholtz Association of German Research Centres
since 2020	Advisory board member of the Cluster of Excellence “Machine Learning: New Perspectives for Science“, University of Tübingen, Germany
since 2020	Scientific Advisory Committee member of the Helmholtz Artificial Intelligence Cooperation Unit (HAICU)
since 2019	Co-Spokesperson NFDI4Earth (Nationale Forschungsdateninfrastrukturen)
since 2019	Member of the Thuringian State Science Committee (Landeswissenschaftskonferenz)
since 2019	Member of the German Committee Future Earth
2018-2021	Chair Development Team <i>Knowledge Action Network on Emergent Risks and Extreme Events</i> (Future Earth, IRDR, WCRP and WWRP initiative)

2018	Founding interim-development team member of WRCP-IRDR-Future Earth Knowledge Action Network on Extreme Events and Emergent Risks
2017-2019	Spokesperson of DFG-Future-Earth AG Gesellschaftliche Resilienz und Klimaextreme (Societal Resilience and Climate Extremes)
2016-2020	Spokesperson of iDIV for the Max-Planck-Society Institutes
2016-2020	Scientific Advisory board for ICOS (Integrated Carbon Observation System)
2015-2019	Coordinator H2020 Project BACI: Detecting changes in essential ecosystem and biodiversity properties – towards a Biosphere Atmosphere Change Index (together with group leader Dr. Miguel Mahecha)
since 2014	Member of the Specialized Panel of Scientific Experts pursuant to the Environmental Rules at the Permanent Court of Arbitration, The Hague, The Netherlands (2020 renewal for 6 yrs)
since 2014	Member of the Climate Panel of the State of Thuringia (Reporting to Ministry of Environment), re-confirmed 2019
2014-2016	Lead scientist of the Future Earth Cluster Initiative Extreme Events and Environments from climate to Society (E ³ S)
2012	Lead author IPCC special report on Climate Extremes (SREX), WG I.
2009-2013	Coordinator FP7 Project CARBO-Extreme
2008-2014	iLEAPS/IGBP Scientific Steering Committee member
since 2007	FLUXNET Synthesis Steering Committee
since 2005	PI and/or work package leader EU and ESA projects CARBOAFRICA; CARBONES, CIRCE, COMBINE, CLIMAFRICA, E-SHAPE, GHG-EUROPE, Land Surface Temperature CCI, MIND; national representative of COST actions Biosphere-atmosphere interaction (lead by T. Vesala), and Stable isotopes in biosphere research (lead by N. Buchmann)

Editorial Board Member

One Earth (2019-), Global Sustainability (2018-), Agricultural and Forest Meteorology, Global Change Biology (2008–2018), Carbon Management (2010-2018)

Organisation of scientific meetings

Since 2005	Regular (co-)convener of AGU and EGU sessions on carbon cycle, eco-hydrology, extreme events, remote sensing applications, soils and climate informatics.
Since 2007	Hosted and or (co-)organized numerous international workshops in the context of FLUXNET, EU FP6, FP7 and H2020 projects and others, such as e.g. GHG-Europe, CARBO-Extreme, E ³ S.

Ongoing funding

DLR Project *DUKE* (2022-2023), ELLIS Unit Jena „Machine Learning for Earth and Climate Sciences“ (2021-2026); H2020 *DeepCube* (2021-2023), H2020 *Myriad-EU* (2021-2025), H2020 *XAIDA* (2021-2025), DFG *NFDI4Earth* (2021-2026), H2020 *USMILE* (2020-2026); DLR Project Office *BIOMASS* (2020-2023); H2020 E-SHAPE *EuroGEOSS Showcases: Applications Powered by Europe* (2019-2023); DFG center iDIV: *German Centre for Integrative Biodiversity Research* Halle-Jena-Leipzig; PI, since 2013.

Recent funding

VolkswagenStiftung: *Herrenhausen Conference Extreme Events – building climate resilient societies*, scientific lead (2018-2021); ESA *Land Surface Temperature CCI project* (2018-2021); DFG SUBSOM *The forgotten part of carbon cycling: Organic matter storage and turnover in subsoils* co-PI (2017-2021); DKN Future Earth Working Group *Societal resilience and climate extremes* (2017-2019); EU H2020 *Detecting changes in essential ecosystem and biodiversity properties – towards a Biosphere Atmosphere Change Index: BACI* (2015-2019); ESA *GlobBiomass*; PI 2015-2019; NIBIO MOCABORS: *Moisture dynamics and carbon sequestration in boreal soils* PI since (2017-2019).

Supervision and co-supervision of PhD Theses (selection)

- El Ghawi (ongoing) *Hybrid machine-learning based modelling of biosphere-atmosphere interactions*.
- Kariyathan (ongoing) *Biogeochemical insights from multi-tracer atmospheric flask data*
- Kraft (ongoing) *Modelling ecosystem fluxes and states from Earth observation with recurrent neural nets*.
- Linscheid (ongoing) *Ecological process understanding across time scales*.
- Pallandt-Vermeulen (ongoing) *Modelling the role of soil moisture dynamics on soil organic matter decomposition*.
- Paulus (ongoing) *Land - atmosphere interactions in seasonally dry systems using lysimeter data*.
- Requena (ongoing) *Deep learning approaches for analyzing spatio-temporal memory effects in Earth System data*.
- Schall (ongoing) *Detection and anticipation of climate extremes and their impacts with machine learning*.
- Upton (ongoing) *Machine-learning based estimation of ecosystem CO₂ fluxes constrained by atmospheric and ecosystem observations*.
- Ahrens (2021) *Reconciling turnover models of roots and soil organic carbon with radiocarbon measurements*. Gottfried Wilhelm Leibniz Universität, Hannover.
- Nelson (2021) *Ecosystem Transpiration from Eddy Covariance*. Friedrich-Schiller-Universität, Jena
- Krämer (2020) *Developing an Earth System State Indicator*, University of Valencia, Spain.
- Boese (2018) *Semi-Empirical Water-Use Efficiency Models from Local to Global Scale*, Friedrich-Schiller-Universität, Jena.
- Knauer (2018) *Integrating observations and models to understand ecophysiological controls on terrestrial water-carbon coupling*, University of Freiburg.
- Forkel (2015) *Controls on Global Greening, Phenology and the Enhanced Seasonal CO₂ Amplitude: Integrating Decadal Satellite Observations and Global Ecosystem Models*, Friedrich-Schiller-Universität, Jena, (Bernd Rendel Prize.)
- Braakhekke (2014) *Mechanistic modelling of the vertical soil organic matter profile*, Univ., Wageningen.
- Zscheischler (2014) *A global analysis of extreme events and consequences for the terrestrial carbon cycle*, Eidgenössische Technische Hochschule, Institut für Atmosphäre und Klima, Zürich (Otto-Hahn Medal 2015, and Wladimir-Köppen Prize 2016).
- Görner (2011) *Improving data-oriented light use efficiency models of gross primary productivity with remotely sensed spectral indices*, Friedrich-Schiller-Universität, Jena.
- Carvalhais (2010) *Iberian Peninsula ecosystem carbon fluxes; a model-data integration study*; Dissertação, Univ. Lisboa.
- Lasslop (2010) *Model-data fusion for terrestrial biogeochemical models with carbon and water cycle observations*, Univ. Hamburg.

Mahecha (2009) *Ecosystem-atmosphere exchanges on multiple time scales*, Zürich ETH, Zürich (ETH Medal).

Supervision and co-supervision of Master, Diploma, and BSc Theses (selection)

Thomas (2012) *Reproducing FAPAR dynamics of Africa, based on climate, land use, and soil data using random forest*, Friedrich-Schiller-Universität, Diplom-Geographie, Jena.

Ahrens (2011) *Constraining a simple soil organic carbon model with 14C data*, Univ., Bayreuth.

Angermüller (2009) *Influence of driving forces and ecosystem parameters on carbon uptake from weekly to interannual time scales*, Diplom-Geoökologie, Univ., Bayreuth.

Fürst (2009) *Characterizing global spatiotemporal patterns of the fraction of absorbed photosynthetically active radiation*, Diplom-Geoökologie, Univ., Bayreuth.

Milbradt (2008) *Exploration von MODIS-Zeitreihen zur Veränderungsanalyse im Zeitraum 2000-2007 am Beispiel des Land Surface Temperature Emissivity Produktes*. Friedrich-Schiller-Universität, Diplom-Geographie, Jena.

Kuglitsch (2007) *Determinanten der Wassernutzungseffizienz in Europa und deren Veränderung bei verschiedenen Klimaszenarien*, Diplom-Geographie, Univ., Wien.

Vollrath (2007) *Die Analyse der Vegetationsproduktivität im Krüger Nationalpark, Südafrika anhand von Eddy-Kovarianz- und Fernerkundungsdaten*. Friedrich-Schiller-Universität, BSc Geographie, Jena.

Teaching (selected courses)

2021 Course on „Model-data integration for natural sciences“, University Innsbruck, Austria.

2012- Integration of Remote Sensing, in-situ observation and modelling, Friedrich-Schiller-University Jena, Germany.

2011- Applied statistics & data analysis, Overview course on Global Biogeochemical Cycles: Global Water Cycle; IMPRS Global Biogeochemical Cycles; MPI-BGC/FSU-Jena, Germany.

Since 2006 Integration of remote sensing, ecosystem observation and modelling (lecture, seminar and tutorial); Master Degree Geoinformatics, FSU Jena, Germany.

2002 Computing for Biologists, University of Bayreuth, Germany.

2001-2004 Ecological field practical course, University of Bayreuth, Germany.

2001-2003 Ecophysiological modelling, regional ecological excursions for geocologists and biologists, University of Bayreuth, Germany.

Full publication list Markus Reichstein (without EGU/AGU conference abstracts)

Peer reviewed journals (incl. papers in discussion in peer reviewed journals and conferences)

2022

- Joswig, J., Wirth, C., Schuman, M. C., Kattge, J., Reu, B., Wright, I. J., Sippel, S. D., Rüger, N., Richter, R., Schaepman, M. E., van Bodegom, P. M., Cornelissen, J. H. C., Díaz, S., Hattingh, W. N., Kramer, K., Lens, F., Niinemets, Ü., Reich, P. B., **Reichstein, M.**, Römermann, C., Schrod, F., Anand, M., Bahn, M., Byun, C., Campetella, G., Cerabolini, B. E. L., Craine, J. M., Gonzalez-Melo, A., Gutiérrez, A. G., He, T., Higuchi, P., Jactel, H., Kraft, N. J. B., Minden, V., Onipchenko, V., Peñuelas, J., Pillar, V. D., Sosinski, É., Soudzilovskaia, N. A., Weiher, E., Mahecha, M. D., 2022. Climatic and soil factors explain the two-dimensional spectrum of global plant trait variation. *Nature Ecology & Evolution*, 6, 36-50. doi:10.1038/s41559-021-01616-8
- Kraft, B., Jung, M., Körner, M., Koirala, S., **Reichstein, M.**, 2022. Towards hybrid modeling of the global hydrological cycle. *Hydrology and Earth System Sciences*, 26(6), 1579-1614. doi:10.5194/hess-26-1579-2022.
- Küçük, Ç., Koirala, S., Carvalhais, N., Miralles, D., **Reichstein, M.**, Jung, M., 2022. Characterizing the response of vegetation cover to water limitation in Africa using geostationary satellites. *Journal of Advances in Modeling Earth Systems*, 14(3): e2021MS002730. doi:10.1029/2021MS002730
- Martini, D., Sakowska, K., Wohlfahrt, G., Pacheco-Labrador, J., van der Tol, C., Porcar-Castell, A., Magney, T. S., Carrara, A., Colombo, R., El-Madany, T. S., Gonzalez-Cascon, R., Martin, M. P., Julitta, T., Moreno, G., Rascher, U., **Reichstein, M.**, Rossini, M., Migliavacca, M., 2022. Heatwave breaks down the linearity between sun-induced fluorescence and gross primary production. *New Phytologist*, 233(6), 2415-2428. DOI: 10.1111/nph.17920
- Orth, R., Sungmin, O., Zscheischler, J., Mahecha, M. D., **Reichstein, M.** 2022. Contrasting biophysical and societal impacts of hydro-meteorological extremes. *Environmental Research Letters*, 17(1). DOI: 10.1088/1748-9326/ac4139
- Pabon-Moreno, D. E., Migliavacca, M., **Reichstein, M.**, Mahecha, M. D., 2022. On the potential of Sentinel-2 for estimating Gross Primary Production. *IEEE Transactions on Geoscience and Remote Sensing*. doi:10.1109/TGRS.2022.3152272.
- Pallandt, M., Ahrens, B., Koirala, S., Lange, H., **Reichstein, M.**, Schrumf, M., Zaehle, S., 2022. Vertically divergent responses of SOC decomposition to soil moisture in a changing climate. *Journal of Geophysical Research: Biogeosciences*, 127(2): e2021JG006684. doi:10.1029/2021JG006684
- Vautard, R., van Oldenborgh, G. J., Bonnet, R., Li, S., Robin, Y., Kew, S., Philip, S., Soubeyroux, J.-M., Dubuisson, B., Viovy, N., **Reichstein, M.**, Otto, F., de Cortazar-Atauri, I. G., 2022. Human influence on growing-period frosts like the early April 2021 in Central France. *Natural Hazards and Earth System Sciences Discussions*. doi:10.5194/nhess-2022-41.

2021

- Bastos, A., Orth, R., **Reichstein, M.**, Ciais, P., Viovy, N., Zaehle, S., Anthoni, P., Arneth, A., Gentine, P., Joetzjer, E., Lienert, S., Loughran, T., McGuire, P.C., O, S., Pongratz, J., Sitch, S., 2021. Vulnerability of European ecosystems to two compound dry and hot summers in 2018 and 2019. *Earth System Dynamics* 12, 1015 - 1035. doi: 10.5194/esd-12-1015-2021
- Callaghan, M., Schleussner, C.-F., Nath, S., Lejeune, Q., Knutson, T.R., **Reichstein, M.**, Hansen, G., Theokritoff, E., Andrijevic, M., Brecha, R.J., Hegarty, M., Jones, C., Lee, K., Lucas, A., van Maanen, N., Menke, I., Pfeleiderer, P., Yesil, B., Minx, J.C., 2021. Machine-learning-based evidence and attribution mapping of 100,000 climate impact studies. *Nature Climate Change*. doi: 10.1038/s41558-021-01168-6
- Camps-Valls, G., Campos-Taberner, M., Moreno-Martínez, Á., Walther, S., Duveiller, G., Cescatti, A., Mahecha, M.D., Muñoz-Marí, J., García-Haro, F.J., Guanter, L., Jung, M., Gamon, J.A., **Reichstein, M.**, Running, S.W., 2021. A unified vegetation index for quantifying the terrestrial biosphere. *Science Advances* 7. doi: 10.1126/sciadv.abc7447
- Cortés, J., Mahecha, M.D., **Reichstein, M.**, Myneni, R.B., Chen, C., Brenning, A., 2021. Where are global vegetation greening and browning trends significant? *Geophysical Research Letters* 48. doi: 10.1029/2020gl091496
- El-Madany, T.S., **Reichstein, M.**, Carrara, A., Martín, M.P., Moreno, G., Gonzalez-Cascon, R., Peñuelas, J., Ellsworth, D.S., Burchard-Levine, V., Hammer, T.W., Knauer, J., Knauer, J., Kolle,

- O., Luo, Y., Pacheco-Labrador, J., Nelson, J.A., Perez-Priego, O., Rolo, V., Wutzler, T., Migliavacca, M., 2021. How nitrogen and phosphorus availability change water use efficiency in a Mediterranean savanna ecosystem. *Journal of Geophysical Research: Biogeosciences* 126. doi: 10.1029/2020jg006005
- Estupinan-Suarez, L.M., Gans, F., Brenning, A., Gutierrez-Velez, V.H., Londono, M.C., Pabon-Moreno, D.E., Poveda, G., **Reichstein, M.**, Reu, B., Sierra, C., Weber, U., Mahecha, M.D., 2021. A regional earth system data lab for understanding ecosystem dynamics: An example from tropical South America. *Frontiers in Earth Science* 9. doi: 10.3389/feart.2021.613395
- Flach, M., Brenning, A., Gans, F., **Reichstein, M.**, Sippel, S., Mahecha, M.D., 2021. Vegetation modulates the impact of climate extremes on gross primary production. *Biogeosciences* 18, 39 - 53. doi: 10.5194/bg-18-39-2021
- Gampe, D., Zscheischler, J., **Reichstein, M.**, O'Sullivan, M., Smith, W.K., Sitch, S., Buermann, W., 2021. Increasing impact of warm droughts on northern ecosystem productivity over recent decades. *Nature Climate Change* 11, 772 - 779. doi: 10.1038/s41558-021-01112-8
- Humphrey, V., Berg, A., Ciais, P., Gentile, P., Jung, M., **Reichstein, M.**, Seneviratne, S.I., Frankenberg, C., 2021. Soil moisture–atmosphere feedback dominates land carbon uptake variability. *Nature* 592, 65 - 69. doi: 10.1038/s41586-021-03325-5
- Krich, C., Migliavacca, M., Miralles, D.G., Kraemer, G., El-Madany, T.S., **Reichstein, M.**, Runge, J., Mahecha, M.D., 2021. Functional convergence of biosphere-atmosphere interactions in response to meteorological conditions. *Biogeosciences* 18, 2379 - 2404. doi: 10.5194/bg-18-2379-2021
- Li, W., Migliavacca, M., Forkel, M., Walther, S., **Reichstein, M.**, Orth, R., 2021. Revisiting global vegetation controls using multi-layer soil moisture. *Geophysical Research Letters* 48. doi: 10.1029/2021gl092856
- Linscheid, N., Mahecha, M. D., Rammig, A., Carvalhais, N., Gans, F., Nelson, J. A., Walther, S., Weber, U., **Reichstein, M.** 2021. Time–scale dependent relations between Earth Observation based proxies of vegetation productivity. *Geophysical Research Letters*, 48(24): e2021GL093285. doi:10.1029/2021GL093285.
- Migliavacca, M., Musavi, T., Mahecha, M.D., Nelson, J.A., Knauer, J., Baldocchi, D.D., Perez-Priego, O., Christiansen, R., Peters, J., Anderson, K., Bahn, M., Black, T.A., Blanken, P.D., Bonal, D., Buchmann, N., Caldararu, S., Carrara, A., Carvalhais, N., Cescatti, A., Chen, J., Cleverly, J., Cremonese, E., Desai, A.R., El-Madany, T.S., Farella, M.M., Fernández-Martínez, M., Filippa, G., Forkel, M., Galvagno, M., Gomasasca, U., Gough, C.M., Göckede, M., Ibrom, A., Ikawa, H., Janssens, I.A., Jung, M., Kattge, J., Keenan, T.F., Knohl, A., Kobayashi, H., Kraemer, G., Law, B.E., Liddell, M.J., Ma, X., Mammarella, I., Martini, D., Macfarlane, C., Matteucci, G., Montagnani, L., Pabon-Moreno, D.E., Panigada, C., Papale, D., Pendall, E., Penuelas, J., Phillips, R.P., Reich, P.B., Rossini, M., Rotenberg, E., Scott, R.L., Stahl, C., Weber, U., Wohlfahrt, G., Wolf, S., Wright, I.J., Yakir, D., Zaehle, S., **Reichstein, M.**, 2021. The three major axes of terrestrial ecosystem function. *Nature* 598, 468 - 472. doi: 10.1038/s41586-021-03939-9
- Pacheco-Labrador, J., El-Madany, T.S., van der Tol, C., Martin, M.P., Gonzalez-Cascon, R., Perez-Priego, O., Guan, J., Moreno, G., Carrara, A., **Reichstein, M.**, Migliavacca, M., 2021. senSCOPE: Modeling mixed canopies combining green and brown senesced leaves. Evaluation in a Mediterranean Grassland. *Remote Sensing of Environment* 257. doi: 10.1016/j.rse.2021.112352
- Reichstein, M.**, Riede, F., Frank, D., 2021. More floods, fires and cyclones — plan for domino effects on sustainability goals. *Nature* 592, 347 - 349. doi: 10.1038/d41586-021-00927-x
- Trifunov, V.T., Shadaydeh, M., Runge, J., **Reichstein, M.**, Denzler, J., contributor: Member IEEE, 2021. A data-driven approach to partitioning net ecosystem exchange using a deep state space model. *IEEE Access* 9, 107873 - 107882. doi: 10.1109/access.2021.3101129

2020

- Ahrens, B., Guggenberger, G., Rethemeyer, J., John, S., Marschner, B., Heinze, S., Angst, G., Mueller, C.W., Kogel-Knabner, I., Leuschner, C., Hertel, D., Bachmann, J., **Reichstein, M.**, Schrupf, M., 2020. Combination of energy limitation and sorption capacity explains ¹⁴C depth gradients. *Soil Biology and Biochemistry* 148. doi: 10.1016/j.soilbio.2020.107912
- Al-Yaari, A., Ciais, J.-P.W.P., **Reichstein, M.**, Ballantyne, A., Ogée, J., Ducharne, A., Swenson, J.J., Frappart, F., Fan, L., Wingate, L., Li, X., Hufkens, K., Knapp, A.K., 2020. Asymmetric responses of ecosystem productivity to rainfall anomalies vary inversely with mean annual rainfall over the conterminous United States. *Global Change Biology* 26, 6959 - 6973. doi: 10.1111/gcb.15345
- Bastos, A., Ciais, P., Friedlingstein, P., Sitch, S., Pongratz, J., Fan, L., Wigneron, J.P., Weber, U., **Reichstein, M.**, Fu, Z., Anthoni, P., Arneeth, A., Haverd, V., Jain, A.K., Joetzjer, E., Knauer, J.,

- Lienert, S., Loughran, T., McGuire, P.C., Tian, H., Viovy, N., Zaehle, S., 2020. Direct and seasonal legacy effects of the 2018 heat wave and drought on European ecosystem productivity. *Science Advances* 6. doi: 10.1126/sciadv.aba2724
- Bastos, A., Fu, Z., Ciais, P., Friedlingstein, P., Sitch, S., Pongratz, J., Weber, U., **Reichstein, M.**, Anthoni, P., Arneth, A., Haverd, V., Jain, A., Joetzjer, E., Knauer, J., Lienert, S., Loughran, T., McGuire, P.C., Obermeier, W., Padrón, R.S., Shi, H., Tian, H., Viovy, N., Zaehle, S., 2020. Impacts of extreme summers on European ecosystems: a comparative analysis of 2003, 2010 and 2018. *Philosophical Transactions of the Royal Society of London, Series B: Biological Sciences* 375. doi: 10.1098/rstb.2019.0507
- Cortés, J., Mahecha, M.D., **Reichstein, M.**, Brenning, A., 2020. Accounting for multiple testing in the analysis of spatio-temporal environmental data. *Environmental and Ecological Statistics* 27, 293 - 318. doi: 10.1007/s10651-020-00446-4
- Denissen, J.M.C., Teuling, A.J., **Reichstein, M.**, Orth, R., 2020. Critical soil moisture derived from satellite observations over Europe. *Journal of Geophysical Research: Atmospheres* 125. doi: 10.1029/2019jd031672
- Diffenbaugh, N.S., Field, C.B., Appel, E.A., Azevedo, I.L., Baldocchi, D.D., Burke, M., Burney, J.A., Ciais, P., Davis, S.J., Fiore, A.M., Fletcher, S.M., Hertel, T.W., Horton, D.E., Hsiang, S.M., Jackson, R.B., Jin, X., Levi, M., Lobell, D.B., McKinley, G.A., Moore, F.C., Montgomery, A., Nadeau, K.C., Pataki, D.E., Randerson, J.T., **Reichstein, M.**, Schnell, J.L., Seneviratne, S.I., Singh, D., Steiner, A.L., Wong-Parodi, G., 2020. The COVID-19 lockdowns: a window into the Earth System. *Nature Reviews Earth & Environment* 1, 470 - 481. doi: 10.1038/s43017-020-0079-1
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