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Publons (WOS) Researcher-ID: [A-7494-2011](#)

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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
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
2014-2020	Highly cited researcher in Environmental Sciences/Environment and Ecology, additionally 2016 and 2018 in Agriculture Sciences, 2017-2020 in Geosciences, 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

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	Advisory board member for NFDI4Earth (Nationale Forschungsdateninfrastrukturen)
since 2019	Member of the Thuringian State Science Committee (Landeswissenschaftskonferenz)
since 2019	Member of the German Committee Future Earth
since 2018	Chair Development Team Knowledge Action Network on Emergent Risks and Extreme Events (an initiative by Future Earth, IRDR, WCRP and WWRP)
2018	Founding interim-development team member of WRCF-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)
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)

Reviewing activities

2018	Panel Chair Evaluation of German Aerospace Centre
2017	Evaluation Committee Julich Research Centre
2012	Lead author IPCC special report on Climate Extremes (SREX), WG I.
2007	Reviewer IPCC AR4 (WGII)

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 sessions on carbon cycle, eco-hydrology, remote sensing applications, soils, climate informatics, USA
Since 2005	Regular convener of EGU sessions on carbon cycle, eco-hydrology, remote sensing applications, soils and extreme events; Austria
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

H2020 *DeepCube* (2021-2023), H2020 *Myriad-EU* (2021-2025), H2020 *XAIDA* (2021-2025), H2020 *USMILE* (2020-2026); DLR *Project Office BIOMASS* (2020-2023); H2020 *E-SHAPE EuroGEOSS Showcases: Applications Powered by Europe* (2019-2023); VolkswagenStiftung: *Herrenhausen Conference Extreme Events – building climate resilient societies*, scientific lead

(2018-2021); DFG *SUBSOM* (2017-2021); DFG center iDIV: *German Centre for Integrative Biodiversity Research* Halle-Jena-Leipzig; PI, since 2013;

Recent funding

ESA *Land Surface Temperature CCI project* (2018-2021); 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); DFG *SUBSOM The forgotten part of carbon cycling: Organic matter storage and turnover in subsoils* co-PI (2017-2019);

Supervision and co-supervision of PhD Theses (selection)

Ahrens (ongoing) *Explaining variability of soil organic carbon stability between and within soil profiles*

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*

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

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). Increased vulnerability of European ecosystems to two compound dry and hot summers in 2018 and 2019. *Earth System Dynamics Discussions*. doi:10.5194/esd-2021-19.
- 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
- 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
- Humphrey, V., Berg, A., Ciais, P., Gentine, 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
- Kraft, B., Jung, M., Körner, M., Koirala, S., **Reichstein, M.** (2021). Towards hybrid modeling of the global hydrological cycle. *Hydrology and Earth System Sciences Discussions*. doi:10.5194/hess-2021-211.
- 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
- 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

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.**, Schrupp, 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., Arneth, 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., Arneeth, 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
- El-Madany, T.S., Carrara, A., Martín, M.P., Moreno, G., Kolle, O., Pacheco-Labrador, J., Weber, U., Wutzler, T., **Reichstein, M.**, Migliavacca, M., 2020. Drought and heatwave impacts on semi-arid ecosystems' carbon fluxes along a precipitation gradient. *Philosophical Transactions of the Royal Society of London, Series B: Biological Sciences* 375. doi: 10.1098/rstb.2019.0519
- Fan, N., Koirala, S., **Reichstein, M.**, Thurner, M., Avitabile, V., Santoro, M., Ahrens, B., Weber, U., Carvalhais, N., 2020. Apparent ecosystem carbon turnover time: uncertainties and robust features. *Earth System Science Data* 12, 2517 - 2536. doi: 10.5194/essd-12-2517-2020
- Jung, M., Schwalm, C., Migliavacca, M., Walther, S., Camps-Valls, G., Koirala, S., Anthoni, P., Besnard, S., Bodesheim, P., Carvalhais, N., Chevallier, F., Gans, F., Goll, D.S., Haverd, V., Koehler, P., Ichii, K., Jain, A.K., Liu, J., Lombardozzi, D., Nabel, J.E.M.S., Nelson, J.A., O'Sullivan, M., Pallandt, M., Papale, D., Peters, W., Pongratz, J., Rödenbeck, C., Sitch, S., Tramontana, G., Walker, A., Weber, U., **Reichstein, M.**, 2020. Scaling carbon fluxes from eddy covariance sites to globe: synthesis and evaluation of the FLUXCOM approach. *Biogeosciences* 17, 1343 - 1365. doi: 10.5194/bg-17-1343-2020
- Knauer, J., Zaehle, S., De Kauwe, M.G., Haverd, V., **Reichstein, M.**, Sun, Y., 2020. Mesophyll conductance in land surface models: effects on photosynthesis and transpiration. *The Plant Journal* 101, 858 - 873. doi: 10.1111/tpj.14587
- Kraemer, G., Camps-Valls, G., **Reichstein, M.**, Mahecha, M.D., 2020. Summarizing the state of the terrestrial biosphere in few dimensions. *Biogeosciences* 17, 2397 - 2424. doi: 10.5194/bg-17-2397-2020
- Kraemer, G., **Reichstein, M.**, Camps-Valls, G., Smits, J., Mahecha, M.D., 2020. The low dimensionality of development. *Social Indicators Research* 150, 999 - 1020. doi: 10.1007/s11205-020-02349-0
- Kraft, B., Jung, M., Körner, M., **Reichstein, M.**, 2020. Hybrid modeling: Fusion of a deep approach and physics-based model for global hydrological modeling. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences XLIII-B2-2020*, 1537 - 1544. doi: 10.5194/isprs-archives-XLIII-B2-2020-1537-2020
- Lehmann, J., Hansel, C.M., Kaiser, C., Kleber, M., Maher, K., Manzoni, S., Nunan, N., **Reichstein, M.**, Schimel, J.P., Torn, M.S., Wieder, W.R., Kögel-Knabner, I., 2020. Persistence of soil organic carbon caused by functional complexity. *Nature Geoscience* 13, 529 - 534. doi: 10.1038/s41561-020-0612-3
- Linscheid, N., Estupinan-Suarez, L.M., Brenning, A., Carvalhais, N., Cremer, F., Gans, F., Rammig, A., **Reichstein, M.**, Sierra, C., Mahecha, M.D., 2020. Towards a global understanding of vegetation–climate dynamics at multiple timescales. *Biogeosciences* 17, 945 - 962. doi: 10.5194/bg-17-945-2020
- Liu, J., Ma, X., Duan, Z., Jiang, J., **Reichstein, M.**, Jung, M., 2020. Impact of temporal precipitation variability on ecosystem productivity. *Wiley Interdisciplinary Reviews Water* 7. doi: 10.1002/wat2.1481
- Luo, Y., El-Madany, T.S., Ma, X., Nair, R.K.F., Jung, M., Weber, U., Filippa, G., Bucher, S.F., Moreno, G., Cremonese, E., Carrara, A., Gonzalez-Cascon, R., Escudero, Y.C., Galvagno, M., Pacheco-Labrador, J., Martín, M.P., Perez-Priego, O., **Reichstein, M.**, Richardson, A.D., Menzel, A., Römermann, C., Migliavacca, M., 2020. Nutrients and water availability constrain the

- seasonality of vegetation activity in a Mediterranean ecosystem. *Global Change Biology* 26, 4379 - 4400. doi: 10.1111/gcb.15138
- Mahecha, M.D., Gans, F., Brandt, G., Christiansen, R., Cornell, S.E., Fomferra, N., Kraemer, G., Peters, J., Bodesheim, P., Camps-Valls, G., Donges, J.F., Dorigo, W., Estupiñan-Suarez, L., Gutierrez-Velez, V.H., Gutwin, M., Jung, M., Londoño, M.C., Miralles, D.G., Papastefanou, P., **Reichstein, M.**, 2020. Earth system data cubes unravel global multivariate dynamics. *Earth System Dynamics* 11, 201 - 234. doi: 10.5194/esd-11-201-2020
- Nelson, J.A., Pérez-Priego, O., Zhou, S., Poyatos, R., Zhang, Y., Blanken, P.D., Gimeno, T.E., Wohlfahrt, G., Desai, A.R., Gioli, B., Limousin, J.M., Bonal, D., Paul-Limoges, E., Scott, R.L., Varlagin, A., Fuchs, K., Montagnani, L., Wolf, S., Delpierre, N., Berveiller, D., Gharun, M., Marchesini, L.B., Gianelle, D., Šigut, L., Mammarella, I., Siebicke, L., Black, T.A., Knohl, A., Hörtnagl, L., Magliulo, V., Besnard, S., Weber, U., Carvalhais, N., Migliavacca, M., **Reichstein, M.**, Jung, M., 2020. Ecosystem transpiration and evaporation: Insights from three water flux partitioning methods across FLUXNET sites. *Global Change Biology* 26, 6916 - 6930. doi: 10.1111/gcb.15314
- Orth, R., Destouni, G., Jung, M., **Reichstein, M.**, 2020. Large-scale biospheric drought response intensifies linearly with drought duration in arid regions. *Biogeosciences* 17, 2647 - 2656. doi: 10.5194/bg-17-2647-2020
- Pabon-Moreno, D.E., Musavi, T., Migliavacca, M., **Reichstein, M.**, Römermann, C., Mahecha, M.D., 2020. Ecosystem physio-phenology revealed using circular statistics. *Biogeosciences* 17, 3991 - 4006. doi: 10.5194/bg-17-3991-2020
- Samuel, S., Shadaydeh, M., Böcker, S., Brüggmann, B., Bucher, S.F., Deckert, V., Denzler, J., Dittrich, P., von Eggeling, F., Güllmar, D., Guntinas-Lichius, O., König-Ries, B., Löffler, F., Maicher, L., Marz, M., Migliavacca, M., Reichenbach, J.R., **Reichstein, M.**, Römermann, C., Wittig, A., 2020. A virtual "Werkstatt" for digitization in the sciences. *Research Ideas and Outcomes* 6. doi: 10.3897/rio.6.e54106
- Schlund, M., Eyring, V., Camps-Valls, G., Friedlingstein, P., Gentine, P., **Reichstein, M.**, 2020. Constraining uncertainty in projected gross primary production with machine learning. *Journal of Geophysical Research: Biogeosciences* 125. doi: 10.1029/2019jg005619
- Thonicke, K., Bahn, M., Lavorel, S., Bardgett, R.D., Erb, K., Giamberini, M., **Reichstein, M.**, Vollan, B., Rammig, A., 2020. Advancing the understanding of adaptive capacity of social-ecological systems to absorb climate extremes. *Earth's Future* 8, 1 - 13. doi: 10.1029/2019ef001221
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2019

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