

## Full list of peer-reviewed publications

Total number of peer-reviewed publications: 33 | 15 as first author | another 5 papers currently under review

Total number of citations: 1'093; H-index: 20 (Google Scholar, April 2020)

See also <https://orcid.org/0000-0002-9853-921X>

- 2020 **Orth, R.**, G. Destouni, M. Jung, and M. Reichstein  
Large-scale biospheric drought response intensifies linearly with drought duration  
*Biogeosciences*, doi: 10.5194/bg-2019-442, in press
- Denissen, J., A.J. Teuling, M. Reichstein, and **R. Orth**  
Critical soil moisture derived from satellite observations over Europe  
*J. Geophys. Res. - Atmospheres*, 125 (6), e2019JD031672, doi: 10.1029/2019JD031672
- Fallah, A., G.Z. Rakhshandehroo, P. Berg, S. O, and **R. Orth**  
Evaluation of precipitation datasets against local observations in southwestern Iran  
*Int. J. Climatol.*, 1-15, doi:10.1002/joc.6445
- Ghajarnia, N., Z. Kalantari, **R. Orth**, and G. Destouni  
Close co-variation between soil moisture and runoff emerging from multi-catchment data across Europe  
*Sci. Rep.*, 10, 4817, doi: 10.1038/s41598-020-61621-y
- 2019 Schewe, J., S.N. Gosling, C. Reyer, F. Zhao, P. Ciais, J. Elliott, L. Francois, V. Huber, H.K. Lotze, S.I. Seneviratne, M.T. H. van Vliet, R. Vautard, Y. Wada, L. Breuer, M. Büchner, D.A. Carozza, J. Chang, M. Coll, D. Deryng, A. de Wit, T.D. Eddy, C. Folberth, K. Frieler, A.D. Friend, D. Gerten, L. Gudmundsson, N. Hanasaki, A. Ito, N. Khabarov, H. Kim, P. Lawrence, C. Morfopoulos, C. Müller, H. Müller Schmied, **R. Orth**, S. Ostberg, Y. Pokhrel, T.A.M. Pugh, G. Sakurai, Y. Satoh, E. Schmid, T. Stacke, J. Steenbeek, J. Steinkamp, Q. Tang, H. Tian, D.P. Tittensor, J. Volkholz, X. Wang, and L. Warszawski  
State-of-the-art global models underestimate impacts from climate extremes  
*Nature Communications*, 10, 1005, doi:10.1038/s41467-019-08745-6
- 2018 **Orth, R.**, and G. Destouni  
Drought reduces blue-water fluxes more strongly than green-water fluxes in Europe  
*Nature Communications*, 9, 3602, doi: 10.1038/s41467-018-06013-7
- Balsamo, G., A. Agusti-Parareda, C. Albergel, G. Arduini, A. Beljaars, J. Bidlot, N. Bousserez, S. Boussetta, A. Brown, R. Buizza, C. Buontempo, F. Chevallier, M. Choulga, H. Cloke, M.F. Cronin, M. Dahoui, P. De Rosnay, Paul A. Dirmeyer, M. Drusch, E. Dutra, M.B. Ek, P. Gentine, H. Hewitt, S.P.E. Keeley, Y. Kerr, S. Kumar, C. Lupu, J.-F. Mahfouf, J. McNorton, S. Mecklenburg, K. Mogensen, J. Muñoz-Sabater, **R. Orth**, F. Rabier, R. Reichle, B. Ruston, F. Pappenberger, I. Sandu, S.I. Seneviratne, S. Tietsche, I.F. Trigo, R. Uijlenhoet, N. Wedi, R.I. Woolway, and X. Zeng  
Satellite and In Situ Observations for Advancing Global Earth Surface Modelling: A Review  
*Remote Sens.*, 10(12), 2038, doi:10.3390/rs10122038
- Christiansen, B., C. Alvarez-Castro, N. Christidis, A. Ciavarella, I. Colfescu, T. Cowan, J. Eden, M. Hauser, N. Hempelmann, K. Klehmet, F. Lott, C. Nangini, G.-J. Van Oldenborgh, **R. Orth**, P. Stott, S. Tett, R. Vautard, L. Wilcox, and P. Yiou  
Was the Cold European Winter of 2009/10 Modified by Anthropogenic Climate Change? An Attribution Study  
*J. Climate*, 31, 3387-3410, doi: 10.1175/JCLI-D-17-0589.1
- Vautard, R., N. Christidis, A. Ciavarella, C. Alvarez-Castro, O. Bellprat, B. Christiansen, I. Colfescu, T. Cowan, F. Doblas-Reyes, J. Eden, M. Hauser, G. Hegerl, N. Hempelmann, K. Klehmet, F. Lott, C. Nangini, **R. Orth**, S. Radanovics, S.I. Seneviratne, G.J. van Oldenborgh, P. Stott, S. Tett, L. Wilcox, and P. Yiou

Evaluation of the HadGEM3-A simulations in view of detection and attribution of human influence on extreme events in Europe  
*Clim. Dyn.*, doi: 10.1007/s00382-018-4183-6

Wartenburger, R., S.I. Seneviratne, M. Hirschi, J. Chang, P. Ciais, D. Deryng, J. Elliott, C. Folberth, S.N. Gosling, L. Gudmundsson, A.-J. Henrot, T. Hickler, A. Ito, N. Khabarov, H. Kim, G. Leng, J. Liu, X. Liu, Y. Masaki, C. Morfopoulos, C. Müller, H. Müller Schmied, K. Nishina, **R. Orth**, Y. Pokhrel, T.A.M. Pugh, Y. Satoh, S. Schaphoff, E. Schmid, J. Sheffield, T. Stacke, J. Steinkamp, Q. Tang, W. Thiery, Y. Wada, X. Wang, G. Weedon, H. Yang, and T. Zhou  
Evapotranspiration simulations in ISIMIP2a—Evaluation of spatio-temporal characteristics with a comprehensive ensemble of independent datasets  
*Env. Res. Lett.*, 13, 075001, doi: 10.1088/1748-9326/aac4bb

2017 **Orth, R.**, and S.I. Seneviratne  
Variability of soil moisture and sea surface temperatures similarly important for warm-season climate in the Community Earth System Model  
*J. Climate*, 30, 2141-2162, doi: 10.1175/JCLI-D-15-0567.1

**Orth, R.**, E. Dutra, I.F. Trigo, and G. Balsamo  
Advancing land surface model development with satellite-based Earth observations  
*Hydr. Earth Syst. Sci.*, 21, 2483-2495, doi: 10.5194/hess-2016-628

Beck, H.E., A.I.J.M. van Dijk, A. de Roo, E. Dutra, G. Fink, **R. Orth**, and J. Schellekens  
Global evaluation of runoff from ten state-of-the-art hydrological models  
*Hydrol. Earth Syst. Sci.*, 21, 2881-2903, doi: 10.5194/hess-21-2881-2017

Hauser, M., **R. Orth**, and S.I. Seneviratne  
Investigating soil moisture-climate interactions with prescribed soil moisture experiments: an assessment with the Community Earth System Model  
*Geosci. Model Dev.*, 10, 1665-1677, doi: 10.5194/gmd-2016-209

Hauser, M., L. Gudmundsson, **R. Orth**, A. Jezequel, K. Haustein, R. Vautard, G.J. van Oldenborgh, L. Wilcox, and S.I. Seneviratne  
Methods and model dependency of extreme event attribution: The 2015 European drought  
*Earth's Future*, 5(10), 1034-1043, doi: 10.1002/2017EF000612

Schellekens, J., E. Dutra, G. Balsamo, A. van Dijk, F.S. Weiland, M. Minvielle, J.-C. Calvet, B. Decharme, S. Eisner, G. Fink, M. Flörk, S. Peßenteiner, R. van Beek, J. Polcher, H. Beck, A. Martínez-de la Torre, **R.Orth**, B. Calton, S. Burke, W. Dorigo, and G. Weedon  
A global water resources ensemble of hydrological models: the earthH2Observe Tier-1 dataset  
*Earth Syst. Sci. Data*, 9, 389-413, doi: 10.5194/essd-2016-55

Sippel, S., J. Zscheischler, M.D. Mahecha, **R. Orth**, M. Reichstein, M.M. Vogel, and S.I. Seneviratne  
Refining multi-model projections of temperature extremes by evaluation against observations-based land-atmosphere coupling diagnostics  
*Earth Syst. Dynam.*, 8, 387-403, doi: 10.5194/esd-2016-48

Vogel, M.M., **R. Orth**, F. Cheruy, S. Hagemann, B.J.J.M. van den Hurk, R. Lorenz, and S.I. Seneviratne  
Regional amplification of extreme temperatures strongly controlled by soil moisture-temperature feedbacks  
*Geophys. Res. Lett.*, 44(3), 1511-1519, doi: 10.1002/2016GL071235

Zscheischler, J., **R. Orth**, and S.I. Seneviratne  
European crop yields predicted by bivariate return periods of temperature and precipitation  
*Biogeosciences*, 14, 3309-3320, doi: 10.5194/bg-2017-21

- 2016 **Orth, R.**, M. M. Vogel, J. Luterbacher, C. Pfister, and S.I. Seneviratne  
Did European temperatures in 1540 exceed present-day records?  
*Env. Res. Lett.*, 11, 114021, doi: 10.1088/1748-9326/11/11/114012
- Orth, R.**, J. Zscheischler, and S. I. Seneviratne  
Record dry summer in 2015 challenges precipitation projections in Central Europe  
*Scientific Reports*, 6, 28334, doi: 10.1038/srep28334
- Orth, R.**, E. Dutra, and F. Pappenberger  
Improving weather predictability by including land-surface model parameter uncertainty  
*Mon. Weather Rev.*, 144(4), 1551-1569, doi: 10.1175/MWR-D-15-0283.1
- Hauser, M., **R. Orth**, and S. I. Seneviratne  
Role of soil moisture vs. recent climate change for heat waves in western Russia  
*Geophys. Res. Lett.*, 43, 2819-2826, doi: 10.1002/2016GL068036
- 2015 **Orth, R.**, and S.I. Seneviratne  
Introduction of a simple-model-based land surface dataset for Europe  
*Env. Res. Lett.*, 10, 044012, doi: 10.1088/1748-9326/10/4/044012
- Zscheischler, J., **R. Orth**, and S.I. Seneviratne  
A sub-monthly database for detecting changes in vegetation-atmosphere coupling  
*Geophys. Res. Lett.*, 42(22), 9816-9824, doi: 10.1002/2015GL066563
- Whan, K., J. Zscheischler, **R. Orth**, M. Shongwe, M. Rahimi, E. Asare, and S.I. Seneviratne  
Impact of soil moisture on extreme maximum temperatures in Europe.  
*Weather and Climate Extremes*, 9, 57-67, doi: 10.1016/j.wace.2015.05.001
- Orth, R.**, M. Staudinger, S.I. Seneviratne, J. Seibert, and M. Zappa  
Does model performance improve with complexity? A case study with three hydrological models  
*J. Hydrol.*, 523, 147-159, doi: 10.1016/j.jhydrol.2015.01.044
- 2014 **Orth, R.**, and S.I. Seneviratne  
Using soil moisture forecasts for sub-seasonal summer temperature predictions in Europe  
*Clim. Dyn.*, 43 (12), 3403-3418, doi: 10.1007/s00382-014-2112-x
- 2013 **Orth, R.**  
Persistence of soil moisture - Controls, associated predictability and implications for land surface climate  
*PhD Thesis*, ETH Zürich
- Orth, R.**, R.D. Koster, and S.I. Seneviratne  
Inferring soil moisture memory from streamflow observations using a simple water balance model  
*J. Hydrometeorology*, 14 (6), 1773-1790, doi:10.1175/JHM-D-12-099.1
- Orth, R.**, and S.I. Seneviratne  
Propagation of soil moisture memory to streamflow and evapotranspiration in Europe  
*Hydr. Earth Syst. Sci.*, 17, 3895-3911, doi:10.5194/hess-17-3895-2013
- Orth, R.**, and S.I. Seneviratne  
Predictability of soil moisture and streamflow on sub-seasonal timescales: A case study  
*J. Geophysical Res. - Atmospheres*, 118, 10963-10979, doi:10.1002/jgrd.50846
- 2012 **Orth, R.**, and S.I. Seneviratne  
Analysis of soil moisture memory from observations in Europe  
*J. Geophys. Res. - Atmospheres*, 117, D15115, doi:10.1029/2011JD017366

## Other publications

- 2017      **Orth, R.**, E. Dutra, I.F. Trigo, and G. Balsamo  
Advancing land surface model development with satellite-based Earth observations  
*ECMWF Tech. Memo*
- 2013      Seneviratne, S.I., **R. Orth**, S. Jörg-Hess, S. Kruse, I. Seidl, M. Stähli, M. Zappa, J. Seibert M.  
Staudinger, K. Stahl, and M. Weiler  
Trockenheit in der Schweiz - Ergebnisse des NFP-61-Projektes Drought-CH  
*Aqua & Gas*, 9, 38-47