

Malte F. Stuecker, Ph.D.

IBS Center for Climate Physics
11th fl, Tonghapgigye-gwan Bldg.
2 Busandaehak-ro, 63 beon-gil
Jangjeon-dong, Geumjeong-gu
Busan 46241, Republic of Korea

Email: stuecker@pusan.ac.kr
Homepage: <http://www.maltestuecker.com>
Room: 1008

Academic Appointments (post Ph.D.)

Assistant Project Leader (Research Professor), leading the “Tropical climate dynamics: past, present, future” group at the IBS Center for Climate Physics (ICCP), Pusan National University, 06/2018 – Present

NOAA Climate & Global Change Postdoctoral Fellow, Department of Atmospheric Sciences, University of Washington, 11/2016 – 06/2018

NOAA Affiliate, Geophysical Fluid Dynamics Laboratory (GFDL), 08/2015 – 08/2017

Postdoctoral Researcher, Department of Atmospheric Sciences, UH Mānoa, 06/2015 – 11/2016

Educational Background

Ph.D. Meteorology (2015), University of Hawai‘i (UH) at Mānoa, 01/2011 – 05/2015 (Dissertation adviser: Fei-Fei Jin)

German Diplom Marine Environmental Sciences (2009; combined B.S./M.S. degree), Carl von Ossietzky University Oldenburg, 10/2003 – 09/2009 (Thesis adviser: Richard Zeebe)

Honors & Awards

STS forum (Science and Technology in Society forum) Future Leaders Program fellow, Kyoto, Japan, 2018

European Geosciences Union (EGU) 2016 Outstanding Young Scientist Award of the “Climate: Past, Present & Future (CL)” Division – Awarded annually to one early career scientist for outstanding contributions in the field of climate dynamics

NOAA Climate & Global Change postdoctoral fellowship recipient 2016 (alumni class 26)

European Geosciences Union (EGU) 2016 Outstanding Student Poster and PICO (OSPP) Award of the “Nonlinear Processes in Geosciences (NP)” Division

Best Student Presentation, ENSO workshop at the University of New South Wales, 2015

M.Sc. degree: Excellent with Distinction (highest grade awarded by the University), 2009

Supervised postdocs

In-Won Kim (09/2018–Present), Joaquin Blanco (starting date: 10/2018)

Awarded Research Funding

2018 – Present: Research Group funding of ~250 Million South Korean Won (~230k USD) per year via ICCP

2016 – 2018: NOAA Climate & Global Change fellowship (6.4% acceptance rate in 2016): ~145k USD + benefits

2015: Bjerknes visiting fellowship, Bjerknes Centre, University of Bergen

2006 – 2007: Floyd and Lili Biava foundation fellowship, Carl von Ossietzky University Oldenburg

Publications (*denotes graduate student lead author)

Published or accepted peer-reviewed articles

30. Timmermann, A., S.-I. An, J.-S. Kug, F.-F. Jin, W. Cai, A. Capotondi, K. Cobb, M. Lengaigne, M. J. McPhaden, **M. F. Stuecker**, K. Stein, A. Wittenberg, K.-S. Yun, T. Bayr, H.-C. Chen, Y. Chikamoto, B. Dewitte, D. Dommenges, P. Grothe,

- E. Guilyardi, Y.-G. Ham, M. Hayashi, S. Ineson, D. Kang, S. Kim, W. M. Kim, J.-Y. Lee, T. Li, J.-J. Luo, S. McGregor, Y. Planton, S. Power, H. Rashid, H.-L. Ren, A. Santoso, K. Takahashi, A. Todd, G. Wang, G. Wang, R. Xie, W.-H. Yang, S.-W. Yeh, J. Yoon, E. Zeller, and X. Zhang (2018): El Niño-Southern Oscillation Complexity, *Nature*, 559, 535–545 (served as coordinating lead author)
29. **Stuecker, M. F.**, M. Tigchelaar, and M. B. Kantar (2018): Climate variability impacts on rice production in the Philippines, *PLoS ONE*, 13(8), e0201426, doi:10.1371/journal.pone.0201426
 28. Proistosescu, C., A. Donohoe, K. C. Armour, G. Roe, **M. F. Stuecker**, and C. M. Bitz (2018), Radiative feedbacks from stochastic variability in surface temperature and radiative imbalance, *Geophys. Res. Lett.*, 45, 5082–5094, doi:10.1029/2018GL077678
 27. McGregor, S., **M. F. Stuecker**, J. B. Kajtar, M. H. England, and M. Collins (2018): Model Tropical Atlantic biases underpin diminished Pacific decadal variability, *Nature Climate Change*, 8, 493–498, doi:10.1038/s41558-018-0163-4
 26. Zhang, W., Z. Wang, **M. F. Stuecker**, A. G. Turner, F.-F. Jin, and X. Geng (2018): Impact of ENSO longitudinal position on teleconnections to the NAO, *Clim Dyn*, doi:10.1007/s00382-018-4135-1
 25. **Stuecker, M. F.** (2018): Revisiting the Pacific Meridional Mode, *Scientific Reports*, 8, doi:10.1038/s41598-018-21537-0
 24. *Park, K., S. M. Kang, D. Kim, **M. F. Stuecker**, and F.-F. Jin (2018): Contrasting local and remote effects of surface heating on polar warming and amplification, *J. Climate*, doi:10.1175/JCLI-D-17-0600.1
 23. *Geng, X., W. Zhang, F.-F. Jin, and **M. F. Stuecker** (2018): A new method for interpreting nonstationary running correlations and its application to the ENSO-EAWM relationship, *Geophys. Res. Lett.*, 45, 327–334, doi:10.1002/2017GL076564
 22. Kang, S. M., K. Park, F.-F. Jin, and **M. F. Stuecker** (2017), Common warming pattern emerges irrespective of forcing location, *J Adv Model Earth Sy*, 9, 2413–2424, doi:10.1002/2017MS001083
 21. **Stuecker, M. F.**, C. M. Bitz, and K. C. Armour (2017), Conditions leading to the unprecedented low Antarctic sea ice extent during the 2016 austral spring season, *Geophys. Res. Lett.*, 44, 9008–9019, doi:10.1002/2017GL074691
 20. *Geng, X., W. Zhang, **M. F. Stuecker**, and F.-F. Jin (2017), Strong sub-seasonal wintertime cooling over East Asia and Northern Europe associated with super El Niño events, *Scientific Reports*, 7:3770, doi:10.1038/s41598-017-03977-2
 19. **Stuecker, M. F.**, A. Timmermann, F.-F. Jin, Y. Chikamoto, W. Zhang, A. T. Wittenberg, E. Widiasih, and S. Zhao (2017), Revisiting ENSO/Indian Ocean Dipole phase relationships, *Geophys. Res. Lett.*, 44, doi:10.1002/2016GL072308
 18. Levine, A. F. Z., F.-F. Jin, and **M. F. Stuecker** (2017), A simple approach to quantifying the noise-ENSO interaction. Part II: the role of coupling between the warm Pool and equatorial zonal wind anomalies, *Clim Dyn*, 48, 19–37, doi:10.1007/s00382-016-3268-3
 17. *Geng, X., W. Zhang, **M. F. Stuecker**, P. Liu, F.-F. Jin, and G. Tan (2016), Decadal modulation of the ENSO-East Asian winter monsoon relationship by the Atlantic Multidecadal Oscillation, *Clim Dyn*, doi:10.1007/s00382-016-3465-0
 16. Zhang, W., F.-F. Jin, **M. F. Stuecker**, A. T. Wittenberg, A. Timmermann, H.-L. Ren, J.-S. Kug, W. Cai, and M. Cane (2016), Unraveling El Niño's Impact on the East Asian Monsoon and Yangtze River Summer Flooding, *Geophys. Res. Lett.*, 43, 11375–11382, doi:10.1002/2016GL071190
 15. **Stuecker, M. F.**, F.-F. Jin, A. Timmermann, and S. McGregor (2016), Reply to "Comments on 'Combination Mode Dynamics of the Anomalous Northwest Pacific Anticyclone'", *J. Climate*, 29, 4695–4706, doi:10.1175/JCLI-D-15-0558.1
 14. Zhang, W., H. Li, **M. F. Stuecker**, F.-F. Jin, and A. G. Turner (2016), A New Understanding of El Niño's Impact over East Asia: Dominance of the ENSO Combination Mode, *J. Climate*, 29, 4347–4359, doi:10.1175/JCLI-D-15-0104.1
 13. **Stuecker, M. F.**, F.-F. Jin, and A. Timmermann (2015), El Niño-Southern Oscillation frequency cascade, *Proceedings of the National Academies of the Sciences*, 112, 13490–13495, doi: 10.1073/pnas.1508622112
 12. **Stuecker, M. F.**, A. Timmermann, J. Yoon, and F.-F. Jin (2015), Tropospheric Biennial Oscillation (TBO) indistinguishable from white noise, *Geophys. Res. Lett.*, 42, 7785–7791, doi: 10.1002/2015GL065878
 11. Zhang, W., Y. Wang, F.-F. Jin, **M. F. Stuecker**, and A. G. Turner (2015), Impact of different El Niño types on the El Niño/IOD relationship, *Geophys. Res. Lett.*, 42, 8570–8576, doi: 10.1002/2015GL065703
 10. Ren, H.-L., J. Zuo, F.-F. Jin, and **M. F. Stuecker** (2015), ENSO and annual cycle interaction: The combination mode representation in CMIP5 models, *Clim Dyn*, 46, 3753–3765, doi: 10.1007/s00382-015-2802-z
 9. Zhang, W., H. Li, F.-F. Jin, **M. F. Stuecker**, A. G. Turner, and N. Klingaman (2015), The Annual-Cycle Modulation of Meridional Asymmetry in ENSO's Atmospheric Response and Its Dependence on ENSO Zonal Structure, *J. Climate*, 28, 5795–5812, doi:10.1175/JCLI-D-14-00724.1
 8. **Stuecker, M. F.**, F.-F. Jin, A. Timmermann, and S. McGregor (2015), Combination Mode Dynamics of the Anomalous Northwest Pacific Anticyclone, *J. Climate*, 28,1093–1111, doi:10.1175/JCLI-D-14-00225.1
 7. McGregor, S., A. Timmermann, **M. F. Stuecker**, M. H. England, M. Merrifield, F.-F. Jin, and Y. Chikamoto (2014), Recent Walker circulation strengthening and Pacific cooling amplified by Atlantic warming, *Nature Climate Change*, 4, 888–892, doi:10.1038/nclimate2330
 6. Stein, K., A. Timmermann, N. Schneider, F.-F. Jin, and **M. F. Stuecker** (2014), ENSO seasonal synchronization theory, *J. Climate*, 27, 5285–5310, doi:http://dx.doi.org/10.1175/JCLI-D-13-00525.1
 5. Widlansky, M., A. Timmermann, S. McGregor, **M. F. Stuecker**, and W. Cai (2014), An inter hemispheric tropical sea level seesaw due to El Niño Taimasa, *J. Climate*, 27, 1070–1081, doi:10.1175/JCLI-D-13-00276.1
 4. Ren, Hong-Li, F.-F. Jin, **M. F. Stuecker**, and R. Xie (2013), ENSO Regime Change since the Late 1970s as Manifested by Two Types of ENSO, *Journal of the Meteorological Society of Japan*, 91, 835–842, doi:10.2151/jmsj.2013-608
 3. **Stuecker, M. F.**, A. Timmermann, F.-F. Jin, S. McGregor, and H.-L. Ren (2012), A Combination Mode of Annual Cycle and the El Niño - Southern Oscillation, *Nature Geoscience*, 6, 540–544, doi:10.1038/ngeo1826
 2. McGregor, S., A. Timmermann, N. Schneider, **M. F. Stuecker**, and M. H. England (2012), The effect of the South Pacific

Convergence Zone on the termination of El Niño events and the meridional asymmetry of ENSO, *J. Climate*, 25, 5566–5586, doi:10.1175/JCLI-D-11-00332.1

1. **Stuecker, M. F.**, and R. E. Zeebe (2010), Ocean chemistry and atmospheric CO₂ sensitivity to carbon perturbations throughout the Cenozoic, *Geophys. Res. Lett.*, 37, L03609, doi:10.1029/2009GL041436

Presentations

Invited Seminars (20 since 2012)

IBS Center for Climate Physics (ICCP), 07/2018. **University of Washington**, School of Oceanography, 04/2017. **New York University (NYU)**, Courant Institute of Mathematical Sciences, 04/2017. **Pohang University of Science and Technology (POSTECH)**, 03/2017. **Ulsan National Institute for Science and Technology (UNIST)**, 03/2017. **IBS Center for Climate Physics (ICCP)**, 02/2017. **University of Washington**, Department of Atmospheric Sciences, 01/2017. **China Meteorological Administration (CMA)**, 07/2016. **University of Hawai'i at Mānoa**, Department of Atmospheric Sciences, 05/2016. **Max-Planck-Institute for Meteorology**, 04/2016. **University of Hawai'i at Mānoa**, Department of Atmospheric Sciences, 11/2015. **University of Bergen**, Bjerknes Centre for Climate Research, 10/2015. **Columbia University**, Lamont-Doherty Earth Observatory, 09/2015. **Geophysical Fluid Dynamics Laboratory (GFDL)**, 08/2015. **University of Tokyo**, Atmosphere and Ocean Research Institute (AORI), 06/2015. **University of Tokyo**, Research Center for Advanced Science and Technology (RCAST), 06/2015. **University of New South Wales**, Climate Change Research Centre (CCRC), 02/2015. **University of Hawai'i at Mānoa**, Department of Meteorology, 12/2014. **University of Bergen**, Bjerknes Centre for Climate Research, 9/2013. **University of Hawai'i at Mānoa**, Department of Meteorology, 4/2012.

Oral Conference and Workshop Presentations

21. Quantifying the role of local and remote processes in polar amplification, CFMIP 2018 meeting, Boulder, USA, 10/2018
20. A hierarchy of climate models to explain the observed modes of Indo-Pacific climate variability, Workshop on Interactions between Indo-Pacific Ocean and Asian Monsoon, Honolulu, USA, 06/2018, **(invited talk)**
19. Revisiting the Pacific Meridional Mode, AOGS annual meeting, Honolulu, USA, 06/2018
18. Tropical trans-basin variability, Using past observations to constrain future climate variability and change workshop, University of Washington, Seattle, USA, 02/2018
17. Revisiting the interpretation of lead/lag correlations as exemplified by the relationship between ENSO and the Indian Ocean Dipole, Tropical interbasin interactions workshop, Xiamen, China, 01/2018, **(invited talk)**
16. Seasonal ENSO dynamics, teleconnections and predictability, ENSO complexity workshop, ICCP, South Korea, 10/2017 **(invited 30 min talk)**
15. ENSO as a potential source for global seasonal climate predictability: From Yangtze River flooding events to Indian Ocean Dipole variability to the 2016 extreme low Antarctic sea ice extent, 16th CTWF International Symposium on Advances in Seasonal to Decadal Prediction, Beijing, China, 09/2017 **(invited 30 min talk)**
14. Cause of the unprecedented low Antarctic sea ice extent during the 2016 austral spring season, sea ice prediction workshop, University of Washington, Seattle, USA, 07/2017
13. Interconnected climate variability in the Pacific and Indian Oceans, SIAM Conference on Applications of Dynamical Systems, Snowbird, USA, 05/2017 **(invited mini symposium talk)**
12. El Niño And The East Asian Monsoon: Unraveling The Roles Of The Annual Cycle And Air/Sea Interactions, AGU Fall Meeting, San Francisco, USA, 12/2016
11. The El Niño-Southern Oscillation Frequency Cascade, EGU Southern Assembly, Vienna, Austria, 04/2016 **(invited talk for the Outstanding Young Scientist Award)**
10. Tropospheric Biennial Oscillation (TBO) indistinguishable from white noise, EGU General Assembly, Vienna, Austria, 04/2016
 9. The El Niño-Southern Oscillation Frequency Cascade, AMS 96th Annual Meeting, New Orleans, USA, 01/2016
 8. Tropospheric Biennial Oscillation (TBO) indistinguishable from white noise, AMS 96th Annual Meeting, New Orleans, USA, 01/2016
 7. Mathematical peculiarities of El Niño, Mathematics and Climate Research Network (MCRN) annual meeting, Chapel Hill, North Carolina, USA, 09/2014 **(invited talk)**
 6. Combination Mode Dynamics of the Indo-Pacific Response to the El Niño-Southern Oscillation, AOGS annual meeting, Sapporo, Japan, 07/2014
 5. Combination Mode of Annual Cycle and the El Niño - Southern Oscillation: Genesis, Impacts and attribution of air/sea coupling, Ocean Sciences Meeting, Honolulu, USA, 02/2014
 4. Combination Mode of Annual Cycle and the El Niño - Southern Oscillation, Tropical Weather and Climate Dynamics (TWCD) Workshop in Honolulu, USA, 10/2013
 3. A Combination Mode of Annual Cycle and the El Niño - Southern Oscillation, Third CLIVAR Workshop on the Evaluation of ENSO Processes in Climate Models, Hobart, Australia, 01/2013
 2. The role of atmospheric nonlinearity in the phase-transition of ENSO, Summer Workshop on ENSO at the University of Hawai'i at Mānoa, USA, 06/2012

1. The impact of the South Pacific Convergence Zone on the phase transition of ENSO - Insights from CGCM results, 10th International Conference on Southern Hemisphere Meteorology and Oceanography (ICSHMO10), New Caledonia, 04/2012

Poster Presentations

10. Conditions leading to the unprecedented low Antarctic sea ice extent during the 2016 austral spring season, Ocean Sciences Meeting, Portland, USA, 02/2018
9. Cause of the unprecedented low Antarctic sea ice extent during the 2016 austral spring season, AGU Fall Meeting, New Orleans, USA, 12/2017
8. El Niño And The East Asian Monsoon: Unraveling The Roles Of The Annual Cycle And Air/Sea Interactions, AMS 97th Annual Meeting, Seattle, USA, 01/2017
7. The ENSO frequency cascade, AOGS annual meeting, Beijing, China, 08/2016
6. Tropospheric Biennial Oscillation (TBO) indistinguishable from white noise, AOGS annual meeting, Beijing, China, 08/2016
5. El Niño-Southern Oscillation frequency cascade, EGU General Assembly, Vienna, Austria, 04/2016 (**Outstanding Student Poster and PICO (OSPP) Award**)
4. A new framework explaining linkages between ENSO and the Monsoon, Monsoons and the ITCZ: the annual cycle in the Holocene and the future workshop at Columbia University, New York, USA, 09/2015
3. New insights in the genesis and persistence of the anomalous low-level North-West Pacific Anticyclone, ENSO workshop at the University of New South Wales, Sydney, Australia, 02/2015 (**Best Student Presentation Award**)
2. A combination mode of annual cycle and the El Niño-Southern Oscillation: Genesis, impacts and attribution of air/sea coupling, The Latsis Symposium 2014: Atmosphere and Climate Dynamics, Zuerich, Switzerland, 06/2014
1. Evidence for combination tones between the El Niño-Southern Oscillation and the Annual Cycle, AGU Fall Meeting, San Francisco, USA, 12/2012

Outreach Talks

El Niño - the climate child of the Pacific, Busan National Science Museum, 09/2018

Synergistic Activities

Member and contributor in the Mathematics and Climate Research Network (MCRN): facilitating collaborations between climate scientists and mathematicians, giving talks, organizing a "hackathon", since 09/2014

Organizing Committee: ENSO workshop at the University of Hawai'i at Mānoa (06/2012); PCC workshop at the University of Washington "Using past observations to constrain future climate variability and change" (02/2018)

Convener: ENSO dynamics, observations, and predictability in light of the recent 2015/16 El Niño (AGU 2016); Dynamics, Prediction, Impacts and Changes of ENSO (AOGS 2016); El Niño complexity and change (AOGS 2018)

Chair: ENSO dynamics, observations, and predictability in light of the recent 2015/16 El Niño (AGU 2016); Dynamics, Prediction, Impacts and Changes of ENSO (AOGS 2016); Decadal Variability and Predictability (AMS 2017); El Niño complexity and change (AOGS 2018)

Proposal Reviewer: National Science Foundation

Journal Reviewer: Nature, Nature Geoscience, Nature Climate Change, Nature Communications, Geophysical Research Letters, Journal of Climate, Journal of Geophysical Research - Atmospheres, Climate Dynamics, Theoretical and Applied Climatology

Outreach Volunteer: SOEST open house science demonstrations ("Weather in a tank") - 10/2013; SOEST open house: green screen demonstrations - 10/2015; Interview with Radio New Zealand about El Niño predictability and impacts (Airing date: 25. July 2013; 20 minutes); ClimateSnack Blog contributing author; ClimateFeedback.org contributing reviewer

Outreach Consultant: Scientific advise for a general audience science publication ("Ozeanbuch Klimawandel" by Esther Gonstalla, publication in May 2016 in Germany; planned translation to Japanese)

Aid work Volunteer: Exploring the possibilities of low-technology sustainable aquaculture in rural Indonesia (Lombok, Indonesia), 03/2007 - 08/2007

Teaching Experience

Lecturer: "Short CESM summer school", 2018 summer school at Pusan National University, South Korea, 08/2018

Lecturer and co-organizer: "The Ocean's role in climate", 2018 summer school at Pusan National University, South Korea, 07/2018

Invited Guest Lecturer: "Exploring the Atmospheric Sciences" (ATMS 220), University of Washington summer quarter 2017 and fall quarter 2017

Substitute Lecturer: "Climate Modeling" (ATM S 559), University of Washington spring quarter 2017, Instructor: Cecilia Bitz

Substitute Lecturer: invited guest lecture in special topics graduate course on ENSO dynamics, Pusan National University (PNU) spring semester 2017, Instructor: June-Yi Lee

Substitute Lecturer: "Climate modeling, Data Analysis and Applications (ATMO 752)", UH Manoa fall semester 2016, Instructor: Christina Karamperidou

Lecturer: tutorials on "Geospatial data analysis with Ferret" during MCRN annual meeting (09/2014) and ACDC summer school (08/2013)

Teaching Assistant: Undergraduate Mathematics, Institute for Chemistry and Biology of the Marine Environment, Carl von Ossietzky University, Spring semesters 2005 and 2006

Assistant Teacher (full-time): special education school for the blind and visually impaired (von-Vincke-Schule), Germany, 09/2001–07/2002

Other Academic Training

Participant: Workshop: Pan-tropical inter-basin climate interactions, Jeju Island, South Korea, 08/2018

Participant: PCC Summer Institute: "Population Health and Climate Change", Friday Harbor, USA, 09/2017

Participant: STATMOS/SAMSI workshop on climate statistics at NCAR, Boulder, USA, 07/2017

Participant: Mathematics and Climate Research Network (MCRN) annual meeting in Philadelphia, USA, 09/2016

Participant: Mathematics and Climate Research Network (MCRN) annual meeting in Chapel Hill, USA, 09/2014

Participant: Sustainable Climate Risk Management (SCRiM) summer school at Penn state University, USA, 08/2014

Participant: Alpine summer school "Dynamics, Stochastics and Predictability of the Climate System" in Valsavarenche, Italy, 06/2014

Participant: Advanced Climate Dynamics Course (ACDC) "Dynamics of the Last Deglaciation" in Nyksund, Norway, 08/2013

Participant: NCAR Community Earth System Model tutorial in Boulder, USA, 07/2012

Internship: ASR Ltd. (Marine Consulting, New Zealand), 08/2006 – 01/2007

Research Cruise Participant

RV Kilo Moana (Hawai'i Islands), 01/2009

RV Heincke (North Sea), 03/2006

RV Heincke (North Sea), 03/2005

Various measuring campaigns on small vessels in Germany, Australia, and New Zealand, 2003 – 2010

Professional Societies & Associations

American Geophysical Union (AGU), Asia Oceania Geosciences Society (AOGS), Mathematics and Climate Research Network (MCRN), European Geosciences Union (EGU), American Meteorological Society (AMS), CLIVAR Early Career Scientist Network

Last updated: September 13, 2018