

List of publications

Submitted

Köhler, L., B. Green, **C.C. Stephan**: Comparing Loon superpressure balloon observations of gravity waves in the tropics with global storm-resolving models, *J. Geophys. Res.: Atmospheres*

Published

Morfa Avalos, Y.A. and **C.C. Stephan** (2023): The relationship between horizontal and vertical velocity wavenumber spectra in global storm-resolving simulations, *J. Atmos. Sci.*, **80** (4), 1087–1105, doi: 10.1175/JAS-D-22-0105.1

Hohenegger, C. et al. (2023): ICON-Sapphire: simulating the components of the Earth System and their interactions at kilometer and subkilometer scales, *Geosci. Model Dev.*, **16** (2), 779–811, doi: 10.5194/gmd-16-779-2023

Stephan, C.C., J. Duras, L. Harris, D. Klocke, W.M. Putman, M. Taylor, N.P. Wedi, N. Žagar and F. Ziemann (2022): Atmospheric energy spectra in global kilometre-scale models. *Tellus A: Dynamic Meteorology and Oceanography*, **74**, 280–299, doi: 10.16993/tellusa.26/

Stephan, C.C., N. Žagar and T.G. Shepherd (2021): Waves and coherent flows in the tropical atmosphere: new opportunities, old challenges, *Quart. J. Roy. Meteor. Soc.*, **147** (738), 2597–2624, doi: 10.1002/qj.4109

Stevens, B. et al. (2021): EUREC⁴A, *Earth Sys. Sci. Data*, **13**, 4067–4119, doi: 10.5194/essd-13-4067-2021

Stephan, C.C. and A. Mariaccia (2021): The signature of the tropospheric gravity wave background in observed mesoscale motion, *Weather Clim. Dynam.*, **2**, 359–372, doi: 10.5194/wcd-2-359-2021

Stephan, C.C. (2021): Mechanism for the formation of arc-shaped cloud lines over the tropical oceans, *J. Atmos. Sci.*, **78** (3), 817–824, doi: 10.1175/JAS-D-20-0129.1

Stephan, C.C. et al. (2021): Ship- and island-based atmospheric soundings from the 2020 EUREC4A field campaign, *Earth Sys. Sci. Data*, **13**, 491–514, doi: 10.5194/essd-13-491-2021

L. Guo, R.J. van der Ent, N.P. Klingaman, M.-E. Demory, P.L. Vidale, A.G. Turner, **C.C. Stephan**, and A. Chevuturi (2020): Effects of horizontal resolution and air-sea coupling on simulated moisture sources for regional East Asian precipitation in MetUM GA6/GC2, *Geosci. Model Dev.*, **13** (12), 6011–6028, doi: 10.5194/gmd-13-6011-2020

Stephan, C.C. (2020): Seasonal modulation of trapped gravity waves and their imprints on trade wind clouds, *J. Atmos. Sci.*, **77**, 2993–3009, doi: 10.1175/JAS-D-19-0325.1

Fiedler, S., Crueger, T., D'Agostino, R., Peters, K., Becker, T., Leutwyler, D., Paccini, L., Burdanowitz, J., Buehler, S., Uribe, A., Dauhut, T., Dommenges, D., Fraedrich, K., Jungandreas, L., Maher, N., Naumann, A., Rugenstein, M., Sakradzija, M., Schmidt, H., Sielmann, F., **Stephan, C.**, Timmreck, C., Zhu, X. & Stevens, B. (2020): Simulated tropical precipitation assessed across

three major phases of the Coupled Model Intercomparison Project (CMIP), *Mon. Wea. Rev.*, **148**, 3653–3680, doi: 10.1175/MWR-D-19-0404.1

Stephan, C.C., T.P. Lane and C. Jakob (2020): Gravity wave influences on mesoscale divergence: An observational case study, *Geophys. Res. Lett.*, **47**, doi: 10.1029/2019GL086539

Stephan, C.C., H. Schmidt, C. Zülicke and V. Matthias (2019): Oblique gravity wave propagation during sudden stratospheric warmings, *J. Geophys. Res.: Atmospheres*, **124**, doi: 10.1029/2019JD031528

C. Heale, J. Snively, A. Bhatt, L. Hoffmann, E. Kendall, **C.C. Stephan**, (2019): Multilayer observations and modeling of thunderstorm-generated gravity waves over the midwestern U.S., *Geophys. Res. Lett.*, **46**, 14164–14174, doi: 10.1029/2019GL085934

Stephan, C.C., C. Strube, D. Klocke, M. Ern, L. Hoffmann, P. Preusse, and H. Schmidt (2019): Intercomparison of gravity waves in global convection-permitting models. *J. Atmos. Sci.*, **76**, 2739–2759, doi: 10.1175/JAS-D-19-0040.1

Stephan, C.C., C. Strube, D. Klocke, M. Ern, L. Hoffmann, P. Preusse, and H. Schmidt (2019): Gravity waves in global high-resolution simulations with explicit and parameterized convection, *J. Geophys. Res. Atmos.*, **124**, 4446–4459, doi: 10.1029/2018JD030073

Guo, L., R.J. van der Ent, N.P. Klingaman, M.-E. Demory, P.L. Vidale, A.G. Turner, **C.C. Stephan** and A. Chevuturi (2019): Moisture sources for East Asian precipitation: mean seasonal cycle and interannual variability, *J. Hydrometeorology*, **20**, 657–672, doi: 10.1175/JHM-D-18-0188.1

Stephan, C.C., N.P. Klingaman, and A.G. Turner (2019): A mechanism for the recently increased interdecadal variability of the Silk Road Pattern. *J. Climate*, **32**, 717–736, doi: 10.1175/JCLI-D-18-0405.1

Stephan, C.C., N.P. Klingaman, P.L. Vidale, A.G. Turner, M.-E. Demory and L. Guo (2018): Intraseasonal summer rainfall variability over China in the MetUM GA6 and GC2 configurations, *Geosci. Model Dev.*, **11**, 3215–3233, doi: 10.5194/gmd-2018-38

Stephan, C.C., N.P. Klingaman, P.L. Vidale, A.G. Turner, M.-E. Demory and L. Guo (2018): Interannual rainfall variability over China in the MetUM GA6 and GC2 configurations, *Geosci. Model Dev.*, **11**, 1823–1847, doi: 10.5194/gmd-11-1823-2018

Stephan, C.C., Y.H. Ng and N.P. Klingaman (2018): On northern-hemisphere wave patterns associated with winter rainfall events in China, *Adv. Atmos. Sci.*, **35**, 1021–1034, doi: 10.1007/s00376-018-7267-7

Guo, L., N.P. Klingaman, M.-E. Demory, P.-L. Vidale, A.G. Turner and **C.C. Stephan** (2018): The contributions of local and remote atmospheric moisture fluxes to East Asian precipitation and its variability. *Climate Dyn.*, **51**: 4139, doi: 10.1007/s00382-017-4064-4

Hardiman, S., N. Dunstone, A. Scaife, P.E. Bett, C. Li, B. Lu, H.-L. Ren, D. Smith and **C.C. Stephan** (2018): The asymmetric response of Yangtze river basin summer rainfall to El Niño/La Niña, *Environ. Res. Lett.*, **13** (2), doi: 10.1088/1748-9326/aaa172

Stephan, C.C., N.P. Klingaman, P.L. Vidale, A.G. Turner, M.-E. Demory and L. Guo (2018): A comprehensive analysis of coherent rainfall patterns in China and potential drivers. Part I: Interannual Variability, *Climate Dyn.*, **50**: 4405, doi: 10.1007/s00382-5 017-3882-8

Stephan, C.C., N.P. Klingaman, P.L. Vidale, A.G. Turner, M.-E. Demory and L. Guo (2018): A comprehensive analysis of coherent rainfall patterns in China and potential drivers. Part II: Intraseasonal Variability, *Climate Dyn.*, **51**: 17, doi: 10.1007/s00382-017-3904-6

Alexander, M. J., A.W. Grimsdell, **C.C. Stephan** and L. Hoffmann (2017): MJO-related intraseasonal variation in the stratosphere: Gravity waves and zonal winds, *J. Geophys. Res.: Atmospheres*, **123**, 775–788, doi: 10.1002/2017JD027620

de Groot-Hedlin, C.D., M.A.H. Hedlin, L. Hoffmann, M.J. Alexander and **C.C. Stephan** (2017): Relationships between gravity waves observed at Earth's surface and in the stratosphere over the central and eastern United States. *J. Geophys. Res.: Atmospheres*, **122**, doi: 10.1002/2017JD027159

Stephan, C.C., M.J. Alexander, M. Hedlin, C.D. de Groot-Hedlin and L. Hoffmann (2016): A case study on the far-field properties of propagating tropospheric gravity waves. *Mon. Wea. Rev.*, **144**, 2947–2961, doi: 10.1175/MWR-D-16-0054.1.

Stephan, C.C., M.J. Alexander, and J.H. Richter (2016): Characteristics of gravity waves from convection and implications for their parameterization in global circulation models. *J. Atmos. Sci.*, **73**, 2729–2742, doi: 10.1175/JAS-D-15-0303.1

Stephan, C.C. and M.J. Alexander (2015): Realistic simulations of atmospheric gravity waves over the Continental U.S. using precipitation radar data, *J. Adv. Model. Earth Syst.*, **07**, doi: 10.1002/2014MS000396

Stephan, C.C. and M.J. Alexander (2014): Summer season squall-line simulations: Sensitivity of gravity waves to physics parameterization and implications for their parameterization in global climate models, *J. Atmos. Sci.*, **71**, 3376–3391, doi: 10.1175/JAS-D-13-0380.1

Lüdeling, C., H.P. Nilles, and **C.C. Stephan** (alphabetical order): Potential fate of local model building, *Phys. Rev. D*, **83**, issue 8, Apr. 2011, American Physical Society, doi: 10.1103/PhysRevD.83.086008

Video publication

Stephan, C.C. (2020): Why and how do clouds form in particular locations? *LT Video Publication*, doi: <https://doi.org/10.21036/LTPUB10825>