Peter Huybers

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EDUCATION

Massachusetts Institute of Technology, Climate Physics and Chemistry, Ph.D. (2004).

United States Military Academy at West Point, Physics, B.S. (1996).

APPOINTMENTS

Professor, School of Engineering and Applied Sciences, Harvard University (2014-).

Professor, Department of Earth and Planetary Sciences, Harvard University (2011-).

Assistant Professor, Department of Earth and Planetary Sciences, Harvard University (2007-2010).

Harvard University Environmental Fellow, Department of Earth and Planetary Sciences, Harvard University (2006-2007).

NOAA Postdoctoral Fellow in Climate and Global Change, Geology and Geophysics Department, Woods Hole Oceanographic Institution (2004-2006).

Research Assistant, Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology (1999-2004).

U.S. Army: Germany and Bosnia (1996-1998); New Orleans, LA (1998-1999); and Cambridge, MA (1999-2003).

AWARDS AND HONORS

Leshner Leadership Institute Public Engagement Fellow (2016), Jefferson Science Fellow (2012), MacArthur Fellow (2009), Packard Fellow for Science and Engineering (2009), AGU James B. Macelwane Medal (2009), Harvard University Center for the Environment Fellow (2006), NOAA Postdoctoral Fellow in Climate and Global Change (2004), MIT Carl-Gustaf Rossby Prize (2004); National Defense Science and Engineering Graduate Fellow (2001).

UNIVERSITY SERVICE

Leadership and committees: Board member of the Center for African Studies (2017-), Science of the Human Past Steering committee (2011-), Environmental Science and Public Policy committee (2009-), and Harvard Oceanography committee (2007-); co-Director Harvard University Center for the Environment (2016-2018).

PhD advisor: Alexandra Berry, Teddy Amdur, Aleyda Trevino, Chan Duo (PhD 2021), Parker Liautaud (PhD 2021), Marena Lin (PhD 2018), Cristian Proistosescu (PhD 2016), Karen McKinnon (PhD 2015), Ethan Butler (PhD 2015), Andrew Rhines (PhD 2015), Eddie Haam (PhD 2011), and Martin Tingley (PhD 2009).

Postgraduate sponsor: Jon Proctor (2019-); Angela Rigden (2017-2021); Nathan Mueller (2013-2016); Alexander Stine (2010-2012), Thomas Laepple (2011), and Geoffrey Gebbie (2008-2010).

OTHER PROFESSIONAL SERVICE

NSF Environmental Research Advisory Board (2018-2021), Senior science advisor in the White House's Office of Science and Technology Policy (2013-2014); Jefferson Science Fellow in the U.S. State Department (2012).

PUBLICATIONS

A. Trevino, A. Stine, and P. Huybers, Regional Nonlinear Relationships Across the United States Between Drought and Tree-Ring Width Variability From a Neural Network, *Geophysical Research Letters*, 2021.

J. Fanzo et al., Sustainable food systems and nutrition in the 21st century: A report from the 22nd annual harvard nutrition obesity symposium, *The American Journal of Clinical Nutrition*, 2021.

A. Albright, C. Proistosescu, and P. Huybers, Origins of a Relatively Tight Lower Bound on Anthropogenic Aerosol Radiative Forcing from Bayesian Analysis of Historical Observations, *Journal of Climate*, p8777-8792, 2021.

P. Liautaud and P. Huybers, Increased Sea Level Sensitivity to CO2 Forcing across the Middle Pleistocene Transition from Ice-Albedo and Ice-Volume Nonlinearities, *Journal of Climate*, p9693-9709, 2021.

T. Amdur, A. Stine, and P. Huybers, Global surface temperature response to 11-year solar cycle forcing consistent with general circulation model results, *Journal of Climate*, p1-33, 2021.

T. Carleton, J. Cornetet, P. Huybers, K. Meng, and J. Proctor, Ultraviolet radiation decreases COVID-19 growth rates: Global causal estimates and seasonal implications, *Proceedings of the National Academy of Sciences*, v118(1), 2021.

L. Sloat, M. Lin, E. Butler, D. Johnson, M. Holbrook, P. Huybers, J. Lee, and N. Mueller, Evaluating the benefits of chlorophyll fluorescence for in-season crop productivity forecasting, *Remote Sensing of Environment*, p112478, 2021.

D. Chan and P. Huybers, Correcting Observational Biases in Sea Surface Temperature Observations Removes Anomalous Warmth during World War II, *Journal of Climate*, p4585-4602, 2021.

D. Chan, G. Vecchi, W. Yang, and P. Huybers, Improved simulation of 19th-and 20th-century North Atlantic hurricane frequency after correcting historical sea surface temperatures, *Science advances* p6931, 2021.

U. Buntgen et al., The influence of decision-making in tree ring-based climate reconstructions, *Nature communications* p1-10, 2021.

N. Kogan et al., An early warning approach to monitor COVID-19 activity with multiple digital traces in near real time, *Science Advances*, p6989, 2021.

C. Dai, D. Chan, P. Huybers, and N. Pillai, Late 19th century navigational uncertainties and their influence on sea surface temperature estimates, *The Annals of Applied Statistics*, p22-40, 2021.

A. Rigden, R. Powell, A. Trevino, K. McColl, and P. Huybers, Microwave retrievals of soil moisture improve grassland wildfire predictions, *Geophysical Research Letters*, e2020GL091410, 2020.

A. Rigden, N. Mueller, N. Holbrook, N. Pillai, and P. Huybers, Combined influence of soil moisture and atmospheric evaporative demand is important for accurately predicting US maize yields, *Nature Food*, 1(2), 127-133, 2020.

D. Chan and P. Huybers, Systematic differences in bucket sea surface temperatures caused by misclassification of engine room intake measurements, *Journal of Climate*, 33(18), 7735-7753, 2020.

D. Chan, A. Cobb, L. Zeppetello, and D. Battisti, P. Huybers, Summertime temperature variability increases with local warming in midlatitude regions, *Geophysical Research Letters*, 47(13), e2020GL087624, 2020.

A. Rigden, V. Ongoma, and P. Huybers, Kenyan tea is made with heat and water: how will climate change influence its yield? *Environmental Research Letters*, 15(4), 044003, 2020.

B. Boulahanis, S. Carbotte, P. Huybers, M. Nedimovic, O. Aghaei, J. Canales, and C. Langmuir, Do sea level variations influence mid-ocean ridge magma supply? A test using crustal thickness and bathymetry data from the East Pacific Rise, *Earth and Planetary Science Letters*, 535, 116121, 2020.

J. Middleton, S. Mukhopadhyay, K. Costa, F. Pavia, G., Winckle, J. McManus, M. D'Almeida, C. Langmuir, and P. Huybers , The spatial footprint of hydrothermal scavenging on 230ThXS-derived mass accumulation rates, *Geochimica et Cosmochimica Acta*, 272, 218-234, 2020.

D. Chan, E. Kent, D. Berry, and P. Huybers, Correcting datasets leads to more homogeneous early-twentieth-century sea surface warming, *Nature*, v571(7765), p393–398, 2019.

D. Chan and P. Huybers, Systematic differences in bucket sea surface temperature measurements amongst nations identified using a linear-mixed-effect method, *Journal of Climate*, v32, p2569–2589, 2019.

P. Liautaud, D. Hodell, and P. Huybers, Detection of significant climatic precession variability in early Pleistocene glacial cycles, *Earth and Planetary Science Letters*, 536, 116137, 2020.

M. Lin and P. Huybers, If rain falls in India and no one reports it, are historical trends in monsoon extremes biased? *Geophysical Research Letters*, v46(3), p1681–1689, 2019.

J. Gebbie and P. Huybers, The Little Ice Age and 20th-century deep Pacific cooling, *Science*, v363(6422), p70–74, 2019.

C. Hay, J. Creveling, C. Hagen, A. Maloof, and P. Huybers, A library of early Cambrian chemostratigraphic correlations from a reproducible algorithm. *Geology*, v47(5), p457–460, 2019.

C. Piecuch, P. Huybers, C. Hay, A. Kemp, C. Little, J. Mitrovica, R. Ponte, and M. Tingley, Origin of spatial variation in US East Coast sea-level trends during 1900–2017, *Nature*, v564(7736), p400–404, 2018.

E. Butler, N. Mueller, and P. Huybers, Peculiarly pleasant weather for US maize, *Proceedings of the National Academy of Sciences*, v115(47), p11935–11940, 2018.

J. Middleton, S. Mukhopadhyay, C. Langmuir, J. McManus, and P. Huybers, Millennial–scale variations in dustiness recorded in Mid-Atlantic sediments from 0 to 70 ka, *Earth and Planetary Science Letters* v482, p12–22, 2018.

C. Proistosescu and P. Huybers, Slow climate mode reconciles historical and model-based estimates of climate sensitivity, *Science Advances*, v3(7), e1602821, p1–6, 2017.

A. Rhines, K. McKinnon, M. Tingley, and P. Huybers, Seasonally Resolved Distributional Trends of North American Temperatures Show Contraction of Winter Variability, *Journal of Climate*, v30(3), p1139–1157, 2017.

N. Mueller, A. Rhines, E. Butler, D. Ray, S. Siebert, N.M. Holbrook, and P. Huybers, Global Relationships Between Cropland Intensification and Summer Temperature Extremes Over the Last 50 Years, *Journal of Climate*, v30(18), p7505–7528, 2017.

S. Myers, M. Smith, S. Guth, C. Golden, B. Vaitla, N. Mueller, A. Dangour, and P. Huybers, Climate Change and Global Food Systems: Potential Impacts on Food Security and Undernutrition, *Annual Review of Public Health*, v38, p259–277, 2017.

J. Austermann, J. Mitrovica, P. Huybers, and A. Rovere, Detection of a dynamic topography signal in last interglacial sea-level records, *Science Advances*, v3(7), e1700457, p1–8, 2017.

D. Ferguson, Y. Li, C. Langmuir,KC. Costa, J. McManus, P. Huybers, and S. Carbotte, A 65 k.y. time series from sediment-hosted glasses reveals rapid transitions in ocean ridge magmas, *Geology*, v45(6), p491–494, 2017.

P. Huybers and C. Langmuir, Delayed CO2 emissions from mid-ocean ridge volcanism as a possible cause of late-Pleistocene glacial cycles, *Earth and Planetary Science Letters*, v457, p238—249, 2017.

N. Mueller, A. Rhines, E. Butler, D. Ray, S. Siebert, N. Holbrook, and P. Huybers, Global Relationships between Cropland Intensification and Summer Temperature Extremes over the Last 50 Years, *Journal of Climate*, p7505–7528, 2017.

A. Stine and P. Huybers, Implications of Liebig's law of the minimum for tree-ring reconstructions of climate, *Environmental Research Letters*, v12(11), p1–8, 2017.

C. Piecuch, P. Huybers, and M. Tingley, Comparison of full and empirical Bayes approaches for inferring sea-level changes from tide–gauge data, *Journal of Geophysical Research: Oceans* v122(3), p2243–2258, 2017.

K. Costa, J. McManus, J. Middleton, C. Langmuir, P. Huybers, G Winckler, and S. Mukhopadhyay, Hydrothermal deposition on the Juan de Fuca Ridge over multiple glacial–interglacial cycles, *Earth and Planetary Science Letters* 479, p120–132, 2017.

A. Rhines, K. McKinnon, M. Tingley, and P. Huybers, Seasonally Resolved Distributional Trends of North American Temperatures Show Contraction of Winter Variability. *Journal of Climate*, v30, p1139–1157, 2017.

A. Daradich, P. Huybers, J. Mitrovica, N. Chan, and J. Austermann, The influence of true polar wander on glacial inception in North America, *Earth and Planetary Science Letters*, v461, p96–104, 2017.

K. McKinnon and P. Huybers, Seasonal constraints on inferred planetary heat content, *Geophysical Research Letters*, 43, v10, p955–10,964, 2016.

K. Costa, J. McManus, B. Boulahanisa, S. Carbotte, G. Winckler, P. Huybers, and C. Langmuir, Sedimentation, stratigraphy and physical properties of sediment on the Juan de Fuca Ridge, *Marine Geology*, v380, p163–173, 2016.

K. McKinnon, A. Rhines, M. Tingley, and P. Huybers, The changing shape of Northern Hemisphere summer temperature distributions, *Journal of Geophysical Research: Atmospheres* v121(15), p8849–8868, 2016.

M. Lin and P. Huybers, Revisiting whether recent surface temperature trends agree with the CMIP5 ensemble, *Journal of Climate*, v9(24), p8673–8687, 2016.

C. Proistosescu, A. Rhines, and P. Huybers Identification and interpretation of nonnormality in atmospheric time series, *Geophysical Research Letters*, v43, 2016.

P. Huybers, C. Langmuir, R. Katz, D. Ferguson, C. Proistosescu, and S. Carbotte, Comment on 'Sensitivity of seafloor bathymetry to climate-driven fluctuations in mid-ocean ridge magma supply', *Science*, v352(6292), 2016.

C. Hay, J. Mitrovica, E. Morrow, R. Kopp, P. Huybers, and R. Alley, Earth rotation changes since -500CE driven by ice mass variations, *Earth and Planetary Science Letters*, v448, p115–121, 2016.

K. McKinnon, A. Rhines, M. Tingley, and P. Huybers, Long-lead predictions of eastern United States hot days from Pacific sea surface temperatures, *Nature Geoscience*, v9, p389–394, 2016.

N. Mueller, E. Butler, K. McKinnon, A. Rhines, M. Tingley, N. Holbrook, and P. Huybers, Cooling of US Midwest summer temperature extremes from cropland intensification, *Nature Climate Change*, advance online publication, 2015.

A. Rhines, M. Tingley, K. McKinnon, and P. Huybers, Decoding the Precision of Historical Temperature Observations, *Quarterly Journal of the Royal Meteorological Society*, v141(693), p2923–2933, 2015.

J. Crowley, R. Katz, P. Huybers, C. Langmuir, and S. Park, Glacial cycles drive variations in the production of oceanic crust, *Science*, v347(6227), p1237–1240, 2015.

M. Tingley and P. Huybers, Heterogeneous warming of Northern Hemisphere surface temperatures over the last 1200 years, *Journal of Geophysical Research: Atmospheres*, v120(9), p4040–4056, 2015.

E. Butler and P. Huybers, Variations in the sensitivity of US maize yield to extreme temperatures by region and growth phase, *Environmental Research Letters*, v10(3), 034009, 2015.

T. Laepple and P. Huybers, Ocean surface temperature variability: Large model-data differences at decadal and longer periods, *Proceedings of the National Academy of Sciences*, v111(47), p16682–16687, 2014.

M. Tingley, A. Stine, and P. Huybers, Temperature reconstructions from tree-ring densities overestimate volcanic cooling, *Geophysical Research Letters*, v41(22), p7838–7845, 2014

A. Rhines and P. Huybers, Sea ice and dynamical controls on pre-industrial and Last Glacial Maximum accumulation in central Greenland, *Journal of Climate*, v27(23), p8902–8917, 2014.

P. Huybers, K. McKinnon, A. Rhines, and M. Tingley, U.S. daily temperatures: the meaning of extremes in the context of non-normality, *Journal of Climate*, v27, p7368–7384, 2014.

K. McKinnon and P. Huybers, On using the seasonal cycle to interpret extratropical temperature changes since 1950, *Geophysical Research Letters*, v41, p4676–4684, 2014.

T. Laepple and P. Huybers, Global and regional variability in marine surface temperatures, *Geophysical Research Letters*, v41, p2528–2534, 2014.

A. Stine and P. Huybers, Arctic tree rings as recorders of variations in light availability, *Nature Communications*, v5(3836), 2014.

J. Austermann, B. Kaye, J. Mitrovica, and P. Huybers, A statistical analysis of the correlation between large igneous provinces and lower mantle seismic structure, *Geophysical Journal International*, v197, p1–9, 2014.

M. Sori, T. Perron, P. Huybers, and O. Aharonson, A procedure for testing the significance of orbital tuning of the Martian polar layered deposits, *Icarus*, v235, p136–146, 2014.

S. Myers et al., Increasing CO2 threatens human nutrition, *Nature*, v510, p139—142, 2014.

M. Tingley and P. Huybers, Recent high northern latitude temperature extremes unprecedented in past 600 years, *Nature*, v496, p201–205, 2013.

A. Rhines and P. Huybers, Frequent summer temperature extremes reflect changes in the mean, not the variance, *Proceeding of the National Academy of Science*, (comment), v110, p547–548, 2013.

T. Laepple and P. Huybers, Reconciling discrepancies between Uk37 and Mg/Ca reconstructions of Holocene marine temperature variability, *Earth and Planetary Science Letters*, v375, p418—429, 2013.

K. McKinnon, A. Stine, and P. Huybers, The Spatial Structure of the Annual Cycle in Surface Temperature: Amplitude, Phase, and Lagrangian History, *Journal of Climate*, v26, p7852–7862, 2013.

N. Kachouie, P. Huybers and A. Schwartzman, Localization of Mountain Glacier Termini in Landsat Multi-Spectral Images, *Pattern Recognition Letters*, v34(1), p94–106, 2013.

S. Kutterolf, M. Jegen, J. X. Mitrovica, T. Kwasnitschka, A. Freundt, and P. Huybers, A detection of Milankovitch frequencies in global volcanic activity, *Geology*, 41(2), p227–230, 2013.

E. Butler and P. Huybers, Adaptation of US Maize to Temperature Variations, *Nature Climate Change*, v3, p68–72, 2013; and 'Reply: US maize adaptability' *Nature Climate Change*, v3, p691–692, 2013.

E. Morrow, J. Mitrovica, A. Forte, P. Glisovic, P. Huybers, An enigma in estimates of the Earth's dynamic ellipticity, *Geophysical Journal International*, v191, p1129–1134, 2013.

A. Stine and P. Huybers, Changes in the seasonal cycle of temperature and atmospheric circulation, *Journal of Climate*, v25, p7362—7380, 2012.

E. Rohling et al., Making sense of paleoclimate sensitivity, *Nature*, v491, p683–691, 2012.

M. Lin and P. Huybers, Reckoning wheat yield trends, *Environmental Research Letters*, v7, p1–6, 2012.

M. McCormick and 11 co-authors, Climate Change during and after the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence, *The Journal of Interdisciplinary History*, v43, p169–220, 2012.

G. Gebbie and P. Huybers, The mean age of ocean waters inferred from radiocarbon observations: upper and lower bounds, sensitivity to surface sources, and accounting for mixing histories, *Journal of Physical Oceanography*, v42, p291–305, 2012.

C. Proistosescu, P. Huybers and A. Maloof, To Tune or not to Tune: Detecting Orbital Variability in Oligo-Miocene Climate Records, *Earth and Planetary Science Letters*, v325, p100–107, 2012.

N. Gomez, D. Pollard, J. Mitrovica, P. Huybers, and P. Clark, Evolution of a coupled marine ice sheet—sea level model,*Journal of Geophysical Research*, v117, p1–9, 2012.

P. Huybers, Combined obliquity and precession pacing of the late Pleistocene glacial cycles, *Nature*, v480, p229–232, 2011.

A. Rhines and P. Huybers, Estimation of spectral power laws in time-uncertain series of data with application to the GISP2 δ^{18}O record, *Journal of Geophysical Research*, v116, D01103, p1–9, 2011.

G. Gebbie and P. Huybers, How is the Ocean Filled?, *Geophysical Research Letters*, v38, L06604, p1–5, 2011.

P. Huybers and O. Aharonsen, Orbital tuning, eccentricity, and the frequency modulation of climatic precession, *Paleoceanography*, v25, PA4228, p1–9, 2010.

N. Gomez, J. X. Mitrovica, P. Huybers, and P. U. Clark, Sea level as a stabilizing factor for marine ice-sheet grounding lines, *Nature Geoscience*, v3, p850–853, 2010.

P. Huybers, Compensation between Model Feedbacks and Curtailment of Climate Sensitivity, *Journal of Climate*, v23, p3009–3018, 2010.

M. Tingley and P. Huybers, A Bayesian algorithm for reconstructing spatially arrayed temperatures. Part 1: Development and applications to paleoclimate reconstruction problems, *Journal of Climate*, v23, p2759–2781, 2010.

M. Tingley and P. Huybers, A Bayesian algorithm for reconstructing spatially arrayed temperatures. Part 2: Behavior and comparison with the regularized expectation-maximization algorithm, *Journal of Climate*, v23, p2782–2800, 2010.

E. Haam and P. Huybers, A test for the presence of covariance between time-uncertain series of data with application to the Dongge Cave speleothem and atmospheric radiocarbon records, *Paleoceanography*, v25, PA2209, 2010.

G. Gebbie and P. Huybers, Total matrix intercomparison: a method for determining the geometry of water-mass pathways, *Journal of Physical Oceanography*, v40, p1710–1728, 2010.

P. Huybers and C. Wunsch, Paleo-physical oceanography with an emphasis on the Last Glacial Maximum, *Annual Review of Marine Science*, v3, p1–34, 2010.

M. Siddall, B. Hönisch, C. Waelbroeck and P. Huybers, Changes in deep Pacific temperature during the mid-Pleistocene transition and Quaternary, *Quaternary Science Reviews*, v29(1–2), p170–181, 2010.

P. Huybers and C. Langmuir, Feedback between deglaciation and volcanic emissions of CO_2, *Earth and Planetary Science Letters*, v286(3–4), p479–491, 2009.

A. Stine, P. Huybers and I. Fung, Changes in the phase of the annual cycle of surface temperature, *Nature*, v457, p435–440, 2009.

T. Perron and P. Huybers, Is there an orbital signal in the polar layered deposits on Mars?, *Geology*, v37, p155–158, 2009.

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P. Huybers, Pleistocene glacial variability as a chaotic response to obliquity forcing, *Climate of the Past*, v5, p481–488, 2009.

P. Huybers, Antarctica's orbital beat, *Science* (perspective), v325, p1085–1086, 2009.

P. Clark and P. Huybers, Interglacial and Future Sea Level, *Nature* (news and views), v462, p856–857, 2009.

P. Huybers and E. Tziperman, Integrated summer insolation forcing and 40,000 year glacial cycles: the perspective from an icesheet/energy-balance model, *Paleoceanography*, v23, PA001463, 2008.

M. Raymo and P. Huybers, Unlocking the mysteries of the ice ages, *Nature*, v451, p284–285, 2008.

P. Huybers and G. Denton, Antarctic temperature at orbital time scales controlled by local summer duration, *Nature Geoscience*, v1(11), p787–792, 2008.

P. Huybers, Glacial variability over the last 2Ma: an extended depth-derived agemodel, continuous obliquity pacing, and the Pleistocene progression, *Quaternary Science Reviews*, v26, p37–55, 2007.

P. Huybers, G. Gebbie, and O. Marchal, Can paleoceanographic tracers constrain meridional circulation rates?, *Journal of Physical Oceanography*, v37, p394–407, 2007.

P. Huybers and P. Molnar, Tropical cooling and the onset of North American glaciation, *Climate of the Past*, v3, p549–557, 2007.

P. Huybers and W. Curry, Links between the annual, Milankovitch, and continuum of temperature variability, *Nature*, v441, p329–332, 2006.

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E. Tziperman, M. Raymo, P. Huybers, and C. Wunsch, Consequences of pacing the Pleistocene 100 kyr ice ages by nonlinear phase locking to Milankovitch forcing, *Paleoceanography*, v21, PA4206, 2006.

G. Gebbie and P. Huybers, Meridional circulation during the Last Glacial Maximum explored through a combination of South Atlantic δ^{18}O observations and a geostrophic inverse model, *Geochemistry, Geophysics and Geosystems*, v7, Q11N07, 2006.

P. Huybers and C. Wunsch, Obliquity pacing of the late Pleistocene glacial terminations, *Nature*, v434, p491–494, 2005.

P. Huybers, Comment on: 'Hockey sticks, principal components, and spurious significance' by McIntyre and McKitrick, *Geophysical Research Letters*, v32, 2005.

P. Huybers and C. Wunsch, A depth-derived Pleistocene age-model: uncertainty estimates, sedimentation variability, and nonlinear climate change, *Paleoceanography*, v19, 2004.

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