Curriculum Vitae
Peter E. van Keken

Peter E. van Keken
Staff Scientist (as of January 1, 2016)
Department of Terrestrial Magnetism
Carnegie Institution of Washington
5241 Broad Branch Road, NW
Washington DC 20015
USA
Email: pvankeken@carnegiescience.edu

Until December 31, 2015:
Professor of Geophysics
Earth and Environmental Sciences
University of Michigan
1100 North University Avenue
Ann Arbor, MI 48105
USA
Email: keken@umich.edu

Education:

1993	PhD (cum laude)	University of Utrecht, The Netherlands
1989	MSc	University of Utrecht, The Netherlands

Professional Positions:

2016	Staff Scientist	Carnegie Institution of Washington
2010-	Professor	Earth and Environmental Sciences, University of Michigan
2008-2010	Professor	Geological Sciences, University of Michigan
2002-2008	Associate Professor	Geological Sciences, University of Michigan
1996-2002	Assistant Professor	Geological Sciences, University of Michigan
1994-1996	Visiting Assistant Professor	Geological Sciences, University of Michigan
1993-1994	Visiting Fellow	Army High Performance Computing Research Center, University of Minnesota
1993	Postdoctoral Assistant	Earth Sciences, University of Utrecht
1989-1993	Research Assistant	Earth Sciences, University of Utrecht

Honors and Awards:

2010-2012	GeoPrisms Distinguished Lecturer	
2009	Faculty Recognition Award	University of Michigan
2009	Fellow, American Association for the Advancement of Science	
2005	Fellow, Geological Society of America	
2002	Computer World Honors	www.cwheroes.org
2001	Excellence in Education Award LSA	University of Michigan
1998	Excellence in Education Award LSA	University of Michigan
1993	PhD cum Laude	University of Utrecht
1993	Shell Travel Prize for the most outstanding thesis in the natural sciences at Utrecht University	Royal Dutch Shell

Professional Society Service:

2013-2016 GeoPRISMS Steering and Oversight Committee, Chair
2013-2016 Director, GeoPRISMS Office
2012- Editorial Board, Japanese Geosciences Union journal "Geosphere and Space"
2013-2017 Editorial Board, Japanese Geoscience Union journal "Progress in Earth and Planetary Science (PEPS)"
2013-2016 Advisory Committee of the Institute of Earth Sciences, Academia Sinica, Taiwan
2013-2017 Advisory Committee of the "Zooming In between Plates" Marie Curie training network (supported by European Union and organized out of Université Pierre et Marie Curie, Paris)
1999-2008, 2012- Convener for special sessions at EUG/EGU (Nice & Vienna), Fall AGU (San Francisco), Goldschmidt (Davos), Spring AGU (Baltimore), Goldschmidt (Prague)
2014 Subduction Theme co-organizer for Goldschmidt meeting, Sacramento, CA
2012-2013 GeoPRISMS Steering and Oversight Committee, member
2011-2013 CIDER-II Advisory Committee
2010-2013 CIG Science Steering Committee
2012 Co-convener CIG lithosphere and mantle dynamics meeting at UC Davis
2010-2012 COMPRES Advisory Council
2010-2012 AGU Book Board
2011 Ad-hoc WHOI promotion panel
2010 CIDER Summer School, Santa Barbara, CA
2009 Selection panel for Marine Geoscience Leadership Symposium
2009 Co-convener MARGINS Theoretical and Experimental Institute on Volatiles, Timberline Lodge, Mt Hood, Oregon
2009 Proposal Writing Committee, Collaborative Infrastructure for Geodynamics
1999-2009 Judge for AGU student presentations
2005-2009 Editor, Geochemistry, Geophysics, Geosystems
2008 CIDER Summer School, Santa Barbara, CA
2004-2008 Member, MARGINS Steering Committee
2006 CIDER Summer School, Santa Barbara, CA
2002-2004 Guest editor for two special volumes of Physics of the Earth and Planetary Interiors
2004 Editor (acting for Karen Fischer) Geochemistry, Geophysics, Geosystems
2003-2005 Associate editor for Geochemistry, Geophysics, Geosystems
2005 Medal nomination committee of the European Geophysical Union
2000-2002 Associate Editor for Geochemistry, Geophysics, Geosystems for special volume
2002 Lead organizer of MARGINS subduction meeting at University of Michigan

Professional affiliations

American Geophysical Union
European Geosciences Union
Geochemical Society

University Service:

2014 Member ad-hoc promotion committee for AOSS
2012 UM Visualization Planning committee
2011-2012 Office of Research Cyberinfrastructure Programs Advisory Group
2011-2012 Ad-hoc third year renewal committee for AOSS
2008-2009 Search Committee for Director of 3D Lab (Duderstadt Center)
2007-2008 LSA Advanced Computational Infrastructure Committee
2001 LSA Ad-Hoc committee on Large Scale Computing
2000-2002 LSA Information Technology Committee

Departmental Service:

2011-2015	Associate Chair for Curriculum
2011-2015	Undergraduate Advisor
2011-2015	Chair, Curriculum committee
2012-2015	Member computer committee
1996-	PhD committees (Chair: Allen McNamara, Erik Kneller, JP Brandenburg, Ross Maguire; Member: Yoshioka Tanioka, Boris Kiefer, Yong Keun Hwang, Yang Zhang, Sarah Rilling, Zeyu Li, Trever Hines; Cognate Member: Mike Wong (AOSS), Erik Wilson (AOSS), Kate Copic (Physics), Kentaro Hanaki (Physics); External Member: Ikuko Wada (PGC, Vancouver), Judith Vatteville (IPG Paris), Changyeol Lee (Virginia Tech), Samuel Angiboust (UPMC Paris)
2014	Member Ad-Hoc Promotion committees (for Brian Arbic)
2011-2013	Member Executive Committee
2013	Member Ad-hoc Promotion committee
2012	Member/Chair Ad-hoc Promotion committees
2010-2011	co-chair Long Term Planning Committee (with Becky Lange and Joel Blum)
2003-2011	Chair Computer Committee
2010	Member Ad-hoc Promotion Committees
2007-2009	Member Executive Committee
2007-2008	Member Geophysics Search Committee
2008	Member Ad-hoc Tenure Committee
2007	Member Curriculum Revision committee
2006-2007	Member Turner Postdoc committee
2004-2005	Member Curriculum Committee
2002-2003	Faculty computer staff liaison (in lieu of committee)
2000-2002	Chair Computer Committee
1996-1997	Organizer of Turner Speaker Series
1997-1999	Member Executive Committee
1996-2005	Unix system administration & supervision

Invited Lectures:

2015	CSEDI workshop, Scripps Institution of Oceanography, La Jolla, CA
2015	Goldschmidt conference, Prague, Czech Republic
2015	Volatiles consortia meeting, Oxford University, UK
2014	Department of Terrestrial Magnetism, Carnegie Institution of Washington, DC
2014	Field symposium ZIP training network, Sampeyre, Italy
2014	Keynote, SEDI symposium, Kanagawa, Japan
2014	"Deep Earth Processes" symposium, Geological Society of London, Burlington House, London, UK
2013	NSF Earthcube Modeling meeting, Boulder, CO
2013	Ocean and Earth Science, National Oceanography Centre Southampton, UK
2013	Keynote, 10th International Eclogite Conference, Courmayeur, Italy
2012	UK Research Council planning workshop, Oxford, UK
2012	School of Earth and Atmospheric Sciences, University of Manchester, UK
2012	University of Bristol, UK
2012	Rensselaer Polytechnic Institution, Troy, NY
2012	Stanford, Department of Geology, CA
2012	Stanford, Department of Geophysics, CA
2012	University of California at Davis, CA
2012	Graduate School of Science, Tohoku University, Japan
2012	Grand Valley State University, Allendale, MI

2012 Grand Valley State University (public evening lecture), Grand Rapids, MI
2012 American Geophysical Union, San Francisco, CA (Deep Interior session)
2012 American Geophysical Union, San Francisco, CA (Tectonophysics session)
2011 Keynote, COMPRES annual meeting, Williamsburg, VA
2011 Goldschmidt, Prague, Czech Republic
2011 University of Texas at Dallas, TX
2011 University of South Florida, Tampa, FL
2011 TAMU, Galveston, TX
2011 Rice University, Houston, TX
2011 Water on Earth and in Space symposium, University of Michigan
2011 GeoPRISMS planning meeting, Portland, OR
2011 Université Pierre et Marie Curie, Paris, France
2011 American Geophysical Union (Union session), San Francisco, CA
2011 American Geophysical Union (Deep Interior session), San Francisco, CA
2010 Department of Geosciences, Virginia Tech, Blacksburg VA
2010 Keynote, Goldschmidt conference, Knoxville, TN
2010 Keynote, Subduction Zone Symposium, Tohoku, Japan
2010 COMPRES computational workshop, Minneapolis, MN
2010 Keynote, State of the Arc, Santorini, Greece
2010 Department of Geology, University of Toronto, Ontario
2010 American Geophysical Union Fall Meeting, San Francisco, CA
2009 Keynote, Stagnant Slab Symposium, Kyoto, Japan
2009 Keynote, Gordon Research Conference "Interior of the Earth" Mt Holyoke MA
2009 Keynote, Goldschmidt Conference, Davos, Switzerland
2009 Keynote, "Water on Earth and Beyond", Durham Institute of Advanced Study, UK
2009 Pacific Geoscience Centre, Sydney, BC, Canada
2009 Department of Terrestrial Magnetism, Carnegie Institution of Washington, DC
2009 Department of Fluid Dynamics (FAST), Université Paris Sud, Orsay, France
2009 American Geophysical Union Fall Meeting, San Francisco, CA
2008 Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY
2008 Woods Hole Oceanographic Institution, Woods Hole, MA
2007 Geological Sciences, University of California at Davis, CA
2007 Geological Sciences, Brown University, Providence, RI
2007 Earth and Planetary Sciences, Washington University, St Louis, MO
2007 Keynote, Gordon Research Conference "Interior of the Earth" Mt Holyoke, MA
2007 MARGINS workshop on Izu-Bonin-Marianas subduction, Honolulu, HI
2007 American Geophysical Union, Fall Meeting, San Francisco, CA
2006 Keynote, MARGINS meeting on subduction zones, Woods Hole, MA
2006 Seismolab, California Institute of Technology, Pasadena, CA
2006 American Geophysical Union, Fall Meeting, San Francisco, CA
2005 Northern Illinois University, De Kalb IL
2005 Western Michigan University, Kalamazoo MI
2005 Keynote, Mantle Convection Workshop, Boulder CO
2005 Workshop on Earth's composition and structure, St Malo, France
2005 School of the Earth, Atmosphere and Environment, University of Manchester, UK
2005 Geological Sciences, Arizona State University, Tempe, AZ
2005 American Geophysical Union, Fall Meeting, San Francisco, CA
2004 Geophysics, ETH, Zürich, Switzerland
2004 Keynote, CSEDI meeting, Scripps, La Jolla, CA
2004 American Geophysical Union Spring Meeting, Montreal, Canada
2004 Yale University, New Haven, CT

2002 DTM, Carnegie Institution of Washington, Washington, DC
2001 Keynote, Gordon Research Conference "Interior of the Earth" Mt Holyoke, MA
2000 Earth Sciences, University of Wisconsin, Madison, WI
2000 Keynote, Plume-3 meeting, Hawaii
2000 Keynote, 12th annual IRIS workshop, Rockport, ME
2000 Earth and Atmospheric Sciences, Purdue, West Lafayette, IN
2000 Geology and Geophysics, Rice, Houston, TX
1999 Isotope Geology, ETH, Zürich, Switzerland
1999 IGPP, Los Alamos National Laboratory, Los Alamos, NM
1997 AOSS, University of Michigan, Ann Arbor, MI
1997 Earth Sciences, Bowling Green, OH
1996 Geological Sciences, University of Michigan, Ann Arbor, MI
1995 Keynote, workshop on Krylov methods, Mathematics, North Carolina State, Raleigh, NC
1995 Geology and Geophysics, University of Bologna, Italy
1995 Geological Sciences, Princeton, NJ
1994 Geological Sciences, University of Michigan, Ann Arbor, MI

Community Outreach:
2012 Public lecture on natural hazards, Grand Valley State University, Grand Rapids, MI
2001 Press contact (UPN 50, Channel 7, Ann Arbor News) after Seattle EQ
2001-2009 Co-organizer of alumni getaways at Camp Davis, WY (2001, 2002, 2004, 2006, 2009)
1999 Teachers as Scholars program (4 days, with Kacey Lohmann)

Research Grants:
Accumulated funding: $3.18M (at University of Michigan), $4.88M (total with collaborating institutions)
2014-2016 $39,312, NSF-OCE (MGG): "Collaborative Research: Advanced modeling for understanding fluid and magma migration in subduction zones", with Marc Spiegelman, Cian Wilson and Peter Kelemen at Columbia University (total award: 258k)
2013-2016 $1,219,960, NSF-OCE (GeoPRISMS), "GeoPRISMS Office support"
2013-2016 $249,923 NSF-EAR, "Consequences of plate tectonics in a compressible mantle"
2013-2016 $176,865, NSF-OCE (GeoPRISMS), "Collaborative Research: The role of fluids in intermediate-depth seismicity and wedge anisotropy: Case studies for Cascadia and Alaska, with comparison to Japan", with Geoff Abers at Columbia, Brad Hacker at UC Santa Barbara, Jun Nakajima at Tohoku University and Saeko Kita at NIED (total award: $382k)
2009-2013 $294,914, NSF-EAR (CSEDI), "Collaborative Research: Joint seismic, geodynamic, and mineral physics investigation of mantle plumes", with Jeroen Ritsema, Derek Schutt at Colorado State and Saskia Goes at Imperial College (total award: $400k)
2009-2012 $68,886, NSF-EAR (MARGINS): "Collaborative Research: Synthesis and integration of magmagenetic controls for subduction factory focus sites", with Jim Gill at UCSC, Bob Stern at UT Dallas, and Mark Feigensen at Rutgers (total award: $400k)
2009-2011 $56,164, NSF-OCE (MARGINS), "Collaborative Research: Advanced models of magma migration at convergent MARGINS", with Marc Spiegelman at Columbia (total award: $332,229)
2007-2009 $75,000, NSF-EAR (IF), "Acquisition of a linux cluster for geodynamical and seismological modeling", with Jeroen Ritsema
2007-2010 $90,000, NSF-OCE (MARGINS), "Collaborative Research: 3D modeling of Pacific subduction", with Geoff Abers at Lamont-Doherty and Karen Fischer at Brown (total award: $250k)
2006-2008 $84,073, NSF-EAR (CSEDI), "CSEDI Collaborative Research: Geochemical structure and dynamics of the mantle below the East African Rift System", with Tanya Furman at Penn

	State, David Graham at Oregon State and Julia Bryce at New Hampshire (total award: $296k)
2003-2007	$149,000, NSF-EAR, "Collaborative Research: Geochemistry and whole mantle convection", with Erik Hauri at Carnegie and Chris Ballentine at Manchester (total award: $235k)
2002-2006	$142,000, NSF-EAR, "Collaborative research: water in the mantle wedge", with Simon Peacock at Arizona State, and Shun Karato and Jeffrey Park at Yale (total award: $255k)
2002-2006	$193,000, NSF-ITR, "ITR: Collaborative Research: The Geowall – visualization for the Earth Sciences", with Andrew Johnson at the University of Illinois at Chicago (total award: $490k)
2002-2006	$26,455, NSF-EAR (CSEDI), "Collaborative research: the thermal, petrological, and seismological structure of subduction zones", with Simon Peacock at Arizona State, Geoff Abers at Boston University, and Brad Hacker at UC Santa Barbara (total award: $200k)
2001-2002	$20,735, NSF-EAR, "Workshop on modeling of subduction zone dynamics and thermal structure".
2001-2004	$79,900, NSF-EAR (IF) with Michigan cost sharing, "Upgrading of a linux PC cluster for geodynamical modeling"
2001	$15,000, University of Michigan, "Geowall: utilizing affordable stereo projection technology in geology undergraduate education".
1999-2002	$71,000, NSF-EAR, "Collaborative Research: Mineral physics based geodynamical modeling of anisotropic structure in the lower mantle" with Shun Karato at Yale
1999	$10,000, OVPR&LSA, "Building the core of a PC cluster in Geological Sciences"
1997-1998	$28,100, LSA, "Computer-aided learning in the Earth Sciences" with Ben van der Pluijm
1996-1999	$37,935, NSF-EAR, "Dynamical consequences of a high viscosity lower mantle"
1996-1999	$90,025, NSF-EAR (CSEDI), "Dynamical models of lower mantle volatile evolution with Chris Ballentine

Courses taught
Information available upon request.

Graduate student supervision:

PhD	2014-	Sam Haugland (primary advisor: Jeroen Ritsema)
PhD	2012-	Ross Maguire (primary advisor: Jeroen Ritsema)
MSc	2012-2015	Kate Volk
MSc	2010-2013	Zhangyi Hu
MSc	2010-2012	Andrea Bossmann (with Jeroen Ritsema)
MSc	2008-2010	Hannah Smith (with Jeroen Ritsema)
MSc/PhD	2002-2008	JP Brandenburg
MSc/PhD	2002-2007	Erik Kneller
PhD	1998-2002	Allen McNamara
MSc	1995-1997	Debra Tjoa

Postdoc supervision

2012-2013	Manabu Morishige
2008-2010	Amy Bengston (Turner postdoc, with Udo Becker and Rod Ewing)
2003-2005	Shu-Chuan Lin

Journal Publications (student names are in italics)

Submitted manuscripts or manuscripts in revision:

S1. Wilson, C., M. Spiegelman, and P.E. van Keken, TerraFERMA: the Transparent Finite Element Rapid Model Assembler for multi-physics problems in the Earth Sciences, in revision for Geochemistry, Geophysics, Geosystems

Manuscripts in press:

Published manuscripts (book chapters are listed separately):

1. M. Morishige and P.E. van Keken, Along-arc variation in the 3-D thermal structure around the junction between the Japan and Kurile arcs, Geochemistry, Geophysics, Geosystems, 15, 2225-2240, doi:10.1002/2014GC005394, 2014.
2. Kimura, J.-I., J.B. Gill, T. Kunikiyo, I. Osaka, Y. Shimosioiri, M. Katakuse, S. Kakubuchi, T. Nagao, K. Furuyama, A. Kamei, H. Kawabata, J. Nakajima, P.E. van Keken, and R.J. Stern, Diverse magmatic effects of subducting a hot slab in SW Japan: results from forward modeling, Geochemistry, Geophysics, Geosystems, 15, doi:10.1002/2013GC005132, 2014.
3. Wilson, C.R., M. Spiegelman, P.E. van Keken, and B.R. Hacker, Fluid flow in subduction zones: the role of solid rheology and compaction pressure, Earth Planet. Sci. Lett., 401, 261-274, 2014.
4. *Bossmann, A.B*, and P.E. van Keken, Dynamics of plumes in a compressible mantle: implications for phase boundary topography, Physics of the Earth and Planetary Interiors, 224, 21-31, 2013.
5. Abers, G.A., J. Nakajima, P.E. van Keken, S. Kita, and B.R. Hacker, Thermal-petrological controls on the location of earthquakes within the subducting slab, Earth and Planetary Science Letters, volumes 369-370, 178-187, 2013**.**
6. van Keken, P.E., A. Davaille and *J. Vatteville*, Dynamics of a laminar plume in a cavity: the influence of boundaries on the steady-state stem structure, Geochemistry, Geophysics, Geosystems, 14, 158-178, 2013. doi:10.1029/2012GC004383.
7. Bengtson, A.K., and P.E. van Keken, Three-dimensional thermal structure of subduction zones: effects of obliquity and curvature, Solid Earth, 3, 365-373, 2012. doi:10.5194/se-3-365-2012.
8. van Keken, P.E., S. Kita, and J. Nakajima, Thermal structure and intermediate-depth seismicity in the Tohoku-Hokkaido subduction systems, Solid Earth, 3, 355-364, 2012, doi:10.5194/se-3-355-2012.
9. *Barcheck, G.,* D.A. Wiens, P.E. van Keken, and B.R. Hacker, The Relationship of Intermediate- and Deep-Focus Seismicity to the Hydration and Dehydration of Subducting Slabs, Earth and Planetary Science Letters, 349-350, 66-79, 2012.
10. *Nelson, W*., T. Furman, P.E. van Keken, S.B. Shirey, and B.B. Hanan, Os-Hf isotopic insight into mantle plume dynamics beneath the East African Rift System, Chemical Geology, 320-321, 66-79, 2012, doi:10.1016/j.chemgeo.2012.05.020.
11. Turner, S., Caulfield, J., M. Turner, P.E. van Keken, R. Maury, M. Sandiford, and G. Prouteau, Recent contribution of both sediments and fluids to the mantle volatile budget, Nature Geoscience, 5, 50-54, 2012. doi:10.1038/ngeo1325**.**
12. *Styles, E.*, S.D.B. Goes, P.E. van Keken, J.R. Ritsema*,* and *H.E. Smith*, Synthetic images of dynamically predicted plumes and comparison with a global tomographic model, Earth and Planetary Science Letters, 311, 351-363, 2011**.**
13. *Hwang, Y.K.*, J. Ritsema, P.E. van Keken, S.D.B. Goes, and *E. Styles*, Wave front healing renders deep plumes seismically invisible, Geophysical Journal International, 187, 273-277, 2011**.**
14. van Keken, P.E., B.R. Hacker, E.M. Syracuse, and G.A. Abers, Subduction Factor 4: Depth-dependent flux of H_2O in subduction zones worldwide, Journal of Geophysical Research, 116, B01401, 2011, doi:10.1029/2010JB007922**.**
15. *Syracuse, E.M*., P.E. van Keken, and G.A. Abers, The global range of subduction zone thermal models, Physics of the Earth and Planetary Interiors, 183, 73-90, 2010.

16. Kimura, J.I., A. Kent, M. Rowe, M. Katakuse, F. Nakano, B.R. Hacker, P.E. van Keken, H. Kawabata, and R. Stern, Origin of cross-chain geochemical variation in Quaternary lavas from northern Izu arc: quantitative mass balance approach using Arc Basalt Simulator version 3 to identify source and mantle wedge processes. Geochemistry, Geophysics, Geosystems, 11, Q10011, 2010, doi:10.1029/2010GC003050**.**
17. E. Mittelstaedt, A. Davaille, P.E. van Keken, N. Gracias, and J. Escartin, A non-invasive method for measuring the velocity of diffuse hydrothermal flow by tracking moving refractive index anomalies, Geochemistry, Geophysics, Geosystems, 11, Q10005, 2010, doi: 10.1029/2010GC003227.
18. King, S.D., *C. Lee*, P.E. van Keken, *W. Leng*, S. Zhong, E. Tan, E. Tosi, and M.C. Kameyama, A community benchmark for 2D Cartesian compressible convection in the Earth's mantle, Geophysical Journal International, 180, 73-87, 2010, doi: 10.1111/j.1365-246X.2009.04413.x**.**
19. *Vatteville, J.*, P.E. van Keken, A. Limare, and A. Davaille, Starting laminar plumes: comparison of laboratory and numerical modeling, Geochemistry, Geophysics, Geosystems, 10, Q12013, 2009, doi:10.1029/2009GC002739**.**
20. Kimura, J.-I., B.R. Hacker, P.E. van Keken, H. Kawabata, and R.J. Stern, Arc Basalt Simulator (ABS) version 2, a simulation model for slab dehydration and fluid fluxed mantle melting for arc basalts: modeling scheme and application, Geochemistry, Geophysics, Geosystems, Q09004, 2009, doi:10.1029/2008GC002217.
21. Van Keken, P.E., C. Currie, S.D. King, M.D. Behn, A. Cagnioncle, J. He, R.F. Katz, S.-C. Lin, E.M. Parmentier, M. Spiegelman, and K. Wang. A community benchmark for subduction zone modeling, Physics of the Earth and Planetary Interiors, 171, 187-197, 2008.
22. *Brandenburg, J.P.,* E.H. Hauri, P.E. van Keken, and C.J. Ballentine, A multiple-system study of the geochemical evolution of the mantle with force-balanced plates and thermochemical effects, Earth and Planetary Science Letters, 276, 1-13, 2008.
23. *Kneller, E.A*., M. Long, and P.E. van Keken, Olivine fabric transitions and shear wave anisotropy in the Ryukyu subduction system, Earth and Planetary Science Letters, 268, 268-282, 2008.
24. Rondenay, S., G.A. Abers, and P.E. van Keken, Seismic imaging of subduction zone metamorphism, Geology, 36, 275-278, 2008, doi:10.1130/G24112A.1.
25. *Kneller, E.A*., and P.E. van Keken, The effects of three-dimensional geometry on deformation in the mantle wedge: implications for shear wave anisotropy, Geochemistry, Geophysics, Geosystems, 9, Q01003, 2008.
26. Van Hunen, J., P.E. van Keken, A. Hynes, and G.F. Davies, Tectonics of the Early Earth: some geodynamic considerations, GSA Special Paper 440 "When did plate tectonics begin on Planet Earth?", K.C. Condie and V. Pease (editors), 157-171, 2008.
27. *Kneller, E.A*., and P.E. van Keken, Trench-parallel flow and seismic anisotropy in the Marianas and Andean subduction systems, Nature, 450, 1222-1225, 2007, doi:10.1038/nature06429.
28. *Brandenburg, J.P.*, and P.E. van Keken, Methods for thermochemical convection in the Earth's mantle with force-balanced plates, Geochemistry, Geophysics, and Geosystems, 8, Q11004, 2007.
29. *Brandenburg, J.P.*, and P.E. van Keken, Deep storage of oceanic crust in a vigorously convecting mantle, Journal of Geophysical Research, 112, B06403, doi:10.1029/2006JB004813, 2007.
30. *Kneller, E.A*., P.E. van Keken, I. Katayama, and S.I. Karato, Stress, strain and B-type olivine fabric in the fore-arc mantle: sensitivity tests using high-resolution steady-state subduction zone models, Journal of Geophysical Research, 112, B04406, doi:10.1029/2006JB004544, 2007.
31. Johnson, A.E., J. Leigh, P.J. Morin, and P.E. van Keken, GeoWall: stereoscopic visualization for geoscience research and education, IEEE Computer Graphics and Applications, 26 (Nov/Dec), 10-14, 2006.
32. Lin, S.-C., and P.E. van Keken, Deformation, stirring and material transport in thermochemical plumes, Geophysical Research Letters, 33, L20306, doi:10.1029/2006GL027037, 2006.

33. Lin, S.-C., and P.E. van Keken, Dynamics of thermochemical plumes: 2. Complexity of plumes structures and implications for the mapping of mantle plumes, Geochemistry, Geophysics, Geosystems, 7, Q03003, doi:10.1029/2005GC001072, 2006.
34. Lin, S.-C., and P.E. van Keken, Dynamics of thermochemical plumes: 1. Plume formation and entrainment of a dense layer, Geochemistry, Geophysics, Geosystems, 7, Q02006, doi:10.1029/2005GC001071, 2006.
35. Abers, G.A., P.E. van Keken, *E.A. Kneller*, A. Ferris, and J. Stachnik, The thermal structure of subduction zones constrained by seismic imaging: implications for slab dehydration and wedge flow, Earth and Planetary Science Letters, 241, 387-397, 2006.
36. *Kneller, E.A.*, P.E. van Keken, S. Karato and J. Park, B-type olivine fabric in the mantle wedge: insights from high-resolution non-Newtonian subduction zone models, Earth and Planetary Science Letters, 237, 781-797, 2005.
37. Lin, S.-C., B.-Y. Kuo, L.-Y. Chiao, and P.E. van Keken, Thermal plume models and melt generation in East Africa: a dynamic modeling approach, Earth and Planetary Science Letters, 237, 175-192, 2005.
38. Pollack, H.N.*, J.E. Smerdon*, and P.E. van Keken, Variable seasonal coupling between air and ground temperatures: a simple representation in terms of subsurface thermal diffusivity, Geophysical Research Letters, 32, L15405, doi:10.1029/2005GL023869, 2005.
39. Lin, S.-C., and P.E. van Keken, Multiple volcanic episodes of flood basalts caused by thermochemical mantle plumes, Nature, 436, 250-252, 2005. doi:10.1038/nature03697.
40. Van Keken, P.E., and S.D. King, Thermal structure and dynamics of subduction zones: insights from observations and modeling, Physics of the Earth and Planetary Interiors, 149, 1-6, 2005**.**
41. Peacock, S.M., P.E. van Keken, S.D. Holloway, B.R. Hacker, G. Abers, and R.L. Fergason, Thermal structure of the Costa Rica – Nicaragua subduction zone, Physics of the Earth and Planetary Interiors, 149, 187-200, 2005.
42. Van Keken, P.E., The structure and dynamics of the mantle wedge, Earth and Planetary Science Letters (Frontiers), 215, 323-338, 2003.
43. *McNamara, A.K.*, P.E. van Keken, and S. Karato, Development of finite strain in the convecting lower mantle and its implications for seismic anisotropy, Journal of Geophysical Research, 108 (B5), 2230, doi:10.1029/2002JB001970, 2003.
44. Ballentine, C.J., P.E. van Keken, D. Porcelli, and E. Hauri, Numerical models, geochemistry and the zero paradox noble gas mantle, Philosophical Transactions of the Royal Society of London, A360, 2611-2631, 2002.
45. Van Keken, P.E., *B. Kiefer* and S. Peacock, High resolution models of subduction zones: implications for mantle dehydration reactions and the transport of water into the deep mantle, Geochemistry, Geophysics, Geosystems, 3 (10), 1056, 2002.
46. *McNamara, A.K.*, P.E. van Keken, and S. Karato, Development of anisotropic structures in the Earth's lower mantle by solid-state convection, Nature, 416, 310-314, 2002.
47. Van Keken, P.E., E.H. Hauri, and C.J. Ballentine, Mantle mixing: the generation, preservation, and destruction of mantle heterogeneity, Annual Reviews of the Earth and Planetary Sciences, 30, 493-525, 2002.
48. Zegers, T.E., and P.E. van Keken, Middle Archean continent formation by crustal delamination, Geology, 29, 1083-1086, 2001.
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