

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Literature, Science, and the Arts

Jeroen Ritsema, associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1995	University of California, Santa Cruz
M.Sc.	1988	University of Utrecht

Professional Record:

2011-present	Associate Professor, Department of Earth and Environmental Sciences, University of Michigan
2005 – 2011	Henry N. Pollack Associate Professor, Department of Geological Sciences, University of Michigan
2003 – 2005	Professor, Institut de Physique du Globe de Paris
2000 – 2003	Senior Research Fellow, California Institute of Technology
1998 – 1999	Post-doctoral Research Fellow, California Institute of Technology
1996 – 1997	Post-doctoral Research Fellow, University of South California
1996	Investigator, Carnegie Institute of Washington

Summary of Evaluation:

Teaching – Professor Ritsema is a careful and thoughtful instructor who has focused on exploring the nature of plate tectonics in introductory classes, including first-year seminars, and in teaching the principals of seismology, applied geophysics, and tectonophysics in upper undergraduate and graduate classes. Since being granted tenure, he co-developed a new core course for undergraduate concentrators. Student evaluations are consistently and clearly positive for all his course offerings. He has advised four Ph.D. students – two defended their theses in 2011 and two are expected to completed their theses in 2014 and 2016.

Research – Professor Ritsema is a seismologist who studies the elastic waves that are produced during an earthquake. He is highly respected for his technical expertise in processing complex seismic waveforms and reducing errors, and is recognized as being consistently among the first in the discovery of fundamental structures in deep Earth that were previously undetected. Professor Ritsema has published 51 research papers and two book chapters. Two additional papers are in press and three are under review. His journal publications include six in the high profile in *Science* and two in *Geology*. The majority of his research is published in important geophysical journals. His book chapter is a review in the high profile multi-volume *Treatise of Geophysics*. He has successfully obtained a steady stream of funding principally from the National Science Foundation.

Recent and Significant Publications:

“Reconciling dynamic and seismic models of Earth’s lower mantle: The dominant role of thermal heterogeneity,” with D. R. Davies, et al., *Earth and Planetary Science Letters*,

353-354, 2012, pp. 253-269.

“Radial Q structure of the lower mantle from teleseismic body-wave spectra,” with Y. K. Hwang, *Earth and Planetary Science Letters*, 303, 2011, pp. 369-275.

“Wave front healing renders deep plumes seismically invisible,” with Y. K. Hwang and P. E. van Keken, *Geophysical Journal International*, 187, 2011, doi:10.1111/j.1365-246X.2011.05173.x.

“Long-period body-wave traveltimes through the crust: Implications for crustal corrections and seismic tomography,” with H. J. Van Heijst, et al., *Geophysical Journal International*, 179, 2011, pp. 1225-1261.

Service – Professor Ritsema has served on important departmental committees, including the Executive Committee. Nationally, he is an elected member of the Board of Directors of IRIS (a consortium of universities dedicated to the operation of science facilities for the acquisition, management, and distribution of seismological data). He has served on a National Science Foundation panel and was an associate editor for a high impact journal in his field (2001-2010).

#### External Reviewers:

##### Reviewer (A)

“Professor Ritsema is undoubtedly one of the leading experts in global tomography, and his models are widely appreciated by the geophysical community, where they are used as reference well beyond the restricted circles of seismologists... I will not hesitate to rank him as the best global seismologist/tomographer of his generation.”

##### Reviewer (B)

“Dr. Ritsema has a good reputation and would easily be on anyone’s list of the top global seismologists. He is an active participant in the geophysical community, where his broad knowledge and collaborative approach are real assets.”

##### Reviewer (C)

“Prof. Ritsema is one of the leading seismic tomographers worldwide. His global tomography models are widely respected. ...[he] has a very productive record of publishing his research, particularly when the unique contributions of each study and the rigor of the journals are taken into account. He also has been successful in obtaining significant funding...”

##### Reviewer (D)

“Overall, he is the most outstanding global seismologist of his generation. ...[his] publication record seems to accelerate with time...”

##### Reviewer (E)

“...Jeroen has produced two models (Ritsema et al., 1999; Ritsema et al., 2011) that are used by researchers all over the world and in various fields of geoscience who require information of the large-scale structure of the Earth in their work. Very few individuals or groups around the world have the skills, vision, and tenacity to pursue research of this type successfully. Jeroen is one of the few who does.”

Reviewer (F)

“Numerous scientists peering into the deep Earth have given in to temptation to interpret phantasms and artifacts, and Jeroen appears to have entirely escaped this weakness, yet produced important results.”

Reviewer (G)

“...[he] has a significant presence on the international scene, through both his construction of seismological models and his exploration of the way in which seismology can be combined with other earth science disciplines to improve understanding of the way the earth works.”

Reviewer (H)

“Overall, in my opinion, Dr. Ritsema has established a strong international reputation, has creatively diversified his research directions and made significant contributions in topics of major research importance, notably in global mantle structure and dynamics.”

Summary of Recommendation:

Professor Ritsema is one of the top seismologists of his generations. He is an effective teacher at all levels and a valuable citizen. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Jeroen Ritsema be promoted to the rank of professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.



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Terrence J. McDonald  
Arthur F. Thurnau Professor,  
Professor of History and Dean  
College of Literature, Science, and the Arts

May 2013