

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Engineering  
Department of Climate and Space Sciences and Engineering

Eric A. Kort, associate professor of climate and space sciences and engineering, with tenure, Department of Climate and Space Sciences and Engineering, College of Engineering, is recommended for promotion to professor of climate and space sciences and engineering, with tenure, Department of Climate and Space Sciences and Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2011	Harvard University, Applied Physics, Cambridge, MA
M.S.	2005	Harvard University, Applied Physics, Cambridge, MA
B.A.	2004	Pomona College, Physics (with Honors), Claremont, CA

Professional Record:

2019 – present	Associate Professor (with tenure), Department of Climate and Space Sciences and Engineering, University of Michigan
2013 – 2019	Assistant Professor, Department of Climate and Space Sciences and Engineering, University of Michigan
2011 – 2013	Post-Doctoral Fellow, W.M. Keck Institute for Space Studies, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA
2011	Post-doctoral Fellow, Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA

Summary of Evaluation:

Teaching: Professor Kort has taught a 100-level service course and two upper-division undergraduate and graduate courses. He redesigned CLIMATE 475, making it a project-oriented, hands-on course using available observations, emphasizing data analysis and uncertainty quantification. He also co-founded and co-directs the Climate Change Solution Graduate Certificate Program, a program that reaches beyond CLaSP across all of UM to give the basics of climate science and systems thinking in order to explore mitigation and adaptation. Professor Kort has graduated four Ph.D. students, with another three in progress. He has mentored 11 undergraduates on various research projects. His students clearly support his teaching style (medians for Q1 and Q2 scores are 4.38 and 4.50, respectively).

Research: Professor Kort has a very active research program with wide impact. During his current time in rank, he has added 33 (out of 99 total) publications to his CV. He has a total of 23 publications in high-impact journals and 27 papers with more than 100 citations. Professor Kort has maintained a healthy and growing set of grant funding. There has been and continues to be a diverse set of sources for these funds such as the NSF, NASA, the Environmental Defense Fund, and the Sloan Foundation. In addition, his impact on the field can be gauged by his invitation to international and national advisory groups. His work has also been cited and/or used by different governmental personnel or organizations in the policy arena.

Professor Kort has provided fundamental contributions focused primarily on quantifying CH<sub>4</sub> emissions from different sources. More recently, he expanded the list of gases that he studies to include CO<sub>2</sub>, N<sub>2</sub>O and NO<sub>x</sub>. Professor Kort's research has employed a diverse skill set that includes the use of airborne platforms, the use of satellite observations, and the use of high-resolution model simulations to test understanding of the magnitude of different emissions sources. His work informs societal responses and mitigation efforts for air pollutants and greenhouse gases by quantifying greenhouse gas and pollutant emissions and the underlying processes that determine their concentrations in the atmosphere.

#### Recent and Significant Publications:

- A. Gorchoy Negron, E. A. Kort, Y. Chen, A. Brandt, M. Smith, B. Plant, A. Ayasse, S. Schwietzke, D. Zavala-Araiza, C. Hausman, and A. Adames-Corraliza, "Excess methane emissions from shallow water platforms elevate the carbon intensity of US Gulf of Mexico oil and gas production," *Proceedings of the National Academy of Sciences*, 120(15), e2215275120, 2023.
- G. Plant, E. A. Kort, A. Brandt, Y. Chen, Y. G. Fordice, A. Gorchoy Negron, S. Schwietzke, M. Smith and D. Zavala-Araiza, D, "Inefficient and unlit natural gas flares both emit large quantities of methane," *Science*, 377(6614), 1566-1571, 2022.
- D. E. Huber, A. L. Steiner and E. A. Kort, "Daily cropland soil NO<sub>x</sub> emissions identified by TROPOMI and SMAP," *Geophysical Research Letters*, 47, e2020GL089949, 2020.
- A. J. Turner, C. Frankenberg, E. A. Kort, "Interpreting contemporary trends in atmospheric methane," *Proceedings of the National Academy of Sciences*, 116(8), 2805-2813, 2019.
- G. Plant, E. A. Kort, C. Floerchinger, A. Gvakharia, I. Vimont and C. Sweeney, "Large fugitive methane emissions from urban centers along the U.S. East Coast," *Geophysical Research Letters*, 46(14), 8500-8507, 2019.

Service: Professor Kort has served on a number of department committees. As the current associate chair for graduate studies in CLaSP, he fills an important leadership position. Within the university, Professor Kort served on the president's Commission on Carbon Neutrality. Professor Kort's external service includes his work on the Scientific Advisory Board of the European Integrated Carbon Observing System, and as a report co-author for a World Meteorology Organization Metrology for Climate Action workshop. He has also worked on a NASEM report and as a member of a Scientific Advisory Panel of the Environmental Defense Fund. These high-level service activities show that his contributions are strongly valued by a diverse range of scientific and policy organizations.

#### External Reviewers:

Reviewer A: "I have long admired his pioneering efforts in finding novel ways through aircraft and satellite observations to quantify known (and sometimes unknown) emissions of gases to the atmosphere that affect climate and air quality, as well as his exceptional ability to communicate this in talks and publications."

Reviewer B: "Kort is highly regarded, productive, innovative and influential. He is a deep thinker, and it is always a pleasure to read and learn from his publications.... Kort is among the world leaders in observations of greenhouse gases and in their interpretation as constraints on processes governing emissions."

Reviewer C: “Very high quality, amazing breadth, fantastic combination of methods, highly relevant questions. All excellent and relevant publications...At the top - fantastic record - covers a wider range of important directions. Future directions he sketches are interesting, important and have potential. Both his publication and funding records are exceptional.”

Reviewer D: “Kort’s research in this area is notable for its diversity: rather than repeatedly refining previous estimates from conventional oil and gas operations, they identify new potential sources....Collectively these studies provide new insights into methane mitigation opportunities in the United States and provide crucial information to industry and relevant to climate change policy making.”

Reviewer E: “His research activities are attracting significant funding, contributing positively to the training of graduate students and postdoctoral fellows, and having important impacts on energy and environmental policies at the federal level.”

Summary of Recommendation: Professor Kort is highly regarded and is at the forefront of his research field, bringing together in-situ observations, satellite observations, and modeling studies to identify important gaps in our understanding of greenhouse gas emissions. He is also an effective instructor and mentor to his students and is increasingly taking on important service commitments within national and international bodies. It is with the support of the College of Engineering Executive Committee that I recommend Eric A. Kort for promotion to professor of climate and space sciences and engineering, with tenure, Department of Climate and Space Sciences and Engineering, College of Engineering.



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Steven L. Ceccio, Ph.D.  
Interim Dean of Engineering  
Vincent T. and Gloria M. Gorguze Professor  
of Engineering  
College of Engineering

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