

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Engineering

Christiane Jablonowski, assistant professor of atmospheric, oceanic and space sciences, Department of Atmospheric, Oceanic and Space Sciences, College of Engineering, is recommended for promotion to associate professor of atmospheric, oceanic and space sciences, with tenure, Department of Atmospheric, Oceanic and Space Sciences, College of Engineering.

Academic Degrees:

Ph.D.	2004	University of Michigan, Atmospheric, Oceanic and Space Sciences, Ann Arbor, MI
Diplom	1998	University of Bonn, Meteorology, Bonn, Germany
Vordiplom	1992	Rheinisch-Westfälische Technische Hochschule Aachen University, Physics, Aachen, Germany

Professional Record:

2006 – present	Assistant Professor, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan
2006	Research Fellow, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan
2006	Visiting Scientist, Geophysical Fluid Dynamics Laboratory, Princeton, NJ
2004 – 2006	Post-doctoral Fellow, National Center for Atmospheric Research, Boulder, CO
2000	Visiting Scientist, National Center for Atmospheric Research, Boulder, CO

Summary of Evaluation:

Teaching: Professor Jablonowski has distinguished herself in classroom teaching, advising and mentoring undergraduate and graduate students. The students uniformly and overwhelmingly acknowledge her comprehensive grasp of the material, exceptional preparedness, availability during office hours and other times, and her openness to feedback on course improvement. Students note her willingness to meet with them and help them understand the concepts. Her students appreciate her thoughtfulness: she does not just give them the answer or even the obvious hint, but instead coaches them at each step, letting the student discover the method of solution. Professor Jablonowski's Q1 and Q2 scores are those of a skilled and improving instructor.

Professor Jablonowski's first two Ph.D. students have both completed excellent research projects. External reviewers point out the quality of this work and her extraordinary commitment to teaching. Her coaching on writing and communication are found to be particularly helpful. She is also appreciated for her time and effort at helping them network with colleagues in the field, establishing her students as interactive partners with her in the research community and propelling their careers ahead through these contacts. Her generosity and fairness were also noted.

Research: Professor Jablonowski is making outstanding intellectual contributions in climate and weather modeling. Her research has had significant impact. She has received several prestigious awards including the Presidential Early Career Award for Scientists and Engineers (PECASE) and the Department of Energy Early Career Award. Her national and international visibility is excellent, as seen from her journal articles and other publications, invited conference talks, and memberships in committees and working groups. Her research is supported by the Department of Energy, National Science

Foundation, National Aeronautics and Space Administration, and the National Oceanic and Atmospheric Administration.

Professor Jablonowski has developed a research program that is respected by investigators around the world. One measure of the growth of a researcher is whether or not others are using a researcher's body of work as a starting point. This is undoubtedly true with Professor Jablonowski's work. She has an extensive network of collaborators in Michigan and around the country, in the atmospheric sciences, applied mathematics, and computer science. As a faculty member in the Department of Atmospheric, Oceanic and Space Sciences (AOSS), she carries on exemplary interdisciplinary collaborations with colleagues in Aerospace Engineering, Computer Science, the School of Information, and Mathematics. Her co-workers include several at the national laboratories (Lawrence Berkeley National Laboratory, National Center for Atmospheric Research, Sandia National Laboratory) and she collaborates with scientists in the United Kingdom Met Office. There is no doubt that the high quality of her work and its influence are recognized nationally and internationally.

Professor Jablonowski has 18 publications in top archival journals (including one accepted and two in press), and two articles in review. She has also published an encyclopedic book chapter on numerical filtering.

#### Recent and Significant Publications:

- Ullrich, P. A. and Jablonowski, C., (2011), "Operator-Split Runge-Kutta-Rosenbrock (RKR) Methods for Nonhydrostatic Atmospheric Models," *Monthly Weather Review*, in press, early release available online at: <http://journals.ametsoc.org.proxy.lib.umich.edu/toc/mwre/0/0>.
- Jablonowski, C. and Williamson, D.L., (2011), "The Pros and Cons of Diffusion, Filters and Fixers in Atmospheric General Circulation Models," in: Lauritzen, P. H., C. Jablonowski, M. A. Taylor and R. D. Nair (Eds.), *Numerical Techniques for Global Atmospheric Models, Lecture Notes in Computational Science and Engineering*, Springer, Vol. 80, 381-493.
- Reed, K. A. and Jablonowski, C., (2011), "An Analytic Vortex Initialization Technique for Idealized Tropical Cyclone Studies in AGCMs," *Monthly Weather Review*, Vol. 139, 689-710.
- Jablonowski, C., Oehmke, R.C., and Stout, Q. F., (2009), "Block-structured Adaptive Meshes and Reduced Grids for Atmospheric General Circulation Models," *Philosophical Transactions of the Royal Society A*, Vol. 367, 4497-4522.
- Jablonowski, C., Herzog, M., Penner, J.E., Oehmke, R.C., Stout, Q.F., van Leer, B., and Powell, K.G., (2006), "Block-Structured Adaptive Grids on the Sphere: Advection Experiments," *Monthly Weather Review*, Vol. 134, 3691-3713.
- Jablonowski, C. and Williamson, D.L., (2006), "A Baroclinic Instability Test Case for Atmospheric Model Dynamical Cores," *Quarterly Journal of the Royal Meteorological Society*, Vol. 132, No. 621C, 2943-2975.

Service: Professor Jablonowski has an extensive and noted commitment to service. She is frequently asked to serve as a reviewer and panel member. She is an associate editor of one of the American Geophysical Union's journals and has been an associate editor of the *Monthly Weather Review*. She is also noted for her mentorship of women scientists. Professor Jablonowski was the lead in conceiving and a lead in organizing a 2008 Summer School on Model Intercomparison. This workshop provided a new paradigm, where students and mentors were brought together with a set of objective problems to be performed in a uniform computational environment. The workshop advanced education, scientific investigation and development of cyberinfrastructure. Future workshops are being planned on this concept, design and infrastructure. All these represent substantive service contribution that far exceeds the normal success criteria for community activities.

Activities at the college and department level has included serving as a representative for faculty searches, serving as an undergraduate advisor, and a co-organizer for graduate student recruiting events, among other activities.

External Reviewers:

Reviewer A: "Christiane is recognized as a leader nationally and internationally in atmospheric GCM dynamical core development, and she is becoming a leader in atmospheric dynamics as well. The number of speaking invitations she has received is a strong indication of her stature in the community...Christiane is a star among her peers."

Reviewer B: "I regard Christiane Jablonowski as an exceptionally talented scientist and one of the best scholars involved in the development of advanced numerical methods for climate models...She is a brilliant scientist and is providing excellent service to a large number of constituencies."

Reviewer C: "Dr. Jablonowski is clearly already one of the leaders of her field and promises to advance in that role even more in the future...she is already helping to educate the next generation of leaders in the field of model development – something of which the community is in dire need."

Reviewer D: "Christiane's scholarly work is first-rate...she is already a scientific leader on both the national and international stages."

Reviewer E: "...she has led the field [sic] is by providing the most widely used comparison test for the dry dynamical cores simulating baroclinic instability on the globe...Professor Jablonowski is clearly an excellent researcher and an international leader among her peers at similar stages in their careers."

Reviewer F: "As a consequence the substantial contributions that Christiane has made in the above-mentioned fields during the last 15 years or so have been closely followed by us and have provided valuable input to our research and development work."

Reviewer G: "I regard Prof. Jablonowski's research to be of the highest quality, both academically and in terms of its impact on the field...she stands out among her peer group as someone doing work that is both exciting and significant academically while at the same time useful for real applications."

Summary of Recommendation: Professor Jablonowski has distinguished herself in classroom teaching, student advising and mentoring. She is making outstanding intellectual contributions in climate and weather modeling and she has an extensive and noted commitment to service. It is with the support of the College of Engineering Executive Committee that I recommend Christiane Jablonowski for promotion to associate professor of atmospheric, oceanic and space sciences, with tenure, Department of Atmospheric, Oceanic and Space Sciences, College of Engineering.



David C. Munson, Jr.  
Robert J. Vlasic Dean of Engineering  
College of Engineering

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