Matthew J. Hoffman   **Curriculum Vitae**

CONTACT
INFORMATION

Department of Earth and Planetary Sciences
Johns Hopkins University
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Baltimore, MD 21218

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EDUCATION

Ph.D., Applied Mathematics and Scientific Computation   2009
University of Maryland, College Park
Advisors: Eugenia Kalnay & James A. Carton
Dissertation: *Ensemble Data Assimilation and Breeding in the Ocean,*
    Chesapeake Bay, and Mars

M.S., Applied Mathematics and Scientific Computation   2007
University of Maryland, College Park

B.A., Mathematics and Astrophysics, Magna Cum Laude with Honors   2004
Williams College, Williamstown, MA
Advisor: William K. Wootters
Thesis: *The Discrete Wigner Function Based on Finite Fields:*
    Similarity Classes and Transformations

PROFESSIONAL
EXPERIENCE

Johns Hopkins University
Glenadore and Howard L. Pim Postdoctoral Fellow,
Department of Earth and Planetary Sciences   2009-Present

University of Maryland, College Park
Research Assistant, Department of Atmospheric and Oceanic Science   2005-2009
Research Assistant, Earth Systems Science and Interdisciplinary Center 2005-2009
Teaching Assistant, Department of Mathematics   2004-2006

Center for Weather Forecasts and Climate Studies (CPTEC)
Visiting Specialist of the Brazilian Science and Technology Ministry   2008

RESEARCH
INTERESTS

Data Assimilation, Applied Mathematics, Ocean and Ecosystem Modeling, Martian Atmosphere and Climate, Breeding, Ensemble Kalman Filter, Scientific Computation

PUBLICATIONS

Hoffman, M.J., T. Miyoshi, T. Haine, K. Ide, R. Murtugudde, C.W. Brown. 2011. An advanced data assimilation system for the Chesapeake Bay. In preparation.

Greybush, S.J., E. Kalnay, M.J. Hoffman, R.J. Wilson. 2011. Elucidating Martian atmosphere instabilities using breeding. In preparation.

Hoffman, M.J., S.J. Greybush, R.J. Wilson, G. Gyarmati, R.N. Hoffman, E. Kalnay, K. Ide, E. Kostelich, T. Miyoshi, I. Szunyogh. 2010. An ensemble Kalman filter data assimilation system for the Martian atmosphere: Implementation and simulation experiments. Icarus, 209, 470-481, DOI: 10.1016/j.icarus.2010.03.034.

Hoffman, M.J., E. Kalnay, J.A. Carton, and S.C. Yang. 2009. Use of breeding to detect and explain instabilities in the global ocean. Geophys. Res. Lett., 36, L12608, DOI: 10.1029/2009GL037729.

Hoffman, M.J., L. Pezzi, D. Hirdies, S. Penny. 2008. The CPTEC ocean data assimilation system - CODAS. CBMet XV Conference Proceedings.

Gibbons, K.S., M.J. Hoffman, and W.K. Wootters. 2004. Discrete phase space based on finite fields. Phys. Rev. A 70, 062101, DOI: 10.1103/PhysRevA.70.062101.

INVITED LECTURES   Mathematics Department Faculty Seminar, Williams College   May 2010
Center for Environmental and Applied Fluid Mechanics, Johns Hopkins University   Apr. 2010

Mathematics Department Colloquium, Stephen F. Austin University	Apr. 2010
Mathematics Department Colloquium, University of Vermont	Mar. 2010
Center for Weather Forecasts and Climate Studies (CPTEC), Brazil	Aug. 2009
Mathematics Graduation Conference, University of Maryland	May 2009
Meteorology Department Seminar, University of São Paulo, Brazil	Apr. 2008
Center for Weather Forecasts and Climate Studies (CPTEC), Brazil	Apr. 2008
National Institute of Space Studies (INPE), Brazil	Mar. 2008
Data Assimilation Workshop Part I at CPTEC, Brazil	Apr. 2008
Data Assimilation Workshop Part II at CPTEC, Brazil	Apr. 2008

TEACHING
EXPERIENCE

Johns Hopkins University

Guest Lecturer: Conversations with the Earth	Fall 2010
Guest Lecturer: Introduction to Global Environmental Change	Fall 2010

University of Maryland, College Park

Teaching Assistant: Elementary Calculus I (MATH220)	Spring 2006
Primary Instructor: College Algebra with Applications and Trigonometry (MATH112)	Fall 2005
Primary Instructor: College Algebra with Applications (MATH113)	Fall 2004 & Spring 2005

CONTRIBUTED
PRESENTATIONS

Mars Atmosphere Workshop: Modeling and Observations, Paris, France	Feb. 2011
American Meteorological Society Annual Meeting, Seattle, WA	Jan. 2011
Division for Planetary Sciences Annual Meeting, Pasadena, CA	Oct. 2010
Atmosphere-Ocean Science Days, College Park, MD	May 2010
Chesapeake Modeling Symposium, Annapolis, MD	May 2010
American Meteorological Society Annual Meeting, Atlanta, GA	Jan. 2010
Division for Planetary Sciences Annual Meeting, Fajardo, PR	Oct. 2009
CEAFM/Burgers Symposium, Johns Hopkins University, Baltimore, MD	May 2009
AMSC Student Seminar	Sep. 2008
SMALL 10th Anniversary Mini Conference, Williams College, Williamstown, MA	Jun. 2008
Chesapeake Modeling Symposium, Annapolis, MD	May 2008
AMSC Student Seminar	Oct. 2007
International Union of Geodesy and Geophysics XXIV General Assembly, Perugia, Italy	Jul. 2007

POSTERS

Division for Planetary Sciences Annual Meeting, Pasadena, CA	Oct. 2010
American Geophysical Union Fall Meeting, San Francisco, CA	Dec. 2008
American Meteorological Society Meeting, San Antonio, TX	Jan. 2007
American Geophysical Union Fall Meeting, San Francisco, CA	Dec. 2006

WORKSHOPS

Attendee, Advanced School on Complexity, Adaptation, and Emergence in Marine Ecosystems, International Centre for Theoretical Physics, Trieste, Italy	Oct. 2010
Attendee, MSRI Symposium on Climate Change: From Global Models to Local Action, Berkeley, CA	Apr. 2007

HONORS AND
AWARDS

University of Maryland, College Park

SIAM Student Chapter Certificate of Recognition	2009
Monroe Martin Talks Competition Winner	2009
Seymour Goldberg Papers Competition Winner	2007
Department of Mathematics VIGRE Travel Award	2006
Graduate School Jacob K. Goldhaber Travel Award	2006

International Union of Geodesy and Geophysics

Conference Grant	2007

Williams College

Sam Goldberg Colloquium Prize	2004

Elected to Sigma Xi Scientific Research Society   2004

PROFESSIONAL   President, AMSC Student Council   2008-2009
ACTIVITIES   President, SIAM UMD Student Chapter   2008-2009
                  Member, AMSC Graduate Committee   2008-2009
                  Graduate Student Advisor, AMSC Program   2008-2009
                  Board Member, AMSC Student Council   2007-2008
                  Member, AOSC/CSCAMM Committee to Enhance Campus Applied Mathematics   2008-2009
                  Organizer, UMD Math Department Graduation Conference   2007-2009
                  Judge, Spotlight on Graduate Research Competition   2007-2009
                  Organizer, Applied Math and Scientific Computation Student Seminar   2007-2008
                  Member, Student of Mathematics and Statistics Advisory Board, Williams College   2003-2004

PROFESSIONAL   American Mathematical Society
SOCIETIES   Society for Industrial and Applied Mathematics
                  American Geophysical Union
                  Sigma Xi Society
                  Division for Planetary Sciences

SKILLS   Computer Languages: Fortran 90/95/03, Matlab, LaTeX, GrADS, Shell Scripts
                  Languages: English, Proficient in Portuguese and Spanish