

RESEARCH INTERESTS	Data Assimilation, Ocean and Ecosystem Modeling, Martian Atmosphere and Climate, Applied Mathematics, Breeding, Kalman Filter, Scientific Computation.	
CONTACT INFORMATION	Department of Earth and Planetary Sciences 301 Olin Hall, 3400 N Charles St Baltimore MD 21218	Email: mjhoffman@jhu.edu http://www.math.umd.edu/mhoffman Voice: 443-987-6288
EDUCATION	<p>University of Maryland, College Park, Maryland Ph.D., Applied Mathematics and Scientific Computation July 2009 Dissertation Title: <i>Ensemble Data Assimilation and Breeding in the Ocean, Chesapeake Bay, and Mars</i> Advisors: Eugenia Kalnay & James A. Carton</p> <p>M.S. Applied Mathematics and Scientific Computation December 2007</p> <p>Williams College, Williamstown, Massachusetts B.A. Mathematics and Astrophysics, Magna Cum Laude with Honors June 2004 Thesis Topic: <i>The Discrete Wigner Function Based on Finite Fields: Similarity Classes and Transformations</i> Advisor: William K. Wootters</p>	
PROFESSIONAL EXPERIENCE	<p>Johns Hopkins University, Baltimore, Maryland Department of Earth and Planetary Sciences Glenadore and Howard L. Pim Postdoctoral Fellow in Global Change Sep. 2009-Present</p> <p>University of Maryland, College Park, Maryland Department of Atmospheric and Oceanic Science Research Assistant Jan. 2005-Aug. 2009 Developed bred vector energy equations and implemented breeding on a global ocean model.</p> <p>NOAA GOES-R Project Research Assistant Aug. 2005-Present Implemented an Ensemble Kalman Filter on a model of the Chesapeake Bay.</p> <p>Applied Mathematics and Scientific Computation Program (AMSC) Graduate Student Advisor Jun. 2008-Present Advised AMSC graduate students in matters concerning course selection, qualifying exams, and general program questions. Aided in recruitment of graduate students.</p> <p>Department of Mathematics Teaching Assistant Aug. 2004-Jun. 2006</p> <p>Center for Weather Forecasts and Climate Studies (CPTEC), Cachoeira Paulista, Brazil Visiting Specialist of the Brazilian Science and Technology Ministry Mar. 2008-May 2008 Implemented Ensemble Kalman Filter on a global ocean model. Performed large scale simulations of ocean dynamics on supercomputers. Gave instruction on data assimilation and the ensemble Kalman Filter.</p>	
PUBLICATIONS	<p>Hoffman, M.J., S. J. Greybush, , R. J. Wilson, G. Gyarmati, R. N. Hoffman, K. Ide, E. Kostelich, T. Miyoshi, I. Szunyogh, E. Kalnay (Submitted to <i>Icarus</i>), <i>An Ensemble Kalman Filter Data Assimilation System for the Martian Atmosphere: Implementation and Simulation Experiments</i>.</p> <p>Hoffman, M.J., R. Murtugudde, C.W. Brown, S. Penny (In preparation), <i>An Advanced Data Assimilation System for the Chesapeake Bay</i>.</p>	

Hoffman, M.J., E. Kalnay, J. 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.

K.S. Gibbons, M.J. Hoffman, and W.K. Wootters (2004), *Discrete Phase Space Based On Finite Fields*. Phys. Rev. A **70**, 062101

- INVITED LECTURES *An Ensemble Kalman Filter Assimilation System for the Chesapeake Bay: Implementation and Simulation Experiments*.
CPTEC, Cachoeira Paulista, Brazil Aug. 2009
- Data Assimilation Using an Ensemble Kalman Filter*.
University of São Paulo. São Paulo, Brazil Apr. 2008
CPTEC. Cachoeira Paulista, Brazil Apr. 2008
INPE. São Jose dos Campos, Brazil Mar. 2008
- Intro to Data Assimilation: History*
Data Assimilation Workshop at CPTEC. Cachoeira Paulista, Brazil Apr. 2008
- Intro to Data Assimilation: 4D-Var and EnKF*
Data Assimilation Workshop at CPTEC, Cachoeira Paulista, Brazil Apr. 2008
- COURSES TAUGHT **University of Maryland, College Park**
Primary Instructor: College Algebra with Applications (MATH113) Fall 2004 & Spring 2005
Primary Instructor: College Algebra with Applications and Trigonometry (MATH112) Fall 2005
Teaching Assistant: Elementary Calculus I (MATH220) Spring 2006
- CONFERENCE PRESENTATIONS *it Ensemble Kalman Filter Data Assimilation for the Martian Atmosphere*
Division for Planetary Sciences Annual Meeting. Fajardo, PR October 8, 2009
- The Explanation of Ocean Instabilities Using Breeding*
CEAFM/Burgers Symposium. Johns Hopkins University, Baltimore, MD May 8, 2009
- Effects of Observational Data on an Advanced Data Assimilation System*
Chesapeake Modeling Symposium. Annapolis, MD May 13, 2008
- Ocean Instabilities Captured by Breeding on a Global Ocean Model*
IUGG XXIV General Assembly, Perugia, Italy Jul. 2-13, 2007
- Computing Current Currents: Oceanic Data Assimilation and the LETKF*
SMALL 10th Anniversary Mini Conference, Williams College, Williamstown, MA Jun. 8, 2008
- POSTERS *An Advanced Data Assimilation System for Estuary and Coastal Ocean Prediction*
American Geophysical Union Fall Meeting, San Francisco, CA Dec. 2008
- Ocean Instabilities Captured by Breeding on a Global Ocean Model*
American Meteorological Society Meeting, San Antonio, TX Jan. 2007
American Geophysical Union Fall Meeting, San Francisco, CA Dec. 2006
- SEMINARS *An EnKF Approach for Ocean Data Assimilation*, AMSC Student Seminar Sep. 2008
Oceanic and Atmospheric Data Assimilation, AMSC Student Seminar Oct. 2007

WORKSHOPS	Attendee, MSRI Symposium on Climate Change: From Global Models to Local Action , Berkeley, CA	Apr. 2007
HONORS AND AWARDS	University of Maryland , College Park, Maryland	
	SIAM Student Chapter Certificate of Recognition	2009
	Monroe Martin Talks Competition Winner	2009
	Seymour Goldberg Papers Competition Winner	2007
	Department of Mathematics VIGRE grant Travel award	2006
	Graduate School Jacob K. Goldhaber Travel Award	2006
	International Union of Geodesy and Geophysics , Conference Grant	2007
	Williams College , Williamstown, Massachusetts	
	Sam Goldberg Colloquium Prize	2004
	Elected to Sigma Xi Scientific Research Society	2004
SERVICE	President, AMSC Student Council	2008-2009
	President, SIAM UMD Student Chapter	2008-2009
	Member, AMSC Graduate Committee	2008-2009
	Board Member, AMSC Student Council	2007-2008
	Committee Member, AOSC Committee	2008-2009
	Center for Scientific Computing and Mathematical Modeling Committee to enhance the campus applied mathematics program and coordinate the use of computational methods for solving atmospheric and oceanic problems	
	Organizer, UMD Math Department Graduation Conference	2007-2009
	Judge, Spotlight on Graduate Research Competition	Fall 2007 & Fall 2008
	Organizer, Applied Math and Scientific Computation Student Seminar	2007-2008
	Board Member, Student of Mathematics and Statistics Advisory Board, Williams College	2003-2004
SKILLS	Computer Languages: Fortran 90/95/03, Matlab, Mathematica, \LaTeX , GrADS, Shell Scripts	
	Languages: English, Proficient in Portuguese and Spanish	