

# JOSEPH A. BIELLO

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## Academic Appointments

UNIVERSITY OF CALIFORNIA, DAVIS, Davis, CA  
Professor      July 2013 - present  
Associate Professor      July 2007 - 2013  
Assistant Professor      July 2005 - July 2007

UNIVERSITY OF PARIS VI, Paris, France  
Visiting Professor      July 2012

CENTRUM WISKUNDE & INFORMATICA , Amsterdam, The Netherlands  
NWO Visiting Researcher      February - May 2012

COURANT INSTITUTE, NYU (CIMS), New York, NY  
Research Scientist      July 2003 - June 2005

RENSSELAER POLYTECHNIC INSTITUTE (RPI), Troy, NY  
Vigre Postdoctoral Fellow      September, 2000 - June 2003

## Education

UNIVERSITY OF CHICAGO, Chicago, IL  
Ph.D. in Astrophysics      March, 2001

UNIVERSITY OF CAMBRIDGE, Cambridge, United Kingdom  
Honours Pass, Part III of the Mathematics Tripos      June, 1995

COLUMBIA UNIVERSITY, COLUMBIA COLLEGE, New York, NY  
A.B., Magna Cum Laude, Phi Beta Kappa      May, 1994

## Grants

NSF DMS-1313477 , PRINCIPAL INVESTIGATOR  
“Multiscale Asymptotic Analysis of Tropical Atmosphere Dynamics ”      2013-2016

NSF DMS-1009959, PRINCIPAL INVESTIGATOR  
“Multiscale PDE Asymptotics for Tropical Atmospheric Waves”      2010-2012

NSF DMS-0604947, PRINCIPAL INVESTIGATOR  
“Multiscale Asymptotics and PDEs for Tropical Atmospheric Dynamics”      2006-2009

## Selected Scientific Program Organization/Participation

AMERICAN GEOPHYSICAL UNION  
Annual Meeting, San Francisco, CA      December 2012, 2014, 2015

AMERICAN METEOROLOGICAL SOCIETY  
Atmosphere Ocean Fluid Dynamics Meeting , Spokane, WA, Minneapolis, MN      July 2011, 2015

BIRS, BANFF, CANADA, ORGANIZED TROPICAL CONVECTION AND LARGE-SCALE CIRCULATION  
Invited speaker May 2011

AMERICAN INSTITUTE OF MATHEMATICS, WAVES AND MULTISCALE PROCESSES IN THE TROPICS,  
Organizer/Speaker December 2010

MATHEMATISCHES FORSCHUNGSINSTITUT OBERWOLFACH, GERMANY  
Mathematical Theory and Modeling in Atmosphere/Ocean Science  
Workshop Participant August, 2002, 2004, 2010

NCAR JUNIOR FACULTY FORUM, Workshop Participant July 2010

IPAM, UCLA, MODEL AND DATA HIERARCHIES FOR SIMULATING AND UNDERSTANDING CLIMATE.  
Invited participant March 2010

SIAM ANNUAL MEETING, Tropical Convection, Waves and Large Scale dynamics  
Minisymposium organizer July 2008

NCAR IMAGE THEME OF THE YEAR, EMERGING MATHEMATICAL STRATEGIES FOR MULTI-SCALE AND STOCHASTIC MODELING OF THE ATMOSPHERE AND CLIMATE,  
Workshop Participant 2005, 2006

## Relevant Publications

Back, A. & J.A. Biello, "Effect of overturning circulation on long equatorial waves: A low-frequency cutoff." *J. Atmos. Sci.*, **75** (5), pp 1721-1739 (2018)

Biello, J.A. & T. Dimofte, "Why do Earth's equatorial waves head east?" *Science*, **358** (6366), pp 990-99, (2017).

R Samson & J.A. Biello, "Longitudinal instability of slurry pipeline flow." *Int. J. Multiphase Flow*, **90**, pp 57-63, (2017).

Biello, J.A & Samson, R, "The steady-state convection-diffusion equation at high Peclet numbers for a cluster of spheres; an extension of Levich's theory." *SIAM J. Appl. Math.*, **76** (4), pp 1515-1534, (2016).

Biello, J. A. & B. Thomases, "Equilibrium circulation and stress distribution in viscoelastic creeping flow." *J. Non-Newtonian Fluid Mech.* **229**, pp 101-111, (2016).

Biello, J.A. & R. Samson, "Competitive effects between stationary chemical reaction centres: A theory based on off-center monopoles." *J. Chem. Phys.*, **142**, (2015), 10.1063/1.4913216

Dorrestijn, J. , D.T. Crommelin, J.A. Biello & S.J. Böing, "A data-driven multicloud model for stochastic parameterization of deep convection." *Phil. Trans. Royal Soc. A*, **371**, (2013).

Biello, J.A. & A.J. Majda, "A multi-scale model for the modulation and rectification of the ITCZ", *J. Atmos. Sci.*, **70**, 1053–1070, (2013).

Khouider, B., Y. Han & J.A. Biello, "Convective Momentum Transport in a Simple Multicloud Model for Organized Convection." *J. Atmos. Sci.*, **69**, 281–302, (2012).

Biello, J.A. & A.J. Majda, "Intraseasonal multi-scale moist dynamics of the tropical troposphere." *Comm. Math. Sci.*, **8** (2): 519–540 (2010).

Biello, J.A. "Nonlinearly coupled KdV equations describing the interaction of equatorial and mid-latitude Rossby waves." *Chinese Annals of Math. Ser. B*, **30** (5), 483–504, (2010).

Khouider, B, J.A. Biello & A.J. Majda, "A stochastic multicloud model for tropical convection." *Comm. Math. Sci.*, **8**(1), 187–216, (2010).

Biello, J.A., A.J. Majda & M.W. Moncrieff, “Meridional momentum flux and superrotation in the multiscale IPESD MJO model” *J. Atmos. Sci.*, **64**, 1636–1651 (2007).

Biello, J.A. & A.J. Majda, “Modulating synoptic scale convective activity and boundary layer dissipation in the IPESD models of the Madden-Julian Oscillation”, *Dyn. Atmos. Oceans* **42**, 152-215 (2006).

Biello, J.A. & A.J. Majda, “A new Multiscale Model for the Madden-Julian Oscillation”, *J. Atmos. Sci.* **62** pp 1694-1721 (2005).

Majda, A.J. & J.A. Biello, “A Multiscale Model for Tropical Intraseasonal Oscillations”, *P. Natl. Acad. Sci. USA* **101** pp 4736-4741 (2004).

Biello, J.A. & A.J. Majda, “The Effect of Meridional and Vertical Shear on the Interaction of Equatorial Baroclinic and Barotropic Rossby Waves”, *Stud. Appl. Math.* **112** (4) pp 341-390 (2004).

Biello, J.A. & A.J. Majda, “Boundary Layer Dissipation and the Nonlinear Interaction of Equatorial Baroclinic and Barotropic Rossby Waves”, *Geophys. Astro. Fluid.* **98** (2), pp 85-127 (2004).