

# **Curriculum Vitae**

**Robert Moucha**

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## **EDUCATION**

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**University of Toronto**, Toronto, ON ■ June 2003

**Ph.D.** in Physics

“Multigrid Methods for Forward and Inverse Resistivity Problems in Geophysics”

Advisor: R.C. Bailey

**University of Toronto**, Toronto, ON ■ November 1998

**M.Sc.** in Physics

“Singular Value Factorization of Multi-component Time Domain Airborne Electromagnetic Data”

Advisor: R.C. Bailey

**University of Waterloo**, Waterloo, ON ■ June 1997

**B.Sc. Honours** in Physics (Co-op Program)

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## **PROFESSIONAL EXPERIENCE**

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### **Assistant Professor of Geophysics**

Department of Earth Sciences, Syracuse University ■ 2011 – present

### **Canadian Institute For Advance Research (CIFAR) Postdoctoral Fellow**

*Primary Advisor:* A.M. Forte, The Geotop Research Centre in Geochemistry and Geodynamics, Université du Québec à Montréal

*Co-Advisors:* J.X. Mitrovica, Department of Earth and Planetary Sciences, Harvard University; D.B. Rowley, Department of the Geophysical Sciences, University of Chicago ■ 2005-2011

### **Postdoctoral Fellow**

Advisor: J.X. Mitrovica, Department of Physics, University of Toronto, Toronto, ON ■ 2003-2005

### **Software Development Consultant**

Earthcomp Consulting, Toronto, ON ■ 1997 – 2010

### **Research Assistant in Airborne Geophysics**

Supervisor: Dr. S. Holladay, Aerodat Inc., Mississauga, ON ■ 1995 –1997

### **Research Assistant in Remote Sensing of Sea Ice**

Supervisor: Dr. M. Shokr, Atmospheric-Environment Services Canada, North York, ON ■ 1994 –1995

### **Research Assistant in Satellite Radiometric Calibration**

Supervisor: T. Lukowski, Canadian Center for Remote Sensing, Ottawa, ON ■ 1993 –1994

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## COMPUTATIONAL RESEARCH SKILLS

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### High Performance Computing

Code development of geodynamic & geomorphological modeling software in support of research

- Particle-in-Cell method for geodynamic modeling with material tracers
- Spectral & pseudo-spectral global mantle convection
- Stream-power based surface processes modeling with sediment transport and deposition, flexural isostasy and sea level

Contributions to community based mantle convection software

- CitComS, Computational Infrastructure for Geodynamics (CIG)

### Numerical Languages & Libraries

FORTRAN, C/C++, Python, MATLAB, and Perl/CGI  
MPI/MPICH, LAPACK, BLAS, and ScaLAPACK

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## REFEREED JOURNAL PUBLICATIONS

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*Google Scholar: Citations 897; i10-index 15; h-index 12*

*\* Advised Graduate Students*

Gao, M., Fan, M., **Moucha R.**, (2016). “Weakening of Wyoming lithosphere during the Laramide deformation: response to slab removal induced mantle upwelling”, *Journal of Geophysical Research*, 121, doi:10.1002/2016JB013130.

Pedersen, V.K., Huismans, R.S., **Moucha, R.**, (2016). “Isostatic and dynamic support of topography in the Norwegian region”, *Earth and Planetary Science Letters*, 446, 1-9.

Ruetenik\*, G.A., **Moucha, R.**, Hoke, G.D., (2016). “Landscape response to changes in dynamic topography”, *Terra Nova*, 28, 289-296.

Dowsett, H., Dolan, A., Rowley, D., **Moucha, R.**, Forte, A. M., Mitrovica, J. X., Pound, M., Salzmann, U., Robinson, M., Chandler, M., Foley, K., and Haywood, A., (2016). “The PRISM4 (mid-Piacenzian) paleoenvironmental reconstruction”, *Climate of the Past*, 12, 1519-1538, doi:10.5194/cp-12-1519-2016

Stein, S., Stein C., Kley, J., Keller, R., Merino, M., Wolin, E., Wiens, D., Wyssession, M., Al-Equabi, G., Shen, W., Frederiksen, A., Darbyshire, F., Jurdy, D., Waite, G., Rose, W., Vye, E., Rooney, T., **Moucha, R.**, Brown, E., (2016). “When Rift Met LIP: New Insights About the Midcontinent Rift”, *EOS*, 97, doi:10.1029/2016EO056659.

Austermann\*, J, Pollard, D., Mitrovica, J.X., **Moucha, R.**, Forte, A.M, DeConto, R.M., Rowley, D.B. and Raymo, M.E, (2015). “The impact of dynamic topography change on Antarctic ice sheet stability during the mid-Pliocene warm period”, *Geology*, 43, p. 927-930

- Rovere, A, Hearty, P.J., Austermann\*, J, Mitrovica, J.X., Gale, J., **Moucha, R.**, Forte, A.M, and Raymo, M.E., (2015). “Mid-Pliocene shorelines of the US Atlantic coastal plain - an improved elevation database with comparison to Earth model predictions”, *Earth Science Review*, 145, 117–131.
- Rowley, D.B., Forte, A.M., **Moucha, R.**, Mitrovica, J.X., Simmons, N.A., Grand, S.P, (2013). “Dynamic Topography Change of the Eastern United States Since 3 Million Years Ago”, *Science*, 340, 1560-1563.
- Quere, S., Lowman, J.P., Arkani-Hamed, J., Roberts, J.H., **Moucha, R.**, (2013). “Subcontinental sinking slab remnants in a spherical geometry mantle model”, *J. Geophys. Res. Solid Earth*, 118, 1760-1777.
- Glišović\*, P., Forte, A.M., **Moucha, R.**, (2012). “Time-dependent convection models of mantle thermal structure constrained by seismic tomography and geodynamics: implications for mantle plume dynamics and CMB heat flux”. *Geophysical Journal International*, 190, 785–815.
- Moucha, R.**, Forte, A.M., (2011). “Changes in African topography driven by mantle convection, *Nature Geoscience*,” 4(10), 707-712.
- Forte, A.M., **Moucha, R.**, Mitrovica, J.X., Simmons, N.A, & Grand, S.P., (2010). “Deep mantle contributions to the surface dynamics of the North American continent”, *Tectonophysics*, 481, 3-15.
- Forte, A.M., Quéré, S., **Moucha, R.**, Simmons, N.A., Grand, S.P., Mitrovica, J.X. & Rowley, D.B. (2010). “Joint seismic-geodynamic-mineral physical modelling of African geodynamics: A reconciliation of deep-mantle convection with surface geophysical constraints”, *Earth and Planetary Science Letters*, 295(3-4), 329-341.
- Moucha, R.**, Forte, A.M., Rowley, D.B., Mitrovica, J.X., Simmons, N.A, & Grand, S.P, (2009). “Deep mantle forces and the uplift of the Colorado Plateau”, *Geophysical Research Letters*, 36.
- Forte, A.M., **Moucha, R.**, Rowley, D.B, Quéré, S., Mitrovica, J.X., Simmons, N.A, & Grand, S.P, (2009). “Recent tectonic plate decelerations driven by mantle convection ”, *Geophysical Research Letters*, 36.
- Moucha, R.**, Forte, A.M., Rowley, D.B., Mitrovica, J.X., Grand, S.P, & Simmons, N.A, (2008). “Mantle Convection And The Recent Evolution Of The Colorado Plateau And The Rio Grande Rift Valley”, *Geology*, 36(6), 439-442.
- Moucha, R.**, Forte, A.M., Mitrovica, J.X., Rowley, D.B., & Quéré, S., (2008). “Dynamic Topography and Long-Term Sea-Level Variations: There May Be No Such Thing as a Stable Continental Platform”, *Earth and Planetary Science Letters*, 271, 101-108.
- Moucha, R.**, Forte, A.M., Mitrovica, J.X. & Daradich A., (2007). “Geodynamic implications of lateral variations in mantle rheology on convection related observables and inferred viscosity models”, *Geophys. J. Int.*, 169 (1), 113-135.
- Forte, A.M., Mitrovica, J.X., **Moucha, R.**, Simmons, N.A., & Grand, S.P., (2007). “Descent of the ancient Farallon slab drives localized mantle flow below the New Madrid seismic zone”, *Geophys. Res. Lett.*, 34, L04308, 2007.
- Latychev, K., Mitrovica J.X., Tamisiea, M.E., Tromp, J., Christara, C.C., and **Moucha, R.**, (2005) “GIA-Induced Secular Variations in the Earth's Long Wavelength Gravity Field: Influence of 3-D Viscosity Variations”, *Earth and Planetary Science Letters*, Vol. 240, 322-327.
- Latychev, K., Mitrovica J.X., Tamisiea, M.E., Tromp, J., and **Moucha, R.**, (2005). “Influence of Lithospheric Thickness Variations on 3-D Crustal Velocities Due to Glacial Isostatic Adjustment”, *Geophysical Research Letters*, 32.
- Moucha, R.**, Bailey, R.C., (2004). “An Accurate And Robust Multigrid Algorithm For 2D Forward Resistivity Modelling”, *Geophysical Prospecting*, Vol. 52, 197-212.

Shokr, M. E., and **Moucha, R.**, (1998). "Co-location of pixels in satellite remote sensing images with demonstrations using sea ice data", *Int. Journal of Remote Sensing*, Vol. 19, 855-869.

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### JOURNAL ARTICLES UNDER REVISION

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Campbell\*, S. M., **Moucha, R.**, Derry, L. A., Raymo, M. E., "Dynamic topography and the Cenozoic carbonate compensation depth", *Nature Geoscience*, under revision post-review.

**Moucha, R.** and Ruetenik\*, G.A., "Interplay between dynamic topography and flexure along the U.S. Atlantic passive margin: Insights from Landscape Evolution Modeling", *Global and Planetary Change – Invited Research Article*, under revision post-review.

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### TECHNICAL REPORTS & BOOK REVIEWS

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Kattenhorn, S., Ebinger, C., Fischer, T., Stamps, D.S., Nelson, W., **Moucha, R.**, Nyblade, A (2014). "Collaborative Efforts in the East African Rift System" *GeoPRISMS Newsletter*, Issue No. 32.

**Moucha, R.**, (2011). "A. Ismail-Zadeh and P. Tackley: Computational Methods for Geodynamics", *Mathematical Geosciences. Book Review*.

Robert, X., **Moucha, R.**, Reiners, P., Forte, A., and Whipple, K., (2011). "Cenozoic evolution of the Grand Canyon and the Colorado Plateau driven by mantle dynamics?" ed. Beard, L.S., Karlstrom, K.E., Young, R.A., and Billingsley, G.H., *CREvolution 2: Origin and Evolution of the Colorado River System, Workshop Abstracts: U.S. Geological Survey Open-File Report 2011-1210*, p. 238–244

**Moucha, R.**, Holladay, J. S., and Prinsenber, S.J., (1998). "Airborne Electromagnetic Sea Ice Sounder Measurements of RADARSAT Validation Project 1996", *Can. Contract. Rep. Hydrogr. Ocean Sci.*, 51: vii+349.

Holladay, J. S., **Moucha, R.**, (1998). "Electromagnetic/Laser Ice Thickness Data from the Labrador Shelf 1994", *Can. Contract. Rep. Hydrogr. Ocean Sci.*, 49: viii+340.

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### INVITED CONFERENCE AND WORKSHOP PRESENTATIONS

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"Interplay between dynamic topography and flexure along the US Atlantic passive margin: Insights from landscape evolution modeling", Pardee Keynote Symposia, GSA Annual Meeting, P5. Appalachian Geomorphology, November 2015.

"Mantle Convection & Surface Deformation", Cooperative Institute for Dynamic Earth Research (CIDER), UC Berkeley, July 2015.

"Interplay between dynamic topography and flexure along the US Atlantic passive margin: Insights from landscape evolution modeling", in Linking plate tectonics and mantle dynamics through the records of lithospheric motions and deformation, EGU General Assembly, April 2015.

- “Surface Processes and Dynamic Uplift of Eastern North America”*, Kaufman Institute for the Study of the Continents (INSTOC) Symposium: The Appalachians, New Views of an Old Orogen -- landscapes, earth structure and earthquakes, Cornell University, September 2014.
- “Quantifying landscape evolution response to changes in dynamic topography”*, AGU Fall Meeting, T44C, December 2013.
- “Mantle Convection and Why the Mantle Matters”*, TopoAfrica Meeting, South Africa, January 2013.
- “Mantle Convection and Landscape Evolution”*, 5<sup>th</sup> Meeting of Young Researchers in Earth Sciences (MYRES), Salt Lake City, UT, August 2012.
- “Seismic Tomography and Mantle Convection – a window into the past”*, Study for Earth Deep Interior (SEDI), Leeds, UK, June 2012
- “Coupling Climate, Surface Processes and Mantle Convection”*, AGU Fall Meeting, T11D, December 2011.
- “Linking the enigmatic surface of the African continent with mantle dynamics”*, AGU Fall Meeting, T32A, December 2011.
- “Mantle dynamics and the recent evolution of the Eastern North American margin”*, EarthScope - GeoPRISMS Science Workshop for Eastern North America Bethlehem, PA, October 2011.
- “The role of mantle convection in African long-term erosion and sediment transport”*, Dynamic topography: a key surface record of deep Earth processes, The Geological Society, London, UK, September 2011.
- “Retrodicting the Cenozoic dynamic topography: Model Uncertainties and Implications for Reconciling the Geological Record”*, Geodynamics of the Lithosphere and Deep Earth (GLADE) Keynote Lecture, SCRIPPS, San Diego, July 2010.
- “Retrodicting the Cenozoic dynamic topography”*, EGU General Assembly, GD3.1/TS10.2, Vienna, Austria, May, 2010.
- “Late Cenozoic Temporal Evolution of North American Dynamic Topography”*, AGU Fall Meeting, Union Session 53, December 2008.
- “Spectral Methods for Mantle Convection with 3D Viscosity Variations”*, Workshop for Advancing Numerical Modeling of Mantle Convection and Lithospheric Dynamics, UC Davis, Davis, CA, July 2008.
- “Modelling surface motions and relative sea level change induced by mantle convection”*, Gordon Research Conference, Mount Holyoke College, South Hadley, MA, June 2007.

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## INVITED SEMINAR PRESENTATIONS

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- “Landscape evolution, sea level change and dynamic topography”*, University of Massachusetts, Amherst, April 2016.
- “Mantle convection and landscape evolution: why the mantle matters”*, Rutgers University, April 2014.
- “Coupling Climate, Surface Processes and Mantle Convection”*, Lamont-Doherty Earth Observatory, April 2013.
- “Coupling Climate, Surface Processes and Mantle Convection”*, Department of Terrestrial Magnetism, Carnegie Institution for Science, February 2012.

*"Coupling Climate, Surface Processes and Mantle Convection"*, University of Rochester, January 2012.  
*"Retrodicting the Cenozoic dynamic topography"*, University of Rennes, Rennes, France, Aprils 2010.  
*"A geodynamic view of the late Cenozoic evolution of the southwestern US"*, Department Seminar, Department of the Geophysical Sciences, University of Chicago, January 2009.  
*"Implications of mantle convection for topography and eustatic sea level change"*, Monday Lecture Seminar Series, Princeton University, Princeton, NJ, March 2008.  
*"Numerical Modelling of Buoyancy Induced Flow in the Earth's Mantle"*, McGill Computational Science and Engineering Seminar, McGill University, Montreal, QC, October 2005.  
*"Multigrid methods for forward and inverse resistivity problems in geophysics"*, ACCESS: Australian Computational Earth Systems Simulator, University of Queensland, Brisbane, AUS, March 2004.

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## GRANTS

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### ***Federal***

Collaborative Research: Evolution of the Midcontinent Rift as a Rift/LIP Hybrid,  
NSF-Tectonics, EAR-1549676, \$400,000 (\$76,000 SU), T.O Rooney (PI), R. Moucha, S. Stein), C.A. Stein (Co-PIs) ■ 06/2016 – 05/2018

Technology Assistance With Implementation and Operation of Transportable Array Element of USArray and Earthscope, NSF-IRIS sub-award, \$36,300, R. Moucha (PI) ■ 05/2012 –09/2012

### ***University***

Innovative Program Development Fund: Geophysics in Archeology and Forensics Course, University College of Syracuse, Syracuse University, \$19,500, R. Moucha (PI) ■ 05/2016 – 07/2017

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## AWARDS AND FELLOWSHIPS

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### **At Université du Québec à Montréal, Montreal, QC**

Centre National de la Recherche Scientifique, France, TopoAfrica Project, Stipend Supplement Funding ■ 2010

Canadian Institute for Advance Research Postdoctoral Fellow ■ 2005 – 2011

### **At University of Toronto, Toronto, ON**

Ontario Graduate Scholarship in Science and Technology ■ 2000 and 2001

Reginald Blyth Fellowship ■ 2001

Canadian Society of Exploration Geophysicists Scholarship ■ 1998, 2000, and 2001

University of Toronto Fellowship ■ 1998 and 1999

E. F. Burton Fellowship in Physics ■ 1997

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## GRADUATE STUDENT ADVISING

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Gregory Ruetenik, Syracuse University, PhD Candidate ■ 2012 – present  
“Coupling Landscape Evolution and Geodynamic Processes”

Siobhan Campbell, Syracuse University, PhD Candidate ■ 2014 – present  
“A New Generation of Joint-Seismic Geodynamic Inference of Mantle Density”

Prasanna Gunawardana, Syracuse University, PhD Student ■ 2016 – present  
“Plume Enhanced Melt Generation in a Pre-Cambrian Mantle: Implications for Rifting and Large Igneous Provinces”

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## OTHER STUDENT RESEARCH ADVISING

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Megan Hansen, Colorado School of Mines, Research Experience for Undergraduates ■ Summer 2016

Jacqueline Austermann, Harvard University, Graduate PhD Student ■ 2012 – 2015

Ellen Was, Syracuse University, Graduate Research Assistant ■ 2014 – 2015

Karolina Lubecka, Syracuse University, Undergraduate Honors Thesis ■ 2014 – 2015

Peter Nelson, Syracuse University, Undergraduate Research ■ 2012 – 2014

Karin Abrahamsson, Syracuse University, Undergraduate Research ■ 2013

Catherine Lambert, University of Rochester, Undergraduate Summer Assistant ■ 2012

Petar Glišović, Université du Québec à Montréal, Graduate PhD Student ■ 2008 – 2011

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## TEACHING EXPERIENCE

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### *Syracuse University*

#### **Numerical Methods in Geosciences**

Fall 2011, Spring 2013, 2014, 2015, 2016 Average Enrolment: 12

Basic statistics for univariate and bivariate datasets including linear regression and interpolation, time-series analysis, the discrete Fourier transform, numerical integration and finite differences.

#### **Introduction to Geophysical Methods**

Fall 2012, 2013, 2014, 2015, 2016 Average Enrolment: 15

An introduction to the exploration of the Earth’s near surface using geophysical methods and quantitative data analysis, specifically: seismic reflection and refraction, gravity, magnetic and electrical methods. Includes field surveys.

#### **Dynamic Earth**

Spring 2012, 2012, 2015, 2016 Average Enrolment: 155

Summer 2014, 2015 Average Enrolment: 10

An introduction to chemical, physical and biological processes and principles affecting the history and development of the Earth. Includes laboratory and field trips.

### **Independent Study in Geodynamics**

Fall 2013

Focus on Earth's rheology, mechanics and geodynamics with numerical modeling of subduction processes.

### *University of Quebec in Montreal*

#### **Introduction to MATLAB for Geosciences: 2008, 2011**

A week long graduate level seminar course that used a variety of examples from geosciences to convey the basic concepts of MATLAB.

#### **Géologie dynamique II: 2007**

Guest Lecture for a graduate level course in geodynamics: Sea Level Change

### *University of Toronto*

#### **Foundations of Geophysics: 2004**

Guest Lecture for an undergraduate level geophysics course: Mantle convection and surface observables.

#### **Electricity and Magnetism – Physics: 2002**

Tutorial instructor for 2nd year course for physics majors.

#### **Electricity and Magnetism – Electrical Engineering: 2001-2003**

Lab instructor for 1<sup>st</sup> year introduction of electricity and magnetism principles in electrical engineering.

#### **Elements of Physics: 1998-2005**

Head tutor and tutorial instructor for 1<sup>st</sup> year course in classical mechanics for engineering sciences.

#### **Introduction to Computational Physics: 1999, 2000**

Computer lab instructor for 3<sup>rd</sup>/4<sup>th</sup> year course introducing algebraic and numerical methods for physics problems.

#### **Physics for Life Sciences: 1999, 2000**

Tutorial instructor for 1st year course introducing relevant subjects in physics for students in life sciences.

#### **Time Series Analysis – Physics: 1999**

Computer lab instructor for 3rd/4th year course in analysis of digital sequences.

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## **FIELD EXPERIENCE**

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**Upper James-Bay, Quebec, Canada, Cosmogenic Terrestrial Nuclide & Glacial Isostatic Adjustment Sample Collection Transect, June 2015.**



**USGS Northern Prairie Wildlife Research Center**, Underwater resistivity survey of a pond in the prairie wetlands, August 2014.

**POLARIS**, Expansion of the POLARIS seismic network in Quebec, Canada: Installed 5 permanent seismic stations, August 2007.

**SIMMS'95 - Polar Continental Shelf Project**, Resolute Passage, Nunavut, Canada: Ice-core collection for measuring complex dielectric constant of first-year and multiyear sea ice, May 1995.

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## PROFESSIONAL SERVICE

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### *Syracuse University*

Research Computing Advisory Council, Syracuse University, 2014-present

IT Committee, Department of Earth Sciences, Syracuse University, 2014-present

Curriculum Committee, Department of Earth Sciences, Syracuse University, 2011-2014 (Chair 2013)

Lower Division Undergraduate Advisor, Syracuse University, 2012-2013.

### *Summer Schools*

Cooperative Institute for Dynamic Earth Research (CIDER) 2015, Invited Advisor, UC Berkeley, July 2015

### *Conference sessions convened*

Session Chair, "Mantle Flow and Subduction Dynamics", AGU Fall Meeting, December, 2012

Session Convener, "Surface Geological and Tectonic Constraints on Time-dependent Mantle Convection" for the Joint (AGU) Assembly, 24-27 May, 2009

### *Reviewer for*

NSF EAR: Geophysics, Tectonics, Sedimentary Geology & Paleobiology

Manuscripts: Nature Geoscience, Geology, Geophysical Journal International, Physics of the Earth and Planetary Interiors and Geophysical Research Letters, Geosphere

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## ABSTRACTS PRESENTED AT PROFESSIONAL MEETINGS

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### *\* Advised Students*

Campbell\*, S.M., **Moucha, R.**, Raymo, M.E., Derry, L.A., *Dynamic topography and the Cenozoic carbonate compensation depth, AGU Fall Meeting, December 2015. EP21E-04*

Pederson, V.K., Huisman, R.S., **Moucha, R.**, *Isostatic and Dynamic Support of High Passive Margin Topography in Southern Scandinavia, AGU Fall Meeting, December 2015. T51F-2995*

Levy\*, Z.F., Siegel, D.I., **Moucha, R.** Fiorentino\* III, A. J., Mills, C.T., Goldhaber, M.B., Rosenberry, D.O., *Geoelectrical Analyses of Sulfurous Wetland Sediments and Weathered Glacial Till in the Prairie Pothole Region, AGU Fall Meeting, December 2015. H53C-1682*

- Austermann\*, J, Pollard, D., Mitrovica, J.X., **Moucha, R.**, Forte, A.M, DeConto, R.M., Rowley, D.B. and Raymo, M.E., *The impact of dynamic topography change on Antarctic Ice Sheet stability during the Mid-Pliocene Warm Period*, AGU Fall Meeting, December 2015. PP11E-04
- Zhelezinskaya, E., Mulyukova, S. Ding, N. Martirosyan, A. Johnson, M. Kolesnichenko, **R. Moucha**, *How to draw down CO<sub>2</sub> from severe Hadean to habitable Archean?*, AGU Fall Meeting, December 2015. PP33B-2311
- Ruetenik\* G.A. **Moucha, R.**, Hoke, G.D., *Dynamic topography, stream capture, and the sedimentary record*, GSA Annual Meeting, November, 2015.
- Ruetenik\* G.A., **Moucha, R.**, Hoke, G.D., *Landscape response to changes in dynamic topography*, EGU General Assembly Conference Abstracts 17, 8045
- Austermann\*, J., Pollard, D., Mitrovica, J.X., **Moucha, R.**, Forte, A.M, DeConto, R.M, *The impact of dynamic topography on the bedrock elevation and volume of the Pliocene Antarctic Ice Sheet*, EGU General Assembly Conference Abstracts 17, 4343
- Rovere, A, Hearty, P.J., Austermann\*, J, Mitrovica, J.X., Gale, J., **Moucha, R.**, Forte, A.M, and Raymo, M.E., *Mid-Pliocene shorelines of the US Atlantic Coastal Plain: an improved elevation database with constraints from Earth model predictions*, EGU General Assembly Conference Abstracts 17, 8045
- Austermann\*, J., Pollard, D., Mitrovica, J.X., **Moucha, R.**, Forte, A.M, DeConto, R.M, *The impact of dynamic topography on the bedrock elevation and volume of the Pliocene Antarctic Ice Sheet*, EGU General Assembly Conference Abstracts 17, 4343
- Ruetenik\* G.A. **Moucha, R.**, Hoke, G.D., *Landscape Response to Changes in Dynamic Topography on the U.S. Atlantic Passive Margin*, AGU Fall Meeting, December 2014. EP13B-3523
- Nelson\*, P. and **Moucha, R.** *Influence of Initial Geometry and Boundary Conditions on Flat Subduction Models and Resulting Topography*, AGU Fall Meeting, December 2014. T23A-4636
- Austermann\*, J. Mitrovica, J. X. Latychev, K.; Rovere, A. **Moucha, R.**, *Ice Age Sea Level Change on a Dynamic Earth*, AGU Fall Meeting, December 2014, T44A-02
- Moucha, R.**, Rooney, T.O., Stein, S.A., Brown, E., *Geodynamic modeling of the Mid-Continental Rift System: Is a mantle plume required?* T21B-2545, AGU Fall Meeting, December. 2013
- Baldwin, S., **Moucha, R.**, Fitzgerald, P.G, Hoke, G.D., Bermudez, M.A., Webb, L.E., Braun, J., Rowley, D.B., Insel, N, Abers, G.A, Wallace, L.M., Vervoort, J.D., *Linking mantle dynamics, plate tectonics and surface processes in the active plate boundary zones of eastern New Guinea*, T44C-01, AGU Fall Meeting, December. 2013
- Levin V.L., **Moucha, R.**, Huaiyu, Y., *Upper Mantle Texture Patterns In Eastern North America From Seismic Anisotropy And Global Mantle Flow Calculations*, DI21C-06, AGU Fall Meeting, December.
- Rowley, D.B., Forte A.M., **Moucha, R.**, Mitrovica, J.X., Raymo, M.E., Rovere, A., *Dynamic Topographic Warping of the Pliocene and Pleistocene Shorelines of the East Coast U.S.: Implications for Estimates of Past Sea Level Heights*, GC34A-01, AGU Fall Meeting, December. 2013
- Rovere, A., Raymo, M.E. Hearty, P.J, Austermann\*, J., Mitrovica, J.X., Michael, O., **Moucha, R.**; Forte, A.M., Rowley, D.B., *Mid Pliocene sea levels: A combined analysis of field data, models of glacial isostasy and dynamic topography, and eustasy*, GC34A-06, AGU Fall Meeting, December. 2013
- Ruetenik, G.A., **Moucha, R.**, Hoke, G.D., and Braun, J., *Quantifying landscape evolution response to changes in dynamic topography*, Paper No. 61-4, GSA Annual Meeting, October. 2013

- Rowley, D.B., Insel, N., **Moucha, R.**, Forte, A.M., Mitrovica, J.X., *Quantitative global paleogeography: integrating geology and geodynamics in the creation of next generation paleogeographic maps, Paper No. 89-1, GSA Annual Meeting, October. 2013*
- Forte, A.M., **Moucha, R.**, Rowley, D.B., Glišović\*, P., Mitrovica, J.X., Simmons, N.A, and Grand, S.P., *Impact of buoyant mantle upwellings on the surface evolution of North America: implications for topography changes in the Southwestern and Eastern U.S., Paper No. 316-7, GSA Annual Meeting, October. 2013*
- Forte, A.M., **Moucha, R.**, Rowley, D.B., Glišović\*, P., Mitrovica, J.X., Simmons, N.A, and Grand, S.P., *Interpreting the evolution of earth's surface topography in terms of mantle convection, Paper No. 3-3, GSA Annual Meeting, October. 2013*
- Quere, S., Lowman, J. P, Arkani-Hamed J., Roberts J.H., **Moucha, R.**, “Subcontinental sinking slab remnants in a spherical geometry mantle model”, *DI23A-2382, AGU Fall Meeting, December. 2012*
- Moucha, R.**, Rowley, D.B., Levin, V.L., Simmons, N.A., Forte, A.M., “Convective Removal of the Northeastern Portion of the North-American Tectospheric Root and the Late Cenozoic Uplift of the Appalachians”, *T11B-2566, AGU Fall Meeting. 2012*
- Baldwin, S., Fitzgeral, P.G., Mauricio, B.A., Webb, L.E., **Moucha, R.**, Miller, S.R., Catalano, J.P., Nasser, Z.A., “Linking deep earth to surface processes in the Woodlark Rift of Papua New Guinea; a framework for understanding (U)HP exhumation globally”, *T12A-04, AGU Fall Meeting. 2012*
- Moucha, R.**, “Surface Processes, the Sedimentary Record and the Mantle”, *Poster, Interior of the Earth -- Gordon Research Conference, June. 2011*
- Rowley D.B., Rowan C.J., Forte, A.M., **Moucha, R.**, Grand S.P., Simmons, N.A., “The East Pacific Rise: An Active Not Passive Spreading System”, *T33I, AGU Fall Meeting, December. 2011*
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