

TYRONE O. ROONEY

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CURRENT POSITION

2013- **Associate Professor, Department of Geological Sciences & Director of Geoanalytical Lab, Michigan State University.**
Research focusing on the origin, evolution and destruction of the continental lithosphere using geochemical techniques.

EDUCATION:

2006 **Ph.D. Geosciences**, The Pennsylvania State University, University Park.
Dissertation: *Continental rifting in central Ethiopia: geochemical and isotopic constraints from lavas and xenoliths*, Advisor: Dr. T. Furman

2002 **M.S. Geosciences**, The Pennsylvania State University, University Park.
Masters Thesis: *Hydrogeological, three dimensional, numerical flow modeling of the Dublin Port Tunnel and region*, Advisor: Dr. R.R. Parizek

1999 **B.Sc. (Hons.) Geology**, University College Dublin, Belfield, Dublin. Ireland.

PROFESSIONAL EXPERIENCE

2009- **Adjunct Faculty**, MSU Center for Global Change and Earth Observations.
Collaborator with center director (J. Qi) on submitted proposal. Dr. Qi sits on committee of my Ph.D. student (Assiri).

2007-13 **Assistant Professor and MSU Geoanalytical Lab Director**, Department of Geological Sciences, Michigan State University.
Courses: Integrative Studies - Natural Hazards; Integrative Studies - Global Change; Igneous & Metamorphic Petrology; Advanced Igneous Petrology.

2006-07 **Postdoctoral Fellow**, Department of Geological Sciences, San Diego State University. Supervisor Dr. B. Hanan.
Research focusing on radiogenic isotopic geochemistry of the Baltimore Mafic Complex & Lau Basin.

2000-06 **Teaching Assistant**, Department of Geosciences, The Pennsylvania State University
6 semesters as T.A. coordinator for “The Sea Around Us” – a general science oceanography course.

2000-06 **Research Assistant**, Department of Geosciences, The Pennsylvania State University.

Dissertation research was part of the NSF-EAGLE (Ethiopia-Afar Geoscientific Lithospheric Experiment) project examining rifting in Ethiopia using geochemical, geodynamic, and geophysical methods.

CURRENT FUNDING

Total Federal Funding: \$361,346

Other External Funding: \$142,759

The Initiation of Magmatically Accommodated Extension in the Rifting Environments of Terrestrial Planets

Tyrone Rooney, PI; James Zimbelman, Co-I; Michael Ramsey, Eric Grosfils collaborators.

National Aeronautics and Space Administration: 11/1/11 - 12/31/13

Total Budget: \$99,000; \$99,000 to Rooney

Collaborative Research: Non-Peridotite Melting in Plume-Influenced Extensional Environments: Lithological Heterogeneity of the African Superplume and African Lithosphere

Tyrone Rooney, lead PI; John Kappleman, PI

National Science Foundation: 07/01/12 - 06/30/14

Total Budget: \$306,692; \$255,284 to Rooney

External invoices paid to the Michigan State University Geoanalytical Laboratory

Tyrone Rooney, director

11/01/07 – 10/31/12: \$145,759

PAST FUNDING

Slab-tear related magmatism in the Panama Canal

Tyrone Rooney, PI

MSU Intramural Research Grant Program: 2008

Total Budget \$39,486; \$39,486 to Rooney

Rifting of the Nubian Shield: Evidence from Egyptian Basaltic Lavas

Tyrone Rooney, PI

USDA Foreign Agriculture Service: 5/1/11 - 4/30/13

Total Budget \$7,062; \$7,062 to Rooney

HONORS AND AWARDS (postgraduate only)

- 2012-14 NSF GeoPrisms Distinguished Lecturer.
This program makes distinguished scientists involved with GeoPRISMS science and planning available to visit American colleges, universities, museums, schools, and other institutions.
- 2006 Penn State Alumni Association Dissertation Award.
This award is considered to be among the most prestigious available to Penn State graduate students and recognizes outstanding achievement in scholarship and professional accomplishment.

SELECTED PROFESSIONAL SERVICE AND ACTIVITIES (postgraduate only)

- 2013- Chairperson of student awards committee and member of executive committee for the Volcanology, Geochemistry, Petrology division at the American Geophysical Union.
- 2013- Member of the NSF GeoPRISMS steering and oversight committee
- 2013- Member two search committees (Vogel Chair, Endowed Professorship)
- 2013 Convened session at Fall 2013 American Geophysical Union Meeting.
- 2012- Member of the MSU College of Natural Science Council on Diversity and Community. The focus of the council this year is to facilitate a greater understanding of the challenges facing LGBT individuals within the College of Natural Science.
- 2010- Adviser to the MSU Geology Club. This club, comprised of undergraduate and graduate students, is critical for building community within the department; my role is to gently guide and advise the student organizers of the club.
- 2011- Geochemistry Subject Editor, Journal of the Geological Society, London.
- 2007-13 Member of the MSU Department of Geological Sciences Student Advisory Committee. This committee manages all aspects of graduate student affairs within the unit from recruitment to progress reports.
- 2011-12 Member of student awards committee for Volcanology, Geochemistry, Petrology division at the American Geophysical Union. This role requires extensive reviews of submitted student grant application materials, coordinating student judging, undertaking a heavy judging load at the annual meeting, and interpreting the resulting data to choose student award winners.

- 2012 Co-led and co-wrote the guide for the MSU College of Natural Sciences alumni field trip to the Keweenaw Peninsula in August 2012.
- 2012 Served on three faculty search committees within the Department of Geological Sciences: Sabbatical replacement; Vogel Endowed Chair; Biogeochemistry.
- 2012 Convener for the NSF-GeoPRISMS program East Africa planning meeting in Morristown, NJ, October 2012.
- 2011 Student presentation judge for NSF-GeoPRISMS at American Geophysical Union 2011.
- 2008 MSU College of Natural Science alumni development trip to Houston

MANUSCRIPT REVIEWS

Reviewed Manuscripts for the following ISI-listed journals:

Geology;
Science;
Lithos;
Earth and Planetary Science Letters;
Bulletin of Volcanology;
Journal of Petrology;
G-cubed;
Lithosphere;
Journal of Volcanology and Geothermal Research;
Geochimica et Cosmochimica Acta;
Geosphere;
Tectonophysics;
Journal of the Geological Society;
Geological Society Special Publications
Earth Science Reviews;
Contributions to Mineralogy and Petrology;
Journal of African Earth Science;
Tectonics;
Geophysical Research Letters

PROPOSAL REVIEWS

Formal proposal reviews for National funding agencies:

National Science Foundation;
National Aeronautics and Space Administration;
European Research Council;
South African Research Council
NERC, UK

PUBLICATIONS

(* denotes student co-authors)

Peer-Reviewed Journal Articles

1. **Rooney, T.O.**, Deering, C.D., 2014, Conditions of melt generation beneath the Taupo Volcanic Zone: The influence of heterogeneous mantle inputs on large-volume silicic systems. *Geology*, doi: 10.1130/G34868.1
2. *Hidalgo, P., and **Rooney, T.O.**, 2014, Petrogenesis of a Voluminous Quaternary Adakitic Volcano: The Case of Baru Volcano, *Contributions to Mineralogy and Petrology*, In Press.
3. Mazzarini, F., **Rooney T.O.**, and Isola, I., 2013, The intimate relationship between strain and magmatism: A numerical treatment of clustered monogenetic fields in the Main Ethiopian Rift. *Tectonics*, v. 32, p. 1-16, doi:10.1029/2012TC003146
4. **Rooney, T.O.**, Mohr, P., Dosso, L., and Hall, C.M., 2013, Geochemical evidence of mantle reservoir evolution during progressive rifting. *Geochimica et Cosmochimica Acta*, v. 102 p. 65-88, doi: 10.1016/j.gca.2012.08.019
5. **Rooney, T.O.**, Hart, W.K., Hall, C.M., Ayalew, D., Ghiorso, M.S., Hidalgo, P., and Yirgu, G., 2012, Peralkaline magma evolution and the tephra record in the Ethiopian Rift. *Contributions to Mineralogy and Petrology*, v. 163, p. 407-426
6. **Rooney, T.O.**, Hanan, B., Graham, D., Furman, T., Schilling, J.G., and Blichert-Toft, J., 2012, Upper mantle pollution during Afar plume-continental rift interaction. *Journal of Petrology*, v. 53, p. 365-389, doi:10.1093/petrology/egr065
7. **Rooney, T.O.**, Herzberg, C., and Bastow, I.D., 2012, Elevated mantle temperature beneath East Africa. *Geology*, v. 40, p. 27-30. doi: 10.1130/G32382.1
8. **Rooney, T.O.**, Bastow, I.D., and Keir, D., 2011, Insights into Extensional Processes During Magma Assisted Rifting: Evidence from aligned scoria cones and maars. *Journal of Volcanology and Geothermal Research*, v. 201, p. 83-96 doi:10.1016/j.jvolgeores.2010.07.019
9. *Hidalgo, P., Vogel, T., **Rooney, T.O.**, Currier, R., and Layer, P. 2011, Origin of silicic volcanism in the Panamanian arc: Evidence for a two stage fractionation process at El Valle volcano. *Contributions to Mineralogy and Petrology*, v. 162, p. 1115-1138. doi: 10.1007/s00410-011-0643-2
10. **Rooney, T.O.**, Franchesci, P., and Hall, C.M., 2011, Water Saturated Magmas in the Panama Canal Region – A Precursor to adakite-like magma generation? *Contributions to Mineralogy and Petrology*. v. 161, p. 373-388. doi:10.1007/s00410-010-0537-8
11. *Hidalgo, P., and **Rooney, T.O.**, 2010, Crystal Fractionation processes at Baru Volcano from the deep to shallow crust. *Geochemistry Geophysics Geosystems*, doi:10.1029/2010GC003262
12. **Rooney, T.O.**, Sinha, A.K., Deering, C.D., and Briggs, C., 2010, A Model for the origin of rhyolites from South Mountain, PA: Implications for rhyolites associated with large igneous provinces. *Lithosphere*. v. 2, p. 211-220. doi:10.1130/L89.1

13. **Rooney, T.O.**, 2010, Geochemical evidence of lithospheric thinning in the southern main Ethiopian rift. *Lithos*, v.117, p. 33-48. doi:10.1016/j.lithos.2010.02.002
14. Bastow, I.D., Nyblade, A.A., Stuart, G.W., **Rooney, T.O.**, and Benoit, M.H., 2008, Rifting at the edge of the African low velocity anomaly. *Geochemistry Geophysics Geosystems*, doi:10.1029/2008GC002107
15. **Rooney, T.O.**, Furman, T., Bastow, I.D., Ayalew, D., and Gezahegn, Y., 2007, Lithospheric modification during crustal extension in the main Ethiopian rift. *Journal of Geophysical Research, B, Solid Earth and Planets*. v. 112, B10201, doi:10.1029/2006JB004916
16. Furman, T., Bryce, J.G., **Rooney, T.O.**, Hanan, B.B., Yirgu, G., and Ayalew, D., 2006, Heads and tails: 30 million years of the Afar plume, In Yirgu, G., Ebinger, C., and Maguire, P., (eds)., *The Afar volcanic province within the East African rift system*, v. 259, Special Publication of the Geological Society, London, p. 95-120. doi:10.1144/GSL.SP.2006.259.01.09
17. **Rooney, T.O.**, Furman, T., Yirgu, G., and Ayalew, D., 2005, Structure of the Ethiopian lithosphere: Xenolith Evidence in the main Ethiopian rift. *Geochimica et Cosmochimica Acta*, v. 69, p. 3889-3910. doi:10.1016/j.gca.2005.03.043

Editorials and White Papers

1. NSF-GeoPRISMS East African Rift System Primary Site Draft Implementation Plan. 2013, *Rooney was one of 9 primary authors.*
2. Workshop Report for NSF-GeoPRISMS Science Workshop for the East African Rift System focus site, 2012, *Rooney was one of 9 primary authors.*
3. **Rooney, T.O.**, Nelson, W., Fischer, T., Ferguson, D., Brounce, M., Mana, S., Hilton, D., Castillo, P., Head, E., Vanderkluisen, L., Chiasera, B., 2012, White paper: Geochemical and petrographic approaches for the study of rifting in the EAR. White paper for NSF-GeoPRISMS Workshop – East African Rift. Morristown, NJ, October 24-27, 2012.
4. Egger, A., **Rooney, T.O.**, Shillington, D., 2012, Report from the magmatic rifting and Active Volcanism Conference, Afar Rift Consortium (Addis Ababa, Ethiopia) for GeoPRISMS
5. Workshop Report for NSF-EarthScope - GeoPRISMS Science Workshop for Eastern North America, 2011, *Rooney was one of 17 authors.*
6. GeoPRISMS implementation plan submitted to the National Science Foundation, March 2011. This document was reviewed by the broader community before submission to NSF. *Rooney was one of 28 authors.*
7. Benoit, M.H., Long, M.H., **Rooney, T.O.**, King, S., Kirby, E., Miller, S., Hole, J., 2011, White Paper: Integrating lithospheric structure, mantle dynamics, and surface processes to investigate topographic and lithospheric evolution of the southeastern US continental margin. NSF-GeoPRISMS Workshop – Eastern North American Margin, Bethlehem, PA October 26 -29, 2011.
8. **Rooney, T.O.**, Hyndman, D.W. 2010, Iceland eruption shows impact of volcanism on us - Op/Ed article in Lansing State Journal, April 29, 2010. www.lansingstatejournal.com/article/20100429/OPINION02/4290305/1087/OPINION02
9. **Rooney, T.O.**, Keranen, K., Benoit, M.H., 2010, White Paper: Advances and ongoing challenges in interdisciplinary rifting research. White paper for NSF-GeoPRISMS implementation workshop - Rift initiation and evolution, San Antonio, TX, February 2010.

10. **Rooney, T.O.**, Bastow, I.D., and Keir, D., 2010, White Paper: Insights into Extensional Processes During Magma Assisted Rifting: NSF-GeoPRISMS Implementation Workshop - Rift Initiation and Evolution, Santa Fe, NM, November 4 – 6, 2010.

Pedagogical Publications:

1. **Rooney, T.O.**, Marone, C., and Arthur, M.A., 2006, *The Sea Around Us* (5th Edition): Mason, OH, Thompson.
2. **Rooney, T.O.**, Marone, C., and Arthur, M.A., 2005, *The Sea Around Us* (4th Edition): Mason, OH, Thompson.
3. **Rooney, T.O.**, Marone, C., and Arthur, M.A., 2004, *The Sea Around Us* (3rd Edition): Dubuque, IA, Kendall/Hunt.

PRESENTATIONS

(* denotes student co-authors)

Invited Conference Presentations

1. **Rooney, T.O.**, Hidalgo, P.H., Franceschi, P., 2013. Invited Talk: The impact of magmatic processes upon the evolution of the Panama Arc. XI Congresso de Geologia de America Central. Panama City, Panama. September 2013.
2. **Rooney, T.O.**, 2012. Invited Talk: How does the presence or absence of an upper-mantle plume influence extension – origin of magmas from a geochemical perspective. GeoPRISMS East Africa Planning and Implementation meeting. Morristown NJ, October 2012.
3. **Rooney, T.O.**, Yirgu, G., Dosso, L. 2012. Invited Talk: Development of magma reservoirs during the final stages of rifting - the role of the continental lithosphere in magma genesis in the Afar depression. EOS Trans. AGU. v.93 (52), T41G-08.
4. **Rooney, T.O.**, Hanan, B., Graham, D., Furman, T., 2009. Invited Talk: Geochemically deduced mantle dynamics beneath the main Ethiopian rift. EOS Trans. AGU. v.90 (52), V11G-05.

Professional Conference Contributions

1. **Rooney, T.O.**, Deering, C.D., 2013. Conditions of melt generation beneath the Taupo Volcanic Zone: The influence of heterogeneous mantle inputs on large-volume silicic systems. EOS Trans. AGU. v.94 (52), V14B-07.
2. *Chiasera, B., *Shahpurwala, A., *Koroleski, K.K., *Raslich, F., and **Rooney, T.O.**, 2013, Geochemical analysis of the Dickinson group of the Upper Peninsula, Michigan: A study of an accreted terrane of the Superior Province. Geological Society of America Abstracts with Programs. v. 45(4), p.53
3. **Rooney, T.O.**, Stein, S., and Moucha, R., 2013. Combining EarthScope data with petrology and geochemistry to explore the Mid-Continent Rift's Evolution. EarthScope National Meeting.
4. *Hidalgo, P. J., and **Rooney, T. O.**, 2012. Magmatic Evolution of the Panamanian arc Mid-Miocene to present. Geological Society of America Abstracts with Programs. v. 44(7), p.59
5. *Moreno, J.F., Foster, D.A., Montes, C., **Rooney, T.O.**, and Jaramillo, C., 2012. Implications of Late Miocene volcanism for closing the Panamanian seaway. Geological Society of America Abstracts with Programs. v. 44(7), p.60.

6. *Turner, S., *Drost., B., *Kronberger, C., *Glasser, P., and **Rooney, T.O.**, 2012. Magmatic plumbing processes of back-arc basins: Textural observations and chemical modeling of the Tudor Gabbro. Geological Society of America Abstracts with Programs. v. 44(7), p.391.
7. **Rooney, T.O.**, Francheschi, P., and *Hidalgo, P. J., 2012. The geochemical characteristics of pumice from the Late Miocene Gatun formation within the Panama Canal: Probing the role of amphibole in El Valle volcano. Geological Society of America Abstracts with Programs. v. 44(7), p.59.
8. **Rooney, T.O.**, Yirgu, G., Zimbelman, J.R., Grosfils, E.B., Ramsey, M., and *Movsesian, E., 2012. Pliocene cinder cone chains adjacent to the Main Ethiopian Rift: Precursors to rift-based quaternary zones of focused magmatic intrusion? EOS Trans. AGU. v.93 (52), V53C-2856.
9. *Hidalgo, P. J., and **Rooney, T. O.**, 2012. Geochemical evolution of Baru volcano and the origin of the adakite signal. EOS Trans. AGU. v.93 (52), V31A-2771.
10. *Assiri, A., **Rooney, T.O.**, and Velbel, M.A., 2012. Integrated Analysis of Carbonatite using Short Wave Infra-Red and Visible/Near Infra-Red Reflectance Characteristics. EOS Trans. AGU. v.93 (52), IN23A-1495.
11. *Denny, A.C., *Chiasera, B., **Rooney, T.O.**, Mohr, P., Zimbelman, J.R., Ramsey, M., Grosfils, E.B., and Yirgu, G., 2012. The riftward migration of focused magmatism in Central Ethiopia: Geochemical evidence of magmatic processes within the Galema Ridge. EOS Trans. AGU. v.93 (52), V43D-2892.
12. **Rooney, T.O.**, Bastow, I.D., and Herzberg, C.T., 2012. The Thermo-chemical state of the East African mantle, Magmatic Rifting and Active Volcanism Conference, Addis Ababa, Ethiopia. January 11-13th 2012.
13. **Rooney, T.O.**, Herzberg, C.T., and Bastow, I.D., 2011. The East African mantle: Warm but not hot. EOS Trans. AGU. v.92 (52), T33D-2440.
14. Konter, J., Crocker, L., Anaya, L.M., and **Rooney, T.O.**, 2011. Evaluation of the lithospheric contribution to southern Rio Grande rift mafic melts. EOS Trans. AGU. v.92 (52), V31F-2589.
15. **Rooney, T.O.**, Nelson, W., and Dosso, L., 2011. Metasomatic enrichment of the lithosphere-asthenosphere boundary: A key processes in extensional environments? EarthScope Institute on the Lithosphere-Asthenosphere Boundary. Portland, OR, September 19-21.
16. **Rooney, T.O.**, Sinha, K., and Hanan, B., 2011. Rifting and re-rifting: Geochemistry as a temporal probe. EarthScope-GeoPRISMS Opportunities in Eastern North America planning meeting, Bastrop, TX, May 20-21.
17. **Rooney, T.O.**, Pace, A., Hudgins, T., and Matthews, T., 2011. Lithospheric modification beneath the Mid-Continent rift system: Geochemistry as a temporal probe: EARTHSCOPE National Meeting.
18. *Hidalgo, P., and **Rooney, T.O.**, 2010. Protracted storage and lower crust differentiation at Baru volcano, Panama. EOS Trans. AGU. v.91 (52), V13G-08.
19. **Rooney, T.O.**, Mohr, P., Dosso, L., and Hall, C.M., T., 2010, Geochemical evidence of mantle reservoir evolution during progressive rifting. EOS Trans. AGU. v.91 (52), T23F-01.
20. **Rooney, T.O.**, Bastow, I.D., and Keir, D., 2010, Insights into extensional processes during magma assisted rifting. NSF-GeoPRISMS Implementation Workshop - Rift Initiation and Evolution, Santa Fe, NM – November 4 - 6 2010.
21. Bastow, I., Keir D., **Rooney, T.O.**, and Kendall, J-M., 2010. The role of magma during continent-ocean transition. Geophysical Research Abstracts. v. 12, p. EGU-2010-6322.

22. **Rooney, T.O.**, Dosso, L., and Nelson, W., 2010. Recognition of a HIMU-like reservoir beneath northwest Ethiopia. *Geochimica et Cosmochimica Acta*. v. 74, p. A881.
23. **Rooney, T. O.**, 2009. The relationship between amphibole cumulates and adakite magma. *EOS Trans. AGU*. v.90 (52), V31B-1963.
24. **Rooney, T.O.**, 2009. Cumulates from the Panama Canal region: Squeezing the amphibole sponge. *Geological Society of America Abstracts with Programs*. v. 41, p. 354.
25. *Pluda, A., and **Rooney, T.O.**, 2009. Inferring a petrogenetic history of the Ethiopian lithospheric mantle using the geochemistry of olivine crystals in mantle xenoliths. *EOS Trans. AGU*. v. 90, V23B-05.
26. *Matthews, T., and **Rooney, T.O.**, 2009. Deducing rhyolite origins in Keweenawan magmas - Geochemical correlations with flood basalts, Mamainse Point, ON. *EOS Trans. AGU*. v.90 (52), V51A-1655.
27. *Hudgins, T.R., and **Rooney T.O.**, 2009. Geochemical correlations between dikes and flows in the Keweenawan flood basalt province: *Geological Society of America Abstracts with Programs*. v. 41, p. 298.
28. *Hidalgo, P., and **Rooney, T.O.**, 2009. Magma plumbing system of Baru volcano from the deep to shallow crust. *EOS Trans. AGU*. v.90 (52), V51A-1659.
29. *Hidalgo, P., Vogel, T.A., *Currier, R., Layer, P., and **Rooney, T.O.**, 2009. The origin of El Hato silicic ignimbrite of El Valle volcano, Panama: Evidence of deep fractionation processes. *Geological Society of America Abstracts with Programs*, v. 41, p. 353.
30. *Finlayson, V., and **Rooney T.O.** 2009. The geochemistry of aplite dikes at Elliot Lake, Ontario. *EOS Trans. AGU*, v. 90, V13B-05.
31. *Locke, J.A., Bryce, J.G., Furman, T., Hanan, B., **Rooney, T.O.**, and Graham, D., 2008. Hf isotopic insights into mantle source contributions in Turkana, East African rift system. *Geochimica et Cosmochimica Acta*. v. 72, p. A566.
32. Sinha, A.K., **Rooney, T.O.**, and Hanan, B.B., 2008. The nature of magmatism associated with breakup of super-continent: Constraints from geochemical and Pb, Sr, Nd and Hf isotopic studies from the Appalachian Orogen. *Geochimica et Cosmochimica Acta*. v. 72, p. A872.
33. **Rooney, T.O.**, Herzberg, C., and Bastow, I., 2008. A heated debate: Evidence for two thermal upwellings in East Africa. *EOS Trans. AGU*. v. 89 (53), V53A-2133.
34. **Rooney, T.O.**, Hanan, B., and Sinha, A.K., 2008. Hafnium isotope mapping of the continental lithospheres of Eastern North America. *Geological Society of America Abstracts with Programs*. v. 39, p. 464.
35. **Rooney, T.O.**, Hanan, B., Furman, T., and Graham, D., 2008. Multi-component isotopic mixing in the Ethiopian Rift: Modeling plume contributions to recent magmatism. *Geochimica et Cosmochimica Acta*. v. 72, p. A804.
36. Hanan, B., Sinha, A.K., **Rooney, T.O.**, and Shervais, J.W., 2008. The ordered evolution of the Eastern North American lithosphere mantle: Pb, Nd, Sr and Hf Isotope Constraints. *EOS Trans. AGU*. v. 89, V43F-2195.
37. Hanan, B., **Rooney, T.O.**, Pietruszka, A., Tian, L., Hahm, D., Castillo, P., Hilton, D., and Hawkins, J., 2008. Hf and Pb isotope constraints on the source origin of Northern Lau Basin back-arc basin basalts. *Geochimica et Cosmochimica Acta*, v. 72, A347-A347.
38. *Briggs, C., **Rooney, T.O.**, and Sinha, A.K., 2008. Silicic volcanics in the South Mountain region: A volcanic center with the breakup of Rodinia. *EOS Trans. AGU*. v. 89, V31C-2158.

39. Pietruszka, A. J., and **Rooney, T.O.**, 2007. The ins and outs of U and Th isotopic measurements using a Nu Plasma 1700 MC-ICP- MS. *Eos Trans. AGU.* v. 88 (52), p.V51B-0561.
40. Sinha, A.K., Hanan, B., Dosso, L., and **Rooney, T.O.**, 2007. Lead isotope signatures of the continental lithospheres in Eastern North America, and its role in the evolution of the upper mantle. *Geological Society of America Abstracts with Programs.* v. 39, p. 465.
41. **Rooney, T.O.**, Hanan, B., Graham, D.W., and Furman, T., 2007. The Afar plume and Ethiopian lithosphere: A Hf and He isotope study of primitive quaternary rift lavas. *EOS Trans. AGU.* v. 88 (52), p. V33A-1166.
42. **Rooney, T.O.**, Hanan, B., and Sinha, A.K., 2006. Application of Hf isotopes to mantle source origin and paleo-tectonic setting of the Baltimore mafic complex, central Appalachian orogen. *EOS Trans. AGU.* v. 87(52), p. V31B-0586.
43. *Patterson, L., **Rooney, T.O.**, and Furman, T., 2005. The magmatic plumbing system of quaternary basalts in the main Ethiopian rift. *EOS Trans. AGU.* v. 86, p. V13D-04.
44. **Rooney, T.O.**, Furman, T., Ayalew, D., and Yirgu, G., 2004. Silicate veining above an ascending mantle plume - evidence from new Ethiopian xenolith localities. *EOS Trans. AGU.* v. 85 (47), p. V51B-0580.
45. **Rooney, T.O.**, and Parizek, R.R., 2002. The Dublin port tunnel: Water in the hole? *Abstracts with Programs - Geological Society of America.* v. 34, p. 51.

Invited Colloquium Talks

1. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. November 22, 2013, American Museum of Natural History, New York, NY.
2. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. November 21, 2013, City College, New York, NY.
3. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. November 15, 2013, Northern Illinois University, DeKalb, IL.
4. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. September 27, 2013, Michigan Technological University, Houghton, MI.
5. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. August 9, 2013, University of Buenos Aires, Buenos Aires, Argentina.
6. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. April 5, 2013, University of Alaska - Fairbanks, Fairbanks, AK.
7. Rooney, T., 2013, Lithospheric destruction during continental rifting – a geochemical perspective. March 18, 2013, University of Nevada – Las Vegas, Las Vegas, NV.
8. Rooney, T., 2013, Lithospheric destruction during continental rifting – a geochemical perspective. March 14, 2013, University of Wisconsin - Oshkosh, Oshkosh, WI.
9. Rooney, T., 2013, Continental rifting and its role in shaping of the world we live in today. February 21, 2013, New Mexico State University, Las Cruces, NM.
10. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. February 20, 2013, New Mexico State University, Las Cruces, NM.
11. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. February 15, 2013, Oklahoma State University, Stillwater, OK.
12. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. January 31, 2013, Syracuse University, Syracuse, NY.

13. Rooney, T., 2013, From initiation to termination - the critical role of magma in rift evolution. January 17, 2013, Central Michigan University, Mount Pleasant, MI.
14. Rooney, T., 2012, From initiation to termination - the critical role of magma in rift evolution. December, 2012, Assuit University, Assuit, Egypt.
15. Rooney, T., 2012, Plume-lithosphere interaction - the critical role of magmas in rift evolution. September 13, 2012, University of Pittsburgh. Pittsburgh, PA.
16. Rooney, T., 2012, Rifting, plumes, and magmatism: Interactions that control the breakup of a continent. February 3, 2012, Northwestern University, Chicago, IL.
17. Rooney, T., 2011, The birth of New Continental Crust: Insights from the central American arc. October 18, 2011, Pennsylvania State University, State College, PA.
18. Rooney, T., 2011, Rifting, plumes, and magmatism: Interactions that control the breakup of a continent. September 9, 2011, Miami University, Oxford, OH.
19. Rooney, T., 2011, Rifting, plumes, and magmatism: Interactions that control the breakup of a continent. July 1, 2011, Université Européenne de Bretagne, Plouzane, France.
20. Rooney, T., 2011, Rifting, plumes, and magmatism: Interactions that control the breakup of a continent. April 4, 2011, Western Michigan University, Kalamazoo, MI.
21. Rooney, T., 2011, Rifting, plumes, and magmatism: Interactions that control the breakup of a continent. March 23, 2011, Rutgers University, Piscataway, NJ.
22. Rooney, T., 2011, Rifting, plumes, and magmatism: Interactions that control the breakup of a continent, February 25, 2011, Southern Methodist University, Dallas, TX.
23. Rooney, T., 2011, Continental rift development through the lens of geochemistry – The East African rift, January 28, 2011, University of Iowa, Cedar Rapids, IA.
24. Rooney, T., 2011, A thermo-chemical approach to continental breakup, January 2011, Addis Ababa University, Addis Ababa, Ethiopia.
25. Rooney, T., 2011, A Thermo-Chemical Approach to Continental Breakup, January 2011, Gondar University, Gondar, Ethiopia.
26. Rooney, T., 2010, A thermo-chemical approach to continental breakup. October 6, 2010, University of Nevada, Las Vegas, NV.
27. Rooney, T., 2010, Magmatism in the northern East African rift. January 28, 2010, University of Texas El Paso, El Paso, TX.
28. Rooney, T., 2007, Reconstructing an Ordovician arc: Geochemical evidence for paleo-tectonic dynamics. Michigan State University, East Lansing, MI.
29. Rooney, T., 2007, An integrated approach to continental breakup: Insights from ventral Ethiopia. Michigan State University, East Lansing, MI.
30. Rooney, T., 2007, An integrated approach to continental breakup: Insights from central Ethiopia, San Diego State University, San Diego, CA.
31. Rooney, T., 2006, Plume-lithosphere interaction in continental rifts: Isotopic evidence from Ethiopian basalts. Université J. Fourier, Grenoble, France.

Undergraduate student presentations at MSU research fair

1. *Briggs, C., **Rooney, T.O.**, 2009. Silicic volcanism in the South Mountain region: A volcanic center associated with the breakup of Rhodinia. MSU University Undergraduate Research and Arts Forum. April 16, 2009.

2. *Finlayson, V., **Rooney, T.O.**, 2009. Aplite dikes at Elliot Lake, Ontario, Canada and their effect on uranium mineralization. MSU University Undergraduate Research and Arts Forum. April 16, 2009.
3. *Pluda, A., **Rooney, T.O.**, 2009. Inferring a petrogenetic history using the geochemistry of olivine crystals in xenoliths. MSU University Undergraduate Research and Arts Forum. April 16, 2009.
4. *Hudgins, T., **Rooney, T.O.**, 2010. Geochemical Correlations between dikes and flows in the Keweenaw Flood Basalt Province. MSU University Undergraduate Research and Arts Forum. April 16, 2010.
5. *Westphall, D., *Hidalgo, P., **Rooney, T.O.**, 2011. Source of lithospheric blocks within a large non-historic ash flow deposit, Baru Volcano, Panama. MSU University Undergraduate Research and Arts Forum. April 8, 2010. **First Place Award.**
6. *Segal, J., **Rooney, T.O.**, 2011. Anomalous volcanism associated with late-stage continental rifting on North America, MSU University Undergraduate Research and Arts Forum. April 16, 2011.
7. *Movsesian, E., **Rooney, T.O.**, 2013. Melting of the Earth's mantle: A modelling approach with research and educational applications, MSU University Undergraduate Research and Arts Forum. April 12, 2013. **First Place Award.**
8. *Trestrail, K., **Rooney, T.O.**, 2013. Xenoliths show evidence of lithospheric thinning of the East African Rift System, MSU University Undergraduate Research and Arts Forum. April 12, 2013.
9. Martin, N., **Rooney, T.O.**, 2014. Geochemistry of lavas from Kaiapo Tuff Cone, Taupo Volcanic Zone, New Zealand: Lava heterogeneity within a single cones. MSU University Undergraduate Research and Arts Forum. April 4, 2014.

GRADUATE STUDENTS SUPERVISED

1. Paul McKelvey (M.S. student) Geochronological and geochemical investigation of Miocene ignimbrites from the Panama Canal Zone. *Now working in Shale-gas industry.*
2. Ali Assiri (Ph.D. student) Assessing the spatial distribution and geochemical variation of carbonatite magmas on the Arabian Plate and Ontario, Canada through the coupled use of remote sensing and geochemical analysis. *Ongoing.*
3. Paulo Hidalgo (Ph.D. student). Geochemical evolution of the Panama Arc recorded at Baru Volcano, Panama. *Now Assistant Professor at Georgia State University.*
4. Brandon Chiasera (Ph.D. Student) Geochemical variation within the Galema Range of Ethiopia. *Ongoing.*
5. Susan Krans (Ph.D. Student) Plume source evolution during eruption of the Oligocene Ethiopian Flood basalts. *Ongoing.*
6. Kaitlyn Trestrail (M.S. Student) Deformation of the Ethiopian lithosphere – peridotite evidence. *Ongoing.*

PHD COMMITTEES

1. Frank Ralisch (Ph.D. student), Dept of Anthropology – MSU.
2. Robert Drost (Ph.D. student), Dept of Geological Sciences – MSU.

UNDERGRADUATE STUDENTS SUPERVISED

1. Christian Briggs (2007-2008) Silicic Volcanics in the South Mountain Region: A volcanic center associated with the breakup of Rodinia.
2. Allison Pluda (2008-2009) Inferring a petrogenetic history of the Ethiopian lithospheric mantle using the geochemistry of olivine crystals in mantle xenoliths.
3. Valerie Finlayson (2008-2009) The geochemistry of aplite dikes at Elliot Lake, Ontario.
4. Timothy Matthews (2009-2010) Deducing rhyolite origins in Keweenawan magmas - geochemical correlations with flood basalts, Mamainse Point, ON.
5. Chelsea Mack. (2007-2010) Chelsea works in my lab and has gained significant technical experience in all aspects of rock preparation.
6. Thomas Hudgins (2009-2010) Geochemical correlations between dikes and flows in the Keweenawan flood basalt province.
7. Justin Segal (2010-2011) The Lake Shore Traps – the last gasp of Keweenaw magmatism.
8. Danielle Westphall (2010-2011) Correlation of basaltic clasts in ignimbrite/ash flow sequences at Baru Volcano, Panama. *First place in category at University Undergraduate Research and Arts forum.*
9. Emily Movsesian (2011-13) Numerical solutions to melting equations. *First place in category at University Undergraduate Research and Arts forum.*
10. Adam Denny (2012), NASA Planetary Geology and Geophysics undergraduate researcher. *Presented results at AGU national meeting fall 2012*
11. Kaityln Trestrail (2011-13), Peridotite as a probe of lithospheric deformation.
12. Alan Snell (2013-), Variable magma batches in a monogenetic vent, Taupo Volcanic Zone, New Zealand. *Ongoing.*
13. Nick Martin (2013-), Variable magma batches in a monogenetic vent, Taupo Volcanic Zone, New Zealand. *Ongoing.*
14. Chris Svboda (2013-) Dating a Proterozoic intrusion, Superior Province, Canada. *Ongoing.*