

## Estella A. Atekwana PhD

College of Earth, Ocean & Environment  
 University of Delaware  
 111 Robinson Hall  
 Newark, Delaware 19716

### ACADEMIC PREPARATION

Degree		Institution	Year Awarded
PhD	Geophysics	Dalhousie University	1991
MS	Geology	Howard University	1986
BS (magna cum laude)	Geology	Howard University	1983

### ACADEMIC & ADMINISTRATIVE EXPERIENCE

Dates	Title	Institution
2017 to present	Dean	College of Earth, Ocean & Environment University of Delaware
2017 to present	Adjunct Professor	Oklahoma State University Boone Pickens School of Geology
2013 to 2017	Head	Oklahoma State University Boone Pickens School of Geology
2011 to 2017	Regents Distinguished Professor	Oklahoma State University Boone Pickens School of Geology
2006 to 2017	Sun Company Clyde Wheeler Endowed Chair Professor	Oklahoma State University Boone Pickens School of Geology
2015 to 2019	Adjunct Professor	University of Waterloo, Department of Earth Sciences
2006 to present	Adjunct Professor	Missouri University of Science & Technology Department of Geological Sciences and Engineering
2007 to 2013	Graduate Director/Coordinator	Oklahoma State University Boone Pickens School of Geology
2005 to 2006	Professor	Missouri University of Science & Technology Department of Geological Sciences & Engineering

2004 to 2006	Graduate Director/Coordinator		Missouri University of Science & Technology Department of Geological Sciences & Engineering
2001 to 2005	Associate Professor		Missouri University of Science & Technology Department of Geological Sciences and Engineering
2002 to 2003	Associate Professor		Indiana University Purdue University Indianapolis, Department of Geology
2003-2008	Adjunct Professor	Associate	University of Waterloo, Department of Earth Sciences
2002 to 2003	Adjunct Professor	Associate	Western Michigan University, Department of Geosciences
1999	Visiting Professor	Associate	University of Botswana, Department of Geology
1996 to 2001	Associate Professor		Western Michigan University, Department of Geosciences
1990 to 1996	Assistant Professor		Western Michigan University, Department of Geosciences
1986 to 1990	Graduate Assistant		Dalhousie University, Department of Geology (now Earth Sciences)
1983 to 1986	Graduate Assistant		Howard University, Department of Geology

## **ADMINISTRATIVE EXPERIENCE**

### **DEAN, COLLEGE OF EARTH, OCEAN, AND ENVIRONMENT**

#### **Administrative Responsibilities**

- Administration of Geography & Spatial Sciences, Earth Sciences, School of Marine Science and Policy, Delaware College Sea Grant Program & Delaware Geological Survey
- Provide supervision of the research, instructional, and educational activities of the college
- Provide dynamic intellectual leadership, motivation, and management toward the achievement of excellence in teaching, research, service, and community engagement of the college
- Promote and facilitate the development of high-quality educational programs for students
- Oversee curricular development of the college
- Develop faculty and staff hiring plan and oversee faculty recruitment within the college
- Assign duties for all personnel within the college and for the quality of service rendered by those individuals
- Recommend to the Provost on all salary increases, promotions, and on all appointments, non-reappointments and terminations
- Develop college budget based on strategic initiatives and allocations of funds within the college

- Work with faculty and staff to accomplish college strategic goals
- Perform annual appraisal and development of direct report staff
- Provide supportive infrastructure for scholarship and teaching excellence
- Student advising and enrollment management
- Attend and actively participate in President's Executive Council and Dean's council
- Fundraising, development, and alumni relations for the Delaware First Campaign (~\$2M/year)

### **Accomplishments**

- Student Success Initiatives
  - Facilitated the development of a new 4+1 degree program in GIScience and Environmental Data Analytics
  - Facilitated the development of a graduate certificate program in Minerals, Materials and Society
  - Launched a Climate Scholars Enrichment Program
  - Incentivized the development of online general education courses
  - Created and funded a College of Earth Ocean and Environment Student Success Center
  - Provided centralized advising for freshmen and sophomores
  - Implemented professional development program for students
  - Established a Dean's Advisory Council mentoring program for graduate students
  - Established funding for the recruitment of talented students from underrepresented groups (HUGS Fellowship)
  - Established funding to support student travel to meetings and conferences
  - Established funding for undergraduate student research
  - Launched an Eco-entrepreneurship certificate and fellowship program (REEF@UD) in partnership with the UD Horn Entrepreneurship Program
- Faculty & Staff Success Initiatives
  - Launched the Gerald J Mangone Climate Change Science and Policy Hub – a university wide initiative on climate change research
  - Saw the largest expansion of faculty in college history (17 new faculty in last three years)
  - Facilitated the development and implementation of faculty mentoring plans
  - Implemented an early career faculty development program – lunch and learn with the Deans
  - Accommodated university wide cluster hires (water security in a changing climate, disaster research, and data science)
  - Established International Task Force to promote global initiatives including research and recruitment
  - Established Honors and Recognition committee to recognize, nominate and celebrate faculty, student success
  - Established college awards for teaching, mentoring, research and service
  - Staff reclassification/reorganization to achieve operational efficiency
- Revitalized and resourced the Inclusion, Diversity, Equity and Accountability Committee
- Funded and supported CEOE film for recruitment at national conferences and UD Decision days
- Supported development of revenue generating programs
- Funded research and teaching lab renovations including deferred maintenance

- Provided funding to support inclusive excellence initiatives
- University Service
  - Graduate Dean Search Committee
  - Co-chair- University of Delaware Provost Search Committee
  - COVID19 Research/Graduate Education Planning Committee
  - University of Delaware IT Strategic Plan Steering Committee
  - University of Delaware Learning Spaces Working Group
  - Budget Planning Steering Committee for the development of a new budget model
  - Participate on Dean's Council for evaluation of cluster hire proposals
  - Expanded the Dean's Advisory Council from 10-14

## HEAD, BOONE PICKENS SCHOOL OF GEOLOGY

### **Administrative Responsibilities**

- Provide dynamic intellectual leadership, motivation, and management toward the achievement of excellence in teaching, research, continuing education, and service activities of the Boone Pickens School of Geology (BPSoG) and College of Arts and Sciences
- Fundraising, development, and alumni relations to secure resources for the BPSoG
- Set vision and developed and implemented strategic plan for the BPSoG
- Initiated, planned and oversaw external review for the BPSoG
- Promote and facilitate the development of high-quality educational programs for students
- Develop and execute BPSoG, College of Arts and Sciences, and University policies
- Recommend appointment, reappointment, salary increases and adjustments, tenure, dismissal, and other personnel actions relating to the members of the faculty and staff of the BPSoG
- Perform annual appraisal and development of faculty and staff of the BPSoG
- Counsel with and direct faculty in activities related to career development
- Negotiate start-up funds and laboratory for new faculty hires
- Prepare and submit an annual budget and responsible for the administration of allocated budgets
- Plan and manage BPSoG functions, seek the counsel of the BPSoG faculty, and delegate duties as needed
- Participate in the teaching, research, service, and extension activities of the BPSoG
- Call and preside over all meetings of the BPSoG faculty and staff
- Provide supportive infrastructure for scholarship and teaching excellence
- Student advising and enrollment management
- Teaching assignments and course scheduling
- Oversee recruitment of highly talented diverse faculty and students
- Attend and actively participate in College of Arts & Sciences Head meetings
- Serve as liaison between the BPSoG and the College of Arts & Sciences
- Promote the public image of the BPSoG, College of Arts & Sciences, and the University

### **Accomplishments**

#### Administrative

- Effectively managed BPSoG budget including development accounts
- Promoted and facilitated the active pursuit of external funding and publications

- Increased external funding with BPSoG such that it was one of top departments in the College of Arts & Sciences for the last three years (2013 - 2015) in research dollars/FTE Faculty (~\$150,000-\$180,000)
- Actively engaged in fundraising and major gift donations with BPSoG ranking as one of top programs in fund raising activity
- Fostered interdisciplinary cooperation in research and teaching within the department and outside the department, College of Arts and Sciences, and the University
- Facilitated development of several online and study abroad courses
- Successfully maintained an engaged alumni advisory board (~140 members)
- Facilitated and support activities of the department's research consortium

#### Faculty

- Effective advocate for faculty and students
- Implemented effective faculty mentoring and development programs for faculty, including grant writing workshop, participation in teaching and learning excellence, and use of technology in classroom
- Implemented flexible workload for faculty
- Negotiated reduced teaching load for faculty (1-1 from 2-1)
- Facilitated faculty workshop in designing effective geoscience courses
- Facilitated faculty workshop in effective mentoring of graduate students
- Increased faculty peer-reviewed publications by 50%

#### Staff Management

- Successfully maintained a professional office environment
- Successfully obtained two technician positions and an undergraduate advisor

#### Student Management

- Improved student success by implementing electronic prerequisite checks and a "Finish in 4" program by eliminating bottlenecks in course offerings
- Effectively designed curriculum to improve student competitiveness and success
- Worked with career services to enhance student recruitment activities
- Participated in Scholar Days for student recruitment and other outreach activities
- Instituted best thesis award for graduate students and implemented a publication award
- Exposed students to professional organizations and national, international meetings, and conferences
- Record number of students' attendance at national and international conferences (more than 100) in last two years
- Implemented assessment plans for graduate and undergraduate programs
- Implemented a professional development program for PhD students
- Several best student paper awards at national and regional conferences
- Increased number of students engaged in hands-on research by 30%
- Obtained more than \$250,000 over the last three years from student technology fee program to improve student learning and instruction

#### Enrollment Management

- Increased student enrollment through innovative recruitment programs at national conferences

- Increased student diversity from 15% female students in 2009 to 27% in 2015
- Doubled student population from 130 in 2006 to 260 in 2015

#### Alumni & External Relations

- Strong engagement with alumni through an effective and engaged advisory board
- Monthly teleconferences with advisory board and biannual alumni meetings
- Fund raising through close partnership with OSU Foundation from alumni and corporate sponsors
- Built working partnerships within the College of Arts & Sciences, University and key government and industry partners
- Fostered collaborative partnerships inside and outside the BPSoG, College of Arts & Sciences and University and with industry partners
- Oversee alumni banquet with ~350-400 in attendance

#### Global Engagement

- Promotion of international research and education with more than 20 students participating in international research and study abroad program
- Partnership with several international universities: Several MoUs with
  - China University of Geoscience, Wuhan
  - University of Botswana
  - Botswana Geological Survey
  - University of Zambia
  - Malawi Geological Survey
  - Malawi University of Science & Technology

#### GRADUATE DIRECTOR/COORDINATOR ACCOMPLISHMENTS

- Provided innovative leadership to recruit diverse and excellent students
  - Increased average student GPA from 2.85/4.0 to 3.45/4.0
  - Student representation from 30 states and 20 countries
- Increased graduate student enrollment numbers by 150% in eight years by promoting an aggressive recruitment strategy
- Increased graduate stipends and reduced graduate student teaching load by 50%
- Implemented effective graduate student strategies for student mentoring
- Promoted and facilitated high-quality educational programs for graduate students
- Implemented best thesis and publication awards

#### RESEARCH DIRECTOR ACCOMPLISHMENTS

- Implemented and promoted multi-disciplinary research programs
- Pioneered Biogeophysics as a sub-discipline in Geophysics at the interface of environmental microbiology, geochemistry, geomicrobiology, and geophysics
- Currently serve as Research Director for large (~\$5 million) 5-year interdisciplinary research project funded by National Science Foundation in Botswana, Zambia and Malawi (one of the largest geoscience funded programs in sub-Saharan Africa)
  - Involves Oklahoma State, Columbia University, Missouri University of Science and Technology, University of Texas at El Paso, Woods Hole Oceanographic Institution, and Boise State University
- Serve as Research Director for 4-year Chevron grant totaling \$1.1 million with multi-institutions

- Involves Oklahoma State, Rutgers University, Colorado School of Mines, Western Michigan University
- Serve as Research Director for 4-year Department of Energy grant totaling \$890,000 with multi-institutions
  - Involves Oklahoma State and Colorado School of Mines

## **PROFESIONAL EXPERIENCE**

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### A: PROFESIONAL SERVICE

#### A1: Promoting Belonging, Accessibility, Justice, Equity, Diversity and Inclusion (BAJEDI)

- 2021 Marie Tharp Lecturer - GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany
- Picture a Scientist Pop Up Fireside Chat Panelist- University of Delaware March 2021
- Provost Symposium on Engaged Scholarship to promote DEI - University of Delaware March 2021
- Diversity, Equity & Inclusion Task Force Society of Exploration Geophysicists 2020-2021
- Justice, Equity, Diversity & Inclusion (JEDI) Committee, Society of Exploration Geophysicists 2021-
- Safety in the Field – Consortium for Ocean Leadership March 2021
- Advisory Board Member: AGU LANDInG (American Geophysical Union Leadership Academy and Network for Diversity and Inclusion in the Geosciences-Research Coordination Network)
- NSF Sponsored Workshop Participant - Sexual Harassment in the Sciences: A Call to Respond – American Geophysical Union September 9, 2016
- Women’s Network Committee Society of Exploration Geophysicists, 2015- present

#### A2: Boards

- **Member: Board of Trustees** Delaware Museum of Natural History 2021-
- **Member: Governing Council (Board of Trustees)** - Botswana International University of Science & Technology 2016-present
- **Member: Board on Earth Sciences and Resources** National Academies of Sciences, Engineering & Medicine 2019-2022
- **Member: U.S. National Committee for the International Union of Geological Sciences** National Academies of Sciences, Engineering & Medicine 2017-2021
- **Member: NSF GePRISMS (Geodynamic Processes at Rifting and Subducting Margins) Steering and Oversight Committee, 2013-2017**
- **National Research Council Committee** to Assess the Performance of Engineered Barriers, 2005-2007
- **Member: External Advisory Board** NSF Science and Technology Center "C-DEBI", The Center for Dark Biosphere Investigations - University of Southern California, 2012 – 2015
- **Member: External Advisory Board Member** NSF-Funded program in Forest Ecosystems - Alabama A&M University, 2011- 2015
- **Board of Directors** Environmental and Engineering Geophysical Society, 2002-2004

#### A3: Editorial Boards

- **Editor:** American Geophysical Union (AGU) Books
- **Associate Editor** Journal of Geophysical Research - Biogeosciences, 2011 – present
- **Editorial Board Member** Journal of African Earth Sciences, 2008-present

- **Guest Editor(s) with L. Slater** Journal of Geophysical Research, vol. 115, no., 2010; Special Section - Biogeophysics: Geophysical Signatures of Microbial Processes in the Earth, 2010
- A4: Professional Societies
- **Honors and Rewards Committee** American Geophysical Union 2018-2020
- **College of Fellows Task Force** American Geophysical Union, 2016-2020
- **Chair: Africa Awards for Research Excellence in Earth and Ocean Sciences Committee** American Geophysical Union, 2016 - 2020
- **Search Committee Editor-in-Chief JGR-Biogeosciences** American Geophysical Union, 2014
- **Mentor: NSF-ADVANCE** Oklahoma State University, **2012-2014**
- **Sullivan Award Committee for Journalistic Excellence in Science** American Geophysical Union, 2010-2012
- **Committee of Special Merits for Geophysics Field Camps** Society of Exploration Geophysicists, 2009-2012
- **Meetings Planning Committee** American Geophysical Union, 2006-2010
- **Chair Nomination Committee** Geophysics Section- Geological Society of America, 2007
- **Nomination Committee** Environmental and Engineering Geophysical Society - Early Career Award, 2008
- **Budget & Finance Committee** American Geophysical Union, 2002-2007
- **Executive Committee** American Geophysical Union Near Surface Geophysics Focus Group, 2006
- **Vice President Committees** Environmental and Engineering Geophysical Society, 2003-2004
- **Vice President Committees Elect** Environmental and Engineering Geophysical Society, 2002-2003
- **Geophysics Advisory Group Member** Hydrologic Measurement Facility
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- A5: External PhD Examiner
- **External Reviewer** - PhD Dissertation - University of Calgary- Canada, 2011
- **External Reviewer** - PhD dissertation- Mansour University, Egypt, 2010
- **External Reviewer** - MS Thesis - University of Canterbury- New Zealand, 2006

#### B: PROPOSAL REVIEW PANELS

- **NSF Community of Visitors Panelist** EAR, June 2021
- **National Science Foundation (NSF) EPSCoR Panelist** Reverse Site Visit, September 2014
- **NSF Community of Visitors Panelist** EAR Instrumentation and Facilities, May 2013
- **Department of Energy (DOE-BER) Science Focus Area (SFA) Panelist** Idaho National Lab, June 2010
- **DOE - Environmental and Remediation Science Program**, October 2009
- **NSF Panelist** Science and Technology Center Site Visitor, October 2009
- **NSF Panelist** EPSCoR Program, December 2009
- **NSF Community of Visitors Panelist** Office of International Science and Engineering, April 2008
- **National Institutes of Health Panelist** Special Emphasis Panel/Scientific Review, March 2006
- **NSF Panelist** Instrumentation and Facilities, 2004 - 2007
- **NSF Community of Visitors** Earth Surface Processes Section, July 2005
- **NSF Panelist** Graduate Research Fellowship Program, 2002-2004, 2007, 2008

#### C: WORKSHOPS/SCIENCE PLAN DEVELOPMENT

- **State Department Sponsored Workshop Participant** Research Partnership Workshop on Water Resources for Women Scientists from the USA and Africa, Windhoek Namibia, May 2015
- **Co-Convener** GeoPRISMS Implementation Workshop, Morristown, NJ, October 2012
- **Organizer** NSF Sponsored Workshop on Geophysical Studies of Continental Rift Initiation, Woods Hole Oceanographic Institution, 2010
- **NSF Workshop Participant**, Future Directions in Geobiology & Low Temperature Geochemistry, 2010
- **NSF Workshop Participant** GeoPRISMS Implementation Workshop, Santa Fe, NM, 2010
- **NSF Workshop Participant** MARGINS Successor Program, San Antonio, 2010
- **NSF Workshop Participant** MARGINS Rupturing Continental Lithosphere Charleston, SC, 2009
- **Co-Organizer** with Lee Slater (Rutgers) - AGU Chapman Conference on Biogeophysics, NSF funded, 2008
- **Member** Oklahoma EPSCoR Women in Science Conference Planning Committee, 2008
- **NSF Workshop Participant** US-Africa Workshop: Enhancing Research in Sub-Saharan Africa on Environmental Topics: A meeting for NSF-funded scientists, their African collaborators, and funding groups, Jan, 2005
- **Co-Organizer** with Mohammed Abdelsalam (UT Dallas); Simon Klemperer (Stanford); Cindy Ebinger (Royal Holloway, England), A.B. Kampunzu (U. Botswana). US-Africa Workshop on Anatomy of Continental Rifts: The evolution of the East African Rift System from Nascent Extension (Okavango Rift Zone) to Continental Breakup (Afar Depression), Addis Ababa, Ethiopia. This was an NSF sponsored workshop. A total of 45 participants (from USA, Europe, Japan, and Africa) attended the workshop. The workshop outcome was a science plan outlining area in knowledge gap on continental rifting and a published workshop report (in EOS), June, 2004
- **Co-Organizer for DOE-sponsored workshop** with R. Knight (Stanford); L. Slater (Rutgers); G. Geller (Lawrence Berkley National Lab) - Geophysical Images of the Near-Surface of the Earth: What are we really measuring, Berkeley, CA, December 2003

#### **International and National Meetings**

- **Co-Organizer** - GeoPRISMS RIE Theoretical and Experimental Institute (RIE TEI), February 8 - 10, 2017, Albuquerque, New Mexico
- **Co-Organizer** with Makerere University, Uganda, International Conference on the East African Rift System-EAR07, Geodynamics, Geoscientific, Economic, and Environmental Challenges, Kampala, - meeting organized as part of UNESCO-International Geologic Correlation Project Program - IGCP 482/489, July 2007,
- **Co-Organizer** with the University of Dar es Salaam, Tanzania, International Conference on the East African Rift System-EAR05, Geodynamics, Environment, Resources and Sustainable Development, Mbeya, Tanzania- meeting organized as part of UNESCO-International Geologic Correlation Project Program - IGCP 482/489, August, 2005,
- **Organizing Committee NS2004** Near-Surface Geophysics Focus at American Geophysical Union Spring Meeting, Montreal, Canada, 2004
- **Co-Organizer** with the University of Botswana, Dynamic Evolution, Resource Potential and Environmental Impact of the East African Rift Systems, Gaborone, Botswana- meeting organized as part of UNESCO-International Geologic Correlation Project Program- IGCP 482/489, August 2003

#### **AWARDS**

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#### **A: UNIVERSITY & PROFESSIONAL AWARDS/RECOGNITION**

- Society of Exploration Geophysicists 2021 Reginald Fessenden Award
- Society of Exploration Geophysicists 2020 Virtual Near Surface Global Lecturer
- Association of Women Geoscientists 2019 Outstanding Educator
- Society of Exploration Geophysicists 2016 Outstanding Educator Award
- Elected Fellow of the Geological Society of America 2016
- 2015 Eminent Faculty - Oklahoma State University
- 2011 Regents Distinguished Research Award - Oklahoma State University
- 2009 International Education Faculty Excellence Award - Oklahoma State University
- 2005 Faculty Excellence Award - Missouri University of Science and Technology
- 2004 Outstanding Academic Advisor Award - Missouri University of Science and Technology

### **B: BEST PAPER/POSTER AWARDS**

1. **Best Paper:** Symposium on the Application of Geophysics to Environmental and Engineering Problems (SAGEEP'13), March 17-20, 2013 Denver Colorado. **Atekwana, E.A.**, Mewafy F., Abdel Aal, G. Z., Atekwana, E.A., Beaver, C., Rossbach, S., Slater, L., Ntarlagiannis, D., Revil, A., and Werkema, D. (2013). Biogeochemical controls on magnetic susceptibility variations across a hydrocarbon contaminated site. Paper invited and presented at the European Association of Geoscientists & Engineers-Near Surface, Bochum Germany, Sept 9-11, 2013.
  2. **Best Paper:** Symposium on the Application of Geophysics to Environmental and Engineering Problems (SAGEEP'10) April 11-15, 2010, Keystone Resort & Conference Center, Keystone, Colorado, USA **Atekwana, E.A.**, Abdel Aal, G. Z., and E. A. Atekwana (2010), Investigating the effect of bioclogging on electrical and flow and transport properties of porous media.. - Paper invited and presented at the European Association of Geoscientists & Engineers-Near Surface Geophysics Joint Annual Meeting - Zurich, Switzerland, September 6-10 2010.
  3. **#6 of Science Direct TOP25 Hottest and Most Downloaded Articles: Atekwana, E.A.**, Sauck, W.A. and Werkema, Jr., D.D., 2000, Investigations of geoelectrical signatures at a hydrocarbon contaminated site, **Journal of Applied Geophysics**, 44, 167-180.  
[http://www.elsevier.com/wps/find/journaldescription.cws\\_home/503333/description](http://www.elsevier.com/wps/find/journaldescription.cws_home/503333/description).
  4. **Honorable Mention in the category of Best Paper in Geophysics:** Abdel Aal, G.Z., **Atekwana, E.A.**, Slater, L.D., and Atekwana, E.A., 2006, Induced polarization measurements on unconsolidated sediments from a site of active hydrocarbon biodegradation, **Geophysics**, 71, p. H13-H24,doi.10.1190/1.2187760.
  5. **Best Paper:** Symposium on the Application of Geophysics to Environmental and Engineering Problems, February 22-26 2004, Colorado Springs, CO. **Atekwana, E.A.**, Atekwana, E.A, Legall, F.D., Krishnamurthy, R.V., and Sauck, W.A., 2004, "Relationship between biodegradation and bulk electrical conductivity". Paper invited and presented at the European Association of Geoscientists & Engineers-Near Surface Geophysics Joint Annual Meeting - Utrecht, Netherlands, September 6-9 2004.
  6. **Best Poster:** -Geological Society of America South Central and Southeastern Joint Annual Meeting, March 12-14, 2003, Memphis, TN. "Geophysical investigation of a superfund site in New Haven, Missouri" (Note: this was a class project and all participants in the course were authors).
- Co-authored with students as lead authors**
7. **Best Poster**, National Association of Black Geoscientists 39th Annual Technical Conference, Sept. 10 – 11, 2020. Ohenhen, L. M. Mayle, F. Kolawole, A. Ismail, **E.A. Atekwana** (2020) Investigating Groundwater Potential in Basement Aquifers using Resistivity Threshold, central Malawi,
  8. **Best Paper:** American Geophysical Union, Fall Meeting 2018, Near Surface Geophysics Mellage, A.; Smeaton, C. M.; **Atekwana, E. A.**; Furman, A.; Rezanezhad, F.; Van Cappellen, P. (2018),

Characteristic relaxation time and chargeability of polarizing subsurface microbes: in situ estimation of microbial abundance and inferences on metabolic state

9. **Best Poster:** American Geophysical Union Fall Meeting, San Francisco, CA, December 14-18, 2015. Studies of the Earth's Deep Interior Session: Njinju, E. A., **E.A Atekwana**, K. Mickus, M. Abdelsalam, E. Atekwana and D. Lao Davila (2015), Mid-lithospheric discontinuity beneath the Malawi Rift, deduced from gravity studies and its relation to the rifting process.
10. **Best Paper:** Batelle's Second International Bioremediation and Sustainable Environmental Technologies Symposium, Jacksonville, FL, 10-13 June, Beaver\*, C., S. Rossbach, **E. Atekwana**, E. Atekwana, F. Mewafy, G. Abdel Aal, L. Slater, D. Ntarlagiannis, and A. Revil (2013), "*Microbial Communities within Zones of Elevated Magnetic Susceptibilities*".
11. **Best Poster:** Batelle's Second International Bioremediation and Sustainable Environmental Technologies Symposium, Jacksonville, FL, 10-13 June, Heenan\*, J. W., L. D. Slater, D. Ntarlagiannis, **E. A. Atekwana**, (2013), "*Electrical Resistivity Imaging for Long Term Monitoring of Contaminant Degradation*".
12. **Best Paper:** Missouri Academy of Sciences, April 15-17, 2005, Lincoln University, Jefferson City, Missouri. Heeszel, D.S., and **Atekwana E.A.**, "*Extent and Distribution of Individual Proterozoic Terranes: Southern Africa*".
13. **Best Poster:** University of Missouri-Rolla, Undergraduate Research Symposium, April 2005- Natural Sciences Category - Heeszel, D.S., and **Atekwana E.A.**, "*Extent and distribution of individual Proterozoic orogenic belts in Southern Africa from gravity and magnetic data: New insights from new data*".
14. **Best Paper:** Missouri Academy of Sciences, April 18-19, 2003, Central Missouri State University. Barklage, M.E., **Atekwana, E.A.**, Hogan, J.P., 2003, "*The role of basement fabrics on the development of continental rifts*".
15. **Best of SAGEEP:** Symposium on the Application of Geophysics to Environmental and Engineering Problems, February 10-14 2002, Las Vegas, NV. Mwanda, K.O, **Atekwana, E.A.**, and Sauck, W.A. 2002 "*Multi-method Geophysical Examination of a Hydrocarbon Contaminated Site*". Paper invited and presented at the Society of Exploration Geophysicists Annual Meeting - Special Session - The best of SAGEEP/EAGE -Salt Lake City, UT, October 2002

### C: SERVICE AWARDS

- Environmental and Engineering Geophysical Society - Contributions and service to EEGS 2002-2004, March 27, 2004

### HONORS

- 2020 EAGE Career Stories Master Classes <https://eage.eventsair.com/eage-summer-series/>
- Oklahoma State University Women Leadership Academy - 2013
- Commencement Speaker - Oklahoma State University Graduate College, December 2011
- Inducted Honorary Member- Phi Beta Delta, the Honor Society for International Scholars, 2010.
- Inducted Honorary Member- International Golden Key Honor Society, 2008
- Invited Lecturer Marie-Curie Summer School in Cargese, Corsica, Summer 2010 - Flow and transport properties in porous media.

- Featured on Under the Microscope webpage [underthemicroscope.com/index2.php?&do\\_pdf=1&id=471](http://underthemicroscope.com/index2.php?&do_pdf=1&id=471)
- Featured on the American Association for the Advancement of Sciences Webpage on Science Update Spotlight on African American Scientists  
<http://www.scienceupdate.com/spotlights/africanamerican.php#atekwana>
- Co-Project Leader UNESCO International Geologic Correlation Project (IGCP) 482/489. With M. Modisi (Botswana); G. Mulugeta (Sweden); J.J. Tiercelin (France)- Dynamic Evolution, Resource Potential and Environmental Impact of the East African Rift System / South-Western Branch of the East African Rift System: Geophysical Characteristics, Structural Evolution and Sedimentary Geology: Implications for Modeling Nascent Rifts

### **KEYNOTE LECTURES**

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- Keynote Speaker – Near Surface Geophysics Business Luncheon AGU20
- Plenary Speaker – European Association of Geoscientists and Engineers, 2019 Near Surface Geoscience, The Hague, The Netherlands, September 2019
- Keynote Speaker - Society of Exploration Geophysics Near-Surface Asia Pacific Conference, Waikoloa, Hawaii, July 2015
- Keynote Speaker - International Conference on Environmental & Engineering Geophysics, Xi'an, China, June 2014
- Keynote Speaker - 8<sup>th</sup> Washington Hydrogeology Symposium, April 2011.
- Keynote Address - Phi Beta Delta, the Honor Society for International Scholars Induction Ceremony 2010
- Keynote Speaker - Society of Exploration Geophysics Annual Meeting- Hydrogeophysics Session, October 2010
- Keynote Lecture - Goldschmidt Conference- Biogeophysics Session, Knoxville TN, June 2010.
- Keynote Lecture - National Groundwater Association Annual Meeting, Denver Colorado, April 2010.
- Keynote Lecture - The 19th International Workshop on EM, Induction in the Earth, Beijing China, October 2008
- Heiland Distinguished Lecturer, Colorado School of Mines, 2008
- Keynote Speaker - Women in Association of Engineering Geologists/Association of Women Geologists/American Institute of Professional Geologists Meeting, St. Louis, Missouri, October 2001
- Keynote Speaker - African Students Association, University of Missouri-Rolla, April 2002

### **GRANTS AND CONTRACTS (~\$11.7 million as PI/Co-PI)**

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1. **Philip E. and Carole R. Ratcliffe Foundation:** Establishing the Ratcliffe Eco-Entrepreneurship Fellows Program at the University of Delaware REEF@UD \$745,000 (12/01/20-11/30/23)
2. **National Science Foundation: Award# FAIN 2021660** \$3M, \$723,931 to UD (12/01/2020-11/30/2024) “Collaborative Research: Dry Rifting In the Albertine-Rhino graben (DRIAR), Uganda”. PI
3. **National Science Foundation:** Collaborative Research: \$116,351(07/01/2018-06/20/2021) “Investigating how transient electrical and magnetic signals relate to changes in recharge-driven redox state and iron mineral transformations”. PI
4. **National Science Foundation:** \$23,230 (11/1/2016-1031/2017) "RAPID: Collaborative Research: Response to the 2016 M5.8 Pawnee Earthquake: Using MT to map Fluids in Faults”

5. **National Science Foundation:** \$250,000 (10/1/2014-9/30/2017). “The US-Egypt Cooperative Research: Imaging the Geometry of the Kharga Basin (New Valley Oasis) and its Groundwater Capacity”. Co-PIs M. Abdelsalam, J. Byrnes, J. Jaiswal. PI
6. **National Science Foundation:** \$244,276 (10/1/2014-9/30/2017). “International Research Experience for Students (IRES)”. “IRES: Research Opportunities in Continental Rift Initiation for U.S. Undergraduate Geoscience Students in Malawi”. D. Lao Davila. Co- PI
7. **Department of Energy-Savannah River National Lab- Sub contract:** \$145,572 (2/1/13-1/31/15). “Long-term, In-situ Monitoring for Subsurface Contaminant Stability”. PI
8. **Department of Energy-BER:** \$890,820 (9/15/11 - 9/14/14). “Induced Polarization Signature of Biofilms in Porous Media: From Laboratory Experiments to Theoretical Developments and Validation”. M Patrauchan and A Revil (Co-PIs). Lead PI
9. **Chevron-Texaco Energy Technology Company:** \$1,117,421 (1/01/11 -12/31/15). “Biogeophysics for Optimized Mitigation of Hydrocarbon Contaminated Soils: From Theoretical Developments, Laboratory Experiments to Field Validation”. Lead PI, E. Atekwana (Co-PI). In collaboration with Rutgers-Newark (L. Slater and D Ntarlagiannis), Colorado School of Mines (A. Revil), Western Michigan University (S. Rossbach)
10. **National Science Foundation:** \$4.6 M, OSU component \$537,618 (05/1/11/ - 4/30/15). “Collaborative Research: Integrated Studies of Early Stages of Continental Extension: From Incipient (Okavango) to Young (Malawi) Rifts”. Lead PI. In collaboration with Woods Hole, Lamont, Missouri University of Science and Technology, and UTEP.
11. **National Science Foundation:** \$192,749 (01/08/10-1/31/13) “RAPID Proposal: Understanding Early Time Biogeophysical Signals of the Microbial Degradation of Crude Oil from the BP Spill in Saline Marshlands”. Lead PI - In collaboration with Rutgers-Newark (L. Slater and D. Ntarlagiannis).
12. **EPA Student Services Contracts:** Solicited ~ \$238,500.00 from EPA for support of students through- a Student Services Contract -Total of 6 students supported.
13. **Iowa Department of Natural Resources:** \$11,717.30 (5/01/10-7/31/10). “West Nishnabotna River Near-Surface Geophysics Project (Surveys 1-3)”. Lead PI.
14. **National Science Foundation:** \$18,887 (3/1/09/2/28/10). “Workshop on Geophysical Studies of Continental Rift Initiation at Woods Hole Oceanographic institution in Massachusetts”. Lead PI
15. **National Science Foundation:** \$ 72,999, (09/01/2008-08/31/2009). “AGU Chapman Conference on Biogeophysics”. Lead PI in collaboration with Rutgers, Newark (L. Slater)
16. **National Science Foundation:** \$ 605,000.00, (09/01/2007-08/31/2011). “MRI Acquisition of a Field Emission Environmental Scanning Electron Microscope to Enhance Research and Teaching at Oklahoma State University”. C. Ownby (PI), Co-PI
17. **National Science Foundation:** \$149,282 (2008-2010). “IRES: Reconstructing the Geological History of the Egyptian Nile. Missouri University of Science and Technology as Lead. M. Abdelsalam (PI). Co-PI
18. **National Science Foundation:** \$150,000 (2008-2010). “IRES: Research Opportunities in Extensional Dynamics for US Undergraduate and Graduate Geosciences Students in Western Turkey”. E. Catlos (PI). Co-PI
19. **National Science Foundation:** \$179,792 (2006-2009). “IRES: Research Opportunities in Neotectonics of Incipient Continental Rift Zones for US Undergraduate and Graduate Geosciences Students in Botswana and Zambia”. PI
20. **Department of Energy:** \$198,923 (2007-2009). “Solid State Electron Transfer via Bacterial Nanowires: Contributions toward a Mechanistic Understanding of Geophysical Response of Biostimulated Subsurface Environments”. PI
21. **National Science Foundation:** \$117,590 (2007 -2008). “Acquisition of electromagnetic and resistivity/IP imaging systems for neotectonics, hydrogeologic, and biogeophysics research. Lead PI

22. **National Science Foundation:** \$450,000 (OSU component) \$216,344, (2004-2007). “Collaborative Research: Investigating the impact of microbial interactions with geologic media on geophysical properties: Implications for assessing geomicrobiological processes”. Lead PI in collaboration with Western Michigan University and Rutgers University-Newark (L. Slater)
23. **National Science Foundation:** REU Supplement - \$54,300 (2004-2007). “Collaborative Research: Investigating the impact of microbial interactions with geologic media on geophysical properties: Implications for assessing geomicrobiological processes”. PI
24. **National Science Foundation:** \$17,342 (2004) - supplement. “US-Africa Workshop on Anatomy of Continental Rifts: The evolution of the East African Rift System from nascent extension (Okavango Rift Zone) to continental break-up (Afar Depression), Addis Ababa, Ethiopia, June 26 - 28, 2004”. Lead PI
25. **United States Geological Survey:** \$2,142 (May 1-August 31 2004). “Geophysical hands-on training - USGS Staff “. Lead PI
26. **United States Department of Energy - PUMPIII:** Total award of \$1,317,000 including 50% cost-share. Total amount of award to UMR \$630,024 (2002-2004). “Development Practices for Optimized MEOR in Shallow Heavy Oil Reservoirs”. S. Dunn-Norman (PI). Co-PI
27. **National Science Foundation:** \$46,400 (2002-2006). “Geologic and geophysical investigations of the Southwestern Branch of the East African Rift System: a window into geologic and tectonic processes during incipient rifting”. PI
28. **United States Geological Survey:** \$20,100 (2002-2003). “Microbial influences on geophysical signatures: A proxy for understanding and the monitoring of natural attenuation”. Co-PI, L. Slater (PI)
29. **UNESCO - International Geologic Correlation Project (IGCP 482/489):** \$30,000 (2002- 2007). “Southwestern Branch of the East African rift system: geophysical characteristics, structural evolution and sedimentary geology: implications for modeling nascent rifts’. Lead PI
30. **American Chemical Society, Petroleum Research Fund:** \$119,621 (2002-2006). “Geologic and tectonic processes during incipient rifting: evidence from the Southwestern Branch of the East African Rift System”. PI
31. **Missouri Department of Transportation:** \$5,465 (2001). “Geophysical characterization of sink structures in the Poplar-Bluff Hwy extension”. PI
32. **Strata Services:** \$1000 (2002) “Resistivity and SP study of Earth Fill Dam”.
33. **Missouri Department of Transportation:** \$19,500 (2002-2003). GPR study of imbedded dowel bars, Van Buren, MO”. Co-PI
34. **University of Missouri Research Board:** \$28,060 (2001-2002). “Investigating geophysical signatures at NAPL Sites”. Lead PI
35. **Seismic Micro-Technology Inc.:** Software valued at ~\$444,400. Kingdom Suite seismic processing software donation - 2002.
36. **National Science Foundation:** \$50,000 (2001-2002). “Collaborative Research: Biogeochemical influences on geophysical signatures at LNAPL impacted sites”. Lead PI
37. **Michigan Space Grant Consortium:** \$5000 (2001-2002). “The relationship between major ion chemistry, stable isotopes and geophysical signatures at NAPL impacted sites”. Lead PI
38. **Michigan Space Grant Consortium:** \$5000 (2000-2001). “Goelectrical response during microbial LNAPL degradation: Implications for monitoring bioremediation”. Lead PI
39. **Petroleum Research Fund (American Chemical Society) :** \$50,000 (1997-1999). “Geophysical investigations of the anomalous conductivities associated with hydrocarbon plumes”. PI
40. **National Science Foundation DUE - ILI Program:** \$42,891 (1995-1997). “Implementing an environmental geophysics field course”. Lead PI
41. **Department of Energy PREP Program:** \$40,000 (1993-1995). “Kalamazoo Mathematics and Sciences Pre-College Engineering Program”. Lead PI

42. **Western Michigan University Faculty Research and Creative Activities Support Fund:** \$3,800 (1997-1998) “Geophysical investigations of hydrocarbon contaminated sites. PI
43. **Western Michigan University Undergraduate Research and Creative Activities Award:** \$1200 (1997) “Design and Development of Vertical Electrical Resistivity Probe”.
44. **Western Michigan University Faculty Research and Creative Activities Support Fund:** \$4,507.00 (1992-1993). “Mapping buried bedrock topography with gravity in Schoolcraft Township”. PI
45. **Western Michigan University Publication Fund:** \$1500 in 1992, 1994, and 2000.
46. **Western Michigan University Faculty Development Fund:** \$450, 1992
47. **Western Michigan University Undergraduate Research and Creative Activities Award Program,** \$1200 (1992) “Mapping buried channels along the Lake Michigan shoreline, Benton Harbor: implications for sub-surface groundwater flow”. PI
48. **Western Michigan University New Faculty Research Support Fund,** \$3300 (1991).
49. **Geological Association of Canada Travel Support,** \$450 (1991).

## **PUBLICATIONS AND OTHER SCHOLARLY CONTRIBUTIONS**

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### **A: JOURNAL PUBLICATIONS**

*\* denotes students as first author*

1. Beaver, C.L., E.A. Atekwana, B. A. Bekins, D. Ntarlagiannis, L.D. Slater, S. Rossbach (2021), Methanogens and their syntrophic partners dominate zones of enhanced magnetic susceptibility at a petroleum contaminated site. *Front. Earth Sci.*, March 2021 | <https://doi.org/10.3389/feart.2021.598172>.
2. Khan, M.Y., A.A. Turab, M.S. Riaz, **E.A. Atekwana**, S. Muhammad, N.A. Butt, S.M. Abbas, W.A. Zafar, and L.O. Ohenhen (2021), Investigation of coseismic liquefaction-induced ground deformation associated with the 2019 Mw 5.8 Mirpur, Pakistan, earthquake using near-surface electrical resistivity tomography and geological data. *Near Surface Geophysics*, <https://doi.org/10.1002/nsg.12148>.
3. \*Matende, K., **E.A. Atekwana**, K. Mickus, M.G. Abdelsalam, E. A Atekwana, R. Evans, V.N. Nyalugwe, and L. Emishaw (2021), Crustal and thermal structure of the Permian – Jurassic Luangwa – Lukusashi – Luano Rift, Zambia: Implications for strain localization in magma – Poor continental rifts. *Journal of African Earth Sciences*, <https://doi.org/10.1016/j.jafrearsci.2020.104090>.
4. \*Dávalos-Elizondo, E., E.A. Atekwana, **E.A. Atekwana**, G. Tsokonombwe, G. D.A. Laó-Dávila (2020), Medium to low enthalpy geothermal reservoirs estimated from geothermometry and mixing models of hot springs along the Malawi Rift Zone. *Geothermics*, 89, p.101963.
5. \*Chisenga, C., M. Van der Meijde, J. Yan, I. Fadel, **E.A. Atekwana**, R. Steffen, C. Ramotoroko (2020), Gravity derived crustal thickness model of Botswana: Its implication for the Mw 6.5 April 3, 2017, Botswana earthquake. *Tectonophysics*, <https://doi.org/10.1016/j.tecto.2020.228479>.
6. \*Campbell, N., **E. Atekwana**, A. J. Mathews, and A. Ismail (2020), Geophysical applications of magnetic sensors in smartphones. *The Leading Edge*, <https://doi.org/10.1190/tle39050312.1>
7. \*Chisenga, C., J. Yan, I. Fadel, M. Van Der Meijde, and **E. A. Atekwana** (2020), Updated tectonic terrane boundaries of Botswana determined from gravity and aeromagnetic data. *Episodes*, <https://doi.org/10.18814/epiiugs/2020/020055>.
8. \*Nyalugwe, V.N., M.G., Abdelsalam, M.G., A. Katumwehe, K. Mickus, **E.A Atekwana** (2020), Structure and tectonic setting of the Chingale Igneous Ring Complex, Malawi from aeromagnetic and satellite gravity data: Implication for Precambrian terranes collision and Neogene - Quaternary rifting. *Journal of African Earth Sciences* <https://doi.org/10.1016/j.jafrearsci.2020.103760>.

9. \*Chisenga, C., J. Yan, J. Zhao, **E.A. Atekwana**, R. & R. Steffen (2020), Density structure of the Rümker region in the northern Oceanus Procellarum: Implications for lunar volcanism and landing site selection for the Chang'E-5 mission. *Journal of Geophysical Research: Planets*, 125, e2019JE005978. <https://doi.org/10.1029/2019JE005978>.
10. \*Nyalugwe, V.N., M.G., Abdelsalam, M.G., **E.A. Atekwana**, A. Katumwehe, K. Mickus, J. Salima, A.A., Njinju, and L. Emishaw (2019), Lithospheric structure beneath the Cretaceous Chilwa Alkaline Province (CAP) in southern Malawi and northeastern Mozambique. *Journal of Geophysical Research: Solid Earth*, 124. <https://doi.org/10.1029/2019JB018430>.
11. \*Njinju, E.A., **E.A., Atekwana**, D.A. Stamps, M.G. Abdelsalam, E.A. Atekwana, K.L. Mickus, S. Fishwick, T.A. Rajaonarison, F. Kolawole, V.N. Nyalugwe, V.N. (2019), Lithospheric structure of the Malawi Rift: Implications for magma-poor rifting processes. *Tectonics*: doi: 10.1029/2019TC005549.
12. Kimak, C., D. Ntarlagiannis, L.D. Slater, **E.A. Atekwana**, C.L. Beaver, S. Rossbach, A. Porter, A. Ustra (2019), Geophysical monitoring of hydrocarbon biodegradation in highly conductive environments, *Journal of Geophysical Research: Biogeosciences*, <https://doi.org/10.1029/2018JG004561>.
13. \*Njinju, E.A., Kolawole, F., **Atekwana, E.A.**, Stamps, D.S., Atekwana, E.A., Abdelsalam, M.G. and Mickus, K.L. (2019), Terrestrial heat flow in the Malawi Rifted Zone, East Africa: Implications for tectono-thermal inheritance in continental rift basins. *Journal of Volcanology and Geothermal Research*. doi.org/10.1016/j.jvolgeores.2019.07.023.
14. \*Mellage, A., G.J. Pronk, T. Milojevic, A.L. Endres, **E.A. Atekwana**, A. Furman, F. Rezanezhad, P. Van Cappellen (2019), Bacterial Stern layer diffusion: Experimental determination with spectral induced polarization (SIP) and sensitivity to nitrite toxicity, *Near Surface Geophysics*, <https://doi.org/10.1002/nsg.12058>.
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18. \*Goussi Ngalamo, J.F., S. Mohamed, D. Bisso, M.G. Abdelsalam, **E. A. Atekwana**, G.E. Ekodeck (2018), Lithospheric structure beneath the Central Africa Orogenic Belt in Cameroon from the analysis of satellite gravity and passive seismic data, *Tectonophysics*, doi:10.1016/j.tecto.2018.08.015.
19. \*Fletcher, A.W., M. G. Abdelsalam, L. Emishaw, **E. A. Atekwana**, D. A. Laó-Dávila, A. Ismail (2018), Lithospheric controls on the rifting of the Tanzanian Craton at the Eyasi Basin, Eastern Branch of the East African Rift System, *Tectonics*, <https://doi.org/10.1029/2018TC005065>.
20. \*Demissie, Z., K. Mickus, D. Bridges, M. G. Abdelsalam, **E. Atekwana** (2018), Upper lithospheric structure of the Dobi graben, Afar Depression from magnetics and gravity data, *Journal of African Earth Sciences*, 147, 136-151.
21. \*Kolawole, F., **E.A. Atekwana**, D. A. Laó-Dávila, M.G. Abdelsalam, P.R. Chindandali, J. Salima, L. Kalindekafe (2018), High resolution electrical resistivity and aeromagnetic imaging reveal the causative fault of the 2009 Mw 6.0 Karonga, Malawi Earthquake, *Geophysical Journal International*, ggy066, <https://doi.org/10.1093/gji/ggy066>.
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- reactivation of preexisting Precambrian shear zone fabric, *Tectonics*, 37. <https://doi.org/10.1002/2017TC004628>.
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  25. Nobes, D.C. and **E. Atekwana** (2018), Pitfalls in Near-Surface Geophysical Interpretation: Challenging Paradigms and Misconceptions, *Interpretation*, (<https://doi.org/10.1190/int-2017-0104.1>).
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  34. Abdel Aal, G, **E.A. Atekwana**, D. D. Werkema (2017), Complex conductivity response to silver nanoparticles in partially saturated sand columns, *Journal of Applied Geophysics*, doi:10.1016/j.jappgeo.2016.12.013.
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  37. **Atekwana, E.A.**, and G. Z. Abdel Aal (2015), Iron biomineralization controls on geophysical signatures

- of hydrocarbon contaminated sediments, *Journal of Earth Science*, 26, p. 835-843.
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#### **B: EXTENDED ABSTRACTS (PUBLISHED)**

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### **C: ABSTRACTED PRESENTATIONS AT NATIONAL & INTERNATIONAL MEETINGS**

15. \*Ohenhen, L., M. Mayle, F. Kolawole, A. Ismail, Atekwana, E.A. (2020), Investigating Groundwater Potential in Basement Aquifers using Resistivity Threshold, central Malawi, Geological Society of America Annual Meeting Oct. 26 – 30, 2020.
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19. **Atekwana , E.A.**, L.D. Slater, F. Kolawole, D. A. Laó-Dávila (2020), Advancing biogeosciences and

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20. \*Ohenhen, L., J.M. Feinberg, A. Stricker, Y.D. Selcen, M. Rios Sanchez, C. Isaacson, D. Ntarlagiannis, L.D. Slater, **E.A. Atekwana** (2020), Investigating iron mineral transformation in hydrocarbon contaminated sediments using detailed mineral magnetism, American Geophysical Union, Fall Meeting 2020, Abstract # GP011-0006.
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192. Catlos, E., I. Çemen, and **E. Atekwana**, 2008, Research Opportunities In Extensional Dynamics for US Undergraduate and Graduate Geosciences Students In Western Turkey, Geological Society of America Abstracts with Programs, 40.
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- African Geology, June 2-7, Orleans, France.
226. \*Davis, C.A., Euler, G.G., Buccellato, A.D., D'Alessandro, F.G., Dezelic, V.I., VanVeghten, T.W., Abdel Aal, G. Z. and **Atekwana E.A.**, 2004, Subsurface characterization of a superfund site, New Haven, Missouri, using geophysical techniques, Geological Society of America North Central Section, 38<sup>th</sup> Annual Meeting, April 1-2, St. Louis, MO, Abstracts with Programs, 36, No. 3, p. 13 (**note that this was a class project**).
  227. Euler, G. G., Burton, M.E., Collins, A. J., Gregg, N. M., Barklage, M.E., Abdel Aal, G.Z., KIM, W., and **Atekwana, E.A.**, Geophysical investigation of a superfund site in New Haven, Missouri, Geological Society of America South Central and Southeastern Joint Annual Meeting, March 12-14, 2003, Memphis, TN.
  228. Ismail, A.M, Anderson, N.L., and **Atekwana, E.A.**, 2003, Hydrogeophysical investigation at Luxor Archaeological site, southern Egypt, Trans. AGU, 84(46), Fall Meet. Suppl., Abstract H31B-0452.
  229. Abdel Aal, G.Z., **Atekwana, E.A.**, Slater, L.D. and Atekwana, E.A, 2003, Effect of hydrocarbon biodegradation on the low-frequency electrical properties of unconsolidated sediments: Trans. AGU, 84(46), Fall Meet. Suppl., Abstract H12H-01.
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  237. \*Barklage, M.E., **Atekwana, E.A.**, Hogan, J.P., Kampunzu, A.B. and Modisi, M.P., 2002, Influence of preexisting structures on the development of an embryonic rift: evidence from the Okavango Rift Basin, N.W., Botswana, International Basement Tectonics Association, May 19-22, Rolla, Missouri.
  238. **Atekwana E.**, Atekwana E., Werkema D. D., Duris J. W, Rossbach S., Koretsky, C., Jay Means, J., Sauck, W. A. and Cassidy P. D. 2002. Biogeochemical influences on geoelectrical properties: Challenges of a mesoscale pilot study- I. INRA/INEEL Subsurface Science Symposium, October 13-16, 2002. Boise ID. (Abstract on CDROM) (**invited**).

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241. \*Legall, F.D., Atekwana, E.A., **Atekwana, E.A.** and Krishnamurthy, R.V. 2002, Vertical profile of vadose zone carbon dioxide and its isotopic composition under fluctuating water table conditions in a shallow sandy aquifer contaminated with hydrocarbons, AGWSE 2002 Annual Meeting and Conference, December 8-11, Las Vegas, Nevada.
242. \*Legall, F.D., Atekwana, E.A., **Atekwana, E.A.**, Krishnamurthy, R.V., Werkema, D.D. and Sauck, W.A., 2002. Vertical geochemical and geophysical profiling of a shallow aquifer contaminated with hydrocarbons, In Proceedings of the NGWA/API 2002 Petroleum Hydrocarbons Conference and Exposition, November 5-8, 2002, Atlanta, GA.

## **TEACHING EXPERIENCE**

### **A. COURSES TAUGHT**

#### **1. Professor, OSU, 8/2006 to present**

- GEOL 1114 Physical Geology.** Composition and structure of the earth and the modification of its surface by internal and external processes. Mineral resources, sources of energy, and environmental aspects of geology. Recommended introductory course for science majors. Field trip required. Lab, Lecture 4 hrs Prerequisite(s): MATH 1513 or higher with a grade of “C” or better; or an acceptable math placement score (see <http://placement.okstate.edu>).
- GEOL 4103** Introduction to Geophysical Exploration Methods. Prerequisite(s): PHYS 2114 and MATH 2153, each with a grade of “C” or higher. An overview of geophysical methods and their applications to exploration, environmental and engineering problems. Seismic reflection and refraction methods, gravity, magnetic, resistivity and electromagnetic methods. A field trip required. Lab, Lecture 3hrs.
- GEOL 4213 Plate Tectonics.** Prerequisite: GEOL 3104 with a grade of “C” or higher. Earth’s evolution within the framework of plate tectonics. Examination of structural associations in relation to tectonic plate boundaries. Mechanisms for plate tectonics and implication for resources and the environment. Lecture 3 hrs.
- GEOL 4303 Geophysical Field Methods.** Prerequisite: GEOL 4103. Hands-on field investigations using the different geophysical surveying methods including electrical resistivity/induced polarization, self potential, electromagnetic, ground penetrating radar, gravity, magnetic, and seismic reflection and refraction. Instrumentation, field data acquisition, and interpretation will be emphasized. Several field trips and field project required. Lab, Lecture 3 hrs.
- GEOL 4990 Special Problems in Earth Science.** 1-8 credits, maximum 8. Prerequisites: 25 hours of geology and permission of instructor. Individually designed study projects involving assigned reading, library work, field work, laboratory work or a combination of these. Field trips may be

required.

**GEOL 5000 Thesis.** 1-6 credits, maximum 6. Prerequisite: approval of graduate committee. Work toward master's thesis in geology.

**GEOL 5443 Environmental Geophysics.** Geological aspects of problems associated with environmental engineering, ground-water pollution and regional and urban planning. Problem assessment and field methods. Two required field projects include geophysical surveys using resistivity and seismic refraction methods. Field trip required. Lab, Lecture 3 hrs.

**GEOL 5990. Advanced studies in Geology. 1-4 credits, maximum 8.** Prerequisite: consent of instructor. Individual library, laboratory and/or field projects on facets of geology not covered by existing courses. Field trips may be required.

**GEOL-5710-364. International Field Experience.** A 6 to 8 weeks of research conducted in a foreign country.

**GEOL 6000\* Doctoral Dissertation Research. 1-12 credits, max 60.** Work toward doctoral dissertation in Geology.

**GEOL 6103 Gravity and Magnetic Methods.** Prerequisite: GEOL 4103. Principles of gravity and magnetic methods applied to petroleum, mineral, and groundwater exploration. Engineering applications will also be discussed. Data acquisition, processing and modeling using standard industry software will be emphasized Lab, Lecture 3 hrs.

**GEOL 6303 Electrical and Electromagnetic Methods.** Prerequisite: GEOL 4103. Principles of the different geoelectrical methods, including electrical resistivity, induced polarization, self potential, electromagnetic, and ground penetrating radar will be emphasized. Geophysical instrumentation, laboratory measurements of physical properties, field procedures, and basic interpretation and near surface geophysical applications will be discussed. Recent advances in geoelectrical methods and case studies will be examined by reviewing current literature. Field trip required Lab, Lecture 3 hrs.

## **2. Associate/Full Professor, MS&T, 1/2001 to 6/2006 \* updated to reflect new course numbers at MS&T**

### **GEOLOGY 1111 Introduction to Physical Geology (LAB 1.0 and LEC 2.0)**

A study of Earth materials, surface features, internal structures and processes. Particular attention is paid to Earth resources, geological hazards, engineering and environmental problems. Prerequisite: Entrance requirements.

**GEOPHYS 3210 Introduction to Geophysics (LEC 3.0)** An introduction to a broad area of solid earth geophysics and exploration geophysics. Topics include plate tectonics, earthquake study, structure and dynamics of the Earth's deep interior, gravity, magnetism, heat flow, and geophysical exploration for natural resources. Prerequisites: Math 1208 and Geology 1110.

**GEOPHYS 3221 Potential Field Theory (LEC 3.0)** The mathematics and physics of gravitational, magnetic, and electrical fields of the earth as derived from potential functions, with applications to practical problems. The theorems of Laplace, Poisson, Gauss, and Green and their applications to geophysics are presented. Prerequisite: Accompanied or preceded by Math 5325.

**GEOPHYS4000 Special Problems (IND 0.0-6.0)** Problems or readings on specific subjects or

projects in the department. Consent of instructor required.

**GEOPHYS 4096 Global Tectonics (LEC 3.0)** An integrated view of the Earth's structure and dynamics with an emphasis on information gained through geophysical methods. Topics include seismology, heat flow, gravity, rheological and compositional structure, plate motions and intermotions, and mantle driving mechanisms for plate tectonics. Prerequisite: Geology 3310.

**GEOPHYS 4099 Undergraduate Research (IND 0.0-6.0)** Designed for the undergraduate student who wishes to engage in research. Not for graduate credit. Not more than six credit hours allowed for graduation credit. Subject and credit to be arranged with the instructor.

**GEOPHYS 4241 Electrical Methods In Geophysics (LAB 1.0 and LEC 2.0)**

The theory and instrumentation for measurements of the electrical properties of the earth. Includes passive and active techniques, the advantages and disadvantages of the various techniques, and geologic interpretations of electrical soundings. Several weekends are spent making a variety of electrical surveys of local features. Prerequisites: Math 5325 and Geophys 2211 or Geophys 3251.

**GEOPHYS 5099 Research (IND 0.0-15)**

Investigations of an advanced nature leading to the preparation of a thesis or dissertation. Consent of instructor required.

**GEOPHYS 5241 Advanced Electrical And Electromagnetic Methods In Geophysical Exp (LAB 1.0 and LEC 2.0)** Theory of the electrical geophysical methods as applied to subsurface investigations addressing geologic, engineering, groundwater and contaminant transport problems. Course content includes both passive and active methods and recent advances in the application of these methods. Course will include a field component illustrating application of techniques to local problems. Prerequisites: Geophys 3251, Math 2222.

**GEOPHYS 5736 Geophysical Field Methods (LAB 1.0 and LEC 2.0)** Imaging of selected subsurface features and engineering structures using various geophysical tools. Special emphasis is placed on ground penetrating radar and surface wave techniques. One field trip at student expense required. Prerequisite: Junior level standing or higher. (Co-listed with Geo Eng 5736).

**GEOPHYS 5782 Environmental and Engineering Geophysics (LAB 1.0 and LEC 2.0)**

An introduction to the theory and application of the gravity, magnetic, resistivity, self-potential, induced polarization and electromagnetic methods as applied to the solution of engineering and environmental problems. Prerequisite: Math 2222. (Co-listed with Geo Eng 5782).

### **3. Associate Professor, IUPUI, 9/2003-6/2004**

**G110 Physical Geology 4 hrs.** A study of the common rocks and minerals and the Geologic processes acting upon these materials that form the structure and surface features of the earth. Three lectures and a two-hour laboratory period. A service learning component is included. 3 lectures and a 2 hour lab period.

### **4. Assistant/Associate Professor, Western Michigan University, 11/1990-12/2000 –updated to reflect current course numbers**

**GEOS 1000 - Dynamic Earth** Students will be introduced to the workings of our dynamic Earth,

with some discussion of other planets. Topics include plate tectonics, evolution, earth materials, volcanoes, earthquakes, earth hazards, rivers and flooding, groundwater and pollution, glaciers and deserts, oceans and coasts, energy resources, and climate change. This course is designed for non-science majors who seek a basic course in geology. The course consists of three hours of lecture and a two-hour laboratory period per week. **4 hours**

**GEOS 1300 - Physical Geology** This course introduces students to the principal geologic processes that shape the earth and methods by which these processes are studied with emphasis on the paradigm of plate tectonics. The interior of the earth is examined from the perspective of how we determine, without direct observation, the layering and composition within. Principles and techniques of physics and chemistry are applied to the study of the origin of minerals and rocks, and geologic structures. Geomorphic processes and natural disasters like earthquakes are examined with special consideration of their importance to engineering design and practice. Three lectures and a two-hour laboratory period per week.

**GEOS 5250 - Surface Geophysics** An introduction to the use of those surface geophysical methods used in the investigation of groundwater. Includes shallow seismic, electrical, and magnetic methods; and ground-penetrating radar. 1 hour

**GEOS 5600 - Introduction to Geophysics** Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. **Prerequisites & Corequisites:** Prerequisites: Either (GEOS 3010 or GEOS 3350); GEOS 4300; either (MATH 1220 or MATH 1700); and two semesters of college physics. **Credits:** 3 hours.

**GEOS 5620 - Gravity and Magnetic Exploration** Gravity and Magnetic methods applied to tectonic, mineral exploration, hydrogeologic and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, and computer modeling and interpretation will be discussed. **Prerequisites & Corequisites:** Prerequisites: GEOS 5600, and either (MATH 1230 or MATH 1710). **Credits:** 3 hours

**GEOS 564 Field Geophysics (LAB 3.0)** Imaging of selected subsurface features and engineering structures using various Near-Surface geophysical tools. Field based program at student expense required. Prerequisite: Junior level standing or higher.

## **5. Visiting Associate Professor, University of Botswana, 1/1999 to 8/1999 (Sabbatical)**

GEL Exploration Geophysics

## **B: GRADUATE STUDENTS**

Thesis Advisor and Postgraduate-Scholar Sponsor

Doctoral and Post-doctoral Supervision

Gamal Abdel Aal (Postdoctoral fellow) Oklahoma State University; Igor Broun (post-doctoral fellow) Oklahoma State University; Carl Rosier (post-doctoral fellow) Oklahoma State University; Allison Enright (post-doctoral fellow)

Dale Werkema (PhD) Western Michigan; F. Legall (PhD) Western Michigan; Khalid Ahmed (PhD) Missouri S&T; Gamal Abdel Aal (PhD) Missouri S&T; Caroline Davis (PhD) Missouri S&T; Baraka Kinabo (PhD) Missouri S&T; Moidaki Moikwathai (PhD) Missouri S&T; Farag Mewafy (PhD) Oklahoma State University; Andrew Katumwehe (PhD) Oklahoma State University; Jeannot Francois Goussi (PhD) University of Yaoundé 1, Chikondi Chisenga (PhD) China University of Geosciences, Wuhan, China

#### Masters Supervision

Leonard Ohenhen (MS) University of Delaware, Brandon Chase (MS) Oklahoma State University, Nathan Campbell (MS) Oklahoma State University, Sundeep Sharma (MS) Oklahoma State University; David Beckendorff (MS) Oklahoma State University; Micah Mayle (MS) Oklahoma State University; Victor Nyalugwe (MS) Oklahoma State University; Braden Hrencher (MS) Oklahoma State University; Andrew Fletcher (MS) Oklahoma State University; Caitlin Redmond (MS) Oklahoma State University; Fola Kolawole (MS) Oklahoma State University; JK Harding (MS) Oklahoma State University; Kelsey Mosley (MS) Oklahoma State University; Ryan Joyce (MS) Oklahoma State University; Jeff Roden (MS) Oklahoma State University; Byron Waltman (MS) Oklahoma State University; Brittany Ford (MS) Oklahoma State University; Cameron Ross (MS) Oklahoma State University; Sen Wei (MS) Oklahoma State University; Khumo Leseane (MS) Oklahoma State University; Emmanuel Njinju (MS) Oklahoma State University; Vukenkeng Che-Alota (MS) Oklahoma State University; Vincent Somwe (MS) Oklahoma State University; Kitso Matende (MS) Oklahoma State University; Kathleen Robertson (MS) Oklahoma State University; Daniel Ramey (MS) Oklahoma State University; Anthony Buccellato (MS) Missouri S&T; M. Burton (MS) Missouri S&T; Kennedy Mwanda (MS) Western Michigan; Jose Bermejo (MS) Western Michigan; Steve Bahling (MS) Western Michigan; Kristina Sprietzer (MS) Western Michigan; Christopher Arhendt (MS) Western Michigan.

#### Undergraduate Student Supervision

More than 50 undergraduate students supervised in the US and more than 20 internationally. Many went on to top tier 1 research graduate programs in the nation (e.g., Rice, UC Santa Barbara, Stanford, Washington University St Louis, University of Texas, and Austin, Michigan). Today may have PhDs.

Total number of graduate students advised – 44, 11 PhDs, 33 MS

Total number of postdoctoral fellows advised – 4

### **PROFESSIONAL SERVICE**

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#### **A: PROFESSIONAL ORGANIZATIONS/AFFILIATIONS**

- American Geophysical Union (AGU)
- European Association of Geoscientists and Engineers (EAGE)
- Geological Society of America (GSA)
- Geochemical Society
- Environmental and Engineering Geophysical Society (EEGS)
- Society of Exploration Geophysicists (SEG)
- National Association of Black Geologists and Geophysicists (NABGG)
- Botswana Geoscientists Association (BGA)

**B: INVITED PRESENTATIONS (SPECIAL MEETINGS/DEPARTMENTAL SEMINARS)*****International/Regional/National Meetings***

1. Atekwana, E.A., F. Kolawole, D. Beckendorff, R. Evans, K. Kerry, and A. Ismail (2017), Geophysical Investigations of the 2016 Mw 5.8 Pawnee, Oklahoma Earthquake, International Conference on Engineering Geophysics, 9 Oct - 12 Oct 2017 Al Ain, United Arab Emirates.
2. Atekwana, E.A., G.Z., Abdel Aal, and A. Revil (2015), Integrated SIP and magnetic susceptibility measurements and model development of disseminated iron minerals, Society of Exploration Geophysics Near-Surface Asia Pacific Conference, Waikoloa, Hawaii, July 7-10, 2015. INVITED
3. Evans, R. A.G. Jones and E.A. Atekwana (2014), The Lithospheric Structure of Southern Africa from Magnetotelluric Sounding Abstract T23B-4660 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec. INVITED
4. Near Surface Geophysics China University of Geoscience Wuhan June 18-20, 2014.
5. Atekwana, E.A., A. LePera, M. Abdelsalam, A. Katumwehe, and M. Achang (2014) The Precambrian Singo Igneous Complex (SIC), Uganda Revealed As a Mineralized Nested Ring Complex Using High Resolution Airborne Radiometric and Magnetic Data, Abstract NS42A-01 presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 14-19 Dec. INVITED
6. Atekwana, E.A. (2013) Hydro-biogeochemical Controls on Geophysical Signatures Abstract H51H-1287 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
7. "Fault Growth and Propagation and its Effect on Surficial Processes within the Incipient Okavango Rift Zone, Northwest Botswana, Africa" presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec. 2010
8. Invited Lecture - "Biogeophysics: A new frontier in Earth science research" **Society of Exploration Geophysicists** - Hydrogeophysics session, October 2010
9. Keynote lecture - Biogeophysics: Advancing Earth science research through new frontiers in geophysics - Keynote Lecturer - **Goldschmidt Conference**- Biogeophysics Session, Knoxville TN, June 2010
10. Keynote lecture - Biogeophysics: Advancing Earth science research through new frontiers in geophysics, **National Groundwater Association** Annual Meeting, Denver Colorado, April 2010
11. **Atekwana, E.A.**, Che-Alota, V., Atekwana, E.A., and Werkema, D.D. 2009, Temporal biogeophysical signatures at hydrocarbon contaminated sites associated with long-term remediation efforts, Eos Trans. AGU, 90(22), Jt. Assem. Suppl., Abstract H12A-01.
12. **E. Atekwana** (2008), Geophysical Signatures of Microbial Activity, **The 19th International Workshop on EM Induction in The Earth, Beijing CHINA** October 23-29, 2008. **Keynote Address**
13. E. Atekwana (2008), Fault growth and propagation during incipient continental rifting: Evidence from Aeromagnetic and SRTM data, **4th Annual AfricaArray workshop School of Geosciences University of the Witwatersrand, Johannesburg, South Africa** - June 17-18, 2008, **Keynote Address**
14. **Atekwana, E.A.**, 2007, Advancing Geobiology Research through New Frontiers in Geophysics, **Missouri Valley Branch for the American Society of Microbiologists Meeting**, April 2007, Oklahoma State University, Stillwater, OK.
15. "Relationship between biodegradation and bulk electrical conductivity", **European Association of Geoscientists & Engineers-Near Surface Geophysics Joint Annual Meeting - Utrecht, Netherlands**, September 6-9 2004
16. "Influence of biological processes on geoelectrical signatures at hydrocarbon contaminated sites", **NATO Advanced Research Workshop "Soils and Groundwater Contamination: Improved Risk Assessment"**, St. Petersburg Russia, July 26-30 2004, (Note: I could not attend the workshop because of a family medical emergency but paper was presented by co-author (L. Slater).
17. "Multi-Method Geophysical examination of a hydrocarbon-contaminated site", **Society of Exploration**

**Geophysicists Annual Meeting - Special Session - The best of SAGEEP/EAGE - Salt Lake City, UT, October 7, 2002.**

***Universities/National Labs Seminars/Colloquium***

**Invited Talks/Lectures**

18. Microbial Mediated Geophysical Signatures and the Search for Life, UCLA May 2021
19. Microbial Mediated Geophysical Signatures and the Search for Life, LANL May 2021
20. Biogeophysics: Where Geomicrobiology meets Geophysics and the search for Life, East Carolina University, April 2021
21. Biogeophysics: Where Geomicrobiology meets Geophysics and the search for Life, University of Delaware, February 2021
22. Biogeophysics: Geophysical Imaging of Microbial Processes Searching for Biosignatures in Geophysical Data, Distinguished Presenter 2020-21 Guy F. Atkinson Distinguished Lecture Series, University of Utah, February 18, 2021
23. Biogeophysics: Where Geomicrobiology meets Geophysics, West Virginia University, January 22, 2021
24. Black inclusivity in Geosciences – discussion panel with Estella Atekwana (University of Delaware), Solomon Seyum (Colorado College), Kisa Mwakanyamale (University of Illinois). University of Wyoming, November 4, 2020
25. Biogeophysics: Geophysical Approaches for Interrogating Subsurface Microbial Activity Wesleyan University, October 13, 2020
26. Biogeophysics: Geophysical Approaches for Interrogating Subsurface Microbial Activity, Syracuse University, March 5, 2020
27. Biogeophysics: Imaging Earth's Subsurface Biosphere – The Next Frontier, Lund University. February 27, 2020
28. Waking Up Sleeping Faults: The Case of the 2017 Mw 6.5 Botswana Earthquake, Lamont Doherty Observatory, November, 13 2019
29. Biogeophysics: Exploring Earth's Subsurface Biosphere using Geophysical Approaches, Arizona State University, School of Earth and Space Exploration October 3, 2018
30. Buried Basement Faults: What Can We Learn About Earthquake Rupture Zones from Electrical and Aeromagnetic Data? Arizona State University, April 2019
31. Continental Rift Initiation: Results from the PRIDE Experiment, North Western University, April 2018.
32. Continental Rift Initiation: Results from the PRIDE Experiment, North Western University, April 2018.
33. Biogeophysics: Geophysical Imaging of Microbial processes, North Western University, April 6, 2018.
34. The April 3, 2017 Mw 6.5 Moiyabana, Botswana Earthquake, Botswana International University of Science and Technology, November, 23 2017.
35. The April 3, 2017 Mw 6.5 Moiyabana, Botswana Earthquake, University of Botswana, November, 24 2017.
36. Geophysical Approaches for Interrogating Subsurface Microbial Activity, Indiana University Purdue University-Indianapolis, November 6 2017.
37. Breaking up is hard to do: Who's to blame, magma or tectonic memory? University of Wyoming, Laramie April 24 th, 2017.
38. Redox cycling of iron by a methanogenic community: Evidence from an integrated microbial and geophysical study, University of Kansas, October 27, 2016.
39. Breaking up is hard to do: Who's to blame, magma or tectonic memory? University of Kansas, October 27, 2016.

40. Biogeophysics - Geophysical Approaches for Interrogating Subsurface Microbial Activity, Boise State University, April 21, 2015
41. Continental Rift Initiation: Breaking up is hard to do. Who's to blame, magma or tectonic memory? Boise State University, April 21, 2015
42. Biogeophysics for Optimized Monitoring of Bioremediation and Natural Attenuation, Rensselaer Polytechnic Institute April 2015-Webinar
43. Biogeophysics for Optimized Monitoring of Bioremediation and Natural Attenuation, Rensselaer Polytechnic Institute, October 2014
44. Imaging Biofilms with Geophysics BP Environmental Geochemistry Group, April 2014 - Webinar
45. Biogeophysics for Optimized Monitoring of Bioremediation and Natural Attenuation, Exxon Mobil Geochemistry Group - Webinar
46. Biogeophysics: A new Frontier in Earth Sciences Rensselaer Polytechnic Institute April 2014
47. University of Zambia - Project PRIDE, August 2013
48. U. Waterloo - Microbial-Induced Alterations of Geophysical Properties, January 2013
49. Microbial-Induced Alterations of Geophysical Properties BP, August 2013
50. Project PRIDE University of Zambia, August 2013
51. Microbial-Induced Alterations of Geophysical Properties, U. Waterloo, January 2013
52. Looking for Geophysical Signs of Life, Stanford University, May 2012
53. Petroleum Biogeophysics- From Oil Field Microbial Processes to Oil Bioremediation - Geophysical Society of Oklahoma City, January 2012
54. Biogeophysics: New Frontiers in Geophysics, University of Yaounde, Cameroon, June 2011
55. Geophysical Imaging of Microbial Processes, Rensselaer Polytechnic Institute, October 2011
56. Looking for Geophysical Signs of Life, Tulane University, February 2011
57. Looking for Geophysical Signs of Life, University of Oklahoma, September 2010
58. Biogeophysics: New Frontiers in Geophysics, Tulsa Geological Society, May 2010
59. Biogeophysics: New Frontiers in Geophysics, Assuit University, Egypt, Jan 2010
60. "Impact of Microbial Activity on Seismic Properties" University of Zambia, July 2009
61. "Biogeophysics: New Frontiers in Geophysics" University of Tulsa, February 2008
62. "Biogeophysics: Advancing Earth Sciences through New Frontiers in Geophysics" Tulsa Geophysical Society, Tulsa, May 2008.
63. Geophysical Signatures of Microbial Activity Heiland Distinguished Lecturer, Colorado School of Mines, September 2008.
64. "Geophysical Signatures of Microbial Activity" National Research Institute for Astronomy and Geophysics- Egypt, December 2008
65. "Geophysical Signatures of Microbial Activity" Alexandria University, Damanhour Campus, Egypt, Jan 2009
66. 2007 "Biogeophysics: The Effect of Bio-Induced Alteration in Geologic Media on Geophysical Properties", Woods Hole Oceanographic Institute, October 2007
67. "International Research Experience for Students" - OSU Honors Class,,October 2007
68. "Biogeophysics: The Effect of Bio-Induced Alteration in Geologic Media on Geophysical Properties, Department of Geosciences, University of Arkansas, Fayetteville, September 2007
69. "Role of Bacterial Nanowires in Biogeobatteries", Department of Energy, ERSP- PI Meeting, Washington D.C., YEAR
70. "Advancing Earth Sciences through new Frontiers in Near Surface Geophysics", College of Arts & Sciences, Oklahoma State University- Sun Chair Inaugural Lecture, YEAR
71. "Biogeophysics: New Frontiers in Geophysics" University of the United Arab Emirates, March 2007.
72. "Is the subsurface Hard Wired?" Dept. of Molecular Biology and Genetics, Oklahoma State University,

October 2006.

73. “Biogeophysics: Investigating the Effects of Microbial-Induced Alterations on Geophysical Properties of the Shallow Subsurface”, University of Kansas, September 2005.
74. “Structural Evolution of the Embryonic Okavango Rift Zone, NW Botswana: Evidence from Geophysical and Remote Sensing Data”, Duke University, March 2005.
75. “Biogeophysics: Investigating the Effects of Microbial-Induced Alterations on Geophysical Properties of the Shallow Subsurface” Duke University, March 2005.
76. “How are microbial interactions with geologic media manifested in geophysical signatures?” Stanford University, March 2005
77. “Biogeophysics: Investigating the Effects of Microbial-Induced Alterations on Geophysical Properties of the Shallow Subsurface”, Oklahoma State University, October 2005.
78. “Structural Evolution of the incipient Okavango Rift Zone, NW Botswana”, University of Zambia, July 2005
79. “Influence of biological processes on geophysical signatures at hydrocarbon contaminated sites”, University of Lancaster, UK, September 2004
80. “Microbial control of geophysical properties” Department of Earth and Planetary Sciences Visiting Speakers (colloquium), Washington University, St. Louis, January 2004
81. “Relationship between biodegradation and bulk electrical conductivity” Department of Geology & Environmental Geosciences colloquia, Northern Illinois University, Dekalb, IL, March 2004
82. “Rift Kinematics During the incipient stages of rifting: an example from the Okavango Rift zone, Botswana” Department of Geosciences Seminar Series, University of Texas at Dallas, April 2004
83. “Microbial control of geophysical properties” Materials Research Center, University of Missouri-Rolla, March 2004
84. “Microbial controls of electrical properties at NAPL-contaminated sites: Implications for remediation monitoring” Water Resources Research Center, University of Missouri, Columbia, October 10, 2003
85. “Influence of microbial activity on in-situ electrical properties”, Department of Geology & Geophysics, University of New Orleans, October 2003
86. “Ground sensing radar applications in infrastructure”, Indianapolis Mapping and Geographic Infrastructure System (IMAGIS), June 2003
87. “Influence of microbial activity on in-situ electrical properties”, Department of Geophysics Seminar, Stanford University, February 2003
88. Influence of microbial activity on in-situ electrical properties, Department of Geosciences, Western Michigan University, Kalamazoo, MI, March 10, 2003
89. “Monitoring and assessing natural attenuation: Does geophysics have a role? Oak Ridge National Lab, Oak Ridge TN, November 2002
90. “Biogeochemical influences on geophysical properties” Idaho National Environmental and Engineering laboratory (INEEL), Idaho Falls, March 2002
91. “Enhanced conductivity at hydrocarbon contaminated sites: implications for the monitoring of intrinsic bioremediation”, Environmental Research Center, Dept. of Civil, Architecture and Env. Engineering - University of Missouri-Rolla, February 2002

### **C: CONVENER (Workshops/Professional Meetings/Special Sessions)**

#### ***Convener Special Sessions at National/International Meetings***

- Co-Convener: Rifting in Africa: How did it start and where does it end? American Geophysical Union, Dec. 11-15, 2017
- Co-Convener: Role of Pre-Existing Structures on Plate Deformation in Continental Rifting and

- Subduction Zones American Geophysical Union, Dec. 11-15, 2017
- Co-Organizer - GeoPRISMS RIE Theoretical and Experimental Institute (RIE TEI), February 8 - 10, 2017, Albuquerque,
  - New Mexico– meeting to take place February 6-10, 2017 Albuquerque, NM
  - Scientific Committee: 4 th International Workshop on Induced Polarization June 6-8 Aarhus, Denmark June 2016
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  - **Co-Convener:** Biogeophysics Special Session- Symposium on the Application of Geophysics to Environmental and Engineering Problems, (SAGEEP'13), Denver Colorado, March 17-20, 2013.
  - **Co-Convener** with S. Gao: Session on Continental Rifting - American Geophysical Union, Dec. 9-13 2013
  - **Co-Convener** with L. Slater (Rutgers): *Biogeophysics Special Session-* American Geophysical Union- Spring 2005, 2006, 2007, 2010, 2011
  - **Convener:** *Biogeophysical Signatures of Organic Rich Contaminated Sites Special Session-* Symposium on the Application of Geophysics to Environmental and Engineering Problems, Charleston SC, April 2011
  - **Co-Convener** with H. Dypvik (Norway); C. Reeves (Holland); V. Courtillot (France); M. Modisi (Botswana); G. Mulugeta (Sweden); J. J. Tiercelin (France): *Phaneorozoic Rift-Related Volcanism, Structures and Tectonostratigraphy*, 20th Colloquium of African Geology, June 2-7, 2004, Orleans France.
  - **Invited Co-Convener** with L. Slater (Rutgers); D. Lesmes (George Washington); M. Prasad (Stanford))- Hydrogeophysics: *Characterization and Monitoring of Soil Properties and Processes in the Laboratory* American Geophysical Union Fall Meeting - San Francisco, CA, Dec. 15-19, 2003.

#### **D: TECHNICAL SESSION CHAIR**

##### *National and International Meetings*

- Session Chair: Society of Exploration Geophysicist Annual Meeting, Dallas, TX 2016
- **Co-Chair** with W. Sauck (Western Michigan): *Field and laboratory techniques applied to groundwater contamination and remediation studies*, Symposium on the Application of Geophysics to Environmental and Engineering Problems, Colorado Springs, CO, February 22-26, 2004.
- **Co- Chair** with D. Abeinomuugisha (Uganda): *Structure and Evolution of the Western and Southwestern Rift system and Cameroon Volcanic Line*, International Conference on the East African Rift System Evolution, Resources & Environment, Addis Ababa, Ethiopia, June 20- 24, 2004.
- **Co-Chair** with S. Hubbard (Lawrence Berkley National Lab): *Near-Surface Geophysics Applications in: Contaminant Hydrology*, American Geophysical Union, Spring Meeting, Montreal, Canada, May 16-21, 2004.
- **Co-Chair** with L. Slater (Rutgers): *Hydrogeophysics: Characterization and Monitoring of Soil Properties and Processes in the Laboratory*, American Geophysical Union, Fall Meeting, San Francisco, CA, Dec. 15-19, 2003.
- **Chair:** *Geophysics Applied to contaminant studies* - Symposium on the Application of Geophysics to Environmental and Engineering Problems, San Antonio, TX, April 6-10, 2003,.
- **Co-Chair** with K. Mickus (SW Missouri State University): *Basement Tectonics Session*, International Basement Tectonics Association, Rolla, Missouri, May 19-22, 2003.

**E: PROPOSAL REVIEWER**

- National Science Foundation
- National Institute of Health
- Department of Energy
- UK Research and Innovation
- American Chemical Society- Petroleum Research Fund
- Swiss Federal National Science Foundation
- Israel Science Board
- National Research Foundation, South Africa

**F: UNIVERSITY SERVICE - OKLAHOMA STATE UNIVERSITY**

- Graduate Advisor/Coordinator - Chair
- Personnel Committee - Chair
- Geophysics Search Committee - Chair, 2008
- Devon and Chesapeake Endowed Chair Search Committee

College Committees:

- Chair Strategic Planning Committee
- Chair - Botany Department Head Search
- Faculty Evaluation for Chairs & Professorships Committee

University Committees:

- Chair: Eminent Faculty Award Committee, 2016
- Search Committee member - Dean of the College of Arts and Sciences, Oklahoma State University 2011-2012
- Search Committee member - Dean of the Graduate College, Oklahoma State University 2010-2011
- Center for Africana Studies and Development Advisory Committee

Other University Service:

- Faculty mentor to Assistant Professors College of Arts & Sciences
- Faculty mentor OSU NSF - ADVANCE Program