

CURRICULUM VITAE: ROSEMARY KNIGHT

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[Environmental Geophysics Lab, Stanford University](#)

CURRENT POSITION

George L. Harrington Professor of Geophysics, Stanford University
Senior Fellow, Woods Institute for the Environment, Stanford University

ACADEMIC BACKGROUND

Ph. D. (Geophysics), Stanford University, 1985
M.Sc. (Geological Sciences), Queen's University, 1978
B.Sc. (Honours, Geological Sciences), Queen's University, 1976

PROFESSIONAL EXPERIENCE

Professor, Geophysics Department, Stanford University, 9/00-present
Senior Fellow, Woods Institute for the Environment, Stanford University
Professor, University of British Columbia, 7/98-9/00
Associate Professor, University of British Columbia, 7/93-6/98
Assistant Professor, University of British Columbia, 7/88-6/93
University Research Fellow, University of British Columbia, 7/87-6/88
Acting Assistant Professor, Geophysics Dept., Stanford University, 10/84-6/87

MAIN RESEARCH INTERESTS

Environmental Geophysics: the development and application of geophysical methods (satellite, airborne, land/water-based) for imaging the top ~1 km of Earth, with interests in hydrogeophysics to support groundwater science and management, and in ecosystem protection and restoration.
Founding Director of the [Center for Groundwater Evaluation and Management](#).
Faculty Lead of Stanford research and teaching initiative, [Taking the Pulse of the Planet](#).
Rock Physics: laboratory, theoretical, and field studies to understand the link between the geophysical parameters that we can measure remotely and the material properties and processes of interest.

RECENT SELECTED SIGNIFICANT CONTRIBUTIONS

The Statewide Acquisition of Airborne Electromagnetic Data

With the passage of the Sustainable Groundwater Management Act in California in 2014, it was clear that there was a need for data to support implementation. In 2016 I led the writing of a white paper (Knight, Gosselin, Fogg, Acquisition of airborne electromagnetic data in the groundwater basins of California: Initial assessment of a statewide reconnaissance project) that was submitted to the Governor's Office. It described a vision for the adoption of airborne electromagnetic (AEM) data as foundational to groundwater management in California, laying out a plan for acquiring AEM data along flight lines covering the groundwater basins of the state, imaging to a depth of ~300 m. With an enthusiastic response, and funding from state/local agencies and the Danish EPA, I led a two-year project (2020-2022) to determine the optimal workflow for a state-wide AEM project. The result: the California Department of Water Resources ran a 3-year project, completed in 2025 that acquired a total of 25,000 kilometers of AEM data. I consider my role in making this happen, with the resulting project closely matching our initial whitepaper proposal, to be the greatest contribution of my scientific career. The acquisition of the AEM data is widely recognized as being a game changer in terms of groundwater management in

California, providing a view of the subsurface that far exceeds what had been done, or ever could be done, with well data alone.

Mapping Potential Sites for Managed Aquifer Recharge

With a changing climate and recurring periods of drought, there is growing recognition of the importance of managed aquifer recharge to supplement the natural recharge/replenishment of groundwater aquifers. The simplest form of managed recharge is to direct excess surface water during wet years to locations where it can be spread on the ground surface, with the goal of having the water move rapidly into the subsurface. The challenge: finding locations where the subsurface geology is optimal for the downward flow of water, with coarser grained sediments such as sand and gravel enhancing flow and finer grained sediments such as clay impeding flow. In 2023 we completed the web-based application [fastpath](#) which analyzes airborne and ground-based electromagnetic data to find “fastpaths” for recharge, pathways of coarse sand and gravel connecting the ground surface to greater depths. The design and development of the application built on the computational workflows that had been developed in my research group over the previous ~8 years, and involved interacting with 12 partners in water agencies, non-profits, and the private sector to ensure we built a product that addressed their needs. In addition to the application now being publicly available, we used the application ourselves to transform 20,000 km of AEM data acquired in California’s Central Valley into plan view maps identifying the location of suitable sites for recharge. Our final product has been very well received and is currently being incorporated into various platforms which provide assistance for agencies and landowners in developing managed recharge projects.

HONORS AND AWARDS

- 2026: Open Science Champion Prize (Center for Open and Reproducible Science, Stanford University)
- 2025: Forrest Legacy Award (named in honor of Kim Forrest), River Partners: “We have all been inspired by your commitment to meeting the needs of California’s groundwater basins and wet ecosystems with data that is relevant and helpful.... commitment to both answering urgent needs and empowering new innovators to follow your lead.”
- 2023 American Geophysical Union, Ambassador Award for “cutting edge of research for acquiring, processing, and interpreting near-surface geophysical data as applied to key water-resource problems. Her research has motivated impactful, data-driven approaches to groundwater evaluation and management using advanced and emerging geophysical technologies.”
- 2023: Fellow of the American Geophysical Union
- 2023: Engineering News-Record: 25 Newsmakers of the Year Award for efforts leading to the adoption of geophysics for state-wide groundwater management
- 2021: Maurice Ewing Medal, Society of Exploration Geophysicists: society’s highest honor for distinguished contributions both to the advancement of the science and to the profession.
- 2019: Virtual Near Surface Global Lecturer, Society of Exploration Geophysicists
- 2017: Kevin J. Neese Award, Groundwater Resources Association of California: given to the Center for Groundwater Evaluation and Management in recognition of their groundbreaking research and application of Geophysics to the evaluation and management of groundwater resources: Hydrogeophysics
- 2017: David Keith Todd Distinguished Lecturer, Groundwater Resources Association of California
- 2017: Outstanding Educator Award, Society of Exploration Geophysicists
- 2012: Honorary Life Membership from Near-Surface Geophysics Section of the Society of Exploration Geophysicists for “long-term and tireless support of the near-surface community, as well as outstanding research contributions
- 2009: Life Membership from Society of Exploration Geophysicists “in recognition of having voluntarily rendered exceptionally meritorious service to the Society”

2008: Inaugural holder of the George L. Harrington Endowed Professorship in the School of Earth Sciences, Stanford University

2002: Frank Frischknecht Award in recognition of “long-term, tireless, and enthusiastic support of the near-surface geophysics community”, Society of Exploration Geophysicists, Near-Surface Geophysics Section

1998: Distinguished Lecturer, Society of Exploration Geophysicists: “recognizing an individual's contributions to the science or application of geophysics...effort to promote geophysics” – involved travel throughout the U.S. and Canada to give lectures at 13 sections and universities.

1997: Honorable Mention for Best Paper presented at the 1997 Society of Exploration Geophysicists annual meeting: D. Butler, K.Jarvis and R. Knight, The use of bender elements for measurement of elastic wave velocities in unconsolidated materials; paper presented by D. Butler

1996: Killam Research Prize, University of British Columbia: "This award, a \$10,000 prize, is in recognition of research and scholarly contributions." One award given annually at the assistant or associate professor level in the sciences.

1996: Charles McDowell medal, University of British Columbia: "This award, consisting of a medal, is made to an outstanding young member of the faculty who has demonstrated excellence in pure or applied scientific research and is not more than 12 years from receipt of the Ph.D."

1996: Honorable Mention for Best Paper presented at the 1996 Society of Exploration Geophysicists annual meeting

1994: Distinguished Lecturer, Canadian Geophysical Union: one person selected annually; "a stellar and select group of Canadian geoscientists who are not only outstanding scientists but outstanding communicators of science"

1992: Graduate Studies Teaching Excellence Award: one award given annually at the University of British Columbia for excellence in teaching and/or supervision of graduate students

1991: Best Paper Award, first place, MGLS/KEGS Symposium on Borehole Geophysics for Minerals, Geotechnical and Groundwater Applications, Toronto, Canada.

1991: Distinguished Speaker Award, Society of Professional Well Log Analysts

1990: Best Paper Award, third place, Society of Professional Well Log Analysts

1989: Best Paper Award, second place, Society of Professional Well Log Analysts

1987: Natural Sciences & Engineering Research Council University Research Fellowship

1977-78, 79-83: Natural Sciences & Engineering Research Council post-graduate scholarship

1976-78: Ontario Graduate Scholarship

1976: Gold Medal in Geological Sciences, Queen's University - top of graduating class

SELECTED EXAMPLES OF SERVICE WITHIN THE UNIVERSITY Stanford University 2000-present

Stanford University Capital Planning Committee, (one of two faculty on 12-member committee, advisory to the Provost)

Chair, Department of Geophysics: September 2005-2008, January 2023-August 2025.

Member (elected) Stanford University Faculty Senate: 2002-2006, 2011-13, 2022-2023

Stanford University Budget Group (10-member committee, advisory to the Provost, responsible for decisions on allocation of general funds to university schools and business units, tuition, financial aid packages, faculty and staff salaries and other issues related to financial policy and funds allocations): 2004-2019

Faculty Advisory Committee for the Haas Center for Public Service: 2018 -

Associate Vice-Provost for Graduate Education (20% appointment): 2018-2019

Chair (elected) Stanford University Faculty Senate: 2011-12

University Advisory Board (6-member elected committee responsible for review of all appointment and tenure packages at Stanford): 2015-16

Board of Trustees Lands and Building Committee: 2016-2018

Member, Stanford Undergraduate Advisory Committee (12-member Council, advisory to Vice-Provost for Undergraduate Education): 2012-2015
Faculty Lead (with R. Luthy), Freshwater Initiative, Woods Institute for the Environment, Stanford: 2006-2009
Chair, Senate Committee on Undergraduate Standards and Policy (C-USP): 2004-2006

SELECTED EXAMPLES OF PROFESSIONAL ACTIVITIES/SERVICE OUTSIDE OF UNIVERSITY

Society of Exploration Geophysicists

Member 1987 – present
Second Vice-President, 2001-2002
Vice-President of Near-Surface Geophysics Section, 1994-95
Editorial Board for The Leading Edge, 1996-2000
Guest Editor (with John Lane and Burke Minsley), Special Issue on Hydrogeophysics, The Leading Edge, September 2016 issue.
Chair, Organizing Committee SEG-AGU Research Workshop on Hydrogeophysics, July 2006, Vancouver Canada; July 2011, Boise, Idaho, USA; July 2017, Stanford, California, USA.

American Geophysical Union

Member 1987-present
Founding Member and First Chairperson, Near-Surface Geophysics Focus Group, American Geophysical Union, 2005-2008
Chairperson, Near-Surface Geophysics Focus Group, 2005-2008
Associate Editor, Journal of Geophysical Research Solid Earth, 2016-2018
Associate Editor, Water Resources Research, 2004-2006
Member, American Geophysical Union Future Focus Task Force, 2008-2009
Convenor and Chair Fall Meeting Session on The Use of Geophysical Methods for Groundwater Evaluation and Management, with John Lane, every year 2011-2020

Environmental and Engineering Geophysical Society

Founding member, 1990
Co-chair of Research Committee, 1992-95
Technical Organizing Committee for Symposium on Applications of Geophysics to Environmental and Engineering Problems (annual conference), 1998, 1999.
Conference Steering Committee for Symposium on the Applications of Geophysics to Environmental and Engineering Problems 1993, 1994, 1995, 1998

Other Activities/Service to the Scientific Community

Airborne Electromagnetic Technical Advisory Committee, California Department of Water Resources 2021-2023
Scientific Advisor, HyGEM Project: Integrating geophysics, geology, and hydrology for improved groundwater and environmental management, Aarhus University, 2013 - 2016.
Dept of Energy Earth Sciences Council, 2001-2012; Chair from 2010-2012
Organizing Committee, Workshop on Magnetic Resonance of the Subsurface, Hannover, Germany, Sept. 2012
Director Geophysics Module of the Hydrologic Measurement Facility, NSF-supported Consortium of Universities for the Advancement of Hydrologic Sciences – involved establishing a network of 16 geophysicists offering equipment and expertise to support hydrology research through research partnerships, 2003-2008
SAGE (Summer of Applied Geophysical Experience) Advisory Committee, 2005-2006
Visiting Advisory Committee, Dept. of Geophysics, Colorado School of Mines, 1999-2005

Academic Review Committee, Hydrology and Water Resources, University of Arizona, 2004
 Member, Geophysics Dept. Review Committee, Lawrence Berkeley National Lab, 2004
 National Academy of Sciences Committee on Non-Invasive Characterization of the Shallow Subsurface
 for Environmental and Engineering Applications 1995-99
 Organizing Committee for Gordon Conference: Transport in Permeable Media, August 2000
 Lithoprobe Scientific Advisory Committee 1996-2000

INVITED CONFERENCE AND KEYNOTE PRESENTATIONS

- 2026: Analysis of Geophysical and Satellite Data to Identify Potential Recharge Sites, Biennial Symposium on Managed Aquifer Recharge
- 2025: The Use of Airborne Electromagnetic Data to Inform Sustainable Groundwater Management in California, American Geophysical Union Annual Conference, New Orleans
- 2025: From Airborne Electromagnetic Data, through Field-Scale Rock Physics, to Images of the Groundwater Systems of California's Central Valley, International Meeting for Applied Geophysics and Energy (IMAGE), Houston, Texas
- 2025: Geological Society of America Cordilleran Section: Developing the Computational Workflows Required to Advance the Use of Airborne Electromagnetic Data in Characterizing the Groundwater Systems of California, Sacramento, California
- 2025: Taking the Pulse of the Planet, NVIDIA GTC 2025 (GPU Technology Conference), San Jose, California
- 2024: Advancing the Adoption of Geophysical Methods for Groundwater Management - Moving Knowledge into Action, American Geophysical Union Annual Conference, Washington D.C.
- 2024: Harnessing the Power of Geophysical Imaging to Recharge California's Groundwater, Planning and Conservation League Annual Assembly, Davis, California.
- 2022: Knowledge into Action: Thirty-Five Years of Moving from Science to Solutions, Society of Exploration Geophysicists Annual Convention
- 2022: Harnessing the Power of Geophysical Imaging to Recharge California's Groundwater, International Symposium on Managed Aquifer Recharge
- 2022: Geophysical Imaging of the Subsurface for the Selection of Recharge Sites, California Planning and Conservation League Annual Conference
- 2021: Advancing Earth Imaging for Multi-Scale Groundwater Science and Management, European Association of Geoscientists and Engineers Annual Conference
- 2021: Keynote Speaker: The Groundwater Architecture Project, California-Denmark MoU Water Summit (Signing Event of MoU Between Denmark and California on Water Issues), hosted by the Danish Embassy
- 2021: Keynote Speaker: A Vision for State-Wide Airborne Electromagnetic Imaging of Aquifer Systems, presented at: Future of Water Conference, Groundwater Resources Association
- 2022: Harnessing the Power of Geophysical Imaging to Recharge California's Groundwater, Panel presentation, International Symposium on Managed Aquifer Recharge
- 2020: Keynote Speaker: Mapping the Groundwater Systems of California with Airborne Geophysics, LYCEUM 2020 The Power of Connection - Enabling better decisions about earth, environment, and energy challenges
- 2020: Use of Satellite and Airborne Remote Sensing to Support Sustainable Groundwater Management in California, American Water Works Association
- 2020 Advancing the Use of the Airborne Electromagnetic Method for Groundwater Management in California, Society of Exploration Geophysicists Postconvention Workshop on Applied Geophysics - Addressing the Top Challenges Facing Humanity
- 2019: Keynote Speaker: Advancing the Use of the Airborne Electromagnetic Method for Mapping Groundwater Systems, 6th International Conference - Novel Methods for Subsurface Characterization and Monitoring: From Theory to Practice, Waterloo, Canada May 2019.

- 2019: Near-Surface Geophysics – A Century of Knowledge into Action, American Geophysical Union, San Francisco, CA., December 2019.
- 2019: Advancing the Use of InSAR Data through Integration with Geophysical Data, co-authors: Ryan Smith, Matt Lees, Tom Lauknes, Meredith Goebel, Jared Abraham, Theodore Asch, Jim Cannia, American Geophysical Union, San Francisco, CA., December 2019.
- 2018: Identifying Important Sites for Groundwater Recharge with Geophysical Imaging; *at Land Use/Maximizing Groundwater Recharge Symposium: Defining Strategies to Bring Recharge to Scale*: University of California Agriculture and Natural Resources, Davis, CA, September 2018
- 2018: Geophysical Imaging of Groundwater Systems; Rosenberg International Forum on Water Policy: Sustainable Groundwater Management: the Path Forward, San Jose, CA, USA, Oct 7-10, 2018
- 2018: Keynote Speaker: Hydrogeophysics – Knowledge into Action; Soc. of Exploration Geophysicists Annual Convention, Anaheim, CA, October 2018
- 2018: The Role of Near-Surface Hydrogeophysics in Groundwater Management; Soc. of Exploration Geophysicists Annual Convention, Anaheim, CA, October 2018
- 2018: The Use of Advanced Technologies to Design and Implement Groundwater Policy in California, American Geophysical Union, Washington, D.C., December 2018
- 2017: A Vision for the Acquisition of Airborne Geophysical Data in the Groundwater Basins of California, co-authors: P. Gosselin, G. Fogg; Symposium on the Application of Geophysics to Environmental and Engineering Problems, Denver, Colorado.
- 2016: Rock Physics – Getting What We Want from What We Measure; American Geophysical Union, San Francisco, CA.
- 2015: Stanford Tedx Event: Our Freshwater Future: Advancing Earth Imaging
- 2015: Keynote Speaker: Australian Society of Exploration Geophysicists, Perth Australia, February 2015: Advancing Geophysical Methods for Groundwater Evaluation and Management
- 2015: Keynote Speaker: Measuring K, Monitoring Head: Addressing a Growing Need for Characterization and Monitoring of Groundwater Aquifers, Novel Methods for Subsurface Characterization and Monitoring, Lawrence Kansas, 2015 6th International Conference
- 2015: American Geophysical Union: A Remote Sensing Based Decision-Support System for Groundwater Management, San Francisco, CA.
- 2014: American Geophysical Union: Electrical Resistivity Imaging of Saltwater and Freshwater Along the Coast of Monterey Bay
- 2012: Society of Exploration Geophysicists Annual Convention: The Center for Groundwater Evaluation and Management: Developing Partnerships
- 2011: Society of Exploration Geophysicists Annual Convention: Nuclear Magnetic Resonance: From Pore-Scale Physics to Field-Scale Hydrogeophysics
- 2011: American Geophysical Union: The Sensitivity of Dielectric and NMR Measurements to Sorption at the Solid/Water Interface
- 2009: American Geophysical Union Joint Assembly: The Use of Geophysical Methods to Characterize Hydrogeologic Systems Across Multiple Scales
- 2009 Invited Presentation & Panel Discussion: Society of Exploration Geophysicists SEG Forum Managing Our Groundwater Resources
- 2008 American Association for the Advancement of Science, Boston, MA: I-Earth – Introduction to Planet Earth
- 2007 Keynote Speaker: The Geological Society of London, Bicentennial Conference, London, England, 10-12 September 2007: The Development of Geophysical Methods for Hydrogeologic Applications
- 2007 Workshop on Three-dimensional Geologic Mapping for Groundwater Applications, Geological Society of America Annual Meeting, Denver, Colorado: The Use of Ground-Penetrating Radar Data in the Development of Facies-Based Hydrogeologic Models.
- 2007 Geological Society of America Annual Meeting: Integration of Remote Sensing, Hydrologic, and Geophysical Data to Determine the Time-Varying Behavior of a Hydrogeologic System

- 2006 American Geophysical Union Meeting: The Support Volume of Geophysical Measurement: How and Why to Define It
- 2006 American Geophysical Union Meeting Union session: Near-Surface Geophysics: Advancing Earth Science Through Advances in Imaging
- 2006 Geological Society of America Annual Meeting: Characterizing Hydrogeologic Heterogeneity Using Geophysical Methods: From Laboratory-Scale Observations to Field-Scale Applications
- 2006 National Ground Water Assoc. Ground Water Expo, Las Vegas NV, Dec 5-8, 2006: Hydrogeophysics Overview: The Use of Geophysics in Groundwater Evaluation and Management.
- 2005 American Geophysical Union Meeting: An Emerging Role for Geophysics in Watershed Hydrologic investigations
- 2003 Plenary Speaker: Inland Northwest Research Alliance Subsurface Science Symposium, Salt Lake City, Utah (plenary speaker): Geophysical Images of the Near-Surface – What are We Really Seeing?
- 2002 Keynote Speaker: Inland Northwest Research Alliance Subsurface Science Symposium, Boise Idaho: From the Laboratory to the Field: Spatial Heterogeneity in Geophysical Data
- 2001 American Geophysical Union Meeting: The Use of Ground Penetrating Radar Data for the Development of Hydrogeologic Models
- 2000 Workshop on Subsurface Flow and Transport Phenomena; Technical University of Delft; Delft Holland 25-27 October 2000 The use of ground penetrating radar data to quantify the scale-dependent spatial heterogeneity of the subsurface.
- 1998 Gordon Conference on Modeling of Flow in Permeable Media; August 1998, New Hampshire.
- 1995 Keynote Speaker: Canadian Geotechnical Society 48th Conference, Vancouver: An Assessment of Geophysical Techniques for the Direct Detection of Groundwater Contaminants: A Rock Physics Perspective
- 1995 Keynote Speaker: BHP Workshop on Women in Science, Tucson, Arizona
- 1995 NSERC-sponsored Canada-Mexico Workshop on the Applications of the Physics of Porous Media, Puerto Vallarta, Mexico: Elastic Wave Velocities and Fluid Distribution: at the Laboratory and Reservoir Scale
- 1993 Institute of Industrial Mathematical Sciences Conference on Porous Media and the Environment, Winnipeg Manitoba: The Link Between Geophysical Data and Pore-Scale Fluid Distribution
- 1988 Society of Professional Well Log Analysts Conference on Electrical Properties, Kerrville Texas.

GRADUATE STUDENTS ADVISED (total graduated=41)

MS STUDENTS total number graduated =17 graduated (2 repeated under PhD), 2 current

- Alice Chapman (1992) The Characterization of Porous Rocks with Nuclear Magnetic Resonance and the Confocal Scanning Laser Microscope, Univ. of British Columbia M.Sc. advisee (now Shell Canada)
- Paulette Tercier (1992) Electrical Resistivity of Partially Saturated Sandstones, Univ. of British Columbia M.Sc. advisee (now retired)
- Kevin Jarvis (1994) The Application of Piezoceramic Bender Elements to the Laboratory Measurements of Elastic Wave Velocities, Univ. of British Columbia M.Sc. advisee (now Senior Geophysicist, Chevron)
- Dave Goertz (1994) An Experimental Study of the Effects of Partial Saturation on Elastic Wave Velocities, Univ. of British Columbia M.Sc. advisee
- Bill Kanters (1996) Investigating the Dependence of Proton T1 Relaxation on Pore Size, Pore Fluid Salinity, and Pore Fluid pH in Water-Wet and Oil-Wet Sand Packs, Univ. of British Columbia M.Sc. advisee
- Pnina Miller (withdrew after 1 year)
- Mike Caputi, (1997) NMR T1 Relaxation Mechanisms, Univ. of British Columbia M.Sc. advisee (now Shell International)

Camille Li (1998) The Effect of Surface Wettability on the Dielectric Properties of Contaminated Sands, Univ. of British Columbia M.Sc. advisee (now Geophysical Institute, University of Bergen)

Richard Taylor (1999) Modelling Elastic Wave Velocities in Porous Media: Frequency-Dependent Effects of Heterogeneity at the Pore- and Patch-Scale, Univ. of British Columbia M.Sc. advisee (now Assoc. Professor, Thompson Rivers University)

James Irving (2000) Estimation and Correction of Wavelet Dispersion in GPR Data, Univ. of British Columbia M.Sc. advisee (now Senior Lecturer, University of Lausanne)

Parisa Jourabchi (2001) A Theoretical Model of NMR Surface Relaxation in Porous Media, Univ. of British Columbia M.Sc. advisee (Environmental Scientist, Golder Associates Canada)

Christian Scullard (withdrew after 1 year)

Christina Trotter (2001) Predicting the Surface Area to Volume Ratio of Pores in Iron-Rick Sediments from Nuclear Magnetic Resonance Data, Univ. of British Columbia M.Sc. advisee (now, Aqua Terre Solutions Inc.)

Jeetu Gulati (2006) Stanford Univ. M.S. advisee (now Western Geophysical)

Whitney Trainor (2010) Stanford Univ. M.S. advisee (now faculty member, Colorado School of Mines)

Michael Morphew – M.S. (2023)

Javier Peralta - M.S. (2023)

Sylvia Wang – 2024 to present

Felix Schwer – 2025 to present

PhD STUDENTS total number graduated= 24, 3 current

Tony Endres (1991) A Theoretical Treatment of Microscopic Phenomena in Porous Rocks, Univ. of British Columbia Ph.D. advisee (now Assoc. Professor, University of Waterloo)

Dave Butler (1995) Effects of Steam Injection on Electrical Conductivity, Univ. of British Columbia Ph.D. advisee, (now Geophysicist, TOTAL France))

Mike Knoll (1996) Petrophysical Basis for GPR and VETEM, Univ. of British Columbia Ph.D. advisee

Jane Rea (1996) Ground Penetrating Radar Applications in Hydrology, Univ. of British Columbia Ph.D. advisee (now Senior Geophysicist, DMT Geosciences Limited),)

Christina Chan (1999) Dielectric Properties of Layered Media, Univ. of British Columbia Ph.D. advisee, (now Director Univ. of Houston Alliance for Graduate Education and the Professoriate)

Kevin Jarvis (2001) The Application of Seismic Techniques to Hydrogeologic Investigations, Univ. of British Columbia Ph.D. advisee (now Senior Geophysicist, Chevron)

Steve Moysey (2005) A Quantitative Investigation of the Use of Ground-Penetrating Radar In Hydrogeology, Stanford Univ. Ph.D. advisee (now Professor, East Carolina University)

James Irving (2006) Improving Tomographic Estimates of Subsurface Electromagnetic Wave Velocity Obtained from Ground-Penetrating Radar Data, Stanford Univ. Ph.D. advisee (now Senior Lecturer, University of Lausanne)

Adam Pidlisecky (2006) Cone-Based Electrical Resistivity Tomography, Stanford Univ. Ph.D. advisee (now Professor, University of Calgary)

Kristina Keating (2009) Monitoring Iron Mineralization Processes Using Nuclear Magnetic Resonance, Stanford Univ. Ph.D. advisee (now Associate Professor, Rutgers University)

Vanessa Mitchell (2010): Informed Electrical Resistivity Imaging for Monitoring Infiltration Dynamics in the Near Surface, Stanford Univ. Ph.D. advisee (now Senior Geoscientist, ExxonMobil Upstream Research Company)

Elliot Grunewald (2010) – Elliot Grunewald: Characterization of Near-Surface Nuclear Magnetic Resonance Relaxation Measurements for Hydrogeologic Applications, Stanford Univ. Ph.D. advisee (now Vista Clara, Inc.)

Jessica Reeves (2012) Using Interferometric Synthetic Aperture Radar Data to Improve Estimates of Hydraulic Head in the San Luis Valley, Colorado, Stanford Univ. Ph.D. advisee (now 3vGeomatics)

Katherine Dlubac (2013): The Relationship Between NMR Relaxation and Permeability in Near-Surface Unconsolidated Materials, Stanford Univ. Ph.D. advisee (now California Department of Water Resources)

Denys Grombacher (2014): Characterization and Mitigation of Off Resonance Effects in Surface NMR, Stanford Univ. Ph.D. advisee (now Assistant Professor, Univ. of Aarhus, Denmark)

Emily Fay (2016): Nuclear magnetic resonance diffusion measurements for characterization of the near surface, Stanford Univ. Ph.D. advisee

Ryan Smith (2018): The Relationship of Surface Deformation to Groundwater Storage and Quality in the San Joaquin Valley, California, Stanford Univ. Ph.D. advisee (now Assistant Professor, Missouri University of Science and Technology)

Meredith Goebel (2019): Geophysical Imaging of Saltwater Intrusion, Stanford Univ. Ph.D. advisee (now Research Scientist, Stanford University)

Ian Gottschalk (2020): Hydrogeophysical Modeling of Saltwater Intrusion (now employed at AECOM)

Alex Kendrick (2021): Investigating the Use of NMR to Estimate Hydraulic Conductivity in Near-Surface Materials

Noah Dewar (2021): The Retrieval of Sediment Type from Airborne Electromagnetic Data in the Central Valley of California

Aakash Ahamed (2022): Advancing the Use of Remote Sensing Data and Models to Understand Hydrologic Processes in California

Matthew Lees (2023): Advancing the Use of InSAR Measurements for Groundwater Management and Science in California's San Joaquin Valley

Becca Prentice 2022- present

Jonny Mells, 2023 - present

Rishudh Thakur 2023 - present

POST-DOCTORAL FELLOWS and RESEARCH ASSOCIATES/STAFF ADVISED (total= 27)

Paulette Tercier, Research Scientist, 1992-2000 (retired)

David Butler, Postdoctoral Fellow, 1995-1997 (now with TOTAL France)

Traci Bryar, Research Associate, 1998-2002

Chris Daughney, Postdoctoral Fellow, 1998-2000 (now with New Zealand Geological Survey)

David Robinson, Research Associate, 2005-2008 (now at UK Center for Ecology and Hydrology)

Adam Pidlisecky, Research Associate, 2007-2008 (now Professor University of Calgary)

Vanessa Mitchell, Postdoctoral Fellow, 2010-2011 (now with Exxon Mobil, Houston)

Elliot Grunewald, Postdoctoral Fellow, 2010-2011 (now with Vista Clara, Inc.)

Nick Odlam, Research Scientist, 2010-2013 (now with Geometrics)

Jan Walbrecker, Postdoctoral Fellow, 2011-2013 (now with SmartCAE, Munich, Germany)

Andrew Parsekian, Postdoctoral Fellow, 2011- 2013 (now Associate Professor, Univ. Wyoming)

Lin Lui, Postdoctoral Fellow, 2011- 2014 (co-advised with H. Zebker) (now Associate Professor, The Chinese University of Hong Kong)

Tara Moran, 2013-2014

David Cameron, Postdoctoral Fellow, 2013-2014

Jessica Reeves, Postdoctoral Fellow, 2012-2013 (now 3vGeomatics)

Matias Nordin Wallenberg Post-Doctoral Fellowship, Sept 2014- June 2016 (now Post-Doctoral Fellow, Chalmers University of Technology, Sweden)

Jingyi Chen Postdoctoral Fellow, 2014-Dec 2016 (now Asst. Professor, University of Texas, Austin)

Ahmad Ali Behroozmand Postdoctoral Fellow, 2014-2017, Research Scientist, 2017-2018 (now Geophysical Imaging Partners)

Jesse Crews, Research Scientist, 2014-2017 (now Weiss Associates)

Hossein Hashemi, Postdoctoral Fellow, Swedish Research Institute Award, April 2015 – June 2017 (now Assistant Professor Lund University, Sweden)

Klara Steklova, Postdoctoral Fellow, February 2020 – March 2021, now Research Scientist, Material Physics, Australia National University
Gordon Osterman, August 2019-Dec 2022, now Research Scientist, U.S. Dept of Agriculture
Sarfaraz Alam, Postdoctoral Fellow, July 2021- July 2023, co-advised with Jenny Sukale and Dan Ho
Wes Neeley, Postdoctoral Fellow, Oct 2021-May 2024
Seogi Kang, Postdoctoral Fellow Jan 2019 – September 2023; Research Scientist September 2023 – December 2024 (now Assistant Professor, University of Manitoba)
Joe Janssen, Thompson post-doctoral fellow, co-advised with Ching-Yao Lai – Sept 2025 to
Meredith Goebel, Postdoctoral Fellow July 2019 – June 2022; Research Scientist June 2022-continuing

OUTREACH/ENGAGEMENT, INCLUDING MEDIA COVERAGE

Three websites displaying research activities:

Taking the Pulse of the Watershed

<https://takingthepulseoftheplanet.stanford.edu/focus-areas/freshwater/taking-pulse-watershed>

The Center for Groundwater Evaluation and Management <https://gemcenter.stanford.edu/>

The Groundwater Architecture Project <https://mapwater.stanford.edu/>

Film

An appearance in an upcoming film by Michael Nash: Chasing Truth, a collaboration with the actor Leonardo DiCaprio and his father, George DiCaprio, who are executive producers. It is expected to be released in 2026.

Television

[Stanford researchers launch ambitious plan to map and track water: Here's how,](#)

ABC News, June 2026

[New high-tech maps developed by Stanford could fast track groundwater recharge: Here's how it works,](#)

ABC News, June 2025

[Stanford researchers use airborne technology to spot groundwater recharge sites,](#)

ABC News, November 2022

[How CA's ancient hidden waterways could be key to recharging state's depleted groundwater,](#)

ABC News, June 2022

[Stanford study measures solution for sinking California, finds it may take more to reverse damage,](#)

ABC News, June 2022

[Spaceship-sized detection system could help determine future of CA water supply, where to store it](#)

ABC News, Jan 2022

Print (and online available)

[South Africa's Coast is Rising – And Scientists Have a New Explanation Why,](#) Scientific American,

October 2025

[Science Magazine: Research using geophysical methods to map California's aquifers is highlighted.](#)

April 16, 2020

Online

[Advancing Innovative Groundwater Research with Stanford Scientists](#): Cutting-Edge Technology Identifies Role River Restoration Plays in Boosting Underground Water Storage in Central Valley, River Partners News, January 2025

[Scientists discover millions of acres of the Central Valley may be suitable for recharging groundwater](#), Stanford Report, April 2025

[Finding the Best Places to Recharge Groundwater in California](#), Public Policy Institute of California, April 22, 2025

[How California Farmers Can Recharge the Aquifers They've Drained: Agriculture requires a lot of water](#). In the drought-stricken Central Valley, researchers have found a win-win for growers, Grist (independent, non-profit media focused on Climate. Justice. Solutions.), May 2025

[Coming Into Focus: Results from Revolutionary Groundwater Science](#): Stanford scientists share preliminary findings from last year's cutting-edge Central Valley groundwater research, River Partners News, June 2025

[University researchers team up with nonprofit to make the most of groundwater recharge](#), The Bakersfield Californian, August 2025

With four links to the above articles in [Maven's Notebook](#) – considered the go-to place for California Water News

Other Presentations Related to Outreach

October 2019: Presentation “Finding Water for 10 Billion”, as part of Climate Solutions event hosted by Stanford University https://www.youtube.com/watch?v=iy2LE_G7L3w

June 2018: “Stanford researchers find pumping can increase arsenic levels in irrigation and drinking water” <https://news.stanford.edu/2018/06/05/overpumping-groundwater-increases-contamination-risk/>

February 2018: Presentation “Geophysical Imaging Case Studies” to Assoc. of California Water Agencies, Groundwater Committee.

October 2017: Presentation to the South Valley SGMA Practitioners Round Table III: Introduction to the use of the AEM method for groundwater mapping

2016: Presentation to Soquel Creek Water Management District: Geophysical Imaging of Saltwater Intrusion Along the Monterey Coast

November 2016: Presentation at Hopkins Marine Station sponsored by Friends of Hopkins: “Geophysical Imaging of Saltwater Intrusion Along the Monterey Coast”

November 2016: Presentation to Marina Coast Water District to explain results of electrical resistivity imaging of saltwater intrusion along the Monterey coast

November 2016: Mercury News coverage of Saltwater Intrusion work: “Stanford takes a crack at studying Central Coast aquifer seawater intrusion”
<http://www.mercurynews.com/2016/11/03/stanford-takes-crack-at-studying-central-coast-aquifer-seawater-intrusion>
<http://www.santacruzsentinel.com/environment-and-nature/20161102/stanford-takes-crack-at-studying-central-coast-aquifer-seawater-intrusion>

October 2016: Participation in School of Earth, Energy & Environmental Sciences Earth Matters Event, Los Angeles, CA: Presentation “Our Freshwater Future - Advancing the Use of New Technologies”.

October 5, 2016: Introduction to the AEM method for mapping groundwater systems, San Luis Obispo County; morning - public presentation, afternoon – presentation to Water Resources Advisory Committee.

September 2016: Presenter and Panelist in: California Groundwater Briefing - Findings and Implications for the Future of California's Water, organized by Woods Inst. for the Environment, Sacramento, CA

April 20, 2016: Introduction to the use of AEM for mapping of groundwater systems, Northern Sacramento Valley (counties of Butte, Colusa, Glenn, Shasta, Sutter and Tehama) IRWM Technical Advisory Committee Meeting, open to the public.

Spring 2016: Participation in video developed by Marina Coast Water District to explain saltwater intrusion along Monterey coast (interview at ~4 min): <http://www.mcwd.org/>

November 2016: Coverage of electrical resistivity imaging to study saltwater intrusion along Monterey coast.
<http://www.santacruzsentinel.com/environment-and-nature/20161102/stanford-takes-crack-at-studying-central-coast-aquifer-seawater-intrusion>

October 2015: Coverage of AEM survey in Tulare Irrigation District – “Stanford projects maps underground water”
<https://www.mercurynews.com/2015/10/29/stanford-project-maps-underground-water-aimed-at-taking-the-guesswork-out-of-well-drilling/>

May 2015: WIRED: “How satellites can monitor California’s underground water”
<https://www.wired.com/2015/05/groundwater-insar/>

May 2015: Grist: “These satellites are keeping an eye on California’s underground water.”
<https://grist.org/news/these-satellites-are-keeping-an-eye-on-californias-underground-water/>

2015: Imaging Saltwater Intrusion Along the Monterey Coast, R. Knight and A. Pidlisecky, Special Public Event Sponsored by the Friends of Hopkins, Hopkins Marine Station, May 26

2015: Stanford Connects, Stanford Alumni Assoc.: 9-minute talk and participation in panel presentation to ~500 Stanford alumni in Sacramento, CA

2015: Stanford Tedx Event: Our Freshwater Future: Advancing Earth Imaging, 14 minute presentation
<https://www.youtube.com/watch?v=AFO77hDGBII&t=11s>

November 2014: Sensory Earth segment:
<https://earth.stanford.edu/news/sensory-earth-seeing-groundwater-space>
 The project was also featured on the pop-sci website iO9 (<http://io9.com/why-geoscientists-use-spaceships-to-measure-underground-1662459058>)

October 2014 “Researcher probes saltwater intrusion into Calif.’s coastal groundwater supplies”
 Environment & Energy Publishing, a trade publication aimed at policymakers,
<https://www.eenews.net/climatewire/stories/1060007773>

October 2014: Stanford University homepage featured video: “Stanford geophysicist measures saltwater intrusion into underground freshwater” <https://www.youtube.com/watch?v=ln72W00QlbU>

October 9, 2014: High School Presentation: Monterey Bay Academy, Watsonville, CA Earth Sciences and Physics classes, October 9, 2014. Introducing students to the use of geophysical methods to study saltwater intrusion along the Monterey coast.

October 8, 2014: Meeting with groundwater managers from Monterey region, Hopkins Marine Station, Monterey CA. Presentation describing the use of electrical resistivity tomography to image the distribution of saltwater and freshwater along a 40 km stretch of the Monterey coast.

October 2014: Santa Cruz Sentinel: “Ground-breaking survey maps saltwater intrusion”
<https://www.santacruzsentinel.com/2014/10/23/ground-breaking-survey-maps-coastal-saltwater-intrusion/>

October 8, 2014: Public Lecture, Hopkins Marine Station, Monterey CA: Monterey CA – evening talk to ~100 members of the public about geophysical imaging related to saltwater intrusion along the Monterey coastline

March 15, 2014: Stanford Connects, Stanford Alumni Assoc.: 12-minute talk and two seminars to ~350 Stanford alumni in Monterey, CA

REFEREED JOURNAL PUBLICATIONS

(* indicates student advisee, **advised post-doctoral fellow or research scientist at time of submission, authors in order of contribution with senior author typically following advisees)

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