

Curriculum Vitae: Anne S. Meltzer

*Department of Earth & Environmental Sciences
Lehigh University
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610-758-3673*

EDUCATION:

- Ph.D. 1989, Geology and Geophysics, Rice University, Houston, Texas.
Thesis title: Crustal structure and tectonic evolution: Central California
- M.S. 1982, Geology, University of North Carolina - Chapel Hill, N.C.
Thesis title: Scattering of earthquake waves beneath SCARLET, Southern California
- B.S. 1980, Geology, Guilford College, Greensboro, N.C.

PROFESSIONAL EXPERIENCE:

- 2002-pres. Chair, Earth & Environmental Sciences, Lehigh University, Bethlehem, PA
- 2001-pres. Professor, Earth & Environmental Sciences, Lehigh University, Bethlehem, PA
- 1999-2002. Director LEO (Lehigh Earth Observatory)
- 1995-2001 Associate Professor, Earth & Environmental Sciences, Lehigh University, Bethlehem, PA
- 1990-1995 Assistant Professor, Earth & Environmental Sciences, Lehigh University, Bethlehem, PA
- 1989-1990 Sr. Research Geologist, Exxon Production Research Co., Houston, TX.
- 1988-1989 Research Associate, Rice University, Houston, TX.
- 1982-1985 Geophysicist, Gulf Research and Development Company, Houston, TX.

FELLOWSHIPS AND AWARDS:

- Week's Visiting Professorship in Geology and Geophysics. University of Wisconsin-Madison
- Lehigh University: Class of '61 Professorship
- Rice University: Keck Fellowship, Leroy Caleb Gibbon Award in Geology, Outstanding Student Award - Houston Geologic Society.
- UNC-CH: Graduate Fellowship, McCarthy Fellowship for summer study in Geophysics.
- Guilford College: Dana Scholarship, Guilford Honor Society, graduated with High Honors and Departmental Honors.

RESEARCH INTERESTS:

- Physical properties and seismic response
- High-resolution seismic imaging
- Tectonic evolution of convergent margin systems
- Feedback between tectonics and surficial processes

PROFESSIONAL SOCIETIES:

- American Geophysical Union
- Geological Society of America
- Society of Exploration Geophysicists
- Seismological Society of America

SIGNIFICANT FIELD EXPERIENCE:

- 1983 Wide-angle sonobuoy profiling offshore Southern CA: experiment design, data acquisition, and analysis.
- 1984 Wide-angle sonobuoy profiling offshore Central and Northern CA: experiment design, data acquisition, and analysis.
- 1986 Marine multichannel reflection profiling offshore Central CA: experiment design, data acquisition, and analysis.

- 1991 Wide-angle field experiment, Savannah River, South Carolina: SGR preparation deployment, and recovery.
- 1991 Multichannel high-resolution reflection profiling and VSP profiling, Newark Rift Basin.
- 1992 Multichannel high-resolution refraction and reflection profiling, Pocono Lakes PA.
- 1993 Multichannel high-resolution refraction and reflection profiling, Puerto Rico.
- 1993 Wide-angle field experiment, Mendocino Triple Junction, California: IRIS REFTEK preparation deployment, and recovery.
- 1994 Marine multichannel reflection profiling offshore Northern CA: experiment design, data acquisition, and analysis.
- 1995 Multichannel high-resolution seismic reflection and ground penetrating radar profiling, Puerto Rico.
- 1995-6 Nanga Parbat - Pakistan. Deployment of 60 broadband and short period seismic stations to record local and regional earthquakes at the Nanga Parbat massif
- 1996-7 GPR Profiling, shallow lake sediments, NE PA.
- 2002 High Resolution Reflection Profiling, InterAndean Valley Ecuador
- 2002 Namche Barwa Tibet Pilot Project
- 2003-4 Namche Barwa Seismic Experiment - Deployment of 70 broadband and short period seismic stations to record local and regional earthquakes in Eastern Tibet

PUBLICATIONS: Articles and Reports, n=38; Abstracts and Conference Proceedings, n=79

Papers Published in Professional Journals: n=25

- Meltzer, A.S., 2003. EarthScope: Opportunities and challenges for earth-science research and education, *The Leading Edge*, 22, 268-271.
- Gulick, S. P. S., A. S. Meltzer, S.H. Clarke, 2002. Effect of the northward-migrating Mendocino Triple Junction on the Eel River forearc basin, California: Structural Evolution,, *GSA Bulletin*, 114, 1505-1519.
- Gulick, S. P. S., A. S. Meltzer, S.H. Clarke, 2002. Effect of the northward-migrating Mendocino Triple Junction on the Eel River forearc basin, California: Part 1. Stratigraphic Development, *GSA Bulletin*. 114,178-191.
- Koons, P.O., Chamberlain, C.P., Zeitler, P.K., Craw, D., Meltzer, A.S., Park, S., 2002, Crustal Reworking at Nanga Parbat: Mechanical Links Between River Erosion and Metamorphism, *American Journal of Science*, 302, 749-773.
- Chamberlain, C.P., Koons, P.O., Meltzer, A.S., Park, S.K., Draw, D., Zeitler, P., Poage, M.A., 2002, Overview of hydrothermal activity associated with active orogenesis and metamorphism: Nanga Parbat, Pakistan Himalaya, *American Journal of Science*, 302, 726-748.
- Meltzer, A.S., Sarker, G.L., Seeber, L., Armbruster, B., Beaudoin, B., 2001, Seismic characterization of an Active Metamorphic Massif, Nanga Parbat, Pakistan, Himalaya, *Geology*, 29, 651-654.
- Meltzer, A.S., Christensen, N.I., Long, C., 2001, Crustal Anisotropy: Implications for crustal velocity structure and shear-wave splitting, *GRL*, 28, 2129-2132.
- Gulick, S. P. S., A. S. Meltzer, T. Henstock, A. Levander, 2001, Internal deformation of the southern Gorda plate: Fragmentation of a weak plate near the Mendocino triple junction, *Geology*, 29, 691-694.
- Zeitler, P. K., P. O. Koons, M. Bishop, C. P. Chamberlain, D. Craw, M. Edwards, S. Hamidullah, M. Q. Jan, M. A. Khan, M. U. K. Khattak, W. Kidd, R. Mackie, A. Meltzer, S. Park, A. Pecher, M. Poage, G. Sarker, D. Schneider, L. Seeber, J. Shroder, 2001, "Crustal Reworking at Nanga Parbat, Pakistan: Evidence for erosional focusing of crustal strain.", *Tectonics*, 20, 712-728.
- Zeitler, P. K., A. S. Meltzer, P. Koons, D. Craw, B. Hallet, C. P. Chamberlain, W. Kidd, S. Park, L. Seeber, M. Bishop, J. Shroder, 2001, Erosion, Himalayan Geodynamics, and the

- Geology of Metamorphism.,GSA Today, 11, 4-8.
- Meltzer, Anne Roberta Rudnick , Peter Zeitler, Alan Levander, Gene Humphreys, Karl Karlstrom, Göran Ekström, Rick Carlson, Tim Dixon, Michael Gurnis, Peter Shearer, Rob van der Hilst, 1999, The USArray Initiative, GSA Today, 9, 8-10.
- Levander, A., Humphreys, E.D., Ekstrom, E., Meltzer, A.S., Shearer, P.M., 1999, Proposed project would give unprecedented look under North America, EOS, 80, 245, 250-251.
- Miller, K.C., and A.S. Meltzer, 1999, Structure and Tectonics of the Central Offshore Santa Maria and Santa Lucia Basins, California: Results from the PG&E/EDGE Seismic Reflection Survey, US Geological Survey: Z1-Z12.
- Gulick, P.S., Meltzer, Anne S., Clarke, S.H., 1998, Seismic Structure of the Southern Cascadia Subduction Zone and Accretionary Prism North of the Mendocino Triple Junction, Journal of Geophysical Research, 103, 27207-27222.
- Godfry, N.J., Meltzer, A.S., Klemperer, S.L., Trehu, A., Leitner, B., Clarke, S.H., Ondrus, A., 1998, Evolution of the Gorda Escarpment, San Andreas fault and Mendocino triple junction from multichannel seismic data collected across the northern Vizcaino block, offshore northern California, Journal of Geophysical Research, 103, 23813-23825.
- Levander, A., Henstock, T., Meltzer, A., Beaudoin, B., Trehu, A., Klemperer, S., Lendl, C., 1998, Fluids in the lower crust following Mendocino triple junction migration: Active basaltic intrusion?, Geology, 26, 171-174.
- Godfry, N.J., Beaudoin, B.C., Klemperer, S.L., Levander, A.R., Luetgert, J.H., Meltzer, A.S., Mooney, W.D., Trehu, A.M., 1997, Ophiolitic basement to the Great Valley forearc basin, California, from seismic and gravity data; implications for crustal growth at the North American continental margin, GSA Bulletin, 109, 1536-1562.
- Beaudoin, B.C., Godfry, N., Klemperer, S., Lendl, C., Trehu, A., Henstock, T., Levander, A., Holl, J., Meltzer, A., Luetgert, J.H., Mooney, W.D., 1996, The transition from slab to slabless: results from the 1993 Mendocino Triple Junction Seismic Experiment., Geology, 24, 195-199.
- Godfry, N., Beaudoin, B., Lendl, C., Meltzer, A., Luetgert, J., 1995, Data Report for the 1993 Mendocino Triple Junction Seismic Experiment, USGS Open-File Rept., 95-275, p.83.
- Henrys, S.A., Levander, A.R., and A.S. Meltzer, 1993, Crustal structure of the offshore southern Santa Maria Basin and Transverse Ranges, Southern California, from deep seismic reflection data, Journal of Geophysical Research, 98, 8335-8348.
- Meltzer, A.S., and A. R. Levander, 1991, Deep Crustal Reflection Profiling Offshore Southern Central California, Journal of Geophysical Research, v. 96, p. 6475-6491.
- McIntosh, K.D., Reed, D.L., Silver, E.A., and Meltzer, A.S., 1991, Deep structure and basin inversion along the central California continental margin from the EDGE seismic profile RU-3, Journal of Geophysical Research, v. 96, p. 6492-6491.
- Meltzer, A.S., A.R. Levander and W. D. Mooney, 1987, Upper Crustal Structure, Livermore Valley, California , Bulletin of the Seismological Society of America, v. 77, #5, p 1655-1673.
- R.M. Kieckhefer, Russell, B.J., and A.S. Meltzer, 1987, The development of seismic-refraction techniques in the southern California borderland, in: Marine Geophysics: a Navy Symposium, Shor, E.N. and Ebrahimi, C.L. (eds.), Marine Physical Laboratory Rept. MPL-U-42/87, p. 43-51.
- Powell, C. A. and A. S. Meltzer, 1984, Scattering of P- waves beneath SCARLET in Southern California, Geophysical Research Letters, vol. 11 No. 5, p. 481-484.

Professional Papers/Publications:n=4

- EarthScope Workshop Organizing Committee (Carlson, R., Ellsworth, W., Freymueller, J., Henyey, T., Herring, T., Meltzer, A., Parrish, J., Simons, M., van der Hilst, R., McRaney, J.), EarthScope, Scientific Targets for the World's Largest Observatory Pointed at the Solid Earth, Workshop Report, submitted to NSF EAR Geoscience Division. 56 p. (Meltzer text contributor, report editor along with Rick Carlson).
- The EarthScope Working Group (Henyey, T., Herring, T., Hickman S., Jordan, T., McRaney, J., Meltzer, A., Minster, J., Nielson, D., Rosen, P., Silver, P., Simons, M., Simpson, D., Smith, R.,

Thatcher, W., Zoback, M.) 2000, EarthScope: A New View into the Earth, the EarthScope Project Plan, 2000, EarthScope Project Plan submitted to NSF EAR Geoscience Division. 36 p. (Meltzer Co-Wrote Project Plan w. EarthScope Working Group Chair, Tom Henyey).

Romig, P. R., M. Baltuck, D. Butler, S. Danbom, W. Ghiorse, J. Herman, R. Knight, A. Meltzer, J. Mercer, J. Mitchell, F. D. Morgan, G. Olhoeft, K. Pruess, B. Spies, D. Steeples, B. Sternberg, K. Watson. (2000). Seeing into the Earth: Noninvasive Characterization of the Shallow Subsurface for Environmental and Engineering Applications. Washington D.C., National Research Council: 129.

Meltzer, Anne, Roberta Rudnick, Peter Zeitler, Alan Levander, Gene Humphreys, Karl Karlstrom, Göran Ekström, Rick Carlson, Tim Dixon, Michael Gurnis, Peter Shearer, Rob van der Hilst, 1999, USArray: A synoptic investigation of the structure, dynamics, and evolution of the North American continent, White paper submitted to NSF EAR Geoscience Division. 65 p.

Articles: n=3

Meltzer, A., Beaudoin, B., Zeitler, P., Schoemann, M., Seeber, L., Armbruster, 1997, A., A Short Walk up a Naked Mountain, IRIS Newsletter, Vol. XVI, #1, p.1-5.

Meltzer, A., and Fowler, J., 1997, Use of PASSCAL Instruments and Data Delivery Policy, IRIS Newsletter, Vol. XVI, #2, p.10.

Meltzer, A., Databases in the Field: A Broader Perspective, 1997, IRIS Newsletter, Vol. XVI, #2, p.11-14.

Unpublished Technical Memorandum (Gulf Research and Development Company, Exxon Production Research):n=6

Meltzer, A. S., 1989, Fault Study - Natuna Island Platform, Indonesia.

Fagin, S.W., and A.S. Meltzer, 1989, Structural Analysis of Block IV, Cormorant Field, North Sea.

Meltzer, A.S., R.M. Kieckhefer, and C.P. Yanchak, 1985, Refraction surveys offshore Northern and Central California: data acquisition, analysis, and interpretation.

Russell, B.J., A.S. Meltzer, R.M. Kieckhefer, A.R. Levander, and J.I. Ewing, 1984, Refraction surveys in the Santa Cruz Basin and Patton Ridge: California Borderlands.

Schweller, W.J., Meltzer, A.S., and Collins, B.C., 1984, Seismic stratigraphy of the Santa Cruz Basin, California Borderland.

Russell, B.J., and A.S. Meltzer, 1984, Paleogeographic reconstructions of the California Continental Margin: Part I.

Sanislo, R.B., J.S. Kotcher, and A.S. Meltzer, 1983, Seismic Inversion Interpretation in St. George Basin, Bering Sea.

Publications Submitted:

Dalton, T. D., A. S. Meltzer, B. Carson, S. Fritz, J. Faberman, R. Moeller (in revision). "Late Pleistocene-Holocene lake history based on integrated sedimentological and ground penetrating radar investigations." Paleolimnology.

Sarker, G. and A. S. Meltzer (in revision). "Evidence of thermal perturbation during active orogenesis, Nanga Parbat, western Himalaya" Journal of Geophysical Research.

Almy, C.C., Meltzer, A.S., Dietrich, C., Faulting, in the Lajas Valley and on the Adjacent Shelf, Southwestern Puerto Rico, Tectonophysics, (in review).

Publications in Prep (drafts in revision):

Meltzer, A.S., Seeber, L., Armbruster, A., Sarker, G., The Noise of Mountain Building: The Nanga Parbat Seismic Experiment, *for BSSA*

Meltzer, A.S., Ondrus, A., Godfry, N., Foland, S., Structure and Evolution of the Pt. Arena Basin/Vizcaino Block, Northern California: Implications for timing and evolution of the San Andreas Fault Zone and Mendocino Triple Junction, *for Journal of Geophysical Research.*

Meltzer, A.S., Ondrus, A., Foland, S., Godfry, N.J., The San Andreas Fault Zone offshore

Northern California, *for Geology*.

Abstracts Published and Conference presentations 1999-2003: n=30

- Meltzer, A.S., Christensen, N., Okaya, D., Crustal Anisotropy: Implications for Understanding Crustal Dynamics, Invited, 2003, AGU, 84 (46), Fall Meet. Suppl., Abstract S11C-0302..
- Meltzer, A.S., Sol, S., Zurek, B., Zhang, X., Zhang, J., Tang, W., 2003, The Eastern Syntaxis Seismic Experiment, AGU, 84 (46), Fall Meet. Suppl., Abstract T42B-0292.
- Koons, P.O., Meltzer, A.S., and Zeitler, P.K., Rheological consequences of rapid erosion in active orogens, 2003, Eos Trans. AGU, 84 (46), S22C-05.
- Christensen, N., Okaya, D., Meltzer, A., Brocher, T., Holbrook, S., Field observations of crustal seismic anisotropy: Implications for mapping tectonic structure in metamorphic terranes, Invited, 2003, AGU, 84 (46), S11C-0292.
- Ault, A., Meltzer, A.S., Kidd, W.S.F., Preliminary identification of major faults in the Namche Barwa: Results from a NASA shuttle radar topography mission (SRTM) DEM calibrated with field mapping and seismicity, 84 (46), T42B-0301.
- Kidd, W.S.F., Zeitler, P.K., Meltzer, A.S., Lim, C., Chamberlain, C.P., Zheng, L., Geng, Q., Tang, Z., 2002, Geologic Evolution of the Gyalpa Peri Massif, southeastern Tibet, Eos Trans. AGU, 83(47), Fall Meet. Suppl., Abstract T51-B-1143.
- Scala, N.J. and Meltzer, A.S., 2002, Contractional growth structures along the San Andreas fault boarderland, offshore northern California, Eos Trans. AGU, 83(47), Fall Meet. Suppl., Abstract T31-F-2273.
- Meltzer, A.S., 2002, EarthScope: Opportunities and Challenges for Earth Scientists, GSA Annual Meeting, October 25th-29th, Denver, CO. Abst. w/Prog. 110-4.
- Yu, Z.C., Moeller, R.E., and Meltzer, A.S., 2002, Spatial and Temporal Patterns of Mid-Holocene dry periods in Eastern North America: Atmospheric linkage and air mass interaction, NE GSA March 25-27, Springfield MA. Abst. w/Prog. 34(1):A-7.
- Meltzer, A.S., and Almy, C.C., 2000, Fault Structure and Earthquake Potential Lajas Valley, SW Puerto Rico, Fall AGU.
- Almy, C.C., Meltzer, A.S., Dietrich, C., 2000, Faulting, in the Lajas Valley and on the Adjacent Shelf, Southwestern Puerto Rico, Fall AGU.
- Okaya, D., Christensen, N., Meltzer, A., 2000, Elastic wave propagation in anisotropic material possessing arbitrary internal tilt as applied to crustal tectonic processes, Fall AGU.
- Meltzer, A.S., Foland, S., Scala, N., 2000, The transition from subduction to transform regime: Structural and stratigraphic signatures associated with triple junction migration offshore Northern California Part II: In the wake, GSA Fall meeting.
- Gulick, S.P.S., Meltzer, A.S., Henstock, T., Levander, A., 2000, The transition from subduction to transform regime: Structural and stratigraphic signatures associated with triple junction migration offshore Northern California Part I: The leading edge, GSA Fall Meeting.
- USArray Steering Committee (Meltzer, Anne (*principle author), Roberta Rudnick, Peter Zeitler, Alan Levander, Gene Humphreys, Karl Karlstrom, Göran Ekström, Rick Carlson, Tim Dixon, Michael Gurnis, Peter Shearer, Rob van der Hilst), 2000, USArray as an Earth Sciences Initiative, EOS, 80, F643.
- Gulick, S., Meltzer, A., Levander, A., Henstock, T. 2000, Deformation of the Gorda Plate in the vicinity of the Mendocino Triple Junction, EOS 80, F1182.
- Sarker, G., Meltzer, A., Seeber, L., Armbruster, J., 2000, Attenuation beneath Nanga Parbat, Pakistan, NW Himalayas, F723.
- Meltzer, A.S., 2000, USArray - an Element of EarthScope, EOS, 81, S317.
- Meltzer, A.S., Christensen, N., Long, C., 2000, Crustal Heterogeneity and anisotropy of an active metamorphic massif, Nanga Parbat, Western Himalaya. June 2000 -9th International Symposium on Deep Reflection Profiling of the Continents and their Margins, Ulvik, Norway.
- Meltzer, A.S., and Gulick, S.P., 1999, The Transition From Subduction To Transform Regime: Structural And Stratigraphic Signatures Associated With Triple Junction Migration

Offshore Northern California, GSA, Penrose Conference, Puerto Plata, Dominican Republic.

Meltzer, Anne, Leonardo Seeber, Golam Sarker, and John Armbruster Seismic Characterization of Active Metamorphism, Nanga Parbat, Pakistan Himalaya, HKT Conference, Kloster Ettal, Germany - Meeting Dates: March 24-26, 1999

Meltzer, A.S., Ekstrom, G.A., Humphreys, E.D., Levander, A.R., Shearer, P.M, USARRAY, SSA meeting, Seattle, WA, April, 1999. USArray, SRL, 70, 244.

Henstock, T.J., Levander, A., Meltzer, A.S., and Gulick, S.P.S., Deformation and mass transfer at the Mendocino triple junction: What Gorda gives up, North America receives, Seismological Research Letters, v. 70, no. 2, p. 246, 1999.

Meltzer, A.S., and Zeitler, P.K. Earth Observatories: A Mechanism for Educating Future Scientists and Citizens, 1999, SRL, 70, 249.

Trehu, A.M., Brocher, T.M., Clarke, S., Fisher, M.A., Parsons, T., Clowes, R., Flueh, E., Gedom, M., Gulick, S., Meltzer, A., Beaudoin, B., Miller, K., Pratt, T., Spence, G., and Ten Brink, U.S., Structure of the Cascadia Subduction Zone from seismic reflection and refraction data: Relation to seismic activity, Seismological Research Letters, v.70, no. 2, p. 210, 1999.

Meltzer, A.S., 1999, Installation of a broadband seismometer, Lehigh University, Bethlehem, PA: Ground Motion in Real-Time, SRL, 70, 118.

Hammer-Klose, E., and Meltzer, A.S., 1999, A 3-D Geophysical investigation of a groundwater discharge fen, northeastern Pennsylvania, AGU Spring meeting, EOS.

USArray Steering Committee (Meltzer, Anne *(principle author), Roberta Rudnick, Peter Zeitler, Alan Levander, Gene Humphreys, Karl Karlstrom, Göran Ekström, Rick Carlson, Tim Dixon, Michael Gurnis, Peter Shearer, Rob van der Hilst), USArray as an Earth Sciences Initiative, AGU Fall Meeting, EOS, 1999.

Gulick, S., Meltzer, A., Levander, A, Henstock, T. Deformation of the Gorda Plate in the vicinity of the Mendocino Triple Junction, AGU Fall Meeting, EOS, 1999.

Sarker, G., Meltzer, A., Seeber, L., Armbruster, J., Attenuation beneath Nanga Parbat, Pakistan, NW Himalayas, AGU Fall Meeting, EOS, 1999.

Abstracts Published and Conference presentations 1985-1998: n=49

20 additional first authored abstracts published 1985-1998. 29 additional abstracts published with students and colleagues 1985-1998.

FILM:

Nanga Parbat, Naked Mountain. Independent documentary film, produced by Earth Images with support from the National Science Foundation, marketed by Bullfrog Films (www.bullfrogfilms.com). Won Certificate of Merit, Chicago International Television Awards. Film reveals the excitement of scientific exploration and discovery associated with basic research. Broadcast in Europe and in the U.S. on numerous PBS stations. Received significant airplay post September 2001, particularly in Europe. This was followed in 2002 with airplay in the U.S.

INVITED LECTURES:

University of Western Ontario (2003): Beyond Isostasy: A tale of Two Indentor Corners
EarthScope Complimentary Geophysics Workshop (2003): USArray Data Products
American Association for the Advancement of Science (2002): The Dynamic Earth: Insights from Multi-Scale Imaging
Penn State (2002): Beyond Isostasy: A tale of Two Indentor Corners

Stonybrook (2001): Seismic characterization of an active metamorphic massif, Nanga Parbat, Pakistan Himalaya.

National Research Council (2001): Review of EarthScope, EarthScope/USArray presentation.

IRIS Annual Workshop (2001): Crustal Anisotropy, Implication for Crustal Structure and Shear-Wave Splitting.

Rochester Polytechnical Institute (2001): Seismic characterization of an active metamorphic massif, Nanga Parbat, Pakistan Himalaya.

University of Wisconsin (2000): Crustal Reworking During Orogeny: An active System Himalayan Perspective

University of Wisconsin (2000): Structural and Stratigraphic Signatures Associated with Triple Junction Migration

Harvard (1999): Crustal Reworking During Orogeny: An active System Himalayan Perspective

Purdue (1999): Crustal Reworking During Orogeny: An active System Himalayan Perspective

GSA Town Meeting (1999): The USArray Initiative.

Princeton (1998): Crustal Reworking During Orogeny: An active System Himalayan Perspective

GSA Penrose Conference (1998): The Transition From Subduction To Transform Regime: Structural And Stratigraphic Signatures Associated With Triple Junction Migration Offshore Northern California

IRIS Annual Meeting (1998): Introduction to High-Resolution Imaging Session

IRIS Annual Meeting (1997): The Nanga Parbat Seismic Experiment

Cornell University (1997): The Nanga Parbat Seismic Experiment

University of Delaware (1995)

State University of New York (SUNY) – Binghamton (1994)

Temple University (1993)

University of Pennsylvania (1992)

GSA Penrose Conference (1990): Transpressional structures in the offshore California transform margin.

EXTERNAL GRANTS: \$8.0 MILLION TOTAL, \$7 MILLION IN RESEARCH, \$1 MILLION IN FACILITIES AND CURRICULUM DEVELOPMENT

RESEARCH GRANTS: \$7.0 million total

Collaborative Research: Mapping Crustal Tectonic Structure Using Seismic Anisotropy, NSF Geophysics Program, \$380,000 total, \$121,130 to Lehigh.

Collaborative Research: Geodynamics of Indentor Corners, NSF EAR, Continental Dynamics, \$2,200,000 total program, \$1,200,000 to Lehigh. \$403,000 additional supplement award. Project total \$2.6 million, \$1.6 million to Lehigh.

Strain Partitioning and Active Faulting During Oblique Convergence, Northern Andes. NSG Geophysics Program, \$38,000.

Collaborative Research: Crustal Reworking During Orogeny: An Active System Himalayan Perspective, NSF Continental Dynamics Program, \$2,100,000 project total, \$1,100,000 for Lehigh.

Collaborative Research: Lithospheric Evolution in Response to Triple Junction Migration: Seismic Images of the Mendocino Triple Junction Region, NSF Continental Dynamics Program, \$1,400,000 million total, \$395,000 for Lehigh.

Facility Upgrade: Seismology Laboratory at Lehigh University, NSF Instrumentation and Facilities Program, \$104,950

Characterization of Strike-slip deformation: Northern San Andreas Fault System, AMOCO Production Company, \$19,500

Collaborative Research: Crustal Reworking During Orogeny: An Active System Himalayan Perspective, Nanga Parbat Newton's Apple Television Segment, NSF, EAR Continental

Dynamics/Informal Science Education Supplement, \$49,657.
Fault Structure and Earthquake Potential Lajas Valley, SW Puerto Rico, U.S. Geological Survey Earthquake Hazards Reduction Program. \$63,700
Collaborative Research: An integrated Seismic Experiment Across a Continental Rift: The Newark Basin, NSF Continental Dynamics Program. \$83,568
Improvement in Geophysics Curricula: Acquisition of a Multichannel Seismograph, NSF ILI (Instrumentation and Laboratory Improvement) Program. \$47,648
Establishment of a facility for seismic data analysis, NSF Instrumentation and Facilities Program. \$56,590
Crustal Structure and Rock Properties Offshore Central California from Combined Vertical Incidence and Wide-Angle Seismic Data, Petroleum Research Fund. \$18,000
Pocono Comparative Lake Program - Seed Grant Proposal: Geologic Structure at Lake Lacawac. \$2000
Crustal Structure Beneath Santa Maria Basin and the Central California Transform Margin, NSF, Marine Geology and Geophysics. \$50,054

FACILITIES AND CURRICULUM DEVELOPMENT GRANTS: \$1 million total

Implementing a New Learning Paradigm in Earth and Environmental Sciences at Lehigh University: LEO, The Lehigh Earth Observatory, Keck Foundation (for renovations, facilities, staff positions, undergraduate research funds and stipends), \$ 564,000.
Lehigh Earth Observatory (LEO) Environmental Data Center - Promoting Regional Assessment, Coordination, Planning, and Management of Our Natural Resources, William Penn Foundation (for technical staff position, undergraduate research funds and stipends), \$180,000.
Implementing a New Learning Paradigm in Earth and Environmental Sciences at Lehigh University: LEO, The Lehigh Earth Observatory , Culpeper Foundation (for equipment and instrumentation, technical staff position, faculty development), \$200,000.
LEO, The Lehigh Earth Observatory: A proposal for Curriculum Development, AT&T Foundation's Industrial Ecology Initiative (for student research funds and stipends), \$25,000.
Establishment of a broadband seismic station A Lehigh Earth Observatory Module in Support of the Integrated Learning Experience Initiative, Lehigh Learning Innovations Committee, \$50,000.

PROFESSIONAL SERVICES AND ACTIVITIES:

EarthScope Science and Education Committee (2002-pres) Federal Advisory Committee Appointed by the National Science Foundation to provide oversight and guidance for EarthScope. Includes new research and education program within the Earth Sciences Division of the Geosciences Directorate and the first MREFC facilities in the Earth Sciences, \$200 million in instrumentation and projected growth to \$10 million in research funding.
IRIS Planning Committee (2002-pres.) Provides long range strategic planning for the IRIS Consortium.
Member Margins Steering Committee (2001-pres.). Steering Committee for National Science Foundation Geosciences Directorate, Ocean Sciences Division, Margin Program. Provides guidance to NSF and serves as conduit for community input to the NSF Margins Program.
NSF Continental Dynamic Panel. (2002-pres.) Review panel for the National Science Foundation Geosciences Directorate, Earth Science Division, Continental Dynamics Panel
Member Northeast USGS Advanced National Seismic System Implementation Committee (2001-pres.)
Chair IRIS Executive Committee, Chair IRIS Board of Directors (1999-2001) – IRIS is a 96 member academic consortium funded by the National Science Foundation to operate and maintain national instrument facilities and data archives to facilitate and support research needs

in seismology. Duties as chair include working with the IRIS President, and IRIS Standing Committees on behalf of member institutions to help develop and promote the program, develop budgets, set priorities and policy. Term included developing IRIS 5-year proposal renewal to NSF, \$75 million over 5 years.

Coordinator USArray Steering Committee (1999-2002) – work with USArray Steering Committee, broader Earth Science committee, EarthScope Working Group and NSF to help articulate and develop the USArray component of EarthScope. Includes organizing two workshops for community input, writing and production of USArray White Paper for NSF, attending numerous planning meetings.

Member EarthScope Executive Committee (1999-2002) - work with EarthScope Working group and NSF to help develop the EarthScope Initiative. Includes: participating in town meetings, generating editorial comments for publication, development of material for congressional briefings, and numerous meetings with NSF program managers and division directors. This effort culminated in a \$76 million request by NSF EAR to the NSF MRE account this year for phase I facilities (USArray and SAFOD). The request was approved by NSF, the National Science Board, and the OMB and has been included in the Presidents budget request to Congress.

IRIS PASSCAL Standing Committee (member 1993-1999, Chair of Committee 1996-1999) - this committee works with the IRIS PASSCAL program manager to oversee the Programs for Array Studies within IRIS. This includes setting program priorities, helping develop budgets and policy. Significant tasks included helping to write IRIS 2000 proposal to NSF (submitted 1995) successfully securing \$60 million of NSF funding for a five year period. Review and restructuring of PASSCAL Instrument Center.

Member of NSF Instrumentation and Facilities Panel, spring 1999

Reviewer for NSF Ocean Sciences Ocean Bottom Seismometer Instrument Pool: MRI (Major Research Instrumentation) Facility.

National Academy of Sciences - National Research Council Panel Member of SITE Committee (Seeing into the Earth). Charged to evaluate and recommend research directions using geophysical techniques for imaging and characterizing the near surface (upper 100 m) of the earth for engineering and environmental applications. Helped write NRC report, published 2000.

Co-Convener of Eastern Section Meeting of the Seismological Society of America, 1998

Geology Editorial Board (1996-1998)

Co-Convener AGU Special Session, Imaging and wave propagation in the shallow (< 1 km) subsurface, 1995.

Co-Convener AGU Special Session, Mendocino Triple Junction., 1994.

ILIAD Advisory Committee - select themes and invited participants to attend NSF/Air Force Office of Scientific Research sponsored workshop designed to bring together scientists involved in continental dynamics research, helped develop and write science and science implementation plan to complement the NSF Continental Dynamics 2020 Report, and to assess the technical resources and organization required to conduct large-scale seismic investigations of the continental lithosphere.

Served on the National Science Foundation SBIR (Small Business Innovation Research) Panel, September 1991.

Served on the NSF ILI (Instrumentation and Laboratory Improvement) Panel, January 1992.

Numerous papers reviewed for: Journal of Geophysical Research, Geophysical Research Letters, Bulletin of the Geological Society of America, Geology, Geophysics, Bulletin of the Seismological Society of America.

Numerous proposals reviewed for the National Science Foundation:

Earth Sciences Division (4 different programs): Continental Dynamics, Tectonics, Geophysics, Instrumentation and Facilities.

Ocean Sciences Division: Marine Geology and Geophysics.

Reviewer for U.S. Geological Survey, NEHRP, Earthquake Hazards Reduction Program, and reviewer for establishing new program guidelines.

Reviewer for Petroleum Research Fund
Abstract(s) Review for Geological Society of America - Geophysics and Tectonophysics
Division, 1993 Annual Meeting

RESEARCH SUPERVISED:

Undergraduate Research:

Dave Kinney: Seismic study of the upper crustal structure of Outer Santa Cruz Basin, offshore Central California.
Jon Rohrer: Subsurface structure and stratigraphy of Lake Lacawac, Wayne County, PA.
Joe Knezvic: Geologic structure of Pine Lake New York from shallow seismic profiling.
Lillian Soto: Seismic Refraction Study of the Lajas Valley, Southwestern Puerto Rico
Jason Faberman: Electro-Stratigraphy and regional climate change Lake Lacawac, Wayne County, PA.
Nick Scala: Growth and development of an anticline in the Pt. Arena Basin, Offshore Northern CA.

Graduate Research:

Greg Baker: An examination of Triassic Cyclostratigraphy in the Newark Basin from Shallow Seismic Profiles and Geophysical Logs
Tina Dietrich: Characterization of Faults Offshore Southwest Puerto Rico
Amy Ondrus: The San Andreas Fault Zone offshore Northern California
Erika Hammar-Klose: A high-resolution geophysical investigation of the Mount Bethel Fens complex, Mt. Bethel, PA
Tom Dalton (co-advised): Quaternary Sedimentation History from coring and GPR data, Lake Lacawac
Michael Schoemann: Fault Structure and Earthquake Potential Lajas Valley, SW Puerto Rico
Sean Gulick: Seismic Studies of the Cascadia Subduction Zone, Accretionary Prism, and Eel River Basin near the Mendocino Triple Junction
Nick Scala: Fold growth and fault fold interaction along the Northern San Andreas Fault System.
Yen Tang: Holocene Climate Change, Evidence from Sediment Distribution Imaged by GPR Techniques
Vincent Carbone: GPR Studies of Groundwater Contamination
Chris Call: Geophysical Imaging of faulting, InterAndean Valley Ecuador
Amanda Ault: Coupling Between Tectonic and Surface Processes: Case Studies Based on the Eastern Himalayan Syntaxis Tibet
Brian Zurek: Lithospheric Structure, Eastern Tibet

Post Doctoral Research:

Stéphane Sol: Eastern Tibet Seismic Experiment
Golam Sarker: Nanga Parbat Seismic Experiment
Bruce Beaudoin: Nanga Parbat Seismic Experiment

COLLEGE AND UNIVERSITY SERVICE:

Environmental Building Committee, Chair, guided preparation of Building Plan for new environmental building
EI Director Search Committee
EI Steering Committee
Environmental Initiative Task Force, Chair, guided preparation of 2020 proposal in the area of environment.

Student Life Policy Review Committee: appointed by the President to prepare report to the Board of Trustees
Academic Standards for Environment and Ecology content and Environmental Education Committee
Research Advisory Group – Faculty Committee providing advice to VP Research
Director LEO: Multi-disciplinary experiential learning experiences, included summer internship program
University Computer Workstation review and high performance computing
Rhodes Scholar Committee
College of Education – Faculty Search, Technology Based Teacher Education
Prepared white paper on Supporting Cross College Curricular Initiatives with Todd Watkins and John Oaks, (white paper requested by Provost)
College of Arts and Sciences Tenure and Promotion Committee
Ad Hoc Integrated Learning Experiences Steering Committee
Hughes liaison to BASD, Clearview Elementary School
Graduate Research Committee
Search Committee - Vice Provost for Information Resources
Commission on Diversity, Affirmative Action/Equal Opportunity Subcommission
Search Committee - Dean College of Engineering and Applied Science
University Faculty Development Committee
WISE (Women In Science and Engineering) Committee
C.H.O.I.C.E.S. participant (program for female middle school students interested in science)
Participant in STAR program (program for high-school students interested in science)
Participant Faculty focus group on academic advising
Participated in University undergraduate recruitment efforts
Review committee for Graduate Fellowships
Nominated by University and attended the American Association of Higher Education: Forum on Exemplary Teaching
AA/EO representative to College Tenure and Promotion Committee

COURSES TAUGHT:

EES 3: Global Environmental Change
EES 21: Introduction to Earth Material & Processes
EES 90 : Freshman Seminar: Searching for an Environmental Ethic
EES 90 : Freshman Seminar: Disasters, Natural and Human Induced, Implications and Consequences.
EES 96: Introduction to Environmental Science: Systems and Solutions
EES 201: Seismology: the Earth and the Environment
EES 204: Environmental Geophysics
EES 293: Internships in Earth and Environmental Sciences
EES 301: Introductory Geophysics
EES 303: Active Tectonics
EES 308: Seismic Data Analysis
EES 398: Earth Science for Educators
EES 407: Seismology
EES 426: Tectonic Processes