

**U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY**

**Bibliography of the
Pacific to Arizona Crustal Experiment (PACE)
Investigation of a Transect of the Lithosphere across the
Southwestern United States**

Compiled by Keith A. Howard and Ruby M. Harper¹

Open-file Report 92-511-A

1992

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American stratigraphic code. Any use of trade, product, or firm names is for descriptive purpose only and does not imply endorsement by the U.S. Government.

¹Menlo Park, CA 94025

CONTENTS

Introduction	3
PACE workshops, seminars, and symposia	4
Workshops	4
Seminars	4
Symposia	6
Publications	7
General publications	7
Reports	7
Abstract	7
Seismology	8
Reports	8
Abstracts	10
Heat-flow	13
Abstracts	13
Electrical conductivity	13
Reports	13
Abstract	14
Gravity and magnetics	14
Reports	14
Abstracts	14
PACE-related reports and abstracts	15
Paleomagnetism	17
Reports	17
Abstracts	17
Petrology and isotope geology	18
Reports	18
Abstracts	20
PACE-related reports and abstracts	24
Geology	26
Reports	26
Abstracts	35
PACE-related reports and abstracts	40
Alphabetic list of publications	44

PACE STEERING COMMITTEE

Warren B. Hamilton - *U.S.G.S., Denver, Colorado*
 Gordon B. Haxel - *U.S.G.S., Flagstaff, Arizona*
 Keith A. Howard (coordinator) - *U.S.G.S., Menlo Park, California*
 Ivo Lucchitta - *U.S.G.S., Flagstaff, Arizona*
 Peter E. Malin - *University of California, Santa Barbara, California (now at Duke University, Durham, North Carolina)*
 Douglas M. Morton - *U.S.G.S., Riverside, California*
 David Okaya - *CALCRUST & University of Southern California, Los Angeles, California*
 John H. Sass - *U.S.G.S., Flagstaff, Arizona*
 Robert W. Simpson - *U.S.G.S., Menlo Park, California*
 John G. Vedder - *U.S.G.S., Palo Alto, California*

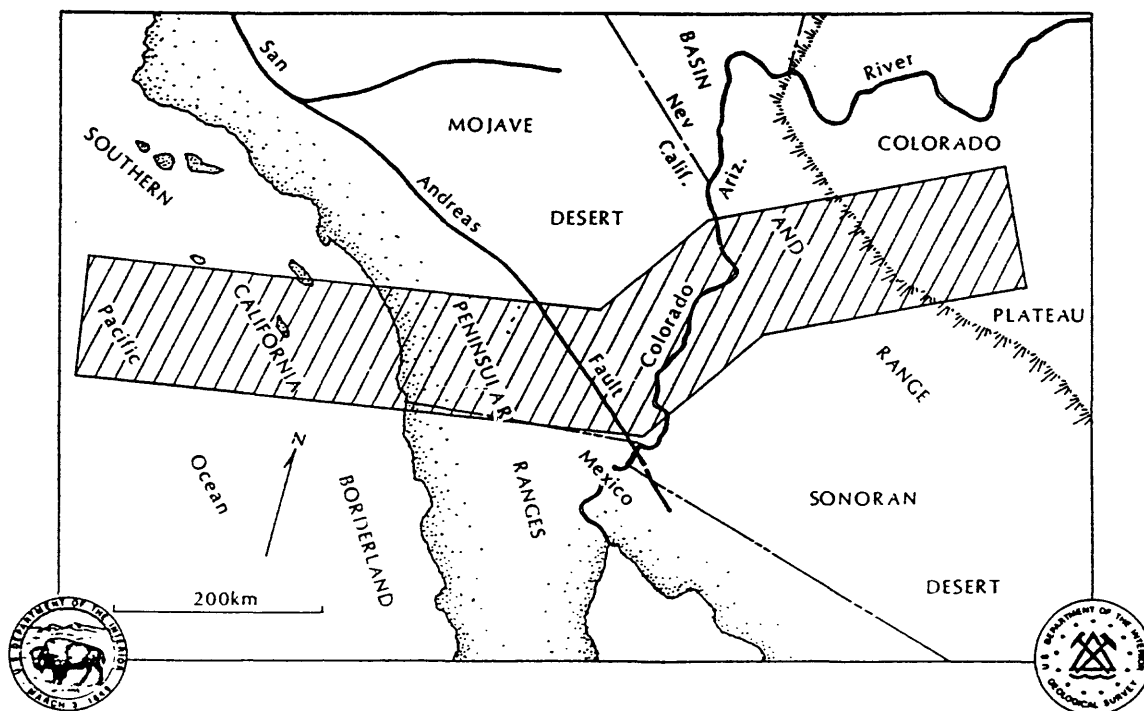
INTRODUCTION

The U.S. Geological Survey initiated the Pacific to Arizona Crustal Experiment (PACE) in 1984 as an investigation of crustal structure and processes in a transect across the southern U.S. Cordillera. The transect extends from the Colorado Plateau to the Pacific Basin. The PACE project consists of coordinated multidisciplinary geophysical and geological studies designed to mesh with seismic reflection experiments conducted by groups of university scientists along the same transect.

The southern Cordillera of the United States and its offshore borderland is an excellent place to study tectonic processes of crustal growth, reworking, and deformation at a continental margin. This region contains a wide variety of geologic terranes and provinces formed by tectonic and magmatic processes including accretion, arc magmatism, terrane dispersal, and rifting. PACE investigations have focused on the nature of the boundaries between terranes and provinces, their configuration at deep crustal levels, and the tectonic processes responsible for their assembly and deformation.

The PACE strategy has been to gather many kinds of complementary data on this transect, explore them in workshops, seminars, and symposia held with other workers active in the region, report the results, and integrate them toward a synthesis of crustal evolution. Work on the east or North-American-plate half of the transect has yielded important information on: crustal thickness, velocity structure of the crust and upper mantle, seismic reflectors, geologic mapping, gravity and aeromagnetic anomalies, isotopic crustal boundaries, paleomagnetic rotations, Proterozoic tectonics and state of stress, Mesozoic crustal thickening, magmatism, and uplift, Cenozoic extension, uplift of metamorphic core complexes, cooling and uplift history, crustal conductivity, lower-crustal xenolith petrology, heat flow, and thickness of magnetic crust. These data provide an unusually multifaceted picture of crustal evolution. Important new information in southwestern California includes aeromagnetic definition of a major boundary in the Peninsular Ranges batholith, geobarometric evidence that the batholith is tilted, improved understanding of Miocene magmatism on Catalina Island, seismic profiling offshore, and definition of onshore velocity structure using offshore seismic sources.

This report lists scientific gatherings and publications sponsored by PACE, as of mid-1992, for which partial or full support was provided by the Deep Continental Studies Program of the U.S. Geological Survey. The Deep Continental Studies Program, administered at various times by B. Morgan, D. Russ, R. Hamilton, and S. Bohlen, worked in concert with other budgeted programs to support the PACE investigations. Products listed here are arranged by scientific discipline, and are divided into reports and abstracts that directly focus on the PACE transect, and "PACE-related reports and abstracts" considered as other scientific spin-offs. American Geophysical Union, (1992) reprinted a volume of reports on the transect that originally appeared in the Journal of Geophysical Research.



PACE WORKSHOPS, SEMINARS, AND SYMPOSIA

WORKSHOPS

Cenozoic volcanism -- *January 10-11, 1985, Flagstaff, AZ*

PACE and CALCRUST Steering Committees -- *May 16, 1985, Santa Barbara, CA*

Early Proterozoic of Arizona [USGS-Caltech-Northern Arizona University-Arizona Geological Survey] -- *October 3-5, 1985, Flagstaff, AZ*

California-Arizona crustal transect--interim synthesis (CACTIS) -- *May 6-8, 1988, Flagstaff, AZ*

Peninsula Ranges/Borderland [CALCRUST-USGS] -- *March 27-28, 1989, Pasadena, CA*

Thermal structure -- *September 19, 1990, Menlo Park, CA*

Geologic mapping along the PACE corridor -- *August 13-14, 1991, Flagstaff, AZ*

East margin of the Colorado River extensional corridor -- *August 15-16, 1991, Flagstaff, AZ*

Crustal structure of the Arizona Transition Zone -- *October 8-9, 1991, Flagstaff, AZ*

Magmatism within and beneath metamorphic core complexes, PACE transect and southern Arizona -- *October 10-11, 1991, Flagstaff, AZ*

Crustal thickness beneath the Colorado Plateau -- *December 8, 1991, Menlo Park, CA*

Construction of an interpretive deep cross section along the PACE transect -- *September 28-29, 1992 (planned), Menlo Park, CA*

SEMINARS

1985

Mohon Mountains volcanic field -- *David Nealey and Wesley Ward*

1986

Geology of the Prescott 2-degree sheet -- *Clay Conway*

Gravity of the Prescott 2-degree sheet -- *John Hendricks and J.B. Plescia*

PACE seismic refraction experiment -- *Jill McCarthy*

Lead isotopes -- *Joe Wooden*

Gravity and magnetics in southern California -- *Robert Jachens, Robert Simpson, and Andrew Griscom*

The McCoy Mountains Formation and other Mesozoic strata -- *Paul Stone and Richard Tosdal*

Crustal and mantle xenoliths -- *Howard Wilshire and Frank Dodge*

Palinspastic reconstructions of the San Andreas fault system -- *Jonathan Matti*

PACE updates -- *Gary Fuis and others*

Historic vertical motions in the Salton Trough and southeastern California -- *Thomas Gilmore and Robert Castle*

Relations between the stable Colorado Plateau and the extended Basin and Range terrane in Arizona -- *Ivo Lucchitta*

A brief report on COCORP results -- *Jill McCarthy*

The evidence for short-lived, rampant extension 20-22 million years ago -- *David Sherrod*

1987

More on the crystalline terranes of southern California and their reconstruction -- *Robert Powell*

Reflection profiles in the Colorado River region -- *David Okaya*

Fluids gushing through the middle crust--Evidence from the Late Cretaceous regional metamorphism in southeastern California -- *Thomas Hoisch*

Conditions and causes of Late Cretaceous regional metamorphism in the Big and Little Maria Mountains, southeastern California -- *Thomas Hoisch*

COCORP profile across the Colorado Plateau and Transition zone to the metamorphic core complexes -- *Ernest Hauser*

Seismic reflection imaging of the Transition Zone, west-central Arizona -- A piggyback experiment to the USGS PACE refraction survey -- *Erik Goodwin*

1988

The Orocochia-Pelona Schist: An oceanic terrane incorporated into or beneath southern California & southwestern Arizona -- *Gordon Haxel*

PACE refraction results--A progress report -- *Jill McCarthy*

Refraction results from the 1985 PACE Whipple survey -- *Jill McCarthy*

1989

The Tertiary Mohave Mountains dike swarm -- *Vicky Pease*

Shooting Arizona: The PACE barbeque and crustal structure seminar -- *Jill McCarthy*

SYMPOSIA

PACE--Pacific to Arizona Crustal Experiment -- *Geological Society of America Rocky Mountain Section Meeting, Flagstaff, AZ, 1986*

Nature and evolution of the crust in southern California -- *Geological Society of America Cordilleran Section Meeting, 1986*

Southwestern USA xenolith suite of the lower crust and upper mantle -- *Geological Society of America Cordilleran Section Meeting, Los Angeles, CA, 1986*

California-Arizona crustal transect: Detachment terrane to Colorado Plateau -- *[COCORP and PACE] -- Geological Society of America Annual Meeting, Phoenix, AZ, 1987*

PACE -- Lithospheric Structure of the Colorado Plateau -- *American Geophysical Union Fall Meeting, San Francisco, CA 1990*

PUBLICATIONS

GENERAL PUBLICATIONS

Reports

1988

Sass, J.H., Haxel, G.B., and Lucchitta, Ivo, 1988, CACTIS meeting examines crustal transect: *Arizona Geology*, v. 18, p. 7.

1990

Haxel, G.B., Simpson, R.W., and Howard, K.A., 1990, Introduction to Special Section on the California-Arizona Crustal Transect--Part II: *Journal of Geophysical Research*, v. 95, p. 19,949-19,951.

Howard, K.A., Simpson, R.W., and Haxel, G.B., 1990, Introduction to Special section on the California-Arizona crustal transect--Part I: *Journal of Geophysical Research*, v. 95, p. 461-462.

Lucchitta, Ivo, and Morgan, Paul, 1990, Heat and detachment in continental extension: Introduction, *in* Lucchitta, Ivo, and Morgan, Paul, eds., *Heat and Detachment in Continental Extension: Tectonophysics*, v. 174, p. 3-5.

1991

Simpson, R.W., Howard, K.A., and Haxel, G.B., 1991, Introduction to Special Section on the California-Arizona Crustal Transect--Part III: *Journal of Geophysical Research*, v. 96, p. 12,257-12,258.

1992

American Geophysical Union, 1992, *California-Arizona Crustal Transect--Interim Synthesis (CACTIS), Reprints of papers published in the Journal of Geophysical Research--Solid Earth and Planets*: Washington, D.C., American Geophysical Union.

Howard, K.A., and Harper, R.M., 1992, *Bibliography of the Pacific to Arizona Crustal Experiment (PACE)--Investigation of a transect of the crust and lithosphere across the southwestern United States*: U.S. Geological Survey Open-File Report 92-551-A (63 p., paper copy), 92-551-B (Macintosh diskette), 92-551-C (IBM diskette).

Abstract

1986

Howard, K.A., and the PACE team, 1986, *PACE--The Pacific to Arizona Crustal Experiment*: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 362.

SEISMOLOGY

Reports

1986

- Borcherdt, R., Fuis, G.S., Mooney, W., 1986, Introduction, *in* Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387, p. 1.
- Borcherdt, R., Fuis, G.S., Mooney, W., Wennerberg, L., Sembera, E., Gibbs, J. and Dietel, C., 1986, Site-selection and instrumentation configurations, *in* Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387, p. 5-8.
- Serna, J., Warrick, R., Borcherdt, R., Dietel, C., Gibbs, J., and Maxwell, G., 1986, Instrumentation, *in* Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): Open-File Report 86-387, p. 2-4.
- Wennerberg, L., 1986, ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387.
- Wennerberg, L., Sembera, E., Borcherdt, R., Gibbs, J., Dietel, C., Watson, J., and Cranswick, E., 1986, Velocity and acceleration time histories, *in* Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387, p. 9-10.
- Wennerberg, L., and Borcherdt, R., 1986, Calibration spectra, *in* Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): Open-File Report 86-387, p. 11.

1987

- McCarthy, Jill, Fuis, G.S., and Wilson, Jeff, 1987, Crustal structure of the Whipple Mountains, southeastern California: a refraction study across a region of large continental extension: *Geophysical Journal Royal Astronomical Society*, v. 89, p. 119-124.
- Wilson, J.M., and Fuis, G.S., 1987, Data report for the Chemehuevi, Vidal, and Dutch Flat lines, PACE, Seismic-Refraction Survey, southeastern California, and western Arizona: U.S. Geological Survey Open-File Report 87-86, 75 p.

1988

- Larkin, S.P., McCarthy, J., and Fuis, G.S., 1988, Data report for the PACE 1987 seismic refraction survey, west-central Arizona: U.S. Geological Survey Open-File Report 88-694, 95 p.
- McCarthy, J., and Thompson, G.A., 1988, Seismic imaging of extended crust with emphasis on the western U.S.: *Geological Survey of America Bulletin*, v. 100, p. 1,361-1,374.

1989

- Goodwin, E.B., Thompson, G.A., and Okaya, D.A., 1989, Seismic identification of basement reflectors: the Bagdad reflection sequence in the Basin and Range-Colorado Plateau Transition Zone: *Tectonics*, v. 8, p. 821-831.

Hussey, V.K., 1989, A three-component seismic refraction survey in northwestern Arizona [M.S. thesis]: Boston, Mass., Boston College, 161 p.

1990

Goodwin, E.B., 1990, Composition of the lower crust in West-Central Arizona from three-component seismic data: *Journal of Geophysical Research*, v. 95, p. 20,097-20,109.

Goodwin, E.B., and McCarthy, Jill, 1990 Composition of the lower crust in west central Arizona from three-component seismic data: *Journal of Geophysical Research*, v. 95, p. 20,097-20,110.

McCarthy, J., and Thompson, G.A., 1990, Reply to comment on: "Seismic imaging of extended crust with emphasis on the western U.S.": *Geological Society of America Bulletin*, v. 102, p. 255.

McCarthy, J., and Thompson, G.A., 1990, Seismic imaging of extended crust with emphasis on the western U.S., *in* Thomas, W.A., and Hatcher, R.D., Jr., eds., *Geological Society of America Centennial Articles, Special Paper 253*, p. 263-276.

Thompson, G.A., and McCarthy, J., 1990, A gravity constraint on the origin of highly extended terranes: *Tectonophysics*, v. 174, p. 197-206.

1991

Howie, J.M., 1991, Seismic Studies of Crustal Structure and Tectonic Evolution Across the Central California Margin and the Colorado Plateau [Ph.D. thesis]: Stanford, California, Stanford University, 256 p.

Howie, J.M., Parsons, T., and Thompson, G.A., 1991, High-resolution P- and S-wave deep crustal imaging across the edge of the Colorado Plateau, USA: Increased reflectivity caused by initiating extension, *in* Meissner, R., Brown, L., Durbaum, H-J., Franke, W., Fuchs, K., and Seifert, F., eds., *Continental Lithosphere: Deep Seismic Reflections: American Geophysical Union Geodynamics Series*, v. 22, p. 21-29.

Johnson, R.A., and Hartman, K.A., 1991, Upper crustal Poisson's ratios in the Colorado Plateau, northern Arizona, from multi-component wide-angle seismic recording, *in* Meissner, R., Brown, L., Durbaum, H-J., Franke, W., Fuchs, K., and Seifert, F., eds., *Continental Lithosphere: Deep Seismic Reflections: American Geophysical Union Geodynamics Series*, p. 323-328.

McCarthy, Jill, Larkin, S.P., Fuis, G.S., Simpson, R.W., and Howard, K.A., 1991, Anatomy of a metamorphic core complex: Seismic refraction/wide-angle reflection profiling in southeastern California and western Arizona: *Journal of Geophysical Research*, v. 96, p. 12,259-12,292.

McCarthy, J., and Thompson, G.A., 1991, Reply to Comment on: "Seismic imaging of extended crust with emphasis on the western U.S.": *Geological Society of America Bulletin*, v. 103, p. 1,539-1,542.

Wilson, J.M., McCarthy, Jill, Johnson, R.A., and Howard, K.A., 1991, An axial view of a metamorphic core complex: Crustal structure of the Whipple and Chemehuevi Mountains, southeastern California: *Journal of Geophysical Research*, v. 96, p. 12,293-12,312.

In Press

Howie, J.M., Parsons, T., and Thompson, G.A., in review, Composition as a control on localization of reflectivity in the middle crust: Deep seismic reflection results across the southwestern margin of the Colorado Plateau: *Journal of Geophysical Research*, submitted.

Parsons, T., Howie, J.M., and Thompson, G.A., in press, Seismic constraints on the nature of lower crustal reflectors beneath the extending southern Transition Zone of the Colorado Plateau, Arizona: *Journal of Geophysical Research*.

Ruppert, S., in prep., Variations in shear-wave crustal structure across the southern Basin & Range -- Colorado Plateau transition zone: for Journal of Geophysical Research.

Ruppert, S., in prep., Variations in upper mantle anisotropy across the southern Basin & Range -- Colorado Plateau transition zone: for Journal of Geophysical Research.

Wolf, L.W., and Cipar, J.J., in review, The Colorado Plateau: Through thick and thin: Journal of Geophysical Research.

Abstracts

1986

Fuis, G.S., McCarthy, J., and Howard, K.A., 1986, A seismic-refraction survey of the Whipple Mountains metamorphic core complex, southeastern California: A progress report from PACE: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 356.

Fuis, G.S., Walter, A.W., Mooney, W.D., and McCarthy, J., 1986, Crustal velocity of the Salton Trough, western Mojave Desert, and Colorado Desert, from seismic refraction: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 107.

Malin, P.E., and McCarthy, J., 1986, CALCRUST-PACE cooperative refraction study in the Whipple Mountains region of southeastern California: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 153.

McCarthy, J., Fuis, G.S., and Howard, K.A., 1986, A seismic-refraction survey of the Whipple Mountains metamorphic core complex, southeastern California: A progress report from PACE: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 155.

McCarthy, J., Fuis, G.S., and Wilson, J.M., 1986, Crustal structure of the Whipple Mountains metamorphic core complex: 2nd International Symposium on Deep Seismic Reflection Profiling of the Continental Lithosphere, Cambridge, U.K.: Abstracts of lectures and posters, p. 15.

Thompson, G.A., and McCarthy, J., 1986, A gravity constraint on the origin of highly extended terranes: Geological Society of America Abstracts with Programs, v. 18, p. 418.

Thompson, G.A., and McCarthy, J., 1986, Geophysical evidence for igneous inflation of the crust in highly extended terranes: EOS, American Geophysical Union Transactions, v. 67, p. 1,184.

1987

McCarthy, J., Fuis, G.S., and Wilson, J.M., 1987, Crustal structure in the region of the Whipple Mountains metamorphic core complex, from seismic refraction results: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 763.

McCarthy, J., Fuis, G.S., Wilson, J.M., McKissick, C., and Larkin, S., 1987, PACE Seismic refraction and wide-angle reflection data recorded across the central Arizona transition zone: EOS, American Geophysical Union Transactions, v. 68, p. 1,359.

Wilson, J.M., Geist, E.L., Tosdal, R.M., Okaya, D., and Frost, E., 1987, Crustal structure of the Chuckwalla Valley region, SE California, from industry seismic profiles: EOS, American Geophysical Union Transactions, v. 68, p. 1,360.

1988

Hussey, V.K., 1988, A comparison of shear wave velocity structures of the Colorado Plateau and the Basin and Range: EOS, American Geophysical Union Transactions, v. 69, p. 404.

Larkin, S.P., McCarthy, J., and Fuis, G.S., 1988, Crustal structure of the Basin and Range/Colorado Plateau transition zone in central Arizona: Preliminary results from seismic refraction: *Seismological Research Letters*, v. 59, p. 50.

McCarthy, J., Larkin, S.P., and Fuis, G.S., 1988, Crustal structure of the Basin and Range Province and adjacent Transition Zone in central Arizona, U.S.A., from seismic refraction and wide-angle reflection profiling: Australian Bureau of Mineral Resources, Implications for continental extension: *Seismic Probing of Continents and Their Margins*, p. 92.

Wilson, J.M., McCarthy, J., and Johnson, R., 1988, Middle and lower crustal structure of the Whipple Mountain metamorphic core complex: *Geological Society of America Abstracts with Programs*, v. 20, n. 7, p. A355.

1989

Howie, J.M., Parsons, T., and Crews, G., 1989, Deep-crustal high-resolution reflection profiling across the edge of the Colorado Plateau: *EOS, American Geophysical Union Transactions*, v. 70, p. 1,361.

Johnson, R.A., and Hartman, K.A., 1989, The Arizona PACE-Piggyback Lithospheric Experiment (APPLE): Vertical-incidence to wide-angle reflection data from the Colorado Plateau: *EOS, American Geophysical Union Transactions*, v. 70, p. 1,205.

McCarthy, J., Criley, E., and Kohler, W., 1989, PACE seismic refraction and wide-angle reflection data recorded across the Colorado Plateau: *EOS, American Geophysical Union Transactions*, v. 70, p. 1,205.

McCarthy, J., Fuis, G.S., Larkin, S.P., and Wilson, J.M., 1989, Evidence for magmatic inflation of the crust beneath metamorphic core complexes in western Arizona and southeastern California: *Geological Society of America Abstracts with Programs*, v. 21, n. 5, p. 113-114.

1990

Battis, J.C., 1990, Analysis of small aperture array data from the 1989 PACE experiment: *EOS, American Geophysical Union Transactions*, v. 71, p. 1,563.

Beaudoin, B., Howie, J.M., Parsons, T., and Thompson, G.A., 1990, Integrated wide-angle and near-vertical incidence three-component reflection profiling of the Colorado Plateau margin, Arizona, USA: *EOS, American Geophysical Union Transactions*, v. 71, p. 1,593.

Benz, H.M., McCarthy, J., and Mooney, W.D., 1990, Evidence for an upper mantle LVZ and an underlying 80-km-deep discontinuity from the 1987-1989 PACE seismic refraction/wide-angle reflection data: *EOS, American Geophysical Union Transactions*, v. 71, p. 1,564.

Cipar, J., Mangino, S., and D'Annolfo, S., 1990, Preliminary interpretation of the 1989 PACE seismic refraction/wide-angle reflection data from the Colorado Plateau, Arizona: *Seismological Research Letters*, v. 61, n. 1, p. 39.

D'Annolfo, S., Cipar, J., and Wolf, L., 1990, Long-range observations of PACE shots on the Colorado Plateau cross-line observations: *EOS, American Geophysical Union Transactions*, v. 71, p. 1,594.

Dawson, P.B., Iyer, H.M., Evans, J.R., and Hitchcock, T., 1990, PACE: Teleseismic tomography along the Pacific-Arizona Crustal Transect, *EOS, American Geophysical Union Transactions*, v. 71, p. 1,564-1,565.

Hartman, K.A., and Johnson, R.A., 1990, P- and S-Wave velocities and Poisson's ratios beneath the Colorado Plateau from recording of wide-angle seismic data: *EOS, American Geophysical Union Transactions*, v. 71, p. 1,564.

- Hartman, K.A., and Johnson, R.A., 1990, Constraints on crustal structure in the Colorado Plateau: Results from the Arizona PACE Piggyback Lithospheric Experiment (APPLE): Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 28.
- Howie, J.M., Parsons, T., and Thompson, G.A., 1990, High-resolution reflection imaging across the edge of the Colorado Plateau, Arizona, USA: TERRA Abs., v. 2, p. 174.
- Howie, J.M., Parsons, T., and Thompson, G.A., 1990, Full-wavefield analysis of lower crustal reflectivity at the SW margin of the Colorado Plateau, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,563.
- Johnson, R.A., and Hartman, K.A., 1990, Constraints on P- and S-wave velocity structure in the Transition Zone of the Colorado Plateau from multicomponent wide-angle seismic data: TERRA Abs., v. 2, p. 173.
- Kohler, W., and McCarthy, J., 1990, PACE seismic reflection and wide-angle reflection studies of the Colorado Plateau - Basin and Range transition, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,593.
- McCarthy, J., Hajnal, Z., Howie, J., Johnson, R.A., Keller, G.R., and Wolf, L.W., 1990, PACE lithospheric investigations of the Colorado Plateau: EOS, American Geophysical Union Transactions, v. 71, n. 3, p. 1,563.
- McCarthy, J., Okaya, D.A., and Goodwin, E.B., 1990, Geophysical character of the middle and lower crust in the southwestern U.S.: Results from seismic profiling: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 65-66.
- McCarthy, J., and Kohler, W., 1990, Preliminary two-dimensional modeling of the crustal structure across the Colorado Plateau - Basin and Range transition, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,564.
- McCarthy, J., Okaya, D.A., and Goodwin, E.B., 1990, Seismic character of the middle and lower crust in the southwestern United States: TERRA Abs., v. 2, p. 187.
- Montana, C., Keller, G.R., Doser, D.I., Baker, M.R., and Harder, S., 1990, The PACE 1989 seismic experiment: Initial results from the cross profile: EOS, American Geophysical Union Transactions, v. 71, p. 1,594.
- Parsons, T., Howie, J.M., and Thompson, G.A., 1990, Full-wavefield imaging of the Colorado Plateau: Geological Society of America Abstracts with Programs, v. 22, n. 7, p. A205.
- Parsons, T., Howie, J.M., and Thompson, G.A., 1990, Imaging the initial stages of extension at the edge of the Colorado Plateau, Chino Valley, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,563.
- Parsons, T., McCarthy, J., Howie, J.M., and Thompson, G.A., 1990, Full-wavefield imaging of the Colorado Plateau, Arizona, USA: TERRA Abs., p. 203.
- Ruppert, S., 1990, Teleseismic shear-wave response of the crust and upper mantle across the southwest margin of the Colorado Plateau, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,564.
- Wolf, L., D'Annolfo, S., and Cipar, J., 1990, Crustal structure across the Grand Canyon, Arizona, from PACE cross-line observations: EOS, American Geophysical Union Transactions, v. 71, p. 1,593.

1991

- Ammon, C.J., and Benz, H.M., 1991, A finite-difference based inversion of Pg arrival times: EOS, American Geophysical Union Transactions, v. 72, p. 334-335.

Durrani, B.A., Doser, D.I., Keller, G.R., Roberts, D.G., and Montana, C.J., 1991, Results for the PACE 1989 seismic line in northern Arizona: Colorado Plateau crustal structure: EOS, American Geophysical Union Transactions, v. 72, p. 327.

Johnson, R.A., and Hartman, K.A., 1991, P- and S-Wave reflectivity and crustal structure of the southern Colorado Plateau: EOS, American Geophysical Union Transactions, v. 72, p. 324.

Wolf, L.W., and Cipar, J.J., 1991, A new crustal model of the Colorado Plateau: Results from the 1989 Pacific to Arizona Crustal Experiment: EOS, American Geophysical Union Transactions, v. 72, p. 327.

Wolf, L.W., Cipar, J.J., and D'Annolfo, Susan, 1991, Evaluation of crustal models of the Colorado Plateau in view of 1989 PACE seismic refraction/wide-angle reflection data: Geological Society of America Abstracts with Programs, v. 23, n. 4, p. 107.

1992

Dawson, P.B., Iyer, H.M., and Evans, J.R., 1992, PACE: Inversion of teleseismic residuals from the USGS teleseismic experiment, Arizona, Seismology Research Letters, v. 63, p. 39.

HEAT FLOW

Abstracts

1987

Sass, J.H., and Lachenbruch, A.H., 1987, Heat-flow field of the California-Arizona crustal experiment and adjacent areas: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 829.

1991

Lachenbruch, A.H., Sass, J.H., Galanis, S.P., Jr., and Priest, S.S., 1991, Thermal regime of the southern Basin and Range, U.S.A., and its metamorphic-core complexes: Geophysical Institute, Czechoslovakia Academy of Sciences: International Meeting on Terrestrial Heat Flow and the Structure of Lithosphere, Abstract Program.

Morgan, Paul, and Sass, J.H., 1991, Thermal structure and crustal processes in contrasting tectonic provinces of Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A23.

ELECTRICAL CONDUCTIVITY

Reports

1987

Klein, D.P., and Sneddon, R.A., 1987, Magnetotelluric data across west central Arizona: U.S. Geological Survey Open-File Report 87-492, 18 p.

1991

Klein, D.P., 1991, Crustal resistivity structure from magnetotelluric soundings in the Colorado Plateau-Basin and Range Provinces, central and western Arizona: Journal of Geophysical Research, v. 96, p. 12,313-12,331.

Abstract

1986

Klein, D.P., 1986, Magnetotelluric observations across the Colorado Plateau-Basin and Range transition zone, western Arizona, Geological Society of America Abstracts with Programs, v. 118, n. 5, p. 367.

GRAVITY AND MAGNETICS

Reports

1986

Mariano, John, Helferty, M.G., and Gage, T.B., 1986, Bouguer and isostatic residual gravity maps of the Colorado River region, including the Kingman, Needles, Salton Sea, and El Centro Quadrangles: U.S. Geological Survey Open-File Report 86-347, 6 sheets, scale 1:250,000, 1 sheet, scale 1:750,000.

1988

Mariano, John, and Grauch, V.J.S., 1988, Aeromagnetic maps of the Colorado River region including the Kingman, Needles, Salton Sea, and El Centro $1^{\circ} \times 2^{\circ}$ quadrangles, California, Arizona, and Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2023, 3 sheets, scale 1:250,000.

1990

Griscom, Andrew, and Jachens, R.C., 1990, Crustal and lithospheric structure from gravity and magnetic studies, in Wallace, R.E., ed., The San Andreas fault system, California: U.S. Geological Survey Professional Paper 1515, p. 238-259.

U.S. Geological Survey, 1990, Aeromagnetic map of parts of the San Diego, Santa Ana, and adjacent $1^{\circ} \times 2^{\circ}$ quadrangles, California: U.S. Geological Survey Open-File Report 90-206, 1 sheet, scale 1:250,000.

1991

Hendricks, J.D., and Plescia, J.B., and Matic, A.K., 1991, Complete Bouguer gravity map of the Bagdad $1/2^{\circ}$ by 1° quadrangle, Arizona: U.S. Geological Survey Open-File Report 91-640, scale 1:100,000.

Abstracts

1986

Hendricks, J.D., and Plescia, J.B., 1986, Gravity survey of the Prescott 2-degree sheet: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 361.

Jachens, R.C., Simpson, R.W., Griscom, Andrew, and Mariano, John, 1986, Plutonic belts in southern California defined by gravity and magnetic anomalies: Geological Society of America Abstracts with Programs, v. 18, p. 120.

Mariano, John, Jachens, R.C., Blakely, R.J., 1986, Depth extent of exposed basement rock in the eastern Transverse Ranges and adjacent Mojave Desert, California: EOS, American Geophysical Union Transactions, v. 67, p. 1,212.

Simpson, R.W., Jachens, R.C., Mariano, John, and Helferty, M.G., 1986, Gravity and magnetic studies of the Colorado River region, California and Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 414.

1987

- Gray, Floyd, Jachens, R.C., Miller, R.J., and Mariano, John, 1987, An interpretation of the shallow crustal structure of the Black Mountains, northwest Arizona: computer generated modeling and structural compilation: Geological Society of America with Programs, v. 19, p. 682.
- Plescia, J.B., and Hendricks, J.D., 1987, Gravity observations across the Colorado Plateau-Basin and Range transition zone of Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 807.

1988

- Griscom, Andrew, Jachens, R.C., Oliver, Howard W., and Kleinkopf, M. Dean, 1988, Suture-related gravity and magnetic expression of the three major batholiths in western United States: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A400.

1989

- Saltus, R.W., and Jachens, R.C., 1989, Basement gravity and depth-to-basement maps of Arizona, Nevada, Utah, and SE California: EOS, American Geophysical Union Transactions, v. 70, p. 1,361.

1990

- Simpson, R.W., Howard, K.A., Jachens, R.C., and Mariano, J., 1990, A positive gravity anomaly along the Colorado River extensional corridor: Evidence for new crustal material: EOS, American Geophysical Union Transactions, v. 71, p. 1,594.

1991

- Jachens, R.C., Todd, V.R., Morton, D.M., and Griscom, Andrew, 1991, Constraints on the structural evolution of the Peninsular Ranges batholith, California, from a new aeromagnetic map: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 38.
- Saltus, R.W., Blakely, R.J., Jachens, R.C., Simpson, R.W., and Hildenbrand, T.G., 1991, Potential field constraints on Cordilleran tectonics: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A22.

PACE-related Reports and Abstracts

1986

- Calzia, J.P., Verosub, K.L., and Jachens, R.C., 1986, Tilting and faulting of the Late Miocene Kingston Peak Granite, southern Death Valley, California: American Geophysical Union Transactions, v. 67, p. 1,189.

1987

- Calzia, J.P., Frisken, J.G., Jachens, R.C., McMahan, A.B., and Rumsey, C.M., 1987, Mineral Resources of the Kingston Range Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1709-D, 21 p.
- Nielson, J.E., Frisken, J.G., Jachens, R.C., and McDonnell, J.R., Jr., 1987, Mineral resources of the Fort Piute Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1713-C, 12 p.

Wilshire, H.G., Frisken, J.G., Jachens, R.C., Prose, D.V., Rumsey, C.M., and McMahan, A.B., 1987, Mineral resources of the Cinder Cones Wilderness Study Area, San Bernardino, California: U.S. Geological Survey Bulletin 1712-B, 13 p.

1989

DeWitt, Ed, Anderson, J.L., Barton, H.N., Jachens, R.C., Połowyski, M.H., Brickly, D.W., and Close, T.J., 1989, Mineral Resources of the South McCullough Mountains Wilderness Study Area, Clark County, Nevada: U.S. Geological Survey Bulletin 1730-C.

Dohrenwend, J.C., Jachens, R.C., Blakely, R.J., Moring, B.C., and Menges, C.M., 1989, Geological and geophysical analysis of the subsurface geometry of basins in the central and western Great Basin: Implications for the analysis of concealed mineral resources in Nevada, *in* Fifth Annual V.E. McKelvey Forum, Reno, Nevada, January 24-26, 1989: U.S. Geological Survey Circular 1035, p. 14.

Greene, R.C., Eppinger, R.G., Hassemer, J.R., Jachens, R.C., Lawson, W.A., and Ryan, G.S., 1989, Mineral resources of the Mount Wilson Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-A, 18 p.

Greene, R.C., Turner, R.L., Jachens, R.C., Lawson, W.A., and Almquist, C.L., 1989, Mineral resources of the Mount Tipton Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-B, 18 p.

Jachens, R.C., Blakely, R.J., and Moring, B.C., 1989, Analysis of concealed mineral resources in Nevada: constraints from gravity and magnetic studies, *in* Fifth Annual V.E. McKelvey Forum, Reno, Nevada, January 24-26, 1989: U.S. Geological Survey Circular 1035, p. 35-36.

1990

Blakely, R.J., and Jachens, R.C., 1990, Concealed mineral deposits of Nevada: Insights from three-dimensional analysis of gravity and magnetic anomalies: Geology and Ore Deposits of the Great Basin: Geological Society of Nevada, Program with Abstracts, p. 52-53.

Blakely, R.J., Jachens, R.C., and Sherlock, M., 1990, Bulk mineable precious metal deposits and crustal structure: a statistical comparison, *in* Dean, D.A., Benedetto, K.M.F., and Durgin, D.C., eds., Southern extension of the Carlin trend: influence of structure and stratigraphy on gold deposition: Geological Society of Nevada, p. 30-38.

Conrad, J.E., Hill, R.H., Jachens, R.C., and Neubert, J.T., 1990, Mineral resources of the Black Mountains North and Burns Spring Wilderness Study Areas, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-C, 22 p.

Dohrenwend, J.C., Jachens, R.C., Blakely, R.J., and Moring, B.C., 1990, Subsurface geometry and stratigraphy of basins in the western Great Basin: Implications for the analysis of concealed mineral resources in Nevada: Geology and Ore deposits of the Great Basin: Geological Society of Nevada, Programs with Abstracts, p. 50.

Gray, Floyd, Jachens, R.C., Miller, R.J., Knepper, D.H., Pitkin, J.A., Keith, W.J., Mariano, John, and Korzeb, S.L., 1990, Mineral resources of the Warm Springs Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-F, 53 p.

Jachens, R.C., and Moring, B.C., 1990, Maps of the thickness of Cenozoic deposits and the isostatic residual gravity over basement for Nevada: U.S. Geological Survey Open-File Report 90-404, 15 p., 2 sheets, scale 1:1,000,000.

Morin, R.L., Mariano, John, and Jachens, R.C., 1990, Isostatic residual gravity map of Edwards Air Force Base and vicinity, Kern, Los Angeles, and San Bernardino Counties, California: U.S. Geological Survey Open-File Report 90-664, 1 sheet, scale 1:62,500.

1991

- Blakely, R.J., and Jachens, R.C., 1991, Regional study of mineral resources in Nevada: Insights from three-dimensional analysis of gravity and magnetic anomalies: *Geological Society of America Bulletin*, v. 103, p. 804-816.
- Greenwood, R.B., Morton, D.M., Jachens, R.C., and Chapman, R.H., 1991, Geology and geophysics of the Santa Ana 1:100,000 quadrangle, southern California: A progress report: *Geological Society of America Abstracts with Programs*, v. 23, n. 5, p. A478.
- Jachens, R.C., and Dixon, E.T., 1991, Aeromagnetic map of the Santa Ana 1:100,000 quadrangle, California: U.S. Geological Survey Open-File Report 90-404, 15 p., 1 sheet, scale 1:100,000.
- Jachens, R.C., and Morton, D.M., 1991, Geophysical studies in the Southern California Areal Mapping Project (SCAMP): *Geological Society of America Abstracts with Programs*, v. 23, n. 5, p. A476.

PALEOMAGNETICS

Reports

1989

- Wells, R.E., and Hillhouse, J.W., 1989, Paleomagnetism and tectonic rotation of the lower Miocene Peach Springs Tuff: Colorado Plateau to Barstow, California: *Geological Society of America Bulletin*, v. 101, p. 846-863.

1991

- Hillhouse, J.W., and Wells, R.E., 1991, Magnetic fabric, flow directions, and source area of the lower Miocene Peach Springs Tuff in Arizona, California, and Nevada: *Journal of Geophysical Research*, v. 96, p. 12,443-12,460.

Abstracts

1986

- Hillhouse, J.W., and Wells, R.E., 1986, Assessment of rotations in the eastern Mojave Desert, California and Arizona, from paleomagnetism of the Peach Springs Tuff: *EOS, American Geophysical Union Transactions*, v. 67, n. 44, p. 922.
- Wells, R.E., and Hillhouse, J.W., 1986, Paleomagnetism of the Peach Springs Tuff and correlative outcrops from Barstow, California, to the Colorado Plateau: *Geological Society of America Abstracts with Programs*, v. 18, n. 5, p. 421.

1987

- Wells, R.E., and Hillhouse, J.W., 1987, Tectonic rotations in the Peach Springs Tuff, Colorado River extensional corridor, California and Arizona: *Geological Society of America Abstracts with Programs*, v. 29, p. 886.

1989

- Hillhouse, J.W., and Wells, R.E., 1989, Magnetic fabric and source area of the lower Miocene Peach Springs Tuff in California, Nevada, and Arizona: *EOS, American Geophysical Union Transactions*, v. 70, p. 1,067.

PETROLOGY AND ISOTOPE GEOLOGY

Reports

1986

- Nealey, L.D., Ward, A.W., Bartel, A.J., Vivit, D.V., and Knight, R.J., 1986, Petrochemistry of the Mohon Mountains volcanic field, Arizona: U.S. Geological Survey Open-File Report 86-423, 31 p.
- Wilshire, H.G., and Nielson-Pike, J.E., 1986, Upper-mantle xenoliths in alkaline basalt, Dish Hill, California: Geological Society of America Guidebook, Southern California Field Trips, Mojave Desert Xenolith Suites, Malapai Hill and Dish Hill, p. 1-3.

1987

- Haxel, G.B., Budahn, J.R., Fries, T.L., King, B.W., White, L.D., and Aruscavage, P.J., 1987, Geochemistry of the Orocochia Schist, southeastern California: Summary, in Dickinson, W.R., and Klute, M.A., eds., Mesozoic rocks of southern Arizona and adjacent areas: Arizona Geological Society Digest, v. 18, p. 49-64.

1988

- Wilshire, H.G., and Kirby, S.H., 1988, Dikes, joints, and faults in the upper mantle: Tectonophysics, v. 161, p. 23-31.
- Wilshire, H.G., Meyer, C.E., Nakata, J.K., Calk, L.C., Shervais, J.W., Nielson, J.E., and Schwarzman, E.C., 1988, Mafic and ultramafic xenoliths from volcanic rocks of the western United States: U.S. Geological Survey Professional Paper 1443, 179 p.
- Wooden, J.L., Stacey, J.S., Howard, K.A., Doe, B.R., and Miller, D.M., 1988, Pb isotopic evidence for the formation of Proterozoic crust in the southwestern United States, in Ernst, W.G., ed., Metamorphism and crustal evolution of the western United States (Rubey Volume 7) Englewood Cliffs, N.J., Prentice-Hall, p. 69-86.

1989

- Allen, C.M., 1989, Petrogenesis of the reversely zoned Turtle pluton, S.E. California [Ph.D. thesis]: Blacksburg, Virginia Polytechnic Institute and State University, 374 p.
- Moyer, T.C., and Nealey, L.D., 1989, Regional compositional variations of late Tertiary bimodal rhyolite lavas across the Basin and Range/Colorado Plateau boundary in western Arizona: Journal of Geophysical Research, v. 94, p. 7,799-7,816.
- Nealey, L.D., and Sheridan, M.F., 1989, Post-Laramide volcanic rocks of Arizona and northern Sonora, Mexico, and their inclusions, in Jenney, J.P., and Reynolds, S.J., 1989, Geologic evolution of Arizona: Tucson, Arizona Geological Society Digest 17, p. 609-647.

1990

- Barth, A.P., Tosdal, R.M., and Wooden, J.L., 1990, Petrologic comparison of Triassic plutonism in the San Gabriel and Mule Mountains in southern California: Journal of Geophysical Research, v. 95, p. 20,075-20,096.
- Foster, D.A., Harrison, T.M., Miller, C.F., and Howard, K.A., 1990, The $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of the eastern Mojave Desert, California, and adjacent Arizona with implications for the evolution of metamorphic core complexes: Journal of Geophysical Research, v. 95, p. 20,005-20,024.

- Hammond, J.G., and Wooden, J.L., 1990, Isotopic constraints on the petrogenesis of Proterozoic diabase in the southwestern U.S.A., *in* Parker, A.J., Rickwood, P.C., and Tucker, D.H., editors, *Mafic dykes and emplacement mechanisms: Proceedings of the Second International Dyke Conference, Adelaide, Australia*, p. 145-156.
- Miller, C.F., Wooden, J.L., Bennett, V.C., Wright, J.E., Solomon, G.C., and Hurst, R.W., 1990, Petrogenesis of the composite peraluminous-metaluminous Old Woman-Piute Range batholith, southeastern California: Isotopic constraints, *in* Anderson, J.L., ed., *Nature and Origin of Cordilleran Magmatism: Geological Society of America Memoir 174*, p. 99-110.
- Nakata, J.K., Pernokas, M.A., Howard, K.A., Nielson, J.E., and Shannon, J.R., 1990, K-Ar and fission-track ages (dates) of volcanic, intrusive, altered, and metamorphic rocks in the Mojave Mountains area, west-central Arizona: *Isochron/West*, n. 56, p. 8-20.
- Nielson, J.E., Lux, D.R., Dalrymple, G.B., and Glazner, A.F., 1990, Age of the Peach Springs Tuff, southeastern California and western Arizona: *Journal of Geophysical Research*, v. 95, p. 571-580.
- Wilshire, H.G., 1990, Lithology and evolution of the crust-mantle boundary region in the southwestern Basin and Range Province: *Journal of Geophysical Research*, v. 95, p. 649-665.
- Wooden, J.L., and Miller, D.M., 1990, Chronologic and isotopic framework for Early Proterozoic crustal evolution in the eastern Mojave Desert Region, SE California: *Journal of Geophysical Research*, v. 95, p. 20,133-20,146.

1991

- Glazner, A.F., Farmer, G.L., Hughes, W.T., Wooden, J.L., and Pickthorn, W., 1991, Contamination of basaltic magmas by mafic crust at Amboy and Pisgah Craters, Mojave Desert, California: *Journal of Geophysical Research*, v. 96, p. 13,673-13,691.
- Wilshire, H.G., McGuire, A.V., Noller, J.S., and Turrin, B.D., 1991, Petrology of lower crustal and upper mantle xenoliths from the Cima volcanic field, California: *Journal of Petrology*, v. 32, p. 169-200.

In Press

- Anderson, J.L., Wooden, J.L., and Bender, E.E., in press, Early and Middle Proterozoic crustal evolution of the western transitional zones: California, Nevada, Arizona, *in* Chapter 4, *Transcontinental Proterozoic Provinces: Geological Society of America DNAG Vol., Precambrian-Conterminous U.S.*
- Barth, A.P., Wooden, J.L., and May, D.J., in press, Small scale heterogeneities of Phanerozoic lower crust: Evidence from isotopic and geochemical systematics of mid-crustal granulite gneisses, San Gabriel Mountains, southern California: *Contributions to Mineralogy and Petrology*.
- Nealey, L.D., and Unruh, D.M., in press, Geochemistry and isotopic characteristics of deep crustal xenoliths from Tule Tank, San Francisco field, northern Arizona: *Arizona Geological Society*.
- Unruh, D.M., Nealey, L.D., and Holm, R.F., in press, The role of deep crust in the origin of upper Cenozoic volcanic rocks of northern Arizona--chemical and isotopic evidence from the Mormon Mountain volcanic field: *Geology*.
- Young, E.D., Wooden, J.L., Shieh, Y-N, and Farber, D., in press, Geochemical evolution of Jurassic diorites from the Bristol Lake region, California, U.S.A., and the role of assimilation: *Contributions to Mineralogy and Petrology*.

Abstracts

1986

- Allen, C.M., 1986, Liquidus phases in granite to quartz diorite-- a natural example from magma mixing: Geological Society of America Abstracts with Programs, v. 18, p. 525.
- Allen, C.M., 1986, Rb-Sr pseudochron: the result of mixing in a reversely-zoned calcalkaline pluton, Turtle Mountains, S.E. California: Geological Society of America Abstracts with Programs, v. 18, p. 81.
- Elliott, G., Wooden, J.L., Miller, D.M., and Miller, R.J., 1986, Lower-granulite grade Early Proterozoic supracrustal rocks, New York Mountains, SE California: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 352.
- Haxel, G.B., Budahn, J.R., Fries, T.L., King, B.W., Taggart, J.E., and White, L.D., 1986, Protolith geochemistry of the Orocopia and Pelona Schist, southern California: Preliminary report: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 115.
- Nealey, L.D., 1986, Chemical characteristics of Tertiary volcanic rocks in central and west-central Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 398.
- Nealey, L.D., Holm, R.F., and Conway, M.F., 1986, Petrology of the Mormon Mountain volcanic field, Coconino and Yavapai Counties, Arizona: Museum of Northern Arizona, Symposium on Southwestern Geology.
- Nielson, J.E., 1986, Chemical relationships between mantle hornblendite, pyroxenite, and high-pressure megacrysts, Dish Hill, California: Geological Society of America Abstracts with Programs, v. 18, p. 164.
- Shaw, S.E., Cooper, J.A., O'Neil, J.R., Todd, V.R., and Wooden, J.L., 1986, Strontium, oxygen, and lead isotopic variations across a segment of the Peninsular Ranges batholith, San Diego County, California: Geological Society of America Abstracts with Programs, v. 18, p. 183.
- Sheridan, M.F., Nealey, L.D., and Dehn, J., 1986, Middle and Late Cenozoic volcanism in Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 412.
- Wilshire, H.G., and Noller, J.S., 1986, Mantle/crust xenoliths in hawaiite lavas: The Cima volcanic field, California: Fourth International Kimberlite Conference, Extended Abstracts, Geological Society of Australia, Abstracts, n. 16, pt. 4, p. 355-357.
- Wooden, J.L., Stacey, J.S., Howard, K.A., and Miller, D.M., 1986, Crustal evolution in southeastern California: Constraints from Pb isotopic evidence: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 200.

1987

- Allen, C.M., 1987, Multiple sources of Cretaceous magmas, southern Turtle Mountains, S.E. California: Geological Society of America Abstracts with Programs, v. 9, p. 569.
- Bouse, R.M., Wooden, J.L., Koski, R.A., and Pickthron, L.B., 1987, Pb isotopic compositions for stratiform manganese deposits and their Miocene host rocks, Nevada and Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 360.
- Fryxell, J.E., Richard, S.M., Sutter, J.F., and Lucchitta, Ivo, 1987, Contrasting $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of minerals from lower plate rocks of the Buckskin-Bullard-Eagle Eye detachment fault system, west-central Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 670.

- Howard, K.A., Nakata, J.K., Pernokas, M.A., Marvin, R.F., and Miller, D.M., 1987, Mesozoic and Cenozoic heating, cooling, and uplift in SE California and adjacent Arizona: Evidence from K-Ar dating of crystalline rocks: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 708.
- Kirby, S.C., Nielson, J.E., Noller, J.S., and Thompson, G.A., 1987, Geophysics and petrology of the deep crust and upper mantle: Workshop overview and summary, *in* Noller, J.S., Kirby, S.C., Nielson-Pike, J.E., and Thompson, G.A., Geophysics and Petrology of the Deep Crust and Upper Mantle, A Workshop sponsored by the US Geological Survey and Stanford University, Volume of Extended Abstracts: U.S. Geological Survey Circular 956, 88 p.
- Kozak, R.C., Nealey, L.D., and Knight, R.J., 1987, Geochemistry of late Tertiary volcanic rocks, Kirkland-Yarnell area, Arizona: Museum of Northern Arizona, Abstracts, Symposium on Southwestern Geology and Paleontology, p. 11.
- Moyer, T.C., and Nealey, L.D., 1987, Regional geochemical variations in Neogene bimodal rhyolites, west-central Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 780.
- Nealey, L.D., and Knight, R.J., 1987, Trace-element geochemistry of obsidian in the Mount Floyd volcanic field, Arizona--Archaeological implications: Museum of Northern Arizona, Abstracts, Symposium on Southwestern Geology and Paleontology, p. 7.
- Nealey, L.D., Conway, C.M., and Thliveras, S., 1987, Trace element affinities of some Early Proterozoic suites in central Arizona: Journal of the Arizona-Nevada Academy of Science, v. 22, p. 48.
- Nielson, J.E., 1987, Evolution of the lower lithosphere near the CA-AZ crustal transect: Evidence from xenoliths: Geological Society of America Abstracts with Programs, v. 19, p. 789.
- Nielson-Pike, J.E., 1987, Character of the lower lithosphere: Composition: U.S. Geological Survey Circular 956, p. 9-12.
- Orell, S.E., Anderson, J.L., Wooden, J.L., and Wright, J.E., 1987, Proterozoic crustal evolution of the lower Colorado River region: Rear-arc orogenesis to anorogenic crustal remobilization: Geological Society of America Abstracts with Programs, v. 19, p. 795.
- Wilshire, H.G., 1987, Multistage generation of alkalic basalt in the mantle: The Cima volcanic field, California: Geological Society of America Abstracts with Programs, v. 19, p. 892.
- Wilshire, H.G., 1987, Character of the lower lithosphere: Lithology, *in* Noller, J.S., Kirby, S.C., and Nielson, J.E., (eds.), Workshop: Geophysics and Petrology of the Deep Crust and Mantle: U.S. Geological Survey Circular 956, p. 6-8.
- Wilshire, H.G., and Kirby, S.H., 1987, Brittle fracturing and related phenomena in the lower lithosphere: Geological Society of America Abstracts with Programs, v. 19, p. 464.
- Wooden, J.L., and Aleinikoff, J.N., 1987, Pb isotopic evidence for Early Proterozoic crustal evolution in the southwestern U.S.: Geological Society of America Abstracts with Programs, v. 19, p. 896.
- Wooden, J.L., and Stacey, J.S., 1987, Lead isotopic constraints on the origin of Cordilleran granitic magmatism: Geological Society of America Abstracts with Programs, v. 19, p. 465.
- Wright, J.E., Howard, K.A., and Anderson, J.L., 1987, Isotopic systematics of zircons from Late Cretaceous intrusive rocks, southeastern California: Implications for a vertically stratified crustal column: Geological Society of America Abstracts with programs, v. 19, n. 7, p. 898.

1988

- Barth, A.P., Tosdal, R.M., and Wooden, J.L., 1988, Characteristics and implications of Triassic and Jurassic granitoids in the San Gabriel, Mule, and Trigo Mountains, southern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 141.
- Bender, E.E., Anderson, J.L., Wooden, J.L., Howard, K.A., and Miller, C.F., 1988, Correlation of 1.7 Ga granitoid plutonism in the lower Colorado River region: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 142.
- Fletcher, J.M., Karlstrom, K.E., Ring, T.E., Wooden, J.L., and Foster, D.A., 1988, Tectonic style and timing of deep-seated Mesozoic crustal shortening: Piute Mountains, eastern Mojave Desert: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A272.
- Foster, D.A., Harrison, T.M., Miller, C.F., Howard, K.A., and John, B.E., 1988, Mesozoic and Cenozoic thermal history of the eastern Mojave Desert, California: Insights from $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A71.
- Gleason, J.D., Miller, C.F., and Wooden, J.L., 1988, Barrel Spring alkalic complex: 1.4 Ga anorogenic plutonism in the Old Woman-Piute Range, eastern Mojave Desert, California: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 164.
- Hoisch, T.D., and Hamilton, W.B., 1988, Latest Cretaceous crustal metamorphism in southeastern California by fluids from subducted schist: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 169.
- Miller, D.M., and Wooden, J.L., 1988, An Early Proterozoic batholithic belt in the northern New York Mountains area, California and Nevada: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 215-216.
- Unruh, D.M., Nealey, L.D., and Holm, R.F., 1988, Trace-element and isotopic constraints on the origin of the Mormon Mountain volcanic field, central Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 238.
- Wilshire, H.G., 1988, Remelting of igneous and meta-igneous rocks in the upper mantle: EOS, American Geophysical Union Transactions, v. 69, p. 1,049.
- Wilshire, H.G., 1988, Enrichment of lithospheric mantle in western United States extensional terranes: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A366.
- Wooden, J.L., Miller, D.M., and Howard, K.A., 1988, Early Proterozoic chronology of the eastern Mojave Desert: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 243.
- Wooden, J.L., Stacey, S.S., Robinson, A.C., Kistler, R.A., Tosdal, R.M., and Whitehouse, M.J., 1988, Pb isotope characteristics of Mesozoic intrusive magmatism along the craton margin in the western U.S.: Butte, Montana, 8th International Conference on Basement Tectonics, p. 35.
- Young, E.D., and Wooden, J.L., 1988, Mid-crustal emplacement of Mesozoic granitoids, eastern Mojave Desert: evidence from crystallization barometry: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 244.

1989

- Anderson, J.L., Wooden, J.L., and Bender, E.E., 1989, Early and Middle Proterozoic crustal evolution of the southwestern U.S.: Geological Society of America Abstracts with Programs, v. 21, n. 6, p. A23.

Farber, D.L., Davis, M.S., Johnson, K.A., Young, E.D., Wooden, J.L., and Tosdal, R.M., 1989, Late Jurassic bimodal alkalic plutonism and magma mixing in the Mojave Desert region, southeast California: Geological Society of America Abstracts with Programs, v. 21, n. 6, p. A325-326.

Young, E.D., and Wooden, J.L., 1989, Geochemical evolution of a middle crustal mafic plutonic complex, southeastern California: EOS, American Geophysical Union Transactions, v. 70, p. 504.

1990

Allen, C.M., Foster, D.A., and Wooden, J.L., 1990, Sources of plutons and P-T-t path of southern Turtle Mountains, S.E. California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 1.

Anderson, J.L., Barth, A.P., Bender, E.E., Davis, M.J., Farber, D.F., Hayes, E.M., Johnson, D.A., Young, E.D., Wooden, J.L., and Tosdal, R.M., 1990, San Gabriel (Tujunga) terrane - Coming home to Mojave: Geological Society of America Abstracts with Programs, v. 22, n. 7, p. A303.

Barth, A.P., Wooden, J.L., and May, D.J., 1990, Geochemistry of Cretaceous gneisses, SE San Gabriel Mountains, southern California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 5.

Bouse, R.M., Ruiz, J., Titley, S.R., Lang, J.R., and Wooden, J.L., 1990, Common Pb isotopic evidence from Laramide plutons and Phanerozoic mineralization in Arizona for the inheritance of isotopic and metal ratios from Proterozoic basement: EOS, American Geophysical Union Transactions, v. 71, p. 1,681.

Farmer, G.L., Glazner, A.F., Hughes, W.T., Wooden, J.L., and Pickthorn, W., 1990, Mixing of basaltic magma with mafic crust at Amboy and Pisgah craters, Mojave Desert, California: EOS, American Geophysical Union Transactions, v. 71, p. 1,682.

Hammond, J.G., and Wooden, J.L., 1990, Pb isotopic constraints on the origin of Proterozoic diabases of California and Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 28.

Hoisch, T.D., and Hamilton, W.B., 1990, Granite generation of fluid-induced anatexis: EOS, American Geophysical Union Transactions, v. 71, p. 694-696.

Murphy, G.P., Tosdal, R.M., Wooden, J.L., Kent, J., Vaughn, R.B., and Hayes, E.M., 1990, Chemical and isotopic character of Jurassic granitoids, Cargo Muchacho Mountains, SE California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 71.

Nealey, L.D., Unruh, D.M., Knight, R.J., and King, B.W., 1990, Geochemistry of deep crustal xenoliths from the southern Colorado Plateau, northern Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 72.

Wooden, J.L., and Tosdal, R.M., 1990, Common Pb isotopic evidence for sources of Mesozoic and Tertiary magmatism in SE California and SW Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 95.

Wooden, J.L., Bennett, V.C., Hanchar, J.M., and Miller, C.F., 1990, Lower crustal xenoliths in Tertiary dikes, Old Woman Mountains area, SE California: II. Pb, Nd, and Sr isotopic data: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 95.

1991

Anderson, J.L., Young, E.D., Barth, A.P., Wooden, J.L., Tosdal, R.M., and Morrison, Jean, 1991, Mesozoic batholiths of the Mojave: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 3.

Barth, A.P., Ginzel, B.M., Wooden, J.L., and Tosdal, R.M., 1991, U-Pb zircon geochronology and geochemistry of Mendenhall gneiss, western San Gabriel Mountains, southern California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A453.

- Bender, E.E., Anderson, J.L., and Wooden, J.L., 1991, Temporal variations in the chemistry of Early Proterozoic plutons from the southwest United States: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A57.
- Farmer, G.L., Wilshire, H.G., Wooden, J.L., Glazner, A.F., and Katz, M., 1991, Temporal variations in the sources of alkali basalts at the Cima volcanic field, SE California: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 23.
- Gerber, M.E., Miller, C.F., Wooden, J.L., and Foster, D.A., 1991, Plutonism at the eastern edge of the Cordilleran Jurassic magmatic belt, Mojave Desert, California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A249.
- Miller, C.F., Hanchar, J.M., Harrison, T.M., Wark, D.A., Wooden, J.L., and Bennett, V.C., 1991, The granite-source connection: Narrowing the gap through study of lower crustal xenoliths and accessory minerals: EOS, American Geophysical Union Transactions, v. 72, p. 302.
- Wilshire, H.G., and Nielson, J.E., 1991, Differentiation of basaltic intrusions in the mantle: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A272.
- Wooden, J.L., and Miller, D.M., 1991, Early Proterozoic geologic history of the Mojave crustal province: Geological Society of America Abstracts with Programs, v. 23, n. 4, p. 108.
- Wooden, J.L., and Aleinikoff, J.N., 1991, Early Proterozoic isotopic provinces in the southwestern U.S.: Geological Society of America Abstracts with Programs, v. 23, n. 4, p. 107.
- Wooden, J.L., Kistler, R.W., Robinson, A.C., Tosdal, R.M., and Wright, J.E., 1991, A comparison of isotopic signatures and Mesozoic and Tertiary plutonism in the western U.S.: EOS, American Geophysical Union Transactions, v. 72, n. 17, p. 302.
- Wooden, J.L., Powell, R.E., Howard, K.A., and Tosdal, R.M., 1991, Eagle Mountains 30'x60' quadrangle, southern California: II. Isotopic and chronologic studies: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A478.
- Young, E.D., Farber, Daniel, Wooden, J.L., and Tosdal, R.M., 1991, Partial melting of subcontinental lithosphere as evidence for Jurassic intra-arc crustal extension, SE California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A250.

1992

- Hammarstrom, J.M., 1992, Mineral chemistry of Cretaceous plutons: Hornblende geobarometry in southern California and southeastern Alaska: Geological Society of America Abstracts with Programs, v. 24, n. 5, p. 30.

PACE-related Reports and Abstracts

1985

- Haxel, G.B., Briskey, J.A., May, D.J., Tosdal, R.M., and Wright, J.E., 1985, Reconnaissance petrochemistry of Jurassic igneous rocks, Baboquivari and Comobabi Mountains area, southern Arizona: Geological Society of America Abstracts with Programs, v. 17, p. 361.

1986

- Nielson, J.E., 1986, Mantle magmatic events indicated by zoned olivine and pyroxene compositional variations in a composite mantle xenolith from Lashaine Volcano, Tanzania: 4th International Kimberlite Conference, Extended abstracts volume, p. 297-289.
- Noller J.S., 1986, Solid and fluid inclusions in mantle xenoliths: An analytical dilemma: *Geology*, v. 14, p. 437-440.

1987

- Haxel, G.B., 1987, Trace-element systematics of peraluminous leucogranites, Baboquivari Mountains chain, south-central Arizona: *Geological Society of America Abstracts with Programs*, v. 19, n. 6, p. 388.
- Mukasa, S.B., Shervais, J.W., Wilshire, H.G., and Nielson, J.E., 1987, Isotopic variations in the upper mantle: The Lherz alpine peridotite massif as an example: *EOS, American Geophysical Union Transactions*, v. 68, p. 1,552.
- Nielson, J.E., and Noller, J.S., 1987, Processes of mantle metasomatism, *in* Morris, E.M., and Pasteris, J.D., eds., *Mantle Metasomatism and alkaline magmatism: Geological Society of America Special Paper 215*, p. 61-76.
- Nielson, J.E., Budahn, J.R., and Wilshire, H.G., 1987, Fluid-wallrock interactions in the mantle: Evidence from composite lherzolite-hornblendite xenoliths, U.S. Geological Survey Circular 956, p. 86-88.
- Wilshire, H.G., 1987, A model of mantle metasomatism, *in* Morris, E.M. and Pasteris, J.D. (eds.), *Mantle Metasomatism and Alkaline Magmatism: Geological Society of America Special Paper 215*, p. 47-60.

1988

- Ridley, W.I., Nielson, J.E., and Wilshire, H.G., 1988, Understanding lunar mantle metasomatism: The terrestrial mantle analogy: Workshop on Moon in transition: Apollo 14, KREEP, and evolved lunar rocks: Lunar and Planetary Institute, Nov. 14-16, 1988, Houston, Texas, p. 69-70.

1989

- Haxel, G.B., 1989, Geochemistry of peraluminous leucogranites, south-central Arizona, *in* *Continental magmatism abstracts*, International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly, Santa Fe: New Mexico Bureau of Mines and Mineral Resources Bulletin 131, p. 124.
- Nielson, J.E., 1989, Nature and sequence of mantle magmatic events indicated by compositional variations in a composite xenolith from Lashaine Volcano, Tanzania, *in* Ross, J., Jaques, A.L., Ferguson, J., Green, D.H., O'Reilly, S.Y., Danchin, R.V., and Janse, A.J.A., eds., *Kimberlite and Related Rocks*, v. 2, Geological Society of Australia Special Publication 14, p. 700-708.

1990

- Mukasa, S.B., Shervais, J.W., Wilshire, H.G., and Nielson, J.E., 1990, Upper mantle Nd-Pb- and Sr-isotopic heterogeneities exhibited by alpine peridotite massifs at Lherz and Balmuccia: *International Workshop on Orogenic Lherzolites and Mantle Processes*.
- Nielson, J.E., Wilshire, H.G., Meyer, C., Shervais, J., and Mukasa, S., 1990, Fractionated dikes, Lherz massif, southern France: *International Workshop on Orogenic Lherzolites and Mantle Processes*.

1991

Allen, C.M., 1991, Local equilibrium of mafic enclaves and granitoids of the Turtle pluton, S.E. California: mineral chemical and isotopic evidence: *American Mineralogist*, v. 76, p. 574-588.

McGuire, A.V., Dyar, D., and Nielson, J.E., 1991, Metasomatic oxidation of upper mantle peridotite, *Contributions to Mineralogy and Petrology*, v. 109, p. 252-264.

In Press

Mukasa, S.B., Wilshire, H.G., Nielson, J.E., and Shervais, J.W., in press, Intrinsic Nd, Pb and Sr isotopic heterogeneities exhibited by the Lherz alpine peridotite massif, French Pyrenees: *Journal of Petrology*.

GEOLOGY

Reports

1985

Haxel, G.B., Tosdal, R.M., and Dillon, J.T., 1985, Tectonic setting and lithology of the Winterhaven Formation, a new Mesozoic stratigraphic unit in southeasternmost California and southwestern Arizona: *U.S. Geological Survey Bulletin* 1599, 19 p.

1986

Conway, C.M., 1986, Field guide to Early Proterozoic strata that host massive sulfide deposits at Bagdad, Arizona, *in* Nations, J.D., Conway, C.M., and Swann, G.A., eds., *Geology of central and northern Arizona*, Geological Society of America, Rocky Mountain Section, field trip guidebook: Flagstaff, Arizona, Northern Arizona University, p. 140-157.

Conway, C.M., and Karlstrom, K.E., 1986, Early Proterozoic geology of Arizona--A workshop report: EOS, *American Geophysical Union Transactions*, v. 67, n. 37, p. 681-682.

Conway, C.M., and Wrucke, C.T., 1986, Proterozoic geology of the Sierra Ancha-Tonto Basin-Mazatzal Mountains area, road log and field guide: *Arizona Geological Society Digest*, v. 16, p. 227-247.

Conway, C.M., Connelly, T.J., and Robison, L.C., 1986, An Early Proterozoic volcanic-hydrothermal-exhalative system at Bagdad, Arizona: *Arizona Geological Society Digest*, v. 16, p. 24-34.

Glazner, A.F., Nielson, J.E., Howard, K.A., and Miller, D.M., 1986, Correlation of the Peach Springs Tuff, a large-volume Miocene ignimbrite sheet in California and Arizona, *in* Guidebook and Volume Trips 5 and 6--Cenozoic stratigraphy, structure, and mineralization in the Mojave Desert, Geological Society of America Cordilleran Section 82nd Annual Meeting, Los Angeles, CA, March 25-28, 1986, p. 65-68.

Glazner, A.F., Nielson, J.E., Howard, K.A., and Miller, D.M., 1986, Correlation of the Peach Springs Tuff, a large-volume Miocene ignimbrite sheet in California and Arizona: *Geology*, v. 14, n. 10, p. 840-843.

Gusa, Sharon, 1986, Recognition of the Peach Springs Tuff, California and Arizona, using heavy-mineral suites: *U.S. Geological Survey Open-File Report* 86-522, 11 p.

Haxel, G.B., and Tosdal, R.M., 1986, Significance of the Orocopia Schist and Chocolate Mountains thrust in the late Mesozoic tectonic evolution of the southeastern California-southwestern Arizona region: Extended abstract, *in* Beatty, Barbara, and Wilkinson, P.A.K., eds., *Frontiers in geology and ore deposits of Arizona and the Southwest*: *Arizona Geological Society Digest* 16, p. 52-61.

- Haxel, G.B., Tosdal, R.M., and Dillon, J.T., 1986, Field guide to the Chocolate Mountains thrust and Orocopia Schist, Gavilan Wash area, southeasternmost California, *in* Cenozoic stratigraphy, structure, and mineralization in the Mojave Desert, Guidebook and Volume, Trips 5 and 6, Geological Society of America, Cordilleran Section, Los Angeles, p. 127-138.
- Karlstrom, K.E., and Conway, C.M., 1986, Deformational styles and contrasting lithostratigraphic sequences within an Early Proterozoic orogenic belt, central Arizona, *in* Nations, J.D., Conway, C.N., and Swann, G.A., eds., Geology of central and northern Arizona, Geological Society of America, Rocky Mountain Section, Field trip guidebook: Flagstaff: Northern Arizona University, p. 1-25.
- Karlstrom, K.E., and Conway, C.M., 1986, Symposium report: Early Proterozoic geology of Arizona: Geology, vol. 14, p. 625-626.
- Lucchitta, Ivo, and Young, R.A., 1986, Structure and geomorphic character of western Colorado Plateau in the Grand Canyon-Lake Mead region, *in* Nations, J.D., Conway, C.M., and Swann, G.A., eds., 1986, Geology of Central and Northern Arizona: Geological Society of America, Rocky Mountain Section, Field Trip Guidebook, p. 159-176.
- Lucchitta, Ivo, 1986, Heat and detachment in core-complex extension--Paper presented to the Conference on Heat and Detachment in Crustal Extension on Continents and Planets, Sedona, Arizona, October 10-12, 1985: Lunar and Planetary Institute, p. 64-68.
- Nations, J.D., Conway, C.M., and Swann, G.A., eds., 1986, Geology of central and northern Arizona, Geological Society of America, Rocky Mountain Section, Field trip guidebook: Northern Arizona University, Flagstaff.
- Nielson, J.E., and Turner, R.D., 1986, Miocene rocks of the northern Turtle Mountains, San Bernardino County, California, *in* Cenozoic stratigraphy, structure and mineralization in the Mojave Desert: Geological Society of America, Cordilleran Section, 82nd Ann. Mtg., Los Angeles, CA, March 25-28, 1986, Guidebook and Volume, Field Trip numbers 5 and 6, p. 25-32.
- Nielson, J.E., 1986, Miocene stratigraphy of the Mojave Mountains, Arizona, and correlation with adjacent ranges, *in* Cenozoic stratigraphy, structure and mineralization in the Mojave Desert: Geological Society of America, Cordilleran Section, 82nd Ann. Mtg., Los Angeles, CA, March 25-28, 1986, Guidebook and Volume, Field Trip numbers 5 and 6, p. 15-24.
- Stewart, J.H., Anderson, T.H., Haxel, G.B., Silver, L.T., and Wright, J.E., 1986, Late Triassic paleogeography of the southern Cordillera: The problem of a source for voluminous volcanic detritus in the Chinle Formation of the Colorado Plateau region: Geology, v. 14, p. 566-570.
- Tosdal, R.M., 1986, Gneissic host rocks of gold mineralization in the Picacho Mine, southeastern Chocolate Mountains, southeastern California, *in* Cenozoic stratigraphy, structure, and mineralization in the Mojave Desert: Geological Society of America Cordilleran Section, 82nd Annual Mtg., Los Angeles, CA, March 25-28, 1986, Guidebook and volume, Trips 5 and 6, p. 143-144.
- Tosdal, R.M., 1986, Mesozoic ductile deformations in the southern Dome Rock Mountains, northern Trigo Mountains, Trigo Peaks, and Livingston Hills, southwestern Arizona, and Mule Mountains, southeastern California, *in* Beatty, Barbara, and Wilkinson, Pamela, eds., Frontiers in geology and ore deposits of Arizona and the Southwest: Arizona Geological Society Digest 16, p. 62-71.
- Weir, G.W., Ulrich, G.E., and Nealey, L.D., 1986, Preliminary geologic map of the Sedona 30 x 60' quadrangle, Yavapai and Coconino Counties, Arizona: U.S. Geological Survey Open-File Report 86-164, scale 1:100,000.
- Weir, G.W., Ulrich, G.E., and Nealey, L.D., 1986, Geologic map of the Sedona 30- x 60-minute quadrangle, Yavapai and Coconino Counties, Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-1896, scale 1:100,000.

- Conway, C.M., Karlstrom, K.E., Wrucke, C.T., and Silver, L.T., 1987, Tectonic and magmatic contrasts across a two-province boundary in central Arizona, *in* Davis, G.H., and VandenDolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 158-175.
- Fitzgibbon, T.T., 1987, Technical Manual and Program Listing for REFORM: A rock-sample database program in FORTRAN-77: U.S. Geological Survey Open-File Report 87-141B, 81 p.
- Fitzgibbon, T.T., 1987, User's manual for REFORM: A rock-sample database program in FORTRAN-77: U.S. Geological Survey Open-File Report 87-141-A, 67 p.
- Frost, E.G., Okaya, D.A., McEvilly, T.V., Hauser, E.C., Galvan, G.S., McCarthy, J., Fuis, G.S., Conway, C.M., Blom, R.G., and Heidrick, T.L., 1987, Crustal transect: Colorado Plateau-detachment terrane-Salton Trough, *in* Davis, G.H., and VandenDolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 398-422.
- Gusa, Sharon, Nielson, J.E., and Howard, K.A., 1987, Heavy-mineral suites confirm wide distribution of the Peach Springs Tuff, California and Arizona, USA: *Journal of Volcanology and Geothermal Research*, v. 33, p. 343-347.
- Hamilton, W.B., 1987, Crustal extension in the Basin and Range province, southwestern United States, *in* Coward, M.P., Dewey, J.F., and Hancock, P.L., eds., *Continental extensional tectonics*: Geological Society of London Special Publication No. 28, p. 155-176.
- Hamilton, W.B., 1987, Mesozoic geology and tectonics of the Big Maria Mountains region, southeastern California: *Arizona Geological Society Digest* 18, p. 33-47.
- Hamilton, W.B., Tosdal, R.M., Stone, Paul, and Haxel, G.B., 1987, Mesozoic tectonics of southeastern California, *in* Davis, G.H., and VandenDolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology, Special Paper 5, p. 337-350.
- Hauser, E.C., Gephart, J., Latham, T., Oliver, J., Kaufman, S., Brown, L., and Lucchitta, Ivo, 1987, COCORP Arizona transect: strong crustal reflections and offset Moho beneath the Transition Zone: *Geology*, v. 15, p. 1,103-1,106.
- Howard, K.A., John, B.E., and Miller, C.F., 1987, Metamorphic core complexes, Mesozoic ductile thrusts, and Cenozoic detachments: Old Woman Mountains - Chemehuevi Mountains transect, California and Arizona, *in* Davis, G.H., and Vandendolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 365-382.
- Howard, K.A., and John, B.E., 1987, Crustal extension along a rooted system of imbricate low-angle faults: Colorado River extensional corridor, California and Arizona, *in* Coward, M.P., Dewey, J.F., and Hancock, P.L., eds., *Continental extensional tectonics*: Geological Society of London Special Publication No. 28, p. 299-311.
- John, B.E., 1987, Geologic map of the Chemehuevi Mountains area, San Bernardino County, California, and Mohave County, Arizona: U.S. Geological Survey Open-File Report 87-666, scale 1:24,000.
- John, B.E., 1987, Geometry and evolution of a mid-crustal extensional fault system: Chemehuevi Mountains, southeastern California, *in* Coward, M.P., Dewey, J.F., and Hancock, P.L., eds., *Continental extensional tectonics*: Geological Society of London Special Paper. 28, p. 313-335.
- Karlstrom, K.E., Bowring, S.A., and Conway, C.M., 1987, Tectonic significance of an Early Proterozoic two-province boundary in central Arizona: *Geological Society of America Bulletin*, v. 99, p. 529-538.

- Lucchitta, Ivo, 1987, The mouth of the Grand Canyon and edge of the Colorado Plateau in the upper Lake Mead area: Geological Society of America Centennial Field Guide--Rocky Mountain Section, p. 365-370.
- Mittiwede, S.K., Glazner, A.F., Nielson, J.E., Howard, K.A., and Miller, D.M., 1987, Comment and reply on "Correlation of the Peach Springs Tuff, a large-volume Miocene ignimbrite sheet in California and Arizona": *Geology*, v. 15, p. 375.
- Nealey, L.D., Ward, A.W., Bartel, A.J., Vivit, D.V., and Knight, R.J., 1987, Petrochemistry of rocks from the Mohon Mountain volcanic field, Yavapai and Mohave Counties, Arizona: U.S. Geological Survey Open-file report 86-423, 20 p.
- Sherrod, D.R., and Koch, R.D., 1987, Structure and stratigraphy of Mesozoic sedimentary and volcanic rocks in the New Water Mountains, southwestern Arizona, *in* Dickinson, W.R. and Klute, M.A., eds., Mesozoic rocks of southern Arizona and adjacent parts: Arizona Geological Society Digest, v. 18, p. 81-90.
- Stone, Paul, 1987, Mesozoic tectonics of southeastern California, Day 2, morning: McCoy Mountains Formation, McCoy Mountains, *in* Davis, G.H., and VandenDolder, E.M., eds., Geologic diversity of Arizona and its margins: Excursions to choice areas: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 342-344.
- Stone, Paul, Page, V.M., Hamilton, W.B., and Howard, K.A., 1987, Cretaceous age of the upper part of the McCoy Mountains Formation, southeastern California and southwestern Arizona and its tectonic significance: Reconciliation of paleobotanical and paleomagnetic evidence: *Geology*, v. 15, p. 561-564.
- 1988
- Billingsley, G.H., Conway, C.M., and Beard, L.S., 1988, Geologic map of the Prescott 30 by 60 minute quadrangle: U.S. Geological Survey Open-File Report 88-372, scale 1:100,000.
- Howard, K.A., and Allen, C.M., 1988, Geologic map of the southern part of the Dale Lake 15-minute quadrangle, San Bernardino and Riverside counties, California: U.S. Geological Survey Open-File Report 88-538 (with pamphlet), scale 1:62,500.
- John, B.E., 1988, Structural reconstruction and zonation of a tilted mid-crustal magma chamber: the felsic Chemehuevi Mountains plutonic suite: *Geology*, v. 16, p. 613-617.
- Lucchitta, Ivo, and Suneson, N.H., 1988, Geologic Map of the Artillery Peak NW quadrangle, Mojave County, Arizona: U.S. Geological Survey Open-file Map 85-277, scale 1:24,000.
- Lucchitta, Ivo, and Suneson, N.H., 1988, Geologic Map of the Planet 2 SW Quadrangle, Mojave County, Arizona: U.S. Geological Survey Open-file Map 88-547, scale 1:24,000.
- Miller, J.M.G., and John, B.E., 1988, Detached strata in a Tertiary low-angle normal fault terrane, southeastern California: A sedimentary record of unroofing, breaching and continued slip: *Geology*, v. 16, p. 645-648.
- Reynolds, S.J., Richard, S.M., Haxel, G.B., Tosdal, R.M., and Laubach, S.E., 1988, Geologic setting of Mesozoic and Cenozoic metamorphism in Arizona, *in* Ernst, W.G., ed., Metamorphism and crustal evolution of the western United States (Rubey Volume 7): Englewood Cliffs, N.J., Prentice-Hall, p. 466-501.
- Sherrod, D.R., 1988, Preliminary geologic map of the Monkeys Head quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Open-File Report 88-597 (with pamphlet), scale 1:24,000.
- Stone, Paul, and Kelly, M.M., 1988, Preliminary geologic map of the Palen Pass quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 88-503, scale 1:24,000.

Wilshire, H.G., 1988, Geology of the Cima volcanic field, San Bernardino County, California: Geological Society of America Field Trip Guidebook, This Extended Land: Geological Journeys in the Southern Basin and Range, p. 210-213.

1989

Bryant, Bruce, and Wooden, J.L., 1989, Lower plate rocks of the Buckskin Mountains, Arizona-A progress report, in Spencer, J.E., and Reynolds, S.J., eds., Geology of the Buckskin Mountains west-central Arizona: Arizona Geological Survey Bulletin 198, p. 47-50, 1 fig.

Conway, C.M., and Silver, L.T., 1989, Early Proterozoic rocks (1710-1615-Ma) in central to southeastern Arizona, in Jenny, J.P., and Reynolds, S.J., eds., Geologic evolution of Arizona: Arizona Geological Society Digest 17, p. 165-186.

Horringa, E.D., 1989, Rocks and structural evolution of the northern Kilbeck Hills, San Bernardino County, California [M.S. thesis]: San Jose, California, San Jose State University, 180 p.

Howard, K.A., Horrington, E.D., Miller, D.M., and Stone, Paul, 1989, Geologic map of the eastern parts of the Cadiz Lake and Cadiz Valley 15-minute quadrangles, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2086, scale 1:62,500.

Howard, K.A., Stone, Paul, and Miller, C.F., 1989, Geologic map of the Milligan 15-minute quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2072, scale 1:62,500.

Lucchitta, Ivo, 1989, Overflight of the tectonic boundary between the Colorado Plateau and the Basin and Range provinces: American Geophysical Union Field Trip Guidebook T116/389 for 28th International Geological Congress, 21 pp.

Stone, Paul, and Pelka, G.J., 1989, Geologic map of the Palen-McCoy Wilderness Study Area and vicinity, Riverside County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2092, scale 1:62,500.

Tosdal, R.M., Haxel, G.B., and Wright, J.E., 1989, Jurassic geology of the Sonoran Desert region, southern Arizona, southeastern California, and northernmost Sonora: Construction of a continental-margin magmatic arc, in Jenney, J.P. and Reynolds, S.J., eds., Geologic evolution of Arizona: Arizona Geological Society Digest 17, p. 397-434.

Ulrich, G.E., Condit, C.D., Wenrich, K.J., Wolfe, E.W., Holm, R.F., Nealey, L.D., Conway, F.M., Aubele, J.C., and Crumpler, L.S., 1989, Miocene to Holocene volcanism and tectonism of the southern Colorado Plateau, Arizona: New Mexico Bureau of Mines and Mineral Resources Memoir 46, p. 1-41.

1990

Beratan, K.K., Blom, R.G., Nielson, J.E., and Crippen, R.E., 1990, Use of Landsat thematic images in regional correlation of syntectonic strata, Colorado River extensional corridor, California and Arizona: Journal of Geophysical Research, v. 95, p. 615-624.

Dillon, J.D., Haxel, G.B., and Tosdal, R.M., 1990, Structural evidence for northeastward movement on the Chocolate Mountains thrust, southeasternmost California: Journal of Geophysical Research, v. 95, p. 19,953-19,971.

Howard, K.A., Nielson, J.E., Wilshire, H.G., Nakata, J.K., Goodge, J.W., Reneau, S.L., John, B.E., and Hansen, V.L., 1990, Preliminary geologic map of the Mojave Mountains area, Mojave County, western Arizona: U.S. Geological Survey Open-file report 90-684, scale 1:48,000.

John, B.E., and Mukasa, S.B., 1990, Footwall rocks to the mid-Tertiary Chemehuevi detachment fault: a window into the Late Cretaceous middle crust: Journal of Geophysical Research, vol. 95, p. 463-485.

- John, B.E., and Wooden, J.L., 1990, Petrology and geochemistry of the metaluminous to peraluminous Chemehuevi Mountains plutonic suite, southeastern California, *in* Anderson, J.L., ed., *The Nature and Origin of Cordilleran Magmatism*, Geological Society of America Memoir 174, pages 71-98.
- Lucchitta, Ivo, and Suneson, N.H., 1990, Geologic Map of the Planet 2 NW quadrangle, Mojave County, Arizona: U.S. Geological Survey Open-File report 89-673, scale 1:24,000.
- Lucchitta, Ivo, 1990, Role of heat and detachment in continental extension as viewed from the eastern Basin and Range Province in Arizona *in* Lucchitta, Ivo, and Morgan, Paul, eds., *Heat and detachment in continental extension: Tectonophysics*, v. 174, p. 77-114.
- Nielson, J.E., and Beratan, K.K., 1990, Tertiary basin development and tectonic implications, Whipple detachment system, Colorado River extensional corridor, California and Arizona: *Journal of Geophysical Research*, v. 95, p. 599-614.
- Sherrod, D.R., Koch, R.D., and Grubensky, M.J., 1990, Geologic map of the Vicksburg quadrangle, La Paz County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1684, scale 1:62,500.
- Sherrod, D.R., Smith, D.B., Kleinkopf, M.D., and Gese, D.D., 1990, Mineral resources of the Kofa Unit 4 Northern Addition Wilderness Study Area (AZ-050-033), Yuma County, Arizona: U.S. Geological Survey Bulletin 1702-K, 12 p.
- Stone, Paul, 1990, Preliminary geologic map of the Blythe 30' by 60' quadrangle, California and Arizona: U.S. Geological Survey Open-File Report 90-497, scale 1:100,000.
- Tosdal, R.M., 1990, Tectonics of the Mule Mountains thrust system southeast California and southwest Arizona: *Journal of Geophysical Research*, v. 95, p. 20,035-20,048.
- Tosdal, R.M., Haxel, G.B., Anderson, T.H., Connors, C.D., May, D.J., and Wright, J.E., 1990, Highlights of Jurassic, Late Cretaceous to early Tertiary, and middle Tertiary tectonics, south-central Arizona and north-central Sonora, *in* Gehrels, G.E., and Spencer, J.E., eds., *Geologic excursions through the Sonoran Desert region, Arizona and Sonora*: Arizona Geological Survey Special Paper 7, p. 76-88.
- Ward, A.W., and Nealey, L.D., 1990, Preliminary Geologic map of the Pilot Knob Quadrangle, Yavapai and Mojave Counties, Arizona: USGS Open-file report 90-26; scale 1:24,000.
- Ward, A.W., and Nealey, L.D., 1990, Preliminary Geologic map of the Burro Mesa Quadrangle, Yavapai County, Arizona: USGS Open-file report 90-212; scale 1:24,000.

1991

- Bryant, Bruce, Naeser, C.W., and Fryxell, J.E., 1991, Implications of low-temperature cooling history on a transect across the Colorado Plateau-Basin and Range Boundary, west central Arizona: *Journal of Geophysical Research*, v. 96, p. 12,375-12,388.
- Howard, K.A., 1991, Intrusion of horizontal dikes: Tectonic significance of Middle Proterozoic diabase sheets widespread in the upper crust of the southwestern United States: *Journal of Geophysical Research*, v. 96, p. 12, 461-12, 478.
- Lucchitta, Ivo, and Suneson, N.H., 1991, Geologic Map of the Planet 2 SE quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Open-File report 91-354, 1:24,000.
- Sherrod, D.R., and Tosdal, R.M., 1991, Geologic setting and Tertiary structural evolution of southwestern Arizona and southeastern California: *Journal of Geophysical Research*, v. 96, p. 12,407-12,423.

Simpson, Carol, Schweitzer, Janet, and Howard, K.A., 1991, A reinterpretation of the timing, position, and significance of the Sacramento Mountains detachment fault, SE California: Geological Society of America Bulletin, v. 103, p. 751-761.

1992

Allen, C.M., 1992, A nested diapir model of a reversely zoned pluton: The Turtle pluton, S.E. California, USA: Journal of the Royal Society of Edinburgh, in press.

Bryant, Bruce, 1992, Preliminary geologic map of the Alamo Lake 30' x 60' quadrangle, west-central Arizona: U.S. Geological Survey Open-File Report 92-311, 27 p., 1:100,000.

Howard, K.A., and Miller, D.M., 1992, Lake Cenozoic faulting at the boundary between the Mojave and Sonoran blocks: Bristol Lake area, California, in Richard, S.M., ed., Deformation associated with the Neogene eastern California shear zone, southeastern California and southwestern Arizona: Redlands, California, San Bernardino County Museum Special Publication 92-1, p. 37-47.

Jachens, R.C., and Howard, K.A., 1992, Bristol Lake basin--A deep sedimentary basin along the Bristol-Danby trough, Mojave Desert, in Reynolds, R.E., compiler, Old Routes to the Colorado: Redlands, CA, San Bernardino County Museum Special Publication.

Richard, S.M., Sherrod, D.R., and Tosdal, R.M., 1992, Cibola Pass fault, southwestern Arizona, in Richard, S.M., ed., Deformation associated with the Neogene eastern California shear zone, southwestern Arizona and southeastern California: Redlands, Calif., San Bernardino County Museum Special Publication, p. 66-70.

Simmons, A.M., and Ward, A.W., 1992, Preliminary geologic map of the Mohon Mountains Volcanic Field, west-central Arizona, U.S. Geological Survey Open-file map 92-198 (with pamphlet), scale 1:50,000.

In Press

Boundy-Sanders, S.Q., Vedder, J.G., Sanders, C.O., and Howell, D.G., in press, Miocene geologic history of eastern Santa Catalina Island, California, in Hochberg, F.G. and Haaker, P.L., eds., Proceedings of the third California Islands symposium: Santa Barbara, California, Santa Barbara Museum of Natural History and Southern California Academy of Sciences, in press.

Bryant, Bruce, and Wooden, J.L., in press, Proterozoic geology of the Poachie Range and vicinity, west-central Arizona: Proterozoic Geology and Ore Deposits in Arizona, Karlstrom, K. and DeWitt, Ed, eds., Arizona Geological Society Digest 19.

Bryant, Bruce, Conway, C.M., Spencer, J.E., Reynolds, S.J., Otton, J.O., and Blacet, P.M., in prep., Geologic map and cross section across the boundary between the Colorado Plateau transition zone and the Basin and Range southeast of Bagdad, Arizona: U.S. Geological Survey Open-File Report 92-.

Bryant, Bruce, in press, Geologic map of the Poachie Range, Mohave and Yavapai Counties, Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-2198, scale 1:24,000.

Condie, K.C., Noll, P.D., Jr. and Conway, C.M., in press, Geochemical and detrital mode evidence for two sources of Early Proterozoic sediments from the Tonto Basin Supergroup, central Arizona: Sedimentary Geology.

Conway, C.M., and Karlstrom, K.E., in press, Early Proterozoic geology of Arizona: Arizona Bureau of Geology and Mineral Technology Fieldnotes, v. 16.

Conway, C.M., Gonzales, D.A., Ward, A.W., Nealey, L.D., and Simmons, A.M., in prep., Reconnaissance geologic map of the Bagdad 30 by 60 minute quadrangle: U.S. Geological Survey Miscellaneous Field Study Map.

- Howard, K.A., in press, Cenozoic stratigraphy of the Lead Mountain and Valley Mountain areas, eastern Bullion Mountains, southeastern California, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Howard, K.A., Bacheller, John, Fitzgibbon, T.T., Powell, R.E., and Allen, C.M., in review, Geologic map of the Valley Mountain 15-minute quadrangle, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Investigations Map, scale 1:62,500.
- Howard, K.A., Christiansen, P.P., and John, B.E., in press, Cenozoic stratigraphy of northern Chemehuevi Valley and flanking Stepladder Mountains and Sawtooth Range, southeastern California, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Howard, K.A., Nielson, J.E., Wilshire, H.G., Nakata, J.K., Goodge, J.W., Reneua, S.L., John, B.E., and Hansen, V.L., in press, Geologic map of the Mohave Mountains area, Mohave County, western Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-2308, scale 1:48,000.
- John, B.E., and Foster, D.A., submitted, Structural and thermal constraints on the initiation angle of detachment faulting in the southern Basin Range: The Chemehuevi Mountains case study: Geological Society of America Bulletin.
- Lucchitta, Ivo, and Suneson, N.H., in press, Castaneda-Signal area, Arizona, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Lucchitta, Ivo, and Suneson, N.H., in press, Geologic Map of the Castaneda Hills Southwest quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ- , scale 1:24,000.
- Lucchitta, Ivo, and Suneson, N.H., in press, Geologic Map of the Castaneda Hills quadrangle, Mojave County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1720, scale 1:24,000.
- Lucchitta, Ivo, and Suneson, N.H., in press, Geologic Map of the Centennial Wash quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1718, scale 1:24,000.
- Lucchitta, Ivo, and Suneson, N.H., in press, Geologic Map of the Signal quadrangle, Mojave County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1709, scale 1:24,000.
- Lucchitta, Ivo, in press, Foreword -- origin and motivation of the volume, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona and Nevada: U.S. Geological Survey Bulletin.
- Miller, J.M.G., and John, B.E., in press, Tertiary stratigraphy of the Chemehuevi Mountains, southeastern California and western Arizona, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Miller, D.M., Miller, R.J., Nielson, J.E., Wilshire, H.G., Howard, K.A., and Stone, Paul, in press, Preliminary geologic map of the East Mojave National Scenic Area: California: U.S. Geological Survey Open-File Report 91-435, scale 1:100,000.
- Nealey, L.D., Ward, A.W., Knight, R.J., Vivit, Davidon, and Kink, B.W., in press, Geochemistry of the Mohon Mountains Volcanic Field, *in* Ward, A.W., and Hendricks, J.D., eds., Geology and Geophysics of the Mohon Mountains volcanic field, west-central Arizona, U.S. Geological Survey Bulletin.
- Nielson, J.E., Howard, K.A. and Glazner, A.F., in press, Introduction to the area south of I-40 and north of I-10, California and Arizona, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.

- Powell, R.E., in press, Balanced palinspastic reconstruction of pre-late Cenozoic paleogeology, southern California: Geologic and kinematic constraints on evolution of the San Andreas fault system, *in* Powell, R.E., Weldon, R.J., II, and Matti, J.C., eds., The San Andreas fault system: Displacement, palinspastic reconstruction, and geologic evolution: Geological Society of America Memoir 178.
- Powell, R.E., in press, Foreword, *in* Powell, R.E., Weldon, R.J., II, and Matti, J.C., eds., The San Andreas fault system: Displacement, palinspastic reconstruction, and geologic evolution: Geological Society of America Memoir 178.
- Richard, S.M., and Sherrod, D.R., in press, Introduction to Tertiary Stratigraphy of the area south of I-10, Arizona and California, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., in press, New Water Mountains, Arizona, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., and Hughes, K.M., in press, Southern Trigo Mountains, Arizona, and eastern Chocolate Mountains, California: Picacho State Park area, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., and Nielson, J.E., in press, Introduction and owner's manual, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., and Nielson, J.E., eds., in press, Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Tosdal, R.M., and Stone, Paul, submitted, Stratigraphic relations and U-Pb geochronology of the Late Cretaceous upper McCoy Mountains Formation, southwest Arizona: Geological Society of America Bulletin.
- Ward, A.W., Nealey, L.D., and Ward, S.J., in press, Geology and petrology of the southern part of the Mohon Mountains Volcanic field, *in* Ward, A.W., and Hendricks, J.D., eds., Geology and geophysics of the Mohon Mountains volcanic field, west-central Arizona: U.S. Geological Survey Bulletin.
- Willis, G.F., and Tosdal, R.M., in press, Formation of gold veins and breccias during dextral strike-slip faulting in the Mesquite Mining District, Southeastern California: Economic Geology.
- Wilshire, H.G., in press, Geology of the Cow Cove 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., in press, Geology of the Granite Spring 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., in press, Geology of the Indian Spring 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., in press, Geology of the Marl Mountains 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.

Abstracts

1985

- Hamilton, W.B., 1985, Mode of extension of continental crust: Geological Society of London, Continental Extension Tectonics Program with Abstracts, Abstract 1.
- John, B.E., and Howard, K.A., 1985, Brittle extension of the continental crustal along a rooted system of low-angle normal faults: Colorado River extensional corridor: Conference on heat and detachment in crustal extension on continents and planets: Houston, Lunar and Planetary Institute, Contribution n. 575, p. 58.

1986

- Brooks, W.E., and Nealey, L.D., 1986, Implications of regional K₂O metasomatism on geochronology and inferred subduction geometry, southwestern Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 6, p. 551.
- Bryant, Bruce, and Wooden, J.L., 1986, Early and Middle Proterozoic crustal history of the Poachie Range, Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 3, p. 344.
- Connelly, T.J., Conway, C.M., and Robison, L.C., 1986, An Early Proterozoic volcano-hydrothermal system, Bagdad, Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 348.
- Conway, C.M., and Silver, L.T., 1986, Early Proterozoic metallogenic provinces in Arizona: Geological Society of American Abstracts with Programs, v. 18, n. 5, p. 348.
- Conway, C.M., and Silver, L.T., 1986, Implications of the juxtaposition of two Early Proterozoic terranes in central Arizona, *in* Van Schmus, W.R., ed., International Field Conference on Proterozoic geology and geochemistry: Lawrence, University of Kansas, p. 91-92.
- Conway, C.M., Stewart, J.H., Wrucke, C.T., McKee, E.H., and Weir, G.W., 1986, Mesozoic and Cenozoic conglomerates and unconformities in northeastern and central Arizona: Implications for evolution of highlands to the southwest: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 348.
- Hamilton, W.B., 1986, Crustal evolution of California during Cretaceous and Cenozoic time: Geological Society of America Abstracts with Programs, v. 18, p. 112.
- Howard, K.A., 1986, Evolution of crustal layering in southeastern California: Geological Society of America of Abstracts with Programs, v. 18, n. 2, p. 119.
- Lucchitta, Ivo, 1986, A structural profile along the PACE transect in Arizona: Geological Society of America Abstracts with Programs 1986, v. 18, n. 5, p. 392.
- Lucchitta, Ivo, 1986, Tertiary structural domains along the western margin of the Colorado Plateau in Arizona: Geological Society of America Abstracts with Programs, 1986, v. 18, n. 5, p. 392.
- Morton, D.M., 1986, Contrasting plutons in the Peninsular Ranges batholith: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 161.
- Nealey, L.D., Ward, A.W., and Simmons, A.M., 1986, Bimodal volcanism in the Mohon Mountains volcanic field, west-central Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 398.
- Nielson, J.E., Miller, D.M., and Thompson, S.M., 1986, Source of the Peach Springs Tuff: North of Kingman, Arizona?: Geological Society of America Abstracts with Programs, v. 18, p. 164.

- Powell, R.E., 1986, Mesozoic and early Cenozoic fan folding in the Transverse Ranges: A window into the evolution of crustal structure in southern California: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 172.
- Powell, R.E., 1986, Palinspastic reconstruction of crystalline-rock assemblages in southern California: San Andreas fault as part of an evolving system of late Cenozoic conjugate strike-slip faults: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 172. ---
- Silver, L.T., Conway, C.M., and Ludwig, K.R., 1986, Implications of a precise chronology for Early Proterozoic crustal evolution and caldera formation in the Tonto Basin-Mazatzal Mountains region, Arizona: Geological Society of America Abstracts with Programs, v. 18, p. 413.
- Stone, Paul and Howard, K.A., 1986, Tectonic framework of the McCoy Mountains Formation--Evidence from the Palen Mountains, southeast California: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 190.
- Tosdal, R.M., Haxel, G.B., and Dillon, J.T., 1986, Evidence and tectonic implications for northeastward movement on the Chocolate Mountains thrust, southeast California: Geological Society of America Abstracts with Programs, v. 18, p. 193.
- Ward, A.W., Nealey, L.D., and Simmons, A.M., 1986, Petrology of the Mohon Mountains volcanic field, north-central Arizona: a preliminary report: Arizona Geological Society Digest 16, p. 501.
- Wooden, J.L., Miller, D.M., and Elliott, G., 1986, Early Proterozoic geology of the northern New York Mountains, SE California: Geological Society of America Abstracts with Programs, v. 18, n. 3, p. 424.

1987

- Boundy-Sanders, S.Q., Vedder, J.G., and Howell, D.G., 1987, Intrusive and structural relations of the Miocene pluton, Santa Catalina Island, California: Third California Islands Symposium, Santa Barbara Museum of Natural History and Southern California Academy of Sciences, Program and Abstracts, p. 14.
- Bryant, Bruce, and Naeser, C.W., 1987, Fission-track dating across the transition between the Basin and Range province and the Colorado Plateau, west central Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 604.
- Conway, C.M., Nealey, L.D., Thliveras, S., and Gonzales, D., 1987, Geologic and petrochemical affinities of some Early Proterozoic suites in central Arizona: Journal of the Arizona-Nevada Academy of Science, v. 22, p. 49.
- Fitzgibbon, T.T., and Howard, K.A., 1987, Tectonic significance of Middle Proterozoic diabase sheets in southeastern California and Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 6, p. 377.
- Haxel, G.B., Bagby, W.C., and Tosdal, R.M., 1987, Upper-crustal section through a Middle to Late Jurassic regional metamorphic and plutonic terrane, Kofa Mountains, southwestern Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 697.
- John, B.E., 1987, Structural reconstruction of the Chemehuevi Mountains plutonic suite: Geometry of a mid-crustal intermediate to silicic magma chamber: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 717-718.
- John, B.E., Howard, K.A., and McCarthy, J., 1987, Geologic and geophysical evidence for the nature of upper and mid-crustal continental extension in the Colorado River area, California and Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 717.

- Nealey, L.D., Ward, A.W., Bartel, A.J., Vivit, D.V., and Knight, R.J., 1987, Evolution and composition of post-40-Ma volcanic rocks in Arizona: EOS, American Geophysical Union Transactions, v. 68, p. 1,532.
- Sherrod, D.R., Pickthorn, L.G., Tosdal, R.M., Grubensky, M.J., and Koch, R.D., 1987, Major early Miocene extensional deformation in southwestern Arizona and southeastern California: Geological Society of America Abstracts with Programs, v. 19, p. 841.
- Tosdal, R.M., and Haxel, G.B., 1987, Late Jurassic regional metamorphism and deformation, southeastern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 870-871.
- Willis, G.F., Tosdal, R.M., and Manske, S.L., 1987, The Mesquite mine, southeastern California: Epithermal gold mineralization in a strike-slip fault system: Geological Society of America Abstracts with Programs, v. 19, p. 892.

1988

- Boundy-Sanders, S.Q., and Vedder, J.B., 1988, A dike swarm and correlative San Onofre Breccia indicate a (trans)tensional environment for the quartz dioritic Santa Catalina Island pluton: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A381.
- Bryant, Bruce, and Naeser, C.W., 1988, Laramide events in the Colorado Plateau transition zone and adjacent parts of the Basin and Range, west-central Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 146.
- Fitzgibbon, T.T., 1988, Tectonic significance and characteristics of Middle Proterozoic diabase sheets, eastern Mojave Desert region, California and Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 160.
- Haxel, G.B., Jacobson, C.E., and Tosdal, R.M., 1988, Multiple low-angle faults atop the Orocochia Schist, southwestern Arizona and southeastern California: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A383.
- John, B.E., and Mukasa, S.B., 1988, Structural and geochronologic (U/Pb) evidence for the nature of Cretaceous plutonism and mylonitization in the Chemehuevi Mountains core complex, southeastern California: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A274.
- Miller, J.M.G., and John, B.E., 1988, Tectonic and paleogeographic implications of Miocene sedimentation, Chemehuevi Mountains, eastern California: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 216.
- Nielson, J.E., and Beratan, K.K., 1988, Time of detachment faulting from Miocene sequences, Colorado River extended terrane: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A393.
- Nielson, J.E., Glazner, A.F., and Lux, D.R., 1988, Problems of dating the Peach Springs Tuff: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 218.
- Tosdal, R.M., 1988, Late Cretaceous tectonics of the Blythe-Quartzite region, SE California and SW Arizona: Deformation within a oblique-slip orogene: Butte, Montana, 8th International Basement Tectonics meeting, p. 34.

1989

- Barth, A.P., Wooden, J.L., and Tosdal, R.M., 1989, Josephine Mountain Intrusive: a model for calcalkalic cratonal plutonism at mid-crustal depth: Geological Society of America Abstracts with Programs, v. 21, n. 5, p. 54.

Beratan, K.K., Blom, R.G., Crippen, R.E., and Nielson, J.E., 1989, Use of Landsat thematic mapper images in regional correlation of syn-tectonic strata, Colorado River extensional corridor, California and Arizona: Geological Society of America Abstracts with Programs, v. 21, n. 6, p. A108.

John, B.E., Foster, D.A., and Harrison, T.M., 1989, Ar/Ar thermal history of the footwall to a low-angle normal fault: constraints on fault initiation angles in the southern Basin and Range: Geological Society of London Symposium on the Geometry of Normal Faults.

Lucchitta, Ivo, 1989, Extensional tectonism in the southwestern United States: LPI Contribution, *in* Shabner, G., convener, and others, Abstracts for the Venus geoscience tutorial and Venus geologic mapping workshop, 708, p. 31.

Willis, G.F., Tosdal, R.M., and Manske, S.L., 1989, Structural control on epithermal gold veins, and breccias in the Mesquite District, southeastern California: U.S. Geological Survey Circular 1035, p. 78-79.

1990

Bender, E.E., Miller, C.F., and Wooden, J.L., 1990, The Fenner Gneiss and associated units: An Early Proterozoic composite batholith, Piute and Old Woman Mountains, California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 7.

Bryant, Bruce, Mehnert, H.H., and Miller, R.J., 1990, Miocene deformation on the southwest margin of the Colorado Plateau transition zone, Poachic Range and vicinity, west-central Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 10.

Conway, C.M., 1990, Provenance of Mesozoic and Tertiary conglomerates in the Mogollon Rim and Little Colorado River region: Flagstaff, Museum of Northern Arizona, Abstracts of the Symposium on Southwestern Geology and Paleontology, p. 4.

Haxel, G.B., Simmons, A.M., and McCarthy, J., 1990, Synextensional dioritic magmatism within and beneath metamorphic core complexes, southern Arizona and southeastern California: integration of structural, petrologic, and PACE seismic refraction data: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 28-29.

Howard, K.A., Nielson, J.E., Nakata, J.K., and Wilshire, H.G., 1990, Upended crustal slabs and low-angle extensional faults in the Colorado River extensional corridor: Geologic map of the Mojave Mountains area, western Arizona: Geological Society of America Abstracts with programs, v. 22, n. 3, p. 30.

John, B.E., 1990, Extensional slivering and detachment of a Late Cretaceous laccolith inflated ductile shear system: Geologic map of the Chemehuevi Mountains core complex: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 32.

Miller, J.M.G., and John, B.E., 1990, Sedimentation patterns near an undulating detachment fault during continental extension, Chemehuevi Mountains, eastern California: Abstracts of 13th International Sedimentary Congress, Nottingham, U.K., p. 359.

Simmons, A.M., Young, R.A., and Haxel, G.B., 1990, Middle Tertiary volcanism in the northern Aquarius Mountains-upper Trout Creek area, west-central Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 84.

Tosdal, R.M., 1990, Jurassic low-angle ductile shear zones, SE California and SW Arizona: Thrust faults, extensional faults, or rotated high-angle faults?: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 89.

- Allen, C.M., 1991, A nested two diapir model of a reversely zoned pluton: the Turtle pluton, SE California, USA: Abstracts from the Second Hutton Symposium on Granites and Related Rocks, Australian Bureau of Mineral Resources Record 1991/25, p. 1.
- Beratan, K.K., and Nielson, J.E., 1991, The Colorado River extensional corridor: An analog for the early stages of passive margin formation: American Association of Petroleum Geologists Bulletin, v. 75, n. 5, p. 356.
- Beratan, K.K., and Nielson, J.E., 1991, Test of "hinge" models with synextensional deposits, Whipple detachment system, California and Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A131.
- Conway, C.M., 1991, Cratonization at 1.7 Ga in the southwestern United States: Geological Society of America Abstracts with Programs v. 23, n. 4, p. 13.
- Conway, C.M., 1991, Tectonomagmatic settings of Proterozoic metallogenic provinces in the southwestern United States, in Good, E.E., Slack, J.F., and Kotra, R.K., eds., USGS Research on Mineral Resources - 1991 Program and Abstracts, Seventh Annual V.E. McKelvey Forum on Mineral and Energy Resources: U.S. Geological Survey Circular 1062, p. 9-10.
- Hamilton, W.B., and Howard, K.A., 1991, Detachment faults--steep active sectors are bounded by migrating hinges at both tops and bottoms: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A189-A190.
- Howard, K.A., and John, B.E., 1991, Disharmonic drape folds associated with upper-crustal extension in the southern Basin and Range: Geological Society Abstracts with Programs, v. 23, n. 2, p. 36.
- John, B.E., 1991, Tilted plutons in the southern Basin and Range: Where and how?: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 42.
- McCaffrey, K.J.W., Howard, K.A., Bailey, C.M., and Foster, D.A., 1991, Jurassic syntectonic pluton emplacement in the Clipper Mountains, eastern Mojave Desert, California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. 250.
- McCaffrey, K.J.W., Miller, C.F., Howard, K.A., Karlstrom, K.E., and Simpson, C., 1991, Granitoid emplacement and deformation in the Old Woman Mountains, southeastern California: Second Hutton Symposium on Granites and Related Rocks, September, Abstracts, Bureau of Mineral Resources, Geology and Geophysics Record 1991/25, p. 63.
- Richard, S.M., and Haxel, G.B., 1991, Progressive exhumation of the Orocopia and Pelona Schists along a composite normal fault system, southeastern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 92.
- Simmons, A.M., and Haxel, G.B., 1991, Synextensional mafic dikes in metamorphic core complexes, southern Arizona: Samples of primitive or parental magma for widespread middle Tertiary basaltic andesite volcanism in the Southwest: Geological Society of America Abstracts with Programs, v. 23, n. 4, p. 94.
- Todd, V.R., Girty, G.H., Shaw, S.E., and Jachens, R.C., 1991, Geochemical, geochronologic, and structural characteristics of Jurassic plutonic rocks, Peninsular Ranges, California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A249.
- Todd, V.R., Shaw, S.E., Jachens, R.C., Kimbrough, D.L., Girty, G.H., and Hammarstrom, J.M., 1991, The El Cajon 30' x 60' quadrangle, southern California: A geologic history from early Mesozoic continental growth to modern rift-transform tectonics: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A479.

- Todd, V.R., Shaw, S.E., Girty, G.H., and Jachens, R.C., 1991, A probable Jurassic plutonic arc of continental affinity in the Peninsular Ranges batholith, southern California: Tectonic implications: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 104.
- Tosdal, R.M., and Willis, G.F., 1991, Formation and dismemberment of epithermal gold ore bodies during strike-slip faulting in the Mesquite mining district, southeastern California, U.S.A.: Workshop on Ore Forming processes, Lima, Peru, July 9-12, 1991. ---
- Tosdal, R.M., and Wooden, J.L., 1991, Middle Jurassic plutons, SE California and SW Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A308.
- Willis, G.F., and Tosdal, R.M., 1991, Late Cenozoic dismemberment of the late Cenozoic gold ore bodies in the Mesquite Mining District, SE California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A463.

1992

- Barth, A.P., Tosdal, R.M., and Wooden, J.L., 1992, Initiation of the Mesozoic Cordilleran arc in southern California: Geological Society of America Abstracts with Programs, v. 24, n. 5, p. 6.
- Lucchitta, Ivo, 1992, Dips and extension: Geological Society of America Abstracts with Programs, v. 24, n. 5, p. 66.

PACE-related Reports and Abstracts

1985

- Tosdal, R.M., Haxel, G.B., and Dillon, J.T., 1985, Lithologic associations of gold deposits, southeastern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 17, p. 414.

1987

- Bagby, W.C., Haxel, G.B., Smith, D.B., Koch, R.D., Grubensky, M.J., Sherrod, D.R., and Pickthorn, L.B.G., 1987, Mineral resource assessment of the Kofa National Wildlife Refuge, Arizona: U.S. Geological Survey Open-File Report 87-609, 45 p., 5 plates, scale 1:100,000.
- Conway, C.M., Hanna, W.F., Hendricks, J.D., Hoover, D.B., Knepper, D.H., Jr., McCarthy, J.H., Jr., Mosier, D., Page, J.J., Pitkin, J.A., and Southworth, C.S., 1987, Planning document for the mineral resource assessment of the Prescott 1° x 2° quadrangle, Arizona: Administrative report to the U.S. Geological Survey Office of Mineral Resources, 130 p., 3 appendices, 39 plates scale 1:250,000.
- Gray, Floyd, Miller, R.J., Grubensky, M.J., Tosdal, R.M., Haxel, G.B., Peterson, D.W., May, D.J., and Silver, L.T., 1987, Geologic map of the Ajo and Lukeville 1° by 2° quadrangles, southwestern Arizona: U.S. Geological Survey Open-File Report 87-0347, scale 1:250,000, 23 p.
- Howard, K.A., Kilburn, J.E., Simpson, R.W., Fitzgibbon, T.T., Detra, D.E., and Raines, G.L., 1987, Mineral resources of the Bristol/Granite Mountains Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1712-C, 18 p.
- Smith, D.B., Berger, B.R., Tosdal, R.M., Sherrod, D.R., Raines, G.L., Griscom, A., Helferty, M.G., Rumsey, C.M., and McMahan, A.B., 1987, Mineral Resources of the Indian Pass and Picacho Peak Wilderness Study Areas, Imperial County, California: U.S. Geological Survey Bulletin 1711, 21 p.

- Todd, V.R., Cather, E., Lipton, D.A., Kilburn, J.E., Detra, D.E., Griscom, A., Knepper, D.H., Jr., and Kruse, F.A., 1987, Mineral resources of the Sawtooth Mountains and Carrizo Gorge/Eastern McCain Valley Wilderness Study Areas, San Diego County, California: U.S. Geological Survey Bulletin 1711-B, 15 p.
- Todd, V.R., Detra, D.E., Kilburn, J.E., and Campbell, H.W., 1987, Mineral resources of the Fish Creek Mountains Wilderness Study Area: Imperial County, California: U.S. Geological Survey Bulletin 1711-C, 14 p.
- Todd, V.R., Kilburn, J.E., Detra, D.E., and McHugh, E.L., 1987, Mineral resources of the Jacumba/In-ko-pah Wilderness Study Area, Imperial County, California: U.S. Geological Survey Bulletin 1711-D, 18 p.
- Wells, R.E., and Simpson, R.W., 1987, More paleomagnetic results from the Miocene Columbia River Basalt Group, Oregon and Washington: Stratigraphic and tectonic implications: Geological Society of America Abstracts with Programs, v. 19, p. 463.

1988

- Hamilton, W.B., 1988, Detachment faulting in the Death Valley region, California and Nevada: U.S. Geological Survey Bulletin 1790, p. 51-85.
- Hamilton, W.B., 1988, Tectonic setting and variations with depth of some Cretaceous and Cenozoic structural and magmatic systems of the western United States, *in* Ernst, W.G., ed., *Metamorphism and crustal evolution of the western United States* (Rubey volume): Englewood Cliffs, N.J., Prentice-Hall, p. 1-40.
- Hamilton, W.B., 1988, Laramide crustal shortening: Geological Society of America Memoir 171, p. 27-39.
- Haxel, G.B., Anderson, T.H., Riggs, N.R., and Goodwin, L.G., 1988, The Papago terrane: A crustal anomaly in south-central Arizona and north-central Sonora: Geological Society of America with Programs, v. 20, n. 3, p. 168.
- Haxel, G.B., Smith, D.B., Whittington, C.L., Griscom, A., Diveley-White, D.V., Powell, R.E., and Kreidler, T.J., 1988, Mineral resources of the Orocopia Mountains Wilderness Study Area, Riverside County, California: U.S. Geological Survey Bulletin 1710-E, 22 p.
- Howard, K.A., Nielson, J.E., Simpson, R.W., Hazlett, R.W., Alminas, H.V., Nakata, J.K., and McDonnell, J.R., Jr., 1988, Mineral resources of the Turtle Mountains Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1713-B, 28 p.
- John, B.E., Hanna, W.F., Hassemer, J.R., Pitkin, J.A., and Lane, M.E., 1988, Mineral resources of the Chemehuevi-Needles Wilderness Study area (AZ-050-004), San Bernardino County, California: U.S. Geological Survey Open-File Report 87-586, 17 p.
- Wells, R.E., and England, P.C., 1988, Continuum model of rotations recorded in Miocene flows of the Columbia River Basalt Group, Oregon and Washington: EOS, American Geophysical Union Transactions, v. 69, p. 1,456.

1989

- Hamilton, W.B., 1989, Crustal geologic processes in the United States: Geological Society of America Memoir 172, p. 743-781.
- Sherrod, D.R., Smith, D.B., Koch, R.D., Hanna, W.F., Pitkin, J.A., and Lane, M.E., 1989, Mineral resources of the New Water Mountains Wilderness Study Area, La Paz County, Arizona: U.S. Geological Survey Bulletin 1702-B, 18 p.
- Wells, R.E., Simpson, R.W., Bentley, R.D., Beeson, M.H., Mangan, M.T., and Wright, T.L., 1989, Correlation of Miocene flows of the Columbia River Basalt Group from the central Columbia River

Plateau to the coast of Oregon and Washington, *in* Hooper, P., and Reidel, S., eds., *Volcanism and tectonism in the Columbia River flood basalt province*, Geological Society of America Special Paper 239, p. 113-130.

Wells, R.E., 1989, Paleomagnetic rotations and the Cenozoic tectonics of the Cascade arc, Washington, Oregon, and California, *in* Muffler, L.P.J., Blackwell, D.D., and Weaver, C.A., eds., *Geological, Geophysical and Tectonic setting of the Cascade Range*: U.S. Geological Survey Open-File Report 89-178 (Red Book) p. 1-16.

1990

Blakely, R.J., and Wells, R.E., 1990, Cascade Range evolution: Constraints from gravity and magnetic anomalies: EOS, American Geophysical Union Transactions, v. 71, p. 1,607.

Conway, C.M., Hassemer, J.R., Knepper, D.H., Jr., Pitkin, J.A., Jachens, R.C., and Chatman, M.L., 1990, Mineral resources of the Wabayuma Peak Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-E, 52 p., scale 1:36,000.

Goodwin, L.G., and Haxel, G.B., 1990, Structural evolution of the southern Baboquivari Mountains, south-central Arizona and north-central Sonora: *Tectonics*: v. 9, p. 1,077-1,095.

Riggs, N.R., and Haxel, G.B., 1990, The Early to Middle Jurassic magmatic arc in southern Arizona: plutons to sand dunes, *in* Gehrels, G.E., and Spencer, J.E., eds., *Geologic excursions through the Sonoran Desert region, Arizona and Sonora*: Arizona Geological Survey Special Paper 7, p. 90-103.

Riggs, N.R., Haxel, G.B., and Busby-Spera, C.J., 1990, Paleogeography and tectonic setting of the Jurassic magmatic arc in southern Arizona: progress and problems: *Geological Society of America Abstracts with Programs*, v. 22, n. 3, p. 78.

Sherrod, D.R., Tosdal, R.M., Vaughn, R.B., Smith, D.B., Kleinkopf, M.D., and Wood, Robert H., II, 1990, Mineral resources of the Trigo Mountains Wilderness Study Area, La Paz County, Arizona: U.S. Geological Survey Bulletin 1702-J, 16 p.

Tosdal, R.M., Bryant, Bruce, Hill, R.H., Hanna, W.F., Knepper, D.H., Jr., Jones, S.L., Oliver, K.S., and Tuftin, S.E., 1990, Mineral resources of the Rawhide Mountains Wilderness Study Area, Las Paz and Mohave Counties, Arizona: U.S. Geological Survey Bulletin 1701-G, 24 p.

Weisman, M.K., and Weir, G.W., 1990, Geologic map of the Pine 7.5-minute quadrangle, Coconino and Gila Counties, Arizona: U.S. Geological Survey Miscellaneous Field Studies Map 2123, scale 1: 24,000.

Wells, R.E., 1990, Paleomagnetic rotations and the Cenozoic tectonics of the Cascade Arc, Washington, Oregon, and California: *Journal of Geophysical Research*, v. 95, p. 19,409-19,417.

1991

England, P.C., and Wells, R.E., 1991, Neogene rotations and semi-continuous deformation of the Pacific Northwest continental margin: *Geology*, v. 19, p. 978-981.

U.S. Geological Survey (contributors: K.R. Bishop, C.M. Conway, J.C. Dohrenwend, J.S. Duval, G.B. Haxel, J.H. Hendricks, C.A. Hodges, R.C. Jachens, M.J. Kingston, D.L. Mangan, R.J. Miller, D.M. Miller, G.A. Nowlan, M. Power, J.J. Rytuba, S.L. Simpson, T.G. Theodore (editor), R.M. Tosdal), 1991, Evaluation of metallic mineral resources and their geologic controls in the East Mojave National Scenic Area, San Bernardino County, California: U.S. Geological Survey Open-File Report 91-427, 278 p., 6 plates.

In Press

- Beikman, H.M., Haxel, G.B., and Miller, R.J., in press, Geologic map of the Tohono O'Odham Indian Reservation, southern Arizona: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-2017, scale 1:125,000.
- Evans, J.G., Sherrod, D.R., Hill, R.H., Jachens, R.C., and McDonnell, J.R., Jr., in press, Mineral resources of the Mojave Wash Wilderness Study Area, Mojave County, Arizona: U.S. Geological Survey Bulletin 1704-A.
- Gray, Floyd, Tosdal, R.M., Peterson, J.A., Cox, D.P., Miller, R.J., Klein, D.P., Theobald, P.K., Haxel, G.B., Grubensky, M.J., Raines, G., Barton, H.N., Singer, D.A., and Eppinger, R.G., in press, The Conterminous United States Mineral Assessment Program: Background information to accompany folio of geologic, geochemical, geophysical, and mineral resource maps of the Ajo–Lukeville 1° by 2° quadrangle, Arizona: U.S. Geological Survey Circular 1082.
- Grubensky, M.J., Haxel, G.B., and Koch, R.D., in press, Geologic map of the Castle Dome Mountains, southwestern Arizona: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-2138, scale 1:62,500.
- Snavely, P.D., Jr., and Wells, R.E., in press, Cenozoic evolution of the continental margin of Oregon and Washington, in Rogers, A., and others, eds., Earthquake Hazards in the Pacific Northwest of the United States: U.S. Geological Survey Open-File Report 91-441B, 34 p., a chapter in U.S. Geological Survey Professional Paper 1560.
- Weir, G.W., Ulrich, G.E., and Nealey, L.D., in prep., Geologic map of the Long Valley quadrangle, Coconino County, Arizona: U.S. Geological Survey Geologic Quadrangle Map, scale 1:24,000.

ALPHABETIC LIST OF PUBLICATIONS

- Allen, C.M., 1986, Liquidus phases in granite to quartz diorite-- a natural example from magma mixing: Geological Society of America Abstracts with Programs, v. 18, p. 525.
- Allen, C.M., 1986, Rb-Sr pseudochron: the result of mixing in a reversely-zoned calcalkaline pluton, Turtle Mountains, S.E. California: Geological Society of America Abstracts with Programs, v. 18, p. 81.
- Allen, C.M., 1987, Multiple sources of Cretaceous magmas, southern Turtle Mountains, S.E. California: Geological Society of America Abstracts with Programs, v. 9, p. 569.
- Allen, C.M., 1989, Petrogenesis of the reversely zoned Turtle pluton, S.E. California [Ph.D. thesis]: Blacksburg, Virginia Polytechnic Institute and State University, 374 p.
- Allen, C.M., 1991, A nested two diapir model of a reversely zoned pluton: the Turtle pluton, SE California, USA: Abstracts from the Second Hutton Symposium on Granites and Related Rocks, Australian Bureau of Mineral Resources Record 1991/25, p. 1.
- Allen, C.M., 1991, Local equilibrium of mafic enclaves and granitoids of the Turtle pluton, S.E. California: mineral chemical and isotopic evidence: American Mineralogist, v. 76, p. 574-588.
- Allen, C.M., 1992, A nested diapir model of a reversely zoned pluton: The Turtle pluton, S.E. California, USA: Journal of the Royal Society of Edinburgh, in press.
- Allen, C.M., Foster, D.A., and Wooden, J.L., 1990, Sources of plutons and P-T-t path of southern Turtle Mountains, S.E. California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 1.
- American Geophysical Union, 1992, California-Arizona Crustal Transect--Interim Synthesis (CACTIS), Reprints of papers published in the Journal of Geophysical Research--Solid Earth and Planets: Washington, D.C., American Geophysical Union.
- Ammon, C.J., and Benz, H.M., 1991, A finite-difference based inversion of Pg arrival times: EOS, American Geophysical Union Transactions, v. 72, p. 334-335.
- Anderson, J.L., Barth, A.P., Bender, E.E., Davis, M.J., Farber, D.F., Hayes, E.M., Johnson, D.A., Young, E.D., Wooden, J.L., and Tosdal, R.M., 1990, San Gabriel (Tujunga) terrane - Coming home to Mojave: Geological Society of America Abstracts with Programs, v. 22, n. 7, p. A303.
- Anderson, J.L., Wooden, J.L., and Bender, E.E., 1989, Early and Middle Proterozoic crustal evolution of the southwestern U.S.: Geological Society of America Abstracts with Programs, v. 21, n. 6, p. A23.
- Anderson, J.L., Wooden, J.L., and Bender, E.E., in press, Early and Middle Proterozoic crustal evolution of the western transitional zones: California, Nevada, Arizona, in Chapter 4, Transcontinental Proterozoic Provinces: Geological Society of America DNAG Vol., Precambrian-Conterminous U.S.
- Anderson, J.L., Young, E.D., Barth, A.P., Wooden, J.L., Tosdal, R.M., and Morrison, Jean, 1991, Mesozoic batholiths of the Mojave: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 3.
- Bagby, W.C., Haxel, G.B., Smith, D.B., Koch, R.D., Grubensky, M.J., Sherrod, D.R., and Pickthorn, L.B.G., 1987, Mineral resource assessment of the Kofa National Wildlife Refuge, Arizona: U.S. Geological Survey Open-File Report 87-609, 45 p., 5 plates, scale 1:100,000.
- Barth, A.P., Ginzel, B.M., Wooden, J.L., and Tosdal, R.M., 1991, U-Pb zircon geochronology and geochemistry of Mendenhall gneiss, western San Gabriel Mountains, southern California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A453.
- Barth, A.P., Tosdal, R.M., and Wooden, J.L., 1988, Characteristics and implications of Triassic and Jurassic granitoids in the San Gabriel, Mule, and Trigo Mountains, southern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 141.
- Barth, A.P., Tosdal, R.M., and Wooden, J.L., 1990, Petrologic comparison of Triassic plutonism in the San Gabriel and Mule Mountains in southern California: Journal of Geophysical Research, v. 95, p. 20,075-20,096.
- Barth, A.P., Tosdal, R.M., and Wooden, J.L., 1992, Initiation of the Mesozoic Cordilleran arc in southern California: Geological Society of America Abstracts with Programs, v. 24, n. 5, p. 6.
- Barth, A.P., Wooden, J.L., and May, D.J., 1990, Geochemistry of Cretaceous gneisses, SE San Gabriel Mountains, southern California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 5.
- Barth, A.P., Wooden, J.L., and May, D.J., in press, Small scale heterogeneities of Phanerozoic lower crust: Evidence from isotopic and geochemical systematics of mid-crustal granulite gneisses, San Gabriel Mountains, southern California: Contributions to Mineralogy and Petrology.
- Barth, A.P., Wooden, J.L., and Tosdal, R.M., 1989, Josephine Mountain Intrusive: a model for calcalkalic cratonal plutonism at mid-crustal depth: Geological Society of America Abstracts with Programs, v. 21, n. 5, p. 54.
- Bartis, J.C., 1990, Analysis of small aperture array data from the 1989 PACE experiment: EOS, American Geophysical Union Transactions, v. 71, p. 1,563.
- Beaudoin, B., Howie, J.M., Parsons, T., and Thompson, G.A., 1990, Integrated wide-angle and near-vertical incidence three-component reflection profiling of the Colorado Plateau margin, Arizona, USA: EOS, American Geophysical Union Transactions, v. 71, p. 1,593.
- Beikman, H.M., Haxel, G.B., and Miller, R.J., in press, Geologic map of the Tohono O'odham Indian Reservation, southern Arizona: U.S. Geological Survey

- Miscellaneous Geologic Investigations Map I-2017, scale 1:125,000.
- Bender, E.E., Anderson, J.L., and Wooden, J.L., 1991, Temporal variations in the chemistry of Early Proterozoic plutons from the southwest United States: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A57.
- Bender, E.E., Anderson, J.L., Wooden, J.L., Howard, K.A., and Miller, C.F., 1988, Correlation of 1.7 Ga granitoid plutonism in the lower Colorado River region: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 142.
- Bender, E.E., Miller, C.F., and Wooden, J.L., 1990, The Fenner Gneiss and associated units: An Early Proterozoic composite batholith, Piute and Old Woman Mountains, California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 7.
- Benz, H.M., McCarthy, J., and Mooney, W.D., 1990, Evidence for an upper mantle LVZ and an underlying 80-km-deep discontinuity from the 1987-1989 PACE seismic refraction/wide-angle reflection data: EOS, American Geophysical Union Transactions, v. 71, p. 1,564.
- Beratan, K.K., Blom, R.G., Crippen, R.E., and Nielson, J.E., 1989, Use of Landsat thematic mapper images in regional correlation of syn-tectonic strata, Colorado River extensional corridor, California and Arizona: Geological Society of America Abstracts with Programs, v. 21, n. 6, p. A108.
- Beratan, K.K., Blom, R.G., Nielson, J.E., and Crippen, R.E., 1990, Use of Landsat thematic images in regional correlation of syntectonic strata, Colorado River extensional corridor, California and Arizona: Journal of Geophysical Research, v. 95, p. 615-624.
- Beratan, K.K., and Nielson, J.E., 1991, Test of "hinge" models with synextensional deposits, Whipple detachment system, California and Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A131.
- Beratan, K.K., and Nielson, J.E., 1991, The Colorado River extensional corridor: An analog for the early stages of passive margin formation: American Association of Petroleum Geologists Bulletin, v. 75, n. 5, p. 356.
- Billingsley, G.H., Conway, C.M., and Beard, L.S., 1988, Geologic map of the Prescott 30 by 60 minute quadrangle: U.S. Geological Survey Open-File Report 88-372, scale 1:100,000.
- Blakely, R.J., and Jachens, R.C., 1990, Concealed mineral deposits of Nevada: Insights from three-dimensional analysis of gravity and magnetic anomalies: Geology and Ore Deposits of the Great Basin: Geological Society of Nevada, Program with Abstracts, p. 52-53.
- Blakely, R.J., and Jachens, R.C., 1990, 1991, Regional study of mineral resources in Nevada: Insights from three-dimensional analysis of gravity and magnetic anomalies: Geological Society of America Bulletin, v. 103, p. 804-816.
- Blakely, R.J., Jachens, R.C., and Sherlock, M., 1990, Bulk mineable precious metal deposits and crustal structure: a statistical comparison, in Dean, D.A., Benedetto, K.M.F., and Durgin, D.C., eds., Southern extension of the Carlin trend: influence of structure and stratigraphy on gold deposition: Geological Society of Nevada, p. 30-38.
- Blakely, R.J., and Wells, R.E., 1990, Cascade Range evolution: Constraints from gravity and magnetic anomalies: EOS, American Geophysical Union Transactions, v. 71, p. 1,607.
- Borcherdt, R., Fuis, G.S., Mooney, W., 1986, Introduction, in Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387, p. 1.
- Borcherdt, R., Fuis, G.S., Mooney, W., Wennerberg, L., Sembera, E., Gibbs, J. and Dietel, C., 1986, Site-selection and instrumentation configurations, in Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387, p. 5-8.
- Boundy-Sanders, S.Q., and Vedder, J.B., 1988, A dike swarm and correlative San Onofre Breccia indicate a (trans)tensional environment for the quartz dioritic Santa Catalina Island pluton: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A381.
- Boundy-Sanders, S.Q., Vedder, J.G., and Howell, D.G., 1987, Intrusive and structural relations of the Miocene pluton, Santa Catalina Island, California: Third California Islands Symposium, Santa Barbara Museum of Natural History and Southern California Academy of Sciences, Program and Abstracts, p. 14.
- Boundy-Sanders, S.Q., Vedder, J.G., Sanders, C.O., and Howell, D.G., in press, Miocene geologic history of eastern Santa Catalina Island, California, in Hochberg, F.G. and Haaker, P.L., eds., Proceedings of the third California Islands symposium: Santa Barbara, California, Santa Barbara Museum of Natural History and Southern California Academy of Sciences, in press.
- Bouse, R.M., Ruiz, J., Titley, S.R., Lang, J.R., and Wooden, J.L., 1990, Common Pb isotopic evidence from Laramide plutons and Phanerozoic mineralization in Arizona for the inheritance of isotopic and metal ratios from Proterozoic basement: EOS, American Geophysical Union Transactions, v. 71, p. 1,681.
- Bouse, R.M., Wooden, J.L., Koski, R.A., and Pickthron, L.B., 1987, Pb isotopic compositions for stratiform manganese deposits and their Miocene host rocks, Nevada and Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 360.
- Brooks, W.E., and Nealey, L.D., 1986, Implications of regional K₂O metasomatism on geochronology and inferred subduction geometry, southwestern Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 6, p. 551.
- Bryant, Bruce, 1992, Preliminary geologic map of the Alamo Lake 30' x 60' quadrangle, west-central Arizona: U.S. Geological Survey Open-File Report 92-311, 27 p., scale 1:100,000.

- Bryant, Bruce, in press, Geologic map of the Poachie Range, Mohave and Yavapai Counties, Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-2198, scale 1:24,000.
- Bryant, Bruce, Conway, C.M., Spencer, J.E., Reynolds, S.J., Otton, J.O., and Blacet, P.M., in prep., Geologic map and cross section across the boundary between the Colorado Plateau transition zone and the Basin and Range southeast of Bagdad, Arizona: U.S. Geological Survey Open-File Report 92-.
- Bryant, Bruce, Melnert, H.H., and Miller, R.J., 1990, Miocene deformation on the southwest margin of the Colorado Plateau transition zone, Poachie Range and vicinity, west-central Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 10.
- Bryant, Bruce, and Naeser, C.W., 1987, Fission-track dating across the transition between the Basin and Range province and the Colorado Plateau, west central Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 604.
- Bryant, Bruce, Naeser, C.W., and Fryxell, J.E., 1988, Laramide events in the Colorado Plateau transition zone and adjacent parts of the Basin and Range, west-central Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 146.
- Bryant, Bruce, Naeser, C.W., and Fryxell, J.E., 1991, Implications of low-temperature cooling history on a transect across the Colorado Plateau-Basin and Range Boundary, west central Arizona: Journal of Geophysical Research, v. 96, p. 12,375-12,388.
- Bryant, Bruce, and Wooden, J.L., 1986, Early and Middle Proterozoic crustal history of the Poachie Range, Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 3, p. 344.
- Bryant, Bruce, and Wooden, J.L., 1989, Lower plate rocks of the Buckskin Mountains, Arizona-A progress report, in Spencer, J.E., and Reynolds, S.J., eds., Geology of the Buckskin Mountains west-central Arizona: Arizona Geological Survey Bulletin 198, p. 47-50, 1 fig.
- Bryant, Bruce, and Wooden, J.L., in press, Proterozoic geology of the Poachie Range and vicinity, west-central Arizona: Proterozoic Geology and Ore Deposits in Arizona, Karlstrom, K. and DeWitt, Ed, eds., Arizona Geological Society Digest 19.
- Calzia, J.P., Frisken, J.G., Jachens, R.C., McMahan, A.B., and Runsey, C.M., 1987, Mineral Resources of the Kingston Range Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1709-D, 21 p.
- Calzia, J.P., Verosub, K.L., and Jachens, R.C., 1986, Tilting and faulting of the Late Miocene Kingston Peak Granite, southern Death Valley, California: American Geophysical Union Transactions, v. 67, p. 1,189.
- Cipar, J., Mangiulo, S., and D'Annolfo, S., 1990, Preliminary interpretation of the 1989 PACE seismic refraction/wide-angle reflection data from the Colorado Plateau, Arizona: Seismological Research Letters, v. 61, n. 1, p. 39.
- Condie, K.C., Noll, P.D., Jr. and Conway, C.M., in press, Geochemical and detrital mode evidence for two sources of Early Proterozoic sediments from the Tonto Basin Supergroup, central Arizona: Sedimentary Geology.
- Connelly, T.J., Conway, C.M., and Robison, L.C., 1986, An Early Proterozoic volcano-hydrothermal system, Bagdad, Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 348.
- Conrad, J.E., Hill, R.H., Jachens, R.C., and Neubert, J.T., 1990, Mineral resources of the Black Mountains North and Burns Spring Wilderness Study Areas, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-C, 22 p.
- Conway, C.M., 1986, Field guide to Early Proterozoic strata that host massive sulfide deposits at Bagdad, Arizona, in Nations, J.D., Conway, C.M., and Swann, G.A., eds., Geology of central and northern Arizona, Geological Society of America, Rocky Mountain Section, field trip guidebook: Flagstaff, Arizona, Northern Arizona University, p. 140-157.
- Conway, C.M., 1990, Provenance of Mesozoic and Tertiary conglomerates in the Mogollon Rim and Little Colorado River region: Flagstaff, Museum of Northern Arizona, Abstracts of the Symposium on Southwestern Geology and Paleontology, p. 4.
- Conway, C.M., 1991, Cratonization at 1.7 Ga in the southwestern United States: Geological Society of America Abstracts with Programs v. 23, n. 4, p. 13.
- Conway, C.M., 1991, Tectonomagmatic settings of Proterozoic metallogenic provinces in the southwestern United States, in Good, E.E., Slack, J.F., and Kotra, R.K., eds., USGS Research on Mineral Resources - 1991 Program and Abstracts, Seventh Annual V.E. McKelvey Forum on Mineral and Energy Resources: U.S. Geological Survey Circular 1062, p. 9-10.
- Conway, C.M., Connelly, T.J., and Robison, L.C., 1986, An Early Proterozoic volcanic-hydrothermal-exhalative system at Bagdad, Arizona: Arizona Geological Society Digest, v. 16, p. 24-34.
- Conway, C.M., Gonzales, D.A., Ward, A.W., Nealey, L.D., and Simmons, A.M., in prep., Reconnaissance geologic map of the Bagdad 30 by 60 minute quadrangle: U.S. Geological Survey Miscellaneous Field Study Map.
- Conway, C.M., Hanna, W.F., Hendricks, J.D., Hoover, D.B., Knepper, D.H., Jr., McCarthy, J.H., Jr., Mosier, D., Page, J.J., Pitkin, J.A., and Southworth, C.S., 1987, Planning document for the mineral resource assessment of the Prescott 1° x 2° quadrangle, Arizona: Administrative report to the U.S. Geological Survey Office of Mineral Resources, 130 p., 3 appendices, 39 plates scale 1:250,000.
- Conway, C.M., Hassemer, J.R., Knepper, D.H., Jr., Pitkin, J.A., Jachens, R.C., and Chatman, M.L., 1990, Mineral resources of the Wabayuma Peak Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-E, 52 p., scale 1:36,000.
- Conway, C.M., and Karlstrom, K.E., 1986, Early Proterozoic geology of Arizona--A workshop report: EOS, American Geophysical Union Transactions, v. 67, n. 37, p. 681-682.

- Conway, C.M., and Karlstrom, K.E., in press, Early Proterozoic geology of Arizona: Arizona Bureau of Geology and Mineral Technology Fieldnotes, v. 16.
- Conway, C.M., Karlstrom, K.E., Wrucke, C.T., and Silver, L.T., 1987, Tectonic and magmatic contrasts across a two-province boundary in central Arizona, in Davis, G.H., and VandenDolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 158-175.
- Conway, C.M., Nealey, L.D., Thliveras, S., and Gonzales, D., 1987, Geologic and petrochemical affinities of some Early Proterozoic suites in central Arizona: *Journal of the Arizona-Nevada Academy of Science*, v. 22, p. 49.
- Conway, C.M., and Silver, L.T., 1986, Early Proterozoic metallogenic provinces in Arizona: *Geological Society of America Abstracts with Programs*, v. 18, n. 5, p. 348.
- Conway, C.M., and Silver, L.T., 1986, Implications of the juxtaposition of two Early Proterozoic terranes in central Arizona, in Van Schmus, W.R., ed., *International Field Conference on Proterozoic geology and geochemistry*: Lawrence, University of Kansas, p. 91-92.
- Conway, C.M., and Silver, L.T., 1989, Early Proterozoic rocks (1710-1615-Ma) in central to southeastern Arizona, in Jenny, J.P., and Reynolds, S.J., eds., *Geologic evolution of Arizona*: Arizona Geological Society Digest 17, p. 165-186.
- Conway, C.M., Stewart, J.H., Wrucke, C.T., McKee, E.H., and Weir, G.W., 1986, Mesozoic and Cenozoic conglomerates and unconformities in northeastern and central Arizona: Implications for evolution of highlands to the southwest: *Geological Society of America Abstracts with Programs*, v. 18, n. 5, p. 348.
- Conway, C.M., and Wrucke, C.T., 1986, Proterozoic geology of the Sierra Ancha-Tonto Basin-Mazatzal Mountains area, road log and field guide: Arizona Geological Society Digest, v. 16, p. 227-247.
- D'Annolfo, S., Cipar, J., and Wolf, L., 1990, Long-range observations of PACE shots on the Colorado Plateau cross-line observations: EOS, American Geophysical Union Transactions, v. 71, p. 1,594.
- Dawson, P.B., Iyer, H.M., and Evans, J.R., 1992, PACE: Inversion of teleseismic residuals from the USGS teleseismic experiment, Arizona, *Seismology Research Letters*, v. 63, p. 39.
- Dawson, P.B., Iyer, H.M., Evans, J.R., and Hitchcock, T., 1990, PACE: Teleseismic tomography along the Pacific-Arizona Crustal Transect, EOS, American Geophysical Union Transactions, v. 71, p. 1,564-1,565.
- DeWitt, Ed, Anderson, J.L., Barton, H.N., Jachens, R.C., Podwysocki, M.H., Brick, D.W., and Close, T.J., 1989, Mineral Resources of the South McCullough Mountains Wilderness Study Area, Clark County, Nevada: U.S. Geological Survey Bulletin 1730-C.
- Dillon, J.D., Haxel, G.B., and Tosdal, R.M., 1990, Structural evidence for northeastward movement on the Chocolate Mountains thrust, southeasternmost California: *Journal of Geophysical Research*, v. 95, p. 19,953-19,971.
- Dohrenwend, J.C., Jachens, R.C., Blakely, R.J., and Moring, B.C., 1990, Subsurface geometry and stratigraphy of basins in the western Great Basin: Implications for the analysis of concealed mineral resources in Nevada: *Geology and Ore deposits of the Great Basin*: Geological Society of Nevada, Programs with Abstracts, p. 50.
- Dohrenwend, J.C., Jachens, R.C., Blakely, R.J., Moring, B.C., and Menges, C.M., 1989, Geological and geophysical analysis of the subsurface geometry of basins in the central and western Great Basin: Implications for the analysis of concealed mineral resources in Nevada, in Fifth Annual V.E. McKelvey Forum, Reno, Nevada, January 24-26, 1989: U.S. Geological Survey Circular 1035, p. 14.
- Durrani, B.A., Doser, D.I., Keller, G.R., Roberts, D.G., and Montana, C.J., 1991, Results for the PACE 1989 seismic line in northern Arizona: Colorado Plateau crustal structure: EOS, American Geophysical Union Transactions, v. 72, p. 327.
- Elliott, G., Wooden, J.L., Miller, D.M., and Miller, R., 1986, Lower-granulite grade Early Proterozoic supracrustal rocks, New York Mountains, SE California: *Geological Society of America Abstracts with Programs*, v. 18, n. 5, p. 352.
- England, P.C., and Wells, R.E., 1991, Neogene rotations and semi-continuous deformation of the Pacific Northwest continental margin: *Geology*, v. 19, p. 978-981.
- Evans, J.G., Sherrod, D.R., Hill, R.H., Jachens, R.C., and McDonnell, J.R., Jr., in press, Mineral resources of the Mojave Wash Wilderness Study Area, Mojave County, Arizona: U.S. Geological Survey Bulletin 1704-A.
- Farber, D.L., Davis, M.S., Johnson, K.A., Young, E.D., Wooden, J.L., and Tosdal, R.M., 1989, Late Jurassic bimodal alkalic plutonism and magma mixing in the Mojave Desert region, southeast California: *Geological Society of America Abstracts with Programs*, v. 21, n. 6, p. A325-326.
- Farmer, G.L., Glazner, A.F., Hughes, W.T., Wooden, J.L., and Pickthorn, W., 1990, Mixing of basaltic magma with mafic crust at Amboy and Pisgah craters, Mojave Desert, California: EOS, American Geophysical Union Transactions, v. 71, p. 1,682.
- Farmer, G.L., Wilshire, H.G., Wooden, J.L., Glazner, A.F., and Katz, M., 1991, Temporal variations in the sources of alkali basalts at the Cima volcanic field, SE California: *Geological Society of America Abstracts with Programs*, v. 23, n. 2, p. 23.
- Fitzgibbon, T.T., 1987, Technical Manual and Program Listing for REFORM: A rock-sample database program in FORTRAN-77: U.S. Geological Survey Open-File Report 87-141B, 81 p.
- Fitzgibbon, T.T., 1987, User's manual for REFORM: A rock-sample database program in FORTRAN-77: U.S. Geological Survey Open-File Report 87-141-A, 67 p.
- Fitzgibbon, T.T., 1988, Tectonic significance and characteristics of Middle Proterozoic diabase sheets, eastern Mojave Desert region, California and Arizona:

- Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 160.
- Fitzgibbon, T.T., and Howard, K.A., 1987, Tectonic significance of Middle Proterozoic diabase sheets in southeastern California and Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 6, p. 377.
- Fletcher, J.M., Karlstrom, K.E., Ring, T.E., Wooden, J.L., and Foster, D.A., 1988, Tectonic style and timing of deep-seated Mesozoic crustal shortening: Piute Mountains, eastern Mojave Desert: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A272.
- Foster, D.A., Harrison, T.M., Miller, C.F., and Howard, K.A., 1990, The $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of the eastern Mojave Desert, California, and adjacent Arizona with implications for the evolution of metamorphic core complexes: *Journal of Geophysical Research*, v. 95, p. 20,005-20,024.
- Foster, D.A., Harrison, T.M., Miller, C.F., Howard, K.A., and John, B.E., 1988, Mesozoic and Cenozoic thermal history of the eastern Mojave Desert, California: Insights from $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A71.
- Frost, E.G., Okaya, D.A., McEvilly, T.V., Hauser, E.C., Galvan, G.S., McCarthy, J., Fuis, G.S., Conway, C.M., Blom, R.G., and Heidrick, T.L., 1987, Crustal transect: Colorado Plateau-detachment terrane-Salton Trough, *in* Davis, G.H., and VandenDolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 398-422.
- Fryxell, J.E., Richard, S.M., Sutter, J.F., and Lucchitta, Ivo, 1987, Contrasting $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of minerals from lower plate rocks of the Buckskin-Bullard-Eagle Eye detachment fault system, west-central Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 670.
- Fuis, G.S., McCarthy, J., and Howard, K.A., 1986, A seismic-refraction survey of the Whipple Mountains metamorphic core complex, southeastern California: A progress report from PACE: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 356.
- Fuis, G.S., Walter, A.W., Mooney, W.D., and McCarthy, J., 1986, Crustal velocity of the Salton Trough, western Mojave Desert, and Colorado Desert, from seismic refraction: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 107.
- Gerber, M.E., Miller, C.F., Wooden, J.L., and Foster, D.A., 1991, Plutonism at the eastern edge of the Cordilleran Jurassic magmatic belt, Mojave Desert, California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A249.
- Glazner, A.F., Farner, G.L., Hughes, W.T., Wooden, J.L., and Pickthorn, W., 1991, Contamination of basaltic magmas by mafic crust at Amboy and Pisgah Craters, Mojave Desert, California: *Journal of Geophysical Research*, v. 96, p. 13,673-13,691.
- Glazner, A.F., Nielson, J.E., Howard, K.A., and Miller, D.M., 1986, Correlation of the Peach Springs Tuff, a large-volume Miocene ignimbrite sheet in California and Arizona, *in* Guidebook and Volume Trips 5 and 6--Cenozoic stratigraphy, structure, and mineralization in the Mojave Desert, Geological Society of America Cordilleran Section 82nd Annual Meeting, Los Angeles, CA, March 25-28, 1986, p. 65-68.
- Glazner, A.F., Nielson, J.E., Howard, K.A., and Miller, D.M., 1986, Correlation of the Peach Springs Tuff, a large-volume Miocene ignimbrite sheet in California and Arizona: *Geology*, v. 14, n. 10, p. 840-843.
- Gleason, J.D., Miller, C.F., and Wooden, J.L., 1988, Barrel Spring alkalic complex: 1.4 Ga anorogenic plutonism in the Old Woman-Piute Range, eastern Mojave Desert, California: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 164.
- Goodwin, E.B., 1990, Composition of the lower crust in West-Central Arizona from three-component seismic data: *Journal of Geophysical Research*, v. 95, p. 20,097-20,109.
- Goodwin, E.B., and McCarthy, Jill, 1990, Composition of the lower crust in west central Arizona from three-component seismic data: *Journal of Geophysical Research*, v. 95, p. 20,097-20,110.
- Goodwin, E.B., Thompson, G.A., and Okaya, D.A., 1989, Seismic identification of basement reflectors: the Bagdad reflection sequence in the Basin and Range-Colorado Plateau Transition Zone: *Tectonics*, v. 8, p. 821-831.
- Goodwin, L.G., and Haxel, G.B., 1990, Structural evolution of the southern Baboquivari Mountains, south-central Arizona and north-central Sonora: *Tectonics*, v. 9, p. 1,077-1,095.
- Gray, Floyd, Jachens, R.C., Miller, R.J., Knepper, D.H., Pitkin, J.A., Keith, W.J., Mariano, John, and Korzeb, S.L., 1990, Mineral resources of the Warm Springs Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-F, 53 p.
- Gray, Floyd, Jachens, R.C., Miller, R.J., and Mariano, John, 1987, An interpretation of the shallow crustal structure of the Black Mountains, northwest Arizona: computer generated modeling and structural compilation: Geological Society of America with Programs, v. 19, p. 682.
- Gray, Floyd, Miller, R.J., Grubensky, M.J., Tosdal, R.M., Haxel, G.B., Peterson, D.W., May, D.J., and Silver, L.T., 1987, Geologic map of the Ajo and Lukeville 1° by 2° quadrangles, southwestern Arizona: U.S. Geological Survey Open-File Report 87-0347, scale 1:250,000, 23 p.
- Gray, Floyd, Tosdal, R.M., Peterson, J.A., Cox, D.P., Miller, R.J., Klein, D.P., Theobald, P.K., Haxel, G.B., Grubensky, M.J., Raines, G., Barton, H.N., Singer, D.A., and Eppinger, R.G., in press, The Conterminous United States Mineral Assessment Program: Background information to accompany folio of geologic, geochemical, geophysical, and mineral resource maps of the Ajo-Lukeville 1° by 2° quadrangle, Arizona: U.S. Geological Survey Circular 1082.

- Greene, R.C., Eppinger, R.G., Hassemer, J.R., Jachens, R.C., Lawson, W.A., and Ryan, G.S., 1989, Mineral resources of the Mount Wilson Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-A, 18 p.
- Greene, R.C., Turner, R.L., Jachens, R.C., Lawson, W.A., and Almquist, C.L., 1989, Mineral resources of the Mount Tipton Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Bulletin 1737-B, 18 p.
- Greenwood, R.B., Morton, D.M., Jachens, R.C., and Chapman, R.H., 1991, Geology and geophysics of the Santa Ana 1:100,000 quadrangle, southern California: A progress report: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A478.
- Griscom, Andrew, and Jachens, R.C., 1990, Crustal and lithospheric structure from gravity and magnetic studies, in Wallace, R.E., ed., The San Andreas fault system, California: U.S. Geological Survey Professional Paper 1515, p. 238-259.
- Griscom, Andrew, Jachens, R.C., Oliver, Howard W., and Kleinkopf, M. Dean, 1988, Suture-related gravity and magnetic expression of the three major batholiths in western United States: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A400.
- Grubensky, M.J., Haxel, G.B., and Koch, R.D., in press, Geologic map of the Castle Dome Mountains, southwestern Arizona: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-2138, scale 1:62,500.
- Gusa, Sharon, 1986, Recognition of the Peach Springs Tuff, California and Arizona, using heavy-mineral suites: U.S. Geological Survey Open-File Report 86-522, 11 p.
- Gusa, Sharon, Nielson, J.E., and Howard, K.A., 1987, Heavy-mineral suites confirm wide distribution of the Peach Springs Tuff, California and Arizona, USA: Journal of Volcanology and Geothermal Research, v. 33, p. 343-347.
- Hamilton, W.B., 1985, Mode of extension of continental crust: Geological Society of London, Continental Extension Tectonics Program with Abstracts, Abstract 1.
- Hamilton, W.B., 1986, Crustal evolution of California during Cretaceous and Cenozoic time: Geological Society of America Abstracts with Programs, v. 18, p. 112.
- Hamilton, W.B., 1987, Crustal extension in the Basin and Range province, southwestern United States, in Coward, M.P., Dewey, J.F., and Hancock, P.L., eds., Continental extensional tectonics: Geological Society of London Special Publication No. 28, p. 155-176.
- Hamilton, W.B., 1987, Mesozoic geology and tectonics of the Big Maria Mountains region, southeastern California: Arizona Geological Society Digest 18, p. 33-47.
- Hamilton, W.B., 1988, Detachment faulting in the Death Valley region, California and Nevada: U.S. Geological Survey Bulletin 1790, p. 51-85.
- Hamilton, W.B., 1988, Laramide crustal shortening: Geological Society of America Memoir 171, p. 27-39.
- Hamilton, W.B., 1988, Tectonic setting and variations with depth of some Cretaceous and Cenozoic structural and magmatic systems of the western United States, in Ernst, W.G., ed., Metamorphism and crustal evolution of the western United States (Rubey volume): Englewood Cliffs, N.J., Prentice-Hall, p. 1-40.
- Hamilton, W.B., 1989, Crustal geologic processes in the United States: Geological Society of America Memoir 172, p. 743-781.
- Hamilton, W.B., and Howard, K.A., 1991, Detachment faults-steep active sectors are bounded by migrating hinges at both tops and bottoms: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A189-A190.
- Hamilton, W.B., Tosdal, R.M., Stone, Paul, and Haxel, G.B., 1987, Mesozoic tectonics of southeastern California, in Davis, G.H., and VandenDolder, E.M., eds., Geologic diversity of Arizona and its margins: Excursions to choice areas: Arizona Bureau of Geology and Mineral Technology, Special Paper 5, p. 337-350.
- Hammarstrom, J.M., 1992, Mineral chemistry of Cretaceous plutons: Hornblende geobarometry in southern California and southeastern Alaska: Geological Society of America Abstracts with Programs, v. 24, n. 5, p. 30.
- Hammond, J.G., and Wooden, J.L., 1990, Isotopic constraints on the petrogenesis of Proterozoic diabase in the southwestern U.S.A., in Parker, A.J., Rickwood, P.C., and Tucker, D.H., editors, Mafic dykes and emplacement mechanisms: Proceedings of the Second International Dyke Conference, Adelaide, Australia, p. 145-156.
- Hammond, J.G., and Wooden, J.L., 1990, Pb isotopic constraints on the origin of Proterozoic diabbases of California and Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 28.
- Hartman, K.A., and Johnson, R.A., 1990, Constraints on crustal structure in the Colorado Plateau: Results from the Arizona PACE Piggyback Lithospheric Experiment (APPLE): Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 28.
- Hartman, K.A., and Johnson, R.A., 1990, P- and S-Wave velocities and Poisson's ratios beneath the Colorado Plateau from recording of wide-angle seismic data: EOS, American Geophysical Union Transactions, v. 71, p. 1,564.
- Hauser, E.C., Gephart, J., Latham, T., Oliver, J., Kaufman, S., Brown, L., and Lucchitta, Ivo, 1987, COCORP Arizona transect: strong crustal reflections and offset Moho beneath the Transition Zone: Geology, v. 15, p. 1,103-1,106.
- Haxel, G.B., 1987, Trace-element systematics of peraluminous leucogranites, Baboquivari Mountains chain, south-central Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 6, p. 388.

- Haxel, G.B., 1989, Geochemistry of peraluminous leucogranites, south-central Arizona, in *Continental magmatism abstracts*, International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly, Santa Fe: New Mexico Bureau of Mines and Mineral Resources Bulletin 131, p. 124.
- Haxel, G.B., Anderson, T.H., Riggs, N.R., and Goodwin, L.G., 1988, The Papago terrane: A crustal anomaly in south-central Arizona and north-central Sonora: *Geological Society of America with Programs*, v. 20, n. 3, p. 168.
- Haxel, G.B., Bagby, W.C., and Tosdal, R.M., 1987, Upper-crustal section through a Middle to Late Jurassic regional metamorphic and plutonic terrane, Kofa Mountains, southwestern Arizona: *Geological Society of America Abstracts with Programs*, v. 19, n. 7, p. 697.
- Haxel, G.B., Briskey, J.A., May, D.J., Tosdal, R.M., and Wright, J.E., 1985, Reconnaissance petrochemistry of Jurassic igneous rocks, Baboquivari and Comobabi Mountains area, southern Arizona: *Geological Society of America Abstracts with Programs*, v. 17, p. 361.
- Haxel, G.B., Budahn, J.R., Fries, T.L., King, B.W., Taggart, J.E., and White, L.D., 1986, Protolith geochemistry of the Orocopa and Pelona Schist, southern California: Preliminary report: *Geological Society of America Abstracts with Programs*, v. 18, n. 2, p. 115.
- Haxel, G.B., Budahn, J.R., Fries, T.L., King, B.W., White, L.D., and Aruscavage, P.J., 1987, Geochemistry of the Orocopa Schist, southeastern California: Summary, in Dickinson, W.R., and Klute, M.A., eds., *Mesozoic rocks of southern Arizona and adjacent areas*: Arizona Geological Society Digest, v. 18, p. 49-64.
- Haxel, G.B., Jacobson, C.E., and Tosdal, R.M., 1988, Multiple low-angle faults atop the Orocopa Schist, southwestern Arizona and southeastern California: *Geological Society of America Abstracts with Programs*, v. 20, n. 7, p. A383.
- Haxel, G.B., Simmons, A.M., and McCarthy, J., 1990, Synextensional dioritic magmatism within and beneath metamorphic core complexes, southern Arizona and southeastern California: integration of structural, petrologic, and PACE seismic refraction data: *Geological Society of America Abstracts with Programs*, v. 22, n. 3, p. 28-29.
- Haxel, G.B., Simpson, R.W., and Howard, K.A., 1990, Introduction to Special Section on the California-Arizona Crustal Transect--Part II: *Journal of Geophysical Research*, v. 95, p. 19,949-19,951.
- Haxel, G.B., Smith, D.B., Whittington, C.L., Griscom, A., Diveley-White, D.V., Powell, R.E., and Kreidler, T.J., 1988, Mineral resources of the Orocopa Mountains Wilderness Study Area, Riverside County, California: U.S. Geological Survey Bulletin 1710-E, 22 p.
- Haxel, G.B., and Tosdal, R.M., 1986, Significance of the Orocopa Schist and Chocolate Mountains thrust in the late Mesozoic tectonic evolution of the southeastern California-southwestern Arizona region: Extended abstract, in Beatty, Barbara, and Wilkinson, P.A.K., eds., *Frontiers in geology and ore deposits of Arizona and the Southwest*: Arizona Geological Society Digest 16, p. 52-61.
- Haxel, G.B., Tosdal, R.M., and Dillon, J.T., 1985, Tectonic setting and lithology of the Winterhaven Formation, a new Mesozoic stratigraphic unit in southeasternmost California and southwestern Arizona: U.S. Geological Survey Bulletin 1599, 19 p.
- Haxel, G.B., Tosdal, R.M., and Dillon, J.T., 1986, Field guide to the Chocolate Mountains thrust and Orocopa Schist, Gavilan Wash area, southeasternmost California, in *Cenozoic stratigraphy, structure, and mineralization in the Mojave Desert*, Guidebook and Volume, Trips 5 and 6, Geological Society of America, Cordilleran Section, Los Angeles, p. 127-138.
- Hendricks, J.D., and Plescia, J.B., 1986, Gravity survey of the Prescott 2-degree sheet: *Geological Society of America Abstracts with Programs*, v. 18, n. 5, p. 361.
- Hendricks, J.D., and Plescia, J.B., and Matic, A.K., 1991, Complete Bouguer gravity map of the Bagdad 1/2° by 1° quadrangle, Arizona: U.S. Geological Survey Open-File Report 91-640, scale 1:100,000.
- Hillhouse, J.W., and Wells, R.E., 1986, Assessment of rotations in the eastern Mojave Desert, California and Arizona, from paleomagnetism of the Peach Springs Tuff: EOS, American Geophysical Union Transactions, v. 67, n. 44, p. 922.
- Hillhouse, J.W., and Wells, R.E., 1989, Magnetic fabric and source area of the lower Miocene Peach Springs Tuff in California, Nevada, and Arizona: EOS, American Geophysical Union Transactions, v. 70, p. 1,067.
- Hillhouse, J.W., and Wells, R.E., 1991, Magnetic fabric, flow directions, and source area of the lower Miocene Peach Springs Tuff in Arizona, California, and Nevada: *Journal of Geophysical Research*, v. 96, p. 12,443-12,460.
- Hoisch, T.D., and Hamilton, W.B., 1988, Latest Cretaceous crustal metamorphism in southeastern California by fluids from subducted schist: *Geological Society of America Abstracts with Programs*, v. 20, n. 3, p. 169.
- Hoisch, T.D., and Hamilton, W.B., 1990, Granite generation of fluid-induced anatexis: EOS, American Geophysical Union Transactions, v. 71, p. 694-696.
- Horringa, E.D., 1989, Rocks and structural evolution of the northern Kilbeck Hills, San Bernardino County, California [M.S. thesis]: San Jose, California, San Jose State University, 180 p.
- Howard, K.A., 1986, Evolution of crustal layering in southeastern California: *Geological Society of America Abstracts with Programs*, v. 18, n. 2, p. 119.
- Howard, K.A., 1991, Intrusion of horizontal dikes: Tectonic significance of Middle Proterozoic diabase sheets widespread in the upper crust of the southwestern United States: *Journal of Geophysical Research*, v. 96, p. 12, 461-12, 478.
- Howard, K.A., in press, Cenozoic stratigraphy of the Lead Mountain and Valley Mountain areas, eastern Bullion

- Mountains, southeastern California, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Howard, K.A., and Allen, C.M., 1988, Geologic map of the southern part of the Dale Lake 15-minute quadrangle, San Bernardino and Riverside counties, California: U.S. Geological Survey Open-File Report 88-538 (with pamphlet), scale 1:62,500.
- Howard, K.A., Bacheller, John, Fitzgibbon, T.T., Powell, R.E., and Allen, C.M., in review, Geologic map of the Valley Mountain 15-minute quadrangle, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Investigations Map, scale 1:62,500.
- Howard, K.A., Christiansen, P.P., and John, B.E., in press, Cenozoic stratigraphy of northern Chemehuevi Valley and flanking Stepladder Mountains and Sawtooth Range, southeastern California, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Howard, K.A., and Harper, R.M., 1992, Bibliography of the Pacific to Arizona Crustal Experiment (PACE)--Investigation of a transect of the crust and lithosphere across the southwestern United States: U.S. Geological Survey Open-File Report 92-551-A, 63 p.
- Howard, K.A., Horinga, E.D., Miller, D.M., and Stone, Paul, 1989, Geologic map of the eastern parts of the Cadiz Lake and Cadiz Valley 15-minute quadrangles, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2086, scale 1:62,500.
- Howard, K.A., and John, B.E., 1987, Crustal extension along a rooted system of imbricate low-angle faults: Colorado River extensional corridor, California and Arizona, in Coward, M.P., Dewey, J.F., and Hancock, P.L., eds., Continental extensional tectonics: Geological Society of London Special Publication No. 28, p. 299-311.
- Howard, K.A., and John, B.E., 1991, Disharmonic drape folds associated with upper-crustal extension in the southern Basin and Range: Geological Society Abstracts with Programs, v. 23, n. 2, p. 36.
- Howard, K.A., John, B.E., and Miller, C.F., 1987, Metamorphic core complexes, Mesozoic ductile thrusts, and Cenozoic detachments: Old Woman Mountains - Chemehuevi Mountains transect, California and Arizona, in Davis, G.H., and Vandendolder, E.M., eds., Geologic diversity of Arizona and its margins: Excursions to choice areas: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 365-382.
- Howard, K.A., Kilburn, J.E., Simpson, R.W., Fitzgibbon, T.T., Detra, D.E., and Raines, G.L., 1987, Mineral resources of the Bristol/Granite Mountains Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1712-C, 18 p.
- Howard, K.A., and Miller, D.M., 1992, Late Cenozoic faulting at the boundary between the Mojave and Sonoran blocks: Bristol Lake area, California, in Richard, S.M., ed., Deformation associated with the Neogene eastern California shear zone, southeastern California and southwestern Arizona: Redlands, California, San Bernardino County Museum Special Publication 92-1, p. 37-47.
- Howard, K.A., Nakata, J.K., Pernokas, M.A., Marvin, R.F., and Miller, D.M., 1987, Mesozoic and Cenozoic heating, cooling, and uplift in SE California and adjacent Arizona: Evidence from K-Ar dating of crystalline rocks: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 708.
- Howard, K.A., Nielson, J.E., Nakata, J.K., and Wilshire, H.G., 1990, Upended crustal slabs and low-angle extensional faults in the Colorado River extensional corridor: Geologic map of the Mojave Mountains area, western Arizona: Geological Society of America Abstracts with programs, v. 22, n. 3, p. 30.
- Howard, K.A., Nielson, J.E., Simpson, R.W., Hazlett, R.W., Alminas, H.V., Nakata, J.K., and McDonnell, J.R., Jr., 1988, Mineral resources of the Turtle Mountains Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1713-B, 28 p.
- Howard, K.A., Nielson, J.E., Wilshire, H.G., Nakata, J.K., Goodge, J.W., Reneau, S.L., John, B.E., and Hansen, V.L., 1990, Preliminary geologic map of the Mojave Mountains area, Mojave County, western Arizona: U.S. Geological Survey Open-file report 90-684, scale 1:48,000.
- Howard, K.A., Nielson, J.E., Wilshire, H.G., Nakata, J.K., Goodge, J.W., Reneau, S.L., John, B.E., and Hansen, V.L., in press, Geologic map of the Mohave Mountains area, Mohave County, western Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-2308, scale 1:48,000.
- Howard, K.A., and the PACE team, 1986, PACE--The Pacific to Arizona Crustal Experiment: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 362.
- Howard, K.A., Simpson, R.W., and Haxel, G.B., 1990, Introduction to Special section on the California-Arizona crustal transect--Part I: Journal of Geophysical Research, v. 95, p. 461-462.
- Howard, K.A., Stone, Paul, and Miller, C.F., 1989, Geologic map of the Milligan 15-minute quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2072, scale 1:62,500.
- Howie, J.M., 1991, Seismic Studies of Crustal Structure and Tectonic Evolution Across the Central California Margin and the Colorado Plateau [Ph.D. thesis]: Stanford, California, Stanford University, 256 p.
- Howie, J.M., Parsons, T., and Crews, G., 1989, Deep-crustal high-resolution reflection profiling across the edge of the Colorado Plateau: EOS, American Geophysical Union Transactions, v. 70, p. 1,361.
- Howie, J.M., Parsons, T., and Thompson, G.A., 1990, Full-wavefield analysis of lower crustal reflectivity at the SW margin of the Colorado Plateau, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,563.
- Howie, J.M., Parsons, T., and Thompson, G.A., 1990, High-resolution reflection imaging across the edge of the

- Colorado Plateau, Arizona, USA: *TERRA Abs.*, v. 2, p. 174.
- Howie, J.M., Parsons, T., and Thompson, G.A., 1991, High-resolution P- and S-wave deep crustal imaging across the edge of the Colorado Plateau, USA: Increased reflectivity caused by initiating extension, *in* Meissner, R., Brown, L., Durbaum, H.-J., Franke, W., Fuchs, K., and Seifert, F., eds., *Continental Lithosphere: Deep Seismic Reflections*: American Geophysical Union Geodynamics Series, v. 22, p. 21-29.
- Howie, J.M., Parsons, T., and Thompson, G.A., in review, Composition as a control on localization of reflectivity in the middle crust: Deep seismic reflection results across the southwestern margin of the Colorado Plateau: *Journal of Geophysical Research*, submitted.
- Hussey, V.K., 1988, A comparison of shear wave velocity structures of the Colorado Plateau and the Basin and Range: *EOS, American Geophysical Union Transactions*, v. 69, p. 404.
- Hussey, V.K., 1989, A three-component seismic refraction survey in northwestern Arizona [M.S. thesis]: Boston, Mass., Boston College, 161 p.
- Jachens, R.C., Blakely, R.J., and Moring, B.C., 1989, Analysis of concealed mineral resources in Nevada: constraints from gravity and magnetic studies, *in* Fifth Annual V.E. McKelvey Forum, Reno, Nevada, January 24-26, 1989: U.S. Geological Survey Circular 1035, p. 35-36.
- Jachens, R.C., and Dixon, E.T., 1991, Aeromagnetic map of the Santa Ana 1:100,000 quadrangle, California: U.S. Geological Survey Open-File Report 90-404, 15 p., 1 sheet, scale 1:100,000.
- Jachens, R.C., and Howard, K.A., 1992, Bristol Lake basin--A deep sedimentary basin along the Bristol-Danby trough, Mojave Desert, *in* Reynolds, R.E., compiler, *Old Routes to the Colorado*: Redlands, CA, San Bernardino County Museum Special Publication.
- Jachens, R.C., and Moring, B.C., 1990, Maps of the thickness of Cenozoic deposits and the isostatic residual gravity over basement for Nevada: U.S. Geological Survey Open-File Report 90-404, 15 p., 2 sheets, scale 1:1,000,000.
- Jachens, R.C., and Morton, D.M., 1991, Geophysical studies in the Southern California Areal Mapping Project (SCAMP): *Geological Society of America Abstracts with Programs*, v. 23, n. 5, p. A476.
- Jachens, R.C., Simpson, R.W., Griscom, Andrew, and Mariano, John, 1986, Plutonic belts in southern California defined by gravity and magnetic anomalies: *Geological Society of America Abstracts with Programs*, v. 18, p. 120.
- Jachens, R.C., Todd, V.R., Morton, D.M., and Griscom, Andrew, 1991, Constraints on the structural evolution of the Peninsular Ranges batholith, California, from a new aeromagnetic map: *Geological Society of America Abstracts with Programs*, v. 23, n. 2, p. 38.
- John, B.E., 1987, Geologic map of the Chemehuevi Mountains area, San Bernardino County, California, and Mohave County, Arizona: U.S. Geological Survey Open-File Report 87-666, scale 1:24,000.
- John, B.E., 1987, Geometry and evolution of a mid-crustal extensional fault system: Chemehuevi Mountains, southeastern California, *in* Coward, M.P., Dewey, J.F., and Hancock, P.L., eds., *Continental extensional tectonics*: Geological Society of London Special Paper. 28, p. 313-335.
- John, B.E., 1987, Structural reconstruction of the Chemehuevi Mountains plutonic suite: Geometry of a mid-crustal intermediate to silicic magma chamber: *Geological Society of America Abstracts with Programs*, v. 19, n. 7, p. 717-718.
- John, B.E., 1988, Structural reconstruction and zonation of a tilted mid-crustal magma chamber: the felsic Chemehuevi Mountains plutonic suite: *Geology*, v. 16, p. 613-617.
- John, B.E., 1990, Extensional slivering and detachment of a Late Cretaceous laccolith inflated ductile shear system: Geologic map of the Chemehuevi Mountains core complex: *Geological Society of America Abstracts with Programs*, v. 22, n. 3, p. 32.
- John, B.E., 1991, Tilted plutons in the southern Basin and Range: Where and how?: *Geological Society of America Abstracts with Programs*, v. 23, n. 2, p. 42.
- John, B.E., and Foster, D.A., submitted, Structural and thermal constraints on the initiation angle of detachment faulting in the southern Basin Range: The Chemehuevi Mountains case study: *Geological Society of America Bulletin*.
- John, B.E., Foster, D.A., and Harrison, T.M., 1989, Ar/Ar thermal history of the footwall to a low-angle normal fault: constraints on fault initiation angles in the southern Basin and Range: *Geological Society of London Symposium on the Geometry of Normal Faults*.
- John, B.E., Hanna, W.F., Hassemer, J.R., Pitkin, J.A., and Lane, M.E., 1988, Mineral resources of the Chemehuevi-Needles Wilderness Study area (AZ-050-004), San Bernardino County, California: U.S. Geological Survey Open-File Report 87-586, 17 p.
- John, B.E., and Howard, K.A., 1985, Brittle extension of the continental crustal along a rooted system of low-angle normal faults: Colorado River extensional corridor: Conference on heat and detachment in crustal extension on continents and planets: Houston, Lunar and Planetary Institute, Contribution n. 575, p. 58.
- John, B.E., Howard, K.A., and McCarthy, J., 1987, Geologic and geophysical evidence for the nature of upper and mid-crustal continental extension in the Colorado River area, California and Arizona: *Geological Society of America Abstracts with Programs*, v. 19, n. 7, p. 717.
- John, B.E., and Mukasa, S.B., 1988, Structural and geochronologic (U/Pb) evidence for the nature of Cretaceous plutonism and mylonitization in the Chemehuevi Mountains core complex, southeastern California: *Geological Society of America Abstracts with Programs*, v. 20, n. 7, p. A274.
- John, B.E., and Mukasa, S.B., 1990, Footwall rocks to the mid-Tertiary Chemehuevi detachment fault: a window into the Late Cretaceous middle crust: *Journal of Geophysical Research*, vol. 95, p. 463-485.

- John, B.E., and Wooden, J.L., 1990, Petrology and geochemistry of the metaluminous to peraluminous Chemehuevi Mountains plutonic suite, southeastern California, *in* Anderson, J.L., ed., *The Nature and Origin of Cordilleran Magmatism*, Geological Society of America Memoir 174, pages 71-98.
- Johnson, R.A., and Hartman, K.A., 1989, The Arizona PACE-Piggyback Lithospheric Experiment (APPLE): Vertical-incidence to wide-angle reflection data from the Colorado Plateau: EOS, American Geophysical Union Transactions, v. 70, p. 1,205.
- Johnson, R.A., and Hartman, K.A., 1990, Constraints on P- and S-wave velocity structure in the Transition Zone of the Colorado Plateau from multicomponent wide-angle seismic data: TERRA Abs., v. 2, p. 173.
- Johnson, R.A., and Hartman, K.A., 1991, P- and S-Wave reflectivity and crustal structure of the southern Colorado Plateau: EOS, American Geophysical Union Transactions, v. 72, p. 324.
- Johnson, R.A., and Hartman, K.A., 1991, Upper crustal Poisson's ratios in the Colorado Plateau, northern Arizona, from multi-component wide-angle seismic recording, *in* Meissner, R., Brown, L., Durbaum, H.-J., Franke, W., Fuchs, K., and Seifert, F., eds., *Continental Lithosphere: Deep Seismic Reflections*: American Geophysical Union Geodynamics Series, p. 323-328.
- Karlstrom, K.E., Bowring, S.A., and Conway, C.M., 1987, Tectonic significance of an Early Proterozoic two-province boundary in central Arizona: Geological Society of America Bulletin, v. 99, p. 529-538.
- Karlstrom, K.E., and Conway, C.M., 1986, Deformational styles and contrasting lithostratigraphic sequences within an Early Proterozoic orogenic belt, central Arizona, *in* Nations, J.D., Conway, C.N., and Swann, G.A., eds., *Geology of central and northern Arizona*, Geological Society of America, Rocky Mountain Section, Field trip guidebook: Flagstaff: Northern Arizona University, p. 1-25.
- Karlstrom, K.E., and Conway, C.M., 1986, Symposium report: Early Proterozoic geology of Arizona: *Geology*, vol. 14, p. 625-626.
- Kirby, S.C., Nielson, J.E., Noller, J.S., and Thompson, G.A., 1987, Geophysics and petrology of the deep crust and upper mantle: Workshop overview and summary, *in* Noller, J.S., Kirby, S.C., Nielson-Pike, J.E., and Thompson, G.A., *Geophysics and Petrology of the Deep Crust and Upper Mantle*, A Workshop sponsored by the US Geological Survey and Stanford University, Volume of Extended Abstracts: U.S. Geological Survey Circular 956, 88 p.
- Klein, D.P., 1986, Magnetotelluric observations across the Colorado Plateau-Basin and Range transition zone, western Arizona, Geological Society of America Abstracts with Programs, v. 118, n. 5, p. 367.
- Klein, D.P., 1991, Crustal resistivity structure from magnetotelluric soundings in the Colorado Plateau-Basin and Range Provinces, central and western Arizona: *Journal of Geophysical Research*, v. 96, p. 12,313-12,331.
- Klein, D.P., and Sneddon, R.A., 1987, Magnetotelluric data across west central Arizona: U.S. Geological Survey Open-File Report 87-492, 18 p.
- Kohler, W., and McCarthy, J., 1990, PACE seismic reflection and wide-angle reflection studies of the Colorado Plateau - Basin and Range transition, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,593.
- Kozak, R.C., Nealey, L.D., and Knight, R.J., 1987, Geochemistry of late Tertiary volcanic rocks, Kirkland-Yarnell area, Arizona: Museum of Northern Arizona, Abstracts, Symposium on Southwestern Geology and Paleontology, p. 11.
- Lachenbruch, A.H., Sass, J.H., Galanis, S.P., Jr., and Priest, S.S., 1991, Thermal regime of the southern Basin and Range, U.S.A., and its metamorphic-core complexes: Geophysical Institute, Czechoslovakia Academy of Sciences: International Meeting on Terrestrial Heat Flow and the Structure of Lithosphere, Abstract Program.
- Larkin, S.P., McCarthy, J., and Fuis, G.S., 1988, Crustal structure of the Basin and Range/Colorado Plateau transition zone in central Arizona: Preliminary results from seismic refraction: *Seismological Research Letters*, v. 59, p. 50.
- Larkin, S.P., McCarthy, J., and Fuis, G.S., 1988, Data report for the PACE 1987 seismic refraction survey, west-central Arizona: U.S. Geological Survey Open-File Report 88-694, 95 p.
- Lucchitta, Ivo, 1986, A structural profile along the PACE transect in Arizona: Geological Society of America Abstracts with Programs 1986, v. 18, n. 5, p. 392.
- Lucchitta, Ivo, 1986, Heat and detachment in core-complex extension--Paper presented to the Conference on Heat and Detachment in Crustal Extension on Continents and Planets, Sedona, Arizona, October 10-12, 1985: *Lunar and Planetary Institute*, p. 64-68.
- Lucchitta, Ivo, 1986, Tertiary structural domains along the western margin of the Colorado Plateau in Arizona: Geological Society of America Abstracts with Programs, 1986, v. 18, n. 5, p. 392.
- Lucchitta, Ivo, 1987, The mouth of the Grand Canyon and edge of the Colorado Plateau in the upper Lake Mead area: Geological Society of America Centennial Field Guide--Rocky Mountain Section, p. 365-370.
- Lucchitta, Ivo, 1988, Geologic Map of the Planet 2 SE quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Open-File Map 88-547, scale 1:24,000.
- Lucchitta, Ivo, 1989, Extensional tectonism in the southwestern United States: LPI Contribution, *in* Shabner, G., convener, and others, Abstracts for the Venus geoscience tutorial and Venus geologic mapping workshop, 708, p. 31.
- Lucchitta, Ivo, 1989, Overflight of the tectonic boundary between the Colorado Plateau and the Basin and Range provinces: American Geophysical Union Field Trip Guidebook T116/389 for 28th International Geological Congress, 21 pp.

- Lucchitta, Ivo, 1990, Geologic Map of the Planet 2 NW quadrangle, Mojave County, Arizona: U.S. Geological Survey Open-File report 89-673, scale 1:24,000.
- Lucchitta, Ivo, 1990, Role of heat and detachment in continental extension as viewed from the eastern Basin and Range Province in Arizona *in* Lucchitta, Ivo, and Morgan, Paul, eds., Heat and detachment in continental extension: Tectonophysics, v. 174, p. 77-114.
- Lucchitta, Ivo, 1991, Geologic Map of the Planet 2 SE quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Open-File report 91-354, 1:24,000.
- Lucchitta, Ivo, 1992, Dips and extension: Geological Society of America Abstracts with Programs, v. 24, n. 5, p. 66.
- Lucchitta, Ivo, in press, Castaneda-Signal area, Arizona, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Lucchitta, Ivo, in press, Foreword -- origin and motivation of the volume, *in* Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona and Nevada: U.S. Geological Survey Bulletin.
- Lucchitta, Ivo, in press, Geologic Map of the Castaneda Hills quadrangle, Mojave County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1720, scale 1:24,000.
- Lucchitta, Ivo, in press, Geologic Map of the Castaneda Hills Southwest quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ- , scale 1:24,000.
- Lucchitta, Ivo, in press, Geologic Map of the Centennial Wash quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1718, scale 1:24,000.
- Lucchitta, Ivo, in press, Geologic Map of the Signal quadrangle, Mojave County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1709, scale 1:24,000.
- Lucchitta, Ivo, and Morgan, Paul, 1990, Heat and detachment in continental extension: Introduction, *in* Lucchitta, Ivo, and Morgan, Paul, eds., Heat and Detachment in Continental Extension: Tectonophysics, v. 174, p. 3-5.
- Lucchitta, Ivo, and Suneson, N.H., 1988, Geologic Map of the Artillery Peak NW quadrangle, Mojave County, Arizona: U.S. Geological Survey Open-file Map 85-277, scale 1:24,000.
- Lucchitta, Ivo, and Young, R.A., 1986, Structure and geomorphic character of western Colorado Plateau in the Grand Canyon-Lake Mead region, *in* Nations, J.D., Conway, C.M., and Swann, G.A., eds., 1986, Geology of Central and Northern Arizona: Geological Society of America, Rocky Mountain Section, Field Trip Guidebook, p. 159-176.
- Malin, P.E., and McCarthy, J., 1986, CALCRUST-PACE cooperative refraction study in the Whipple Mountains region of southeastern California: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 153.
- Mariano, John, and Grauch, V.J.S., 1988, Aeromagnetic maps of the Colorado River region including the Kingman, Needles, Salton Sea, and El Centro 1° x 2° quadrangles, California, Arizona, and Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2023, 3 sheets, scale 1:250,000.
- Mariano, John, Helferty, M.G., and Gage, T.B., 1986, Bouguer and isostatic residual gravity maps of the Colorado River region, including the Kingman, Needles, Salton Se, and El Centro Quadrangles: U.S. Geological Survey Open-File Report 86-347, 6 sheets, scale 1:250,000, 1 sheet, scale 1:750,000.
- Mariano, John, Jachens, R.C., Blakely, R.J., 1986, Depth extent of exposed basement rock in the eastern Transverse Ranges and adjacent Mojave Desert, California: EOS, American Geophysical Union Transactions, v. 67, p. 1,212.
- McCaffrey, K.J.W., Howard, K.A., Bailey, C.M., and Foster, D.A., 1991, Jurassic syntectonic pluton emplacement in the Clipper Mountains, eastern Mojave Desert, California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. 250.
- McCaffrey, K.J.W., Miller, C.F., Howard, K.A., Karlstrom, K.E., and Simpson, C., 1991, Granitoid emplacement and deformation in the Old Woman Mountains, southeastern California: Second Hutton Symposium on Granites and Related Rocks, September, Abstracts, Bureau of Mineral Resources, Geology and Geophysics Record 1991/25, p. 63.
- McCarthy, J., Criley, E., and Kohler, W., 1989, PACE seismic refraction and wide-angle reflection data recorded across the Colorado Plateau: EOS, American Geophysical Union Transactions, v. 70, p. 1,205.
- McCarthy, J., Fuis, G.S., and Howard, K.A., 1986, A seismic-refraction survey of the Whipple Mountains metamorphic core complex, southeastern California: A progress report from PACE: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 155.
- McCarthy, J., Fuis, G.S., Larkin, S.P., and Wilson, J.M., 1989, Evidence for magmatic inflation of the crust beneath metamorphic core complexes in western Arizona and southeastern California: Geological Society of America Abstracts with Programs, v. 21, n. 5, p. 113-114.
- McCarthy, J., Fuis, G.S., and Wilson, J.M., 1986, Crustal structure of the Whipple Mountains metamorphic core complex: 2nd International Symposium on Deep Seismic Reflection Profiling of the Continental Lithosphere, Cambridge, U.K.: Abstracts of lectures and posters, p. 15.
- McCarthy, J., Fuis, G.S., and Wilson, J.M., 1987, Crustal structure in the region of the Whipple Mountains metamorphic core complex, from seismic refraction results: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 763.
- McCarthy, J., Fuis, G.S., Wilson, J.M., McKissick, C., and Larkin, S., 1987, PACE Seismic refraction and wide-angle reflection data recorded across the central Arizona

- transition zone: EOS, American Geophysical Union Transactions, v. 68, p. 1,359.
- McCarthy, J., Hajnal, Z., Howel, J., Johnson, R.A., Keller, G.R., and Wolf, L.W., 1990, PACE lithospheric investigations of the Colorado Plateau: EOS, American Geophysical Union Transactions, v. 71, n. 3, p. 1,563.
- McCarthy, J., and Kohler, W., 1990, Preliminary two-dimensional modeling of the crustal structure across the Colorado Plateau - Basin and Range transition, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,564.
- McCarthy, J., Larkin, S.P., and Fuis, G.S., 1988, Crustal structure of the Basin and Range Province and adjacent Transition Zone in central Arizona, U.S.A., from seismic refraction and wide-angle reflection profiling: Australian Bureau of Mineral Resources, Implications for continental extension: Seismic Probing of Continents and Their Margins, p. 92.
- McCarthy, J., Okaya, D.A., and Goodwin, E.B., 1990, Geophysical character of the middle and lower crust in the southwestern U.S.: Results from seismic profiling: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 65-66.
- McCarthy, J., Okaya, D.A., and Goodwin, E.B., 1990, Seismic character of the middle and lower crust in the southwestern United States: TEKRA Abs., v. 2, p. 187.
- McCarthy, J., and Thompson, G.A., 1988, Seismic imaging of extended crust with emphasis on the western U.S.: Geological Survey of America Bulletin, v. 100, p. 1361-1374.
- McCarthy, J., and Thompson, G.A., 1990, Reply to comment on: "Seismic imaging of extended crust with emphasis on the western U.S.": Geological Society of America Bulletin, v. 102, p. 255.
- McCarthy, J., and Thompson, G.A., 1990, Seismic imaging of extended crust with emphasis on the western U.S., in Thomas, W.A., and Hatcher, R.D., Jr., eds., Geological Society of America Centennial Articles, Special Paper 253, p. 263-276.
- McCarthy, J., and Thompson, G.A., 1991, Reply to Comment on: "Seismic imaging of extended crust with emphasis on the western U.S.": Geological Society of America Bulletin, v. 103, p. 1539-1542.
- McCarthy, Jill, Fuis, G.S., and Wilson, Jeff, 1987, Crustal structure of the Whipple Mountains, southeastern California: a refraction study across a region of large continental extension: Geophysical Journal Royal Astronomical Society, v. 89, p. 119-124.
- McCarthy, Jill, Larkin, S.P., Fuis, G.S., Simpson, R.W., and Howard, K.A., 1991, Anatomy of a metamorphic core complex: Seismic refraction/wide-angle reflection profiling in southeastern California and western Arizona: Journal of Geophysical Research, v. 96, p. 12,259-12,292.
- McGuire, A.V., Dyar, D., and Nielson, J.E., 1991, Metasomatic oxidation of upper mantle peridotite, Contributions to Mineralogy and Petrology, v. 109, p. 252-264.
- Miller, C.F., Hanchar, J.M., Harrison, T.M., Wark, D.A., Wooden, J.L., and Bennett, V.C., 1991, The granite-source connection: Narrowing the gap through study of lower crustal xenoliths and accessory minerals: EOS, American Geophysical Union Transactions, v. 72, p. 302.
- Miller, C.F., Wooden, J.L., Bennett, V.C., Wright, J.E., Solomon, G.C., and Hurst, R.W., 1990, Petrogenesis of the composite peraluminous-metaluminous Old Woman-Piute Range batholith, southeastern California: Isotopic constraints, in Anderson, J.L., ed., Nature and Origin of Cordilleran Magmatism: Geological Society of America Memoir 174, p. 99-110.
- Miller, D.M., Miller, R.J., Nielson, J.E., Wilshire, H.G., Howard, K.A., and Stone, Paul, in press, Preliminary geologic map of the East Mojave National Scenic Area: California: U.S. Geological Survey Open-File Report 91-435, scale 1:100,000.
- Miller, D.M., and Wooden, J.L., 1988, An Early Proterozoic batholithic belt in the northern New York Mountains area, California and Nevada: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 215-216.
- Miller, J.M.G., and John, B.E., 1988, Detached strata in a Tertiary low-angle normal fault terrane, southeastern California: A sedimentary record of unroofing, breaching and continued slip: Geology, v. 16, p. 645-648.
- Miller, J.M.G., and John, B.E., 1988, Tectonic and paleogeographic implications of Miocene sedimentation, Chemehuevi Mountains, eastern California: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 216.
- Miller, J.M.G., and John, B.E., 1990, Sedimentation patterns near an undulating detachment fault during continental extension, Chemehuevi Mountains, eastern California: Abstracts of 13th International Sedimentary Congress, Nottingham, U.K., p. 359.
- Miller, J.M.G., and John, B.E., in press, Tertiary stratigraphy of the Chemehuevi Mountains, southeastern California and western Arizona, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Mittwede, S.K., Glazner, A.F., Nielson, J.E., Howard, K.A., and Miller, D.M., 1987, Comment and reply on "Correlation of the Peach Springs Tuff, a large-volume Miocene ignimbrite sheet in California and Arizona": Geology, v. 15, p. 375.
- Montana, C., Keller, G.R., Doser, D.I., Baker, M.R., and Harder, S., 1990, The PACE 1989 seismic experiment: Initial results from the cross profile: EOS, American Geophysical Union Transactions, v. 71, p. 1,594.
- Morgan, Paul, and Sass, J.H., 1991, Thermal structure and crustal processes in contrasting tectonic provinces of Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A23.
- Morin, R.L., Mariano, John, and Jachens, R.C., 1990, Isostatic residual gravity map of Edwards Air Force Base and vicinity, Kern, Los Angeles, and San Bernardino

- Counties, California: U.S. Geological Survey Open-File Report 90-664, 1 sheet, scale 1:62,500.
- Morton, D.M., 1986, Contrasting plutons in the Peninsular Ranges batholith: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 161.
- Moyer, T.C., and Nealey, L.D., 1987, Regional geochemical variations in Neogene bimodal rhyolites, west-central Arizona: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 780.
- Moyer, T.C., and Nealey, L.D., 1989, Regional compositional variations of late Tertiary bimodal rhyolite lavas across the Basin and Range/Colorado Plateau boundary in western Arizona: Journal of Geophysical Research, v. 94, p. 7,799-7,816.
- Mukasa, S.B., Shervais, J.W., Wilshire, H.G., and Nielson, J.E., 1987, Isotopic variations in the upper mantle: The Lherz alpine peridotite massif as an example: EOS, American Geophysical Union Transactions, v. 68, p. 1,552.
- Mukasa, S.B., Shervais, J.W., Wilshire, H.G., and Nielson, J.E., 1990, Upper mantle Nd-Pb- and Sr-isotopic heterogeneities exhibited by alpine peridotite massifs at Lherz and Balmuccia: International Workshop on Orogenic Lherzolites and Mantle Processes.
- Mukasa, S.B., Wilshire, H.G., Nielson, J.E., and Shervais, J.W., in press, Intrinsic Nd, Pb and Sr isotopic heterogeneities exhibited by the Lherz alpine peridotite massif, French Pyrenees: Journal of Petrology.
- Murphy, G.P., Tosdal, R.M., Wooden, J.L., Kent, J., Vaughn, R.B., and Hayes, E.M., 1990, Chemical and isotopic character of Jurassic granitoids, Cargo Muchacho Mountains, SE California: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 71.
- Nakata, J.K., Pernokas, M.A., Howard, K.A., Nielson, J.E., and Shannon, J.R., 1990, K-Ar and fission-track ages (dates) of volcanic, intrusive, altered, and metamorphic rocks in the Mojave Mountains area, west-central Arizona: Isochron/West, n. 56, p. 8-20.
- Nations, J.D., Conway, C.M., and Swann, G.A., eds., 1986, Geology of central and northern Arizona, Geological Society of America, Rocky Mountain Section, Field trip guidebook: Northern Arizona University, Flagstaff.
- Nealey, L.D., 1986, Chemical characteristics of Tertiary volcanic rocks in central and west-central Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 398.
- Nealey, L.D., Conway, C.M., and Thiliveras, S., 1987, Trace element affinities of some Early Proterozoic suites in central Arizona: Journal of the Arizona-Nevada Academy of Science, v. 22, p. 48.
- Nealey, L.D., Holm, R.F., and Conway, M.F., 1986, Petrology of the Mormon Mountain volcanic field, Coconino and Yavapai Counties, Arizona: Museum of Northern Arizona, Symposium on Southwestern Geology.
- Nealey, L.D., and Knight, R.J., 1987, Trace-element geochemistry of obsidian in the Mount Floyd volcanic field, Arizona--Archaeological implications: Museum of Northern Arizona, Abstracts, Symposium on Southwestern Geology and Paleontology, p. 7.
- Nealey, L.D., and Sheridan, M.F., 1989, Post-Laramide volcanic rocks of Arizona and northern Sonora, Mexico, and their inclusions, in Jenney, J.P., and Reynolds, S.J., 1989, Geologic evolution of Arizona: Tucson, Arizona Geological Society Digest 17, p. 609-647.
- Nealey, L.D., and Unruh, D.M., in press, Geochemistry and isotopic characteristics of deep crustal xenoliths from Tule Tank, San Francisco field, northern Arizona: Arizona Geological Society.
- Nealey, L.D., Unruh, D.M., Knight, R.J., and King, B.W., 1990, Geochemistry of deep crustal xenoliths from the southern Colorado Plateau, northern Arizona: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 72.
- Nealey, L.D., Ward, A.W., Bartel, A.J., Vivit, D.V., and Knight, R.J., 1986, Petrochemistry of the Mohon Mountains volcanic field, Arizona: U.S. Geological Survey Open-File Report 86-423, 31 p.
- Nealey, L.D., Ward, A.W., Bartel, A.J., Vivit, D.V., and Knight, R.J., 1987, Evolution and composition of post-40-Ma volcanic rocks in Arizona: EOS, American Geophysical Union Transactions, v. 68, p. 1,532.
- Nealey, L.D., Ward, A.W., Bartel, A.J., Vivit, D.V., and Knight, R.J., 1987, Petrochemistry of rocks from the Mohon Mountain volcanic field, Yavapai and Mohave Counties, Arizona: U.S. Geological Survey Open-file report 86-423, 20 p.
- Nealey, L.D., Ward, A.W., Knight, R.J., Vivit, D.V., and Kink, B.W., in press, Geochemistry of the Mohon Mountains Volcanic Field, in Ward, A.W., and Hendricks, J.D., eds., Geology and Geophysics of the Mohon Mountains volcanic field, west-central Arizona, U.S. Geological Survey Bulletin.
- Nealey, L.D., Ward, A.W., and Simmons, A.M., 1986, Bimodal volcanism in the Mohon Mountains volcanic field, west-central Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 398.
- Nielson, J.E., 1986, Chemical relationships between mantle hornblende, pyroxene, and high-pressure megacrysts, Dish Hill, California: Geological Society of America Abstracts with Programs, v. 18, p. 164.
- Nielson, J.E., 1986, Mantle magmatic events indicated by zoned olivine and pyroxene compositional variations in a composite mantle xenolith from Lashaine Volcano, Tanzania: 4th International Kimberlite Conference, Extended abstracts volume, p. 297-289.
- Nielson, J.E., 1986, Miocene stratigraphy of the Mojave Mountains, Arizona, and correlation with adjacent ranges, in Cenozoic stratigraphy, structure and mineralization in the Mojave Desert: Geological Society of America, Cordilleran Section, 82nd Ann. Mtg., Los Angeles, CA, March 25-28, 1986, Guidebook and Volume, Field Trip numbers 5 and 6, p. 15-24.
- Nielson, J.E., 1987, Evolution of the lower lithosphere near the CA-AZ crustal transect: Evidence from xenoliths: Geological Society of America Abstracts with Programs, v. 19, p. 789.

- Nielson, J.E., 1989, Nature and sequence of mantle magmatic events indicated by compositional variations in a composite xenolith from Lashaine Volcano, Tanzania, *in* Ross, J., Jaques, A.L., Ferguson, J., Green, D.H., O'Reilly, S.Y., Danchin, R.V., and Janse, A.J.A., eds., *Kimberlite and Related Rocks*, v. 2, Geological Society of Australia Special Publication 14, p. 700-708.
- Nielson, J.E., and Beratan, K.K., 1988, Time of detachment faulting from Miocene sequences, Colorado River extended terrane: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A393.
- Nielson, J.E., and Beratan, K.K., 1990, Tertiary basin development and tectonic implications, Whipple detachment system, Colorado River extensional corridor, California and Arizona: *Journal of Geophysical Research*, v. 95, p. 599-614.
- Nielson, J.E., Budahn, J.R., and Wilshire, H.G., 1987, Fluid-wallrock interactions in the mantle: Evidence from composite lherzolite-hornblende xenoliths, U.S. Geological Survey Circular 956, p. 86-88.
- Nielson, J.E., Frisken, J.G., Jachens, R.C., and McDonnell, J.R., Jr., 1987, Mineral resources of the Fort Piute Wilderness Study Area, San Bernardino County, California: U.S. Geological Survey Bulletin 1713-C, 12 p.
- Nielson, J.E., Glazner, A.F., and Lux, D.R., 1988, Problems of dating the Peach Springs Tuff: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 218.
- Nielson, J.E., Howard, K.A. and Glazner, A.F., in press, Introduction to the area south of I-40 and north of I-10, California and Arizona, *in* Sherrod, D.R., and Nielson, J.E., eds., *Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada*: U.S. Geological Survey Bulletin.
- Nielson, J.E., Lux, D.R., Dalrymple, G.B., and Glazner, 1990, A.F., Age of the Peach Springs Tuff, southeastern California and western Arizona: *Journal of Geophysical Research*, v. 95, p. 571-580.
- Nielson, J.E., Miller, D.M., and Thompson, S.M., 1986, Source of the Peach Springs Tuff: North of Kingman, Arizona?: Geological Society of America Abstracts with Programs, v. 18, p. 164.
- Nielson, J.E., and Noller, J.S., 1987, Processes of mantle metasomatism, *in* Morris, E.M., and Pasteris, J.D., eds., *Mantle Metasomatism and alkaline magmatism*: Geological Society of America Special Paper 215, p. 61-76.
- Nielson, J.E., and Turner, R.D., 1986, Miocene rocks of the northern Turtle Mountains, San Bernardino County, California, *in* *Cenozoic stratigraphy, structure and mineralization in the Mojave Desert*: Geological Society of America, Cordilleran Section, 82nd Ann. Mtg., Los Angeles, CA, March 25-28, 1986, Guidebook and Volume, Field Trip numbers 5 and 6, p. 25-32.
- Nielson, J.E., Wilshire, H.G., Meyer, C., Shervais, J., and Mukasa, S., 1990, Fractionated dikes, Lherz massif, southern France: International Workshop on Orogenic Lherzolites and Mantle Processes.
- Nielson-Pike, J.E., 1987, Character of the lower lithosphere: Composition: U.S. Geological Survey Circular 956, p. 9-12.
- Noller, J.S., 1986, Solid and fluid inclusions in mantle xenoliths: An analytical dilemma: *Geology*, v. 14, p. 437-440.
- Orell, S.E., Anderson, J.L., Wooden, J.L., and Wright, J.E., 1987, Proterozoic crustal evolution of the lower Colorado River region: Rear-arc orogenesis to anorogenic crustal remobilization: Geological Society of America Abstracts with Programs, v. 19, p. 795.
- Parsons, T., Howie, J.M., and Thompson, G.A., 1990, Full-wavefield imaging of the Colorado Plateau: Geological Society of America Abstracts with Programs, v. 22, n. 7, p. A205.
- Parsons, T., Howie, J.M., and Thompson, G.A., 1990, Imaging the initial stages of extension at the edge of the Colorado Plateau, Chino Valley, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,563.
- Parsons, T., Howie, J.M., and Thompson, G.A., in press, Seismic constraints on the nature of lower crustal reflectors beneath the extending southern Transition Zone of the Colorado Plateau, Arizona: *Journal of Geophysical Research*.
- Parsons, T., McCarthy, J., Howie, J.M., and Thompson, G.A., 1990, Full-wavefield imaging of the Colorado Plateau, Arizona, USA: *TERRA Abs.*, p. 203.
- Plescia, J.B., and Hendricks, J.D., 1987, Gravity observations across the Colorado Plateau-Basin and Range transition zone of Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 807.
- Powell, R.E., 1986, Mesozoic and early Cenozoic fan folding in the Transverse Ranges: A window into the evolution of crustal structure in southern California: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 172.
- Powell, R.E., 1986, Palinspastic reconstruction of crystalline-rock assemblages in southern California: San Andreas fault as part of an evolving system of late Cenozoic conjugate strike-slip faults: Geological Society of America Abstracts with Programs, v. 18, n. 2, p. 172.
- Powell, R.E., in press, Balanced palinspastic reconstruction of pre-late Cenozoic paleogeology, southern California: Geologic and kinematic constraints on evolution of the San Andreas fault system, *in* Powell, R.E., Weldon, R.J., II, and Matti, J.C., eds., *The San Andreas fault system: Displacement, palinspastic reconstruction, and geologic evolution*: Geological Society of America Memoir 178.
- Powell, R.E., in press, Foreword, *in* Powell, R.E., Weldon, R.J., II, and Matti, J.C., eds., *The San Andreas fault system: Displacement, palinspastic reconstruction, and geologic evolution*: Geological Society of America Memoir 178.
- Reynolds, S.J., Richard, S.M., Haxel, G.B., Tosdal, R.M., and Laubach, S.E., 1988, Geologic setting of Mesozoic and Cenozoic metamorphism in Arizona, *in* Ernst, W.G., ed., *Metamorphism and crustal evolution of the*

- western United States (Rubey Volume 7): Englewood Cliffs, N.J., Prentice-Hall, p. 466-501.
- Richard, S.M., and Haxel, G.B., 1991, Progressive exhumation of the Orocopia and Pelona Schists along a composite normal fault system, southeastern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 92.
- Richard, S.M., and Sherrod, D.R., in press, Introduction to Tertiary Stratigraphy of the area south of I-10, Arizona and California, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Richard, S.M., Sherrod, D.R., and Tosdal, R.M., 1992, Cibola Pass fault, southwestern Arizona, in Richard, S.M., ed., Deformation associated with the Neogene eastern California shear zone, southwestern Arizona and southeastern California: Redlands, Calif., San Bernardino County Museum Special Publication, p. 66-70.
- Ridley, W.I., Nielson, J.E., and Wilshire, H.G., 1988, Understanding lunar mantle metasomatism: The terrestrial mantle analogy: Workshop on Moon in transition: Apollo 14, KREEP, and evolved lunar rocks: Lunar and Planetary Institute, Nov. 14-16, 1988, Houston, Texas, p. 69-70.
- Riggs, N.R., and Haxel, G.B., 1990, The Early to Middle Jurassic magmatic arc in southern Arizona: plutons to sand dunes, in Gehrels, G.E., and Spencer, J.E., eds., Geologic excursions through the Sonoran Desert region, Arizona and Sonora: Arizona Geological Survey Special Paper 7, p. 90-103.
- Riggs, N.R., Haxel, G.B., and Busby-Spera, C.J., 1990, Paleogeography and tectonic setting of the Jurassic magmatic arc in southern Arizona: progress and problems: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 78.
- Ruppert, S., 1990, Teleseismic shear-wave response of the crust and upper mantle across the southwest margin of the Colorado Plateau, Arizona: EOS, American Geophysical Union Transactions, v. 71, p. 1,564.
- Ruppert, S., in prep., Variations in shear-wave crustal structure across the southern Basin & Range -- Colorado Plateau transition zone: for Journal of Geophysical Research.
- Ruppert, S., in prep., Variations in upper mantle anisotropy across the southern Basin & Range -- Colorado Plateau transition zone: for Journal of Geophysical Research.
- Saltus, R.W., Blakely, R.J., Jachens, R.C., Simpson, R.W., and Hildenbrand, T.G., 1991, Potential field constraints on Cordilleran tectonics: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A22.
- Saltus, R.W., and Jachens, R.C., 1989, Basement gravity and depth-to-basement maps of Arizona, Nevada, Utah, and SE California: EOS, American Geophysical Union Transactions, v. 70, p. 1,361.
- Sass, J.H., Haxel, G.B., and Lucchitta, Ivo, 1988, CACTIS meeting examines crustal transect: Arizona Geology, v. 18, p. 7.
- Sass, J.H., and Lachenbruch, A.H., 1987, Heat-flow field of the California-Arizona crustal experiment and adjacent areas: Geological Society of America Abstracts with Programs, v. 19, n. 7, p. 829.
- Serna, J., Warrick, R., Borchardt, R., Dietel, C., Gibbs, J., and Maxwell, G., 1986, Instrumentation, in Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): Open-File Report 86-387, p. 2-4.
- Shaw, S.E., Cooper, J.A., O'Neil, J.R., Todd, V.R., and Wooden, J.L., 1986, Strontium, oxygen, and lead isotopic variations across a segment of the Peninsular Ranges batholith, San Diego County, California: Geological Society of America Abstracts with Programs, v. 18, p. 183.
- Sheridan, M.F., Nealey, L.D., and Dehn, J., 1986, Middle and Late Cenozoic volcanism in Arizona: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 412.
- Sherrod, D.R., 1988, Preliminary geologic map of the Monkeys Head quadrangle, Mojave and La Paz Counties, Arizona: U.S. Geological Survey Open-File Report 88-597 (with pamphlet), scale 1:24,000.
- Sherrod, D.R., in press, New Water Mountains, Arizona, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., and Hughes, K.M., in press, Southern Trigo Mountains, Arizona, and eastern Chocolate Mountains, California: Picacho State Park area, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., and Koch, R.D., 1987, Structure and stratigraphy of Mesozoic sedimentary and volcanic rocks in the New Water Mountains, southwestern Arizona, in Dickinson, W.R. and Klute, M.A., eds., Mesozoic rocks of southern Arizona and adjacent parts: Arizona Geological Society Digest, v. 18, p. 81-90.
- Sherrod, D.R., Koch, R.D., and Grubensky, M.J., 1990, Geologic map of the Vicksburg quadrangle, La Paz County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1684, scale 1:62,500.
- Sherrod, D.R., and Nielson, J.E., in press, Introduction and owner's manual, in Sherrod, D.R., and Nielson, J.E., eds., Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., and Nielson, J.E., eds., in press, Tertiary stratigraphy of some highly extended terranes, California, Arizona, and Nevada: U.S. Geological Survey Bulletin.
- Sherrod, D.R., Pickthorn, L.G., Tosdal, R.M., Grubensky, M.J., and Koch, R.D., 1987, Major early Miocene extensional deformation in southwestern Arizona and southeastern California: Geological Society of America Abstracts with Programs, v. 19, p. 841.

- Sherrod, D.R., Smith, D.B., Kleinkopf, M.D., and Gese, D.D., 1990, Mineral resources of the Kofa Unit 4 Northern Addition Wilderness Study Area (AZ-050-033), Yuma County, Arizona: U.S. Geological Survey Bulletin 1702-K, 12 p.
- Sherrod, D.R., Smith, D.B., Koch, R.D., Hanna, W.F., Pitkin, J.A., and Lane, M.E., 1989, Mineral resources of the New Water Mountains Wilderness Study Area, La Paz County, Arizona: U.S. Geological Survey Bulletin 1702-B, 18 p.
- Sherrod, D.R., and Tosdal, R.M., 1991, Geologic setting and Tertiary structural evolution of southwestern Arizona and southeastern California: *Journal of Geophysical Research*, v. 96, p. 12,407-12,423.
- Sherrod, D.R., Tosdal, R.M., Vaughn, R.B., Smith, D.B., Kleinkopf, M.D., and Wood, Robert H., II, 1990, Mineral resources of the Trigo Mountains Wilderness Study Area, La Paz County, Arizona: U.S. Geological Survey Bulletin 1702-J, 16 p.
- Silver, L.T., Conway, C.M., and Ludwig, K.R., 1986, Implications of a precise chronology for Early Proterozoic crustal evolution and caldera formation in the Tonto Basin-Mazatzal Mountains region, Arizona: *Geological Society of America Abstracts with Programs*, v. 18, p. 413.
- Simmons, A.M., and Haxel, G.B., 1991, Synextensional mafic dikes in metamorphic core complexes, southern Arizona: Samples of primitive or parental magma for widespread middle Tertiary basaltic andesite volcanism in the Southwest: *Geological Society of America Abstracts with Programs*, v. 23, n. 4, p. 94.
- Simmons, A.M., and Ward, A.W., 1992, Preliminary geologic map of the Mohon Mountains Volcanic Field, west-central Arizona, U.S. Geological Survey Open-file map 92-198 (with pamphlet), scale 1:50,000.
- Simmons, A.M., Young, R.A., and Haxel, G.B., 1990, Middle Tertiary volcanism in the northern Aquarius Mountains-upper Trout Creek area, west-central Arizona: *Geological Society of America Abstracts with Programs*, v. 22, n. 3, p. 84.
- Simpson, Carol, Schweitzer, Janet, and Howard, K.A., 1991, A reinterpretation of the timing, position, and significance of the Sacramento Mountains detachment fault, SE California: *Geological Society of America Bulletin*, v. 103, p. 751-761.
- Simpson, R.W., Howard, K.A., and Haxel, G.B., 1991, Introduction to Special Section on the California-Arizona Crustal Transect--Part III: *Journal of Geophysical Research*, v. 96, p. 12,257-12,258.
- Simpson, R.W., Howard, K.A., Jachens, R.C., and Mariano, J., 1990, A positive gravity anomaly along the Colorado River extensional corridor: Evidence for new crustal material: EOS, American Geophysical Union Transactions, v. 71, p. 1,594.
- Simpson, R.W., Jachens, R.C., Mariano, John, and Helferty, M.G., 1986, Gravity and magnetic studies of the Colorado River region, California and Arizona: *Geological Society of America Abstracts with Programs*, v. 18, n. 5, p. 414.
- Smith, D.B., Berger, B.R., Tosdal, R.M., Sherrod, D.R., Raines, G.L., Griscom, A., Helferty, M.G., Rumsey, C.M., and McMahan, A.B., 1987, Mineral Resources of the Indian Pass and Picacho Peak Wilderness Study Areas, Imperial County, California: U.S. Geological Survey Bulletin 1711, 21 p.
- Snively, P.D., Jr., and Wells, R.E., in press, Cenozoic evolution of the continental margin of Oregon and Washington, in Rogers, A., and others, eds., *Earthquake Hazards in the Pacific Northwest of the United States*: U.S. Geological Survey Open-File Report 91-441B, 34 p., a chapter in U.S. Geological Survey Professional Paper 1560.
- Stewart, J.H., Anderson, T.H., Haxel, G.B., Silver, L.T., and Wright, J.E., 1986, Late Triassic paleogeography of the southern Cordillera: The problem of a source for voluminous volcanic detritus in the Chinle Formation of the Colorado Plateau region: *Geology*, v. 14, p. 566-570.
- Stone, Paul, 1987, Mesozoic tectonics of southeastern California, Day 2, morning: McCoy Mountains Formation, McCoy Mountains, in Davis, G.H., and VandenDolder, E.M., eds., *Geologic diversity of Arizona and its margins: Excursions to choice areas*: Arizona Bureau of Geology and Mineral Technology Special Paper 5, p. 342-344.
- Stone, Paul, 1990, Preliminary geologic map of the Blythe 30' by 60' quadrangle, California and Arizona: U.S. Geological Survey Open-File Report 90-497, scale 1:100,000.
- Stone, Paul and Howard, K.A., 1986, Tectonic framework of the McCoy Mountains Formation--Evidence from the Palen Mountains, southeast California: *Geological Society of America Abstracts with Programs*, v. 18, n. 2, p. 190.
- Stone, Paul, and Kelly, M.M., 1988, Preliminary geologic map of the Palen Pass quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 88-503, scale 1:24,000.
- Stone, Paul, Page, V.M., Hamilton, W.B., and Howard, K.A., 1987, Cretaceous age of the upper part of the McCoy Mountains Formation, southeastern California and southwestern Arizona and its tectonic significance: Reconciliation of paleobotanical and paleomagnetic evidence: *Geology*, v. 15, p. 561-564.
- Stone, Paul, and Pelka, G.J., 1989, Geologic map of the Palen-McCoy Wilderness Study Area and vicinity, Riverside County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2092, scale 1:62,500.
- Thompson, G.A., and McCarthy, J., 1986, A gravity constraint on the origin of highly extended terranes: *Geological Society of America Abstracts with Programs*, v. 18, p. 418.
- Thompson, G.A., and McCarthy, J., 1990, A gravity constraint on the origin of highly extended terranes: *Tectonophysics*, v. 174, p. 197-206.
- Todd, V.R., Cather, E., Lipton, D.A., Kilburn, J.E., Detra, D.E., Griscom, A., Knepper, D.H., Jr., and Kruse, F.A., 1987, Mineral resources of the Sawtooth Mountains and Carrizo Gorge/Eastern McCain Valley Wilderness Study

- Areas, San Diego County, California: U.S. Geological Survey Bulletin 1711-B, 15 p.
- Todd, V.R., Detra, D.E., Kilburn, J.E., and Campbell, H.W., 1987, Mineral resources of the Fish Creek Mountains Wilderness Study Area: Imperial County, California: U.S. Geological Survey Bulletin 1711-C, 14 p.
- Todd, V.R., Girty, G.H., Shaw, S.E., and Jachens, R.C., 1991, Geochemical, geochronologic, and structural characteristics of Jurassic plutonic rocks, Peninsular Ranges, California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A249.
- Todd, V.R., Kilburn, J.E., Detra, D.E., and McHugh, E.L., 1987, Mineral resources of the Jacumba/In-ko-pah Wilderness Study Area, Imperial County, California: U.S. Geological Survey Bulletin 1711-D, 18 p.
- Todd, V.R., Shaw, S.E., Girty, G.H., and Jachens, R.C., 1991, A probable Jurassic plutonic arc of continental affinity in the Peninsular Ranges batholith, southern California: Tectonic implications: Geological Society of America Abstracts with Programs, v. 23, n. 2, p. 104.
- Todd, V.R., Shaw, S.E., Jachens, R.C., Kimbrough, D.L., Girty, G.H., and Hammarstrom, J.M., 1991, The El Cajon 30' x 60' quadrangle, southern California: A geologic history from early Mesozoic continental growth to modern rift-transform tectonics: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A479.
- Tosdal, R.M., 1986, Gneissic host rocks of gold mineralization in the Picacho Mine, southeastern Chocolate Mountains, southeastern California, in Cenozoic stratigraphy, structure, and mineralization in the Mojave Desert: Geological Society of America Cordilleran Section, 82nd Annual Mtg., Los Angeles, CA, March 25-28, 1986, Guidebook and volume, Trips 5 and 6, p. 143-144.
- Tosdal, R.M., 1986, Mesozoic ductile deformations in the southern Dome Rock Mountains, northern Trigo Mountains, Trigo Peaks, and Livingston Hills, southwestern Arizona, and Mule Mountains, southeastern California, in Beatty, Barbara, and Wilkinson, Pamela, eds., Frontiers in geology and ore deposits of Arizona and the Southwest: Arizona Geological Society Digest 16, p. 62-71.
- Tosdal, R.M., 1988, Late Cretaceous tectonics of the Blythe-Quartzite region, SE California and SW Arizona: Deformation within a oblique-slip orogene: Butte, Montana, 8th International Basement Tectonics meeting, p. 34.
- Tosdal, R.M., 1990, Jurassic low-angle ductile shear zones, SE California and SW Arizona: Thrust faults, extensional faults, or rotated high-angle faults?: Geological Society of America Abstracts with Programs, v. 22, n. 3, p. 89.
- Tosdal, R.M., 1990, Tectonics of the Mule Mountains thrust system southeast California and southwest Arizona: Journal of Geophysical Research, v. 95, p. 20,035-20,048.
- Tosdal, R.M., Bryant, Bruce, Hill, R.H., Hanna, W.F., Knepper, D.H., Jr., Jones, S.L., Oliver, K.S., and Tuftin, S.E., 1990, Mineral resources of the Rawhide Mountains Wilderness Study Area, Las Paz and Mohave Counties, Arizona: U.S. Geological Survey Bulletin 1701-G, 24 p.
- Tosdal, R.M., and Haxel, G.B., 1987, Late Jurassic regional metamorphism and deformation, southeastern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 19, p. 870-871.
- Tosdal, R.M., Haxel, G.B., Anderson, T.H., Connors, C.D., May, D.J., and Wright, J.E., 1990, Highlights of Jurassic, Late Cretaceous to early Tertiary, and middle Tertiary tectonics, south-central Arizona and north-central Sonora, in Gehrels, G.E., and Spencer, J.E., eds., Geologic excursions through the Sonoran Desert region, Arizona and Sonora: Arizona Geological Survey Special Paper 7, p. 76-88.
- Tosdal, R.M., Haxel, G.B., and Dillon, J.T., 1985, Lithologic associations of gold deposits, southeastern California and southwestern Arizona: Geological Society of America Abstracts with Programs, v. 17, p. 414.
- Tosdal, R.M., Haxel, G.B., and Dillon, J.T., 1986, Evidence and tectonic implications for northeastward movement on the Chocolate Mountains thrust, southeast California: Geological Society of America Abstracts with Programs, v. 18, p. 193.
- Tosdal, R.M., Haxel, G.B., and Wright, J.E., 1989, Jurassic geology of the Sonoran Desert region, southern Arizona, southeastern California, and northernmost Sonora: Construction of a continental-margin magmatic arc, in Jenney, J.P. and Reynolds, S.J., eds., Geologic evolution of Arizona: Arizona Geological Society Digest 17, p. 397-434.
- Tosdal, R.M., and Stone, Paul, submitted, Stratigraphic relations and U-Pb geochronology of the Late Cretaceous upper McCoy Mountains Formation, southwest Arizona: Geological Society of America Bulletin.
- Tosdal, R.M., and Willis, G.F., 1991, Formation and dismemberment of epithermal gold ore bodies during strike-slip faulting in the Mesquite mining district, southeastern California, U.S.A.: Workshop on Ore Forming processes, Lima, Peru, July 9-12, 1991.
- Tosdal, R.M., and Wooden, J.L., 1991, Middle Jurassic plutons, SE California and SW Arizona: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A308.
- U.S. Geological Survey, 1990, Aeromagnetic map of parts of the San Diego, Santa Ana, and adjacent 1° x 2° quadrangles, California: U.S. Geological Survey Open-File Report 90-206, 1 sheet, scale 1:250,000.

- U.S. Geological Survey (contributors: K.R. Bishop, C.M. Conway, J.C., Dohrenwend, J.S. Duval, G.B. Haxel, J.H., Hendricks, C.A. Hodges, R.C. Jachens, M.J. Kingston, D.L. Mangan, R.J. Miller, D.M. Miller, G.A. Nowlan, M. Power, J.J. Rytuba, S.L. Simpson, T.G. Theodore (editor), R.M. Tosdal), 1991, Evaluation of metallic mineral resources and their geologic controls in the East Mojave National Scenic Area, San Bernardino County, California: U.S. Geological Survey Open-File Report 91-427, 278 p., 6 plates.
- Ulrich, G.E., Condit, C.D., Wenrich, K.J., Wolfe, E.W., Holm, R.F., Nealey, L.D., Conway, F.M., Aubele, J.C., and Crumpler, L.S., 1989, Miocene to Holocene volcanism and tectonism of the southern Colorado Plateau, Arizona: New Mexico Bureau of Mines and Mineral Resources Memoir 46, p. 1-41.
- Unruh, D.M., Nealey, L.D., and Holm, R.F., 1988, Trace-element and isotopic constraints on the origin of the Mormon Mountain volcanic field, central Arizona: Geological Society of America Abstracts with Programs, v. 20, n. 3, p. 238.
- Unruh, D.M., Nealey, L.D., and Holm, R.F., in press, The role of deep crust in the origin of upper Cenozoic volcanic rocks of northern Arizona--chemical and isotopic evidence from the Mormon Mountain volcanic field: *Geology*.
- Ward, A.W., and Nealey, L.D., 1990, Preliminary Geologic map of the Burro Mesa Quadrangle, Yavapai County, Arizona: USGS Open-file report 90-212; scale 1:24,000.
- Ward, A.W., and Nealey, L.D., 1990, Preliminary Geologic map of the Pilot Knob Quadrangle, Yavapai and Mojave Counties, Arizona: USGS Open-file report 90-26; scale 1:24,000.
- Ward, A.W., Nealey, L.D., and Simmons, A.M., 1986, Petrology of the Mohon Mountains volcanic field, north-central Arizona: a preliminary report: Arizona Geological Society Digest 16, p. 501.
- Ward, A.W., Nealey, L.D., and Ward, S.J., in press, Geology and petrology of the southern part of the Mohon Mountains Volcanic field, in Ward, A.W., and Hendricks, J.D., eds., Geology and geophysics of the Mohon Mountains volcanic field, west-central Arizona: U.S. Geological Survey Bulletin.
- Weir, G.W., Ulrich, G.E., and Nealey, L.D., 1986, Geologic map of the Sedona 30- x 60-minute quadrangle, Yavapai and Coconino Counties, Arizona: U.S. Geological Survey Miscellaneous Investigations Map 1-1896, scale 1:100,000.
- Weir, G.W., Ulrich, G.E., and Nealey, L.D., 1986, Preliminary geologic map of the Sedona 30 x 60' quadrangle, Yavapai and Coconino Counties, Arizona: U.S. Geological Survey Open-File Report 86-164, scale 1:100,000.
- Weir, G.W., Ulrich, G.E., and Nealey, L.D., in prep., Geologic map of the Long Valley quadrangle, Coconino County, Arizona: U.S. Geological Survey Geologic Quadrangle Map, scale 1:24,000.
- Weisman, M.K., and Weir, G.W., 1990, Geologic map of the Pine 7.5-minute quadrangle, Coconino and Gila Counties, Arizona: U.S. Geological Survey Miscellaneous Field Studies Map 2123, scale 1:24,000.
- Wells, R.E., 1989, Paleomagnetic rotations and the Cenozoic tectonics of the Cascade arc, Washington, Oregon, and California, in Muffler, L.P.J., Blackwell, D.D., and Weaver, C.A., eds., Geological, Geophysical and Tectonic setting of the Cascade Range: U.S. Geological Survey Open-File Report 89-178 (Red Book) p. 1-16.
- Wells, R.E., 1990, Paleomagnetic rotations and the Cenozoic tectonics of the Cascade Arc, Washington, Oregon, and California: *Journal of Geophysical Research*, v. 95, p. 19,409-19,417.
- Wells, R.E., and England, P.C., 1988, Continuum model of rotations recorded in Miocene flows of the Columbia River Basalt Group, Oregon and Washington: EOS, American Geophysical Union Transactions, v. 69, p. 1,456.
- Wells, R.E., and Hillhouse, J.W., 1986, Paleomagnetism of the Peach Springs Tuff and correlative outcrops from Barstow, California, to the Colorado Plateau: Geological Society of America Abstracts with Programs, v. 18, n. 5, p. 421.
- Wells, R.E., and Hillhouse, J.W., 1987, Tectonic rotations in the Peach Springs Tuff, Colorado River extensional corridor, California and Arizona: Geological Society of America Abstracts with Programs, v. 29, p. 886.
- Wells, R.E., and Hillhouse, J.W., 1989, Paleomagnetism and tectonic rotation of the lower Miocene Peach Springs Tuff: Colorado Plateau to Barstow, California: Geological Society of America Bulletin, v. 101, p. 846-863.
- Wells, R.E., and Simpson, R.W., 1987, More paleomagnetic results from the Miocene Columbia River Basalt Group, Oregon and Washington: Stratigraphic and tectonic implications: Geological Society of America Abstracts with Programs, v. 19, p. 463.
- Wells, R.E., Simpson, R.W., Bentley, R.D., Beeson, M.H., Mangan, M.T., and Wright, T.L., 1989, Correlation of Miocene flows of the Columbia River Basalt Group from the central Columbia River Plateau to the coast of Oregon and Washington, in Hooper, P., and Reidel, S., eds., Volcanism and tectonism in the Columbia River flood basalt province, Geological Society of America Special Paper 239, p. 113-130.
- Wennerberg, L., 1986, ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387.
- Wennerberg, L., and Borchardt, R., 1986, Calibration spectra, in Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): Open-File Report 86-387, p. 11.
- Wennerberg, L., Sembera, E., Borchardt, R., Gibbs, J., Dietel, C., Watson, J., and Cranswick, E., 1986, Velocity and acceleration time histories, in Wennerberg, L., ed., Three-component digital velocity and acceleration recordings made in conjunction with the PACE refraction experiment (November 1985): U.S. Geological Survey Open-File Report 86-387, p. 9-10.

- Willis, G.F., and Tosdal, R.M., 1991, Late Cenozoic dismemberment of the late Cenozoic gold ore bodies in the Mesquite Mining District, SE California: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A463.
- Willis, G.F., and Tosdal, R.M., in press, Formation of gold veins and breccias during dextral strike-slip faulting in the Mesquite Mining District, Southeastern California: Economic Geology.
- Willis, G.F., Tosdal, R.M., and Manske, S.L., 1987, The Mesquite mine, southeastern California: Epithermal gold mineralization in a strike-slip fault system: Geological Society of America Abstracts with Programs, v. 19, p. 892.
- Willis, G.F., Tosdal, R.M., and Manske, S.L., 1989, Structural control on epithermal gold veins, and breccias in the Mesquite District, southeastern California: U.S. Geological Survey Circular 1035, p. 78-79.
- Wilshire, H.G., 1987, A model of mantle metasomatism, in Morris, E.M. and Pasteris, J.D. (eds.), Mantle Metasomatism and Alkaline Magmatism: Geological Society of America Special Paper 215, p. 47-60.
- Wilshire, H.G., 1987, Character of the lower lithosphere: Lithology, in Noller, J.S., Kirby, S.C., and Nielson, J.E., (eds.), Workshop: Geophysics and Petrology of the Deep Crust and Mantle: U.S. Geological Survey Circular 956, p. 6-8.
- Wilshire, H.G., 1987, Multistage generation of alkalic basalt in the mantle: The Cima volcanic field, California: Geological Society of America Abstracts with Programs, v. 19, p. 892.
- Wilshire, H.G., 1988, Enrichment of lithospheric mantle in western United States extensional terranes: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A366.
- Wilshire, H.G., 1988, Geology of the Cima volcanic field, San Bernardino County, California: Geological Society of America Field Trip Guidebook, This Extended Land: Geological Journeys in the Southern Basin and Range, p. 210-213.
- Wilshire, H.G., 1988, Remelting of igneous and meta-igneous rocks in the upper mantle: EOS, American Geophysical Union Transactions, v. 69, p. 1,049.
- Wilshire, H.G., 1990, Lithology and evolution of the crust-mantle boundary region in the southwestern Basin and Range Province: Journal of Geophysical Research, v. 95, p. 649-665.
- Wilshire, H.G., in press, Geology of the Cow Cove 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., in press, Geology of the Granite Spring 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., in press, Geology of the Indian Spring 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., in press, Geology of the Marl Mountains 7.5' quadrangle, San Bernardino Co., California: U.S. Geological Survey Open-File Report.
- Wilshire, H.G., Frisken, J.G., Jachens, R.C., Prose, D.V., Rumsey, C.M., and McMahan, A.B., 1987, Mineral resources of the Cinder Cones Wilderness Study Area, San Bernardino, California: U.S. Geological Survey Bulletin 1712-B, 13 p.
- Wilshire, H.G., and Kirby, S.H., 1987, Brittle fracturing and related phenomena in the lower lithosphere: Geological Society of America Abstracts with Programs, v. 19, p. 464.
- Wilshire, H.G., and Kirby, S.H., 1988, Dikes, joints, and faults in the upper mantle: Tectonophysics, v. 161, p. 23-31.
- Wilshire, H.G., McGuire, A.V., Noller, J.S., and Turrin, B.D., 1991, Petrology of lower crustal and upper mantle xenoliths from the Cima volcanic field, California: Journal of Petrology, v. 32, p. 169-200.
- Wilshire, H.G., Meyer, C.E., Nakata, J.K., Calk, L.C., Shervais, J.W., Nielson, J.E., and Schwarzman, E.C., 1988, Mafic and ultramafic xenoliths from volcanic rocks of the western United States: U.S. Geological Survey Professional Paper 1443, 179 p.
- Wilshire, H.G., and Nielson, J.E., 1991, Differentiation of basaltic intrusions in the mantle: Geological Society of America Abstracts with Programs, v. 23, n. 5, p. A272.
- Wilshire, H.G., and Nielson-Pike, J.E., 1986, Upper-mantle xenoliths in alkaline basalt, Dish Hill, California: Geological Society of America Guidebook, Southern California Field Trips, Mojave Desert Xenolith Suites, Malapai Hill and Dish Hill, p. 1-3.
- Wilshire, H.G., and Noller, J.S., 1986, Mantle/crust xenoliths in hawaiite lavas: The Cima volcanic field, California: Fourth International Kimberlite Conference, Extended Abstracts, Geological Society of Australia, Abstracts, n. 16, pt. 4, p. 355-357.
- Wilson, J.M. and Fuis, G.S., 1987, Data report for the Chemehuevi, Vidal, and Dutch Flat lines, PACE, Seismic-Refraction Survey, southeastern California, and western Arizona: U.S. Geological Survey Open-File Report 87-86, 75 p.
- Wilson, J.M., Geist, E.L., Tosdal, R.M., Okaya, D., and Frost, E., 1987, Crustal structure of the Chuckwalla Valley region, SE California, from industry seismic profiles: EOS, American Geophysical Union Transactions, v. 68, p. 1,360.
- Wilson, J.M., McCarthy, J., and Johnson, R., 1988, Middle and lower crustal structure of the Whipple Mountain metamorphic core complex: Geological Society of America Abstracts with Programs, v. 20, n. 7, p. A355.
- Wilson, J.M., McCarthy, J., Johnson, R.A., and Howard, K.A., 1991, An axial view of a metamorphic core complex: Crustal structure of the Whipple and Chemehuevi Mountains, southeastern California: Journal of Geophysical Research, v. 96, p. 12,293-12,312.
- Wolf, L.W., and Cipar, J.J., 1991, A new crustal model of the Colorado Plateau: Results from the 1989 Pacific to

- Arizona Crustal Experiment: EOS, American Geophysical Union Transactions, v. 72, p. 327.
- Wolf, L.W., and Cipar, J.J., in review, The Colorado Plateau: Through thick and thin: *Journal of Geophysical Research*.
- Wolf, L.W., Cipar, J.J., and D'Annolfo, Susan, 1991, Evaluation of crustal models of the Colorado Plateau in view of 1989 PACE seismic refraction/wide-angle reflection data: *Geological Society of America Abstracts with Programs*, v. 23, n. 4, p. 107.
- Wolf, L., D'Annolfo, S., and Cipar, J., 1990, Crustal structure across the Grand Canyon, Arizona, from PACE cross-line observations: EOS, American Geophysical Union Transactions, v. 71, p. 1,593.
- Wooden, J.L., and Aleinikoff, J.N., 1987, Pb isotopic evidence for Early Proterozoic crustal evolution in the southwestern U.S.: *Geological Society of America Abstracts with Programs*, v. 19, p. 896.
- Wooden, J.L., and Aleinikoff, J.N., 1991, Early Proterozoic isotopic provinces in the southwestern U.S.: *Geological Society of America Abstracts with Programs*, v. 23, n. 4, p. 107.
- Wooden, J.L., Bennett, V.C., Hanchar, J.M., and Miller, C.F., 1990, Lower crustal xenoliths in Tertiary dikes, Old Woman Mountains area, SE California: II. Pb, Nd, and Sr isotopic data: *Geological Society of America Abstracts with Programs*, v. 22, n. 3, p. 95.
- Wooden, J.L., Kistler, R.W., Robinson, A.C., Tosdal, R.M., and Wright, J.E., 1991, A comparison of isotopic signatures and Mesozoic and Tertiary plutonism in the western U.S.: EOS, American Geophysical Union Transactions, v. 72, n. 17, p. 302.
- Wooden, J.L., and Miller, D.M., 1990, Chronologic and isotopic framework for Early Proterozoic crustal evolution in the eastern Mojave Desert Region, SE California: *Journal of Geophysical Research*, v. 95, p. 20,133-20,146.
- Wooden, J.L., and Miller, D.M., 1991, Early Proterozoic geologic history of the Mojave crustal province: *Geological Society of America Abstracts with Programs*, v. 23, n. 4, p. 108.
- Wooden, J.L., Miller, D.M., and Elliott, G., 1986, Early Proterozoic geology of the northern New York Mountains, SE California: *Geological Society of America Abstracts with Programs*, v. 18, n. 3, p. 424.
- Wooden, J.L., Miller, D.M., and Howard, K.A., 1988, Early Proterozoic chronology of the eastern Mojave Desert: *Geological Society of America Abstracts with Programs*, v. 20, n. 3, p. 243.
- Wooden, J.L., Powell, R.E., Howard, K.A., and Tosdal, R.M., 1991, Eagle Mountains 30'x60' quadrangle, southern California: II. Isotopic and chronologic studies: *Geological Society of America Abstracts with Programs*, v. 23, n. 5, p. A478.
- Wooden, J.L., and Stacey, J.S., 1987, Lead isotopic constraints on the origin of Cordilleran granitic magmatism: *Geological Society of America Abstracts with Programs*, v. 19, p. 465.
- Wooden, J.L., Stacey, J.S., Howard, K.A., Doe, B.R., and Miller, D.M., 1988, Pb isotopic evidence for the formation of Proterozoic crust in the southwestern United States, in Ernst, W.G., ed., *Metamorphism and crustal evolution of the western United States (Rubey Volume 7)* Englewood Cliffs, N.J., Prentice-Hall, p. 69-86.
- Wooden, J.L., Stacey, J.S.S., Howard, K.A., and Miller, D.M., 1986, Crustal evolution in southeastern California: Constraints from Pb isotopic evidence: *Geological Society of America Abstracts with Programs*, v. 18, n. 2, p. 200.
- Wooden, J.L., Stacey, S.S., Robinson, A.C., Kistler, R.A., Tosdal, R.M., and Whitehouse, M.J., 1988, Pb isotope characteristics of Mesozoic intrusive magmatism along the craton margin in the western U.S.: Butte, Montana, 8th International Conference on Basement Tectonics, p. 35.
- Wooden, J.L., and Tosdal, R.M., 1990, Common Pb isotopic evidence for sources of Mesozoic and Tertiary magmatism in SE California and SW Arizona: *Geological Society of America Abstracts with Programs*, v. 22, n. 3, p. 95.
- Wright, J.E., Howard, K.A., and Anderson, J.L., 1987, Isotopic systematics of zircons from Late Cretaceous intrusive rocks, southeastern California: Implications for a vertically stratified crustal column: *Geological Society of America Abstracts with Programs*, v. 19, n. 7, p. 898.
- Young, E.D., Farber, Daniel, Wooden, J.L., and Tosdal, R.M., 1991, Partial melting of subcontinental lithosphere as evidence for Jurassic intra-arc crustal extension, SE California: *Geological Society of America Abstracts with Programs*, v. 23, n. 5, p. A250.
- Young, E.D., and Wooden, J.L., 1988, Mid-crustal emplacement of Mesozoic granitoids, eastern Mojave Desert: evidence from crystallization barometry: *Geological Society of America Abstracts with Programs*, v. 20, n. 3, p. 244.
- Young, E.D., and Wooden, J.L., 1989, Geochemical evolution of a middle crustal mafic plutonic complex, southeastern California: EOS, American Geophysical Union Transactions, v. 70, p. 504.
- Young, E.D., Wooden, J.L., Shieh, Y-N, and Farber, D., in press, Geochemical evolution of Jurassic diorites from the Bristol Lake region, California, U.S.A., and the role of assimilation: *Contributions to Mineralogy and Petrology*.