

**CATHY J. BUSBY- CV**

February, 2019

[cjbusby@ucdavis.edu](mailto:cjbusby@ucdavis.edu)

Publications posted at: [www.geol.ucsb.edu/faculty/busby](http://www.geol.ucsb.edu/faculty/busby)

**PERSONAL**

Three daughters, born 1986 and 1989

**PROFESSIONAL PREPARATION:**

University of California at Berkeley, Geological Sciences, B.S. 1977

Princeton University, Geological Sciences, Ph.D., 1983

**APPOINTMENTS:**

Professor Emerita and Research Scientist, UC Davis, 2015-present

Full Professor, UC Santa Barbara, 1993-2015

Jackson School of Geoscience, University of Texas at Austin, 2010-2011.

U.S. Geological Survey, summer 1997, 1998.

Associate Professor, UCSB, 1988-1993.

Assistant Professor, UCSB, 1982-1988.

Research Associate, Smithsonian Institution, 1980-1989.

Research Assistant, Geochemistry, Caltech, 1981-1982.

Research Assistant, Geology, Princeton University, 1978-1982.

Lab Assistant, K-Ar Laboratory, UC Berkeley, 1976-1977.

**CURRENT PROFESSIONAL ACTIVITY:**

**Convener, IODP Conference, Anatomy of a Long-Lived Oceanic Arc: Geology, Geophysics and Geochemistry of the Izu-Bonin-Mariana Arc System:** with Harue Masuda, to be held in Japan in October 2019.

**International Ocean Discovery Program Distinguished Lecturer,** 2016-2017.

**Editorial Board, International Geology Review,** July 1, 2013-2018.

**Editorial Board, Geosphere,** 2017-2020.

**Advisory board member,** California Geological Survey, 2003-present.

**GSA Student Grants Review Panel,** 2017-2021.

**Fellow** of the Geological Society of America, 1990-present.

**INVITED TALKS AT UNIVERSITIES (past 8 years):** Texas Bureau of Economic Geology, University of Texas Institute of Geophysics, Jackson School Geology Department, Baylor University, Texas Christian University, University of Houston, University of Barcelona, University of California at Los Angeles, Cal Tech, CSU Bakersfield, Scripps Institution of Oceanography, Lamont Doherty Earth Observatory, UCLA Seismo-Tectonics seminar, UC Davis, University of Sao Paulo Institute of Oceanography, USGS Menlo Park, San Francisco State University, University of South Florida, University of Florida, UC Davis, Lockhaven University, Ohio University, University of Southern Illinois, University of Missouri at Kansas City, Idaho State University, Massachusetts Institute of Technology, University of the Pacific, University of British Columbia.

## **RECENT PROFESSIONAL ACTIVITY:**

**GSA Student Research Grants Committee**, 2018-2021.

**Co-Chief Scientist, IODP Expedition 350**, April and May 2014.

**Recent IODP Meetings (presenter):** Arc Middle Crust (Hawaii, 2012), Chikyu+10 (Tokyo, 2013), IODP Core Description Workshop (College Station) and Brazilian Equatorial Margin workshops (Sao Paulo, 2014, 2016).

**Convenor**, Penrose Conference "Origin and Uplift of the Sierra Nevada", August 2010.

**Geological Society of America MGPV** (Mineralogy Geochemistry Petrology Volcanology) Division Vice Chair, Chair and Past Chair (2009-2012).

**GSA Committee on Penrose Conferences and Field Forums**, 2010-2014.

## **STUDENTS (past ten years):**

Grant Yip, MS, 2003 (Exxon Mobil); Noah Garrison, MS, 2004 (Attorney in Environmental Protection); Hilario Camacho, PhD, 2004 (Signal Hill Petroleum); Fabrice Roulet, MS, 2006 (Amarada Hess Petroleum); Stephen DeOreo, MS, 2006; Carolyn Gorny, Senior Honors Thesis, 2008 (PhD student at Otago University); Megan Gambs, Senior Honors Thesis, 2009 (PhD student at University of Washington, Seattle); Jeanette Hagan PhD, 2010 (Exxon Mobil); Alice Koerner MS, 2010 (Chevron); Bryan Murray, PhD, 2014 (Cal Poly Pomona); Catherine Wesolowski, MS (2018).

## **RECENT & CURRENT POSTDOCTORAL RESEARCHERS:**

Graham Andrews (PhD, Leicester University, UK), 2013-2014: now Assist. Prof., WVU.

Sarah Medynski (PhD, University of Lorraine, France): 2014-2017.

## **TEACHING**

Summer Field Camp (Poleta folds, Long Valley, and Sierra Nevada), Field Methods, Volcanic Stratigraphy and Structure, Geological Catastrophes, Tectonics of Sedimentary Basins, Sedimentology and Stratigraphy, Clastic Depositional Environments, Mineralogy and Optical Mineralogy, Geology of Convergent Margins and Continental Rifts, Cordilleran Tectonics, Submarine Volcanism, Turbidite Sedimentology, Sequence Stratigraphy, California Geology, Geology of Mexico, Volcaniclastic Rocks, Physical Volcanology, Coastal Eco-Geo.

## **SHORT COURSES:**

*Tectonics of Southern California*: Nexen Energy, 2017.

*Deepwater Depositional Systems, with Coastal Southern California Outcrop Studies*: Texas Executive Education, 2013, 2014.

*Tectonics of Sedimentary Basins* (with R.V. Ingersoll): A.A.P.G.-S.E.P.M. Annual Meeting, 1996; I. A. S. International Congress, Spain, 1998; A.A.P.G.-S.E.P.M. Annual Meeting, 1998; Second Latinamerican Sedimentological Congress, Argentina, 2000; NORFA North European PhD Training Course, Norway, 2000.

*State-of-the-Art Turbidites* (with Ben Kneller): Arco British, May 1996; BHP, May 1998.

*Submarine Volcanism*: Universidad Nacional Autónoma de México, March 2005.

*Tectonics and Turbidite Sedimentation*: Japanese Oil, Gas and Metals National Corporation, August 2006.

*Interpretation of Volcanic Arc Lithofacies*: Chilean Geological Survey, March 2011; National University of Columbia, 2013.

### **BOOK AND THEME ISSUE EDITORSHIPS**

- Origin of the Sierra Nevada and Walker Lane, 2011 to 2018, K. Putirka and C. Busby (eds.), Special Issue of *Geosphere* (26 papers).
- Recent Advances in Tectonics of Sedimentary Basins, 2012, C.J. Busby and A. Azor (eds.), 32 chapters, Wiley-Blackwell Publishing, 632 pp
- Tectonics of Sedimentary Basins, 1995, C.J. Busby and R.V. Ingersoll (eds.), Blackwell Science, Oxford, 579 pp.
- Editor (with M. Talbot and S. Burley), *Sedimentology*, 1990-1994 (International Association of Sedimentologists).
- Jurassic Magmatism and Tectonics of the North American Cordillera, 1995, D. Miller and C. Busby (eds.), Geological Society of America Special Paper 299, 425 pp.
- Sedimentary Geology*, 1991, R. Cas and C. Busby-Spera, Special Issue on Volcaniclastic Sedimentation, V. 4, nos. 1-4.

### **EXTRAMURAL EDUCATIONAL PROGRAMS (last 10 years):**

SPANISH MINISTRY OF EDUCATION GRANT, 2007 – 2008, University of Granada, Spain, Geodynamics Department: lectures in graduate courses and department seminars, and participation in field research trips in the Betic Cordillera.

### **ORGANIZED FIELD TRIPS LED (last 12 years):**

UC Davis Structure and Tectonics Group, Fall, 2018.

National Association of Geoscience Teachers, Fall 2006, Fall 2012.

Penrose Conference field trips (2 days formal trips plus 2 days informal trips), “Origin and Uplift of the Sierra Nevada”, August, 2010.

Sierra Nevada Earthscope – Sierra Drip Continental Dynamics Meeting, Central Sierra, Fall 2006.

### **RECENT EXTRAMURAL GRANTS:**

- UC Mexus-CONACYT Award, 2017-2018 (with Margarita Lopez), Controls of subduction and continental rifting on volcanism and tectonics in the Mulegé region, Baja California Sur, Mexico (\$25,000).
- USGS EDMAP grant, 2017-2018, Fault History of the Sierra Nevada Range front at Markleeville CA: Structural Controls on Volcanism and Drainage Derangement in the Walker Lane Transensional Rift: \$16,979 plus \$17,415 in matching funds.
- IODP Consortium for Ocean Leadership Award, 2014: Izu-Bonin-Mariana Rear Arc: The missing half of the subduction factory (\$175,791).
- NSF grant, 2014-2018 (with Tina Niemi), “REU Site: Collaborative Research: Field-based Research on the Gulf of California Rift Margin Basins, Baja California Sur, Mexico” (\$504,000).
- NSF grant, 2014–2018 (with Sue DeBari), “Outstanding Exposure of Intact Unmetamorphosed Upper to Middle Crustal Oceanic Arc Section, Baja California: Analog to IODP Ultra-Deep Drilling Site, Izu-Bonin Arc” (\$273,638 to Busby, \$192,986 to DeBari).
- NSF grant, 2011-2013, “Steady State to Flare-Up Arc Magmatism In The Largest Cenozoic Silicic Igneous Province on Earth: The Sierra Madre Occidental, Mexico (\$220,000).
- Spanish Ministry of Education research grant, Spring 2010: “Recent Advances in Tectonics of Sedimentary Basins” (3,000 Euros).
- NSF supplemental grant, 2010 - 2013, "Geologic constraints on landscape evolution of the Sierra Nevada, California: Paleochannels, Magmatism and Structure" (\$30,000).

UC Mexus grant (with Elena Centeno Garcia), 2009-2010, Transition from steady state to flareup arc magmatism in the largest Cenozoic silicic igneous and epithermal deposit on Earth: Sierra Madre Occidentale, Mexico (\$25,000).

NSF grant, 2007 - 2010, "Geologic constraints on landscape evolution of the Sierra Nevada, California: Paleochannels, Magmatism and Structure" (\$225,000).

NSF grant (with Keith Putirka, CSUF), 2007 - 2009, Collaborative Research: Origin and Significance of High-Potassium Volcanism: Insights from the Ancestral Cascades Arc, California (\$160,000 to Busby and \$160,000 to Putirka).

GeoEarthScope geochronology grant, 2007 - 2010, "Geologic constraints on landscape evolution of the Sierra Nevada, California: Paleochannels, Magmatism and Structure" (Berkeley Geochronology Center for Busby's dating, \$30,000).

USGS-EDMAP grant, 2009, "Landscape evolution of the Sierra Nevada, California: Paleochannels, magmatism and structure" (\$27,000).

Spanish Ministry of Education research grant, July 2007 – 2008: "Neogene Tectonics and Sedimentation in the Betic Cordillera, Spain" (32,500 Euros).

USGS EDMAP grant, 2006, Spatial Variation in Structural Styles along the Central Sierra Nevada Range Front (California): Clues from Volcanic Stratigraphy (\$15,000).

NSF Grant (PI C. Busby and Co-PI P. Gans), 2002-2005, Miocene Volcanism in the Sierra Nevada, California: Stratigraphy, Volcanology, Geochronology and Structure (\$300,000), collaborative with Ian Skilling (University of Mississippi, \$100,000).

UC Mexus grant, 2005-2006 (with Elena Centeno Garcia, UNAM, Mexico): Exotic vs. Fringing Arcs: Implications for the Growth of Continents (\$15,000 to Busby and \$10,000 to Centeno Garcia).

USGS EDMAP grant, 2005, Geologic Mapping of the Central Sierran Frontal Fault System with Implications for the Tahoe Basin and the Carson City-Bridgeport Population Corridor (\$30,000).

USGS EDMAP grant, 2003, Geologic mapping of Tertiary volcanic-volcaniclastic rocks in the northern Sierra Nevada: Paleotopographic and structural evolution (\$30,000).

**RECENT INDUSTRY RESEARCH AND EXPLORATION SUPPORT:**

Mighty River Power, New Zealand, 2014: "3D Stratigraphic and Structural Model for the Puchuldiza Geothermal District, Chilean Andes". \$23,000 in research support.

GeoGlobal Energy LLC, 2009-2012, "Volcanic Stratigraphy and Structure of the Puchidiza Geothermal District, Chilean Andes". \$280,000 in research support.

Energy Source LLC, Salton Trough California, Hudson Ranch Geothermal Power Facility: Quaternary to Recent tephras and lava domes, 2010-2011. \$25,000 in research support.

Hannon Armstrong LLC, 2010, "Volcanology of the Eastern Snake River Plain, Idaho", (geothermal exploration). \$30,000 research support.

Paramount Gold and Silver, 2008, "Volcanology and Structural Geology of the Guazapares Mining District, Sierra Madre Occidental, Mexico". \$200,000 in research support.

## BOOKS PUBLISHED:

- Tectonics of Sedimentary Basins: Recent Advances, **2012**, C.J. Busby and A. Azor (eds.), 32 chapters, Wiley-Blackwell Publishing, 632 pp.
- Tectonics of Sedimentary Basins, 1995, C.J. Busby and R.V. Ingersoll (eds.), Blackwell Science, Oxford, 579 pp.

## PUBLICATIONS (abstracts not listed)

Most papers are posted on my website at: [www.geol.ucsb.edu/faculty/busby](http://www.geol.ucsb.edu/faculty/busby)

*Students and postdoctoral researchers in italics*

<http://scholar.google.com/citations?user=AYD4j7sAAAAJ>

### 2018

- Busby, C.J., Graettinger, A., Lopez Martinez, M., *Medynski, S., Andrews, C., Bowman, E., Gutierrez, E.P., Lodes, E., Ojeda, J., and Rice, J.*, in review, Miocene volcanism in the Santa Rosalia region, Gulf of California, Baja California Sur; Nature of the arc-to-rift transition and possible role of magnesian andesite magmatism in generating Boleo stratiform Cu-Co-Zn sulfides: Submitted to International Geology Review.
- Busby, C.J., Putirka, *Melosh, B K., Renne, P.R., Hagan, J.C., Gambs, M., and Wesoloski, C.*, 2018, A tale of two Walker Lane Belt Pull-Aparts in the Ancestral Cascades Arc, Central Sierra Nevada, California: *Geosphere*, Geological Society of America, v. 14, no. 5, . 50 pp, <https://doi.org/10.1130/GES01398.1>.

### 2017

- Busby, C. J., Tamura, Y., Blum, P., Guèrin, G., *Andrews, G.D.M., Barker, A.K., Berger, J.L.R., Bongiolo, E.M., Bordiga, M., DeBari, S.M., Gill, J.B., Hamelin, C., Jia, J., John, E.H., Jonas, A.-S., Jutzeler, M., Kars, M.A.C., Kita, Z.A., Konrad, K., Mahoney, S.H., Martini, M., Miyazaki, T., Musgrave, R.J., Nascimento, D.B., Nichols, A.R.L., Ribeiro, J.M., Sato, T., Schindlbeck, J.C., Schmitt, A.K., Straub, S.M., Vautravers, M.J., and Yang, Y.*, 2017, The missing half of the subduction factory: shipboard results from the Izu rear arc, IODP Expedition 350: *International Geology Review*, v. 59, no. 13, p. 1677-1708. <http://dx.doi.org/10.1080/00206814.2017.1292469>
- Schmitt, A.K., Konrad, K., Andrews, G.D.M., Horie, K., Brown, S.R., Koppers, A.P., Pecha, M., Busby, C., and Tamura, Y., 2017,  $^{40}\text{Ar}/^{39}\text{Ar}$  ages and zircon petrochronology for the rear arc of the Izu-Bonin-Marianas intra-oceanic subduction zone: *International Geology Review*, <http://dx.doi.org/10.1080/00206814.2017.1363675>

### 2016

- Busby, Cathy J., *Andrews, Graham D.M., Koerner, Alice K., Brown, Sarah R., Melosh, Benjamin L. and Hagan, Jeanette C.*, 2016, Progressive derangement of ancient (Mesozoic) E-W Nevadaplano paleochannels into modern (Miocene-Recent) NNW trends in the Walker Lane belt, Central Sierra Nevada: *Geosphere*, Special Issue (*Eds K. Putirka and C. Busby*) "Origin of the Sierra Nevada and Walker Lane", Geological Society of America, v. 12, no. 1, p. 135-175.
- Marsaglia, K.M., Barone, M., Critelli, S., Busby, C. and Fackler-Adams, B., 2016, Petrography of volcanoclastic rocks in intra-arc volcano-bounded to fault-bounded basins of the Rosario segment of the Lower Cretaceous Alisitos oceanic arc, Baja California, Mexico: *Sedimentary Geology*, v. 336, p. 138-146.

Andrews, G.D.M., Schmitt, A.K., Busby, C.J., Brown, S.R., Blum, P. and Harvey, J.C., 2016, Age and compositional data of zircon from sepiolite drillikng mud to identify contamination of ocean drilling samples: Technical Report, Geochemistry, Geophysics, Geosystems, American Geophysical Union, v. 17, no. 8, p. 3512-3526, DOI: 10.1002/2016GC006397

**2015.**

Murray, Bryan, and Busby, Cathy, 2015, Epithermal mineralization controlled by synextensional magmatism in the Guazapares Mining District of the Sierra Madre Occidental silicic large igneous province, Mexico: *Journal of South American Earth Sciences*, v. 58, p. 1-18.

Tamura, Y., Busby, C.J., Blum, P., Guèrin, G., Andrews, G.D.M., Barker, A.K., Berger, J.L.R., Bongiollo, E.M., Bordiga, M., DeBari, S.M., Gill, J.B., Hamelin, C., Jia, J., John, E.H., Jonas, A.-S., Jutzeler, M., Kars, M.A.C., Kita, Z.A., Konrad, K., Mahoney, S.H., Martini, M., Miyazaki, T., Musgrave, R.J., Nascimento, D.B., Nichols, A.R.L., Ribeiro, J.M., Sato, T., Schindlbeck, J.C., Schmitt, A.K., Straub, S.M., Vautravers, M.J., and Yang, Y., 2015. Expedition 350 summary. *In* Tamura, Y., Busby, C.J., Blum, P., and the Expedition 350 Scientists, *Proceedings of the International Ocean Discovery Program, Expedition 350: Izu-Bonin-Mariana Rear Arc*: College Station, TX (International Ocean Discovery Program). <http://dx.doi.org/10.14379/iodp.proc.350.101.2015>

Tamura, Y., Busby, C.J., Blum, P., Guèrin, G., Andrews, G.D.M., Barker, A.K., Berger, J.L.R., Bongiollo, E.M., Bordiga, M., DeBari, S.M., Gill, J.B., Hamelin, C., Jia, J., John, E.H., Jonas, A.-S., Jutzeler, M., Kars, M.A.C., Kita, Z.A., Konrad, K., Mahoney, S.H., Martini, M., Miyazaki, T., Musgrave, R.J., Nascimento, D.B., Nichols, A.R.L., Ribeiro, J.M., Sato, T., Schindlbeck, J.C., Schmitt, A.K., Straub, S.M., Vautravers, M.J., and Yang, Y., 2015. Expedition 350 methods. *In* Tamura, Y., Busby, C.J., Blum, P., and the Expedition 350 Scientists, *Proceedings of the International Ocean Discovery Program, Expedition 350: Izu-Bonin-Mariana Rear Arc*: College Station, TX (International Ocean Discovery Program). <http://dx.doi.org/10.14379/iodp.proc.350.102.2015>

Tamura, Y., Busby, C.J., Blum, P., Guèrin, G., Andrews, G.D.M., Barker, A.K., Berger, J.L.R., Bongiollo, E.M., Bordiga, M., DeBari, S.M., Gill, J.B., Hamelin, C., Jia, J., John, E.H., Jonas, A.-S., Jutzeler, M., Kars, M.A.C., Kita, Z.A., Konrad, K., Mahoney, S.H., Martini, M., Miyazaki, T., Musgrave, R.J., Nascimento, D.B., Nichols, A.R.L., Ribeiro, J.M., Sato, T., Schindlbeck, J.C., Schmitt, A.K., Straub, S.M., Vautravers, M.J., and Yang, Y., 2015. Site U1436. *In* Tamura, Y., Busby, C.J., Blum, P., and the Expedition 350 Scientists, *Proceedings of the International Ocean Discovery Program, Expedition 350: Izu-Bonin-Mariana Rear Arc*: College Station, TX (International Ocean Discovery Program). <http://dx.doi.org/10.14379/iodp.proc.350.103.2015>

Tamura, Y., Busby, C.J., Blum, P., Guèrin, G., Andrews, G.D.M., Barker, A.K., Berger, J.L.R., Bongiollo, E.M., Bordiga, M., DeBari, S.M., Gill, J.B., Hamelin, C., Jia, J., John, E.H., Jonas, A.-S., Jutzeler, M., Kars, M.A.C., Kita, Z.A., Konrad, K., Mahoney, S.H., Martini, M., Miyazaki, T., Musgrave, R.J., Nascimento, D.B., Nichols, A.R.L., Ribeiro, J.M., Sato, T., Schindlbeck, J.C., Schmitt, A.K., Straub, S.M., Vautravers, M.J., and Yang, Y., 2015. Site U1437. *In* Tamura, Y., Busby, C.J., Blum, P., and the Expedition 350 Scientists, *Proceedings of the International Ocean Discovery Program, Expedition 350: Izu-Bonin-Mariana Rear Arc*: College Station, TX (International Ocean Discovery Program). <http://dx.doi.org/10.14379/iodp.proc.350.104.2015>

## 2014

- Murray, Bryan, and Busby, Cathy, and de los Angeles Verde Ramírez, María, 2014, Extension and magmatism in the Cerocahui basin, northern Sierra Madre Occidental, western Chihuahua, Mexico: *International Geology Review*, p. 1-25 DOI 10.1080/00206814.2014.941022
- Tamura, Y., Busby, C.J., Blum, P., and the Expedition 350 Scientists, 2015. *Proceedings of the International Ocean Discovery Program, Expedition 350: Izu-Bonin-Mariana Rear Arc*: College Station, TX (International Ocean Discovery Program). <http://dx.doi.org/10.14379/iodp.proc.350.2015>
- Expedition 350 Scientists, 2014. Izu-Bonin-Mariana rear arc: the missing half of the subduction factory. *International Ocean Discovery Program Preliminary Report*, 350. <http://dx.doi.org/10.14379/iodp.pr.350.2014>

## 2013

- Tamura, Y., Busby, C., and Blum, P., 2013. Izu-Bonin-Mariana Rear Arc: the missing half of the subduction factory. *International Ocean Discovery Program Scientific Prospectus*, 350. <http://dx.doi.org/10.2204/iodp.sp.350.2013>
- Busby, Cathy, Koerner, Alice, Melosh, Ben, Andrews, Graham and Hagan, Jeanette, 2013a, Sierra Crest graben-vent system: A Walker Lane pull apart within the ancestral Cascades arc: *Geosphere*, Special Issue (Eds K. Putirka and C. Busby) "Origin of the Sierra Nevada and Walker Lane", *Geological Society of America*, v. 9, no. 4, p. 736-780; doi: 12.1130/GES00670.1
- Busby, Cathy, Hagan, Jeanette, and Renne, Paul, 2013b, Initiation of Sierra Nevada range front - Walker Lane faulting at ~12 Ma in the ancestral Cascades arc: *Geosphere*, Special Issue *Geosphere* (Eds K. Putirka and C. Busby) "Origin of the Sierra Nevada and Walker Lane", *Geological Society of America*, v. 9, no. 5, p. 1-22. doi: 10.1130/GES00927.1
- Murray, B., Busby, C.J., Ferrari, L., and Solari, L.A., 2013, Synvolcanic crustal extension during the mid-Cenozoic ignimbrite flare-up in the northern Sierra Madre Occidental, Mexico: Evidence from the Guazapares Mining District region. *Western Chihuahua: Geosphere*, Special Issue (Eds K. Putirka and C. Busby) "Origin of the Sierra Nevada and Walker Lane", *Geological Society of America*, v. 9, no. 5, 35 pp. doi:10.1130/GES00862.1
- Busby, Cathy, 2013, Birth of a plate boundary at ca. 12 Ma in the Ancestral Cascades arc, Walker Lane belt of California and Nevada: *Geosphere*, Special Issue (Eds K. Putirka and C. Busby) "Origin of the Sierra Nevada and Walker Lane", *Geological Society of America*, v. 9, no. 5, p. 1147-1160., doi:10.1130/GES00928.1

## 2012

- Busby, Cathy J., Koerner, Alice, Hagan, Jeanette, and Andrews, Graham, 2012, Sierra Crest graben: a Miocene Walker Lane Pull-apart in the Ancestral Cascades Arc at Sonora Pass, in N. Hughes and Garry Hayes (eds), *Geological Excursions in the Sonora Pass Region of the Sierra Nevada*, Far Western Section, National Association of Geoscience Teachers field guide, Fall 2012 (<http://nagt-fws.org/>), p. 8-36.
- Busby, Cathy, 2012, Extensional and transtensional continental arc basins: Case studies from the southwestern United States: in, C. Busby and A. Azor (eds), *Tectonics of Sedimentary Basins: Recent Advances*, Wiley-Blackwell, p. 382-404.

**2011**

Putirka, K.D. and Busby, C.J., 2011, Introduction: Origin of the Sierra Nevada and Walker Lane: *In*, K. Putirka and C. Busby (eds), Geosphere Special Issue: Origin of the Sierra Nevada and Walker Lane; Geological Society of America, v. 7, p. 1269-1272.

Centeno-Garcia, E., Busby, C., *Busby, M.*, Talavera, O. and Gerhels, G., 2011, Evolution of the Cretaceous Guerrero terrane along the Mexican margin, from extensional arc through retroarc to continental arc settings: Geological Society of America Bulletin, v. 123, no. 9/10, p. 1776-1797, doi:10.1130/B30057.1

**2010**

Busby, C.J. and Putirka, K., Penrose Conference Report: Origin and Uplift of the Sierra Nevada, California, USA: GSA Today, Geological Society of America, v. 20, no. 12, p. 18-20.

**2009**

Busby, C.J. and Putirka, K., 2009, Miocene evolution of the western edge of the Nevadaplano in the central and northern Sierra Nevada: Paleocanyons, magmatism and structure: in, Gary Ernst, editor, The Rise and Fall of the Nevadaplano, International Geology Reviews, v. 51, nos. 7 – 8, p. 670-701.

Gorny, C., Busby, C., Pluhar, C., Hagan, J., and Putirka, K., 2009, An in-depth look at distal Sierra Nevada paleochannel fill: drill cores through the Table Mountain latite near Knight's Ferry: in, Gary Ernst, editor, The Rise and Fall of the Nevadaplano, International Geology Reviews, v. 51, nos. 9-11, p. 824-842.

Pluhar, C., Deino, A., King, N., Busby, C., Hausback, B., Wright, T., and Fischer, C., 2009, Lithostratigraphy, magnetostratigraphy, geochronology and radiometric dating of the Stanislaus Group, CA, and age of the Little Walker Caldera: in, Gary Ernst, editor, The Rise and Fall of the Nevadaplano, International Geology Reviews, v. 51, nos. 9-11, p. 873-899.

Hagan, J., Busby, C., Renne, P., and Putirka, K., 2009, Cenozoic evolution of paleochannels, Ancestral Cascades magmas, and range-front faults in the Kirkwood - Carson Pass - Markleeville region (Central Sierra Nevada): in, Gary Ernst, editor, The Rise and Fall of the Nevadaplano, International Geology Reviews, v. 51, nos. 9-11, p. 777-823.

Koerner, A., Busby, C., Putirka, K., and Pluhar, C., 2009, New evidence for alternating effusive and explosive eruptions from the type section of the Stanislaus Group in the "cataract" paleocanyon, central Sierra Nevada (CA): in, Gary Ernst, editor, The Rise and Fall of the Nevadaplano, International Geology Reviews, v. 51, nos. 9-11, p. 962-985.

**2008**

Busby, C., DeOreo, S., Skilling, I., Gans, P., and Hagan, J., 2008, Carson Pass-Kirkwood paleocanyon system: implications for the Tertiary evolution of the Sierra Nevada, California: Geological Society of America Bulletin, v. 120, no. 3/4, p. 274-299.

Busby, C.J., Hagan, J., Putirka, K., Pluhar, C., Gans, P., Rood, D., DeOeo, S., Skilling, I. and Wagner, D., 2008, The ancestral Cascades arc: Implications for the development of the Sierran microplate and tectonic significance of high K<sub>2</sub>O volcanism: in, J. Wright and J. Shervais (eds), Ophiolites, Arcs and Batholiths: Geological Society of America Special Paper 438, p. 331-378.

Garrison, N., Busby, C.J., Gans, P.B., Putirka, K. and Wagner, D.L., 2008, A mantle plume beneath California? The mid-Miocene Lovejoy flood basalt, northern California: in, J. Wright and J. Shervais (eds), Ophiolites, Arcs and Batholiths: Geological Society of America Special Paper 438, p. 551-572.



Saleeby, J., Ducea, M.N., Busby, C., Nadin, E., and Whetmore, P.H., 2008, Chronology of pluton emplacement and regional deformation in the southern Sierra Nevada batholith, California: in, J. Wright and J. Shervais (eds), *Ophiolites, Arcs and Batholiths: Geological Society of America Special Paper 438*, p. 397 – 428.

Busby, C.J., “Geology of the Sierra Madre Occidental, Mexico”, Large Igneous Province of the Month, posted on the IAVCEI website:

<http://www.largeigneousprovinces.org/08nov.html>

#### **2007**

Busby, C.J. and *Bassett, K.*, 2007, Volcanic facies architecture of an intra-arc strike-slip basin, Santa Rita Mountains, Arizona: *Bulletin of Volcanology*, v. 70, no. 1, p. 85 – 103.

Putirka, K., and Busby, C.J., 2007, The tectonic significance of high K<sub>2</sub>O volcanism in the Sierra Nevada, California: *Geology*, V. 35, no. 10, p. 923 – 926.

Purucker, M., Le, G., Sabaka, T., Slavin, J., Strangeway, R., and Busby, C., 2007, Magnetic field gradients from the ST-5 constellation: Improving magnetic and thermal models of the lithosphere: *Geophysical Research Letters*, v. 34, L24306, doi:10.1029/2007GL031739

#### **2006**

Busby, C. J., *Fackler Adams, B.*, Mattinson, J., and *De Oreo, S.*, 2006, View of an intact oceanic arc, from surficial to mesozonal levels: Cretaceous Alisitos Arc, Baja California, Mexico: *Journal of Volcanology and Geothermal Research*, v. 149, p.1 - 46.

Busby, C.J. and Wagner, D., 2006, Mapping of Cenozoic volcanic rocks in the central high Sierra: clues to understanding landscape evolution and range-front faulting: National Association of Geoscience Teachers, Guidebook, 60 pp.

#### **2005**

Busby, C.J., 2005, Possible distinguishing characteristics of deepwater silicic volcanism: *Geology*, v. 33, no. 11, p. 845-848.

Busby, C.J., *Bassett, K.*, Steiner, M.B. and *Riggs, N.R.*, 2005, Climatic and tectonic controls on Jurassic intra-arc basins related to northward drift of North America, *in*, T.H. Anderson, J.A. Nourse, J.W. McKee and M.B. Steiner, (eds), *The Mojave-Sonora megashear hypothesis: Development, assessment, and alternatives: Geological Society of America Special Paper 393*, p. 359-376.

*Bassett, K.* and Busby, C., 2005, Structure and tectonic setting of an intra-arc strike-slip basin (Bisbee Basin, Southern Arizona): *in*, T.H. Anderson, J.A. Nourse, J.W. McKee and M.B. Steiner, (eds), *The Mojave-Sonora megashear hypothesis: Development, assessment, and alternatives: Geological Society of America Special Paper 393*, p. 359-376.

#### **2004**

Busby, C.J., 2004, Continental growth at convergent margins facing large ocean basins: a case study from Mesozoic Baja California, Mexico: *Tectonophysics*, v. 392, p. 241-277.

Busby, C.J., Skilling, I., *Rood, D.*, *DeOreo, S.* and Gans, P., 2004, Cenozoic volcanology and structural geology of the Carson Pass – Sonora Pass areas, Central Sierra Nevada, California: Field Guide, Volcanological Society of Sacramento Annual Field Trip, July 21-25, 2004.

**2003**

- Busby, C.J., Kessel, L., Schulz, K., Foose, M., and Slack, J., 2003, Volcanic setting of the Ordovician Bald Mountain Massive Sulfide Deposit, Northern Maine: in, W. Goodfellow, S.R. McCutcheon and J.M. Peter (eds.), Massive Sulfide Deposits of the Bathurst Mining Camp, New Brunswick and Northern Maine: Economic Geology Monograph 11, p. 219-244 plus 2 large plates in back pocket.
- Kessel, L. and Busby, C.J., 2003, Analysis of VHMS-Hosting Ignimbrites Erupted at Bathyal Water Depths (Ordovician Bald Mountain Sequence, Northern Maine), in, J. White, J. Smellie and D. Clague (eds.), Explosive Subaqueous Volcanism: American Geophysical Union, Geophysical Monograph Series, v. 140, p. 372-392.
- Foose, M.F., Slack, J.F., Busby, C.J., Schulz, K.J. and Scully, M.V., 2003, Geologic and structural setting of the Bald Mountain volcanogenic massive sulfide deposits, northern Maine - CU-Zn-Au-Ag mineralization in a synvolcanic sea floor graben: in, W. Goodfellow, S.R. McCutcheon and J.M. Peter (eds.), Massive Sulfide Deposits of the Bathurst Mining Camp, New Brunswick and Northern Maine: Economic Geology Monograph 11, p. 497-512.

**2002**

- Busby, C.J., Yip, G., Blikra, L., and Renne, P., 2002, Pacific margin example of catastrophic sedimentation triggered by K/T bolide impact: *Geology*, v. 30, p. 687– 690.
- Busby, C.J., Schermer, E.R. and Mattinson, J.M., 2002, Extensional arc setting and ages of Middle Jurassic eolianites, Cowhole Mountains (Mojave Desert, CA): GSA Memoir 195 (A. Glazner, J.D. Walker and J.M. Bartley, eds), Geologic Evolution of the Mojave desert and Southwestern Basin and Range, p. 79 – 92.
- Camacho, H., Busby, C.J., and Kneller, B.C., 2002, A new depositional model for the classical turbidite locality at San Clemente State Beach, California: American Association of Petroleum Geologists Bulletin, v. 86, no. 9, p. 1543-156.
- Schermer, E.R., Busby, C.J. and Mattinson, J.M., 2002, Paleogeographic and tectonic implications of Jurassic sedimentary and volcanic sequences in the west-central Mojave desert; GSA Memoir 195, Mojave Desert (A. Glazner, J.D. Walker and J.M. Bartley, eds) p. 93 – 116.
- Critelli, S., Marsaglia, K., and Busby, C., 2002, Tectonic and sedimentary controls on the composition of backarc volcanoclastic rocks; Geological Society of America Bulletin, v. 114, no. 4, p. 515 – 527.

**2000**

- Busby, C.J., 2000, Review of “Integrated Earth and Environmental Evolution of the Southwest United States”: EOS, American Geophysical Union Newsletter.

**1999**

- Busby, C.J., 1999, Field trip review of “Southern Etendeka volcanism, northwestern Namibia: I.A.V.C.E.I. (International Association of Volcanologists) Newsletter.

**1998**

- Busby, C.J., Smith, D.P., Morris, W.R. and Adams, B., 1998, Evolutionary model for convergent margins facing large ocean basins: Mesozoic Baja California (Mexico): *Geology*, v. 26, no. 3, p. 227-230.
- Fackler-Adams, B.N. and Busby, C.J., 1998, Structural and stratigraphic evolution of extensional oceanic arcs: *Geology*, v. 26, no. 8, p. 735-738.
- Kneller, B., Busby, C.J., and Cronin, B., 1998, Field guide to turbidites of the Annot Sandstone, Maritime Alps, France, and the Hecho Group, Central Pyrenees, Spain, 100 pp.

**1997**

*Adams, B.N., Busby, C.J. and Mattinson, J.M., 1997, Jurassic magmatism and sedimentation in the Palen Mountains, southeastern California: Implications for regional tectonic controls on the Mesozoic magmatic arc: Geol. Soc. America Bull., v. 109, p. 1464-1484.*

*Kneller, B, Busby, C.J. and McCaffrey, W., 1997, Field guide to turbidite systems of the Alpes Maritimes and Haute Provence, SE France, 60 pp.*

**1996**

*Morris, W.R. and Busby, C.J., 1996, The effects of tectonism on the high resolution sequence stratigraphic framework of nonmarine to deep marine deposits in the Peninsular Ranges forearc basin complex: In, P.L. Abbott, and J.D. Cooper (Eds), American Association of Petroleum Geologists Field Conference Guide Book 73, p.381-408.*

**1995**

*Ingersoll, RV and Busby, CJ, 1995, Tectonics of sedimentary basins: In, CJ Busby and RV Ingersoll (Eds.), Tectonics of Sedimentary Basins, Blackwell Science, p. 1-52.*

*Smith, D. P., and Busby, C. J., 1995, Reply to a comment on "Shallow magnetic inclinations in the Cretaceous Valle Group, Baja California: Remagnetization, compaction, or terrane translation?": Tectonics, v.14, no. 1, p.220-222.*

**1994**

*Schermer, E. R. and Busby, C. J., 1994, Jurassic magmatism in the central Mojave Desert: implications for arc paleogeography and preservation of continental volcanic sequences: Geol. Soc. America Bull., v. 106, p. 767-790.*

*Fleck, R. J., Mattinson, J. M., Busby, C. J., Carr, M. D., Davis, G.A., and Burchfiel, B. C., 1994, Isotopic complexities and the age of the Delfonte volcanic rocks, eastern Mescal Range, southeastern California: Stratigraphic and tectonic implications: Geol. Soc. America Bull., v. 106, p. 1254-1266.*

*Fulford, M. M., and Busby-Spera, C. J., 1994, Tectonic controls on nonmarine sedimentation in a Cretaceous forearc basin, Baja California, Mexico: In, R. Steel and L. Frostick (Eds.), Tectonics Controls and Signatures in Sedimentary Successions, International Association of Sedimentologists Special Publication 20, p. 301-333, <https://doi.org/10.1002/9781444304053>*

**1993**

*Smith, D. P., and Busby, C. J., 1993a, Mid-Cretaceous crustal extension recorded in deep-marine half-graben fill, Cedros Island, Mexico. Geol. Soc. America Bull., v. 105, p. 547-562.*

*Smith, D. P., and Busby, C. J., 1993b, Cretaceous extension and Tertiary translation along the southwest edge of North America? Answers from the Valle Group, Vizcaino terrane: In G. Dunne and K. McDougall (eds), Mesozoic paleogeography of the western United States: Society for Sedimentary Geology (S.E.P.M.) Pacific Section.*

*Smith, D. P., and Busby-Spera, C. J., 1993c, Lithostratigraphy of Cretaceous strata, Cedros Island, Baja California, Mexico: Vargas and Pinos formations defined. Cretaceous Research, v. 14, p. 337-364.*

*Smith, D. P., and Busby-Spera, C. J., 1993d, Shallow magnetic inclinations in the Cretaceous Valle Group, Baja California: Remagnetization, compaction or terrane translation?: Tectonics, v. 12, no. 5 p. 1258-1266.*

*Riggs, N. R., Mattinson, J. M., and Busby, C. J., 1993, Correlation of Mesozoic eolian strata between the magmatic and the Colorado Plateau: New U-Pb geochronologic data from southern Arizona: Geol. Soc. America Bull., v. 105, no. 9, p. 1231-1246.*

Saleeby, J. B., and Busby, C. J., 1993, Paleogeographic and tectonic setting of axial and western metamorphic framework rocks of the southern Sierra Nevada, California: In G. Dunne and K. McDougall (eds), Mesozoic paleogeography of the western United States: Society for Sedimentary Geology (S.E.P.M.) Pacific Section.

#### **1992**

Kokelaar, B. P., and Busby C. J., 1992, Subaqueous explosive eruption and welding of pyroclastic deposits: Science, Full Article, v. 257, p. 196-201.

Saleeby, J. B., and Busby-Spera, C. J., 1992, Early Mesozoic evolution of the western U.S. Cordillera, In B. C. Burchfiel, P. W. Lipman and M. L. Zoback (eds.) The Cordilleran Orogen: Conterminus United States: Decade of North American Geology, Geological Society of America, v. G-3, p. 107-168.

#### **1991**

*Riggs, N. R., and Busby-Spera, C. J., 1991, Facies analysis of an ancient large caldera complex and implications for intra-arc subsidence: middle Jurassic Cobre Ridge Group, Southern Arizona, USA: Sedimentary Geology, Special Issue on Volcanogenic Sedimentation, R. Cas and C. Busby-Spera (eds), v. 74, nos. 1-4, p. 39-70.*

Renne, P. R., *Fulford, M. M., and Busby-Spera, C. J., 1991, High resolution  $^{40}\text{Ar}/^{39}\text{Ar}$  chronostratigraphy of the Late Cretaceous El Gallo Formation, Baja California de Norte, Mexico: Geophys. Research Letters, v. 18, no. 3, p. 459-462.*

*Smith, D. P., Sedlock, R. L., Kimbrough, D. L., and Busby-Spera, C. J., 1991, Mesozoic geology of Cedros Island: GSA Annual Meeting Field Trip Guide, San Diego, 20 p.*

#### **1990**

Busby-Spera, C. J., 1990, Comment and reply on "Speculative tectonic model for the Early Mesozoic arc of the southwest Cordilleran United States": Geology, v. 18, no. 3, p. 285-286. REPLY

Busby-Spera, C. J. and Saleeby, J. B., 1990, Intra-arc strike slip fault exposed at batholithic levels in the southern Sierra Nevada, California: Geology, v. 18, p. 255-259.

Busby-Spera, C. J., Mattinson, J. M., *Riggs, N. R., and Schermer, E. R., 1990, The Triassic-Jurassic magmatic arc in the Mojave-Sonoran deserts and the Sierran-Klamath region; similarities and differences in paleogeographic evolution: In D. Harwood and M. M. Miller, eds., Paleozoic and Early Mesozoic Paleogeographic Relations; Sierra Nevada, Klamath Mountains, and related terranes: Geol. Soc. America Special Paper, v. 255, p. 325-338.*

*Morris, W. R., and Busby-Spera, C. J., 1990, A submarine fan valley-levee complex in the Upper Cretaceous Rosario Formation, Baja California: Implications for turbidite facies models: Geol. Soc. America Bull., v. 102, p. 900-914.*

*Riggs, N. R., and Busby-Spera, C. J., 1990, Evolution of a multi-vent volcanic complex within a subsiding arc graben depression: Mount Wrightson Formation, southern Arizona. Geol. Soc. America Bull., v. 102, no. 8, p. 1114-1135.*

**1989**

- Morris, W. R., Smith, D. P., and Busby-Spera, C. J., 1989, Conglomerate facies and processes in deep marine Cretaceous forearc basins of Baja California, Mexico, in, I. Colburn and P. Abbott (eds.), Conglomerates and Basin Analysis, Soc. Econ. Mineralogists and Petrologists Pacific Section, p. 123-142.*
- Busby-Spera, C. J., 1989, Book review of "New Perspectives in Basin Analysis", edited by K. L. Kleinspehn and C. Paola, Springer-Verlag, N.Y., 1988, 453 pp., published in *Sedimentology*, June, 1989, p. 733-734. BOOK REVIEW

**1988**

- Busby-Spera, C. J., 1988a, Speculative tectonic model for the Early Mesozoic arc of the southwest Cordilleran United States: *Geology*, v. 16, p. 1121-1125.
- Busby-Spera, C. J., 1988b, Evolution of a Middle Jurassic back-arc basin, Cedros Island, Baja California: Evidence from a marine volcanoclastic apron: *Geol. Soc. America Bull.*, v. 100, p. 218-233.
- Busby-Spera, C. J., 1988c, Development of fan-deltoid slope aprons in a convergent-margin tectonic setting: Mesozoic, Baja California, Mexico, in, *Fan-deltas: Sedimentology and Tectonic Setting*, W. Nemec and R. Steel (eds.), Blackie and Son, p. 419-429.
- Morris, W. R., and Busby-Spera, C. J., 1988, Sedimentologic evolution of a submarine canyon in a forearc basin, Late Cretaceous Rosario Formation, San Carlos, Mexico: Am. Assoc. Petroleum Geologists, v. 72/6, p. 717-737.*
- Busby-Spera, C. J., *Morris, W., and Abbott, P., 1988, Field Trip Guide to Selected Cretaceous Rocks of Baja California Norte: Geol. Soc. America Cordilleran Section. GUIDEBOOK*

**1987**

- Busby-Spera, C. J., 1987, Lithofacies of deep marine basalts emplaced on a Jurassic backarc apron, Baja California (Mexico): *Jour. of Geology*, v. 95, p. 671-686.
- White, J. D. L., and Busby-Spera, C. J., 1987, Deep marine arc apron deposits and syndepositional magmatism in the Alisitos Group at Punta Cono, Baja California, Mexico: Sedimentology, v. 34, no. 5, p. 911-927.*
- Busby-Spera, C. J., and *White, J. D. L., 1987, Variation in peperite textures associated with differing host sediment properties: Bull. Volcanology, v. 49, no. 6, p. 765-776.*
- Busby-Spera, C. J., and Saleeby, J. B., 1987, Geologic guide to the Mineral King area, Sequoia National Park, California: *Soc. Econ. Paleontologists and Mineralogists, Pac. Section*, 44 pp.

**1986**

- Busby-Spera, C. J., 1986, Depositional features of rhyolitic and andesitic volcanoclastic rocks of the Mineral King submarine caldera complex, Sierra Nevada, California: *Jour. Volcanology and Geothermal Res.*, v. 27, p. 43-76.
- Busby-Spera, C. J., and Boles, J. R., 1986, Sedimentation and subsidence styles in a Cretaceous forearc basin, southern Vizcaino Peninsula, Baja California, Mexico, in *Abbott, P. L., (ed.), Cretaceous Stratigraphy, Western North America, Pac. Section, Soc. Econ. Paleontologists and Mineralogists, p. 79-90.*
- Saleeby, J., and Busby-Spera, C. J., 1986, Fieldtrip guide to metamorphic framework rocks of the Lake Isabella area, southern Sierra Nevada, California, in *Dunne, G. C. (ed.), Mesozoic and Cenozoic Structural Evolution of Selected Areas, East-Central California: Guidebook and Volume, Geol. Soc. America Cordilleran Section Meeting, p. 81-94.*

**1985**

Busby-Spera, C. J., 1985, A sand-rich submarine fan in the lower Mesozoic Mineral King caldera complex, Sierra Nevada, California: *Jour. Sed. Petrology*, v. 55, p. 376-391.

**1984**

Busby-Spera, C. J., 1984a, Large-volume rhyolite ash-flow eruptions and submarine caldera collapse in the lower Mesozoic Sierra Nevada, California: *Jour. Geophys. Res.*, v. 89, no. B10, p. 8417-8427.

Busby-Spera, C. J., 1984b, The lower Mesozoic continental margin and marine intra-arc sedimentation at Mineral King, California, *in* Bachman, S., and Crouch, J., eds., *Tectonics and Sedimentation Along the California Margin*, Pac. Section, Soc. Econ. Paleontologists and Mineralogists, Los Angeles, Calif., p. 135-156.

**1978**

Saleeby, J. B., Goodin, S. E., Sharp, W. E., and Busby-Spera, C. J., 1978, Early Mesozoic paleogeographic-paleotectonic reconstruction of the southern Sierra Nevada region, *in* Howell, D. G., and McDougall, K. A. (eds.), *Mesozoic Paleogeography of the Western United States*, SEPM Paleogeog. Symposium 2, p. 311-336.