

DIRK BARON

*Department of Geological Sciences
California State University, Bakersfield
9001 Stockdale Highway; Bakersfield, CA 93311
Tel: 661-654-3027; Email: dbaron@csub.edu*

PROFESSIONAL EXPERIENCE

Consulting Geologist/Hydrogeologist, CA License No. 7962 (2001 – present)

Emeritus Professor of Geology (2018 – present)

Professor of Geology (2005-2018)

Associate Professor of Geology (2001-2005), Assistant Professor of Geology (1997-2001)
California State University, Bakersfield

Chair, Department of Geological Sciences (2014 – 2017)
California State University, Bakersfield

Interim Director, California Energy Research Center (2016 – 2017)
California State University, Bakersfield

Founding Director of the CSUB Graduate Student Center and
Project Director, Promoting Post-Baccalaureate Opportunities for Hispanic Americans,
Title V, Part B, U.S. Department of Education Grant (2009 – 2011)
California State University, Bakersfield

Chair, Department of Physics and Geology (2007 – 2010)
California State University, Bakersfield

Project Hydrogeologist (1989-1991); Squier Associates, Lake Oswego, Oregon.

Geologist (1988-1989); U.S. Army Corps of Engineers, Portland District, Portland, Oregon.

EDUCATION

Postdoctoral Scholar in Environmental Engineering Science, California Institute of Technology,
Pasadena, California; 1996-1997.

Ph.D. in Environmental Science and Engineering, Oregon Graduate Institute of Science &
Technology (now Oregon Health & Science University), Portland, Oregon; 1996.

M.S. in Geology, Portland State University, Portland, Oregon; 1990.

Vordiplom in Geology, Freie Universität Berlin, Berlin, Germany; 1986.

PROFESSIONAL REGISTRATION

California Registered Professional Geologist, License No. 7962

HONORS AND AWARDS

2018 Pacific Section AAPG - Distinguished Educator Award

2016-17, 2015-16, 2014-15 CSU Bakersfield - Gold Awards for Excellence in Sponsored Programs

2015-2016 CSU Bakersfield - Faculty Leadership and Service Award

2013 CSU Bakersfield - Community Engagement Award

2010-2011 CSU Bakersfield - Faculty Scholarship and Creative Activity Award

PUBLICATIONS AND PRESENTATIONS (* indicates student author)

Google Scholar http://scholar.google.com/citations?user=_qpnRLAAAAAJ&hl=en

Peer-Reviewed Journal Articles

Külköylüoğlu O., Palacios-Fest M.R., Baron D., and Sarı N. (2015) Monthly variations in the shell structure of two freshwater ostracod (Crustacea) species in Karapınar Spring (Bolu, Turkey). *Turkish Journal of Zoology*, **39**. <http://www.csub.edu/~dbaron/OkanKetal2015.pdf>

Soukup D., Buck B., Gossens D., Ulery A., McLaurin B., Baron D., and Teng Y. (2012) Arsenic concentrations in dust emissions from wind erosion and off-road vehicles in the Nellis Dunes Recreational Area, Nevada, USA. *Aeolian Research*, **5**, 77-89. www.csub.edu/~dbaron/Soukup_etal_2012.pdf

Remus J.J., Harmon R.S., Hark R.R., Potter I.K., Bristol S.K. Baron D., Haverstock G.*, and East L.J. (2012) Advanced signal processing analysis of laser-induced breakdown spectroscopy data for the discrimination of obsidian sources. *Applied Optics*, **51**, B1-B9. www.csub.edu/~dbaron/Remus_etal.pdf

Proper S., Harkema J.R., Peden-Adams M., Ayala N., Berger-Ritchie J., Labahn S., Young S., Buck B., Sudowe R., Teng Y, Baron D., Goossens D., Soukup D., and Keil D.E. (2011) Health effects due to acute exposure of dust samples collected from Nellis Dunes Recreational Area. *Journal of Investigative Medicine*, **59**, 727-727.

Remus J.J., Gottfried J.L., Harmon R.S., Draucker A.*, Baron D. and Yohe R. (2010) Archaeological applications of LIBS: An example from the Coso Volcanic Field, CA using advanced statistical signal processing analysis. *Applied Optics* **49**, C120-C131.

Gottfried J.L., Harmon R.S., Draucker A.*, Baron D., and Yohe R.M. (2009) LIBS as an Archaeological Tool - Example from Coso Volcanic Field, CA. *Proceedings of the 24th International Applied Geochemistry Symposium*, University of New Brunswick, Canada. Lentz D.R., Thorne K.D., and Beal K-L, Editors, **2**, 807-810

Negrini R., Baron D., Gillespie J., Horton R., Draucker A.*, Durham N.*, Huff J.*, Philley P.*, Register C.*, Parker J., and Haslebacher T. (2008) A middle-Pleistocene lacustrine delta in the Kern River depositional system: structural control, regional stratigraphic context, and impact on groundwater quality. Pacific Section of the American Association of Petroleum Geologists Publication MP48, 95-111. www.csub.edu/~dbaron/Negrini_et_al_2008.pdf

Baron D., Negrini R.M, Golob E.M.*, Miller D., Sarna-Wojcicki A., Fleck R., Hacker B., Erendi A. (2008) Geochemical correlation and ⁴⁰Ar/³⁹Ar dating of the Kern River Ash and related tephra: Implications for the stratigraphy of petroleum-bearing formations in the San Joaquin Valley, California. *Quaternary International*, **178**, 246-260. www.csub.edu/~dbaron/Baron_etal_2008.pdf

Drouet C., Pass K.L.*, Baron D., Draucker S.*, and Navrotsky A. (2004) On the thermochemistry of solid solutions between jarosite, natrojarosite, and alunite. *Geochimica et Cosmochimica Acta*, **58**, 2197-2205. www.csub.edu/~dbaron/Drouet_etal_2004.pdf

- Drouet C., Navrotsky A., and Baron D. (2003) On the thermochemistry of solid solutions between jarosite and its chromate analog. *American Mineralogist*, **88**, 1949-1954.
www.csub.edu/~dbaron/Drouet_etal_2003.pdf
- Baron D. and Palmer C.D. (2002) Solid solution/aqueous solution interactions between jarosite and its chromate analog. *Geochimica et Cosmochimica Acta*, **66**, 2841-2853.
www.csub.edu/~dbaron/Baron_and_Palmer_2002.pdf
- Baron D. and Hering J.G. (1998) Analysis of metal-EDTA complexes by Electrospray Mass Spectrometry. *Journal of Environmental Quality* **27**, 844-850.
- Baron D. and Palmer C.D. (1998) Solubility of $\text{KFe}(\text{CrO}_4)_2 \cdot 2\text{H}_2\text{O}$ at 4-75°C. *Applied Geochemistry* **13**, 961-973. www.csub.edu/~dbaron/Baron_and_Palmer_1998.pdf
- Baron D. and Palmer C.D. (1996) Solubility of $\text{KFe}_3(\text{CrO}_4)_2(\text{OH})_6$ at 4-35°C. *Geochimica et Cosmochimica Acta* **60**, 3815-3824. www.csub.edu/~dbaron/Baron_and_Palmer_1996b.pdf
- Baron D., Palmer C.D. and Stanley J.T. (1996) Identification of two Fe-chromate precipitates in a Cr(VI)-contaminated soil. *Environmental Science & Technology* **30**, 964-968.
www.csub.edu/~dbaron/Baron_etal_1996.pdf
- Baron D. and Palmer C.D. (1996) Solubility of jarosite at 4-35°C. *Geochimica et Cosmochimica Acta* **60**, 185-195. www.csub.edu/~dbaron/Baron_and_Palmer_1996a.pdf
- Baron D., Scofield D.H., Johnson A.G., Malin R.D., and Graham J.D. (1991) Three-dimensional modeling of groundwater flow and temperatures at Bonneville Dam, Oregon. *Proceedings, 1991 Geotechnical Engineering Congress*, American Society of Civil Engineers, 1186-1197.

GRANTS, CONTRACTS, AND FUNDRAISING

Lead Principal Investigator (~\$2 million total; most grants include full indirect costs)

MRI: Acquisition of an X-Ray Diffractometer for Multi-Disciplinary Research and Research Training at California State University, Bakersfield. National Science Foundation. EAR 1428673. Awarded \$198,000 September 2014.

Dual-Credit Physical Geology Classes: A Strategy for Improving the "Pipeline" from High Schools into University Geology Programs. Chevron. Awarded \$528,000 as a match for the NSF grant with the same title. 2012 -2017.

Dual-Credit Physical Geology Classes: A Strategy for Improving the "Pipeline" from High Schools into University Geology Programs. Pacific Section AAPG. Awarded \$7,500 as a match for the NSF grant with the same title. 2013.

Dual-Credit Physical Geology Classes: A Strategy for Improving the "Pipeline" from High Schools into University Geology Programs. San Joaquin Geological Society. Awarded \$4,000 as a match for the NSF grant with the same title. 2013.

Dual-Credit Physical Geology Classes: A Strategy for Improving the "Pipeline" from High Schools into University Geology Programs. National Science Foundation. GEO 1108494. Awarded \$197,555, July 2011.

Claude Fiddler Endowment for Field Experiences Donation from the Fiddler families to the CSUB Department of Geological Sciences. \$100,000, December 2010.

Bird's Eye Detective: Using Geospatial Technologies in K-12 Teacher Training. Google Faculty Institute Program. Awarded \$23,500, August 2011.

Planning for a Math and Science Partnership in the Great Central Valley of California. National Science Foundation. DRL 0929023. Awarded \$295,848, June 2009.

Paleoclimate and flooding history in the Southern San Joaquin Valley, CA. National Science Foundation. GEO 0303324 Awarded \$410,910, April 2003.

Inductively Coupled Plasma Mass Spectrometry (ICP/MS) and Laser Ablation – Modern Analytical Instrumentation for Enhancing Recruitment, Retention, and Academic Achievement of Minority Students in the Sciences and Engineering. Department of Defense Infrastructure Support Program, Army Research Office. Awarded \$282,135, May 2000.

Co-PI in Teams with Others (>\$10 million total)

Collaborative Research: GP-EXTRA: Oceanographic shipboard and lab research for diverse students: experiential learning as a gateway to geoscience careers National Science Foundation EAR 1700942 Awarded \$297,459.00, June 2017. PI Rathburn.

Acquisition of a Micro-CT for Multi-Disciplinary Research, Teaching, and STEM Outreach at California State University, Bakersfield U.S. Department of Defense, Army Research Office. Awarded \$500,000, August 2016. PI Pratt.

CSUB Center for Research Excellence in Science and Technology. National Science Foundation. Awarded \$5.5 million, July 2011. PI Negrini.

Promoting Post-baccalaureate Opportunities for Hispanic Americans (PPOHA), Title V, Part B. U.S. Department of Education. Awarded \$2.5 million, July 2009.

CSUB Robert Noyce Teacher Scholarship Program – Phase 1. National Science Foundation. DUE 0934944. Awarded \$897,931, July 2009. PI Gebauer.

Identification and dating of volcanic ashes from the Kern River Formation, Kern County, CA. Chevron, USA, Kern River Unit. Awarded \$38,225, September 2008. PI Negrini.

Scanning Electron Microscopy with X-Ray Microanalysis – Modern analytical instrumentation for enhancing recruitment, retention and academic achievement of minority students. US Department of Defense, Army Research Office. PI Horton. Awarded \$200,000, June 2005.

Hydrogeology of the Kern Fan Element and Implications on Local Groundwater Management of Kern Water Bank. State of California, AB303 Local Groundwater Assistance Fund Grant. PI Negrini. Awarded \$125,334, May 2004.

Fundamental processes governing the aquifer characteristics of the Kern Water Bank: implications for other alluvial fan-type aquifers in agricultural regions with arid to semi- arid climates. Kern Water Bank Authority, State of California AB303. PI Negrini. Awarded \$122,500, July 2003

Processes governing aquifer characteristics of the Kern Water Bank. U.S. Department of Agriculture National Research Initiative. PI Negrini. Awarded \$151,000, July 2001.

OUTREACH AND SERVICE

K-12 and Community Outreach

Dual-credit honors geology classes at high schools – created, coordinated, and procured \$750,000 in funding for classes for college-bound high school students. In 2018, there are college-level geology classes at 8 schools with about 550 students enrolled. These classes have been recognized as a model for recruiting students into Geoscience majors by the National Science Foundation and others.

- Classes were highlighted in a 2013 Pacific Section AAPG Newsletter
http://psaapg.org/wp-content/uploads/2013/05/2013_May_June_FINAL_PRINT3.pdf
- Classes were highlighted as a national “best practices” model at the 2014 NSF Integrate Workshop sponsored by the National Science Foundation
http://serc.carleton.edu/integrate/workshops/broaden_access/program.html .

Summer research participation programs – created four-week summer programs in which teachers and high school students work with CSUB students and faculty on research projects.

- Started in Geology in 2004 through a National Science Foundation grant
<https://www.csub.edu/geology/K-12%20Outreach%20and%20Resources/>
- Expanded to all CSUB science and engineering departments in 2007 as the ongoing Revs-up program funded by Chevron. <https://www.csub.edu/revsup/>

Kern County Science Foundation – Board Member (2005 – 2014)

Selected Workshops, Field Trips, and Conference Sessions Organized

National Association of Geoscience Teachers Far Western Section Fall 2015 Field Conference - organized and led this three-day event

<http://nagt-fws.org/wp-content/uploads/2015/09/NAGT-20151.pdf>

Summer Workshop for Teachers – organized and led this workshop for teachers from throughout California interested in offering dual-credit geology classes, June 14-16, 2015

www.csub.edu/~dbaron/Teacher%20Dual-Credit%20Workshop%20Flyer.pdf

Topical session on Dual-Credit Geology classes – organized and chaired the session at the 2013 Geological Society of America Annual meeting, showcasing CSUB programs and the different dual-credit models developed around the country

<https://gsa.confex.com/gsa/2013AM/webprogram/Session32986.html>

Workshop at the 2016 Annual Meeting of the Cordilleran Section GSA – organized and led a workshop for teachers and faculty interested in creating dual-enrollment honors geology classes at high school, April 4-6, 2016 Ontario, CA
<http://rock.geosociety.org/Sections/cord/2016mtg/workshops.htm>

Selected Community Events Organized

Carbon Capture and Sequestration Workshops – Organized two one-day public workshops on these new technologies and projects proposed for the San Joaquin Valley, each with about 200 attendees from the community.

September 9, 2009 Workshop - <http://www.csub.edu/~dbaron/CCS-workshop.htm>

October 1, 2010 Workshop - http://www.csub.edu/~dbaron/CSUB_CCS.htm

Engineer's Day – This is a day-long event that brings about 500 Kern County high school students to the CSUB campus to learn about engineering careers from employers, exhibitors, and speakers. Brought the event to CSUB for the first time and organized the 2010, 2011, and 2012 events <https://csubblog.wordpress.com/2012/02/25/engineers-day-attracts-hundreds-of-high-school-students/>

Kern County Science Educators Night – Created and organized this innovative networking event for science educators from all levels with a nationally acclaimed keynote speaker, Thursday, May 12, 2011 <https://www.csub.edu/~dbaron/Kern%20County%20Educators%20Night.pdf>

University Service Highlights

Department Chair – Served as chair of Physics and Geology (2007 – 2010) and Geological Sciences (2014 – 2017). Accomplishments include (1) the creation of the stand-alone Department of Geological Sciences, (2) steering the department(s) through the 2008 – 2011 California Budget Crisis, (3) handling the campus transition from a quarter to a semester system, and (4) contributing to exceptional enrollment growth resulting in an increase of the number of geology degrees awarded from an average of 7 per year for the three-year period from 2005 – 2007 to 34 per year from 2015 – 2017
(<http://www.csub.edu/~dbaron/Geodegrees.pdf>).

CSUB Department of Geological Sciences Newsletter – Created an annual newsletter for alumni and friends of the department in 2007 and compiled and edited newsletters from 2007- 2016. Newsletter Archive: https://www.csub.edu/~dbaron/Geo_Newsletters.pdf

Search Committees – Served on numerous faculty and administrator search committee including as chair for the 2017 School of Natural Sciences, Mathematics, and Engineering Dean Search.

Faculty Retention, Promotion, and Tenure – Served on numerous committees for geology, physics, engineering, chemistry, and library faculty.

Committee for Professional Responsibilities – Member 2006 - 2008, chair 2008 – 2009

CLASSES TAUGHT

Geology Undergraduate

Geol 201 – *Physical Geology*
Geol 310 - *Geochemistry*
Geol 320 - *Introduction to Hydrologic Principles* (also developed as an online class)
Geol 420/Geol 4010 – *Environmental Geochemistry* (newly developed)
Geol 475/Geol 4020 – *Hydrogeology* (newly developed)
Geol 480 - *Research Participation*
Geol 490 - *Senior Seminar*

Geology Graduate

Geol 525 - *Applied Hydrogeochemistry* (newly developed)
Geol 555 - *Contaminant Hydrogeology* (newly developed)
Geol 650 - *Groundwater Flow Modeling* (newly developed)
Geol 580 – *Advanced Research Participation*
Geol 585, 690, 6010 – *Graduate Thesis Seminars*

General Education

Geol 110 – *Our Oceans* (newly developed class including both face-to-face and online versions)
Sci 360B, 352, 3329 – *Water and the West* (newly developed, in addition to the regular class, developed a class for the CSUB Honors program and an online version)
GST 134 - *Careers in the Physical Sciences*
GST 160 - *Orientation to CSUB for Physical Science Majors*
CSUB 101 – *CSUB Rush-A Orientation Class*
Sci 100 - *Introduction to Geology Summer Course*

Liberal Studies Classes for Future Teachers

Sci 214 - *Introduction to Earth Science*
Sci 315 - *Integrated Science: Earth and Physical Science*
Sci 325B - *Integrated Earth Science* (developed a lab manual for this class that is still in use in the successor class)

Chemistry (undergraduate)

Chem 150 - *Introduction to Chemical Principles*
Chem 320 - *Environmental Chemistry* (newly developed this class)
Chem 420 - *Environmental Geochemistry*