

Alexander Ray Simms

University of California, Santa Barbara
Department of Earth Science
1006 Webb Hall
Santa Barbara, CA 93106
(805) 893-9639
asimms@geol.ucsb.edu

605 Evonshire
Santa Barbara, CA 93111
(805) 845-9639
arsimms@gmail.com

Education:

Rice University, Houston, TX, 2006
PhD in Earth Science, The Holocene Evolution of the Nueces Incised Valley, Central Texas.
(Advisor Prof. John Anderson)
Oklahoma State University, Stillwater, OK, 2001
BS in Geology, Summa Cum Laude, with Honors, Mathematics Minor.

Research Interests:

Sedimentology/Stratigraphy, Quaternary Geology, Coastal Geology, Sea-Level Changes and Glacial History, Arid Depositional Environments

Research Experience:

Associate Professor, University of California – Santa Barbara, 2013-Pr
Assistant Professor, University of California – Santa Barbara, 2010-2013.
Assistant Professor, School of Geology, Oklahoma State University, 2005-2010.
Visiting Fellow, Research School of Earth Sciences, Geodynamics Group, Australian National University, Jan.-March, 2005; Nov., 2007-Jan., 2008.
Research Assistant, Department of Earth Science, Rice University, 2001- 2005.

Teaching Experience:

Assistant (2010-2013) and Associate (2013-Pr) Professor, University of California – Santa Barbara

- Taught lower-level undergraduate course in Antarctica (2)
- Taught upper-level undergraduate courses in sedimentology/stratigraphy (4), field methods (1), field camp (1), and GIS (1)
- Taught graduate courses in depositional systems (1) and sequence stratigraphy (1)

Assistant Professor, Oklahoma State University, 2005-2010

- Taught lower-level undergraduate course in Environmental Geology (1)
- Taught upper-level undergraduate courses in Geomorphology (5) and Sedimentology/Stratigraphy (4)
- Taught graduate level course in Depositional Systems (3) and Antarctic Geology (1)

Adjunct Faculty, University of St. Thomas, 2004

- Taught undergraduate lower-level physical geology lab and lecture

Tutor, Math Learning Resource Center (MLRC), Oklahoma State University, 1999-2001

Professional Experience:

Geoscience Intern, Phillips Petroleum Company, Bartlesville, Oklahoma, 1997, 2001
Geologist and Field Hand, Gateway Resources, Bartlesville, Oklahoma, 1999-2000

Awards:

National Science Foundation Graduate Fellowship, 2003-2005
Antarctic Service Medal, 2010

Research Grants:

Simms, A.R., Rockwell, T., Peters, B. Southern California Earthquake Center (SCEC), Documentation of tsunami deposits in the Carpinteria and Goleta Slough Estuaries: A signal of Great Earthquakes on the Pitas Point Thrust. 7/14-6/15.

- Simms, A.R.** EDMAP: United States Geological Survey (USGS), Geologic Constraints on Karsting in Western Oklahoma. 8/14-7/15.
- Simms, A.R.** Petroleum Research Fund of the American Chemical Society (PRF). Hyperpycnal Fans of the Santa Barbara Channel. 1/13-6/15.
- Simms, A.R.** United States Department of Interior – National Park Service. Stream terrace mapping at the Washita Battlefield National Historical Site. 8/12-4/13.
- Simms, A.R.** and DeWitt, R. National Science Foundation - OPP. Constraining the deglaciation of the Antarctic Peninsula using OSL dated beach deposits. 7/09-6/13
- Simms, A.R.**, DeWitt, R. and Cruse, A. National Science Foundation - EAR. New Approaches to Unraveling the Climatic and Sea-Level History of the Northwestern Gulf of Mexico.
- Bement, L., Carter, B., Madden, A, **Simms, A.R.** National Science Foundation - BCS. Collaborative Research: Prospecting for nanodiamonds in equivalent deposits of different age for Younger Dryas verification. 7/09-6/12.
- Simms, A.R.** EDMAP: United States Geological Survey (USGS), Mapping the terraces along the Bull Creek Drainage, Oklahoma. 8/10-7/11.
- Simms, A.R.** National Science Foundation - OPP. Collaborative Research: The Sedimentary Record of Tidewater Glacier Response to Holocene Climate Variability in the Antarctic Peninsula. 8/08-7/09. Subcontract from Rice University.
- Simms, A.R.** EDMAP: United States Geological Survey (USGS), Determining the Impact of Relative Sea-Level Changes on the Permian Rocks of Western Oklahoma. 8/08-7/09.
- Simms, A.R.** and Stephens, P. Petroleum Research Fund of the American Chemical Society (PRF), Summer Research Fellow Supplement, 5/08-9/08.
- Simms, A.R.** and Kalchgruber, R. SGER: National Science Foundation - OPP, Testing the use of OSL dating of beach deposits along the Antarctic Peninsula, 3/07-2/08.
- Simms, A.R.** Petroleum Research Fund of the American Chemical Society (PRF), Controls on the development of mixed siliciclastic/carbonate under-filled incised valleys: Lessons from the late Pleistocene/ Holocene history of Baffin Bay, Texas, 7/06-6/08.

Academic Service and Affiliations:

Early Career Councilor, SEPM, 2013-2014

Shepard Medalist Committee, SEPM, 2010-2012

Headquarters and Business Committee, SEPM, 2006-2009.

Management Board, GSA-South Central section, 2006.

Treasurer/Secretary, GSA-South Central section, 2007-2010.

Fieldtrip Leader, AAPG/SEPM Student Fieldtrip, “Quaternary Depositional Environments of the East Texas Coast and Shelf: Analogs for Ancient Deposits. AAPG/SEPM Annual Convention, April 7, 2006 and April 4, 2014.

Fieldtrip Leader, Depositional Systems of the Eastern San Juan Basin, Oklahoma State University Arts and Sciences Outreach, 5/08.

Session Chair, SEPM Student Poster Session, AAPG/SEPM Annual Convention, April, 2007; GSA Annual Meeting, Nov., 2009; GSA Annual Meeting, Oct., 2013; AAPG/SEPM Annual Convention, April 2014.

Formal Reviewer:

Proceedings of the National Academy of Sciences, Geology, Earth Science Reviews, Journal of Geophysical Research, Quaternary Science Reviews, Geological Society of America Bulletin, Earth and Planetary Science Letters, Terra Nova, Geosphere, Marine Geology, Global and Planetary Change, Sedimentology, Sedimentary Geology, Journal of Sedimentary Research, Quaternary Research, Basin Research, Ocean and Coastal Management, Earth Surface Processes and Landforms, Climate Change, Journal of Coastal Research, Marine Geophysical Research, STAR Program: Environmental Protection Agency, NCCIR: Department of Energy, National Environmental Research Council of the UK, National Science Foundation, German National Science Foundation, American Chemical Society – Petroleum Research Fund.

Member: Society for Sedimentary Geology (SEPM), Geological Society of America (GSA), American Geophysical Union (AGU), International Association of Sedimentologists (IAS), American Association of Petroleum Geologists (AAPG)

Publications (underline denotes student author):

Simms, A.R. and Rodriguez, A.B. (in press). The influence of valley morphology on the rate of bayhead delta progradation. *Journal of Sedimentary Research*.

2014:

- The RAISED Consortium, Bentley, M.J...(76 other authors), **Simms, A.R.** (2014). A community-based geological reconstruction of Antarctic Ice Sheet deglaciation since the Last Glacial Maximum. *Quaternary Science Reviews* 11:1-9.
- O Cofaigh, C, Davies, B.J. Livingstone, S.J., Smith, J.A., Johnson, J.S., Hocking, E.P., Hodgson, D.A., Anderson, J.B., Bentley, M.J., Canals, M., Domack, E., Dowdeswell, J.A., Evans, J., Glasser, N.F., Hillenbrand, C.-D., Larter, R.D., Roberts, S.J., **Simms, A.R.** (2014). Reconstruction of ice-sheet changes in the Antarctic Peninsula since the Last Glacial Maximum. *Quaternary Science Reviews* 11:87-110.
- Anderson, J.B., Wallace, D.J., **Simms, A.R.**, Rodriguez, A.B., Milliken, K.T. (2014). Variable response of coastal environments of the northwestern Gulf of Mexico to sea-level rise and climate change: Implications for future change. *Marine Geology* 352: 348-366.
- Buzas-Stephens, P., Livsey, D.N., **Simms, A.R.**, Buzas, M.A. (2014). Estuarine foraminifera record Holocene stratigraphic changes and Holocene climate changes in ENSO and the North American monsoon: Baffin Bay, Texas. *Palaeogeography, Palaeoclimatology, Palaeoecology* 404: 44-56.
- Simms, A.R.**, and Rodriguez, A.B. (2014). Where do coastlines stabilize following rapid retreat? *Geophysical Research Letters* 41: 1698-1703.
- Bement, L.C., Madden, A.S., Carter, B.J., **Simms, A.R.**, Swindle, A.L., Alexander, H.M., Fine, S., and Benamara, M. (2014). Quantifying the distribution of nanodiamonds in pre-Younger Dryas to recent age deposits along Bull Creek, Oklahoma Panhandle, USA. *Proceedings of the National Academy of Sciences* 111: 1726-1731.

2013:

- Simms, A.R.**, Anderson, J.B., DeWitt, R., Lambeck, K., and Purcell, A., 2013. Quantifying rates of coastal subsidence since the last interglacial and the role of sediment loading. *Global and Planetary Change* 111: 296-308.
- Simkins, L.M., **Simms, A.R.**, DeWitt, R., (2013). Relative sea-level history of Marguerite Bay, Antarctic Peninsula derived from optically stimulated luminescence-dated beach cobbles. *Quaternary Science Reviews* 77: 141-155.
- Livsey, D. and **Simms, A.R.**, (2013). Holocene sea-level change derived from microbial mats. *Geology* 41: 971-974.
- Simkins, L.M., DeWitt, R., **Simms, A.R.**, (2013). Methods to reduce sample carrier contamination for luminescence measurements. *Ancient TL* 31: 19-28.
- Warrick, J.A., **Simms, A.R.**, Ritchie, A., Steel, E., Dartnell, P., Conrad, J.E., and Finlayson, D.P. (2013). Hyperpycnal plume-derived fans in the Santa Barbara Channel, California. *Geophysical Research Letters* 40: 2081-2086.
- Anderson, J.B., Kirshner, A., **Simms, A.R.** (2013), Constraints on the Antarctic Ice Sheet configuration during and following the Last Glacial Maximum and its episodic contribution to sea-level rise. In: Hambrey, M.J., Barker, P.F., Barrett, P.J., Bowman, V., Davies, B., Smellie, J.L., and Tranter, M. (eds.). *Antarctic Palaeoenvironments and Earth-Surface Processes*, Geological Society of London Special Publication 381: 215-232.
- Livsey, D.N., **Simms, A.R.**, Clary, W., Wellner, J.S., Anderson, J.B., and Chandler, J.P., (2013). Fourier grain-shape analysis of Antarctic marine core: the relative influence of provenance and glacial activity on grain-shape. *Journal of Sedimentary Research* 83:80-90.

2012:

- Simkins, L.M., **Simms, A.R.**, Cruse, A.M., Troiani, T., Atekwana, E.A., Puckette, J., and Yokoyama, Y. (2012). Correlation of early and mid-Holocene events using magnetic susceptibility in estuarine cores. *Palaeogeography, Palaeoclimatology, Palaeoecology* 346-347: 95-107.
- Simms, A.R.**, DeWitt, R., Ivins, E.R., Kouremenos, P., and Simkins, L.M. (2012), Determining the timing of the Little Ice Age in the Antarctic Peninsula from raised beaches. *Quaternary Science Reviews* 47:41-55.

- Poland, Z. and **Simms, A.R.** (2012), Sedimentology of an erg-erg margin depositional system, the Rush Springs Sandstone of western Oklahoma: implications for paleowinds across northwestern Pangea during the Guadalupian (middle Permian). *Journal of Sedimentary Research* 82:345-363.
- Valentine, D.W., Keller, E.A., Carver, G., Li, W.-H., Manhart, C., **Simms, A.R.** (2012), Paleoseismicity of the southern end of the Cascadia Subduction Zone, northwestern California, USA. *Bulletin of the Seismological Society of America* 102: 1059-1078.
- Woldearegay, A., Jaiswal, P., **Simms, A.R.**, Alexander H., Bement, L.C., and Carter, B.J. (2012), Ultrashallow depth imaging of a channel stratigraphy with first-arrival traveltime inversion and prestack depth migration: A case study from Bull Creek, Oklahoma. *Geophysics* 77:1-10.
- 2011:
- Wellner, J.S., Anderson, J.B., Werner, E., Weaver, F.M., Kirshner, A., Livsey, D., and **Simms, A.R.** (2011). History of an evolving ice sheet as recorded in SHALDRIL cores from the northwestern Weddell Sea, Antarctica. In: *Tectonic, Climatic, and Cryospheric Evolution of the Antarctic Peninsula*, AGU Monograph Series 63: 131-152.
- Anderson, J.B., Warny, S., Askin, R.A., Wellner, J.S., Bohaty, S.M., Kirshner, A., Livsey, D.N., **Simms, A.R.**, Smith, T.R., Ehrmann, W., Lawver, L.A., Barbeau, D., Wise, S.W., Kulhenek, D.K., Weaver, F.M., Mojewski, W. (2011). Progressive Cenozoic cooling and the demise of Antarctica's last refugium. *Proceedings of the National Academy of Sciences* 108: 11356-11360.
- Simms, A.R.**, Milliken, K.T., Anderson, J.B. Wellner, J.S. (2011). The marine record of deglaciation of the South Shetland Islands, Antarctica since the Last Glacial Maximum. *Quaternary Science Reviews* 30: 1583-1601.
- Troiani, T., **Simms, A.R.**, Dellapenna, T., Piper, E., and Yokoyama, Y. (2011). The importance of sea-level and climate change, including wind energy, on the evolution of a coastal estuary: Copano Bay, Texas. *Marine Geology* 280, p.1-19.
- Simms, A.R.**, DeWitt, R., Kouremenos, P., Drewry, A.M. (2011). A new approach to reconstructing sea levels in Antarctica using optically stimulated luminescence of cobble surfaces. *Quaternary Geochronology* 6, p. 50-60.
- 2005-2010:
- Anderson, J.B., Milliken, K.T., Wallace, D., Rodriguez, A. B., **Simms, A.R.**, (2010). Coastal impact of accelerated sea-level rise underrated. *EOS Trans AGU* 91(23), p. 205-206.
- Simms, A.R.**, Aryal, N., Miller, L.*, Yokoyama, Y. (2010). The incised valley of Baffin Bay, Texas: a tale of two climates. *Sedimentology* 57, p642-669.
- Rodriguez, A. B., **Simms, A.R.**, Anderson, J.B. (2010). Bay-head deltas across the northern Gulf of Mexico back step in response to the 8.2 ka cooling event. *Quaternary Science Reviews* 29, p. 3983-3993.
- Simms, A.R.**, Aryal, N., Yokoyama, Y., Matsuzaki, H., and DeWitt, R. (2009). Insights on a proposed mid-Holocene highstand along the northwestern Gulf of Mexico from the evolution of small coastal ponds. *Journal of Sedimentary Research* 79, p. 757-772.
- Simms, A.R.**, DeWitt, R., Rodriguez, A.B., Lambeck, K., and Anderson, J.B., (2009), Revisiting marine isotope stage 3-5a (MIS3-5a) sea levels within the northwestern Gulf of Mexico. *Global and Planetary Change* 66, p 100-111.
- Simms, A.R.**, Anderson, J.B., Rodriguez, A.B., and Taviani, M., 2008. Mechanisms controlling environmental changes within an estuary: Corpus Christi Bay, Texas, in Anderson, J.B. and Rodriguez, A.B. (eds.), *Response of Upper Gulf Coast Estuaries to Holocene Climate Change and Sea-Level Rise*, GSA Special Paper 443, p. 121-146.
- Rodriguez, A.B., Greene D.L.Jr., Anderson, J.B., and **Simms, A.R.**, 2008. Threshold-Response of Mobile Bay and eastern Mississippi Sound, Alabama to Changes in Accommodation Space and Sediment Sequestration, in Anderson, J.B. and Rodriguez, A.B. (eds.), *Response of Upper Gulf Coast Estuaries to Holocene Climate Change and Sea-Level Rise*, GSA Special Paper 443, p. 13-29.
- Simms, A. R.**, K. Lambeck, T. Purcell, J. B. Anderson, A. B. Rodriguez. 2007. Sea-level history within the Gulf of Mexico since the Last Glacial Maximum with implications for the melting history of the Laurentide Ice Sheet. *Quaternary Science Reviews* 26, p 920-940.
- Simms, A. R.**, J. B. Anderson, K. T. Milliken, Z. P. Taha, and J. S. Wellner. 2007. Geomorphology and age of the OIS 2 (last lowstand) sequence boundary on the northwestern Gulf of Mexico continental shelf. in Davis, R.J., Posamentier, H.W., Wood, L.J., and Cartwright, J.A. (eds.),

- Seismic Geomorphology: Applications to Hydrocarbon Exploration and Production*, Geological Society of London Special Publication 277, p. 29-46.
- Matteus, C.R., Rodriguez, A.B., Greene, D.L.Jr., **Simms, A.R.**, and Anderson, J.B., 2007. Control of upstream variables on incised-valley dimension. *Journal of Sedimentary Research* 77, p. 213-224.
- Simms, A. R.**, J. B. Anderson, Z. P. Taha, and A. B. Rodriguez. 2006. Overfilled versus underfilled incised valleys: Lessons from the Quaternary Gulf of Mexico. in Dalrymple, R., Leckie, D., and Tillman, R. (Eds.), *Incised Valleys in Time and Space*, SEPM Special Publication 85, p. 117-139.
- Simms, A. R.**, J. B. Anderson, and M. Blum. 2006. Barrier-island aggradation via inlet migration: Mustang Island, Texas. *Sedimentary Geology* 187, p. 105-125.
- Rodriguez, A. B., J. B. Anderson, and **A. R. Simms**. 2005. Terrace inundation as an autocyclic mechanism for parasequence formation: Galveston Estuary, Texas, USA. *Journal of Sedimentary Research* 75, p.608-620.

Invited Presentations:

- 2004:** Oklahoma State University, School of Geology; ExxonMobil Production Research Company
- 2005:** Oklahoma State University, School of Geology
- 2006:** Langston University, Department of Biology; Tulsa Geological Society Research Group; University of Tulsa, Department of Geology and Geophysics
- 2007:** Northeastern State University (OK); Triple Junction Function (OK).
- 2008:** Northeastern Oklahoma Association of Math and Science Teachers.
- 2009:** University of Texas at Arlington, Department of Geology; University of California, Santa Barbara, Department of Earth Science; Oklahoma State University, Department of Animal Science; Oklahoma City Chapter of the Society for Professional Earth Scientists
- 2010:** AGU Fall Meeting (poster)
- 2011:** Caltech, Division of Geological Sciences
- 2012:** SLOLAM (Athens, Greece)
- 2013:** GSA Penrose/AGU Chapman Conference – Galveston, Texas; USGS Pacific Coastal Science Center, Santa Cruz, CA; Brigham Young University, Provo, UT

Thesis Director:

Michael Afill (MS'07 – Newfield Exploration, Tulsa, OK), Niranjan Aryal (MS'07 – Schlumberger, Houston, TX), Peter Kouremenous (MS'08 – BP, Calgary, AB), Annie Drewry (MS'08 – Questar, Denver, CO), Tyler Treece (MS'09 – Chesapeake, Oklahoma City, OK), Taylor Troiani (MS'09 – Devon Energy, Oklahoma City, OK), Zachary Poland (MS'11 – Devon Energy, Oklahoma City, OK), Katherine Jackson (MS'11 – S&M Energy, Midland, TX), Hanna Alexander (MS'12 – Texas Commission on Environmental Quality, Austin, TX), Eva von Thury (MS'13 – Padre & Assoc., Santa Barbara, CA), Lauren Simkins (PhD'14 – Postdoc Rice Univ.), Daniel Livsey (PhD'15), Elisabeth Steel (PhD'16), Laura Reynolds (PhD'16), Johnathan Rice (MS'15), Vanessa Brillo (MS'15), Michael Bentz (MS'16).

Thesis Committee Member:

Sassan Mouri (MS - 06), Eric Gerding (MS - 07), Kurtis Boucher (MS - 07), Emiko Konishi (MS - 07), Brad Rogers (MS - 07), Mack Blackford (MS - 08), Cameron Thompson (MS - 08), Mike Sample (MS - 08), Jeff Gigstad (MS - 08), Andy Rihn (MS - 08), John Tackett (MS - 08), Patrick Cohorn (MS - 08), Joe Wicker (MS - 08), Britni Watson (MS - 08), Jeremiah Chrisman (MS - 09), Tony Moss (MS – 09), Ayodeji Bamijoko (MS – 09), Stuart Barnes (MS – 10), S. Byron Stephens (PhD - 10), Cody Manek (MS - 10), Travis Conley (MS – 10), Jeff Roden (MS-11), Ammanuel Woldearegay (MS-11), Jason P. Jones (MS-11), Jon Sanford (MS-11), Joseph Goodie (PhD-12), Andrew Rich (PhD-13), Jessica Thompson (PhD-13), Joseph Stern (PhD-14), Samantha Gwizd (MS-15), Al Neely (MS-15)

Undergraduate Student Research:

Kristy Tetter (BS '06), Greg Federko (BS '08), Lauren Miller (OK-LSAMP, BS '09), Jared Roundtree (BS '09), Daniel Livsey (BS'10), Brent McCullough (BS'11), Sloan Anderson (BS'11), Beau Gentrey (BS'12), Julian Stahle (BS'13), Angel Roman (BS'14), Justin Steinmann (BS'15), Olivia Nicholson (BS'15)