

Zane R. Jobe, Ph.D.

SUMMARY STATEMENT

I am a sedimentologist interested in utilizing both classical and quantitative approaches to better understand sedimentary processes and products, particularly deep-water deposits. I use a combination of outcrop, subsurface, and modern seafloor studies to improve conceptual geologic knowledge as well as seismic interpretation and geocellular modelling workflows. My current work is focused on submarine channel architecture and evolution, including quantitative analysis of stacking patterns and planform data. I also enjoy teaching field- and classroom-based classes for geoscientists and integrated subsurface teams.

WORK EXPERIENCE

Colorado School of Mines, Golden, CO

May 2016 – present

Research Professor, Director of CoRE (Center of Research Excellence)

- Conducting stratigraphy-focused research on channelized depositional systems
- Mentoring M.S. and Ph.D. students in projects involving fluvial and submarine depositional environments
- Interacting with various companies in order to provide solutions for reservoir connectivity issues

Shell Oil Company, Houston, TX

June 2010 – May 2016

Research Sedimentologist, Reservoir Geology Research Team

- Improving reservoir models through development of knowledge- and data-bases for submarine, shallow marine, and fluvial environments
- Constraining the stratigraphic architecture and evolution of channelized and lobate turbidite systems on the seafloor of the western Niger Delta continental slope using diverse data types (3D seismic, 2D chirp profiles, bathymetry, 60 piston cores, >400 laser grain size analyses, and >100 radiocarbon analyses)
- Teaching field- and classroom-based courses on turbidite depositional environments and modelling options
- Asset consulting on seismic interpretation, reservoir model construction, core analysis

ExxonMobil, Houston, TX

June 2008 – September 2008

Geoscience Intern, Upstream Research Company

- Conducted field work (including ground penetrating radar surveys) to quantify bedform density and submarine channel architecture of the Ross Sandstone, western Ireland
- Integrated data from the Ross Sandstone with borehole and seismic reflection data from the Diana Field (western Gulf of Mexico) in order to better predict connectivity and future well locations.

ConocoPhillips, Houston, TX

June 2007 – September 2007

Geoscience Intern, Sedimentary Systems

- Performed field work on climbing-ripple cross-laminated sandstone in the Karoo basin, South Africa in order to provide an analog to the Magnolia field, GOM
- Described core from the Magnolia field, provided depositional environment interpretations, and suggested a plan of action for further field development.

Hess Corporation, Houston, TX

June 2006 – September 2006

Geoscience Intern, West Africa Business Unit

- Utilized 3-D seismic reflection and borehole data to interpret the late Tertiary evolution of the deepwater slope canyon system of the Rio Muni Basin, offshore Equatorial Guinea
- Conducted hazard assessments for the positioning of tension leg platforms (TLPs) in the Rio Muni Basin.

Pioneer Natural Resources Company, Las Colinas, TX

September 2004 – August 2005

Geologist, International Exploration

- Mapped regional horizons from seismic reflection data, offshore Nigeria in an effort to interpret deep-water channel architectural evolution.
- Constructed a regional tectonic analysis and a porosity-permeability-depth study, offshore Nigeria.
- Recommended the purchase of a regional well database for offshore Nigeria during play evaluation.

Surficial Floodplain Mapper

- Hand-augered and logged > 200 cores of Quaternary fluvial deposits in the Missouri River valley in order to constrain paleo-river locations and dimensions and to aid in locating suitable areas for wetland restoration.
- Drill sites were selected using remotely sensed data, GPS and allostratigraphic principles.
- Utilized ArcGIS to draft and publish four surficial geological quadrangle maps.

FIELDWORK EXPERIENCE

- California – 8 weeks (2005-2015)
- Chile – 27 weeks (2006-2015)
- Ireland – 7 weeks (2008-2016)
- South Africa – 6 weeks (2007-2008)
- Spain – 3 weeks (2008-2011)
- Missouri River – 7 weeks (2004)
- New Mexico – 4 weeks (2003)
- New Zealand – 6 weeks (2007-2012)
- Texas – 8 weeks (2004-2016)

TEACHING EXPERIENCE

- Field trip leader, Shell (field-based with classroom portions)
 - “Turbidites of Southern California” (March 2011, March 2012, March 2013)
 - “Integrated Reservoir Modelling for Turbidites”
 - Tabernas-Sorbas basin, Spain, November 2011
 - Ross Sandstone, Ireland, June 2012, July 2013, July 2014, August 2016
 - “Basins and Reservoirs”, Guadalupe Mountains, west Texas (September 2013, September 2014, March 2015, March 2016)
 - “Experimental and Outcrop Analogs for Campos Basin, Brazil”, Porto Alegre, Brazil and Puerto Natales, Chile (February 2014, January 2015)
 - “Experimental Saint Anthony Falls, Univ. of Minnesota (June 2014)
- Classroom-based courses, Shell
 - Seismic and Sequence Stratigraphy, September 2012
 - 3D Seismic Interpretation (Stratigraphic), March 2012
- Field trip leader, Stanford University
 - SPODDS Consortium meeting, Magallanes Basin, Chile, February 2009
 - West Texas field seminar (2008)
 - Shell Brazil & Petrobras, Magallanes Basin, Chile, February 2007
- Stanford University, 2005-2010: Graduate Teaching Assistant
 - Petroleum Geology (2008, 2009)
 - Depositional Environments (2009)
 - Sedimentary Basins (2007, 2008)

EDUCATION

Stanford University

- Ph.D., Sedimentology, 2010, GPA: 3.8
- Member of SPODDS research consortium (Stanford Project On Deepwater Depositional Systems)
- Advisors – Donald R. Lowe, primary (drlowe@stanford.edu); Stephan A. Graham, secondary (sagraham@stanford.edu)
- Thesis title: “Multi-Scale Architectural Evolution and Flow Property Characterization of Channelized Turbidite Systems”, consisting of three chapters:
 - The detailed characterization of a large, asymmetric, conglomerate-rich submarine channel complex, entitled “*Facies and Architectural Asymmetry in a Conglomerate-Rich Submarine Channel Fill, Cerro Toro Formation, Sierra Del Toro, Magallanes Basin, Chile*”

- A 3D seismic-reflection based study of the long-term evolution of a submarine canyon system offshore west Africa, entitled “*Two Fundamentally Different Types of Submarine Canyons Along The Continental Margin of Equatorial Guinea*”
- Determining the depositional environments, sedimentation rates, and accumulation times of deep-water climbing-ripple successions from three field locales, entitled “*Climbing Ripple Successions in Deep-Water Systems: Depositional Environments, Sedimentation Rates, and Accumulation Times*”

University of Texas at Arlington

- Honors B.S., Summa Cum Laude in Geology (2004)
- GPA: 3.9 cumulative, 4.0 in major
- Minor: Biology
- Honors Thesis: “Stratigraphy of the upper Bell Canyon Formation (Guadalupian Stage, Permian System), Seven Heart Gap, Apache Mountains, Trans-Pecos Texas.” Project involved measuring stratigraphic sections, identifying microfaunal content (conodonts & foraminifers), and biostratigraphic correlation of the western Apache Mountains to the Guadalupe Mountains. Faculty Mentors – Merlynd and Galina Nestell (nestell@uta.edu)
- Undergraduate research with the U.S. Geological Survey (summer 2004). Project involved hand-augering and logging drill-holes in the floodplain of the Missouri River valley in order to constrain paleo-river locations and dimensions. Faculty mentor John Holbrook (john.holbrook@tcu.edu)

PROFESSIONAL INVOLVEMENT

- AAPG (American Association of Petroleum Geologists)
 - 2014 Annual Convention and Exhibition
 - Oral session chair – “Turbidites and Contourites”; co-chairs E. Mutti and J. T. Eggenhuisen
 - Poster session chair, “Sedimentology, Architecture and Process Controls of Deepwater Siliciclastic Systems”; co-chairs: Bret Dixon and Michael Pyrcz
- AGU (American Geophysical Union)
 - 2016 Fall Meeting, session co-chair, “NAME OF SESSION”
 - 2014 Fall Meeting, poster session chair, “Sinuous Channels in Subaerial and Submarine Environments: Comparing Flow, Form, and Fill”, co-chairs Jacob Covault, Zoltan Sylvester, Nick Howes
 - 2012 Fall Meeting, oral and poster session chair, “Linking Geomorphology and Morphodynamics to Sediment Budgets, Sediment Caliber, and the Stratigraphic Record”; co-chair Jacob Covault
- GSA (Geological Society of America)
 - 2016 Annual Meeting, session chair, “Deep-Marine Sedimentary Environments: Linking Depositional Processes, Geomorphology, and the Sedimentary Record”; co-chairs Lauren Shumaker and Katie Coble

CONTINUING EDUCATION

- Summer of Applied Geophysical Experience (SAGE), Summer 2005, Santa Fe, New Mexico
- Petroskills “Introduction to Reservoir Engineering” – 5 days, 2011
- Shell internal training
 - Shell Graduate Program (2010-2013)
 - Field Course: Basins & Reservoirs, West Texas/New Mexico – 5 days
 - Field Course: Reservoirs & Rocks, Utah – 5 days
 - Geophysics Foundations (EP11) – 3 days
 - 3D Seismic Interpretation (Structural) – 5 days
 - 3D Seismic Interpretation (Stratigraphic) – 5 days
 - 3D Seismic Interpretation (Quantitative) – 5 days
 - Seismic and Sequence Stratigraphy – 5 days
 - Operations Geology – 5 days
 - Subsurface Structure and Mapping (GX170) – 5 days
 - Introduction to Integrated Reservoir Modeling (IIRM) – 3 days

- 3D Static Reservoir Modeling – 5 days
- Petroleum Systems (GX100) – 5 days
- Risk & Volumes – 2 days
- Play Based Exploration – 3 days
- Unconventionals – 1 day
- Subsurface Integration (G180) – 10 days
- Advanced Trap Analysis (5 days), 2010
- 3D Connectivity Factors and Dynamic Modelling – 5 days, 2011

COMMUNITY INVOLVEMENT

- Author of “off the shelf edge” geology blog <http://offtheshelfedge.wordpress.com/>, 2010-present
- Co-editor of the 2015 AAPG Centennial “Outcrops” atlas (to be released June 2015)
- Participant, 2014 NSF workshop, “Marine Seismic Data, Industry Collaborations”
- Organizer for nomination of Donald R. Lowe for the 2013 American Association of Petroleum Geologists Distinguished Educator award
- Organizer for nomination of Donald R. Lowe for the 2016 Society for Sedimentary Geology (SEPM) Twenhofel Award for outstanding contributions to sedimentology and sedimentary geology
- Developer and leader, Sedimentology Network, Shell, 2010-2013
- Sedimentary Research Group Coordinator, Stanford University 2008-2010

INVITED TALKS

- Invited talk, January 2017, Deep-water Depositional Systems: Advances and Applications (Geological Society of London)
- Invited talk, September 2016, Virginia Tech University (Brian Romans, Neal Auchter)
- Invited talk, June 2016, Chevron Houston (Zoltan Sylvester)
- Invited talk, June 2016, ExxonMobil Houston (Mauricio Perillo)
- Invited talk, April 2016, University of Texas / Bureau of Economic Geology (Jake Covault)
- Invited talk, April 2015, New Orleans Geological Society monthly meeting
- Invited talk, August 2014, Shell Young Explorers Conference
- Invited co-author of the book “52 Things You Should Know About Geology”, 2013
- Invited talk, October 2013, University of Texas at Arlington (Majie Fan)
- Invited participant and speaker, “Turbidity currents: current state of the art and future directions”, organized by Peter Talling, September 2013, Santa Sofia, Italy
- Keynote speaker, Pacific Section of the Society for Sedimentary Geology 2013 award ceremony for Donald R. Lowe
- Invited contributor for 3 articles in the 2009 Society of Sedimentary Geology (SEPM) Field Trip Guide #10, “Stratigraphic Evolution of Deep-Water Architecture: Examples on Controls and Depositional Styles from the Magallanes Basin, Chile”

RECOGNITIONS, AWARDS, GRANTS

- 2013 Shell Special Recognition Award for excellence in field-trip development and execution
- 2008 recipient of research assistantship at Stanford University through the Thomas D. and Janice H. Barrow Fellowship Fund (3 quarters of full tuition and stipend support)
- 2008 recipient of the AAPG Grants-in-Aid program
- 2007 recipient of research assistantship at Stanford University through the Krauskopf Family Trust Fund (3 quarters of full tuition and stipend support)
- 2007 recipient of the Lawrence W. Funkhouser Named Grant from the American Association of Petroleum Geologists (\$2,000)
- Shell Foundation grants (2006, 2007, 2008) for travel to conferences (\$1,000 each year)
- 2004 President’s award for Undergraduate Research at the University of Texas at Arlington
- UTA Honors College Residential Mentors Scholarship, 2003-2004 (\$3600)
- Fort Worth Geological Society annual geology scholarship, 2003 (\$750)
- J.D. Boone Scholarship for academic excellence in geology at UTA, 2003 (\$500)

- UTA Mineralogy Award for excellence in Mineralogy class, 2002 (\$200)

JOURNAL REVIEWS

- Basin Research (2013, 2015, 2015)
- Geology (2015)
- Geophysical Research Letters (2012)
- GeoSphere (2014, 2014)
- GSA Bulletin (2015)
- Journal of Sedimentary Research (2010, 2013, 2015)
- Marine and Petroleum Geology (2014, 2016)
- Quaternary Science Reviews (2015)
- Pilot funding for new research (Pfund), Louisiana Board of Regents (2015)
- Sedimentary Geology (2016)
- Sedimentology (2011)

PEER REVIEWED PUBLICATIONS

- Talling, P. J., Allin, J., Armitage, D. A., Arnott, R. W., Cartigny, M. J., Clare, M. A., Felletti, F., Covault, J.A., Girardclos, S., Hansen, E., Hill, P.R., Hiscott, R.N., Hogg, A.J., Clarke, J.H., Jobe, Z.R., Malgesini, G., Mozzato, A., Naruse, H., Parkinson, S., Peel, F.J., Piper, D.J.W., Pope, E., Postma, G., Rowley, P., Sguazzini, A., Stevenson, C.J., Sumner, E.J., Sylvester, Z., Watts, C., and Xu, J., 2015, Key Future Directions For Research On Turbidity Currents and Their Deposits. *Journal of Sedimentary Research*, 85(2), 153-169.
- Jackett, Sarah-Jane, Jobe, Z.R., Lutz, Brendan P., Da Gama, Rui O.B.P., Sylvester, Zoltan, Prince, Iain M., Albrecht, Heidi L., Prasad, Tushar, 2014, Detecting baffle mudstones using microfossils: An integrated working example from the Cardamom Field, Block 427 Garden Banks, Gulf of Mexico, *Palaeogeography, Palaeoclimatology, Palaeoecology*, doi: 10.1016/j.palaeo.2014.04.007
- Z Sylvester, C Pirmez, A Cantelli, Jobe, Z. R., 2013, Global (latitudinal) variation in submarine channel sinuosity: Comment. *Geology* 41 (5), e287-e287.
- A Bernhardt, Jobe, Z. R., M Grove, DR Lowe, 2012, Palaeogeography and diachronous infill of an ancient deep-marine foreland basin, Upper Cretaceous Cerro Toro Formation, Magallanes Basin. *Basin Research* 24 (3), 269-294.
- Jobe, Z. R., DR Lowe, WR Morris, 2012, Climbing-ripple successions in turbidite systems: depositional environments, sedimentation rates and accumulation times. *Sedimentology* 59 (3), 867-898.
- IA Kane, DT McGee, Jobe, Z. R., 2012, Halokinetic effects on submarine channel equilibrium profiles and implications for facies architecture: conceptual model illustrated with a case study from Magnolia Field, Gulf of Mexico. *Geological Society, London, Special Publications* 363, 289-302.
- Bernhardt, A., Jobe, Z.R., Lowe, D.R., 2011, Stratigraphic evolution of a submarine channel-lobe complex system in a narrow fairway within the Magallanes foreland basin, Cerro Toro Formation, southern Chile. *Marine and Petroleum Geology* 28 (3), 785-806
- Jobe, Z.R., Bernhardt, A., and Lowe, D.R., 2010, Facies and Architectural Asymmetry in a Conglomerate-Rich Submarine Channel Fill, Cerro Toro Formation, Sierra del Toro, Magallanes Basin, Chile. *Journal of Sedimentary Research* 80 (12), 1085-1108.
- Jobe, Z.R., Lowe, D.R., and Uchytel, S.J., 201, Two Fundamentally Different Types of Submarine Canyons Along the Continental Margin of Equatorial Guinea. *Marine and Petroleum Geology* 28 (3), 843-860.
- Jobe, Z.R., 2010, Multi-Scale Architectural Evolution and Flow Property Characterization of Channelized Turbidite Systems. Ph.D. thesis, Stanford University, 218 pp.
- Bernhardt, A., Jobe, Z.R., and Lowe, D.R., 2009, Pehoe Member: Lowermost Channel Complex, Silla Syncline, in Fildani, A., Hubbard, S.M., and Romans, B.R., eds.: *Stratigraphic Evolution of Deep-Water Architecture: Examples on controls and depositional styles from the Magallanes Basin, Chile*, SEPM Field Trip Guidebook No. 10 for SEPM Field Conference, Magallanes Basin, Chile, February 22-28, 2009, pp. 25-27.
- Jobe, Z. R., Bernhardt, A., Hubbard, S.M., and Lowe, D.R., 2009, Wildcat Channel Complex Axis-to-Margin Architecture, Sierra del Toro, in Fildani, A., Hubbard, S.M., and Romans, B.R., eds.: *Stratigraphic Evolution of Deep-Water Architecture: Examples on controls and depositional styles from the Magallanes Basin, Chile*, SEPM Field Trip Guidebook No. 10 for SEPM Field Conference, Magallanes Basin, Chile, February 22-28, 2009, pp. 35-37.
- Jobe, Z. R., Bernhardt, A., Fosdick, J.C., and Lowe, D.R., 2009, Cerro Toro Channel Margins on Sierra del Toro, in Fildani, A., Hubbard, S.M., and Romans, B.R., eds.: *Stratigraphic Evolution of Deep-Water Architecture: Examples on controls and depositional styles from the Magallanes Basin, Chile*, SEPM Field Trip Guidebook No. 10 for SEPM Field Conference, Magallanes Basin, Chile, February 22-28, 2009, pp. 31-33.
- Bernhardt, A., Jobe, Z.R., and Lowe, D.R., 2008, The evolution of an elongate foreland basin: the deep- to shallow-marine filling of the Cretaceous Magallanes Basin, Chile, in: K. Schofield, N.C. Rosen, D. Pfeiffer, S. Johnson, Editors, *Answering*

- the Challenges of Production from Deep-water Reservoirs, GCS-SEPM Foundation 28th Annual Bob F. Perkins Research Conference (2008), pp. 268-310.
- Holbrook, J., Kliem, G., Nzewunwah, C., Jobe, Z. R., and Goble, R., 2006, Surficial alluvium and topography of the Overton Bottoms North Unit, Big Muddy National Fish and Wildlife Refuge in the Missouri River Valley and its potential influence on environmental management, chap. 2 of Jacobson, R.B., ed., Science to support adaptive habitat management—Overton Bottoms North Unit, Big Muddy National Fish and Wildlife Refuge, Missouri: U.S. Geological Survey, Scientific Investigations Report 2006-5086, p. 17-31.
- Caster, J.L., Avdeev, B.C., Main, D.A., Jobe, Z.R., & Holbrook, J.M., 2005, Surficial material map of the Lexington East 7.5' Quadrangle, Ray County, Missouri: Missouri Division of Geology and Land Survey, Open-File Report, Scale 1:24000.
- Avdeev, B.C., Caster, J.L., Jobe, Z.R., Main, D.A. & Holbrook, J.M., 2005, Surficial material map of the Hardin 7.5' Quadrangle, Ray County, Missouri: Missouri Division of Geology and Land Survey, Open-File Report, Scale 1:24000.
- Main, D.A., Jobe, Z.R., Avdeev, B.C., Caster, J.L., & Holbrook, J.M., 2005, Surficial material map of the Norborne 7.5' Quadrangle, Carroll County, Missouri: Missouri Division of Geology and Land Survey, Open-File Report, Scale 1:24000.
- Jobe, Z. R., Main, D.A., Avdeev, B.C., Caster, J.L., & Holbrook, J.M., 2005, Surficial material map of the Dover 7.5' Quadrangle, Carroll County, Missouri: Missouri Division of Geology and Land Survey, Open-File Report, Scale 1:24000.
- Jobe, Z. R., 2004, Stratigraphy of the upper Bell Canyon Formation (Guadalupean Stage, Permian System), Seven Heart Gap, Apache Mountains, Trans-Pecos Texas, University of Texas at Arlington Honors College Special Collections.

CONFERENCE ABSTRACTS AND PRESENTATIONS

- Jobe, Z.R., Z Sylvester, C Pirmez, B. Prather, 2014, High resolution, millennial-scale patterns of bed compensation on a sand-rich submarine lobe, western Niger Delta Slope. AAPG Technical Program, Annual Convention, 2014.
- A Bernhardt, Jobe, Z.R., M Grove, DR Lowe, 2011, Paleogeography And Diachronous Infill Of An Ancient Deep-Marine Foreland Basin, Upper Cretaceous Cerro Toro Axial Channel, Magallanes Basin, Chile. AGU Fall Meeting Abstracts 0930.
- Jobe, Z.R., Z Sylvester, SA Abd El-Gawad, A Cantelli, C Pirmez, 2011, Sinuous slope channel evolution: insights from 3D high-resolution seismic data, piston coring, and numerical modeling of the western Niger Delta slope. AGU Fall Meeting Abstracts 0929.
- Jobe, Z.R., 2010, The Influence of Sediment Supply & Caliber on Submarine Canyon Morphology and Turbidity-Flow Character. AGU Fall Meeting Abstracts, 0630.
- Jobe, Z.R., Bernhardt, Z., and Lowe, D.R., 2010, Quantitative Architectural Analysis and Depositional Model of an Asymmetric Conglomerate-Rich Submarine Channel Fill, Cerro Toro Formation, Sierra del Toro, Magallanes Basin, Chile. AAPG Technical Program, Annual Convention, 2010.
- Jobe, Z.R. and Lowe, D.R., 2009, Pockmarks on the Modern Seafloor as Indicators of Submarine Canyon Abandonment, Offshore Equatorial Guinea, Pacific Section AAPG 2009 Annual Meeting: Modern Sea Floor and Quaternary Turbidite Systems in Honor of Bill Normark.
- Stright, L., and Jobe, Z.R., 2008, Analysis of Channel-Fill Architecture with Forward Seismic Modelling of the Wildcat Channel Complex, Sierra del Toro, Magallanes Basin, Chile, in SEPM Research Program Proceedings "Outcrops Revitalized: Tools, Techniques and Applications", Abstracts with Programs 2008, held in Kilkee, County Clare, Western Ireland.
- Jobe, Z.R., 2008, Tertiary Evolution of Upper Slope Canyons, Offshore Equatorial Guinea: Canyon Initiation, Growth and Abandonment via Knickpoint Migration, Joint meeting of the Geological Society of America abstracts with programs, 2008.
- Jobe, Z.R., Morris, W.R., Wickens, H.D., and Lowe, D.R., 2008, Thick successions of climbing-ripple and scour-fill deposits in overbank/off-axis deep-water environments: Tanqua Karoo, South Africa and Magnolia field, Gulf of Mexico, AAPG Technical Program, Annual Convention, San Antonio 2008.
- Bernhardt, Anne, Jobe, Z.R., and Lowe, D.R., 2007, Foreland Basin Axis Migration Documented by Deep-Water Conglomeratic Channel Deposits, Southern Chile, AAPG Technical Program, Annual Convention, Long Beach 2007.
- Jobe, Z.R. & Jim S. Hewlett, 2007, Neogene Evolution of a Confined Upper Slope Canyon System with Emphasis on Canyon Fill Architecture, Offshore Equatorial Guinea, AAPG Technical Program, Annual Convention, Long Beach 2007.
- Main, D.J., Holbrook, J., Jobe, Z.R., Avdeev, B., Caster, J., 2005, First record of late Pleistocene deposits from the Missouri river valley, Norborne quadrangle, MO, Geological Society of America annual meeting, Abstracts with programs, 2005.
- Jobe, Z.R., Kleim, G., & Holbrook, J.M., 2005, Using fluvial sedimentology to guide vegetation and shallow water habitat rehabilitation in the Big Muddy Fish and Wildlife Refuge, Missouri, GSA abstracts with programs, vol.31, no. 3.
- Jobe, Z.R., 2004, Microfauna of the upper Bell Canyon Formation (Permian), Univ. of Texas at Arlington ACES 2004 abstracts.