

PAUL E. BELANGER, Ph.D.

21946 Panorama Dr.

Golden, CO 80401

h. 303-526-7996; c. 303-249-7966

Email: PEBelanger@glassdesignresources.com

PROFESSIONAL EXPERIENCE

GEOLOGICAL EXPLORATION, RESEARCH AND TEACHING:

- Elk Resources, Inc.: San Juan Basin: Verde Field Development (inter-laminated silt-sand-shale fracture play), Dakota near-shore & fluvial exploration plays, and possible Paleozoic Algal Mound field extension; Uinta Basin: Cisco field development, Dakota-Morrison fluvial compartmentalization reservoir studies/controls; Bluebell fracture play (Green River/Wasatch); Mesaverde wildcat exploration and development
- Team work developing prospects in concessions held by Aspect Energy in Hungary's Pannonian Basin – Miocene gas plays that led to a discovery 2006
- Other field studies and play development: Rockies:
 - Greater Green River: pay analysis
 - Sandwash Basin: Evaluate/Develop Coal-bed Methane Plays
 - Uinta Basin: Cretaceous Ferron Coal-bed Methane Plays
 - Hanna Basin: Cretaceous Basin Centered Gas Plays
 - Powder River: Cretaceous Muddy Channel Play/Prospect and field extension
 - Big Horn: Assisted - Paleozoic Overthrust Play (Oil); Cretaceous Basin-centered Gas Play
 - Denver Basin and South Dakota: Biogenic Gas Plays
 - Mississippian Carbonates: Montana Pondera area
- Contributed to oil and gas discoveries and to understanding the depositional history, sequence stratigraphy and framework of the Columbus Basin, Trinidad by accurately predicting age, facies and reservoir. Worked as paleontologist and stable isotope geochemist in a team effort that also integrated other geological and geophysical information
- Field studies and play development: Michigan, Permian Basin, West Texas, Texas onshore/offshore Cenozoic Gulf of Mexico; offshore Louisiana
- Utilized graphic correlation software and state of the art techniques in industry and consulting to present paleontologic and isotopic data interpretations facilitating the visualization of faults, unconformities, changes of sedimentation rates and inter-well comparisons
- Other domestic and international experience: Venezuela, Gulf Coast, North Sea, Columbia, Myanmar
- Scientific researcher aboard the *JOIDES Resolution* (1995, Leg 161, Western Mediterranean) in a multinational Ocean Drilling Program focusing on changes in global climate with numerous presentations
- Published professional manuscripts and gave presentations at national meetings in geology, paleoceanography and stable isotope geochemistry; list available upon request
- National Research Council Post-doctoral fellowship: Continental Offshore Stratigraphic Test (C.O.S.T.) wells, Atlantic Margin
- Extensive background in biostratigraphy, facies analysis, sequence-stratigraphy
- Five years High School teaching and 2 years college teaching
- Lead Global warming Study group for Geologists in Denver area for the past 7 years:
<http://www.denverclimatestudygroup.com> and
<http://groups.yahoo.com/neo/groups/DenverClimateStudygroup/info>

COMPUTERS:

- Expert in Mapping/Log Analysis Software: GEOGRAPHIX; PETRA - specifically for log and hydrocarbon pay analysis, mapping and cross-section interpretations for Rocky Mountain oil and gas plays
- Prior experience with Neuralog, J-Log, and supportive presentation software (Adobe Illustrator & Photoshop, ArcGIS, MapInfo, Excel, PowerPoint, Access, GoLive, LiveMotion, InDesign, and Dreamweaver)
- Evaluated and utilized image capture programs and databases for paleontologic applications, and initiated a successful pilot program at Amoco, resulting in a savings of time and money

WORK HISTORY

Consultant: Geology and Regulatory, Kinder Morgan, CO2, LLC	2010-present
COGCC, State of Colorado Regulatory work – 6 month contract	2010
Elk Resources, Inc., Denver, CO Geologist, Oil and Gas Exploration - Rockies	2005-2009
Aspect Energy, LLC, Denver, CO Geologist, Oil and Gas Exploration - Hungary	2004-2005
Thomasson Partner Associates, Inc. Denver, CO: Consultant/Partner Geologist, Oil and Gas Exploration	2001-2004
Lake Travis ISD/Eanes ISD, Austin, TX: Science & Multimedia high school educator	1999-2001
Houston ISD: Lee & Madison High Schools, Houston, TX: Science high school educator	1996-1999
University of Oregon, Eugene, OR Research Associate, Ocean Drilling Program (ODP) post-cruise research and stable isotope geochemistry.	1995-1996
Oregon Museum of Science and Industry - Hancock Field Station Resident Paleontologist / Instructor	1995
Texas A&M Univ. / Ocean Drilling Program Foraminiferal paleontologist/Biostratigrapher-Stable Isotope Geochemist: ODP Leg 161	1995
University of Houston - Downtown branch - Houston, TX Adjunct Professor of Geology	1994-1995
Amoco Production Company, Houston, TX Paleontologist & Stable Isotope Geochemist (1991-1994) Systems Analyst/Geologist (1985-1991)	1985-1994
Arco Exploration Company, Houston, TX Biostratigrapher, developer computer systems/databases	1983-1985
Bridgewater St. College, Bridgewater, MA Visiting lecturer	1982-1983
Woods Hole Oceanographic Institution Visiting/Guest Investigator-Researcher	1982-1983

PROFESSIONAL ORGANIZATIONS

Geological Society of America	American Association of Petroleum Geologists
SEPM & RMS-SEPM	Rocky Mountain Association of Geologists
American Geological Institute	Colorado Scientific Society
Geothermal Resources Council	Western Interior Paleontological Society (Pres. 2010)

EDUCATION

Composite Science Teaching Certificate	University of Houston, Houston, TX	1998
Post-Doctoral Assoc./Nat. Res. Council	USGS/Woods Hole	1982
Ph.D., Geology	Brown University, Providence, RI	1981
M.S., Geology	Brown University, Providence, RI	1976
B.S., Geology	University of Washington, Seattle, WA	1974
A.S., Biology/Oceanography	Shoreline Community College, Seattle, WA	1972

Foreign Languages: French, fluent; Spanish, Intermediate

RESEARCH PUBLICATIONS AND PROFESSIONAL PRESENTATIONS

- Belanger, P.E., 1976. The effects of dredge spoil disposal on the benthic foraminifera of Rhode Island Sound. On file: EPA, Narragansett, and Department of Geological Services, Brown University, 164 pp.
- Belanger, P.E., 1977. Upper Cretaceous paleobathymetry of the C.O.S.T. B-2 well: comparison of fossil benthonic foraminiferal assemblage data to recent environmental zones. Union Oil Proprietary Manuscript.
- Belanger, P.E., 2005. Stable Isotopes: What They Can Tell Us About the Oceans and Atmosphere at Extinction Events. Western Interior Paleontological Society Founders Symposium: Extinctions: Punctuation in Time, March 12 and 13, 2005. Extended Abstract.
- Belanger, P.E., 2009. Summary and Transition: Past, Present and Future Climates. Western Interior Paleontological Society Founders Symposium: Paleoclimates: Exploring Ancient Environments, March 14 and 15th, 2009. Extended Abstract
- Belanger, P.E., 2013. Forcing agents affecting climate change. Western Interior Paleontological Society Founders Symposium 2013: Ice Worlds & Their Fossils, March 16 & 17, 2013. Extended Abstract.
- Belanger, P.E., and S.S. Streeter, 1977, Distribution and ecology of abyssal and bathyal benthonic foraminifera in the Norwegian-Greenland Sea. Presented at Annual Meetings Geological Society of America meeting, Seattle, WA; Abstract published in Abstracts and Programs, p.893-894.
- Belanger, P.E., 1981 Late Cenozoic paleo-oceanography of Norwegian-Greenland Sea and Northeast Atlantic: benthic foraminiferal evidence. Presented at American Association of Petroleum Geologist meeting in San Francisco, CA; Abstract published in Abstracts and Programs, v.65, p.898.
- Belanger, P.E., W.B. Curry, and R.K. Matthews, 1981. Core-top evaluation of benthic foraminiferal isotopic ratios for paleo-oceanographic interpretations. *Paleogeography, Paleoclimatology, Paleoecology*, v.33, p.205-220.
- Streeter, S.S., P.E. Belanger, T.B. Kellogg, and Jean Claude Duplessy, 1982. Late Pleistocene paleo-oceanography of the Norwegian-Greenland Sea: benthic foraminiferal evidence. *Quaternary Research*, v.18, p.72-90.
- Belanger, P.E., and R.K. Matthews, 1984. The foraminiferal isotopic record across the Eocene/Oligocene boundary at Site 540. In Buffler, R.R. and Schlager, W., et al., *Init. Repts. DSDP, 77: Washington (U.S. Govt. Printing Office)*. p.589-592.
- Belanger, P.E., and W.A. Berggren, 1986. Neogene benthonic foraminifera of the Hatton-Rockall Basin. *Micropaleontology*, v.324-356, pls. 1-7.
- Belanger, P.E., and B.O. Richardson, 1989, Demonstration of Project File concept for interfacing well-log applications to various needs of petroleum geologists. Presented at American Association of Petroleum Geologists annual meeting, San Antonio, TX; Abstract published in Abstracts and Programs, v.73/3, p.332-333.
- Belanger, P.E., Engelhardt-Moore, N.L., and Williams, D.F, 1993. Stable isotope stratigraphy, structural cross sections and the development of a Trinidad Composite Standard in the Columbus Basin, offshore Trinidad. Amoco Houston, WEBG - GTS Paleontology Group Report.

Belanger, P.; DiStefano, L.; Eggertson, B.; Engelhardt-Moore, N.; Kinslow, L.; Moffett, D.; Owusu, J.; Pocknall, D.; Spencer, L.; Staines, M.; 1993: Columbus Basin Study, Trinidad. Amoco Report #93187.

Belanger, P., 1994. The integrated role of stable isotopes (^{18}O & ^{13}C) in deconvolving shelf sequence stratigraphic processes: examples of paleoecologic and stratigraphic utility in deltaic sequences. Amoco Delta Conference, June, 1994.

Doose, H., Zahn, R., Bernasconi, S., Pika-Biolzi, M., Murat, A., Pierre, C., and Belanger, P.; 1998. In Scientific Results of the Proceedings of the Ocean Drilling Program, Volume 161 (Comas, M. and Zahn, R., eds.).

Henry, M., L. Wood, L. Spencer, P. Bentham, B. Lanan, K. Ortmann, D. Pocknall, N. Engelhardt-Moore, D. Pocknall, and P. Belanger, 1994. New Frontiers for exploration in a producing basin: Columbus Basin, Trinidad. Amoco Delta Conference, June, 1994.

Jones, Garry, P. Belanger, 1995, Stable Isotope Stratigraphy. In: AAPG Treatise Handbook of Petroleum Geology, Prospecting for Petroleum; the Search for Traps. E. A. Beaumont, ed.

Pierre, C., Belanger, P., Saliege, J.P., Urrutiaguer, M.J., and Murat, A.; 1998. In Scientific Results of the Proceedings of the Ocean Drilling Program, Volume 161 (Comas, M. and Zahn, R., eds.).

Scott R. W., S. Nissen, J. Combes, P. Belanger, 1993. Amoco Pleistocene Depositional Cycle Chart. Geoscience Research Note.

Thomasson, M.R., Belanger, P.E., Cook, L., 2004. US Rockies gas focus pints up need for access, risk takers, infrastructure. Oil and Gas Journal, v. 102.17 (May 3, 2004) p. 48-60.

Wood, L., M. Henry, B. Lanan, L. Spencer, P. Belanger, K. Ortmann, N. Engelhardt-Moore, D. Pocknall, and T. Romero, 1994. Sequence Stratigraphy in structurally complex areas: integration of multi-disciplinary data sets, Columbus Basin, Trinidad. Presented at American Association of Petroleum Geologists Annual Meeting, Denver, Colorado; Abstract published in Abstracts and Programs, v. 78, p.286

Several others for ODP Leg 161 paleoceanographic work.

DISSERTATION RESEARCH

Title: Late Cenozoic Benthic Foraminifera of the Norwegian-Greenland Sea, 1981. Ph.D. dissertation, Brown University, Providence, Rhode Island, 294pp.

Part a. Belanger, P.E., and S.S. Streeter, 1980, Distribution and Ecology of Benthic Foraminifera in the Norwegian-Greenland Sea, (thesis p. 1-30), Marine Micropaleontology, v.5, p.402-428

Part b. Belanger, P.E., 1982. Paleo-Oceanography of the Norwegian Sea During the Past 130,000 Years: Coccolithophorid and Foraminiferal Data, (thesis p. 30-67), Boreas, v.11, p.29-36.

Part c. Belanger P.E. Late Cenozoic Benthic Foraminifera of the Norwegian-Greenland Sea, DSDP Leg 38: Paleo-Oceanographic Implications, (thesis p.65-294).

POST-DOCTORAL RESEARCH PUBLICATIONS

Belanger P.E., Middle Eocene to late Oligocene paleo-oceanography: benthic foraminifera and the foraminiferal isotopic record from the Southeast U.S. Continental Margin. U.S.G.S. open file report, draft.