

## SCOTT P. COOPER

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### BIO

Scott Cooper is a geological consultant and partner at FractureStudies LLC. Scott is an expert on naturally fractured reservoir characterization issues in sandstones, carbonates and shales around the world from Alaska throughout the continental USA to Brazil, North Africa and Iraq. In 2020 and 2018 Scott and John Lorenz co-authored respectively *Applied Concepts in Fractured Reservoirs* and the *Atlas of Natural and Induced Fractures in Core*, both published by Wiley-Blackwell. Earlier in his career Scott was a Senior Member of the Technical Staff at Sandia National Laboratories (a U.S. Department of Energy research facility) where he worked on numerous government and industry-supported, energy-related research projects. Scott received a B.S. in geology from the South Dakota School of Mines and a M.S. in geology from the New Mexico Institute of Mining and Technology. His work involved characterization and modeling of natural fractures in oil reservoirs at Teapot Dome, a basement-cored anticline in central Wyoming. The database developed from that work continues to be used as a teaching tool in industry fracture-modeling programs. Detailed descriptions and links to projects, published papers, open-file reports, short courses, core workshops, fieldtrips, webinars and the companion textbooks are available at [www.fracturestudies.com](http://www.fracturestudies.com).

### EXPERIENCE

**Consulting Geologist: FractureStudies LLC and Cooper Geological Consulting LLC, 2008 – present:**

*Consultant*, expert geologic studies and reports related to fractures and permeability in reservoirs, coauthor of two books (see bio above), maintain website, provide field trips, classes and seminars for industry and academia including the South Dakota School of Mines Black Hills Natural Sciences Field Station. AAPG Certified Petroleum Geologist #6123.

**Geologist: Geophysical Technology Department, Sandia National Laboratories, United States**

**Department of Energy, 1999-2008:** *Senior Member Technical Staff (2005-2008), Member Technical Staff (2000-2005), Intern (1999-2000)*, Geologic studies of energy-related systems, natural fractures, geomechanics, reservoir characterization, and CO<sub>2</sub> sequestration; Principal Investigator on resource projects with University of Texas, Austin, The Bureau of Land Management, and the Southwest Regional CO<sub>2</sub> Partnership; team member and project manager, developed research proposals and program funding, wrote technical reports and scientific papers; provided technology-transfer seminars, presentations and field trips.

### EDUCATION

**Master of Science, 2000:** Geology, New Mexico Institute of Mining and Technology (NMIMT), Advisor: Dr. Goodwin; Thesis: “Deformation within a Basement-Cored Anticline: Teapot Dome, Wyoming”

**Bachelor of Science, 1997:** Geology, South Dakota School of Mines and Technology (SDSM&T), Advisor: Dr. Lisenbee; Senior Thesis: “Gas/Fluid Evolution and the Formation of Rhyolite Dike Associated Breccia Margins at Homestake Gold Mine, Lead, SD”

### PROFESSIONAL AFFILIATIONS

American Association of Petroleum Geologists, Rocky Mountain Association of Geologists, Wyoming Geological Association

### ADDITIONAL WORK EXPERIENCE

**Manager and Assistant Manager: 1979-1992:** Crystal Cave Park Inc., Trout Haven and Trout Haven Ranch, Rapid City, Deadwood and Buffalo Gap, SD, these three businesses operated under a universal business umbrella; hired and trained employees, scheduled work, purchasing, public relations, and tour guide; oversaw a restaurant, campground, gift shop, and country store. Trout hatchery and ranch work included raising Black Angus cattle, and hatching/raising/live transportation of over 1 million trout annually.

### BOOKS

Lorenz, J.C., and Cooper, S.P., 2020, *Applied Concepts in Fractured Reservoirs*, Wiley-Blackwell, 232 p.

Lorenz, J.C., and Cooper, S.P., 2018, *Atlas of Natural and Induced Fractures in Core*, Wiley-Blackwell, 328 p.

**SELECT PAPERS**

- Cooper, S.P., 2013, Natural fractures and strain accommodation in the Tensleep formation at Beer Mug Anticline, Carbon County, Wyoming, *in*, Knight, C., and Cuzella, J., eds., The Application of Structural Methods to Rocky Mountain Hydrocarbon Exploration and Development, American Association of Petroleum Geologists Studies in Geology 65, p. 139-156.
- Cooper, S.P., and Lorenz, J.C., 2010, Fracture Variability within the Tensleep Formation, Southeastern Wyoming *in* Fletcher, L., ed., Unconventional Energy Resources, 2010, Wyoming Geological Association Field Guidebook, p. 39-50.
- Cooper, S. P., Goodwin, L. B., and Lorenz, J. C., 2006, Fracture and fault patterns associated with basement-cored anticlines: The example of Teapot Dome, Wyoming: American Association of Petroleum Geologists Bulletin, v. 90, p. 1903-1920.
- Cooper, S.P., Hart, B., Lorenz, J.C., Goodwin, L.B., and Milliken, M., 2003, Outcrop and Seismic Analysis of Natural Fractures, Faults and Structure at Teapot Dome, Wyoming: *in*, Horn, M.S., ed., Wyoming Basins/Reversing the Decline, Wyoming Geological Society Field Guidebook 2002/2003, p. 63-74.
- Hart, B.S., and Cooper, S.P., 2021, Mechanical stratigraphy in Mesozoic rocks of the San Juan Basin: Integration of stratigraphic and structural terms and concepts; The Mountain Geologist, Rocky Mountain Association of Geologists, v. 58, n. 2, p. 159-204.
- Hart, B.S., Ralser, S., Cooper, S. P., Nikolaissen, K., Herrin, M., and Balch, R.S, 2001, Ute Dome I: Multidisciplinary integration defines Dakota reservoir compartment, *in*, Anderson, D., Coalson, E., Robinson, J., and Estes-Jackson, J., eds., Gas in the Rockies: Rocky Mountain Association of Geologists Guidebook, p. 309-322.
- Lorenz, J.C., and Cooper, S.P., 2021, Natural fractures and their relationship to structure, stress, and permeability in the Raton Basin; The Mountain Geologist, Rocky Mountain Association of Geologists, v. 58, n. 4, p. 375-410.
- Lorenz, J.C., and Cooper, S.P., 2013, Natural fracture patterns in folded Tensleep sandstone reservoirs, Wyoming, *in*, Knight, C., and Cuzella, J., The Application of Structural Methods to Rocky Mountain Hydrocarbon Exploration and Development, American Association of Petroleum Studies in Geology 65, p. 175-213.
- Lorenz, J.C., and Cooper, S.P., 2009, Extension-fracture patterns in sandstones above mobile salt: The Salt Valley Anticline, Arches National Park, Utah, *in*, Houston, W.S., Wray, L.L, and Moreland, P.G., eds., The Paradox Basin Revisited- New Developments in Petroleum Systems and Basin Analysis, Rocky Mountain Association of Geologists Special Publication, p. 198-220.
- Lorenz, J. C., and Cooper, S. P., and Olsson, W. A., 2006, Natural fracture distributions in sinuous, channel-fill sandstones of the Cedar Mountain Formation, Utah, American Association of Petroleum Geologists Bulletin, v. 90, p. 1293-1308.
- Lorenz, J.C., and Cooper, S.P., Tectonic setting and characteristics of natural fractures in Mesaverde and Dakota reservoirs of the San Juan Basin, 2003, New Mexico Geology, New Mexico Bureau of Geology and Mineral Resources, v. 25 n. 1, p. 3-14.
- Olsson, W.A., Lorenz, J.C., and Cooper, S.P., 2004, A mechanical model for multiply-oriented conjugate deformation bands, Journal of Structural Geology, v. 26, p. 325-338.
- Rotzien, J., Sincavage, R., Pellowski, C., Gavillot, Y., Filkorn, H., Cooper, S., Shannon, J., Yildiz, U., Sawyer, F., Uzunlar, N., 2021, Field Based Geoscience Education during the COVID-19 Pandemic: Planning, Execution, Outcomes, and Forecasts. GSA Today, v. 31, p. 4-10.
- Westrich, H.R., Lorenz, J.C., Cooper, S.P., Jove Colon, C., Warpinski, N., Zhang, D., Bradley, C., Lichtner, P., Pawar, R., Stubbs, B., Grigg, R., Svec, R., Byrer, C., 2002, Sequestration of CO<sub>2</sub> in a Depleted Oil Reservoir, An Overview, Journal of Energy and Environmental Research, v. 2, No. 1, p. 64-74.

**Additional publications available upon request and at [www.fracturestudies.com](http://www.fracturestudies.com)**