



**Email**  
 bmcpherson@egi.utah.edu

**Phone**  
 801-585-7961

### **Research Interests**

- Basin Modeling
- Geological Carbon Sequestration
- Geothermal Systems
- CO<sub>2</sub> Enhanced Geothermal Systems
- Induced Seismicity Associated With Injection

**EMAIL:**  
 ContactEGI@egi.utah.edu

**PHONE:** (801) 585-3826

## **Brian J. McPherson, PhD**

### **USTAR PROFESSOR**

#### **CO<sub>2</sub> GROUP: CARBON SEQUESTRATION, EOR, BASIN MODELING**

Dr. McPherson was recently promoted to full Professor rank in 2013, and his official title is USTAR Professor of Civil and Environmental Engineering at the University of Utah. He earned M.S. and Ph.D. degrees in Geophysics from the University of Utah and a B.Sc. in Geophysics from the University of Oklahoma.

Dr. McPherson's research and teaching experience includes multiple areas, all related by a common thread: fluid flow. He began his academic career as an undergraduate with a senior thesis on apatite fission-track annealing models. As a new graduate student, his first project was basic analysis of a small geothermal system in the Escalante Desert of southern Utah, followed by focused research on heat flow analysis of the Powder River basin for his M.S. His doctoral work included development of a numerical sedimentary basin evolution model using Utah's Uinta basin as a case study. The model includes 3-D basin formation (sedimentation, uplift, erosion) with coupled thermal effects, oil generation and migration, and associated overpressure analysis. As a post-doctoral scholar at Johns Hopkins University, he extended the overpressure analysis to include poroelastic impacts with the Sacramento basin of California as a case study.

He has published more than 45 papers and book chapters.

#### **Professional Research Interests & Expertise**

Since 1997, Dr. McPherson has conducted carbon management and engineering research, with particular attention to geological sequestration studies. His research has also included other modes of carbon management as well, such as biomimetic and other approaches. His technical focus areas include groundwater and reservoir simulation, multi phase flow analysis and simulation, rock deformation, and subsurface chemically reactive transport analysis and simulation. Dr. McPherson continues to pursue additional research in coupled heat and fluid processes in sedimentary basins and geothermal systems, and petroleum generation and migration processes.

#### **Leadership Activities & Project Management**

Dr. McPherson formed the Southwest Partnership project in 2003, one of seven regional partnerships funded by the U.S. Department of Energy to evaluate the science and technology of storage of atmospheric carbon in underground geological formations and in surface soil and vegetation. In 2012, the project was selected by the Department of Energy's National Energy Technology Laboratory (NETL) to proceed with a deployment phase, which will involve injection of at least 1,000,000 tons of CO<sub>2</sub> into a deep geological formation in the Anadarko Basin in northern Texas. The deployment phase will assess the efficacy of large-scale geological CO<sub>2</sub> storage and evaluate this as an approach for reduction of greenhouse gases in the atmosphere. This project and grant involves approximately \$6,500,000 in funding for the University of Utah. More information about the project is available at <http://southwestcarbonpartnership.org> and <http://CO2.egi.utah.edu>.