

Risk Management Practices for Geologic Carbon Storage and Induced Seismicity

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Geologic carbon storage (GCS) is widely recognized as an important strategy to reduce atmospheric carbon dioxide emissions. Like all technologies, however, sequestration projects create potential environmental and safety hazards that must be addressed. These can include earthquakes—from microseismicity to large events—triggered by altering pore-pressure conditions in the subsurface. To date, measured seismicity due to CO₂ injection has been limited to a few modest events, but the hazard exists and must be considered. This presentation will focus on strategies for assessing and mitigating seismic risk, with a key emphasis on maintaining public trust in GCS. We will also highlight research avenues which could have a substantial impact on this subsurface engineering challenge.

Biography: Joshua White is a research scientist at Lawrence Livermore National Laboratory. His research focuses on integrating high performance computing with geophysical monitoring to improve our understanding of complex geologic systems. He is the author of more than 40 publications on topics such as geologic carbon storage, underground hydrogen storage, and induced seismicity. He received a B.S.E. in Civil and Environmental Engineering from Princeton University in 2004, and a M.S. and Ph.D. in Civil and Environmental Engineering from Stanford University in 2009. He served as the Induced Seismicity Working Group Lead for the U.S. Department of Energy's National Risk Assessment Partnership from 2013 to 2021.