

## Derek Elsworth

Professor, Energy and Mineral Engineering, Geosciences, Civil Engineering  
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## Professional Preparation/Education

Portsmouth Polytechnic, Portsmouth, UK, Engineering Geology, B.Sc. (1979)  
Imperial College, London, UK, Engineering Rock Mechanics, M.Sc., DIC (1980)  
University of California, Berkeley, Engineering, Ph.D. (1984)

## Appointments/Professional Experience:

1997 - Pres. Professor, Energy and Mineral Engineering, Pennsylvania State University.  
2000 - 2003 Associate Dean for Research, College of Earth & Mineral Sciences, Penn State  
1991 - 1997 Associate Professor, Mineral Engineering, Pennsylvania State University.  
1985 - 1991 Assistant Professor, Mineral Engineering, Pennsylvania State University.  
1990 - 1993 Adjunct Professor, Earth Sciences and WCGR, University of Waterloo.  
1984 - 1984 Visiting Assistant Professor, Civil Engineering, University of Toronto.  
1984 Research Associate, Lawrence Berkeley Laboratory.  
1980 - 1982 Engineer D.R. Piteau and Assoc., and Komex Consultants. Calgary, Canada.

## Bibliography – Derek Elsworth - [<http://www.ems.psu.edu/~elsworth/publications/pubs.html>]

Derek Elsworth: ~410 publications in refereed journals, 4 Highly-cited (WoS). One co-authored book, seven co-edited journal editions. *Google Scholar*: 18,300, h-Index: 74, i10: 300. <https://goo.gl/VQrerh>

Online Educational Channel >620k views >5k subscribers - <https://goo.gl/uQZ2Bu>

Bai, M. and Elsworth, D. (2000) *Coupled Processes in Subsurface Deformation, Flow and Transport*. ASCE Press. 336 pp.

## Representative Publications

Im, K., Avouac, J.-P., Heimisson, E.R., Elsworth, D. (2021) Ridgecrest aftershocks at Coso suppressed by thermal destressing. *Nature*. Vol. 595 pp. 70-74. <https://doi.org/10.1038/s41586-021-03601-4>  
<https://rdcu.be/cnuGU>

Li, Z., Elsworth, D., Wang, C., EGS-Collab (2021) Constraining maximum event magnitude during injection-triggered seismicity. *Nat. Commun.* 12:1528. <https://doi.org/10.1038/s41467-020-20700-4>

Elsworth, D., Spiers, C.J., Niemeijer, A.R. (2016) Understanding induced seismicity. *Science* 354 (6318) pp. 1380–1381. <http://dx.doi.org/10.1126/science.aal2584>

Guglielmi, Y., Cappa, F., Avouac, J.-P., Henry, P., Elsworth, D. (2015) Seismicity triggered by fluid-injection-induced aseismic slip. *Science*. Vol. 348, pp. 1224-1226. <http://dx.doi.org/10.1126/science.aab0476>

Manga, M., Beresnev, I., Brodsky, E.E., Elkhoury, J.E., Elsworth, D., Ingebritsen, S.E., Mays, D.C., Wang, C.Y. (2012) Changes in permeability caused by transient stresses: field observations, experiments and mechanisms. *Rev. Geophys.*, Vol. 50, No. 2, RG2004  
<http://dx.doi.org/10.1029/2011RG000382>

Taron, J. and Elsworth, D. (2009) Thermal-hydrologic-mechanical-chemical processes in the evolution of engineered geothermal reservoirs. *Int. J. R. Mechs.* Vol. 46, pp. 855-864.  
<https://doi.org/10.1016/j.ijrmms.2009.01.007>

- Elsworth, D., Mattioli, G.S., Taron, J., Voight, B., Herd, R. (2008) Implications of magma transfer between multiple reservoirs on eruption cycling. *Science*. Vol. 322, pp. 246-248. <http://dx.doi.org/10.1126/science.1161297>
- Zhang, H.B., Liu, J., and Elsworth, D. (2008) How sorption-induced matrix deformation affects gas flow in coal seams: a new FE model. *Int. J. R. Mechs*. Vol. 45, No. 8, pp. 1226-1236. <http://dx.doi.org/10.1016/j.ijrmmms.2007.11.007>
- Elsworth, D. and Voight, B. (1995) Dike intrusion as a trigger for large earthquakes and the failure of volcano flanks. *J. Geophys. Res.*, Vol. 100, No. B4, April, pp. 6005-6024. <https://doi.org/10.1029/94JB02884>
- Bai, M. and Elsworth, D. (1993) Multi-porosity/multi-permeability approach to the simulation of naturally fractured reservoirs. *Water Resour. Res.*, Vol. 29, No. 6, pp. 1621 - 1633. <https://doi.org/10.1029/92WR02746>

## Synergistic Activities

### *Recent Keynotes*

[2021] Int. Conf. on Mining, AUST; Summit on Peak Emission and Carbon Neutrality, CUG, Wuhan; Int. Workshop on Underground Oil/Gas Storage, NEU; Int. Conf. Ground Control, Qingdao; GeoMEast, Cairo. [postponed]. [2020] *Three*; [2019] *Ten*; [2018] *Six*; [2017] *Four*; [2016] *Five*; [2015] *Four*.

### *Recently Convened Meetings:*

Co-Convener, *Workshop on Underground Oil/Gas Storage*, NEU-Shenyang-Hybrid, China, 2021.  
 Co-Convener, *6<sup>th</sup> Unconventional Geomechanics Symposium*, CUMT-Beijing, China. 2019.  
 Co-Convener, *4<sup>th</sup> Unconventional Geomechanics Symposium*, Shenyang, China. 2017.  
 Convener ARMA-AAPG-SedHeat Workshop on “*Sedimentary Geothermal Systems*.” June 2016.  
 Co-Convener Penrose Conference on “*Geothermal Fluids in Deep Sedimentary Basins*.” October 2013.

### *Recent Advisory Activities:*

Sanford Underground Lab – Scientific Program Advisory Committee (2021-) for the \$3B Project  
 Stanford University – DOE - Energy Frontiers Research Center, External Advisory Board (2018-).  
 China Jinping International Physics Laboratory, International Advisory Committee (2016-).  
 National Academy (NASSEM) Committee on Geological and Geotechnical Engineering (2016-2018).  
 President, ARMA Foundation (2014-2021).  
 ARMA, Chair of Fellows (2011-2018).  
 Mine Safety and Health Research Advisory Committee, DHHS (2011-2013).

### *Editorships*

Co-Editor-in-Chief, *Geomechanics and Geophysics for GeoEnergy and GeoResources* (Springer),  
 Vice-Editor-in-Chief, *Rock Mechanics and Geotechnical Engineering* (Elsevier)  
 Editorial Board Member/Associate Editor: *J. Volc. and Geotherm. Res. (2011-2018)*, *Int. J. Geomechs.*, *J. Geotech. & Geoenv. Eng.*, *Engineering (CAE official journal)*, *J. Nat. Gas Sci. and Eng.*, *J. Pet. Sci. and Eng.*, *Int. J. Coal Sci. and Tech.*.

### *Honorary Appointments:*

2019 – Adjunct Professor, Shandong University, Jinan, China  
 2018 – Visiting Professor, IROAST, Kumamoto University, Japan  
 2018 – Adjunct Professor, China University of Mining and Technology, Beijing  
 2017 – Adjunct Professor, Henan Polytechnic University, Jiazhou, China  
 2016 Darcy Professor, Utrecht University, Netherlands  
 2016 – 2023 Adjunct Professor, Northeastern University, Shenyang, China  
 2014 – 2020 Adjunct Professor, Chinese Academy of Sciences, Wuhan, China