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## Professor Joe Cartwright

Shell Professor of Earth Sciences

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### Research Profile

My research interests are in understanding process linkages between depositional, diagenetic and deformational processes in sedimentary basins. I have primarily used seismic data for this purpose, and have built laboratories at Imperial College, London and Cardiff prior to coming to Oxford to lead the Shell Geoscience Laboratory. I am particularly interested in developing quantitative methods in 3D seismic interpretation to gain a better understanding of basin shaping and filling processes. I am a PI in the major collaborative research programme between Oxford and Shell. Current projects include: the development of natural fractures in mudrocks, controls on the development of unconventional hydrocarbon resources, geological sequestration of carbon dioxide, the propagation of tectonic faults, the genesis of polygonal fault systems, the mechanics of sandstone and igneous intrusions, the genesis of giant submarine landslides, mechanisms and controls on highly focused fluid venting, the seismic characterisation of mudrocks as seals, and the seismic analysis of diagenetic reactions.

### Teaching Profile

3<sup>rd</sup> Year: Earth Resources  
Field Courses:  
1<sup>st</sup> year; Pembrokeshire  
2<sup>nd</sup> year: Dorset  
3<sup>rd</sup> year: Spain

### Selected Publications

- Hohbein, M, Sexton, P, Cartwright, J.A. 2012. Onset of North Atlantic Deep Water production coincident with inception of the Cenozoic global cooling trend. *Geology*, 40, 255-258. doi: [10.1130/G32461.1](https://doi.org/10.1130/G32461.1)
- Cartwright, J.A. 2011. Diagenetically induced shear failure of fine grained sediments and the genesis of polygonal fault systems. *Marine and Petroleum Geology*. 28, 1593-1610. doi: [10.1016/j.marpetgeo.2011.06.004](https://doi.org/10.1016/j.marpetgeo.2011.06.004)
- Moss, J, and Cartwright, J.A. 2010. 3D seismic expression of Km-scale fluid escape pipes from offshore Namibia. *Basin Research*, 22, 481-501. doi: [10.1111/j.1365-2117.2010.00461.x](https://doi.org/10.1111/j.1365-2117.2010.00461.x)
- Miles, A., and Cartwright J.A. 2010. Hybrid flow sills: A new mode of igneous sheet intrusion. *Geology*, 38; no. 4; p. 343-346; doi: [10.1130/G30414.1](https://doi.org/10.1130/G30414.1)

- Cartwright, J.A. 2010. Regionally extensive emplacement of sandstone intrusions: a brief review. *Basin Research*, 22, 502-516; doi: [10.1111/j.1365-2117.2009.00455.x](https://doi.org/10.1111/j.1365-2117.2009.00455.x)
- Shin, H., Santamarina, J.C and Cartwright, J.A. 2010. Displacement field in contraction-driven faults. *Journal of Geophysical Research*, 115, B07408, doi: [10.1029/2009JB006572](https://doi.org/10.1029/2009JB006572)
- Bull, S., Cartwright, J.A. and Huuse, M. 2009. A review of kinematic indicators from mass transport complexes using 3D seismic data. *Marine and Petroleum Geology*, 26, 1132-1151; doi: [10.1016/j.marpetgeo.2008.09.011](https://doi.org/10.1016/j.marpetgeo.2008.09.011)
- Clark, I. and Cartwright, J.A. 2009. Interactions between submarine channel systems and deformation in deepwater fold belts: Examples from the Levant Basin, Eastern Mediterranean sea. *Marine and Petroleum Geology*, 26, 1466-1482; doi: [10.1016/j.marpetgeo.2009.05.004](https://doi.org/10.1016/j.marpetgeo.2009.05.004)
- Cartwright, J.A. and Jackson, M.P.A. 2008. Initiation of gravitational collapse of an evaporite basin margin: The Messinian saline giant, Levant Basin, eastern Mediterranean. *Bulletin of the Geological Society of America*, 120, 399-413; doi: [10.1130/B26081X.1](https://doi.org/10.1130/B26081X.1)
- Cartwright, J.A., Huuse, M., James, D.M.D., Vetel, W. and Hurst, A. 2008. The geometry and emplacement of conical sandstone intrusions. *Journal of Structural Geology*, 30, 854-868; doi: [10.1016/j.jsg.2008.03.012](https://doi.org/10.1016/j.jsg.2008.03.012)
- Shin, H., Santamarina, C., and Cartwright, J.A. 2008. Contraction-driven shear failure in compacting uncemented sediments. *Geology*, 36, 931-934; doi: [10.1130/G24951A.1](https://doi.org/10.1130/G24951A.1)
- Cartwright, J.A. 2007, Bicentennial Review: The impact of 3D seismic data on the understanding of compaction, fluid flow and diagenesis in sedimentary basins. *Journal of the Geological Society of London*, 164, 881-893; doi: [10.1144/0016-76492006-143](https://doi.org/10.1144/0016-76492006-143)
- Cartwright, J.A., Huuse, M., and Aplin, A. 2007. Seal bypass systems. *AAPG Bulletin*, 91, 1141-1166; doi: [10.1306/04090705181](https://doi.org/10.1306/04090705181)

## Other Information

Contributor to the [Shell-Oxford Research Collaboration](#)