Ross Parnell–Turner

Assistant Professor

Institute of Geophysics & Planetary Physics
Scripps Institution of Oceanography
La Jolla, CA 92093, USA

Email: rparnellturner@ucsd.edu
Cell: +1 (508) 524 9119
Nationality: US Citizen

Research Interests

My research in marine geophysics addresses the origins and evolution of the lithosphere, examining interactions between magmatism, faulting, and hydrothermal processes at mid-ocean ridges. I use techniques including earthquake seismology, reflection seismic imaging, data from submersible robots and geophysical modeling.

Education

2010–2014 **PhD, Geophysics, University of Cambridge, UK**
Advisors: Nicky White and John Maclennan

2002–2006 **MESc (First Class Honors), Earth Sciences, University of Oxford, UK**
Advisor: Tony Watts

Employment History

2018–present **Assistant Professor, Scripps Institution of Oceanography, USA**

2015–2018 **Postdoctoral Investigator, Woods Hole Oceanographic Institution, USA**
Advisor: Rob Sohn

2014-2015 **Postdoctoral Research Associate, University of Cambridge, UK**
Advisor: Nicky White

2006-2010 **Geoscientist, BP Exploration**
Exploration projects in North Sea, Trinidad & Tobago, and Algeria.

Publications

Parnell-Turner, R., Sim, S. J., and Olive, J.-A. (2020). Time-dependent crustal accretion on the Southeast Indian Ridge revealed by Malaysia Airlines MH370 search, *Geophysical Research Letters*, doi:10.1029/2020GL087349

Hoggard, M. J., **R. Parnell-Turner**, and N. J. White (2020). Hotspots and Mantle Plumes Revisited: Reconciling the Mantle Heat Transfer Discrepancy, *Earth and Planetary Science Letters*, doi.org/10.1016/j.epsl.2020.116317.

Smith, D. K., H. Schouten, **R. Parnell-Turner**, E. M. Klein, J. Cann, C. Dunham, G. Alodia, I. Blasco, B. Wernette, D. Zawadzki, E. Latypova, S. Afshar, and S. Curry (2020). The Evolution of Seafloor Spreading Behind the Tip of the Westward Propagating Cocos-Nazca Spreading Center, *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2020GC008957.

Olive, J.-A., **Parnell-Turner, R.**, Escartín, J., Smith, D.K., and Petersen, S. (2019). Controls on the seafloor exposure of detachment fault surfaces, *Earth and Planetary Science Letters*, 506, 381–387.

Parnell-Turner, R., E. Mittelstaedt, M. D. Kurz, F. Klein, S. A. Soule, M. Jones, D. Fornari and V. D. Wanless (2018). The Final Stages of Slip and Volcanism on an Oceanic Detachment Fault at 13°48'N, Mid-Atlantic Ridge, *Geochemistry, Geophysics, Geosystems*, 19, doi:10.1029/2018GC007536.

Parnell-Turner, R., J. Escartín, J-A. Olive, D. Smith and S. Petersen (2018). Genesis of corrugated fault surfaces by strain localization recorded at oceanic detachments, *Earth and Planetary Science Letters*, 498, 116–128.

Parnell-Turner, R., Sohn, R.A., Peirce, C., Reston, T.J., Macleod, C.J., Searle, R.C. and Simaõ, N.M. (2017). Oceanic Detachment Faults Generate Compression in Extension, *Geology*, 45, 923–926.

Parnell-Turner, R., N. J. White, T. J. Henstock, S. M. Jones, J. Maclennan and B. J. Murton (2017). Causes and Consequences of Diachronous V-Shaped Ridges in the North Atlantic Ocean, *Journal of Geophysical Research - Solid Earth*, doi:10.1002/2017JB014225.

Craig, T. J. and **R. Parnell-Turner** (2017). Depth-varying seismogenesis on an oceanic detachment fault at 13°20'N on the Mid-Atlantic Ridge, *Earth and Planetary Science Letters*, 479, 60–70.

Parnell-Turner, R., H. Schouten and D. K. Smith (2016). Tectonic Structure of the Mid-Atlantic Ridge near 16°30'N, *Geochemistry, Geophysics, Geosystems*, doi: 10.1002/2016GC006514.

Parnell-Turner, R., White, N.J., McCave, I. N., Henstock, T.J., Murton, B. J., and Jones, S.M (2015). Architecture of North Atlantic contourite drifts controlled by the Iceland mantle plume. *Geochemistry, Geophysics, Geosystems*, 16, 3414–3435, doi: 10.1002/2015GC005947.

Parnell-Turner, R., N. White, T. Henstock, B. Murton, J. Maclennan and S. Jones (2014). A continuous 55-million-year record of transient mantle plume activity, *Nature Geoscience*, 7, 914–919.

Parnell-Turner, R., J. R. Cann, D. K. Smith, H. Schouten, D. Yoerger, C. Palmiotto, A. Zheleznov, and H. Bai (2014). Sedimentation Rates Test Models of Oceanic Detachment Faulting, *Geophysical Research Letters*, 41(20) 7080–7088.

Smith, D. K, H. Schouten, H. Dick, J. Cann, V. Salters, H. Marschall, F. Ji, D. Yoerger, A. Sanfilippo, **R. Parnell-Turner**, C. Palmiotto, A. Zheleznov, H. Bai, W. Junkin, B. Urann, S. Dick, M. Sulanowska, P. Lemmond, S. Curry (2014). Development and evolution of detachment faulting along 50 km of the MAR near 16.5°N, *Geochemistry, Geophysics, Geosystems*, doi: 10.1002/2014GC005563.

Parnell-Turner, R., White, N.J., Maclennan, J., Henstock, T.J., Jones, S.M. and Murton, B.J. (2013). Crustal manifestations of a hot transient pulse at 60°N beneath the Mid-Atlantic Ridge. *Earth and Planetary Science Letters* 363, 109–120.

Research Funding

2020-2023	NSF OCE-1948936: 'Monitoring hydrothermal fluids at the East Pacfic Rise' (PI): $202,417
2018-2019	NSF OCE-1754419: 'Sediment Imaging with AUVs' (PI): $98,930
2017-2019	NSF OCE-1736547: 'Along-Axis Continuity of Detachment Faults' (PI): $95,378

Selected Awards

2018	Legler Benbough Foundation Career Development Award, Scripps Inst. of Oceanography
2013	Best Talk, British Geophysical Association Post-Graduate Research Meeting
2012	Outstanding Student Paper Award, AGU Fall Meeting (Study of Earth's Deep Interior)
2011	Outstanding Student Paper Award, AGU Fall Meeting (Tectonophysics)
2005	Mineralogy Society Prize, University of Oxford
2004	Open Academic Scholarship, St Edmund Hall, University of Oxford

Field Experience

2018 Co-Chief Scientist, cruise AT42-06, RV *Atlantis*, East Pacific Rise, 9°50'N. Seafloor and water column mapping with AUV *Sentry* and HOV *Alvin*.

2018 Scientific observer, HOV *Alvin* dive 5003, Coral seamount (depth 2890 m); 8°50'N Eastern Pacific ocean.

2013 Shipboard scientist, cruise KN210-05, RV *Knorr*, Mid-Atlantic Ridge, 16°N. PI D. Smith
Seafloor imaging using using AUV *Sentry*, towed magnetic survey and rock sample dredging

2012 Shipboard scientist, cruise AT21-03, RV *Atlantis*, Equatorial Mid-Atlantic Ridge. PI D. Smith
Deployment of autonomous hydrophone array and seafloor mapping

2010 Shipboard scientist, cruise JC50, RRS *James Cook*, Irminger Sea, Atlantic Ocean. PI N. White
Multichannel seismic reflection imaging and bathymetric data acquisition

2009 Staff geologist, *Transocean Rather*. Faroe-Shetland Basin, Atlantic Ocean
Geological representative for BP on semi-submersible rig drilling deep water commercial well.

2007 Field geophysicist, Algeria. Illizi Basin, Eastern Sahara desert
Technical representative for BP during onshore 3D seismic reflection experiment

Synergistic Activities

Meetings and Workshops

2019 Workshop co-convener, *Instituting US Scientific Ocean Drilling beyond 2023*, Denver, CO.

2017 Session co-convener, AGU Fall Meeting: T32C: *'Shaping Seafloor with Faults, Magma, and Fluids'*

2016 Session co-convener, AGU Fall Meeting: DI43B: *'Observations and Predictions of Dynamic Topography'*

Review Activities

Manuscript reviewer for *Earth and Planetary Science Letters; Geology; Geochemistry, Geophysics, Geosystems; Special Publications, Geol. Soc. London; Deep-Sea Research, Journal of Geol. Soc. London; Computers and Geosciences; Earth and Space Science;* and *Marine Geology*.

Reviewer for National Science Foundation (NSF), Natural Environmental Research Council (NERC), and German Research Foundation (DFG) proposals.

Collaborative Projects

Co-Chief Scientist, IODP Expedition 395 *'Reykjanes Mantle and Climate'* (postponed, to be rescheduled)
Data lead for IODP Proposal 771 *'Iberian Margin Paleoclimate'* (awaiting scheduling)

Service: University of California, San Diego

Admissions chair, Geophysics graduate program (2019–present)

Member, Scripps Institution of Oceanography Diversity Admissions Committee (2018–present)

Service: External

Member, OBS Instrument Center Operations Subcommittee (2019–present)

Member, International Ocean Discovery (IODP) Science Evaluation Panel (2018–present)

Co-Author, 2050 Framework for Scientific Ocean Drilling (2019–present)

Professional Affiliations

Member, American Geophysical Union; Fellow, Royal Astronomical Society; Member, Petroleum Exploration Society