

# Shunguo Wang

## Postdoctoral Scholar

Institute of Geophysics and Planetary Physics  
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## Employment

2018 - **Green Scholar (postdoc)**, Scripps Institution of Oceanography  
2019 **Lecturer**, Scripps Institution of Oceanography  
2018 **Visiting postdoc**, Memorial University of Newfoundland  
Collaborators: Colin G. Farquharson, Hormoz Jahandari  
2014, 2016 **EM geophysicist**, Geological Survey of Sweden  
Collaborators: Mehrdad Bastani, Lena Persson

## Education

2013 - 2017 **Ph.D.**, Solid-Earth Geophysics, Uppsala University  
Advisors: Mehrdad Bastani, Thomas Kalscheuer, Alireza Malehmir, Laust Pedersen  
2017 **Visiting graduate**, Scripps Institution of Oceanography  
Host: Steven Constable  
2016 **Visiting graduate**, Leicester University  
Host: Max Moorkamp  
2012 - 2013 **Ph.D. candidate**, Applied Geophysics, Central South University  
Advisor: Shikun Dai  
2009 - 2012 **M.S.**, Applied Geophysics, Central South University  
Advisors: Bin Xiong, Jishan He  
2011 **Master exchange program**, Guilin University of Technology  
2005 - 2009 **B.S.**, Applied Geophysics, Central South University

## Publications

- [19] **Wang, S.**, Constable, S., Rychert C.A., Harmon N., 2019. A lithosphere-asthenosphere boundary and partial melt resolved using marine magnetotelluric data. *To be submitted*
- [18] **Wang, S.**, Constable, S., Reyes-Ortega, V., Jahandari, H., Farquharson, C., Avilés-Esquivel, T., 2019. Two-dimensional determinant inversion of marine magnetotelluric data and a field example from the Gulf of California, Mexico. *In revision*
- [17] Rychert C.A., Harmon N., Kendall J.M., Constable S., Tharimena S., **Wang S.**, Bogiatzis P., Schlaphorst D., Agius M., Hicks S., 2019. A dynamic lithosphere-asthenosphere boundary dictated by variations in melt generation and migration. *In revision*
- [16] **Wang, S.**, Constable, S., Reyes-Ortega, V., Rychert, C.A., 2019. A marine magnetotelluric coast effect sensitive to the lithosphere-asthenosphere boundary. *Geophys. J. Int.*, **218**(2), 978-987. DOI:10.1093/gji/ggz202

- [15] **Wang, S.**, Bastani, M., Constable, S., Kalscheuer, T., Malehmir, A., 2019. Using boat-towed radio-magnetotelluric and controlled-source audio-magnetotelluric data to resolve fracture zones at Äspö Hard Rock Laboratory site, Sweden. *Geophys. J. Int.*, **218**(2), 1008-1031. DOI:10.1093/gji/ggz162
- [14] Dai, S., Zhao, D., **Wang, S.**, Xiong, B., Zhang, Q., Li, K., Chen, L., Chen, Q., 2019. Three-dimensional numerical modeling of gravity and magnetic anomaly in a mixed space-wavenumber domain. *Geophysics*, **84**(4), G41-54. DOI: 10.1190/geo2018-0491.1
- [13] Li, K., Dai, S., Chen, Q., Zhang, Q., Zhao, D., **Wang, S.**, Ling, J., 2019. Three-dimensional modeling of magnetic anomaly integral solution in a mixed space-wavenumber domain. *Chinese J. of Geophys.*, **62**(11): 4437-4450, doi:10.6038/cjg2019M0362.
- [12] Bastani, M., Lundin, I. A., **Wang, S.**, Jönberger, J., 2017. Integrated Modelling of Geophysical and Petrophysical Data for Imaging Deeper Crustal Structures in Northern Sweden. In "Proceedings of Exploration 17: Sixth Decennial International Conference on Mineral Exploration" edited by V. Tschirhart and M.D. Thomas, 701–714. EAGE Best Papers.
- [11] **Wang, S.**, Kalscheuer, T., Bastani, M., Malehmir, A., Pedersen, L.B., Dahlin T., Meqbel, N., 2018. Joint inversion of lake-floor electrical resistivity tomography and boat-towed radio-magnetotelluric data illustrated on synthetic data and an application from the Äspö Hard Rock Laboratory site, Sweden. *Geophys. J. Int.*, **213**(1), 511-533.
- [10] **Wang, S.**, 2017. *Joint inversion and integration of multiple geophysical data for improved models of near-surface structures*. PhD thesis, Uppsala University, Uppsala. ISBN: 978-91-513-0018-4
- [9] Brodic, B., Malehmir, A., Bastani, M., Mehta, S., Juhlin, C., Lundberg, E. and **Wang, S.**, 2017. Multi-component digital-based seismic landstreamer and boat-towed radio-magnetotelluric acquisition systems for improved subsurface characterization in the urban environment. *First Break*, **35**(8), 41-47.
- [8] **Wang, S.**, Malehmir, A., Bastani, M., 2016. Geophysical characterization of areas prone to quick-clay landslides using radio-magnetotelluric and seismic methods. *Tectonophysics*, **677**, 248-260.
- [7] Malehmir, A., **Wang, S.**, Lamminen, J., Brodic, B., Bastani, M., Vaittinen, K., Juhlin, C., Place, J., 2015. Delineating structures controlling sandstone-hosted base-metal deposits using high-resolution multicomponent seismic and radio-magnetotelluric methods: a case study from Northern Sweden. *Geophys. Prospect.*, **63**(4), 774-797.
- [6] Dai, S., **Wang, S.**, Zhang, Q., Xue, D., 2013. 2.5D forward and inversion of CSEM in frequency domain. *The Chinese Journal of Nonferrous Metals (in Chinese with English abstract)*, **23**(9), 2513-2523.
- [5] **Wang, S.**, Xiong, B., Dai, S., 2013. Resolution ability to E-Ex arrangement wide field electromagnetic method studied on 1-D modeling and inversion. *Journal of Central South University (in Chinese with English abstract)*, **44**(9), 3766-3775.
- [4] **Wang, S.**, 2012. *2.5D forward modeling of wide field electromagnetic method with vertical magnetic dipole source*. Master thesis (in Chinese with English abstract), Central South University, Changsha.

- [3] **Wang, S.**, Xiong, B., Wang Y., Li C., 2012. Wave-number domain features of primary field of H-Hz arrangement wide field electromagnetic method. *Journal of Guilin University of Technology (in Chinese with English abstract)*, **32**(2), 179-183.
- [2] **Wang, S.**, Xiong, B., 2012. Numerical calculation methods of wide field apparent resistivity. *Computing Techniques for Geophysical and Geochemical Exploration (in Chinese with English abstract)*, **34**(4), 380-383.
- [1] **Wang, S.**, Xiong, B., 2010. Electromagnetic coupling effect in double frequencies surveys over multi-layer earth. *Computing Techniques for Geophysical and Geochemical Exploration (in Chinese with English abstract)*, **32**(6), 617-620.

## Research Funding

- 2020 -           **(In preparation)** Joint magnetotelluric and seismic study of the Hawaiian swell and plume (Co-PI)
- 2020 - 2021   **(In review)** Characterizing the electric properties of uppermost 100 m of the San Jacinto fault zone and its relation to seismic peak ground motion (Co-PI), \$ 46,000
- 2018 - 2020   The Cecil H. and Ida M. Green Foundation: Develop 3D finite element modeling code for the marine magnetotelluric considering bathymetry (Co-PI), \$ 60,000
- 2016 - 2017   Byzantinska resestip: Develop boat-towed controlled-source radio-magnetotelluric inversion with source effect (PI), \$ 22,000

## Field Experience

- 202003           Remote Ocean Lithospheric Link (6 days)
- 201806           Test new acoustic capacity of OBEM instrument (2 days)
- 201606           Aquifer delineation on Öland using radio-magnetotellurics (2 weeks)
- 201606           Map fracture zones using boat-towed controlled-source radio-magnetotellurics (1 week)
- 201603           Map fracture zones using controlled-source radio-magnetotellurics on ice (2 days)
- 201505           Map fracture zones using boat-towed radio-magnetotellurics and seismics (1 week)
- 201508           Site investigation for energy storage using seismic method (1 week)
- 201407           Metal deposit investigation in Kiruna using magnetotellurics (2 weeks)
- 201402           Test seismic landstreamer, radio-magnetotellurics, and electrical resistivity tomography methods in Stockholm (1 week)
- 201310           Delineate metal deposit using seismic landstreamer and radio-magnetotellurics (2 weeks)
- 201310           Site investigation for waste storage using audio-magnetotellurics methods (3 days)
- 201206           Investigate a salt deposit using wide field electromagnetic method (2 weeks, team leader)
- 201106           Petro-Sonde method experiment (1 week)
- 201010           Delineate reservoir resistivity structure using wide field electromagnetic method (2 weeks)
- 201009 - 11   Investigate goaf at a coal mining area using wide field electromagnetic method (2 months)

## Teaching & Mentorship

2019	Environmental and Exploration Geophysics (SIO 182A, co-lecturer at Scripps Institution of Oceanography)
2014 - 2016	Applied Geophysics (TA at Uppsala University)
2015 - 2016	Electromagnetic Geophysics (TA at Uppsala University)
2011	Ground Penetrating Radar (TA at Guilin University of Technology)
2016 - 2017	Mentor of Mehdi Mohammadi Vizheh (Uppsala University)
2018 -	Mentor of Valeria Reyes-Ortega (Scripps Institution of Oceanography)

## Synergistic Activities

### Reviewer:

*Geophysics; Journal of Applied Geophysics; Journal of Environmental & Engineering Geophysics; Geoscience Frontier; Pure and Applied Geophysics; Energies; Earth, Planets and Space; Geophysical Journal International; Journal of Ocean University of China; Tectonophysics; Society of Exploration Geophysicists conference*

### Membership:

2019 -	American Geophysical Union
2019 -	Southern California Earthquake Center
2018 -	International Association of Geomagnetism and Aeronomy, Division VI
2018 -	Society of Exploration Geophysicists
2017 - 2018	European Association of Geoscientists and Engineers

### Attended Workshop and Conferences:

2019	SCEC Research Mentor Training Workshop
2019	Academic Laboratory Management & Leadership Symposium
2018	Electromagnetic Induction Workshop
2018	Explore Prepare Innovate Connect Postdoctoral Training Program
2017	European Association of Geoscientists and Engineers Annual Meeting (oral)
2016	Electromagnetic Induction Workshop (oral & poster)
2015	Surface-Wave Analysis Workshop; Joint Inversion in Geophysics Summer School
2014	Electromagnetic Induction Workshop (oral)

### Invited Seminar/Talks:

2019	Southern University of Science and Technology
2018	Memorial University of Newfoundland
2018	Scripps Institution of Oceanography
2017	Sun Yat-Sen University
2017	Central South University

### Committee Member:

2018 -	Seminar organizer of Institute of Geophysics and Planetary Physics
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## **Travel Grants & Scholarships**

2018	Explore Prepare Innovate Connect Scholarship (\$ 100)
2017	European Association of Geoscientists and Engineers (\$ 180)
2016	Jänes Scholarship (\$ 1300)
2014	Electromagnetic Induction Workshop (\$ 570)
2013 - 2017	China Scholarship Council (\$ 63,000)
2011	East China Mineral Exploration and Development Scholarship (\$ 450)
2010 - 2011	He Jishan Foundation Scholarships (\$ 900)
2009 - 2012	Central South University Scholarships (\$ 4,900)
2005 - 2009	Central South University Scholarships (\$ 450)