

# CHANG, Sung-Joon

## PRESENT POSITION AND ADDRESS

Professor  
Department of Geophysics  
Kangwon National University  
Chuncheon, Gangwon-do  
24341, South Korea

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## EDUCATION

### **Ph.D. in Geophysics (Seismology), 2004**

Seoul National University, Seoul, South Korea  
*Thesis Title:* Estimation of the Crustal Velocity Structure in Southern Korea  
Using Broadband Waveforms

### **Master of Science in Geophysics, 1997**

Seoul National University, Seoul, South Korea  
*Thesis Title:* Joint Inversion of P-SV and SH Type Waveforms for the Boundary Shape  
of a Basin Structure

### **Bachelor of Science in Geology, 1995**

Seoul National University, Seoul, South Korea

## RESEARCH EXPERIENCE

### **Professor, 2024-Present**

Kangwon National University, Chuncheon, Gangwon-do, South Korea

### **Associate Professor, 2019-2024**

Kangwon National University, Chuncheon, Gangwon-do, South Korea

### **Assistant Professor, 2013-2019**

Kangwon National University, Chuncheon, Gangwon-do, South Korea

### **Honorary Research Associate, 2014-Present**

University College London, London, UK

### **Senior Research Associate, 2011-2013**

University of East Anglia, Norwich, Norfolk, UK

### **Postdoctoral Researcher, 2006-2011**

Northwestern University, Evanston, IL, USA

### **Editorial Assistant, 2005-2006**

*Geosciences Journal*, The Association of Korean Geoscience Societies

### **Postdoctoral Researcher, 2004-2006**

Seoul National University, Seoul, South Korea

### **Graduate Research Assistant, 1997-2004**

Seoul National University, Seoul, South Korea

#### **KCRT: Refraction Survey to Image Crustal Structure in Korean Peninsula**

- Participation in the installation of short-period seismometer arrays to record ground motions induced by artificial explosions.

### **Visiting Research Student, 2002**

Center for Earthquake Research and Information (CERI),

University of Memphis, Memphis TN, USA

- Hosted by Prof. Charles A. Langston for receiver function analysis for the estimation of crustal structure in southern Korea.

## **TEACHING EXPERIENCE**

Teaching Assistant, 1996-1998 at School of Earth and Environmental Sciences, Seoul National University.

Courses: *Seismology & Geodynamics, Gravity & Magnetism*

Guest lecture 2008, 2010, 2011 at Dept. of Earth and Planetary Sciences, Northwestern University

Course: *Advanced Topics in Geophysics* (438)

Classes at Kangwon National University

Physical Geology

Seismology

Physics of Earth's interior

## **GRADUATE STUDENTS ADVISED AT UEA**

Kostas Lentas	2011-2013,	Ph.D. degree,	supervisor: Ana Ferreira
Laura Parisi	2011-2016,	Ph.D. degree,	supervisor: Ana Ferreira
Ana Domingues	2012-2016,	Ph.D. degree,	supervisor: Ana Ferreira

## **GRADUATE STUDENTS ADVISED AT KNU**

Kyungmin Min	2015-2017,	M.S. degree, Now at Korea Meteorological Administration
Seongheum Cho	2015-2017,	M.S. degree, Now at Korea Meteorological Administration
Seolhan You	2015-2017,	M.S. degree, Now at Korea Meteorological Administration
Doyoon Lim	2016-2018,	M.S. degree, Now at Korea Meteorological Administration
Jung-A Lim	2018-2020,	M.S. degree, Now at Korea Meteorological Administration
Yong-Woo Kim	2018-2020,	M.S. degree, Now at Korea Mine Rehabilitation and Mineral Resources Corporation
Dongwon Kim	2018-2021,	M.S. degree, Now at Korea Institute of Geoscience and Mineral Resources
Sun-Moo Lee	2019-2021,	M.S. degree, Now established Nursefitting
Rin-Hui Kim	2019-2022,	M.S. degree
Minkyung Kim	2020-2022,	M.S. degree, Now at KNU as Ph.D student
Sungwon Kim	2020-2022,	M.S. degree
Jihun Park	2021-2023,	M.S. degree, Now at KNU as Ph.D student

Jiwon Ko	2021-2023,	M.S. degree, Now at U.S. Army as geologist
Taeshin Kim	2021-2023,	M.S. degree, Now at KNU as Ph.D student
Seungwoo Park	2022-2024	M.S. degree, Now at KNU as Ph.D student
Jaehyeong Lee	2022-2024	M.S. degree, Now at YL Engineering
Kyeongmin Kim	2022-2024	M.S. degree, Now at KNU as Ph.D student

Ph.D course

Yong-woo Kim	2020-present
Minkyung Kim	2022-present
Jihun Park	2023-present
Taeshin Kim	2023-present
Seungwoo Park	2024-present
Kyeongmin Kim	2024-present

Master course

Jeongyeon Hwang	2023-present
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**AWARDS & HONORS**

Excellent Paper Award in Science and Technology, 2024, by Korean Federation of Science and Technology Societies (KOFST), Korea  
Distinguished Research Award, 2019, by Korean Society of Earth and Exploration Geophysicists.  
100 Excellent National R&D Award, 2017, by Ministry of Science and ICT, Korea  
Distinguished Teaching Award, 2017, by Kangwon National University  
Young Scientist Award, 2015, by Korean Society of Earth and Exploration Geophysicists.  
Postdoctoral fellowship, 2006, Granted by Korea Research Foundation.  
BK21 fellowship, 1999-2002, Granted by the Ministry of Education and Human Resources, Korean Government.  
Bachelor Scholarship, 1991-1994, Seoul National University

**INVITED TALKS**

Seoul National University, South Korea	May 2022
“Origins of intraplate volcanoes in East Asia inferred from seismic tomography”	
Yonsei University, South Korea	Apr. 2022
“Origins of intraplate volcanoes in East Asia inferred from seismic tomography”	
Korea University, South Korea	May 2019
“Inference on water content in the mantle transition zone near subducted slabs from anisotropy tomography”	
2 <sup>nd</sup> Asia-Pacific workshop for lithosphere and mantle dynamics	Aug. 2018
“Mantle radial anisotropy beneath subduction zones: New constraints from seismology, geodynamics, and mineral physics”	
PyeongChang Forum 2018	Feb. 2018
“Why are you anxious about Earth’s inside?”	
Collaborative Research in Global Ocean and Subduction-Toward Pacific Array	
Korea-Japan Joint Symposium	Apr. 2017

“Ubiquitous lower mantle anisotropy beneath subduction zones: new rheological and mineralogical constraints”  
 Joint symposium of KSEG & KIGAM Sep. 2016  
 “Application of earthquakes: A tool for imaging Earth’s interior”  
 International Workshop and Conference Commemorating the 20<sup>th</sup> Anniversary of EESK  
 Sep. 2016  
 “Multifaceted aspects of earthquakes: A tool for imaging Earth’s interior”  
 11th KINS-NIMR Joint Workshop, Gyeongju, South Korea, Jul. 2016.  
 “Mid- and upper-mantle interaction between the Samoan plume and the Tonga-Kermadec slabs”  
 King Abdullah University of Science and Technology, Saudi Arabia Mar. 2015  
 “The evolution of the African superplume”, presented at Imaging and Active Tectonics of the Red  
 Sea Region workshop, KAUST, Saudi Arabia, Mar 10-13, 2015.  
 Yonsei University, South Korea Dec. 2014  
 “Mid-mantle interaction between the big, active Samoan plume and the Tonga slab”  
 9th KINS-NIMR Joint Workshop, Daejeon, South Korea, Nov. 2014.  
 “Global radially anisotropic mantle structure from multiple datasets”  
 Seoul National University, South Korea Jun. 2014  
 “Global radially anisotropic mantle structure from multiple datasets”  
 University College London, United Kingdom Feb. 2014  
 “Global radially anisotropic mantle structure from multiple datasets”  
 University of Cambridge, United Kingdom May. 2013  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 University of Seoul, South Korea Dec. 2012  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 King Abdullah University of Science and Technology, Saudi Arabia Nov. 2012  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 Kangwon National University, South Korea Jul. 2012  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 Chungnam National University, South Korea Jul. 2012  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 Seoul National University,  
 Dept. of Earth Science Education, South Korea Jun. 2012  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 Korea University, South Korea Dec. 2011  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 Seoul National University,  
 School of Earth and Environmental Sciences, South Korea Dec. 2011  
 “Mantle plumes and associated flow beneath Arabia and East Africa from joint tomography”  
 Université Pierre et Marie Curie, France Oct. 2011  
 “Mantle plumes and associated flow beneath Arabia and East Africa”  
 University of East Anglia, United Kingdom Oct. 2011  
 “Peeking into the interior of the Earth: Seismic tomography”  
 University of Oklahoma, USA Dec. 2008  
 “Peeking into the interior of the Earth: Joint seismic tomography and its application to West Eurasia and North Africa”  
 Seoul National University, South Korea Mar. 2005

“Estimation of crustal velocity structure using seismic waveform analysis”  
Kangwon National University, South Korea Nov. 2004  
“Estimation of the crustal velocity structure in southern Korea using receiver function analysis”  
Korea Institute of Nuclear Safety, South Korea Nov. 2004  
“Estimation of the crustal velocity structure in southern Korea using receiver function analysis”

## **PROFESSIONAL SERVICE**

Reviewer for NSF, Nature Geoscience, Earth and Planetary Science Letters, Journal of Geophysical Research, Geophysical Research Letters, Geophysical Journal International, Tectonophysics, Bulletin of Seismological Society of America, Pure and Applied Geophysics, Journal of Geodynamics, and Arabian Journal of Geosciences.

## **FUNDED GRANTS AS PI**

2024 Research Grant from National Research Foundation  
Study on mechanism of intraplate volcano formation by the Pacific plate subduction,  
05/01/2024-4/30/2029, \$1,900,000

2022 Research Grant from KMITI  
Analysis on shallow crustal velocity structure in the Gangwon Province, 4/1/2022-  
12/31/2026,  
\$1,355,000

2019 Research Grant from National Research Foundation  
Study on volcanoes in the Korean Peninsula using anisotropy tomography, 09/01/2019-  
2/29/2024, \$870,000

2018 Research Grant from KMITI  
Study on subsurface velocity structure beneath the Ulleung Island using seismic tomog-  
raphy, 7/1/2018-12/31/2020,  
\$310,000

2015 Research Grant from KMIPA  
Three-dimensional crustal and mantle structure of East Asia, 5/15/2015-5/14/2018,  
\$370,000

2014 Research Grant from National Research Foundation  
Global radially anisotropic mantle structure from multiple datasets, 11/1/2014-4/30/2017,  
\$125,000

2014 Research Grant from CATER  
Crustal structure estimation using surface-wave group velocities, 9/1/2014-8/30/2015,  
\$105,000

2013 Research Grant from Kangwon National University  
Global radially anisotropic mantle structure from multiple datasets, 10/1/2013-9/30/2014,  
\$30,000

BAA11-24 Simultaneous Inversion for Three-Dimensional Velocity Structure and Seismic Discon-  
tinuities Beneath Eastern Asia Using Gravity and Multiple Seismic Data (co-PI and  
Proposal preparer) funded by DOE/NNSA, 3/14/2011-3/13/2014, \$207,620

## **PEER-REVIEWED PUBLICATIONS**

1. Kim, M., B.-D. So, S. Kim, T. Jo and **S.-J. Chang** (2024), Mesh size effect on finite source inversion with 3-D finite-element modelling, *Geophysical Journal International*, 237, 716-728.
2. Rappisi, F., M. Witek, M. Faccenda, A.M.G. Ferreira, and **S.-J. Chang** (2024), Artificial age-independent seismic anisotropy, slab thickening and shallowing due to limited resolving power of (an)isotropic tomography, *Geophysical Journal International*, 237, 217-234.
3. Lee, J.-H, and **S.-J. Chang** (2024), Teleseismic travel time tomography for the mantle velocity structure beneath the Melanesian region, *Economic and Environmental Geology*, 57, 1-15. (in Korean with English abstract).
4. Park, J.-H, **S.-J. Chang**, and M. Witek (2023), S-velocity and radial anisotropy structures in the Western Pacific using partitioned waveform inversion, *Economic and Environmental Geology*, 56, 365-384. (in Korean with English abstract).
5. Kim, R., M. Witek, **S.-J. Chang**, J.-A. Lim, P.M. Mai, and H. Zahran (2023), Isotropic and radially anisotropic S-velocity structure beneath the Arabian plate inferred from surface wave tomography, *Tectonophysics*, 862, 229968.  
<https://doi.org/10.1016/j.tecto.2023.229968>.
6. Kim, T.-S., J.-H. Park, J.-W. Ko, S.-Y. Oh, M. Witek, **S.-J. Chang**, S.-M. Lee, Y. Kim, H. Utada, H. Kawakatsu, H. Shiobara, T. Isse, N. Takeuchi, and H. Sugioka (2023), Characteristics of background noise in the Oldest-1 array deployed on the oldest part of the Pacific Plate, *Bull. Seism.Soc. Am.*, 113, 1772-1793.
7. Kim, S., T. Saito, T. Kubota, and **S.-J. Chang** (2023), Joint inversion of ocean-bottom pressure and GNSS data from the 2003 Tokachi-oki earthquake, *Earth, Planets and Space*, 75:113.
8. Hwang, J.-Y., and **S.-J. Chang** (2023), Analysis of crustal velocity structure beneath Gangwon Province, South Korea, using joint inversion of receiver functions and surface wave dispersion, *Economic and Environmental Geology*, 56, 1-15. (in Korean with English abstract).
9. Ma, J., H.-P. Bunge, A. Fichtner, **S.-J. Chang**, and Y. Tian (2023), Structure and dynamics of lithosphere and asthenosphere in Asia: A seismological perspective, *Geophys. Res. Lett.*, 50, e2022GL101704.
10. Witek, M., S.-M. Lee, **S.-J. Chang**, and S. van der Lee (2023), Waveform inversion of large data sets for radially anisotropic Earth structure, *Geophys. J. Int.*, 232, 1311-1339.
11. Ma, J., H.-P. Bunge, S. Thrastarson, A. Fichtner, D.P. van Herwaarden, Y. Tian, **S.-J. Chang**, and T. Liu (2022), Seismic full-waveform inversion of the crust-mantle structure beneath China and adjacent regions, *J. Geophys. Res.*, 127, e2022JB024957.  
<https://doi.org/10.1029/2022JB024957>.
12. Kendall, E., M. Faccenda, A.M.G. Ferreira, and **S.-J. Chang** (2022), On the relationship between oceanic plate speed, tectonic stress, and seismic anisotropy, *Geophys. Res. Lett.*, 49, e2022GL097795. <https://doi.org/10.1029/2022GL097795>.
13. Witek, M., **S.-J. Chang**, D.Y. Lim, S. Ning, and J. Ning (2021), Radial anisotropy in East Asia from multimode surface wave tomography, *J. Geophys. Res.*, 126, e2020JB021201.
14. Ko, J.-W., T.-S. Kim, J.-H. Park, S.-Y. Oh, **S.-J. Chang**, K.Y. Kim, S.-M. Lee, Y. Kim, H. Utada, H. Kawakatsu, H. Shiobara, T. Isse, and N. Takeuchi (2021), Analysis on microseism characteristics by typhoon ‘HAGIBIS’ using land and ocean-bottom seismometers, *J. Geol. Soc. Korea*, 57, 339-352 (in Korean with English abstract).  
<https://doi.org/10.14770/jgsk.2021.57.3.339>.
15. Kendall, E., A.M.G. Ferreira, **S.-J. Chang**, M. Witek, and D. Peter (2021), Constraints on the upper mantle structure beneath the Pacific from 3-D anisotropic waveform modeling, *J. Geophys. Res.*, 126, e2020JB020003. <https://doi.org/10.1029/2020JB020003>.

16. Kim, Y.-W., **S.-J. Chang**, M. Witek, J. Ning, and J. Wen (2021), S-velocity mantle structure of East Asia from teleseismic traveltimes tomography: Inferred mechanisms for the Cenozoic intraplate volcanoes, *J. Geophys. Res.*, *126*, e2020JB020345. <https://doi.org/10.1029/2020JB020345>.
17. **Chang, S.-J.**, E. Kendall, A. Davaille, and A.M.G. Ferreira (2020), The evolution of mantle plumes in East Africa, *J. Geophys. Res.*, *125*, e2020JB019929. <https://doi.org/10.1029/2020JB019929>.
18. Lim, J.-A., **S.-J. Chang**, P.M. Mai, and H. Zahran (2020), Asthenospheric flow of plume material beneath Arabia inferred from S-wave traveltimes tomography, *J. Geophys. Res.*, *125*, e2020JB019668. <https://doi.org/10.1029/2020JB019668>.
19. Kim, K.Y., Y. Song, J. Byun, and **S.-J. Chang** (2020), Non-reflection events and common-midpoint range for virtual PP reflection images, *J. Geol. Soc. Korea*, *56*, 355-364 (in Korean with English abstract).
20. Lee, S.-M., and **S.-J. Chang** (2019), A study on the dependence of focal depth of the 2017 Pohang earthquake on crustal velocity models using moment tensor inversion, *J. Geol. Soc. Korea*, *55*, 649-662 (in Korean with English abstract).
21. Sturgeon, W., A.M.G. Ferreira, M. Faccenda, **S.-J. Chang**, and L. Schardong (2019), On the origin of radial anisotropy near subducted slabs in the mid-mantle, *Geochem. Geophys. Geosyst.* *20*, <https://doi.org/10.1029/2019GC008462>.
22. Ferreira, A.M.G., M. Faccenda, W. Sturgeon, **S.-J. Chang**, and L. Schardong (2019), Ubiquitous lower-mantle anisotropy beneath subduction zones, *Nature Geoscience*, *12*, 301-306.
23. **Chang, S.-J.**, and A. Ferreira (2019), Inference on water content in the mantle transition zone near subducted slabs from anisotropy tomography, *Geochem. Geophys. Geosyst.*, *20*, 1189-1201.
24. Kim, R.-H., **S.-J. Chang**, M. Mai, and H. Zahran (2019), S-wave velocity structure and radial anisotropy of Saudi Arabia from surface wave tomography, *Geophys. Geophys. Explor.*, *22*, 21-28 (in Korean with English abstract).
25. Witek, M., S. van der Lee, T.-S. Kang, **S.-J. Chang**, J. Ning, and S. Ning (2018), S-velocity model of East Asia from a cluster analysis of localized dispersion, *J. Geophys. Res.* *123*, 9712-9732.
26. Tang, Z., M. Mai, **S.-J. Chang** and H. Zahran (2018), Evidence for shallow low shear-wave speed in western Saudi Arabia from multi-scale fundamental-mode Rayleigh-wave group-velocity tomography, *Earth Planet. Sci. Lett.* *495*, 24-37.
27. Kim, Y.-W., H.-J. Kim, J.-A. Lim, and **S.-J. Chang** (2018), S-wave relative travel time tomography for Northeast China, *Geophys. Geophys. Explor.* *21*, 26-32 (in Korean with English abstract).
28. Lim, D.Y., and **S.-J. Chang** (2018), Three-dimensional S-wave velocity structure and radial anisotropy of crust and uppermost mantle beneath East Asia, *Geophys. Geophys. Explor.* *21*, 33-40 (in Korean with English abstract).
29. **Chang, S.-J.**, and A. Ferreira (2017), Improving global radial anisotropy tomography: the importance of simultaneously inverting for crustal and mantle structure, *Bull. Seism. Soc. Am.*, *107*, 624-638.
30. Min, K., and **S.-J. Chang** (2017), 3D SH-wave velocity structure of East Asia using Love-wave tomography and implication on radial anisotropy, *Geophys. Geophys. Explor.* *20*, 25-32 (in Korean with English abstract).
31. Cho, S., and **S.-J. Chang** (2017), S-wave relative travel time tomography for East Asia, *Geophys. Geophys. Explor.* *20*, 18-24 (in Korean with English abstract).

32. You, S.-H., and **S.-J. Chang** (2017), 3D SV-wave velocity structure of East Asia using Rayleigh-wave tomography, *Geophys. Geophys. Explor.* 20, 12-17 (in Korean with English abstract).
33. Domingues, A., Graça Silveira, Ana M.G. Ferreira, **S.-J. Chang**, Susana Custódio, and João F.B.D. Fonseca (2016), Ambient noise tomography of the East African Rift in Mozambique, *Geophys. J. Int.* 204, 1565-1578.
34. **Chang, S.-J.**, A. Ferreira, and M. Faccenda (2016), Upper- and mid-mantle interaction between the Samoan plume and the Tonga-Kermadec slabs, *Nature Communications*, 7, doi:10.1038/ncomms10799.
35. Huang, H., N. Tosi, **S.-J. Chang**, S. Xia, and X. Qiu (2015), Receiver function imaging of the mantle transition zone beneath the South China Block, *Geochem. Geophys. Geosyst.*, 16, doi:10.1002/2015GC005978.
36. **Chang, S.-J.**, A. Ferreira, J. Ritsema, H. J. van Heijst, and J. H. Woodhouse (2015), Joint inversion for global isotropic and radially anisotropic mantle structure including crustal thickness perturbations, *J. Geophys. Res.*, 120, doi:10.1002/2014JB011824.
37. **Chang, S.-J.**, S. Van der Lee, and M. P. Flanagan (2014), Validation of regional travel time predictions along the Tethyan margin for three P-velocity models built with different approaches, *Bull. Seism Soc. Am.*, 104, 1525-1532.
38. **Chang, S.-J.**, A. Ferreira, J. Ritsema, H. J. van Heijst, and J. H. Woodhouse (2014), Global Radially Anisotropic Mantle Structure from Multiple Datasets: A Review, Current Challenges, and Outlook, *Tectonophysics*, 617, doi:10.1016/j.tecto.2014.01.033. (Invited review paper)
39. **Chang, S.-J.**, S. Van der Lee, and M. P. Flanagan (2012), A new P-velocity model for the Tethyan margin from a scaled S-velocity model and the inversion of regional and teleseismic P- and PKP-delay times, *Phys. Earth Planet. Inter.*, 210, 1-7, doi:10.1016/j.pepi.2012.08.005.
40. **Chang, S.-J.**, M. Merino, S. Van der Lee, S. Stein, and C. Stein (2011), Mantle flow beneath Arabia offset from the opening Red Sea, *Geophys. Res. Lett.*, 38, L04301, doi:10.1029/2010GL045852.
41. **Chang, S.-J.** and S. Van der Lee (2011), Mantle plumes and associated flow beneath Arabia and East Africa, *Earth Planet. Sci. Lett.*, 302, 448-454, doi:10.1016/j.epsl.2010.12.050.
42. Salah, M. K., **S.-J. Chang**, and J. F. B. D. Fonseca (2011), Crustal structure beneath the Lower Tagus Valley, southwestern Iberia using joint analysis of teleseismic receiver functions and surface-wave dispersion, *Geophys. J. Int.*, 184, 919-933, doi:10.1111/j.1365-246X.2010.04891.x.
43. **Chang, S.-J.**, S. Van der Lee, S., M. P. Flanagan, H. Bedle, F. Marone, E. M. Matzel, M. E. Pasyanos, A. Rodgers, B. Romanowicz, and C. Schmid (2010), Joint Inversion for 3-dimensional S-velocity mantle structure along the Tethyan margin, *J. Geophys. Res.*, 115, B08309, doi:10.1029/2009JB007204.
44. **Chang, S.-J.** S. Van der Lee, E. Matzel, and H. Bedle (2010), Radial anisotropy along the Tethyan margin, *Geophys. J. Int.*, 182, 1013-1024, doi:10.1111/j.1365-246X.2010.04662.x.
45. **Chang, S.-J.** and C. -E. Baag (2007), Moho depth and crustal Vp/Vs variation in southern Korea from teleseismic receiver functions: implication for tectonic affinity between the Korean Peninsula and China, *Bull. Seism. Soc. Am.*, 97, 1621-1631.
46. **Chang, S.-J.** and C.-E. Baag (2006), Crustal structure in southern Korea from joint analysis of regional broadband waveforms and travel times, *Bull. Seism. Soc. Am.*, 96, 856-870.



47. **Chang, S.-J.** and C.-E. Baag (2005), Crustal structure in southern Korea from joint analysis of teleseismic receiver functions and surface wave dispersion, *Bull. Seism. Soc. Am.*, *95*, 1516-1534.
48. **Chang, S.-J.**, C.-E. Baag, and C. A. Langston (2004), Joint analysis of teleseismic receiver functions and surface wave dispersion using the genetic algorithm, *Bull. Seism. Soc. Am.*, *94*, 691-704.

## **OTHER PUBLICATIONS**

1. Van der Lee, S., **S.-J. Chang**, M. Witek, T.S. Kang, and M. Feng (2012), Joint inversion of multiple seismic data for three-dimensional velocity structure beneath southern and eastern Asia, *Conference Proceedings of the 34<sup>th</sup> Monitoring Research Review*, Nuclear Explosion Monitoring, Albuquerque, New Mexico, September 18-20, 2012, 6pp.
2. Flanagan, M. P., S. Van der Lee, S. C. Myers, **S.-J. Chang**, and M. E. Pasyanos (2009), Regional travel-time and location uncertainty assessment along the Tethyan margin using a new three-dimensional *P*-velocity model, *Conference Proceedings of the 31<sup>st</sup> Monitoring Research Review*, Nuclear Explosion Monitoring, Tucson, Arizona, September 21-23, 2009, 10pp.
3. **Chang, S.-J.**, M. P. Flanagan, S. Van der Lee, E. M. Matzel, and M. E. Pasyanos (2008), Evaluation of regional travel-time and location improvement along the Tethyan margin using a new three-dimensional velocity model, *Conference Proceedings of the 30<sup>th</sup> Monitoring Research Review*, Nuclear Explosion Monitoring, Portsmouth, VA, September 23-25, 2008, 10pp.
4. Van der Lee, S., **S.-J. Chang**, M. P. Flanagan, H. Bedle, F. Marone, E. M. Matzel, M. E. Pasyanos, A. Rodgers, B. Romanowicz, and C. Schmid (2007), Joint inversion for 3-dimensional mantle structure along the Tethyan margin, *Conference Proceedings of the 29<sup>th</sup> Monitoring Research Review*, Nuclear Explosion Monitoring, Denver, CO, September 25-27, 2007, 10pp.
5. Lee, D.-S., J. Ji, Y.-J. Yoo, and **S.-J. Chang** (1997), Fracture characterization using inverse VSP and crosswell seismic technology, *Proceeding of the Korean Geotechnical Society Fall 97 National conference*, 253-260, Seoul, Korea, Oct. 24-25, 1997, 8pp.

## **PRESENTATIONS**

- Lee, S.-M., and **S.-J. Chang**, A study on the focal depth of the 2017 Pohang earthquake using moment tensor inversion, *Fall Joint Annual Conference of the Geological Societies in Korea*, Jeju, Jeju-do, South Korea, Oct 23-Oct. 26, 2019.
- Kim, Y.-W., **S.-J. Chang**, M. Witek, J. Ning, and J. Wen, Mantle upwelling beneath intraplate volcanoes in East Asia from S-wave travel time tomography, *Fall Joint Annual Conference of the Geological Societies in Korea*, Jeju, Jeju-do, South Korea, Oct 23-Oct. 26, 2019.
- Lim, J.A., **S.-J. Chang**, P.M. Mai, and H.M. Zahran, Asthenospheric flow of plume materials beneath Arabia and East Africa from S-wave travel time tomography: Implication for the seismic swarm in Harrat Lunayyir, *Fall Joint Annual Conference of the Geological Societies in Korea*, Jeju, Jeju-do, South Korea, Oct 23-Oct. 26, 2019.
- Kim, R., **S.-J. Chang**, M. Witek, P.M. Mai, and H.M. Zahran, S-velocity isotropic and radially anisotropic mantle structure beneath the Arabian Peninsula and East Africa using multi-mode

- dispersion curves, *Fall Joint Annual Conference of the Geological Societies in Korea*, Jeju, Jeju-do, South Korea, Oct 23-Oct. 26, 2019.
- Ferreira, A.M.G., E. Kendall, **S.-J. Chang**, and D. Peter, Full-waveform modelling of 3-D seismic anisotropy at Pacific lithosphere-asthenosphere depths, Abstract EGU2019-13198 presented at *2019 General Assembly, European Geosciences Union*, Vienna, 7-12 April 2019.
- Witek, M., D.Y. Lim, **S.-J. Chang**, J. Ning and S. Ning, Towards a model of radial anisotropy in the East Asian lithosphere, Abstract DI12A-02 presented at 2018 Fall Meeting, *American Geophysical Union*, Washington, D.C., Dec 10-14, 2018.
- Kim, Y.W., **S.-J. Chang**, J. Ning and J. Wen, S-wave relative travel time tomography for mantle structure beneath East Asia, Abstract T43F-0477 presented at 2018 Fall Meeting, *American Geophysical Union*, Washington, D.C., Dec 10-14, 2018.
- Lim, J.A., **S.-J. Chang**, P.M. Mai, and H.M. Zahran, Preliminary upper mantle structure beneath the Arabian Peninsula and East Africa from S-wave relative travel time tomography, Abstract T43G-0490 presented at 2018 Fall Meeting, *American Geophysical Union*, Washington, D.C., Dec 10-14, 2018.
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