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## Education

Ph.D. in Geophysics, Interdisciplinary Program in Computational Science and Technology, Seoul National University, Aug 2016

(Dissertation: Relocation of clustered seismic events on the Korean Peninsula using the double-difference method)

M.S. in Geophysics, Interdisciplinary Program in Computational Science and Technology, Seoul National University, Feb 2011

(Thesis: Time-domain waveform inversion using filtering techniques)

B.S. in Energy Resources Engineering, Seoul National University, Feb 2009

(Exchange Program in Engineering, Osaka University, Apr – Aug 2008; all coursework in Japanese)

## Professional Experience

Principal Researcher, KIGAM, Jan 2025 – Present

Senior Researcher, KIGAM, Jan 2017 – Dec 2024

Researcher, KIGAM, Dec 2010 – Dec 2016

(including maternity & parental leave for May 2017 – Aug 2018 and Sep 2021 – Apr 2022)

## Publications

14. Lee, S., E. Choi, M. Son, S. G. Song, and D. D. Gomez (2025). Viscoelastic modeling reveals correlation between GNSS-derived deformation rates after the 2011 Tohoku-Oki earthquake and lithospheric thickness in the southern Korean Peninsula, Geophysical Journal International, 242, ggaf182. doi.org/10.1093/gji/ggaf182

13. **Son, M.**, and E. J. Chaves (2025). Investigating corner-frequency uncertainties: Insights

from six earthquakes (Mw 3.2-3.8) in Ridgecrest, California, and the Korean Peninsula, *Bulletin of the Seismological Society of America*, 115, 1189-1121. doi.org/10.1785/0120240149

12. Lim, H., C. S. Cho, and **M. Son** (2024). The 2022 Goesan earthquake of the moment magnitude 3.8 along the buried fault in the central Korean Peninsula, *Journal of Seismology*, 28, 519-534. doi.org/10.1007/s10950-024-10201-y

11. **Son, M**., W. -Y. Kim, and C. S. Cho (2022). A scoping review of method based on waveform similarity applied to seismic events in and around the Korean Peninsula: signal detection, hypocenter relocation, and waveform classification, *Journal of the Geological Society of Korea*, 58, 549-563 (in Korean with English abstract). doi.org/10.14770/jgsk.2022.58.4.549

10. **Son, M.**, C. S. Cho, J. -H. Choi, J. -S. Jeon, and Y. -K. Park (2021). Spatiotemporal patterns of the 2020 Haenam earthquake sequence, South Korea: lineament and migration implying fluid-driven earthquake swarm, *Geosciences Journal*, 25, 19-31. doi.org/10.1007/s12303-020-0043-6

9. **Son, M.**, C. S. Cho, H. K. Lee, M. Han, J. S. Shin, K. Kim, and S. Kim (2020). Partitioned fault movement and aftershock triggering: evidence for fault interactions during the 2017 Mw 5.4 Pohang earthquake, South Korea, *Journal of Geophysical Research: Solid earth*, 125, e2020JB020005. doi.org/10.1029/2020JB020005

8. Shin, J. S., Y. -J. Seong, and M. Son (2019). Characterizing the performance of new seismic stations in southeastern region, Korea using seismic noise levels, *Journal of the Earthquake Engineering Society of Korea*, 23, 321-327 (in Korean with English abstract). doi.org/10.5000/EESK.2019.23.6.321

7. **Son, M.**, C. S. Cho, J. S. Shin, H.-M. Rhee, and D.-H. Sheen (2018). Spatiotemporal distribution of events during the first three months of the 2016 Gyeongju, Korea, earthquake sequence, *Bulletin of the Seismological Society of America*, 108, 210-217. doi.org/10.1785/0120170107

6. **Son, M.**, J. S. Shin, G. Kim, and C. S. Cho (2015). Epicenter relocation of two 2013 earthquake sequences in the yellow sea, Korea, using travel-time double-differences and Lg-wave cross-correlation, *Geosciences Journal*, 19, 295–303. doi.org/10.1007/s12303-014-0038-2

5. **Son, M.**, Y. Kim, C. Shin, and D. -J. Min (2013). Time domain full waveform inversion

using a time-window and Huber function norm, *Journal of Seismic Exploration*, 22, 311-338.

4. Shin, J. S., M. Son, and I. Kim (2012). Hypocentral relocation and focal mechanism of earthquake sequences in 2007, 2008 at the offshore Yeongdeok, *Journal of the Geological Society of Korea*, 48, 401-409 (in Korean with English abstract).
3. **Son, M.** and Cho, C. S. (2012). Application and improvement of complex frequency shifted perfectly matched layers for elastic wave modeling in the frequency-domain, *Geophysics and Geophysical Exploration*, 15, 121-128 (in Korean with English abstract). doi.org/10.7582/GGE.2012.15.3.121
2. Cho, C. S. and **M. Son** (2012). Application of ADE-PML boundary condition to SEM using variational formation of velocity-stress 3D wave equation, *Geophysics and Geophysical Exploration*, 15, 57-65 (in Korean with English abstract). doi.org/10.7582/GGE.2012.15.2.057
1. **Son, M.**, Y. Kim, and C. Shin (2010). A time-domain waveform inversion using filtering techniques, *SEG Expanded Abstracts*, 29, 983-987. doi.org/10.1190/1.3513941

**Selected Talks at International Conferences**

5. **Son, M.**, and E. J. Chaves (2024). Understanding Corner Frequency Variations: A Study of Six Earthquakes in Ridgecrest, CA, and Korea (Mw 3.2 to 3.8), *AGU Fall Meeting 2024, Washington, D.C.* **(invited)**
4. **Son, M.**, E. J. Chaves, and C. S. Cho (2023). The 2017 Pohang, Korea,Earthquake and its Largest Aftershocks: Stress Drop and Source Complexity Suggestive of Fluid-faulting Interaction, *SSA Annual Meeting 2023, San Juan, Puerto Rico*.
3. **Son, M.**, C. S. Cho, J. -H. Choi, J. -S. Jeon, and Y. -K. Park (2021). The 2020 Haenam earthquake sequence: The first observation of aseismic front on the Korean Peninsula migrating in a manner similar to fluid diffusion, *EGU General Assembly 2021 (held online due to COVID-19)*.
2. **Son, M.**, C. S. Cho, H. K. Lee, M. Han, J. S. Shin, K. Kim, and S. Kim (2020). Fault-valve behavior in the 2017 Mw 5.4 Pohang, South Korea, Earthquake Sequence, *AGU Fall Meeting 2020 (held online due to COVID-19)*.
1. **Son, M.**, Y. Kim, and C. Shin (2010). A time-domain waveform inversion using filtering

techniques, *SEG Annual Meeting 2010, Denver, CO*.