

Chaewon Park

Ph.D. in Geological Sciences (Mineralogy and Geochemistry)
Department of Earth System Sciences, Yonsei University, Seoul, Korea
E-mail: parkcw@yonsei.ac.kr

RESEARCH INTEREST

Field-based geochemical research to characterize depositional processes and environments.

: By integrating field-based geochemical studies and geological mapping results, the main studies aim to decipher syn- and post-geological processes associated with provenance alteration, mineralization, and hydrothermal alteration.

- Classification and identification of rock types based on mineralogical characteristics.
- Field mapping-based interpretation by establishing diagenetic evolution and sedimentary process (including weathering, erosion, transportation, and deposition) in the basin.
- Reconstruction for the depositional environment through the application of integrated geochemical analysis methods targeting rocks and minerals.
 - ✓ Establishment of litho- and chemo-stratigraphy for the sedimentary basin through mineralogical, micro-textural, geochemical, and geochronological studies.
 - ✓ Comprehensive interpretation of mineral crystallization relationships and sequential mineral formation stages based on micro-textural observation and geochemical analysis of minerals in rocks.
 - ✓ Identification of variation in geochemical properties of minerals due to hydrothermal influx and alteration.
- As a researcher (also, operator and direct user of analysis equipment), conduct comprehensive research on the results of the following geochemical analyses:
 - 1) Observation of optical characteristics of minerals using Polarized Light Microscopy (**PL**)
 - 2) Mineral phases and mineral quantitative analysis of powdered rock samples using X-ray Diffractometry (**XRD**)
 - 3) Micro-textural observation and *in-situ* micro-probe analysis (using **SEM-EDS**, **EPMA-WDS**)
 - 4) High-resolution *in-situ* isotope analysis, *in-situ* trace element analysis (using **LA-MC-ICP-MS**, **LG-SIMS**, **LA-ICP-MS**), and geochronological analysis (**U-Pb age dating**, **K-Ar age dating**)

EDUCATION

- 2024** **Ph.D.** in Geological sciences, Yonsei University, Seoul, Korea
Supervisor: Prof. Yungoo Song
Thesis title: *Lithological and chronostratigraphic significance of the Haengmae Formation at the Ordovician-Silurian transition based on mineralogy and in-situ mineral chemistry*
- 2018** **M.S.** in Geological sciences, Yonsei University, Seoul, Korea
Supervisor: Prof. Yungoo Song
Thesis title: *Mineralogical, micro-textural and geochemical characteristics for the carbonate rocks of the lower Makgol Formation in Seokgaejae section*

2015 Intern in Korea Institute of Geoscience and Mineral Resources, Daejeon, Korea

2015 B.S. in Geological sciences, Yonsei University, Seoul, Korea

PUBLICATION

10. Samuel, V.O., Kwon, S., *Jang, Y., Kil, Y., Santosh, M., **Park, C.**, Yi, K. (2023) Fertile upper mantle peridotite xenoliths indicate no wholesale destruction of cratonic root in East Asia. *Communications Earth & Environment*, 4(1), 492.
9. **Park, C.**, *Song, Y., Kim, N., Choi, S.-J., Chwae, U., Jang, Y., Kwon, S., Kim, J., Kim, H., Jeong, Y.-J. (2023) *In-situ* $\delta^{18}\text{O}$ and $^{87}\text{Sr}/^{86}\text{Sr}$ proxies in an unconformable clastic unit at the Ordovician-Silurian transition. *Scientific Reports*, 13, 15174.
8. Kim, H., Hong, S., **Park, C.**, Oh, J., Kim, J., *Song, Y. (2023) Principle and application of ‘Image-mapping’ *in-situ* U-Pb carbonate age-dating. *Economic and Environmental Geology*, 56(2), 115-123.
7. *Park, C., Chung, D., **Park, C.**, Seo, S., Kim, J.H., Seo, S.M., *Kang, I.-M. (2022) Mineralogical and geochemical characteristics of the hydrothermal illite from Hoam granite, South Korea: Implications for episodic fluid injections in the hydrothermal alteration system. *Geochemistry*, 82(4), 125919.
6. Song, Y., **Park, C.**, Kim, N., *Choi, S.-J., Chwae, U., Kwon, S., Jang, Y. (2021) New occurrence of Haengmae Formation in Taebaeksan basin. *Economic and Environmental Geology*, 54(3), 365-372.
5. Kim, N., *Choi, S.-J., Song, Y., **Park, C.**, Chwae, U., Yi, K. (2020) Distribution and stratigraphical significance of the Haengmae Formation in Pyeongchang and Jeongseon areas, South Korea. *Economic and Environmental Geology*, 53(4), 383-395.
4. Choi, W., Park, C., *Song, Y., **Park, C.**, Kim, H., Lee, C. (2020) Sequential Scheelite Mineralization of Quartz–Scheelite Veins at the Sangdong W-Deposit: Microtextural and Geochemical Approach. *Minerals*, 10, 678.
3. **Park, C.**, Kim, N., Choi, S.-J., *Song, Y. (2020) Mg-Phengite in Carbonate Rock Syngenetically Formed from Hydrothermal Fluid: Micro-Textural Evidence and Mineral Chemistry. *Minerals*, 10, 668.
2. *Park, C., **Park, C.**, Song, Y., Choi, S.-G. (2019) Sequential trace element analysis of zoned skarn garnet: Implications for multi-stage fluxing and flow of magmatic fluid into a skarn system. *Lithos*, 350-351, 105213.
1. **Park, C.**, Kim, H., *Song, Y. (2018) Mineralogical, micro-textural, and geochemical characteristics for the carbonate rocks of the lower Makgol Formation in Seokgaejae section. *Economic and Environmental Geology*, 51(4), 323-343.

CONFERENCE ABSTRACT

22. Kim, H., **Park, C.**, Jeong, Y.-J., *Song, Y. (2022) *In-situ* Sr isotope analysis of Cambro-Ordovician Carbonate by using new reference material. Goldschmidt conference.

21. Jin, K., **Park, C.**, *Song, Y., Hong, S.S., Ahn, U.S. (2022) Characteristics of the tectonic generation environment in the distribution of trace elements in the upper volcanic rocks of Mt. Halla. Joint Spring Meeting of Korean Geological Societies.
20. **Park, C.**, Kim, H., Song, Y., Chwae, U., Choi, S.-J., Kim, N., Jeong, Y.-J., Kwon, S., Jang, Y. (2022) *In-situ* $^{87}\text{Sr}/^{86}\text{Sr}$ isotope chemo-stratigraphy for carbonate minerals of Jeongseon Limestone, Haengmae Fm., and Hoedongri Fm.. Joint Spring Meeting of Korean Geological Societies.
19. Jeong, Y.-J., Kim, H., **Park, C.**, Kim, H., Song, Y., Han, G., Cheong, W. (2021) New reference materials and *in-situ* Sr isotopic analysis of Carbonates by LA-MC-ICPMS. Joint Fall Meeting of Korean Geological Societies.
18. Jin, K., **Park, C.**, Song, Y., Hong, S.S., Ahn, U.S. (2021) Trace elements and REEs characteristics of basaltic rocks on upper part of Mt. Halla, Jeju Island. Joint Spring Meeting of Korean Geological Societies.
17. **Park, C.**, Park, C., Kil, Y., Song, Y. (2021) Magmatic differentiation of infiltrated melts in mantle xenolith. Joint Spring Meeting of Korean Geological Societies.
16. **Park, C.**, Song, Y., Kim, N., Choi, S.-J., Chwae, U., Kwon, S., Jang, Y. (2021) New Occurrence of Haengmae Formation in Taebaeksan Basin. Joint Spring Meeting of Korean Geological Societies.
15. Sim, H., *Song, Y., Kim, N., Choi, W., **Park, C.**, Jin, K. (2020) Development of mineral discrimination method using synchrotron μ -CT. Joint Spring Meeting of Korean Geological Societies.
14. **Park, C.**, *Song, Y., Kim, N., Choi, S.-J. (2020) Commentary on the Haengmae Formation - II. Mineral composition and micro-texture. Joint Spring Meeting of Korean Geological Societies.
13. Kim, N., Song, Y., **Park, C.**, Chwae, U., *Choi, S.-J. (2020) Commentary on the Haengmae Formation - I. Distribution and stratigraphical significance. Joint Spring Meeting of Korean Geological Societies.
12. **Park, C.**, Kim, N., *Song, Y. (2020) Phengite in carbonate rock syngenetically formed from hydrothermal fluid: micro-textural evidence and mineral chemistry. Goldschmidt conference.
11. **Park, C.**, Park, C., Jin, K., *Song, Y. (2020) Spongy rims of Cr-spinel in peridotite xenoliths, Jeju Island, South Korea: microscale effect of melt-rock interaction by melt infiltration. Goldschmidt conference.
10. **Park, C.**, Hong, S., Ahn, U.S., Hong, S.S., *Song, Y. (2019) Petrogeochemical Characteristics of Volcanic Rock in Hallasan Natural Reserve Area. Joint Fall Meeting of Korean Geological Societies.
9. **Park, C.**, Kim, N., *Song, Y. (2019) Micro-textural and Mineralogical Characteristics of Haengmae Formation. Joint Spring Meeting of Korean Geological Societies.
8. **Park, C.**, Park, C., Hong, S., Choi, W., Kil, Y., Hong, S.S., Ahn, U.S., *Song, Y. (2019) Trace elements and REEs mineral chemistry of some alkali basalt-hosted mantle xenoliths, Jeju island, South Korea. Goldschmidt conference.
7. Kim, H., **Park, C.**, Park, C., Park, M., *Song, Y. (2018) Mineralogical and micro-textural characterization of the target layers for the CO₂ injection in the Pohang Basin, Korea. Goldschmidt conference.

6. **Park, C.**, Kim, H., Park, C., *Song, Y. (2018) Mineralogical and Micro-textural Characteristics of the Middle Ordovician Carbonate Rocks in South Korea. Asia Oceania Geosciences Society (AOGS) conference.
5. **Park, C.**, Kim, J., Choi, W., Park, M., *Song, Y. (2018) A study on polymorph characteristics of carbonate minerals using micro-probe Raman spectroscopy. Joint Spring Meeting of Korean Geological Societies.
4. Sim, H., **Park, C.**, Kim, H., Choi, W., Chung, D., *Song, Y. (2017) GSPO measurement of microparticles in fault gouge using synchrotron CT imaging. Joint Fall Meeting of Korean Geological Societies.
3. Kim, H., **Park, C.**, Park, C., Park, M., *Song, Y. (2017) Micro-textural analysis of CO₂ injection target layer using synchrotron CT image. Joint Fall Meeting of Korean Geological Societies.
2. Kim, H., **Park, C.**, *Song, Y., Park, C. (2017) Characteristics of Mineral Composition and Micro-texture of the Choseon Supergroup in the Seokgaejae area. Joint Spring Meeting of Korean Geological Societies.
1. Kim, H., Park, C., **Park, C.**, *Song, Y., Park, M. (2017) Mineralogical characterization of geological target layers for Carbon Capture and Storage (CCS). Goldschmidt conference.

TEACHING EXPERIENCE AT YONSEI UNIVERSITY

- T.A. in Origin & Evolution of Earth: **Spring 2021**
- T.A. in Earth materials Science & Lab: **Spring 2019, Spring 2020**
- T.A. in Ore deposits: **Fall 2017, Fall 2019**
- T.A. in Experiments in Earth System: **Fall 2018**
- T.A. in Introduction to Earth System Science: **Spring 2017**