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Assistant Professor (project)
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(updated: Jun 21, 2024)

Personal data:

Born: 10 May 1989, Japan

My name in Chinese characters: “小林 英貴”

Education:

– Ph.D., Earth and Planetary Science, the University of Tokyo, Japan, Mar. 2018.

Title: “Role of ocean carbon cycle in glacial reduction of atmospheric carbon dioxide concentration”
(Advisor: Akira Oka)

– M. Sc., Earth and Planetary Science, the University of Tokyo, Japan, Mar. 2014.

– B. Sc., Department of Earth and Planetary Physics, the University of Tokyo, Japan, Mar. 2012.

Research Experiences:

– Apr. 2018 – Jul. 2022: Postdoctoral Project Researcher.

Affiliation: Atmosphere and Ocean Research Institute, University of Tokyo

Main subject: Ocean biogeochemical cycle modeling

– Aug. 2022 – present: Assistant Professor (Project).

Affiliation: Faculty of Science, University of Toyama

Main subject: Ocean biogeochemical cycle modeling

Publications:

Refereed Scientific Journals:

– **Kobayashi, H.**, A. Oka, T. Obase, A. Abe-Ouchi, Assessing transient changes in the ocean carbon cycle during the last deglaciation through carbon isotope modeling, *Climate of the Past*, **20**, 769–787, doi:10.5194/cp-20-769-2024, 2024.

– **小林英貴**, 岡頭, 氷期の海洋炭素循環シミュレーション, *地球化学*, **57**(2), 205–223, doi:10.14934/chikyukagaku.57.205, 2023.

– Sasaki, Y., **H. Kobayashi**, A. Oka, Global simulation of dissolved ^{231}Pa and ^{230}Th in the ocean and the sedimentary $^{231}\text{Pa}/^{230}\text{Th}$ ratios with the ocean general circulation model COCO ver4.0, *Geoscientific Model Development*, **15**, 2013–2033, doi:10.5194/gmd-15-2013-2022, 2022.

- Lhardy, F. et al. [**H. Kobayashi** listed in 11th author], A first intercomparison of the simulated LGM carbon results within PMIP-carbon: role of the ocean boundary conditions, *Paleoceanography and Paleoclimatology*, **36**, e2021PA004302, doi:10.1029/2021PA004302, 2021.
- **Kobayashi, H.**, A. Oka, A. Yamamoto, A. Abe-Ouchi, Glacial carbon cycle changes by Southern Ocean processes with sedimentary amplification, *Science Advances*, **7**(35), eabg7723, doi:10.1126/sciadv.abg7723, 2021.
- **Kobayashi, H.**, and A. Oka, Response of atmospheric pCO₂ to glacial changes in the Southern Ocean amplified by carbonate compensation, *Paleoceanography and Paleoclimatology*, **33**(11), 1206–1229, doi:10.1029/2018PA003360, 2018.
- **Kobayashi, H.**, A. Abe-Ouchi, and A. Oka, Role of Southern Ocean stratification in glacial atmospheric CO₂ reduction evaluated by a three-dimensional ocean general circulation model, *Paleoceanography*, **30**(9), 1202–1216, doi:10.1002/2015PA002786, 2015.

Awards and Fellowships:

- Student Outstanding Presentation Award in the Atmospheric and Hydrospheric Sciences Section, Japan Geoscience Union meeting, 2016.
- Student Outstanding Presentation Award in the Fall meeting, The Oceanographic Society of Japan, 2015
- Student Outstanding Presentation Award in the Atmospheric and Hydrospheric Sciences Section, Japan Geoscience Union meeting, 2015.

Invited Presentations:

- Session: Advanced understanding of Quaternary and Anthropocene hydroclimate changes in East Asia, Annual meeting of Geochemical Society of Japan, 2024.
- The 69th Annual Meeting of the Geochemical Society of Japan
- The 8th Annual Meeting of the Paleosciences Society of Japan
- Session: Ocean geochemistry, Annual meeting of Geochemical Society of Japan, 2022.
- Session: Ice cores and paleoenvironmental modeling, Japan Geoscience Union meeting, 2022.
- Session: Paleoclimatology and paleoceanography, Japan Geoscience Union meeting, 2018.
- Session: Global climate change driven by the Southern Ocean and the Antarctic Ice Sheet, Japan Geoscience Union meeting, 2016.

Presentations at international conferences:

- **Kobayashi, H.**, A. Oka, T. Obase, A. Abe-Ouchi, Assessing transient changes in the ocean carbon cycle during the last deglaciation through carbon isotope modeling, Apr 19, 2024, Vienna, EGU General Assembly, oral.
- **Kobayashi, H.**, A. Oka, T. Obase, A. Abe-Ouchi, Transient response of the ocean carbon cycle during the last deglaciation ~ Investigating the impact of climate and AMOC on carbon isotope signatures ~, July 2023, Rome, XXI INQUA Congress, poster.
- **Kobayashi, H.**, A. Oka, A. Yamamoto, A. Abe-Ouchi, Glacial carbon cycle changes by Southern Ocean processes with sedimentary amplification, July 2023, Berlin, 28th General Assembly of the IUGG, oral.

- **Kobayashi, H.**, A. Oka, A. Yamamoto, and A. Abe-Ouchi: Response of atmospheric pCO₂ to glacial changes in the Southern Ocean amplified by carbonate compensation, 14th International Conference on Paleoceanography (ICP14), Bergen, August 2022, poster.
- **Kobayashi, H.**, A. Oka, A. Yamamoto, and A. Abe-Ouchi, Impacts of enhanced salinity stratification and iron fertilization in the Southern Ocean on the distribution of ocean biochemical tracers during the Last Glacial Maximum, Ocean Sciences Meeting 2022, virtual, March 2022
- **Kobayashi, H.**, A. Oka, A. Yamamoto, and A. Abe-Ouchi, Glacial ocean carbon cycle changes caused by Southern Ocean processes with sedimentary amplification, PMIP 2020, Nanjing/virtual, October 2020, poster.
- **Kobayashi, H.**, and A. Oka, A modeling study of early diagenesis using an ocean sediment model, JpGU-AGU Joint Meeting 2020, virtual, July 2020, iposter.
- **Kobayashi, H.**, A. Oka, A. Yamamoto, and A. Abe-Ouchi, Glacial ocean carbon cycle changes caused by enhanced stratification in the Southern Ocean and iron fertilization from glaciogenic dust, JpGU-AGU Joint Meeting 2020, virtual, July 2020, iposter.
- **Kobayashi, H.**, and A. Oka, Response of atmospheric pCO₂ to glacial changes in the Southern Ocean amplified by carbonate compensation, Ocean Sciences Meeting, San Diego, February 2020, oral.
- **Kobayashi, H.** and A. Oka: Response of atmospheric pCO₂ to glacial changes in the Southern Ocean amplified by carbonate compensation, 13th International Conference on Paleoceanography (ICP13), Sydney, September 2019, poster.
- **Kobayashi, H.** and A. Oka: Response of atmospheric pCO₂ to glacial changes in the Southern Ocean amplified by carbonate compensation, EGU General Assembly, Vienna, April 2019, poster.
- **Kobayashi, H.** and A. Oka: Simulations of glacial ocean carbon cycle with a parameterization of brine rejection, 1st GRAntarctic International Symposium, Tachikawa, December 2018, oral
- **Kobayashi, H.**: Role of carbon cycle in glacial reduction of atmospheric carbon dioxide concentration, Ocean circulation and carbon cycling (OC3) workshop, Cambridge, September 2018, poster.
- **Kobayashi, H.** and A. Oka: Modeling of glacial ocean carbon cycle by focusing on the role of the Southern Ocean and carbonate compensation process, 12th International Conference on Paleoceanography (ICP13), Utrecht, August 2016, poster.
- **Kobayashi, H.** and A. Oka: Role of Southern Ocean in glacial atmospheric CO₂ reduction, Goldschmidt 2016, Yokohama, June 2016, oral.
- **Kobayashi, H.** and A. Oka: Role of Southern Ocean stratification in glacial atmospheric CO₂ reduction, 26th General Assembly of the IUGG, Prague, June 2015, oral.
- **Kobayashi, H.** and A. Oka: Role of Southern Ocean stratification in glacial atmospheric CO₂ reduction, 2014 AGU Fall Meeting, San Francisco, December 2014, poster.

Funding Information:

Current:

- 2023–2026: JST PRESTO (PI)

- 2023–2025: ERCA Operations for the Environment Research and Technology Development Fund (Co-PI)
- 2024–2026: JSPS Kakenhi, Grant-in-Aid for Scientific Research (B) (Co-PI)
- 2024–2027: JSPS Kakenhi, Grant-in-Aid for Transformative Research Areas (A) (Co-PI)

Ended:

- 2021–2023: JSPS Kakenhi, Grant-in-Aid for Young Scientists (PI):
- 2023: EMECS Grants-in-Aid for young researchers (PI)

Professional Memberships:

- Japan Geoscience Union
- The Oceanographic Society of Japan.

Journal referee:

- Climate of the Past