WOODS HOLE OCEANOGRAPHIC INSTITUTION

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EDUCATION

1996-2000 **B.Sc. in Earth Sciences, National Cheng Kung University, Taiwan**

Thesis title: Geochemical Analyses of Hydrothermal Vent Fluids near Guei-Shan Island offshore Northeastern Taiwan. (Advisor: Dr. Chen-Feng You)

2001-2007 **Ph.D. in Earth Sciences, National Cheng Kung University, Taiwan**

Thesis title: Trace Element Ratios and Stable Isotopic Compositions in Planktonic Foraminifera Shell Calcite: Calibration and Paleoceanographic Implications in the South China Sea. (Advisor: Dr. Chen-Feng You)

2006-2007 **Visiting Doctoral Student at Institutes of Marine and Coastal Sciences, Rutgers University, United State**

Research works: [1] Developments of new proxies for planktonic foraminifera; [2] High resolution paleo-climatic records of the South China Sea over the late Holocene; [3] Applications of laser ablation technique for foraminiferal shell chemistry. (Advisor: Dr. Yair Rosenthal)

APPOINTMENTS

2008-2010 **Post-Doctoral Fellow at Earth Dynamic System Research Center, National Cheng Kung University, Taiwan**

Research works: [1] Developments of analytical techniques for non-traditional stable isotopes on MC-ICP-MS and TIMS; [2] Physical/Chemical weathering processes in mountainous rivers; [3] Li, B and Cl isotopes of pore fluids in the convergent margins; [4] Paleo-SST and -pH reconstructions in the western Pacific; [5] Reconstruction of deep ocean circulation in the western Pacific using Nd isotopes in Fe-Mn oxyhydroxide coatings. (Advisor: Dr. Chen-Feng You)

2010-now **Post-Doctoral Fellow & Post-Doctoral Investigator at Department of Geology and Geophysics, Woods Hole Oceanographic Institution, United State**

Research works: [1] Establishments of high-precision Nd isotopic determinations on seawaters, authigenic Fe-Mn oxide coating, and foraminifera in order to explore the utility of Nd isotopes as a tracer for past deep ocean circulation; [2] Reconstructions of spatial and temporal deep water mass structures since the Last Glacial Maximum and across abrupt climate events in the Atlantic and western Pacific using trace elements in foraminifera and sedimentary Nd and Pa/Th isotopes; [3] Applications of high-precision B, Li, Mg, Ca, Sr and Nd isotopic analyses in biogenic carbonates to understand changes in ocean state at short- and long-term timescales. [4] Development of seawater V isotopic analysis and its paleo-application for ocean redox state.
(Advisors: Delia Oppo and Bill Curry; Collaboration: Laura Robinson, Sune Nielsen, Jerzy Blusztajn)

RESEARCH INTERESTS

- Paleoceanography and Paleoclimatology
- Chemical Oceanography: Trace Elements and Their Isotopes
- New Analytical Techniques for Isotopic Analyses using TIMS and MC-ICP-MS
- Biogeochemical Behaviors of Trace Elements and Isotopes in the Hydrosphere
- Pore Water and Hydrothermal Fluid Chemistry

TECHNICAL SKILLS

Trace Elements and Isotopes Chemistry: Pre-concentrations of Seawaters and River waters

Trace metal cleaning for Foraminifera and Corals

Mass Spectrometry:

Inductively Coupled Plasma: (Thermal Finnigan Element 1, 2, and XR)

Multi-collector ICP-MS (Thermal-Fisher Scientific, Neptune)

Introduction System: Solution (Aridus, Aridus II and APEX desolvator, and stable inlet system)

Solid (Nd:YAG Laser LUV266X and Excimer UP193FX)

Thermal Ionization: (Thermo Finnigan Triton TI and MAT 262, Positive and Negative ions)

Carbon and Oxygen Isotope Ratios: (Thermo-Fisher Scientific Delta ^{plus} XP)

Other Analytical Instruments:

ICP-OES: (Perkin-Elmer, Optima 2000DV and Thermo-Fisher Scientific, iCAP 6500)

Atomic Absorption Spectrometry: (Perkin-Elmer AAnalyst 300, Graphite and Flame)

UV-Visible Spectrophotometer: (Varian Cary WinUV)

Ion Chromatography: (Dionex ICS 3000)

WS-CRDS Isotopic Water Analyzer: (Picarro L-1102i)

Column Separation:

Amberlite IRA 743 (B), Sr^{SPEC} (Sr, Pb, Ba, Ca); TRU resin (U and Th); Fe co-precipitation (trace metals, REEs); Chelex-100 resin (transition metals); Ln and Re resin (REEs and Nd isotope); Cation and Anion ion exchange resin (Mg, Ca, Li and Pa/Th isotopes)

Other techniques:

Digestion (notably microwave and high-temperature furnace); Core sediment (including identification of foraminiferal species)

THESIS

Kuo-Fang Huang (2000) Geochemical Analyses of Hydrothermal Vent Fluids near Guei-Shan Island offshore Northeastern Taiwan. B.S. thesis. Department of Earth Sciences, National Cheng Kung University.

Kuo-Fang Huang (2007) Trace Element Ratios and Stable Isotopic Compositions in Planktonic Foraminifera Shell Collected from the South China Sea: Geochemical Calibration and Paleoceanographic Implication. PhD thesis (in English). Department of Earth Sciences, National Cheng Kung University.

PUBLICATIONS (Peer-Reviewed)

1. **Kuo-Fang Huang,** C.-F. You, M.-L. Shen, and H.-L. Lin (2005) Geochemistry of Major Constituents, Boron and Boron Isotopes in Pore Waters from ODP Site 1202, Okinawa Trough. *Terrestrial, Atmospheric and Oceanic Sciences, 16, 1, 75-93.*
2. **Kuo-Fang Huang** and C.-F. You (2007) Tracing Freshwater Plume Migration in the Estuary after a Typhoon Event using Sr Isotopic Ratios. *Geophysical Research Letters, 34, L02403, doi:10.1029/2006GL028253.*
3. **Kuo-Fang Huang**, C.-F. You, H.-L. Lin, and Y.-T. Shieh (2008) *In situ* Calibration of Mg/Ca Ratio in Planktonic Foraminiferal Shell using Time-series Sediment Trap: A case study of intense dissolution artifact in the South China Sea. *Geochemistry Geophysics Geosystems, 9, Q04016, doi:10.1029/2007GC001660.*
4. **Kuo-Fang Huang**, C.-F. You, Y.-H. Liu, R.-M. Wang, P.-Y. Lin and C.-H. Chung (2010) Low-memory, Small Sample Size, Accurate and High-Precision Determinations of Lithium Isotopic Ratios in Natural Materials by MC-ICP-MS. *Journal of Analytical Atomic Spectrometry, 25, 1019-1024.*
5. **Kuo-Fang Huang,** C.-F. You, C.-H. Chung and I.-T. Lin (2011) Nonhomogeneous Seawater Sr Isotopic Composition in the Coastal Oceans: A novel tool for tracing water masses and submarine groundwater discharge. *Geochemistry Geophysics Geosystems, 12, Q05002, doi:10.1029/2010GC003372.*
6. **Kuo-Fang Huang**, J. Blusztajn, D. W. Oppo, W. B. Curry and B. Peucker-Ehrenbrink (2012) High-precision and Accurate Determinations of Neodymium Isotopic Compositions at Nanogram Levels in Natural Materials by MC-ICP-MS. *Journal of Analytical Atomic Spectrometry, 27, 1560-1567.*
7. **Kuo-Fang Huang**, C.-F. You, C.-H. Chung, Y.-H. Lin and Z. Liu (2012a) Tracing the Nd isotope evolution of North Pacific Intermediate and Deep Waters through the last deglaciation from the South China Sea sediments. *J. Asian Earth Sci.* (*Accepted*).

PUBLICATIONS (Peer-reviewed, Student coauthors in *Italics*)

8. *B.-S. Wang*, C.-F. You, **K.-F. Huang**, S.-F. Wu, S. K. Aggarwal, C.-H. Chung and P.-Y. Lin (2010) Direct separation of boron from Na- and Ca-rich matrices by sublimation for stable isotope measurement by MC-ICP-MS. *Talanta, 82, 1378-1384.*
9. *H.-C. Liu*, C.-F. You, **K.-F. Huang** and C.-H. Chung (2011) Precise determination of triple Sr isotopes ($^{87}Sr/^{86}Sr^*$ and $\delta^{88}Sr$) using MC-ICP-MS. *Talanta, 88, 338-344.*
10. *E. Anagnostou*, **K.-F. Huang**, C.-F. You, E. L. Sikes and R. M. Sherrell (2012) Evaluation of Boron Isotope Ratio as a pH Proxy in the Deep Sea Coral *Desmophyllum dianthus*: Evidence of Physiological pH Adjustment. *Earth Plan. Sci. Lett., 349-350, 251-260.*
11. *Y.-C. Liu*, C.-F. You, **K.-F. Huang**, R.-M. Wang, C.-H. Chung and H.-C. Liu (2012) Boron sources and transport mechanisms in river catchments: Isotopic evidences. *J. Asian Earth Sci., 58, 16-23.*

12. C.-F. You, B.-S. Wang, C.-H. Chung and **K.-F. Huang** (2009) Determination of the strontium isotope ratio by ICP-MS ginseng as a tracer of regional origin. *Food Chemistry, 115, 387-387.*

13. I.-T. Lin, C.-H. Wang, C.-F. You, S. Lin, **K.-F. Huang** and Y.-G. Chen (2010) Deep submarine groundwater discharge indicated by tracers of oxygen, strontium isotopes and barium content in the Pingtung coastal zone, southern Taiwan. *Marine Chemistry, 122, 51-58.*

14. M.-C. Cheng, C.-F. You, F.-J. Lin, C.-H. Chung and **K.-F. Huang** (2010) Seasonal variation in long-range transported dust to a subtropical islet offshore northern Taiwan: Chemical composition and Sr isotopic evidence in rainwater. *Atmospheric Environment, 44, 3386-3393.*

15. Z. Liu, C. Colin, X. Li, Y. Zhao, S. Tuo, Z. Chen, F. P. Siringan, J. T. Liu, C.-Y. Huang, C.-F. You and **K.-F. Huang** (2010) Clay mineral distribution in surface sediments of the northeastern South China Sea and surrounding fluvial drainage basins: Source and transport. *Marine Geology, 277, 48-60.*

16. M.-C. Cheng, C.-F. You, F.-J. Lin, **K.-F. Huang** and C.-H. Chung (2011) Source of Cu, Zn, Cd and Pb in rainwater at a subtropical islet offshore northern Taiwan. *Atmospheric Environment, 45, 1919-1928.*

17. H.-C. Liu, C.-F. You, C.-H. Chung, **K.-F. Huang** and Z. Liu (2011) Temporal and spatial variation of sediment source in the Shihmen Reservior in northern Taiwan: Sr isotope in river water and stream sediments. *J. Asian Earth Sci., 41, 297-306.*

18. H.-C. Chao, C.-F. You, B.-S. Wang, C.-H. Chuang and **K.-F. Huang** (2011) Boron isotopic composition in mud volcano fluids: Implications of fluid migration in the shallow subduction zones. *Earth Plan. Sci. Lett., 305, 32-44.*

MANUSCRIPTS (In Revision)

Kuo-Fang Huang, Y. Rosenthal, C.-F. You, H.-L. Lin and Y.-T. Shieh (2012) Reconstructions of Changes in Surface Water pH and pCO_2 in Tropical South China Sea using Foraminiferal B/Ca Ratio (*Paleoceanography*)

R. Shinjo, R. Asami, **K.-F. Huang**, C.-F. You and Y. Iryu (2012) Long-term ocean acidification trend in the tropical North Pacific since the mid-20th century reconstructed from an extended coral archive (*Mar. Geol.*)

P.-Y. Lin, C.-F. You, **K.-F. Huang** and C.-H. Chung (2012) Ocean Acidification Records in the Western Pacific: Boron Isotope Compositions of Coral (*Limnology and Oceanography*)

CONFERENCE ABSTRACTS (First Author Only)

1. **Kuo-Fang Huang**, C.-F. You, H.-L. Lin, Y.-T. Shieh, and M.-D. Li (2005) Calibration of Mg/Ca and Sr/Ca in Planktonic Foraminiferal Shells and Seawater by Time-series Sediment Trap in the South China Sea. ***Workshop for 2005 Oceanographic Research Programs***, *Abstract Volume, 245-246.*

2. **Kuo-Fang Huang**, C.-F. You, C.-H. Chung, and I.-T. Lin (2005) Studying the Dynamic Distribution of Fresh Water Plume at the Estuary Using Sr Isotopic Compositions. ***2005 Geological Society Annual Meeting***.

3. **Kuo-Fang Huang** and C.-F. You (2007) Non-homogeneous Distributions of Seawater Sr Isotopic Composition in the Coastal Waters around Taiwan. ***2007 Taiwan Geosciences Assembly***.

4. **Kuo-Fang Huang**, Y. Rosenthal, C.-F. You, H.-L. Lin, and Y.-T. Shieh (2009) An Evaluation of Biological and Environmental Controls on B/Ca in Planktonic Foraminifera: Limitation and Application in Paleoceanography. ***2009 Annual Congress of Geological Society of Taiwan.***
5. **Kuo-Fang Huang** and C.-F. You (2009) Non-homogeneous Distributions of Seawater Sr Isotopic Composition in the Coastal Waters around Taiwan: Implications for tracing submarine groundwater discharge and oceanic water masses. ***Workshop for 2009 Oceanographic Research Programs.***
6. **Kuo-Fang Huang**, C.-F. You, R.-M. Wang and C.-H. Chung (2010) Riverine Lithium Isotope Systematic during Continental Weathering Processes from an Active Orogenic Belt, Taiwan. ***2010 Annual Congress of Geological Society of Taiwan.***

INTERNATIONAL CONFERENCE ABSTRACTS (First Author Only)

1. **Kuo-Fang Huang**, C.-F. You, H.-L. Lin, Y.-T. Shieh, and M.-D. Li (2005) Calibration of Mg/Ca and Sr/Ca in Planktonic Foraminiferal Shells and Seawater by Time-series Sediment Trap in the South China Sea. ***EGU General Assembly 2005. Vienna, Austria***.
2. **Kuo-Fang Huang**, C.-F. You, C.-H. Chung, and I.-T. Lin (2006) Coastal Fresh Water Plume Migration Traced by High Precision Strontium Isotopic Composition in the Kao-Ping Estuary, Southern Taiwan. ***2006 Ocean Science Meeting, Hawaii, United States.***
3. **Kuo-Fang Huang**, Y. Rosenthal, C.-F. You, H.-L. Lin, and Y.-T. Shieh (2006) B/Ca and S/Ca in Planktonic Foraminiferal Shells: Core-top Calibrations and Paleoceanographic Implications. ***2006 AGU Fall Meeting. San Francisco, United States.***
4. **Kuo-Fang Huang** and C.-F. You (2007) Non-homogeneous Distribution of Sr Isotopic Composition in the Coastal Seawater around Taiwan: Implications for Submarine Groundwater Discharge and Oceanic Water Masses. ***2007 AOGS 4th Annual Meeting, Bangkok, Thailand.***
5. **Kuo-Fang Huang**, Y. Rosenthal, C.-F. You, H.-L. Lin, and Y.-T. Shieh (2008) An Evaluation of Biological and Environmental Controls on B/Ca ratio in Planktonic Foraminifers: Limitation and Application in Paleoceanography. ***PAGES Global Monsoon Symposium, Shanghai, China.***
6. **Kuo-Fang Huang**, Y. Rosenthal, C.-F. You, H.-L. Lin, and Y.-T. Shieh (2008) An Evaluation of Temperature Control on Mg/Ca, Sr/Ca and B/Ca in Surface-dwelling Species, *Globigerinoides ruber*: Comparison of Sediment Trap and Core Top Systematics from the South China Sea. ***2008 AGU Fall Meeting. San Francisco, United States.***
7. **Kuo-Fang Huang**, C.-F. You, C. G. Wheat and H.-L. Lin (2009) Evidence for Deep Fluid Circulation and Gas Hydrate Dissociation using Boron and Boron Isotopes of Pore Fluids in the Convergent Margins. **Invited talk in** ***The 3rd Taiwan-Japan Earth Science Symposium.*** **Geochemistry Section**, ***Okinawa, Japan.***

8. **Kuo-Fang Huang**, Y. Rosenthal, C.-F. You, H.-L. Lin, and Y.-T. Shieh (2009) A Further Evaluation of Temperature Dependence on Foraminiferal Mg/Ca and B/Ca in Surface-dwelling Species, *Globigerinoides ruber*: A Sediment Trap Study. **Invited talk in Sediment Trap Workshop.** ***Kaohsiung, Taiwan.***

9. **Kuo-Fang Huang**, C.-F. You, R.-M. Wang and C.-H. Chung (2009) Riverine Li Isotope Systematic during Continental Weathering from an Active Orogenic Belt. ***Goldschmidt 2009. Davos Switzerland.***

10. **Kuo-Fang Huang**, C.-F. You, Z.-D. Jin, R.-M. Wang and P.-Y. Lin (2009) Riverine Li isotope Composition as a Probe for Chemical Weathering Intensity: A case study in Lake Qinghai catchments and application for weathering history. ***2009 Irkutsk Workshop. Irkutsk, Russia.***

11. **Kuo-Fang Huang**, C.-F. You, R.-M. Wang and C.-H. Chung (2009) Riverine Sr-Li Isotope as a Probe for Chemical Weathering Intensity: A case study in Kao-ping River. ***FluSed 2nd Workshop. Shanghai, China.***

12. **Kuo-Fang Huang**, C.-F. You, P.-Y. Lin, R.-M. Wang and C.-H. Chung (2009) Li Isotope Composition in Coral Skeleton as a Potential Proxy for the Silicate Weathering Intensity. ***2009 AGU Fall Meeting. San Francisco, United States.***

13. **Kuo-Fang Huang**, C.-F. You, Y.-H. Liu, R.-M. Wang and C.-H. Chung (2010) Low-memory, Small Sample Size, Accurate and High-Precision Determinations of Lithium Isotopic Ratios in Natural Materials by MC-ICP-MS. ***2010 Western Pacific Geophysics Meeting. Taipei, Taiwan.***

14. **Kuo-Fang Huang**, D. W. Oppo, W. B. Curry and J. S. Blusztajn (2011) Evaluating the Utility of Multiple Proxies (Mg/Ca, Li/Ca, Cd/Ca, $\delta^{13}C$ and Nd isotopes) in Foraminiferal Shells: New calibrations from the Demerara Rise, western tropical Atlantic. ***2011 AGU Fall Meeting. San Francisco, United States.***

15. **Kuo-Fang Huang**, D. W. Oppo, W. B. Curry and J. S. Blusztajn (2012) Towards An Improved Understanding of Paleoceanographic Proxies for Antarctic Intermediate Water Circulation: A core-top perspective. ***The 22nd V. M. Goldschmidt Conference, Montreal, Canada.***

16. **Kuo-Fang Huang**, D. W. Oppo and W. B. Curry (2012) Multi-proxy reconstructions of deglacial variability of Antarctic Intermediate Water circulation in the western tropical Atlantic. ***2012 AGU Fall Meeting. San Francisco, United States.***

References

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