

Department of
**Earth and
Environmental
Sciences**

Yearbook
2024-2025





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Message from the Dean of Faculty of Science

We continue to be very excited with the recent establishment of the new Department of Earth and Environmental Sciences (DEES) in the Faculty of Science at The Chinese University of Hong Kong in August 2024. Many of us have worked together for this new initiative involving collaborative efforts of multiple units in the faculty for four years since November 2020. This is a milestone of the strategic development in our faculty towards enhancing our education and research capability for addressing global societal and scientific challenges in the key areas of earth, environment, and sustainability. As Dean of Science and a researcher deeply invested in catalysis and sustainable energy solutions, I believe establishing DEES is a bold step toward enhancing the interdisciplinary education and research at CUHK and solving humanity's existential challenges. Born from the pioneering Earth System Science Program (directly under the faculty) and Environmental Science Program (under the School of Life Sciences and Department of Chemistry) in the Faculty, DEES unites interdisciplinary expertise to address climate change, ecosystem resilience, and sustainable development with scientific rigor and urgency. Hong Kong, as a global metropolis in the Greater Bay Area, faces acute vulnerabilities to environmental shifts, positioning DEES at the nexus of innovation and real-world impact. This new department embodies atmospheric science, geophysics, environmental sciences, and cutting-edge technology, aligning with global imperatives like the UN Decade on Ecosystem Restoration.

My own research in catalysis and CO₂ conversion for sustainable chemicals and fuels reinforces my belief: progress demands collaboration across disciplines, borders, and generations. To DEES faculty, staff, and students - champion interdisciplinary curiosity, embrace bold ideas, and lead with purpose. Together, we will nurture the next generation of talents, leaders and advance science that safeguards our planet and empowers our societies. Let this milestone mark not just a new department, but a renewed pledge to shape a sustainable future through education, discovery, innovation and global engagement. I would like to thank all the academic and administrative staff members for their efforts in this initiative, all the students and alumni for their support and the university leadership team for their support!

I wish all staff and students in the DEES all the best as we work together to further advance the education, research, and service in the Department of Earth and Environmental Sciences as a part of the Faculty of Science at CUHK.

SONG Chunshan
Dean of Science
Wei Lun Professor of Chemistry



Message from the Chairman

It is my great pleasure to present the second yearbook of the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong. This publication reflects the vibrant spirit of our community and highlights the achievements and shared experiences from the past year.

I would like to extend my sincere gratitude to our Dean, Professor Chunshan Song, for his unwavering support and guidance during our department's continued growth. His vision and leadership have been instrumental in shaping our academic pursuits and upholding our tradition of excellence.

This year has been particularly significant for the department. We successfully renovated our teaching lab at Science Centre 130, enhancing our learning environment. Moreover, we are proud to have been awarded two RGC CRF grants, totalling over \$10 million, which will further advance our research capabilities.

As we reflect on our journey, we celebrate the dedication and accomplishments of all members of our department—faculty, staff, undergraduate students, and graduate students. Your passion, perseverance, and creativity have been vital in fostering a dynamic and supportive academic community.

I would especially like to thank our undergraduate students for their enthusiasm, curiosity, and active participation in our programs, as well as our graduate students for their resilience, research excellence, and ongoing contributions to the intellectual life of our department. I am also deeply appreciative of our faculty members for their steadfast commitment to teaching, research, and service.

I invite you to explore the pages of this yearbook, which are filled with memories, milestones, and examples of the collaborative spirit that unites us. Let us cherish these moments as we look forward to even greater achievements for the Department of Earth and Environmental Sciences in the years ahead.

Thank you to everyone who has contributed to this yearbook and to the ongoing success of our department. Your dedication and support are truly appreciated.

CHOW Tat Shing Alex
Chairman, Department of Earth and Environmental Sciences
Professor



Message from the Deputy Chair of Education

Our Bachelor of Science in Earth and Environmental Sciences (EES) program at CUHK provides an integrated scientific education on the dynamic interactions among the atmosphere, geosphere, biosphere and hydrosphere. Through a rigorous curriculum combining physics, chemistry, biology, statistics, computation, and machine learning, students develop analytical and technical skills to understand and address pressing sustainability challenges, including climate change, natural hazards, biodiversity loss and environmental pollution.

Students may specialize in one of three streams—Atmospheric Science (ATM), Geology and Geophysics (GEO), or Environmental Science and Technology (EST). The EST stream is accredited by the Hong Kong Institute of Qualified Environmental Professionals (HKIQEP), providing professional recognition and enhanced career prospects. EES students also benefit from research and internship opportunities, including placements at the Hong Kong Observatory, and scholarships supporting local and overseas research. Graduates pursue diverse careers in environmental consulting, geotechnical and meteorological services, climate and energy management, nature conservation, and education, joining a growing network of professionals dedicated to understanding and protecting our planet and striving for the sustainability of our common future.



TAI Pui Kuen Amos
*Deputy Chair of Education, Department of Earth and Environmental Sciences
Professor*

Message from the Deputy Chair of Research

Research in the Department of Earth and Environmental Sciences spans a broad range of spatial and temporal scales, encompassing studies of the Earth system as well as terrestrial planets such as Mars. Many of our research areas align closely with the university’s strategic focus on Environment and Sustainability, including but not limited to climate change and air pollution, natural hazards, and water–food–climate interactions.

In response to national priorities and institutional initiatives, the department has recently launched new directions such as polar studies, which—together with our deep ocean and high mountain investigations—form a comprehensive research scheme on Extreme Environments.

Our faculty, postdoctoral researchers, and students have made significant contributions across various domains, as evidenced by high-impact journal publications, prestigious awards and grants, and meaningful media coverage and societal impact.

Looking ahead, we envision deeper interdisciplinary collaborations and further advancements in understanding the Earth system and planets.



YANG Hongfeng
*Deputy Chair of Research, Department of Earth and Environmental Sciences
Professor*

Message from the Head of Graduate Division

**Graduate Division of Earth and Environmental
Sciences - Celebrating a Decade of Discovery,
Diversity, and Community**

From just four pioneering students in 2014 to a thriving, international cohort of over 55 current students and 30 alumni, the Graduate Division has grown into a vibrant hub of interdisciplinary research and global connection.

As the only graduate programme in the region that bridges the lithosphere, atmosphere, hydrosphere, biosphere, and the dynamic interactions between them, the Division is more than a place of academic excellence. It’s a space where curiosity meets collaboration, where cultures converge, and where lifelong friendships are forged.

Our students and faculty work at the frontiers of Earth and environmental sciences, driven by a shared passion to understand our planet and shape a more sustainable future. Whether heading into the field, diving into data, or gathering for a festive barbecue party, our community is united by a spirit of exploration, mentorship, and joy.

Here’s to the fantastic journey in the past decade, and to the many adventures ahead!



LIU Lin
Head of Graduate Division, Department of Earth and Environmental Sciences
Associate Professor

Our History

Our History

From *ESSC* and *ENSC* to *EESC*

The Department of Earth and Environmental Sciences (EES) has grown from two pioneering programmes—Environmental Science (ENSC) and Earth System Science (ESSC)—to a unified department dedicated to interdisciplinary research and education in sustainability, climate change, and environmental challenges. Explore key milestones in our journey.

2012 *Founding of ESSC*

Earth System Science (ESSC) Programme is launched, focusing on interdisciplinary research and teaching in Earth and atmospheric sciences.

2012-2022 *Growth of ESSC*

ESSC becomes a full-fledged academic unit, achieving excellence in research and teaching. New offices and teaching labs are established, and external funding is secured.

Our Logo

The Correlated Dynamics: Earth System Science

Miss Yvonne Ip, from the programme’s first cohort, designed its logo to reflect the Earth’s interconnected spheres—atmosphere, geosphere, hydrosphere, and biosphere. Using white strokes, she depicted a cloud, Earth’s crust, water, and a leaf, colored in sky blue, ochre brown, ocean blue, and green. Their circular arrangement symbolizes the interrelation and mutual influence of these spheres.



2022 *Integration into EESC*

ENSC and ESSC merge to form the EESC: Earth and Environmental Sciences Programme, with a streamlined curriculum and expanded faculty.

2024 *Establishment of EES Department!*

On 1 August 2024, the Department of Earth and Environmental Sciences is formally established, embarking on a new journey to tackle pressing environmental challenges.

1994 *Founding of ENSC*

The Environmental Science Programme (ENSC), the first of its kind in Hong Kong, is established with multidisciplinary staff from Chemistry, Biology, and Biochemistry.

2012-2014 *Formative Phase*

ESSC develops its vision and recruits key faculty. The graduate division of Earth & Atmospheric Sciences (EASC) is established.

2014-2020 *Growth Phase*

ESSC becomes a full-fledged academic unit, achieving excellence in research and teaching. New offices and teaching labs are established, and external funding is secured.

2020-2025 *Integration Phase*

ESSC and ENSC are working towards integration under the initiative of professors, with additional support from the Faculty. ESSC celebrates its 10th anniversary in 2022.



*First Batch of Graduates from ENSC
1997*



*Mong Man Wai Building Office Establishment
2015*



*First Batch of Graduates from ESSC
2016*



*EES Department Inauguration Ceremony
2025*

Faculty and Staff

Our EES department boasts a world-class faculty committed to advancing research and education to meet future challenges.

Faculty expertise spans diverse fields such as climate dynamics, biogeochemistry, geophysics, atmospheric chemistry, and cryospheric science.

Notable achievements include ground-breaking work on atmospheric aerosol transformations, sustainable agriculture, earthquakes and volcanoes, and marine biogeochemical dynamics. Our faculty members lead innovative projects, such as smart floating wetlands, wildfire impacts on ecosystems, and AI applications in Earth sciences. With global collaborations and cutting-edge research, EES faculty are shaping solutions to pressing environmental and societal issues.



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CHOW Tat Shing Alex

Chairman/Professor

Prof. CHOW Tat Shing Alex is a Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK), where he is affiliated with United College.

As the Principal Investigator, Prof. CHOW leads two major re- search grants projects: the General Research Fund project “Bio- geochemical Characteristics of Halogenated Organic Matter in Megacities” (2026-2028) and the “C-FIST: Establishing World’s Premier Environmental Organic Carbon Fingerprint Imaging Science & Technology Laboratory in Hong Kong” (2025-2028) under Collaborative Research Fund.

Research Interest(s)

- Aquatic and Terrestrial Organic Matter
- Source Water Quality and Drinking Water Treatability
- Biogeochemical Cycles and Ecosystem Services

Research Project(s)

Prof. CHOW’s team works on the biogeochemistry of organic matter (organic carbon, specifically) across both aquatic and terrestrial ecosystems. Their research spans from the formation of carbon pools at watershed sources, to their transformation in conveyance and distribution systems, treatment utilities, and their ultimate impact on end users.

Notable Achievement(s)

- Supervised PhD student MO Xiaohan was awarded the pres- tigious National Natural Science Foundation (NSFC) Basic Research Scheme for PhD Students (2025–2027) for establish- ing a molecular fingerprinting database for distinct carbon pools using ultrahigh-resolution mass spectrometry.





TAI Pui Kuen Amos

Professor

Prof. TAI Pui Kuen Amos is a Professor and Deputy Chair (Education) of the Department of Earth and Environmental Sciences at CUHK. He is affiliated with C.W. Chu College, and is also a Research Fellow of both the Institute of Environment, Energy and Sustainability (IEES) and Institute of Space and Earth Information Science (ISEIS).



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—— *Research Interest(s)*

- Atmospheric chemistry and physics
- Ecological climatology and biosphere-atmosphere interactions
- Air Pollution and climate change
- Sustainable forestry, agriculture and food system transformation

—— *Research Project(s)*

Prof. TAI's team (photo below) focus on three main directions of research, which are all related to the interactions between the atmosphere and land ecosystems, and highly relevant for the pursuit of various United Nations' Sustainable Development Goals:

1. Impacts of air pollution and climate change on global forest and crop productivity;
2. Effects of land use and forest changes and management on air quality and climate;
3. How agriculture and food systems can be transformed to mitigate air pollution and climate change.

—— *Notable Achievement(s)*

- Ten Outstanding Young Persons of Hong Kong, Junior Chamber International Hong Kong, Oct, 2024.
- Invited lecture, Food system transformation to combat environmental pollution and climate change, Hong Kong Science Museum. Dec, 2024.
- Keynote speech, The role of civil society in climate transition and finance, Advancing Transition Finance and Cross-Border Green Financing – Engaging the Public to Achieve a Net-Zero Economy, China Pavilion Side Event Forum, COP29 United Nations Climate Change Conference. Nov, 2024.
- Numerous media appearances on RTHK, TVB, and various newspapers, 2024–25.



YANG Hongfeng

Professor

Prof. YANG Hongfeng is a Professor and Deputy Chair (Research) of the Department of Earth and Environmental Sciences, and the Director of the Aerospace Science and Earth Informatics & X Double Major Programme at CUHK. He is affiliated with New Asia College. Prof. YANG is also appointed as Scientific Advisor for Hong Kong Observatory.



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—— *Research Interest(s)*

- Earthquake source physics
- Subduction zones: observations and modeling
- Dense seismological array: earthquake monitoring, fault zone and crust imaging
- Human induced earthquakes

—— *Research Project(s)*

Prof. YANG and his research group (photo below) are working on various projects including Sumatra subduction zone, fault zones of the 2023 Mw7.8 Turkey earthquake, earthquakes in the shale gas fields of southern Sichuan Basin. Field work of deploying seismic network was conducted in Sichuan.

—— *Notable Achievement(s)*

- First Prize of Earthquake Sciences, China Society of Seismology. Jul, 2025.
- Elected as the Section President of Solid Earth, Asian and Oceania Geoscience Society, 2025
- Supervised PhD student ZI Jinping was awarded Outstanding Students Award, CUHK, Feb, 2025.
- Outstanding Editorial Service, Earthquake Science, Dec, 2024
- Top 2% Scientists List, Elsevier and Stanford University, Oct, 2024.
- Numerous media interview, TVB, South China Morning Post, Ming Pao, Sing Tao, etc. 2024-25.





CHAN Man Nin

Associate Professor

Prof. CHAN Man Nin is an Associate Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). Prof. CHAN is affiliated with New Asia College, where he also serves as the Warden of Mei Yun Tang.

—— *Research Interest(s)*

- Chemical Transformation of Organosulfur Compounds via Heterogeneous Oxidation: Implications for Atmospheric Aerosol Sulphur Cycle
- Chemical Transformation of Isoprene Derived Secondary Organic Aerosols via Heterogeneous Oxidation during Daytime and Nighttime,
- Evolution of Heterogeneous Reactivity of Atmospheric Aerosols over Time

—— *Research Project(s)*

Below is one of the research projects that Prof. CHAN and his group (photo below) is working on: the deactivating effect of hydroxyl radicals by sulfate and sulfite functional groups.

Organosulfur compounds such as organosulfates (R-OSO_3^-) and sulfonates (R-SO_3^-) are important constituents of atmospheric aerosols. One crucial process that can significantly affect the abundance and fate of these compounds in atmospheric aerosols is their oxidation by hydroxyl ($\bullet\text{OH}$) radicals in aqueous phase.

Prof. CHAN's research team reveal that the two sulfur-containing groups, sulfate ($-\text{OSO}_3^-$) group for alkyl sulfates and sulfite ($-\text{SO}_3^-$) group for sulfonates, exhibit strong deactivating effect on oxidative kinetics. This could be explained by the strong electron-withdrawing nature of the $-\text{OSO}_3^-$ and $-\text{SO}_3^-$ groups, which lowers the hydrogen abstraction rates during $\bullet\text{OH}$ oxidation.

They demonstrate that the oxidation of organosulfates and sulfonates by $\bullet\text{OH}$ radical in aqueous phase can be significantly modulated by the presence of the sulfur functional groups.



LIU Lin

Associate Professor

Prof. LIU Lin is an Associate Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). At CUHK, Prof. LIU is affiliated with Chung Chi College, where he serves as the Department Coordinator.

Prof. LIU has contributed a book chapter on “GNSS and the Cryosphere” in the recently published book “GNSS Monitoring of the Terrestrial Environment: Earthquakes, Volcanoes, and Climate Changes” edited by C. Kreemer and Y. Aoki.

—— *Research Interest(s)*

- Cryospheric Science
- Geodesy and Geophysics
- Remote Sensing
- Deep Learning Applications in Earth and Environmental Sciences

—— *Research Project(s)*

Prof. LIU's research team uses artificial intelligence in the studies of cold region landforms. His recent projects focused on rock glaciers on the Tibetan Plateau. His team has produced the very first comprehensive inventory that includes more than 44 thousand rock glaciers across the entire plateau.

—— *Notable Achievement(s)*

Prof. LIU took the role as a Science Adviser to Eos. He is serving a 5-year term representing AGU's Geodesy section to this influential science news magazine.



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TAM Chi Yung Francis

Associate Professor

Prof. TAM Chi Yung Francis is an Associate Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). At CUHK, Prof. TAM is affiliated with United College.

Prof. TAM's research focuses on climate dynamics, particularly in the areas of monsoons, tropical circulation systems, impacts of climate change on extreme weather.

He is interested in understanding the implications of urbanization and land-use changes on heat waves, tropical cyclones, severe rainstorms and air quality in megacities. His inspiration stems from curiosity about the interactions between physics of the atmosphere, oceans and land surfaces. While pursuing a Ph.D. at Princeton, he became fascinated by the complexities of monsoons and related air-sea interactions.

Prof. TAM employs advanced Earth System models to understand how human activities affect extreme weather and climate. Ultimately, his work is driven by a commitment to enhance our resilience to climate extremes in vulnerable regions.

Prof. TAM is a recipient of Association of Commonwealth Universities (ACU) Fellowship, Oliver Lectureship from UT Austin, World Universities Network (WUN) research development fund, and is a Fellow of the Hong Kong Meteorological Society.

—— *Research Interest(s)*

- Atmospheric and Climate Dynamics
- Sub-seasonal to Seasonal Predictability
- Influence of Global Warming
- Specialised in Using Earth System Models with Various Spatial Resolutions for Studying Extreme Climate and Weather in the Tropics and Asian Monsoon Region (including El Nino, Intense Precipitation, Tropical Cyclones, their Induced Storm Surges and Extreme Sea Waves), and their Impacts on Highly Urbanised Coastal Megacities



TAN Yen Joe

Associate Professor

Prof. TAN Yen Joe is an Associate Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK), where he is affiliated with Morningside College. As a geophysicist, he studies earthquake, volcanic, and earth surface processes, including those occurring beneath the ocean. Before joining CUHK, he was a Postdoctoral Scholar in the Department of Geophysics at Stanford University after earning a PhD in Geophysics from Columbia University, and a BSc in Geology and a BA in Anthropology and Sociology from Lafayette College.

—— *Research Interest(s)*

- Marine geophysics
- Volcano seismology
- Earthquake processes
- Environmental seismology
- Machine learning applications in geophysics

—— *Research Project(s)*

Prof. TAN's team (photo below) is applying machine learning to improve detection of various types of seismic events and probe different modes of earthquake interaction and clustering, including at volcanic regions and along oceanic faults. They are also leveraging ocean bottom seismic data to study magmatic processes and characterize the dynamics of submarine eruptions. Lastly, they are developing seismic methods to quantify the dynamics of large landslides, debris flows, and outburst floods and improve early warning capabilities.

—— *Notable Achievement(s)*

- Visiting Fellowship, University of Tokyo Earthquake Research Institute. 05/2025.
- Exemplary Teaching Award, CUHK Faculty of Science. 02/2025.
- Speaker, The Geological Society of Hong Kong Lecture Series. 08/2025.
- Speaker, 19th Lau Oi Wah Memorial Science Lecture. 04/2025.



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THIBODEAU Benoit

Assistant Professor

Prof. THIBODEAU is an environmental biogeochemist and climate scientist. He obtained his Ph.D in 2011 in Canada and then occupied research positions at the University of Tokyo, Japan, the Academy of Sciences Mainz, Germany and the University of Hong Kong. He joined CUHK in 2021 and leads a dynamic group of marine biogeochemists. Students in his lab possess different background (geology, biology, chemistry) and thus they employ integrative methods to solve contemporary Earth and Environmental Sciences issues.

—— *Research Interest(s)*

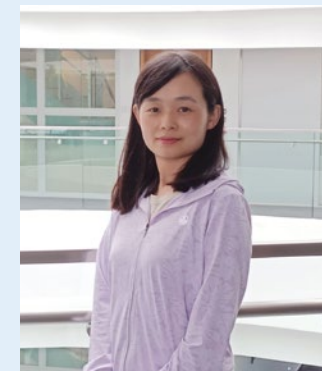
- Paleoceanography
- Impact of Climate Change on Global Oceanic Circulation
- Coastal Biogeochemical Cycles
- Ecosystem Services (e.g., Blue Carbon and Nitrogen)
- Stable Isotopes

—— *Research Project(s)*

In 2024-2025 the Marine Biogeochemical Dynamic group (photo below) continued to unravel fundamental knowledge regarding nutrient dynamics in Hong Kong coastal water, partly under the umbrella of the Area of Excellence Study of the Regional Earth System for Sustainable Development under Climate Change in the Greater Bay Area. They notably revealed the response of seagrasses to multiple anthropogenic stressors and how it impacts their ability to store carbon and remove nitrogen (Bass et al., 2025a, 2025b). Moreover, the group highlighted the importance of atmospheric deposition and tidal pumping in controlling coastal primary productivity (Lo et al., 2024). Finally, Prof. THIBODEAU led an international effort to demonstrate the sensitivity of deep-water formation to freshwater forcing in high latitude (Thibodeau et al., 2025).

—— *Notable Achievement(s)*

- RAISePlus Expert assessment Panel, Innovation and Technology Fund (ITF), Hong Kong
- Interviews by RTHK and SCMP about the visit of Chinese research vessel Xue Long 2
- Guest speaker, Atlantic Meridional Overturning Circulation under Warm Climate, University of British Columbia, Canada, 15/11/2024



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ZHAI Shixian

Assistant Professor

Prof. ZHAI Shixian is an Assistant Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). At CUHK, Prof. ZHAI is affiliated with the United College.

—— *Research Interest(s)*

- Atmospheric Chemistry Modeling
- Atmospheric Chemistry and Air Quality
- Remote Sensing of Atmospheric Composition
-

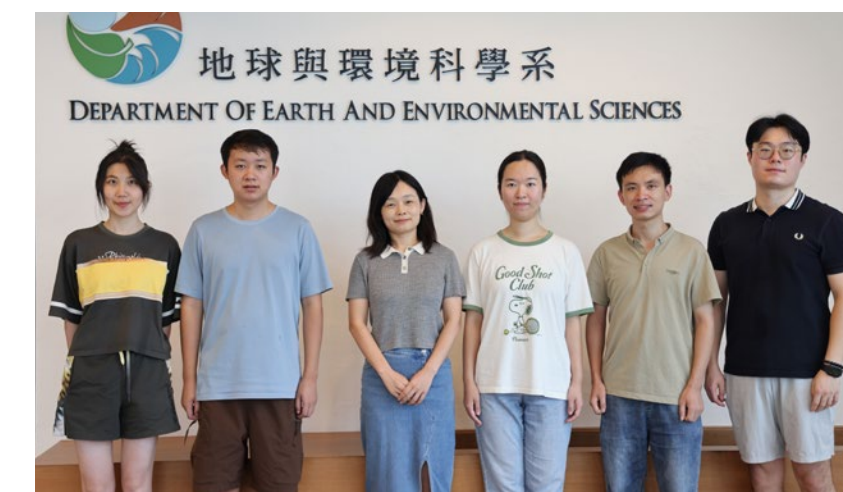
—— *Research Project(s)*

Prof. ZHAI's team (photo below) focuses on better understanding the physical and chemical processes controlling atmospheric composition and air quality. To this end, her team interprets observations from satellites, aircraft, ground networks, and sondes with atmospheric chemistry modelling and machine learning.

Her recent projects are about atmospheric reactive nitrogen, atmospheric aerosol optical properties, heterogeneous chemistry, and particulate matter and ozone interactions.

—— *Notable Achievement(s)*

- Supervised PhD student YU Zheng (the third from the right side of the photo below) was awarded the Outstanding Student Presentation Awards (OSPA), The 2nd GEOS-Chem Asia Meeting. 05/2025
- 2024 ACS Publications Peer Reviewer Certificate of Recognition & Appreciation, American Chemical Society. 03/2025.
- Guest Speaker, Taiwan Top Science Student (TTSS), GAIA STEM Lectures Series. 09/2025.





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ZHAN Yan

Ng Yin Ying Assistant Professor of Geophysics

Prof. ZHAN establishes physical models to decipher the early warning from volcanoes such as surface motion, earthquakes, and gas emissions. He also develops data-model fusion techniques to make volcanic eruption forecasts possible. The data assimilation framework catalyzes fast iterates of models to describe volcanoes' behavior by integrating multiple observations from geology, geophysics, geodesy, and geochemistry.

Prof. ZHAN joined CUHK at 2022 as an Assistant Professor, where he is affiliated with Lee Woo Sing College. Prior to this, he served as a Postdoctoral Fellow at the Earth and Planets Laboratory of the Carnegie Institution for Science, USA.

—— *Research Interest(s)*

- Lithospheric Deformation
- Volcano Geophysics
- Dynamics of Magma
- Numerical Modelling of Crustal Processes
- Data Assimilation in Geoscience

—— *Research Project(s)*

Prof. ZHAN's team (photo below) is currently working on:

- Dike propagation prior to volcanic eruptions
- Lithospheric deformation on Mercury
- Geyser eruption dynamics on and beyond the earth
- Caldera collapse at High Island Reservoir Volcano, HK
- Magma migration and eruption dynamics on the Moon

—— *Notable Achievement(s)*

- ESF Innofair 2025 Professor Mentor
- Featured interview, HOY TV, 06/2025



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DU Penghui

Research Assistant Professor

Prof. DU Penghui is a Research Assistant Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). Prof. DU joined CUHK in 2024. At CUHK, he is affiliated with New Asia College.

Prof. DU was a Research Assistant Professor in Southern University of Science and Technology from 2020 to 2024. He also joins the Youth Editorial Board of Chinese Chemical Letters.

—— *Research Interest(s)*

- Aquatic Environmental Chemistry
- Emerging Contaminants and Dissolved Organic Matter
- Quantum Chemistry and Data Science

—— *Research Project(s)*

Prof. DU's research team investigates the multifaceted roles of dissolved organic matter (DOM) in regulating oxidation processes in natural and engineered aquatic systems. Their work focuses on elucidating how DOM influences the transformation kinetics and pathways of emerging contaminants. By integrating kinetic modeling, quantum chemical simulations, and machine learning, the team advances mechanistic understanding and predictive modeling of pollutant fate in aquatic environments.



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ZHANG Zhen

Research Assistant Professor

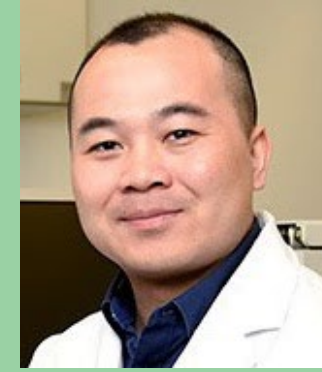
Prof. ZHANG Zhen is a Research Assistant Professor in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). Prof. ZHANG is also a Visiting Scientist at the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), an institute within the ETH Domain. At CUHK, Prof. ZHANG is affiliated with New Asia College.

—— *Research Interest(s)*

- Environmental Seismology
- Landslides and Debris flows
- Glacial lake outburst floods

—— *Research Project(s)*

Prof. ZHANG's research focuses on environmental seismology, with particular interest in using seismic signals to monitor mass movements and their cascading hazards. His recent studies investigate slow-moving landslides on the Tibetan Plateau and debris-flow monitoring in the Swiss Alps.



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LUO Haiwei

Associate Professor

Prof. LUO Haiwei is an Associate Professor, holding a joint appointment in School of Life Sciences and Department of Earth and Environmental Sciences in the Faculty of Science, the Chinese University of Hong Kong (CUHK). At CUHK, Prof. LUO is affiliated with New Asia College.

Prof. LUO has been a member of the Editorial Board of the ISME Journal since May 2020. Additionally, he has been invited to serve as a Guest Editor for a special issue on “Genomics of Speciation” in the journal Molecular Ecology, scheduled for 2024-2025. Furthermore, Prof. LUO was recently appointed as an Associate Editor of the Computational and Structural Biotechnology Journal starting in May 2023.

—— *Research Interest(s)*

- Next-generation Probiotics for Marine Wildlife Conservation and Aquaculture Safety and Productivity
- Adaptive Evolution of Genome-Reduced Marine Bacterioplankton
- New Strategies to Calibrate Molecular Clocks of Bacterial Evolution
- Ecology and Evolution of Free-Living Diazotrophic Bacteria in Soils and Application in Green Agriculture

—— *Notable Achievement(s)*

- Top 2% Scientists List, Elsevier and Stanford University, Oct, 2024.



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TSUI Tsz Ki Martin

Associate Professor

Prof. TSUI is currently an Associate Professor jointly appointed by School of Life Sciences and Department of Earth and Environmental Sciences at CUHK. Prior to joining CUHK, he was a tenured faculty member in University of North Carolina at Greensboro, USA. Prof. TSUI has been researching on biogeochemistry and ecotoxicology of mercury for over two decades, and his work on mercury has been supported by CUHK, Hong Kong Research Grants Council, Hong Kong Environment and Conservation Fund, U.S. National Science Foundation, U.S. Department of Energy, etc.

— Research Interest(s)

- Mercury in freshwater and forested watersheds
- Mercury in coastal wetlands and marine ecosystems
- Ecotoxicology of mercury
- Bioremediation of mercury
- Human health impacts of mercury

— Research Project(s)

Prof. TSUI's research group (photo below) is currently focusing on mercury cycling in terrestrial and freshwater ecosystems, and coastal wetlands. They are working on mercury cycling among plants and soils/sediments while we assess mercury levels in all natural food webs especially focusing on top predators – fish and birds. They are also assessing the conversion of agricultural wastes into biochars which can be used to remediate mercury. At last, they are examining how mercury can impact human health through collaboration with the clinical researchers.

— Notable Achievement(s)

- Invited talk: Controls of Mercury Toxicity by Subtropical and Tropical Mangrove Ecosystems. Worldwide Universities Network Annual General Meeting 2025, Hong Kong, 21-23/05/2025.



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Ph.D.,
The University of Hong
Kong

B.Sc.,
The University of Hong
Kong

TAM Pui Yuk Tammy

Senior Lecturer

Dr. TAM Pui Yuk is a Senior Lecturer in EES Department at CUHK. Since August 2023, she has also served as the Associate Director of the Service Learning Centre, CUHK. Dr. TAM is affiliated with Chung Chi College.

— Research Interest(s)

- Metamorphic Petrology
- Geochronology
- Caenozoic (K-E) Red-bed Succession in Guangdong Province of Southeast China and Paleoenvironment

— Teaching Specialties

- Solid Earth Dynamics
- Structural Geology
- Petrology
- Geomorphology
- Geoscience Field Course to Hong Kong & Taiwan
- Service Learning Programme in the fields of Orphans in Nepal, Hong Kong Ethnic Minority & Taitung

— Notable Achievement(s)

- PI, Courseware Development Grant Scheme 2022-25
- PI, Course Development and Language Enhancement Grant 2022-25.
- Coordinator, Geoscience Ambassador Training Scheme (GATS, photo on the right)
- Host, EES Career Series 2024: 23 evening geoscience career sharing sessions from 22 geotechnical companies and 2 alumni.
- Community Contributions: interviewed by RTHK at the programme “香港家書”, “自由風自由Phone”, “大氣候”, “香港保育隊”, by the MetroInfo Live at the programme “香港生態遊”, by Ming Pao about training university students with outdoor learning.
- Selected as the Chairlady of the Geological Society of Hong Kong
- One of the chairpersons of the “第二屆全港中學地質大搜查” and “第三屆全港中學地質大搜查”
- Produced 1 new educational RecRoom game and 5 new VR products to enhance teaching in EES





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Kong

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B.Sc.,
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Kong

AU YEUNG Yee Man Andie

Lecturer

Dr. AU YEUNG Yee Man Andie is a Lecturer in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). She joined CUHK in 2015 after completing her postdoctoral work.

Dr. AU YEUNG is affiliated with Lee Woo Sing College, where she serves on the Scholarship & Bursaries Committee and the Campus Environment and Sustainability Committee.

—— *Research Interest(s)*

- Tropical Cyclones
- Tropical Waves
- Tropical Meteorology and Numerical Modelling

—— *Teaching Specialties*

- Computational Earth and Environmental Sciences
- Introduction to Environmental Engineering
- Land-Atmosphere Interactions and Boundary Layer Meteorology
- Tropical Meteorology
- Statistical Methods and Data Analysis for Earth System Science
- Numerical Methods and Modelling for Earth System Science

—— *Notable Achievement(s)*

- Grant: Air Explorers – Mini Air Quality Sensor Workshop, Environment and Conservation Fund - Publicity and Education Projects, 2025 – 2026
- Guest Speaker, CUHK Popular Science Talk, Title: Does Water Always Swirl Counterclockwise in the Northern Hemisphere in the Toilet? HKTA The Yuen Yuen Institute No. 1 Secondary School. 22/05/2025
- Guest Teacher, HKO Summer Professional Meteorological Induction Training, 08/2025



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Polytechnic University

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Polytechnic University

LAU Yee Wai Christy

Lecturer

Dr. LAU Yee Wai Christy is a Lecturer in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). Dr. LAU joined CUHK in 2023. At CUHK, she is affiliated with Lee Woo Sing College.

Prior to her current role, she was an Assistant Professor and Program Leader at UOW College Hong Kong from 2022 to 2023.

—— *Research Interest(s)*

- Academic And Non-Academic Challenges Among Sub-Degree Students
- Pedagogy in Education
- Method Development for Quality Control of Chinese Medicine
- Biological Effects and Bioactive Compounds of Chinese Medicine

—— *Teaching Specialties*

- Introduction to Environmental Science
- Principles of Environmental Protection and Pollution Control
- Ecotoxicology and Environmental Management



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University of Oxford

M.Sc.,
University of Oxford

LI Kwan Kit Ronald

Assistant Lecturer

Dr. LI Kwan Kit Ronald is an Assistant Lecturer in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). Prior to this, he was a Postdoctoral Fellow at the Institute of Environment, Energy and Sustainability at CUHK from 2019 to 2021. At CUHK, Dr. LI is affiliated with Shaw College.

Dr. LI currently serves as a Co-Investigator on a Knowledge Transfer Project Fund initiative titled ‘Understanding Natural Hazards: From Peer-Reviewed Publications to Digital Animated Videos in Social Media.’ This project engages students in translating our department’s latest research findings into animated videos for dissemination via social media platforms.

—— *Teaching Specialties*

- Elementary Earth and Environmental Sciences Practical Study
- Climate System Dynamics
- Oceanography
- Ecosystems and Climate
- Land-Atmosphere Interactions and Boundary Layer Meteorology
- General Circulation and Climate Models
- Cloud Dynamics

—— *Notable Achievement(s)*

- Lectures, Professional Meteorological Induction Training, The Hong Kong Observatory. 08/2025.
- Featured Interview, TVB News. 07/2025.
- Featured Interview, HOY TV. 06/2025.



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B.Sc.,
Peking University

ZHANG Li

Assistant Lecturer

Dr. ZHANG Li is an Assistant Lecturer in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). She joined CUHK in 2023. At CUHK, Dr. ZHANG is affiliated with Chung Chi College.

Prior to her current role at CUHK, she was a Research Affiliate (Bioinformatician) at Illinois Sustainable Technology Centre, USA.

Dr. ZHANG is a co-leader on a CUHK Knowledge Transfer Project Fund titled “Understanding Natural Hazards: From Peer Reviewed Publications to Digital Animated Videos in Social Media”.

—— *Research Interest(s)*

- Impact of Environmental Factors such as Salinity on Microbial Communities
- Mineral-Microbe-Metal(Iron) Interactions
- Microbial Remediation of Nitrate
- Nitrogen Biogeochemical Cycling

—— *Teaching Specialties*

- Elementary Earth and Environmental Sciences Practical Study
- Fundamental Earth and Environmental Field Study (Shennongjia, Hubei, China)
- Introduction to Environmental Science
- Biogeochemistry
- Environmental Microbiology
- Environmental Microbiology Laboratory
- Statistical Methods and Data Analysis for Earth System Science



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Ph.D.,
The Chinese University
of Hong Kong

BHATTARAI Hemraj

Postdoctoral Fellow

Dr. BHATTARAI Hemraj served as a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK) until July 2025. He has since transitioned to a role as a Research Assistant Professor at the Hong Kong University of Science and Technology (HKUST).

—— *Research Interest(s)*

- Air Pollutants Study through Ground Observations, Reanalysis and Satellite Retrieved Data, and Modelling Studies
- Anthropogenic and Biomass Burning Emissions, Wildfire, Climate Change, and Land Use Change Impacts on Air Quality
- Atmospheric Chemistry Modelling Using CESM, GCHP
- Field Observation and Laboratory Analysis of Atmospheric Pollutants Using IC, TOC-L, EA-IRMS etc

CHEN Zhaoliang

Postdoctoral Fellow

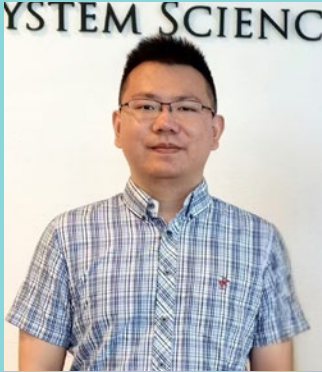
Dr. CHEN Zhaoliang served as a Postdoctoral Fellow in EES from 2022. He holds a PhD in Biology from CUHK, as well as an M.Sc. in Biological Science with a focus on Marine Biology from The University of Western Australia. He completed his B.Sc. in Biological Science from Ocean University of China.

—— *Research Interest(s)*

- | | |
|-----------------------------|-------------------|
| • Blue Carbon Ecosystems | • Antarctica |
| • Coasts and Estuaries | • Microplastics |
| • Dissolved Organic Matters | • Biogeochemistry |
| • Extreme Climate Events | • FT-ICR MS |

—— *Achievement*

- Grant: Exploring the molecular fingerprint and lateral transport of dissolved organic matter in peri-urban coastal wetlands, National Natural Science Foundation (NSFC) of China, Young Scientists Fund, 2025



Ph.D.,
The Chinese University
of Hong Kong

HU Chenxi

Postdoctoral Fellow

Dr. HU Chenxi served as a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Urban Meteorology and Climate
- Climate Change
- Atmospheric Dynamics
- Specialised in Pseudo Global Warming Method, Dynamical Downscaling with High-resolution Meso-Scale Model, Model Evaluation and Climate Analysis Based on Observations and Reanalysis Data, Extreme Weather System Analysis and Diagnosis (Heatwave, Extreme Rainfall, and Tropical Cyclones)

—— *Achievement*

In January 2025, Dr. HU Chenxi (PG alumnus and postdoc) was awarded the Hong Kong Meteorological Society Heywood Young Scientist Award 2024.

The prize is awarded to young scientists with age less than 35 with outstanding research papers of meritorious publication in the field of meteorology.

His research paper is titled “Urbanization Impacts on Tropical Cyclone Rainfall Extremes - Inferences From Observations and Convection-Permitting Model Experiments Over South China”.

This work combines hourly station observations and convection-resolving model simulations looking at tropical cyclone rainfall affecting South China, and its relationship with urban development in the Greater Bay Area. The result demonstrates how model experiments can corroborate observations to help understand meteorological phenomena that might be challenging to study due to scarcity of data or historical cases.



Ph.D.,
Hong Kong Baptist
University

ISMAEEL Ali

Postdoctoral Fellow

Dr. ISMAEEL Ali was a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK). In July 2025, Dr. Ali transitioned to a new opportunity as a postdoctoral researcher at The Hong Kong Polytechnic University (PolyU).

—— *Research Interest(s)*

- Remote Sensing, GIS, and Machine Learning
- Process-based Crop Modelling
- Atmospheric Pollution and Crop Productivity
- Climate Change



Ph.D.,
Rice University, USA

LUO Lina

Postdoctoral Fellow

Dr. LUO Lina is a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Agricultural Nitrogen Emissions
- Environmental Impacts Assessment of Agricultural Nitrogen Emissions
- Mitigation Potential of Agricultural Emissions
- Agriculture-Atmosphere Interactions



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Tech University

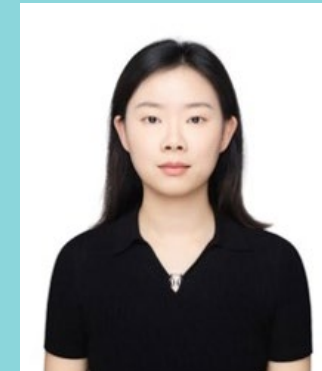
XIE Jingchun

Postdoctoral Fellow

Dr. XIE Jingchun is a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Planetary Science
- Lithospheric Deformation
- Mantle Dynamics of Terrestrial Planets



Ph.D.,
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of Hong Kong

YAO Suli

Postdoctoral Fellow

Dr. YAO Suli is a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Earthquake Dynamics
- Earthquake Numerical Simulation



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YUAN Tiangang

Postdoctoral Fellow

Dr. YUAN Tiangang is a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Atmospheric Chemistry
- Agricultural Irrigation and Fertilisation
- Climate, Air Pollution and Crop Yield Interaction
- Numerical Modelling
- Climate Effects of Light-absorbing Aerosols



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Ph.D.,
University of Oklahoma

ZHANG Jiewen

Postdoctoral Fellow

Dr. ZHANG Jiewen is a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Earthquake Source Physics
- Induced Seismicity
- Microseismic Monitoring



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ZHU Juan

Postdoctoral Fellow

Dr. ZHU Juan is a Postdoctoral Fellow in the Department of Earth and Environmental Sciences at The Chinese University of Hong Kong (CUHK).

—— *Research Interest(s)*

- Hydroacoustic monitoring of submarine volcanic eruptions
- Vocal type, individual call behavior and temporal call pattern of fin whales
- Source property of volcano earthquakes in Antarctica
- Unconventional seismic source detection and location
- High-precision location of earthquakes

ZI Jinping

Postdoctoral Fellow (Honorary)

Dr. ZI Jinping is a Postdoctoral Researcher in the Seismology Lab at The Chinese University of Hong Kong (CUHK). Prior to this role, he earned a PhD in our EES Department at CUHK from 2020 to 2024, supported by the prestigious Hong Kong PhD Fellowship Scheme. Before pursuing academia, he worked as a Marketing Specialist for TP-Link in both Malaysia and Russia from 2017 to 2019. He had a Master's degree in Geology from the School of Earth Sciences and Engineering at Nanjing University, China (2014-2017), and a Bachelor's degree in Geology from the College of Earth Sciences at Zhejiang University, China (2010-2014).

—— *Research Interest(s)*

- Hydroacoustic monitoring of submarine volcanic eruptions
- Vocal type, individual call behavior and temporal call pattern of fin whales
- Source property of volcano earthquakes in Antarctica
- Unconventional seismic source detection and location
- High-precision location of earthquakes

Undergraduate Students

The Earth and Environmental Sciences Programme (EESC) is designed for students interested in scientifically understanding the interactions among the solid Earth, atmosphere, hydrosphere, and biosphere.

We address real-world environmental challenges, such as global climate change, natural hazards, and anthropogenic pollution, through an interdisciplinary approach that integrates applied physics, chemistry, biology, statistics, computation, machine learning, and more.

Our mission is to equip students with a strong scientific foundation and cutting-edge technical skills to observe, identify, analyse, and solve these pressing environmental issues.



Class of 2028



Class of 2027



Class of 2026



Class of 2025

Student Society

— Orientation Camp

The Faculty of Science Orientation Camp for the 2024/25 academic year was themed “**Japanese Mythology**”, bringing a fun and adventurous start to the journey of new Earth and Environmental Sciences students. During the summer, students became “Carp Demon Slayers” and teamed up with their “jobamas” (group leaders) for a series of exciting activities. From campfires and CU Hunt to night talks and mass games, the camp was filled with laughter and teamwork. These experiences helped new students feel welcomed and quickly become part of the EES family, building friendships and memories to carry into the new academic year.



— Inauguration

In February, the newly formed Student Society, **Esquinox**, officially began its journey. The Inauguration Ceremony welcomed faculty members, student leaders from the Faculty of Science, and guests from other universities to celebrate this exciting launch. The event served not only as a formal introduction of Esquinox but also as a symbol of unity, collaboration, and the vibrant student spirit within EES. With warm exchanges and shared aspirations, the ceremony laid the foundation for a year of meaningful engagement and community-building.



Esquinox making an oath during Inauguration Ceremony

Esquinox 暉地蜚還: Logo and Explanation



暉，可解光明；地，可代表大地。而，「暉地」一詞象徵太陽普照大地，亦寓意本會一眾成員與太陽般溫暖，以熱心真摯的態度服務會員，為會員舉辦各種活動，提供一系列福利。

「蜚」通「飛」，則有空中騰行之意思，「蜚」字提醒成員不懼困難，迎難而上，努力發掘困難背後的机会。另一方面，「蜚」亦可與「蜚聲」配詞，意指揚名或加強影響力，寓意本會將不遺餘力處理好本會各項事務，致力提升本系知名度。

還，根據《集韻 · 去聲 · 霰韻》：「還，聚流也。」正所謂「滴水成河，匯流成海」，成員有着不同的興趣愛好，各有所長，匯聚於此；這亦寄寓着每個成員必能團結一致，盡展所長，以會員的福祉為首位。

Esquinox，選自英文 Equinox，譯為春分、秋分，指的是在春秋兩季晝夜時間相等的那一天，「日夜均而寒暑平」，氣溫冷熱適宜，亦是象徵「平衡」，正如本會宗旨中提及，本會將致力宣傳人與自然共存的必要性，在未來舉辦與環境保護相關的活動，以加強大眾的環保意識，推廣環保生活習慣，宣揚愛護自然的重要性。

Student Committee



First row from left to right:
Eason Leung (Internal Vice-president), **Charlotte Ng** (President), **Cici Ho** (External Vice-president)
Second row: **Betty Yeung** (Secretary), **Ethan Fong** (Financial Secretary),
Brenda Au (Promotional Secretary), **Jan Yuen** (Promotional Secretary)
Third Row: **Caviar Chan** (Publication Secretary), **Eugenia Pun** (Academic Secretary),
Horace Kei (Welfare Secretary), **Michelle Tso** (Welfare Secretary),
Mercy Chu (General Affairs Secretary), **Felix Tsang** (General Affairs Secretary)

Esquinox Activities

Autumn Hiking

As the crisp air of autumn settles in and the leaves turn golden, Esquinox, the Student Society, invites students to take a refreshing break from their academic routines and join the Autumn Hiking activity. Held in early November, this event is designed to bring students together in nature, encouraging both physical wellness and meaningful connections while providing the perfect backdrop for bonding and relaxation.



Spring Dinner

To mark the Chinese New Year, Esquinox, the Student Society, hosted a Spring Dinner at the end of February for faculty and students to revel in the festive spirit. The program featured speeches by faculty members, singing and musical performances, interactive games, and lucky draws, creating memorable experiences for all attendees.



Student Exchange

During the undergraduate studies at CUHK, in addition to courses that contribute to degree requirements, there are many opportunities for student development, such as going on exchanges and taking part in internships. We are pleased to welcome five students of our Earth and Environmental Sciences programme, to talk about their experience of studying on exchange.



CHAN Wing Lam

University of Groningen, 01/2025-06/2025

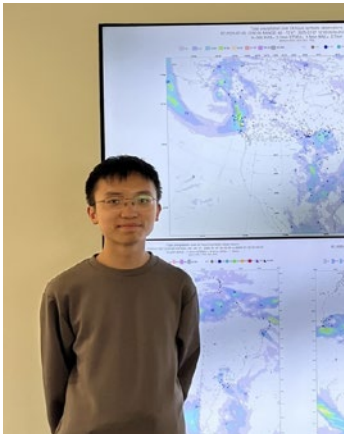
The university is the second oldest university in the Netherlands and has one of the largest international student communities. It is well-known for their outstanding spatial planning, and I am interested in this topic. During exchange, I like making new friends with diverse background. It always creates cultural shock and broadens my worldwide horizons. This exchange has definitely risen my adaptability which is adjusting to new environments. The exposure to different culture also fosters an open-minded and accepted attitude towards challenges. I am grateful to get this valuable exchange opportunity.



CHAN Yuen Yee

University of Bristol, 01/2025-05/2025

Exchange has provided me great insights on both academic and global perspective. During my exchange in UK, I learnt more about the geology of not only Bristol, but also the entire UK. Moreover, I had a better understanding on geophysical data processing and analysis that is important to my future. Exchange has also widened my social circle. I met friends from different countries who lived in the same accommodation. We shared the traditions of our homeland and live in our home universities. We had a lot of memorable moments together.



LEE Yat Long

University of Reading, 7/2025

I worked on a 1-month summer research project at the Department of Meteorology, University of Reading, comparing the performances of various tropical cyclone forecast models. I gained hands-on academic research experience at a world-renowned institute for atmospheric science and had a better understanding of whether this is the right place for me to pursue a master's or PhD in the future. I had a wonderful time in Reading, thanks to my supportive research host and the friendly postgrad students there. I was also lucky enough to have the opportunity to visit the ECMWF headquarters in Reading. Overall, it was a rewarding and eye-opening experience.



LEUNG Kai Kit

Gwangju Institute of Science and Technology, 06/2025-08/2025

The world is too vast to explore every corner of it — conducting research in South Korea offered me a new perspective on the world. During the exchange, I had the opportunity to meet scientists from different regions and learn how they apply remote sensing and deep learning to detect extreme events such as flood and drought. This experience reminded me that the world is facing common challenges caused by global warming, and it highlighted the importance of global cooperation in tackling these issues.



ZENG Haowen

Utrecht University, Netherlands, 02/2025-06/2025

During the five-month exchange, I learned a lot in the Netherlands. I have learned something about geochemistry and sedimentology, which are totally new for me. If I don't come to the exchange, it will be difficult for me to learn them systematically in my undergraduate period. I also learned how to use GIS to make various maps in the Hands-on GIS course.

“Exchange Advice and Considerations

There are several factors that you should consider before embarking on an exchange programme. It is best to avoid destinations that are too similar to Hong Kong, or overly popular places, as this may limit real interaction with the locals.

The goal is to put yourself in the local culture, so less popular destinations can provide a richer experience. You should also explore programmes not offered at CUHK and learn about different research environments, especially if you are planning for a PhD later.

Personal interests and flight availability should be taken into account when choosing a destination, as more flights can provide more options. Mental preparation is essential for adapting to a new environment, and researching the local culture and activities is also beneficial.

Understanding the local payment system, preparing some local currency for emergencies and learning to cook can all enhance your experience. In addition, pack clothing appropriate for the climate and make sure you have all the necessary electronics and money transfer systems in place.

Finally, remember to apply for a scholarship to help ease the financial burden.

Internship

— Hong Kong Observatory (HKO)

Every year EESC send out a few qualified students to the Hong Kong Observatory (HKO) for a fascinating internship opportunity to not only embark on weather and climate research, but also allow the students to experience first-hand the nature and routines of meteorological services. This year, we invite 3 of our students to share their experiences.



CHAN Yik Hang Jack

I spent a year interning at the Hong Kong Observatory, focusing on improving rainfall nowcasting with AI. My project aimed to enhance short-term radar map predictions using deep learning. Traditional models like ConvLSTM often produced blurry outputs, so I introduced diffusion models to generate sharper, more detailed radar sequences. This significantly improved prediction clarity and spatial resolution. The internship deepened my skills in AI and meteorological data processing, while also strengthening my science communication abilities. With strong support from my mentors, I was able to contribute to a project with meaningful societal impact and gain valuable hands-on experience in applied AI.



LEE Yat Long Ronald

I am incredibly grateful for the opportunity to intern at the HKO's Forecast Operation division—fulfilling a childhood dream and marking my first research and workplace experience. My project focused on the health impacts of prolonged heat and improving Hong Kong's heat-health warning system. We proposed an impact-based heatwave definition, developed a heat-health risk matrix, and explored regional relationships with the HK Heat Index. I gained valuable skills in statistical analysis, programming, and professional communication. Presenting at the HKO Technical Forum was a highlight. I sincerely thank my supervisors, the HKO, and CUHK for their support and this rewarding experience.



LEUNG Kai Kit Jacky

Over the past year, I experienced many ups and downs while working at the Hong Kong Observatory. Initially unfamiliar with marine meteorology, I faced challenges in algorithm development and webpage design for storm surge analysis. With guidance from supervisors and support from colleagues, I overcame these obstacles. I also explored GIS for visualizing flood impacts and experimented with AI for wave height forecasting, gaining valuable insights. Despite setbacks, these experiences revealed knowledge gaps and helped shape my research direction. Like navigating a stormy sea, I learned that perseverance and teamwork can overcome difficulties. I am deeply grateful for this enriching opportunity.

— Geoscience

LAU Yun Sum Sam

Institute of Earth Sciences, Academia Sinica, summer 2025



My summer internship at the Institute of Earth Sciences, Academia Sinica, has truly broadened my horizons. Our project, titled “The Formation of Amphibole Reaction Rims in Magmatic Systems: A Case Study of the Tatun Volcano Group,” focuses on studying past magmatic events in the Tatun Volcano Group (TVG) through amphibole reaction rims. I received intensive training in petrographic observation and geochemical data acquisition and interpretation, utilizing advanced experimental equipment such as Energy Dispersive Spectroscopy in a Scanning Electron Microscope—areas that were new to me. It's fascinating to uncover geological history through such small crystal grains. Most importantly, this internship provided me with the opportunity to conduct research outside of Hong Kong. I was able to immerse myself in a different academic culture and exchange knowledge with my Taiwanese labmates. Along the way, I made great friends and enjoyed delicious local cuisine. If you're interested, don't hesitate to reach out for my bucket list of must-try foods in Taipei!

YIP Wing Lam Emily

ERI (Earthquake Research Institute, University of Tokyo), summer 2025

It has been a wonderful and unprecedented life and academic experience in ERI Summer Internship 2025. ERI stands for Earthquake Research Institute, which is part of the University of Tokyo. In this internship, I've gained an experience to learn the mechanism and application of an earthquake simulation software from my supervisor, who is the developer of the software. It has been heart-warming to notice the kindness and support from ERI people, including both academic researchers and administrative staff.

This internship has its participants targeted as worldwide international students, including undergraduates and postgraduates. Another unforgettable moment is the 2-day field trip, which is joined by different parties from ERI, such as interns, professors, postgraduates and postdoctoral students, and alumni. It is so amazing to meet nice and talented people from different regions and continents. Thankful beyond words towards the different teachers in CUHK and ERI. This internship has conclusively given me an opportunity to learn deeper in seismology and volcanology, meet fantastic scientists from worldwide to learn becoming more open-minded, and of course, experience the contemporary and traditional culture of Tokyo and Japan. Look-forward to the rest of the internship!



Internship

— *Environmental Science and Technology*

CHUNG Long Arno

Baguio Green Technology, summer 2025

As a Year 3 student, I joined Baguio Green Technology Operation Team. I assisted in deploying and monitoring smart recycling systems, including the Food Waste Smart Bin and Smart Bin from the Environmental Protection Department. I engaged with these innovative technologies, gaining hands-on experience in smart waste management and contributing to environmental sustainability.

This opportunity allowed me to contribute to projects that improve recycling rates by monitoring real-time bin data on Baguio's big data platform. The practical experience to green technology operations sharpened my problem-solving abilities and deepened my interest in sustainable innovation.



LAM Shun Hei Ryan

Lam Environmental Services, summer 2025

The internship journey at Lam Environmental Services has been an unforgettable memory. After learning numerous knowledge in different courses, it is a precious experience to apply knowledge into real life scenarios.

During the internship, I had a deeper understanding on the issue of the construction industry and environmental pollution. Via different environmental monitoring sessions and site inspection, I have a more thorough concept on the implementation of laws and regulation in practice.

The internship has brought me new insight into the future career path of EESC graduates. It showed the responsibility and authority of an environmental inspector of the construction industry. It is also important for the internship to strengthen my portfolio and aid my career planning.

LI Cheuk Tung

Win Engineering Consultant Limited, summer 2025

My internship at Win Engineering Consultant Limited offered invaluable insight into the environmental consulting industry. It allowed me to move beyond the theories acquired in lectures and gain an understanding of how sustainable designs and green technologies are applied in real-world projects.

One of the valuable skills I acquired was AutoCAD drawing. I learned to use this software to design and plan precise layouts and electrical schematics for green technology installations.

I also had the opportunity to contribute to different green projects, ranging from conducting research and drafting proposals to visiting project sites and observing the implementation firsthand. I believe the knowledge and experience I have acquired through the internship will be very beneficial for my future career. It showed the responsibility and authority of an environmental inspector of the construction industry. It is also important for the internship to strengthen my portfolio and aid my career planning.



MAN Tsz Kit Sunny

AFCD, summer 2025

The internship experience in Agriculture, Fisheries and Conservation Department (AFCD) has provided a unique opportunity for me to understand the country parks' ranger and management service practically. Direct engagement with the site has broadened the knowledge of ecological dynamics and management strategies. Job shadowing allows me to observe experienced professionals in their daily tasks. This experience has been pivotal in future projects and collaborations. The internship has enhanced my problem-solving skills which extended to the ability to adapt and respond effectively to different situations. The overall immersion into the role has provided me with a wider picture of my future career. To summarize, this is a brand-new experience for me and I am optimistic about applying them wisely.



WU Cheuk Hei Cyrus

Greeners Action, summer 2025

Being an internship in Greeners Action, I gained valuable environmental knowledge, especially those related to ecology and the study of specific animal species. One of my key contributions was conducting research and giving a presentation on solid waste management and the company's future development planning, which was an extension of the concepts I learnt in EESC lectures. This experience not only deepened my understanding of waste management systems but also allowed me to apply my learnt knowledge into real-world setting. This internship also gave me firsthand experience of how an environmental NGO operates — from frontline engagement to preparation of various workshops and projects. These experiences have been highly beneficial in bridging academic learning with real-world application, preparing me for future career in the environmental field.



EES Career Series 2024

From October to November 2024, the Department of Earth and Environmental Sciences (EES) organized a successful Career Talk Series, featuring 23 engaging sessions across the fields of geotechnical engineering, atmospheric and data science, and environmental sciences. We welcomed representatives from 20 private and governmental organizations, along with 2 alumni, who shared insights about their work and career paths with our students.



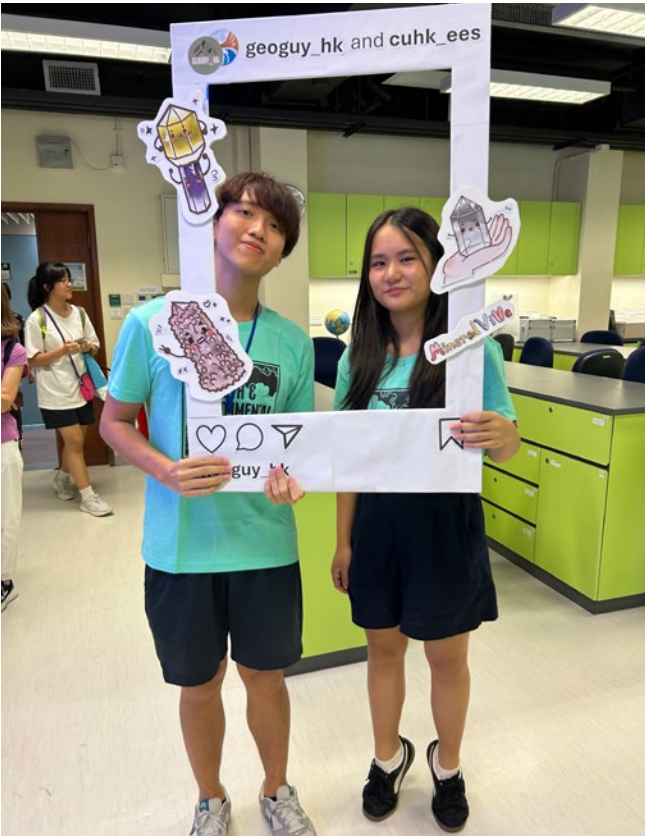
The primary goal of the series was to provide students with valuable guidance on potential career trajectories and to equip them with the knowledge needed to prepare for their futures in these dynamic fields. This year, we had an impressive turnout of 213 participants, all eager to explore their career options. Students reported gaining a clearer understanding of their post-graduation pathways, while guest speakers enthusiastically recounted their own experiences, particularly their journeys in selecting their first jobs after university.

The feedback from participating organizations was overwhelmingly positive, highlighting the impact of these sessions on student engagement and career development. We are proud to have facilitated such meaningful connections and insights that will undoubtedly guide our students in their professional journeys.

Participating Organizations:
 #WSP #ClusterTech #GeoRiskSolutions #GEO #AECOM #MottMacDonald #LAM Geotechnics Environmental #Tysan #Vibro #Meinhardt #Fugro #HK Science Museum #Geopark #Aurecon #DrilTech #Atkins #Ove Arup #Gammon #CM Wong and Associates Ltd #Gold Mountains Asset Management #EES Alumni

EES Information Day 2024

The Department of Earth and Environmental Sciences held the information booth and organised admission events during the CUHK Information Day 2024 for Undergraduate Admission on 19 October 2024. Secondary students, teachers and parents had first-hand valuable information about our undergraduate programme. There were also opportunities for in-depth exchanges with professors and student ambassadors, including programme orientation talks and workshops.



Undergraduate Research Programme

There are many opportunities for EESC undergraduates to conduct research. We offer a summer research programme, in which students will have opportunities to work in a research group, laboratory, or field to explore interesting and challenging questions related to geosciences, atmospheric science, and global environmental change.

Construction of Artificial Smart Floating Wetlands

Student: CHAN Cheuk Lam Anthony

Supervisor: Prof. CHOW Tat Shing Alex

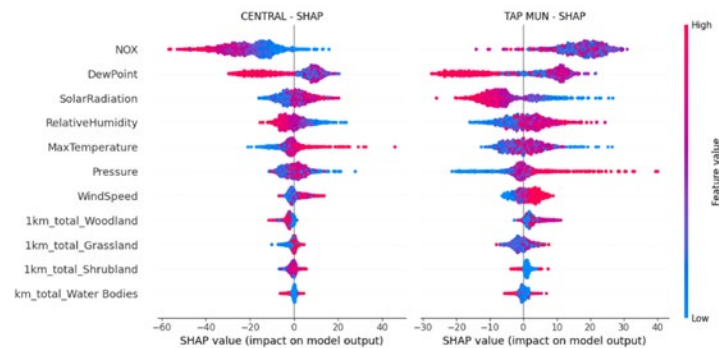


Our Artificial Smart Floating Wetlands (ASFWs) project, funded by the Environment and Conservation Fund, aims to enhance biodiversity and assess resilience under extreme weather. Three 2m × 2m ASFWs have been deployed in Gei Wai, Mai Po Nature Reserve, featuring plants like wild rice and taro. Weekly surveys documented diverse wildlife, showcasing their effectiveness as habitats. The ASFWs proved resilient during a recent cyclone, maintaining stability despite adverse conditions. While some maintenance is needed, the project demonstrates significant potential for promoting biodiversity and withstanding extreme weather events.

Using machine learning to study air quality and climate change

Student: CHAN Yik Hang

Supervisor: Prof. ZHAI Shixian



I investigated the spatial distribution of ozone formation mechanisms in Hong Kong using machine learning. The goal is to understand how local precursors and environmental factors influence daily maximum 8-hour average ozone (MDA8-O₃) concentrations. Data from the Hong Kong EPD was combined with meteorological information and high-resolution land-use data to train an XGBoost model, achieving an average R² of 0.6. SHAP analysis

revealed distinct ozone formation regimes: at background sites with high vegetation, NO_x positively contributed to ozone levels, while at urban sites, it negatively impacted ozone, highlighting key regional differences. Future work will map ozone sensitivity city-wide using satellite data.

Air quality in Hong Kong and its relation to climate change

Student: CHEUNG Ho Tin

Supervisor: Prof. ZHAI Shixian



This project investigates seasonal variations and long-term trends in air quality in Hong Kong, focusing on ozone and its correlation with climatic conditions. Utilizing data from the Environmental Protection Department's 18 monitoring stations, we analyzed annual average ozone concentrations and daily maximum levels of ozone (MDA8-O₃) and nitrogen dioxide (MDA1-NO₂). Results indicate that background ozone levels have increased from 2005 to 2024, particularly in urban areas. Autumn months have shown a rising trend in MDA8-O₃ since 1997, while MDA1-NO₂ has decreased. Future research will explore the O₃-NO_x-VOC relationship and trends in other pollutants.

Why is there toxic methylmercury in natural soils?

Student: LAM Choi Ha

Supervisor: Prof. TSUI Tsz Ki Martin



This project analyzes the formation mechanism of toxic methylmercury (MeHg) in natural soil, focusing on its production through the methylation of inorganic mercury by microbes in anaerobic environments. Soil cores were collected from grassland and shrubland at Tai Mo Shan. Results showed higher enzyme activity and MeHg concentrations in grassland soils compared to shrubland. A positive correlation between enzyme activity and MeHg was observed only in the organic layer of grassland soil. Additionally, precipitation significantly increased both enzyme activity and MeHg levels, supporting the hypothesis that higher microbial activity leads to increased mercury methylation in soil.

Effects of Biochar on Methylmercury Adsorption in Soil and Water

Student: LAU Tsz Man

Supervisor: Prof. TSUI Tsz Ki Martin



This project investigated the effects of biochar on methylmercury (MeHg) in soil and water. Biochar, produced through pyrolysis, has potential for improving soil productivity and carbon storage, as well as adsorbing pollutants like MeHg. We tested microwave and furnace-produced biochar in solutions containing Mai Po soil and water, comparing their adsorption capabilities over one, two, and three weeks. Results indicated that biochar effectively reduced MeHg concentrations in water compared to controls. However, challenges in measuring MeHg levels necessitated repeated experiments for reliability. Further research is needed to explore the varying properties of different biochar types.

Investigating how air-sea coupling affects future projections of tropical cyclones

Student: LI Pui Fung Vincent

Supervisor: Prof. TAM Chi Yung Francis

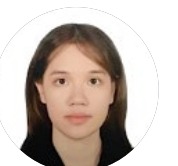


This research project evaluates the realism of the High Resolution Model Intercomparison Project (HighResMIP) by studying air-sea interactions and their impact on tropical cyclones (TCs) from 2015 to 2050. TCs derive energy from latent heat released during water vapor condensation, which intensifies the storm. However, as TCs pass, sea surface temperature (SST) cools due to turbulence and upwelling, weakening the storm. HighResMIP projections suggest that higher model resolutions improve TC frequency, distribution, and intensity. Analysis will focus on SST changes within 200 km of the TC center, expecting to observe realistic TC-induced cooling patterns similar to historical simulations.

High Resolution Mass Spectrometry for Traditional Chinese Medicine (TCM) Characterization

Student: LIN Wanru

Supervisor: Prof. CHOW Tat Shing Alex



This study utilizes Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR MS) to analyze Li Zhong Tang (LZT), a traditional Chinese medicine (TCM) decoction, alongside GJ granules and Suwannee River Fulvic Acid (SRFA). Collaborating with the Li Dak Sum Yip Yio Chin R&D Centre, we aim to explore molecular composition differences. Using the 9.4 T Bruker Solarix FT-ICR MS, we found fewer molecules assigned in TCM samples compared to SRFA, indicating significant compositional differences. Van Krevelen diagrams revealed that while all samples shared lignin, LZT had more condensed aromatics, and GJ granules contained more amino sugars and carbohydrates, suggesting TCM generally has smaller molecules.

Project-based Learning: *Bringing Science to Life Through Animation*

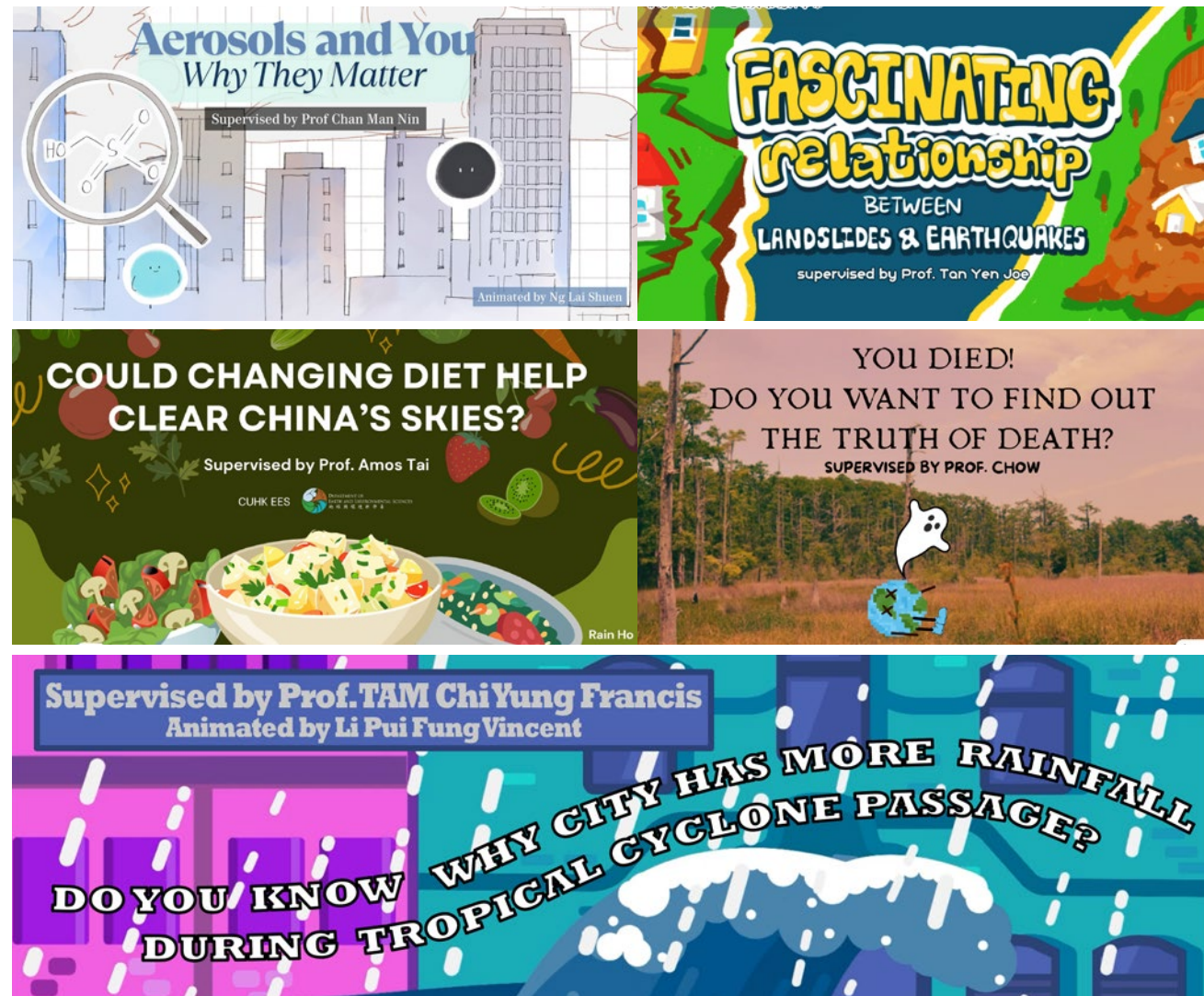
Understanding natural hazards is crucial, and while scientists have invested significant resources into studying their causes and impacts, much of this knowledge remains locked behind complex scientific publications. To bridge this gap, our department is developing animated videos that translate recent research findings into clear, engaging stories for everyone—regardless of their background.

This initiative not only makes Earth and Environmental Sciences more accessible to the public, but also fosters collaboration across disciplines. By establishing a standardized process for creating science animations and building a platform for future outreach, we hope to inspire curiosity, improve public understanding, and set the stage for more effective science communication in the years to come.

In the first year of this initiative, our students have already produced videos on five exciting topics:

- Aerosols and You – Why They Matter
- Can Dietary Shifts Reduce Premature Deaths Related to Particulate Matter?
- Landslide and Earthquake Interaction
- The Silent Killer of Forests – How Saltwater Creates Ghost Trees
- Why Cities Get More Rain During Cyclones

These animations showcase the creativity and scientific insight of our students, and mark a promising start to a long-term effort to make science more engaging and accessible.



Capstone (Final Year) Project

The capstone (final year) project represents the culmination of the Earth and Environmental Sciences programme, integrating knowledge and skills acquired throughout the undergraduate years.



Sources of Coarse Particulate Matter in China: Insights from Explainable Machine Learning of Extreme Gradient Boosting (XGBoost)

Sophie Wai Chee Cheng Research Prize

Student: LI Tsz Kit

My senior project is about analyzing the sources of coarse particulate matter in China using machine learning and quantifying the contribution from land cover to coarse particulate matter (PM) production. We discovered that crop-land would have substantial impact on coarse PM pollution, while afforestation largely alleviates the situation.

From the project, I have acquired valuable skills in using machine learning, which is very useful in this AI-growing era. My computational skills are also strengthened throughout the year that could help with my future work. I strongly recommend everyone to make an effort and work hard for the senior project, as that would be your most memorable project and experience in your undergraduate studies!



Experimental Demonstration of Ocean Salinity Dynamics in the Amery Ice Shelf, Antarctica: Implications of Ice Shelf Melting on Polar Ecosystems

Sophie Wai Chee Cheng Research Prize

Student: TSANG Sam

My senior project aimed to use experimental demonstrations to interpret the physical behavior of ocean salinity dynamics under global warming in the Antarctic environment, and to correlate their current and future impacts on both shallow and deep polar ocean ecosystems.

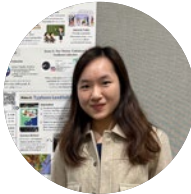
The greatest lesson I learned from this project is the importance of comprehensive thinking. Conducting research is not simply a matter of transferring ideas from your mind onto paper; you must consider every angle to ensure that your study is feasible, thoughtful, and, most importantly, convincing. The fundamental goal of any new research is to persuade not only yourself but also others around the world.

In practice, choosing a compelling topic is half the battle. You are much more likely to fall in love with your research if the subject truly interests you, and this passion is the first step toward making your work as impactful and successful as possible.

Capstone (Final Year) Project



Enhancing Geoscience Education: Leveraging Interactive Python to Elevate Learning in Rock Mechanics and Its Applications (EESC4040)
 Student: CHAN Ka Nam



Educational Fun Fact Book on Natural Hazards.
 Student: CHAN Sze Wing



Chemical Transformation of α pinene Derived Organosulphate in Aqueous Phase Photochemical Oxidation: A Study of the Kinetics and Mechanism
 Student: CHAN Yi Hin



Educating the public about atmospheric science through two Instagram reels and assessing their effectiveness
 Student: CHENG Yu Hong



Analysis on the accuracy of Gamma distribution in parametrizing summer hourly rainfall patterns in the Greater Bay Area
 Student: CHEUNG Cheuk Kit



Exploring Characteristics of Pyrogenic Organic Matter (PyOM) in USA Through Fourier-transform Ion Cyclotron Mass Spectrometry (FT-ICR-MS) Data
 Student: CHEUNG Wan Ka



Investigating Causes and Impacts of Open Fires on Air Quality and Public Health in Asia: Spatiotemporal Variations with satellite remote sensing and GEOS-Chem
 Student: CHUNG Yui Ying



The impact of climate change on carbon uptake ability of vegetation for carbon sink in Hong Kong using TEMIR model
 Student: HO Ka Chun



Educational workshop on the relationships between the North Atlantic Oscillation, atmospheric blocking, and European weather.
 Student: HON Lam Hin



Educational project to raise public awareness of the relationship between Hong Kong wetland and climate change utilizing social media
 Student: HUI Ka Yiu



Predicting the surface excess of organosulfate in an aerosol using Langmuir adsorption model
 Student: LAI Yik Hong



Crustal crack patterns simulation by layered ASPECT model
 Student: LAU Chak Shun



Dissemination of the Public Understanding of Earth Science by Resolving Common Doubts on Certain Topic through Popular Science Contents in Form of Booklet and Reel on Instagram
 Student: LAU Mo Yin



Assessment of the performance of the Pangu-weather AI model for the simulation of tropical cyclone Koinu.
 Student: LEUNG Chi Ming



Evaluation of future storm surge risk in Hong Kong through ROMS-SWAN simulation of nine selected tropical cyclones since 1997 with pseudo-global-warming method
 Student: LEUNG Ngo Ching Rochelle



Comparison of Mercury Levels in Rice Crops Grown in Freshwater and Brackish Water Environments: A Study of Yi O and Mai Po Paddy Farms
 Student: LEUNG Ngo Tin



Proposal for an Educational Hiking Trail in CUHK to Promote Awareness of Geology and Geodiversity
 Student: LI Ching Yi

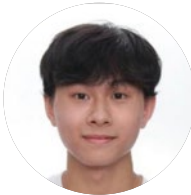
Capstone (Final Year) Project



A Numerical Case Study of the Extreme Rainfall Event in September 2023 in Hong Kong: Effect of Urbanization
Student: LUI Po Mau



Analysing predictabilities of selected atmospheric instability indices during summer in Hong Kong, and best-fit thresholds in severe weather nowcasting.
Student: MAN Ming Sum



Assessing the Potential of Seismic b-Value as an Indicator of regional Differential Stress: A Case Study of the 2023 Mw7.7 Turkey-Syria Earthquake
Student: MOK Oi Nam



Setting up “The Gem Hub” - an online learning platform of gemstones
Student: TSOI Luk Kei Lucas



Conducting Field Surveys on the Fluvial Geomorphology and Bird Ecology of Lam Tsuen River in Dry Seasons: Educational Guide for the public
Student: WONG Lung Hoi



Building an Audio-Guided Geotourism Platform as an Educational Resource: Investigating the Formation Process of the Hexagonal Columnar Joints at High Island
Student: WONG Wing Sze



Simulating Water Induced Strengthening of Granite by COMSOL Multiphysics for Better Failure Prediction in Hong Kong
Student: XU Jiarui

Graduation



HO Ka Chun
“Explore different opportunities before it is too late.”

HUI Ka Yiu
“I survived. Gratitude to all professors and friends I have met. Keep pursuing your passions and continue dancing!”



LAI Kei Yiu Bessie
“Understanding the world above to protect the world below.”

LEUNG Kai Kit
*“Explore the world
Sustain your passion
Seek your own way
Cherish what you’ve got”*



MAN Ming Sum Tommy
“Ask stupid. We are just in nanometers if the Earth could be held in a basket someday.”

TSANG Sam
“Adventure is a lifestyle!”



TSOI Luk Kei Lucas
“Grateful to be the last batch of ESSC graduates, cherishing the friendships and knowledge gained. Here’s to the next chapter !”

WONG Cheuk Hang Ivan
“We are the Earth Warriors! (Don’t spell it wrong xD)”





CHAN Ka Nam



CHAN Sze Wing



CHAN Yi Hin



CHENG Lik Hang
Nicholas



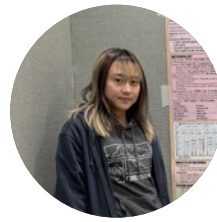
CHENG Yu Hong



CHEUNG Chi Hang



CHEUNG Wan Ka



CHUNG Yui Ying



HON Lam Hin



LAI Yik Hong



LAU Chak Shun



LAU Mo Yin



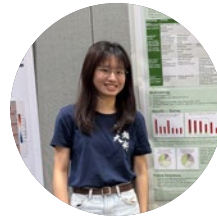
LEUNG Chi Ming



LEUNG Ngo Ching
Rochelle



LEUNG Ngo Tin



LI Ching Yi



LI Tsz Kit



LUI Po Mau



MOK Oi Nam



WONG Charlotte



WONG King Yu



WONG Lung Hoi



WONG Wing Sze



YING Yuhang



Postgraduate Students

Earth and Atmospheric Sciences is a critical discipline addressing 21st-century challenges such as climate change, natural resource exploration, hazard mitigation, and sustainable development.

We offer a postgraduate programme on Earth & Atmospheric Sciences (EASC) at both the M.Phil. and Ph.D. levels. EASC stands out as the only interdisciplinary postgraduate programme in the region that focuses on the foundational and applied sciences of the lithosphere, atmosphere, hydrosphere, biosphere, cryosphere, and their interactions. The programme's dynamic faculty lead research across the full spectrum of Earth system science.

This postgraduate programme (EASC) is dedicated to educating and mentoring exceptional young scientists, preparing them for impactful careers in academia, government, and the private sector.

2nd Greater Bay Area Earth & Environmental Sciences Young Scholars Symposium

The 2nd Greater Bay Area Earth & Environmental Sciences Young Scholars Symposium was successfully held at Sun Yat-sen University on November 3-4, 2024. Co-organized with the Department of Earth & Environmental Sciences, The Chinese University of Hong Kong. This event continued the momentum of last year's inaugural symposium, which was hosted at The Chinese University of Hong Kong and brought together scholars and researchers from leading universities and institutions across the Greater Bay Area. Participants included representatives from Sun Yat-sen University, The Chinese University of Hong Kong, The University of Hong Kong, The Hong Kong Polytechnic University, the Institute of Engineering Mechanics, and the China Earthquake Administration, among others.



Group photo of the symposium participants from CUHK

The two-day event includes talks by invited professors and a symposium for postgraduate students. The postgraduate student symposium featured 33 oral presentations and numerous posters, covering a diverse range of topics such as mineralogy, soil science, structural geology, seismology, and applications of machine learning. The event served as a platform for fostering multidisciplinary collaboration and promoting the work of young scholars.

This event also celebrated the centenary of Sun Yat-sen University and expressed gratitude to the CUHK team for their participation in Zhuhai. It provided an invaluable opportunity for academic exchanges between faculty and students while also strengthening the cooperation between the two universities.



PhD (2020)
ABBAS Aqeel



PhD (2024)
CHAN Mei Yu Dara



MPhil (2024)
CHAN Sheung Ki Suki



PhD (2024)
CHEN Xueyao



PhD (2024)
MO Xiaohan



PhD (2021)
NG Tsin Hung Leo



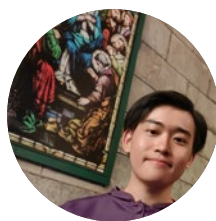
PhD (2024)
PAN Qian



PhD (2024)
PARVEEN Saira



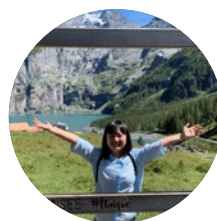
MPhil (2023)
CHENG Wing Kok Kylie



MPhil (2024)
CHOI Chi Keng Vincent



MPhil (2024)
CHUNG Nga Man Mani



PhD (2022)
DENG Di



PhD (2024)
QIN Yuxin



PhD (2020)
SONG Zilin Celine



PhD (2021)
SUN Zhangyu Joe



PhD (2023)
WANG Hongru



PhD (2023)
DUAN Hanrui Harriet



PhD (2022)
HE Jianlong



MPhil (2022)
HO Chung Yan Joanne



MPhil (2022)
HU Yukai



PhD (2023)
WANG Peifeng



PhD (2023)
WU Chenyan



PhD (2020)
XIA Zhuoxuan Summer



PhD (2022)
XIAO Maiqian



PhD (2022)
HUANG Yiwen



PhD (2023)
JIANG Youjie



PhD (2022)
KONG Lin Flora



PhD (2021)
LAI Donger



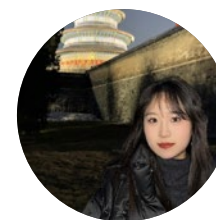
PhD (2024)
YU Zheng Jane



PhD (2024)
YUE Hong



PhD (2022)
ZHANG Jingwei



MPhil (2024)
ZHANG Lin Eureka



MPhil (2023)
LAM Chak Hay Hayden



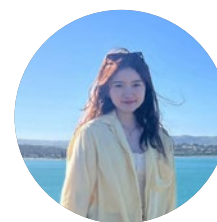
MPhil (2023)
LAU Chung Shing Martin



PhD (2024)
LAW Hoi Tang Hayden



PhD (2023)
LEI Guoyang



PhD (2024)
ZHANG Shiyue



PhD (2023)
ZHANG Wensong Bill



MPhil (2024)
ZHANG Yiming John



PhD (2024)
ZHAO Yang



PhD (2024)
LI Mengze



PhD (2021)
LIU Hui



PhD (2022)
LUO Biao



PhD (2021)
MAO Jia



PhD (2022)
ZHONG Yiyuan

Current Students

** (The year in brackets indicates their admission year)*

Graduation Thesis Project



Impacts of Ozone Pollution on Agriculture in China: Applications of Machine Learning, Inter-model Comparison and Socioeconomic and Policy Analysis

Student: MAO Jia
Graduation: PhD, August 2024
Supervisor: Prof. TAI Pui Kuen Amos



Past and Future Productivity of Global Vegetation Modeled under Interactive Processes Driven by Climate Change, Carbon Dioxide Fertilization, Ozone Pollution and Nitrogen Deposition.

Student: YUNG Ho Yin David
Graduation: PhD, August 2024
Supervisor: Prof. TAI Pui Kuen Amos



Improving Reservoir Characterization in the Weiyuan Shale Gas Field: Insights from Integrated Analysis of Low-frequency Seismic Signals and 3D Seismic Attenuation.

Student: ABBAS Aqeel
Graduation: PhD, August 2024
Supervisor: Prof. YANG Hongfeng



High-resolution Characterization of Faults in the Sichuan-Yunnan Region, China with Dense Seismic Arrays.

Student: SONG Junhao
Graduation: PhD, December 2024
Supervisor: Prof. YANG Hongfeng
Statement: *“I have learned a lot and made many good friends while pursuing my degree at the EES Department. All the best!”*



Impacts of Interannual Climate Variability and Different Fire Types on Biomass Burning Emissions, Air Quality and Public Health in the Brazilian Amazon.

Student: NG Tsin Hung
Graduation: PhD, April 2025
Supervisor: Prof. TAI Pui Kuen Amos



Analysing Dynamics of the 2000 Yigong Landslide Using Seismic Observations

Student: HO Chung Yan Joanne
Graduation: MPhil, June 2025
Supervisor: Prof. TAN Yen Joe



Chemical Aging of Organosulfur Compounds via Heterogeneous and Aqueous-Phase Oxidation: Implications for Their Atmospheric Abundance and Sources

Student: LAI Donger
Graduation: PhD, June 2025
Supervisor: Prof. CHAN Man Nin
Statement: *“We are all visitors to this time and place. Our purpose here is to observe, to experience, to learn, and to grow.”*



Leveraging Machine Learning to Develop a Comprehensive Seismic Catalog for the Weiyuan Shale Gas Field, Sichuan, China

Student: HU Yukai
Graduation: MPhil, June 2025
Supervisor: Prof. YANG Hongfeng



Modelling Subtropical Forest Ecosystem Productivity in Hong Kong under Climate Change: The Past and Future

Student: LAM Chak Hay Hayden
Graduation: MPhil, June 2025
Supervisor: Prof. TAI Pui Kuen Amos



Investigations of Characteristics and Relations between Deep Long-period Earthquakes and Volcanic Activities

Student: SONG Zilin
Graduation: PhD, June 2025
Supervisor: Prof. TAN Yen Joe



A Comprehensive Study of Rock Glacier Distribution, Velocities, and Water Storage in High Mountain Asia

Student: SUN Zhangyu
Graduation: PhD, June 2025
Supervisor: Prof. LIU Lin
Statement: *“My doctoral journey in the EES at CUHK has been an incredibly enriching, challenging, and profoundly meaningful experience. It provided me with exceptional opportunities to engage in cutting-edge research, collaborate with brilliant minds, and grow both academically and personally. The rigorous academic environment and supportive community encouraged me to push my boundaries and pursue excellence. I am deeply grateful for this transformative chapter of my life.”*



Investigating the Spatial Distribution, Dynamics, and Vegetation Recovery of Retrogressive Thaw Slumps on the Qinghai-Tibetan Plateau

Student: XIA Zhuoxuan
Graduation: PhD, July 2025
Supervisor: Prof. LIU Lin
Statement: *“A magical place where you can find what you want to do, and like-minded friends.”*

Student Exchange

During the postgraduate studies at CUHK, in addition to courses that contribute to degree requirements, there are many opportunities for student development, such as going on exchanges. We are pleased to welcome students of our Earth and Atmospheric Sciences programme, to talk about what they have learnt from the experience of studying on exchange.



HE Jianlong
China University of Geoscience (CUG), 04/2025-09/2025

Since CUG has one of the best research teams of planetary science in the world, I hope the visit could improve my research. I really enjoy the fascinating and exciting discussion with the colleagues in CUG, I believe we will have great cooperation.



KONG Lin Flora
University of Toronto, 2 years

Through the International Joint Supervision of PhD Students Scheme, I spent two years at the University of Toronto. I worked closely with researchers on the study of nanoplastics and their role as emerging atmospheric pollutants. It was a valuable experience where I learned a lot through collaboration and conversations with people in the same field. I also met many inspiring scholars who motivated me in both research and life. Outside the lab, I tried activities like ice skating, snowboarding, kayaking, and even became a marathon runner.



LEI Guoyang
Texas A&M University, 07/2024-07/2025

Texas A&M University offers a diverse academic environment and advanced laboratory facilities. The diversity of cultures enriched my perspective. The exchange experience provided valuable hands-on practice with different instruments, broadening my professional knowledge. The inclusive atmosphere in the lab fostered both teamwork and independent research skills. I became more confident, and truly appreciated the supportive community and friendships formed during this time.

LI Mengze

University of Fribourg, 05/2025 – 06/2025

I visited the Geomorphology Group of the University of Fribourg for a month, funded by the European Space Agency Permafrost Climate Change Initiative (ESA CCI Permafrost).

Fribourg is a nice city with a good balance between living cost, population and natural scenery.

I participated in 4 fieldtrips to study periglacial landscapes and field measurements. I discussed with the professor there about rock glacier processes, with researchers from Gamma about the construction of rock glacier velocity timeseries using InSAR. I admired the Swiss delicate monitoring of slope motion and appreciated the Swiss work-life-balance – off the work at 3pm.

The insights I got from this research visit are directly applicable to my research and my fieldwork in the Chinese Tien Shan.



Mengze (middle) in a field trip



Biao (left) in a conference

LUO Biao

Zhejiang University, 06/2024-05/2025

Zhejiang University is a well-known university in mainland China, with solid and leading research in the field of agricultural resources and the environment. During the exchange, I attended many lectures by renowned foreign scholars at Zhejiang University and had further communications with them. In addition, I had the opportunity to work with renowned research teams, which enhanced my understanding of the field of agricultural nitrogen cycling.

Student Activities

—— Student Orientation



The Department of Earth and Environmental Sciences warmly welcomes postgraduate students with a comprehensive orientation program designed to help them adapt to graduate life.

This event fosters strong connections between students and faculty, ensuring a supportive and collaborative environment. Through interactive sessions, students gain valuable insights into academic resources, research opportunities, and departmental facilities. The program also emphasizes the importance of student well-being and teamwork, reflecting the department's dedication to appreciating students' efforts.

—— Summer Workshop



The summer workshop, organised by EASC, is open to all potential applicants who wish to enrol in a PhD programme in autumn 2026.

The workshop is free of charge and will provide participants with a variety of valuable resources. The workshop will include an introduction to the EASC Ph.D. programme and the Hong Kong Ph.D. Fellowship Scheme, application advice and tips, research talks by professors, and one-on-one and group meetings with faculty members. In addition, participants will have the opportunity to gain early admission to the PhD programme.



Group photo of the Summer Workshop participants

Student Society

—— BBQ Gathering

The Postgraduate BBQ Gathering, held on 20 December, 2024, continued the cherished tradition of bringing together the postgraduate community of the Earth and Environmental Sciences Department at CUHK. Organized by ZHANG Yiming, the event served as a wonderful opportunity for postgraduate students, professors, and staff to connect and strengthen the sense of community that defines the programme. Longtime members reminisced about shared experiences, while new members were warmly welcomed and quickly integrated into the group. The evening also featured a lively karaoke session, adding fun and energy to the gathering, making it a memorable event for all who attended.



left to right: CHOI Eric, LAW Hayden, Prof.ZHAN Yan

top: cutting cake!
bottom: singing contest!

left to right: XIA Zhuoxuan, XU Xingyu, DENG Di

—— Winter Hiking



On 18 January 2025, students embarked on a scenic hike near the Bride's Pool Natural Trail, exploring the stunning natural beauty of the area.
From left to right: JIANG Youjie, DENG Di, YANG Yuyun

—— Art Basel



On 29 March 2025, students attended Art Basel 2025 in Hong Kong, immersing themselves in the vibrant world of contemporary art.
From left to right: ZHANG Yiming, DENG Di, JIANG Youjie

Curriculum

The Earth and Environmental Sciences programme (EESC) is designed for students eager to explore interactions among the solid Earth, atmosphere, hydrosphere, and biosphere. Through an interdisciplinary approach integrating physics, chemistry, biology, and computation, it tackles global challenges like climate change, natural hazards, and pollution.

Students gain hands-on experience through special lectures, field trips, and laboratory experiments, preparing them to lead in Earth and environmental sciences.

The renovation of the teaching lab in 2025 enhances its excellence, providing state-of-the-art facilities to support innovative teaching and research in Earth and Environmental Sciences.

Special Lecture

—— *The 15th Lecture Series by Academicians from the Chinese Academy of Sciences (CAS): Prof. NI Sidao on Ultra-Shallow Earthquakes*

The Department of Earth and Environmental Sciences (EES) and the China Engagement Office (CNEO) proudly co-organized the 15th Lecture Series by Academicians, featuring Prof. NI Sidao from the Chinese Academy of Sciences. His insightful lecture on ‘Research Progress on Ultra-Shallow Earthquakes in Continental Regions’ highlighted groundbreaking advancements in seismology and earthquake hazard mitigation.



Regular Seminar Series



2024-9-16
Fires and Society: Connections to Air Quality, Public Health, and Land Use and Management: Excerpts from India, Equatorial Asia, and North America
Professor LIU Tianjia
Department of Geography, The University of British Columbia, Canada



2024-9-30
Utilising the Potential of Large-N Seismology: Monitoring Water in the Critical Zone
Professor James HAMMOND
School of Natural Sciences, Birkbeck, University of London, United Kingdom



2024-11-25
Surface Exchange of Reactive Nitrogen Gas between Soil and Atmosphere
Professor WU Dianming
School of Geographic Sciences, East China Normal University, China



2024-12-13
Interdisciplinary Research on Cyclone Resilience of Traditional Buildings in Coastal Madagascar
Dr. HUANG Yun'er
School of Engineering, The University of Edinburgh, United Kingdom



2024-12-17
Multiscale Model Development and Physical Analysis of Stratospheric Particle Dispersion and Transport Based on Stratospheric Aerosol Injection
Dr. SUN Hongwei
Incoming Assistant Professor, Department of Atmospheric Sciences, University of Hawaii, U.S.A.



2025-2-6
Predictability of Tropical Cyclone Track Density in S2S Reforecast
Mr. LOI Chi Lok
Department of Atmospheric Sciences, National Taiwan University, Taiwan



2025-2-7
Metre-Scale Radiative Effects on the Development of Stratocumulus-Topped Boundary Layer
Mr. CHAN Kenneth
Max Planck Institute for Meteorology, Germany



2025-2-14
Geophysics: Our Common Bond
Dr. John EASTWOOD
President, Society of Exploration Geophysicists (SEG), U.S.A.



2025-3-7
The History of Liquid Water Activity on Mars and the Evolution of Habitability Conditions
Professor XIAO Long
China University of Geosciences (Wuhan), China



2025-3-14
Deformation Across Scales: From Plate Boundaries to Lab Experiments
Dr. TIAN Xiaochuan
Department of Earth and Planetary Sciences, UC Davis, U.S.A.



2025-3-21
The Role of Professional Qualifications in the Advancement of Geoscience Careers
Dr. Eleanor WILLIAMS
Chartership Officer, The Geological Society of London, United Kingdom



2025-4-25
Potential, Uncertainties, and Trade-Offs of Nature-Based Climate Solutions
Professor ZHENG Qiming
Department of Geography and Resource Management, CUHK.



2025-5-14
Recent Advances in Modelling Long-Range Transport of Ozone, Secondary Inorganic Aerosols And Open Biomass Burning Emissions
Professor YING Qi
Division of Environment and Sustainability, HKUST



2025-5-16
Influences on Biogeochemical Responses by Representations of Fluid Turbulence
Professor Julian MAK
Department of Ocean Science, HKUST



2025-5-26
What Coral Fossils and Human Bones Reveal about Past Environments and Societies
Dr. Jonathan CYBULSKI
The University of Hong Kong



2025-6-4
Sea-Level Science in Singapore and Southeast Asia
Professor Benjamin HORTON
School of Energy and Environment, City University of Hong Kong

Field Trips and Expeditions

—— Local Field Study

EESC1009 Sharp Island

EESC1009 is a new course introduced in 2024 fall, aiming to offer an all-rounded experience in conducting experiments and field works in geoscience, atmospheric science and environmental science. In October 2024, students participated in a field trip to Sharp Island, where they utilized the skills of conducting geological field study to investigate the igneous rocks and sedimentary features there. It is hoped that this experience can provide an insight on the practical fieldwork geology students often conduct throughout their study.



EESC2270 Long Valley

As part of EESC2270 – Introduction to Environmental Science, students visited Long Valley, one of Hong Kong’s most ecologically rich wetlands, on 14 March 2025. Led by the Agriculture, Fisheries and Conservation Department (AFCD), the tour explored diverse habitats, native and migratory birds, wetland plants, and traditional agricultural practices. Students learned how sustainable farming, including rice cultivation, balances conservation and biodiversity. This hands-on experience deepened their understanding of habitat conservation and Hong Kong’s natural heritage.



EESC3100 Tung Ping Chau

EESC3100 Structural Geology features three key local field studies at Tung Ping Chau, Lai Chi Chong, and Bluff Head. These studies focus on analyzing geological structures and deformation features to understand how tectonic processes have shaped Hong Kong’s geological landscape. Through hands-on exploration, students gained valuable insights into the evidence of these processes and their connection to present-day surface structures. On the right is a photo from students’ visit to Tung Ping Chau on February, 2025.

—— Mainland China Field Study

EESC2009 Shennongjia

This field study, conducted from 1-7 July 2025, was a collaborative effort between our institution and the teachers and Year 1 students from the School of Earth Sciences and Engineering at Sun Yat-sen University. The aim of the field trip was to explore the interconnections between rocks, geological structures, paleobiology, landforms, and ecosystems in the stunning Shennongjia region of Hubei, China. The trip provided invaluable hands-on experience and fostered academic exchange, enhancing our understanding of the dynamic interplay between geological and ecological systems.



EESC4119 Wutai-Hengshan

From 23 June to 2 July 2025, 10 CUHK students participated in the 2025 Wutai-Hengshan International Geological Field Excursion, organized by Peking University with Mahidol University, Thailand.

The students explored key geological sites across seven routes and 34 observation points, analyzing rock types, mineral assemblages, and tectonic structures. They conducted detailed fieldwork, including measuring rock layers and creating geological cross-sections, while group discussions and presentations refined their understanding.

The CUHK team’s strong academic foundation, critical thinking, and enthusiasm earned high praise from instructors, fostering collaboration and new friendships.



Group Photo in Wutaishan

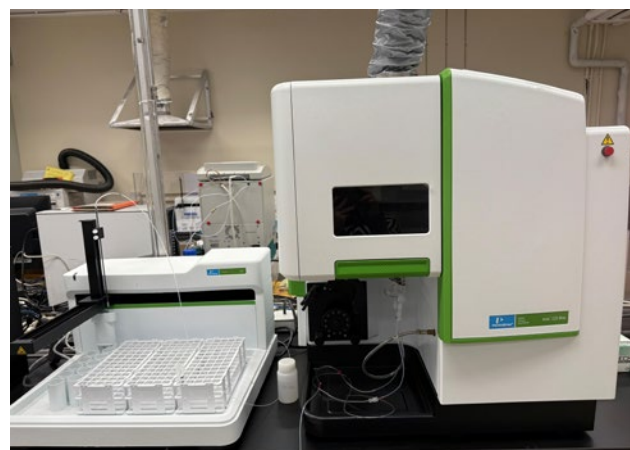


Teaching Lab Renovation

This year, our department proudly unveiled the newly renovated teaching lab, a transformative upgrade that strengthens our teaching and research capabilities. Together with our existing Computing and Geology Laboratories, this state-of-the-art facility completes our trio of specialized teaching labs, each tailored to the unique needs of our curriculum.

The teaching lab is now equipped with cutting-edge instruments, including the PerkinElmer Avio 220 Max ICP-OES, XYLEM FS3700 Nutrients Analyzer, and Agilent 1290 Infinity II Bio-Inert UHPLC. These advanced tools, along with essential microbiology equipment such as incubators, microscopes, and autoclaves, provide an unparalleled platform for students to engage in hands-on analytical research. From biogeochemistry to environmental microbiology, students gain invaluable skills and insights, preparing them for future studies and careers in Earth and Environmental Sciences.

This renovation not only enhances our ability to deliver a world-class education but also ensures our students are equipped with the knowledge and experience to tackle the challenges of tomorrow.



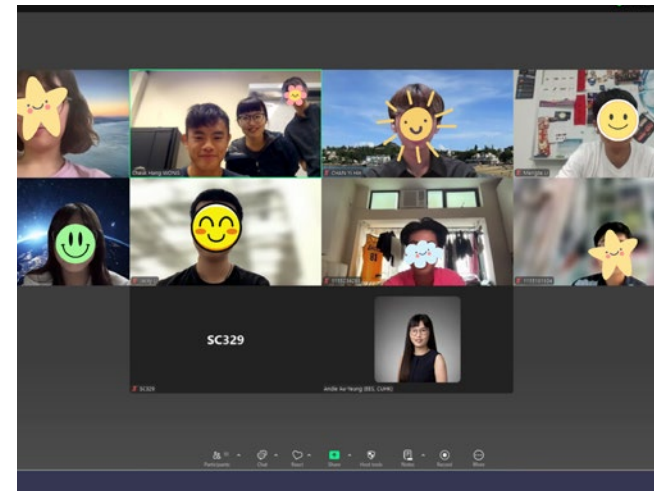
ICP-OES



UHPLC

Teaching Innovation

— *Catching Up with the AI Boom: How Machine Learning Works and Advances Research in Earth and Environmental Sciences*



AI chatbots like ChatGPT have become a common part of our daily lives in recent years. As the AI industry continues to grow, many technological advancements now heavily rely on machine learning; hence, understanding the principles behind it becomes increasingly crucial. Learning these techniques not only helps you understand the AI boom but also enhances data analysis by revealing hidden relationships within data. This could lead to potential breakthroughs in the academic research field.

With this motivation, a machine learning workshop was held from 7 to 18 July, 2025, in our computer lab. The speaker, Mr. Ivan WONG, is an ESSC graduate passionate about machine learning and AI. Open to EES undergraduates,

postgraduates, and alumni, this non-credit workshop aimed to introduce various machine learning methods and the algorithms behind the latest models, such as Long Short-Term Memory (LSTM) and Transformer models. It featured EES applications, providing hands-on coding practice and real-world examples that could assist students in their research and postgraduate studies.

— *Innovative Learning Through VR: ‘Bake Your Own Mineral’ Revolutionizes Geological Education*

Dr. Tammy TAM initiated the development of an interactive game aimed at enhancing students’ understanding of fundamental geological concepts. In February 2025, in collaboration with the Knowledge & Education Exchange Platform (KEEP), an online VR game titled “Bake Your Own Mineral” was created and introduced to students enrolled in EESC2010: Solid Earth Dynamics.



The game was launched on the Rec Room platform, which enables users to design and build their own virtual experiences using an intuitive interface. In “Bake Your Own Mineral”, students take on the role of a virtual geologist tasked with “baking” common rock-forming minerals—such as quartz, olivine, and muscovite—as well as the popular gemstone ruby. Players must select the correct chemical elements required to form each mineral, helping them grasp the chemical composition and structure of minerals and understand how these factors influence their physical and chemical properties.

The game received highly positive feedback from a diverse audience, including EESC students, external guests, and campus visitors. Looking ahead, there are plans to expand the game’s content and scope, with the goal of establishing it as a core learning resource for students in Earth and Environmental Sciences.

Academic Highlights

Our department continues to excel in research and academic pursuits, with impactful media coverage, groundbreaking major research projects, and numerous publications in prestigious journals.

Unveiling Greening Antarctica

EES Faculty’s Groundbreaking Polar Expedition

Expedition Highlights

From December 2024 to March 2025, CUHK led a team of six Hong Kong scientists, embarked on China’s 41st Antarctic Scientific Expedition. Faculty members from our Department of Earth and Environmental Sciences (EES) was actively participating in the team, this includes: **Prof. CHOW Tat Shing Alex, Prof. LIU Lin, Prof. TSUI Tsz Ki Martin, and Dr. CHEN Zhaoliang.** The team contributed to vital research examining the ecological impacts of climate change on Antarctica’s rapidly transforming landscapes. This historic mission marked the first time Hong Kong scientists joined the national polar research team.



The expedition focused on vegetation growth caused by ice melting, a climate warming “biological indicator,” and included extensive sampling of mosses, soils, and microbes near China’s Great Wall and Zhongshan Stations. Over 300 samples were collected to analyze biogeochemical changes, advancing our understanding of polar ecosystems and their global implications.



Key Findings

- **Rapid Vegetation Growth:** Satellite data and field observations revealed expanding moss coverage and intensified “greening” around Great Wall Station due to extended growing seasons. *(picture on the left)*
- **Unique “vernal pool” Ecosystems:** The team discovered vibrant algae and microbes in temporary wetlands, challenging the typical view of Antarctica as barren.
- **Climate Change Impacts:** The findings highlight the interconnectedness of human activities and natural systems, with Antarctica serving as a global warning signal.

Voices from the Field

Prof. LIU Lin, an EES faculty member, shared: **“Antarctica is a mirror reflecting the profound link between human activity and nature. It’s a global warning system, urging us to take action now.”**

Looking Ahead

EES aims to establish long-term polar research initiatives, including future participation in China’s polar expeditions and Arctic studies at the Yellow River Station. These efforts will position EES as a leader in polar research, contributing to global climate science.



Major Research Grants

— Biogeochemistry



Prof. CHOW
Tat Shing Alex

C-FIST: Establishing World’s Premier Environmental Organic Carbon Fingerprint Imaging Science & Technology Laboratory in Hong Kong
Hong Kong Research Grants Council - Collaborative Research Fund.
\$7,070,800 HKD (2025-2028)

Biogeochemical Characteristics of Halogenated Organic Matter in Megacities
Hong Kong Research Grants Council - General Research Fund.
\$890,587 HKD (2026 – 2028)

Molecular composition and transformation of pyrogenic organic matter in wildland fires
Hong Kong Research Grants Council - General Research Fund.
\$910,742 HKD (2024 – 2027)



Prof. DU Penghui

Identification and reaction properties study of carbon-centered radicals in peracetic acid-based advanced oxidation processes
National Natural Science Foundation of China, NSFC-22206070.
30,000 RMB (2023 – 2025)



Prof. LUO Haiwei

A novel endosymbiotic Ruegeria species and its probiotic effects on corals
Hong Kong Research Grants Council - General Research Fund.
\$1,559,580 HKD (2025-2027)

Understanding biological nitrogen cycle evolution through new molecular clock approaches
Hong Kong Research Grants Council - General Research Fund.
\$1,374,820 HKD (2024-2026)

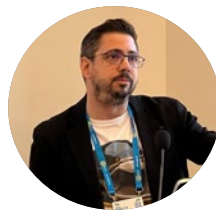


Prof. TSUI Tsz Ki
Martin

Ecosystem controls on the production and degradation of highly toxic methylmercury in upland vegetated landscapes
Hong Kong Research Grants Council- General Research Fund.
\$910,742 HKD (2025-2027)

Impacts of rising biological activities on mercury toxicity in inland Antarctica
CUHK Strategic Seed Funding for Collaborative Research Scheme.
\$500,000 HKD (2025-2027)

Production of methylmercury and its linkage to biomagnification in food webs at a subtropical mangrove ecosystem
Hong Kong Research Grants Council- General Research Fund.
\$877,079 HKD (2024-2026)



Prof. THIBODEAU
Benoit

Carbon emissions from China’s inland waters and coastal ecosystems under global change
Hong Kong Research Grants Council - Collaborative Research Fund.
\$2,976,214 HKD (2025-2028), Co-investigator

C-FIST: Establishing World’s Premier Environmental Organic Carbon Fingerprint Imaging Science & Technology Laboratory in Hong Kong
Hong Kong Research Grants Council - Collaborative Research Fund.
\$7,070,800 HKD (2025-2028), Co-investigator

Aquatic carbon cycling and greenhouse gas emissions from (sub)tropical headwater streams
Hong Kong Research Grants Council - General Research Fund.
\$838,660 HKD (2024-2027), Co-investigator

Study of the regional earth system for sustainable development under climate change in the Greater Bay Area
Hong Kong Research Grants Council - Areas of Excellence Scheme.
\$87,147,000 HKD (2024-2028), Co-investigator

— Geophysics



Prof. LIU Lin

Rock glacier distribution across the Hindu Kush Himalaya and the French Alps based on remote sensing and deep learning
Hong Kong Research Grants Council - PROCORE-France/Hong Kong Joint Research Scheme.
\$86,400 HKD (2023 – 2025), Co-investigator

Thermokarst Landforms on the Qinghai-Tibet Plateau: Spatio-temporal Evolution and Future Changes
Hong Kong Research Grants Council - National Natural Science Foundation of China/RGC Joint Research Scheme.
\$1,169,912 HKD (2022 – 2025), Co-investigator

Characterization of ancient lake basins on Mars using advanced topographic modelling and innovative spectroscopic techniques
Hong Kong Research Grants Council - Collaborative Research Fund.
\$4,621,350 HKD (2022 – 2025), Co-investigator



Prof. TAN
Yen Joe

Probing Earthquake and Volcanic Processes on the Seafloor
Croucher Tak Wah Mak Innovation Award.
\$5,000,000 HKD (2022 – 2027)

Tracking Deep Long-Period Volcanic Earthquakes
Hong Kong Research Grants Council - General Research Fund.
\$783,000 HKD (2023 – 2026)

Major Research Grants

Geophysics (Continued)



Prof. YANG
Hongfeng

Controlling mechanisms of earthquake and volcano in oblique subduction zones

National Key R&D Program of China, MOST
3,180,000 RMB (2024 – 2028)

Near-field ground motion prediction from dynamic rupture simulations and validation of strong earthquakes in western China

Hong Kong Research Grants Council - General Research Fund.
\$877,079 HKD (2023 – 2026)

Investigations of earthquakes in the Weiyuan shale gas field, Sichuan, based on dense array and machine learning methods

NSFC-CEA Joint Key Grant
2,800,000 RMB (2022 – 2025)



Prof. ZHAN Yan

Unveiling the Dynamics of Long-Term Volcanic Thermal Evolution in the Sunda Arc

Hong Kong Research Grants Council - General Research Fund.
\$890,587 HKD (2025-2028)

Magma ascent via dike propagation at the Piton de la Fournaise volcano, Réunion Island

Hong Kong Research Grants Council - Early Career Scheme.
\$831,657 HKD (2025-2028)

A Comparative Study on the Evolution of Habitability Between Earth and Mars

Ministry of Science & Technology, China, Key Technologies R&D Programme, NSFC Young Scientists Fund
\$3,000,000 RMB (2025-2028), Co-investigator

Atmospheric Science



Prof. CHAN
Man Nin

Properties of Structurally Different Organosulfates: Surface Tension and Bulk-Surface Partitioning in Aerosol

Hong Kong Research Grants Council - General Research Fund.
\$910,742 HKD (2025-2027)

Investigating the Effects of Organosulfates and the Sulfur Ester Group on the Hygroscopicity of Atmospheric Aerosols

Hong Kong Research Grants Council - General Research Fund.
\$1,169,439 HKD (2024-2026)

Aqueous-Phase Processing of Organosulfates: Implications for their Environmental Fates and Impacts

Hong Kong Research Grants Council - General Research Fund.
\$436,015 HKD (2022 – 2025)



Prof. TAI Pui Kuen
Amos

Transforming Chinese agriculture and food systems to mitigate reactive nitrogen emissions and their contribution to air pollution and climate change

Hong Kong Research Grants Council - Areas of Excellence Scheme.
\$3,395,284 HKD (2025-2028)

Effects of future trends in Chinese food consumption and production on regional air quality in China via the nitrogen cascade

Hong Kong Research Grants Council - General Research Fund.
\$790,454 HKD (2023-2025)



Prof. TAM Chi Yung
Francis

Multi-sensor monitoring, geophysical interpretation and prediction of sea level rise in Hong Kong

Hong Kong Research Grants Council - Collaborative Research Fund.
\$6,667,108 HKD (2024-2027), Co-investigator

Provision of Services for Feasibility Study on Using a Global Variable-resolution Meteorological Model for Hong Kong Air Quality Simulation

Environmental Protection Department.
\$1,200,000 HKD (2023-2026)



Prof. ZHAI Shixian

Assessing atmospheric reactive nitrogen budget in the Greater Bay Area of South China: an integrated analysis of multi-source observations with atmospheric chemistry models

Hong Kong Research Grants Council - Early Career Scheme.
\$831,657 HKD (2025-2028)

Improving the parameterization scheme of aerosol size distributions and assessing its impacts on ground-level ozone simulation in China

National Natural Science Foundation of China, Young Scientists Fund.
300,000 RMB (2025-2028)

Selected Publications

Gleasant, G., **Mo, X.**, Atkins, J. W., Hagan, D., Campbell, B. J., Patabandige, D. L. J., Bourbonnais, A., Baalousha, M., Brooks, S. C., Ku, P., Santos, F., Richardson, S. D., **Du, P.**, & **Chow, A. T.** (2025). Postfire Biogeochemical Processes: Implications to source water quality in Fire-Influenced Watersheds. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.4c11860>

Du, P., Yang, B., **Chow, A. T.**, Shi, D., Wong, K. M., & Wang, J. (2025). From Quencher to promoter: Revisiting the role of 2,4,6-Trimethylphenol (TMP) in Triplet-State photochemistry of dissolved Organic matter. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.4c09859>

Du, P., **Chow, A. T.**, & Chen, C. (2024). DBP precursors. In *The handbook of environmental chemistry* (pp. 59–88)

Du, P., Tang, K., Yang, B., Mo, X., & Wang, J. (2024). Reassessing the quantum yield and reactivity of triplet-state dissolved organic matter via global kinetic modeling. *Environmental Science & Technology*, 58(13), 5856-5865. <https://doi.org/10.1021/acs.est.4c00214>

Bass, A. V., Wang, Z., **Chung, N. M.**, So, M. W. K., Falkenberg, L. J., & **Thibodeau, B.** (2025). Altered nutrient cycling functionality in seagrass meadows under a simulated future marine heat-wave event. *New Phytologist*, <https://doi.org/10.1111/nph.70382>

Thibodeau, B., Doherty, J. M., Alonso-García, M., Band, S., González-Lanchas, A., Not, C., & Ren, H. (2025). Upper Ocean Instability in the Subpolar North Atlantic and Its Implications for Deep Water Formation During Interglacials. *Paleoceanography and Paleoclimatology*, 40(2), e2024PA004935. <https://doi.org/10.1029/2024PA004935>

Bass, A. V., Falkenberg, L. J., & **Thibodeau, B.** (2024). Seagrasses under stress: Independent negative effects of elevated temperature and light reduction at multiple levels of organization. *Limnology and Oceanography*. <https://doi.org/10.1002/lno.12759>

Tsui, M. T. K. (2025). Global biogeochemical cycle of mercury and critical factors in determining mercury levels in fish. *Ecological and Human Health Impacts of Contaminated Food and Environments*, edited by Wong MH. Chapter 13, CRC Press, Taylor and Francis Group.

Ku, P., **Tsui, M. T. K.**, Uzun, H., Chen, H., Dahlgren, R. A., Hoang, T. C., ... & **Chow, A. T. S.** (2024). Dominance of Particulate Mercury in Stream Transport and Rapid Watershed Recovery from Wildfires in Northern California, USA. *Environmental Science & Technology*, 58(50), 22159-22169. <https://doi.org/10.1021/acs.est.4c09364>

Wang, S., **Tsui, M. T. K.**, Li, J., Pan, K. (2024) Biogeochemical controls on methylmercury distribution in a subtropical wetland ecosystem. *Marine Pollution Bulletin* 207: 116894. <https://doi.org/10.1016/j.marpolbul.2024.116894>

Feng, X., Xing, P., Tao, Y., Wang, X., Wu, Q. L., Liu, Y., & **Luo, H.** (2024). Functional traits and adaptation of lake microbiomes on the Tibetan Plateau. *Microbiome*, 12(1), 264. <https://doi.org/10.1186/s40168-024-01979-7>

Liao, T., Wang, S., Zhang, H., Stüeken, E. E., & **Luo, H.** (2024). Dating ammonia-oxidizing bacteria with abundant eukaryotic fossils. *Molecular Biology and Evolution*, 41(5), msae096. <https://doi.org/10.1093/molbev/msae096>

Zhang, H., Hellweger, F. L., & **Luo, H.** (2024). Genome reduction occurred in early *Prochlorococcus* with an unusually low effective population size. *The ISME Journal*, 18(1), wrad035. <https://doi.org/10.1093/ismejo/wrad035>

Xu, R., Chen, Y., Ng, S. I. M., Zhang, Z., Gold, A., Turpin, B. J., ... & **Chan, M. N.** (2024). Formation of Inorganic Sulfate and Volatile Nonsulfated Products from Heterogeneous Hydroxyl Radical Oxidation of 2-Methyltetrol Sulfate Aerosols: Mechanisms and Atmospheric Implications. *Environmental Science & Technology Letters*, 11(9), 968-974. <https://doi.org/10.1021/acs.estlett.4c00451>

Yuan, T., Fu, T.-M., Zhang, A., **Yung, D. H. Y.**, Wu, J., Li, S., & **Tai, A. P. K.*** (2025). Impacts of irrigation on ozone and fine particulate matter (PM_{2.5}) air quality: Implications for emission control strategies for intensively irrigated regions in China. *Atmospheric Chemistry and Physics*, 25(7), 4211-4232. <https://doi.org/10.5194/acp-25-4211-2025>

Luo, B., Huang, J., **Liu, X.**, Kwan, M.-P., & **Tai, A. P. K.*** (2025). Dietary changes are associated with an increase in air pollution-related health and environmental inequity in China. *Communications Earth & Environment*, 6, 79. <https://doi.org/10.1038/s43247-025-02050-5>

Mao, J., **Tai, A. P. K.***, **Yung, D. H. Y.**, **Yuan, T.**, **Chau, K. T.**, & Feng, Z (2024). Multidecadal ozone trends in China and implications for human health and crop yields: A hybrid approach combining a chemical transport model and machine learning. *Atmospheric Chemistry and Physics*, 24(1), 345-366. <https://doi.org/10.5194/acp-24-345-2024>

Hu, C., **Tam, C. Y.**, Li, Z., Chen, J., Chow, T. N., Li, Y., ... & Yang, Z. L. (2024). Impacts of urban heat and surface roughness on landfalling tropical cyclone intensity: A case study based on TC Victor (1997) in coastal South China. *Journal of Geophysical Research: Atmospheres*, 129(23), e2024JD040915. <https://doi.org/10.1029/2024JD040915>

Zheng, Y., **Tam, C. Y.**, & Collins, M. (2024). Reduced Indian Ocean Dipole Asymmetry and Increased Extreme Negative Events under Future Greenhouse Warming. *Journal of Climate*, 37(21), 5507-5523. <https://doi.org/10.1175/JCLI-D-24-0107.1>

Chow, T. N., **Tam, C. Y.**, Chen, J., & Hu, C. (2024). Effects of background synoptic environment in controlling South China Sea tropical cyclone intensity and size changes in pseudo-global warming experiments. *Journal of Climate*, 37(5), 1811-1832. <https://doi.org/10.1175/JCLI-D-23-0503.1>

Liu, X., **Zhai, S.**, Li, K., Zhu, L., Liu, S., Shah, V., Tai, A. P. K., Geng, G., Hou, X., Mamtimin, A., Li, X., and Zhao, T. (2025). Particulate matter (PM) and ozone air quality in Urumqi of Northwest China: Seasonality, trends, and sources, *Atmospheric Environment*, 350, 121150. <https://doi.org/10.1016/j.atmosenv.2025.121150>

Zhai, S., Jacob, D. J., Franco, B., Clarisse, L., Coheur, P., Shah, V., ... & Liao, H. (2024). Trans-Pacific transport of Asian peroxyacetyl nitrate (PAN) observed from satellite: implications for ozone. *Environmental science & technology*, 58(22), 9760-9769. <https://doi.org/10.1021/acs.est.4c01980>

Zhai, S., Jacob, D. J., Pendergrass, D. C., Colombi, N. K., Shah, V., Yang, L. H., Zhang, Q., Wang, S., Kim, H., Sun, Y., Choi, J. S., Park, J. S., Luo, G., Yu, F., Woo, J. H., Kim, Y., Dibb, J. E., Lee, T., Han, J. S., Anderson, B. E., Li, K., and Liao, H. (2023). Coarse particulate matter air quality in East Asia: implications for fine particulate nitrate, *Atmos. Chem. Phys.*, 23, 4271-4281. <https://doi.org/10.5194/acp-23-4271-2023>

Ran, J., **Liu, L.**, Zhang, G., Shum, C. K., Qiu, J., Hu, R., ... & Zhong, Y. (2024). Contrasting lake changes in Tibet revealed by recent multi-modal satellite observations. *Science of the Total Environment*, 908, 168342. <https://doi.org/10.1016/j.scitotenv.2023.168342>

Hu, Y., **Liu, L.**, Huang, L., Zhao, L., Wu, T., Wang, X., & Cai, J. (2023). Mapping and characterizing rock glaciers in the arid Western Kunlun Mountains supported by InSAR and deep learning. *Journal of Geophysical Research: Earth Surface*, 128(9), e2023JF007206. <https://doi.org/10.1029/2023JF007206>

Hu, Y., Harrison, S., **Liu, L.**, & Wood, J. L. (2023). Modelling rock glacier ice content based on InSAR-derived velocity, Khumbu and Lhotse valleys, Nepal. *The Cryosphere*, 17(6), 2305-2321. <https://doi.org/10.5194/tc-17-2305-2023>

Wang, P., Tan, Y. J., Bohnenstiehl, D. R., Wilcock, W. S. D., Tolstoy, M., Walhauser, F., **Zhan, Y.**, and Li, W. (2025), Source mechanism of impulsive seafloor events that track submarine lava flows, *Science Advances*, 11, eadk3942. <https://doi.org/10.1126/sciadv.adk3942>

Zhang, Z., Liu, M., Tan, Y. J., Walter, F., He, S., Chmiel, M., & Su, J. (2024). Landslide hazard cascades can trigger earthquakes. *Nature communications*, 15(1), 2878. <https://doi.org/10.1038/s41467-024-47130-w>

Zhong, Y., & Tan, Y. J. (2024). Deep learning based phase picking for volcano tectonic and long period earthquakes. *Geophysical Research Letters*, 51(12), e2024GL108438. <https://doi.org/10.1029/2024GL108438>

Yao, S., and **H. Yang** (2025), Rupture phase reveals geometry-controlled rupture propagation in a natural earthquake, *Science Advances*, 11(4), <https://doi.org/10.1126/sciadv.adq0154>

Zi, J., Y. Yang, **H. Yang**, and J. Su (2025), The 11-month precursory fault activation of the 2019 Mw 5.0 earthquake in the Weiyuan shale gas field, China, *Nature Communications Earth & Environment*, <https://doi.org/10.1038/s43247-025-02151-1>

Chen, H., G. Zhu, **H. Yang**, J. Zhang, S. Lu, C. Chen, J. Lin, and Y. Luo (2025), Along-strike variations in intermediate-depth seismicity in the southernmost Mariana subduction zone: Impact from the subduction of an oceanic plateau, *Tectonophysics*, no.230875, <https://doi.org/10.1016/j.tecto.2025.230875>

Pinel, V., Annen, C., Namiki, A., Samaniego, P., Seropian, G., Sparks, S., **Zhan, Y.**, (2025). Eruption triggering. Chapter 5.1 of *The Encyclopedia of Volcanoes*, 3rd ed.

Ni, P., **Zhan, Y.**, Chabot, N. L., Ryan, C. J., Zhu, K., Nie, N. X., ... & Shahar, A. (2024). Copper isotope fractionation during asteroid core solidification. *Geochemical Perspectives Letters*, 31, 49-53. <https://doi.org/10.7185/geochemlet.2432>

Shreve, T., **Zhan, Y.**, Le Mével, H., Roman, D., & Moussallam, Y. (2023). Two distinct magma storage regions at Ambrym volcano detected by satellite geodesy. *Geophysical Research Letters*, 50(15), e2023GL102925. <https://doi.org/10.1029/2023GL102925>

Events and Activities

EES Department Inauguration Ceremony

On 4 March, 2025, the EES Department held its inauguration ceremony at Lecture Hall LT1 in the Science Centre at CUHK. The event was attended by numerous distinguished guests, including Kam Sing Wong, GBS, JP, the former Secretary for the Environment and Ms. LOK Sze Lee, a renowned Hong Kong explorer. Former directors of the ESSC and ENSC programmes also shared their memories and congratulations on the establishment of the new department. In total, the audience comprised over 100 individuals, also including alumni, teaching staff, and undergraduates.



Guest speakers (top) and Signature Board (bottom left)

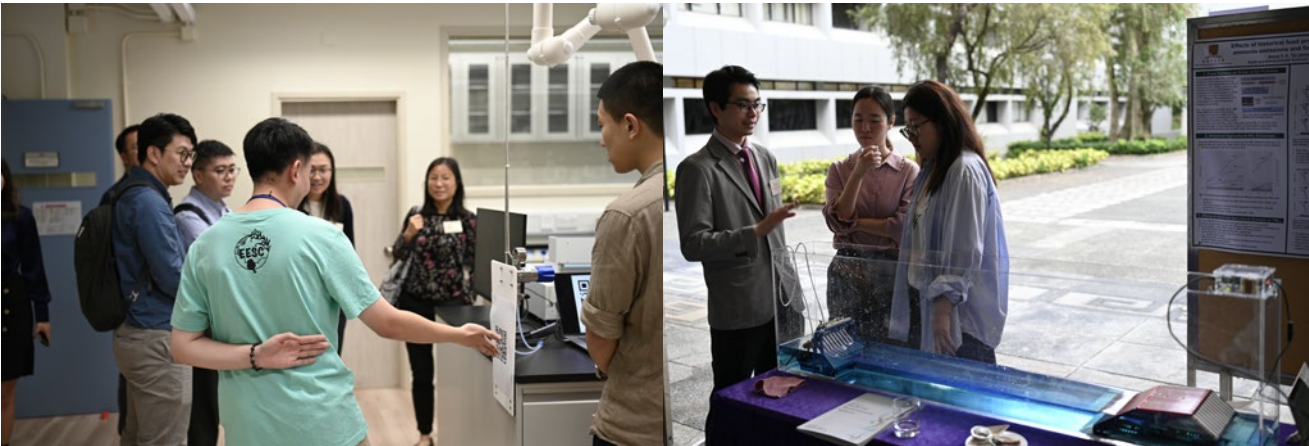
Following speeches from both external and internal guests, the “Lights Up” Ceremony was held, symbolizing the merger of ESSC and ENSC. Guests in the front were invited to light up the English letters on their desks.



The event also featured a roasted pig cutting ceremony outside the Science Centre, held by our chairperson, Prof. Alex CHOW, the former ESSC director, Prof. Teng Fong WONG and the Science Faculty Dean, Prof. Chunshan SONG. A ribbon-cutting ceremony was also held shortly after the roasted pig cutting. Many of our prestigious guests participated in this special occasion.



After the formalities, guests participated in poster exhibitions and lab tours, providing them with a deeper understanding of our research fields.



Lab Visit

Tsunami Demo

Community Outreach

— The Second Hong Kong Secondary School Geology Quest

The Second Secondary School Geology Quest sees the Department of Earth and Environmental Sciences (EES) play a supportive role, providing both knowledge and manpower. Under the guidance of Dr. Tammy Tam, five Geoscience Ambassadors (GAs) participated, assisting secondary school students in gathering field data and conducting studies. The GAs were attuned to the needs of junior students, adapting their teaching methods accordingly. This experience not only enhanced their coordination skills for inter-school events but also bolstered their problem-solving capabilities, preparing them for leadership roles in the SSGPP and beyond. Their involvement garnered public attention, culminating in interviews with RTHK in December 2024.



— Annual Dinner of Geological Society of London Hong Kong Regional Group (GSL HKRG) and the Workman-Malpas Medal Award Ceremony 2025

On 21 March, 2025, our students, teaching staff, and alumni attended the Annual Dinner of the Geological Society of London Hong Kong Regional Group (GSL HKRG) alongside the Workman-Malpas Medal Award Ceremony by the Geological Society of Hong Kong (GSHK). This occasion provided an invaluable opportunity to celebrate geoscience excellence and recognize individuals who have made significant contributions to the field. It also fostered connections among our alumni, students, and faculty, making for a meaningful and memorable event.



— The Secondary School Pilot Programme (SSGPP) 2024-2025

The Secondary School Pilot Programme (SSGPP) 2024-2025 marks its fifth successful year, continuing as a student-led initiative under the Geoscience Ambassador Training Scheme (GATS), aimed at delivering geoscience knowledge to secondary school students. This year's programme features two engaging workshops, a field study, and an insightful gemstone visit, drawing participation from over 80 secondary school students and numerous supporting organizations. These supporting parties enrich the programme by offering professional workshops, expert field guidance, and donating souvenirs. Notable contributors include the Geological Society of Hong Kong (GSHK), the Geological Society of London, Hong Kong Regional Branch (GSL HKRG), the Mineralogy Society of Hong Kong (MSHK), the Gemmological Association of Hong Kong, Dinosaur @ Fossil Lab, L'ÉCOLE Asia Pacific, the School of Jewelry Arts, Crystal Market, Yat Shing Trade Company, the Museum of Climate Change (MoCC), and ELITE from the Chinese University of Hong Kong (CUHK).



Field trip “Sedimentary Rocks in Hong Kong” to Tung Ping Chau on 15 March, 2025.



Visit to L'ÉCOLE Asia Pacific, the School of Jewelry Arts on 29 March, 2025 and Gemstone workshop in CUHK on 22 March, 2025

Community Outreach

— CUHK University Taster Fair



On 12 April 2025, the Programme Taster Fair was held at CUHK, welcoming F.4 and F.5 students for a fun-filled day of exploration. The day began with an insightful lecture by Prof. TSUI Tsz Ki Martin: “*Is our Environment Seriously Polluted?*”. A heartfelt student-sharing session followed, where participants exchanged ideas and experiences. To conclude, Dr. LI Kwan Kit Ronald led an engaging hands-on workshop, delving into the Coriolis Effect and Cyclone Rotation. The event offered a meaningful learning experience, inspiring participants to deepen their understanding of earth and environmental science.

— International Student Science Conference (ISSC) 2025

As part of the International Student Science Conference (ISSC) 2025 at The Chinese University of Hong Kong (CUHK), the Faculty of Science, with support from the Earth and Environmental Sciences Department, hosted two engaging workshops for 80 international high school students on 4 July, 2025. In the DIY Beeswax Food Wrap Workshop, participants crafted reusable wraps, promoting waste reduction and sustainable living. Another workshop delved into atmospheric science, where students explored geophysical fluid dynamics using a rotating turntable to simulate Earth’s rotation and study weather systems. These hands-on sessions combined fun, education, and real-world applications, inspiring participants to embrace sustainability and deepen their scientific curiosity.



— Secondary School Students Visit



From 14 to 16 July 2025, three secondary school students from the Tsung Tsin Christian Academy visited our department as part of the ‘Experiencing Workplace’ programme, jointly hosted by the academy and Breakthrough. Across six sessions, they explored university life and research through hands-on workshops, including machine learning, atmospheric research, cyclone simulations, geology, climate change studies, and environmental data processing using Excel and Python. This immersive experience provided valuable insights into scientific exploration and academic life.

Alumni

The alumni’s achievements reflect the impact of EES’s interdisciplinary training and curiosity-driven approach.

We are proud to celebrate their successes and their continued connection to the department.

Alumni Messages and Advice to Students



Earth System Science
Programme (ESSC)
(2024)

CHENG Ka Man Carmen

Current MSc Student at ETH Zürich

“During my undergraduate journey at EES, I was grateful to meet a group of meteorology enthusiasts. Together, we inspired and supported one another throughout our studies. I had the opportunity to complete a one-year internship at the Hong Kong Observatory, where my project focused on predicting the phase development of convective cells in satellite nowcasting. I greatly deepened my programming and machine learning skills, further strengthening my passion in atmospheric science. Those valuable experiences laid the foundation for my academic path today.

Beyond research, I developed my science communication skills as a docent at the Museum of Climate Change, and later applied them in the EES Science Outreach Ambassadors scheme. We demonstrated experiments and organised interactive outreach activities to enhance public understanding of atmospheric dynamics. With a group of “atmo guy”, we created educational content for our social media page, curating posts and graphics to engage a wider audience.

The skills I honed during my internship and outreach work gave me the confidence to further pursue studies in ETH Zürich. It was my pleasure to study at EES.



Earth System Science
Programme (ESSC)
(2019)

LAI Chi Wing Eugenia

Hong Kong Space Museum

Our alumna, Eugenia Lai, who earned her bachelor’s degree from our department, shared some heartfelt advice with current students.

“When I was an undergraduate student, one of the most common questions I was asked was: “What are you going to do after graduation?”

It was also a question I frequently asked myself throughout my years of studying in the ESSC program.

Majoring in geoscience in Hong Kong can feel limiting in terms of career options, especially when compared to more conventional fields like business or medicine. While many of my classmates were set on pursuing careers in geotechnical engineering, I found myself uncertain about my own path.

However, after spending a few years exploring different opportunities in the real world, I’ve come to realize that it’s never too late to start your career. So, don’t rush into making decisions about your future. Take the time to explore your interests and passions before settling down.

Sometimes, the best opportunities come when you least expect them.



Postdoctoral Researcher
(2023 to 2025)

LIU Min

Lecturer at School of Geophysics and Information Technology,
China University of Geosciences (Beijing)

Dr. Liu Min is a dedicated researcher in geophysics, specializing in seismic detection, earthquake swarms, and nucleation. He earned his Ph.D. from the China University of Geosciences (Beijing) in 2021 and served as a Postdoctoral Fellow at CUHK from 2023 to 2025.

“Welcome to this exciting new chapter of your life! Starting something new can feel both thrilling and a little overwhelming, and that’s completely okay. Remember, every great journey begins with a single step—and you’ve already taken it.



Earth System Science
Programme (ESSC)
(2024)

WONG Cheuk Hang Ivan

Current MSc Student at ETH Zürich

Mr. Wong Cheuk Hang Ivan served as a Junior Research Assistant in the Department of Earth and Environmental Sciences after earning his bachelor’s degree in 2024 from CUHK’s Earth System Science Programme.

“The most foolish thing to do in university is to focus entirely on your studies. The world is huge, Hong Kong is tiny, and the opportunities are countless, but your life is short. Being rich means having money, but true wealth comes from possessing time. You have plenty of time to utilize in your golden years, so it is time to embark on a thrilling trip to a remote country or go on an exchange that you will never forget. My eye-opening exchange in Svalbard, Norway, has changed my perspective on life. Remember—one day you will leave this world behind, so live a life you will remember.



Postdoctoral Researcher
(2022 to 2025)

YANG Yuyun

Assistant Professor of Teaching, Division of Artificial Intelligence,
School of Data Science, Lingnan University

Dr. Yuyun Yang served as a Postdoctoral Researcher at CUHK from September 2022 to February 2025. Her research specializes in earthquake sequence modeling, source physics, fluid migration, and induced seismicity.

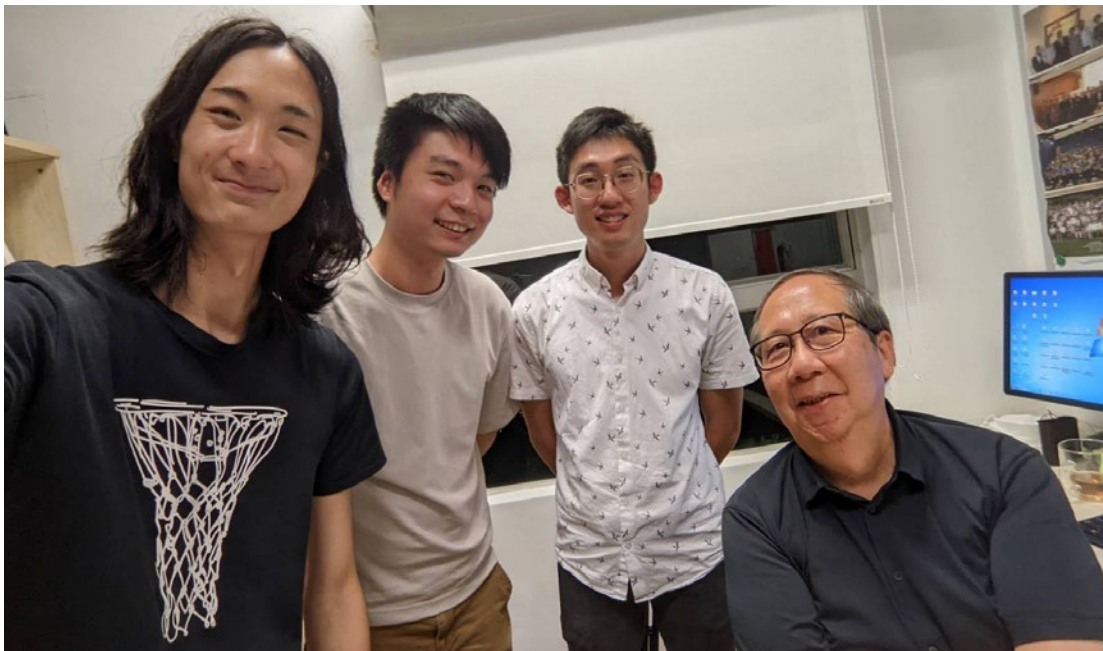
“Stay curious, enjoy the pursuit of knowledge, and consider how you can make a positive impact on your community. Be bold to try new things and carve out a unique pathway for yourself!

Alumni Messages and Advice to Students

YEUNG Kam Lam Paul

Earth System Science Programme (ESSC) (2021)
Current PhD Student at Karlsruhe Institute of Technology (KIT)
Institute of Meteorology and Climate Research Troposphere Research (IMKTRO)

“ It has been four years since I graduated from ESSC, yet the memories of my undergraduate life remain vivid. Academically, the curriculum in the Atmospheric Science stream provided me with a solid background in dynamics, which empowered me to pursue my passion for meteorology in my master’s and now PhD studies. Our program also emphasized computational and numerical skills, which allowed me to pick up machine learning techniques easily. Although I graduated with a focus in atmospheric science, ESSC offered great flexibility in course choices, enabling us to explore both atmospheric and geosci-ence topics. This helped us develop a multidisciplinary mindset—seeing how different fields connect and complement one another. Field courses, especially overseas ones, were unforgettable. We worked hard, learned deeply, and also played hard—not just among students, but together with our teachers as well. Beyond academics, there was a strong bond among teachers, staff, alumni, and students. Teachers and alumni often joined our singing, dining, or even hiking gatherings. Our alumni were always generous in sharing their career experiences and advice during exchanges. Together, we built a warm and supportive ESSC community. Friendships grew naturally as we worked and played together. Most importantly, we improved together. Student initiatives were always encouraged—projects like Geoguy and Atmoguy began with our ideas and were further developed with teachers’ guidance. By the time ESSC had its 10th anniversary, we (Ryan, Gary, and I, who had been actively involved in Geoguy and Atmoguy) also made a project for the celebra-tion. There is still much more to share, but perhaps it’s better to keep it short. As alumni, I believe we are always reachable and happy to share our unforgettable moments.



Ryan KO, Paul YEUNG, and Gary FUNG (from left to right) interviewed with Prof. Teng-fong WONG (the Founding Director of ESSC) for the celebration of the ESSC 10th anniversary.

Acknowledgments

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Special thanks to all non-academic supporters.

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- L'ÉCOLE Asia Pacific, the School of Jewelry Arts
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—— *Government Departments*

- Agriculture, Fisheries and Conservation Department of Hong Kong (AFCD).
- Civil Engineering and Development Department, Geotechnical Engineering Office (GEO).
- Drainage Services Department (DSD).
- Environmental Protection Department (EPD).
- Hong Kong Observatory (HKO).
- Hong Kong UNESCO Global Geopark.
- Leisure and Cultural Services Department: Hong Kong Science Museum. Hong Kong Space Museum.
- Water Supplies Department (WSD).

—— *Professional Societies*

- Gemmological Association of Hong Kong.
- Geological Society of Hong Kong (GSHK).
- Geological Society of London, Hong Kong Regional Branch (GSL HKRG).
- HK Meteorological society.
- HKIQEP.
- Hong Kong Construction Association.
- Mineralogy Society of Hong Kong (MSHK).

—— *NGOs*

- Friends of the Earth (HK).
- International Chamber of Sustainable Development
- Small-to-Medium Enterprise Sustainability Society

Supporting Staff

Special thanks to our supporting staff, who play a vital role in the success of our department.

Ms. CHEUK Wing Yu Sally Executive Officer	Ms. LEUNG Hoi Yi Jiffy General Clerk	Miss CHAN Pui Fun Joyce General Clerk
Miss LAU Hei Tung Joanne Project Coordinator	Mr. CHOI Kwun Chung Eric Technician	Miss HUI Nga Man Carmen Technician

Credits

Special thanks to all contributors that made Yearbook 2024-2025 possible.

—— *All the students and staff*

A heartfelt thank you to all the students and staff who contributed to organizing the yearbook content. Your dedication, efficiency, and tireless behind-the-scenes efforts ensured the seamless completion of this project. From coordinating tasks to managing countless details, your hard work has been instrumental in making this yearbook a success. We deeply appreciate your invaluable contributions!

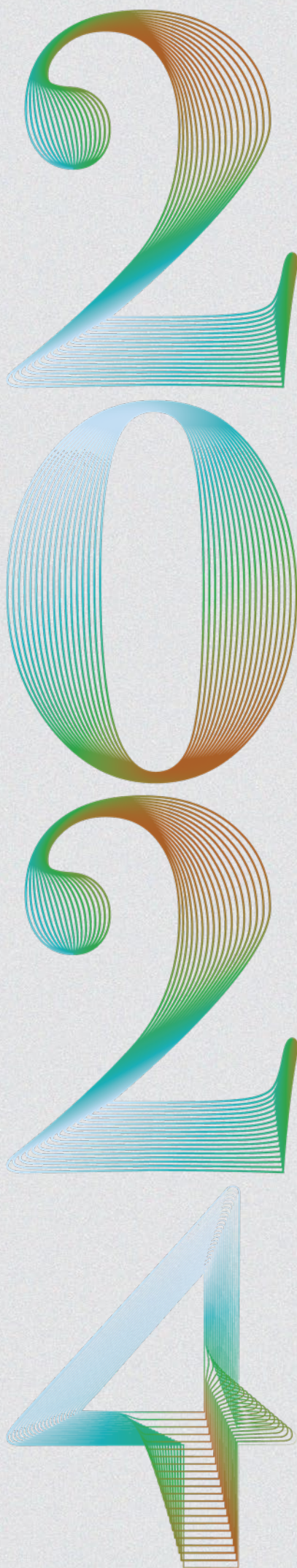
—— *Photographers*

A heartfelt thank you to ALL our talented photographers, whose keen eye and dedication brought life to every page of this yearbook. Your ability to capture the spirit and essence of our department’s events, landscapes, and people is truly remarkable. Your work ensures that these cherished moments will be remembered for years to come.

Thank You Notes from the Editor

As the editor of this year’s Earth and Environmental Sciences yearbook, I am truly honored to have had the opportunity to document the incredible memories, achievements, and journeys of our department. This yearbook represents the hard work, passion, and camaraderie of our community, and it wouldn’t have been possible without the support and dedication of everyone involved. Thank you for allowing me to be part of this meaningful project.

—— Dr. ZHANG Li



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