



香港中文大學理學院

**FACULTY OF SCIENCE**

THE CHINESE UNIVERSITY OF HONG KONG



# Earth and Environmental Sciences Programme

## 地球與環境科學課程

### Programme Introduction 2023

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# Why study Earth and Environmental Sciences?



如果你...

- ❖ 想瞭解**地球系統**以及**內裡環境**如何運作
- ❖ 想擁有**良好數理基礎**, 又可**應用科學知識**參與解決21世紀的一些**重大環境問題**(如全球環境變化、氣候轉變、空氣及水污染、自然與地質災害、能源開發等)

If you want to...

- ❖ Understand how the **Earth system and the environment within operate**
- ❖ Acquire **good quantitative skills and apply scientific principles to solve some of the most pressing environmental problems** (e.g. global and environmental climate changes, air and water pollution, natural and geological hazards, energy/ resources exploration...)



Typhoon Mangkut



Landslides triggered by earthquake



Global Warming



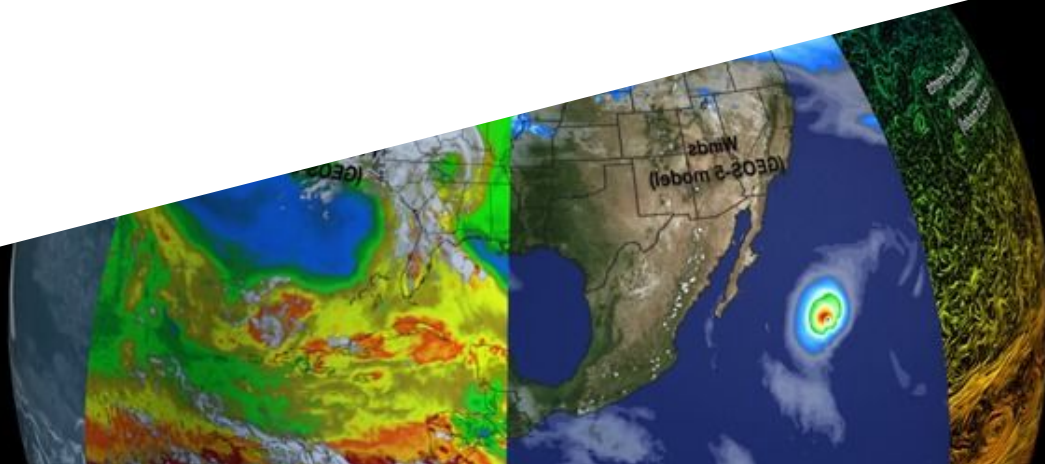
Biodiversity Loss

# EESC Curriculum | 課程大綱



學習和研究地球系統中各圈層的運作過程，  
以及它們之間的相互作用對地球環境所產生的影響。

Study mechanisms of all “spheres” of the Earth system,  
and their interactions shaping the Earth’s environment.



# EESC Curriculum | 課程大綱



這些系統部份包括大氣圈、水圈、冰雪圈、岩石圈和生物圈等。透過學習這些部份的運作情況，可以瞭解及參與減輕自然和人為的環境威脅。

The system consists of the atmosphere, hydrosphere, cryosphere, geosphere and biosphere. Via studying their processes, we understand and help mitigate natural and manmade environmental threats.

# Curriculum Design | 課程理念



Building upon traditional science disciplines, including but not limited to, e.g., **geophysics (地球物理學)**, **geology (地質學)**, **meteorology (氣象學)**, **oceanography (海洋學)**, **environmental chemistry (環境化學)**, **biogeochemistry (生物地球化學)**, **ecotoxicology (生態毒理學)**, and **environmental impact assessment (環境影響評估)**, we aim to establish an exciting **interdisciplinary** programme in Earth and Environmental Sciences (地球與環境科學是一個 **橫跨傳統學科** 的嶄新課程).

We aim to equip students with a solid foundation in **basic sciences (physics, chemistry, biology)**, **quantitative skills (statistics, computation)**, and **practical knowledge of the Earth and Environmental Sciences**, so that they are prepared to participate in tackling the various environmental challenges facing us today.

# Teaching Staff



**Professor Alex Tat Shing CHOW (周達誠教授)**, Director and Professor

Ph.D., University of California, Davis

Areas: Distinct Carbon Pools Under the Changing Environments, Carbon-Neutral & Climate Resilient Water Systems, Natural Resources at the Wildland-Urban Interface



**Professor Amos Pui Kuen TAI (戴沛權教授)**, Associate Professor

Ph.D., Harvard; B.Sc., MIT

Areas: Atmospheric chemistry & physics, Climate-chemistry-biosphere interactions, Impacts of global environmental change



**Professor Martin Tsz Ki TSUI (徐子祺)**, Associate Professor (joint appointment)

Ph.D., University of Minnesota; B.Sc., HKUST

Areas: Environmental pollution, Ecosystem biogeochemistry, Stable isotope applications

# Teaching Staff



**Professor Man Nin CHAN (陳文年教授)**, Associate Professor

Ph.D., Caltech

Areas: Aerosol chemistry, composition, Formation and transformation of secondary organic aerosols, Aerosol instrument techniques



**Professor Lin LIU (劉琳教授)**, Associate Professor

Ph.D., U. of Colorado, Boulder; George Thomson Postdoctoral Fellow, Stanford

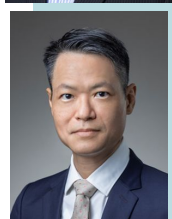
Areas: Remote sensing applied to earth system science, Cryospheric Sciences, Space Geodesy, Deep Learning



**Professor Haiwei LUO (羅海偉教授)**, Associate Professor (joint appointment)

Ph.D., Molecular Evolution, University of South Carolina

Areas: Microbial evolution and ecology, genomics, bioinformatics



**Professor Francis Chi Yung TAM (譚志勇教授)**, Associate Professor

Ph.D., Atmospheric and Oceanic Sciences, Princeton University

Areas: Earth system modeling, Atmospheric and climate dynamics, Tropical and monsoon variability, Extreme weather

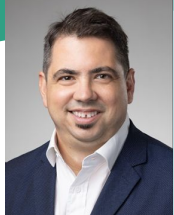
# Teaching Staff



**Professor Yen Joe TAN (陳衍佐教授)**, Assistant Professor

Ph.D., Geophysics, Columbia University

Areas: Volcanic eruption dynamics, Seismic imaging and monitoring with ambient noise, Machine learning and data science, Induced and triggered earthquakes



**Professor Benoit THIBODEAU**, Assistant Professor (joint appointment)

Ph.D., Environmental Sciences, University of Quebec at Montreal, Canada (GEOTOP)

Areas: Ocean Biogeochemical Dynamics, Stable Isotope Geochemistry, Anthropogenic impacts, Paleoceanography & paleoclimate



**Professor Hongfeng YANG (楊宏峰教授)**, Associate Professor

Ph.D., Seismology, Saint Louis University

Areas: Subduction zone dynamics and megathrust earthquakes, High-resolution imaging of crustal fault zones and subsurface structure, Earthquake detection and location, Earthquake source mechanics



**Professor Yan ZHAN (詹彦教授)**, Ng Yin Ying Assistant Professor of Geophysics

Ph.D. Geology, University of Illinois

Areas: Lithospheric Deformation, Volcano Geophysics, Dynamics of Magma, Numerical Modeling of Crustal Processes, Data Assimilation in Geoscience

# Teaching Staff



**Professor Shixian ZHAI (翟世賢教授), Assistant Professor**

Ph.D., Atmospheric Chemistry, Harvard University

Areas: Atmospheric chemistry and multiscale air pollution, Background influences on air quality, Reactive nitrogen chemistry and budgets, Nutrient and carbon cycles, Inverse modelling



**Dr Andie Yee Man AU-YEUNG (歐陽綺雯博士), Lecturer**

Ph.D., City University of Hong Kong

Areas: Tropical meteorology, Seasonal climate prediction, Tropical cyclone activities



**Dr Christy Ching Ching LAU (劉貞貞博士), Lecturer**

Ph.D., Chemical Technology, The Hong Kong Polytechnic University

Areas: Method development for quality control of Chinese medicine

# Teaching Staff



**Dr Ronald Kwan Kit LI (李鈞傑博士)**, Assistant Lecturer

Ph.D., University of Oxford

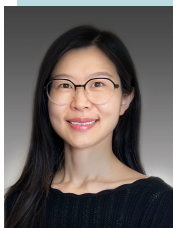
Areas: Climate dynamics, Seasonal predictions



**Dr Tammy Pui Yuk TAM (譚佩玉博士)**, Senior Lecturer

Ph.D., HKU; Postdoctoral Fellow, Assistant Lecturer, HKU

Areas: Metamorphic Petrology and Geochronology, Structural geology

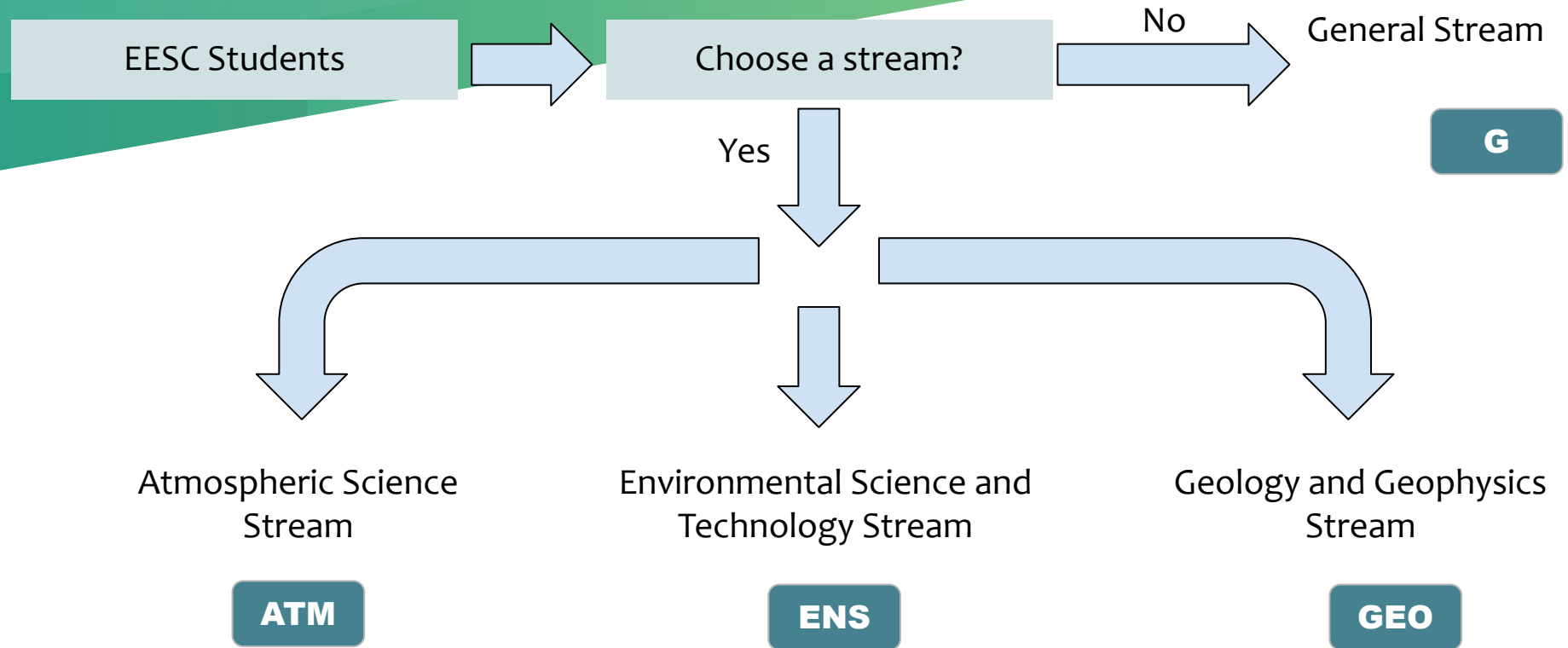
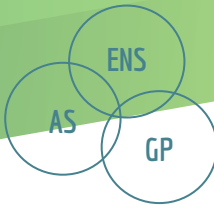


**Dr Li ZHANG (張莉博士)**, Assistant Lecturer

Ph.D. Miami University, B.S. Geology, Peking University

Areas: Salinity on microbial communities, Mineral-microbe-metal(iron) interactions, Microbial remediation of nitrate, Nitrogen biogeochemical cycling

# Three Streams in EESC

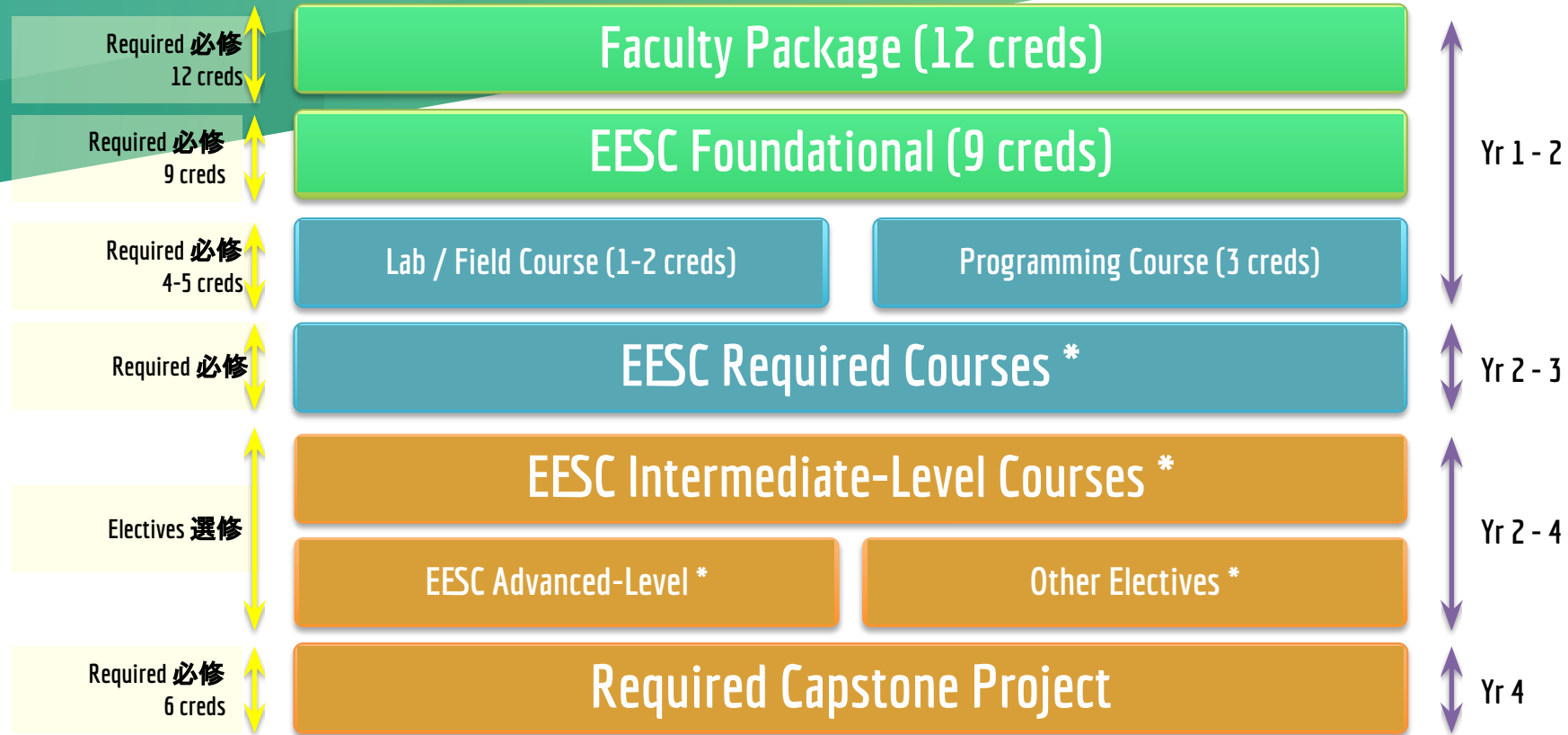


# EESC Major : 72 credits

## University : 123 credits



\*No of credits depends on the Stream



# Year 1-2

## Faculty Package (4 courses)

### EESC Foundational Courses (3 courses)

Solid Earth Dynamics 固體地球動力學

Climate System Dynamics 氣候系統動力學

Intro to Environmental Sci 環境科學導論

### Lab/Field Courses... (1 Course)

Environmental Chemistry Lab 環境化學實驗

Integrated Geoscience Field Study  
綜合地球科學野外考察

(Courses offered by LSCI, BIOL and PHYS)

### Programming (1 course)

Computational Earth And Enviromental Sci  
地球與環境科學的基礎計算

Basic Computational Physics  
基礎計算物理學

# Year 2-4

## EESC Required / Elective Subjects

### Atmospheric Science



### Geology & Geophysics



### Environmental Science & Technology



### Required Courses



Numerical Method and Modelling  
數值系統模型

Statistical Methods & Data Analysis  
統計方法與數據分析



Remote Sensing  
遙感原理與應用



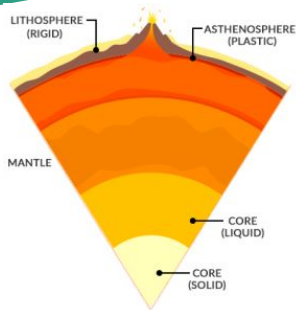
and more ...

# Geology & Geophysics Stream

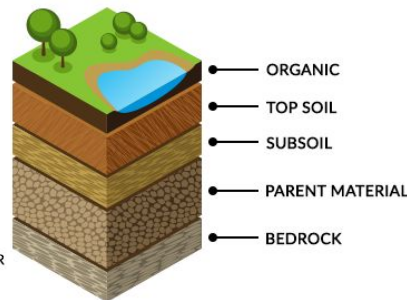
## (地質與地球物理組)



4 Field-based courses 野外考察



- ❖ **Geology and geophysics** focuses on studying the Earth using gravity - 重力, electromagnetic - 電磁力 & seismic methods - 地震波
- ❖ Students will acquire **solid physical** and **mathematical foundations** and **quantitative understanding** of the solid Earth, including:
  - surface and internal structures - geotechnical engineering
  - geohazards and mitigation
  - exploration of mineral and natural resources



Structural Geology 構造地質學

Rock Mechanics and Its Applications  
岩石動力學及應用

Volcanology  
火山地質學

Engineering Geology 工程地質學

Soil Mechanics and Its Applications  
泥土動力學及應用

Seismology 地震學

Geomorphology 地貌學

Physics of the Earth  
地球物理學

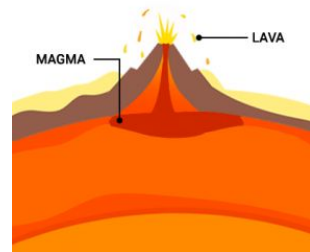
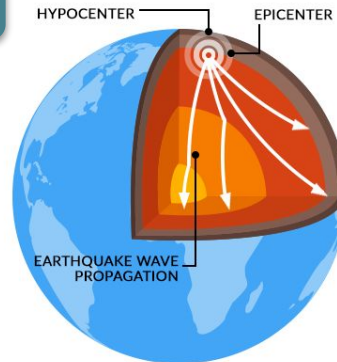
Hydrogeology 水文地質學

Solid and Fluid Mechanics 固體與流體力學

Marine Geophysics & Geology  
海洋地質與地球物理學

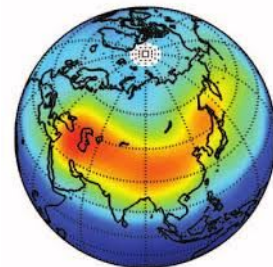
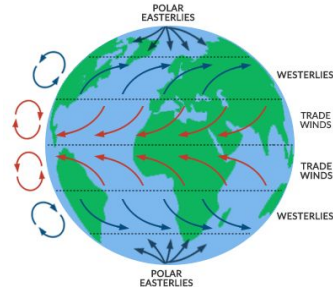
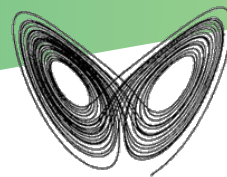
Applied Geophysics  
應用地球物理學

Petrology 岩石學



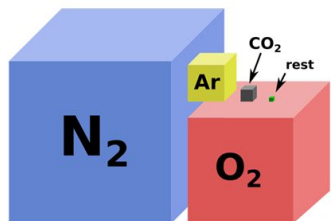
# Atmospheric Science Stream

## (大氣科學組)



❖ **Atmospheric science** is the study of the dynamics 大氣動力 and chemistry 大氣化學 of the atmosphere, hydrosphere 水圈 and biosphere 生物圈 that surround the Earth.

❖ This encompasses the interactions between various parts of the atmosphere as well as interactions with the oceans and freshwater systems, the biosphere and human activities.



Physics and Chemistry of Aerosol  
氣溶膠物理與化學概述

Oceanography  
海洋學

Tropical Meteorology 熱帶氣象學

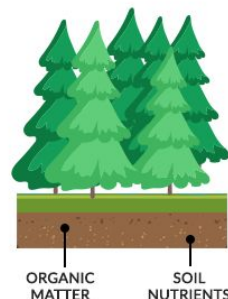
Atmospheric Chemistry  
大氣化學

Air Pollution and Engineering  
大氣污染科學與工程

Ecosystem and Climate  
生態系統與氣候

Land-Atmosphere Interactions and  
Boundary Layer Meteorology  
地氣相互作用及邊界層氣象學

Atmospheric Dynamics  
大氣動力學



PLANT GROWTH

PLANT/ANIMAL  
LITTER

DECOMPOSITION



# Environmental Science and Technology Stream

## (環境科學與技術組)

**Environmental science and technology** is an integrated subject using the basic knowledge and skills of applied chemistry, microbiology and ecology to assess and resolve environmental problems.



- ❖ Students will receive multi-disciplinary training in environmental chemistry, toxicology and health, environmental microbiology, environment monitoring and pollution control, and environmental impact assessment.

Environmental Chemistry  
環境化學

Environmental Microbiology  
環境微生物學

Biogeochemistry  
生物地球化學

Environmental Toxicology  
環境毒理學

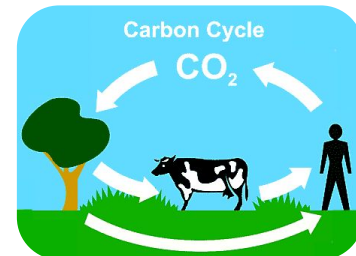
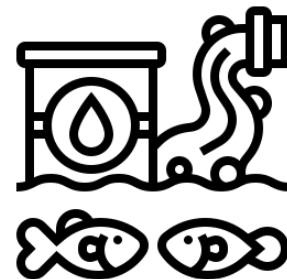
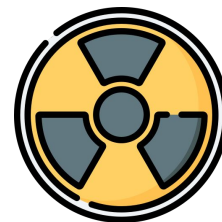
Environmental Health  
環境衛生學

Environmental Instrumentation Techniques  
環境儀器分析技術

Chemical Treatment Processes  
化學處理程序

Environmental Protection & Pollution Control  
環境保護與污染管制導論

Environmental Impact Assessment  
環境影響評估



# Admissions 入學要求

# Two Paths to Join

## 兩種途徑選讀這個嶄新獨特的 本科主修課程



- 已有明確主修意向的同學，可以直接透過「地球與環境科學」收生計劃(JS4648)修讀 EESC 大氣科學 / 地球物理學/ 環境科學與技術(學額: 35)
- 同學亦可透過「理學」大類收生計劃(JS4601)主修EESC

Applicants could join us via

- JUPAS 4648 Earth and Environmental Sciences Programme - Atmospheric Science / Geophysics / Environmental Science and Technology Stream (Quota: 35)
- JUPAS 4601 CUHK Science Broad-based Admission Scheme - EESC Major

## JS4648

Earth and Environmental Sciences

DSE Subjects	Minimum Scores
Elective Subject 1	Level 4
English, Chinese, Maths, Elective Subject 2	Level 3
Citizenship and Social Development	A (Attained)

EESC Student

## JS4601

Science Broad-based Admission Scheme

### Major Declaration

Science students can declare EESC as Major at any of the following three time points, provided that they meet the stated requirements

Time	Requirements
Beginning of Year 1 (Entry)	Level 5 or above in Biology or Chemistry or Physics or Mathematics (Module 1) or Mathematics (Module 2)
End of Year 1	Grade C+ or above in CHEM1070 or CHEM1072 or LSCI1002 or LSCI1012 or MATH1010 or MATH1018 or MATH1520 or PHYS1001 or PHYS1002 or PHYS1111 or PHYS1113 or STAT1011 or STAT1012
End of Year 2	1. Any ONE course from BIO2210 / EESC2270 / EESC2515 / EESC2010 / EESC2020 / EESC2800, and 2. Any THREE courses from CHEM1070 / CHEM1072 / LSCI1002 / LSCI1012 / MATH1010 / MATH1018 / MATH1520 / PHYS1001 / PHYS1002 / PHYS1111 / PHYS1113 / STAT1011 / STAT1012

# Admission Requirements for JUPAS Applicants - 2024 Entry

## JS4601 SCIENCE

### Core Subjects

### Elective Subjects

C	E	M	CSD	1	2	Requirements
3	3	2	A	3	3	1st Elective: Any one from Biology / Chemistry / Physics / M1 or M2  2nd Elective: Any one subject in Category A

## JS4648 Earth and Environmental Sciences

### Core Subjects

### Elective Subjects

C	E	M	CSD	1	2	Requirements
3	3	3	A	4	3	1st Elective: Any one from Biology / Chemistry / Physics / M1 or M2 / Geography  2nd Elective: Any one subject in Category A  <b>Weightings:</b> 2.0 for English, Mathematics, Biology, Chemistry, Physics, M1 or M2, 1.5 for Geography

## Programme Selection Principle: Best 5



# Admission Requirements for JUPAS Applicants - 2024 Entry

Category A Elective Subjects			
Biology	Design and Applied Technology	History	Physics
Business, Accounting and Financial Studies	Economics	Information and Communication Technology	Technology and Living
Chemistry	Ethics and Religious Studies	Literature in English	Tourism and Hospitality Studies
Chinese History	Geography	Music	Visual Arts
Chinese Literature	Health Management and Social Care	Physical Education	

- Category A elective subjects on HKEAA website:  
[https://www.hkeaa.edu.hk/en/hkdse/assessment/subject\\_information/category\\_a\\_subjects/](https://www.hkeaa.edu.hk/en/hkdse/assessment/subject_information/category_a_subjects/)

# Admission Statistics

## 2023 Entry

- JS4648 Earth and Environmental Sciences
- Median of Score of Best 5 HKDSE Subjects      23
- Admission Grades

Subject	CHI	ENG	MATH	LS	M1/M2	Best Elective	2 <sup>nd</sup> Best Elective	3 <sup>rd</sup> Best Elective
Median	3	4	4	2	-	5	5	5
Lower Quartile	5*	4	4	4	-	5*	5	5

- 1st Elective: Any one from Biology / Chemistry / Physics / M1 or M2 / Geography / Combined Science
- 2nd Elective: Any one subject in Category A

# STEM人才培育

## STEM Talent Scheme



- Obtained at least **THREE** stars in **THREE** STEM-related elective subjects in HKDSE (e.g. 5\*5\*5\*/5\*\*5\*3 / 5\*\*5\*\*5\*\*)
- STEM-related elective subjects:
  - Biology/Chemistry/Physics/Mathematics Extended Module I or II/Combined Science/Integrated Science/Information and Communication Technology/Design and Applied Technology
- Special consideration will be given to applicants who do not fulfill Programme's minimum requirement. Admission interview may be needed.

# Diversified Teaching Modules | 多元教學

# Diversified Teaching Modules | 多元教學

## Local and Non-local Field Study



Yangtze River



Taroko National Park, Taiwan



Port Island, Hong Kong



Moon World Landscape Park, Taiwan



Bluff Head, Hong Kong



Port Island, Hong Kong



Hehuanshan, Taiwan

# Diversified Teaching Modules | 多元教學

## Local and Non-local Field Study



2023 field trip to  
**Po Toi Island, HK – 蒲台島**



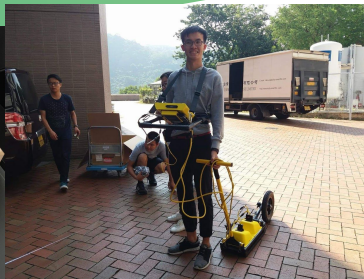
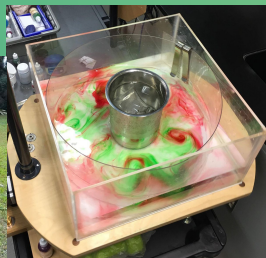
2023 Summer field trip course in  
**Mainland China – 五台山**



2023 Summer field trip  
course in **Taiwan**

# Diversified Teaching Modules | 多元教學

## Laboratory & Experimental Study



**Seismometer** and a monitor showing real time ground velocities (ground movement) recorded



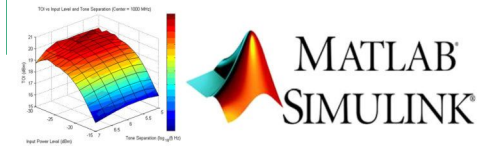
**Weather in a Tank** for geophysical fluid dynamics (GFD) experiment using a rotating tank



**Petrographic Microscope** for identifying rocks and minerals in thin sections

# Diversified Teaching Modules | 多元教學

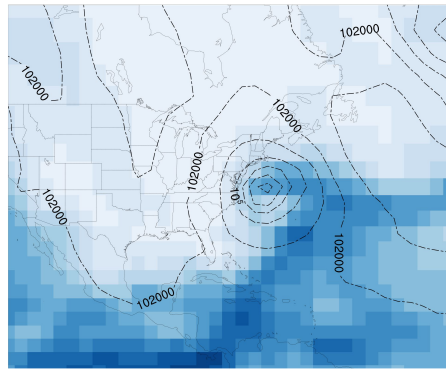
## Computer Simulation & Visualization



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Precipitation

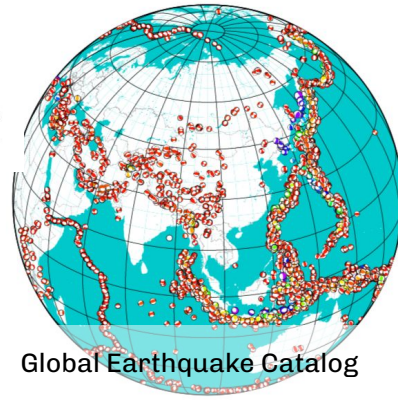
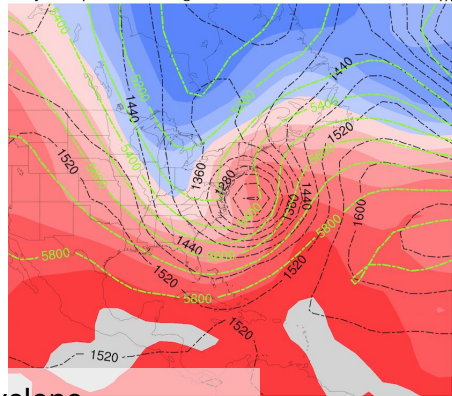
kg/m<sup>2</sup>



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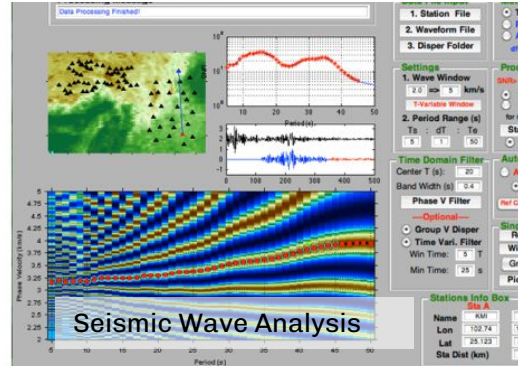
Geopotential Heights on Pressure Levels

m



Global Earthquake Catalog

Satellite Orbit Simulation



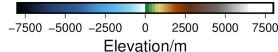
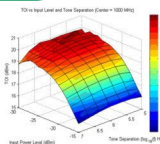
3D Model of The Gate 30

Visualization of Extratropical Cyclone

# 多元教學



### Beta Diagram

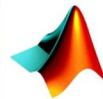
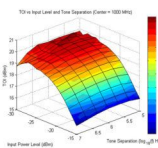


# Diversified Teaching Modules | 多元教學

## Remote Sensing



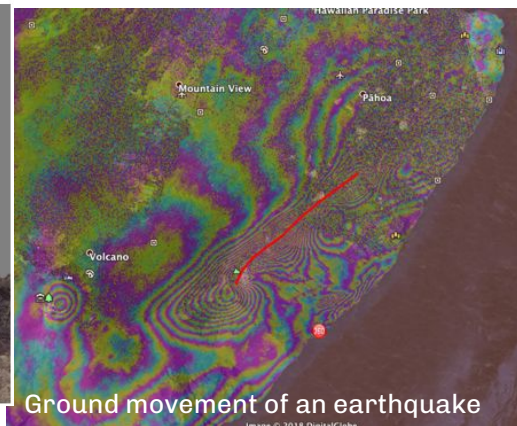
ENVI



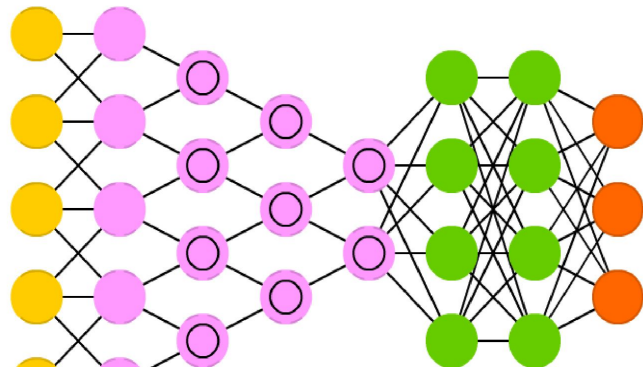
MATLAB  
SIMULINK



3D model of a tight fold in HK



Ground movement of an earthquake



Deep Learning and Artificial Intelligence



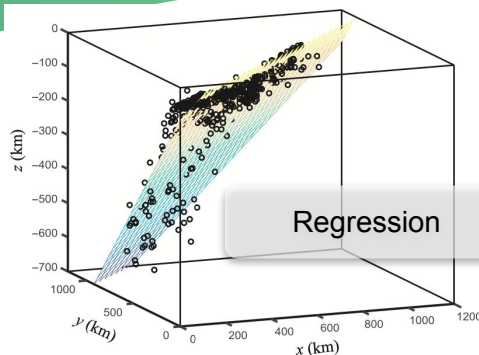
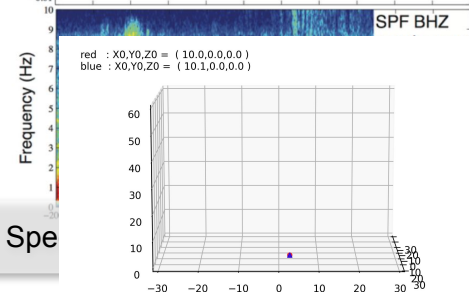
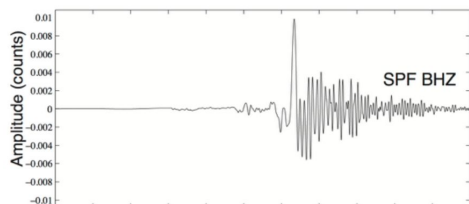
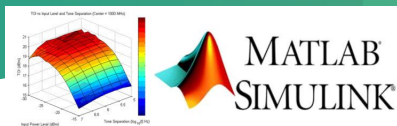
Infrared CUHK



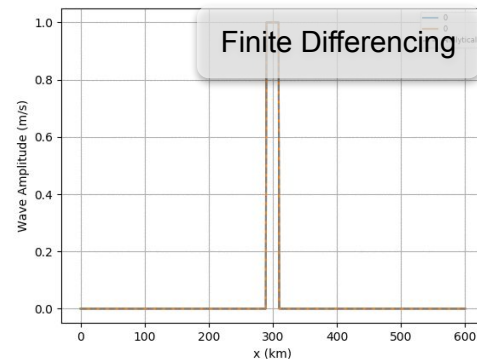
UAV

# Diversified Teaching Modules | 多元教學

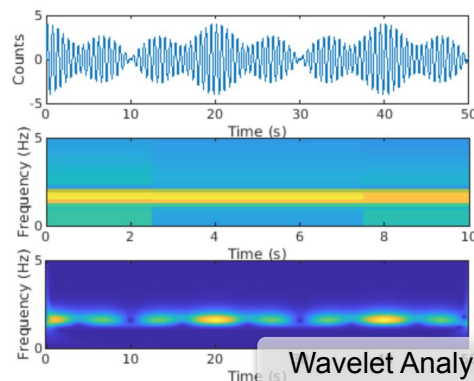
## Data Analysis and Numerical Modeling



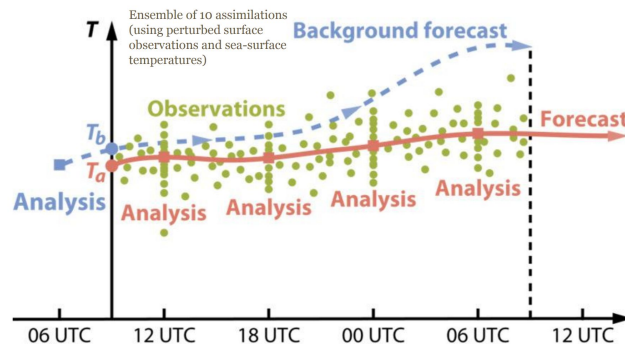
Regression



Finite Differencing



Wavelet Analysis



Model Assimilation and Initialization

# Diversified Teaching Modules | 多元教學

## Elearning Module

<https://cuhkesscelearn.wixsite.com/home>



### **Volcanoes** [\(click here to start\)](#)



'Volcanoes' is one of the significant features on Earth. This module introduces volcanoes, with detailed explanations in their composition, formation, eruptive style, type, etc. We will also study some tectonic settings and magma. There will be interactive games and videos.  
Course(s): ESSC2010

### **Petrology** [\(click here to start\)](#)



This course will introduce you to the study of igneous, sedimentary and metamorphic rocks of the earth's crust and mantle. We will investigate the origin of the major groups of igneous, sedimentary and metamorphic rocks with an emphasis on the physical and chemical processes that give rise to these different rock types. In addition, corresponding tectonic settings and paleo-environments for these rocks will be studied. You will learn how to classify rocks based on rock-forming minerals in hand specimen and thin sections, as well as their textures and structures.  
Course(s): ESSC4120

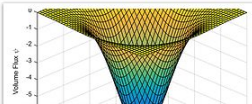
### **HK Geology** [\(click here to start\)](#)



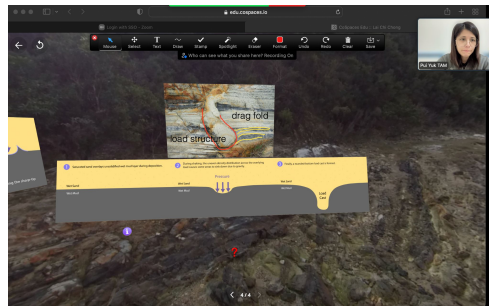
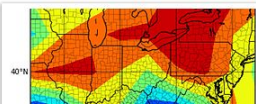
In this course, students can learn typical geological phenomenon in Hong Kong. A number of locations will be introduced, including the Bluff Head, Po Toi Island, Tung Ping Chau, High Island and Lai Chi Chong. The format is to watch the geological field trip videos and answer questions.  
Course(s): ESSC1000, ESSC2010, ESSC3100

### **Geophysical Fluid Dynamics**

[\(click here to start\)](#)



### **Getting Started with Python Programming in Earth System Science** [\(click here to start\)](#)



### *Granite*

A light-coloured, coarse-grained, igneous rock, consisting of essential quartz (at least 20%), alkali feldspar, mica (biotite and/or muscovite), with or more commonly without amphibole, and accessory apatite, magnetite, and sphene. Hypersolvus granites are characterized by one type of alkali feldspar, usually microperthite, whereas subsolvus granites are characterized by two types of alkali feldspar: microperthite and albite. Granite can be formed by partialmelting of old continental crust, on a local scale by in situ replacement of continental crust (granitization), by fractional crystallization of basalt magma, or by a combination of these processes. — A Dictionary of Geology and Earth Sciences (4 ed), Oxford University Press

size: around 8 cm

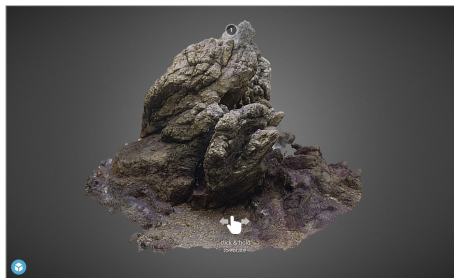


Quartz on granite 🍷



Dr. Tammy Tam  
Lecturer, ESSC-GUHK

Thousands of albite inclusions in the rocks



# Extracurricular Activities Exchange



2017 ESSC x Physics US Study Tour



Arctic Geology  
Arctic Geophysics

The University Center in Svalbard (UNIS)



Paul YEUNG  
2020 University of Bergen Exchange

# Student Exchange Programme

- List of University that EESC (formerly ESSC and ENSC) students have been admitted through Student Exchange Programme:
  - Univ. Centre in Svalbard (Norway)
  - Univ. of Bergen (Norway)
  - Univ. of Oslo (Norway)
  - KTH Royal Institute of Technology (Sweden)
  - Univ. of Gothenburg (Sweden)
  - Tecnológico de Monterrey (Mexico)
  - Queen's Univ. (Canada)
  - Univ. of Toronto (Canada)
  - Univ. of British Columbia (Canada)
  - Univ. of Waterloo (Canada)
  - American Univ. (USA)
  - Boston College (USA)
  - Univ. of California, Irvine (USA)
  - Pennsylvania State Univ. (USA)
  - Ohio State Univ. (USA)
  - Claremont McKenna College (USA)
  - Univ. of Hawaii, Manoa (USA)
  - Univ. of Copenhagen (Denmark)
  - Univ. College Utrecht (The Netherlands)
  - Univ. of Lausanne (Switzerland)
  - Leibniz Univ. Hannover (Germany)
  - Australian National Univ. (Australia)
  - Univ. of New South Wales (Australia)
  - Univ. of Helsinki (Finland)
  - Peking Univ. (China)
  - Hanyang Univ. (Korea)
  - Nagoya Univ. (Japan)
  - Christian Univ. (Japan)
  - Kyoto Sangyo Univ. (Japan)

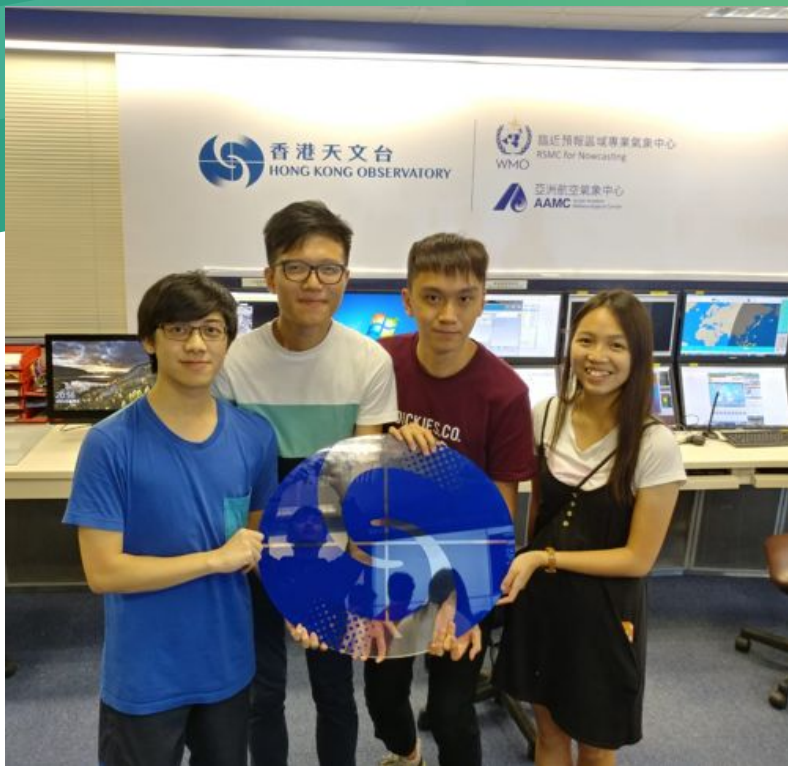
*and more...*

# Internship Opportunities

## Placement Programme at the HKO

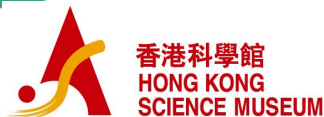
Every year we send out a few qualified students to the Hong Kong Observatory for a fascinating internship opportunity to not only embark on weather and climate research, but also allow the students to experience first-hand the nature and routines of meteorological services. Both one-year and summer placements are available.

Year	One Year Placement	Summer Placement
2019	8	2
2020	5	7
2021	11	/
2022	10	1
2023	9	/
<b>Total</b>	<b>43</b>	<b>10</b>



(From left) Nathan WONG, Gabriel FAN, Avis WONG and Coty CHENG

# Extracurricular Activities Internship Opportunities



2019 Hong Kong Observatory Internships  
(9 EESC students)



**HKO, EPD, AECOM, GRAW MET, ClusterTech Limited**

- Geophysical Research, Weather Forecast, Pollution Modeling, Measuring Equipment Operations
- Model Simulation, Data Mining, AI

**CEDD, Jacobs, CM Wong & Associated Limited, CH2M, ESRI**

- Geotechnical and geoscience

**Incorporated Research Institutions for Seismology**

- Research Institute

**Hong Kong Science Museum**

**Jockey Club Museum of Climate Change - 賽馬會氣候變化博物館**

# Extracurricular Activities

## Internship Opportunities

### List of companies collaborating Final-Year Projects with ESSC:

- Geotechnical Engineering Office
- Ove Arup & Partners Hong Kong Limited
- Fugro (Hong Kong) Limited
- Georisks
- Hong Kong Observatory
- Environmental Protection Department

### List of companies offering internship to ESSC students:

- Geotechnical Engineering Office
- EGS (Asia) Limited
- Meinhardt
- AECOM
- Aurecon
- CH2M
- CM Wong & Associate Limited
- Georisks
- LAM Geotechnics Limited
- Esri
- Hong Kong Observatory
- Environmental Protection Department
- Hong Kong Science Museum
- ELITE, CUHK

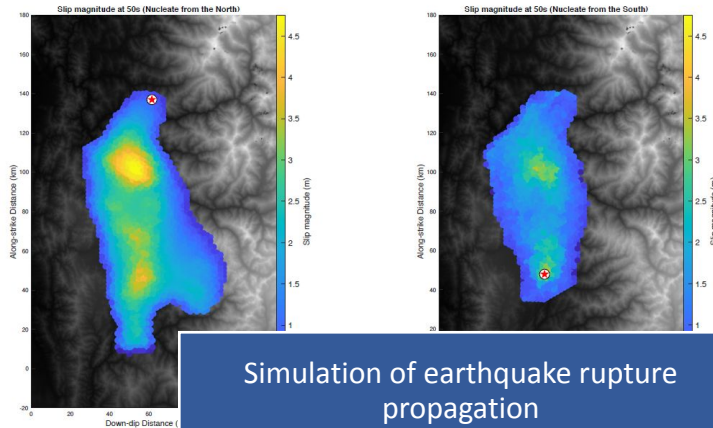
# Extracurricular Activities

## Undergraduate Research Programme

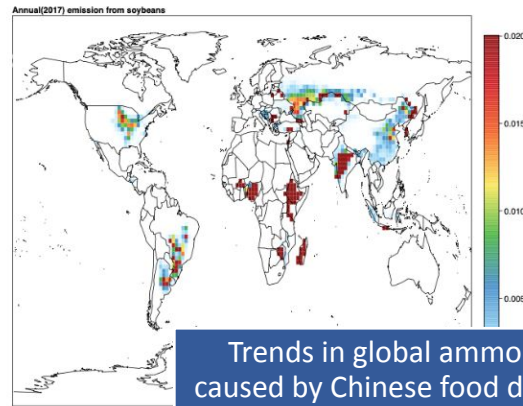
Summer  
Research!

### Summer Research Internship

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



Simulation of earthquake rupture propagation  
by LAM Po Wang, Ryan (2020-21)



Trends in global ammonia emission  
caused by Chinese food demands during  
1987-2017  
by TONG Ka Yan, Joy (2019/20)

# Extracurricular Activities

## Undergraduate Research Programme

Students are always welcome to join Summer or Year Long Research Internships!

Summer  
Research!



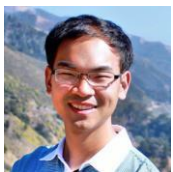
**Prof. CHAN Man Nin** 陳文年

Ph.D., Environmental Science and Engineering, California Institute of Technology

### Research Fields

- Aerosol physics and chemistry
- Chemical ageing of organic aerosol
- Multiphase, heterogeneous oxidative chemistry and kinetics
- Ambient pressure soft ionization (Direct Analysis in Real Time, DART)

Email [mnchan@cuhk.edu.hk](mailto:mnchan@cuhk.edu.hk)



**Prof. LIU Lin** 劉琳

Ph.D., Geophysics, University of Colorado at Boulder

### Research Fields

- Cryosphere geophysics
- Deep learning applications in Earth system science
- Geodesy and near surface geophysics
- Remote sensing

Email [liulin@cuhk.edu.hk](mailto:liulin@cuhk.edu.hk)



**Prof. Amos P. K. TAI** 戴沛權

Ph.D., Engineering Sciences (Environmental Science and Engineering), Harvard University

### Research Fields

- Atmosphere chemistry and physics
- Interactions between climate, ecosystems, and atmospheric composition
- Impacts of global environmental change on public health, agriculture and poverty
- Air pollution, climate change, and land use change

Email [amostai@cuhk.edu.hk](mailto:amostai@cuhk.edu.hk)



**Prof. Francis, C Y TAM** 譚志勇

Ph.D., Atmospheric and Oceanic Sciences, Princeton University

### Research Fields

- Climate dynamics, tropical meteorology
- Impact of climate change
- Seasonal climate prediction
- Dynamical downscaling

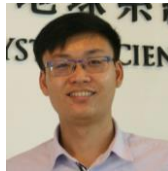
Email [Francis.Tam@cuhk.edu.hk](mailto:Francis.Tam@cuhk.edu.hk)

# Extracurricular Activities

## Undergraduate Research Programme

Students are always welcome  
to join Summer or Year Long  
Research Internships!

Summer  
Research!



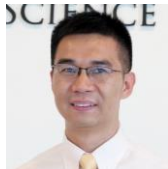
**Prof. Yen Joe TAN** 陳衍佐

Ph.D., Geophysics, Columbia University

**Research Fields**

- Volcanic eruption dynamics
- Seismic imaging and monitoring with ambient noise
- Induced and triggered earthquakes
- Machine learning and data science

Email [yitan@cuhk.edu.hk](mailto:yitan@cuhk.edu.hk)



**Prof. Hong-feng YANG** 楊宏峰

Ph.D., Seismology, Saint Louis University

**Research Fields**

- Subduction zone dynamics and megathrust earthquakes
- Earthquake source mechanics
- High-resolution imaging of crustal fault zones and subsurface structure
- Earthquake detection and location

Email [hYang@cuhk.edu.hk](mailto:hYang@cuhk.edu.hk)



**Prof. Yan ZHAN** 詹彦

Ph.D. Geology, University of Illinois at Urbana-Champaign

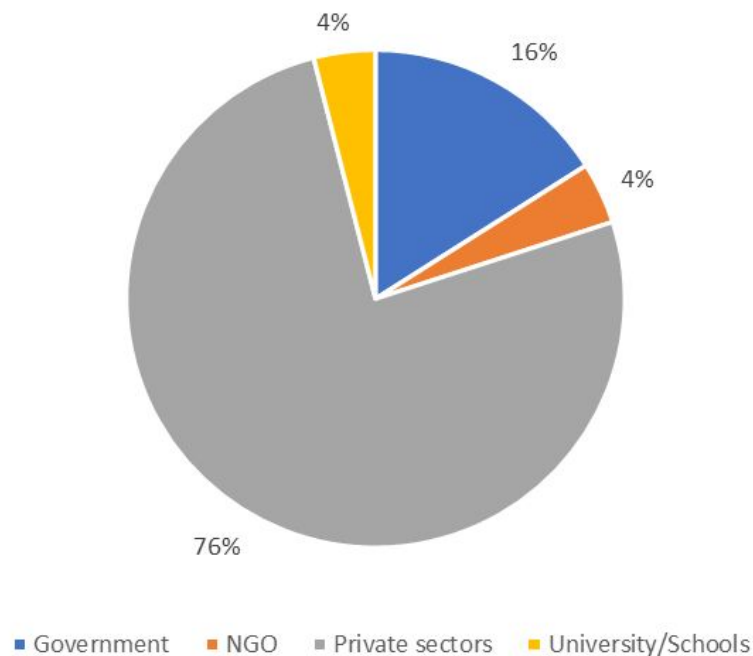
**Research Fields**

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

Email [yzhan@carnegiescience.edu](mailto:yzhan@carnegiescience.edu)

# ESSC Graduate Employment Status

ESSC Graduate Employment Status

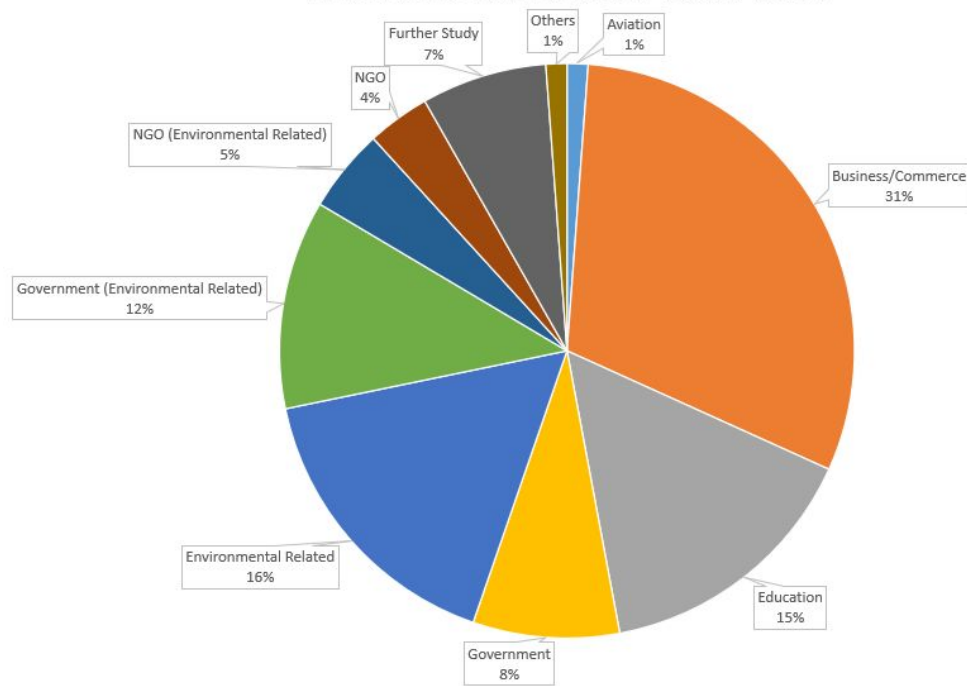


# EESC Graduate Employment Status

- Hong Kong Government
  - Department such as Architectural Services, Environmental Protection, Hong Kong Observatory
  - Technical Officers Trainee, Experiment Officer, Outreaching Coordinator
- Company / Industry
  - Companies such as Arup, EGS, Georisk, Gammon, Tysan, Ambit Geospatial Solution, BGCA 香港小童群益會, Cathay Pacific, CLP 中電, Fugro, HKT 香港電訊, The Salvation Army 救世軍, Viu (PCCW)
  - Assistant Geologist, Project Engineer, Software Engineer, Data Scientist, Data Analyst, Editor
- Education
  - Junior Research Assistant in University
  - Teacher in Primary School and Secondary School
- Further Studies
  - MPhil or PhD Programme in Hong Kong or overseas such as UK, USA, Australia, Germany, Switzerland, Japan, etc.  
*and more...*

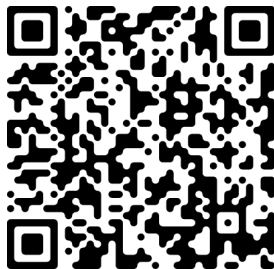
# ENSC Graduate Employment Status

**Career Field of Full-time First Degree in  
Environmental Science 2015-2020**



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## Earth and Environmental Sciences Programme The Chinese University of Hong Kong



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97  
帖子

729  
粉絲人數

198  
追蹤中

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大專院校及大學  
Earth and Environmental Sciences Programme (EESC)  
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地質勘察服務  
我地係一班黎自中大主修地球系統科學嘅學生🌐👥  
推廣地球系統科學 介紹有趣嘅地質知識👉  
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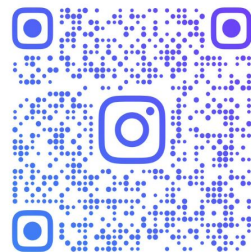
HKGeoGuy

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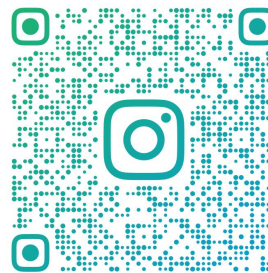
我地係一班黎自中大主修地球系統科學嘅學生 🌐 👤 👤 👤

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中大氣象膠 🌩️ AtmoGuy

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宣傳大氣科學組的活動 🍷

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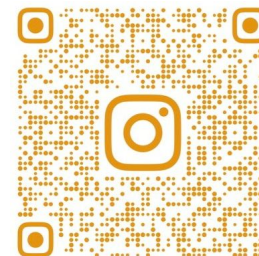
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stream, one of the streams in the Earth and

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*“The Earth is what we all have in common.”*



Thank you for listening!