



National Taiwan Normal University,  
Taiwan

# Dept. of Earth Sciences in NTNU

## Research Programmes Admission Guide

**Research Topics**

**Studying in NTNU**

**How to apply**

Dept. Introduction

*International graduate students recruiting!*



# Research Topics

- This is one of the rare department around the world allowing the students to learn:
  - (1) multiscale astrophysical phenomena
  - (2) multiscale weather phenomena
  - (3) multiscale physical oceanography
  - (4) multiscale geological phenomena phenomena
  - (5) multiscale geophysical phenomena
- The interdisciplinary studies are highly recommended!
- Hot topics related to climate change and SDGs
  - Kuroshio energy harvesting | Geothermal energy
  - Prediction of multi-hazards chain
  - Characteristics and environmental impact of extreme weather events
  - Impact of climate change on human health

We welcome international students  
to work on these leading edge topics!

**RECRUITING**



# Astronomy

## multiscale astrophysical phenomena

Star formation, Planetary Science, Radio astronomy, Astrochemistry, X-ray and extragalactic astronomy, Formation and evolution of galaxies

圖片出自：星天目和工作室

# Geology

## multiscale geological phenomena

Geodynamics plate reconstruction, Sequence seismic stratigraphy, Regional tectonics of southeast Asia, Stable isotope geology, Paleoenvironmental change, Geochemistry, Core analysis, Igneous Petrologys, Petrology

圖片出自：富興地質公園

# Geophysics

## multiscale geophysical phenomena

Geophysics, Geomagnetism, gravity, Planetary seismology, Observational seismology, Environmental seismology

圖片出自：NASA / JPL-Caltech

# Oceanography

## multiscale physical oceanography

Physical oceanography, Numerical modeling, Remote sensing, Typhoon-ocean Interaction, Regional geology, Science education

圖片出自：NASA網頁

# Atmospheric Science

## multiscale weather phenomena

Climate modeling, Mesoscale, mountain, synoptic, monsoon meteorology, Severe weather system, Cloud-radiation interaction, Air-sea interaction

圖片出自：NASA網頁



Yi-Jehng Kuan



Lin-Wen Chen



Yasuhiro Hashimoto



Wei-Ling Tseng



Yueh-Ning Lee



Tung-Yi Lee



Hong-Sheng Mui



J. Gregory Shellnutt



En-Chao Yeh



Yu-Ling Lai



Kuang-Jung Chen



Kate Huihuan Chen



Patty Pei-Ying Lin



Zhe-Wen Zheng



Chau-Ron Wu



Ting-Kuang Yeh



Meng-Wan Yeh



Cheng-Ta Chen



Li-Shan Tseng



Chung-Chieh Wang



Fang-Chung Chien



Wan-Ru Huang



### Department of Earth Sciences

My main research focus has been on the stable carbon and oxygen isotope compositions and elemental contents of Palaeozoic and Cenozoic fossil shells (mainly brachiopods, molluscs and foraminifers) and carbonate rocks as a geochemical tool to reconstruct global palaeoenvironments, as well as to tool to achieve/constrain stratigraphical correlations.

**Techniques used in study**  
Sample collection, petrographic thin sections preparation, observation of diagenesis using cathodoluminescence microscope, Isotope Ratio Mass Spectrometer, and Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES).

**Hong-sheng Mii, Professor**  
Department of Earth Sciences,  
144006@ntnu.edu.tw

**Background:**  
PhD in Geology,  
Texas A&M University,  
College Station, TX, USA

### Study of Paleoenvironment

The first to publish critical data on Late Carboniferous seasonality

Late Paleozoic middle-latitude Gondwana environment

**Publications**

- Mii, H.-S. and Grossman, E.L., 1994. Late Pennsylvanian seasonality reflected in the 18O and elemental composition of a brachiopod shell. *Geology* 22, 661-664.
- Mii, H.-S., Shi, G. R., and Wang, C.-A., 2013. Late Paleozoic middle-latitude Gondwana environment—stable isotope records from Western Australia. *Geochimica et Cosmochimica Acta* 97, 249–259.
- Rien, H., Chen, Y.-C., Wang, X. T., Wong, G. T. F., Cohen, A. L., DeCarlo, T. M., Weigand, M. A., Mii, H.-S., and Sigman, D. M., 2017. 231st-century rise in anthropogenic nitrogen deposition on a remote cold reef. *Science* 356, p. 749–752 [19 May 2017]. Vol. 356, Issue 6339, pp. 749-752.

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### Department of Earth Sciences

My researches mainly focus on the studies of southwesterly flows, typhoons, Mei-yu rainfall, and marine boundary layer. Using 40+ of climatological data, we have identified formation stages of southwesterly flows in Mei-yu seasons. In a study of Typhoon Morakot, we have found the roles of typhoon interaction with southwesterly flows in heavy rainfall. We have also documented the marine boundary layer height in western North Pacific using the COSMIC/FORMOSAT-3 GPS radio occultation data.

**Techniques used in study**  
Weather Research and Forecast model simulation, Data assimilation, Ensemble forecast, Terrain effect

**Fang-Ching Chien, Professor**  
Department of Earth Sciences  
fjc@ntnu.edu.tw

**Background:**  
Ph.D in Atmospheric Sciences,  
Department of Atmospheric Sciences,  
University of Washington, USA

### Study typhoon and Mei-yu rainfall

Strong southwesterly flows transport moisture-laden air to Taiwan, resulting in heavy rainfall.

In winter high marine boundary layer heights are parallel superimposed located within the paths of the North Equatorial Current and the Kuroshio Current.

**Publications**

Chien, F.-C., J.-S. Hong, and Y.-H. Kuo, 2019: The marine boundary layer height over the western North Pacific based on GPS radio occultation, island soundings, and numerical models. *Sensors*, 19, 155. <https://doi.org/10.3390/s19010155>

Chien, F.-C., and Y.-C. Chiu, 2019: A composite study of southwesterly flows and rainfall in Taiwan. *J. Meteor. Soc. Japan*, 97, 1023–1040. <https://doi.org/10.2151/jms190507>

Paul, S., C.-C. Wang\*, F.-C. Chien, and D.-L. Lee, 2018: An evaluation of WRF Mei-yu rainfall forecasts in Taiwan during 2008–2010: Differences in elevation and sub-regions. *Meteorol. Appl.*, 25, 269–282.

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### Department of Earth Sciences

**Research Interest**  
My work is focused on the simulations of the structures and compositions of the neutral clouds of different origins with a plasma chemistry model based on the latest space mission data such as Cassini and Rosetta. In addition, I am particularly interested using the ground-based radio telescopes to study the small bodies in the solar system (i.e. Europa, Enceladus, Titan and comets), which can improve understanding of the sources, dynamics and evolution of their neutral exospheres with interactions with the ambient plasma environments.

**Wei-Ling, Wendy, Tseng, Assistant Professor**  
Department of Earth Sciences  
wtseng@ntnu.edu.tw

**Background:**  
2009 Ph.D., Astronomy, National Central University, Taiwan  
**Post-Degree Appointments**  
Jan. 2012 – July 2014 Research Scientist  
Division of Space Science and Engineering, Southwest Research Institute, San Antonio, TX, USA  
Dec. 2009 – Nov. 2011 Research Associate (Postdoc)  
Department of Materials Science and Engineering, University of Virginia, Charlottesville, VA, USA

### Exploring the Solar System

Simulated Saturn's ring ionosphere of O<sub>2</sub><sup>+</sup> (Tseng et al., 2010)

enhancement of particle impact in the south

Seasonal Variations photoytic decomposition of ice is dominated

**Publications**

Waite, J. H. et al., (including Tseng, W.-L.), 2018, "Chemical interactions between Saturn's atmosphere and its rings", *Science*, 362, 2382

Johnson, R. E., Tseng, W.-L., Erod, M. K., Persoon, A. M., 2017, "Nanogram Density Outside Saturn's A ring", *Astrophysical Journal Letters*, Vol. 834, No. 4

Gu, H., Cui, J., Liu, D.-D., Welbrock, A., Tseng, W.-L. & Xu, X.-J., 2019, "Monte Carlo calculations of the atmospheric sputtering yields on Titan", *Astronomy & Astrophysics*, 623, A18

Coulson, I. M., Cordier, M. A., Kuan\*, Y.-J., Tseng, W.-L. et al., 2017, "JCMT Spectral and Continuum Imaging of Comet 252P/LINEAR", *The Astronomical Journal*, Vol 153, No. 4

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### Department of Earth Sciences

I work on a diverse set of igneous rocks from the continental crust that range from ultramafic to felsic. Using whole rock geochemistry, mineral chemistry, radiogenic isotopes and U-Pb age dating, my group and I investigate the origin and development of the large igneous provinces, petrogenesis of Venusian basalt, Pan-African Orogeny, and break-up of Gondwana.

**Techniques used in study**  
Wave length dispersive X-ray fluorescence;  
Laser ablation inductively coupled plasma mass spectrometry;  
Thermal ionization mass spectrometry;  
Electron probe micro analyzer.

**J. Gregory Shellnutt, Professor**  
Department of Earth Sciences, College of Science  
jshelln@ntnu.edu.tw

**Background:**  
PhD in Earth Science, The University of Hong Kong, Hong Kong SAR

### Evolution of continental crust

Formation of the Neoproterozoic granites of the Seychelles microcontinent:

**Publications**

- Shellnutt, J.G., Nguyen, T.D., Lee, H.-Y., 2020. Resolving the origin of the Seychelles microcontinent: insight from zircon geochronology and Hf isotopes. *Precambrian Research*, 343, 105725.
- Shellnutt, J.G., Pham, T.T., Dorey, S.A., Yang, M.-W., Tran, T.A., 2020. Magmatic duration of the Emeishan large igneous province: insight from northern Vietnam. *Geology*, 48, 457-461.
- Shellnutt, J.G., 2019. The curious case of the rock at Vénier. *Earth* 321, 50-61.

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### Department of Earth Sciences

My research interests are mainly in mesoscale and synoptic meteorological and focus on hazardous precipitation systems and severe weather, such as: typhoons (tropical cyclones), various mesoscale convective systems (MCSs) in the Mei-yu season, and severe local storms. I am also interested in issues related to numerical weather prediction (NWP) and the application of artificial intelligence (AI) in its decision-making process.

**Techniques used in study**  
Cloud-resolving model (CRM); mesoscale model; large-scale parallel supercomputers (e.g., Taiwania 1, NTNU HPC); model simulations and sensitivity tests; gridded datasets for analysis; potential vorticity (PV) inversion; diagnostic analysis.

**Chung-Chieh Wang, Professor and Chair**  
Department of Earth Sciences and Institute of Marine Environmental Science and Technology  
Lab of Weather and Convection  
cwang@ntnu.edu.tw

**Background:**  
PhD in Atmospheric Sciences, Department of Geography, Ohio State University, Columbus, OH, USA

### Numerical modeling of hazardous weather systems

Model simulations of Typhoon Morakot (2009) and its rainfall

Back-building and merging of convective cells inside rainband

**Publications**

- Wang, C.-C., S.-K. Ma, and R. H. Johnson, 2020: A numerical study on the influences of Sumatra topography and synoptic features on tropical cyclone formation over the Indian Ocean. *Mon. Wea. Rev.*, 148, 2777-2799.
- Wang, C.-C., S.-T. Tang\*, C.-C. Huang, S.-H. Lo, C.-T. Chen, P.-Y. Chang, and N.-C. Su, 2019: How much of Typhoon Morakot's extreme rainfall is attributable to anthropogenic climate change? *Int. J. Climatol.*, 39, 3454-3464.
- Kuo, H.-C., S. Tsujino, C.-C. Huang, C.-C. Wang\*, and T. Tsukamoto, 2019: Diagnosis of the dynamic efficiency of latent heat release and the rapid intensification of Super Typhoon Haiyan (2013). *Mon. Wea. Rev.*, 147, 1327-1347.

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### Department of Earth Sciences.....

<sup>40</sup>Ar/<sup>39</sup>Ar geochronology method is a powerful tool to decipher the timing of structural event of metamorphic rocks. It has been used to assign reliable ages to the Earth and numerous meteorites along with highly deformed rocks within plate scale shear zones. However, the geological meaning of Ar ages obtained from mineral separates were heavily debated as multiple factors as: internal deformation, recrystallization, fluid circulation or preservation of inherited argon pre-metamorphic signature by shielding effect can affect the outcome of Ar ages within one mineral grain. For one to successfully decipher heterogeneities of <sup>40</sup>Ar/<sup>39</sup>Ar data that experienced complex metamorphic/deformation histories, detailed knowledge of microstructural/microtextural relationships of examined minerals, and numerical diffusion modeling of argon retention or loss are required.

**Techniques used in study**  
✓ Structural & Microstructural geology  
✓ Petrography  
✓ Mineralogy  
✓ Radioactive isotope Geochemistry

**Meng Wan (Mary) Yeh, Professor**  
Ar-Argon Geochronology Lab/ Earth Sciences department  
Email: maryyeh@gmail.com

**Background:**  
PhD in Structural Geology  
School of Earth Sciences, James Cook University, Townsville, Australia

### Geochronology Tectonic Structural Evolution

**Publications (representative)**

- TH Huang, MW Yeh\* (2020) Structural Evolution of Extended Continental Crust Displaced from the Cretaceous Barabith in SE China, a Kaiman Island Perspective. *Perspectives in Earth Science* 9, p.339
- K. Soga, MW Yeh (2020) Secular variation of Early Cretaceous granulites in Kyushu, SW Japan: the role of radiogenic rocks as a possible magmatic event. *Perspectives in Earth Science* 9, p.85
- JH Shellnutt, MW Yeh, HET Phan, TY Lee (2019) Cryptic regional magmatism in the southern Taiwan Massif at 80 Ma. *Precambrian Research* 332, 103198
- Hue Ash Mai, Yu Lu Chen, Meng Wan Yeh\*, Tung Yi Lee (2018), Ages, Textures and Implications of Mesozoic Intrusions in the Eastern Taiwan Massif: Development within the passive South China Sea margin. *International Journal of Earth Sciences*, DOI: 10.1016/j.ijearthres.2018.07.025
- Yu-Ping Chiu, Meng Wan Yeh\*, Kuang-Hsuan Wu, Tung-Yi Lee, Ching-Hua Lu, Sui-Lin Chung, and Yoshiyuki Iwata (2018). Transition from extension to late Neogene-Early Tertiary compression: Geotectonic evolution of Eastern Taiwan. *Geological Society of America Bulletin*, 130, 1254-1268

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### Department of Earth Sciences

Lab research mainly aims to analyze aspects of geological structures and to explore their construction relationship between stress and strain. Based on observations of geological structures from different structural levels on multiple scales, we examine and evaluate their characteristics of geometric features, kinematics and dynamics to understand the origin and the role in the context of orogenic evolution, and apply concepts and results to the stress assessment, strain analysis, fracture reactivation examination and relevant technique development of underground resources and deep-seated waste disposals.

**Techniques used in study**  
Strain Evaluation, Microfabric Examination, In-Situ Stress Assessment, Fracture Characterization, Fault Reactivation Analysis.

**En-Chao Yeh, Associate Professor**  
Department of Earth Sciences  
Geotechnical Geomechanics Laboratory  
ecyeh@ntnu.edu.tw

**Background:**  
Ph.D. in Department of Geosciences,  
Pennsylvania State University, U.S.A.

### Structural Geology & Geomechanics

**Publications**

- Chou, Y.-M., C. Aubourg, E.-C. Yeh, S.-R. Song, Y.-L. Lin, F. Humbert, X. Jiang, and T.-Q. Lee, (2020) The Magnetic Fabric of Gouge Mimics the Co-seismic Fault Mechanism of the Chi-Chi Earthquake (1999, Mw 7.6). *Geophysical Research Letters*, Accepted for publication on 22 October 2020, DOI: 10.1029/2020GL090111
- Lu, Y.-C., S.-R. Song, S. Taguchi, P.-L. Wang, E.-C. Yeh, Y.-I. Lin, J. Macdonald, and C.-M. John, (2018) Evolution of hot fluids in the Qinghai geothermal field inferred from crystal morphology and geochemical vein data. *Geothermics*, 74, 305-318
- Mendoza, C.A., P. A. Fisher, and E.-C. Yeh, (2017) Strain histories from the eastern Central Range of Taiwan: A record of advection through a collisional orogen. *Tectonophysics*, 705, 1-11.

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### Department of Earth Sciences

My research interests focus on the variations and related mechanisms of precipitation characteristics over the East Asian monsoon region. I have conducted a series of studies examining the influence of long-term changes in large-scale circulation on the local diurnal rainfall events over Taiwan and Southern China. Recently, I'm also interested on validating the performance of satellite precipitation over Taiwan.

**Techniques used in study**  
Observational data; CMIP model simulation data; satellite precipitation data; reanalysis data; diagnostic analysis; monsoon climate; climate change; weather change; future projection.

**Wan-Ru Huang, Professor**  
Department of Earth Sciences  
wrh@ntnu.edu.tw

**Background:**  
PhD in Atmospheric Sciences, Iowa State University, Ames, IA, USA

### Climate analysis and model simulation diagnosis

**Publications**

- Huang et al. (2015, JGR): Both the southwesterly flow over the South China Sea and the convergence at 11°N over Taiwan have become weaker in the later period. These circulation changes, which could lead to a reduction in dynamical lifting over the past few decades, may explain the long-term decline in diurnal rainfall frequency over most of Taiwan.
- Wang, W.-R., P.-Y. Liu, Y.-H. Chang and C.-Y. Liu, 2020: Evaluation and Application of Satellite Precipitation Products in Studying the Summer Precipitation Variations over Taiwan. *Remote Sens.*, 12, 347.
- Huang, W.-R., Y.-H. Chang and P.-H. Huang, 2019: Relationship between the Interannual Variations of Summer Convective Anomalous Rainfall Activity in Taiwan and SSTa(NINO-4) during 1963-2012: Characteristics and Mechanisms. *Scientific Reports*, 9, 9378.
- More publications please refer: <https://web.ntnu.edu.tw/~wanru/>

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### Department of Earth Sciences

**Research interest**  
My research primarily focuses on two main areas: the mechanisms of students' learning and earth science education. In the investigation of human learning, we predominantly employ neuroimaging techniques to scrutinize the brain's functioning during the learning process. Within the realm of earth science education research, our principal objective is to explore strategies that enhance children's understanding of global changes and the implications of environmental issues, particularly those pertaining to marine environments. In addition to these efforts, we have also developed various tabletop games, digital media resources, and scaffolding materials to support students' learning of earth science.

**Ting-Kuang Yeh, Associate Professor,**  
Department of Earth Sciences  
and Institute of Marine Environmental Science and Technology  
tkyeh@ntnu.edu.tw

**Background:**  
Ph.D in Earth Sciences,  
National Taiwan Normal Univ., Taiwan  
**Funding:**  
Ministry of Science and Technology

### Earth Science Education

**Publications (updated)**

- Hung, L. Y., Wang, S. M., & Yeh, T. K.\* (2023). Kolb's experiential 1 and marine debris education: Effects of different stages on 1st Pollution Bulletin, 191, 114933.
- Hung, L. Y., Wang, S. M., & Yeh, T. K.\* (2022). Collaboration government and environmental non-governmental organisations debris policy development: The Taiwan experience. *Marine Policy*, 138, 105478.
- Chen, C. S., Chien, T. S., Lee, P. L., Jeng, Y., & Yeh, T. K.\* (2020). P electrical activity and cognitive load analysis using a non-in stationary approach. *IEEE Access*, 8, 21115-21124.

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### Department of Earth Sciences

We study the island arc magmatism and volcanism processes in the Northern Luzon Arc (Taiwan and Philippine) and the Western Sunda-Banda Arc (Sumatra and Java Island, Indonesia). Our researches are focusing on igneous geochemistry, zircon uranium-lead geochronology, volcanology and experimental petrology of the Cenozoic volcanic island rocks. We welcome students who want to visit our lab for learning geochemical analyses and using geochemical data.

**Techniques used in study**  
Operations on X-ray Fluorescence (XRF), Scanning Electron Microscope (SEM), Energy Dispersive Spectrometer (EDS), Electron Probe Micro-Analyses (EPMA), Laser Ablation Microprobe (LAM)-ICPMS

**Yu-Ming Lai, Assistant Professor**  
Department of Earth Sciences  
Lab of Magmatic and Volcanic Processes  
ymli@ntnu.edu.tw

**Background:**  
PhD in Department of Geosciences,  
National Taiwan University, Taiwan

### Understanding magmatic processes: Geochemical and geochronological studies

**Study area:**  
Northern Luzon Arc  
Western Sunda-Banda Arc  
**Focus on:**  
Magma evolution  
Petrogenesis  
Cenozoic volcanism

**Field survey and sample collection**

**Laboratory analysis**

**Publications**

- Zircon U-Pb and Hf isotopic constraints on the magmatic evolution of the Northern Luzon Arc. *Terrestrial Atmospheric and Oceanic Science*, 2018, 29 (2), 153-170.
- Age, geochemical and isotopic variations in volcanic rocks from the Coastal Range of Taiwan: Implications for magma generation in the Northern Luzon Arc. *Lithos*, 2017, 272-273, 92-115.

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### Department of Earth Sciences

**Research Focus:**

- Search for prebiotically important complex organic molecules (COMs) in space –
  - Is life unique on Earth or ubiquitous in the universe?
- Study of Solar System and interstellar comets –
  - Besides understanding of the origin and evolution of Solar System, comet study may shed light on the origin of life on Earth.
- Study of Solar System icy worlds –
  - Some icy worlds may possess subsurface oceans. Are these icy worlds habitable? Do they harbor life?

**Telescopes used in study:**  
The Atacama Large Millimeter/submillimeter Array (ALMA), world's largest ground-based observing facility, Submillimeter Array (SMA), James Clerk Maxwell Telescope (JCMT), Submillimeter Telescope (SMT), and the Kitt Peak 12m (12M).

**Yi-Jehng Kuan, Professor**  
Department of Earth Sciences;  
Center of Astronomy and Gravitation;  
ASIAA (Institute of Astronomy and Astrophysics, Academia Sinica)  
kuan@ntnu.edu.tw

**Background:**  
PhD in Astronomy, University of Illinois at Urbana-Champaign, USA

### Molecular Astrophysics and Astrobiology

(left) Daily intensity variation of HCN emission of comet 46P/Wirtanen during perihelion. (center) top interstellar pyrimidine is one of the COMs searched for. (Top right) Water plume was detected with ALMA on Europa, an icy moon of Jupiter. (Bottom) Methanol lines observed in a short-period comet.

**Publications**

- Coulson, I.M.; Liu, F.-C.; Cordier, M.A.; Kuan\*, Y.-J.; Chiu, Y.-L.; Chanley, S.B.; Tang, W.-L.; Miley, S. N.; Ye, W.-H.; Lin, Z.-Y. 2020, "JCMT Spectral Continuum Imaging of Hyperactive Comet 46P/Wirtanen", *Astronomical Journal*, 160, 182.
- Cordier, M.A.; Miley, S.N.; Biver, N.; Beckel-ee-Morvan, D.; Roth, N.X.; Bergin, E.; Jehin, E.; Remijan, A.J.; Chanley, S.B.; Mummola, M.J.; Boissier, J.; Crouillet, J.; Paganini, L.; Kuan, Y.-J.; Liu, D.-C., 2020, "Unusually High CO Abundance of the First Active Interstellar Comet", *Nature Astronomy*, 4, 861.
- Cordier, M.A.; Chanley, S.B.; Kisel, Z.; McGuire, B.A.; Kuan, Y.-J., 2017, "Deep K-band Observations of TMC-1 with the Green Bank Telescope: Detection of H<sub>2</sub>O, Nondetection of HC<sub>3</sub>N, and a Search for New Organic Molecules", *Astrophysical Journal*, 850, 187

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### Department of Earth Sciences

**Patty Pei-Ying Lin, Assistant Professor, Dept. of Earth Sciences**  
[pvylin@ntnu.edu.tw](mailto:pvylin@ntnu.edu.tw) **Background:** PhD in Geophysics, The University of Arizona  
Funding: Ministry of Science and Technology

### Planetary Seismology Lab

**Imaging Geophysical Properties**

By utilizing ground-motion and electromagnetic signals on land, at the ocean bottom, and even on other planets, we unravel the internal structure of Earth and celestial bodies at various scales. From layered structures to large-scale anomalies in velocity and electrical properties, and down to small-scale heterogeneities, we deepen our understanding of the dynamic processes and evolution of Earth and other planets.

From 2021 to 2026, our research primarily centers on (1) Investigating seismic ambient-noise characteristics recorded in ocean bottom and on Mars; (2) Imaging lithospheric-scale structures in the subduction-collision transition zone of southeastern Taiwan; (3) actively participating in the international Pacific Array project to explore the seismic & electrical structure and the dynamics in the oceanic lithosphere-aesthenosphere system.

**Pacific Array (OBS-OBS)**

**SALUTE** The Southern Array for the Lithosphere & Upper Mantle Experiment

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# Studying in NTNU



<https://youtu.be/wcW9QKBd1nQ>



**You can also check the students' studying experience here**

<https://www.cos.ntnu.edu.tw/index.php/en/home-en/admission/meet-the-students/>





# Studying in Dept. of Earth Sciences



**What you can learn? Please see the introduction ppt here!**

[https://www.dropbox.com/s/b4au69tyxdmqrqk/Introduction\\_2023.pdf?dl=0](https://www.dropbox.com/s/b4au69tyxdmqrqk/Introduction_2023.pdf?dl=0)





# How to apply

## 1) Am I qualified?

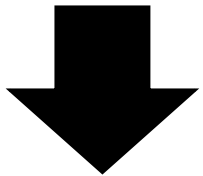
You need to satisfy the following conditions:

### Master's Program

Those who have graduated, or are expected to graduate, from a university by July 31 for fall admission and January 31 for spring admission that year.

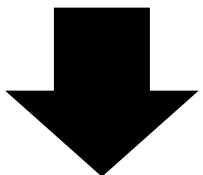
### Doctoral Program

Those who have earned, or are expected to earn, a master's degree by July 31 for fall admission and January 31 for spring admission that year.



*Yes, I am qualified!*

## 2) Check the deadline



*I want to apply now!*

	Application Period	Admission Notification**	New Student Registration
Fall 2024	October 2, 2023 - January 17, 2024*	April 2024	September 2024
Spring 2025	June 3, 2024 - July 31, 2024	October 2024	February 2025

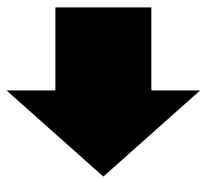
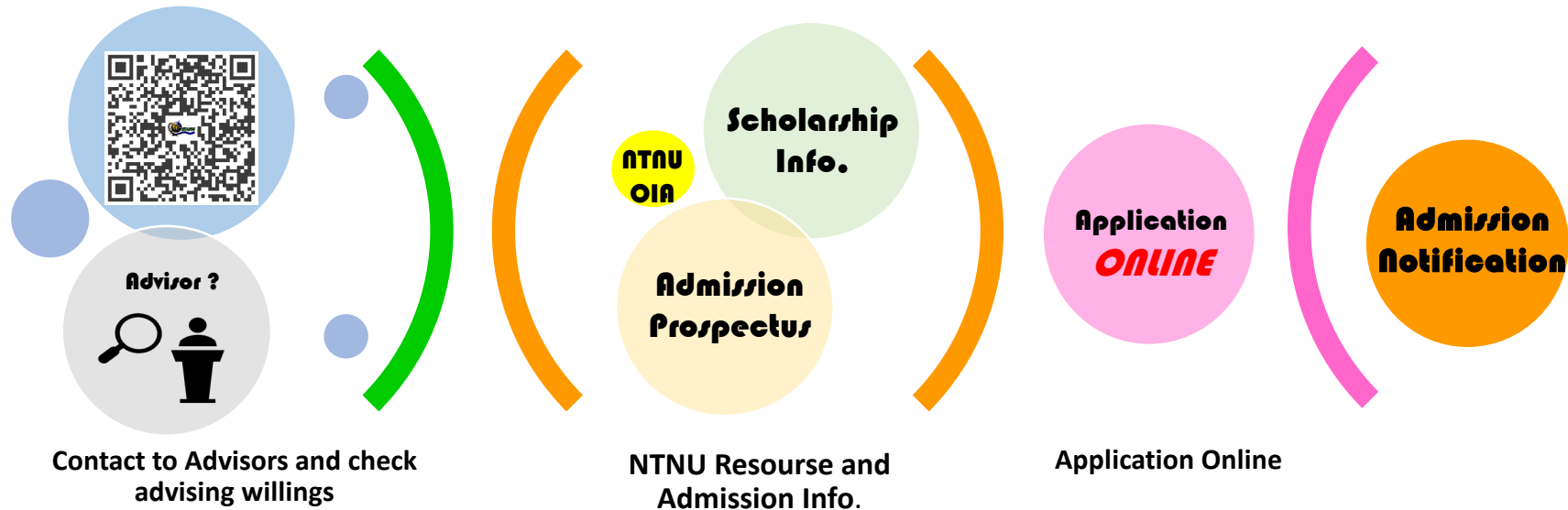


# How to apply

## 3) Contact the chairman

Please prepare (1) your CV (2) what field you are interested in (3) what other thing you'd like to know about this department.

Email Prof. Kate Chen [katepili@ntnu.edu.tw](mailto:katepili@ntnu.edu.tw)



Got her approval response





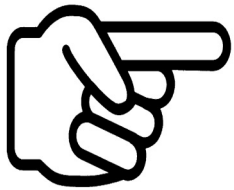
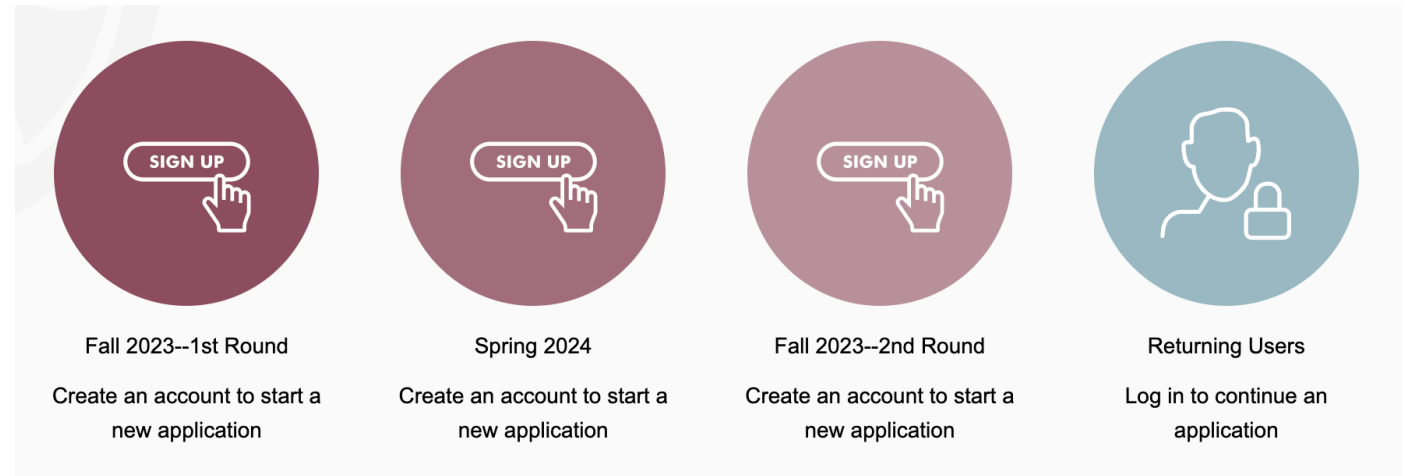
# How to apply

## 4) Prepare the application



### Check the website

[https://bds.oia.ntnu.edu.tw/  
bds/en/apply/application/dash-  
board](https://bds.oia.ntnu.edu.tw/bds/en/apply/application/dashboard)



### Fill the online application form

<https://bds.oia.ntnu.edu.tw/bds/en/apply/application/2022002>

# Q: Can I apply for scholarship?

There are two main sources of scholarship for students enrolled into our departments.

## 1. NTNU International Student Scholarship



Information can be found here

<https://bds.oia.ntnu.edu.tw/bds/en/web/scholarship>





# Q: Can I apply for scholarship?

## 2. Taiwan Scholarship\_MOE (Ministry of Education) Taiwan Scholarship

### Amounts awarded:

- Master's program: a stipend of NT\$30,000 per month; maximum of 2 years.
- Ph.D. program: a stipend of NT\$30,000 per month; maximum of 3 years.

### Application period:

February 1st until the end of March.

### How to apply:

Please contact the nearest ROC embassy, consulate, or representative office in your home country.

### \* Research assistant / teaching assistant

Once you decide your research topic and the supervisor, the monthly salary as a research assistant (RA) or teaching assistant (TA) is commonly paid by individual supervisor. The common monthly salary for master RA/TA is NT \$6000-10000, PhD is NT \$10000-40000.



# Q: How much it costs to live in Taipei?

## Tuition and Other Miscellaneous Fees (approx. annual rate)

Tuition for International Students will be supported by NTNU.

Other Miscellaneous Fees for International Students:

Insurance Fee	Health Insurance 200-300 USD Compulsory Insurance 15 USD
Computer and Network Facilities Fee	40 USD
On-Campus Dormitory (Utilities not included)	500-1,600 USD
Off-Campus Housing (Individual rooms)	270 USD and up/per month
Living Expenses	300-350 USD/per month

700 US housing + living fees  
~1000 and up US dollars scholarship

## National Taiwan Normal University Student Dormitory Housing fees

2023.03.24 notice

Dormitory	Semester	Summer	Room Type
Dormitory No.1 ( Male Students Dormitory No.1, Female Students Dormitory No.1, Female Students Dormitory No. 1 Branch )	TWD\$5,950	TWD\$3,500	6-bed air-conditioned
Female Students Dormitory No. 1 Branch 4-bed room	TWD\$8,930	TWD\$5,250	4-bed air-conditioned
Dormitory No.7	TWD\$11,670	TWD\$6,860	4-bed air-conditioned suite
Chenglou Dormitory 4-bed room	TWD\$14,880	TWD\$8,750	4-bed air-conditioned
Chenglou Dormitory 3-bed room	TWD\$18,700	TWD\$11,000	3-bed air-conditioned
Chenglou Dormitory 2-bed room	TWD\$22,670	TWD\$13,330	2-bed air-conditioned
Dormitory No.2 4-bed room	TWD\$15,300	TWD\$9,000	4-bed air-conditioned
Dormitory No.2 Male Students King Size 3-bed room	TWD\$20,400	TWD\$12,000	3-bed air-conditioned
Dormitory No.2 2-bed room	TWD\$25,930	TWD\$15,250	2-bed air-conditioned suite



## Student Dormitory Application

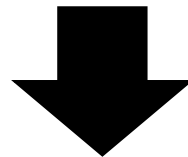
<https://www.ga.ntnu.edu.tw/dorm/form/112%E6%96%B0%E7%94%9F%20Dormitory%20Application%20Schedule112.3.20.pdf>





1. Apply 2. CV should include more details 3. research proposal (master thesis → future works)

	Application Period	Admission Notification**	New Student Registration
Fall semester 2024	October 2, 2023 – January 17, 2024*	April 12, 2024	September 2024
Fall semester 2024--UPE	February 2, 2024 – March 29, 2024	May 3, 2024	September 2024
Spring semester 2025	June 3 – July 31, 2024	October 2024	February 2025



	Application Period	Admission Notification	Bew student registration
2025 Fall	Nov. 1~ Dec. 30, 2024	Feb.27, 2025	September 2025
	Jan. 2~ Mar. 30, 2025	May 2, 2025	September 2025
2026 Spring	Sep. 17~Oct. 1, 2025	Nov., 2025	February 2026

# English Proficiency

		英語能力測驗 English Language Proficiency Tests					
歐洲語言共同參考架構等級 CEFR Levels		托福 iBT (總分) TOEFL iBT (Total Score)	多益 (聽讀測驗總分) TOEIC (Listening and Reading Score)	雅思 (總分) IELTS (Overall Band Score)	劍橋國際英語認證 Cambridge English Scale (KET/PET/FCE)		劍橋領思 (總分) Linguaskill General/ Business (Average Score)
Proficient User	C2 精通級 (Mastery)	114-120		9	Proficiency (CPE)	200-230	
	C1 高級 (Effective Operational Proficiency)	95-113	945-990	7-8.5	Advanced (CAE)	180-199	180+
Independent User	B2 中高級 (Vantage)	72-94	785-940	5.5-6.5	First (FCE) /FCE for Schools	160-179	160–179
	B1 中級 (Threshold)	42-71	550-780	4-5	Preliminary (PET) /PET for Schools	140-159	140–159
Basic User	A2 初級(Waystage)		225-545		Key (KET) /KET for Schools	120-139	120–139
	A1 入門級 (Breakthrough)		120-220		--		100-119