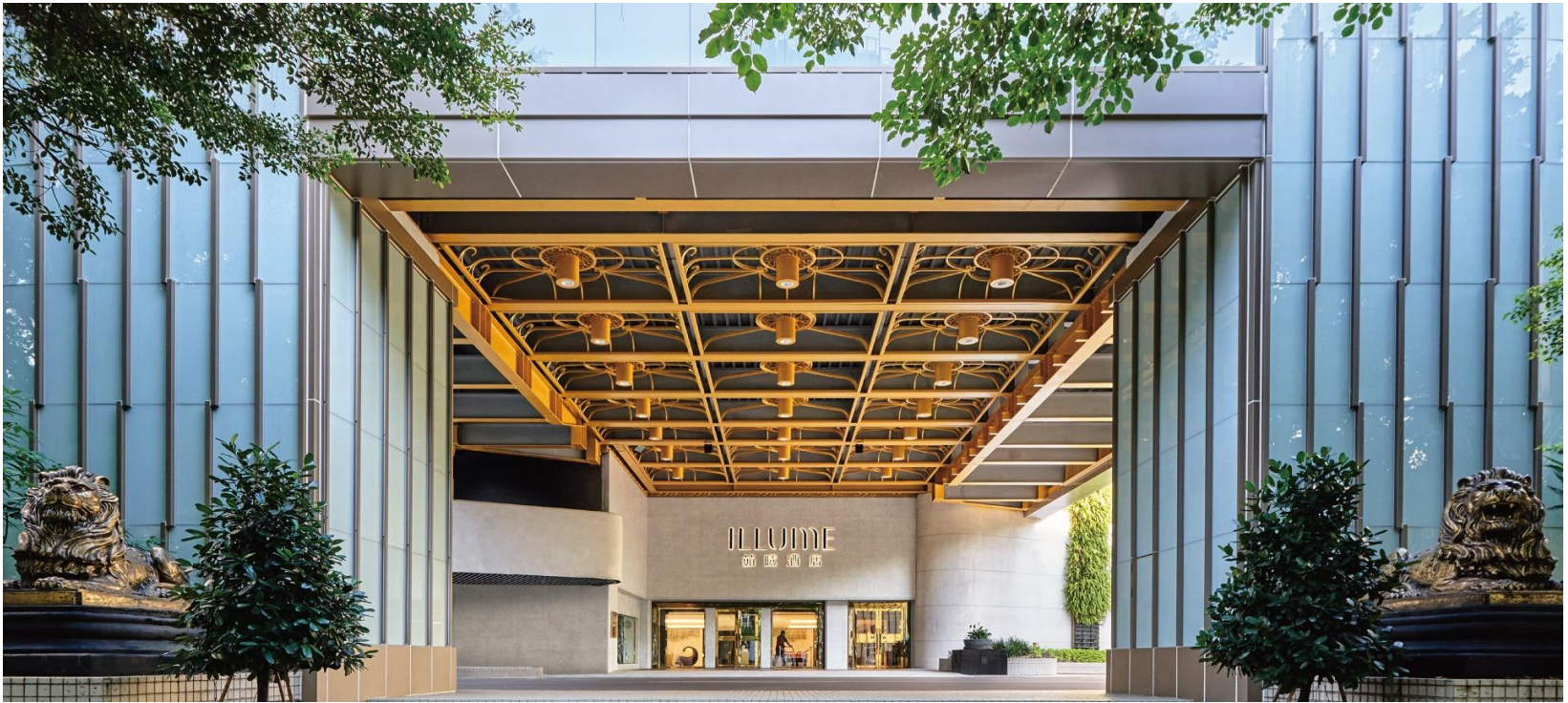


2023 GLOBE Asia-Pacific Regional Meeting 2022 Taiwan Report



Coordinator: Dr. Pay-Liam Lin

Date: March 11, 2023

Supported by:  **NSTC** 國家科學及技術委員會
National Science and Technology Council





THE GLOBE PROGRAM



COUNTRY AT A GLANCE

Participation | Training

3530 Students

2129171 Data Entries

154 Teachers

69 Schools

26 Pre-service Teachers

325 Honor Rolls

920 GLOBE Observers





Observations in Taiwan

- Barometric Pressure
- Cloud Protocols
- Relative Humidity
- Precipitation
- Digital Multi-Day
Max/Min/Current Air and Soil
Temperature
- Surface Temperature
- Davis Weather Station (Optional)
- Water Transparency (Optional)
- Electricity Conductivity (Optional)
- Water pH (Optional)
- Alkalinities
- Dissolved Oxygen
- Mosquito Habitat Mapper
- Vegetation Covers
- Nitrates
- Salinities
- Transparencies
- Water Temperature
- Biometry Trees
- Carbon Cycle
- Microplastics Monitoring
(developing protocol)





Highlights in 2022

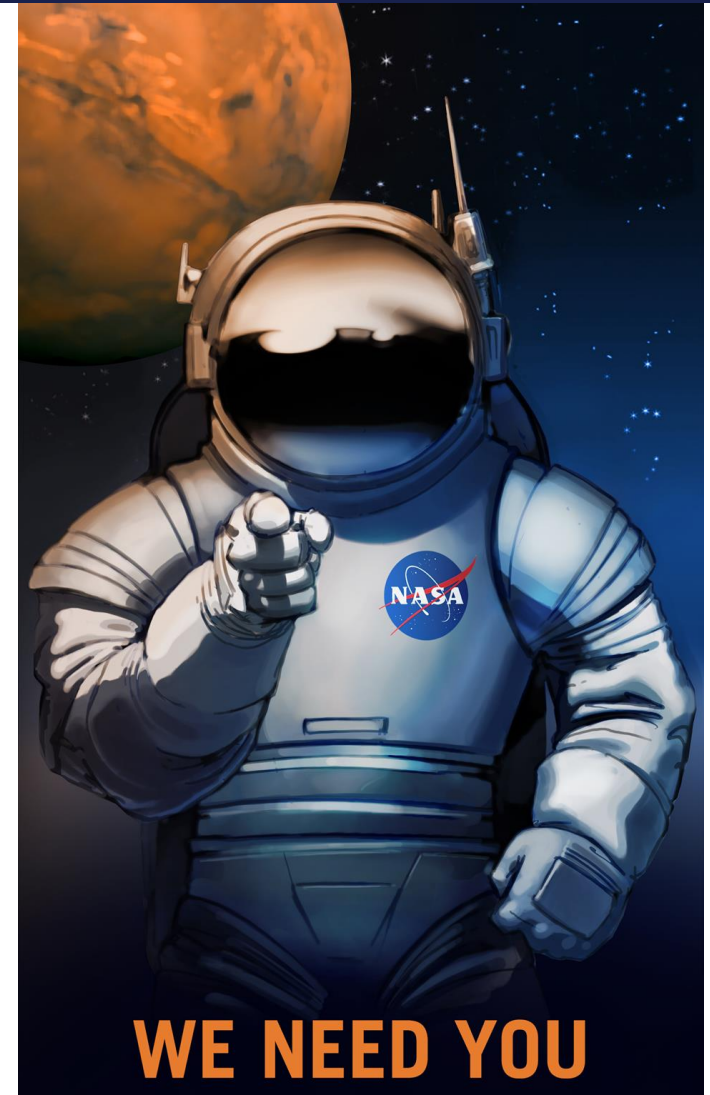
New schools recruitment



New GLOBE Schools Recruitment

▪ 9 schools joined GLOBE

1. Hemei Senior High School
2. TzuChang Junior High School
3. Keelung Municipal Badou Senior High School
4. New Taipei Municipal Bali Junior High School
5. Kaohsiung Municipal Cianjhen Senior High School
6. Taichung Municipal DA-AN Junior High School
7. Hong Wen High School
8. Taoyuan Municipal Jhongli Commercial High School
9. Chien-Kuo Junior High School



GLOBE webinar for new GLOBE teachers on June 15, 2022

During the COVID-19 pandemic, we still tried to keep in touch with GLOBE teachers.





Highlights in 2022

2022 GLOBE IVSS



- Taiwan students from 7 schools successfully submitted 23 reports. 5 of them earned 4-star.

高雄女中

An Analysis of the Various Aspects of the Ruifong Night Market and Luhe Night Market in Kaohsiung, Taiwan, and air pollution.



Discussion on Water Quality of Gaoping River and Fongshan River



Homemade Hazardous Inorganic Mercury Quick Screener Using Arduino Analysis of Mercury Ion Concentration in Luye River/Kaohsiung, Taiwan and Running Water



Rainfall Analysis in Kaohsiung and the Solution to Drought



Discussion on the change of SO₂ concentration in Kaohsiung Port during the shopping festival under the epidemic.



PM2.5 concentration variation during Chinese New Year



安樂高中

Observation of microplastic in Wamushan



明道高中

Trend discussion and analysis of diurnal temperature range —Take Mingdao High School from 2018 to 2021 for example



新店高中

How to catch mosquitoes and its preferences for temperature and carbon dioxide



Finding Microplastics in Campus



豐原高中

Microplastics Monitoring in Two Main Rivers of Central Taiwan



羅東高中

Analysis and Comparison Quality of Water in Lanyang Stream & 52-jia Wetland



金門高中

Delonix Regia (Poinciana): Red Flowers in Graduation Season



Taiwanese Rain Tree-Exploring the Relationship between temperature, solid temperature, humidity.



Wander Kinmen Farmland and Trail



The Relationship Between the Frequency of fogging and Factory shutdown in Kinmen



The relationship between temperature and rainfall on the Ceiba



The relationship between Kaoliang and Wheat and Orchid Tree



The relationship between Cloud types and Stargazing possibility in Kinmen



Microplastics in Kinmen



Kinmen Senior High School Campus Mosquito Exploration



Discussion on Soil Appearance, Lake Surface Water Level and Surrounding Engineering in Shuangli Lake



A Study on Influencing Factors of Cherry Blossoms in Kinmen Area






Highlights in 2022 Teachers and Students presentations

2022 GLOBE Asia-Pacific Regional Meeting 2 Student Presentation on January 24, 2022


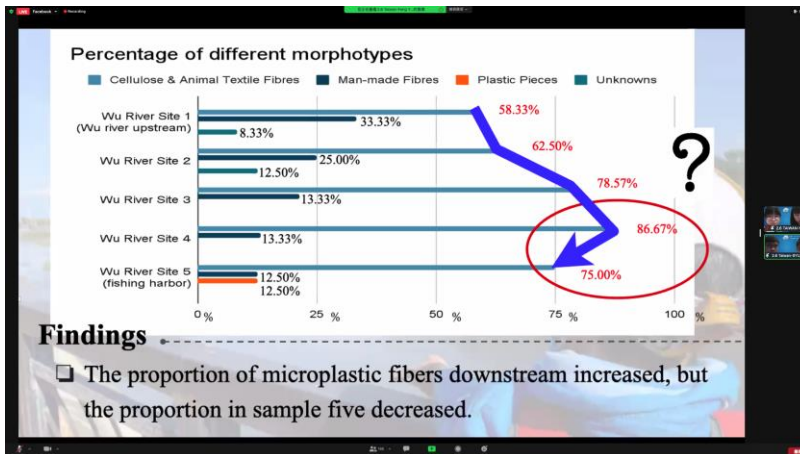
Microplastics Monitoring in Two Main Rivers of Central Taiwan

- Students : Cheng-Hua Wu, Cyuan-You Syu, Ying-Shan Tu, Yue-Lin Jiang
- Teacher : Ke-Hsuan Zheng
- School : Feng Yuan Senior High School
- Country : Taiwan



臺中市立
豐原高級中等學校
Taichung Municipal Feng Yuan Senior High School

3. Findings — Wu River estuary – Plastic pieces & plastic materials (2~5mm)

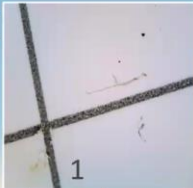



2022 GLOBE Asia-Pacific Regional Meeting 2 Student Presentation on January 24, 2022



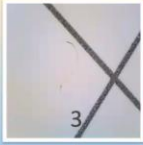
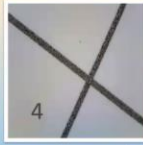
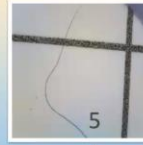
The effect of microplastics on temperature content—






A1

CODE	GEOMETRY	COORDINATES	COLOUR	SURFACE APPEARANCE	PHOTO	OUR ASSESSMENT
1	FILAMENT	(7,-2)	UNCLEAR	ROUGH DIRTY	YES	branches
2	DOT	(1,7)	YELLOW	FLAT	YES	alga

CODE	GEOMETRY	COORDINATES	COLOUR	SURFACE APPEARANCE	PHOTO	OUR ASSESSMENT
3	FILAMENT	(2,3)	UNCLEAR BLUE	UNKNOWN	YES	TEXTILE FIBRES
4	FILAMENT	(1,5,3)	DARK BLUE	UNKNOWN	YES	TEXTILE FIBRES
5	FILAMENT	(3,5,6)	BLUE	THREAD	YES	TEXTILE FIBRES






Discuss

- In addition to whether the water outlet is cleaned, there are other reasons for the presence of microplastics in the water.
- Floor height may affect microplastics in water
 - Lower floors have higher levels of microplastics
 - Higher floors have lower levels of microplastics

1. We think the reason may have caused the above effects:

- The air on the first floor is turbid and contains more microplastics
- How often people use that water dispenser

2nd Virtual International Education of RIVERS IN SPRING on March 22, 2022

- GLOBE Taiwan teachers and students were invited to share investigating results in 2nd Virtual International Education of RIVERS IN SPRING



THE GLOBE PROGRAM TAIWAN

Opening the oysters → Weighing → Decomposition

20 μm filtering → 5 μm filtering → Microscope observation

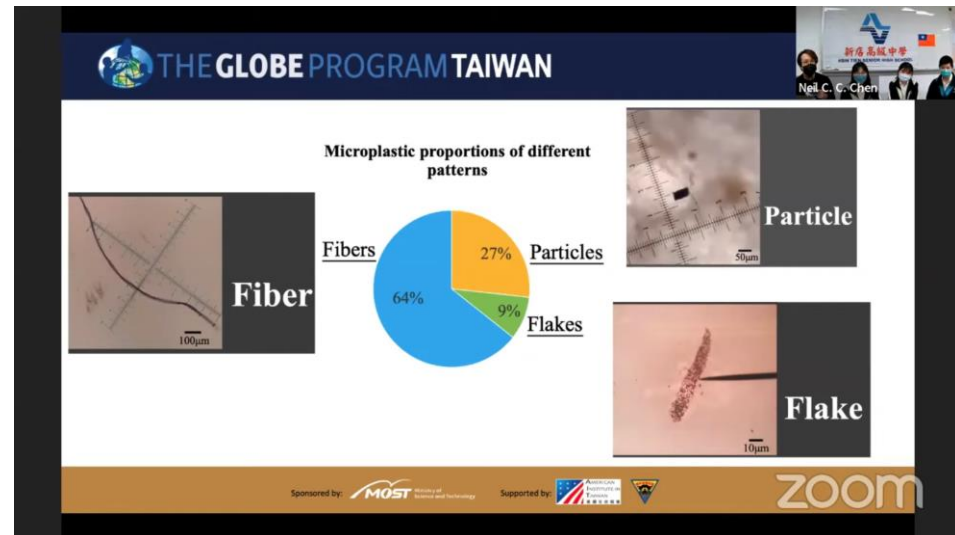
Identify the plastic

Before After

Bending

Sponsored by: MOST Ministry of Science and Technology Supported by: NSF National Science Foundation

zoom



THE GLOBE PROGRAM TAIWAN

Microplastic proportions of different patterns

Pattern	Proportion
Fibers	64%
Particles	27%
Flakes	9%

Fiber Particle Flake

Sponsored by: MOST Ministry of Science and Technology Supported by: NSF National Science Foundation

zoom

2022 Taiwan Geoscience Assembly on June 8, 2022

- Dr. Pay-Liam Lin shared the achievement of GLOBE Taiwan in 2022 Taiwan Geosciences Assembly (TGA) conference





Highlights in 2022 Promotion activities

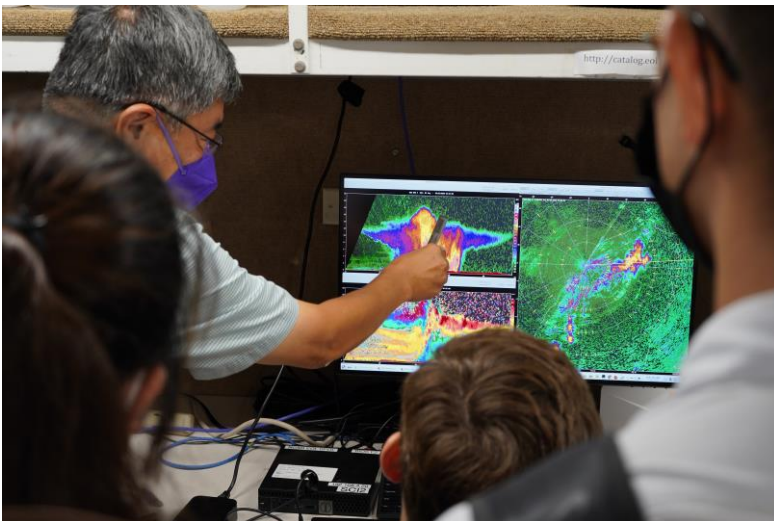
Instrument Shelter Manufacturing Workshop on July 26, 2022



- **GLOBE inter-schools activity and visiting of Taiwan-Area Heavy rain Observation and Prediction Experiment on July 21, 2022**



- **GLOBE inter-schools activity and visiting of Taiwan-Area Heavy rain Observation and Prediction Experiment on July 21, 2022**



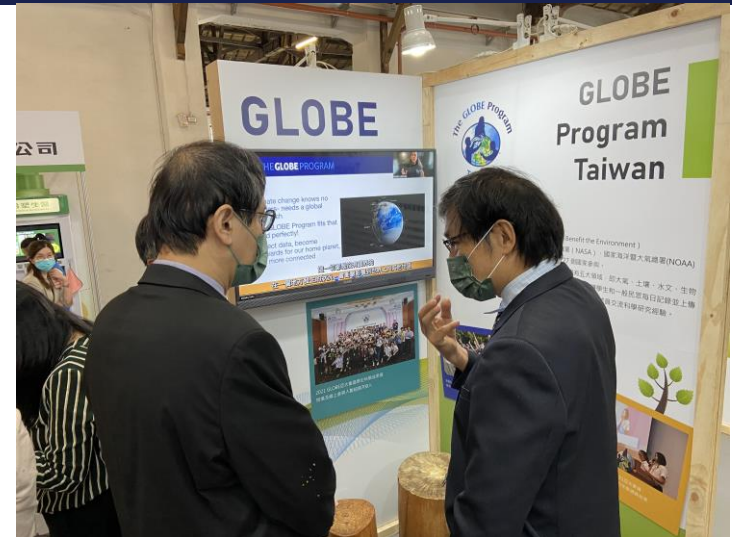
■ GLOBE inter-schools activity and visiting of Taiwan-Area Heavy rain Observation and Prediction Experiment on July 21, 2022

- After field trip, GLOBE Taiwan team explain the theory of Doppler radar and discuss the relationship and differences between TAHOPE experiment and GLOBE daily observations.
- Students from two GLOBE schools shared their GLOBE daily observation experiences and investigation results.





- October 7-9, 2022 at Taipei





- October 7-9, 2022 at Taipei



GLOBE Taiwan
 現場開講，歡迎蒞臨參加
 主題：以科學教育推動下世代氣候行動量能

林沛練 教授
 國立中央大學 大氣科學系
 GLOBE Taiwan 計畫主持人

Dr. Tony Murphy
 全球 GLOBE 計畫
 計畫辦公室 執行長

蘇敬怡 老師
 國立羅東高級中學
 地球科學科 教師

時間：2022/10/9 星期日 | 09:20 ~ 11:00
 地點：松山文創園區4號倉庫 臺北市信義區光復南路133號




THE GLOBE PROGRAM TAIWAN

GLOBE 觀測協議 (Protocols)

參與的師生來自世界各國，為了要讓大家的觀測有一致的標準，由全球科學家針對每個觀測項目，訂定出一套協議。所以加入GLOBE的老師接受訓練後，成為合格的GLOBE教師，再回到學校帶領學生進行觀測。

由各區域的科學家組成了科學工作小組定期討論現有的觀測協議，或幫助開發新的協議，如2014年由泰國科學家新開發的椰子協議，或是像GLOBE與澳洲科學現正合作發展的微雲

Africa	Peter Rugano	Kenya
Asia and Pacific	Josephine Joy Tolentino-Antalan	Philippines
Europe and Eurasia	Constantinos Cartalis	
Latin America and Caribbean	Jean Robert Batista Pires Ferreira	
Near East and North Africa	Hameed Shuaib	
North America	Marie Colon	
North America	Rebecca Taylor	
South America	Denise	





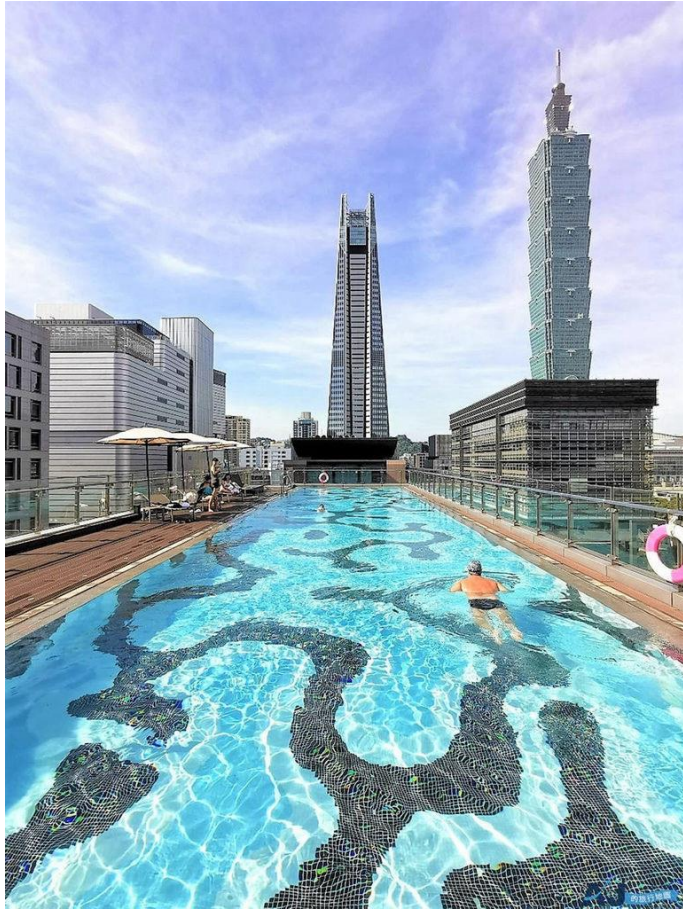
Coming Soon...

April

- Dr. Amy Chen plans to visit GLOBE Taiwan in April.
Dr. Amy Chen, Associate Program Manager - Early Career Research, GLOBE, NASA HQ Earth Science Division

May

- Open Call Expo, NSTC
GLOBE Taiwan plans to exhibit the achievement and the implementation of GLOBE in Taiwan



Thank you!
globe@pblap.tw

