

Report of the Student Travel Grants for International Conference

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Date : 03 August 2026 - 07 August 2026
Conference Name : Asian Oceania Geosciences Society 2026
Presented Title : Pingtung Plain Seawater Intrusion Identification: Insight from Transient-electromagnetic Survey

The Conference Overview

AOGS 2026 is a conference for various researchers in geosciences across Asia and Oceania country. Broad topic including geophysics, geology, atmospheric sciences, oceanic sciences, and many more are discussed in this forum from 2nd August 2026 until 8th August 2026. Researchers from different country and research field got a chance to discuss further about their work and open a possibility to create a collaboration across different place.

In this occasion, I presented my study about transient-electromagnetic method application to map Pingtung plain structure, particularly to identify seawater intrusion. The focus of the presentation is to estimate the possibility of the seawater intrusion on the coastal part of the Pingtung plain. Seawater saturated formation tend to yield a very conductive bodies. Meanwhile, transient electromagnetic method is suitable to detect any conductive body in the subsurface. Therefore, I applied transient electromagnetic method to estimate any possibility for seawater intrusion.

I attend oral presentation session in the conference and have a chance to visit Department of Resource Engineering in Kyushu University to witness MOU sign. The oral presentation I attend mainly regarding hydrology and atmospheric topic with the hope to know the things that currently developed in hydrology and atmospheric topic. Knowing the research in these topics could give me insight on what could I improve with my research.

Detailed Conference Experience

Arrival Day: Saturday, 1st August 2026

I arrived in Fukuoka Japan at Saturday morning. As soon as I arrived, I went to the hotel to check in and prepared for conference.

Day 1: Monday, 3rd August 2026

On the first day, I registered for conference and headed for Axford Lectures. The Axford Lectures featured a talk from Simon Wallis regarding to thermal in the earth, especially relationship between temperatures and geology. The talk mainly focus on geological evidence on the thermal process in the earth. Overall, Simon Wallis showcase some geological process related with the thermal activity and its evidence that has been founded by him and his student in Japan.

Right after the Axford Lectures, I went to poster session in Marine Messe Hall B for my poster presentation. Before the presentation, I took my chance to looked up for other poster to know other researchers work. Some posters showed a work on electromagnetic geophysics, which is my field of work, especially in magnetotelluric. I

had a chance to discuss a little bit about the electromagnetic method and how to improve the quality of electromagnetic data processing.

During my poster presentation, I had an opportunity to discuss with Qiyue Gu from School of Oceanography, Shanghai Jiao Tong University. He worked on seawater intrusion influence on coastal groundwater system on Yangtze Delta. He employed geophysical method such as ground penetrating radar and transient electromagnetic method to detect seawater intrusion on the deltaic environment. We discussed much on transient electromagnetic data processing and interpretation on coastal area. He showed me on how he analyze his data and add other supplement data to help him with the interpretation. His insight was helpful for my current research on identify hydrogeological features on Pingtung plain using transient electromagnetic data. Furthermore, we discuss about 3D transient electromagnetic modelling and possibility for further development.

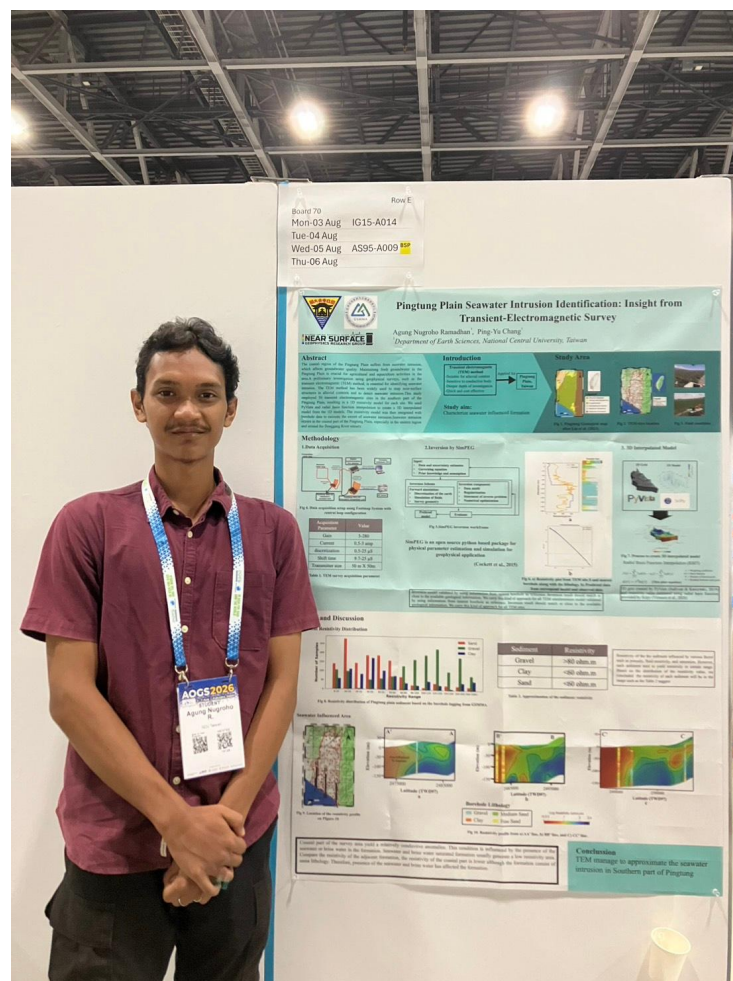


Figure 1. Poster presentation in AOGS 2026

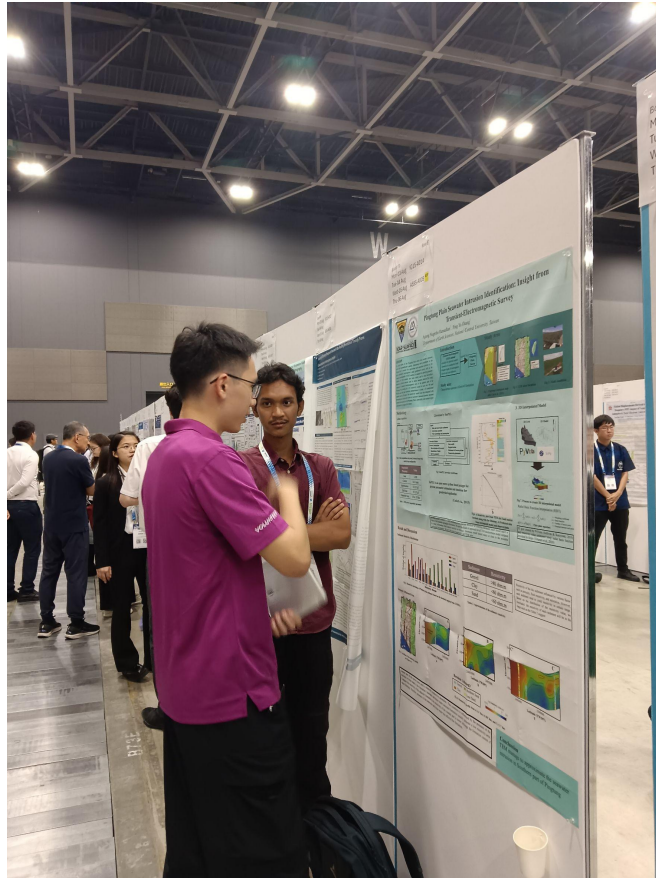


Figure 2. Discussion with Qiyue Gu about transient electromagnetic method

Day 2: Tuesday, 4th August 2026

On the second, I went to Department of Resource Engineering in Kyushu University with my advisor to witness MOU signing between Kyushu University and National Central University. This moment gave me a chance to took a look on Kyushu University Hydrological Lab. The Pressure gauge test and experiment on hydraulic conductivity was done to demonstrate on how did they conduct their research. Moreover, Professors from NCU and Kyushu University shared their research about hydrothermal modeling which is useful for geothermal exploration and CCUS.



Figure 3. MOU signing by NCU and Kyushu University representation

Day 3: Wednesday, 5th August 2026

On the third day, I attend oral presentation on four different topics. The first one is about TopoAsia Research Initiative. TopoAsia is a research collaborative to uncover the dynamic of the topographic in Asia. The session mainly discuss about the topology issue in Asia using various methodology to reveal the evolution of the Asia topographic. The most interesting things is TopoAsia Research already created a platform for various researchers to collaborate and share their results on topology evolution in Asia region.

The second session that I attended is General and Multidisciplinary Oceanography. Most of the presentation is about seawave modeling using various method such as remote sensing and deep learning. Overall. The wave modeling was used to predict the wave change over different process such as temperature rises, seefloor landslide, and other parameter.

On the afternoon, I attended a session with the topic “Hydrological Alterations and Ecological Impacts in Large River Basins”. This session mainly discuss about the change of the river system due to external influence such as wildfire, climate change, land change, etc. The presenters using different parameter such as animal behaviour, chemical composition, sediment change, and change of topography to acknowledge the effect of certain changes on river system.

Next session that I attended was Recent Advances in Large-Scale River Modelling. Most of the models are based on the Surface Water and Ocean Topography (SWOT) database. Various researchers working on river model and developed a better result using different approaches. The model could be used to forecast any river related phenomena such as flood.

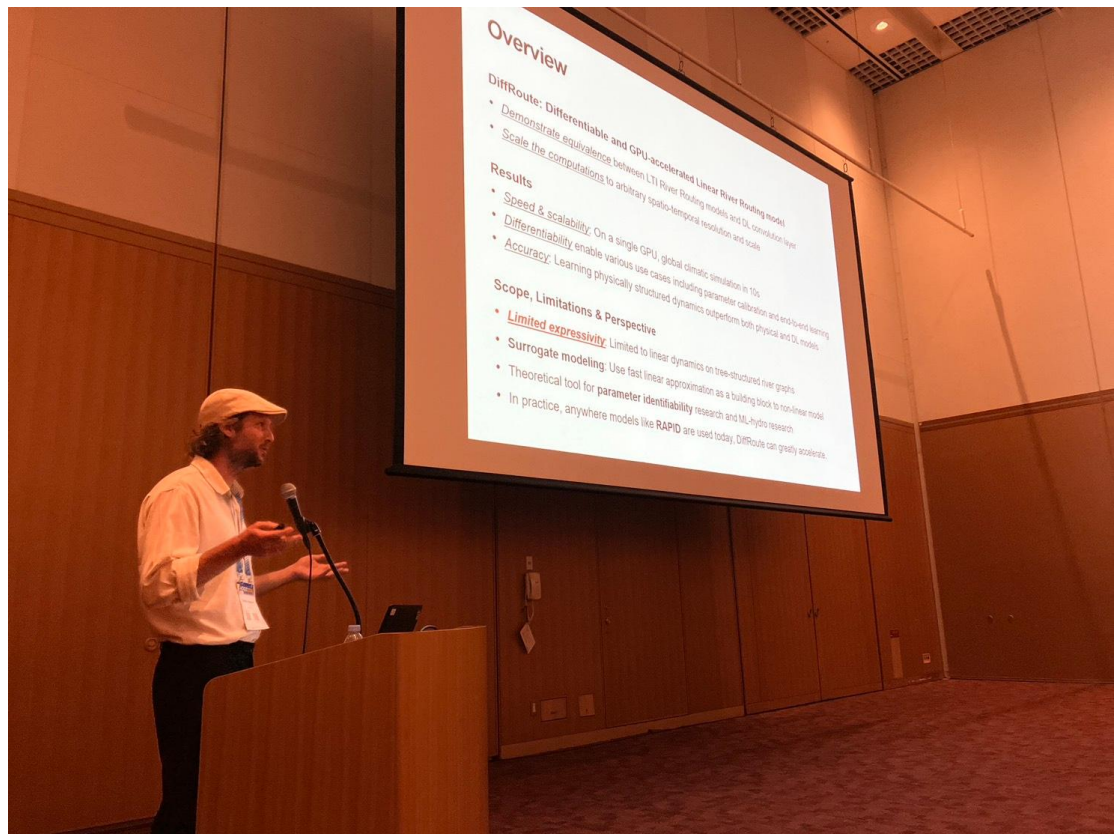


Figure 4. Oral presentation on Recent Advancement in Large-River Modelling session.

Day 4: Thursday, 6th August 2026

On the fourth day, I attend four session with two different topics. The first and second session was about Climate Intervention. Most of the presentation discuss about Marine Cloud Brightening (MCB). Currently, various researchers develop a model and simulation for MCB. The idea is to increase cloud albedo to decrease reflected energy from the sun by spraying particular particle into the sky. The simulation and test important to identify the change occur due to MCB. The changes need to be precise to prevent any unwanted scenario due to MCB during climate change intervention. Other notable topic is regarding ethical framework for climate intervention research. There are some ethics to be obey during conducting any research, especially for climate change intervention. Overall, researchers already take a serious steps to prevent unwanted things due to climate change.

Last two session on this day is about Application of Satellite Data to Weather, Climate and Environmental Study. Satellite data has been applied for environment related problem such as wildfire and crop analysis. Signal acquired from satellite could be used for surface change detection in wide area. Therefore, it could be used widely for any parameter change such as elevation or identify fog changes over time. Moreover, more satellite with better equipment has been launched to acquired more parameter and cover more area.



Figure 5. Oral presentation on climate change research ethics.

Day 5: Friday, 7th August 2026

On the last day, I attended two sessions. The first session held a presentation entitled “From Biology to Clouds: Biogeochemical Processes at the Air–sea Boundary”. The main focus is to formulate the relationship between organic creatures on sea and air with its environment. Mostly, the relationships were identified to reveal any direct or indirect relationship between the organic matters with the climate changes. Acknowledging the relationship between these parameters will be useful to identify the climate changes.

The last session is a discussion about Near Surface Investigation and Modeling for Groundwater Resources Assessment. There are several attempts to evaluate groundwater resources using different methodologies such as hydraulic simulation, geophysical approach, or geochemical. Geophysical approaches such as transient electromagnetic and ground penetrating radar have been used by several researchers to identify any hydrological related problem such as seawater intrusion or potential groundwater recharge identification. Although, there are still some obstacles that need to be tackled to connect geophysical results into some hydrological insight.

Closing Remark

Overall, AOGS 2026 became an insightful opportunity for my research journey. Through this chance, I got to know the research and current challenges from different research fields in geosciences. Having a discussion with a lot of different researchers has broadened my knowledge which is useful for my research. Therefore, I would like

to express my gratitude to CTGS and my advisor, Prof. Ping-Yu Chang, for the support.