## Visiting ISEE, Nagoya University

Name: Huiting Feng Status: SVS Scholar Duration of Stay: April 6-19, 2025 Host Institution: ISEE, Nagoya University

I was honored to receive the 2024 SCOSTEP Visiting Scholar (SVS) Program Award and conducted an academic visit to the ISEE at Nagoya University from April 6 to April 19, 2025. During this visit, under the guidance of Professor Yoshizumi Miyoshi, I carried out a series of research activities focused on relevant scientific questions and engaged in multiple in-depth academic discussions.

One of the main goals of this visit was to learn how to use and analyze data from the Arase satellite, which is important for my future research. On the first day of the visit, Professor Miyoshi guided me through the campus and office facilities and introduced me to members of his research group as well as the principal investigators responsible for the Arase satellite instruments. Following this, we had our first scientific discussion, during which we reviewed the outcomes of our previous collaborative work, explored potential directions for further study, and discussed methods for identifying and analyzing conjugate observation events for the new research project. We also established the goals for my visit and scheduled our next meeting.

In our second discussion, we focused on the conjugate observations using data from the Arase and DMSP satellites. Professor Miyoshi provided a detailed tutorial on how to process Arase data using SPEDAS under the IDL, including the application of FFT methods for wave analysis. I also learned how to process and utilize groundbased geomagnetic station data. Moreover, Professor Miyoshi gave a systematic explanation of wave–particle interaction processes in the magnetosphere, the mechanisms inferred from different types of auroral particle precipitation, and how these processes are observed by in-orbit satellites. This discussion significantly deepened my understanding of magnetosphere–ionosphere coupling process. We also agreed on the topic and time for our next discussion. Below are some photos of the whiteboard notes from the discussion with Prof. Miyoshi.



Besides discussing with Prof. Miyoshi, I also had a discussion with Dr. Jun about the observation of EMIC waves using Arase data. That conversation gave me a deeper

understanding of EMIC wave characteristics and how they are observed.

In the second week of my visit, I attended the weekly group meeting of Professor Miyoshi's research team, which was conducted entirely in English. During the meeting, I presented the conjugate observation event that I focused on during this visit, and discussed the observation results in detail with the instrument leads of the Arase satellite. The attending experts offered many valuable suggestions, which provided important guidance for the further development of my research. Based on this collaboration, we plan to write a scientific paper on the event and submit it for publication in a peer-reviewed journal.

In addition, I participated in their academic seminars and had the opportunity to exchange ideas with other members of the research group. These interactions helped me gain a deeper understanding of the ongoing research at Nagoya University and provided me with many insightful perspectives.

During my stay, I lived in a hotel near the city center of Nagoya, just a short subway ride away from the university. The area around my accommodation was very convenient, with many convenience stores and large shopping centers, which helped me quickly get familiar with the city. My visit coincided with the Sakura season, and I was fortunate to enjoy the beautiful view. On the weekends, I also visited some of Nagoya's famous places, including Nagoya Castle and Higashiyama Zoo.

All in all, I really enjoyed my visit to Nagoya University. It was a great experience in many ways. In terms of research, under the guidance of Professor Miyoshi, I gained a great deal of specialized knowledge about waves and auroras, achieved meaningful academic results, and initiated effective collaboration and communication with his team. Based on this progress, we will develop our research findings into a publishable paper in the near future.

Beyond the scientific achievements, this visit also provided me with a rich cultural experience. It broadened my international perspective and significantly contributed to my personal and professional growth. This experience has undoubtedly become a valuable asset on my journey in scientific research.