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## **Report on Stay at the Institute for Space-Earth Environmental Research (ISEE), Nagoya University**

During my three-month stay at the Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan, as a visiting scholar under the SCOSTEP Visiting Scholar (SVS) Program, I had the privilege of participating in various academic, cultural, and exploratory activities. This experience not only enhanced my research skills but also provided me with invaluable cultural exposure and professional connections.

My primary focus during the stay was conducting research on the automatic detection of equatorial plasma bubbles using Explainable Artificial Intelligence (XAI) under supervision of Prof. Kazuo Shiokawa. This research aimed to address challenges in identifying these ionospheric phenomena, leveraging advanced image processing and machine learning techniques for accuracy and transparency. The findings of this research were compiled into a manuscript, which was subsequently submitted to a peer-reviewed journal for publication.

One of the highlights of my stay was a trip to the MU Observatory in Shigaraki with Professor Shiokawa, Dr. Geetashree Kakoti and Ms. Ayushi Nema. During this visit, we explored the MU radar, OMTI cameras, and the Fabry-Perot interferometer, gaining hands-on insights into state-of-the-art observational equipment and methodologies used in atmospheric and space science research.

In my free time, I explored Nagoya City, visiting its historic and touristic landmarks. I had the opportunity to try various Japanese cuisines, which was an incredible culinary experience. Additionally, I traveled to Shirakawa-go, a UNESCO World Heritage site, where I enjoyed the serene beauty of its historic village. Another memorable trip was to Hamamatsu, where I visited the ocean and experienced the coastal charm of Japan.

I would like to express my heartfelt gratitude to Professor Shiokawa for his invaluable guidance, mentorship, and support throughout my stay, as well as for the meaningful conversations we shared on both scientific and personal levels. I am also deeply thankful to Ms. Sayaka Fujiwara and Ms. Mai Asakura for their great assistance during my time at ISEE. Special thanks to Ms. Yoko and Ms. Karina from the residency office for their continuous help in making my stay convenient. Lastly, I sincerely thank all the members of ISEE for their warm hospitality and friendliness, which made my stay both enjoyable and memorable.

