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Report on research visit to ISEE, Nagoya University for collaborative research

From March 9 to March 20, 2026, I had the privilege of visiting the Institute for Space–Earth Environmental Research (ISEE) at Nagoya University, Japan, supported by the PBASE program. The primary objective of this research visit was to discuss with Arase scientists and advance my ongoing research on two projects relying heavily on Arase satellite’s data.

During my time at ISEE, I engaged in many productive scientific discussions with Arase experts, including Prof. Yoshizumi Miyoshi, Prof. Tomoaki Hori, Prof. Kazuhiro Yamamoto, and Dr. Tomotsugu Yamakawa, regarding my study of the effects of foreshock transients on the Earth’s radiation belts, particularly through ultra-low frequency waves generated by these transients. The electron flux and magnetic field measurements from Arase, alongside data from other radiation belt missions, are crucial for achieving a comprehensive view of the physical processes linking the impact of foreshock transients on the magnetosphere to changes in the radiation belt electron fluxes.

A significant component of my visit was attending the international workshop titled Multi-satellite Observations and Modeling of the Earth's Radiation Belts (MOMERB), hosted at ISEE. This workshop provided an important opportunity for collaboration with radiation belt experts around the world, in particular with Dr. Jean-Francois Ripoll from Université Paris-Saclay, France. I presented and further developed a study initiated in the previous year’s workshop. The main goal was to finalize a research article on this project which integrates data from both the Arase and Van Allen Probes missions, comparing the occurrence frequency of electron fluxes as a function of a wide range of energies and L^* . A major conclusion of this study is the excellent agreement between Arase and Van Allen Probes flux levels, promoting the use of Arase data as a prime data source in radiation belt studies during and after the Van Allen Probes mission.

In addition to these collaborative efforts, I had the pleasure of meeting with Dr. Natalia Ganushkina from University of Michigan, USA, and Eva Krämer from Umeå University, Sweden, both visiting Nagoya University. We discussed potential synergies between our respective research projects on radiation belt dynamics. During my visit, I also had the chance to connect with colleagues and friends in Nagoya.

In conclusion, my visit to ISEE and participation in the MOMERB workshop were very successful, facilitating meaningful collaborations and advancing my research projects. I am grateful for Prof. Miyoshi for providing this valuable opportunity and look forward to future collaborations.