

PBASE INTERVIEW & THREE MONTHS' EXPERIENCE

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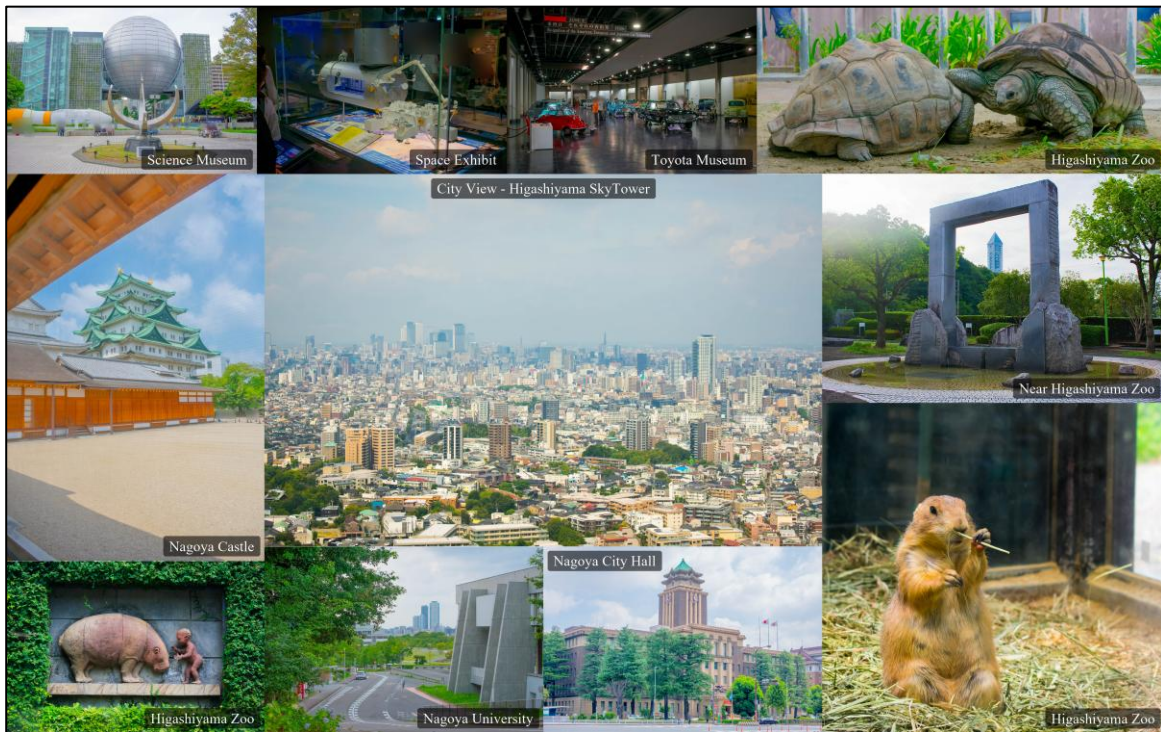
My PBASE experience at ISEE, Nagoya University, provided an intellectually demanding setting to advance my PhD research on atmospheric dynamics and equatorial plasma bubbles. A rigorous proposal interview and subsequent theoretical work with Prof. Kazuo Shiokawa sharpened my research's physical interpretation and analytical foundations. This experience also led to a new study of equatorial plasma bubble motion that developed into a manuscript ready for publication.

On July 10th, 2026, I participated in an interview about my PhD proposal on the role of atmospheric gravity waves (AGWs) in seeding equatorial plasma bubbles (EPBs). The discussion examined the underlying physics in considerable depth. Building on my extensive study of the seeding phenomenon, this exchange prompted a more detailed examination of the research framework and the physical reasoning supporting it.

After the interview, our discussions and meetings continued for about three months, from July to September 2026. During this period, weekly meetings with Prof. Shiokawa provided a structured forum to review progress, examine research questions, and refine our approach. In addition, participation in two seminars and research report meetings with ISEE colleagues encouraged scientific exchange both within my field and across disciplines, broadening my research perspective and strengthening academic connections. These discussions, together with sustained research work, deepened my experience in EPB studies and strengthened my ability to develop and evaluate various research ideas.

Building on this theoretical and observational work, we initiated a new research study. The idea developed into a manuscript ready for publication. Our work focused on developing an approach for estimating EPB motion using optical flow models. This research expanded my experience in applying optical flow analysis methods to EPB studies using 630.0 nm airglow images. Regular discussions with Prof. Shiokawa supported the development of the approach and contributed to my growth as a researcher in this area of study.

Beyond the research activities, a visit to the Nagoya University Museum offered an opportunity to explore scientific experiments and exhibits highlighting Nobel Prize achievements. I also visited ComoNe, where the history and puzzles provided an engaging learning experience. My hobby in Photography allowed me to document these visits and preserve my impressions of Nagoya. From ComoNe, I brought home Nagoya University souvenirs that serve as lasting reminders of my time at the university. Other visits to Nagoya Castle, the Science and Toyota Museums, Higashiyama Sky Tower, and Higashiyama Zoo offered insights into Japan's history, scientific and technological development, and cultural life.



Photographs by *Rady Mahmoud*

Overall, the PBASE experience advanced my theoretical expertise, sharpened my research direction, and strengthened my ability to connect mathematical analysis with physical interpretation. I am grateful to Prof. Shiokawa, Ms. Mai Asakura, and Ms. Sayaka Fujiwara for their thoughtful guidance before and during my trip, as well as their unconditional support, which enabled me to engage in demanding, productive research collaboration and complete the university admission process on time.