

## Academic Visit to University of Bern

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Thanks to the generous support from the PBASE project, I had the opportunity to spend a wonderful time in Switzerland. During July 1 and August 16, I joined the Microwave Physics Division of the Institute of Applied Physics at the University of Bern.

Professor Klemens Hocke is an expert in atmospheric and ionospheric studies. During my stay, I joined his research group, and we discussed important topics like atmospheric gravity waves (AGWs), medium-scale traveling ionospheric disturbances (MSTIDs), and GNSS remote sensing. MSTIDs are one of the main types of disturbances that often manifest in the ionosphere, and AGWs are a major cause of these disturbances. However, our understanding of how these disturbances form and evolve is still limited. Japan is in a good position to study these structures because of its dense GNSS network. By using the Japan data and tomography techniques, we can create detailed 3-D images of MSTID dynamics, which will help us better understand the underlying mechanisms. After our discussions, I was able to decide on the direction for my next paper and explore possibilities for future collaboration.

During my stay, I was fortunate to meet Professor Guanyi Ma from the National Astronomical Observatories of China, who is an expert in GNSS and the ionosphere. We had the chance to share our recent work and progress on topics such as sudden stratospheric warming (SSW), equatorial plasma bubbles, and the use of machine learning in our research.

This was my first trip to Europe, and I had the chance to visit many historic sites and tourist spots. Switzerland is a beautiful country. On nice days, we hiked up Mt. Schynige and visited Thun, a lovely small town. None of this would have been possible without the support of the PBASE program and the warm hospitality of Professor Hocke. I'm very grateful to everyone who helped make this visit possible.

