

JSPS fellowship long-term (3 months) – August to October 2019

At Tsukuba University, Graduate School of Systems and Information Engineering department – Host by Dr. Claus Aranha

This 3 months fellowship expanded an ongoing collaboration with the host at Tsukuba University. The project was about underground storage of CO₂. Indeed, it is a key technology for the control of climate change, one of the main issues that our society faces today. In this research project, we focused on the problem of Robust Data Integration. This means how to combine measurement data which is noisy and has multi-sources (well data, seismic survey data) in order to improve the models describing the underground state. We need such information to monitor the injected CO₂, the pressure, migration of the CO₂ plume and potential leakage. We have improved our existing history matching and seismic optimization code-base with several new features such as the ability to use open-data models, the ability to use multi-objective optimization methods, improved parallelization and performance, and handling noisy data. One article has been submitted during the time of the fellowship and another is in writing.

In addition, during the fellowship I gave an open lecture at Tsukuba University, organised a workshop at Shinshu University, discussed a potential project on CO₂ with Kyushu University at their office in Tokyo and finally hosted two researchers from France and the UK to expand the collaboration and projects on CO₂ storage.

My host, Dr. Claus Aranha, provided me with a great research environment and also helped me in all the non-scientific daily tasks for which I am very grateful. Social convention is quite different as compared to Europe and it is highly important to have a host who understands that and who will drive you into it. Also, the fact that I was not able to read or speak Japanese was definitely a drawback, but it was actually not a huge problem as you will always find someone to help in the street or at stations, shops, trains, restaurants, or even google translate would do the job for you. In conclusion, for researchers willing to stay in Japan on a JSPS fellowship, my key advice is have a good host and then your experience will be fantastic.



Workshop at Shinshu University

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