

STEPS Students Report

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'Students and Researchers Exchange program in Science' (STEPS) had a great initiative for the academic exchange of students between UTokyo in Japan and Moscow State University & Saint Petersburg State University in Russia. This program is not only of a great benefit for the exchange of research activities, but also to abridge the cultural gap between the two nations.

. My main objective to apply to this program and to join it was to get know how of research activities in the best Russian university, but I also had some other things in my mind; which can be summarized as below:

- i- Comparison of Russian and Japanese education system
- ii- Research activities in Russian university regarding my research theme
- iii- Learning the culture and language
- iv- Visiting famous Russian places

ARRIVING IN MOSCOW:

STEPS arranged a student to help me in getting the room at MSU dormitory. A long process awaits us for getting the room key but because of the tutor student, it was all done smoothly without any problem. Office of the Geology department was very kind and welcomed in the university. My laboratory was also situated in the main building of MSU, which is indeed a marvelous piece of design.

Moscow State University – Main Building

Geology department consists of several laboratories, which includes many modern and traditional machinery and soil testing equipment. I was in the lab for postgraduate students. There were few students in the postgraduate laboratory who were mainly doing testing for the commercial companies and governmental organizations as part of their research work. The soil testing equipment consisted of following main machines:

- 1- Automated triaxial testing machine with cyclic and static load capabilities
- 2- Torsional shear machine
- 3- Ring shear test/simple shear test machine

During my one month stay there, I performed many experiments on the different types of soils including high organic clay and Russian traditional sand. The soil samples were collected from different areas of Russian and brought to MSU for sophisticated testing in

the Geology department lab. Further to that, this laboratory was also producing the soil, which resemble the lunar and Martian soil, and basic tests were being conducted on those soils. Russian space organization was the main client for such soil testing.

SAMPLE PREPARATION & TESTING:

It was a good opportunity for me to be able to use the equipment in the laboratory and broaden my knowledge and experience. During my stay, there were many tests conducted in the laboratory for the commercial needs. Samples were mostly Organic Clay, coming from a variety of places throughout the Russia.



Fig 2: Samples for testing (a) as received un-disturbed (b) after removing protection.



Fig. 3: Trimming sample according the mold dimensions



Fig. 4: Placing sample in the Triaxial Machine for testing

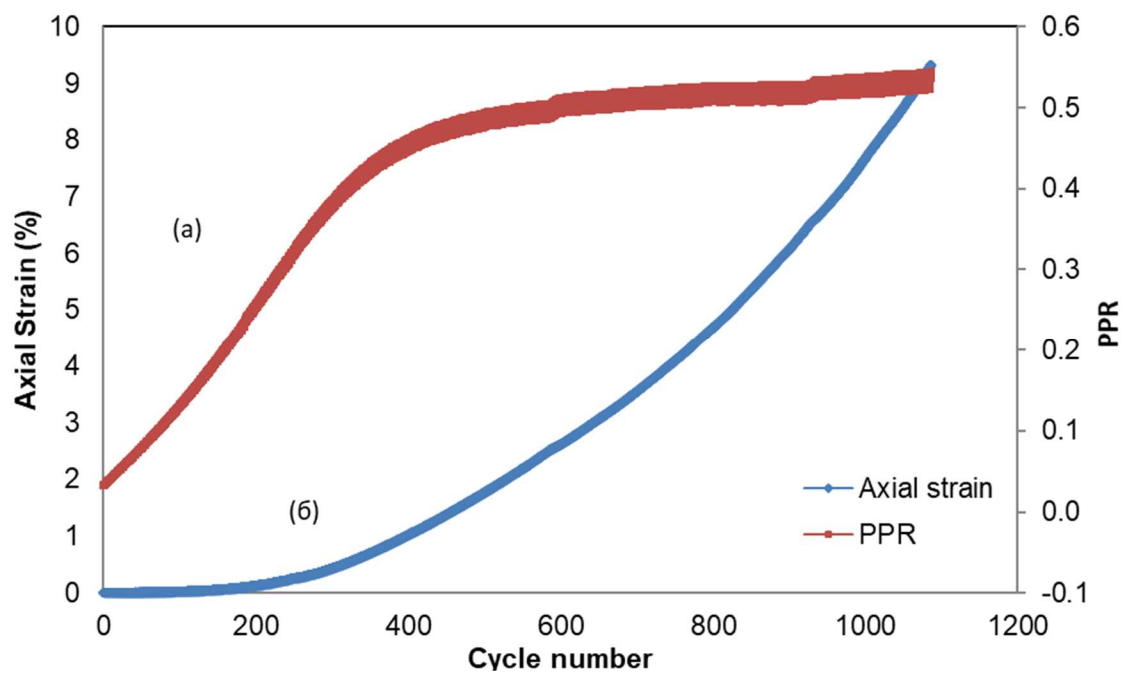


Fig. 5: Sample after test

Results of one of the cyclic triaxial test on a Gravely Sand sample is present below:

Void Ratio of the sample = 0.43

Sample area = Primorsk City



Besides Triaxial Testing, I also had the chance to do Ring Shear Test with the recently purchased Ring Shear Test Apparatus in the laboratory. The test was performed with modeled Mars (Martian) soil for the Space Institute of Russia.

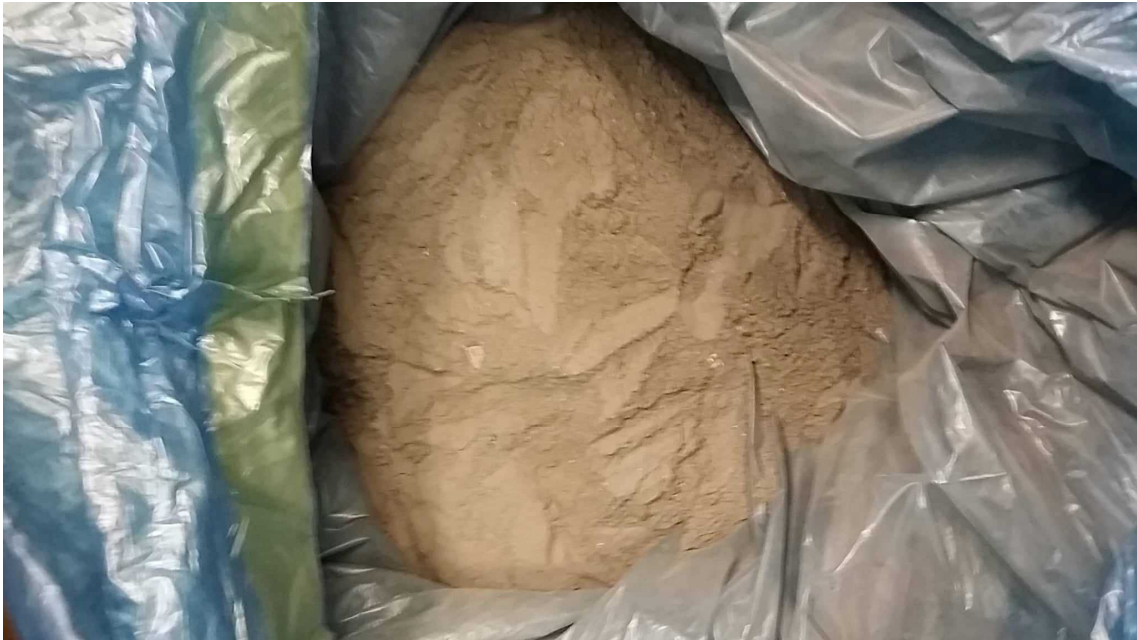


Fig. 6: Modelled Martian Soil



Fig. 7: Ring Shear Test Apparatus for testing Martian Soil

SIGHTSEEING & TRAVELLING:

During my stay, I tried to explore the city and the culture of Russia. Unexpectedly, the weather in Moscow was a little warm compared to previous years and provided me more comfortable environment to travel around. The Russian architecture is very detailed and beautiful. Building are Gigantic with wide spaces between them. The roads were very wide and clean with large green belts between the roads and on the sides, which is very rare to see in Japan.



SUMMARY:

In short, my visit to Moscow State University on STEPS Program for one-month duration was indeed a fruitful visit. I was not only able to widen and deepen my knowledge about my research and academics, but it also helped me to clarify some misconceptions about the Russian culture and people, and I'm quite hopeful that this visit will be very beneficial in my research life in Japan.