

STEPS Students Report

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I joined the research group of Prof. Shinji Sato, which belongs to the Coastal Lab of the Civil Engineering department. My research interests concerned the possibility of the application of the Synthetic Aperture Radar (SAR) data to the ocean surface, particularly the detection of the mesoscale eddies. In order to accomplish that objective several tasks were defined, such as improve my understanding of the initial algorithm of processing the SAR data in Matlab and Python, take part in current research in the coastal lab, connected with SAR data and use the acquired knowledge in the field of physical oceanography in my future research.

The major results of my short-term study in Tokyo University are the next: I significantly improved my programming skills and studied the basics of processing the SAR data in Python. As a result, I have a clear understanding of how I can use the images, acquired from the microwave synthetic aperture radar for my PhD research. Among the important outcomes of my internship, I would mention attending the lectures on Coastal Hydrodynamics, which allowed me to get familiar with the educational process in Tokyo University.

Prof. Sato kindly offered to join the field survey on Fuji Coast with the other students. The main objective of this survey was with the use of the UAV and RTK-GPS built the 3D model of the coastal zone, based on the acquired images. This survey gave me the opportunity to get hands on experience and take a closer look on the practical aspect of work in the coastal engineering field.

My specialization is physical oceanography, which is related to the fundamental science, whereas the coastal engineering is concentrated on the interdisciplinary aspects of oceanography, which can be used for different applied purposes, for example coastal construction. During the short-term study, I gained the new and priceless experience through the exploration of a subject where oceanography geography, remote sensing and microwave scattering come together, and thus has the potential to forge new synergies.

Prof. Sato organized the meeting with professor Hibiya, from the department of Earth Science. He is also the director of the UTokyo Ocean Alliance and the president of the Oceanographic Society of Japan. On this meeting, we discussed the possibilities of future cooperation between UTokyo and department of Physical Oceanography in SPSU.

I used my free time for the sightseeing with the lab members, who joined me in the number of city walks around the Tokyo and trips to the neighboring towns, such as Kamakura, Yokohama and Takao. Thank to them I got familiar with the Japanese culture, local cuisine and the beautiful architecture of the Tokyo and surroundings. The Japan is the one of the most amazing and wonderful countries I have ever visited and I hope to come back there as soon as possible.

I would like to thank Prof. Sato and all members of the Coastal laboratory and special thanks to the STEPS Office. Thanks to their help, collaboration and support I spend an amazing time in Japan and obtained the new experience, both professional and cultural. I hope this experience will allow me to make significant contribution in collaboration between Saint-Petersburg State University and The University of Tokyo.