

Division of Environmental Design	Research field	Hydraulic Engineering	Lab. ID
			ED03
Laboratory web site		<a href="http://webserv.ce.t.kanazawa-u.ac.jp/suiko/suiko_g.htm">http://webserv.ce.t.kanazawa-u.ac.jp/suiko/suiko_g.htm</a>	
Research subjects			
<p>1. Long-term and large scale morphological change in coastal areas (M. YUHI) The ongoing research projects include the following topics: inter-annual systematic migration of multiple sandbars, human-induced erosion of river-coastal watersheds, development of low-cost monitoring system using image processing, numerical modeling of waves, currents, and sediment transport in nearshore areas. Besides, numerical simulations for tsunami propagation and run-up have been conducted.</p> <p>2. Coastal protection and Ocean Wave Energy utilization along the coast of Japan Sea (T. SAITOH) This research topic is understanding on Disaster damage of Coastal Structures due to waves especially attacking to the coast of Japan including Long swell, and prediction of the disaster occurrence caused above waves. Moreover, ocean wave energy utilization is investigated using Magnetostrictive Vibrational Power Generator.</p> <p>3. Fluid-sediment-bed interactions for coastal and river structures (S. UMEDA) Toward understanding of the physical processes of interactions between wave, current, sediment bed around structures in coast and river, we have been studied the following subjects: initiation of sediment motion under waves, modeling of vortex ripple morphodynamics, scour and recovery process around structures, bed evolution in river and estuary. The collaborative investigation on coastal defense structures has been carried out to clarify the mitigation effects of wave barriers on inundation and forces induced by tsunami and waves.</p> <p>4. Satellite data assimilation for numerical weather prediction, effects of climate change on watercycle (K. TANIGUCHI) For improvement of precipitation prediction by numerical model, we are developing a data assimilation technique with satellite observation data. At the same time, for future river planning, we are investigating future variations in water cycle with global warming projections and numerical weather prediction model.</p> <p>5. Prediction of coastal disaster potential using Air-Sea-Wave coupled model (J. NINOMIYA) Japan suffers from the typhoon that causes coastal disaster, and in future increasing strong typhoon is known. Accurate typhoon simulation is effective for disaster reduction but air-sea interaction that is important for typhoon development is not understood fully. We challenge to understand the phenomenon at sea surface and to improve the numerical model.</p>			
Master/Doctor course: Education policy, curriculum, typical activity in the laboratory			
<p>All of the graduate students join the weekly seminar of the research group of their supervisors. The graduate students present and discuss their research progress, related literature and textbooks in the seminar with other members. In addition, one to one meeting with their supervisor is conducted on the regular basis. The students also attend the monthly research seminar for the whole laboratory and other institutes.</p> <p>The graduate students are required to present their research at related international conferences. At the end of the 1st year of the master course, pre-defense is held; All the faculty members evaluate the research progress and provide various advise on future research plan. Doctor course students are also required to publish their research outcomes in peer-reviewed academic journals. For foreign students, all the activities above can be done in English.</p>			
Daily life in the laboratory, etc.			
<p>There are five staff members and about 30 students in our lab. Each staff member works on his/her own research themes, but members in other groups go field survey or make experiments together. Students can discuss all staff members and obtain knowledges from wide diciplines.</p> <p>We have several parties with all members in a year, and you can make friends with senior and junior student, foreign students, and sometimes you can also find diffrent aspects of professors.</p>			
Message or comments by the laboratory faculty staffs			
<p>The specialty of our lab's faculty staffs is meteorology, river, coast and ocean engineering concerned with hydrosphere and hydrologic circulation, so students are possible to discuss actively with each expert under very free feeling. Enjoy campus life with our faculty staffs and master course students. After graduation of master course, the rate of employment is 100%, and graduates are active as a public servant, an engineer of construction company and construction consultant. Many working doctor course students are also active.</p>			

Recent Master theses in these 3 years (+ more if appropriate)	
year.month	Thesis title (including English translation of Japanese thesis title)
2017.3	Field measurements and predictions of rip current at Uchinada beach, Japan
2017.3	Long swell predictions around Japan Sea using artificial neural network
2017.3	Data-driven modeling of net offshore migration of sandbars on the Chirihama Coast, Japan
2016.3	Sand ripple formation and deformation under waves and currents
2016.3	Wave overtopping characteristics for composite seawalls subjected to wind waves and tsunamis
2016.3	Numerical simulation of water wave run-up based on finite volume Godunov-type scheme and quadtree grids
2016.3	Improvement of vertical distribution of hydrometeors in EnKF satellite data assimilation
2016.3	Disaster Occurrence Prediction for Upright Seawall using Characteristics of Wave history
2016.3	Wave Energy Utilization using Magnetostrictive Vibrational Power Generator
2015.3	Systematic migration of multiple sandbars on the Chirihama Beach, Ishikawa, Japan
2014.3	Flow field around a porous onshore tsunami barrier and impact fluid force due to tsunami-driven shipping container
2014.3	Application of a pseudo global warming method and future variations in typhoon characteristics
2013.9	Variations of precipitation and water resources in the northern part of Vietnam under the climate change
2013.3	A fundamental study for estimation of hydrometeors in cloud by satellite-borne microwave radiometer
2013.3	Experimental Study on Reduction of Wave Overtopping and Wave Force by a Porous Barrier Mounted on a Vertical Seawall
2013.3	Numerical simulation of tsunami propagation around Noto Peninsula, Japan
2013.3	Influence of climate patterns around the Japan Sea area on the wave characteristics at the Ishikawa Coast, Japan
2013.3	Inter-annual variation of foreshore and backshore profiles on the Hakui Coast, Ishikawa, Japan
Recent Doctoral theses in these 3 years (+ more if appropriate)	
year.month	Thesis title (including English translation of Japanese thesis title)
2017.3	Long-term variation of wave characteristics at the Kaetsu Coast, Japan and regional comparison of wave climate along Japan coastline
2015.3	Characteristics of morphological systems on the northern Kaetsu Coast, Ishikawa, Japan
2013.9	Development of a well-balanced observation system of coastal morphology and an efficient method of shoreline detection using image analysis
2013.9	Analysis on long-term bed adjustment to human impacts and bore inundation in a lower river
Laboratory mail address	Masatoshi YUHI <yuhi *at* se.kanazawa-u.ac.jp> Takehisa SAITOH <saitoh *at* se.kanazawa-u.ac.jp> Shinya UMEDA <umeda *at* se.kanazawa-u.ac.jp> Kenji TANIGUCHI <taniguti *at* se.kanazawa-u.ac.jp> Junichi NINOMIYA <jnino *at* se.kanazawa-u.ac.jp>