Using the MIROC4h output of CMIP5, IPCC AR5, and NASA's Reconstructed Sea Level Version 1, the near future changes in sea level and typhoon possibility in the Pacific Ocean were analyzed to understand the future external conditions of coastal processes affected by global and regional climate changes.

Beach erosion by extreme waves and coastal recovering processes by normal waves were made clear by the multi-slice fan beam measurement of detail beach topography in Kochi coast. Using the measurements of shoreline and detail beach profile changes, the nearshore sediment distribution was estimated by integrating the sediment budget from the clear lateral boundary conditions (such as the fixed boundary conditions of zero sediment transport) together with cross-shore sediment transport rate.

Another estimation method of sediment transport system from output of shallow water wave simulation, SWAN, was developed and applied to a pocket beach case and Kochi coast facing the Pacific Ocean. In this method, a third-generation spectral wave model in shallow waters such as SWAN has been put into practical use, it has become possible to simulate the propagation of shallow waters irregular waves in consideration of the energy dissipation characteristics due to depth-induced wave breaking. It has become possible to reproduce the surf zone energy dissipation of bore by using the output of SWAN's depth-induced breaking energy dissipation rate to estimate the sediment transport rate in the surf zone.

Biography
Mr. Takao Yamashita graduated from Kyoto University, Faculty of Engineering in 1975, awarded the Master of Engineer at Kyoto University in 1977, Dr. Eng. from Kyoto University in 1994. After Assistant and Associate Professor of Kyoto University in the field of coastal disaster prevention studies in 1977-2006, he moved to Hiroshima University as a Professor of Graduate School of International Development and Cooperation in 2006. He has conducted research and teaching of global and regional environmental impact assessment and retired Hiroshima University this year to be a Professor Emeritus.

tkoyamashita@gmail.com