



Shipborne LiDAR system for coastal change monitoring

chang hwan Kim, chang hong Park, hyun wook Kim, won hyuck Kim, myoung hoon Lee, and hyeon yeong Park
Korea Institute of Ocean Science & Technology(KIOST), Korea, Republic Of

Coastal areas, used as human utilization areas like leisure space, medical care, ports and power plants, etc., are regions that are continuously changing and interconnected with oceans and land and the sea level has risen by about 8cm (1.9mm / yr) due to global warming from 1964 year to 2006 year in Korea. Coastal erosion due to sea-level rise has caused the problem of marine ecosystems and loss of tourism resources, etc. Regular monitoring of coastal erosion is essential at key locations with such volatility. But the survey method of land mobile LiDAR (light detection and ranging) system has much time consuming and many restrictions. For effective monitoring beach erosion, KIOST (Korea Institute of Ocean Science & Technology) has constructed a shipborne mobile LiDAR system. The shipborne mobile LiDAR system comprised a land mobile LiDAR (RIEGL LMS-420i), an INS (inertial navigation system, MAGUS Inertial+), a RTKGPS (LEICA GS15 GS25), and a fixed platform. The shipborne mobile LiDAR system is much more effective than a land mobile LiDAR system in the measuring of fore shore areas without shadow zone. Because the vessel with the shipborne mobile LiDAR system is continuously moved along the shoreline, it is possible to efficiently survey a large area in a relatively short time. Effective monitoring of the changes using the constructed shipborne mobile LiDAR system for seriously eroded coastal areas will be able to contribute to coastal erosion management and response.