Sea surface height (SSH) observed by satellite altimeters has been one of the most important quantities to monitor variations in the open ocean, but its use is limited in near-shore coastal regions. For example, in the Tsushima Strait between Japan and Korea, comparison between the geostrophic velocity obtained from the CTOH/LEGOS Jason-1 dataset, which is designed for the coastal use, and the surface geostrophic velocity estimated from the High Frequency ocean radar operated by RIAM, Kyushu University reveals that satellite altimetry data can precisely measure only velocity variations with larger spatial and temporal scales. In 2010 summer, we mounted a Real-Time Kinematic GPS receiver (NetR5, Trimble) to a ferryboat “New Camellia” (19,961 G.T.) that operates roundtrips between Hakata, Japan and Pusan, Korea every day, in order to precisely observe the SSH along the ship route every 30 seconds with the aid of the GPS Earth Observation Network System (GEONET) established by Geospatial Survey Institute, Geospatial Information Authority of Japan. The observed SSH contains tides, spatial variations of the geoid, ship draft changes, and the dynamic height due to geostrophic currents. After corrections of the tides and the geoid by available models, the SSH variations result in significant discrepancy between the northbound and southbound routes, which is considered due to changes of the ship draft caused by ship speed differences. In the northbound route in which the ship speed is almost constant, similar SSH variations expected from the coincidental ADCP observations are recognized in some occasions.