**Monitoring time-series variations in the suspended sediment distribution using GOCI around the Heuksan mud belt**

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**Abstract**

Analysis of suspended particulate matter (SPM) is a key to understanding the turbulent quantities of sediment flow in the Heuksan mud belt (HMB) located along the southwestern coast of the Korean Peninsula. The purpose of this study was to investigate intra-annual variability in remotely sensed SPM derived from the Geostationary Ocean Color Imager (GOCI) and sea surface temperature (SST) based on the Advanced Very High Resolution Radiometer (AVHRR), respectively, around the HMB over a period of 1 year (2013). Monthly composite SPM images showed pronounced seasonal changes in turbid water. The extent of turbid water increased during the winter season along Gomso Bay to Jangsado, whereas it decreased during the summer months from Yeonggwang to Sinan. A comparison of monthly composite SST images and wind data showed that the northwesterly winds of monsoons and net heat loss from the sea surface to the atmosphere resulted in vigorous vertical mixing of shallow coastal waters in winter. The tongue-shaped thermohaline front, monsoon winds, and bathymetry limited the spread of SPM at the southern part of the HMB in winter. In conclusion, seasonal dynamics of sediment movement around the HMB can be effectively detected using GOCI.

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