Special Issue on “Advances in Geospatial Research of Coastal Environments”

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Special Issue on "Advances in Geospatial Research of Coastal Environments"

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ABSTRACT

Jung, H.-S.; Lee, S.; Ryu, J.-H., and Cui, T., 2020. Special Issue on "Advances in Geospatial Research of Coastal Environments". *In:* Jung, H.-S.; Lee, S.; Ryu, J.-H., and Cui, T. (eds.), *Advances in Geospatial Research of Coastal Environments*. *Journal of Coastal Research*, Special Issue No. 102, pp. vi-xiii. Coconut Creek (Florida), ISSN 0749-0208.

Geospatial research in the fields of remote sensing (RS), geospatial information system (GIS), global positioning system (GPS), digital photogrammetry (DP) has become essential to understanding the coastal environments. Thus, to create a multidisciplinary forum of discussion on recent advances in geospatial research of coastal environments, original research articles and literature review papers addressing advances in geospatial research of the coastal environments have been considered for the publication in this special issue. Finally, a total of 40 papers was published in this special issue. In this editorial paper, we review the previous special issue related to geospatial research of coastal environments and summarize the papers published in this special issue.

ADDITIONAL INDEX WORDS: *Remote sensing, GIS, marine spatial planning, coastal environment.*

INTRODUCTION

This special issue is designed for a multidisciplinary discussion on recent advances in geospatial research of coastal environments. The research area in this special issue covers all oceans on Earth. However, Yellow Sea (YS) and East China Sea (ECS) are widely used as research areas in most papers of this special issue, because a joint study between Korea and China is underway to come up with active countermeasures against the green, red and golden tides in the Yellow Sea and East China Sea.

Original research articles and literature review papers addressing advances in geospatial research of the coastal environments have been considered for the publication in this special issue, and finally a total of 40 papers was published in this special issue.

PREVIOUS SPECIAL ISSUE RELATED TO GEOSPATIAL RESEARCH OF COASTAL ENVIRONMENTS

The special issue on "advances in remote sensing and geoscience information systems of coastal environments" has been published in Journal of Coastal Research (Ryu *et al.*, 2019). In the special issue, a total of 52 papers have been published.

The detection and analysis of the green and golden tides in the Yellow Sea and the East China Sea have been performed (Chen *et al.*, 2019b; Kim *et al.*, 2019a; Liang *et al.*, 2019; Min *et al.*, 2019; Wang *et al.*, 2019) and the detection and prediction of the red tide have been studied (Kim *et al.*, 2019c; Liu *et al.*, 2019; Park *et al.*, 2019a; Shin *et al.*, 2019). And the environmental monitoring studies were also conducted from the OISST, ARGO, MODIS, Landsat, and TerraSAR-X images (Baek and Moon, 2019; Chen *et al.*, 2019a; Eom *et al.*, 2019; Hong *et al.*, 2019; Jeong *et al.*, 2019; Jung *et al.*, 2019; Lee *et al.*, 2019a; Li *et al.*, 2019; Ma *et al.*, 2019; Mu *et al.*, 2019; Sun *et al.*, 2019; Tong *et al.*, 2019; Qing, Hao, and Bao, 2019; Ren *et al.*, 2019b; Xiao, Zhang, and Qin, 2019; Zhang *et al.*, 2019a, 2019b)

The research topics of the oil spill, typhoon, flood, and nuclear radiation emergent have been carried out by using optical and SAR images (Bing *et al.*, 2019; Jin *et al.*, 2019; Kim and Moon, 2019; Park *et al.*, 2019b; Syifa *et al.*, 2019; Yang *et al.*, 2019). Moreover, the specific topics related to marine spatial planning have been studied (Achmad *et al.*, 2019; Bae *et al.*, 2019; Chu *et al.*, 2019; Chun and Lee, 2019; Cui *et al.*, 2019; Jang *et al.*, 2019; Kim *et al.*, 2019b; Kim, Baek, and Hwang, 2019; Ko and Lee, 2019; Koo *et al.*, 2019; Lee *et al.*, 2019b, 2019c, 2019d, 2019e; Oh *et al.*, 2019a, 2019b; Park, 2019; Park *et al.* 2019c; Ren *et al.*, 2019a; Zhu *et al.*, 2019).

SUMMARY OF THIS SPECIAL ISSUE

The topic of this special issue is "advances in geospatial research of coastal environments". This special issue was designed to deals with the advances in geospatial research of coastal environments. A total of 40 papers was published, and the topics of the papers are given as follows:

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Wang *et al.* (2020b) estimated and analyzed the nitrogen contents in the Yellow river estuary using GaoFen-1 satellite data. Wan and Ma (2020) applied the multi-scale spectral-spatial remote sensing classification method to coral reef habitats using a CNN-SVM approach. Li *et al.* (2020) used an LSTM neural network method for high-precision remote sensing water depth inversion of coral islands and reefs. Han and Lee (2020) proposed an efficient method to classify land and ocean areas via Sentinel-1 speckle noise reduction. Lee *et al.* (2020) analyzed a trend in marine water quality using environmental impact assessment data. Cho and Lee (2020) studied changes in coastal environment policy using text mining approach in South Korea. Zhu *et al.* (2020) performed a study on determining the sthumpf 2003 model parameters using multispectral (MS) shallow water bathymetry estimation. Choi, Kim, and Kim (2020) observed the changes in the distributions of zooplankton communities in a coastal lagoon and Kim, Kim, and Choi (2020b) also analyzed the effect of laver-farming on the distribution of copepod community in the west coast of Korea. Hakim *et al.* (2020) measured land subsidence in Jakarta, Indonesia using Sentinel-1 multi-temporal interferometry. Zhao *et al.* (2020a) proposed a method to detect ships in optical images using deep feature combined distance metric learning approach. Kim, Kim and Lee (2020) analyzed the characteristics of geological lineaments in the eastern coast of Korean peninsula. Kim, Lee, and Choi (2020) analyzed the topographic variations in coastal areas in the Riparian zone. Kim, Kim and Choi (2020a) proposed a management strategy for sustainable habitat utilization of coastal reclaimed areas in South Korea. Zhang *et al.* (2020) proposed an automatic method for sea ice drift retrieval using SAR images. Chun *et al.* (2020) observed diffusive methane emission from Holocene mud deposits. Baek, Jung and Kim (2020) detected oil spill areas, which occurred in Kerch strait in November 2007, using dual-polarized TerraSAR-X image and artificial neural network (ANN) and convolutional neural network (CNN) regression models. Yang *et al.* (2020) presented a preliminary approach for coastal image captioning, which describes salient semantic information of coastal images with accurate and meaningful sentences. Tai *et al.* (2020) showed a method to classify coastal images that possess noise. Park and Jang (2020) classified intertidal surface sediments using log-ratio transformation and a remote-sensed image having high spatial resolution. Niu and Lang (2020) had a study on a method for the ship matching among multi-source SAR images using CNN. Cao *et al.* (2020) classified aquatic vegetation in Ulanshhai lake using remote sensing approach. Choi *et al.* (2020) described the development of stratigraphic architectures on the Haeundae shallow sea area using high-resolution seismic stratigraphy. Li, Wang, Wang (2020) proposed an automatic method to measure absolute salinity using microfiber coaxial Mach-Zehnder interferometer. Shin, Kim, and Ryu (2020) quantified Margalefidinium polykrikoides Bloom from airborne hyperspectral images using machine learning technique. Park *et al.* (2020) analyzed and compared input image dimensions to detect ships from KOMPSAT-5 imagery using deep neural network. Nur, Achmad, and Lee (2020) measured land subsidence in reclaimed coastal land using C-band Sentinel-1 radar interferometry. Kim *et al.* (2020) classified green tide at coastal area only using RGB color images obtained by a lightweight unmanned aerial vehicle (UAV). Lee, Choi and Lee (2020) studied on seasonal variations of suspended particulate matter in Korean coastal waters using GOCI images. Kim and Ryu (2020) mapped oyster reef distribution from KOMPSAT-2/3 images using spectral unmixing algorithm. Koo *et al.* (2020) introduced a practical remote sensing approach using a management policy for hybrid main memory (HMM) system. Kim, Park, and Lee (2020) performed the structural analysis of a fault-related anticline in the Southwestern Gyeonggi massif, Korea using UAV. Wu *et al.* (2020) observed spatiotemporal variations of Chlorophyll-a in the Jiaozhou bay using Landsat images obtained for about 32 years. Sun *et al.* (2020) introduced arctic grided sea surface temperature (SST) product created by using satellite radiometer. Zhao *et al.* (2020b) carried out a study on assessing ecological security of coastal zone in Guangdong-Hong Kong-Macao greater bay area. Wang *et al.* (2020a) proposed a method to extract natural coastlines from multiple satellite images. Yue *et al.* (2020) presented the satellite observations of suspended particulate matter concentration in complex estuarine and inland waters using optical water classification. Yu *et al.* (2020) proposed an automatic method to extract green tide from dual-polarized GF-3 SAR images. Wei *et al.* (2020) evaluated the geolocation accuracy of GF-4 Geostationary optical images, which are widely used for various ocean applications. Liao *et al.* (2020) performed a study on mangrove in the Xiezhou bay using maximum-likelihood reclassification method.

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