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Remote Sensing for Marine Environmental Disaster Response

Edited by: Zhixiang Fang, Quanyi Huang, Jaroslaw Tęgowski, Magaly Koch and Yukiharu

Hisaki

Many countries face marine environmental disasters, like storm surges, waves, macroalgal blooms, oil spills, and sea ice and coastal erosion, which cause significant economic losses and environmental damage. These disasters pose a serious threat to coastal areas, owing to their effects on buildings, aquaculture, tourism, and maritime transportation. Therefore, governments need to respond to these types of disasters quickly to reduce the loss of and damage to coastal area infrastructure and safeguard coastal habitats and wildlife. Remote sensing (RS) plays an important role in sensing these marine environmental disasters by alerting and assisting decision makers in the process of marine environmental disaster response. However, during the response to marine environmental disasters, governments face certain challenges associated with remote sensing technologies, such as limited spatial/spectral resolutions, insufficient repeat cycles, unavailability of RS satellite images due to cloudy images, and the high costs of surveillance airplanes and ships. Therefore, it is urgent to develop better solutions to respond to marine environmental disasters in a timely and proper manner by considering important aspects such as the requirements of safety management, sensing capabilities of RS, and spatial analytics capabilities of geographical information science.



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