IMAGERY DERIVED BATHYMETRY: FACILITATING EMERGING POST COVID-19 DEMANDS IN COASTAL BATHYMETRIC MAPPING

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Abstract

Acquiring hydro-spatial information across the marine environment has traditionally been appeased by submerged ship-based acoustic gears. For the first time in history, the continuous nationwide lockdown across the globe has created a wide scope of socio-economic interruption since the coronavirus outbreak started in 2019. The unpredictability nationwide lockdown has made it very difficult to arrange the physical mobilization of survey crews for field data acquisition. With the emerging geospatial technology, hydro-spatial specialists today have to accommodate the “new normal”. Apparently, hydrographic surveying is undoubtedly enduring dramatic change and has an expanded role to serve an increasing number of stakeholders in the blue economy. In order to seek the maximum benefits from the espousal of the fourth industrial revolution (IR4.0) paradigms, utilization of high-resolution satellite imagery (multispectral, hyperspectral, etc.), airborne optical sensors (LiDAR, RADAR, SAR, etc.), and various unmanned surface vehicles (USV) for bathymetric acquisition to generate actionable hydro-spatial data to support the hydrographic communities. In response to the COVID-19 outbreak, hydro-spatial communities have been forced to accelerate the adoption of evolving geospatial technologies to mitigate its impact. Indeed, imagery derived bathymetry has become a reconnaissance tool for data collection to yield actionable hydro-spatial data that can alleviate future economic upheavals. With proper calibration and precise bathymetric modelling, reliable water depths information can be derived via high-resolution multispectral imagery. Thus, this approach here can also be an efficient and repeatable way to derive the seafloor topography along vast coastline segments. Our insight into the true fitness of the hydrographic industry under the ravage of COVID-19 flare-up is largely based on very limited data and greatly dependent on exceptionally restricted information. Therefore, this non-contact method is possible to harvest reliable coastal bathymetry in a comparatively less cost and labor-intensive manner in the post COVID-19 era.

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