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Location Analysis and Assessment of Submarine Groundwater Discharge: A Geospatial Approach

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Coastal aquifers have the tendency to discharge their subsurface flow into the sea either through seepage or submarine springs where fractures prevail, having some hydraulic links with the sea resulting in dominant flow of submarine springs. The existence of these springs was known for more than last 1000 years since the time of the Phoenicians where they used to use submarine springs for mainly drinking purposes. Submarine Groundwater Discharges (SGDs) are receiving considerable attention in the literature as a major pathway for anthropogenically derived pollutants to coastal waters in recent days. The specific objective of this research is to develop remote sensing as a tool for the identification, quantification and mapping of SGDs. The principal means of the assessment will be using optical and thermal infrared remote sensing techniques. Identification of the geologic and anthropogenic controls on SGDs through an analysis of available offshore and onshore geological spatial datasets and available satellite imagery within a GIS framework is the main goal of this research work which will help to determine the significance of SGDs to the nutrient load on the coastal and estuarine ecosystem.