

Preface

A scientific consensus exists regarding the significant impacts of global climate change processes over coastal zones. These include sea level rise, variability in the patterns of rainfall and runoff and changes in frequency, intensity and duration of storms. The study of the relationships existing between littoral transformation and climate change—with associated hazards, vulnerabilities and risks—represents the first step in the design of coastal zones adaptation plans. Procedures used for the determination of hazards, vulnerabilities and risks can be classified according to different aspects but the establishment of a concise classification presents a difficult task where limits between classes are not strict. In this sense, a detailed methodology for evaluation and characterization of hazard, vulnerability and risk associated with storms, was developed, tested and applied in different coastal sectors of Colombia and Spain. This methodology takes into account physical, social, economic, ecological and heritage aspects. The analysis was made by a semi-quantitative approximation method, applying variables associated with intrinsic coastal zone properties and storm-related hazards. The variables were combined into different indexes, which were merged into a single normalized index that allows determination of coastal hazards, vulnerability and risk to storms. Results obtained in both coastal systems reveal that there are several vulnerable areas affected by extremely high erosion rates. Hazard, vulnerability and risk maps generated with this methodology can be used as a guideline contributing to the determination of causes, processes and consequences derived from storm-associated processes. Moreover, as several stakeholders are involved, efficient management of the coastal system is imperative and careful interventions are urgently needed to avoid irreversible negative impacts on both coastal systems. The information derived by the use of the proposed methodology in this work may have direct applications in future coastal development plans and, at the same time, can assist decision-makers in the implementation of preventive management strategies for most sensitive areas.

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