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Integration of relational geodatabase in a web-GIS platform for Mapping the effects of Mediterranean Cyclone.

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Several cyclogenesis processes affect the Mediterranean Sea, causing significant impacts along its coastline. This study focuses on mapping the effects of cyclones in the Mediterranean Sea, particularly Mediterranean hurricanes, which cause severe damage to coastal areas. Advanced remote sensing and Geographic Information System (GIS) techniques are used to analyse climatic data and observe geomorphological evidence, such as flooding, coastal erosion, landslides, alluvial flooding and debris flow. By integrating climate features and geomorphological evidence, this research establishes a connection with the occurrence of Mediterranean cyclones. The study specifically examines the south-eastern coasts of Sicily, where Mediterranean Hurricanes have caused extensive damages, including flooding, erosion, and storm surges. Pre and post-storm morpho-topographical surveys were conducted to assess coastal flooding and erosion through aerial photogrammetry and Terrestrial Laser Scanner surveys. The collected data were stored in a geodatabase, allowing for the display of climate features and geomorphological evidence. Additionally, the development of an open-source Web-GIS platform integrated with the geodatabase can facilitate the dissemination of geographic information to stakeholders and researchers, promoting collaboration and informed decision-making. This study contributes to a better understanding of Mediterranean cyclones, enabling the development of effective coastal management strategies to mitigate the challenges posed by Mediterranean Hurricanes.