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Uplifted marine terraces of Cephalonia island, Western Greece. Insights into the late Quaternary geomorphic evolution of the area.

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Uplifted marine terraces act as a continuous record of eustatic changes in tectonically active coastal areas and can provide significant insight into their late Quaternary geomorphic evolution. Cephalonia island, located at the north-west edge of the Hellenic Arc, is a tectonically and seismically highly active area in the Ionian Sea, western Greece, where collision, subduction and transformation take place in a relatively small region. Pleistocene eustatic sea level fluctuations and the long-term vertical movements of the island, have left their imprint on the southern part of the island in the form of uplifted marine terraces. In the present study we aim to identify and map in detail the uplifted marine terraces, applying Digital Elevation Model analysis, utilizing GIS techniques and extensive fieldwork. A GIS spatial geodatabase has been organized and a GIS-based Automatic Landform Analysis was implemented for the identification and mapping of the inner edge of the uplifted marine terraces. Extensive field work and UAV imagery, enabled us to validate the results of the DEM analysis and to improve the accuracy of the position of the inner edges. A sequence of eight marine terraces has been revealed in the Paliki Peninsula ranging in elevation between 2-16 m above sea level for the lowest terrace and 300-440 m asl for the higher one. In the southern part of the main island 9 marine terraces have been identified and mapped at elevations ranging from 1-2 m for the lower one up to 142-170 m above sea level for the higher one respectively. The majority of the terraces is curved on erodible Pliocene and Pleistocene formations and only the lower ones appear to be well preserved. Their lateral morphological continuity is interrupted by the fluvial activity of a large number of ephemeral streams. The non-uniform occurrence of marine terraces at different elevations in Paliki peninsula and the southern part of the main island implies a complex tectonic activity of the island probably attributed to different tectonic blocks.