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Geoarchaeological response to landscape changes of the Greek continental shelf since the Last Glacial Maximum

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An overview of geological, sedimentological, palaeoclimatic, archaeological and mythological data is presented in order to detect the geomorphological changes of the Aegean and Ionian shelves during the last sea-level transgression, and comprehend the consequent prehistoric human adaptations. The irregular rise of sea level since the Last Glacial Maximum forced the Palaeolithic human to abandon its settlements located near the old (lower) coastlines and to move landward in new positions. Commonly, the coastline movement was very slow causing no significant impact on human activities; however in some cases, the transgression was very prompt causing human migration towards highlands.

In some very gentle-dipped and wide regions, e.g. the North Aegean plateau, the sea-level rise caused a rapid coastline retreat (in some extreme case as fast as 10 m/yr) and inundation of an extended surface area. However, at the same time, in the steep parts of the Greek shelf, e.g. the Kyparissiakos Gulf and Crete, the coastline advanced landwards with a slow motion (commonly, a few cm/yr) covering small areas. In addition, coastal regions with particular geomorphologic characteristics, e.g. coastal paleo-lakes protected by a sill (gulfs of Corinth, Amvrakikos, Pagasitikos Evvoikos, Saronikos), were deluged by the sea during different periods and under different intensity, depending on the elevation of the sill and the manner of its overflow.

Although the presence of Palaeolithic human in the Greek mainland has been confirmed by several archaeological excavations, there is no certain evidence for human settlement in the deep parts of Greek shelf. However, many archaeologists have suggested that some of Palaeolithic people lived on the shelf, when the sea level was lower than its present position. Nevertheless, some potential Palaeolithic migration routes can be indicated taking into account (a) the palaeogeographic reconstruction of Greek shelf over the Last Quaternary; (b) archaeological data coming from, nowadays, coastal prehistoric sites; and (a) mythological references.

At the Last Gracial Maximum, Palaeolithic human dispersed on the subaerially-exposed Greek shelf searching for places with mild climates, drinking water and food. When the sea-lever started to rise (ca. 18 kyr B.P.), people moved inland following some main migration routes on the North Aegean shelf, Thermaikos Gulf, Pagasitikos/North Evvoikos Gulf, Saronikos Gulf, Argolikos Gulf, Patrakos/Corinthian Gulf, and north Ionian shelf. Frequently, at the landward end of these routes, there are Mesolithic or Neolithic sites established when the sea level reached approximately its present position and preserved because coastal or marine processes did not destroyed them. Furthermore, the long-standing migration could be recorded in the social memory like a landward escapement from a destructive flood.