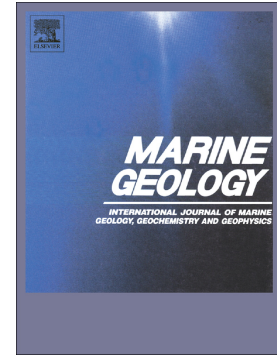


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Seismic stratigraphy and geodynamic evolution of Christiana Basin, South Aegean ArcKonstantina Tsampouraki-Kraounaki^{a,b}, Dimitris Sakellariou^a^a Hellenic Centre for Marine Research, P.O. Box 712, 19013 Anavissos, Attica, Greece^b Geology Department, University of Patras, Rio 26500, Greece*Abstract*

The analysis and interpretation of vintage and recent seismic profiles across Christiana Basin in the South Aegean arc provided information on the seismic stratigraphy and chrono-stratigraphy of the basin, the occurrence of volcanic deposits within the sedimentary basin infill, and its post-Miocene geodynamic evolution. Plio-Quaternary sediments overlie a Messinian erosion surface on the basin's margins, while in the basin, they have been deposited above the Messinian evaporites. The basin evolved in two stages. During the early stage, subsidence of the three main depocenters in the NW, W and SE part of the basin has been controlled by E-W to ESE-WNW trending faults. The end of the early stage is marked by the cessation of activity on the southern marginal fault and the migration of the northern faults towards north where the basin expanded significantly towards south and north. The seismic stratigraphy of the younger stage deposits is characterized by the presence of three thick, pyroclastic flows. They occur only in the eastern part of the basin and have therefore derived from Santorini volcanic center since Middle Pleistocene. The youngest one is associated with the Minoan eruption while the next one is slightly younger than 0.42 Ma and may be linked with activity in Peristeria volcano. The lower pyroclastic flow has deposited shortly after 1.2 Ma and is the thickest (100 msec) and widest distributed pyroclastic flow deposit in the basin. It is most probably the biggest pyroclastic flow known in the South Aegean Sea. It may be associated with an eruption of the early volcanic centers of Akrotiri. No evidence of volcanic or volcano-clastic deposits derived from west, i.e. from Milos volcanic center has been found in Christiana Basin. By taking into consideration the similar, two stage structural evolution of the Santorini-to-Amorgos area proposed in the literature, it is suggested here that since Early to Middle Quaternary, the E-W trending Christiana Basin may be

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