

A mythical rock avalanche and tsunami in Greece: implications for Atlantic Canada

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Dozens of surviving ceramics from ca. 500 BCE show scenes of the mythical battle between Poseidon, god of the sea, and the giant Polybotes, which occurred on the Greek island of Kos. Poseidon is shown killing his opponent with his trident, while carrying a huge rock that he had ripped off the island of Kos to bury Polybotes. Legend and ancient literary sources suggest that the event took place in southeastern Kos, near the then capital city of Astypalaia, which is located northwest of Zini mountain overlooking Kefalos Bay. The images on the ceramics represent a strong earthquake causing a voluminous coastal rock fall or rock avalanche. This disaster was a major event that reverberated throughout the ancient Greek world, triggering the imagination of its artists for several generations. Geological studies show a large, relatively recent, rock avalanche on the steep coast of Kefalos Bay on the southeast side of Zini mountain, with the scar extending over an area of ~0.3 km². Tsunami sand deposits with reworked marsh foraminifera are found 9 m above sea level (asl) on northeastern Zini, less than 1 km from the archeological site of the old city of Astypalaia. Three kilometre distant is a wave-washed coastal platform with stranded boulders up to 6 m asl. Marine investigations offshore in Kefalos Bay show seafloor landslides and one or two turbidites younger than the ca. 1610 BCE Minoan ash horizon, but none can be unequivocally correlated with the rock avalanche event.

Similar rock avalanches on steep coastal cliffs in deep but restricted waters are a significant hazard on the coastlines of eastern Canada, especially in fiords. For example, sediment cores from Saguenay fiord provide a record of several Holocene earthquake-triggered rockfalls or rock avalanches and turbidity currents. A rock avalanche imaged by multibeam bathymetry in the St Lawrence Estuary resembles the deposits of the famous 1903 Frank slide in Alberta. There is a risk of similar events in coastal fiords of Newfoundland, Labrador and Baffin Island. We can only speculate on how such an event might influence Canadian art and culture.