

The Favignana Calcarenites: Sedimentology and Architecture of the Pleistocene Biocalcarenites Complex of Favignana, Egadi Islands, Italy.

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abstract The Pleistocene biocalcarenites complex of Favignana Island consists of coarse-grained, resedimented cool-water carbonate sands composed of skeletal debris of red algae, bryozoans, echinoids, foraminifera, bivalves and rhodoids. Dozens of excellent exposures of the Favignana Calcarenites encompass sedimentary structures which originated from the generally southward migration and progradation of a large variety of bedforms such as dunes, transitional dunes, upper plane-beds, traction carpet beds, antidunes and chute-and-pool topographies. Vertical sequences frequently testify energy conditions and sediment concentrations decreasing upwards. The Favignana Calcarenites is demonstrated to have many of the characteristics of density flow deposits in siliciclastic environments, discriminating the unit from the coastal deposits of the Marsala Calcarenites on Sicily mainland, which was previously suggested to be equivalent to the deposits studied. Published isopach data of surrounding areas were extrapolated to the vicinity of Favignana Island and formed the basis of a paleogeographical reconstruction. The former existence of a Favignana Mini-Basin (circa 15 x 20 km) is proposed here. Concentrated density flows ('high-density turbidity currents') and residual turbidity flows ('low-density turbidity currents') flew southwards down the northern slope of this fault-controlled depression to build an accumulation of slope system deposits of which the Favignana Calcarenites represents the proximal portion. The gravity-driven flows were generated by (the funneling of) storm-induced currents which swept the cool-water carbonate factory, inferred to have existed between the mountain ridges of Levanzo and Erice.

keywords cool-water carbonates, calcarenites, Sicily, Aegadian islands, concentrated density flows, high-density turbidity currents, upper flow-regime