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Submarine Landslides of the Mediterranean Sea: How large, how often

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An updated version of the submarine landslide database of the Mediterranean Sea¹ contains 955 MTDs and 2608 failure scars showing that submarine landslides are ubiquitous features along Mediterranean continental margins. Their distribution reveals that major deltaic wedges display the larger submarine landslides, while tectonically active margins are characterized by relatively small failures. In all regions, landslide size distributions display power law scaling for landslides $> 1 \text{ km}^3$. We find consistent differences on the exponent of the power law depending on the tectonic setting. Active margins present steep slopes of the frequency-magnitude relationship whereas passive margins tend to display gentler slopes. This pattern likely responds to the common view that tectonically active margins have numerous but small failures, while passive margins have larger but fewer failures. Available age information suggests that failures exceeding 1000 km^3 are infrequent and may recur every $\sim 40 \text{ kyr}$. Smaller failures that can still cause significant damage might be relatively frequent, with failures $> 1 \text{ km}^3$ likely recurring every 40 years. This comprehensive database highlights that our knowledge of submarine landslide dynamics within time is limited to a few tens of thousands of years. Available data suggest that submarine landslides may preferentially occur during lowstand periods, but no firm conclusion can be made on this respect, as only 149 landslides (out of 955 included in the database) have relatively accurate age determinations. The temporal pattern and changes in frequency-magnitude distribution suggest that sedimentation patterns and pore pressure development have had a major role in triggering slope failures and control the mass wasting sediment flux to the deep basin