



Comparative stochastic analyses of slope morphology between active and passive margin settings

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Published stochastic analyses of topographic slopes have highlighted the striking relationship between along- and cross-slope statistical parameters and surface processes controlling landscape evolution. In particular, slope frequency distributions of onshore slopes seem to be dependent on hillslope processes, surface geology and tectonics. Variations in the dominant processes occurring in offshore channels and slopes can be related to changes in S-A (slope vs. drainage) plots, within specific regions or between distinct continental margins. The intended work aims to identify offshore West Iberia (passive margin) and Greece (active margin), areas where distinct surface processes occur (channel erosion, non-deposition, slope instability and creep, deposition, as examples), relating them with distinctive along- and cross-slope stochastic parameters. Multibeam bathymetry, sidescan sonar mosaics, seismic reflection profiles, and sediment core data, will be used to identify the main surface processes active in the surveyed margins. Especial interest will be given to the characterization of stochastic parameters 'typical' of each of the above-mentioned surface processes, quantifying the main factors (e.g. critical slope gradient, earthquake-induced instabilities) promoting slope instabilities in distinct geological settings. By their distinctive tectonic and depositional settings, the Portuguese and Greek margins comprise interesting case-studies for comparative analyses between active and passive margin settings.