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Current-driven sediment redeposition in the highstand system tracts of the western Adriatic Sea

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The Adriatic shelf offshore Ortona, Italy shows undulating subparallel reflectors that are bounded by obliquely dipping surfaces. These features resemble structures such as the Humboldt Feature offshore Oregon, and it is uncertain whether they are the result of slow gravitational slope mobilisation or sediment reworking due to slope-parallel currents. A dense net of recently reprocessed and digitally interpreted high-resolution CHIRP seismic data supports a sediment reworking origin of these features. There are three lines of evidence for this: (1) the spatial extent of the features coincides with higher seabed reflector amplitudes than both on the shelf and in the distal part of the shelf. If the features were solely caused by slope failure there should be no change of amplitudes (2) Individual features in the distal part consistently show gently dipping slopes on their northern flank and steeply dipping slopes on their southern flank resembling current ripples caused by a northerly bottom current, (3) the seabed reflector amplitude is generally higher on the gentle northern flanks and highs than on the steep southern slopes and in the troughs supporting a current origin that causes non-deposition of fine-grained, i.e. low acoustic impedance, material on the currentward flanks and preferential deposition in the troughs and leeward.