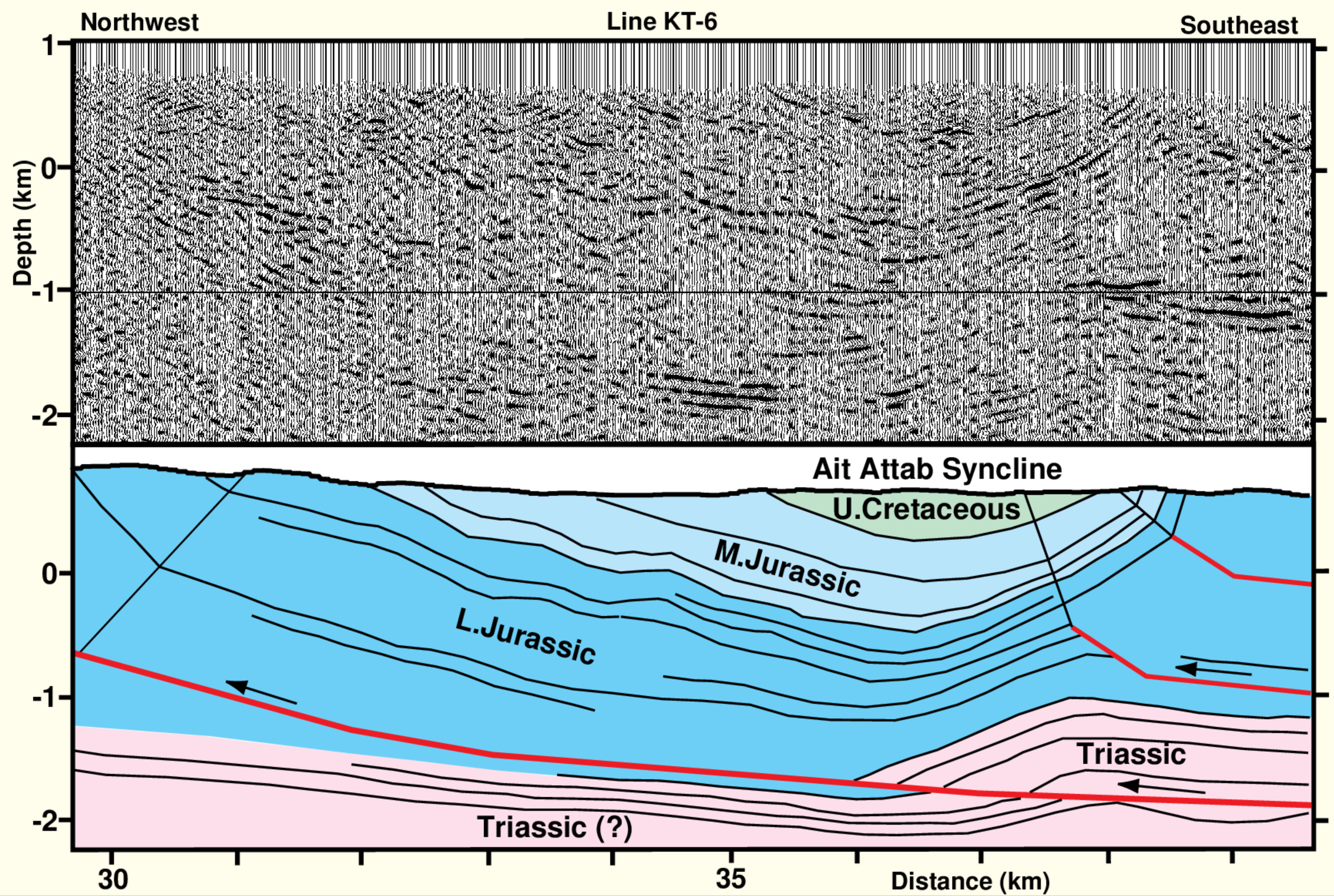
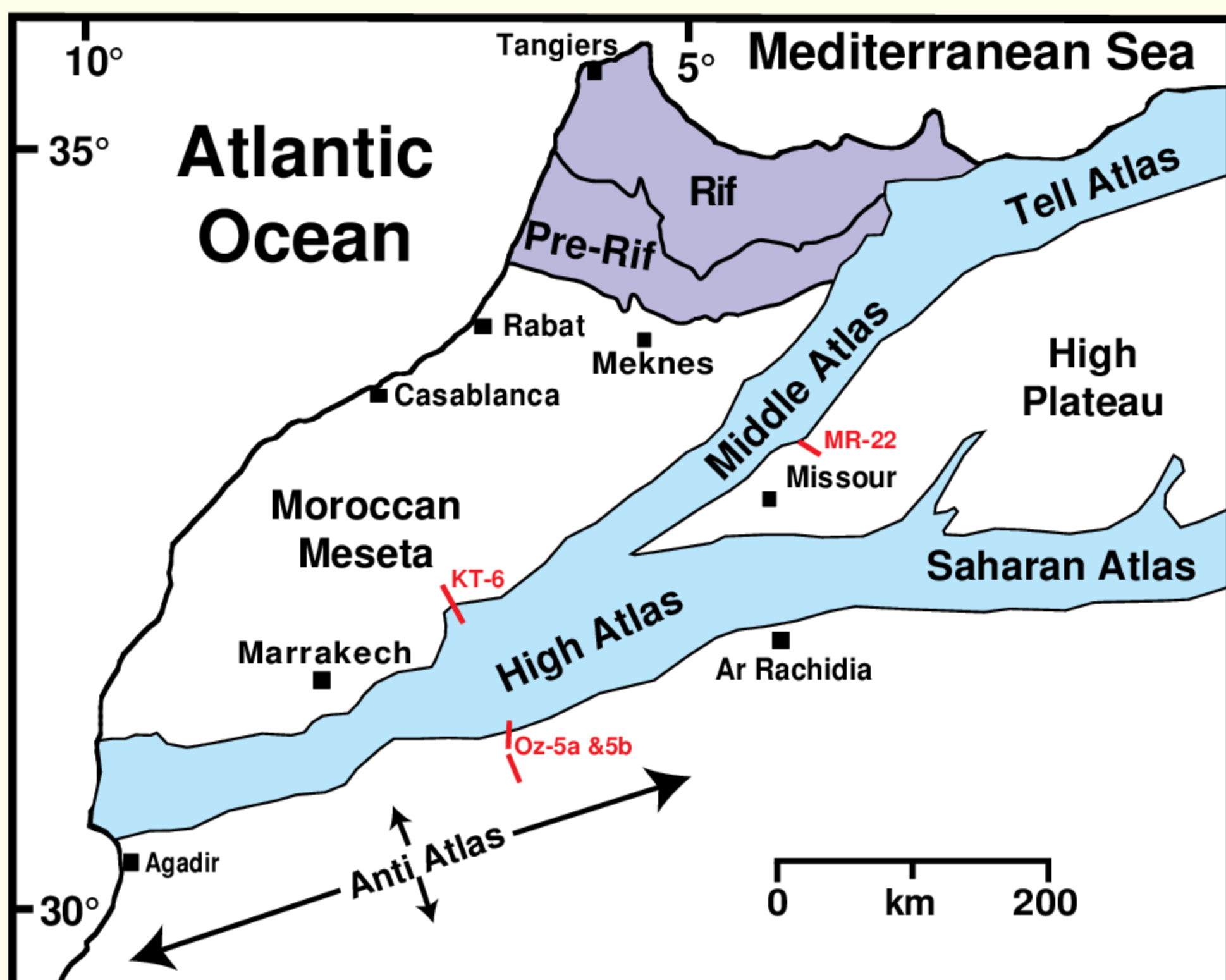
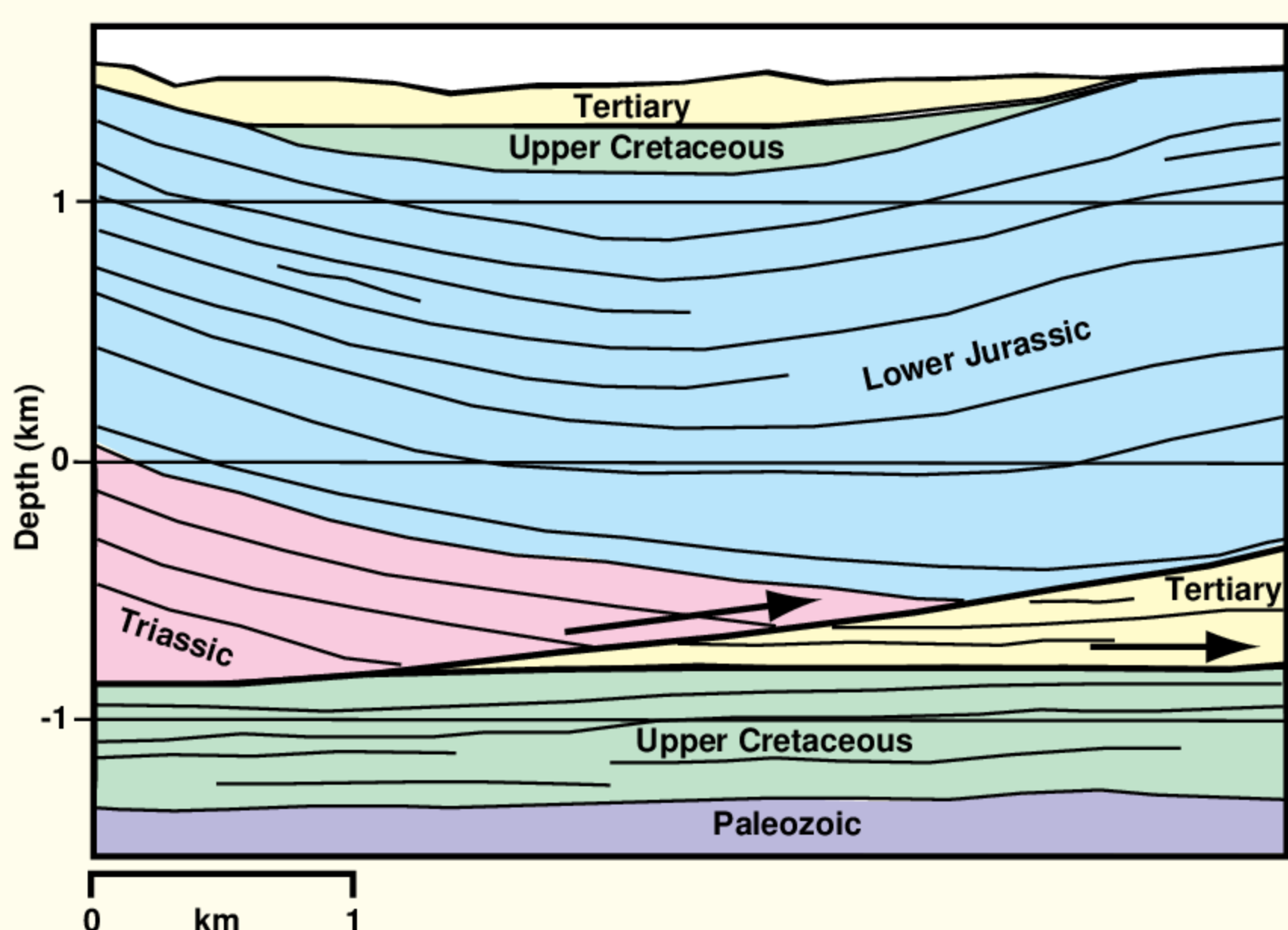
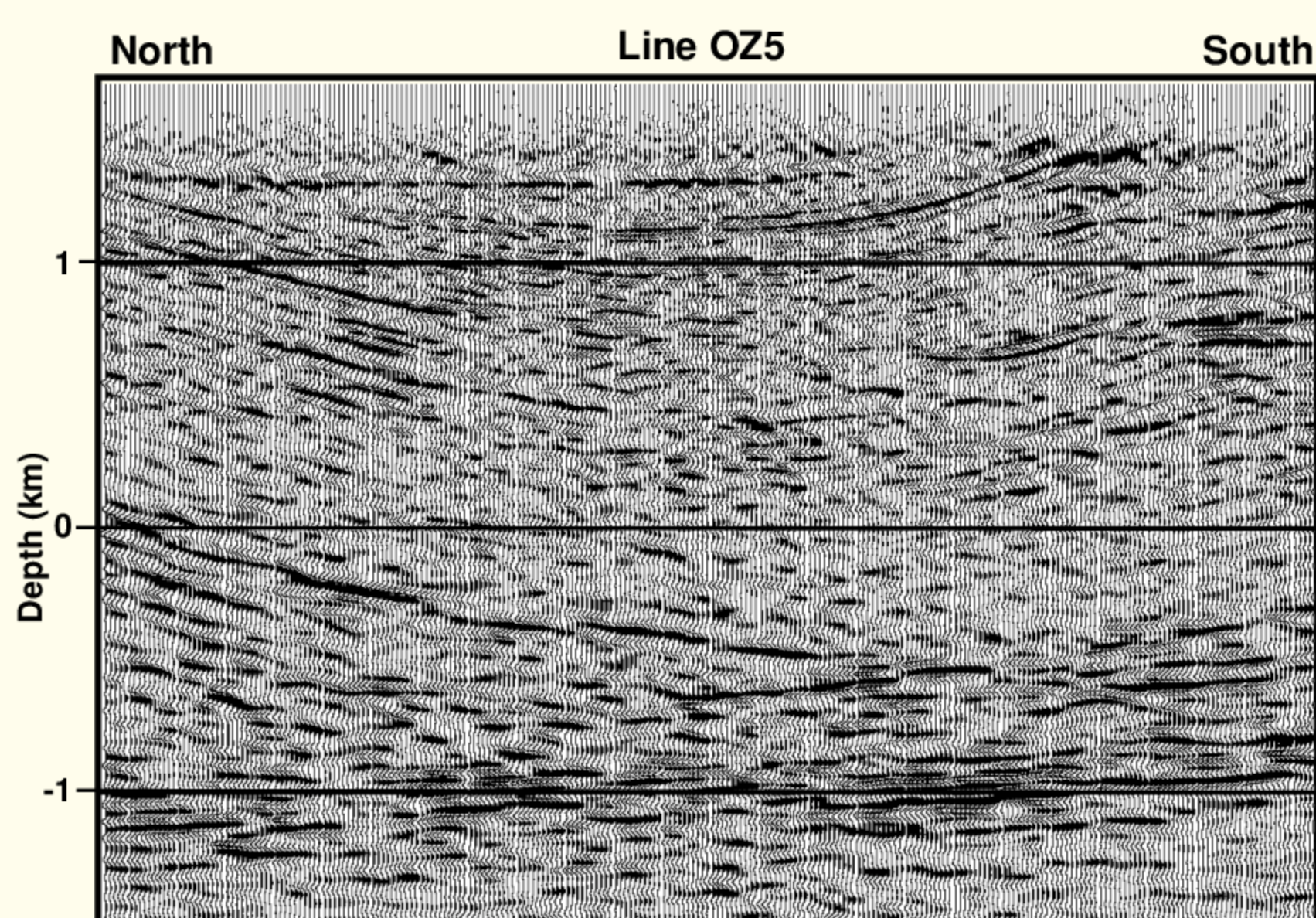


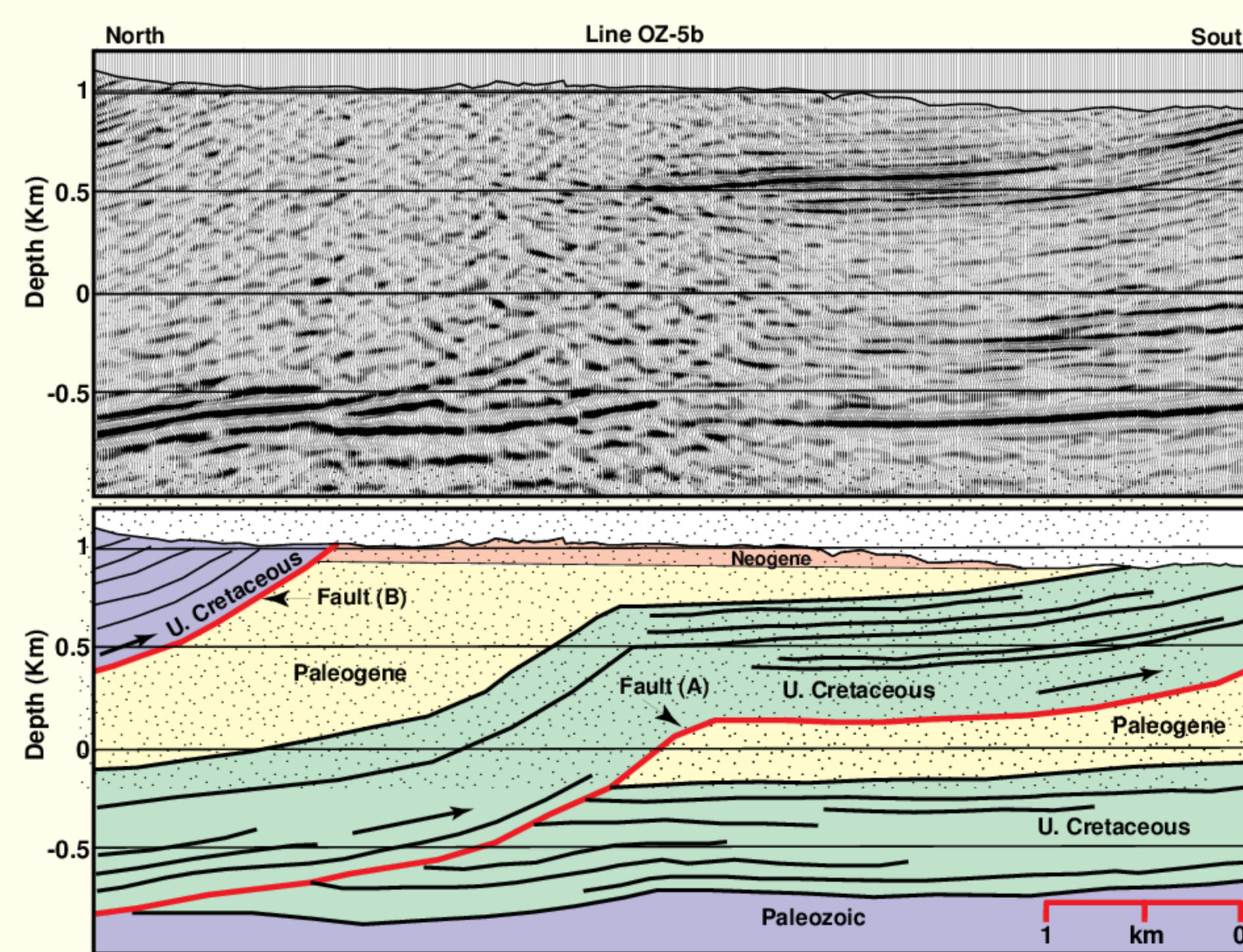
# Examples of Tectonic Inversion from Seismic Reflection Data



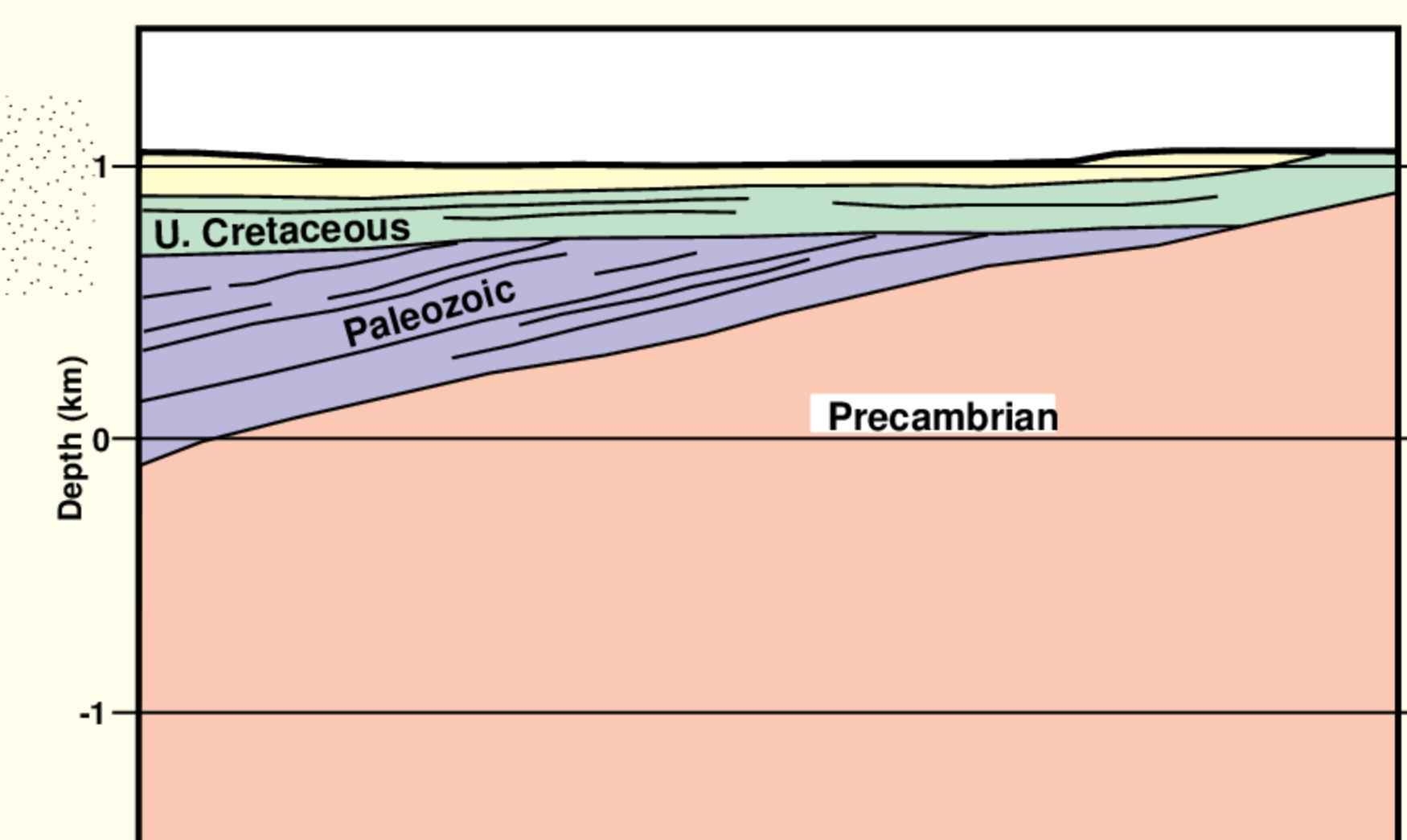
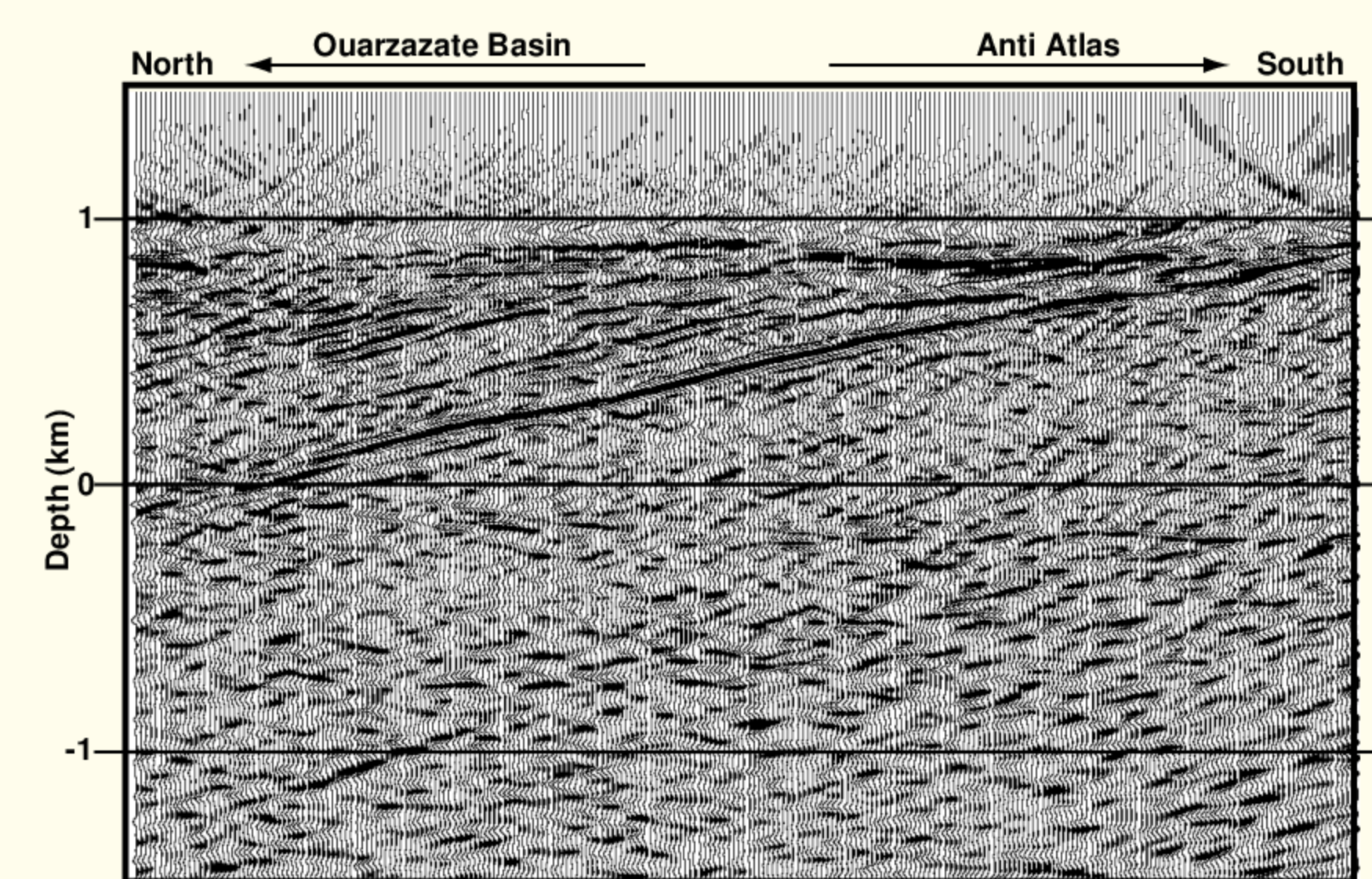
**Above)** A part of seismic line KT-6 (transect A-A') across the Ait Attab syncline in the northern High Atlas northeast of Marrakech. Reflections from folded syn-rift Jurassic rocks and post-rift Cretaceous show thickening from SE to NW across the syncline. These folded rocks in the syncline lie above a major thrust fault (exposed to the NW) that formed in the footwall of a syn-rift half graben. These folded rocks in the Ait Attab syncline were transported up a reactivated normal fault, and along the hanging wall of a newly formed thrust.



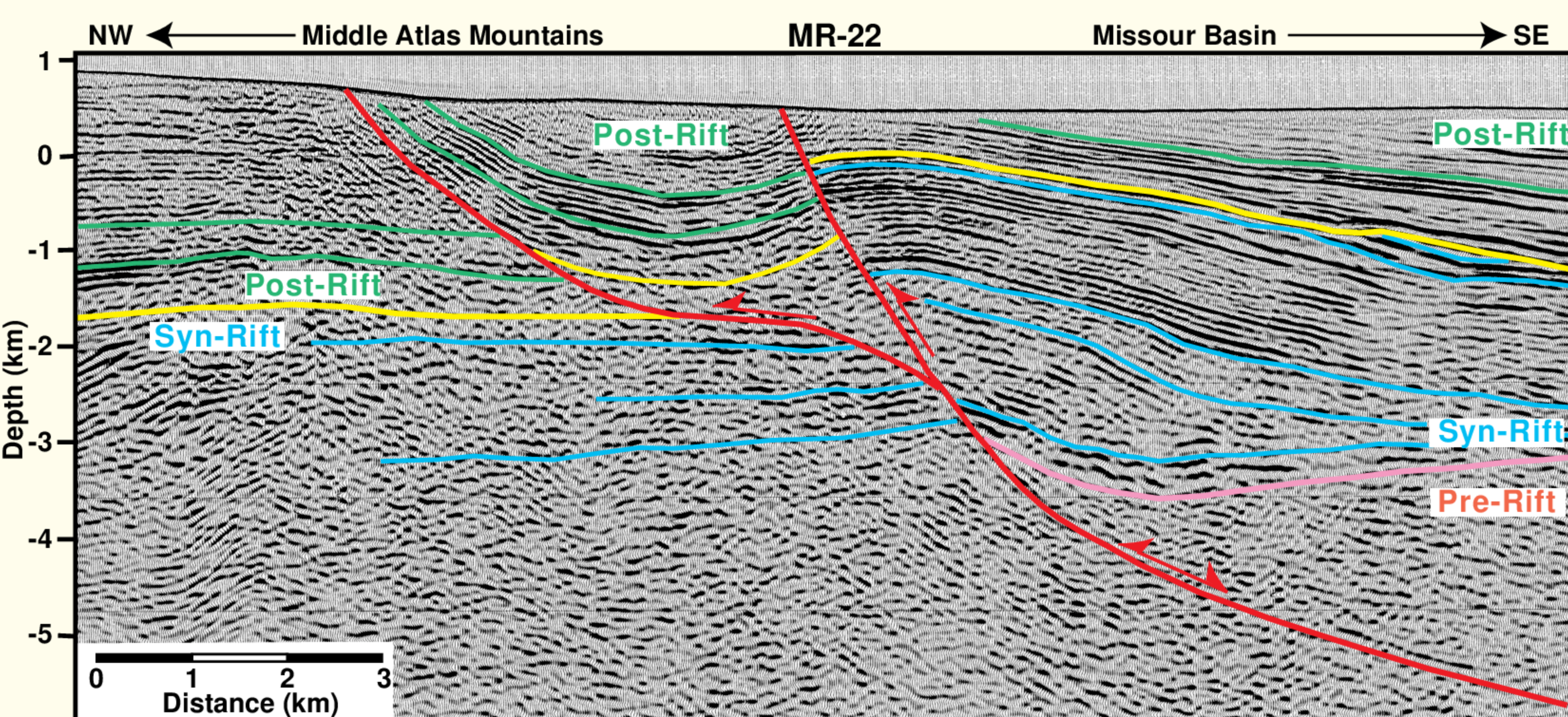
**Above)** Seismic line OZ-5b located to the north of the line shown to the right) in the Ouarzazate basin. This line shows what is interpreted as syn-rift rocks transported in the hanging wall of a new thrust. These syn-rift strata are thrust out-of-sequence over an earlier thrust formed between the Upper Cretaceous and Paleozoic.



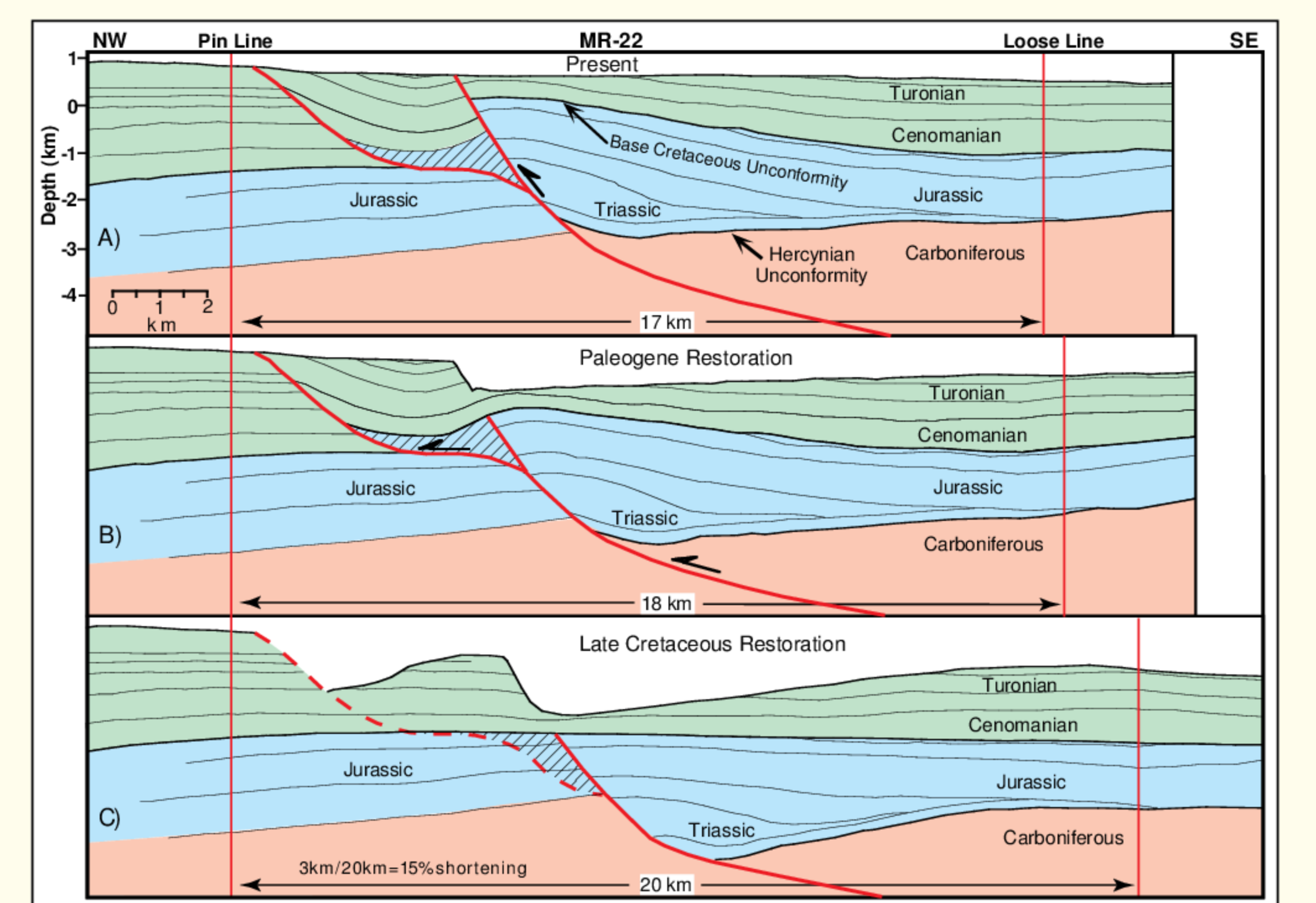
**Above)** Seismic line OZ-5b located along the southern margin of the High Atlas. This seismic line was shot across several exposed thrust faults which repeat the Upper Cretaceous in the hanging walls of thrusts interpreted as newly formed fault-bend folds developed during the Oligocene. Fault (A) is believed to have occurred first with Fault (B) occurring out-of-sequence.



**Above)** Seismic line OZ-5a located along the southern margin of the Ouarzazate basin and the Anti-Atlas. The high amplitude reflection which dips 15° from the south to north across the section is interpreted as Precambrian basement. The reflectors above the basement are interpreted as Paleozoic rocks which are truncated by the Upper Cretaceous unconformity.



**Above)** Seismic line MR-22 from the southeastern margin of the Middle Atlas mountains. This line was migrated, depth converted and displayed with no vertical exaggeration to illustrate the structural geometry of a reactivated syn-rift fault and a resulting footwall short cut fault. Reflections in syn-rift age rocks show thickening into a listric normal fault.



**Above)** Cross sections showing a palinspastic restoration of line MR-22 (C) with the reactivation of a syn-rift listric fault during the Paleogene (B), and the formation of a mechanically more efficient footwall short cut fault. Displacement along these two faults formed a fault-bend fold over the resulting ramp, until a high angle breakthrough occurred along the forelimb (A).