Cilicia Basin: imaging of salt tectonics in a sedimentary basin in the eastern Mediterranean Sea

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The Cilicia-Andala basin is a fore-arc basin within the Cyprus arc, a zone of active plate convergence in the eastern Mediterranean Sea, currently in transition from subduction to collision. The tectonic development of the basin includes distinct as well as combined phases of thrusting, strike slip and extension. My thesis will be part of a larger project conducted by a team at MUN (Aksu, Calon, Hall) aimed at understanding the local tectonics of the Cyprus arc in terms of plate margin evolution. My thesis is based on 48 channel seismic reflection data acquired in 1992 by researchers from MUN in a joint effort with the institute of Marine Sciences of Doluz Eylul University, Izmir. The data were acquired in the Cilicia-Andala basin across a line approximately 100 km in length from the coast of Turkey towards Cyprus.

Many of the structural features of this basin are linked to the interaction of the basement tectonics with a rapidly prograding continental shelf building. Extension of this unstable shelf is evident in gravity sliding with sediment from the Plio-Quaternary above a detachment in the underlying Messinian evaporite layer. This is complemented by salt-cored fold belts in the deeper part of the basin.

The purpose of my thesis is twofold. First, I will use the final processed data in conjunction with that of neighbouring lines to enhance the geological interpretation of the area. Second,

I will experiment with signal processing techniques, especially multiple removal and migration techniques, to improve the resolution. This component of my thesis will be particularly useful in the areas of salt folds where resolution is usually poor.