

Outcrop Studies of Faulted Depositional Sequences of Indio Mountains, South West Texas

Pawan Budhathoki

University of Texas at El Paso, Department of Geological Sciences, El Paso, TX, 79968

pbudhathoki@miners.utep.edu

During the Jurassic and Cretaceous, the Chihuahua trough formed an extensional basin, extending from the Gulf of Mexico to Southern Arizona, along the present border of the United States and Mexico. Far West Texas formed the northern basin margin, and Cretaceous sediments thicken from 150 m to 5 km thick in the basin interior. The Albian Cox Sandstone is one of the most extensive formations and consists of interbedded fluvial coastal and shallow marine sandstones and shales.

The Cox formation thickens dramatically from the basin margin. This study investigates how this thickening is accommodated by syndepositional faulting and stratigraphic architecture. In particular, I will investigate how sequence stratigraphy is preserved or thickened across syndepositional faults and through tilting of blocks on the basin margin. There are several possible mechanisms by which this thickening can be accommodated. 1) onlap of beds and sequences, 2) thinning of entire sequences, 3) erosion or nondeposition of different parts of stratigraphic sequences.

The integration of multidisciplinary approach (field work, remote sensing and GIS) along with sedimentological and structural studies will address the relationship between syndepositional fault and sequence stratigraphy of the Cox and can be applied to the similar setting of other basins.