Seismic Stratigraphy and Structure Off Panama City, Florida

Approximately 1,240 km of multichannel seismic profiles along the continental shelf and upper slope off Panama City, Florida, in the vicinity of Destin dome and De Soto Canyon reveal several major and minor discontinuities in shelf-slope deposition. Geologic ages were assigned to these discontinuities by correlating the depth profiles with a previously described sparker line that remains from a group of 10 or so that appear in a major erosion surface in the middle Miocene. Isopach maps of seven seismic stratigraphic units between Upper Jurassic-Cretaceous(?) and the present have been prepared. Earliest maximum sedimentation occurred in the southeast of the area of investigation, but shifted to the northeast and north in early Miocene and back to the southwest in recent times.

The doming in the area is maximum in the earliest units and has a major northwest-southeast axis. Later units show decreasing relief and the evolution of the major axis to a northeast-southwest trend. From late Miocene on, minimal doming is evident. The peak doming is northeast of the older structure, suggesting that the tectonic motions forming the dome had nearly stopped by the Jurassic-Cretaceous(?) and the present have been prepared. Earliest maximum sedimentation occurred in the southwest of the area of investigation, but shifted to the northeast and north in early Miocene and back to the southwest in recent times.

The De Soto Canyon appears to be the only canyon trending belt within the upper Fredericksburg (Cretaceous Comanche) of north-central Texas. The grainstone body with its associated rudist reefs is 2 to 4 mi (3 to 6 km) wide, up to 120 ft (36 m) thick, and at least 50 mi (80 km) long. It separates normal-marine carbonate wackestone and marlstone on the north from tidal-flat dolomite on the south. Detailed tracing of key beds and hardground surfaces through closely spaced, measured sections permitted separation of the body and its finer grained equivalents into several approximate time-stratigraphic subunits. The belt began as a series of discontinuous, relatively thin rudist reefs on a broad shoal, developed into the narrow, linear, carbonate-sand buildup, and then merged with widespread rudist patch reefs to end local Fredericksburg deposition.

Early multiple aragonite(?) and calcite cements filled nearly all intergranular pores and most early leached-