LA CASITA SANDSTONES: EVIDENCE FOR THE COMPOSITION OF BASEMENT ROCK IN NORTHEASTERN MEXICO

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POSTER SESSION ABSTRACT

The La Casita Formation (Cotton Valley equivalent) in the Saltillo-Monterrey area of northeastern Mexico is of late Jurassic to early Cretaceous age (Kimmeridgian-Hauterivian) and consists of up to 900 meters of shale, siltstone, sandstone, and conglomerate derived from basement rocks. This sequence was deposited as coalescing and overlapping fan-delta complexes that prograded into shallow epicontinental seas. Proximal to source areas, the coarsest units contain clasts up to 20 cm long and were deposited by short-headed, high-gradient streams.

Medium/coarse-grained sandstones in the La Casita are mostly lithic arkoses. The dominant detrital constituents are monocrystalline and polycrystalline quartz, some with inclusions of mica, rutile, and tourmaline. Feldspars consist of approximately equal amounts of potassium feldspars (orthoclase, microcline, and sanidine), untwinned plagioclase, and twinned plagioclase. Abundant lithic fragments are predominately granitic plutonic rock fragments and felsic volcanic rock fragments, with minor metamorphic rock fragments. Volcanic rock fragments decrease upsection.

The sandstone constituents were derived from an adjacent uplifted basement block composed of granitic-gneissic plutonic and low-rank metamorphic rock with a mantle of felsic volcanic and hypabyssal rock. The source was the southeastern end of the Coahuila Peninsula, a remnant of the Permo-Triassic foldbelt, which was rejuvenated by Nevadan block faulting.

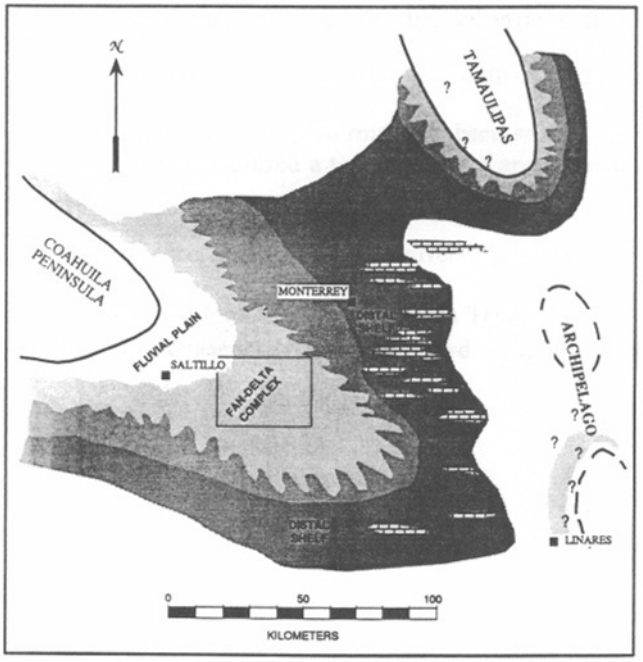

Figure 1. Paleogeography during latest Jurassic-earliest Cretaceous. Box shows study area.

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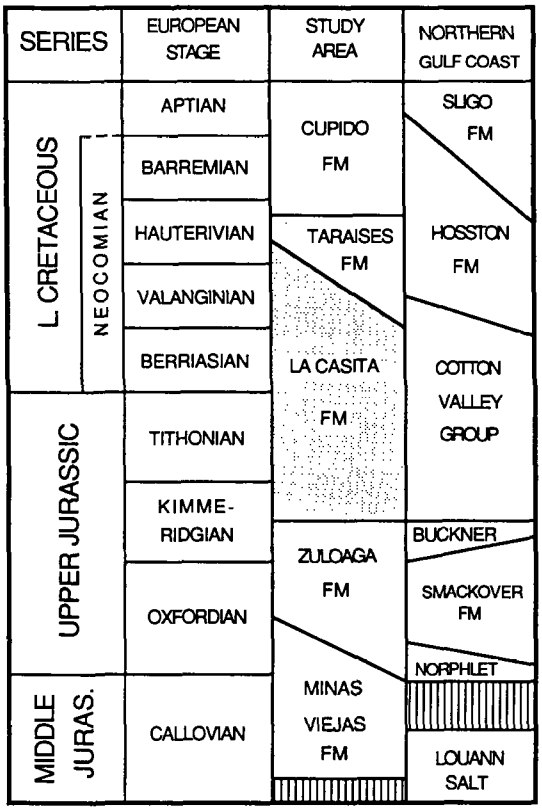

Figure 2. Middle Jurassic-Lower Cretaceous stratigraphic column of study area and northern Gulf Coast.

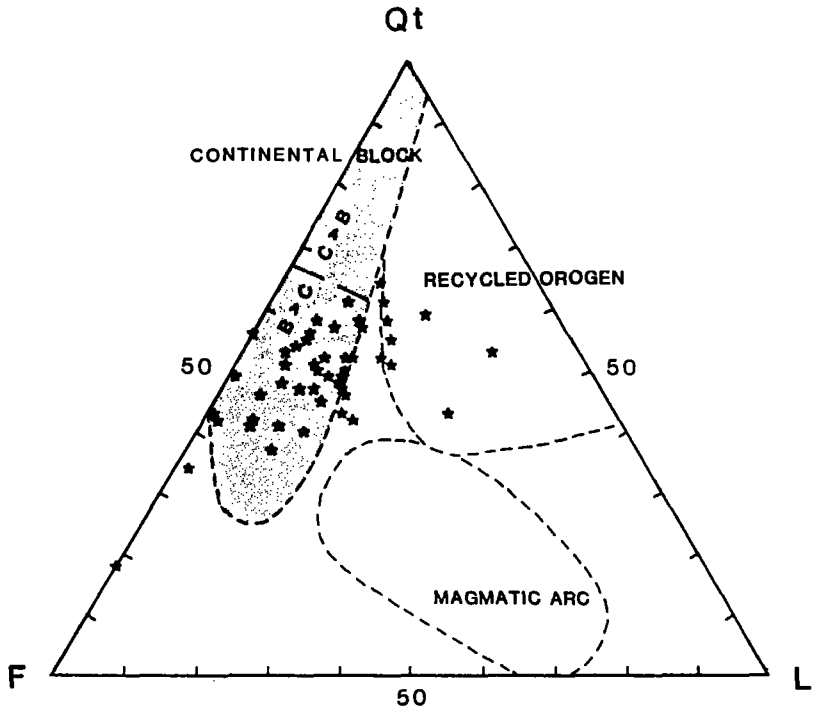

Figure 3. La Casita sandstones plotted by mineral composition on total quartz-feldspar-lithic fragment diagram of Dickinson and Suczek (1979). Points lie mostly within "Continental Block" field. "B" is "Uplifted Basement" and "C" is "Stable Craton."