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SEDIMENTOLOGY OF THE WHITSETT FORMATION EOCENE, SOUTH-CENTRAL TEXAS

Clyde R. Seewald
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ABSTRACT

The Whitsett Formation consists of about 250 feet of sandstone, mudrock, carbonaceous shale, and volcanic ash. These deposits accumulated on a coastal plain and in paralic marine environments adjacent to this coastal plain under sub-tropical or tropical conditions.

The lower part of the Whitsett is composed of tidal flat deposits (interbedded sandstone, mudrock, and carbonaceous shale); fluvial deposits (cross-bedded muddy sandstone and laminated claystone); and beach deposits (well sorted sandstone with well-rounded grains). The upper part of this formation consists primarily of lagoon or bay deposits (claystone, with interbedded sandstone, volcanic ash, and carbonaceous shale).

The major constituents of sandstone units in the Whitsett Formation are quartz, feldspar, volcanic rock fragments, claystone clasts, and chert. Montmorillonite is the major constituent of mudrocks. Older Tertiary sedimentary rocks that are exposed northwest of the Whitsett outcrop area were the source of most quartz, feldspar, chert, and montmorillonite. The Cenozoic volcanic province in west Texas and northern Mexico was the source of volcanic detritus. Claystone clasts were derived from local floodplains and mud flats.