



## Dolomitization of the Edwards Formation in the Fort Hood Military Installation, Texas

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### ABSTRACT

The Fort Hood Military Installation is an 880 km<sup>2</sup> karst landscape located in north-central Texas, characterized by exposures of Lower Cretaceous carbonates of the Trinity and Fredericksburg groups deposited across the Comanche Shelf associated with the Zuni and Tejas transgressive sequences. Within the installation, the Edwards consists of a series of massive to thin-bedded carbonates and marls containing mudstone, wackestone, packstone and grainstone facies with chert nodules and rudistid biostromes. On the eastern side of the installation, peloidal and oolitic wackestones and packstones are common. To the southwest of Fort Hood, the Kirschberg lagoonal facies represent areas of periodically restricted environments within the Edwards, where alternating evaporites and shallow-water carbonate mudstones and grainstones were deposited. These evaporite sequences and the migration of associated magnesium-enriched brines are thought to have been instrumental in the development of concentric bands of dolomitization across the Comanche Shelf.

Forty-two rock samples from the Edwards Formation were collected in October 2020 across the Fort Hood Military Installation. These samples were prepared and scanned using a Niton XL3t GOLDD+ XRF analyzer to determine the elemental composition of each sample. Six samples were further analyzed by using x-ray diffraction using a Bruker D8 Advanced XRD to determine mineral composition. These data show a primary dolomitization gradient that decreases from south to north across the installation boundary. A secondary dolomitization gradient is also present associated with structural trends concomitant with the Miocene Balcones Fault Zone, suggesting the seepage-reflux model associated with evaporitic brines may not be the only mechanism by which dolomitization has occurred in the northern extent of the Edwards Formation.

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## NOTES

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