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## **Sequence Stratigraphy of the Tectonically-Active Talara Basin: Andean Forearc, Northwest Peru**

The Talara basin in northwest Peru is related to the post-Jurassic tectonic evolution of the northern central Peru-Chile arc-trench system. Inland of the Talara area is the Huancabamba deflection, where the Andean trend changes from N20W along the Northern Andes to N20E along the Central Andes. The relationship of the Talara basin relative to the magmatic arc and to the trench-slope transition at this bend is unclear.

The Talara basin covers 15,000 km<sup>2</sup>, half of which is onshore. Our study of the onshore part of the basin integrates subsurface data with outcrop observations to better understand a tectonically controlled, transtensional forearc basin characterized by episodic deep-water phases. The onshore section ranges from Cretaceous to Eocene in age and contains approximately 13,000 m of clastic fill. The basin saw periodic extension during the early Tertiary, its subsidence controlled by faulting and flexural loading by sediment fill. This is particularly evident in the Eocene section, which records a series of temporal transitions from deep-marine to deltaic depositional environments as a response to relative sea-level changes. The first and most dramatic of these transitions is the sequence boundary between the shallow marine Terebratula Formation and the Helico turbiditic sandstone (first deep-water member of the Talara sandstone), which is characterized by middle and lower bathyal faunal associations. Younger sequence boundaries in the section mark less extreme but considerable transitions between middle bathyal and neritic or deltaic environments. The principal driving forces behind sea-level fluctuations of such magnitude are tectonic. The Eocene section is capped unconformably by the Pliocene Taime Formation.