Internal Breccias near Early Geosynclinal Platform Margins

The Triassic and lower Jurassic limestones of the island of Hydra (Greece) were deposited on the Pelagian platform, near its western edge which strikes north-northwest-south-southeast. In this region, five main breccia horizons are recognized. Internal breccias are characterized by mutual fitting of clasts, indicating relatively small displacement. Transitions downward into fissures and almost undisturbed rock sections, and upward into mass flows, provide important clues as to their origin. The clasts are generally monomictic and consist of shallow-water, slope or basin ridge limestones. The matrix is derived from above and consists of basin sediments which are commonly red.

Each of the five breccia horizons represents a sequence of: (a) platform buildup; (b) tilting caused by unequal subsidence; (c) deposition of basin sediments on top of the platform carbonates; and (d) brecciation of the platform limestones and absorbing of the overlying basin sediments. In many places, early lithification and repeated brecciation also occur. These main breccia horizons correlate very well with major tectonic phases in the early geosynclinal history of the northern and eastern Alps.

Although submarine breccias are commonly related to faults, there is no evidence for this in the Triassic and Jurassic sequences of Hydra. We suggest that the breccias were produced by large migrating flexures, and that such flexures are a tectonic alternative or substitute for faults in the early stages of Tethys formation. The study of brecciation of the type discussed may provide more precise information on the configuration and evolution of early geosynclinal platform margins and shelf-to-slope breaks.

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Enhanced Oil Recovery Site Selection Using Reflection Seismology

Eight lines of 2-D high resolution seismic data were acquired at a proposed enhanced oil recovery site in Montague County, Texas. Areal extent of the producing field is roughly 200 acres (80 ha.), of which 35 acres (14 ha.) were selected for the experiment. The producing formation is a Pennsylvanian sand, 40 ft (12 m) thick and 1,800 ft (549 m) deep. High-frequency broad-band data (50 to 175 Hz) were collected using both shallow (10 ft or 3 m deep) and subweathering explosives. Additionally, a detailed vertical seismic profile was conducted to tie sonic logs to the seismic data. Results confirmed an area of good reservoir continuity while eliminating others owing to small-scale faulting and changing sand thickness.

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Tectonic History and Progressive Development of Fold-Thrust Belt in Eastern Gulf of Alaska

The geology of the Gulf of Alaska, east of Kayak Island, records the temporal variation of three fundamentally different tectonic settings that developed owing to the interaction between plates along the western margin of North America. A late Mesozoic to early Tertiary convergent margin setting is indicated by nearly contemporaneous plutonic belts, forearc-basin sequences, and accretionary terranes. In contrast, the middle Tertiary continental margin in the eastern Gulf of Alaska was relatively stable and is characterized by sedimentation in a subsiding basin with local extensional tectonism. The present tectonic setting was probably initiated during the