sils. Within the canyon-fill sediments, there are some unusual water-escape structures.

The southern wall of the canyon is well exposed in a large quarry, where four "steps" occur in a vertical height of about 60 m. Upcanyon, these pass into fewer but higher "steps." Small overhangs caused by protruding bedding surfaces are original features, as gravel fill still adheres to the marly walls. Canyon downcutting toward the east is shown by widening of the present outcrop of the fill in that direction, and eastward-moving paleocurrents are indicated by boulder imbrication. Rapid downcutting and filling is suggested by the well-preserved wall overhangs, and channeling within the fill sediments suggests that the deeply cut canyon was filled by several successive influxes of sediment.

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Hydrocarbon Prospects in Basins West of United Kingdom and Eire

No abstract available.

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Assessing Oil and Gas Plays in Facies-Cycle Wedges

Oil and gas potentials of formations in frontier areas can be assessed by reference to formations in corresponding parts of facies-cycle wedges documented in producing areas. The transgressive-regressive facies-cycle wedge is a body of rock bounded above and below by regional unconformities or the tops of major nonmarine tongues. The ideal wedge includes, from base to top, facies successions from nonmarine, to coarse (sandstone or grain carbonate), to fine (shale or micrite), to coarse, and back to nonmarine. Different types of potential coarse reservoir formations (plays) are identified by their distinctive vertical facies successions within this cycle: *wedge base*, fine over coarse (potential reservoir) over nonmarine; *wedge middle*, fine over coarse over fine; *wedge top*, nonmarine over coarse over fine; *wedge edge*, nonmarine over coarse over nonmarine; and a special category, *subunconformity*, which includes any truncated part of a wedge unconformably underlying another wedge. These play types have distinctively different spatial relations between their coarse reservoir facies and their fine oil-source and seal facies. Different wedge positions thus typically have different hydrocarbon potentials; within each position, however, there are also large ranges of potentials related to variations in source richness, reservoir quality, or trap capacity. As a result, the assessment procedures for new plays have three critical steps: (1) selecting look-alike productive plays of the same wedge position; (2) scaling the potential hydrocarbon yield to compensate for obvious differences in thickness, areal extent, etc; and (3) risking the results for other factors that might render the new plays nonproductive.

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Braided-Stream Processes and Facies in Modern Arc-Trench Gap, Southwestern Guatemala

Modern fluvial processes and facies in arc-trench gaps have been little studied even though prograding coastal-plain sequences may be the dominant facies in parts of ancient arc-trench gaps underlain by continental crust. The Pacific coastal plain in Guatemala is abruptly terminated 25 to 60 km inland from the Pacific shoreline by the steep slopes of an active Quaternary volcanic arc. The volcanic slopes are locally bare of vegetation and, in response to strongly seasonal torrential rainfall, provide abundant bed load to high-gradient, low-sinuosity braided streams that discharge onto the coastal plain and flow, in a roughly parallel pattern, into the Pacific.

Studies of the Rio Samala reveal systematic downstream changes in cross-channel bed-relief index (from 8.2 to 1.3), maximum particle size (from 180 cm to 6.4 cm), and facies composition. The dominant facies, in a tract from proximal to distal, are: proximal (0 to 17 km)—crudely bedded gravel that records flood-event processes associated with longitudinal-bar and boulder-string formation, as well as channel scour and plugging; mid-distal (17 to 40 km)—horizontally stratified sand deposited by flat-bed accretion in channels and on bars; and distal (40 to 53 km)—trough and tabular cross-stratified sand produced by migration of dunes and foreset bars. These facies characterize, respectively, the Scott-, Bijou-, and Platte-type braided-stream vertical sequences described by Miall.

Recognition of similar downslope changes in braided-stream sequences deposited in ancient arc-trench gaps should enhance interpretation of proximity to source, direction of paleoslope, shoreline trend, and trench orientation.

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Map Display Formats for Environmental Geologic and Related Data

A variety of map formats can display basic geologic and related environmental data derived from aerial photographs, detailed field investigations, and published and unpublished studies. These depictions provide information on natural environments for various types of environmental maps directed toward selected uses and audiences. Examples include:

1. Geology and Natural Environments of Padre Island National Seashore, Texas, which employs a typical map format of colors, symbols, and written descriptions to show the location and distribution of barrier-island and lagoon environments. Color photographs of each mapped environment provide visual reference for the intended popular audience composed of National Seashore visitors.

2. Sediment Distribution, Bathymetry, Faults, and Salt Diapirs: Submerged Lands of Texas, Galveston-Houston Sheet, which displays surficial sediments, water depth, and structural features using contours, colors, and symbols, with colors keyed to a unique color-coded