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FAULT-CONTROLLED SEDIMENTATION IN THE GULF OF CORINTH, GREECE

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Swath bathymetry and multi-channel seismic data reveal how variations in seafloor morphology and sedimentation are controlled by changes in the pattern of syn-rift faulting and sediment supply/transport in the Gulf of Corinth. Modern sediment delivery of turbidites to the central basin floor at 800-890 mbsl occurs via canyons and channels that incise the fault-controlled, basin edges. The overlapping, east-trending, faults form the steepest slopes along the southern margin. Near Derveni and Xylocastro, for example, we image the offshore extensions of major subaerial faults as basin bounding structures. There, rivers and submarine channels drain northwards, cutting across the face of rotated fault blocks.

The northern, hanging-wall margin is less steep. As well as many fault-crossing channels, major channels traverse lateral ramps between steps in the south-dipping faults. The Gulfs of Itea and Antikyra are $<$200 m deep, are underlain by thin sub-horizontal sediments ($<$300 msec thick), and are north of the S-dipping faults that drop the basement down into the main basin.

An axial channel with lateral tributaries feeds sediments eastward from the $<$400-mbsl-deep basin west of Aegio into the central depocenter. Much of the axial, and parts of the tributary channels are localized by S-dipping faults. Fault-controlled channels on the north side of the Gulf of Lechaio, and on both north and south sides of the Gulf of Alkyonides, also feed sediments into the central basin.

Basement subsidence has outpaced sediment deposition causing the basin depocenter to narrow through time. In many areas the greatest sediment faulting, subsidence and deposition is not adjacent to the southern margin but rather is located further north above where most of the hanging wall has been pulled off the footwall. Within this axial depocenter, sedimentation outpaces vertical fault growth and maintains a flat seafloor.