

**AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003**

Bryan T. Cronin¹, Kemal Gurbuz², Hasan Celik³, Adrian J. Hartley¹, Murat Gul², Elaine Aiken¹ (1) University of Aberdeen, Aberdeen, United Kingdom (2) Cukurova University, Adana, Turkey (3) Euphrates University, Elazig, Turkey

Coarse-Grained Deep-Water Debris Flow Fans in a Seismically Active Foreland Basin: Maras Basin, Miocene, Eastern Turkey

Debris flow fans dominate the north-western sector of the Miocene Maras Basin in eastern Turkey. Up to 30 debris flows, from 0.8 to 35 m thick, are found within one 250 m thick interval. The fan was fed by at least three separate gravel-filled canyons that bypassed a narrow shelf with reefal build-ups. The debris flows are generally unsorted, with a coarse-granular sandstone matrix with intact or disaggregated mudclasts. Clasts < 3 m across of Mesozoic limestone, which form the walls of the feeder canyons to the north, are found as olistoliths in the fan. The deposits comprise 78% of the measured thicknesses through the fan. They thin and fine down-section before terminating within tabular, laterally continuous sandstones, part of a much thicker lobe sequence sourced from a system to the north-east. Thicker debris flow beds show massive scale dewatering with related injection of sand dykes from intervals below. Deposits of high-density turbidity currents comprise 16% of the fan's thickness. 8% of the fan comprises interleaved thin turbidite sandstones that also derive from the north-eastern sector of the basin. The fan has a lateral extent of > 7 km, and interleaves with the larger sheet turbidite sandstone-dominated fan. The debris flow events were sourced from headward erosion into the toes of a fan delta, known as the Tekir Fan, exposed on the northern margin of the basin. The diversity of deep-water deposit and the lateral extent of the beds allows a unique opportunity to examine seismically-triggered slope collapses at outcrop.