

**Mass Transport processes and their deposition architecture at escarpments of active faults : Examples from the Gulf of Corinth, Greece**

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Detailed high resolution seismic surveys using a 3.5kHz O.R.E. and a S.I.G. Sparker system in the eastern end of the Corinth Gulf, in the Aegean back-arc have revealed the formation of an active graben, the "Strava Graben". The Strava graben is an intrabasinal structure, trending E-W and interconnecting the Alkyonidhes and Corinth basins. The purpose of this paper is to reconstruct the principal events and processes responsible for the graben floor fill sequence during the synrift phase.

The Strava Graben is an asymmetric graben. It is bordered to the south by a major E-W trending fault whilst to the north it is bordered by discontinuous NW-SE trending antithetic faults. The graben was formed after the submergence of the Alkyonidhes graben and its filling with turbiditic sequences, probably some time after upper Pleistocene. (LEEDER *et al.*, 1991). The wedge shape of the sequence within the graben together with the divergent character of the individual beds are indicative of the continuous activity of the faults bordering the graben.

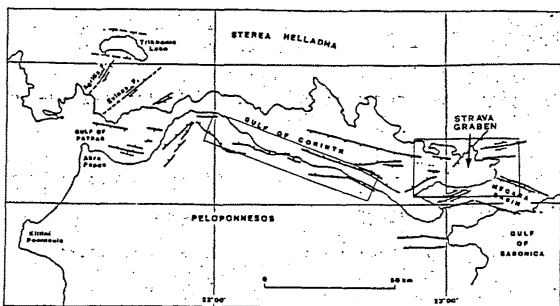
The acoustic character of the deposits in the floor of the graben, together with the spatial distribution of the seismic facies, reveal that gravity driven flows are the only sedimentation process and that the graben floor is exclusively filled by short term catastrophic events.

The emplacement of the individual deposits, which have a thickness ranging from 4 to 10m, in the floor of the graben appears to be a result of liquefied flows. Those flows are derived from the turbiditic sequence resting on the crest of the footwall block bordering the graben to the north. This transport mechanism is inferred by the sheet like appearance of the deposits, the acoustically transparent character indicative of the lack of any internal structure in the deposits, and the absence of non-disintegrative mass wasting deposits either in the source area or in the graben floor.

The liquefied flow deposits are locally separated by stratified sequences which have a thickness of about 4 m. These sequences consist of thin parallel layers which probably represent turbidites.

Earthquakes which are a common occurrence in the Gulf of Corinth can induce liquefaction of the sediments covering the crest of the footwall block bordering the graben to the north and create liquefied or turbidity flows. The mapped pattern of the seismic facies in the graben reveals that the liquefied and turbidity flows have accumulated as aggradational stacks consisting of sheet like lobes forming base of slope aprons that are fed by multiple sediment sources along active faults.

The findings of this study together with the results of the offshore studies in the Alkyonidhes bay by PERISSORATIS *et al.*, (1991) and LEEDER *et al.*, (1991) in the surrounding land area suggest that the tectono-sedimentary development of the present day active Strava graben is comparable to the Viking, Moray Firth and Witch Ground grabens in the North Sea.



General structural map of the Patras-Corinth and Megara rift zone. The location of the Strava graben is also shown.

**REFERENCES**

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