

Preliminary seismic hazard assessment of the southern Red Sea region

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SUMMARY - The present work represents an attempt to assess the probabilistic earthquake hazard in the southern Red Sea region and to stimulate discussion and suggestions on the assumptions. The resultant uncertainties are due primarily to the lack of strong motion records, lack of instrumental data, incompleteness of catalogues and the complexity of the seismotectonic environment.

Based on the geotectonic and seismic considerations, two seismic area sources are delineated. For each individual seismic source, recurrence relationship regression constants and maximum magnitudes are provided. Poisson stochastic model and an appropriate attenuation relationship are involved. The results of analysis are presented in the form of Iso-acceleration maps for the return period of 475 years.

The results obtained from this study indicate that relative level of ground motion in southern Red Sea is found to be moderate and subjected to more severe seismic hazard compared with the Arabian Shield.

KEYWORDS: Seismic Hazard. Red Sea. Arabian Shield. Seismotectonics. Ground - motion.