STEPS FORWARD FOR SEISMOTECTONIC EVALUATION OF MAKRAN ZONE AS BASIS FOR TSUNAMI HAZARD ASSESSMENT.

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ABSTRACT

The structural interpretation of Makran offshore area based on seismic data indicate that there is no distinct trench due to thick sedimentary cover and deformation is taking place along steeply dipping thrusts. A northwest trending sinistral fault (Sonne fault) cuts across the entire wedge, offsetting offshore ridges. In the southeast it has displaced little Murray ridge, an old basement high in the abyssal plane. On the basis of the nature of fault and difference of seismicity in eastern and western Makran, this can be considered as plate boundary of a micro - plate Ormara plate. The Ormara micro plate is triangular shape where the northern Murray Ridge and east Makran subduction zone comprise the other boundaries. It forms triple juction at each corner marked by higher seismicity. The Ormara microplate (Pakistan offshore) is dipping at shallower angle than Arabian plate (Iran offshore). The subduction close to Minab fault is 15 mm/yr while it is 18 mm/yr in the eastern most Makran. This subdivision can well explian the different behivor of the east and west makarn region and major differences in seismicity. While based on many other evidence both side are capable of gendrating large plate boundray tsunamigenic earthquakes. The occurrence of tsunamigenic earthquake in the Ormara micro-plate has been documented, but well defined large earthquakes in the Arabian Plate so far is lacking. A resolution of this question has important implications for seismic hazard assessment of the Makran region.

Through the recent evidence of landslide also as a minor tsunamigenic source needs a better mapping of these locations within Markarn region as a whole.

Based on the above the potential of tsunamigenic earthquake occurrence necessitate an improved understanding of the seismotectonic and seismicity of the Makran region. As now a tsunami early warning system being installed in Oman (regional center), so it is outmost important to work out different solid scenario based model, identify proper and more accurate earthquake and other strengthening sources, palaeotsunami investigation, compute regional run-up maps with different tsunami scenarios, define evacuation plans and the most importantly proper, relevant public and decision makers education and in genral hazard reduction strategy.

In this presentation after a general review of the Makran subduction zone, the above mentioned important elements for a proper hazard assessment will be elaborated.

Keywords: Makran, Ormara microplate, seismic data, tsunami hazards, run-up, Public education