

INTEGRATED STUDY ON SEISMICITY OF MAKRAN OVER 100 YEARS



Submitted by

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ABSTRACT:

Seismicity analysis is unique as it opens a window to look down into the subsurface (to observe the physical behaviour of crust) in addition to its spatial distribution. The earthquakes at Makran have a history of 600 years (1438-2015). The tectonic earthquakes caused by the geological system in Makran. The characteristic seismicity is associated with the subduction of Arabian underneath Eurasian plate occurs in North Arabian Sea, along the coastal areas of Pakistan and Iran. (Approximately 1000 km, along N-S). The study area is characterized with high and low seismicity in eastern and western parts, shallow and deep focus earthquakes in Northern and Southern parts, cause severe damage after tsunami along coast. The geospatial distribution of earthquakes suggests there is a shift in seismicity of Makran over local coordinates in last century. It seems that the stresses are initially build/transferred from frontal Makran/offshore (Subduction Zone) and released in other parts to the North, East and West. Major earthquakes in Makran subduction zones are tsunamigenic and have a long tail of aftershocks of shallow to deep focal depths. The coastal areas of Makran (Jiwani, Gwadar, Pasni, Ormara and Gadani) are important centres of sea-trade and socio-economic system. The new ventures of development, urbanization, exploitation of mining for economic minerals, and exploration for hydrocarbons in offshore Makran demand recent studies on seismicity. A potential earthquake in Makran may snatch the beauty of fascinating sea ports and turn the under developed projects into rubbles. Makran is considered as a special case for the researchers due to its low seismicity but has a potential to shake the ground with maximum release of strain energy. The statistical, seismological and geological results of this study may guide the researchers, explorationists, planners and students because this study provides a link between geology and geophysical characteristics of Makran through data integration.