

Seismotectonics of the Sagaing Fault in Myanmar

Atakan K., (1), Tun S.T., (2) and Thant M. (2)

(1) Department of Earth Science, University of Bergen, Allegaten 41, N-5007 Bergen, Norway

(2) Myanmar Earthquake Committee, MES, Yangon, Myanmar

Corresponding Author: Atakan, K., (atakan@geo.uib.no)

Sagaing Fault (SF) extending more than 1,000 km across entire Myanmar in N-S direction, forms the transcurrent NE-boundary of the Indian Plate accommodating its northerly motion between the Burma and Sunda microplates. It is a typical continental dextral strike-slip fault with a slip-rate of 18 mm/year and is comparable to other well-known faults such as the San Andreas Fault (SAF) in California, U.S., North Anatolian Fault (NAF) in Turkey and the Great Sumatra Fault (GSF) in Indonesia. Historically and within the instrumental period, the Sagaing Fault has produced a number of large earthquakes some of which has caused significant damage. Since 1918, there has been six $M > 7$ earthquakes between 1930 and 1956 with 610 casualties. These are May 1930 ($M=7.4$), December 1930 ($M=7.5$), January 1931 ($M=7.7$), September 1946 (two earthquakes with $M=7.5$ and $M=7.8$), and July 1956 ($M=7.0$) earthquakes. The most recent significant earthquake occurred in January 1991 ($M=6.9$). The location of these earthquakes and their surface ruptures leaves two significant gaps, one in central Myanmar and the other southern section in the Andaman Sea. According to Hurukawa and Maung (2011), the largest one of these, the central segment is capable of generating a large earthquake ($M \sim 7.8-7.9$) with max rupture length of 260 km. The location of the capital city of Myanmar, Nay Pyi Taw falls into this segment causing an important exposure to a possible future earthquake risk. Current efforts by the Myanmar Earthquake Committee on assessing the seismic hazard in the country revealed the need for establishing a long-term science program focused on understanding the true earthquake potential of the Sagaing Fault through geological, geophysical, seismological, and paleoseismological studies.