

## **Tectonic Activity and Paleoseismicity of the Sagaing Fault Indicated By Post-Pliocene Alluvial Fans and Fluvial Sediments**

**Myint Thein<sup>1</sup>**

<sup>1</sup>Myanmar Geosciences Society ([myintthein.geol@gmail.com](mailto:myintthein.geol@gmail.com))

### **Abstract**

The sedimentological characteristics and structural behavior of Post-Pliocene strata and their relation with basement rocks, and morphological features around the Sagaing Fault collectively imply that different segments of the fault may be subjected to transpression or transtension simultaneously, an area of crust moving along the fault may at one time be subjected to transtension, and then at a later time be subjected to transpression. Overall, for a tectonic scenario of the major strike-slip fault, blocks (segments) of crust moving along the Sagaing Fault rise and fall like a dolphin jumping and diving as it follows a ship. Regional geological data and field observations indicate that available triggering mechanism for the SSDS and large limestone rockfall blocks is seismicity due to active movement (with a range of slip rates of 11.1 mm/yr to 25.6 mm/yr) along the Sagaing Fault. At least four strong earthquake events have been detected in the study area during a time span of 1.8 Ma. The occurrence of SSDS in the Upper Irrawaddy Series and presence of rockfall blocks associated with alluvial fan deposits is evidence for continuing tectonic activity in the study area during the late Cenozoic and is consistent with the occurrence of paleoearthquakes of magnitude > 5. The present work describes for the first time SSDS in coarse grained sand and gritty sands of the Upper Irrawaddy Series. Similar study in the pre-Pleistocene sediments in the eastern part of backarc basin of CMB may shed light on the timing of the Sagaing fault. It is concluded that the alluvial fans and fluvial sediments in the Sagaing area bear valuable proxy record of the active tectonic activity and paleoseismicity of the Sagaing Fault.