Active Tectonics around Western Myanmar: Preliminary mapping result

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A. Kabow Valley and Kabow fault system

- Close view of the Kabow Valley in the eastern limits of Indo-Burma Ranges. This area is dominated by east dipping thrust faults. Previous GPS study suggested a Divergent Indo-Sunda plate motion is arrested along the Kabow fault. (A1) The aerial photo of Figure 1 shows some of the Kabow fault system is active from geologic expression. The clear deviation in the SRTM is fault line scarps. (A2) The Kabow fault slip partition system cartoon. We suggest only the western most fault trace in this system is active now.

B. Ramree Island and 1762A.D. earthquake

- The distribution of marine terraces along the western Myanmar coast. Orange number shows the steps of terrace from satellite images. Images in different location are shown in (B1) (B3) (B4). It suggest the northernwestern corner of Ramree Island is the Holocene uplift center in this area. Also, the steps of terraces increases toward the megathrust. This feature suggests the distribution of marine terraces are controlled by the active behavior of the megathrust.

- Possible Co-seismic deformation during the 1762A.D. earthquake. Red dot: measured coast elevation in 1962 A.D. Green dot: possible earthquake related uplift from previous study. Blue dot: Tectonic subsidence or liquefaction during the 1762 earthquake. The uplifting pattern is similar to the distribution of marine terraces.

C. Naga thrust fault system

- Regional tectonic map of the Burma plate. The blue contour shows the thickness of marine sediment in the Bay of Bengal area. The Indo-Australian plate moves 30mm/yr relative to India on the base of a Sunda plate. The central Andaman Sea fault spreading rate is ~30mm/yr based on the magnetic anomalies.

- Active tectonic map around western Myanmar. The landmass is based on 30m SRTM. Offshore area is based on 10m/110,2 & previous studies.

D. Inversion strike-slip fault and 1912A.D. earthquake

- 1912A.D. earthquake epicenter and regional active structures. We believe this earthquake was related to the right-lateral/half-graben system in the center of the map. The hanging wall morphology (D2) in the northern extension of this structural system suggests the slip inversion in this region. (D3) shows the restoration of the left-right lateral slip based on the river morphology. It suggests ~4km right lateral slip along the fault trace. We further use the geological contact to reconstruct the early left-lateral slip in (D4). The result suggests 6.7km left-lateral slip along the fault trace.

- The other possible inversion strike-slip fault near Sagon fault. The western part of Pison fault near to the Sagon fault shows right lateral slip on the river morphology. However, the geological contact suggests it was once the left-lateral fault. The surface feature suggest only the western Pison fault is active now.