Indonesia-PNG figcaps

1-4/11/12 strike-slip eqs off Sumatra. Strait Times 2012, ST-april11. Description by Kerry Sieh of two strike-slip earthquakes on 11 April 2012. These are the largest strike-slip earthquakes ever recorded. They occurred in the diffuse boundary between the India and Australia plates, west of the 2004 and 2005 great subduction zone earthquakes. The N-S zone of shallower topography marks the Investigator Fracture Zone.

2-Banda Arc.jpg. West side comprises part of stable Sunda Plate in Borneo, E Sumatra, and N Java. Java Trench extends E to edge of Australia continental plate; trench is in deep water except one place where an offshore seamount group in Australia Plate (Roo Rise) is colliding with arc S of E. Java. Note forearc ridge and basin. To N are active volcanoes of Java subduction zone, extending E to western Sunda Islands. Farther E, plate boundary is a collision zone, and subduction is flipping N of Sunda Islands; note great water depths N of Sumba. Greatest water depths in Banda Arc are W of plate boundary in Weber Deep, which has active volcanoes to W. On Sulawesi, note NNW-trending Palu-Koro fault cutting off N arm of Sulawesi, and SE trending Matano and Lawanopo faults across the SE arm. Ayu trough is N-gtrending boundary between Philippine Sea and Caroline plates. Note great water depths just E of Philippines due to young Philippine Trench. This differs from shallow depth of E Sangihe trench E of N arm of Sulawesi. Figure 10.6. Reference Hamilton, W., 1979, *USGS Prof. Paper 1078*, 345 p.

3-E.Indonesia.jpg. Bathymetry and earthquakes between Sulawesi and western New Guinea. Banda arc in SW quarter, but greatest depths are in Weber Deep to E, just west of Aru Islands, part of Australia Plate. Deepest earthquakes are in W-trending Banda arc N of Timor and islands to W. Sangihe trench extends N from E Sulawesi.; large number of earthquakes to E and N mark Philippine trench, which ends near Morotai, N of Halmahera. High area with islands E of central Sulawesi are Sula-Banggai block. Eqs at N end of Bird’s Head are related to Sorong and Koor faults; Sorong fault turns SW as Ransiki fault and continues with east strike as Yapen fault. N-S linear features N of Bird’s Head comprise Ayu Trough, separating the Caroline Plate on E from Philippine Sea Plate on W. Deep-focus earthquakes characterize Java subduction zone (SW corner of image) but not Philippine trench, which has deeper bathymetry but not deep earthquakes because it is too young. Fig. 10.6. Reference Hamilton, W., 1979, *USGS Prof. Paper 1078*, 345 p.

4-moluccasea.jpg. The Molucca Plate is completely in the subsurface, overlain by the active Sangihe Arc on W and Halmahera Arc on E, both with active volcanoes and a W-B subduction zone. Sangihe W-B zone is most extensively developed, as noted by deep earthquakes in the Sulu Sea west of the Sangihe Arc (but not as many earthquakes as the arc N of Java). Between the two arcs are accretionary-wedge sediments derived from both arcs. Fig. 10.8. Reference Hamilton, W., 1979, *USGS Prof. Paper 1078*, 345 p.

5-moluccaseaplate4.jpg. Thrust symbols show how accretionary-wedge sediments are being thrust back against the two island arcs. To E, Philippine Trench ends against a possible large igneous province at Morotai Island, which blocks the subduction of ht Philippine Sea plate farther S. The Molucca Plate ends S against the Sorong right-slip fault and, farther W, the Sula-Banggai spur extending E from Sulawesi. The Sorong fault marks the N edge of the Sula-Banggai spur. Figure 10.8. Reference Hamilton, W., 1979, *USGS Prof. Paper 1078*, 345 p.

6-West PNG.jpg. On NW, the E-W Sorong fault crosses the northern part of the Bird’s Head, then shifts SE to Ransiki fault, then E again to Japen fault, which controls the shape of the narrow elongate Japen Island. Straight NE-facing coastline is the New Guinea-Wewak trench. New Guinea Highlands are a linear deformed belt in center of both the Indonesian and PNG parts of New Guinea. In SW corner, the Aru and Tenimbar islands are part of the continental Australia Plate. Figure 10.9. Source: TTI Production.