

ACTIVE FAULT AND SURFACE RUPTURES OF PIDIE EARTHQUAKE ON 7th DECEMBER 2016, ACEH, INDONESIA

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Seismicity of Sumatera Island Indonesia, consist of three seismic source zones are West Sumatera Subduction seismic source zone, Sumatera Active Fault seismic source zone and North Sumatera Back Arc Thrusting seismic source zone.

Pidie earthquake on 7th December, 2016 has the magnitude 6.5 Richter scale and the depth 15 Km. This earthquake caused the damaged of geology and infrastructures, panic and perished. Total losses caused this event estimated is about 1.854 Trillion rupiah. The geological damaged during this event are surface ruptures, liquefactions and landslides. The surface ruptures mainly found in West –East and North - South directions. The West –East surface ruptures found parallel to coastal line and the North –South surface ruptures found crossing the West –East surface ruptures. Liquefactions generally appear in North –South surface ruptures as the extensional zones. Horizontal offset found is 12 centimeters and the vertical offset is 10 centimeters. Landslides commonly found in the areas of mountainous slopes at southern part of Pidie Jaya district.

Base on focal mechanism solutions, distribution and propagation of aftershocks, pattern of intensity map and the direction of surface ruptures, expected this earthquake caused by sub marine oblique thrust fault and call as the North Sumatera Back Arc Thrusting. This fault located in offshore area is about 23.5 Km from coastal line of Pidie Jaya region.

Keywords: Surface Ruptures, North Sumatera Back Arc Thrusting