

A preliminary report on outcrops of the Futagawa fault, which moved with the 2016 Kumamoto earthquakes

*Kiyokazu Oohashi¹, Tomonori Tamura¹

1. Graduate School of Sciences and Technology for Innovation, Yamaguchi University

During a rapid survey after the 2016 Kumamoto earthquakes, we found three major fault outcrops (the Kamijin, the Kawahara, and the Kuwazuru outcrop) along the Futagawa fault, which considered to moved with the earthquakes. The Kamijin outcrop is located between the places where surface ruptures of 1-2 m (dextral movement) are found. The sharp fault plane, which trends N66°E and dips 90°, juxtaposes the Aso-4 pyroclastic rock and lately formed colluvial soil. The fault displaces modern ground surface and shows dextral displacement of 2 m in maximum due to the 2016 Kumamoto earthquakes. Based on the spatial distribution of the Aso-4 pyroclastic rock and the colluvial soil, we estimate that the accumulated displacement of ~10 m after the formation of the Aso-4 pyroclastic rock.

At the Kawahara outcrop, we found a fault breccia zone of 20 cm thickness which trends N90°E and dips 72°N.

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