

Constraining timing of thrust activity within the Nobeoka Thrust, SW Japan

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Studies of the thermal, mechanical and hydrothermal effects of Nobeoka drilling core samples (NOBELL) indicate distinctive changes in the Illite crystallinity between the footwall, main fault zone and hanging wall (Fukuchi et al., 2014). Detailed illite crystallinity investigations of the core samples provide a unique framework to constrain timing of authigenic illite formation within an ancient tectonic boundary thrust system. This pilot study investigates timing of thrust formation by dating of authigenic illite (<2 micron fractions) separated from 2 fresh non- weathered fault core, 3 footwall and 2 hanging wall core samples from the Nobeoka drilling core collected over a depths range of 80 to 30 m below ground surface. The obtained K-Ar ages range from ~ 41 Ma (Paleogene-Eocene-Lutetian) to 28 Ma (Paleogene-Eocene-Chattian) and cover an age range of ~ 14 Ma. The <2 μ m age data of the two main fault zone samples range from ~ 32 Ma (Paleogene-Eocene-Rupelian) to ~ 28 Ma (Paleogene-Eocene-Chattian) and will be discussed within the geological background of an ancient tectonic boundary thrust system.

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References

Fukuchi et al., 2014. Earth, Planets and Space 2014 66:116.

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