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The deformation rate of a frontal thrust (the Changhua fault), the middle western Taiwan

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Taiwan is located in a collision zone between the Eurasian continental plate and the Luzon Arc on the Philippine Sea plate. The convergence rate is 90 mm/yr in a NW-SE direction. In the central Taiwan, there are a lot of thrust belts which is north-south trend. The Tertiary sediments on the continental margin have been strongly folded and faulted due to the collision as a result of the active thin-skin thrust belt which is displayed in the Western Foothills, since Early Pliocene time; the deformation is still ongoing at high rates. This study focuses on the Changhua thrust fault, which is the frontal most fault of central Taiwan, and which is presently the primary source of seismic hazards in this densely populated area. The south of this fault is blind. Along this fault, recent tectonic activity is evidenced from the ubiquitous presence of tilted geomorphic markers. The recurrence interval and shortening rate for long term have not been resolved so much yet. In this study we first use the air photograph to reveal the geomorphologic development, then use continuously cored boreholes to reconstruct the depositional history, dig the terrace surface, perform 14C dating of these late Quaternary sediments and explore the fault geometry by the shallow refraction survey, result of this analysis is able to assess the uplift rate and activity.The north of this fault cut through the surface and the long-term vertical deformation rate along the northern Changhua fault was about 1-3 mm/yr. The activity of the southern part is higher than of the northern part. Some samples are dating, we can report a more

detail deformation rates.