Probable overestimation of the 745 Tenpyo Mino, Japan, earthquake (M about 7.9)

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Concerning the 745 Tenpyo Mino earthquake in central Japan (June 1, 745 in the Julian calendar), “Materials for Comprehensive List of Destructive Earthquakes in Japan, 599-2012” (Usami *et al.*, 2013) locates the epicenter in the midst of the Yoro-Kuwana fault zone and assigns 7.9 for M. Sugai *et al.* (1999) inferred that the Yoro fault system had generated this earthquake. However, the interpretation by Usami *et al.* (2013) comes from Omori (1913), who misread a historical document, and, therefore, is considered to be inappropriate.

Omori (1913) considered that the aftershocks of the 745 earthquake had been felt for more than 20 days in the capital, which he regarded to be Naniwa no Miya in Osaka City, based on the descriptions in the *Shoku Nihongi* (Chronicle of Japan, Continued), the only historical document on this earthquake. He estimated this earthquake as large as the 1891 Nobi earthquake (M8.0) in Mino, because the 1891 aftershocks had been felt in Osaka for about ten days. However, the estimation of Omori (1913) is wrong because the capital was moved to Shigaraki no Miya in Ohmi province (present-day Shiga Prefecture) nearer to Mino than Naniwa no Miya, about four months before this earthquake.

If the earthquake were the entire rupture of the Yoro fault system with M 7.9, the disaster should be catastrophic not only in Mino but also in Owari, Ise, and Ohmi provinces. But in the *Shoku Nihongi* there is no description at all suggesting such disaster.

Therefore, it is very doubtful that the 745 Tenpyo earthquake was a M 7.9 event due to the entire rupture of the Yoro fault system. Although the true nature of this earthquake is still obscure since the related information written in the *Shoku Nihongi* is insufficient, the earthquake may have been a M 6.5-7 event related to the Sekigahara fault.

Keywords: 745 Tenpyo Mino earthquake, Shoku Nihongi, Yoro fault system, aftershocks, Shigaraki no Miya, Sekigahara fault

