In the line 69

$(\frac{A}{T})_H = \sqrt{(2 * \frac{A}{T})^2_{N|E}}$. must be $(\frac{A}{T})_H = \sqrt{2 * (\frac{A}{T})^2_{N|E}}$.

Value is too large as it is in the case of $(A/T)_N=(A/T)_E$.

Another concern is if only one component was reported, it might be possible that the larger value of A/T_N or A/T_E was chosen in the report. In the early days of the observation in Japan, stations reported the amplitudes of both horizontal components, but the central office chose only one of the larger component to fill out the central report for labor saving.

The JMA magnitude is determined by the Tsuboi's formula (1959) as

$M_{JMA}=1.73\log\Delta+\log\sqrt{(A_N^2+A_E^2)}-0.83$.

Taking into account situation of the observation Utsu(1979) applied $(\sqrt{2}-0.05)*\log(Amax)$ instead of $\sqrt{2}*\log(Amax)$ for magnitude determination of earthquakes in the early period of observation in his study.

Based on the comparison of $\sqrt{(A_N^2+A_E^2)}$ with $\sqrt{A_{Max}^2}$ for about thousand cases, Hamada et al. (2001) adopted 1.25 instead of $\sqrt{2}$ for their study. These differences are at most 0.1 in M, but I think they are worth commenting on here.

Sorry for the following my references are all in Japanese.

Tsuboi C. (1959) Determination of the GUTENBERG-RICHTER'E Magnitude of Earthquakes occurring in and near Japan, Zisin, 2, Vol 7, 185-193.
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