更新世火山石英のRTL（赤色熱蛍光）年代測定
Red thermoluminescence (RTL) dating of Pleistocene volcanic quartz

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The Red thermoluminescence (RTL) method using tephra quartz has been widely used to date Pleistocene volcanic activity. The RTL method has some useful advantages explained as follows; long trap life time (more than 10^7-10^9 years at room temperature 300K), little effect of anomalous fading and exceeding ability of dose response (Yawata and Hashimoto, 2004). The great potential of RTL method is realized when it is used for the dating of tephra products covering Pleistocene land forms in Japan. Additionally, single quartz grain RTL dating using SAR method (Wintle and Murray, 2003) was also employed for late Pleistocene tephra and succeeded in giving more accurate ages (Ogawa et al., 2011).
RTL research we have been carrying out using some tephra quartz grains in middle Pleistocene (ex. Hakkoda 1st stage pyroclastic flow) showed three type RTL emission patterns; mono-peak type, double-peak type and broad type.
A broad type with double peaks at around 300 and 360°C showed a quite different pattern when compared to the typical shape of a mono-peak type being commonly used for RTL dating, such as a late Pleistocene Toya tephra (Ganzawa et al, 2005).
The broad type of RTL emission is originating in ignimbrite, suggesting a high emplacement temperature over 800°C. Heating quartz grains up to 1000°C, using Hakkoda aquatic pyroclastic flow fixed at a temperature lower than 200°C, clearly showed a change of the RTL emission pattern from a mono-peak type to a broad type in accordance with temperature increment. The RTL pattern heated at 800°C agreed well with the pattern of the Hakkoda ignimbrite, presumably showing the emplacement temperature of 800°C in the volcanic products.

キーワード：赤色蛍光年代測定、更新世テフラ、RTL発光パターン
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