

Fundamental study about factors of errors observed in measurement of apatite fission-track lengths

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The closure temperature of apatite fission track (AFT) is relatively low (90-120 degrees Celsius) and it is sensitive to secondary heating. Since AFT is continuously shortened and erased by heating, track lengths distributions are characteristic. Analyses of apatite track lengths give thermal history at low temperature. In order to reconstruct more reliable thermal history, it is essential to measure track length more precisely. Accordingly, we need to minimize error of measurement of track length. We measured the factors of errors observed in selecting of tracks and measurement by three people analyzer. Comparing three people's results of measurement the same track, measurement error is about 0.2 micro-meters. These errors may be caused by light source (transmitted light or borrowed light). It is necessary to describe which light source measurers used and unify light source. As to the trend of selecting tracks, the angle to the crystallographic c-axis decreases, the number of tracks which are selected decreases. This may be caused by anisotropic etching.