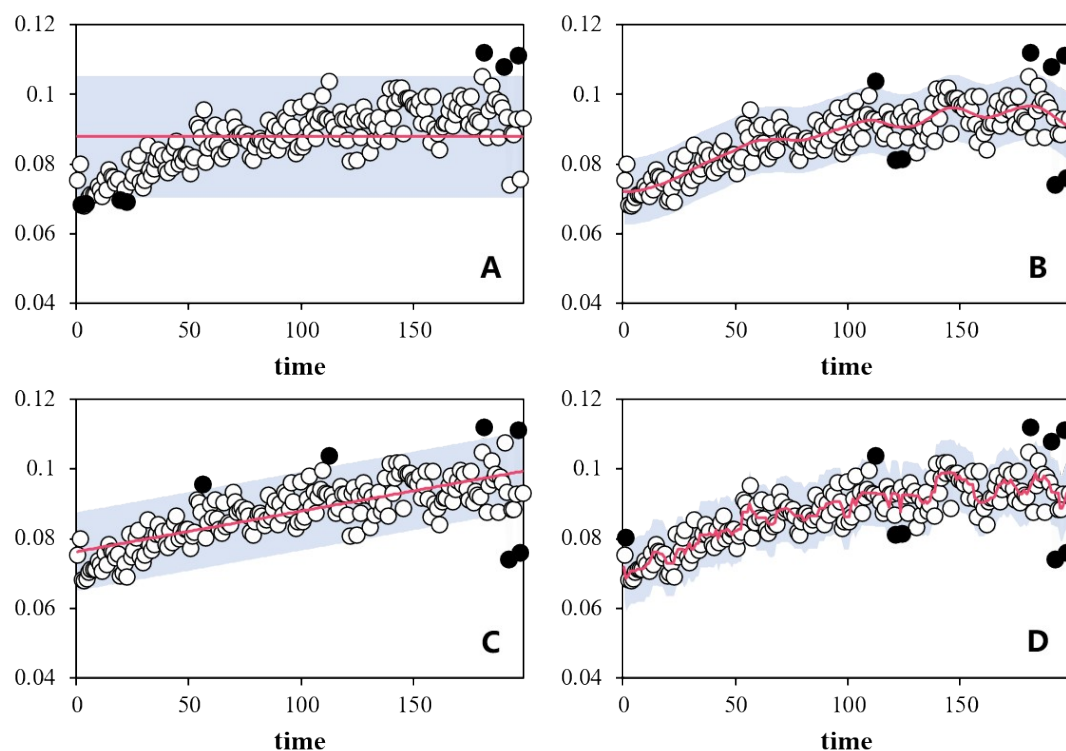


Figure S1. Different outlier rejection method in ICPMSDataCal-Py. A-D are mean  $\pm$  2SD, spline interpolation, linear fit, and Hample, respectively. The light blue area is the uncertainty range and the solid red line is the fitted curve. The black points are outliers determined by different peak filtering schemes.

Figure S2. Five drift fit models in ICPMSDataCal-Py, NISTSRM610 as external standard to correct time drift of Na/Si for a natural silicate mineral. Figures A to E represent linear interpolation, quadratic interpolation, cubic interpolation, linear fitting and average models.

Figure S3. Various quality control diagrams in ICPMSDataCal-Py. Figure A displays the relative error plot between measured values and reference values for reference materials. The gray shaded areas represent error thresholds of 5% and 10%, respectively. The current reference material, BHVO-2G, is highlighted, and relative errors for current

**Figure S1**



**Figure S2**

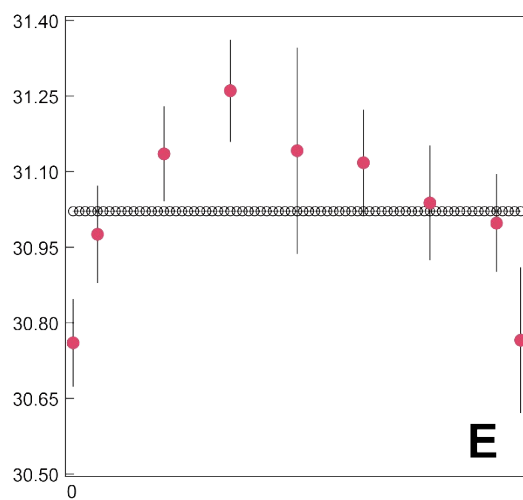
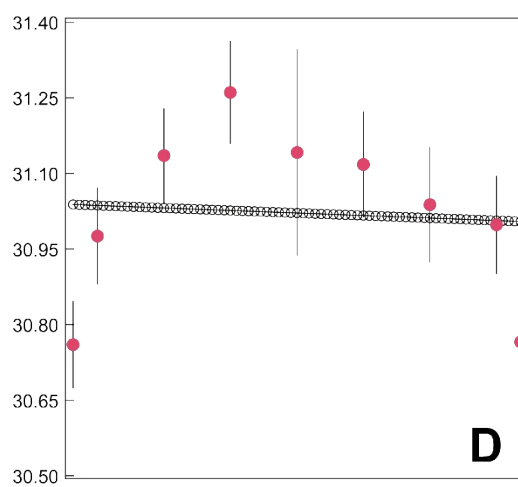
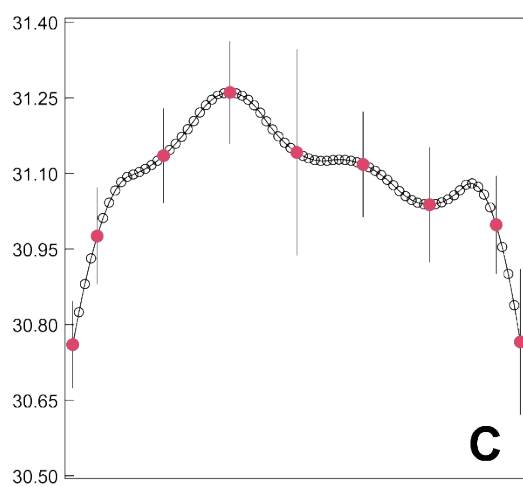
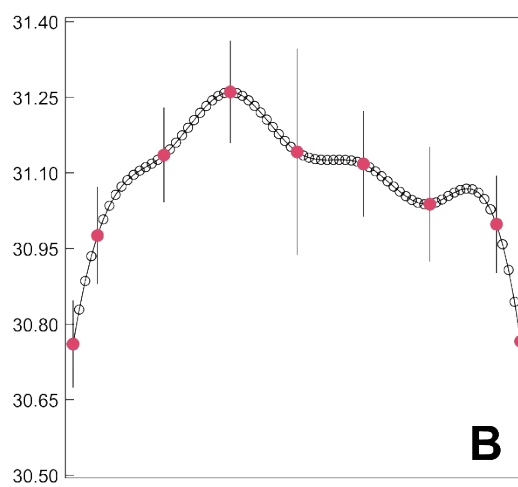
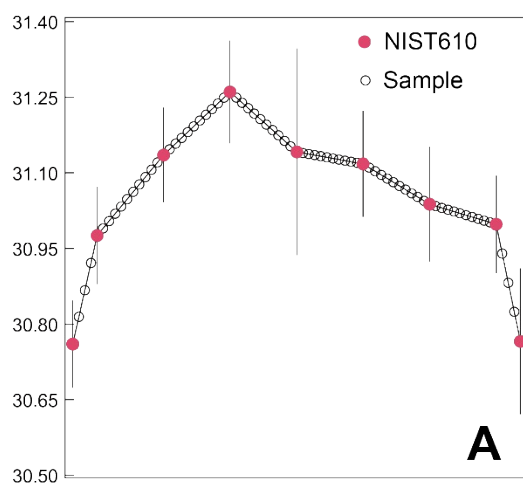


Figure S3

