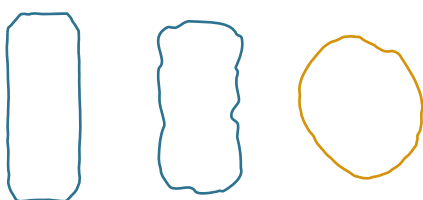


Select apatite for analysis:



**Step 1.** Select grain geometry and GEM category

Hexagonal

Ellipsoid

**Step 2.** Measure the grain's length and maximum width

**Step 3.** Calculate the 2D values

**Step 4.** Correct the 2D  $V$ , isotope-specific  $F_T$ , and  $R_{FT}$  values according to grain geometry

*Example:*

$$V_{GCM} = V_{2D} \times \text{correction}$$

**Step 5.** Assign uncertainties to  $V_{GCM}$ , isotope-specific  $F_{T, GCM}$ , and  $R_{FT, GCM}$  according to grain geometry (all parameters) and maximum width ( $F_{T, GCM}$ )

*Example:*

$$V_{GCM} \pm 1\sigma \text{ uncertainty \%}$$

**Step 6.** Calculate derived parameters (mass, eU, corrected AHe date) and propagate uncertainties