Appendix 1. Analytical methods

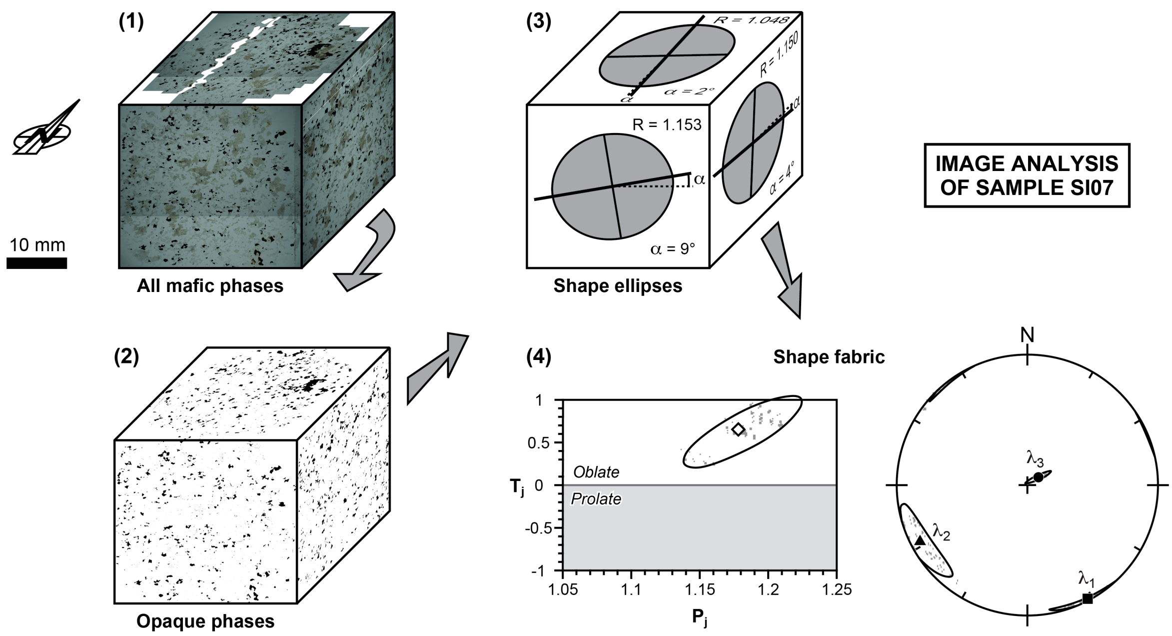
Anisotropy of low-field magnetic susceptibility

The AMS measurements were performed in a low magnetic field of 300 A/m, using two different Kappabridge instruments of AGICO Ltd. The KLY-3 apparatus available at Liège University (Belgium) was utilized for the 22 mm-high cylinders cut from 25-mm-diameter oriented cores (367 cylinders, three to six per sampling locality). The KLY-4S at La Rochelle University (France) was used for the 21 mm-large cubes cut from oriented blocks SI55 and SI66A (9 cubes, three for SI55 and six for SI66A). The measurements provided, for each specimen, the magnitude and orientation of the three principal axes of the ellipsoid representing the symmetrical second-rank tensor that approximates AMS in a low magnetic field ($K_1 \geq K_2 \geq K_3$). For each sample, *i.e.* a group of three to six cylinders or cubes, a mean ellipsoid was calculated from the individual AMS measurements following the tensor averaging method of Hext (1963).

Image analysis

The image analysis procedure is detailed, in four steps, using analysis of sample SI07 as an example (see figure below).

Three mutually orthogonal thin sections, two vertical and one horizontal, orientated according to the cardinal points were cut across each selected block and then digitized. In the example (Step 1), photomicrographs of the thin sections were taken under transmitted light, with uncrossed polars (elongated white areas on the horizontal section have been added to conceal a network of microcracks). The digitized images were treated to isolate by thresholding a given family of grains, either opaque phases, as in the example (Step 2), or plagioclase. The resulting binary images were analyzed using the intercept method of Launeau & Robin (1996), providing a record of the boundary orientation distribution of the target minerals. The output of this 2D analysis is the ellipticity ratio (anisotropy degree measurement) and orientation of the principal axes of an ellipse describing the shape fabric of the analyzed minerals in each section. In the example (Step 3), R is the ellipticity ratio and α is the angle between the long axis of the ellipse and one side of the section. The software ELLIPSOID of Launeau & Robin (2005) was then used to reconstruct, from the orthogonal 2D data, an ellipsoid representative of the 3D shape fabric. This ellipsoid is represented here (Step 4) through a lower hemisphere, equal-area projection of the principal axes (λ_1, λ_2 and λ_3, long, intermediate and short principal axis, respectively) and a Jelínek (1981) plot of T_j *vs.* P_j, both with raw measurements, 2σ confidence zones and mean values.



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