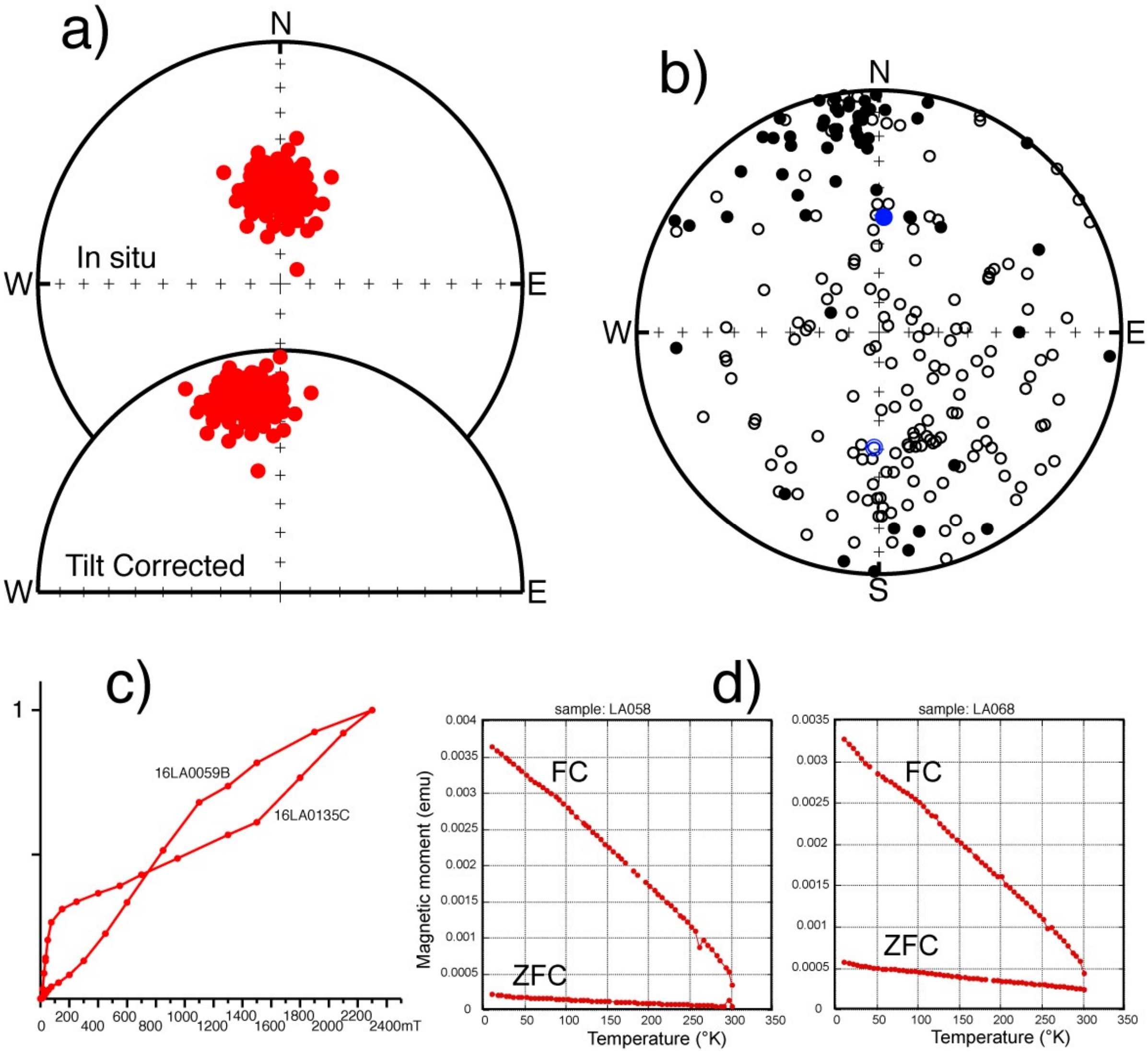
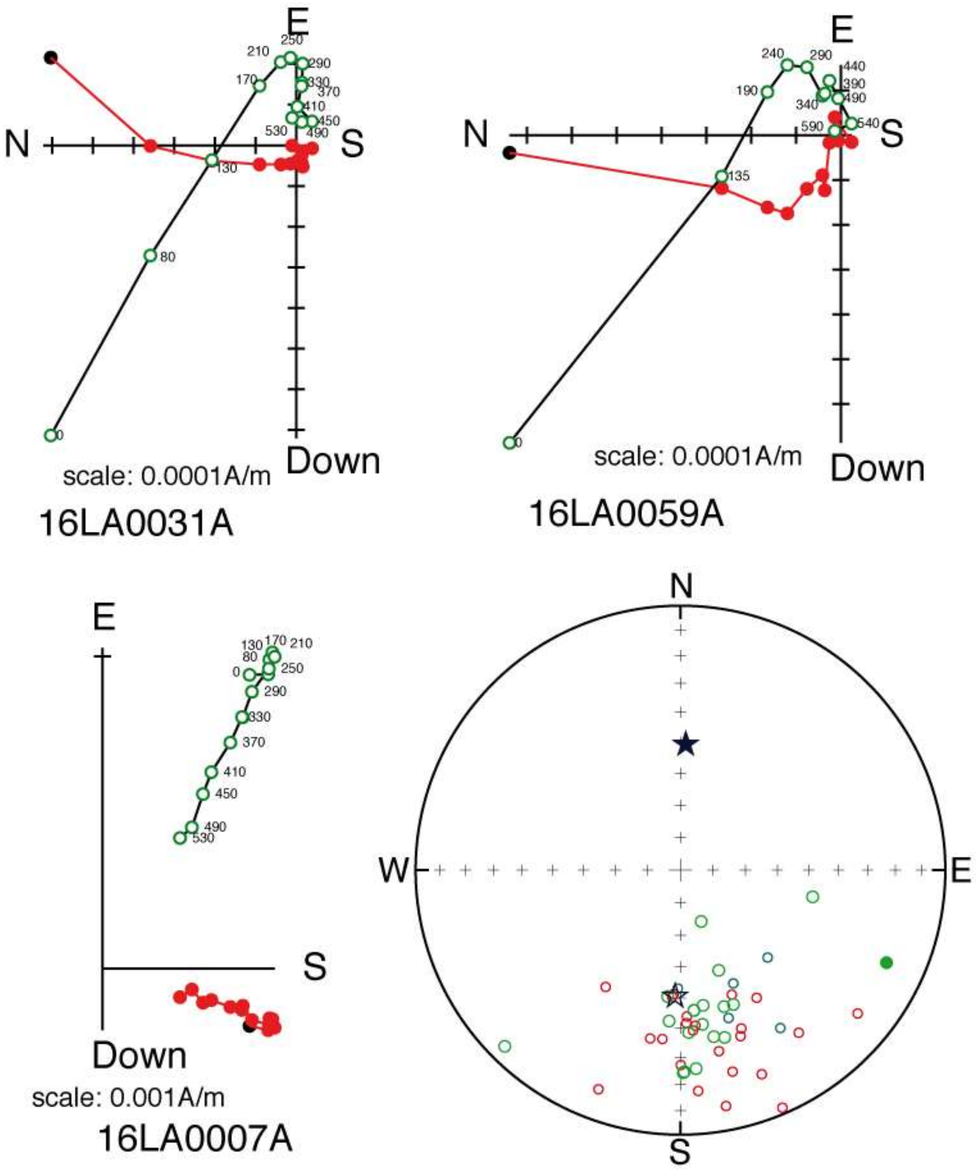
Supplementary material 2. Paleomagnetic results

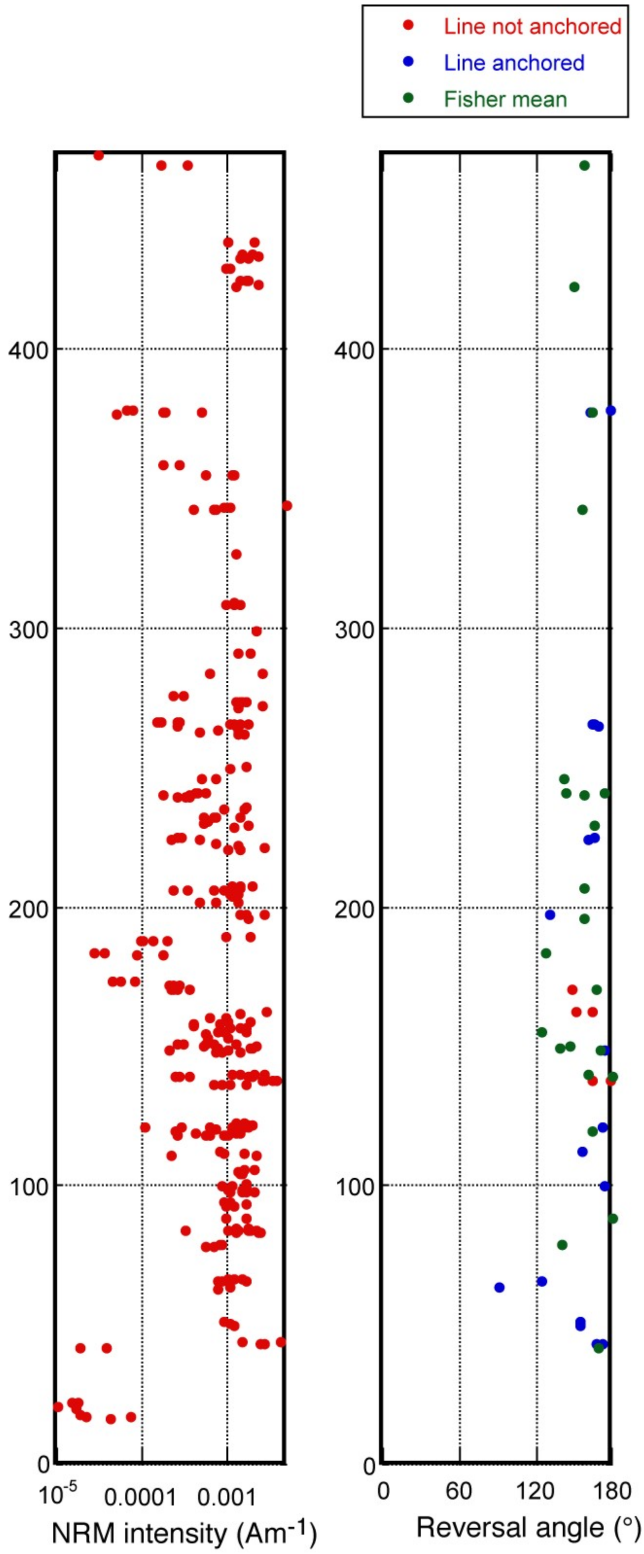


Supplementary Figure A.

a) Equal-area projections of the low temperature component of magnetization determined in the temperature range 80°-210°C in in situ and after tilt corrected direction. b) Paleomagnetic directions observed in samples demagnetized at 210°C, shown after tilt correction. Most samples have negative inclinations. Directions of magnetizations with positive inclination correspond mostly to present-day field directions not removed at 210°C. c) Acquisition of isothermal remanent magnetization showing the presence of high coercivity minerals like goethite and/or hematite. Magnetite is also identified in sample 16LA0135C. d) Examples of low-temperature magnetic measurements showing the large difference between the zero-field (ZFC) and field cooled (FC) experiments.



Supplementary Figure B.
Examples of orthogonal plots of thermal demagnetization data in in situ coordinates. Red and green circles correspond respectively to the projection in the horizontal and vertical planes. Samples 16LA0031A and 16LA0059A have a strong overprint in the present-day field while sample 16LA0007A has a very stable magnetization of reverse polarity. Equal area plot of the characteristic remanent magnetizations (ChRM) determined in the sections in tilt-corrected coordinates. Green circles correspond to ChRMs determined by vectors anchored to the origin. Blue circles correspond to ChRMs determined by vectors not anchored to the origin and red circles correspond to directions determined by Fisher statistics on the demagnetization data. Open (filled) symbols correspond to negative (positive) inclination.



Supplementary Figure C.

left) plot of the intensity of the natural remanent magnetization. right) plot of the reversal angle of samples for which a polarity can be assigned. The reversal angle is the angle between the characterisc magnetization and the expected direction for stable Europe at 60Ma. (0 for normal polarity, 180 for reverse polarity)