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Text DR2. Report on the zircon U-Pb SHRIMP geochronology of the rhyodacitic juvenile fragment located at the uppermost top of the Ouarzazate Group volcanic pile (sample BP13) in the Bou Azzer inlier.

ANALYTICAL PROCEDURES

Igneous zircon grains from the sample BP13 located at the uppermost top of the Ouarzazate Group volcanic pile on the Tazegzaout Section in the Bou Azzer inlier were separated, from rocks by well-known routine procedure: moderate; crushing and sieving followed by densimetric (bromoform and methylene iodide), magnetic and electromagnetic separations of the heavy minerals fraction for U-Pb age determinations at the CPGeo-USP, Brazil. The crystals were further mounted in epoxy, together with the TEMORA-2 standard (Black et al. 2004), and polished to expose the interior of the grains. After coating with Au, the polished mounts were comprehensively examined with a FEI Quanta 250 scanning electron microscope equipped with secondary-electron and cathodoluminescence (CL) detectors at CPGeo-USP; the most common conditions used in CL analysis were as follows: 60 μA emission current, 15.0 kV accelerating voltage, 7 μm beam diameter, 200 μs acquisition time, and a resolution of 1024 × 884. The same mounts were afterwards analyzed by the U-Pb isotopic technique using a SHRIMP II following

the analytical procedures presented by Williams (1998). Correction for common Pb was made based on the basis of the ^{204}Pb measured, and the typical error for the $^{206}Pb/^{238}U$ ratio is less than 2%; uranium abundance and U/Pb ratios were calibrated against the TEMORA standard, and the ages were calculated using Isoplot® version 3.0 software application (Ludwig 2003). Errors are reported as 1σ deviations and ages have been calculated at the 2 σ level.

RESULTS

Zircons from the sample BP13 exhibit mean lengths and widths of 147 µm and 67 µm, respectively. The grains are euhedral to subhedral and CL images show oscillatory zoning for most of them (**Figure F1 DR2**). The Th/U ratio ranges from 0.15 to 1.67, (**Figure F2 DR2**) indicating a population of exclusively igneous origin crystallized from magmas of intermediate to felsic composition (e.g., Hoskin and Schaltegger 2003; Linnemann et al., 2007). Nineteen spots were analyzed on 16 grains. The spots were generally set on oscillatory zoned regions of the grains (**Figure F1 DR2**). The ages range from 496 ± 11 Ma 1249 ± 23 Ma and 11 spots yielded a Concordia age of **578.6 ± 4.8 Ma** (MSWD of concordance = 0.031, Probability of concordance = 0.86) interpreted as the crystallization age of the rhyodacitic juvenile fragment (**Figure F3 DR2**). The older ages are interpreted as inherited ages while the youngest ages could be a result of Pb loss.

FIGURES

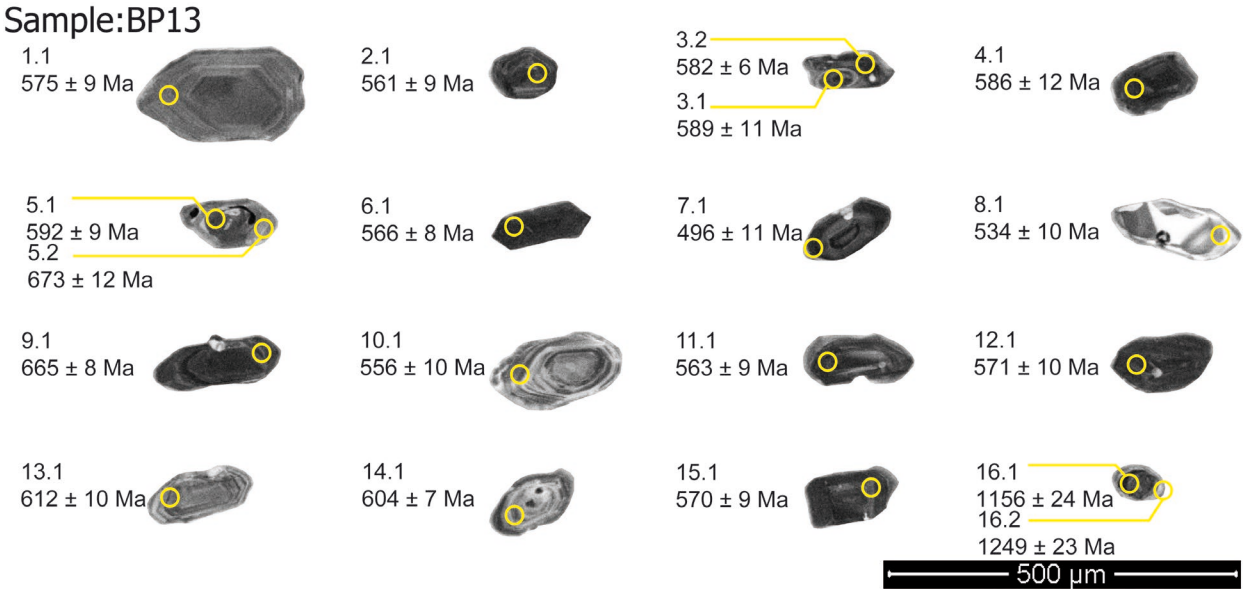

Figure F1 DR2. Cathodoluminescence (CL) images of zircon grains obtained from the rhyodacitic juvenile fragment located at the uppermost top of the Ouarzazate Group volcanic pile (sample BP13) in the Bou Azzer inlier showing their internal texture, laser spots (yellow circles), and apparent ages in Ma (1σ error).

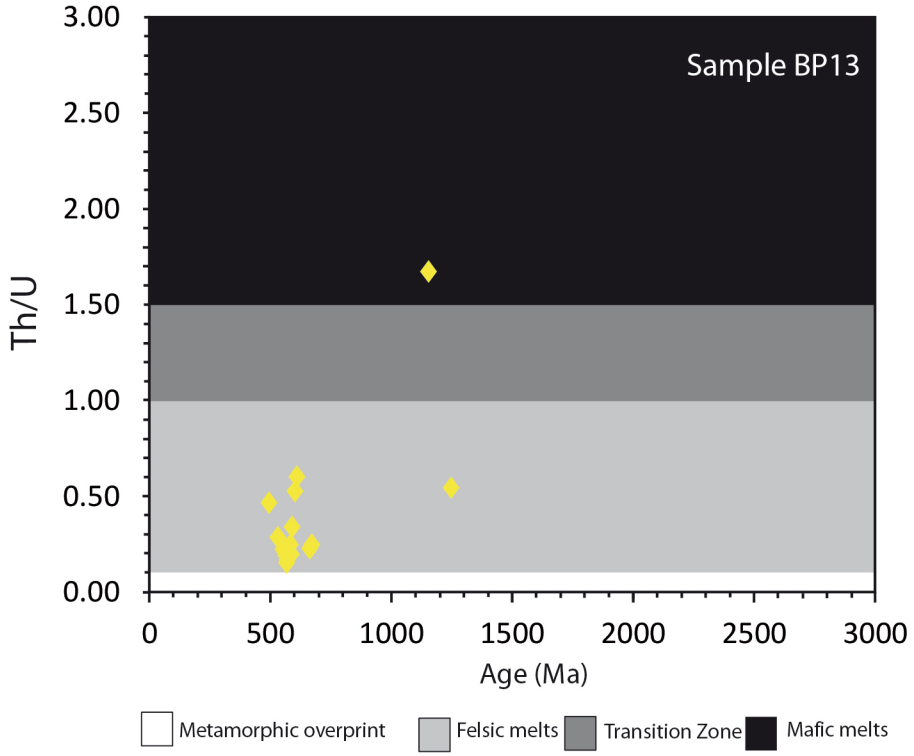

Figure F2 DR2. Th/U ratio vs. concordant U-Pb age of igneous zircon grains of the rhyodacitic juvenile fragment located at the uppermost top of the Ouarzazate Group volcanic pile (sample BP13) in the Bou Azzer inlier.

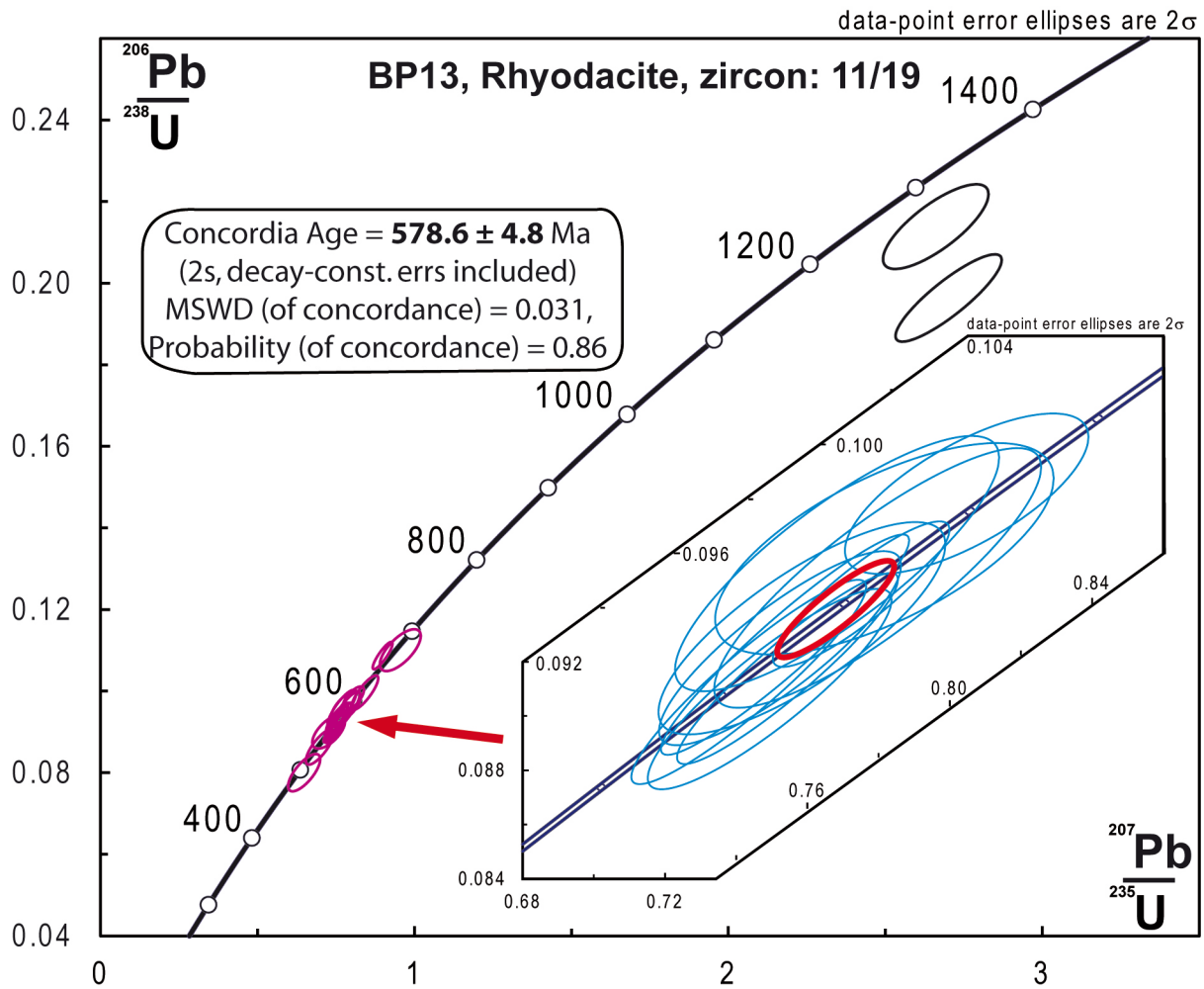

Figure F3 DR2. Zircon U-Pb SHRIMP geochronology: Wetherill concordia plots of U-Pb zircon data of the rhyodacitic juvenile fragment located at the uppermost top of the Ouarzazate Group volcanic pile (sample BP13) in the Bou Azzer inlier.

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