



U-Pb MONAZITE AGES OF FAMATINIAN GRANITOIDS IN THE EASTERN SIERRA DE VELASCO, SIERRAS PAMPEANAS, ARGENTINA

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ABSTRACT

The Sierra de Velasco is one of the largest granitic massifs of the Sierras Pampeanas and contains a complete record of Paleozoic polyphase magmatism (e.g. *Toselli et al., 2007*). It is composed of I- and S-type Ordovician granitoids intruded by Carboniferous S-type plutons (e.g. *Báez et al., 2005*), being the former spatially dominant. The I/S limit is represented in the central-southern sector of the sierra (*Bellos, 2005*). Cordierite-bearing granitoids are observed as small bodies spatially associated to the S-type belt. The eastern Sierra de Velasco is composed mainly of shear-deformed two-mica peraluminous granitoids and cordierite bearing granites, both intruded by the Carboniferous Huaco and Sanagasta plutons (*Grosse et al., 2008*). Two samples of two-mica peraluminous granitoids (samples 7833 and 7920) and one sample of cordierite-bearing granitoids (sample 7903) were collected for geochronological studies. Mineral separation and U-Pb isotopic analysis were carried out at the Centro de Pesquisas Geocronológicas-Instituto de Geociências of the University of São Paulo. Monazite and zircon crystals were analyzed by the ID-TIMS method. For single-grain plots and mean-age calculations, the Isoplot/Ex 2.06 software (*Ludwig, 1999*) was preferred. Monazite analyses yielded the most reliable ages since they plotted close to the concordia curve and showed very low dispersion on Tera-Wasserburg diagrams. Four single-grain monazite analyses of sample 7832 yielded an average age of 476.4 ± 1.5 Ma. The only single-grain monazite analysis of sample 7920 yielded a younger age of 461 ± 2.2 Ma. A similar age of 465 ± 12 Ma was obtained for sample 7903 from three monazites. Shear-deformed peraluminous- and cordierite-bearing granitoids correlate with Famatinian ages previously obtained in the Sierra de Velasco and adjacent regions. Ages are rather scattered and some of them overlap within errors. Scattered Ordovician U-Pb ages were obtained in several works in

other granitic plutons of the Sierra de Velasco and even in other sectors of the Sierras Pampeanas. As observed by *Varela et al. (2008)*, no polarity of the Famatinian magmatic arc can be discerned. It is probably that due to very slow exhumation rates, longstanding residence of the crust under a high-temperature regime and consequent long-lived poly-phase magmatism caused partial resetting of U-Pb ages.

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