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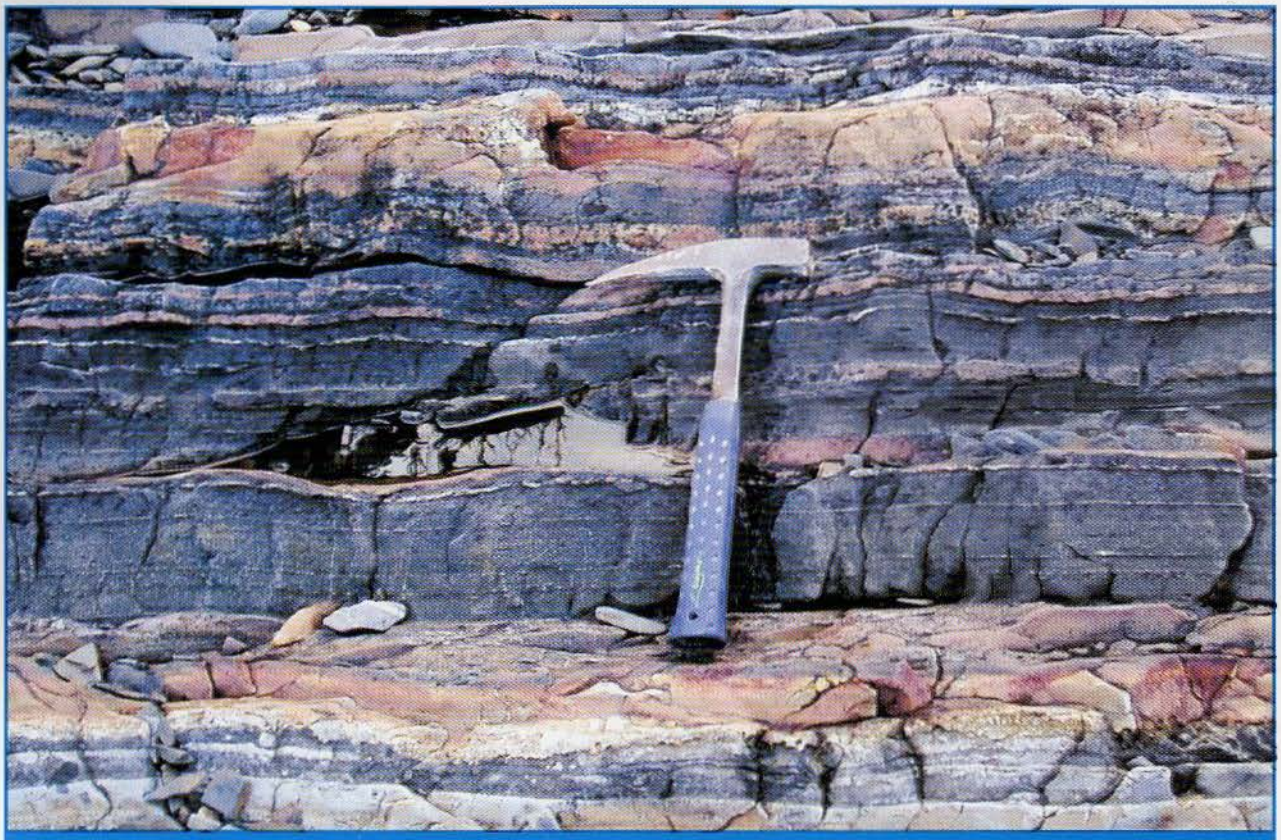

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# An Ediacarian carbonate platform in the Eastern Sierras Pampeanas of Argentina: Sr isotopic relations in marbles of the Sierra de Ancasti

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A sequence of quartzite, calcite and calcite-dolomite marbles, quartz-micaschist, biotite gneiss and metabasite crops out in the eastern flank of the Sierra de Ancasti. In the central part of the sierra the sequence is represented by the Ancasti Formation, an important succession of rhythmically banded psammo-pelitic schists without marble. Metamorphic grade increases westwards, culminating in a gneiss–migmatite complex. U-Pb SHRIMP zircon data limit sedimentation to less than 600 - 570 Ma (Rapela *et al.* 2007 in press). The main tectono-thermal event affecting the metasedimentary rocks is assigned to the Pampean orogeny (Early to Middle Cambrian (Knüver, 1983).

Meta-carbonate rocks in the eastern border of the sierra are subdivided into: (a) a northern group ("La Calera", "Ancaján" and "Albigasta" quarries) of calcite marble at low to medium metamorphic grade (Cal + Ms + Phl + Qtz + Gr + Py), and (b) a southern group ("La Montosa", "Hermanos Moya" and "El Cerrito" quarries) of calcite and calcite-dolomite marbles metamorphosed at the high grade (Cal ± Qtz and Cal + Dol + Fo + Spl + Chu). Twenty-three marble samples from eastern Ancasti were analysed for Sr isotopes and Rb, Mn, Mg and Ca contents. Ten yielded Sr = 977-3644 ppm, Mn/Sr < 0.2, Mg/Ca < 0.01 and $^{87}Sr/^{86}Sr$ ratios in the range 0.7075-0.7078 (mean 0.7077 ± 0.00020), whereas the remainder yielded $^{87}Sr/^{86}Sr$ ratios of 0.7084-0.7086, lower Sr contents and higher Mn/Sr and Mg/Ca ratios, *i.e.*, altered from original marine compositions.

An apparent Ediacarian depositional age (580-570 Ma) is assigned to the marbles by referring the lowest observed $^{87}Sr/^{86}Sr$ ratios to secular trends in seawater isotopic compositions. This is compatible with the age constrained by detrital zircons in the Ancasti Formation and agrees with that of Puncoviscana basin limestone interpreted as a subtidal-supratidal sediment near the platform margin (Omarini *et al.*, 1999).Similar $^{87}Sr/^{86}Sr$ ratios and depositional age have been reported for limestones of the Loma Negra Formation (Sierras Bayas Group, Tandilia system), the Arroyo del Soldado Group (Uruguay), and the Corumbá Formation (Brazil) (Misi *et al.*, 2007). However, according to a recent paleogeographic model (Rapela *et al.*, 2007), these approximately coeval carbonate deposits were not necessarily deposited in the same basin.

***References***

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