REGIONAL IMPLICATIONS OF RHYOLITES INCLUDED IN THE CAMBRIAN SUNCHO FORMATION, CATAMARCA, ARGENTINA.

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Abstract: A systematization of the outcrops belonging to the metamorphic basement of the Sierras Pampeanas and Eastern Cordillera is presented on the basis of regional geology, trace fossils content, detrital zircon ages and related magmatic rocks. Two differentiable strips were recognized: An eastern one with maximum ages of sedimentation based on detrital zircons from 1400 to 1000 Ma; and a western band recognized by ages ranging from 1000 to 500 Ma. In the latter one, the Suncho Formation was defined and assigned to a "lower Cambrian" age (Terreneuvian - Series 2) on the basis of the presence of a trace fossils suite characterized by *Oldhamia* isp.

In addition, detrital zircons histograms of the unit recall a statistical peak between 549 and 514 Ma, that suggests provenance, erosion and sedimentation, of positive areas located to the NE and E of this region, affecting the older sedimentary levels of Puncoviscana Formation. Moreover, the maximum age concentrations is interpreted as related to the eruption of acid vulcanites that brought zircons mainly associated to rhyolitic boulders with U-Pb ages of 520,1+/-7,6 Ma, (LAICPMS zircons). These boulders appear as conglomerate clasts intercalated in the meta-psamites of the Suncho Formation, and are interpreted by age, petrographic and geochemical characters, as genetically associated to the Tilcárica orogeny, with ages between 541 and 517 Ma. This orogeny points out to the closing of the Pampean Cycle, generating an important effusive-plutonic acid event. It should be noted the coincidence of the radiometric data with the one provided by trace fossils, with sedimentary and magmatic events occurring during Terraneuvian – Series 2 times ("lower Cambrian").

The characters of porphyritic rhyolites range from aphanitic matrix to microcrystalline and hypocrystaline ignimbrites. In all cases are composed by sanidine-microcline, quartz and plagioclase. This textural variability associated to the mineralogical chemical homogeneity stands out as related to a volcanic – sub-volcanic body. The lavas and ignimbrites rhyolites are metaluminous, and when data is plotted in different geochemical diagrams falls into the boundary between VAG + Syn-COLG and WPG. The REE patterns normalized to chondrite display fractionation of LREE, with negative Eu anomaly and a horizontal pattern of the HREE. The normalized spider diagram display negative anomalies of Ba, Nb, Sr and Eu, which would indicate fractional crystallization from a shallow magma chamber.

Key Words: Suncho Formation, rhyolites, conglomerates, U-Pb ages.