PUNTA DEL ESTE TERRANE: MESOPROTEROZOIC BASEMENT AND NEOPROTEROZOIC COVER

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Eastern basement of Uruguay consists of Meso and Neoproterozoic rocks. Mesoproterozoic basement had been deformed by pre-Brasiliano and Brasiliano events. Regional variations in this basement and in the Neoproterozoic cover show equivalent deformation styles and intensities.

Models proposed for tectonic evolution have been scarce and confusing. Specially, the ones that concern the moment of collision and/or juxtaposition of blocks.

The Punta del Este Terrane (PET) is composed of gneisses and migmatites formed between 1000 Ma to 900 Ma (Preciozzi et al., 2001). These rocks had been strongly reworked during Brasiliano and Rio Doce orogenesis (ca. 900-500 Ma). This crustal segment represents a high grade metamorphic terrane, which is correlated to some gneissic complexes southwest of Africa. Particularly, it is correlated to Kibaran-Namaqua Belt in Namibia.

U-Pb ages between 1000 Ma and 900 Ma, obtained in zircons from tonalitic granitoids, are interpreted as indicative of their crystalizations (Fig. 1). Besides, anatectic fluids related to migmatite leucosomes yielded ages of ca. 520 to 540 Ma. This denotes that superimposed metamorphic conditions during Brasiliano orogenesis reached, at least, lower anphibolite facies.

PET basement gneisses present Sm-Nd model ages (T_{DM}) between 2.4 to 1.8 Ga, showing long crustal residence, corroborated by the very negative ε_{Nd} values of –1.3 and –14.3. During Brazilian orogenesy they were affected by deformation processes and anatexis.

Metasedimentary PET cover occurs near La Paloma and Rocha towns. It is represented by a siliciclastic metasedimentary succession corresponding to the Rocha formation. In La Pedrera town recognized three sedimentary facies were (1-3): (1) sandstones and pelites; (2) green pelites; and (3) rhytmites. The transition from facies (1) to facies (3) shows the passage from fluvial environment with tidal influence to tidal flat with predominance of subtidal deposits (Pazos & Sánchez, 1999). Rocha Formation may correlate with the supracrustal Gariep Group. Rocha-Gariep basin closure and following deformation would have been occurred ca. 545 to 570 Ma.

Cerros de Aguirre formation (Campal & Gancio, 1993) represents a volcaniclastic sequence, of Vendian age, with an intermediate to acidic composition. This formation had suffered compression generating open folds with axial orientation N30º-40ºE and local development of axial plane cleavage.

Isotrop granitoids represent the most important magmatic manifestation that affected PET. These granitoides of calcalkaline character includes José Ignacio and Santa Teresa plutons among others. Using Rb/Sr mineral isochron, ages of 611 – 590 Ma for José Ignacio pluton and of 550 – 537 Ma for Santa Teresa pluton were obtained.

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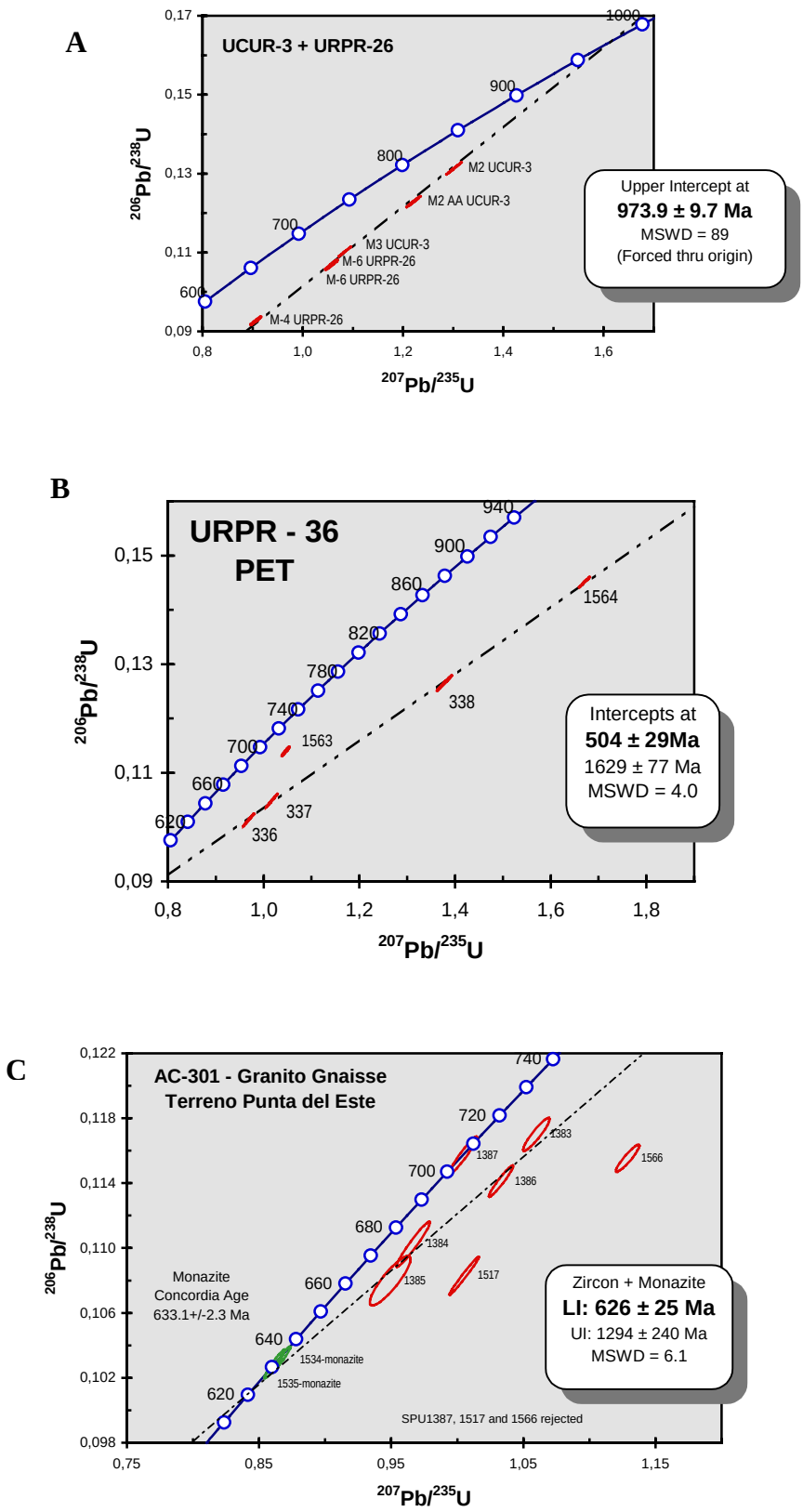

Figure. 1. U-Pb concordia of Punta del Este Terrane samples (A) UCUR3 & URPR26; (B) URPR36; (C) AC301.