FIELD TRIP GUIDE ON THE LOWER PALEOZOIC PRECORDILLERA OPHIOLITES

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The ophiolitic belts in the pre-Andean region of central Argentina have received increasing attention in recent years as they have been interpreted as possible sutures of a collage of terranes accreted to the proto-Andean margin of Gondwana during Lower Paleozoic (Ramos et al., 1984, 1986, 2000). The Precordillera ophiolitic belts were described in the pioneer works of Borrello (1963, 1969) and in several thesis and papers (Cingolani, 1970; Cucchi, 1971; Villar, 1975; Cortés and Kay, 1994; Davis et al., 1999).

On the western side of the Precordillera (see Figure) the ophiolite complex is cropping out, extending over 900 km (26º LS to 33ºLS, from La Rioja-San Juan-Mendoza provinces) and was recognized by Haller and Ramos (1984) as the "Famatinian Ophiolites" emplaced during the early Paleozoic. This belt is represented by a series of discontinuous exposures of mafic and ultramafic rocks preserved in the western slope facies of the carbonate platform of the Precordillera. The ultramafic rocks are abundant toward the south, whereas pillow lavas and mafic sills are preserved in the northern sector. In thelater at the Rodeo and Calingasta localities (San Juan Province) are interlayered with black shales, siltstones and sandstones, bearing Caradoc (to Ashgill?) graptolites (Aparicio and Cuerda, 1976; Blasco and Ramos, 1976)known as Alcaparrosa, Yerba Loca Formations. The graptolite fauna is composed of the following
genera: *Dicellograptus* sp., *Dicranograptus* sp., *Climacograptus* aff. *antiquus*, *Orthograptus* sp., *Diplograpt us* sp., *Glyptograptus* sp.

Towards the north of Uspallata (Mendoza Province) the Cortaderas section, is the type locality of these ophiolites. Rock types include serpentinized peridotites, ultramafic cumulates, layered gabbros, and diabases. All these unit are in tectonic contact and heavily deformed. Country rocks consist of metasedimentary and metavolcanic rocks consisting of medium-bedded metasandstones and metasiltstones. The depositional age of the metasedimentary rocks is unknown. K-Ar whole rock ages of 370 to 358 Ma have been interpreted as representing the age of metamorphism (Cucchi, 1971) and 353 to 399 Ma on the basis of K-Ar dating of fine fraction interlayered illite-muscovite separated from the metasedimentary rocks (Buggish et al., 1994) interpreted as dating the neocrystallized phase of syndeformational metamorphism. Ar39-Ar40 ages obtained by Davis et al. (1999) interpreted the metamorphic age of the sequence as 384.5 ±0.5 Ma (Early Devonian).

The geochemical analysis of the mafic and ultramafic rocks from western Precordillera is presented by Kay et al. (1984) and Haller and Ramos (1984). The basalts from all the studied localities represent evolved oceanic tholeiites that formed in a similar tectonic environment. Possible origins consistent with the chemical data include an oceanic ridge in an early stage of development, a transitional ridge segment, or a backarc basin. Chemical analysis from the

Cortaderas gabbros show the E-MORB signatures or within plate origin, others indicated anomalous oceanic crust formed in a plume or plateau setting (Haller and Ramos, 1993).

The western Precordillera mafic rocks are a pseudostratigraphic sequence as a disrupted ophiolite emplaced along a suture zone between the Chilenia and Precordillera terranes (Ramos, 1988; Ramos et al., 1984, 1986; Rapela et al., 1998).

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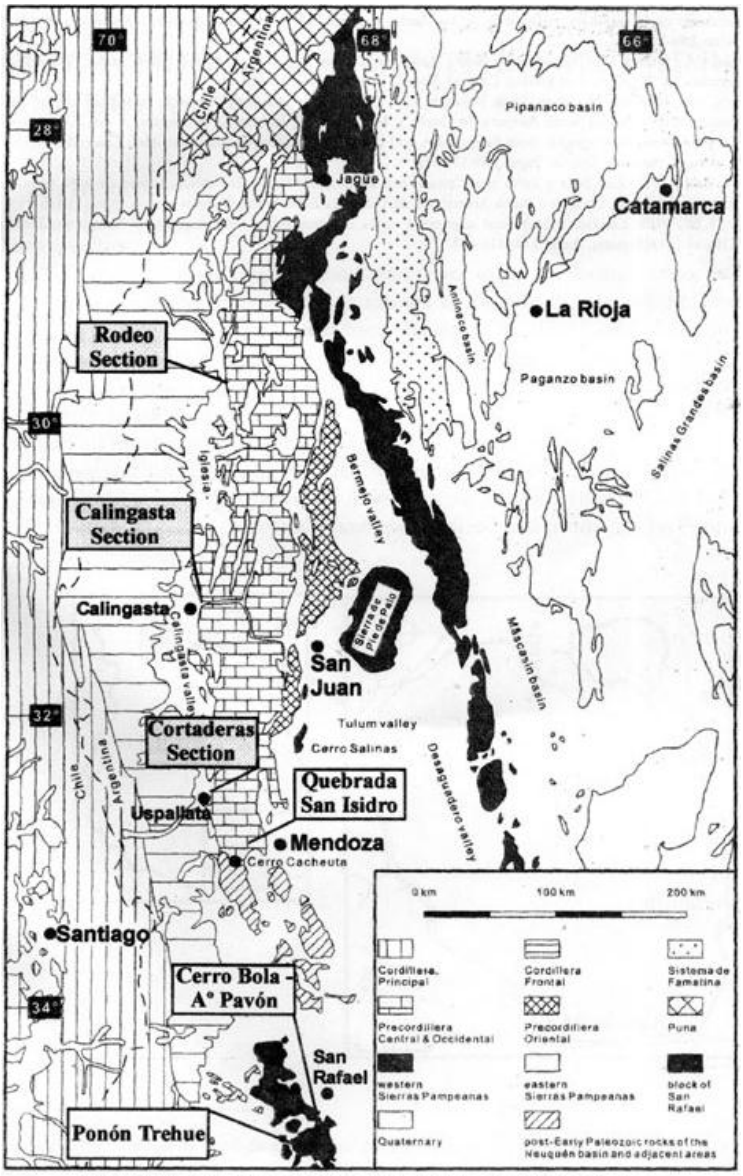

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