Geochronology of the Calc-Alkaline dykes from the Tandilia System, Argentina.

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The Tandilia System, in southernmost extremity of Rio de La Plata Craton, comprises Transamazonian gneissic and granitoid rocks intruded by mafic dykes of Calc-Alkaline (CA) and Tholeiitic affinities.

The CA suite is composed of intermediate (I) and acid dykes (A). The I types are andesite and andesi-basalts, whereas the A dykes are classified as rhyolites. In the AFM diagram, samples from both groups plot in the calc-alkaline field.

Two $^{40}Ar/^{39}Ar$ dates of outgassed biotites from baked country rocks in sharp contact with the CA dykes yield comparable plateau ages of 2,020 ± 24 and 2,007 ± 24 Ma (2σ), interpreted to be the emplacement age. Additional Rb-Sr geochronology was carried out, by isotope dilution technique, on eight whole rocks from the CA suite, yielding an errorchron of 1,962 ± 66 Ma, Ro=0.70371 ± 0.02466 (DCRONO/Shields).

The geologic relations indicate that the CA suite emplaced under transextensional regime into the country rocks after they have attained rigidicity. Therefore from the geochronologic data this suite are related to late stage of the Transamazonian Orogeny, at ~2,000 Ma ago.