The Nepheline Syenite of San Jose del Guaviare, Guaviare Colombia, evidences of Neoproterozoic-Cambrian intraplate magmatism and its implications during Pan-African tectonics in western Gondwana.

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Geochronology of the Nepheline Syenite of el Jordán, Guaviare Colombia, evidences of Neoproterozoic-Cambrian intraplate magmatism and its implications during Pan-African tectonics in western Gondwana.

U-Pb. Our results showed concordant Neoproterozoic-Cambrian ages that can be correlated with previously obtained ages of c.a. 570-550 Ma, indicating that the studied Nepheline Syenite was intruded during the Ediacaran Period.

Alkaline rock (in situ ) Previous detrital zircon analyses

Fig. 7 : Normalized composite zircon U-Pb age distributions for global Cryogenian to Cambrian sedimentary deposits. A ge histograms use 20-My bins. Vertical brown bars demarcate the depositional age range of each occurrence of zircons transitioning into this interval. Red bins bracket the ages obtained for the Nepheline Syenite of el Jordán, San José del Guaviare, evidencing a global increase in magmatic activity during Ediacaran.

6. U-Pb LA-ICP-MS Geochronology

7. Global Age Spectra

4. Mineral Chemistry by SEM - DRX

5. Cathodolumiscense Imagery

3. The Nepheline Syenite of San Jose del Guaviare

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9. Conclusions

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References

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3. University of Canterbury, School of Earth Sciences, New Zealand

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