

~~FIELD OBSERVATIONS AND K-A DATING OF THE CERRO~~

**CHIAR KKOLLU (SOUTHERN ALTIPLANO, BOLIVIA)**

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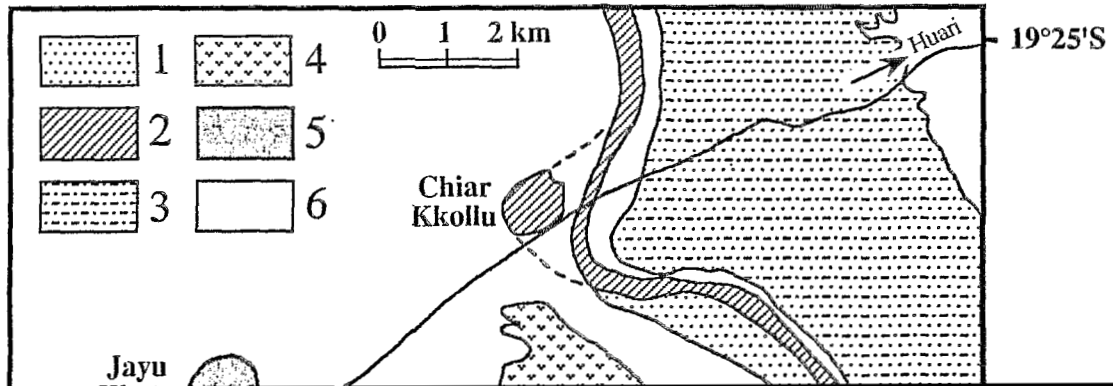
**RESUMEN :** El cerro Chiar Kkollu, ubicado en el Altiplano Sur de Bolivia, era considerado desde tiempo como un centro volcánico cuaternario alcalino de trás-arco de la Zona Volcánica Central (CVZ) de los Andes. Era el único ejemplo de un volcanismo de tal naturaleza en esta región. Observaciones de terreno y una datación K-Ar sobre roca total muestran que dicho centro es de edad Oligoceno y pertenece a un conjunto de rocas de afinidad alcalina de edad Oligoceno a Mioceno inferior ampliamente distribuidas en el Altiplano boliviano. Los modelos petrogenéticos propuestos anteriormente por diferentes autores en base a las supuestas relaciones entre el Chiar Kkollu y el volcanismo cuaternario de arco y/o de trás-arco de la CVZ no tienen ningun sustento geológico.

**KEY WORDS :** Bolivia, Oligocene, Alkali basalts, Back-arc

**INTRODUCTION**

The cerro Chiar Kkollu, in the southern Altiplano of Bolivia, is well known among geoscientists devoted to the recent and present-day volcanic activity of the Central Andes. As a matter of fact, this small volcanic outcrop has long been considered as the unique example of quaternary alkaline back arc volcanism behind the Central Volcanic Zone in the Bolivian Andes (Thorne and

southeastwards at the contact between alkaline basaltic to micro-gabbroic sills and the Oligocene - Early Miocene continental Potoco and Tambillo sedimentary formations. These sills, known as the "Tambillo lavas", outcrop immediatly to the East and Southeast of the cerro Chiar Kollu and dip stoongly ( $\approx 45^\circ$ ) towards the NE. These field observations suggest that the cerro Chiar Kkollu basalts are not of Quaternary age, and that they rather belong to a folded Late Oligocene - Early Miocene set of alkaline sills.



Sample	K <sub>2</sub> O (%)	<sup>40</sup> Ar rad (%)	<sup>40</sup> Ar rad (nl/g)	<sup>40</sup> K/ <sup>36</sup> Ar (x 1000)	<sup>40</sup> Ar/ <sup>36</sup> Ar	Age (Ma) (± 1σ)
JAC6	1.05	54.2	0.935	218.1	645.3	27.4 ± 0.8

This  $27.4 \pm 0.8$  Ma whole-rock age may be slightly older than the actual age of emplacement due to a possible excess of argon in the abundant clinopyroxenes of these basalts. It confirms however the interpretation proposed on the basis of field observations. This age is slightly older than ages previously obtained on the Tambillo lavas ( $22.6$  Ma recalculated with new constants Ma; K-Ar age on plagioclase; Evernden et al., 1977;  $19.6 \pm 2.5$  to  $23.5 \pm 2.6$  - IGE-JICA, 1986).

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