

THE CAICARA-DALBANA BELT IN THE GUIANA SHIELD, A BELT OF 1.99 Ga FELSIC AND INTERMEDIATE METAVOLCANICS FROM VENEZUELA TO THE AMAZON, AND PROBABLY ACROSS, IN THE GUAPORÉ SHIELD

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ABSTRACT: The felsic to intermediate metavolcanics of the Dalbana Formation in western Suriname are intermediate- to high-K calc-alkaline rocks with I-type affinity. In the Pearce diagrams for the distinction of the tectonic setting of granites they plot mainly in the field where the volcanic arc granite (VAG) zone overlaps with the post-collisional granite zone, but less evolved samples plot outside that field, in the VAG zone. Therefore, the metavolcanics are concluded to have a VAG setting. A zircon Pb/Pb analysis gave an age of 1.99 Ga. The metavolcanics of the Dalbana Formation can be correlated with the Caicara Formation in Venezuela, the Surumu formation in Roraima, the Iwokrama volcanics in Guyana and the recently found Igarapé Paboca Formation in northern Para as they show close similarities in major and trace element composition and also have an age of around 1.99 Ga. The name Caicara – Dalbana belt is proposed for the belt, which runs for more than 1400 km through the center of the Guiana Shield. The belt probably continues south of the Amazon Basin, in the Tapajos Gold province, where the Vila Riozinho Formation consists of similar metavolcanics, with the same age and chemistry. The belt is rather complex, with two branches. From Venezuela to Surinam the belt runs roughly W/NW to E/SE. In Surinam the direction changes abruptly to NNW – SSE, and continues in that orientation towards the Amazon. This might involve a change in direction of subduction. In the western part of the belt the Surumu metavolcanics have been suggested to represent post-collisional magmatism, formed after the collision of the high-grade Cauarane-Coeroeni belt with the Rhyacian greenstone block north of it, at 2.00 – 1.99 Ga (Fraga et al., 2008), as a result of northward subduction. The 1.99 Ga age of the metavolcanics of Suriname, Roraima and Para is hardly different from the collision age. Therefore, the metavolcanics cannot be considered as post-collisional volcanism, the more so since usually there is a time gap between collision and post-collisional magmatism. In view of their age and VAG setting the Suriname metavolcanics are considered to represent a pulse of end-arc volcanism with which subduction ends in many cases. Subduction most probably ended at some stage of the collision proposed by Fraga et al. (2008), at 2.00 – 1.99 Ga. For the southern branch of the Caicara-Dalbana belt, in Para State, the picture is more simple, collision did not occur, a high-grade metamorphic belt is lacking. With their age of 1.99 Ga, the metavolcanics clearly form part of the Trans-Amazonian Orogeny (2.3 – 1.95 Ga), though only a late stage, after the main stage during which the greenstone belt was formed and metamorphosed. The metavolcanics show open folding and low-grade regional metamorphism, which are absent in the post-Trans-Amazonian Roraima sandstone. Therefore, the folding and metamorphism are also concluded to represent a late stage of the Trans-Amazonian orogeny.

KEYWORDS: VOLCANICS, GUIANA SHIELD, TRANS-AMAZONIAN