

Paleomagnetism of Sedimentary Rocks from the Roraima Supergroup, Northern Amazonian Craton: Preliminary Results

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Abstract: The Amazonian Craton is considered one of the largest cratonic areas of the world. It is an important part in the paleogeographic reconstructions of Proterozoic supercontinents, such as, the Columbia. But unfortunately, the number of paleomagnetic poles of good quality from this Craton are still few, mainly for the Paleoproterozoic times. Therefore, the achievement of new key poles for the Amazonian Craton may answer some questions that still arise about the Columbia supercontinent formation and the geodynamic evolution of the Amazonian Craton in global reconstructions. With this aim, we present new preliminary paleomagnetic results from sedimentary rocks of the Roraima Supergroup (Reis et al., 1990) that crop out in the Roraima State, northern portion of the Amazonian Craton (Guiana Shield, Brazil). The maximum age of the Roraima Supergroup is imposed by the basement felsic rocks from the Surumu Group with ages between 1980-1960 Ma (U- Pb) (Schobbenhaus et al., 1994; Reis and Carvalho, 1996; Santos et al., 2003). Likewise, its minimum age is established by the 1780 Ma Avanavero mafic sills (Reis et al., 2013) that cut the sedimentary rocks of the Roraima Supergroup. Tuffs within the supergroup dated at 1873 ± 3 Ma better constrain the age of these sedimentary rocks (Santos et al., 2003). After alternating magnetic fields (AF) and thermal treatments most samples revealed northern/northeastern directions with upward inclinations, which have been well characterized over one of the sampled profiles. Preliminary studies of the magnetic mineralogy indicate that the characteristic magnetization is probably carried by hematite (higher proportion) and magnetite (lower proportion). Site mean directions cluster around the mean, $D_m = 1.2^\circ$; $I_m = -52.4^\circ$ ($N = 39$; $\alpha_{95} = 9.6^\circ$) which yielded a preliminary paleomagnetic pole located at $296.4^\circ E$, $53.2^\circ S$ ($dp = 9.1$, $dm = 13.2$) for the Roraima Supergroup. Detailed study concerning the reliability of magnetic directions determined in this study is being performed through paleomagnetic stability tests, since the mean directions obtained are close to the present geomagnetic field. The Roraima pole is compared with the apparent polar wander (APW) path for the Guiana Shield/Amazonian Craton (Bispo-Santos et al.,

2014) during the Paleoproterozoic and paleogeographic reconstructions of the Columbia Paleoproterozoic Supercontinent will be tested.

Keywords: Paleomagnetism, Roraima Supergroup, Amazonian Craton, APW Path.

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