

## **SYSTEMATIC DATING ON MONAZITE AND ZIRCON BY EPMA\*, A TOOL FOR GEOCHRONOLOGICAL SURVEYING AND MAPPING OF PRECAMBRIAN BASEMENTS: THE EXAMPLE OF FRENCH GUIANA.**

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An increasing amount of geochronological data is needed in order to decipher the Precambrian geology but they remain both expensive and difficult to obtain on-line with field surveys. Systematic dating by EPMA on monazite in whole rocks and river sediments was used as part of the surveying for the new geological map of French Guiana (FG). This method was extended to partially metamict zircons from the Ivory Coast (2.1 Ga) and then validated. The minerals were mounted in sections and selected for U-Th-Pb total analyses using back-scattered electrons in order to avoid dating on the metamict parts. More than 1000 analyses were carried out, the main results of which include: i) The discovery, in southern FG, of Archean unrounded zircon populations within quartzite of the Paramaca transamazonian volcano-sedimentary Formation, indicating the existence of a nearby currently unknown Archean terrane; ii) The evidence of large zones of transamazonian age (2.2 to 2.0 Ga) without any reworked Archean material within the central FG. The critical results were then refined through high-precision Pb evaporation, Nd-Sm and U-Pb SHRIMP dating, which supported evidence for an Archean crust in northern Amapá (NA), reworked both in southern FG and NA. \*EPMA: electron-probe micro-analyser.