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Precolombian settlements in French Guiana : geoarchaeological approach toward a new understanding of the human impact on landscape.

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Recent archaeological research in French Guiana conducted by INRAP (Institut National de Recherches Archéologiques Préventives), specifically in the Couac Program (Cirad, Inra, Inrap) revealed precolombian settlements on different geomorphic contexts like coastal and fluvial areas, as is seen in Brazil, but also what seems to be quite a dense occupation on higher grounds (mounds). Most of the times, the excavation shows cultural remains like pottery, archaeological pits and ditches, as well as sediments that are described by the archaeologists as “thick and dark-coloured layers”. In Brazil, dark layers found in archaeological sites are called Terra Preta do Indio or Amazonian Dark Earth (ADE), and their study is thought necessary to explain and understand ancient human settlement. In Brazil, geoarchaeological methods as well as chemical analyses, pedology and micromorphology helped to describe ADE and understand their archaeological potential and characteristics. In order to better understand the French Guiana dark layers, we studied two sites from the estuarine zone of the lower Maroni River (Surinam border) (Chemin Saint Louis and Balaté at Saint Laurent du Maroni), and two ring-ditched hilltop sites, on ferralsols, in the interfluvial forest area (“Montagnes Couronnées” in French) (MC 87 et 88, near Regina). Regarding Brazilians research on ADE, we described for the first time the archaeological stratigraphy of French Guiana ancient settlement using a geoarchaeological approach combining biogeochemistry, pedology in correlation with micromorphological analyses. Our first results show that dark layers from archaeological sites studied are very different from natural soils underneath in the estuarine zone. Although, the pH is quite low, micromorphological analyses show clay coatings in the alluvial terrace before human settlement.
These analyses also show more organic matter and charcoals in the archaeological layers than beneath, and very large amounts of phytolithes, that give to botanists a new way of research. Due to either the acid context and / or to the ancient lifestyle, very few bones were found. We also found geochemical and micromorphological differences between the sites in the estuarine zone or in forest area. First geoarchaeological results give information about the nature of the sites, and suggest that French Guiana dark layers have original properties. We therefore suggest, in accordance with the archaeologist team, to call them Guianan Dark Earth (GDE). If we compare the GDE of this study with data from bibliographic review on ADE, micromorphological analyses show that GDE presents less anthropogenic components than ADE. Chemical analyses also show differences between GDE and ADE, like pH and available nutrients, lower in estuarine GDE. These differences suggested that GDE can have different properties than those of ADE, but are nonetheless part of the archaeological soils of the Amazonian basin.