

## The Geological History of the Cenozoic of the Amazon Region through the Laterite Records

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Lateritic rocks and soils and their alteration products describe the most part of the landscape of the Amazon region, with exception of those areas covered by Holocene sediments or where the areas were strongly truncated by erosion.

The laterites developed mostly in the Cenozoic, concentrated in two periods: Lower Tertiary with mature laterites and Quaternary (Pleistocene) with immature laterites. In between the two laterite phases the region were affected by long dry climate which led to the truncation of the laterite profiles and formation of large and deep alluvial and colluvial deposits. In this way in the Lower Tertiary (Eocene to Oligocene, locally through Miocene) and Pleistocene established a humid climate which became more humid during the Holocene. Locally, as for example the south-western of the Amazon the region is still modified by fluvial lateral erosion and sedimentation avoiding the formation of laterite. On the other side in the north-western region laterite formations are undergoing a swamp environment giving rise to ferrous iron minerals and to hydromorphic sand cover. The rain forest followed the last phase of laterite formation during the Holocene, and contributes to the quickly chemical destruction of the laterite profile and forming the deep latosol and podsol soil cover. There are evidences of truncation of the immature laterite profiles occurred during the Pleistocene, which explains the occurrences of mineralized alluvial e colluvial deposits in several areas of region. This facts explain that the climate changes were more frequent during the Upper Tertiary and Quaternary. There are good correlations among laterite formations, erosion, sedimentation and alteration and climate changing in the Amazon region.