



Did the savannah « flourished » 3000 years ago in the so-called Sangha River Interval of the Guineo-Congolian rainforest ? A retrospective study using stable isotopes and phytoliths.

Ilham Bentaleb (1), Vincent Freycon (2), Jean-François Gillet (3), Richard Oslisly (4,5), Laurent Brémond (6,1), Charly Favier (1), Michel Fontugne (7), Vincent Droissart (8,9), Sylvie Gourlet-Fleury (2), Gaël Guillou (10), Céline Martin (1), Julie Morin-Rivat (3,11), Alfred Ngomanda (12), Geoffroy de Saulieu (4,13), David Sebag (14,15), Sandrine Subitani (6,1), Christelle Wonkam (1,9), and Gabriel Ngeutchoua (16)

(1) University of Montpellier, ISEM UMR5554, ISEM UMR5554, Paléoenvironnement, Montpellier, France (ilham.bentaleb@univ-montp2.fr), (2) CIRAD, UPR BSEF, F-34398 Montpellier Cedex, France, (3) Univ. Lie`ge, Gembloux Agro-Bio Tech, Unité de Gestion des Ressources forestières et des Milieux naturels, Passage des Déportés, 2, B-5030 Gembloux, Belgium, (4) Musée National d'Histoire Naturelle UMR 208 "Patrimoines Locaux et Gouvernance" Département Hommes, Natures, Sociétés 57 rue Cuvier - Case Postale 26 75231 Paris cedex 05 France, (5) Agence Nationale des Parcs nationaux du Gabon Libreville, Gabon, (6) Université de Montpellier II, EPHE, CBAE, 163, rue A. Broussonet 34090 Montpellier, France, (7) LSCE UMR1572 avenue de la Terrasse, 91198 Gif-sur-Yvette cedex, France, (8) UMR AMAP CIRAD TA A51/PS2 34398 Montpellier cedex 5, France, (9) Département botanique, ENS Yaoundé 1, Cameroun, (10) UMR LIENSs Bâtiment Marie Curie Avenue Michel Crépeau 17 042 La Rochelle cedex 1, France, (11) Royal Museum for Central Africa, Service of Wood Biology, Leuvensesteenweg, 13, B-3080 Tervuren, Belgium, (12) IRET, CENAREST BP 13354, Libreville, Gabon, (13) RD Cameroun, rue Joseph Essono Balla. Quartier Elig Essono BP 1857 Yaoundé, Cameroun, (14) Université de Rouen, CNRS/INSU, UMR M2C, 76821, Mont-Saint-Aignan cedex 1, France, (15) Institut de Recherche pour le Développement, UMR HSM, Université de Ngaoundéré, Cameroun, (16) Université Yaoundé 1, Cameroun

We aim to improve our knowledge of the dynamic of the vegetation in Central Africa during the last 5 kyrs and to discuss the main hypothesis described in the literature - humans versus climatic impacts- both suggested as responsible of the Congo basin rainforest decline observed between 3 and 2.5 kyrs. We use the carbon isotopic composition of well-dated Central African soils to reconstruct the dynamic of the vegetation cover. We will discuss the carbon isotopic composition of the soil organic carbon methodology for reconstructing palaeovegetation in the light of Rayleigh distillation model. We showed that numerous sites exhibit a carbon isotopic ratios reflecting the Rayleigh distillation but few sites recorded real vegetation changes. Our study suggests that the vegetation of the Guineo-Congolian Region was disturbed between 3000 and 2000 BP (Before Present) without an extreme savannah expansion. We discussed the two hypotheses human versus climate impacts that may conduct to such new physiography of the vegetation. We suggest that the climate hypothesis is more likely than the human impact to explain the reduction of the Guineo-Congolian rainforest 3000 years ago.