

## **Tracing the origin of Guiana beachsands through multi- elementary heavy mineral finger printing**

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French Guiana beaches are fragile ecosystems sensitive to climate changes and sediment supply. The part played by the emerged hinterland in supplying sediment is poorly understood. Evaluating the potential source of the sand is of primary importance. Though mudbanks supplied by Amazon in shore-fringing mangroves in French Guiana is well defined (1.), the origins of beach sand are poorly constrained (2). The heavy minerals present in these sands provide an excellent tool for tracing their origins (3).

In order to understand the provenance of sediments of French Guiana continental shelf, chemical compositions of heavy minerals present in the sand (4) were analyzed using the laser ablation coupled to mass spectrometry. Zircon, epidote, sillimanite, kyanite, staurolite and rutile have been separated from the sand from four different localities, two from the rivers Maroni and Oyapock, one close to Maroni estuary and one close to the Cayenne town.

The concentration of 25 trace elements have been analyzed and calculated on all minerals extracted. A correlation between the chemical composition of the minerals from the beach and from the rivers has been highlighted. The heavy minerals and the sands that contain them are derived from local inputs. Heavy mineral chemistry can provide a clue for the determination of sedimentary source.

[1] Allison et al. (2004) *Marine Geology*, **208**, 169-190.  
[2] M. Pujos et al. (1990) *Continental Shelf Research*, **10**, 59-79. [3] A. Papadopoulos (2015), *N. Journal of Mineralogy and Geochemistry*, **192/2**, 107-116. [4] Pujos et al. (2000) *oceanologica acta*, **24**, supplement.