



## Soil variations in northern French Guiana that could modify forest dynamics

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# Soil variations in northern French Guiana that could modify forest dynamics

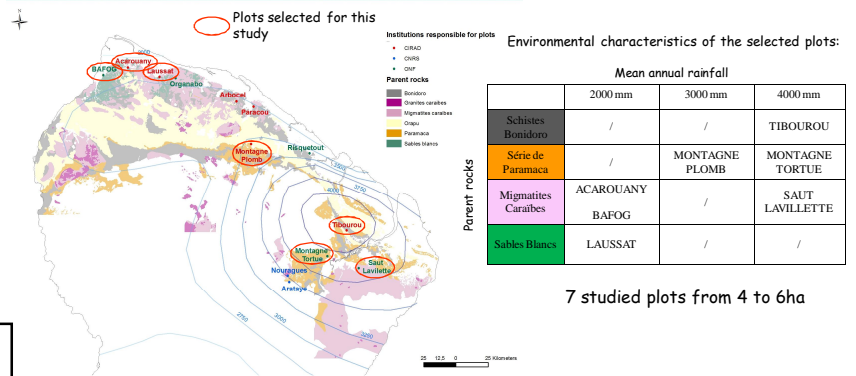
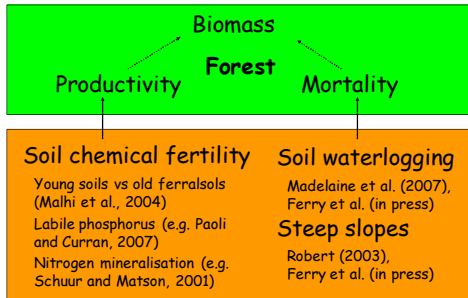
Mathilde DESPREZ<sup>1</sup>, Vincent FREYCON<sup>2</sup>, Lilian BLANC<sup>1</sup>, Jérôme LE FOL<sup>1</sup>, Bruno FERRY<sup>3</sup>

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## Rainforest productivity and biomass influenced by soil and topography

## GUYAFOR

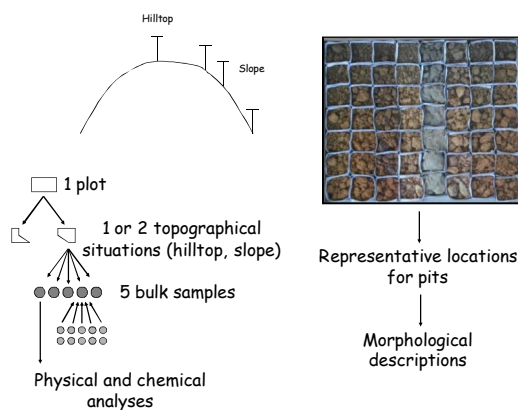
Network of permanent old-growth (and logged) rainforest plots



## Objective

First key for soil organization and fertility characterization in northern French Guiana

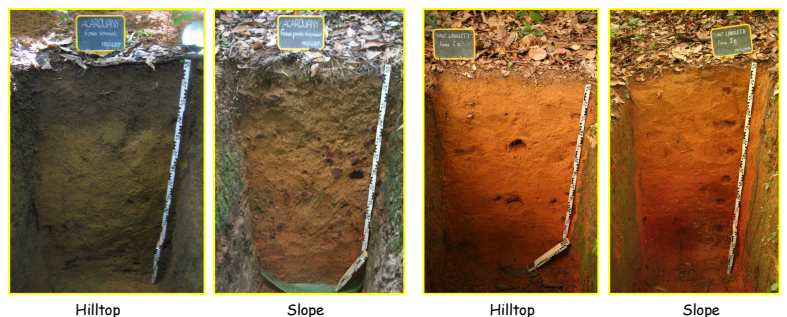
## Soil sampling and analyses



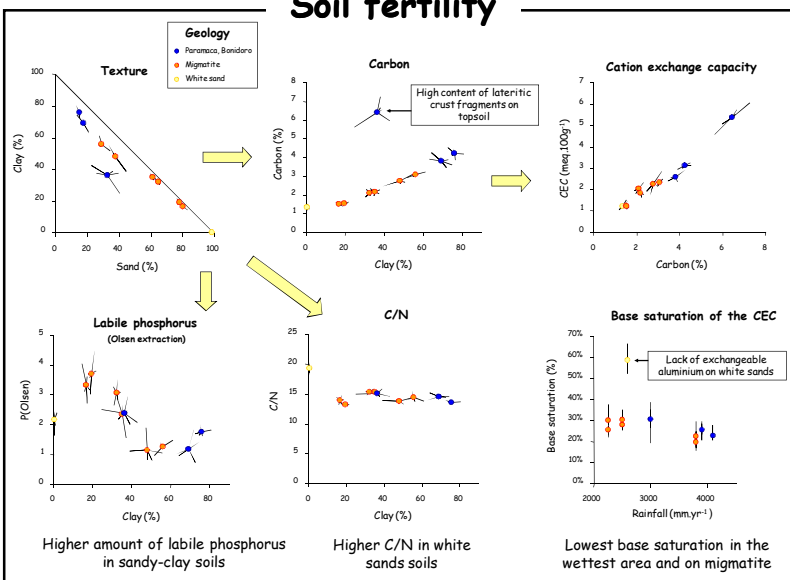
## Soil morphology and drainage

Western plots: deep soils with vertical drainage on hilltop, but shallower soils with lateral drainage on slope

Eastern plots: deep soils with vertical drainage and microaggregated structure on hilltop and slope



## Soil fertility



## Conclusions

~ Better physical soil properties in eastern plots.

~ Parent rock is the main driver of chemical soil properties through texture:

Clay soils: higher cation exchange capacity and base saturation, but lower amount of labile phosphorus.

White sands: poor in nitrogen, intermediate for labile phosphorus, low CEC, but high base saturation.

~ Forest mortality by uprooting is likely to be lower in the North-East.

~ Productivity could be higher in sandy-clay soils (more frequent in the North-West), if labile phosphorus is considered as the main driver of fertility

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