

ECOAIR

Monitoring land cover changes by means of satellite data.



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Institut National de Recherche en Informatique et Automatique (INRIA, CLIME project) www-rocq.inria.fr/clime



Descriptif

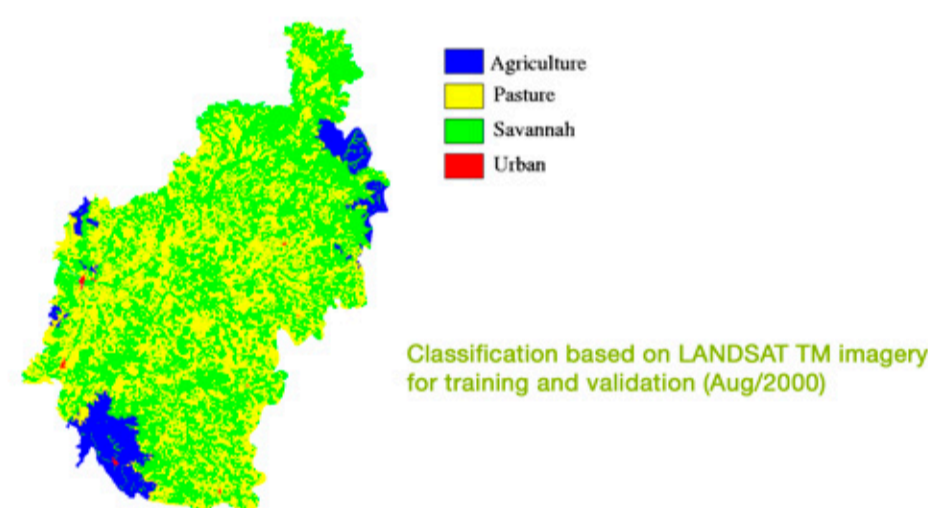
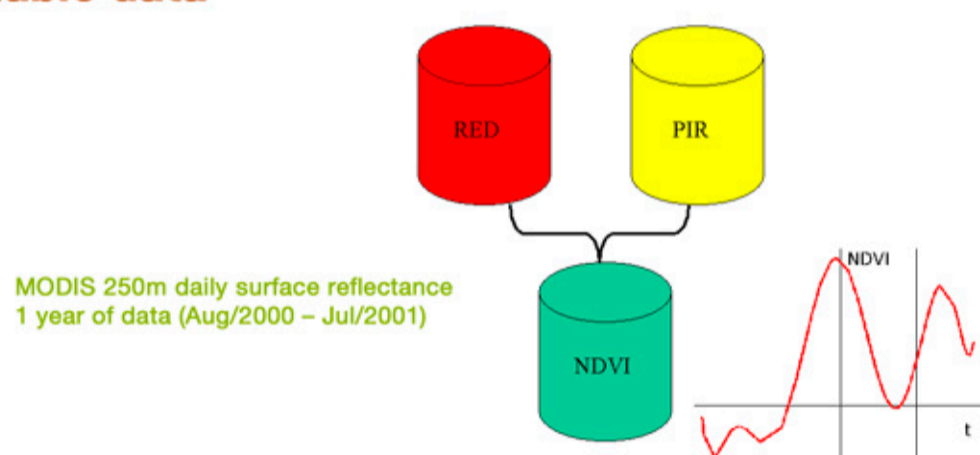
Study area

High Taquari Basin, where land degradation is caused by agricultural practices and cattle breeding. Tributary of the Pantanal river

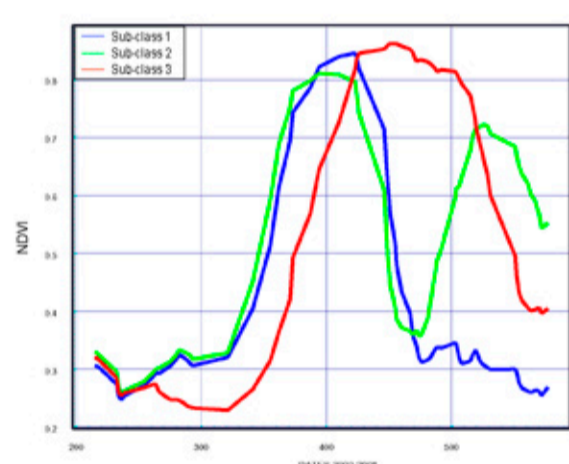
Objectives

Monitoring changes of land use and land cover by means of times series of freely available MODIS data at 250m resolution, that can be used to monitor large areas at low cost. Analysis of vegetation indices (NDVI) on a daily basis. Temporal series of NDVI data are analysed in a space of meaningful parameters. Classification in this space describing temporal evolution. Analysis of deforestation.

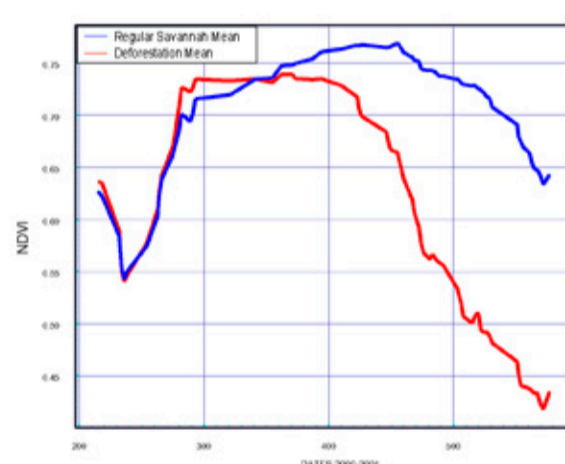
Available data



Methodology: identification of classes of temporal profiles

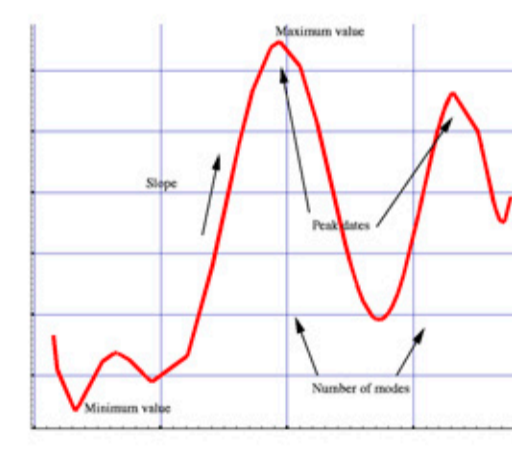
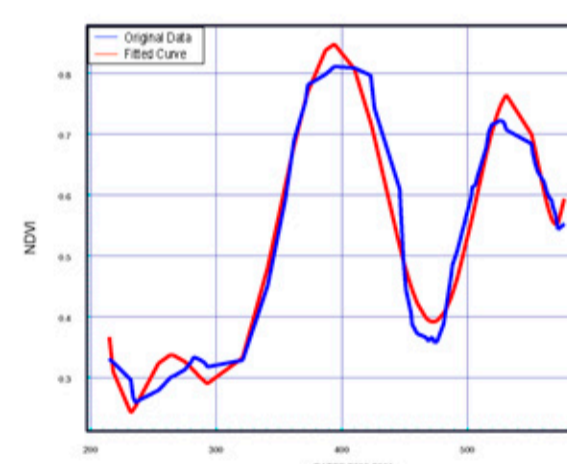


Distinct agriculture practices are detected as clusters with distinct NDVI temporal profiles



Areas of savannah that suffered deforestation can be identified as a cluster with distinct temporal behavior

Methodology: characterization of temporal profiles



Résultats obtenus

Classification of MODIS temporal profiles yielded an overall 84% accuracy as compared to Landsat TM (30m) classification: suitable for analysis of large areas. Deforestation: no ground truth, validation by visual inspection of Landsat TM images. The vast majority of detected deforestation areas were correct. Can be used as an environmental alert system.

