Planetary Garden'05 – Savannas future, Maceio

Contribution of low resolution data to African savannas characterization

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Context and Objectives

-In the context of international programs to understand the atmosphere-biosphere interface to model climatic changes.

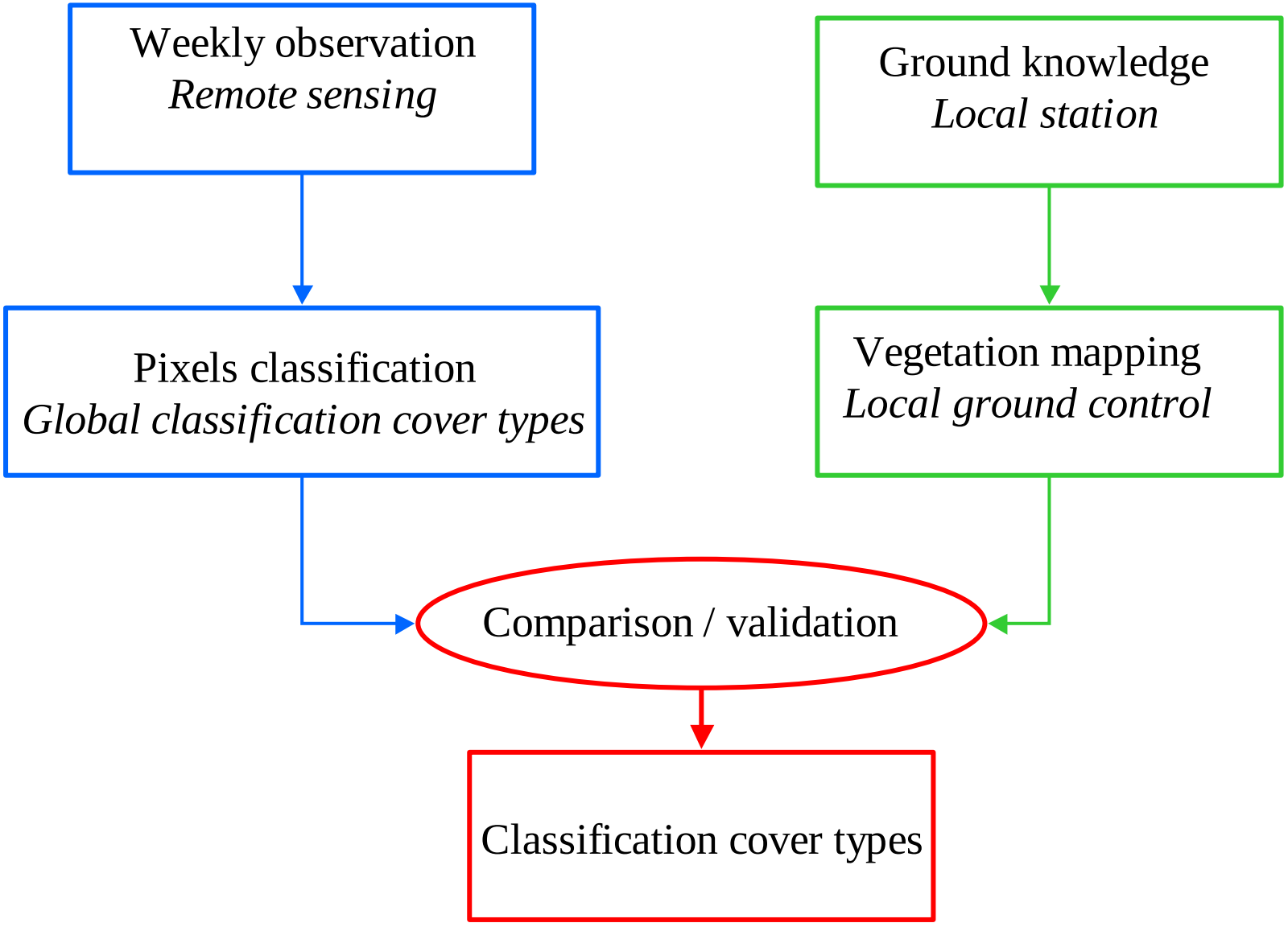
-Needs at a global level of information about surface parameters as surface roughtness, land cover, water availbalility, phenology, etc.

- The objectives of this study is focus on :
  - the land cover characterization
  - the spatial distribution of ecosystems.

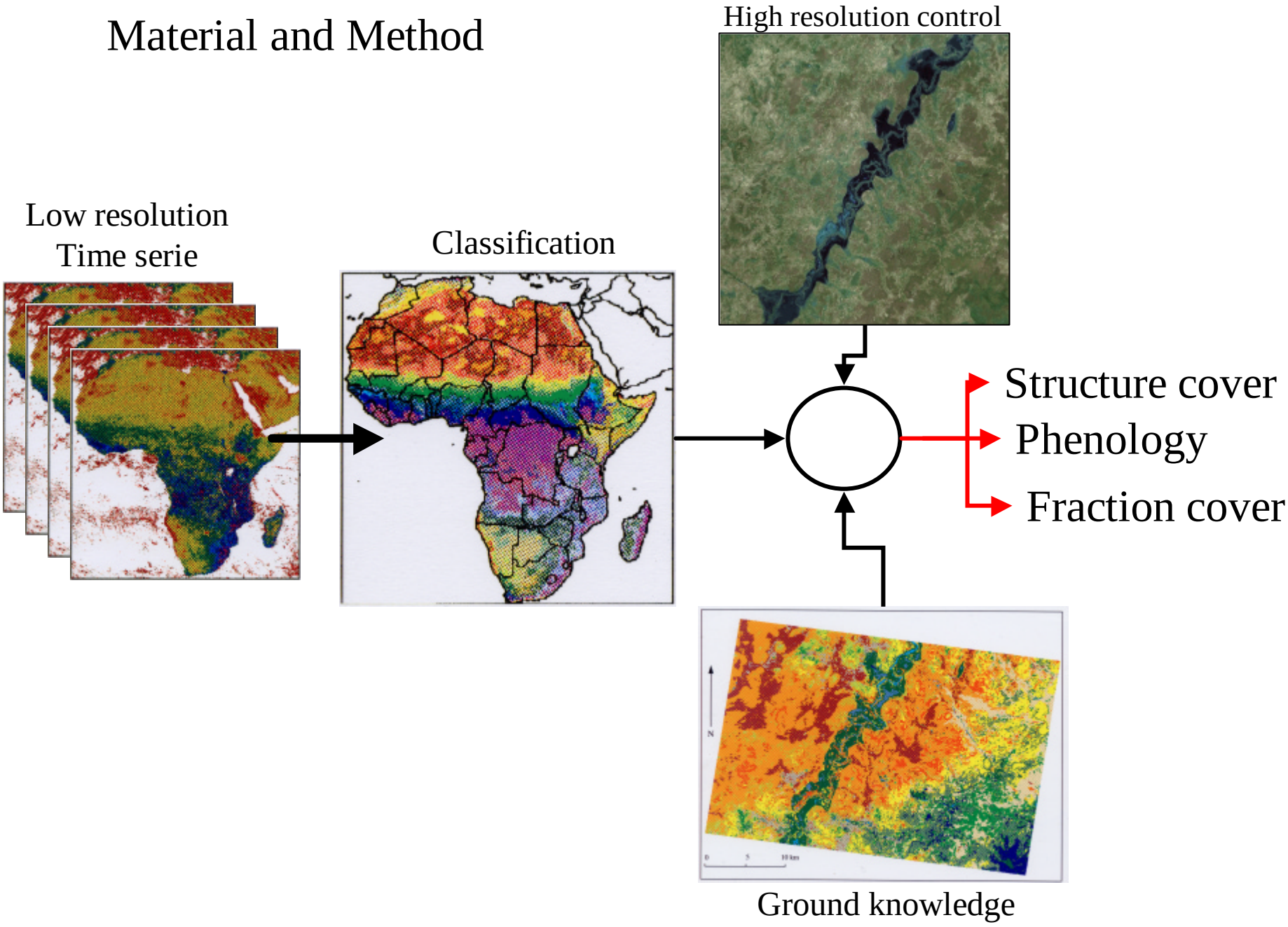
- The focus is done on the savannas and specially the west african savannas.

- The study is done with low resolution remotely sensed data

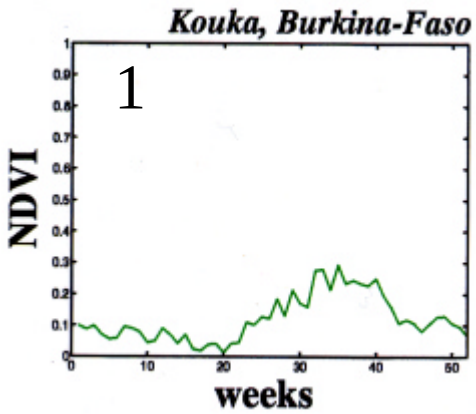
Strategy


Weekly observation
Remote sensing
Ground knowledge
Local station
Pixels classification
Global classification cover types
Vegetation mapping
Local ground control
Comparison / validation
Classification cover types

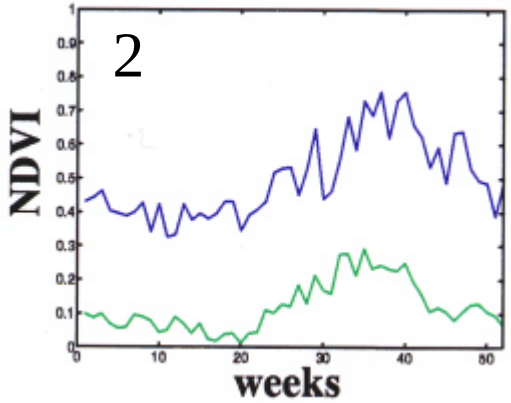
Material and Method



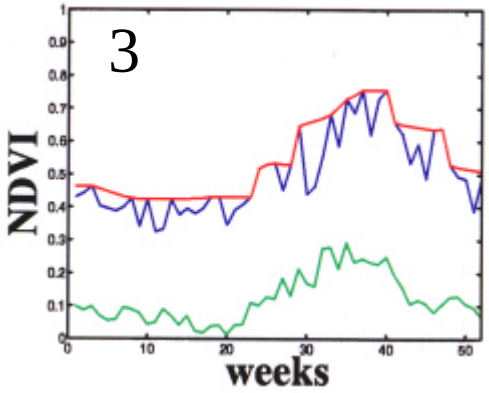
Data processing



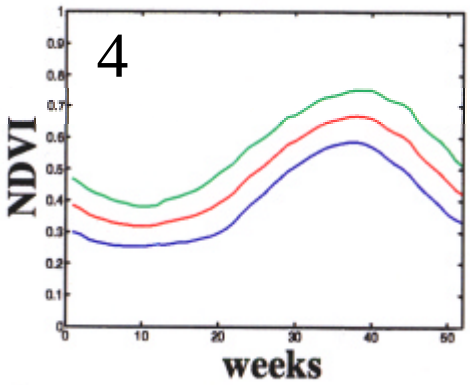
Row data



Spectral calibration
Atmospheric correction

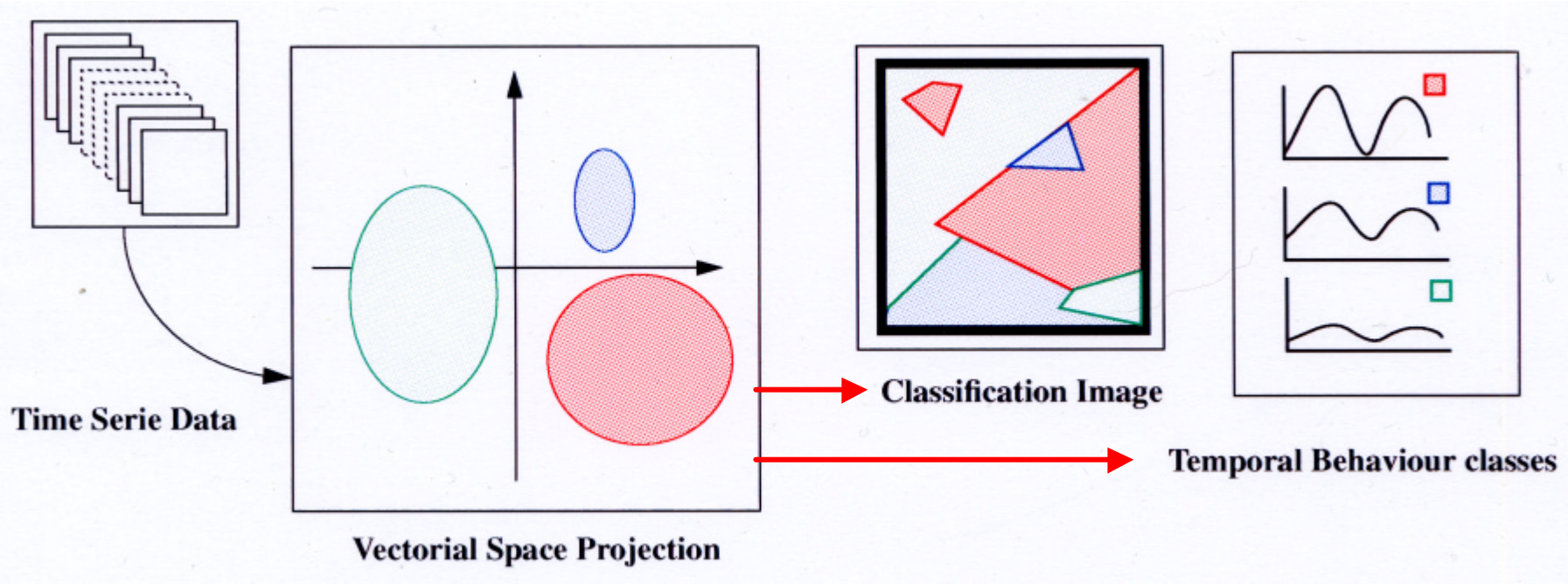


Temporal smoothing

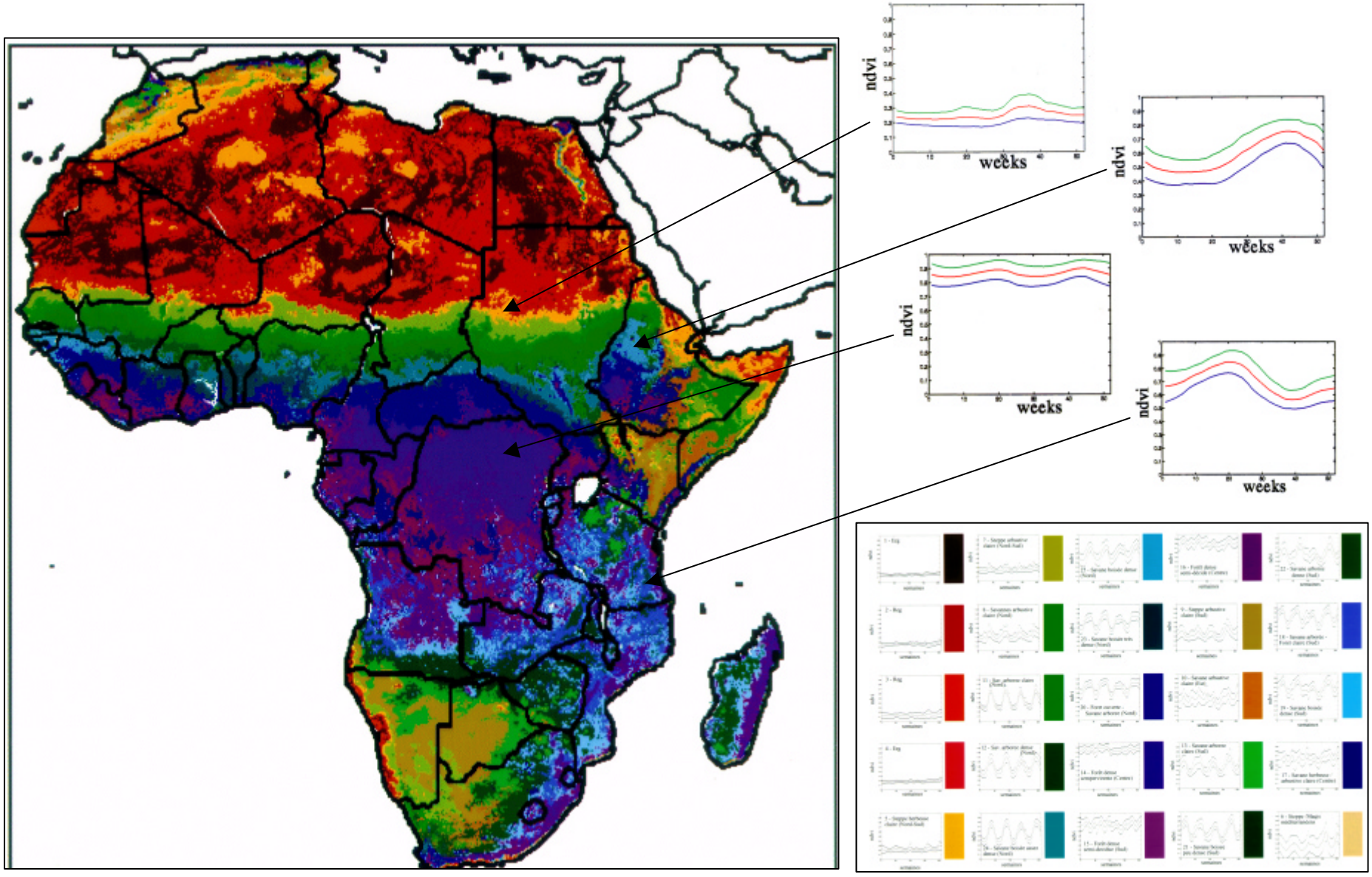


Classification input

Classification model

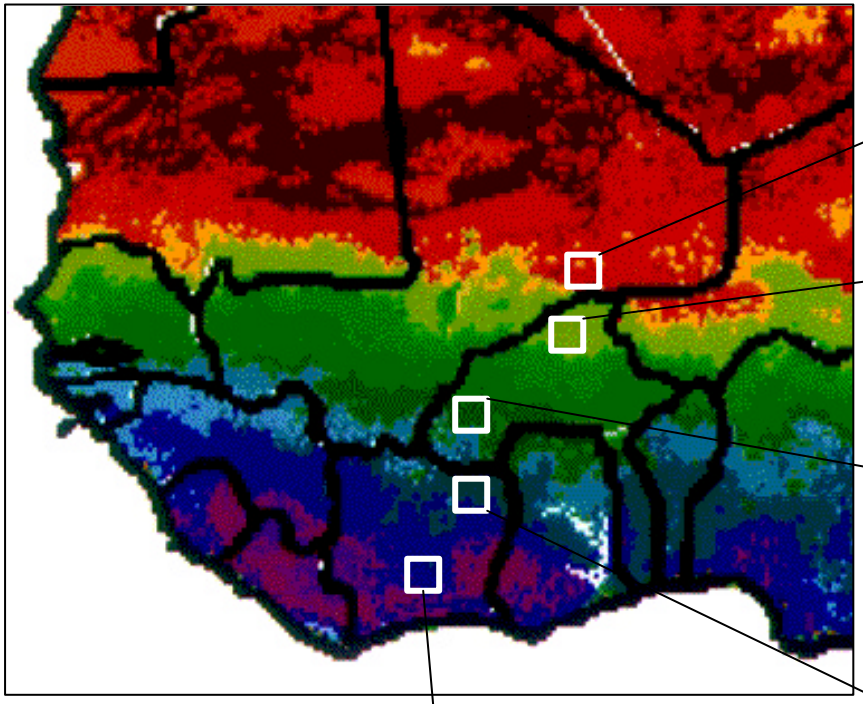


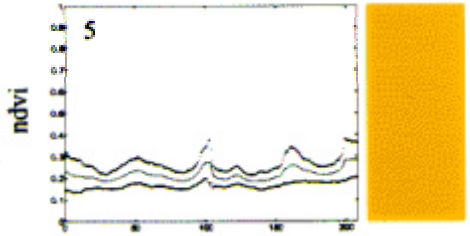
Continental results



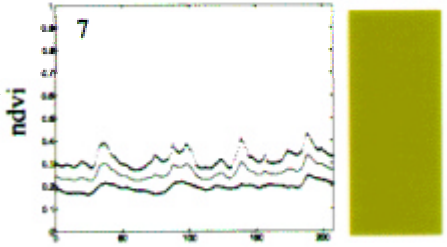
Focus on the experimental transect

- Latitudinal gradient in west Africa
- Transect along savannas types
- Ground station for measurements

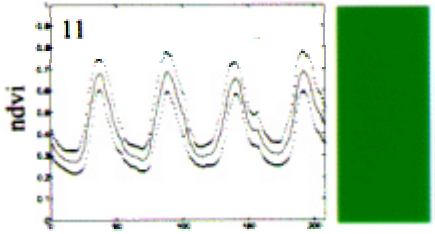




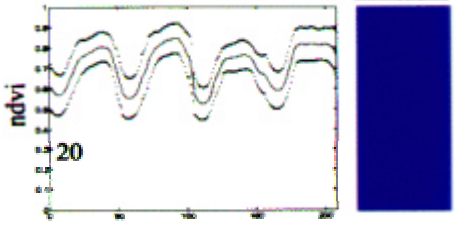
Site 1
Hombori



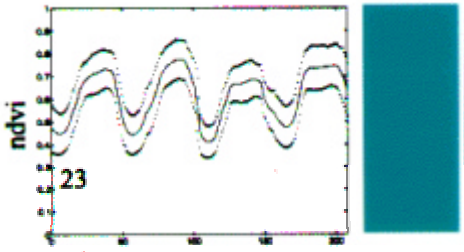
Site 2
Bidi-Banh



Site 3
Bondoukuy



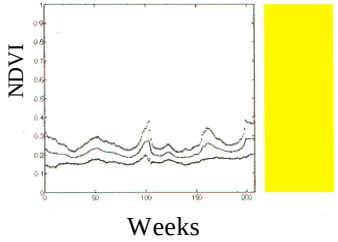
Site 5
Lamto

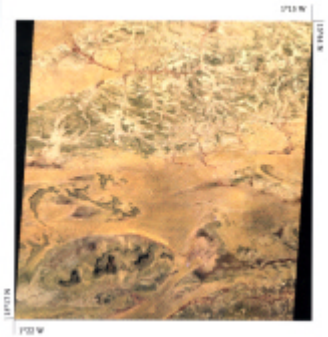


Site 4
Ouango

Validation on Savannahs

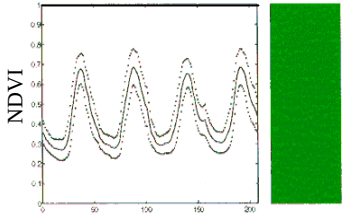
5 - Open grassland steppe





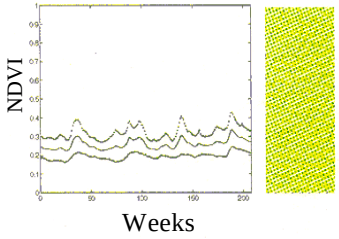
Hombori (Mali) site n°1

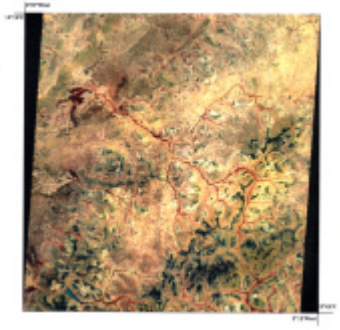
11 - Open woodland savanna



Bondoukouy (Burkina) site n°3

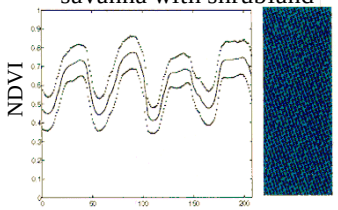
7 - Open shrubland steppe





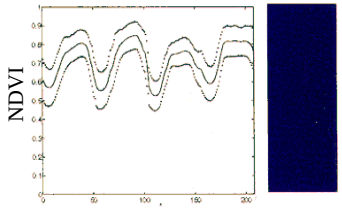
Bidi-Banh (Burkina) site n°2

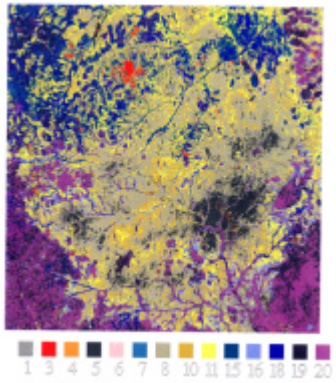
23 - Closed woodland savanna with shrubland



Ouango (Côte d'Ivoire) site n°4

20 - Open forest woodland savanna

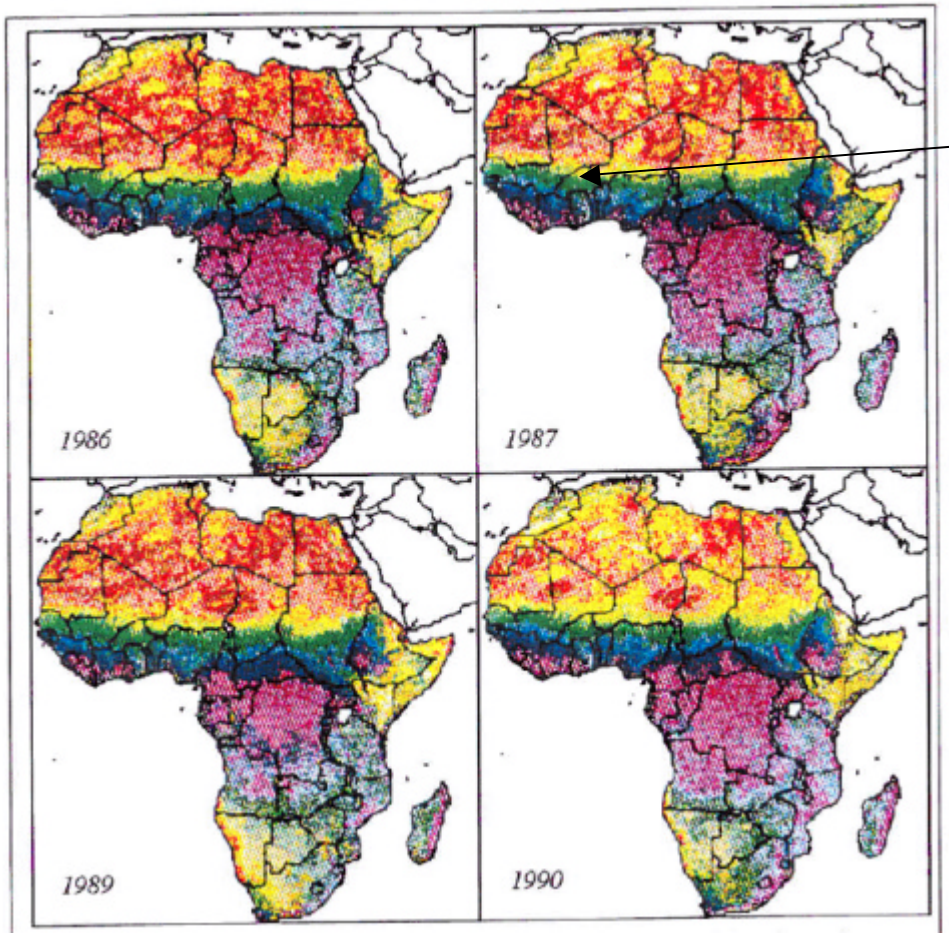


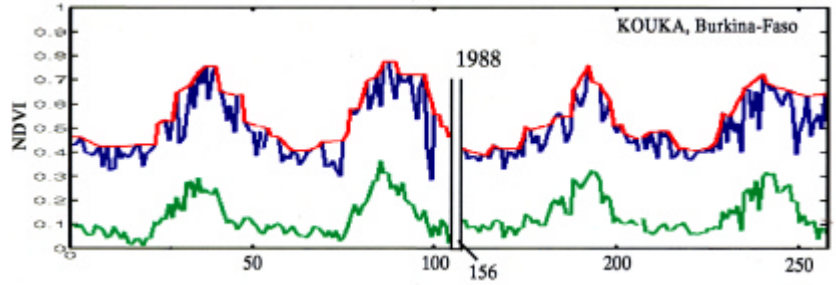


Lamto (Côte d' Ivoire) site n°5

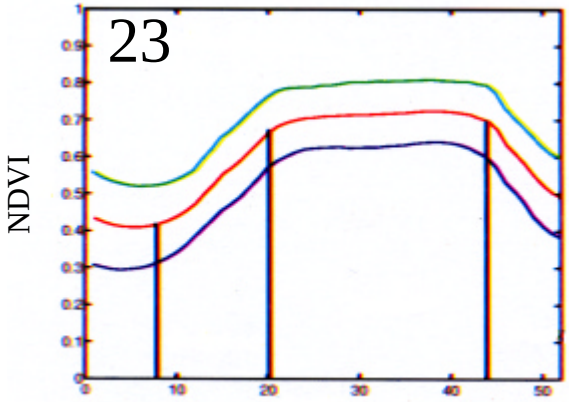
-Field knowledge
-High resolution imagery
-Maps and ground station

Temporal monitoring





- Phenological parameters



Year	1	2
Photosynthetic activity	40,5	39,5
NDVI amplitude	0,31	0,33
NDVI maximum	0,74	0,74
Cycle begining	12	12,5
Maturity duration	23	18,5
Senescent start	43,5	41,5

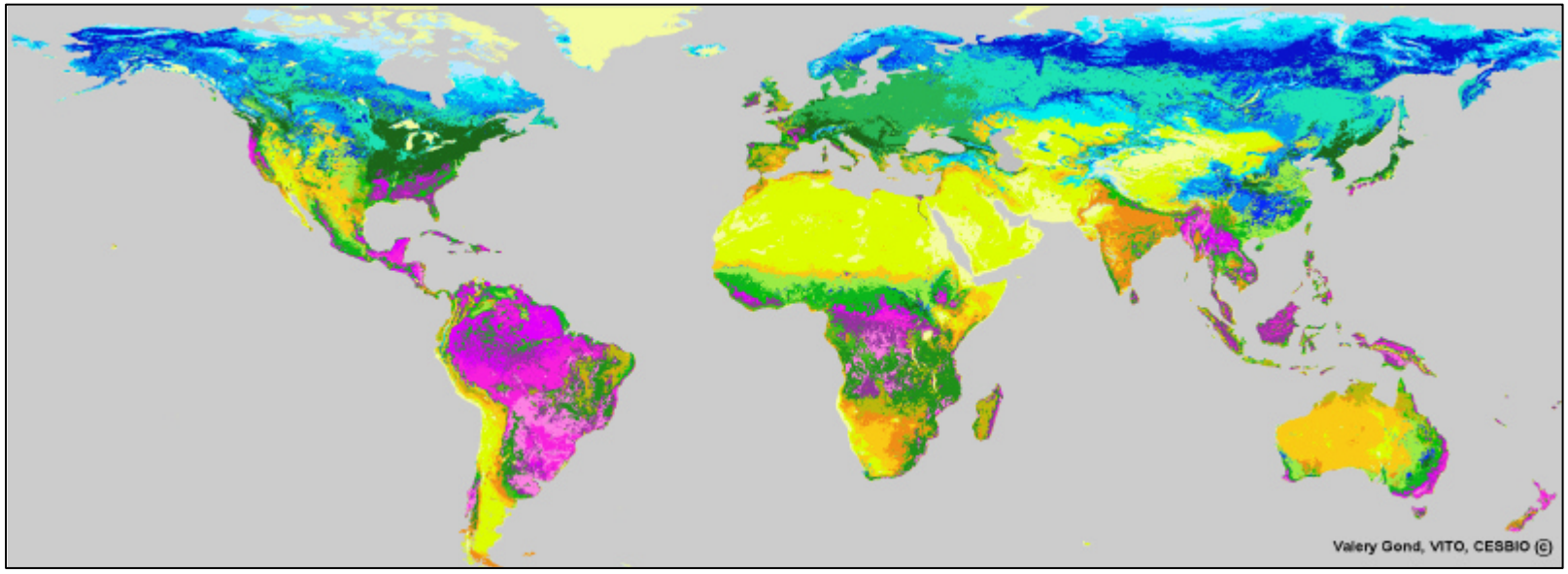
Development

-Utilization of new sensors with better spatial resolution.

-Global data base for time series (Spot-VEGETATION, MODIS).

-Improvment of the ecosystems definition.

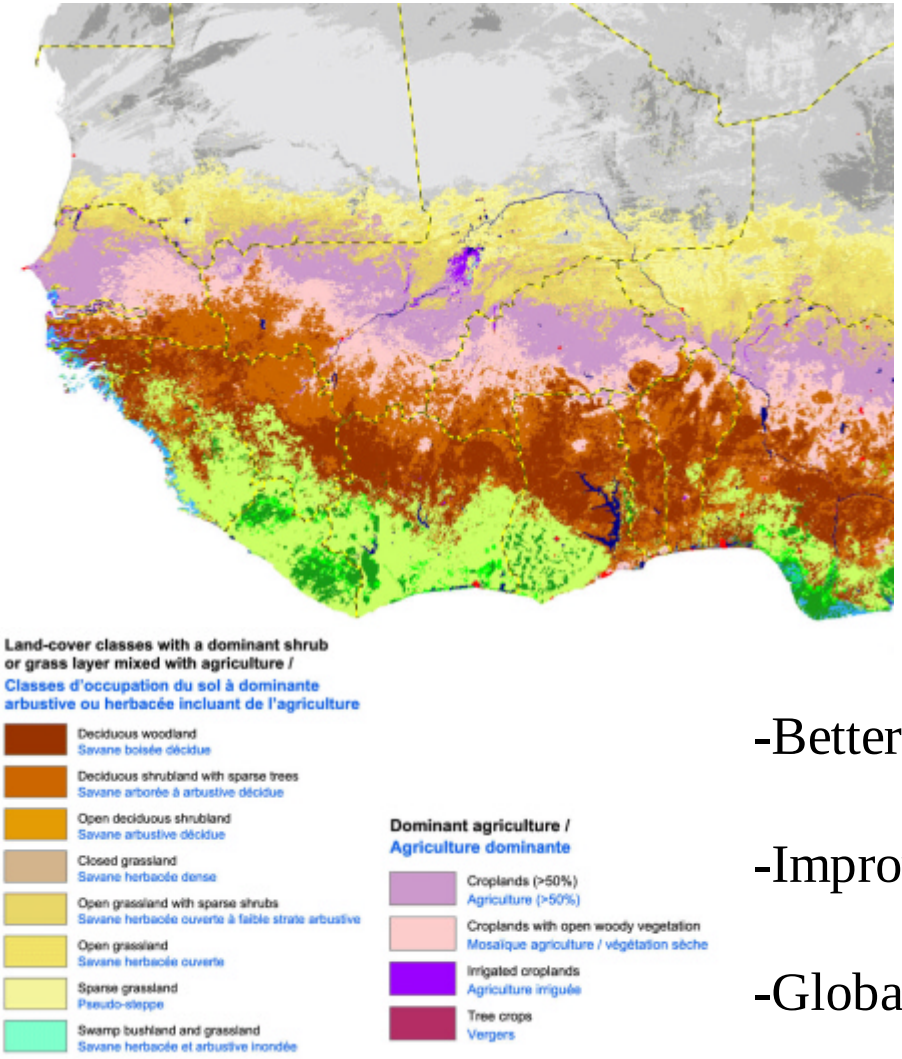
-Improvment of the phenological detail (daily data).

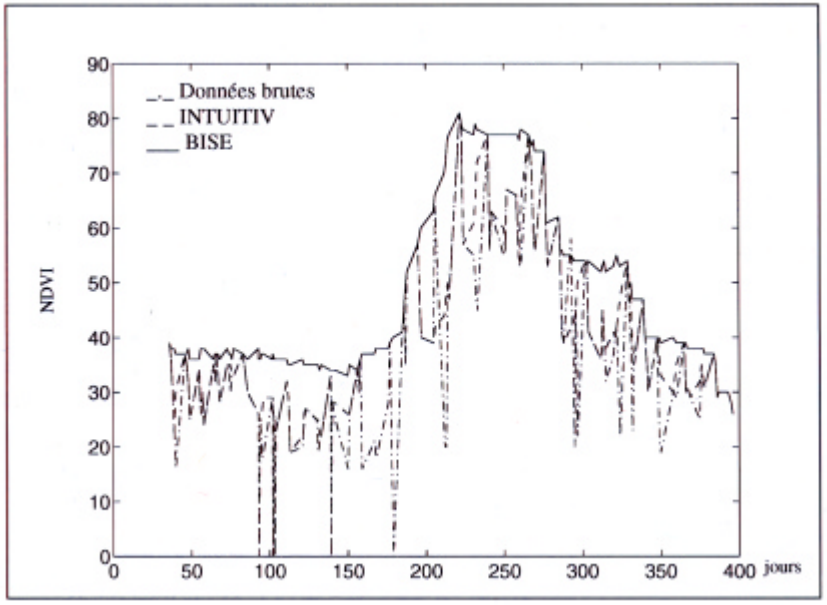


Development

-Ecosystems characterization using 1km resolution time series.

- International programs for a global coverage and harmonised legend.





-Better understanding of spatial distribution.

-Improvments of phenological parameters.

-Global perception of the savannas ecosystems.