Use of Biomass Products in Ecosystem Monitoring and Early Warning Systems in CONABIO-Mexico

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Objective

To show the current and future uses of biomass products

Outline

- Ecosystem Monitoring
- Early Warning System
The National Commission for Knowledge and Use of Biodiversity was created in 1992.

The mission of CONABIO is to promote, coordinate, support and carry out activities aimed at increasing awareness of biodiversity and its conservation and sustainable use for the benefit of society. Among the main functions of CONABIO are to implement and operate the National Information System on Biodiversity (NISB).

Remote sensing Division

Mission is to generate information, using remote sensing methods to contribute to the development of National Information System on Biodiversity.

Topics:
- Ecosystem monitoring
- Establish operational system for monitoring
- Early warning system

Mangrove monitoring system
Operational Systems


• Early Warning System for Forest Fire (AVHRR, MODIS, VIIRS) Since 1999


In developing

• Wetlands (RAPIDEYE)

• Cloud forest (LANDSAT, SENTINEL 2)

• Vegetation monitoring (MODIS, LANDSAT)
Mexican Mangrove Monitoring System

Objective:
to establish the Mexican Mangrove Monitoring System (SMMM, by its Spanish acronym), using remote sensing data and field data to determine conditions on vegetation and main agents that cause transformation.

I. Spatial Component
- Distribution and extension map
- Land cover map
- Estimating parameters and indicators
- *in situ* measurements (Physicochemical monitoring)

II. Experimental Component
- NDVI, EVI, LAI
- Plant Structure
- Biomass estimates
- Other monitoring indicators

III. Social Component*
- Monitoring of public policies on mangroves

* Developing

Results

Projects Results Funded by CONABIO

Incomes

Analysis

National
State
Pilot site
Plots

Feedback
- Adaptation
Mexican Wetlands
Characterization and Monitoring

- To develop a method to identify, delimited and characterize wetland in four sites.
- To generate land cover and changes maps.
- To explore temporal variations of water bodies.
- To explore the relationship between biomass and remote sensing data.

Mangrove

2005

2010

2015
To explore time series methods for identify cloud forest using Landsat or Sentinel data.
CONABIO started monitoring active fires in 1999 with AVHRR data.

http://incendios1.conabio.gob.mx/ (2014 version)
Biomass Consumed by Fires

Fire date: from April 23\textsuperscript{th} to May 8\textsuperscript{th}, 2012
Burnt area was identified using RapidEye images

We expected to find changes in this area between 2010 - 2015
Biomass Products

Uses:
- Quantify biomass consumed
- Evaluate effects over biodiversity
- Forest fires emissions
Summary

Uses

- Characterize mangrove and their changes
- Modelling land cover change
- Quantify and monitoring blue carbon
- Identify and characterize cloud forest
- Quantify biomass consumed
- Evaluate fire effects over biodiversity
- Emission

Challenges

- Evaluate 2015 map in order to identify the reason of differences
- Information about validation by areas (topography) or vegetation type.
- Due to variability in pixel level:
  a) is it recommendable aggregate them?
Thank you

Gracias