

Satellites:

Looking After the Amazon Rainforest

Theme



© Cnes 2007 - Distribution Astrium Services / Spot Image

A Forest and its People Living Together The Amazon Rainforest represents over half of the planet's remaining rainforests. It comprises the largest and richest concentration of biodiversity in the world and it plays a key role in reducing pollution levels and regulating global climate. It is also home to millions of people, belonging to nine nations: Brazil, Peru, Colombia, Venezuela, Ecuador, Bolivia, Guyana, Suriname, French Guiana. However, local-scale human actions and climate change threaten this region, which in turn is expected to alter global climate and increase the risk of biodiversity loss and affecting local populations. Planet Action provides remotely sensed data to improve the knowledge of the Amazon Rainforest and to assess deforestation which allows various actors to take actions of adaptation and mitigation.

The Spot Imagery provided by Planet Action is essential to:

1. Calibrate the derived forest-map.
2. Better characterize forest degradation and biomass.
3. Create visual to increase the dialog between local communities / civil society on climatic change, forest & carbon management and the emerging carbon markets.

How Local Communities Live With the Forest

Some live from the exploitation of non timber products, such as vines, nuts, fruits, oils, manioc and banana. They commercialize some of these products. Hunting and fishing are used mainly as subsistence. Iso, plants are used for medical purposes. Many families depend only on such resources for their survival and the lack of these resources may imply a significant social and environmental impact.



Climate Change and Human Actions Impacts

The Amazon Rainforest plays a fundamental role in global climate and is responsible for ensuring rainfall in the region. Its forests have multiple interactions with the climate system well beyond its carbon content; it releases water into the atmosphere through evapotranspiration providing the vapour that keeps the regional weather wet and rainy.

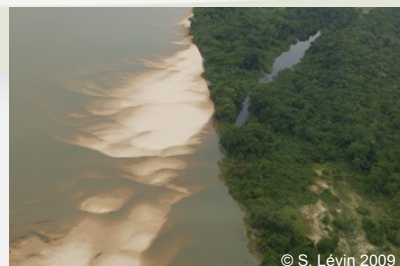
Human impacts include deforestation, logging, mining, population pressures, over exploitation, habitat loss and fragmentation. The leading causes of deforestation are cutting and burning forest for large-scale cattle ranching and crops plantations, especially soybeans. Land use changes and deforestation are responsible for up to 75% of Brazilian greenhouse gas emissions.



What Should we Expect?

Climate change is expected to change the temperature, weather patterns, and rainfall distribution in this region. Temperature and land use changes could lead to devastating effects, such as, increased erosion, degradation of freshwater systems, decreased agricultural yields, increase of fires, loss valuable soils, forest and biodiversity, intensify insect infestation, and spread of diseases.

The Amazon River, the largest single source of freshwater on Earth, plays an important role in the water cycle and water balance of much of South America. Climate change has the potential of changing the water regime, thus affecting not only many animals and plants but also the local communities. Rivers and lakes provide many services to the people of the Amazon, including, sources of income, drinking water, transportation, and recreation.



Conservation Efforts

To preserve the Amazon social, economic and political reasons for deforestation need to be underlined and addressed. Education, restoration, and reforestation programs for local communities as well as technology transfer mechanisms are being put in place to protect the rainforest.



The Value of Satellite Imagery

Satellite imagery and GIS technologies are perhaps the only way to study the Amazon on a large-scale.

Through data processing, classifications and measurements, stakeholders are able to:

- Monitor logging, roads, mining and farming activities
- Develop vegetation cover maps and biomass models
- Identify biodiversity corridors
- Improve local topographic and natural resources maps
- Identify zones suitable for reforestation
- Monitor the growth of newly planted trees
- Support field survey...

Satellite imagery combined with field data is a key tool for providing objective data that is then fed into geographic information systems (GIS) to support avoided deforestation policies and conservation efforts.

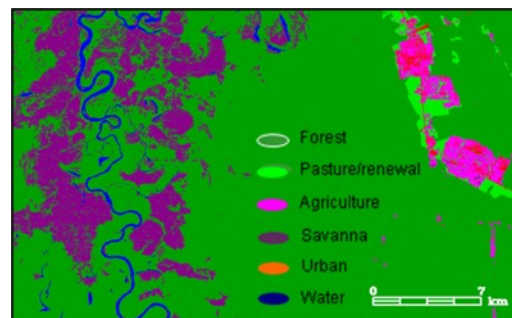


Figure 1 : Land cover map developed by IMAZON

Avoided Deforestation Policies

Sustainable forest management (SFM) aims at attaining a balance between society's increasing demands for forest products and benefits, and the preservation of forest health and diversity.

Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.

"REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

NTFP (Non Timber Forest Products) are considered as any commodity obtained from the forest that does not necessitate harvesting trees. Promoting them is an alternative for the REDD when associated with conservation, forest sustainable management and the increase of carbon stocks in the forests.

For the adequate management and planning of all these policies, it is necessary that natural resources are well monitored in a qualitative and quantitative way.



Some Key Projects Supported by Planet Action

Monitoring Systems – Natural Resources' Use in Brazil

Fundação Vitória Amazônica is working with the local communities inside Rio Unini, Brazil protected areas to develop good practices of management and the adequate use of natural resources.

Spot images are used to:

- Develop field protocols, models and methodologies
- Select the local team leaders per community
- Elaborate capacity building technology transfer workshops



Kayabi Declarada Forest Protection in Brazil

ARF's proposal is to set up a Kayabi community project to identify, record and monitor the location and extent of illegal forest destruction.

SPOT imagery in conjunction with ENVI and NDFI software are used to:

- Detect and measure the real extent of forest disturbance
- Develop detailed and accurate historical maps
- Highlight the true picture of forest degradation



Forest-Cover, Biomass Mapping and Capacity-Building

WHRC is working with developing countries and local communities to strengthen their participation in emerging policies for avoiding or reducing emissions from deforestation and forest degradation (REDD), WHRC proposes to:

- Generate pan-tropical forest cover and biomass maps
- Build national and regional capacity for communities and governments to monitor carbon



Planet Action

5, rue des Satellites - BP 14359 - 31030 Toulouse cedex 4 - France

Phone : +33 (0)5 62 19 40 40 - Fax : +33 (0)5 62 19 40 11

www.planet-action.org - contact@planet-action.org

