

AMAZALERT

A research project on impacts of climate change and land-use change in Amazonia.

AMAZALERT examines how global and regional climate and land-use changes will impact Amazonian forests, agriculture, waters, and people; and how these impacts feed back onto climate. Models of the processes involved will be improved and stakeholders will participate in creating scenarios for Amazonia's future, including necessary policies and measures. A blueprint for an Early Warning System to detect early signs of irreversible loss of Amazonian ecosystem services will also be designed.

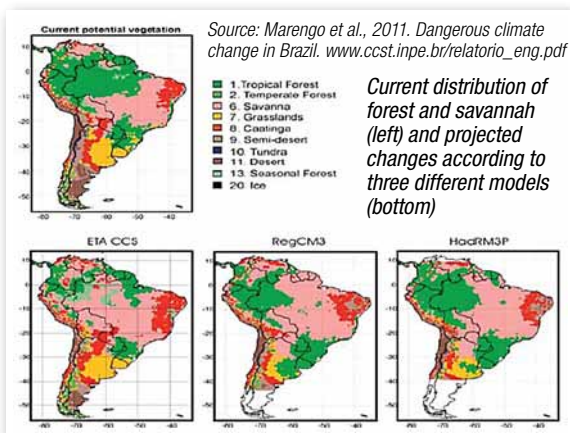
AMAZALERT

- Improving understanding of vegetation, hydrological and climate processes and their interactions
- Working with stakeholders to understand key Amazonian ecosystem functions
- Integrating policy and socio-economic dynamics into physical-process modelling
- Providing tools to alert society to imminent loss of key ecosystem services

Motivation

AMAZALERT investigates and reduces uncertainties in predictions of climate-induced changes in the Amazon Basin that may result from climate and socio-economic forces. As shown in the figure below, predictions of changes vary widely depending on the model used. The extent and distribution of changes are affected by interactions between global temperature, CO₂ and regional rainfall, but also by land-use changes – including those resulting from fire – and socio-economic forces, including those resulting from policies and programs.

AMAZALERT is designed to provide better understanding of the linked processes that drive changes, to reduce uncertainties in predictions, and to lay the groundwork for an Early Warning System. Both Amazonian and international stakeholders have identified the need for a mechanism of this type to assist society in taking action before critical ecosystem services are lost.



Sample Questions

AMAZALERT will address critical questions concerning the future of the Amazon region and its ecosystems, including:

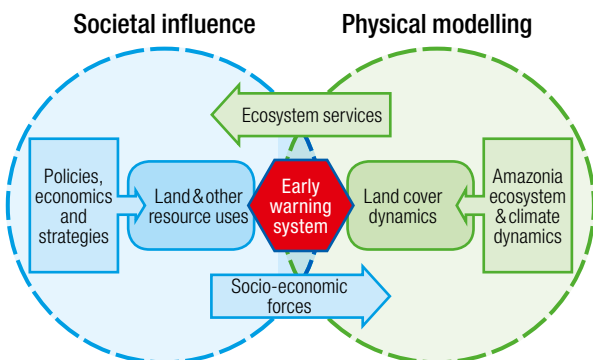
- Will climate change cause forest die-back in the Amazon? If so, when and where is this likely to occur?
- How will people and policy respond to regional climate change and forest die-back?
- Which national or international policy measures, including REDD+, may be most effective in reducing die-back?
- Does deforestation aggravate climate-induced deterioration of forests and ecosystem services?

Objectives & Related Strategy

The AMAZALERT team brings together experts from 14 research institutes in nine countries, including five in Amazon nations (see list on back). These experts will:

- Identify the ecosystem services most important to stakeholders in the Amazon Basin and beyond.

Stakeholders are brought into AMAZALERT from the project start. They are consulted to determine critical ecosystem services and to provide insight into the interplay between policies and socio-economic dynamics.



- Integrate modelling of the interactions between societal and natural contributors to land-use and land-cover patterns.

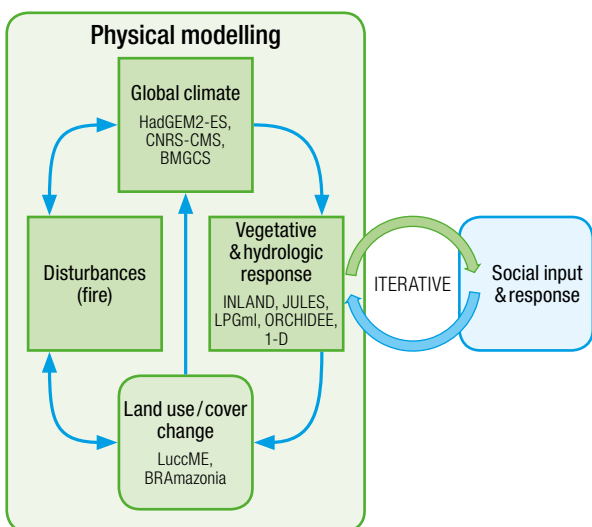
Policies and socio-economic forces will form inputs into biophysical modelling, and results of biophysical models will be used to assess suitability of policies and impacts on socio-economic development.

- Significantly improve modelling and understanding of the complex interactions between natural systems, as well as understanding of impacts on these systems caused by socio-economic forces, including policies and programs.

Test, calibrate and develop vegetation models; increase knowledge of underlying processes; and improve understanding of the feed-backs between vegetation, hydrological processes, global and local climate, fire and land cover changes.

- Respond to the urgent need, expressed by the international community, to develop a tool to warn of imminent, irreversible loss of ecosystem services.

Using the results of coupled models, data sets and other indicators, we will develop a 'blueprint' for an Early Warning System.



Highlights & Strengths

AMAZALERT recognizes that Amazonia consists not only of forests but also of its waters, society and economy. All of these are embedded in, and respond to, wider natural and socio-economic systems. The project thus takes an integrated, holistic approach.

Team members have direct access to high-level decision makers with responsibilities for the Amazon region, to important NGOs and to key Amazonia stakeholders.

Stakeholder perspectives and knowledge will guide the work program, ensure the usefulness of results, and promote adoption of promising avenues to ensure continued availability of key ecosystem services.

Project outcomes will be widely disseminated. Domestic media in Amazonian nations, journal articles and a website will be utilized to reach the widest possible audience.

Summaries of important findings will be made available to both policy-makers and lay audiences. Full reports will be available on the website and in journals.

Amazon forest die-back scenarios will be thoroughly tested using a range of coupled models, allowing feed-backs and interactions with socio-economic systems.

AMAZALERT will provide a blueprint for an Early Warning System, a tool that can be used to assist efforts to prevent loss of Amazonian ecosystem services.

Please join us in this exciting endeavour. If you are interested in participating as a stakeholder or receiving notices of important releases, please contact:

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