

# SERVIR AMAZONIA

*7<sup>th</sup> International Wildland Fire Conference (IWFC)*

*User needs assessment for geospatial information to improve  
fire management in the Amazonia region*



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Campo Grande-MS, October 29 2019

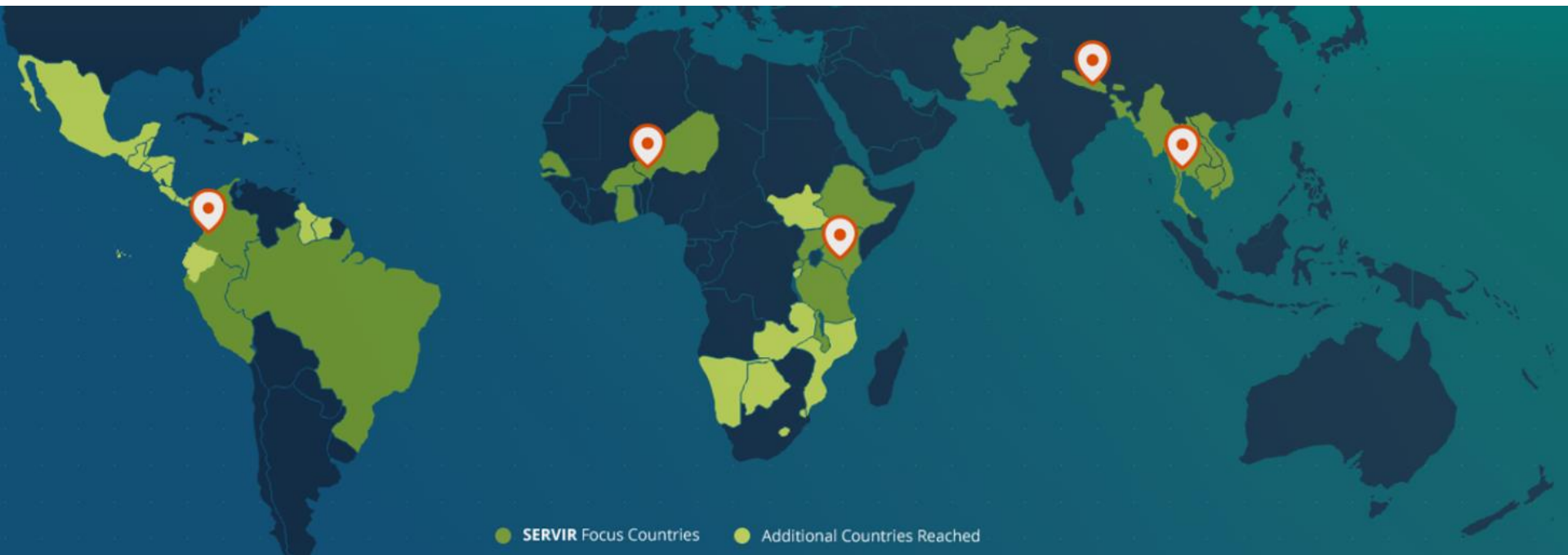


**SERVIR Global**



# SERVIR GLOBAL

It partners with regional organizations worldwide to empower societies by advancing the use of geospatial technologies for the decision making process in various services areas



# SERVIR GLOBAL

Collaboration  
with

**19** US-based  
universities and  
research centers  
located in  
**14**  
states

Partner  
with

**5** leading  
US technology  
companies

Partnerships



COLLECT EARTH  
ONLINE

Active  
in

**50**  
countries

Capacity of over

**380**  
institutions worldwide improved

Methods

 **TensorFlow**

Technologies



**GEDI**  
ECOSYSTEM LIDAR

More than

**6,600**

individuals trained



Custom services  
in development or  
delivery stages

# SERVIR AMAZONIA

*Connecting Space to Village:  
Geospatial information for improved environmental decision-making in the Amazon*

SERVIR-Amazonia is the newest hub within the SERVIR initiative. Funded by USAID and with science and technology support from NASA, SERVIR-Amazonia is implemented by the International Center for Tropical Agriculture (CIAT) and a network of local and international partners serving the Amazon region, mainly the Spatial Informatics Group (SIG), Conservación Amazónica (ACCA), and the Institute for Forest and Agriculture Management and Certification (IMAFLOA) . [Learn more](#)

<https://servir.ciat.cgiar.org/>



## Background

- The SERVIR-Amazonia is part of SERVIR Global, a joint effort of the US National Aeronautics and Space Administration (NASA) and the United States Agency for International Development (USAID).
- It partners with regional organizations worldwide to empower societies by advancing the use of geospatial technologies for the decision making process in various services areas.
- SERVIR-Amazonia implementation is led by CIAT, together with Hub partner institutions (Spatial Informatics Group, ACCA and IMAFLORA), funded by USAID.

# Objectives



## **Objective 01**

Establish a strong Consortium to collaborate on geospatial information services (in four thematic areas) to promote sustainable development across the Amazon region.



## **Objective 02**

Build long-term networks and capacity in the Amazon region to design and develop geospatial information services that inform decision-making



## **Objective 03**

Support improved decision-making across the Amazon region by the government and civil society through dissemination and use of geospatial services and tools tailored to users' needs



## CIAT SERVIR-Amazonia HUB HEADQUARTERS



SERVIR-Amazonia focus countries

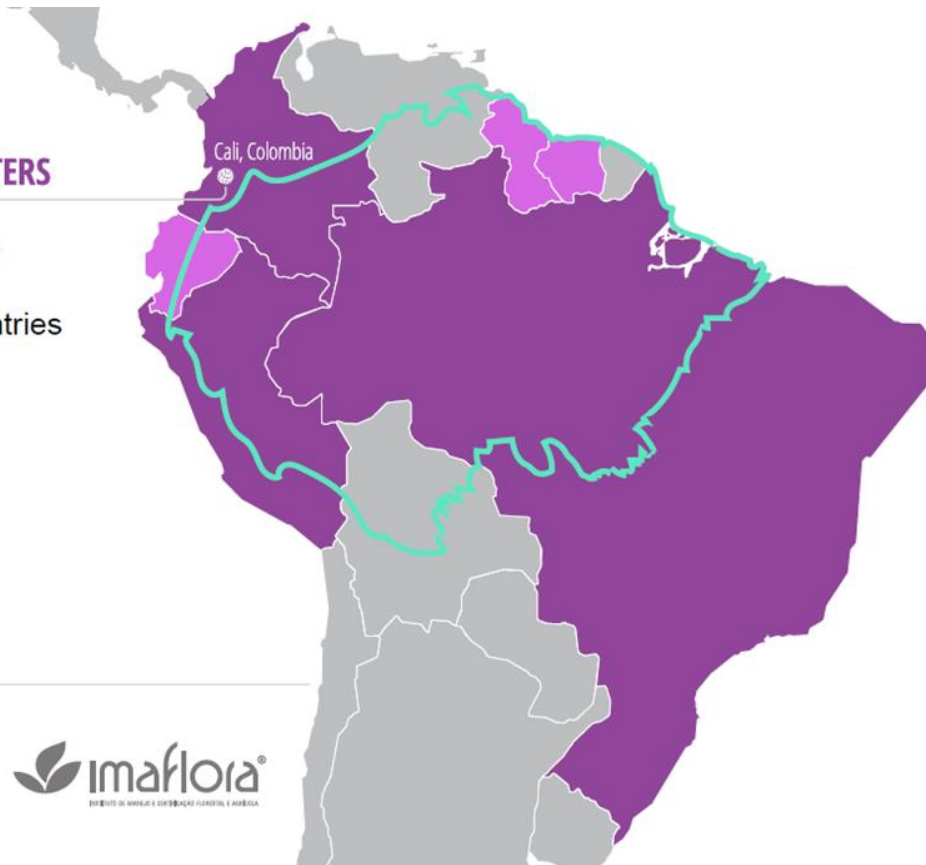


Additional countries reached



Biome limits of the Amazon

## SERVIR-Amazonia HUB PARTNERS





# Service Areas



**Drought and Fire Risk**



**Water Resource  
Management and  
Hydro-Climatic  
Disasters**



**Weather and Climate**



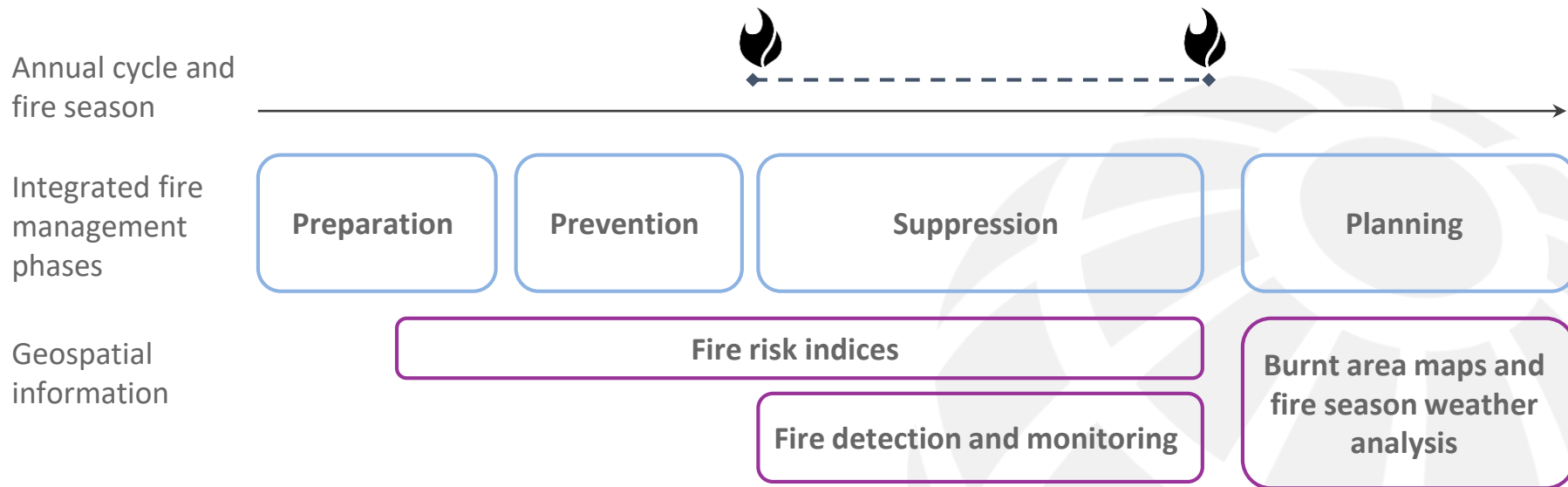
**Ecosystem  
Management**



# Fire and Drought



# Geospatial information for integrated fire management



## Geospatial information for integrated fire management

Phases	Preparation	Prevention	Suppression	Planning
<b>Decision-making / planning questions</b>	<p>Are there sufficient resources for suppression?</p> <p>Where to invest resources in annual budget cycles?</p>	<p>Where and when do additional fire prevention and suppression resources need to be mobilized?</p>	<ol style="list-style-type: none"><li>1. Where to mobilize fire suppression resources?</li><li>2. Where are the fires? Where to implement initial attack on uncontrolled fires?</li><li>3. For uncontrolled fires, how big will it get and where will it go? Are there enough suppression resources mobilized? Will the fires damage key ecosystems?</li></ol>	<p>Reflection on the fire season and planning of resources for next year.</p>

## Geospatial information for integrated fire management

Phases	Preparation	Prevention	Suppression	Planning
<b>Actionable insight from geospatial information</b>	Fire season likely to be high, medium or low severity?	In next month is there a high, medium, low risk of fires?	<ol style="list-style-type: none"><li>1. In next week, is there a high, medium, low risk of fires?</li><li>2. Where are the active fires in space and time?</li><li>3. Active fire perimeter and likely spread over 24/48 hrs</li></ol>	What was the extent of burnt area? Where? What were the weather conditions?

## Geospatial information for integrated fire management

Phases	Preparation	Prevention	Suppression	Planning
<b>Geospatial information</b>	<b><i>Fire risk index</i></b> - climate-seasonally based	<b><i>Fire risk index</i></b> - (sub) seasonal	<ol style="list-style-type: none"> <li><b><i>Fire risk index</i></b> - 0-10 day</li> <li><b><i>Hotspot</i></b> - active fire monitoring</li> <li><b><i>Fire progression</i></b> <ul style="list-style-type: none"> <li>Fire perimeter maps using remote sensing and ground-truthing</li> <li>Fire progression model over 24/48 hrs (need fuel, spread model, weather, topography, computation resources)</li> </ul> </li> </ol>	<b><i>Burnt area maps</i></b> - fire locations, area burnt, area of intact forest burnt  <b><i>Analysis of historical weather</i></b> - rainfall and wind.



# Summary of user consultation workshops to identify issues around fire and geospatial information needs in the region

## PERU

### Needs:

- Early monitoring and alerts
- Automation
- Human and financial resources
- Interoperable geospatial information between various actors and sectors
- Multisectoral coordination
- Standardization of the information

### Service Ideas:

- Improved fire and drought prevention information
- Development of fire propagation models
- Model of dispersion of pollutants and smoke from burning

Service Area: Fire and Drought



# Summary of user consultation workshops to identify issues around fire and geospatial information needs in the region

## COLOMBIA

### Needs:

- Standardization of the information
- Information Integration
- Human and financial resources
- Promotion of use

### Service Ideas:

- Real-time fire alert / report
- Fire Threat Forecast
- Drought alerts / forecast reports

Service Area: Fire and Drought



# Summary of user consultation workshops to identify issues around fire and geospatial information needs in the region

## BRAZIL

### Needs:

- Integrated information portal between different public, private and non-governmental users (integrated database)
- Better articulation and engagement among users and decision makers
- Spatialize public data
- Framework for continued training on remote sensing issues

### Service Ideas:

- More refined fire monitoring and forecasting
- Implementation of new technologies - Purple Air, Thermal Detectors, etc. [Includes training in technologies such as RADAR]



# SERVIR AMAZONIA

## SERVIR-Amazonia Team

- GIS Scientists
- Climate Scientists
- Economists
- Public Managers
- Forestry Scientists
- Social Scientists
- Biodiversity Experts



# What is going on with the Fires in the southwestern Amazon? A short assessment by SERVIR-Amazonia

by Simone Staiger | Sep 10, 2019 | Communications, Deforestation, Drought and Fire | 0 comments



SERVIR-Amazonia, an initiative of USAID and NASA, shares the Amazonian population's concerns in regards to the impacts of fires currently affecting the Region, and renews its commitment to collaborate with populations, governments, research institutions, international community and other stakeholders to monitor and understand the causes and impacts of the fires affecting the Amazonian regions of Brazil and Bolivia.

One of SERVIR-Amazonia's four service areas focuses on Fires and Droughts. The Program is working to

Search

## Recent Posts

SERVIR-Amazonia co-designs first services to tackle deforestation with partners

A Must Watch: SERVIR-Global Program Manager Dan Irwin's Ted Talk

Twelve needs identified by Colombia to leverage its geospatial information on the Amazon

Las doce necesidades que identificó Colombia para potenciar su información geoespacial sobre la Amazonia

What is going on with the

## MAAP #109: FIRES AND DEFORESTATION IN THE BRAZILIAN AMAZON, 2019

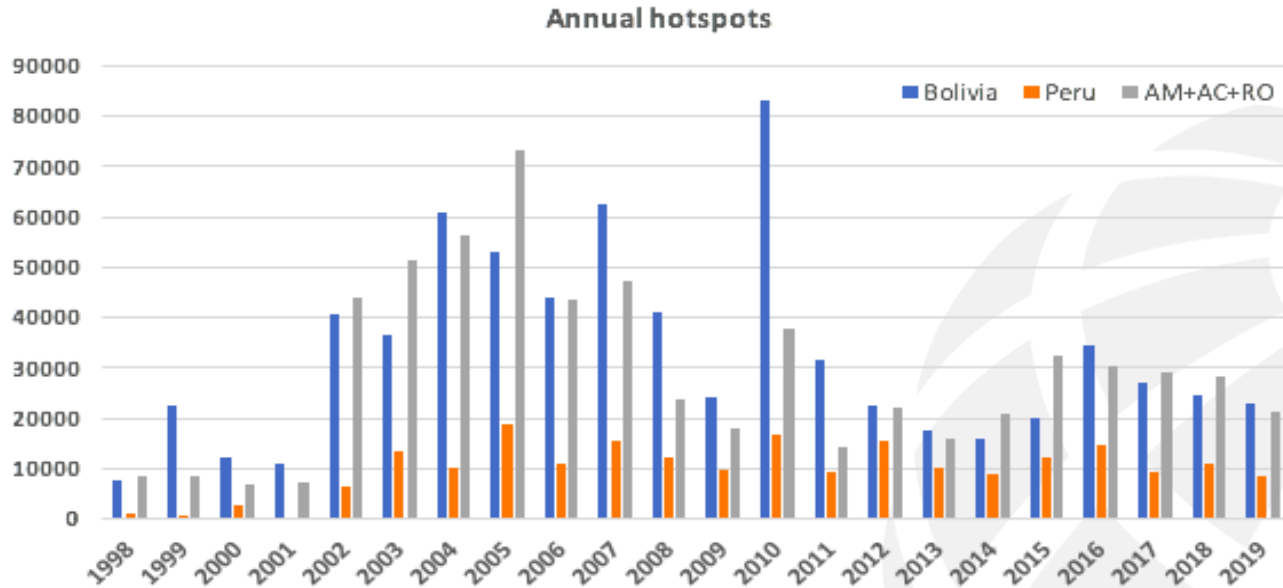
BRAZIL, MAPS, FIRE SEP 10, 2019

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# Fires in the Amazon: number of hotspots in Peru, Brazilian Amazon states and Bolivia over the last 20 years



Source: INPE

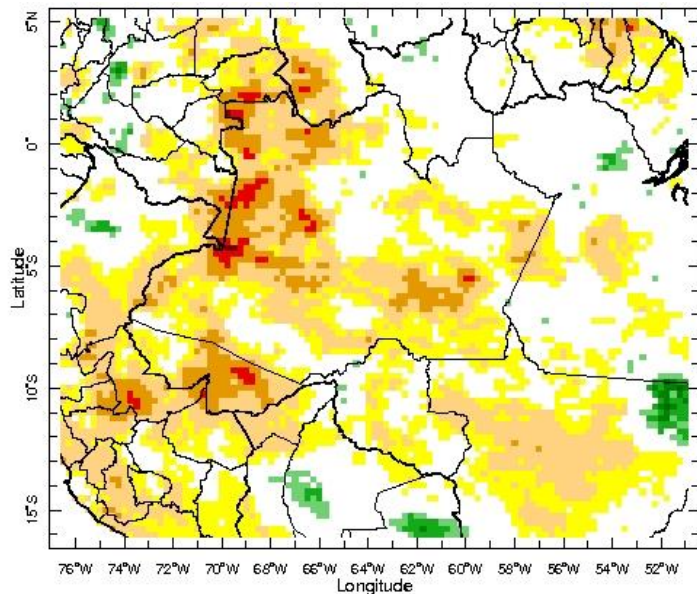
AM+AC+RO corresponds to southwestern Brazilian Amazon states.

2019 Hotspots count through Sep 9<sup>th</sup>.

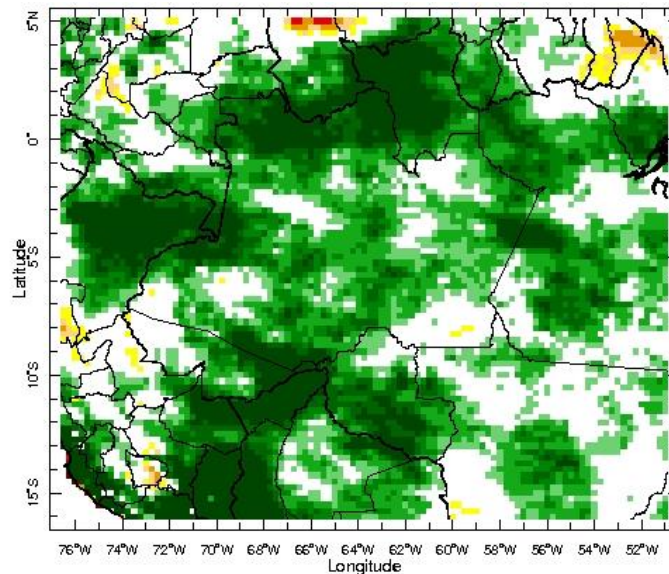
Service Area: Fire and Drought



# Fires in the Amazon: precipitation anomalies leading to fire occurrence



May-Jul 2005



May-Jul 2019

Source: CHIRPS- IRIDL

AM+AC+RO corresponds to southwestern Brazilian Amazon states.

2019 Hotspots count through Sep 9<sup>th</sup>.

Service Area: Fire and Drought





# SERVIR AMAZONIA



**USAID**  
FROM THE AMERICAN PEOPLE



**CIAT**  
International Center for Tropical Agriculture  
Since 1967 Science to cultivate change



[www.servir.ciat.cgiar.org](http://www.servir.ciat.cgiar.org)

#SERVIRamazonia