Annual Report

Technical Progress Report

MAP Fire

Multi-Actor Adaptation Plan to cope with Forests under Increasing Risk of Extensive Fires

Period: March 2019 to March 2020
Overview

Project implementation timeline
30/09/2019: Agreement signed by all parties.
28/02/2020: MoU between the Execution Agency (FUNCATE) and Cemaden signed (Annex 1).
05/03/2020: Publication in the Union Journal of the agreement between FUNCATE and Cemaden to the execution of the MAP-Fire project (Annex 2).

Project main scientific activity delivered to the society
The MAP-Fire monitoring Platform: during the year 2019, the MAP-Fire team managed to develop an on-line fire monitoring platform to subsidize the monitoring of fire occurrences in the MAP region. This tool supported the planning and decisions by the project stakeholders during the 2019 fire crises in the Amazon. An user guide in English, Portuguese and Spanish have been developed. The Map-Fire Platform, online tutorials and capacity building will be further developed and improved during 2020, details in “Section 3 - 3 Policy Relevance, Dissemination, Outreach and Impact on Society.

Project Workshop-1 and Contingency Plan
In the second week of March 2020 the project Workshop-1 (WS-1) started to be organized to take place in Rio Branco, from the 21st to the 23rd of April. The preliminary agenda of the WS-1 was drafted - in portuguese and spanish - to include lectures and also capacity building activities related to participatory risk mapping, oral history about past wildfire disasters and participatory monitoring using the Map-Fire Platform. Contacts with stakeholders, including 2 schools from Cobija (Bolivia), 6 schools from Rio Branco (Brasil), one school from Cruzeiro do Sul (Brasil) and two schools from Madre de Dios (Peru) declared interest in participating in the workshop and in capacity building activity. In addition, three key stakeholders from the central government from Bolivia and Peru agreed to participate (details in section “ii) New collaborations & justification”, below. Although many air tickets were bought and workshop place were already booked, on the 18th March, the project PIs decided to postpone it due to the COVID-19 crises installed in the three countries. Therefore, as a contingency plan, we formally ask for allowing for changes in Budget Categories - Students/Scholarships, Equipment, travel/workshops - less than US$5,000, according to the Agreement Annex A, page 22). The proposed changes aim at increasing the project team with one more scholarship at the BSc level, that will allow us to develop online materials, questionnaires and protocols to minimize the impacts due to the postponement of the workshop 1 (WS1) and maximize the capacity building and project documentation. Please refer to the Annex 3 for the Mentoring Plan. Another contingency measure under evaluation is the possibility of obtaining a license of Zoom software to organize and record webinars and online capacity building activities. These are formal requests to IAI since it was not included in the original budget.

Project Scholarships implementation:
Due to the delay in the project implementation, a new selection of candidates occurred during the second-third week of March 2020. Our policy was to promote gender-based opportunities and select “local researchers”, who should be based on the study area, aiming to strengthen the
inclusion of them in international collaborations and to increase local capacity of researching after the end of the project. We received CVs from 18 candidates and selected 10 young scientists for the interview phase. The new project participants are Igor Ferreira, MSc in Remote Sensing, (Research Assistant Research Assistant 0 - Working Package I); Izaías Brasil, MSc in Ecology (Research Assistant 1 - Working Package I); Yara de Paula (Research Assistant 2 – Working Packages 2 and 3), MSc in Ecology; and Gleiciane Pismel, BSc in Sociologist, (new proposed position, Research Assistant 3 – Working Packages 2 and 3 - Mentoring plan for this new Research Assistant is provided in Annex 3). The scholarship implementation requires a procedure that must be approved and signed by a committee and the directors of both Cemaden and Funcate. It is expected that by mid-April 2020 all scholarships will be implemented.

Project insertion in the public school system
The MAP-Fire project team with the teachers Alex Pimentel (Arts) and Elisa Wander (Geography) has implemented one elective discipline at the Instituto de Educação Lourenço Filho, Rio Branco, Acre, Brazil, which will combine Geography and Arts to promote scientific methodologies for understanding and diagnosing wildfires risk and impacts in the students’ lives and in their region. The discipline has 15 students matriculated. For more information, please see (Annex 4).
1 Project Identification

**Project Number:** SGP-HW 016  
**Project Title:** Multi-Actor Adaptation Plan to cope with Forests under Increasing Risk of Extensive fires (MAP-FIRE)  
**Principal investigator (PI):**  
• Liana Oighenstein Anderson, National Centre for Monitoring and Early Warning of Natural Disasters - Cemaden, São Paulo, Brazil. Contact - Email: liana.anderson@cemaden.gov.br, Tel: (+55) 12 3205-0154.  
**Co-PIs:** This project has been structured in three Working Packages (WP). Each working Package has two main Co-PIs:  
   **Working Package 1:** Aragão and Selaya  
   • Luiz Eduardo O. C. de Aragão, National Institute for Space Research - INPE, São Paulo, Brazil. Contact: luiz.aragao@inpe.br  
   • Galia Selaya, HERENCIA, Cobija, Bolivia. Contact: gselaya@outlook.com  
   **Working Package 2:** Marchezini and Ascorra  
   • Victor Marchezini, Cemaden, São Paulo, Brazil. Contact: victor.marchezini@cemaden.gov.br  
   • César Ascorra, Asociación CINICIA, Puerto Maldonado, Peru. Contact: ascorrcaf@wfu.edu  
   **Working Package 3:** Rioja and Anderson  
   • Guillermo Rioja-Ballivian, Universidad Amazónica de Pando, Cobija, Bolivia. Contact: guillermorioja@gmail.com

**Project Associated Partners (other partners):**

i) **Partners listed in the proposal:**
   a) **Researchers:** USA: Irwin Foster Brown, Woods Hole Research Center, Falmouth, MA 02540, USA, and Federal University of Acre, Rio Branco, Brazil. Contact: fbrown@whrc.org, Peru: Eddy Mendoza, Fundación Conservación Internacional, Lima, Perú. Contact: emendoza@conservation.org; Francisco Roman, Asociación CINICIA, Madre de Dios, Peru. Contact:roman@wfu.edu; Martin Pillaca, Asociación CINICIA, Madre de Dios, Peru. Contact:pillacm@wfu.edu; Brazil: Thiago Fonseca Morello Ramalho da Silva, Centre for Engineering, Modelling and Applied Social Sciences (CECS), Federal University of ABC, São Paulo, Brazil. Contact: fonseca.morello@ufabc.edu.br; Sonaira Souza da Silva, Universidade Federal do Acre, Campus Cruzeiro do Sul. Contact: sonairasilva@gmail.com  
   b) **Stakeholders:** Brazil: Vera Reis, Coordinator of the Situation Room, Technical Director of Climate Change Institute (IMC), Acre State Secretary of Environmental Management – SEMA, Contact - Email: vreis.reis21@gmail.com, Tel: (+55) 68 3224-3990; Peru: Claudio Schneider, Senior Technical Director, Fundación Conservación Internacional, Lima, Peru, Contact: cschneider@conservation.org . Tel: 51-1-6100300; Bolivia: Juan Fernando Reyes, HERENCIA,Cobija, Pando, Bolivia. Contact: jfr@herencia.org.bo  
   c) **Students and Research fellows:** Ana Carolina Pessôa - 3rd year PhD student with scholarship, supervised by Dr Liana Anderson; Wesley Campanharo - 4th year PhD student with scholarship, supervised by Dr Liana Anderson and Dr Thiago Morello; Cândida Leite - MSc student candidate with scholarship, supervised by Dr Liana Anderson (2019-2021); João dos
Reis - Research Assistant with scholarship from Cemaden/CNPq, supervised by Dr Liana Anderson.

ii) New collaborations & justification:

In this section is described the new Regional Collaborations and Networking. We anticipate that Regional Cooperation can be expanded in the near future. The United Nations Office for Disaster Risk Reduction (UNDRR) will publish the Regional Assessment Report (RAR) in 2020. Dr. Victor Marchezini and Dr. Liana Anderson are preparing a brief report about the MAP-Fire project and will submit it to the editorial team. Please find below specific collaborations that were built during the 2019 year. In addition, please see “Section 6 Project Funding”, where other collaborations are described.

a) Secondary Schools developing activities related to the project:
Instituto de Educação Lourenço Filho. Teachers: Alex Pimentel (Arts) and Elisa Wander (Geography). The MAP-Fire project has proposed one elective discipline that will combine Geography and Arts to promote new methodologies on risk knowledge about wildfires. 15 students have matriculated on this elective discipline that is optional for students (Annex 4). *Due to the Coronavirus all classes have been suspended. As a contingency plan, we are starting to develop on-line tutorials for the discipline activities. We expect that the materials developed by this collaboration will be made available to other schools, and promoted by the Cemaden Educação project in order to gain the national scale <http://educacao.cemaden.gov.br/>.

b) Federal University of Acre:

Dr. Anderson Azevedo Mesquita, Prof. Physical Geography, Head of the Geography BSc course and MSC. Rodrigo Otávio Peréa Serrano, Prof. Physical Geography, have a laboratory for Cartography and disaster risk reduction at UFAC. They have demonstrated interest in collaborating with the MAP-Fire project, through the involvement of their undergrad students, by participating in the Project workshops and activities in order to build local capacity. Moreover, the students will have the opportunity to initiate their international network with the MAP-Fire international team of scientists. One key point of this new collaboration is to ensure that the project Platform for Monitoring fires in the MAP region (http://www.terrama2.dpi.inpe.br/acre/monitor/) will also be running in their lab. The MAP-Fire team aims that through capacity building, the students will be able to include new information that they identify as important in the Platform. Most importantly, this measure aims to: (i) decrease the local institutional vulnerability, through ensuring that the fire monitoring information can be generated and shared locally with other stakeholders, independently from the State of Acre Environmental Secretariat (SEMA), and (ii) build local capacity to generate and implement new functionalities in the Platform, independently from the Cemaden’s development. This initiative also opens the possibility of the development and integration of other hazards in the Platforma, such as flood monitoring and droughts, which are not included in the MAP-Fire project so far.
Figure 1. Photo from the MAP-Fire and UFAC meeting on the 11th October 2019 for establishing the partnership with Prof. Anderson Mesquisa and Rodrigo Serrano. In this photo also, Fernanda Lima, from the Faculdade Getúlio Vargas (FGV), participant of the Waterproofing data project.

Dr. Marcos Silveira, the head of the Botanic and Ecology lab from UFAC, Rio Branco is providing access to his lab facilities for Izaías Brasil, MAP-Fire research Assistant, Working Package 1. The support letter is presented in the Annex 5.

Dr. Alejandro Fonseca Duarte, Coordinator of the Environmental Services group at UFAC, Rio Branco is performing a collaborative research with Liana Anderson, by co-supervising the undergrad student at UFAC - Gabriel Souza de Araújo Brito in a Scientific Initiation Program. The student’s project is defined as: “The relationship between fires, air quality and health problems in Rio Branco, Acre”.
Figure 2. Photo of the meeting with Prof Alejandro Duarte, UFAC, and the student Gabriel Brito in Rio Branco, in October 2019. Also in this photo, João Porto, University of Warwick, and Rachel Trajber, from Cemaden Educação project, participants of the Waterproofing data project (for details see the “Section 6 Project Funding”, below).

c) Cemaden

Flavio Lopes Ribeiro is a psychologist who was awarded with a scholarship from Cemaden. Dr Flávio will support the MAP-Fire activities related to the Working Package-2 until July 2020. More specifically, he is supporting the air quality perception diagnostic and institutions governance. His involvement with this project accounts for 20% of his time, with a monthly equivalent to R$ 1,104.00 (approximately US$220). Contact: <flavio.ribeiro@cemaden.gov.br>.

d) Stakeholders:

Marta Torres, Asociación CINCIA, Madre de Dios, Peru, contact: torresmi@wfu.edu, and Carmen Acho, Asociación CINCIA, Madre de Dios, Peru. Marta and Carmen are involved with the MAP-Fire school mobilization in Madre de Dios, Peru. In collaboration with the local teachers, they will implement one of the MAP-Fire project activities in the selected school(s). Since the project Workshop-1 was postponed due to the Coronavirus crisis, we are now developing on-line tutorials and activities to be used when the classes are re-established.

Santos Luis Quispe Choque, Encargado GeoSINAGER, Sistema Integrado de Información y Alerta para la Gestión del Riesgo de Desastres, SINAGER-SAT, Viceministerio de Defensa Civil, Bolivia. Contact: santoslgc@hotmail.com, Telephone: 591-22610557/591-76257572. Mr. Santos has demonstrated interest in the MAP-Fire Platform that currently covers
only the Pando region in Bolivia. Therefore, in collaboration with the MAP-Fire team, we will explore the potentiality for expanding the Platform to cover the region of Santa Cruz, Bolivia, which he identifies that fire represents a major threat.

Blanca Violeta Ponce Vigo, Analista de Monitoreo de Recursos Forestales de la Dirección General de Información y Ordenamiento Forestal y de Fauna Silvestre del Peru. Ms. Blanca has demonstrated interest in the MAP-Fire Platform that currently covers only Madre de Dios in Peru. She is also interested in the community and institutional diagnostic that will be provided by the Working Package 2, and she declared that can contribute with compiling governamental documents related to fire risk mitigation strategies.

2 Main Conclusions

The WP-1 and WP-2 are working to develop knowledge about the wildfire risks in the MAP region. Risk is composed by the hazard patterns and also by vulnerability. Vulnerability has many dimensions such as economic, educational, institutional, political, environmental, and so on. Vulnerability is also a measure of exposure, sensitivity and adaptive capacity. Some preliminary findings on these dimensions of vulnerability that can be found in the MAP region are:

- Increase in the population exposure to fires: an analysis demonstrated that between 1998 and 2016. Population migration to urban centres and the increase in the population in the southern of Acre state, lead to an increase of more than 80 thousand people in areas where there is a predominance of low air quality, as defined by the World Health Organization, due to fire occurrence (Figure 3). The complete results of this study have been accepted in a Brazilian Journal (Anderson and Marchezini, 2020, accepted), with the text written in Portuguese, in order to facilitate the information dissemination to the governmental organizations stakeholders (environmental and health sectors).

Figure 3. Increase in the population exposed to low air quality due to fires. (a) Location of the areas with higher recurrence of low air quality, measured by the PM2.5 index; (b) Number of people exposed to the recurrence of low air quality. The full results of this study is provided in Anderson and Marchezini, 2020, accepted to be published in the Brazilian Journal “Saúde em Debate”.

8
Environmental vulnerability: due to the political speech of the federal government for weakening environmental laws and cutting staff and funding for law enforcement, an increase in deforestation and thus fires were observed in the Amazon and in the MAP region (Figure 4). For example, the fire occurrence in Protected Areas (PA) and Indigenous territories (TI) in the MAP region was higher during August 2019 in approximately 48% and 39%, respectively, in relation to the 2014-2018 average. The contribution of Acre to the total fire pixels from 2014 to 2018 is 86%, 11% of the fires occurred in Pando and 3% in Madre de Dios, and this pattern is similar to the August 2019 fires (79%, 16% and 4%, in Acre, Pando and Madre de Dios, respectively). This study is under development and the results will be submitted to the Journal *Remote Sensing*, special edition on Wildfires. The MAP-Fire team provided many interviews for the national and international media during the 2019 fire crisis, for details, see “Section 10 Media Coverage”.

**Figure 4.** Number of fire pixels per country and per Conservation Area (CA) and Indigenous Territory (IT) located in the MAP region, from 2014 to 2018.

Institutions vulnerability: One of the important elements to deal with fire risk and response is the level of institutional capacity. The MAP region is facing changes in institutions’ personnel due to changes in political parties in power, at municipal and state level. These changes increase the institutional vulnerability leading to a profound impact in the on-going activities, actions and networks. Most of the project collaborators in local schools have been moved from their position, technical staff from the Environmental Secretary of Acre State (SEMA) has been replaced and the situation room in SEMA was
not operating during the 2019/2020 rainy season. This de-mobilization of the technical personnel in many secretariats lead to a state of uncertainty in relation to the stakeholders’ network built during the year 2019. Although the MAP-Fire team has re-established many local connections, the process of building networks and strong collaborations takes time.

- In Acre, during the 2019 dry season, a total of 180,209 ha of burned areas were detected in deforested areas, approximately 80% higher than in 2018. Around 41% of this burned area was the result of new deforestation in the same year. This means that 60% of the 2019 deforested areas did not burn in the same year, and thus is likely to burn during the dry season 2020. This is an important finding as it can be used to define areas with high probability of burning this year, and thus mitigation actions can be taken. A report has been prepared and disseminated among stakeholders. Of the 22 municipalities, 64% of the total burned areas occurred in only 6 of them: Sena Madureira, Feijó, Rio Branco, Tarauacá, Brasiléia and Manoel Urbano. A full paper is under development, led by Dr Sonaira Silva, MAP-Fire project partner (Figure 5).

![Figure 5. Burn scar detection during the 2019 dry season in Acre state.](image)

- A new methodology has been developed to estimate the economic losses due to fires. For Acre state, we estimated that during the extreme dry year of 2010, fires caused an economic loss of approximately US$ 243.36±85.05 million, and from 2008 to 2012, the total amount sums US$ 307.46±85.41 million. These values represent 7.03±2.45% and 9.07±2.46% of Acre’s gross domestic product (GDP). These results have been
published in Remote Sensing, please see the Reference section Campanharo et al., 2019.

- In order to support the prevention and response of fires in the MAP region, the MAP-Fire team launched during the 2019 fire crises in the Amazon an online tool, named MAP-Fire Platform. This Platform combines the near real-time fire occurrence (time and location) integrated with other spatial information, such as roads, land use, schools, health centres, etc., and provides alerts on areas with higher fires occurrence. This type of information was not available at the time, in near real time, and automatically updated for the trinational frontier. In addition to the tool, a tutorial in Portuguese, Spanish and English was developed (Details available at: https://www.liana-anderson.org/products.html). During this year, new developments for the Platform are being carried out, as well as capacity building for using the Platform is being organized.

- The WP-2 team is working on diagnosing the current vulnerabilities and capacities of disaster risk management to deal with forest fires in the MAP region. Some preliminary findings from the document and official publications analysis indicate:

  a) Madre de Dios was in the 14th position, in Peru regarding wildfire occurrence from 2002 to 2017. However, during 2019, it became the department with the highest fire occurrence in the country. The main reasons for this peak in fires is not very obvious, since drought and fire risk in this region is considered low, according to the National Plan for Disaster Risk Management - 2014-2021.

  b) In Bolivia, wildfires are the main driver for natural vegetation cover loss. Between 2003 and 2013, 70% of wildfires occurred on savannas or antropic lands, while the remaining 30% occurred on forests. Pando represents 13% of the country's wildfires, and between 2000 and 2013, the official records estimated 4.3 million hectares affected by fires - an area corresponding to 68% of Pando department.

  c) In Acre state, during climatological normal year, about 38% of fires affect forests. However, during drought years, there is an increase in wildfires affecting forests, reaching more than 50% of the total burned areas, which was the case in 2010 and 2015.

  Based on this information, it becomes clear that wildfires contingency plans for normal Climatological years are not being effective, and most recently fires are increasing its importance as a negative impact driver. Moreover, it also demonstrates that during extreme droughts forests become more vulnerable and there is an increase in its fire affected areas.

- The MAP-Fire project has consolidated a partnership with the Instituto de Educação Lourenço Filho, Rio Branco, Acre, and one elective discipline, called: “É fogo!” (It’s fire!) has been implemented in the school for the year 2020. The professors responsible for this discipline are: Alex Pimentel e Elisa Cavalcanti, with the collaboration of Liana Anderson and Victor Marchezini, from MAP-Fire Cemaden. 15 students have registered for the discipline and the focus for the discipline will be on Geography and Arts. For details, see Annex 4.
4 Policy Relevance, Dissemination, Outreach and Impact on Society

The MAP-Fire team identifies that the most important deliverable with the impact on Society during the 2019 year was the development of the Fires Monitoring Platform for the MAP region. This on-line tool was both timely and informative, since it was released during the beginning of the fire crises in August 2019, and for the first time, a near real time fire monitoring tool for the region was made available and with open access. Moreover, in order to include meaningful information for the three countries, an increase in the interaction among the MAP-Fire team occurred. One indirect result of this Platform is that it contains many different spatial information for the region, organized and easily downloadable directly from the Platform.

The Platform development for the year 2020 aims to bring new spatial analysis, by incorporating the burned area, deforestation and land cover and land use change data. In addition, we will incorporate the air quality data, derived from the Purple air sensors (https://www.purpleair.com/map?mylocation#1/25/-30), in order to estimate the population exposed to low air quality. This information can be key for the Health sector preparedness.

The Platform is currently hosted by INPE servers (http://www.terrama2.dpi.inpe.br/acre/monitor/) but Cemaden’s Director has already accepted its migration to Cemaden’s server.

In addition, during the year 2020, an investment in capacity building and stakeholder consultation will be carried out. At the moment, João dos Reis, MAP-Fire project Research Assistant funded by the National Research Council (CNPq Process 301597/2020-0) is preparing an on-line training course to present the functionalities of the Platform. The purpose is to disseminate the Platform’s potential, with a focus on how to use alerts and other information generated by the Platform. This material will contribute with the disaster risk reduction and the quantification of direct and indirect impacts of wildfires and fires in the region.

We have already developed an User guide in Portuguese, Spanish and English (https://www.treeslab.org/products.html) and we plan to improve the quality of this material.

Since August 2019, the Platform Tutorial webpage has been seen 565 times, from 28 different countries. Most of the access was from Brazil, followed by the United States and Bolivia, with, respectively, 595, 51 and 40 visualizations (Figure 6).
Figure 6. Number of views on the Platform User Guide webpage. The statistics on the website views were acquired by the SCRIDB and https://www.revolvermaps.com/. The authors of this report do not have a full evaluation of these tools to retrieve statistics from websites.

The first stakeholder consultation for assessing the MAP-Fire Platform occurred during the Mini-Workshop held at the Understanding Risk Centroamerica 2020 conference, in Costa Rica. Based on a questionnaire applied after the workshop, we collected some important feedback to guide the further development of the Platform (Figure 7a). Among the five types of institutional roles related to the fire alert system classification (Anderson et al., 2019, see references), most of the participants were from the Education and Communication sector, followed by the Risk Knowledge sector. Approximately 50% of the participants declared that maps are the main information format to support their institutions planning and actions (Figure 7b). The institutional email and website were identified as the most appropriate communication channel, with higher priority than WhatsApp, Instagram and Facebook (Figure 7c). Finally, the preference for hourly data updates was the most appropriated temporality of the information generation (Figure 7d). The questionnaire used to generate this information feedback will be updated and improved and we expect to apply it again for a broader audience, especially for those attending the capacity building webinars, talks and workshops during this year.
4.1 MAP-Fire Platform in the media:

Report of April 8, 2019 - “Pesquisadores do Cemaden desenvolvem um sistema para monitorar o risco de incêndios florestais na Amazônia”


Report of October 3, 2019 - “Plataforma de monitoramento identifica imóveis rurais, áreas protegidas e acesso aos focos de queimadas e incêndios florestais da Amazônia”


Report on Twitter: https://twitter.com/mapfireproject/status/1228650521063493633?s=20

- Capacity building:
  In summary, the MAP-Fire Platform has been presented 4 times at different scientific events (below). The presentations were made in the oral format, being them in two international events, one national symposium and two local events, having as audience researchers from institutions related to the fire theme (prevention, response, governance, education, among others), government representatives, firefighters, environmental police, civil defense, members of non-governmental organizations, local communities and teachers and students from schools. More details about the presentations and events are described in the Section “4 Capacity Building”.

  ii) Oral presentation of the Platform during the XIX Brazilian Symposium on Remote Sensing occurred between April 14 and 17, 2019 in Santos, Brazil.

Figure 7. First stakeholder assessment for the MAP-Fire Platform. a) Institutions related to the Fire Alert System, according to the definitions provided in Anderson et al., 2019; b) Information format; c) Communication channel; d) Information frequency.
Title: Fire warning system in rural properties to prevent wildfires in Rio Branco, Acre.

Title: Fire monitoring system in rural properties to prevent wildfires in the State of Acre.

iv) Presentation of the Project during the event “II Curso de Pesquisa Integrada em Risco de Desastres (PIRD)” in São José dos Campos (SP) - October 23, 2019.
Title: Monitoring of fires and wildfires.

Title: A Near Real Time Monitoring And Warning System For Wildfire Prevention In The Acre State - Brazil;

5 Capacity Building

In this section we report the capacity building activities, which involves: workshop with stakeholders, presentation of the MAP-Fire Platform for monitoring fire occurrence in the tri-national frontier and talks for non-academic public. In Table 1 we present a summary of the activities, and after the full description with images and photos.

Table 1. Summary of the Capacity Building activities.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Summary of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire risk and impacts workshop</td>
<td>28/03/2019 a 10/04/2019</td>
<td>Participation in the workshop leading the World cafe methodology to diagnose the communities perception on wildfire risks and impacts in their Conservation Area</td>
</tr>
<tr>
<td>Science Days 2019</td>
<td>05/04/2019</td>
<td>Liana Anderson gave a talk entitled: “The role of science for understanding deforestation, fires and droughts to subsidize public policies in the Amazon”</td>
</tr>
<tr>
<td>Event Type</td>
<td>Date</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAP-Resiliencia workshop</td>
<td>23/04/2019</td>
<td>The workshop was realized to show advances in coordinating policy and actions of key actors of MAP regions to fight extreme events and mitigate climate change impacts</td>
</tr>
<tr>
<td>Semana Cultural - IFSP</td>
<td>15/05/2019</td>
<td>Liana Anderson gave a talk entitled: “The role of science for understanding deforestation, fires and droughts to subsidize public policies in the Amazon”</td>
</tr>
<tr>
<td>Environmental week - SEMA, Acre</td>
<td>10/06/2019</td>
<td>Presentation of the activities developed by the project at the event entitled “Políticas Ambientais do Estado do Acre/Environmental Policies from Acre State”</td>
</tr>
<tr>
<td>Project dissemination and collaborations</td>
<td>09/2019</td>
<td>Galia Selaya visited Dirección de Educación de Pando, Bolivia to present MAP-Fire Project to educational authorities</td>
</tr>
<tr>
<td>MapFire team institutional visits in Rio Branco</td>
<td>10/2019</td>
<td>institutions visit for establishing collaborations with key stakeholders</td>
</tr>
<tr>
<td>Event</td>
<td>Date</td>
<td>Details</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Capacity building</td>
<td>22/10/2019</td>
<td>Participation in the Round Table entitled: “Impacts on the bioeconomy: deforestation, wildfires and air pollution”, in the Capacity Building Centre/Municipal Education Administration from São José dos Campos</td>
</tr>
<tr>
<td>II Curso de Pesquisa Integrada em Risco de Desastres (PIRD)</td>
<td>23/10/2019</td>
<td>Presentation of the Project MAP-Fire Platform from Liana Anderson, Victor Marchezini and João dos Reis</td>
</tr>
<tr>
<td>7th International Wildland Fire Conference (WILDFIRE 2019)</td>
<td>28/10-01/11/2019</td>
<td>The MAP-Fire team presented many talks, and interacted with stakeholder</td>
</tr>
<tr>
<td>Workshop</td>
<td>07-08/11/2019</td>
<td>Workshop with the Fire brigade and volunteers from the Tapajós National Forest and Tapajós-Arapiuns Extractivism Reserve</td>
</tr>
<tr>
<td>Global Sustainable Sustainable Technology and Innovation Conference (G-STIC) 2019</td>
<td>22/11/2019</td>
<td>Victor Marchezini participated with the presentation “The Map-Fire Platform: engaging stakeholders in citizen science to improve wildfire risk management against cascading impacts on public health”</td>
</tr>
</tbody>
</table>
28/03/2019 a 10/04/2019: Participation in the fire risk and impacts workshop, carried on the Tapajós National Forest and Tapajós-Arapuãis Extractive Reserve (Conservation Units, Brazil), communities Acaratinga and Vila Amorin, respectively. During this workshop, Liana Anderson led the World cafe methodology to diagnose the communities perception on wildfire risks and impacts in their Conservation Area. The workshops in these two Conservation Units are important to have a contact with the reality of traditional populations. The experience from these meetings will be useful to provide a broad view of the capacities for monitoring wildfires risk and impacts, as well as to complement the information being acquired in the MAP region communities and stakeholders, since we are not performing research in conservation areas in the trinational frontier.

**Figure 8.** Images from the activities in the Acaratinga and Vila do Amorim communities, April 2019.
05/04/2019: Liana Anderson gave a talk entitled: “The role of science for understanding deforestation, fires and droughts to subsidize public policies in the Amazon”, on the event Science Days 2019, in São José dos Campos, São Paulo. This event united more than 180 schools for discussing science and technology. For more information, please go to:
https://www.alphalumen.org.br/science-days-brazil-2018
Figure 9. Images from the event Science Days 2019, in SãoJosé dos Campos. More than 12,000 students from the Vale do Paraiba region attended.

23/04/2019: Dr Galia Selaia participated in the MAP-Resiliencia workshop in Rio Branco. The MAP-Resiliencia workshop was organized by Prof. Foster Brown. The objective was to show advances in coordinating policy and actions of key actors of MAP regions to fight extreme events and mitigate climate change impacts. Workshop participants were educational, civil defense, governmental and public ministry. MAP-Fire was represented by Foster Brown, Sonaira Silva, Guillermo Rioja, Juan Fernando Reyes, Izaias Brasil, Vera Reis and Galia Selaya. We participated on the round table Projects in action to deal with extreme events. We presented MAP-FIRE rationale, objectives and expected outcomes. As a result of the round table, the audience acknowledged the importance of science and research to guide policy and decision making regarding extreme events and fire, and to benefit stakeholders from MAP initiative to inform about findings and recommendations. Two aspects were highlighted in the round table, the inclusion of local farmers in the discussion of fire prevention and to educate children as environmental leaders for a sustainable future. Participation of the Public Ministry of Bolivia and Brazil highlighted the need to support them with information and tools to help them do their work.

Figure 10. In this photo (left to right): Juan Fernando Reyes (Herencia), Moacir Araújo Silva (WWF), Elisabeth Lagneaux (University Klobenz-Landau), Galia Selaya (Herencia) and Sonaira Silva (UFAC). The scope of the following projects were discussed: MAP-Fire, WWF, PRODIGY and Acre-queimadas.

15/05/2019: Liana Anderson gave a talk entitled: “The role of science for understanding deforestation, fires and droughts to subsidize public policies in the Amazon”, on the event “SEMANA CULTURAL” from the Federal Institute of São Paulo (IFSP – Jacareí) for undergrad and secondary students public.
Figure 11. Image of Liana Anderson (left) and Debora Olivato (right) at the Federal Institute of São Paulo (IFSP – Jacareí), São Paulo, Brazil.

10/06/2019: Environmental week, organized by the Environmental State Secretariat from Acre (Secretaria de Estado de Meio Ambiente (SEMA- Acre) - Event title: “Políticas Ambientais do Estado do Acre/Environmental Policies from Acre State” in Rio Branco (Acre). Three scientists from Map-Fire presented to the public, including the following stakeholders: State Civil Defense - Tenente Coronel James Joyce Bezerra Gomes, Municipal Civil Defense Coronel George Luiz Pereira Santos and the Environmental Police Commandant Major Kleison Oliveira de Albuquerque.
- Liana Anderson presented the MAP-Fire project objectives
- Luiz Aragão presented the impacts of fire in the Amazonian Ecosystem
- João dos Reis presented the MAP-Fire Platform
09/2019: Project dissemination and collaborations for capacity building with the Dirección de Educación Pando. In September 2019, Galia Selaya visited Dirección de Educación de Pando, Bolivia to present the MAP-Fire Project to educational authorities. The objective of the visit was to discuss with educational staff the capacity building regarding fire prevention and early warning plans to rural schools of Pando. Also, to discuss which rural school districts can be prioritized to participate in future MAP-FIRE outreach activities. Directors of Bolpebra, Bella Flor school districts participated in the meeting. They supported the idea to involve rural schools in the capacity building program. They also manifested their interest in having air quality devices to track fire smog and impact on local health. Result of this activity was to select Bella Flor district schools to participate in the MAP-Fire project.
Figure 13. From left to right Prof. Dienys Cuevas Tereba, Technical of Initial Education, Simón Espino Quispe, Director Distrital Porvenir-Bella Flor, Regina Quisbert, Directora Distrital Bolpebra, Andres Delgado, Subdirector de Educación Regular, Galia Selaya, researcher MAP-Fire.

10/2019: MAP-Fire team institutional visits in Rio Branco for new building collaborations for capacity building. The institutions visit aimed at establishing collaborations with key stakeholders, which would be involved in the discussions and capacity building during the Workshop-1. Most of the contacted personnel have been changed from their positions in the end of 2019. For example, at the Augusto Monteiro School, both the teacher Rosa Maria and the Director are no longer in this school. Nonetheless, the new director has demonstrated interest in maintaining the collaboration with the MAP-Fire project and will develop the project school activities. The focus for 2020 will be to generate on-line tutorials, guides and videos to be used for long-distance capacity building with the schools. We also aim at organizing webinars and printed material, since in many locations the internet may be very limited.
Figure 14. Rio Branco institutions visit during October 2019. Most of the contacted people have changed their positions but the MAP-Fire team is in contact with most of them.


23/10/2019: Presentation of the Project MAP-Fire Platform from Liana Anderson, Victor Marchezini and João dos Reis during the event “II Curso de Pesquisa Integrada em Risco de Desastres (PIRD)” at Cemaden, São José dos Campos (SP). Students and Professionals enrolled in the Professional MSc course from the Pará state Federal University (Programa de Pós-Graduação em Gestão de Risco e Desastre na Amazônia - UFPA) and Santa Catarina Federal University (Pós-Graduação em Desastres Naturais - UFSC) participated in the event.
28/10-01/11/2019: 7th International Wildland Fire Conference (WILDFIRE 2019). This conference integrates an international community of scientists, stakeholders and firefighters for discussing mainly response strategies for dealing with wildfires events. The MAP-Fire team presented many talks, and interacted with stakeholders. One key point that we observed is that the focus of the community is still biased towards response actions rather than discussing mitigation and adaptation solutions.
Figure 16. Photos from the WILDFIRE 2019 conference in Campo Grande, Mato Grosso do Sul, Brazil.

07-08/11/2019: Workshop with the Fire brigade and volunteers from the Tapajós National Forest and Tapajós-Arapiuns Extractivism Reserve with the objective of assessing the risks and communication of fire occurrence in these conservation areas.
Comunidade Carão, RESEX Tapajós- Arapiuns

Sede LBA, Floresta Nacional d Tapajós

Figure 17. Images from the Workshop with the Fire Brigade and volunteers from Resex Tapajós-Araipins and FLONA tapajós, 7-8 November 2019.


6 Activities developed by IAI supported students and research assistants

In this section is presented some preliminary results of the MSc and PhD students involved with the MAP-Fire project. The IAI supported Research Assistants (RA) are currently finalizing their documentation for the scholarship implementation. It is expected that by mid-April 2020 we will have four RA supported by IAI working full-time in the project.

6.1 Wesley Campanharo, 4rd year PhD student

Project title: “Valuation of wildfires impacts in the Amazon”

Funding agency: The researcher is funded by the National Research Council (CNPq Process 140261/2018-4).

Summary of activities:
In the last year, the paper “Translating fire impacts in southwestern Amazonia into economic costs” was published in Remote Sensing journal with a first approach of valuation methodology that will now be applied for the entire Amazon region. Currently, Wesley is doing an internship with the EFFIS/GWIS team in the Joint Research Centre, Italy, where he will improve the techniques of valuing and impact metrics to apply for the Amazon region, for covering the period from 2003 to 2020.

Main results:
The methodological procedure, described in the paper, uses the spatial patterns of fire and burn scar locations to calculate its direct impacts (losses on land use and land cover, carbon stocks, CO2 emissions), and the indirect impact (human illness), as also generate the economic losses grouped into three categories (Human, Material and Environmental impacts).
The study of cases was built for Acre state using data from 2008 to 2012. For this area, it was identified that burned areas were concentrated around the major cities and roads, forming polygons up to 0.6 km². However, in 2010, an extremely dry year, fires spread to remote areas, affecting protected private areas and sustainable-use conservation areas. In 2010, the total area affected by forest fires was approximately 16 times greater than in meteorologically normal years. The total economic loss estimated in 2010 was around US$ 243.36±85.05 million and for the entire period, US$ 307.46±85.41 million. These values represent 7.03±2.45% and 9.07±2.46% of Acre’s gross domestic product (GDP), respectively (Figure 19).

Figure 19. Summary of fire impacts and economic losses in Acre state for the period covering 2008 to 2012.

6.2 Ana Carolina Pessôa, 3rd year PhD student

Project title:
“Land use regulation policies as a way to curb the impacts caused by fire in the Amazon”

Funding agency:
The researcher is funded by the National Research Council (CNPq Process 140877/2018-5).

Summary of activities:
Ana is currently in the third year of PhD. Her research aims to evaluate the effectiveness of land use regulation policies on curbing the impacts of fire in the Amazon. MAP region will be used as a study case, allowing a regional assessment of the effectiveness of land use regulation policies, comparing the specificities of the legislation of each country.

In the last year, Ana was involved with mandatory steps for her continuation in INPE’s doctoral program, such as the qualification exam, entitled “LAND USE REGULATION POLICIES AS A WAY TO CURB THE IMPACTS CAUSED BY FIRE IN THE AMAZON: A CRITICAL REVIEW”, and the defense of the thesis project proposal. In the last quarter of 2019 she was on maternity leave.

Concomitantly Ana worked on a paper entitled “INTERCOMPARISON OF BURNED AREA PRODUCTS AND THEIR INFLUENCE FOR CARBON EMISSIONS ESTIMATIONS IN THE AMAZON”. The paper aims to evaluate the relative performance of the most used global burned area products, as well as regional mappings and recent releases, in order to provide clear information regarding their limitations regionally, as well as their influence for carbon emissions in the Amazon biome for the year 2015. It was considered two global burned area products (GWIS - JRC and Fire cci - ESA) and one regional (TREES product).

**Main results:**
The total burned area by TREES, GWIS and Fire cci products was 38,855 km², 42,778 km² and 17,894 km², respectively. The GWIS and Fire cci products showed a difference in total area with the TREES product of 10% and -54%, respectively (Figure 20a). When considering only the burned areas in forest, the difference between TREES and GWIS products was 9%, whereas between TREES and Fire cci, this difference increased to -76%, which means that the Fire cci product mapped 76% less burnt area compared to TREES product. Total C emissions from TREES, GWIS and Fire cci products were 0.0876 + 0.0138 Pg, 0.0964 ± 0.0135 Pg, and 0.0341 ± 0.0096 Pg, respectively (Figure 20b). The choice in adoption between the three products can then reflect a variation of more than 300% of C emissions.
Figure 20. Burned area products comparison. (a) Total burned area detected by the TREES - INPE, GWIS - JRC and Fire cci - ESA products, considering all land cover and only areas over forest. (b) C emission due to the burned area detected by the TREES - INPE, GWIS - JRC and Fire cci - ESA products, considering all land cover and only areas over forest. The emission presented is the result of the average of two Biomass products (Baccini et al., 2017; Brazil. Ministry of Science, Technology, 2016).

6.3. Cândida Leite, 2nd year MSc student

Project title:
Fire use practice in the tri-national frontier of Brazil, Peru and Bolivia: defining priority areas for risk and impact management of wildfires

Funding agency:
Coordination for the Improvement of Higher Education Personnel (Capes - Process 88887.334465/2019-00)

Summary of activities:
Cândida is in her second year of master’s degree. In this research she seeks to identify the areas and land covers most affected by the use of fire in the MAP region, in order to highlight priority areas for monitoring and generating public policy information that can subsidize the reduction in economic, environmental and health losses. Cândida will also analyze the actions taken by government structures in the role of mitigation, combat and prevention of fires. In addition, the association between the emission of particulate material from fires will be studied, by assessing cases of hospitalization and care for respiratory diseases.

Main results:
In the first year of the master’s course, Cândida analyzed data on land use and land cover for the MAP region together with the product of the burnt area, both for the time frame between 2007 and 2017. From these analyses it was observed that during 2016, a climatological normal year, approximately 38% of the fire affected areas occurred in the forest formation class (Figure 21). It is also observed that in years of climatic extremes, when the fire escape tends to be more accentuated, forest burning was even greater. For example, during 2010, a total of 52.5% of the burned areas occurred in forests.
A burned area recurrence map for the 2007-2017 period was generated for the MAP region (Figure 22). That is because, since the higher the frequency of occurrence of these events in the same place, greater are the environmental damage it is more difficult to reconstitute the flora and all the ecosystem processes found there. Figure x shows an example of fire recurrence for three sites, one in each MAP country. On the outskirts of Rio Branco it is possible to notice scars with up to 5 years of repetition, which may indicate a constant practice of pasture cleaning and / or fallow season. In this region there are also a high number of hospitalizations due to low air quality, especially during the dry season, when fires are more frequent. In Pando, we identified areas that were affected by fires 8 and 9 times, denoting the high use and dependency of fire, probably for pasture renovation.
Figure 22. Detail of places affected by fires along the analyzed time frame. In the upper left frame, an area around Rio Branco-AC is shown; in the lower table on the left, the region of the Interoceanic Road, in Madre de Diós-PE, is observed in detail, and in the upper table on the right, the eastern region of Pando-BO is shown.

7 Project Funding

Two complementary funds have been received in 2019.

7.1. British Embassy from Brazil and Easy Telling: This grant is related to the impact acceleration of the project Platform for Monitoring fires in the Map Region. This grant has been awarded by Liana Anderson in 2019, and has an estimated value of R$20,000.00, which will be used for covering the consultancy of Easy Telling for the development of on-line tutorial and stakeholder consultation in order to accelerate the social impacts of the new on-line tool for Monitoring fires in the MAP region (Annex 6). Project duration: 1 year

7.3 Other opportunities: Liana Anderson and Victor Marchezini are also involved in an international project called *Waterproofing Data*, led by Prof. João Porto, from the University of Warwick, UK ([https://warwick.ac.uk/fac/cross_fac/cim/research/waterproofing-data/](https://warwick.ac.uk/fac/cross_fac/cim/research/waterproofing-data/)) (Annex 7). This project investigates the flow of data and information related with floods in São Paulo and Acre states. In October 2019, the team from both projects visited many institutions in Acre, in order to build collaboration among the institutions and develop strategies for integrating both projects. One expected output is the incorporation of the data generated by the communities regarding flood risk to be incorporated in the MAP-Fire Platform. Moreover, an additional fund was secured to develop and APP for collecting data within the school communities. We plan to insert not only features related to rainfall and floods, but also to fires and air quality. The prototype of the APP shall be ready by September 2020.

8 Publications

8.1. Journal Publications


8.2 Books or any other non-periodical, one-time publications (e.g. proceedings, book chapters)

8.2.1 Presentations with Conference proceedings


8.2.2 Book Chapter:


8.2.3 Other presentations at meetings

04/07/2019: Liana Anderson presented the talk entitled: “Impacts of extreme climatic events in Amazonia”, at INPA, Manaus, during the “Climate Science for Service Partnership -CSSP-Brazil” Annual Science Workshop.

9 Thesis

MAP-Fire on-going Thesis and MSc Dissertations:

BSc in Electrical Engineering/UFAC, with a Scientific Initiation scholarship from Cemaden. Student: Gabriel Brito, under Alejandro Duarte and Liana Anderson supervision, title: “The relationship between fires, air quality and health problems in Rio Branco, Acre”.

MSc in Remote Sensing/INPE. Student: Cândida Leite, under Liana Anderson supervision, title: “Fire use practice in the tri-national frontier of Brazil, Peru and Bolivia: defining priority areas for risk and impact management of wildfires.”

PhD in Remote Sensing/INPE. Student: Wesley Campanharo, under Liana Anderson supervision, title: “Valuation of wildfires impacts in the Amazon”.

PhD in Remote Sensing/INPE. Student: Ana Carolina Pessôa, under Liana Anderson supervision, title: “Land use regulation policies as a way to curb the impacts caused by fire in the Amazon”.

PhD in Remote Sensing/INPE. Student: Nathália Silva de Carvalho, under Liana Anderson supervision, title: “The role of rural actors in fire dynamics in the Amazon”. New MAP-Fire team student.

PhD in Ecology/UFAC. Student: Izaíás Brazil, under Marcos Silveira supervision, title: “Effect of fire on diversity and tree dynamics in old-growth forest and its regeneration process in the State of Acre, Southwerstern Amazonia”.

10 Data

Currently, all the geospatial data organized by the MAP-Fire project is available for download directly from the online MAP-Fire Platform <http://www.terrama2.dpi.inpe.br/acre/monitor/>.

We are currently working on migrating the Platform for Cemaden’s server, so in the next month, the hosting address will change. New functionalities and analysis will be implemented, and all the material will continue to be freely available.

Fieldwork data collection on forest inventories may start this dry season, depending on the Coronavirus situation in the Amazon.

Educational and capacity building on-line material and tutorials will start to be developed this year, with the hiring of the Research Assistant 2 and 3, Yara Depaula and Gleiciane Pismel, respectively.
11 Media Coverage

11.1 Institutions official website

03/04/2019: Cemaden participará do Science Days 2019, mostrando as tecnologias voltadas ao monitoramento e prevenção de desastres

08/04/2019: Pesquisadores do Cemaden desenvolvem um sistema para monitorar o risco de incêndios florestais na Amazônia

14/05/2019: Estudos sobre impactos dos incêndios florestais estimam perda acumulada no Acre, em cinco anos, de cerca de R$ 981 milhões

11/12/2019: Relatório dos cientistas mundiais sobre emergência climática tem participação de pesquisadores do Cemaden

11.2 Newspapers, blogs and Twitter

A WhatsApp group was created on September 9th, 2018, during the phase of formulation of the project’s proposal. The aim of this group is to promote communication between the members and working groups of the project. This rapid form of communication has been useful for informing activities and updates, and the members are reducing the language barriers related to Portuguese and Spanish, but also between areas of expertise. This form of communication has been useful for creating the identity of the research group. For instance, one of the first collective discussions was the creation of the project’s logo in April, 2019 (please see the front cover of the report).

Regarding the public communication strategy, the MAP-Fire project established three main channels: website, page in Research Gate website and twitter account. The website was created on March 15th, 2019 (https://www.treeslab.org/map-fire.html). The staff of the project sent their bios and photos that were organized on the website. Until March 27th, 2020, the website registered 601 visits from 31 countries (https://www.revolvermaps.com/livestats/locations/0r2o9qunxhd/).

The team also decided to create a webpage in the Research Gate platform, that is tailored for academics. The webpage has 172 access and 20 permanent followers (https://www.researchgate.net/project/MAP-Fire-Multi-Actor-Adaptation-Plan-to-cope-with-Forests-under-Increasing-Risk-of-Extensive-fires),
The twitter account was created on February 14, 2020. We chose @MapFireProject and decided to post only contents about the project. We shared 8 posts in english, spanish and portuguese and we are using the following hashtags: #ScienceforAction #Forest #Amazon #Fire #RiskManagement #DRR #SDGs #TheotherAmazon. We still need to improve our strategy in social media. We have 33 followers and 109 impressions per day.

i) Newspaper A GAZETA, Rio Branco, Acre, by Dr. Foster Brown:


02/02/2020: Boas notícias no mundo e por que elas importam https://agazetadoacre.com/boas-noticias-no-mundo-e-por-que-elas-importam/


14/05/2019: “Um sistema que não prepara a próxima geração para sobreviver é um sistema falido” https://agazetadoacre.com/um-sistema-que-nao-prepara-a-proxima-geracao-para-sobreviver-e-um-sistema-falido-2/
04/02/2019: O que está acontecendo com o clima da Amazônia?
https://agazetadoacre.com/o-que-esta-acontecendo-com-o-clima-da-amazonia/

ii) Media coverage during the 2019 Amazonian fire crises:

Luiz Aragão
http://programatroncandoemmiudos.com.br/pt-br/node/2402
https://es.euronews.com/2019/08/21/los-incendios-en-el-amazonas-aumentan-un-82-en-comparacion-con-el-mismo-periodo-de-2018
http://www.dicyt.com/noticias/la-deforestacion-de-la-selva-amazonica-podria-expandir-en-un-70-las-areas-en-riesgo-de-incendios
https://www.bbc.co.uk/programmes/p071xs8j
https://www.truthdig.com/articles/the-amazon-fires-upend-the-climate-fight-as-we-know-it/
https://truthout.org/articles/what-happens-to-carbon-offsets-when-the-amazon-is-on-fire/
https://truthout.org/articles/carbon-credits-for-forest-preservation-may-be-worse-than-nothing/
https://deutsch.rt.com/amerika/91550-amazonas/
https://www.fapema.br/index.php/area-de-floresta-amazonia-equivalente-a-17-cidades-de-sao-luis-foram-queimadasdurante-as-secas-de-2010-e-2015-2016/

Liana Anderson
https://www.bbc.co.uk/programmes/w3csym24
https://novaator.err.ee/974203/brasilia-teadlased-amzonas-poleb-inimeste-tottu

12 Work Plan for Next Year with Associated Costs

As a Contingency Plan, we formally ask for allowing for changes in Budget Categories - Students/Scholarships, Equipment, travel/workshops - less than US$5,000, according to the Agreement Annex A, page 22. The proposed changes aim at:

a) increasing the project team with one more scholarship at the BSc level, that will allow us to develop online materials, questionnaires and protocols to minimize the impacts due to the postponement of the workshop 1 (WS1) and maximize the capacity building and project online development and documentation. The scholarship is BRZ$ 1,600/month (US$ 309/Month), summing US$ 1.434 for 21 months (April 2020 to March 2022).

b) Acquire the license for the ZOOM software, which is more stable for organizing meetings and recording webinars and videos. This material will be used for online capacity building activities. The price is US$ 14,99/ month, summing approximately US$ 315,00 for the project lifetime duration.

The final project formal authorization for using the grant has been issued only on 5th March 2020 (Annex 2). Therefore, we anticipate that this project will be finalized in March 2022.
Since there are great uncertainties related to the COVID-19 crises, the field work and workshops that should be starting in April 2020 have been postponed. The MAP-Fire team is closely observing the development of the COVID-19 contingency measures, and once is safe, the field activities and workshops will be scheduled.

The detailed Financial report is presented in the Annex 8. We anticipate that by October 2020 (month 7 of the Scholarship), a Report of Activities from the Research Assistants will be submitted to IAI, since the first 80% of the project funds covers the Scholarship only until the month 9 (December). Therefore, the remaining 20% of the funds related to the Year 1 of the project can be transferred to the Executing Agency (FUNCATE) without causing any delays in the students monthly payment.

**********************************************************

ANNEX - 1 - MoU between the Execution Agency (FUNCATE) and Cemaden signed.

ANNEX - 2 - Publication in the Union Journal the agreement between FUNCATE and Cemaden.

ANNEX - 3 - Mentoring plan for the new Research Assistant.

ANNEX - 4 - Partnership with the Instituto de Educação Lourenço Filho.

ANNEX - 5 - Dr. Marcos Silveira - UFAC letter.

ANNEX - 6 - British Embassy from Brazil and Easy Telling funding award.

ANNEX 7 - British Embassy from Brazil award.

ANNEX 8 - Financial Report