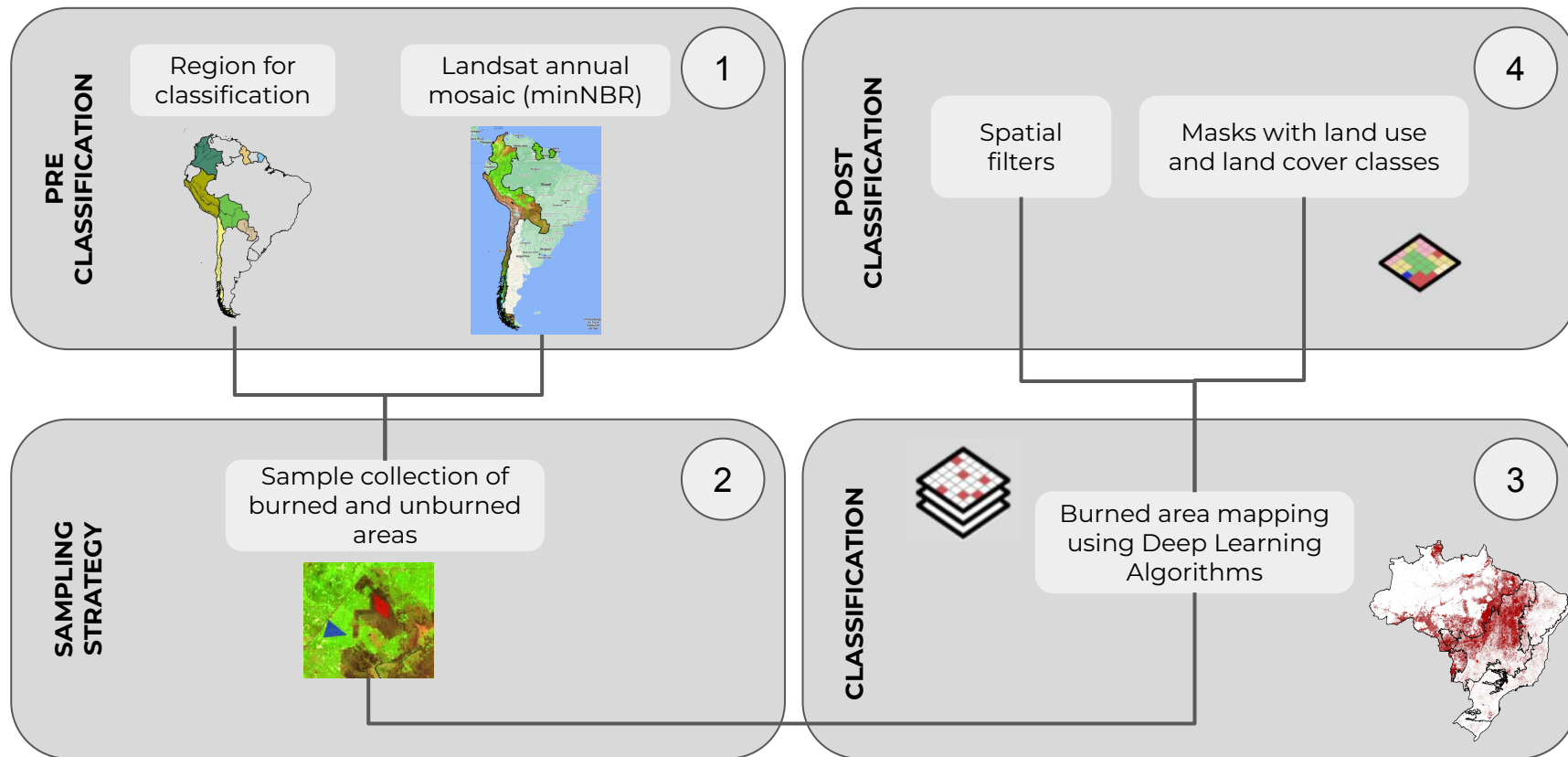


# **Entrenamiento de monitoreo de áreas quemadas en regiones de la red MapBiomas**

Rutina de mapeo de áreas quemadas en Google Colab

# Methodology for mapping burned areas



# Rutina de mapeo de áreas quemadas en el MapBiomass



<https://app.eraser.io/workspace/t7fQM7uFD26o6ci3NxA>  
2



## Principais ambientes, servicios y herramientas utilizadas



# Tools for South America MapBiomass Fire Collection 1

- Google Groups: <https://groups.google.com/g/mapbiomas-fire>
- GEE Repository:  
[https://code.earthengine.google.com/?accept\\_repo=users/mapbiomasworkspace1/mapbiomas-fire](https://code.earthengine.google.com/?accept_repo=users/mapbiomasworkspace1/mapbiomas-fire)
- Toolkit for evaluation and sample collection: [GEE Toolkit](#)
- Looker studio:  
[https://lookerstudio.google.com/u/0/reporting/f12d731c-fe29-48e8-8623-d3fc41ff3b70/page/p\\_odbcyysyc](https://lookerstudio.google.com/u/0/reporting/f12d731c-fe29-48e8-8623-d3fc41ff3b70/page/p_odbcyysyc)

# ◆ Creando una cuenta de GitHub

<https://docs.github.com/en/get-started/start-your-journey/creating-an-account-on-github>



## Registrarse para obtener una nueva cuenta personal

1. Navegue a <https://github.com/>.
2. Haga clic en Registrarse.
3. Siga las instrucciones para crear su cuenta personal.

Durante el registro, se le pedirá que verifique su dirección de correo electrónico. Sin una dirección de correo electrónico verificada, no podrá completar algunas tareas básicas de GitHub, como crear un repositorio.

Si tiene problemas para verificar su dirección de correo electrónico, existen algunos pasos para solucionarlos que puede seguir. Para obtener más información, consulte "[Verificar su dirección de correo electrónico](#)".

# Acceder al Google Collab Notebook

1. acceder al Google Collab Notebook:

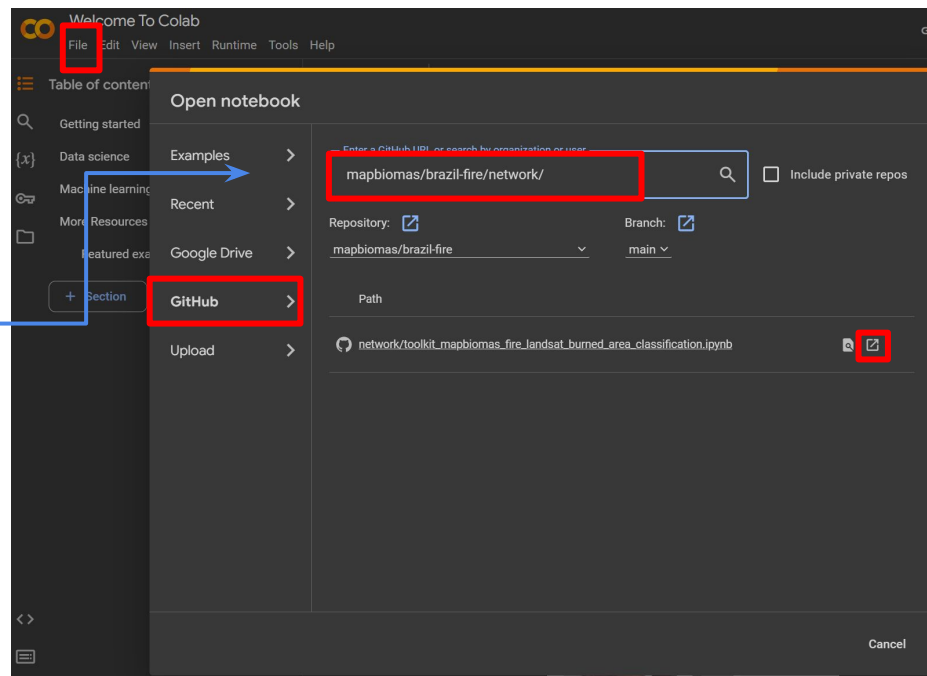
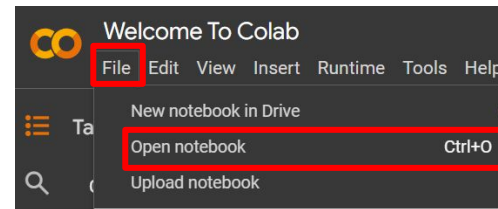
- <https://colab.research.google.com/>

2. sincronizar con GitHub y acceder al notebook de referencia de mapeo

- [mapbiomas/brazil-fire/network/](https://colab.research.google.com/github/mapbiomas/brazil-fire/blob/main/network/toolkit_mapbiomas_fire Landsat burned area classification.ipynb?hl=en)

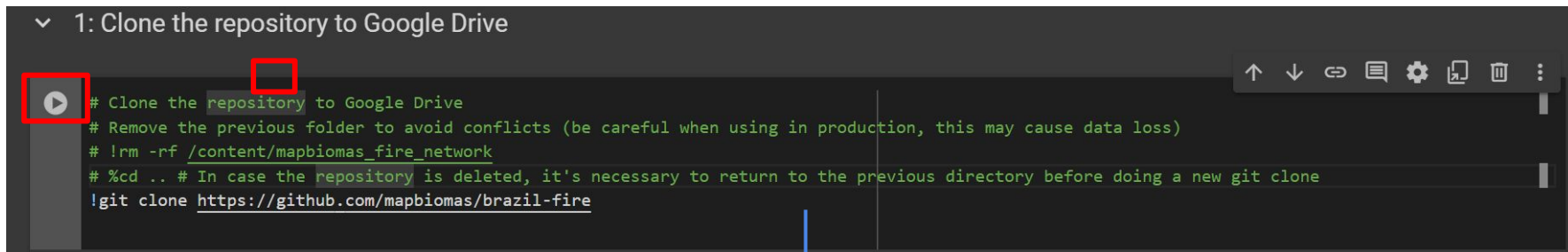
- o acceder directamente mediante el enlace:

[https://colab.research.google.com/github/mapbiomas/brazil-fire/blob/main/network/toolkit\\_mapbiomas\\_fire Landsat burned area classification.ipynb?hl=en](https://colab.research.google.com/github/mapbiomas/brazil-fire/blob/main/network/toolkit_mapbiomas_fire Landsat burned area classification.ipynb?hl=en)

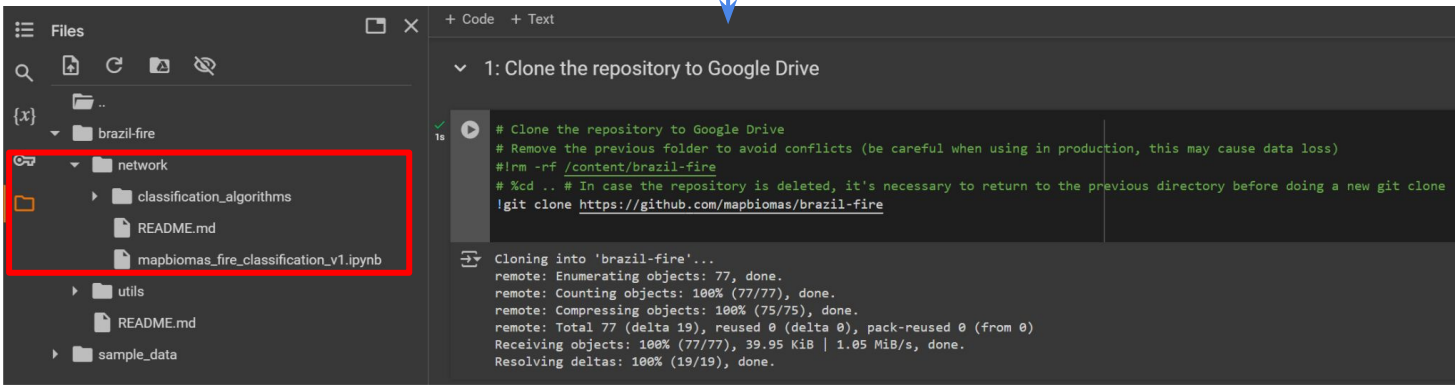


# Mapeo por regiones de cada país

1. Conectarse a un entorno de conexión y ejecutar la primera celda para clonar el repositorio de GitHub y tener acceso aos scripts.



```
# Clone the repository to Google Drive
# Remove the previous folder to avoid conflicts (be careful when using in production, this may cause data loss)
# !rm -rf /content/mapbiomas_fire_network
# %cd .. # In case the repository is deleted, it's necessary to return to the previous directory before doing a new git clone
!git clone https://github.com/mapbiomas/brazil-fire
```



```
1s # Clone the repository to Google Drive
# Remove the previous folder to avoid conflicts (be careful when using in production, this may cause data loss)
# !rm -rf /content/brazil-fire
# %cd .. # In case the repository is deleted, it's necessary to return to the previous directory before doing a new git clone
!git clone https://github.com/mapbiomas/brazil-fire

Cloning into 'brazil-fire'...
remote: Enumerating objects: 77, done.
remote: Counting objects: 100% (77/77), done.
remote: Compressing objects: 100% (75/75), done.
remote: Total 77 (delta 19), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (77/77), 39.95 KiB | 1.05 MiB/s, done.
Resolving deltas: 100% (19/19), done.
```



# Mapeo por regiones de cada país

2. Parametrizar la segunda celda con el país y autenticar en los servicios de Google Earth Engine y Google Cloud Storage.



```
2: Google Cloud Authentication

##### Google Cloud Authentication #####

# Country options: ['bolivia', 'colombia', 'chile', 'peru', 'paraguay', 'guyana']
country = 'bolivia' # Set the country from the available options

# Import and authenticate libraries for Google cloud services
ee_project = f'mapbiomas-{country}' # Set the project name based on the selected country
bucket_name = 'mapbiomas-fire'

def authenticates(ee_project, bucketName):
    import ee
    ee.Authenticate()
    ee.Initialize(project=ee_project)

    # Authenticate with Google Cloud (necessary when using Colab)
    from google.colab import auth
    auth.authenticate_user()

    # Initialize Google Cloud Storage client and define the bucket name
    from google.cloud import storage
    client = storage.Client()
    bucket = client.get_bucket(bucketName)

    # Call the authentication function with the correct project and bucket names
    authenticates(ee_project, bucket_name)

# Define the path to the classification algorithms scripts
scripts = f'/content/brazil-fire/network/classification_algorithms'
```



# Mapeo por regiones de cada país

**3.** Paso opcional: ejecutar las celdas con interfaces de exploración de archivos en el bucket mapbiomas-fire en Google Cloud Storage.

▼ 3: Optional step to visualize files in the folders of the Google Cloud Storage bucket

```
[3] # Optional step to visualize files in the folders of the Google Cloud Storage bucket
# This executes a simple interface for exploring files in the bucket
exec(open(f'{scripts}/B_0_1_simple_gui_to_gcs_explorer_optional.py').read())
```

🔗 Countries:  ▼

- ☐ models
- ☐ mosaics\_col1
- ☐ mosaics\_col1\_cog
- ☐ result\_classified
- ☐ training\_samples

```
[4] # Optional step to show the link of the GEE toolkit for collecting samples for burned area classification
exec(open(f'{scripts}/B_1_0_gee_gui_collect_samples_burned_area_classification.py').read())
```

🔗 ### How it works and how to use the toolkit ###  
Presentation: [https://docs.google.com/presentation/d/1iMRXRH4xowTFPSSzD0JkB6c7KJLPggxrnvYzVQ3BzP0/edit#slide=id.g220825c6698\\_0\\_546](https://docs.google.com/presentation/d/1iMRXRH4xowTFPSSzD0JkB6c7KJLPggxrnvYzVQ3BzP0/edit#slide=id.g220825c6698_0_546)

### Access the Toolkit on GEE ###  
Toolkit Link: [https://code.earthengine.google.com/?scriptPath=users%2Fmapbiomasworkspace1%2Fmapbiomas-fire%3A1-Toolkit Collection1%2FToolkit samples collection](https://code.earthengine.google.com/?scriptPath=users%2Fmapbiomasworkspace1%2Fmapbiomas-fire%3A1-Toolkit%20Collection1%2FToolkit%20samples%20collection)

# Mapeo por regiones de cada país

## 4. Training the model

4: Training the model

```
[5] # Interface for visualizing the available samples for the selected country
exec(open(f'{scripts}/B_2_0_simple_gui_train_tensorflow_models.py').read())

# Select the version and region for training the model
exec(open(f'{scripts}/B_2_1_training_model_per_region_sensor_version_hiperparameter.py').read())
```

Selected country: guyana (8 files found)

Countries:

- samples\_fire\_v1\_l78\_guyana\_r3\_guyana\_costero\_2020.tif
- samples\_fire\_v1\_l89\_guyana\_r1\_guyana\_francesa\_florestal\_2023.tif
- samples\_fire\_v1\_l89\_guyana\_r2\_guyana\_francesa\_costero\_2023.tif
- samples\_fire\_v1\_l89\_guyana\_r4\_guyana\_lavrado\_2023.tif
- samples\_fire\_v1\_l89\_guyana\_r5\_guyana\_florestal\_20230000000000-0000000000.tif
- samples\_fire\_v1\_l89\_guyana\_r5\_guyana\_florestal\_20230000000000-0000014848.tif
- samples\_fire\_v1\_l89\_guyana\_r5\_guyana\_florestal\_20230000014848-0000000000.tif
- samples\_fire\_v1\_l89\_guyana\_r5\_guyana\_florestal\_20230000014848-0000014848.tif

Samples by sensor, region, and version available to run the training (5 samples):

- ☐ trainings\_v1\_guyana\_r3
- ☐ trainings\_v1\_guyana\_r1
- ☐ trainings\_v1\_guyana\_r2
- ☐ trainings\_v1\_guyana\_r4
- ☐ trainings\_v1\_guyana\_r5

Simulate Processing!

Train Models

