

# **Caribbean Geospatial Development Initiative (CARIGEO)**

**...and the  
Caribbean GeoPortal**

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# Background: UN-GGIM

- The Economic and Social Council on 27 July 2011 recognized the need to promote international cooperation in the field of global geospatial information and decided to establish the Committee of Experts on Global Geospatial Information Management (ECOSOC Resolution 2011/24)
- The Committee comprises experts from all Member States, as well as experts from international organizations as observers
- The UN-GGIM Committee of Experts serves as an intergovernmental mechanism for making joint decisions and setting directions with regard to the production, availability and application of geospatial information within national, regional and global policy frameworks
- UN-GGIM has established regional sub-committees: One of these is the UN-GGIM Americas

# The Integrated Geospatial Information Framework

- In August 2017 the United Nations Statistics Division (UNSD) and the World Bank agreed to collaborate on a joint vision to promote growth and prosperity through creating and strengthening geospatial information capacity and development.
- The objective being to develop an Integrated Geospatial Information Framework that Member States can use to develop and enhance their own geospatial information management.



INTEGRATED GEOSPATIAL  
INFORMATION FRAMEWORK

A STRATEGIC GUIDE TO DEVELOP AND STRENGTHEN  
NATIONAL GEOSPATIAL INFORMATION MANAGEMENT

**Past Initiatives:  
Project for Strengthening Spatial  
Data Infrastructures in the  
Caribbean**

# Project Overview

Initiated through the UN-GGIM Americas

Funded by the Government of Mexico with support from Government of Chile

Collaborators: ACS, UWI, CDEMA, URISA Caribbean

## Details:

- **Funding Amounts – US \$ 4.5 m**
- **Start Date: 2014**
- **End Date: 2018**
- **Countries:** Antigua and Barbuda, Bahamas, Barbados, Belize, Cuba, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Dominican Republic, Saint Kitts and Nevis, Saint Lucia, Saint Martin, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago

# General Objective of Project

To promote the development of **Spatial Data Infrastructure (SDI)** in the Caribbean, in order to strengthen the generation, use and sharing of geospatial information, including for policy making

## Specific Objectives:

- Reduce Geospatial Data Infrastructure gaps within the Caribbean region, and with respect to the rest of the Continent.
- Support the integration and participation of Caribbean countries in both; the United Nations Experts Committee on Global Geospatial Information Management and the regional committee UN-GGIM: Americas

# Outcomes of Strategic Objectives

Business Unit: Caribbean Project		Strategic option:		STRENGTHEN				
Strategic Objective		Strategies		Indicators Tracing	GOALS / Specific objectives			
					minimum	medium	optimum	Actual
1	<u>Strengthen the geodetic network</u>	Increase stations	Increase number of stations	5% further in the region	3%	5%	10%	More than 10%
			Increase data availability					
			Increase security location					
2	<u>Broadcast Geographic Information</u>	Create Digital Map of the Caribbean	Increase number of geoportals	10% further in the region	5%	10%	15%	5%
			Increase dissemination of G.I.					
			Increase the number of users					
3	<u>Promote the use of G. I.</u>	Construct Land Cover Map	Consider Project countries	90% of the coverage for the region	80%	90%	100%	100%
			Ensure the quality of the project					
			Disseminate results by geoportal					
4	<u>Capacity Building</u>	Training in geographic skills	Increase basic skills	90% of participations for the countries in the project	80%	90%	100%	80%
			Increase intermediate skills					
			Increase transversal competences					
5	<u>Using geographical standards</u>	Apply standards in processes	Increase in production processes	20% of processes	10%	20%	30%	20%
			Increase in integration processes					
			Increase in dissemination processes					
6	<u>Update computer technology</u>	Renew computers	Update servers	2% of equipment available	1%	2%	3%	More than 3%
			Update computers					
			Update network equipment					
7	<u>Geographic Metadata</u>	Promote the Application	Define a profile for the Region	20% of the countries in the project	10%	20%	30%	Less than 10%
			Train them on application					
			Implement use					

# Outstanding Activities

- **Complete the configuration and transfer of files from the geodetic network to the server located at UWI;**
- **Upload Spatial Data for Countries that are yet to contribute data sets (only 4 countries have contributed data so far);**
- **Complete the portal to make available the data from the Caribbean Digital Map**



# Caribbean Geospatial Development Initiative: CARIGEO

## PURPOSE:

The Caribbean Geospatial Development Initiative is intended to improve Geospatial Data Infrastructures at the national and regional levels in the Caribbean, building on recent and on-going developments, leveraging indigenous skills and resources, and utilising external resources and technical expertise.

The overall aim is to ensure that this initiative is sustainable in the long-term.





**Situational Analysis:  
Roundtable Discussions  
Mexico  
October 2019**

# National Agencies Need to Modernize



People



Process



Data



Technology

# Current state of IT and GIS infrastructure

General topics/questions	Additional related questions
What type of HW is being used today at your agency? (E.g., server, desktop, mobil)	* Is the HW dated? Is this an issue?
What HW acquisition is planned for next projects and initiatives?	* Is there a gap? * Is funding for HW acquisition available?
What GIS SW is currently being leveraged at your organization?	* Does it cover the basic agency needs? * What future GIS SW does agency plan to acquire? Is funding available?
Do you host GIS data and services in the Cloud?	* If you don't, are there plan to do so in the future? * Can you leverage services such as ArcGIS Online to consume base maps or to help with peak loads? * Are there any institutional or legal restrictions for hosting information in the Cloud?
Internet bandwidth	* Is your current bandwidth sufficient for day to day operations? * Or to manage volume of transactions at peak loads?
Describe overall mobile connectivity in country	* Does it meet the needs of the organization? * What percentage of the population can access 3G or 4G?
Describe capacity building needs and gaps for IT and GIS	* List three high priority training topics for your agency
Describe your GIS development platform	* Degree of configuration vs customization for your agency * What APIs and SDKs are being leveraged for GIS customization

# Data needs and gaps

Describe data used for common workflows	<ul style="list-style-type: none"><li>* What data needs to be used in support of field work</li><li>* What data needs to be used for analysis?</li><li>* What data need to be used for reporting?</li><li>* What data needs to be used to support policy making?</li></ul>
Describe the most pressing data needs for your agency	<ul style="list-style-type: none"><li>* Is the authoritative agency data out-of-date?</li><li>* Do you have difficulties obtaining the source data?</li></ul>
Discuss data storage conditions and needs	<ul style="list-style-type: none"><li>* Is the geodata stored in tables, databases, geodatabases?</li><li>* Do you need to improve data storage (e.g., upgrade SW, upgrade HW, move to Cloud)?</li></ul>
Discuss data Sharing - policy, limitations	<ul style="list-style-type: none"><li>* Does the agency have guidelines for data sharing? (e.g., Open Data Policy, agreements with other government agencies)</li><li>* Do you have difficulties sharing data with others, or obtaining data from others?</li><li>* Is there good communication with the key community stakeholders?</li></ul>
Who are the main users of your data?	<ul style="list-style-type: none"><li>* Are they government agencies?</li><li>* Is data shared predominantly with the public?</li></ul>
Discuss information products	<ul style="list-style-type: none"><li>* What are the main information products created by your agency?</li><li>* What are the new information product you envision developing in the next 5 years?</li></ul>
Describe capacity building needs for data production, maintenance and sharing	<ul style="list-style-type: none"><li>* List three high priority training topics for your agency</li></ul>



# How to impact change

What governance issues or challenges does your agency face?	* Do you have governance policies and guidelines in place today?
Discuss your legal framework	* Are there areas that cause restriction in how you do business? (E.g, US Census had to change law on need to knock on every door each census) * Is the legal framework appropriate to support the work of your agency?
Discuss senior management's role	* Is senior management informed and supportive of role of GIS and geoinformation for the business? * What can be done to elevate the visibility of GIS in your agency?
Discuss funding: availability, restrictions	* Are there financial or budget concerns? * What are the main budgetary gaps?

# Major Issues Identified:

- **Improve data sharing**
  - **Tools**
  - **Protocols**
  - **MoUs and agreements**

## Capacity building

- **Server**
- **Geodatabases**
- **Cloud solutions**
- **Analysis (including statistical)**
- **APIs and SDKs**
- **Data curation**
- **QA/QC**
- **Metadata**

- **Infrastructural investment**
  - **Improved bandwidth**
  - **Broaden access to the internet**
  - **Support of mobile GIS solutions (e.g., mobile devices)**
  - **Pool of HW resources (phones, tablets, GPS) for disaster response**
- **HW upgrade**
  - **better machines to support complex analysis**
  - **Upgrade GPS units**
  - **Improve storage capacity**

- **Funding**

- **Gain access to sustainable funding**
- **Put in place multi agency agreements**
- **Funding to improve use of GIS at NGOs**

- **Fundamental data**

- **Improve and facilitate data capture**
- **Need to create a complete set of national core datasets (lacking or out-of-date)**

- **Data management**

- **Improve data management practices**
- **Data standardization**
- **Improve data accessibility**
- **Implement data management guidelines**

- **Governance**

- **Need to review and create/update GIS and data guidelines**
- **Need to recognize common practices in formal agreements**
- **Improve legal framework to keep pace with tech advances**
- **Increase participation of senior managers**

# Challenge or Opportunity?



People



Process



Data



Technology

# National Agencies need to re-orient themselves



Relevant

Contributing  
to National  
Objectives



Responsive

Actively  
engaging  
other agencies  
& citizens



Authoritative

Producing  
quality, safe,  
trusted, timely  
information

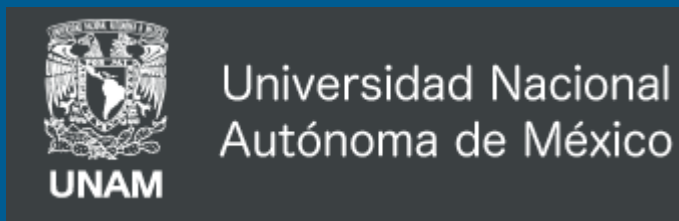
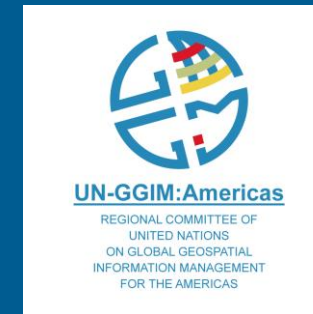
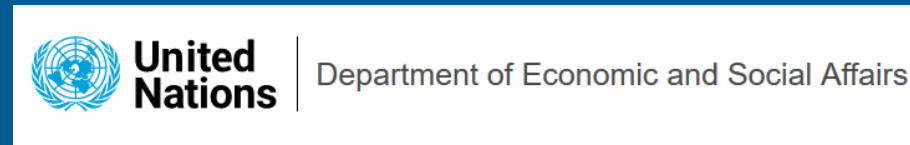
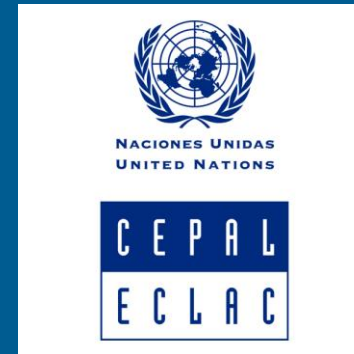


Efficient

Aligning people,  
processes &  
technology



# Partners



## Objectives

- Implement strategies, in collaboration with funding agencies, regional partners, and national governments in the region, to build sufficient human capacity to develop and maintain the fundamental datasets for each member country;
- Provide short term support in the interim to develop regional and nationwide coverage of fundamental datasets to meet national and regional quality standards and specifications.
- Promote the formulation and implementation of a sustainable mechanism for discovering, accessing, maintaining, and using these fundamental datasets.
- Develop an organizational framework for collaboration that empowers stakeholders to use the fundamental datasets to address the challenges in their areas of interest

## Expected Results

- A community of spatial data producers and users is formed and remains active
- GIS and data management capacities are improved across the region
- Increased funding is available for the creation and updating of fundamental spatial dataset
- Spatial data is shared more broadly and more openly in the Caribbean
- Development decisions and policy-formulation take more advantage of geoinformation
- National Legislation to regulate and promote the use of geoinformation is enacted
- Agreements are instituted for collaboration and corporation on the use of geoinformation regionally.



# CARIGEO: Going Forward

- **Terms of Reference (TOR) completed;**
- **Letters of invite extended;**
- **Preparing a Program Proposal;**
- **Securing Funding;**
- **Project Implementation;**
- **Developing mechanisms and capacity for sustainability;**
- **Workshop under the framework of the Seventh Session of UN-GGIM: Americas Sep 7-11, 2020**





# Announcing the Caribbean Geoportal



COVID-19 Resources for the Caribbean are now available.

[Caribbean COVID-19 Response](#)

## Why does geography matter?

Location intelligence is the ability to analyze and find spatial patterns in data, to provide powerful insights into understanding our world and communicating our needs. This is possible through a combination of local data and advanced geospatial tools, with training that's included for anyone working on geospatial challenges across the region.



Join the community now and start mapping today!



## Questions and Comments

- We appreciate your input.... If you would like to email us with additional thoughts or to join the initiative:
  - [lpeters@esri.com](mailto:lpeters@esri.com)
  - [valrie@geotechvision.com](mailto:valrie@geotechvision.com)
  - [Gabriela.seco@inegi.org.mx](mailto:Gabriela.seco@inegi.org.mx)
  - [Alvaro.MONETT@cepal.org](mailto:Alvaro.MONETT@cepal.org)
  - [bheshemramlal@gmail.com](mailto:bheshemramlal@gmail.com)

[CARIGEO initiative home page](#)

[Caribbean GeoPortal](#)





A stylized, light blue map of the Caribbean region, showing the outlines of the islands and the surrounding sea. The map is positioned above the text and partially overlaps the word 'GeoPortal'.

# Caribbean GeoPortal

Powered by Esri

## The GeoPortal: Vision & Objectives

The vision is to provide a 'one stop shop' portal for geographic content and comprehensive web GIS tools, free for single users residing in, supporting efforts, or working in the region.

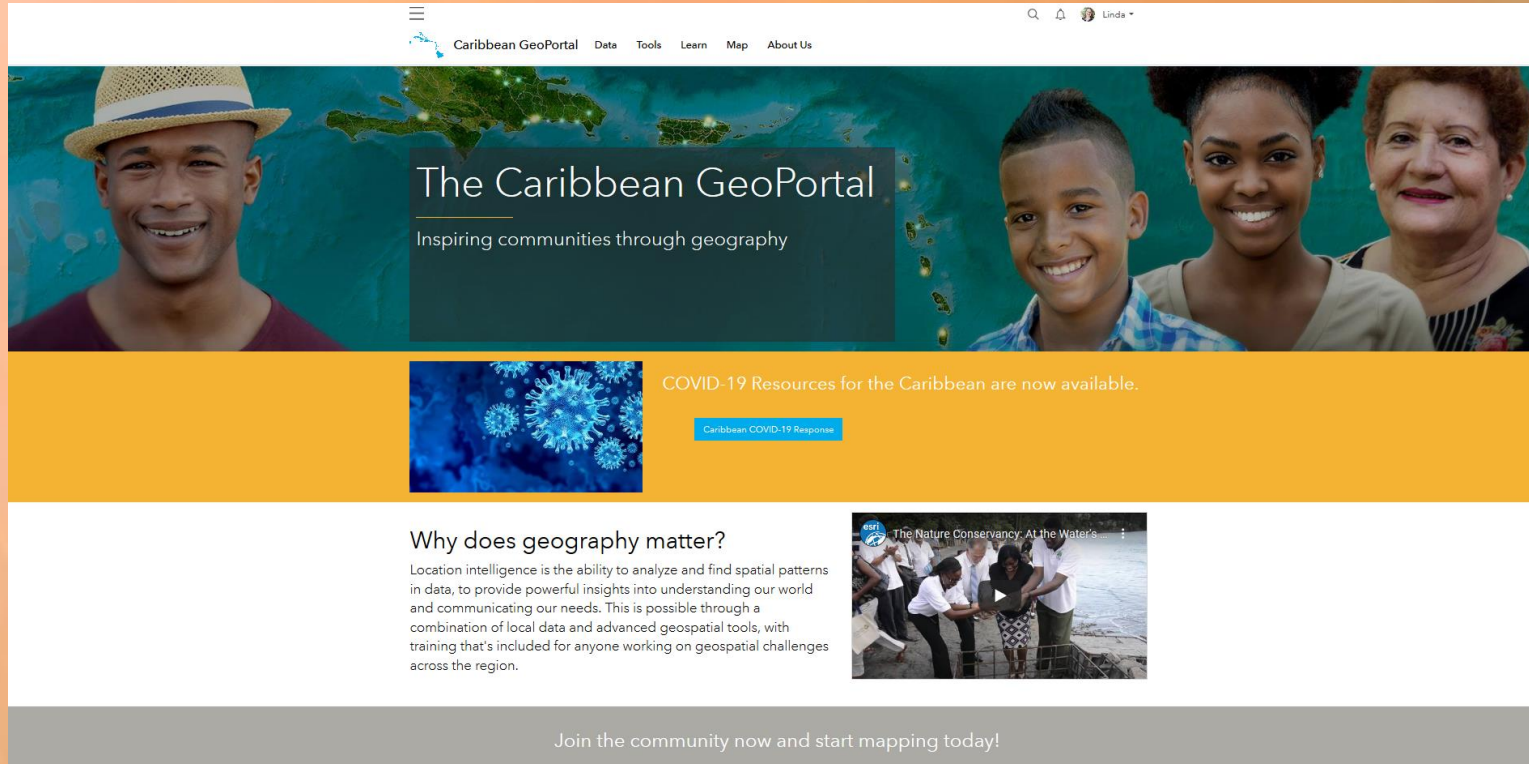


*This will:*

Remove the barriers to entry to geospatial technology, data and learning for users working in the region

Enable a sustainable portal of portals for existing and new geospatial data focused in the region

Provide a portal built for the community - by the community



“  
*We are deeply committed to supporting innovation in the Caribbean, helping users discover, explore, and understand the vast information available to them through the power of maps*”

Jack Dangermond

President and Founder of Esri

Caribbean GeoPortal



# The Caribbean GeoPortal: Tools and Content

The Caribbean GeoPortal provides full access to ArcGIS Online, providing access to tools for mapping, analytics, sharing and collaboration, and a suite of templates and field applications

Content available includes:



Admin boundaries



Land cover



Imagery



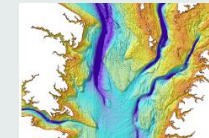
Real-time traffic



Wind & weather conditions



Demographics

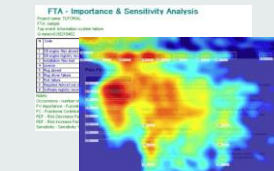


Bathymetry

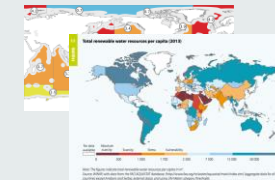


Oceans

Open Data Sources



Community Data (Govs-NGOs-AID Orgs.)



Commercial Data



Caribbean GeoPortal



**Caribbean Living Atlas**

The Caribbean GeoPortal is home to hundreds of ready-to-use datasets. Some provided by Esri, others by users and Caribbean focused organizations. Mix this data with your own to build a bigger picture. Find answers and make better decisions.

**Explore the Data**

Using the search bar and filtering options, you can explore the dynamic content of the Living Atlas. If you are signed in, you can bookmark interesting datasets by clicking on the blue star. You'll know its referenced when the blue star turns yellow. Once you save datasets as your favorites you can work with them later in the Map, where you create and share maps you create!

**Geospatial Tools**

The Caribbean GeoPortal gives users access to the leading geospatial tools to easily map, analyze, and share geospatial information. Combine your data with open data, apply powerful tools, and create engaging outputs. These tools are free to use for all Caribbean GeoPortal users.

**Create a web map**

Quickly create maps by dropping in your spreadsheet or combining it with other location data included in the Caribbean GeoPortal. Apply smart mapping styles to make your data visually stunning. The Caribbean GeoPortal is designed to give single users free access to the best geospatial tools. Tools are continually updated with the latest technology.

[Create a Web Map](#)

**Access learning resources**

The Caribbean GeoPortal provides users with unlimited access to the necessary training materials, enabling them to get the most from the tools and data available. Courses range from beginning to advanced.

**Available Online Training**

Build capacity and learn the skills required for the jobs of tomorrow. Focus on your learning objectives in a planned training program with examples, tasks, and demo data all included. Take one of our prebuilt courses or create your own.

The Caribbean GeoPortal contains a number of powerful tools, apps, and data that you can use. Learn how to maximize each capability to reach your goals by taking your first training from Esri's online catalog which is included with your GeoPortal account.

Check out the training courses now and keep track of your learning too.

[View Training Catalog](#)

**New to geospatial or GIS?**

Using a tone of voice, having access to the most current and authoritative data can be the difference between life and death. Weather the crisis is caused by storms, earthquakes, or disease, the Caribbean GeoPortal will provide the necessary data and application templates to help our community respond.

**Apply spatial analytics**

Intuitive analysis tools help reveal relationships and outliers, and help make predictions and determine forecasts. Use location to bring data together and analyze. Answer your first spatial question now.

[View all the tools](#)

**Take your work into the field**

Easily collect data in the field using pre-built apps accessible on all devices. Collect location data or questionnaires via a range of tools. The apps work online and offline to ensure productivity anywhere. Collected data feeds straight back into the geospatial tools ready to map, analyze, and share.

The Caribbean GeoPortal gives users the power to work end-to-end. Prebuilt applications, offline navigation, and easy-to-configure tools allow for simple and structure data collection. Start your field work now.

**Disaster Response**

**COVID-19**

See how the region is monitoring the spread of COVID-19 and view detailed country information on available dashboards. Explore the different templates and solutions that are available to help your community, or if you need more you can request help from the Esri Disaster Response Program.

[COVID-19 Page](#)

**Hurricane and Cyclones**

This map describes the current & recent location of tropical storms, as well as forecast positions and probable track of tropical storms. The area covered by the live feeds are the Atlantic and Eastern Pacific, the Central Pacific (Hawaii, etc.), and the Western Pacific and Indian Ocean. The data sources are the National Hurricane Center, Central Pacific Hurricane Center and Joint Typhoon Warning Center.

[Open the App](#)

**Recent Earthquakes Layer**

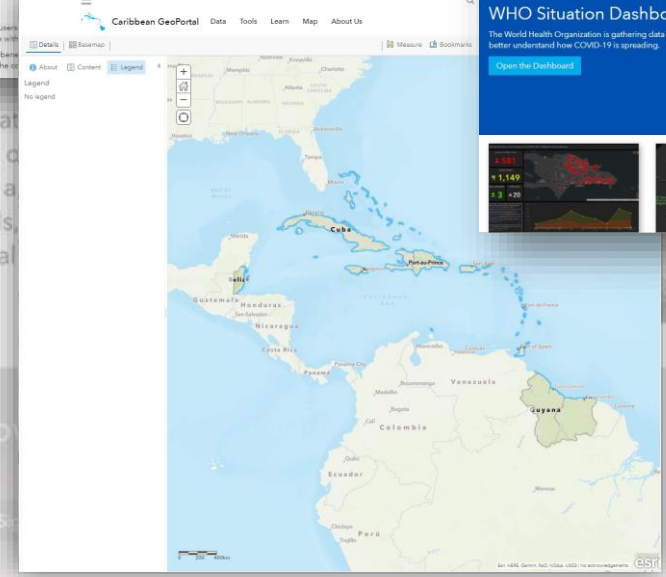
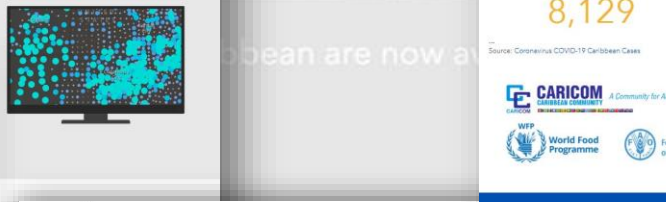
This service presents recent earthquake information from the USGS Prompt Assessment of Global Earthquakes for Response (PAGER) program. In addition to displaying earthquakes by magnitude, this service also provide earthquake impact details. Impact is measured by population as well as models for economic and facility loss. For more details, see PAGER Alerts. Events are updated as frequently as every 5 minutes.

[View the Layer](#)

**Damage Assessment**

**Bahamas Before & After Severe Map**

See damage from Hurricane Dorian



**COVID-19 Response**

Monitoring Coronavirus in the Caribbean

Confirmed Cases	Recovered	Deaths
8,129	1,388	396

Source: Coronavirus COVID-19 Caribbean Cases

**Food Security & Livelihoods Impact Survey**

Thank you for taking part in this regional survey for the Caribbean. Your participation will play a large part in providing an overview of the impact of COVID-19 on food security and livelihoods in your country or territory.

[Take the Survey](#)

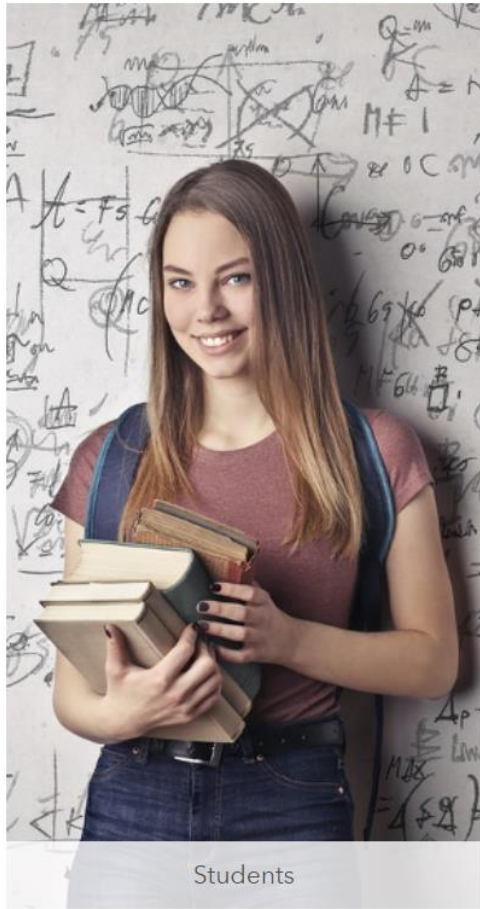
**WHO Situation Dashboard**

The World Health Organization is gathering data and providing this critical information in a global dashboard for us to better understand how COVID-19 is spreading.

[Open the Dashboard](#)



# Who will use the GeoPortal?



# Already starting to see impact

Home Gallery Map Scene Groups Sign In

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NASA Disasters Program - Caribbean Overview Content Members


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Search group content List Title Filter


Filters

- Item Type
  - Maps
  - Layers
  - Scenes
  - Apps
  - Tools
  - Files
  - Notebooks
- Location
- Date Modified
- Tags

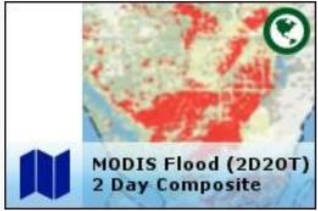
1 - 14 of 14




**Evaporative Stress Index, Weekly (NASA SERVIR)**  
Map Image Layer by jkirkend\_NASA  
A global dataset revealing regions of drought where vegetation is stressed due to lack of water.  
Created: May 2, 2019 Updated: May 4, 2020 View Count: 305



**FIRMS Active Fire (VIIRS/MODIS), 3 hour update**  
Map Image Layer by jkirkend\_NASA  
The Fire Information for Resource Management System (FIRMS) Active Fire Points showing the most recent 7 days  
Created: Aug 3, 2019 Updated: May 14, 2020 View Count: 125



**Flood Detection 2 Day 2 Observations Composite, Daily, MODIS**  
Imagery Layer by jkirkend\_NASA  
MODIS Flood 2 Day 2 Observation, Cloud & Terrain Shadow Masking Applied  
Created: May 29, 2019 Updated: Jun 1, 2020 View Count: 327



**Flood Detection 3 Observations Composite, Daily, MODIS**



# Already starting to see impact



The screenshot shows the Caribbean GeoPortal website. At the top left is a hamburger menu icon. To its right is the site logo and navigation links: "Caribbean GeoPortal", "Data", "Tools", "Learn", and "About Us". On the top right, there is a search icon and a "Sign In" link. A blue square with a white circular arrow icon is positioned on the left side of the page. The main content area features the UN-Habitat logo with the text "FOR A BETTER URBAN FUTURE" and a photograph of people holding a sign that says "I'M A CITY CHANGER" and "imacitychanger.org". Below the banner, the text reads: "You can assist the global urban response to COVID-19". It explains that a questionnaire is available to gather information about the current situation in cities and neighborhoods, and that aggregated answers will help paint a picture of urban areas across the world. It also mentions that users will receive a social media badge for participating. At the bottom, a privacy notice states: "This survey is designed to support UN-Habitat in collecting and responding to COVID 19 related issues. Your privacy is important to us and the data from this survey will only be used to aid in the COVID 19 response." Below the text is a grey rectangular box, likely a placeholder for a link or image.

Caribbean GeoPortal Data Tools Learn About Us

Sign In

**UN HABITAT**  
FOR A BETTER URBAN FUTURE

**I'M A CITY CHANGER**  
imacitychanger.org

**UN HABITAT**  
FOR A BETTER URBAN FUTURE

**You can assist the global urban response to COVID-19**

Below you'll find a simple questionnaire asking for information about the current situation in your city or neighborhood, the existing response measures and emerging impacts from the pandemic.

In aggregate, your answers to these questions—even if your response is "I don't know"—will help paint a more accurate picture on what is happening in urban areas across the world.

Once you submit your questionnaire, we'll offer to send you a badge that you can post to your social media account. The badge will show your friends that you helped UN-Habitat—and will serve to motivate them to help, too.

This survey is designed to support UN-Habitat in collecting and responding to COVID 19 related issues. Your privacy is important to us and the data from this survey will only be used to aid in the COVID 19 response.

# Already starting to see impact



Caribbean GeoPortal Data Tools Learn About Us

Search Sign In

## MIT COVID19 CHALLENGE

Build solutions for Latin America in the COVID-19 crisis.

We are rallying the innovation community to develop solutions towards the most pressing issues related to the COVID-19 crisis across Latin America. We want to channel and unlock untapped potential into positive and meaningful efforts to rapidly create and implement solutions that truly address the pressing unmet needs and problems of today. Our goal is for teams to design and build local solutions to these now global problems.



[Click for more information across Latin America](#)

COVID-19 Resources for Latin America are now available.

[COVID-19 Response Data](#)

Step One:

Create your Account

Step Two:

Learn what's possible

## Common FAQ

Q) Do I need to pay to use any of the tools provided in the Caribbean GeoPortal?

A) **No**, there is no cost to use the GeoPortal.

Q) My Office doesn't use any Esri technology, can I still participate in this mapping community?

A) **Yes**, the GeoPortal program is an open mapping community with no requirements on being an Esri customer.

Q) Do I have to have an ArcGIS Online account to use the GeoPortal?

A) **No**. You can create a free account when you join the community.

Q) I already have access to Esri technology at work, how do I use the Caribbean GeoPortal?

A) If you already have an ArcGIS Account for your professional work, you can share your data and applications with the community.

If you already have an ArcGIS Account but want to do some **personal** mapping to help the community, the GeoPortal is a place where your project can live and be accessible to the public.

## Common FAQ

Q) I don't use Esri technology today but use open source GIS how can this help me?

A) *The data you upload to the GeoPortal is your data, and it can be accessed through a variety of web API's or open file formats for use in the application of your choice and made accessible to the community.*

Q) I use QGIS for my desktop GIS, how do I create and use content from the Caribbean GeoPortal?

A) *With your GeoPortal Account you can upload shapefiles that are in a .zip file or you can upload GeoJSON files, to create web services. These web services can be added to QGIS using the ArcGIS Feature Server connection.*

Q) Can Caribbean software developers embed content into their applications?

A) **Yes**, all the services (content) shared on the geoportal are RESTful web services.

Q) Can I add my own data (Shapefiles) and mesh it up with Geoportal content?

A) **Yes**.

Q) How large a file can I upload?

A) *You can upload files up to 200 GB in size to My Content through a web browser.*

Q) Can we download data from the Geoportal?

A) **Yes**, unless the data provider prohibits download capability.



## Common FAQ

Q) Do common search engines find the items I've added to Caribbean GeoPortal?

A) **Yes.** *Items that are uploaded and shared as public are automatically indexed by popular search engines and can be discovered by common search methods. If you are on the website, you can also use its search function to find items.*

Q) Can users compose/classify maps on the GeoPortal?

A) **Yes.** *Smart Mapping functionality is available as well.*

Q) Can I share 3D geometry in feature layers?

A) **Yes**

Q) I might want to stand up a country page - how does that work?

A) *Country Pages are a great way to share authoritative data and applications with the community. To set one up, reach out to the Caribbean GeoPortal team. There is no charge for participating at this level, but we do want a mutual understanding that you have the rights to share the authoritative data and the data will be updated and maintained.*

Q) What tools does the portal provide?

A) *There are 29 Geospatial Analytic services that are available, as well as data hosting, geocoding, routing and more. These tools cover some of the most common needs, and advanced developers can use a variety of open data science libraries that are available through jupyter notebooks.*



# Caribbean GeoPortal

How will you use it?

<https://www.caribbeangeoportal.com>

