

**ASSOCIATION DES ETATS DE LA CARAIBE
XXIV^e REUNION DU COMITE SPECIAL POUR LA REDUCTION DES RISQUES DE
CATASTROPHES**

Port d'Espagne, Trinité-et-Tobago, le 21 octobre 2016

**PRESENTATION SUR LE PROJET « RENFORCEMENT DES INFRASTRUCTURES DE
DONNEES SPATIALES DANS LES ETATS MEMBRES ET TERRITOIRES DE
L'ASSOCIATION DES ETATS DE LA CARAÏBE » (UN-GGIM)**

**PAR MTRO. EFRAIN LIMONES GARCIA, DIRECTEUR DU PROJET CARAÏBES
SRE-INEGI DE L'INSTITUT NATIONAL DE STATISTIQUE ET GEOGRAPHIE (INEGI) DU
MEXIQUE**

A satellite map of the Caribbean region, showing Central America, the Caribbean Sea, and parts of North and South America. The map is overlaid with a dark blue gradient at the bottom.

24th ACS Special Committee Meeting for Disaster Risk Reduction

**Project for the strengthening of Spatial Data Infrastructures
in the Caribbean**

October 21th 2016



Cooperation for the Caribbean Region

A Collaborative Agreement between the National Institute of Statistics and Geography (INEGI) and the Mexican Agency for International Development Cooperation was signed to make this Project possible.

INEGI is contributing with the technical support and the Government of Mexico is providing the financial support for this project with an investment of 4.5 million dollar.

The project has the support of the Association of Caribbean States, who is committed with contributing to the development of the region.



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Participating Countries

1. Antigua and Barbuda



2. Bahamas



3. Barbados



4. Belize



5. Cuba



6. Dominique



7. República Dominicana



8. Grenada



9. Guadeloupe



10. Guyana



11. Haïti



12. Jamaica



13. Martinique



14. St Kitts & Nevis



15. St. Lucia



16. St. Maarten



17. St. Vincent & the Grenadines



18. Suriname



19. Trinidad and Tobago



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Caribbean Project Components

1. Diagnosis

2. Capacity Building

3. Infraestructura:

- Strengthen Geodetic Network
- Land Cover Map
- Geomatics Solution

4. Incorporation to UN-GGIM



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Strategic Aims for Caribbean Project

Strategic Objective		Strategies		Monitoring Indicators	GOALS / Objective concrete		
					minimum	medium	optimum
1	Strengthen the Geodetic Network	Increase Stations	Increase number of stations	5% Further in the region	3%	5%	10%
			Increase data availability				
			Increase security location				
2	Share Geographic Information	Create Digital Map of the Caribbean	Increase the number of Geoportals	10% further in the region	5%	10%	15%
			Increase dissemination of information				
			Increase the number of users				
3	Promote de use of Geographic Information	Construct The Land Cover Map	Consider project countries	90% of the Land Cover in the region	80%	90%	100%
			To ensure the quality of the project				
			Diseminate results in Geoportal				
4	Capacity Building	Training in Geographic Skills	Increase Basic skills	Participation of 90% of the countries in the project	80%	90%	100%
			Increase intermediate skills				
			Increase transversal competences				
5	Using Geographical Standards	Aply standards in the processs	Increase in production processes	20% of the processes	10%	20%	30%
			Increase in integration processes				
			Increase in disemination processes				
6	Update Computer Technology	Renew Computers	Update servers	2% of Equipment for Geographci Activities	1%	2%	3%
			Update computers				
			Upgrade netw ork equipment				
7	Geographic Metadata	Promote its application	Trining on Metadata	20% of the Countries in the Project	10%	20%	30%
			Build a Regional Profile				
			Implement its use				



Analysis by Thread



Capacity Building Programme



Geodetic Caribbean Network



Land Cover Map



Digital Map of the Caribbean



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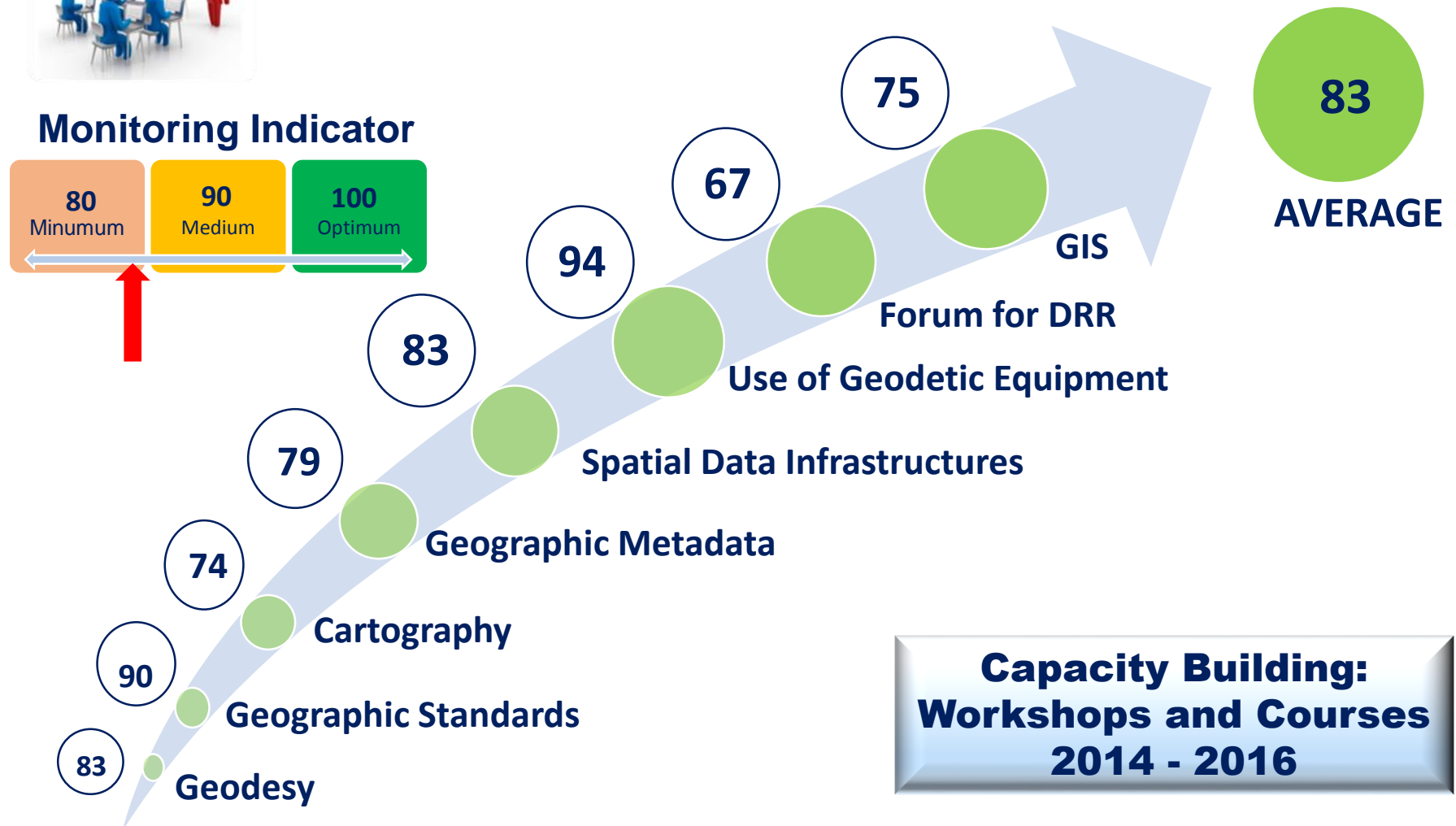
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Percentage of Participation



Monitoring Indicator



**Capacity Building:
Workshops and Courses
2014 - 2016**



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Capacity Building Programme

Future Activities

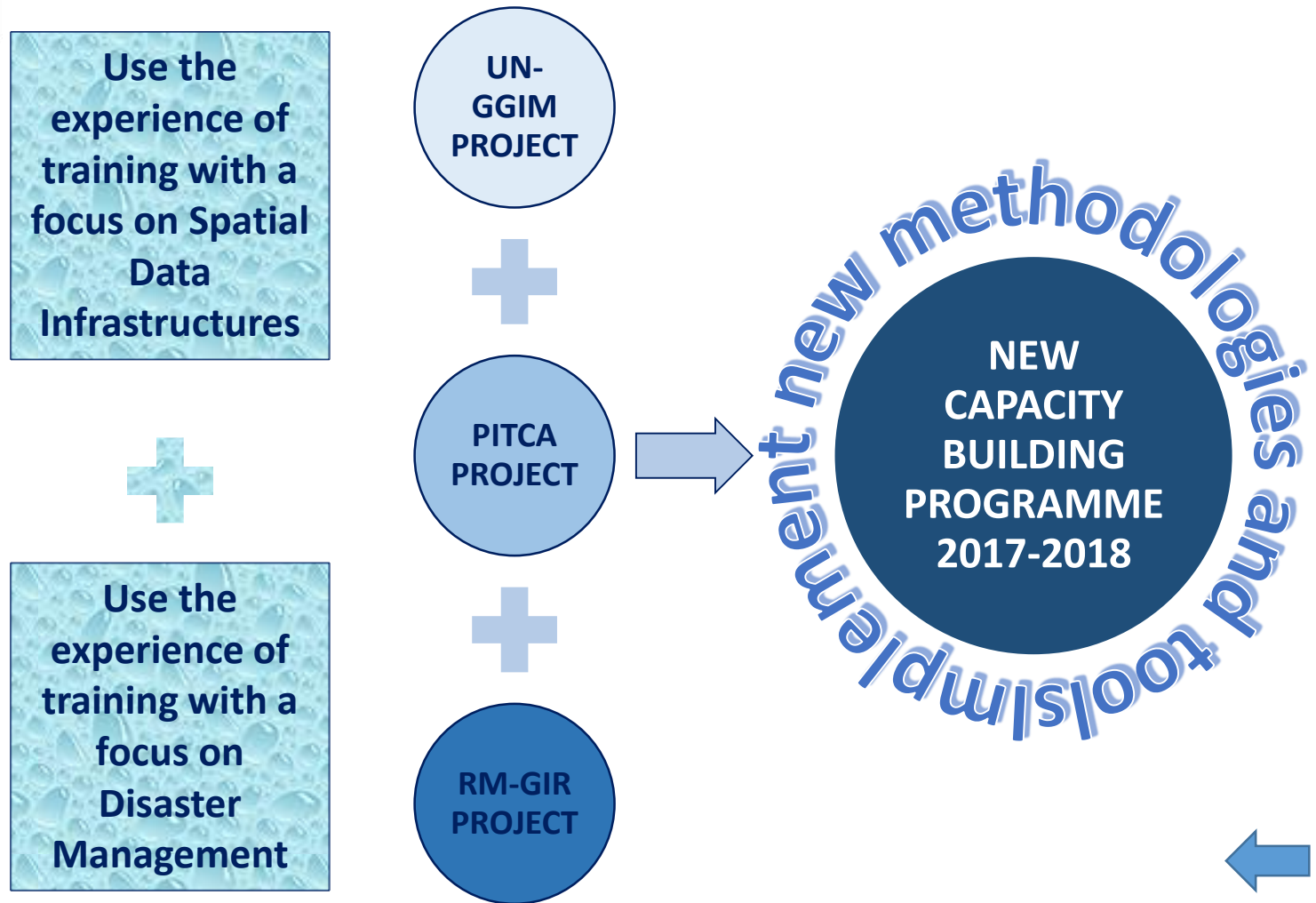
Workshop on Land Cover Classification using MAD-Mex engine, November 28th to December 2nd, 2016 in UWI

Workshop on Geographic Data Quality in Chile April 2017

BUILD A NEW CAPACITY BUILDING PROGRAMME INCLUDING NECECITIES OF PITCA AND RM-GIR PROYECTS.

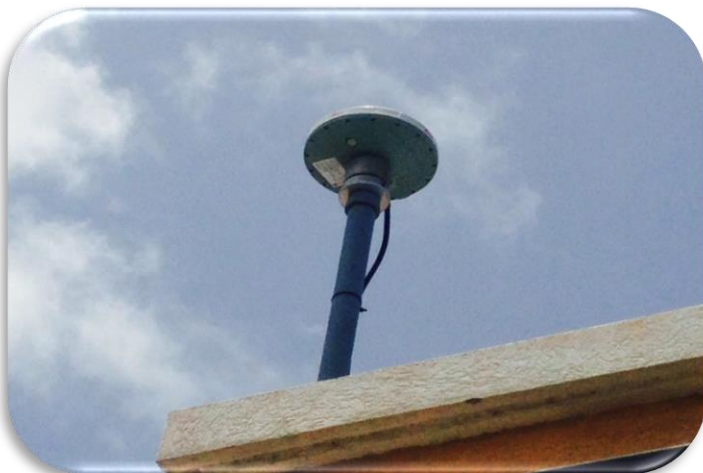


Design new capacitation programme





16 GNSS Stations Installed and Working



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Strengthen Geodetic Network



CORS STATIONS REPORTED IN CARIBBEAN REGION Jun-2014	TOTAL	TYPE		STATUS		REFERENCE INSTITUTION		
	REPORTED	GPS	GNSS	ACTIVE	INACTIVE	UNAVCO	NOAA	SIRGAS
Total	48	17	31	30	18	44	19	11



16 Stations installed (GNSS); 33% more, compared to those reported in active and inactive status

Monitoring Indicator



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Strengthen Geodetic Network

Future Activities

Install Data Centre in UWI

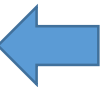
Integrate and share RINEX files from each station to D.C. by ftp

Define a reference frame to process data for the Network

Process final coordinates for each GNSS station

Incorporate stations to SIRGAS Continental Network

Promote the adoption of a common framework for the Caribbean



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Install Data Centre in UWI



GAMIT-GLOBK



Home Documentation Downloads Links FAQ

Here are some links to other pages associated with GPS and GAMIT/GLOBK:

- [Scripps Orbit and Permanent Array Center \(SOPAC\)](#)
- [University Navstar Consortium \(UNAVCO\)](#)
- [International GPS service for Geodynamics \(IGS\)](#)
- [Southern California Integrated GPS Network \(SCIGN\)](#)
- [US Geological Survey \(USGS\) Pasadena](#)
- [Southern California Earthquake Center \(SCEC\)](#)
- [International Association of Geodesy \(IAG\)](#)
- [National Geodetic Survey \(NGS\)](#)
- [HartRAO Space Geodesy Programme](#)

GAMIT



Programs to process
phase data, to estimate
three-dimensional relative
positions of ground
stations and satellite orbits



GLOBK

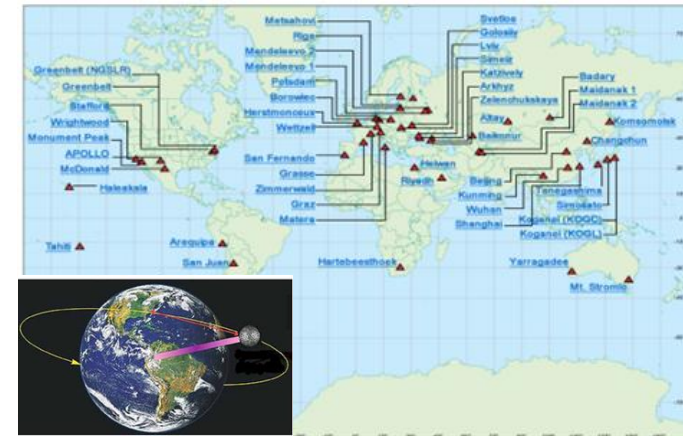


Figura 2. Red de estaciones SLR/LLR.



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Integrate and share RINEX files from each station to D.C.

<ftp://server 3.al.group-net.es>

Depositos de la RGNA

Conexión | Acerca de

Servidor FTP Receptor

Dirección: 192.168.254.2

Puerto: 21

Cuenta: Admin

Contraseña: xxxxxxxx

Servidor FTP RGNA

Dirección: 200.23.8.120

Puerto: 21

Cuenta: rgnaoax2

Contraseña: xxxxxxxx

☐ Usa Servidor Proxy

Servidor Proxy:

Puerto del servidor Proxy:

Parámetros de Configuración

Ruta en PC de archivos RINEX: c:\ftpRGNA\

Ruta de archivos RINEX: SD Card/Data/

Nombre de la sesión en el receptor: RGNA

Nombre del Sitio (4 dígitos): OAX2

Minuto de Transferencia FTP: 2

Diferencia en Horas del Horario Local vs GMT: 5

Formato del directorio de depósito de datos en el servidor FTP

ddMMM (Numerico y Alfabetico) Ejemplo: 14ENE

Lista de Espera

Depósito Activado

Ventana de Mensajes

09-08-2016 07:02:00 p. m. : Archivo que se intentara depositar: OAX2222x.zip

09-08-2016 07:02:01 p. m. : SD Card/Data/RGNA/OAX2/2016/08/09/OAX2222x.16o.zip. Archivo y Ruta en el servidor FTP del receptor

09-08-2016 07:02:03 p. m. : Deposito realizado: OAX2222x.zip

09-08-2016 08:02:00 p. m. : Archivo que se intentara depositar: OAX2223a.zip

09-08-2016 08:02:00 p. m. : SD Card/Data/RGNA/OAX2/2016/08/10/OAX2223a.16o.zip. Archivo y Ruta en el servidor FTP del receptor

09-08-2016 08:02:02 p. m. : Deposito realizado: OAX2223a.zip

09-08-2016 09:02:00 p. m. : Archivo que se intentara depositar: OAX2223b.zip



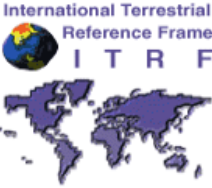
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Define a reference frame to process data for the Network



International Terrestrial
Reference Frame
ITRF

Search by DOMES number :

ITRS and ITRF

ITRF NEWS

General concepts

Splinter meeting

ITRF Products

ITRF solutions

Transformation parameters

VO Corner

Domes Numbers

DOMES description

DOMES request

IERS Network

Network description

Local surveys

Site Information and Selection

Get ITRF coord.

Get coordinates

Selected points

ITRF Mailing list

FAQ

ITRF solutions

ITRF solutions available here consist in sets of station positions and velocities with their variance/covariance matrices. Recently with the release of the ITRF2005 , Earth Orientation Parameters (EOPs) have simultaneously been combined with station coordinates. The numbers (yy) following the designation "ITRF" specify the last year when data was used during frame processing. For more details, please see [part 4 of the IERS technical note n°32](#).

ITRF solutions available :

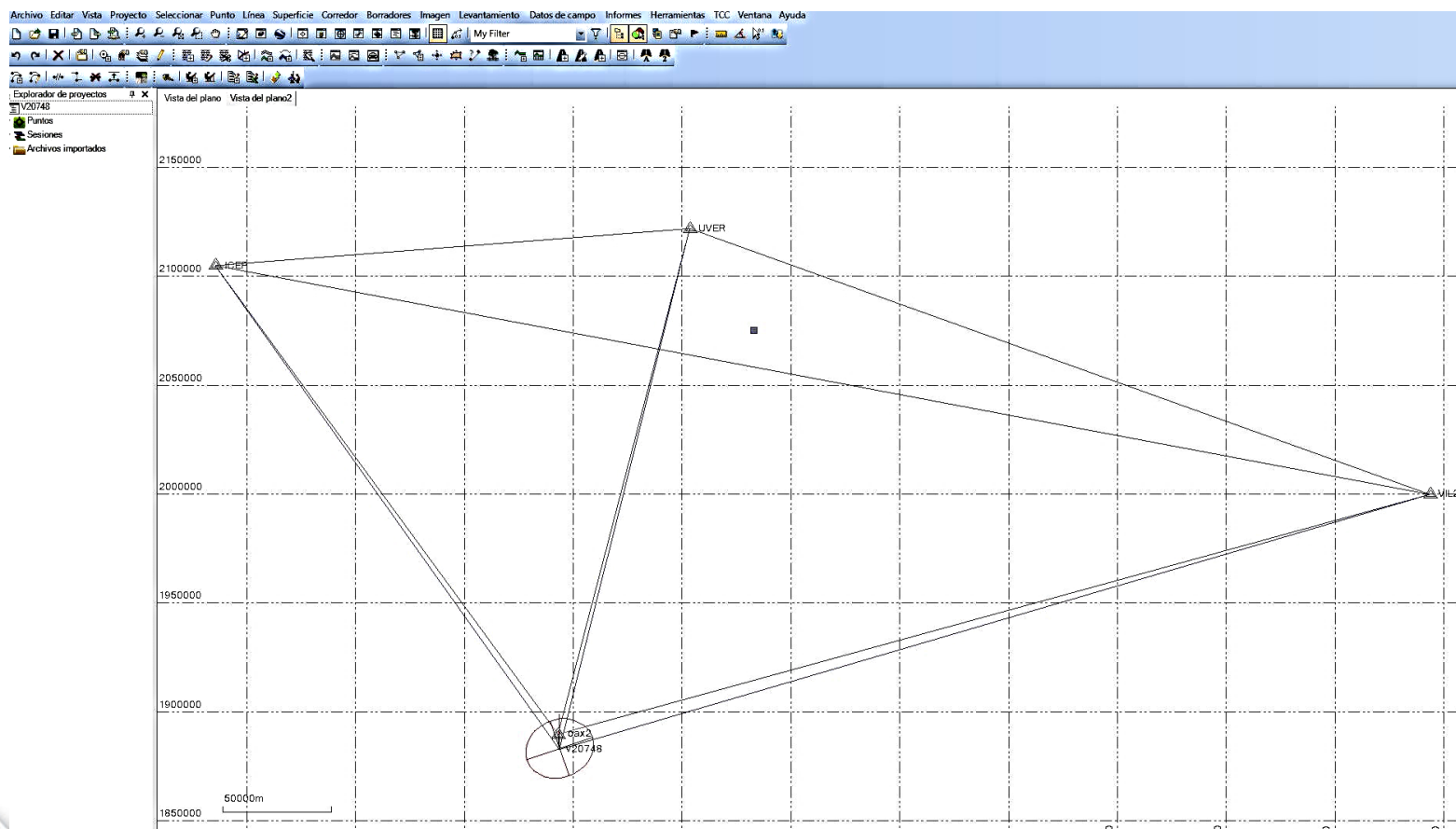
- ▷ [ITRF2014](#)
- ▷ [ITRF2008](#)
- ▷ [ITRF2005](#)
- ▷ [ITRF2000](#)
- ▷ [ITRF97](#)
- ▷ [ITRF96](#)
- ▷ [ITRF94](#)
- ▷ [ITRF93](#)
- ▷ [ITRF92](#)





Process final coordinates for each GNSS station

Involve SIRGAS and INEGI to support processing



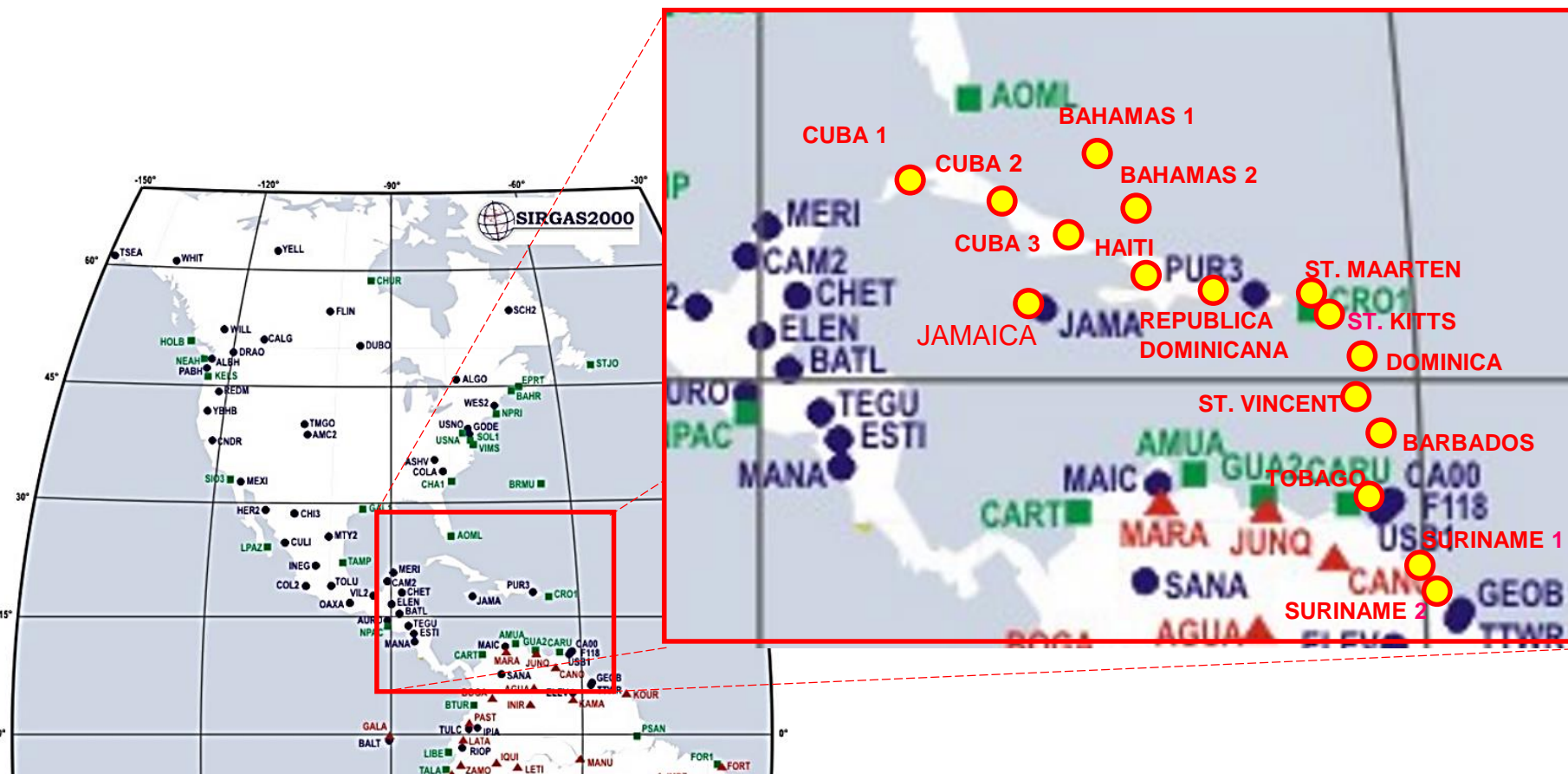
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Incorporate stations to SIRGAS Continental Network



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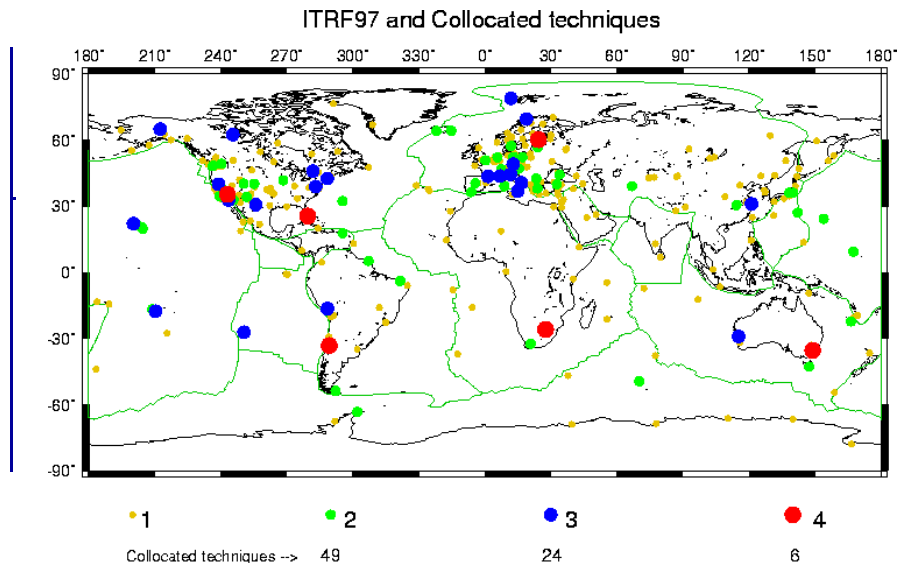
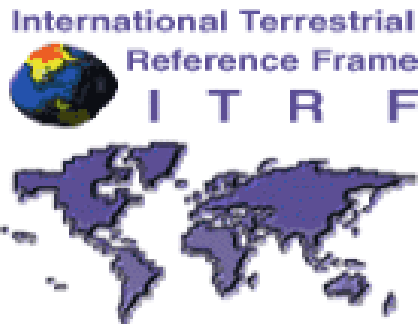
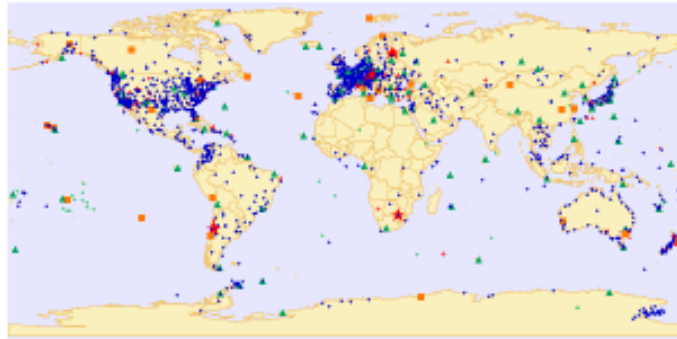
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Promote the adoption of a common framework for the Caribbean

Welcome to the ITRF web site

The objective of this web site is to distribute the International Terrestrial Reference Frame (ITRF) products. ITRF94, ITRF96, ITRF97, ITRF2000, ITRF2005 and ITRF2008 solutions are available for download. It also contains the description and list of all the IERS stations.



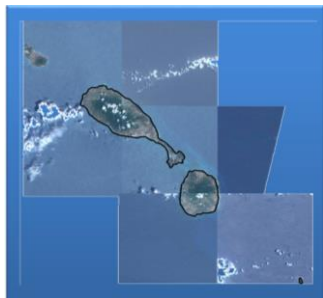
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Coverage of Satellite Imagery



**Satellite Imagery
of RapidEye
220,474 Km²**



**Satellite Imagery of ZY3
For countries Island in
the Project**

Monitoring Indicator



**90% of Land
Cover for
the region**

**Three countries will be supported by
Landsat Satellite Imagery**

Coverage of satellite images	Km ²
St. Maarten	41
St. Kitts and Nevis	276
Grenada	370
St. Vincent and the Grenadines	406
Antigua and Barbuda	444
Barbados	449
St. Lucia	628
Dominica	773
Martinique	1,157
Guadeloupe	1,682
Trinidad and Tobago	5391
Jamaica	11,001
Bahamas	13,255
Haití	26,949
República Dominicana	47,973
Cuba	109,674
Total Area	220,474
Suriname	163,821
Guyana	214,970
Belice	22,966



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Land Cover Map

Future Activities

Workshop on Land Cover Classification using MAD-MEX engine

Give each country processed maps based on the Land Cover 30 m.

Define the timeline to verify the result of the initial classification

Post-process the image coverage considering corrections

Integrate Regional Land Cover Map





Give each country processed maps based on the Global Land Cover 30 m

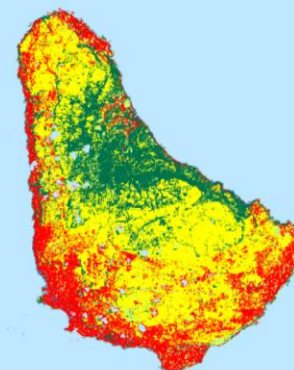


MAD-MEX Engine



Barbados

Class	km ²
Cultivated land	197.1
Forest	94.3
Grassland	30.2
Scrubland	1.2
Wetland	2.2
Water bodies	2.3
Artificial surfaces	105.6
Bareland	0.7
TOTAL	433.6



SIMBOLOGÍA

- Cultivated land
- Forest
- Grassland
- Scrubland
- Wetland
- Water bodies
- Artificial surfaces
- Bareland



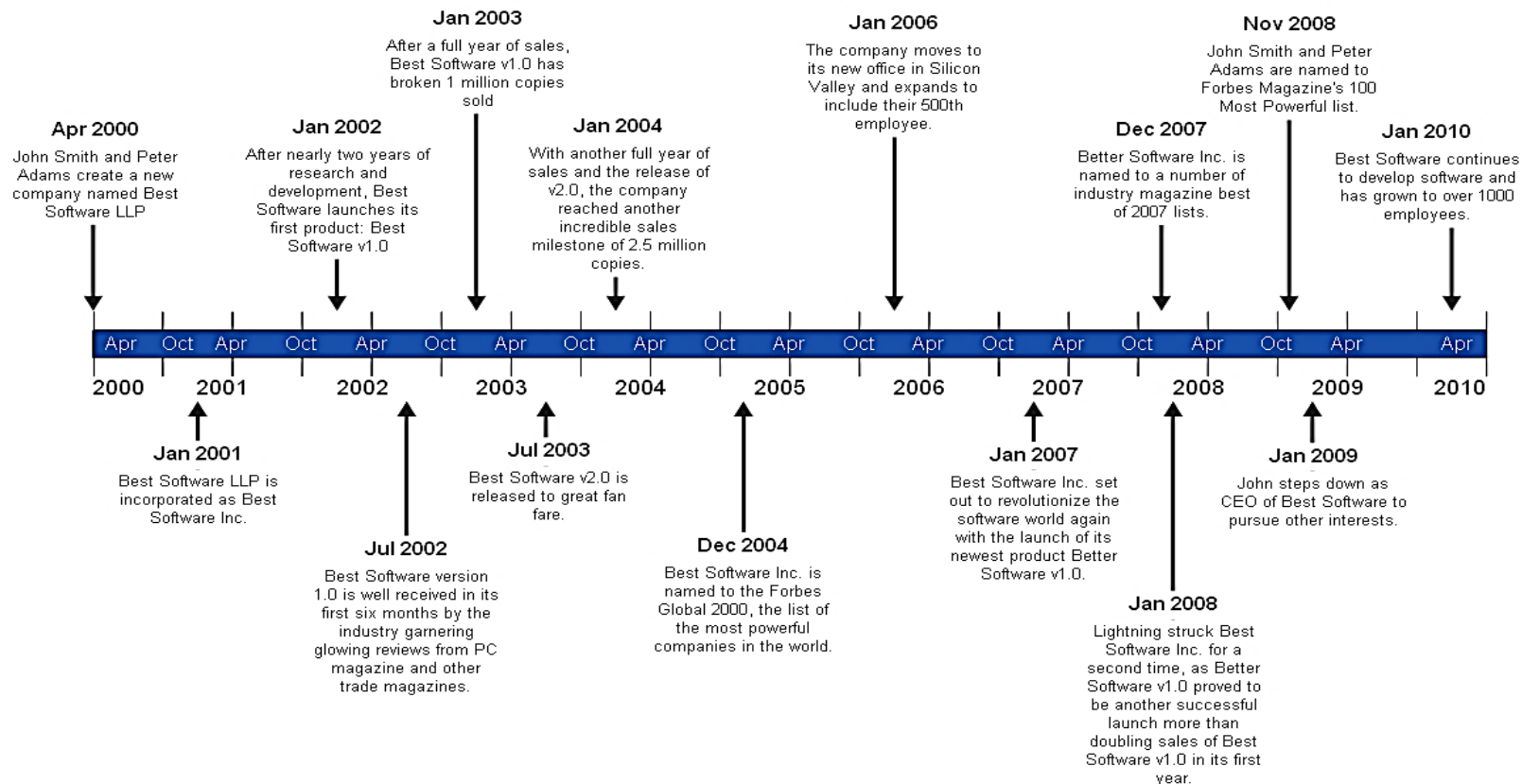
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Define the timeline to verify the result of the initial classification



Created with Timeline Maker Professional. Produced on Jul 14 2011.



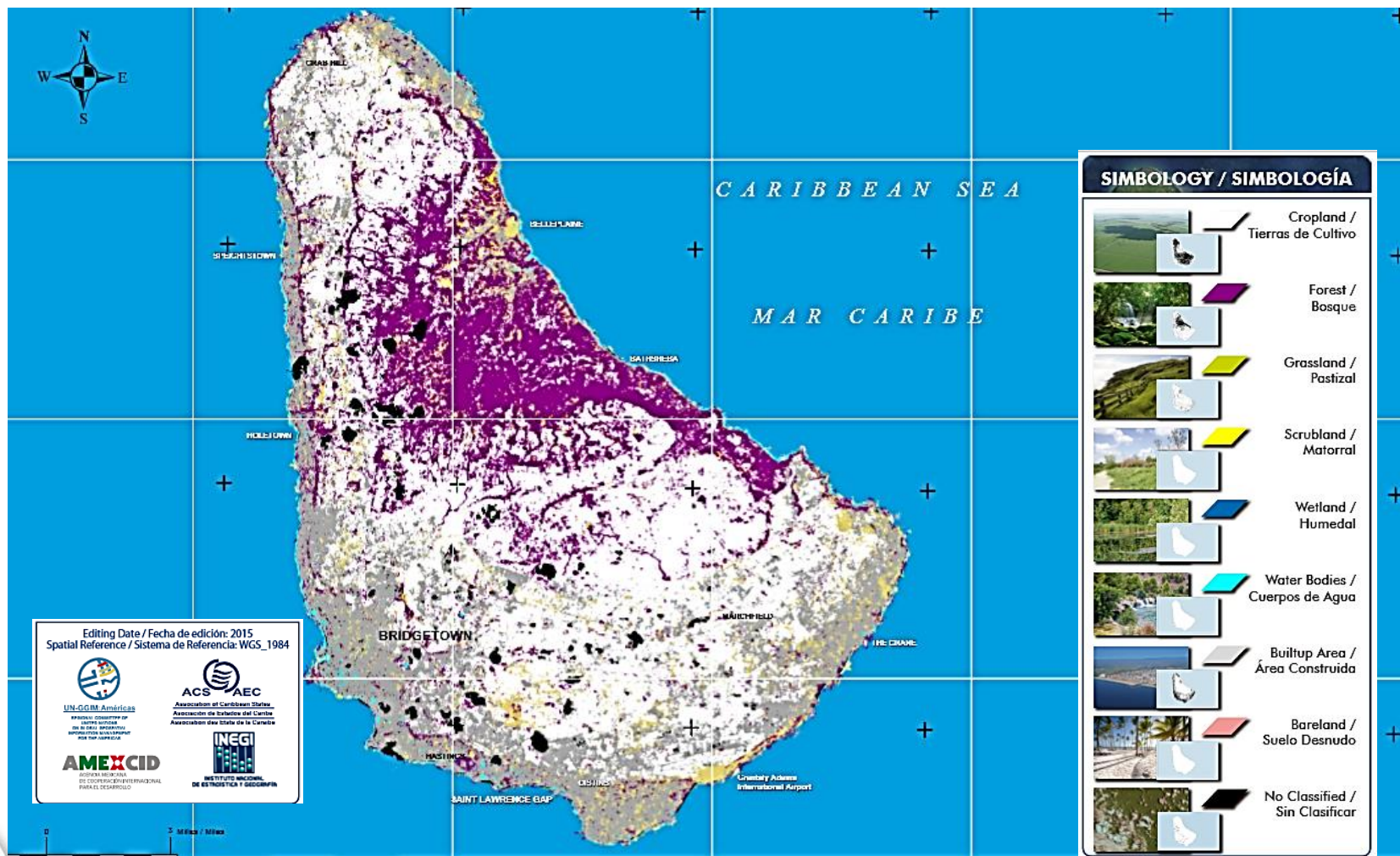
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Post-process the image coverage considering corrections



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Integrate Regional Land Cover Map



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Caribbean Digital Map

Running Activities

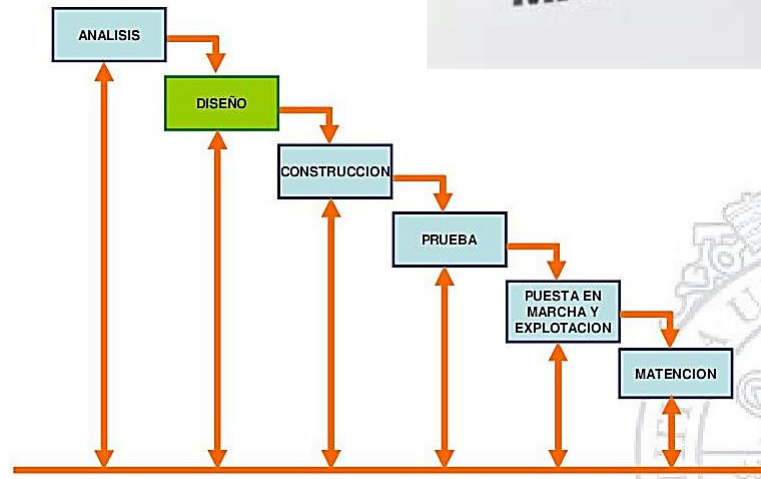
Bidding Process to purchase Servers



Translation of System and Manuals



System Development



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Digital Map of Caribbean

Future Activities

Workshop on Construction of Geoportals

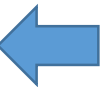
Make an inventory of statistical and geographical information

Implement Digital Map of Caribbean, individuals and regional

Promote definition of Metadata Profile for region

Define and structure the information to be integrated to the systems

Disseminate Information



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Make an inventory of statistical and geographical information

Inicio Dashboard CRM Ventas Compras Fabricación Almacenes Finanzas RRHH

Enlaces

- Inventario
- Recepciones
- Envíos
- Seguimiento de artículos

Inventario
Almacenes > Inventario

[Iconos de acciones] [Todos los elementos] Vistas: Adiciones: Informes

Filtro [Aplicar]

Estado: Stock disponible Almacén: Finished Product Artículo:

Dropdown menu: Todas, Chapas, Perfiles, Consumibles

Artículo	Almacén	Stock	Disponble	Peso
HEA 100 - ST 42	Perfiles	12	12	301,484 kg
HEA 100 - ST 42	Perfiles	7	7	419,326 kg
PE 220 - Acero	Perfiles	8	8	801,600 kg
PE 220 - Acero	Perfiles	9	9	1,442,880 kg
A88000002_ Granite abrasivo 60 mesh	Raw Materials	7,000 kg	7,000 kg	0,000 kg
CM000001_ Screw for doors	Raw Materials	500	500	5,000 kg
CM000002_ Hinge for doors	Raw Materials	540	540	0,000 kg
CM000004_ Tornillo M5x15	Raw Materials	625	625	0,000 kg
CM000005_ Avandale M5	Raw Materials	3,250	3,250	0,000 kg
CM000011_ Caja tornillos 20	Raw Materials	112	0	0,000 kg
CM000014	Raw Materials	15	15	0,000 kg
E2-20105_ Motores electricos C-ME	Raw Materials	1,255	1,255	0,000 kg
VS-2948_ Flat Washers - Stainless steel 18-8 - 5/16	Raw Materials	45	45	0,000 kg
A88000002_ Granite abrasivo 60 mesh	Remote sheets	555,000 kg	555,000 kg	0,000 kg
Chapa M	Sheets	5	4	11,250 kg
HEB100Acero	Sheets	6	6	129,600 kg
SHT000002_ AP 12_ 1500x1500x5	Sheets	606	606	53,858,250 kg
SHT000003_ AMa3_ 1500x1250x2	Sheets	470	470	4,758,750 kg
SHT000004_ AMa3_ 1750x1250x2	Sheets	1,250	1,250	22,148,437 kg
SHT000005_ AS9_ 1750x1500x2	Sheets	125	125	1,771,875 kg



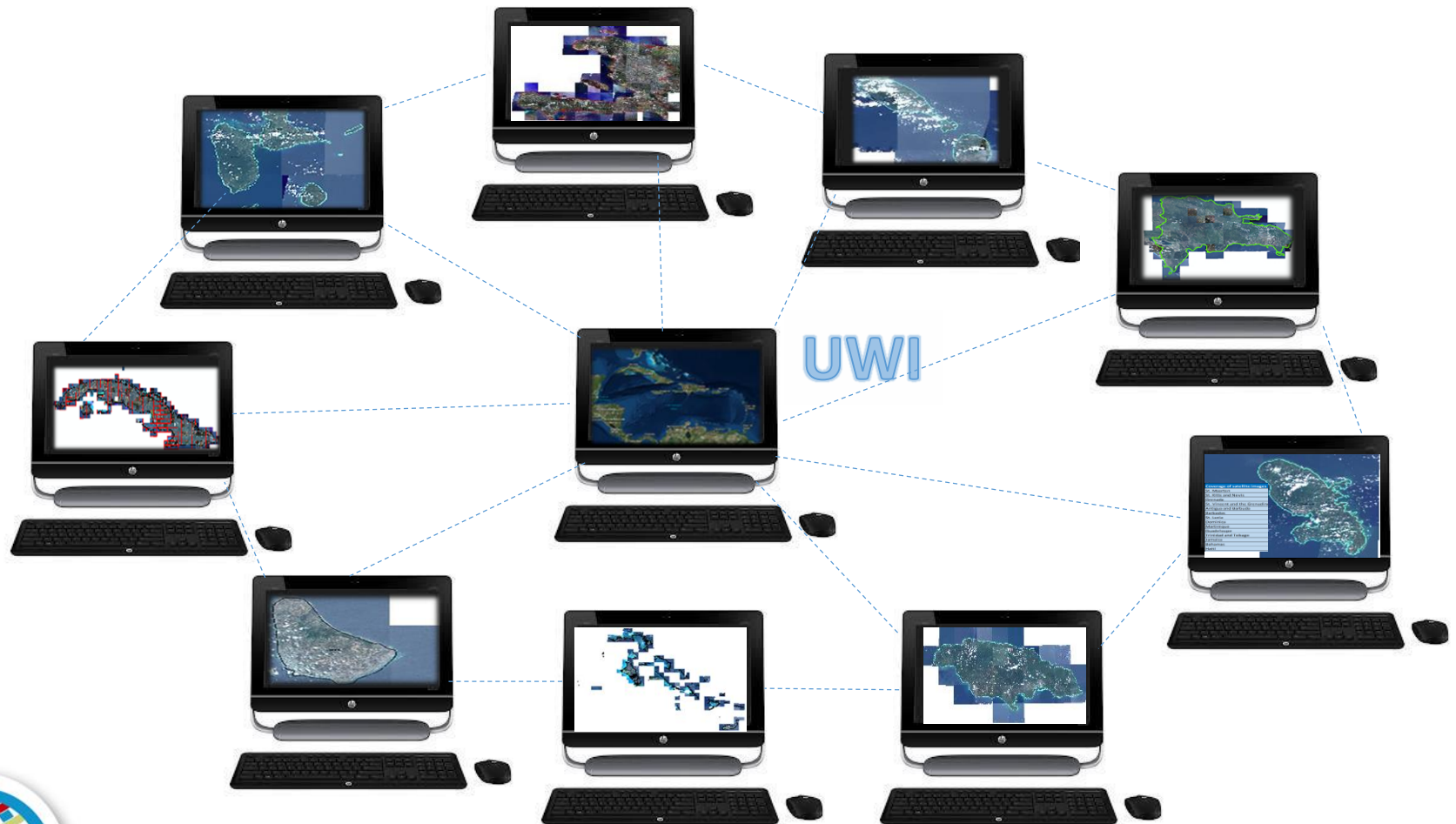
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Implement Digital Maps of Caribbean, Individual and Regional



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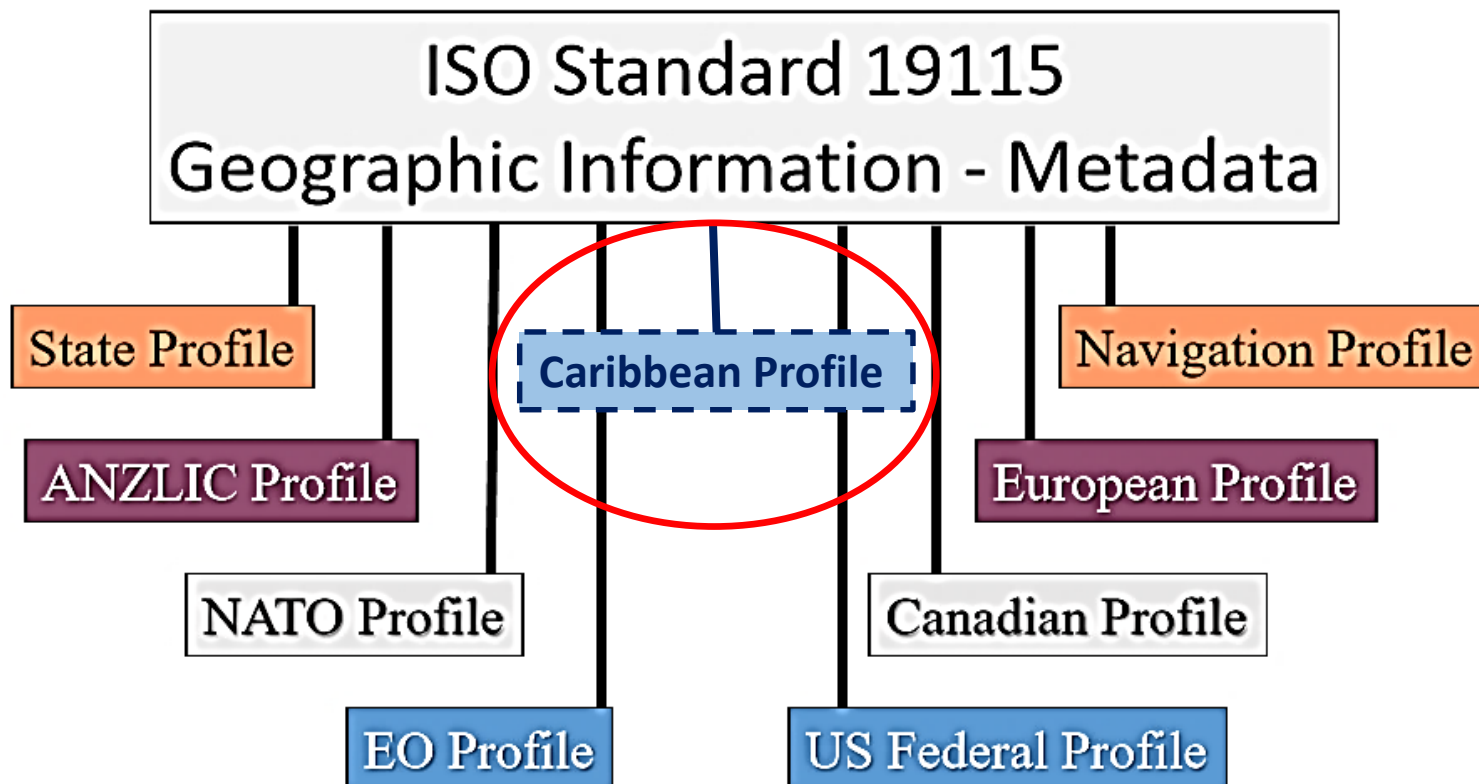
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Promote definition of Metadata Profile for region

Regional, national, & organizational profiles



Profiles Enable Interoperability Between Communities



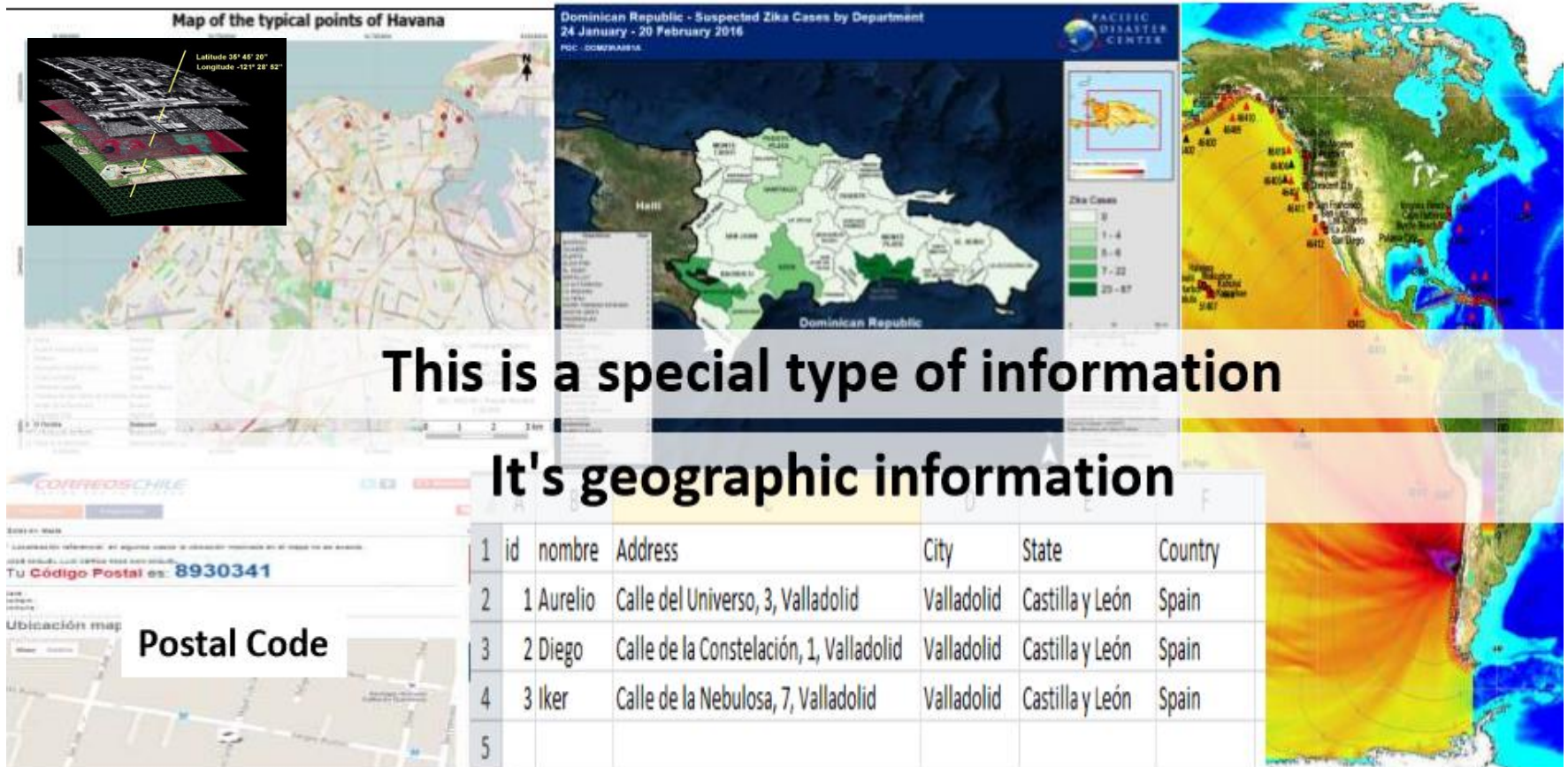
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Define and structure the information to be integrated to the systems

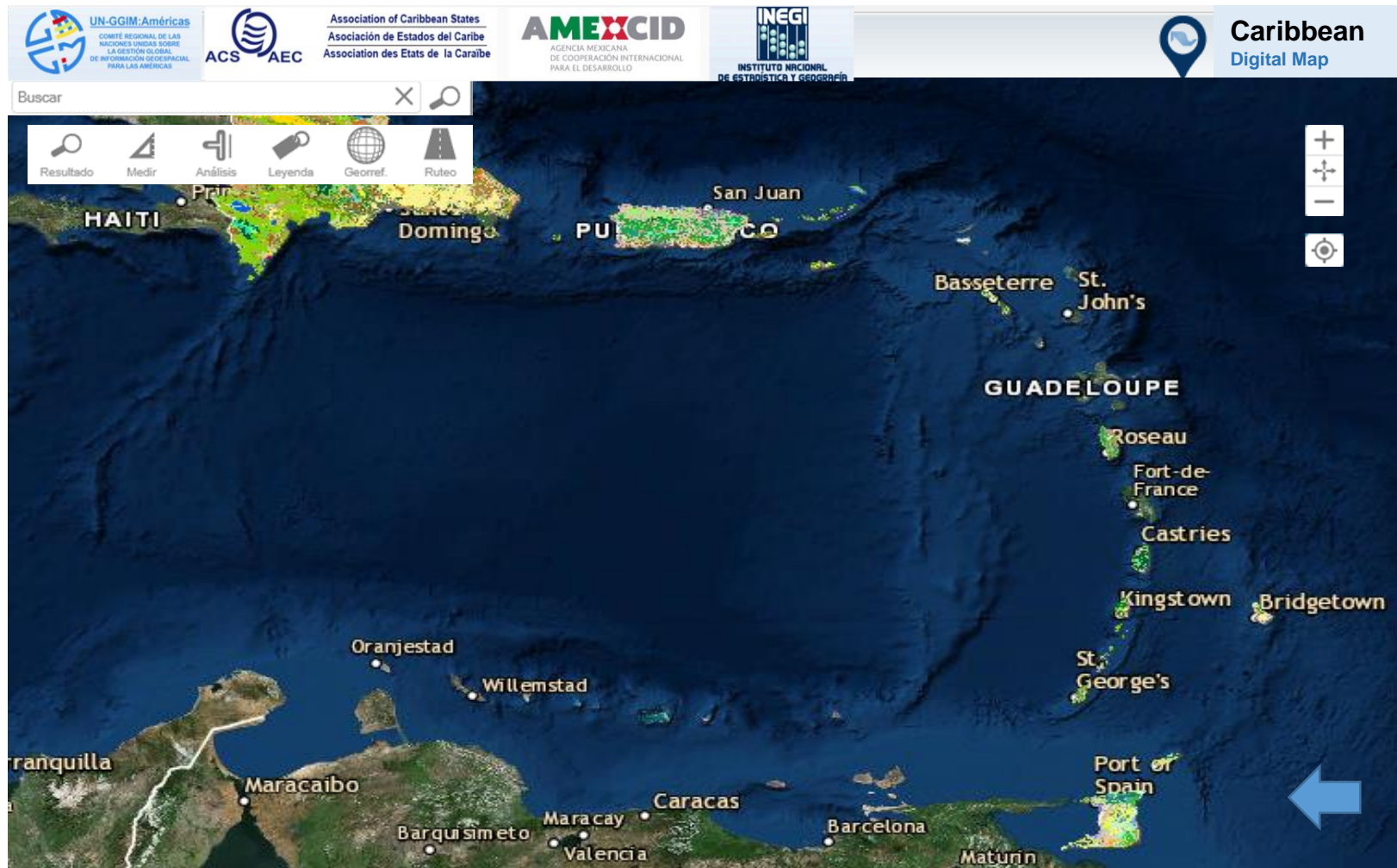


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Disseminate information



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A satellite map of the Caribbean region, showing Central America, the Caribbean Sea, and parts of South America and North America. The text "Thanks for your attention" is overlaid in red.

Thanks for your attention

24th ACS Special Committee Meeting for Disaster Risk Reduction

**Project for the strengthening of Spatial Data Infrastructures
in the Caribbean**

October 21th 2016