The Caribbean Marine Atlas Project

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ACS-Caribbean Sea Commission Meeting, Jul 7th to 9th, 2010

Outline

Background

- Importance of access to environmental data

CMA Development

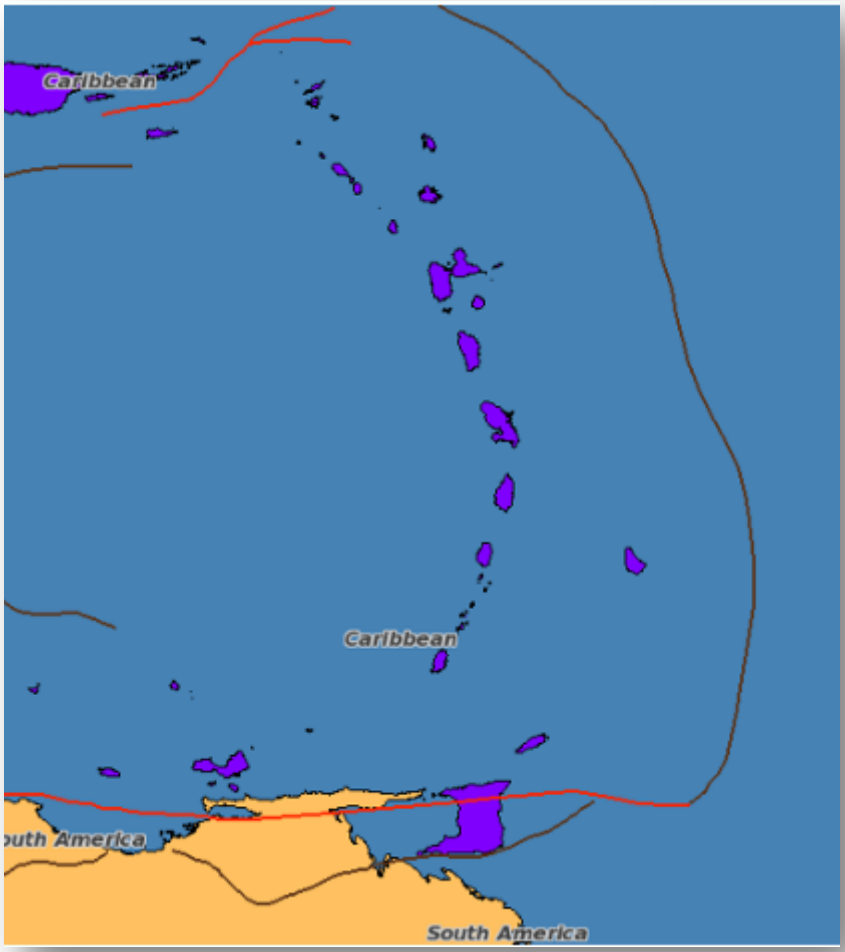
- AMA example
- Objectives
- Stakeholder meeting
- Training workshops

Results

- Regional networking/ capacity building
- CMA prototype

Future of the CMA

- Regional atlas
- National atlas development



Importance of access to environmental data

Data Management for Policy Making

- Integrated Coastal Area Management (ICAM)
  - Data required for planning, implementation, monitoring, evaluation
  - Disaster management
  - Regional scale information availability
  - Communication with policy makers
- Inter and intradepartmental data sharing
  - Need easy access to restricted data
  - Data quality and metadata standards
  - Improved data sharing
  - Data and information warehousing
- Communication with public
  - Central access point for marine data
  - Enhance data and data product delivery
  - Reduce product delivery overhead

Inception of the CMA

IOC Assembly (2007)

African Marine Atlas

- ODINAFRICA Initiative
  - 1 Year startup
  - Hosted by IODE

Caribbean Project

- Improved decision-making
  - Regional collaboration
  - Capacity building
  - Improved data access
  - Improved data delivery and communication

CMA Objectives

Regional Data and Information Distribution System

- Interactive, online mapping tool
  - Collection of GIS data layers (vector and raster)
  - User defined data frame within AOI
  - Geographic features (scales, grids, coordinates)
- Advanced data control
  - Layer list (one layer, multiple)
  - Feature selection
  - Results tables
  - Metadata viewing
  - Links to websites, documents, auxiliary data
- Unrestricted or mostly unrestricted data download
  - Shapefiles
  - Attached metadata
  - Documents, images

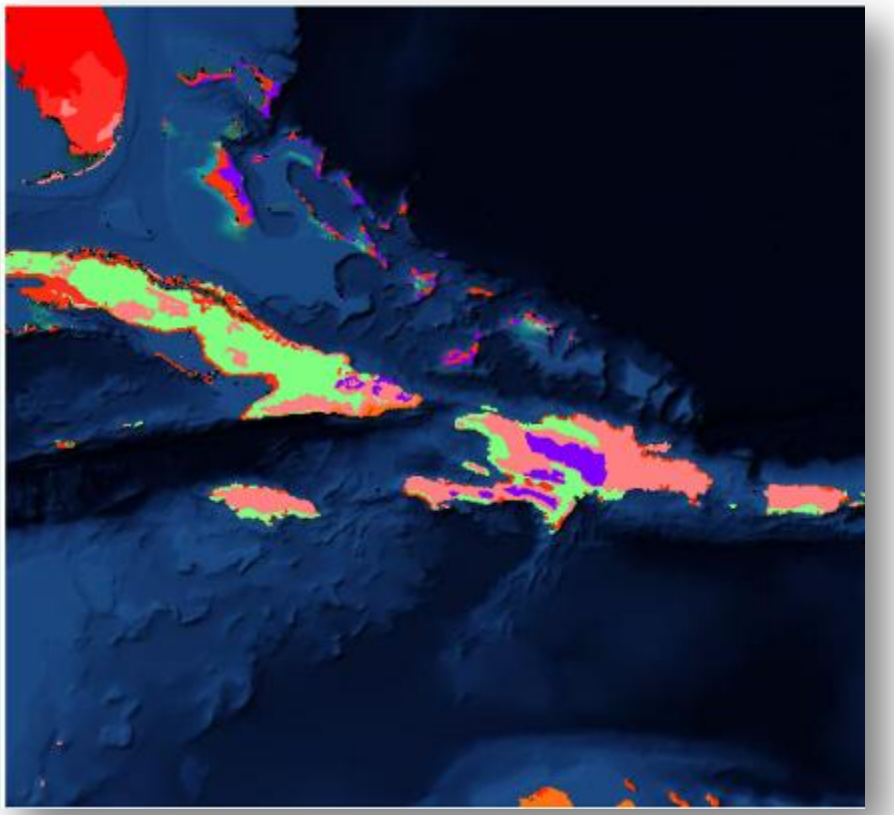
National Atlas Offshoots

- Same or similar software platform
- Tailor-made for each participating country
  - National/Institutional coastal area management focus (disaster management, biodiversity, marine protected areas. etc)

CMA Components

Thematic Data Structure

- Geosphere
  - Natural hazards
  - Soil types
  - Land use
- Hydrosphere
  - Bathymetry
  - Physical oceanography
  - Chemical oceanography
- Biosphere
  - Habitats
  - Marine flora and fauna
  - Protected areas
- Atmosphere
  - Climate
  - Weather
- Human Environment
  - Settlements
  - Infrastructure
  - Tourism



CMA Project Development

Background

CMA Development

Results

Future of CMA

1st Stakeholder Meeting for the Development of the CMA Project (October 8-10, 2007)

- Regional information gathering workshop
  - Participants from 6 Caribbean countries
  - Core initiative with scope for expansion
- Workshop Goals
  - To inform the participating countries of the potential benefits of a Caribbean Marine Atlas
  - To identify current national coastal zone management arrangements
  - To identify national and regional coastal and marine issues that could be the focus of the Caribbean Marine Atlas
  - To identify the national resource requirements of the participating countries to enable full participation in a Caribbean Marine Atlas Pilot Project
  - To prepare a draft work plan of a Caribbean Marine Atlas Pilot Project, for submission to, and approval by the respective national governments

Stakeholder Meeting

Background

CMA Development

Results

Future of CMA

Priority Issues

		Barbados	Cuba	Grenada	Jamaica	St. Lucia	Trinidad &Tobago	Turks & Caico	weight
Habitat degradation/loss	Coral reefs	R	R	N	N	N	R	R	21
	Mangroves	R	N	N	N	N	N	N	16
	Seagrass	1N	2N	1L	1N	1N	1L	3L	18
	Beaches	1R	1R	1N	1N	1N	2N	2R	19
	Forests	2N	2L	1N	1N	2N	2N	2R	16
Unsustainable exploitation of natural resources	Overfishing	1R	2N	1N	1N	1N,R	1R	1R	20
	Sandmining	2N		1N	2N	1N	2L	2N	14
	Destructive fishing				2N,L	2L		1N	7
Pollution	Sediments (turbidity)	1R	3L	1L	1N	1N	2L	2N	17
	Sewage pollution (coliform)	1R	3L	1L	1N	1N	1N	1R	19
	Agrochemicals	1R	3L	2N	1N	1N	3L	2R	15
	Oil	2N	3L	3L	2N	3R	2L	2N	11
	Heavy metals	2L	3L	3L	3L	3R	2N	2R	10
	Nitrates/nitrites	1R	2L	1L	1N	1N	1L	2N	19
	Solid waste	1R	3L	2L	1N	1N	1N	1R	18
	BOD/COD	1L	3L	1L	1N	1N	2N	2R	17
	Runoff (storm, grey water)			1N	1N	1N	1N	2N	14
Natural hazards	Hurricanes	1R	1R	1R	1R	1N	2R	1R	20
	Tsunamis	2R	3N	1R	1R	3R	3R	1R	14
	Sea level rise	1R	1L	1R	1R	1N	2R	1R	20
	Volcano			1R					3
	Flooding	2N	1N		1L	1L	2L	2N	15
	Earthquakes					1L	3N		5

High Priority

Medium Priority

Low Priority

Workshop Conclusions

Regional Priority Issues

- Coral Reefs, Seagrass, Mangroves
- Overexploitation
- Natural Hazards
- Beaches
- LBS Pollution

Regional Data Access Issues

- Most or all essential indicator data collected
- Data access from data holders tends to be problematic

Regional Data Management Issues

- Little or no data quality control (geographic, range analysis)
- No established metadata schemes
- Lack of institutional resources
  - Personnel and training
  - Equipment

CMA Training Courses

Basic Ocean Data Courses

- Ocean Data Management
  - Oceanographic measurements (parameters, units, conventions), programmatic and technical aspects of data collection, data formats used for ocean data and their special characteristics
- Data Mining
  - Data processing, metadata requirements, FTP folder schema and use

Atlas Specific Course

- Mapserver
  - Introduction to the mapserver open-source platform, map publication, mapping application design

CMA Project Results

Regional Marine Data Manager Network

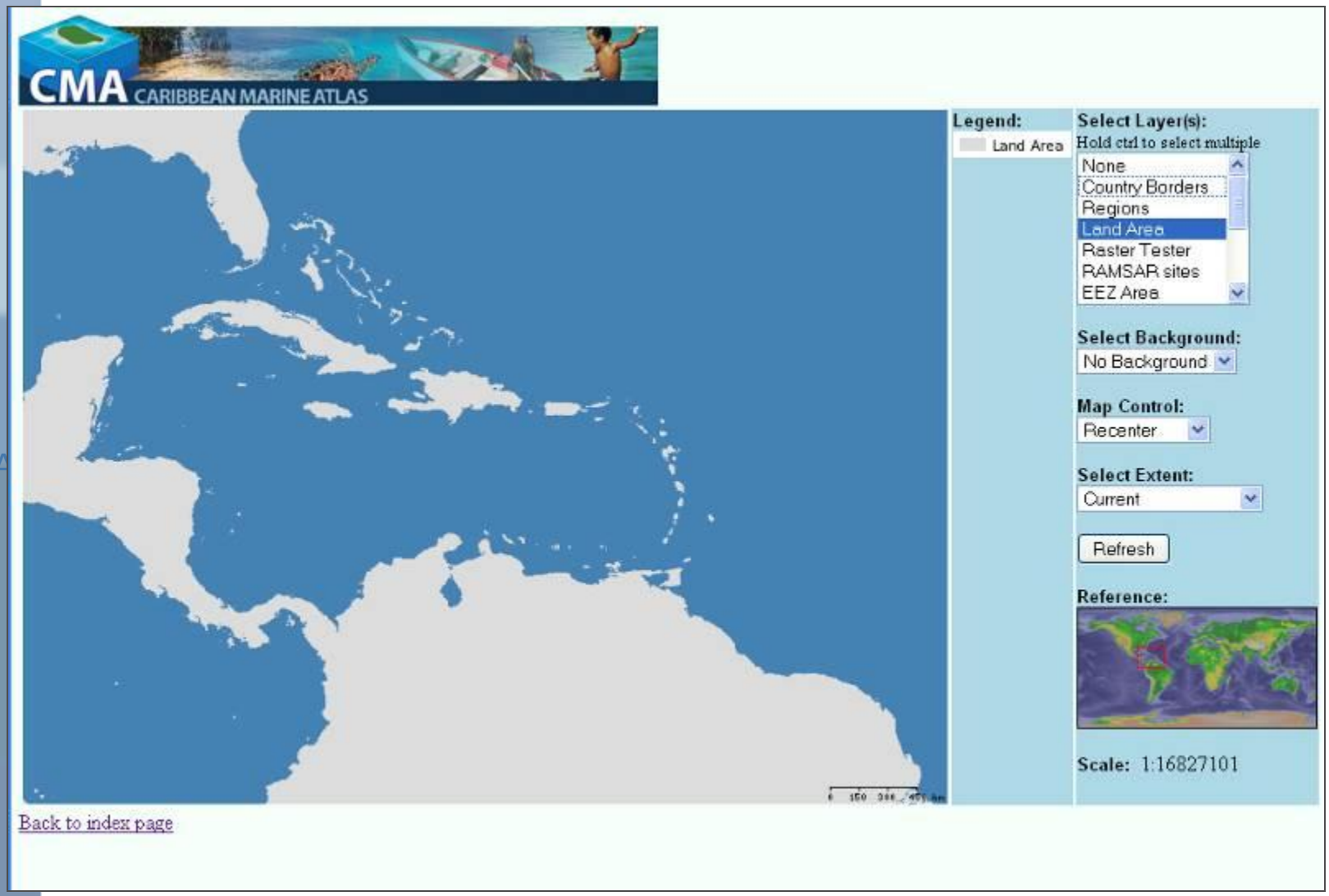
- Eleven regional data managers received training during pilot phase
- Regional network has improved communication among Caribbean marine/coastal management agencies
- Regional network expanded to include GIS experts

CMA Prototype

- Currently not online, but hosted on a local server for testing
- Basic functionality

CMA Prototype

Base application showing layer and map control

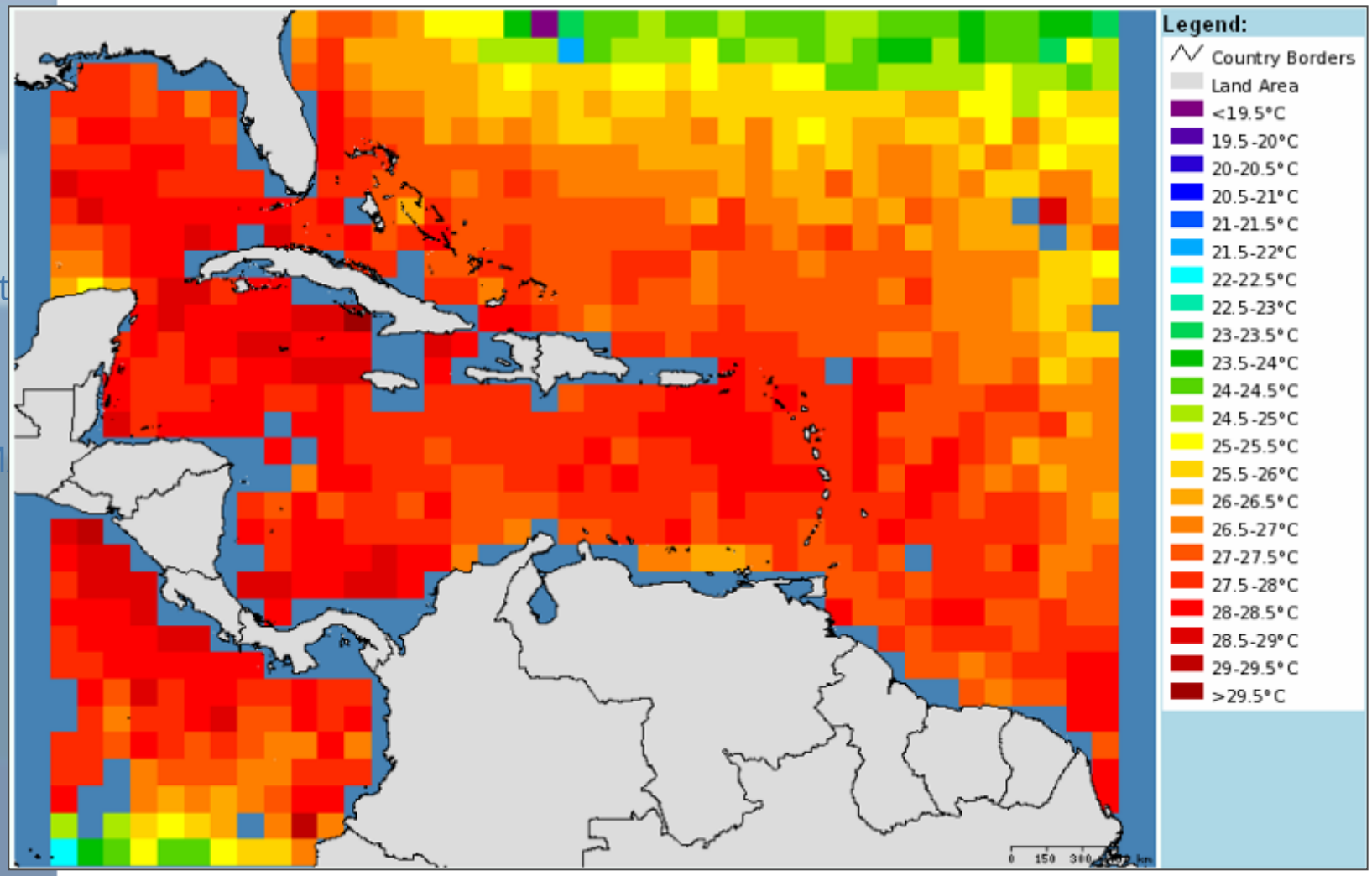


- Background
- CMA Development
- **Results**
- Future of CMA

CMA Prototype

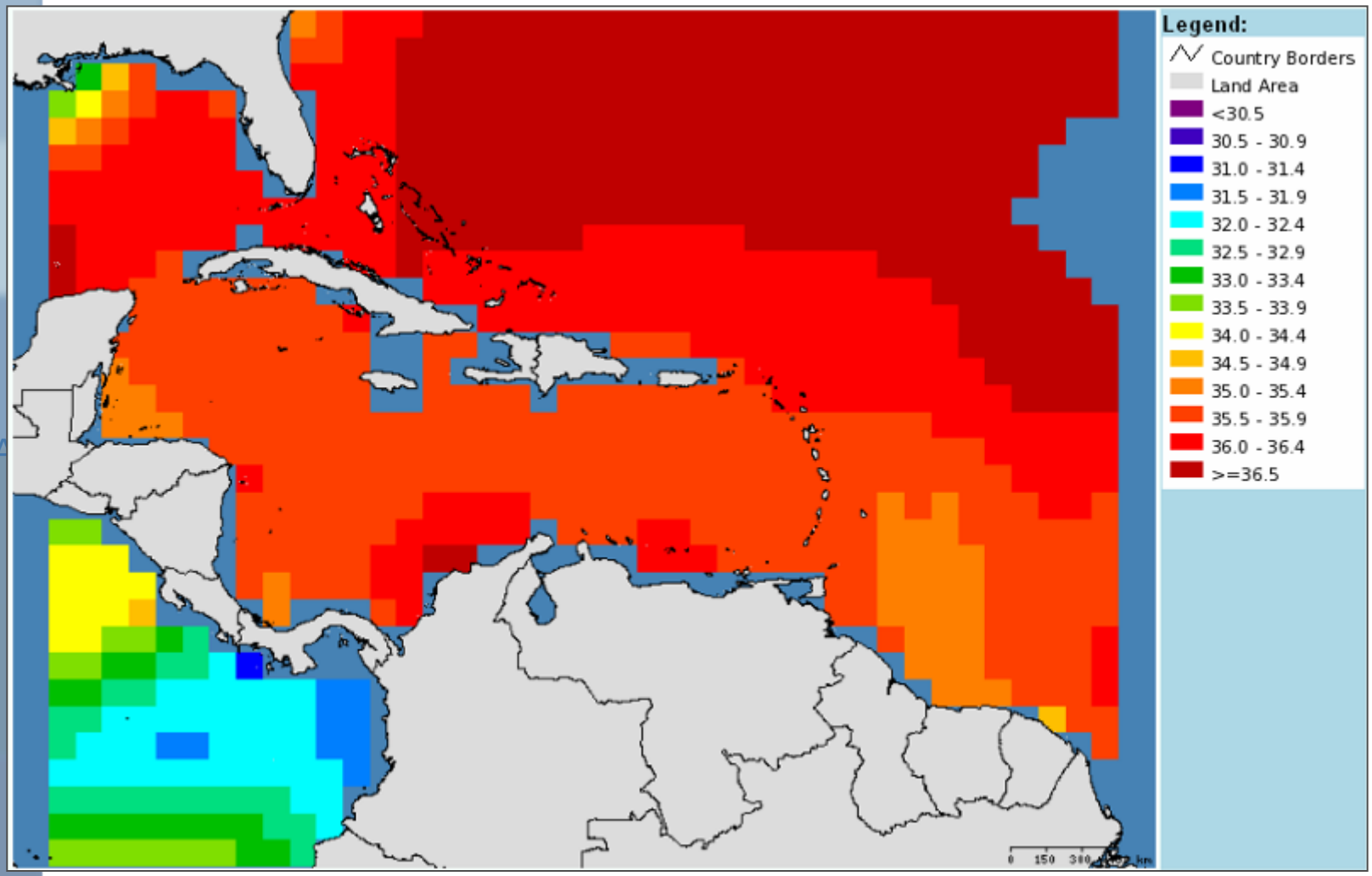
Raster overlay of oceanographic parameters (Temp)

- Background
- CMA Development
- **Results**
- Future of CM



CMA Prototype

Raster overlay of oceanographic parameters (Salinity)



CMA Prototype

Mixing of data types including virtual WMS layers

Background

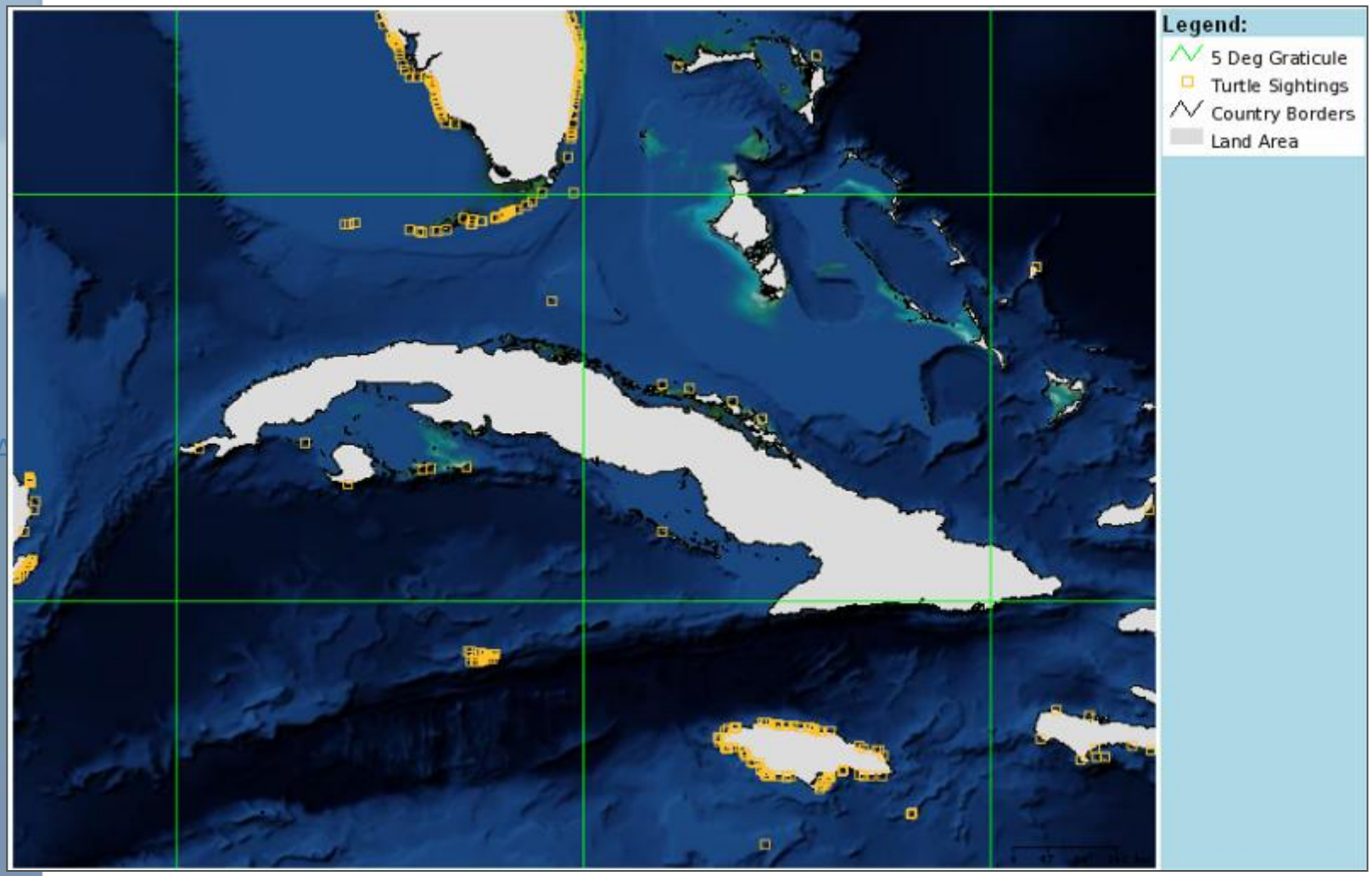
CMA Development

Results

Future of CM

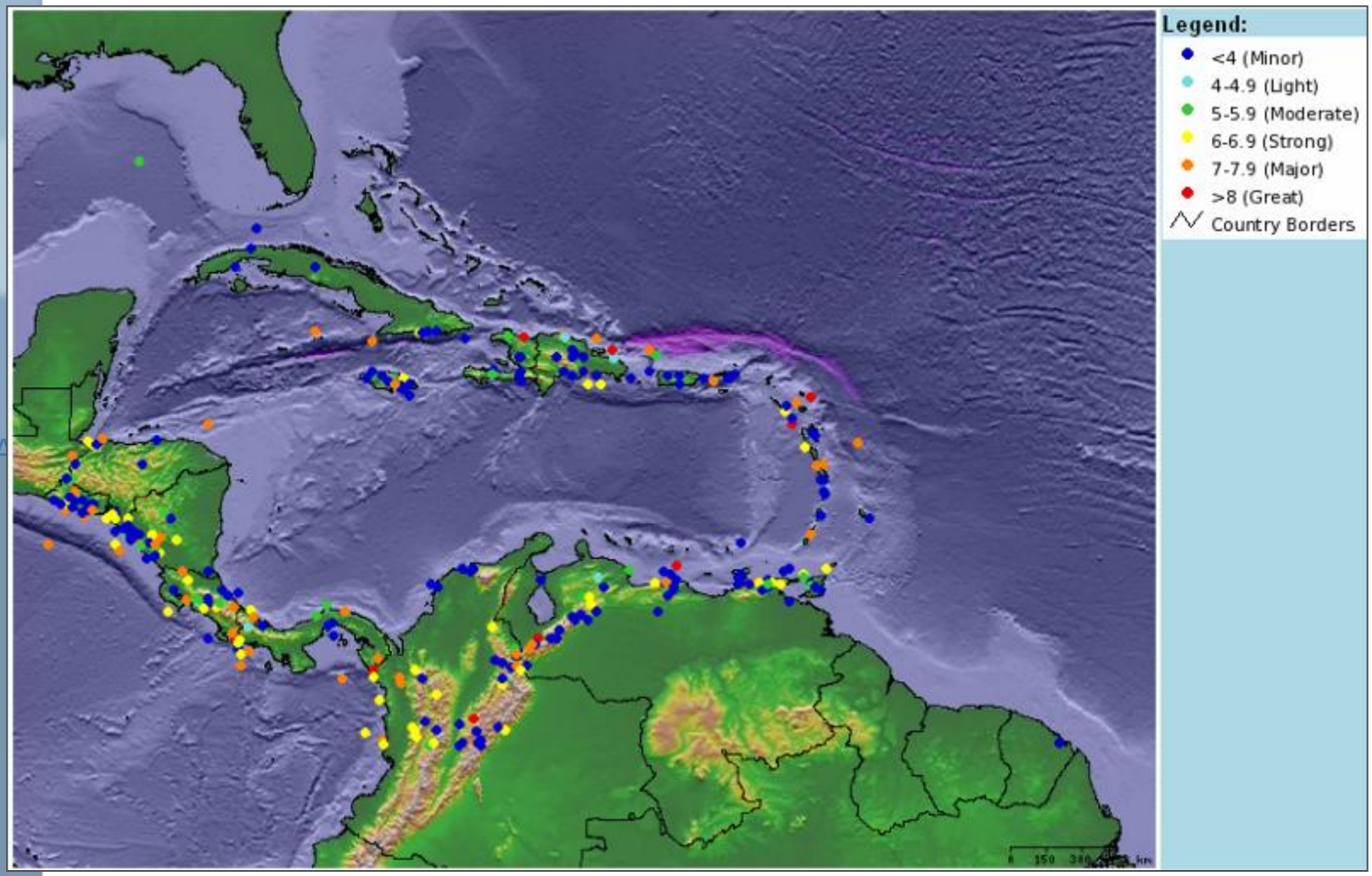
CMA Prototype

Ability to zoom to a particular area of interest



CMA Prototype

Inclusion of classed data (Hazards e.g. earthquakes)



CMA Prototype

Inclusion of classed data (Hazards e.g. hurricanes)

CMA Phase 2

Background

CMA Development

Results

Future of CMA

Acceptance of Funding Request (2008)

- Government of Flanders (FUST) funding the 2009-2011 phase of the CMA
- Designation of Regional Coordinator (Ramon Roach)
- FUST funding – USD$ 308,000
- Total project funding (including counterpart contributions) - USD$ 966,750

UNESCO IOC

CMA Phase 2

Regional Atlas

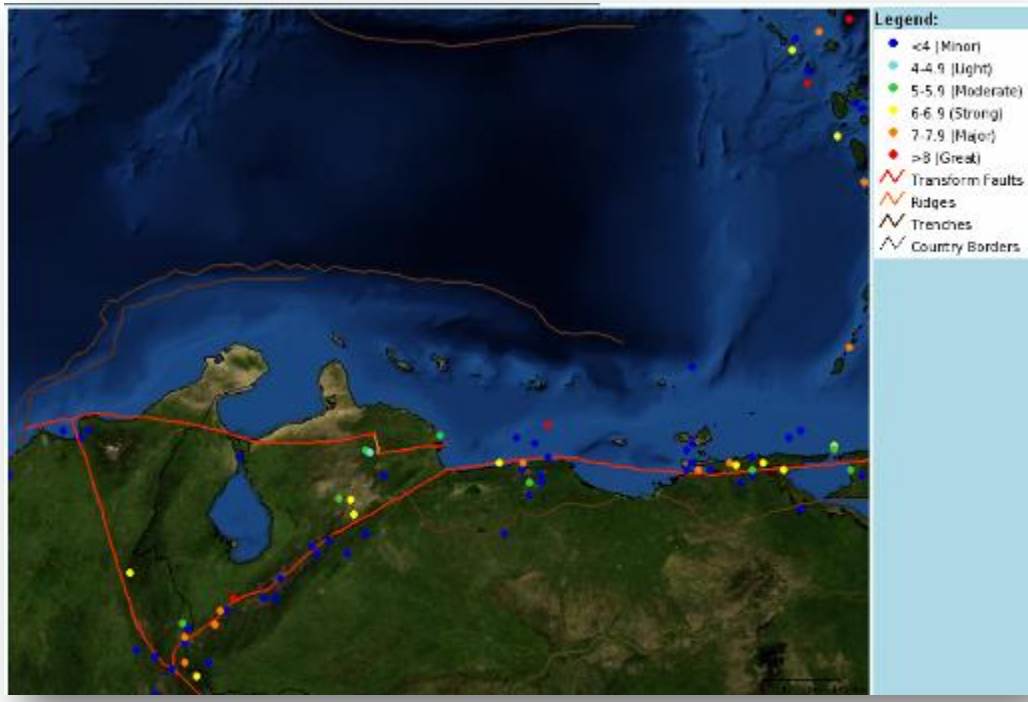
- Publishing the CMA prototype online
- Addition of querying and download capability
- Expansion of member countries
- Improving interface
- Adding functionality

National Atlases

- Design and implementation
- Integration with the CMA

Role

- Data Repository
- Member of training framework
- Part of regional SDI



Thank You