Department for Continental Shelf, Maritime Zones Administration & Exploration

Ocean Observatory E-platform

H. Runghen

17th SAIHC Conference

04/02/2021

Organization

Presentation

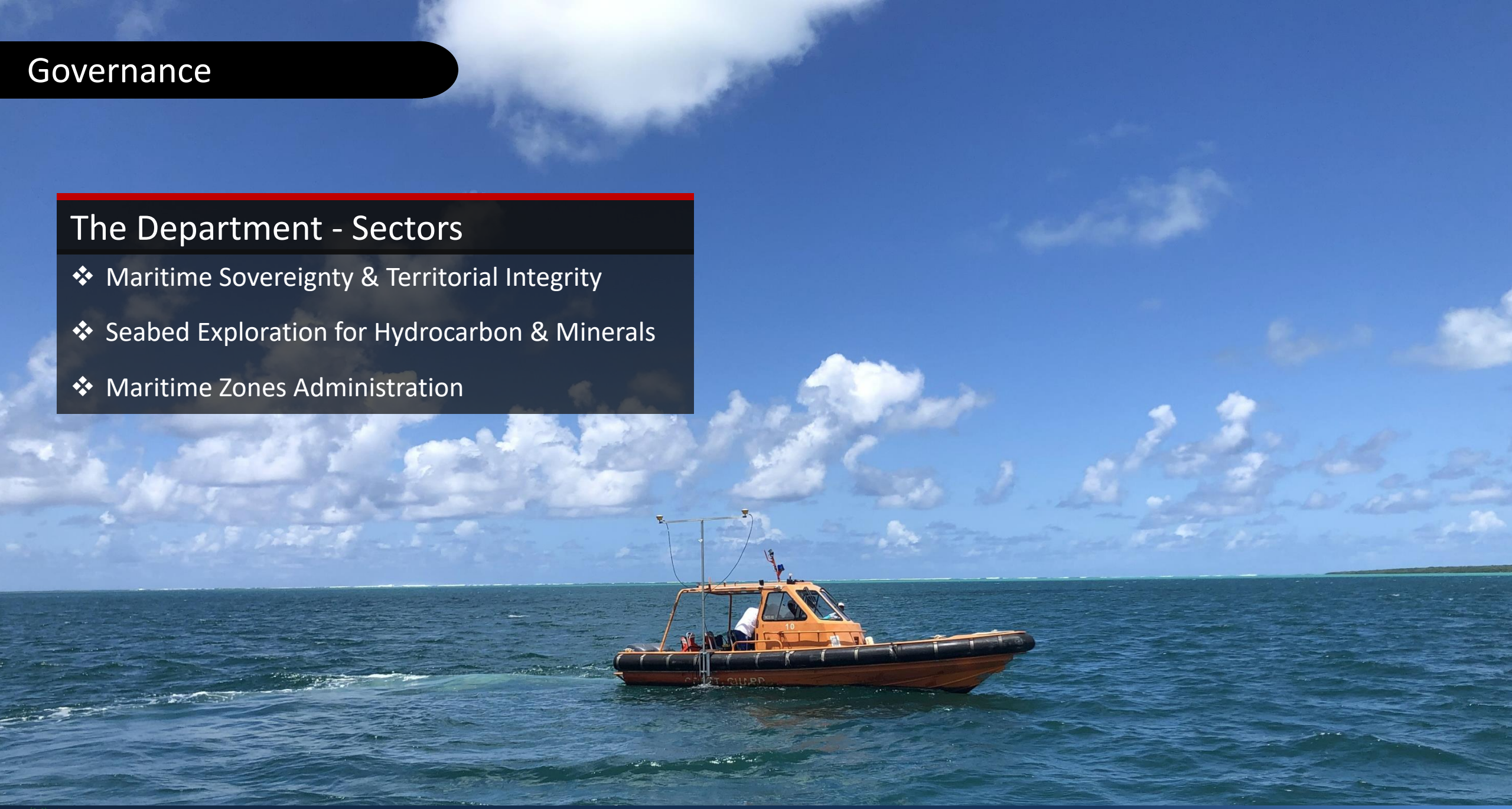
- Ocean Observatory E-platform
  - Governance
  - Technology
  - People
- Way Forward

Governance

Governance

The Department - Sectors

- Maritime Sovereignty & Territorial Integrity
- Seabed Exploration for Hydrocarbon & Minerals
- Maritime Zones Administration



Governance

The Department - Sectors

- Maritime Sovereignty & Territorial Integrity
- Seabed Exploration for Hydrocarbon & Minerals
- **Maritime Zones Administration**

Underwater Cultural Heritage

- Identification and mapping of underwater cultural heritage.

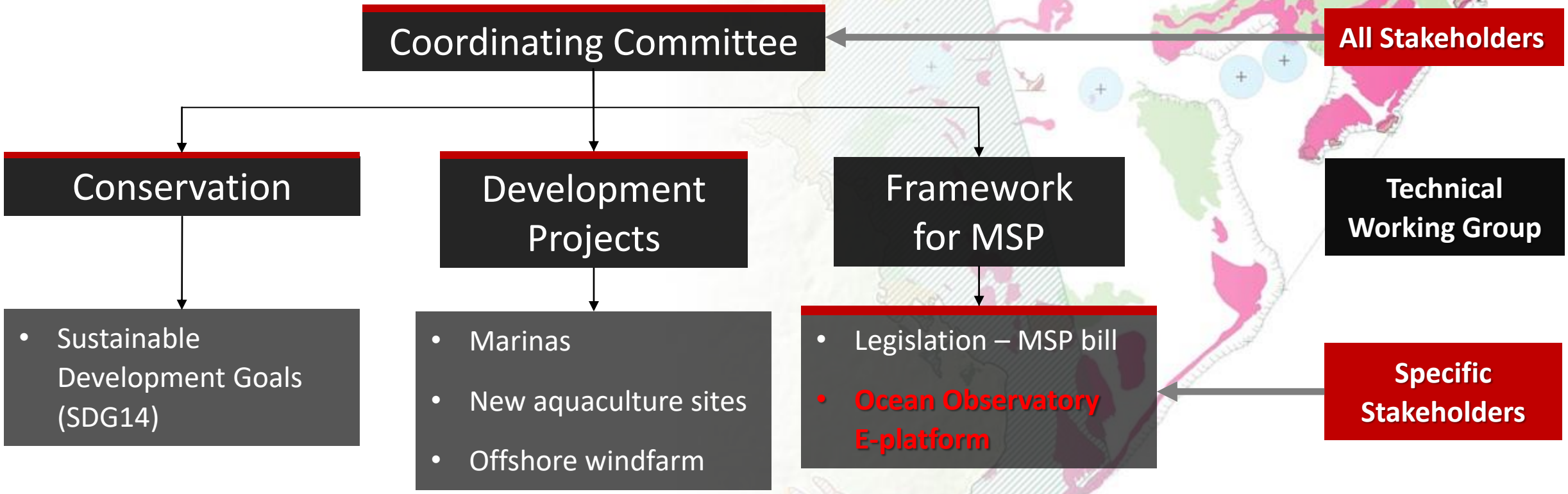
Maritime Scientific Research

- Authorisation to conduct marine scientific research in the maritime zones of Mauritius under the Maritime Zones (Conduct of Marine Scientific Research) Regulations 2017.

Marine Spatial Planning

- Mandated by Government to elaborate the marine spatial plan for the Republic of Mauritius in view of the increasing demand for marine space in the EEZ for various purposes, particularly, fisheries and aquaculture, tourism and leisure.

Governance - MSP



Importance of Data in the MSP Process

Marine Spatial Planning

MSP is a process that brings together multiple users of the ocean to make informed and coordinated decisions on human activities to achieve environmental, social and economic objectives.

Are there any Environmental Impacts?

- Are there any Marine Protected Areas?
- Are there any Environmentally Sensitive Areas?
- National Parks/ Reserves/Ramsar Sites

Are there any Social Impacts?

- Are there any conflicts with existing ocean uses?
  - fishing? Dive sites? Tourism activities?
  - Cultural sites? E.g Ship wrecks
  - Boat Passage

Are there any Economic Impacts?

- Viability of a Project
  - Is it too far from the shore?
  - Is it at the required depth? Bathymetry required
  - What are the physical conditions required?
    - Hydrodynamic? Wave? Temperature? Wind?

Is the data enough to make an informed decision?

- Is this all the data that exists for this region? Any historical data?
- Are there any gaps?
  - Can this be used to plan for additional surveys?
  - Avoid duplication of surveys

Is the Data Suitable?

- When was the data collected?
- How was the data collected?
  - Insitu from surveys? Remote Sensing? Numerical models?
- What is the accuracy of the data?
- Who collected the data?
- Is the data accessible? Acknowledgment required?

Technology

Need for a data system

- Collect
- Organize
- Store
- Share

GeoNode

GeoNode

- Marine Spatial Data Infrastructure (MSDI)
  - Browse and search for geospatial data and web services
  - Upload, manage, and share geospatial data
  - Create and share interactive maps
  - Collaborate and interact with other users

GEONODE

E-platform

Support: IORA & UNDP

Expertise: CSIRO, Australia

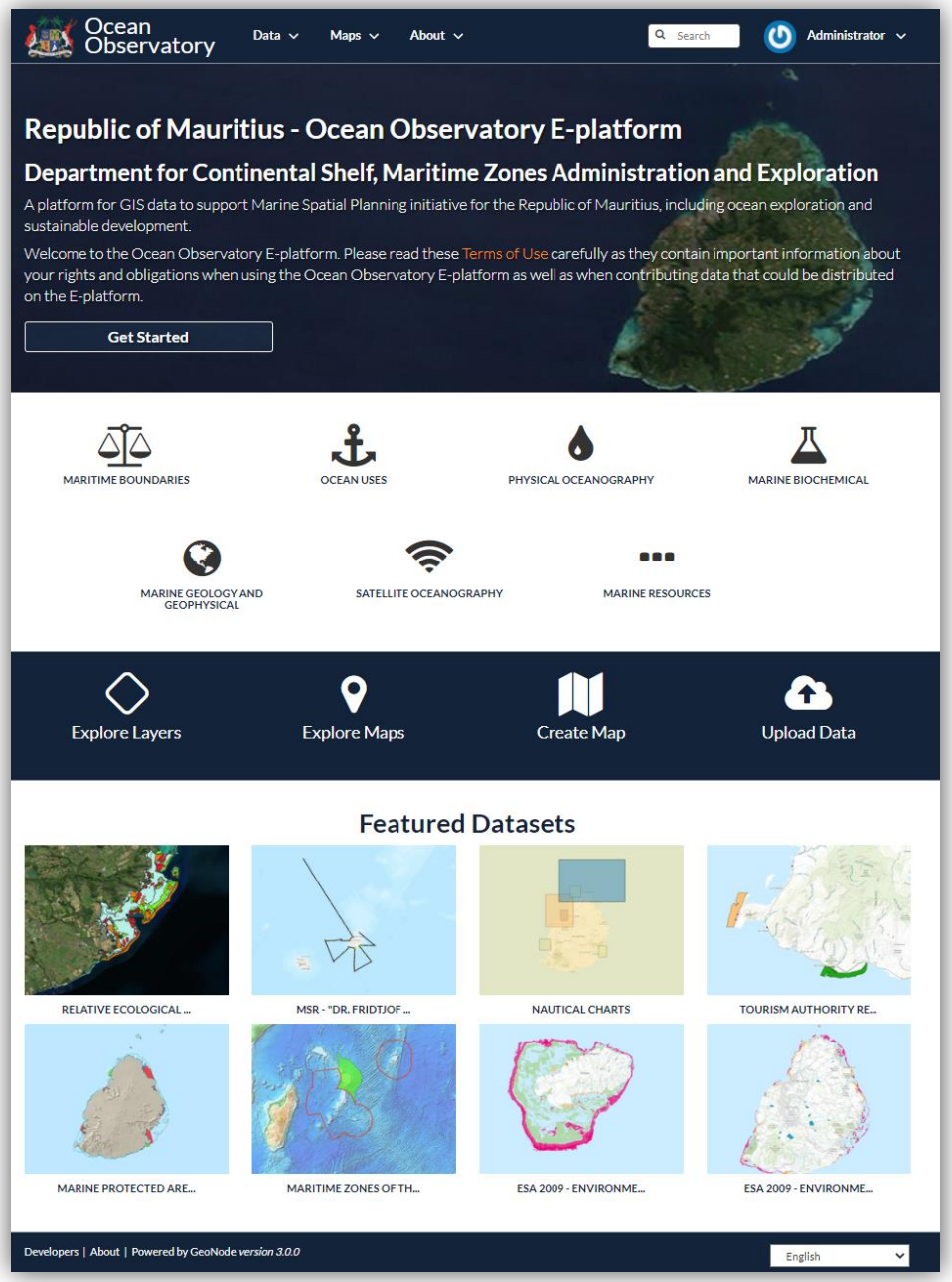
Maintenance in 2020

Upgrade from GeoNode 2.8 to Geonode 3.0

Access

Accessible on GINS (Government INtranet System)

http://mauritiusoceanobservatory.govmu.org/



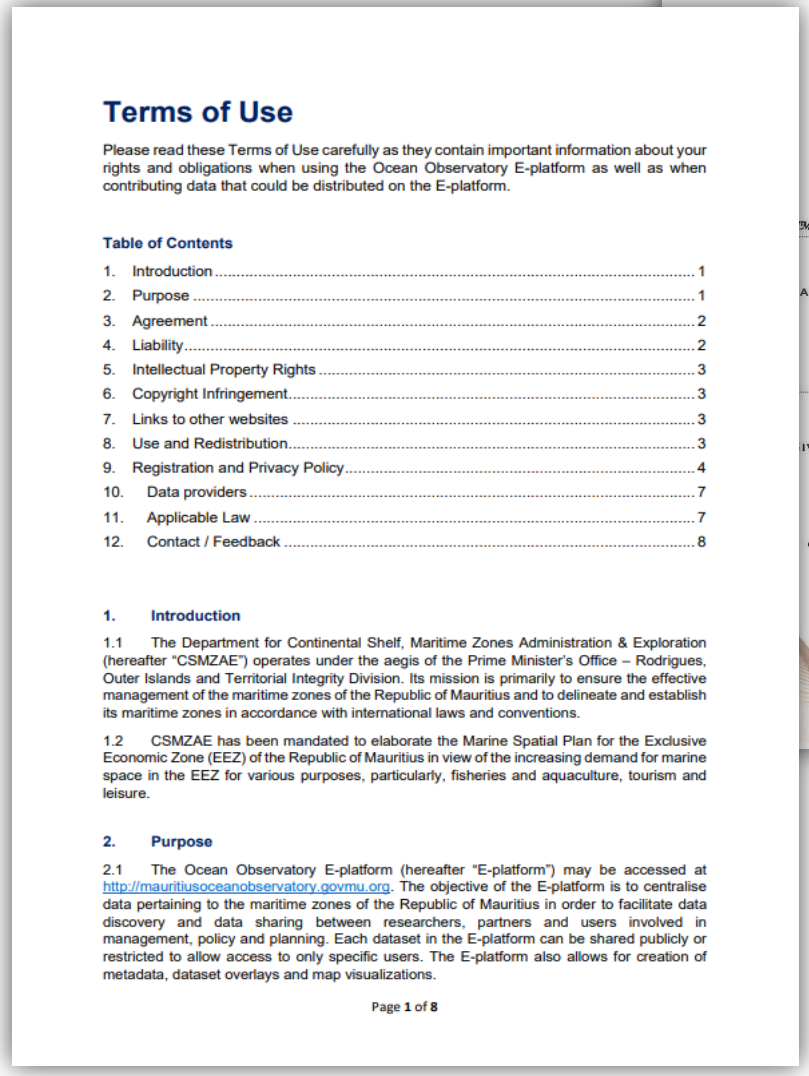
GEONODE – Terms of Use

Terms of Use

- Gives the rights and obligations when using the Ocean Observatory E-platform.
- How personal data is handled.

Registration as Data Controller

- Section 14 of the Data Protection Act 2017 (DPA) makes it a mandatory requirement for controllers to register with the Data Protection Office.



Terms of Use

Please read these Terms of Use carefully as they contain important information about your rights and obligations when using the Ocean Observatory E-platform as well as when contributing data that could be distributed on the E-platform.

Table of Contents

1. Introduction 1
2. Purpose 1
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1. Introduction

1.1 The Department for Continental Shelf, Maritime Zones Administration & Exploration (hereafter "CSMZAE") operates under the aegis of the Prime Minister's Office – Rodrigues, Outer Islands and Territorial Integrity Division. Its mission is primarily to ensure the effective management of the maritime zones of the Republic of Mauritius and to delineate and establish its maritime zones in accordance with international laws and conventions.

1.2 CSMZAE has been mandated to elaborate the Marine Spatial Plan for the Exclusive Economic Zone (EEZ) of the Republic of Mauritius in view of the increasing demand for marine space in the EEZ for various purposes, particularly, fisheries and aquaculture, tourism and leisure.

2. Purpose

2.1 The Ocean Observatory E-platform (hereafter "E-platform") may be accessed at http://mauritiusoceanobservatory.govmu.org. The objective of the E-platform is to centralise data pertaining to the maritime zones of the Republic of Mauritius in order to facilitate data discovery and data sharing between researchers, partners and users involved in management, policy and planning. Each dataset in the E-platform can be shared publicly or restricted to allow access to only specific users. The E-platform also allows for creation of metadata, dataset overlays and map visualizations.

DPO Data Protection Office

Certificate of Registration as Controller

REGISTRATION NO. C 535

THIS IS TO CERTIFY THAT

MENT FOR CONTINENTAL SHELF, MARITIME ZONES ADMINISTRATION & EXPLORATION

AS BEEN REGISTERED WITH THE DATA PROTECTION OFFICE

From 01 August 2020 to 31 July 2023

IVEN UNDER MY HAND AND SEAL OF OFFICE IN MAURITIUS

ON THIS DAY OF *16 October 2020*

D. MADHUB (MRS)
DATA PROTECTION COMMISSIONER
DATA PROTECTION OFFICE

Technology

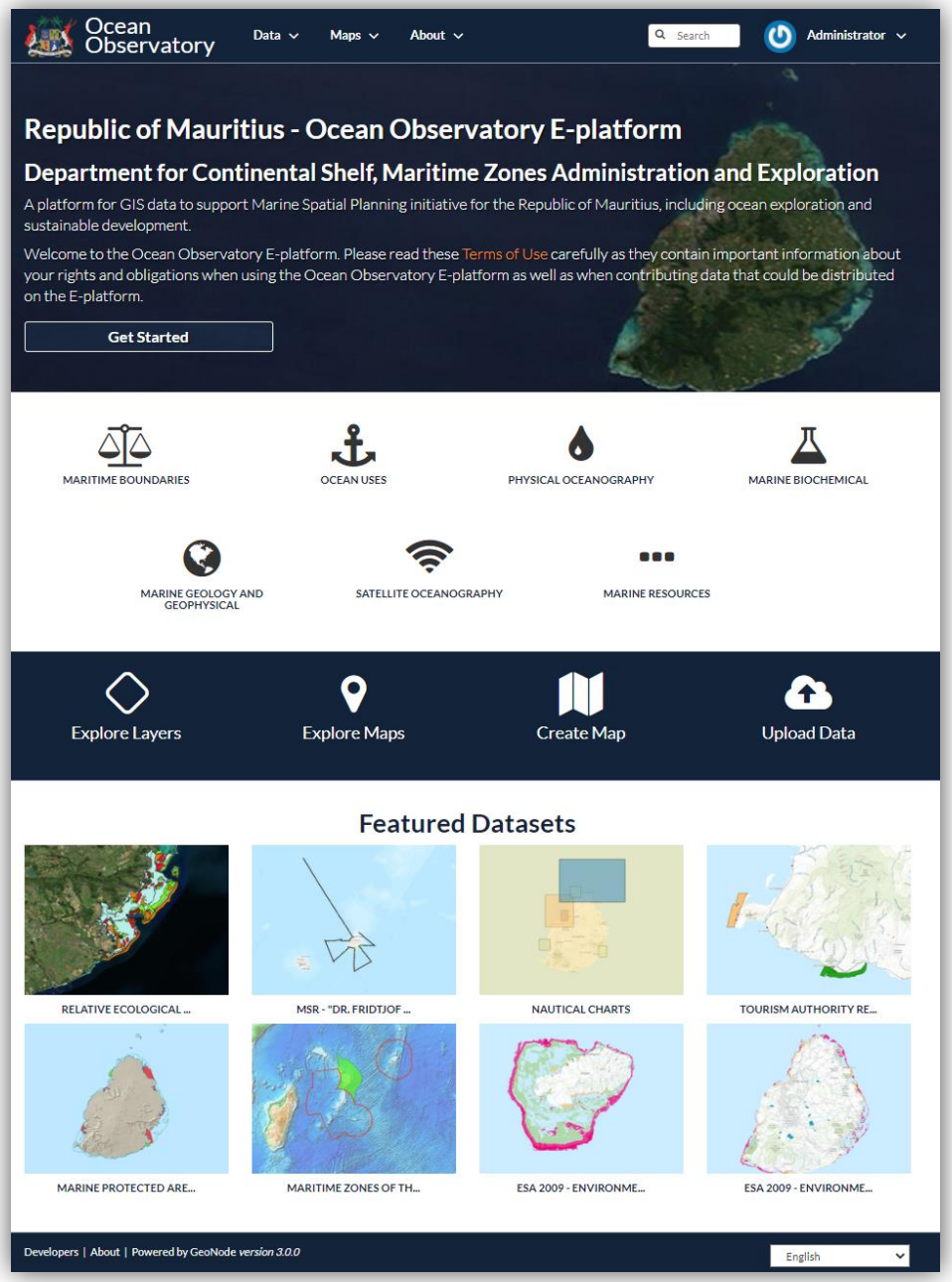
GEONODE Functionalities - Users

To understand what users can do on the E-platform, you need to understand the different types of users and GeoNode functionalities.

Unregistered users (anonymous)

An unregistered user is someone who is just visiting the site and is not logged in.

- Browse and search public data, maps and documents.
- View public data, maps and documents.
- View metadata of public data, maps and documents.
- Download data that has been released for download.



GEONODE - Users

Registered users (Superuser)

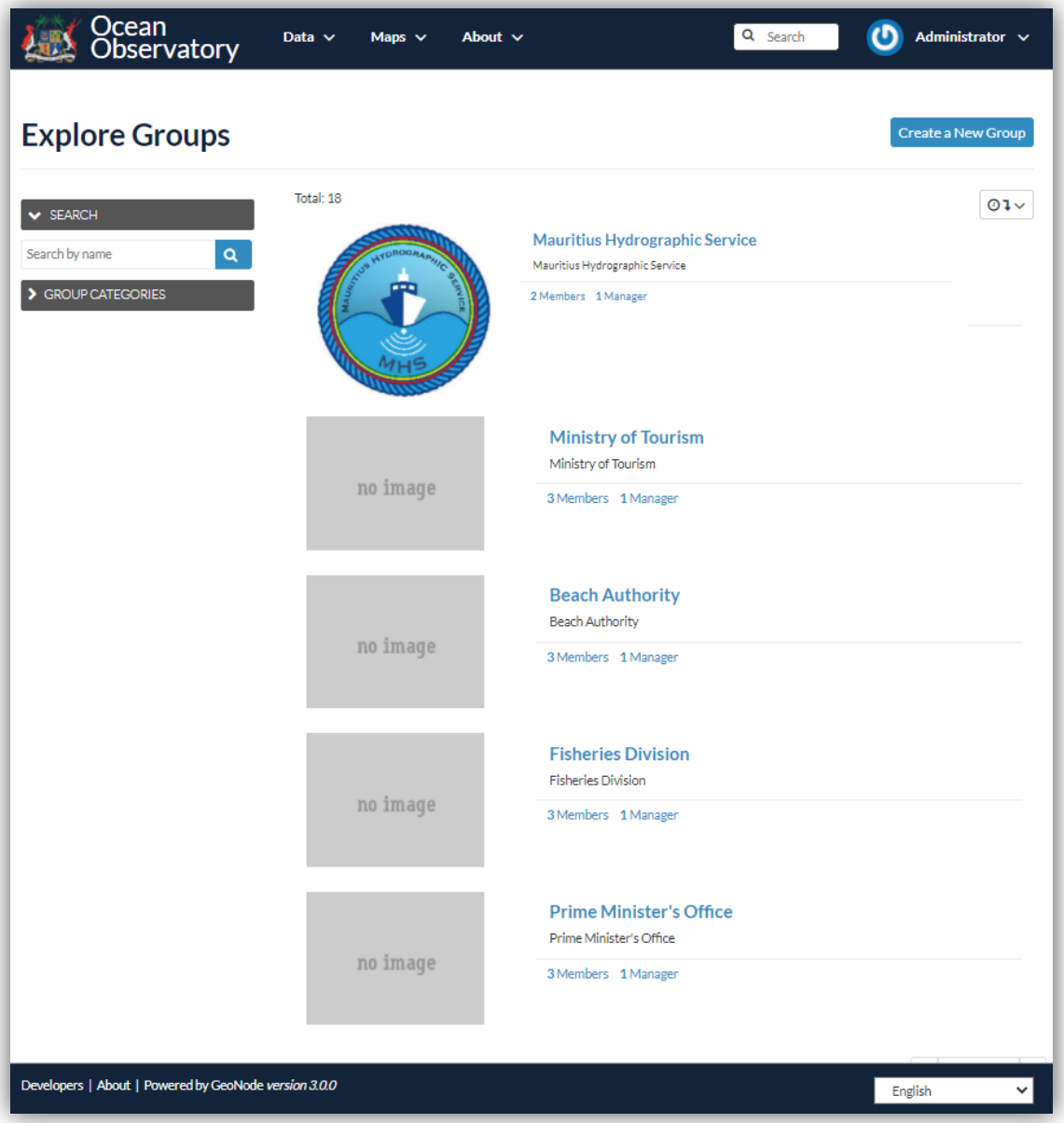
- System Administrator (CISD)
- Data Administrator (CSMZAE Staff)

Registered users (Active users)

- Users with a registered account may have additional permissions or restrictions. An administrator/data owner assigns the permissions regarding actions a user can perform.

Groups

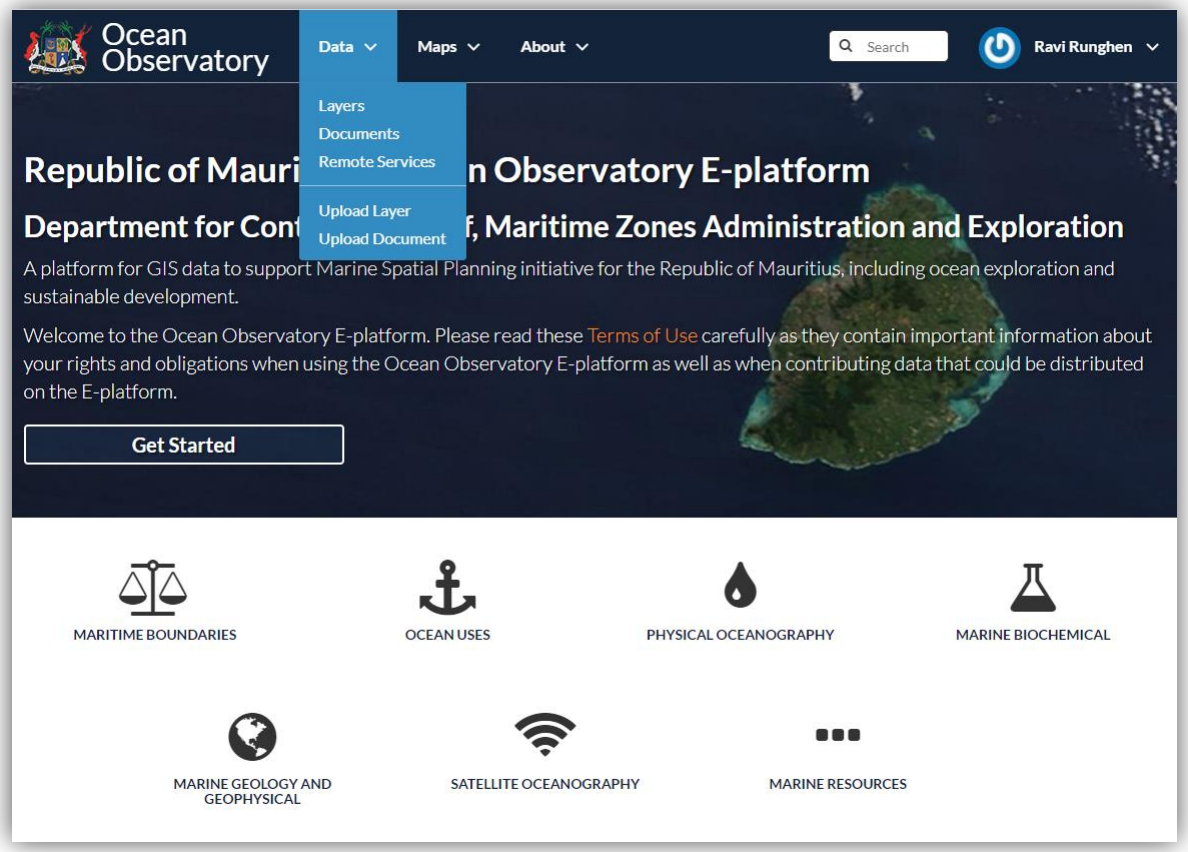
- Registered users can belong to a group or groups and permissions can be assigned based on a group. All users in the group will inherit these permissions.



GEONODE – Data Types

3 Main Data Types

- Layers
- Services
- Documents



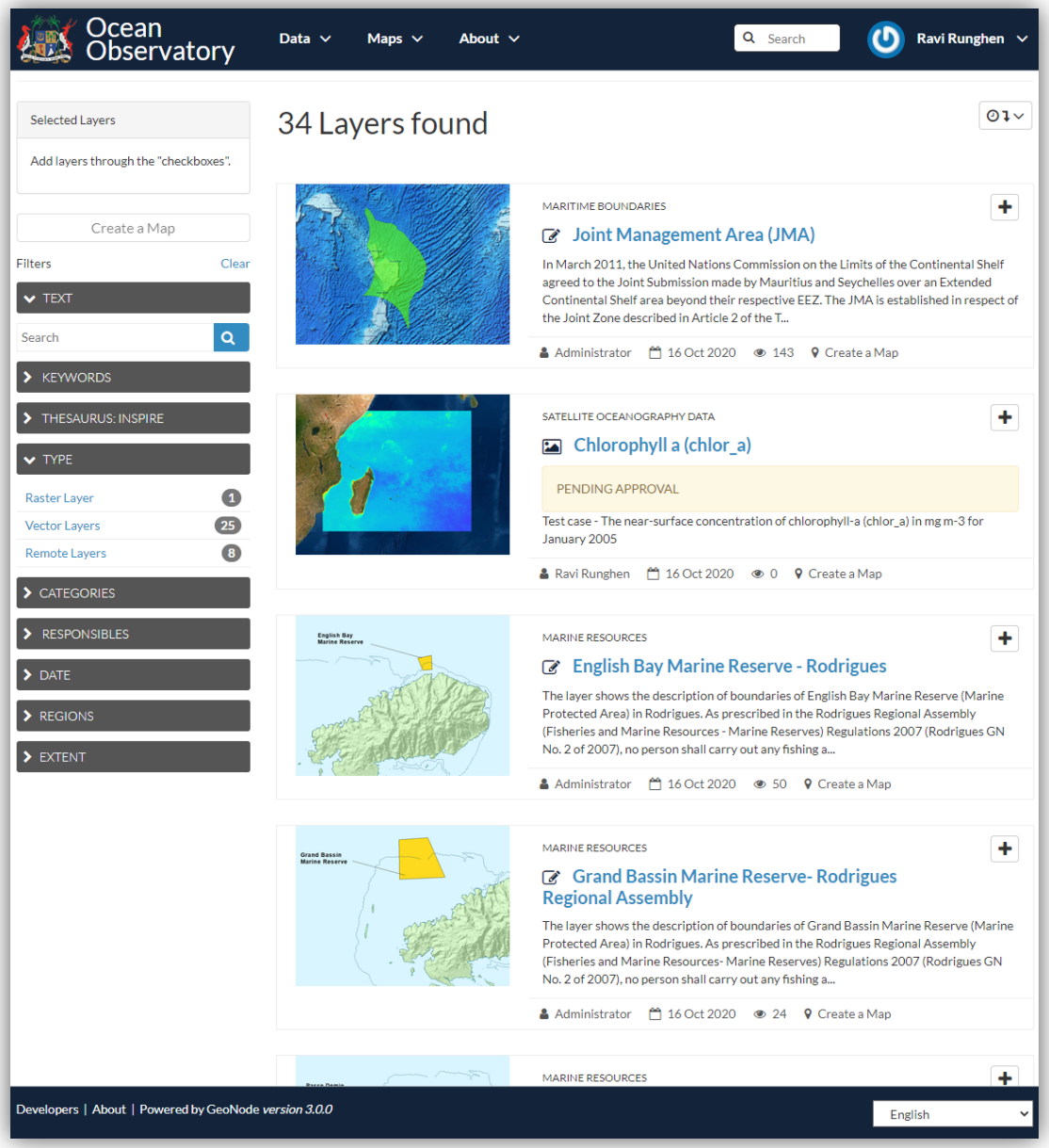
GEONODE – Layers

3 Main Data Types

- Layers
- Services
- Documents

Layers

- Vector (ESRI Shape files – Points, lines, Polygons)
- Raster (GeoTIFF)



Remote Services

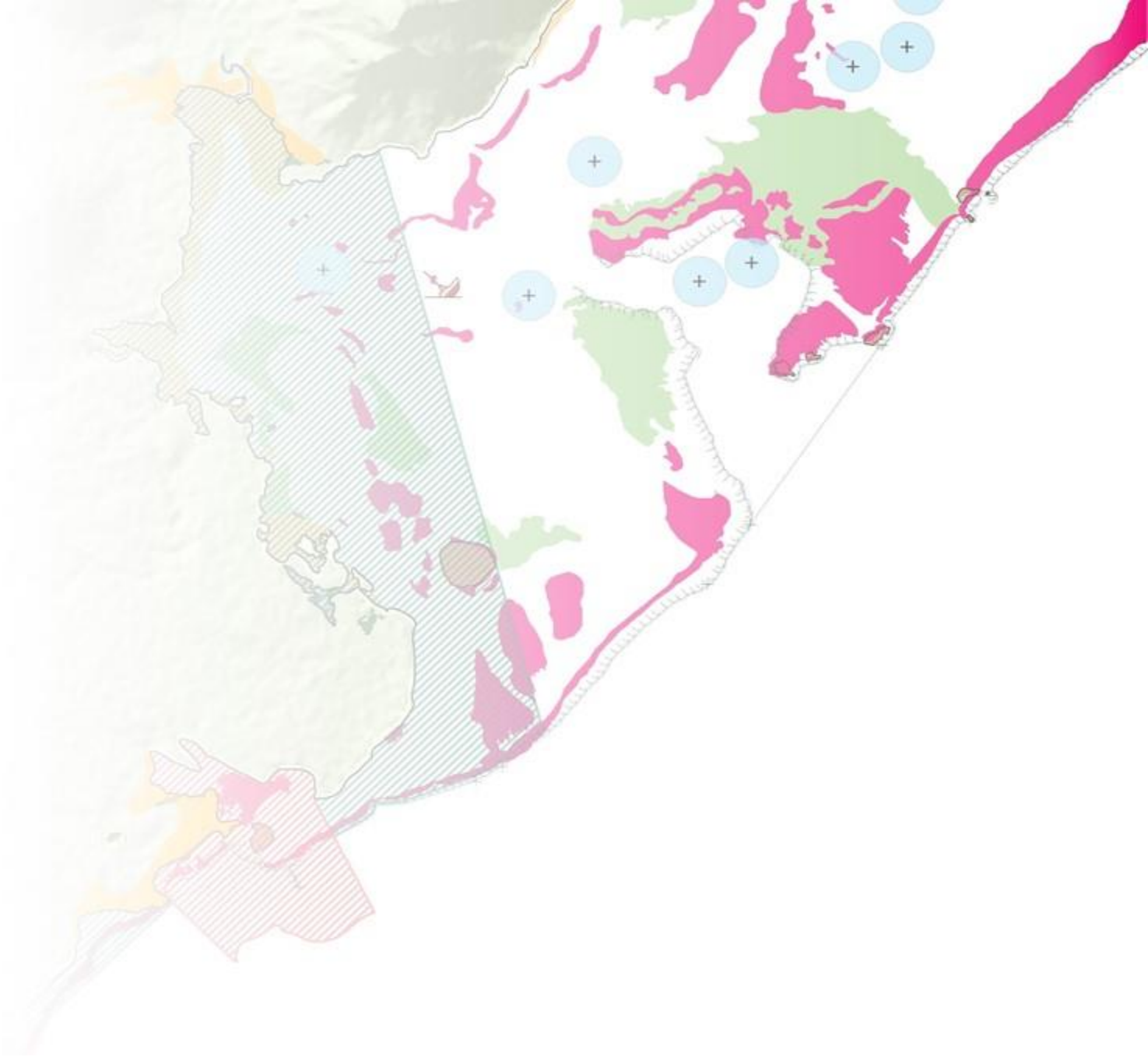
WFS (Web Feature Service) and WMS (Web Map Service) are Open Geospatial Consortium (OGC) Open Web Services standards for accessing geographic data over a network.

Web Mapping Service (WMS)

- Delivers data as map images and does not allow you access to the individual features of a dataset.

Web Feature Service (WFS)

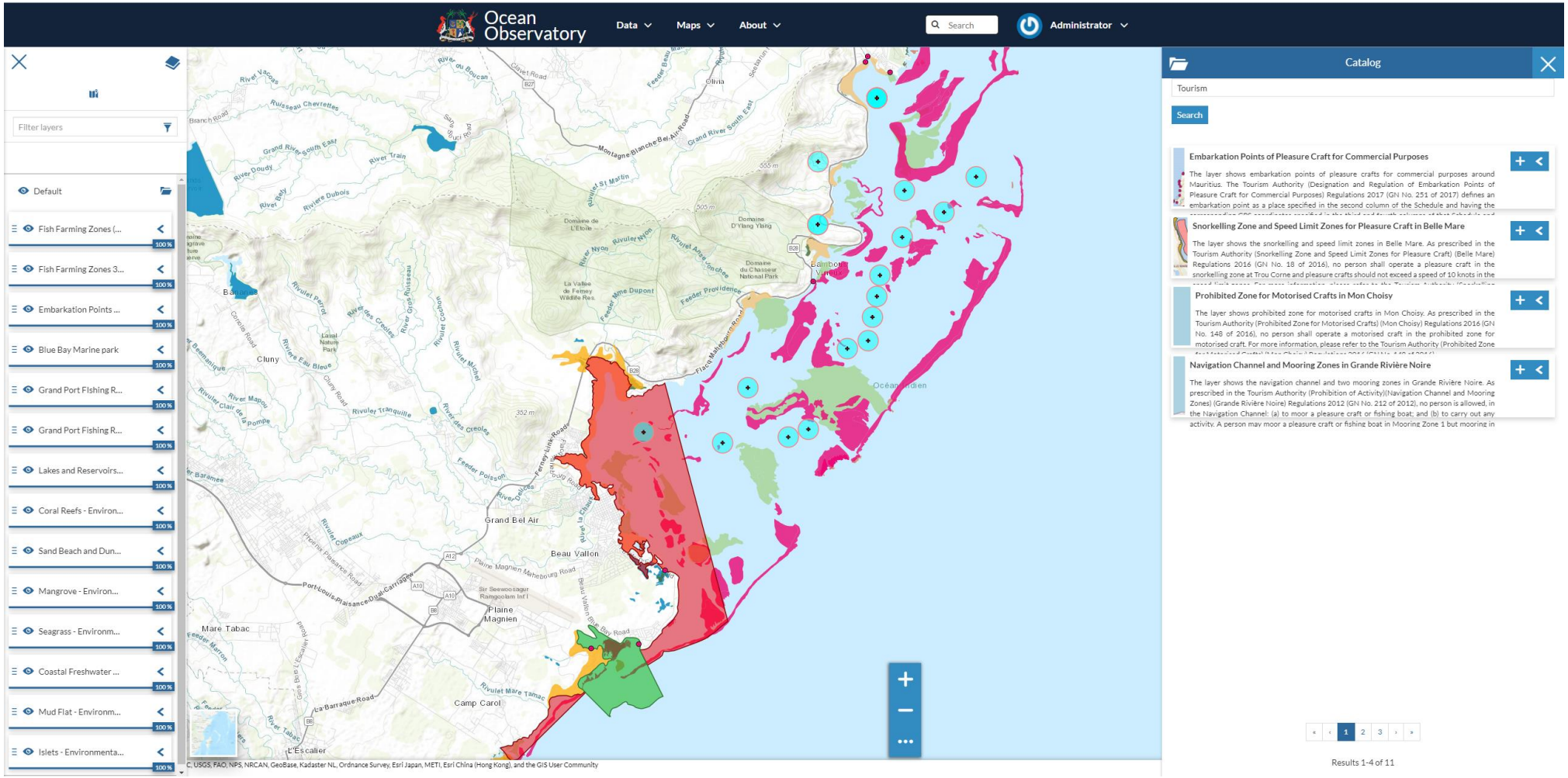
- Provides direct access to the dataset which allows for the reading, writing, and editing of the data's features.



GEONODE – Map creation

Maps

- creation
- Visualization
- Save
- Share



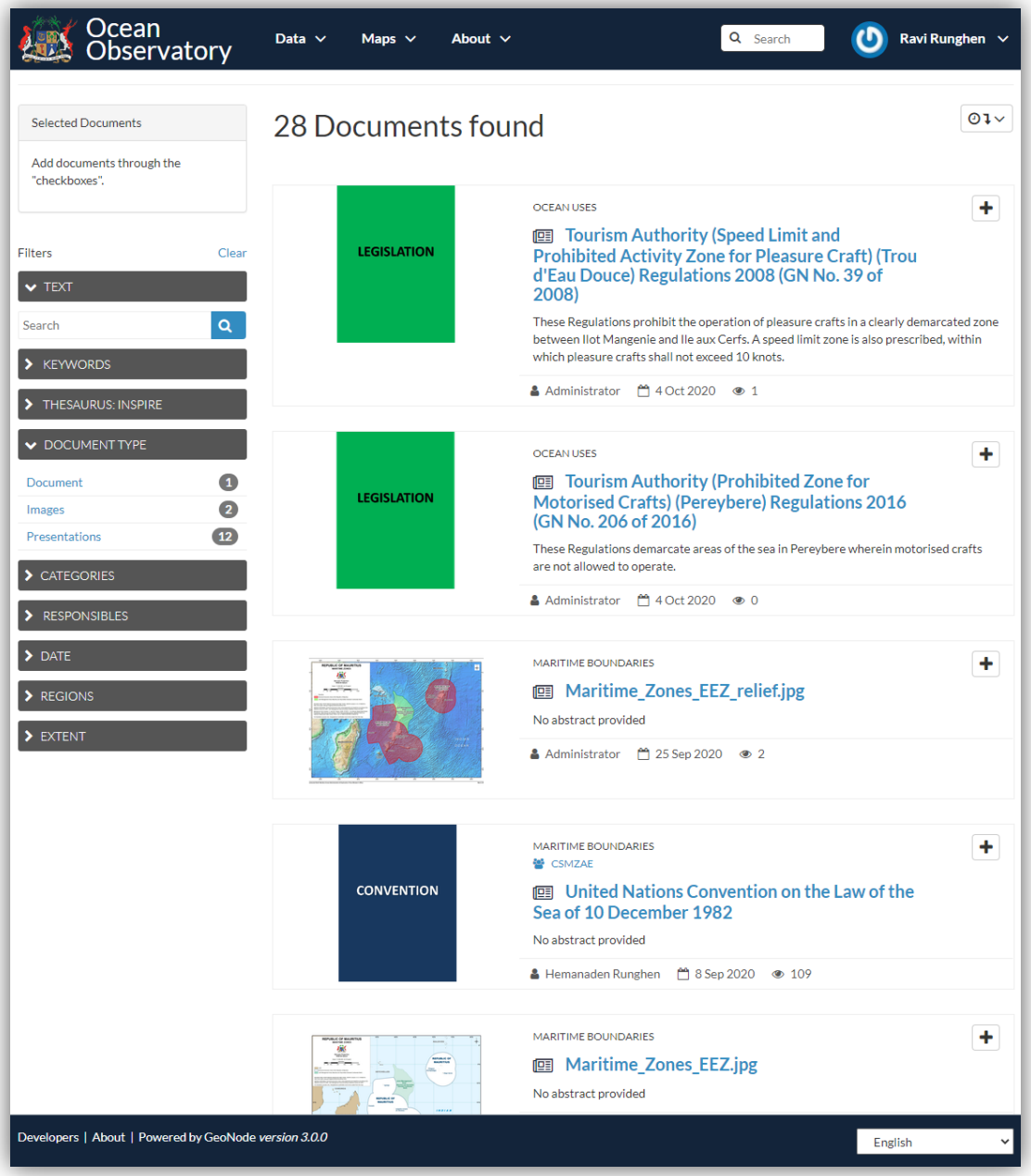
GEONODE – Data types

3 Main Data Types

- Layers
- Services
- **Documents**

Upload – Documents

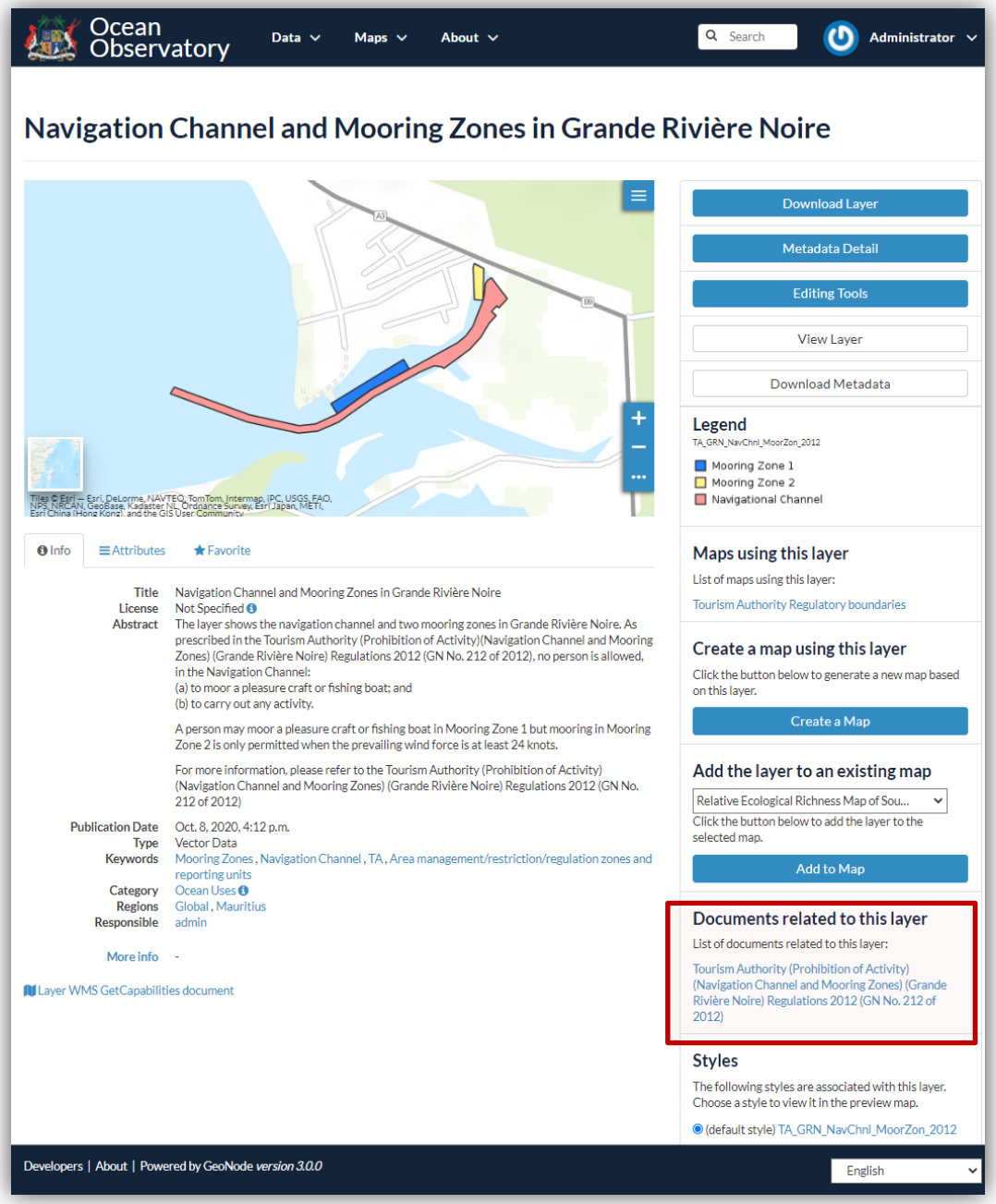
- PDF
- Microsoft word, excel, PowerPoint
- JPEG
- Rar
- Links to websites



GEONODE – Data types

3 Main Data Types

- Layers
- Services
- **Documents**



GEONODE - Metadata

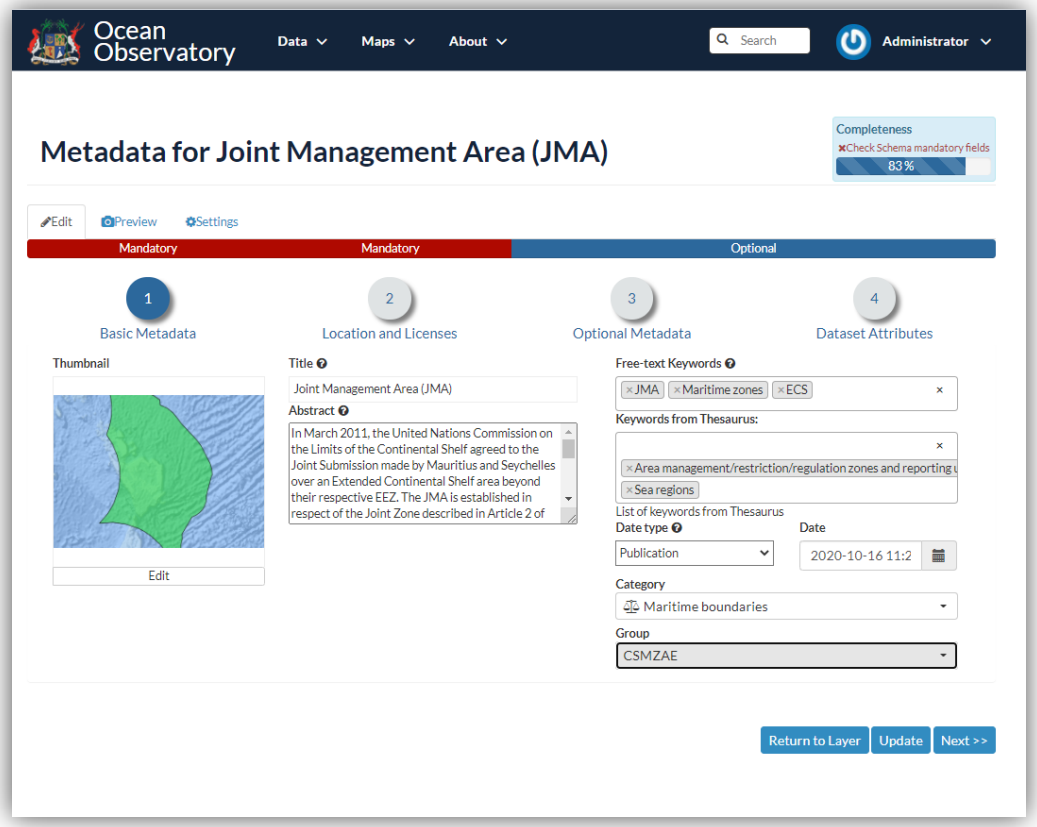
Definition

- Metadata is “Data about Data”
- When someone else goes to use your layer, map or document in the future, the metadata provides context and understanding of what the layer, map or document is for and where the data came from.

Description

- Title
- Keywords
- Date type
- Category
- Regions
- Data quality statement
- Purpose
- Maintenance frequency
- Point of Contact
- Owner
- Metadata Author

Metadata – ISO19115 - ISO19139 XML

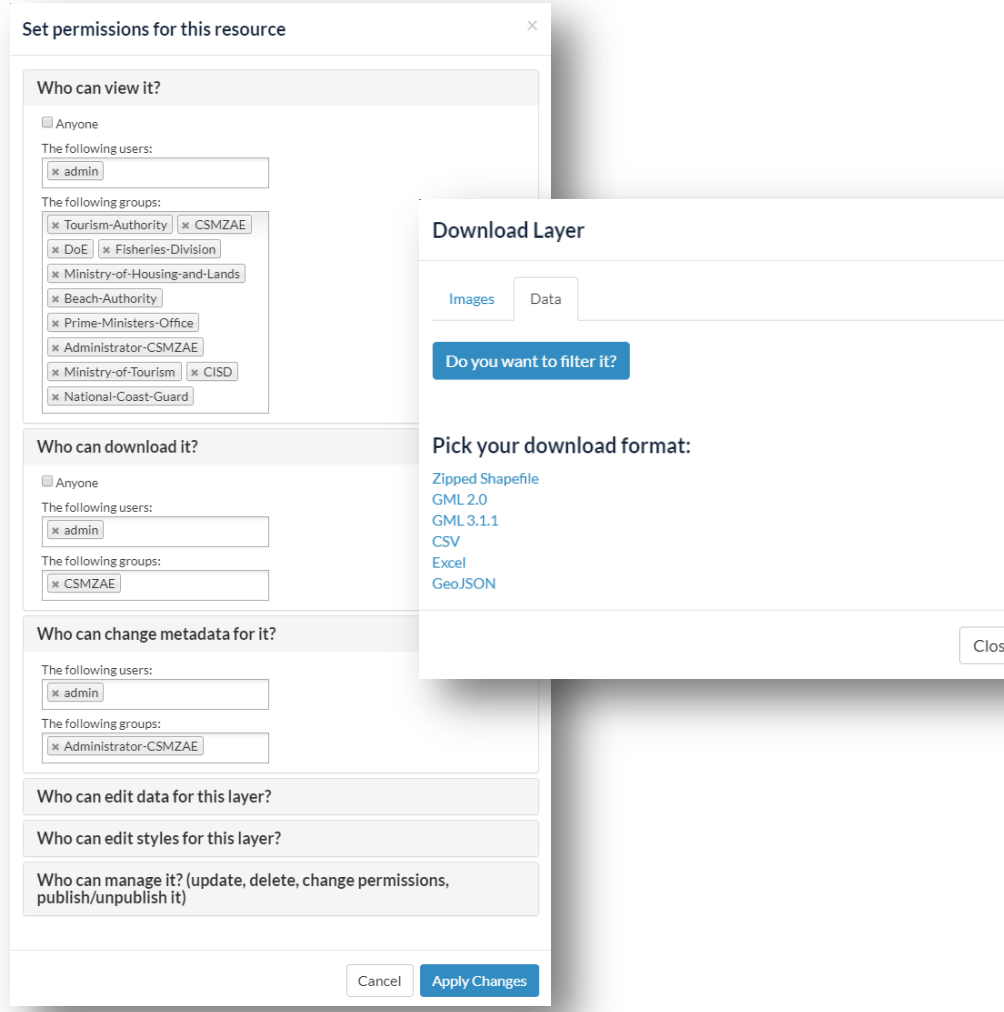


GEONODE – Data Sharing

Set Permissions

- Who can view it?
- Who can download it?
- Who can change metadata for it?
- Who can edit data for this layer?
- Who can edit styles for this layer?
- Who can manage it? (update, delete, change permissions, publish/unpublish it)

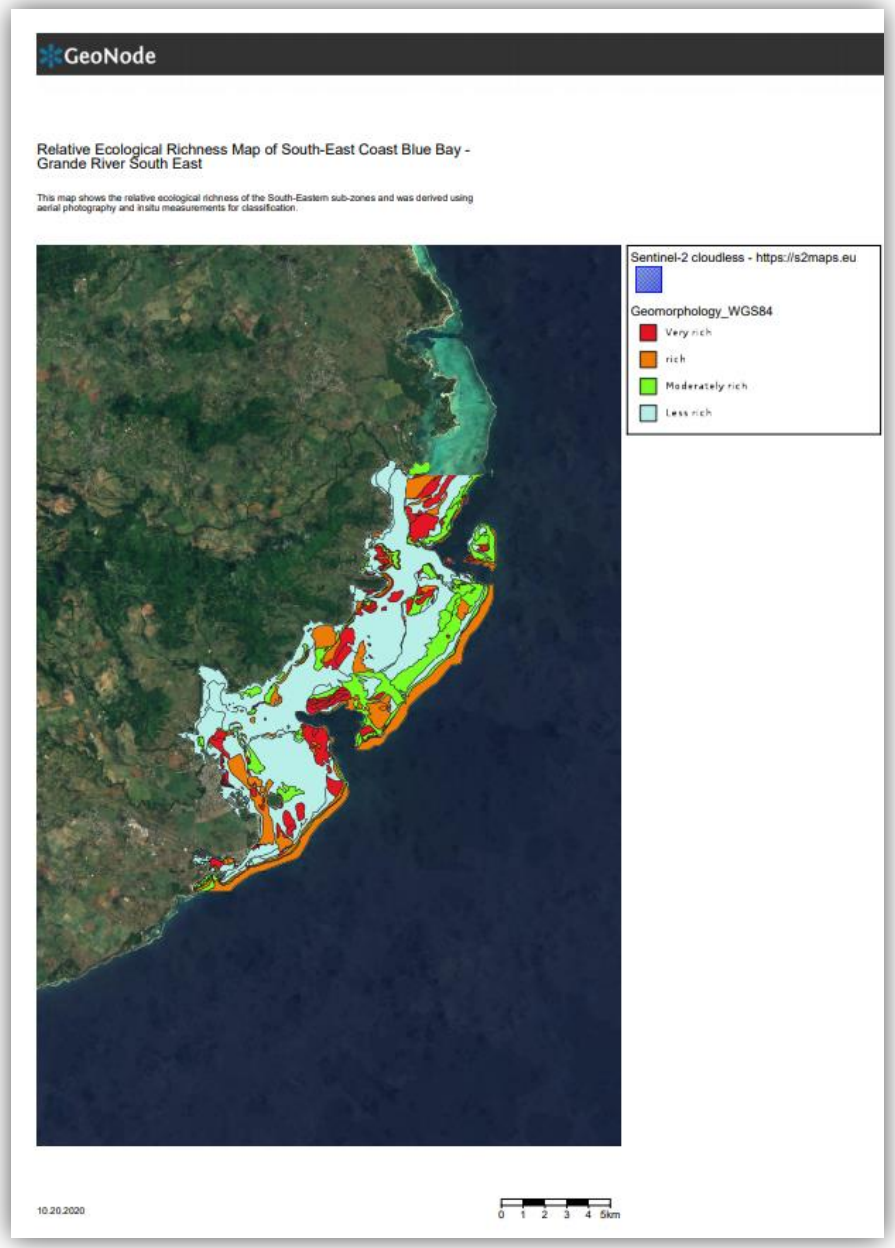
- **Permissions**



GEONODE 3.0

Functionalities

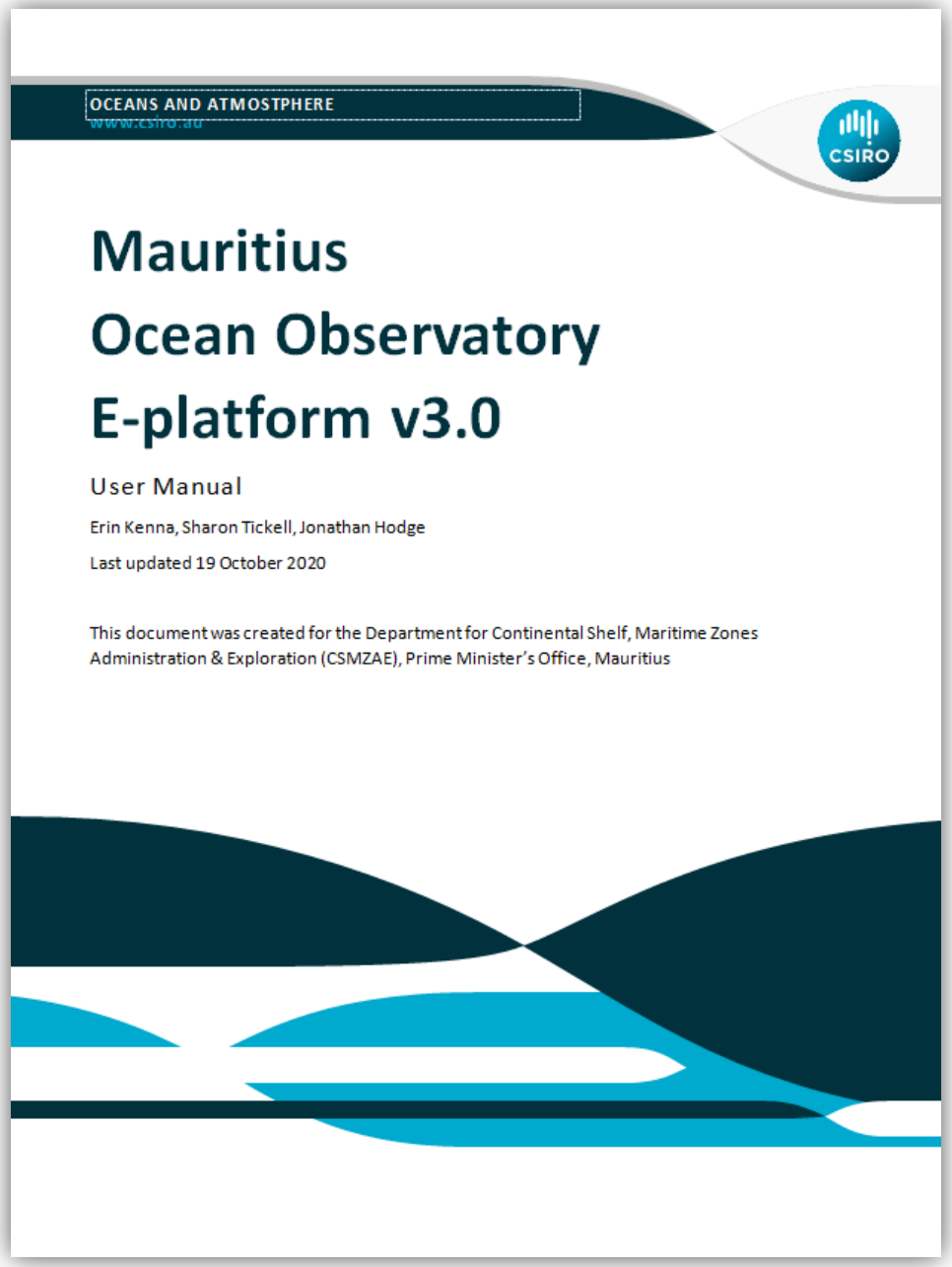
- Calculate distance , area, bearing
- Print



GEONODE – User Manual

User Manual - updating

- Explore layers/maps/documents
- Search layers/maps/documents
- Download layers/metadata/documents
- Create/Download Map
- Upload/Edit/Manage layers
- Share layers/maps /documents



Data Layers & Documents

Data categories

Data sources

Maritime Boundaries

- Basepoints & baselines – MHL
- Maritime Zones – Territorial Sea/EEZ – CSMZAE
- Areas To Be Avoided – Shipping/MHS/CSMZAE

Ocean Uses

- Swimming /Speed Limit / Snorkelling / Prohibition Zones / Navigation Channel - TA
- Port Limit – MPA
- Fish Farming Zones – Fisheries Division

Physical Oceanography

- Tide Stations – MMS / University of Hawaii
- Wave buoys – CSMZAE, MMS
- CTD Stations – MHS , MSR
- ADCP - MSR

Marine Biochemical

- Fluorescence - MSR

Marine Geology & Geophysical

- Bathymetry – MHS, MSR
- Seamounts

Satellite Oceanography

- Chlorophyll-a - Oceancolor
- Sea Surface Salinity - Oceancolor
- Lidar data + Drone - LDA

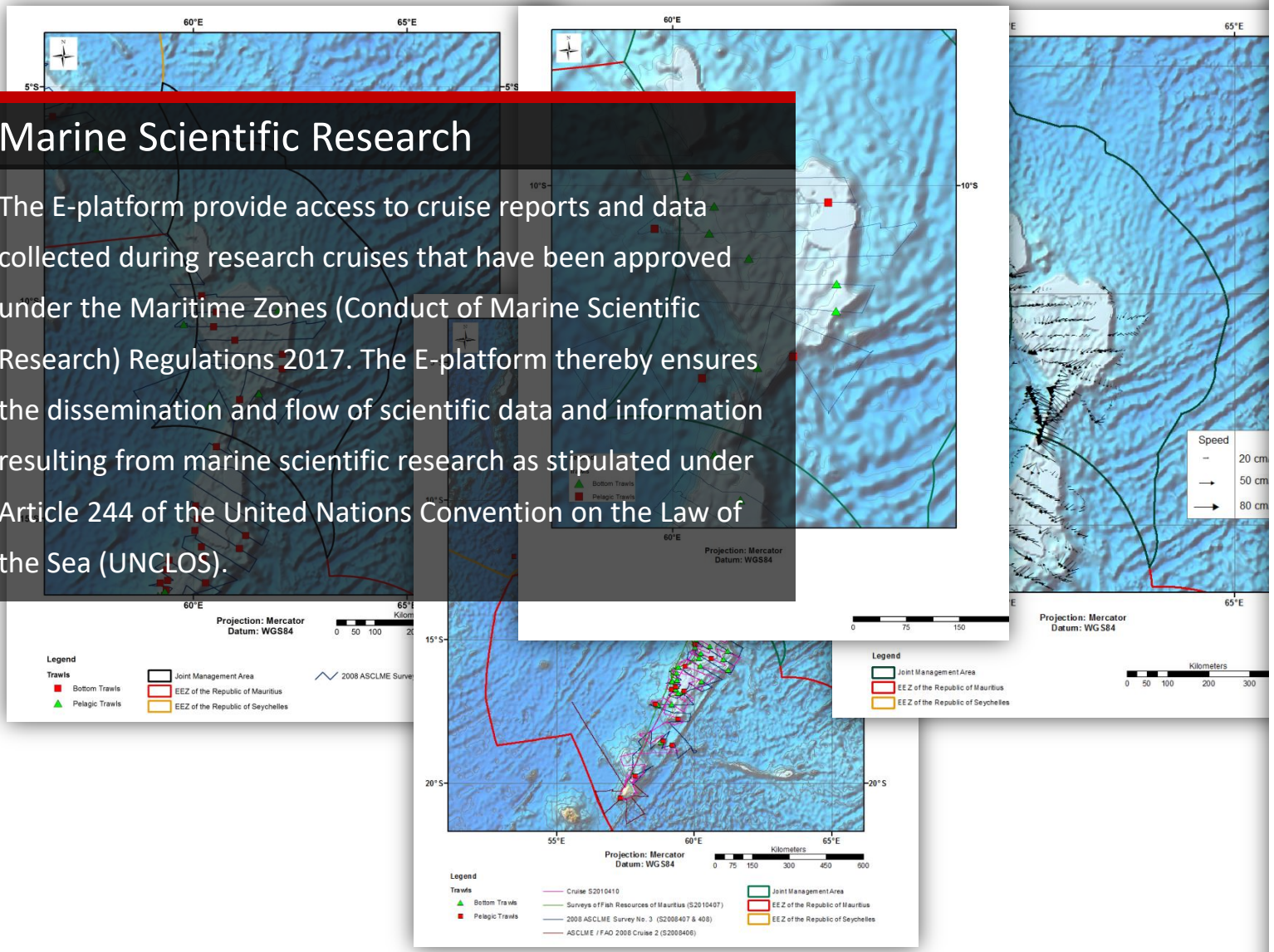
Marine Resources

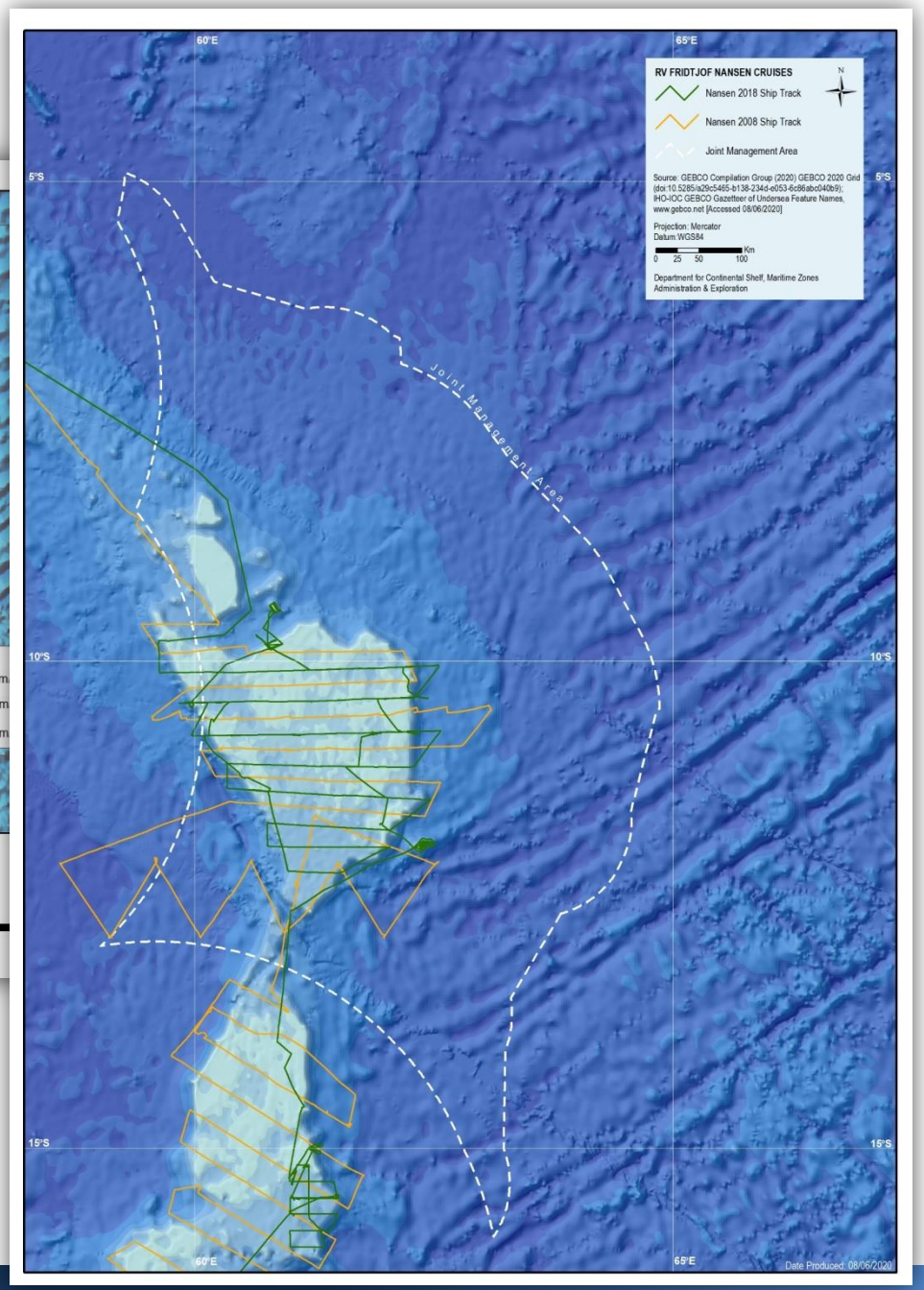
- Habitat - MoE
- Environmental Sensitivity Areas – MoE/UNDP
- Mangroves plantation – Fisheries Division
- Shipwrecks – MHS/Shipping/MPA/CSMZAE

Data sources

Marine Scientific Research

The E-platform provide access to cruise reports and data collected during research cruises that have been approved under the Maritime Zones (Conduct of Marine Scientific Research) Regulations 2017. The E-platform thereby ensures the dissemination and flow of scientific data and information resulting from marine scientific research as stipulated under Article 244 of the United Nations Convention on the Law of the Sea (UNCLOS).



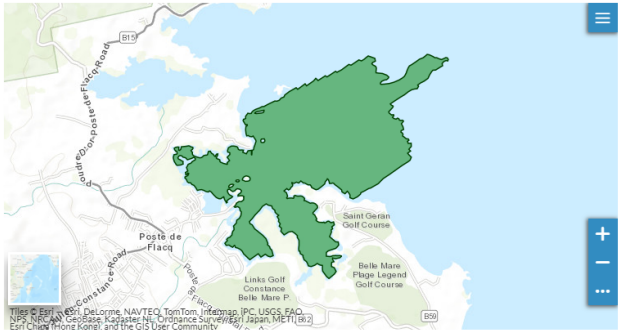


Marine Geology and Geophysical

PLANNED

Ocean Observatory | Data | Maps | About | Search | Ravi Runghen

Bathymetry - Canon Pass (Poste de Flacq)



Info | Attributes | Favorite

Title	Bathymetry - Canon Pass (Poste de Flacq)
License	Not Specified
Abstract	The polygon shows the footprint of bathymetry survey coverage of Canon Pass (Poste de Flacq) in Mauritius. The survey (Phase V) was conducted by the Mauritius Hydrographic Service (MHS) in 2019 as per Order-1b, in accordance with SP-44 (5th edition) at 1:5,000 scale. For more information, see the accompanying report -HI/HU/06/2014-15-Phase V Canon Pass (Poste de Flacq). For access to the data, please contact the Mauritius Hydrographic Service under the Ministry of Housing and Land Use Planning.
Publication Date	Jan. 25, 2021, midnight
Type	Vector Data
Keywords	Bathymetry , MHL , MHS , single-beam , Elevation
Category	Marine Geology and Geophysical Data
Regions	Mauritius
Responsible	admin
More info	-

Layer WMS GetCapabilities document

Download Layer

Metadata Detail

View Layer

Download Metadata

Legend

CANON PASS Footprint

Bathymetry - Canon Pass

Maps using this layer

This layer is not currently used in any maps.

Create a map using this layer

Click the button below to generate a new map based on this layer.

Create a Map

Add the layer to an existing map

MSP 13/11/2020

Click the button below to add the layer to the selected map.

Add to Map

Documents related to this layer

List of documents related to this layer:

Bathymetric survey report: Hydrographic Survey of Passes- Mainland Mauritius - Phase V

Styles

The following styles are associated with this layer. Choose a style to view it in the preview map.

(default style) CANON PASS Footprint

About

Developers | Terms of Use | About | Powered by GeoNode *version 3.0.0*

English

HI/HU/06/2014-15-PHASE V
CANON PASS (POSTE DE FLACQ)

MAURITIUS HYDROGRAPHIC SERVICE
MINISTRY OF HOUSING & LAND USE PLANNING

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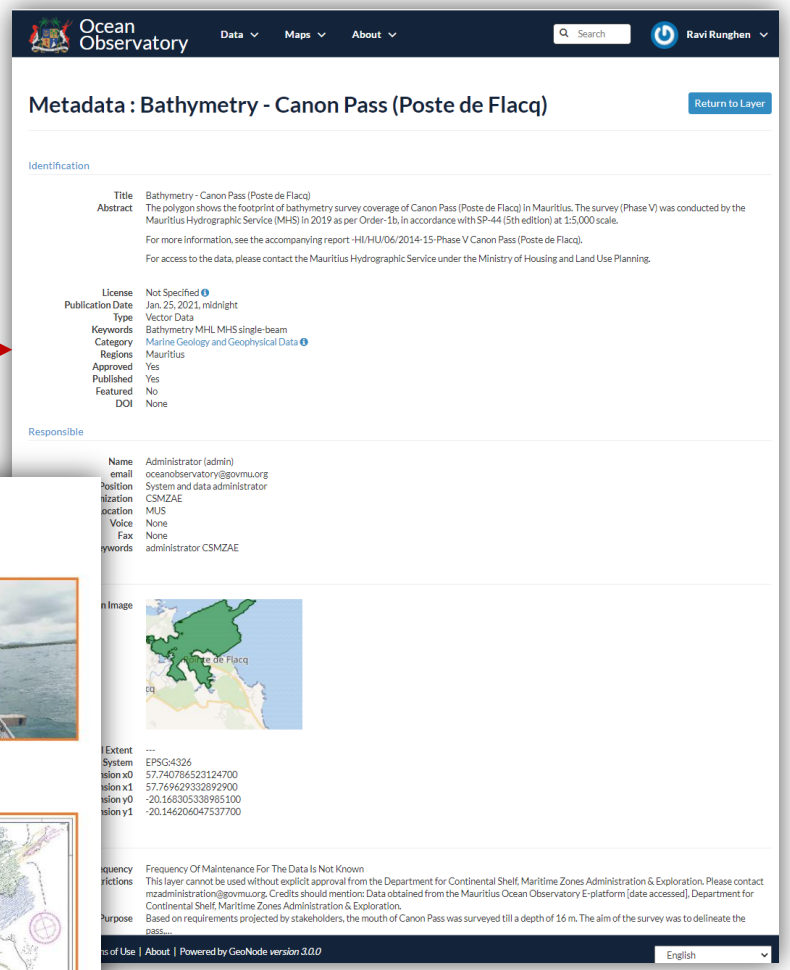

Ocean Observatory | Data | Maps | About | Search | Ravi Runghen

Metadata : Bathymetry - Canon Pass (Poste de Flacq)

Return to Layer

Identification

Title	Bathymetry - Canon Pass (Poste de Flacq)
Abstract	The polygon shows the footprint of bathymetry survey coverage of Canon Pass (Poste de Flacq) in Mauritius. The survey (Phase V) was conducted by the Mauritius Hydrographic Service (MHS) in 2019 as per Order-1b, in accordance with SP-44 (5th edition) at 1:5,000 scale. For more information, see the accompanying report -HI/HU/06/2014-15-Phase V Canon Pass (Poste de Flacq). For access to the data, please contact the Mauritius Hydrographic Service under the Ministry of Housing and Land Use Planning.
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Type	Vector Data
Keywords	Bathymetry MHL MHS single-beam
Category	Marine Geology and Geophysical Data
Regions	Mauritius
Approved	Yes
Published	Yes
Featured	No
DOI	None

Responsible

Name	Administrator (admin)
email	oceanobservatory@govmu.org
Position	System and data administrator
ization	CSMZAE
ocation	MUS
Voice	None
Fax	None
ywords	administrator CSMZAE

n Image

Extent	---
System	EPSG:4326
sion x0	57.740786523124700
sion x1	57.769629332892900
sion y0	-20.168305336985100
sion y1	-20.146206047537700

quency	Frequency Of Maintenance For The Data Is Not Known
rictions	This layer cannot be used without explicit approval from the Department for Continental Shelf, Maritime Zones Administration & Exploration. Please contact mzadministration@govmu.org. Credits should mention: Data obtained from the Mauritius Ocean Observatory E-platform [date accessed], Department for Continental Shelf, Maritime Zones Administration & Exploration.
Purpose	Based on requirements projected by stakeholders, the mouth of Canon Pass was surveyed till a depth of 16 m. The aim of the survey was to delineate the pass,...

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English

Satellite Imagery

PLANNED

Drone Data

- Aerial Imagery
- Digital Surface Model

Flic-en-Flac (resolution 3.8cm)

Source: DAY Marine & Services Ltd

Data Sources – Department of Environment

Environmental Sensitivity Index - 2012

Shoreline ESI

ICZM Project - 2008

- Pressure Zones
- Macro Algae coverage
- Mangrove
- Marine Resource Inventory
- Fish Landing Sites
- Hotels
- Marine Protected Area
- Pas Geometrique
- FADS
- Water quality Sites
- Mangrove replanting sites
- Coral Reef Monitoring sites

PLANNED

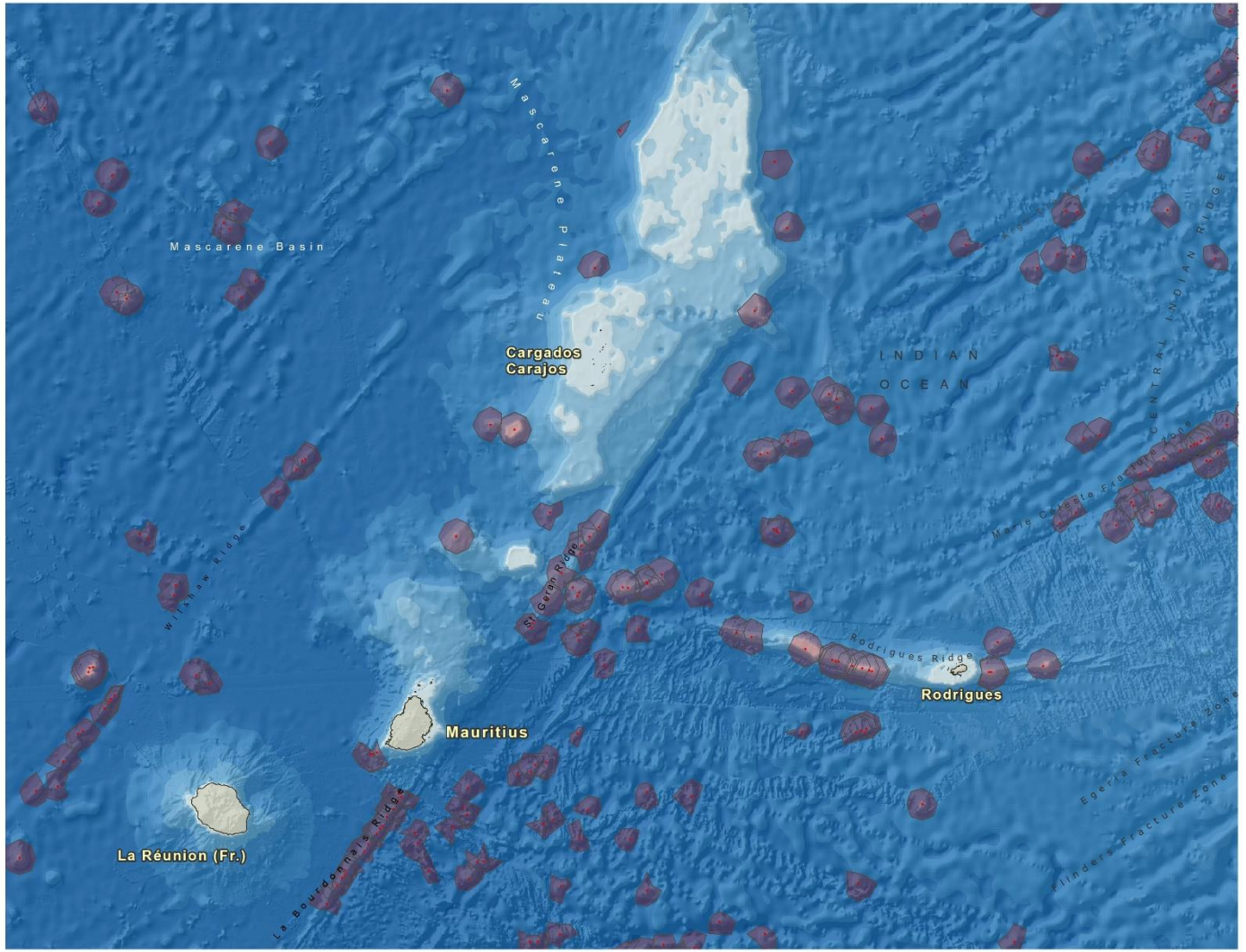
JICA Project - 2015

THE PROJECT FOR CAPACITY DEVELOPMENT ON COASTAL PROTECTION AND REHABILITATION IN THE REPUBLIC OF MAURITIUS

- Pas Géometriques
- Pressure Zones
- Fish Landing Sites
- Fisheries Posts
- Marine Parks
- Nature Reserves
- Police Station
- Medical Facilities
- Birds
- Rain Gauges
- Public beaches
- Aerial Imagery (1967, 1991, 2008, 2012)
- Shoreline (1967, 1991, 2008, 2012)

Data Sources – Global Database

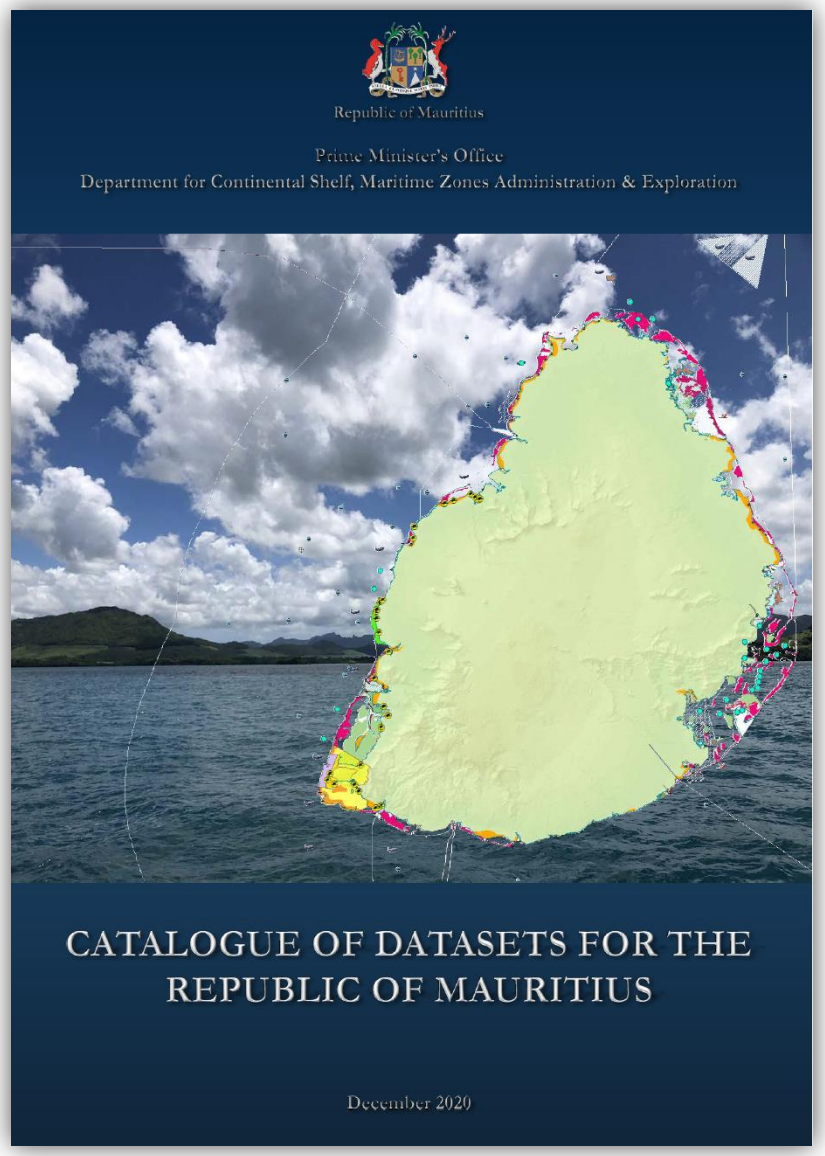
Online Databases	Description
OceanColor	Chla SST
Copernicus Marine Environment Monitoring Service	Temperature Salinity Sea surface height Current velocity Mixed layer thickness Wind Plankton Oxygen Nutrients Carbon Primary production Reflectance Turbidity Sea surface wave
ESA's Sentinel Online website	Multispectral SAR
United Nations Environment Programme	Seamount/Knolls Coral reef Whale Observations
GEBCO	Bathymetry
GSHHG A Global Self-consistent, Hierarchical, High-resolution Geography Database	Shoreline
NCEI Trackline/multibeam	Bathymetry



Seamounts

Yesson, C., Clark, M. R., Taylor, M. L., & Rogers, A. D. (2011). The global distribution of seamounts based on 30 arc seconds bathymetry data. Deep Sea Research Part I: Oceanographic Research Papers, 58(4), 442–453. doi:10.1016/j.dsr.2011.02.004.

Catalogue of Datasets for the Republic of Mauritius



Catalogue - Format

- Resource abstract:
- Resource language:
- Keyword values:
- Variables available:
- Geographic location:
- Spatial resolution:
- Temporal extent:
- Temporal resolution:
- Depth range/resolution:
- Conditions for access & use:
- Limitations on public access:
- Responsible organization:
- Data via:
- Data format:
- References
- Additional information:

People

Capacity Building

Training for Administrators

- Deployment of the GeoNode software;
- Use of the GeoNode's Django Administration Panel.
- Configuration and customisation of the GeoNode installation;
- Management of the server, including basic troubleshooting and maintenance;
- Management of user accounts, including creation of user profiles;

Capacity Building

USERS

- 32 registered users

End-User Training

- Albion Fisheries Research Centre
- Ministry of Tourism
- Tourism Authority
- Department of Environment (ICZM)
- Department of Environment (EIA)
- Department of Environment (Climate Change)
- Department of Environment (Policy)
- National Coast Guard
- Beach Authority
- Mauritius Meteorological Services
- CSMZAE

Way Forward

- Provide public access to the E-platform
- Ingest historical data & Metadata
  - Different formats & projections
- Sharing
  - data submitted (Assigning permission)
  - big data (e.g lidar, high resolution imagery, bathymetry, ROV)

Thank you