C-RISE
Use Case 2

National Maritime Information Fusion Center

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DIRECTOR OF NMIFC

STATUTE & MAIN GOAL

- Statute : Public Agency under the supervision of the Prime Minister Office

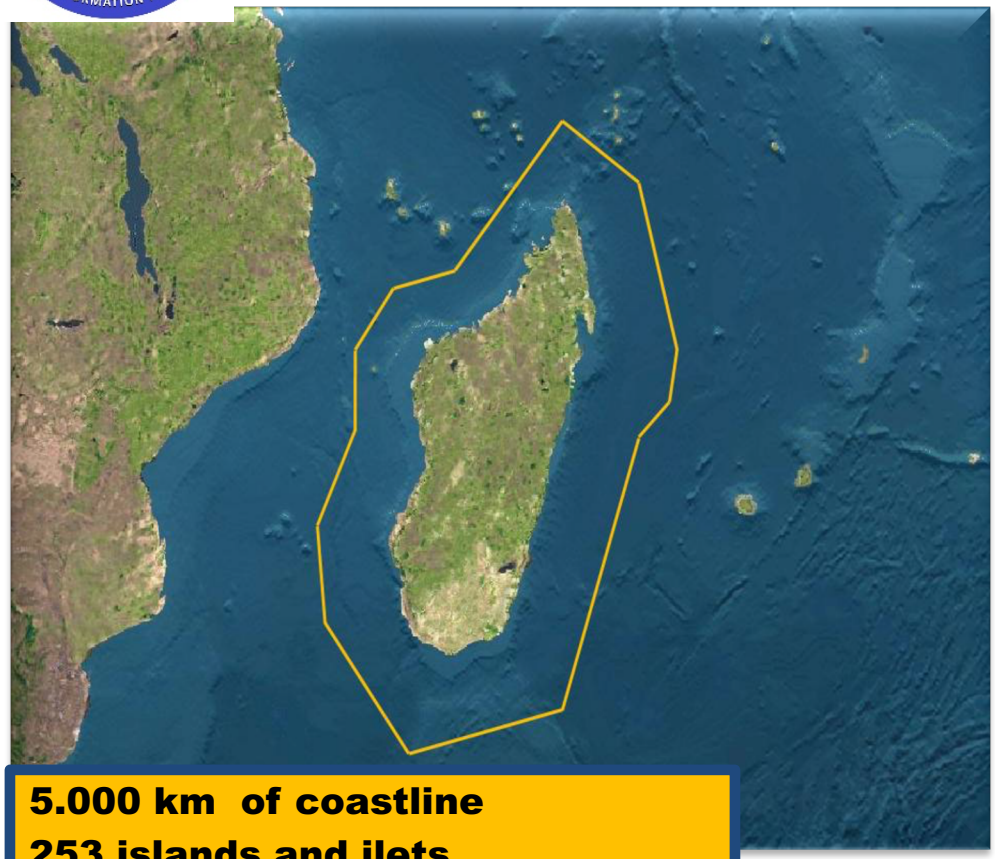
- Legal basis:

Decree n° 2015-998 on june 23rd, 2015 related to creation and organization of the MIFC modified and complemented by the Decree n° 2016-1446 on november 29th, 2016.

- Interministerial concept

To identify and to assess in advance potential maritime risks within Madagascar maritime space in order to establish an advanced alert.

NMIFC AREA OF INTEREST



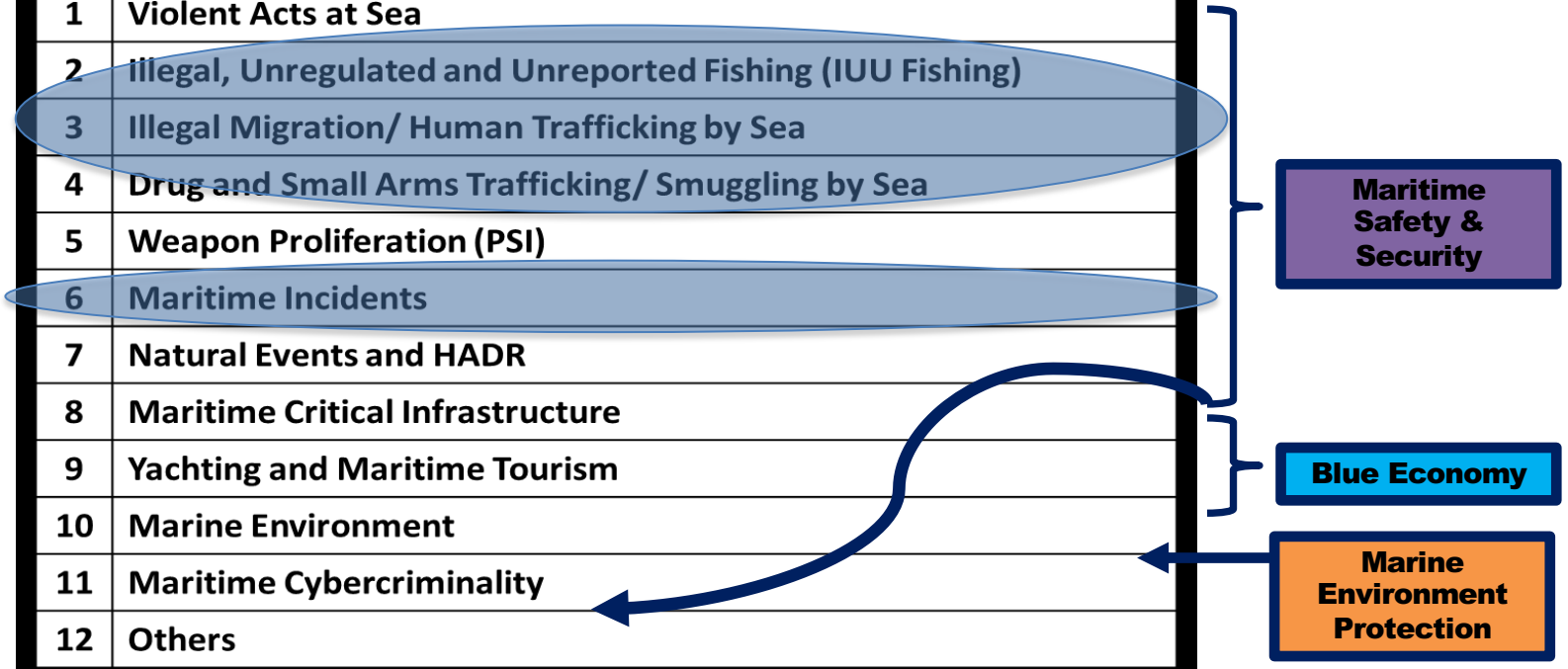
5.000 km of coastline
253 islands and ilets
111.120 km² of territorial sea
1.270.000 km² of EEZ
860. 900 km² of Contiental Shelf

- **Daily monitoring**
- **Collect, fuse, process and sharing maritime information**
  - **Maritime Safety & Security : Maritime Incidents and Irregular migration**
  - **Economy blue**
  - **Protection of marine environment**
- **Establish maritime security and safety hot spotc chart**
- **Main goal :**

To identify and to assess in advance potential maritime risks within Madagascar maritime space in order to establish an advanced alert.

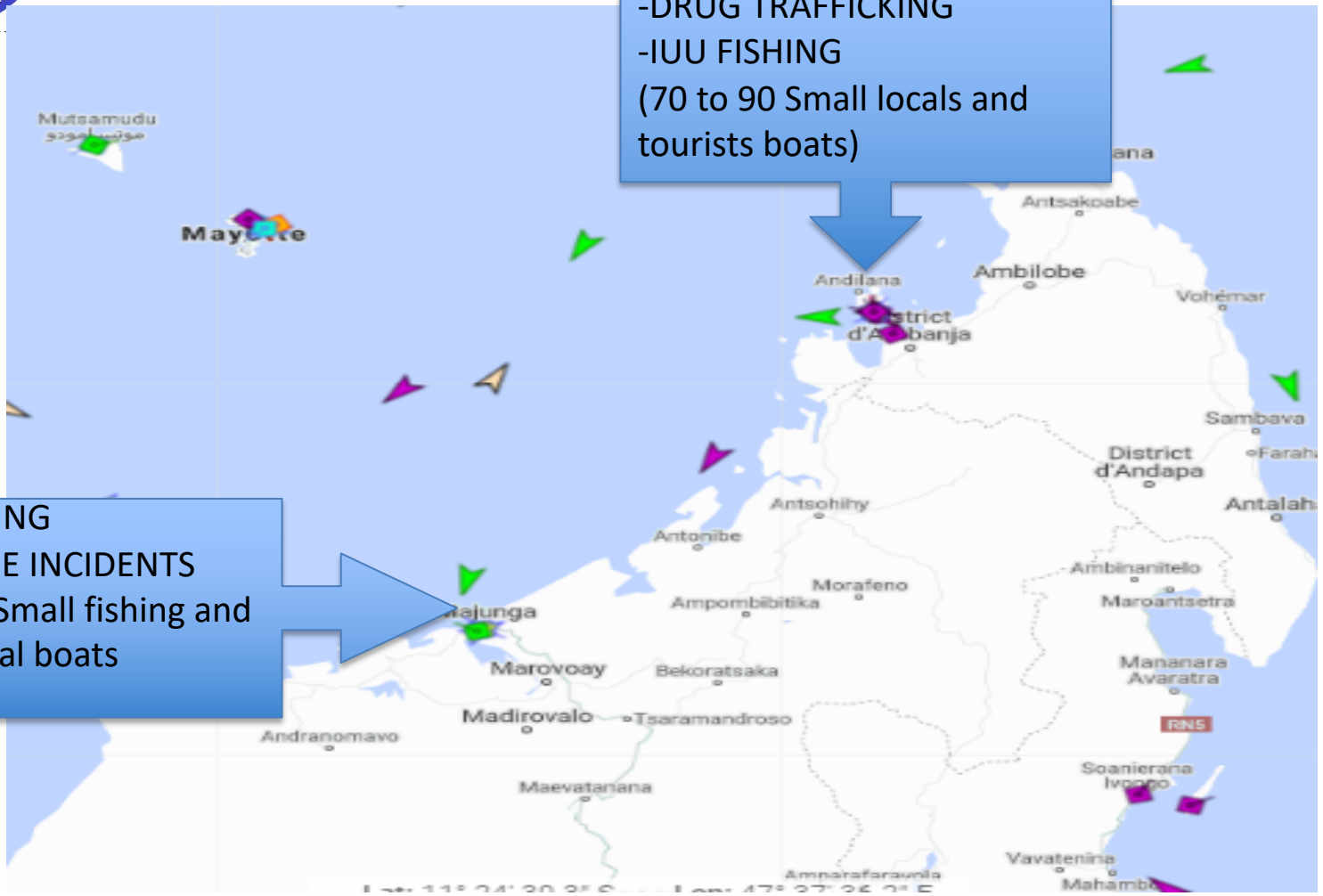
Considering 12 pillars of maritime information management

1	Violent Acts at Sea
2	Illegal, Unregulated and Unreported Fishing (IUU Fishing)
3	Illegal Migration/ Human Trafficking by Sea
4	Drug and Small Arms Trafficking/ Smuggling by Sea
5	Weapon Proliferation (PSI)
6	Maritime Incidents
7	Natural Events and HADR
8	Maritime Critical Infrastructure
9	Yachting and Maritime Tourism
10	Marine Environment
11	Maritime Cybercriminality
12	Others



-IRREGULAR MIGRATION
-DRUG TRAFFICKING
-IUU FISHING
(70 to 90 Small locals and tourists boats)

-IUU FISHING
-MARITIME INCIDENTS
(40 to 50 Small fishing and commercial boats



Use case 2

Sea State Information for Improving maritime navigation security & safety in the North-Western of Madagascar

PURPOUSE

- To compare the sea state information with the movements of the vessels in this area and the ships that have affected the ports of Nosy-be and Mahajanga.
- According to the mission of NMIFC and the knowledge of sea state information, NMIFC conduct situational analysis and predictions on possible threats to maritime security and safety in this maritime area, North-Western of Madagascar.

Importance of the use case 2

- for the confrontation of the satellite data obtained by the CFIM from the SAT-AIS platforms (Exact Earth and SEAVISION) with the data on the sea state information from DGM and SaTOC which helps the NMIFC to enhance the accuracy of the maritime risk forecast and prediction
- to track of vessels operating at sea and to monitor their activities taking into account sea state information
- to assess threats to maritime safety and security taking into account the sea state information

THEMATICS

- Irregular migration: between Nosy-be and Mayotte, smugglers use small motorized boats (15m max) and wait for the weather conditions are favourable to take off.

- Maritime incidents : capsizing, collision, MARPOL…

- IUU fishing: identification of the fishing area to better assess the movements of vessels involved in illegal fishing activities.

METHODOLOGY FOR USING THE DATA FROM THE C-RISE PROJECT

Step 1 - Get Near real time data from FUSION TABLES

Step 2 - Convert the data from FUSION TABLE to GeoJSON

Step 3 - Store the GeoJSON data to MongoDB(*)

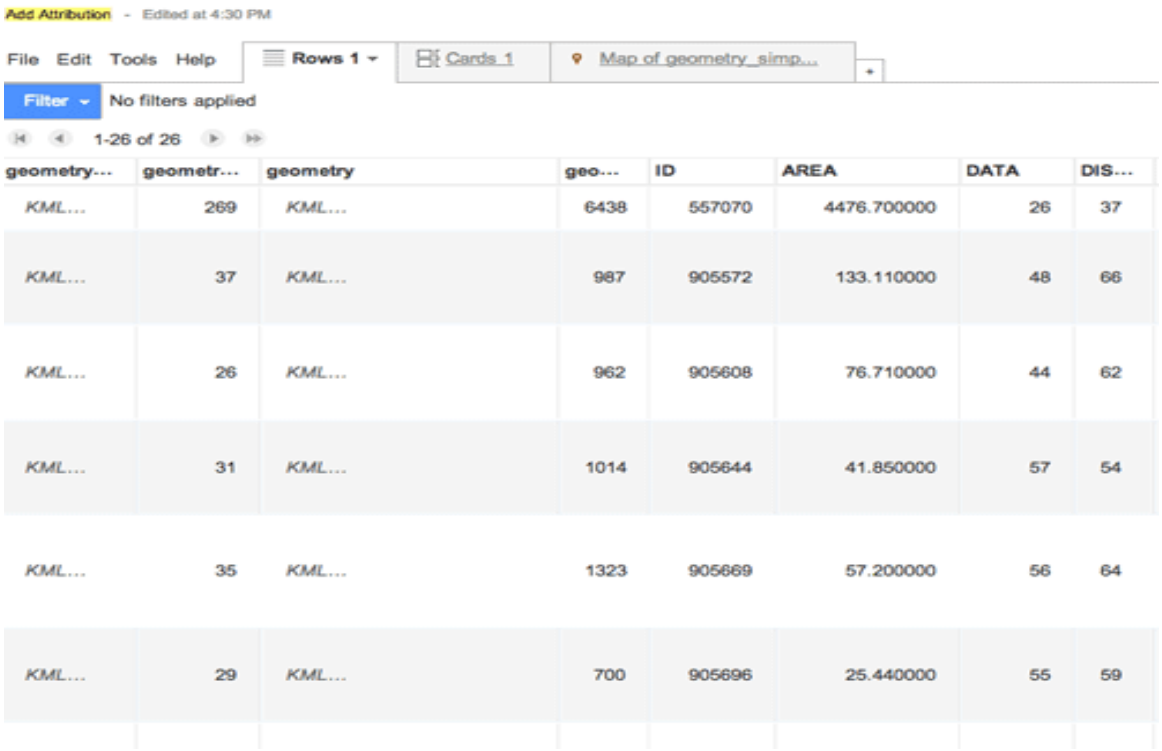
Step 4 - Show GeoJSON data to a MAP by criteria(date, position, area, ...)

Step 5 - Overlay the map to existing database (such as a maritime incident, irregular immigration, ...)

Step 6 – Help NMIFC for the Analysis work (Determine the favorable condition on irregular immigration, maritime incident, IUU fishing for example)

METHODOLOGY FOR USING THE DATA FROM THE C-RISE PROJECT

Step 1 - Get Near real time data from FUSION TABLES(*)



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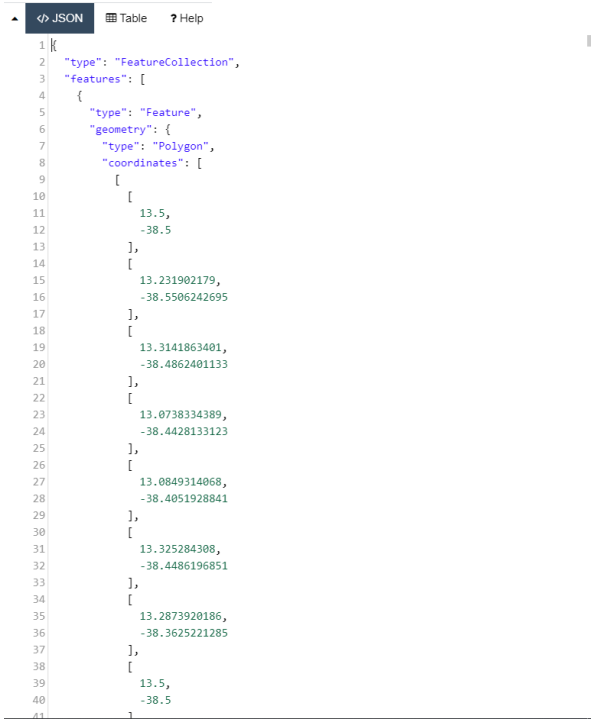
KML...	37	KML...	987	905572	133.110000	48	66
KML...	26	KML...	962	905608	76.710000	44	62
KML...	31	KML...	1014	905644	41.850000	57	54
KML...	35	KML...	1323	905669	57.200000	56	64
KML...	29	KML...	700	905696	25.440000	55	59

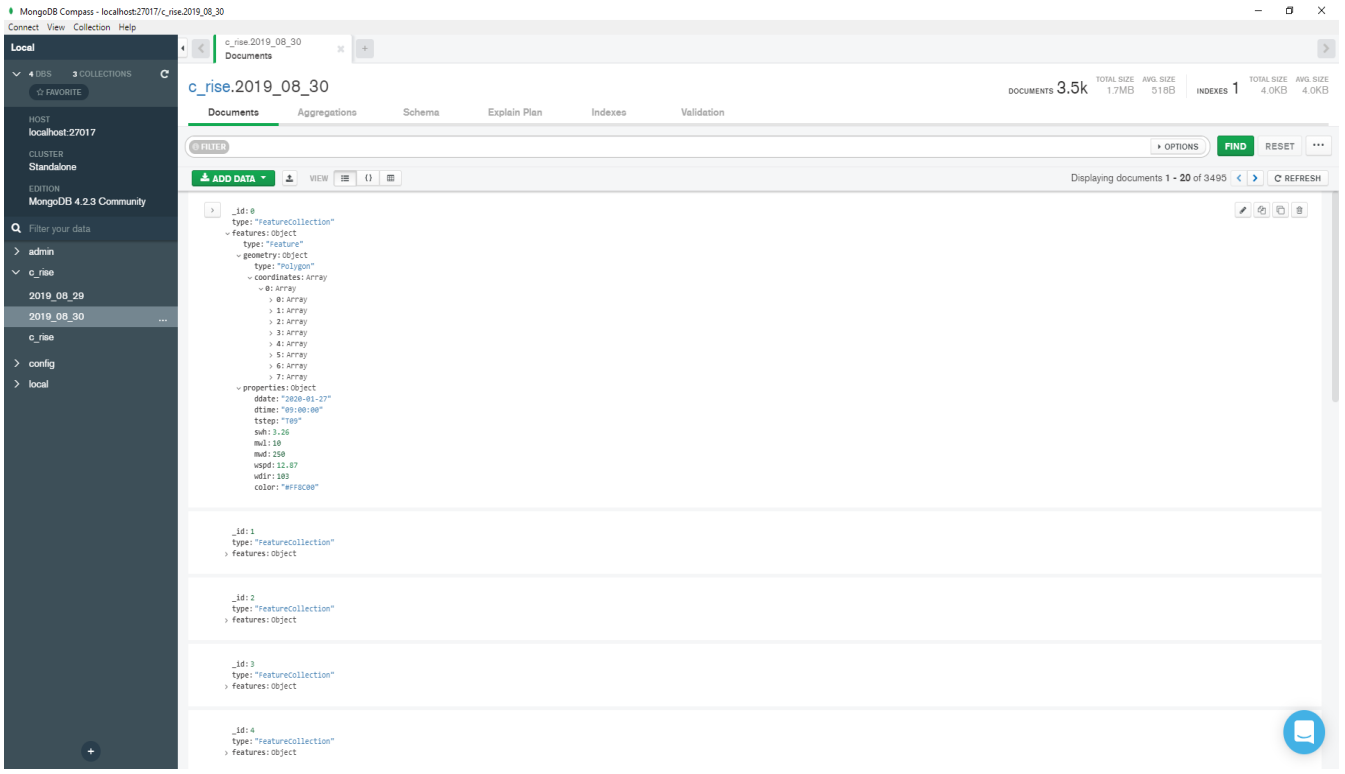
(*) FUSION TABLES: web service provided by Google for data management (recently discontinued).

Step 2 - Convert the data from FUSION TABLE to GeoJSON (*)



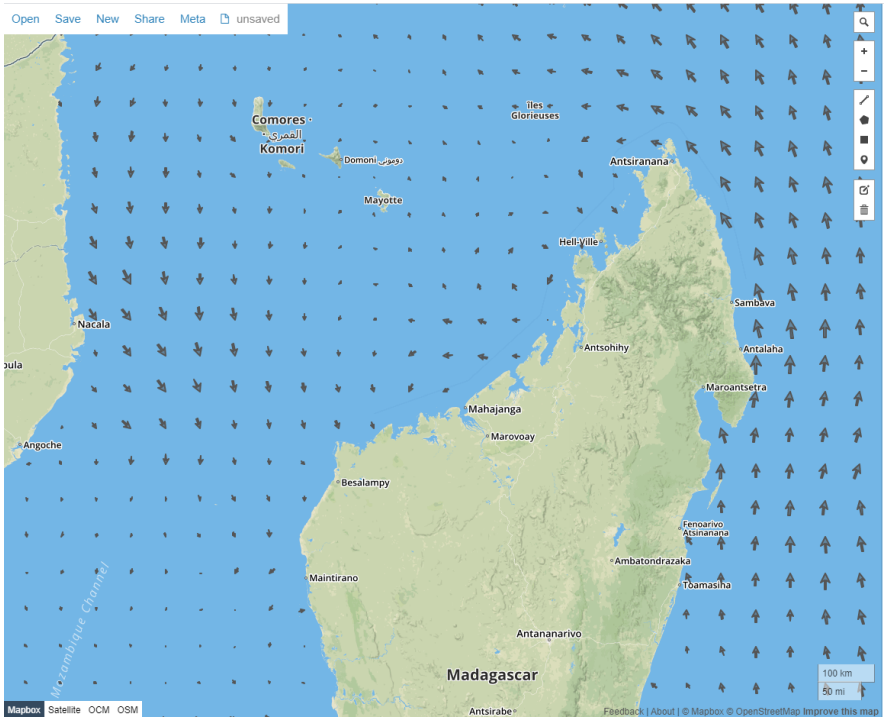
(*) GeoJSON: is an open standard format designed for representing simple geographical features.

Step 3 - Store the GeoJSON data to MongoDB(*)



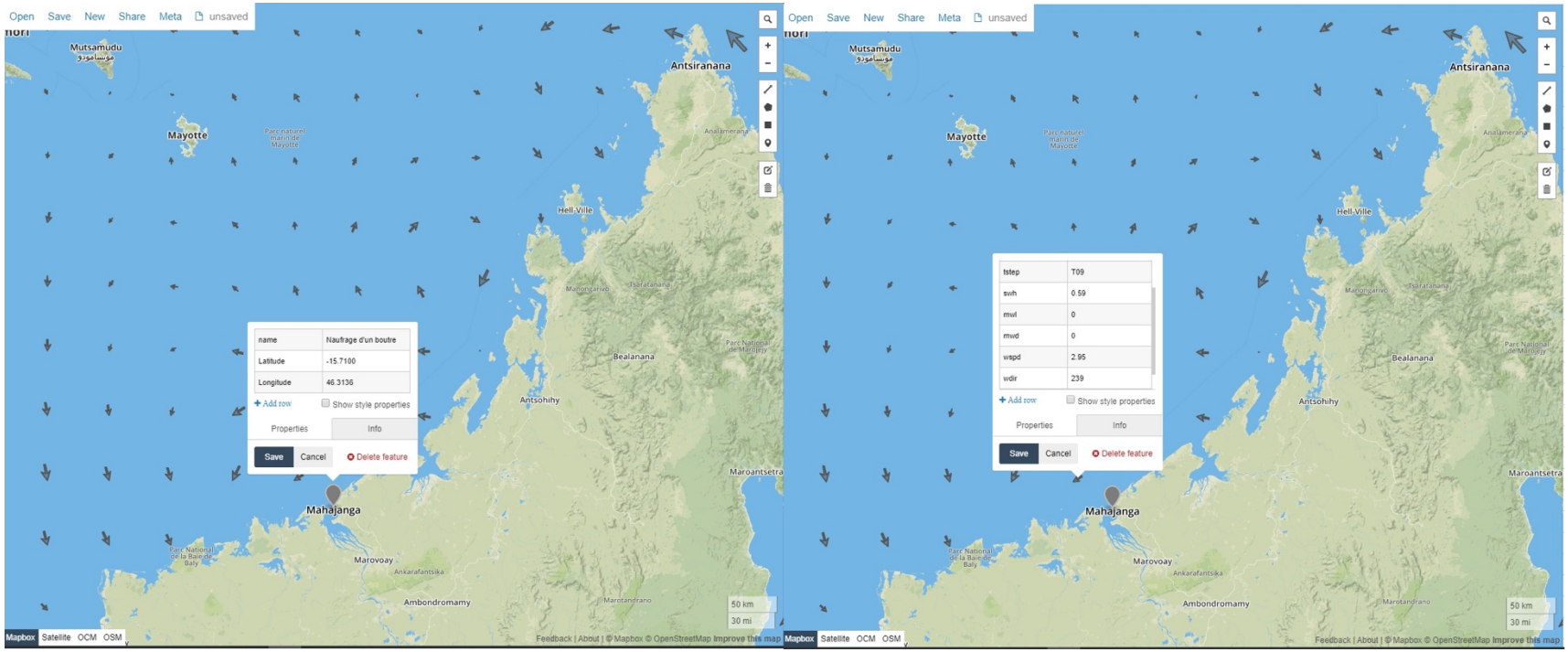
(*) MongoDB: is a cross-platform document-oriented database program. MongoDB uses JSON-like documents.

Step 4 - Show GeoJSON data to a MAP by criteria(date, position, area, ...)



(*) MongoDB: is a cross-platform document-oriented database program. MongoDB uses JSON-like documents.

Step 5 - Overlay the map to existing database (such as a maritime incident, irregular immigration, ...)



Case of traditional boat sinking to the NW of Madagascar, off Mahajanga with the wind parameters: speed and direction (**239°**, **2.95 m/s**)

Step 6 - Analyze the situation(Determine the favorable condition on irregular immigration, maritime incident for example.)