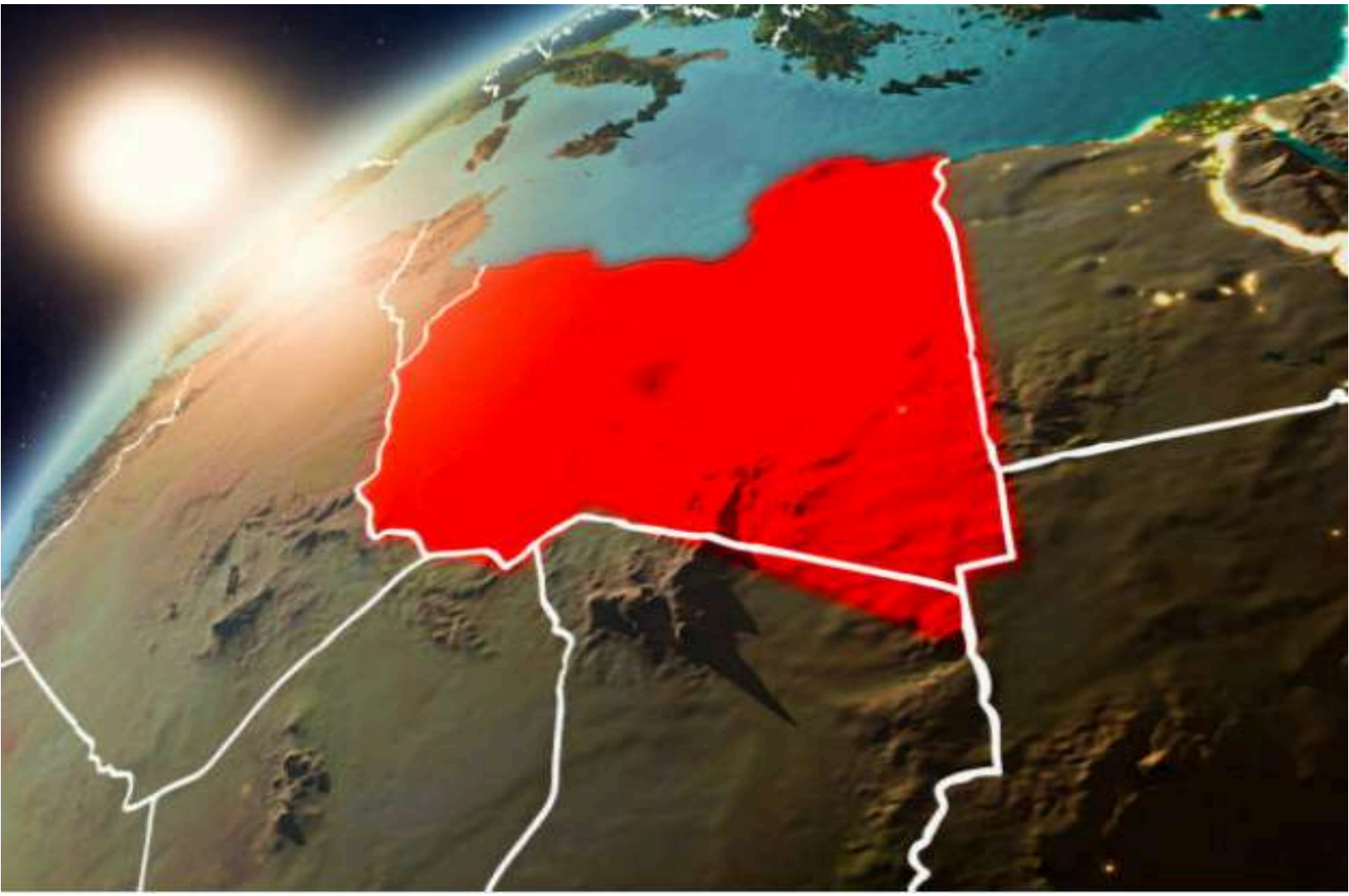
The Libyan Border Nightmare: A New Approach to Border Security Through Geospatial Technology

The Libyan border has long been plagued by illegal immigration, smuggling, and the movement of illicit goods, posing significant security and economic threats to the country. This case study is a novel approach to addressing these challenges through the utilization of geospatial technology.

The integration of geospatial technology into border security strategies can significantly enhance the effectiveness and efficiency of border control operations in Libya, leading to increased national security and stability.



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Introduction

Libya is a North African country that borders six other countries: Tunisia, Algeria, Niger, Chad, Sudan, and Egypt. Since the fall of the Gaddafi regime in 2011, the Libyan borders have faced continuous challenges, such as illegal immigration, smuggling, and terrorism. One of the biggest border challenges facing Libya is the issue of illegal immigration as it is a major transit point for migrants from other African countries trying to cross to Europe across the Mediterranean. This has led to an increase in the number of migrants detained in Libya, with many facing abuse, exploitation, and human trafficking. In addition, the porous nature of the borders made it difficult for the government to regulate the movement of people in and out of the country.

Libya faces substantial difficulties associated with criminal operations and smuggling, acting as a major center for various unlawful activities. Its borders are frequently exploited for trafficking drugs, weapons, and other illegal goods. Smuggling networks are highly structured, taking advantage of poorly guarded borders to conduct their operations smoothly.
Terrorist organizations and militias pose a significant challenge along the borders, endangering security and engaging in illicit actions like smuggling and human trafficking, thus jeopardizing national security.

To bolster border security, Libyan intelligence collaborated with domestic security and military agencies, as well as with intelligence and security forces from neighboring countries sharing borders with Libya. Together, they devised a strategy to establish and fortify border control posts aimed at monitoring border activities, particularly the movements of terrorist groups and organized crime syndicates.

A sophisticated surveillance system has been implemented utilizing contemporary technologies like satellites, radars, and thermal cameras to improve the monitoring and regulation of border activities. Despite advancements, substantial border challenges persist in Libya. It is crucial to sustain endeavors aimed at strengthening border security, combating criminal activities, terrorism, and smuggling, facilitating lawful and orderly transit of individuals and commodities, and fortifying stability and national security within Libya.

VCIS Application

VCIS presents a unique opportunity by utilizing geospatial location data to offer a thorough and unobstructed cross-border perspective, eliminating the need for conventional border control tools such as sensors and surveillance cameras. These traditional methods consume considerable time, money, and human resources for minimal results compared to the efficiency of VCIS.

We will highlight certain features implemented along the Libyan borders with several neighboring nations, demonstrating their capacity to identify spatial and temporal criminal elements, foresee potential incidents, and forecast future occurrences:

POI - It entails documenting important locations pinpointed on a map or detecting suspicious activities stemming from events within those locations or involving specific individuals who frequent them. This enables investigators to access various data sources, unveil concealed information, and aid in guiding decision-making processes.

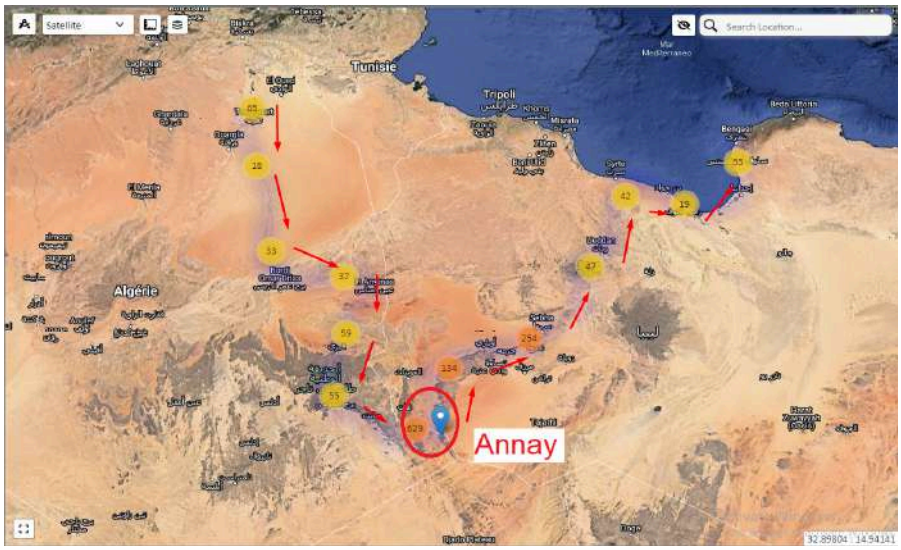
DOI - Identifying and flagging suspicious active devices along smuggling routes, continuously monitoring them, alerting users to any suspicious movements, and pinpointing their locations within the country if security services seek to apprehend their owners or gather intelligence on them and their affiliated groups and operations.

Chapter 1: “Passe de Salvador” and “Annay”

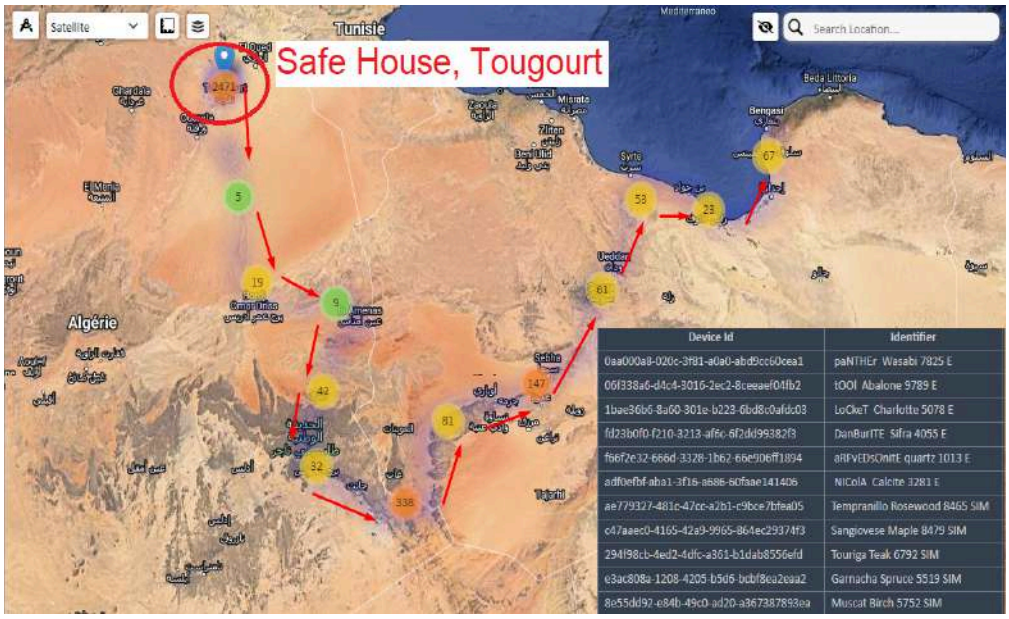
The Libyan desert, especially the border triangle between Libya, Algeria, and Niger, turned into an ideal place for terrorist groups to hide and carry out their activities last year in the capital, Tripoli.
By conducting an "activity scan" to identify all the devices located in a specific spot along these borders; We found several devices moving in unison within a border area known for smuggling and called "Anay” as shown in the image below.

After identifying these devices, we executed a “device history” query in order to determine the path of the movements of all the devices that we found in the previous step. Through this feature we were able to:

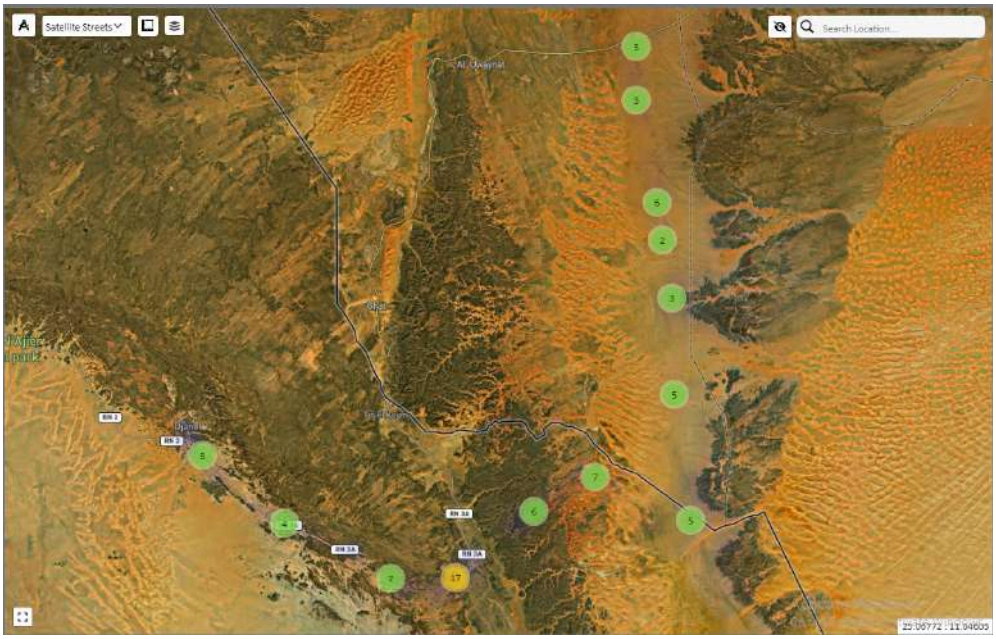
- Discover smuggling crossings and the routes used by smugglers



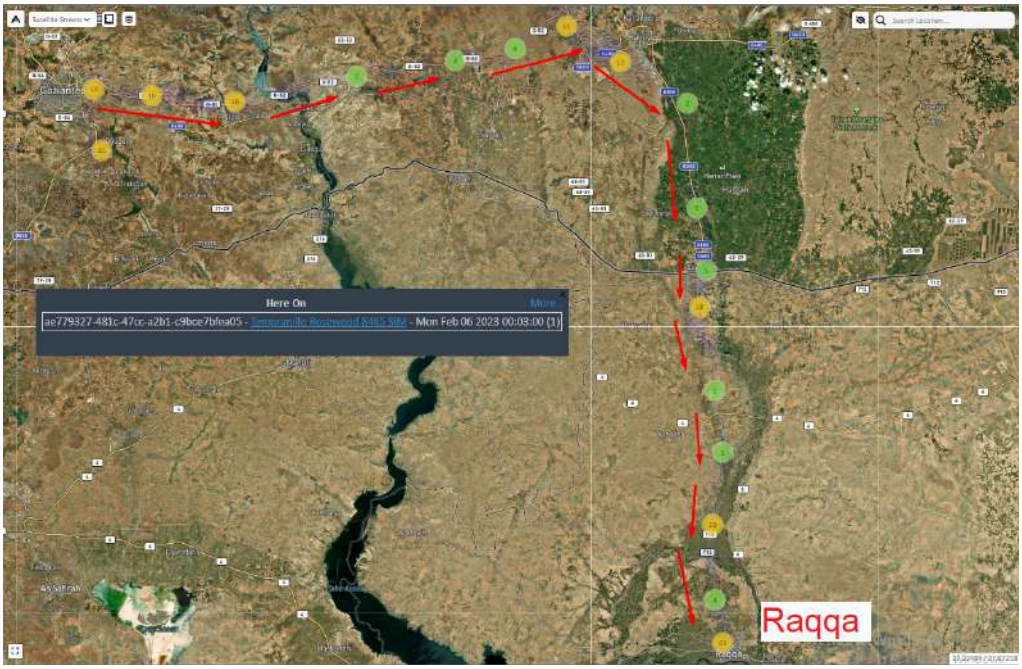
- Discover the places where they congregate before and after their journey, including the safe houses that smugglers use to set out and arrive.



- Identify smugglers by observing their frequent movements between safe houses on both sides, in addition to their frequent use of these roads.

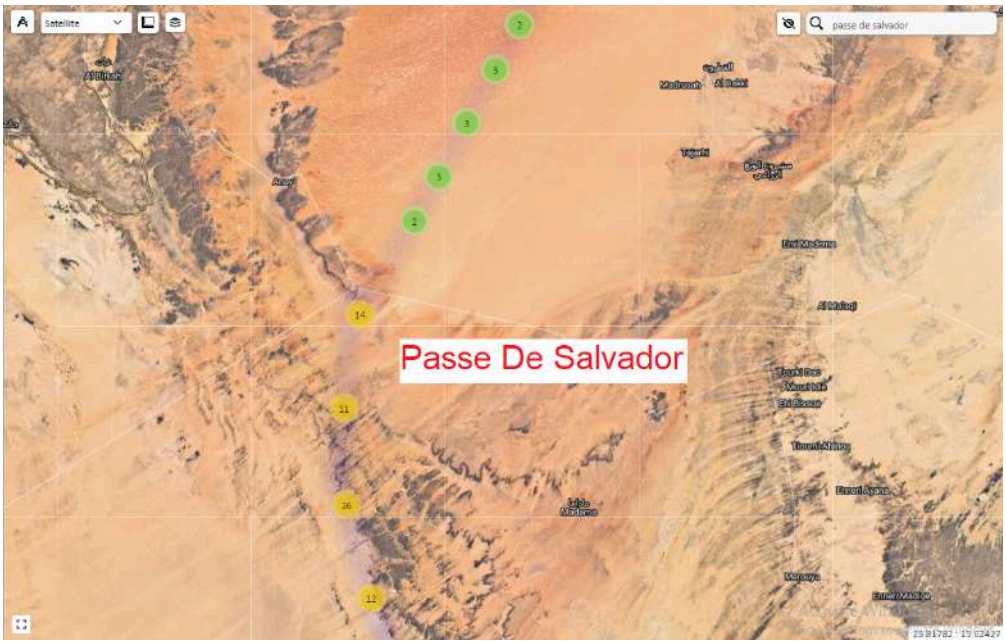


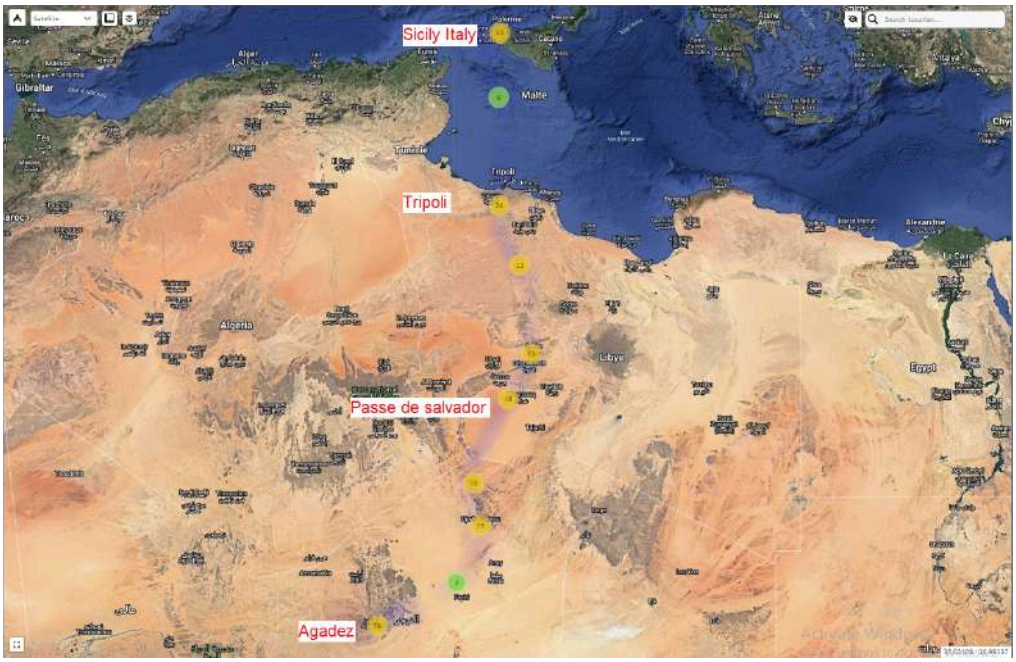
- The suspicious devices, which moved along the smuggling routes, were tracked outside the Libyan borders, where it was found that some devices traveled from Benghazi Airport to Gaziantep Airport, and then moved by land across the Turkish-Syrian border to the city of Raqqa, as shown in the picture below.



Chapter 2: Libyan border with Niger

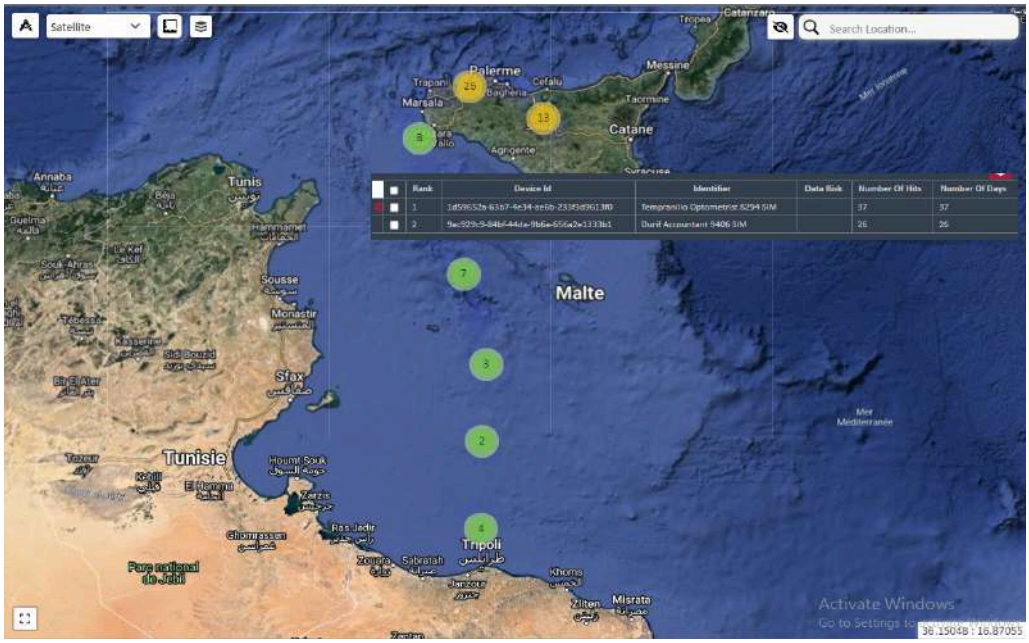
By running a "device history pattern" query to detect all devices situated in a particular location along these borders and display their complete movement, we observed numerous devices located and moving together within a border region renowned for smuggling, known as the "Salvador Corridor," as depicted in the image.





We were able to locate the places where they congregate before and after their journey, including the safe houses that smugglers use for their departure and arrival.

We were able to identify the smugglers by observing their frequent movements between the safe houses on both sides, in addition to their frequent use of these roads.



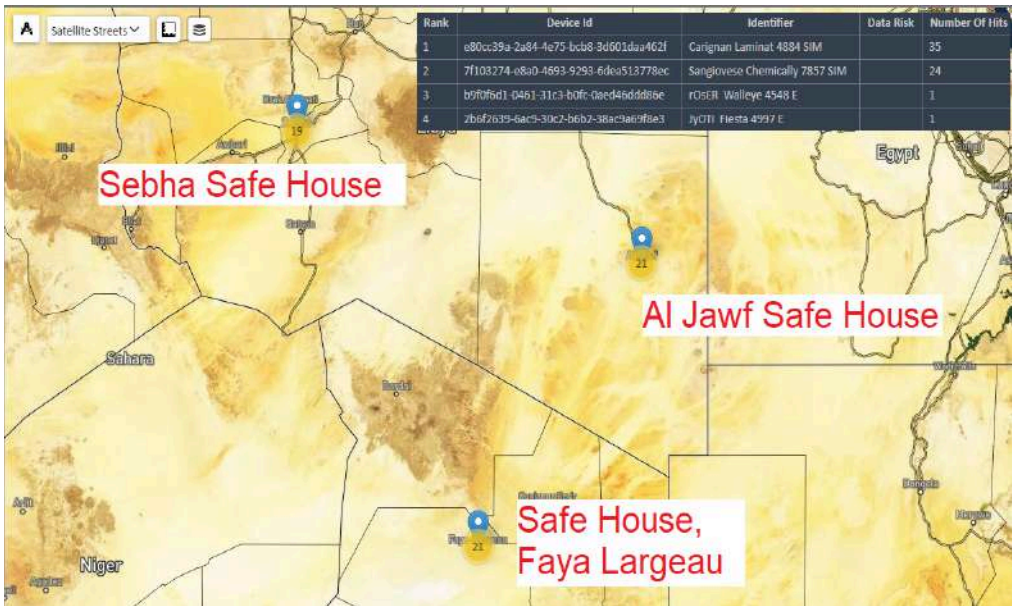
We identified all suspicious devices moving along smuggling routes, maintained continuous monitoring, and successfully tracked them beyond Libyan borders. It was discovered that some devices had traveled by sea from Tripoli to the island of Sicily, as depicted in the image.

By executing a DTP query for the point of departure in Tripoli and the point of arrival in Sicily, we were able to identify other devices of illegal travelers in addition to smugglers.

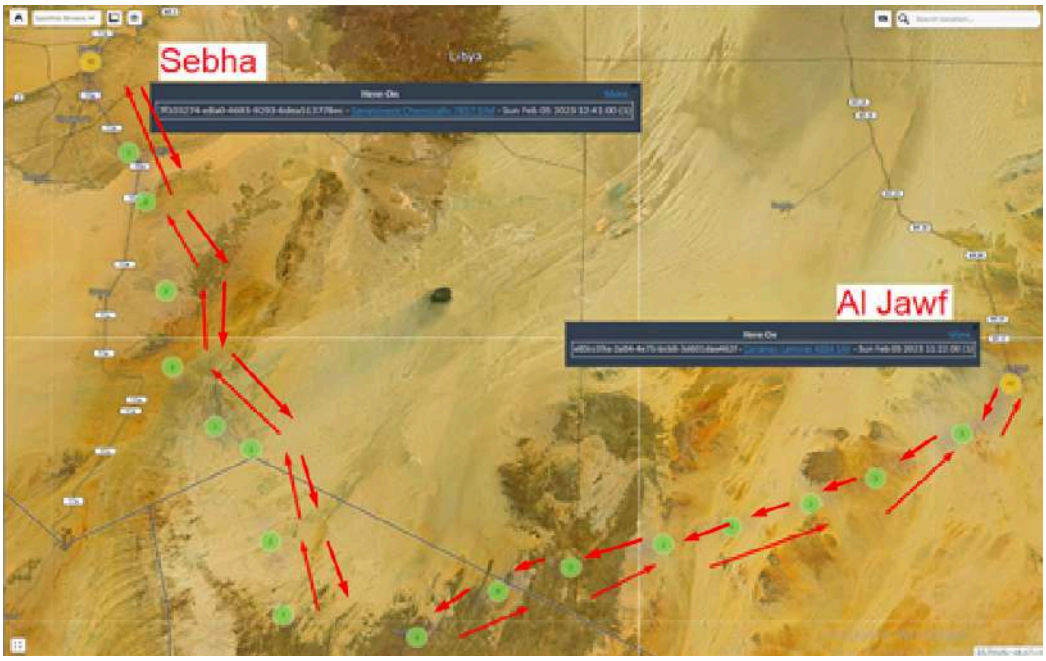
Chapter 3: Libyan border with Chad

By initiating the "Device History Pattern" (DHP) feature to identify all devices situated in a specific location along these borders and reveal their complete movement, we discovered multiple devices located and moving together within a border region renowned for smuggling, known as "Tibesti," as illustrated in the image.

We were able to locate the places where they congregate before and after their journey, including the safe houses that smugglers use for their departure and arrival.

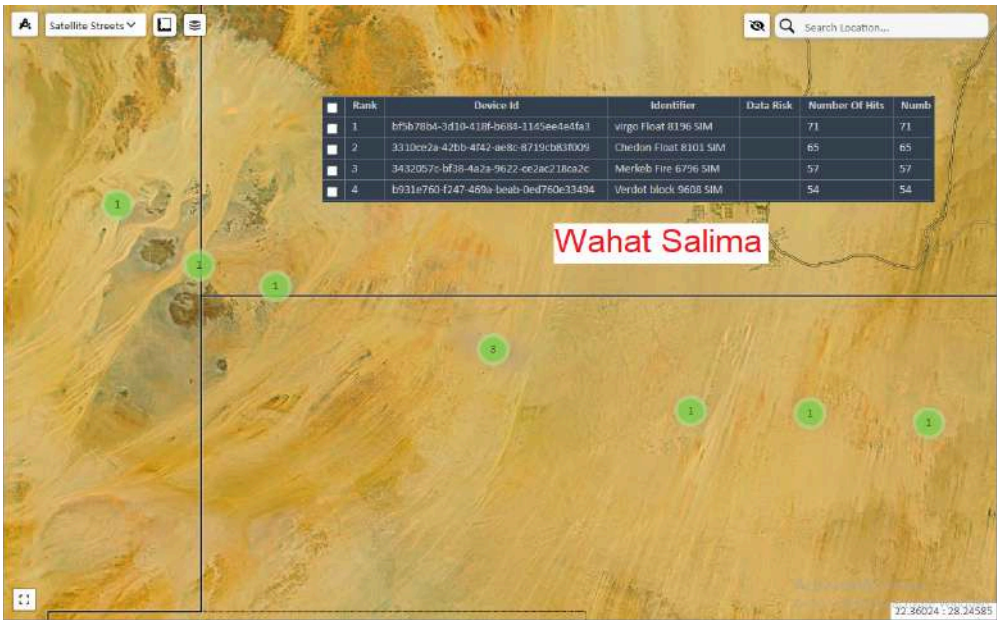


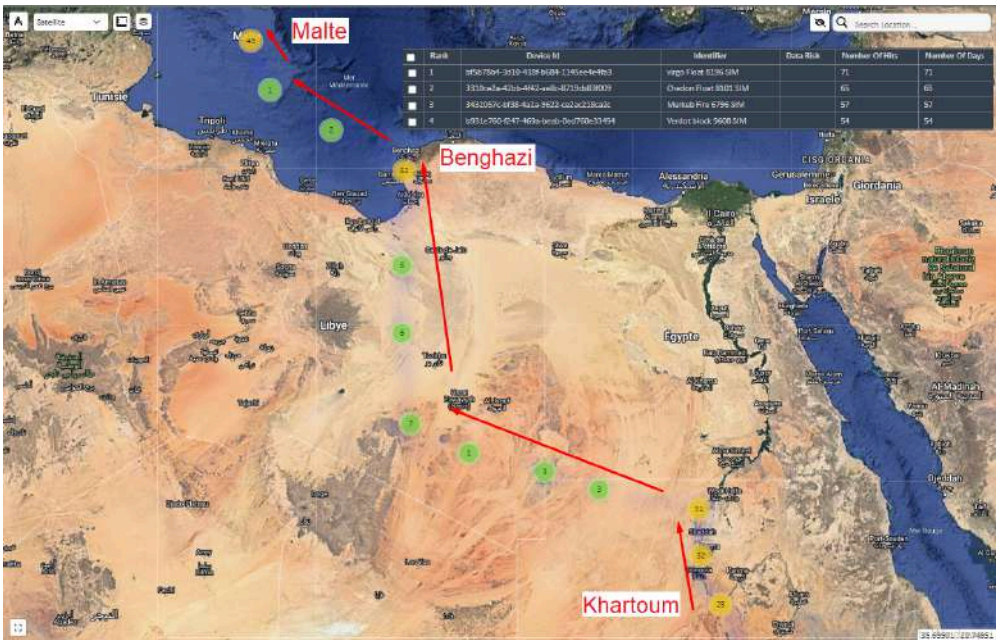
We were able to identify the smugglers by observing their frequent movements between the safe houses on both sides, in addition to their frequent use of these roads.



Chapter 4: Libyan borders with Sudan and Egypt

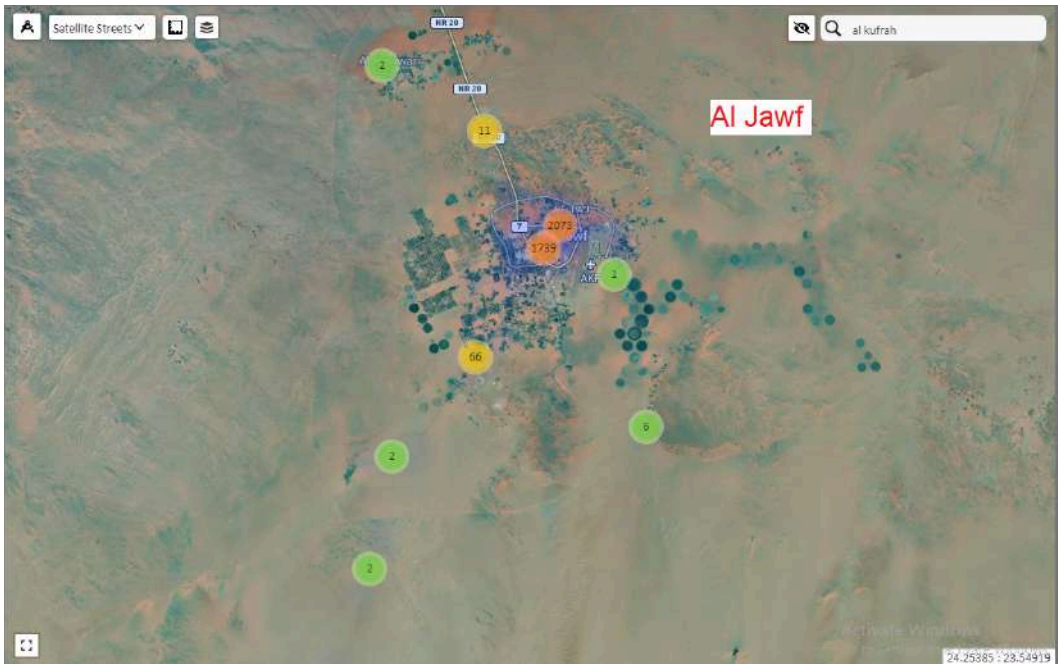
We executed a "Device History Pattern" (DHP) query to pinpoint all devices situated in a particular spot along these borders, particularly in the triangle linking Libya, Sudan, and Egypt, and display their complete movement. This analysis revealed multiple devices located and moving in unison within a border region notorious for smuggling, known as "Wahat Salima," as depicted in the screenshot below.





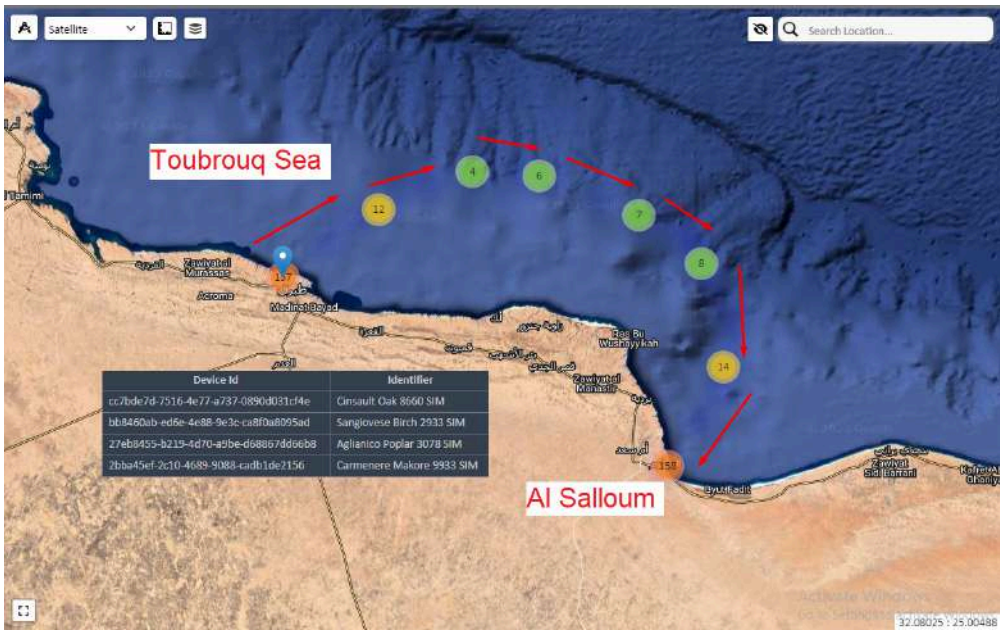
We were able to locate the places where they congregate before and after their journey, including the safe houses that smugglers use for their departure and arrival.

We identified the smugglers as well by observing their frequent movements between the safe houses on both sides, in addition to their frequent use of these roads.



Chapter 5: Libyan sea and land borders with Egypt

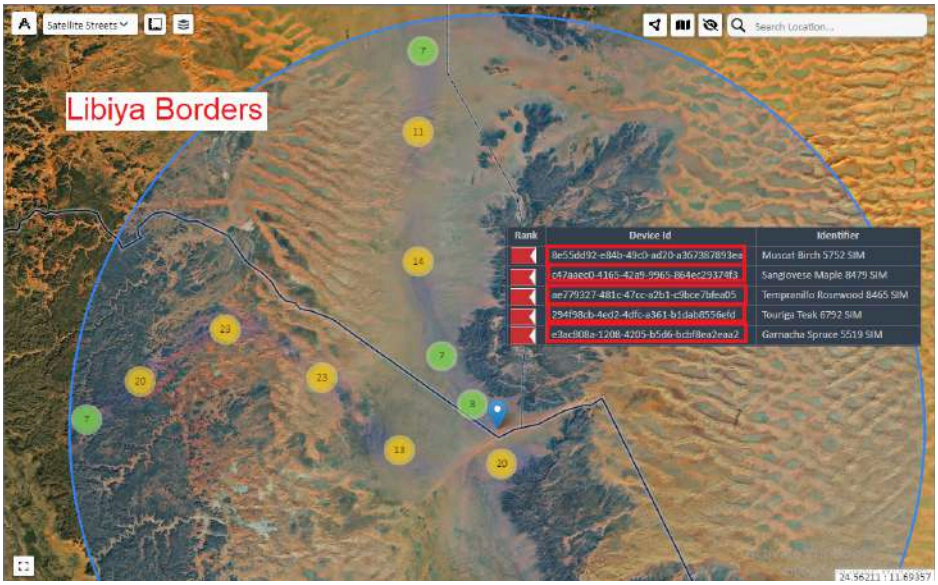
To identify all the devices in the sea off the Libyan shores and show their full movement, we executed a DHP query. Several devices were found moving in the sea from the port of Latakia in Syria to the port of Tobruk on the Libyan shores.



By executing a DTP for Toubrouq and the Egyptian coast "Al Salloum", we found that there are several joint devices that move between the two countries continuously and are likely to belong to smugglers across the borders of the two countries.

During our survey of the Libyan-Egyptian land border areas, we detected numerous devices engaged in unauthorized movement between the two nations, particularly between Libya's "Jaghbub" and Egypt's "Siwa" regions. These devices indicate the activities of merchandise smugglers, including drugs, weapons, and oil, who traverse between the two countries on a daily basis. Additionally, the smuggling of individuals from Egypt into Libya is evident, as depicted in the attached photos.

We can mark all suspicious devices that moved along the smuggling routes and monitor them continuously. We warn the user about any suspicious movement of them and determine their whereabouts inside Libyan territory in case the security services want to arrest their owners or collect information about the groups associated with them and their scope of work.



Lessons learned

- Analysis of the present, understanding of the past, anticipation of the future.
- Identification of patterns and classification of roles: terrorists, smugglers, illegal migrants, suspects
- Smugglers' patterns
- Illegal crossing routes to and from Libya, these routes will be considered illegal border crossings that will alert us as soon as new data related to any activity is recorded
- Groups of points of interest: safe houses (inside and outside Libya), terrorist centers in Raqqa, smuggling centers in Sudan, safe houses, land and maritime borders, and airports
- Multidirectional tracking:
  - Tracking and monitoring of suspects
  - Pre-incident activity and pre-incident indicators
- Centralized database and case management:
  - A single source of truth and investigation
  - Login and search records
  - Case management and monitoring
  - Direct alerts & operational actions
- VCIS, the intelligent system, utilizes predictive analytics derived from comprehensive investigations, detailed digital incident analyses, and daily report examinations. By identifying patterns in human behavior and device movements, VCIS generates new behavioral analytics and indicators. These insights enable the system to predict suspicious activities and preempt future security incidents.

Conclusion

Libya faces significant challenges in securing its borders, as they remain largely unregulated. This absence of control facilitates the spread of arms, human trafficking, drug trafficking, and daily smuggling activities, including fuel and goods. These issues have wide-ranging consequences for the entire region. To establish a robust border security strategy, Libya must consider implementing VCIS, a step that previous governments have yet to take. The Libyan populace demonstrates a strong determination to secure the nation's borders; however, their efforts are hindered by a lack of modern equipment, technology, and skilled personnel.

Additionally, the absence of a comprehensive plan exacerbates the challenge of sealing the extensive borders against fighters, migrant smugglers, and illicit goods, including drugs. Despite evolving crime patterns across different locations and timeframes, VCIS stands out as a highly effective tool capable of investigating, predicting, preventing, and countering various crimes. It also assists in formulating strategies and supporting real-world combat operations. VCIS enables us to delve into the past, drawing lessons to inform present investigations and preempt future events.