Chain of events of the “Left-to-die boat”

(A) Departure point at Port of Tripoli between 00:00 and 02:00 UTC on 27 March. Boat first spotted by a French aircraft at 14:55 GMT on 27 March at position LAT 33°40’ N, - LON 13°05’ E.

(B) GPS location of vessel at 16:52 GMT on 27 March 2011 at position LAT 33 58.2 N – LON 12 55.8 E as determined by the MRCC based on locations established by the satellite phone provider Thuraya.

(C) The GPS position of the boat was determined a second time (at 19:08 GMT on 27 March at position LAT 34 07.11 N – LON 12 53.24 E, again based on information provided by Thuraya.

(D) The vessel began to drift within a 4.3 nm radius of position 34 24.792 N – 12 48.576 E at approximately 07:00 GMT on 28 March.

(E) Between 3 and 5 April the migrants encounter a military ship. On 10 April the boat lands back at Zlitan.

SAR analysis of vessel presence in the Central Mediterranean

Project Report of GISCorps’ contribution to Forensic Oceanography

Summary

Forensic Oceanography (FO) is a project led by Charles Heller, Lorenzo Pezzani and Situ Studio as part of the European Research Council project “Forensic Architecture” directed by Centre for Research Architecture, Goldsmiths, University of London (www.forensic-architecture.org). Drawing upon a diverse range of geospatial and remote sensing technology, the project investigates the conditions that have led to the death of more than 1500 persons fleeing Libya across the Central Mediterranean in the Spring of 2011, while the area was populated by a high number of military vessels. The project’s first product is a report on a particular case of migrants’ death involving 63 people with strong indications of violation of the obligation to provide assistance to seafarers in distress by several actors, including the military taking part in the operations in Libya.¹ The report was the basis for a legal case against France and may be used to file cases against other countries that participated in the 2011 military intervention in Libya.

¹The full report is available on Forensic Oceanography’s webpage: http://www.forensic-architecture.org/homepage/fields/investigations/sea.
Our inquiry into the “left-to-die boat” case mobilized multiple sources of data so as to document with precision the events that led to the migrants’ deaths. In particular the project attempted to spatialize the timeline of events in an attempt to determine the degree of involvement and responsibility of different actors. Synthetic Aperture Radar (SAR) imagery analysis was a key element in this endeavour in that it allowed us to construct a picture of the presence of ships – civilian and military – at the time and in the area of events. While working on the report, FO reached out to GISCorps for the network’s expertise. GISCorps recruited Lawrence Fox III, Humboldt State University Emeritus Professor of Remote Sensing and consultant to provide SAR imagery analysis. The use of SAR imagery in the field of human rights is relatively new territory.

While the resolution of the imagery we accessed was too low to allow for the identification of the provenance of the many boats in view, it was sufficient to identify with precision returns as ships operating in the vicinity of the migrants vessel, and thus constituted a powerful tool to raise the question: whose ships are these? The SAR imagery and analysis contributed to pressure Nations involved in NATO’s maritime embargo to answer this question.

Introduction

The UNHCR defined 2011 as the “deadliest year” in the Mediterranean since the organisation began recording these statistics in 2006, estimating that over 1,500 migrants died within one year while fleeing Libya during the initial stages of the violent conflict. This number is extremely high in comparison to the 13,417 deaths documented from 1988 to March 2012 at the maritime borders of the EU, and the 6,226 deaths occurred solely in the Sicily Channel during the same period. Furthermore, the loss of lives at sea in 2011 occurred despite the significant naval and aerial presence in the area due to the military intervention in Libya launched by an international coalition of states and NATO under the United Nations Security Council Resolution 1973.

One particular event, reported by the international press, provoked widespread public outrage. In the case of what is now referred to as the “left-to-die boat”, 72 migrants fleeing Tripoli by boat on the early morning of March 27 2011 ran out of fuel and were left to drift for 14 days until they landed back on the Libyan coast. With no water or food on-board, only nine of the migrants survived. In several interviews, these survivors recounted the various points of contacts they had with the external world during this ordeal. This included describing the aircraft that flew over them, the distress call they sent out via satellite telephone and their visual sightings of a military helicopter which provided a few packets of biscuits and bottles of water and a military ship which failed to provide any assistance whatsoever. The events, as recounted by these survivors, appeared to constitute a severe violation of the legal obligation to provide assistance to any person in distress at sea, an obligation sanctioned by several international conventions.

In response to this incident, several initiatives were undertaken to shed light on these deaths and demand accountability for them. On 10 May 2011, Human Rights Watch demanded that NATO and its member countries conduct a full investigation of the case. On 9 June 2011, the French NGO GISTI sent out a public call which led to the formation of a coalition of NGOs (constituted primarily by CIRÉ, FIDH, GISTI, LDH, and Migreurop) that sought accountability for the non-assistance of migrants at sea during and in the aftermath of Arab Spring in general and
in the case of the “left-to-die boat” in particular. The Committee on Migration, Refugees and Population of the Parliamentary Assembly of the Council of Europe (PACE) appointed the Dutch Senator Tineke Strik to prepare an in-depth report on the deaths that have occurred in the Mediterranean in 2011. Her report titled “Lives lost in the Mediterranean Sea: who is responsible?” was presented in Brussels on 29 March 2012.

The Forensic Oceanography project offered its expertise in spatial analysis to these different initiatives and published a report on 11 April 2011. In collecting, analysing, and synthesising data, reports, and human testimonies related to the case, the report ultimately aimed to answer the following question: what happened to the “left-to-die boat” and who was involved in the events leading to the deaths of 63 migrants?

By combining survivors’ testimonies, GPS coordinates published by the Italian Coast and a drift model of the boat’s trajectory, we were able to reconstitute with precision the position of the migrants’ vessel over the duration of this event. The distress signals sent out by the Italian Coast guards on the 27 and 28 March 2011 also allowed us to determine in which area ships were informed of the migrants’ distress. The question that remained was thus: “which ships were there?” – and failed to respond. It is here that Synthetic Aperture Radar (SAR) imagery and analysis became central. SAR imagery was crucial in providing a snapshot of the maritime context at the time and in the area of events.

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SAR coverage

SAR imagery was used on this project since optical satellite imagery was not available over the open ocean. As part of this report, a survey of available SAR data was taken for all available coverage within the Strait of Sicily for the period of 27 March – 10 April. The following SAR providers all have varying amounts and types of coverage over this area during the time frame: TerraSAR-X, Palsar, COSMO Sky-Med, Radarsat 1, Radarsat 2 and Envisat-1. For the purposes of this report, Envisat data was acquired for 28 March and 29 March which provides a snapshot of maritime activity in the area.
SAR analysis

For the analysis of the acquired imagery, FO reached out to GISCorps. GISCorps recruited Lawrence Fox III, Humboldt State University Emeritus Professor of Remote Sensing and Consultant to provide SAR imagery analysis. Fox’s analysis provided estimates of ship length and quantification of confidence for all returns considered probable vessels. Envisat-1 radar returns considered probable vessels for the report appeared, on average, eight times the signal strength of the surrounding sea surface. The resolution of the Envisat-1 data allowed for high confidence detection of ships 75 meters and longer. On 24 March the U.S. Department of Defence disclosed that 38 NATO ships were being deployed in the frame of the 2011 military intervention in Libya. 37 of 38 ships were above 75 meters in length.

Overview of ship detections from 29 March Envisat data (A) with enlargements of (B) and (C). The brightness of (C) is due to an interference pattern that occurs when the geometry of the target aligns for maximum return.
Envisat-1 data vessel detection for 28 March (A) with corresponding table of returns (B) documenting estimated length of vessel and confidence.

Return 28_2 was between 82 and 94 NM away from the ship’s drift, while return 28_1 was between 89 and 105 NM away and return 28_0 was between 115 and 132 NM away.
SAR analysis - 29 March

Envisat-1 data vessel detection for 29 March (A) with corresponding table of returns (B) documenting estimated length of vessel and confidence.

Return 29_13 was between 20 and 34 NM away from the ship’s drift, while return 29_3 was between 25 and 33 NM away and return 29_1 was between 32 and 38 NM away.

The analysis of SAR imagery for the 28 and 29 March confirmed the image of a congested stretch of sea with both military and commercial vessels. Combining the analysis of SAR data with that of the drift model, we are able to demonstrate that both on 28 and 29 March 2011 a large number of ships were located in the area, some of which were at distance of between 20 and 38 nautical miles from the migrant’s boat. Per international search and rescue protocols, all these vessels should have received the distress signals which were emitted every 4 hours as of the evening of the 27 March 2011. Although we are not currently able to identify whether the vessels were military or commercial ships or their nationality, the question that presents itself is compelling: whose ships were these? Only further investigation and disclosure by participating states/NATO forces will provide the answer to this question.
Outcome

The SAR analysis provided by Lawrence Fox III and enabled by GISCorps support was first included as one of two figures which were published in advance to support a call by a coalition of NGOs (amongst which Human Rights Watch) demanding further inquiry by NATO and states participating in the military operation concerning their involvement in the case.

The SAR analysis was developed fully in the frame of our report published on the 11 of April 2012 and presented at a press conference the same day in Paris on the occasion of the legal case against France.6 The report received important coverage in the European press including

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6 See the press release "Death of 63 migrants in the Mediterranean: Complaint in France holds the French military to account", 11.04.2012.

URL: http://www.fidh.org/Death-of-63-migrants-in-the
articles in Le Monde and The Guardian. The report was made available on a number of newspaper websites.

While the report is only beginning its public life – it will next be examined by French judges and may be the basis for further legal action against other states – we can consider at this stage already that it was well received and had a measurable impact in terms of forcing the military of several states to position themselves regarding the case. The ultimate effect we hope to contribute to is bringing justice to the survivors of this case and more broadly bringing attention and accountability to the deaths of migrants at sea. The analysis provided by Lawrence Fox III and enabled by GISCorps was essential and we are deeply indebted for it. We hope to have the opportunity to collaborate again in the near future.

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