Part I, 1 Open Source Investigation for Human Rights Reporting: A Brief History

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A Brief History

1. Introduction

Research utilizing open source information, such as publicly available documents, statistics, data, news reports, or maps is nothing new. Indeed, it is a practice upon which human rights organizations, governments, and individual researchers have relied for decades, if not centuries. Antique examples of open source information individuals could make use of even include Yelp-like reviews of restaurants written on walls in Pompeii, such as this one: ‘Traveller, eat bread in Pompeii but go to Nuceria to drink. At Nuceria, the drinking is better.’ Militaries and intelligence agencies in the 20th century also took advantage of the wealth of public information. For example, during the Second World War, Allied intelligence agencies recognized a link between railway efficiency and the price of oranges in Paris, and used information on the fluctuating price of the latter to gauge the success of overnight bombing campaigns. Similarly, Allied forces obtained small town newspapers from around Germany and used the obituary sections to estimate total German troop losses. In the 1960s, professor-turned-private-investigator Josiah Thompson built his research into the assassination of US President John F. Kennedy on open source content. Thompson conducted a frame-by-frame analysis of the assassination captured on the 26.6-second film Abraham Zapruder recorded on his home-movie camera as Kennedy’s motorcade passed down Elm Street in Dallas on 22 November 1963. The analysis Thompson conducted of the Zapruder film and other audiovisual and photographic materials is just the kind of work using open source methods that is carried out today, though often with more advanced technology at hand.

Open source research focusing specifically on human rights violations is also long-standing. Indeed, the founding of Amnesty International, the world’s largest human rights organization, was triggered by open source information. In 1960, British lawyer Peter Benenson read a newspaper article about two prisoners, reportedly in Portugal, punished (p. 13) for political activities, and subsequently launched a worldwide ‘Appeal for Amnesty’ for what he called ‘Prisoners of Conscience’ around the world. As the organization developed, it has continued to rely on open source information, as do other human rights organizations. Historical photographs from the 1980s, for example, clearly show Amnesty volunteers clipping newspaper articles to create research dossiers on individual cases.
More recently, investigators at the International Criminal Tribunal for the former Yugoslavia used videos journalist Zoran Petrovic recorded to reconstruct scenes and events near Srebrenica in 1995, while historian Gerhard Botz spent decades reconstructing the excessive use of force by Austrian police against demonstrators in July 1927. Interestingly, a key method Botz used was image and shadow analysis, a method to determine the time of day based on the angle of shadows. Today, these have become standard processes for human rights investigators to determine the exact time of day of a specific visual—as discussed in Chapter 9 of this book.

Although the history of open source research in human rights stretches back decades, we focus in this chapter on the period from the late 1990s to the present, the digital age, in which open source research capability has expanded enormously thanks to the advent of publicly available satellite imagery, digital social networks, camera-enabled smartphones, and globally cheap and fast network connectivity. If in the categorization of Philip Alston, the first generation of human rights fact-finding describes the work of intergovernmental bodies, and the second generation represents the methods developed by international non-governmental organizations (NGOs) such as Amnesty International and Human Rights Watch in the 1970s and 1980s, our chapter covers what Alston calls ‘third-generation fact-finding’, which was largely brought about by significant developments in information and communication technologies (ICTs). As a 2018 UN investigative report on the situation of human rights in the civil war in Syria put it: ‘The volume of videos and other images—as well as the role played by social media—is unprecedented in any other accountability process with respect to international crimes to date.’

2. Human Rights Investigations in the Digital Age: Four Key Developments

Four key developments since the late 1990s have greatly increased the value of open source investigations in human rights work—satellite imagery, camera-enabled portable phones, digital social networks, and increase in publicly accessible data.

2.1 Satellite Imagery

Satellite imagery with a spatial resolution under 1 meter was traditionally the exclusive domain of national governments. Imagery collected by government owned satellites were and are not available to the public, and so the emergence of a commercial satellite imagery market on January 1, 2000 following the successful deployment of the Ikonos satellite was thus a game-changer. A second satellite, Quickbird, was launched in 2001 and provided images at 61-centimetre resolution. This improvement in spatial resolution capacity to identify objects smaller than 1 metre allowed investigations to be undertaken of previously
inaccessible areas, such as North Korea or Darfur, in Sudan. These are places with reported serious human rights violations, which were traditionally difficult to research owing to lack of access and information. Scientist Matthew McKinzie described the value of satellite imagery for the North Korea investigation:

With meter and sub-meter resolution satellite imagery, objects such as buildings, forests, orchards, fields, fences, rivers, railways, trails, and roads are easily recognizable. Indeed, these [satellite] photographs were shown to former North Koreans who were imprisoned in these places, and who were able to identify specific features in the photographs and to (p. 15) describe their purposes. Using the satellite imagery, interviews with former prisoners were conducted in Seoul, Washington, DC, and Los Angeles ...¹¹

Figure 1.2 Political prison camp in North Korea. Satellite image © Maxar Technologies. Source: U.S. Committee for Human Rights in North Korea. McKinzie 2003, 115.

Additionally, the libraries of precisely dated satellite imagery that have been developed allow researchers to go back in time through archived images. These spatio-temporal records are highly relevant for human rights reporting. They allow researchers to document (p. 16) occurrences such as the destruction of civilian infrastructure during armed conflict, for example, or in some cases the establishment of official or secret places of detention.

One often overlooked advantage for the open source human rights researcher is the fact that satellite imagery, because of its multi-spectral characteristics, shows more than meets the human eye. For instance, so-called false-colour imagery can be used to highlight the impact of oil spills on vegetation.
The single most important satellite-imagery innovation of recent decades has been the development of virtual globes. These make high-resolution satellite imagery available for anyone to access from their personal computer. The release of Keyhole Earthviewer in 2001 was a milestone in this regard. Rising to prominence through CNN’s coverage of the beginning of the 2003 Iraq War, the tool—today known as Google Earth—is now indispensable for any open source investigator. The development of virtual globes also reveals a morally complex issue when looking at the history of open source research in human rights reporting: Open source researchers often rely on tools and resources originally developed by the military or the intelligence community, the very actors often at the centre of human rights investigations for their direct or indirect role in violations. Indeed, Keyhole was initially funded by the CIA-backed venture capital firm In-Q-Tel. (The same firm also funded Palantir, the big data analysis software used by the Carter Center, the Enough Project, and others to organize and analyse publicly available data related to the conflicts and violence in, for instance, Syria and central Africa.) The newest development in the satellite imagery field is the creation of fleets of commercial micro-satellites. While these tiny satellites have a lower spatial resolution than their larger cousins, for the first time in human history every single landmass on earth will be imaged once a day, allowing researchers to monitor and track areas or features of interest in near real time. The next frontier in using publicly available satellite images could well be the use of satellite video.

2.2 Camera-enabled Phones

The second significant digital development for digital open source research was the global proliferation of camera-enabled phones, starting in the early 2000s. Suddenly, individuals subject to abuse and those in their vicinity often had new opportunities to document specific violations in a digital format that could be easily shared. For example, while the 1991 police beating of Rodney King had to be distributed through traditional media outlets to reach an audience, videos of police misconduct could now be published directly by the witness. Multiple examples and case studies throughout this book highlight the importance of such content for human rights reporting. The main difference from previous audiovisual human-rights-relevant footage, such as the Zoran Petrovic footage from Srebrenica, is that
it is not only trained journalists or activists anymore who record. Rather, bystanders or other witnesses can themselves capture and share content.\(^\text{15}\)

In addition to smartphones, the proliferation of other audiovisual sensors have added to the ubiquity of digital content. CCTV cameras,\(^\text{16}\) dash- or body cameras,\(^\text{17}\) or simple audio recordings now also play an increasingly important role in open source investigations. Transparency laws and regulations help with bringing materials such as body camera recordings of officer involved shootings into the public domain.

### 2.3 Digital Social Networks

The third development that allowed human rights investigators to tap into a global network of monitors was the creation of digital social networks enabling almost real-time sharing of videos or photos recorded on smartphones. This in turn was made possible by the exponential growth in internet penetration. In 2000, only 6.7 per cent of the world population used the internet. This has grown to 49.7 per cent in 2017.\(^\text{18}\) Online platforms or messaging apps (p. 18) have created new ways either passively to collect human rights relevant information, or actively to make contact with potential witnesses or, in some instances, people who themselves were the subject of abuse.

### 2.4 Increase in Publicly Accessible Data

Finally, a general trend towards making data more accessible and open also has had an impact on human rights investigations. Researchers now can take advantage of easy-to-access databases, such as historical weather data, active global fire data, census data, and many government records, amongst many others. While such single data sources rarely document specific violations alone, the combination of some or all of these datasets can allow trends or patterns to be identified.\(^\text{19}\) Specific types of documents, such as classified government information or internal corporate documents, remain difficult to access, or are only publicly accessible after a significant delay.

### 3. A Brief History of Human Rights-related Digital Open Source Research

The combined impact of these developments has been enormous: they represent a clear shift in the extent of information control, providing easily accessible tools to circumvent, in many instances, government and other traditional information gatekeepers. In 1961, Peter Benenson had to rely on newspapers to receive information about political prisoners. In the 21st century information sphere, human rights researchers can directly access raw data in the form of social media postings or satellite imagery, often receiving information on potential violations in real time. The impact of this shift can be best seen in concrete incidents and projects starting in the early 2000s.

#### 3.1 Commercial Satellite Imagery

The US Committee for Human Rights in North Korea was the first human rights NGO that took advantage of commercial high-resolution imagery for an extensive report on the state of human rights in a country. The 2003 report, ‘Hidden Gulag’,\(^\text{20}\) made use of satellite imagery to provide, for the first time, visual proof of a vast network of political prison camps in North Korea, reported previously by people fleeing the country. The fact that North Korea remains inaccessible to independent observers up to this day makes this a textbook example of the value of using publicly available satellite imagery for human rights reporting. The (p. 19) same report would not have been possible only even five years earlier, owing to the lack of commercially available imagery with the necessary image resolution quality.
Although Amnesty International started using satellite imagery in 2004, particularly noteworthy is the organization’s 2007 Eyes on Darfur project, as well as the US Holocaust Memorial Museum’s Crisis in Darfur Google Earth Project. Both projects used high-resolution satellite imagery to document burned villages in Sudan’s Darfur region, another area that remains inaccessible to international human rights monitors. Additionally, the Eyes on Darfur project employed satellite imagery to monitor villages at risk of attack. This approach built on Amnesty International’s established practice of protecting individuals at risk by drawing attention to them. Using satellite images, this could now be done with villages at risk in difficult to reach areas. The success of the Darfur project led, in 2008, to the creation of a dedicated team (Science for Human Rights) at the organization, whose priorities included the delivery of research based on open source information.

3.2 Cameras Everywhere

The nascent importance of audiovisual open source content for human rights investigations can be seen in some high-profile cases of the early 2000s. In June 2004, a host of personal photographs emerged—taken on soldiers’ private digital cameras—that showed US personnel torturing Iraqi prisoners in Baghdad’s Abu Ghraib prison. The photographs sparked a global outcry about US military practices overseas and generated calls for greater accountability. A claim at the time nicely summarizes the importance of this event: “We’re functioning … in the Information Age, where people are running around with digital cameras and taking these unbelievable photographs and then passing them off, against the law, to the media, to our surprise, when they had not even arrived in the Pentagon.”

The fact that this 2004 quote does not stem from a human rights activist or investigator, but from then US Defense Secretary Donald Rumsfeld, underscores the power shift in information control. Of course, we do not claim that restrictions on information flows and journalists completely disappeared.

The mass distribution of human-rights-relevant citizen video started unusually: with a zoo. On 23 April 2005, Jawed Karim published an 18-second video of himself at the San Diego zoo in the United States. It is not the slightly awkward video that he uploaded to the internet, in which he clearly feels uncomfortable and does not know what to say, that proved to be a game changer for human rights open source reporting. It is the fact that the video was the first to be uploaded to a new video sharing website he had co-founded called YouTube.

Less than a year after Jawed Karim’s visit to the zoo, a very different sort of content could be found on the website. In January 2006, a video was published that showed Malaysian police forcing a young woman, stripped naked, to perform squats. The video of the incident from June 2005, filmed by a police officer, had gathered attention in the fall/autumn of 2005, and was broadcast on Malaysian state television. A contemporary news article describes its spreading and impact:

The clip began circulating phone to phone, e-mail to e-mail. Eventually it was posted on YouTube and other internet sites, to be viewed by millions. What started as cheap voyeurism escalated into an unstoppable cyberspace phenomenon, which forced the prime minister to establish an official inquiry that led to changes in police practice.

The video eventually led to the suspension of the police officer involved in the incident. In addition to showing the powerful combination of audiovisual content with modern communications technologies, the Malaysian police incident also exposed new ethical issues, such as re-victimization and rights of privacy, that arise with audiovisual open source content. As the victim described her reaction to seeing her abuse broadcast on
national TV: ‘I was surprised and angry and embarrassed all over again. Our culture doesn’t allow this.’

Videos rose to further prominence in human rights fact-finding in 2009, when a leaked video, taken by one of the perpetrators to show his peers, showed an extrajudicial execution in Sri Lanka. The shaky and blurry video showed Sri Lankan security forces killing captured Tamil Tiger fighters. A UN investigation authenticated the footage and this led to calls for an international inquiry and arrest of those responsible for the executions.

While the previous examples were records of single incidents, the combination of smartphone cameras and digital social media networks have also documented mass protests and movements. Among the first movements to receive extensive digital exposure were the so-called Saffron revolution in Burma/Myanmar in 2007 and what became known as the Green revolution in Iran in 2009.

The 2007 protests in Burma/Myanmar, sparked by rising fuel prices, spread across the country and became the largest public protests in that country in twenty years. Some of the authorities’ violent response was recorded on camera and shared with a global audience. ‘[E]fforts at censorship were only partially successful’, Human Rights Watch noted that year, ‘as some enterprising and brave individuals found ways to get mobile phone video footage of the demonstrations and crackdown out of the country and onto the world’s television screens’. The 2009 documentary ‘Burma VJ: Reporting from a closed country’ captured both the impact and challenges of these circumvention efforts, and human rights groups were able to integrate some of this footage in their human rights reporting.

While the dramatic videos from the ‘Green’ revolution in Iran raised the profile of the protests, they also documented human rights violations such as excessive use of force by security forces. At the same time, however, this situation highlighted the dangers posed to human rights defenders and activists by a repressive state’s own use of technological developments. The Iranian regime published photographs and screenshots of videos online to ‘crowd-source’ the identification of activists. This showed the immense danger of visual records and the coming ‘arms race’ between investigators and repressive regimes.

The conflict in Syria, which began in 2011, was the next milestone in the use of open source information in human rights documentation. Satellite images were of very limited use during the initial protests (satellite images are not useful to document excessive use of force, enforced disappearances, torture, or deaths in custody), but the large volume of videos of the conflict was and remains unprecedented. The situation in Syria—claimed to be the first ‘YouTube War’ by one of the authors—accordingly forced human rights organizations to develop new skills, methods, and resources to discover and verify digital content, which was suddenly required on an almost daily basis. The risks of using misattributed content in an investigation continues to be enormous, posing a serious threat to the reputation of any human rights monitoring group. The risk is real, as mistakes by journalists or individual human rights workers show. In May 2012, the BBC erroneously published a photo from Iraq in 2003 with an article of a massacre in Syria. In a different instance, Kenneth Roth, the executive director of Human Rights Watch, published a drone video showing infrastructure destruction in Gaza, claiming that it is from Aleppo.

3.3 The Institutionalization of Using Open Source Digital Information in Human Rights Documentation

What began as a small, Irish start-up specializing in social media verification, Storyful, played an important role in the initial capacity building of digital verification at human rights organizations. Not only did the team at Storyful provide some of the first, general case studies on verification, they also created, in 2013, the Open Newsroom, an online, collaborative space to share specific verification requests and best practices. Together with
the Verification Handbook, published in January 2014,\textsuperscript{37} the Open Newsroom and Storyful’s cases were the key training resources at the time.

(p. 22) In July 2014, one of this chapter’s authors launched the Citizen Evidence Lab, the first resource dedicated to open source human rights investigations.\textsuperscript{38} The site includes case studies of the use of open source research in human rights reporting, a resource list, and training exercises.

Meanwhile, Amnesty International attempted to tackle a second challenge related to open source investigations. The volume of digital content coming out of conflict zones such as Syria and Libya proved too overwhelming for any single researcher to review and process in order to conduct any meaningful analysis. The organization thus attempted to build on its long history of activism by bringing volunteers into the research process, in order to create a sort of triage process to sort through the at times overwhelming amount for open source digital information. It launched a pilot project called the \textit{Citizen Evidence Media Project} in September 2013,\textsuperscript{39} which eventually led to the authors of this chapter and the editors of this book working, with others, on the creation of the \textit{Digital Verification Corps} (DVC) in the autumn of 2016.\textsuperscript{40} This university-based network of trained student volunteers plays a crucial role in discovering and verifying open source digital content and, in many ways, is the successor to Amnesty volunteers researching and clipping newspaper articles from the 1960s to the 1980s.

This growing capacity and expertise of human rights groups is most clearly in evidence when open source video analysis is combined with satellite imagery analysis. A prime example in this vein of the new opportunities that open source content offers to the human rights community is an investigation into mass graves in Burundi in late 2015. A single video showing a mass grave that was created following political violence in December 2015 proved enough to pinpoint its exact location on Google Earth, in a rural area outside the capital Bujumbura. A time-series of satellite images confirmed that the burial site emerged in mid-December, which was consistent with eyewitness testimony of when the massacre occurred. The available data allowed researchers to create a spatio-temporal record of an atrocity crime independently, and to counter official government narratives downplaying reports of state sanctioned extra-judicial killings.\textsuperscript{41} The location and timeline of this mass grave might never have been known were it not for the review and analysis of open source information.\textsuperscript{42}

In the course of this work, open source human rights investigators extensively draw on the expertise from various professions, especially to analyse visual content. This includes medical-, ballistic-, or weapons experts, among others. Practices and techniques borrowed from architecture, for example, started to become part of the analysis process. Architects (p. 23) provide immense added value by producing detailed event and scene reconstruction, using a wide variety of digital open source content. The term ‘forensic architecture’ emerged in the 1980s,\textsuperscript{43} and the field started to contribute regularly to human rights investigations in 2009, for example in Gaza, Syria, and Mexico, among many other locations.

\section*{4. Case Studies}

Several recent investigations—in Myanmar, Cameroon, Libya, Democratic Republic of Congo, and Nigeria—vividly illustrate the remarkable value of open source research for human rights reporting. Similar to the Burundi case above, none of these investigations would have been possible, or would have had the impact they had, were it not for open source research and analysis.
4.1 Rakhine State, Myanmar (2016 and 2017)

Reporting on the serious violations committed by Myanmar’s security forces against the Rohingya minority in Rakhine state in 2016 and 2017 demonstrates the value of open source research and some of the modern methods being used to document occurrences. They also demonstrate well the changing methods of human rights reporting. Rakhine state in northwest Myanmar was completely sealed off by the Myanmar authorities to independent, outside observers such as journalists, human rights investigators, and the United Nations, some of whom suffered severe consequences when attempting to investigate on the ground. The situation has thus appropriately been described as an ‘information black hole’. However, using remote sensing and visual social media content—complementing interviews with refugees—allowed researchers to document human rights violations meticulously during the 2016 violence and the ethnic cleansing campaign of 2017. To investigate this inaccessible area, human rights organizations took advantage of multiple open data sets ranging from geo-data to remote sensing and data available on social media.

First, it was important to find proper geographic data for villages in northern Rakhine state to investigate specific reports filtering out of Myanmar of widespread human rights violations. Google and other standard online mapping platforms often have only sparse data from such remote areas. Luckily, in this case the Myanmar Information Management Unit (MIMU) provided detailed geo-data that allowed for populating GIS programmes, such as Google Earth, with every village in the region. This was the starting point to investigate reports of violations, which are connected to specific places.

Satellite images and other remotely sensed data proved crucial to both investigate attacks on specific villages and to show the scale of the violations. For example, Amnesty International used satellite images to confirm attacks on the villages of Tula Toli and Hpar Wat Chaung. The satellite images proved especially powerful in the case of Hpar Wat Chaung, documenting the destruction of the village in mid-September 2017. These allowed Amnesty International to refute public claims by Myanmar’s State Counsellor, Aung San Suu Kyi, that military operations had ended as of 5 September. Satellite detected active fire data from NASA made it possible to corroborate further and narrow down the date of attacks, since the satellite sensors collect the exact minute of an active fire. Later, human rights organizations used satellite images to document the final step in Myanmar’s ethnic cleansing campaign: the permanent razing of former Rohingya villages in the spring of 2018.

Images and videos that recorded the burning of villages, and which were largely shared via social media, provided the most detailed look at systematic human rights violations in Rakhine state. Using the above-mentioned MIMU dataset of settlements, researchers were able first to find an attack’s reported location on Google Earth. Then, matching features visible in the images and videos, such as hills, rivers, or remaining structures with satellite images on Google Earth made it possible to confirm the exact location of an attack. In the village of Kyet Yoe Pyin, for example, Amnesty International was able to match videos of a burned market and mosque with satellite images. These findings were consistent with testimonies that the village was burned in October 2016.

Additionally, researchers reviewed every single piece of visual content for its provenance to ensure that it indeed represented a new violation in Rakhine. This can be either done through reviewing metadata, where available, or conducting a simple reverse image search—finding the same photograph online using reverse image search engines such as Google Images or TinEye—to detect previously shared content.
All these steps were crucial considering the massive amount of mis-information shared online related to the persecution of Rohingyas. The standard misinformation promoted in the context of Rakhine were a set of images some individuals (falsely) described as Buddhist monks burning Rohingya victims, including children—in fact, these images showed the cremation of victims of the 2010 China earthquake by Tibetan monks. It helps that in this case the original images came from official news agencies, and were easy to find using the reverse image search techniques outlined later in this book.

**4.2 Torture in Cameroon (2017)**

A shaky video that emerged in January 2017 showed apparent members of Cameroon’s special forces beating detained men in the courtyard of a house. The scene certainly seemed emblematic of the widespread human rights violations committed by Cameroon’s armed forces in their fight against Boko Haram, an armed group active across north-east Nigeria, Cameroon, Niger, and Chad. However, to confirm this, the accuracy of the video had to be established first.

In 2017, Amnesty International’s Digital Verification Corps, a global network of trained university students, assessed digital content from Cameroon as part of a larger Amnesty research report. The report’s conclusions proved highly sensitive, as they included the exposure of torture at Cameroonian military bases that were also used by US and other foreign troops. And the report’s release showed the immediate impact open source human rights documentation can have: In addition to extensive media coverage of the report’s conclusions, the US Africa Command (AFRICOM) launched an inquiry into any knowledge of Cameroonian torture by US troops within days of the report’s publication. The video was originally posted on Twitter in the evening of 13 January 2017, but to begin to verify its veracity, researchers had first to check that the video was not from a previous date or non-Cameroonian location. Social media research always begins with determining the relevance of the content, ensuring that, in this case, the video had not appeared online previously. A first step in doing this is to run key thumbnail images through online reverse image searches. Reverse image search of thumbnails suggested that this version was the earliest available online. In addition, the social media profiles of the person who posted the video suggested that he was based in Cameroon.

The next step was to identify the primary actors. In the footage, the acronym ‘BIR’ is visible on the T-shirts of the perpetrators in several instances. BIR is an acronym for Bataillon d’Intervention Rapide—the elite unit of the Cameroonian Army tasked with fighting Boko Haram.

Descriptions of torture from a 2016 Amnesty International report are consistent with the crimes seen in the video, where victims are kicked and hit with wooden planks. According to the testimonies of former detainees quoted in the report, ‘the men in plain clothes kicked them and slapped them violently, and hit them with wooden sticks’. Reviews of previous reports of BIR misconduct suggested that the men in the video were being tortured based

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View full-sized figure

![View full-sized figure](http://opil.ouplaw.com)
on the suspicion of being Boko Haram supporters. This information points to a very
different motive for torture than that which was being circulated on social media at the
time, namely, that the video was related to protests and a crackdown in the English-
speaking regions of the country.\footnote{57}

One of the men being beaten in this video is speaking Fulani, a commonly spoken language
in the Far North region of Cameroon. And the woman seen sitting in the background is
wearing her clothes and hair in the traditional style of the Kanuri, an ethnic group living in
the Far North region of Cameroon, and around the Lake Chad basin. This information points
to events in the video occurring in the Far North rather than Cameroon’s western
Anglophone regions, as was claimed in multiple social media posts.

Further, investigators were able to match video evidence with a specific locale. BIR soldiers
are stationed at several permanent and temporary fortified bases in the Far North,
including the border town of Kolofata located 70 km from Maroua. Some of the bases even
display BIR in large letters on the roofs of their barracks, which is easy to spot in publicly
available satellite imagery.

Google Earth allowed researchers to identify a house that matched the features visible in
the video within a fortified area in Kolofata. Using only a short, shaky video, the researchers
were able to pinpoint the exact location of a torture site under the control of the BIR.
Drawings and descriptions from a former detainee matched satellite imagery of the
location, confirming the findings.

The conduct of torture in the country goes beyond the Cameroonian authorities. The United
States and several other countries provide military assistance to Cameroon, and, as already
noted, US military personnel are stationed in the country. This includes at the BIR
headquarters and military base in Salak, one of the sites where incommunicado detention
and torture of suspected Boko Haram members was routinely carried out between 2014 and
2017. US and French military personnel, as well as private Israeli contractors, were present
in the BIR base in Salak to provide training and assistance. Research by Forensic
Architecture, an independent research institute at Goldsmiths, University of London,
uncovered multiple Facebook postings showing US soldiers in the immediate vicinity of
locations of torture within Salak. It was this visual material and spatial proximity that
prompted (p. 27) the AFRICOM investigation of what their own troops knew—another
instance of open source information complementing human rights investigations.

4.3 Libya (2017)

Human rights groups have also repeatedly used open source visual materials to document
extrajudicial executions in Libya.\footnote{59} A string of executions from 2016 to 2018 featuring
Mustafa Busuf Al-Werfalli, a commander of the Al-Saiqa Brigade (an elite forces unit of the
Libyan National Army active in the city of Benghazi), were all captured on video. The videos
provided the basis for both documentation by human rights and international organizations
and, in August 2017, a first arrest warrant by the International Criminal Court (ICC) (a
second was issued in 2018). The ICC warrant stated that Al-Werfalli ‘appears to be directly
responsible for the killing of, in total, thirty-three persons in Benghazi or surrounding areas,
between on or before 3 June 2016 and on or around 17 July 2017, either by personally
killing them or by ordering their Execution’.\footnote{60} The warrant alleged that the crimes
happened during the Al-Saiqa Brigade’s participation in Operation Dignity, a campaign
launched in May 2014 by Field Marshal Khalifa Haftar to fight terrorist groups in Benghazi.
At first glance, there is nothing particularly remarkable in the warrant compared to other
ICC warrants for arrest issued around the same time. What sets it apart, however, is the
warrant’s evidentiary basis: the warrant relies on both ‘video material and transcripts of
video material’ and ‘internal orders, and social media posts by the Media Centre of the Al-
Saiqa Brigade’ to come to its decision to prosecute Al-Werfalli. As Emma Irving notes, ‘it is the first ICC arrest warrant to be based largely on evidence collected from social media’.

To date, Al-Werfalli can be seen in eight execution videos posted to different social media accounts. Several of the posts come from persons with links to the Al-Saiqa Brigade—the brigade of which Al-Werfelli is believed to be a commander. The open source investigation collective Bellingcat set out to geolocate the incidents—including the execution of twenty people in July 2017. Bellingcat not only located the video to Benghazi, but satellite imagery of 17 July 2017 appeared to show new bloodstains stemming from the bodies, thus also confirming the date. This perfect meshing of available evidence in open source information is rare—but when it does come together it strengthens the evidence base even more.

What is important in this case is that it is a first step to test if verified and geolocated open source video holds enough weight to be used in evidence in tribunals such as the International Criminal Court. To date, Al-Werfalli has not appeared in The Hague. But the fact that the Office of the Prosecutor was prepared to issue a warrant based predominantly on video evidence already shows the great strides that have been made towards open (p. 28) source acceptance. As Emma Irving states: ‘The approach taken to this type of evidence will prove crucial for any future proceedings in conflicts such as Syria and Yemen, where open source material abounds. The warrant for Mr. Al-Werfalli is just the beginning of what will be a long, and likely complex, relationship between open source evidence and international criminal justice.’

4.4 Democratic Republic of Congo (2018)

In February 2018, witness reports emerged that villages in a remote region of the Democratic Republic of Congo were being burned amid a renewal of communal fighting. The clashes between the Hema and Lendu communities—located on the eastern side of the Ituri province, bordering Uganda—started in December 2017 and escalated in early February 2018. Historically, such conflicts have been difficult to analyse because of lack of access to the affected area. But geospatial technologies and publicly available data allowed researchers and journalists to investigate this incident in close to real time and show that numerous villages were burned to the ground in February 2018.

The first step was to collect active-fire data from NASA—thermal anomalies, or hot spots, that are recorded daily. It showed dozens of fires in the region on the densely forested mountain ridge and along the shoreline of Lake Albert, one of the African Great Lakes between the DRC and Uganda. Human rights groups previously used this type of data, in combination with other information, to document the military’s scorched-earth campaign against the Rohingya in Myanmar, as was described above. Active-fire data does not provide the cause of a fire, so one must exercise caution in interpreting it, especially when researching violence. Further, the satellites that collect this information do not provide actual images; they only record the location of active fires, and very large ones at that.

Google and other online mapping platforms often show only blurry satellite images or have no location names for remote areas such as the small fishing villages around Lake Albert. This makes it difficult to pinpoint where people live. To deal with this challenge, the journalists used residential data from the online mapping site Openstreetmap, an editable online mapping site. Overlaying the NASA data with the Openstreetmap data in Google Earth allowed visual inspection of recorded fires that occurred in or near populated places—likely places that were affected by violence. This simple process produced a shortlist of ten locations to investigate.
Next, the satellite company DigitalGlobe provided high-resolution satellite imagery and analysis of these places. The results were disturbing: all the villages on the shortlist were at least partially burned, with hundreds of destroyed homes. This new visual proof provided a strong basis to report out the whole story. Taking advantage of open geospatial data resulted in reporting on very specific details from both sides of the lake, not just at the refugee landing site in Uganda, which had been the focus of reporting up to that point. Combining these findings with traditional reporting mainly interviews with humanitarian workers in (p. 29) Uganda—allowed the New York Times to present the findings in a very visual way to a large audience.66

4.5 Niger Delta, Nigeria (2018)

Amnesty International’s ‘Decoders’ project is an innovative means of addressing one of the biggest problems associated with open source research, namely, sorting through exceptionally large volumes of information, typically contained in unstructured or ‘messy’ datasets, for pertinent information. Although invaluable information of potential human rights violations may be contained within the data, the resources—in terms of human hours—required to structure and prepare it for analysis are often prohibitive. In response, Amnesty developed a micro-tasking model, mobilizing ‘digital volunteers’ from across the world.

The micro-tasking model itself is relatively simple: the dataset is broken down into small, discrete packages, or ‘tasks,’ which are then made available to the digital volunteers. This allows for large amounts of information to be examined in parallel in a relatively small timeframe, opening up significant possibilities for future analysis and investigation. The Decode Darfur project, for example, involved 28,600 volunteers from 147 different countries, who submitted an average of 16.5 tasks every minute for seven weeks, contributing a total of 9,065 hours.67 Had this task been approached in the traditional manner, by a desk-based researcher, it would have taken over four years of full-time work.

The digital volunteers involved with the decoder project do not undertake new forms of human rights work; instead they analyse satellite imagery to determine whether a village is present or whether it is damaged, examine documents, and so on. The key differences from traditional research are the scale and often transformative speed at which large datasets can be addressed. Whereas once a researcher could engage with only part of a dataset, owing to time and resource constraints, now the entire dataset can be examined, allowing for a comprehensive analysis of the situation and providing significantly greater evidentiary weight. In the ‘Decode the Difference’ project, for example, digital volunteers and Amnesty researchers were able to analyse every village in a 326,000 km² region of Darfur. As a result, the researchers were able to demonstrate convincingly that attacks against civilians were carried out in a systematic manner. Without the digital volunteers evidencing the systematic nature of the attacks—an essential element of a crime against humanity—would have been impossible.

The potential of the Decoders project can also be seen in a series of projects organized to respond to environmental harm caused by oil spills in the Niger Delta.68 Through the destruction of livelihoods such as fish grounds, these oil spills have a significant impact on the local environment and thus on local communities. Environmental destruction caused by oil spills has been the subject of Amnesty International campaigns for a number of years. One result of the campaigning has been that investigations are now jointly conducted by the company and the police once an oil spill is detected, with their handwritten investigative (p. 30) form then scanned and uploaded on to the company website. The thousands of approximately eight-page investigative reports indicate the claimed cause of the spill, its location, photographs of the pipeline, and so on. Amnesty International
researchers simply did not have the time or staff resources required to transcribe these documents in order to prepare them for analysis.

Amnesty International engaged the digital volunteers to transcribe the documents in order to assist in the pursuit of accountability for the oil spills and compensation for the communities affected. In order to facilitate this task, Amnesty identified the key components to look for within the reports. The principal element of interest was information on the source of the spill, as this is relevant to compensation claims. However, this could be corroborated or contested based on other key information or hints in the document that could contradict the official cause. Key tasks therefore involved extracting information on the location and size of the spill and examining the photos. The photos of the spills were particularly relevant. If the documents claimed that a spill was the result of theft (a common occurrence in Nigeria), but the image showed significant corrosion, Amnesty could contest the reported cause and claim compensation for the community. Each document was sent to multiple volunteers, in order to facilitate accuracy of analysis. If the volunteers were split in the conclusions they reached, an Amnesty researcher might step in to conduct further investigation.

In total, 3,545 volunteers from 142 countries worked on the oil spill project over several weeks, analysing 2,985 documents. Eighty-nine suspicious reports were identified, allowing Amnesty to pursue compensation claims on behalf of local communities. The results of the data also provided a strong platform for advocacy and a means by which to engage the companies on their due diligence obligations. For example, if a large number of the spills were claimed to be a consequence of theft, Amnesty International could consult the data to identify the key locations along the pipeline where spills occurred, and then advocate that the companies establish focused patrols.

An added value of this crowdsourced model is that it mobilizes willing volunteers from around the world and provides a means whereby individuals can actively contribute to meaningful human rights work. This helps reduce the distinction between professional human rights workers and engaged citizens and provides a convenient means of engagement. Digital volunteers work on small tasks, meaning that they can contribute on a sporadic basis, and can work on a single task for a few minutes, or multiple tasks over a few hours, depending on their availability. The process itself is often ‘gamified, in order to encourage volunteers to stay engaged, and to make the process as enjoyable as possible.

5. Conclusion

Human rights organizations have a long tradition of utilizing open source information in documenting abuse. As this chapter has shown, human rights organizations early on adopted, or led the development of, new research methods to integrate digital open source information into traditional reporting. Building on this body of work, some human rights groups have engaged volunteers to process the growing amount of digital open source information, which has given them a leg up in discovering and verifying human rights relevant digital content, as we saw in the Cameroon incident.

The need for integrating digital open source research into traditional human rights reporting was triggered by several structural changes in information and communication technologies in the 1990s and early 2000s. These changes offered opportunities for new data collection and circumvention of state information control. Human rights violations that governments had successfully concealed in the past were suddenly visible in plain sight owing to public access to high-resolution satellite imagery, for example in the analysis of images of North Korean detention camps. The global proliferation of smartphones and digital networks led to the next chapter in the use of digital open source information in human rights documentation. Single violations captured on video and shared to a global audience were followed by social media documentation of larger events such as protests in Burma, Iran, and, later, the war in Syria. This evolution has forced human rights
researchers and organizations to develop new tools and methods of discovery, archiving and verification in order to take full advantage of the new information environment.

Footnotes:


15 Interview with Sam Gregory, May 2018.


20 Hawk (n 11).


28 Jordan (n 26).


37 ‘The Verification Handbook’ (European Journalism Centre 2014).


42 ibid.


57 Eugene N Nfornqw on Twitter: “#SomeoneTellBiya: These Are Supposed to Be the Most Disciplined Soldiers in #cameroon #BIR ... ” https://twitter.com/en_nforngw/status/819985183977963520 accessed 20 December 2018.

58 Weizman (n 43).

Judge Joyce Aluoch, Judge Cuno Tarfusser, and Judge Péter Kovács, ‘Situation in Libya in the Case of the Prosecutor v Mahmoud Mustafa Busayf Al-Werfalli’ 17.


Irving (n 61).


NASA (n 49).

Koettl, ‘How We Identified Burned Villages in the Democratic Republic of Congo’ (n 64).


Interview with Milena Marin, May 2018.