

lines of inquiry

glossary
media
field manual

Lines of Inquiry: Glossary, Media, Field Manual
Forensic Architecture Studio
Centre for Research Architecture
Goldsmiths, University of London
September 2019

Foreword by

Lorenzo Pezzani

Contributions by

Dimitra Andritsou, Tim Brouwer, Imani Jacqueline Brown,
Manuel Correa, Anna Engelhardt, Carol Iglesias, Phevos
Kororos-Simeonidis, Tiago Patatas, Tara Plath, Mohamad
Safa, William Scarfone, Avi Varma

Edited by

Carol Iglesias, Tara Plath, Avi Varma

Designed by

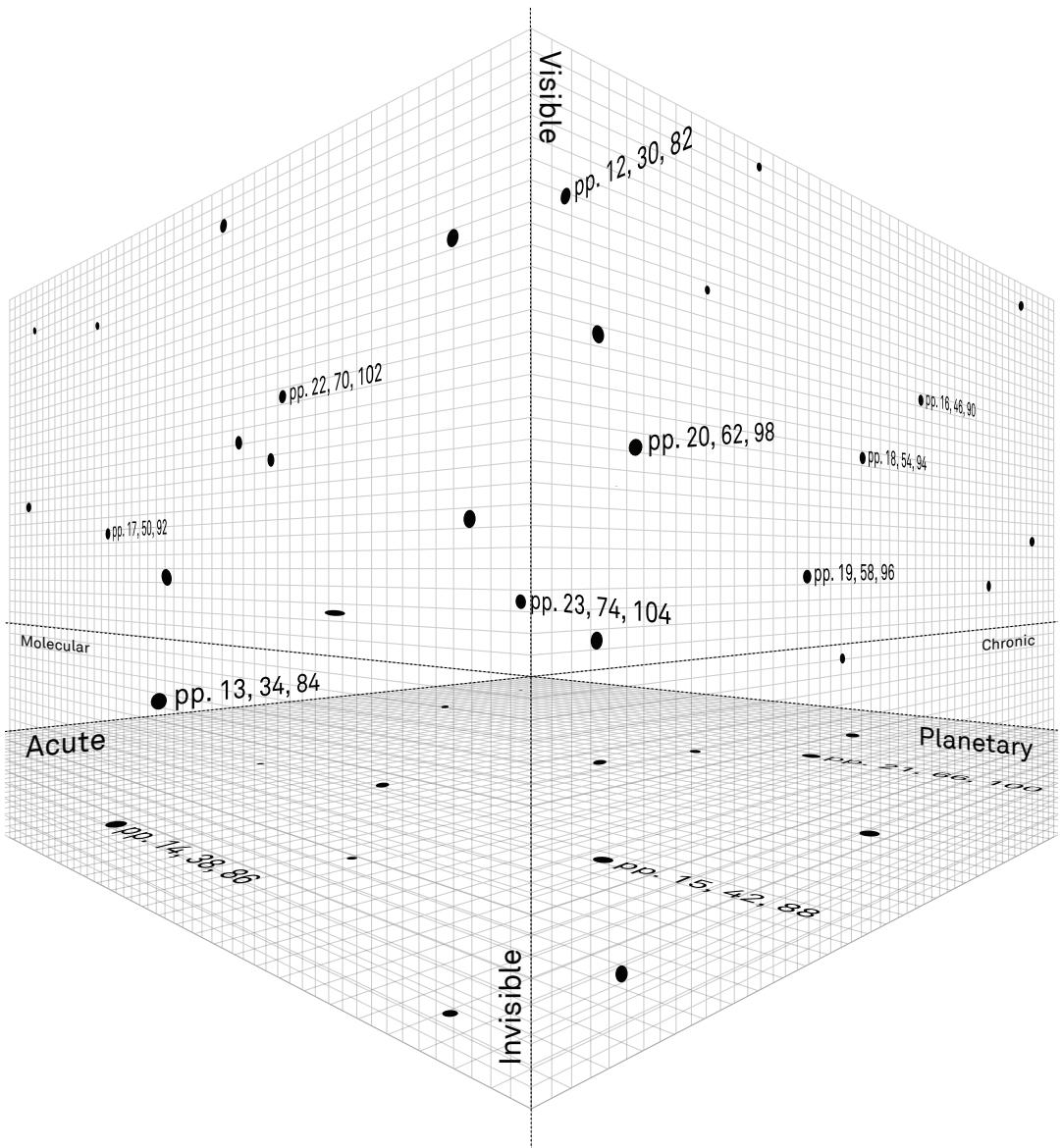
Dimitra Andritsou, Imani Jacqueline Brown,
Anna Engelhardt, Tiago Patatas

Acknowledgments

With gratitude for the invaluable support of Lorenzo
Pezzani, Susan Schuppli, Forensic Architecture, and
our colleagues and loved ones around the world.



Attribution-NonCommercial-ShareAlike 4.0 International



NOTE FOR READERS:

The materials collected in this publication are each grounded in a specific *entry point*, indicating the event or site from which our investigations emerged. To the right, you can see them identified in terms of their spatio-temporal coordinates. Above, the diagram situates them across three spectrums: visibility, scale, and duration. Each entry point is articulated in different ways across the publication's sections:

The *Glossary* contains the operative concepts that developed over the course of our investigations and in turn aided us in thinking about our cases. The *Media* section contains an archive of visualisations and documentation. Finally, the *Field Manual* presents specific, practical questions we encountered and step-by-step guides to problem solving that may be useful to future research. The contributions in each section are organized by student name and concept.

CONTENTS

Foreword	4
Introduction	6
Glossary	10
Endnotes	24
Media	28
Field Manual	80
Resources	106
Index	107

Entry Points

Panagi Tsalidari Street, Omonoia Square, Athens, Attica, Greece
 37°59'02.8"N 23°43'41.2"E
 19 October 1999
 pp. 12, 30, 82

Attack in the Kerch Strait, between the Azov and Black Seas
 44°51'18.0"N, 36°23'24.0"E
 25 November 2018, 20:45 (GMT+3)
 pp. 13, 34, 84

Post-impact reverbs after twenty GBU-28 missile bombardments, Imam al Hassan residential complex, South Beirut, Lebanon
 150 Hz to 300 Hz (peak frequency)
 33°50'36.8"N 35°30'52.1"E
 13 August 2006, ca. 14:50 (GMT+3)
 pp. 14, 38, 86

20 hectares of demolished historic urban terrain, Sur, Diyarbakir, Mesopotamian North Kurdistan / Southeastern Turkey
 37°54'39.4"N, 40°14'12.3"E
 2009 - present
 pp. 15, 42, 88

Chevron "Wagon Wheel," Birdsfoot Delta, Plaquemines, LA, USA
 29°14'10.6"N 89°24'23.5"W
 5 August 1929 - present
 pp. 16, 46, 90

Rescue Beacon #20, Cabeza Prieta National Wildlife Refuge, AZ, USA
 32°23'37.9"N 113°05'08.8"W
 2013 (verified) - present
 pp. 17, 50, 92

Calatayud Municipal Graveyard, Zaragoza, Spain
 41°22'13.89"N, 1°37'38.96"W
 1959
 pp. 18, 54, 94

Tornillo "Tent City," Marcelino Serna Port of Entry, Tornillo, TX, USA
 31°25'58.41"N, 106°8'27.57"W
 6 September 2018
 pp. 19, 58, 96

Informal Mining Site, Itaituba, Pará, Brazil, Amazon Rainforest
 4° 51' 50.5"S, 56° 41' 08.0"W
 24 July 2019
 pp. 20, 62, 98

Plans for Stratospheric Controlled Perturbation Experiment, Keutsch Research Group, Harvard University, Cambridge, MA, USA
 42°22'37.4"N 71°06'59.9"W
 2017 - 2047
 pp. 21, 66, 100

Fire occurrence at the migrant camp of Moria, Lesbos, Greece
 39°07'59.3"N, 26°30'14.6"E
 2015 - present
 pp. 22, 70, 102

TSB's homepage tsb.co.uk, IP address 185.189.250.13, Stroud, GL5, United Kingdom
 IP coordinates: 51°44'17.88"N, -002°13'15.24"W
 22 April 2018
 pp. 23, 74, 104

FOREWORD

In 2006, Rony Brauman, former president of Doctors Without Borders (MSF) and emblematic figure of the post-WWII wave of humanitarianism “sans frontières,” published a book titled *Penser dans l’urgence*, thinking at the time of – or, literally, from within – emergency. In a long autobiographical interview, Brauman describes the urgent ethical, political, and humanitarian dilemmas he had to face during the many MSF missions he led. What relevance, he asks with the unyielding self-critical tone characteristic of MSF analysis, might critical thinking have in the face of imminent humanitarian catastrophe? For Brauman, quite everything. Championing a form of field philosophy, he invites us to consider theoretical reflection as a compass that guides action on the ground, an organisational tool that helps orientate one’s practice within a complex and historically stratified force field.

Brauman’s invitation seems all the more relevant today, at a time of resurgent authoritarian forces and intensifying social and environmental abuse. Once what Ghassan Hage has called “the politics of white restoration” have not only become ubiquitous but are even being legitimised and proudly claimed in public, spaces of critical reflection seem to be all but shrinking as we are confronted with emergency after emergency. As Irit Rogoff recently suggested to me, what this recent rise of toxic nationalism, patriarchal domination, and (neo-)imperial fantasies has been taking away from us has not only been the last remaining scraps of social protection. It has been, first and foremost, the very time and space we need to think about what we are doing, to sit down and organise together, to reflect and read and study and discuss and (dis-)agree while we fight and struggle.

The texts gathered in this volume seek to contribute to the work that many are doing to reopen such a time-space. They emerge out of the investigations developed by the students of the MA Studio in Forensic Architecture at the Centre for Research Architecture, Goldsmiths, University of London. Each of these projects avoids taking the comfortable stance of detached, “learned” criticism that still abounds in academia. Rather, they speak to the desire of somehow implicating oneself in a given social, political, and environmental conflict, while at the same time resisting the imperative of mechanical reaction and (white-)saviour activism.

The double bind between political action and theoretical elaboration that these projects grapple with is reflected in the structure of this publication, which combines, on the one hand, entries constituting a tactical field manual of sorts (in which students share DIY skills that they have used to research, expose, and visualise different forms of injustice and violence) with, on the other, the operative concepts that have guided those very investigations. Together, the materials presented here testify to the students' attempts to inhabit the often uncomfortable and risky position of the self-critical interventionist. And, quite simply, to think at the time of crisis.

INTRODUCTION

Over the course of this past year, the researchers included in this publication have immersed ourselves in investigative practices. While we each arrived at a specific case – a site of layered spatial conditions and conflict – our investigations did not end at the fixed coordinates with which we began. Rather, they extended into collective reflections on ethical engagement, rigorous evaluations of proximity, and an interrogation of terms. These investigations asked many things of us, pushing us to consider the meaning of *skill* in various fields of knowledge-production – in open source investigative practices, academia, and the ways in which we interact with each other.

To a certain extent, *skillfulness* was at the core of the MA studio work. In its most typical counter-forensic articulation, skill (in terms of expertise, objectivity, data-analysis, archiving, information, knowledge) is hoarded by states and corporations to maintain a chokehold on power. In response, the counter-forensic researcher takes the skills of the state and leverages them against its deceptions, occlusions, and injustices. In the process, skill becomes demystified and, potentially, becomes part of a commons. Certainly, aspects of this use of skill persist in this publication. However, what such a political methodology does not address are the politics of generating skills in the first place. Because in the age of point-system immigration, which admits only those laborers categorized as “high-skilled,” skill itself functions as a form of bordering. What’s more, new skill sets tend to become a crucial asset produced by the neoliberal university, inflating our human capital as students and raising the value of our self-esteem, self-worth, and self-appreciation within technical, cultural, and (overall) labor markets.¹ All of this is to say there is no necessary causal link between skill and problem-solving, or skill and ethics. It is within this uneasy problem-space that we have negotiated our investigations. This publication, therefore, seeks to situate in the micro-ecologies of our research the processes that generated the skills necessary to conceptualize, represent, and perceive the terrains of our research in the first place.

We applied an array of skills to practical interrogations in an attempt to uncover secrets, at macro and molecular scales. Embedded within this impetus to discover and illuminate are lay-

ers of the workings of power, and how we position ourselves in relation to structures of secrecy and of agency. Freedom of Information Act requests, the gathering of witness testimony, data mining, open-source investigation techniques, remote sensing: these are practices that ‘see at a distance,² and can often suppose a limiting binary between powerful entities that hold answers and the activist-investigator who seeks accountability. Yet other forms of knowledge and modes of engagement exist.

Information “unearthed” by meticulously combing through documents over the course of months might be understood by the body in milliseconds. Notions of political struggle can be dramatically reoriented through embodied encounters with state and corporate forces. The skills we use to access the material at the heart of our investigations –water, memory, heat, risk, sound – dictate in turn the questions we might ask.

How do we hone our gaze so that it does not mirror the data capture systems that absorb everything in an attempt to find something, only to turn out narratives that fit all too well into our existing worldviews? How can we simultaneously claim the “right to look,” while acknowledging covert practices as potential forms of resistance and political action? How do we recognise that much of what we consider to be a secret is, in fact, merely unknown to us, and in turn, how do we reflect on these discoveries in order to broaden our own epistemic limits, rather than immediately re-packaging them for consumption by other unknowing audiences?

In a sense, the relevance of these questions emerges in relation to a pedagogical desire with many names – that of a ‘practice-based’ education, of operational research, of political engagement. Tied to that desire, secrets and skills engage each other in chiasmic tension: we learn to investigate, using skills to reveal what is opaque; but we also learn to ignore or reject some modes of knowledge, to keep some skills secret, and to leave things untouched. The latter part of this equation does not mean we abandon strategies that seek to expose processes by which violence endures and power perpetuates itself. In fact, that effort, this publication tries to suggest, is doubled in its attention both to what is purposefully hidden from the public eye (corpo-

rate alliances, toxic sites, carcerality, or the lethal consequences of migration controls) and what is naturalized and made invisible through its routine character.

Throughout this publication – part glossary, part field manual – we invite readers to use the materials in all ways that feel useful: combining or discarding elements to create their own lines of inquiry. Following a year’s worth of collective work in crits, informal reading groups, and studio-practice, the glossary offers conceptual propositions that attempt to articulate critical aspects of the cases we investigate. In the field manual, one finds strategies developed on the fly for materially intervening in different political contexts, often in the course of field investigations, each with its own situated political stakes. The structure of this book thus reflects the parallel skills required by such a double task: imagining and imagining, seeing and naming.

GLOSSARY

#antireport
Adversarial Infrastructure
Anomalous Reverb
Civic War
Corporate Sublime, The
Deterrent Imperative
Differential Truth-Construction
Hybrid Landscape
Negative Commonality
Parametric Apprehension
Smouldering Grounds
Techno-Logical Leakage

#ANTIREPORT

The hashtag *#antireport* is used across social media in Greece by individuals and collectives that align themselves with the anarchist, anti-authoritarian, and libertarian political spectrums when reporting hate crimes and episodes of state repression. It was introduced as an Indy-media hashtag on Twitter by Greek accounts in early 2012, while it also appeared on tweets by accounts promoting the struggle of indigenous tribes in Latin America. The assemblage of information shaped by users of *#antireport* highlights the differences between the mainstream and alternative media in the methods and language they use to depict and report on hate crimes. While individuals and collectives consider the mainstream media's rhetoric to be part of the structural violence leading to hate crimes in the first place, crowdsourcing reports of events allows for different voices and stories to emerge. For instance, since the far-right group Golden Dawn first entered the Greek Parliament after the 2012 elections, *#antireport* has been used to monitor the actions of the organization both at street level and in the media sphere. As a hashtag, a repository of related or disparate events can be found through social media search engines. Beyond this practical function, the notion of *#antireport* provides a useful conceptual angle to think about the resulting dataset as a form of "subjugated knowledge," that is, a compilation of "historical contents that have been buried and disguised in a functionalist coherence or formal systemization,"³ as it provides a grouping criteria to an otherwise disparate set of events.

An *adversarial infrastructure* is characterized by apparently contradictory and self-sabotaging functions that strengthen the infrastructure's capacity to inflict harm. Linked to regimes of colonial occupation, this mode of infrastructure reveals itself in seemingly useless state projects. The term "adversarial" comes from its use in machine learning methods. Adversarial machine learning is based on the idea that algorithms can learn via competition. It is employed extensively. Generative adversarial networks (GANs) are the most well-known source of strange pictures on the internet and in art galleries.⁴ Its architecture consists of two neural networks that are designed to be antagonistic. Even though their functions are programmed to oppose each other, their entrapment in a looped contest strengthens the neural network as a whole. This same capability defines adversarial infrastructure: while divergent functions may appear to create friction and technical problems for one another, they are in fact the most efficient because of their heterogeneity. Its divergent functions reinforce each other against a targeted Enemy of Empire. Therefore, one of the constitutive characteristics of adversarial infrastructure is the weaponised nature of its functions, which is achieved through the semblance of antagonistic friction. For instance, "Roads to Nowhere"⁵ in the US have been used to fuel racial segregation, and the Russian Crimean Bridge has allowed for extractivism in occupied land and economic blockade against Ukraine. Adversarial infrastructure realises a "capacity to contain and connect"⁶ simultaneously against the same target. In this way, adversarial logistical infrastructure aims not only for circulation but also for blockade and disruption.

ANOMALOUS REVERB

In occupied territory, where conflict occurs within the context of disproportionate and asymmetric warfare, the occupier can be as volatile as a dynamic sonic act. The auditory impacts of successive bombardments induce extended physical and neuropsychological harm. In such instances, the violence of occupation escapes regimes of legality and visibility. The reverberation of sound through urban territories, during which vibrations migrate and reflect across space and surfaces, traces both physically and ideologically the conjunction between slow and spectacular violence that shapes asymmetric warfare. Reverberation, contingent upon architecture, frequencies, and their intensity, is a violence that slips beyond the bounds and immediacy of a sonic event and contaminates the surrounding environment. Reverberation as a method shows that the duration of violence extends beyond the actualization of the original event. It elaborates the basis for understanding symptoms of post-traumatic stress disorders in conflict settings as they intertwine with sound. In the construction that follows urban conflict, reverbs produced by several agents – re-percussions of the war itself – are translated by the traumatized ears as being *anomalous*. The waveform of reverb bears a sonic blueprint of aggression, prolonging the anomaly as it travels through an urban configuration that channels and amplifies sounds reminiscent of the conflict. Hence *anomalous reverb* allows military violence to be read, not only in terms of its sonic entanglements, but also as an avalanching yet subtly embodied aftermath that extends through reflective architectures.

Civic War refers to the reciprocal influence of military operations and urban planning. This concept signals the function of irregular armed conflict as an engine of real estate development. At the core of civic war is the deliberate deactivation and transformation of asymmetric civil space through its exposure to armed conflict. The term thus synthesizes two distinct forms of destruction delineated in critical and legal discourses on urbicide: 1) targeting of the built environment in armed conflict, and 2) the “surgical urbanism” characteristic of development contexts. Where the two become continuations of each other *by other means*, a necropolitical environment is sanctioned. Distinctions between civilian and military objects are suspended, ideals of “conservation” and “public good” are weaponised, and the calculus of proportionality becomes a guide for civil practice.⁷ In the context of the US, Yulanda Ward’s work on “spatial deconcentration” theorizes a combination of spatial-administrative interventions that have historically attempted to empty urban cores of Black communities and social life, a practice born out of the application of counterinsurgency tactics to inner-city rioting in the late 60s.⁸ In civic war, the urban terrain – a layering of urban memory, civil practice, and habitual residence – is “deconcentrated,” first through the displacement of people and the devastation of the built environment, and continued by means of new spatial products (i.e. “deconcentrators”). These deconcentrators allow us to analyse civic war as the flattening operations of urbicide and their imbrication in processes of (alleged) reconstruction.

THE CORPORATE SUBLIME

The corporate sublime is a cosmology that endows fossil fuel corporations with the apocryphal status of more-than-personhood. In the U.S. state of Louisiana, companies have been issued permits to dredge over 10,000 miles of canals in order to drill and access over 75,000 oil and gas wells. Access canals usher salt water from the Gulf of Mexico into freshwater wetlands, eroding 16.6 square miles of wetland per year – one of the fastest rates of land loss in the world. The corporate sublime is a “hyperobject”⁹ comprised of state legal codes and regulations; a human bureaucracy wilfully inefficient at regulating “mercilessly efficient”¹⁰ technologies and infrastructures; technologies and infrastructures that drill, dredge, drain, segregate, dispossess, and disintegrate nonhuman and human beings; multidimensional extractive emissions; and massive-scale restoration projects that promise to reverse environmental degradation without the cessation of extractive activity. As the corporate sublime expands, it swallows up origin myths and future horizons. The corporate sublime is articulated through *Logos* – the rational language of state regulations inscribed upon the earth – as much as through corporate logos which, since Hurricane Katrina and the BP oil spill, have crept like Katrina’s black mold across the walls of Louisiana’s cultural, scientific, and educational institutions. By displacing their logos from sites of extractive violence onto civic institutions, fossil fuel corporations become subliminal. By re-placing their logos within their *Logos*, we profane the illusion of their transcendence and prefigure the annulment of our subjectification.

DETERRENT IMPERATIVE

The *deterrent imperative* refers to the process of fabricating dangerous conditions and wielding them as communication strategies to halt actions deemed criminal by nation states. Since the Cold War, the term “deterrence” has been used to describe military strategy: the threat of retaliation using greater force against an adversary’s original display of nuclear intimidation in order to neutralize that primary threat. Today, the strategy of deterrence is also applied to border enforcement, which racialises vulnerable bodies as criminal and adversarial through the “Border Spectacle.”¹¹ The deterrent imperative is evident in the US Border Patrol’s southwest strategy of Prevention Through Deterrence, by which scenarios of death and disappearance are orchestrated by redirecting the energies and patterns of those crossing the border towards harmful or fatal ends in Arizona’s west desert. The results of this strategy are subsequently communicated through various media as threats and warnings to deter those who may follow. By interrogating deterrence through the lens of the imperative, the strategy’s contradictions appear. The imperative here, as a mode of communication, simultaneously endeavors to command the end of a behaviour – crossing the border outside of state-sanctioned channels – while depending upon the continuation of that behavior in order to maintain rhetorical and political force. The deterrent imperative does not simply enunciate threats or punitive measures, it actively produces the consequences of that threat. As Brian Massumi describes, “the process must take the effect that it seeks to avoid.”¹²

DIFFERENTIAL TRUTH-CONSTRUCTION

Differential truth-construction is a concept that draws inspiration from contemporary mathematical knowledge, and seeks to project this praxis into the larger field of narrative reconstruction of past events, for instance, trials, documentary films, and historiography. Differential truth-construction eschews the binary logic imperative in classical mathematics whereby things are either true or false. According to the philosopher of mathematics Fernando Zalamea, “(in contemporary mathematics) there is no longer a single truth, there are multiple truths, although this does not mean that everything is truth.”¹³ According to Zalamea’s proposition different perspectives are necessary to create a synoptic understanding of an object, problem, or event; these perspectives must first be differentiated and then verified by finding points in common. Lastly, the object of analysis is reintegrated through multi-perspectival topology. Akin to the mathematical double process of differentiation and reintegration (which allows you to posit a *relatively correct truth-claim*), trials, documentary films, and forensic investigations have a similar construction method: data is differentiated, parsed, separated, edited. Through this process, judges, forensic analysts, and filmmakers reintegrate the data into a narrative construction of past events, discarding incongruities and thus creating accepted narratives.

A *hybrid landscape* is one in which the presumed boundaries of categorization and social-use collapse in multiple ways. Re-examining an environment as a hybrid landscape opens the site up to multiple processes of governance, bordering, and environmental change. For example, is a desert really something as simple as an index of aridity or rainfall? Thinking of environments as hybrid landscapes as opposed to biomes (like desert or forest) allows one to see unlike a state, with its aesthetic regimes of “systemisation, uniformity and predictability.”¹⁴ Originally coined by Lisa Meierotto to describe the conjunction of “conservation and militarization”¹⁵ in federal land use practices, this mobilization of the hybrid landscape allows for a sense of environment as produced, artificial, unnatural, and imbued with power relations; similarly, as a site where containment confronts excess and ungovernability. A hybrid landscape is a “social hieroglyph”¹⁶ through which one can read developments of environmental governance and sovereignty, and perceive the daily lived materiality of infrastructures such as irrigation, wastewater, pipes, wells, cultivation architectures, stormwater drainage basins, highways, cement, and tents. Specifically, the hybrid landscape has been useful in investigating border regions in the US, where fragmented sovereign actors with fragmentary norms exist alongside multiple communities with multiple unique standpoints. By attending to hybridity, one sees perhaps more accurately the “power relations that make up the social fabric” of a particular environment and can thereby find more effective practices of tactical intervention.¹⁷

NEGATIVE COMMONALITY

In the Brazilian Amazon, a crucial thread tying old and new politics of neglect is the pervasiveness of mercury in gold miners, riverside and indigenous communities, as well as in other environmental subjects. The persistence of the toxicant, over centuries and across entities, reflects an entangled, mercurial commonality that helps us not only see the inseparability between the body and land, as Michelle Murphy argues, but also how collectivities of life are molecularly recomposed by capitalist and authoritarian epistemic practices.¹⁸ In this context, mercury contamination is intrinsic to a *negative commonality*, a condition of environmental harm that is pervasive throughout a continuum of unresolved crises. In doing so, its persistence materially connects the here and now with other scales, temporalities, and different sociopolitical frames of injustice. The concept draws from the “negative moment,” coined by Cameroonian philosopher Achille Mbembe, as an instance in which “new antagonisms emerge while older ones remain unresolved.”¹⁹ Reflecting on this notion, Nabil Ahmed understands the planetary climate crisis as giving rise to new antagonistic arrangements in the context of the intertwined conditions of capitalism and colonialism.²⁰ The alarming mercury contamination levels resulting from the current informal gold extraction resurgence in Brazil activate the still unresolved politics of neglect surrounding artisanal and small-scale gold mining since the 1960s. Observing the current breakdown of the Brazilian rainforest through the lens of its negative commonalities may offer a clearer view of socio-political entanglements on site and help to catalyze alliances that may unravel novel forms of endurance and resistance.

Parametric apprehension describes a political attitude towards environmental forecasting that acknowledges and mobilizes the partiality of fear in techno-scientific models of the future. It suggests that the feeling of apprehension is always-already a factor used to capture (*apprehend*) the future by calculating risk. Risk calculus aggregates data based on historically informed worries; past records are selected because they correlate with particular visions of insecurities, accidents, and hazards. Yet the disastrous failure of environmental impact assessments reveals that this selection is marked by epistemic injustice: not all correlations are taken into account – *not all omens are believed* – in predicting the future. One example from the history of nuclear extractivism illustrates this. In 1970, a Navajo community tried halting federal approvals for uranium mining in the San Juan Basin; the court dismissed their cataloguing of potential impacts as overly *imaginative*.²¹ Instead, corporate profit loss, national security, and real estate damage become the key parameters with which scientific institutions model risk and judge mitigation strategies. Thereby, they generate data that solidifies the anxious imagination of state and corporate actors. Such forecasts are social speech acts that rework the future, “tools for hypothesis”²² that affect the present world by “creating a disposition towards mitigating the unfavorable predicted event or...by taking advantage of predicted opportunities.”²³ Building on this performative understanding of forecasting, parametric apprehension proposes that we fear intentionally, producing alternative parameters to calculate risk that center on the ominous and long-standing correlation between environmental violence, scientific experimentation, and colonial governance.

SMOULDERING GROUNDS

Smouldering grounds refers to an accumulation of conflictual forces and variables that sustain a volatile state of indirect harm, which may periodically erupt with only a slight modification of its parameters. This intricate force field of accumulated matter-energy cannot be reduced to a mere interplay of straightforward causalities, but rather constitutes “a thick fabric of lateral relations, associations, and chains of actions between material things, large environments, individuals, and collective action.”²⁴ In the case of the migrant camp of Moria, on the frontier island of Lesvos, Greece, this amassing of matter-energy – an accumulation of combustible materials, faulty wiring, overcrowded and flammable shelters, European policies, governmental restriction orders, neglect, indignation, exhaustion, and injury – appears in a state of constant smouldering. This is not merely because of the ubiquitous presence of the provisional fires migrants maintain for cooking and warmth – a symptom of the infrastructural collapse of the border encampment apparatus – but also due to its tendency to discharge into frequent, often detrimental, conflagrations. Smouldering thus conflates different temporalities: the fleeting temporalities of emergency and their hyper-visibility, with the longer, continuous breeding of the occluded *conditions* that enable these momentary outbreaks. Within these dialectics of visibility, smouldering should not be understood as antithetical to momentary eruptions, but rather as a latent process that is fuelled by “an indifference structurally bound up with the discursive limits of intelligibility.”²⁵

TECHNO-LOGICAL LEAKAGE

Techno-logical leakage is a rift that exposes the motives embedded in a machine. Technology functions to fulfil desired outcomes yet the seamlessness of the interface conceals these “exteriorised intentions,” as described by Bernard Stiegler.²⁶ For instance, a mobile banking application only makes visible an abstracted and partial view of the untold automation of debt creation. The app’s interface becomes (mis)taken for reality and conceals the logics of the underlying processes that only reach the surface during an accident. The *accident*, as conceptualised by Paul Virilio, manifests itself as a material malfunction, while at a deeper level is driven by a failure of reason: the unrealistic reliance on technology to function flawlessly in accordance with our desired ends.²⁷ When the bank’s exploitative machinery malfunctions and its back-end circuitry breaks through the veil of user-friendly interfaces, the public runs into a conceptual contradiction. Error messages and glitches divulge clues of their underpinning algorithms, such as a misconfigured load balancer, which was meant to optimise the acceleration of mobile payments. The interruption of the machine discloses how the predatory speed of banking algorithms far outpace human comprehension. Interrogating the underlying processes of technical malfunctions thus becomes a way to disclose their mechanised desires and social repercussions.

Introduction

- 1 Michel Feher, “Self-Appreciation; or, The Aspirations of Human Capital.” *Public Culture* 21, no. 1 (2009): 21-41.
- 2 Nishat Awan, “Digital Narratives and Witnessing: The Ethics of Engaging with Places at a Distance,” *GeoHumanities* 2:2 (2016): 311-330.

#antireport

- 3 Michel Foucault, *Power/Knowledge: selected interviews and other writings, 1972-1977*, trans. Colin Gordon, Leo Marshall, John Mephem, Kate Soper (New York: Vintage, 1980): 81.

Adversarial Infrastructure

- 4 Christie’s, “Is artificial intelligence set to become art’s next medium?” December 12, 2018, <https://www.christies.com/features/A-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx>.
- 5 Johnny Miller, “Roads to nowhere: how infrastructure built on American inequality”, *The Guardian*, February 21, 2018, <https://www.theguardian.com/cities/2018/feb/21/roads-nowhere-infrastructure-american-inequality>, quoted in Leopold Lambert, “Introduction,” *Funambulist* 17 (May - June 2018).
- 6 Deborah Cowen, “Infrastructures of Empire and Resistance,” *Verso Blog*, January 25, 2017, <https://www.versobooks.com/blogs/3067-infrastructures-of-empire-and-resistance>.

Civic War

- 7 Eyal Weizman, *Least of All Possible Evils: Humanitarian Violence from Arendt to Gaza* (London: Verso, 2012).
- 8 Yulanda Ward, “Spatial Deconcentration in D.C.,” *Midnight Notes* 2, no. 2 (July 1981), http://www.abcnorio.org/about/history/spatial_d.html. Accessed on September 9, 2019.

The Corporate Sublime

- 9 Timothy Morton, *Hyperobjects* (Minneapolis: University of Minnesota Press, 2013).
- 10 *Board of Directors of the Southeast Louisiana Flood Protection Authority-East et al v. Tennessee Gas Pipeline Co., LLC et al.* Civil District Court for the Parish of Orleans, State of Louisiana. Division J5. Filed 24 Jul 2013.

Deterrent Imperative

- 11 Nicholas P. de Genova, “Migrant “illegality” and deportability in everyday life,” *Annual Review of Anthropology* 31, no. 1 (2002): 419-447.

- 12** Brian Massumi, "Potential Politics and the Primacy of Preemption," *Theory and Event* 10, no. 2 (2007), muse.jhu.edu/journals/theory_and_event/v010/10.2massumi.html.

Differential Truth-Construction

- 13** Manuel Correa, "Politics of math in the age of post-truth, an interview with Fernando Zalamea," *&& Journal*, January 27, 2019. <http://tripleamper-sand.org/politics-math-age-post-truth-interview-fernando-zalamea/>

Hybrid Landscape

- 14** Arun Agrawal, *Environmentality: Technologies of Government and the Making of Subjects* (Durham and London: Duke University Press, 2005): 19.

- 15** Lisa Meierotto, "A Disciplined Space: The Co-evolution of Conservation and Militarization on the US-Mexico Border," *Anthropological Quarterly* 87, no. 3 (2014): 637.

- 16** W.J.T Mitchell, "Imperial Landscape," in *Landscape and Power*, ed. W.J.T. Mitchell (Chicago: University of Chicago Press, 2002): 5.

- 17** Michel Feher, "The Governed in Politics," In *Nongovernmental Politics*, eds. Michel Feher with Gaëlle Krikorian and Yates McKee, (New York: Zone Books, 2007): 13.

Negative Commonality

- 18** Michelle Murphy, "Alterlife and Decolonial Chemical Relations," *Cultural Anthropology* 32, no. 4 (2017): 495-497.

- 19** Achille Mbembe, "Decolonizing Knowledge and the Question of the Archive," *Wits Institute for Social and Economic Research* (2015).

- 20** Nabil Ahmed, "Negative Moment: Political Geology in the Twenty-First Century," *South Magazine* 8 (2016): 42.

Parametric Apprehension

- 21** Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis: University of Minnesota Press, 2015).

- 22** Wendy Hui Kyong Chun, "On Hypo-Real Models or Global Climate Change: A Challenge for the Humanities," *Critical Inquiry* 41 (Spring 2015): 678.

- 23** Renzo Taddei, "Anthropologies of the Future: On the Social Performativity of (Climate) Forecasts," in *Environmental Anthropology: Future Directions*, eds. Helen Kopnina et al. (New York: Routledge, 2013): 245.

Smouldering Grounds

- 24** Eyal Weizman, 'Introduction: Forensis', in *Forensis: The Architecture of*

Public Truth, ed. Anselm Franke, Eyal Weizman, and Forensic Architecture (Project) (Berlin: Sternberg Press, 2014): 27.

- 25** Yves Winter, 'Violence and Visibility', *New Political Science* 34, no. 2 (2012): 198, <https://doi.org/10.1080/07393148.2012.676397>.

Techno-Logical Leakage

- 26** Stiegler, Bernard. *Technics and Time, 1: The Fault of Epimetheus*. trans. Richard Beardsworth and George Collins (Stanford: Stanford University Press, 1998).

- 27** Paul Virilio, *The Original Accident*. trans. Julie Rose (Cambridge: Polity, 2007).

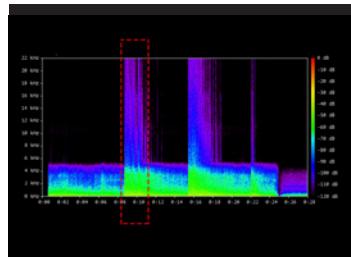
MEDIA



Phevos-Kororos Simeonidis
#antireport
pp. 30-33



Anna Engelhardt
Adversarial Infrastructure
pp. 34-37



Mohamad Safa
Anomalous Reverb
pp. 38-41



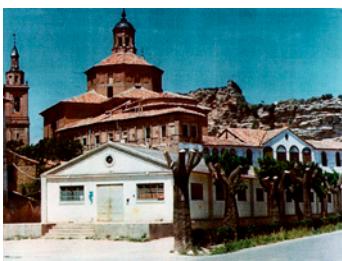
William Scarfone
Civic War
pp. 42-45



Imani Jacqueline Brown
The Corporate Sublime
pp. 46-49



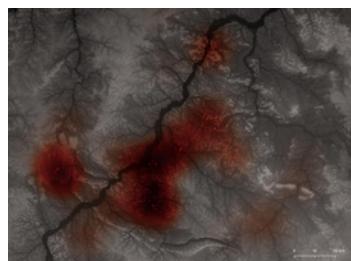
Tara Plath
Deterrent Imperative
pp. 50-53



Manuel Correa
Differential Truth-Construction
pp. 54-57



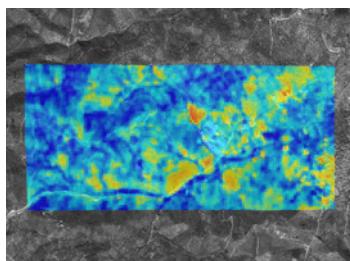
Avi Varma
Hybrid Landscape
pp. 58-61



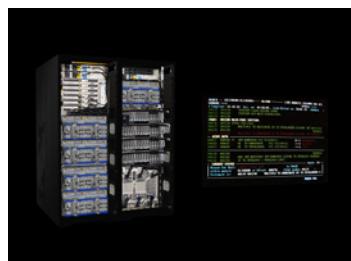
Tiago Patatas
Negative Commonality
pp. 62-65



Carol Iglesias
Parametric Apprehension
pp. 66-69



Dimitra Andritsou
Smouldering Grounds
pp. 70-73



Tim Brouwer
Techno-Logical Leakage
pp. 74-77

εύπηκαν οι 4.000 Ασιάτες και Αφρικανοί στο κέντρο της Αθήνας

αντιρατσιστική πορεία

Της ΓΕΩΡΓΙΑΣ ΔΑΜΑ

Πιούμενοι χέρι χέρι, περίου 4.000 Ασιάτες και Αφρικανοί κατέβηκαν στη μεγαλύτερη μερι σημερι αντιρατσιστική πορεία στο κέντρο της Αθήνας. Τα πολιτικά κομμάτα απέιχαν. Ελάχιστα Ελλήνες περπάτησαν διπλά τους.

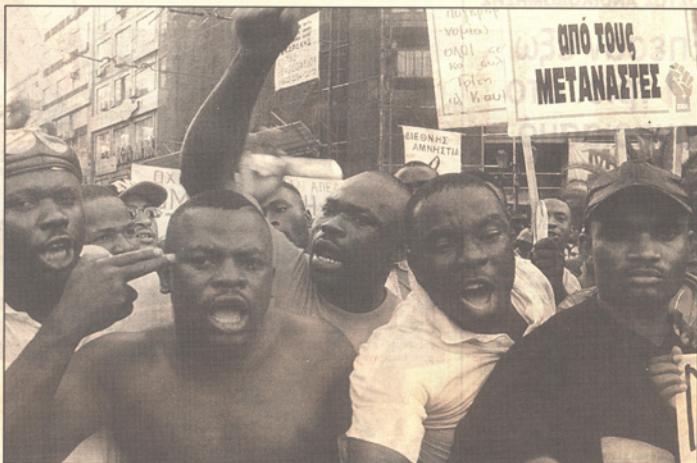
Προπορεύτηκαν η πολύζωρη παρέλαση που κρεπούσε ένα μέτρο πάνω: «Ο ρατσισμός δολοφόνει. Να τον σπαματήσουμε» γέγαια το υπογόριερε το Δίκτυο Υποτροφίες Προσκρήνων και Μεταναστών. Ακολούθων ήταν ο Κοινωνικός Έρδος και της Τοντούλας, κατώπιν οργανισμών περισσού Αλβανών και άλλων εθνοτήτων. Με σημαντικές κατερέλαση οι Μεταγράμματες, για το σύντομο τους που έπεσε βίαια. «Εννέα εγκατόλιμφα Ελλήνες ζήντων στο εξωτερικό», γράφει το δικό τους πανό.

Πάνω τους έρχονται οι Αφρικανοί. Από τη Γάλανη, το Σούδαν, τη Νιγηρία, τη Σέρεα Λεονέ. Κατενθέται από τη δουνέλα, κρατάνται την πραγματεία ορισμένων. Πέρασαν την οδό Καραϊσκάκη από την Ομονοία, όπου δουλεύουν στα πεζοδρόμια, δημιουργούν το μεροζάπτικο και στέκονται να μαρτύρουν κι απότομα.

«Δονύλεψαν 23 φορές το 24ορο στο δρόμο. Δεν υπάρχει κανένας τόπος να προσπετεπούμε», έλεγε ο Νιγηριανός Ολα Τούντα. Προσθέτει πως «μας βλέπουν σαν ευφορίες». Το 17ο αιώνα, οι Ευρωπαῖοι εσερέβαν στα σπήλαια μας και αιώνια με ερυτελλεύοντα. Ήχοι καλούς φάνους Ελλήνες. Ήμεις τους αγνωμάτιμοι.

Από την πλευτιά Κουμουνδούρου μέχρι τη Βενούσια Αφρικανοί χόρευαν και τραγουδούσαν, σε δακοίς τους φεύγοντας. Με χομόγελο και δινάντη φωνή. Περιγιγνόντων και συνθρόνων οι Ελλήνες που τους συναντούσαν, βριαντόντας από τα κεντρικά καταστήματα. Εφευγάντων από το πεζοδρόμιο, αιώνες. «Φοβήσαστε», απάντησε καπούα κυρία, αλλά ο φόβος ήταν εμφανής στα μάτια των πολλών.

«Ορι στις απελάσεις» ήταν το σύνθημα που ακούστηκε σε όλες τις πλάνες. Πλεύση συνέδε-



Ε. Μ. ΒΑΚΑΡΕΖΟΥ/2002

Eleftherotypia Newspaper reporting on the antiracist demonstration organized by the African Community of Athens in support of Kazakos' victims, 27 October 1999. (Digital scan by Phevos Kororos-Simeonidis. 2019.)



Trial of the Greek neo-Nazi organisation and political party, Golden Dawn, in Greece, the first day that the accused members of the organization were present in court in order to provide their defense statements, 20 June 2019. (Photograph by Marios Lolos. 2019.)

Community

Racist gunman pleads guilty

Survivors of a two-day racially motivated shooting rampage in downtown Athens come face to face with the man who tried to kill them

By Kathy Tzilivakis

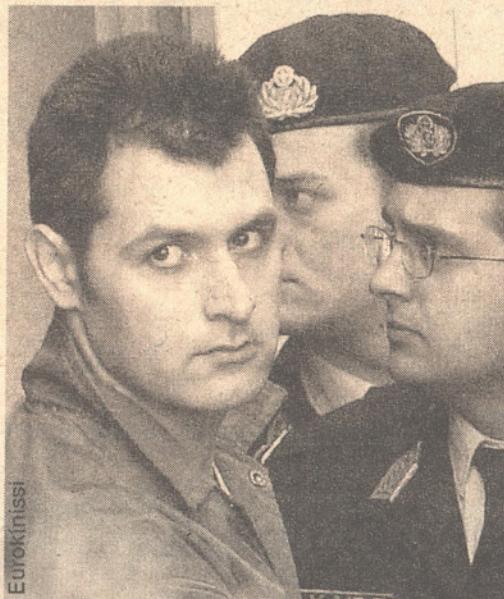
AN ATHENS court of appeals is hearing the case of the 28-year-old Greek man who shot dead two foreigners and injured another seven in a rampage fuelled by racial hatred three years ago.

Pantelis Kazakos hopes to overturn the verdict in the original trial, which found against his insanity plea and sentenced him to two life terms and 25 years in prison. But the victims and prosecution are determined to show the court that Kazakos has not been suffering from paranoid schizophrenia - the argument used by the defence in the first trial. They aim to convince judge and jury that he was a cold-blooded racist driven by hatred and not "voices in his head".

The close-call verdict (4-3) passed in the first trial, however, has the prosecution uneasy.

"Frankly speaking, I'm apprehensive about the outcome," one of the seven prosecution lawyers, Vassiliki Karaindrou, told the *Athens News* shortly before the appeals trial began on November 6.

"The defence will try to get him off with a lower degree of accountability or total insanity. I fear there is a part of society that would like to see Kazakos pronounced crazy so that it won't feel guilty about the presence of racism here. But we shall show that the defendant was psychologically well at the time of the shootings. His shooting



Eurokinissi

If the court finds Kazakos insane, he will be interned in a prison psychiatric hospital, where he will stay until doctors decide he can be re-introduced to society. That could be after merely three years. If the verdict of the first trial is upheld, Kazakos will spend his entire life in prison. Chances of parole are extremely slim.

Victims take the stand

The victims, their friends, family and witnesses filed into the courtroom at 9am on November 6. Five of the seven survivors were present. They came face to face with Kazakos. Absent from the appeals trial was Egyptian Shaad Abdelhani, who was gunned down near Koumoundourou Square. His lawyer Yianna Kurtovic told the court he is a paraplegic and now lives in Egypt. "He was not psychologically nor physically fit to make the trip," said Kurtovic. "He is paralysed from the waist down." The second survivor who did not attend the trial, Iraqi

leads insanity again

how he was shot three times - in the back, lungs and stomach. His testimony, however, was interrupted by a bomb scare at the court of appeals. Testimony from the other victims, eyewitnesses and Kazakos will follow. The judge will ask all of them to describe where, when and how they were attacked by Kazakos in October 1999. As in the first trial, they plan to tell the court that they believe Kazakos had been aiming to kill.

"We are demanding justice," Abdul told reporters outside the court building. "He [Kazakos] is *not* insane." Some 30 immigrants and members of anti-racism and rights groups rallied outside the courthouse. They called on the state to support the victims and on society to fight against racism. They slammed Kazakos' defence of impaired mental condition. "Kazakos is a racist," said one demonstrator. "He knew what he was doing... We can't let him get away with it."

At the time of his arrest, Kazakos, who was a security guard for the state radio and television network (ERT), reportedly told police he did not regret his actions. "I believe I offered a service to the homeland. The foreigners have gone too far," he was quoted as saying.

Kazakos addresses the court

On November 6, a subdued Kazakos sat in the defence chair in the front of the courtroom. He stood only once to address the court. The judge asked him if he accepts or rejects the charges against him, to which he replied, "I accept all of them" and sat down.

Kazakos' lawyer George Prassianakis (former Pasok MP) has told the *Athens News* that he has "tremendous hope" the appeals court will find the defendant mentally ill. "I

Victims fall prey to state indifference

A LONG road to recovery: The victims of a racially-fuelled shooting rampage in October 1999 are still struggling to rebuild their lives. Two of the seven survivors are in wheelchairs and a third still has a bullet lodged in his head. Only two of them receive a disability pension.

Egyptian **Shaad Abdelhani** was left paralysed from the waist down. He receives a disability pension of about 730 euros a month. He was shot near central Koumoundourou Square while on his way to work at a bakery on Athinas St. Seeking a better future, Abdelhani came to Greece in 1995. He returned to his family in Egypt last year.

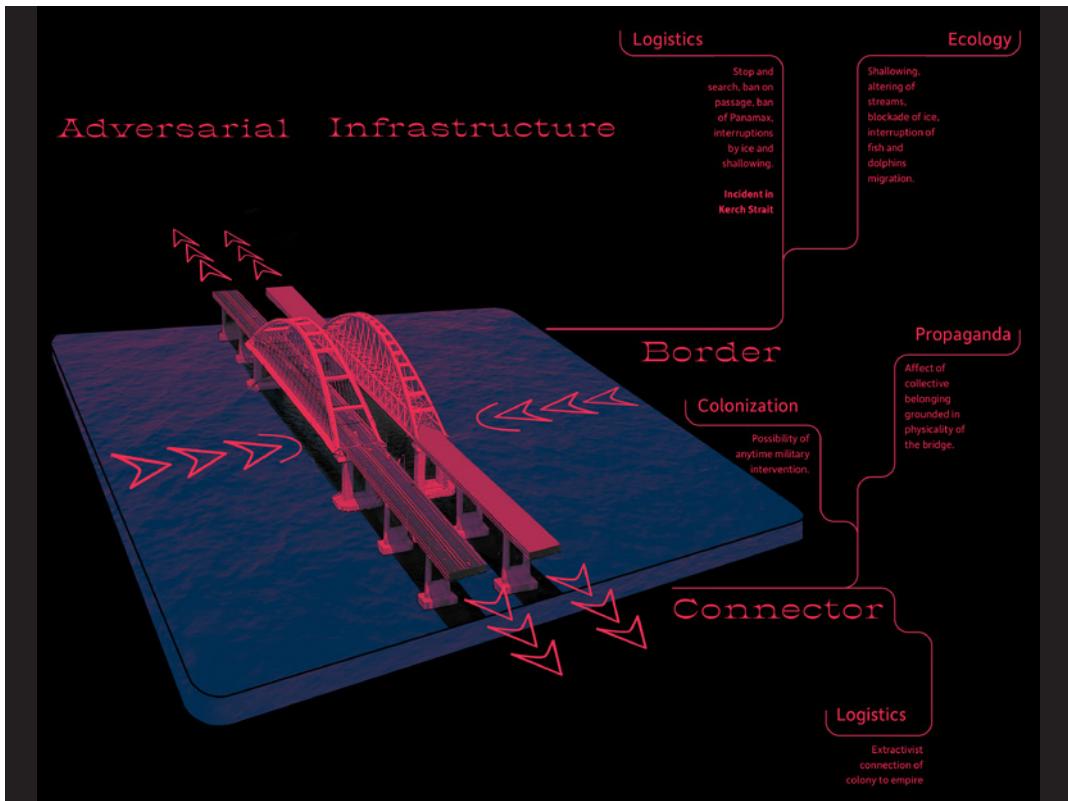
Iraqi Kurd **Serif Hadel** has no feeling in his legs and doctors say he will never walk again; he still needs one last operation. Hadel was granted political asylum last year and now receives a disability pension - a mere 350 euros a month. "I want to stay here [Greece], but I have no means," he told reporters on November 5.

Ghanaian **Marcus Tommy Kofi** still has a bullet lodged in his head. He suffers from memory lapses, fatigue and severe headaches. He is also blind in one eye. Doctors say removing the bullet could be fatal or cause serious brain damage. Kofi is married and has a 14-month-old son, Victor. He works as a street vendor.

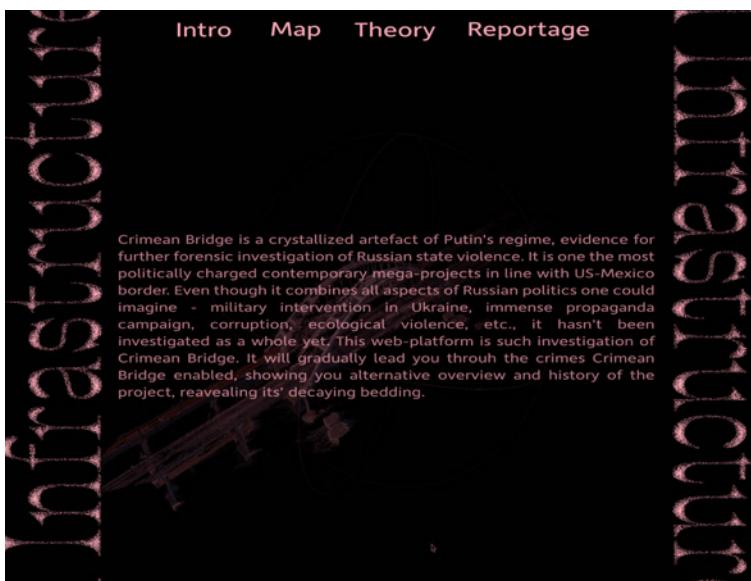
Nigerian **Timothy Abdul** was shot in the back, lungs and stomach and has undergone three operations and extensive physiotherapy. Before the shooting, Abdul, who is married to a Greek, was a street vendor. Now he suffers from fatigue and is easily tired out.

Bangladeshi **Mohammed Dadon** was shot in the head. The bullet scraped part of his mouth and tongue. He could not eat for many months after the shooting and still has difficulty chewing and talking. A tailor, Dadon had opened his own garment store shortly before the shooting. Friends say he used to work as long as 12-14 hours a day but today

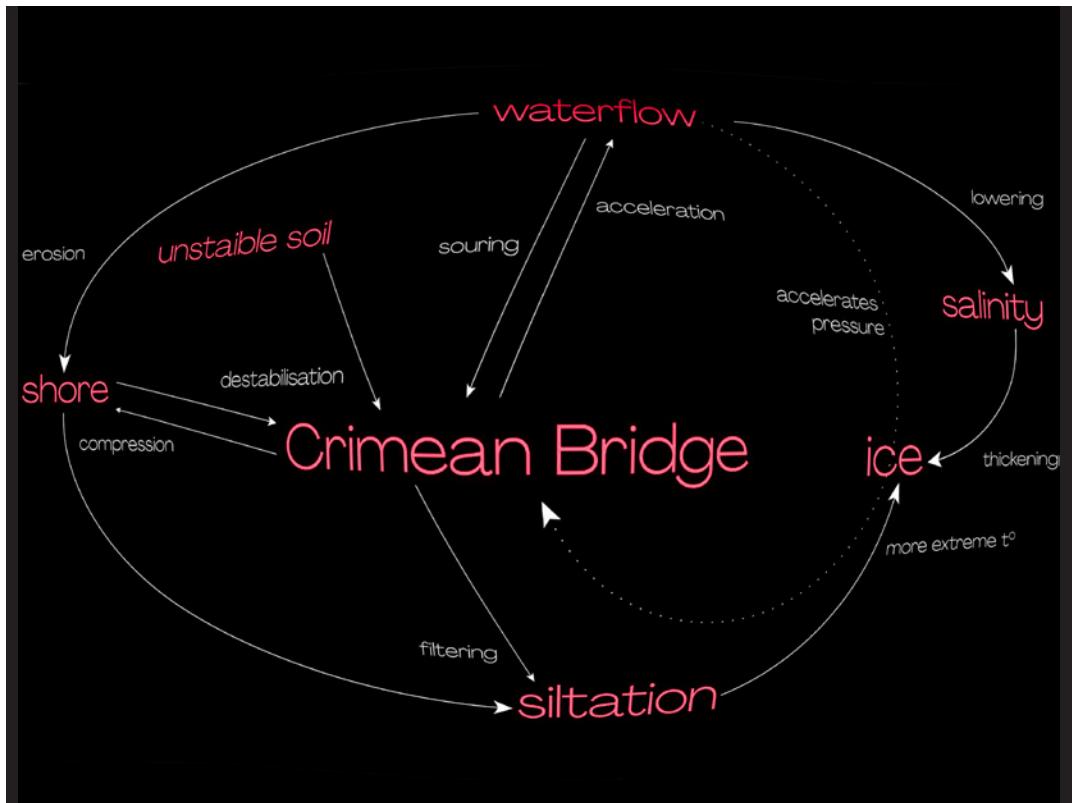
Out of eight people injured in the shooting, only five survived. Panteleios Kazakos, 41, died on November 8, 2002. After admitting having shot ten individuals over the course of three days, killing two and severely injuring five others, during his nationalist rampage, Kazakos was sentenced to 20 years in prison. Simeonidis, 20, died in hospital on November 10, 2002. After admitting having shot ten individuals over the course of three days, killing two and severely injuring five others, during his nationalist rampage, Simeonidis was sentenced to 20 years in prison.



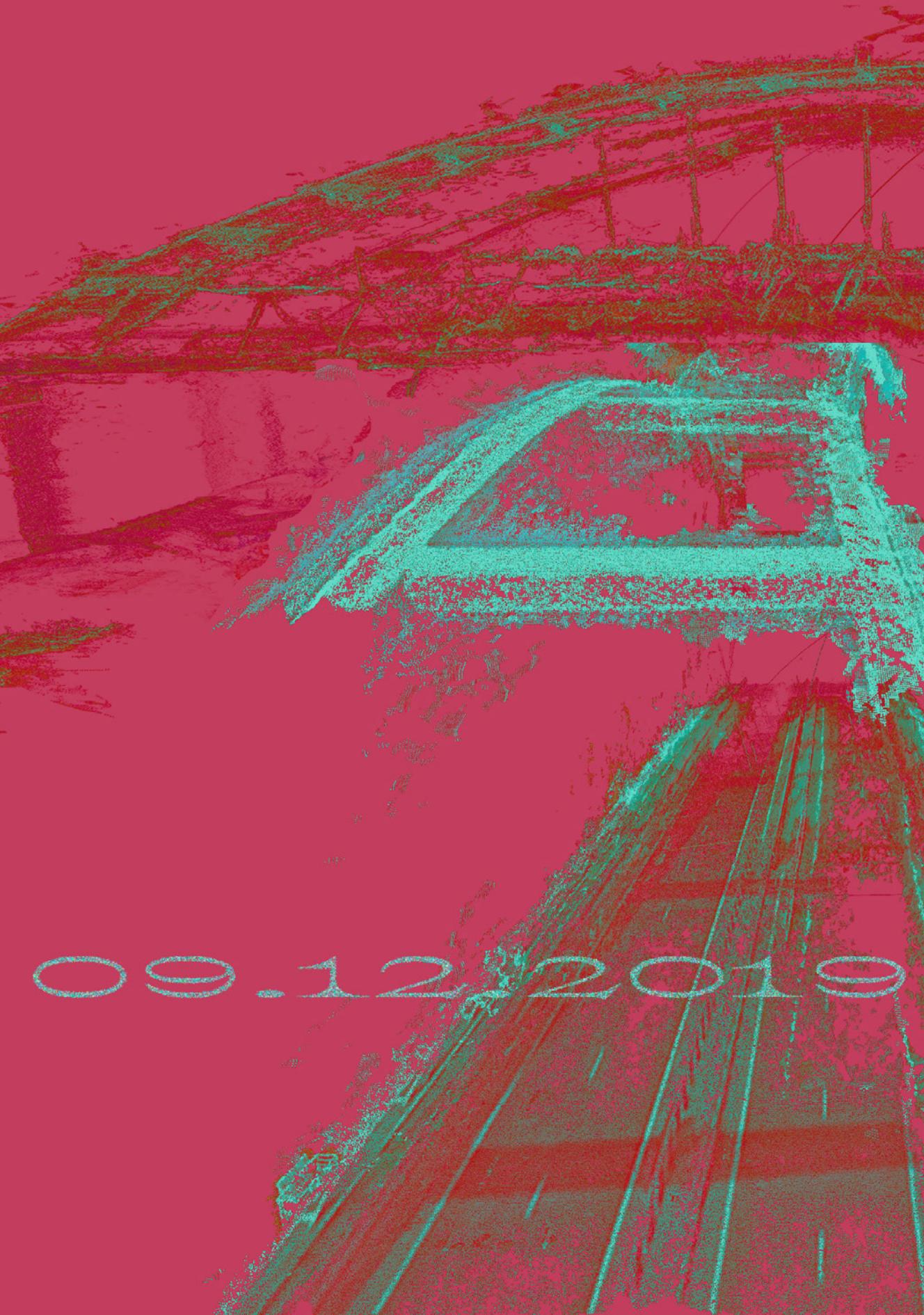
Functions enacted by the Crimean Bridge. (Diagram by Anna Engelhardt. 2019.)



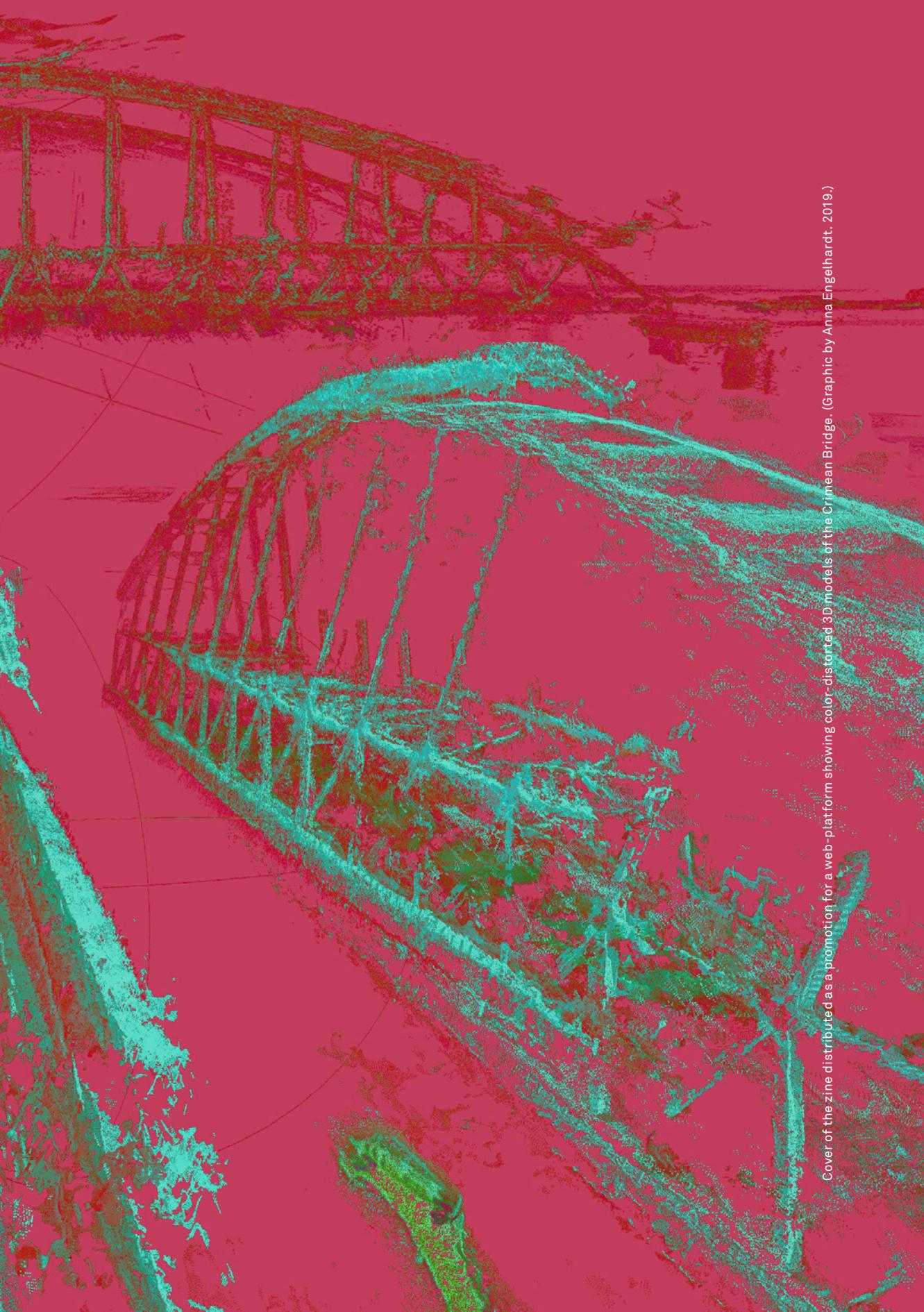
Web-platform archiving and presenting aspects of the bridge infrastructure that are lacking in official narrative, (Screenshot by Anna Engelhardt. 2019.)



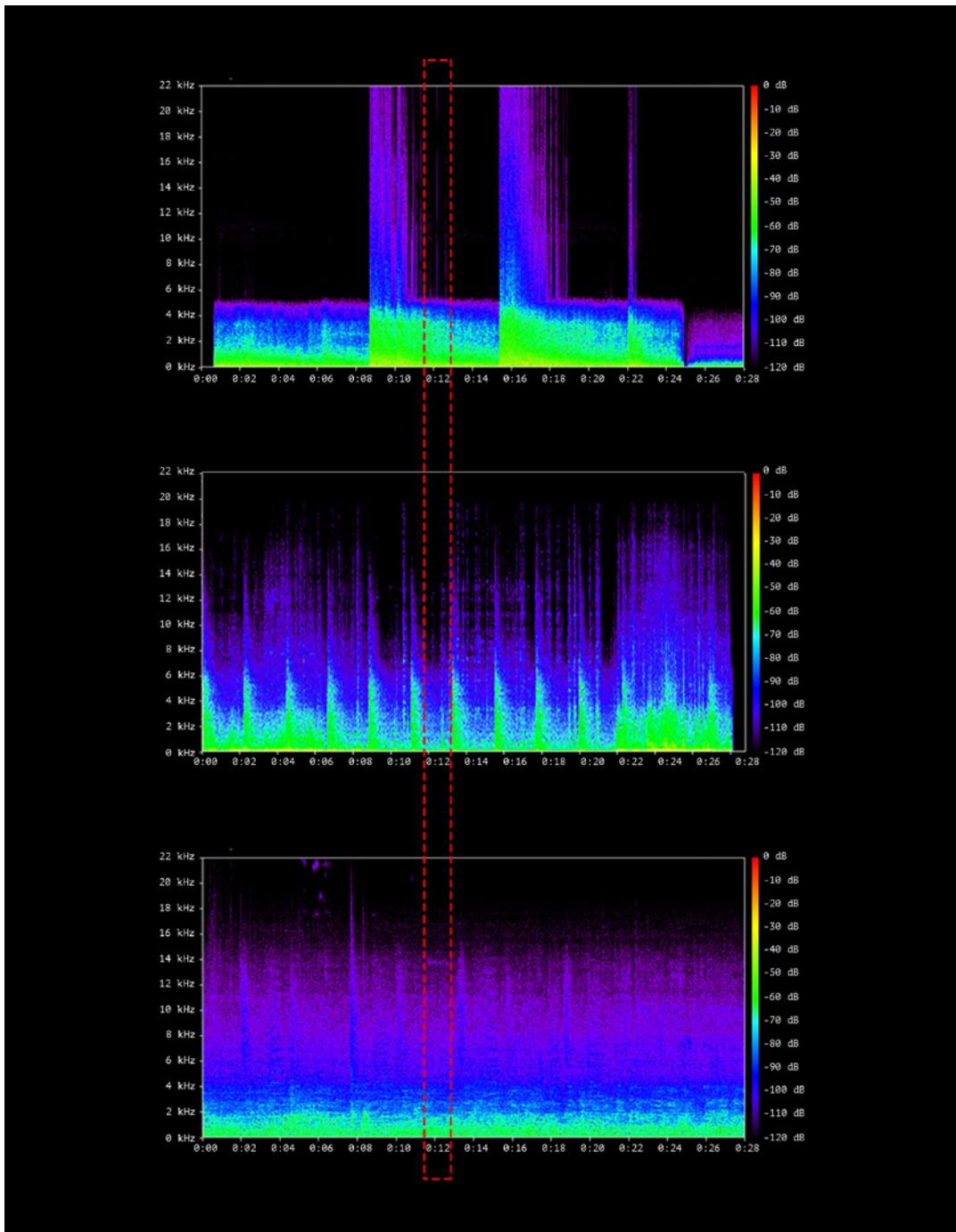
Ecologies at play in the Kerch Strait, where the recent construction of the Crimean Bridge has altered relations between water flows, soil, and minerals. (Diagram by Anna Engelhardt, 2019.)



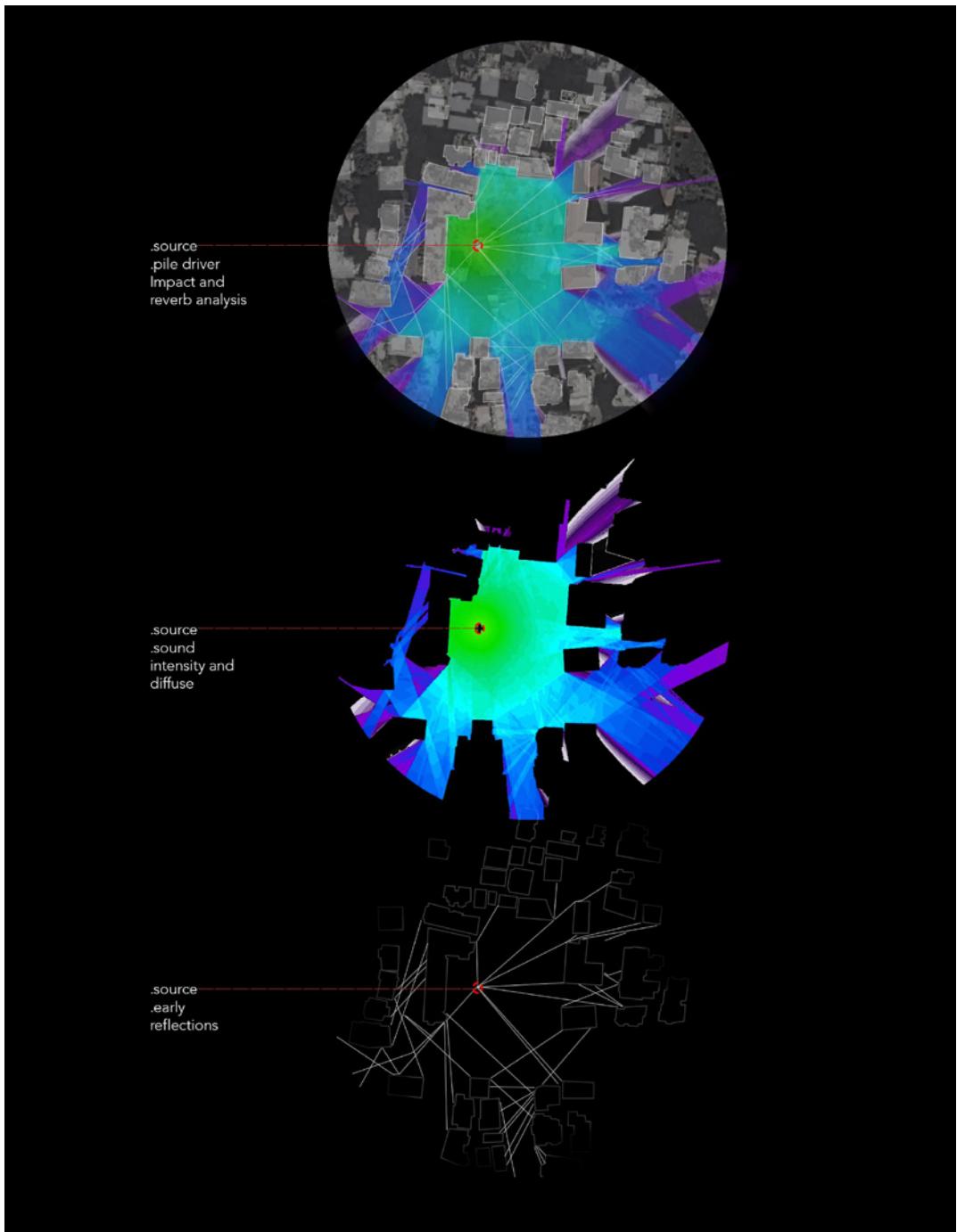
09.12.2010



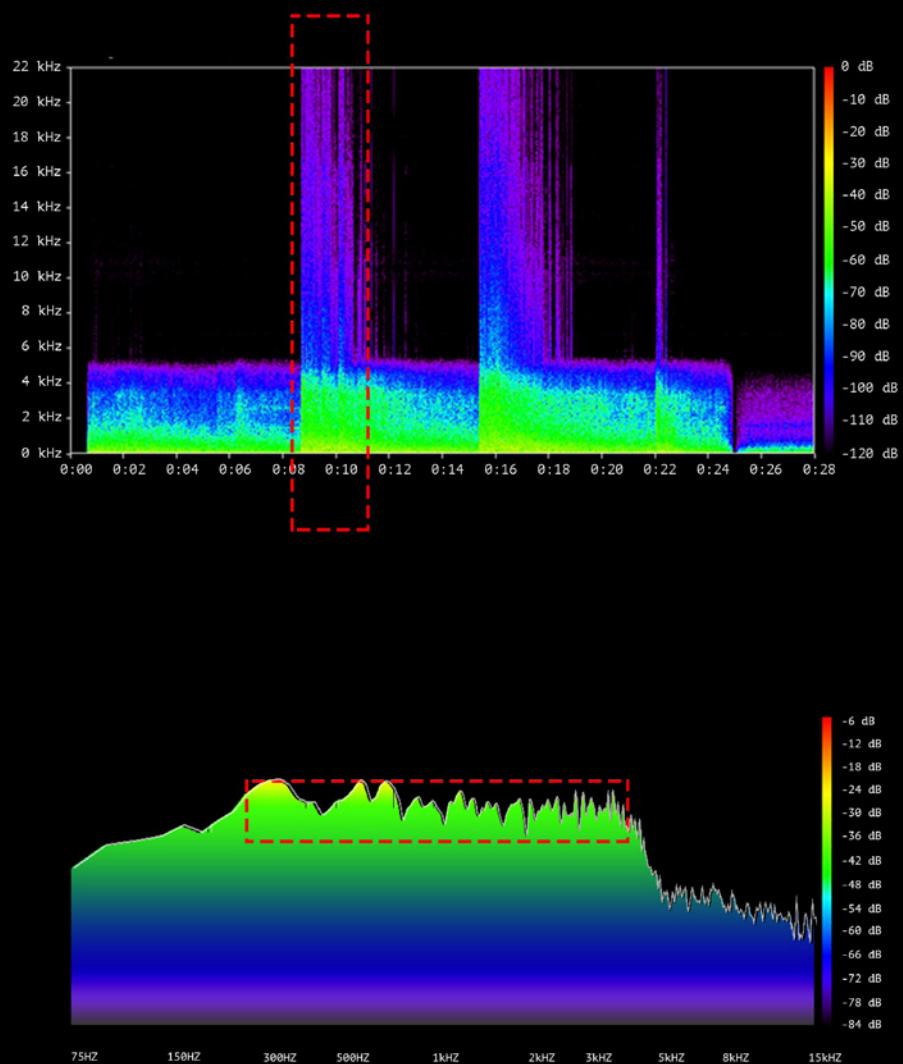
Cover of the zine distributed as a promotion for a web-platform showing color-distorted 3D models of the Crimean Bridge. (Graphic by Anna Engelhardt. 2019.)



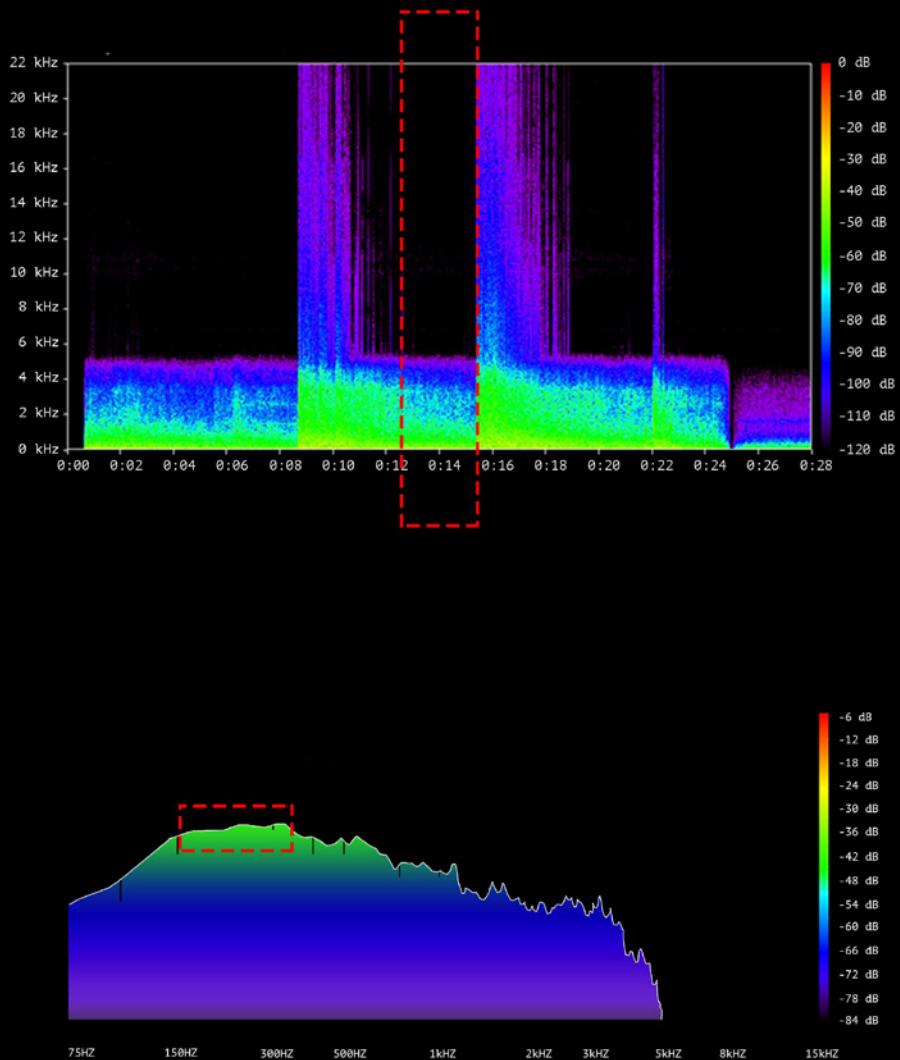
Comparison of three reverbs: top impact spectrogram, mid pile driver spectrogram, lower ambient noise spectrogram.
Made with Spek software. (Spectrogram by Mohamad Safa. 2019.)

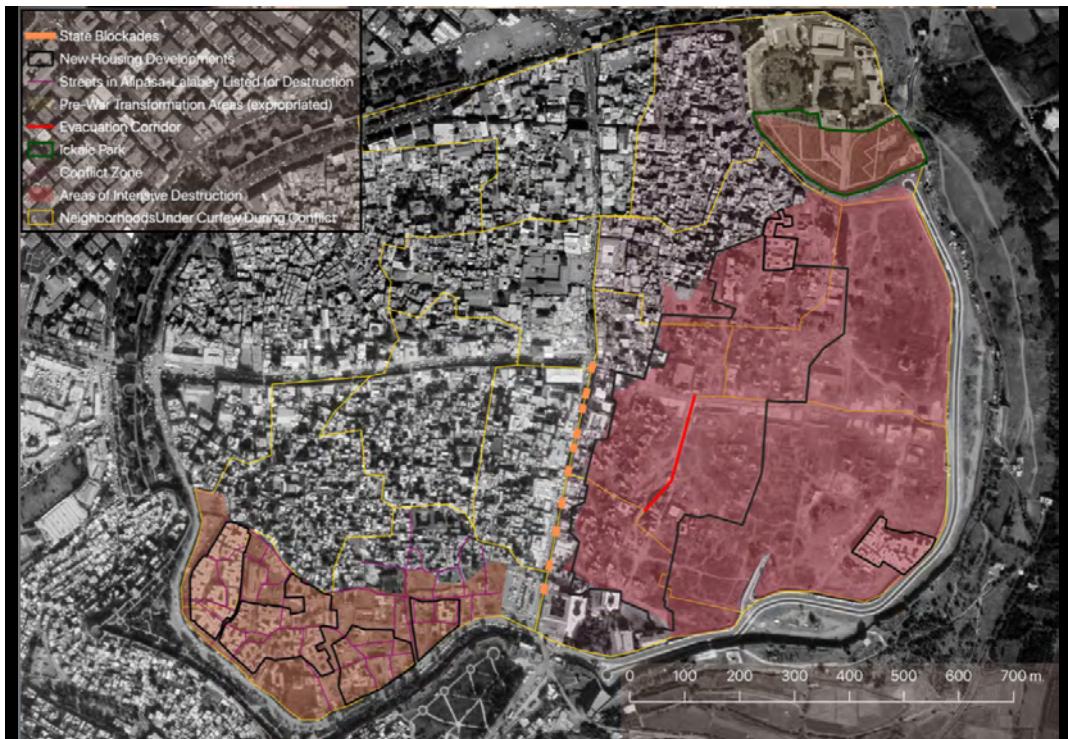


Sound map and acoustic reflections during reconstruction using a pile driver as a source signal. Made with Noise Tools.
(Sound map by Mohamad Safa. 2019.)

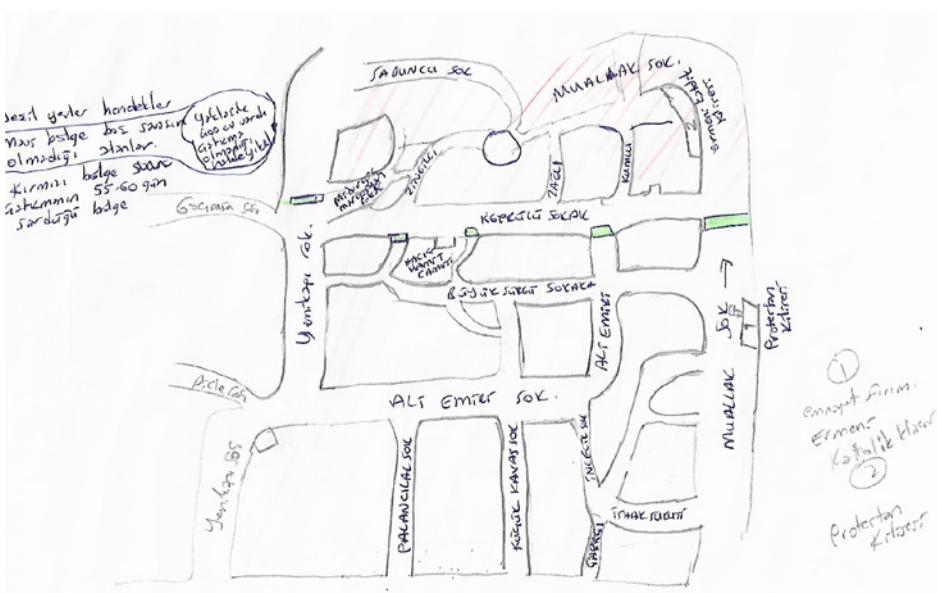


Left: Frequency analysis of the impact; impact spectrogram (top), impact frequency analyzer (bottom). Made with Spek and Oscarizer software. *Right:* Frequency analysis of impact reverb; impact spectrogram (top), reverb frequency analyzer (bottom). Made using Spek and Oscarizer software. (Visualisation by Mohammad Safa. 2019.)





The spatial operations of asymmetrical armed conflict act as tools of concurrent forced displacement and regeneration. (Map by William Scarfone. 2019.)



Hand-drawn map of the Hasırlı conflict area, since destroyed and still inaccessible, produced as a visual aid by a displaced resident who requested anonymity during an interview. (Photograph by Anya Briy and Murat Özkarataş. 2019.)



A photogrammetric survey of Abdaldede neighborhood, Sur. Göksel Sk. Abdaldede is adjacent to the fully demolished and largely reconstructed Alipasa neighborhood. A parcel in this neighborhood was used as the basis of a legal challenge against the state's post-conflict total expropriation decision, which was denied, appealed, and denied again by the high court. Ongoing survey conducted in collaboration with the neighborhood Muhtar and residents. (Modelled by William Scarfone. 2019.)

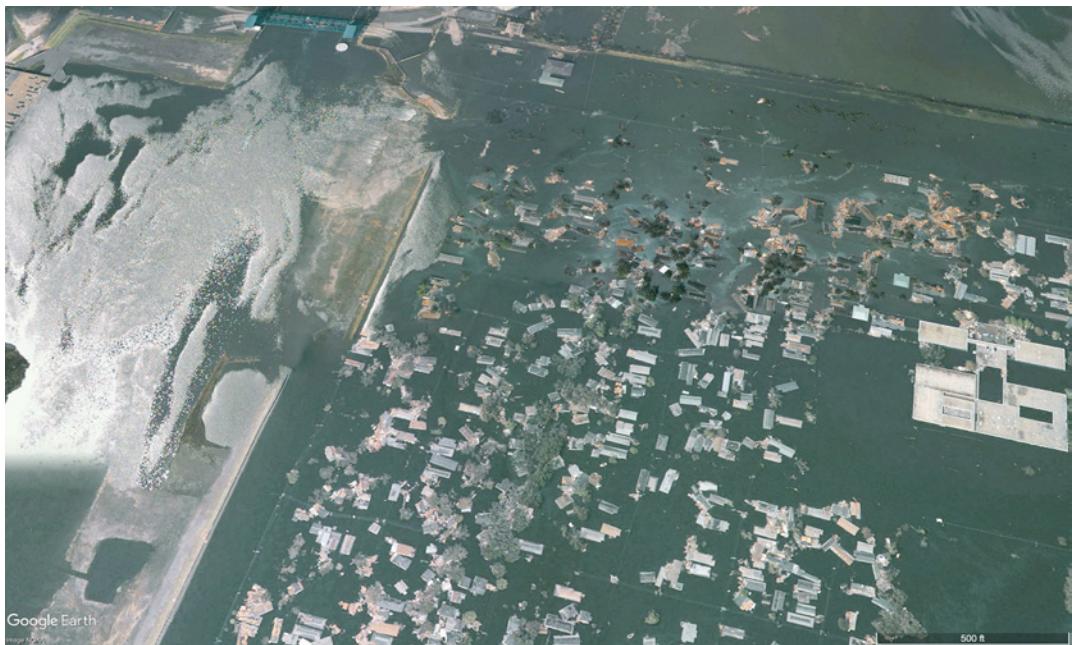


Savaş and Hasırlı neighborhoods under curfew. The landscape centers on the inaccessible site of the destroyed houses of displaced residents with whom audio interviews were conducted. (Video still by William Scarfone. 2019.)





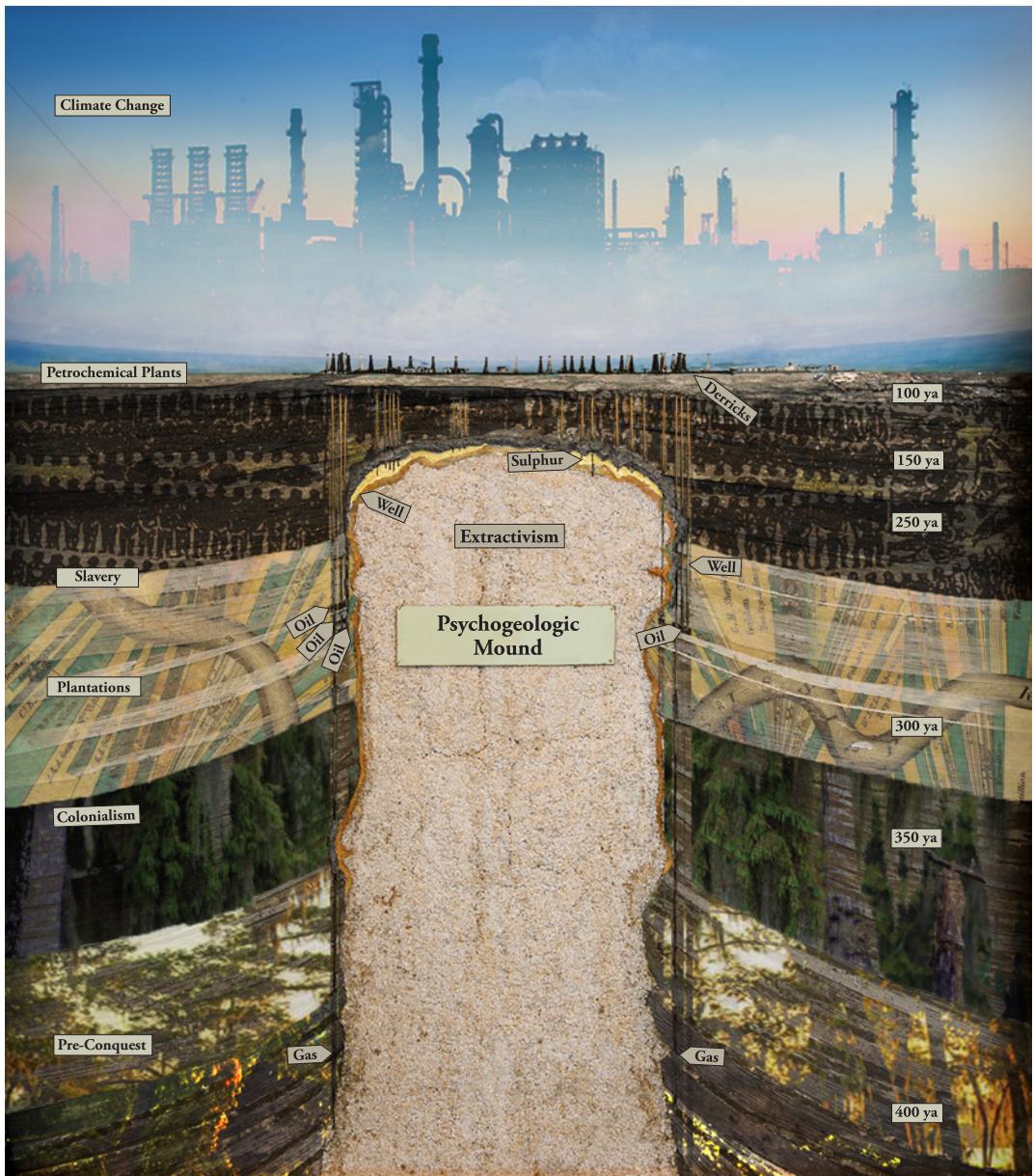
Cevat Paşa and Fatih Paşa neighborhoods under curfew with visible new constructions on the site of recently demolished neighborhoods. This inaccessible site was captured from atop the historic city walls during a walk in the company of a displaced resident (requested anonymity) who described the former neighborhood and pointed out significant destroyed features. (Video still by William Scarfone, 2019)



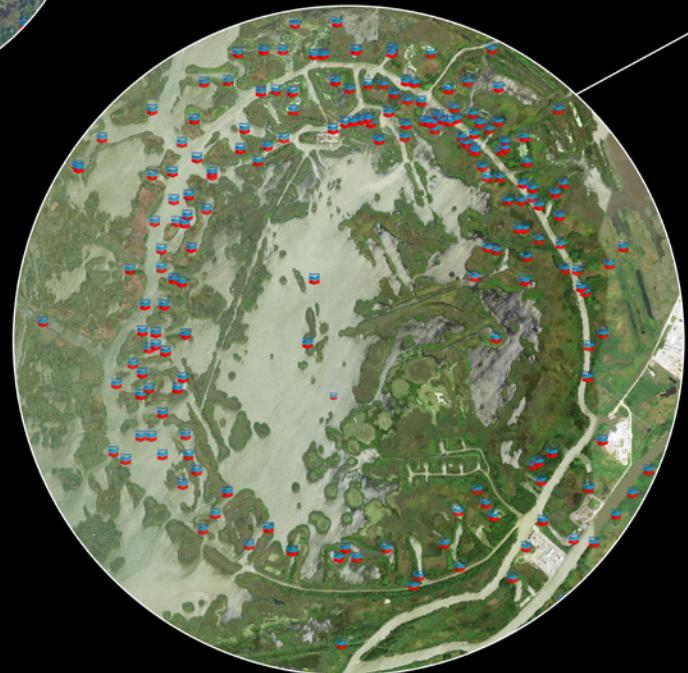
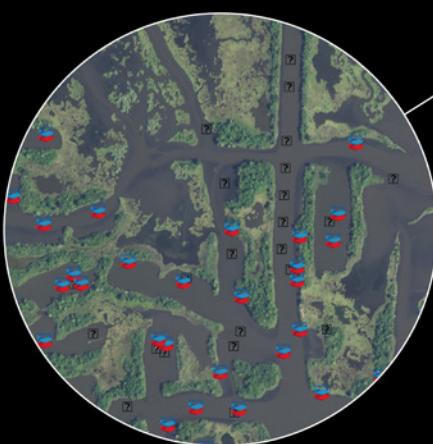
A levee breach in the Lower 9th Ward in the aftermath of Hurricane Katrina. Such mass-distributed spectacular images of destruction uphold the “event” as an entry point, obscuring the background radiation of the Corporate Sublime that generates such events. (Satellite image courtesy Google Earth. 2005.)



An oil spill at Valero Energy Corporation’s crude oil storage facility in Chalmette, Louisiana, during Hurricane Katrina. 3.57 million gallons of oil were spilled; the four adjacent blocks of homes were razed a few years later. A lesser-known Katrina story, the combined quantity of oil spilled during the storm equalled the second largest spill in US history after Exxon Valdez, which was later surpassed by the 2010 BP spill. (Satellite image courtesy Google Earth. 2005.)



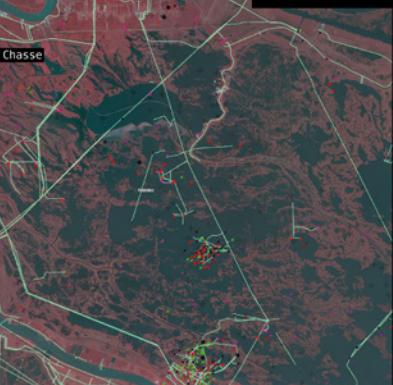
A stratigraphic investigation of a psychogeologic mound. (Digital image by Imani Jacqueline Brown. 2019.)





1a. *Lafitte Oil Field*, 2019. 2017 NAIP 4-Band 8 Bit Imagery courtesy of NOAA.

Lafitte Oil Field is one of the oldest and most lucrative prospects—and most violated sacrifice zones—in the Louisiana wetlands. According to one permit from 1989, 8,631 acres of wetland were disappeared by access canals in Lafitte between 1955 and 1978. Despite this recognition of harm, all permits for oil and gas development have been approved since permitting began in 1980. Chevron and its predecessors have drilled 539 wells in Lafitte since 1930.



1b. *The Chevron "Wagon Wheel,"* 2019. 2017 NAIP 4-Band 8 Bit Imagery courtesy of NOAA.

The Chevron "Wagon Wheel" is a sub-circular network of oil well access canals intersected by over fifty "spoke" canals in the freshwater marsh of Venice, Louisiana. The distinctive shape of the "Wagon Wheel" reveals this region's signature oil-producing subsurface geology: salt domes—ancient, sub-circular core-like masses of salt which have been intruded over the eons into the overlying beds and mantle rock. Chevron Corporation and its predecessors have drilled 964 wells in the "Wagon Wheel" and adjacent marsh since 1930.



Birdfoot Delta

Gulf of Mexico

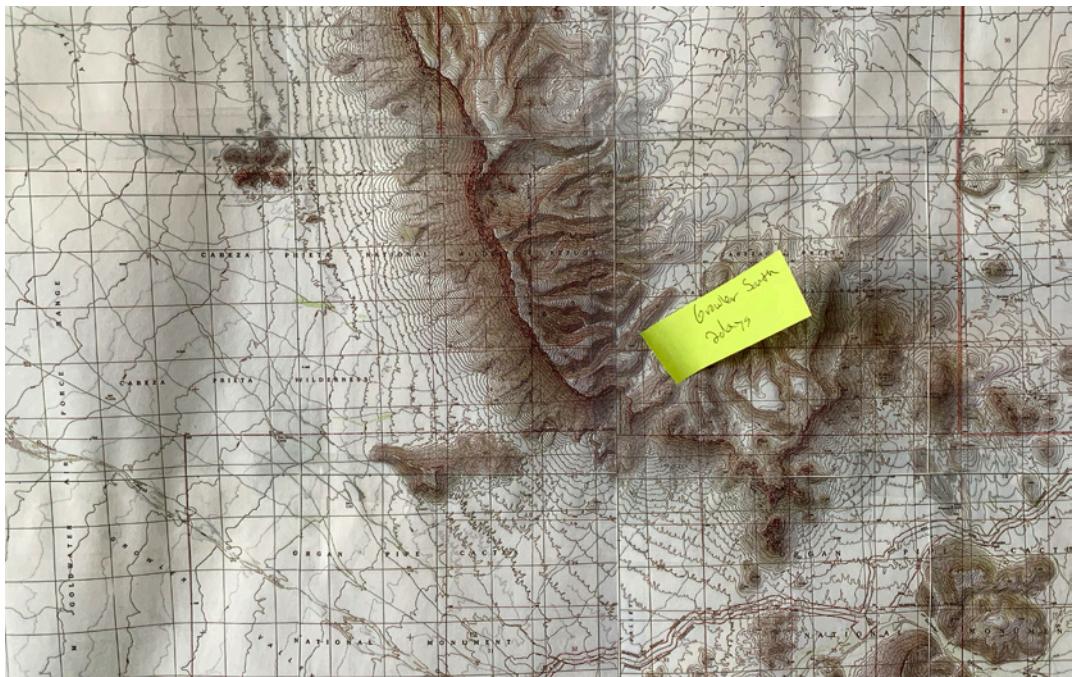
The *Snarl of Industry* Digital data visualisation created with oil well and permit data from the Louisiana Department of Natural Resources on TIC base maps. Each dot indicates a well for the extraction or injection of oil, gas, or hazardous chemicals in the "River Parishes" along the Mississippi River in Louisiana, USA. Each teal line indicates a coastal use permit, primarily those for access canal dredging and pipeline installation. (Visualisation by Imani Jacqueline Brown. 2019.)



A circle of stones, set a few months prior to visit by the volunteer group Armadillos Búsqueda y Rescate to protect the remains of a person until it could be recovered by the county sheriff, on the Cabeza Prieta National Wildlife Refuge, Arizona. (Photograph by Tara Plath. 2019.)



Members of volunteer groups Armadillos Búsqueda y Rescate and No More Deaths record coordinates and other details related to the discovery of human remains in the Growler Valley, on the Cabeza Prieta National Wildlife Refuge, Arizona. (Still image from video by David Soto. 2019.)



Detail depicting the Growler mountain range in the west desert of Arizona, on a large-scale map installed on the wall of No More Deaths' Ajo Humanitarian Aid Office, Arizona. (Photograph by Tara Plath. 2019.)



The blue light of two rescue beacons are visible in the distance, looking west from the Alamo Canyon Campground on Organ Pipe Cactus National Monument, Arizona. (Photograph by Bill Hatcher. 2014.)



12



A rescue beacon installed by the United States Border Patrol on the Organ Pipe Cactus National Monument in southwest Arizona, designed to be used by undocumented migrants suffering from dehydration and exposure while crossing the U.S.-Mexico border. (Photograph by Tara Plath. 2019.)



The original location of mass graves moved to El Valle de los Caídos. These 490 mass graves were moved between 1959 and 1983 without the consent of the families of the deceased. (Composite map by Manuel Correa. 2019.)



Clarés de Ribota Railway Station, place where Rafael Abril was abducted. Google Earth Street View. (Screenshot by Manuel Correa. 2019.)



Families during an official victimhood recognition ceremony in Navarra's parliament. (Photograph by Manuel Correa. 2018.)



Mercedes Abril, daughter of disappeared Rafael Abril. (Photograph by Manuel Correa. 2019.)





Found image of Calatayud Market Hall, where Rafael Abri was detained. (Edited by Manu Correa, 2019.)



Tilled fields for cotton, most likely, before the release of water from the Elephant Butte Dam in New Mexico and the onset of the growing season. In the background is the border wall with Las Bandejitas, Chihuahua, behind it.
(Photograph by Avi Varma. 2019.)



Roadside channel/drainage basin, part of the network of irrigation and water management technologies in the primarily agricultural regions of the Rio Grande Valley. (Photograph by Avi Varma. 2019.)



View from just beyond the Tornillo-Guadalupe International Bridge, opened in 2016 to facilitate the speed of transportation of goods. Its Port of Entry became the site of the Tornillo Tent City. Visible are pecan orchards (left), irrigation canals (center), and shrubland (right). (Photograph by Avi Varma, 2019.)

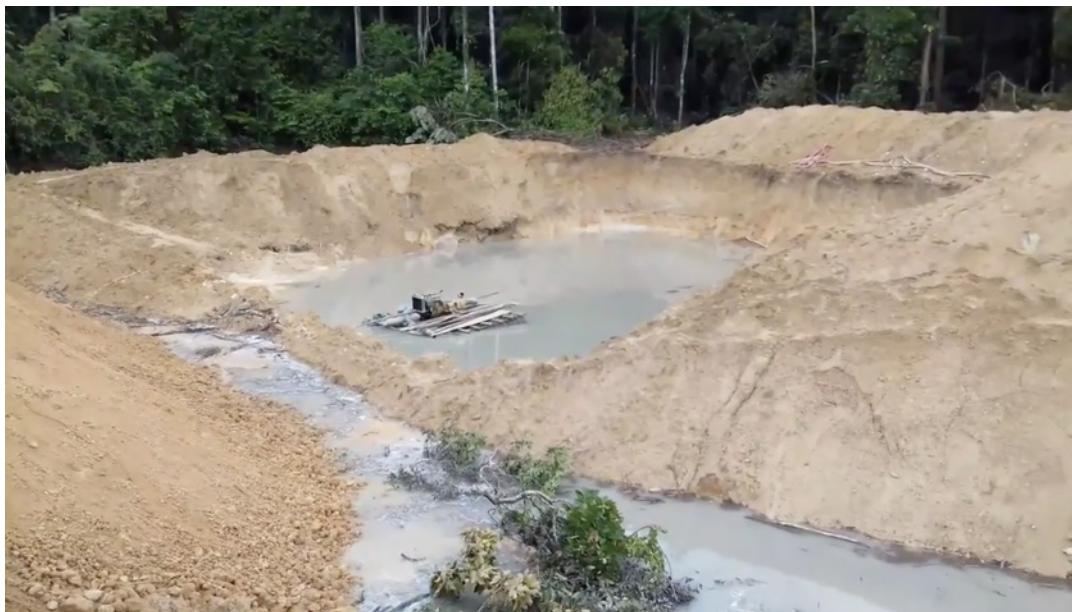


Pecan orchards being flooded with water. Typically, an orchard will need to hold in reserve 10 gallons of water per minute for each acre of trees. (Photograph by Avi Varma, 2019.)





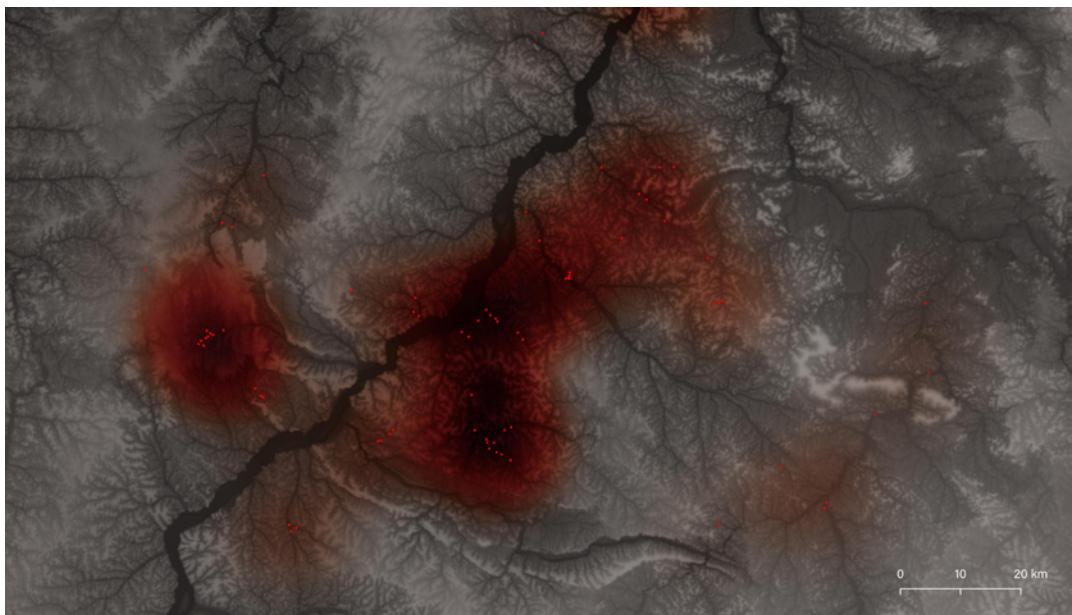
Detail of map depicting the location of the future Tornillo Port of Entry in its geographical context of agricultural and irrigation system. (US Geological Survey, Fabens Port of Entry, Texas-Chihuahua, 1982, 1:25,000 scale, Perry-Castañeda Library Map Collection, https://legacy.lib.utexas.edu/maps/us_mexico_border/rxu_oo/c_1354561_090.jpg.)



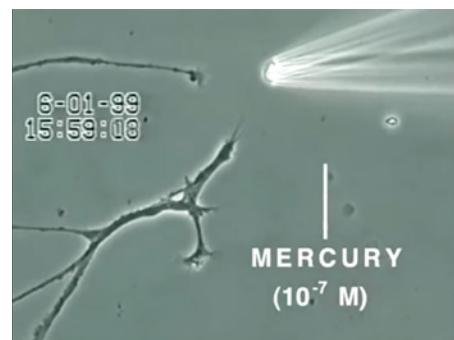
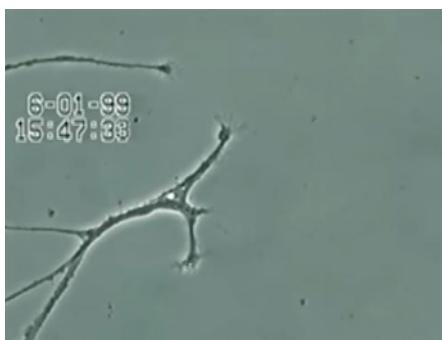
A *garimpo*, or artisanal and small-scale mining site in Tapajós river basin. (Video by Presbítero Carlim Silva Tridade. 2017.)



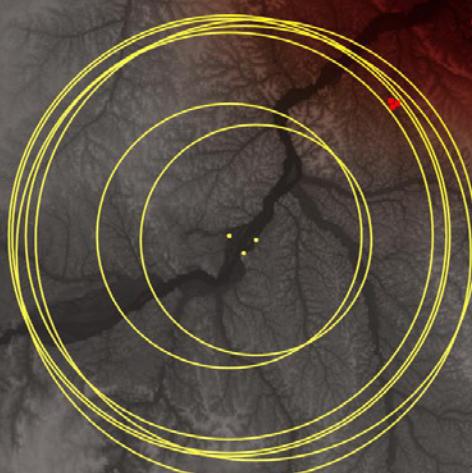
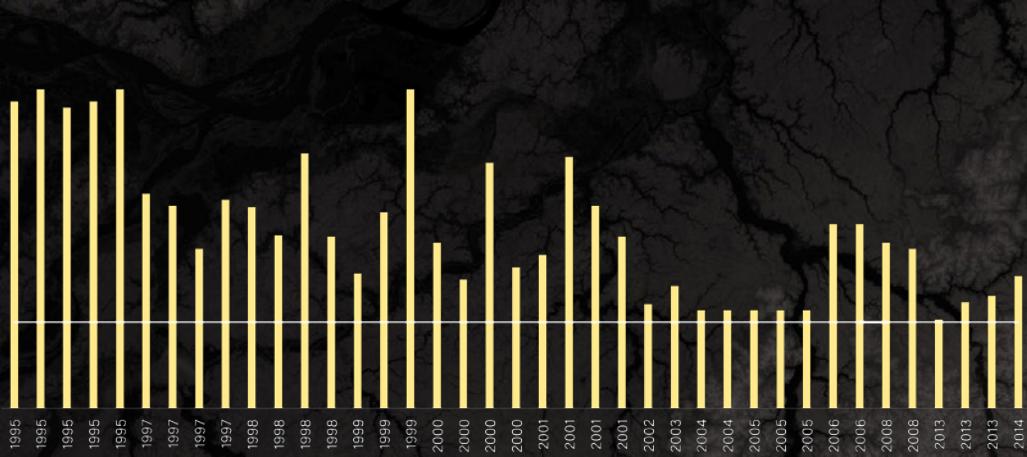
A miner burns an amalgam composed of gold and mercury at a *garimpeiro*, or informal mining site. (Video by Matheus Stopaçol. 2017.)



Informal Mining Sites in Tapajós river basin. Red dots depict the active garimpos. (Map by Tiago Patatas. 2019.)

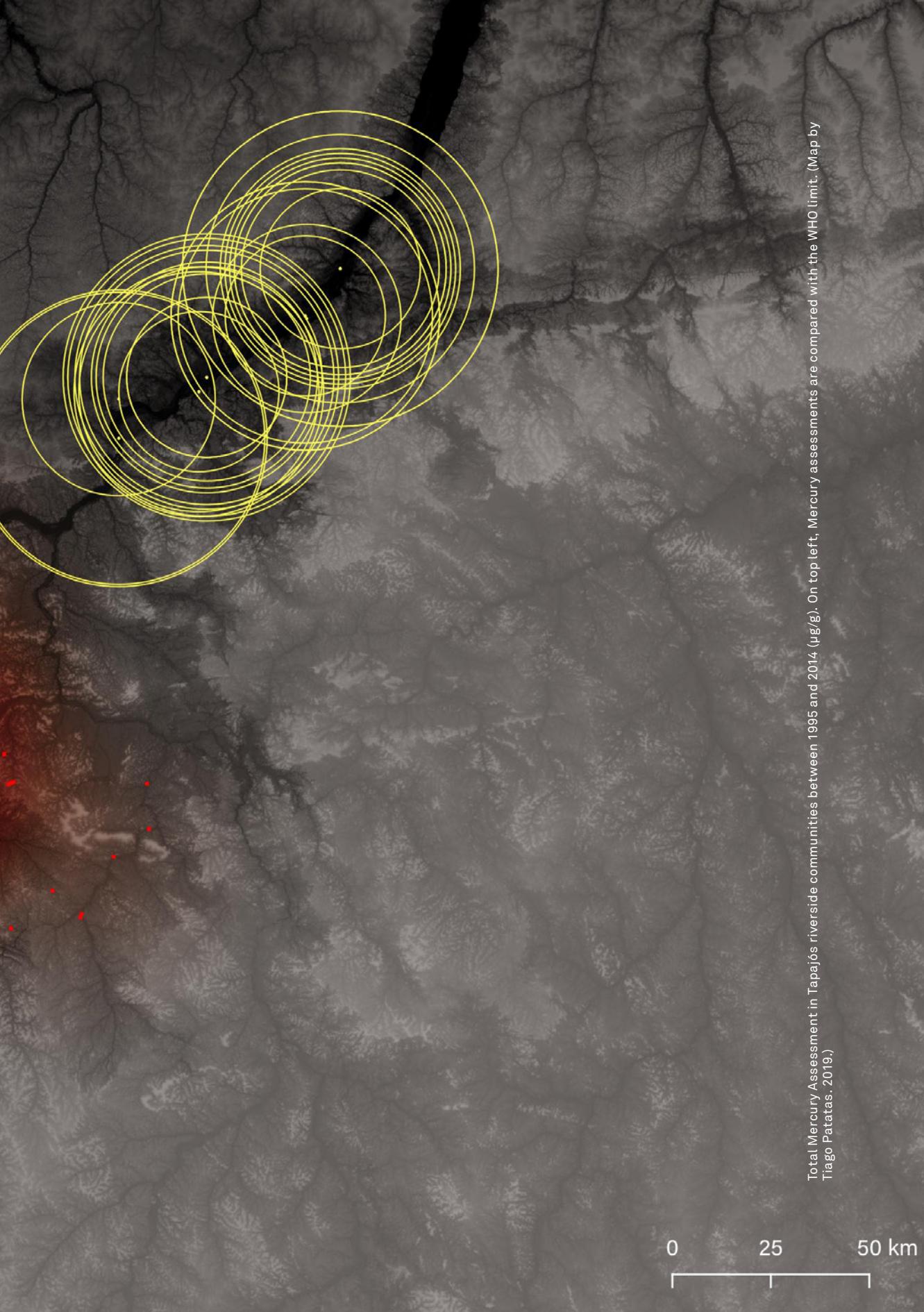


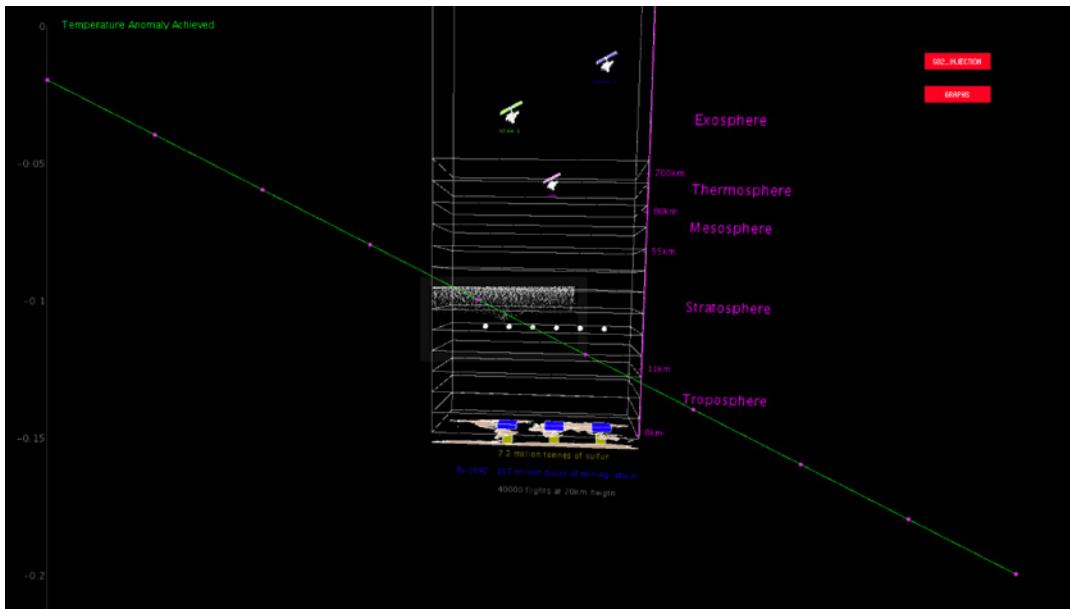
Experiment exhibiting the effect of mercury on brain neuron degeneration, conducted by the Department of Physiology and Biophysics, Faculty of Medicine, at the University of Calgary in 1999. (Screengrab by Tiago Patatas. 2019.)



Total Mercury Assessment in Tapajós riverside communities between 1995 and 2014 (µg/g). On top left, Mercury assessments are compared with the WHO limit. (Map by Tiago Patatas. 2019.)

0 25 50 km





Capture from 3D simulation of SO₂ stratospheric injection superimposed on a graph of temperature reduction achieved – work in progress made with Processing. (Image by Carol Iglesias. 2019.)

Estimated cost (USD) of 24 million tonnes of SO needed for -0.3K temperature reduction.



Estimated number of flights in order to reduce -0.3K global temperature.



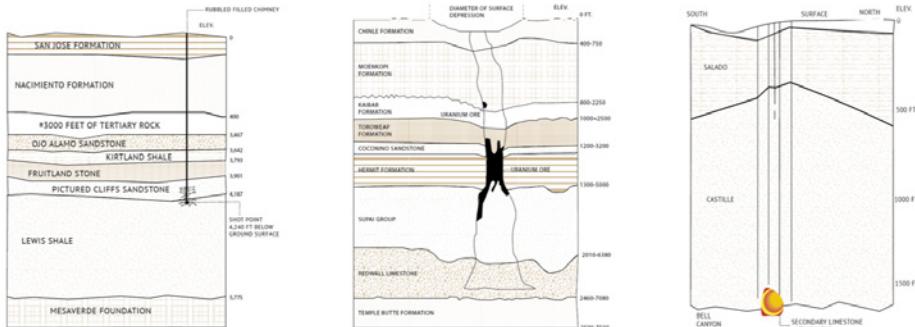
Hypothesized base-case costs of stratospheric aerosol injection in the first 15 years of deployment (2033-2047). Costs were added with a simple calculator app and based on estimates published in “SAI injection tactics and costs,” Smith & Wagner, 2018. (Screenshot by Carol Iglesias. 2019.)

Cross-section drawings comparing subsurface activity carried out or illustrating required activity for:

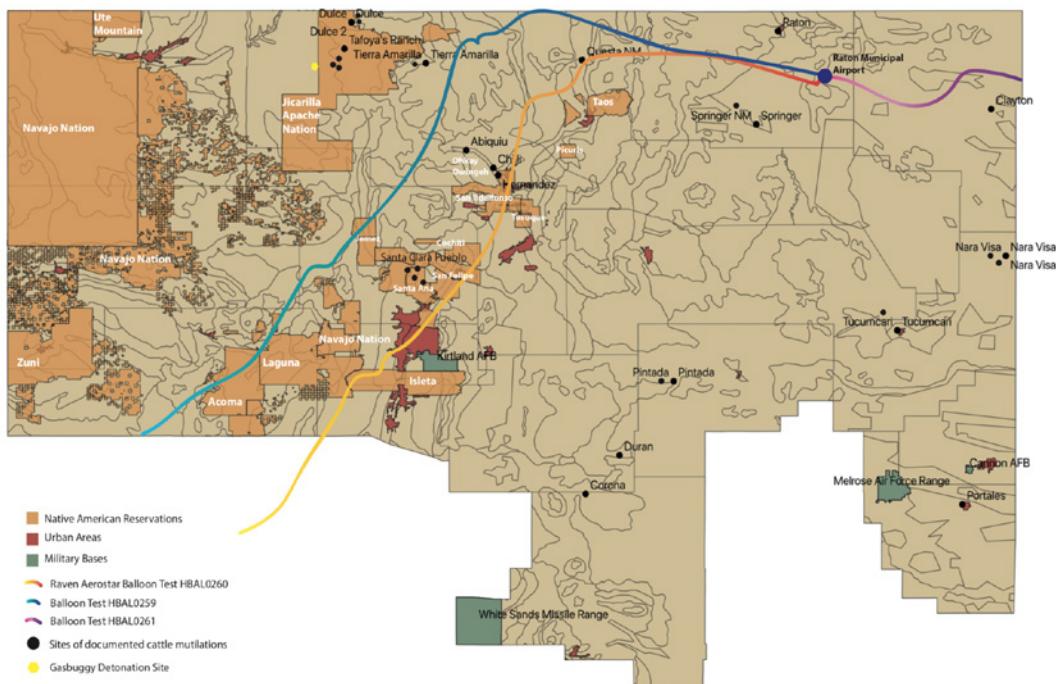
a) Gasbuggy underground nuclear detonation, NM.
Source: Gasbuggy Fact Sheet, US DOE, 2011

b) Uranium Deposit in Breccia Pipes, AZ
Source: Uranium Resource Availability, Otton, 2010.

c) Sample Sulfur Tests drilled in Gypsum Plain, TX & NM
Source: Sulfur deposits in Ochoan rocks, Smith, 1980.

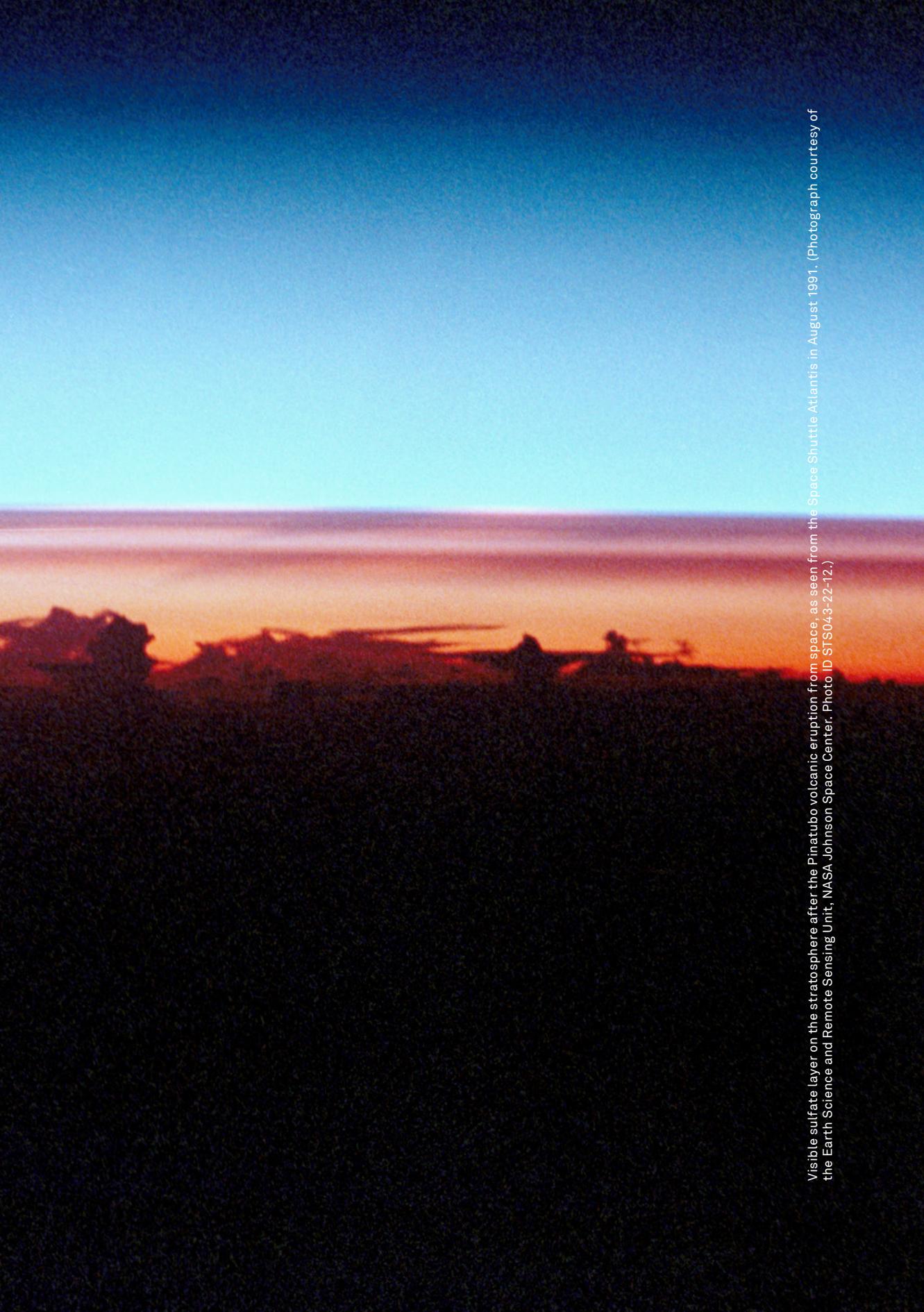


Cross-section comparison of underground resources needed for nuclear and geoengineering experimentation based on geologic data available in scientific literature. (Graphic by Carol Iglesias. 2019.)

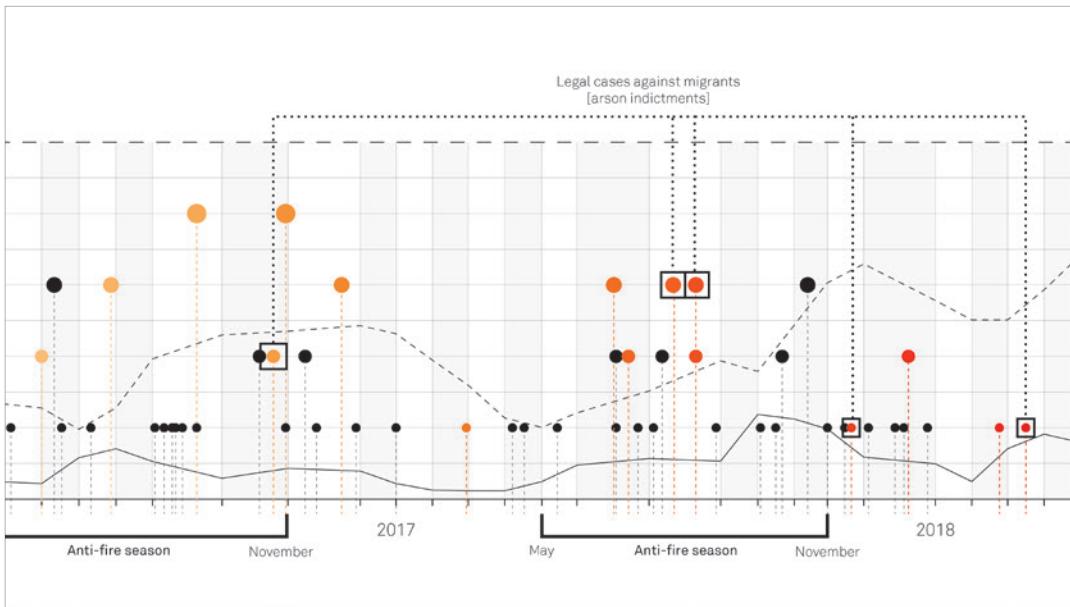


Map of scientific reverberations in New Mexico: sites where mutilated cattle were found in the aftermath of nuclear experimentation are marked (1975-79), and the trajectory from a recent stratospheric flight test is overlaid, April 10, 2019. (Map by Carol Iglesias. 2019.)

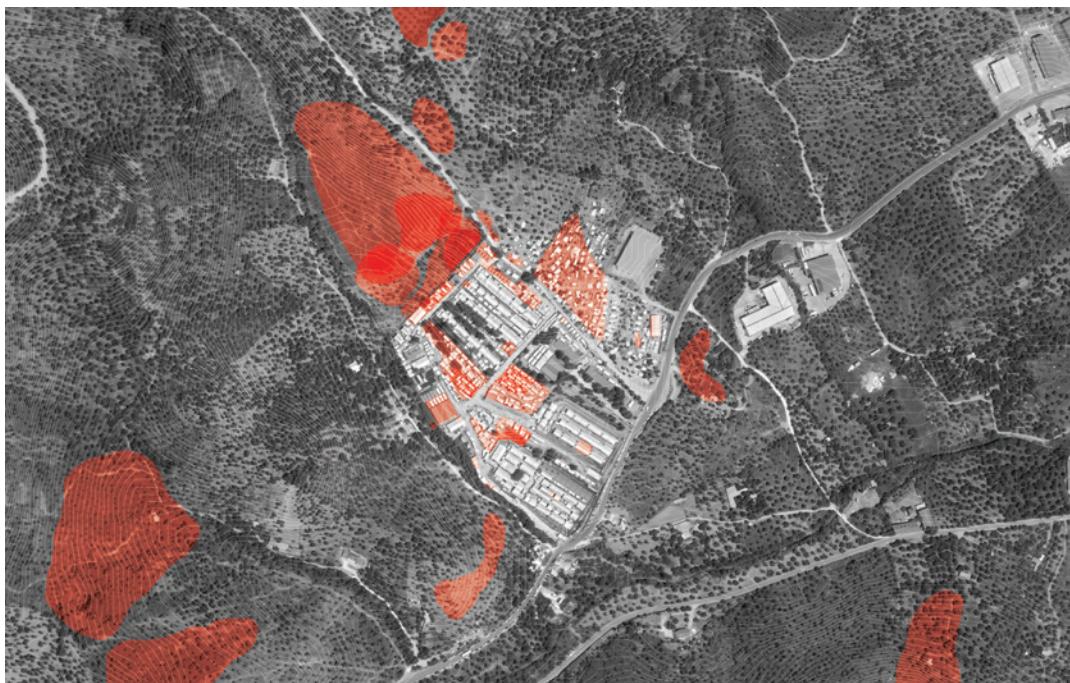




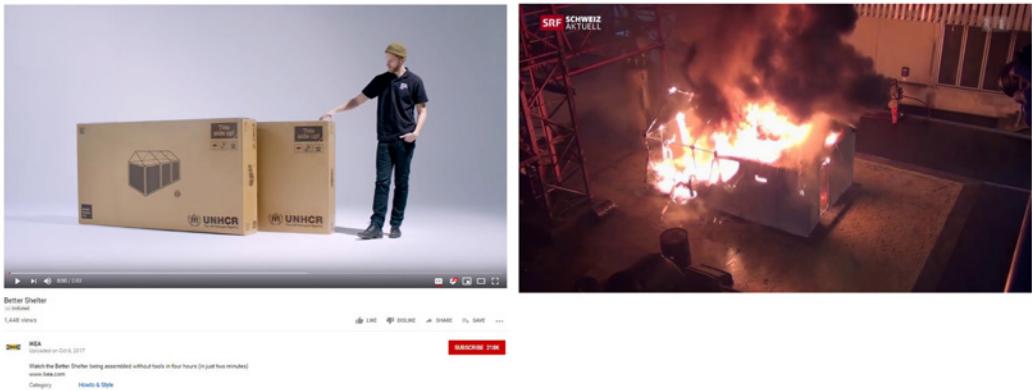
Visible sulfate layer on the stratosphere after the Pinatubo volcanic eruption from space, as seen from the Space Shuttle Atlantis in August 1991. (Photograph courtesy of the Earth Science and Remote Sensing Unit, NASA Johnson Space Center. Photo ID STS043-22-12.)



Detail of the timeline of the archived fire occurrences in and around Moria migrant camp. The solid black line corresponds to migrant arrivals on Lesvos, the dashed line to estimated population in the camp, and the circles to mapped and unmapped fire occurrences, whose size fluctuates according to the extent of the burned areas. (Graphic by Dimitra Andritsou. 2019.)



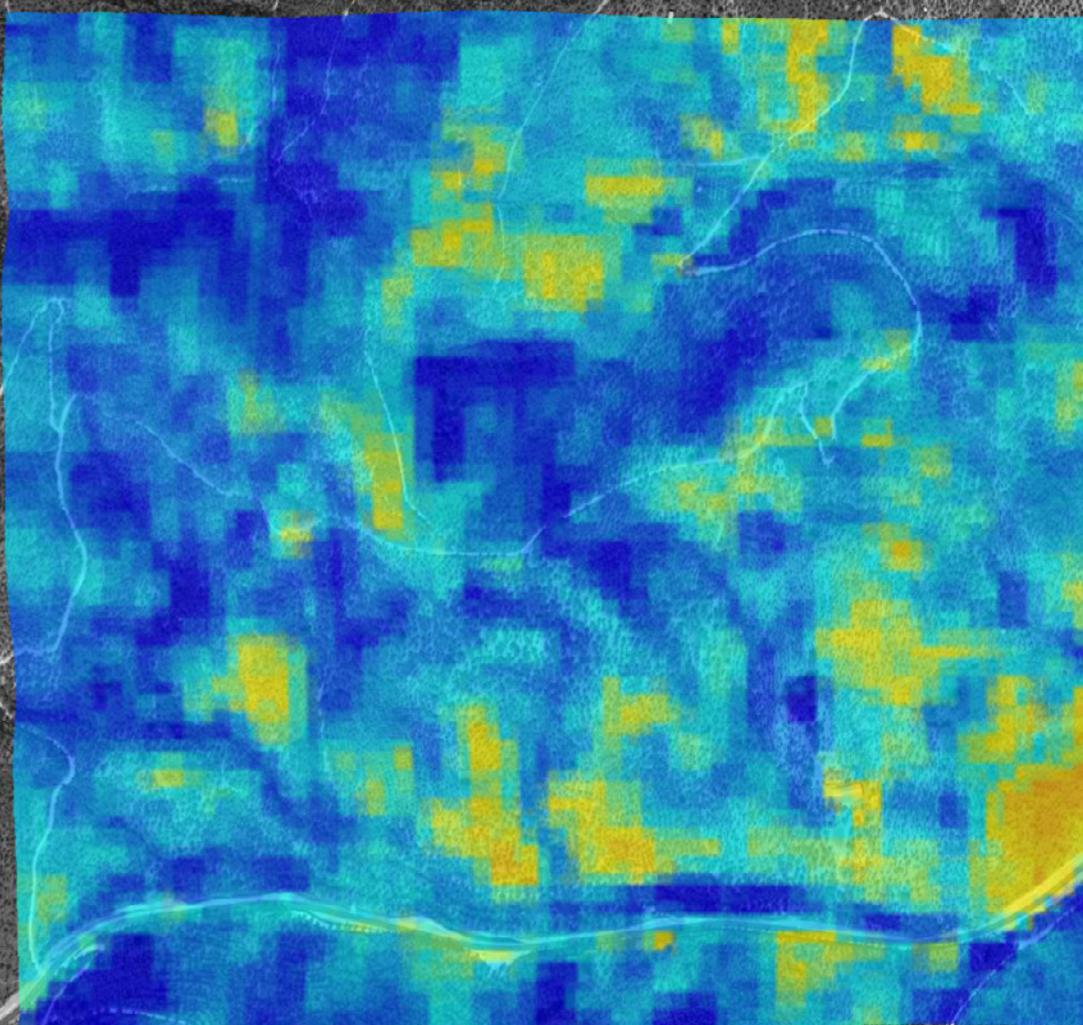
Composite map of the often overlapping, burned areas of recurrent fire occurrences in and around the migrant camp of Moria, in Lesvos, Greece. The mapped instances correspond merely to a small percentage of the total instantiations of fire in the broader area, which have exceeded 100 within the last four years. (Map by Dimitra Andritsou. 2019.)



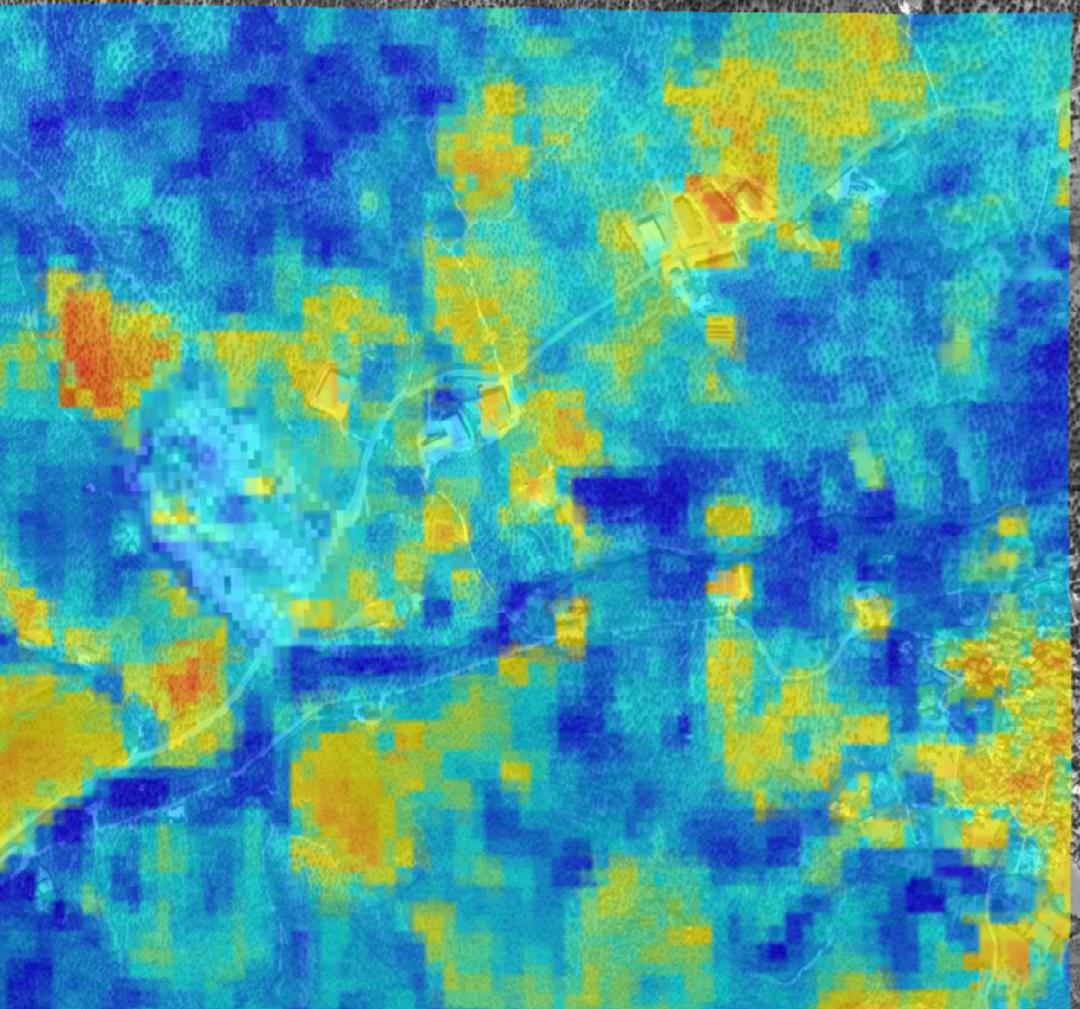
SRF video depicting the swift expansion of fire and complete burning (in 3.5 minutes) of the Better Shelter, a refugee housing unit funded by the IKEA Foundation, accompanied by an IKEA YouTube video demonstrating the quick assemblage of the shelter (“4 hours in 2 minutes”), in line with the branding of the company. Videos courtesy of IKEA and SRF, Schweizer Radio und Fernsehen. (Composition by Dimitra Andritsou. 2019.)

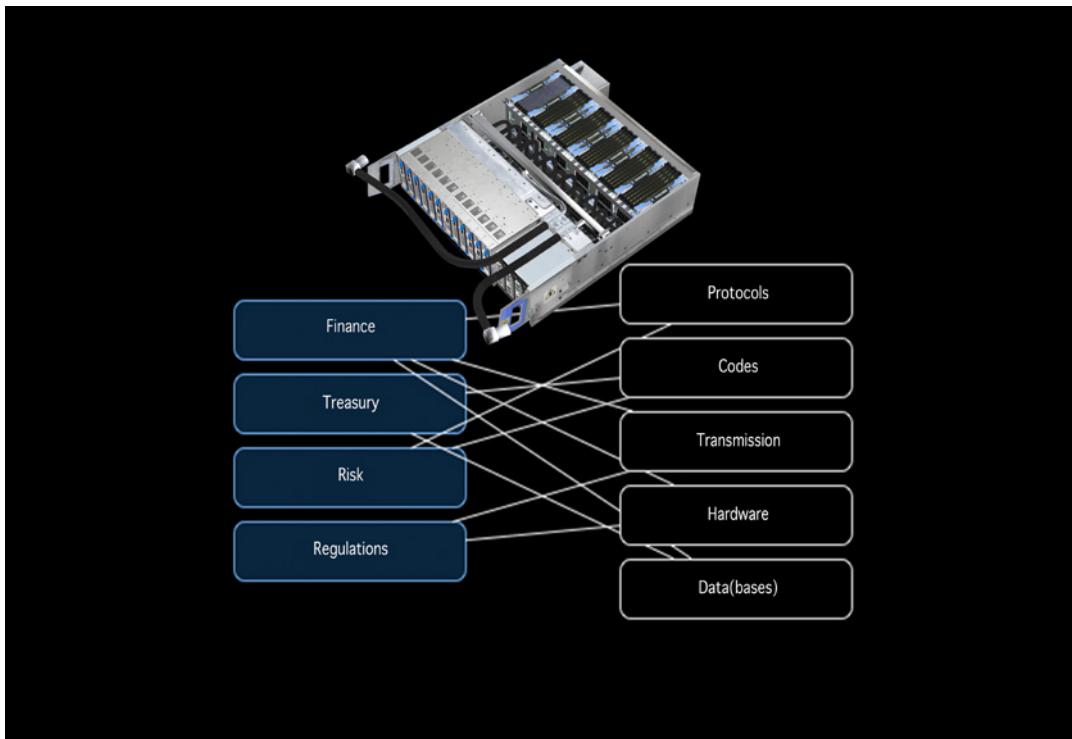


The amassing of combustible materials within the ‘pyrophile’ agricultural landscape of the olive groves surrounding the migrant camp. The electrical panel attached to the tree serves as the main power source, distributing electricity through an ad-hoc, faulty wiring system, while concomitantly operating as a lurking risk node. (Photograph by Dimitra Andritsou. 2019.)

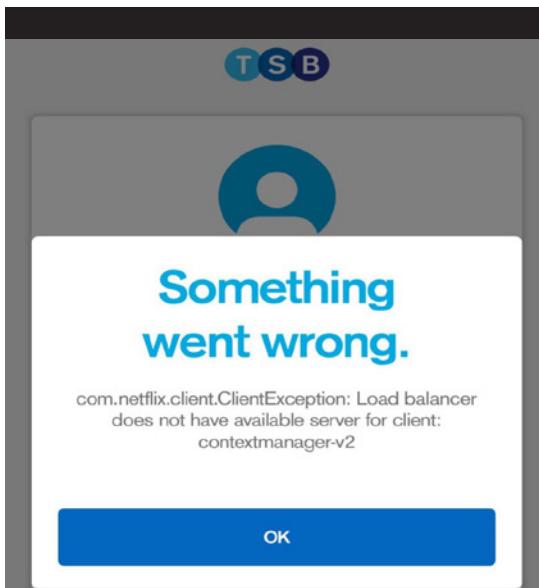


Sentinel-2 L1C satellite imagery from September 25, 2016, band combination $(B8A - B11)/(B8A + B11)$ [moisture index], with warm colours corresponding to the driest vegetational areas and cold colours to the most humid ones. The moisture index illustrates the burn scar after a fire breakout on September 19, 2016 on the north of the camp. The satellite image, courtesy of Sentinel-Hub EO Browser, is superimposed onto Google Earth terrain. (Composition by Dimitra Andritsou, 2019.)

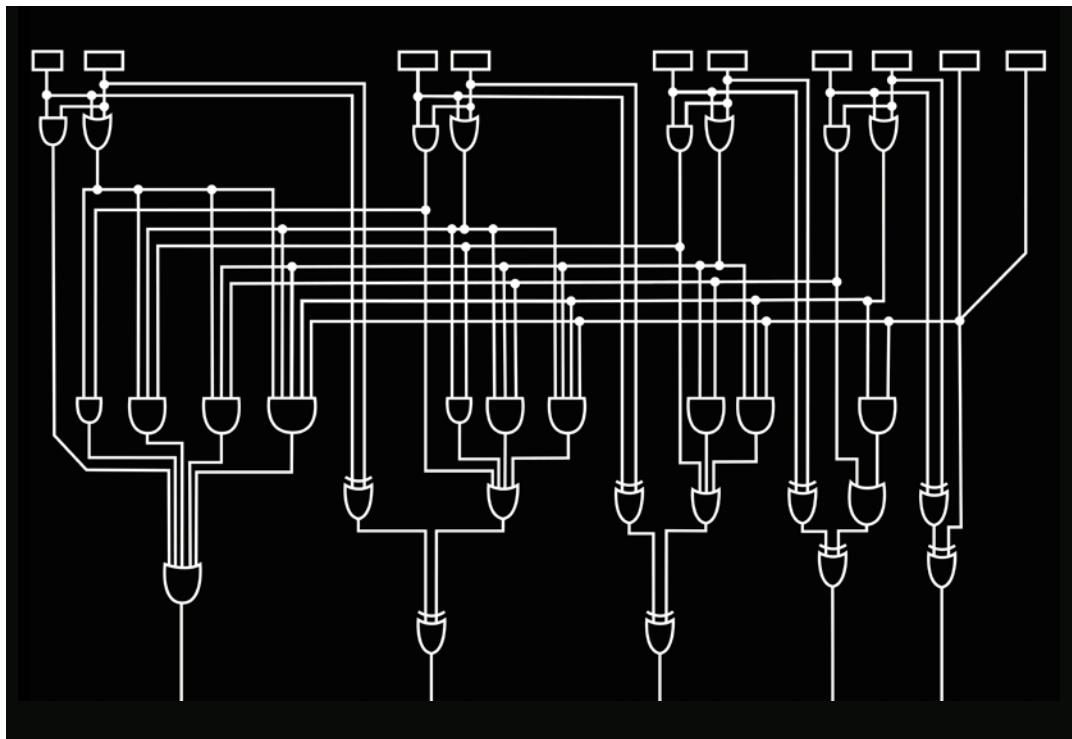




A processor and a diagram listing various decision-making components of a bank (left) and technology (right). (Image by Tim Brouwer. 2019.)



An error message of the Trustee Savings Bank mobile application reveals the usage of an open-source software (developed by Netflix) and a software misconfiguration of their load balancer. (Screengrab by Kevin Beaumont. 2018.)



A 'carry-lookahead adder' layout design for circuit boards. As the name suggests, this layout gains speed by foreseeing the sum of data signals before they are fully processed. (Image by Tim Brouwer. 2019.)



[Go to tsb.co.uk](#)

Welcome to Business Internet Banking

If you don't already use Business Internet Banking, it's simple to [register online](#).

Please enter your User ID and password. If you've forgotten your User ID simply click on the link '[Forgotten your User ID?](#)' and follow the instructions.

```

User ID ● Please enter a value

● Please enter a value

User ID ● Please enter a value

□ Inspector □ Console □ Debugger □ Style Editor □ Performance □ Memory □ Network □ Storage
Filter output

AJAX complete 1
Target -> 1
TARGETING: calling utag.view from --> #@# SPA
:::::View Extension::::: - campaign.length: [ 0 ] event_name: [ undefined ]
:::::View Extension::::: - campaign.length: [ 0 ] event_name: [ undefined ]
about to add mini statement handler (waiting)
TARGETPARAMS IN
Loading failed for the <script> with source "https://dpm.demdex.net/1d7d.visitid_ver=1.5.66d_rtbId=json&id_ver=25d_orgId=C4379765576A0d
d_mid=44534668315035474128758295678651896786d_cb=s_c_1lN582%5D..setAudienceManagerFields".
Loading failed for the <script> with source "https://visitor-service.tealiumiq.com/tsb/tsb-uk-new@162e852c72a0013bf65dafb6080005;
rnd=1524558210852".
Error warning cancelled
TARGETPARAMS IN
Loading failed for the <script> with source "https://dpm.demdex.net/1d7d.visitid_ver=1.5.66d_rtbId=json&id_ver=25d_orgId=C4379765576A0d
d_mid=44534668315035474128758295678651896786d_cb=s_c_1lN582%5D..setAudienceManagerFields".
Error warning cancelled
TARGETPARAMS IN

```

Evidence of web developers at the Trustee Savings Bank coding live changes in production during the bank's major IT failure in 2018. (Screeengrab by Martin Sarsini. 2018.)



```

SOURCE -- (OLIUDEMO:OLIUDEMO)---- OLIVER ----- LINE 0000131 COLUMNS 001 071
COMMAND ==> SCROLL ==> FULL
* Compiled: 13.42.52 hrs. on 07/28/89.. Link-Edited on: 28JUL 89 (00002K )
000132 001110 PERFORM CLEAR-RECORD-ITEMS.
000133 001120 PERFORM GET-NEXT-SCREEN-DATA.
000134 001130
=PAUS= 001200 MAIN-PROC SECTION.
000136 001210 TOTAL-PAY-CALC.
000137 001220 MULTIPLY TS-BASICRATE BY TS-TOTALHOURS GIVING INT-BASICPAY
000138 001230
000139 001240 MULTIPLY TS-BONUSRATE BY TS-TOTALHOURS GIVING INT-BONUSPAY
-- ASSOC.DATA -----
000017 000500 77 INT-BONUSPAY PIC 9(3)V9(2). X==> 0000000000
000028 000655 02 TS-BONUSRATE PIC 9(2)V9(4). ==> 011250+
000033 000680 02 TS-TOTALHOURS PIC 9(2)V9(2). ==> 3950+
-----
000140 001250 ROUNDED.
000141 001260 ADD INT-BASICPAY INT-BONUSPAY GIVING TS-TOTALPAY ROUNDED.
000142 001270 IF TS-TOTALPAY > TOTALPAY-LIMIT
-- CURRENT STATUS ----- Amode: 24 -
Reason for Halt: SINGLE CYCLE HALT in PHASE OLIUDEMO
within module OLIUDEMO at Offset 000796 (Stat number 00139 )
Statement is: 00139 001240 MULTIPLY TS-BONUSRATE BY TS-TOTALHOURS 6
----- PRESS PF6 -----

```

An IBM mainframe server (left) and interface displaying a program written in COBOL (common business-oriented language) (right): two components that are fundamental for most banking IT errors. (Image by Tim Brouwer. 2019.)

FIELD MANUAL

HOW TO MAP HATE CRIMES IN ATHENS AND OTHER URBAN SPACES.

HOW TO PRODUCE A DEEPMODEL.

HOW DO YOU REPORT AND EXTRACT SONIC REVERBERATIONS OF AN AERIAL BOMBARDMENT, AND LOCATE THE REPETITION OF THOSE REVERBS IN OSTENSIBLY NON-VIOLENT LATER EVENTS?

HOW TO BEGIN TO BUILD A CASE OF URBICIDE FROM GEOLOGIES OF DESTRUCTION.

WHAT HAPPENS TO FOSSIL FUEL CORPORATIONS WHEN THEY DIE? HOW CAN I HOLD A DEFUNCT CORPORATION ACCOUNTABLE FOR ITS CRIMES?

HOW TO LOCATE A RESCUE BEACON IN THE DESERT.

HOW CAN YOU CREATE SOCIAL ACCOUNTABILITY FOR CRIMES THAT HAVE NO JURISDICTION?

WHERE DOES THE WATER USED AT A TOXIC SITE COME FROM?

HOW DO YOU TRACK PATTERNS OF DEFORESTATION AND HYDROLOGICAL CHANGE MADE BY INFORMAL GOLD MINING IN THE AMAZON?

HOW TO MONITOR SULFATE INJECTION GEOENGINEERING DEVELOPMENTS.

HOW DO YOU IDENTIFY AND MAP FIRE OCCURRENCES IN A MIGRANT CAMP?

WHAT ORGANISATIONS ARE CONNECTED TO A PARTICULAR WEBSITE, AND WHAT ARE THEIR FUNCTIONS (HOSTING, ADVERTISING, SECURITY, ETC.)?

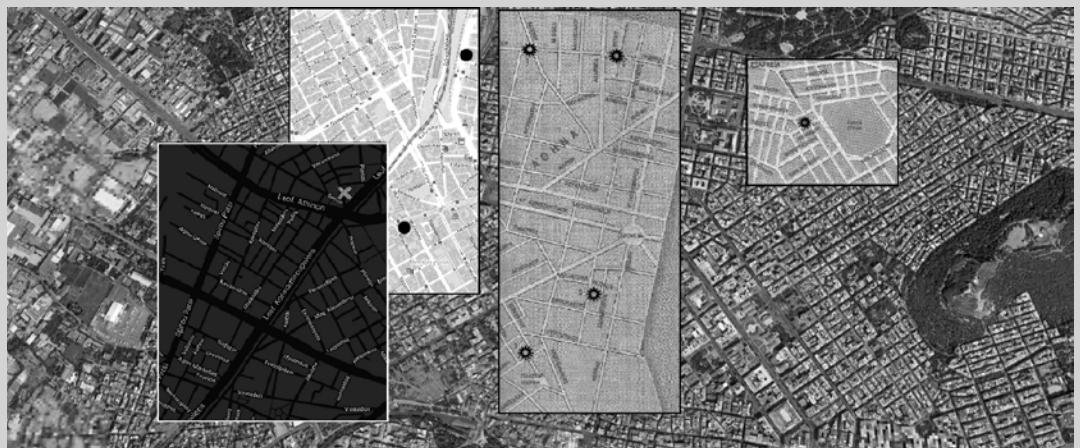
HOW TO MAP HATE CRIMES IN ATHENS AND OTHER URBAN SPACES.

- ① Establish a definition of hate crime that is relevant to your project.
 - 1.1 Find out if an official definition of hate crime exists in the context in which you are operating, e.g. Greek Penal Code (article 81A): “It is made evident that the victim has been chosen based on their race, nationality, gender, or religious beliefs.” If there is no legal definition in use, consult definitions by international organizations or used in other legislations.
 - 1.2 See whether the definition you have found accounts for the kind of violence you want to document. Deciding the parameters of what counts as “hate crime” is a crucial step.
- ② Create your own dataset of geolocated hate crimes.
 - 2.1 Look for existing databases from a variety of sources, including the ones published by the authorities (but beware that the way authorities report hate crimes is often part of the same system of structural violence that allows hate crimes to occur in the first place).¹
 - 2.2 Identify the creators of the datasets, their goals, and the nature of the incidents mapped to understand what a specific dataset reveals *and occludes* at once.
 - 2.3 Merge relevant information into one consistent dataset. Add entries by monitoring media for relevant reports on new and past incidents.
- ③ Create your map.
 - 3.1 Use QGIS or GoogleEarth to create a map of hate crimes. Choose how to represent events whose timing and location is not fully verified or known.
 - 3.2 Add layers indicating the jurisdictional boundaries of various actors. These can be official boundaries shown in relevant online maps (municipalities, police precincts, etc.) or more loosely defined areas of control of certain groups (e.g., Golden Dawn). Mapping the influence of organizations surfaces broader patterns as seemingly singular occurrences start to form a semi-organized field of violence.
- ④ Data-mine your dataset to extract your story.
 - 4.1 Query your dataset and map with specific questions in mind. For instance, what is the main group being targeted? Are there specific times, locations, or perimeters? Try to understand the relevant sociopolitical context: Are there any common incidents or actors? Is there evidence of collusion between specific police precincts and right-wing groups? Have there been any news stories corroborating that preliminary results?



Athens Pride demonstration banner in the memory of queer activist and drag queen Zak Kostopoulos – Zackie Oh! – who died under police custody on 21 September 2018. Banner reads "Rage and sorrow, Zackie will be missed. Our lives matter." (Photo by Marios Lolas. 2019.)

Overlay of different visualizations of hate-crime datasets and reports. Base template: Google Earth. From left to right: ValtousX – The Black Map of Athens, crisis-scapes.net, newspaper clippings showing shootings committed by Pantelis Kazakos – THEMA Newspaper, 23 October 1999. (Map by Phevos Kororos-Simeonidis. 2019.)



HOW TO PRODUCE A DEEPFAKE.

- ① Deepfake is a method of video production that allows you to fake footage of targeted personages by means of deep learning algorithms. In such videos, a person's voice and behavior are simulated in recordings that do not correspond to real footage.
- ② You need to set up a political and ethical framework, and note practical considerations:
 - What are the political implications?
 - Are you perpetuating power dynamics that inflict harm on oppressed groups? (Fake porn is one of multiple examples of how one should not use deepfake technology).
 - Punch up! For this manual, I will use the example of making a politician give an unrealistic speech.
- ③ The more realistic the deepfake is, the more complicated its production. For both sound and video you will need a machine with a powerful GPU.² If you don't have a suitable PC, you can use google colab.³
- ④ Start with the audio production. Do you need the selected character to speak? If not, you can still achieve a lot of impact by making a politician appear in an unusual setting, which would save you a lot of effort. If you decide to only work with video, skip to step 7.
- ⑤ Work in English. For the moment, finding a neural network trained in other languages is challenging.
- ⑥ In order to make a voiceover for deepfake, use text-to-speech models like *deepvoice3*.⁴ First, you will need to do "speaker adaptation."⁵ Training the model from scratch is possible, but more demanding.
- ⑦ Experiment with Facelab, the most used deepfake software. Facelab exists as a google colab and a github repository.⁶
- ⑧ Record footage with a model. You will later alter this because Facelab only replaces the face from your footage with the face of your target. Therefore, to produce a realistic deepfake the footage should be recorded in a realistic setting or else it requires post-production to place the deepfaked face back on the body of the target.
- ⑨ Facelab has a lot of tutorials online but none of them explain post-production. Post-production can be done by replacing the background if the shooting of the model was done on a green screen. Otherwise, it is possible to replace the face with motion tracking in AfterEffects.



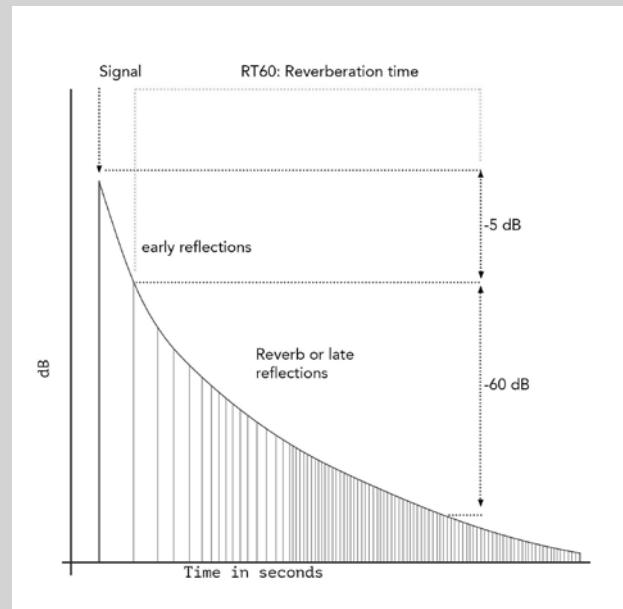
Face2Face: Real-time Face Capture and Reenactment of RGB Videos (CVPR 2016 Oral), showing a realistic option of deepfake video production. Found at: <https://youtu.be/ohmajJTpNk>. (Screengrab by Anna Engelhardt. 2019.)

DeepFakes Donald Bastard and DrPutin, showing a parodic option of deepfake production. Found at: <https://youtu.be/Na6BAf8CRJk>. (Screengrab by Anna Engelhardt. 2019.)



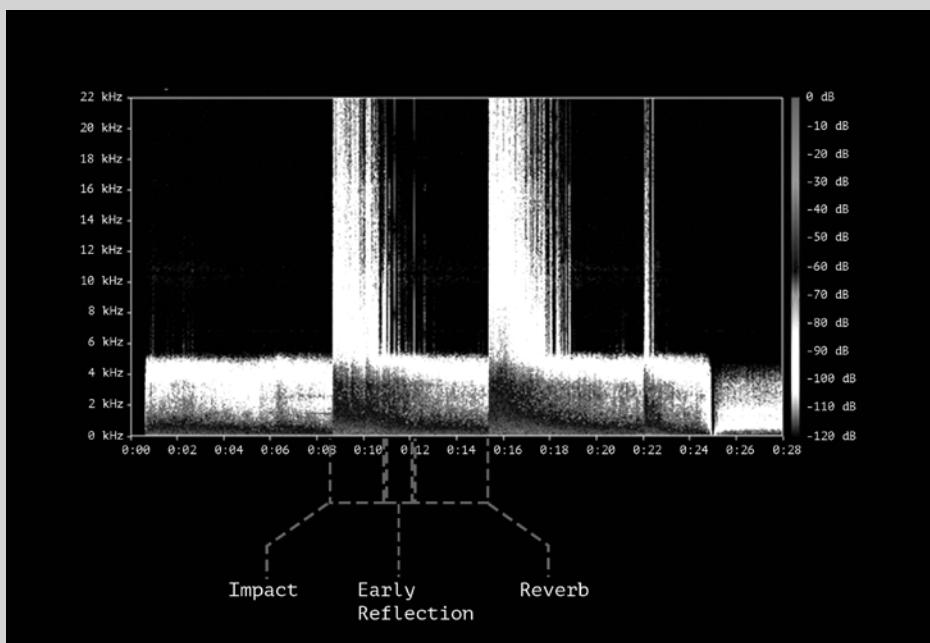
HOW DO YOU REPORT AND EXTRACT SONIC REVERBERATIONS OF AN AERIAL BOMBARDMENT, AND LOCATE THE REPETITION OF THOSE REVERBS IN OSTENSIBLY NON-VIOLENT LATER EVENTS?

- ① The following steps will help you identify the potential for ongoing trauma within a sonic environment. First, conduct general research on the aerial bombardment event in question to identify the location, weapons used, and the main political and military drives behind it, as well as the level of intentionality behind the event. Then explore its sonic dimensions by first locating videos filmed during the event, using YouTube or any public platform that might contain footage.
 - 1.1 Start by extracting the bombardment sound from the video by downloading the video file, isolating the bombardment sound, and cutting that segment out using any sound editing software such as Audacity. Finally, visualise the segment as a spectrogram by dragging and dropping the clip into Spek, an acoustic spectrum visualiser that can be downloaded for free.⁷
 - 1.2 By looking at the spectrogram, you should be able to discern the impact sound from its reverb. To know when the reverb starts, refer to the illustration Scheme a.
 - 1.3 Outline on the spectrogram the three main parts of the sound: the impact, its early reflection, and the reverb. The reverb and its tail mainly extend in the mid-and-lower frequencies that are present in the initial impact. See illustration Scheme b.
- ② After identifying the weapons used in the bombardment, refer to the Decibel Level Chart provided by MakeltLouder to see if the weapons' decibel levels from a similar family are measured.⁸ If not, the book *Explosive Shocks in Air* by Kinney and Graham is a good reference point.
 - 2.1 Via satellite imagery or, if available, CAD maps redraw the bombarded urban context (e.g. buildings with heights).
 - 2.2 Export a DXF file from the 3d drawing and insert it into the online platform Noisetools.⁹
 - 2.3 Simulate the noise by implanting a noise source with the same sound intensity levels as the weapon used.
- ③ Find a sonic phenomenon – ostensibly non-violent, such as noise from a construction site – that can be heard within the same sonic radius of the bombardment. Use it for comparison with the bombardment's auditory and acoustic qualities.
 - 3.1 If the event is ongoing, begin by making a field recording on-site with a Zoom recorder (or similar handheld recording device) and a noise meter to assess the sound intensity levels. Then, insert those recordings into a spectrogram and delineate the reverbs. Repeat method 2.2 but with the new data.



Scheme a: Reverb detection graph using the RT60 method.
(Visualisation by Mohamad Safa. 2019.)

Scheme b: Reverb detection on a spectrogram of an explosion.
(Visualisation by Mohamad Safa. 2019.)



HOW TO BEGIN TO BUILD A CASE OF URBICIDE FROM GEOLOGIES OF DESTRUCTION.

- ① Start with on-site documentary images. In my case, I received a flash-drive containing 1,000s of photos of Sur, Diyarbakır before its destruction, as well as excel sheets cataloguing the parcels shown in each photo. These came from a 2010 survey conducted by the Metropolitan Municipality pursuant to the State Ministry of Environment and Urbanization designation of the entire district as an earthquake “risk area,” laying the ground for its destruction.
 - 1.1 Cross-reference the photos, excel sheets, master-plans, cadastral surveys, pre-destruction satellite imagery, and street maps to determine the block, parcel numbers and street name.
 - Identify relevant folders by area of interest. In this case, those were the Savaş and Hasırlı neighborhoods. Hotspots during the conflict, they were largely destroyed and are currently inaccessible because of ongoing curfew.
- ② Read damage reports conducted by local nongovernmental actors about major environmental changes. For instance, near Sur, a massive hill of rubble emerged east of the Tigris. In it, a commission headed by the Turkish State Ministry of Culture and Tourism illegally dumped the remains of Sur’s civic life: traditional volcanic basalt stone constructions, personal effects of victims, and bodies of disappeared persons.
 - 2.1 Confirm site details with local stakeholders and experts (authors of the reports or regional ecological activists). They may in turn refer you to eyewitness testimony and technical reports detailing the transportation of inadequately assessed, largely historic rubble from the curfew area to the dump site in the months after the conflict.
 - 2.2 Consult satellite imagery to confirm major topological changes on site before and after the conflict.
 - 2.3 Use situated testimony and first-person description to trace these changes.
 - Through this method, I confirmed when rubble piling began (shortly after the cessation of hostilities) and that a new layer of soil was added to prevent displaced people from seeking remains.
- 2.4 Identify and document the site in person.
 - In my field work, I drove to the exact location and observed a new mound of nearly 20 hectares of devastated built environment naturalised as a large, rolling hill.
 - Similarly, I recorded video while traversing this artificial geological feature, editing the footage with labelled images from the earthquake risk survey, which shows much of the architecture now buried here while it still stood and composed the historic civil fabric of Sur.



Traversing the hill of rubble east of the Tigris, approximately 3km away from Sur. (Video still by William Scarfone. 2019.)

An earthquake risk assessment survey provided by an urban planner. Courtesy of Haknas Sadak. (Annotation by William Scarfone. 2019.)



Block 385, parcel 30a, Yumurtaci Sk

WHAT HAPPENS TO FOSSIL FUEL CORPORATIONS WHEN THEY DIE? HOW CAN I HOLD A DEFUNCT CORPORATION ACCOUNTABLE FOR ITS CRIMES?

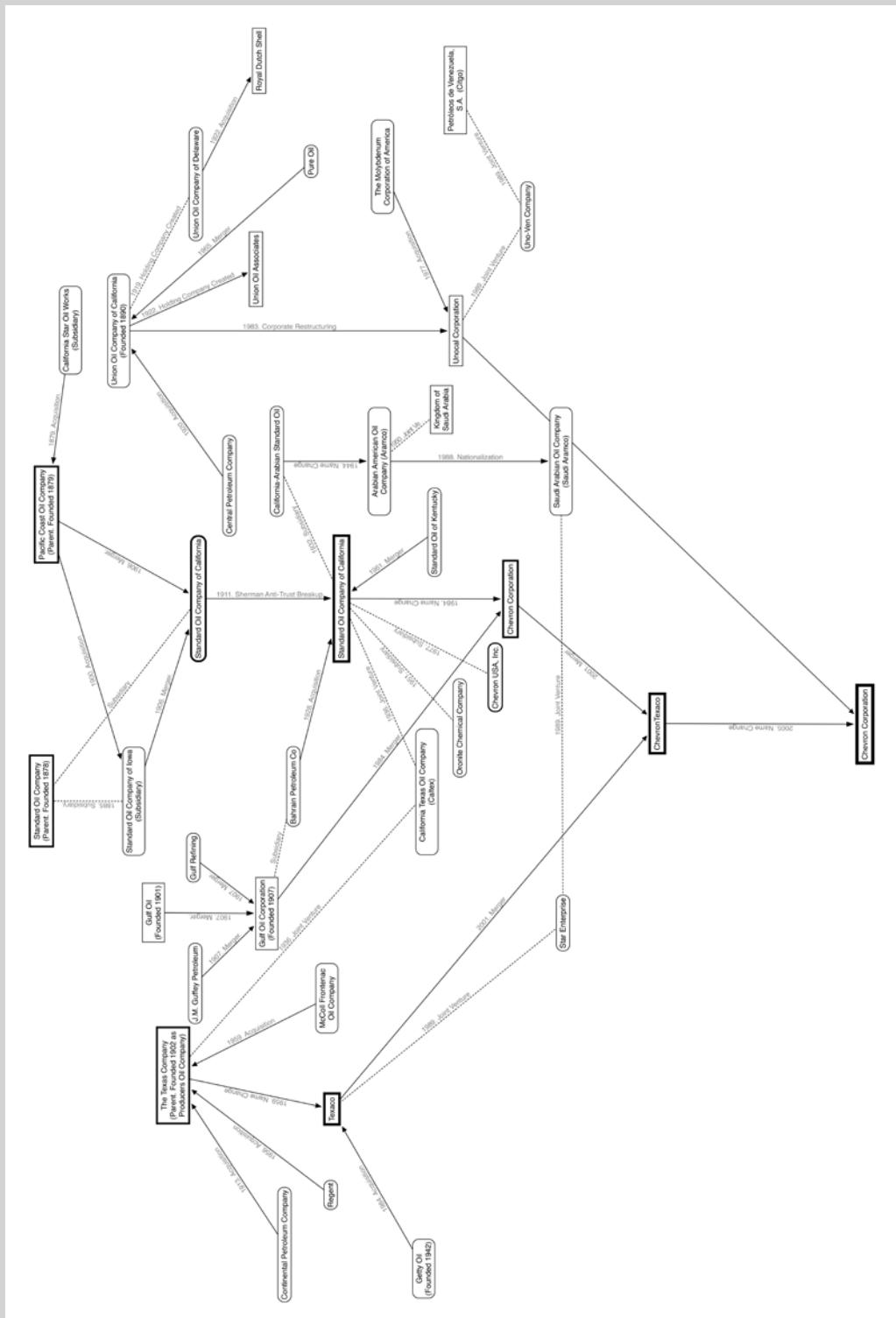
Large corporations are transnational, extraterritorial kingdoms with sprawling assets, HQs, subsidiaries, partners, successors, and predecessors. Corporations don't die – they merge.

- ① To determine which corporation is presently responsible for past extractive violence, trace the known corporation's genealogy (see illustration: *Chevron Genealogy*). Is the known actor the “parent” company or a subsidiary of a larger one? In corporate mergers, a parent corporation absorbs the assets, but also the responsibilities and liabilities of its subsidiaries.

Once you've located the parent company of your corporate target, gather some publicly available information to formulate your accountability strategy:

- ① Use the Subsidy Tracker database provided by Good Jobs First¹⁰ to learn how much money your government has given away in the form of incentives, such as tax credits, to entice the corporation to trash your home.
- ② Then use LittleSis, a project of the Public Accountability Project,¹¹ to identify the corporation's board members, political allies, and social networks.
- ③ Check the Carbon Majors (2017) report to see how much the selected corporation has contributed to the climate crisis.¹²
- ④ Dig through the records of your state's department of natural resources to gather details on the corporation's harmful activities, whether mitigation was attempted, and whether *intent, public nuisance, or negligence* can be argued. Was anyone impoverished by the corporation's self-enrichment? You may be able to claim *unjust enrichment* by the corporation.
- ⑤ Visit NASDAQ online to find out who is invested in extraction (hint: it might be you):¹³
 - 5.1 Search for the company and note the stock symbol (e.g., Chevron's is CVX). At the bottom of the left menu bar, click 'Institutional Holdings' to see all of the banks, pension funds, school systems, municipalities, etc. invested in destruction.
 - 5.2 You can withdraw your consent by withdrawing your funds, or buy a penny's-worth of Chevron stock and become an 'activist shareholder' – a small gesture of disruption within the system. Consider joining 'Anti-Chevron Day' festivities at the Chevron annual shareholder's meeting.

Happy hunting!



Chevron Family Tree (Digital map by Imani Jacqueline Brown. 2019.)

HOW TO LOCATE A RESCUE BEACON IN THE DESERT.

US Border Patrol Rescue Beacons are 30-40' poles with powerful flashing blue lights and a call button designed to be activated by migrants who have become lost or in need of medical attention when crossing the US-Mexico Border through Arizona's west desert.

- ① First, conduct general internet searches to narrow down the geographic area of beacon locations. This is crucial because Arizona's west desert is nearly 10,000 square miles of mostly remote and uninhabited land managed by the federal government.
 - 1.1 Use image and text-based results of internet search – including Border Patrol media releases, wilderness guides, and adventure blogs – to identify specific geographic features or place names of beacon locations (i.e. "Alamo Canyon").
 - 1.2 Attempt to locate beacons referenced in found materials using a free satellite imagery service such as Google Earth Pro.
- ② Once general searches no longer yield geographic information about additional beacons, you can manually scour satellite imagery using the following steps:
 - 2.1 Satellite imagery in this area is published infrequently and at poor resolution. Therefore, identify key visual markers to help identify the beacons, such as the shape of their shadows and the man-made circular patterns on the ground around them to differentiate them from cacti or surveillance towers.
 - 2.2 If possible, toggle the year of satellite imagery and zoom to an appropriate distance to allow for searching of broad areas at best resolution. The most recent imagery might not be the best resolution for your search.
 - 2.3 Pan slowly along roads through the area, restricting your search to roads large enough to accommodate a large vehicle, as opposed to paths produced by Border Patrol ATVs or "four-wheelers," until additional beacons are found.
 - 2.4 Mark beacons as you find them to better understand patterns and usual increments of distance between beacons.

The Extreme Geographer

Home News The 16 Extreme

Eerie Encounters at Org

A short while later, and in desperation that evening, the Mexican border and I gets a moderate amount of their way to (or from) Mexican desert scenery in America set off – not surprisingly – only here in the park.

I continued driving in the inspection station: a huge who looked pretty bored whizzed right by.

It had been about 10 years since I last camped near the Villa, preferring instead staying four-wheel dirt road off the I didn't have a park map turned for the dirt road down the highway in the long Hotel California turns we came back. Yet so you have to know where

I pulled up to the sign in reading the entire thing. I'd seen the night before.

Driving out of Alamo Canyon, I passed the blue beacon that

da here. There was a huge not far away. There's also a marker, and at the end of a stayed at Alamo Canyon but to remember where the out there wasn't. As I drove east blowing in my hair (like in the highway, so I did a U-

it a little surprised after it's only 10 miles away who

A tourist's account of the rescue beacon they encountered while camping in the Alamo Canyon of the Organ Pipe Cactus National Monument. The tourist reports being told the beacons were intended for U.S. citizens passing through the area to use in the event they encountered 'illegal aliens' or drug smugglers. (Screeengrab by Tara Plath. 2019.)

Detail of a Google Earth Pro satellite image, showing a rescue beacon installed on the Cabeza Prieta National Wildlife Refuge. The aerial image shows the particular shape cast by the beacon, as well as the circular ground pattern made in the dirt by the United States Border Patrol dragging rows of tires to flatten the earth and allow for installation of the beacon. (Screeengrab by Tara Plath. 2019.)



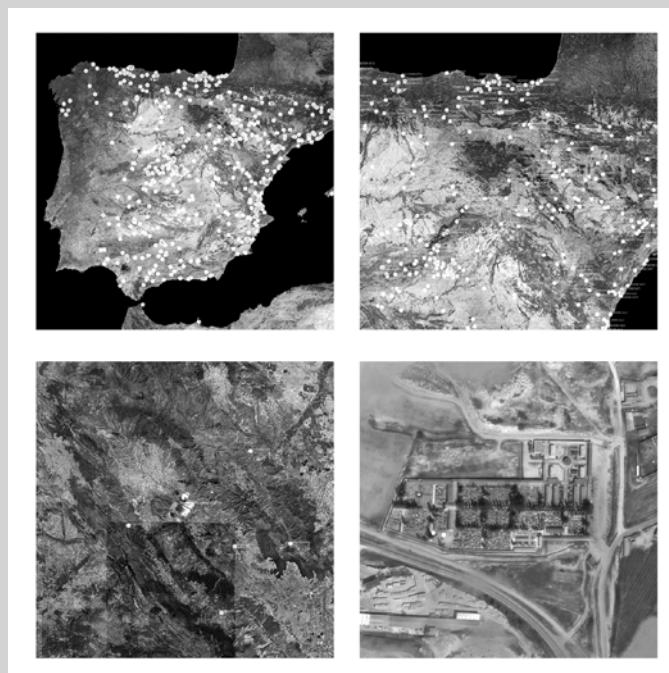
HOW CAN YOU CREATE SOCIAL ACCOUNTABILITY FOR CRIMES THAT HAVE NO JURISDICTION?

- ① First, explore the specific case that you want to delve into, proceeding slowly to make sure that all the minutiae and procedures are clear to you. Watch films about your case and procure testimonies. For this research process, I have focused on enforced disappearances that are under amnesty legislation and also subject to the statute of limitations.
- ② Read any prior court cases, if available, and legislation that could set a precedent or framework to judge and account for these crimes. It is fundamental to explore precedents in order to evaluate future actions. If it is determined that there is no local or national jurisdiction that applies to this crime:
 - 2.1 Meet with lawyers working on similar cases, and analyse/brainstorm potential strategies. Perhaps international jurisdiction or alternative legal frameworks may be operative.
 - 2.2 If there is an affected community, meet them and brainstorm with them. Create and reinforce connections between them and legal practitioners.
 - 2.3 Accept that existing legal frameworks are flawed and must not be thought of as the sole valid medium of justice and truth. Be skeptical of lawyers who tell you so.
 - 2.4 Think of different forums in which the cases can be judged or presented by interdisciplinary participants. If the government in question is scared of internationalising the case, all the better. Do it abroad.
 - 2.5 If possible, partner with a foreign institution to produce a forum. It could be a film, a tribunal, an exhibition, or a conference, depending on the intended output and outreach.
 - 2.6 Be very clear to the people you are collaborating with: the non-legal nature of the forum means this project will not create legislation or bring economic restoration to the victims, but it might help create pressure and solidarity. Lawmakers and lawyers often like to work and collaborate with projects they believe in, so involving them in such a project grants another temporality to their work.



Map of all the clandestine mass graves moved by Francisco Franco's government into the basilica of El Valle de los Caídos. (Map by Manuel Correa. 2019.)

Zoom-in to Calatayud's Cemetery and Mass Grave. Scales clockwise: 1:5120000, 1:2520000, 1:315000, and 1:2000. Produced with Esri Satellite maps, using information from the Spanish Ministry of Justice. (Maps by Manuel Correa. 2019.)



WHERE DOES THE WATER USED AT A TOXIC SITE COME FROM?

① Start from the broader environment and move in.

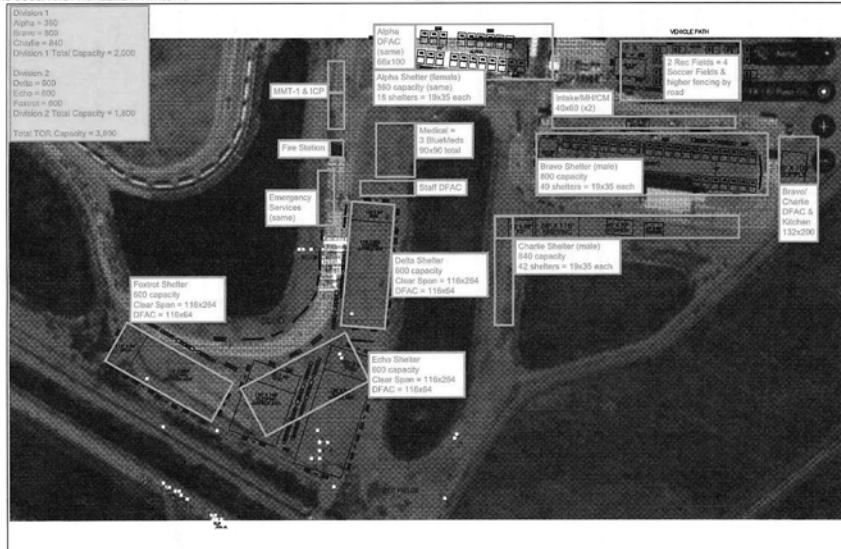
- 1.1 Start simple and identify the major watersheds of the region, the major cities or state-run facilities within them or near them, and the agencies responsible for managing their water. For example, the major watershed that feeds Tornillo is the Rio Grande Valley; the major city is El Paso, TX; and its governing agency is the El Paso Tornillo Water Improvement District.
- 1.2 Look for any Environmental Assessment, Environmental Impact Statement, or Finding of No Significant Impact as they might pertain to specific facilities at the site of your investigation or nearby.

② Investigate on the ground.

- 2.1 Visit the site yourself or, if not possible, try to engage with journalists, activists, engineers, or other stakeholders who may be able to provide on-the-ground insight.
- 2.2 Are there bottles of water lying around (indicating some reason not to use the local water supply)? Are there large cisterns or water storage tanks? Where are the bathrooms? Is there any sense of how waste is being disposed of?
- 2.3 The previous questions can give you a sense of who the actors are and how responsible they are. Open-source investigations may also lend insight into private companies involved, through logos on equipment or vehicles.

③ Question public authorities.

- 3.1 Query broadly the state authority responsible for environmental regulation at the site. For Tornillo, that would be the Texas Commission on Environmental Quality (TCEQ). Following the advice of an environmental lawyer I worked with, some questions to ask might be:
 - Does the facility hold any permits, such as NPDES discharge permits for waste water or hazardous waste?
 - Do any records of inspections at the facility exist, or have any monitoring reports been produced in compliance with permits?
- 3.2 If you speak to a local water authority, on the phone or in person, ask them very specifically for the following data. It is essential and can be cross-referenced for future use.
 - records on water monitoring and water quality
 - maps of coverage areas for the water authority
 - locations of wells the water is sourced from
 - the kinds of pipes used
 - meter readings over a specific time period



Page 1 of 1

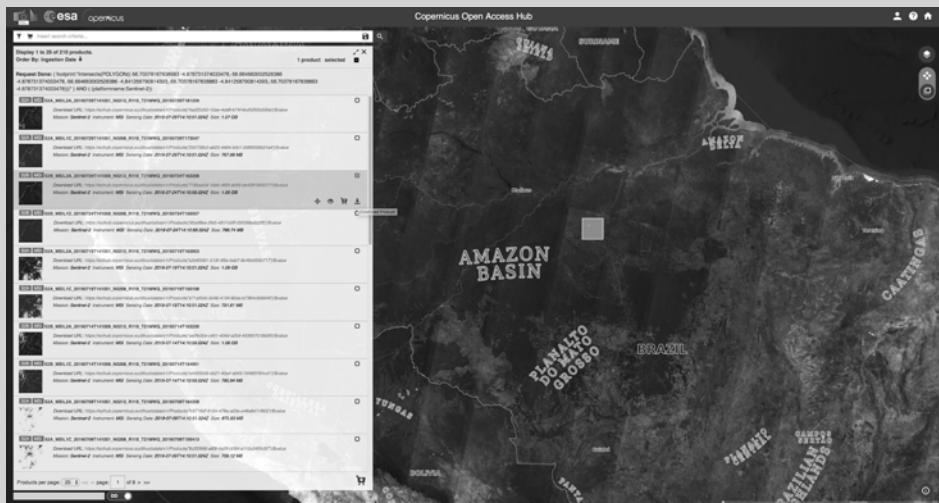
Exhibit "A" mapping plans for infrastructural build-out of the Tornillo "Tent City," from the Occupancy Agreement between Department of Health & Human Services (7500) and General Services Administration. (Screenshot by Avi Varma. 2019.)

Tornillo Waste Water Treatment Facility, 3km from the Tornillo Port of Entry. (Photograph by Avi Varma. 2019.)



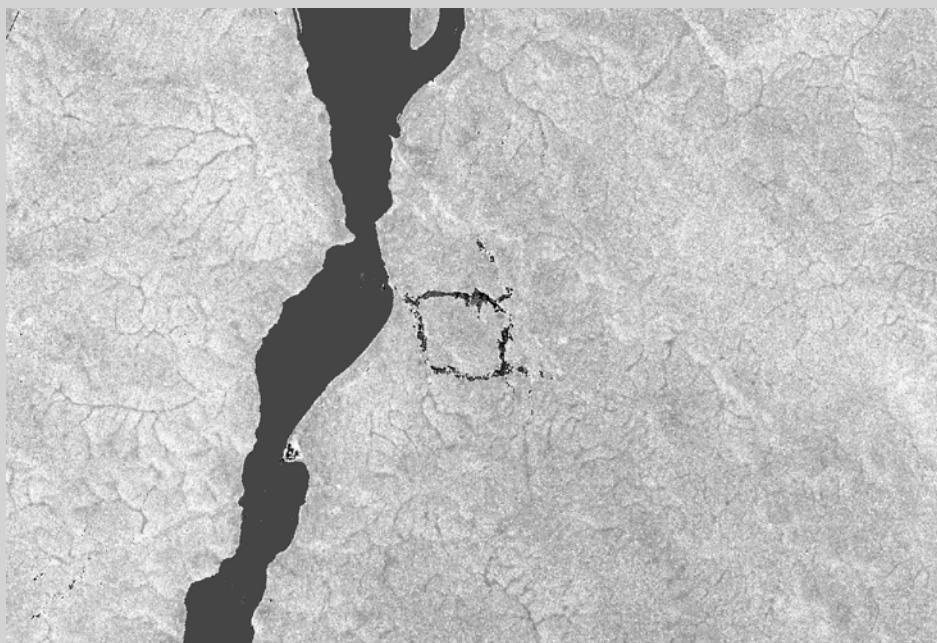
HOW DO YOU TRACK PATTERNS OF DEFORESTATION AND HYDROLOGICAL CHANGE MADE BY INFORMAL GOLD MINING IN THE AMAZON?

- ① Geolocate the site in question. Various methods are available for this task including airborne mapping, field surveys, or high-resolution satellite imaging. See Mineria Ilegal for a thorough compilation of informal mining sites in the Amazon.¹⁴
- ② Register and use Copernicus Open Access Hub to locate the chosen site.¹⁵
 - 2.1 On the top right, use the “Area Mode” tool to delimit your area of interest. On the top left, choose ‘Advanced Search Area’ and specify the period you anticipate the analysis to take place (“Sensing Date”) and the satellite images to be used (“Mission”).
 - 2.2 Navigate through your query and identify the latest image, according to its “Sensing Date,” in which no traces of mining intervention exist (absence of deforestation, chronologically followed by the creation of ponds) by clicking “View Product Details.” When the criterion is met, download the selected image by selecting “Download Product.”
 - 2.3 Inspect and download the images which chronologically follow the moment identified in the last step. Repeat as many times as necessary according to observable changes in the extraction site.
- ③ For the purpose of satellite imagery analysis, install the software ESA’s Sentinel Application Platform SNAP.¹⁶
 - 3.1 Open SNAP. On the top left, open a satellite image by clicking “Open Product” and loading the zipped files downloaded in Step 2 directly into the application.
 - 3.2 Make a Normalized Difference Water Index (NDWI) analysis to detect water and land bodies by following: “Optical > Thematic Land Processing > Water Radiometric Indices > NDWI2 Processor > Run.” In doing so, you will be able to scrutinize gold mining’s pattern of deforestation, which is chronologically followed by the formation of ponds.
 - 3.3 In the “Product Explorer” window (top-left), click the newly created image, followed by “Bands > NDWI2.” On “Colour Manipulation” window (bottom-left), select “Editor > Basic” and pick a fitting color code. Values larger than 0.5 will represent water bodies, while vegetation and land will have lower figures. Export the analysis by following: “File > Export > Other > View as Image.”
 - 3.4 For each satellite image downloaded in Step 2.3, repeat the process to monitor the evolution of the site.



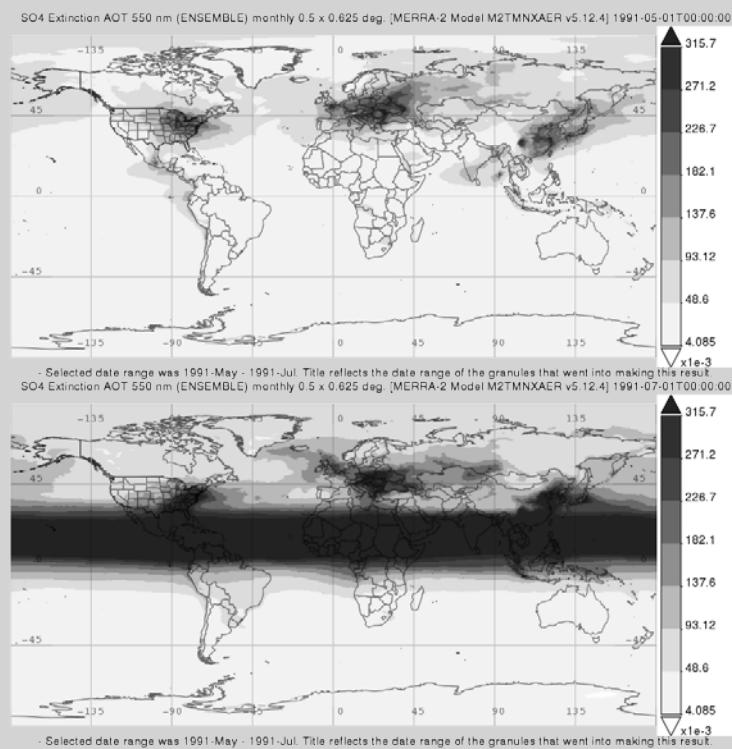
Example of Sentinel-2 satellite products that can be downloaded through Copernicus Open Access Hub. (Screenshot by Tiago Patatas. 2019.)

Normalized Difference Water Index (NDWI) depicting water and land bodies in an informal mining site located in Tapajós river basin.
(Analysis by Tiago Patatas. 2019.)



HOW TO MONITOR SULFATE INJECTION GEOENGINEERING DEVELOPMENTS.

- ① Solar geoengineering proposals aim to alter the reflectivity of the atmosphere to reduce global temperature. This entails a physical intervention at 20km height in the stratosphere where planes or balloons inject sulfate particles to deflect solar light.
- ② Start by consulting monitoring groups. Geoengineering Monitor provides a global overview of geoengineering experiments and a comprehensive index of the main academic and institutional actors involved.¹⁷
- ③ Once you identify key projects, you can use a combination of open-source, remote sensing, and investigative journalism methods to detect new developments.
- ④ Identify flights through open-source monitors such as the Twitter account @stratoballoon that documents the use of stratospheric balloons in scientific research or the website Flightradar24.¹⁸
 - 4.1 If using a tracking website, perform specific queries depending on aircraft type (e.g., the prefix *HBAL* corresponds to balloon flights).
 - 4.2 Corporate partners are named in white papers written by the research groups. In the case of Harvard's SCoPEx experiment, the balloon provider will be *Raven Aerostar*. Scan social media for posts by the companies or by flight monitors that tag them.
- ⑤ Sulfate clouds are registered by remote sensors such as Lidars. Use existing software to plot lidar data (calculations of aerosol depth based on the amount of reflected light) on a map. NASA's Giovanni application allows you to map sulfate aerosols through a web interface.¹⁹
 - 5.1 Choose an adequate date range and the variable "SO₄ Extinction" on the Giovanni search menu. Select Plot as "Maps: Animation."
 - 5.2 Increasing sulfate concentrations appear as dark red stains and are marked by higher AOD values on the legend (see illustration: *Visualization of SO₄ cloud dispersion*).
 - 5.3 While early experiments plan to use a radically smaller quantity of sulfates and won't be thus detectable, deployment at the magnitude discussed in scientific literature entails injecting over 24 m.t. of sulfur. We can infer that it would be similarly detected by Lidar sensors.
- ⑥ Last, geoengineering experimentation and deployment require an enormous mobilisation of financial and geological resources. In addition to donation and investment fluxes (which point to the growth and ambitions of projects), you can investigate the supply chains of primary materials involved, such as sulfur mining and processing companies.



Visualisation of SO₄ cloud dispersion using Giovanni online data system, developed and maintained by the NASA GES DISC, one month before and one after the Pinatubo volcanic explosion, based on Lidar data. The explosion injected about 20 million tonnes of sulfur into the stratosphere, which caused global temperature to decrease by 1°C for approximately one year. Red tones indicate higher concentration of SO₄ in the stratosphere. (Image produced by Carol Iglesias. 2019.)

Balloon Flight tracked by flightradar24.com and posted by @StratoCat. This stratospheric flight was operated by Raven Aerostar, the company selected for SCoPEx, from the Raton Municipal Airport on April 10th, 2019. (Screengrab by Carol Iglesias. 2019.)



HOW DO YOU IDENTIFY AND MAP FIRE OCCURRENCES IN A MIGRANT CAMP?

- ① First, conduct an open-source investigation through social media searches, in order to identify specific occurrences and gather media materials.
 - 1.1 For Facebook, use Graph Search operators or initiate your search through WhoPostedWhat.²⁰ For Twitter, use ‘Twitter Advanced Search.’²¹ In both cases, you can set specific parameters related to your query, including location, time range, account IDs, and keywords.
 - 1.2 Start your query with a keyword and a broad time range such as one year, note down specific dates related to the results, and continue with limited time ranges, such as two-three days, in order to gather more information about each occurrence.
 - 1.3 Use more than one keyword for each time range, so as to capture the occurrence as it may have been described by different users. Fire in Greek may be written as “φωτιά” as well as “πυρκαϊά,” and although there is a slight semantic difference, each query returns different results. Use keywords in all the languages spoken by the actors involved in the field.
 - 1.4 After several searches have been performed, archive your data and the related material in detailed sheets in order to corroborate the findings through other means such as official reports. If visiting the site is possible, enhance the archive through interviews with the involved actors, and document traces of the fires at the site.
- ② In order to map the identified occurrences, you can use one or a combination of the following methods:
 - 2.1 First, compare all areas visible within the footage of a fire with other publicly accessible media that depict the site, and geolocate the respective footage by drafting a schematic map or a 3D model of the area according to the comparisons.
 - 2.2 Alternatively, you may use the free platform Google Earth Pro for geolocating media, by inserting and calibrating still images until they match the software’s model, which might include terrain or a built environment.
 - 2.3 If the fires occur within vegetational landscapes, you can identify the burned areas by comparing the surface vegetation patterns in publicly accessible satellite images before and after the fire. This can be further facilitated by using diverse band combinations (false color, moisture index, etc.) or remote sensing techniques (NDVI, NBR) which enhance the visibility of burn scars.

Example of open-source investigation using “Twitter Advanced Search.” (Screenshot by Dimitra Andritsou. 2019.)

Geolocated media within the Google Earth Pro platform, using screenshot of video identified during the open-source investigation in social media. (Composition by Dimitra Andritsou. 2019.)



WHAT ORGANISATIONS ARE CONNECTED TO A PARTICULAR WEBSITE, AND WHAT ARE THEIR FUNCTIONS (HOSTING, ADVERTISING, SECURITY, ETC.)?

- ① Download and install the application Wireshark,²² an open-source tool used to analyse network protocols. Wireshark enables you to review activities that take place on your network.
- ② To prevent Wireshark from capturing unnecessary data, and to increase the efficiency of your investigation, close all browser tabs including search engine webpages and solely keep one empty tab open. Likewise, close any programs that make use of internet connections such as Dropbox or iTunes.
- ③ When Wireshark is launched, it shows you the list of networks that are linked to your device. Double-click the internet connection that you are using. This is usually the first option, which shows the highest network activity, depicted as wavelets.
- ④ In most cases, Wireshark will automatically begin to capture data. If it does not, press the blue shark fin-button in the upper left corner to “start capturing packets.”
- ⑤ Open your web browser and load the selected website of your investigation. When the page is completely loaded, return to Wireshark and end the capture by pressing the red square in the upper left corner, next to the ‘start’ button mentioned in the previous step.
- ⑥ Wireshark has now captured all of the packets that your network sent and received in order to access the webpage. Now use the dropdown menus in Wireshark and navigate to “File,” “Export Packet Dissections,” and save “As CSV...” Save your file and proceed to open it with a spreadsheet application, such as Microsoft Excel, Numbers (for iMacs), or LibreOffice (an open-source alternative).
- ⑦ Combine the IP-addresses found in the columns titled “Source” and “Destination” into a single column, and remove duplicate IP-addresses.
- ⑧ After organising all IP-addresses that were invoked in your web visit, you can trace them back to the organisations that host them by using websites such as IP Location, KeyCDN, and Whois Lookup.²³ The locations of the IP-addresses are quite accurate, but it is always important to cross-reference the results, as IP information can be outdated.
- ⑨ Once organisations are identified, you can now conduct research to better understand their function and role in relation to the original website.

The interface of Wireshark listing the captured packets during online browsing. (Screenshot by Tim Brouwer. 2019.)

The screenshot shows the Wireshark interface with the following details:

- Display Filter:** The filter bar at the top shows the expression `<null>`.
- Table Headers:** The main table has columns for No., Time, Source, Destination, Protocol, Length, and Info.
- Captured Packets:** The table lists 182 captured packets. Key entries include:
 - Packet 82: TCP segment of a reassembled PDU from 10.100.22.65 to 92.123.185.193.
 - Packet 83: Certificate [TCP segment of a reassembled PDU] from 10.100.22.65 to 92.123.185.193.
 - Packet 84: Certificate Status, Server Key Exchange, Server Hello Done from 92.123.185.193 to 10.100.22.65.
 - Packet 85: Change Cipher Spec, Encrypted Handshake Message from 92.123.185.193 to 10.100.22.65.
 - Packet 86: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 87: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 88: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 89: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 90: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 91: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 92: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 93: Application Data from 92.123.185.193 to 10.100.22.65.
 - Packet 94: Standard query 0x0000 PTR _apple-mobdev._tcp.local from 10.100.22.65 to 224.0.0.251.
 - Packet 95: Standard query 0x0000 PTR _apple-mobdev._tcp.local from fe80::c4:c629:1b7_ to ff02::fb.
 - Packet 96: Standard query 0x0000 PTR _apple-mobdev._tcp.local from 10.100.22.65 to 255.255.255.255.
 - Packet 97: Standard query 0x0000 PTR _apple-mobdev._tcp.local from 10.100.22.65 to 10.100.22.255.
 - Packet 98: Standard query 0x03c4 A keyvalueservice.fe.apple-dns.net from 10.100.22.65 to 10.0.20.12.
 - Packet 99: Standard query response 0x03c4 A keyvalueservice.fe.apple-dns.net from 10.0.20.12 to 10.100.22.65.
 - Packet 100: Standard query 0x0000 PTR _apple-mobdev._tcp.local from 10.100.22.65 to 224.0.0.251.
 - Packet 101: Standard query 0x0000 PTR _apple-mobdev._tcp.local from fe80::c4:c629:1b7_ to ff02::fb.
 - Packet 102: SYN from 10.100.22.65 to 17.248.144.235.
- Frame 14:** Details for the 14th frame: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on interface 0. It shows an Ethernet II frame with Src: Apple_b0:d4:9c (3c:15:c2:bde4:9c), Dst: PaloAlto_00:00:32 (00:1b:17:00:00:32). The payload shows DNS queries and responses.
- Selected Hex/Decompile View:** The bottom pane shows the raw hex and ASCII data for the selected packet (Frame 14).

- 1** For instance, in Athens the following data sets exist:
<http://ValtousX.gr/en/> - The Black Map Of Athens [HumanRights360]
<http://map.crisis-scape.net/> - The City At A Time Of Crisis [crisis-scape.net]
<https://sexharassmap.espivblogs.net> - [SexHarassMap]
- 2** <https://blogs.nvidia.com/blog/2009/12/16/whats-the-difference-between-a-cpu-and-a-gpu/>.
- 3** <https://research.google.com/colaboratory/faq.html>.
- 4** https://github.com/r9y9/deepvoice3_pytorch. There are also other options online.
- 5** <https://youtu.be/gVehTbi6lpc>.
- 6** Facelab as google colab, <https://colab.research.google.com/notebooks/welcome.ipynb#recent=true> and as github repository, <https://github.com/iperov/DeepFaceLab>.
- 7** <http://spek.cc/>.
- 8** <http://www.makeitlouder.com/Decibel%20Level%20Chart.txt>.
- 9** <http://noisetools.net/dbmap/>.
- 10** www.goodjobsfirst.org.
- 11** <http://www.littlesis.org>.
- 12** <https://www.cdp.net/en/articles/media/new-report-shows-just-100-companies-are-source-of-over-70-of-emissions>.
- 13** www.NASDAQ.com.
- 14** <https://mineria.amazoniasocioambiental.org/>.
- 15** <https://scihub.copernicus.eu/dhus/>.
- 16** <https://step.esa.int/main/download/snap-download/>.
- 17** www.geoengineeringMonitoring.org.
- 18** www.flightradar24.com.
- 19** <https://giovanni.gsfc.nasa.gov/giovanni/>.
- 20** whopostedwhat.com.
- 21** <https://twitter.com/search-advanced>.
- 22** www.wireshark.com.
- 23** www.iplocation.net, www.tools.keycdn.com/geo, www.whois.domaintools.com.

- Accident, 21, 23
- Accountability, 7, 90, 94
- Adversarial, 13, 17
- Algorithms, 13, 23, 84
- Antagonism, 13, 20
- Architecture, 4, 13, 14, 88
 - Cultivation architectures, 19
- Archive, 6, 102
- Asymmetric, 14, 15
- Authority, 82, 96
 - Authoritarian, 4, 20
- Body, 7, 14, 17, 20, 84
- Border, 17, 19, 22
 - Border patrol, 17, 92
- Civic, 15, 16, 88
- Collapse, 19, 22
- Colonial(ism), 2, 20, 21
- Communication, 17
- Companies, 16, 90, 96, 100
- Conflict, 5, 14, 15, 22, 88
- Corporate, 6, 7, 8, 16, 21, 90, 100
- Data, 6, 7, 18, 21, 82, 86, 90, 96, 100, 102, 104
- Deepfake, 84
- Deforestation, 98
- Desert, 17, 19, 92
- Destruction, 15, 88, 90
- Disappearance, 17, 88, 94
- Emergency, 4, 22
- Environment(al), 4, 5, 14, 15, 16, 19, 20, 21, 86, 88, 96, 102
- Epistemic, 7, 20, 21
- Ethical, 4, 6-8, 84
- Event, 12, 14, 18, 82, 86
- Excel (sheets), 88, 104
- Extract(ion), 82, 86, 98
 - Extractivism, 13, 16, 20, 21, 90
- Footage, 84, 86, 88, 102
- Future, 16, 21, 94, 96
- Geolocate, 82, 98, 102
- Governance, 19, 21, 22
- Government, 90, 92, 94, 96
- Harm, 13, 14, 15, 20, 22
- Infrastructure(al), 13, 16, 19, 22
- Injustice, 5, 6, 20, 21
- IP-addresses, 104
- Jurisdiction, 82, 94
- Land, 13, 20, 98,
 - Landloss, 16
 - Landscape, 19, 102
- Legal, 14, 15, 16, 82
 - illegal, 17, 88, 98
 - legal (frameworks), 94
- Logos, 16, 96
- Logics, 23
 - Logistical, 2
- Machine, 13, 23, 84
- Map(s), 86, 88, 96, 98, 100, 102
- Matter, 22
 - Materiality, 19, 20, 22, 23
- Media, 12, 17, 82, 92, 102
- Military(ization), 14, 15, 17, 86
- Migrant, 17, 22, 92, 102
 - Immigration, 6
- Mining, 19, 20, 98, 100
- Monitor, 12, 82, 96, 98, 100

- Narrative, 7, 18
Neglect, 20, 22
Network, 2, 84, 90, 104
Objectivity, 6
Occupation, 13, 14
Open-source, 7, 96, 100, 102, 104
Parameter, 21, 22, 82
Perspective, 18
Politic(al), 4, 5, 12, 17, 20, 21, 82, 84, 90
 Necropolitical, 15
Process(es), 15, 17, 19, 22, 23, 94, 98
 Processing companies, 100
Proximity, 6
Public, 4, 5, 15, 23, 86, 90, 96, 102
Query, 82, 96, 98, 100, 102
Racial, 13, 17
Real Estate, 15, 21
Reconstruction, 15, 18
Remote, 92
 Remote sensing, 100, 102
Rescue beacons, 92
Resolution, 92, 98
Satellite image, 86, 88, 92, 98, 102
Scientific, 16, 21, 100
Secret, 7, 8
Social, 15, 19, 21, 23, 94
 social media, 12, 100, 102
Sound, 14, 84, 86
Space, 14, 82
 Spatial, 6, 15
Spectacle, 17
 Spectacular, 14
Spectrogram, 86
Speech, 21, 84, 90
State (nation state), 12, 13, 16, 17, 19, 21, 88, 90, 96
Stock, 90
Strategy, 17, 21, 90, 94
Technology(cal), 16, 23, 84
 Techno-scientific, 21
Temporalities, 20, 22, 94
Testimony, 7, 88, 94
Trace, 14, 88, 90, 98, 102, 104
Truth, 18, 94
Urban, 14, 15, 82, 86, 88
Vegetation, 98, 102
Violence, 5, 8, 14, 16, 21, 90
Visibility, 12, 14, 22, 23, 82, 102
Water, 16, 19, 96, 98
War, 14, 15, 17
Weapon(ised), 13, 15, 86

Forensic Architecture Studio
Centre for Research Architecture
Goldsmiths, University of London
September 2019

