Resonant Ecologies:
Reading Solidarity Transversally in the Mediterranean Sea

MONIKA HALKORT
Lebanese American University, Lebanon

This article interrogates how digital platforms diffract lines of solidarity in the struggle over migration in the Mediterranean. Building on posthumanist, feminist perspectives and sociological critiques, special attention will be placed on the role of resonance in channeling political affects, tensions, and pressures and its ambivalent and destabilizing effects. Resonance, here, is understood as both a technical and a social effect of infrastructural arrangements that allows for new spaces of maneuverability, but also possible further violence. This inherent instability and ambivalence raise difficult challenges for radical political practice and potentially undermine ethics of solidarity and care. To explicate this point, I draw on observational fieldwork, interviews, and a close reading of the mission reports and public media campaigns, as well as the online communication of civil society rescue missions and the emergency hotline Alarm Phone/WatchTheMed.

Keywords: transversal solidarity, resonance, irregular migration, Mediterranean Sea, ecology

Mobile phone networks and the automated vessel tracking platform AIS have become central battlegrounds in the struggle over migration in the Mediterranean. They are used by the European coastguards and border security agency, Frontex, as well as humanitarian activists but also human smugglers who are sending refugees and migrants their way. Combining low-frequency broadcast signals with the satellite-based positioning system, GPS, AIS allows to track ships anywhere in the world based on their geolocation (Big Ocean Data, 2016). This has attracted the interest of a wide range of political groups, from the right-wing identitarian movement Defend Europe to transnational pro-migration activists who support migrants on the dangerous journeys across the sea. These radically opposed political projects have turned AIS into an experimental playground for the trafficking of data signals, giving rise to new forms of "transversal solidarity" (Barla & Hubatschke, 2017, p. 396), but also new forms of violence, as real-time tracking data are becoming increasingly weaponized on all sides.

"Transversal solidarity" denotes a mode of affinity beyond human scale that binds human and nonhuman elements into shared struggles (Barla & Hubatschke, 2017, p. 398). Linking Guattari's (2000) ethico-political concept of ecology with feminist ethics of care (Haraway, 2007; Puig de la Bellacasa, 2017), it promotes an idea of heterogeneous publics, stretched across sociotechnical registers that are drawn into existence by perceived injustices or harm (see also Bennett, 2010; Lowenhaupt Tsing, 2015; McCullagh, 2018;

Monika Halkort: monika@halkort.com

Taylor & Sharp, 2016). That said, the fact that open platforms such as AIS are in principle open to anyone also poses severe challenges for radical political practice. They conscript an apparently neutral technology of real-time positioning into geopolitical struggles in which the fine line between witnessing and surveillance, monitoring and policing, veridiction and manipulation quickly become blurred. In what follows, I interrogate how the perpetual feedback exchange among these antagonistic forces affects the ways ethico-political commitments are enacted in the struggle over migration. I ask: How do activists position themselves in the unstable field of tension, infliction, and interferences of digital platforms? And where should we situate the collective agency in the perpetual exchange among dissonant voices, where racialized tensions, resentment, and injustice threaten to submerge and delegitimize alternative positions, aspirations, and views?

The tensions and frictions among pro-migration activists, border security, and identitarian movements powerfully underline the political dynamics at stake in the excesses and disjunctures arising from cybernetic operations (see Hoyng, 2020; Introduction, this issue). It bespeaks fields of struggle in the interstices of infrastructural arrangements, where operational protocols, system designs, political tendencies, and pressures fold into each other in an indefinite set of planned and emergent interactions with highly unpredictable and ambivalent effects. Attending to these emergent and ambivalent effects I draw on the concept of resonance to trace how the vibrant exchange across sociotechnical platforms mediates and redirects political affects, tendencies, and pressures to take on expressive forms of sovereignty in their own right.

My understanding of resonance departs from its functionalist reading in system theory (Luhmann, 1989) and cybernetics (Wiener, 1948). Counter to the idea of resonance, as the capacity of systems to respond to changes in the environment, as described in Luhmann (1989), my main interests are the lived and embodied reciprocities at stake in flows of affect, energies, information, and bodies and how they shape ethico-political dispositions and responsiveness across political and cultural divides. Taking inspiration from philosophy (Deleuze, 1990, 1993), sociology (Rosa, 2019), and feminist critiques in STS (Barad, 2007; Haraway, 1988; Timeto, 2016) I conceive of resonance as a moving substrate of forces created in relations of feedback that opens up political possibilities in its own right. These political possibilities, I argue, carry an irreducible ethical call. They reveal lines of vulnerability and abuse in the micropolitics of roaming frequencies and data signals that deeply implicate digital platforms in the violence of exclusionary projects, while at the same time opening up new spaces of maneuverability and attentiveness to destitute bodies and perceived injustices or harm. For transversal solidarity to be effective under such conditions, I suggest, demands a skillful exploitation of the critical gaps, blind spots, and redundancies inherent in the communicative affordances of platforms. Drawing on the emergency hotline Alarm Phone and its sister website WatchTheMed, I will show what such a strategy may look like and describe how the group creatively engages the threshold of open frequencies and bandwidths to enact a politics of listening that not only saves lives but also enables those forced into positions of liminality to make their voices heard.

Thinking Resonance Through Asia

As one of the key corridors between Asia, Africa, and Europe the Mediterranean is historically a site where borders are continuously made and trespassed and where conflicts over the social and political organization of global mobility and circulation become particularly marked. Hence, while not addressing Asia as a region in particular, this article speaks to the wider geographic and thematic focus of this special issue

by showing how these relations are currently renegotiated and reconfigured through technical mediation. At the same time, the article also draws attention to the space in-between infrastructures as a critical intermediary of ethical and political commitments and obligations across the three continents. With this approach, this research contributes to the extensive body of works in media ecology and infrastructure studies that have long emphasized the inextricable entanglement of human and nonhuman perceptual registers in technology-driven activism (Ballestero, 2019; Gabrys, 2017; Hoyng, 2020; Milan & van der Velden, 2016; Treré & Mattoni, 2016) and technoscientific practices and research (Helmreich, 2019; Johnson, 2017; Lehman, 2018; Yusoff & Gabrys, 2011). These works have provided powerful insights into the phenomenological qualities of techno-social assemblages, highlighting the mutual shaping of social and technical platforms and the distributive modes of knowing, sense-making, and caring they afford. My main interest here, however, is the more oppressive and ambivalent dimensions of techno-material encounters. Hence, what I add to these debates is a diagnostic of the political and moral ecology of tracking platforms, where ethical and political commitments and obligations are both enacted, fought over, and curtailed. Such a view makes room to link the analytics of platforms as lived and embodied process of mediation with historical power imbalances in North–South relations to show how they modulate and potentially undermine radical political practice, solidarity and care.

The article unfolds in three parts. I start by situating my argument in the wider debate about the ethico-political and sensory affordances of digital infrastructures in media ecology and STS. This lays out the grounds for demonstrating how the concept of resonance may help to develop a better understanding of the more violent and alienating effects of platform politics. Next, I elaborate on my distinct understanding of resonance with a critical reading of social system theory against sociological and feminist thought. This will be followed with empirical examples from the Mediterranean that explicate how the potentiality of resonance plays out in the struggle over irregular migration on European shores. I will conclude with brief reflections on what these historically specific ambivalences may offer for our wider understanding of platforms with regard to the politics of solidarity and care.

Methodologically, this article forms part of a larger project on the role of digital infrastructures in sensing deaths in the Mediterranean, for which I have conducted observational fieldwork and interviews with local and international NGOs, European border security agencies, scientists, and political activists over two years (2017–19). For the purpose of the discussion here, I will not provide a detailed ethnographic account of the performativity of platforms and digital practices but rather draw on selective observations from this research to explicate my main points. Next to interviews and informal conversations with Frontex and NATO representatives at the biannual Shared Awareness and De-confliction (SHADE) conference in 2017, these observations include conversations with the founding members of the emergency hotline Alarm Phone (2018, 2021) and their sister Website WatchTheMed (2021). Further material was gathered through a close reading of mission reports, press releases, public media campaigns, and research studies as well as the online communication of all groups on Twitter, Facebook, YouTube.

Alarm Phone is a 24/7 emergency hotline that assists migrants in distress at sea. Supported by a network of volunteers in more than 13 European countries, the hotline offers a confidential point of contact when boats capsize or run into problems. In such cases the volunteers call on the next available Maritime Rescue Coordination Authority to intervene. All reported incidents are documented on Alarm Phones sister

website WatchTheMed, an online mapping platform that monitors migrant deaths and human rights violations on Europe's external borders since 2011. Alarm Phone/WatchTheMed provides a critical interface among humanitarian activists, national coastguards, and people caught up in life-threatening conditions, and as such offers critical insights into the conflicting interests and needs shaping the flow of communication across different levels of commitment and responsibility.

Platform Sensibilities and the Politics of Migration in the Mediterranean Sea

Scholars in STS, media ecology, and communication studies have variously addressed the inherent instability of logistical infrastructures and digital platforms in border security and migration management, emphasizing the performativity of data in shaping rationalities of governance (Aradau & Tazzioli, 2020; Dijstelbloem, van Reekum, & Schinkel, 2017; Scheel & Ustek-Spilda, 2019; Walters, 2017) and in enacting citizenship (Pelizza, 2016, 2020; Scheel, Ruppert, & Ustek-Spilda, 2019). On the other end of the political spectrum, scholars focused on the new spaces of maneuverability afforded by digital platforms (Pezzani & Heller, 2013, 2019; Stierl, 2016)—their potential as alternative knowledge infrastructures that enable activists and migrants to safely navigate spaces of forced liminality (Stierl, 2016; Witteborn, 2018).

The idea of digital platforms emerging from these accounts echoes well-rehearsed critiques of infrastructures as inherently unstable and emergent constellations (Harvey, Jensen, & Morita, 2017), shaped by a multiplicity of agents, at once natural and cultural, material and social, and scientific and political (Anand, Bach, Elyachar, & Mains, 2012). As Harvey and colleagues (2017) note, infrastructures enroll objects, bodies, environments, ideas, and materials, in "an indefinite set of distributed interactions over extended periods" (p. 17). These interactions are inherently polyphonic, making it exceedingly unlikely that they will function according to a singular, totalizing logic or plan.

The margin of indeterminacy implied here echoes the idea of "transversality," as originally envisioned by Guattari (1984, p. 18). Conceived as movement across subjectivities, categories, institutions, and disciplines, the transversal functions as a tool of connection and disconnection that allows for multiple horizontal crossings, transformations, and transits at the same time. Transversality, thus, fundamentally builds on the relational contingencies and affective dynamics in the performative encounter of humans and nonhumans (Kanngieser, 2013, p. 40). It invites socially and politically experimental spaces that disrupt dominant organizational models and power flows (Genosko, 2000, p. 140; Kanngieser, 2013, p. 40).

Digital platforms, like the vessel tracking system AIS, lend themselves well to such an experimental politics of disrupting and reinventing political territories and institutions. The tracking platform is in principle open to anyone, even if in limited functionality and with varying degrees of control. Their undirected use and their extraordinary organizational complexity, for Bratton (2015), are indeed two of the defining features of platforms. "Part of their alterity," he notes, "is the paradoxical way in which platforms distribute some form of autonomy to the edges of their networks, while also standardizing and consolidating the terms of transaction through decentralized and undetermined interactions" (Bratton, 2015, p. 79). Bratton understands platforms in their broadest possible sense; they can consist of physical apparatuses, hardware or software, or various combinations of those components. What makes them distinct and uniquely "ideological" are the ways they realize "strategies for organizing their publics" (Bratton, 2015, p. 85). Rather than providing a tool for executing

preconceived outcomes and effects, platforms, in this view, set the stage for action through "ordered emergence" (Bratton, 2015, p. 86). As Bratton elaborates in an interview with the Dutch Museum of Architecture, Design and Digital culture Het Nieuwe Institute: "The way they are set up will contain the phase space of strategic potentialities in a certain way" (Kuitenbrouwer, 2015, para. 13).

This emergent heterogeneity of uses makes it hard to sustain a sense of mutuality and common interests on open platforms. It can quite easily create situations in which strategies of resistance and subversion run up against disciplinary practices and counterinsurgencies that undermine forces of change. The highly contested role of the vessel tracking platform AIS in the struggle over migration in the Mediterranean is a powerful case in point.

The Politics of AIS

Originally designed as a short-range anticollision system for avoiding shipping accidents under conditions of poor visibility or at night (Mullins, 2007), AIS has evolved into a pervasive logistical platform for military and corporate surveillance that is used by political and humanitarian activists and military and commercial shipping agencies alike (Big Ocean Data, 2016). The real-time data of vessel positions, along with their names, destinations, and current geolocation, are openly available on websites of maritime intelligence companies such as vesseltracker.com or marinetraffic.com. Their data offer a rich resource for the situational reports and risks analyses of Frontex and commercial shipping companies, while at the same time they provide logistical support for humanitarian search-and-rescue missions and the emergency hotline Alarm Phone/WatchTheMed. The activists routinely consult AIS data to expose human rights violations in emergencies, documenting instances where military and commercial vessels deny assistance to vessels in cases of emergency (Pezzani & Heller, 2019, p. 890).

These tactical affordances did not escape activists on the other end of the political spectrum. In a quite cynical move, the identitarian movement Defend Europe and the right-wing think tank GEFIRA (Gefira, 2016a, 2016b) quickly appropriated the countersurveillance tactics of solidarity activists to defame and manipulate pro-migration initiatives. The perpetual feedback exchange among border security agencies, solidarity activists, and right-wing insurgencies conjured a highly contested "ecology of transmission" (Gabrys, 2010, p. 47) in which the boundaries between witnessing and policing, monitoring and surveillance, resistance and subversion are becoming increasingly blurred.

To speak of ecologies, in this context, is to draw attention to the environmental qualities of digital platforms. In line with Guattari's (2000) idea of ecology, it implies an idea of technical mediation not as linear and discrete operation, but as generative of atmospheres through which wireless waves travel as "the intervening medium of the air" (Gabrys, 2010, p. 47). Put differently, distinct frequencies establish invisible circuits—electromagnetic fields—that both animate and attract but also disrupt flows of power in an ongoing cycle of transformative exchange. Jennifer Gabrys (2017) describes this as "the becoming environmental of computation" to emphasize how sensing technologies and tracking devices create new relational entities, milieus, and interpretive registers that "bring together and give rise to experiencing entities" (p.12). Hence, the suggestion is, what digital platforms mediate is potentiality itself rather than preexisting or given sensory capacities. The critical import for the discussion here is the mutual implication of affect, technologies,

cognitive and perceptual registers afforded in technical mediation, where agency, subjectivity, meaning, and sense-making appear as "a collaborative undertaking" (Gabrys, 2019, p. 726), a "co-becoming" (Ballestero, 2019, p. 19), rather than as the delineated exchange among self-enclosed, individuated entities.

With this in mind, platforms such as AIS can be understood as a set of mechanisms for articulating, animating, and operationalizing heterogenous collectives that open individuals and groups to multiple lines of diffraction, amplification, subversion, and interference that are replete with transversal potentials, yet without guarantees. Thus, counter to the idea of transversal solidarity as empowering, or a transformative project, this inherent instability leaves room for axes of domination to stabilize beyond the familiar protocols of bureaucracies and institutions, to confront activists, operating in the interstices of infrastructural relations, with the risks of manipulation, silencing, or attack that may fundamentally undermine their critical practice in support of bodies in need.

Against this backdrop, the question becomes, where should we situate power and accountability in this perpetual feedback exchange among political affects, roaming frequencies, and data signals? And how do we account for the ways it animates and redirect shared commitments, modes of attunement, and affinity across levels and scales? The problem is not just that platforms are indifferent to political orientations or that they can be appropriated by all sorts of ideological projects, agendas, and aims (Pezzani & Heller, 2019, p. 894). Rather, the challenge is how to conceptualize the phase space of potentiality in between infrastructures to make room for evaluating how they modulate ethico-political sensibilities, tensions, and pressures and their situated effects? What is called for, in other words, is a heuristic entry point for following the material and affective traits in the vibrant exchange across social and technical platforms, without losing sight of the variously differentiated degrees of power, resources, and command involved.

Responding to this call, I now move on to show how the concept of resonance can be productively mobilized for interrogating this emergent field of power as a constitutive feature of platform politics. I will limit myself to the idea of resonance in social system theory and its various critiques in contemporary sociology and feminist writings. Read against each other, these critiques bring questions of responsibility and accountability back into the disembodied view of system perspectives and make room for addressing resonance as "a ubiquitous medium of power and geopolitics" (Connolly, 2010, p. 191).

Theorizing Resonance

Resonance, in its most basic sense, can be understood as a rhythmic oscillation in flows of energy, affects, frequencies, and materials that modulate patterns of movement, amplitudes, and behaviors in nonlinear ways (Plotnitsky, 2012, p. 21). The basic idea here is that two or more entities are mutually sensitive to one another in an interference-like process (Clark, 2020, p. 2495). In Luhman's (Clark, 2020, p. 2494) social systems theory, this capacity to respond extends into a generalized benchmark for measuring how and at what point social systems can recognize signals from the environment as a problem to their functioning (Hall, Feldpausch-Parker, Peterson, Stephens, & Wilson, 2017, p. 385). Signals from the environment cannot be heard by society's systems (economy, law, science, religion) unless they interrupt what is internally meaningful to them. For Luhmann, (as cited in Hall et al., 2017, p. 385) it's in such moments that adaptive transformation occurs. Yet implied here is an idea of social systems as ontologically distinct, preexisting

entities, separate from nature, the environment and nonhumans, that rejects any possibility of a direct exchange across functional divisions and that ignores the materiality of information flows.

Hartmut Rosa (2019), in a more recent account, put forth a more expansive reading of resonance that productively engages with the lively relationality between individual and collective sensibilities, affects, and institutional arrangements, in which subject and world are mutually affected and transformed (Rosa, 2019, pp. 173–174). Framed as a critique of the accelerationist, escalatory logic of Western modernity, resonance here is posited as the other of alienation. It denotes a specific quality of being in relation to the world (*Weltbeziehung*) and to others that enables individuals and groups "to feel sustained or even secured in a responsive, accommodating world" (Rosa, 2019, p. 158). Put differently, resonance, in Rosa's account, denotes the responsiveness of social and cultural arrangements to individual and collective needs, outside the instrumental rationality and reason. It can be affirmative as well as discouraging or repulsive (Rosa, 2019, p. 174). The way in which it goes depends on the intensity and degree to which resonant relations stabilize into axes that provide for a recurrent or repetitive experience of responsiveness. "Axes of resonance exist only where the world 'strikes a chord' in the subject and, vice versa . . . . eliciting from the world an accommodating reaction or response" (Rosa, 2019, p. 158). When axes of resonance fall silent, by contrast, an extreme form of alienation is reached, where individuals or groups find themselves ignored, misrecognized, or rejected in their specificity (Rosa, 2019, p. 30).

Rosa (2019) critically extends the narrow, functionalist understanding of resonance in the (social) physics of system theory and cybernetics. It bespeaks an irreducible responsibility for listening and responding to individual and collectives, whereas responsiveness becomes the critical benchmark for assessing, whether particular conditions of existence are acceptable or not. This sits well with the long-standing feminist insistence on the lived and embodied reciprocities at stake in related being and from which special obligations derive (Barad, 2007; Haraway, 1988; Lowenhaupt Tsing, 2015; Puig de la Bellacasa, 2017). Resonance, as a specific mode of responsibility, in this view, is not an obligation that the subject chooses but "an incarnate relation that precedes the intentionality of conscious" (Barad, 2010, p. 265). As Barad (2010) notes, "each of us is constituted in respons-a-bility to an 'other,' 'who is irreducibly and materially bound to, threaded through, the 'self'" (p. 265).

Digital platforms, I would like to suggest, are an inextricable part of this generalized disposition of responsiveness inherent in all matter/power/formations. They already implicate us in the vulnerability and needs of others as an irreducible part of ourselves. Yet these techno-material undercurrents are strikingly absent in Rosa (2019), indicating a curious ignorance toward the transversal aspects of resonance. In what follows, I want to offer a more expansive reading of resonance as a moving substrate of force relations to show how it implicates digital platforms in relations of feedback that modulate, channel, and (re)align political tendencies and pressures into variously differentiated axes of solidarity, recognition and caring, but also of possible further violence (see also Connolly, 2011). Such an approach makes room to attend to the expressive qualities of digital platforms as a critical sphere where ethico-political commitments and obligations are both enacted, fought over, and curtailed. To explicate this point, I will draw on selective examples of the uses of tracking technologies (AIS) across the full spectrum of political actors in the struggle over migration, which I organize along three axes: *alienation*, *subversion,* and *solidarity.*

Alienation

Europe's response to the rapid increase of people seeking refuge from ongoing conflict and crises has been marked by a consistent shift away from a policy of care toward an ever more pervasive strategy of securitization of movement on land and sea (Garelli & Tazzioli, 2017). While the initial military-humanitarian mission "Mare Nostrum," led by Italy until 2014, had the rescue of people as its central focus, subsequent operations, under the command of the European coastguard and border security agency, Frontex, centered above all on the disruption of human trafficking and smuggling, including the forced return of irregular migrants at sea (Cuttitta, 2017; Jones, 2019). Measured by its "success," Europe's border surveillance regime has proven by and large ineffective. It not only encouraged human traffickers to expand their networks, making their business stronger and more profitable, it has also pushed migrants toward ever riskier travel routes (Andersson, 2016; Brachet, 2018). Civil society activists, meanwhile, who play a critical role in rescuing migrants in distress, find their operations increasingly criminalized (European Union Agency for Fundamental Rights, 2020). Italy and Malta have repeatedly prevented rescue ships from entering their ports and filed several lawsuits against activists, accusing them of collaborating with smugglers (European Union Agency for Fundamental Rights, 2020). At the time of writing, only five of 15 search-and-rescue initiatives are still operative along with the emergency hotline Alarm Phone/WatchTheMed (European Union Agency for Fundamental Rights, 2020).

The criminalization of search-and-rescue missions went hand in hand with a radical recalibration of risk in relation to vulnerability and impact that considered, first and foremost, the border as most vulnerable, while the people crossing it were cast as an acute threat, as Andersson (2016) notes. At the heart of this risk, calculus is the centralized information platform EUROSUR—the main platform for managing and coordinating border surveillance across European states. The platform is designed to optimize the "interoperability" of national border security initiatives and to automate methods of information gathering and sharing across all EU member countries (Frontex, 2021). The platform combines the automated vessel tracking system AIS with high-resolution satellite images of the EU space agency EMSA and border intelligence generated by vessel patrols, drones, and coastal radars (Frontex, 2021; Walters, 2017). The combined output of EUROSUR enables Frontex to locate and intercept ships suspected to be engaged in people or weapons smuggling and to share daily risk scenarios and situational reports with all its stakeholders (Frontex, 2021).

EUROSUR carries all the familiar features of a panoptic surveillance apparatus. It is designed to render the sea governable and transparent. Yet, as even Frontex's own personnel admit, the platform is ill-suited to facilitate the rescue of migrants, much less to preempt migrant deaths at sea (Duffield, 2016; Silva & Greidanus, 2011, p. 59). There are several reasons for this. First, as the deputy director Gil Aria Fernandez (Nielsen, 2014) notes, "Even if EUROSUR successfully integrates satellite images into its surveillance architecture, it can take days until they will be available to local or national border authorities" (Walters, 2017, pp. 800–801). Second, high-resolution image satellites depend on a steady feedback loop between signals transmitted to Earth and those returned by a targeted area or object. Hence SAR perform best when dealing with large objects, but they perform poorly when trying to locate small rubber dinghies or wooden boats (Silva & Greidanus, 2011, p. 58). This is especially true under bad weather conditions. Third, the Mediterranean covers a vast area of 2.5 square kilometers. Such terrain is impossible to surveil at a level of depth and resolution that would allow for real-time responses to emergencies, even with the

combined force of image satellites, aerial surveillance, and vessel patrols. Far from providing a comprehensive system of real-time situational awareness and reaction capability, as suggested by Frontex (2021), EUROSUR provides a highly partial matrix of in/visibility and surveillance that brings a critical remainder of operational blind spots to the fore (see also Tazzioli, 2015, p. 5).

The partiality of EUROSUR's detection and reception capacities does not necessarily work to Europe's disadvantage. Rather, it has been a key facilitator of the wider policy of alienating and delegitimizing claims for asylum and rescue by those arriving on its shores. Seen this way the system design of EUROSUR can be read as a carefully crafted and strategic calibration of resonance capacities that skillfully plays on the differential resolution of satellite images and data signals, with the effect that vital axes of resonance for rescuing lives remain muted or underused. What is more, it allows for selective recognition of risks, whose particular violence manifests itself not only in the structural invisibility and misrecognition of certain bodies but also in the ways their deaths and disappearance are left unintelligible and nondescript. Relayed to the idea of resonance as phase space of ethico-political responsibilities, one could say, rather than intensifying Europe's capability and willingness to respond to the humanitarian crisis at its external borders, the real-time tracking capacities of EUROSUR casts those, already "lingering at the edges of digital infrastructures" (Hoyng, 2020; Introduction, this issue) into a state of nonbeing—an empty variable—that prevents migrants from becoming legible to the state, while enabling Europe to avoid potential conditions of accountability (Latonero & Kift, 2018).

It is against this backdrop of systemic abandonment and neglect that a host of civil society and nongovernmental organizations built up a parallel infrastructure of search-and-rescue operations aimed at saving lives in the Mediterranean Sea. These include *Jugend Rettet, Med Sans Frontier, Save the Children, Sea-Eye* and *Sea-watch, Open Arms,* and *SOS Mediterranee*—all of whom use the same basic infrastructures as Frontex, albeit with reduced organizational and functional complexity. Financed through crowdsourcing campaigns, institutional donations, and volunteer labor, these activist networks have supported more than 115,000 people between 2014 and October 2019 (Cusumano & Villa, 2019, p. 2).

Subversion, Amplification, Hacks

Each organization operates its own rescue vessels, in some cases more than one, equipped with medical teams, emergency supplies, as well as the on-board communication systems and AIS transponders, that are required for all cargo and passenger ships. Further support is provided by the Swiss Humanitarian Pilot Initiative (HPI; https://www.hpi.swiss/) that conducts regular civil air reconnaissance missions along the main migration routes. This access to real-time tracking technologies enabled activists to reinstate vital axes of resonance in support of destitute bodies and to raise public awareness about human rights violations and deaths at sea. Yet the fact that satellite images and tracking data for the Mediterranean Seas are openly available on scientific and commercial Internet platforms has left plenty of room for other, dissonant voices to enter the conversation, rendering the activists themselves vulnerable to delegitimization by those who do not share their ethico-political cause.

Human smugglers routinely monitor the movements of activist vessels to facilitate their own interest and to organize travel routes around humanitarian search-and-rescue zones (Ch. Heller, personal communication, June 2018). The ruthless calculus of smugglers resulted in a series of allegations by

European politicians and right-wing groups, such as the Identitarian Movement or the Dutch think tank GEFIRA, who accuse activists of encouraging irregular migration and of colluding with people smugglers (Arsenijevic, Manzi, & Zachariah, 2017; Cuttitta, 2017; Heller & Pezzani, 2018). These accusations did not stop at verbal attacks, but, in a quite cynical move, appropriated the activist's tactics of countersurveillance, purposefully manipulating AIS data to support their defamatory claims (Gefira, 2016a, 2016b; Ch. Heller, personal communication, June 2018).

The war on AIS data reached its peak in the summer of 2017 when the identitarian group Defend Europe chartered its own vessel and tried to tamper with the AIS signal of the search-and-rescue NGO Open Arms. The alleged attempt was part of a wider antimigration campaign aimed at providing evidence that the activists coordinate their missions with smugglers. The incident resulted in a lengthy Twitter storm, excerpted in Figure 1, between Open Arms (Camps, 2017) and Defend Europe (since deleted; Defend Europe, 2017) and their respective supporters.
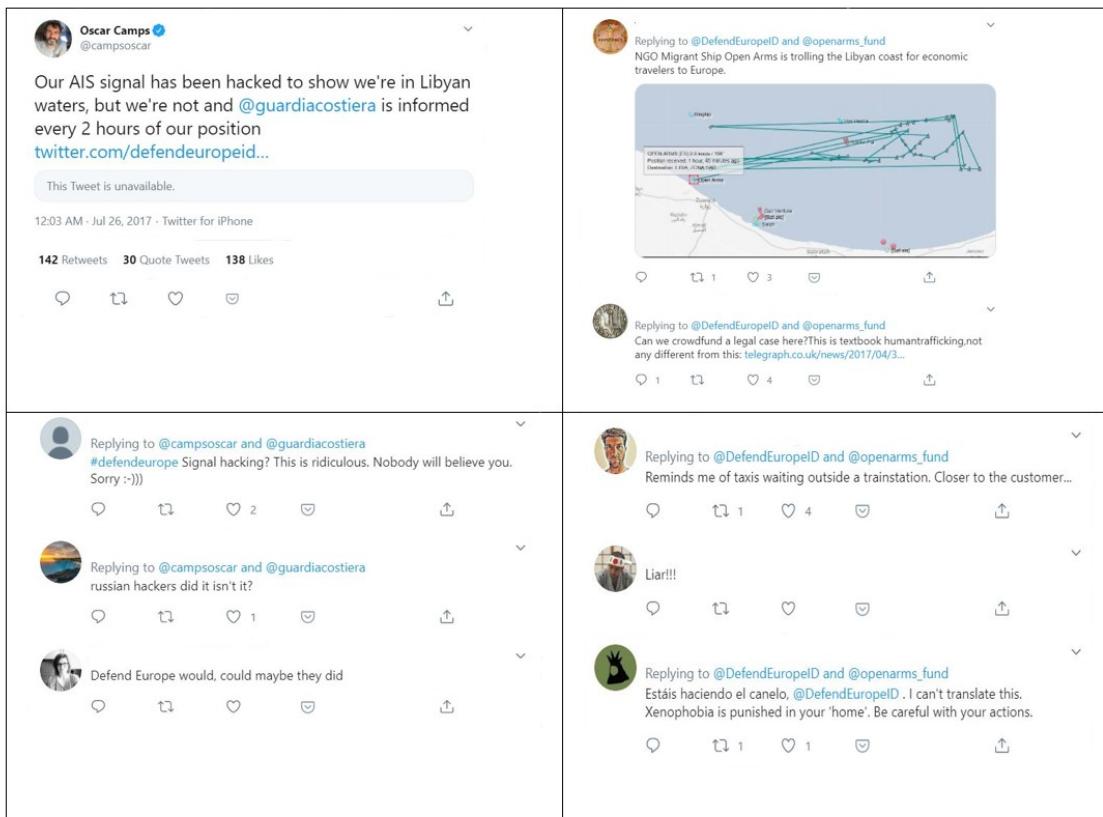

Figure 1. The Twitter exchange between Open Arms (Camps, 2017) and Defend Europe (Defend Europe, 2017) supporters.

The heated exchange created a toxic ecology of data signals in which the fluid boundaries between fiction and evidence, witnessing and surveillance, legal and unlawful means became evermore blurred. It locked activists, smugglers, and far-right political movements into a vicious circuit of mutual tracking and surveillance that extended the inherent instability and indeterminacy of roaming frequencies and data signals into "a ubiquitous medium of power and politics" (Connolly, 2010, p. 191).

This ability of platforms to channel and (re)direct political affects, tendencies, and pressures led William Connolly (2011) to speak of platforms as "resonance machines"—global apparatuses of antagonism— that are bound to drive anticipatory habits, affect and behaviors in a self-generating and emergent manner (p. 34). The margin of indeterminacy implied here leaves activists in a peculiar position. It begets the question, how to position oneself in this contested field of resonant relations that fold political resentments, affects, and speculative practices into roaming frequencies and data signals that take on sovereign qualities in their own right? And what strategies and tactics are required to confront and redirect these "expressive modes of sovereignty" (Connolly, 2011, p. 34) inhered in digital platforms for empowering and enabling ends?

Feminist writers in science and technology (Alaimo, 2018; Barad, 2012; Braidotti, 2006; Haraway, 1988) have long insisted on a politics of positioning grounded in a view from a body, not as a fixed or bounded essence but "as complex, contradictory, structuring, and structured body" (Haraway, 1988, p. 589), that is open to difference and variation in its ongoing becoming of the world. But where should we situate such a radically decentered and relational body in the unstable field of mutual inflictions and interferences, where racialized tensions, resentments, and injustice condense into axes of resonance that reject difference and delegitimize or silence alternative positions, aspirations, and views? The inherent unruliness and unpredictability of feedback effects in the circulation of data signals deprive "a politics of location" from any certainty about its own boundaries and positions, however porous. It rather calls the very idea of location into question, as global positioning systems reveal their power to locate and dislocate objects and bodies at the same time (Timeto, 2016, p. 9).

The transnational solidarity network Alarm Phone represents one possible response to these questions. The comparably low-tech infrastructure of the emergency hotline powerfully demonstrates how the skillful traversing of available frequencies can open up alternative pathways across the contested ecology of transmission in the Mediterranean and creatively exploit critical blind spots and redundancies in signal transmission to respond to situations of emergency and need.

Transversal Solidarity

Alarm Phone can best be described as a network of networks dedicated to the support and protection of one of the most vulnerable populations today. Run by a committed group of academics, activists, and volunteers spread across Europe, the emergency hotline skillfully combines basic, low-tech equipment such as online messaging apps (e.g., Facebook, Viber, WhatsApp, Skype) and mobile phones with call management software and logistical platforms such as AIS to respond to distress calls from migrants at sea. The "phone activists" have aided in about 2,700 distress situations—approximately 1,700 in the Aegean Sea, 750 in the western Mediterranean, and 250 in the central Mediterranean thus far (Alarm Phone, 2018).

A typical call involves assessing the physical condition of the boat and its passengers, collecting data on health, fuel supply, or damages on the motor or the vessel structure, and identifying its current GPS location and the number of people involved. All this information is directly logged into an internal database, which can then be used to follow up on each case. The volunteers will immediately notify the relevant national coastguards and Maritime Coordination Centers to ensure that rescue operations are carried out. In cases of delay, which occurs when incidents take place in search-and-rescue zones that are contested between countries, the volunteers resort to AIS platforms to notify the nearest civil rescue ship and to increase the pressure on the relevant maritime rescue authority (MRCC).[1]

Alarm Phone defines itself as a platform for listening and for supporting those forced to move through dangerous spaces (Stierl, 2016, p. 562). Its members conceive of their work as explicitly "political," counter to the humanitarian rationale of some search-and-rescue NGOs. As part of a wider network of European antiracism and solidarity activists, Alarm Phone members openly commit themselves to facilitate unsanctioned mobility, much in the tradition of abolitionism and "flight help" (Stierl, 2016, p. 562). Unlike the predigital era, however, when the core infrastructure for escape were train lines and underground tunnels, Alarm Phone creatively exploits the strategic affordances of digital platforms for providing unconditional assistance to those trying to escape crises and wars.

The fact that Alarm Phone actively collaborates with migrants and feeds its day-to-day experiences back into their communication networks enables the group to effectively integrate local, situated knowledge with global architectures of logistical coordination such that acute needs can be directly connected to operational capacities on land and sea. This allows for a flexible positioning within toxic "ecologies of transmission" (Gabrys, 2010, p. 47) that opens up axes of resonance between affected individuals, that are grounded in the lived embodied interoperability of mutual commitments and obligations, while at the same time they are subtended by relations of radical interdependency, precarity, and distress.

Concluding Remarks

The evermore pervasive legal and political restrictions for rescue initiatives have dramatically closed in on the ability to respond and to remain answerable to the human death toll of migration in Europe. It has left migrants and activists equally vulnerable to criminalization by an evermore expansive apparatus of securitization in which data and connectivity are increasingly becoming weaponized on all sides. The comparably low-end technical infrastructure of Alarm Phone has left the emergency hotline in a slightly better position than other form of search-and-rescue activism. Unlike rescue vessels, whose ability to assist migrants is contingent on being traceable through automated identification systems, phone calls are much harder to track due to privacy protection and the standard encryption of chat and messaging software. This enabled activists to maintain a network of trusted individuals that effectively shields them from undue interference by oppositional actors or law enforcement agencies.

---

[1] The final authority to determine when, where, and how rescue missions are carried out and by whom, lies with the MRCC of coastal states.

Ongoing emergencies, as Berlant (2016) writes, call for new conceptual infrastructures to determine the terms and conditions of social existence. Attending to terms of transition is

> to forge an imaginary for managing the meanwhile within damaged life's perdurance; a meanwhile that is less an . . . ethical scene than a technical political heuristic that allows for ambivalences, distraction, antagonism, and inattention not to destroy collective life. (p. 394)

The way Alarm Phone redirects and subverts the violent infrastructures of border security and the state is a powerful manifestation of such a "technical political heuristic" (Berlant, 2016, p. 394). It enabled activists to disrupt the ethical, legal and political void that sustains the Mediterranean as a space of sovereign impunity and evasion of ethical obligations. In doing so, the activists successfully reanimate the sea into a site of multiple correspondences where fundamentally opposed notions of risk, security, and protection can be enacted and the terms of transition and connectivity among Europe, Africa, and Asia are (re)negotiated and transformed. What anchors these radically decentralized and "provisional forms of unity" (Berlant, 2016, p. 366) into a stable platform of solidarity and political positioning are the ways activists skillfully exploit the technical and legal affordances of resonance to multiply and reroute their position within matrices of surveillances, so as to open up alternative pathways across a contested field of transmission, that have left the boundaries between transparency and surveillance, monitoring and infiltration, awareness and policing evermore blurred.

References

Alaimo, S. (2018). Trans-corporeality. In R. Braidotti & S. Bignall (Eds.), *Posthuman ecologies: Complexity and process after Deleuze* (pp. 435–438). New York, NY: Rowman & Littlefield.

Alarm Phone (2021, April 25). About Alarm Phone. Retrieved from https://alarmphone.org/en/about

Alarm Phone. (2018, December 27). *Alarm Phone: And yet we move—2018, a contested year.* Retrieved from https://alarmphone.org/en/2018/12/27/and-yet-we-move-2018-a-contested-year/?post_type_release_type=post

Anand, N., Bach, J., Elyachar, J., & Mains, D. (2012, November 26). Infrastructure: Commentary from Nikhil Anand, Johnathan Bach, Julia Elyachar, and Daniel Mains. *Cultural Anthropology*. Retrieved from https://journal.culanth.org/index.php/ca/infrastructure-anand-bach-elyachar

Andersson, R. (2016). Europe's failed "fight" against irregular migration: Ethnographic notes on a counterproductive industry. *Journal of Ethnic and Migration Studies*, *47*(2), 1055–1075. doi:10.1080/1369183X.2016.1139446

Aradau, C., & Tazzioli, M. (2020). Biopolitics multiple: Migration, extraction, subtraction. *Millennium: Journal of International Studies*, *48*(2), 198–220. doi:10.1177/0305829819889139

Arsenijevic, J., Manzi, M., & Zachariah, R. (2017). *Defending humanity at sea*. Retrieved from
        http://searchandrescue.msf.org/assets/uploads/files/170831-%20Report_Analysis_SAR_Final.pdf

Ballestero, A. (2019). Touching with light, or, how texture recasts the sensing of underground water.
        Science, Technology, & Human Values, *44*(5), 1–24. doi:10.1177/0162243919858717

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and
        meaning*. Durham, NC: Duke University Press. doi:10.1215/9780822388128

Barad, K. (2010). Quantum entanglements. *Derrida Today*, *3*(3), 240–268.
        doi:10.3366/E1754850010000813

Barad, K. (2012). On touching—The inhuman that I am (Vol. 1). In S. Witzgall (Ed.), *The politics of
        materiality* (pp. 153–164). Berlin, Germany: Diaphanes. Retrieved from
        https://www.diaphanes.net/titel/on-touching-the-inhuman-that-therefore-i-am-v1-1-3075

Barla, J., & Hubatschke, C. (2017). Technoecologies of borders: Thinking with borders as multispecies
        matters of care. *Australian Feminist Studies*, *32*(94), 395–410.
        doi:10.1080/08164649.2017.1466648

Bennett, J. (2010). *Vibrant matter: A political ecology of things*. Durham, NC: Duke University Press.
        doi:10.1215/9780822391623

Berlant, L. (2016). The commons: Infrastructures for troubling times. *Environment and Planning D:
        Society and Space*, *34*(3), 393–419. doi:10.1177/0263775816645989

Big Ocean Data. (2016). *Big ocean data: A brief history of AIS*. Retrieved from
        https://www.bigoceandata.com/white-paper/brief-history-ais/

Brachet, J. (2018). Manufacturing smugglers: From irregular to clandestine mobility in the Sahara. *The
        ANNALS of the American Academy of Political and Social Science*, *676*(1), 16–35.
        https://doi.org/10.1177/0002716217744529

Braidotti, R. (2006). Posthuman, all too human: Towards a new process ontology. *Theory, Culture &
        Society*, *23*(7/8), 197–208. doi:10.1177/0263276406069232

Bratton, B. (2015). *The stack: On software and sovereignty*. Cambridge, MA: MIT Press.
        doi:10.7551/mitpress/9780262029575.001.0001[Kindle Version]. Retrieved from Amazon.com

Camps, O. [@Campsoscar]. (2017, July 26). Our AIS Signals has been hacked to show we're in Lybian
        waters, but we are not. And the @guardiacostiera is informed every 2 hours of our position
        [Tweet]. Retrieved from https://twitter.com/campsoscar/status/889969311821037572?lang=en

Clark, C. (2020). Resonanzfähigkeit: Resonance capability in Luhmannian systems theory. *Kybernetes*, *49*(10), 2493–2507. doi:10.1108/K-07-2019-0490

Connolly, W. (2010). Materialities of experience. In D. Coole & S. Frost (Eds.), *New materialisms ontology, agency and politics* (pp. 178–200). Durham, NC: Duke University Press.

Connolly, W. (2011). *A world of becoming*. Durham, NC: Duke University Press. doi:10.1215/9780822393511

Cusumano, E., & Villa, M. (2019, November 17). Sea Rescue NGOs: A pull factor of irregular migration? *Migration Policy Centre*. Retrieved from https://migrationpolicycentre.eu/sea-rescue-ngos-a-pull-factor-of-irregular-migration/

Cuttitta, P. (2017). Repoliticization through search and rescue? Humanitarian NGOs and migration management in the Central Mediterranean. *Geopolitics*, *23*(3), 1–29. doi:10.1080/14650045.2017.1344834

Defend Europe. [DefendEuropeID]. (2017, July 26). [Tweet]. Retrieved from https://twitter.com/defendeuropeid/status/889894275206578176

Deleuze, G. (1990). *The logic of sense* (M. Lester, Trans.). New York, NY: Columbia University Press.

Deleuze, G. (1993). *Difference and repetition* (P. Patton, Trans.). New York, NY: Columbia University Press.

Dijstelbloem, H., van Reekum, R., & Schinkel, W. (2017). Surveillance at sea: The transactional politics of border control in the Aegean. *Security Dialogue*, *48*(3), 224–240. doi:10.1177/0967010617695714

Duffield, M. (2016). The resilience of the ruins: Towards a critique of digital humanitarianism. *Resilience*, *4*(3), 147–165. doi:10.1080/21693293.2016.1153772

European Union Agency for Fundamental Rights (2020). December 2020 update—NGO ships involved in search and rescue in the Mediterranean and legal proceedings against them. Retrieved from https://fra.europa.eu/en/publication/2020/december-2020-update-ngo-ships-involved-search-and-rescue-mediterranean-and-legal

Frontex. (2021, March 11). *Information management*. Retrieved from https://frontex.europa.eu/we-know/situational-awareness-and-monitoring/information-management/

Gabrys, J. (2010). Atmospheres of communication. In B. Crow, M. Longford, & K. Sawchuk (Eds.), *The wireless spectrum: The politics, practices, and poetics of mobile media* (pp. 46–59). Toronto, Canada: University of Toronto Press.

Gabrys, J. (2017). The becoming environmental of computation: From citizen sensing to planetary computerization. *Tecnoscienza: Italian Journal of Science & Technology Studies*, *8*(1), 5–21.

Gabrys, J. (2019). Sensors and sensing practices: Reworking experience across entities, environments, and technologies. *Science, Technology, & Human Values*, *44*(5), 723–736. doi:10.1177/0162243919860211

Garelli, G., & Tazzioli, M. (2017). The humanitarian war against migrant smugglers at sea. *Antipode*, *50*(3), 1–19. doi:10.1111/anti.12375

Gefira. (2016a). *Ngos-are-smuggling-immigrants-into-europe-on-an-industrial-scale.* Retrieved from https://gefira.org/en/2016/12/04/ngos-are-smuggling-immigrants-into-europe-on-an-industrial-scale/

Gefira. (2016b). *Caught in the act: NGOs deal in migrant smuggling.* Retrieved from https://gefira.org/en/2016/11/15/caught-in-the-act-ngos-deal-in-migrant-smuggling/#more-14995

Genosko, G. (2000). The life and work of Felix Guattari: From transversality to ecosophy. In F. Guattari (Ed.), *The three ecologies* (pp. 106–160). London, UK: Athlone.

Guattari, F. (1984). *Molecular revolution: Psychiatry and politics* (R. Sheed, Trans.). Harmondsworth, UK: Penguin.

Guattari, F. (2000). *The three ecologies*. London, UK: Athlone.

Hall, D. M., Feldpausch-Parker, A., Peterson, T. R., Stephens, J. C., & Wilson, E. J. (2017). Social-ecological system resonance: A theoretical framework for brokering sustainable solutions. *Sustainability Science*, *12*(3), 381–392. doi:10.1007/s11625-017-0424-6

Haraway, D. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies*, *14*(3), 575–599.

Haraway, D. (2007). *When species meet*. Minneapolis: Minnesota University Press.

Harvey, P., Jensen, C. B., & Morita, A. (Eds.). (2017). *Infrastructures and social complexity: A companion*. London, UK: Taylor & Francis. doi:10.4324/9781315622880

Heller, C., & Pezzani, L. (2018). Blaming the rescuers: The Iuventa case. Retrieved from https://blamingtherescuers.org/

Helmreich, S. (2019). Reading a wave buoy. *Science, Technology, & Human Values*, *44*(5), 737–761. doi:10.1177/0162243919856095

Hoyng, R. (2020). From open data to "grounded openness": Recursive politics and postcolonial struggle in Hong Kong. *Television & New Media*, doi:10.1177/1527476420931444

Johnson, E. R. (2017). At the limits of species being: Sensing the Anthropocene. *South Atlantic Quarterly*, *116*(2), 275–292. doi:10.1215/00382876-3829401

Jones, C. (2019, December). *Monitoring "secondary movements" and "hotspots": Frontex is now an internal surveillance agency*. Retrieved from https://www.statewatch.org/media/documents/analyses/no-348-frontex-internal-surveillance.pdf

Kanngieser, A. (2013). *Experimental politics and the making of worlds*. Farnham, UK: Ashgate.

Kuitenbrouwer, K. (2015, February 29). The Stack and the Post-human User: An Interview with Benjamin Bratton. *Garden of Machines*. Retrieved from https://tuinvanmachines.hetnieuweinstituut.nl/en/stack-and-posthuman-user-interview-benjamin-bratton

Latonero, M., & Kift, P. (2018). On digital passages and borders: Refugees and the new infrastructure for movement and control. *Social Media + Society*, *4*(1), 1–11. doi:10.1177/2056305118764432

Lehman, J. (2018). From ships to robots: The social relations of sensing the world ocean. *Social Studies of Science*, *48*(1), 57–79. doi:10.1177/0306312717743579

Lowenhaupt Tsing, A. (2015). *The mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton, NJ: Princeton University Press. doi:10.2307/j.ctvc77bcc

Luhmann, N. (1989). *Ecological communication* (J. Bednarz Jr., Trans.). Chicago, IL: University of Chicago Press.

McCullagh, S. (2018). Heterogeneous collectivities and the capacity to act: Conceptualizing nonhumans in the political sphere. In R. Braidotti & S. Bignall (Eds.), *Posthuman ecologies: Complexity and process after Deleuze*. New York, NY: Rowman & Littlefield.

Milan, S., & van der Velden, L. (2016). The alternative epistemologies of data activism. *Digital Culture & Society, 2*(2), 1–2. doi:10.14361/dcs-2016-0205

Mullins, U. (2007). Leveraging technology to improve VTS operations. *Proceedings of the Marine Safety & Security Council*, *64*(2), 16–17.

Nielsen, N. (2014, May 14). EU border surveillance system not helping to save lives. *EUobserver.* Retrieved from https://euobserver.com/justice/124136

Pelizza, A. (2016). Processing citizenship: Digital registration of migrants as co-production of individuals and Europe. *EASST Review*, *36*(3). Retrieved from https://easst.net/article/processing-citizenship-digital-registration-of-migrants-as-co-production-of-individuals-and-europe/

Pelizza, A. (2020). Processing alterity, enacting Europe: Migrant registration and identification as co-construction of individuals and polities. *Science, Technology, & Human Values*, *45*(2), 262–288. doi:10.1177/0162243919827927

Pezzani, L., & Heller, C. (2013). A disobedient gaze: Strategic interventions in the knowledge(s) of maritime borders. *Postcolonial Studies*, *16*(3), pp. 289–298. doi:10.1080/13688790.2013.850047

Pezzani, L., & Heller, C. (2019). AIS Politics: The contested use of vessel tracking at the EU's maritime frontier. *Science, Technology, & Human Values*, *44*(5), 881–899. doi:10.1177/0162243919852672

Plotnitsky, A. (2012). From resonance to interference: The architecture of concepts and the relationships among philosophy, art and science in Deleuze and Guattari. *Parallax*, *18*(1), 19–32. doi:10.1080/13534645.2012.632970

Puig de la Bellacasa, M. (2017). *Matters of care: Speculative ethics in more than human worlds*. Minneapolis, MN: University of Minnesota Press.

Rosa, H. (2019). *Resonance: A sociology of our relationship to the world* [Kindle Android version]. Retrieved from https://www.amazon.com/Resonance-Sociology-Our-Relationship-World-ebook/dp/B07VLTJGVL

Scheel, S., Ruppert, E., & Ustek-Spilda, F. (2019). Enacting migration through data practices. *Environment and Planning D: Society and Space*, *37*(4), 579–588. doi:10.1177/0263775819865791

Scheel, S., & Ustek-Spilda, F. (2019). The politics of expertise and ignorance in the field of migration management. *Environment and Planning D: Society and Space*, *37*(4), 663–681. doi:10.1177/0263775819843677

Silva, V. M. G., & Greidanus, H. (2011). *JRC-Frontex Spaceborne SAR Small Boat Detection Campaign—Italy & Spain: Results of the Spaceborne SAR Small Boat Detection Campaign Carried out by the EC-JRC in Cooperation with Frontex in Sardinia-Italy and Palomares Canyon—Spain in September and October 2009, Respectively* (Report No. EUR 25065EN—2011)*. Ispra, Italy: European Commission Joint Research Centre Institute for the Protection and Security of the Citizen. https://doi.org/10.2788/1727

Stierl, M. (2016). A sea of struggle—Activist border interventions in the Mediterranean Sea. *Citizenship Studies*, *20*(5), 561–578. doi:10.1080/13621025.2016.1182683

Taylor, C., & Sharp, H. (2016). *Feminist philosophies of life*. Montreal, Canada: McGill-Queen's University Press.

Tazzioli, M. (2015). The politics of counting and the scene of rescue: Border deaths in the Mediterranean. *Radical Philosophy*, *192*, 2–6.

Timeto, F. (2016). *Diffractive technospaces: A feminist approach to the mediations of space and representation*. London, UK: Routledge.

Treré, E., & Mattoni, A. (2016). Media ecologies and protest movements: Main perspectives and key lessons. *Information, Communication & Society*, *19*(3), 290–306. doi:10.1080/1369118X.2015.1109699

Walters, W. (2017). Live governance, borders, and the time–space of the situation: EUROSUR and the genealogy of bordering in Europe. *Comparative European Politics*, *15*(5), 794–817. doi:10.1057/s41295-016-0083-5

WatchTheMed (2021, April 25). About WTM. Retrieved from https://watchthemed.net/index.php/page/index/3

Wiener, N. (1948). *Cybernetics: Or control and communication in the animal and the machine.* Cambridge, MA: MIT Press.

Witteborn, S. (2018). The digital force in forced migration: Imagined affordances and gendered practices. *Popular Communication*, *16*(1), 21–31. doi:10.1080/15405702.2017.1412442

Yusoff, K., & Gabrys, J. (2011). Climate change and the imagination. *Wiley Interdisciplinary Reviews: Climate Change*, *2*(4), 516–534. doi:10.1002/wcc.117