



# Playa Bagdad|SpaceX: Sound, Necropolitics, and the Industrialization of Space

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This article looks through the lens of speculation at a scenario connecting the US-Mexico border complexities with the industrialization of outer space. Based on an art-oriented and multifaceted research process including fieldwork and conversations with Playa Bagdad's residents, the scrutiny of SpaceX environmental impact assessments, and attendance to several Federal Aviation Administration (FAA) public hearings; this compilation of ideas investigates the subjectivities intrinsic to the coexistence of Playa Bagdad (Tamaulipas, MX) and SpaceX (Texas, US) through the social and political implications of sound.

In this scenario, the noise produced by the launchers' engines will not only act as mobilizing force resonating in the form of intense acoustic shock waves with the capacity of affecting materiality—including the biosphere and the body—, but as a cultural weapon nurturing an already existing ecology of fear. All of this amid a hybrid geography where the radical asymmetries of neoliberal policies fuel a regime built upon necropolitics which intersect with the rising infrastructure of space exploration.

Ironically, the confrontation between Playa Bagdad and SpaceX remains in silence, as an under-seen techno-political spectacle in which a community lacking political recognition stands in the front row to witness passively the consolidation of an economic zone that promises to delimitate a new cosmological dimension; one perpetuating the validation of progress, exclusively, through hyper-technological advancement.

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*Elysium*, a Hollywood film directed by South-African Neill Blomkamp in 2013, tells the story of a not so far anthropogenic future in which Earth is no longer suitable for the living standards of the ruling class. As expected, their solution is to leave the planet towards a space colony floating in low-earth orbit named Elysium, right above a dystopian version of Los Angeles, California. Those who remain on the ground —mostly workers ruled by robots— live in a continuous state of scarcity and repression where looking up at the sky becomes an aspirational act of relief, always at the whim of setting the sight on Elysium. The futuristic look of the orbital habitat portrayed in the movie, which holds the means to sustain an autonomous ecosystem, resembles the cylinders proposed by space activist Gerard O’Neill in the 70s. As one of the key figures in conceptualizing the expansionist narratives justifying the industrialization of space, O’Neill’s work was instrumental in building a logic that foresees societal stratification in relationship to spatially “ascending from the Earth as an absolute form of progress” (Deudney 2020, 267).

In several media features across the internet, Blomkamp speaks openly about a trip to Tijuana, Mexico, that led to his arrest by the local police force. Apparently, it took a while to settle an agreement with the cops who, in the meantime, drove him through the slums of one of the most complex US-Mexico border towns. Mesmerized by the roughness of the city, Blomkamp realized that a peripheral Mexican cityscape would fit perfectly his vision of a megapolis ruined by the extractive hunger of capitalist greed. In the end, the film was shot in Mexico City, not Tijuana. Ironically, on the opposite side of Tijuana (considered the western corner of Latin America), right below the US-Mexico border and on the shores of the Mexican Gulf in Tamaulipas, lies Playa Bagdad, a relatively small —approximately 500 residents— and precarious fishing community facing a reality that surpasses fiction with the arrival of a controversial co-habitant. Only three miles above the border line, the space exploration enterprise SpaceX is developing an area to build its main vertical launch facilities at Boca Chica, Texas. Besides being a close ally of the US Military, SpaceX is one of the protagonists in the race to industrialize outer space. With an ambitious agenda to fulfill by 2030, the private corporation is committed to accomplish Starlink, a planetary-scale project that includes a 40,000 satellite array floating in low-Earth orbit. An ambivalent macro-infrastructural operation founded upon emancipatory rhetorics promising to deliver an internet connection to every corner of the world.

Nonetheless, to complete its plan, the artificial constellation will spread around the planet as a massive hunting net; as an unreachable hyperobject with the capacity to centralize and control an immense flow of digital information. Likewise, they plan to build a colony on Mars and turn the human species into an interplanetary civilization. In early 2021, SpaceX announced their intentions to settle in Texas and make use of the Boca Chica launch site as their headquarters

for carrying on the multiple activities needed to reach their objectives, even suggesting the possibility of building a whole city around it: Starbase, Texas.

Fig. 1. Starlink diagram.

Fig. 2. SpaceX's colony on Mars (3D Visualization).

Fig. 3. Elon Musk montage.



Playa Bagdad (Baghdad's Beach) has a unique rather eccentric name for a society culturally and geographically distant from Iraq. Its name was coined during the 19th century due to the resemblance between its characteristic dunes and the stereotypical representation of a middle eastern landscape. Despite this, they do share a remarkable factual connection: both places have been designated as Level 4 or *no-go zones* by the US Department of Homeland Security.

This classification system is part of the US citizens' travel guidance; only war-torn countries such as Syria, Afghanistan, Yemen, Iraq, and the northern Mexican state of Tamaulipas are recipients of this title. Tamaulipas—a state sharing a 230-mile border with Texas—has played a pivotal role in the ongoing war on drugs waged since 2006, which has spread a wave of radical violence leaving more than 300,000 casualties across Mexico. In this scenario, Tamaulipas' three main border towns—Nuevo Laredo, Reynosa, and Matamoros—stand as crucial operational sites for the smuggling industry. Continuous gangland clashes fuel violence as rival cartels and military forces remain in dispute for controlling a myriad of trafficking routes, some of them enabled by the North American Free Trade Agreement (NAFTA). The unprecedented crime levels in the state, particularly in the US-Mexico border area, have severely eroded the social thread and have caused an economic recession that is palpable in Tamaulipas' urban and rural topography.

More recently, in early July of 2021, the Federal Government made public the finding of half a ton of calcined human bones in the district of La Bartolina; only six miles away from Playa Bagdad and ten from the SpaceX launch site. The authorities made clear that the human remains may correspond to some of the approximately 11,000 *desaparecidos* (missing people) in Tamaulipas, allegedly victims of organized crime. They also declared that, most likely, more of these *centers of extermination* (as called by the media) could be spread throughout the area. The vast extension of La Bartolina and its proximity to Boca Chica makes it possible that debris produced by failed lift-offs will potentially land in the same fields where human remains lay still to be found, buried under the soil of the Tamaulipas eastern frontier. A highly intricate region will now host a techno-political spectacle displaying the distressing cultural encounters of modernity, where the past, present, and future collide.

This archeological and rather morbid scenario posits a straightforward correlation between a social order built upon ultraviolence and the monolithic presence of SpaceX, underlining in this way the notion of *gore capitalism* proposed by the Tijuana-born and raised philosopher Sayak Valencia, whose reinterpretation of the hegemonic global economy in borderlines confronts sublime notions of progress with regimes built upon necropolitics:

We take the term *gore* from a genre of films characterized by extreme, brutal violence. Thus, *gore capitalism* refers to the undisguised and unjustified bloodshed that is the price the Third World pays for adhering to the increasingly demanding logic of capitalism. It also refers to the many instances of dismembering and disembowelment, often tied up with organized crime, gender and the predatory uses of bodies. In general, this term posits these incredibly brutal kinds of violence as tools of necroempowerment. (Valencia 2018, 20)

Fig. 4. Mexican authorities at La Bartolina, Tamaulipas.



Fig. 5. SpaceX launcher debris found in the banks of the Rio Grande.



In 2014, a year before Obama’s administration ratified the Space Act —an agreement authorizing private investment in space exploration —the US Federal Aviation Administration (FAA) made public the *Environmental Impact Statement* (EIS) which evaluates the potential consequences that may result from the issuing of launch licenses and experimental permits to SpaceX. This declaration allows SpaceX to launch the Falcon 9 and Falcon Heavy spacecrafts, and a variety of smaller reusable suborbital launch vehicles from a launch site on privately-owned property in Boca Chica, Texas. Throughout the 400-page document, a concern that resonates regarding the operational details of the site, is the social and ecological detriment resulting from the exposure to the thunderous noise

produced by the launch vehicles' engines during lift-off. The sound emitted by a space shuttle oscillates between 135dB and 194dB, the maximum volume sound waves can reach when moving through the Earth's atmosphere. According to the Federal Interagency Committee on Aviation Noise (FICAN) and Partnership for Air Transportation Noise and Emissions Reduction<sup>1</sup> (PARTNER), sounds of this intensity have significant consequences in the biosphere, causing behavioral disorders in the wildlife and affecting migration patterns.

They also affect people in a variegated number of ways, which can be broken down into two general categories: auditory effects (hearing loss) and non-auditory effects (activity interference and physiological effects). Several studies conducted by PARTNER, examine a wide spectrum of manifestations derived from the exposure to the blast produced by sonic booms and other transient sounds, as well as longer exposure duration to continuous levels of harmful noise such as the ones produced during static fire tests,<sup>2</sup> lift-offs, and landing. Some of the investigation's main concerns include annoyance, speech interference, sleep interference and awakenings, effects on learning, and structural damage caused by inaudible low frequencies. The symptoms may represent neural entrainment, nausea, organ resonance effects, concussion and physical impact, or respiration inhibition. In his book *Sonic Warfare: Sound, Affect, and the Ecology of Fear*, Steve Goodman claims that as soon as volume exceeds 80db, blood pressure rises, the stomach and intestine operate more slowly, the pupils become larger, and the skin gets paler—no matter whether the noise is found pleasant, disruptive, or is not even consciously perceived.

The sound emitted by a spacecraft is conditioned to its payload capacity, which requires a specific engine set up to generate the thrust needed for lift-off. The EIS considers two different launchers, Falcon 9 and Falcon Heavy. Falcon 9 utilizes an array of 9 Merlin engines for taking into the low-earth orbit payloads up to 22,800 kg. Falcon Heavy is much larger, supporting a payload capacity of 68,000 kg that needs the thrust of 27 Merlin engines. According to the EIS data, the noise produced by the launches will reach a 135dB contour at its most critical point to then attenuate concentrically. Nonetheless, the proximity of the vertical launch allows sound waves with enough potency to affect the environment to move across the US-Mexico border into Playa Bagdad. The EIS treats the transboundary complexity of this situation in a usual reductionist manner connoting the unilateral interest of the power structures intrinsic to the US-Mexico border dynamics. This thread is clearly remarked when the EIS openly assures —mistakenly— that with the implementation of Google Earth, aerial imagery of the south of the US-Mexico border was reviewed<sup>3</sup> concluding that the closest population in Mexican territory is Matamoros, located approximately 20 miles southwest to the proposed vertical launch area. This statement is quite problematic in two ways. The first one calls attention to the political weight that Silicon Valley tech corporations, such as Google, have in “the reworking of planetary imaginaries informing cartographic systems

1. PARTNER: The Partnership for Air Transportation Noise and Emissions Reduction is an aviation cooperative research organization affiliated to the MIT (Massachusetts Institute of Technology) and NASA (National Aeronautics and Space Administration).

2. Starship static fire tests are planned to occur at the Boca Chica Launch Facility where 3 engines, that each generate 478 Lbs of thrust at sea level, will be fired for 60 seconds. [https://www.faa.gov/space/stakeholder\\_engagement/spacex\\_starship\\_media/Appendix\\_B\\_Noise\\_Assessment.pdf](https://www.faa.gov/space/stakeholder_engagement/spacex_starship_media/Appendix_B_Noise_Assessment.pdf)

3. Federal Aviation Administration Office of Commercial Space Transportation, Final Environmental Impact Statement SpaceX Texas Launch Site, Volume I, Executive Summary, Chapters 1-14 (Washington D.C., 2016, 3.3.4 Existing Conditions, p. 126) at [https://www.faa.gov/space/environmental/nepa\\_docs/spacex\\_texas\\_eis/](https://www.faa.gov/space/environmental/nepa_docs/spacex_texas_eis/) “Aerial imagery south of the U.S./Mexico border has been reviewed and the area was found to be unpopulated and undeveloped. The nearest city in Mexico (Matamoros) is approximately 20 miles southwest of the proposed vertical launch area.”

infused with the norms of the community that creates them” (Misseri 2016, 73). The second one regards the systemic and social implication of deliberately erasing Playa Bagdad from the map, who will be significantly affected by SpaceX’s noise pollution since it is located inside the bounds of the impact region delimited by the FAA, only 12 miles afar from Boca Chica’s launch site. This negligence underlines a subtle form of corporate colonialism that is not only about domination; but about altering the environmental conditions that make life possible.

In 2018, SpaceX started testing at the Boca Chica launch site the Starship SN prototype vehicles, which later on would become Starship/Super Heavy, a potent spacecraft that promises to be an iconic symbol of expansionism for those who dream about the human species as interplanetary. As the largest spacecraft ever built and with a payload capacity of 150,000 kg, Starship/Super Heavy is designed to perform long-range journeys such as Lunar and Mars missions, satellite payload tasks, and even future human flights beyond the orbit—a task only accomplished by NASA’s Saturn V. The massive size of the behemoth and the technical complications within it, raised concerns about the environmental impact during lift-offs, landings, and static fire tests among NGOs and members of the local communities. Imbued by the urgency of getting rid of any obstacle contesting the activity of SpaceX and motivated by the seductive idea of the US playing the settler role in the imminent industrialization of space, the FAA made public in September 2021, a draft of the *Programmatic Environmental Assessment* (PEA).

The prevalent narrow scope of a 150-page document that seems more like a poorly updated version of the *Environmental Impact Statement* (EIS) published in 2014, looks forward to validating the SpaceX Starship/Super Heavy Launch Vehicle Program at Boca Chica rather desperately. The report’s rhetoric relies on rephrasing opaque declarations that still remain blind to the transboundary consequences of a project in which acoustic energy will resonate not only in the form of sound but also as politics. According to the PEA, to generate the thrust needed, Starship/Super Heavy is expected to be equipped with 12 more Raptor engines than the Falcon Heavy launcher. During lift-off, landing, and static fire test, the 37-engine array will produce an intense sound that is expected, supposedly, to reach a maximum contour of 150dB.

Considering the similar characteristics in terms of size and payload capacity of Starship/Super Heavy and its predecessor Saturn V, the information provided by the PEA seems questionable. Recordings made during Saturn V’s lift-offs show a volume of 194dB; the extreme potency of a sound of this sort not only would blast off the ear-drums of any living being standing nearby but disintegrate its totality. Thus, the interaction resulting from the friction between the powerful sound waves traveling through the atmosphere produces high temperatures that stir up pressure to then represent as a mobilizing force. The PEA acknowledges that during lift-off and landing, a harmful 111-120dB contour will

extend into Tamaulipas; however, it seems to escape the fact that, besides affecting the body in several different ways, it could also cause structural damage in rudimentary settlements such as Playa Bagdad.

Fig. 6. Playa Bagdad, Tamaulipas (Mexico), 2021.



Likewise, the PEA states that in case a situation like this comes up, SpaceX would take full responsibility. This statement resonates like a false promise considering the narrow and biased scope of an infrastructural project that chooses not to see its transboundary impact, and that remains distant from a neighboring community that is poorly informed about the environmental and societal implications of the SpaceX agenda.

After conducting fieldwork in Playa Bagdad since 2019, I can confirm that neither SpaceX nor any Mexican authority has reached out to open a discussion about a detrimental situation that already has environmental consequences. In several field trips, community members have shared their experience of being exposed to the sound of SpaceX's launches, claiming that since the tests started, it is possible to observe how the wildlife behavior has been affected, primarily birds and terrestrial mammals. Fishermen say that whenever navigating offshore while a launch is being performed, the spacecraft rumbling noise mitigates the sound of the large outboard boat motors, fulfilling the ocean's vastness to create an eerie atmosphere of disorientation. However, the loud presence of SpaceX in the region will surely steer Playa Bagdad—a fishing community dependent on a biosphere that is now endangered—, in direction to reconfigure its economy as a sighting touristic destination from where to witness the frequent lift-offs persuading an industrialized outer space. The former equation draws attention to a historical scenario that underlines the US-Mexico border as a site for systemic experimentation that, with the rise of neoliberal politics, was subjected to a process of industrialization that permeates every aspect of society. Therefore, Playa Bagdad stands as a critical ground to think about the recursive implications of the emergence of an elitist economic zone mediated through geopolitical treaties delimitating abstract frontiers, only reachable for those with the

technological means to be part of a space club that is —literally— pushing for an international order of societal stratification.

In *The Art of Noises*, a futurist manifesto written by the Italian composer Luigi Russolo, when speaking about modern warfare, he states that there is no movement or activity that is not revealed by noise, i.e., “noise enables us to discern a marching patrol in deepest darkness, even to judge the number of men that compose it” (Goodman 2010, 40). The former statement perils into falling as a phenomenological tautology. However, it could also operate as a guideline to navigate the intersection of SpaceX’s sonic violence with Playa Bagdad’s complexities through the politics of sound. This encompasses the frictions between the local against the global, nature against technology, rudimentary improvisation against hi-tech design, and necropolitics against space exploration.

The cultural and economic tensions resulting from the SpaceX-Playa Bagdad axiom spotlight a community that is being politically neglected while also being subjected to a process of dislocation that intends to be neutralized by opaque jurisdictions promoting SpaceX as the main contender in a new space race. A new era distant from the space exploration program *Whole Earth Security* proposed by Arthur C. Clarke and Carl Sagan, which advocates for “civilizational progress through knowledge enlargement, consciousness-raising, and the republican agenda of power restraint in the interest of the many” (Deudney 2020, 227). On the contrary, the industrialization of space is currently being put together over the violent and seductive imperatives of capitalism, on top of hidden layers aiming at constituting telecommunication empires, a profitable asteroid mining industry, and space governance organisms through corporate coalitions protecting the interest of those with technological superiority, such as NewSpace.<sup>4</sup> The shortage of perspective demands to scrutinize history, looking at stimulating a political memory interweaving events where technological hegemony enhanced by international law have paved the way to settle and control what the colonial apparatus conceives as peripheral land —territories open to be rationally domesticated, planned, and re-engineered.

Such is the case of the Arianespace launch site at Kourou, in French Guiana. As the world’s first commercial space transportation company founded in 1980, hundreds of satellites owned by different nation-states, corporations, and scientific institutions have been taken into orbit through this spaceport. Arianespace is a private enterprise with solid ties to the French government, who, after more than 200 years, still has political control over a South American territory that once was utilized as a penal colony, and now designated as an *overseas department* that, ironically, hosts a crucial space center responding to the economic interest of France and the European Union.

In the ethnographic research *Space in the Tropics: From Convicts to Rockets*, Peter Redfield narrates his way through the city of Kourou and the Arianespace facilities. The investigation revolves around a cultural catharsis derived

4. “NewSpace is a global industry of private companies and entrepreneurs who primarily target commercial customers, are backed by risk capital seeking a return, and seek to profit from innovative products or services developed in or for space...” at <https://www.newspace.im>



from the co-existence of a highly advanced launch site within the bounds of a territory that has not been able to obtain its independence, yet still bears the wounds of a society subjugated through “the instituting of a penitentiary system as a strategy in which the action of moral reform could translate into a scheme of colonization” (Redfield 2000, 188). The penitentiary was located in a small piece of land called Devil’s Island, right in front of a complex aeronautic infrastructure with three different launching platforms corresponding to the Ariane 5, Soyuz, and Vega space vehicles. Forty years later, a similar scenario emerges when SpaceX—a private enterprise working hand-in-hand with an imperialist government looking forward to controlling an economic zone enabled by exclusive technologies—is putting together its operational headquarters in a territory hosting an intricate geopolitical conflict.

Moreover, Russolo frames ancient life mostly as silent, only interrupted occasionally by the intense sounds produced by the exceptional movements of the Earth’s crust, hurricanes, storms, avalanches, and waterfalls (Russolo 1913). According to Russolo, it was not until the 19th century that noise came to light, as a consequence of the invention of the machine—a notion he frames as a field of potential and resistance against a nostalgic version of the past. The outspoken Futurist’s adoration for modernity, machines, and their affiliation with a nationalist ideology that bloomed into Mussolini’s fascist regime, set the basis for undertaking a deconstruction process looking forward to decoding the political function of sound through a typological scheme, in which the binary categories of silence/noise relate to the culture/nature continuum. In this instance:

silence often connotes a conservative guise founded on devotion for a nostalgic return to a notion of nature liberated of the machinations of technology; whereas noise stands as any form of unorganized sound whatsoever with the capacity of impacting on thought, tradition, and the *status quo* (Goodman 2010, 318).

Following this line of thought, when analyzing the noise produced during lift-offs by launchers with a large payload capacity as Saturn V or Starship/Superheavy, stock recordings show the very same volume intensity than earthquakes and volcanic eruptions. The overtone of this association suggests a factual position in which technology, as we experience it today, has reached the power to represent—at least in the form of sound—as massive scale natural phenomena. The former glimpse of truth demands to take on a process of paradigmatic reconfiguration, looking after the urgency to come up with fresh models of planetarity, anticipating new ways of envisioning technology’s relationship with the environment. According to technology philosopher Lukas Likavčan, “planetary imagination is largely shaped by the infrastructure of space exploration” (Likavčan 2019, 10). If so, it is impossible to think of futurities ruled by equity, empathy, and justice

when space programs with such political leverage as SpaceX perpetuate questionable power dynamics down here on Earth, where it is possible to scrutinize their activity. Up there, they will be in the dark.

Fig. 7. Starship lift-off at Boca Chica (Texas, US), 2021.



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