

EXTREME WEATHER AND GLOBAL MEDIA

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DISASTER DATA, DATA ACTIVISM

Grassroots Responses to Representing Superstorm Sandy

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When Superstorm Sandy hit New York City on October 29, 2012, 43 people died,¹ 90,000 homes and businesses were flooded, and 2 million people were left without electricity.² In response, Congress allocated \$60 billion in federal aid to the region.³ These figures—43 dead, 2 million dark, \$60 billion allocated—paint a vivid picture of the storm's impacts. While these figures are not contested, grassroots groups—community-based organizations, volunteer first responders, activist groups, and some nonprofit organizations—use other data to portray a very different crisis from what Mayor Michael Bloomberg described as “the worst natural disaster ever to hit New York City.”⁴ Grassroots data-driven representations portray Superstorm Sandy not as an extreme weather event, but rather the exacerbation of a chronic crisis of poverty. A disproportionate number of residents most affected by Sandy deal with substandard housing, precarious employment, and unequal access to health care, financial aid, education, and other resources daily. As volunteers and media personnel flocked to these areas after the storm, residents saw an opportunity to highlight how Sandy heightened, rather than created, many local problems. Yet in the days and months after the storm, the captions and narratives accompanying images of public housing and food lines constantly figured the crisis as short-term devastation.

This chapter explores the role of media, particularly data, in the creation of “Two Sandys.” On the one hand, the representations created and circulated by New York City’s government, its elite institutions, large nongovernmental organizations (NGOs), and the mass media constructed Superstorm Sandy as a weather event that wreaked physical destruction but left the social fabric of the city relatively intact. On the other hand, grassroots organizations engaged, and continue to engage, in data collection campaigns that represent Sandy as a tipping point for a chronically stressed city enmeshed in an ongoing crisis.

In effect, grassroots groups are fighting a representational battle against state-sanctioned “ruin porn.” In the words of photographer John Patrick Leary, “ruin porn” is a genre of representation that:

aestheticizes poverty without inquiring of its origins, dramatizes spaces but never seeks out the people that inhabit and transform them, and romanticizes isolated acts of resistance without acknowledging the massive political and social forces aligned against the real transformation, and not just stubborn survival, of the city.⁵

Via countless photographs of a burned out Breezy Point and underwater streets, Sandy-related ruin porn makes some elements of crisis, usually infrastructural damage and death, hyper-visible, while simultaneously rendering others invisible, namely the social and political forces that engender uneven patterns of damage and recovery following extreme weather.

The notion of ruin porn is usually applied to photography or other visual media, but it applies equally to data collection and representational practices that emphasize sensational or episodic moments of destruction rather than the structural conditions that facilitate particular patterns of devastation. Both “big data” (too large to process traditionally) and “small data” (more “accessible” and “understandable” data sets)⁶ have become privileged mediators between knowledge and action; decisions about how to run public and private services, how to govern diverse populations, and how to manage large-scale environments are increasingly based on data, though the practice is hardly new.⁷ As such, “dramatic” data that highlight short-term damages reproduce the politics of ruin porn in policy decisions and other relief measures after disasters.

Scholars across the digital humanities, environmental humanities, science and technology studies, and media studies have pointed out why the representational politics of data sets, predictive models, algorithms, and big data matter. Interdisciplinary scholar Geoffrey Bowker writes,

if data are so central to our lives and our planet, then we need to understand just what they are and what they are doing. We are managing the planet and each other using data—and just getting more data on the problem is not necessarily going to help.⁸

Because data are a trusted form of knowledge acquisition upon which to base action, particularly in technocracies, data both describes and *builds* the world. This chapter is part of a larger turn in the critical humanities investigating the stakes and politics of the data imaginaries and practices that come to order the world and human interactions.

The stakes of achieving visibility for New York City’s ongoing crises of poverty and income inequality are high. The way that a problem is defined leads

to some modes of action and not others, both during acute crisis and in the long recovery after. Thus, defining the crisis in a certain way is activist work for grassroots organizations, but also for scholars—which means that I should be clear about my own relationship to defining disaster in a certain way. In the wake of Sandy, I co-founded the Superstorm Research Lab with nine other New York City scholars as a mutual aid research collective to investigate how a range of New Yorkers, including policy actors, leaders of civic institutions, first responders, and residents most affected by the storm, understood the impacts of Sandy so we could tie research to action. We collected data while simultaneously striving to reciprocate and cooperate with research subjects.⁹ As such, we were often participant observers in relief work, town hall meetings, and less official gatherings convened to share information and resources. All members of the Superstorm Research Lab conducted interviews, and we collectively wrote *A Tale of Two Sandys* that outlines the Two Sandy framework.¹⁰ Analysis of the data practices discussed here is my own.

This chapter begins by outlining the two competing understandings of crisis reflected in, and reinforced by, representations of Superstorm Sandy. Next, it describes grassroots groups' data-driven attempts to paint alternative pictures of Superstorm Sandy. It concludes with an analysis of what these tactics mean for critically engaging data-driven representations of disaster more generally, particularly as both extreme weather and the use of data to represent it become increasingly common.

A Tale of Two Sandys

The Superstorm Research Lab conducted an analysis of the discourses around Sandy in New York City and the Tri State area. A review of dozens of public reports and government statements, when combined with more than 80 interviews with key figures in government and civic institutions, first responders, and residents most affected by the storm, revealed that descriptions of the effects of Superstorm Sandy consistently clustered into two divergent discursive categories we analyze using a Two Sandys rubric.¹¹

The First Sandy

New York City's government, its elite institutions, and large NGOs tend to frame the disaster as a discrete, extreme weather event that created structural and economic damage, temporarily moving New York City away from its status as a stable financial and cultural center.¹² The bulk of the city and state government's substantial long-term planning efforts for post-Sandy reconstruction have therefore focused on returning to and safeguarding the city's social and economic status quo. This narrative, dominant in the mass media and government reports, we term the First Sandy. Government interviewees consistently differentiated

between struggles properly belonging to the storm and those belonging to poverty.

The data collected by official government institutions support the story line of the First Sandy. For example, New York City's complaint hotline, 311, is structured to collect problems with infrastructure (heating, downed trees, plumbing, construction, and the like). It makes sense, then, that the Sandy-related calls made to 311 dealt with these sorts of issues. But because the city used its record of 311 calls to understand "what happened,"¹³ an infrastructural bias was built into the city's emerging narrative of the storm.¹⁴ Other data used in government reports at local and federal levels include photographic aerial images of fire-damaged homes and flood zones, maps of water levels and power outages, and the quantity or location of people who applied for FEMA aid (as a proxy for the number of properties sustaining flood damage). Each of these official data sets start in late October 2012 and end days or months after the storm. Each presents the storm's damage as primarily infrastructural and something that occurred immediately in the wake of an extreme weather event.

These representations of Superstorm Sandy are dominant to the point of ubiquity. They are available in public government reports, the mainstream media, and are easily retrieved online. The omnipresence of these representations means that the First Sandy is, for the most part, the only definition of the disaster being used in policy, aid, and long-term planning. Gathering and circulating data on infrastructure and weather-related damage is not in and of itself a problem, especially given that the City of New York bears responsibility for dealing with fallen trees and the federal government for mapping flood zones. It makes sense to use data to monitor and carry out government obligations. Yet a problem arises when infrastructure, short-term time scales, and business as usual become the sole frameworks for identifying and resolving crises.

The Second Sandy

Grassroots organizations, including affected residents, volunteer first responders, and community-based organizations, have offered another framework that emphasizes the unequal distribution of wealth as the root of the crises laid bare by Sandy. These groups speak about ongoing, unequal social and economic conditions in place before the storm and exacerbated afterwards, including poverty, lack of affordable housing and property, precarious or low employment, and unequal access to such resources as health care and education. We call this New York City's Second Sandy.

The Alliance for a Just Rebuilding, a coalition of faith groups, labor unions, community groups, and policy and environmental organizations, have identified the crises following Sandy in terms of uneven impact, noting: "communities of the poorest homeowners and renters, areas also with the fewest resources in food, transportation, and health care, were left without a foothold from which to

recover.”¹⁵ Their 2013 report, *Turning the Tide*, outlines recovery in terms of good jobs, affordable housing, renewable energy, accessible health care, and community consultation in future planning. The report’s statistics are often garnered from government sources, but are marshaled to focus on relative rates of poverty, job standards, and energy costs. The report’s authors ask what a return to the status quo means if business as usual involves crisis conditions. Their representations of Sandy as a punctuation mark in a longer social and material crisis thus point toward forms of recovery that address systemic, rather than technical or infrastructural, problems.

Growing out of a coalition of activist and community groups, including but not limited to Occupy Wall Street, Occupy Sandy coordinated the largest relief effort in New York City’s history, mobilizing over 60,000 volunteers,¹⁶ more than four times the number deployed by the Red Cross.¹⁷ Given that the wider Occupy movement was concerned with the causes and results of wealth inequity in the United States, it is not surprising that many volunteers within Occupy Sandy were predisposed to understand their experiences of disaster relief work in terms of poverty. A number of Occupy Sandy volunteers interviewed by the Superstorm Research Lab spoke about the moment they realized that the crisis was not caused by weather:

[By December], we were dealing with poverty, not post-crisis scenarios. It wasn’t about the fact that it was a post-crisis—it was that people have been poor in these areas and will continue to be and so they’re going to come get stuff [from the relief hubs]. And it stopped being about meeting the needs of the storm.

Other volunteers spoke of their experiences in public housing and the realization that a return to “normal” entailed “60,000 people living in high-rise housing projects without adequate services like health care services or sanitation services or clean water because the [pipes are] shitty.” At the time of this writing, nearly three years after Sandy hit, Occupy Sandy continues to support recovery work in affected neighborhoods.

Occupy Sandy and other grassroots organizations work to “unweather” Sandy, to move it away from a weather-based event and toward an incident that exacerbated and made preexisting crises more apparent. Many interviewees understood Sandy as a force for representation, in which the weather event made invisible conditions visible. A resident and board member of a community-based organization in Red Hook, which became one of the neighborhood’s main relief hubs, for example, referred to the storm as a “lens”:

The obvious thing to say about the storm in low-income communities like Red Hook is that it was this very graphic, sped-up lens into the kind of grinding need that’s always here. People in Red Hook always need jobs.

There’s always income insecurity. There’s always crappy food supply, lousy schools, no good public transportation *daily*, right? All those things got really magnified during the storm, and there was a lot of attention on addressing them in the short-term. In the long-term there’s still no high school in the neighborhood. People don’t have jobs. There are still a lot of people living in poverty in Red Hook.

Thus, many residents of the areas hit hardest by Sandy were already familiar with slow-moving disasters in their neighborhood. Slow disasters are crises that are chronic, that gather “force slowly and insidiously, creeping around one’s defenses rather than smashing through them.”¹⁸ They are “slow-moving and attritional, rather than explosive and spectacular.”¹⁹ Many grassroots groups have made the visibility of local, insidious, unspectacular slow disasters their post-Sandy goal.

A Move to Data

“Theatres of proof” is a term coined by science and technology scholar Bruno Latour to describe representations that render a complex phenomenon immediately apparent, that enable an audience to understand an entire situation all at once.²⁰ Similarly, former Greenpeace director Robert Hunter refers to “mind bombs,” image events that explode “in the public’s consciousness to transform the way people view their world.”²¹ Such terms are part of a long legacy of the notion that seeing a problem in a certain way can launch action; media scholars from Jane Gaines (film studies) to Dean Deluca (visual culture) have been theorizing the links between representation and action for decades.²²

This is precisely what grassroots activists have in mind in when they use Sandy as a means to visualize New York City’s ongoing problems. One community leader explicitly connected the experiences of disaster-relief volunteers witnessing poverty in low-income areas to political action at the municipal level:

I mean there’ve just *literally* been a lot more government agencies, foundations, philanthropists, individuals walking through the neighborhood of Red Hook than ever before. [. . .] I just feel like we have had more middle-class bodies in low-income homes than ever before, and so what happens with that experience? You know is there a sort of way to turn that moment of compassion into some more ongoing quest for justice or commitment to justice? The mechanics of that are unclear to me, but again, in an optimistic moment I think that’s an opportunity that is probably slipping away.

If Superstorm Sandy offered a view into usually invisible problems of poverty and slow disaster, the problem for activists became keeping that glimpse alive, to create “theaters of proof” and “mind bombs” to bring these issues into public forums that might stimulate equitable post-Sandy policy.

Activists face at least two challenges in attaining this goal. First, the very ubiquity of the First Sandy narrative supported by “ruin porn” and its data equivalents—number of properties destroyed, monetary assessments of damage, and the unprecedented spatial extent of flooding—crowds out alternative narratives of crisis. Secondly, Second Sandy is less photogenic and, indeed, often invisible. Because “theatres of proof” and “mind bombs” are potent forms of visual communication, activists have to figure out how to achieve similar results—combining charismatic evidence with action—deploying less visual phenomena.

Given these challenges, grassroots organizations have turned to data as a representational medium. In much the same way that photography was conceptualized, and later problematized, as a documentary “pencil of nature” in the early twentieth century,²³ governments, the popular press, and other public actors have often conceived of data and databases as offering a tight, even seamless, relationship between reality and representation.²⁴ In the popular data imaginary, data are often conflated with facts.²⁵ This data imaginary makes data a powerful, often incontestable way of representing the world, and an obvious choice for activists who feel shut out of a disaster narrative of epic but short-term destruction.

Grassroots organizers, however, are not alone in their turn toward data. Despite a diversity of professional, political, and organizational points of view, relief organizers from across the political spectrum, from the New York City Mayor’s office to Occupy Sandy, share this data imaginary. Almost all involved in relief work framed data as a primary way to understand Superstorm Sandy’s effects and identify appropriate post-Sandy actions. Interviewees spoke of how data could “slowly build a picture through information” or how “data . . . could most immediately characterize the extent of what was going on, could point at things.” Consistently, people said that data, particularly survey data gathered on the ground, was an ideal, fine-grained means through which to represent the impact of Superstorm Sandy and on which to base future action. This shared belief allows data to circulate as a privileged form of information.

The social imaginary of data characterizes it as something that can make the invisible visible. The promise of Big Data is premised on this belief; through larger and ever more detailed data sets of mundane, everyday interactions, otherwise invisible patterns can become apparent and predictable.²⁶ Data is thought to offer new vistas, “allow[ing] people to see and measure things as never before.”²⁷ In other words, data is a construed representational medium that offers a uniquely objective view into invisible “truths.” Thus, it is *because* the municipal and state governments use and trust data as something that reveals otherwise imperceptible truths that the medium is particularly well-suited to the needs of grassroots organizations working to reveal the Second Sandy to public and policy audiences. Quantitative data based on surveys has been central to nearly every report on Sandy produced by grassroots organizations, from Alliance to a Just Rebuilding to Make the Road New York.²⁸

Grassroots Data Strategies

This section looks at two data-driven representational tactics used by grassroots organizations in their efforts to introduce the Second Sandy into public discourse and decision making. These include expanding the data set to include things relevant to chronic disasters and changing data aggregation practices to account for missing data *as* data. Both tactics highlight what media historians Lisa Gitelman and Daniel Rosenberg call the rhetorical nature of data:

Data by definition are “that which is given prior to argument,” given in order to provide a rhetorical basis. (Facts are facts—that is, they are true by dint of being factual—but data can be good or bad, better or worse, incomplete and insufficient.) Yet precisely because data stand as a given, they can be taken to construct a model sufficient unto itself: given certain data certain conclusions may be proven or argued to follow. Given other data, one would come to different arguments and conclusions.²⁹

The capacity for data to inform, persuade, or motivate an audience is a relatively new strain of critical inquiry that responds directly to the data imaginary that sees data as an objective way to represent reality. Lev Manovich was one of the earliest media scholars to analyze databases as a technology of representation.³⁰ Responding to his work, recent scholarship has focused on how databases harbor interpretive, ordering frameworks that root them in preexisting narratives. In *Raw Data Is an Oxymoron*, Gitelman cautions that “data need to be imagined as data to exist and function as such, and the imagination of data entails an interpretive base.” Thus, data always already “harbor the interpretive structures of their own imagining.”³¹ The data schema—fields, programming language, relationships between fields—is a blueprint that determines what information enters the database and what will not, what can make sense, and what can be compared. The basis of grassroots data activism is to persuasively tell the story of the Second Sandy through various data practices.

The Longue Durée: Expanding the Temporal Range of Data

For data, the link between information and action is strong: what is not in the database is not managed. As such, most critiques of data focus on the politics of inclusion and exclusion.³² For example, one of the main methods of data collection after a disaster is canvassing: the use of door-to-door surveys that use a standardized form to ask residents questions. A group of people within a given organization—here, Occupy Sandy, Alliance for a Just Rebuilding, or Global Dirt, the organization contracted by the municipal government—prepare queries based on what they think is important to know about a crisis in order to take appropriate action. A database already contains specific concepts of disaster

and relief even before the first field is created. Consider two telling examples: Occupy Sandy asked whether residents needed legal aid to deal with delinquent landlords, while the City of New York did not.³³ The City of New York asked why people did not evacuate, while Occupy Sandy did not.³⁴ These questions emphasize different concepts of disaster and crisis and suggest differing sets of appropriate responses. Things that do not make sense in a given organization's disaster narrative do not appear in its form, and thus cannot inform action.

Depending on the responsibilities of the institution collecting data, government information dates from the days or hours before the storm, and ends days or months later. For example, in January 2013, nearly three months after Sandy made landfall, the City of New York contracted a door-to-door survey "to help understand why people in Coastal Storm Plan Evacuation Zone A chose to evacuate (or not)."³⁵ Evacuation Zone A is based on the Federal Emergency Management Agency's (FEMA) flood maps that chart the lowest-lying areas of New York City, including the areas hit hardest by Sandy (though the storm surge exceeded Zone A and affected Gerritsen Beach, Howard Beach, and East Williamsburg in Zone B).

Among other things, the City of New York survey asked, "How long did you stay away from your home?" Response options included less than 12 hours (2%), 12–24 hours (9%), 24–36 hours (4%), 36–48 hours (7%), more than 48 hours (67%), still away (5%), and don't know or refused (5%).³⁶ The fact that a strong majority of responses selected the longest time frame, with single-digit responses to the shorter time period, suggests that the creators of the survey imagined shorter crisis periods than actually occurred. This survey cannot capture the long-term experience of displacement or damage, which goes unrecorded in its official data-based picture of the storm.

In contrast, a grassroots report released a year-and-a-half after Sandy's landfall, *Weathering the Storm: Rebuilding a More Resilient New York City Housing Authority Post-Sandy*,³⁷ uses data to represent Sandy as a punctuation mark in a much longer crisis. The report is authored by a coalition of community-based organizations (CBOs) and NGOs, including The Alliance for a Just Rebuilding (ALIGN), Community Development Project at the Urban Justice Center, Community Voices Heard, Faith in New York, Families United for Racial and Economic Equality, Good Old Lower East Side, Red Hook Initiative, and New York Communities for Change. Some of these groups formed specifically in response to Superstorm Sandy, whereas others are long-standing organizations whose missions did not include disaster relief and recovery until Sandy hit New York City. Many of the latter were already involved in redressing the slow disasters occurring in New York; after Sandy, they came to adopt rhetoric more aligned with acute disaster relief while managing nearly identical problems to those they addressed before the storm.

Over 80,000 New Yorkers living in publically subsidized apartments in more than 400 New York City Housing Authority (NYCHA) buildings lost essential services, including electricity and heat, when Sandy struck. To make the case that

Sandy only exacerbated preexisting crises, the coalition asked 597 NYCHA residents about their living conditions before and after Sandy. They found that over half of respondents had housing repair needs before Sandy; just under half required new repairs as a result of the storm. For example, 34% of respondents had mold before the storm, even though the mass media often describes mold as a widespread problem that followed, rather than preceded, Sandy. Only 10% of respondents had mold after Sandy but not before. And in fact, two open-ended questions on the survey about needed repairs before and after the storm revealed that two additional repair needs commonly associated with Sandy (dysfunctional elevators and leaks) preexisted the storm (see fig. 6.1).³⁸ More than three-quarters of respondents said that Sandy had not caused an acceleration in repair rates; almost two-thirds reported that they were told repairs would take more than six months. Over and

Top Repair Needs BEFORE and AFTER Sandy

Top APARTMENT repair needs

BEFORE SANDY	AFTER SANDY
Painting/Plaster	Mold
Mold	Painting
Bathroom	Leaks
Appliance	Walls
Leaks	

Top BUILDING repair needs

BEFORE SANDY	AFTER SANDY
Elevators	Elevators
Cleaning needs	Roof
Painting	Pests
Leaks	Paint
Walls	Mold

Top GROUNDS repair needs

BEFORE SANDY	AFTER SANDY
Cleaning needs	Mold
Pests	Cleaning needs,
Waste	trees
Playground/ park repairs	Pests
Lights	Playground/ park repairs

FIGURE 6.1 This graphic shows the results of open-ended questions about what repair needs existed within and outside of NYCHA apartments before and after Sandy.

Source: *Weathering the Storm*. Design by Manuel Miranda.

over, the report documents acute needs before the storm, a slight increase in those needs afterwards, and an ongoing lack of action on the part of the City.

Rather than framing Sandy as the causal force of infrastructural devastation, the coalition's report makes the Second Sandy visible by gathering data from the *longue durée*. By expanding the time frame for information on infrastructural damage, the report assigns such damage to long-term patterns in New York City housing services rather than to the storm. The practice of collecting data to show longer temporal patterns on either side of a disaster event answers the call made by critical geographers Juergen Weichselgartner and Ilan Kelman to use pre-disaster baseline data about a community's vulnerability to disaster to make plans and metrics for community resilience.³⁹ This data almost never exists. The Red Cross's definition of vulnerability is the "diminished capacity of an individual or group to anticipate, cope with, resist, and recover from the impact of a natural or human-made hazard,"⁴⁰ while resilience is usually understood as the ability of groups or individuals to "bounce back" from disaster and resume a normal lifestyle.⁴¹ Slow disasters such as poverty, precarious employment or unemployment, and decrepit housing lead to greater vulnerability and lower resilience in acute disaster events like hurricanes.

Thus, looking at the *longue durée* changes the relationship between acute extreme weather events and slow disasters. From this perspective, the weather event becomes a tipping point in a chronic crisis. Vulnerability and resilience are not only measures of the capacity for a group of people to "bounce back" from adversity, but a metric that can indicate a slow disaster already in progress. In short, a combination of high vulnerability and low resilience *is* a disaster. According to the framework of the Second Sandy, alleviating wealth inequality and keeping public housing in good repair would be a step toward increasing resilience, and thus preparing for the next acute weather event.

Missing Data as Data: A Different Aggregation

When interviewees in both governing and grassroots organizations speak of their desire to "slowly build a picture through information" and how "data . . . [can] most immediately characterize the extent of what was going on, could point at things," their assertions are premised on the ability of information to scale up from individual observations—data points—to a bigger, statistical picture. Yet, the methods that allow this shift in scale are challenged by disaster conditions, and particularly by missing information that invariably makes disaster data patchy.

Patchiness, incompleteness, and mess define disaster data. This holds even for automated data collection systems such as Four Square or Twitter whose servers are not local and thus seemingly safe from New York City waters in flood conditions. Yet, user infrastructure such as phones and laptops *are* affected by local disaster conditions, and so while Four Square and Twitter continue to

collect data, the data is uneven in accordance with conditions for local users. As an illustration, a group of geographers who specialize in analyzing geo-coded online data like Instagram photographs and Google placemarks mapped tweets in New York City during and immediately following Superstorm Sandy. They found that

when zooming in on the urban scale, the location and density of tweets does not necessarily correlate with areas most effected by Sandy. [. . .] Sandy appears to have been tweeted from the—relatively—safe confines of the home, as opposed to the many locations throughout the city which were hard hit, but [are] relatively unrepresented in this virtual representation.⁴²

People in hard hit areas that usually tweeted weren't tweeting, even if they wanted to, because the storm wiped out cellular phone service and electricity. This leaves researchers who use Twitter to map the storm with data points that skirt the disaster. Likewise, even though on-the-ground collection methods such as canvassing occur exclusively in affected locations, data is incomplete. A city official spoke about the messiness of her data-driven needs assessments: "There were a lot of unknowns there and a lot of duplication of data and a lot of information being collected but wasn't being funneled into the proper cells on the spread sheet. [Laughter] It was chaos." Similarly, an Occupy Sandy "data steward" (the name given to tech-savvy volunteers who transferred information on paper canvassing forms into data in databases) said that in the days after the storm "we just lost a lot of data." Saving slips of paper, collecting and maintaining surveys after their purpose had been met, keeping sticky notes attached to forms, and drying wet paper are not priorities in disaster zones. Of the information that was saved, the steward lamented that it "is so spotty it hasn't even really occurred to us to examine it kind of holistically and to look at it as a data set. We're really looking at it as individual cases." That is, it remains information rather than data.

Missing and incomplete data, whether collected by government agencies or grassroots organizations through canvassing, tweets, or other methods, is not the result of mistakes per se, but is rather exactly the type of data that extreme weather produces. Extreme weather disrupts infrastructure, as the First Sandy narrative aptly points out. A lack of electricity, wet field conditions, inaccessible neighborhoods, and ever-shifting populations of residents and volunteers were only some of the problems faced by post-Sandy canvassers in both grassroots and government efforts.⁴³

Because data is, by definition, standardized and aggregated, the unevenness of information collected in disasters presents an acute challenge to its interpretation. For example, the ability of individual data points to aggregate into statistical trends—to coalesce from discrete observations into a bigger picture—is

premised on the ability of the data captured to mirror the population under study. Such representability is usually achieved through sampling, a technique designed to ensure that a subset of individuals reflect the characteristics of the whole population. This can be difficult during disaster, as the nature of the “whole population” in a disaster zone is often unknown. The spatial distributions of populations constantly clump and shift in unexpected, and even untraceable, ways after disasters.⁴⁴ Some neighborhoods evacuate entirely, while some residents stay and even perhaps have multiple families and neighbors suddenly staying in their house or apartment.

Municipal government and grassroots organizations dealt with data aggregation differently. Contractors working for the City of New York surveyed between 40,000 and 69,000 households in January 2013.⁴⁵ Yet the aggregated survey data published as an appendix to the *After Action Report* has a sample size of only 509 residents. This difference may be accounted for by the report’s sampling technique: “The survey weighed responses by borough, age, and other demographic factors to develop a survey population that was truly representative of residents in Zone A.”⁴⁶ Statisticians usually use a stratified sample when the characteristics of the population are known in advance (how many people of a certain age, religion, income level, gender, and so on, often derived from census data); the goal of the sampling is to reproduce those characteristics on a smaller scale. Yet, groups in a disaster zone are not indicative of an “average,” predisaster population.⁴⁷ Some individuals within a population are more likely to evacuate, to answer the door, and to live in accessible areas than others. Stratified sampling methods that reproduce demographics based on census data may make certain populations disappear by reconfiguring postdisaster populations as predisaster populations.

According to *Weathering the Storm*, this is exactly what happened with the city’s data. The methodology section of the grassroots survey of NYCHA residents discussed above states that all surveys conducted are included in the sample, as it “is not intended to be a representative sample [obtained by sampling techniques] of public housing residents but rather offers an important snapshot of the public housing communities most impacted by Sandy.” The authors call this an “on-the-ground perspective that is missing from many other studies about NYCHA and Hurricane Sandy.”⁴⁸ This snapshot, effectively a recording of who answered doors during canvassing,⁴⁹ shows a marked difference between populations captured in the surveys (see fig. 6.2).⁵⁰

The survey demographics capture a snapshot of who resides in public housing in postdisaster conditions: predominantly women, African Americans, and larger families with children. The Rockaways contained the largest gap between those remaining in the area post-Sandy compared to census data of the same area: 88% of those surveyed were female, compared to 53% in census data, and 80% were African American, compared to 39% in census data. This supports other research findings that disaster populations tend to be predominantly vulnerable

Demographics of Survey Respondents⁵¹



FIGURE 6.2 This graphic compares official census data (in black) to the demographics of 597 survey respondents in NYCHA housing (in white) across Sandy-affected areas. Source: *Weathering the Storm*. Design by Manuel Miranda.

populations, not average populations.⁵¹ Data aggregation through random and stratified sampling misses, and even erases, this picture. The difference between the survey numbers and the census numbers would be the population that has to be removed from the survey to make a “proper” stratified sample such as the one represented in the City’s *After Action Report*.

At first glance, it might seem that I am referring to two different types of patchiness: first, the absence of data reflected in the geographic distribution of tweets and the information lost through chaotic conditions; and second, the clumping of postdisaster populations into unpredictable patterns. Yet, through the City’s collection and aggregation practices, the latter becomes the former; “representational” data sampling results in missing data. Thus, telling the story of the Second Sandy is not just a struggle against dominant images of ruin porn, but also against the erasure of vulnerable populations through data norms. Just as an area of absent tweets can potentially show the contours of power outages and evacuations, *Weathering the Storm* endeavors to make absence, patchiness, and uneven populations apparent as a manifestation of disaster rather than as a representational hurdle to be overcome and smoothed away through statistical sampling.⁵² It shows what is otherwise absent from the official archive.

Conclusion

While the Two Sandys are distinct narratives that usually align with either governing or grassroots conceptions of crisis, individuals or groups can subscribe to aspects of both narratives. Some government employees, for instance, advocated for targeted services for such vulnerable populations as immigrants because of chronic and systemic hardships. Both types of groups worked together on the ground in Sandy's aftermath, regardless of their overarching definitions of disaster. A New York state official spoke about how, "Institutionally, OEM, FEMA, all of these organizations had to step in and get their working orders from Occupy Sandy relief because they were the ones there on the ground." An Occupy Sandy organizer recalled, "in the first few weeks things started to get weird when FEMA was approaching us and all of a sudden we're building things together." Moreover, Occupy Sandy rarely, if ever, worked alone, and collaborated with and was housed within various community organizations.

However, these collaborations did not often extend to data collection. City, state, and federal emergency officials considered data that was not produced by the city or government suspect, even as the official response relied on grassroots groups' local knowledge. A city employee recounted how nonofficial data was dismissed out of hand: "because [a housing damage assessment prepared by a research NGO] was not from OEM [Office of Emergency Management], people were sort of like, 'Is this official from the city?' And it was like, 'It's real!' So basically we had one estimate that was obviously very good, but we also had people who were not going to pay attention to data that didn't come from DOB [Department of Buildings]." While top-down and bottom-up organizations collaborated on the ground, the groups rarely shared data, much to the frustration of first responders working for grassroots organizations and relief hubs.

In the months after the storm while triage was still in full swing, representatives from both grassroots and official agencies began discussing ways to formalize collaborative relationships through reliable data infrastructures to obtain a clearer, bigger, shared picture of needs on the ground. Grassroots groups and survivors speak of a "common core data set," a large-scale, open, agreed-upon set of survey questions that would be asked regardless of the group conducting the canvassing. They believe the data would then address the needs and interests of a diversity of relief efforts, including both the official response and grassroots efforts. In its September 2013 report celebrating the work of Occupy Sandy, the Department of Homeland Security advocated for such a shared community-government database:

On a spectrum of response, with federal government at one extreme and neighbor-helping-neighbor at the other extreme, situational awareness becomes more problematic as one moves away from the traditional government entities and towards [sic] the individual. A collaborative system,

such as a web and smart phone based platform, would enable coordination and shared situational awareness. Theoretically, it appears that this tool could exist without the hierarchical oversight and structure, which some have referred to as "command and control." It is technologically feasible to create such a tool.⁵³

In this data imaginary, collaboration and a reliable data schema would eschew hierarchy and allow different partners to add to the same picture of a disaster, making it bigger, more complete, more detailed, and synoptic, and thus more reliable as a basis for action.

While members of both government and grassroots organizations have brought up issues of trust, privacy, expertise, and coordination as challenges for such a plan, neither has asked how two different notions of disaster—the Two Sandys problem—would coexist in the same database. The Homeland Security report implies that the federal government would design the database in its standard top-down operating mode and community members would be invited into it, meaning the First Sandy would serve as the interpretive structure underlying the shared infrastructure. As such, it is unlikely that interrogations of the Two Sandy problem would make it into the Homeland Security version of the shared data set.

If a top-down but shared common data set premised on the First Sandy existed, could the Second Sandy still be found in the data? There is some evidence that this is possible. In 2007, a community group experiencing a slow disaster via acute environmental contamination in Mossville, Louisiana, used data from the same government that failed to protect its citizens to create its own report making a persuasive case against local industrial pollution.⁵⁴ That is, the same data points were reorganized according to a different interpretive framework. This reframing occurred through the addition of other forms of data, including personal and historical narratives, maps, and graphic visualizations that added new sources or sites of comparison; the government data did not stand on its own. Likewise, *Weathering the Storm* used government-obtained census data to make its case about which vulnerable populations remained in post-Sandy disaster zones. While these examples show that preexisting data can be reinterpreted to serve narratives and politics unanticipated in their collection, they do so *only* in juxtaposition with data stemming from new interpretive structures. Thus, while the shared collaborative database imaged by Homeland Security or the core data set discussed by community organizations would increase access to information, it will not give a "clearer picture" of a disaster. It cannot produce a single Sandy that all parties agree represents realities on the ground. There is no "raw" data or "neutral" data collection that can bridge the gap between divergent concepts of disaster and recovery. A single common data set may not only omit questions or populations of interest to grassroots efforts, but may also obfuscate larger debates about power and representation that undergird all portrayals of extreme weather and disaster.

The data imaginary not only promises that “people [can] see and measure things as never before,” but that “decisions [can] be based on data and analysis rather than on experience and intuition.”⁵⁵ As such, data is a representational tool more easily brought into large-scale management and policy decisions compared to other forms of evidence. *Weathering the Storm* and dozens of other public reports, documentaries, and white papers attempt to bring the Second Sandy into dominant discourses so that post-Sandy initiatives can target problems of poverty and uneven vulnerability as more than the results of an isolated weather event. The purposive use of data is just one tactic in this wider strategy.

Notes

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7

MANGOES AND MONSOONS

South Asian Media Coverage of Environmental Spectacles

Sujata Moorti

After five years of robust economic growth and increasing visibility as a global technological hub, in 2004 India launched the India Shining global public relations campaign. Working in conjunction with an advertising agency, the Indian government, headed by the then-ruling Bharatiya Janata Party (BJP), settled on the glossy \$20 million program to showcase national technological strength, military prowess, and economic momentum. In a series of multimedia advertisements and SMS blasts, India Shining offered a vibrant, cheerful vision of the nation.¹ With its sleek images of happy young women, beaming elderly men, and vivacious children, the campaign decisively signaled contemporary India's social and economic aspirations. Notably all of the images, in their color choices and overall design, thematized the tricolor national flag.² The BJP intended the India Shining slogan to encapsulate what it assumed was an emergent structure of feeling: an optimism about the country's growth trajectory and a "sense of health, prosperity, and radiance."³ Technically, India Shining was not a political campaign, but the BJP hoped the achievements showcased in its advertisements would be attributed to its policies and seal the party's victory in the ensuing national elections.

Since its inception, the term "India Shining" has become shorthand for a specific kind of aspirational discourse. It hones in on recent achievements by Indians in the information and technology industries (both inside and outside the nation) and selectively highlights key economic indicators to present a feel-good story to citizen-subjects. The campaign ignores the ugly persistence of poverty, inequality, and illiteracy, hailing the viewer as a consumer-subject and offering no explanation of how and why India is shining.⁴ There are several other aspects of the campaign that merit underlining: young women and children predominate in this visualizing of the nation (see fig. 7.1). When men appear they are elderly, and contented