

# Introduction

Fission split the atom: the rupture of historical space-time was inseparable from the rupture of the components of matter itself.

—Gabrielle Hecht, “L’Empire nucléaire: les silences des ‘Trente Glorieuses’”

Fine art and popular media alike can, at their best, be far more than symptoms of their age. They can voice its contradictions in ways few more self-conscious activities do, because both want to appeal directly to the senses, the emotions and the tastes of the hour, because both will sacrifice linear reason for rhetoric or affect, and because both have the option of abandoning the given world in favor of the image of something other than what, otherwise, we might feel we had no choice but to inhabit.

—Sean Cubitt, *Eco Media*<sup>1</sup>



**I**N *TOKYO FIANCÉE*, THE 2015 filmic adaptation of Amélie Nothomb’s novel *Ni d’Ève ni d’Adam* (2007), the real events of the March 2011 earthquake, tsunami, and nuclear disaster in Japan serve as a *deus ex machina*, bringing the narrative arc of the film to a swift if not entirely unexpected conclusion.<sup>2</sup> Director Stefan Liberski had been shooting in Japan during the triple disaster, which delayed filming for two years. Affected by these events, Liberski asked Nothomb’s permission to integrate them into his film.<sup>3</sup> *Tokyo fiancée* is thus a film interrupted by the real-life triple disaster in Japan, an interruption that significantly diverges from the narrative of Nothomb’s

novel: a woman who chose to leave Japan for personal reasons in the novel becomes in the film a woman compelled to leave because of an uncertain and ongoing nuclear disaster. The real-life nuclear disaster in a sense finished the adaptation that Liberski had begun and crossed an already uncertain boundary between fiction and what Sean Cubitt calls the “given world” we inhabit, or between diegetic and sociopolitical worlds.

Post-Fukushima filmic representations of Japan may be no less able to ignore the events of 3.11 than post-9/11 representations of New York were able to ignore those of September 11. As Gabrielle Hecht argues, the splitting of the atom had consequences well beyond the realms of technoscience and national defense; nuclear fission changed not only the rules of war and the course of history but also the cultural climate and everyday life within it. Since the first nuclear explosions—the Trinity test on July 16, 1945, and the atomic bombings of Hiroshima and Nagasaki a few weeks later on August 6 and 9—and the subsequent spate of cinematic nuclear narratives spanning genres from science fiction and monster movies to melodrama and noir, film has been a prime medium for the visualization of cultural and affective changes ignited by nuclear fission.<sup>4</sup> Serving as more than mere “symptoms of their age,” as the epigraph from Cubitt proposes, these films also “voice its contradictions,” “appeal directly to the senses, the emotions and the tastes of the hour,” and allow for the imagination of other possible worlds.

While Hollywood has long dominated the production of nuclear movies and considerable scholarship has been devoted to American nuclear cinema, nuclear weapon states such as France and the United Kingdom and nuclear victims such as Japan have also produced a significant number of nuclear-themed films since the 1950s.<sup>5</sup> This book analyzes several French, Japanese, and Franco-Japanese films that engage with nuclear issues in a rather different way than Hollywood has; shifting the focus from monsters and mushroom clouds, these films explore the everyday effects of nuclear disaster on our lived experience of space and time. In this study, I articulate a different kind of nuclear cinema, a cinema of the nuclear mundane that emphasizes the specter or ongoing effects of atomic destruction and its reconfiguration of our experience of space and time.<sup>6</sup>

Nuclear films made outside of Hollywood share relative budgetary limitations but are often made with greater narrative and aesthetic freedom.<sup>7</sup> Nuclear films from France and Japan in particular stand

out for a few reasons, not least of which are the strength of French and Japanese national cinemas and nuclear power industries. With the fourth largest nuclear weapon arsenal, France is currently the world's most nuclearized country in terms of energy, and before the nuclear disaster at Fukushima Daiichi in 2011, Japan was second. The Franco-Japanese nuclear lens in this study thus serves as a critical framework for cultural anxiety around nuclear power outside of the Cold War US-USSR dyad.

Despite a relatively horizontal geopolitical relationship between France and Japan, especially when compared with relationships between France and its former colonies in Africa and Asia and Japan's postcolonial relationships within East and Southeast Asia, Franco-Japanese exchange itself is neither symmetric nor perfectly balanced. Scholarship in the West has tended to focus on the French side of the exchange, as suggested by the term *Japonisme*, which is used to describe the appreciation for and inspiration provided by Japanese arts in the West during the second half of the nineteenth century. The Society for the Study of Japonisme, which launched in 1980 in Japan, and the more recent emergence of the international and multi-disciplinary *Journal of Japonisme* in 2016 attest to a resurgence of scholarly interest in the aesthetic tradition of Japonisme and in the entanglements of Japanese and Western cultures with increasing attention to its historical blind spots such as contributions of women and the Japanese side of exchange.<sup>8</sup>

The historical context of Franco-Japanese cultural exchange is central to this story about Franco-Japanese cinema. This book argues that Franco-Japanese exchanges and collaborations in cinema continue a longer tradition of mutual cultural fascination, from the nineteenth-century tradition of Japonisme and even earlier, while shifting from primarily aesthetic preoccupations to nuclear concerns and their broader environmental entanglements. As one of the first feature-length Franco-Japanese cinematic coproductions and as a provocative new kind of nuclear film, *Hiroshima mon amour* is the heart of this book and a through line serving as a key reference for several of the other films under study. This book shows how *Hiroshima mon amour* launched a transnational film cycle about atomic aftermath and reflecting the politics of the nuclear era.

The interdisciplinary approach in this book drawing on film studies and the environmental humanities is also informed by my background in French studies. Accordingly, I focus first on images

of Japan in French cinema. And yet, to move beyond a one-sided Orientalist study, I pay attention not only to how nuclear concerns have shaped French visions of Japan but also to how Japanese filmmakers have worked with and responded to these French visions in film and how French and Japanese creators have collaborated on such work. One of the implicit arguments I make is for the reciprocity of Franco-Japanese cultural exchange around nuclear concerns. For Japanese filmmakers, spectators, and readers, the distant views found in French films (and from an American scholar) may lack the nuance and authenticity of views of Japan from within but offer indirect and broader angles of approach to the history and global memory of nuclear catastrophe in Japan.

### The Nuclear Era, from Hiroshima to Fukushima

The temporal boundaries of this study span the atomic bombings of Hiroshima and Nagasaki to the nuclear disaster at Fukushima Daiichi in 2011 and its ongoing aftermath. In many ways, the disruption of *Fukushima*—which has come to stand for the triple disaster of earthquake, tsunami, and nuclear disaster that began in the Tōhoku region of Japan on March 11, 2011—recalls that of *Hiroshima*, a name that is often understood outside of Japan as a metonym for the US atomic bomb attack on Hiroshima (and in many cases Nagasaki). The aftermaths of both events show certain similarities, most notably the discrimination faced by survivors and the fight for recognition by officials and institutions prone to opacity if not censorship.<sup>9</sup> And yet, while the place name Fukushima “is accompanied by the sinister privilege that makes it rhyme with Hiroshima,”<sup>10</sup> Jean-Luc Nancy warns against conflating the two events, distinguishing the enemy bombing of Hiroshima from the techno-political and natural disasters behind the Fukushima Daiichi meltdowns. Still, he argues “this rhyme gathers together—reluctantly and against all poetry—the ferment of something shared. It is a question—and since March 11, 2011, we have not stopped chewing on this bitter pill—of nuclear energy itself.”<sup>11</sup>

Reducing a disaster to a proper name narrows its geospatial reach and ignores the human agency that created it. The names *Hiroshima* and *Fukushima* used in the title of this book are thus not in reference to the places themselves but rather to French visions—and, more

broadly, Western imaginaries—of these places. Barbara Geilhorn and Kristina Iwata-Weickgenannt point out the problematic use of these same terms in Japan: “In order to differentiate between the geographical place and the event, the nuclear catastrophe soon became frequently referred to as ‘Fukushima’ written in *katakana* instead of *kanji* (similar differentiations are used for the atomic bombings at Hiroshima and Nagasaki, and the Minamata disease.)”<sup>12</sup> Kanji, derived from Chinese characters, are used for most Japanese words, while katakana is the simplified syllabary used for foreign borrowings, suggesting a cultural distancing from mediations of disaster in these places.

Michaël Ferrier, a French writer who lives in Japan and has written extensively about the 2011 triple disaster, acknowledges the imprecision and exoticism inherent in the use of the term *Fukushima* in reference to what is more commonly called 3.11 in Japan, while admitting that in the West, the terminological damage is to a certain extent already done. As such, he argues, the choice to use *Fukushima* should be an informed one that resists the inclination to allow the foreignness of the name to hold the ongoing disaster at a distance.<sup>13</sup> For director Suwa Nobuhiro, who was born in Hiroshima after the war, the culturally distant view of the city in *Hiroshima mon amour* provided an entry point into the subject, and he used this French vision of Japan to inspire his own film *H Story*, ostensibly a remake of *Hiroshima mon amour*.

More broadly, *from Hiroshima to Fukushima* evokes the *nuclear era*, which is commonly understood to have begun with an explosion: the Trinity test or the atomic bombing of Hiroshima. Tracing the wider boundaries of the nuclear era would involve a return to Wilhelm Conrad Röntgen’s discovery of the X-ray in 1895 and Henri Becquerel’s discovery of radioactivity in 1896. However, it was not until nearly a century later in 1984 that the nuclear era became the subject of critical cultural reflection when philosophers and scholars gathered for a colloquium at Cornell University to create a field of study called Nuclear Criticism. The chief aims of Nuclear Criticism were to read “critical and canonical texts for the purpose of uncovering the unknown shapes of our unconscious nuclear fears” and “to show how the terms of the current nuclear discussion are shaped by literary or critical assumptions whose implications are often, perhaps systematically ignored.”<sup>14</sup> Nuclear Criticism was to be applied not only to apocalyptic writing but also to discourses across a variety of

fields, from psychology of the arms race to nuclear ideologies and interests promoted in journalistic and artistic media.

Jacques Derrida, the only French philosopher at the colloquium, contributed a piece that was published a few months later as “No Apocalypse, Not Now (Full Speed Ahead, Seven Missiles, Seven Missives)” in an issue of *Diacritics* entitled Nuclear Criticism. Derrida opens with an argument for the importance of Nuclear Criticism for the humanities, “given that the stakes of the nuclear question are those of humanity, of the humanities,” and calls for a critical slowdown in response to the acceleration of the nuclear age.<sup>15</sup> For Derrida, nuclear war is “a speculation, an invention in the sense of a fable or an invention to be invented in order to make place for it or to prevent it from taking place.”<sup>16</sup> If nuclear apocalypse is only a textual event, then for Derrida the textual anticipation of imagined nuclear war triggers the “reality” of the nuclear era, or the stockpiling and capitalization of nuclear weapons.<sup>17</sup>

For this study of nuclear cinema, I draw on Derrida’s conception of nuclear time in “No Apocalypse, Not Now.” In place of “era,” Derrida uses the Greek term *epochè*, drawing on the etymology of “epoch,” a stoppage or fixed point of time, to underscore the sense of suspension in time in the nuclear age.<sup>18</sup> I develop this notion of suspension in time in reflecting on the mundane nuclear present, which seems to be at once infinite, impossible, and inescapable. While Derrida’s *epochè* serves as a model for the cinematic nuclear present developed in this study, I also join scholars across the humanities in contesting Derrida’s idea that nuclear war is merely a textual event. Jessica Hurley argues from an ecocritical and materialist perspective that nuclear infrastructures and fallout from testing are real events that resemble “existing forms of historical and structural violence” in their disproportionate effects on subaltern subjects.<sup>19</sup> Drew Milne and John Kinsella draw attention to Derrida’s exclusive focus on nuclear war to the exclusion of nonmilitary uses of nuclear materials. “The risk of idealizing, romancing or reifying some aspect of ‘the nuclear’ as a paradigm, tentacular object or ideology . . . suggests the need to see the nuclear as a many-headed hydra, a nuclear leviathan or behemoth, perhaps even a root system whose extended mycelium finds its teleological explosion of spores in the mushroom cloud.”<sup>20</sup> These scholars build on the work of others who have proposed new

modes of nuclear criticism that focus on materialities, subjectivities, decolonizing pedagogies, and on the nuclear uncanny and the nuclear mundane in place of the nuclear sublime.<sup>21</sup>

Risk Criticism, an approach that came out of Nuclear Criticism and ecocriticism, follows Ulrich Beck's contention that risk is virtual and imperceptible until it is represented.<sup>22</sup> For Molly Wallace, the risk approach is necessary as it extends criticism to science and scientists, who have created problems they cannot undo and whose consequences they cannot predict. More broadly in the environmental humanities, Rob Nixon's call for attention to slow violence in the unimagined or forgotten communities of disaster sheds light on the particular consequences of radioactive contamination on places beyond the megapolis. I draw on these frameworks in turning attention to risk in places like the Tōhoku region in Japan or rural reactor sites in France and the slow violence committed against these areas and their residents by gradual destruction that takes various forms as it is dispersed across space and time.<sup>23</sup>

The films in the following chapters show an interest in the slow material and cultural violence of nuclear disaster and its impact on everyday life, which is often overshadowed by the nuclear spectacle. At the same time, the concept of slow violence is increasingly under pressure today given the fast-moving nature of climate-related crises such as rising temperatures, carbon dioxide accumulation, wildfires, floods, and extinction events. This tension between the slow violence of nuclear fallout and waste and the much faster violence of climate change has led some—and particularly those with connections to the nuclear industry—to call for nuclear power as an expedient if imperfect fix. The risks of disaster and terrorism and the problems of pollution and waste are at best afterthoughts explained away with solutions that include new technologies that have yet to be developed or proven to work at scale.

While the nuclear era supposedly concluded in 1991 with the breakup of the Soviet Union and the end of the Cold War, it is the hope for a nuclear-free world that remains a textual fantasy. The past decade has seen a resurgence of aggressive nuclear posturing and a new war initiated by the world's largest nuclear power. Despite efforts such as the Treaty on the Prohibition of Nuclear Weapons (TPNW) entered into force on January 22, 2021, proliferation continues. The

United States and Russia continue to modernize their arsenals. China is on track to double its stockpile by 2030, and North Korea's has roughly doubled in the last few years.<sup>24</sup> The New START Treaty, the final remaining nonproliferation agreement between the United States and Russia, was extended through February 4, 2026.

Less spectacularly, the hazards of uranium mining have become increasingly recognized as an environmental justice concern. The global nuclear energy industry also faces real challenges from cheaper and cleaner sources of renewable energy. The nuclear anxiety that was pervasive in the Cold War era has shifted to widespread concern for climate change. Continued investment in nuclear reactors, which have historically cost much more and taken much longer to build than promised, as well as in the holy grail of nuclear fusion, comes at the expense of developing cheaper, cleaner, and safer renewables in a race against irreversible impacts of climate change.<sup>25</sup> Even if a transition away from nuclear energy were imaginable, the continued possibilities of accidents, terrorism, and war along with the asymptotic nature of radioactive decay point to a nuclear era that will never truly end. Accordingly, the nuclear question weighs not only on the psyches of those in military laboratories and research and testing sites but also on the minds of those who witnessed the blinding flashes and experienced the fallout from nuclear explosions, of those who remember the 1950s campaign to "duck and cover" in a nuclear attack, and of those potentially most vulnerable to attack today in areas of ongoing political instability and war. As Gabriele Schwab writes, "Whether or not we are aware of it, we are constituted as nuclear subjects, endowed with a nuclear unconscious that profoundly shapes our being in the world."<sup>26</sup> Increasingly, this nuclear unconscious has shaped the work of cultural creators around the world who, themselves, contribute to a reshaping of the nuclear world order.

The global dimensions of nuclear power can be seen quite clearly in the 2011 disaster at Fukushima Daiichi. As many towns in the immediate area around the power plant in the Tōhoku region were devastated, projections at the time suggested that a change in the wind direction could have led to dangerous levels of contamination as far south as Tokyo, which would have affected the prefecture's 13.2 million residents.<sup>27</sup> In the days following the accident, high levels of radioactivity were detected even farther south at the US naval base at Yokosuka.<sup>28</sup> Japan waited until after the delayed 2021 Tokyo Olympic

Games to release more than one million tons of radioactive wastewater from the destroyed reactors into the sea, a release that began on August 24, 2023, and will ultimately take decades to complete, but contaminated water had been leaking into the Pacific Ocean for years.<sup>29</sup> In 2015, the Woods Hole Oceanographic Institute reported the arrival of a small level of Fukushima-derived cesium on the North American west coast.<sup>30</sup> As radioactive contamination respects no boundaries, the 2011 nuclear disaster at Fukushima Daiichi is not only Japan's concern but also the world's problem.

### The Nuclear Lens, the Chronotope of the Nuclear, and Multisensory Perception

The nuclear lens as a critical concept in this book reveals the historical entanglements of visual and nuclear technologies.<sup>31</sup> If the lens, an organ and technology of perception, magnifies or brings into focus that which may be difficult to perceive, my conception of the nuclear lens magnifies and brings into focus less visible nuclear concerns embedded in everyday life and in the experience of space and time as represented in cinema.<sup>32</sup> Nuclear power occupies the extreme registers of visibility: the hypervisibility of explosions and the invisibility or concealed visibility of mining, technology development, weapons stockpiles, pollution, and waste storage. Spectacular nuclear films embrace the hypervisibility of nuclear explosions and graphic depictions of contamination. These films require no such magnifying lens to better perceive nuclear danger. The films in this study, on the other hand, conceal, blur, or question their nuclear status. They focus on the invisibility of nuclear risks and the anxiety around dangers that cannot be detected by the bodily senses alone. In engaging with this tension between invisibility and hypervisibility, these nuclear films form a subset of a broader category of disaster and apocalypse films. Unlike Eva Horn's "catastrophic imaginary" that develops from a sense of "the looming catastrophe without event," the nuclear lens in this study is trained on the concrete and specific if mostly invisible aftermaths of catastrophic nuclear events.<sup>33</sup> In revealing and magnifying less visible nuclear concerns, the nuclear lens brings to light the destabilization of understandings of space and time and the fragmentation of narrative by nuclear fission. The same narrative

fragmentation and spatiotemporal instability seen in postwar nuclear films continue in films responding to the 2011 disaster in an ongoing crisis of representation.

After the spectacle of explosion, a more insidious danger sets in with radioactivity that is invisible, odorless, and silent, seemingly detectable only by a dosimeter with readings that change step by step. Ele Carpenter identifies a shift in recent scholarship in nuclear aesthetics “from the distant sublime atomic spectacle to a lived experience of the uncanny nature of radiation.”<sup>34</sup> In *The Nuclear Culture Source Book*, Carpenter includes a 1958 letter to the International Conference for the Detection of Nuclear Explosions from French artist Yves Klein, who satirically proposes to color future explosions his signature Klein Blue for easier visual detection. Color as a means of visual detection is also explored in the “Mount Fuji in Red” vignette in Kurosawa Akira’s film *Dreams* (1990). “Mount Fuji in Red” shows the spectacular explosions of six nuclear reactors around the iconic Japanese volcano and its subsequent eruption, releasing radioactive elements that are rendered visible in Technicolor clouds: red for plutonium-239, yellow for strontium-90, and violet for cesium-137. Klein Blue and Technicolor radioactive elements are at once spectacular and pragmatic proposals to make visible atomic explosions, suggesting that the “lived experience of the uncanny nature of radiation” is embedded and awaiting detection in many nuclear cultural productions.

If the nuclear spectacle was made in the USA and inaugurated with documentary footage of the Trinity and Castle Bravo tests, the continued reproduction of terrifying and awe-inspiring mushroom clouds continues today. Most notably, Peter Greenaway’s short film *Atomic Bombs on Planet Earth* (2011) shows the mushroom clouds of 2201 atomic bomb explosions to date. In French and Japanese cinemas, on the other hand, film has more often been used to explore the nuclear mundane or what Joseph Masco calls the *nuclear uncanny*, the sense of dislocation and anxiety produced by partial knowledge of risks introduced by the international nuclear complex. This includes the possibility of nuclear annihilation at any moment and the certitude of widespread nuclear contamination at present.<sup>35</sup> Just as Hollywood nuclear movies such as *Dr. Strangelove* (1964) and *WarGames* (1983) reflect a Cold War nuclear imaginary in the United States, Japanese and French nuclear cinemas tend to convey more intimate and on-the-ground knowledge of the horrors caused by nuclear technologies.

The historically marginal status of nuclear cinema in France reflects widespread suppression of criticism of the French nuclear industry. As Spencer Weart writes, “French filmmakers created no visions of radioactive monsters,” and “when the French thought of atoms they thought of Marie Curie, a national glory.”<sup>36</sup> In a catalog of 212 global nuclear films from 1935–1985, H el ene Puiseux reports a tendency of science fiction and monster movies mostly coming from the United States and Japan, with the exception of the post-apocalyptic French film *Malevil* (1981). Puiseux’s list of primarily American and Japanese nuclear films does include thirty-two French films and coproductions.<sup>37</sup> The list is of course incomplete; with digitized catalogs searchable by keyword today, the number of films would be much higher, especially if every short film and television documentary were included. Until recently, however, few big-budget nuclear movies were made in France.<sup>38</sup> French nuclear films tend to be experimental, avant-garde, or documentary in style, and as I show in this study, many reference or engage with Japan and specifically with the atomic bombings of Hiroshima and Nagasaki and the disaster at Fukushima Daiichi.<sup>39</sup>

The Franco-Japanese nuclear lens is thus a critical lens on cultural anxiety outside of the Cold War US-USSR dyad and beyond the traditional opposition of East v. West, an ever-shifting geopolitical model. The relationship between Japan and France, geographically East and West, is complicated by the fact that Japan has always occupied a rather ambiguous place in East-West discourse. While geographically the Far East, Japan is often considered part of the geopolitical West due to its Western-style democracy and capitalist economy. Given the colonial and imperial pasts of both France and Japan, the lack of a long-standing colonial relationship with one another, and the similar challenges both face in dealing with colonial legacies that have been subject to institutionalized forgetting if not denial, France and Japan have a relatively horizontal if not always symmetrical relationship.<sup>40</sup> Accordingly, this relationship might serve as a model for both France and Japan in their postcolonial entanglements for more lateral exchange and solidarity built around shared concerns.

In particular, the Franco-Japanese nuclear lens brings into focus ways in which films represent or engage with nuclear spatiotemporality, and what emerges is a different kind of nuclear film. I use the chronotope of the nuclear to distinguish nuclear films with unstable

spatiotemporality and fragmented narratives from more spectacular nuclear movies. I borrow the concept of the chronotope from M. M. Bakhtin, who himself borrowed the term from Albert Einstein, who introduced it in his theory of relativity.<sup>41</sup> Bakhtin uses the chronotope to conceptualize literary narrative types or genres according to their specific, textual spatiotemporalities. In Bakhtin's literary chronotope, time and space are fused and interdependent categories for analysis in a text. The chronotope is then "an optic for reading texts as x-rays of the forces at work in the culture system from which they spring" without privileging only time or space in the analysis.<sup>42</sup> Mary Louise Pratt, who coins the Anthropocenic chronotope, alludes to the emergence of a chronotope of the nuclear in 1945 with "the human mastery of nuclear fission in the 1940s mark[ing] one new time-space configuration."<sup>43</sup>

In my conception of the chronotope of the nuclear, nuclear spaces are vast, dynamic, and unbounded but often falsely delimited by spatial markers such as place names (e.g., *Fukushima*), graphic representations (e.g., concentric circles intended to approximate contamination levels), and national borders, all of which suggest containment of radioactivity. Nuclear time can be understood as ongoing disaster in an inescapable present. This notion of time challenges temporal boundaries such as the one suggested in the designation *3.11*, which would limit the disaster to a single date in history. As Christian Doumet and Michaël Ferrier argue about the meltdowns at Fukushima Daiichi and ensuing nuclear contamination, there is no *after* or *post* in an ongoing catastrophe.<sup>44</sup>

Robert Stam has argued that the Bakhtinian chronotope, traditionally used in literary analyses, "seems in some ways even more appropriate to film than to literature," and suggests that "more important than searching for cinematic equivalents to Bakhtin's literary chronotopes, perhaps is the construction of specifically filmic chronotopes."<sup>45</sup> Michael V. Montgomery uses the chronotope as a way to "reinvigorate older studies of film based on genre,"<sup>46</sup> and Vivian Sobchack, who coins the chronotope of film noir, sees the chronotope as a more specific classification tool than genre, such as the western.<sup>47</sup> For Sobchack, the chronotope is also used to understand the phenomenological relationship between text and context, the boundary between which is not absolute.<sup>48</sup> The chronotope of the nuclear is useful in this sense to articulate the specifically nuclear spatiotem-

porality explored within the film as well as the viewer's experience of the film in the context of ongoing nuclear disaster in the world.

Given the instability of nuclear space and time, I use the chronotope of the nuclear in an attempt to envision if not definite boundaries then indefinite zones for nuclear spatiotemporality. This is different from Sobchack's rather precise delineation of the chronotope of 1940s lounge time. However, Bakhtin also uses the chronotope in less clearly delimited ways. The chronotope of the adventure found in Greek romance is situated in "adventure-time," which lacks everyday cyclicality and indications of historical time and occurs in "an *abstract* expanse of space."<sup>49</sup> Spatiotemporal abstraction and flexibility is essential to the chronotope of the adventure, as Bakhtin explains, "for any concretization—geographic, economic, sociopolitical, quotidian—would fetter the freedom and flexibility of the adventures and limit the absolute power of chance."<sup>50</sup> Following this more open conception of spatiotemporality in the chronotope, I underscore the fluidity and flexibility of the chronotope of the nuclear. Nuclear spatial borders are porous, shifting, and uncertain. As Karen Barad remarks about nuclear terrain, elements such as wind "trouble any static notion of landscape."<sup>51</sup>

Nuclear temporality, too, exists on an unimaginably long scale, as "[r]adioactive decay elongates, disperses, and exponentially frays time's coherence. Time is unstable, continually leaking away from itself."<sup>52</sup> The chronotope of the nuclear is thus a way of connecting Timothy Morton's hyperobjects, which are "things massively distributed in time and space relative to humans,"<sup>53</sup> to specific types of nuclear narratives. Not all nuclear movies engage with nuclear spatiotemporality, but those that do tend to have a few other things in common: a troubled or oppositional relationship to nuclear spectacle, and formal hybridity or fragmentation.

The chronotope of the nuclear also brings together reflection on nuclear weapons and energy through the common disruptions, threats, risks, and anxieties they provoke. In many fields, civil and military nuclear technologies are largely kept separate despite their connections in concepts such as *nuclearity*. For Hecht, this term expands common understandings of what it means to be *nuclear* beyond nuclear weapon state status or use of nuclear energy to include places where uranium or where other materials are mined and where radiation levels are not

always detected or even measured.<sup>54</sup> The chronotope of the nuclear is expansive enough to apply to creative work in a variety of modes and mediums in which the everyday experience of nuclear disaster and its concomitant spatiotemporal instability are explored. It also allows for a more expansive understanding of nuclear disaster to include undetected and unacknowledged or underacknowledged sites with harmful levels of radioactivity due to industrial accidents, pollution from mining, and fallout from weapons testing.

As the atomic scale defies the senses and radioactivity evades sensory detection, I propose a form of multisensory perception in my analyses of nuclear undercurrents in certain films, and most notably in those of Chris Marker. Multisensory perception emphasizes interactions and interdependencies between the senses and invites a broader definition of the senses to include complex forms of perception such as chronoception, or the subjective experience of time. My use of multisensory perception draws on Gilles Deleuze's time-image and the idea that pure optical situations put the liberated senses into a direct relationship with time and with thought. For Deleuze, one extension of the opsign is "to make time and thought perceptible, to make them visible and of sound." The films under study here show this direct relationship to time and thought with the disappearance of the action-image and the movement-image "in favour of pure optical situations"<sup>55</sup> such as the Polaris missile in Marker's *Sans soleil* (1982) and the meditating filmmakers in front of nuclear reactors in *Le cœur du conflit / Kokoro no katto / The Heart of the Conflict* (2017).

The multisensory perception called for in this book develops more broadly from cognitive and phenomenological approaches in film philosophy with an interest in the viewer's experience both cognitively, in terms of hardwired mechanisms of perception, and phenomenologically, in terms of subjective perception as constructed by the viewer.<sup>56</sup> A multisensory approach facilitates perception of the effects of radioactivity, which is largely undetectable by the five senses individually, and allows for a Deleuzian direct relationship with nuclear time.

## Outline of Chapters

In the chapters that follow, I consider how nuclear disasters have shaped French visions of Japan and Franco-Japanese cultural exchange

in cinema. In doing so, I show the emergence of new forms of transnational solidarity through cinematic exchange, and I elaborate a different kind of nuclear cinema. The book begins with a historical overview of Franco-Japanese cultural exchange since the mid-nineteenth century followed by analysis of films and digital media that show formal fragmentation and spatiotemporal instability. The work under study is thematically and formally diverse including some commercial but mostly art and experimental (*art et essai*) films as well as fiction, documentary, and hybrid modes. The filmmakers tend to be avant-garde and interstitial thinkers, but they demonstrate a common interest in margins, peripheries, and environments rather than dominant subjects, centers, and spectacles. The films span over fifty years, from the first Franco-Japanese coproductions *Typhon sur Nagasaki / Typhoon over Nagasaki* (1957) and *Hiroshima mon amour* (1959) to work responding to the 2011 nuclear disaster at Fukushima Daiichi. The films from France can be seen as gestures of solidarity with victims and survivors of nuclear disaster in Japan, and some of their creators might be understood as filmmaker-activists in Rob Nixon's expansive sense of the term.<sup>57</sup> As an art form of the continual present—or the illusion of continual present with the steady progression of twenty-four frames per second—cinema provides particularly fertile ground for the eternal or impossible present of the chronotope of the nuclear. And despite the fact that France and Japan have been leaders in the development and promotion of the seventh art at home and abroad, cinema is a newer area of focus in Japonisme studies.

To lay the cross-cultural foundation for this book, the first chapter, "From Japonisme to the Nuclear Era," provides a historical overview of Franco-Japanese exchange. Some scholars argue that *Japonisme* refers to the Western fascination with Japanese aesthetics that ended in the early twentieth century. For many of them, revivals of the term in *néo-Japonisme* and *post-Japonisme* seem Western-centric, oversimplifications, and inaccurate descriptors of Franco-Japanese exchange today. Chapter one contextualizes this exchange from the inception of the term *Japonisme* to its reappearance in revised forms today. Understanding the aesthetic orientations of France's historical fascination with Japan and Japan's with France allows for a fuller appreciation of the interruption of that tradition by the Second World War and the American use of the atomic bomb on Hiroshima and Nagasaki. Alongside the history of Franco-Japanese cultural exchange, I outline parallel developments in cinema and nuclear technologies

and their impact on this cross-cultural exchange, beginning with the discoveries by Becquerel and the Lumière brothers. These histories are brought together to show how the atomic bombings interrupted the primarily aesthetically oriented visions and refracted them through a nuclear lens, magnifying certain shared sociopolitical and environmental concerns.

Chapter two, “Learning to See with Japan in *Hiroshima mon amour*,” introduces French visions of a nuclear Japan in the first Franco-Japanese cinematic coproductions, Yves Ciampi’s *Typhoon over Nagasaki* (1957) and Alain Resnais’s and Marguerite Duras’s *Hiroshima mon amour* (1959). Archival material in this chapter reveals that *Hiroshima mon amour* was in part a response to Ciampi’s nearly forgotten film. Both films evoke the atomic bombings in their titles but engage little with them in their narratives. In its vision of Japan through a nuclear lens, *Hiroshima mon amour* breaks with the linear narrative, cultural stereotypes, and visual clichés seen in *Typhoon over Nagasaki* by inverting stereotypical gender dynamics and introducing narrative fragmentation and spatiotemporal instability, key characteristics of the chronotope of the nuclear. As one of the most important films for the *nouvelle vague* and for global art cinema, *Hiroshima mon amour* also played a pivotal role in the postwar era in initiating Franco-Japanese collaboration in cinema and in providing a new and updated vision of Japan to Western viewers.

*Hiroshima mon amour* was less well received by popular Japanese audiences than by those in the West; however, it had a significant impact on Japanese New Wave and independent filmmakers Ōshima Nagisa and Suwa Nobuhiro. Chapter three, “Tu n’as rien vu: Japanese Responses to *Hiroshima mon amour*” looks at the legacy of this film in Japanese films that reference and respond to it: Ōshima’s *Max mon amour* (1986) and Suwa’s *H Story* (2001) and *A Letter from Hiroshima* (2002). In their responses to the nuclear vision of Japan in *Hiroshima mon amour*, Ōshima and Suwa create work in which the traditional narrative arc breaks down even further and in which generic boundaries are increasingly blurred as the filmmakers turn to the absurd and the meta. With increasing temporal distance, these Japanese films acknowledge the tradition of cultural exchange in which they participate, and through aesthetic experimentation the films implicitly illustrate the limitations of a single cultural perspective. Like *Hiroshima mon amour*, these films ultimately refuse completion or conclusion, exhibiting the

unbounded time of the chronotope of the nuclear. With its focus on Japanese responses to French visions of Japan through a nuclear lens, this chapter shows the increasingly reciprocal and dialogic nature of Franco-Japanese cinematic exchange.

If *Hiroshima mon amour* was a transformative film for Resnais as a director, it was also his only film made in Japan. Chris Marker, a contemporary and friend of Resnais, had a more sustained interest in Japan and found the place a source of inspiration over the course of his career. Chapter four, “Things That Quickened the Heart: Sensing the Nuclear in Chris Marker’s Japan,” focuses on a nuclear undercurrent in several of Marker’s films dealing with Japan. The portrait of postwar Japan in *Le mystère Koumiko / The Koumiko Mystery* (1965) includes a reference to nuclear concerns, which resurface in the travelogue essay film *Sans soleil / Sunless* (1982) and in *Level Five* (1996), which shifts focus to the Battle of Okinawa. Drawing on material from the Chris Marker archive at the Cinémathèque française, I use the nuclear lens and chronotope of the nuclear to argue for a multisensory approach to these works in order to perceive the nuclear, which cannot always be seen. Examining these films and the circumstances of their production through a nuclear lens magnifies Marker’s attention to the Battle of Okinawa in particular, as the event was overshadowed in the visual and historical archive by the atomic bombings of Hiroshima and Nagasaki. Marker’s sustained engagement with Japan and nuclear concerns serves as an example of how the nuclear was increasingly woven into the background of French visions of Japan during the intervening period between disasters.

As French and Japanese filmmakers continued to make films about nuclear issues in the 2000s, the 2011 triple disaster in Japan served as a call to several French filmmakers to express solidarity through their work with those suffering in the aftermath. Chapter five, “Interaction and Solidarity through a Digital Nuclear Lens” turns attention to digital films and a web-documentary about the nuclear disaster at Fukushima Daiichi. I argue that the digital age offers filmmakers increased opportunities for collaboration and expression of solidarity through their work. This chapter uses the nuclear lens and the chronotope of the nuclear to analyze work by the French filmmaker Philippe Rouy, who both embraces and critiques the abundance of images of the nuclear disaster as he uses them to construct his trilogy of films *4 bâtiments, face à la mer / 4 Buildings, Facing the Sea* (2012),

*Machine to Machine* (2013), and *Fovea centralis* (2014). Rouy made these films while in France using footage from the Tokyo Electric Power Company's (TEPCO) live-stream webcams at the Fukushima Daiichi reactors. The representation of the webcam that never stops in these films illustrates the seemingly eternal present temporal aspect of chronotope of the nuclear. By contrast, Keiko Courdy's web-documentary *Au-delà du nuage °Yonaoshi 3.11 / Beyond the Cloud* (2013) was made in Japan as a Franco-Japanese coproduction. The web-documentary was remEDIATED and released as a traditional, linear documentary, followed by the short film *A Safe Place* (2017) and *L'île invisible / The Invisible Island* (2021), Courdy's second feature-length documentary about Fukushima. The more recent works in this chapter are smaller productions than those of Resnais and Marker, and it is too soon to say whether they will endure in the same way—if, indeed, anything in the digital age will. They are included alongside more well-known work from recognized auteurs as they show a similar spirit of formal innovation and directorial independence but also represent a shift from commissioned work supported by states and institutions to crowd-funded and publicly sourced digital work that is more immediately accessible for global audiences.

The sixth chapter, “Reframing *Hiroshima mon amour* after Fukushima,” examines recent films that reference *Hiroshima mon amour* in the context of the 2011 nuclear disaster at Fukushima Daiichi. This chapter shows the continued relevance of *Hiroshima mon amour* today for transnational filmmakers such as Jun Yang and his film *The Age of Guilt and Forgiveness* (2016) and for transnational filmmaking teams such as Judith Cahen and Masayasu Eguchi and their film *Le cœur du conflit / Kokoro no katto / The Heart of the Conflict* (2017). Through comparative analysis of these films and *Hiroshima mon amour*, I show how the chronotope of the nuclear has evolved from its initial manifestation as the eternal present against a nuclear background to a form that accommodates the idea of a deep radiological future. The nuclear lens also reveals the development of the alternative nuclear iconography initiated by *Hiroshima mon amour*. More broadly, I argue that these coproductions engage with the Franco-Japanese cinematic tradition while opening a wider transnational lens on nuclear concerns and implicitly call for global solutions.

The nuclear lens brings into focus a different kind of nuclear film. Rather than defeatist or celebratory apocalyptic nuclear visions or

mere updated French visions of Japan, the visions presented in these Franco-Japanese films show anxiety, concern, dialogue, and transnational solidarity around the nuclear risks that remain in everyday life across vast and uncertain expanses of space and time. As such, these films force us to rethink nuclear disaster as an ongoing reality rather than a spectacular possibility. They serve as gestures of solidarity in a cooperative and politically engaged cross-cultural encounter.

Given France's status as a nuclear weapon state and the sustained level of French investment in nuclear energy, it is perhaps unsurprising that French artists have taken up nuclear concerns in their work. Considering Japan's history with nuclear disaster, it may be just as unsurprising that Japan would serve as the object of so many of these French nuclear visions, fantasies, and fears. If French responses to the nuclear disaster at Chernobyl were shaped through the lens of Cold War geopolitics, the disaster at Fukushima Daiichi undermined any essentialist expectations of Japanese technoscientific control. And if French visions of a nuclear Japan interrupted earlier aestheticcentric visions of Japonisme, interest in the 2011 disaster is still rooted in many ways in the tradition of Japonisme, as will be seen in the chapters that follow. This may explain why French responses to Fukushima far outnumber those found in Spanish, German, and even English.<sup>58</sup>