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Research Article

Modernity, Meteorology and Magic: Mediating Weather with Johanna Sinisalo's *The Storm Flute*

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ABSTRACT

This article analyzes *The Storm Flute* (2021), an eco-magical realist novel by Finnish author Johanna Sinisalo. Following the socioeconomic predicaments of a contemporary meteorologist Leena, the narrative dramatizes how everyday experiences and personal choices become complicated in the Anthropocene. By contextualizing the novel's plot development within the dynamics of control characteristic of modernity, this article argues that Sinisalo addresses the question of technological weather modification in a way that encapsulates and criticizes the modern attitude to the natural world. As the depicted corporate attempts to commodify the weather are precluded through the use of a magical fulgurite capable of conjuring thunderstorms, the present article notes that Sinisalo's deployment of this singular fantastic element predicates numinosity to weather phenomena. Preoccupied with meteorology and the relational complexity between humans and nonhuman nature, the protagonist's blog entries included in the novel invite a phenomenological discussion of meaning-making through scientific methodologies, in contrast to literary means. Examining the novel's subject matter in relation to its formal strategies, this econarratological reading contends that *The Storm Flute* opposes harmful anthropocentrism and prompts engagement with the natural world beyond the human/nonhuman binary. This article contributes to the understanding of Sinisalo's anti-anthropocentric poetics and participates in broader conversations regarding the ways in which contemporary fiction can take on the Anthropocene not as an abstract concept but as a lived reality.

Keywords: Johanna Sinisalo, weather, Econarratology, Modern attitude to nature, Anthropocene

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Introduction

The Storm Flute,[1] a 2021 novel by Finnish author Johanna Sinisalo, explores the complex relationship between humans and weather. "What exactly is the weather in relation to the planet?" (p. 200) ponders meteorologist Leena Lind, the protagonist of Sinisalo's ninth adult novel; "the weather is air pressure, temperatures, and fluctuations in humidity. It is the movement of air masses, convection currents, water vaporization, and condensation at dew point" (p. 197). Yet, this physically felt phenomenon can also be rendered as "the invisible beast prowling behind the horizon" (p. 437). The scientific and figurative manners of mediating experiences of weather merge in the protagonist's narrating consciousness to flag how humans tend to make sense of the natural world. This article concerns attitudes to nature and argues that *The Storm Flute* (henceforth *SF*) problematizes weather modification as a part of broader dynamics of control that characterize modernity. Centering on the novel's themes and narrative techniques, a phenomenologically informed econarratological reading is conducted to illuminate how the urge to master the natural world is criticized in Sinisalo's eco-magical realist novel, challenging harmful anthropocentrism that underlies environmentally destructive behaviors.

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Talk of the weather is becoming increasingly important in the *Anthropocene*. Introduced to designate a new geological epoch, the concept also refers to human understanding enlarged by the awareness of global and even planetary scale (Latour, 2017, pp. 139–140). As it encompasses both personal, societal, and elusive climatic realities, this "oxymoron linking geology and humanity" (p. 117) frames a discussion on how humans relate to the natural world. Mintautas Gutauskas (2019) points out that current attitudes towards nature have to do with modernity as the emergence of self-conscious reason "equipped with the means to know and conquer all external reality" (p. 48). Marked by scientific and technological developments, the modern age corresponds to "the end of nature" announced by Bill McKibben (1989) to argue that humans have tamed nature as an independent force upon which all our activities are contingent. Meanwhile, for Anthony Giddens (1991), the same idea refers to a certain shift in attitudes that determine the everyday lives of humans—"the invasion of the natural world by abstract systems" until nature is no longer "a domain external to human knowledge and involvements" (p. 244). The modern urge to master the natural world can be linked with the developments of science. Edmund Husserl (1984) has influentially reflected on how the processes of abstraction and idealization characteristic of modern scientific methodologies have changed one's relation to "the intuitively given surrounding world" (p. 25). The protagonist Leena's fascination with the weather invites reexamination of the kinds of engagement with this particular aspect of the life-world that science affords, set against cultural practices such as literature.

The Anthropocene, despite its multifarious tangible manifestations, is a problem created and mediated through scientific discourse; as such, it is abstract and therefore hardly relatable (Neimanis & Walker, 2014, p. 559). It is challenging for humans to grasp climate, a synthesis of weather data, let alone geological timescales, but embodied engagement with local weather conditions is an everyday activity. Yet, an ambiguous phenomenon that "continues to comprise the ever-present undercurrent for our actions as we go along in the world" (Ingold, 2015, p. 72), weather per se has not been much explored by ecocriticism, the branch of literary studies concerned with the variety of questions around the axis of human, nature, and literature. It might be due to some influential ecocritics like Ursula K. Heise (2008) who urge to shift into the global or planetary gear. However, Caren Irr (2018) notes a counter "turn towards weather" (p. 264) in many contemporary ecocritical studies. Instead of promoting a homogenizing planetary perspective that requires grappling with unfathomable temporal and spatial dimensions, ecocritics are returning to a preference for weather as "a figure for local, immediate, and collective events perceptible on a human scale" (p. 272). Illustratively, Astrida Neimanis and Rachel Walker (2014) argue for a new kind of ethos—*weathering* as "the intra-active process of mutual becoming" (p. 560), whereby attunement to immediate weather conditions extends into an embodied awareness of the natural world at large. This corporeal orientation proposed by the ecofeminists empowers critical and practical engagement with the abstract issue of climate change.

Contemporary novels not only give insight into how humans conceive of certain aspects of the natural world but can also compellingly introduce alternative perspectives. Such capacities of literary narratives are corroborated by econarratology, a fast-growing branch of ecocriticism. Besides attention to representational content typical of ecocriticism, econarratology also considers formal strategies, as they capture understanding of various phenomena, carry ideological assumptions, and can even upend prevalent views on environmental matters (Caracciolo, 2026). Econarratology is used in this article because it offers a wide analytical angle that allows for nature-focused and context-conscious examinations of both form (how a particular work is designed) and content (what is depicted and what meanings are given to it) without neglecting the significance of the act of reading as a meaning-making process, which has the potential to transform the readers' understanding. Following these conceptual lines, this article sets off with an introduction to Sinisalo's poetics, followed by a discussion of modernity as the novel's sociopolitical context which illuminates the developments of its plot. The second part draws on phenomenology to explore different orientations towards weather. Meteorology, a modern science aspiring to attain "an ever more perfect mastery over [one's] practical surrounding world" (Husserl, 1984, p. 66), is compared with literary mediation as another way of ascribing meaning to immediate experience. Both theoretical discussions prompt analysis of the novel's formal strategies. The article concludes with an explication of the novel's anti-anthropocentric position.

This econarratological reading affirms the power of imaginative literature to engage with the Anthropocene as a multifaceted lived reality. Apart from adding to the understanding of Sinisalo's poetics and the ways in which she problematizes "humanity's tendency to project itself outside and above ecology and nature" (Lahtinen & Raipola, 2020, p. 232), the present article contributes to the ongoing exploration (James, 2015; Caracciolo, 2021) of literary strategies by which nonhuman agency, human/nonhuman relations, and the exploitation of the natural world can be represented to invite more environmentally-attuned ways of being in the world.

The Magic of Sinisalo's Poetics

Johanna Sinisalo (b. 1958) is a widely translated Finnish author known for compelling and ethically complex speculative fiction that often foregrounds environmental themes. *SF* retains the thematic focus of Sinisalo's earlier works (social conventions, otherness, diverse human/nonhuman relationships) and brings forward the fine lines between reality and fantasy, technology and magic, as well as science, folk belief, and myth. Introduction of fantastic elements into otherwise recognizable realist settings is typical of Sinisalo, but this is only one of her ways of creating contrast in order to poke at sociopolitical problems and culturally formed assumptions. Hanna-Riikka Roine and Hanna Samola (2018) observe that the author tends to blend various genres, mixing in satire, folklore, references to other works, and different types of pseudo-authentic discourses (pp. 183–184). This makes her writing distinct and open to interpretation, or even philosophical probing. *SF* instantiates these defining features of Sinisalo's poetics. Alongside first-person narration, it contains other types of discourses, the most significant of which is the "Weathergirl's blog" kept by the protagonist. Its entries fictionalize scientific information, introduce and emphasize ideas that recur in Sinisalo's environmental rhetoric.

In *SF*, the boundaries of everyday reality are stretched by the storm flute, a magical object that can summon thunderstorms. Standing out as the novel's singular fantastic element, it allows Sinisalo to fold marvelous storms into depictions of predicaments and routines of an economically disadvantaged single mother prone to alcoholism. Moreover, the novel contains a fairy-tale interlude about the flute, as well as multiple references to myths, Finnish folklore, and weatherlore. Contrasted with the protagonist's scientific engagement with weather phenomena, the novel's mythical dimension is central to its main theme: humans' attempt to master nature. *SF* consists of two components that explore the changing relationship between humans and weather phenomena: the tale of Jonah, followed by the tale of a 40-year-old contemporary meteorologist Leena Lind. The first component is an autodiegetic past-tense narrative in which Jonah recounts his adventures, launched by a journey to Nineveh provoked by a prophetic dream. The tale of Jonah is a reinterpretation of the Old Testament's story of the prophet of Yahweh. Employing biblical imagery, it foregrounds the human tendency to observe nature, the polarity between rational intellect and intuition, power struggles, as well as the sociopolitical significance of weather conditions. Crucially, it introduces the storm flute, a fulgurite found by Leena centuries later. This "weird object" (Sinisalo, 2021, p. 103) is what joins the two separate narrative threads into one story about control of the natural world.

Sinisalo's ethically and politically provocative ninth novel has not received academic attention, but her previous works have been frequently discussed both in comparison and contrast with various genres. Hanna Samola (2020) reads *Auringon ydin* (*The Core of the Sun*, 2013) as "a feminist dystopia that satirizes neoconservative views on gender" that shares a lot of features with Margaret Atwood's *Handmaid's tale*, such as an ironically presented heterosexual "romance plot with fairy tale references" (p. 46). Katja Jylkka (2021) reads *Linnunaivot* (*Birdbrain*, 2008*)* as an ecohorror narrative that, by satirizing the prevailing harmful conception of pristine wilderness, questions the notion of invasive species and thereby probes the culturally established boundaries between humans and the environment. Toni Lahtinen and Juha Raipola (2020) contextualize the same novel within the genres of New Weird and wilderness literature to examine it as a "dystopian allegory about the environmental crisis" (p. 228). Sinisalo's works are always discussed in relation to *suomikumma*, the Finnish Weird. The author herself coined this generic label, so she is considered the flagbearer of this variation of the New Weird subgenre that challenges prevailing realist conventions by deploying, among other things, elements from mythologies and folklore (Roine & Samola, 2018; Samola, 2020; Lahtinen & Raipola, 2020; Jylkka, 2021). The New Weird, noted for its ecological orientation (Caracciolo & Ulstein, 2022) and "anti-anthropocentric tendency" (Lahtinen & Raipola, 2020, p. 228), taps into the weirdness that arises when engaging with what lies beyond ordinary perception, which includes the scientifically measurable but hardly experienceable gradual planetary processes. The unnarratable multiscalarity of the Anthropocene is leveraged by Sinisalo and other writers of *suomikumma,* who tend to be interested in relational complexity between humans and nonhuman nature.

While readily categorizable as a work of *suomikumma*, *SF* can also be read as a representative of eco-magical realism. This designation was invented by Charlotte Rogers (2021) in her discussion of the structural and thematic significance of a storm that appears in Gabriel G. Márquez's novel *El otoño del patriarca* (*The Autumn of the Patriarch,* 1975). For Rogers, "eco-magical realism [is] the author's mode of narrating ecological phenomena as events that are literally incredible, seemingly impossible to believe, but that are nevertheless depicted as concrete occurrences" (2021, p. 1580). Notably, the power of the storm flute is real within the storyworld of Sinisalo's novel, because the storms it summons impact the progression of the narrative. Desperate to find proper employment, the protagonist uses the flute to prove her professional competence by altering the outcomes of two tests concerning weather-modifying equipment. The magical fulgurite predicates a numinous quality to weather phenomena. A term interpreted by Carl Jung, the

numinous refers to something unsayable and radically other: mysterious, divine, or monstrous that simultaneously induces contrary feelings of wonder and horror.[2] At once wonderful and scary, the "thunderstorm anomalies" (Sinisalo, 2021, p. 157) conjured up with the flute bewilder Leena's rational mind, because they cannot fit any kind of scientific understanding of the world. The numinous thunderstorms also bewilder the readers, because they disrupt the narrative's otherwise realist mode. Rogers argues that the awe induced by depictions of magical meteorological phenomena can prompt readers to concurrently consider environmental, social, and political concerns (2021, pp. 1580–1581). Reading the novel as a work of eco-magical realism foregrounds its sociopolitical dimension, which is entangled with the novel's underlying environmentalism. This prompts discussing *SF* in the context of modernity as a sociopolitical order that has shaped how humans relate to their surroundings.

Mastery over Nature: Modernity

In 2024, the geological scientific community officially rejected the *Anthropocene* as an epochal designation. Yet, this concept continues to catalyze both public and scholarly discourse. As a geological epoch, the Anthropocene is marked by alteration, exploitation, and exhaustion of nature for the benefit of the dominant majorities. Arguably, these processes can be linked to modernity as both a historical epoch and a sociopolitical order that underlies still-prevalent attitudes and behaviors. In *Modernity and Self-Identity* (1991), Giddens lays out the principles of modernity by investigating the logic of modern institutions. He observes the ways in which they "propel social life away from the hold of pre-established precepts or practices" (p. 20), advancing not only beyond tradition, but also beyond nature. This has fundamentally affected how humans understand themselves and the world. For Giddens, "post-traditional order" is characterized by dynamic, self-reflexively constructed identities and lifestyles led by personal decisions rather than tradition-determined ones. New ways of expression emerge, but so does doubt, a sense of overarching risk that comes with all sorts of anxieties and, consequently, control. Control for Giddens pertains to several things: control of the self and the body; individual life-planning and institutional orientation towards the future with the aim to calculate and mitigate risks; "sequestration of experience" caused by the tendency of the institutions to push disturbing phenomena out of the everyday, relocating death, illness, sexuality, criminality and etc. to dedicated establishments; "disembedding," or emptying of time and space to organize social activities. More generally, control means the practically total "subordination of the world to human dominance" (p. 144), which empowers both the individual and the collective "to alter the material world and transform the conditions of their own actions" (p. 138) Arguably, the need to mitigate risk by controlling and shaping the external according to personal or societal needs has turned the human species into a geological force that has debased nature into a fully mastered human domain, subordinate to the dynamics of power and profit.

These sociopolitical dynamics are central to the plot of Sinisalo's novel. Clear temporal markers note that Leena's story unfolds over a one-year period, from August 2017 to August 2018. The driving force behind the narrative progression is related to mitigating uncertainty that pertains to financial difficulties. The narrative begins with multiple instabilities: the company Leena works at is sold, which leads to massive dismissal of workers; her affair with a self-serving, status-driven womanizer Rainer leads to a divorce, so the protagonist single-parents her 6-year-old daughter. Financial precarity prompts Leena to reflect on the broader socioeconomic context that has contributed to her situation (Sinisalo, 2021, pp. 115–118). She points out various shady corporate practices (p. 76; pp. 158–159), compromised work ethics (p. 269), and unethical industries (pp. 326–8), marking how such circumstances undermine the ability to act in accordance with personal ethics. Leena's economic, domestic, and romantic struggles escalate until she takes charge of the situation, although it means serving a suspicious company engaged in attempts to modify the weather, which the meteorologist considers unethical (pp. 265–266). This decision originates from uncertainty and a feeling of disempowerment: "I hate that I have been robbed of the illusion of control over my life, that sense of security: the notion that higher education and being good at work could have some impact on my future […] I don't want to keep rolling down. No, even if it would be *right*" (pp. 326–328, emphasis original). As Leena gradually uncovers the fulgurite's magical properties, her agency is restored because the flute helps the meteorologist prove her professional competence (p. 352). When she is finally promised a contract of employment, Leena's initial anxiety ("No wonder the future seemed concerning. I was worried as well" (pp. 77–78)) transforms into a sense of security ("the future clear and safe at least for a moment" (p. 359)). Exploring economic difficulties, the novel indicates that modern life is saturated with an overbearing sense of uncertainty that needs to be mitigated, even if this makes ethical integrity difficult.

Sinisalo also highlights how under modernity, nature is reduced to a resource managed by institutions. Tracing the turns of philosophical discourse related to the question of nature, Gutauskas (2019, pp. 46–47) observes that one important node is phenomenologist Martin Heidegger's notion of *enframing* (*Gestell*).

Introduced in *The Question Concerning Technology* (1953), this notion encapsulates how technology, as a utilitarian approach to the world, eradicates human affinity to the natural world by turning nature into something to be extracted, organized, and put to use. Central to the plot of *SF*, the corporate effort to extend control over and capitalize on the one domain that has evaded human influence is a manifestation of Heidegger's theorized technological mode of thinking. *Vintius Phoenix*, a company where Leena must take an intern position, plans to use advanced technology to provide weather-modification services. This means "disembedding" humans from their spaciotemporal surroundings. Giddens (1991) identifies "disembedding" as one of control-imposing techniques, arguing that modern institutions regulate natural and social environments, which allows humans to emancipate from particular spatiotemporal circumstances, such as the weather conditions or the time of the day. Leena explicitly reflects on the ethical and political issues involved in turning the common good that the weather is into a tradable asset (Sinisalo, 2021, pp. 265–266; p. 331; pp. 370–371), and acknowledges that she herself has become an expendable resource. Although Heidegger rejects the idea that human beings could be commanded "into mere standing-reserve" (1977, p. 18), Jason Moore's (2017) case for *Capitalocene* convincingly lays out that human labor is also a resource that has been turned into capital.[3] The technological commodifying attitude is evident in the corporate processes of devaluing individuals that *SF* brings to the forefront. An intern at a corporation into which her previous employer was reorganized, Leena ends up doing menial tasks, disrespected and closely monitored by her colleagues. After overhearing her superior's remark that she is "biomass" (Sinisalo, 2021, p. 193), the protagonist begins to sarcastically call herself that, thus tapping into the absurdity of her position: "I am a person with tax-paid higher education used as free labor by an international investment firm specialized in partly pseudoscientific, partly immoral activities" (p. 273). Leena overtly criticizes efforts to manipulate the weather for profit, while her predicaments highlight dehumanizing sociopolitical realities shaped by forms of control.

As the narrative progression revolves around weather modification, control becomes the central theme of the novel. The theme is deepened by the one element that fractures the otherwise realist storyworld. The storm flute dramatizes the modern urge to "tame the wind, command the clouds. Harness the lightning" (Sinisalo, 2021, p. 437), which underlines the modern way of thinking; at the same time, it reasserts the autonomy of the natural world at the level of the plot. Leena is captured and threatened by her corporate superiors, who want to learn to use the flute. *SF* climaxes with a storm the meteorologist conjures; like the classical trope of *Deus Ex Machina,* explosive lightning appears to resolve conflict by killing off Leena's adversaries and injuring the protagonist. The situation falls out of everyone's hands, so the weather remains as much beyond Leena's control as beyond the control of those who try to meddle with it for profit and malicious geopolitical ends. The unrealistic and therefore numinous intervention of the storm at the novel's climax questions Western assumptions about scientific and technological mastery of the world. It casts weather as an ultimately uncontrollable force and reinstates the prophet Jonah's words that become the rhetorical center of the novel: "shaping of the weather ought to remain God's alone; for of what use would the gods be if men could undertake deeds allotted to the divine?" (p. 53).

A significant thematic thread, control is targeted by Sinisalo's satire, which underscores the futility of attempting to handle the natural world when personal matters remain beyond one's control. The meteorologist's illusion of mastering her circumstances is satirized by the narrative strategy chosen for the second part of the novel. The bulk of Leena's tale consists of present-tense accounts that lock the reader into the protagonist's perspective. While internal focalization limits the scope of first-person narration, readers are granted additional insight through a conspiratorial email exchange between Rainer from *Vintius Phoenix* and a representative of an international stakeholder concerned with developing technology to modify the weather. These insertions generate suspense, but also a kind of dramatic irony that serves satiric ends. As the readers get to know more than the protagonist, some of Leena's decisions appear ludicrous, especially towards the culmination of the novel. Finally feeling in control of the situation and even conceited ("I want to immerse in this, soak this in, Raikka crawling at my feet is a splendid symbol of all that I have achieved" (p. 381)), she falls for Rainer's manipulation, which the readers can foresee, and ends up in a hostile situation. Internal focalization grants readers access to the meteorologist's thoughts and direct experiences, but when combined with narratively significant information external to Leena's knowledge, it highlights the protagonist's shortcomings stemming from her desperation to take command of her precarious circumstances.

It is important to note that the protagonist's circumstances appear to be more intricate than she anticipates. Alongside the thematization of control, the narrative progression of *SF* enacts how Anthropocene thinking implies yoking individual ethics to larger institutional and environmental questions. Joining in the discussion on the difficulties involved in emplotting the overwhelming complexities of the Anthropocene, Markku Lehtimäki (2024) observes how narratives concerned with climate change often fold two separate planes,

together the everyday and the planetary; effected in various ways, this narrative technique retains focus on human experiences, which makes "the abstract problem of climate change […] ethically and emotionally felt" (p. 25) without neglecting larger dimensions of the crisis. A similar technique of enlarging the protagonist's experiential scope is employed in *SF*. Leena's narrating mind is engaged with both the day-to-day human and the meteorological. The protagonist's accounts of her daily life are full of minute details, but the larger perspective seeps into her life through her occupation, coloring her experiences with, among other things, a general awareness of climate change, to which she attributes the weather anomalies (Sinisalo, 2021, p. 167). A workplace affair is another way her personal life becomes entangled with her work; then, as Leena realizes that her employer is indirectly involved in political conflicts, her personal predicaments gradually appear to be of global significance. Having traced the company's endeavors to modify the weather back to Syria's civil war and Russia's attempts to control water resources in Crimea, the protagonist realizes that

> "water [is a] weapon of war. Scarcity or excess of water […] *Tempestarii Invest* and the Vasiljev Institute are developing weaponry for achieving hydro-hegemony. *Vintius Phoenix* is just a cover-up and probably a money laundering unit […] also a systematic, deliberate and furtive undermining of scientific authority" (p. 403).

Placing Leena's mundane reality alongside global developments exposes how seemingly personal, career-related decisions acquire ethical significance on a larger scale. Control is thematized through the protagonist's predicaments behind the narrative progression, namely her precarity and involuntary participation in corporate capitalism engaged in weather modification. Sinisalo's satire, enacted through, among other things, the discussed narrative strategy, adds to the problematization of the controlling attitude characteristic of modernity. Engendered by the urge to control the external, paradoxically, the Anthropocene collapses distinctions between personal, planetary, and global-political affairs, so any pretense of control becomes a chimera.

Mastery over Immediate Experience: Mediation

The modern attitude towards nature can be traced back to Cartesian rationalism that elevates humans into the position of "the masters and possessors of nature" (Descartes, 1637, as cited in Gutauskas, 2019, p. 48), as well as to the emergence of modern science, which established distance between perceiving consciousness and the life-world. *Life-world* (*Lebenswelt*) is a concept explicated in Husserl's *The Crisis of European Sciences and Transcendental Phenomenology* (1984). In his last work, Husserl argues that the developments of science have brought about a crisis of meaning because secure ontological status is granted only to that which is established as objective by scientific methods of investigation, which neglects layers of spontaneous experience. These layers are contained within the notion of life-world, a superstructure of meaning that holds all objects (including human bodies and one's own lived body) and stands in contrast to the abstract image of the world produced by modern science.

Fact-minded sciences provide a common ground for intersubjective understanding, but genuine insights and observations derived from individual spontaneous experience end up in an inferior position compared to objective truths cultivated by scientific engagement with the life-world. Since the world is both intersubjectively pregiven and "given in a subjectively relative way", discrepancies between "ontic validities" (Husserl, 1984, p. 23) occur, but for societies to function, it is necessary to reach some agreement on what exists and in what manner. Husserl discusses in detail how this need for uncovering "what the world factually is" (p. 5) was addressed by the discipline of mathematics. To reach exact measurements and facts, "prescientifically intuited nature" is locked into an immutable abstraction, a system of exact shapes with certain determinable qualities, which makes it ideal (pp. 49–50); Husserl refers to this process as the "mathematization of nature". Simply put, attaining intersubjectively valid truths means transforming the pregiven world into a "geometrical world of ideal objects" (p. 27) where everything is coherent and measurable; yet it is no longer the life-world, but its representation.

A derivative of mathematics and physics, the discipline of meteorology with which the novel is engaged stands as a good example of how, in the quest for overcoming "relativity of subjective interpretations" (p. 29), abstraction takes hold of the life-world. Weather is a confluence of sense-qualities such as precipitation, wind, humidity, etc., that are grasped together. It is multisensory but, in itself, invisible, yet it affects the perception of everything else. This is why Tim Ingold considers it a medium for experience rather than a particular object (2005; 2015, p. 70). To be framed as facts, physically felt weather conditions are idealized, and the confluence of different sensations through which the weather gives itself to consciousness becomes isolated data units. A subjective perceptual judgment, such as temperature, is ascribed a "mathematical index" (Husserl, 1984, p. 37) that carries no meaning without reference to the life-world as a spatiotemporal context in which the lived body is embedded. Nevertheless, meteorology is concerned with objective data used to make informed predictions, not with the experiences different weather measurements entail. This

distances humans from the world, emptying it of meaning.

Providing an overview of phenomenological work on weather, Maximilian G. Hepach and Catharina Lüder (2023) discuss measuring and experiencing as essentially different yet complementary epistemic orientations towards the weather, which come to the fore in ethnological research. The distinction between analytical and phenomenological manners of engagement with the life-world is brought forward in the blog entry that opens Leena's tale. The protagonist remarks that understanding the protean phenomenon demands not only scientific knowledge and analytical rigor but also submission to the experience itself; likewise, the weather's beautiful unpredictability and repetition, conceptualized as climate, can be appreciated only through concurrent attention to both perception and observational weather data. Leena goes on to consider these two contrasting ways of relating: the scientific, the appeal of which lies in "the clearness, beauty and precision […], incorruptibility and unequivocalness [that] brings security and structure"; and the sensuous approach that seeks "another kind of beauty, chaotic and fascinatingly unpredictable, even a little scary" (pp. 70–71). Furthermore, the form of Sinisalo's novel also mirrors the interplay of analytical-scientific and phenomenological attitudes in understanding weather. The most substantial part of *SF* relays the protagonist's direct experiences: perceptions, observations, reasoning, and emotional responses to incidents. Leena's first-person accounts also contain direct narration of weather phenomena, where a sense of immediateness is created by consistent use of the present tense: "a sudden gust of wind throws a torrent of water from the sky towards us with such force that the raindrops strike the porch windows despite the roof. A dazzling lightning splits the sky, thunder roars" (144). Meanwhile, in her blog entries, Leena conveys her thoughts in a way that is already ordered: spontaneous observations reappear as direct statements, arranged around a certain topic and framed by figurative language as well as meteorological knowledge. As Leena ponders the weather's complex disposition, the form of the novel reflects the difference between and the necessary "interplay of technoscientific and embodied knowledge" (Hepach & Lüder, 2023, p. 363) in making sense of weather phenomena.

The novel's concern with meteorology and the narrative techniques employed to engage with weather in a way that illuminates the twofold nature of understanding it raises the issue of literature as mediation. As Paul Ricoeur (1984 /2009) has argued, literary representation involves *emplotment*—the process of crafting a plot by establishing causal links between not necessarily related incidents, which pertains to the "mediating operations between lived experience and discourse" (p. 31). Inferring causality is an idea conspicuously considered in *SF*. On multiple occasions, Leena observes patterns and arranges incidents to link cause and effect, while reflecting on the very operation. This concerns meteorological algorithms, but also folk weatherlore (Sinisalo, 2021, p. 225; pp. 227–230), and her daughter's claim about "making thunder" (p. 204), which the meteorologist first rationalizes as an unsubstantiated attribution of causality (pp. 168–169; pp. 185–186). In the novel, inferring causality is explicitly associated with control. Discussing weather-predicting folk sayings, Leena links them with a "sense of security" that follows the "illusion of control of one's life brought about by such alleged glimpsing into the future" (p. 228). Perceiving a bottle of wine as a "magic charm" (p. 151), "some kind of ritual or spell" (p. 152) that draws Rainer in, the meteorologist herself clings to a sense of control over the relationship. Discussing the existential value of reworking lived events into narratives, Michael Jackson (2002) observes that it is "a vital human strategy for sustaining a sense of agency in the face of disempowering circumstances" (p. 34) that "gives us a sense that though we do not exactly determine the course of our lives we at least have a hand in defining their meaning" (p. 35). Yet, narrative activity, as a way of mastering experience to "renew our faith that the world is within our grasp" (p. 36), is fundamentally different from the cause-and-effect correlations inferred by science. Abstracting lived experience to look for patterns and predictions, science empties it of human meaning; meanwhile, establishing a sense of narrative probability relies on sociocultural logic. Emplotment taps into the practical and embodied experience of the author as well as the readers, since the common denominator of both is the life-world (Ricoeur, 2009, pp. 53–54). This means that literature cannot function without reference to this ultimate context which allows human meanings to be carried forth. Instead of increasing distance from lived experience, literary representations take up and configure certain aspects of the life-world, thereby imbuing them with particular meanings; this can open up greater understanding of various experiences, the sociocultural world, and the self.

Tackling the fundamental ecocritical question of the relationship between literature and the natural world, Kate Rigby (2004) argues that literature points to the unsayability of nature to good effect (pp. 436–437). That is, precisely because of its shortcomings, the medium fosters attunement rather than separation. Noting

the "dimension of being which, far from being made possible by human language, always somehow escapes it" (p. 435), she contends that if a "work of art is self-canceling, acknowledging in some way its inevitable failure to adequately mediate the voice of nature" (p. 437), it can reinstate the autonomy of the natural world. An awareness that some aspect of weather phenomena always remains beyond mediation (by scientific methodologies, narratives, art, and even language) is present in Leena's blog entries. The meteorologist writes about the appeal of the "pressure of the invisible, fierce, always present yet undischarged forces that surround us everywhere" but are "too large to be grasped from the point of view of an individual human being" (Sinisalo, 2021, p. 136). In this entry and elsewhere (p. 355; p. 437), she employs figurative language, comparing the weather to an unimaginably magnanimous animal. In one of the entries, Leena uses an analogy of a bear stepping into an anthill, describing the weather as

> "something a lot bigger than us, the motives or logic of whom would be impossible for us to understand, but we could make use of the recurrence of the phenomenon, or the fearsomeness of one instance, to build our collective memory and manage our future" (p. 200).

The meteorologist extends the analogy to lament that even if the planetary scale of the weather is beyond human experientiality, people nonetheless try to meddle with it, which should inevitably culminate in self-destruction. Leena's reflections on the grandeur and a particular rationale of the weather-animal overtly emphasize the absurdity of profit-driven technological efforts to control the natural world. Furthermore, the protagonist's use of figurative language stands in productive contrast to the abstractions of scientific discourse. By making the generally analytically inclined Leena resort to meaning-making through figuration, Sinisalo points out that the numinous weather (and, by extension, the natural world) transcends mathematizing representations and reduction to a manipulable standing reserve, thereby requiring alternative modes of engagement.

Against Anthropocentric Arrogance

Gutauskas (2019) marks that the Anthropocene and its resistance to quick technofixes "demands that we reconsider our assumptions about nature and reality on the whole. This implies establishing a distance from modernity […in an effort to] decentralize and de-totalize modern outlook" (p. 56) to eventually find new ways of attending to nature. With its imaginative potential, literature can invite readers to try on new conceptual premises and outlooks. This is especially true of speculative fiction that is able to "draw the reader into different cultural systems and to represent meetings of worldviews" (Attebery, 2024, p. 14) or invite revision of persistent cultural narratives by "testing the scientific understanding of reality" (p. 17; p. 20). As much as Sinisalo's depictions of technoscientific attempts at controlling the weather cast the modern human as a "free, self-determining being […] in regard to his capacities for rationally shaping himself and his surrounding world" (Husserl, 1984, p. 6), her satirical take on corporate realities, the protagonist's direct statements and the typically Sinisalian "radical mix of real and fictional" (Roine & Samola, 2018, p. 186) that renders the weather numinous work together to propose an alternative way of relating to the natural world.

Bruno Latour (2017) aptly points out that "the expression 'relation to the world' itself demonstrates the extent to which we are, so to speak, alienated", because it "presupposes two sorts of domains, that of nature and that of culture, domains that are at once distinct and impossible to separate completely" (pp. 14–15). The nature/culture binary, a modern invention that has become the target of contemporary ecocritical inquiry, is problematized in *SF* in two ways: by recognizing that humans are not separate from nature and by ascribing agency to the natural world. In one of her blog posts, Leena reflects on the multiple dualisms that pervade the Western way of thinking (Sinisalo, 2021, pp. 239–242), noting that human-imposed "distinction is sharp and unshakeable as in binary code" (p. 239), whereas in nature, boundaries are fluid or nonexistent. The meteorologist herself often effaces the typical distinction between the human and the natural: "our bodies are water (p. 330) or "all living beings operate by means of electricity, or, more specifically, electrochemically […] It would be hard to distinguish between human and electricity" (p. 213). Emphasized, for example, by Leena's comparisons of geological processes to those of human biology, and vice versa (pp. 298–299), the inherently natural origin of humans is a recurring notion with which the novel also concludes (p. 438). The protagonist's ideas accord with the embodied imaginary of climate change proposed by Neimanis and Walker (2014), who attempt to fight the dualism by rejecting the spatialized understanding of weather as something in which bodies are situated; instead, they reimagine human and nonhuman bodies as iteratively co-emergent with climate, which gives due to the immediate experience of weather as a means of thinking the unthinkable Anthropocene. In other blog entries, Leena explicitly resists the prevalent binary by observing the agency and rationale of weather, which runs counter to the modern deanimation of the world (Latour, 2017, p. 72).

Anti-dualistic theories such as Jane Bennett's (2010) vital materialism or Serenella Iovino's and Serpil Oppermann's (2014) material ecocriticism complicate long-established subject/object relations and decenter humans by casting the natural world as active and even articulative, capable of tangible influence. This way of thinking involves a hint of anthropomorphism, but as Bennett has it, in most cases, anthropomorphism works against anthropocentrism because it "can reveal isomorphism" (2010, p. 99) and invite empathy by allowing humans to comprehend matters that are otherwise hardly thinkable. Presenting the weather as a more-than-human agent and writing humans back into nature by linking physiological and meteorological realities warrants the claim that Sinisalo's rhetoric is inherently anti-anthropocentric.

However, it must be noted that anthropocentrism cannot be entirely abandoned. Gutauskas (2024) observes that anthropocentrism as an ideology of human exceptionalism should be distinguished from human anthropocentricity, which is a condition of experience, a peculiar foundation on which humans understand any other living being. Such inescapable anthropocentrism of the protagonist emerges in her recurring anthropomorphizing observations about the logic inherent to natural phenomena: "the weather has always been able to give and take […] It seems to have its own brain, with which it rewards or punishes. It is the lord of chaos that has been dominating us for so long, until we learn a little more about its motions" (Sinisalo, 2021, p. 71). While this projects nature as some essentially rational subject, instead of being interpreted as a manifestation of harmful anthropocentrism, such passages can be read as indicative of the weather's numinosity. The unsayable otherness of weather demands poetic devices, and the protagonist's anthropomorphization, which allows her to engage with what's hardly thinkable, merely reflects her anthropocentricity. Since magically evoked thunderstorms cannot fit any kind of scientific representation of the world, the flute challenges Leena's scientific thinking, making her turn to literary means to mediate her bewildering experiences of weather phenomena. The protagonist's poetic rather than scientific ponderings are exactly how the numinous agency of the natural world comes to the fore.

The genre of eco-magical realism itself adds to the critique of the environmentally harmful idea of human superiority that debases nature into a controllable resource. For Amitav Ghosh (2016), a "renewed awareness of the elements of agency and consciousness that humans share with many other beings" is one of the positive effects of Anthropocene thinking (p. 63); he notes that such awareness, while suppressed in the dominant Western thought, was not abated in the literary tradition of the fantastic that often blends science with imagination, thereby resisting the modern project of partitioning culture and nature (pp. 64–69; pp. 71–72). This rupture is already overwritten by the novel's title, which refers to a fulgurite formed by the fusion of electricity and sand, but is given the name of a cultural object. The "storm flute" bridges natural phenomena and humans who can call forth thunderstorms because of their own internal electricity. Furthermore, the fulgurite makes the novel a hybrid of realism and fantasy. Equally attentive to the mythical and the scientific ways of making sense of the weather, Sinisalo employs weather anomalies as a "destabilizing" device that works across "both intra- and extra-textual levels" (Rogers, 2021, p. 1581): within the novel, the willfully summoned thunderstorms resist rationalizations and thereby refute Leena's scientifically-versed way of thinking; at the same time, they disrupt the otherwise realist mode of the narrative. By transforming consensus reality, the magical storm flute conspicuously draws attention to the boundaries between realism and fantasy, myth, science, and fiction, as well as humans and nonhuman nature, inviting readers to consider the implications of technological weather modification and ultimately calling for a reorientation away from anthropocentric arrogance.

Conclusion

Drawing on phenomenological considerations, this econarratological reading argued that by taking on the largely unexplored question of human relationship to the protean phenomenon of weather, Sinisalo both represents and criticizes the controlling attitude towards the natural world characteristic of modernity. This attitude is foregrounded by the plot-defining technological manipulations of weather conditions attempted by a profit-driven corporation. The novel also encapsulates how precarity creates the urge to control external circumstances, which extends into the need to gain mastery over the natural world. The one magical device that the protagonist uses to secure her position in the face of disempowering circumstances further thematizes control. To satirize it, Sinisalo adds information external to the narrating consciousness of the protagonist and folds together different planes of awareness, the personal and the planetary. This adds a new dimension to Leena's predicaments, dramatizing how everyday experiences and choices are complicated in the Anthropocene. Discussing the novel's form and its engagement with meteorology in a phenomenological context, this reading juxtaposed the process of meaning-making of weather phenomena through literary means, such as emplotment and figuration, with scientific methodologies, arguing that by making the protagonist/narrator transition from a preference for the latter to reliance on the former, Sinisalo returns a sense of numinosity to the well-researched and understood weather phenomena. As the magical fulgurite re-

mystifies the weather and turns Leena's mathematized world strange again, the meteorologist resorts to figurative language as another kind of enframing that does not aim at control but instead endorses the agency and numinosity of the natural world through anthropomorphization.

With its phenomenological interest in experience and mediation, this reading contributes to the existing econarratological scholarship by affirming the value of imaginative literature in the era of the Anthropocene. Returning readers to immediate weather as something that mediates between humans' inevitably local experientiality and large-scale climatic realities, Sinisalo's novel shows how contemporary novels can hold together different dimensions of experience and thus engage with the elusive nature of the Anthropocene, a product of scientific engagement with the natural world that perplexes the practical human mind. Taken together, the formal strategies, plot development, and the thematic dimension of the novel prompt reflection that, while modern sciences alienate humans from the empirical-intuitive plane, literary means allow "us to negotiate an existential balance between ourselves and such spheres of otherness" (Jackson, 2002, p. 41) that ultimately overflow scientific abstraction and other forms of mediation. That is to say that literature allows for engagement with nature that is sensitive to its unfigurable depth, attuning readers to the inexhaustible experiential potential of the natural world.

Attentive to the ways in which "literary forms can encode environmental meaning" alongside "the effect that meaning can have on readers" (James, 2015, p. 29), econarratology facilitated insight into the fundamentally anti-anthropocentric configuration of the natural world offered up by Sinisalo as an alternative to the extractivist attitude dominant in the technoscientific hegemony of the Age of the Human. The analyzed eco-magical realist novel acknowledges the agency and numinosity of weather, underscoring that it is not to be reduced to an asset, technologically manipulated, or commodified. Instead, *The Storm Flute* invites readers to rethink the reductive and rigid boundary between humans and the natural world—an invitation that Sinisalo offers up by casting the weather as an uncontrollable other, only to remind us that such otherness is an inherent part of humans.

Notes

[1] *Ukkoshuilu* is the Finnish title of the novel, which can also be translated as *The Thunder Flute*. Since the novel has not yet been translated into English, the translations from Finnish provided here are done by its author.

[2] The numinous is explored in relation to both ecocriticism and the studies of fantasy literature by Brawley (2014).

[3] Circulating since approximately 2012, *Capitalocene* refers to "the historical era shaped by the endless accumulation of capital" as Moore defines it (2017, p. 596). He conceives of the systems of production, profit and power as a way of organizing the natural world, arguing that the never-ending capitalist pursuit of gain turns both nature and humans into resources, exploitable until they become exhausted.

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